THE BRITISH MUSEUM
MASTERPLAN PHASE 2

Energy Centre Programme

Temporary Noise Mitigation Enabling Project

West Residence

Design Statement

03.09.2024
REV P03

Revision	Date	Comments
P01	05.07.2024	Draft for Client Review
P02	09.08.2024	Issued for Listed Building Consent Submission
P03	03.09.2024	Tender revision

CONTENTS

1.1 Introduction

This Design Statement has been prepared by Wright & Wright Architects on behalf of the British Museum, and is for listed-building consent. It should be read in conjunction with the other documents (reports, schedules, and drawings) submitted in support of the application.

The document describes, with supporting images, illustrations, drawings, and photographs, the analysis and considerations made in developing the proposals, which have been developed by a consultant team including:

- Wright & Wright (Architect)
- Bickerdike Allen & Partners (Acoustic Consultant)
- Stace (Project Manager)
- Gardiner & Theobald (Cost Consultant)
- Montagu Evans (Planning & Heritage Consultant)

The proposals form part of a wider series of enabling works required during the construction of the Energy Centre Programme. This is a major capital project for which the Museum received resolution to grant planning and listed building consent in March 2024.

In essence, this major development will be constructed whilst the Museum is still operational and open to the public. Therefore, a series of enabling works are required to mitigate risk and disruption to occupied areas and Museum operations to ensure the Museum can effectively operate throughout the construction period.

Specifically, the proposals contained within this application are works required to mitigate the disruption caused by construction activity noise infiltrating into internal occupied spaces such as staff offices, reading and study rooms, meeting rooms, and workshops. The extent of proposed works has been informed by specialist acoustic surveys and analysis to ensure intervention is targeted and only proposed where necessary.

It should be noted that the proposals are a temporary, and not a permanent, measure only. They would only be installed temporarily to mitigate noise created by the period of construction activity, before being removed and required sensitive repairs being undertaken to restore the existing status quo.

The works carry a major benefit in keeping vital Museum back-of-house functions operational. These functions support the overall operations of the Museum, including its front-of-house functions and visitor experience, meaning all those that visit and work within the Museum can continue to access and experience the Museum as a heritage asset, both with regards to the Museum building itself but also the collections held within it and their care.

Without these works, the spaces which they provide mitigation for would have to be closed during the construction period, which would limit the functionality of the Museum, compromise front of house experience, and would likely result in more intrusive and extensive changes elsewhere in the Museum to accommodate decanted staff and functions.

Content of this Document

This document has been authored to provide detail of the proposals commensurate with the scale of proposed intervention. It is intended to be read in conjunction with the detailed reports, schedules, and drawings contained in the application documents which provide fuller detail.

This chapter provides an introduction to the proposals, and describes:

- The overall vision of the Energy Centre Programme (ECP) to which these proposals relate and ultimately support the realisation of
- Why the proposals are required and how the location and level of intervention has been determined through specialist surveys and analysis
- In summary, the overall scope of the proposals and their relationship to ECP construction activity

Chapter 2 summarises the existing site and context, firstly in broader site wide planning policy and heritage terms, before providing more in depth description and photographic survey of the spaces and fabric within the Museum effected by the application proposals.

Chapter 3 finally describes and illustrates the proposals themselves, both in terms of their general location, but also their technical detail with regards to proposed window types, finishes, fixings, and other sundry works required. The chapter also contains commentary on alternative products investigated but found not suitable due to constraints on aspects such as size, finishes, and access and maintenance.

1.2 Vision Statement

Established in 1753, the British Museum is a globally renowned institution with incomparable collections. Free to enter from the beginning, it attracts around six million visitors annually and is an integral part of the nation's and the world's cultural life.

The Museum tells the story of two million years of human life, from prehistory to the present. As it sets an ambitious course for the future, the Museum is seizing the opportunity to reinvigorate how it connects with people's lives through its collections and scholarship. This will involve re-imagining displays to give due representation to the many cultures, communities and histories of the world, illustrating their distinctiveness and their interconnections, all within the context of the story of our common humanity. This holistic vision is set against the backdrop of a global climate crisis, and humanity's collective ambition to realise a Net Zero Carbon future. The urgent call for action confirmed by the London Borough of Camden's own declaration in 2019 that we are facing a climate and ecological emergency, resulting in a major capital project being undertaken through the Energy Centre Programme.

Critically, the Museum will stay open and operational throughout the construction of this programme of work. This requires enabling works, such as those contained within this application, to ensure the Museum can maintain its operations, as well as provide connection to its built and collections heritage to all those who visit and work at the Museum. Without such works, significant areas of the building would be uninhabitable for the duration of construction, or require uneccessary use of space in the Museum elsewhere, which would require more extensive levels of refurbishment.

Right:

Portico and pediment tympanum, with sculpted figures depicting the progress of human civilisation, overlooking the South Forecourt

1.4 Aims & Objectives of the Development

The proposals contained within this application will directly support the aims and objectives of the Energy Centre Programme by ensuring it can be realised on site without undue closure and/or disruption to current operations. Critical Museum functions these proposals will enable include:

West Residence

- Advancement staff offices
- OR staff offices
- ITE staff offices

By extension, the proposals therefore support the key ECP strategic objectives of:

1. To reduce and mitigate critical risks of harm to people, buildings and collection, as well as service failure leading to localised or complete closure of the Museum
2. To support delivery of the Government's commitment to Net Zero
3. To avoid an unaffordable acceleration in maintenance costs associated with ageing and life-expired infrastructure; and
4. To enable sustainable future development of the Museum.

1.5 Establishing the need for Intervention

The locations and scope of interventions proposed within this application has been directly informed by specialist acoustic investigations undertaken by Bickerdike Allen Partners (BAP). As part of this investigation, BAP conducted extensive noise and vibration trials at the British Museum.

A range of tests were carried out using percussive breaker tools to simulate construction/demolition activity while collecting noise and vibration data at representative sensitive locations. The breakers varied between small, low powered hand-held tools through to medium to large electric breakers through to a 1-tonne, remotely operated breaker. In terms of energy per impact rating the tools varied between 3.5J to 405J. Their analysis reviewed each area of ECP construction activity across the entire construction programme.

The table on the following page shows an example of predicted internal noise levels in rooms which sit adjacent to ECP construction works. Where the predicted noise level cell is shown in red and amber, this indicates the predicted noise level would be near to or exceed 55db.

This is the upper limit noise threshold that BAP, in collaboration with the Museum's health & safety team, deemed acceptable for the safety & comfort of occupants. By way of comparison, the World Health Organisation recommends upper noise limits of 30-35 decibels for bedrooms and 40-45 decibels for an open office space.

Note many of the cells related to rooms on level 05 of the West Residence are at either 54 or 57 decibels, either just over or 1 decibel under the limit. Also note similar locations in lower levels of the building were predicted to experience noise levels of up to 66 decibels. Therefore, and through consultation with Museum stakeholders and user groups, the applicant believes it reasonable to install secondary glazing units as proposed within this application as the expected levels are very near or above the upper noise level limit set within the survey.

Various potential mitigation measures were presented for each specific receptor as well as the project and site in general. Options included organisational (e.g. scheduling of work) monitoring, predictable periods of respite, changing construction techniques, use of nonpercussive material, vibration isolation and sound insulation improvements to windows.

However there are some areas where such measures are not appropriate due to the frequency of occupation or other criteria, and therefore secondary glazing is required in order to reduce the expected internal noise levels. Critically, the advice received from BAP was for installed secondary glazing to target a reduction of 35db, to ensure occupant comfort and build in some tolerance for on site conditions and flanking noise which may in reality be worse than what was predicted within the analysis.

It should also be noted that the analysis assumes/ mandates the use of noise reducing construction measures such as non percussive tools and acoustic shrouds by the contractor, which also reduces the overall impact of construction noise, serving to limit the extent of intervention required.

Level	SOUTH EAST ROAD Receptors	DP1 tbc Duration (days) tbc		Recommended mitigation measures	BAP Comments	BM Comments
1	C/1/055 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
1	C/1/071 - Office	60		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
2	C/2/026 - Office	60		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
2	C/2/028 - Office	66		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
2	C/2/031 - Office	66		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
2	C/2/036 - Office	66		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
2	C/2/040 - Meeting Room	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
3	C/3/021 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
3	C/3/025 - Office	60		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
3	C/3/030 - Office	60		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
3	C/3/034 - Office	60		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
3	C/3/041 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
5	C/5/026 - Office	54		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
5	C/5/028 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
5	C/5/045 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
5	C/5/037 - Office	57		A combination of vacating the room and scheduling on/off times	Vacating only applicable for works within 25m	
5	C/5/041 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/044 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/046 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/050 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/048 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/055 - Office	54		Site management (e.g. scheduling or "high impact" works management)		
6	C/6/059 - Office	52		Site management (e.g. scheduling or "high impact" works management)		

Right:

Example table for the noise created by the ECP construction works for the South Forecourt Crane, produced through Acoustic survey and analysis undertaken by acoustic consultant Bickerdike Allen Partners to determine the need for provision of secondary glazing.

The red shaded squares indicate where predicted noise levels will exceed noise levels of 55db, deemed unacceptable for occupant safety and comfort by BAP and the Museum's Health & Safety team.

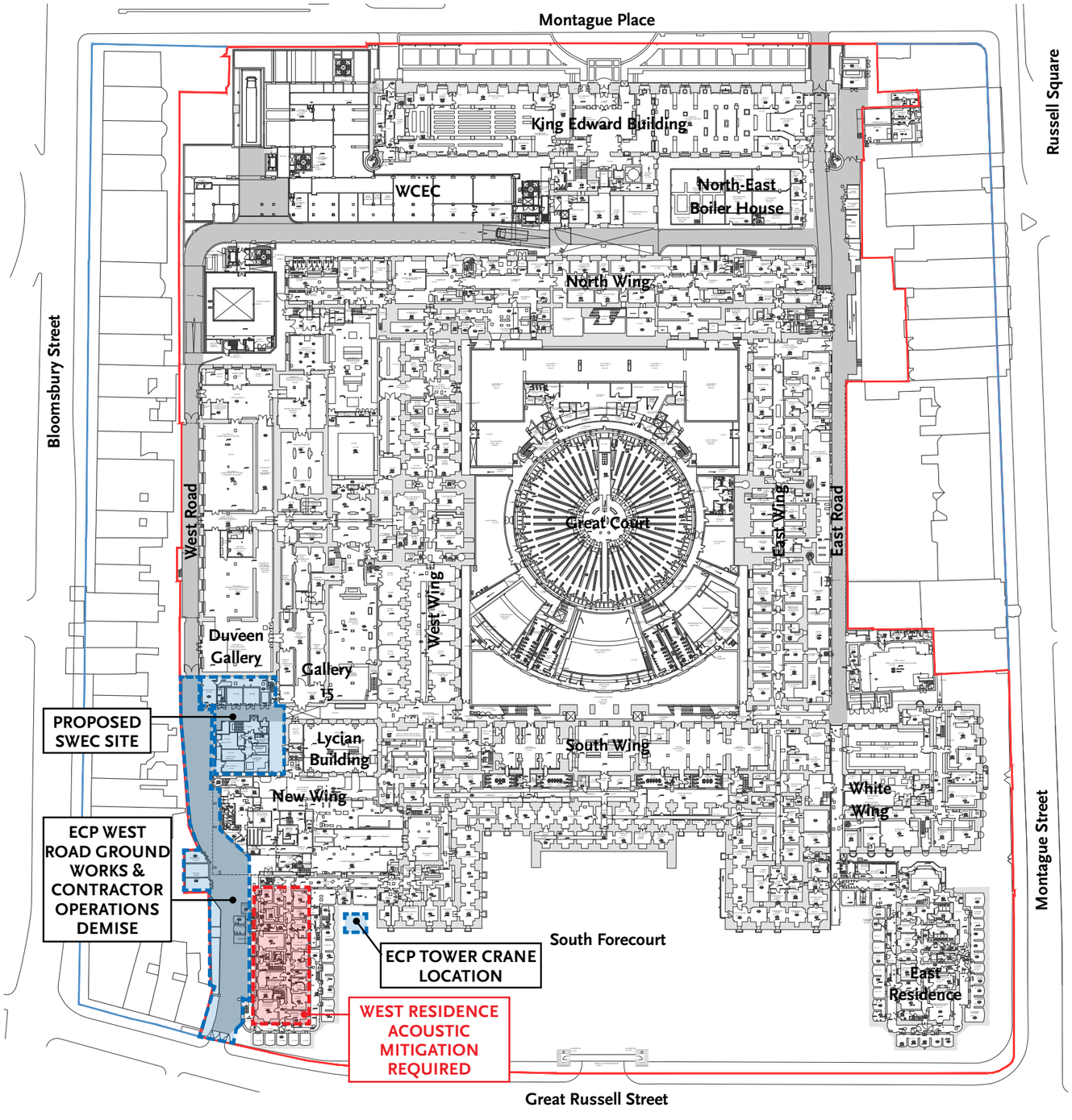
The Scope of this Application

The proposals contained within this application relate solely to the temporary installation of secondary glazing only in areas where:

- There has been a demonstrated need based on scientific surveys and analysis to have mitigation measures put in place due to predicted increased noise levels as a result of ECP construction activity. This has been assessed on an area by area basis across multiple points of construction programme activity. The analysis therefore presents a specific need in defined locations rather than a larger 'cover-all' approach.
- Mitigation is critical to ensure the continuation of existing functions within the Museum which support access for visitors and staff to it's built and collections heritage
- These critical functions rely on human occupation i.e. only proposed where the space is occupied by people and not for areas such as collections stores which aren't sensitive to noise
- Other mitigation measures based on operational or management procedures are not suitable

Therefore, the proposals represent the minimal interventions required in order to ensure critical operations and functionality of the Museum is maintained. The diagram adjacent illustrates the areas of intervention in red and their adjacency to ECP construction activity zones (shown blue).

It should be noted that the proposals are a temporary measure only, installed to mitigate construction noise, before being removed and required sensitive repairs being undertaken to restore the existing status quo.



Key:

Area of proposed secondary glazing intervention within the proposals

Area of future ECP construction activity resulting in the need for noise mitigation measures to be installed.

Right:

Level 02 plan of the Museum Estate showing the location of proposed interventions adjacent to ECP construction activity sites.

1.7 The Proposals Summary

In summary the proposals are for the installation of 15 units of internal secondary glazing within the West Residence at Level 05. The installation of these units is required to ensure the spaces remain occupiable and therefore the functions within them can be maintained. These functions support critical operational functions in the Museum and the Museum's front of house visitor experience.

The proposals are for installation of the secondary glazing units and other sundry works on a temporary basis only during the ECP construction period. Upon ECP completion the secondary glazing will be removed and required repairs will be sensitively undertaken to restore the existing status quo.

The proposed secondary glazing type is one from a reputable manufacturer with a track record of delivering projects within listed buildings and sensitive heritage environments, which also meets the applicants criteria for balancing financial considerations against programme, aesthetics and finishes, and functional performance. The proposed systems are variants of a range of modern aluminium systems, which are proposed to be finished in PPC white to match the existing internal paintwork of the windows & their surrounds.

As demonstrated in chapter 3, other secondary glazing types where investigated, but found to be unsuitable due to restrictions such as available sizes, finishes, or constraints on operability, access, and maintenance. Therefore, the proposed design contained within this application is believed to be the most appropriate intervention given the nature of the proposed brief and project requirements.

As part of the proposals, some elements of sundry timber works will also be required to facilitate the installation of the secondary glazing units where the internal shutters sit on an angle. In this case the timber will ensure the change from the angled shutter face to the perpendicular window frame is effectively sealed to provide acoustic protection. Where not concealed by the frame, these timber elements will be painted to match the existing internal paintwork.

In addition to this document, reference should be made to the reports, drawings, and schedules contained within the application documents, which provide further information as to the nature, detail, and specification of the proposed works.

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