



MANCHESTER MUSEUM COURTYARD PROJECT
UNIVERSITY OF MANCHESTER

DESIGN & ACCESS STATEMENT
MAY 2021

REVISION A

Tom Brigden
St James', 79 Oxford Street, Manchester M1 6FQ
tom.brigden@purcelluk.com
+44 (0)161 300 7747
www.purcelluk.com

All rights in this work are reserved. No part of this work may be reproduced, stored or transmitted in any form or by any means (including without limitation by photocopying or placing on a website) without the prior permission in writing of Purcell except in accordance with the provisions of the Copyright, Designs and Patents Act 1988. Applications for permission to reproduce any part of this work should be addressed to Purcell at info@purcelluk.com.

Undertaking any unauthorised act in relation to this work may result in a civil claim for damages and/or criminal prosecution. Any materials used in this work which are subject to third party copyright have been reproduced under licence from the copyright owner except in the case of works of unknown authorship as defined by the Copyright, Designs and Patents Act 1988. Any person wishing to assert rights in relation to works which have been reproduced as works of unknown authorship should contact Purcell at info@purcelluk.com.

Purcell asserts its moral rights to be identified as the author of this work under the Copyright, Designs and Patents Act 1988.

Purcell® is the trading name of Purcell Architecture Limited.

© Purcell 2019



PURCELL

MANCHESTER MUSEUM



Supported by
The National Lottery®
through the Heritage Lottery Fund



RAA

Planning Design Media



MAX FORDHAM

BURO HAPPOLD
ENGINEERING

MANCHESTER MUSEUM COURTYARD PROJECT

SUPPLEMENT A

SUMMARY OF CHANGES TO PLANNING

This Design & Access Statement sets out the development of the proposal for extending the Manchester Museum to provide a new South Asian Gallery (SAG) and a larger Exhibition Hall. This supplement supports the Application to Vary Condition 02 submitted May 2021.

The proposed entrance on Oxford Road infills the section of moat in front of the Howarth Building and Howarth Extension and provides access to the Museum through the formation of a door opening on the elevation. A previous variation to condition application covered the introduction of the entrance on Oxford Road, and this application seeks to gain approval for minor changes to the approved design.

The new proposal includes the extension of the new entrance slope/stair to fully infill the moat. This maximises the width of the entrance approach to the Museum main entrance without constraining the busy pedestrian highway on Oxford Road. The expansion of the entrance approach provides benefits in terms of accessibility and visitor circulation whilst also enabling the new structure to act as the waterproofing layer which will help protect existing services and historic fabric.

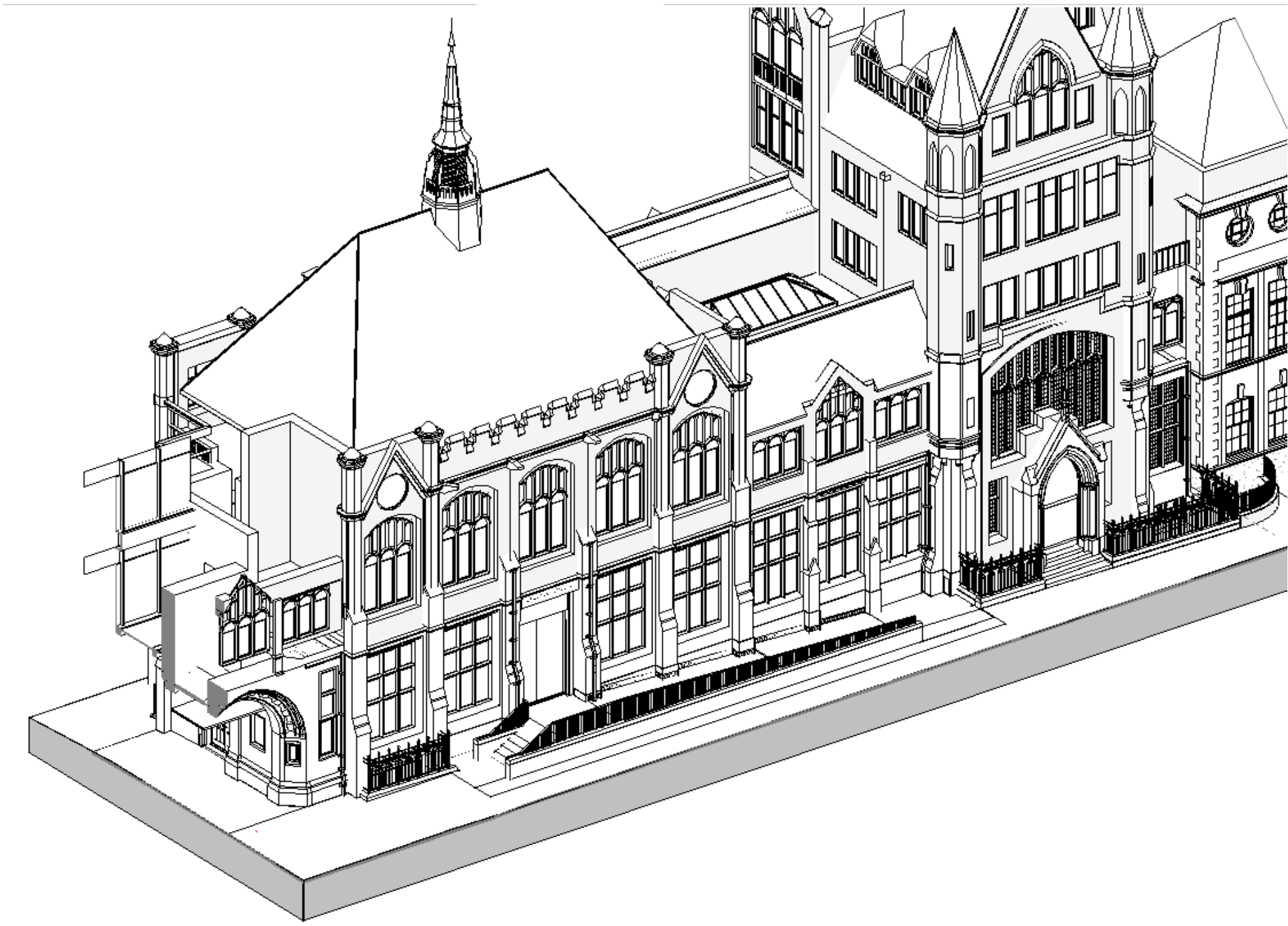
To ensure a simple and clean aesthetic, a zinc skirt has been added around the perimeter of the existing building to conceal and protect the waterproof membrane.

The complete infill of the moat also means that the glass balustrade along the building is no longer required as there is no longer a risk of falling. The removal of this guarding helps to simplify the aesthetic and makes visible more of the historic facade.

To ensure that the public can interpret that the entrance approaches bridges over the historic lightwell, there will be a differentiation in materials along the slope, landings and steps to help denote the line of the moat.

To improve visibility and help with visitor way-finding, the retaining wall has been reduced in height to the minimum required, and a metal handrail/guarding is proposed on top. This provides visitors and the public with a better view of the historic facade and a clearer route to the museum main entrance.

The above proposals are deemed to have a neutral impact on the historic building when compared to the approved scheme, and improve accessibility through improved visibility and a wider approach which makes it easier for people in wheelchairs to navigate.



MANCHESTER MUSEUM COURTYARD PROJECT

CONTENTS

MANCHESTER MUSEUM COURTYARD PROJECT	03	7.0 DESIGN DEVELOPMENT	30	17.0 SUSTAINABILITY	55
		7.1 Design Approach	30	17.1 Sustainable Design	55
1.0 EXECUTIVE SUMMARY	04	7.2 Site Concept	30		
		7.3 Architectural Concept Development	31	18.0 OPERATION,ACCESS & MAINTENANCE STRATEGY	56
2.0 INTRODUCTION	05	7.4 The Proposed Accommodation	32	18.1 The Organisation and How It Manages the Building	56
2.1 Purpose of the Report	05			18.2 existing Management Standards	56
2.2 The Manchester Museum Courtyard Project	05	8.0 ENTRANCE PROPOSAL	33	18.3 Waste Management Strategy	56
2.3 Credits	05	8.1 Oxford Road Entrance Study	33	18.4 Cycle Storage	56
		8.2 New Entrance Proposal	35		
				19.0 PLANNING POLICY AND NATIONAL CONTEXT	57
3.0 UNDERSTANDING THE MUSEUM COMPLEX	06	9.0 GALLERY PROPOSAL	39	19.1 National Planning Policy	57
3.1 Background	06	9.1 Gallery Brief	39	19.2 Local Planning Policy	58
3.2 The Vision	07	9.2 Gallery Floor Plans	40	19.3 Local Conservation Policy	59
3.3 The Museum Complex	08	9.3 Gallery Sun Path Analysis	44	19.4 Local Regeneration Policy	59
3.4 The Current Exhibition Hall	09	9.4 New Exhibition Hall	45	19.5 Desing Guidance	59
3.5 British Museum (BM) South Asian Gallery (SAG)	09	9.5 South Asia Gallery (SAG)	46		
3.6 Challenges & Opportunities	10			20.0 CONCLUSION	60
3.7 Engagement Through Activities	11	11.0 STRUCTURAL PROPOSALS	47		
3.8 Consultations and Further Information	11	11.1 Structural Design Proposals	47	APPENDICES	60
3.9 Stakeholders	11				
3.10 Statutory Consultees	12	12.0 MEP PROPOSALS	48		
		12.1 Introduction	48		
4.0 SIGNIFICANCE & CONSERVATION FRAMEWORK	13	12.2 Existing and Proposed Alterations	48		
4.1 Heritage Context	13	12.3 Proposed Works	48		
4.2 Conservation Plan & Gazetteer	13	12.4 Summary of Proposed Systems	48		
4.3 Methodology	14				
4.4 Statement of Significance	14	13.0 LANDSCAPE PROPOSALS	49		
4.5 Conservation Management Plan	16	13.2 LandscapE	50		
4.6 Condition Survey	16				
4.7 Building Development Timeline	16	14.0 ACCESSIBILITY	51		
4.8 Significance Plans	18	14.1 Access APPRAISAL	52		
4.8 Archaeological Desk-based Assessment	19	14.2 designing for dementia	52		
4.10 Heritage Impact Assessment	20				
		15.0 INVESTIGATIONS & ASSESSMENTS	53		
5.0 CONSERVATION PHILOSOPHY AND APPROACH	21	15.1 Crime Impact Statement	53		
5.1 Conservation Philosophy	21	15.2 Asbestos Survey	53		
5.1.1 External Conservation	21	15.3 Ground Investigation	53		
5.1.2 Internal Conservation	22	15.4 Noise Survey	53		
5.1.3 Masonry Repairs	23	15.5 Intrusive Surveys	53		
5.1.4 Roof Repairs	24	15.6 Ecology Surveys	53		
5.1.5 Rainwater Goods	24	15.7 Air Quality aAssessment	53		
5.1.6 Cast Iron Railings	24				
		16.0 SOCIAL RESPONSIBILITY	54		
6.0 SITE ANALYSIS AND STRATEGY	25	16.1 Social Responsibility	54		
6.1 Site Analysis	25	16.2 Employment and Skills	54		
6.2 Site Constraints	26				
6.3 Site Photographs	27				
6.4 Courtyard Development	28				
6.5 Simpson Extension	28				

I.0 EXECUTIVE SUMMARY

This Design & Access Statement sets out the development of the proposal for extending the Manchester Museum to provide a new South Asian Gallery (SAG) and a larger Exhibition Hall.

The Manchester Museum is one of the UK's great regional museums and its largest university museum. The collection includes over four million objects that have been formally designated by the government as being of national and international importance.

The Department of Culture, Media and Sport (DCMS) has made a financial commitment to supporting a British Museum partnership gallery at Manchester Museum on the theme of the history and culture of the Indian sub-continent.

The 300m² gallery will display a permanent installation on the history and culture of the Indian sub-continent. The gallery and its accompanying programme of engagement will draw a regional audience of people from the South Asian diaspora (who comprise 8.6% of Greater Manchester's population) alongside a regional, national and international audience of day visitors and tourists.

The current temporary exhibition space is 184m². When compared to similar institutions this is very small (MOSI 750m², Birmingham and Wellcome Trust 650m²) and therefore the Museum is unable to take or develop any international touring shows that museums of a comparable scale and scope in the UK and North America routinely exhibit. Though this development we will aim to achieve a 430m² special exhibition space.

In order to address this issue, the Museum wishes to expand the size of its temporary exhibition space, so that it can offer services to compete with the best non-national museums internationally, in a way appropriate both to the scale of the collections and the ambitions of the University. The project intends to broaden the reach of the Museum, attracting visitors who do not currently visit by showing high-class exhibitions and

staging fantastic events in a flexible gallery that is in keeping with the aspirations of the Museum.

A number of previous feasibility studies by ZMMA (November 2015), Buttress Fuller Alsop Williams (Nov. 2012)) and Ian Simpson Architects (November 2009) have established both the need for a larger, more flexible Exhibition Hall and for the museum to be extended in order to achieve this.

The Museum occupies a series of linked listed buildings on Oxford Road, the most eminent being the first built in 1888, and designed by Alfred Waterhouse. In 2003 the museum was extended to provide a new accessible entrance through the courtyard. Although greatly improving access, the courtyard arrival route has made the entrance more difficult to find as it has limited street presence on Oxford Road, and for this reason the project intends also to relocate the entrance. Manchester Museum is housed in a series of listed buildings therefore extensive consultation has taken place with Manchester City Council planning and conservation officers in addition to Historic England, the Victorian Society and Manchester University historians. This has been an essential part of the design process and key to the successful outcome of the project.

Following RIBA Stage One option development by ZMMA in 2015 and in discussion with the client representatives from both Manchester Museum and University of Manchester (UoM) the design team have developed proposals locating the Exhibition Hall at ground floor level with the SAG above at first floor and re-orientating the entrance to Oxford Road.

Historic significance

To support the project updates to the Conservation Statement and Gazetteer were prepared by Buttress architects for the University of Manchester. The findings and policies contained within are summarised in this report and have been used to inform the proposals.

The group value of the museum buildings and their continued historic use and ownership by the University of Manchester, and the Manchester Museum's connections with wider heritage themes – the British Museum collection, education, public engagement and the long history of natural history collections – are the primary factors contributing to its significance. It was therefore the principal recommendation of this Conservation Plan that these feature prominently in the regard for the museum and for developing the design proposals.

The policies address both a holistic approach to conservation in terms of the wider museum and its role in public engagement; and, specific items and areas suggested for special consideration. The prominence of the primary elevations to Oxford Road and towards the Quadrant gives these elements High significance as part of the historical heart of the university.

The Rutherford building adjacent to the Manchester Museum is utilised for storage at ground and first floor on the south side of the courtyard. This building is where Ernest Rutherford carried out his ground-breaking research resulting in the birth of nuclear physics.

Community Benefit

The project has Social Value at its core and will maximise employment opportunities for local people. It is an opportunity to develop the museum's volunteering programme and promote the acquiring of skills with targeted recruitment and training opportunities. Many of the people who are hoped to benefit from these opportunities will be local people from Rusholme, Hulme and Longsight and other communities in and around the Museum.

The design and project team will provide training/work placement opportunities throughout the development and delivery phases, creating a highly skilled workforce. During the construction stage we will ensure that the contractor provides traineeships for young people to become

involved with the construction industry and craft skills, promoting employment of local people, seeking to return to work, supporting them with access to the training and development resources to deliver this commitment.

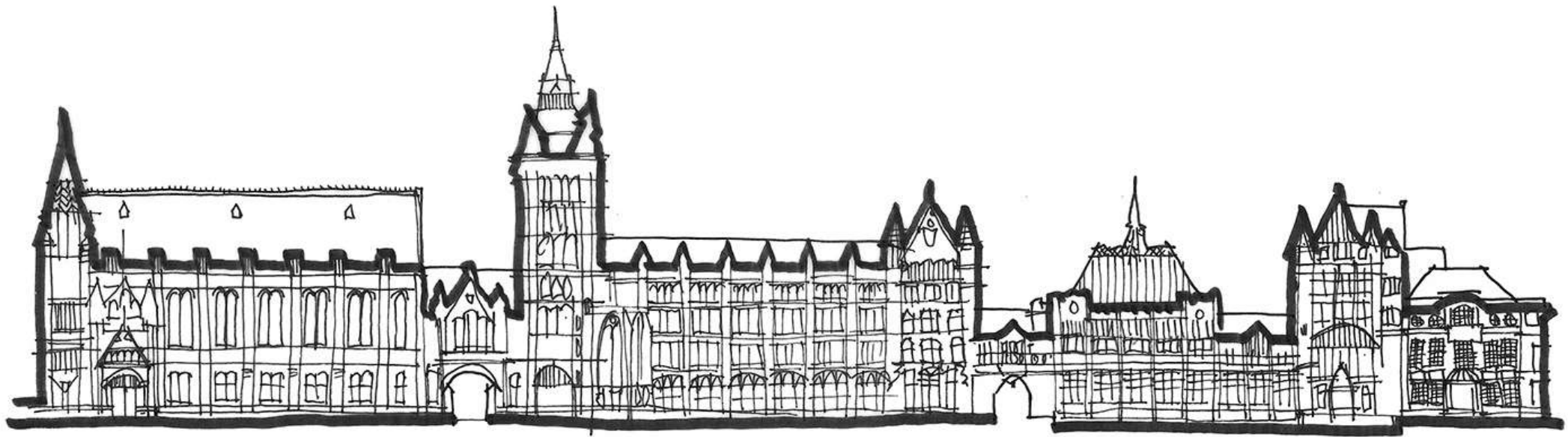
The Proposals

The concept design of the building and exhibition spaces has evolved through coordination and refinement, developing the detail within the scheme, through an open dialogue with all stakeholders. The proposals provide, open and flexible gallery space that the museum requires to meet its aspirations for the Exhibition Hall and SAG galleries. The new visitor entrance and re-ordered 'front of house' to Oxford Road, are intended to ease some of the congestion and visitor flow issues currently experienced by the museum, and provide the museum a proper public presence on Oxford Road. Overall, the building has become more efficient in terms of space usage and a stronger emphasis placed on the core functions with visitor experience improved through wayfinding.

The intention is to maintain and enhance the key elements of Manchester Museum's character and significance whilst ensuring that the interventions are of sufficient design quality and contrast so as to sit comfortably alongside the historic fabric.

The scheme has been developed holistically with structural, services and access strategies forming an integral part of the overall concept with input from a number of key stakeholders and feedback from consultation events.

The result is a careful reimagining of the museum's public presence approach, entrance sequence, orientation and visitor routes which offers the local community, school parties and public alike a new, a more exciting and accessible visitor experience, whilst maximising the offer of this significant heritage asset.



2.0 INTRODUCTION

2.1 PURPOSE OF THE REPORT

This Design and Access Statement (DAS) explains the proposed scheme and how it has developed. In collaboration, Purcell have developed the design proposal, to a Full Planning and Listed Building Application, for which, this report supports.

This DAS contains a summary of the site context, analysis, design proposals ,massing and depicts the progression and thought processes of the design team throughout the design process.

This document analyses the site and the surrounding buildings and describes the design and the contributions along with the key policies and design considerations. It then explains the resulting design solution. It should be read in conjunction with the proposed drawings.

2.2 THE MANCHESTER MUSEUM COURTYARD PROJECT

Manchester Museum, part of The University of Manchester, is planning to extend its historic buildings to accommodate a new, South Asia Gallery (SAG) in partnership with the British Museum, and a new Exhibition Hall (Exhibition Hall).

Along with the proposed new galleries in the historic courtyard, the project also considers the impact of the extension on the museum's layout as a whole, taking account of the entrance, visitor routes and flow, as well as critical adjacencies of ancillary and related functions within the museum.

2.3 CREDITS

Purcell would like to thank a number of contributors for their assistance with and/or content which has been integrated into this report:

- Manchester Museum
- University of Manchester
- ZMMA Architects
- Buttress Architects
- Members of the design team.



3.0 UNDERSTANDING THE MUSEUM COMPLEX

3.1 BACKGROUND

The Manchester Museum is one of the UK's great regional museums and its largest university museum. It is unusual among university museums in that it combines natural history and humanities collections (from fossils and insects, to Egyptology and archaeology) collected over a period of three centuries.

The collection includes over four million objects, only a tiny percentage of which are on display. They come from all over the world and many are rare, unique and historically important specimens.

Twenty years ago the Museum had about 120,000 visitors a year. Following major investment in the late 1990s and early 2000s numbers increased to 200,000, which was the target expected by the redevelopment. In the last eight years, visits have more than doubled again to 465,000, and are still rising. This is a tremendous success, based in part on a rolling programme of renewal of permanent galleries, and a concerted effort to develop attractive and engaging temporary exhibitions and public programmes.

Audiences

The proposed new galleries must satisfy the needs of a diverse, general interest audience, including nearly 30,000 primary school students who visit each year. The museum has a diverse local audience and is committed to engaging people of a wide range of abilities, backgrounds and interests with its displays and programmes. The Museum is one of the key visitor attractions of the University of Manchester, connecting visitors with cutting-edge research in exhibitions and events.

The project intends to broaden the reach of the Museum, attracting visitors who do not currently visit by showing high-class exhibitions and staging fantastic events in new flexible galleries, in keeping with the aspirations of the Museum.

The Client

Manchester Museum is a 'global' museum, dedicated to bringing people from all backgrounds together to provoke debate and reflection about the past, present and future of earth and its inhabitants.

The museum has been delighting, inspiring and educating visitors for over 125 years.

Situated within one of the world leading universities, Manchester Museum's combination of the academic and the popular is what makes it so distinctive and lies at the heart of its widespread appeal.

The museum is:

- The largest university museum in the UK,
- Owned and operated by the University of Manchester
- One of the leading visitor attractions in the North West of England, welcoming over 450,000 per year
- Renowned for its award winning schools programmes (30,000 visits per year), public engagement and volunteering initiatives
- Dedicated to maintaining free admission to all its galleries and exhibitions.

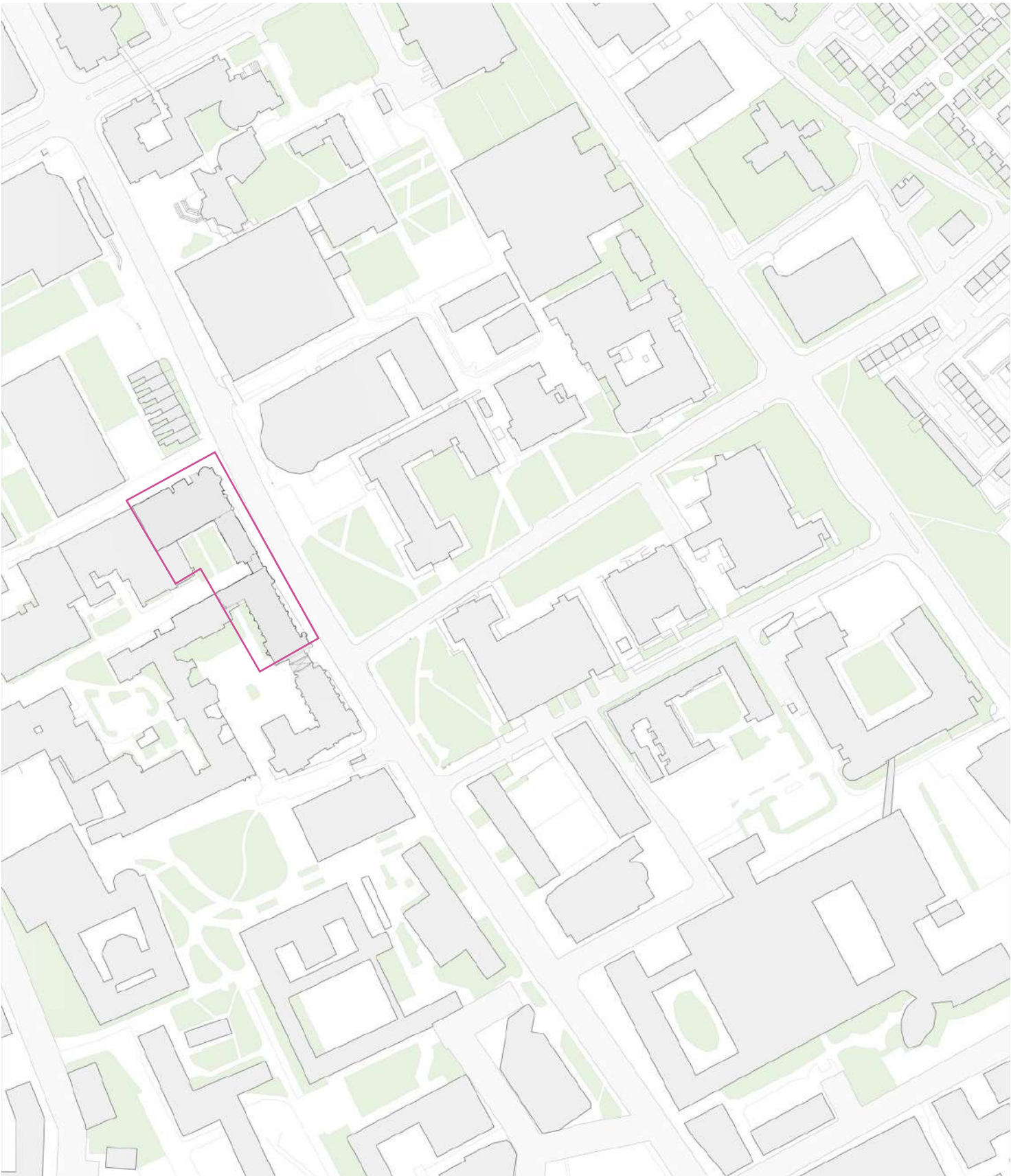
University of Manchester

The University of Manchester is a red brick university, originally a product of the civic university movement of the late-19th century. In its current incarnation, it was formed in 2004 by the merger of the University of Manchester Institute of Science and Technology and the Victoria University of Manchester.

It is the second largest university in the UK with 38,590 students and 10,400 staff.

The University is undertaking a £1 billion 10 year masterplan 2012 -2022 to create a single 'campus' for the University centred around Oxford road. The university is currently the largest located on a single site. The unified university estate will not be a true campus as it remains integrated into the city fabric, respecting the original street network and the east-west access routes inherent in the local area.

The University owns and operates other major cultural assets in and around Manchester including The Whitworth, John Rylands Library and Jodrell Bank Observatory.



Manchester Museum in the University 'campus'

3.2 THE VISION

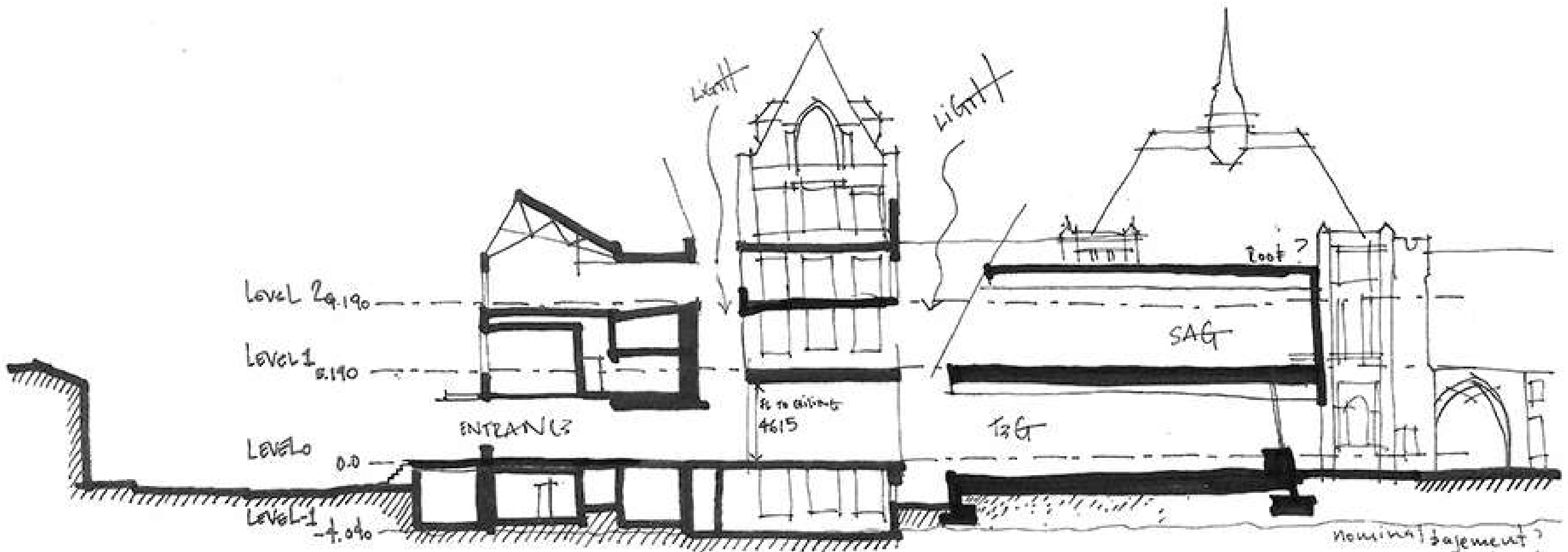
The Manchester Museum Courtyard project has a wide cultural and artistic scope encompassing community engagement, natural history, education and the arts.

The Manchester Museum Courtyard extension will create a major new Special Exhibitions Gallery, providing almost three times as much space as the Museum currently has for special and touring shows. The new facility will enable the Museum to become one of the North of England's leading venues for producing and hosting international-quality exhibitions on human cultures and the natural world.

In addition, a permanent South Asia Gallery will be created in a landmark partnership with the British Museum. Bringing together the very best of Manchester Museum's own South Asian collections and world-class sculpture, textiles and artefacts from the British Museum, the Gallery will explore the history and culture of South Asia and its relationship with communities in the North West of England.

Wide ranging improvements to visitor facilities – including a new street-facing entrance to create a much more visible and welcoming first impression – will enrich the experience and comfort of all. Particular emphasis will be placed on accessible design for older visitors and people with a disability.

The Courtyard Project aims to redefine the social purpose of the Museum. Inspired by the idea of a 'museum for life', it will place health, well-being and social inclusion at the very forefront of the Museum's role. Physical improvements will be accompanied by greatly enhanced opportunities in education and public engagement, supported by 120 new, trained volunteers.



Concept sketch section 2017

3.3 THE MUSEUM COMPLEX

The Museum occupies a linked series of listed buildings on Oxford Road, from Bridgeford St, extending over Coupland St and onto the University main quadrangle.

The buildings were constructed between 1888 and 1927. In 1888 the museum funded its first museum building on Oxford Road, designed by Alfred Waterhouse. **A** In 1912 Alfred's son, Paul Waterhouse, designed an extension to the museum, known as the Haworth building, **D** and an annex was added the following year. **E** In 1927 the museum was extended once more, **F** this time designed by Alfred's grandson, Michael. The latest large extension came in 1977 when the museum acquired the premises vacated by the University Department of Metallurgy; this building was designed by Charles Heathcote and Sons in 1908 as the Dental Hospital **C**. In 2003 the Museum opened a new entrance building off Coupland Street, and the café was developed in the former Dental Hospital building **G**.

The cluster of buildings form a courtyard, and since the 2003 extension this has been the entrance route into the Museum. The courtyard is currently a series of ramped planes that take the visitor from pavement level to ground floor inside the museum. The courtyard as a space was realised as part of the 2003 redevelopment work, the area pre 2003 provided a dead end service access to the museum.

The courtyard is flanked by the Rutherford Building. **B**

The buildings are University-owned, along with Bridgeford Street and part of Coupland Street.



Site layout. Please note: buildings are listed in the order of their construction

SITE LAYOUT

Site Location

- A 1885 Alfred Waterhouse Building
- B 1901:Rutherford Building
- C 1908: Dental School
- D 1912: Haworth Building by Paul Waterhouse
- E 1913: Extension to Haworth Building by Paul Waterhouse
- F 1927: Extension Building by Michael Waterhouse
- G 2003: New Museum Entrance

3.4 THE CURRENT EXHIBITION HALL

The current temporary exhibition space is 184 m2. This compares with 480 m2 at Tyne & Wear Museum, 500m2 at Birmingham Museum and Welcome Trust, 650 m2 at World Museum Liverpool, and 750 m2 at MOSI and the Field Museum in Chicago, all of which are comparable institutions.

The small size of the temporary exhibition space means that the Museum is currently unable to take any inter-national touring shows that museums of a comparable scale and scope in the UK and North America routinely exhibit.

For example, recently the Museum had to turn down an offer of a major exhibition from the National Museum in Vienna, as the minimum space required was 500m2, and the Natural History Museum in London has rejected an offer from the museum to co-develop an exhibition on animal mummies generated from research in the University, because the space is far too small for the exhibition to be able to transfer to them from Manchester.

Recent exhibitions deriving from University research such as Coral and Breed have been well received by visitors, and have demonstrated a real thirst for research-informed exhibitions. However, the size of the space means that such shows are necessarily limited in scale, and cannot be marketed as significant attractions in their own right. In addition, visitors have commented on having had a poor-quality visiting experience at busy times, when conditions become rather cramped.

In order to address this issue, the Museum wishes to expand the size of its temporary exhibition space significantly so that it can offer services which are comparable with the best non-national museums internationally, in a way appropriate both to the scale of the collections and the ambitions of the University.

At present, there is no museum in the Manchester city-region or beyond which is undertaking large exhibitions on the themes relating to natural history and human cultures covered by the Museum. The provision of this facility would be a major addition to the cultural infrastructure of the region, complementing large scale spaces for temporary shows of art (Whitworth, Manchester Art Gallery) and science (MOSI), and contributing significantly to Manchester's aspirations as a cultural destination.

Manchester Museum is committed to providing free content. Currently there is no plan to charge for entry to temporary exhibitions however there may be exceptional requirements for ticketing. The Exhibition Hall space is to be designed to allow for control of visitor numbers within the exhibition.

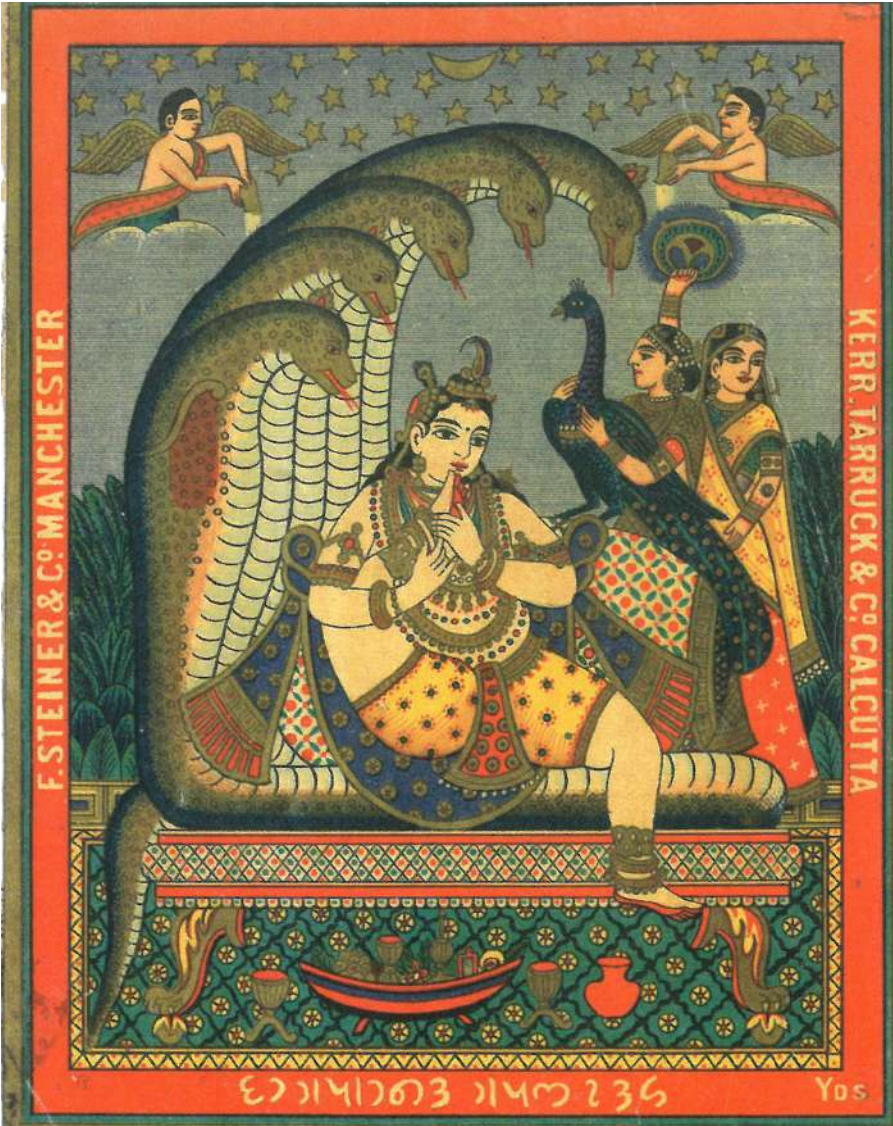
3.5 BRITISH MUSEUM (BM) SOUTH ASIAN GALLERY (SAG)

In April 2015 the Manchester Museum entered into discussions with the British Museum and the Government on a proposal to develop a BM Partnership Gallery at the Manchester Museum, on the theme of the history and culture of the Indian sub-continent. The government has subsequently made a commitment to providing financial support for this development.

The 300 m2 gallery will display a permanent installation on the history and culture of the Indian sub-continent. It will draw on the best of the British Museum's collections and expertise and be developed in close consultation with local communities. It will show the long history of the subcontinent as a contact zone between different cultures, including the extensive relationship with Britain, and the impact of South Asia on British culture, from textiles to food. It will end with the story of the last hundred years to make links between the subcontinent and populations in Britain today. The gallery and its accompanying programme of engagement will draw a regional audience of people from the South Asian diaspora (who comprise 8.6% of Greater Manchester's population) alongside a regional, national and international audience of day visitors and tourists.

The opportunity to create the SAG is closely linked to a major milestone: the 70th anniversary of Indian independence and Partition in August 2017. Treasury's commitment of £5million is directly connected to this purpose, emphasised by the recent announcement of a UK-India Year of Culture in 2017. Without demonstrable progress by the anniversary, funding would be in real danger of being withdrawn.

Investment in culture has been a major element in Manchester's recent renaissance. A recent independent study showed that the key cultural organisations received 4.5 million visits p.a., 741,000 involving overnight stays, and generated £87million GVA. With this investment, Manchester is developing a cultural ecology commensurate with an international-quality destination. Currently, the crucial area of under-provision is in large-scale exhibitions on the natural world and human cultures. Despite the huge public appetite attested in London museums, and the importance of the STEM agenda⁰¹ in learning, nowhere in the city-region has the facility to engage a broad public with these subjects.



⁰¹ STEM science and research are major contributors to the prosperity of the UK. For our prosperity to continue, the government believes we need high levels of skills in science, technology, engineering and maths (STEM), and citizens that value them.

<https://www.gov.uk/government/publications/2010-to-2015-government-policy-public-understanding-of-science-and-engineering/2010-to-2015-government-policy-public-understanding-of-science-and-engineering>

3.6 CHALLENGES & OPPORTUNITIES

Existing Museum Layout and Constraints

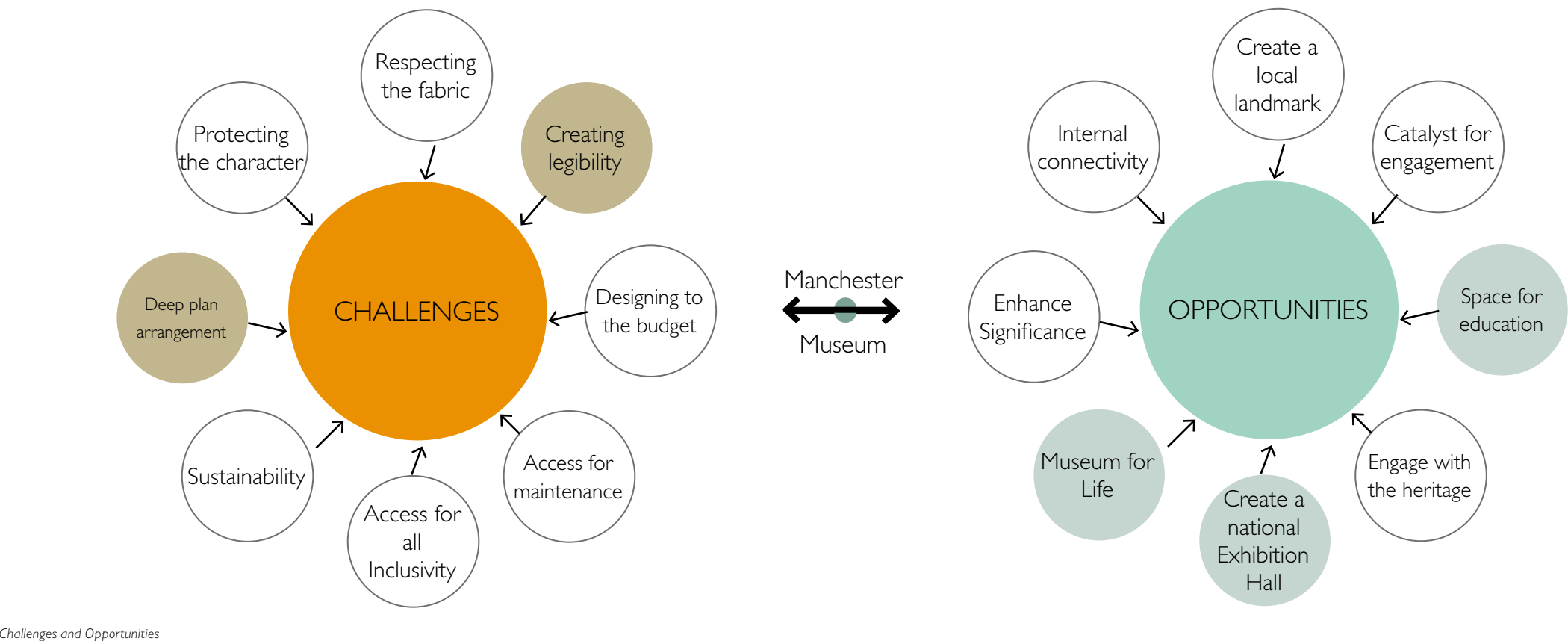
From discussions with the Museum it has been established that:

- Fundamentally, the existing Exhibition Hall is too small.
- The entrance is difficult to find.
- The entrance space as currently configured does not work well, there is little space for school groups to congregate, but at the same time in quiet periods it suffers from the 'tumbleweed' condition.
- The café is well located on Oxford Road, and potential relocation is not considered as part of this project, Cafe overspill is required to increase covers this will be service via a pop up coffee shop serving 'grab & go coffee'.
- The café ancillary space is under-used the provisions can be consolidated into a smaller area.
- The shop is about the right size, however and enlarged footprint would be preferable, but relocation with a visible shop window is desirable
- It is desirable to improve the spatial arrangement of the entrance, café and shop to give them a greater street presence.
- The relationship between the loading bay, goods lift, conservation studios and workshops above and Exhibition Hall work well - the new proposal will need to maintain these links.
- At busy times lifts to the basement gets congested with people going to the toilets.
- The existing discovery space works very well as a series of flexible rooms directly off the main entrance, so the extension should not impinge into this.
- Ground floor use is at a premium for public functions, and so back of house uses that could be positioned on other floors should be considered for relocation.

Environmental Impact

Positive measures will be embedded through:

- Extensive public engagement with high-impact exhibitions and programming around climate change, biodiversity and environmental sustainability
- The new spaces will rely on mechanical ventilation and cooling to the galleries. Humidity control is passive using buffered display cases, the design has progressed to address concerns around the practicalities of the proposal, in particular the maintenance of the floor voids used for air distribution and issues with pest control.
- Controlled daylight, LEDs and visitor sensor lighting technologies
- Implementing the Touring Exhibitions Group's best practice for sustainable exhibitions, including recycling, transportation, packing materials, exhibition build/equipment, lighting and waste management.



3.7 ENGAGEMENT THROUGH ACTIVITIES

Manchester Museum set out their proposed programme of activities in the HLF Round 1 bid. These will be used as drivers in determining the architectural response to the brief.

Capital expansion will be accompanied by an ambitious step-change in our public, learning and volunteering offer. The activities programme will be at the heart of the ‘museum for life’, harnessing our collections and spaces effectively in support of Manchester’s aspiration to be a ‘liveable city’.

Two strands define this approach:

Lifelong:

Working with audiences to inspire a culture of lifelong visiting and learning, from the very youngest visitors, to age-friendly work with community elders.

Example activities will include:

- Intergenerational Museum: school pupils and older people brought together as co-learners; sharing insights, conversations and new perspectives about our collection, the wider world and themselves
- Dementia-friendly Museum: complementing the physical improvements to our building, with new bespoke programmes in partnership with charities, care and health organisations and people living with dementia, supported by new befriending volunteers
- Museum choir: an intergenerational, intercultural choir, connecting to collections through song.

Lifewide:

Engaging people with big issues around intercultural understanding and sustainability. Activities will include:

- Catalyst: a festival of ideas, with the Museum bringing the public, academics, social entrepreneurs and educators together to spark discussion, activity and campaigns, linked to flagship exhibitions
- South Asia Performs: the SAG becomes a major platform for South Asian performance, residency space for upcoming artists, and a hub for arts and community organisations to develop and share new work
- Schools Programme: using the new SAG and high impact exhibitions to accommodate more schools, create stimulating curriculum content around South Asia, intercultural understanding and environmental sustainability, and undertake targeted Teacher CPD and programming with Supplementary Schools
- Citizenship: as a major civic space for Manchester, the Museum will host monthly citizenship ceremonies in partnership with the City Council, welcoming new Mancunians to their adopted home.

The activities programme will benefit extensively from expansion and diversification in our volunteering, focused around three strands:

‘Campaigner’ volunteers: enthusiasts recruited on an exhibition-by-exhibition basis for their skills and passion, to highlight issues they care about

South Asian Volunteers: through partnership with local groups to explore what volunteering means to South Asian communities, and creating personally tailored roles as community interpreters around our new SAG, where skills and knowledge can be shared with visitors, staff and other volunteers

Volunteer befrienders: developed with the city’s Age Friendly Cultural Champions to combat loneliness and extend our ethos of care.

3.8 CONSULTATIONS AND FURTHER INFORMATION

During the design development process consultation with the various stakeholders has been initiated. The consultation surrounding the Manchester Museum Courtyard Project will be an ongoing process continued throughout the course of the capital, and wider cultural project.

Manchester Museum are undertaking a series of public and academic engagement events for the Courtyard project. These are mainly being held in the Museum and are supported by the Manchester Museum staff and the design team.

Consultation undertaken is informing the development of the designs.

3.9 STAKEHOLDERS

- British Museum
- Manchester Museum Staff
- University of Manchester Architectural Historian
- University of Manchester Professional Services Unit
- Manchester Museum Estates
- Manchester Museum Design Group
- Victorian Society
- Historic England
- Manchester City Council



3.10 STATUTORY CONSULTEES

Manchester City Council Planning

10th March 2017, 7th April 2017, 4th August 2017, 1st March 2019, 7th June 2019, 25th July 2019

Tony Mitchell

As agreed further consultation has taken place with:
a. Norman Redhead Archaeology (GMAAS)
b. Ecology (GMEU)
c. Laura Miller (Environmental) (Ground Investigations & Air Quality)
d. Greater Manchester Police - Design for Security
e. Manchester City Council Highways Officer

Throughout the design process the client and architect met with Manchester city council’s planning team in a series of pre-application meetings to discuss the principle of the development and explain the iterative design development and decisions.

MCC queried whether the courtyard was originally designed / intended to be a courtyard and that the new entrance had been tested and evaluated against the heritage impact. This was demonstrated over a series of meetings held to review the historic development of the museum complex, sufficient evidence presented to demonstrate the courtyard was only created as part of the 2003 Simpson Extension. and is evident in the report.

Metal edge protection to the extension roof was discussed. This has been introduced above the stone cladding in order to allow light into the adjoining offices and museum spaces. The solid parapet, as previously proposed, would have overshadowed and been too dominant due to the close proximity of the new walls to the existing buildings.

Overall the latest changes were well received in the meetings and Manchester City Council was generally supportive of the scheme.

The scope of the Archaeological desk based assessment has been agreed by Purcell with GMAAS. The full report is included in Appendix D.

The scope of the Phase I habitat survey was agreed by Purcell with GMEU, the works have been undertaken by Rachel Hacking Ecology, additional information is contained within the report. The full report is included in Appendix J.

Air Quality Assessments and Ground investigations have also been undertaken as per the agreed scope agreed with MCC. The full report is included in Appendix H.

Manchester City Council Conservation Officer

26th July 2017, 1st March 2019, 7th June 2019, 25th July 2019

Paul Mason

This meeting was arranged outside of the planning meetings which were regularly held at the University in order to have sufficient time with Paul to discuss the Courtyard project. We presented the areas of significance by Buttress Architects and indicated how they were taken into consideration when developing the proposal of the modern insertion. We also emphasised that, despite the careful and respectful proposal, there will be some interventions which may be harmful to the existing listed buildings and they will be highlighted in the Heritage Impact Assessment.

Paul advised cleaning of the Rutherford Building and the former Dental School should be included in the works as these areas were not covered when the façade repair and cleaning of the museum were carried out last year. He also noted that the significance plan does not cover the Rutherford Building. Paul was concerned about not opening up the original Oxford Road entrance as this would look like the museum is closed. The team has previously explored the option of opening up the Oxford Road entrance but it was discounted due to the narrow dimensions of the opening which is not sufficient for current and prospected visitor numbers. Paul advised that the options that were explored should be included in the application in order to show the design development and consideration (this is included in Section 8.00).

Paul felt the new totem which is proposed next to the semi-circular bay of the former Dental School, would be too intrusive. He also felt that the proposed internal opening to create a continuous entrance lobby may result in too much original fabric being lost. Having further considered his comments, it was agreed that creating a new entrance on Oxford Road could be less intrusive to the historic fabric than a new entrance on Bridgeford Street. A new entrance on Oxford Road has been proposed in order to create a more visible, welcoming entrance and orientation space hence negating the need of a large signage totem, and to reduce harmful and structural intervention to the Grade II listed building. High quality materials are proposed to create the new entrance and they will complement the highly significant elevation of 1912 Museum Extension building.

Manchester City Council Highways

26th February 2019, 8th March 2019

Cliff Bretherton, Laura Honeybill, Neil Bayliss-Rowe

It has been necessary to consult with MCC Highways Officers as the new entrance on Oxford Road encroaches into the public highway. The team explained that the majority of the new structure would be accommodated in the existing moat (which is in the University’s ownership) in order to minimise new work in the public highway. This also minimises narrowing of the busy pavement. Cliff confirmed that a Section 247 application will be required and advised contacting the footpath societies ahead of the submission. The team have so far received no objections. Consultation with the Highways will continue post-submission in order to liaise with statutory undertakers.

Overall the Highways Officers were supportive of the scheme and appreciated the proposal which minimised the obstruction to the public highway.

3.11 AMENITIES SOCIETIES

Historic England

15th February and September 2017, 20th February 2019

David James

A meeting with David James was held in February, shortly after the Stage 2 submission. Various elevation options were presented including the proposed extension with pitched roof and oriel windows. David liked the sculptural approach and felt that the contemporary insertion within the historic environment would be appropriate on this occasion. He did not feel the building was over scaled. He was happy to see different options however he was unable to make written comments on them. We met again with David in September to present developed proposals. He was happy with our approach and followed it up with the letter of support as appended in Appendix F.

Victorian Society

1st August 2017, 8th July 2019

Mark Watson

It was a pleasure to meet Mark Watson who did not only give feedback on the proposal but also enchanted us with stories of the museum buildings. He understood the constraints and restrictions the team is facing and agreed that the new extension in the courtyard could not be avoided if the museum needs to expand further. He also understood the issues facing a new entrance on Bridgeford Street, as trees obstruct views from Oxford Road. His preference on the materials would be the green tiles, referencing the Victorian tiles in a modern building. Mark sits on the Victorian Society Northern Buildings Committee and will formulate the Society’s view on listed building consent applications.

We met with Mark again following the change of direction in the main entrance proposal towards a new entrance on Oxford Road. Mark agreed it was an improvement from the previously approved scheme and crucially agreed not using the historic entrance on Oxford Road. He appreciated the fully contextual, subtle intervention of the new opening, whereas the ramp and the steps would be more eye-grabbing for visitors. He noted it was the most sensitive location on balance within the site constraints and needs of the museum, and was in favour of the legibility of the modern intervention. Although the existing railings to Oxford Road are not original, Mark queried why they are not re-used or referenced on the new scheme. Mark further supported the internal alteration and appreciate the ease of wayfinding. He agreed that the internal alternation would be regarded as neutral impact.

Overall Mark was excited by the new Oxford Road entrance and was supportive of the proposal.

The Arts Council

26th May 2017

William Brown

We were fortunate to have a project-specific meeting with William Brown during his brief visit to Manchester. Both Dean Whiteside (Manchester Museum) and Sam Johnson (UoM) were present as well as the design team members (Purcell and Max Fordham). Dialogue involved specification of security glazing, alarms and sensors to the gallery space, in order to comply with the relevant security requirements to satisfy both the museum and the university. We also discussed that we will work with the Greater Manchester Police to further ensure security is met as per Arts Council’s requirement.

4.0 SIGNIFICANCE & CONSERVATION FRAMEWORK

4.1 HERITAGE CONTEXT

The 1885 museum building was constructed as part of the original courtyard of Owen's College (later The University of Manchester). Designed by Alfred Waterhouse it is of significant architectural significance and remains largely unaltered. Further extensions to the expanding museum by the Waterhouse practice continued the aesthetic of the primary Oxford Road site. These buildings form the key view with the Whitworth Hall of the universities.

As the museum has expanded over the years it has incorporated the former dental hospital and parts of the Rutherford Building. A new entrance and gallery facility was developed in 2003 which created the current courtyard entrance to the complex.

Manchester Museum is of national significance due to the architectural quality of the buildings and the importance of the collections which it contains. The cultural significance is increased due to the museum being free and open to the public. The link with the wider university and the use of the collections through teaching is another key significance.

The Rutherford Building is also highly significant due to the innovative creation of laboratory rooms for the expanding field of "Physical Science" in 1901, and the experiments that were undertaken within the building by Ernest Rutherford and his team, including the 'splitting of the atom' which occurred in 1919. The association with such ground-breaking work makes the building of international importance due to its associative value. The museum uses part of this building for storage; it is not open to the public.

4.2 CONSERVATION PLAN & GAZETTEER

A Conservation Plan has been produced by Buttress to inform the development of the proposals for the Manchester Museum Courtyard project. It is at final draft stage and is awaiting adoption by the University of Manchester. This is supplemented by a detailed Gazetteer and a Condition Report. Purcell will review the contents and proposals of these suite of documents in conjunction with the development of the Stage 3 design proposals. All text referring to the history and conservation of Manchester Museum is adapted from the Buttress reports.

The Conservation Plan covers the Waterhouse buildings of 1885, 1912-3 and 1927, the recent extension constructed as part of the Capital Development Project of 1996-2003, the old Dental School and the Rutherford Building. These form the buildings currently used by the museum within the wider University of Manchester estate.

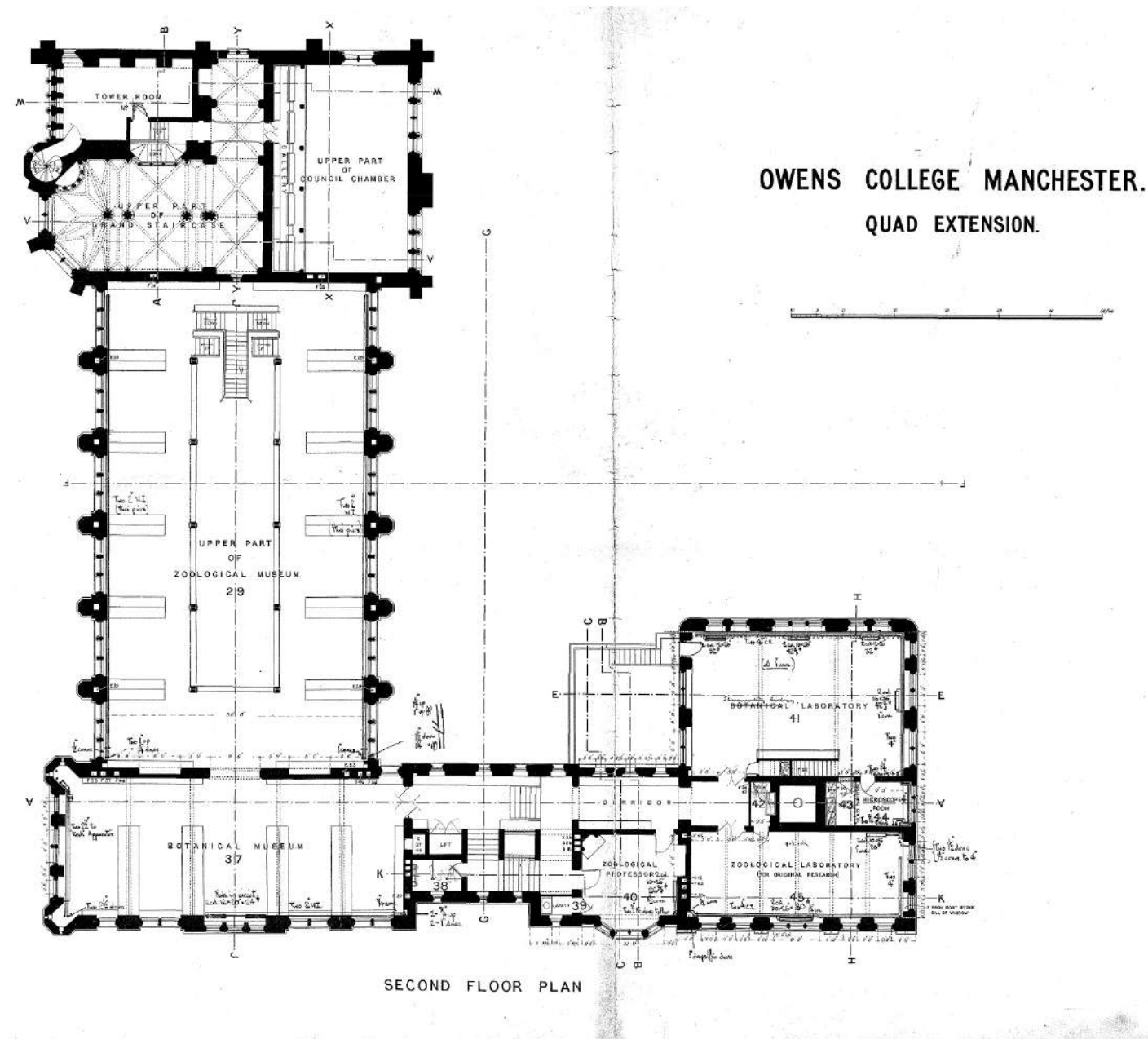
The report follows the principles established in the English Heritage Publication "Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment" 2008, as well as reference to the Heritage Lottery Fund Document "Conservation Plan Guidance," 2012. These encompass the current thinking on the framework structure of a Conservation Plan.

It assesses the significance of the buildings by analysing historical development, the surviving fabric and contribution to the wider cultural, industrial and social heritage of the University which provides its local context. It then goes on to examine the risks and opportunities for the site and present policies for the conservation of the building and principal spaces developed from the analysis.

The analysis and objectives of the Conservation Plan are based upon a detailed Gazetteer which documents the current appearance, history, development, alterations and significance of each building, and within each building, each room or group of rooms, as well as a large volume of record photographs, in addition to those used to illustrate this report.

There are a wide range of policies within the Conservation Plan which detail the care and conservation of the museum buildings. These are built on the specific aims of this plan:

- To care for the buildings to the same high standards as the collections.
- To interpret the buildings to allow visitors to appreciate their significance.
- To continue to change the museum displays to ensure relevance, without diluting the significance of the place.



4.3 METHODOLOGY

Significance can be defined as the sum of the cultural values which make a building or site important to society. These values are often associated with both physical fabric, and more intangible qualities such as communal value and associations.

Cultural significance is unique to each historic site. The following assessment considers the values outlined in Historic England's 'Conservation Principles, Policies and Guidance' (2008), which recommends making assessments using the following categories: evidential, historical, aesthetic, and communal value.

Evidential Value derives from the potential of a place to yield evidence about past human activity.

Historical Value derives from the ways in which past people, events and aspects of life can be connected through a place to the present. It tends to be illustrative or associative.

Aesthetic Value derives from the ways in which people draw sensory and intellectual stimulation from a place.

Communal Value derives from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values, but tend to have additional and specific aspects.

In order to identify the relative contribution that these values make to the significance of a place, and to assist with objective decision making, the significance of the site and its setting are assessed using a scale of significance ratings ranging from 'high' to 'detrimental'.Conservation Management Plan.

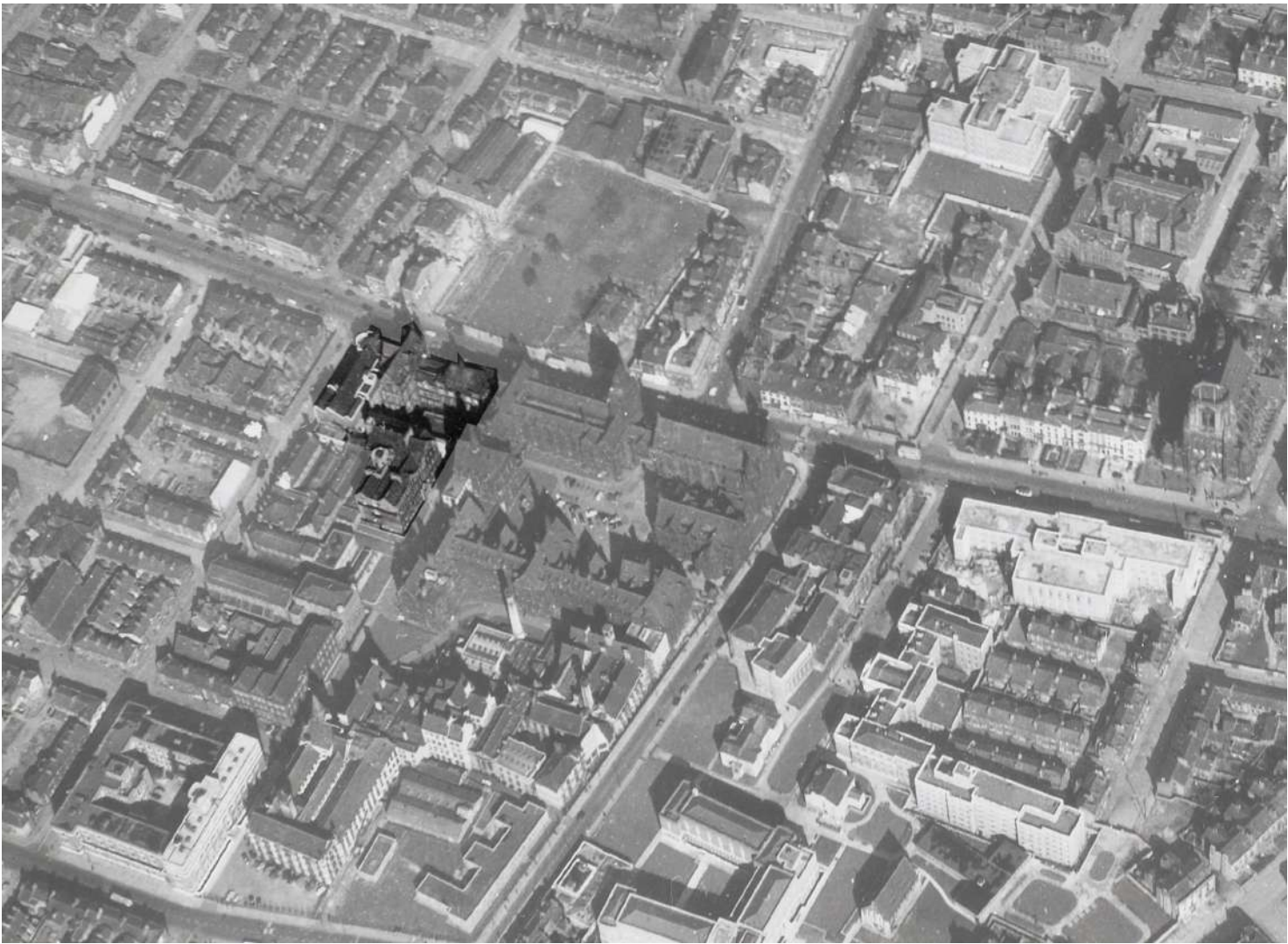
4.4 STATEMENT OF SIGNIFICANCE

The Museum's Conservation Plan (2016) details the history and significance of Manchester Museum. It summarises that Manchester Museum's significance '*lies chiefly in its design by the leading Victorian architect, Alfred Waterhouse, in its close association with the University of Manchester and in the Rutherford Building's association with Ernest Rutherford and his work in the field of nuclear physics within the building.*'

Manchester Museum is the largest university museum in the United Kingdom and incorporates buildings which are listed Grade II* and Grade II in recognition of its special architectural qualities and historic interest. The buildings were listed at different dates: the 1885 Building, forming the east range of Owens College was listed at II* in 1963; the 1912-13 and 1927 Buildings were listed at grade II in 1974, the Dental School listed at grade II in 1973 and the Rutherford Building was listed grade II in 2011. Manchester Museum is important for evidential, historical, aesthetic, communal and technological reasons.

Manchester Museum's significance lies chiefly in its design by the leading Victorian architect, Alfred Waterhouse, in its close association with the University of Manchester and in the Rutherford Building's association with Ernest Rutherford and his work in the field of nuclear physics within the building.

The buildings at Manchester Museum are complex, they have grown organically as part of the development of both the museum and the wider university campus. Many of the principle spaces throughout the buildings remain relatively unaltered. This is particularly true of the galleries within the 1885 Building, the 1912 Haworth Building, and the 1901 Rutherford Building. It is worth noting the added significance of the early museum buildings remaining in the use for which they were designed.



Aerial photograph, taken pre 2003 extension

Whilst the architectural quality of the Oxford Road streetscape should be viewed as of the highest significance, internal layout, and original fixtures and fittings are of equally high significance.

It can be argued that the significance of the Rutherford Building is primarily its association with the work that Ernest Rutherford carried out in the building in the formative years of nuclear physics, but the significance of the purpose built physics laboratories should not be underestimated. This is particularly important as the internal volumes of these labs can still be seen.

Within this overarching context of significance, the principal elevation to Oxford Road makes a high contribution to the overall significance of the Manchester Museum site, in particular the historical, aesthetic and communal values detailed in the preceding section.

With regard to the interior spaces affected by the proposed works, the overall sense of the original layout and character of the space survives relatively well intact. However the layout has been modified with some modern subdivisions, servicing and decorative schemes. As a result , the significance of the interior area is more associated with illustrative than aesthetic value, and their significance is to some degree less sensitive to change through visual intervention.

This significance can be summarised in relation to Historic England's 'Conservation Principles' as follows.

Evidential Value

Manchester Museum and its history have been relatively well researched and documented, notably through investigations and analysis relating to the history of research and as captured through previous works and in documents such as the Conservation Management Plan (2006). This corresponds to a limited ability for the site to yield additional information about past human activity. However, further investigation into the building's fabric and associated history may yield further information. There is also some potential for archaeological remains on site, mainly in the form of 19th century building foundations, cellars, garden features and outbuildings of some interest at a local level.

Historical Value

Manchester Museum represents an important link to the history of the city at a key point in its history, and as such has multiple aspects of historical value. It provides an important connection to an understanding the late 19th and early 20th century, from the growth of higher education in Manchester, to institutional design developments, the growth of museums and natural history societies as well as areas of public interest. Association with notable figures including celebrated architect Alfred Waterhouse, numerous researches, patrons, and their associated work and collections.

Aesthetic Value

Manchester Museum is a dignified expression of status and learning for Manchester, as achieved through the high quality design of architects including Alfred Waterhouse. In addition to this 'standalone' aesthetic value, the building makes a considerable contribution to its context, most notably in views along Oxford Road. Such value is reinforced further by individual elements of high quality design, detailing and craftsmanship as well as individual elements as the sculpture of John Owens by Harry Bates.

Communal Value

Manchester Museum has considerable symbolic value to the people of Manchester – both historically and today. It's architectural design expresses visually the high status and values of university and museum, and is appreciated by a wide range of visitors and passers-by.

Group Value

The Manchester Museum site comprises a number of independently listed heritage assets. While each of these are of national significance in their own right, they are greatly enhanced by their group value, with each contributing to an understanding of their rich shared past and aesthetic composition.

Contribution of the application area to overall significance

Within this overarching context of significance, the principal elevation to Oxford Road makes a high contribution to the overall significance of the Manchester Museum site, in particular the historical, aesthetic and communal values detailed in the preceding section.

With regard to the interior spaces affected by the proposed works, the overall sense of the original layout and character of the space survives relatively well intact. However the layout has been modified with some modern subdivisions, servicing and decorative schemes. As a result , the significance of the interior area is more associated with illustrative than aesthetic value, and their significance is to some degree less sensitive to change through visual intervention.

4.5 CONSERVATION MANAGEMENT PLAN

Please refer to the Buttress Conservation Plan for the proposed conservation policies. These are set out under the following headings Understanding & Research, Setting, Fixtures and Fittings, Collections, Conservation of the Fabric, Maintenance, Ownership & Use, New Work, Statutory Controls, Access Climate Change Effects on the Environment, Management, Managing Information about Manchester Museum.

The policies adopted by the University of Manchester will be used to guide the development of the proposals for the TEG, Sag and internal remodelling of the museum building.

4.6 CONDITION SURVEY

Each room of the Manchester Museum is described, with comments on condition and recommendations for maintenance and repair within Buttress Condition Report Issue 1 2010, provided as supporting information to this application.

4.7 BUILDING DEVELOPMENT TIMELINE

1888 Waterhouse Building

The original Museum building designed by Alfred Waterhouse in 1882 and formally opened in 1888, this is referred to as the 1885 Building by Museum staff. It was built as part of an extension to Owens College to house the natural history collections and the building also features an imposing tower and entrance for the College as well as a grand staircase, Council Room and Curator’s office, although these are no longer part of the Museum.

There is communication with the adjoining Beyer Laboratory on each level. The main building is six storeys high, with a basement, and the Museum also uses rooms on the 5th to 7th floors of the tower for storage. These rooms are kept unused and unoccupied in line with the fire strategy and risk assessment.



1888 Waterhouse Building

The external façades are of sandstone ashlar covered with a red tiled roof with fish scale bands. Four storeys diminishing in height are visible on the exterior in seven bays with buttresses and arched windows filling each bay. The ground floor has a high ceiling and was originally entered from the south-eastern end. It contains original fixed display cases in the central section and the northern wing, which lies at a lower level, has been adapted partly for different display use and partly for use as a shop.

There has recently been a lift, providing access to the third floor; and staircase, providing access to the first floor; fitted at this end and there is a door out onto Coupland Street. The first floor also features a high ceiling and original fixed display cases with other more recent cases and a flying staircase to higher levels carried on a four-sided balcony; the northern wing on this and the second and third floors has been altered for different display use. The second floor also has original fixed display cases which have been altered. The third floor has been recently altered and is now largely open and used for practical sessions, a resource centre, public gallery space and a picnic area. The fourth floor is used entirely for collections storage with the Museum’s Herbarium in the northern wing. The section of the basement used by the Museum contains toilets and building services.

1901 Rutherford Building

The scope of this document means that only the east wing of the Rutherford Building, that currently in use by the Museum, is specifically assessed in this document. However, as these spaces form part of a larger and more significant whole, consideration has been given to the whole building, and those individuals associated with the activities that have taken place inside the building.

This building was originally designed to accommodate the University physics laboratory in 1898 by James William Beaumont with the interior arrangements organised by Professor Arthur Schuster. Opened in 1901 the L shaped building of two and three storeys with basement was considered to be the largest and best equipped physical laboratories in the world. Ground floor space was dedicated to electrical engineering and



1911 Haworth building

electro-chemistry, practical physics took over the first floor and research space in the basement and second floor. Now the building is mainly used as administrative offices. The south elevation, considered to be the front, is of eight bays with the main entrance in the fourth bay with stone fronted porch and wide steps, to the right is a slightly protruding four bay gable. The west side is a symmetrical three bay elevation with wide doorway on the ground floor and balconies to the first and second floors. The east elevation is of five bays emphasised by buttresses and a gable over a wider left bay. The building was renamed The Rutherford building in recognition of Ernest Rutherford (1871–1937) who led the Manchester physics laboratories between 1907 and 1919; his ground-breaking research resulted in the discovery of the nuclear atom in 1911 and subsequently splitting the atom in 1917. The building is listed Grade II as ‘Manchester University Rutherford Building and Hopkins Memorial wing’.

1908 Dental School

Originally designed as the Dental School in 1908 by Charles Heathcote and Sons, this Edwardian baroque building has since housed the University Department of Metallurgy (late 1940s – late 1960s) before being acquired by the museum in 1977. This large extension to the museum allowed for more office space, an environmentally-controlled temporary exhibitions gallery, as well as the development of the Café Muse on the ground floor.

The building is rectangular in plan and defines the north corner of the site. Built in red brick with limestone dress-sings, it is three storeys high with attic and basement, in 3 bays with 2:1:2 windows. The central bay protrudes slightly with an open Exhibition Hallmental pediment, a semi-circular half-domed porch at ground level (café entrance) and stone balcony with wrought-iron railings on the second floor. Slightly set back from the front corner of Bridgeford Street and Oxford Road is a full height semi-circular bay with balustrade parapet. The building has a slate pitched roof in contrast to the Waterhouse buildings.

First listed in 1973 as the ‘Former Department of Metallurgy, University of Manchester and attached railings’.



1913 Haworth Extension

1911 Haworth Building

This extension was designed in 1911 by Paul Waterhouse and constructed the following year to house the Egyptian and ethnological collections. The design largely continues that of the 1895 Building in walling materials and window height but is only two storeys on the exterior, although the building is four storeys in height with a basement, and has a lead-clad roof. Built in Hotel de Ville style it is symmetrical with five bays and buttresses and has a two-storey arched bridge over Coupland Street at the southern end which provided access through to the 1885 Building.

There is an entrance door at the southern end leading to a recent full height staircase and the ground floor which consists of two large rooms for public displays and smaller service rooms. At first floor level, there is one display room with original fixed cases and more recent cases. There is a recent bridge adjoining the original corridor room providing access to the 1885 Building, the latter now being used for display purposes. The second floor is a four-sided gallery with displays and a recent bridge through to the 1885 Building. The basement is used for education sessions, office accommodation and storage.

1913 Extension

Designed by Paul Waterhouse and constructed a year later than the Haworth Building, this small extension was built to provide further accommodation for the Egyptian and ethnological collections. It is only three storeys high with a basement in three bays and matches the bridge over Coupland Street in height but is covered with a red tile roof.

The ground floor has one large room for public interaction with collections and a corridor connecting the Haworth Building with the 1927 Building. The first floor is given over to displays and the second consists of a connecting corridor lined with display cases. The basement is an open room used for education sessions with two small rooms on the north-western side covered by the pavement and used for storage.



1927 Building

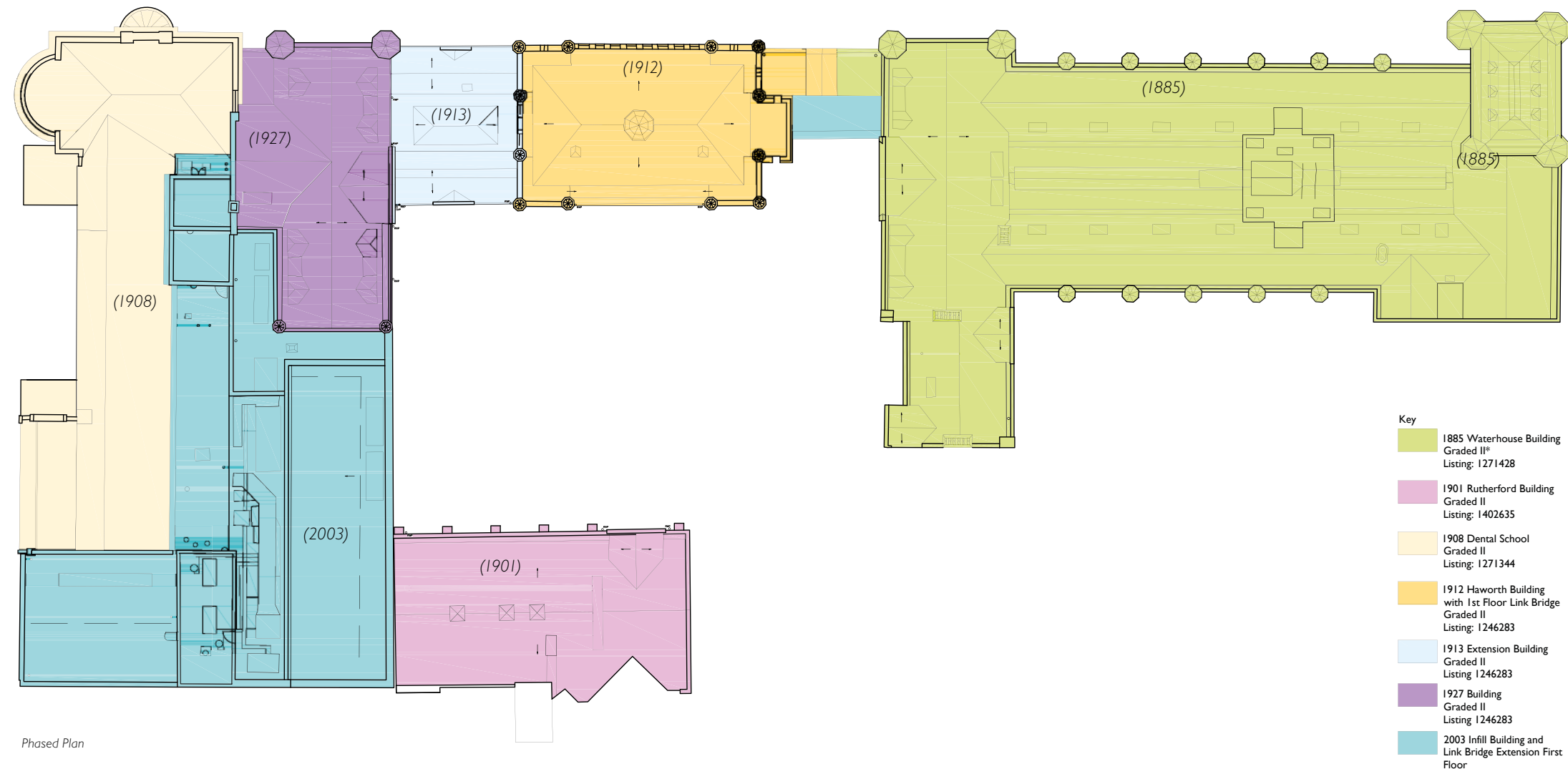
1927 Building

This building was designed in two stages in 1918 and revised in 1923 by Paul Waterhouse and opened in 1927,

Although the construction was overseen by Michael Waterhouse, it was intended to house growing ethnological collections and provide office accommodation for museum staff. It is six storeys high, with a basement and attic, in one wide gabled bay. The lower half is a giant arch with a projecting porch with arched doorway below and a traced window above. This formed the main entrance to the Museum when it opened and the ground floor now provides an open assembly area with a wreathed staircase, providing access to the first floor via a mezzanine, and with open access to a recent main entrance and shop area. The first floor is a large open room used for display with access through to the 1913 Building on the southern side, to a new gallery at the western end and to a new staircase on the northern side. The second floor was built as a four-sided gallery which was later filled in and now consists of two rooms, one used for display, the other for conferences. The third and fourth floors are now used for office accommodation and studio space.

2003 Simpson Extension, Infill Building

As the museum expanded and visitor numbers increased there was a need to reconfigure the museum and provide better access. As part of a Capital Development Project (1996-2003), Ian Simpson Associates were appointed to design a new double-height Museum entrance, shop and temporary exhibition gallery. The steel-framed extension, clad in lead panels with a glazed entrance, sits to the rear of the 1927 block and between the Dental School and Rutherford buildings, squaring off the north side of the courtyard. It also provides a loading bay facility to Bridgeford Street, a gallery space at first floor level and a flat roof. This development also formed the courtyard to the entrance which creates the off street civic entrance to the Museum.



1908 Dental School



1901 Rutherford Building



2003 Simpson Extension



2003 Simpson Extension

4.8 SIGNIFICANCE PLANS

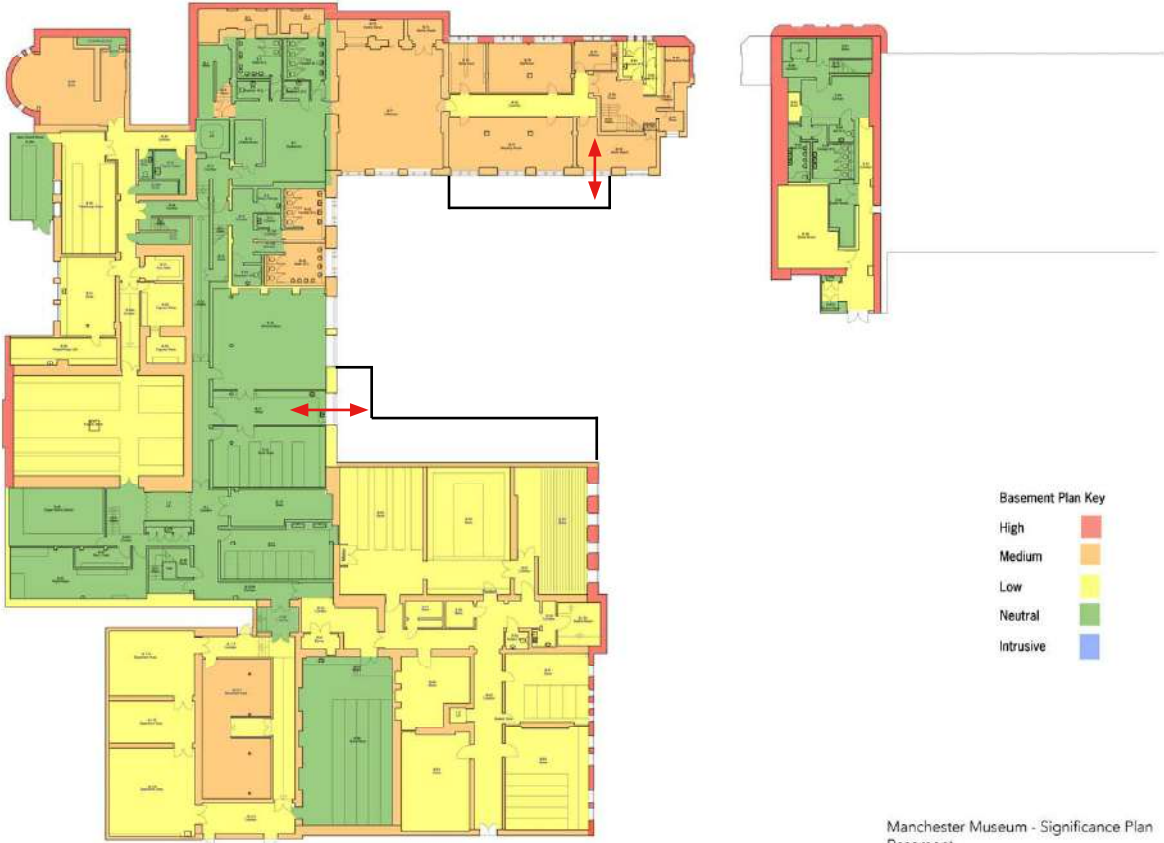
The design concept for the Manchester Museum started with understanding the site, internal relationships and the significance of the surrounding heritage fabric. Protecting and enhancing what is significant about the museum has provided the foundation from which the design concepts have been developed.

The historic fabric surrounding the courtyard will be preserved and exposed where feasible. We have worked to simplify the connections to the new extension and resolve complex internal circulation routes. This is balanced with the need to provide suitable accommodation that will allow the museum to be maximise opportunities and generate revenue.

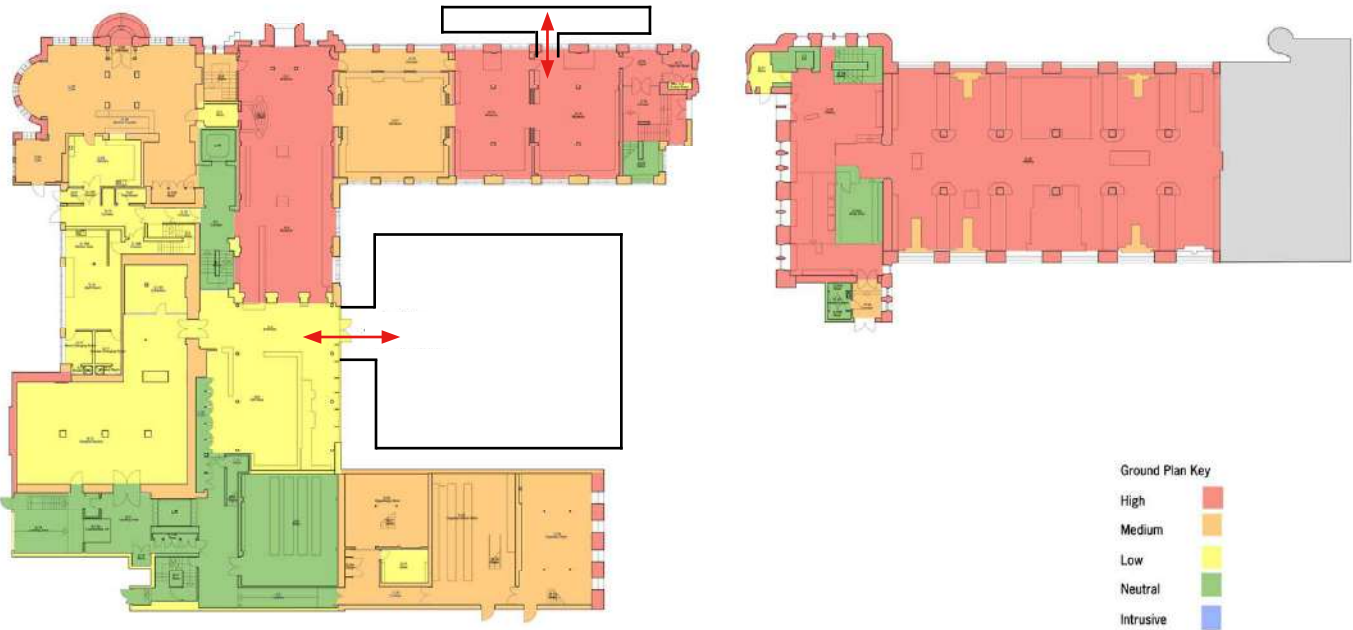
Our new interventions connect to the historic fabric in low or medium significance areas as noted on the adjacent overlays.

Please refer to the following appendices:

- Appendix P: Conservation Management Plan 2010
- Appendix Q: Conservation Plan 2016
- Appendix R: Gazetteer 2016



Manchester Museum - Significance Plan
Basement



Manchester Museum - Significance Plan
Ground Floor



Manchester Museum - Significance Plan
First Floor



Significance Plans, extracted from Buttress Conservation Management Plan 2010

4.8 ARCHAEOLOGICAL DESK-BASED ASSESSMENT

Summary

An Archaeological Desk Based Assessment was commissioned as part of the process to inform the emerging proposals for extending the Manchester Museum, Oxford Road, Manchester, to provide a new South Asian Gallery and a larger temporary exhibition gallery within the entrance courtyard on Coupland Street.

This assessment has established that the evidence contained within the Greater Manchester Historic Environment Records (GMHER) and from other sources indicates the following archaeological potential for the site:

There are no prehistoric sites within the site or study area and the potential for prehistoric remain is considered to be very low. The chance-find of a coin dating to the Roman period has been located over 400m to the south-east of the site. Despite this, there are no other records of Roman activity in the study area and the potential or further Roman activity to be found within the site is considered to be very low.

There are no records within the GMHER evidencing activity in the area during the Saxon and medieval period and it is likely that the site was in agricultural use up to the early nineteenth century. The greatest potential for buried archaeological remains lies in the nineteenth century. Specifically, archaeological remains which may be affected by the proposals comprise fabric associated with the nineteenth century building known as Exmouth Terrace, and associated outbuildings, and finds associated with their construction and subsequent demolition. Remains will be of medium significance at a local level.

The potential for archaeological deposits should not, however, preclude the proposed development of the site. Whilst the courtyard has undergone some considerable disturbance in the past, the removal of the modern surfacing and deposits may benefit from archaeological monitoring and recording, and potential nineteenth century building remains merit preservation by record.

The scope and specification of any monitoring required will be devised in consultation with the Greater Manchester Archaeological Advisory Service, in their capacity of archaeological advisors to Manchester City Council. This item will form a pre-commencement condition of the planning application.

Development Impacts

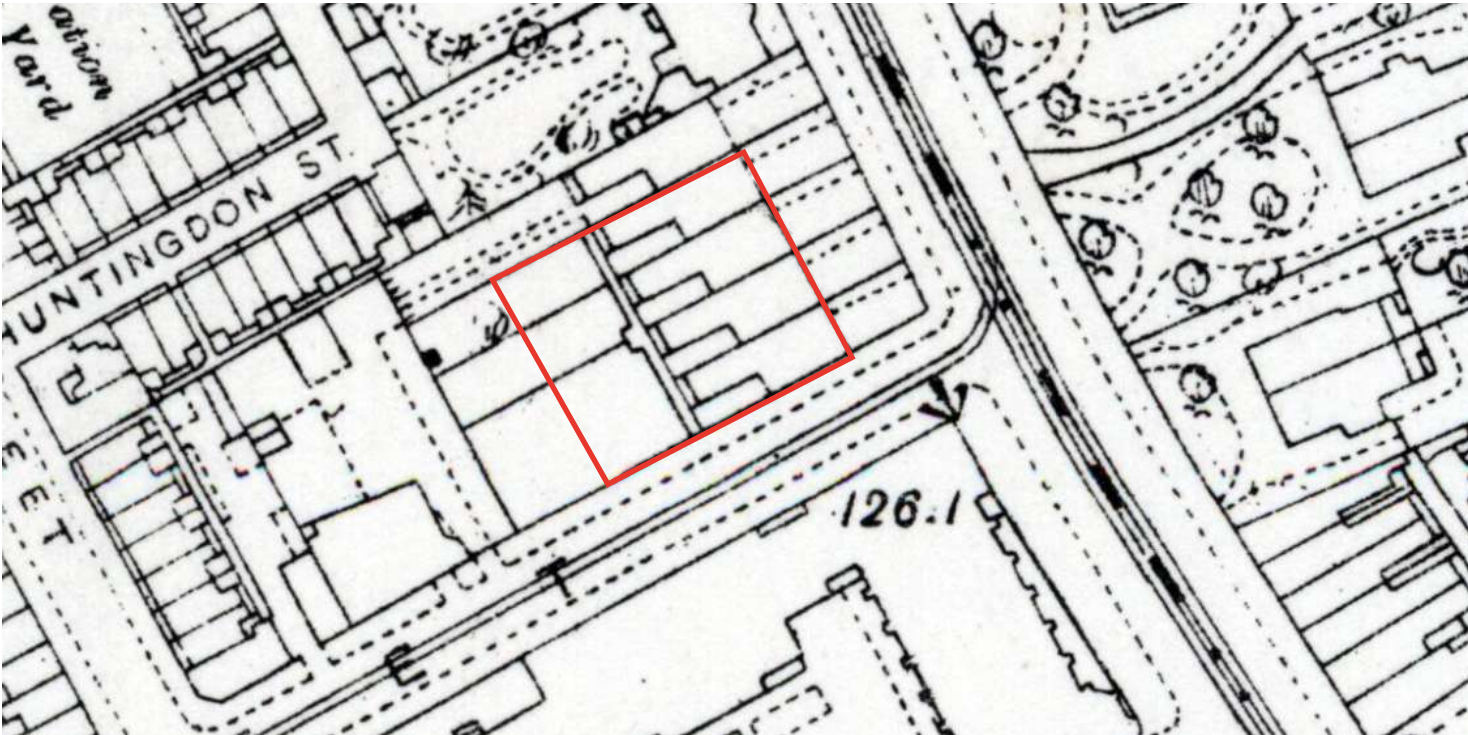
Potential development at the Manchester Museum Courtyard are likely to involve major ground intrusion and excavation associated with structural foundations. The following outlines general construction activities that are likely to be undertaken as part of this redevelopment, which may impact on buried archaeological remains within the site boundary.

- Groundworks associated with any ground levelling works (build up and reduction, removal of existing surfaces and foundations and excavation to facilitate the foundations of any new structures or surfaces.
- Groundworks associated with the construction of any additional services (drainage, electric supply etc.), if required.
- Site clearance.
- Temporary land take during construction phase including, stockpiling, storage and temporary site access
- Groundworks associated with the excavation of basements.

These activities could lead to the following effects on the archaeological resource:

- Permanent complete or partial loss of an archaeological feature or deposit as a result of ground excavation.
- Permanent or temporary loss of the physical and/or visual integrity of a feature, monument, building or group of monuments.
- Damage to resources as a result of ground excavation.
- Damage to resources due to compaction, desiccation or water-logging.
- Damage to resources as a result of ground vibration caused by construction.
- Loss of undesigned unburied heritage assets within the site boundary (wall foundations).
- Compromise of the wider historic setting identified heritage assets/ areas as a result of development

The full report is included in Appendix D.



Ordnance Survey 25" map of Lancashire published in 1893 (surveyed 1888-1889).The site is outlined in red.



The 1885 Waterhouse building shown from Oxford Road. Exmouth Terrace is shown to the right of the image.

4.10 HERITAGE IMPACT ASSESSMENT

Summary

The Museum's Conservation Management Plan by Buttress (2016) states that Manchester Museum's significance 'lies chiefly in its design by the leading Victorian architect, Alfred Waterhouse, in its close association with the University of Manchester and in the Rutherford Building's association with Ernest Rutherford and his work in the field of nuclear physics within the building.'⁰¹ The proposals will not affect this close association and will not affect the highly significant principal elevations of the listed heritage assets as seen from Oxford Road or Coupland Street. Internally, the impact on historic fabric has been kept to a minimum, although it is accepted that there will be a small loss of historic fabric in order to provide a new entrance and circulation.

The main impact of the proposals will be the creation of the new entrance to Oxford Road and new gallery. Section 66 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 states that the planning authority 'should have special regard to the desirability of preserving the building or its setting or any features of special architectural interest which it possesses'. Also, NPPF para 132 states that 'significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.' It is clear the new gallery will affect the character of the courtyard and of views along Coupland Street. There will be a loss of views of the side elevation of the Rutherford Building and of the rear elevation of the Haworth Building – both of which are of lesser significance than their principal elevations which remain unaffected by the proposals. Stepping the building away from these elevations, exposing brickwork and retaining fenestration reduces this impact. The high quality of design and choice of materials in the new building also mitigates against any negative impact on the surrounding heritage assets.

Similarly, the creation of the new Oxford Road will have the positive heritage impact of reinforcing the historic character of entrances on the principal elevation balanced against some adverse impact associated with carefully designed physical and visual interventions to achieve this.

In summary, it is felt that the impact on historic fabric and on the setting of the heritage assets does not constitute substantial harm, and measures have been put in place to mitigate against any negative impacts which may affect our understanding and enjoyment of the heritage assets.

Please refer to Appendices B and C for Heritage Impact Statement.

⁰¹ Buttress, 2016, p11

⁰² Buttress, 2016, Manchester Museum Conservation Management Plan, Significance Plans

⁰³ Buttress, 2016, p168



Oxford Road Intervention



Coupland Street Intervention

5.0 CONSERVATION PHILOSOPHY AND APPROACH

5.1 CONSERVATION PHILOSOPHY

The Policies in the Buttress Conservation Plan were prepared based upon a conservation philosophy which aims to ensure the integrity of the building through an emphasis on repair of the significant historic elements. An honest assessment of the age and inadequacies of the services and the proposals for new use should lead to acceptance that there will be a certain amount of conservation, repair and alterations. The intrusive and neutral buildings also provide opportunities for sympathetic new development. The philosophy which should guide those repairs and alterations can be summarised as follows:

- The Museum's buildings should be regarded as part of its collections and the same degree of care and management applied;
- Rooms, structures and other elements should be repaired rather than restored so that new work should be discernible though inspection;
- Existing historic elements in good condition should be retained;
- Existing elements of high significance should be retained;
- Elements of historic buildings and structures should be replaced only where essential;
- New development should complement but not copy the historic elements;
- Interventions to the historic structures should be kept to the minimum necessary to ensure a viable new use;
- Intrusive features of little historic interest may be removed;

Archives should be housed in appropriate environmental conditions and should not be moved to spaces where conditions are worse than their current environment.

5.1.1 EXTERNAL CONSERVATION

General Overview

The scope of this project is to provide a new entrance on Oxford Road through alternations to the facade of the 1912 Howarth Building and minor internal modification. A new extension will be constructed within the courtyard abutting Coupland Street housing new, high quality gallery spaces. The redevelopment and refurbishment scope for these buildings have been based on the following key principals:

- Use the completed significance appraisal reports to inform development proposals and where possible remove more recent internal partitioning to enable the original spatial arrangement to be utilised to accommodate new brief requirements
- Use the project to complete outstanding conservation works to the external fabric of the Rutherford Building to the highest level possible within the development budget.
- Create a new hierarchy of internal circulation to provide a clear, easily understood framework by which to navigate the building.

It is proposed to take the opportunity that the alterations present to repair and conserve the external envelope of the building to a high standard, in conjunction with the proposed extension and alteration work. Set out in this chapter are the proposed approaches to the conservation of specific parts of the building fabric and treatment where the new work impacts the existing external fabric.

Building Condition

The Manchester Museum is maintained as part of the University of Manchester estate and an updated Condition Survey has recently been prepared and enclosed as supporting information to the application.

Generally, the external areas and interior of the building are well maintained. A programme of stone conservation and window and roof repair/replacement works have recently been concluded.

Manchester Museum was built in phases over the course of the late 19th and early 20th centuries. The original building of what was then known as Victoria University of Manchester were completed by Alfred Waterhouse in 1888. The Manchester Museum Extension was designed between 1911 and 1918 by his son Paul Waterhouse, and built between 1911-1927 linking the original Waterhouse buildings with Charles Heathcote's 1908 Dental Hospital (formerly the Department of Metallurgy, now part of the museum). The most recent phase of works was completed by Ian Simpson Architects in 2003 with the Infill Building, which involved extensive alterations to the Dental Hospital. This building connects the Extension and Dental Hospital with the Rutherford Building.

The museum buildings now form part of the historic core of the University of Manchester. The 1888 Waterhouse buildings are listed Grade II*, with the Extension and Rutherford buildings listed Grade II. The Dental Hospital is Grade II with Group Value (GV). This designation is a statutory recognition of the national architectural and/or historical importance of these heritage assets and their immediate cartilage.



Manchester Museum Extension - 1912 Haworth Building, Paul Waterhouse

5.1.2 INTERNAL CONSERVATION

The Museum's Conservation Management Plan by Buttress (2016) states that Manchester Museum's significance 'lies chiefly in its design by the leading Victorian architect, Alfred Waterhouse, in its close association with the University of Manchester and in the Rutherford Building's association with Ernest Rutherford and his work in the field of nuclear physics within the building.'⁰¹ The proposals will not affect this close association. Internally the impact on historic fabric will be kept to a minimum to achieve what is necessary to create a visible and accessible entrance on a highly significant principal elevation.

The main impact of the proposals will be on the setting of the heritage assets by the proposed new entrance, and new gallery. Section 66 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 states that the planning authority 'should have special regard to the desirability of preserving the building or its setting or any features of special architectural interest which it possesses'. Also, NPPF para 132 states that 'significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.' It is clear that the new entrance will affect the views along Oxford Road with the introduction of the new entrance and sloped/stepped approach. The proposed intervention will include high quality materials in order to complement the significant elevation. Please refer to Heritage Impact Assessment for further information. The new gallery will affect the character of the courtyard and of views along Coupland Street. There will be a loss of views of the side elevation of the Rutherford Building and of the rear elevation of the Haworth Building – both of which are of lesser significance than their principal elevations which remain unaffected by the proposals. Stepping the building away from these elevations. The high quality of design and choice of materials in the new building also mitigates against any negative impact on the surrounding heritage assets.

In summary, it is felt that the impact on historic fabric and on the setting of the heritage assets does not constitute substantial harm, and measures have been put in place to mitigate against any negative impacts which may affect our understanding and enjoyment of the heritage assets.

⁰¹ Buttress, 2016, p11

⁰² Buttress, 2016, Manchester Museum Conservation Management Plan, Significance Plans

⁰³ Buttress, 2016, p168



Oxford Road Entrance

5.1.3 MASONRY REPAIRS

The external masonry of the Manchester Museum Extension and the Oxford Road elevation of the Dental Hospital were conserved and restored in phases, completing in 2016. These works involved stone indents and cleaning, repointing and cleaning of brickwork. Existing service penetrations were also removed and made good.

The Courtyard project will be used as an opportunity to continue this work undertaking conservation repairs to the courtyard elevation of the Rutherford Building.

The bulk of Bridgeford Street elevation of the Dental Hospital is less decorative than the Oxford Road elevation, being entirely functional in nature. The facade is constructed in unadorned red brick with painted cast iron lintels and Portland stone cills to the windows. The westernmost three bays are more decorative, being constructed in red brick with Portland stone dressings using the same Edwardian Baroque language as that used on Oxford Road.

The Rutherford Building is constructed in red brick with sandstone dressings. The elevation impacted by the alterations has five bays defined by buttresses. The south bay is wider with a gable over. The windows are substantial with sandstone mullions and transoms. The building has sandstone stringcourse details which enclose the rainwater pipes.

The brickwork is in good condition, however localised repointing will be required to open joints. Redundant fixings will be removed and bricks indented as required.

The sandstone dressings are generally in good condition, however, there has been horizontal damage to transoms at first floor level due to chasing formed to accept wiring which has now been removed. There has also been damage to one mullion on the second floor again related to removal of services. This will require mortar repair.

There has been further damage to the stone string courses adjacent to the 2003 infill Building related to removal of cast iron pipework. These will be repaired with stone indents. All joins will be repointed in a lime mortar.

Across the elevation, there are black soiling deposits and microbiological growth to cills, stringcourses and buttress caps. There is further microbiological growth to the southernmost buttress. Across the elevation there are patches of efflorescence and vegetation growth to the southernmost and northernmost buttresses. The vegetation will be removed and the elevation cleaned with a combination of DOFF and 3% hydrofluoric acid cleaning subject to successful trials.

Within the courtyard a new addition to house a gallery will be constructed. The gallery will be two storeys high and will be connected to the 1912 Haworth Building, the 2003 Infill Building and Rutherford Building. The vertical abutments of the new gallery addition against the 1912 Haworth Building and the Rutherford building will be constructed using a steel plate mounted to the new building frame and scribed around the existing cill and stringcourse details. The plate will be sealed with a burn sand mastic or similar and will be read as a shadow gap between the new and existing buildings. This detail will negate the need to chase into the historic building.

The roof of the new building will be constructed independently of the existing buildings, however horizontal chasing will be required to house flashings at the abutments. These chases will be formed using existing horizontal brick joints as far as possible, selecting levels that avoid stringcourses, window lintels and window cills.

The details of the new gallery are described in Section 9.1-9.3.



1901 Rutherford Building

5.1.4 ROOF REPAIRS

The roof coverings are a mix of lead and red tiled slopes to the Museum Extensions and Rutherford Building. The Infill Building constructed between the Dental Hospital and the Rutherford Building has a modern flat roof.

The roofs are in good condition, with phased replacement having taken place to a high standard. To the Museum Extensions, this has involved refurbishment of the lead roof over the 1912 Haworth Building. The clay tiled roofs over the 1913 and 1927 buildings were replaced to match original details, including bands of ornamental spade tiles and slotted ridge tiles with decorative inserts. The Rutherford Building has a plain clay tiled roof which is in good condition. The final phase of roof repairs was completed in 2016.

There are currently no further roof repair works proposed as part of the Courtyard project

5.1.5 RAINWATER GOODS

The Museum Extensions rainwater is collected in cast iron gutters which discharge into new rectangular cast iron gutters with decorative ear brackets replicating an original detail. To the flat roof of the 2003 Infill Building, modern gullies discharge into internal downpipes.

To the Dental Hospital, rainwater is collected in two ways: to the main block facing Oxford Road lead lined parapet gutters discharge into cast iron hoppers and round cast iron downpipes; to the more functional Bridgeford Street elevation, rainwater is collected in ogee profile wall top gutters which discharge into round cast iron pipes with spigot and socket connections with ears.

To the Rutherford Building, water is collected in lead lined parapet gutter which discharges onto decorative cast iron hoppers over rectangular cast iron downpipes with decorative ear brackets.

The rainwater goods to the Museum Extensions, Oxford Road elevation of the Dental Hospital and the parapet gutters of the Rutherford Building were all extensively refurbished as part of the phased roof repair works. We propose to complete refurbishment of the hoppers and downpipes of the Rutherford Building as part of the Courtyard project.

To the Rutherford Building, the existing rectangular pipework and hoppers will be dismantled, refurbished and the opportunity taken to remove modern mid-height hoppers and reinstate continuous runs of pipework. At the interface with the roof of the new courtyard gallery building, the pipes will be cut and connected to a new heavy duty internal pipework.

5.1.6 CAST IRON RAILINGS

The decorative cast iron railings are a key feature of the Coupland Street elevation of the Rutherford Building. The railings to the courtyard elevation were removed when granite clad walls were constructed as part of the 2003 entrance works, leaving only a small return section of railings intact. The intent is to remove the small railing return during the construction works. The Coupland Street railings will terminate at their current position against new external landscaping associated with the new gallery addition.

The railings to the Haworth Building on the courtyard side appear to have been heavily modified with the stone copings below, having been altered and are incongruous. Fillets to the copings are inconsistent at returns and junctions, and the railings have modern fixing joints in some locations. To accommodate the new gallery addition, it will be necessary to remove these railings. They will be recorded prior to removal and stored within the University.

The railings to the Haworth Building on the Oxford Road side are modern railings which are reasonably contextual but not of original quality or historic interest. They have modern fixing joints like the modern railings to the 1927 museum extension building on Oxford Road. To accommodate the new entrance it will be necessary to remove a section of these railings. It is not the intention to retain non-historic materials.



Historic Cast Iron Railings at Rutherford Building



Railings on Oxford Road. Although historic in character, these are modern railings with modern fixings.

6.0 SITE ANALYSIS AND STRATEGY

6.1 SITE ANALYSIS

The courtyard is currently a well utilised resource for the Manchester Museum. The ramped entrance and adjacent plains are laid in stone pavers to match Coupland Street. The space contains a mature tree with a sunken planter surrounding it, well tended raised beds which the museum use as an allotment, a timber shelter and assorted bench seating.

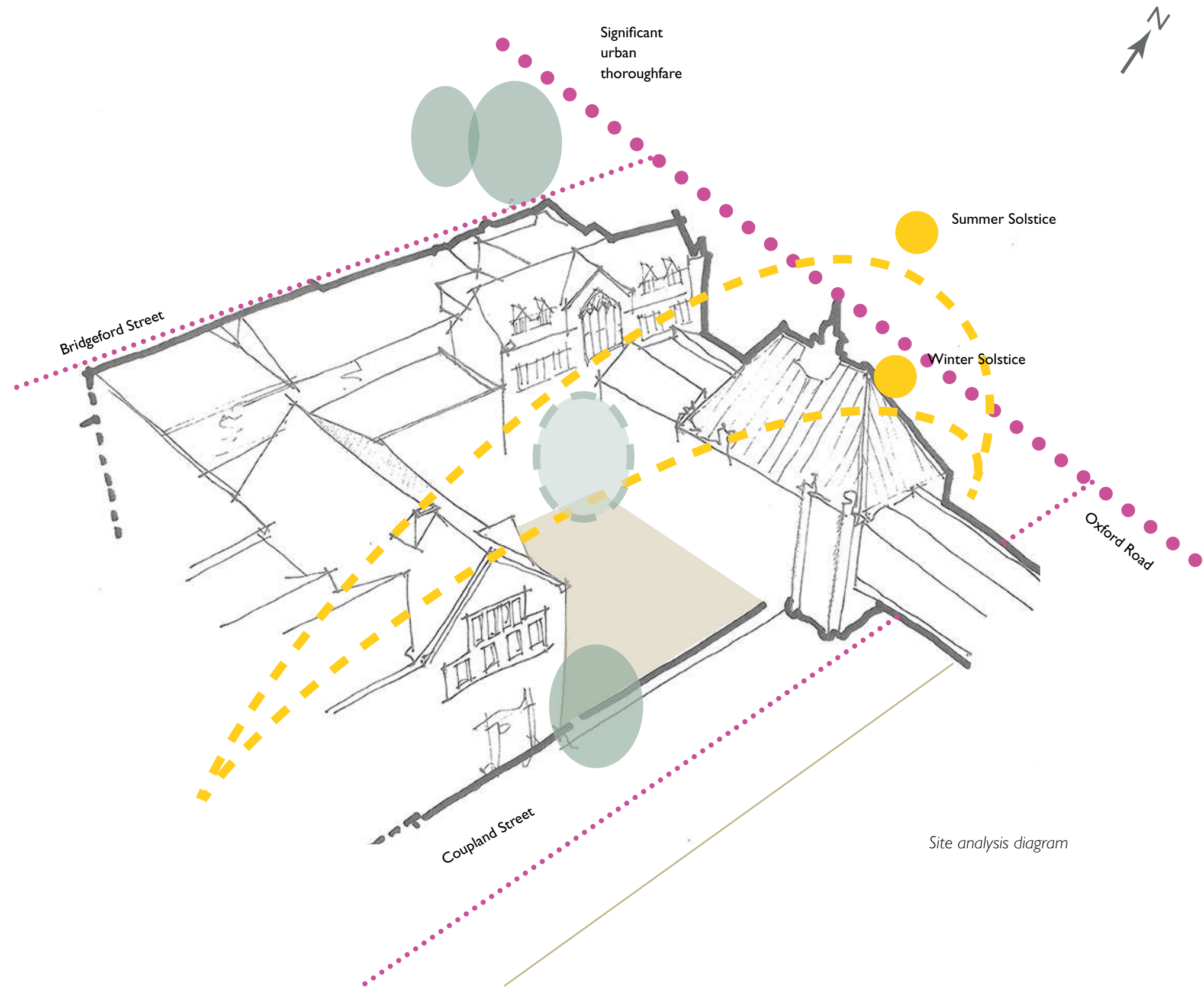
The courtyard is south facing but largely over shadowed due to the height of the adjacent Rutherford and Beyer elevations.

Oxford Road is one of Manchester’s most recognisable roads and one of Europe’s busiest bus routes. Many people use this road on a daily basis, mainly commuters and students, and more recently cyclists after the Dutch-style cycle lanes were installed in 2014.

The pavement on Oxford Road is oversized to accommodate the large amount of pedestrian traffic. There is also a coach parking bay wide enough for two coaches in front of the 1912 Haworth Building.

Coupland Street is an attractive east/west route through the University campus which, when traversed from the west offers key views of a sequence of significant historic buildings including Coupland building, Rutherford building and Beyer building. The full length of Coupland Street is pedestrianised with gated access from Lloyd Street north. There is vehicular access from Higher Chatham Street for servicing and fire tenders. Coupland Street is weight limited to 40 Tonnes, due to the underground tunnel between the John Owen and Rutherford Buildings.

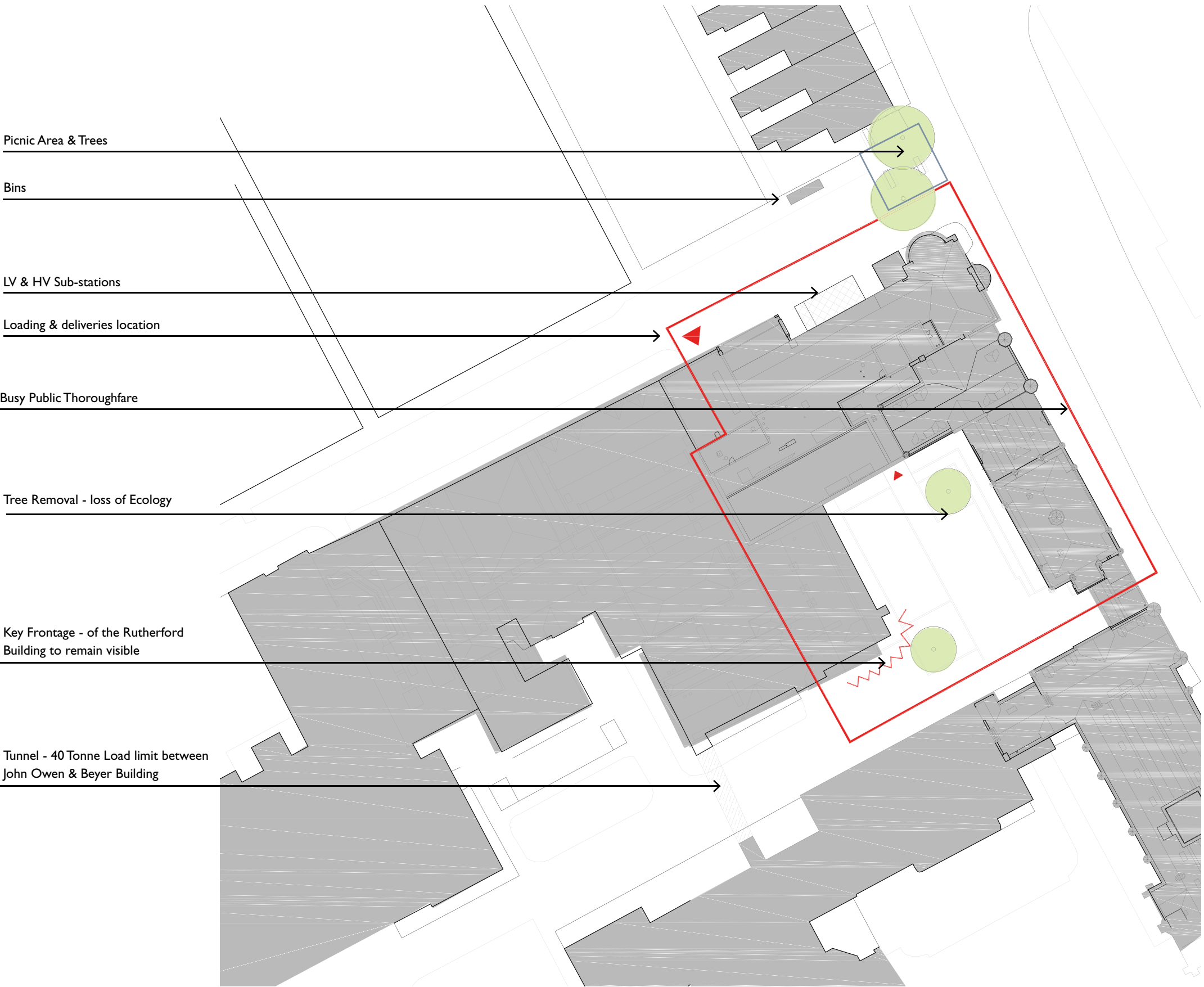
Bridgeford Street is a key east/west access route through the campus anchored at either end by the drum forms of University Place and the entrance for Trinity Church of England High School. Bridgeford Street is addressed by the rear and secondary elevations of the University buildings along its southern side. It has a shared surface and functions as a service road. The road is closed at Oxford Road. There are with two mature tulip trees and a row of young saplings in pavement tree pits. There are 3no. large external tables and bench seating which are associated with the museum cafe.



6.2 Site Constraints

Manchester Museum is located in Chorlton-on-Medlock to the south of Manchester City Centre. The museum site is bounded by Oxford Road to the north-east, Bridgeford Street to the north-west, Burlington Street to the south-east and by Manchester University buildings to the south-west.

The site for the new galleries is within the open courtyard of the Manchester Museum complex, this space forms the main public access into the site. The courtyard itself is bounded to the south-east by Coupland Street with the original 1885 museum building by Alfred Waterhouse lying further to the south. To the north-east is the 1911 Haworth building and its 1913 Extension, and to the north-west is the 1927 building and new museum entrance. It is enclosed on the south-west side by the Rutherford building. The loss of this space as we create the new galleries, forces the relocation of the entrance, creating the 'second site'.



6.3 SITE PHOTOGRAPHS

The gallery site is a courtyard with buildings hard-up against its boundaries on the north-east side (Haworth Building and extensions), north-west (1927 building and museum entrance building) and south-west (Rutherford Building). The south-east boundary lies adjacent to Coupland Street.

The courtyard is currently a well utilised resource for the Manchester Museum. The ramped entrance and adjacent plains are laid in stone pavers to match Coupland Street. The space contains a mature tree with a sunken planter surrounding it, well-tended raised beds which the museum use as an allotment, a timber shelter and assorted bench seating.

Surrounding the paved courtyard on three sides are lightwells to the basement areas of the Rutherford Building, the Haworth building and its extensions, and the museum entrance building.

Coupland Street is an east/west route through the University campus which, when traversed from the west offers key views of a sequence of significant historic buildings which line the former road. The full length of Coupland Street is pedestrianised with gated access from Higher Cambridge Street.

Bridgeford Street currently serves as a service entrance providing staff access, goods delivery and maintenance access to the substation in the Museum basement. It will remain as a key services access for the Museum.

A selection of photographs of the sites are shown adjacent.



Bridgeford Street Elevation, ramp to museum staff entrance and basement access to the Sub-station.



The site looking south-east towards Coupland Street and Beyer building.



The site looking west towards the Rutherford Building from Coupland Street



View of the museum building on Oxford Road



The current ramp provides a level access to the museum entrance, addressing the 1.1m level change.



Coupland Street looking north-east towards the site with the Haworth Building in the background.



Junction of Bridgeford Street and Oxford Road



Lightwell to the Rutherford Building, showing Air Handling units that service the stores



Stitched photograph of the site, looking north-west from Coupland Street, showing its full width.



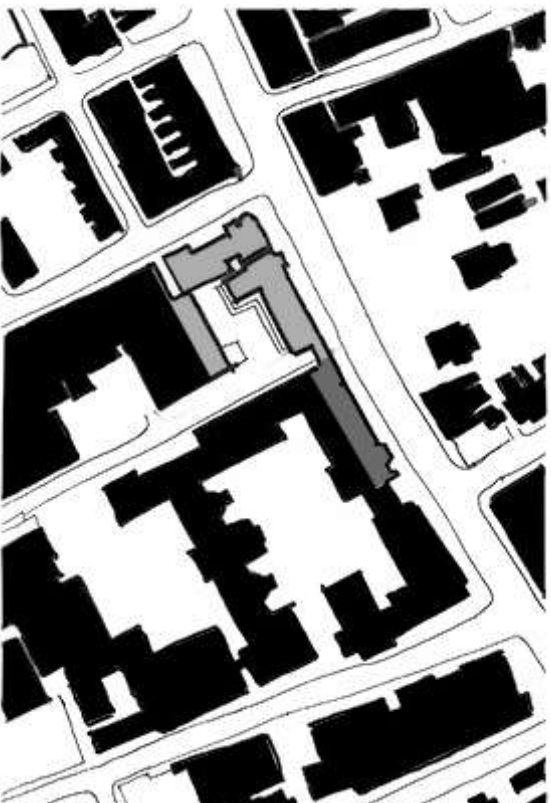
1848



1908



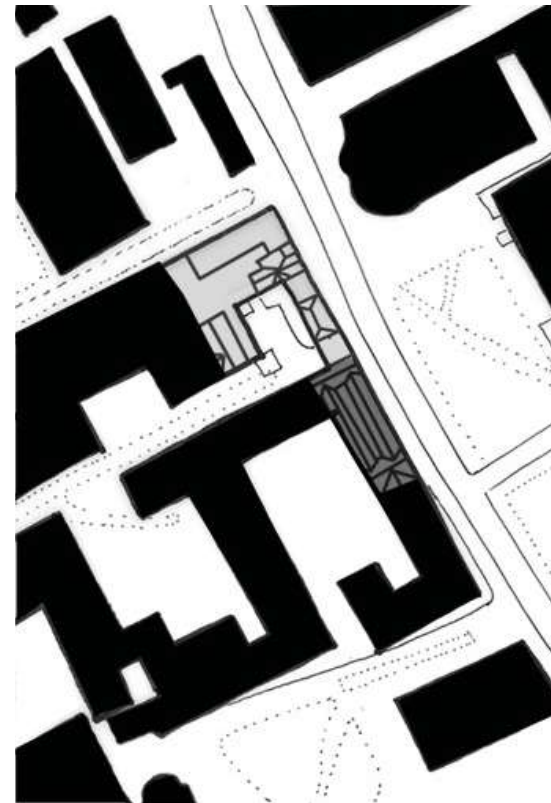
1919



1948



1961



2004

6.4 COURTYARD DEVELOPMENT

The courtyard contained by the Manchester Museum has evolved over time, developing with the surrounding context. The following diagrams show the form of the negative space and the main drivers influencing the space.

By 1851, the Chorlton-on-Medlock area had been developed and the block which would later be occupied by the Museum comprised a mixture of terraced housing, largely set back from the road, and larger detached houses with front and back gardens. Coupland Street stopped short of Oxford Road and ended in a partly developed square. By 1893, Coupland Street ran up the slope to Oxford Road (there being a difference of 5.2 feet or 1.5m) and both had been fitted with tram lines.

The 1893 map also shows the original Owens College building and the Beyer Laboratory with trees in the quadrangle and to the South of the Museum. The remaining empty plots to the east of Oxford Road had been developed with terraced houses. By 1922 the quadrangle had been completed with the addition of the Whitworth Hall and Christie Library, the Museum had straddled Coupland Street with the 1912-13 extension and the Dental School had been built on the corner of Oxford Road and Bridgeford Street (previously Huntingdon Street). By this time, the tramlines had been removed from Coupland Street and new lines had been fitted to Brunswick Street.

By 1927 a further extension had been added to the Museum, taking the place of the last remaining terraced house on the block and the site resembled its present layout, with the obvious exception of the 2003 Infill building.

6.5 SIMPSON EXTENSION

With increasing numbers of visitors to the museum, Ian Simpson Architects were appointed to design a new entrance, shop and temporary exhibition gallery for the museum. This is located to the rear of the 1927 extension and between the Dental School and the Rutherford Building and effectively squaring off the north-western side of the site. The double height building with basement was opened in 2003. The extensions attached to the Rutherford Building were removed. It also involved ground remodelling during improvements to the public realm which provided level access to the entrance.



Museum Courtyard Pre 2003



Museum Courtyard post demolition

7.0 DESIGN DEVELOPMENT

7.1 DESIGN APPROACH

Design Objectives

From an architectural perspective any emerging design concept needed to achieve the following the design objectives;

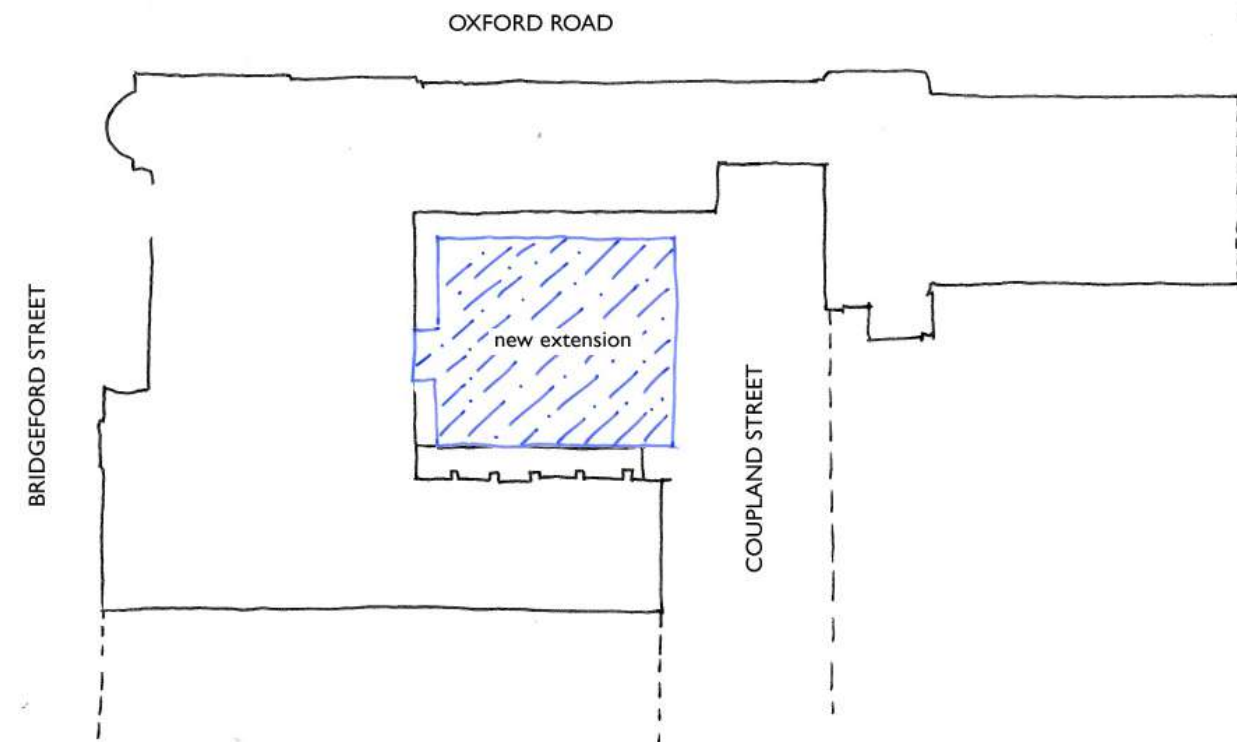
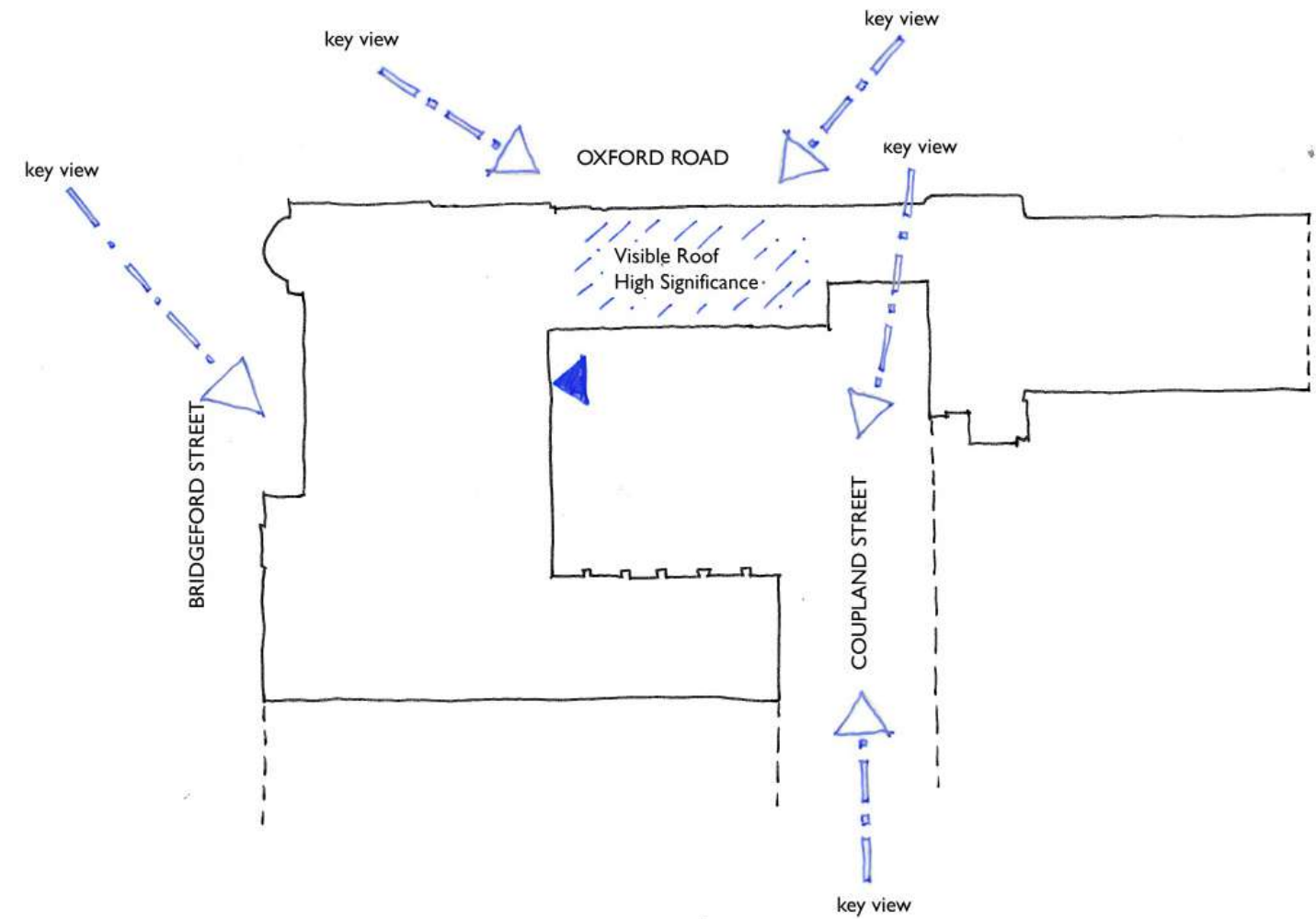
- Unify the internal arrangement, ensuring the visitor can navigate and comprehends the whole museum
- Create a destination arrival
 - Does the Museum have presence?
 - Do people know how to navigate the museum complex?
 - Does the architectural language say something about the function?
- Project the cultural offer of Manchester Museum into the wider external context
- Create national grade Exhibition Hall
- Develop the unique offer of a South Asia Gallery for Manchester residents of South Asian background
- Enhance significance through design quality
- Embrace the unique offer of a 'Museum for Life'
- Create a visible, welcoming entrance

7.2 Site Concept

To inform the design development process we have analysed the architectural drivers, seen in the adjacent diagram. These drivers are designed to ensure the external form of the building responds to its historic yet urban context in consideration to the functional and logistical aspirations for the project.

The key drivers are as follows:

- Highly visible entrance from University Place and Oxford Road
- Complementing the significant façades
- Clear vistas of significant roofscapes are maintained
- Key vista of Rutherford Building is maintained



7.3 ARCHITECTURAL CONCEPT DEVELOPMENT

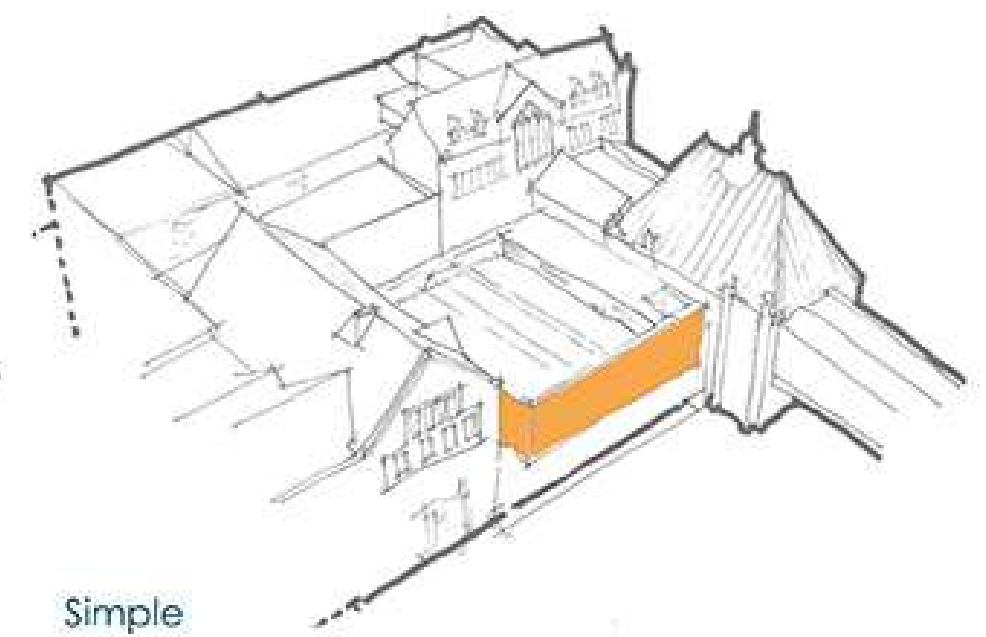
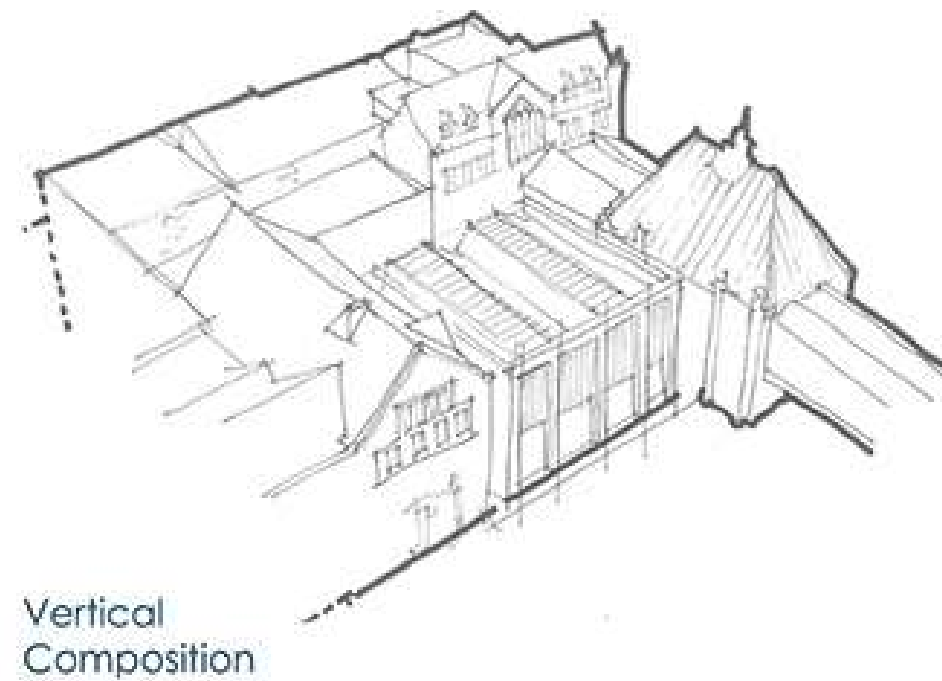
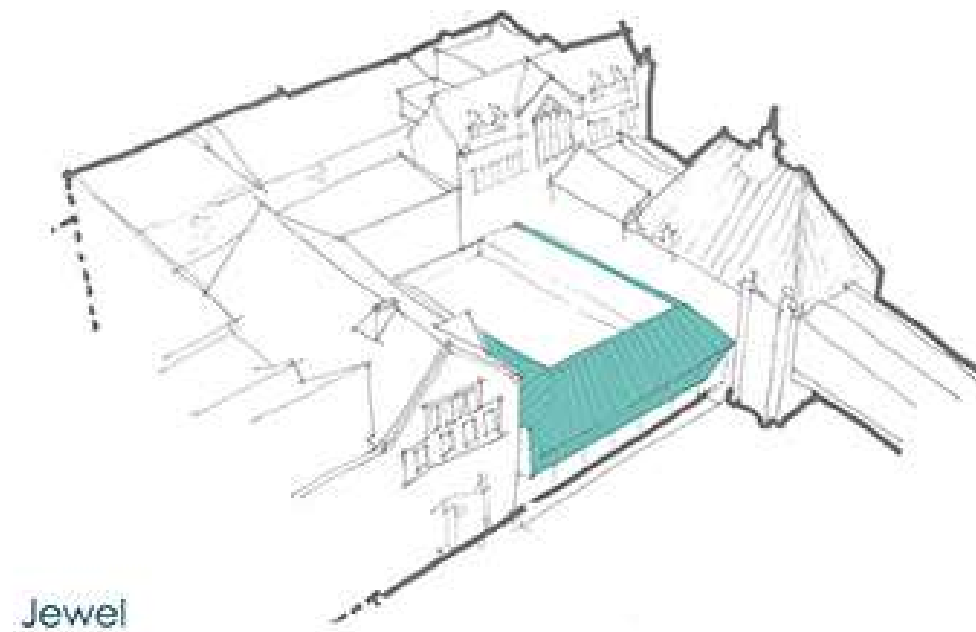
The museum needs to read as a whole, in conjunction with the original Owens College building. In addition to the setting of the the Grade II* listed 1885 building who's intactness, condition and architectural design, direct the aesthetic value of the site and suggest a quality which, any new interventions should aspire to.

Within the site, the varied steep roofs profiles in lead and small format terracotta tile offer an attractive collection of 'mini-views' across and outwards. The primary museum elevations are buff stone with red brick banded with white to both the 1908 Dental School building and the courtyard elevation of the 1912 Haworth Building. There are glimpsed views from Oxford Road into Coupland Street and an oblique view of the Bridgeford Street elevation from the University Place. These views into the site are important and have been maximised in the design proposals.

We propose to use a reflective, yet traditional material on the new building, creating a jewel within the courtyard. The intent is that the building can be read as a simple form whilst providing functional spaces inside. Glimpses of the building gained from Oxford Road will intrigue the passers-by as light plays over the surface of the facade.

There is a prominent vertical composition to the 'Hotel de Ville' architecture of the Haworth Building and the wider Beyer Building. The elevation facing the courtyard was designed as a secondary elevation and follows a more rhythmic composition. The vertical and horizontal composition and repetition of the heritage facades are reflected in the new design.

The design for the new build are simple. Beautiful ideas are expressed with restraint to ensure quality is retained on the key elevations, entrance and primary areas encountered by the visitors.



7.4 THE PROPOSED ACCOMMODATION

The museum is developing its brand a 'Museum for Life' in conjunction with the Manchester Museum Courtyard project (MMC). This will include the objective to develop dementia-friendly environment as well as considering the offer to visitors with additional needs. Consultation with the specialist advisors have been undertaken as part of the design development process.

The courtyard extension proposal includes two new galleries. The courtyard is the only viable space available to the museum that allows the desired gallery floor areas to be achieved. On the ground floor will be the new Exhibition Hall to accommodate changing exhibitions and the first floor will be the South Asia Gallery (SAG) which will showcase objects related to South Asia, in conjunction with the British Museum.

The new entrance is proposed from Oxford Road to replace the existing entrance currently accessed via the courtyard. This will increase the visibility of the entrance from Oxford Road; the main route for pedestrians from the city centre, and connect directly to the existing coach parking bays and drop-off point on Oxford Road. It also allows a clear route into the new gallery spaces which will aid with wayfinding within the museum.

The current entrance and circulation space will be transformed into an entrance lobby to the gallery, with the potential and aspiration to display objects at ground floor level, therefore beginning the exhibition experience earlier.

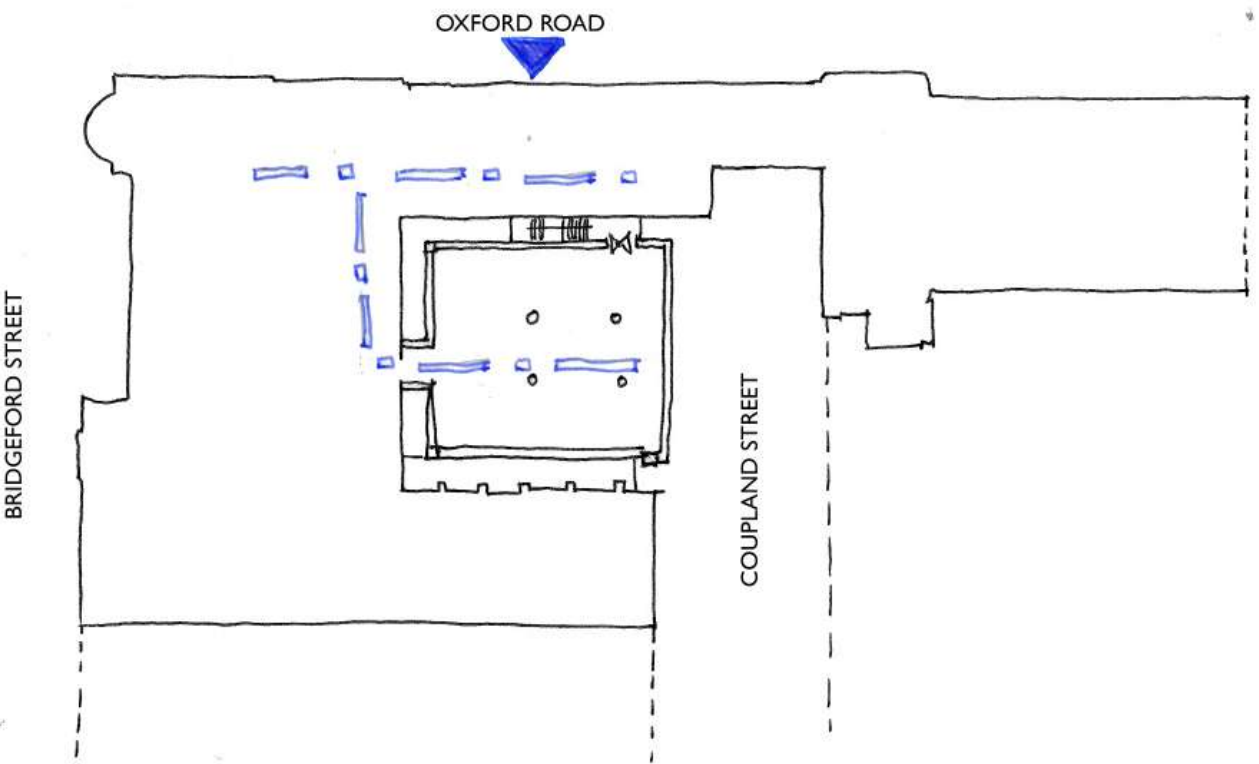
The proposal includes the provision of new accessible toilets on the ground floor. This will ease the requirement to access the basement toilets and therefore reduce overcrowding of the lift. The toilets will include a baby change, adult Changing Places as well as an accessible toilet, along with dementia-friendly signage.

The existing museum shop is a successful element of Manchester Museum. It will be relocated adjacent to the new entrance of the museum to ensure the continuation of its prominence and visitor accessibility and to provide activity and interest to the Oxford Road elevation.

The existing café occupies an ideal location on the corner of Oxford Road and Bridgeford Street, and therefore the proposal retains the café in its existing location, which will compliment the new entrance on Oxford Road.

Earlier options included relocating and extending the popular and very busy café. This was unfortunately not feasible due to budget and fire escape constraints. As mentioned above, the café is already positioned at an ideal location. Rather than relocating it, the proposal introduces a 'pop-up' coffee shop in the Event Space (G.04) to allow for increased cover to the main café, offering a different type of service to visitors. This also provides additional visibility from the new entrance which will increase visitor numbers and revenue to the museum.

Ancillary spaces will be improved as part of the Courtyard project to comply with the necessary security requirements.



8.0 ENTRANCE PROPOSAL

8.1 OXFORD ROAD ENTRANCE STUDY

As part of the options and development analysis we tested the capability of reopening the main entrance on Oxford Road in the historic doorway to the 1927 Extension building. This had to be explored from a conservation point of view as the 1927 building once formed a significant entrance into the museum. The existing doorway, however, only has a structural opening width of 1.8m. This width is sufficient for one-way visitor flow into the museum, but it was concluded that it is not sufficient for two-way traffic and would create a serious problem with congestion to the museum entrance and approach. This option was further compromised due to the proximity of the coach parking lay-by on Oxford Road which narrowed the pedestrian footpath in front of the historic doorway.

The following three options were explored:

- Option 1: Oxford Road Entrance with slope and stepped access
- Option 2: Oxford Road Entrance with accessible ramp and steps
- Option 3: Oxford Road Entrance with steps only

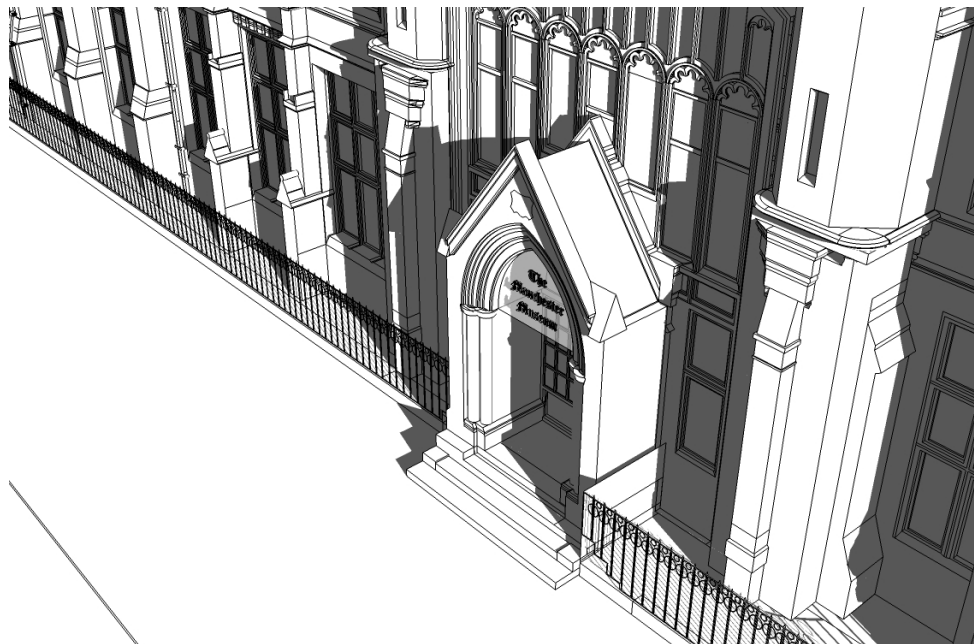
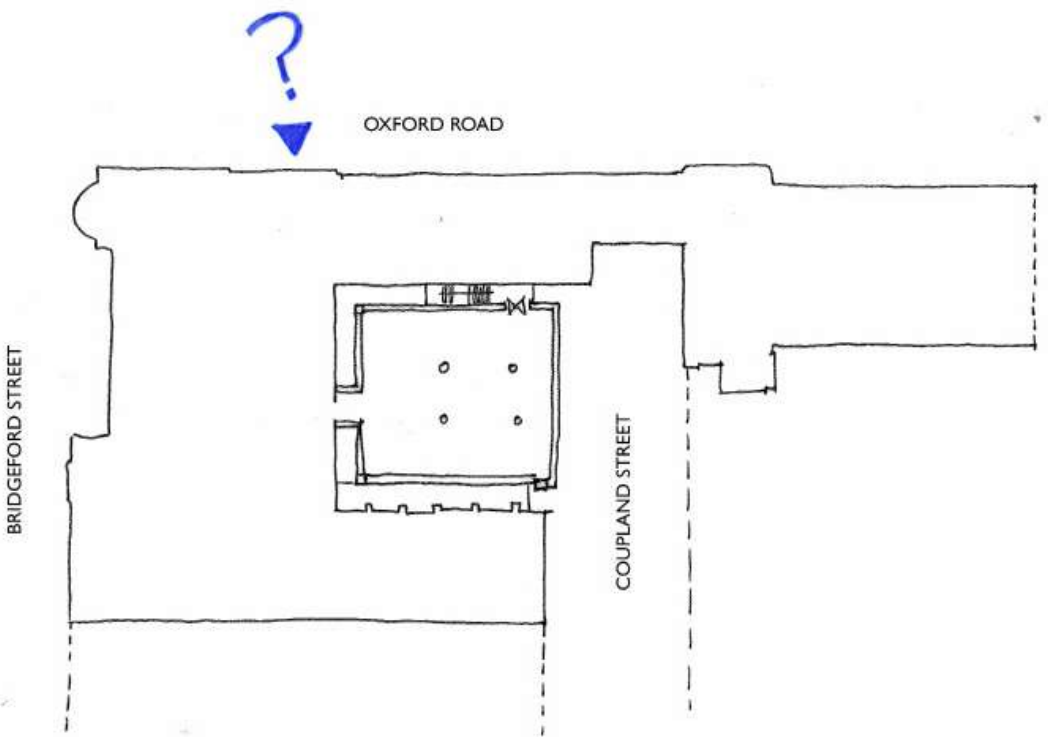
The above options were deemed unsuitable as they were not accessible from a Part M (Building Regulations) perspective and compromised the public route along Oxford Road.

The team also explored the feasibility of widening the historic museum entrance, including the removal of the innermost portion of the arch and reveals, and the taking down and re-building of the porch structure in its entirety. However, neither option was deemed to be feasible from a structural point of view and was considered to be of major negative impact upon the heritage fabric of the significant portion of the facade.

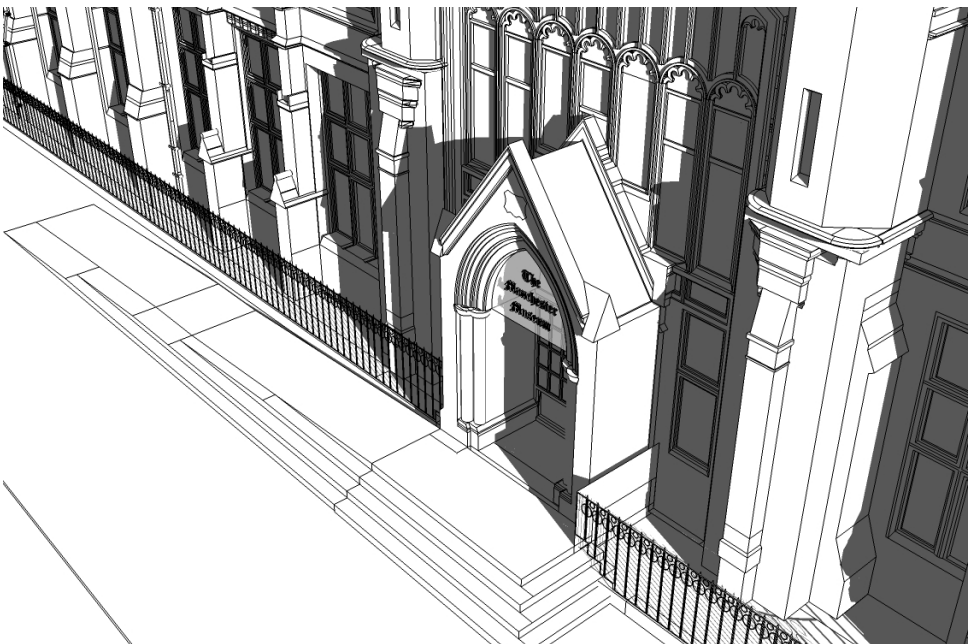
The historic doorway is currently used as a display window which gives an interesting insight to the museum for passers-by on Oxford Road. Following stakeholder consultation, the museum staff expressed that it

advertised the museum effectively and it should be retained as a display window.

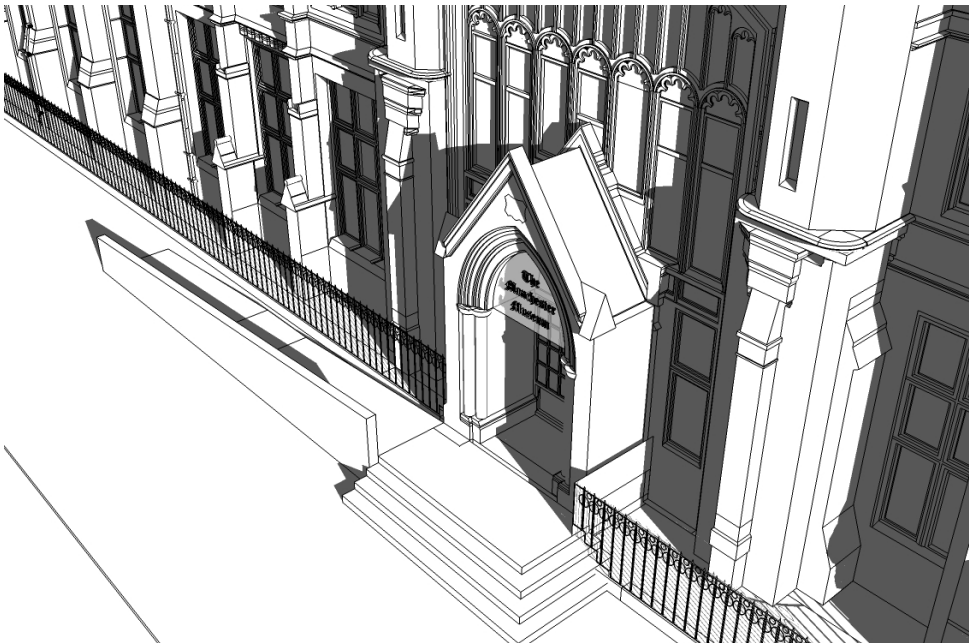
Having considered the above and through consultation with visitors, staff and the access consultant, it was agreed that re-opening the historic entrance would not be deemed sufficient to accommodate the proposed visitor flow. The team was requested to explore further options as to how an accessible entrance could be created on Oxford Road.



Oxford Road Entrance Option 1 - Reinstating existing doors only



Oxford Road Entrance Option 2 - Sloped Access



Oxford Road Entrance Option 3 - Ramped Access

Option 4

This option attempts to tackle the issue of the historic entrance being too narrow for two-way traffic. It introduces a separate exit by creating a new opening within the 1913 museum building and connecting both entrances with a long ramp. Whilst the option achieves an accessible entrance for all, it appears confusing to visitors where the main entrance is. It also significantly reduces the pavement width for a lengthy stretch of Oxford Road, which creates a congested pinch point on the public highway.

Option 5

This option minimises the narrowing of the public highway by inserting a ramp in the existing lightwell on the corner of Bridgeford Street and Oxford Road. The café entrance is converted to the museum entrance because the pavement is wider at his point. Whilst it achieves the generous pavement width, it increases the difficulty in wayfinding internally. This is due to the fact that the former Dental School (where the café is located) was not historically part of Manchester Museum and the current connection from the café to the museum would not be sufficient to accommodate the proposed visitor flow. In order for this option to work, an extensive and potentially harmful amount of internal alternation would be required.

The option would also require the level externally to be raised above the base of the external columns, and completely cover the semi-circular steps, as well as necessitating the removal of the railings to the corner of Oxford Road and Bridgeford Street. Such interventions were deemed to be of major negative impact to the heritage fabric of the building.

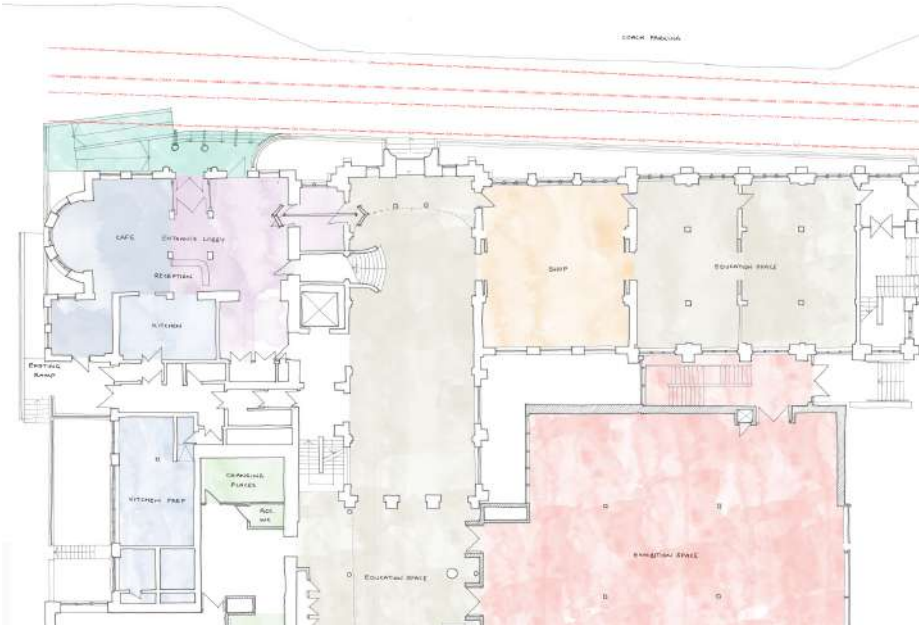
Option 6

This option explored the creation of a new entrance rather than re-using the existing doorways. It introduces a new opening in the 1913 museum building by transforming an existing window to a doorway. The proposed entrance has a ramped approach which is located in the existing moat. This option does not only achieve a larger, accessible entrance but also minimises impact to the pavement width by building in the moat. It resolves various challenges the previous options faced however it makes it difficult to define as the main entrance hierarchically because of the close proximity of the other historic entrances.

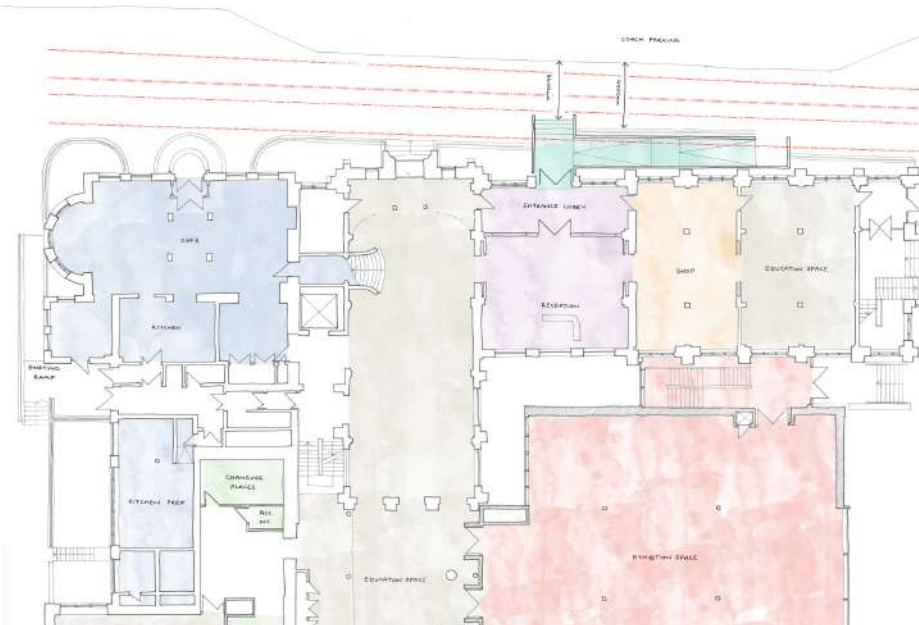
It was agreed that the strategy of Option 6 resolved various issues and it should be explored further to create an entrance acceptable to all.



Oxford Road Entrance Option 4



Oxford Road Entrance Option 5



Oxford Road Entrance Option 6

8.2 NEW ENTRANCE PROPOSAL

The 2003 development relocated the entrance into the courtyard which improved access to the museum greatly, however made the entrance less prominent and more difficult to find. Relocating the entrance from the courtyard to Oxford Road is a vital part of the proposed re-structuring of the museum. A main entrance that is visible and accessible on a lively road will not only be easy to find but also inviting to passers-by who may not have thought of visiting the museum previously.

Grade I listed Alfred Waterhouse's original 1885 museum building lies south-west of Oxford Road with the 1912 and 1913 buildings extending towards the north-east. The 1927 building links the extensions to the former Dental School on the corner of Oxford Road and Bridgeford Street. Manchester Museum's transformation is clearly visible with highly significant elevations on Oxford Road.

The new entrance will be made by creating an opening in the 1912 Haworth Building. The building's symmetrical, five-bay form with a steeply pitched hipped roof naturally creates a central focal point. Based on these existing elements it felt naturally appropriate to create a new entrance in the central bay of the Haworth Building.

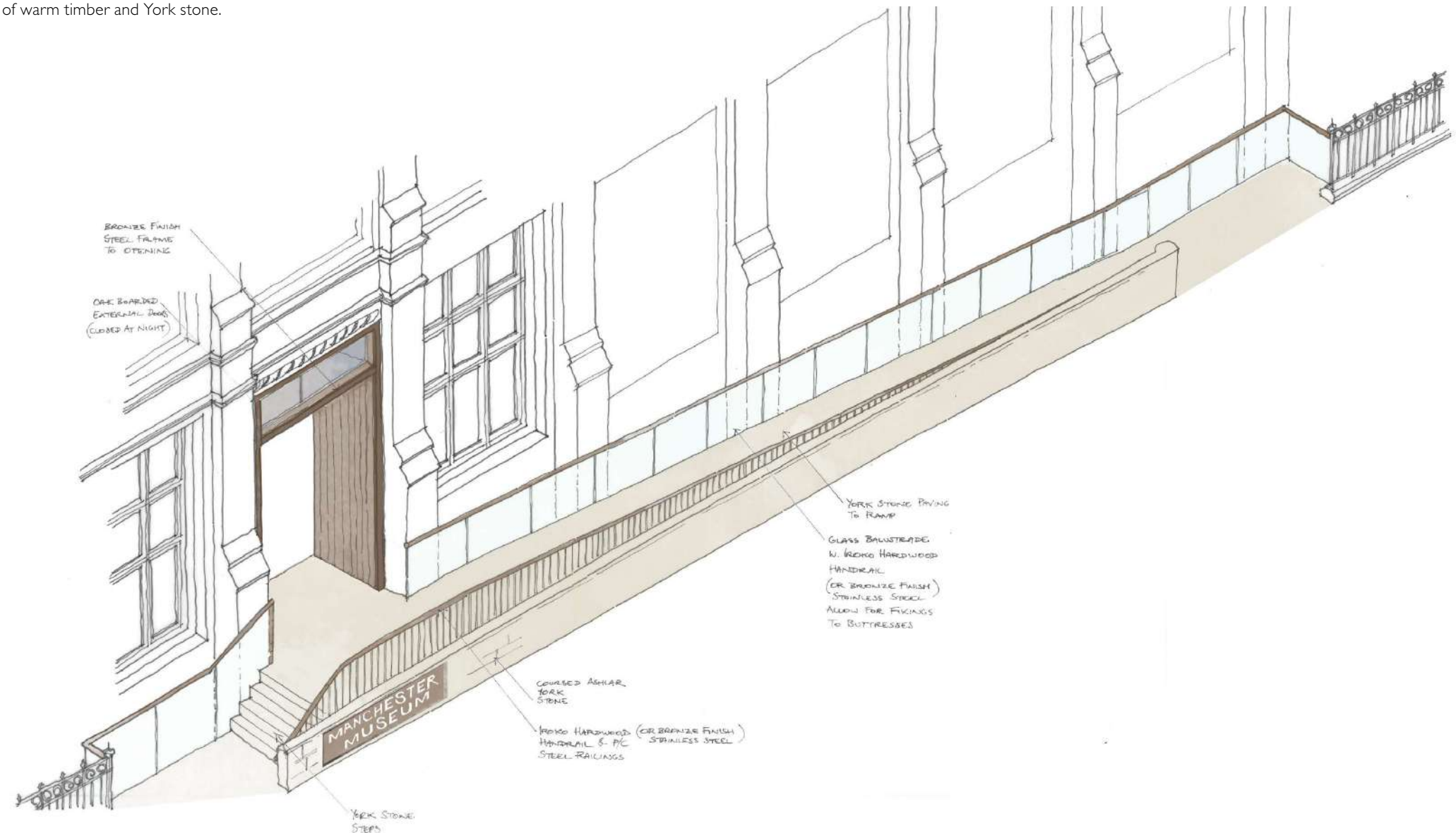
The coach lay-by is conveniently located adjacent to the Haworth Building. Relocation of the entrance will allow coach parties to navigate to the museum easily. The proposal minimises the narrowing of the pavement by inserting the majority of the new entrance ramp within the existing moat (light-well). The steel structure supports the new entrance approach over the moat and allows natural light into the basement as well as maintenance access to the moat. Please refer to the Heritage Impact Assessment for further information.

A small part of the entrance approach will be built on to a public highway, hence a Section 278 notice will be submitted to Manchester City Council Highways Department following planning and LBC consent.

As the existing ground floor level is approximately 0.6m higher than the street level, the new entrance will be accessed via a slope or steps in York stone. The slope which leads to the main entrance will be shallow and generous so that visitors with prams or in wheelchairs can access the entrance easily. The gradient of the slope is shallow (1:21) so as to negate the need for landings which would have a detrimental impact on the overall length of the ramp and its elevations. The stepped access provides a generous and welcoming approach with contrasting bronze finish handrails. York stone is proposed to match the existing highly significant elevations on Oxford Road. Bronze finish railings are proposed which reference the spacing of the historic railings. The rhythm of the railings shows a consistent approach in a historic context whilst subtly identifying the new insertion. Black metalwork to match existing railings was considered but discounted due to the harsh and overbearing nature of the material. Bronze is considered to be of higher quality and finish, with a warmer, more welcoming appearance which complements the use of warm timber and York stone.

A low York stone wall defines the entrance approach and separates from the busy pavement. It also gives an opportunity to locate illuminated metal sign-age to create a legible marker at the museum's entrance, whilst being respectful to the historic façade. The existing floodlights in the moat will be relocated on to the new structure so that the building can be illuminated at night as it is currently.

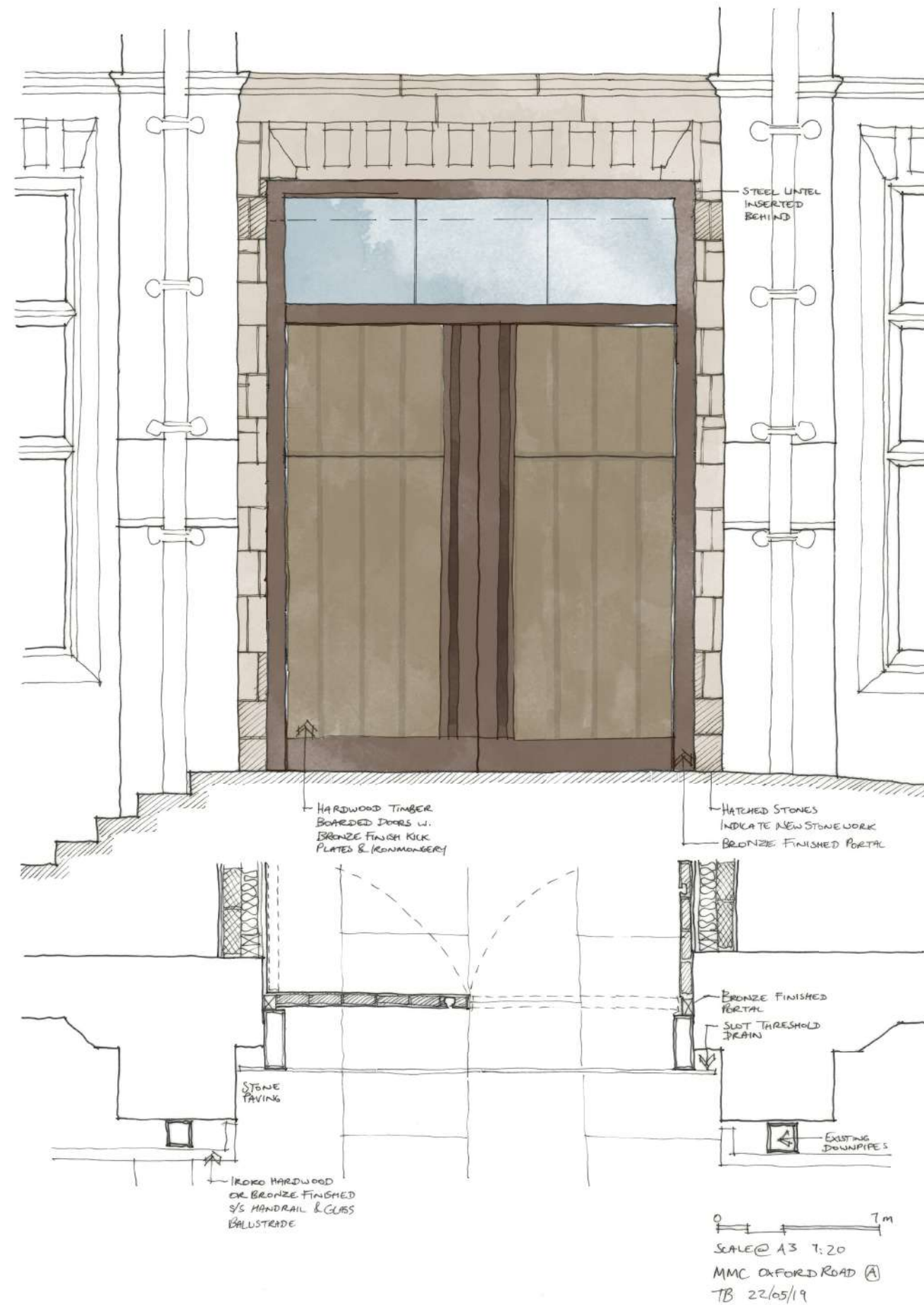
The new entrance will comprise of two sets of double doors, an imposing solid timber outer door and an elegant glass inner door. The timber door will be fixed open during the museum opening hours and securely closed at night. By remaining open during the day, it creates a covered porch – a transition space from outside to inside – without having to introduce an external canopy. This creates a functional space for the visitors whilst being respectful to the highly significant façade. The glass inner door provides a light touch to the historic fabric that is welcoming to visitors and achieves transparency and wayfinding.



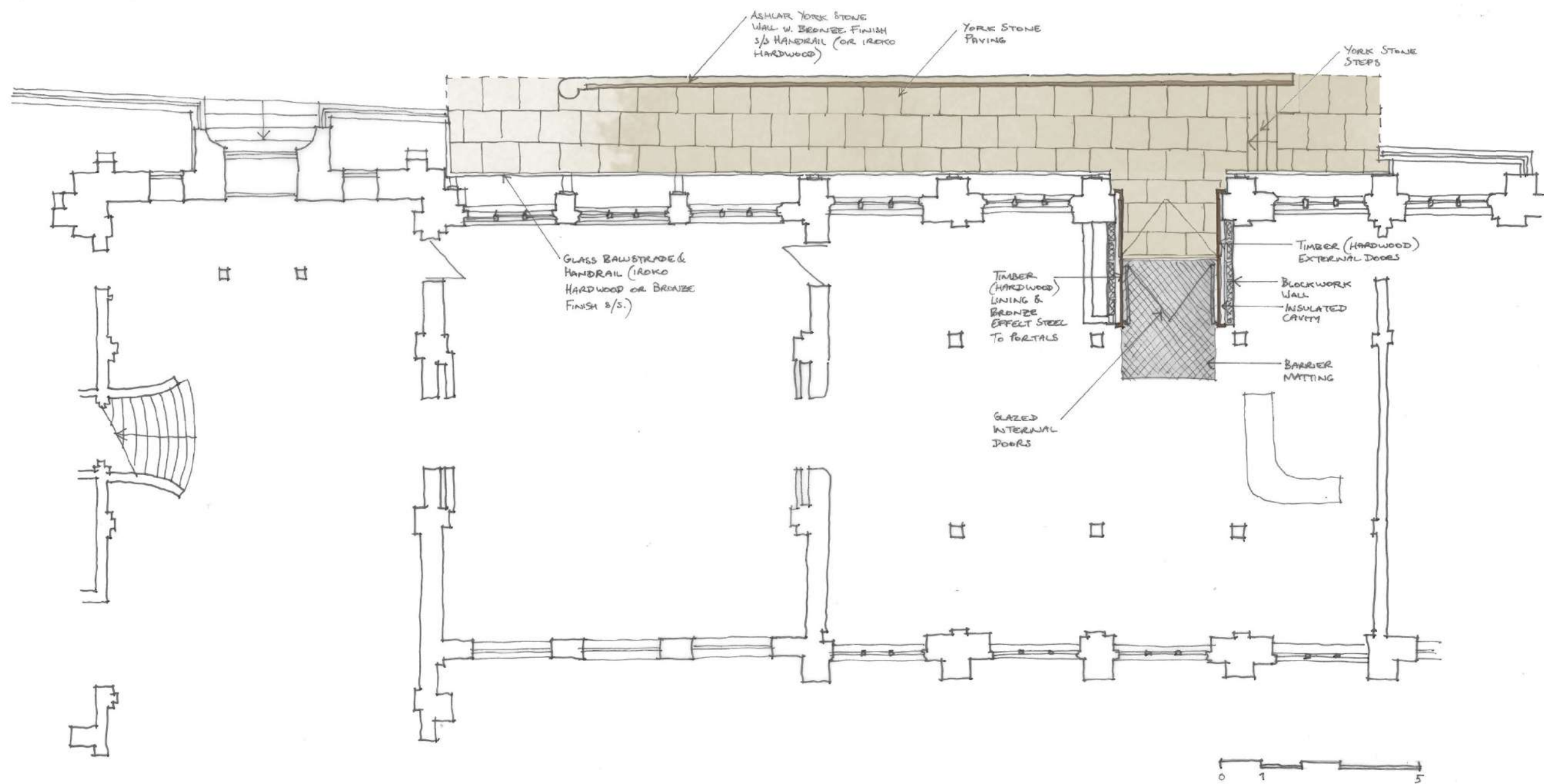
Birds Eye View of the Proposed Entrance Approach



Proposed Oxford Road Elevation



Detail of the Proposed Main Entrance Door



Plan of the Proposed Main Entrance

9.0 GALLERY PROPOSAL

9.1 GALLERY BRIEF

In order to fulfil client's brief to create two new gallery spaces, a large volume had to be introduced to the sensitive setting of the courtyard. The ground floor Exhibition Hall has been defined to be flexible so that various travelling exhibitions could be hosted without limitation. Naturally lit space was also a requirement with an option for black out depending on the type of exhibition. South Asia Gallery on the first floor, on the other hand, requires controlled light to host sensitive objects on loan from British Museum. The proposed extension to house these two new galleries as a single volume, a 'jewel' in the courtyard, will provide: -

- A transparent enclosure (glazing) to the Exhibition Hall – with black out blinds or roller shutters incorporated to permit greater flexibility
- A feature textured enclosure (faience terracotta tiles) to the South Asian Gallery to announce the new extension whilst being respectful to the historic surroundings
- A solid element (natural stone) at the plinth and a section of the façade to reference the historic context
- A lighter touch (glazing) where the new building connects to the existing buildings

Handmade faience terracotta offers almost unlimited design flexibility in shape, size and colour, with good durability and performance properties for a damp Manchester climate. Due to its abundant raw material source, low embodied energy, exceptional durability and low maintenance, terracotta is also a great sustainable choice, reducing solar heat gain through solar shading.

Both terracotta and natural stone, proposed for the courtyard elevations, are traditional materials which complement the historic environment. They will be used in a modern manner to add a new layer to the museum complex which has extended at various times.



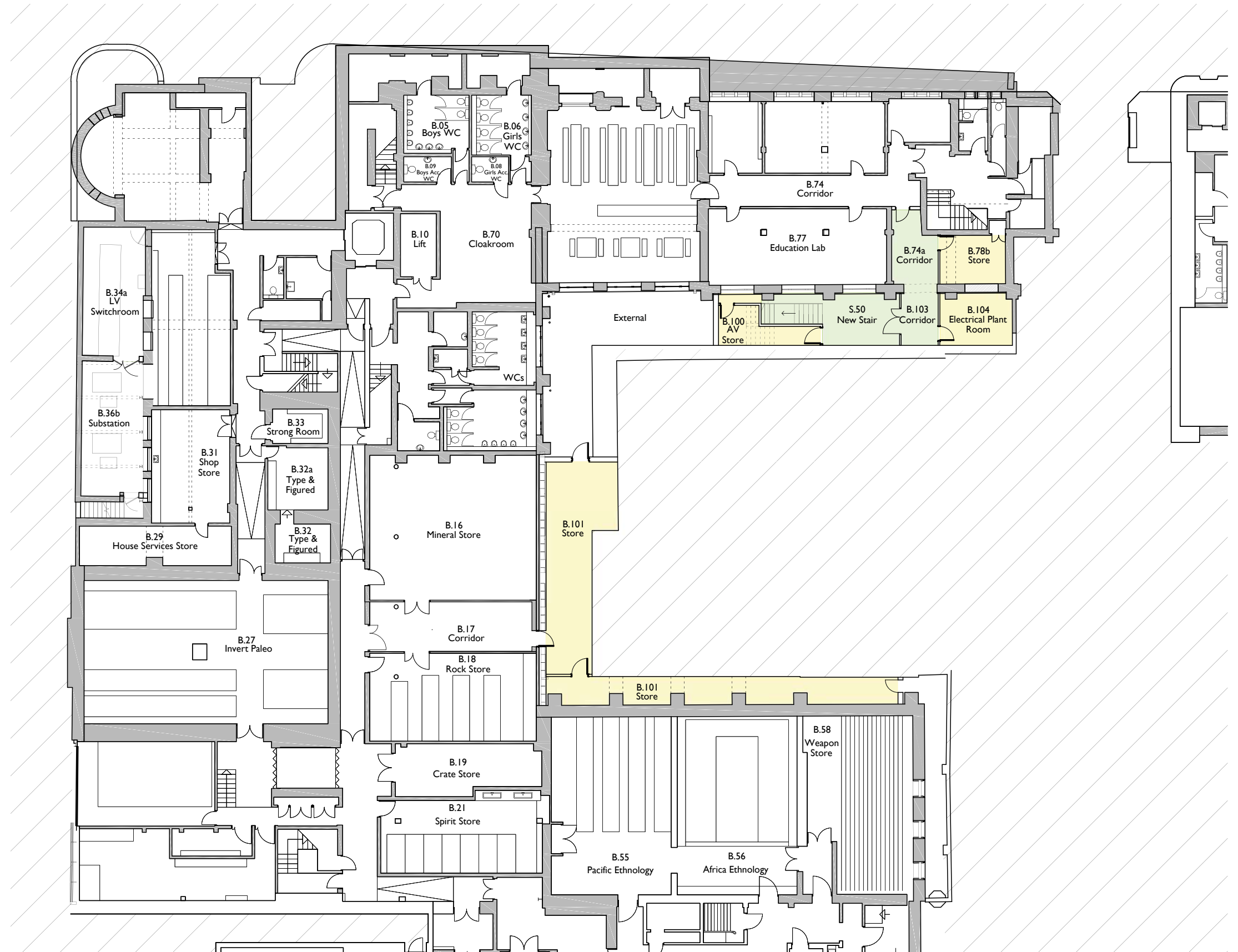
Proposed Coupland Street Elevation

9.2 GALLERY FLOOR PLANS

Basement Floor Plan

The new extension creates a lid over the existing moat which creates a series of secure storage spaces. A new corridor is formed via a disused office to facilitate access from the museum.

A new staircase links the galleries to the Education LAB. The AV Hub is situated in the basement of the new stair which provides a clear route for cabling/service route to the galleries via a vertical riser.



Ground Floor Plan

Visitors enter the museum through the new entrance located on Oxford Road. Historic interior with high ceiling and stone windows is revealed once they enter the museum via the lobby. Reception desk is within easy reach on the left as the visitors enter the museum. On the right, through a series of arched openings, there is a direct line of sight to the Shop, the Event Space and the historic stone staircase. This helps in terms of wayfinding: - the Event Space leads to the new Exhibition Hall and the historic staircase leads to other museum spaces on upper floors.

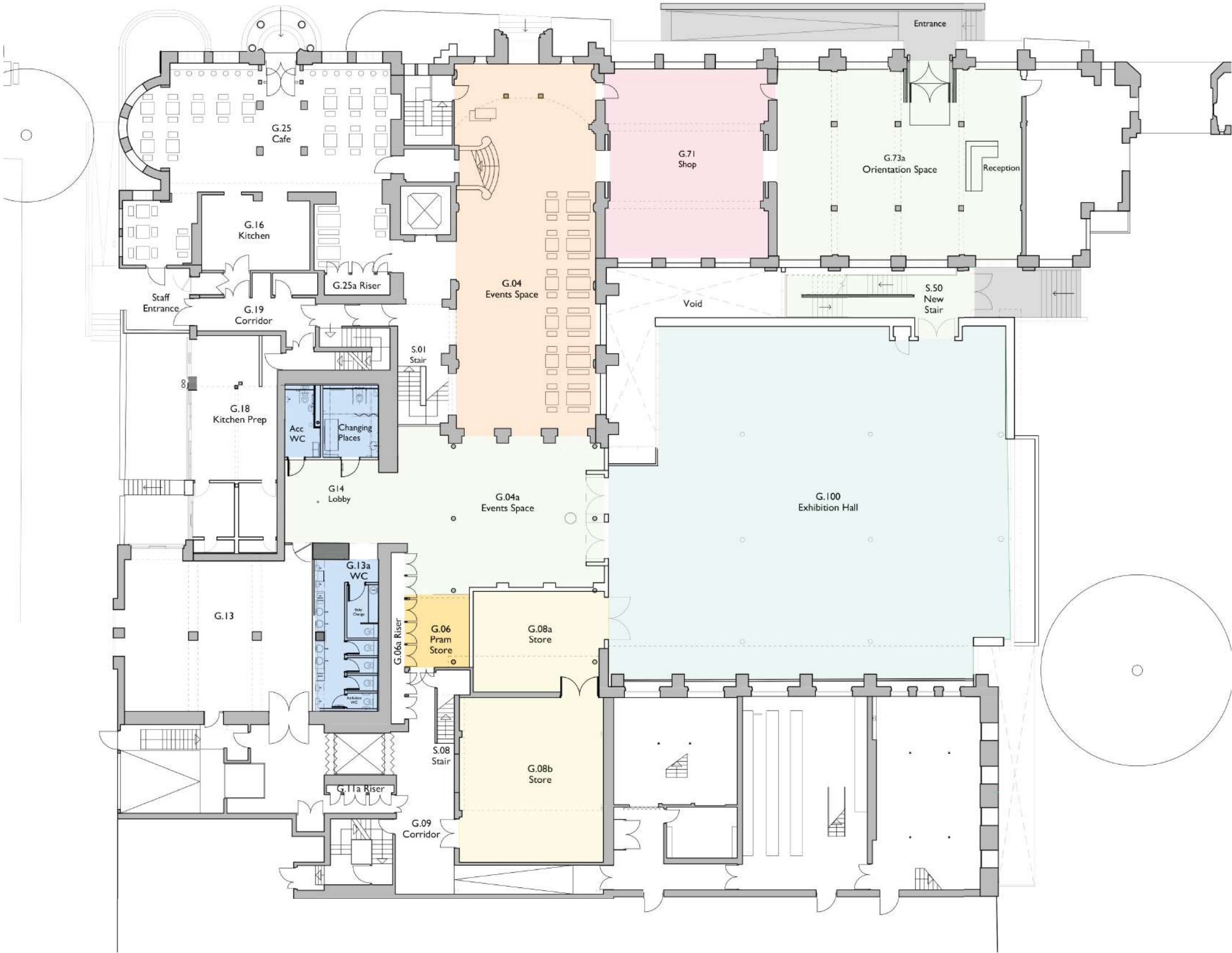
Once inside the Exhibition Hall, the visitor circulates through the flexible open plan space, objects are housed in cabinets.

There is the café, with access via Oxford Road or from the Event Space with an additional grab-and-go coffee point providing overspill offering alternative to the café.

There will be seven new WCs on the ground floor. They are all unisex and one will be accessible, another Changing Places and the other will be within the baby change room. This will be a great improvement to the visitors as there are currently no toilet provisions on the ground floor. This will ease the requirement to access the basement toilets therefore the use of the lift. The toilets will include dementia-friendly signage to enter and exit the room.



Making an Entrance

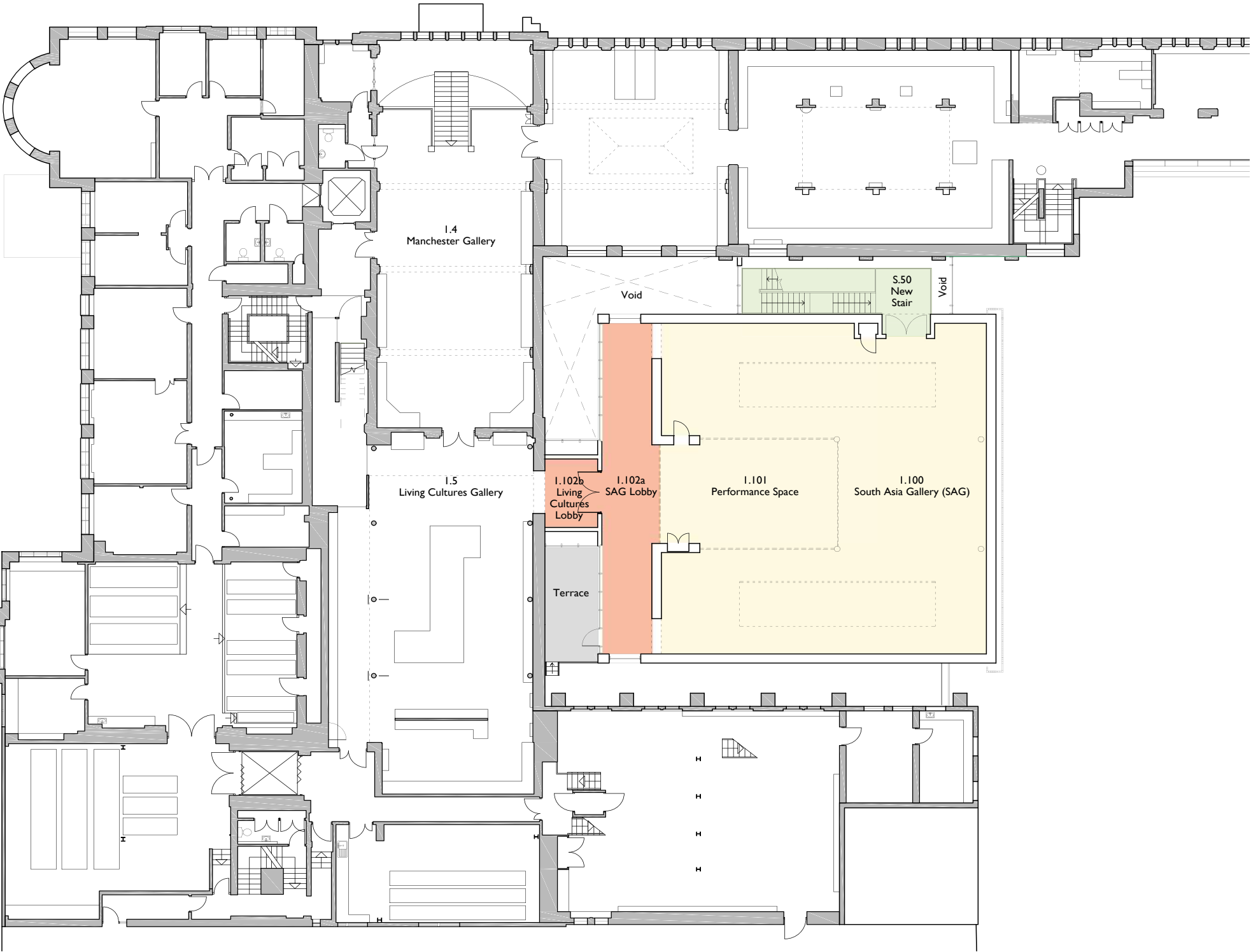
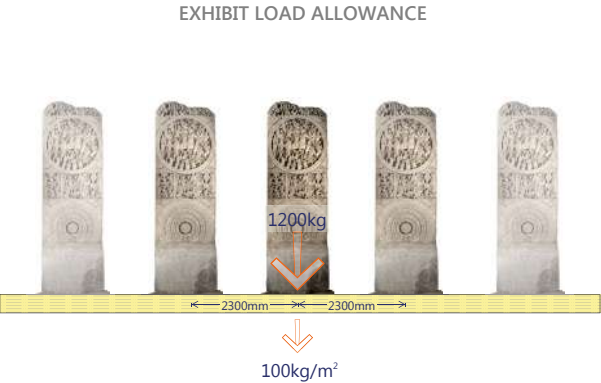


First Floor Plan

Visitors arrive at the first floor via the historic staircase, directly into the Manchester Gallery. There is a direct line of sight to the new Living Cultures Gallery which leads to South Asia Gallery (SAG).

Visitors enter the SAG via a bridgelink into the arrival space. They may pause on the benches b the terrace before wandering into the Gallery.

Once inside the gallery, the visitor circulates through an array of episode that cover various elements of South Asia. A performance space forms the heart of the gallery, and is a place for dance, storytelling and Indian tea parties.



Roof Design

Proposed extension roof is set in from the existing buildings to minimise impact in the historic context and emphasise the design concept of 'jewel' in the courtyard and the addition of linear northlights provide soft controlled light to the South Asia Gallery below.

The roof will have a paved finish and provide an opportunity to display objects or plants externally, which will be visible from the surrounding buildings.

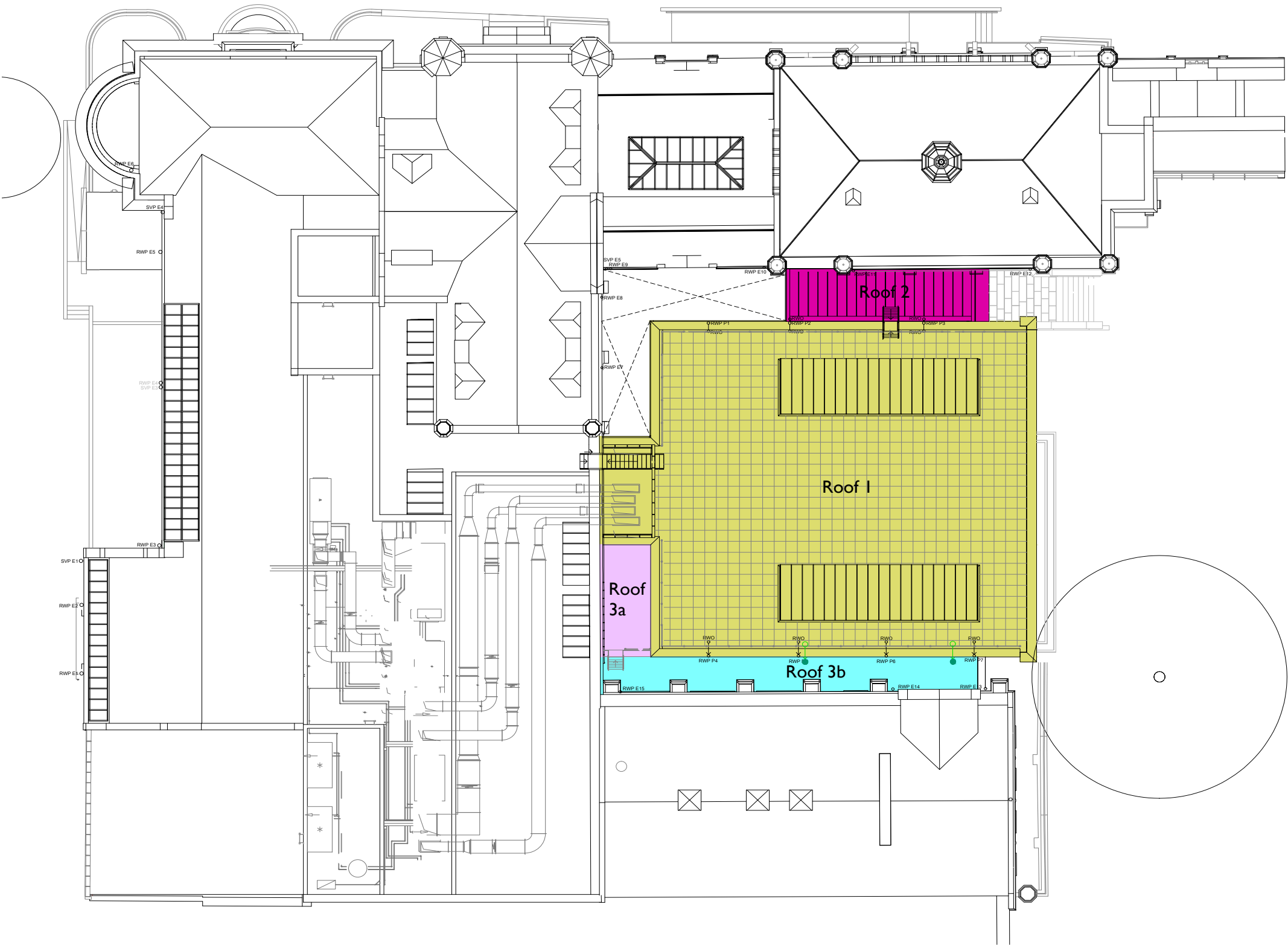
Safe access is maintained on the new extension roofs with access stairs, edge protection and parapets. The terracotta cladding facing Coupland Street will naturally form a parapet on Roof 1. Simple metal railings are provided as edge protection on three other sides of Roof 1 not just for safety but also for transparency: - they allow the maximum view out from the surrounding buildings where the existing windows are close to the extension wall.

Rainwater outlets, gullies and north lights could also be safely accessed, inspected and cleaned from this area.

Same metal railings are proposed on the open edges of Roof 2 as edge protection.

A small section of 'L'-shaped flat roof is proposed at first floor level between the proposed extension and Rutherford Building (Roof 3). This is intended to provide separation from the existing buildings and be respectful to historic façade of Rutherford Building.

The terrace on Roof 3 will be used as part of the exhibition space. The visitors can view the exhibits through the full height glazing in South Asia Gallery.

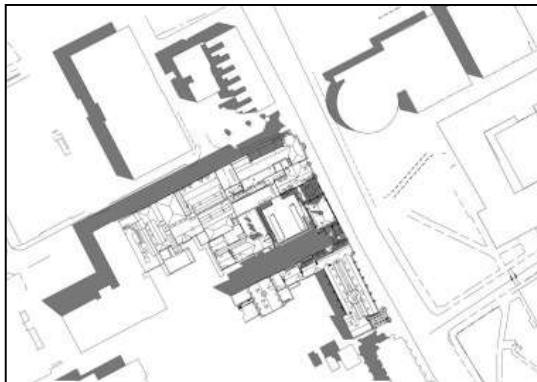


9.3 GALLERY SUN PATH ANALYSIS

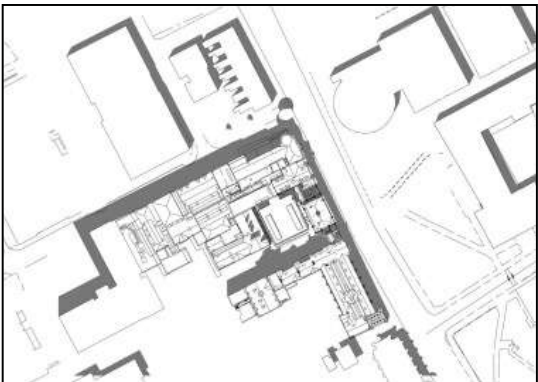
An overshadowing study was undertaken to assess the access to sunlight for the open shared Asian garden and impact of the courtyard development. The results are shown adjacent. This Sunlight/ Overshadowing assessment was carried for the 21st March, a date as outlined in the BRE guides.

The Asian garden is a predominately shaded space this will inform the selection of planted species located in this open space.

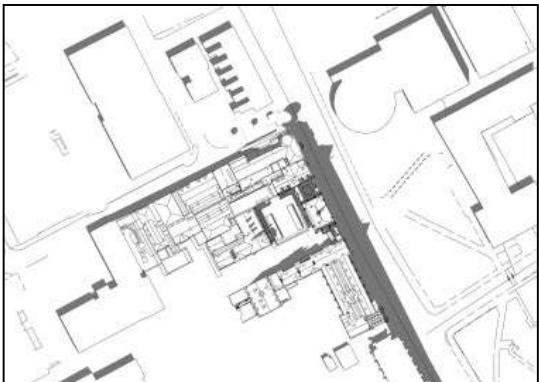
The BRE recommend that for the garden or amenity to appear adequately sunlit throughout the year at least half of the space should receive at least two hours of sun on 21st March. The study shows the development assessed on the 21st March between 12.30 pm and 2.30 pm.



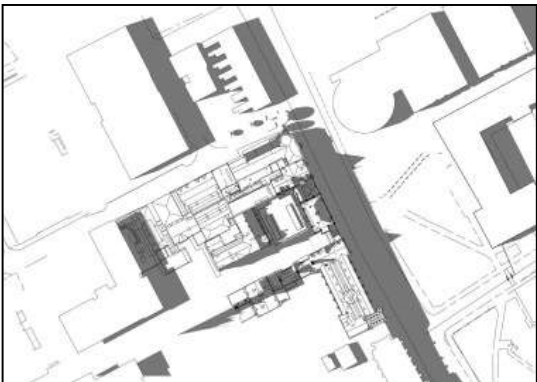
Museum Site - Summer Solstice
10:00



12:00



14:00



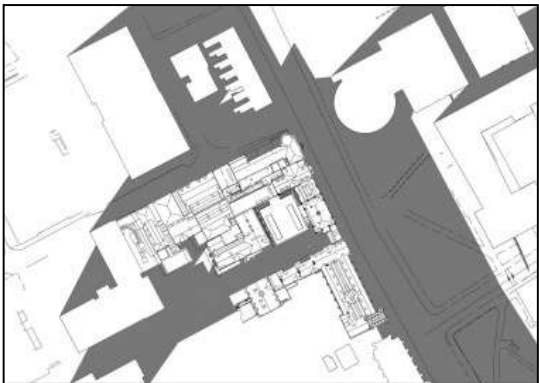
16:00



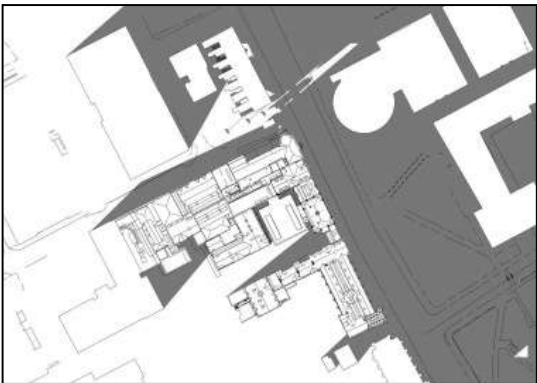
Museum Site - Winter Solstice
10:00



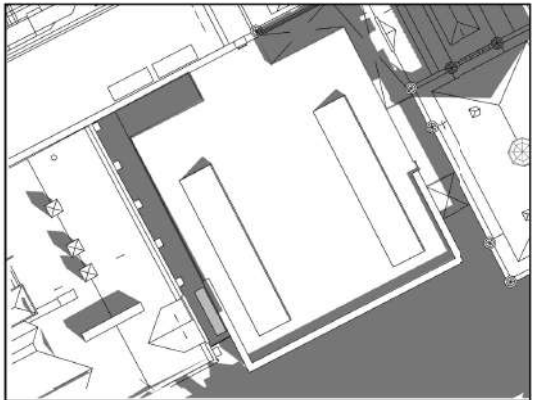
12:00



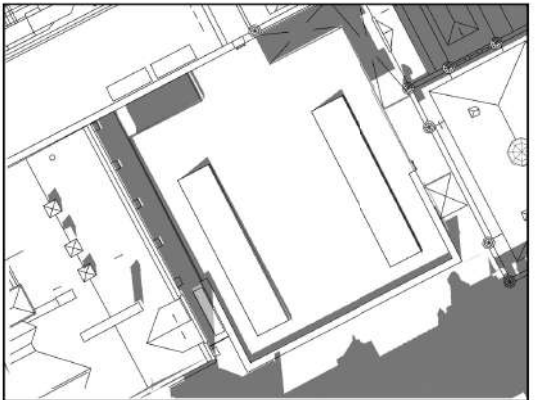
14:00



16:00



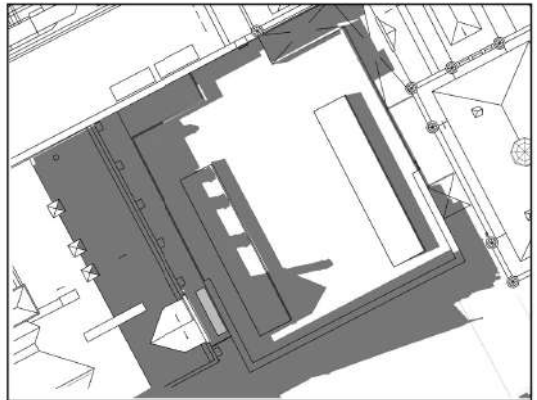
South Asia Gallery - Summer Solstice
10:00



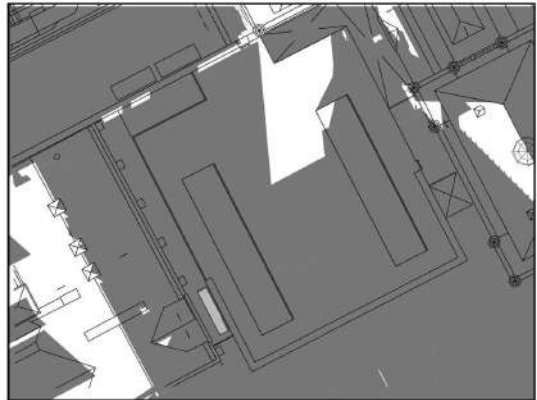
12:00



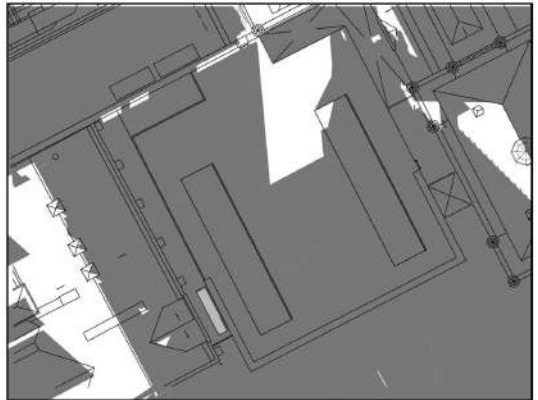
14:00



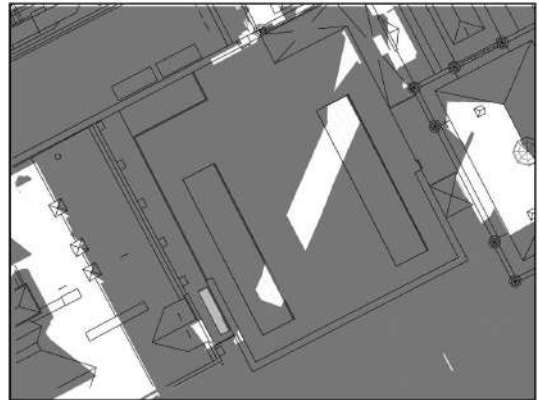
16:00



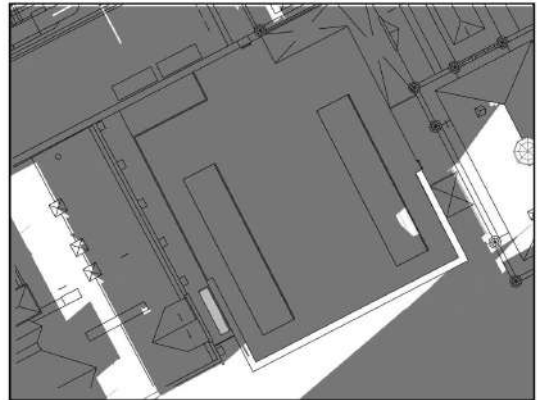
South Asia Gallery - Winter Solstice
10:00



12:00



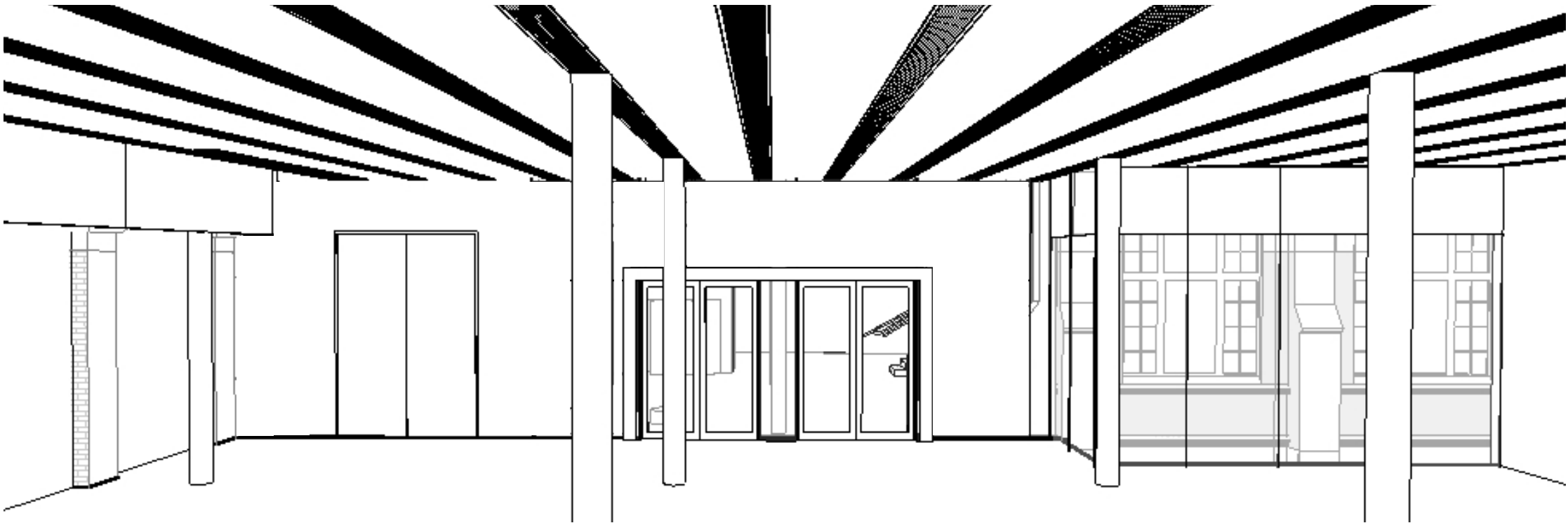
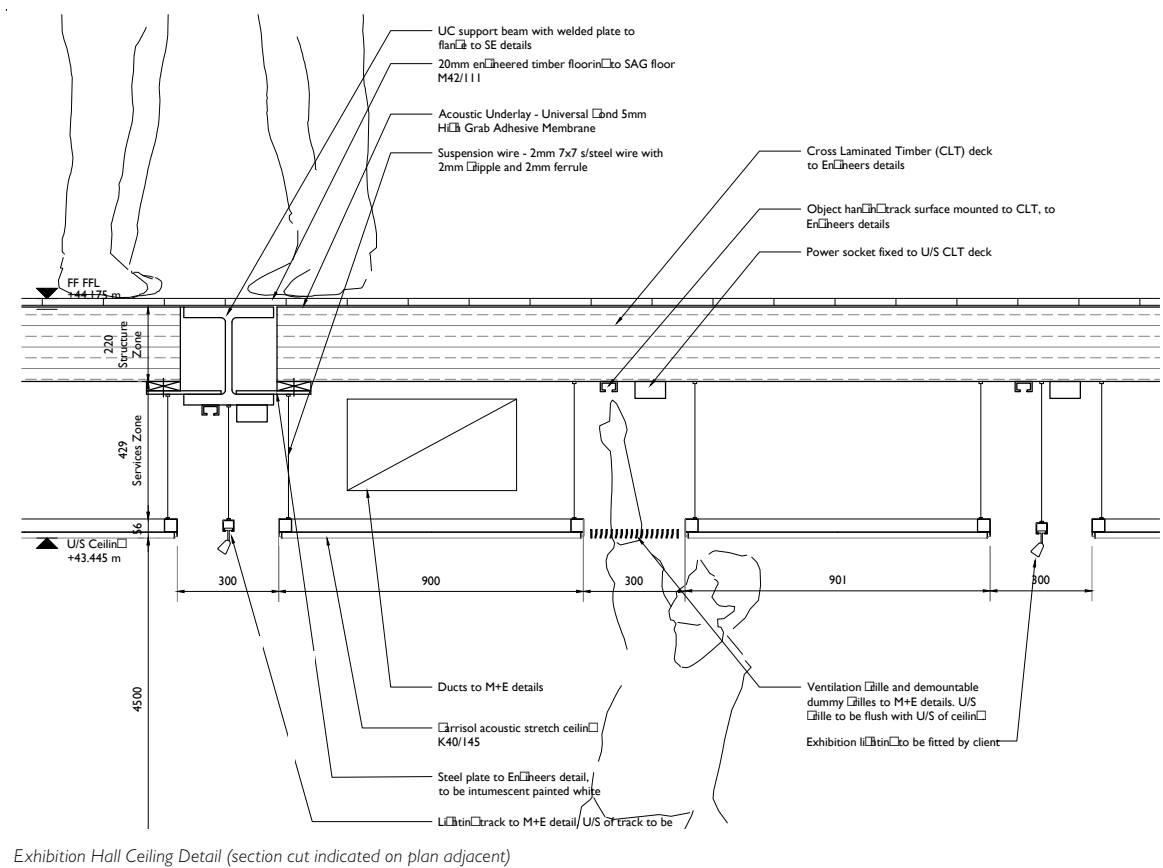
14:00



16:00

9.4 NEW EXHIBITION HALL

The Exhibition Hall has been designed with flexibility in mind to accommodate various types of travelling exhibitions. A large open plan gallery is partly surrounded by full height glazing to let light in and visibly connect the new gallery with the existing buildings. Floor finish is robust with floor boxes throughout for maximum flexibility and the soffit allows hanging of heavy exhibits. The buttresses of the Rutherford Building will be exposed within the Exhibition Hall whilst the walls and windows will be boarded up to allow for displays. This again shows connection with the historic building and the infilled sections can be reversed should there be access required to the historic fabric.



View of the Exhibition Hall



Precedent image of the gallery ceiling

9.5 SOUTH ASIA GALLERY (SAG)

The SAG has been developed with a traditional gallery form and relates directly to the existing galleries within the museum. Solid walls allow for mounting and displaying of exhibits, whereas two sets of northlights let in soft, controlled, natural light.

The exhibition design will be developed further with the client and the British Museum in the next stage, and the detailed information is listed in the next section.



Gallery Ceiling Precedents



View of the Proposed South Asia Gallery

II.0 STRUCTURAL PROPOSALS

II.1 STRUCTURAL DESIGN PROPOSALS

Courtyard Extension

It is proposed to make the Courtyard extension in a steel frame. The overarching strategy for the design of this element has been to keep it structurally isolated from surrounding historic fabric.

Foundations

The proposed Courtyard building sits at ground level and is surrounded by existing buildings on three sides. The existing buildings have a lightwell that goes down to basement level formed with a masonry retaining wall.

A piled foundation option was adopted to support structural design loads and control differential movements between columns. In addition, to mitigate the risk of damaging or overloading the existing foundations, the new piles will be installed a minimum of 3.35m away from the existing structure. This foundation solution eliminates the need for work in the lightwell area and provides enough space to utilise machinery for piling.

Several options have been reviewed for the ground floor slab. Both cost and durability have been drivers in the selection of the preferred solution, which is to construct a traditional reinforced concrete foundation. This will span between ground beams to control movement and the risk of settlement in the made ground, it will also be formed directly off the insulation enhancing construct-ability.

At the existing ground level, the courtyard the retaining walls are likely to continue to allow moisture to enter the lightwells. Where there is the requirement to control damp along parts of this wall a drained cavity will be used. As part of opening up this area some small retaining walls and underpinning to the existing walls will be required as shown in the structural drawings.

Floor plates

The proposed floor plates have been designed to delicately cantilever out towards the existing building and to be set back from existing mouldings and features on the historic façades to create a movement joint. By adopting this strategy the alterations is reversible and it also avoids any transfer of load into the existing historic fabric. As we do not propose to change the load in the existing structure the scope for intrusive investigation is reduced.

The design of a movement joint all around the building also prevents the tying together the collection of Museum buildings together and enables them to breathe in the same way as originally designed

Structure

To mitigate the risk of damage to the existing buildings and collections, it is proposed the new Courtyard structure is structurally independent to the existing structure. To achieve this, movement joints will be required along all the interfaces. At ground levels the movement joint will consist of a physical gap of around 50mm, this may be filled with a compressible material and fire stop depending on detailed requirements. This strategy, inherently requires little intervention to the existing building fabric during construction, and so poses minimal risk to the collections being housed

in the storage facilities. Albeit further discussions are on-going with regard to vibration.

At higher levels, the connectivity between existing and new courtyard is created with a glazed roof structure. This is supported from a cantilever structure and will act independently from the existing structure. This will therefore mean that no forces are transferred to the existing building, resulting in minimal risk to the existing Museum. Discussion with the architects will need to be had during the next stage to detail a flexible waterproofing to span the gap between the two structures.

Alterations to existing structure

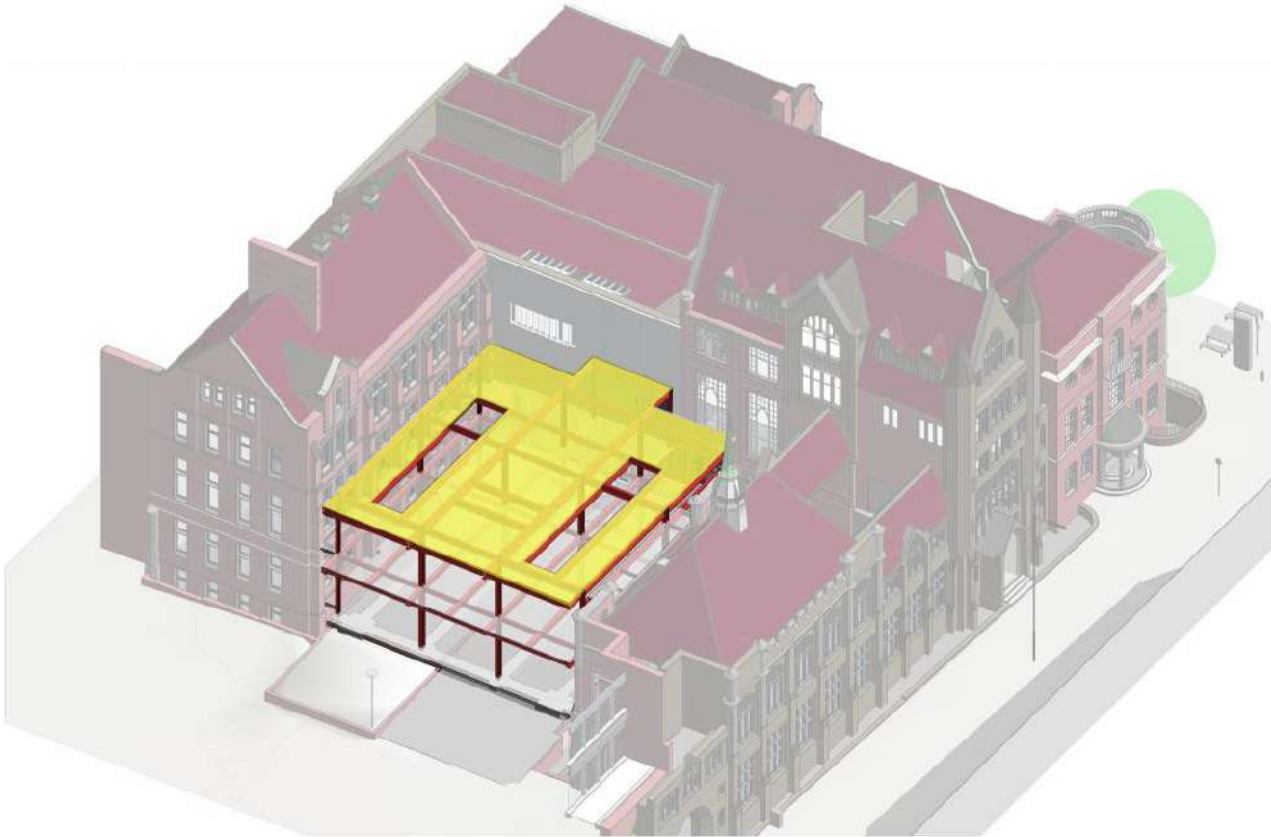
Some sections of the existing structure will need removing to create new or larger openings. To ensure structural integrity and load paths are maintained, box frames are required. These effectively spread the load applied to the top, evenly throughout the bottom member.

Entrance Bridge

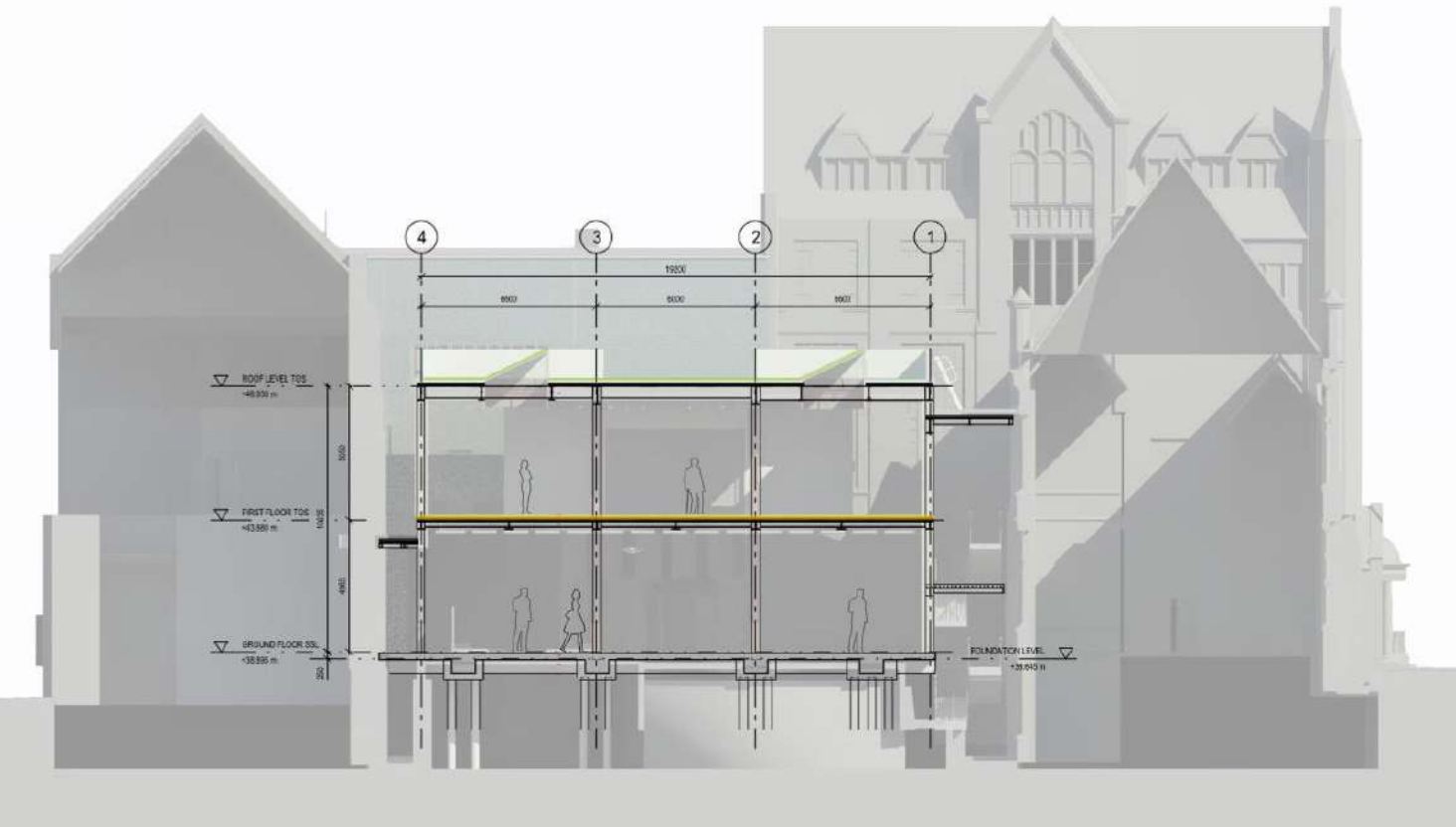
There are two components to the proposed remodelled entrance bridge that need to be considered; the alteration to the existing façade and the transfer of load from the linking bridge.

It is proposed that new entrance will align with the positions of existing windows. To create the level access required to enhance accessibility the existing masonry cill will be lowered. To ensure the existing lintels (not original) are fully supported some new masonry jambs may need to be created around the proposed door opening.

It is proposed that the lightweight steel bridge will be supported on the masonry walls on the Museum side, the change in load will be offset by the weight of masonry removed in lowering the cill. On the road side it is proposed that the bridge spans onto the existing retaining wall and is integrated with the proposed ramp



3D image showing primary frame and existing building



Structural Cross Section through building

12.0 MEP PROPOSALS

12.1 INTRODUCTION

The purpose of the Manchester Museum courtyard project is to provide expanded exhibition space to provide a new permanent South Asian Gallery and Special Exhibitions Gallery capable of hosting world class touring exhibitions.

This section outlines the proposed alterations and additions to the mechanical systems serving the Manchester Museum and the proposed courtyard extension.

12.2 EXISTING AND PROPOSED ALTERATIONS

Overview of Existing Installations

This section provides an overview of the mechanical services serving the Manchester Museum buildings to the North of Coupland Street. Areas of the Museum located within the Beyer building to the South of Coupland Street are independently serviced and not discussed here.

The appended plans and elevations SKP01-SKP05 in Appendix O show the main existing plant items.

All existing large plant items are located in a single rooftop plant area. Largely plant items are completely screened from view due by roofs and a plant screen. Chillers and the boiler flue are located on top of the goods lift overrun and are visible from the North-West and South-West of the building.

Overview of Existing Systems

Heating Systems

The primary heat source serving the museum is the University of Manchester's district heating system. This system does not run for three months of the year over summer.

As a secondary heat source a summer gas boiler located within the basement of the museum provides heating in summer when required by existing close control systems. The boiler flue discharges at roof level.

Heating systems have sufficient capacity to serve the proposed extension and no changes are proposed.

Chilled Water Systems

There are two existing chillers located on top of the goods lift overrun. These provide chilled water to an air handling unit with twin supply sections for the purpose of cooling and dehumidification of the existing ethnology and temporary exhibitions galleries.

These chillers are reaching the end of their useful life and it is proposed that these are replaced with more efficient modern units with a similar capacity.

Refrigerant Systems

A standalone DX cooling system serves the existing Mummy store. The outdoor condenser unit for this system is located within the moat surrounding the existing courtyard.

The moat will be enclosed by the proposed extension and it is proposed to move this condenser unit to the moat to the front of the Rutherford building as detailed on the drawing SKP06 in Appendix O.

Ventilation

The Museum is served by a three supply and extract ventilation systems and a number of standalone extract only systems.

Two ventilation systems served by air handling units AHU03 and AHU02 serve the existing lecture theatre, circulation spaces and toilets. Within the building it is proposed that these systems are altered to accommodate the proposed layout changes however there will be no alterations to these systems external to the building.

A further ventilation system serves the existing ethnology and temporary exhibition galleries. This system is served by a single air handling unit with twin supply sections (AHU01.) It is proposed to remove this system completely. The ethnology gallery is to be retained within the building and a new ventilation system and air handling unit will be provided for this space.

No changes are proposed to existing extract only systems.

12.3 PROPOSED WORKS

Overview of Proposals

It is proposed to provide new mechanical ventilation systems to the proposed galleries and to resupply the existing ethnology gallery with a new mechanical ventilation system. These ventilation systems will also provide heating and cooling to the spaces.

A mechanical system is proposed due to the requirement for tight environmental control within gallery spaces necessary for artefact preservation and imposed by the Government Indemnity Scheme and lending institutions.

Due to the requirement for environmental control at all times all proposed plant may be in operation at any time of day.

The appended plans and elevations SKP01-SKP05 in Appendix O show the proposed external plant items.

All proposed new plant items are to be installed within the existing plant area as this is generally concealed from view; allows for centralised plant maintenance and facilitates use of existing services infrastructure.

12.4 SUMMARY OF PROPOSED SYSTEMS

Heating Systems

No new heating systems are proposed.

Chilled Water Systems

A new chilled water system is proposed to replace the existing.

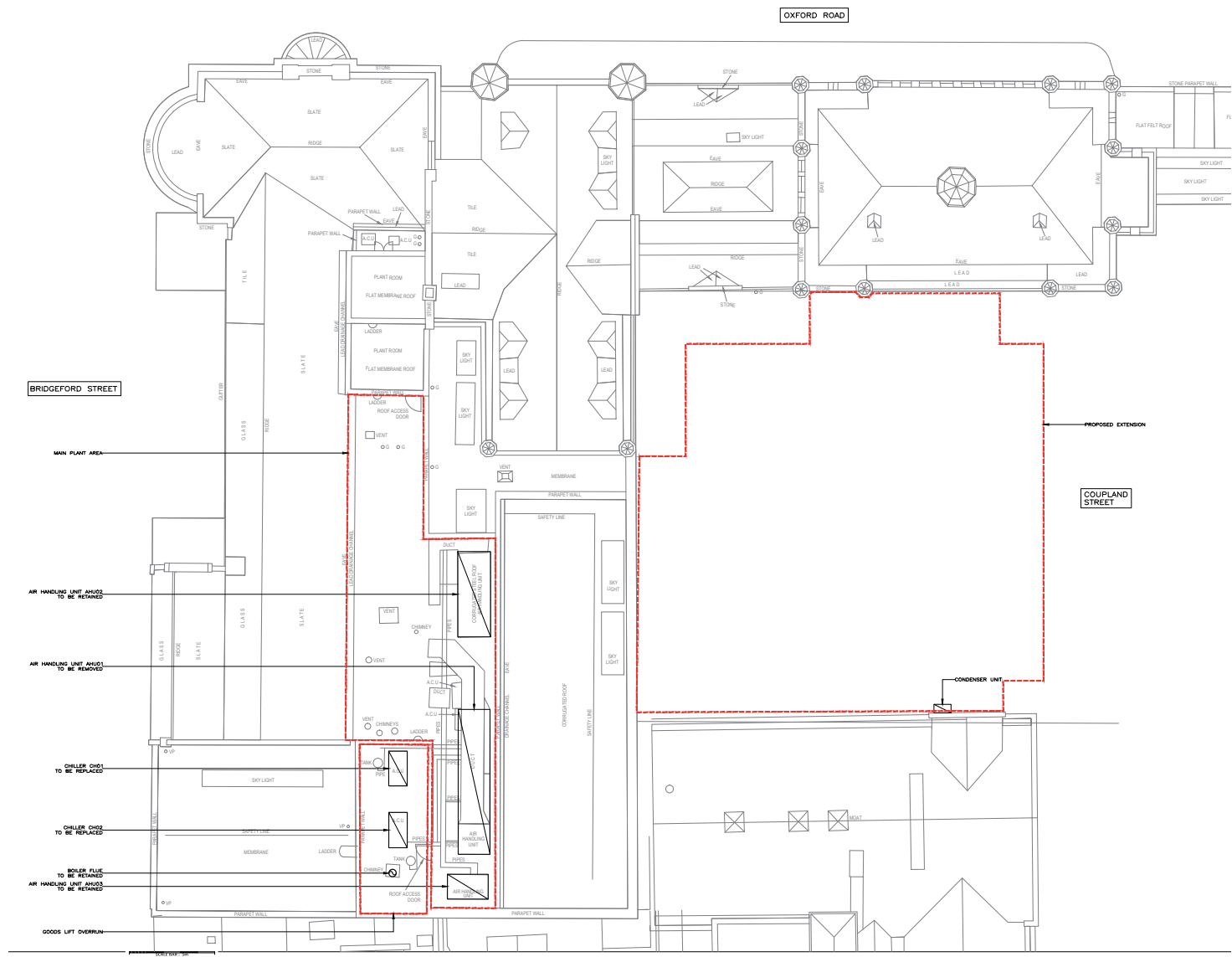
Refrigerant Systems

A new DX cooling system is proposed to serve the new Special Exhibitions Gallery Store.

The outdoor condenser unit will be located within the existing concealed rooftop plant area.

Ventilation Systems

New mechanical ventilation systems served by air handling units AHU04, AHU05 and AHU06 are proposed to serve the new Special Exhibitions and South Asian Galleries and the existing ethnology gallery. These will be located within the existing roof plant area.

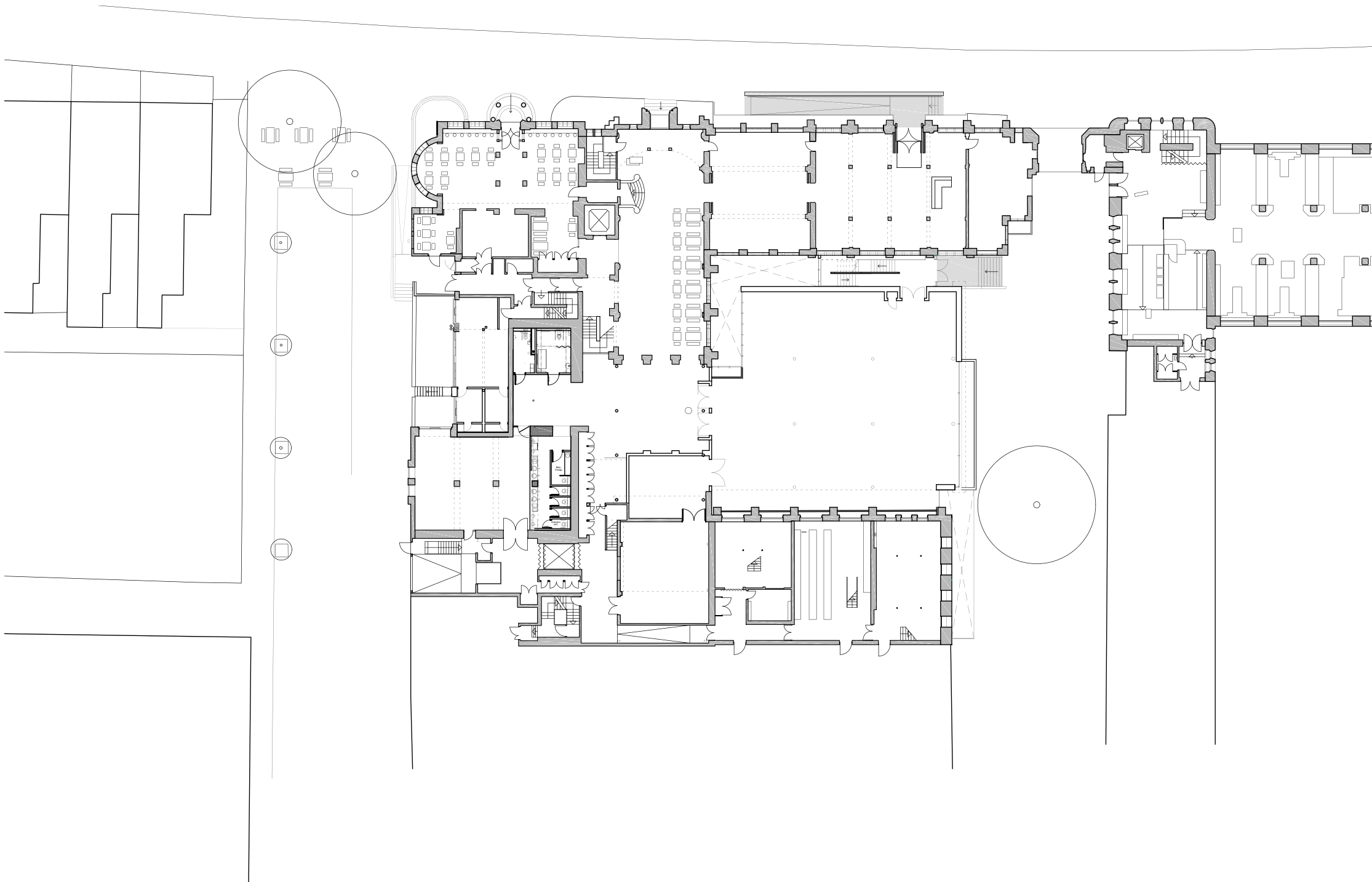


13.0 LANDSCAPE PROPOSALS

Op-En's brief was to maximise the ecological offer in the Manchester Museum Courtyard project. This position tallies with the principle determined within the University of Manchester's Environmental Sustainability Tracker. The project team have committed to ensuring that the ecological value of the site is retained, and that any change in ecological value is either equal to or greater than zero.

Landscape drivers include:

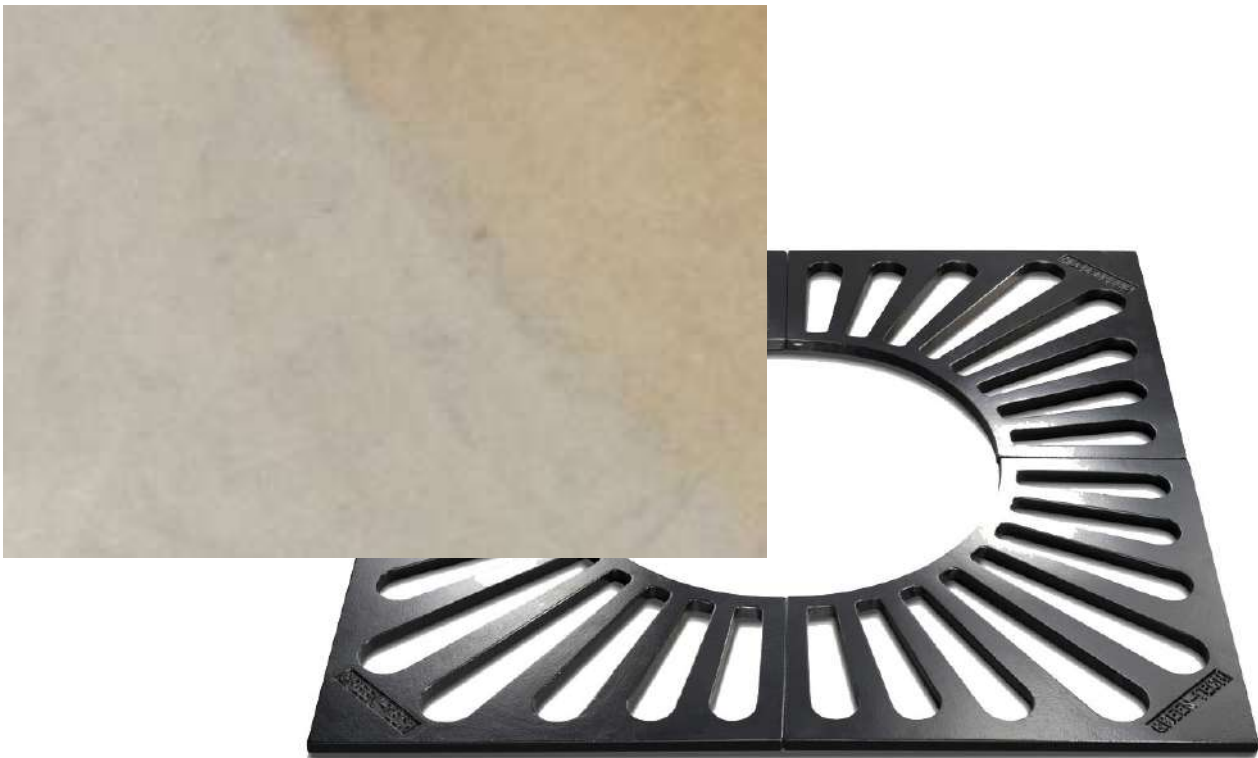
A planted plinth which is set between the Exhibition Hall facade and Coupland Street. This gives opportunities for integrated planting, internal views through foliage and a pleasant protection zone for the glazed Exhibition Hall facade. This area will be modest to allow access for the truck mount vehicle for maintenance.



Landscaping Around the Museum

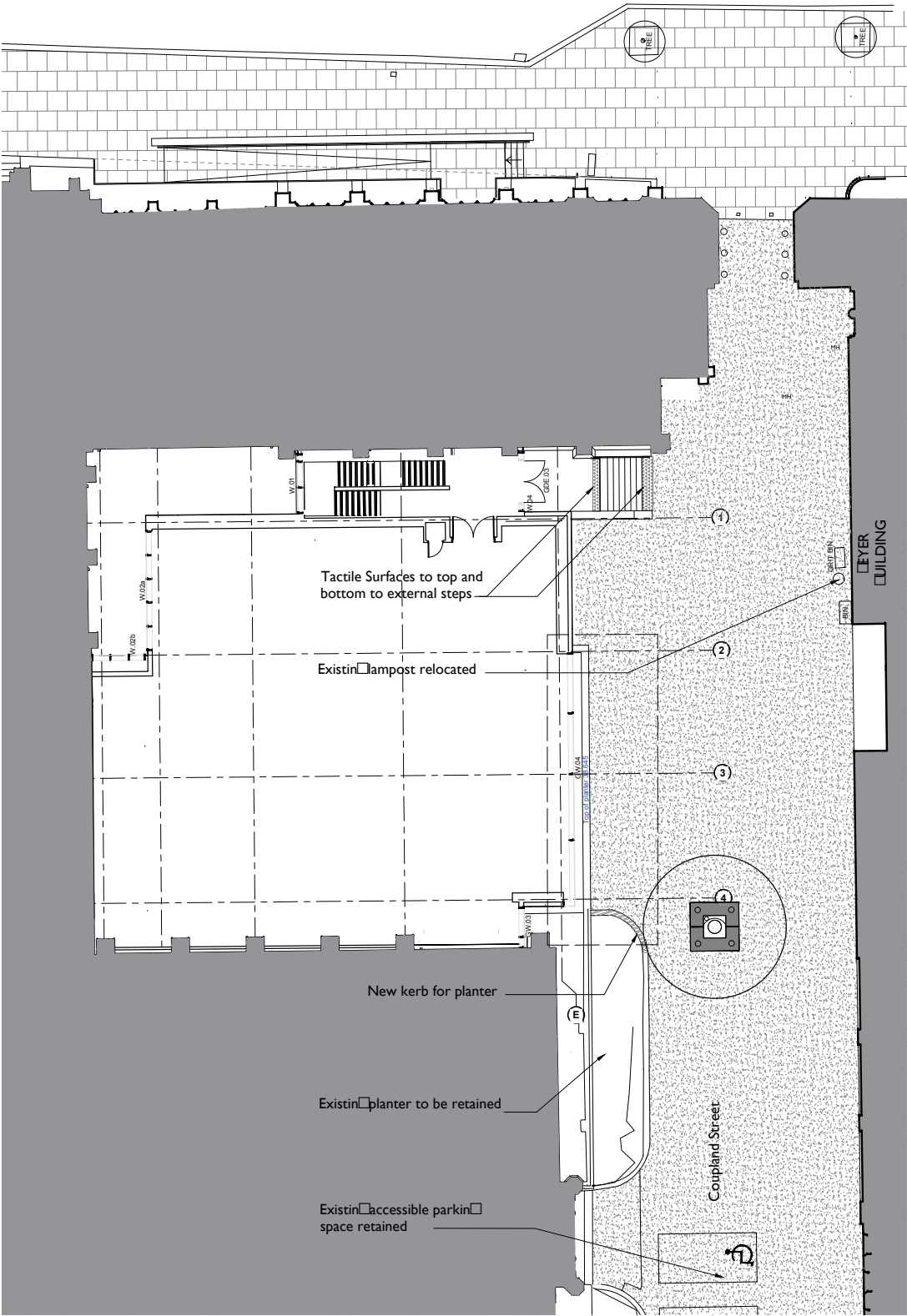
13.2 LANDSCAPE

York stone



Cast iron tree grille

- Key
- SP Sign post
 - BO Bollard existing
 - ER Earth rod
 - RWVP Rainwater pipe
 - SVP Soil vent pipe
 - MH Manhole
 - CB Cigarette bin
 - TEL Telecom
 - FH Fire hydrant
 - EL Electric cover
 - LP Lamp post
 - TL Traffic lights
 - BO Bollard proposed
 - UL Uplighters lighting to trees
 - Tree
 - New cast iron tree grille
 - Honed Yorkstone paving
 - Yorkstone paving proposed
 - Concrete paving
 - Block paving
 - Tactile paving



Coupland Street Proposed Landscaping scheme

I4.0 ACCESSIBILITY

As a public building, the Museum needs to satisfy the requirements of the Health and Safety at Work Act 1974. It also needs to take reasonable measures to provide equality of access to its buildings and services under the Equality Act 2010. Historic England states that 'Removing the barriers to access can allow many more people to use and benefit from the historic environment, and if done sensitively need not compromise the ability of future generations to do the same.

Visitor Flow & Routes

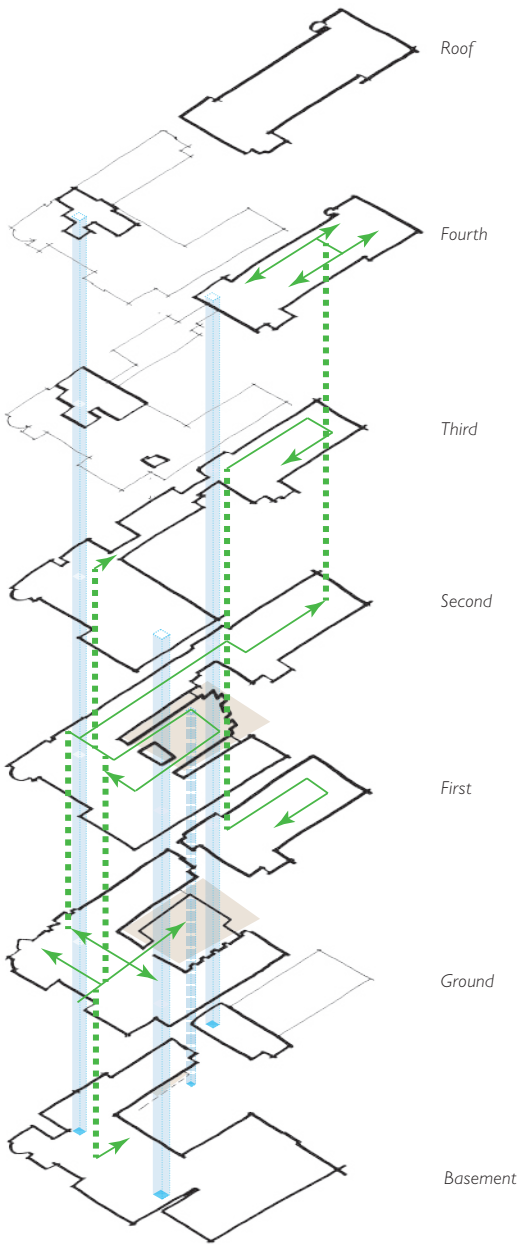
We have been working hard to find opportunities to rationalise the routes through the museum. The complex internal circulation results in areas of the museum, such as the Living Cultures Gallery on first floor, being missed or underutilised by visitors.

Areas of congestion have been identified due to limited options for vertical circulation especially in the main entrance where there is only the disjointed historic stair and a lift. The main stair is particularly difficult as there is no clear line of sight. School parties find navigating this stair a challenge and there is often queues at bottom and top.

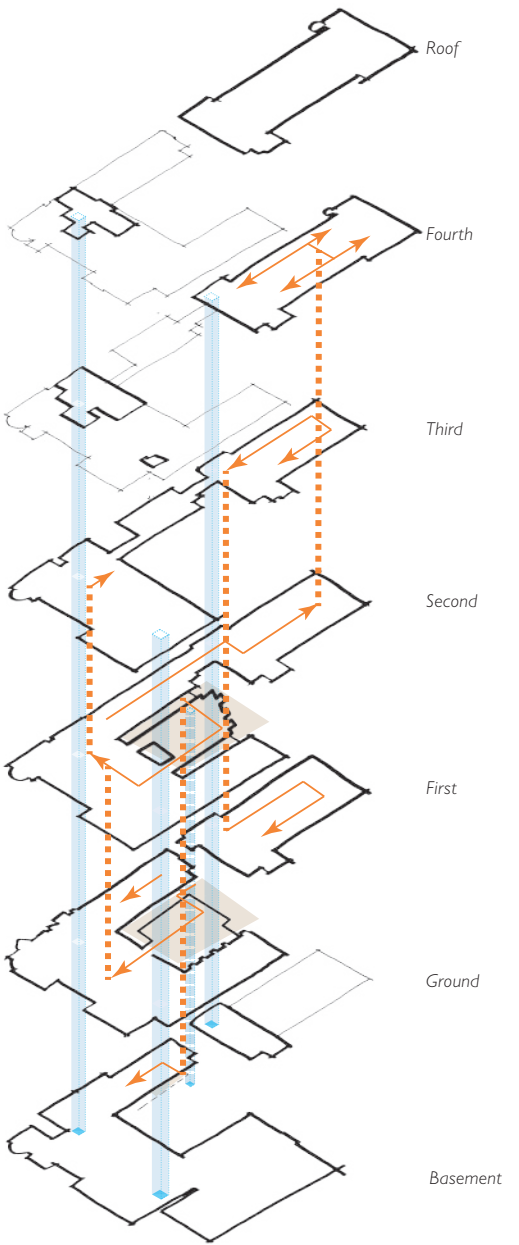
The diagrams below illustrate our thinking on the different user groups circulating through the building.

We propose to improve wayfinding by forming a new connection between the existing staircase and the new entrance. This will encourage visitors to use the staircase and alleviate the pressure from the lift.

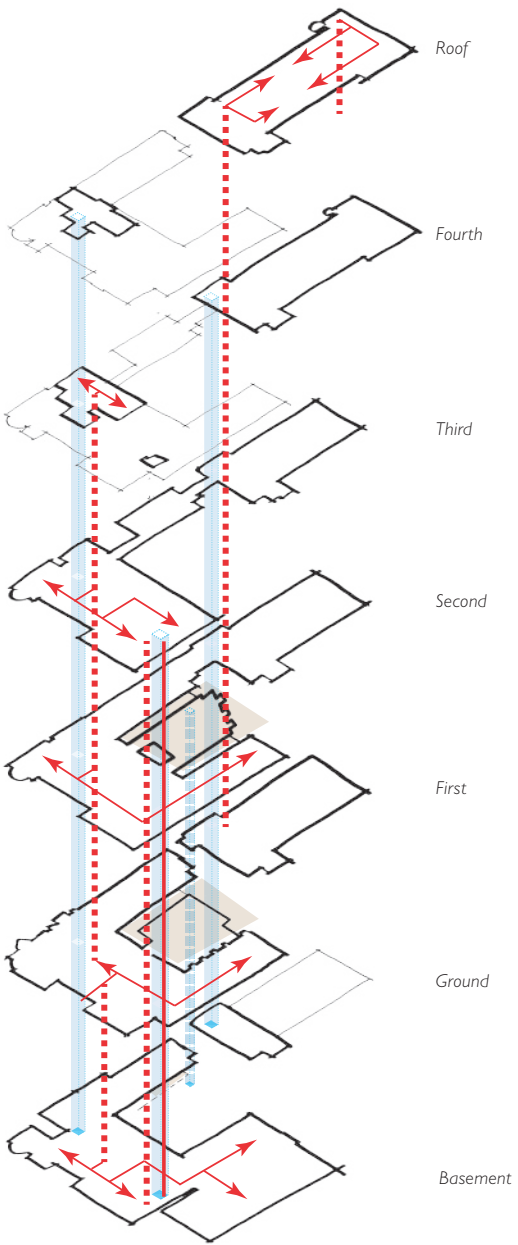
We propose to enhance the existing route on the first floor circulation. The entrance to the SAG is located off the Living Cultures Gallery which can be accessed via Manchester Gallery. The museum intends to host events in the Performance Space which could include sound or physical activities. The sound from the SAG would encourage visitors to wander from the Manchester Gallery to the SAG before they proceed to the rest of the museum.



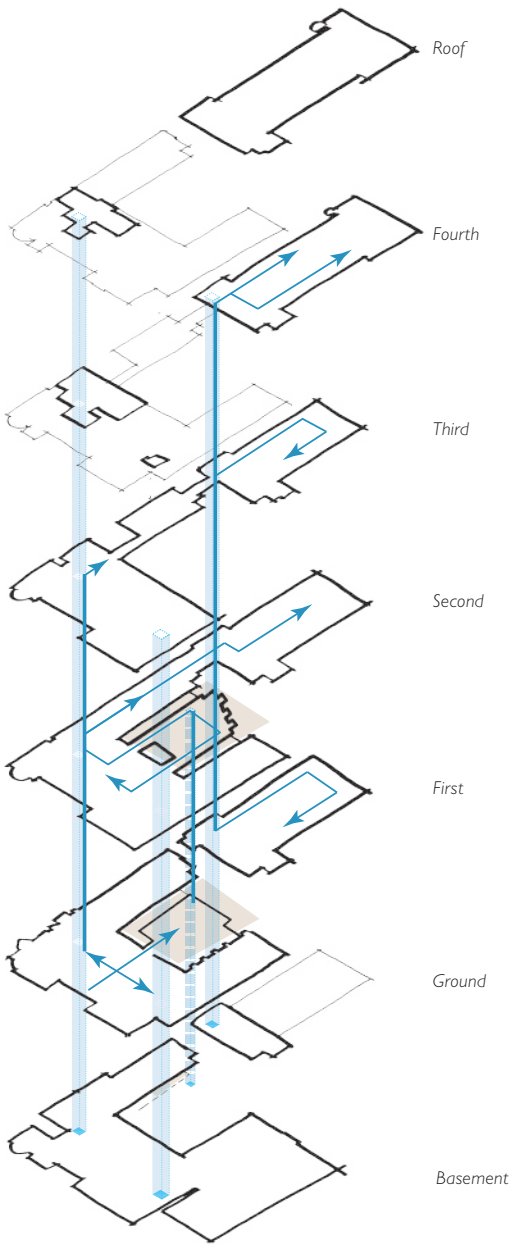
Visitor Route



School Child Route



Staff Route



Visitor using a wheelchair

14.1 ACCESS APPRAISAL

Introduction

This section is the summary of findings from the Access Appraisal Report, prepared by Jane Toplis Associates Ltd, dated 26th July 2019.

The key aspects of the proposals and how they will improve access at the museum are set out below:-

Relocating the entrance

The proposals provide a new entrance from Oxford Road with a gentle sloping path (more than 1:20 gradient) up to new entrance doors with automatic opening. The advantage of this entrance location will be that it will be easier to find, as it is located on the busy Oxford Road. It will be an inclusive entrance for all visitors arriving at the museum, with the gentle sloping path and also steps. The proposals re-orientate the museum entrance to Oxford Road, which will improve access for people with disabilities.

The proposals also provide a secondary entrance into the building from Coupland Street, which will only be stepped, due to the lack of space for a full ramp. However this entrance will not be used by members of the public.

The proposals within the building extend the ground and first floors and due to the entrance reorientation, there will be more space for circulation. The proposals will make use of the existing lift but also provide a clear view to the existing historic staircase, thus encouraging more visitors to use the stairs rather than causing long waits at the existing lift. This will be advantageous to people with disabilities circulating around the building.



Congestion around the lift

More space on the ground floor

The entrance reorientation and the relocation of the Exhibition Hall into the new extension will free up extra ground floor level accommodation within the main body of the museum, allowing extra space for circulation and visitors facilities at ground floor level. This will be a benefit to people who find busy museums disorientating, for instance people with learning disabilities or dementia. Staff members will be able to tell first-time visitors the whereabouts of the galleries, staircase, lift, WCs, shop and the café.

The current entrance hall will become the Event Space, used as a flexible space. At busy periods, for instance during half term and in the summer holidays, it will be able to be used as an overflow area for the crowds of people arriving at the museum. Out of hours it will be possible to close it off for events

Exhibition Hall (Exhibition Hall)

The new Exhibition Hall will be more spacious than the current gallery, thus allowing a variety of exhibition layouts with easier circulation routes around the displays. Its interior will be fully adaptable, depending on how the museum management wish to display the exhibition.

Improved circulation to the first floor

From the entrance and reception, it will be easy to locate the historic staircase from ground to first floor, which will be the main route to all the museum galleries. This staircase will be more utilised by the visitors because of its clear connection from the new entrance and easy wayfinding to the South Asia Gallery as well as the existing galleries on the first floor.

South Asia Gallery (SAG)

Visitors will pass through the existing first floor Manchester and Living Cultures Galleries into this gallery in the new extension. The gallery will have a new permanent display of South Asian sculptures, art works, interpretation and audio visual presentations, plus a small performance space.

Improved visitor facilities

The proposals provide extra toilets at ground floor level and these will include a unisex wheelchair accessible cubicle. An area for Changing Places will be located next to the accessible WC and will be fitted out when the funding becomes available. Baby changing facilities will be located in a separate cubicle. New toilets at ground floor level will benefit all visitors, and particularly people with mobility problems, who currently have to wait a long time to use the lift to reach the existing accessible facilities. Another vital space at ground floor level will be the larger pram store.

Conclusion

The proposals for the Manchester Museum Courtyard Project will considerably enhance access for people with a range of disabilities, plus families with young children, elderly people and people with cognitive disabilities, such as dementia. Circulating around the complex will be much easier because of the new entrance, the well placed orientation space and improved circulation space at ground floor level. The new WCs at ground floor level will relieve pressure on the existing passenger lift, so will reduce waiting times for people with disabilities, who are totally reliant on this lift. The two new exhibition galleries will be easy to locate and their content will be designed to be fully inclusive.

Once complete the whole experience of arrival, circulation around the museum and the use of the facilities by people with disabilities will benefit hugely from the proposals. The proposals will significantly improve arrival, circulation around the museum and the use of facilities by people with disabilities, making the museum a more inclusive experience for all visitors.

14.2 DESIGNING FOR DEMENTIA

A dementia accessibility audit was carried out by Dementia Havens on the existing Museum in December 2016. It advised the relevant parties look at access to the building and the public spaces and offered guidance on areas of the museum or facilities that might cause anxiety for visitors living with dementia

For visitors with dementia and their careers it would be useful to advertise on the website recommended times for visiting i.e. quieter times avoiding school visits or allocate a specific day of the week or day in the month for visitors with additional needs.

Reception area

People with dementia often stop by the black barrier matting as it appears like a hole. The draught lobby is proposed to have grey barrier matting for the whole of the room in order to avoid the above issue as well as being practical for wiping out dirt and moisture prior to entering the museum. Acoustic ceiling, tactically positioned around the reception area, would deaden the surrounding noise so that sudden noise such as scraping of furniture can be managed better. Seating is proposed by the entrance and reception area in order to offer resting and/or pause places for visitors with dementia.



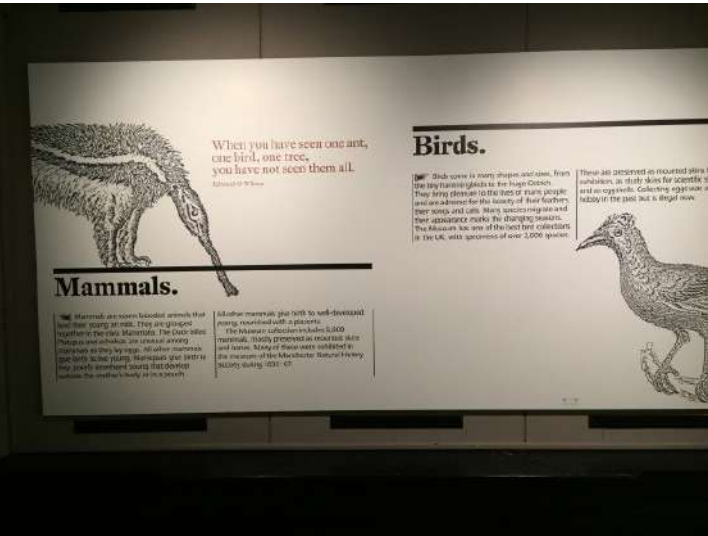
Clearer signage at eye level

Signage – It is easy to feel disorientated and lost

It is easy to feel disorientated and lost for anyone who is not familiar with the building. Adequately sized, easy-to-read signs will be installed at eye height to aid visitors, including the 'way out' signs in WCs and exits.

Main Staircase - Shiny hand rails on stairs

Recommendation - where possible high gloss finishes would be avoided on fixtures and fittings and flooring. Matte finishes preferable as they give greater contrast. Due to the listed status of the building, it will not be possible to achieve matte floor finishes in everywhere. It is proposed to match the existing floor finish wherever feasible in order to avoid frequent change of floor materials.



Opportunities to connect directly with objects through touch and handling work well

Galleries

As above, matte floor finishes will be proposed whilst being durable and fit for purpose. Colour is intended to be of a neutral tone with no patterns in order to be discrete and avoid conflict with the exhibition colour scheme. Clear distinction between floor and wall is recommended, and this will be considered in conjunction with the exhibition design.

Audio

When audio visual monitors are not in use, the visitor team could ensure films go to home page rather than playing on a loop.

Cases

Highly reflective glass on the cases will be avoided. Case lighting in the Living Cultures Gallery was identified good due to lighting of the cases.

Lighting

Lighting from directly above can cause contrast on the floor and be disorientating. Side lighting or diffused flat lighting would be preferable. Lighting in Natures Library Gallery is a good example as well as the diffused light on the text panel. We will work closely with the exhibition designer to accommodate this.

Objects

Opportunities to connect directly with objects through touch and handling work well. Museum offers object handling which is popular and an excellent method to connect with objects. Volunteers and staff can be trained so that they can engage the visitors with dementia without distressing them.

Toilets

Dementia-friendly fittings will be considered which will include mirrors, taps, toilet roll dispensers, toilet seats, paper towel dispensers, bins etc. Signage is key in the WC areas, ensuring way out is clearly marked inside the WCs and other signage positioned at eye level and legible.

15.0 INVESTIGATIONS & ASSESSMENTS

15.1 CRIME IMPACT STATEMENT

The design team, along with the security team at the University of Manchester have discussed the proposed design with Design for Security, Architectural Liaison Officer, Greater Manchester Police. Crime Impact Statement has been prepared following the discussion and summarises that the proposed scheme is acceptable. Please refer to the updated Crime Impact Statement.

15.2 ASBESTOS SURVEY

Asbestos Surveys not yet undertaken, but consultations have taken place with the UoM Asbestos Team.

15.3 GROUND INVESTIGATION

In order to develop the ground model and investigate the key risks on site, a site specific ground investigation (GI) was undertaken by CC Ground Investigations Ltd (Phase 1 – PI) and Sirius Geotechnical & Environmental Ltd (Phase 2) during March and June 2017. The ground conditions comprise Made Ground which is underlain by Glacial Till (cohesive), in turn underlain by the Chester Pebble Beds Formation (Sherwood Sandstone Group - SST). One deep borehole (cable percussive with rotary follow-on drilling) to 19.70 m BGL was undertaken as well as 4 No. window samples (maximum depth 5.00 m BGL), 9 No. foundation inspection pits, geotechnical/chemical laboratory testing, groundwater/ground gas installations (in WS01, WS02, WS04 and RC01) as well as post fieldwork groundwater/ground gas monitoring (ongoing). Please note, a brick structure (full of Made Ground) within the light well to the west of the main entrance is currently under investigation. Chemical testing of the material inside the structure is underway, however, the results are not available at the time of writing this report.

Weathered bedrock (red sand) was encountered in WS02, WS04 and RC01 between 3.95 and 4.70 m BGL, with competent SST encountered at 9.20 m BGL. There are 2 No. groundwater regimes on site, namely perched groundwater within the Made Ground in WS02 and the other in the SST bedrock at 17.66 m BGL. Limited shallow groundwater was recorded onsite, therefore, it is not anticipated that groundwater ingress will cause significant problems for an envisaged excavation works. Any perched water seepages which may be encountered are likely to be relatively minor and could be controlled by localised sump pumping methods. It should be noted, however, that should more significant water ingress be encountered, then more substantial water control measures may be required. Current data indicated the site is classified as Characteristic Situation 1 in accordance with current guidance.

Chemical testing has been undertaken during both the PI and P2 GI's. No determinands are elevated above the relevant commercial thresholds are recorded, Therefore, it is considered that risks to human health and controlled waters are low. Notwithstanding the results, the proposed development predominantly comprises hardstanding or appropriate soft landscaping build-ups which would break and source-pathway-receptor linkages. It should be noted that any earthworks should be undertaken

in accordance with the BuroHappold Excavation & Filling Specification and may need to be agreed with the Local Authority Contaminated Land Officer during the next design stage. It is envisaged that any Made Ground that needs to be disposed of offsite could be categorised as 'Non-Hazardous' and any natural material as 'Inert' subject to landfill approval. Please note, we are currently awaiting the geo technical laboratory results at the time of writing this report.

Undertaking the PI and P2 GI's at an early stage in the project life cycle has allowed key risks to be identified and a more robust design to be developed during Stage 3. In terms of substructure, due to the heavy loads of the proposed development, it is envisaged that a bored piled foundation option is the most cost effective foundation option for the scheme. Given the tightly constrained nature of the courtyard area, access issues and the presence of the large retaining wall around ¾ of the site, a smaller piling rig should be utilised on this site to minimise loading on the existing wall. Smaller diameter piles with a 5 m rock socket (minimum) are likely to be feasible for the development i.e. 300 mm diameter piles (500 kN capacity) or 450 mm diameter piles (800 kN capacity).

15.4 NOISE SURVEY

An environmental noise survey was carried out between the 14th and 15th November 2016 to assess the existing noise levels around the site and at the nearest noise-sensitive receptors.

The results of the noise survey will be used for:

- Identifying any potential impacts of the development on adjacent noise sensitive receptors and if necessary, for proposing attenuation measures to the plant that potentially could be introduced as part of the development in future stages of the project. At this stage it is understood that no new elements of plant are to be introduced, but if mechanical ventilation is required in the future or any new elements of plant are to be installed, noise limits to the new external elements of plant need to be set up.
- Assessing the suitability of adopting natural ventilation as part of the ventilation strategy for the proposed extension with façade located at the existing courtyard. Based on the observations of the engineer attending site, the main noise sources at the site were:
 - Road traffic noise from Oxford Road, mainly from buses.
 - People passing by (sporadic)
 - Distant plant noise of the University Buildings and Oxford Road. The noise measurements were performed when construction noise from the Museum building and Oxford Road near the measurement locations had stopped.

There was very mild rain during part of the day. The pavement was wet during the noise survey. This is not considered to have affected significantly the noise levels measured at locations 1, 2 and 3, although a slight increase in the road traffic noise from Oxford Road can be assumed..

15.5 INTRUSIVE SURVEYS

External Surveys

Intrusive Survey was carried out between November 2018 and March 2019. Trial pits have been dug up in the courtyard to identify foundation depth for the existing retaining walls. Survey included the inspection of drainage runs as well as the location of the inspection chambers. Location of trenches are to be agreed to reveal services running under the proposed entrance on Oxford Road.

Internal Surveys

Internal soft strips have been useful in revealing the existing structure and services which helped the team steer the final design. The schedule of works was submitted in order to discharge the LBC condition.

15.6 ECOLOGY SURVEYS

Phase 1 Extended Habitat Survey

Rachel Hacking Ecology Limited was commissioned in 2017 by Purcell to undertake an Extended Phase 1 Habitat Survey at Manchester Museum, Oxford Road, Manchester.

The Phase 1 Habitats present on the site are common throughout the UK. No nationally rare or locally rare plant species were located during the extended Phase 1 Habitat Survey. The habitats on site are of limited ecological value. The hardstanding offers no ecological value. The shrub beds and raised planters offer a limited source of nectar and pollen for invertebrates. The trees offer nesting habitat for birds.

The proposed development will cause the loss of hardstanding, shrub beds, raised bed and semi-mature trees and saplings, which are of little ecological value. No specific habitat mitigation is required. New landscaping or shrub beds should include a variety of flowering native and non-native shrubs and perennials, with an aim to bring biodiversity gain to the site.

Protected species are a material consideration when a planning authority is considering a planning application. The presence of protected species, the effect of the proposed development and suitable mitigation, if required, must be established before planning permission can be granted. Following the findings from the Extended Phase 1 Habitat Survey, the following may be required:

Nesting Birds - If any work to the trees needs to be carried out within the bird nesting season (generally March to August), then a nesting bird survey will be required by experienced personnel immediately prior to work commencing.

Habitat Enhancement

It is recommended that the following measures are taken into account during a landscaping plan being produced, to increase the biodiversity value of the site:

- Native tree species should be planted.
- Soft landscaping should include the provision of native and non-native flowering perennial species, to provide a pollen and nectar source for invertebrates.
- Bird and bat boxes could be erected onto retained trees and/or buildings.

Bat and Owl Surveys

Rachel Hacking Ecology Limited was commissioned in 2017 by Manchester Museum via Purcell UK to undertake a daytime bat survey & Barn Owl survey of the courtyard of Manchester Museum, Oxford Road, Manchester.

No evidence of bat activity or Barn Owl activity was located at the proposed development site at Manchester Museum. The buildings are all in good material condition. No suitable bat roosting cavities were found, internally or externally, upon a full inspection. No potential Barn Owl entry or exit points or nesting areas were located.

The roof void above the Rutherford Building is well-sealed, with no suitable cavities for roosting bats. The roof void below the lead roof of the Museum Building was not accessible. However, no suitable bat entry or exit points could be located into the void and the roof has recently been re-fitted under ecological supervision. Given the results of the survey, the site is considered to offer negligible bat roost suitability.

No evidence of other protected species, such as other nesting birds, was found within the buildings.

15.7 AIR QUALITY ASSESSMENT

Millar Goodall was commissioned in 2017 by Manchester Museum via Purcell UK to undertake an Air Quality Assessment.

It assessed the potential effects of the Proposed Development on local air quality relate to dust during construction of the development and combustion emissions during its operational phase.

A construction dust assessment was undertaken in accordance with the IAQM guidance 'Assessment of Dust from Demolition and Construction'. The assessment concluded that there is a low risk of dust impacts on nearby receptor locations associated with the construction phase of the proposed development. With the implementation of mitigation measures the dust impacts from the construction are considered to be not significant, in accordance with IAQM guidance.

In terms of operational air quality management, it should be ensured that any new boiler plant installed as part of the development is ultra-low NOX (<40 mg NOX/kWh).

16.0 SOCIAL RESPONSIBILITY

16.1 SOCIAL RESPONSIBILITY

Social responsibility is embedded in to The University of Manchester's research and learning activities. It encompasses sustainability, ethics and integrity, finding solutions to global challenges, public engagement, community support, and equality and diversity.

Eight 'Areas of Social Responsibility' have been identified, under three headings:

- responsibility to people associated directly with the University;
- responsibility to people in our vicinity;
- and global responsibility.

Much of the work in each area is successful, in that, it is already embedded into the Universities Goals, or one of there enabling strategies. The Museum project, will therefore concentrate efforts on areas that are not already part of our current work practices and approaches. The project will endeavour to generate a culture change by creating a portfolio of flagship activities that exemplify our approaches and signal clearly our intent to both internal and external stakeholders, and we will build good practice by ensuring that rigorous and credible evaluation of the outcomes of our work is carried out and by communicating our approach and the outcomes of our work effectively.

Our overall aim is that, ultimately, social responsibility will be completely embedded in the way that we carry out all of our activities within the Museum.

16.2 EMPLOYMENT AND SKILLS

Our new entrance and accompanying improvement to public realm will ensure that the Museum contributes to the long-term redevelopment of the Oxford Road corridor, both aesthetically and (through the extension of opening hours) by strengthening its evening economy.

Our fundamental purpose as a 'museum for life' will be to use our collections, galleries and programmes to foster happier, healthier people and communities. Through the project, we will extend and evaluate preventative approaches to health and wellbeing, reducing dependency and loneliness, and creating better-connected communities.

New spaces and activities will establish welcoming, neutral fora for bringing people together. The SAG and Exhibition Hall afford tremendous scope for constructive intercultural dialogue, challenging existing knowledge and preconceptions, and increasing understanding of cultures, history and influences in modern-day Britain.

Equally, establishing a truly age-friendly museum, without sacrificing the Museum's appeal for families, offers exciting opportunities for meaningful, inter-generational interaction.

Economic benefits will include:

- Three temporary jobs created directly during project development and initial delivery.
- Four permanent posts created under the long-term business plan (see below)
- Construction apprenticeships will also be created, details to be established in parallel with procurement.

The Museum's existing economic impacts include:

- £6.66m tourist expenditure generated
- 134 FTE jobs supported
- £3.37m GVA

Initial estimates are that, through the additional 108,000 cultural tourist visits annually and increased day visitors, these impacts will at least double.

17.0 SUSTAINABILITY

17.1 SUSTAINABLE DESIGN

Introduction
BuroHappold have been appointed as the Environmental Sustainability Advisor (ESA) for the project. The ESA's role is to drive sustainability outcomes throughout the life of a project, from inception to post occupancy. The ESA will act as the voice of the University for sustainability and will be an integral part of the design team.

During the design process the ESA and project team, as well as stakeholders from the University and Museum, co-created a series of environmental sustainability targets for the project. These have been captured within the Environmental Sustainability Project Tracker; the ESA is responsible for monitoring and reporting performance against the targets set out within this.

The environmental sustainability targets address the ten themes outlined below and support the projects sustainability vision which can be summarised as:

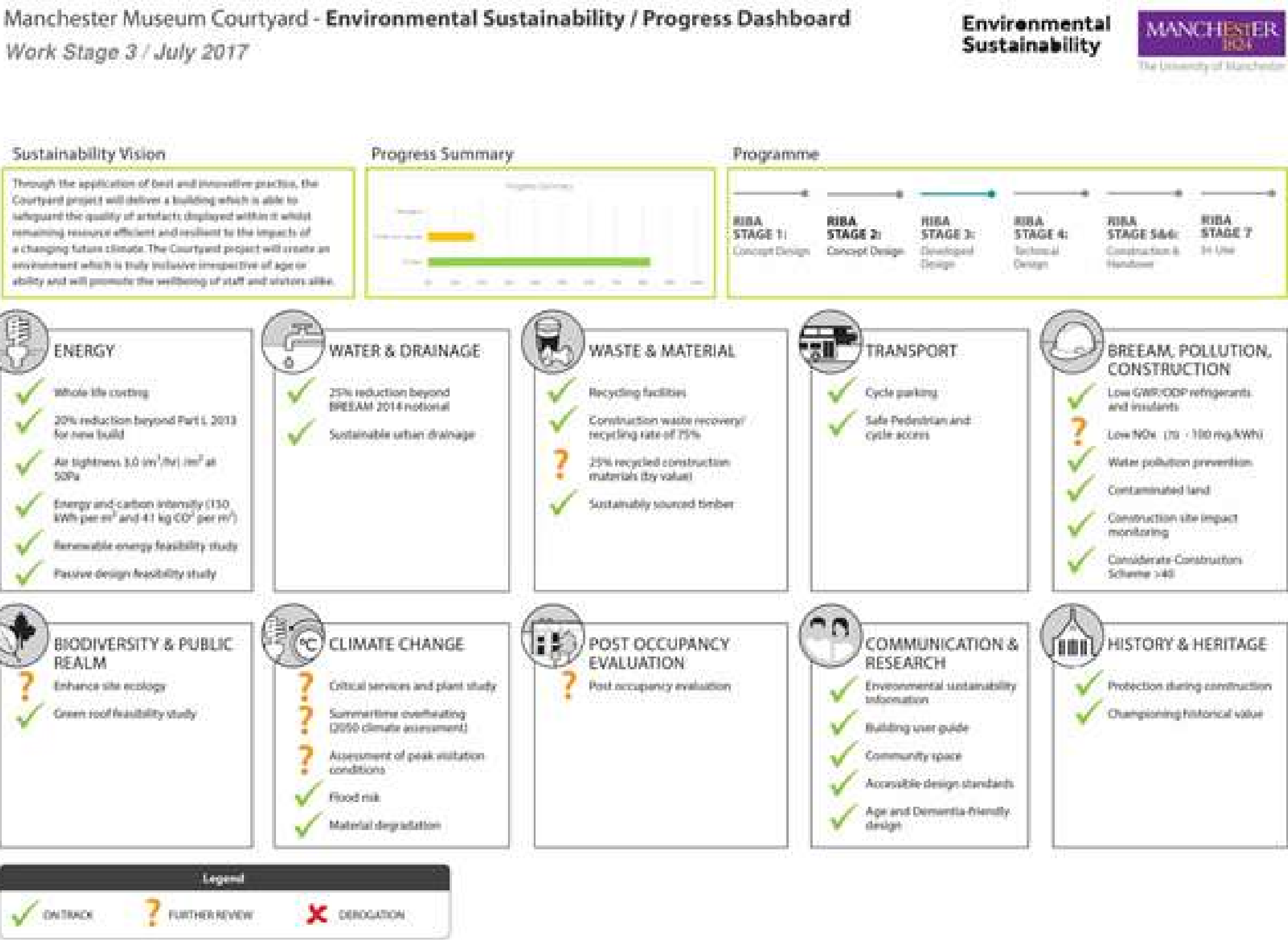
“Through the application of best and innovative practice, the Courtyard project will deliver a building which is able to safeguard the quality of artefacts displayed within it whilst remaining resource efficient and resilient to the impacts of a changing future climate. The Courtyard project will create an environment which is truly inclusive irrespective of age or ability and will promote the well-being of staff and visitors alike.”

Environmental Sustainability Progress
A total of 29 environmental sustainability targets have been set for the project, the ESA has attended key design team and project meetings to provide input to the design development as well as monitor progress against the agreed environmental sustainability targets.

The ‘Project Progress Dashboard’, adjacent, provides a snapshot of the current status of each agreed environmental sustainability target. Despite a number of number changes to the baseline scheme, the project team have demonstrated significant progress against the targets set out within the Environmental Sustainability Project Tracker. Most notably, in demonstrating a predicted energy performance standard beyond that targeted as well as in the approach taken to inclusive design for all physical and mental abilities.

Conclusion and next steps

- Further development of the anticipated impact of future climate for critical services, overheating and internal environmental conditions at peak occupancies, including the development of a mitigation strategy;
- Completion of the University's recycled materials calculator; and
- Preliminary engagement with the appointed contractor regarding their commitments and responsibilities as part of the Environmental Sustainability Project Tracker.



Courtyard Environmental Sustainability Tracker Dashboard

18.0 OPERATION, ACCESS & MAINTENANCE STRATEGY

18.1 THE ORGANISATION AND HOW IT MANAGES THE BUILDING

Within the existing building, management of the building shall remain unchanged. Externally, the presence of the extension shall cause some changes and these are considered within the following sections on rainwater strategy and high level access and maintenance.

18.2 EXISTING MANAGEMENT STANDARDS

Existing management standards shall continue to be maintained.

18.3 WASTE MANAGEMENT STRATEGY

Refuse Collection

- 01
- The Museum recycles all waste it generates (apart from general waste i.e.: plastic wrapping, food, paper cups) three 1100L bins are emptied every morning six days a week.
- 02
- Drinking tins, paper, plastic bottles, are placed in blue bags each morning (before 11am) left outside the loading bay and removed by campus cleansing (up to 15 bags per day)
- 03
- Glass bottles are stored in the 1100L external bin shed and collected by campus cleansing once a week a week (one 1100L bin)
- 04
- Wood is collected by campus cleaning when needed.
- 05
- Metal is collected by an external body when needed.
- 06
- Unwanted furniture is collected by campus cleaning when needed.
- 07
- Cardboard is placed in cages, the cages are left outside the loading bay each morning (before 11am) and collected by campus cleaning (up to 3 cages per day)
- 08
- No hazardous waste is generated.

External bins

- 3 x general waste 1100L external bins which are emptied six days a week (Mon – Sat)
- 1 x glass 1100L external bin which is emptied once a week.
- The storage area for waste before it is taken out for collection is the loading bay.

18.4 CYCLE STORAGE

Cycle Provision

Secure cycle storage for staff will remain as existing. Existing cycle hoops on the courtyard will be relocated near Rutherford Building on Coupland Street. There are a few cycle hoops on Coupland Street which are being removed and will not be replaced as part of this project.

19.0 PLANNING POLICY AND NATIONAL CONTEXT

This section sets out the national, regional and local policies that provide the planning context for the site and the proposed scheme. This context has been fully understood by the design team and has influenced the current proposals. The policy and regeneration context provides a strong case for the proposed redevelopment of the museum complex.

19.1 NATIONAL PLANNING POLICY

The museum buildings are listed Grade II and Grade II with Group Value. This designation is a statutory recognition of the national architectural and/or historical importance of these heritage assets and their immediate curtilage.

As Listed Buildings the Museum falls under the Planning (Listed Buildings and Conservation Areas) Act 1990 for which the policy guidance is now the National Planning Policy Framework (NPPF) which came into force on 27th March 2012. This replaced, with immediate effect;

- Planning Policy Statement 1: Delivering Sustainable Development (PPS 1)
- Planning Policy Statement 5: Planning for the Historic Environment (PPS 5)
- All other planning policy statements which covered England. The key practical underpinnings have been captured within the NPPF.

The NPPF sets out the Government's planning policies for England that will directly inform the production of Local Plans. The key message of the NPPF is that there should be a presumption in favour of sustainable development underpinned by three principles which are mutually dependent: economic, social, and environmental.

The works to the Museum directly respond to these three key sustainable development principles;

Economically: by providing enhanced facilities, the project will provide help to ensure that the Museum remains at the forefront of the sector in the United Kingdom and the economic benefits that the sector provides.

Socially: by providing positive improvements in the quality of the built and historic environment and the quality of life of those working in it by replacing poor design with better design and improving the conditions in which people work and study.

Environmentally: by delivering a project that is on target for a BREEAM 'Very Good' rating.

Sections of the NPPF that are especially relevant to the Museum and how it delivers sustainable development are:

The NPPF (section 7) sets out Government policy on requiring good design noting that planning policies and decisions should aim to ensure that developments respond to local character and history, and reflect the identity of local surroundings and materials while not preventing or discouraging appropriate innovation (paragraph 58).

The proposals have first assessed the significance of the site and then responded with high quality design to improve those spaces. The site for redevelopment namely Oxford Road and the current entrance courtyard have been chosen based on meticulous research and have responded to the existing character with sympathetic design which enhances parts of the site that were previously neglected, underutilised and improves access for all.

The NPPF (section 10) sets out Government policy on meeting the challenge of climate change, flooding and coastal change.

The proposed refurbishment and development aims to provide functional and comfortable internal environments through improved standards of building fabric performance and effective control systems that reflect the buildings unique behaviours and characteristics. Full details of how the project has responded is included in the design proposals

The NPPF (section 12) sets out Government policy on how the historic environment should be integrated into, and considered during, the planning process. It provides policies for the protection and enhancement of the historic environment. A building, monument, site, place, area, or landscape identified as having a degree of significance meriting consideration in planning decisions because of its heritage interest is defined as a heritage asset. Such assets include both designated assets (for example listed buildings, scheduled ancient monuments and conservation areas) and non-designated assets (for instance locally listed buildings and landscapes) assets. This provides a unified approach to planning permission and listed building consent applications.

A key aim of the NPPF is to encourage the identification of the significance of heritage assets in advance of proposed development works (paragraphs 128-139). The NPPF also emphasizes the importance of sustainable development and the need for continued viability. By focusing on what matters about a heritage asset – its significance – it frees up opportunities to keep these assets in use and manage sustainable change. Consequently, the accompanying Conservation Plan and Gazetteer identifies the significance of the Museum.

The importance of conservation of the historic environment is highlighted at paragraph 126 which sets out a requirement for local planning authorities to develop a positive strategy for conservation of the historic environment. This includes taking account of the desirability of sustaining and enhancing the significance of heritage assets by putting them to viable uses consistent with their conservation, and of new development making a positive contribution to local character and distinctiveness.

Paragraph 131 sets out factors that should be taken into account by local planning authorities in determining an application. These reflect the considerations outlined in paragraph 126 and underline the positive contribution that conservation of heritage assets can make to sustainable communities, including economic vitality. In considering the impact of proposed development on the significance of a heritage asset, paragraph 132 notes that great weight should be given to its conservation with greater weight being placed where the asset has greater importance.

Where proposals are considered to result in harm to an asset's significance, paragraphs 133 and 134 set out circumstances in which such harm, substantial or less than substantial, could be considered acceptable. These include situations where public benefits, including securing an asset's optimum use, outweigh such harm. In relation to non-designated heritage assets, paragraph 135 states that a balanced judgement should be made in considering the effect on significance of proposals having regard to the scale of any harm of loss and the significance of the non-designated asset.

These objectives are supported by the proposed development. This valuable heritage asset will be enhanced with high quality new gallery space, building upon the work undertaken recently to represent the historic Haworth galleries, ensuring the long-term sustainability of the Museum in drawing new and more diverse audiences. The accessibility of the public to the building will ensure that the historical importance of the building and its role is shared widely. The proposals seek to preserve a remarkably high degree of the historic fabric. We have ensured the new additions are of the highest design quality which sensitively respond to the adjacent historic fabric, i.e. by use of similar materials and colours in a contemporary application. The design response is explained in detail in sections 7.0, 8.0 and 9.0.

19.2 LOCAL PLANNING POLICY

The Core Strategy was adopted by Manchester City Council on 11th July 2012 and is the key Development Plan Document within the emerging Local Development Framework (LDF).

It replaces significant elements of the existing Unitary Development Plan as the document that sets out the long term strategic policies for Manchester’s future development and will form the framework that planning applications will be assessed against.

Key planning policies published in the Core Strategy that are relevant to the Museum are:

Policy CC 1 Primary Economic Development Focus : City Centre and Fringe
The City Centre is a strategic economic location and focus of employment growth in the City and City Region. The City Centre is expected to accommodate 33ha and the City Centre Fringe 25ha of office or similar employment development. Within the City Centre and the fringe a variety of high quality accommodation types, sizes and foot-plates will be encouraged to boost investment by local, national and international businesses. The City Centre and fringe will be considered a suitable location for the consideration of high density buildings and commercially led mixed use schemes. The focus for employment growth will be in B1a high density offices and the Council will give particular encouragement and support for such development in the following locations:

- City Centre*
- Civic Quarter
 - Mayfield
 - Spinningfields and Granada lands
 - The Corridor (Oxford Road Corridor; Great Jackson Street and First Street)
 - Piccadilly

- City Centre Fringe*
- City Centre North extending into Strangeways and Collyhurst
 - Ancoats
 - Chancellors Place
 - Birley Fields/Manchester Science Park

Provision of a range of economic development uses, such as retail, leisure, entertainment, cultural and tourism facilities will be encouraged in the City Centre, in line with Policy CI, to support the development of a vibrant employment location attractive to businesses, employees and visitors to the City Centre.

New, and the enhancement of existing, infrastructure provision which supports the agglomeration role of the City Centre and Fringe will be supported. Proposals will be expected to show how they contribute to decentralised low and zero carbon energy infrastructure in the Regional Centre as set out in the Energy policies.

Developments which lead to the more intensive use of employment land (in terms of floorspace provided) will be supported.

Proposals in the City Centre and City Centre Fringe, in particular schemes in Mayfield, The Corridor and Strangeways, will need to take account of the flood risk issues, in line with policy EN14 - Flood Risk.

Policy CC 4 Visitors - Tourism, Culture and Leisure
The City Centre will be the focus for culture and leisure in the City Region. Proposals to improve the appearance, use and accessibility of all cultural and visitor attractions and associated facilities will be supported. The improvement of facilities for business visitors will also be supported.

Development in the City Centre which improves facilities for visitors, including Manchester residents, will be promoted. In order that the existing visitor attractions can reach their potential it is also important that the City Centre has the infrastructure to accommodate the necessary volume of visitors. Hotels have become an increasingly important use across the City, and these will be particularly important in the City Centre. New hotel development which contributes to the quality of the City Centre hotel offer will be supported. Proposals for new hotels outside of the City Centre will be supported where they support visitor-oriented development and where the Council is confident that they will be deliverable.

Policy CC 10 A Place for Everyone
The City Centre will develop as a location which appeals to a wide range of residents and visitors. Development which promotes this objective will be supported, particularly through:

- Uses which increase the diversity of activity in the City Centre, with an emphasis on family-oriented activity; and,
- High standards of accessibility to buildings and across spaces in the City Centre

Policy EC 8 Central Manchester
Central Manchester is expected to provide approximately 14ha of employment land. The majority of this provision will be provided within:

- 01 The Corridor (Manchester) within the Central Manchester Regeneration Area is suitable for office, research and development, light industrial, general industrial, education and health. This area overlaps with the City Centre boundary and should be in line with CCI and CI.
- 02 Existing employment and economic development areas: Princess Parkway suitable for office development adjacent to the City Centre; Along Stockport Road and Hyde Road suitable for employment as part of a mix of uses;
- 03 District centres of Hulme, Rusholme and Longsight all located on major radial routes through Central Manchester. These will be suitable for mixed use development providing local employment.

The Council will promote development which has had regard to:

- Ensuring employment within Central Manchester complements those uses within the City Centre; Design opportunities offered by the key transport infrastructure such as the arterial roads Princess Parkway, Oxford Road, Stockport Road and Hyde Road;
- Improving public transport, walking and cycling connectivity between residential neighbourhoods and employment locations, particularly orbital connectivity to employment locations in East Manchester and Trafford Park;
- Creating a positive sense of place at the interface of the health and education institutions along Oxford Road and the residential areas, using design and public realm.

Policy EN 4 – Reducing CO2 Emissions by Enabling Low and Zero Carbon Development
The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO2 emissions, and rising fossil fuel prices, through the following actions:

All development must follow the principle of the Energy Hierarchy, being designed:

- to reduce the need for energy through design features that provide passive heating, natural lighting and cooling
- to reduce the need for energy through energy efficient features such as improved insulation and glazing
- to meet residual energy requirements through the use of low or zero carbon energy generating technologies

Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.

Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.

Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.

The use of building materials with low embodied carbon in new development and refurbishment schemes.

Policy EN 8 – Adaptation to Climate Change
All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability
- Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways
- The need to control overheating of buildings through passive design
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation

19.3 LOCAL CONSERVATION POLICY

Although the museum buildings are not within a Conservation Area, their setting and context includes a number of noteworthy University buildings, most of which are listed. It is important to note that any such changes made to the museum buildings may impact on the significance of these buildings and those that surround it.

The Museum is in a select group of buildings nationally being Grade II, and Grade II listed with Group Value. The buildings are designed to complement the Grade II* main quadrangle of the university and demonstrate the commitment of the University of benefiting the wider population of Manchester.

The Core Strategy sets out policy for the integration of design and heritage. The following extracts highlight the most relevant clauses for the proposed scheme at the Museum:

Policy CC 9 Design and Heritage

Design of new buildings will need to be of the highest standard in terms of appearance and function. The standards and guidance explained in other LDF policies should be the basis for the approach to design, with particular attention to be given to the City Centre context and character.

Development in Manchester City Centre should preserve or enhance the heritage assets that have been identified, including listed buildings, conservation areas and scheduled ancient monuments.

The Council will support high density and mixed use development in the City Centre, but developers must recognise the specific design challenges that must be overcome to ensure complementarity of function and form. New development must support the range of uses the Council expects in the City Centre and contribute to a coherent and integrated physical environment.

Policy EN 3 Heritage

Throughout the City, the Council will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods, including those of the City Centre.

New developments must be designed so as to support the Council in preserving or, where possible, enhancing the historic environment, the character, setting and accessibility of areas and buildings of acknowledged importance, including scheduled ancient monuments, listed buildings, registered parks and gardens, conservation areas and archaeological remains.

The University has already demonstrated its commitment to maintaining its heritage buildings through the high-quality conservation and restoration projects already undertaken in the main quadrangle and to the museum extension, both internally and externally.

This project is necessary to secure the Museum's ability to compete

within an increasingly aggressive sector, where maintaining visitor numbers is critical to maintaining funding. The way people access information and use museums is evolving and more is expected from their visits.

The current project will complete the external conservation of the building and provide high quality new gallery space that complements the sensitive restorations of the galleries located in the Haworth portion of the Museum Extension.

The addition has been sensitively designed to touch the historic fabric lightly and maintain visibility of the existing elevations from within the new gallery and circulation spaces enhancing the way visitors experience these elements.

19.4 LOCAL REGENERATION POLICY

A Strategic Plan for Manchester City Centre 2009-2012

produced by Manchester City Council and the "cityco" partnership represents the adopted regeneration strategy covering the site. Manchester's Community Strategy provides an overarching framework for the regeneration of the city and one of the three core aspirations is 'reaching full potential in education and employment'.

The document acknowledges:

The city's economy is driven by knowledge and creativity
The Museum is within 'The Corridor Manchester' sub-area. Ongoing schemes in the area include major programmes of capital investment by both universities, the redevelopment of the hospitals complex. The area profile notes:

Given the international significance of Manchester's growing knowledge economy, the profile and performance of the area is critical in driving the long term economic competitiveness of the city, its region and indeed the North of England as a whole.
The refurbishment of the Museum is part of University of Manchester's commitment to continued delivery of capital investment in the area.

19.5 DESING GUIDANCE

A significant body of national guidance now exists to aid implementation of good quality urban design, as outlined in PPS1. This body of best practice guidance includes **‘By Design’** (DETR/ CABE, 2000) and the supplementary **‘By Design – Better Places to Live’** (DETR/CABE, 2001); the **‘Urban Design Compendium’** (English Partnerships & Housing Corporation, 2000) and Urban Design Compendium II (2007); and **‘Places, Streets and Movement’** (DETR, 1998). All of these documents outline the importance of urban design and place-making in our urban areas and provide practical advice and best practice examples.

Guide to Development in Manchester SPD

The City Council have published a design guide: **‘The Guide to Development in Manchester’** (2007). The Guide primarily deals with the design of buildings, streets and spaces and also mix of uses and

density of development sites. The Guide has been carefully consulted in preparing this scheme and is acknowledged as a source of good advice in ensuring best practice and quality urban design. The following principles are addressed by the Guide:

- **Character and Context:** A place with its own identity
- Continuity and Enclosure: A place where public and private spaces are clearly distinguished
- **Legibility:** A place that has a clear image and is easy to understand
- **Ease of Movement:** A place that is easy to get to and move through
- **Quality of the Public Realm:** A place with attractive and successful public areas
- **Diversity:** A place with variety and choice
- **Adaptability:** A place that can accommodate change and innovation.

The placemaking agenda is well understood by the design team, who have demonstrated this by implementing good urban design. The Guide to Development in Manchester sets out well understood urban design principles and relates these to the Manchester context. These principles match the commitment and quality evident in the current proposals.

20.0 CONCLUSION

A careful balance has been achieved between the impact of new interventions and the level of development essential to realise the University of Manchester and Manchester Museums vision.

The proposals described within this application have evolved in response to a detailed analysis of the buildings' significance, existing form and historic evolution. Conducted through both archival research and detailed surveys of the existing fabric, this analysis is described within the DAS and associated documents.

The proposal has also been informed by an open and collaborative process of consultation that has included, regular meetings with Manchester City Council, a series of stakeholder consultations, presentations to the Victorian Society, Historic England and other groups.

These consultations have been engaging and fruitful and have contributed greatly to the evolution of a scheme that achieves the following key benefits:

Heritage-led Regeneration

The proposals offer a viable future that will enable their repair, ongoing investment, reuse and safe-guarding for future generations.

National Partnerships

Creation of a landmark British Museum Partnership Gallery at Manchester Museum, on the theme of the history and culture of the Indian sub-continent developed in close consultation with local communities, drawing a national and regional audience of people from the South Asian diaspora.

Landscape Enhancement

The scheme proposes public realm improvements to both Bridgeford and Coupland Street. These works will create vibrant and pleasurable environments in which to walk, positively enhancing the permeability of this historical site, thereby enabling an increased level of public engagement with the listed buildings.

Quality of Life and Sense of Place

In engaging with the scale of the existing buildings, the proposed galleries are provided with generous floor to ceiling heights, suitably-scaled openings and good admission of daylight and ventilation. The proposed scheme capitalises on the immediately availability of cycle routes and public transport, building upon the benefits of a sustainable city centre.

Traditional Building Materials and Techniques

The repair and conversion of the existing buildings will require the use of traditional building techniques and materials and will therefore assist in sustaining and developing the local conservation skills base.

Employment Opportunities

In combination with the employment opportunities generated by the construction phases of the proposed scheme, the development will also generate employment through the future expansion of the buildings and their offer.

APPENDICES

Appendix A: Listing Descriptions

Appendix B: Heritage Impact Assessment

Appendix C: Structural Heritage Impact Statement

Appendix D: Archaeological Desktop Base Assessment

Appendix E: Historic England Letter of Support

Appendix F: Ground Engineering Desk Study Report

Appendix G: Flood Risk Assessment and Drainage Strategy

Appendix H: Air Quality Assessment

Appendix I: Acoustics Report

Appendix J: Ecology Survey

Appendix K: Bat and Barn Owl Survey

Appendix L: Crime Impact Statement

Appendix M: Structural Heritage Assessment

Appendix N: Structural Drawing

Appendix O: MEP Report and Drawings

Appendix P: Conservation Management Plan 2010

Appendix Q: Conservation Plan 2016

Appendix R: Gazetteer 2016

Appendix S: Planning and LBC Validation Checklist

APPENDIX A.

LISTING DESCRIPTIONS

LISTING DESCRIPTIONS

The listing descriptions are as follows:

A) MANCHESTER UNIVERSITY RUTHERFORD BUILDING AND HOPKINSON MEMORIAL WING

- List entry Number: I402635
- Grade: II
- Date first listed: I9-Oct-2011

Summary of Building

University physics laboratory, now administrative offices. 1898-1901 by James William Beaumont in collaboration with Professor Arthur Schuster over the interior arrangements.

Reasons for Designation

The Rutherford Building and Hopkinson memorial wing (formerly the Physical Laboratories and John Hopkinson Electrotechnical Laboratory) of 1898-1901 by James William Beaumont is designated at Grade II for the following principal reasons: * Architect: Designed by James William Beaumont, a prominent Manchester architect, with a number of listed buildings to his name, in collaboration with the Professor of Physics, Arthur Schuster; resulting in a well thought-out bespoke university science laboratory building * Historic interest: Ernest Rutherford led the Manchester physics laboratories between 1907 and 1919, and it was in this specific building that he carried out ground-breaking research resulting in his discovery of the nuclear atom in 1911, subsequent splitting of the atom in 1917, and initiation of the field of nuclear physics * Design: The building, which was one of the largest physical laboratories in the world when built, combined the practicalities required to provide first-class teaching facilities covering electrical engineering, electro-chemistry, practical physics, and research, with a judicious use of more elaborate detailing to the building, concentrated on the main entrance which incorporates the university coat of arms and motto, manifesting a sense of civic pride in the provision of this dedicated science building at a provincial university. * Interiors: Much of the original layout survives and the rooms retain their original glazed brick linings which, although more costly, were used to facilitate the cleaning and brightness of the rooms. Other original features include the decorative dado tiling and terrazzo flooring to the wide corridors, original staircases, panelled doors, moulded architraves, moulded cornices, observation balconies, panelled ceiling and wooden roof trusses in the large lecture room. * Group Value: The Rutherford Building forms an important component of the development of the science faculty at the University of Manchester and is located close to a number of other listed university buildings including the Main Quadrangle (Grade II*), the Museum Extensions (Grade II) and Former Department of Metallurgy (Grade II), both on Oxford Road, and the Pharmacy Department, formerly the Medical School, Coupland Road (Grade II).

Details

PLAN: L-shaped building of two and three storeys over a raised basement. East range, running north-south, contains largest laboratory and lecture room; west range, running east-west, contains two parallel series of rooms separated by wide spine corridors. The ground floor was devoted to electrical engineering and electro-chemistry, the first floor to general instruction in practical physics, and the second floor and basement mainly to research purposes. There is a flat platform on the roof of the west range, which originally housed an observatory. Attached to north end of east range is a single-storey range over a raised basement which was formerly a dynamo house for the Hopkinson memorial wing; it contained seventeen examples of direct and alternating-current generators and motors.

EXTERIOR: The front, south elevation is of eight bays with a gable over the third bay, the main entrance in the fourth bay, and a slightly projecting wide, four-bay gable to the right. Stone window surrounds with heavy stone mullions and thinner stone transoms with lintel bands to basement and ground floors, and sill bands to first and second floors, which carry round onto the east side elevation: bays one and two have four-light mullion and transom windows on the ground and first floors; the second-floor of bay one is blind with a two-light mullion window in bay two; bay three has six-light windows on ground, first and second floors; bay four has a four-light window on the first floor and two-light mullion window on the second floor; bays five to eight have four two-light transom windows on the ground and first floors. The windows on the second and third storeys are set in a stepped stone panel, with four widely spaced single-light windows on the second floor and four closely spaced single light windows on the third floor. The main entrance has a stone fronted porch with stone steps leading up to a wide, depressed arch doorway with panelled double doors, narrow side lights and five square overlights, all with Art Nouveau leaded glass, flanked by two octagonal columns with cupolas. A triangular pediment over the doorway has a relief carving of the University of Manchester's coat of arms and motto (ARDUUS AD SOLEM). The area in front of the building has low brick walls with moulded stone coping and decorative iron railings. At ground-floor level between bays one and two is a circular blue plaque commemorating Ernest Rutherford's achievements within the building; between bays five and six is a circular blue plaque commemorating Alison Uttley, children's author and Physics graduate of the university in 1906.

The west side elevation is of three bays with symmetrical gables over the outer bays. The central bay has a wide doorway with double, part-glazed doors and a mullioned overlight; in front are modern steps and a ramp. Above, on the first floor is a doorway set in a Exhibition Hallmental-arched glazed screen, which opens onto a small stone balcony with decorative iron railings (originally used to adjust telescopes and practice using a sextant). Immediately to the left is a narrow single-light window. On the second floor is a similar central doorway set in a Exhibition Hallmental-arched screen, which opens onto a wide stone balcony with decorative iron railings running almost the entire width of the façade. To the immediate left of the doorway is a small window and to the immediate right are two small apertures with a projecting stone ledge, with a similar single aperture and ledge towards

the right corner (the room to the rear contained a Rowland concave grating (spectrograph) and the apertures enabled sunlight to enter via helioscopes placed on the ledges). The left bay has a stone Exhibition Hallmental-arched window frame containing a wooden canted bay window. The right bay has a single-light window.

The east side elevation is of five bays defined by buttresses. The left bay is wider with a gablet over; it has six-light mullion and transom windows on the ground and first floors, three single-light windows on the second floor set in a stepped stone panel with a single-light window above in the gablet. The remaining bays have four-light mullion and transom windows on the ground, first and second floors.

INTERIOR: The main entrance opens into a porch with barrel-vaulted and panelled ceiling, orange terracotta screen with double doors, and side and overlights, the upper lights with Art Nouveau leaded glass. Beyond is an open space with two wide Exhibition Hallmental arches of cream-coloured brick; the arch to the rear (now with an inserted glazed screen containing double doors) opens onto a stairwell containing the main staircase and a corridor through to the lobby of the Hopkinson memorial wing; the left arch opens onto the wide spine corridor. The open well staircase has concrete steps and half landings supported on iron girders, decorative iron balusters with a moulded wooden handrail and blue tile dado. Features of note include corridors with terrazzo flooring with black and white border bands, blue glazed tiling to dado height with Art Nouveau floral border, and moulded cornices. Rutherford's personal laboratory is located on the ground floor in the north-west corner of the building; along with many other rooms the room is lined with glazed brick, with an orange brick dado with dark brown border and cream bricks above (in some rooms the glazed bricks are covered with plasterboard and some are painted). All rooms have moulded cornices, wide ground-floor doorways have six-panelled doors, with four-panelled doors on the upper floors. The east range contains a large former lecture room on the second floor which rises through to an open roof with wooden roof trusses and panelled ceiling. High on either side of the south wall is an individual observation balcony. A modern mezzanine floor has been inserted in part of the room.

The Hopkinson memorial wing has a stone wall plaque in the east wall of the corridor inscribed 'THE JOHN HOPKINSON ELECTROTECHNICAL LABORATORY / This portion of the building / was erected and equipped in the year 1899 / in memory of / Dr JOHN HOPKINSON F.R.S./ by his parents relatives and friends'. The lobby and corridor have glazed brown and cream bricks; the bricks in the dynamo room have been painted blue. The dynamo room has iron roof trusses; Perspex sheeting has been inserted beneath the original skylights to each side of the ridge. Attached to the west gable wall is a metal relief portrait of John Hopkinson.

The modern entrance block to the museum extension on Oxford Road which is attached to the north-east corner of the Rutherford Building is not of special interest.

B) FORMER DEPARTMENT OF METALLURGY, UNIVERSITY OF MANCHESTER, AND ATTACHED RAILINGS

- List entry Number: I271344
- Grade: II
- Date first listed: 21-Sep-1973

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

SJ8496 OXFORD ROAD, Chorlton-On-Medlock 698-1/21/606 (West side) 21/09/73 Former Dept. of Metallurgy, University of Manchester, and attached railings

Dental hospital, now university department building. 1908, by Charles Heathcote. Red brick with liberal dressings of limestone; slate and glass roof. Roughly rectangular plan on corner site, at right-angles to street. Edwardian Baroque style. Three storeys and attic, 3 bays (2:1:2 windows), symmetrical, the centre breaking forwards slightly; with stone quoins, prominent modillioned cornice, parapet, and hipped roof. The centre bay has full-height stone pilasters and an open-Exhibition Hallmental pediment with a cartouche; a semi-circular porch at ground floor with Ionic columns, entablature with cornice, and half-domed roof; a large window at 1st floor (like the others at this level, see below) and a stone balcony with wrought-iron railings and a round-headed window at 2nd floor. The outer bays have 2 windows to each floor, those at ground floor Exhibition Hallmental-headed 12 -pane sashes with keystones, those at 1st floor 3-leaf 18-pane sashes in moulded architraves with triple keystones; and oeil-de-boeuf windows at 2nd floor with triple keystones and swags. Wrought-iron forecourt railings to left and right, with simplified Art Nouveau standards. Close to the front corner of the right-hand return side is a full-height semi-circular bay which has stone bands to ground and 1st floors, stone top floor with swags, cornice carried round and balustraded parapet. Long range to rear of this mostly in functional style, with sky-light roof. Interior not inspected. Forms group with Manchester Museum (q.v.) and University of Manchester (q.v.) to left.

C) MANCHESTER MUSEUM EXTENSIONS

- List entry Number: I246283
- Grade: II
- Date first listed: 03-Oct-1974
- Date of most recent amendment: 27-Oct-1999

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

Details

SJ 8496 OXFORD ROAD, Chorlton-On-Medlock 698-1/21/608 (West side)
03/10/74 Manchester Museum Extensions

Extensions to the Manchester Museum. Designed 1911 and 1918 by Paul Waterhouse, and built 1911-1927. Paul Waterhouse died in 1924, and the contract was completed by his son, Michael. Sandstone ashlar, with roofs of lead and red tiles. Linear plan in 3 portions, the earliest to the left and the latest to the right. Gothic Revival style. The earlier portion, in Hotel de Ville style, 2 storeys and 5 bays, symmetrical, has buttresses, an embattled parapet to the 3 centre bays and slightly higher square parapets to the end bays penetrated by gablets, and a steeply-pitched lead-clad hipped roof with a fleche; large double-transomed 9-light windows at ground floor, large Exhibition Hallmental-pointed 3-light windows at 1st floor with arched lights and 6-light Perpendicular tracery, and gablets in the end bays containing multifoils. Attached at the left end is a 2-storey entrance archway and bridge over the entrance to Coupland Street. This has a large 2-centred arch and three 3-light windows above, the centre under a gable, and incorporates a porter's lodge and curator's room. The central portion, 2 lower storeys and 3 bays, with gabled centre flanked by pilaster buttresses, has windows at ground floor like those to the left, and 3-light windows at 1st floor, all with cusped heads. The central window has Perpendicular tracery rising into the gable The right-hand portion is a cross wing with a facing gable. 4 storeys and attic in one wide gabled bay, with octagonal tourelles at the corners finished with arcaded pinnacles flanking the gable. The lower half is a giant Exhibition Hallmental-headed arch with a projecting gabled porch which has a 2-centred arched doorway moulded in 2 orders with shafts, and is otherwise filled by a 7-light window with 14-light Perpendicular tracery; the upper half has mullioned 2, 3 and 2-light windows to the next 2 floors, a band of blind arcading between these, and an attic window with 2-centred arched centre and blind-arcaded surround. The rear of this range has mainly flat-headed windows in a grid pattern, and a central gable with a pointed arched traceried window, flanked by hipped dormers. SOURCES: Manchester Museum Annual Reports, 1912, 1923, 1925, 1926, 1927 Signed drawings by Paul Waterhouse, 1911 and 1918.

D) VICTORIA UNIVERSITY OF MANCHESTER INCLUDING CHRISTIE LIBRARY, WHITWORTH HALL

- List entry Number: 1271428
- Grade: II*
- Date first listed: 18-Dec-1963

Summary of Building

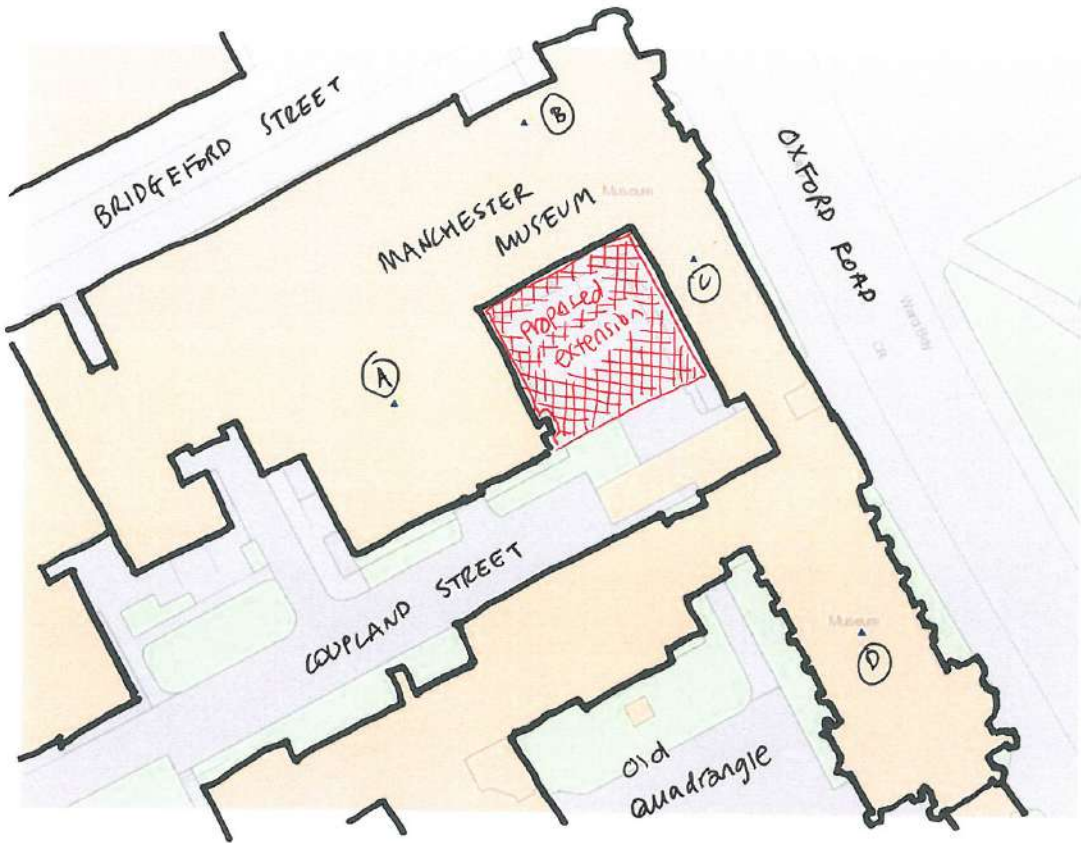
Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

SJ8496 OXFORD ROAD, Chorlton-On-Medlock 698-1/21/614 (West side)
18/12/63 Victoria University of Manchester including Christie Library, Whitworth Hall

University. West range begun 1870, east range 1883-7 and north range 1888, all by Alfred Waterhouse; with Whitworth Hall added to south end of east range c.1895-1902 by Paul Waterhouse. Sandstone ashlar, red tiled roofs with fishscalebands. Large and irregular plan round a courtyard which is open at the south-west corner. Gothic style. The WEST RANGE (Main Building), the first on the site, in domestic scale and style, of 2 storeys plus basements and attics, has a projected gabled wing in the centre flanked by large canted entrance bays which have gabled porches with moulded 2-centred doorways and large 2-centred arched windows of 3 stepped lancet lights rising into steep gables, and tall coupled arched windows in the flanks (some with stepped sills); the central wing has a canted 2-storey bay at the gable end with a niche at ground floor containing a carved shield, a large 5-light window at 1st floor and a tiled hipped roof, a clockface in the apex of the gable, side walls with gables, and a fleche on the roof. The outer wings differ in plan and elevation; all parts have various mullioned, arched and arcaded windows, and small gabled dormers and tall stone chimneys. The EAST RANGE (the main facade to Oxford Street) is monumental in scale and style, asymmetrical, with a very large rectangular tower at the south end, a 2-storeyed entrance archway to the left of this and a tall 4-storey 7-bay range to the right. The entrance archway has a wide 2-centred moulded arch, and above this a stepped triple lancet in a gable flanked by pinnacles. The tower, with pilastered corners and an octagonal stair-turret at the north-east corner, has a very large 2-centred arched doorway with splayed reveal including foliated niches, 4 orders of moulding, and hoodmould with apex carried up to form a pedestal to a 1st-floor niche with a statue; arcaded windows on 6 stages (successively 5, 5, 3, 3, 5 and 5 lights), all different and those at the top stage with a colonnaded screen; and a steep saddle-back roof with banded cladding of lead and tiles. In the angle with the main range to the right is a tall 2-bay canted staircase which has buttresses, tall 2-light windows with geometrical tracery, and an arcaded parapet. The main range itself, 4 storeys diminishing in height and 7 bays with buttresses square at ground floor and chamfered above, terminating in pinnacles, has arcaded windows filling each bay, those at ground floor Exhibition Hallmental-headed with transoms and arched lights, those at 1st and 2nd floors with shafts and 3 square-headed lights and those at 3rd floor with 4 arched lights; and a corbel table and blind arcaded parapet to each bay. WHITWORTH HALL (to the left of the entrance archway), of 2 unequal storeys and 8 bays plus a corner tower at the south end, has buttresses, coupled Exhibition Hallmental-headed windows at ground floor, bands of blind arcading between floors, and tall 2-light transomed windows with cinquefoil lights at 1st floor; an elaborate 2-storey gabled porch to the 1st bay with pinnacles, blind-arcading in the gable and open arcading linking the gable to the pinnacleson either side, and a 2-centred doorway moulded in 3 orders; and a 3-stage corner tower with a tiered Exhibition Hallmental oriel, corner pinnacles, octagonal belfry and short spire, all in elaborate Gothic style. Various other portions in similar style. Interior not inspected.



- 01 A. MANCHESTER UNIVERSITY RUTHERFORD BUILDING AND HOPKINSON MEMORIAL WING, Grade II listed - List entry Number: 1402635
- 02 B. FORMER DEPARTMENT OF METALLURGY, UNIVERSITY OF MANCHESTER, AND ATTACHED RAILINGS, Grade II listed -List entry Number: 1271344
- 03 C. MANCHESTER MUSEUM EXTENSIONS, Grade II listed - List entry Number: 1246283
- 04 D. VICTORIA UNIVERSITY OF MANCHESTER INCLUDING CHRISTIE LIBRARY, WHITWORTH HALL, Grade II* listed - List entry Number: 1271428

APPENDIX B. HERITAGE IMPACT ASSESSMENT

Criteria for Assessment

The following section is intended to assess the impact of the proposed new entrance and gallery extension. This assessment is based upon the initial design proposals.

The level of impact will be assessed based on the following criteria:

LEVEL OF IMPACT	
High Beneficial	The development considerably enhances the heritage assets, views of the heritage assets, or the ability to appreciate their significance.
Medium Beneficial	The development enhances to a clearly discernible extent the heritage assets, views of the heritage assets, or the ability to appreciate their significance.
Low Beneficial	The development enhances to a minor extent the heritage assets, views of the heritage assets, or the ability to appreciate their significance.
Neutral / Negligible	The development does not affect the heritage assets, views of the heritage assets, or the ability to appreciate their significance.
Low Adverse	The development harms to a minor extent the heritage assets, views of the heritage assets, or the ability to appreciate their significance.
Medium Adverse	The development harms to a clearly discernible extent the heritage assets, views of the heritage assets, or the ability to appreciate their significance
High Adverse	The development severely harms the heritage assets, views of the heritage assets, or the ability to appreciate their significance.

As identified within the analysis of this report, the level of harm in heritage terms as a result of the proposed works (including the mitigation measures outlined within this report) would be moderate-low with regard to the Grade II listed museum extension and low with regard to the Grade II* listed building adjacent. As such, the principal heritage considerations under the NPPF are whether there is clear and convincing justification for the level of harm outlined in the previous section and how this weighs against the public benefits of the proposal (paragraphs 194 & 196).

With regards to the new entrance on Oxford Road, further justification is evident in the options considered, as outlined in Section 8.00 of this report, which illustrate how harm has been minimised in heritage terms and why alternatives more beneficial in heritage terms are not deliverable.

The heritage benefits of the proposed works are closely tied-in with the wider public benefits of the proposed interventions. These include a notable contribution to the continued functionality of the Manchester Museum in a use consistent with its conservation and enhanced access and engagement with this valuable historic site. Wider public benefits include the continued provision of reasonable levels of dignified accessibility for those who would have difficulty with stepped access.

Methodology for Assessment

The following section assesses the impact of the proposed alterations to the heritage significance of the site. This assessment is carried out in line with Historic England's 'Conservation Principles' (2008), requirements for considering heritage impact detailed in paragraphs 193 – 196 of the National Planning Policy Framework (2019) and Conservation Plan for the site.

The assessment of impact measures the impact of proposed works upon the significance of the site detailed in Section 3 of this assessment. Our definitions for magnitude of impact are provided within the accompanying table.

PROPOSAL AND AREA OF IMPACT	COMMENTARY	OVERALL IMPACT AND MITIGATION
New additions to Oxford Road	Introduction of a new inclusive access along the Oxford Road elevation by means of a gentle sloped ramp (spanning 5 bays) and 4no. steps. Includes partial oversailing of moat area. Includes partial oversailing of moat area. To be formed of an ashlar York stone wall with bronze handrail and (road-side) and glass balustrade with handrail (building-side). York stone paving with York stone steps.	The impact of the proposed works upon the overall significance of the Grade II listed building would be moderate-low adverse.
	New structural steel frame (bronze finished) in former window opening with associated new entrance door of hardwood timber and bronze finish detailing.	For the same reasons, the impact on the significance of the Grade II* 1888 Waterhouse building as a result of alteration of its setting is proportionately low adverse.
	With respect to impact upon the significance of the Manchester Museum extensions covered by the Grade II listing, the impact of the proposals would have little effect on the historical values of the building identified and are primarily associated with impact upon aesthetic values associated with the principal elevation to Oxford Road. While some harm is unavoidable as a result of the loss of a window and introduction of a new ramped access, the design has reduced the potential impact of this considerably by utilising an existing opening (centrally located to best conserve the symmetry of the façade composition) and taking care to ensure that the ramp is quietly contextual in its design to minimise any intrusion to this important façade.	

Selective removal of historic fabric	The removal of the central window and section of railings and associated alterations to the shallow road-side moat wall on the principal elevation of the 1912 extension, alongside the introduction of a new ramp with associated railings and low wall would result in the alteration of a carefully considered architectural composition. However, great care has gone into the design to ensure that the new intervention sits quietly in aesthetic terms, is sensitive to the compositional qualities of the building and can easily be identifiable as a modern intervention.	moderate-low adverse.
	The removal of the central window and section of railings and associated alterations to the shallow road-side moat wall on the principal elevation of the 1912 extension, alongside the introduction of a new ramp with associated railings and low wall would result in the alteration of a carefully considered architectural composition. However, great care has gone into the design to ensure that the new intervention sits quietly in aesthetic terms, is sensitive to the compositional qualities of the building and can easily be identifiable as a modern intervention. The structural alterations necessary to achieve this intervention would have a low visual impact as a result of short sections of selective steel beams being visible from the ramp, and the physical impact of selective fixings to the original buttresses in the manner illustrated. The necessity of the structural interventions have been established through engagement with specialist structural engineers (Burohappold Engineering) and the least intrusive method of fixing established in order to minimise heritage impact. As a result, the physical and visual impact upon the this important elevation, while not without note, would be relatively limited within its relevant context. It is also of note that these proposals would support the historic character of principal elevations with entrances to the museum along Oxford Road.	
Internal alterations	As the heritage value of internal spaces are more weighted with associative value, their alteration is less sensitive to visual change. As outlined in the statement of significance section, this area was historically open plan with spans supported by columns – an arrangement that supported its intended use. Over time, some subdivisions have been introduced between the columns. The proposed changes to the internal layout involve the removal of areas of non-original subdivision between columns, which will have the heritage impact of reopening some areas to their original open layout. This is balanced against the introduction of new subdivision of the small internal lobby area specified.	Neutral Impact
Access and new staircase and landing from ground to first floor	The proposed exhibition gallery requires a new staircase and landing from the 1927 building up to the first floor: The new staircase will replace a modern stair, utilising the existing stair core. This stair core occupies a former external space which existed between the 1927 building and the rear wall of the former Dental School. The proposal will therefore not affect historic fabric and will have a neutral impact on the significance of the historic building. An opening will be formed to provide access into to the new South Asia Gallery; this will be made through the wall of the 2003 entrance building and will not affect historic fabric.	Neutral Impact
New Exhibition Hall within courtyard – historic fabric, setting and views	The major impact of the proposed new gallery will be on the character of the courtyard. The courtyard has grown organically and without, until recently, any plan or overall design. Until it was adopted as the museum entrance in the early 2000s, the courtyard was a service area of limited significance containing a number of structures. The construction of the proposed extension continues the slow, progressive, infilling of this space. This new extension constitutes a change in the character of this space and of the eastern end of Coupland Street. Views of the Rutherford building and the Haworth building will be impeded. The design of the gallery is to be largely a free-standing structure with a link through the modern museum extension, thus reducing impact on historic fabric. The new gallery will be stepped away from elevation of the Haworth building, the 1913 extension and the 1927 building, and set back from the southern end of the Haworth building behind the second buttress. This will ensure the facade is visible and our understanding of these buildings as separate structures remains unaffected. A stair will be placed between the Haworth building's elevation and proposed gallery, where there will be an alternative museum entrance. The stair will be designed to have minimal impact on the historic fabric. Brickwork will remain exposed and fenestration will be retained. Elevations of the 1927 building and 1913 extension will remain as external spaces, open from the basement upwards. The ground floor elevation of the Rutherford building will, however, form part of a gallery space. The old lab spaces within the Rutherford Building will be used as 'black boxes' so the over boarding of windows will not affect their usability. This option also ensures the windows are usable spaces within the exhibition floor for displays, but will also allow for reversibility. The buttresses will be retained, with the front bay lit from a rooflight above referencing the position of the windows. Above this, the gallery steps away from the elevation of the Rutherford building to form an external space, separating the Rutherford building from the modern extension.	Low Negative Impact on historic fabric and setting The potential impact on the fabric, appreciation and understanding of the historic assets is mitigated by stepping away of the new extension from the historic elevations, wherever possible.

Design Note

Project	Manchester Museum
Subject	Oxford Road Entrance
Project no	035824
Date	15 July 2019

Revision	Description	Issued by	Date	Approved (signature)
00	Draft	MC	17 Jul.19	

1 Executive Summary

BuroHappold Engineering have reviewed and advised on several options for the proposed new entrance to Manchester Museum off oxford road. This report looks into the structural framing options for the proposed, details for connections to the historic fabric and support for window to door conversion.

Our structural recommendation is to use simply support beams delicate spanning across the existing light well.

2 Introduction

This outlines proposals for the structural systems required to support a new ramp at Manchester Museum. A variety of solutions are considered to ensure that consideration is given to the needs of the historic fabric. These options have been appraised and recommendations made to facilitate further discussion if required.

3 Options

3.1 Structural frame

Two main options have been considered for the form of the proposed ramp. The first would cantilever off the existing light well retaining wall, the second would span across the light well. Both, in parts would require some interventions to the historic fabric to support the proposed ramp. A third option to avoid connection onto either the historic façade or to the existing retain wall was considered. This was discounted as it would have required alteration to the historic basement room below, additional foundations to be installed in the light well and would have prevent practical maintenance of the historic façade in the future.

This report has been prepared for the sole benefit, use and information of Purcell Architects for the purposes set out in the Design note or instructions commissioning it. The liability of BuroHappold Engineering in respect of the information contained in the report will not extend to any third party. All concepts and proposals are copyright © July 2019. Issued in commercial confidence.

3.1.1 Cantilever

The first solution was to support the ramp was to cantilever from the light well retaining wall. This would mean that the only point of connection to the historic building fabric would be hidden from direct view, leaving only the ramp at the proposed door threshold to connect into the historic elevation. A cantilever cab be considered to work much like a child’s see-saw; a beam, supported in the middle with weights on either end. In this case, the floor beam would be supported on the retaining with a counter weights built below the pavement. Upon further development there are two issues that make this strategy not viable; the support location is not always centred on the beam and there are services in the pavement.

The support not being centred on the cantilever beam means that in some places the weight to hold the floor in place is greater than the weight it supports. This compounds on the second issue, the amount of space required for the counter weight. Even with dense concrete, there is a high risk that the counter weight will clash with existing services.

The alternative design strategy for a cantilever wall is to consider the cantilever as behaving much like a branch protruding from the trunk of a tree. In this case, the solution requires an overturning force to be taken by the retaining wall. The retaining wall resists all the lateral load from the road and ground above, adding extra load to this structure is likely to cause cracking and movement unless it is strengthened. There are several ways to undertake strengthening work but this would involve intrusive works causing damage to the existing fabric, limited by the services in the exiting highway.

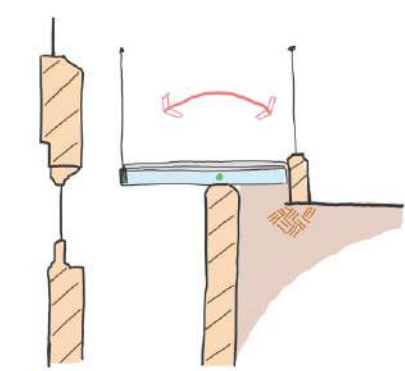


Figure 3—1 Cantilever Option A - balancing

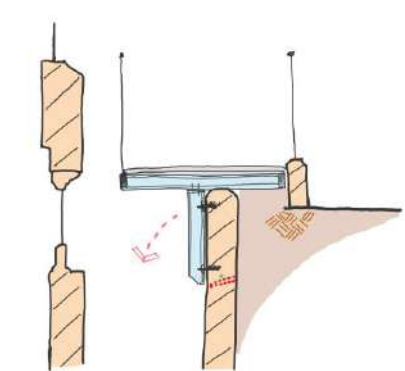


Figure 3—2 Cantilever Option B – fixed to retaining wall

3.1.2 Simple span

The second structural form proposed has lightweight steel beams spanning from existing historic retaining wall to the existing piers in the historic façade. The steel beams support the ramp floor, finishes and handrail. The most significant part of this solution is the interface between the beams and the historic fabric. The locations for all the connection can be seen in the structural framing diagram. The connection onto the retaining wall will not be visible as it will be formed below the level of proposed ramp. There are several options for the connection of the proposed steelwork into the historic façade. These are discussed in the following section

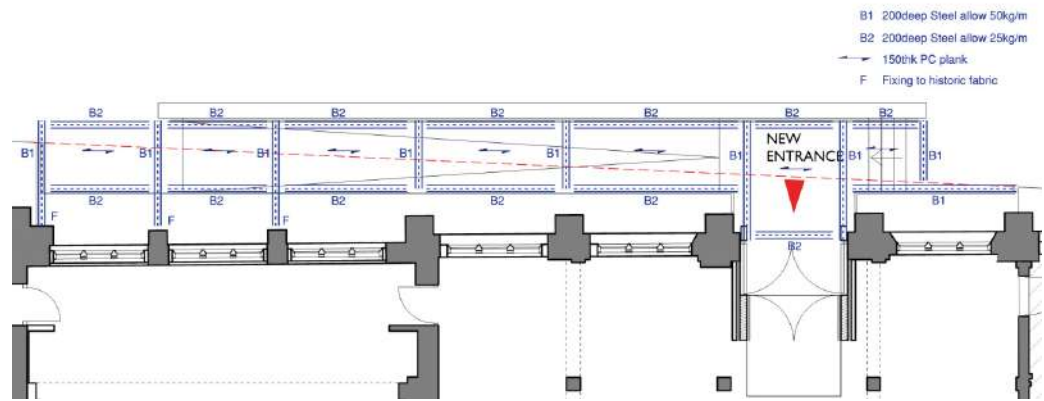


Figure 3—3 Structural framing for proposed ramp

3.1.3 Simple span connection details

The interface between the historic façade and new ramp is a critical point. We have considered three connection details to understand the long term visual impact of the connection and the extent of non-reversible infliction on the existing façade.

Detail A, is an endplate connection, this is considered a standard approach for a wall connection. The end plate is larger than the beam and reduces the amount of historic fabric visible due to its bulky nature. Expanding anchors could be used for the connection which in theory can be removed in the future. The drawback to the expanding anchors is that more fixings would be required leaving multiple holes that would need to be arranged away from joints in the stone work.

Detail B, required cutting a pad stone into the wall. Visual this could be made to look like the beam has been cast into the wall and so less bulky than detail A. To achieve this a portion of the existing stone pier would need to be cut away and a new concrete pad stone cast-in place. A stone cover piece could be cut to make the connection look seamless.

Detail C, requires drilling a small vertical slot no more than 15mm wide in the wall, ideally in the location of a joint to ensure maximum reversibility. A section of the beam with the flanges cut back could then be carefully installed into the slot. In the future the beam could be removed if required and the stone repaired by a stone mason.

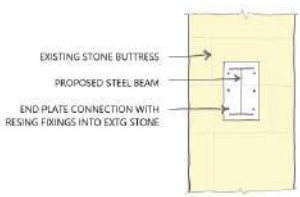


Figure 3—4 Connection detail A

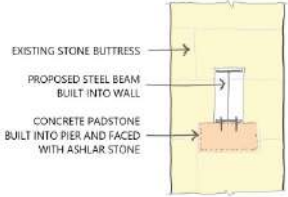


Figure 3—5 Connection detail B

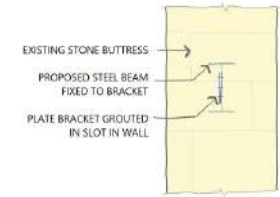


Figure 3—6 Connection detail C

3.2 Proposed window conversion

It is proposed to convert the existing window into a door way. At this location the ramp will link into the building creating a seamless transition from the lower street level. It is proposed that the width of the window is increased to accommodate the door.

It is proposed that the stone mullions and transoms are carefully removed by a stone mason and the window surround re-dressed to create the proposed door opening. The increase in width of opening will reduce the bearing of the lintel above the door. Further structural investigation will be required to ensure the integrity of the lintel and to ensure the adequate propping is provided during construction. However, it is proposed that a steel box frame, finished in bronze will be installed around the opening to maintain the load path in the surrounding wall. It is proposed that the steel box frame will be slate packed under the existing lintel to ensure load transfer back to lower level of the wall.

4 Recommendations

It is our recommendation to adopt the simple span framing options with the connection c detail. We recommend this on the basis of it being the list intrusive of the options.

