DAVEY'S YARD, SALTHOUSE ROAD, BARROW-IN-FURNESS, CUMBRIA

Archaeological Building Recording

Client:
Barrow Borough Council

NGR: 320432 468751

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Non Technical Summary

Prior to the demolition of a group of buildings at Davey's Yard, Salthouse Road, Barrow-in-Furness, Cumbria, a request was made for an archaeological building recording to be carried out. The building recording was carried out by Greenlane Archaeology in December 2009.

The site is situated on the edge of the hamlet of Salthouse and the original village of Barrow, both of which have at least medieval origins and were associated with Furness Abbey. The area around Davey's Yard however was not developed until the middle of the 19th century, when it became the of site of the Barrow terminus railway station in 1846, which was accompanied by the construction of an engine shed, smith's shop, and workers cottages.

These buildings subsequently grew to form the extensive Furness Railway Company's Engineering Works, and were situated in an area that saw rapid development as the town grew in the 1860s and 1870s. The railway and its associated infrastructure were a key part of the early development of the town; the railway station was rebuilt in the early 1860s and new offices were built, both to the designs of Paley and Austin, and the general area, known as 'The Strand', contained many locally important commercial buildings.

The building recording revealed six phases of construction and development at the site starting in the mid 19th century. By examining the existing cartographic evidence and photographs taken of the site many of the phases of construction could be dated to within a few years. The block of buildings occupied by the Furness Railway Company at Davey's Yard continued to expand during the early part of the 20th century but had fallen out of use by 1939 (if not before). The buildings were eventually sold to Roberts, Davy and Co and many were demolished in the latter part of the 20th century, leaving the current boundary wall. The remaining buildings were used as garages. This survey records the extent and condition of the remaining buildings on site prior to their demolition.

The significance of the site as the largest surviving part of the Furness Railway Engineering Works and their historical importance within the growth of Barrow is also discussed. It is recommended that the buildings be retained if at all possible and reused.

Acknowledgements

Greenlane Archaeology would like to thank Barrow Borough Council for commissioning the project, particularly Steve Solsby, and Brian Vickers for his help with access to the buildings. Additional thanks are also due to the staff at the Planning Office at Barrow Borough Council, particularly Kevan Morrison, for enabling access to the early planning applications, and Cumbria Record Office in Barrow-in-Furness (CRO(B)) for their help in accessing the archives.

The desk-based assessment was carried out by Sam Whitehead and Dan Elsworth, both of whom also undertook the building recording. The report was written by Tom Mace and Dan Elsworth. The illustrations were produced by Sam Whitehead and Tom Mace. The project was managed by Dan Elsworth, and the report was edited by Dan Elsworth and Jo Dawson.

1. Introduction

1.1 Circumstances of the Project

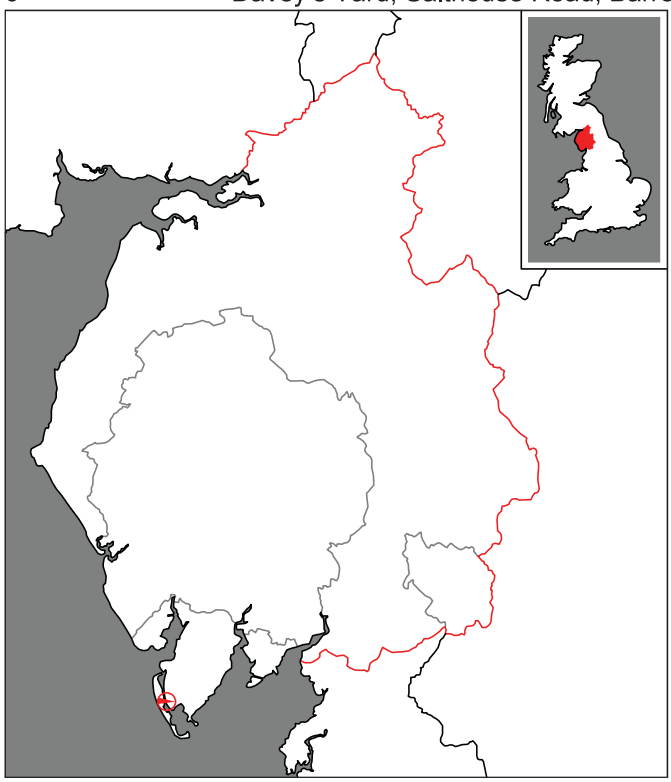
1.1.1 Prior to the demolition of a group of buildings at Davey's Yard, Salthouse Road, Barrow-in-Furness, Cumbria (NGR 320432 468751) as part of redevelopment of the area being carried out by Barrow Borough Council (hereafter 'the client') a request was made by Barrow Borough Council for an archaeological building recording to be carried out.

1.1.2 Following discussions with Brian Vickers at Barrow Borough Council, it was concluded that the archaeological work was to comprise a building recording equivalent to an English Heritage Level 2-type survey (English Heritage 2006). This investigation was intended to provide a record of the site, some understanding of its development, and place it in its local and historical context.

1.1.3 In response to this requirement Greenlane Archaeology produced a project design (*see accompanying CD*) and the on-site work was carried out between the 30th November and 4th of December 2009.

1.2 Location, Geology, and Topography

1.2.1 Salthouse is situated approximately 1km south-west of Barrow-in-Furness town centre on the north side of Cavendish Docks on the edge of Walney Channel (Figure 1). Barrow-in-Furness is largely situated on an area of red Sherwood sandstone of St Bees type, but there is a large area of Carboniferous limestone to the north-east (Moseley 1978, plate 1). The overlying drift deposits comprise glacial material such as boulder clay, which forms a hummocky rolling landscape outside of the urban area (Countryside Commission 1998, 27). The site is situated at approximately 9m above sea level (Ordnance Survey 2005).



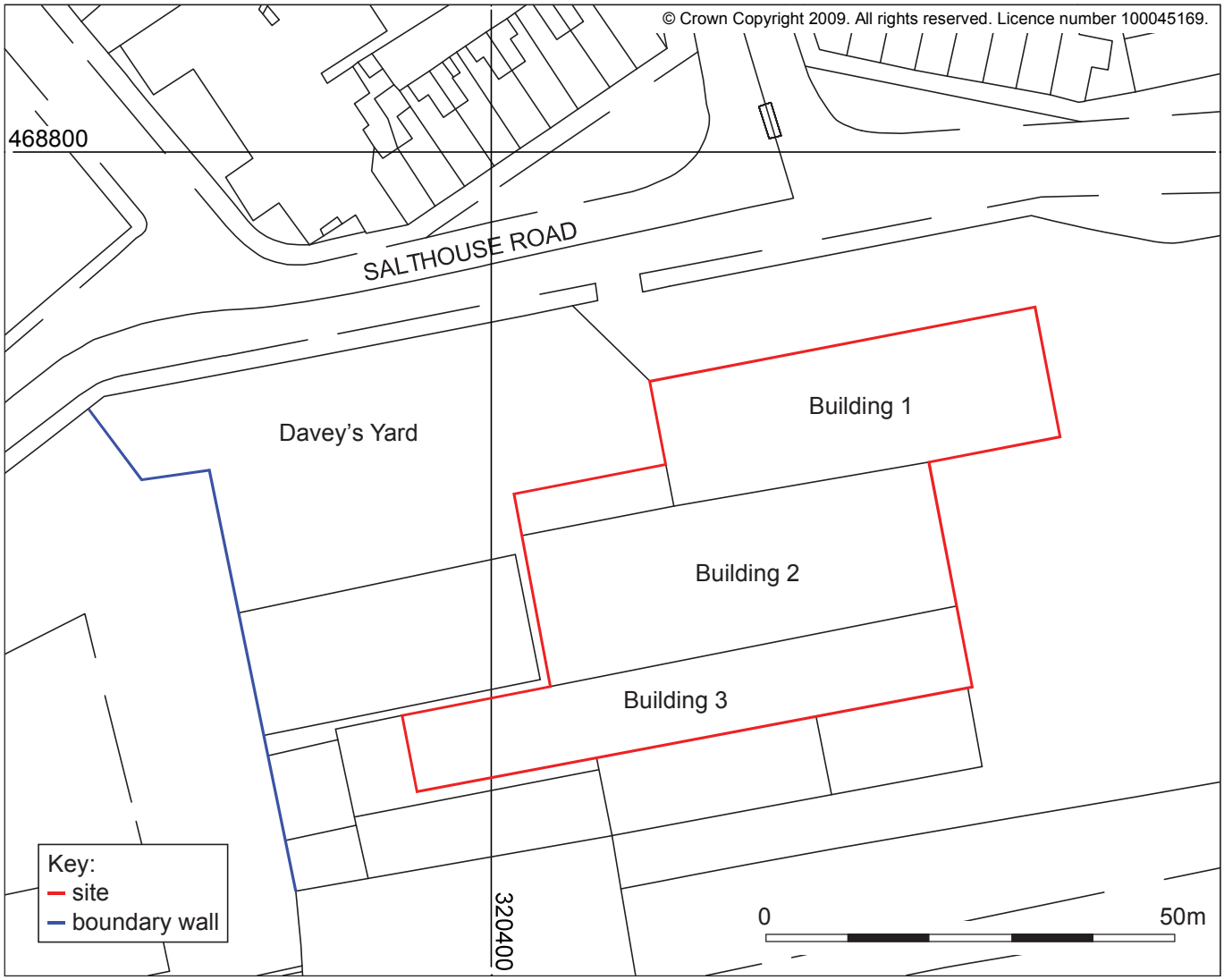


Figure 1: Site location

Client: Barrow Borough Council

2. Methodology

2.1 Introduction

2.1.1 The building investigation comprised three separate elements intended to provide a suitable record of the structures in line with English Heritage standards (English Heritage 2006) and according to the standards and guidance of the Institute for Archaeologists (IfA 2008a). In addition, a rapid desk-based assessment was carried out in accordance with the project design (*see accompanying CD*) and IfA standards and guidance (IfA 2008b) and a suitable archive was compiled to provide a permanent paper record of the project and its results in accordance with IfA and English Heritage guidelines (English Heritage 1991; Brown 2007).

2.2 Desk-Based Assessment

2.2.1 The general area around the site was examined in order to identify sites of archaeological interest within the development area. More specifically, details relating to the group of buildings at Davey's Yard and its immediate surroundings were acquired in order to identify evidence of any associated structures that might have formerly been present. In addition, the results of previous pieces of archaeological and historical research relating to Salthouse were examined to provide relevant background information, as were other secondary sources. Several types of information were consulted in order to compile a history of the site and assess the presence of any known remains of historical or archaeological interest:

- ***Cumbria County Record Office, Barrow (CRO(B))***: this was visited in order to examine early maps and plans of the site, original documents relating to properties on the site, and local and regional histories and directories;
- ***Barrow Borough Council***: details of previous planning applications relating to the site were obtained from Barrow Borough Council (see *Section 6.3*);
- ***Greenlane Archaeology Library***: additional secondary sources were used to provide information for the site background.

2.3 Building Recording

2.3.1 The building recording was carried out to Level-2 type standards (English Heritage 2006). This is a medium-level form of investigation intended to record the form, function, and basic phasing of the buildings, which will also enable an assessment of its significance to be made. For each building to be recorded, the recording comprised several parts:

- ***Written record***: descriptive records of all parts of the building were made using Greenlane Archaeology *pro forma* record sheets;
- ***Photographs***: photographs in both 35mm colour print and colour digital format were taken of the main features of the building, their general surroundings, and any features of architectural or archaeological interest, in particular the external elevations A selection of the colour digital photographs are included in this report, and the remainder are presented on the accompanying CD;
- ***Drawings***: plans of all of the principal floors and a cross-section were produced utilising a reflectorless total station coupled to a tablet computer running AutoCAD Lt at a scale of 1:1. These were then hand annotated with additional detail. In addition, a plan showing the location of the buildings in relation to other nearby buildings, structures, and landscape features was also produced.

2.4 Archive

2.4.1 A comprehensive archive of the project has been produced in accordance with the project design (*see accompanying CD*), and current IfA and English Heritage guidelines (Brown 2007; English Heritage 1991). A copy of the report will be supplied to the client, and within two months of the completion of fieldwork, a digital copy will be provided for the Cumbria Historic Environment Record (HER). In addition, Greenlane Archaeology Ltd will retain one copy. A record of the project, together with a digital copy of the report, will be added to the *Online Access to Index of Archaeological Investigations* (OASIS) scheme.

3. Desk-Based Assessment Results

3.1 Background History

3.1.1 Davey's Yard is situated to the south-west of the hamlet of Salthouse and south of the original village of Barrow. Both of these settlements are now contained within the modern town of Barrow-in-Furness but have at least medieval origins. Salthouse is fortunate in having its later history recorded in some detail by a member of a long-standing local family, WB Kendall (Kendall 1948), but this is of little relevance to the site. As only the post-medieval history of the site is relevant to its understanding only this period of time will be discussed in this section.

3.1.2 Until the middle of the 19th century the area occupied by Davey's Yard was entirely undeveloped agricultural land on the edge of the growing settlement that was to become Barrow-in-Furness. The earliest Ordnance Survey map shows that it was an area known as Rabbit Hall (Plate 1). This situation changed in 1846 with the coming of the railway linking the iron mines of Dalton and the slate quarries at Kirkby-in-Furness with the port at Barrow (Battye and Peascod 1996, 41). From the end of the 18th century iron ore had been transported to a series of jetties on the shore at Barrow by road (Marshall 1958, 88). By the 1830s various schemes were in place to bring the railway across the Furness Peninsula, largely as a means of connecting the north and south of the country, but plans were also devised to serve the local industries, connecting them to the port at Barrow and, it was hoped, accommodating passengers (Battye and Peascod 1996, 5-6), and by 1845 building began (McGowan Gradon 19467-8). Crucially for Salthouse and the site that became Davey's Yard, on January 16th 1846 the directors of the railway company '*decided upon the erection of a small colony of cottages at Salthouse… Ten small cottages were to be built "as cheaply as possible"'* for the accommodation of the railway employees and labourers (*op cit*, 182; although Pollard and Marshall (1953, 115) state that the railway colony was established in 1849). At around the same time they also decided to build an engine shed and smith's shop nearby at a cost of £1,000 (*ibid*). This is undoubtedly the building shown on the first Ordnance Survey map and marked 'Engine House' (Plate 1) and is probably the building shown in the undated sketch of the cottages at Salthouse (Plate 2).

3.1.3 The cartographic evidence (see *Section 3.2* below) shows that the site saw considerable development from the mid to late 19th century which continued into the 20th century. There is little detailed information about the development of the Davey's Yard site, however, although it is clear that it remained the site of the Furness Railway Company's Engineering Works (OA North 2003 – this is the only part of what was originally a very large complex of buildings; elements of other parts were encountered during recent excavations (OA North 2005)), and was situated in an area that saw rapid development as the town grew in the 1860s and 1870s. Some detailed contemporary descriptions of the engineering works are presented in full in *Appendix 1*.

3.1.4 After the completion of the original terminus station, associated engine shed, and workers' cottages in 1846-1847 it was not until the 1860s that the site was remodelled. A new station and company offices, built to the designs of Paley and Austin of Lancaster (Price 1998, 103), and engineering works were constructed and opened in 1864 (Battye and Peascod 1996, 41) although work must have begun much earlier as elements of this complex are evident on a plan of 1856 (reproduced in Marshall 1958, 230 – the completed complex, broadly matching that on the Ordnance Survey plans of 1873 (Plate 3 and Plate 4) is shown on another plan of 1866; *ibid*, 231). The associated area, known as 'The Strand', contained a number of notable commercial and architecturally important buildings (CCC and EH *c*2002, 9) including those associated with the railway, on which their development had depended.

3.1.5 Some previous investigation has been carried out specifically into the buildings at Davey's Yard, initially by Grosse (1981, 8) and subsequently expanded upon by Wignall (1982, 16) and Andrews (1983, 14), and elements of the site have been discussed in more general publications relating to the railway. The original engine shed was apparently enlarged and a wagon repair shop built on reclaimed land next to the main line (Andrews 2003, 35). A 'running shed' was constructed in 1875 (Wignall 1982, 16). According to Andrews '*William Gradwell obtained the contract for constructing this shed at a cost of*

£8,476 and it was built in the local sandstone, one of the last to be so built in the town other than prestige buildings such as the new Town Hall' (Andrews 1983, 14). Wignall states that this later became the machine shop and turnery (Wignall 1982, 16); the descriptions of this building suggest that it corresponds to the present Building 1. Further locomotive sheds were also built in 1900 and 1906 (*ibid*) but it is perhaps likely that these were elsewhere within the engineering works. The map regression (*Section 3.2*) perhaps gives the most detailed understanding of the site's development.

3.1.6 The site clearly retained much of its original form in the early part of the 20th century but the amalgamation of the Furness Railway Company into the London Midland and Scottish Railway Company in 1923 may have led to the closure of the works as such activities were centralised at four main centres, which did not include Barrow (Norman 1994). Certainly by 1939 the buildings are shown as being disused and by the 1950s elements had been demolished (see *Section 3.2.8*). It was acquired by Messrs Roberts, Davy and Co by *c*1950, a company of coke and coal dealers, who carried out several modifications, but by the later 20th century the site was largely being utilised as a car repair workshop, hire car depot, and other small businesses (see *Section 3.2* below and *Section 6.3* for a list of other planning applications relating to the site, which detail some of the businesses involved).

3.2 Map and Image Regression

3.2.1 ***Introduction***: the site is situated to the north-east of Baccleuch Dock to the south side of Salthouse Road. The earliest maps of the area are typically maps of the entire county and are not detailed enough to provide any useful information, although at least two early maps of Barrow do exist (see *Section 3.1.4*) these are also not detailed enough to add additional information other than that already described. Only those maps that are actually of some use in understanding the development of the site are described below. In addition, images including an early sketch of the site and an aerial photo have also been utilised, as have details from early planning applications relating to the site.

3.2.2 ***Ordnance Survey 1851***: this map (Plate 1) shows the location of the engine house near Barrow Station, prior to the construction of Salthouse Road, however, it is unclear whether any part or parts of these buildings are incorporated into the current site but this seems unlikely as the engine house is evidently some distance to the west of it.

Plate 1: Ordnance Survey map 1851

3.2.3 ***Sketch of Salthouse Cottages, undated***: a drawing of the cottages at Salthouse shows an industrial building in the approximate location of the engine shed shown on the Ordnance Survey map of 1851 (Plate 2). It is certainly not depicting the much larger engineering works buildings recorded on the site by the later maps. Therefore, although the picture is undated it must pre-date 1872. It is not known whether the sketch is an original or a later interpretation of the likely scene at that date – the original

drawing accompanied a newspaper article by Ralph Hordley but no reference for these is given (Trescatheric 1992, 27).

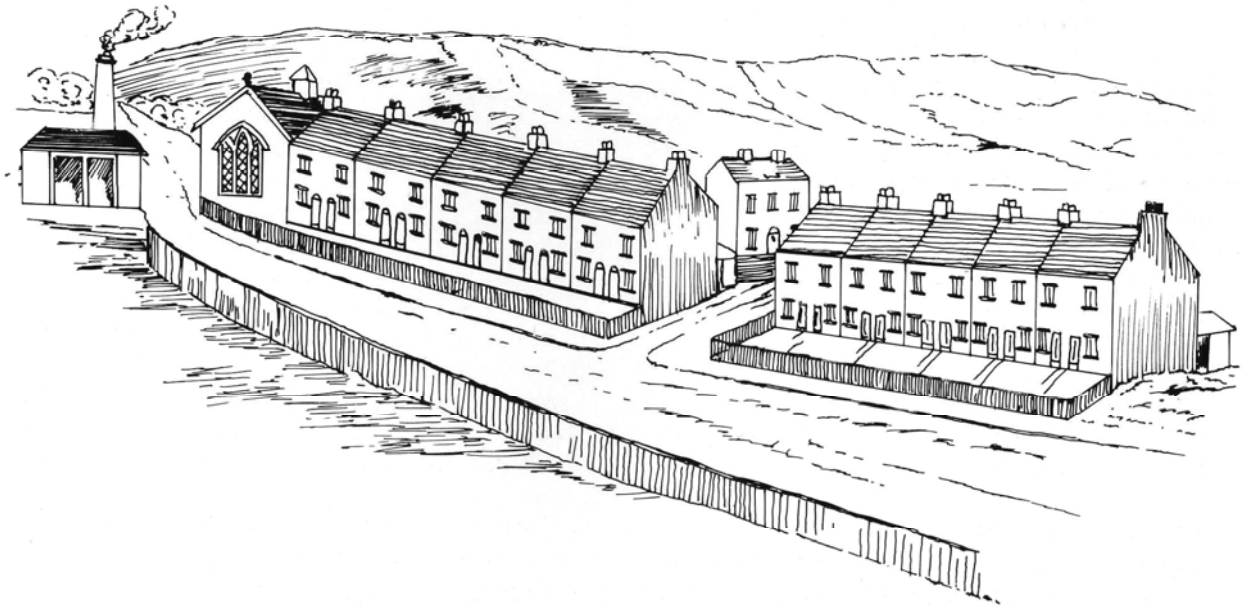
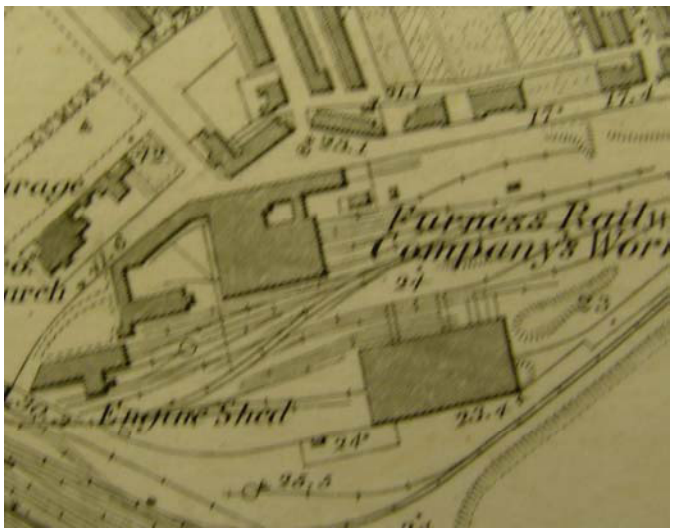


Plate 2: Sketch of the railway workers' cottages at Salthouse showing what may be the early engine shed opposite (from Trescatheric 1992, 27)

3.2.4 ***Ordnance Survey 1873***: the buildings on site form a square block and the yard appears to have had additional buildings constructed to the south and west (Plate 3). The main road (Salthouse Road) is now shown to the north of the site. The yard is shown in more detail on the 1:2,500 map, with individual buildings demarcated (Plate 4), although it is difficult to ascertain which of these buildings relate to those depicted on the earlier map of 1851. There appears to be slight discrepancy with defining the western extent of the block of buildings between the two versions of this map. The 1: 2,500 map shows the western edge of the square block of buildings further to the east (more in line with the buildings on the north side of Salthouse Road); the 1: 10,560 map appears to show the western edge as being in closer proximity to the offices and engine sheds to the west.



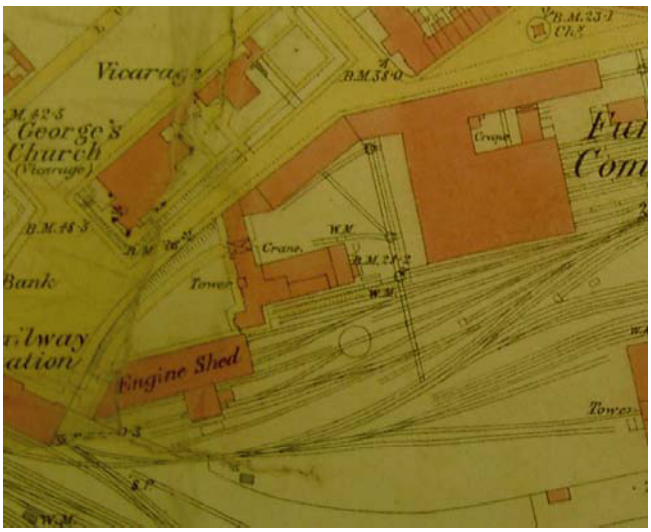


Plate 3 (left): Ordnance Survey 1: 10,560 map *c*1873

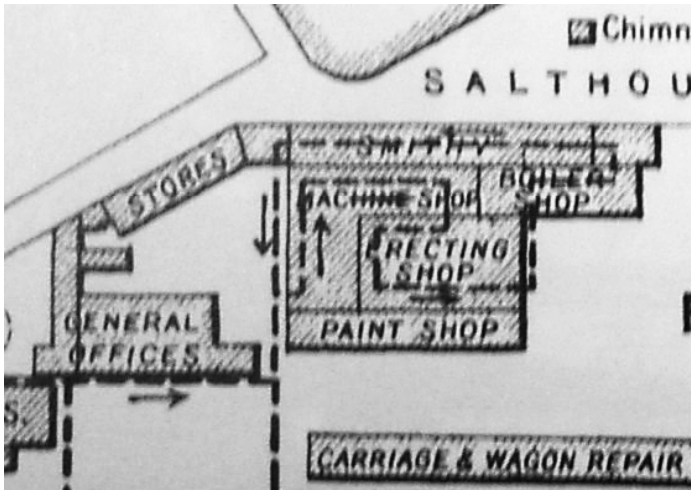
Plate 4 (right): Ordnance Survey 1: 2,500 map *c*1873

3.2.5 ***Ordnance Survey 1891***: the area previously marked as occupied by a crane at the north-east corner of the block of buildings in 1873 appears to have been built in by 1890 and the block of buildings has also been extended approximately in line with the one which fronted onto Salthouse Road (Plate 5). This extension possibly corresponds to the west end of Building 1. Originally, the boundary wall (highlighted in blue on Figure 1) formed the western external elevation of this block of buildings and follows the edge of the building immediately to the north and west onto Salthouse Road.

Plate 5: Ordnance Survey map 1891

3.2.6 ***Map from the Iron and Steel Institute, Barrow Meeting, September 1903***: this map identifies some of the individual buildings within the block of buildings, which includes a smithy (along Salthouse Road), a machine shop, a boiler shop (Building 1), an erecting shop (occupying the site of Buildings 2 and 3) and a paint shop. The north-east block appears to have been further extended and now extends well beyond the second road junction from the vicarage, beyond the chimney (Plate 6). This extension seems to correspond to the east end of Building 1.

3.2.7 ***Ordnance Survey 1911***: this map (Plate 7) has the same outline as the Iron and Steel Institute's map of 1903 but does not show the individual shops.



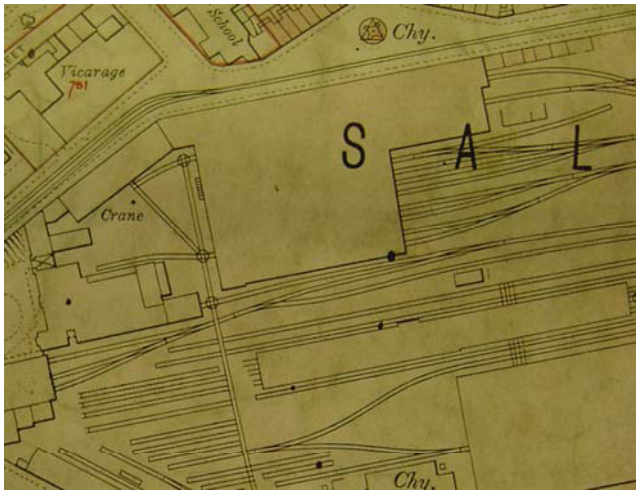


Plate 6 (left): Iron and Steel Institute, Barrow Meeting, map 1903 (after Andrews 2003, 75)

Plate 7 (right): Ordnance Survey map 1911

3.2.8 ***Photograph of the Furness Railway Company Engineering Works c1920***: the arrangement of buildings to the south-east corner of the main block has again seen alteration; what was the erecting shop appears to have been extended to the east, jutting out beyond the eastern limit of the paint shop shown on the plan from 1903 (Plate 6). The western end of the block of buildings in this photograph now appears to closely correspond with the arrangement of buildings shown on Figure 1. No internal divisions have been depicted within the erecting shop on any of the earlier plans so this photograph is particularly interesting because it shows that the west elevation of the erecting shop was originally formed by three gable ends (Plate 8). Moreover, when this photograph was taken the building already appears to have been altered. The roof had been raised and now formed two separately roofed buildings; the building to the north (east end of which formed part of Building 2) spans two of the old gables and the building to the south incorporates the remaining one. The offices to the south and the fitting shop and store to the north and west are also visible in this photograph (Plate 8).

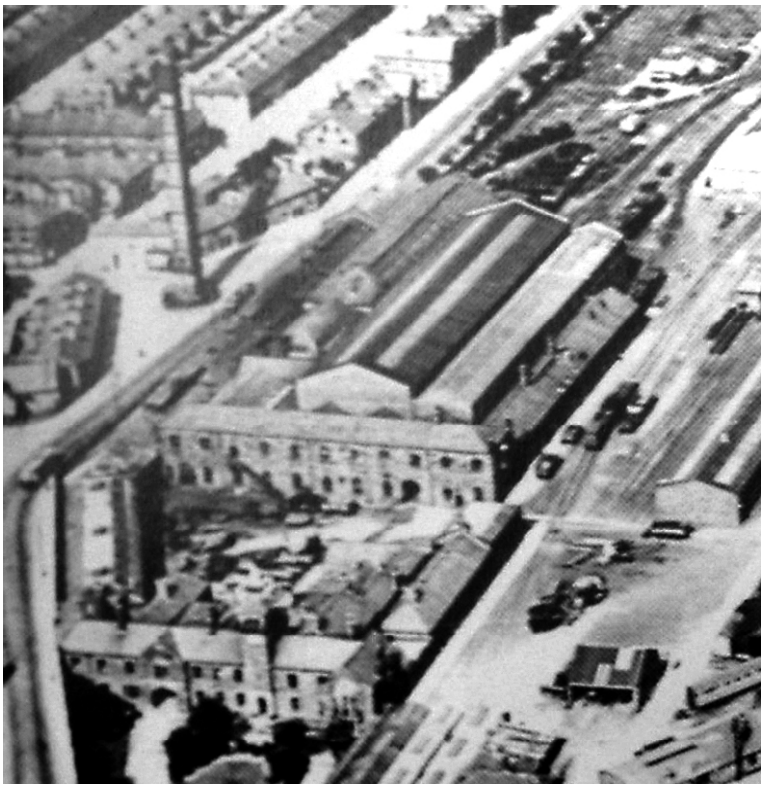


Plate 8: The Furness Railway Company Engineering Works, *c*1920 (after Andrews 2003, 35)

3.2.9 ***Ordnance Survey 1933***: this map records the layout of buildings which can be seen in the above photograph (Plate 8), with the characteristic kink to the south-east corner of the block created by Building 1 which is not aligned with the east elevations of Buildings 2 and 3. No detail is provided of the various workshops, stores and office buildings which make up the block.

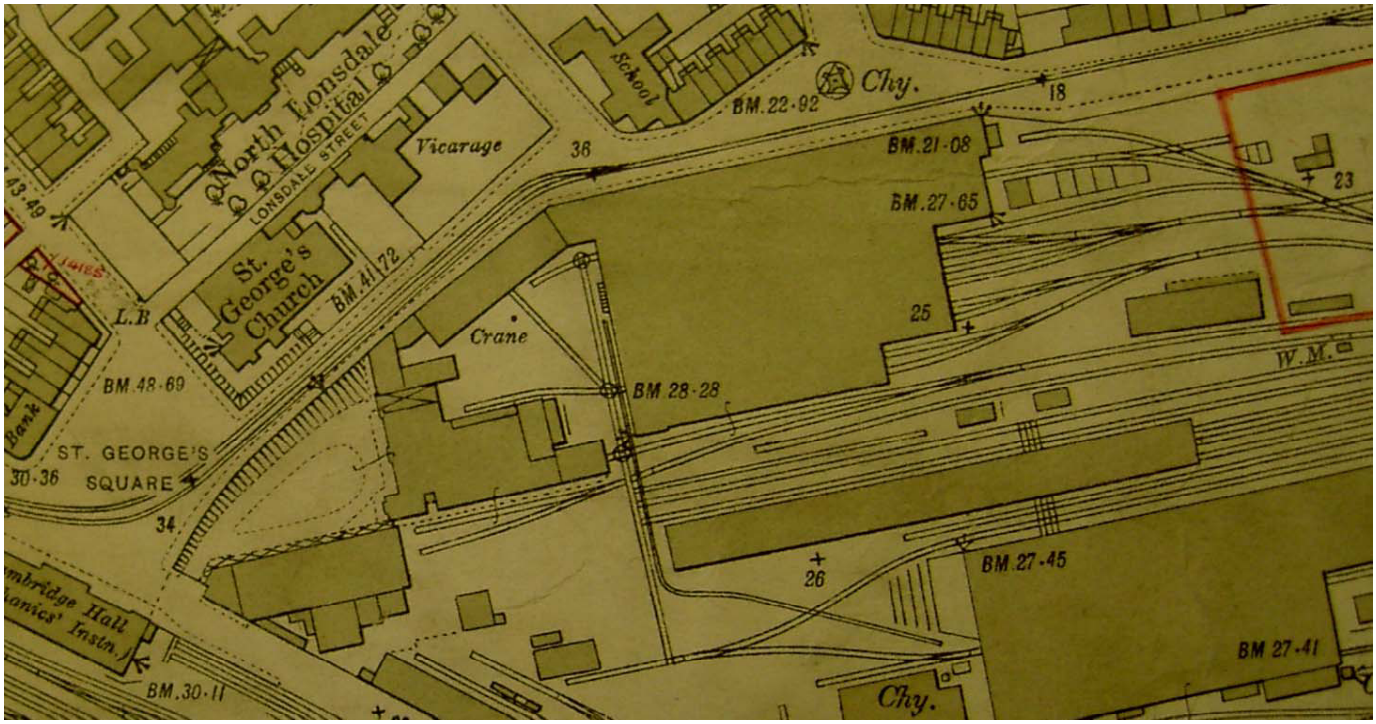


Plate 9: Ordnance Survey map 1933

3.2.10 ***Barrow Air Raid Precautions (A.R.P.) plan 1939 (BT/BR 1/8 Bundle 5 BW 12/39 1939)***: this plan identifies the same individual buildings on site as the 1903 map and shows that the extension to the south-east corner (forming the east elevation of Buildings 2 and 3), which was constructed between 1911 and 1933, had continued to be used as an erecting shop, although all of the buildings had fallen out of use by 1939 (Plate 10). The machine shop is now labelled as a disused fitting shop.

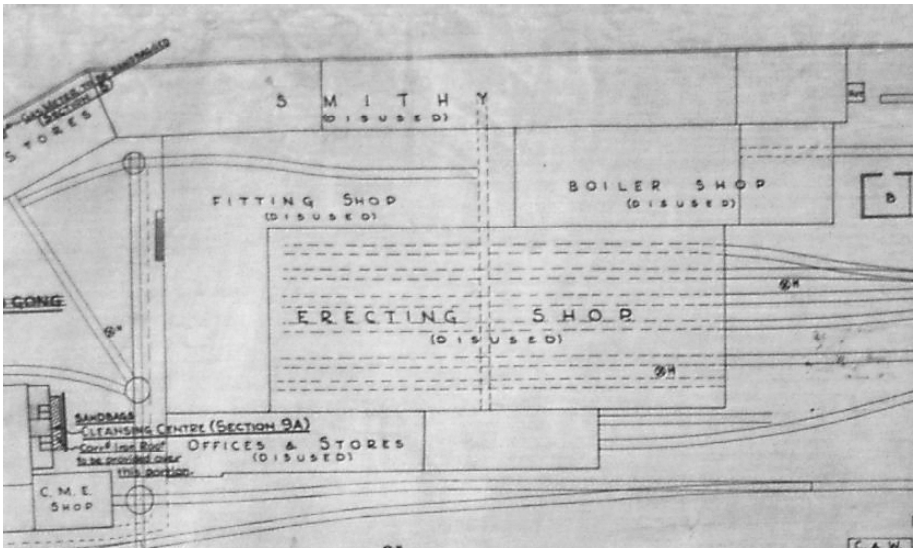


Plate 10: Barrow Air Raid Precautions (A.R.P.) map, 1939

3.2.11 ***Plan of Buildings – Low Yard, Barrow 1947 (BTBR Bundle 4/BW 115/47 1947)***: this plan clearly identifies the individual buildings at Davey's Yard (Plate 11). The buildings behind the stores and space immediately to the south of Salthouse Road (previously labelled as a smithy) are listed as 'fitting shop', 'boiler shop' (Building 1), 'erecting shop' (occupying the footprint of Buildings 2 and 3), 'offices and stores', and 'paint shop'. All of the buildings remained disused. The boundary wall to the west of the site (which was investigated as part of this building survey and is highlighted in blue on Figure 1) corresponds to the west external elevation of the fitting shop and the store immediately to the north-west. There is a subdivision, possibly a room, shown in the south-east corner of the boiler shop (Building 1).

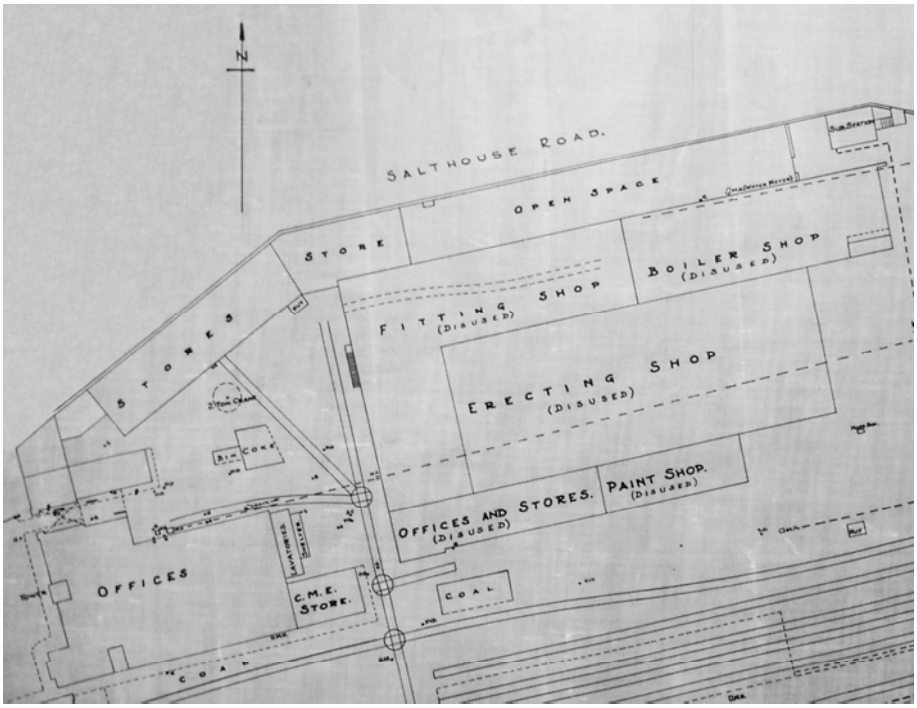
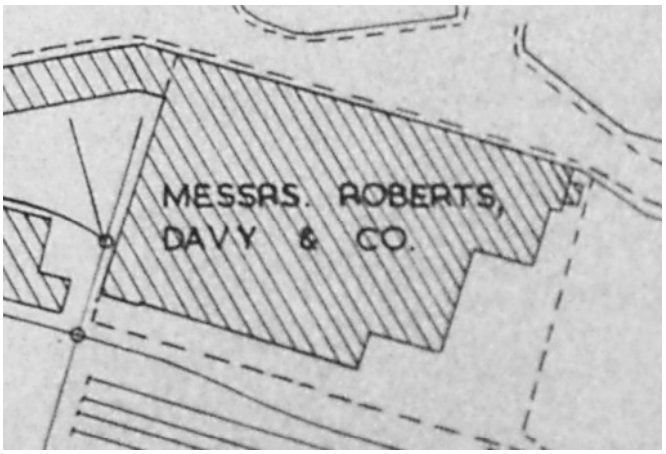


Plate 11: Workshops on the site, 1947

3.2.12 ***Undated and untitled plan of the Barrow works c1950 (BT/BR 1/8 Bundle 1B c1950)***: in *c*1950 the whole block is identified as occupied by 'Messrs. Roberts, Davy & Co' (Plate 12). Roberts, Davy & Co were 'coke and coal contractors and factors' according to details provided with a subsequent planning application (see *Section 3.2.11* below).

3.2.13 ***Proposed District Engineer's Workshops and Stores 1953 (BTBR 1/8 Bundle 4/BW 47/53 1953)***: this plan (Plate 13) shows a similar level of detail to the 1947 plan of the workshops (see Section 3.2.8). The fitting shop to the north and west of Buildings 1 and 2 is still present at this time but is not clear if the store to the north-west still remains or if it is now also open space. It is worth noting that both the fitting shop and the erecting shop (Building 2) have now been sold to 'Messrs Davey'. ('Davey' is presumably a misspelling of 'Davy' from Messrs. Roberts, Davy & Co). The subdivision in the south-east corner of Building 1 is no longer shown instead there is a square-shaped subdivision shown in the north-west corner.



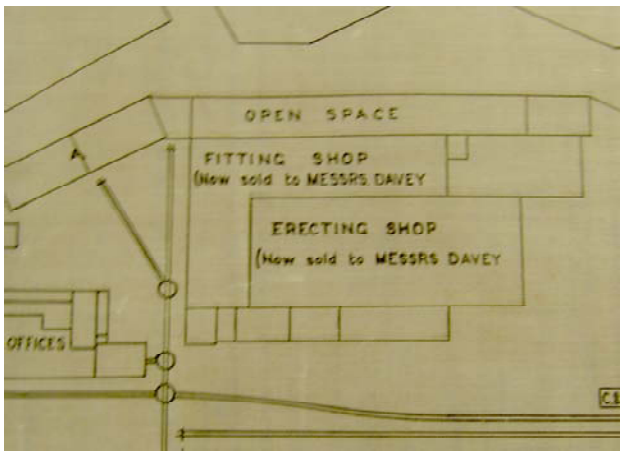


Plate 12 (left): Plan of the site, *c*1950

Plate 13 (right): Plan of the workshops, 1953

3.2.14 ***Planning application no. 583 submitted by Roberts, Davy & Co, 1953***: plans were submitted on behalf of Roberts, Davy & Co on the 10 October 1949 which proposed to partly reinstate the buildings destroyed by fire at their warehouse and factory at Salthouse Road. The plan for the proposed building

(which is dated 1953) appears to foreshorten the disused erecting shop. The proposed building also appears to occupy much of the area which the fitting shop occupied previously adjacent to the current boundary wall. The store to the north-west of the fitting shop is now also listed as open space. Building 3 is also shown to extend to the boundary wall but this might be misleading (see *Section 5.1.3*).

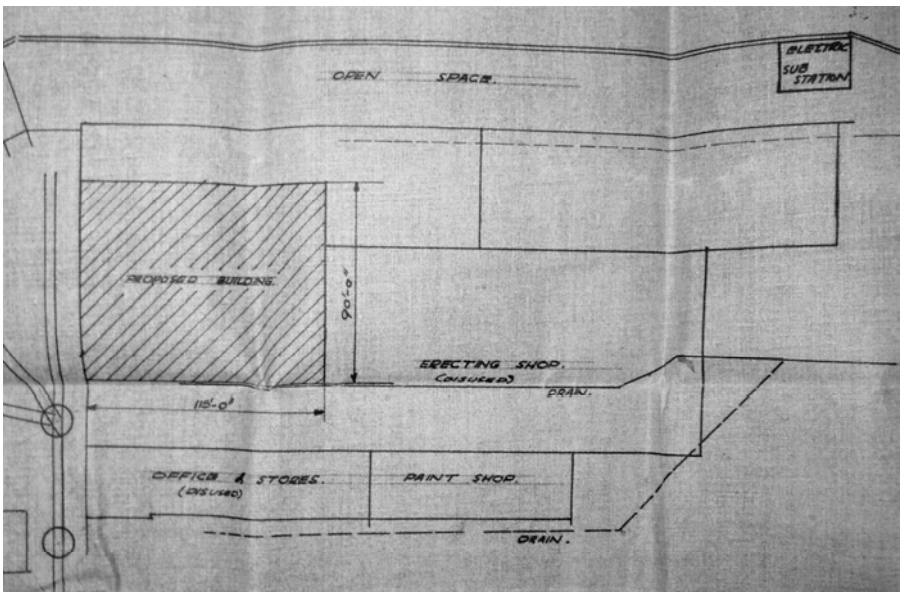


Plate 14: Plan dated 1953 submitted on behalf Roberts, Davy & Co

3.2.15 ***Planning application no. 6/97/9001/094, 1997***: the erecting shop had clearly been foreshortened by this time and the arrangement of Buildings 2 and 3 was the same at the time of this survey. There was no longer a building standing to the west of Building 2. 'McNally' occupied the offices and stores and what remains of the fitting shop to the south and east of Building 3; Building 1 was occupied by 'Auto Services', Building 2 by 'Invincible Motors', and Building 3 by 'Stokers'. (Note that north is to the bottom of this plan).

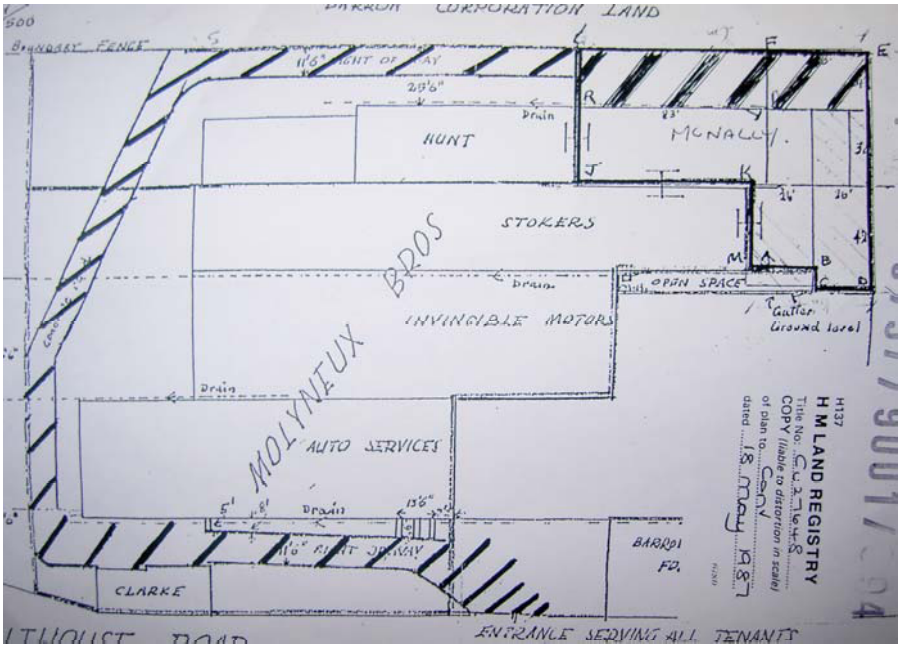


Plate 15: Plan associated with a planning application submitted in 1997

3.3 Conclusion

3.3.1 The documentary evidence demonstrates that while the villages of Salthouse and Barrow are of at least medieval origin the site did not begin to develop until the mid 19th century, at which time it became the headquarters of the Furness Railway Company, the growth of which was closely tied to the establishment of the modern town of Barrow-in-Furness.

3.3.2 It is evident from the cartographic sources that the area now comprising Davey's Yard saw extensive development in the mid 19th century and the site was closely associated with the rapid expansion of Barrow that followed. The buildings formed part of the Furness Railway Company's Engineering Works and were situated in an area that saw extensive development during the 1860s and 1870s. An engine house is shown on the Ordnance Survey map of 1851, prior to the construction of Salthouse Road, but it is difficult to identify which, if any, of the current buildings are represented on the earliest maps of the site since the block of buildings shown on the site are not subdivided to show individual structures. It is therefore unclear from the cartographic evidence how much (if any) of the earlier structures on site were incorporated into later buildings. The surviving buildings at Davey's Yard seem to relate to a period of building carried out at the site towards the end of the 19th century and during the early 20th century, when the layout of buildings to the south-east of the block becomes more characteristic of its current appearance.

3.3.3 The documentary and cartographic sources give some information about the use to which the buildings were put, although only with any certainty from the beginning of the 20th century. Originally there was a building to the north of Building 1 which was used as a smithy and then stores and there was also a large fitting shop to the west of Buildings 2 and 3. Building 1 may have been constructed as a running shed in 1875, but by at least 1903 was used as a boiler shop. Buildings 2 and 3 originally formed part of the erecting shop, although Building 3 became the paint shop after the original one, to the south, was used for offices and stores.

3.3.4 It is also apparent that by at least the 1930s much of the site had gone out of use and parts were soon demolished leaving only the current buildings and those attached to the south side of Building 3. A number of new structures were built during the 20th century, but many of these were small scale and temporary in nature leaving the main elements of the current buildings largely intact.

4. Building Recording

4.1 Introduction

4.1.1 The site comprised a block of three large rectangular sheds which were orientated approximately east/west, with the north side facing towards Salthouse Road. Building 1 was slightly shorter than Buildings 2 and 3, forming a kink in the south-east corner of the block of buildings (see Figure 1). The buildings originally functioned as engine sheds and associated structures used by the Furness Railway Company, although the block was last used as a repair garage, with other commercial properties and office buildings located nearby. Internally the buildings extended over two levels but all comprised a large open space extending to the roof, with some derelict internal walls and recent concrete block additions (see Figure 2 and Figure 3), although it was evident that upper floors had previously existed in at least one area.

Plate 16: View of the buildings from the south-east

4.2 Arrangement and Fabric

4.2.1 The buildings were constructed from a mix of brick and local red sandstone and steel girder and corrugated sheeting construction. Building 1, at the north side of the site, had a grey slate roof with louvre and some original timber work in the roof trusses. Building 2, in the centre of the block, and Building 3, to the south, had corrugated metal roofs and a steel roof structure (Figure 4). All of the buildings had a more decorative sandstone finish forming the façade of the east elevation. Building 1 was mostly constructed of sandstone, while Buildings 2 and 3 were a combination of brick, sandstone, and corrugated sheets supported by iron I-beam columns. There was a modern office block on the west side of the north elevation of Building 2. Building 3 also had a modern concrete block shed attached to its south side. There was also a modern block of five garages to the west of Building 2.

4.2.2 In addition the boundary wall delineating the western side of the site, which was evidently originally part of the buildings making up the site, was also recorded. This was also constructed from red sandstone and contained several blocked apertures, as well as later modifications in brick and concrete blocks. The block of modern garages butted against the east side of the central part of this wall. The block of buildings is outlined in red on Figure 1. The buildings were numbered from 1 to 3, from north to south, for ease of identification and descriptive purposes during the building survey. The sandstone boundary wall to the north and north-west of the main block of buildings is shown in blue.

4.3 External Detail

4.3.1 ***North elevation***: this elevation was mostly formed by Building 1, although the west end was formed by Building 2 and a small part of Building 3. The north elevation of Building 3 was of a similar construction to the west end of Building 2 (see *Section 4.3.3*); with corrugated sheets atop lower brick walls enclosing steel I-beam columns (see Plate 19). At the west end of this elevation there was a projecting sandstone stub walls, which formed part of the west elevation of Building 3. Beyond this there was a very flimsily brick wall forming a boundary with the adjoining property to the south. The lower part of Building 2 was covered by a modern single-storey office building, above which the gable scar of a former roof was visible in the brickwork (Plate 17). Above this the lower part of Building 2 was finished with a modern render, whereas the upper part comprised exposed brick laid in English Garden Bond (with a ratio of three rows of headers to one row of stretchers). The first floor had a row of large windows (most of which were boarded over) below which was attached a modern sign which read 'BRYN CLARK BUILDING CONTRACTORS'. One of the windows had part of an eight-light iron casement visible, with some smaller divisions.

4.3.2 There were three large concrete buttresses at the east end of Building 1 which supported the ends of steel I-beams (Plate 18). The bulk of the north elevation of Building 1 was randomly constructed from coursed sandstone with four courses of brick three quarters of the way up. There were five large round-headed doorways, three of which were blocked with sandstone. Two of the doorways housed modern doors and there were timber battens attached across the elevation which had presumable originally held signs. There was a section projecting northwards at the east end, with a rebated end, possibly for a door, which evidently originally extended further to the north. Beyond this, to the north the wall continues as an evident extension constructed from a steel structure, comprising a large iron I-beam with two I-beam columns bolted to it, in filled with a machine made red brick in laid in English Garden Bond (with a ratio of three rows of stretchers to one row of headers). Beyond this the rest was constructed from pale orange brick, alternating headers and stretchers. The cut ends of former steel trusses were evident below the eaves and a concrete scar denoting were the associated roof had been, as well as one end of what was possibly a horizontal girder, further indicating the former presence of another building to the north. There was also some evident rebuild in neatly dressed sandstone in the upper part of the junction between the brick extension and the stone forming the majority of the elevation. The east end projected beyond the east elevation forming a stub wall, which was constructed from brickwork but the end finished with sandstone blocks.

Plate 17: Oblique photograph of Building 1 and 2, viewed from the north-west

Plate 18: North external elevation of Building 1

4.3.3 ***West elevation***: the north side of Building 1 was finished with modern render and a hipped roof, which had been recently reslated and had modern plastic rainwater goods (Plate 17). The modern single-storey extension to this side of the building had a flat roof with a column at the north end. The west elevation of Building 2 was covered in two layers of corrugated metal sheets some of which were quite recent (Plate 19). There were also iron beams sticking through at approximately the same height as the top of the north wall and the remains of a curved roofline running through part of the corrugated sheeting (presumably indicating the location of the blister hanger mentioned in 1953 – see *Section 3.2.12*). The lower part of this elevation was partially rendered brick with 'GARRY KENDAL/SHAUN BAYLISS/3.6.97' scored into the render. The wall was brick built and encased iron I-beam columns. The bricks are quite rough, handmade and in laid English Garden Bond (with a ratio of five rows of stretchers to one row of headers). The elevation returns to the west, forming part of the north elevation of Building 3. The west elevation of Building 3 was not easily accessible but appeared to be constructed from brick which was built on top of an earlier and lower level sandstone gable (Plate 28).

Plate 19: Oblique view of the west external elevation of Building 2 with Building 3 visible in the background

4.3.4 ***East elevation***: the south end of the elevation, corresponding to Building 3, was constructed from random courses of ashlar blocks with dressed sandstone quoins at the south corner (Plate 20). There was a slight plinth at first floor level. The first floor had neat coping along the apex (apparently constructed from concrete slabs though) and a semi-circular window with a three-light casement (although originally it had more lights). The lower floor had a wide opening which was spanned by a large I-beam (possibly in two parts?), which was supported by iron columns with double flanged tops. The centre of the elevation (Building 2) was of the same construction as Building 3, but with three tall, round-headed windows on the upper floor with quoined jambs and arch, all of which were filled with corrugated sheeting (Plate 21). There was sandstone coping along the apex. The lower floor had a large opening with a massive iron I-beam (in four parts) above, supported by three flanged columns. The north end of the elevation (Building 1) was of a similar build again, but comprised less uniform blocks (Plate 22). The upper level had coping (which was thicker than that to the south) and one semi-circular window and one round window to the south. The semi-circular window was covered with boards; the round window with timber slats. The lower level had three large round-headed doorways, with a square string course. The lower part of the south doorway was partially blocked with brick to leave a small window with a sandstone lintel; the upper part was boarded up. The string course continued across the two most southerly apertures. The central doorway was blocked with brick and rendered, while the northern, and largest, doorway had a sliding door made of planks which also incorporated another smaller door. The projecting return to the east at the north end of the elevation had neatly dressed quoins.

Plate 20 (left): East external elevation of Building 3

Plate 21 (right): East external elevation of Building 2

Plate 22 (left): East external elevation of Building 1

Plate 23 (right): South external elevation of Building 1

4.3.5 ***South elevation***: the east end of the south elevation (Building 1) had dressed blocks in random courses, with a string course (Plate 23). There were three windows on the lower floor which were blocked with concrete blocks. The roof had further glazed areas covered with felt below the louvre and modern rainwater goods. The lower part of the rest of the elevation (corresponding with Building 3) was obscured by an adjoining building (Plate 24). At the east end the upper part was built using neatly dressed ashlar blocks and there were at least four windows on the first floor level which possibly had timber lintels. Further west the elevation was obscured by corrugated sheets and the far west end was constructed from brick with multiple round-headed windows on the upper floor. The roof of Building 3 was corrugated sheeting.

4.3.6 There was an additional small sandstone building attached to the west of the south side Building 3 (in an area which was not recorded), with four round-headed apertures (one blocked with brick the others retaining what are probably their original casements with fanlight tops) and an inserted sliding doorway. There was a further more ruinous stone and brick-built building to the east of this and a concrete block built shed at the east end. The whole block was roofed with corrugated sheeting.

Plate 24: South external elevation of Building 3

4.3.7 ***Boundary wall*** (Figure 5): the majority of the boundary wall was located to the west of the main group of buildings, with a short section to the north-west. The southern section of this boundary wall corresponds to the west wall of what were the fitting shop and offices to the south; the return to the west as well as the most northerly section of the wall formed part of the stores (see *Section 3.2.3*). There were several modern concrete buttresses against the west side of the northern section of the boundary wall, which was otherwise unremarkably although it was in poor condition and had evidently been subject to various attempts at repair (Plate 25). The east face of the western wall contained a large round-headed doorway, which had been blocked with sandstone although the original blocking had evidently left a smaller doorway that had also subsequently been blocked. The top of the wall had also been levelled with the addition of a few courses of red brick (Plate 26). The return to the east also had a large round-headed doorway that had been partially blocked to leave a smaller round-headed doorway before this was blocked with concrete (Plate 27). The subsequent return to the south had brick rebuild in at an angle at the corner, possibly forming part of a flue and there was an area of rebuild in concrete blocks at this point. There was a further large round-headed doorway after the return to the south, followed by a large number of round-headed windows across the centre of the wall the majority of which were obscured by the block of garages and were more readily visible from the west side of the wall (see *Section 4.3.6*; Plate 28).

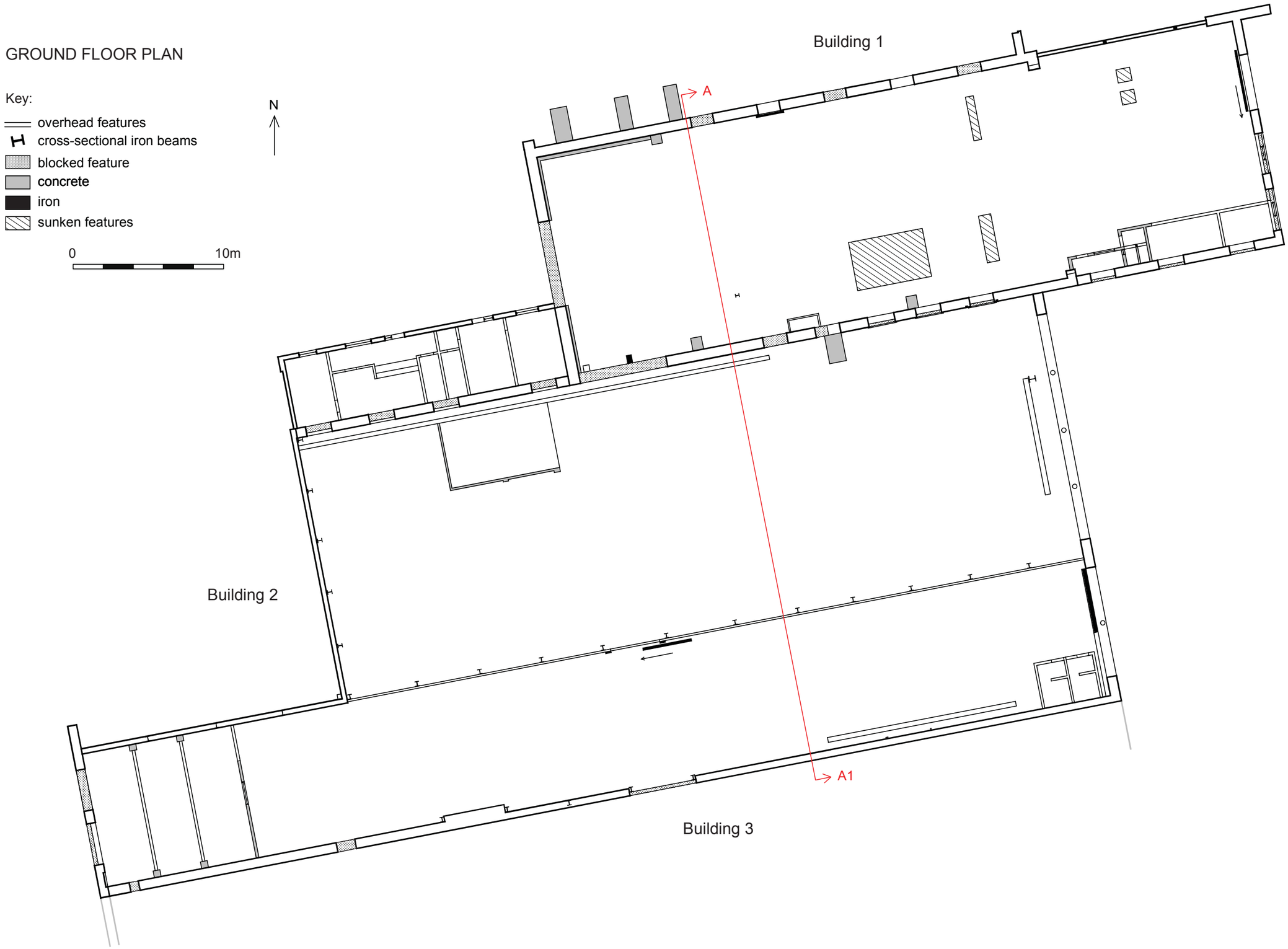
Plate 25 (left): Buttresses against the west end of the northern boundary wall

Plate 26 (right) Blocked doorway in the north end of the west boundary wall

Plate 27 (right): Blocked doorway in the return of the western boundary wall

4.3.8 The west side of the boundary wall was similar in appearance to the east elevation, although the north end was largely obscured by a large bank running alongside the road (Plate 28). There was the ruinous stub of a wall projecting to the west at the return, also constructed from rock faced ashlar sandstone blocks with neatly dressed quoins at the junction. There was another smaller stub of a brick wall to the east, which probably formed a drain junction, and had a large circular hole in the wall above that was filled with an iron pipe. There was a large round-headed door to the east which was part-blocked with stone to leave a smaller doorway, which had subsequently been blocked with concrete blocks. Dressed ashlar quoins were used throughout. There was then a very long return wall to the south, which was of a similar construction to the rest, and had a round-headed window and a large door at the north end and then another row of seven identical round-headed windows to the south, which were all blocked with stone, including some re-used pieces. The windows each had a sandstone sill apart from one, which was missing. Most of the wall was flat-topped and capped with concrete. The south end was slightly higher and originally might have formed the gable. This end contained another large blocked doorway and a smaller doorway, retaining its door and frame, set between two windows with the remains of nine-light casements. This door was also round-headed with an over light and a string course along the top. There was a quoined return to the east at the south end.

Plate 28: West external elevation of Buildings 1-3 and the boundary wall



Client: Barrow Borough Council

Figure 2: Ground floor plan

UPPER LEVEL FEATURES

Key:

- overhead features
- cross-sectional iron beams
- blocked feature
- concrete

N

0 10m

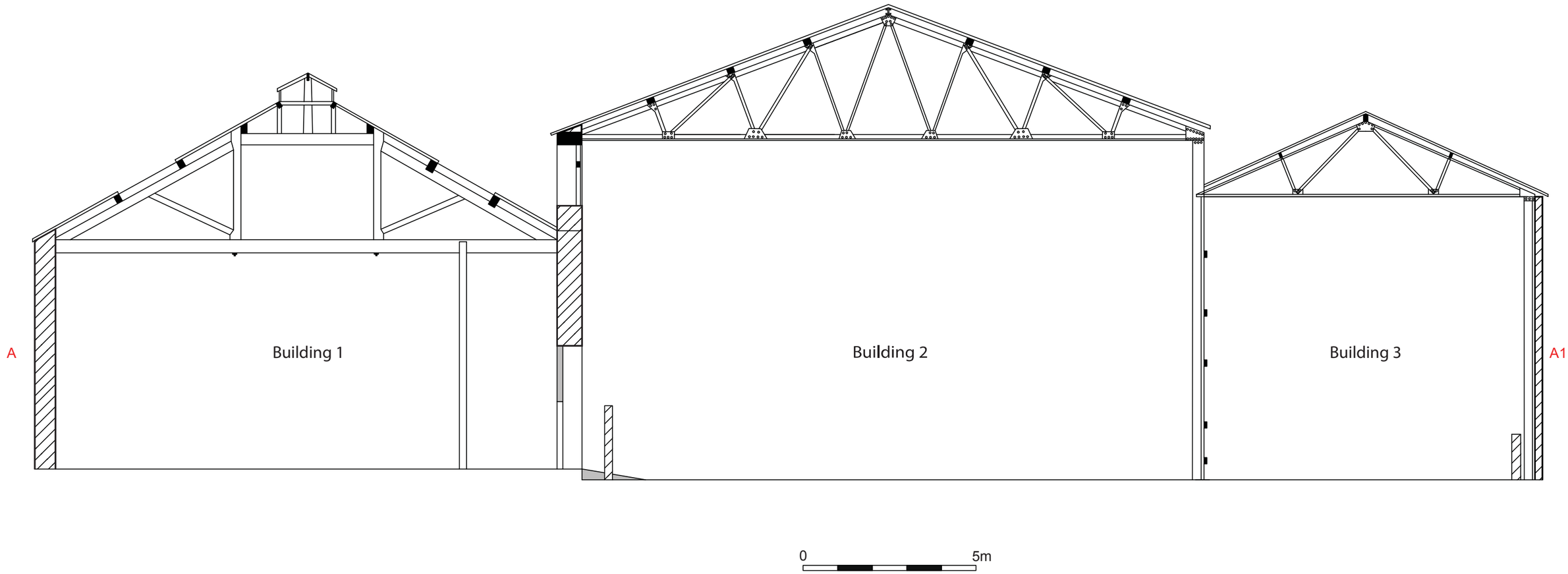
Figure 3: Upper level features

Client: Barrow Borough Council

EAST FACING CROSS-SECTION A-A1

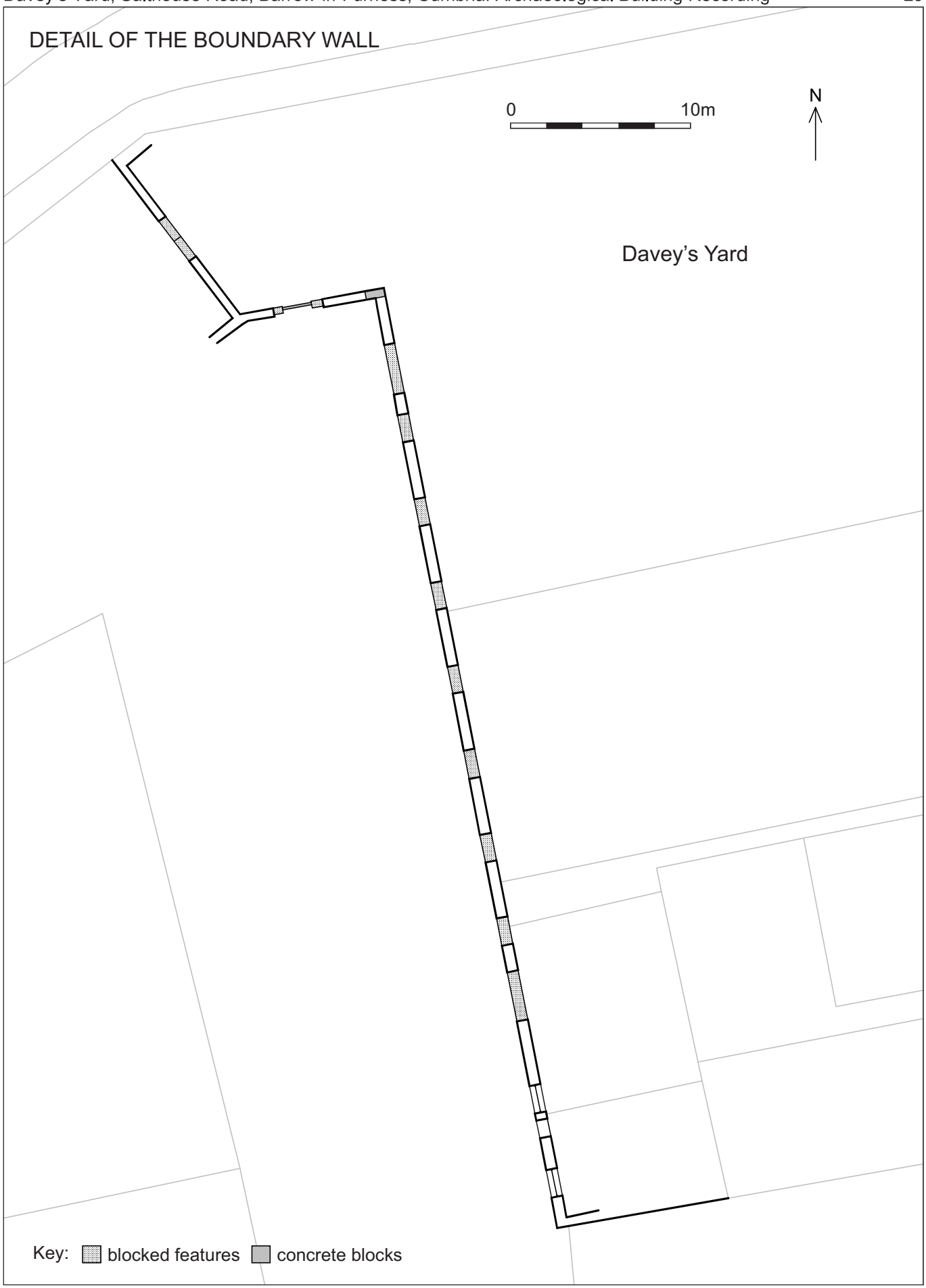
Key:

- cross-sectional wall
- concrete
- cross-sectional timber



Client: Barrow Borough Council

Figure 4: East facing cross-section A-A1



Client: Barrow Borough Council

Figure 5: Detail of the boundary wall

4.4 Internal Detail

4.4.1 ***Building 1 – floor and roof***: the floor was concrete and there was an inspection pit on the south-east side of the room from when the building had been used as a garage. There was a larger but more shallow pit to the west of the inspection pit and other features in the floor such as drains, possibly some sort of base, and wheel stops at the west end. The roof was supported by eight timber trusses from the centre towards the west end of the room and five steel trusses at the east end of the room. The timber trusses comprised a tie beam with a pair of queen posts, each with a single angled brace, bolted to the beam. The queen posts supported a horizontal collar, which in turn supported a king post extending to the ridge purlins, attached to which was another collar, which was bolted between the top two purlins and formed the louvre. The steel trusses were bolted together and comprised a zigzag arrangement of L-shaped girders, with the apex supporting a collar and king post. There were three other purlins per pitch plus a thick plank along the north side between the last timber truss and the east wall. Both pitches had a formerly glazed area between the two lower purlins, although these were boarded over. There was a concrete block construction in the south-east corner of the room which formed a toilet and store, with a single door and window in the store and a door into the toilet, which had two cubicles.

4.4.2 ***Building 1 - north elevation***: the east end extension of this elevation was brick built with the lower part filling between two iron I-beams and below a beam. The upper part had four brick pillars with recesses in between, and there was a buttress at its west end constructed from sandstone and brick denoting the original east end of the building. The rest of the elevation was sandstone; there were four visible round-headed openings, two of which were in use as doors, the other two were blocked. The wall at the west end had been built out with concrete blocks and a concrete block buttress supported one truss.

4.4.3 ***Building 1 - west elevation***: the lower part was covered with concrete blocks apart from a large inserted doorway with an iron lintel which was blocked with concrete. There was brick rebuild above the doorway but the upper part of the wall was otherwise mainly plain. The roof was hipped so there was an additional half-truss and extra supporting timber at this end. There was a small narrow slot in the upper part of the wall the lower part of which was blocked. To the north side there was another small blocked aperture, perhaps a flue.

4.4.4 ***Building 1 - south elevation***: there was a projecting corbel and brick buttress at the west end, suggesting there was originally some form of upper floor, and the lower part was built in brick beneath an iron and timber lintel, presumably indicating the position of a blocked doorway. There was a concrete block column supporting a truss to the east, but the rest of the elevation was stone. There were nine round-headed windows; six were blocked with brick leaving alcoves with slate sills, one was blocked with concrete blocks but had a door added, and two were blocked with stone. The east end was built of brick and continued the row of round-headed windows, also in brick but with bull-nosed bricks forming the arches.

4.4.5 ***Building 1 - east elevation***: this elevation was brick built apart from the stone details around the apertures. The upper part had one semi-circular and one round window (Plate 30). The lower part of the wall had a large sliding door in a round-headed aperture to the north, and two smaller doors to the south, both of which were blocked. The more northerly of these two doors incorporated a lower four-light window and an upper opening which was blocked with concrete blocks. The south door had a lower three-light window in the upper part and a timber surround.

Plate 29: Internal east elevation of Building 1

4.4.6 ***Building 2 - floor and roof***: the concrete floor was laid in sections but was otherwise plain and there was a concrete block wall in the north-west corner forming a garage with a flat timber roof. The main roof of corrugated metal sheets was supported by eleven bolted steel trusses (similar to those in Building 1 (see *Section 4.4.1*), each bolted at the south end to an upright I-beam and inserted into the wall on the north side.

4.4.7 ***Building 2 - north elevation***: the lower level was built from stone, the east end using more neatly dressed blocks. There were five round-headed windows with sandstone sills, all of which were blocked apart from one, which had been partially blocked with concrete blocks and converted into a doorway with a shallow concrete ramp connecting it to Building 1. Further west much rougher stonework was used and there were at least four round-headed windows and one other large opening below an iron beam, all of which were blocked with brick. The upper level was built of brick with 12 large windows, each with eight main lights and some smaller panels within iron casements. There was a large ladder attached on the east side, leading from *c*3m off the ground to one of the windows (Plate 30). There was another low brick wall against this elevation (*c*0.5m away from it) constructed in an English Garden Bond (with a ratio of five rows of stretchers to one row of headers) and incorporating upright I-beams.

Plate 30: Ladder in the north-east corner of Building 2

4.4.8 ***Building 2 - west elevation***: the lower part of this elevation was constructed from brick in a stretcher bond, incorporating iron I-beam columns. The upper level comprised corrugated sheets fixed against the I-beam columns.

Plate 31: General view of the west end of Building 2

4.4.9 ***Building 2 - south elevation***: the entire wall was constructed from corrugated sheets supported by upright I-beams (Plate 31 and Plate 32). There was a row of opaque corrugated sheets along the top forming windows, and a ladder attached at the west end similar to that to the north-east (Plate 31; see also Section 4.4.7).

4.4.10 ***Building 2 - east elevation***: the lower part comprised a large opening formed by three flanged columns supporting a large iron I-beam. The north side of this opening was constructed from brick and butted the north elevation. The upper part was brick-built in English Garden Bond (with a ratio of three rows of stretchers to one row of headers). There were three large round-headed windows covered by corrugated sheeting. Against the ground floor was a short stretch of poorly made brick wall in English Garden Bond (with a ratio of five rows of stretchers to one row of headers), with a large upright iron I-beam against the north end. This was effectively ruinous along the top and at the south end and utilised hand-made brick.

Plate 32: Internal east elevation of Building 2

4.4.11 ***Building 3 - floor and roof***: the floor was concrete and had been laid in sections (Plate 33). The roof was the same as in Building 2 (see *Section 4.4.6*), with 15 trusses. The four in the centre had pipe attached below.

Plate 33: General view of the inside of Building 3, facing west

4.4.12 ***Building 3 - north elevation***: this elevation mostly comprised corrugated sheets attached to upright I-beams (seen to the right on Plate 33). There was a sliding door in the centre and the west end of the elevation had a low brick wall constructed in English Garden Bond (with a ratio of five rows of stretchers to one row of headers) clad around the iron columns with the corrugated sheets on top. There were two concrete block pillars at the west end supporting iron I-beams orientated north-south.

4.4.13 ***Building 3 - west elevation***: the west end of the room had an inserted concrete block built wall which supported a timber floor on the south side. This wall had a single window with an iron box girder lintel, and a door to the north with a concrete lintel (Plate 34). The lower section of the west elevation proper was sandstone, and formed the gable of an earlier building, perhaps extending to the north to form a second gable (Plate 35). The sandstone section housed two large doorways with round-headed arches, both of which were blocked with stone (Plate 36), the southern one leaving a slight alcove, and there was a further recessed area on the south side. This was covered by heavy boards and blocked with brick, including some firebrick in the top which suggests that this area had perhaps incorporated a flue. The upper part of the wall had been raised in brick and this elevation was butted by the north and south elevations.

Plate 34 (left): Detail of the west end of Building 3

Plate 35 (right): Detail of the internal west elevation of Building 3

Plate 36: Blocked doorway at the west end of Building 3

4.4.14 ***Building 3 - south elevation***: the west end was constructed from brick, in English Garden Bond (with a ratio of three rows of stretchers to one row of headers) and the upper level had nine blocked, round-headed windows (seen on the left in Plate 34; see also Plate 37). There was also the cut off end of a large iron I-beam indicating that there had originally been an upper floor at the west end of the building. The lower part of the wall had two doorways, which were blocked with brick, one round headed and the other apparently inserted beneath a brick relieving arch. There were two concrete pillars against this elevation, which supported the modern floor at the west end. There was a slight return to the east which formed a projecting section where the iron columns started (seen on the left in Plate 33). The lower level continued in brick clad around I-beam columns. There were two separate toilet cubicles with a lobby within a modern brick-built structure against the east end of the elevation. The upper section of the central part of the elevation was made from corrugated sheets clad around columns. The upper part of the east end was brick built and contained four windows, three of which had six-light iron casements.

Plate 37: Internal south elevation of Building 3

4.4.15 ***Building 3 - east elevation***: the lower part had a wide opening with stone quoins and a central round column with a flanged top. The upper part was built from brick in English Garden Bond (with a ratio of three rows of stretchers to one row of headers). There was a semi-circular window with a stone surround and the remains of a frame.

Plate 38: Internal east elevation of Building 3

5. Discussion

5.1 Introduction

5.1.1 The Furness Railway Company developed the site in the mid 19th century but unfortunately it is difficult to identify which of the current buildings are represented on the earliest maps. It is possible that later buildings incorporate parts of these earlier structures. However, the present buildings certainly correspond to elements known to have been built from the 1860s onwards, although they have been subject to considerable alteration and addition.

5.2 Development of the Building

5.2.1 The building shows clear evidence of at least six major periods of construction and alteration. Fortunately, many of these can be identified in the map regression and available photographs mean that the sequence can be quite closely dated.

5.2.2 ***Phase 1 – mid 19th century***: Salthouse first saw development in the 1840s and following decades with the expansion of Barrow. There was an engine house constructed on the site in 1846 associated with the original station following the completion of the rail link. It is not evident whether there are any remains of this first structure incorporated within the site, however, during the 1860s the whole complex was enlarged and rebuilt, as shown on the Ordnance Survey of 1873. Several elements of the surviving buildings appear to correspond to this phase but they typically only include small areas such as the west end of Building 3, the boundary wall and perhaps the west end of Building 1. Certainly by the 1870s several identifiable parts of the complex had been constructed – the offices, stores, smithy, erecting shop, and paint shop (as shown in the plans of 1903 and later; Plate 6 to Plate 13, albeit with different functions at different times) although most of these do not survive in any form today.

5.2.3 ***Phase 2 – 1873 to 1890***: it is apparent that the majority of Building 1 (subsequently labelled the boiler shop) was built during this time, possibly replacing or incorporating an earlier structure or structures on the site. This perhaps corresponds to the running shed said to have been built in 1875, which later became a machine shop and turnery and was constructed from sandstone (see *Section 3.1.5*). It is evident from the map regression that it was built after 1873 although subsequent changes to the adjoining buildings make it appear much earlier – the presence of apertures looking south into Building 2 and north into what was the smithy is also curious as these would have been of little use, although those to the north were undoubtedly for easy access to the smithy.

5.2.4 ***Phase 3 – 1890 to 1903***: Building 1 (the boiler shop) was extended to the east to its current size as apparently was the smithy. This evidently corresponds to the brick and iron girder construction evident within the building and presumably the ashlar façade at the east end. However, this latter element may have been added in the following phase.

5.2.5 ***Phase 4 – 1903 to c1920***: Buildings 2 and 3 were evidently remodelled – the cartographic and photographic evidence demonstrates that they were extended to the east to their present position, almost as far as Building 1. The photograph from *c*1920 (Plate 8) shows that this had taken place by that date and that the division between Buildings 2 and 3 had been reorganised, perhaps to reposition the paint shop, which had previously been housed in the building to the south (see Plate 6) that became offices and stores (Plate 10). The east façade of Buildings 2 and 3 was evidently constructed during this period and it seems likely on stylistic grounds that the façade of Building 1 was also built, presumably replacing whatever had been there previously although this could have been created in Phase 3.

5.2.6 ***Phase 5 – c1920 to 1953***: it is apparent that by the late 1930s the site went out of use as an engineering works, something that perhaps occurred as early as 1923 when the Furness Railway was merged with the LMS. Subsequent maps show buildings as out of use; the smithy to the north of Building 1 is apparently open space by 1947 and the remaining buildings have apparently entirely fallen out of use by 1939. The stores to the north-west of the building were also open space by 1953 and formed the northernmost end of the current boundary wall. The erecting shop and fitting shop were sold to 'Messrs Davey', possibly of 'Roberts, Davy and Co' by *c*1950. Building 2 was apparently foreshortened after this

date, possibly associated with the submission of a planning application by Roberts, Davy and Co in 1953 to partly reinstate their warehouse and factory which were damaged by fire. In any event the original fitting shop was largely demolished sometime after 1953. It is likely that the steel roof structure in all three buildings and the corrugated sheet walls in Buildings 2 and 3 relate to this period of alteration, and represent a somewhat ad hoc replacement of the original structures. The scar of the blister hanger added in 1953 is also evident at the west end of Building 2, further demonstrating the extent of alterations in this period. Some earlier features must have been removed by this phase if not earlier, particularly any machinery and associated structures relating to the various processes that went on in the different parts of the site when it was used as an engineering works, and probably any upper floors that existed in Building 3, although these could have been removed in Phase 6.

5.2.7 ***Phase 6 – 1953 onwards***: it is not known when the site stopped being used by Roberts, Davy and Co, but subsequent planning applications demonstrate that a variety of alterations were made in the later 20th century by the various businesses using the site. Many of these do not relate to the buildings as such and instead refer to new structures that were erected such as the block of garages and facilities relating to waste processing in the buildings to the south of Building 3. This period is largely evident only through relatively cosmetic alterations that were made and repairs. These undoubtedly include the blocking of several doors and windows throughout, the creation of vehicle inspection pits in Building 1, the addition of concrete blockwork in Building 1 to support the roof and clad the walls, and the addition of new toilet blocks and internal buildings throughout.

5.3 Significance and Recommendations

5.3.1 Davey's Yard first saw development from the middle of the 19th century and saw continued growth as part of the Furness Railway Company's Engineering Works into the first half of the 20th century, although all of the buildings had fallen out of use by 1939. The striking eastern external elevation was built between 1890 and *c*1920 and Building 2 and 3 were extended to their fullest extent between 1911 and *c*1920. Building 1 was used as boiler shop and Buildings 2 and 3 originally formed the erecting shop and paint shop, although they were was foreshortened after 1953. The western boundary wall of the site formed the west external elevation of the offices, stores, and fitting shop, which were all but demolished after 1953.

5.3.2 The east external elevation of the buildings forms an interesting and architecturally striking façade and the engine sheds formed an important part of the history of the general area, being closely related to the industrial development of Barrow in the 19th and early 20th century. Much of the rest of the building has been extensively altered and has lost its original form although the basic steel framed structure, which was probably added in the mid 20th century, is presumably still sound. Nevertheless, the buildings that were recorded form the largest part of what now remains of the once extensive Furness Railway Engineering Works, which was immensely important in the development of Barrow-in-Furness.

5.3.3 In view of the historical significance of the site in relation to Barrow-in-Furness, it is recommended that as much of the structure as possible be retained and ideally converted for re-use. As a minimum the iron structure, entire east façade, and sandstone walls of Building 1 should be retained. In addition the structures currently used by as a waste recycling business should also be recorded so as full an account of the buildings as possible is produced. If the buildings are to be demolished and the area redeveloped then the presence of below-ground remains needs to be taken into consideration as there were a number of industrial processes on the site for which no above ground remains are present and there are several buildings that have been demolished of which little evidence remains such as the original engine shed of 1846, and the offices, stores, and smithy of the 1860s. The investigation of these would further add to the understanding of the site and allow a more detailed understanding of its significance to be made.

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Appendix 1: Contemporary Descriptions of the Furness Railway Company Engineering Works

Leach 1872, 47-50

Furness Railway Company's Offices and Works… The head quarters and general offices of the Railway Company are at the east end of the Strand, and occupy a large and commodious structure built of red sandstone and pleasantly situated in a court yard, on one side of which there is a beautiful green lawn running from the level of the yard to the roadway, which is considerably higher, and on the other side is a verandah extending from the time-keeper's office at the entrance gates to the company's works. The offices, which have a frontage of 260 feet, present an imposing appearance. The entrance hall is situate almost in the centre of building, and is surmounted by a large clock, which is illuminated every evening. To the right of the entrance on the ground floor is the audit office, in which there is accommodation for thirty clerks. Immediately behind this are the stationary store, and further back still are the general stores for all classes of small articles used by the company in the several mechanical departments. This store is 80 feet by 50 feet. To the left of the entrance hall is the secretary's and traffic manager's department, the permanent way inspector's office, and the men's pay office. On the first floor in the offices over the audit department are the managing director's room and the board room; above the stationary and general stores are the accountant's and pay clerk's offices; the room above the secretary's offices and permanent way stores is occupied by the managing director's correspondent, lavatories, offices, safes, and storing rooms, and at the extreme end are the resident engineer's office and drawing offices. Every preparation is made in the case of fire – rows of buckets are kept under the principal entrance to the works, and new patent fire extinguishers are placed in different parts of the premises. The offices and stores are heated by hot water apparatus. Behind the offices is a large yard, extending to the fitting shops, which is used for locomotive stores, wheels, axles, &c. Commencing at the north-west corner of the works, there are store for keys, spikes, bolts, &c., beyond these are the stables, and still further on the permanent way stores for signals, lamps, and other appliances for the main line. Then there is the blacksmiths' shop, a spacious floor 310 feet long by 40 feet wide, and of more than ordinary height. This is fitted up with twenty fires blown by a steam fan. Each fire communicates with a large iron flue which is connected with the lofty chimney-shaft in the square in Salthouse-road. Here there is also a large steam hammer and a shearing and punching machine. To the right of the blacksmiths' shop is the braziers' department, in which there is a small furnace, together with the usual appliances for this particular kind of work. Almost immediately adjoining is the fitting shop, which is replete with the most modern machinery, and presents a scene of activity not often witnessed. This shop is 170 feet long by 50 feet broad. There are four lathes for "turning up" wheels, six boring machines, ten ordinary lathes, two machines for planing railway points, &c. &c. Lines of rails are laid into the shop by which the locomotives can be brought in for repairs. Every facility is here provided for doing repairs with expedition and with permanency. Hydraulic machinery is used to lift the locomotives from their wheels when undergoing repairs. Over the fitting shop are the locomotive superintendant's office and the drawing office, with a spacious room occupied by the pattern-makers. To the left of the fitting shop is the locomotive shed, which is 170 feet by 120 feet, and which accommodates fifty engines. This shed is fitted up on the most approved principle with smoke troughs, ash pits, &c. The timber and heavy stores yard is a very extensive one, measuring 500 yards by 200 yards. Here are situated the buildings for providing the engines with their daily consumption of coke and water. The waggon building and renewal shop occupies a large building at the opposite end of the yard, and is 300 feet long by 160 feet wide. There are six lines of rails across it, each holding seven waggons, which are brought in by two side entrances by Dumb's patent traversers. Overlooking the shop is the foreman's office. There are the usual lathes and other wood machinery in this place, which are driven by a horizontal engine of fourteen horse power. One corner of the room is set apart for the repairing of signals &c. At the east end of the shed there is a room specially used for the erection of passenger carriages, and which will accommodate six at one time. Behind this again is the paint shop, which is of equal size. This part of the building is two stories high, and the floor is occupied at one end by the upholstering department, and at the other by the joiners' shop. To the west of the waggon shop is the blacksmith's shop for this department, in which there are six

fires, together with store rooms for the requirements of waggon building. In connection with the works there is an extensive library, and commodious reading room, billiard room, &c., and there is also a sick and funeral society, of which every employé is a member. There are upwards of 300 men employed at these works.

Anon 1906, 72-75

FURNESS RAILWAY LOCOMOTIVE, CARRIAGE AND WAGON WORKS.

These works, founded in 1864, are situated in Barrow, and have the same entrance at the general offices of the Company, with a frontage in St. George's Square. They occupy an area of about thirty acres. The first locomotive shop and running shed is now the machine shop and turnery, in which are the wheel lathers, planing, slotting, drilling and other machines. The power for driving this shop is obtained from two small horizontal steam-engines, the various cross-shafts being driven by means of bevelled gearing with the exception of one driving the cross-shop, this being driven by means of cross belts. Adjoining this is the smith's shop, with fifteen smiths' hearths, and with a furnace for heating the tyres for locomotives, carriages and wagons. All the smoke from the plate and forge furnaces, stationary boilers, and smiths' fires leads through an underground flue into a large chimney shaft, which stands outside the works in the middle of Salthouse Road. The boiler shop contains a 15-ton overhead travelling crane, steam punching machine, bending rolls etc. Adjoining this is the boiler house containing three Galloway boilers working at a pressure of 50 lbs. per square inch for supplying steam for the shop engines, steam hammers and other appliances.

The second running shed is now the erecting shop, which, owing to its low roof, has no overhead crane, the engines having the wheels taken from them and replaced by means of dropping pits. The shop consists of three bays each 30 feet span by 160 feet in length. It contains six roads, with engine pits accommodating four engines on each road. Adjoining this shop are the spare gear stores. Beyond this is the Locomotive Superintendant's office, running department, and drawing offices, the latter being on the upper storey on the same floor as the pattern and joiners' shop. The present running shed is a stone building 310 feet in length by 150 feet in width, and capable of holding sixty engines. Close to the engine shed is the new shed for coaling engines on the high level system. There are two platforms, the coal wagons being in the centre, and the incoming roads being at each side, enabling four engines to be coaled at one time. Beyond the sheds and between the roads is the ashbin, with pits at each side for the driver to examine his engine whilst he fire is being withdrawn.

The carriage and wagon shops have recently been enlarged. The wagon shop is 300 feet in length by 160 feet in width, and consists of a carriage body shop, carriage underframe, wagon building, smiths', wheelwrights', and machine shops, and saw mill. The carriage paint shop is 195 feet in length by 40 feet in width, but a new and larger shop has been constructed, capable of holding twenty carriages. There is also a wagon repairing shop and a timber drying shed.