

CM/JMM/Y19201

28th October 2019

Mr Sam Hardwick
AA Projects Ltd
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Dear Sam,

Re: Bursham Hall, Garage Conversion to Dining Facility – Stage 2 Structural Report.

We confirm our site visit on the 16th October 2019.
Please find below our Stage 2 Structural Report and project brief.

Brief.

To visit the above site to undertake a structural inspection of the existing single storey detached garage building.
To prepare a written Stage 2 report along with marked up floor plan indicating the proposed new elements of structure to be included within the conversion works.

Existing Structural Form.

The existing detached single storey building comprises of 5 No separate single garages. The external walls to the garages are constructed from a single leaf of 102.5mm thick facing brick. The 4 No internal cross walls are also of 102.5mm thick single leaf brickwork which extend up to the underside of the pitched roof. However it was clear that these walls do not support the roof structure but they do provide lateral stability to the detached building. Intermediate brick piers were noted to be located centrally within each cross wall and gable wall to provide additional lateral stability.

The pitched roof was noted to be constructed from timber trussed rafters spanning in a front to rear direction. The trussed rafters had a tiled/slate covering supported on timber battens with sarking felt visible to the underside. There were a number of holed areas through the roof covering where daylight and water ingress had clearly penetrated through to the interior space.

There were 5 No large garage doors to the front elevation. The lintels over these garage doors were mainly precast concrete, however the lintel to the extreme right hand folding sliding door was of timber construction. These lintels were noted to support the ends of the timber trussed rafters.

The rear elevation had an exposed timber wall plate at the head of the wall which also provided a bearing location for the rear ends of the timber trussed rafters. The existing internal ground floor area had a ground bearing concrete slab throughout each garage.

Internal Inspection.

The internal inspection revealed signs of low level distortion and water ingress through the rear wall within the extreme left hand garage. The facing brickwork had clearly moved laterally at this location by a significant amount as a result of the root pressure from an external mature tree which was located within a few hundred millimetres from the rear corner of the building.

The existing timber wall plate to the front and rear elevation had not been adequately strapped down and was at risk of wind uplift.

The timber lintel to the folding sliding door to the extreme right hand garage was not considered to be structurally adequate to support the loading from the timber trussed rafters.

External Inspection.

The existing gutters were noted to be blocked with leaves and vegetation due to the proximity of the trees.

There were a number of mature trees located very close to the rear elevation. These trees were considered to be within influencing distance of the garage structure. There were signs of brickwork cracks within both rear corners of the external walls to the garage building which we consider are as a result of tree influence.

The existing rainwater down spouts to the rear corners of the building were either missing or simply discharging to the external ground resulting in saturated external ground which had resulted in internal water ingress through the perimeter walls. Additionally the external ground level to the rear and both gable elevations was higher than the internal floor level. As a result, ground water seepage through the external walls was evident along these elevations.

The existing rainwater gulley to the front right hand corner was blocked.

Inspection along the left hand gable wall revealed signs of salt attack to the facing bricks and mortar joints at low level. We suspect that road de-icing salts have been stored and stacked against this wall in the past, resulting in perished and re-cressed mortar joints along with minor damage to the brick faces.

Photographs.

We attach electronically a selection of our survey record photographs for your reference.

Drawings.

We attach electronically a copy of the marked up ground floor plan No SK1 with our structural remedial works and structural proposals for conversion. All for costing purposes within the Stage 2 report.

Recommendations.

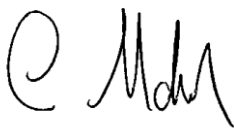
The following remedial works are recommended:

1. Carry out localised rebuilding works to the cracked and laterally distorted facing brickwork to the rear elevation and rear corner locations.
2. Arrange for removal of all mature trees adjacent to the rear elevation.
3. Install galvanised steel wall plate straps to the front and rear elevations.
4. Undertake repointing works and brick repairs to the left hand side elevation at low level where salt damage has occurred.
5. Reduce the external ground levels to the rear and side elevations to prevent ground water seepage through the external walls.
6. Replace the existing timber lintel to the extreme right hand garage door opening with a precast concrete lintel.
7. Replace, clear defective/blocked gutters.
8. Unblock existing surface water gullies at downspout locations.
9. Re-route rear downspouts to discharge in to existing front gullies.
10. Undertake repairs to all holes within the existing pitched roof.

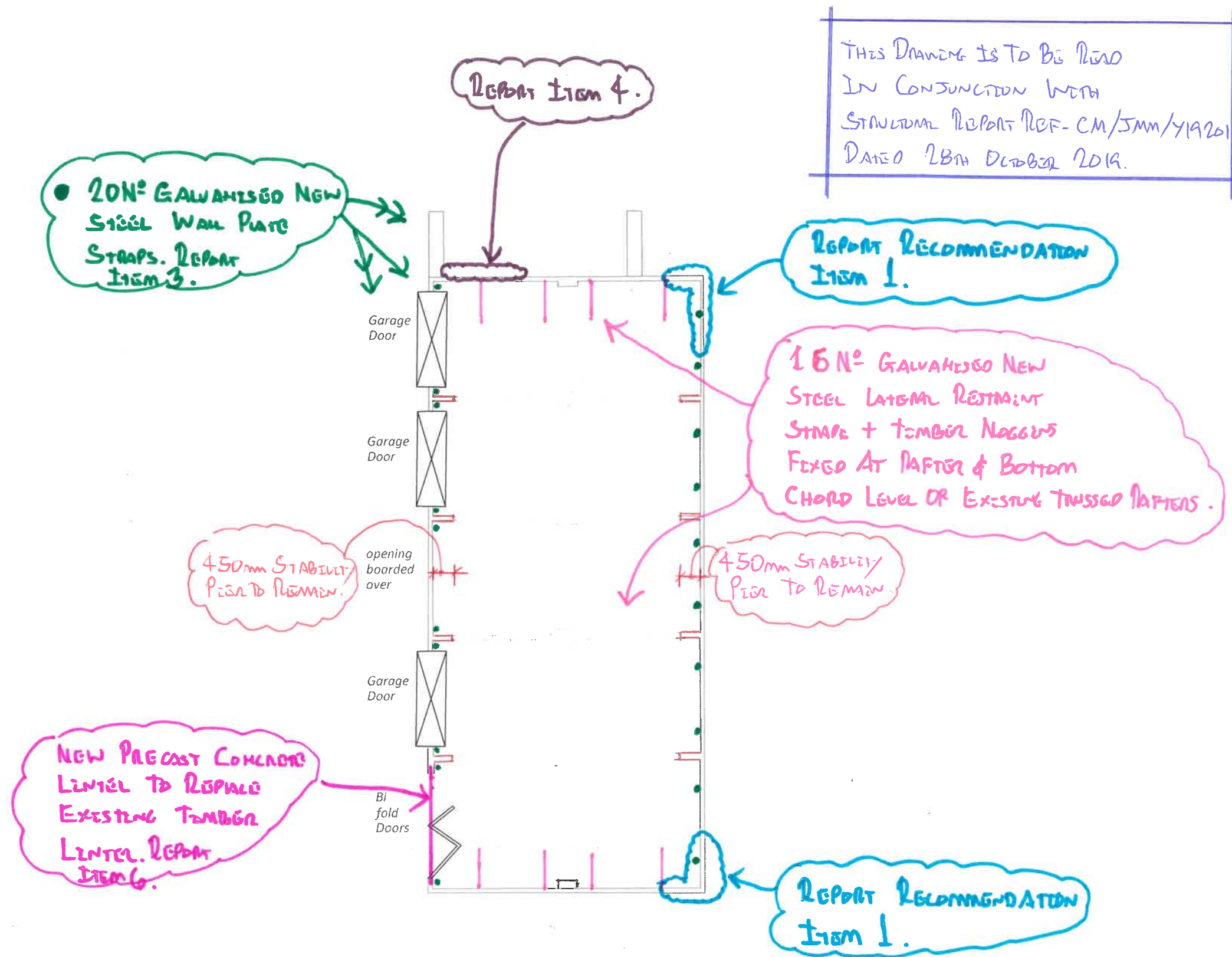
We hope that the above outlines our observations and recommendations following our recent site inspection.

Please do not hesitate to contact me if you should wish to discuss any aspect of the above.

Yours sincerely,



Chris Markland
BSc (Hons) CEng MIStructE
Director
Enc – Photographs (By E Mail)
Drawing No SK1 (By E Mail)



Garages - Ground Floor

STRUCTURAL COMMENTS / RECOMMENDATIONS
FOLLOWING SITE SURVEY ON 16/10/19.

PREPARED BY - CHAS MARWARD
F.G. MARWARD ASSOC LTD.
DRAWING N° SK1.
DATE - 29/10/19.

THIS DRAWING IS TO BE READ
IN CONJUNCTION WITH
STRUCTURAL REPORT REF- CM/JMM/Y19201
DATED 28TH OCTOBER 2019.

Notes:

Copyright: All rights reserved. This drawing must not be reproduced without permission from AA Projects Ltd. Do not scale off this drawing. All dimensions are to be checked on site by contractor / sub contractor. Any discrepancies to be reported to AA Projects Ltd.

Rev	Date	Revision notes	By	Check

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Client Quality Education with Care	Drawing Title Floor Plans Garages	
	Project Title Bersham Hall, Wrexham Laser Scan Measured Survey	Drawn Date Checked Date
DWG No. <u>1185010</u>	Scale 1:100	Revision

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