STRUCTURAL REPORT FOLLOWING VISUAL INSPECTION

For Monfredi Builders

Former Fitzwilliam Arms PH, 42 Hill St, Elsecar, Barnsley S74 8EL

collinshallgreen LTD
Consulting Structural & Civil Engineering

Date	Revision	Reference
Mar 2025	P01	K150-CHG-XX-XX-RP-S-0001

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Approved by
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Document History

Revision	Date	Prepared	Approved	Notes
P01	06/03/2025	RG	AS	Initial issue.

CONTENTS

1. INTRODUCTION/BRIEF

We were instructed by our Client, Mr Mario Monfredi of Monfredi Builders, via Colt Swift of C. Swift Design and Planning, to visually inspect this former Public House located on Hill Street in Elsecar. Our Client is very concerned with regard to the overall structural stability and has previously commissioned two reports on the property undertaken by Stephen White, BSc, MSc, MPhil, MBA, CEng, MIStructE of Buckingham Associates (January 2022) and Dennis Morris, MSc (October 2024). These Reports are included in Appendix A and Appendix B respectively. Both Reports state that the building is structurally unstable and make strong recommendations for the building to be demolished and re-built. The second Report classifies the building as a dangerous structure requiring immediate demolition.

There is long standing resistance to the demolition and re-building of the building by the Local Authority and this has prevented the proposed change of use of the building to create residential accommodation. The building in now located within a Conservation Area, the area of which was recently increased to encompass the site.

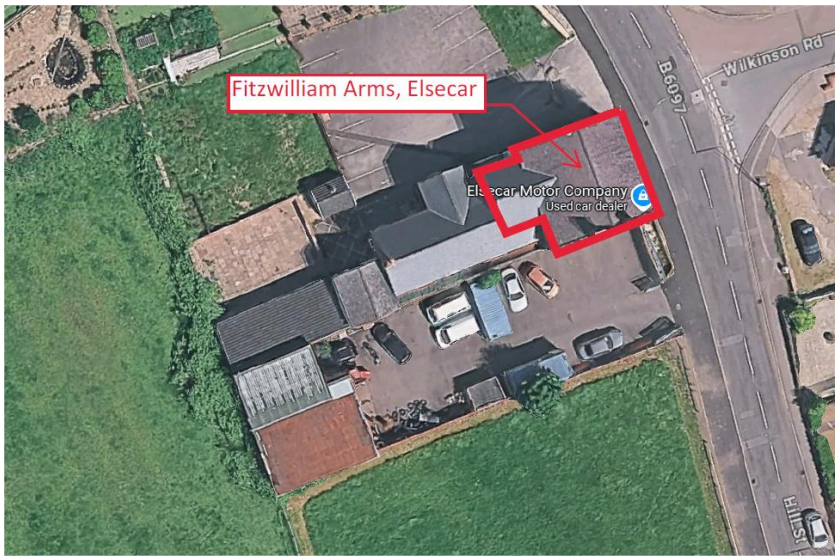
The visual site inspection was undertaken by Robert Green of collinshallgreen Ltd on Monday 3rd March. The weather was dry and bright.

In order to minimise the significant risk to both members of the public and workers/customers of the adjacent Elsecar Motor Company, Monfredi Builders have undertaken the following works.

- Removed the entire roof. Mario Monfredi advised that there were roof purlins that had little or no bearing on the external walls as a result of the movement that is clearly evident in the building.
- Taken the side gable walls and chimneys down to the roof eaves level as these would almost certainly have been blown over during one of the recent severe storms.
- Erected a full height scaffold along the southern and northern gables with diagonal bracing to prevent collapse of these walls. Bracing tubes have also been installed internally across the full width of the building to stabilise the link between elevations.
- Erected a full height scaffold across the front, eastern, elevation to brace this wall and protect pedestrians using the public footpath.

For the extents and limitations of the Report, please see the Notes at the rear.

The aerial Google site plan is detailed below.



Building Location Plan.

2. EXISTING FORM OF CONSTRUCTION

Given the age of the building, there are no 'As-Builts' available, but a digital building survey has been undertaken and this formed the basis of the proposal drawings as produced by Colt Swift.

This visual inspection and review of the Buckingham Associates report confirms the building structure to be as follows.

- Traditional slate covered roof construction, comprising timber rafters, purlins, valley rafters, ceiling binders and ceiling joists all supported off loadbearing brick walls. The roof has now been removed.
- Tall brick chimneys to both the north and south gables. These have now been demolished to eaves level.
- Solid 9" brick walls externally in Flemish bond to the front, east, elevation and non-defined bond elsewhere.
- Internal brick walls supporting roof and first floor timbers. Internal piers at ground floor supporting steel first floor beams spanning over open plan ground floor rooms.
- Solid brick retaining walls of unknown thickness at basement level with internal brick walls supporting brick arches forming the solid ground floor.
- Concrete basement floor.

3. EXTERNAL VISUAL INSPECTION

This general inspection was undertaken from ground floor level and from the scaffold that has been erected around the building. The two previous Reports on the property were also consulted.

The inspection revealed the following.

- The building has clearly rotated on its foundation and tilts significantly towards the south east. In 40 years of inspecting both commercial, industrial and residential properties, I have never noted an out of plumb on external walls as that noted here.
- Window heads slope significantly and all window and door reveals are out of plumb.
- The front, east, wall has a noticeable outward bow at high level.
- There is relatively minor mortar joint cracking to each elevation.
- Ther are pattress plates to both the front and side elevations clearly indicating historic attempts to stabilise the building.

See photographs in Appendix C.

4. INTERNAL VISUAL INSPECTION

This general inspection was undertaken at first floor ground floor and basement levels. It was considered safe to enter the building based on the scaffold propping installed and little or no wind on the day of inspection.

The inspection revealed the following.

- The rotation of the building noted externally is clearly evident internally, with out of plumb internal walls, sloping floors, sloping window heads and out of plumb door reveals.
- Cracking in internal walls at intersections and at junctions with external walls is evident at each floor level.
- The brick arch in the section of basement adjacent the south wall has failed and flattened due to outward spread of the springing points.

See photographs in Appendix C.

5. DISCUSSION

There is no doubt that this building has rotated significantly out of plumb to the extent that, without the erection of the bracing scaffolding currently in place, there is a **significant** possibility of collapse. The dismantling of the roof and the taking down of chimneys and gable walls has helped to minimise the risk to people walking and driving in close proximity to the building.

Based upon the tilt in the building, and the uniformity of the tilt, it is possible that it has settled on the end of a subsidence wave that passed across the Elsecar area during historic coal mining.

There is no practical way to leave the property in its present condition and re-furbish it. It cannot be re-purposed to any type of use in its present condition. I fully agree with the findings and the recommendations of the previous two Reports that recommend dismantling and re-construction.

The building without the benefit of the scaffold bracing is unsafe and should be classified as a dangerous structure. I strongly recommend careful dismantling of the building with recording of each phase of the dismantling process. Existing masonry should be cleaned and stored on site for re-use. All features identified by the Local Authority as historically significant should be photographed, recorded and very carefully dismantled and stored for re-use.

The building should be taken down to a level sufficiently below ground level that will enable a new form of construction to be designed to facilitate construction of the new building to accurately match the existing external configuration, all in collaboration with the Conservation Officer representing the Local Authority.

The building is a serious risk to property and people should it be left and works to dismantle it should commence immediately.

6. CONCLUSION

We were instructed by our Client, Mr Mario Monfredi of Monfredi Builders, via Colt Swift of C. Swift Design and Planning, to visually inspect this former Public House located on Hill Street in Elsecar. Our Client is very concerned with regard to the overall structural stability and has previously commissioned two reports on the property undertaken by Stephen White, BSc, MSc, MPhil, MBA, CEng, MIStructE of Buckingham Associates (January 2022) and Dennis Morris, MSc (October 2024). These Reports are included in Appendix A and Appendix B respectively. Both Reports state that the building is structurally unstable and make strong recommendations for the building to be demolished and re-built. The second Report classifies the building as a dangerous structure requiring immediate demolition.

There is long standing resistance to the demolition and re-building of the building by the Local Authority and this has prevented the proposed change of use of the building to create residential accommodation. The building in now located within a Conservation Area, the area of which was recently increased to encompass the site.

The site inspection revealed a building that has tilted significantly over its lifetime, to the extent that, without the current bracing in place, it would be designated a dangerous structure and large areas around the property would have to be cordoned off to prevent access by members of the public in the interest of health and safety. **In 40 years of inspecting buildings, I have never found one this far out of alignment.**

It is appreciated that there is a desire from the Local Authority to keep the building looking as it does at present, but the only practical way for this to be achieved would be to record all existing elevations, carefully dismantle the existing building by hand and re-build it to accurately match the existing from new foundations constructed off the existing basement walls.

We trust the findings of this investigation accord with the brief, but should there be any queries, they may be addressed to the Author below.

collinshallgreen Ltd
21 Stoney Street
The Lace Market
Nottingham
NG1 1LP

Robert Green, BEng, CEng, FIStructE, MICE

6th March 2025

7. NOTES

We would be pleased to discuss and advise on any points of difficulty arising out of this appraisal.

Please note that this appraisal is presented on the basis of the following conditions:

- We were required to undertake a visual inspection of the building, revue its' structural stability and make recommendations accordingly.
- We have not inspected woodwork or other parts of the structure, which are unexposed or inaccessible and are unable therefore to report that such parts of the property are free from rot, beetle or other defects.
- We have not exposed or tested drains, or except where noted, examined bearing strata or cut into the fabric of the slab.
- We have not attempted in this appraisal to establish whether or not the construction of the wall complies with current Codes of Practice or Building Regulations.
- The areas we have appraised are those inspected in accordance with the instructions given. If there are any omissions or if you believe that we have misinterpreted your brief, please let us know immediately. Where we have drawn your attention to items that are outside the scope of our brief, these items should be regarded as observations and not a full and complete assessment of any problems that may exist.
- This report shall be for the private and confidential use of the Client for whom the appraisal is undertaken and should not be reproduced in whole or in part or relied upon by third parties for any use without the express written authority of the Client and Engineer.

APPENDIX A

Buckingham Associates Structural Engineers Report

STRUCTURAL ENGINEER'S REPORT ON

THE FITZWILLIAM ARMS
42 HILL STREET
ELSECAR
S74 8EL

for

Mr M Monfredi

Report number 2251

Buckingham Associates
8 Woodside Court
Wickersley
Rotherham
S66 1FB

Brief

To carry out a structural inspection of the property in order to determine the present state of stability and assess the likelihood of future instability.

To comment on the seriousness of any defects. To determine the causes of the defects and whether they are dormant or progressive.

The investigation is limited to the above-mentioned structural aspects of the property and does not include items not specifically mentioned in this report, such as wiring and plumbing, for which specialist advice should be sought. No investigation of any other aspects of the property was made.

The inspection was carried out on 20 January 2022.

General Description

The Fitzwilliam Arms is situated at 42 Hill Street, Elsecar. It was built in the last third of the nineteenth century as a public house and has remained so ever since. It originally had adjoining properties, numbers 38 and 40 to the left side. These properties were demolished between 1956 and 1976. A rear extension was constructed in 2013.

The site on which the property stands is a fairly steeply sloping road rising at about 1 in 9 to the north. The property faces N 70° E, but for the purposes of identification, the front will be referred to as the east elevation, the right and left sides referred to as north and south elevations respectively and the rear as the west elevation. The site is at approximately 74 metres OAD.

The building has external walls in solid brickwork, with the side and rear walls painted white and the front unpainted. The brickwork on the front east elevation has every course with alternate headers and stretchers, known as Flemish bond. The bonding on the other elevations is less elaborate.

At the top of each of the gable walls (north and south elevations) there are large chimney stacks projecting approximately 2.5 metres above the roof line.

The upper internal floors consist of timber joists spanning between loadbearing walls. The ground floor is solid and can be seen from within the cellar to consist of a series of brick arches forming a vaulted ceiling.

North Elevation

It is clear from a visual inspection that the north elevation, next to the car park, is considerably out of plumb. At low level the wall leans inward by approximately 1 in 35. Above this level the wall appears to straighten, but then leans inwards to a much greater extent at high level.

From measurements taken by a previous survey (Haycock & Todd – July 2012) the chimney stack leans inwards to such an extent that the top of the chimney is around 550 mm out of plumb from the bottom of the wall. Not only does the wall lean inwards, it also slopes down

towards the front corner. The two windows on this elevation that would originally have been at the same level are now approximately 40 mm different.

There are two pattress plates at first floor level on the north elevation, one of which is 4 metres from the front corner and the second is near to the rear corner. These are repeated on the south elevation and will be connected by tie rods running through the building. It is not known when these were installed, but clearly there has been a significant stability problem for many years.

There is evidence of previous cracking in the wall that has been repaired and is disguised by the presence of the painted finish. However, the cracks have reappeared, indicating that there is ongoing movement.

East Elevation

The front elevation consists of Flemish bond brickwork that has not been painted. The entire elevation is sloping down towards the left side by approximately 1 in 30. Measurements from the previous survey indicate an overall difference in level from the right corner to the left in excess of 200 mm.

The doorframe and window frames are severely distorted and the chimney stacks can be seen to lean to the left.

There is a pattress plate at first floor level, 1 metre from the left corner, with a corresponding plate on the west (rear) elevation.

South Elevation

This is the left side which was originally connected to the adjoining property, number 40 Hill Street. It is cement rendered and painted white.

Due to the general slope of Hill Street, external ground level along this elevation is lower than others, making the gable wall higher by up to 1.8 metres.

At the rear corner, and continuing along the southern boundary, there is a retaining wall of relatively recent construction. This additional wall is built plumb and can be clearly seen to be flush with the main wall at the bottom and over a height of 3.8 metres the main wall slopes away by about 150 mm, indicating an overall lean of 1 in 25.

From the previous survey, the top of the chimney stack was measured to be leaning outwards and overhanging the boundary by 550 mm.

West Elevation

From the west (rear) elevation an extension has been added. A previous extension was added to in 2013 and at the junction of the different phases of the building the non-uniformity of the original structure can clearly be seen. It had proved impossible to neatly bond the new brickwork into the old because of the large degree of movement that has taken place.

Cellar

The cellar ceiling and ground floor construction comprised a series of brick arches spanning side to side, forming a vaulted ceiling. These arches are of different spans, with the two outer arches being the longer spans and the centre arch being shorter and therefore the outer arches are of a greater radius than the centre one. Towards the rear, the arches run front to rear.

With any true arch structure, the loads are transmitted down to the supporting walls at the ends not only vertically, but horizontally in the form of a lateral thrust. This thrust is greater the shallower the rise of the arch. Thus the outer two arches will be exerting a considerable lateral thrust on the external supporting walls.

This has caused the arches to fail, which has been partially addressed in the past by the installation of additional support beams across the arches. The underside of the brickwork arches has collapsed in several locations and the integrity of the structure now relies on the remedial beams that are in place.

Due to the nature of arches, it only takes a small amount of lateral movement to cause the arches to fail and this increases the lateral thrust on the supports, resulting in the movement and failure becoming progressive and catastrophic.

Internal Walls and Piers

Most of the internal fittings and ceilings above first floor have been removed. Plaster has been removed from the internal brick piers in the bar area.

The stripping out has revealed that the internal walls at first floor level are leaning towards the south by about 1 in 15 and are in a precarious condition. The internal piers in the bar area carry heavy loads from a series of beams and are also leaning dangerously to the south. One of the piers has a vertical crack, which is symptomatic of compression failure.

The roof is visible where the ceilings have been removed and this reveals that the original roof timbers have lost their bearing where they would have been supported on the external north wall. Remedial work has been carried out in the past, but the roof timbers are currently in danger of further movement causing complete loss of bearing.

General Condition and Conclusions

The building has suffered from severe movement in the past to the extent that the building leans towards the south (left) by an amount which gives serious cause for concern. Any wall that leans by an amount that places the top of the wall beyond the outer face of the base of the wall is considered to be on the point of instability and this is the case with the south wall.

The previously installed tie rods and pattress plates can only provide limited restraint under these circumstances and will not prevent the wall from failing if there is ongoing movement.

Any additional movement of the arched ground floor will result in large lateral forces on the outside walls, with the south wall being the more vulnerable as the ground level is lower at this side.

The present condition of the building indicates significant overall movement as evidenced by the overall tilting of the building downhill to the south and spreading of the arched ground floor.

The building is in a coal mining area and from the geological map for Barnsley (sheet 87) and the accompanying BGS memoir *Geology of the Country around Barnsley* it can be seen that there are several coal seams that are relevant in the area. The Kent's Thick seam outcrops just to the north of the site and dips away to the north. Beneath the site the Barnsley seam is located at relatively shallow depth, estimated to be around 30 to 40 metres. As this is the most important seam in the Yorkshire Coalfield, and at an average thickness of 2.4 metres, it will have been extensively worked in the past. The method of mining adopted would have been the old "pillar and stall" method.

It is likely that this has occurred to some degree in the past, probably affecting the adjoining buildings that were subsequently demolished, as well as The Fitzwilliam Arms. The movement should now have ceased.

The building has suffered from serious movement in the past which has compromised its stability in the future.

In its present state the side walls of the building, in particular the south elevation, are on the point of becoming unstable.

Historical mining subsidence, the removal of the adjoining buildings, and the lateral thrust from the ground floor arched construction are all contributory factors in concluding that the building may become unsafe in the foreseeable future.

Restoring the building is considered next to impossible given the extent of the movement and the dangerous instability of most of the internal piers, walls and the external walls.

The recommended course of action is to demolish the upper and ground floors of the building and to infill the basement.

Stephen White BSc MSc MPhil MBA CEng MIStructE
for *Buckingham Associates*
31 January 2022

APPENDIX B

Dennis Morris's Structural Report

Fitzwilliam Arms, 42 Hill Street, Elsecar, S74 8EL
Structural Report (25/10/24)
Dennis Morris MSc

I am asked to report upon the structural integrity of the building know as the Fitzwilliam Arms.

I am asked to consider if it is possible to stabilise the building without demolishing it.

I have to hand and have read the structural report number 2251 done by Buckingham Asociates on 20th January 2022.

Within the report produced by Buckingham associates are various measurements which I assume were correct at the time or were taken in a previous survey (July 2012) by Haycock & Todd.

I have not made further measurements. The measurments taken by previous surveys are such that the walls and chimneys are outside of the 'middle third'. The building is unstable. It will eventually collapse – probably in a winter wind.

THIS BUILDING IS A DANGEROUS STRUCTURE.

The building abuts a public causeway at the side of Hill Street.
At the south side of the building immediately adjacent to the building is a car sales lot within which are parked cars for sale and within which the general public have frequent access.
Some 8000 mm above these cars there is masonry leaning out by more than 500 mm; it could fall down any minute. If the masonry fell upon people; it would most likely kill them.

The instability is from roof to cellars; it is not possible to stabilise this building other than by extensive shoring from the adjacent land and road; it must be taken down; it should be taken down immediately.

APPENDIX C

Photographs from the Survey Undertaken on 3rd March 2025

External Photographs

Front Elevation showing the extent of the tilt.

Side Elevation showing the scaffold bracing.

Side Elevation showing the significant out of plumb.

Front Elevation showing the significant out of level.

Front window head showing the significant out of level.

Front door reveal showing the significant out of plumb.

Front Elevation showing the significant out of plumb and bowing.

Internal Photographs

Internal wall showing the significant out of plumb.

Internal corridor showing the significant out of plumb adjacent to the door and cracking.

Internal Side Elevation window head showing the significant out of level.

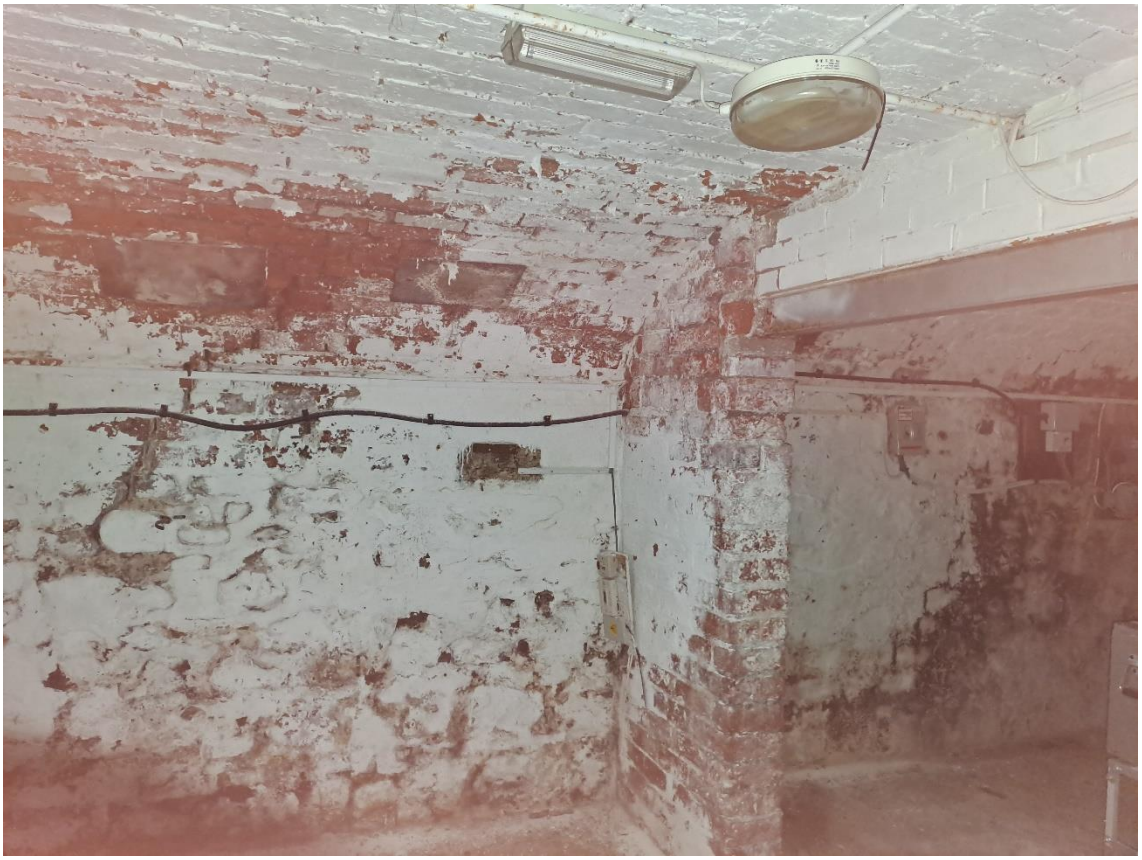
Internal view showing the significant out of level floor and cracking.

Internal view showing the significant out of level front window.

Basement view showing the flattened arch.

Basement view showing the flattened arch and steel support beam.

Basement view showing the steel support beam.



Basement view showing the flattened arch and damp.

Basement view showing the flattened arch and damp