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Chance Brothers Glassworks,
Smethwick, West Midlands
Historic Building Record
Buildings A, B, D, E & K

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Former Chance Brothers Glassworks,

Spon Lane, Smethwick, West Midlands

Historic Building Recording

BUILDINGS A, B, D, E and K

by

Ric Tyler AIFA
(Birmingham Archaeology)

For further information please contact:
Alex Jones (Director)
Birmingham Archaeology
The University of Birmingham
Edgbaston
Birmingham B15 2TT
Tel: 0121 414 5513
Fax: 0121 414 5516
E-Mail: bham-arch@bham.ac.uk
Web Address: http://www.arch-ant.bham.ac.uk/bufau/

FORMER CHANCE BROTHERS GLASSWORKS, SPON LANE, SMETHWICK, WESTMIDLANDS

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SUMMARY

Birmingham Archaeology undertook a programme of historic building recording in July – September 2007 at the former Chance Brothers Glassworks, Spon Lane, Smethwick West Midlands, in advance of limited demolition and refurbishment works associated with the redevelopment of the site.

The Spon Lane glassworks traces its origins to the formation of the British Crown Glass Company in 1814. Sold to Robert Lucas Chance in 1822, it began trading as Chance Brothers and Company in 1836. Immediately upon acquiring the company, Chance began to expand the operation, specialising in fields such as coloured glass, and developed alternative techniques, including the innovative cylinder methods of sheet glass production, imported from the continent. The company went on to attain a position of prominence within the British glass manufacturing industry, becoming the largest crown and sheet glass manufactory in England by 1851 when it famously supplied the glass for Paxton's Crystal Palace at the Great Exhibition.

Recording work extended to seven listed structures on the site, all of which relate to the expansion of the glassworks in the 1830-50s when Chance's attained their position of prominence. Additional recording work was commissioned to cover a series of tunnels located beneath the present access road and the basal remains of a regenerative furnace preserved beneath the current hard-standing of the site. The current report covers Buildings A, B, D, E and K. Buildings L, C and a series of tunnels to the north of Buildings A and B having been previously reported.

The earliest recorded structure, Building K, represents a composite block standing to seven storeys and comprising two principal phases of construction, the earlier, northern range dating to the later 1830s with the western range being added, possibly in two phases, c.10-15 years later. Buildings D and E, two long, rectangular ranges of three storeys fronting onto the NML canal, date to between 1841 and 1858 contemporary with Building C to the east, and were possibly originally used for clay pot manufacture and storage. Buildings A and B represent two of the latest recorded structures on the site, being constructed on the NML canal embankment at the eastern end of the site boundary between 1858 and 1885.

FORMER CHANCE BROTHERS GLASSWORKS, SPON LANE, SMETHWICK, WESTMIDLANDS

Historic Building Recording

Buildings A, B, D, E and K

1 INTRODUCTION

1.1 Background to the Project

1.1.1 Birmingham Archaeology was commissioned by Templegate Land and Commercial Property Consultants of Edgbaston, Birmingham to undertake a programme of historic building recording at the former Chance Brothers Glassworks, Spon Lane, Smethwick, West Midlands. The recording was undertaken in advance of limited demolition and refurbishment works associated with the redevelopment of the site.

1.1.2 A total of seven buildings (A, B, C, D, E, K and L) and associated features have been recorded as part of the project, all of which are Grade II Statutory Listed Buildings. This report presents the results of the study of Buildings A, B, D, E and K; Buildings L and C (with a related furnace base) and a series of tunnels associated with Buildings A and B have been previously reported (Tyler 2007 a, c and b respectively).

1.2 Site Location and Designations

1.2.1 The site of the former Chance Brothers North Glassworks is located approximately 2 km north-west of Smethwick town centre and 7 km north-west of the city-centre of Birmingham (centred on NGR: SP 0040 8975; Figure 1).

1.2.2 The site is bounded to the west and north by the Brindley's Old Main Line (OML) canal (Wolverhampton Level) of 1768-69 and to the south by Thomas Telford's New Main Line (NML) canal (Birmingham Level) of 1829-30. To the south, the canal frontage of the site extends eastwards as far as Spon Lane (A4031) while north of Palace Drive, the site is bounded by a series of modern light industrial buildings and car parking fronting onto Spon Lane. These latter structures encroach onto the eastern side of the Chance Brothers site, which formerly extended as far as Spon Lane. The site is entered off Spon Lane to the east via Palace Drive and an access road which descends parallel to the NML canal.

1.2.3 The site includes seven Grade II Listed Buildings (Buildings A - E, K and L: Figure 2) all of which are also included on the Black Country Sites and Monuments Record (Statutory List entries are included below as Appendix A). In addition, they lie within the Smethwick Summit / Galton Valley Conservation Area (DSD184) and form a part of a Scheduled Ancient Monument (DSD195, MBL3153). A large proportion of the 19th-century industrial buildings were removed in the 1940's, and, since closure of the site in 1981, the majority of the above ground structures on the site have been cleared, the remainder comprising concrete slab and areas of hard standing.

1.3 Aims and Objectives

1.3.1 The principal objective of the project, as stated in the Written Scheme of Investigation (Birmingham Archaeology, 2007; Appendix B), was to make 'a detailed record of the structures

in accordance with best practice' taking into consideration 'it's historical development, typology, spatial layout technology and function'.

1.3.2 The Historic Building Record has been made in accordance with by English Heritage's '*Understanding Historic Buildings; A Guide to Good Recording Practice*' (EH, 2006) and with guidelines laid out in the Institute of Field Archaeologists '*Standards and Procedures for Historic Building Recording*' (IFA, 2004).

2 METHODOLOGY

2.1 The Written Record

2.1.1 A written record of the Buildings was made, externally on an elevation-by-elevation and internally on a room-by-room basis, using *pro-forma* building and room recording sheets.

2.2 The Drawn Record

2.2.1 The drawn survey comprised the verification and annotation of pre-existing measured elevation drawings in addition to the generation of plan and sectional drawings at an appropriate scale (1:100 for plans, 1:50/1:20 for sections) to illustrate the horizontal and vertical relationships within and between the buildings as required.

2.3 The Photographic Record

2.3.1 The photographic survey comprised monochrome print accompanied by high-resolution digital photography. Where possible, photographs included a graduated photographic scale. Details of photographs were recorded on *pro forma* index sheets, and included location, subject and orientation.

2.4 Documentary Research

2.4.1 No programme of documentary research was commissioned as part of the current study, however a rapid regression analysis of readily available historic Ordnance Survey 1:2500 maps has served to put the tunnels within the general context of the development of the glassworks as a whole (see §.5.6 below). It is understood that the Chance Brothers archive, now amalgamated into the Pilkingtons archive, may contain a considerable amount of significant information relating to the history and development of the Spon Lane site (Upson, 2004, §.2.1.8-2.1.10).

3 HISTORICAL BACKGROUND

3.1 The Spon Lane Works and Chance Brothers

3.1.1 The Spon Lane glassworks traces its origins to the formation of the British Crown Glass Company by Thomas Shutt and the works he established on the site on the south side of the OML canal in 1814. This works was sold in 1822 by Joseph Stock and Thomas and Philip Palmer, two of the original partners, to Robert Lucas Chance. Chance ran the company under its original name with his brother William and with John Hartley. On the death of Hartley and following the departure from the firm of his two sons, the works began trading as Chance Brothers and Company in 1836.

3.1.2 Immediately upon acquiring the company, Chance began to expand the operation, specialising in fields such as coloured glass, and developed alternative techniques, including the innovative cylinder methods of sheet glass production, imported from the continent. From around 1850, Chance's began to develop lighthouse glass and a subsidiary company, Chance's Lighthouse Works was established in the south works (south of the NML canal) producing not only lenses but also related lighthouse apparatus including lanterns and revolving carriages.

3.1.3 The company went on to attain a position of prominence within the British glass manufacturing industry, becoming the largest crown and sheet glass manufactory in England by 1851 when it famously supplied the glass for Paxton's Crystal Palace at the Great Exhibition.

3.1.4 Pilkington Brothers of St. Helens acquired a sizeable interest in Chance's in 1936, eventually taking over control of the company in 1955. Glass production at the Spon Lane works ceased in 1976 and the remainder of the site was closed in 1981.

3.1.5 As stated above (§.2.4.1), it is beyond the scope of the current project to undertake research into the origins and development of the Chance Brothers company and their activities at the Spon Lane site. A brief overview of the company's development is given in Upson (2004), while a number of unpublished articles and theses (eg. Chance 1979) have described the firm of Chance Brothers and their operations at Spon Lane in some detail. However, no detailed study has yet been undertaken of the development of the Spon Lane site and its operations and it is understood that the Chance Brothers archive, now amalgamated with the Pilkington archive, may contain a considerable amount of significant information in this respect (Upson, 2004, §.2.1.8-2.1.10).

4 BUILDING DESCRIPTIONS

4.1 Building A

4.1.1 Building A is located to the eastern end of the southern site boundary, on the southern side of the entrance road and terraced into the northern embankment of the NML canal (Figure 2; Plates 2 and 4) and is centred on NGR SP 0060 8971.

4.1.2 It is a high, single-storey, rectangular structure, of brick laid to English garden wall bond above a high brick revetment wall overlooking the NML canal to the south (Figure 15; Plate 13). The roof is slated and hipped to east and west (Figure 14).

4.1.3 The overall internal dimensions of the structure are 20.46m (E/W) x 11.18m (N/S) and it stands 11m tall from internal floor level to ridge. It is of six bays (here numbered 1-6 from east to west; Figure 13) defined by five queen-post trusses with jig and cottered stirrups (Figure 15). The hipped end bays are supported on two half-trusses (Plate 12). The roof is carried on three tiers of trenched timber purlins supported by timber cleats.

4.1.4 The building is accessed via a wide, inserted doorway in the west wall (Plate 6), approached via a short ramp. A blocked doorway in the eastern end of the north wall (Plate 10) formerly gave access to the barrel-vaulted tunnel which runs the full length of the building, linking up with a further tunnel to the north of Building B.[1] Two further blocked doors and a blocked window in

[1] The series of tunnels to the north of Buildings A and B has been previously reported on (Tyler 2007b).

the east wall (Figure 13; Plates 9 & 11) indicate that this range of buildings formerly extended further to the east (see below).

4.2 Building B

4.2.1 Building B is located to the eastern end of the southern site boundary, on the southern side of the entrance road and terraced into the northern embankment of the NML canal, immediately west of Building A (Figure 2; Plates 2 and 4).

4.2.2 The structure is generally similar to Building A, comprising a high, single-storey, rectangular structure, of brick laid to English garden wall bond above a high brick revetment wall overlooking the NML canal to the south (Figure 18). The roof is again slated and hipped to both east and west (Figure 17).

4.2.3 The overall dimensions of the structure are 20.66m (E/W) x 10.9m (N/S) and it stands 11.2m tall from internal floor level to ridge. It is of six bays (here numbered 1-6 from east to west; Figure 16) defined by five queen-post trusses with jig and cottered stirrups (Plate 21). The hipped end bays are supported on two half-trusses, the roof being carried on three tiers of trenched timber purlins supported by timber cleats.

4.2.4 The southern, canal elevation includes four tall segmental-headed openings, blocked in brick and split vertically (Figure 17a; Plate 4) suggesting they originally lit separate floor levels internally. The eastern elevation also suggests two original interior storeys, with three regularly spaced, segmental-headed window openings at high level, the central opening having been truncated and blocked when the ground level doorway was extended upwards (Figure 17c; Plate 16). The western elevation has been significantly modified with a large inserted opening to the north, though superimposed doorways to the south (Figure 17d; Plate 17) again imply an original two-storey internal division.

4.2.5 Internally, the building forms a single, high space, though at ground floor level the southern half of the building is partitioned off with concrete and brick constructed walls to form a series of electricity transformer and plant rooms (Figures 16a & 18, Plate 19). As outlined above, this layout may reflect an original two-storey division, though the introduction of the secondary walls has obscured any earlier arrangements.

4.3 Building D

4.3.1 Building D is a three-storey, rectangular structure aligned approximately east-west along the northern embankment of the NML canal, located immediately west of Hartley Bridge (Figure 2, Plate 22), and is centred on NGR. SP 0043 8975. It has maximum exterior dimensions of 51.5m long (E/W) by 9.65m wide (N/S); it is of 15 bays, here numbered 1 to 15 from east to west. The range is terraced into the canal embankment such that the southern (canal) elevation is of three storeys above a battered brick plinth, while the northern elevation, facing the main site, is of two storeys (Figure 21). The range is brick-built in a mix of purple-red and blue-grey brick, being laid predominantly to English garden wall bond, though the lower part of the north elevation (Level 2) is laid to English bond (Figure 20a). The tiled roof is gabled to the east and hipped to the west.

Level 1 (Figure 19a)

4.3.2 The lower level (level 1) of the range comprises a single open space, standing 2.25m tall from the timber floor to the underside of the lath and plaster ceiling (Plate 25). There is no primary internal access to the lower level from the upper levels of the range, and the sole access would appear to have originally been via a passage and straight stair, descending at Bay 5 from the series of former buildings located to the north and illustrated in historic plans. The fenestration of the south wall is uniform with each bay (save Bay 9) having a rectangular window opening with flat soffit (segmental arch externally) and perpendicular reveals, housing two-light timber casements. A small vent is located at floor level below each window. Bay 9 displays a wide (3.35m, 11ft) doorway with semi-circular brick, double-header arch, blocked in brick (Plate 29). This archway is mirrored by a similar blocked opening within Bay 9 of the north wall (Plate 28). A further, rectangular doorway within Bay 5 of the north wall formerly gave access to the lower level of the range from within the buildings to the north, possibly serving a furnace base similar to that recorded to the north of Building C (see Upson 2004, fig. 14). The lower section of the north wall is slightly battered to both east and west. The west wall includes a single, semi-circular arched doorway, blocked in brick (Plate 27), offset slightly to the south of centre while to the east, a flat-headed doorway with iron lintel, blocked in sandstone blocks, is offset slightly to the north. The principal joists of the ceiling structure are embedded in the brickwork of the north and south walls; to the south, additional support is provided by 1.35m long projecting iron brackets. Each beam is supported mid-span by a circular-section cast-iron column (head-plate detail A1; Figure 36), identical to those within Building E and Building K. The southern end of each principal beam has a softwood block attached, with paired pully wheels forming two lines running the full length of the range (Plate 31). The function of these remains unclear.

4.3.3 The floor comprises 9 in. wide softwood boards aligned north-south, supported on east-west aligned joists (7 in. x 3 in. @ 18 in. centres) which rest upon low brick sleeper walls. The derelict nature of the flooring towards the west end of the range revealed that the iron columns terminate in square section base-plates, set upon brick pads some 0.5m below floor level (Plate 30).

Level 2 (Figure 19b)

4.3.4 The middle level (Level 2) of the range formerly comprised a single open space (Plate 32), though Bays 1 and 2 have subsequently been partitioned off and a raised floor level introduced at the eastern end of the building (Plate 33). It is accessed from the yard to the north via doorways within Bays 4, 5 and 11; there is no primary internal access to Level 1 below. The south wall displays regular fenestration of one segmental-arched opening per bay, set high in the wall with splayed reveals and sloping cills. The northern wall displays a similar pattern of fenestration, though many of the windows have here been blocked (see Figure 20a) and Bay 1 is unlit to this elevation. Openings within Bays 5 and 11 have been converted to form doors, while a further doorway within Bay 4 appears to be primary. The principal joists of the ceiling structure are embedded in the brickwork of the north and south walls, each being supported mid-span by a circular-section cast-iron column (Plate 34) identical to those recorded at Level 1.

Level 3 (Figure 19c)

4.3.5 The upper level (Level 3) of the range comprises a single open space (Plate 39) and is accessed via a straight-flight stair against the east wall in Bay 1, rising from the raised floor level of Bays 1 and 2 at Level 2 (Plate 35/6); this stair is secondary and no original internal access between Levels 2 and 3 was identified. The south wall of the range, overlooking the NML canal is

regularly fenestrated with one window per bay with segmental brick heads and splayed reveals. The north wall is somewhat more complex (Figure 20a), with regular openings, one per bay, but including a number of doorways (now blocked) within Bays 4 (Plate 37), 8, 9, 10 (Plate 38), 11 and 13, which must relate to former links with the (now demolished) structures to the north, visible on historic mapping (Figures 7-11). Paired openings within the west elevation have been infilled in brick (Plate 41).

4.3.6 The original flooring of level 3 comprises 11 in. (28cm) wide softwood boards, aligned north-south, supported on east-west aligned joists (11 in. x 3 in. / 28 cm x 7.5 cm @ 18 in. centres). Original flooring has been overlaid throughout by east-west aligned 6½ in. boards, while Bays 7-14 retain an additional 1 in. concrete screed surface. The floor of Bays 4-9 is heavily fire-damaged and has partially collapsed (see Plate 38).

4.3.7 The roof comprises 14 trusses of standard queen-post form with joggled queen posts, raking struts and gib-and-cottered iron stirrups strengthening the joint between queen-post and tie (Plate 40). Bay 15 has a central half, end-truss on the ridge line supporting the hipped roof. To the east, truss T1 has been infilled in brick, forming a gabled elevation, the line of which is slightly skewed from the axis of the truss.[2] Each tie retains four regularly spaced hangers, formerly serving to carry heating pipes (Figure 21, Plates 39-42); these hangers are matched by wall mounted brackets in the north and south walls (Plate 43).

4.4 Building E

4.4.1 Building E is a three-storey rectangular structure aligned approximately east-west along the northern embankment of the NML canal, to the west of Building D and centred on NGR. SP 0037 8977. It has maximum exterior dimensions of 41m long (E/W) by 9.65m wide (N/S); it is of 12 bays here numbered 1 to 12 from east to west. The range is terraced into the canal embankment such that the southern (canal) elevation is of three storeys above a battered brick plinth (English bond), while the northern elevation, as seen from the main site, is of two storeys. The building is brick-built, laid to English garden wall bond. The southern (canal) elevation displays regular fenestration at each level, comprising segmental-arched openings, one per bay, housing two-light timber casements, the windows at Level 1 being blocked internally in brick. The northern elevation lacks regular fenestration, though it includes superimposed doorways at Bay 3 and a doorway at Level 3 (Bay 2), formerly served by an exterior stair. Clear discolouration in the brickwork of the north elevation (Plates 44/5) indicates where the building formerly abutted a structure to the north. The elevation includes a stepped straight joint towards its west end.

Level 1

4.4.2 The lower level (Level 1) was infilled in the 1960s (R Drury, *pers. comm*.) and a new concrete screed floor laid at the level of the main site (Level 2; Figure 24). The brick infilling of the lower level windows can be observed from the canal tow-path.

Level 2 (Figure 22a)

4.4.3 The middle level (Level 2) comprises a single open space (Plate 48). The floor of the range is of solid concrete ceiling Level 1, which was backfilled in the 1960s. It is accessed from the

[2] Historic mapping appears to indicate that Building D and Building C to the east at one time formed a continuous range.

yard level to the north via doorways within Bays 3 and 10. The southern elevation displays regular fenestration of segmental headed window, one per bay with splayed reveals and gently sloping cills; the northern elevation is free of fenestration due to the fact that it was originally built up against a pre-existing structure to the north. Single doorways are located within the eastern and western walls (Plates 50 and 49 respectively); the eastern door retains an original segmental head while that to the west has an inserted, flat concrete lintel. The principal joists of the ceiling structure are embedded in the brickwork of the north and south walls, each being supported mid-span by a circular-section cast-iron column identical to those recorded within Building D.

Level 3 (Figure 22b)

4.4.4 The upper level (Level 3) comprises a single open space (Plate 51). It has no primary internal means of access from Level 2, communication between the levels formerly being at Bay 2 by means of an external stair, the scar of which is visible within the exterior elevation at Bay 1 (Figure 23a; Plate 46). A wide doorway with segmental arch at Bay 3 (N) appears original; the eastern and western walls are featureless. The floor of level 3 comprises 7 in. softwood boards aligned north-south resting on east-west aligned joists (11 in. x 3 in. @ 18 in. centres) which span between principal beams aligned on the line of the bay divisions. A hatch is located within Bay 12, while adjacent to the doorway in the north wall of Bay 3 is a *c.*2 m square opening with sliding cover (Plate 52), set below a hoist wheel supported at tie level.

4.4.5 The roof is of 12 bays demarcated by 11 queen-post trusses of standard form with joggled queen-posts, raking struts and gib-and-cottered iron stirrups strengthening the joint between queen-post and tie (Plate 53). Hooked hangers survive only in places (see Plate 54), though an original arrangement matching that within Building D (see §.4.3.8) is implied by surviving 'ghosts' of bracket attachments on the tie beams. Bays 1 and 12 have single end, half-trusses aligned on the axis of the hipped roof.

4.5 Building K[3]

4.5.1 Building K is a composite structure of more than one phase of construction, located to the eastern side of the site, north of the main office range (Building L). Reference to historic maps indicates that the structure originally fronted onto the eastern side of an open route extending northwards from the canal bridge, though this arrangement has since been lost with the demolition of the associated structures to the west. The building comprises two principal ranges, a north range of 10 bays (here numbered 1 to 10 from east to west), aligned east-west and a west range of 6 bays (1 to 6 from north to south), aligned north-south, which abuts the southern side of the former at its western end to form an 'L' shaped plan. The west range doubles in width at the north end with a rectangular projecting block at the east side of Bays 1 to 3, set within the angle of the two main ranges; details of construction indicate that the eastwards projection and main north-south range are contemporary. Together with Building L to the south, they enclose an irregular rectangular yard. Both ranges are brick-built and extend to seven storeys.

[3] The continued use of Building K for mixed storage, workshop and residential purposes has significantly restricted the level of record possible for this structure. A number of areas were not accessible at the time of fieldwork (see Figures 25-27 & 29), while physical and visual access to several other areas was severely constrained due to volumes of stored materials and accumulated debris (see Plates 63 and 65). The principal exterior elevations were partially obscured by scaffolding and large advertising hoardings.

Exterior Elevations

4.5.2 The west elevation is brick built and stands to seven full storeys (Figure 33; Plate 55). To the south, the side elevation of the west range is of 6 bays (here numbered 1 to 6 from north to south), regularly fenestrated with rectangular, segmental-headed windows, one per bay to Levels 2 – 7. At Level 1, each bay includes a single width doorway (adaptions of original window openings) save for Bay 1, the full width of which is occupied by a wide entranceway with glazed, semi-circular light with an arched head of three header courses at Level 2, which gives onto the raised yard to the east (Figure 34). An original door with rounded, bull-nose brick jambs at Bay 2 gives access via a straight-flight stair to Level 2 internally. The brickwork of the elevation is of purple/grey brick laid to English bond at Levels 1 - 5, though this changes to English garden wall bond at Level 6 and again to Flemish stretcher bond at Level 7. The upper courses of brickwork have been rebuilt and Level 7 window heads changed contemporary with the renewal of the roof structure (see §.4.5.20). To the north, the west range plainly abuts the north range in a clear straight joint, which extends to the full height of the building from Level 2 to Level 7 (Plates 56 and 57 respectively).

4.5.3 The gable end of the north range is also of seven storeys, brick-built and maintains the pattern of brick bonds recorded within the west range. Single windows to each level are located centrally within the elevation, each representing an adapted doorway, evidenced by areas of patching below cill level. These doors originally served a small block abutting the west elevation of the range and linking through to a structure formerly located to the north (since demolished). This linking block is first evident on the Ordnance Survey edition of 1904 (Figure 9) and survived until at least 1958 (Figure 12); it is represented in the fabric of the standing structure by an area of whitewash/paint adhering to the full height of the northern side of the gable elevation (Plate 55). At Level 1, a central doorway gives onto the semi-basement of the range while, at mezzanine level between Levels 1 and 2, a steel loading deck with metal doors open from the interior lift shaft (Figure 33). The elevation is capped by a central timber cupola and, to the north, housing for lift gear.

4.5.4 The north elevation (Figure 32) comprises the long elevation of the north range. It is of 10 bays, of brick construction extending to 7 storeys below a shallow pitched roof (replaced), hipped to east and west. The pattern of brickwork bonds matched that recorded within the west range, with English bond to the lower 5 storeys, English garden wall to Level 6 and Flemish stretcher bond to Level 7. Regular fenestration at each level comprises rectangular openings to each of Bays 2 to 9, save Bay 2 at Levels 1 and 3, which are blank. All windows at Levels 5 and 6 retain their original, segmental brick-arched heads, those at Level 7 have been remade contemporary with the reproofing of the range (see §.4.5.20), while windows to the lower levels (2 to 4) have mostly been enlarged and furnished with replacement, flat concrete lintels; the opening at Level 2, Bay 9 being the only example to retain its original segmental head. Level 1 includes single doorways to each bay, only Bay 7 remains intact, those to Bays 3 to 5 having been partially blocked to form windows, that at Bay 8 being fully blocked and that at Bay 9 having been widened to form a lower, double-width doorway below an inserted steel lintel.

4.5.5 The yard elevation of the north range reflects the arrangements of the north elevation, with enlarged fenestration at Levels 2 to 4. Bays 7 to 10 are obscured at Levels 3 to 7 by the abutting west range, Level 1 and the eastern half of Level 2 being open, forming the transverse entrance passageway serving the enclosed yard (Figure 34).

4.5.6 The yard elevation of the west range comprises Bays 1 to 3 of the eastern projection (Plate 58) and a single bay (Bay 4) of the reduced width range. Fenestration is again of segmental arched

openings to the upper storeys (levels 5 to 7) with enlarged openings below. The upper courses of brickwork can again be seen to have been rebuilt and the Level 7 windows adapted, contemporary with the replacement of the roof. A brick built stair, introduced in the (?)1960s is appended to, and obscures, the east elevation of the range at Bay 5/6.

The Interior

4.5.7 The overall layout of Building K is essentially similar at each level, comprising single open workshop spaces (in part sub-divided by inserted partitions), with the exception of Levels 1 and 2 where arrangements vary to accommodate the transverse passageway within Bay 1 of the west range. Communication between floor levels is via internal timber stairs located to Bays 1 and 10 of the north range (Plate 69), via a mechanical lift located in the north half of Bay 10 of the north range and via an external fire-escape stair accessed from Bay 6 of the north range and Bay 1 of the west range, eastern projection (Plate 58). Primary communication exists only between levels 2, 3 and 4 of the west range by a timber stair within Bay 1; the stair appended to the east face of the range at Bays 5/6 being a secondary introduction of *c*.(?)1960. Access to the upper levels of the west range is thus only by way of the northern range. Communication between the north and west ranges at each level is via single doorways, converted from former window openings in the south elevation of the north range, located within Bay 9 at Levels 4 to 7 and within Bay 7 at Level 3. There is no direct communication between the ranges at Levels 1 and 2.

Level 1 (Figure 25)

4.5.8 Level 1 of the west range and Bays 1 to 7 of the north range were not accessible at the time of fieldwork. Within Bays 8 to 10, the north range was subdivided by brick constructed walls to form a series of plant rooms with the bottom level of the lift-shaft occupying the northern part of Bay 10. The central supporting columns of the range were encased in concrete with the exception of Bay1/2, where an original, circular section cast-iron post (head-plate detail B; see Figure 36) supported the transverse timber ceiling beam mid-span.

Level 2 (Figure 26)

4.5.9 At Level 2, the north range essentially comprises a single open space with an inserted partition at Bay 8/9. Fenestration of the north elevation is of rectangular window openings with splayed reveals with the exception of Bay 9, which retains an original opening with rounded bull-nose jambs. Fenestration of the south elevation is likewise of modified type with splayed reveals; an original doorway within Bay 9 opens onto the circulation space over the transverse passageway while a further blocked door within Bay 7 suggests that the full length of the passage was originally floored over at this level. Doorways within Bays 2 (blocked) and 1 open onto the enclosed yard to the south. Within the west elevation, a window has been inserted into a former doorway opening. The ceiling structure of the north range has been strengthened; the original, circular section cast-iron posts have been removed (save Bay 9/10) and replaced by substantial steel stanchions, with steel RSJs inserted to either side of the original, transverse timber beams (Plates 63/7); a single, mid-span cast-iron post survives to the western end of the range (head-plate detail B; see Figure 36).

4.5.10 Level 2 of the west range is accessed via a straight-flight stair rising from the exterior at Bay 2 to a small lobby. A doorway in the north wall gives onto a circulation space above the transverse passageway in Bay 1, with stair rising to Level 3 (Plate 68) and a door leading out to an open timber ramp which descends against the south wall of the north range to the level of the

yard to the west (Plate 61). The eastern projection occupies only Bays 2 and 3 at this level. Only Bay 1of the range was accessible at the time of survey, the remainder having been partitioned off and currently used for private accommodation.

Level 3 (Figure 27)

4.5.11 At Level 3, the north range again comprises a single open space, here partitioned at Bay 8/9 (?original). Fenestration of the northern and southern elevations is mostly of modified, rectangular window openings with splayed reveals and flat heads. Blocked windows within Bays 8 and 9, and a doorway connecting through to the west range at Bay 7 display original detailing of perpendicular, rounded jambs of bull-nose brick (the eastern jamb of the window in Bay 2 also retains this original detail). Within the west elevation, a window has been inserted into a former doorway opening. The ceiling structure of the north range has again been strengthened; the original, circular section cast-iron posts have been removed (save Bay 9/10) and replaced by substantial steel stanchions, with steel RSJs inserted to either side of the original, transverse timber beams; a single, mid-span cast-iron post again survives to the western end of the range.

4.5.12 Level 3 of the west range is accessed from Level 2 via a straight-flight stair rising against the south elevation of the north range and cuts across a blocked window/door in Bay 9 of the latter structure (Figure 34). The range is of 6 bays, the northern 3 of which are double width, occupying the full area of the eastern projection at this level. The range formerly comprised an open space but has subsequently been subdivided to include a series of small offices. Fenestration of the west elevation is of rectangular openings with straight, perpendicular jambs, to the east jambs are splayed. A window within Bay 4 (W) has been converted to a door serving the secondary, external stair, which descends against the outside of the range to Level 2 of Building L to the south. The ceiling structure of the west range is original, with transverse timber beams on the line of the bay divisions supported to east and west by projecting iron brackets embedded within the brickwork of the walls and mid-span by circular section cast-iron posts with head-plate detail A1 (Figure 36). The ceiling of the eastern projection is carried by a single north-south aligned joist supported by two cast-iron columns; further cast-iron posts define the western side of the projection, here the variant head-plate detail (A2, Figure 36) is used to accommodate the junction of the transverse beams of the range proper and the axial beam which defines the boundary between the range and the projection. Bays 2 and 3 of the eastern projection, subdivided to form office accommodation, were not accessible at the time of fieldwork.

Level 4 (Figure 28)

4.5.13 At Level 4, the north range corresponds essentially to the lower levels previously described. The range is partitioned at Bay 8/9, the western bays containing stairs, lift and a small office within Bay 9; the remainder of the range comprises a single open space. Fenestration is of modified form throughout, with splayed reveals and flat concrete lintels, though original detailing of rounded bull-nose jambs is preserved in two blocked windows within Bays 7 and 8 (south) and in the connecting door to the west range at Bay 9, converted from a former window opening. The ceiling structure of the north range has again been strengthened; the original, circular section cast-iron posts have been removed (save at Bay 9/10) and replaced by substantial steel stanchions, with steel RSJs inserted to either side of the original, transverse timber beams; a single, mid-span cast-iron post again survives to the western end of the range.

4.5.14 Level 4 of the west range is accessed from Level 3 via a straight-flight stair, again rising against the south elevation of the north range and cutting across a blocked window in Bay 8 of the latter structure (Figure 34). The range is of 6 bays, the northern 3 of which are double width, again occupying the full area of the eastern projection. As at Level 3, the range formerly comprised an open space but has subsequently been subdivided to include a series of small offices. Fenestration is mixed with a combination of perpendicular and splayed reveals; blocked windows in the east wall of Bays 5 and 6 correspond to the location of the secondary (1960s) external stair. The ceiling structure of the west range is original, as recorded elsewhere (see §.4.5.12) with iron brackets to the exterior walls and mid-span, circular section cast-iron posts (head-plate detail A1, Figure 36). The ceiling of the eastern projection is also as recorded elsewhere comprising a single north-south aligned joist supported by cast-iron posts.. Beaded tongue and groove wall cladding, possibly original, though extending onto the splayed reveals of the window openings[4], survives in parts within Bay 6 at the southern end of the range.

Level 5 (Figure 29)

4.5.15 At Level 4, the north range corresponds essentially to the lower levels previously described, comprising a single open space. Fenestration at this level displays rounded, perpendicular jambs of bull-nose brick. Windows within Bays 7 and 8 (south) have been blocked at the time of the construction of the west range, while an original window within Bay 9 (south) has been adapted to form a doorway connecting through to the latter range. The ceiling structure of the north range has again been strengthened; the original, circular section cast-iron posts have been removed (save at Bay 9/10) and replaced by substantial steel stanchions, with steel RSJs inserted to either side of the original, transverse timber beams; a single, mid-span cast-iron post again survives to the western end of the range at Bay 9/10.

4.5.16 Level 5 of the west range was not accessible at the time of fieldwork. It is accessed from within the north range via a doorway in Bay 9 of the latter structure and via an external stair appended to Bays 5 and 6 in *c*.1960.

Level 6 (Figure 30)

4.5.17 At Level 6, the north range constitutes a single open space[5] (Plates 65), with the exception of partitioned off toilet facilities within Bays 1 and 2. All windows at Level 6 display straight jambs and perpendicular reveals with flat timber lintels (segmental arch to exterior). Communication with the west range is again via a doorway at Bay 9(S), formed from a former window opening and furnished with metal plated double fire-doors. Unlike Levels 2 to 5 described above, Level 6 retains its original ceiling structure formed of transverse timber beams on the line of the bay divisions, supported at the exterior walls by projecting iron brackets and at mid-span by circular section cast-iron posts (head-plate detail B, Figure 36).

4.5.18 The west range is essentially as at lower levels, comprising a single open space with a series of fairly recent ephemeral partitions related to recent usage. Fenestration at this level of regular rectangular window openings, one per bay to east and west, with flat timber lintels internally, segmental arches to the exterior; the windows display primary detailing of rounded jambs of bull-nose bricks and perpendicular reveals. The ceiling structure of the west range is original, as recorded elsewhere (§.4.5.12) with iron brackets to the exterior walls and mid-span, circular

[4] Splayed reveals to window openings have elsewhere been interpreted as secondary modifications.

[5] The north range contained much stored materials and accumulated debris at the time of fieldwork, negating meaningful recording (see Plate 65).

section cast-iron posts (head-plate detail A1, Figure 36). The ceiling of the eastern projection is also as recorded elsewhere comprising a single north-south aligned joist supported by cast-iron posts.

Level 7 (Figure 31)

4.5.19 At Level 7, both the north and west ranges again constitute large unencumbered spaces (Plates 71/2), again connected at Bay 9 of the north range (S) by a doorway formed from a former window opening, furnished with metal plated double fire-doors (Plate 70). All windows at Level 7 display straight jambs and perpendicular reveals with flat concrete lintels; two blocked windows within the south wall of the north range at Bays 7 and 8 are located where the range is abutted by the west range to the south.

4.5.20 The roofs of both ranges have been replaced, a process which entailed the renewal of the upper six courses of brickwork of the exterior walls (Plate 60). Both roofs comprise simple, lightweight steel trusses of double-fan form respecting the original bay divisions (Plates 71/2). It is unclear at what date the new roofs were introduced (1950s?), though it is possible that records of such a major undertaking would survive within the company archives.

5 DISCUSSION

5.1 Buildings A and B

5.1.1 Historic maps indicate that Buildings A and B represent two of the latest recorded structures on the site, being constructed between the time of the Board of Health Plan (1858; Figure 7) and the 1st Edition 25 inch map of 1885 (Figure 8). They are of similar dimensions and share common characteristics and are presumably contemporary. The buildings were originally linked by a series of infill structures, visible on historic mapping and evidenced by 'shadows' of former roof lines within the east and west elevations of Buildings B and A respectively (see Figures 14c & 17d; Plates 6 & 17). The 1885 Ordnance Survey edition (Figure 8) illustrates a small extension to Building A at the north-east corner, which accounts for the presence of a wide, arched opening in this location. The extension would appear to have become redundant by the time of the 1904 edition (Figure 9) on which it is not shown. The buildings have remained unused for a considerable period of time (R Drury, *pers. comm*.) and their original function remains unclear.

5.2 Buildings D and E

5.2.1 Analysis of historic maps indicates that Buildings D and E, together with Building C to the east, were constructed between the time of the 1841 Tithe Map (Figure 5) and the Board of Health Plan of 1858 (Figure 7), a period of rapid expansion of the Chance's site. It would appear that both ranges were originally built adjacent to or, in the case of Building E, abutting pre-existing structures, indicated on the earlier map. The 1858 map shows Building D separated from the adjacent block by a narrow passage; the adjacent block had been demolished and rebuilt on a different alignment by the time of the 1885 Ordnance Survey edition (Figure 8). By the time of the later Ordnance Survey editions, links between Building D and the new structure to the north are evident suggesting the former existence of footbridges at Level 3, which would account for the doorways (both blocked and open) recorded within the north elevation at this level.

5.2.2 Building E is shown to occupy a double-width plan on Ordnance Survey editions down to 1938, though it has been reduced to its current footprint by the time of the 1958 edition (Figure 12). This would account for the lack of primary window openings along the northern wall of Building E and the lack of internal access between levels, which was logically contained within the adjacent structure(s).

5.2.3 The survival of hooked hangers and wall mounted pipe brackets at Level 3 of both buildings indicates that the ranges were both formerly extensively heated. It is understood that Building F to the west was originally known as the 'clay shed' and that the south-west area of the manufactory complex may have been associated with the storage of raw materials for, and the manufacture of, clay pots (Upson 2004, §.2.4.17) in which the raw materials for glass were melted. In this context, it seems reasonable to suggest that the heating of ranges D and E may relate to the drying and/or storage of these pots.

5.3 Building K

5.3.1 Building K is clearly of two phases of construction, evidenced within the fabric of the structure by the straight joint between the west and north ranges, and the series of infilled windows within Bays 7 and 8 of the south wall of the north range where the western range abuts the earlier structure. Reference to early maps suggests that the northern range originated as a free-standing structure located to the north side of an east-west routeway, first seen on Jacob's 1828 survey (Figure 3) and traceable within the developed site on later maps. A building occupying the footprint of the north range is visible on the tithe map of 1841 (Figure 5) and may be represented by the schematic outline indicated in this location on the Birmingham Canal Company plan of 1837. The engraving of the manufactory of *c*.1857 (Figure 6) is interesting as it would appear to show only the north range of Building K standing at this date, though the Board of Health plan of 1858 clearly indicates the present plan layout including the west range, and suggests a passageway at Bay 1 of the latter structure, implying that it must have stood to at least two storeys at that date. As has previously been suggested (Upson 2004, §.5.2.3), it may be that the lower levels of the west range are contemporary with the north range, the upper storeys and being added at a later date. Such an interpretation is supported by the different detailing of the cast-iron column supports within the two ranges (Figure 36). It is of interest that the use of different brick bonds to different levels of Building K extends to both ranges, and thus to two different phases of construction; the reason for this variation could possibly arise from reasons of economy, from structural reasons related to relative loading of the walls at different levels or from a combination of the two; English bond, used in the lower levels, is a stronger bond structurally than either English garden wall or Flemish stretcher bond, but requires significantly more bricks.[6]

5.3.2 The variation of fenestration details within Building K suggests that extensive alteration has taken place in the past, with openings being enlarged and furnished with splayed internal reveals to maximise natural lighting to the interior. The survival of rounded, bull-nose jambs in parts, particularly in those openings blocked at an early stage at the time of the erection of the west range, would appear to suggest that this was the original arrangement throughout.

5.3.3 The strengthening of the lower levels of the north range, comprising the replacement of cast-iron posts with substantial steel stanchions and the reinforcement of the transverse timber ceiling beams with paired RSJs (Plate 67) may relate to modifications undertaken with the

[6] Aesthetic considerations may be discounted in an industrial building of such a height, where any change in bond would be indistinguishable from ground level.

introduction of a vertical lehr and the manufacture of 'updrawn sheet' glass within the building in the early part of the 20th century (R Drury, *pers. comm*.).

5.3.4 It is understood that in the later years of occupation, the upper levels of Building K were used for the cutting and packing of microscope slides, Level 5 for the processing of sheet glass (the work being undertaken at long work benches against the side of the range) and the lower levels for storage and office accommodation (R Drury, *pers.comm*.).

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 The buildings of the Chance Brothers factory are all Grade II Listed and are, as such, accepted to be of national importance and significance. Further, the structure lies within the Smethwick Summit /Galton Valley Conservation Area and has recently been designated as part of a Scheduled Ancient Monument. These designations highlight the importance of the surviving glassworks structures to the industrial heritage of the local area and wider region and to the heritage of the industrial revolution on a national scale.

6.2 The current project has allowed for as full a record as possible to be made of the buildings and features in their present state. The continued use of Building K has resulted in only limited recording being feasible and it is suggested that a further stage of photographic recording be undertaken within this building once accumulated debris and stored materials are removed.

7 ACKNOWLEDGEMENTS

7.1 The fieldwork was undertaken by Ric Tyler and was managed by Dr. Malcolm Hislop of Birmingham Archaeology. The current report was written and illustrated by Ric Tyler and edited by Dr. Malcolm Hislop.

7.2 Thanks are extended to Mr Ray Drury, former Chief Engineer at the Spon Lane works, for on-site discussions related to the functions of the existing buildings and the Spon Lane works as a whole.

8 REFERENCES

Birmingham Archaeology, 2007. 'Written Scheme of Investigation for Historic Building Recording at the former Chance Bros Glassworks, Smethwick, Sandwell, West Midlands'.

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English Heritage, 2006. *Understanding Historic Buildings: A Guide to Good Recording Practice*.

IFA 2001. *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures*.

Tyler R, 2007a. 'Chance Brothers Glassworks, Smethwick, West Midlands: Historic Building Recording: Building L, Interim Report.' Unpublished client report, Birmingham Archaeology report number 1648a.

Tyler R, 2007b. 'Chance Brothers Glassworks, Smethwick, West Midlands: Historic Building Recording: Tunnels between Buildings A and B, Interim Report.' Unpublished client report, Birmingham Archaeology report number 1648b.

Tyler R, 2007c. 'Chance Brothers Glassworks, Smethwick, West Midlands: Historic Building Recording: Building C and associated features.' Unpublished client report, Birmingham Archaeology report number 1648c.

Upson A, 2004. 'Chances Glassworks, Spon Lane, Smethwick, West Midlands: Conservation Statement and Environmental Impact Assessment'. Unpublished client report.

APPENDIX A : List Entries

Buildings A and B

SP 08 NW SANDWELL MB SPON LANE SOUTH
Smethwick

9/133

Two Warehouses, immediately east of Chance's Glassworks

21.7.78

GV

II.

Warehouses. Circa 1853. Brick with hipped slate roofs. Both adjoin the Birmingham Level of the Birmingham Canal and rise above the brick retaining wall of the canal cutting. Both are of similar dimensions and are linked by a low brick wall. The western warehouse has four tall blocked openings facing the canal, with segmental heads. The wall of the eastern warehouse is blank. Interior : bolted queen-post trusses.

Buildings D and E

SP 08 NW SANDWELL MB SPON LANE SOUTH
Smethwick

9/135

Double range of warehouses immediately west of Hartley Bridge, Chance's Glassworks

21.7.78

GV

II.

Warehouses. Circa 1840 - 52. Brick with hipped slate roofs. Built in two blocks linked by lower section which formerly housed a causting plant. South side, facing Birmingham Level of Birmingham Canal, of three storeys above battered brick base. The western (left hand) block is of 12 bays and has windows with segmental heads. The eastern block is of 15 bays. In the seventh bay there is a blocked opening with round head to the lower storey. The first floor window of the right hand bay is blocked. Hartley Bridge (qv) adjoins to the right. Interior: floor carried on timber beams with central row of cast iron columns. Roofs have bolted queen-post trusses.

Buildings K and L

SP 08 NW SANDWELL MB SPON LANE SOUTH
Smethwick

9/132

The seven-storey warehouse and offices at Chance's Glassworks

21.7.78

GV

II.

Warehouse and offices. 1847. Brick with hipped slate roofs. Main block of L-plan of seven storeys. West wall of six bays having windows with segmental heads. Left hand bay contains wide entrance with glazed round arch. At the left, in the end wall of the wing which runs back towards the east, is a further bay with windows within blocked doorways. Above this is a timber bellcote. Adjoining the south-west corner is a three-storey office with a bowed west end. This has windows with gauged brick heads. Interior: the west end of the office contains a two-storey hall with staircase leading off. The ground floor of the warehouse was used for packing and storage of glass and glassware, the second floor for splitting and cutting, and the upper floors for storing cylinders and crates.

APPENDIX B : Written Scheme of Investigation (WSI)

Written Scheme of Investigation for Historic Building Recording at the Former Chance Bros Glassworks, Smethwick, Sandwell, West Midlands

1.0 Introduction

This written scheme of investigation describes a programme of historic building recording to be carried out at the former Chance Bros Glassworks, Palace Drive, Smethwick. The former works is a Scheduled Ancient Monument and contains several listed buildings. Listed Building Consent has been obtained for the partial demolition of a the former office building, a grade II listed structure, subject to a Level 3 building record being made.

2.0 Site Location

The former Chance Glassworks is situated at the west end of Palace Drive, Smethwick, Sandwell, West Midlands, centred on NGR SP0052 8977. The building to be recorded is on the right-hand (north) side of the main gate to the site (Building L).

3.0 Objectives

The principal objective is to obtain a record of Building L equivalent to Level 3 as defined by English Heritage English Heritage in *Understanding Historic Buildings: a Guide to Good Recording Practice* (2006).

- To make a detailed record of the structure in accordance with current best practice. The record will consider its historical development, typology, spatial layout, technology and function.

- To create a detailed site archive and to deposit it with the Community History and Archives Service, Smethwick Library.

4.0 Methods

In general the work will be carried out with due regard to the advice offered by the Institute of Archaeologists (IFA 2001), and English Heritage (2006).

Drawn Record

The drawn record will be based on existing architectural drawings, where available, which will be checked for accuracy and annotated with archaeological detail. Where drawings do not exist they will be compiled by carrying out a new survey by REDM or laser scanner.

The drawings, which will be at a scale of 1:50, will comprise floor plans, elevations, and a north/south section.

Written Record

A written record of the building will be compiled in the field on *pro forma* building and room record sheets, noting details of building type, date(s), materials, plan, and elevations.

Photographic Record

The photographic survey will comprise both general and detail shots, and will be carried out using a 35mm camera with black and white film, and a high resolution digital camera (Nikon D50). All detail shots will include a scale. All photographs will be recorded on a *pro forma* record sheet detailing subject, direction, photographer and date.

5.0 Staffing & Standards

The project will be managed by Malcolm Hislop BA, PhD, MIFA, and the fieldwork will be supervised by one of our Historic Buildings Project Officers. All staff will be suitably qualified and experienced for their roles in the project.

6.0 Reporting

The results will be presented in an illustrated report in both bound and electronic format, which would include the following information:

- Non-technical summary.
- Site location
- Objectives
- Method
- Historical background and development
- Analytical building description
- Location plan of site
- Historic maps
- Sample of photographs including colour prints.
- Plans by period and area to aid interpretation.
- Appropriate appendices.

In addition, a summary report will be submitted for inclusion in *West Midlands Archaeology.*

7.0 General

All project staff will adhere to the Code of Conduct of the Institute of Field Archaeologists. The project will follow the requirements set down in the *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures* (Institute of Field Archaeologists 2001).

A detailed Risk Assessment will be prepared prior to the commencement of fieldwork. All current health and safety legislation, regulations and guidance will be complied with. The excavation will conform to the *Management of Health and Safety at Work Regulations 1992* and *Health & Safety in Field Archaeology Manual* (SCAUM 1991).

APPENDIX C : Sandwell MBC SMR Summary Sheet

Site name/Address: Chance Brothers Glassworks, Spon Lane, Smethwick	
Borough: Sandwell	***NGR:*** SP 0040 8975
*Type of Work:****Historic Building Record***	***Site Code****:* STCGP207
Archaeological Contractor: Birmingham Archaeology	***Date of Work:*** August 2007
Location of Finds/ Curating Museum: NA/ Sandwell Community History and Archives Service, Smethwick	
Title of Report: Chance Brothers Glassworks: Historic Building Record: Buildings A, B, D, E & K	
SUMMARY OF FIELDWORK RESULTS: A programme of historic building recording in July – September 2007 at the former Chance Brothers Glassworks, Spon Lane, Smethwick West Midlands, in advance of limited demolition and refurbishment works associated with the redevelopment of the site. The Spon Lane glassworks traces its origins to the formation of the British Crown Glass Company in 1814. Sold to Robert Lucas Chance in 1822, it began trading as Chance Brothers and Company in 1836. Immediately upon acquiring the company, Chance began to expand the operation, specialising in fields such as coloured glass, and developed alternative techniques, including the innovative cylinder methods of sheet glass production, imported from the continent. The company went on to attain a position of prominence within the British glass manufacturing industry, becoming the largest crown and sheet glass manufactory in England by 1851 when it famously supplied the glass for Paxton's Crystal Palace at the Great Exhibition. Recording work extended to seven listed structures on the site, all of which relate to the expansion of the glassworks in the 1830-50s when Chances attained their position of prominence. Additional recording work was commissioned to cover a series of tunnels located beneath the present access road and the basal remains of a regenerative furnace preserved beneath the current hard-standing of the site. The current report covers Buildings A, B, D, E and K. Buildings L, C and a series of tunnels to the north of Buildings A and B having been previously reported. The earliest recorded structure, Building K, represents a composite block standing to seven storeys and comprising two principal phases of construction, the earlier, northern range dating to the later 1830s with the western range being added, possibly in two phases, c.10-15 years later. Buildings D and E, two long, rectangular ranges of three storeys fronting onto the NML canal, date to between 1841 and 1858 contemporary with Building C to the east, and were possibly originally used for clay pot manufacture and storage. Buildings A and B represent two of the latest recorded structures on the site, being constructed on the NML canal embankment at the eastern end of the site boundary between 1858 and 1885.	
Author of Summary**:** R. Tyler	**Date of Summary:** *December 2007*

Figure 1: Site location plan

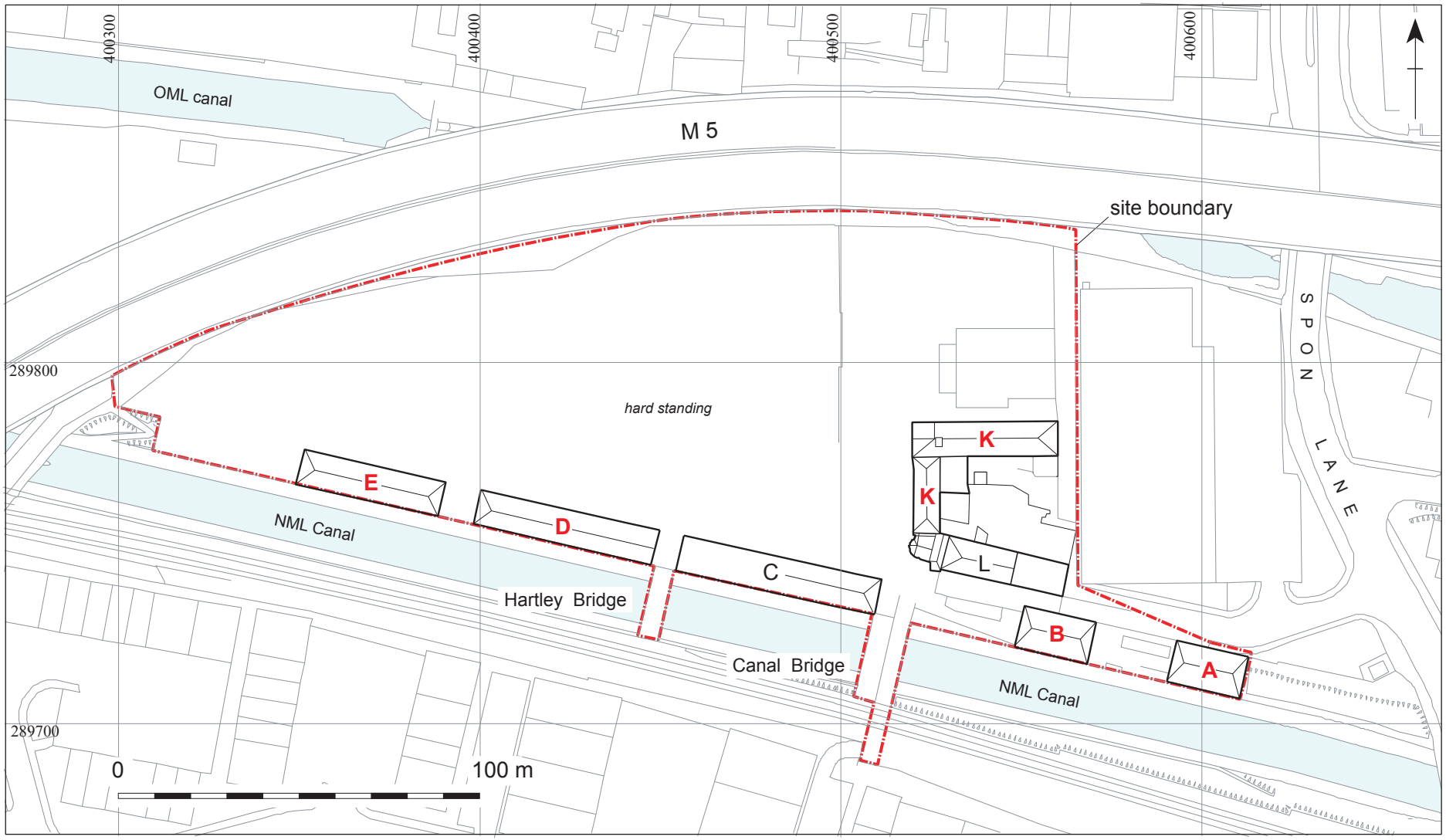


Figure 2: Site layout

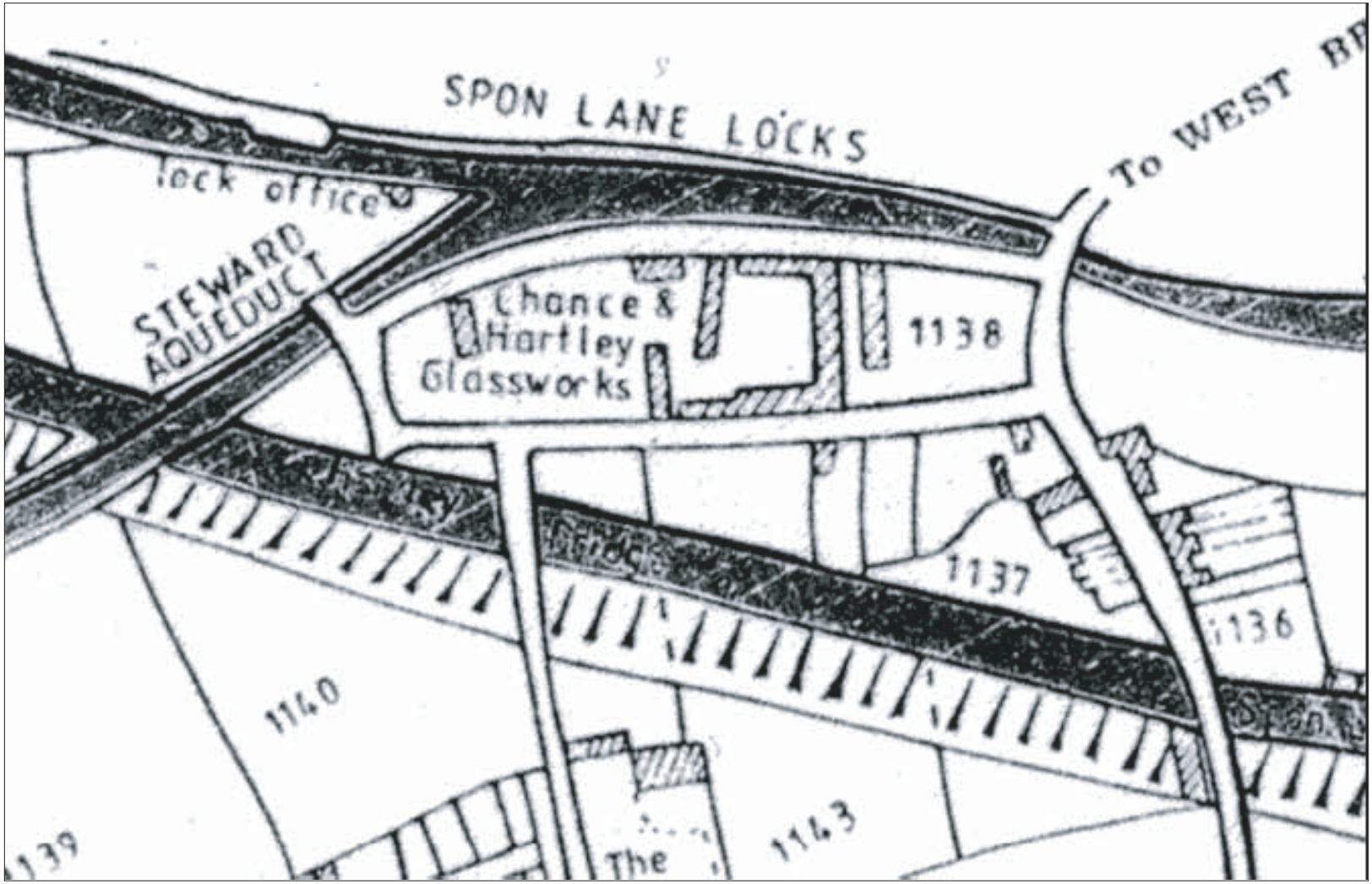


Figure 3: Henry Jacob's Survey of Birmingham 1828-30 (extract).

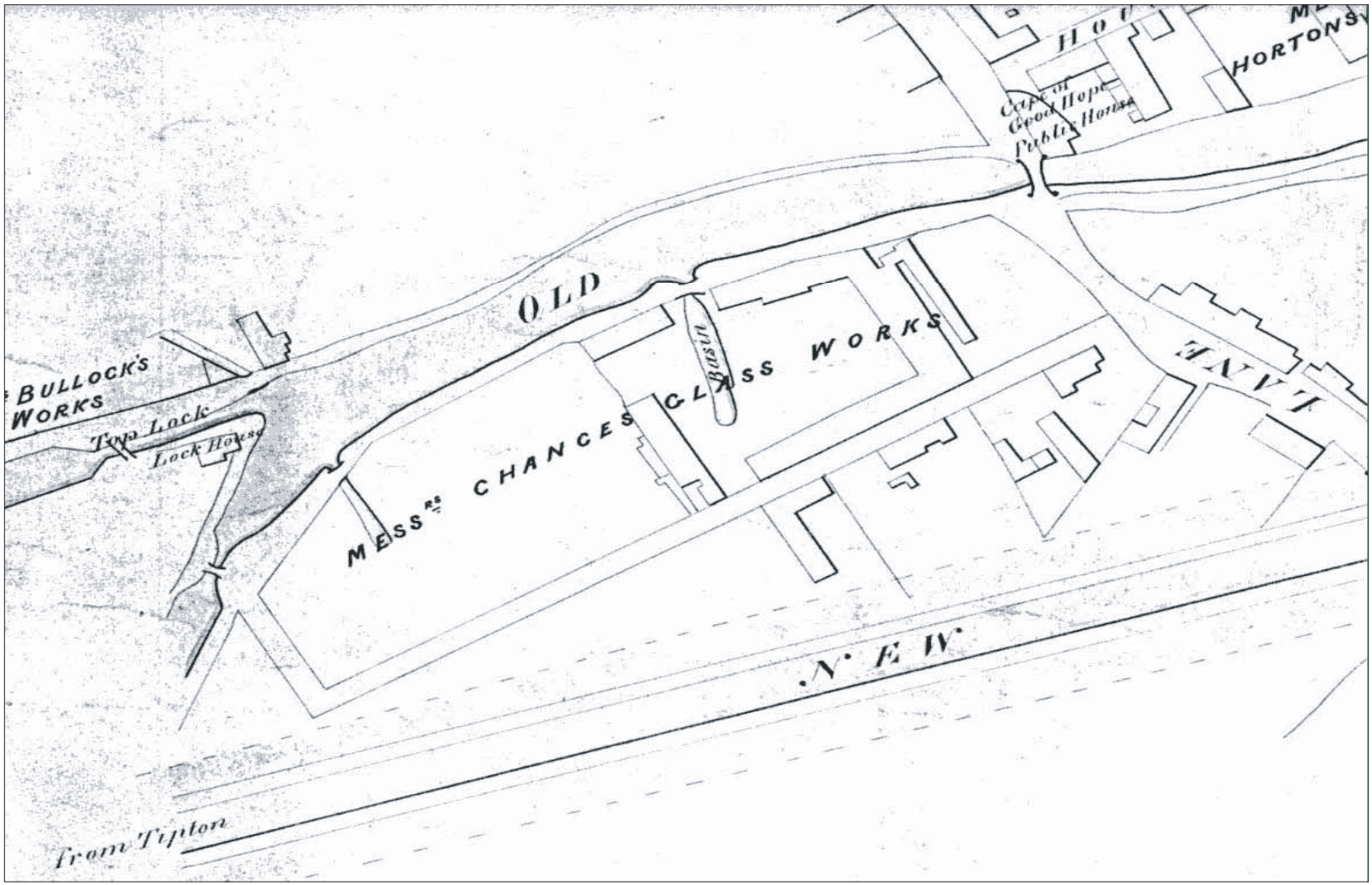


Figure 4: Plan of land in ownership of Birmingham Canal Company in 1837.

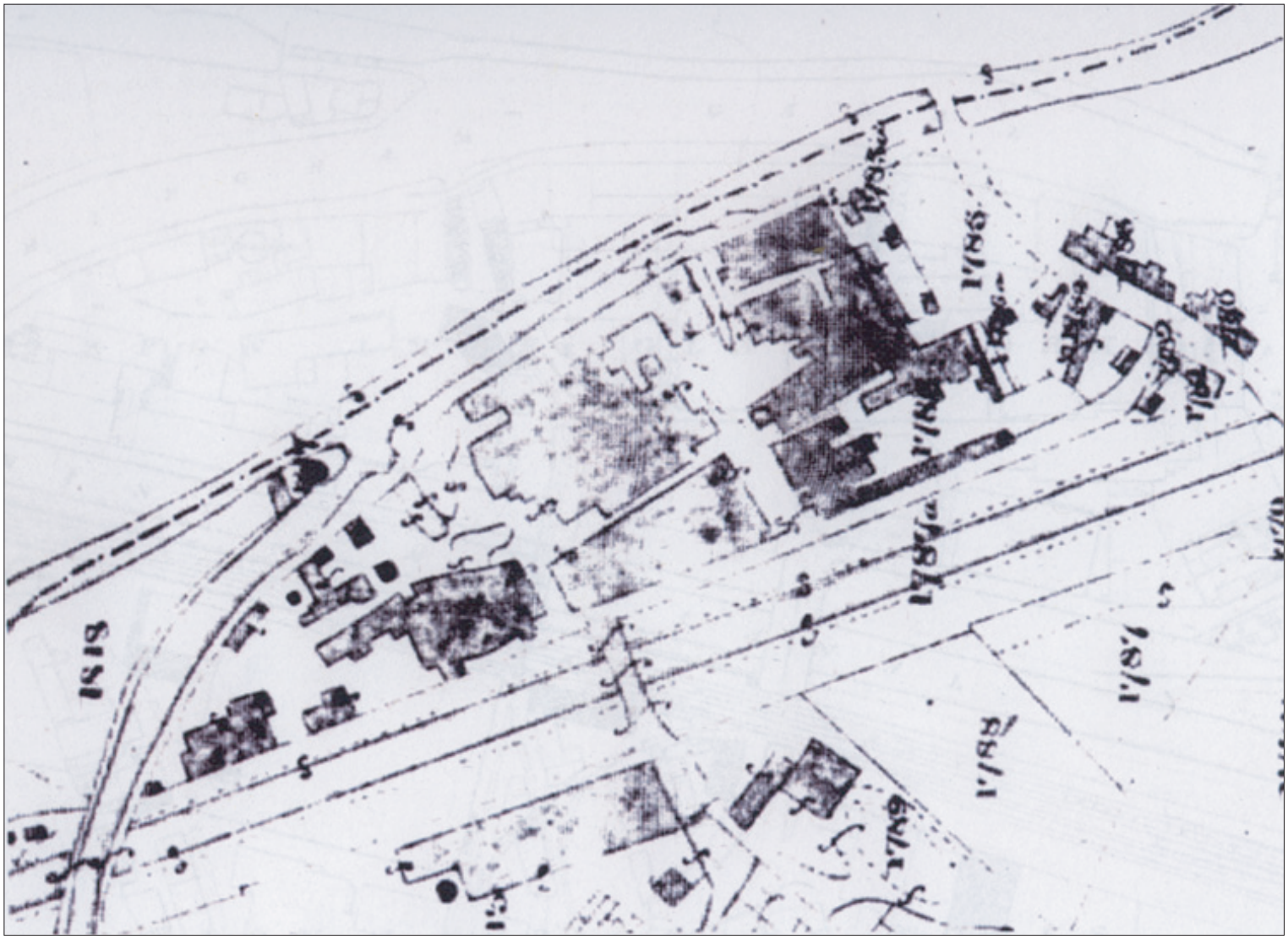


Figure 5: Tithe map of Harborne Parish of 1841 .

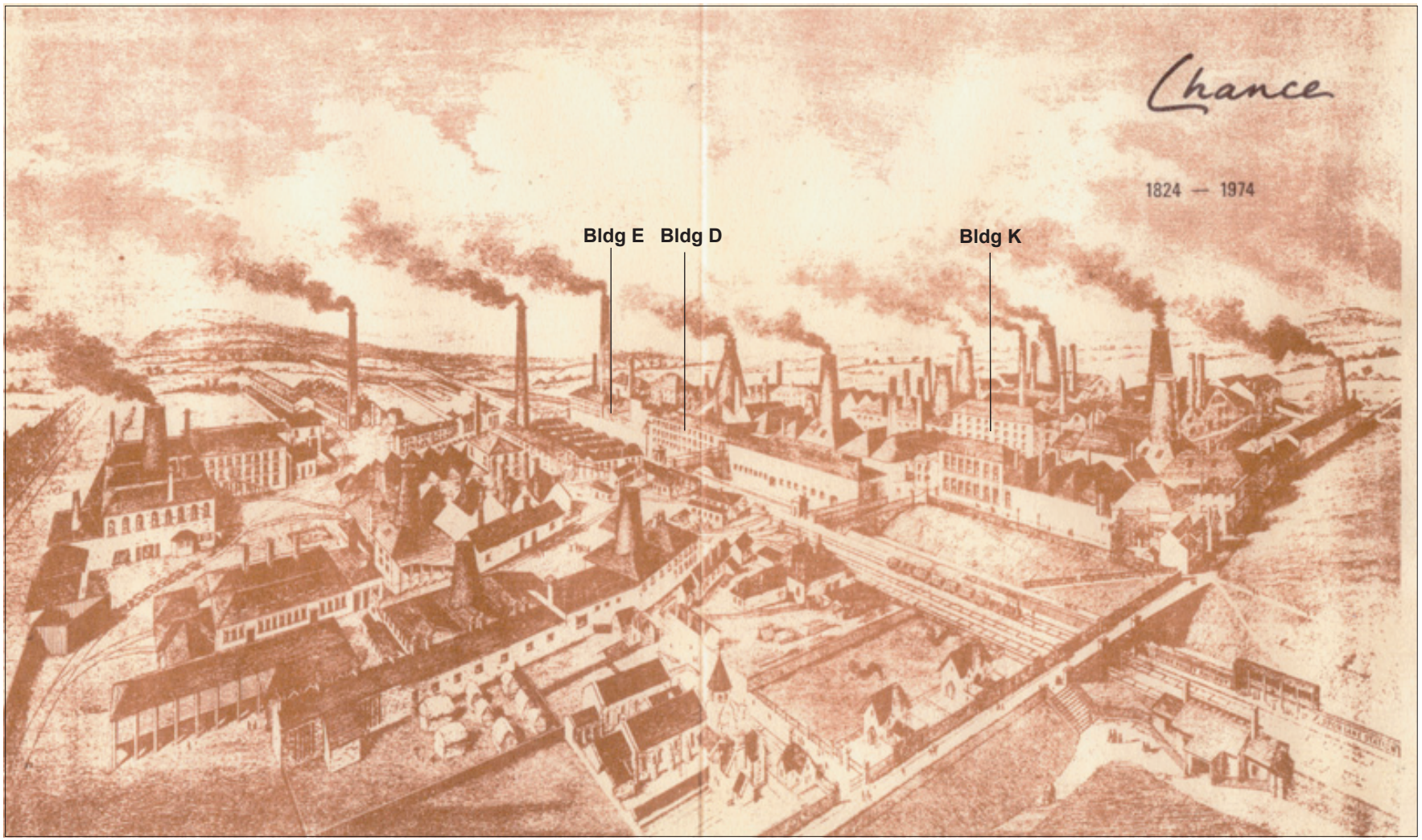


Figure 6: Chances Manufactory c.1857.

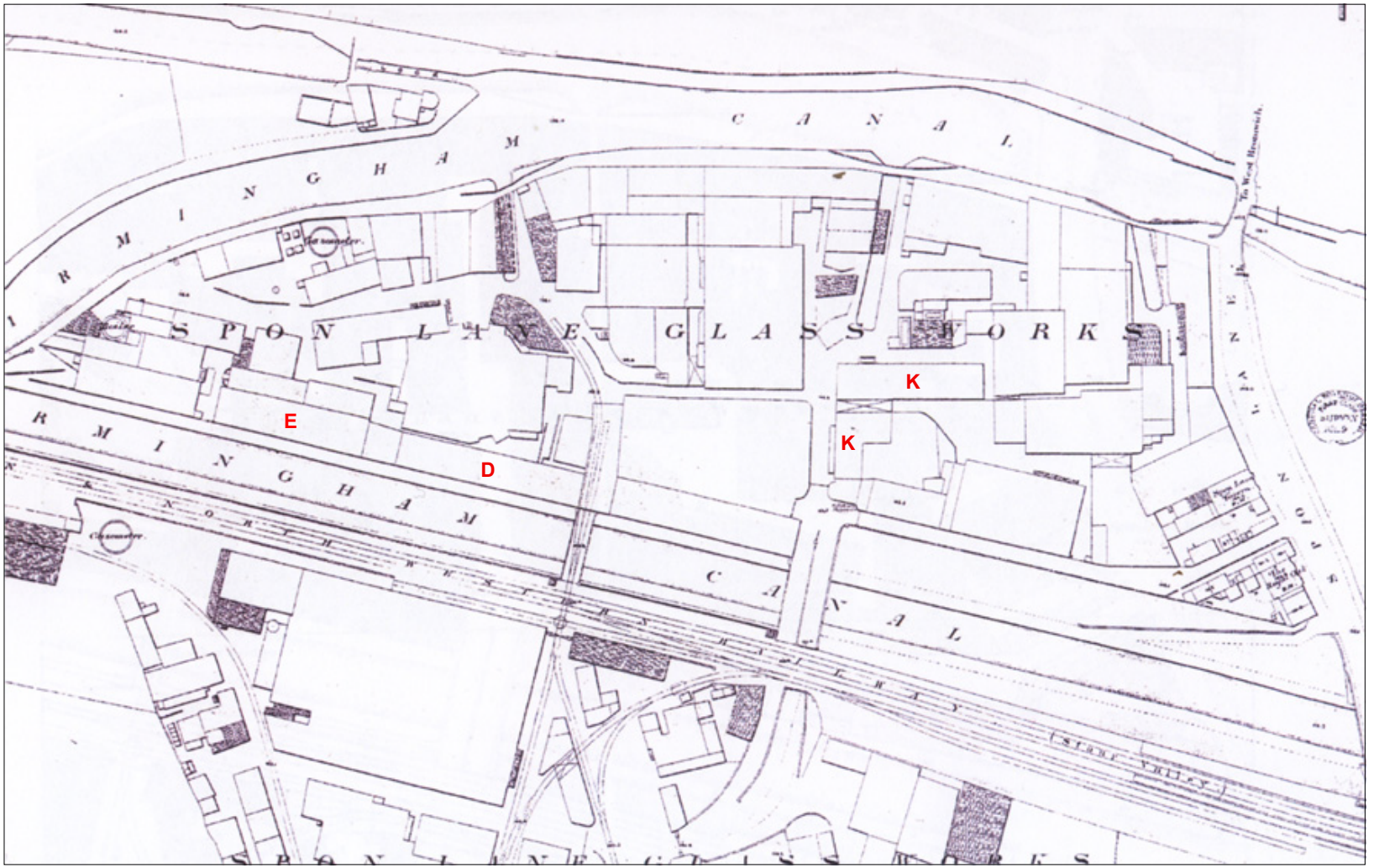


Figure 7: Board of Health map of 1858.

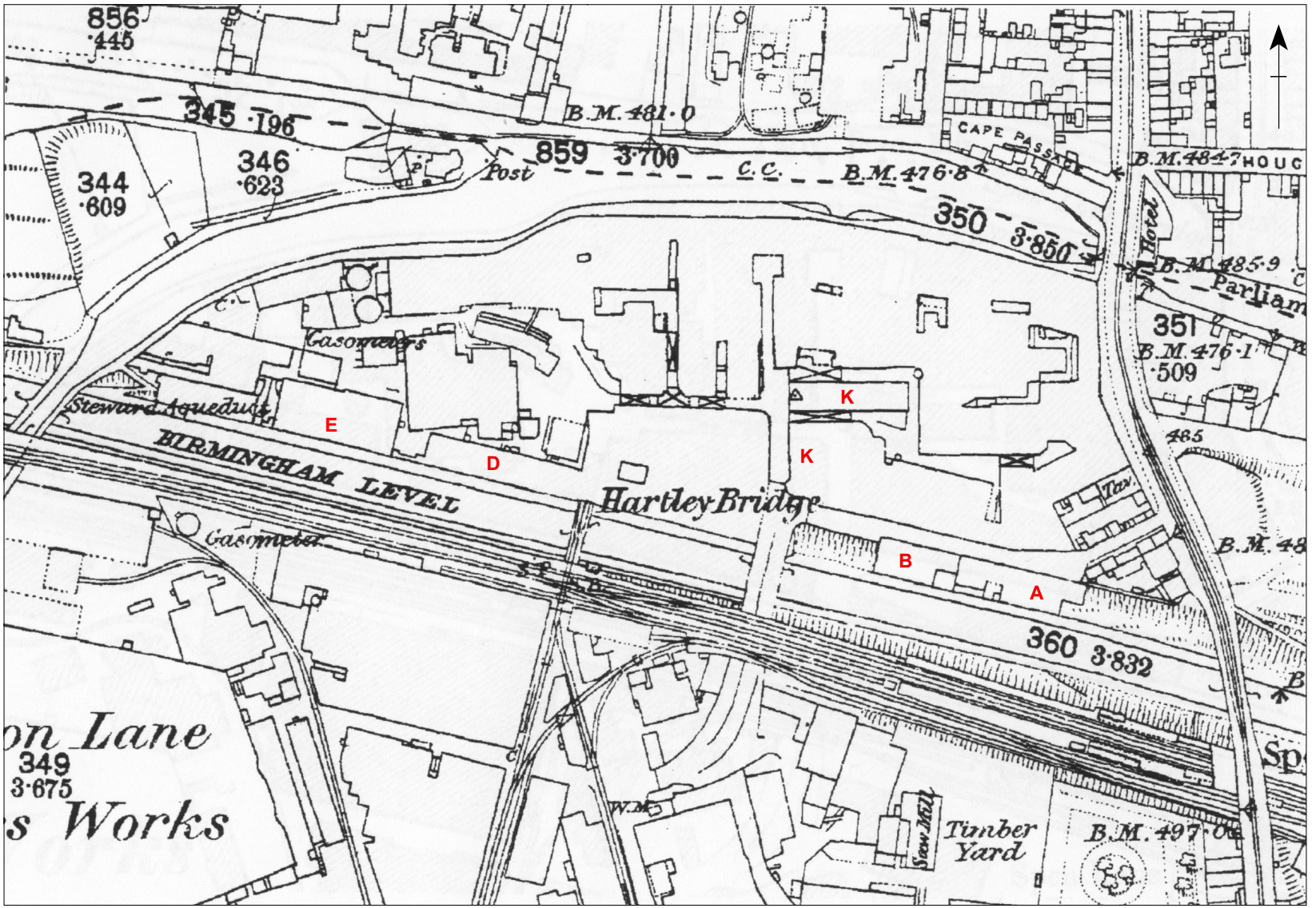


Figure 8: Ordnance Survey County Series 1st edition 1:2500 map of 1885.

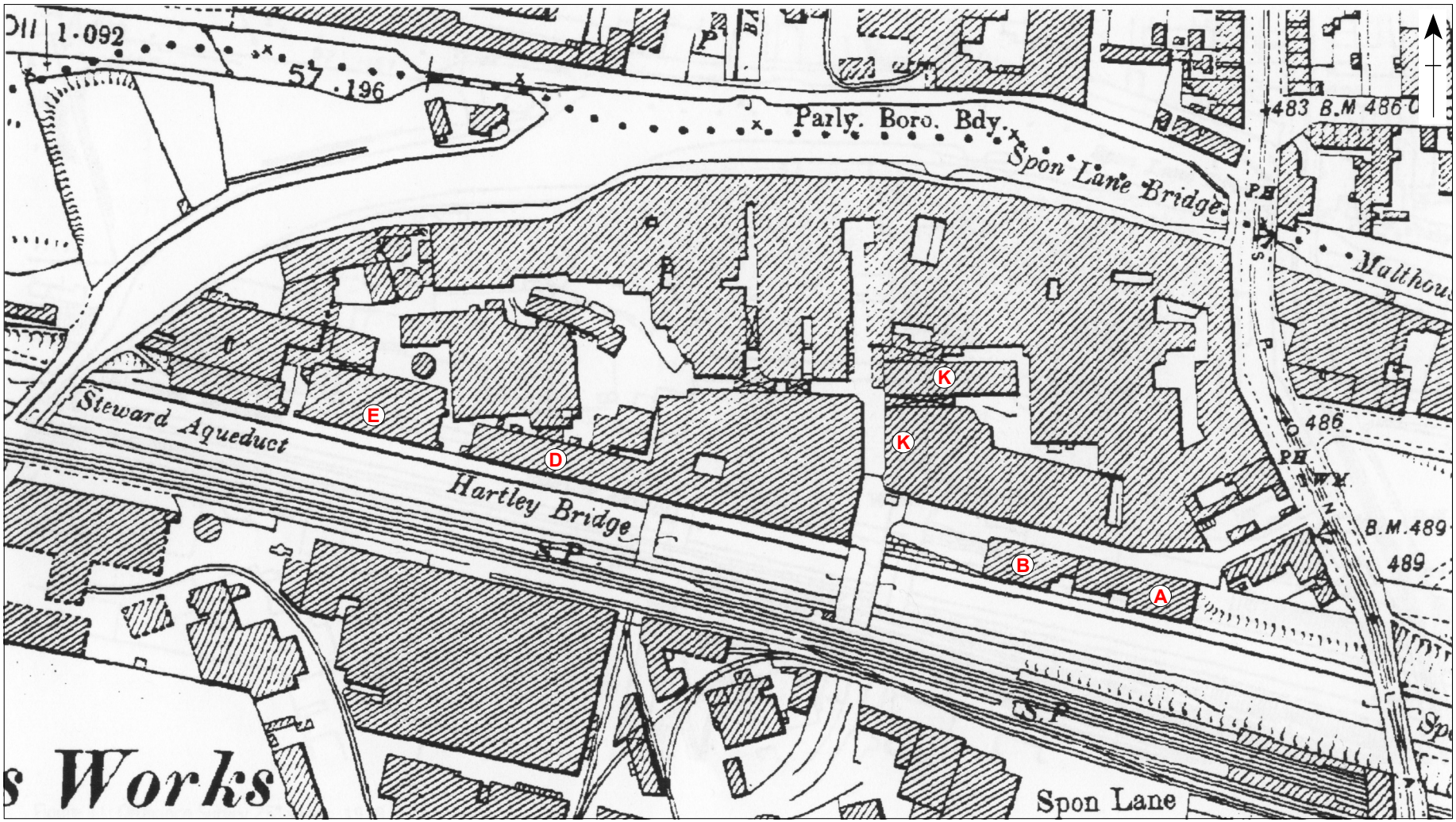


Figure 9: Ordnance Survey County Series 1st revision 1:2500 map of 1904.

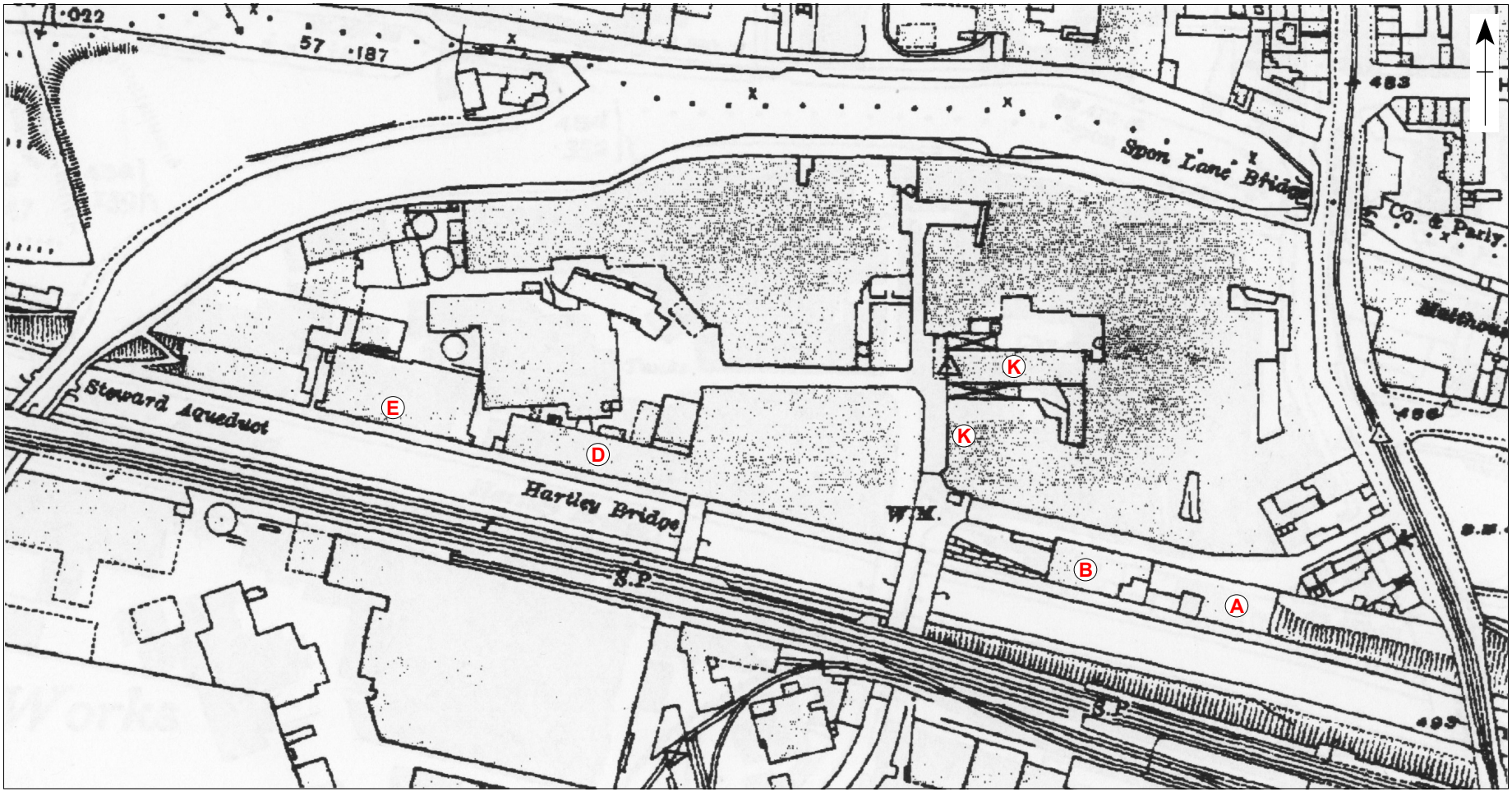


Figure 10: Ordnance Survey County Series 2nd revision 1:2500 map of 1919.

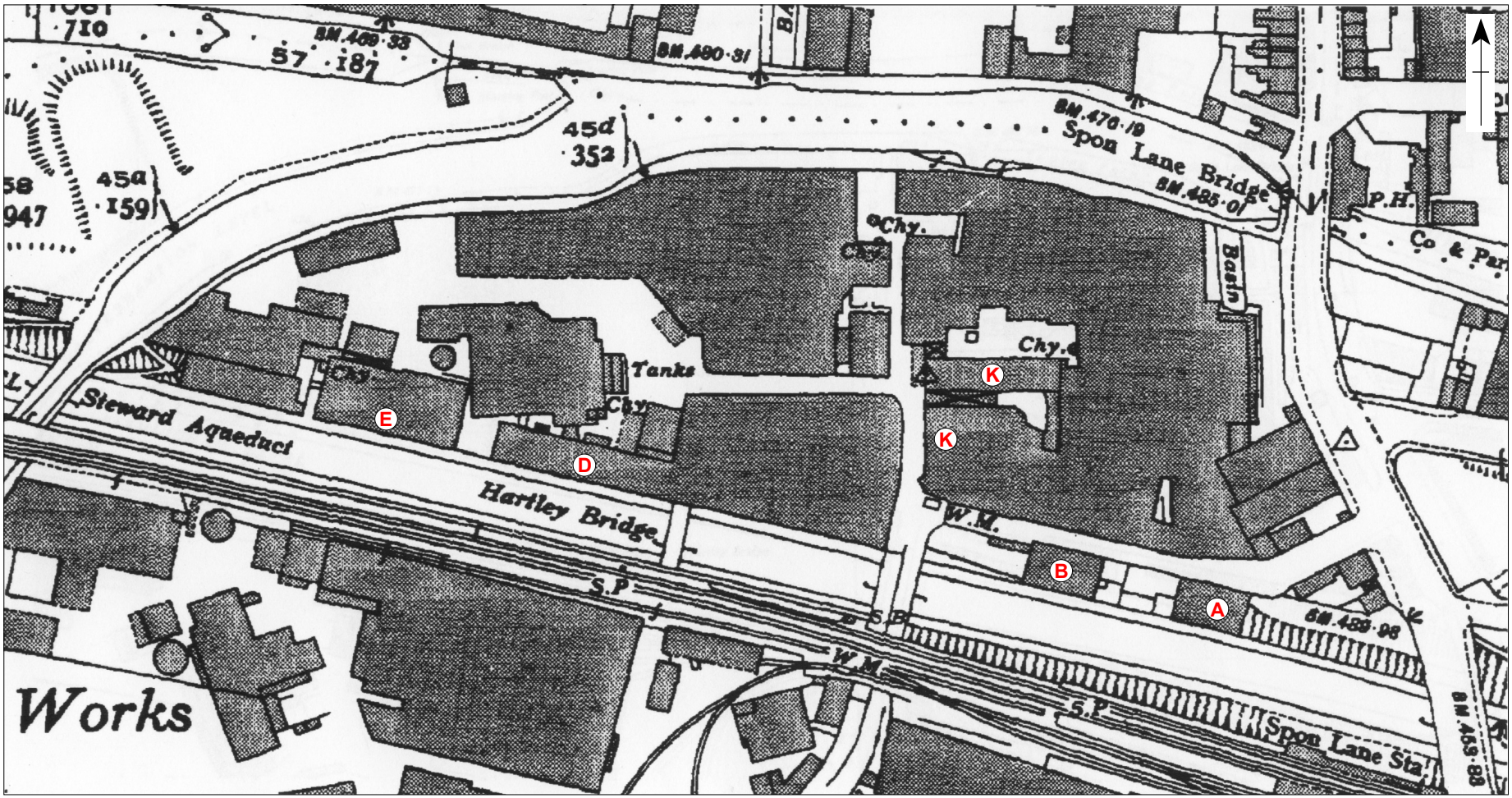


Figure 11: Ordnance Survey County Series 3rd revision 1:2500 map of 1938.

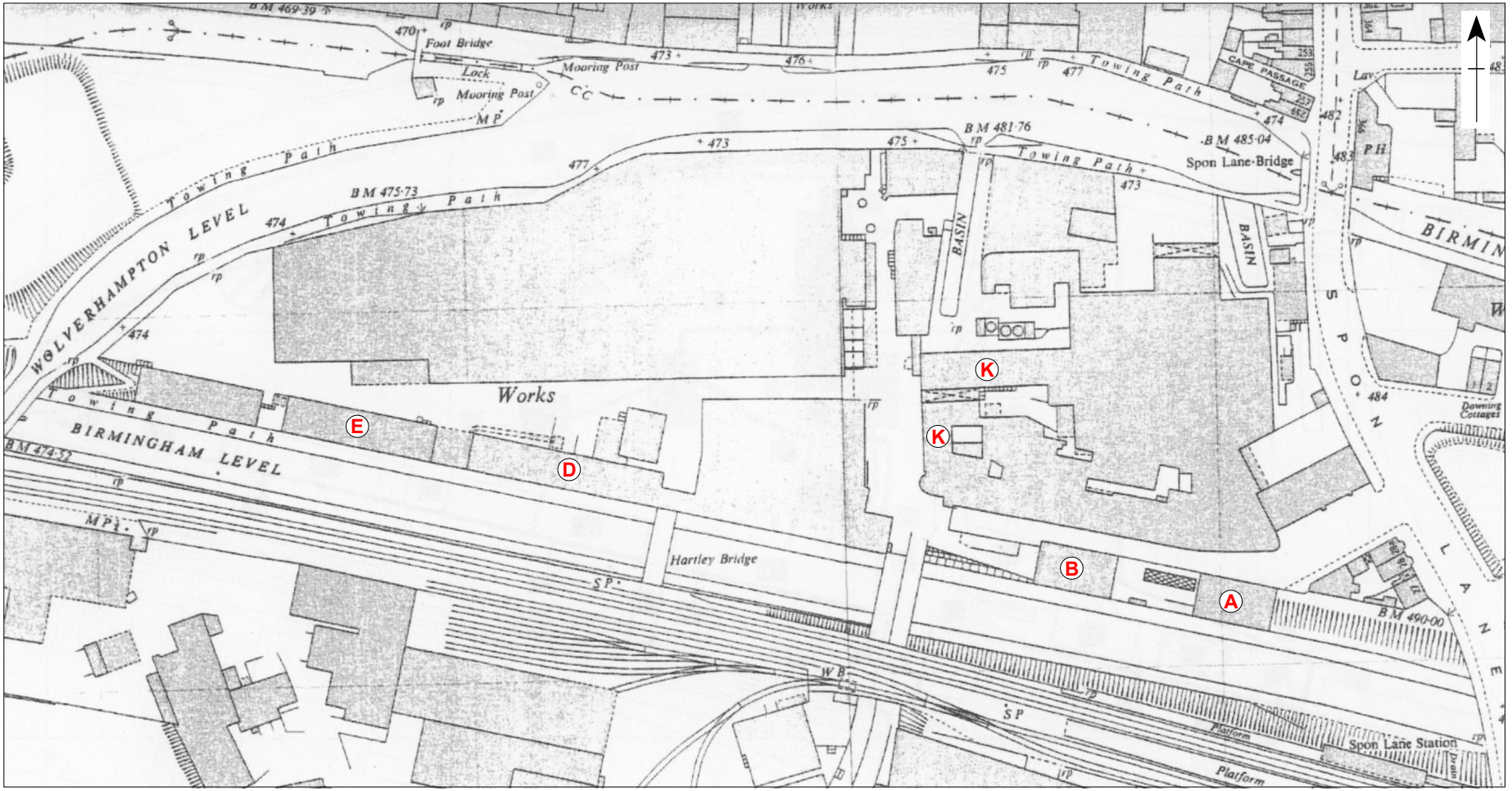


Figure 12: Ordnance Survey National Grid Series edition 1:1250 map of 1958.

north
(indicative)

blocked door

blocked door

blocked archway

blocked door
(2 phases)

blocked archway

1/2 truss

1/2 truss

1/2 truss

1/2 truss

blocked window

blocked door

R A M P

U P

Bay 6 Bay 5 Bay 4 Bay 3 Bay 2 Bay 1

T5 T4 T3 T2 T1

0 10 m

Scale 1:100

Building Location

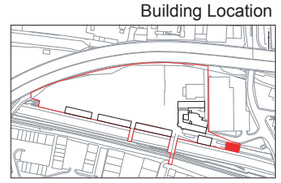
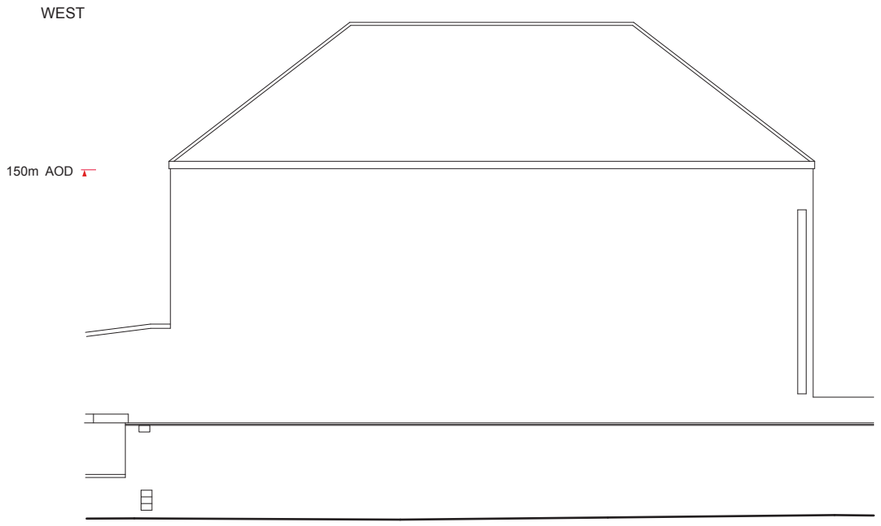
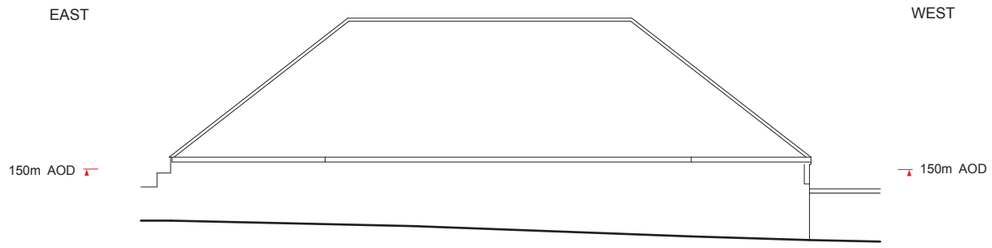


Figure 13: Building A (+ associated tunnel), plan



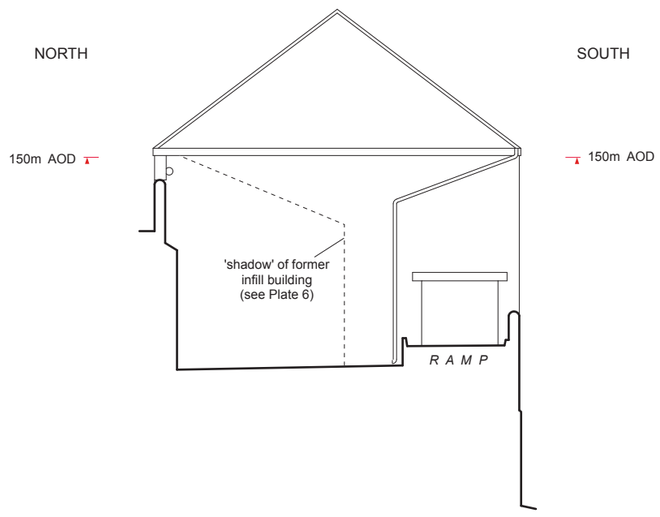
(a) South (canal) elevation



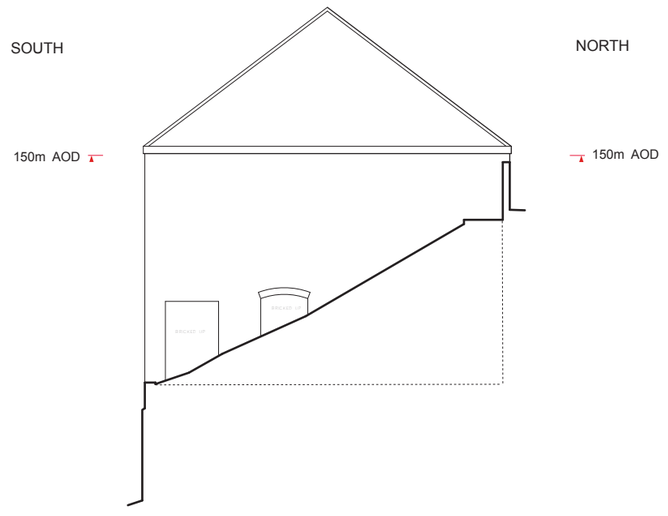
(b) North elevation

0 10 20 m

Scale 1:200



(c) West elevation



(d) East elevation

Building Location

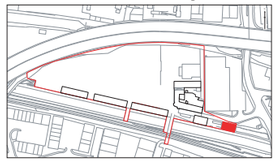
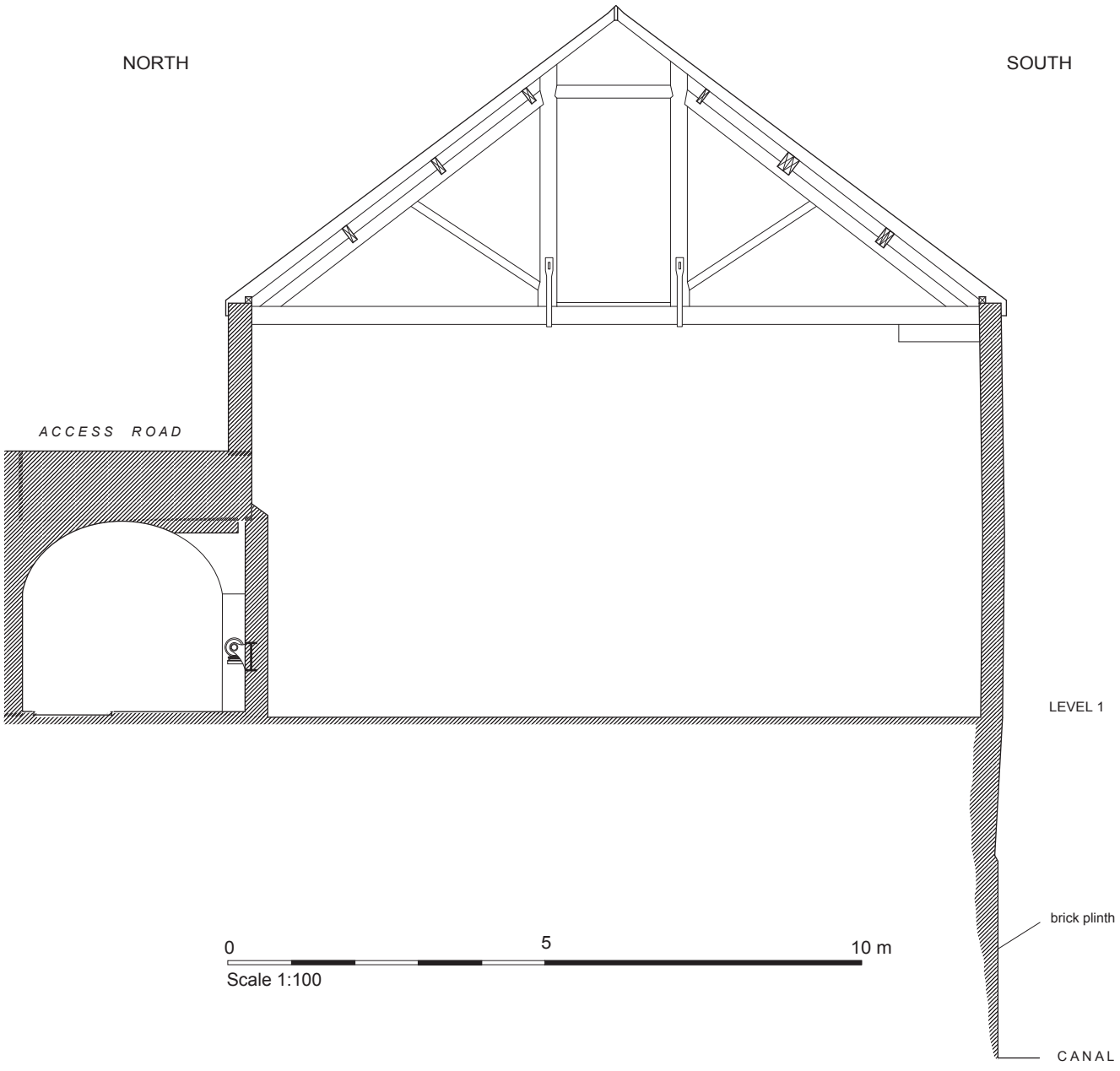


Figure 14: Building A; elevations



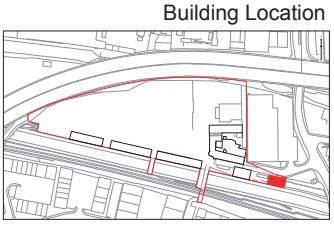
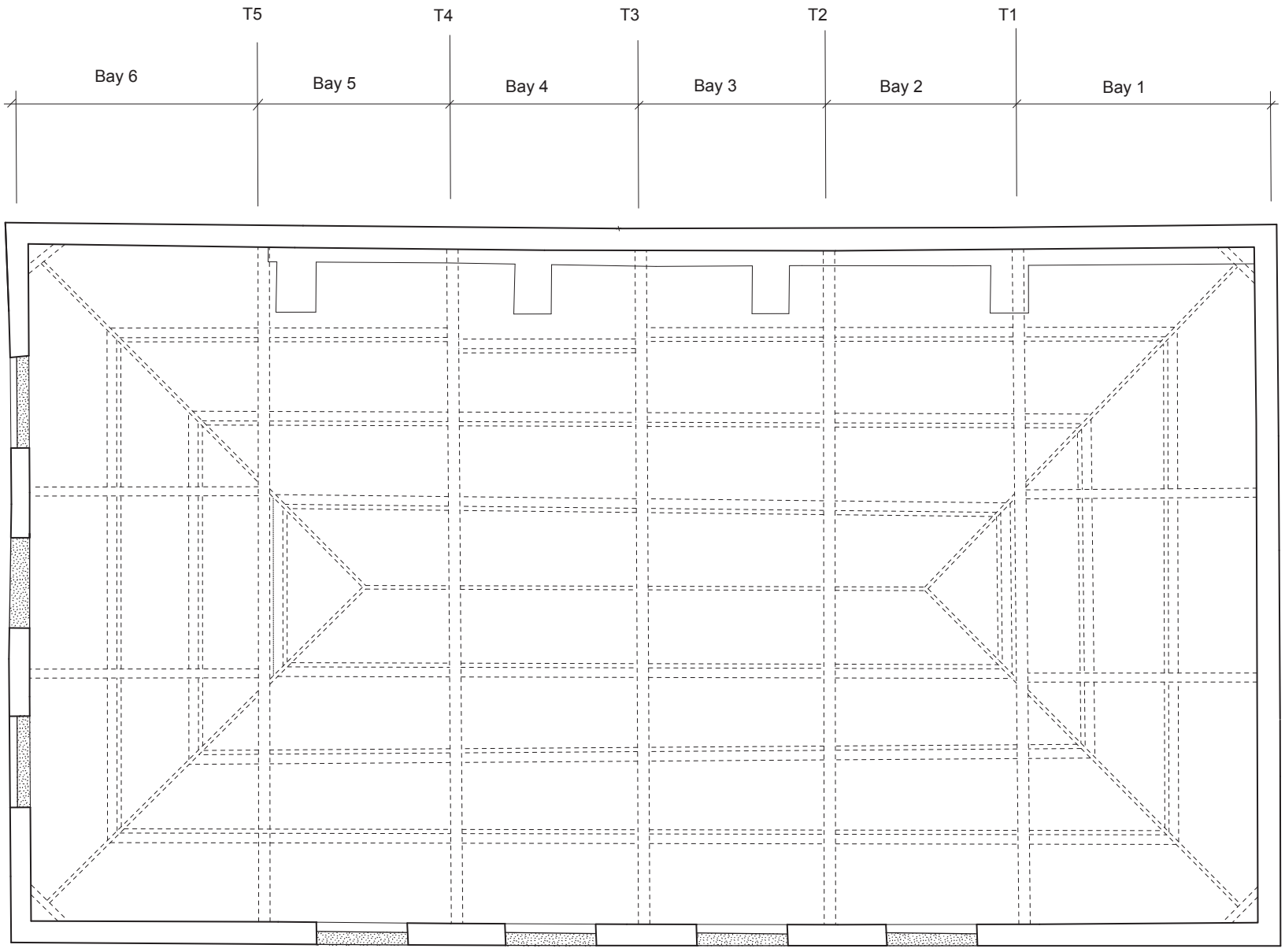
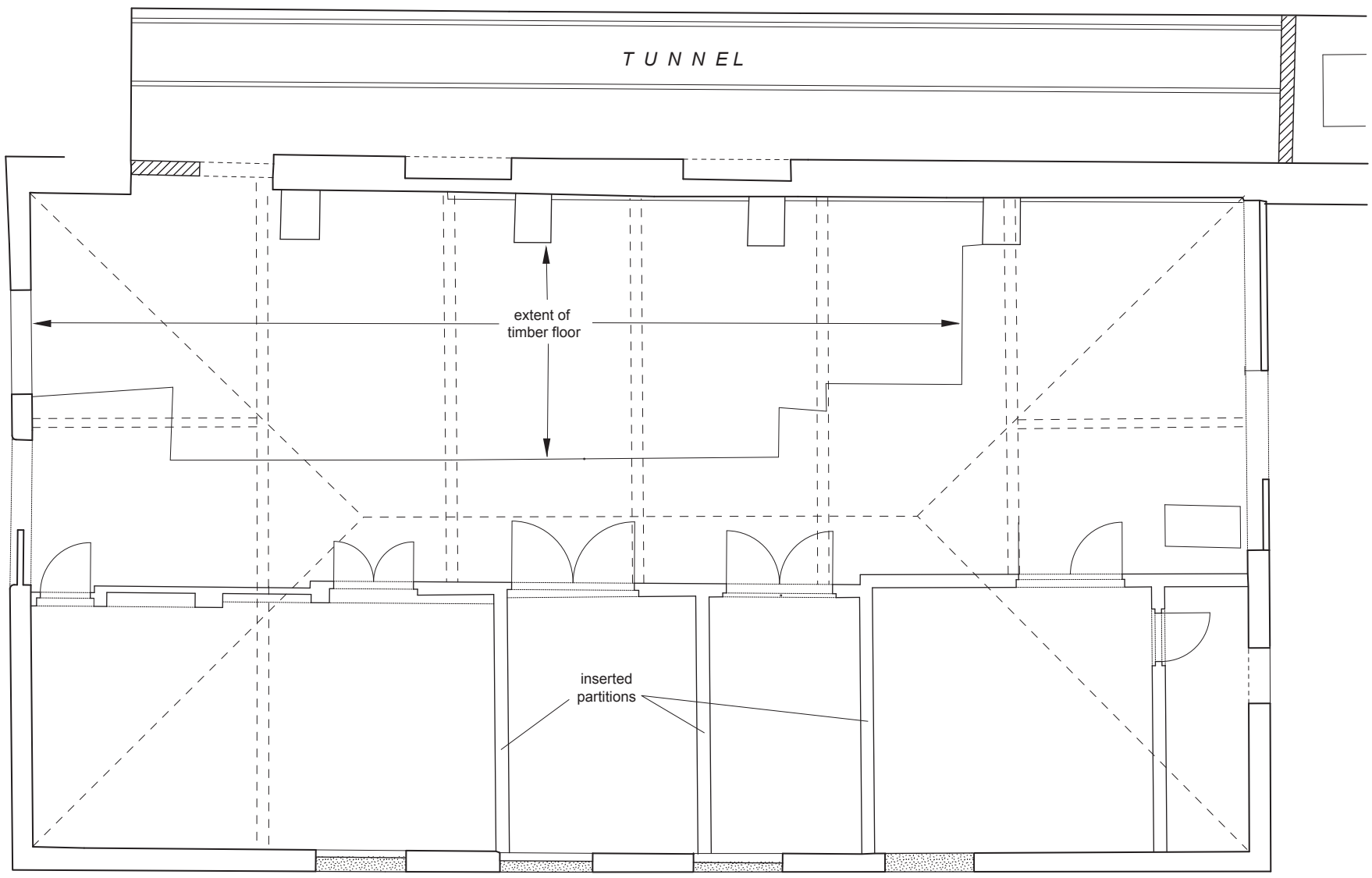


Figure 15: Building A, transverse cross-section



(a) Roof plan



(b) Ground level plan

0 10 m

Scale 1:100

Building Location

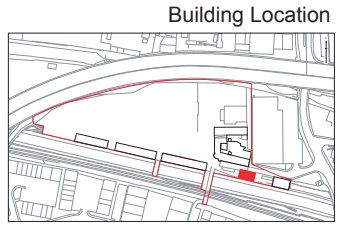
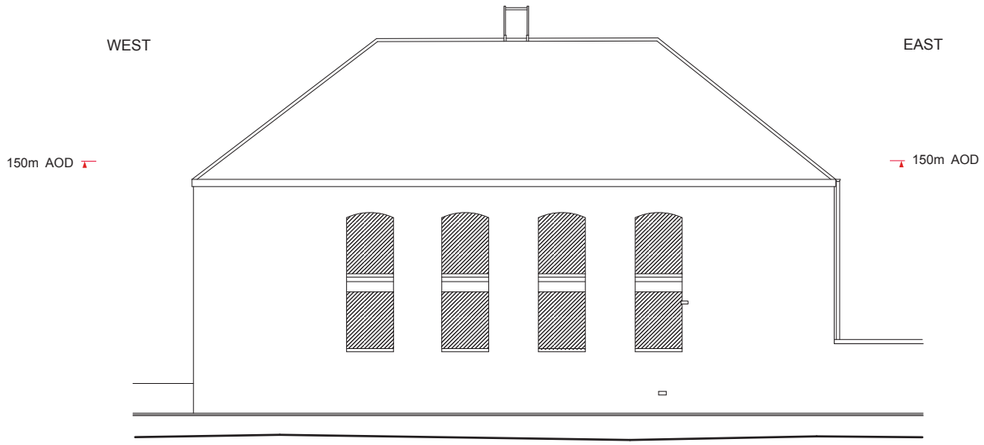
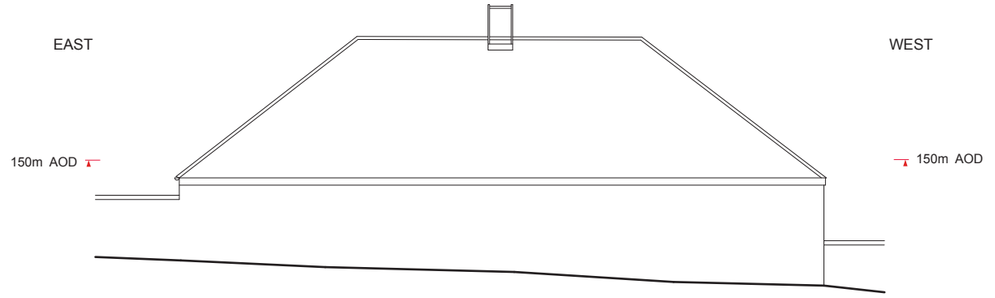


Figure 16: Building B, plans

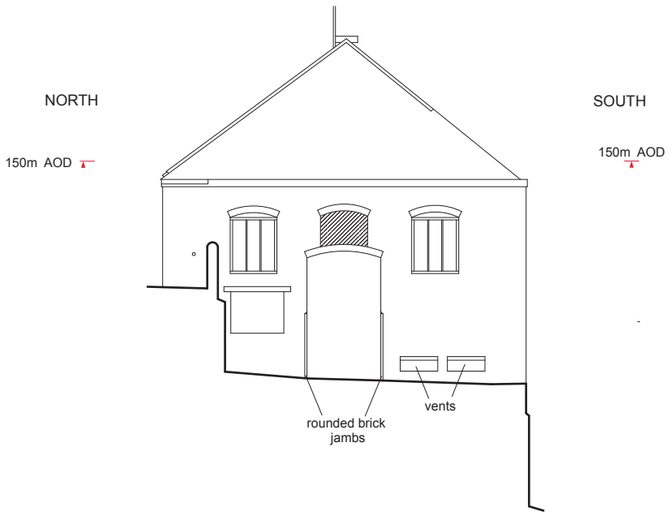


(a) South (canal) elevation

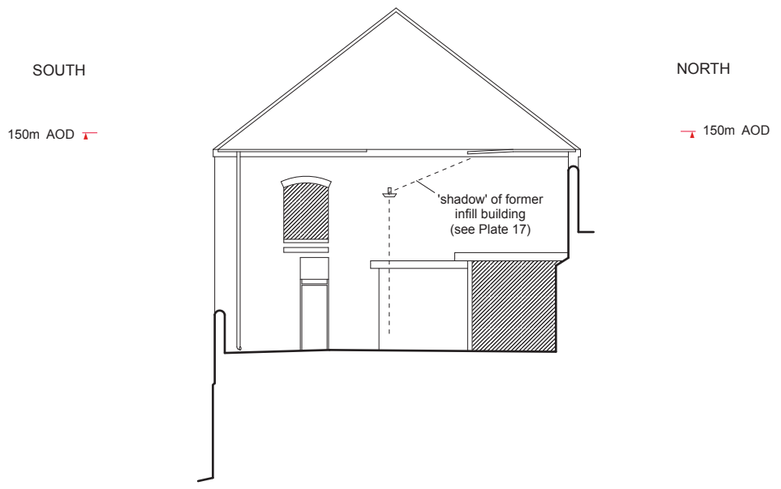


(b) North elevation

0 10 20 m



(c) West elevation



(d) East elevation

Building Location

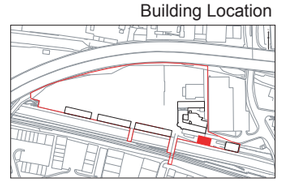
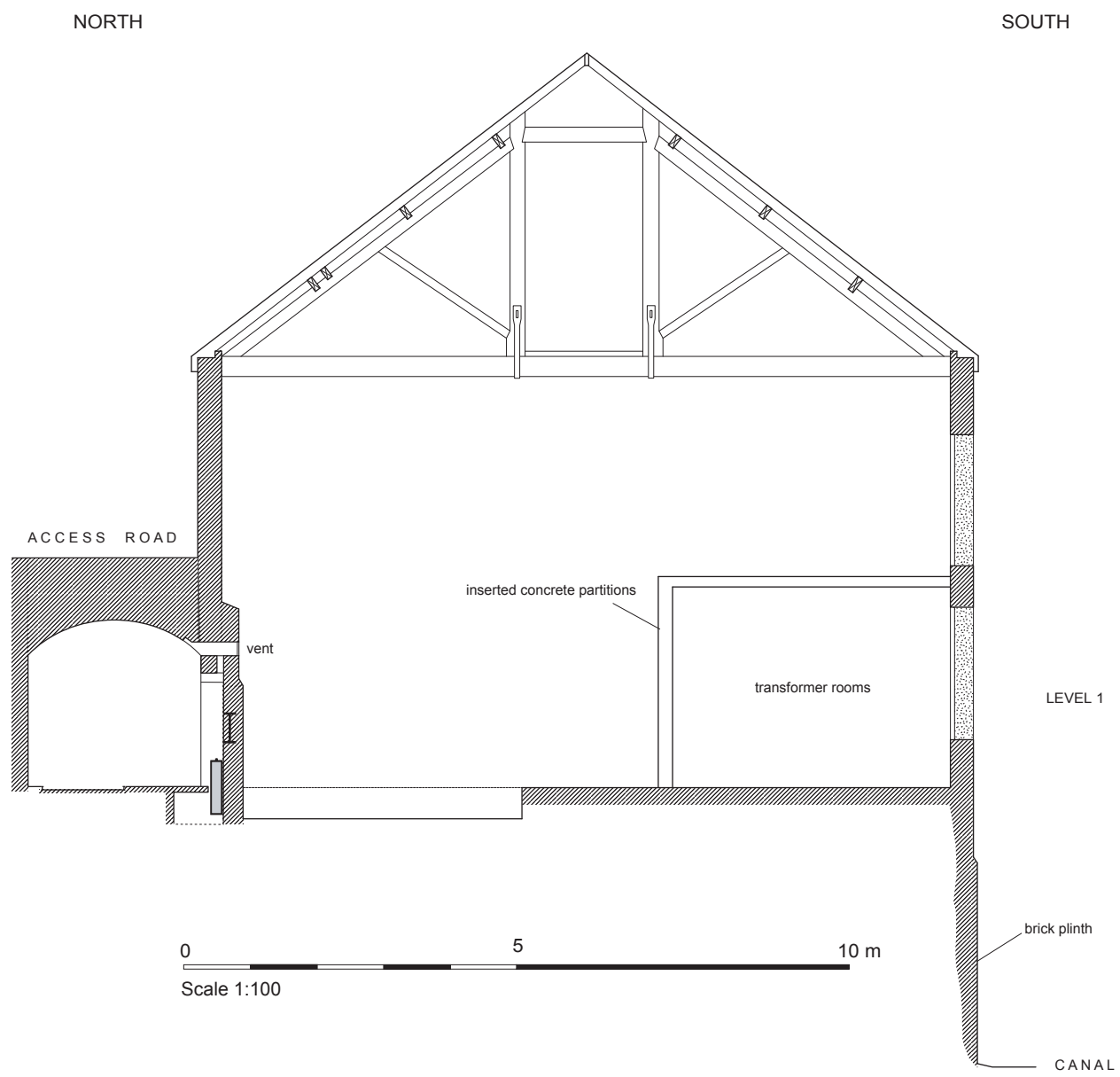


Figure 17: Building B, elevations



Building Location

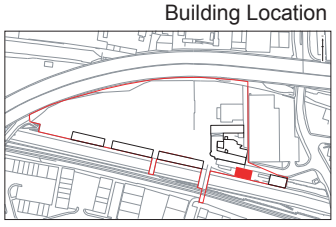
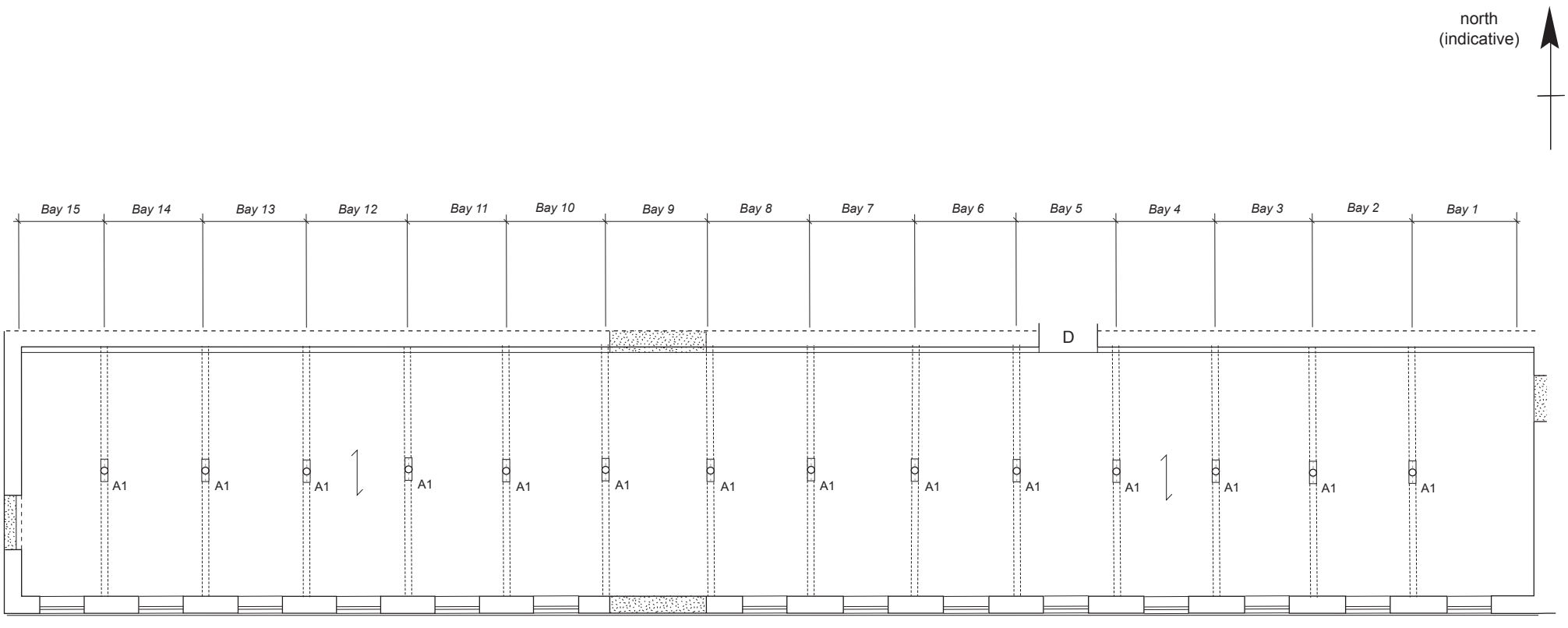


Figure 18: Building B, transverse cross-section

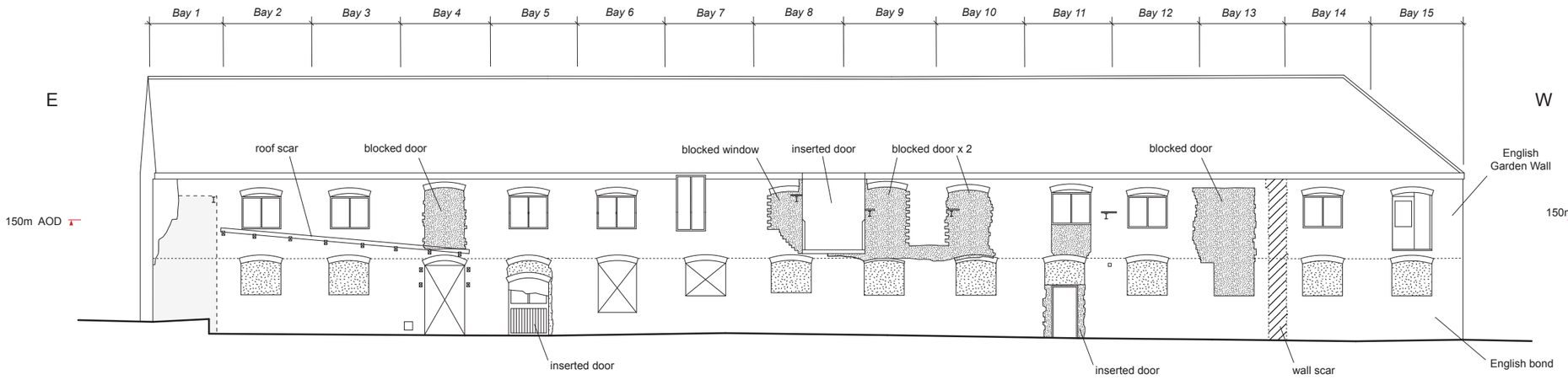


(a) Level 1 plan

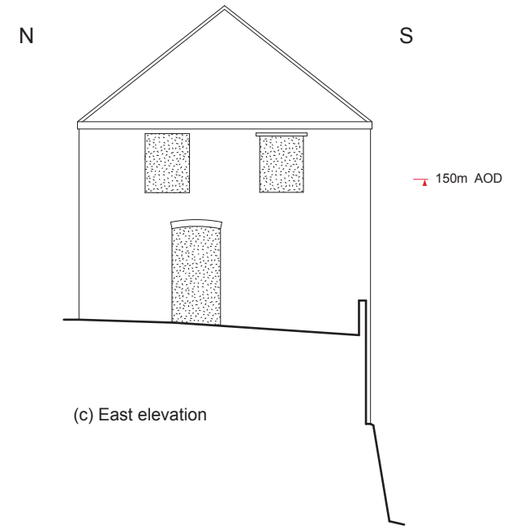
(b) Level 2 plan

(c) Level 3 plan

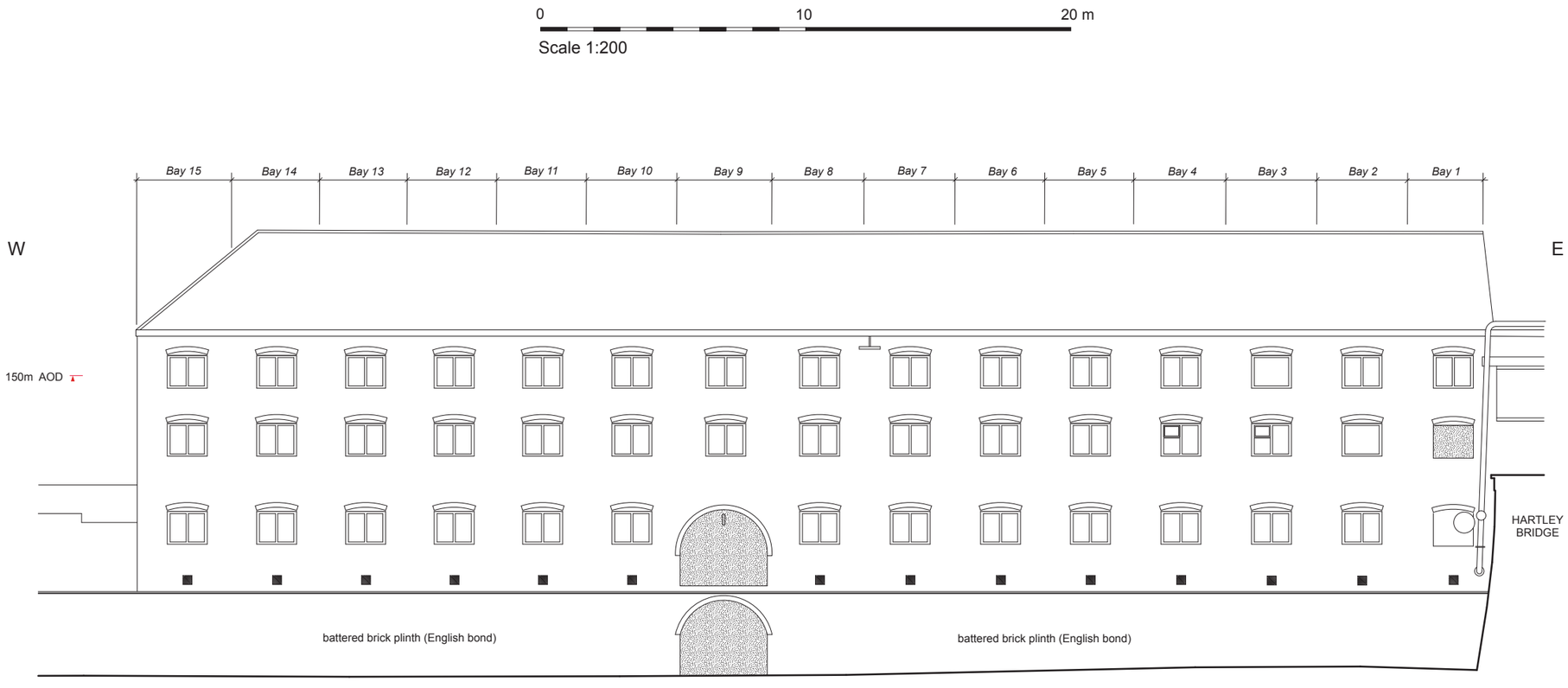
Figure 19: Building D, plans



(a) North elevation



(c) East elevation



(b) South (canal) elevation

Building Location

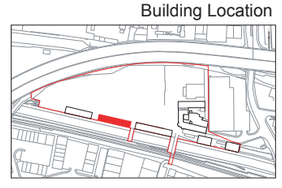
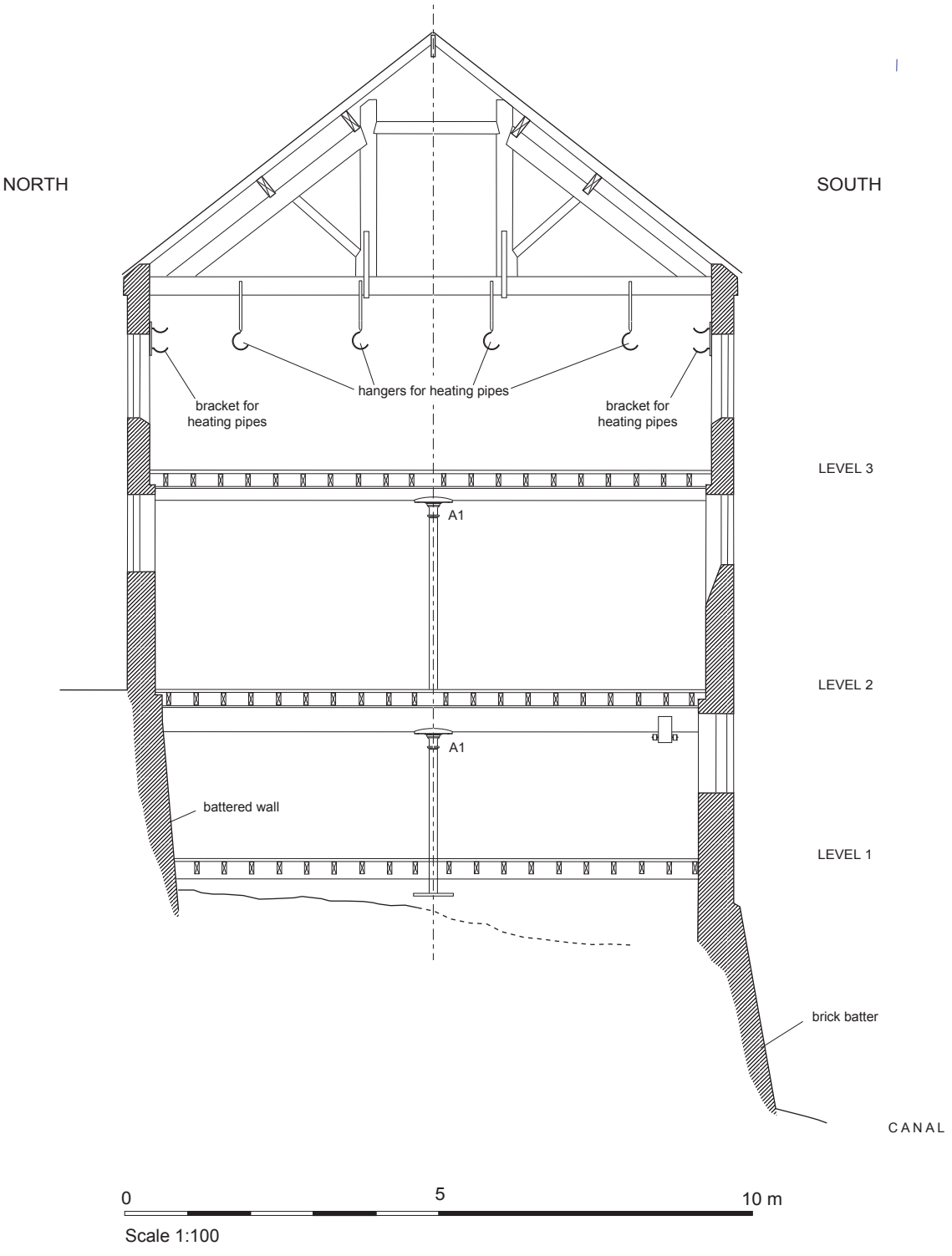


Figure 20: Building D; elevations



Building Location

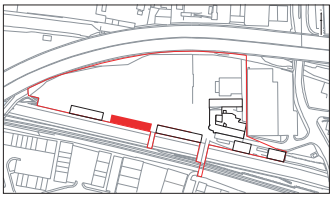
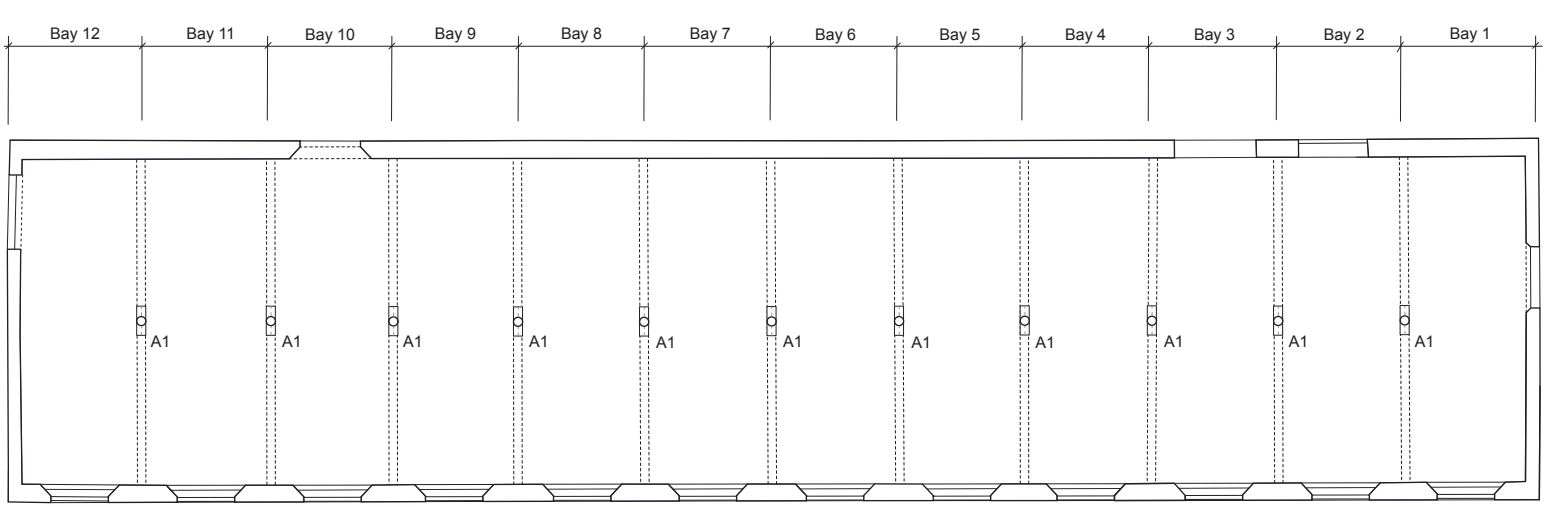
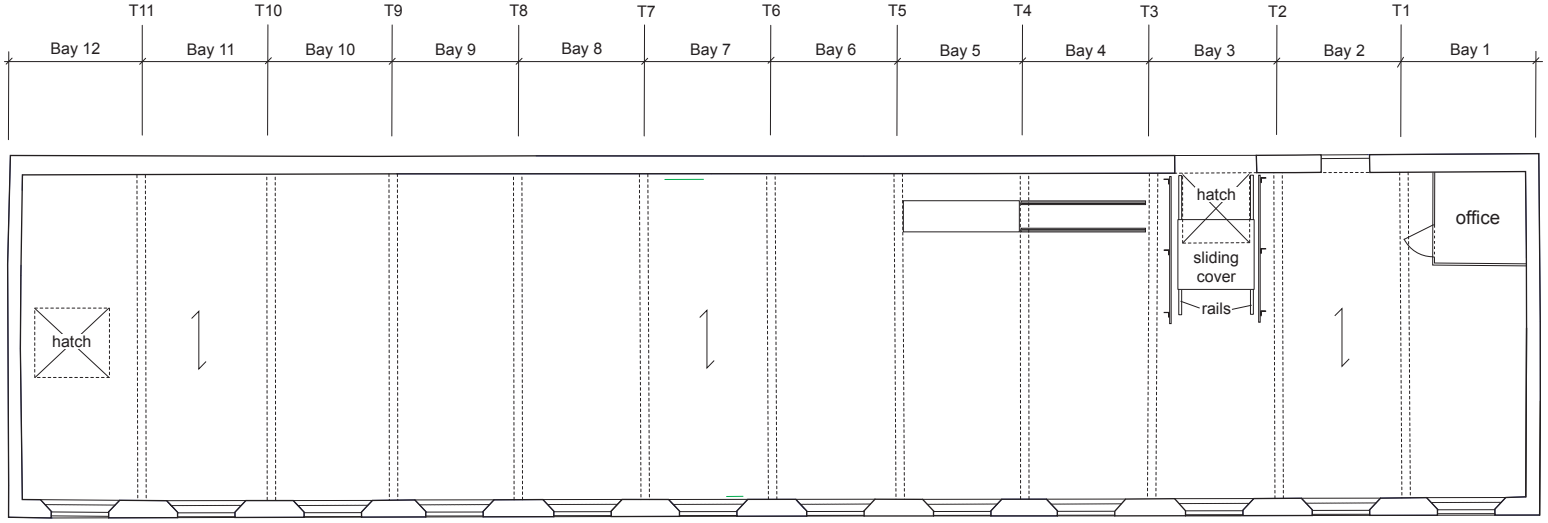


Figure 21: Building D, transverse cross-section



(a) Level 2 plan

Scale 1:200



(b) Level 3 plan

Building Location

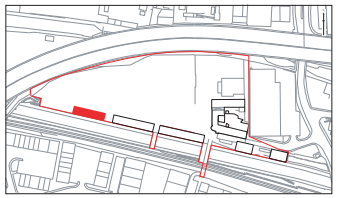
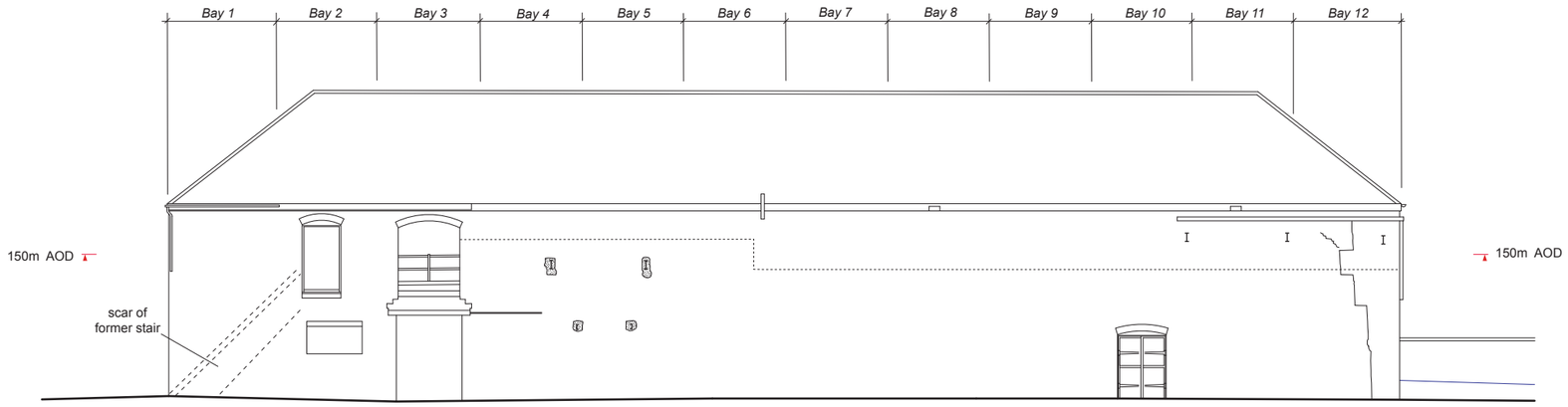
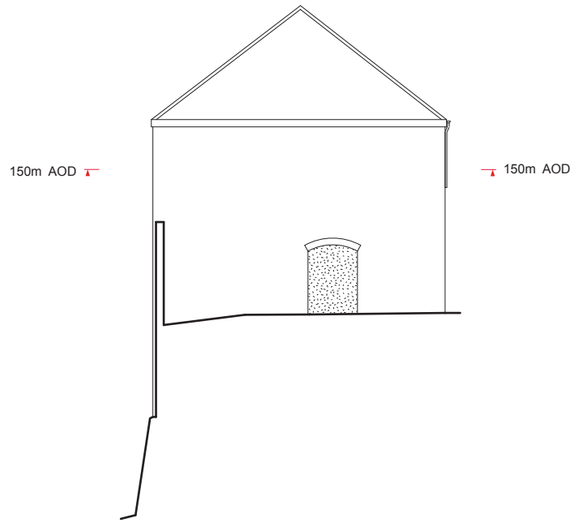


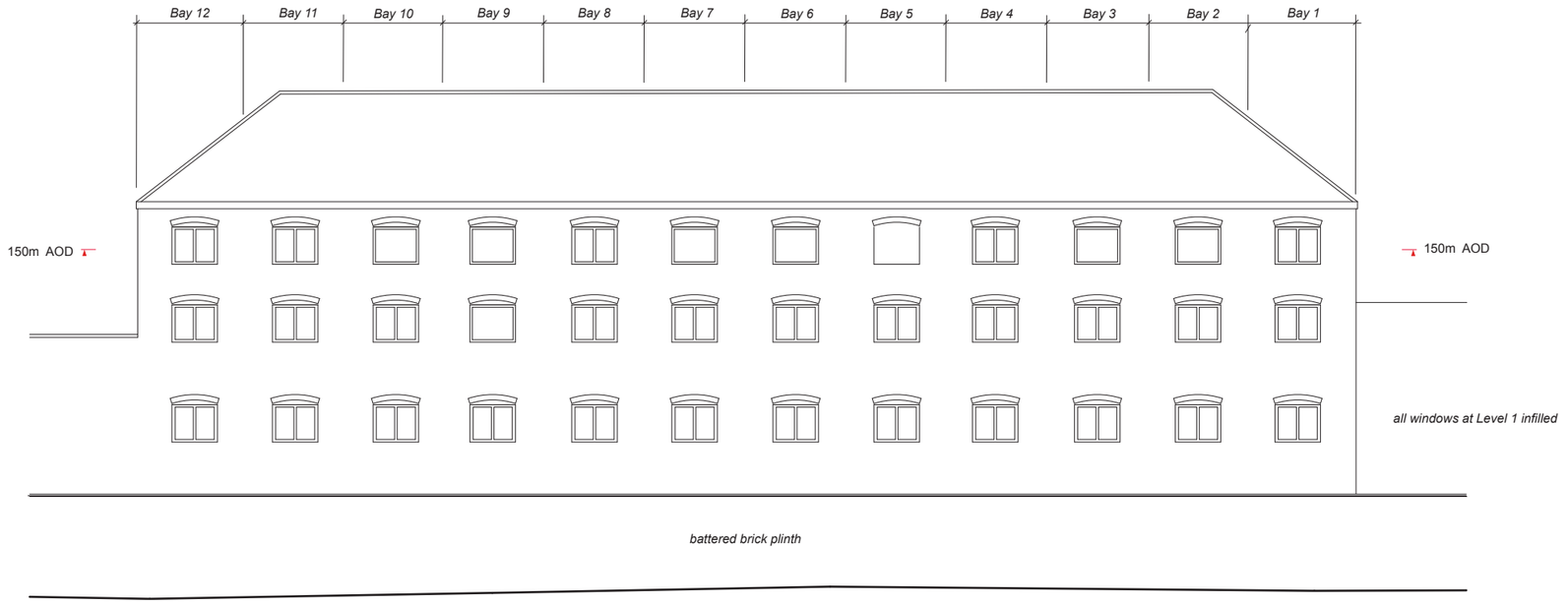
Figure 22: Building E, plan



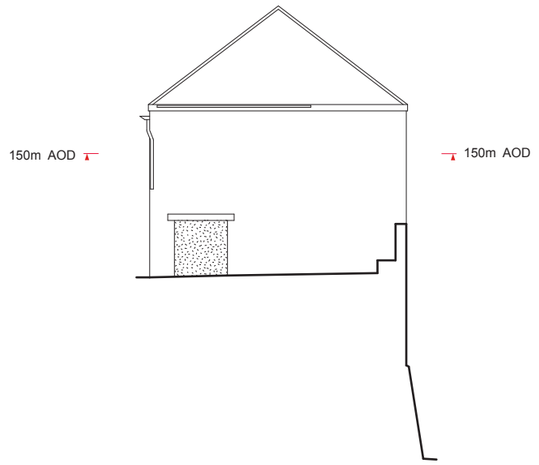
(a) North elevation



(c) East elevation



(b) South (canal) elevation



(d) West elevation

Building Location

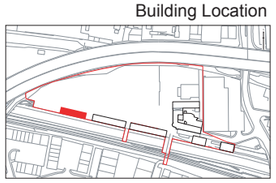
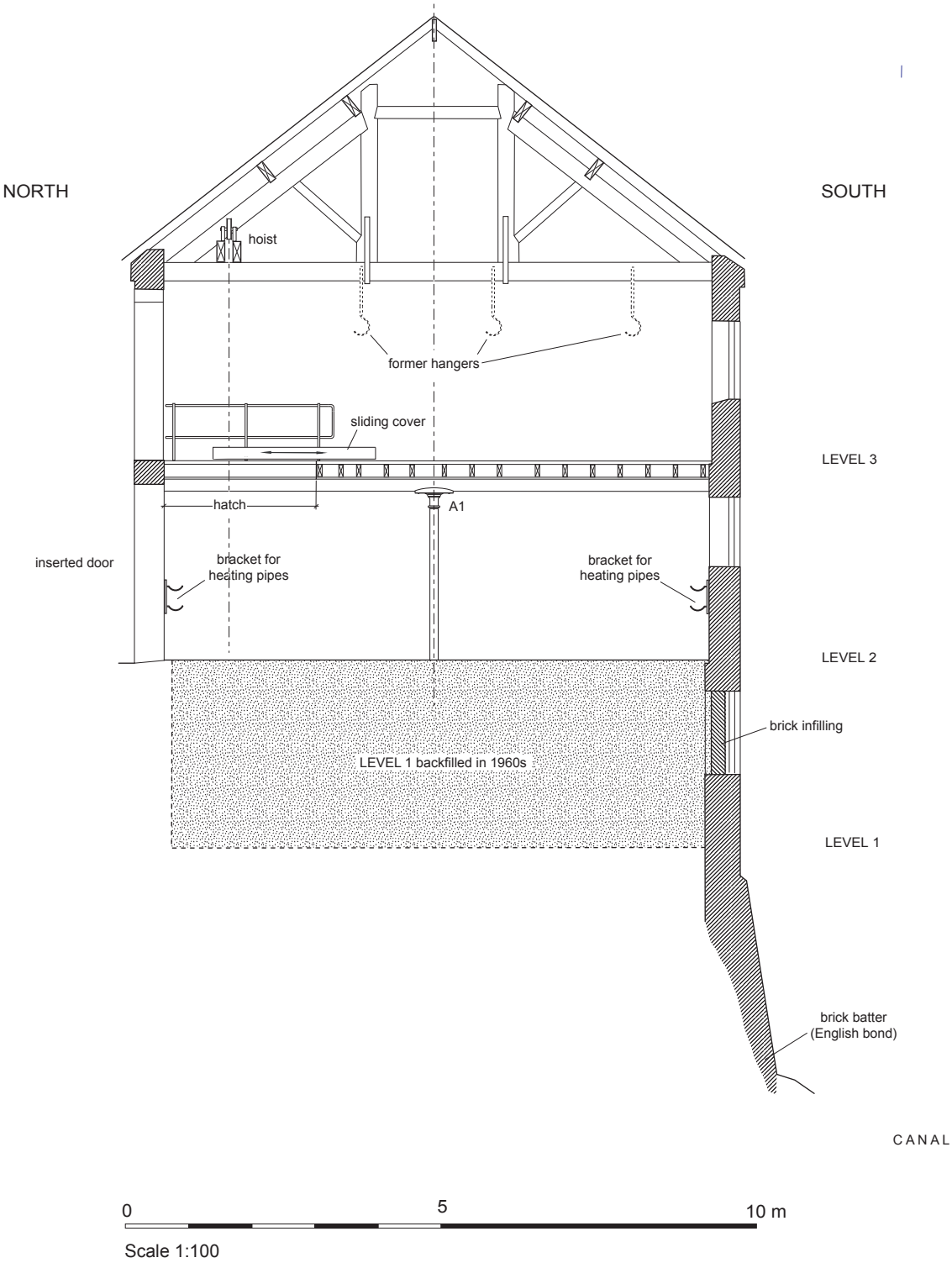


Figure 23: Building E, elevations



Building Location

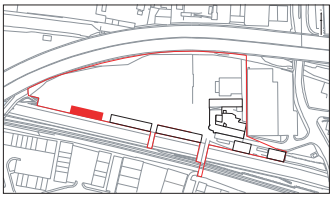
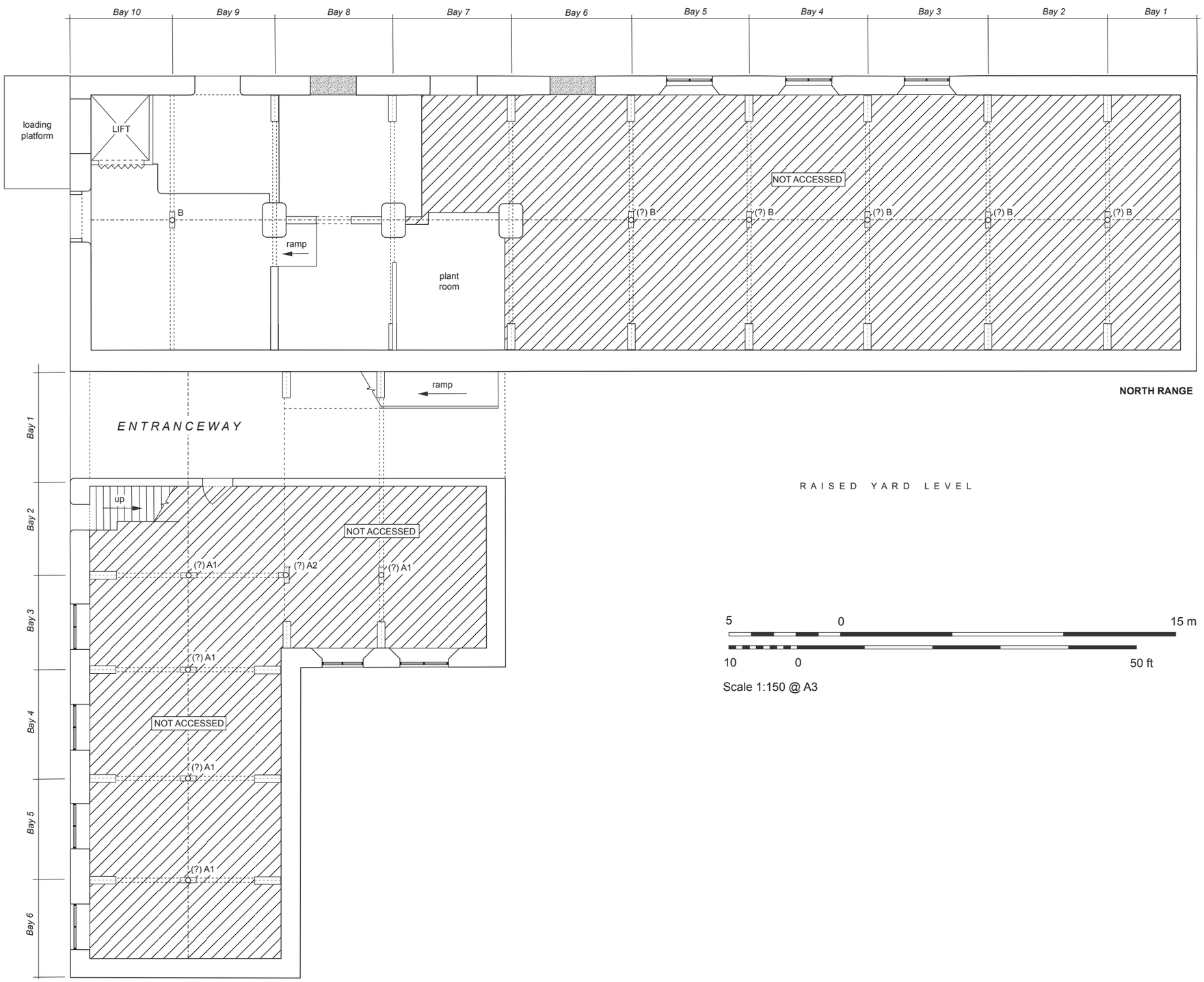


Figure 24: Building E, transverse cross-section



north
(indicative)

RAISED YARD LEVEL

5 0 15 m

10 0 50 ft

Scale 1:150 @ A3

Building Location

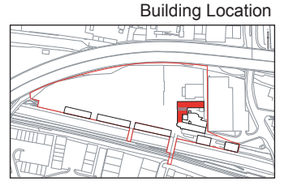
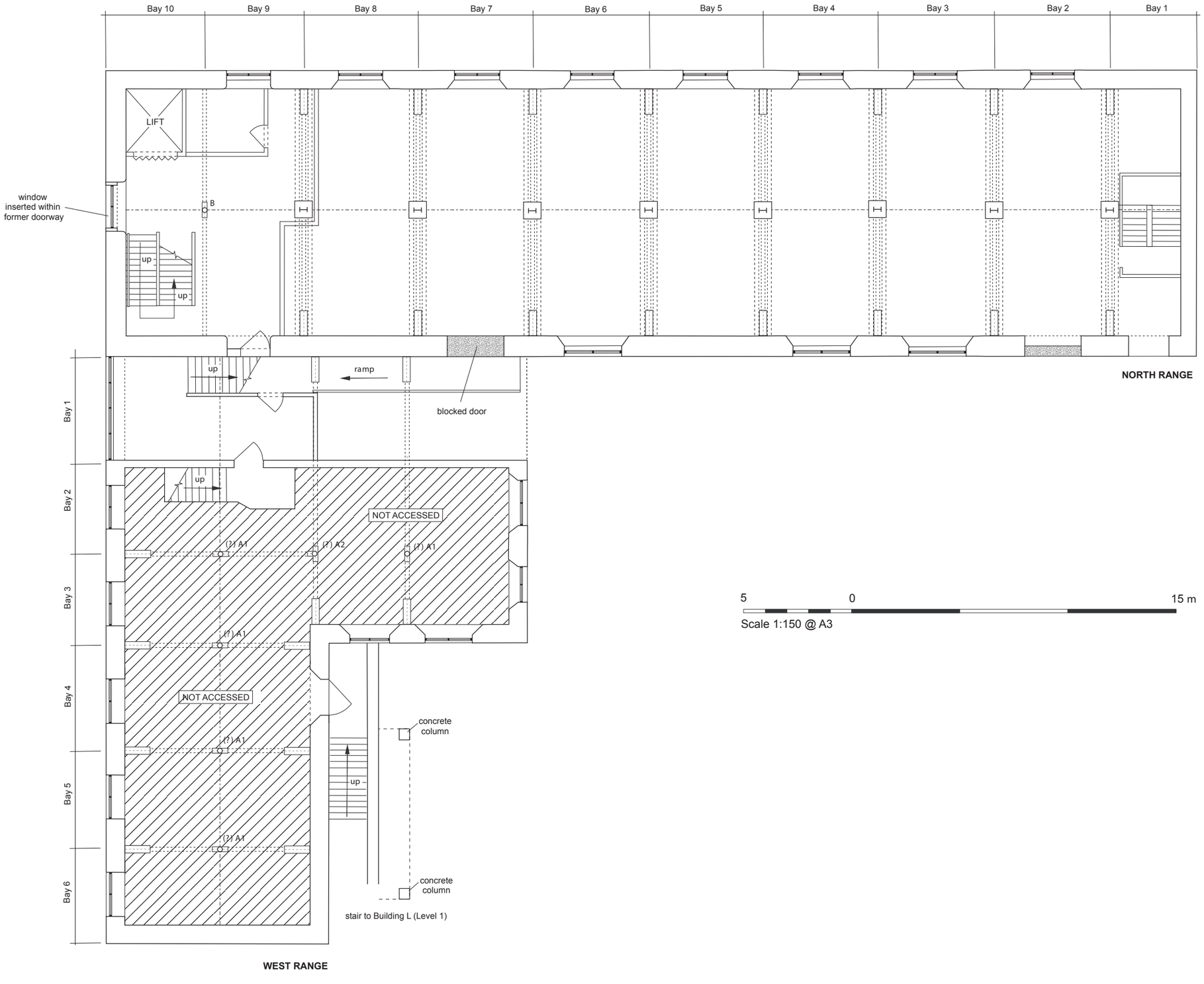


Figure 25: Building K: Level 1 Plan

north
(indicative)



5 0 15 m

Scale 1:150 @ A3

Building Location

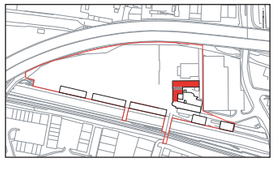
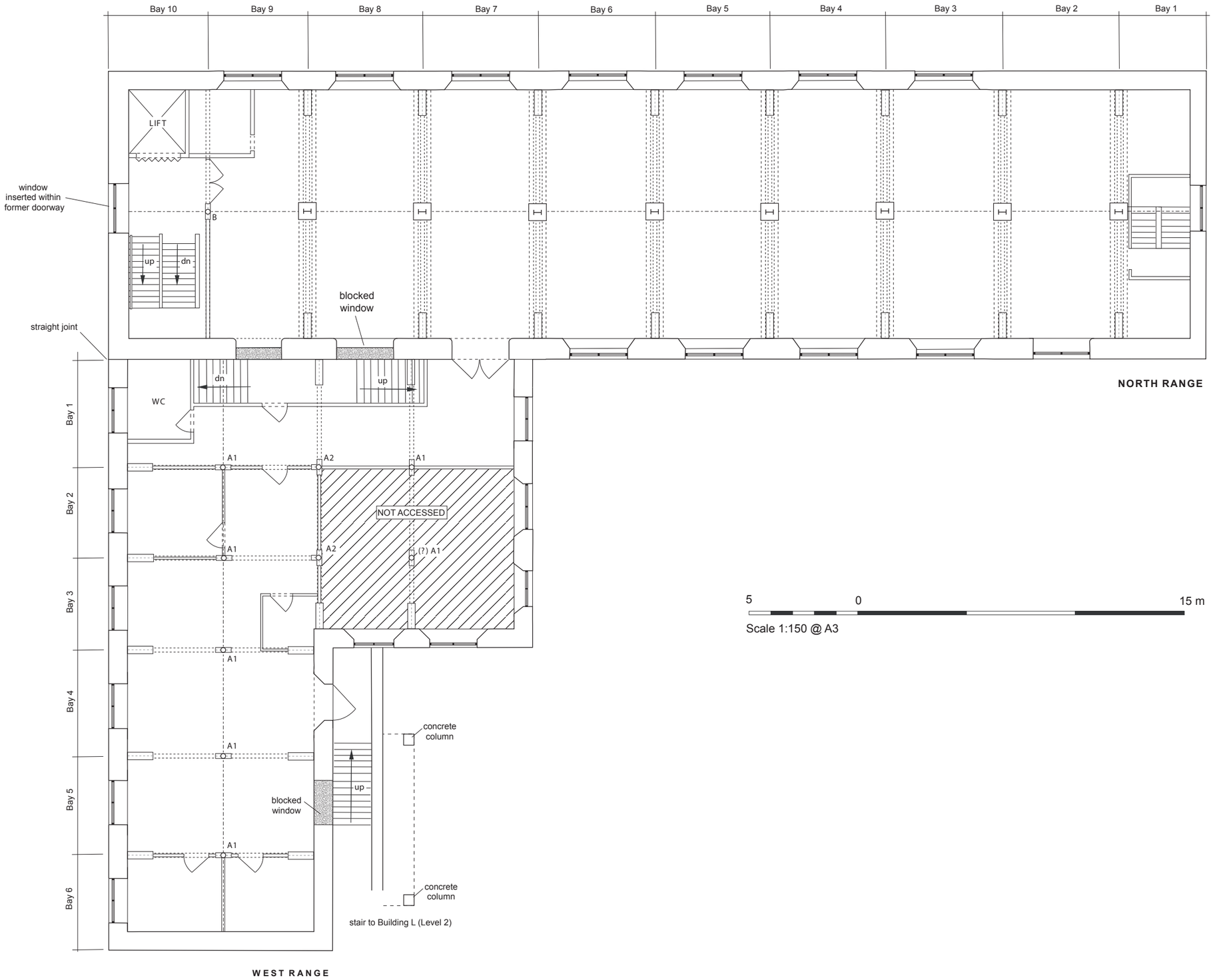


Figure 26: Building K: Level 2 Plan

north
(indicative)



5 0 15 m

Scale 1:150 @ A3

Building Location

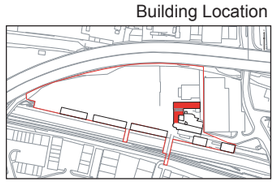
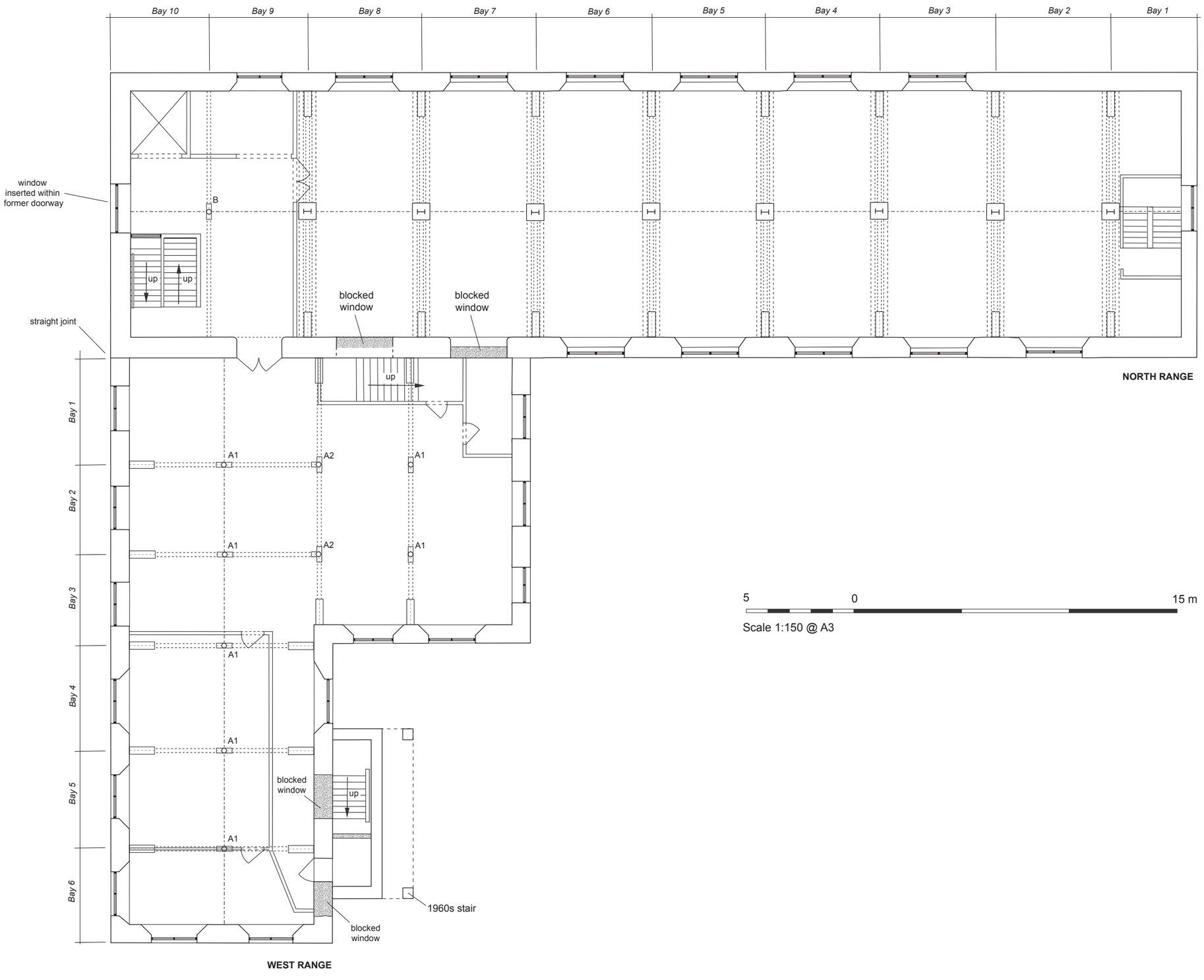


Figure 27: Building K: Level 3 Plan

north
(indicative)



5 0 15 m

Scale 1:150 @ A3

Building Location

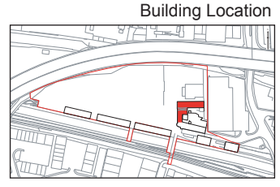
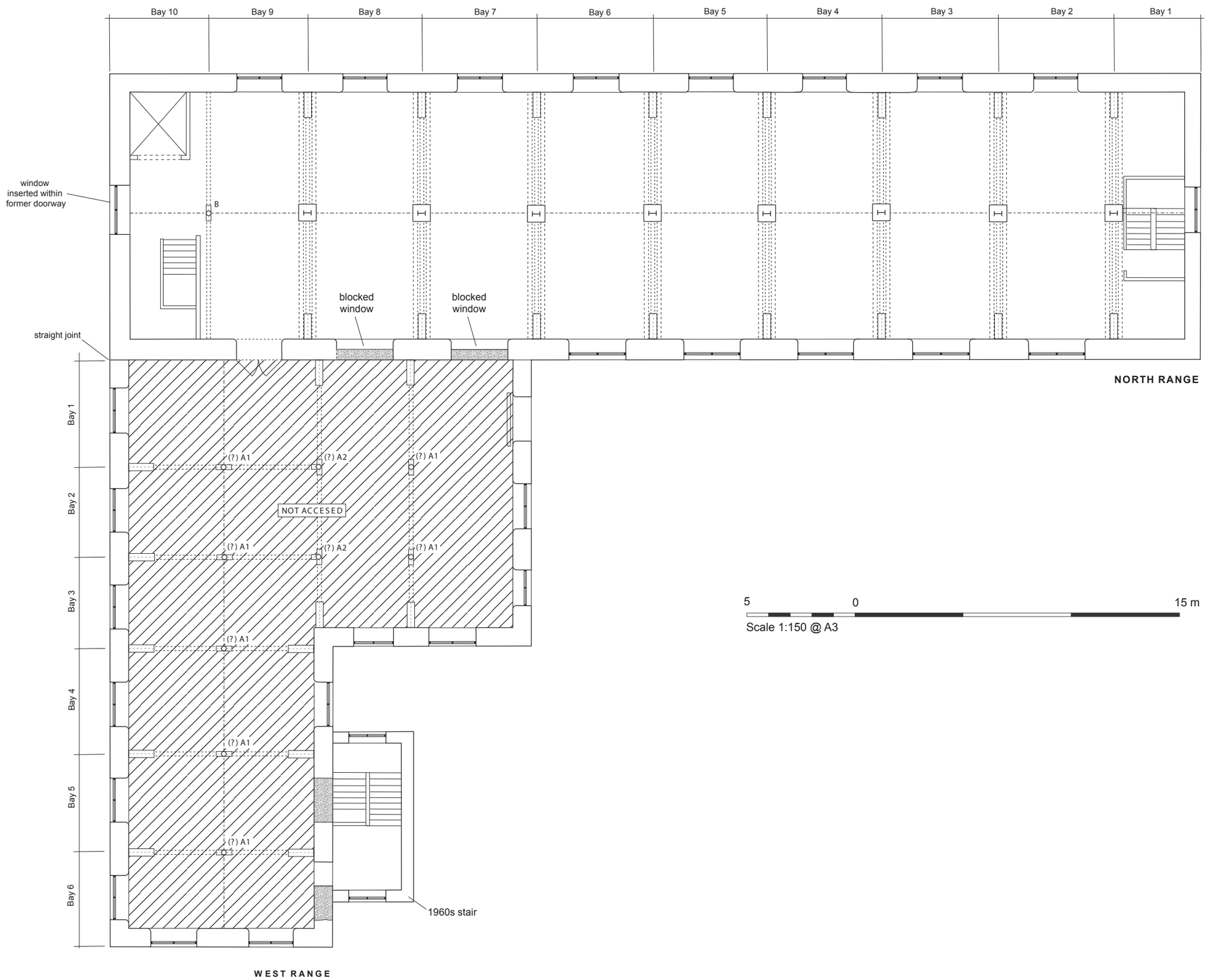


Figure 28: Building K: Level 4 Plan

north
(indicative)



5 0 15 m

Scale 1:150 @ A3

Building Location

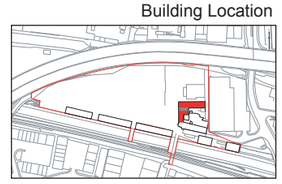
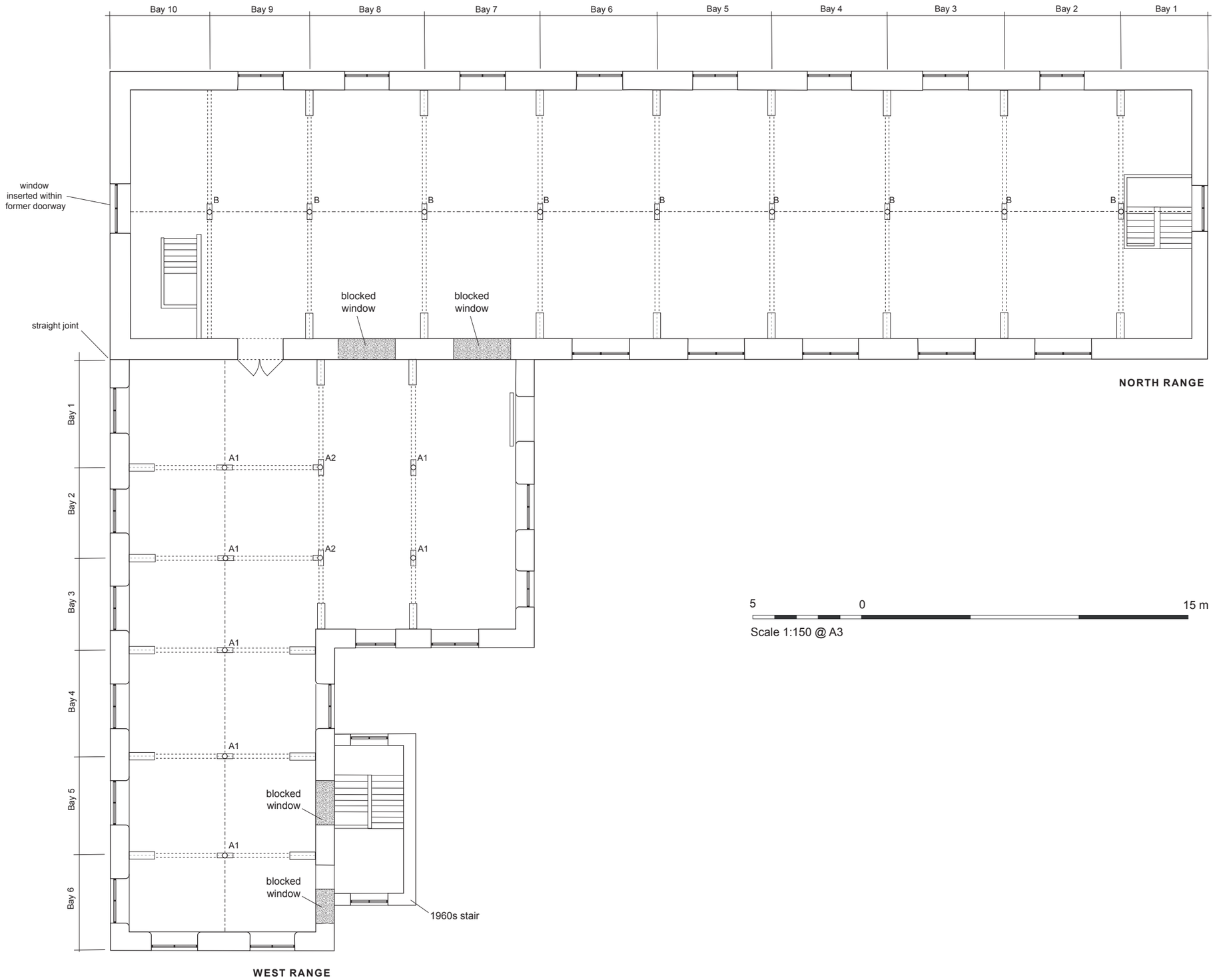


Figure 29: Building K: Level 5 Plan

north
(indicative)



5 0 15 m

Scale 1:150 @ A3

Building Location

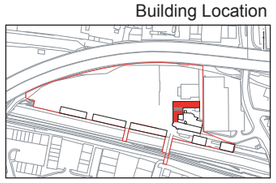
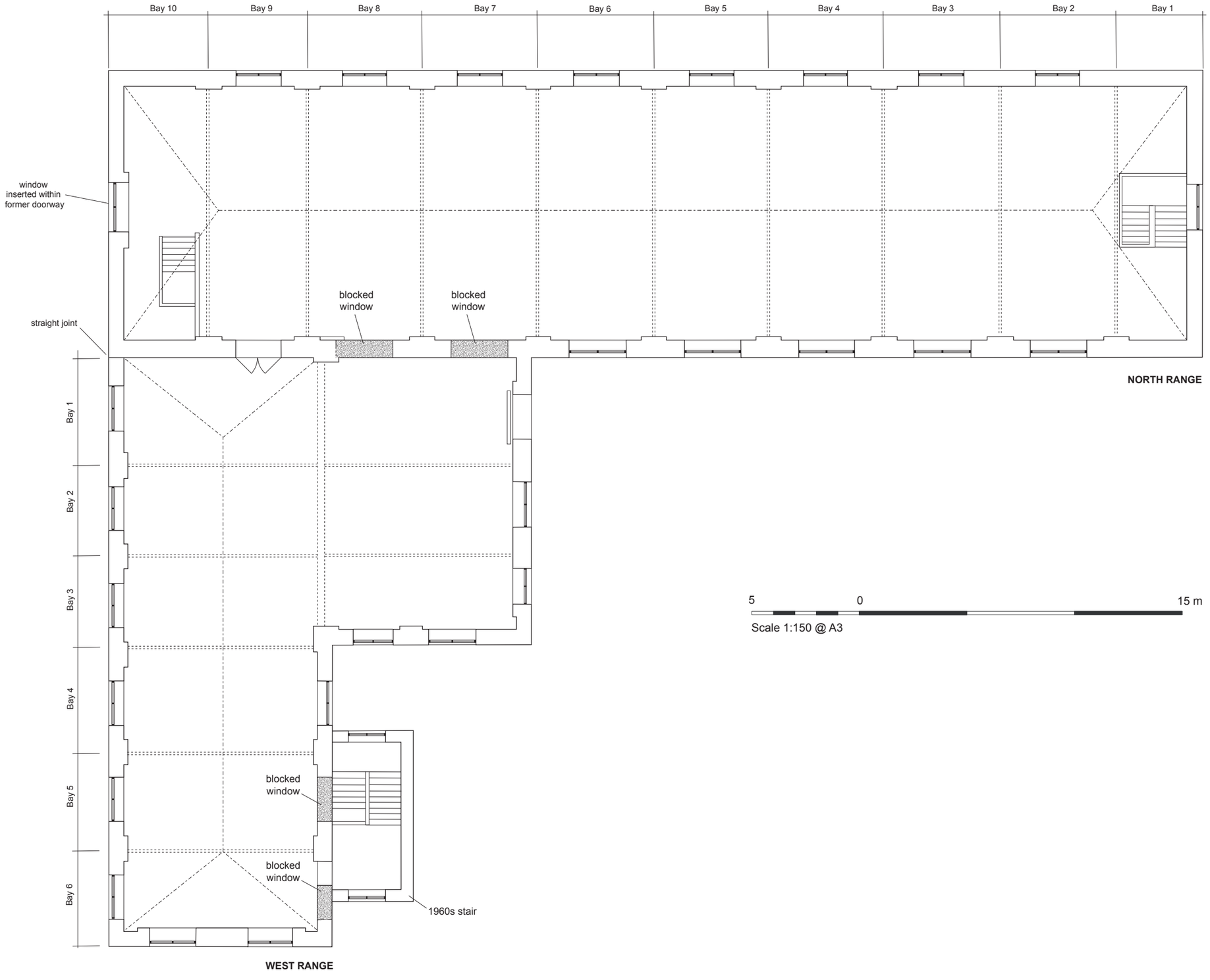


Figure 30: Building K: Level 6 Plan



north
(indicative)

5 0 15 m

Scale 1:150 @ A3

Building Location

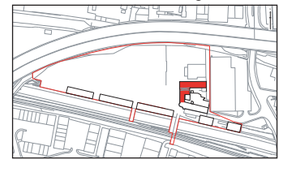
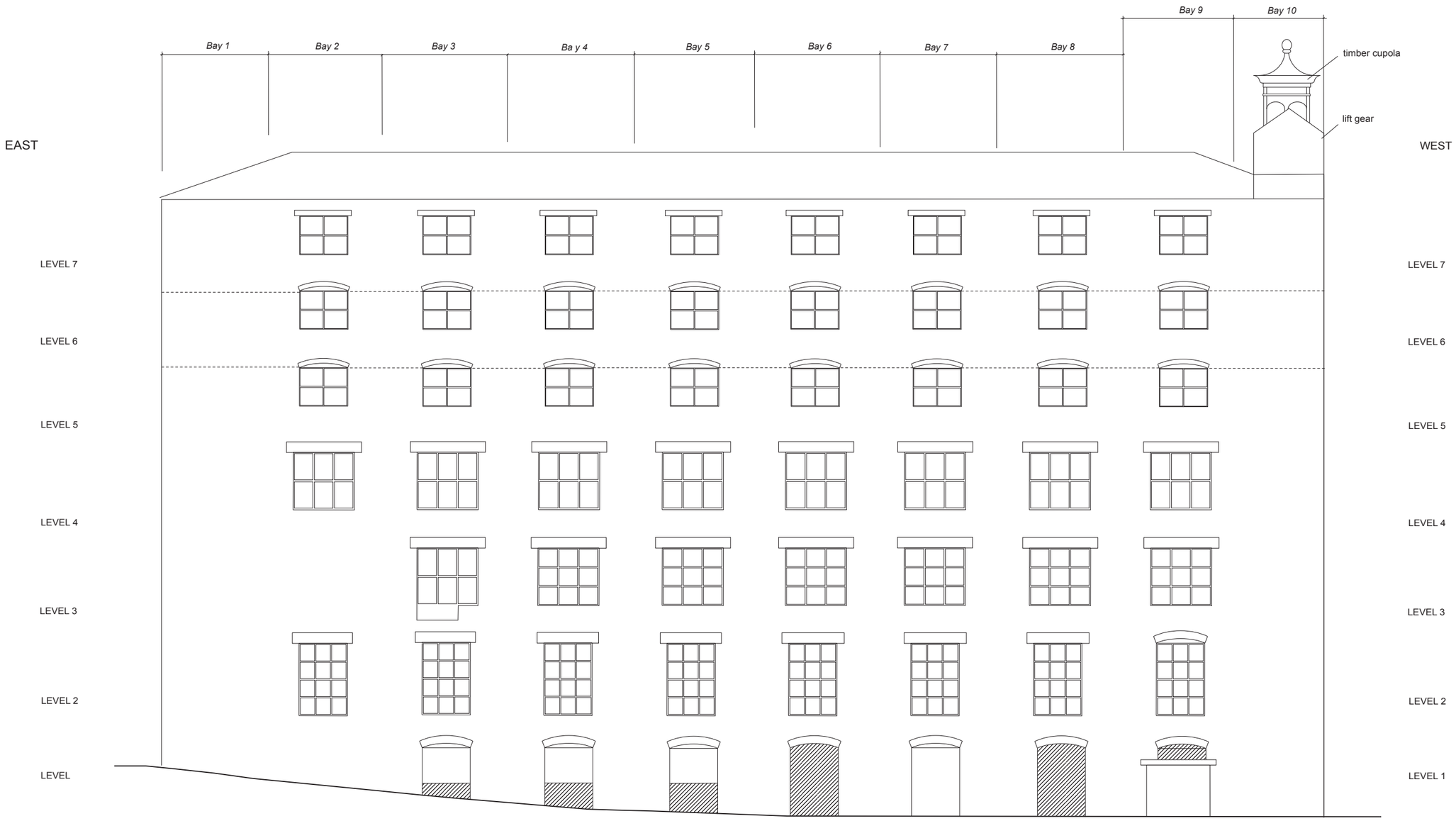


Figure 31: Building K: Level 7 Plan



5 0 15 m

Scale 1:150 @ A3

Building Location

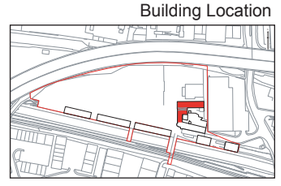


Figure 32: Building K: North elevation

5 0 15 m

Scale 1:150 @ A3

Building Location

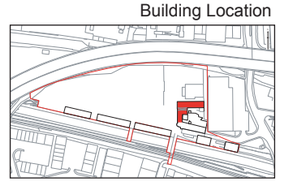


Figure 33: Building K: West elevation

5 0 15 m

Scale 1:150 @ A3

Building Location

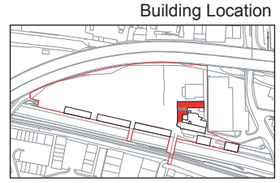
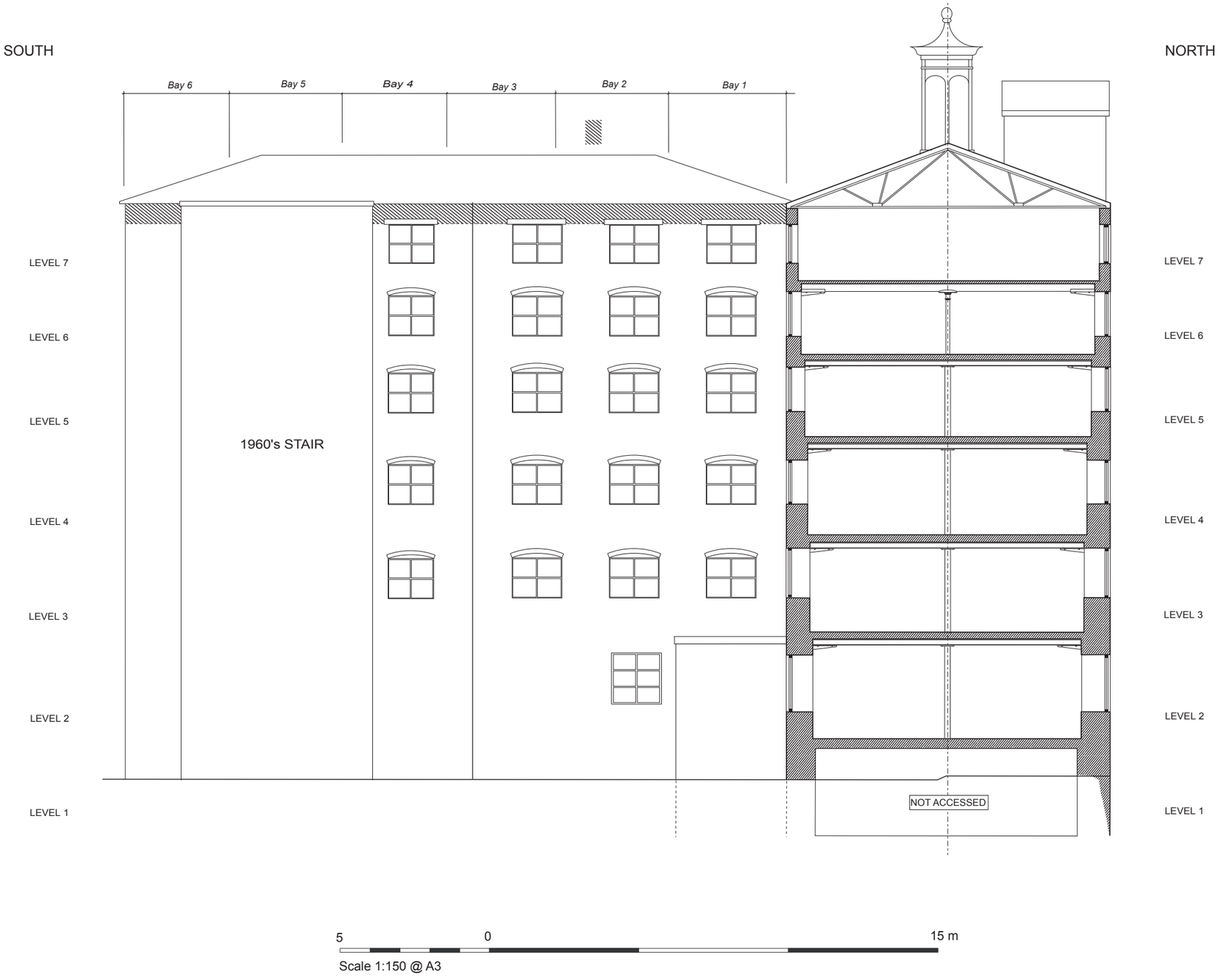


Figure 34: Building K: South, sectional elevation



Building Location

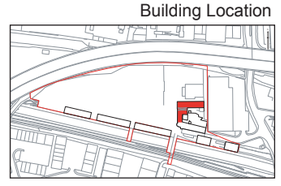
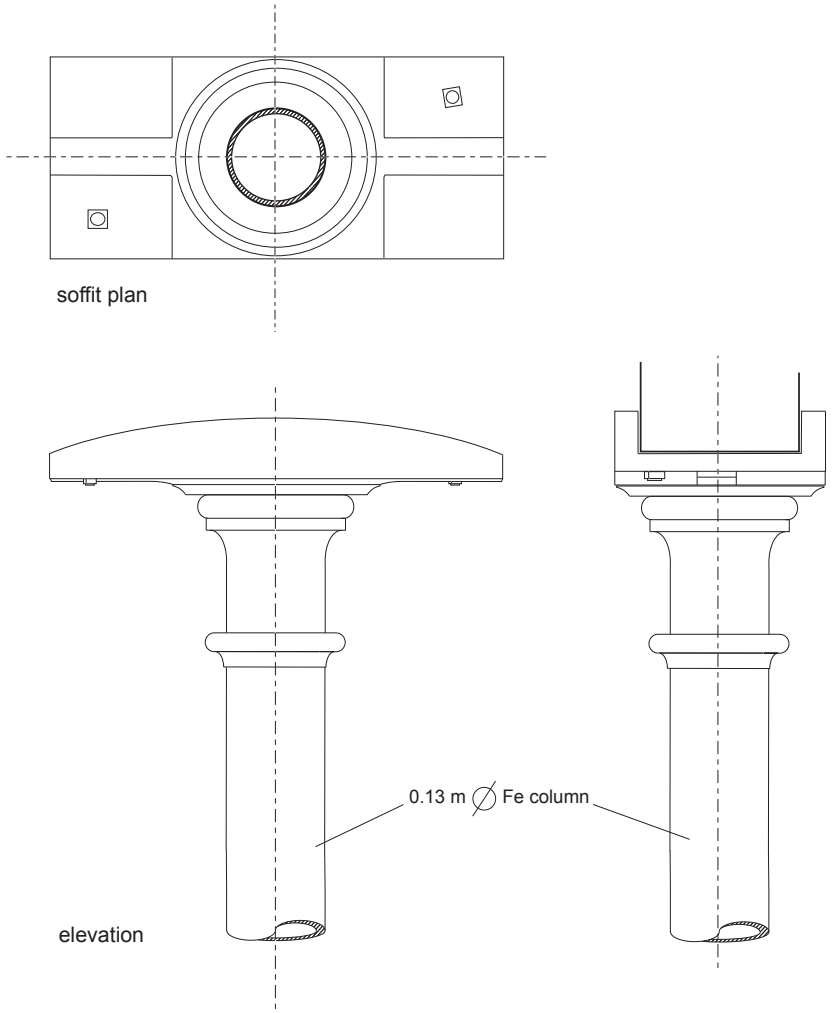
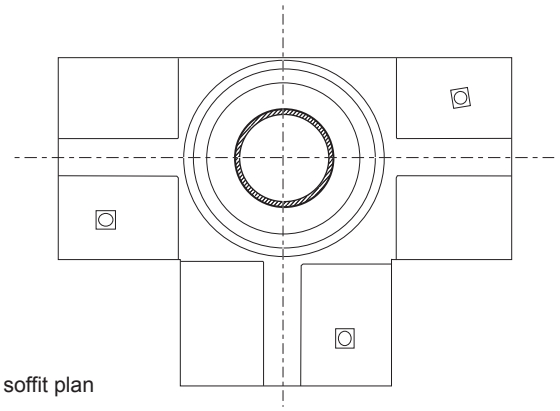


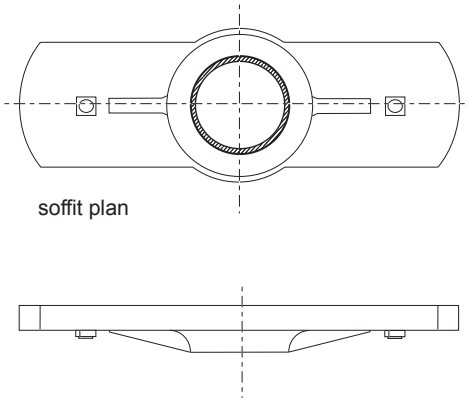
Figure 35: Building K: East, sectional elevation



Mid-span beam support; head-plate detail A1
(Building C, D, E, K)



Mid-span beam support; head-plate detail A2
(Building K)



Mid-span beam support; head-plate detail B
(Building K)

Figure 36: cast-iron support details

Plate 1: General view of site from roof of Building K, looking west (Buildings C, D and E).

Plate 2: General view of site from the east, Buildings A and B in foreground, C, D and E to left; Building L and seven-storey Building K to rear.

Plate 3: General view of site from west, looking along NML canal (Buildings F, E and D).

Plate 4: Buildings A (right) and B (left), view from the south side of NML canal.

Plate 5: Building A, exterior view from the west

Plate 6: Building A, west elevation. Note shadow of former infill block (see Figure 14c).

Plate 7: Building A, interior looking west.

Plate 8: Building A, interior looking east.

Plate 9: Building A: interior east wall; blocked window (left) and door (right).

Plate 10: Building A, north wall, blocked door.

Plate 11: Building A, east wall, blocked archway.

Plate 12: Building A, end ½ trusses.

Plate 13: Building A, view from NML towpath.

Plate 14: Building B, exterior view from the west.

Plate 15: Building B, exterior view from the north-east.

Plate 16: Building B, detail of west elevation; blocked window.

Plate 17: Building B, east elevation. Note shadow of former infill block (see Figure 17d).

Plate 18: Building B, interior view looking west.

Plate 19: Building B, interior view looking east, note blocked windows visible above plant rooms.

Plate 20: Building B, doors to plant rooms.

Plate 21: Building B, roof structure**.**

Plate 22: Building D: general view from the south-east (Building E to left).

Plate 23: Building D: general view from the north-east.

Plate 24: Building D: general view from the north-west.

Plate 25: Building D; Level 1, looking east.

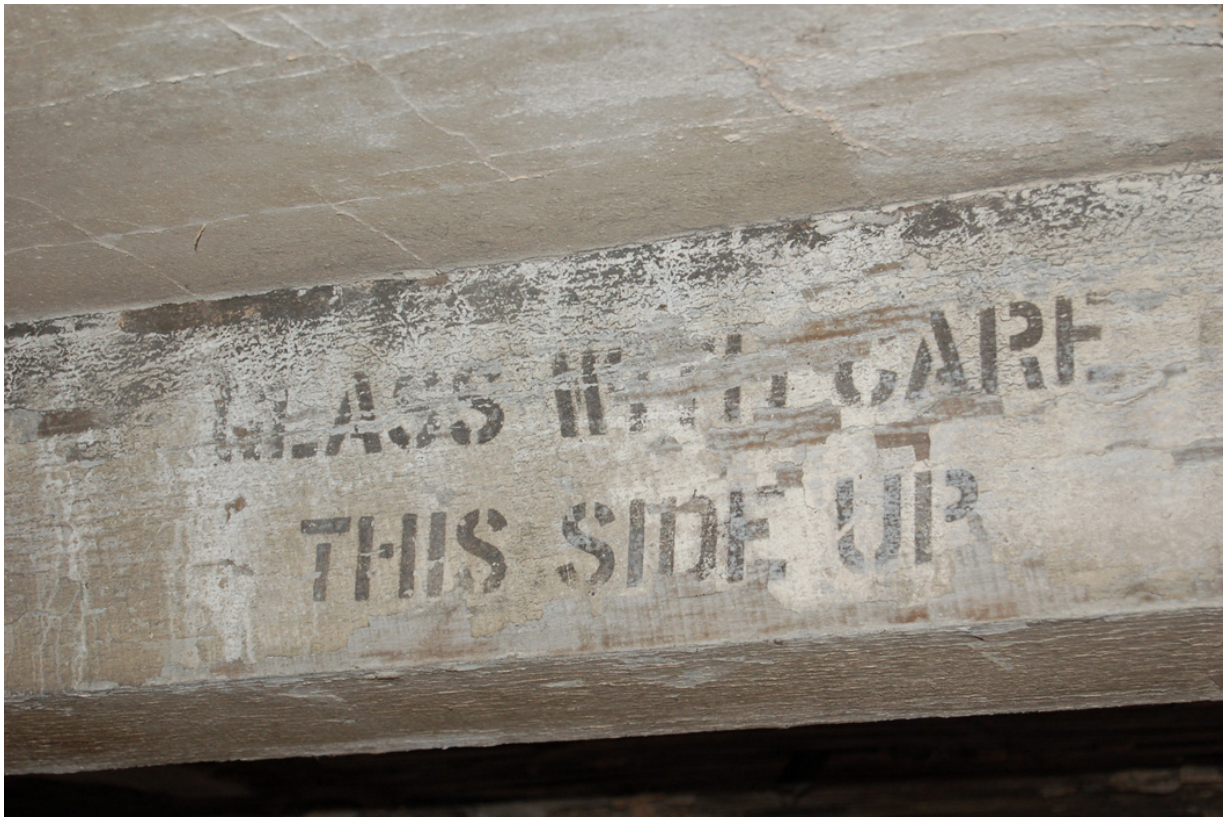


Plate 26: Building D; Level 1 stencilling on ceiling beam.

Plate 27: Building D; Level 1, blocked doorway in west wall.

Plate 28: Building D: Level 1, blocked arched tunnel in north wall (Bay 9).

Plate 29: Building D; Level 1, blocked arched opening in south wall (Bay 9).

Plate 30: Bldg D; Level 1, detail of post base-plate.

Plate 31: Pulley wheels to south side Building D, Level 1.

Plate 32: Building D; Level 2 looking west.

Plate 33: Building D; Level 2, raised floor level at east end (Bays 1and 2).

Plate 34 Bldg D; Level 2 central support column.

Plate 35: Bldg D, stair from Level 2 to 3.

Plate 36: Building D; Level 3 stair rising in Bay 1 (east).

Plate 37: Building D; Level 3, blocked door in Bay 4 (north).

Plate 38: Building D, Level 3, blocked doors in Bays 8, 9 and 10 (north)

Plate 39: Building D; Level 3 looking west. Note hooked hangers below tie.

Plate 40: Building D; Level 3, roof structure.

Plate 41: Building D; Level 3, blocked windows in west wall.

Plate 42: Bldg D; detail of hanger.

Plate 43: Bldg D; Level 3, wall mounted heating pipe brackets.

Plate 44: Building E; general view from the north-east.

Plate 45 Building E; general view from the north-west.

Plate 46: Bldg E, scar of former stair (Bay 1).

Plate 47: Stepped straight joint at Bay 12.

Plate 48: Building E; Level 2 looking west.

Plate 49: Bldg E; Level 2, blocked door in west wall.

Plate 50: Bldg E; Level 2, blocked door in east wall.

Plate 51: Building E; Level 3 looking west.

Plate 52: Building E; Level 3 hoist at Bay 3.

Plate 53: Building E, Level 3, roof structure.

Plate 54: Building E, Level 3 former partitions.

Plate 55: Building K, west elevation.

Plate 56: Bldg K; W elev., Level 1, straight joint.

Plate 57: Bldg K, W elev., Level 7, straight joint.

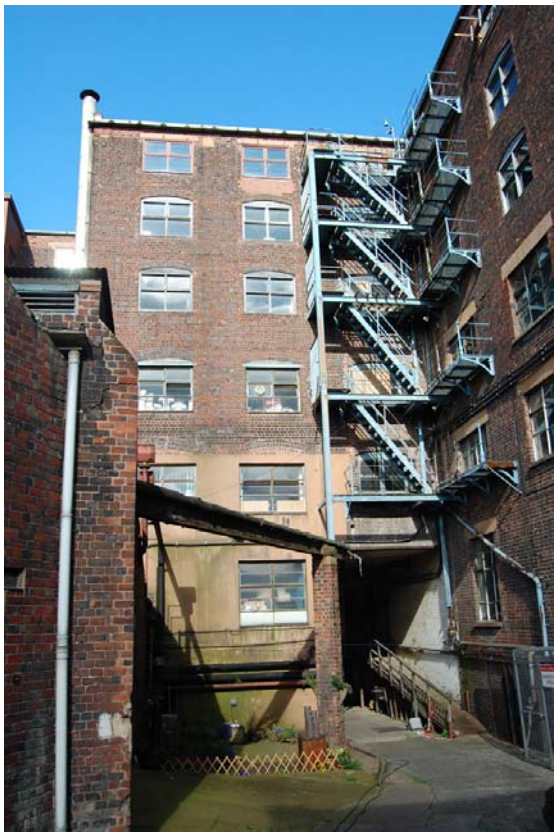


Plate 58: Bldg K, West Range, Yard elevation

Plate 59: Bldg K, N Range, Yard elevation.

Plate 60: Building K, North Range; note rebuild of upper wall and alteration of windows.

Plate 61: Bldg K, entranceway looking west.

Plate 62: entranceway, blocked door (Level 2).

Plate 63: Building K; North Range, Level 2 looking east.

Plate 64: Building K; West Range, Level 4, looking south-east.

Plate 65: Building K; North Range, Level 6 looking east.

Plate 66: Building K; West Range, Level 6 looking south.

Plate 67: Building K; North Range, Level 1 inserted steel stanchion.

Plate 68: Building K; West Range, stair.

Plate 69: Building K; North Range, stair.

Plate 70: Building K; fire door between north and west range (Level 7).

Plate 71: Building K; North Range, Level 7 looking east.

Plate 72: Building K; West Range, Level 7 looking south.