Fig. 043 Building 50 Former Pyro Building P5

Fig. 044 Building 50 Former Pyro Building P5

Fig. 045 Building 50 Former Pyro Building P5

Along the west elevation, at low level, there is a drainage run as seen on the other buildings. This is constructed in reinforced concrete and steps up from some 300mm from floor level and is approximately 1 m wide. It is generally solid in terms of its appearance however, in a number of places it has been displaced by the tree growth along this elevation. There are a series of trees of varying sizes again in close proximity to the building, whilst these are relatively small along this elevation at the moment, in only a few years they will grow to a size which may cause displacement of masonry and consequent deterioration in the building fabric.

The south elevation is divided into 6 bays by the projecting reinforced concrete piers, capped with a ring beam extending up to form a parapet. Between the piers the panels are filled with brickwork in English Bond. This elevation is more difficult to access and is partly obscured by significant tree growth. There are substantial trees particularly adjacent to the two vehicular doors which open through the two central most bays and this needs to be addressed. The western-most reinforced concrete pier has a substantial crack at high level which extends the height of the parapet and into the brickwork panel. This will require some repair work.

All of the concrete piers have some decay, with the central having a particularly large section of spalled concrete revealing the reinforcement beneath and additional deterioration where there is a section of projecting concrete at high level. Generally the brickwork infill panels are in reasonable order however, there is some spalling to the brickwork faces at high level, similar to the north elevation. This would appear to be associated with the saturation below the parapet of the upper courses, the spalling generally being limited to the five or six courses below the reinforced concrete parapet. To the central two bays there are two vehicular openings with reinforced concrete lintels over. It is evident that these had smaller openings above which may have been associated with the ventilation and extract equipment. Between these are two pedestrian openings which have both been in-filled with modern brickwork. At high level there are iron frames and once again these in-filled with modern brickwork. The iron frames remain in-situ and will require treatment with rust inhibitor and painting. Towards the western end of this elevation there are further openings at low level all of which have been infilled with modern brickwork, generally in reasonable order.

The east elevation consists of 7 bays. Those to the north and south have a horizontal parapet, bays 2 to 6 having the arched parapet associated with the gables of the barrel vaulted sections of roof. Each bay is defined by the projecting reinforced concrete piers and the projecting reinforced concrete ring beam at high level. There are very few openings to this elevation there were two large openings and an escape hatch in the third bay from the north. It is evident that this area has undergone a sequence of changes, firstly to introduce two openings and then subsequently to in-fill them. The northern-most bay had a more substantial vehicular opening with a reinforced concrete lintel and there was a pedestrian access door to the second bay from the north. This elevation has good evidence of the original camouflage paint scheme with the delineation between the black and green sections being particularly evident. The reinforced concrete ring beam running horizontally generally in reasonable condition with only minor signs of deterioration, For notes on the condition of the reinforced concrete piers refer to ‘rainwater goods’.

Above the reinforced concrete ring beam there are a series of brickwork courses however, unlike the west elevation, these extend full length including the horizontal sections to bays 1 and 7. There are a number of spalled bricks particularly to the northern most bay above the ring beam. Above this the reinforced concrete panel both to the horizontal and arched sections is generally in reasonable condition with minor cracking and a couple of area of spalling. Generally the brickwork infill panels are all in good condition with very few spalled bricks. In this case the heads of each panel are sheltered by the projecting ring beam.

3.3.4 Interior

Internally the building is divided into 7 bays north-south, five bays east west subdivided centrally by brickwork wall, historically this would have divided the building into toxic and non-toxic sides. Two bays D and E on the non toxic side, bays A to C on the toxic side.

The underside of the reinforced concrete roof structure has been quite badly affected by water ingress. The paint finish has failed in many locations and there has evidently been water ingress at each end of the valley gutter locations between the arched vaults and also associated with the lower ventilators where there were pools of water on the floor. This assumes that the gutters are blocked to such an extent that water is backing up and discharging within the building at these points. This has resulted in staining of the reinforced concrete, this is particularly evident to bays 5 and 6 were the staining to these lower ventilations is particularly bad. It would appear that the roofing felt between the arched vaults has failed in a number of locations. There is further water ingress particularly in between bays 3 and 4 where there is significant iron staining and water on the floor. This is not a situation evident in the other buildings of this type and suggest that the roof covering on building 50 in actually in the worst condition.

The inside of the roof structure on the toxic side of the building is in slightly better condition. There are fewer signs of water ingress, however there is still evidence that water is entering through general areas of the roof covering rather than being specifically associated with ventilators or outlets as it has been in the case of other buildings of this type.

In section 1B where the reinforced concrete tower extends up, a number of areas of water ingress particularly around the junction of the tower and the adjoining roof structure. There is significant staining on the face of the reinforced concrete suggesting that water ingress is starting to cause corrosion in the reinforcement. Within the tower there is a substantial steel gantry spanning north south, when viewed from ground level this appears to be in reasonable condition, however water is discharging from above onto the gantry and it should be examined for corrosion from high level.

3.3.5 Walls

The internal face of the west wall has evidence of water ingress particularly at the junction of the valley gutters and the wall where the rainwater pipes are blocked. This is less severe than in some of the other buildings. There is also evidence of saturation around the horizontal reinforced concrete ring beam although this is likely to be associated with the general detail of the building rather than particular failure in the rainwater goods. The in-filled openings are evident on the internal face also above these openings is the horizontal rail gantry which runs through the space at high level. The horizontal reinforced concrete beam to the door-heads exhibits significant decay internally also, and needs repair.

The north wall is in reasonable condition with minor signs of deterioration where the gantry rails project into the wall structure. More significantly, where the reinforced concrete frame either side of the tower enters the wall there is a section of reinforced concrete which would appear to be in danger of falling away. This is at the wall head between bays B and C. To the north wall there is sliding door remaining in-situ in Bay C, this is of some historic interest. There are a variety of pipes fixed to this wall with nails and other bracketry at high level, none of which is causing significant issues at the present time but it is corroding and should be monitored in case it starts to cause distress in the adjoining masonry.

To the north wall on the non-toxic side there is further bracketry and pipework fixed to the wall face. The surface of the wall is particularly saturated suggesting that water is backing up and entering the head of the wall and this needs to be addressed. There are areas of migrating salts particularly high level. Adjacent there is a substantial crack where it is saturated and the reinforcement is starting to corrode quite significantly.

The walls are particularly wet at the junction with the east wall and the reinforced concrete pier in the corner is in very poor condition with extensive deterioration and exposure of the reinforcement. The wall either side of this is absolutely saturated. When viewed internally it appears that there might be some displacement in the building at this corner which should be monitored. The floor appears to slope down slightly and this displacement has been carried through into the roof structure and it may be at low point created by a collapsed drain in this area. Further investigation of this needs to be carried out at roof level to determine whether this is the case to allow appropriate remedial action

to be undertaken.

The east wall is generally in fair condition internally, the only significant issues being associated with the water ingress at each valley gutter and down-pipe location where the water staining internally is quite evident.

To the south-east corner, where the reinforced concrete column is visible, there is once again some deterioration in this column with delamination to the face and there are also some substantial roots gaining access through quite a large gap between the reinforced concrete column and the brickwork infill panel where the wall returns to the south. In one place the gap between the reinforced column and the brickwork is some 20mm wide. There is also some horizontal cracking at high level and it is suggested that there is some displacement to the reinforced concrete at this point and in the associated brickwork infill panels. It is recommended that monitoring be undertaken in this area. It may well relate to the extent of tree growth outside which needs to be addressed. It is recommended that a programme of monitoring be undertaken to this corner and the north eastern corner of this building.

On the south elevation (near the SE corner) there is a further sliding iron panelled door at high level. Once again this is of some historical interest but it is quite badly corroded and is in need of some redecoration and conservation work. It is evident that the diving wall originally extended the full length of the building up to the south wall, but at some point in the past Bay 7 was removed.
Along the south wall there is evidence of water ingress into the brickwork infill panels at high level the paint is failing quite extensively and the brickwork is quite wet. In bay B there is a large ventilator which originally projected though the wall, this has been infilled externally but remains in-situ internally. The frame of the ventilator is starting to corrode particularly associated with the saturated brickwork above. Similarly the frame to the former escape hatch adjacent is quite corroded to high level. To the south western corner there is a section of projecting render the reason for which is not entirely clear.

The dividing wall between the toxic and non toxic sections of the building is generally in good condition however there are some signs of water ingress where it abuts the valley gutters, suggesting some failing in the roof covering over.

The floors are generally concrete floor slabs and, when viewed full length, there is some displacement particularly to the north and south east corners as mentioned. Generally the floors, apart from these corners, are in reasonable condition. There are a range of patched areas associated with the reconfiguration of the spaces and its changing uses over time and the fixings of the various pieces of equipment associated with the processes in the building,

3.3.6 Features

To the toxic side of the building there are three lifting gantries, one to each bay which have guide rails either side, fixed to the reinforced concrete structure. To the non-toxic side there are two lighter weight two tonne lifting gantries centred between each bay but these only between bays 4 to 7. Once again these are in reasonable order at time of survey. On the eastern corner of the non-toxic side there is an electrical substation built into the corner of the space with a reinforced concrete slab roof half way up the general wall height. This exhibits a similar horizontal cracking in the upper two courses associated with the buildings seen elsewhere on the site. It was not possible to access these buildings internally due to the presence of asbestos, which needs to be addressed.

3.4 Clothing Store Building 58

The building is a single storey brick building in English bond with 9” thick walls with a reinforced concrete roof. There are two small outriggers forming entrance porches, projecting to the south and east.

Fig. 046 Building 58 Clothing Store

Fig. 047 Building 58 Clothing Store

Fig. 048 Building 58 Clothing Store

Fig. 049 Building 58 Clothing Store

Fig. 050 Building 58 Clothing Store

3.4.1 Roof

The roof is a cast in-situ reinforced concrete slab covered in what appears to be a bituminous roofing felt overlaid with a hot applied liquid. It was not possible to inspect the roof covering from above however, there is extensive organic growth, evidence of cracking, and deterioration all around the perimeter of the building. Sections to the downstand on the west elevation are missing exposing the concrete slab. Similarly to the north-west and south-east corners the roof covering is almost completely missing from the edge of the concrete roof slab. To the east elevation is a small outrigger constructed in stretcher bond with a reinforced concrete slab roof, the flashing above this roof is roofing felt and largely missing allowing ingress at the junction. The roof is covered in organic growth and there are missing sections to the north eastern corner. There are no rainwater goods to the outrigger.

To the south western corner there is a further small outrigger, once again constructed in stretcher bond with a concrete roof slab. The roof slab is entirely covered in moss and other organic growth, and the flashing has deteriorated to such an extent as to be entirely ineffectual. The roof covering where it turns down over the edge of the concrete slab is largely missing exposing the edges of the concrete slab. To the concrete slab there are cracks and some minor spalled sections. There are a six projecting concrete vents on the roof which have been covered in bituminous felt much of which is now missing, allowing further water ingress.

3.4.2 Rainwater Goods

To the north elevation the rainwater goods remain in-situ. These comprise half round cast iron guttering with two downpipes, one to either end of the elevation. The cast iron gutter is partly missing towards the western end, resulting in water discharging down the wall. The gutter is supporting on rise and fall brackets, secured into the joints. To the eastern end the gutter is entirely concealed by ivy growth suggesting that the gutter is blocked. To the south elevation the roof covering extends down over the face of the concrete slab, the half round cast iron rainwater goods extend the full width of this elevation with a round downpipe in the south eastern corner. The gutter extends a short distance round the west elevation where there is a further down pipe. There is a substantial tree growing from the gulley of this pipe which needs to be removed.

3.4.3 Elevations

The north elevation is a simple brick elevation constructed in English Bond. The only visible aperture is a small vent about a third of the way along from the west at low level. The vent is largely missing but has been boarded up internally. Generally the brickwork is in good condition, with no significant signs of spalled faces or failure to the pointing, although it should be noted that a significant part of the elevation is obscured by ivy growth. Two courses down from the roof there is a horizontal crack, this is quite significant particularly to the north western corner where there is a loose brick which is in danger of falling. This crack is about 10mm in girth. This form of cracking is a common problem throughout the buildings of similar construction on site.

The west elevation has a door centrally with a concrete lintel. A former entrance to the west elevation of the outrigger (entrance porch) at the south end of the building has been blocked up. Adjacent to this there is a further vent which has been boarded up on the outside. At high level there is an applied plywood boxing which may be associated with the new wildlife habitats being created on the site. Generally this wall is in reasonable order, the pointing and the faces of the brickwork are both in good condition. There are also remnants of the camouflage that once adorned these buildings; evidence of green and black paint.
To the south elevation there is a further boxing above the projecting porch which may be covering an aperture internally. There is significant evidence of horizontal cracking at high level which is particularly evident above the lean-to and adjacent to the smaller window opening, where it is significant at some 10mm in girth. There is a small diagonal crack at lower level to the outrigger at the south eastern corner. There are extending porches/outriggers, one projecting south, and one to the east, which are of stretcher bond. There was originally a window opening, evidenced by a projecting

brick cill and concrete lintel. Towards the eastern end of the elevation there are two vent openings however, the vents are missing.

The outrigger or porch, projecting to the east elevation would have provided access into the eastern part of the Clothes Store. This has now been in-filled with brickwork.

The east elevation is once again constructed in English Bond. The projecting outrigger/porch is constructed in Stretcher bond. There are two former window openings and door opening evident, with concrete lintels and canted brick cills to the windows. A horizontal crack runs longitudinally at high level varying between one and two courses below the concrete roof slab. This has been repaired (some considerable time ago) to the southern end of the elevation suggesting that this has been an on-going problem associated with distortion in the cast concrete roof slab. Above the northern-most of the window openings there is a louvred vent of a terracotta type.

Around the building there are a number of trees which have been planted or seeded. These are very close to the brickwork and will in the relatively short term start to cause disruption to the fabric of the building. If the building is to be retained then these will need to be cleared.

3.4.4 Doors and Windows

Apart from the primary entrance door on the west elevation all of the doors and windows have been infilled with brickwork. The entrance door is a modern timber flush door, of basic quality. This has been vandalised in the past to gain access and is currently held shut with screws. A better, more permanent solution should be considered. The building is secured with the presence of bats internally, limiting access.

3.4.5 Interior

The building is divided into eight spaces internally (refer to plan) including the two projecting porches. There is an entrance lobby with spaces to left and right, originally changing rooms continuing forward into a larger central space, the former Clothes Store. The ceiling to the clothes store is supported on four reinforced concrete columns with down stand beams. Beyond this there is a further space (the former mess room) with original windows remaining internally. The former WC's and the entrance porch link to this space in the south-east corner of the building.

The ceilings within the spaces are all exposed concrete, painted. There is extensive water ingress, particularly to the former clothing store and around the around the ventilators, with extensive moisture present on the floor along the central axis of the building. The water penetrating through the roof is resulting in iron staining from corrosion of the embedded reinforcement and consequent cracking to ceilings which will inevitably lead to sections of the concrete spalling away in the near future. The walls are exposed brickwork which has been whitewashed. The whitewash is badly moisture stained and there is evidence of the horizontal cracking at high level, particularly to the corners of the building, where there is extensive jacking of the brickwork. This deterioration is unlikely to cause significant problems save for the risk of bricks becoming loose, but will require repair as part of planned maintenance. Along the northern elevation of the former mess room the ivy is penetrating internally with roots extending down the inside face of the wall, this is causing deterioration, particularly to the mortar joints and at the junction between the roof slab and the wall head.

The concrete slab over the porch (east elevation) is completely saturated. The walls in this area have an earlier paint finish and some war time signage. The saturation of the bricks and general water ingress risk the loss of this interesting survival. Where the outrigger is built into the main building there is a diagonal crack extending from the concrete roof slab into the adjoining wall. Judging by the sharp edges of the crack this is relatively modern, and should be monitored.

3.5 Building 59, Pyro Building P4.

This building is a reinforced concrete framed building of the same pattern as building 45, consisting of

seven bays from north to south, five bays from east to west. Although externally the north and south facing walls have seven concrete posts, externally defining the external north and south elevations into six bays. The central five bays have arched concrete roofs, the spans of the vaults running north south. The northernmost and southernmost bays have flat reinforced concrete roofs. There is a concrete tower over the second bay from the west at the northern end of the building. Each bay is then infilled with 9" or one full brick thick brickwork panels in English Bond. The brickwork is generally quite rough, the panels having been erected in some haste and being non load bearing.

3.5.1 Roofs

The roof consists of seven bays running north to south. The five central bays comprise of arched vaults and the two end bays have flat roofs. It is understood that the whole roof was re-roofed in a basic roofing felt in the late 1980s. The survey was only undertaken from ground level but high level staining suggests that the gutters, particularly the valley gutters between the arched vaults are blocked with leaves and other debris.

The bituminous roof felt used appears to be of a basic standard and is likely that this is life expired. It is recommended that access be arranged to the roofs, firstly to allow clearance of the gutters of any debris there and to allow for inspection of the felt and the roof structure. There is significant evidence of water ingress internally (refer to 'interior'). The heads to the parapet walls have been capped with bituminous roofing felt which generally appears to be in reasonable condition when viewed from ground level. Similarly the higher level roof to the tower at the north end of the building has been overlaid in a bituminous roofing felt. The roof discharges into a single hopper and downpipe to the south east corner, then onto the adjoining roof.

The rainwater pipes are numbered 1-12 for the purposes of the report, 1-6 on the west elevation and 7-12 on the east, starting with rainwater pipe number 1 on the west elevation to the north end of the building. The rainwater pipes consist of cast iron hoppers and pipes extending down the west elevation, draining into gullies. There are six pipes on the east and six pipes on the west elevation. The pipes swan-neck around the horizontal reinforced concrete beam at high level, which has resulted in blockage, and consequent problems as referred to below.

Rainwater pipe 01 is badly corroded at high level. The upper-most bracket has a crack and a section missing where the pipe swan necks around the reinforced beam, where a freeze-thaw crack has occurred. At low level there is a small section of pipe missing and the pipe stops short of the gulley, resulting in water discharge down the wall face. Rainwater pipe 02 is in better condition however, there is some corrosion at high level and on the surface of the pipe generally suggesting that there is a blockage at the swan neck. To the reinforced concrete piers behind rain water pipes 01 and 02 there are sections spalling away, exposing the reinforcement.

Rain water pipe 03 has also corroded at high level, with is evidence of blockage with staining down the wall and either side of the pipe around the swan neck and at low level where the gulley is blocked.

Rain water pipe 04 is in very poor condition, there is a freeze-thaw crack adjacent to the high level reinforced concrete beam. The whole of the pier behind the pipe is saturated as there is significant corrosion to the upper sections of the pipe, many of which will need replacing. Two of the brackets at high level have broken. The poor condition of the rain water pipe is resulting in significant deterioration in the reinforced concrete pier behind.

Rainwater pipe 05 has a broken bracket where the pipe swan necks around the horizontal reinforced concrete beam and there is a blockage at this level, evidenced by the water staining down the outside of the pipe. The pier adjoining rainwater pipe 05 however, is in better condition. Rainwater pipe 06 also has a blockage at the high level at the swan-neck and this has resulted in one of the brackets fracturing and breaking away. There are also sections of delamination to the reinforced concrete pier behind this pipe, with sections of exposed reinforcement. The decay in the reinforcement has been accelerated by the discharge of rainwater down the wall due to the blockages in this rain water pipe. The rainwater pipes on the east elevation are generally in worse condition than those on the west.

Although some of them are partially obscured from view by the extensive plant growth near to this elevation, preventing closer analysis. There are numerous trees and bushes growing around and near the outlets which are trapping moisture adjacent to the structure causing deterioration and this needs to be addressed.

Rainwater pipe 06 is blocked both at the hopper and at the swan neck at high level. The upper-most bracket is cracked and it would appear that there is a freeze-thaw crack in the back of the pipe resulting in water discharge down the wall. There is also significant damp staining in the pier in the brick work from about 3 metres from ground level down to the floor, suggesting that there is a further blockage and consequential freeze thaw crack to the rear of the pipe at this point.

Rainwater pipe 07 is also blocked at high level and there is visible plant growth out of the hopper and the gutter beyond, the upper most bracket is broken and there is a crack visible just above the swan-neck and the wall behind the swan-neck is saturated. There is a further crack evident to the face of the pipe below this. The pier is also wet suggesting that there are further freeze-thaw cracks in the rear of the pipe.

Rain water pipe 08 has organic growth visible in the valley gutter and in the hopper. There is significant corrosion to the bracketry around the swan-neck and the wall is stained suggesting that there is a leak in this area, probably a crack in the rear of the pipe. Similarly, the two lowest sections of pipe are corroded and the wall behind is very wet, the pier is starting to deteriorate behind revealing sections of corroding reinforcement.

Rain water pipe 09 has organic growth in the hopper and the valley gutter and again a crack around the swan neck at high level. The pier is saturated with a series of delaminating sections to the reinforced concrete on the pier. There are cracks above and below the swan neck visible from ground level, resulting in water discharge down the wall face. The two lowest sections of pipe are very badly corroded suggesting a further blockage. There is algae growth on the face of the pier behind at this level, and two further sections of spalled concrete. Rainwater pipes 10 and 11 are generally concealed by tree and plant growth.

To rainwater pipe 12 there is significant growth to the roof beyond the hopper and the chute at high level. Adjacent to the hopper there are sections of spalled concrete which would appear to be in imminent danger of falling. The parapet wall behind is also very wet with moss growth on the wall face suggesting that the whole area beyond is ponding and retaining water in the structure. There are two broken brackets at the top level above the reinforced concrete beam adjacent to the swan neck and again the wall is saturated. The pipe is obscured at low level by organic growth and there are plants growing out of the gulley at low level, which also needs to be addressed.

3.5.2 Elevations

The north elevation externally is divided into 6 bays by the vertical reinforced concrete columns which project from the wall face to form piers. At high level the parapet is formed in reinforced concrete. To the central bay the piers have projecting 'quoins' immediately below the parapet. There are areas of spalling to the reinforced concrete piers, particularly at high level, where the reinforcing bars are exposed and corroding. This cycle will result in further deterioration in the reinforcing bars and consequently further spalling of the concrete. This is particularly evident in the second pier from the east and the second pier from the west. There are also some smaller areas of spalling in the parapet beam at high level. The brickwork infill panels are generally in fair condition.

At first floor level there are a range of openings which have been infilled, these have iron frames and comprised means of escape via counter-balanced slam doors from the upper level, the openings served vents, particularly to the east end of the elevations. In general terms, the brickwork is in fair condition, however, there are a number of spalled faces, particularly at high level and the continued deterioration of the brickwork should be monitored to ensure that it does not present a risk. The spalled brickwork is particularly evident to the 1st and 2nd bays from the east. At lower level, there are a range of door openings some of which have been modified, some of which have been infilled

with modern concrete blockwork. Two more substantial openings have been infilled with modern brickwork, most of these are in serviceable condition at the time of survey.

A greater concern is the extent of vegetation and tree growth immediately adjacent to the building, particularly to the east where some substantial birch trees and a sycamore will eventually cause some displacement both in the brickwork and potentially in the footings and the concrete floor slab. The tower extends above the 3rd bay from the west and is of reinforced concrete construction. Viewed from the ground this appears to be in reasonable condition, however, the retention of moisture potentially on the roof structure maybe causing decay which is not evident from ground level and high level inspection should be investigated.

The west elevation consists of 7 bays, delineated by vertical reinforced concrete columns which project to form piers, subdivided into 3 sections vertically with two horizontal beams. At low level there would originally have been a series of openings, two per bay with then a horizontal concrete beam forming the doorhead and, above this a further brickwork infill panel. Above the brickwork is a further horizontal concrete beam projecting proud of the face wall. Above the upper beam the north and south bays have parapet walls consisting of reinforced concrete the central five bays with the arched vaults have approx 6 courses of brickwork with reinforced concrete above, extending to form the gables of the arched vaults. Once again, there is deterioration in the reinforced concrete structure.

The first pier on the north western corner of the building appears to be bowing in the centre, although this may date from the time of construction. There is however significant deterioration in the reinforced concrete with exposed reinforcement, where it meets the two horizontal beams where there are a series of horizontal cracks. There are further areas of exposed reinforcing bars; evidentially there is insufficient cover over the reinforcing bars to this pier historically.

Working southwards along the west elevation, there are significant areas of deterioration in the lower horizontal beam, especially over the door heads where sections of concrete have fallen away exposing the reinforcing bars. It is evident that there is once again little coverage over the reinforcing bars, in some areas as little as 5mm. Further areas of decay are evident to the 2nd pier and the deterioration in the lower of the two horizontal beams is evident in each bay. To the arched gable walls (at high level), there are some vertical cracks, however, these are not thought to be significant when viewed from ground level. There are a series of spalling brickwork bases below these gables, however.

The pier to the south western corner exhibits similar problems to that in the north western corner, again, it would appear to deflect in the centre. There is further deterioration at high level with a substantial diagonal crack extending round to the south elevation. Remedial to the concrete at high level the lower beam and the end piers/columns is a matter of some urgency.

The brickwork infill panels to the door openings are generally in modern brickwork, these are a mix of English and stretcher bonds, in variety of different brick types. These are in reasonable condition, given their relatively short life. The original brick infill panels above are once again generally in good condition and retain evidence of the original camouflage paint. There are a number of spalled faces to the brickwork, but these are relatively minor. Either side of the reinforced concrete piers there are a series of iron brackets which are the retaining plates for the overhead crane track. These are starting to corrode and will inevitably result in deterioration in the adjoining brickwork, unless they are treated with a rust inhibitor and painted.

South elevation. The south elevation once again consists of six bays with reinforced concrete columns and reinforced concrete beam extending up to form a parapet. Between the columns are brickwork infill panels. The majority of openings have been infilled, save the vehicular entrance doors to the 3rd and 4th bays. The reinforced concrete frame shows evidence of similar issues to the north and west elevations, with decay and consequential spalling of the surface. This is particularly evident to the pier in the south western corner (refer to west elevation). The second pier from the west where there is decay and spalled sections of concrete at the bottom of the reinforced concrete parapet. The piers to the 5th and 6th bays are obscured by substantial trees and there is evidently decay visible to

the upper most section of the 5th pier from the west elevation. The pier to the south eastern corner of the building has sections of spalling concrete at high level, and further deterioration some 2m from ground level.

The brickwork to the infill panels is in slightly worse condition on this elevation with greater evidence of spalled brickwork, particularly at high level. The brick projects slightly in front of the reinforced concrete parapet above in a number of locations, resulting in moisture ingress into the upper courses of the brickwork, and consequent deterioration.

There are a number of openings at high level, the exit doors with the iron frames still present, but have been infilled with relatively modern brickwork. The iron frames are, corroding and may result in deterioration to the brickwork, without application of a rust inhibitor at some point in the near future. The ends of the overhead crane gantry rails (steel 'I' sections) extend through the wall. There have been areas of reconstruction around the steel work where corrosion and displacement has caused damage to the brickwork. This is particularly evident where steel projects through the wall, adjacent to the 4th pier from the west. There is a further section of damage to the other side of this pier, where the walls has been drilled through, perhaps with the intention of installing further support beams. There are a range of door openings as previously referred to with two vehicular entrances remaining open. These have steel frames, remaining in-situ, which are in reasonable condition. Other openings have been generally infilled with modern brickwork.

The east elevation mirrors the west, however, there is no lower horizontal reinforced concrete beam and there are fewer openings. There is better evidence, however, of the camouflage paint with substantial areas of paint remaining in-situ. There are some significant areas of decay to the reinforced concrete. The north eastern pier has a number of small areas of spalling concrete, as do the other piers, but these are generally associated with leaking rainwater goods (referred to in section on rainwater goods). The high level horizontal reinforced concrete beam is generally in reasonable condition. It is, however, evidentially quite saturated and would benefit from the addition of a flashing to protect the upper surface and prevent water ingress. Above this and beneath the reinforced concrete parapets there are panels of brickwork. To these panels a number of spalled faces and vertical cracks in the reinforced concrete parapets above, particularly, to the arched gable walls. The brickwork infill panels at lower levels are generally in good condition.

There is a substantial former opening to the first bay, nearest the northern end, with a large concrete lintel. This has been infilled with modern brickwork (in Fletton bricks) in an English bond. To the 3rd bay from the north, there is a substantial area of reconstruction. Initially two window openings were introduced then subsequently infilled. This is in reasonable condition at the time of survey. Adjacent to this is a further escape hatch with iron frame, which is corroding and would benefit from decoration or the application of a rust inhibitor to prevent deterioration of the adjoining brickwork. The majority of this elevation is largely screened by trees which are planted extremely close to the elevation, which have the potential to cause disruption and deterioration in the fabric of the listed building and consequently decay. Consideration should be given to removal of these trees and if trees are required, planting at a more appropriate distance.

3.5.3 Interior

The configuration of the spaces within building is very similar to building 45. There is a central dividing wall which would have been originally intended to divide the toxic and non-toxic sections of the building. Longitudinally, the building is split into seven bays. Over bays 1 and 7, is the section of flat roof, bays 2 to 6, being the barrel vaulted sections, the vaults spanning north, south on downstand beams and then onto reinforced concrete columns. Within the space, the roof structure is exposed internally limewashed to the inside. East-west the building is divided into five bays (refer to plan), three in the toxic side (west) of the building, and two in the non-toxic side (east).

The deterioration of the roof covering and blockage of the outlets to the valley gutters above are starting to cause significant water ingress internally.

Fig. 051 Building 59 Pyro Building P4

Fig. 052 Building 59 Pyro Building P4

Fig. 053 Building 59 Pyro Building P4

Fig. 054 Building 59 Pyro Building P4

Fig. 055 Building 59 Pyro Building P4

Fig. 056 Building 59 Pyro Building P4

Fig. 057 Building 59 Pyro Building P4

Fig. 058 Building 59 Pyro Building P4

To the northern most bay (indicated Bay 1 on plan), there is evidence that the continuing water ingress is starting to cause deterioration in the reinforcement, with iron staining and cracking caused by corrosion of the reinforcing bars within the concrete.

Starting on the eastern or non-toxic side of the building in the north eastern corner bay 1, there are extensive areas of delaminating paint, suggesting that water is backing up and entering the roof structure.

Bay 2 is the 1st of the barrel vaults. Generally the ceiling roof structure appears to be in reasonable condition, however, there is a longitudinal crack of relatively minor dimensions and generally the paint surface is loose and flaking.

The eastern half of the bay 3 has a central ventilator to the apex of the vault. This is rectangular, extending through the roof which appears to have a reinforced concrete lid and is quite extensive deterioration in the paint around the ventilator suggesting failure in the flashing. Between each of the barrel vaults, there is a downstand beam which is supported on a central column. Above each downstand is a valley gutter and there is extensive evidence of water ingress at almost every downstand beam, which needs to be attended to as a matter of some urgency.

Bays 4-6 have ventilators at high level. One of these (between bays 4-5) is missing its concrete cap, allowing water ingress. This is needs to be addressed. There is a significant area of water ingress associated with many of these ventilators. This suggests substantial debris retention in the valley gutter adjacent, causing backing up and subsequent discharge within the restructuring and into the building. There are further areas of delaminating paint to the ceilings of bay 7 and once again with a series of cracks with iron staining each side, suggesting the deterioration of the reinforcement.

The toxic/western side of the building in once again split into 7 bays, north-south, 3 bays east west. At high level, there are a series of 5 ton cranes running on gantries the full length of the space. At the north end of the building, the structure extends up into the tower. This is a substantial reinforced concrete structure, projecting up some 8m or so above the general roof line. This is surmounted with a further reinforced concrete roof slab, when viewed from ground level, this would appear to be in reasonable condition. To bay 1, either side of the projecting roof tower, there are areas of delaminating paint and some areas of cracking but with one more substantial adjacent to the tower is slightly more substantial and should be monitored. It is likely, again, that this is associated with significant water ingress above. The barrel vaults to the toxic side do not have the ventilators, which has resulted in few areas of water ingress, most of the issues being associated with blocked hoppers and downpipes on the west elevation.

The arched vault to bay 6 has two more significant areas of loose and flaking paint than the other vault, suggesting that the roof covering is in worse condition. The flat roofed area over bay 7 is generally in reasonable order on the toxic side of the building, with only relatively minor areas of loose and flaking paint.

A further roof level inspection is recommended to identify any significant areas of damage to the roofing felt, so that these may be repairing or cleaning of the gutters and consequently maintenance and remedial action to the hoppers and downpipes.

The eastern most wall of the building shows significant areas of water ingress, particularly associated with the rainwater pipes between bays 1, 2 & 3 (rainwater pipes 7, 8 & 9). The saturation of the brickwork has caused the internal finish to deteriorate. Long term this will also result in deterioration of the reinforced concrete frame. At high level, the saturation of the horizontal beam and the parapet above is resulting in failure of the finishes and there is evidence of water ingress to each of the downpipes along this elevation to a greater or lesser extent. The hopper associated with the rainwater pipe 12 between bays 6 and 7 is blocked, causing more significant water ingress in this area.

To bay 7 (in the south eastern corner of the building), there is some deterioration in the reinforced concrete at high level, suggesting significant water ingress along this parapet. The retention of water in the structure and also some significant areas of in-built ironwork in the corner are causing some spalling to the reinforced concrete.

The south wall is generally in good condition internally. The paint finish has failed due to the retention of moisture in the solid brickwork wall, drying from the inside face. There are a number of areas of built in iron work and also, to the western (toxic) side of the building the brackets supporting the gantry rails are built into the wall. There are two substantial ventilators through the wall, which are in reasonable condition with no significant signs of any major distress.

The west wall has two reinforced concrete beams exposed on the external face with the former openings in evidence at low level which have been subsequently infilled. There is a substantial steel joist forming the guide rail to the overheard gantry (supporting the mobile cranes above) built into the reinforced concrete and restrained by straps through the brickwork; the plates for which are evident on the exterior, either side of the reinforced concrete piers. Internally this elevation is in reasonable order but with similar signs of ingress being caused by the retention of water in the structure following the failure and blockages to the downpipes on the exterior of the building. Significant work would not be required as long as the issues with the rainwater pipes are addressed in the future.

The north wall exhibits the changes referred to in the exterior notes with a number of infilled openings protrusions etc. In the north-western corner an earlier opening has been plastered over on the internal face, the original configuration of which is unclear. The hatch associated with the former high level walkways are missing to both bays A and B, however there still is a steel door at high level in Bay C. The finishes have deteriorated due to the retention of moisture in the masonry; however, the elevation is in reasonable condition internally.

Running north-south there is a dividing wall between the toxic and non toxic sections of the building. This consists of brickwork panels between the concrete frames extending full height up to the underside of the arched soffits where it has been cut to suit. The wall generally is in good condition.

The floor of the building consists of an exposed concrete floor slab. Across the floor there are is evidence of a range of different fixing positions, areas of infill associated with the removal of the equipment and also the back fill of the drains which connected to the channel on the western side of the building. In general terms the concrete floor is in reasonable condition. There are cracks, particularly adjacent to the vehicular doors, at south end of the building. There is also more extensive patching in this area. To the non toxic side of the building, the floor is quite extensively covered in leaves, leaf mould, debris and sand preventing detailed inspection of the surface however, there are no signs of significant structural problems. On the non-toxic (east) side of the building there are signs of previous walls and structures particularly in the north eastern corner of the space suggesting a degree of reconstruction.

3.5.4 Features

To the north eastern corner of the non toxic i.e. eastern portion of the building, there is a former sub-station which retains some of its equipment and it is understood that there is asbestos present in this space (refer to asbestos survey).

The sub-station comprises a brick wall of 9” thick English bond with a reinforced concrete slab over. There is a sunken channel into the floor adjacent to the opening which is lined with brickwork and runs the entire perimeter of the space. A former distribution board and other electrical equipment still remains in-situ. Some of the original lighting and conduits are of an historic / interpretive interest. Once again there is cracking to the corners of the brickwork where the reinforced concrete has caused jacking in the upper courses. This is the same problem evident on the single storey structures elsewhere on the site.

3.6 Building 65 – The Runcol Building

Building 65 is a reinforced concrete structure consisting of 6 bays running north-south and a single bay east-west. The bays are delineated by the reinforced concrete frame which projects from the wall forming piers. These piers extend up to roof level where there is a reinforced concrete ring beam. Between the piers the bays are in filled with brickwork in English bond.

3.6.1 Roofs

The roof was not visible for inspection from the ground level survey however it is evident that the roof is a flat roof draining towards the west elevation where it would have discharged into a half round gutter supported on brackets mounted on the reinforced concrete ring beam. Viewed from ground level the periphery of the reinforced concrete roof slab is in quite poor condition. There are a number of sections missing exposing the reinforcement. It is recommended that a high level survey be undertaken to inspect the condition of the roof structure itself, especially given that this is a listed building.

3.6.2 Rainwater Goods

The rainwater goods are exclusively to the west elevation with a single downpipe on the north elevation collecting water from the west. The rainwater goods are cast iron. At high level there is a half round gutter supported on rise and fall brackets, this is divided into two sections as, centrally on the west elevation, there is a projecting section of reinforced concrete between bays 3 and 4. To the north of this projecting reinforced concrete section the half round gutter remains in-situ. To the south the gutter is missing. Where it remains it is extensively blocked, evidenced by the water staining down the wall and, particularly, the gutter joints where there is staining in each location indicating failure. Where the gutter connects to the down pipe to the north there is extensive ivy growth so the connection and the outlet will inevitably be blocked. The gutter connects into a six inch diameter cast-iron down-pipe running down the western corner of the north elevation, fixed to the reinforced concrete pier. There is extensive deterioration in this pier with sections of concrete spalling away revealing the reinforcement, the decay is accelerated by the water overflowing from the gutter and the outlet above. This pipe drains into a gulley at low level, which is partly blocked, displaced by a substantial birch tree. The gulley and the outlets are all blocked retaining moisture in and around the building fabric. At higher level this downpipe swan- necks although the reason for this is unclear.

The down pipe to the South is fixed to the western face of the concrete pier, there is no connection at higher level as the half round gutter is missing. Consequently this downpipe is not collecting water from the roof. At low level this downpipe has a broken bracket hence the lower portion of the downpipe has become displaced. It is important that the guttering be re-instated on this building and the rainwater pipes cleared to reduce the progress of decay at high level and in the reinforced concrete piers. There are a series of out-riggers along the west elevation and it is evident that these out-riggers also had half round rainwater goods all of which have been removed.

3.6.3 Walls

The east and west elevations are divided into six bays by the reinforced concrete framing with brick infill panels in English bond. To the west elevation there are a range of brick and concrete out-riggers. The northern most of these is a simple, single storey, brick box with a reinforced concrete roof. This is generally stable, however there is a diagonal crack running up from the former entry door (on the western elevation) up towards the corner of the reinforced concrete roof structure. Built into the west elevation of the out-rigger are a series of iron bolts which would have been associated with a sliding door mechanism.

The southern out-rigger consists of two parts, a single storey section to the south with a two storey section to the north. The two storey section is subdivided by a projecting reinforced concrete slab and down stand beam.

Fig. 059 Building 65 The Runcol Building

Fig. 060 Building 65 The Runcol Building

Fig. 061 Building 65 The Runcol Building

Fig. 062 Building 65 The Runcol Building

This slab is in poor condition with tree growth at the upper level and sections of spalling concrete some of which are falling on to the ground adjacent to the building, this needs quite urgent attention to reduce the risk of falling masonry. Above this is a further storey of brickwork with an iron door still in-situ and atop this, is a reinforced concrete roof slab. When viewed from ground level the brickwork would appear to be in reasonable condition. The covering to the reinforced concrete roof slab is largely missing. The ground floor is also constructed in brickwork and there is a reinforced concrete staircase projecting to the west consisting of 4 risers. This is all in reasonable condition. There is a doorway leading into the building from the staircase which has been in-filled with modern block-work.

The southern portion of the out-rigger has a substantial tree growing adjacent to the entrance and is quite wet internally on the underside of the concrete slab and to the wall where it abuts the two storey section of building, suggesting that the flashings and roof coverings have failed. Generally the brickwork to this out-rigger is in reasonable condition. Internally there are two substantial reinforced concrete piers, which would have supported a compressor. The doorway into the out-rigger has the remnants of a steel door frame, this is badly corroded to the head and will eventually cause displacement in the adjoining brickwork if remedial work is not undertaken. Above this there is a concrete lintel with a steel angle bolted to the face, this is causing deterioration in the brickwork adjacent. It is recommended that it be removed or treated with a rust inhibitor and painted.

The west elevation to the primary building has 6 projecting reinforced concrete piers, the southern most of which has spalled concrete sections at high level, probably associated with the adjoining downpipe. There is further deterioration at high level to two of the other piers and also to the corner pier to the north. The reinforced concrete ring beam is generally in fair condition apart from one spalled section towards the northern end. The section of reinforced concrete projecting centrally (which would have provided access to the scrubbers) appears to be in reasonable order although its original roof covering is missing. The brick panels to this elevation are in good condition.

There are also a series of plinths adjoining the west elevation. There was a substantial oil tank supported onto reinforced concrete piers (evident also on the original drawings), the cylindrical form of which is evidenced by the section of these piers. The northern pier has been displaced by an adjoining tree, this tree needs to be removed and the stability of this plinth assessed. Once again there is extensive tree growth close to the building and those in immediate proximity to the building should be considered for removal before they begin to disrupt the building fabric.

The north elevation of the building is a plain brick façade with reinforced concrete piers to each end, flush with the wall, the ring beam at the wall head. There are two reinforced concrete quoins projecting into the wall face. About two thirds of the way up there is a vertical crack between the reinforced concrete frame and the brickwork, this is probably caused by differential movement between the building materials. Secured to the western most of the reinforced concrete piers is a downpipe (refer to rainwater goods). Secured to the eastern most of the two piers is a vent pipe which projects some one meter above the roof line. This is badly corroded with a broken bracket at high level. This pier also has three or four sections of spalled concrete, exposing the reinforcement, which is badly corroded and needs to be repaired. There are three trees growing immediately adjacent to this elevation in very close proximity to the brickwork and is recommended that these be removed before displacement occurs in the building fabric. Behind one of these trees, towards the western end, there is a vertical pipe running up to roof level which is partly obscured by substantial ivy. At lower level there is a small section of iron guarding which has been largely broken away due to the adjoining tree growth.

The east elevation echoes the west, comprising of six bays. These are subdivided with the reinforced concrete frame consisting of projecting piers, except that on the north which is flush with the wall. The concrete ring beam continues to run round at high level, this stands slightly proud of the wall face. At lower level there were originally a series of five openings – four door openings and a single window, which have all been in filled with modern block-work. These are formed with a reinforced concrete lintel approximately 2.5 metres from ground level. The window opening would, when the building was first built, have also been a door opening.

There is significant deterioration to the reinforced concrete frame on this elevation. This is particularly evident where the piers adjoin the ring beam at high level, in each case there being spalled sections of concrete. The reinforcement is exposed with some significant sections of concrete now missing. These need to be conserved if this problem is not to rapidly deteriorate. The brickwork infill panels are in reasonable condition with little evidence of spalled brickwork, and there is significant retention of the original camouflage paint finish. To the northern-most bay there are a range of iron fixings and an iron angle bracket about 1.8 metres from ground level. These should be treated with a rust inhibitor and painted. The second and third bays from the north have projecting bracketry some 4 metres from ground level and similar comments apply. The modern block work infill to the door openings is generally in good order, however, the appropriateness of this infill should be questioned in the context of a listed building. It would be beneficial to remove this and replace it with more appropriate brickwork if the building is indeed too contaminated to allow any form of access. Between the road and this elevation there are a range of concrete plinths associated with the tanks and chambers required for the runcol manufacturing process. There is significant tree growth some of which is too close to the building fabric. These should be removed before displacement occurs in the masonry or the concrete.

The south elevation of the building differs from the north in the sense that the two corner piers project from the wall face, however they have the same quoin detail. The concrete ring beam continues round at high level. There is a single window opening at high level which would have originally been a duct associated with the adjacent chimney which has since disappeared. There is more modern brickwork around this window where this reconfiguration has taken place. At low level, to the east of the elevation, there is a single door opening, this also has been adapted from a wider opening and is now covered with a galvanised steel grate preventing access due to the contamination of the building internally. Once again there is good evidence of the original camouflage paint on this elevation.

The reinforced concrete frame exhibits some deterioration particularly to the pier on the eastern side where a section has spalled away at roof level. This will need some conservation in the near future. Similar issues exist to the western pier at high level and to a further spalled section some 2.5 metres from the ground. There is also a substantial tree in close proximity to this pier which will need to be removed. The window at high level is a six pane steel casement window. The vast majority of the glass is missing and there is significant corrosion in the window frame. The brickwork infill panel is generally in good condition although there is an area of displacement and cracking above the reinforced concrete quoin to the west. This needs to be repaired.

Internally there is no access to this building due to the level of contamination. A view internally can be gained from the door in the south eastern corner of the building. There is a distinct gaseous smell, which hinders respiration. A new door preventing inhalation should be installed along with adequate ventilation elsewhere. The level of contamination should be monitored.

From this point it is evident that there is significant water ingress through the concrete roof slab. To the walls there are projecting corbels, which would have supported the plenum ceiling at high level designed to draw out the contaminated air. At low level there is a reinforced concrete platform. It would appear that the 2 storey outrigger was originally open to the space and this has been in filled with brickwork.

3.7 Building 97, Electric Substation (SS4)

The sub-stations were constructed in such a manner as to resist blasts, and had 14” brick walls laid in English Bond and 7” reinforced concrete roofs cast *in situ*. There were no windows and a blast wall protected the entrances to the transformer, switch room, circuit breaker and Carbon Dioxide fire fighting sections. The large transformer and circuit breaker cubicles were housed in a taller section of the plant that was 20 feet high, and vented by two large fans that carried away the heat that was generated. To the south and west there are two small outriggers or entrance porches. Few internal fittings remain.

3.7.1 Roofs

To the two storey part of the building, the asphalt roofing has come away around the eaves, in fact it is largely missing which suggests it will be badly cracked and failed on the roof surface proper as well. The roof slabs to the outriggers are also badly cracked around the perimeter with spalled sections.

Originally the building would have had asbestos rainwater goods, which have been removed leaving the building susceptible to significant water ingress with water draining onto adjoining surfaces and down the brick walls. Some of the rise and fall brackets associated with the rainwater goods remain in-situ.

The outrigger to the north has lost most of its asphalt roof covering and the concrete roof slab is badly cracked and failed. This cracking is very prominent and extends up the wall from the slab of the outrigger, into the north elevation of the main building, disrupting the brickwork. There is further cracking (all of which is associated) where the roof adjoins the double height section of the building.

3.7.2 Walls

The south elevation of the building consists of the primary brick facade with outriggers extending to the south and to the west. The outrigger to the south has a substantial crack down through the centre. Part of this wall has been rebuilt in the past with a large section of modern brickwork suggesting that this has been an ongoing problem, perhaps since the construction of the building. Generally the brickwork to the south elevation is in quite poor condition. There are numerous bricks with friable and spalling faces particularly to the eastern end of the southern outrigger and also to the projecting wall of the western outrigger.

The general facing brickwork of the main building is also in poor condition with similar problems across the visible brickwork. There is a horizontal crack below the roof slab of the single storey section, extending into two vertical cracks, one centrally and one where the building meets the two storey part of the structure. Where the building extends up to form the double height space there is a concrete lintel built into the wall presumably this would have been to support equipment internally. Below this, fixed to the wall, is an alarm bell system with associated conduit, this is now quite badly corroded.

The east elevation is a plain two storey brick wall. This has suffered from water discharging down the wall face resulting in extensive spalling to the faces of the brickwork. The southern outrigger also extends beyond this elevation and the brickwork to the projecting pier is in poor condition. Once again there is jacking to the brick courses adjacent to the roof slab at high level. There is quite a lot of remaining camouflage paint remaining on this elevation as it is shielded from the prevailing weather.

To the north elevation, the two storey part of the building has two openings; a window and door opening. It would appear that these are later alterations. The windows have a canted brick cill. The openings are generally in fair condition however. The single storey part of the elevation is in very poor condition as referred to previously. There is a substantial horizontal crack running along below the concrete roof slab, this extends into further cracking where the roof slab adjoins the the two storey part of the building. The crack runs along to a vent and down through the wall structure running right down to floor level. Adjoining this elevation is a further outrigger extending to the north and essentially this also has a vertical crack. Examination of the northern-most wall of the outrigger suggests that this has been altered or curtailed in the past and would have originally extended further to the east. The brickwork has been crudely cut as has the roof slab, this has exposed some of the ends of the reinforcing bars which has resulted in corrosion and subsequent deterioration.

The west elevation of the building consists of three levels, initially the projecting outrigger then the single storey part of the building with the double height section beyond. The brickwork to the out-

rigger is in poor condition with many spalled faces and, to the north, there has been some significant movement with a large vertical crack running down through the structure.

The wall increases in height to form the single storey part of the building and, once again, there is a large horizontal crack and a range of spalled brick faces. The brickwork here is evidently very wet and there is a significant organic growth exacerbating the problems of failing brick faces and horizontal cracking. Above, and further back, is the double height part of the building. This is in better condition with fewer spalling bricks and the pointing generally being in reasonable condition. There is, however, a tree visible which is growing out of either the roof or the abutment between the single and double-height parts of the building. The southern outrigger provides access thorough to part of the single storey (former distribution board switch room) and part of the double height section of the building (the circuit breaker cubicle). The single storey outrigger is in very poor condition.

3.7.3 Interior

There appears to be some distress in the reinforced concrete ceiling slab of the southern single-storey outrigger which is in very poor condition. There is also further cracking in the outer wall. The reinforced concrete lintel into the double height space has a large section of spalled concrete exposing the reinforcing bars which are now starting to corrode. To the former distribution board switch room (3) there appears to be some deflection in the reinforced concrete slab. There are also sections of spalled concrete to the soffit giving further evidence of distress. The walls to this room are generally in reasonable condition although they exhibit extensive evidence of water ingress and saturation from the failed roof finishes above. To the west of the space there was a trench which has been back filled with hard core and sundry other bits of debris and other detritus.

The northern part of the double height space (the former transformer cubicle – 1) is accessed directly from the exterior although, as previously referred, to it is assumed that the outrigger would have extended across to form a lobby at one point. This space is in poor condition and there is significant water ingress though the reinforced concrete slab causing decay and corrosion in the reinforcing bars particularly to the centre of the space. To the south of the space there are two galvanised steel ventilators extending though the roof. To the western wall there is extensive cracking coinciding with the cracking visible on the exterior. There is a further horizontal crack at the level of the roof slab of the lower part of the building fanning out across the wall. The changes to the north wall with the newly introduced door and window opening are very evident.

Fig. 063 Building 97 Electric Substation (SS4)

Fig. 064 Building 97 Electric Substation (SS4)

Fig. 65 Building 97 Electric Substation (SS4)

Fig. 66 Building 97 Electric Substation (SS4)

4

BUILDINGS WITHIN THE DANGER AREA

4. BUILDINGS WITHIN THE DANGER AREA.

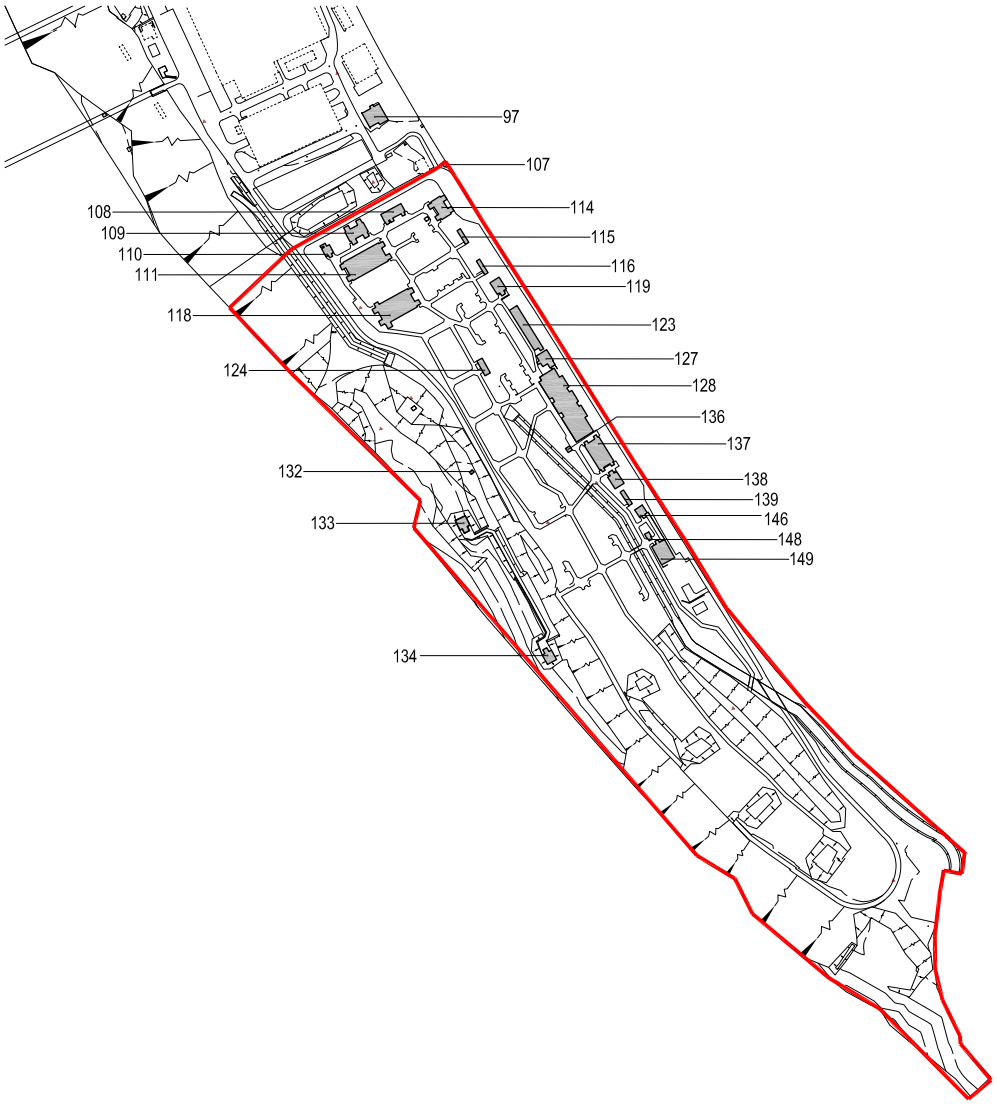

Fig. 067 - Buildings in the Danger Area

Beyond the process area, was the secure area where weapons and shells were assembled, packed and stored ready for dispatch. This area was known as the danger area.

A wide range of buildings survive in the danger area including paint and packing shops, stores, lookout posts, mess and welfare provision, ARP shelters and magazines. These are all interconnected by the 'cleanways' a series of special anti-spark bitumen coated paths. This material (known as 'Synthaprufe') was also used within some of the more heavily trafficked buildings.

The ARP shelters, the look-out posts, emergency washrooms and changing rooms are constructed in 14" (or one and a half brick) thick brickwork, laid in English bond, with seven inch reinforced concrete roof slabs, designed to be splinter proof. Originally these buildings would have been provided with gas-sealing doors and curtains, set at an angle.

The majority of the operation buildings in the danger area have eleven-inch cavity walls, laid in stretcher bond. The choice of cavity walling was used to assist in regulating hygrometric conditions

required where explosives were handled. These buildings have pre-cast concrete roofs with down-stands internally. The railway gatehouse and the WC block were constructed from 9” brickwork with in-situ concrete roofs.

While most of the rainwater furniture on the buildings that have survived has been removed, from fragmentary survival these appear to have been mainly made of asbestos cement.

Many of the buildings in the danger area still retain their original wartime décor, of cream (general wall surfaces), and crimson. The entrance porches (which formed light-traps protecting the interior) were painted a dull grey to minimise reflection, although the fire points were picked out in white to aid identification in black out conditions. The floors of the heavily trafficked buildings were coated with Synthaprufe, other buildings had linoleum floors.

This part of the valley was levelled and the excavated material from the tunnels used to back fill the former course of the River Alyn. There is evidence of subsidence associated with this fill, especially in the landscaped sections, and some of the grassed areas are very uneven as a result.

The perimeter of the Danger Area was completely secured by a steel fence, with strictly controlled access. This fence remains in situ to the perimeter of the site, but has been largely removed where the danger area was segregated for the process area.

Below the buildings of the danger area are considered in numerical order.

4.1 Railway Look Out Post (no reference number, SMR 98007)

This is a two storey brick building with a very small footprint. The lower storey is built in English Bond. The upper storey jetties out from the lower, supported on a reinforced concrete slab.

The upper storey is open (with no roof), being originally used to monitor trains entering the site; it was not possible to access the upper level. The brick work to the upper storey is in quite poor condition with a lot of spalled bricks, the edge of the concrete slab is also deteriorating.

The lower storey is generally in reasonable condition, but should be noted that the palisade fence which immediately adjoins the look-out post is quite badly damaged.

Fig. 068 Railway Lookout Post

Fig. 069 123 Railway Lookout Post

4.2 Building 107 Railway Gatehouse

This building is located in the North eastern corner of the danger area. It is a very simple single storey brick structure of an L shaped plan with entrance porch and in-situ reinforced concrete roof slab. There is no visible evidence that the reinforced concrete roof slab was ever finished in a coating, or felt, like the other buildings, presumably it relied on its inherent density for water proofing. In general terms the reinforced concrete roof slab appears to be in reasonable condition when viewed from ground level, however the branches of overhanging trees outside the site boundary should be removed to prevent damage to the roof slab in the future.

The walls are 9" thick brickwork laid in english bond. The brickwork is saturated, particularly at high level; this is inevitable giving the lack of water proof coating in the slab. There are also a number of spalled brick faces.

There are three primary window openings, one of which would have faced onto the railway line within the site. The northern-most window opening has remnants of a crittall type steel window, with some glazing remaining in-situ, this is now unusual within the site and should be retained for historic interest. Each window has a concrete lintel and a canted brick cill, generally these are in reasonable order, however, there are some narrow cracks spreading down from the concrete lintels and extending down through the wall.

The lintel over the main entrance door has a section of of spalled brick work above which needs repair. Internally the underside of the concrete slab is generally in reasonable condition, some minor cracking but nothing significant. The walls are fair-face brickwork, retaining some of their original paintwork which, as elsewhere, was a cream colour to the main space and a grey to the entrance porch. Generally the internal brickwork is in reasonable order, with only minor cracking. there is a more significant crack extending up from the lintel, above the window in the north elevation, but this is not thought to recent.

The building retains a number of its original fittings, there is an early light fitting on the floor and there is conduits and there is an amount of framing perhaps for shutters around the windows. Those to the western window would appear to be of asbestos cement or a similar material (refer to asbestos report).

Fig. 070 Building 107 Railway Gatehouse

Fig. 071 Building 107 Railway Gatehouse

4.3 Building 108 munitions building.

This is a single story brick structure, with a concrete slab roof. This building has three small entrance porches extending to the south providing access to the three internal spaces (whilst also serving to shield them from light).

4.3.1 Roof

The roof is a concrete roof slab (presumably pre-cast), covered in roofing felt over finished with tar or bitumen coating. There are three concrete ventilators projecting through the roof along the centre line. In general terms the roof to this building looks in better condition than elsewhere. It would appear that the coating to the felt has been renewed, certainly since the war. Once again however, the rainwater goods have been removed, which means that the water (which drains to the south) is discharging down the wall face. The roofing felt and over coating on the south is also in much worse condition where it is blistered and in some areas falling away. The South of the three projecting porches is in similar condition with most of the roof covering remaining in-situ, however the flashings are largely missing especially where chased into the brick work above the lintels.

4.3.2 Elevations

The building is constructed in stretcher bond (11" thick) with a cavity. The North elevation is simple flat brick façade with a door into the larger of the three spaces. There are three existing galvanized steel vents which would originally have had insect mesh externally, this is now missing.

In general terms the brickwork to this elevation is in reasonable order. There are a number of spalled faces at low level, nothing significant. A further vent into the second space has been infilled with modern brick work, and a terracotta louvered vent installed. To the western end of this elevation there are a series of horizontal cracks which then extend up diagonally through the wall. This all seems to be associated with the distortion in the roof slab. This is much more significant as the building turns to become the west elevation, where the cracking is quite serious and will require some repair.

The west elevation itself is simple brick, with two ventilators, one of which has been in filled. The brickwork is in reasonable condition save the cracks to the northern corner. At low level there have been a number of holes formed and other minor alterations. There is significant remaining camouflage to this elevation which extends to the out-rigger on the south elevation. There is a tree in very close proximity to the brick work here, and a couple of small saplings. All of which will need to be removed before causing disruption in the building fabric.

The south elevation of the building has the three projecting porches. Behind these, the brickwork to the main building has suffered some quite extensive deterioration, particularly to the west end where there is a significant horizontal and diagonal crack. This extends several metres across to the east. It would appear from visual inspection that there has been some movement in the western most of the three porches, which coupled with distortion in the roof slab, has resulted in this stress in the brickwork, between the roof slab of the porch and the primary roof of the building. This has been exacerbated by the amount of rain water down the face of the building in and around the flashing and in the corner of the building where it would have discharged off the out rigger into a gulley. There is further evidence of this movement within the out-rigger where there is visible deflection in the lintel and the timber frame below it has broken away. This movement and cracking, as distinct from a lot of the other buildings, appears to be related to subsidence, and probably the former alignment of the River Alyn.

There are further cracks above the centre of the three out riggers and once again there appears to be movement associated with deflection in the reinforced concrete roof slab. The brick work of the out-rigger itself is generally in reasonable order, however, there is further cracking to the eastern end of the elevation above the eastern porch/out rigger. Similar horizontal cracking associated with

the deflection in the reinforced concrete roof slab.

The brickwork of the eastern out-rigger is generally in reasonable order, but there is saturation at low level on the eastern elevation where the rain water goods have been removed and the water is discharging onto the ground causing saturation in the brickwork. The east elevation of the primary building is a plain brick façade with two ventilators at high level. There is some horizontal and diagonal cracking in the south end of this elevation, once again associated with the deflection of the reinforced concrete roof, however, generally the brickwork is in good order. The camouflage is particularly evident as is the number of the building centrally, both of which are of historical interest.

4.3.3 Interior

Internally the building consists of three spaces. These originally formed the small and large oven rooms, and stove/wax pot area. The pre-cast, reinforced concrete roof structure had down stand beams of the same construction as the other buildings. In the primary space (1) this is generally in reasonable condition, with no significant signs of distress or of significant water ingress. The walls of the main space are plastered/rendered in cementitious render which retains much of its original cream coloured paint.

There is significant longitudinal and diagonal cracking to the south eastern corner of the space extending down through the walls. The western wall is bare faced brickwork suggesting that this was a variation from the original design (also suggested by Birmingham Archaeology Report, vol.2, p42). The plaster to the northern wall is extensively crazed. The flooring to each of the spaces is linoleum up to the door threshold and then 'Synthaprufe' in the porch areas. The linoleum has dried and extensively cracked and blistered.

To the western most of the three rooms (3) there is further significant cracking, there is a longitudinal crack running below the western most down stand which is partially imbedded in the wall face, this extends as diagonal cracking through the wall and then the plaster is crazed. The significant disruption around the western porch is further evidenced internally by the cracks of some 15 – 20mm diameter, and it is suggested that a repair or some reconstruction will be necessary in this area.

Fig. 072 Building 108 Munitions Building

Fig. 073 Building 108 Munitions Building

Fig. 074 Building 108 Munitions Building

Fig. 075 Building 108 Munitions Building

4.4 Building 109 weapons receipt store.

This building is identical in form to building 114, comprising a single storey brick building with a reinforced concrete roof slab. It has four out riggers or porches, two extending north, two extending south towards the corners of the building. Both served as temporary stores for weapons charged with mustard, but awaiting final assembly, painting and packing. Each large storage space had four porches laid with bitumen floors implying heavy use.

4.4.1 Roofs

The primary roof to the main building is a reinforced concrete roof slab. This roof is evidently been replaced with sheet material as it differs from those on other buildings. This would appear to be latterly over-coated with a bituminous or tar coating. The perimeter is in better condition with fewer missing sections, less blistering and cracking. As this roof is somewhat larger than some of other buildings, particularly along the north elevation, there is visible distortion in the roof slab with a noticeable curvature upwards particularly towards the east and west. Below this are areas of modern reconstruction, this is the best example giving evidence for the reasons for the horizontal cracks to be seen in many of the structures, suggests that these horizontal cracks are caused by distortion in the roof slab, this probably partly occurred during the construction of the buildings, and has since been exacerbated as the reinforcing bars have corroded causing further deflection. The roof to the out riggers has also been replaced with a roofing felt. This is in worse condition than the primary roof missing sections particularly to the out rigger in the North western corner of the building.

4.4.2 Elevations

The building is once again constructed in stretcher bond (11” thick) with a cavity between the outer and inner leaves.

To the North elevation; the brickwork to the main building has a number of spalled faces particularly to the centre of the façade. There are two substantial areas of reconstruction, as previously referred to, associated with the deflection of the reinforced concrete roof slab. These areas of reconstruction, whilst the cracks starting to re-appear, are generally in reasonable condition. There are remaining cast iron rise and fall gutter brackets set high level set in to the mortar joints. Many of these are badly corroded and will need consolidation work or the application of a rust inhibitor to prevent deterioration being caused in the adjoining brickwork at some stage in the future. There are two out-riggers to this elevation forming porches into the main body of the weapons receipt store itself, the eastern most of these is generally in reasonable condition. There is little damage to the brickwork. Externally, horizontal cracking associated with the deflection of the roof slab is evident however it is relatively minor in this case. There is significant remaining camouflage paint. The out riggers to the western end of this elevation is also in reasonable condition, however, the brick work to the western elevation of this out rigger is saturated as water is discharging from the roof down the face of the wall. This is consequently resulted in a number of spall brick faces and significant staining of the face of the brick work. Once again there are rise and fall gutter brackets remaining at high level.

The East elevation is a simple plain brick façade with two ventilators to the north and south. There are areas of reconstruction associated with the cracking at high level in modern brickwork, both of which are in good condition. Once again a significant retention of the camouflage paint on this elevation is of historical interest.

The south elevation echoes the north with projecting out riggers to the east and west. The elevation of the main building is generally in good condition, with the exception of significant damp staining where water is discharging down the face of the wall. The gutter brackets remain in-situ at high level. Between the out-riggers there are two ventilators, of which the external insect mesh is missing to the western-most ventilator. There is also significant remaining camouflage paint. The two porches on this elevation have had brick piers introduced at a later date, offset from the centre

door openings. These are built off the 'synthaprufe' suggesting that they are a post-war alteration. The western out-rigger is generally in reasonable condition. There is horizontal cracking at high level associated with the deflection of the slab, but generally the brickwork remains in good order. There is significant remaining camouflage paint to both the east and west elevations. To the west elevation there are gutter brackets at high levels as the roof discharges at this side which has resulted in damp staining down the wall. Where the down pipe secured to the wall in the northwest corner there is a tree going out of the gulley at low level and this needs to be removed.

The Eastern out rigger is similarly in reasonable condition, the brickwork is stable and there is significant remaining camouflage paint. There are sizable trees growing to the west elevation which extend across the façade of the primary building which need to be removed, before they start to cause disruption to the fabric of the buildings. To the east there are remaining gutter brackets which would have supported a down pipe in the north eastern corner. There is the shadow of a junction box on this elevation.

4.4.3 Interior

The main store room (2) is generally in reasonable condition, however, the underside of the concrete slab (which follows the same pattern as other buildings in the danger area, i.e. a series of cast down-stand beams supporting the slab over) is now starting to show signs of distress especially along the centre line where the bottom part of the down stand beams are at their highest point of tension.

When viewed along the space there appears to be slight deflection in this slab which will be introducing a stress centrally to each of these down stand beams and there are now a number of sections of spalled concrete, this will be exacerbated by the water ingress which is evident in a number of locations, causing corrosion, and subsequent further decay. Currently this is not a significant issue but unless the issues of the roof covering are addressed then it will start to deteriorate quite quickly.

There are a number of brackets fixed to the roof and shadows to the wall associated presumably with some sort of lifting equipment. Secured to the ceiling are eight original light fittings which are of some historical interest. The one to the south western corner of the space has been pulled away.

The walls are finished in the same cementitious render/plaster, this is generally intact, except where the horizontal cracking associated with the slab deflection is visible to each corner at high level. The walls retain their original wartime cream paint and the shift signage at high level. There is also some interesting graffiti and signage indicating the cleanway to the canteen. This is all of historic interest and needs to be conserved and retained, especially as these buildings form part of the scheduled area.

To the south western corner of the space there is shadow on the wall suggesting that some structures to this area have been removed. The cream coloured paint extends behind these shadows suggesting that these were post war additions. The key to conserving these internal finishes will be addressing the issues with the roof structure.

The floor of the main space is a simple concrete slab, there is no evidence that the pitch/tar of the clearways extended within the building, it does however, extend in to each of the porches where it terminates against the timber threshold in each case. The entrance porches retain their original plaster which in some cases is starting to fall away. They also retain the pitch extending from the cleanways into the porches. There were two sets of double doors internally, both of which are now missing in each case.

Fig. 076 Building 109 Weapons Receipt Store

Fig. 077 Building 109 Weapons Receipt Store

Fig. 078 Building 109 Weapons Receipt Store

Fig. 079 Building 109 Weapons Receipt Store

4.5 Building 110 - Munitions Building.

This building is a single storey brick structure with a reinforced concrete roof. There is a projecting ventilator in the centre of the building which consists of a reinforced concrete upstand and cap. Early plans of the building, show a link between this building and the paint shop.

4.5.1 Roofs

The roof of the building is a simple flat roof, comprising a reinforced concrete slab which is coated in asphalt. The asphalt is missing in a number of locations around the perimeter of the slab and there are a number of cracks and blisters in the roof covering when meeting the ground level. There is evidence of water ingress internally associated with the ventilator and an area towards the west of the building suggesting that the roof coverings and flashings have failed, particularly in these areas.

4.5.2 Elevations

This building is constructed in stretcher bond (11" thick) with a cavity wall construction. The North elevation is a simple elevation with a central door opening, with two galvanized steel louvred ventilators level with the door head. Above the door is a reinforced concrete lintel, the bottom edge of which is quite badly spalled, exposing the corroding reinforcing bars. To the door jambs there are a number of spalled, cut and missing bricks, this suggests there was a projecting structure to the North. There is also a shadow indicating this in the lintel and the wall above. Within the door opening there are remnants of the World War II timber door frame. This is missing however on the Western side. The brick work to this elevation is in quite poor condition, there are a number of quite badly spalled brick faces across the surface of the wall. Either side of the door opening are two substantial concrete plinths. Adjacent to the western of these there is a substantial tree which in the longer term will start to cause disruption in the structure. There are also a number of iron fixings in this wall which need to be treated with a rust inhibitor.

The East elevation is a plain brick wall with a single ventilator towards the south and low level there two instilled openings. This elevation has significant remaining camouflage paint. The brick work to this elevation is in good condition, however to the northern corner there is a small horizontal crack of similar type to that seen elsewhere, however, this is relatively minor.

To the South elevation there is a projecting out rigger forming a porch into the munitions store. The primary part of the out rigger has a concrete slab roof which is in reasonable condition however the coverings have generally failed. The South of the out rigger there is a small further extension consisting of the two wing walls (this may have been part of the linking structure previously referred to). The brickwork to the heads of these wing walls is loose and the western most of these has a significant crack at low level.

To the main building, the rise and fall brackets which supported the original guttering are still in-situ, the guttering having been entirely removed, presumably because it was asbestos cement. The brickwork to the primary elevation is generally in reasonable condition, there are, however, a couple of spalled faces to the bricks. To the out-rigger the brickwork is quite poor, a range of spalled brick faces and significant cracking where the primary out-rigger meets the additional wing walls. At this junction there is significant diagonal cracking through the wall, it is suggested that these wing walls could be removed before they collapse. To the East elevation of the out rigger there are significant areas of iron work, primarily associated with rainwater downpipe, which ran down the wall where the eastern wall meets the primary wall of the building. This bracketry needs to be treated with a rust inhibitor or, ideally, the gutters reinstated.

The eastern wall of the out rigger is very wet as the water from the roof discharges down the face as there are no longer any rain water goods. The western wall of the out rigger is generally in good condition.

Above the out-rigger, the flashing between the concrete slab and the main wall of the building is cracked and fallen away, so any water at this point will enter in to the main body of the brickwork.

The West elevation of the building is in good condition, there was evidently a door opening centrally, however, it looks as though this was infilled at a very early date, as it is covered in the camouflage paint associated with the war time use of the buildings. At low level there is a small more modern opening, which has been in filled with later brickwork. Adjoining the door head is another ventilator which is partially covered in insect mesh.

4.5.3 Interior

The underside of the precast concrete roof slab is supported on a series of down stand beams running east to west. There are a number of areas of significant water ingress, particularly around the ventilator, and an area towards the west of the space where water is dripping onto the floor which have resulted in significant staining on the underside of the slab, exposure of the reinforcement and consequent corrosion. Following the spalling of some sections of the concrete, the underside of the slab needs some conservation work. Centrally is an original 1940s light fitting and conduits which of some historic interest and should be retained and conserved. To the North elevation there are shadows from the bracketery of the lifting equipment. The walls are rendered in a cementitous render/plaster. The walls are decorated in a off white paint finish this is obviously a second decorative (post war) scheme as the earlier scheme in a creamier finish is evident beneath.

To the North and South walls the shift markings are picked out with letters A and B. Those to the Northern wall were evidently changed part way through painting, with the pencil guide lines of an 'A' still visible below the 'B' in the North eastern corner of the building. The horizontal jacking cracks associated with the deflection of the roof slab is visible in all four corners. Again all finishes are in quite good condition and efforts should be made to retain them.

The floor is a concrete slab which appears to be over coated in the 'Synthaprufe' seen through the danger area where there was a risk of sparking causing explosions. This has been extended to within this building. At the time of survey this was quite extensively covered with debris and leaf matter, however, in the exposed areas it has suffered from impact damage and is partly blistered in a number of locations. There are shadows, there are circular shadows or indents from the shells stored in the building which are of some historical interest. The Synthaprufe was returned up the wall in a coved detail and extended to form a black skirting some six inches up the wall. There is an original doorframe between the primary store extending into the lobby unfortunately the door referred to in the Birmingham archaeology report has been lost since 2006.

The out rigger/porch is quite damp to the North eastern corner, however, it does retain its original plaster and finishes, though there is quite a large horizontal crack, internally along the Western wall.

Fig. 080 Building 110 Munitions Building

Fig. 081 Building 110 Munitions Building

Fig. 082 Building 110 Munitions Building

4.6 Building 111 Painting and Packing Building

The painting and packing of the larger 5.5 inch shell was undertaken in building 111. Because there was a relatively heavy flow of traffic through the building it was provided with four porches with bitumen floors, but had lino throughout internally. There was also a pair of double crash doors built into the north and south elevations for quick escape.

The main building is a long single storey structure eight bays in length with four projecting porches; Two on the east elevation and two on the west. Two further entrance doors on the north and south elevations (originally providing emergency escape routes).

The primary space of this building is significantly larger than some of the other buildings, hence the span of the reinforced concrete roof slab is split in to two with a run of reinforced concrete columns centrally down through the building.

4.6.1 Roofs

The reinforced concrete slab is covered in asphalt finish, this would appear to be in very poor condition when viewed from ground level, The down-stand sections are extensively missing around the perimeter of the building and the level of water ingress internally suggests it has failed right across the surface of the roof structure, and is consequently in need of significant intervention and repair work.

It is evident that the brick work to the corners of the building below the roof slab have been reconstructed at some point in the past addressing the issues associated with distortion of the roof slab. The roof slab on this building is significantly larger than that on the other buildings and the distortion is particularly visible

The Porches, as elsewhere, comprise two brick wing walls surmounted by reinforced concrete roof slab. The roof finishes have extensively failed to all of the porches. Those to the west of the building in a poor state, the roof finish is almost completely missing to the perimeter of the roof slab. The eastern porches are in similar condition, however, the lead flashings between the building and the porches remain in situ.

4.6.2 Elevations

The north elevation is a long, plain, brick elevation constructed in stretcher bond with a cavity. The brickwork to this elevation is generally in poor condition. It's length, the rigidity of its construction and the lack of movement joints has resulted in a number of diagonal cracks probably associated with thermal movement within the brickwork. There are many spalled faces and the brickwork to this elevation was saturated at the time of survey due to the lack of rainwater goods, and consequently the water from this roof is discharging down the wall face. There are five ventilators at high level all of which are missing their insect mesh and a door slightly off centre comprising a concrete lintel above these are generally in reasonable order.

The west elevation is plain brickwork, with the two porches/out-riggers extending to the west, the brick work to the main elevation is generally in slightly better condition. There has been an area of reconstruction above the northern most of the two porches, as have similarly over the eastern one also. Generally the brick work is in reasonably good condition. There are a few spalled faces to this elevation.

The brickwork to both of the porches is in reasonable order however the two piers dividing the openings in the western faces of the porches are both unstable. That in the northern-most porch has entirely lost its outer face and the rest is quite fragile and, at the time of survey, could be readily pushed over. This is a significant health and safety concern and these piers need to be reconstructed.

Similarly to the southern most of the two porches the outer face is loose and needs to be repaired. The most significant issues with this building occur to the southern elevation, there is a noticeable bulge in the wall to the west. There has been localized reconstruction at high level however there are issues both with the deflection of the concrete roof slab, and it would appear possibly subsidence to this corner, possibly associated with the former course of the river. There is a dip in the ground and adjacent there is a section of wall completely out of alignment at high level. There is a diagonal crack running through the wall the whole is exacerbated by the fact that water is running down the face of the wall in this area as well. The ground is particularly wet, which will only further the problems. There will need to be significant stabilisation and conservation work to the area of this building in the near future; as there is a significant risk of brick work collapse. Further along the south elevation there continue to be hairline diagonal cracks, numerous spalled faces to the brick work. To the eastern end there has been localized reconstruction at high level associated with the distortion of the reinforced concrete roof slab and once again there is an area where water is discharging down the wall face causing further deterioration. Immediately adjacent to this there is a further crack running vertically up through the wall to the elevation.

To the east elevation there are once again two out-riggers/porches. The wall of the primary building is generally in reasonable condition, there has been localized reconstruction work above the two porches up to the underside of the reinforced concrete roof slab where the distortion in the slab has caused cracking to the brickwork. Similar cracking is evident in both porches at high level otherwise the brickwork is generally in a reasonable order, although it is saturated where the rain water goods have been removed, resulting in a number of spalled faces to the bricks, particularly to the north elevation of the northern-most porch. Adjoining the northern most porch there is a substantial tree which needs to be removed to avoid displacement of the building structure.

4.6.3 Interior

Internally this building is in very poor condition. The reinforced concrete roof structure comprises two sections of reinforced concrete roof slab on down stand beams which span on to a central longitudinal beam supported on reinforced concrete columns. The columns divide the building into eight bays running east to west. There is significant water ingress throughout the building, the underside of the slab and each of the down stand beams are extremely wet, this is resulting in corrosion inevitably in the reinforcing bars and there is significant iron staining. There are now significant sections of spalling to the underside of the down stand beams, this needs to be addressed as a matter of urgency, if there is not to be a significant risk of localized collapse.

The walls of the building exhibit the longitudinal, diagonal cracking associated with the distortion in the roof slab, however, the most significant area of distress is that to the south western most corner of the building, where there is a section of wall which has clearly moved outwards at least 20mm adjacent to the wall head. This extends down and cuts across the first of six buttresses around the perimeter of the building, which provide support to the outer walls. The displacement of this area is of significant concern and needs to be addressed as a matter of urgency.

The walls generally are finished in cementitious plaster/render and retain a significant amount of their original war time paint finish and shift lettering to the east and west. The floor is covered in debris and organic build up and the floor slab is absolutely saturated. There was also a significant amount of standing water at the time of survey. In a number of locations where the floor slab is exposed it is evident that there was a linoleum floor which is crazed and lifting where it still remains in situ.

The porches are divided from the primary space with a timber threshold. They are generally significantly drier than the main space, however, there is still water ingress, especially where the porches abut the primary building. Water is penetrating though the roof slabs and adjoining the main flashings. The walls still however retain a significant amount of their original paint finish, which is a grey, with the areas for the fire extinguishers white with a red border. The plaster is crazing and this will be lost if action is not taken in the near future.

Fig. 083 Building 111 Painting and Packing Building

Fig. 084 Building 111 Painting and Packing Building