

30 August 2024

221582

Maltings Holdings C/o Colliers Project Leaders
Level 6, 50 Martin Place
Sydney NSW 2000

Attention: Timothy Chung

The Maltings, Mittagong
Structural Concept Design

Dear Timothy,

We refer to our Structural Design Reports for DA issue as follows:

- *DA Design Report – Malthouses 1, 2 and Malsters House Revision 1*, TTW, dated 29 August 2024, and
- *DA Design report – Malthouse 3*, TTW, dated 6 February 2024.

Required Strengthening Works

Several areas of the existing Maltings buildings require strengthening works in order to accommodate the proposed design loading. Separate from repair works required to bring the building fabric itself back to reasonable strength (e.g. repairs of concrete cracks, replacement of displaced brickwork, replacement/augmentation of corroded steel), new structural design is required to support areas of the existing structure where the existing structure is not capable of resisting design loads to NCC or as agreed with the project Certifier.

Of particular note, it is expected that:

- Malthouse 1 (M1) freestanding masonry walls and gable will require strengthening to resist resign lateral loads. This is required particularly at the tall gable end of the M1 machinery room adjacent to the southern sheds, and tall remnants of wall at the southern end of the M1 machinery room along the long sides, but may be required along the two-storey-height long sides generally as these are no longer supported at mid-height.
- Malthouse 2 (M2) gable wall is likely to also require strengthening in a similar manner.
- Southern Sheds (adjacent to the M1/M2 complex) timber framed walls and roof require additional bracing as the current framing has little lateral load resistance and is unstable under wind loads.
- Other locations may also require strengthening following future structural reviews. For example, footings may be required to be locally strengthened in order to resist high overturning loads on tall cantilevering masonry walls.

Unreinforced masonry, by nature, has low tensile capacity and therefore low bending capacity; this results in limited resistance to lateral loads including seismic loads and wind loads. Strengthening and supplementary structure for vulnerable elements of the structure to meet to AS1170.2 and NCC for wind loading resistance will be required. Where existing building components cannot feasibly be strengthened to enable certification to AS1170.4 and the NCC for seismic resistance, a performance solution will be sought to meet a reduced threshold for seismic resistance.

The design of supplementary structure to strengthen the existing structure is proposed to be primarily limited to the M1/M2 complex. While Malthouse 3 (M3) carries the same inherent issues as M1 and M2 due to the tall unreinforced masonry design, this is proposed to be strengthened by construction of a new structure internally, to which the retained masonry skin is to be tied back to provide stability. The existing Malsters House, given its severely dilapidated state, is proposed to be removed and as such is not intended to be strengthened.

Design Development

Concepts for light steel framing at the M1/M2 complex are to be further developed as part of further Design Development stages in coordination with the Architect and Heritage Consultant. These are intended to be sympathetic to the retained fabric, and leave the existing structure as intact as possible, minimizing intrusive works to the existing masonry by face-fixing light steel framing to the interior face of the masonry.

Strengthening at timber structures (existing Southern sheds to the M1/M2 structure) is proposed to be minimally visually intrusive, via additional timber bracing incorporated into the existing timber structure. Where required, steelwork may be incorporated where reasonable, if the additional mass of timber required results in order to achieve design load resistance is large enough to result in unwanted visual impacts to the existing building which may be reduced by substituting a smaller volume of steel framing.

Required strengthening works will be developed further during the Design Development project phase, in consultation with the project Architect, Heritage Consultant, and other project consultants.

Design development for the Malsters House has progressed since previous issue of the Structural DA Design Report (*DA Design Report – Malthouses 1, 2 and Malsters House*, Revision 0, dated 6 February 2024). We note that the design considered within this report for the Malsters House was considered prior to and did not align with architectural drawings for the project dated 12 February 2024.

On the basis of the very dilapidated condition of the Malsters House structure, the decision has been made to remove the remaining elements of the Malsters House, as the degree of structural support and strengthening required to retain the structure as an accessible ruin would significantly detract from the appearance and character of the site. The remaining fabric, largely unstable, is proposed to be removed to footing level, and a ground scheme put in place as an interpretive solution tracing the existing footprint of the structure.

Heritage Fabric Considerations

The collection of buildings to which this project relates were constructed at various stages commencing from 1899. The Maltings complex is considered to be of local heritage significance, listed as a heritage item and conservation area within the Wingecarribee Local Environment Plan (L103 and C1845 respectively, gazetted 2010).

In carrying out this project, the reinvigoration and adaptive reuse of the site is prioritised, in order to reduce the potential for further disrepair and dilapidation of the structure as would be expected to occur should the structure continue to be disused. The strengthening works described above are considered to be necessary to achieve this aim, such that the structure can be considered safe and suitable for use.

TTW are conscious of the need to support the heritage value of the place and building fabric by designing sensitive strengthening solutions:

- In developing strengthening concepts, we have sought to minimize the visual intrusiveness where possible, while minimizing physical modification of the existing fabric where the existing fabric is able to be safely retained, for example by utilizing new structure within the existing M3/M4 complex to tie back the retained brickwork of M3 and provide stability to the unreinforced masonry.
- Where it is not feasible to conceal strengthening works without significant alteration to the existing fabric, including at vulnerable areas of unreinforced masonry areas of M1/M2 where both the internal and external faces are proposed to remain uncovered and visible, we propose to maintain visual clarity of the existing fabric and prioritise reversibility of the strengthening works, by fixing light steel framing to the internal face of masonry rather than, say, concealing steelwork within the existing wall. We propose to utilise mechanical fixings where feasible rather than chemical fixings, such that any new fixings can be unscrewed and removed at a later date if required.

TTW are committed to upholding the Burra Charter approach to working with this structure and other heritage structures, take the approach of designing strengthening works to existing fabrics of heritage value which are 'as much as necessary but as little as possible'. As such, design development of these strengthening works

will be progressed under close collaboration with the project Heritage Consultant, and in coordination with the project Architect.

We trust that the above is of assistance. Should you require anything further please contact the undersigned.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Garth Miller', with a stylized flourish at the end.

GARTH MILLER
Associate - Heritage Structures

P:\2022\2215\221582\Letters\DA Letter\240827 DA Letter_Structural Design_OB.docx