CIVIL & STRUCTURAL ENGINEERING

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Castle House, Castle Street, Calne

Summary Structural Report

For Castle House Management Company Ltd.

Project Reference: 2023-102

Document Reference: SR-01-001

August 2023

Document Control

Purpose/Status	Date	Rev	Comments	Rev. By	Chk'd. By
First Issue	Aug23			JB	JB

Prepared By:

John Blair

Director

Approved By:

John Blair

Director

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Executive Summary

Clegg have been asked by Castle House Management Company Limited to advise on structural matters to the partially collapsed east side boundary wall. To review a previous report by Atkins Martin dated June 2021 (Appended) and to make recommendations for repair and reinstatement. We visited site briefly on 14th June 2023 and again on Monday 7th August 2023, accompanied by Mr Denis Phelan of Gaiger (Building Contractor).

With reference to the drawing of the wall elevations provided by Brunel Surveys, 25535-100-02E (Appended), the two heights of wall, west and east, can be seen.

We consider that in the interim to make the wall safe, that approximately 25 metres of the wall indicated on Elevation 1 should be taken down to ground level as soon as possible. The boundary should then be Heras fenced to provide security. Buttressing scaffolding is required to the east side off lower ground level. This support to be in place before any demolition works commence.

A masonry repair specialist should be approached to provide a specification and budget cost for the remedial works to the lower retaining wall. This would involve inserting reinforcing rods at two levels along the wall, approximately mid height, to construct a zone of restraint that would provide fixing for spaced ground anchors to be drilled through the wall into the ground between the wall and Castle House. This will restrain any outward bowing of the lower wall construction and provide some resistance to the bursting forces from the existing trees.

Work to the existing trees should also be considered following advice from an Arboriculturist.

Considering reinstatement of the upper wall after strengthening of the retaining portion, we would propose replacing the wall with a lighter construction such as timber fencing. This avoids the difficulty in connecting a new replacement wall to a similar height on top of the retaining wall and providing adequate resistance to wind induced overturning forces.

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1.0 Introduction

Clegg have been asked by Castle House Management Company Limited to advise on structural matters to the partially collapsed east side boundary wall. To review a previous report by Atkins Martin dated June 2021 (Appended) and to make recommendations for repair and reinstatement. We visited site briefly on 14th June 2023 and again on Monday 7th August 2023, accompanied by Mr Denis Phelan of Gaiger (Building Contractor).

2.0 General

We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

This report letter is prepared for the sole use of you and your professional advisers. We accept responsibility to you alone for the stated purposes that the report will be prepared with the skill and care reasonably expected of a competent Chartered Engineer, but accept no responsibility whatsoever to any person other than you. Any other person relies on the report at his own risk.

3.0 Description

The boundary wall has been surveyed by Brunel Surveys Limited in April 2023 and they have produced a topographic plan and elevations of the upside and downside faces of the wall. The extent of the survey is from the northern tie in with No5 Castle Street and the access doorway to an electric substation, a linear dimension of 36 metres.

4.0 Discussion

Reference to be made to Atkins Martin Report and the Observation photographs included therein.

A section of the wall was reported to have fallen in early Spring 2021. The higher level portion was faced with local stone, poorly bonded to the east side brickwork. The northern section of stone wall has a stone coping and is still standing, albeit with a slight lean away from Castle

House. The wall surface on the western side is heavily weathered, a characteristic of the softer Calne Freestone. Viewed from the eastern side, the upper poorly bonded wall of stone and brickwork, peeled off the lower stone retaining wall. The retaining wall has regular buttressing piers but some of them are cracked and have suffered weathering damage. No weep holes were seen in the lower face of the wall, so drainage behind the wall is unlikely to be present. Vegetation has taken hold in the masonry construction on both sides and extensive ivy growth is obscuring much of the elevation. Several large trees are present on the high side, in very close proximity to the wall construction. The stump of a large, removed tree is visible and would likely have exerted pressure on the wall from root expansion. The wall has an outward curve and is still leaning in this area. As the wall extends further south, the vegetation obscures even more of the masonry face and frost damage can be seen to those areas visible.

In conclusion, the stone northern portion of the wall is not as high as the brick inner skin section of wall that fell. Near the collapsed section, the construction changed to a higher wall with an inner brick poorly bonded to the outer stone wall, and with a weak rubble inner core. The inner brick construction was not adequately bonded to the outer skin, as broken brick headers could be seen, likely from time of construction making the integrity of the two skins of masonry poor. Weakening of the wall construction by damp ingress, frost and in combination with a period of high winds finally caused the collapse.

The southern section of the wall is vulnerable to collapse due to a visible lean, presence of vegetation growth and the proximity of mature trees. The lower section of retaining wall will also need to be considered for strengthening to provide future stability.

5.0 Conclusions & Recommendations

With reference to the drawing of the wall elevations provided by Brunel Surveys, 25535-100-02E (Appended), the two heights of wall, west and east, can be seen.

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7.0 Appendix A

Atkins Martin report dated June 2021

Brunel Surveys drawings

CAL Markup SK01

Helifix typical masonry wall repair

Platipus ground anchors

Photos – Site visit 7th August 2023



