

**GENERAL CONDITION SURVEY
OF
EXTERNAL MASONRY FAÇADE & WINDOWS
AT
37 PETER STREET AND BOOTLE STREET ELEVATIONS
THE FREE TRADE EXCHANGE (HARVESTER HOUSE)**



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1 INTRODUCTION

1.1 *Origin of the report*

- 1.1.1 We were commissioned by Clearbell Capital LLP to undertake an external stone façade and window condition survey to the 3no main elevations of the Freetrade Exchange, Manchester.
- 1.1.2 The elevation of Peter Street, South Mill Street and Bootle Street are to be included. Due to access restrictions at the time of the initial survey South Mill Street was not able to be surveyed. Once access to the elevation is made available a return visit will be made to survey and record defects to that elevation.
- 1.1.3 The survey is based upon a brief outlined in the Quadriga Contracts Limited quotation email dated 2nd July.
- 1.1.4 The overall purpose of the survey was to give Clearbell Capital LLP a detailed overview of the façade with a view to carry out maintenance repairs and provide budget costs for such repairs.
- 1.1.5 A brief ground level survey was procured by Clearbel Capital LLP from Quadriga in 2021 to establish a brief overview.
- 1.1.6 The structure is a Grade 2 listed building constructed as a warehouse circa 1868. The building is listed under the name of Harvester House with Historic England.
- 1.1.7 The Peter Street and South Mill Street are of Buff sand stone facing with a brick backing structure, whilst the rear Bootle Street elevation is of a plain brick with stone cills and cornice detail. The ground floor area having a non-original render finish applied
- 1.1.8 Windows to the Peter Street and South Mill Street are formally box sliding sash which have been sealed closed. The Bootle Street appear to be a non-original design sliding sash windows.

1.2 *Extent of Survey*

- 1.2.1 The survey was carried out on the 23rd and 24th of January 2022.
- 1.2.2 The façade was inspected using a Mobile elevated platform (MEWP) for higher levels and from ground level inspections.



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1.2.3 A schedule of defects has been prepared listing the defect types. Each defect has been given an item number, which is cross referenced for location on elevation photographs and drawings. Where practicable and not repetitive, defects have been photographed, each photograph being numbered and identified against an individual repair item.

1.1.1 The type of defects recorded were:

- *Exfoliation (lamination and scaling) to stonework.*
- *Loose or dangerous sections of masonry*
- *Defective pointing*
- *Metal Fixings*
- *Vegetation*
- *Cracking/fractures /fissures/joint movement*
- *Previous repairs if in a poor condition*

1.3 Procedures

1.3.1 The survey to Peter Street and Bootle Street were carried out on the 23rd and /24th of January 2022, with submission of this report made in February 2022.

1.3.2 All works were carried out in accordance with the method statements submitted by Quadriga Contracts Limited, and in compliance with statutory, company and client safety policies and regulations.

1.3.3 The building was partially occupied throughout the period of works on site.

1.3.4 Non general defects were numbered as an individual reference and marked on to elevation drawings supplied by Simpsonhaugh Architects. Drawings 1032-A-G200-XE-S-001 for Peter Street (South elevation) and drawing 1032-A-G200-XE-N-001 for Bootle Street(North Elevation). See Appendix 2.

1.3.5 South Mill Street is to be surveyed at a later date to be agreed.

1.3.6 Defects were noted on the 'Defects Schedule' (Appendix 1) and are number referenced, these numbers correspond with those indicated on the elevation drawings (Appendix 2). Photographs of typical or unique defects are referenced in the Defects Schedule by their JPEG number and are stored in Appendix 3 Photographs.



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- 1.3.7 A Guide methodology of repairs is offered within this report based upon minimal intervention with the intention of maintaining as much of the original fabric as possible. Please see further comments within the detailed report on the extent and types of repairs possible for various defects.
- 1.3.8 Guide Budget costs are offered in Appendix 4.

1.4 Report Limitations

- 1.4.1 All sizes and dimensions offered are approximate. Costings offered are based upon the defect sizes noted within the schedule. Contingencies should be allowed for further costs should defects extend beyond those stated and identified in the schedule after close access is gained.
- 1.4.2 The repairs proposed are based upon the view of the attending surveyor. Differing repair methods could be considered by the Conservation Authorities. Further discussions with Conservation Authorities should be undertaken to establish and agree all repair methods.
- 1.4.3 This report does not offer any view on structural defects. Where the surveyor has suspected possible structural movement, a comment has been added to the schedule, requesting that the view of a Conservation Structural Engineer is sought.
- 1.4.4 This report is limited in its scope to that as listed in previous paragraphs. Parts of the property or defects that are not relevant or outside the boundary of the report are not included within the scope of the report. The report has been commissioned for Clearbell Capital LLP for a particular purpose, this report is not intended for other parties other than the client's representatives.
- 1.4.5 The full extent of repairs will not be established until cleaning works are complete. Moss algae and loose deposits will be removed by the process highlighting further defects.
- 1.4.6 Access To the short return on the lefthand side (West side) of Peter Street was not possible due to limitations on the positioning of the MEWP. Comments are made based on those observations to the front façade and from ground level.

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2 SUMMARY OF RESULTS AND FINDINGS

2.1 External Masonry and Brickwork Overview

2.1.1 The Peter Street façade has an overall 'crisp' appearance to stonework detail.

2.1.2 There has been a number of previous insitue mortar repairs in the past , (sometimes referred to as Plastic Repairs)some of which are starting to fail. This failing is shown in either hairline fracturing, cracks and debonding from the underlying substrate. Cementitious repair mortars trap moisture within the stone and during winter months the moisture freezes causing expansion which causes voids to form between the host material and the surface repair. During warmer periods the frozen moisture thaws and the material begins to either crack or spall. They also generally prevent the natural evaporation of moisture from stone into the atmosphere resulting in accelerated decay of the original stone under the cementitious repair mortar.



2.1.3

2.1.4 A common insitue mortar repair to the façade is the 'sky 'surface (top) of window cills . Most of those noted show signs of failure by having hairline fractures and sounding hollow to a hammer test. See Image P3354.

2.1.5 Consideration needs to be given to removing and possibly not reinstating these repairs where water run off may not be affected. An example of this are the repairs to the vertical faces of some window cills to the rear Bootle Street elevation. All insitue repairs need regular inspection and replacement. Insitue repairs should last over 5 years often 25 years or more. However, many factors affect their life expectancy, ie exposure, quality of host stone and the repair mortar used. Removing unnecessary repairs reduces the requirement for inspection and maintenance. In some cases, the existing stone face can be redressed to as 'sound face', depending on the extent of 'keying applied originally to the repair.

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2.1.6

2.1.7

See image P2751 where the previous repair to a face of a cill has failed.

2.1.8

There are many areas where there is light 'delamination' or 'exfoliation' of the surface of the stone. In many cases this is very thin (0.5 to 1.5mm thick) and is viewed as the top surface of the stone peeling away from the substrate. This leaves the exposed surface generally with a rougher texture which has the potential to retain moisture and further accelerate decay. This is more common at upper levels. Where noted loose matter was removed during the survey.



2.1.9

2.1.10

There were a number of areas where masonry sections had become loose. This defect mainly to overhanging details such as drips details, modillions and the underside of string and cornice courses. Natural strata (bed lines) within the stone can weather and become weak, leaving undercut sections to become loose.

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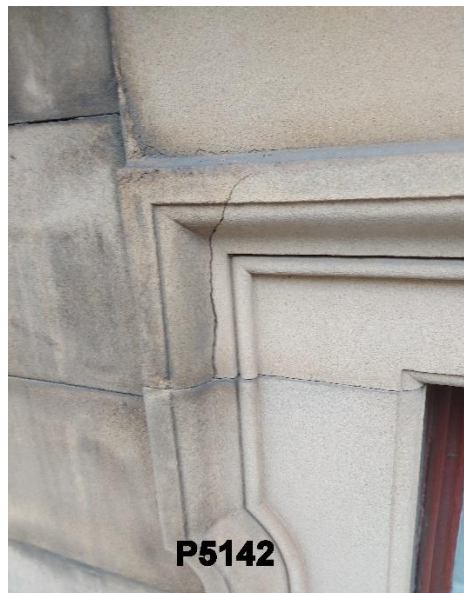


2.1.11

- 2.1.12 Where sections were suspected of becoming loose or were sounding hollow to a hammer test these sections were removed for safety purposes. This is an ongoing issue with many sedimentary stones, regular inspections are required on all masonry facades to try and identify such defects before they develop to a point where failure is imminent. See image P0747 and P0831 showing an example of laminating strata and the removed section of a modillion.

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- 2.1.13 Discussions need to be undertaken with the client and Conservation Authorities as to what level of repair is undertaken to such defects. There are several such defects where masonry was removed in this survey or previously. One option is to accept the defects as they are with redressing the exposed face assuming water runoff is not affected. Given that most of these items are at locations high on the façade and not highly visual this may be a consideration. Alternatively, dependant on budget, location and size of repair an insitu mortar repair could be considered or indenting a new section of stone may be an alternative option. For the purpose of this report, it has been assumed that the majority of such defects are re dressed to a sound face. Please see individual items in the Schedule of repairs in Appendix 1.
- 2.1.14 Mortar joints to stonework (pointing) on the whole and particularly at low level is intact. However upper levels are showing signs of erosion and weathering back to pointing, particularly to perpendicular joints of string courses, cornices and the like.
- 2.1.15 There are a number of cracks and natural fissures in the stonework. Many are relatively short and pose no risk of failure, however they should be repointed to prevent moisture ingress and subsequent damage.



2.1.16

- 2.1.17 A small number of fractures are noted that require stitching with stainless steel pin to ensure that sections do not become loose or to ensure structural stability. See image 5142.
- 2.1.18 Ther is a large fracture over the ground floor former entrance which will require stitching. The clients Structural Engineer should be consulted for their comment as to cause and suitability of the proposed stitch repair.

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2.1.19

- 2.1.20 There are numerous old sign fixings and redundant scaffold tie locations over the facades. These should be removed as potential corrosion of any metal can result in expansion and fracturing of the stone.
- 2.1.21 There are several areas across the facades where previous repairs have been carried out in grey mortar. Although sound and functional they have a detrimental visual affect. See photo P0502.



2.1.22

- 2.1.23 A common defect around ground level is surface erosion due to salt attack and excessive moisture. This shows as accelerated loss of detail and surface erosion as noted to the lower section of stone in photo P0502.

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- 2.1.24 The brick areas, ie Bootle Street, the right hand side return elevation to Bootle Street and the left hand return to Peter Street have varying degrees of brick surface failure, ie the surface of the brick crumbling.



2.1.25

- 2.1.26 Many of these areas have previously been repaired in a Red insitue mortar mix to mimic the brick colour, the red dyes used in such repairs are not colour fast and often fade to 'pink' colour which can be visually distracting. See photo P2410. Consideration could be given to replacing such previous repairs on aesthetic grounds.

- 2.1.27 Mortar joints to the brickwork vary considerably and the facades have been substantially patch pointed, combined with the red mortar repairs mentioned above give a very uneven appearance to the façade. The extent to which these areas are repointed to offer a more even appearance is a matter for debate with the client and Conservation Authorities.

- 2.1.28 Some of these patch pointing areas are in what would appear to be a very hard cementitious mortar with a strong grey colour. This can often result in moisture retention and accelerated decay to the surrounding brick face.



2.1.29

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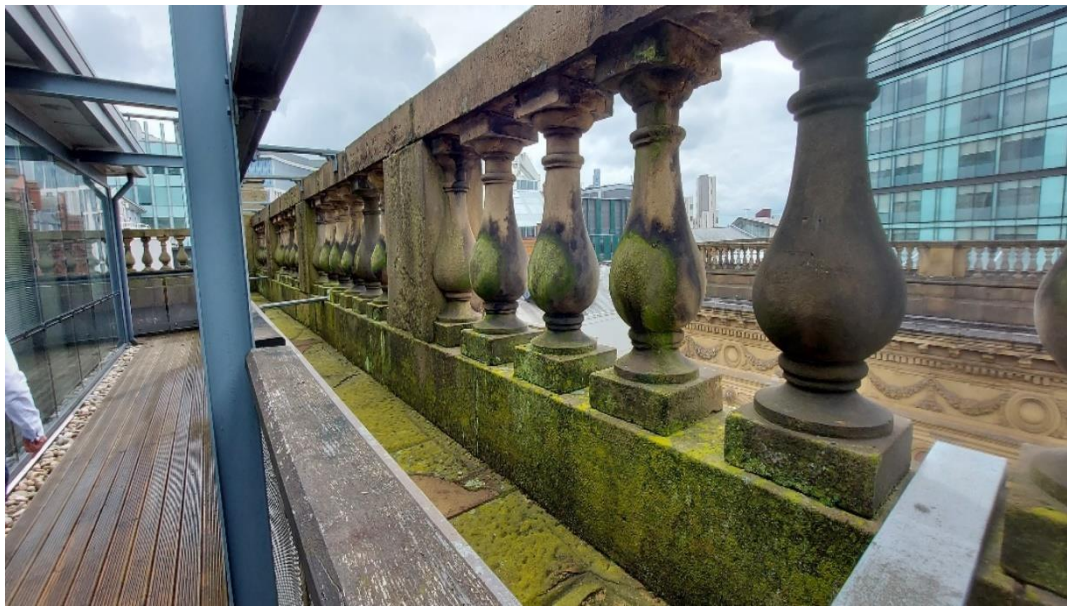
- 2.1.30 There are a number of cracks to brick areas generally running vertically with some extending over 1.5 ml. Whilst not considered of major structural significance the projects structural engineer should be consulted for their view on the cause and potential remedial action. For the purpose of this report these have been considered for cross stitch repair using Helibar and Helifix grout. See Photo P5551.



- 2.1.31
- 2.1.32 There is a small element of vegetation growth noted. The most extensive noted being to the top right hand side to the right hand return of Bootle Street. Root systems from such vegetation can cause lifting to bed joints and accelerate moisture ingress. Root growth can eventually lead to structural instability.
- 2.1.33 There are numerous small chips and spalls and sections where the finer edges of details have been lost due to various forms of erosion or mechanical damage. Such defects are not normally considered significant in conservation/ restoration terms and have been ignored in this survey.

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- 2.1.34 There is significant algae growth and moss to joints around parapet level. This will require cleaning off which will expose further open/ defective joints. Algae and moss also retain moisture to the surface and can accelerate some types of surface erosion. Cleaning should be carried out to all areas to remove loose dirt / carbon deposits and further identify any laminations forming which could develop to failure of overhanging details.



- 2.1.35
- 2.1.36 It is noted that there is a steel restraint system installed around the parapet as a method of restraint to the balustrade and copings. This appears to be effective with no noticeable movement identified.
- 2.1.37 The rear of the parapet/ cornice projection to Bootle Street has been rendered. This render is showing signs of decay and should be replaced in full to ensure water integrity.
- 2.1.38 Lead cornices have been covered in lead and appeared to be in reasonable order. The top of the lead cornice to Bootle Street is not protected with lead. Consideration may be given to protecting this surface eliminating the maintenance of the coping/ cornice jointing. However, this may prove difficult with the steel framing attached to the coping/ cornice.

2.2 Window Frame General Overall condition

- 2.2.1 The existing frames to Peter Street appear to be of an original box sash design. Whilst those to Bootle Street appear to be of a newer replica frame of slimmer design.



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- 2.2.2 The condition of the newer slimmer frames to the Bootle Street elevation is good. The older frames to Peter Street are also in good order but do show a couple of areas of timber decay which will require minor resin repairs and a cill which could be considered for a full cill replacement. See photo P3757 below.
- 2.2.3 There are a few instances to Peter Street where the glazing putty has dried and fallen from the frame. It is however likely that during decoration preparation works further defective areas will become evident.



- 2.2.4
- 2.2.5 The mastic jointing between the timber frames and the masonry has dried out and is extensively shrunken and crazed. See photo P3757. All the frames to the building should be repointed. It is likely that the Conservation Authorities would prefer a Burnt Sand mastic mortar in lieu of a gun applied mastic.
- 2.2.6 The decoration to the windows of Peter Street is starting to show splitting and peeling to cills and horizontal members. The same is for the windows to Bootle Street but to a lesser extent. A full redecoration is now urgently required before timber conditions start to decay.
- 2.2.7 Internally the windows have been recently redecorated, all existing fittings have been removed, weights and ropes have been removed and the windows sealed. It is therefore assumed that repairs to frames are purely for maintaining the fabric and appearance of the frames.



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2.3 RECOMMENDATIONS AND GUIDE SPECIFICATION

2.3.1 Masonry Repairs.

2.3.2 In the interest of preserving as much of the existing fabric of the structure we would recommend the following series of operations

2.3.3 A method of repair for each common defect is listed below.

2.3.4 Repairs should only be carried out by competent Restorers and Masons.

2.3.5 Discussions need to be undertaken with the client to establish the extent of restoration they aspire for the building and what budgetary constraints apply. Further discussions will be needed with the Conservation Authorities to agree the preferred repair / remedial process for different types of defects.

2.3.6 The repair methods noted in the schedule of repairs in Appendix 1 are based on trying to keep costs to a reasonable level whilst maintaining recognized repair protocol. Loss of detail at higher were water run off is not being affected, minor chips and spalls are to be stabilized by redressing the surfaces to a sound base. Failing previous repairs removed and a view taken as to their replacement dependant on location and the condition of the underlying stone. All repair methods being considered as to keep as much of the original detail and material as possible in a stable condition.

2.3.7 Defective joints and crack repair

2.3.8 Open or defective joints are to be cut out to a minimum depth of 15mm or not less than twice the width of the joint. Small mechanical tools may be used by skilled operatives only and only when it can be shown that no damage by overcutting into the terracotta or brick can be achieved.

2.3.9 Joints should be brushed and flushed out with clean water to remove any loose dust.

2.3.10 A test panel of pointing mortar is to be offered prior to the works to establish a suitable lime-based mortar.



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- 2.3.11 A previously approved mortar mix is to be carefully hand tooled into the joint taking care not to smudge on to the face of the stone. Finishing with a neat mason's joint.
- 2.3.12 All constituents of the pointing mix shall be clean and free from contaminants and obtained from the same source throughout the works.
- 2.3.13 Mortars should be colour matched with existing to avoid a patchy appearance. Companies such as Masons Mortar Ltd or Womersley's offer colour matched pre mixed mortars ..This would maintain mix qualities are maintained throughout the project.
- 2.3.14 **Insitue Mortar Restoration and repairing failed previous repairs and**
- 2.3.15 To be reviewed after full removal of existing mortar with a view to considering redressing in leu of restoration
- 2.3.16 Carefully cut out areas of decayed or defective stonework using mechanical hand tools to leave a sound keyed surface.
- 2.3.17 Edges to repairs should be slightly undercut to assist a key and attain a minimum depth of 10mm to avoid feather edges. Repairs to be squared off to mimic the appearance of an indent repair.
- 2.3.18 Introduce non-ferrous reinforcing rod and wire to deep areas or where repairs are projecting securing reinforcement with an appropriate polyester resin, according to need and the extent of repair.
- 2.3.19 Introduce any preformed supports according to need and the extent of repair.
- 2.3.20 Restore forward in layers in specialist lime-based Stone Restoration Mortar compressing well on to a pre dampened surface and around any reinforcement. For continuity and mix control pre bagged restoration mortar from companies such as Masons Mortar or Womersley's are available. Or mixes should be developed on site and installed by only experienced Mason Restorers.
- 2.3.21 The finish is to be worked with wooden profiles to match the original profile.



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- 2.3.22 Should it be found that upon cutting away that the depth of decay precludes achieving a sound mechanical base on which to apply the repair mortar it may be necessary to affect a new stone replacement.
- 2.3.23 **Removal of old Metal fixings**
- 2.3.24 Old metal fixings are to be removed by core drilling around the fitting using the smallest core drill diameter to cover the fixing.
- 2.3.25 The residual hole is to be made good/ restored in the approved restoration mortar.
- 2.3.26 **Indenting or Replacement**
- 2.3.27 Prior to commencing of the works a detailed drawing is to be produced of each unit to be manufactured
- 2.3.28 New stone blocks to the recorded detail and sizes should be sourced from a previously agreed quarry which can offer a good match for the existing stone type
- 2.3.29 Carefully cut out defective stone ensuring that the arises of the aperture are clean, square and undamaged.
- 2.3.30 Cut out to a suitable depth to ensure a secure base for the proposed new unit.
- 2.3.31 Bed on a mortar bed previously approved as the pointing mix incorporating stainless steel rods secured with an appropriate polyester resin.
- 2.3.32 On completion of the fixing, beds and joints are to be carefully pointed to match as near as possible the surrounding stonework.
- 2.3.33 **Pinning Fractures or Cracks**
- 2.3.34 Drill a hole to achieve a right-angled intersection across a fracture. The diameter of hole is to be determined by the size of the dowel pin which will be determined by the location and size of the fracture.
- 2.3.35 Drill to penetrate into the backing masonry to a suitable depth to ensure a ridged fixing, depth to be determined on location and size of the fracture.



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- 2.3.36 Carefully blowout all dust from the hole and set in a stainless-steel threaded rod in a suitable polyester resin.
- 2.3.37 Make good the drill hole with approved restoration mortar.
- 2.3.38 Point up the fracture with pointing mortar. It may be necessary to widen the fracture to ensure a sound key for the pointing mortar.
- 2.3.39 Long fractures may require 2 or more pins along their length.
- 2.3.40 **Cleaning**
- 2.3.41 The façade should be thoroughly cleaned down using the Doff or Thermotec or similar cleaning system.
- 2.3.42 **Redecoration to Window Frames**
- 2.3.43 Scrape all defective and loose paint, treat knots with knotting solution and apply one coat of base coat to bare timbers. Stop all open joints, shakes and other small defects with an external quality filler and rub down making good. Rub down all other painted surfaces, scrape off any loose and flaking materials back to a firm edge and touch(spot prime) in with appropriate primer. Apply one coat of undercoat and two topcoats of gloss/satin overall to all previously painted windows. Using the Johnstone's Stormshield paint system.

2.4 BUDGET COSTS

- 2.4.1 Budget costs are offered as a guide to assist in project budgeting. See Appendix 4.
- 2.4.2 Costs are based upon works being undertaken in the year 2022, works after that date would be subject to inflationary costs.
- 2.4.3 Costs do include scaffolding, hoisting or crantage, skips etc and a provision for prelims
- 2.4.4 It would be assumed welfare, storage and office facilities would be available within the building for the works.



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- 2.4.5 Costs do not include for any local authority charges for road closures. Due to the narrow nature of Bootle Street careful consideration will need to be given to scaffold design as reduction in the road width may result in a temporary road closure which can carry a significant cost from local authorities

2.5 APPENDIX 1 REPAIR SCHEDULE

- 2.5.1 Excel and PDF document listing all repairs record, item number, relevant photo image number, provisional quantity and unit of measure. Note as window repairs are minimal, they have been included in the same schedule as the masonry defects.

2.6 Appendix 2 GENERAL ELEVATION DRAWING

- 2.6.1 Drawing indicating location of each defect/ repair as listed in the Repair Schedule in Appendix 1.

2.7 APPENDIX 3 PHOTOGRAPHS

- 2.7.1 Images are identified by last 4 digits of JPG number as noted in the report and on the Repair schedule in Appendix 1.
- 2.7.2 Folder 1, containing images of individual repair items as listed on the schedule in Appendix 1.
- 2.7.3 Folder 2. General images of the facade

2.8 APPENDIX 4 BUDGET COSTS

- 2.8.1.1 Copy of Schedule from Appendix 2 with inserted budget costs.
- 2.8.1.2 Although a survey of South Mill Street has not been undertaken, for the purpose of budgeting a contingency sum similar to Peter Street's value of works is included for until a survey is completed.
- 2.8.1.3 Please note budget costs make no allowance for welfare facilities and site offices. It is assumed for the purpose of these costs that space could be found within the building
- 2.8.1.4 Please not costs for scaffolding have risen dramatically over the last two years as have all labour and materials costs. Due to further inflationary costs these figures may only be valid for 3 months from the date of this report.



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- 2.8.1.5 Local authority congestion charges may be introduced into the City area. Should this be the case all transport costs relating to deliveries would be increased.



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