

STRUCTURAL ASSESSMENT REPORT FOR
THE EXISTING BLACK HISTORY MURAL AT
THE CENTRAL CLUB , READING RG1 4SQ



PREPARED FOR:

COLONY ARCHITECTS

Introduction

The applicants propose to develop a three-storey apartment building at the corner of Mill Lane and London Road, Reading RG1 4SQ. The ground floor of the proposed development will house a 133 square meter arts centre, and 2 residential flats, while the upper floors will all be residential flats.

The proposed location accommodates an existing building. One of the external walls of the existing building has a protected mural.

The purpose of this report is to provide an opinion as to what approach can be adopted to build the proposed structure with minimal structural effect on the protected wall.

While no design calculations and framing plans are provided, the approach described below should be sufficient for the coordination stage. Framing plans and calculations can be provided if and when necessary.

Proposed Construction

The proposed construction will involve the following:

1. The existing external walls will be retained and will not carry additional load from the upper floors
2. The new upper floors will be supported with additional beams and steel columns running down to new foundations without disturbing the existing external walls.
3. The foundation type will most likely be on pile caps.
4. The floors to be of concrete material.
5. The external walls to be of masonry

The main issue

It may be a planning condition to preserve and protect the mural on the existing building during and after the construction stage of the proposed apartment building. Therefore, adequate support and protection must be provided to the mural to allow the development.

Associated Risks

The mural wall runs along Mill Lane and is approximately 19.20 meters long and 3 meters in height. The wall is made of solid bricks and is approximately 250mm thick. The brick arrangement indicates that the mural wall has no cavity. At present the mural wall forms part of an existing building where some adjacent walls need to be demolished to give way to the proposed development. While it is proposed to retain the mural wall, the adjoining walls and roof that need to be demolished provide stability to the mural wall. Therefore, the demolition of the roof and adjoining walls will pose a risk of instability to the same wall. Further, the demolition process involves an element of vibration. Excessive vibration will pose a risk of wall cracking and possible damage to the mural. The demolition process will also include movement of materials that raises risks due to abrasion and or percussion.

The construction of the foundations of the proposed development will involve digging and breaking of existing foundations. Pending the results of soil investigation, the foundations may also require piling. Thus, the construction of the foundations will also pose a risk of structural damage due to excessive vibrations.

During construction, movement of equipment and materials will also pose a risk of structural damage due to accidental crashes.

Proposed solution

Temporary works

It is advised that temporary steel diagonal bracing (also known as steel rakers) be installed behind the existing walls at calculated intervals and locations prior to the demolition process. These rakers

will ensure that the walls will withstand wind pressures once the existing redundant walls and roofs are demolished.

Use of heavy breakers

No heavy equipment must be used in the demolition of the existing building elements tight to the mural wall. Demolition close to the walls must be done in a manner that does not disturb the existing wall. This is normally achieved by using low impact tools. Heavy equipment can only be used at a calculated distance from the mural wall. It is recommended that equipment routing within the site during ground works is implemented.

Tower Crane

Should a tower crane be necessary, this must be erected at a calculated distance away from the mural wall.

Vibration Monitor

The existing mural has some loose elements. It is therefore recommended that vibrations be controlled within the site, most especially close to the murals. The maximum vibration can be calculated and set with a vibration monitor, which in turn will set off an alarm once the maximum vibration is reached.

Piling

Should piling be necessary, CFA bored piles should be utilized to minimize vibration.

Safety Fence

It is recommended that a safety fence be erected from a calculated distance and running along the back of the mural to prevent machinery from accidentally making contact with the wall. Further, additional floor loading must be avoided between the fence and the wall.

Redirect rain water

To protect the foundations of the mural wall during construction, it is recommended that rain water be re directed away from the mural wall, and drained to a suitable outfall.

Temporary Covering

It is suggested that temporary boarding be installed to cover the mural. The boarding may not be allowed to touch the paintings. It is proposed that timber studs be installed across the paintings leaving a gap between the surface of the paintings and the timber studs. The studs will in turn serve as a bridge. The boards can then be hanged onto the vertical studs.

Conclusion

Based on the above recommendations, the proposed development is feasible and can be supported by detailed design calculations and drawings.

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