

APPENDIX II

SUMMARY OF CONDITION OF STOREHOUSE ENCLOSURE'S BUILDINGS

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The condition of the following buildings was assessed by consulting structural engineers Bunyan Meyer & Partners in 2001: B1, B2, B4, B6, B8, B15, B45, B90, B92. The following observations have been drawn from these reports and other site observations and are presented in order of building/structure number.

STOREHOUSES B1-8

Externally

- Stonework plinth repairs are needed where iron cramps have rusted and stone has spalled.
- Patches of repointing and brickwork repairs are necessary, especially where cement has been used previously.
- Cracks are present in gauged brick arches.
- All cast iron gutters are leaking, and down pipes need connecting to back-inlet gullies.
- The *porte-cochères* on the southern storehouses (B2, 4, 6 & 8) are all in parlous condition and are Health & Safety Hazards. They will require major renovation to the stonework, along with waterproofing.
- The surviving doors and grilles to the casemates (B2, 4, 6 & 8) are in poor condition.

Internally

- The large timber bressummer beams over the openings on the east and west elevations have caused cracking in the adjoining brickwork.
- New steel roof structures did not include ties at the staircase partition walls, resulting in the spreading of the whole structure.

STOREHOUSE B2

Externally

- The parapet wall has expanded due to cement mortar being used when the roof was replaced.
- Cracking has extended through gutter covering and substructure, causing water ingress.
- Boarding to underside of rafters is now rotting (wet rot only visible so far), algae growth to walls and regular water pooling on timber first floors.
- Consistent serious cracking under the roof structure at both ends.
- Cantilevered steel beam supports to the modern external access stairs are pulling brickwork away.

Internally

- Removal of internal columns may have increased stress on those remaining.
- The concrete ground floor (west section) is cracked.
- The roof is spreading at all four corners.

STOREHOUSE B4

Externally

- Damage to stone plinth by forklift truck.

Internally

- Columns removed from east and west wings.
- Timber staircase sagging.

STOREHOUSE B6

Externally

- Impact damage to head of main entrance.

Internally

- Dry rot in wall plate at first floor level, east wing, and fruiting bodies have released spores throughout ground floor.
- Chimney now rotating into 1st floor room.
- 1st floor, west: severe cracking over north doorway, bricks at head of arch dropping.

Health & Safety Hazards

- Original timber staircase string dropping.
- Corrosion to steel beams supporting openings in casemate vaults.
- Further structural investigation needed.
- Danger of arch bricks dropping, 1st floor, west.

STOREHOUSE B8

Externally

- The *porte-cochère* vault brickwork is in a very dangerous state. Health & Safety Hazard.

Internally

- The integrity of past dry-rot repairs to beam ends should be verified.
- The column head in the east wing is badly twisted.

STOREHOUSE B1

Externally

- There are areas of missing brickwork.

Internally

- Ceiling insulation panels fixed to underside of asbestos roofing sheets are coming loose and most have fallen to the floor or are in imminent danger of doing so. Health & Safety Hazard.
- Original timber columns have been replaced with inadequate members.

STOREHOUSE B3

Externally

- Stone repairs to cornice of west doorcase.
- South elevation, bay 1: continuous crack from head of ground floor window to cill above.
- Bay 6(S): gauged bricks replaced with cement repair at head of ground floor doorway.

Internally

- Possible dry rot remaining after repairs in east wing.

STOREHOUSE B5

Externally

- Minor impact damage to central entrance.
- East end (ground): cracking above door arch.

Internally

- Some timber columns are badly split at their heads, others have been replaced with smaller sections and rotated heads.
- Beams are bent.

STOREHOUSE B7

Externally

- Repairs are required to steel windows.

FIRE ENGINE HOUSE B10

Externally

- North elevation brickwork painted.

Internally

- To be surveyed.

B.W.D. OFFICES B11

Externally

- Slates are missing. Downpipes broken.
- Brickwork damaged on SW corner.
- Timber cills rotten on S side.

Internally

- Lath and plaster is loose.
- Timber floors rotten.

WORKSHOPS AND STORE B14

Externally

- Cast/wrought iron windows are rusting and bowed in places.
- Chases through brick arches over windows in north elevation of western section, ground floor.
- Corrosion of window frame spalled stone cill at the base.
- Brackets attached along whole of north elevation at first floor level for pipes and cables.
- Brickwork is badly spalled behind the soil stack on the north elevation.
- The fire escape on the north elevation is badly corroded.

Internally

- Floor boards on first and second floors are worn and splintered from wheeled traffic.

WAGON SHED B15

Main building

Externally

- Steel primary structure and reinforced concrete secondary structure are badly rusted/cracked.
- Windows are badly corroded.
- Leaks have emerged at the gables, valleys and skylights.
- Brickwork is spalling due to frost damage.
- The remaining slate roof is at the end of its useful life.

Internally

- Brickwork is damaged and rot is apparent in the ceiling boarding in SE and SW bays where the roofs are leaking.

East extension

Externally

- Fire-damaged east end is derelict.
- The walls have been pushed off the damp-proof course by the expansion of the metal structure.
- Walls partly destroyed to first floor level.
- Temporary waterproofing to first floor is leaking badly.
- No roof.

Internally

- Condition very poor due to continuing water ingress through the temporary flat roof.

REMAINS OF FLOORS FROM FORMER STORAGE SHED B16

- Self-set trees growing in expansion and construction joints of concrete floor slabs, ramps and retaining walls.

CLOTHING STORE B17

Externally

- Slates are missing from roof. Roof repairs in progress 2004.
- Sections of downpipes are missing.
- Steel beams are corroding where the lucam has been removed over the canal, and to the west elevation.
- External fire escapes are corroding. Health & Safety Hazard.

Internally

- Roof boarding has rotted through due to leaks, and this is now affecting the flooring.
- Boarding to ground floor is rotten and raised due to expansion (Section 2, Bay 1).
- Corrosion to steel roof trusses.

LATRINES B44

- Vandalised internally.
- Listed building consent for demolition, building recording completed for SMR.

OFFICES B45

- Shallow concrete cover over reinforcement has spalled with its consequent corrosion.
- Structure has moved overall, detaching panels from slots in columns.
- Concern over stability in November 2001: emptying and closing of building recommended.
- Then estimated that 35% of structure could be retained, 65% would need replacing.

STOREHOLDER'S QUARTERS NO. 2 B65

- Currently derelict with roof and timber windows missing, fire damaged, ceilings collapsed. Listed building consent granted for demolition; building recording completed for SMR.
- Health & Safety Hazard: this building is unsafe and should not be entered.

WEST PORTCULLIS BUILDING B66 Building at Risk

Externally

- Slate roof and timber roof structure have partially collapsed, along with first floor, north room.
- Original stepped bridge on east side badly damaged by passing vehicles.
- Stone steps dislodged and broken, railings bent and missing.

Internally

- General decay caused by water ingress.
- Ceilings to both floors on north side have collapsed. Health & Safety Hazard: this building is unsafe and should not be entered.

NEW WORKSHOP B75-6

Externally

- Brickwork damaged on west elevation; ivy growing over from boundary wall.

Internally

- Good condition.

ENGINE HOUSE AND BOILER HOUSE B77

Internally

- No equipment left inside.

BROWNING SHOP B78

Externally

- North east eaves: brickwork damaged.

Internally

- Good condition.

FITTERS' SHOP B79

Externally

- Broken windows and steel window frames are rusting.

Internally

- Good condition.

OFFICES B86

Externally

- The large yew tree at the south-west corner could affect foundations.
- Structural problems (front wall moving away from others).

Internally

- Good condition.

NISSEN HUT B87

Externally

- Fair condition.

Internally

- Fair condition.

EAST PORTCULLIS BUILDING B90

Externally

- Support of adjacent concrete bridge is affecting the arch of the original bridge.
- The portcullis is in poor condition.
- Drainage from the roof and the road are affecting brickwork.

Internally

- Water penetration from canal or drainage: the source needs detailed investigation.

STOREHOUSE ENCLOSURE'S EAST WALL Building at Risk

- Copings broken.
- Brickwork spalled, especially at North gate by NE Bastion.
- Gateway by B44: original stone fixing blocks for pintle fixings badly corroded.
- Heavy ivy growth at SE corner.

STOREHOUSE ENCLOSURE'S SOUTH WALL Building at Risk

- The brickwork is damaged, especially where alterations have taken place and buildings (now demolished) were built up against it.
- Copings damaged and spalling.

STOREHOUSE ENCLOSURE'S WEST WALL Building at Risk

- General repairs needed.

STOREHOUSE ENCLOSURE'S NORTH WALL Building at Risk

- Extensive ivy growth on western section, some damage to copings.
- Damage opposite B14 where roofs for B71 & B71 (now demolished) have chanced into brickwork.

NORTH-EAST BASTION B92 Building at Risk

Externally

- Parapet brickwork is leaning inwards, is broken down and has missing copings.
- Flat roof over casemates missing.
- Straps uneven and missing treads.

Internally

- Water penetration into casemates, doors broken and missing.

SOUTH-EAST BASTION B93 Building at Risk

Externally

- Structural damage caused by trees and ivy.
- Roof covering perished.
- Internal parapets fallen down, stramps very uneven.

Internally

- Water penetration into casemates.
- Doors broken and missing.

SOUTH-WEST BASTION B94 Building at Risk

Externally

- Structural damage caused by trees and ivy.
- Roof covering perished.
- It is believed that the building has its foundations on flood plain land, and some of the damage could therefore be due to flooding.
- Internal parapets fallen down, stramps very uneven, trees growing within them.

Internally

- Water penetration into casemates.
- Doors broken and missing.

NORTH-WEST BASTION B95 Building at Risk

Externally

- Structural damage caused by trees and ivy.
- Roof covering perished.
- Internal parapets fallen down.
- Stramps very uneven, trees growing within them.
- Facing brickwork fallen away.

Internally

- Water penetration into casemates.
- Doors broken and missing.

ORDNANCE CANAL WALLS Building at Risk

- The condition of the canal walls within the Storehouses Enclosure and the section up to the perimeter of the Magazine Enclosure was assessed in October 1995 by Roy Sutton, then Honorary consultant engineer to the Inland Waterways Association.
- Currently, the walls are in variable condition.
- Although the walls have not suffered any structural failure and can meet current standards when repaired, considerable portions of brickwork have corroded and fallen away above the water line, and many lengths of coping are missing where not replaced with *in situ* concrete.

- The coursing around water level will need completely repointing, and the top six courses below the coping have been affected by frost heave.
- There is at least 300mm of silt which could be reduced to 100mm as protection to the clay puddle. This will reduce turbidity in the water, make navigation easier, and still provide nutrition for reed beds if required.
- The stop-log installations will need considerable repairs.
- The condition and works required to the canal walls was confirmed by a more recent inspection by Bunyan Meyer in 2001.
- Health & Safety Hazard: there are no barriers to prevent vehicles from falling into the canal.
- In the future, the need for child safety measures around the canal walls will need to be assessed as children will be out of their depth in the water.

CONCRETE BRIDGE BY EAST PORTCULLIS BUILDING

- Weakened by corrosion of steel beams and carbonation of concrete.
- Use currently limited to pedestrians only.
- Repairs essential.
- Handrails bent and broken.

SCHERZER ROLLING LIFT BRIDGE

- It has lost the counterbalancing drum which filled with water, and the wooden deck surface has rotted away.
- However, its steel structure is otherwise largely intact, although rusting.

CONCRETE BRIDGE AT WEST END OF CENTRAL BASIN

- Spalling to underside, exposing reinforcement, due to carbonation of concrete cover and chloride ingress.

CONCRETE BRIDGE BY WEST PORTCULLIS BUILDING

- Currently used by HGVs.
- Refurbishment needed if to be retained.

GROUND SURFACES

- All levels around Storehouses B1-8 have been raised, damaging stone plinths and allowing flooding.
- Railway sleepers rotting under tarmac.