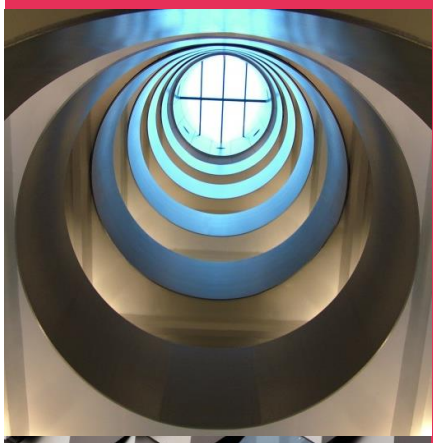
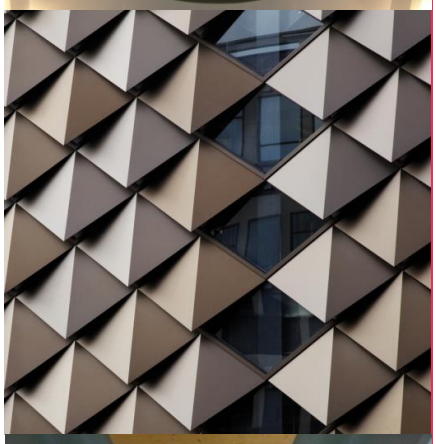
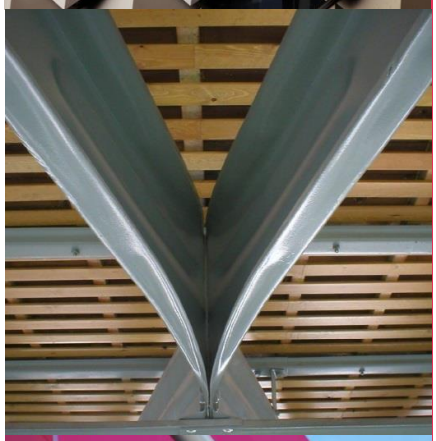
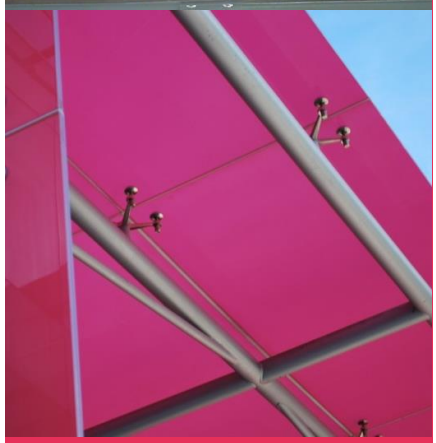
APPENDIX 8

THE QUARRY SWIMMING AND FITNESS CENTRE VISUAL APPRAISAL CURTINS (DECEMBER 2014)









Quarry Pool

Visual Inspection Report

Curtins Ref: MA1279

Revision: 00

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Client Name:

Client Address:

Site Address: Quarry Leisure Centre, Shrewsbury

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Reviewed	Signature	Date

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1.0 Introduction

Quarry Pool, is an existing wet leisure centre located on Priory Road in Shrewsbury. It was originally constructed in the 1920s, with a significant extension constructed in the 1960s.

Currently the building operates several pools on different levels within the building, requiring separate changing areas and increased staffing levels. This makes the current arrangement uneconomical, therefore options are being considered to respond to this.

This report summarises the finding of a visual inspection of the building, and gives some guidance on likely implications of back log maintenance, upgrade works and also adaption works.

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2.0 Desk Top Review of the Site

2.1 Historic site use

Review of historic maps indicates that the site has been developed as far back as the 1880's, however the 'baths' building was first noted on the OS plans in the late 1920's. An amphitheatre is shown on the adjacent sloping land, which in 1964 becomes the later extension to the leisure centre.

2.2 Flood risk

Review of the environment agency flood maps indicate that whilst the site is in close proximity to the River Severn, there is no risk of flooding from rivers and seas.

3.0 Visual inspection of the building

3.1 Site visit

Curtins visited site on Tuesday 11th November to carry out a visual inspection of the building. The original leisure centre is located over 2 storeys, with the ground floor consisting of 3no pool, changing facilities and a plant room. First floor provides a viewing gallery to the pools, a fitness suite above the teaching pool, and further changing facilities for the Quarry pool.

The Quarry pool is located in the more recent extension to the rear of the building, with the pool level located on the upper ground floor, separate to the other pools. A basement plant room serves this pool.

Exposed steel trusses form the roof structure over the front pool hall, and a suspended ceiling conceals steel roof trusses over the Quarry pool hall, the structural frame for the building appears to be formed in concrete encased steel work, supporting concrete slabs. This is typical of the construction techniques used at the time of build, however it is unclear whether the slabs are formed in precast concrete units or beam and pot construction.

No cross bracing was noted therefore due to the age of the building, lateral stability is assumed to be provided by masonry shear walls within the building. Any changes to these walls would need to consider the effects on lateral stability as well as vertical load transfer.

There is evidence of reinforcement corrosion to the soffit of the first floor slab above the central plant space.

Figure 1 Spalling of concrete soffit as a result of reinforcement corrosion.

The likely cause of this is in adequate cover to the reinforcement, for the environmental conditions associated with the space. This is common in buildings of this age, where early use of reinforce concrete lacked the quality of workmanship required for long term durability.

It appears that the roof over the original pool hall has been replaced, however there is some evidence of localised corrosion of the welded joints within the truss. The likely cause is failure of the paint protection system and should be rectified as part of the ongoing maintenance regime for the building.

Figure 2 Exposed steel trusses over pool hall with localised corrosion to nodes.

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Steel trusses over the Quarry pool hall are concealed with a ceiling void, and appear in good condition. The trusses are formed in angle and tee sections, and appear to have been economically designed with little redundancy for adaption of loading.

The external elevation is showing some signs of degradation. Vertical cracks were noted in the exposed concrete columns to the rear, which is likely to be caused by inadequate protection to the steel stanchion resulting in corrosion of the steel work. This needs to be addressed as the corrosion will be progressive and could develop into a structural instability.

Figure 3 Vertical crack to concrete column on rear elevation

Vertical cracking was also noted in the external render and this is likely to be caused by either self-formed movement joints in the masonry or corrosion of steel stanchions as a result of in adequate protection from the exposure conditions.

Figure 4 Vertical crack to concrete column on rear elevation

The rainwater goods which drain the roof are in poor condition and water is overflowing from outlets and down pipes. This has caused degradation to the external masonry with localised staining, mould growth and damage to the render. This is progressive and should be rectified as part of the building maintenance strategy, as long term effects could results in structural instability of the building.

Figure 5 Façade damage caused by faulty rain water goods.

Other than the points noted above, there was not obvious sign of movement or settlement of the building, nor evidence of any structural element being overstressed.

4.0 Review of proposed works

Various options are being considered with regards to upgrading the existing facilities. In order to develop the leisure centre, works would be split into the following categories:

- Back log maintenance of the existing building fabric
- Upgrade of the existing building fabric to conform with current Building Regulations
- Remodelling of the building to enhance the space

4.1 Back log maintenance works

- A detailed intrusive survey would need to be carried out to determine the extent of any reinforcement corrosion to the slabs, and a detailed specification prepared for the concrete repair works.
- A detailed intrusive survey would need to be carried out to determine the extent of any steel member corrosion and a detailed specification prepared for localised repair and the implementation of cathodic protection.
- All rainwater goods will need to be replaced and localised repairs made to the damaged facades.

4.2 Upgrade of existing building fabric

- For enhanced thermal performance, new roof and wall insulation is likely to be required to all elevations. This will represent additional loading on the structural frame which would need to be assessed through intrusive investigation and detailed calculations. This is deemed a low risk for the foundations and frame however may be more critical for the long span roof trusses over the pool halls.
- Internal alterations for DDA compliance may require modifications to the internal walls. These need to be assessed to determine whether they are shear walls and consequential lateral stability would need to be introduced as a result of any modifications. This may have a knock on effect to the foundations.

4.3 Remodelling of the existing building

- Any major internal remodelling to rationalise the different levels within the building will need to be considered with the benefit of a detailed intrusive investigation as well as detailed calculations.

Phasing the works would be problematic in terms of logistics and temporary stability of the building therefore it would be more sensible to carry out the works in one phase.

5.0 Conclusions

There are some signs of corrosions to soffit reinforcement to the first floor slab. This is a common defect of a building of this type and age and can be repaired however this should be done promptly to avoid more significant problems developing.

There are some signs of corrosion to the steel columns on the building façade, which is common for buildings of this age and construction. Localised repairs are likely to be required and a cathodic steel protection system installed to control any further corrosion. Major refurbishment to the building should consider a new façade system which provides better protection to the steel frame.

Whilst there building is showing signs of deterioration due to age, there are no obvious signs of inherent failings due to overloading or movement. A refurbishment program for the building should be viable from a structural perspective, however any maintenance and upgrading works will need to be carefully considered and costed at the early stages to ensure the budget is validated.

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