



The South Silo, Ditherington Flax Mill, Shrewsbury, Shropshire

Archaeological Building Investigation



Oxford Archaeology North

September 2013

Feilden Clegg Bradley Studios

Issue No: 2013-14/1443

OA North Job No: L10534

NGR: 349824 313812

Document Title: THE SOUTH SILO, DITHERINGTON FLAX MILL,
SHREWSBURY, SHROPSHIRE

Document Type: Archaeological Building Investigation

Client Name: Feilden Clegg Bradley Studios

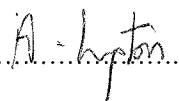
Issue Number: 2013-14/1443
OA Job Number: L10534
National Grid Reference: 349824 313812

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CONTENTS

SUMMARY	2
ACKNOWLEDGEMENTS.....	3
1. INTRODUCTION	4
1.1 Circumstances of the Project.....	4
1.2 Site Location	4
2. METHODOLOGY.....	5
2.1 Building Investigation.....	5
2.2 Archive.....	5
3. BUILDING INVESTIGATION	6
3.1 Introduction	6
3.2 Exterior.....	7
3.3 Interior.....	15
ILLUSTRATIONS	24
List of Figures	24

SUMMARY

As part of a major scheme of regeneration and repair works at Ditherington Flax Mill in Shrewsbury, Oxford Archaeology North (OA North) was commissioned by Fielden Clegg Bradley Studios, acting on behalf of English Heritage, to carry out a programme of archaeological building recording. The work was targeted on the South Silo (centred on NGR 349824 313812), a barley-storage silo that was added to the site in 1951.

Regeneration proposals allow for the repair of most of the buildings on the site, although the South Silo is beyond economic repair and has thus been recommended for demolition. In order to mitigate the ultimate loss of the structure, it was recommended by English Heritage that an archaeological building investigation of the South Silo was carried out prior to its demolition.

The building investigation was intended to be commensurate with an English Heritage Level 3-type survey, which would comprise a detailed photographic record, measured survey and written description of the South Silo prior to its proposed demolition.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Tim Greensmith, of Fielden Clegg Bradley Studios, for commissioning and supporting the project on behalf of English Heritage. Thanks are also expressed to Philip Belchere, Principal Conservation and Design Officer for Shropshire Council, for his support and advice.

The archaeological building investigation report was carried out by Chris Wild, and the illustrations, based on measured survey drawings supplied by Fielden Clegg Bradley Studios, were prepared by Mark Tidmarsh. The report was compiled by Chris Wild, and was edited by Ian Miller, who was also responsible for project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Feilden Clegg Bradley Studios, acting on behalf of English Heritage, is developing proposals for a scheme of regeneration, repair and development of the Ditherington Flax Mill. The flax mill complex is of immense archaeological and historical significance, which is reflected in the designation of several components as Grade I, Grade II* and Grade II listed buildings, although these buildings are in a state of dangerous neglect and decay as they have been in vacant possession since 1987.
- 1.1.2 Regeneration proposals allow for the repair of most of the buildings on the site, although a silo intended for the storage of barley grain that was added to the complex in 1951 is beyond economic repair, and has thus been recommended for demolition. In order to mitigate the ultimate loss of the structure, it was recommended by English Heritage that an archaeological building investigation of the silo was carried out prior to its demolition.

1.2 SITE LOCATION

- 1.2.1 The study area is situated in Ditherington, in the northern part of Shrewsbury (Fig 1). The site occupies a level plot of land, lying at a height of approximately 60m above Ordnance Datum (aOD). It is bounded to the west by the railway line from Shrewsbury to Crewe, to the east by the A5191 (here named Spring Gardens), and to the north and south by twentieth-century housing estates. The South Silo occupies the south-western part of the site (centred on NGR 349824 313812).



Plate 1: Recent aerial view of the site, with arrow marking the South Silo

2. METHODOLOGY

2.1 BUILDING INVESTIGATION

- 2.1.1 The building investigation aimed to provide an understanding of the historic fabric and key architectural features of the South Silo, and to provide an archive record of the structure prior to its demolition. It has provided a drawn, photographic and textual record of the buildings to English Heritage (2006) Level 3 standard. Records were made of all principal structural elements, both internal and external, as well as any features of historical or architectural significance.
- 2.1.2 The South Silo was designated as Building J within a recent archaeological gazetteer compiled of the entire site (OA North 2013). Individual elements of the structure were assigned feature numbers, and these have been replicated within the descriptive record below.
- 2.1.3 **Photographs:** photographs were taken in high-resolution digital format (15MP). The photographic archive consists of both general shots of the building, as well as shots of specific architectural details.
- 2.1.4 **Instrument Survey:** measured survey plans of the building were supplied by Fielden Clegg Bradley Studios. The drawings were used as a basis for annotation to illustrate the development of the building. Detail captured by the annotation included features such as window and door openings, and changes in building material and phasing. The final drawings are presented through an industry standard CAD package (AutoCAD 2004).
- 2.1.5 **Interpretation and Analysis:** an inspection of the exterior of the buildings was undertaken and a description maintained to English Heritage (2006) Level 3. These records are essentially descriptive, and provide a systematic account of the origin, development and use of the mill complex.
- 2.1.6 **Descriptive record:** written records using OA North *pro-forma* record sheets were made of the building. These records are essentially descriptive, although interpretation was carried out on site as required. All work carried out was consistent with the relevant standards and procedures provided by the Institute for Archaeologists (IfA), and their code of conduct.

2.2 ARCHIVE

- 2.2.1 A full archive of the work has been prepared to a professional standard in accordance with current English Heritage guidelines (1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The archive will be deposited with the Shropshire Record Office on completion of the project. In addition, a copy of the report will be forwarded to the National Monuments Record (NMR).

3. BUILDING INVESTIGATION

3.1 INTRODUCTION

- 3.1.1 The South Silo was the first of two concrete silos added to the Shropshire Maltings site between 1950 and 1960. It was erected in 1951 for the storage of barley, occupying the site of the original gas holder, with a later silo intended for malt storage that was erected to the north in 1960. The structure comprises reinforced-concrete with a cantilevered canopy on its eastern side, and a projecting stair tower on the western face affording access to a narrower walkway on the top floor, which had a flat roof.
- 3.1.2 The silo comprised a rectangular steel frame measuring 63 x 44' (19.22 x 13.42m). This was divided by vertical steel posts, encased within a 20" (0.52m) concrete-shuttered columns into five bays of 11'6" (3.81m) on the east / west axis. The north / south axis had three similarly formed bays, although these were slightly wider, at 4.46m (Fig 2). Similar vertical columns were placed on comparable spacings to the external wall, forming a structural frame comprising 24 vertical steel posts within the frame (Fig 2). These were braced by 9½" (0.24m) wide, horizontal, I-section beams at each floor level. The steel frame was infilled with concrete panels, formed in shuttered lifts of approximately 4' (1.22m) height and to a thickness of 4⅓" (0.11m). This was internally reinforced with rounded steel bars of ½" (13mm) and ⅓" (8mm) diameter.



Plate 2: General view of Ditherington Flax Mill Maltings from the west, showing the South Silo on the right of the complex

3.2 EXTERIOR

- 3.2.1 Each façade of the external walls (*J/01*) was formed of projecting columns, encasing the steel frame infilled with plain concrete panels (Fig 3; Plate 3). The columns projected 3" (0.08m) from the wall face, with visible horizontal banding from the joints between the 4' (1.22m) lifts (Plate 4), although all but the ground floor of the eastern elevation were largely obscured by protective netting (Plates 3 and 4). Each elevation was also capped with concrete flag copings, which projected slightly beyond the wall face (Fig 4; Plate 4).



Plate 3: General view of the South Silo from the south-east



Plate 4: Upper part of south wall

- 3.2.2 The eastern façade fronted the main access through the complex, and had a wide loading bay (*J/06*) at ground-floor level (Plates 3 and 5). This comprised three 8'2 (2.44m²) apertures between the structural columns, the southern of which was brick blocked, but the remainder having vertical roller shutter doors (Plate 5). All had flush sills, but a projecting sill or fender (*J/07*) was placed on the external face (Plate 5), and was of scarf-jointed timber construction (Plate 6). A cantilevered canopy (*J/05*), also of concrete construction, projected 12' (3.66m) beyond the east wall (Fig 2). This was barrel-vaulted on its underside, inside the shuttered outer frame, which had a parapet above its flat upper surface (Plate 3). The top of the canopy drained through the parapet adjacent to the east wall at either end, through bent lead pipes into plastic hoppers (*J/09*) placed within the downpipes from the main roof on the long elevations (Plate 7). An additional drain in the canopy was placed at the front edge in the north-eastern corner, with a further plastic hopper and pipe feeding that by the east wall (Plate 7). An alarm bell (*J/08*) was placed approximately centrally below the canopy, presumably functioning more as a service bell, rather than as an alarm.
- 3.2.3 At the top of the east wall, a galvanised aluminium pipe (*J/10*) projected from the wall face (Plate 8), and spanned the yard, entering the main mill at first-floor level, and allowing barley to be diverted straight the malting tanks. Externally, the pipe was braced to the wall coping with two steel cables (Plate 8), and had an internal dog-leg to a feed hatch in the floor of the roof-level structure (Plate 9).



Plate 5: Loading bay with canopy in east elevation



Plate 6: Detail of scarf joint in loading bay fender



Plate 7: Detail of canopy gutters, north wall



Plate 8: Grain pipe J/10 from South Silo to Main Mill



Plate 9: Feed chute for pipe J/10 to Main Mill

3.2.4 The south wall had shallow horizontal cellar-light windows to the basement, comprising four-light galvanised frames, the two central lights opening on a bottom-hung hinge. Taller vertical windows were placed directly above at ground-floor level (*J/02*), and were boarded externally, but retained 16-light vertical galvanised steel frames with four-light central tilt openings internally. Further windows of similar width were provided to the upper floor (*J/03*), and were much shorter, housing eight-light windows with a two-light tilt placed centrally in the upper row (Plate 4).

- 3.2.5 The north wall was of similar style to the south wall, except at ground-floor level, which only housed windows in the western three bays (Fig 3). The adjacent bay had a small single boarded light, with a doorway (*J/12*) and associated steel stair (*J/11*) in the eastern bay (Fig 3; Plate 10).



Plate 10: Stair access to ground floor, north wall

- 3.2.6 The west wall was devoid of features, but had a 15'6" x 8'3" (4.72 x 2.51m) rectangular stair tower (*J/14*) projecting from the wall face (Plate 11), which was offset slightly to the north of centre (Fig 3). It had a chamfered plinth at internal ground-floor level, which was accessed by a straight concrete stair in its northern face (*J/13*) from external ground level (Plate 12). This had a steel pipe banister, similar to that to the stair in the north-east corner (Plate 10). The doorway (*J/15*) had a four-light vertical window offset on its western side, with similar windows (*J/16*) centrally placed to each of the seven landings above (Fig 3). The south wall of the stair tower had similar windows, centrally placed on each landing, and with a shorter two-light window at basement level (Fig 2).
- 3.2.7 The silo was bounded by a concrete external floor, into which was set an open ceramic pipe gutter (*J/41*) following the outside walls of the silo, with a wider arc around the projecting stair tower (Plate 13).



Plate 11: Stair tower



Plate 12: External stair to stair tower



Plate 13: External drain, west of stair tower

3.3 INTERIOR

- 3.3.1 Internal access afforded at raised ground-floor level via the loading bay in the east wall, the stair at the eastern end of the north wall, and from the stair tower on the west wall. Floor level was at approximately 5'6" (1.68m) above external ground level, and was of concrete slab (*J/25*) construction (Plate 14).



Plate 14: Ground floor

3.3.2 The structure incorporated a basement, placed partially above external ground level, and accessed via the stair tower and by two additional concrete stairs (Fig 2). These were of similar cast, open-string construction, with steel pipe banisters (Plate 15), and were placed in the northern bay against the west wall (*J/26*), and in the penultimate eastern bay against the south wall (*J/21*). Each bay was divided by a concrete-shuttered column (*J/22*), with the soffit of the associated horizontal bracing beams (*J/23*) projecting within a chamfered concrete casing (Plate 15) of 12 x 9" (0.30 x 0.24m). Each bay in the basement also had a 6¼" (0.16m) diameter metal pipe projected through the ceiling, offset from the centre, and directly below circular covers (*J/20*) at ground-floor level (Plate 17). The original electric lighting (*J/25*) was also extant in the basement and stair tower, complete with enamelled light shades (Plate 16).



Plate 15: Basement stair, column, and ceiling beam



Plate 16: Detail of ceiling beam and basement lighting



Plate 17: Cover for aperture in ground floor

- 3.3.3 At ground-floor level, the structure housed the base of 15 tall concrete silos (**J/32**), each one measuring 11'6" x 9'9" (5.51 x 2.98m), and placed centrally within each bay (Fig 2), between the continuation of the vertical concrete-shuttered columns (**J/17**). Each had a pyramidal base, terminating in a 2'2" (0.61m²) mounting plate (**J/18**), placed 7'10" (2.39m) above floor level, and with a central 8 x 6" (0.21 x 0.15m) square opening (Plate 18) surrounded by four bolts to mount a chute. Each of the four faces of the tapering silo base also had a rectangular access hatch (**J/19**), with internal steel rod grille (Plate 18), similar to areas of floor construction within the Malt Kiln and Drying Stove House (Fig 1). Each of the apertures in the ground level floor was offset from the centre of each bay, and was capped with a circular metal cap with removable centre (Plate 17).



Plate 18: Detail of base of grain silo



Plate 19: Access panel in base of grain silo

- 3.3.4 The stair tower had stairs similar to those serving the basement, comprising open-string pre-cast concrete straight stairs of 12 steps (*J/28*), with steel pipe balusters and handrails (*J/29*) between concrete landings. Adjacent to the stairs at basement level, below the ground-floor landing, the stair tower housed a water-filled tank (*J/27*), although it remains unclear whether this was an original feature, or merely represented subsequent flooding. Each landing had a transverse chamfered concrete beam (Plate 20) with an adjacent 5' x 21" (1.52 x 0.53m) rectangular aperture in the floor (*J/31*) below mounting bolts on two channel-section beams (*J/36*) placed in the tower roof, and carried on chamfered concrete rails (*J/37*) projecting from the end walls of the stair tower (Plate 21). Two short lengths of similar concrete rail placed at the northern end of the side walls, below the rail in north wall presumably carried the motor for a hoist. The sixth floor of the tower housed the fuse array (*J/30*) for the electrical power supply of the building (Plate 22).



Plate 20: Aperture in stair tower landing



Plate 21: Ceiling beam and supporting rails for hoist in stair tower



Plate 22: Fuse array in stair tower

- 3.3.5 The sixth floor also afforded access to the top of the 15 hoppers, arranged in three east/west aligned rows of five, with 3' (0.91m) wide gantries between with steel pipe hand rails (*J/33*) around the top of each row of silos (Plate 23), which were approximately 15m deep (Plate 24). The rails of the outer rows were bolted to more slender 9" (0.23m) square columns, which carried 6" (0.15m) wide transverse concrete ceiling beams. The outer rows of silos had 1' (0.30m) square apertures (*J/34*) in the ceiling above, whilst those of the central row (*J/35*) were 18" (0.46m) wide, and approximately 7' (2.13m) long (Plate 25). Those of the outer row serviced concrete, cowled ventilators (*J/38*) on the flat concrete roof above (Plate 26), whilst the larger voids above the central row were placed through the floor of a single-bay wide seventh floor. Each bay retained an eight-light horizontal galvanised steel window, with central top-hung two-light vent, similar in style to those on the floors below.



Plate 23: Sixth floor of South Silo at grain silo head level



Plate 24: Interior of grain silo



Plate 25: aperture to seventh floor above central row of silos



Plate 26: Vent cowl and guard rail on flat roof

- 3.3.6 The single-bay wide seventh floor was of only 7' (2.13m) height, and was 1' (0.30m) shorter in length than the structure below, being placed inside the parapet wall above the main structure. Each of the five bays housed an eight-light horizontal window (*J/40*), similar to those on the floor below (Plate 27). The bays were divided by chamfered 6" (0.15m) concrete ceiling beams below the flat roof. This was presumably covered with a bituminous paint, similar to that used on the flat roofs at seventh-floor level in the north and south bays (Plate 26). These were also edged with a steel pipe handrail (*J/39*) set on concrete feet (Plate 26), suggesting that access to the vents was periodically required. The apertures in the floor, to the silos below were timber shuttered (Plate 27).



Plate 27: Seventh floor above grain silos

ILLUSTRATIONS

LIST OF FIGURES

Figure 1: Location of the South Silo on the Ditherington Flax Mill site

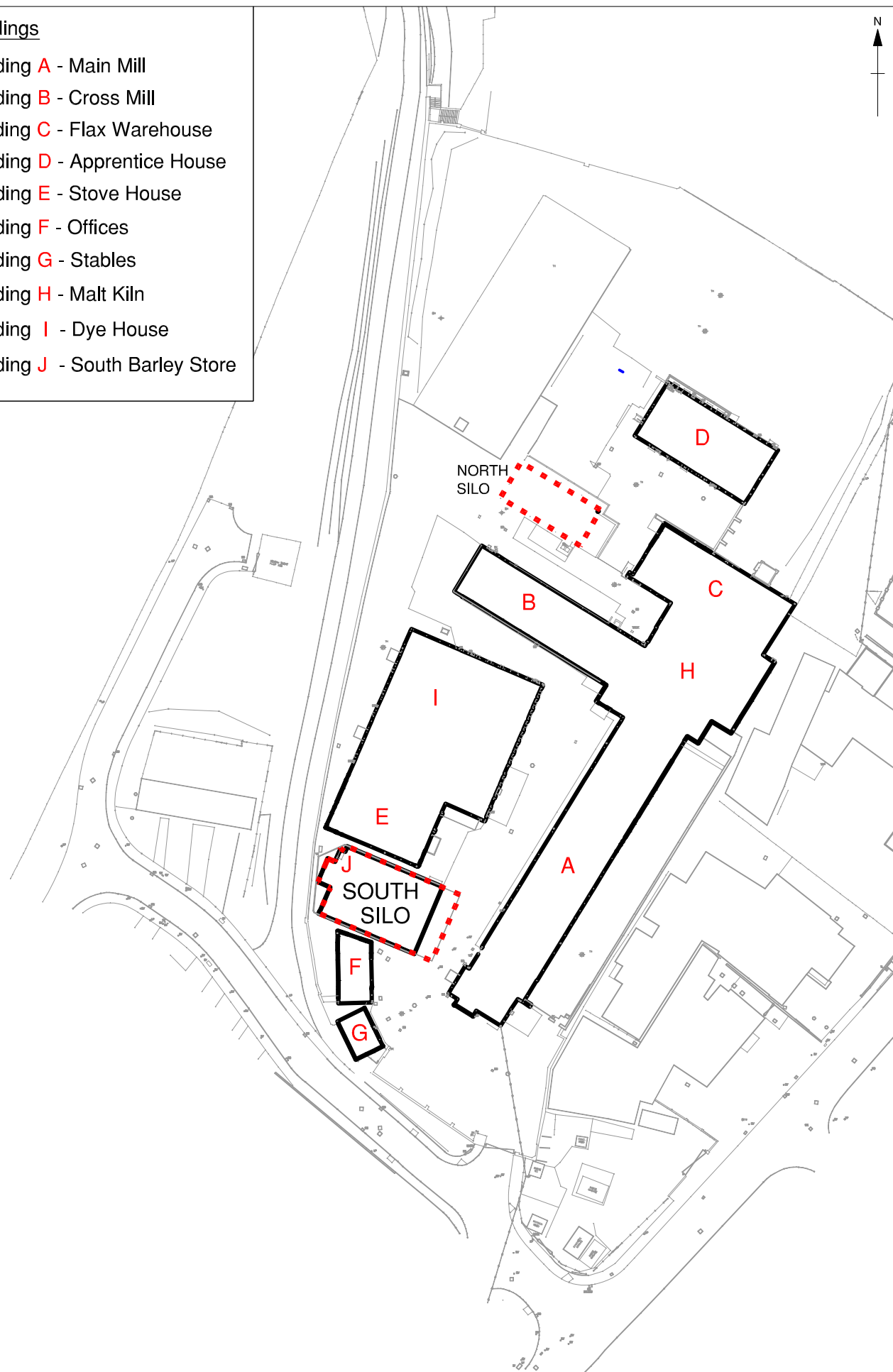
Figure 2: Plans of the South Silo

Figure 3: Elevations of the South Silo

Figure 4: Sections of the South Silo

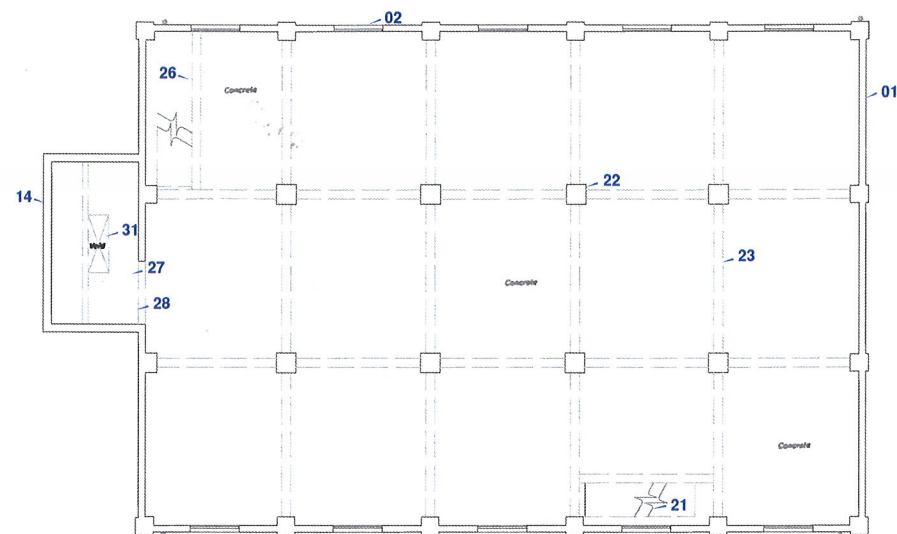
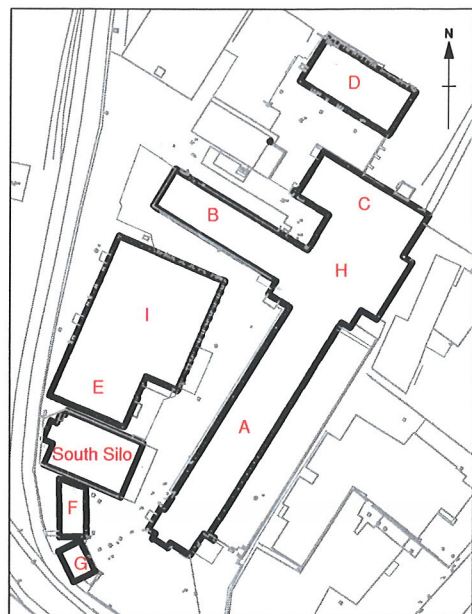
Buildings

- Building **A** - Main Mill
- Building **B** - Cross Mill
- Building **C** - Flax Warehouse
- Building **D** - Apprentice House
- Building **E** - Stove House
- Building **F** - Offices
- Building **G** - Stables
- Building **H** - Malt Kiln
- Building **I** - Dye House
- Building **J** - South Barley Store

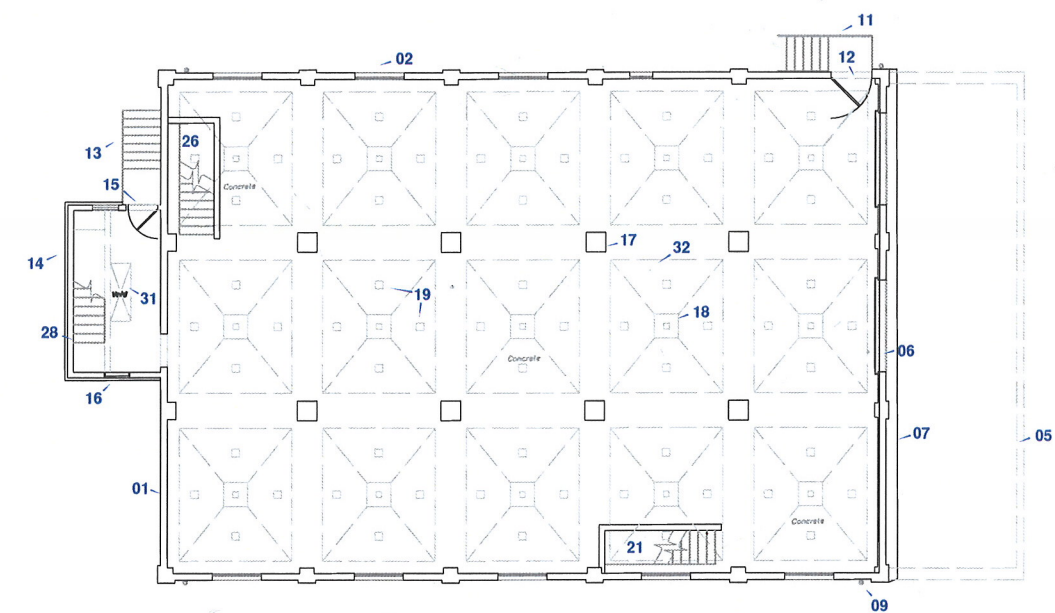


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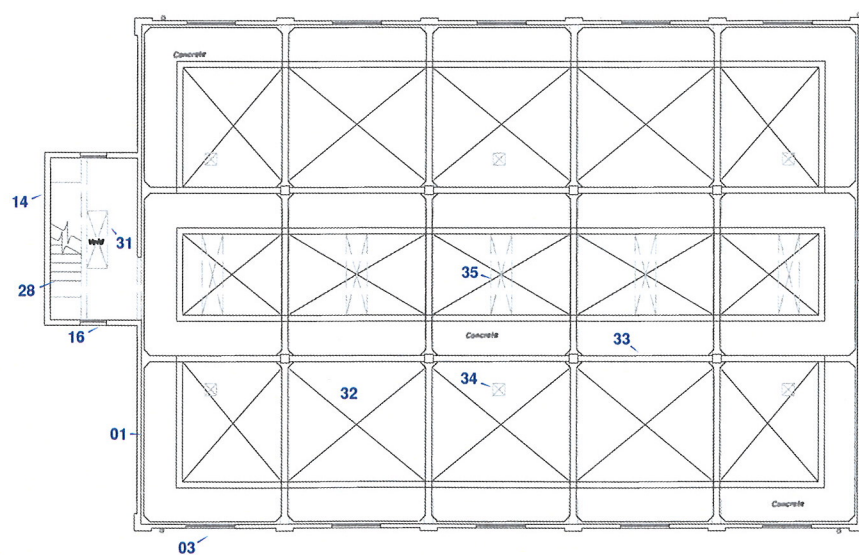
Figure 1: Location of the South Silo on the Ditherington Flax Mill site



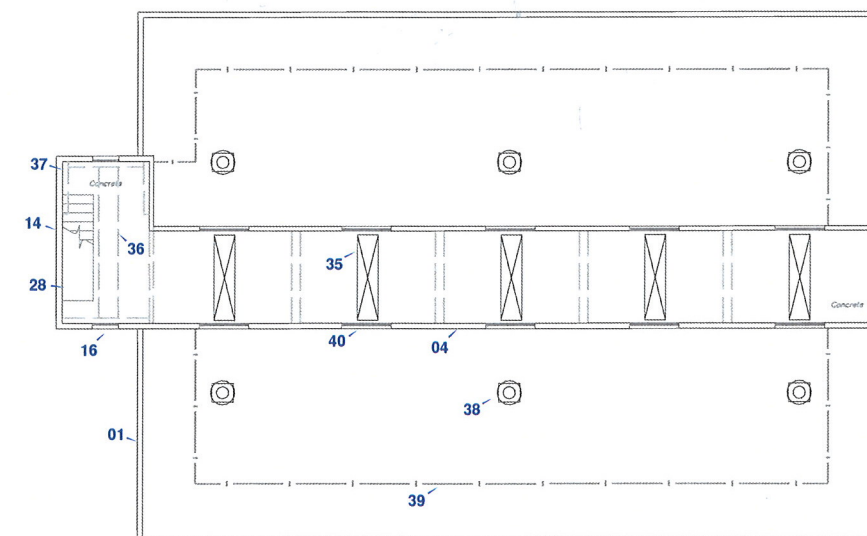
Basement



Ground Floor

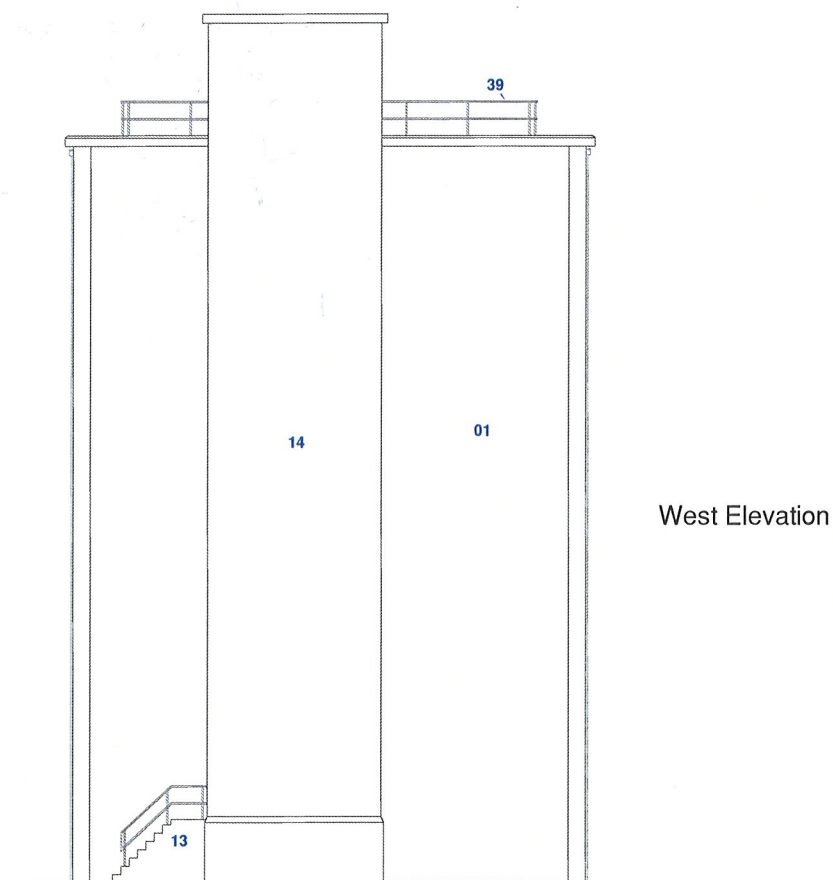
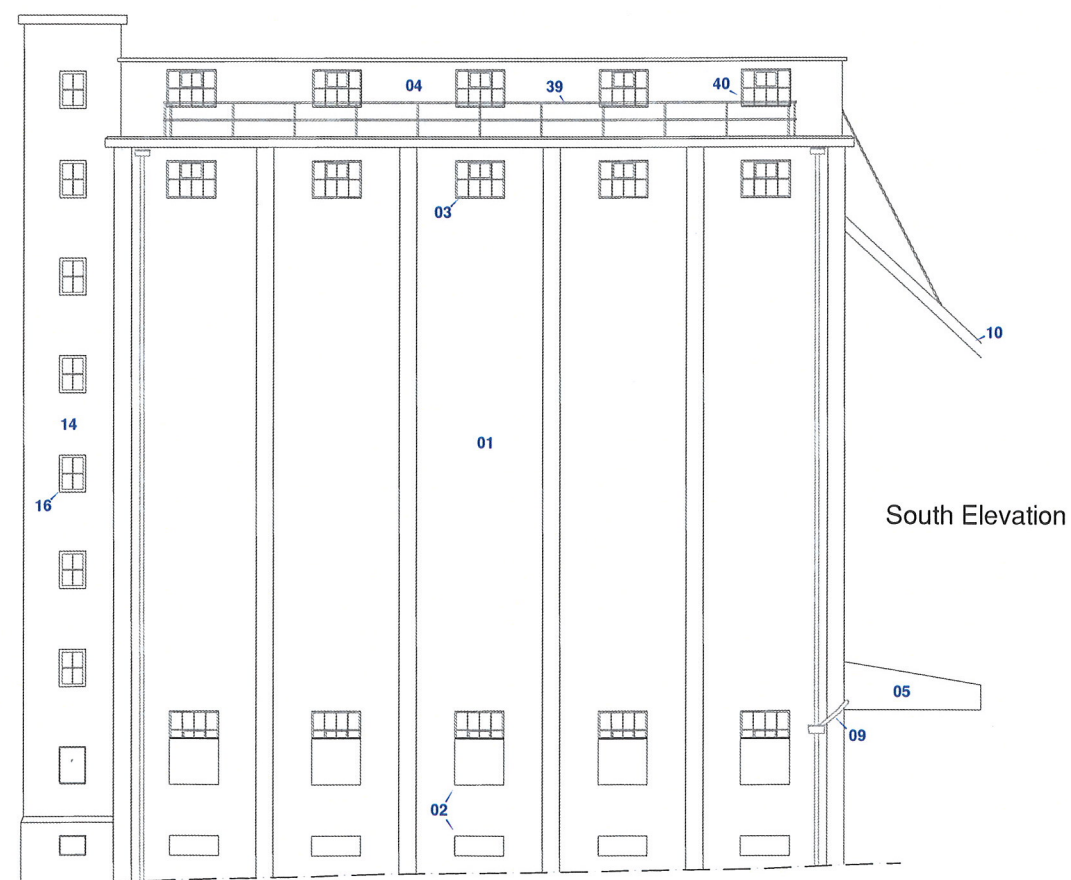
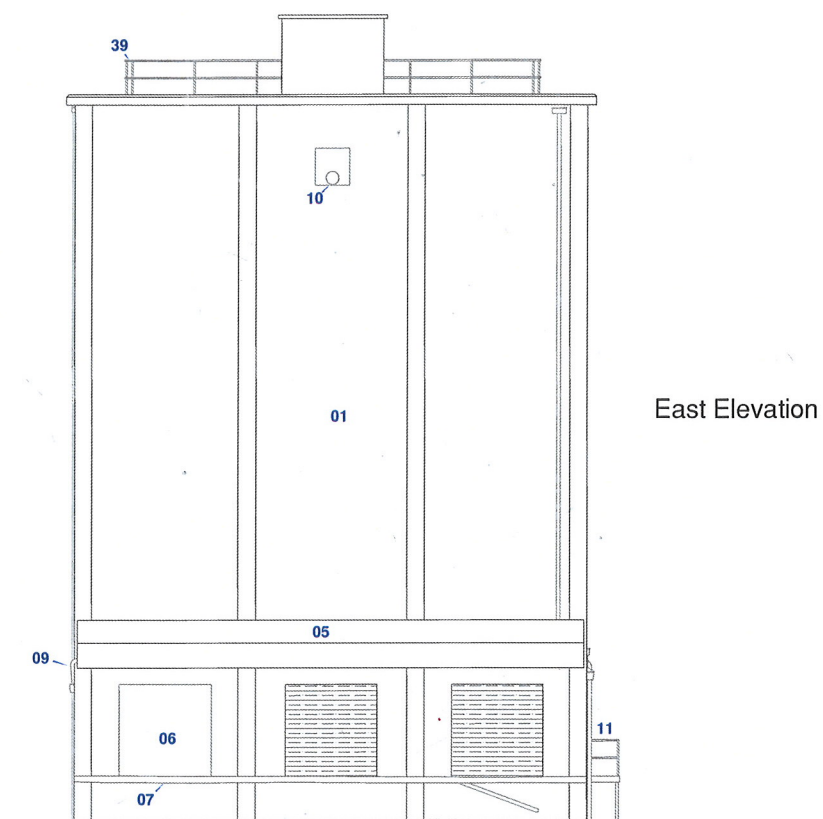
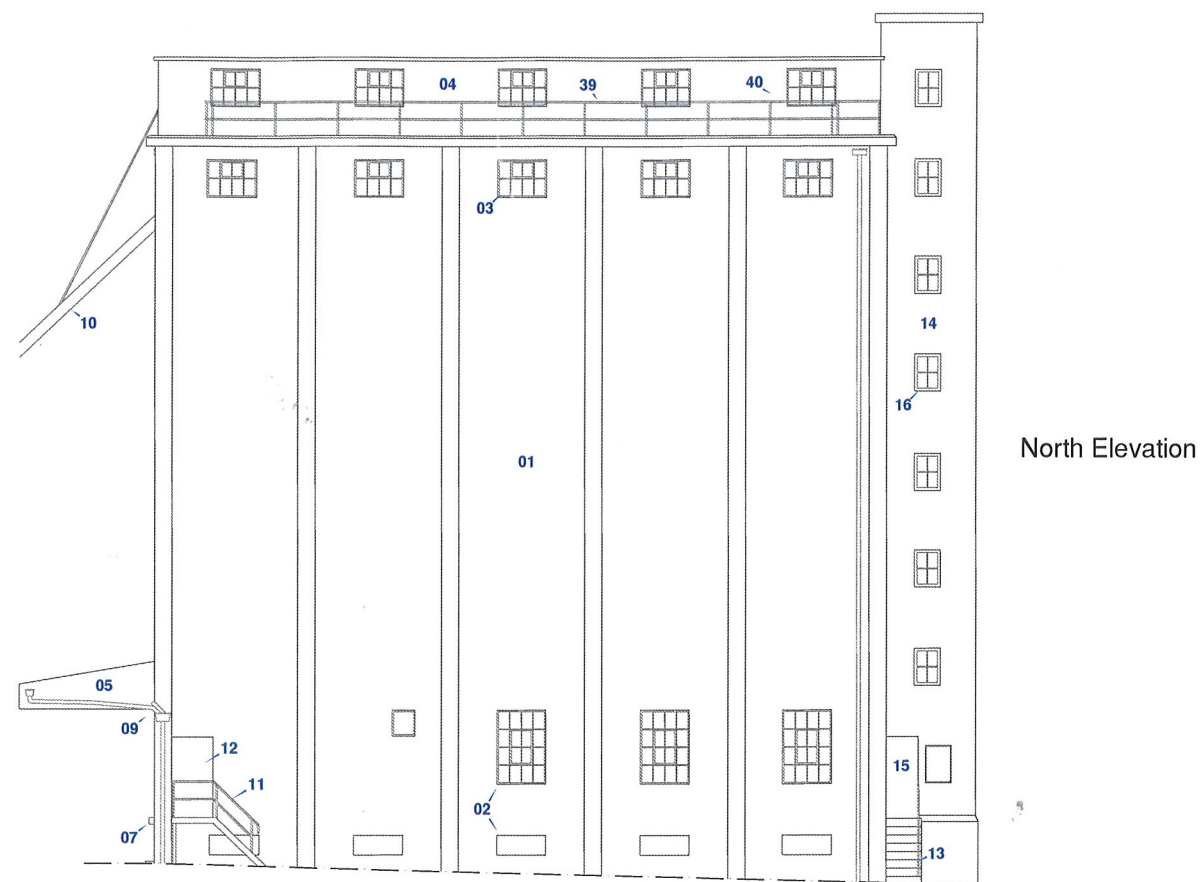
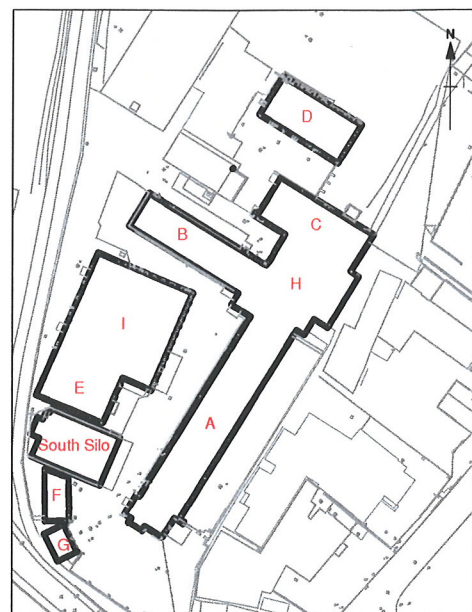


Sixth Floor



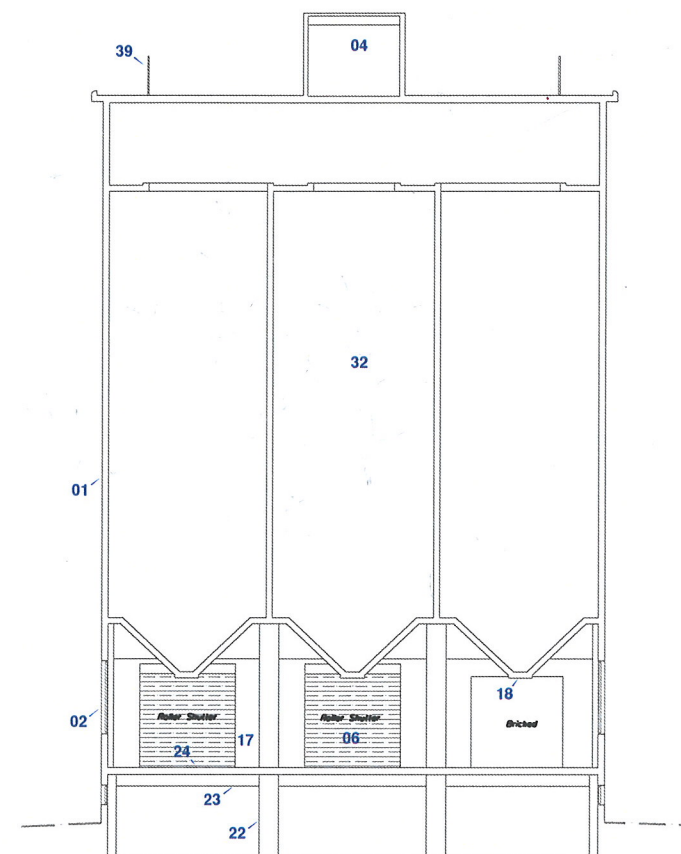
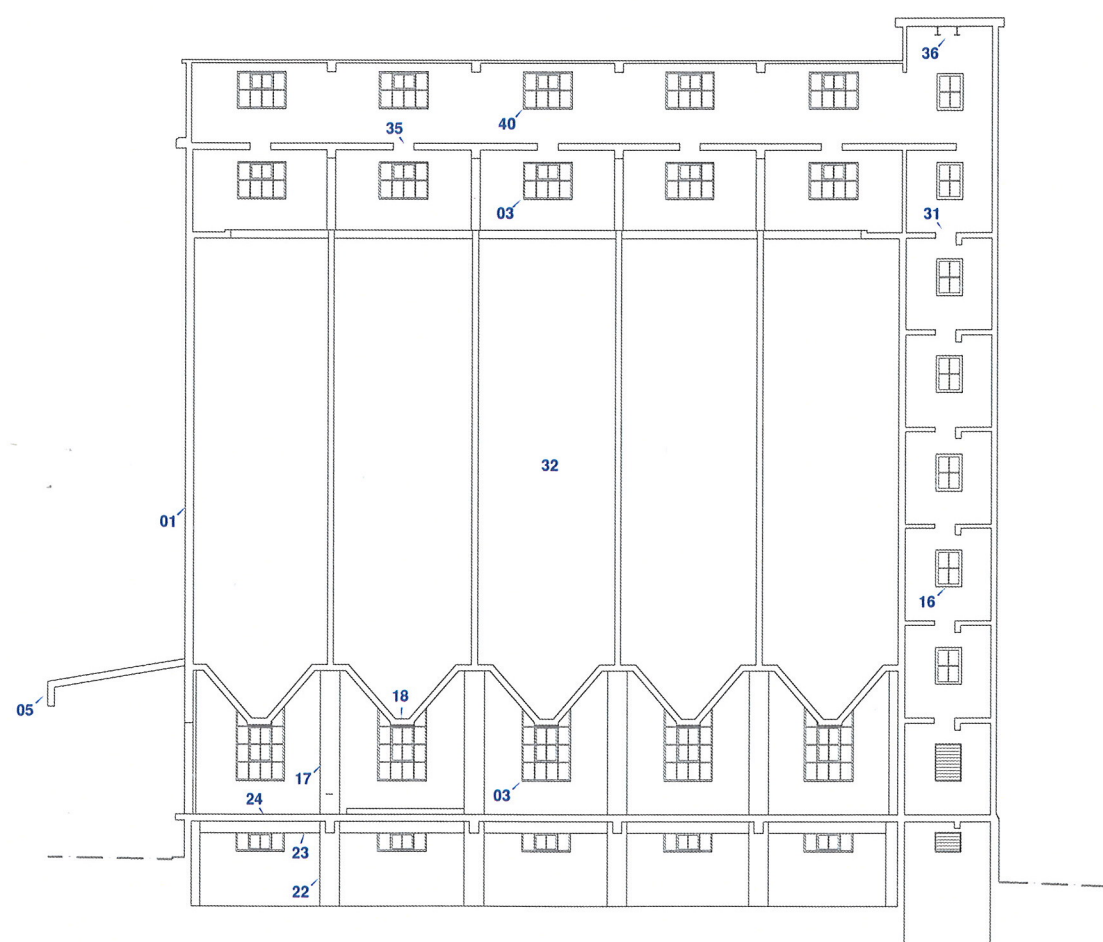
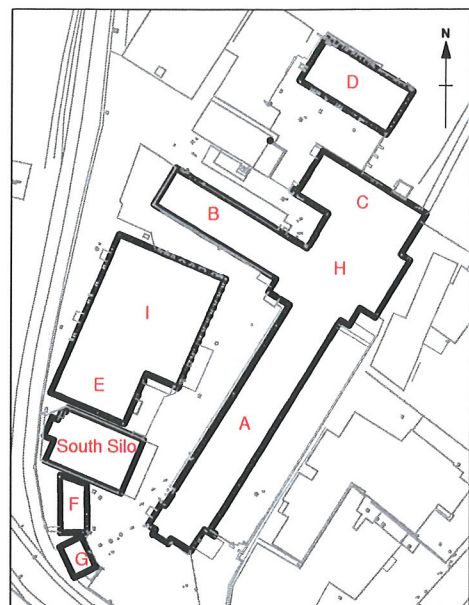
Seventh Floor

Figure 2: Plans of the South Silo



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Figure 3: Elevations of the South Silo



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Figure 4: Sections of the South Silo