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30th January 2024

Dear Mr Shanks

Structural Engineer's Inspection – Garage & Office Structures at 8 Manchester Rd Burnley

Further to your acceptance of our fee proposal, we attended site on 25th January 2024 to carry out a visual structural inspection of the Garage & Office structures, with the purpose of producing a Structural Appraisal Report. The weather at the time of inspection was overcast, dry and cold.



• INTRODUCTION

The former Martins / Barclays Bank premises at 8 Manchester Road is to be developed – our brief was to undertake a visual appraisal of the adjacent partially-attached Garage & Office structures, to document observations of their current structural condition, and to provide conclusions and recommendations relating to the potential future use of the structures.

The scope of this resulting Structural Engineer's Report is limited to the observed state of the Garage & Office structural elements only. In the absence of any invasive investigations, no responsibility can be accepted for matters relating to the condition of any hidden structural elements or latent defects that a more detailed or invasive survey may reveal.



No areas of the property were exposed to reveal the structure beneath. Exposure and examination of the existing foundations, underground drains and supporting soils has not been undertaken.

This report comments on the condition of the property at the time of the inspection only.

• DESCRIPTION

The Garage structure (which would appear to be between 20 and 40 years old) comprises a tall, single-storey building with a steel folding vehicle door on the front elevation. A lower single-storey Office structure connects the main Garage structure to the adjacent two-storey Bank building.

A single-leaf, solid brick link wall, with the same height as the Garage, divides off the open space between the Garage structure and Bank building from the parking area to the front elevation.

In structural form, the Garage structure consists of parallel, solid 9" thick side walls, braced by the smaller Office structure on the left side and 3no 9" brick piers to the inner face on the right side. Each side wall terminates in a 450mm square pier at the front elevation, either side of the vehicle door, supporting an (apparently) 450mm wide x 75mm deep concrete lintel above. The side walls butt up to the higher retaining wall to the rear, but may not be physically connected to this wall.

The side walls support a very shallow, front-to-back duo-pitched roof, with a central gutter running side-to-side across the width of the building. Translucent, corrugated plastic roofing material is supported on 4no steel angle purlins also spanning between the side walls. Some form of (assumed) security mesh is attached to the underside of the roofing material.

A low parapet wall is positioned above the side walls and above the vehicle door lintel, with flat coping slabs above. The same coping detail is repeated above the link wall which also contains a 1m wide access door.

Finally, the entire structure appears to sit on a concrete ground slab (which may or may not be a raft) which has a 250mm wide x 50mm deep open drainage channel round the perimeter of the building for surface water drainage.

• EXTERNAL OBSERVATIONS

Observations noted are as facing the structural element (e.g. wall) being described. Visual examination was undertaken from external ground level, immediately in front of each elevation.

Right Hand Side Wall [photo 1]

- 9" solid brick wall using 'English Bond' with headers every other course, with small (boarded-up) slot window near front elevation corner.
- No significant cracking but extensive mortar joint degradation around the (assumed) damp proof course, with green staining (assumed to arise from rainwater bouncing up from the surrounding hard surface) up to around 1m above outside ground level.
- Damp proof course material (bitumen felt) folded down on the outside to cover 2no brick courses below and then into open drain – fractured towards the front elevation corner exposing brick.
- Dark staining to around 50% of the top area, down to around 1m below copings (assumed to be associated with continual moisture entry from the roof behind) with light vegetation growth.
- Copings relatively level with consistent but minimal overhang; some minor gaps between copings.
- Approx 3.8m high, 9" / 225mm thick side wall has an outwards lean at the top from vertical – by approx 40mm near the front and rear junctions, and by approx 50mm at the centre of the side wall.
- Side wall butts up to the white-painted retaining wall at the rear edge with a max 2mm to 3mm gap and no visible form of connection (some embedded fixing may not be visible). This retaining wall leans back from vertical – measured as 50mm over the height of a 1.8m spirit level.
- The open surface water drainage channel running in front of the wall was blocked with debris in many places and did not appear to have an obvious fall to any drainage gully.

Left Hand Side Wall [photos 2 & 3]

- Forward section - 9” solid brick wall using ‘English Bond’ with headers every other course, with external door to enclosed open space.
- Door-surround brickwork with uneven, degraded mortar joints, and corroded lintel.
- Rearward section - overall 250mm thick, narrow cavity wall shared with attached Office structure.
- No significant cracking observed but some mortar joint degradation around the (assumed) damp proof course.
- Copings relatively level with consistent but minimal overhang; some minor gaps between copings.
- Approx 3.8m high, 9” / 225mm thick frontwards section of the side wall has an approx 25mm inwards lean at the top from vertical, along its full length, up to the junction with the rearwards cavity wall section.
- Brickwork projects forward over the damp proof course to the bottom right hand side of the external door.

Front Elevation [photos 4 & 5]

- 450mm square brick piers either side of folding steel vehicle door – approx plumb to vertical on front face but leaning, to a degree consistent with the side walls (see above), to the right hand side at top (viewed facing Front Elevation).
- 450mm wide x 75mm deep concrete lintel spanning across corner piers with concrete padstone towards inner face each side. Small spalled patch towards the centre of the lintel underside reveals corroded steel reinforcement – indicating (not surprisingly given the shallow depth of the concrete) very little cover to the reinforcement.
- Bearing of the lintel on the right hand side pier appears fractured with visible gaps across approx 30% of the width of the bearing surface, indicating a potentially dangerous failure of support for the masonry above and roof structure.
- 6no courses of brick above the lintel to the underside of the copings – these are in very poor condition with extensive spalling, degraded mortar joints, displacement both forward and backwards, vegetation penetration from behind, dark staining (assumed to be associated with continual moisture entry from the roof behind), and white staining (which could be efflorescence or other chemical seepage from the masonry or from penetrating moisture from the roof behind).
- Copings with minimal overhang and some minor gaps between.
- The open surface water drainage channel running in front of the wall was blocked with debris in many places and did not appear to have an obvious fall to any drainage gully.

Link Wall [photos 6 & 7]

- 9” solid brick wall using ‘English Bond’ with headers every other course, with door from external parking area to enclosed open space between Garage and Bank building, corroded lintel over door.
- Copings with minimal overhang and some minor gaps between.
- No significant cracking observed but with green staining (assumed to arise from rainwater bouncing up from the surrounding hard surface) up to around 1m above outside ground level.
- Corroded steel angle bracket mounted with a single bolt to the inside of the Link wall at high level with an estimated approx 30mm gap between the second angle leg and the Garage left side wall, suggesting movement of the Garage side wall away from the original constructed position, though the mortar joints at the junction did not necessarily echo this potential historic movement.

Office Structure Front Elevation [photo 8]

- Overall 250mm thick, narrow cavity wall with central window – all in very poor condition with extensive dark staining (from assumed moisture penetration) near rainwater downpipe, degraded mortar joints above window level, rotten timber window frame, peeling paint from rotten barge boards, stepped hairline crack from bottom left hand side of window sill down to ground level..
- Assumed flat roof with metal vent structure above, extensive vegetation growth, blocked and corroded gutters, corroded rainwater downpipe and blocked gully below.

• INTERNAL OBSERVATIONS

Observations noted are as facing the structural element (e.g. wall) being described. Visual examination was undertaken from internal ground level, immediately in front of each elevation.

Garage Interior [photos 9 & 10]

- Interior cluttered with building materials restricting access – especially to the Office structure side.
- Folding steel vehicle door and support frame inset from Front Elevation brick piers.
- Corrugated translucent plastic sheeting material supported on 4no (estimated) 75 x 75 steel angle purlins and a central gutter (unknown form) spanning between the side walls forming the shallow duo-pitched roof. Purlins appeared simply mortared into masonry at bearings (with some corrosion visible) at approx 1350mm horizontal spacing.
- Some form of steel mesh fixed to the roof material underside (presumably for security).
- Right hand side wall with 3no full-height 9” brick buttressing piers toothed into the inside face.
- Water penetrating (dripping) from the roof structure in multiple places throughout the Garage.
- Door-surround brickwork with uneven, degraded mortar joints, and surface cement coating.
- Unmeasured sag towards centre of rear purlin near retaining wall.
- Previously filled horizontal / stepped cracks in mortar joints of wall to Office structure, to left side of internal door to Office, and from right hand end of internal window sill down to bottom left hand corner of internal door.
- Various horizontal cracks and flaking of the render / paint finish to the upper and lower sections of the rear retaining wall, with dark staining (assumed from damp penetration through wall).

Office Interior [photos 11 & 12]

- One-roomed structure completely derelict – roof structure soaking, rotten and with ceiling board fallen down in many places – water penetration has caused extensive damage.
- Brick-built lower plinth to the rear retaining wall, with stone or concrete slab shelf, covered with debris and damp – badly rusting radiator mounted to front of plinth. Painted render to the upper retaining wall face badly cracked and spalled.
- Front wall (to enclosed external area) and internal wall to Garage with diagonal cracks from bottom corners of each window sill, and to top left hand corner of the external window.
- Concrete? lintel over door to Garage appears to be delaminated (not accessible for closer examination).

• CONCLUSIONS AND RECOMMENDATIONS

The Garage structure is in very poor structural condition – extensive water ingress over time has resulted in widespread degradation and rot of much of the structure.

The Garage structure exhibits a significant lean from left to right (away from the adjacent Bank building) to a degree that the tall, thin and relatively unbraced side walls may now be unstable.

Due to the following Garage structure features and their observed condition:

- plastic roof material spanning front-to-back with no lateral (side-to-side) resistance
- the few lightweight purlins that are not attached to the Garage side walls, other than by the grip of the surrounding mortar at their bearing on the side walls
- the possible lack of robust fixing of the side walls to the rear retaining wall
- the relatively slim (for their height) restraining front piers to the sides of the vehicle door
- the few slim (for their height) buttressing piers to the inner face of the right hand side wall
- the probable undersized reinforced concrete lintel over the vehicle door with failed bearing

it seems very likely that the tall side walls have inadequate lateral restraint against horizontal forces (e.g. wind) along their front and rear vertical edges, and along their top edges.

We conclude that the Garage structure, possibly even from its original construction, but certainly in its current condition, has now reached, or is near to reaching, structural instability and will remain so without extensive remedial works (e.g. substantial propping to the side walls, complete re-roofing, robust securing to the rear retaining wall, and repairs to, or replacement of, the front lintel).

For the avoidance of doubt, we advise that the existing Garage structure, without extensive remedial strengthening and repair works, is NOT suitable for ANY commercial or other reasonable use, due to the potential for structural collapse with very little warning.

We recommend that the Garage structure is NOT used for any purpose in its current state.

Moving on to the attached Office structure (between the Garage and the main Bank building), whilst its walls are not completely structurally compromised, this building is derelict. Other than providing limited lateral buttressing to the Garage left hand side wall, this Office structure, in its current state, seems to offer no reasonably useful function.


To restore usability of the Office structure, a completely new roof would be required, with appropriate sealing to surrounding structures and new drainage facilities. After a period of drying out, masonry crack stitch repairs, lintel replacement, window & door frame replacements, plumbing, electrics, heating, decoration, etc would all appear to be necessary.

If remedial repairs are not addressed in the medium to long term, then they may lead to further deterioration and ingress of moisture to the premises.

We trust that this report meets your present requirements but should you need any further assistance then please do not hesitate to contact me.

Several photographs undertaken at the time of the site visit are included to the rear of this report for information.

Yours sincerely,


Alastair Morris BEng CEng MStructE MPTS

For and On Behalf of Francis Bradshaw Consulting Ltd

Structural Engineer's Inspection

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PHOTOGRAPHS



Photo 1 – Right hand side wall with front pier.



Photo 2 – Left hand side wall – front solid wall area.



Photo 3 – Left hand side wall – rear cavity wall showing attached Office structure front wall (with window).



Photo 4 – Front elevation showing piers to side of vehicle door & masonry over shallow r.c. lintel.



Photo 5 – Partially failed bearing of vehicle door lintel at right hand side pier.



Photo 6 – Link wall viewed externally showing door to enclosed area and dark staining below copings.



Photo 7 – Link wall viewed internally with corroded bracket near junction to Garage left side wall and gap to Bank main building on right hand edge.



Photo 8 – Office structure front elevation showing rotten window, dark staining, corroded gutters, vegetation above – door to Bank main building on the left hand side.



Photo 9 – Garage structure interior – front area showing folding steel vehicle door & steel angle purlins spanning across.



Photo 10 – Garage structure interior – rear area showing upper & lower rear retaining wall – internal door & window to Office structure on left hand side.



Photo 11 – Office structure interior showing rear retaining wall lower plinth and radiator.



Photo 12 – Office structure interior showing failed roof structure.