

Land off Aldcliffe Road, Lancaster, Lancashire Archaeological Evaluation and Expanded Works Report

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OA North Mill 3

Moor Lane

Moor Lane Mills

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Land off Aldcliffe Road, Lancaster, Lancashire

Archaeological Evaluation and Expanded Works Report

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With illustrations by Mark Tidmarsh

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Summary

Between 24th September and 4th October 2019 Oxford Archaeology (OA) North conducted an archaeological evaluation, with subsequent limited expanded works, at the site of the former B&Q warehouse, off Aldcliffe Road, Lancaster, Lancashire. At the request of Orion Heritage Ltd, fourteen trenches were proposed targeting remains of the former Queen's Mill building that previously occupied the site, as well as several outbuildings. The results of the evaluation show that structural remains relating to the mill survive reasonably well beneath the footprint of the modern warehouse, though survival around the perimeter of the site is less so. This report is a presentation of those results.



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The project was managed for OA North by Dr. Adam Tinsley. The fieldwork was directed by Aidan Parker, who was supported by Steve Morgan, Steve Clarke, Zoe Clarke, Anne Templeton and James Hodgson. Survey and digitising were carried out by Aidan Parker, Steve Morgan, Andy Phelps and Mark Tidmarsh. Thanks, are also extended to the teams of OA staff that prepared the archive under the management of Karen Barker. This report was written by Aidan Parker and edited by Dr. Adam Tinsley.



1 INTRODUCTION

1.1 Scope of work

- 1.1.1 Oxford Archaeology (OA) North were commissioned by Dr. Rob Smith of Orion Heritage Ltd, to undertake a programme of evaluation trial trenching at land off Aldcliffe Road, Lancaster Lancashire (NGR: SD 47561 61196). Fourteen trenches were originally proposed, of variable size, comprising a total of 290m² and positioned across the site in order to sample the potential location of eighteenth to nineteenth century mill buildings and associated structures, as identified on historic mapping of the area. Following completion of the trenching, and subsequent to a meeting on the 27th September, with Dr Smith and Peter Iles, acting on behalf of Lancashire Archaeological Advisory Services (LAAS), the archaeological advisor to the Local Planning Authority, it was also agreed to expand excavations in relation to features of interest identified within two trench locations (Trench 4 and 5).
- 1.1.2 The work conformed to the requirements of current national and local planning policy (ie CIfA 2014a; 2014b; 2014c; 2014d; EH 1991; HE 2015) and a Written Scheme of Investigation (WSI: Appendix D), produced by Orion Heritage Ltd, detailing the methodology to be employed to meet the Local Authority's requirements for necessary work. This report outlines the specified requirements and how they were implemented by OA North.

1.2 Location, topography and geology

- 1.2.1 The site was located south-west of Lancaster's city centre (Fig. 1), within the grounds of a former B&Q warehouse and car park. The potential development area (PDA) consisted of a wedge-shaped parcel of land, bordered to the south and east by Aldcliffe Road, with a mixture of nineteenth and twentieth century commercial and residential buildings to the north and west.
- 1.2.2 The PDA was largely flat, at c.23m Ordnance Datum (mOD). It comprised the existing commercial building to the north of the site and associated car park area to the south.
- 1.2.3 The underlying geology of the PDA is mapped as Silesian Sandstones of the Pendle Grit Formation, with superficial deposits of Glaciofluvial sand, gravel and Glacial Till (BGS), 2019), with superficial deposits identified as freely draining slightly acid loamy soils (Cranfield 2019). Within the area of excavation these natural deposits were overlain by modern construction materials to form the car park area.

1.3 Archaeological and historical background

1.3.1 The full assessment of the site's archaeological potential is presented in the Heritage Assessment document produced by Orion Heritage Ltd (Orion Heritage2018) and will not be repeated here. What follows is a brief summary of the information from that document relating primarily to the Post-Medieval period, as this was deemed to have the highest potential for surviving remains, and influenced the placement of all trenches relative to historic mapping.

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- 1.3.2 No remains relating to prehistoric, Roman, or medieval periods have been identified within the PDA, and the Heritage Statement issued by Orion Heritage (2018) identified that the site had no or low potential in this regard. While no finds of Roman origin have been identified within the PDA, it does lie close to the postulated limits of the Roman settlement or 'vicus' that grew up around the Roman fort, built on the location of Castle Hill in AD 79 (Ede and Darlington 2002). Part of this vicus is thought to have developed along the line of a Roman road (Margery's 70d), an extension of Kings Street, linking Preston and Lancaster, and extending along the line of Penny Street, to the north-east of the PDA. In addition, various finds, including a memorial stone and various cremation deposits and a tomb stone, indicative of potential cemeteries organised along the line of the road, have previously been identified, mainly in the vicinity of Henry Street, off Aldcliffe Road and in relation to the Arla depot (LUAU 2000; OA North 2005; UMAU 2007). It is unclear if further outlying elements of the 'vicus' and other Roman remains extended as far as the PDA.
- 1.3.3 The main period of activity identified with the PDA relates to development during the late post-medieval and industrial period, as identified on cartographic evidence documenting the area. In this regard, a substantial building, identified as Queen's Mill, was built on the site in 1840, initially to produce cotton, the prevalent industry in Lancashire at this time. Subsequent years saw expansion and changes to the mill's use including glass production and leather. Twentieth Century activity saw the mill's use, change again with references to it being a print works, chemical works and manufacturer of aircraft components during the Second World War. In the latter half of the twentieth-century, Queen's Mill was listed as a plastic development works until the early 1980s when the building was demolished and a B&Q superstore occupied the site, remaining until the present day.
- 1.3.4 The Ordnance Survey map of 1849 is the first to provide any detail of the site with Queen's Mill marked as a cotton mill occupying much of the north-eastern part of the PDA, along with a series of unmarked buildings occupying the east of the area along Aldcliffe Road. One such building, in the south-east of the PDA, is marked as the 'Lancastrian School'. The southern part of the site appears to be empty
- 1.3.5 The 1892 Ordnance Survey indicates the mill's expansion to the west, at which time it covered most of the northern half of the PDA, as well as a couple of small additions to the outbuildings to the east. The school building was divided into two, while the southern part of the site remained clear.
- 1.3.6 The significant changes indicated on the 1913 map are the addition of a 'Mission Room' in the south of the site, and the change in function of Queen's mill, now labelled as a printing works. Subsequent mapping documents a few changes to the site, mainly the function of Queen's Mill and the drawn-out demolition of the outbuildings to the east that took place in the latter half of the twentieth-century. By the OS maps of 1986/88, the site was clear of all former structures and was occupied solely by the modern DIY store.



2 EVALUATION AIMS AND METHODOLOGY

2.1 Aims

- 2.1.1 The main aim of the evaluation was to determine the character, extent, date, integrity, state of preservation and quality of any archaeological remains present and therefore ensure their preservation by record. This was to be achieved via the following objectives:
- 2.1.2 i. Ensure the recording of archaeological assets discovered during the works;
- 2.1.3 ii. Ensure that any below-ground archaeological deposits exposed were promptly identified;
 - iii. Ensure the recording of archaeological remains, to place this record in its local context and to make this record available.
- 2.1.4 After excavation of the trenches, a site meeting was held on Friday 27th September, with Dr Smith of Orion Heritage Ltd and Peter Iles of Lancashire Archaeological Advisory Services (LAAS), acting in his capacity as archaeological advisor to the Local Planning Authority. Based upon the results of the trenching and the archaeological value of the features identified, it was agreed to expand excavations in the location of two trenches, Trench 4 and 5. These expanded works are identified as Trench 4b and 5b. The purpose of these expanded works was to further reveal elements of the structural features identified within the original trenches, in order to clarify and confirm the composition and potential original function of those structures. In relation to Trench 5, these works were primarily undertaken in order to confirm the likely position and composition of the boiler room, which would have originally powered the cotton mill.

2.2 Methodology

- 2.2.1 The programme of archaeological works comprised the following:
 - i. The excavation of fourteen archaeological trial trenches of varying sizes (see Table 1 below). The placement of the trenches was determined by historic mapping and largely intended to target specific remains relating to the former mill and outbuildings (Figure 2).
 - ii. The expanded excavations in certain areas of the site was dictated by the results of the evaluation.
 - iii. The production of a report to present the findings.
- 2.2.2 Prior to excavation, the trial trenches (and subsequent extensions) were located and tied in the National Grid with a Leica 1200 handheld dGPS, accurate to +/- 0.20m. In the case of the three trenches located within the upstanding warehouse, they were located by means of measuring offsets with hand tapes from elements of the surrounding upstanding building. Post-excavation survey was carried out using either the same dGPS described above, or, within the confines of the former warehouse, a Leica 800 Total Station, tied into established reference objects for accurate measurements of the internal trenches.



- 2.2.3 Prior to excavation each trench was subjected to scanning for services using a CAT 4 cable avoidance tool. Any services encountered were marked with spray-paint and, where necessary, trench locations were either moved or slightly adjusted in order to maintain an appropriate buffer zone around service lines (2m minimum) for reasons of health and safety. Where movement of trenches occurred, it was undertaken in a manner to also try and ensure that the targeted remains would still be covered. The position of Trench 1 could not be excavated due to the presence of several service lines and an inspection pit around the intended location. At the site meeting held on the 27th of September it was agreed that this trench would be abandoned.
- 2.2.4 Initial excavation of each trench was undertaken via an 8ton, hydraulically powered, tracked excavator, fitted with a pneumatic breaker in order to facilitate the removal of the modern overburden (a mixture of tarmacadam and concrete). Upon removal of this initial layer the breaker was replaced by a 1.8m wide toothless ditching bucket to continue the excavation of overburden until archaeological deposits were encountered. In some cases, it was also necessary to use a narrower toothless bucket for excavation of backfill deposits alongside and between surviving structural remains. All mechanical excavations were carried out under direction supervision by a suitably experienced member of OA North site staff at all times and reduced in controlled spits of no more than 0.20m.
- 2.2.5 Post-mechanical excavation, each trench was subjected to manual cleaning in order to fully expose and define surviving remains prior to recording.
- 2.2.6 Recording was carried out by means of photography, digital survey (including rectified photography), hand drawn plans (where appropriate) and written recording. Written information was logged onto OA North *pro-forma* recording sheets and compiled in a site archive, including all relevant indices and drawings.
- 2.2.7 The photographic record consisted of general trench shots as well as photographs of individual features. Those trenches containing surviving remains were also subjected to further rectified photographic recording by means of a digital SLR camera mounted on an extendable pole to facilitate elevated 'bird's eye' shots of trench contents. The photographs were located by means of rectified points surveyed using either the dGPS or Total Station survey systems, in order to allow accurate location relative to OS grid coordinates and ordnance datum heights.



3 RESULTS

3.1 Introduction and presentation of results

Trench No.	Size	Targeted Archaeology	Notes
1	5m x 2m	1 ext. wall	Not excavated due to multiple services
2	10m x 2m	2 ext. walls	Shortened due to service
3	5m x 2m	Internal structures	No alteration
4	10m x 2m	1 ext. wall	No alteration
4b	5.3m x 2.3m		Extension based on features in original trench
5	15m x 2m	1 ext. wall	No alteration
5b	8m x 2.8m		Extension based on features in original trench
6	16m x 2m	1 ext. wall	Moved 5m west due to service and access issues
7	10m x 2m	1 dividing wall	Moved 1m south due to service
8	10m x 2m	4 ext. walls	Alignment shifted west to avoid fence
9	10m x 2m	2 ext. walls	Excavated in two halves due to fence
10	10m x 2m	1 ext. wall	Moved 1m south due to service
11	5m x 2m	1 ext. wall	No alteration
12	10m x 2m	1 ext. wall	No alteration
13	15m x 2m	No target	No alteration
14	14m x 2m	No target	No alteration

Table 1: Trench sizes and location alterations

3.1.1 In total, thirteen of the proposed fourteen trenches were excavated, with extensions to Trenches 4 and 5 undertaken at the request of Peter Iles (LAAS) (Table 1). A small number of trenches had to be slightly relocated or adjusted due to the presence of services or their proximity to existing structures and street furniture, which the client requested be kept in place to maintain a level of site security. Such adjustments had a negligible effect upon the results of the trenching and almost all intended targets were identified. Details of such alterations are included within the specific description of the trench, as well as Table 1.



- 3.1.2 Of the thirteen trenches excavated, Trenches 2, 10, 12, and 13 contained no archaeology and will not be discussed further, although basic descriptions are included in *Appendix A*.
- 3.1.3 Archaeological remains were encountered in Trenches 3-9, 11, and 14. These trenches are described below and, where possible, related to the evidence of historical mapping.

3.2 General soils and ground conditions

- 3.2.1 The soil sequence between all trenches was consistent with various modern overburden deposits overlying the archaeological horizon. Where archaeological remains were absent, these modern deposits overlay natural sand/gravel. These deposis were invariably capped by hard-standing surfaces of either tarmac or concrete, as well as further floor surfaces within the former warehouse building.
- 3.2.2 Ground conditions throughout the evaluation were satisfactory and despite several instances of heavy rainfall during works, remained relatively dry and well drained, although some localised pooling of water did occur. Archaeological remains, where present, were easily identified, primarily comprising stone or brick-built structures, and were easily accessed within the limits of the excavation. No trench was excavated beyond the maximum safe working depth of 1.2m.

3.3 Trench 3

- 3.3.1 Trench 3 was the smaller of three trenches excavated within the confines of the upstanding warehouse, situated approximately 8m from the northern wall of the building (Figs 2 and 3). Aligned east-west and measuring 5m by 2m, with a maximum depth of 0.5m, this trench contained structural remains thought to relate to the interior of Queen's Mill.
- 3.3.2 Context **304** was removed first, comprising 0.2m of modern reinforced concrete and the modern linoleum flooring of the warehouse. Beneath this lay levelling deposit **303**, a mixture of medium brown sand and assorted rubble, measuring 0.3m thick. Beneath the modern overburden, were two separate concrete rafts, contexts **301** and **302**, believed to be earlier than the modern material, and likely relating to a later phase of the mill's internal structure (Plate 1). Surface **302** partially overlay the earlier **301** and covered the southern half of the trench with a width of 0.7m and thickness of 0.1m. Surface **301** lay within the base of the trench covering its entirety. Both surfaces were composed of plain grey concrete.





Plate 1: Surfaces 301 and 302. Viewed facing west.

3.4 Trench 4 and 4b

- 3.4.1 Trench 4 was also located within the upstanding warehouse, 5m from the southern wall and public entrance to the building (Figs 2 and 3), and was Intended to target an external wall of an early phase of the mill, as seen on the 1849 OS map (Fig 8). Aligned east-west and measuring 10m by 2m it was excavated to a maximum depth of 0.85m. This trench was subject to an extension, designated Trench 4b, and situated along the southern edge, towards the eastern end of the original trench. This extension measured 5.3m by 2.3m and was excavated to a maximum depth of 1.2m.
- 3.4.2 In the western end of the original trench two similar structures were uncovered. Contexts **405** and **406** were 0.6m² concrete pads, spaced 1m apart, each was bordered by a red brick wall **402** and **403** (Plate 2: Figure 3). Structure **402** and **405** were the more westerly of the features, sitting within the end of the trench. The red brick components were constructed from handmade brick, with lime mortar bonding agent, each had a single skin of bricks bordering the eastern edge of their respective pads before becoming a thicker, triple-skinned construct heading south beyond the limit of excavation. To the east of brick/concrete construction **403/406** was concrete floor



surface **407**. Measuring 2.5m in length with a thickness of 0.1m, this surface covered the width of the trench.

- 3.4.3 East of concrete surface **407** was wall footing **408**. This substantial foundation ran north-south across the original trench, and extension, before turning east and running along the southern edge of the extension. It is possible this footing relates to the external wall of the mill as seen on the 1849 OS map (Fig 3 and 8: Plate 2). Measuring 0.7m wide with a height of 0.3m, this footing was mainly constructed of large sandstone blocks (average individual size of L 0.4m by W 0.2m and H 0.12m), bonded with a pale grey mortar. Some other materials were recorded in the north-south section of this wall, including possible concrete blocks. It is likely this north-south section was subject to a rebuild around the time of the mill's western expansion in the latter part of the nineteenth-century.
- 3.4.4 To the west of wall **408** was another small wall footing **425**. This small footing extended east-west and butted against the western face of **408**. It comprised a double skin of rectangular stone blocks with a rubble infill, measuring 0.5m long and 0.45m wide. Bonding material was observed as a brown sandy mortar. Butting this to the north was stone floor **427**. This single flagstone was only partially exposed as it continued beneath the later concrete floor **407**. It is thought these features may pertain to an exterior yard area existing prior to the westward expansion of the mill *c* 1892, or else represents this phase of expansion, with subsequent modifications to the floor surface indicated by concrete surface **407**.
- 3.4.5 East of wall foundation **408** was a large concrete pad **410**. This 1m² construction sat above the remnants of a slate floor **428**, and bore similarities to the other concrete features in the west of the trench. It's presence above the slate flooring suggests this feature belonged to a later development of the mill rather than the earlier phase seen on the 1849 map.
- 3.4.6 To the south of this concrete pad, two parallel brick walls (412 and 413) extended eastwest from the eastern limit of excavation, terminating at or just before wall 408 (Fig 3: Plate 2). Wall 413 was the northern most, largest, and best preserved of the two, measuring 2.8m long, and was constructed from a double skin of handmade stretcher brick bonded by a grey mortar. Wall section 412 was located approximately 0.50m to the south of 413 and constructed in the same fashion. It had visibly been truncated at its western extent, but presumably originally continued as far as wall 408. The two walls formed a small rectangular structure, the function of which was unclear, but may have formed part of the foundation for a floor surface, or possibly defined an internal passageway.
- 3.4.7 The remains identified in Trench 4 and 4b seemingly relate to two or more phases of the Queen's Mill history, with the structures towards the western end of the trench relating to the later western expansion, while those to the east relate to the earlier building.





Plate 2: Trench 4 and its extension. Viewed facing west.

3.5 Trench 5 and 5b

- 3.5.1 Trench 5 was located immediately to the south of the modern warehouse, aligned east-west and measuring 15m by 2m (Figures 2 and 4: Plate 3). This trench was also subject to an extension along the north and east of the original, the expanded area measuring 8m long by 2.8 m wide. The maximum depth achieved within the excavation was 1m below ground level (bgl). The trench was targeted on the southern external walls of the mill.
- 3.5.2 At the western end of the original trench was concrete surface **507**. Measuring 1.7m long by 2m wide, this surface did not relate to any other structure and therefore comprised a relatively isolated raft of concrete extending beyond the western limit of excavation. Given the relative isolation of the surface, it is impossible to relate to other structures associated with the mill, although, given the nature of its material and occurrence of similar structures elsewhere in the mill, it probably relates to a late phase in the buildings development.
- 3.5.3 Approximately 2m to the east of surface **507** were brick structures **505** and **506**. Structure **506** was aligned east-west and comprised a 1.7m long by 0.45m wide double skin of handmade brick, with only a single course surviving (Fig 4) Butting wall **506** to the north was the remains of brick floor **505**, which measured 1.5m in length and 0.7m wide and was a single course of brick thick, comprising examples of both handmade and frogged factory brick, arranged haphazardly, with no clear pattern. A probable



continuation of this same floor surface was also partially preserved butting against the south-facing surface of wall **506** (Fig 4). Given their location, alignment and composition, a further and better-preserved section of wall **506** and floor **505** were identified further to the east, where they were recorded as wall **501** and floor **500** respectively., These separate sections were located several metres to the east, beyond a baulk in the trench that had to be preserved to retain an existing gate and fence line. The two separate sections also appeared to have been truncated by a modern service pipe and construction cut, visibly extending through the trench on a north-south axis. Wall **501** measured 4m in length and 0.46m wide and also comprised a double skin of handmade brick. Floor **500** measured 4m long and 0.7m wide and again comprised a mixture of handmade and frogged factory bricks.

- 3.5.4 Two further brick constructions were situated immediately to the east of floor **500**, within the original trench. Wall **502** was a single skin of handmade brick, extending east-west from the eastern end of wall **501**, to the western face of wall **503**, where it appeared to be keyed into the north-south aligned structure. Built of handmade brick the two sections measured 0.6m in length and seemed to form an L-shaped configuration, or partially preserved rectangular bay, that extended south beyond the limit of excavation. Wall **503** was a more substantial footing, aligned north-south, comprising a double skin of handmade and factory brick bonded with a dark grey mortar.
- 3.5.5 Further to the east of wall **503**, and parallel to it, brick structure **504** was of a similar construction, also composed of a double skin of both handmade and factory bricks. This structure contained a short dog leg to the east at its approximate mid-point, before continuing north and was keyed into an expanded footing of up to four skins of mixed red brick, again bonded with a dark grey cement. This structure was subsequently found to be keyed into further structures (**516** and **519**) exposed within the expanded area.
- 3.5.6 Within the western end of the expanded trench, a brick structure comprised of surfaces 509, 510 and 511, which formed a large rectangular construct with a sunken section (509), was thought to possible represent the remains of a boiler bed. Surface 510 butted against the northern edge of floor 500 and comprised of a double skin of handmade brick 3.5m long with five courses of header and stretcher bricks 0.5m high. Approximately 1.2m to the north of 510, and at the same relative height OD, was a similarly constructed surface 511, and between the two-brick floor 509 was constructed at a depth of just one or two brick courses below, creating a sunken surface. At the eastern end of surface 509, several yellow fire bricks survived in situ, suggesting this construction may have acted as a boiler bed, and therefore relating to the engine room of the mill.
- 3.5.7 To the east of this floor surface, several rectangular brick structures were likely associated with a flue system connected to the boiler/engine system. Walls **519** and **521** butted against the eastern face of **504**, and extended east for 2.4m. Each comprised a double skin of handmade and factory brick bonded with a grey mortar. Wall **521** was partially revealed along the southern limit of excavation, while wall **519** was observed to be 0.24m wide and 0.25m high, with three surviving courses. To the north of wall **519** the remains of a cast iron pipe were exposed, which may have



formed part of the boiler system. Immediately to the north of these pipes, rectangular brick construction (*516*), comprising a double skin rectangular arrangement of frogged brick bonded with grey mortar, measuring 2m long by 1m wide and three courses high, was also recorded. Immediately to the east of this was a second partially exposed, but presumably rectangular structure *517* extending east and north beyond the limit of excavation. This comprised a 1.1m long 0.6m wide length of double skinned wall, with a mixture of handmade and factory brick bonded with the same grey mortar observed elsewhere. The full structure appeared to be on a north-south alignment compared to the east-west orientation of structure *516*.

3.5.8 Collectively these features appear to represent the remains of the boiler house powering at least one phase of the mill, with evidence for a potential recessed boiler bed and associated flue systems extending to the east and potentially further to the north where the power mechanisms would have entered the main space of the former building. Unfortunately, insufficient details were revealed within the constraints of the trench and the expanded area, which would identify the precise form of the power mechanism, and, given the mixture of building materials used in various aspects of the construction, the phasing of the structures is also unclear. The presence of factory frogged brick and grey cement bonding may indicate a later addition, although the possibility of repairs to existing fabric cannot be ruled out.

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Plate 3: Suspected Boiler Bed in Trench 5 (Contexts 509, 510 and 511)

3.6 Trench 6

- 3.6.1 Trench 6 was the third internal trench (Figs 2 and 5), located in the eastern part of the warehouse and measuring 16m by 2m, with a maximum depth of 0.8m. This trench had to be moved approximately 5m west of its original placement due to a suspected service at the eastern end and proximity to a low doorway that limited the reach of the machine. The trench targeted an external wall of the mill as depicted on the 1849 OA map, but was found to contain remains more in keeping with internal structures.
- 3.6.2 Context **605** represented the modern concrete and linoleum floor of the former warehouse, with a maximum thickness of 0.2m. This overlay deposit **604**, a 0.3m thick layer of modern compacted hardcore. Beneath this was an additional levelling deposit **603**, comprising a medium brown sand and assorted rubble, measuring 0.3m thick. Upon removal of these overburden deposits, several structural elements were revealed.
- 3.6.3 At either end of the trench were concrete floor surfaces **601** and **602**, both of which overlay wall footing **606**. Surface **601** was located at the western end of the trench,



extending 4.6m to the east and covering the width of the trench. This floor was finished with a grey matte paint and measured 0.1m thick. Surface 602 measured 6m from the eastern end of the trench and again covered the width, it had a similar grey painted finish to 601, but was slightly thicker at 0.2m and was observed at a shallower depth, suggesting the two surfaces were entirely separate. Wall footing 606 was an L-shaped formation crossing the trench north to south at the western end of surface 602, with an east/west aligned section partially covered by the trench's southern edge and disappearing beneath surface 601. This footing was constructed of rectangular grey stone slabs each measuring 0.5m by 0.3m with a thickness of 0.06m and bonded to each other with a pale lime mortar. It is likely this footing represents the remains of an internal division to the mill, as the dimensions appeared too small to be an external support. All elements identified in Trench 6, by virtue of their materials, probably relate to a late modification to the mill.

3.7 Trench 7

- 3.7.1 Trench 7 was located to the east of the modern warehouse close to the perimeter fence, but moved 1m to the south of its original placement due to an electricity cable positioned close to the northern end (Figs 2 and 6: Plate 4). It was aligned north-north-west/south-south-east, and measured 10m by 2m with a maximum depth of 0.7m. The trench was intended to target outbuildings at the corner of Queen St and Aldcliffe Rd, visible on the OS map of 1849.
- 3.7.2 Three overburden deposits were removed, 700, 701 and 702. Context 700 was a 0.15m thick layer of reinforced concrete, overlying hardcore layer **701** and a grey/brown clay deposit 702, both of which measured 0.2m thick. Removal of the overburden revealed three wall footings 703, 704, and 705. Wall 703 crossed the trench on an east/west axis located 4m from its northern end. It comprised several roughly-shaped sandstone blocks and measured 0.3m wide and 0.2m high, no bonding material was observed. Approximately 2m to the south, walls 704 and 705 formed a right-angle (Plate 4), with 704 crossing the trench east to west and 705 heading south of the eastern end. The southern end of 705 was truncated by a substantial modern drain cut that dominated the southern end of the trench. These two wall footings were constructed from the same sandstone blocks, irregularly shaped, but faced on their outer edges to form a double skin that was infilled with rubble, traces of a light pink mortar were evident along the top edge of some of the stones. Both walls were slightly larger than 703 with a width of 0.5m and they potentially correlate with the north-eastern corner of an outbuilding evident on the historical map (Figures 8 and 9).





Plate 4: Walls 704 and 705 within Trench 7

3.8 Trench 8

- 3.8.1 Trench 8 was located to the south of Trench 7 (Figs 2 and 6) and was subject to a slight reposition to avoid impacting on the perimeter fence. It measured 10m by 2m with a maximum depth of 0.5m and lay on a north-east/south-west alignment. The trench was also intended to target the outbuildings at the junction of Queen St and Aldcliffe Rd. Modern reinforced concrete and hardcore deposits (800 and 801) were removed to a depth of 0.3m along with levelling deposit 803 to reveal several structural remains.
- 3.8.2 At the northern end and crossing the trench on an east/west axis was drain culvert **803**, comprising a series of square sandstone slabs overlaying a channel composed of handmade brick and stone. Measuring 0.6m wide the structure had a depth of 0.4m. No bonding material was evident although this may have degraded. One metre to the south of the culvert and on a similar east/west alignment was wall footing **804**, which measured 1.5m long and up to 0.5m wide. This footing was constructed of squared sandstone blocks, the largest measuring 0.5m. No bonding material was evident between the slabs, but traces of lime mortar were visible along the top edge.



3.8.3 At the southern end of Trench 8 were a further two wall foundations, truncated at the western end by a modern drain cut. These walls butted against each other with **805** being an apparent later addition to **806** (Plate 5). Wall **806** was seemingly the original foundation, approximately 0.5m in length with a width of 0.4m, it comprised a double skin of sandstone blocks, faced on their outer edges with a rubble infill. Wall **805** butted against the northern edge of **806** and comprised a single skin of irregular sandstone blocks and a rubble infill that lay between that and the northern face of wall **806**. It measured 0.45m in width effectively doubling the thickness of the foundation and may have been a later addition in order to strengthen or repair the original wall.



Plate 5: General Shot of Trench 8. Viewed facing north-east.

3.9 Trench 9

- 3.9.1 Trench 9 lay close to the entrance to the site and targeted outbuildings noted on the 1849 and 1892 OS maps (Figs 2 and 7: Plate 6). Its position was adjusted slightly to the west in order to avoid a modern drain culvert and the pavement of the public highway. Aligned north-east/south-west, the trench passed through the modern perimeter fence of the DIY store and was therefore excavated in two halves in order to leave the fence upstanding. The total length was 10m by 2m with a maximum depth of 0.7m.
- 3.9.2 Removal of modern concrete/tarmac, hardcore, and a brown sandy clay levelling deposit, revealed structural remains in both halves of the trench. To the south of the modern fence, walls 9001 and 9002 were revealed at a depth of 0.5m bgl. Wall 9001 was aligned north/south and measured 3.5m in length with a width of 0.46m and



height of 0.3m. Its construction comprised a double skin of square and rectangular dressed sandstone blocks with a rubble infill, bonded with lime mortar. At the northern end of wall **9001**, wall **9002** continued on a slightly different alignment, to the north/east, forming a 45-degree angle. It was keyed into the fabric of wall **9001** and constructed in an identical fashion. This footing directly correlates to the shape of a building on the 1892 OS map (Fig 9), although no internal features such as flooring were preserved.

3.9.3 In the northern half of the trench, two further structural elements remained which presumably pertained to the building first noted on the earlier 1849 OS map (Fig 8), although the presence of concrete may suggest that it had been repaired or remodelled at a later date. To the south of this northern trench section, was a partially exposed concrete slab (9006), measuring 1m long by 0.26m wide with a thickness of 0.06m. To the north of this structure was a substantial wall footing (9005). This structure measured 1m long by 0.4m wide with a height of 0.8m. The lower portion of this construction was a single concrete block, upon which several sandstone blocks were laid, bonded with a dark grey mortar. Between these two structures were the traces of a sewer pipe of uncertain age, and the eastern half of this northern section of Trench 9 was heavily disturbed by the cut of a further modern drain.

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Plate 6: Foundations in the southern half of Trench 9

3.10 Trench 11

- 3.10.1 Trench 11 was located to the south-east of the PDA and aligned east/west, measuring 5m by 2m and excavated to a maximum depth of 0.5m. This trench targeted a small cluster of out-buildings identifiable on the 1849 OS map and a later structure on the 1892 map (Figs 8 and 9).
- 3.10.2 Modern tarmac **1100**, hardcore **1101** and made ground deposit **1102** were removed to a combined depth of 0.5m to reveal several structural elements. At the western end of the trench was wall footing **1104** which measured 0.9m in length and 0.35m wide. This footing was constructed from a double skin of irregularly-shaped sandstone blocks faced along the northern and southern edges, bonded by lime mortar. Only a single course remained, and emerged from the western limit of excavation, but was truncated at the eastern end. Approximately 1m to the east of this feature, a further wall footing (**1105**) continued along the same alignment. This also comprised a double skin of sandstone blocks, although they appeared well dressed and an infill of rubble lay between the two skins. The surviving remains measured 1.4m long by 0.35m wide. The differences in the treatment and composition of the material between walls **1104**



and **1105** may indicate that, despite a shared alignment and position, they represent separate phases of construction or modification to a single wall, truncated to the centre of the trench. Butting the southern face of wall **1105** was a slightly larger foundation, wall **1103**. This wall measured 2.5m in length with a width of 0.45m, the composition of the wall was similar to its neighbour, with a double skin of well-dressed rectangular sandstone blocks infilled with a rubble core.

3.10.3 Due to the orientation of the remains, it is unlikely that any relate to the later 1892 building aligned north/south (Fig 9), and the truncation between the surviving structures may instead relate to the removal of this structure. By extension, it is suggested that the surviving remains relate to the group of small buildings depicted on the earlier 1849 mapping (Fig 8).



Plate 7: Foundations Within Trench 11

3.11 Trench 14

- 3.11.1 Trench 14 represents the southernmost trench excavated within the PDA (Figs 2 and 7: Plate 8), and measured 14m by 2m with a maximum depth of 0.5m. Aligned north/south, this trench had no identified target and was intended to sample an apparently blank area of the site.
- 3.11.2 Modern tarmac, layer 1403, measuring 0.1m thick, was removed along with 0.2m of hardcore deposit 1402, to reveal made ground deposit 1401. This grey/brown sand and rubble layer, measured 0.2m thick and overlay natural sand and gravel (1400) for most of the trench. Underlying made ground deposit 1401 at the southern end of the trench were wall footing 1404 and surface 1405 (Plate 8). Wall footing 1404 crossed



the trench on a north-east/south-west alignment and comprised a double skin of frogged brick laid as stretchers. Only a single course survived for most of its length. These bricks were bonded with a grey cement mortar. The wall foundation was butted against by concrete surface **1405**, which lay to the south. These remains were almost certainly twentieth-century in origin and may pertain to a substation marked on the OS map of 1971 (see Orion Heritage 2018, Fig 9).



Plate 8: Suspected twentieth-century remains in Trench 14



4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 Except for Trench 1, which was left unexcavated due to the proximity of several service lines and an inspection chamber, . al trenches were excavated without much difficulty. As stated previously, a small number were repositioned, where necessary, for reasons of safety and logistical constraints. Where this occurred, it is believed the trenches were still able to hit their intended targets. Archaeological remains were observed in almost all the trenches where they were expected, the exceptions being Trenches 2, 10, and 12, which proved blank the targeted structural remains potentially removed during demolition of the original buildings.

4.2 Evaluation objectives and results

4.2.1 The main aim of the evaluation was to determine the character, extent, date, integrity, state of preservation and quality of any archaeological remains present and therefore ensure their preservation by record. Where present, all archaeological remains were recorded fully, with a combination of digital survey, photography and hand-written records. All archaeological remains identified across the various trenches could be related to the evidence of historic mapping, indicating that they derive from post-medieval and modern development of the site. No earlier remains were identified in any of the trenches, even where natural deposits were encountered, suggesting that elements of the Roman 'vicus' and associated activity perhaps did not extend this far south of the fort. A reasonable amount of information on the history of Queen's mill exists as highlighted by the assessment document provided Orion Heritage (2018) The archaeological remains encountered in the evaluation supported this archival evidence, with limited but tangible evidence for the different phasing and remodeling of the original mill encountered within several trenches.

4.3 Interpretation

- 4.3.1 The structural remains uncovered in the outlying trenches to the east and south of the PDA (Trenches 7-9 and 11) were too fragmentary to provide information on the function of the structures, although they can clearly be related to the series of outbuildings surrounding Queens Mill. All such structures comprised the foundation deposits for the load bearing or internal walls, with no floor surfaces or other internal features observed. It is possible they serviced the Queen's Mill complex and were used as offices or storerooms separate from the main building, but this is speculation. Within most of the trenches, truncation by modern interventions (drains etc.) had impacted upon levels of preservation.
- 4.3.2 The only named external building, as identified on the 1849 OS map (Figure 8), was the Lancastrian School to the south-east of the PDA and both trenches targeting this structure (10 and 12) were found to be blank, suggesting all traces of this former building had been removed by subsequent development. However, to the west, within Trench 11 some evidence of the small outbuildings remained, these may have been related to the school, possibly outdoor toilet blocks, although, again, only fragmentary wall footings survived. No trace of the later building noted on the 1892 OS map (Fig 9)



- survived and truncation of presumed earlier structures may indicate an area where remains of this structure had been removed.
- 4.3.3 Trenches within the footprint of the main mill building itself yielded the best-preserved remains with some evidence for phasing observed. Trenches 3 and 6 were slightly less revealing containing only concrete floor surfaces likely relating to latter phases of the mill's use in the early part of the twentieth-century.
- 4.3.4 Trenches 4 and 5, including their extensions Trench 4b and 5b, contained more recognisable elements of the mill, including evidence of multiple phases within Trench 4. Most of the surviving archaeology within the eastern end of Trench 4 appears to relate to the earlier phase of the mill, as defined on the 1849 OS map (Figure 8). Wall foundation 408 matches closely with the western external wall as it appears on the mapping, with wall 425 and floor 418 possibly relating to an external yard. Concrete floor 407 that lay above these external features and the remainder of the structural elements within the west of Trench 4 therefore potentially relate to the western expansion of Queen's Mill noted on the 1892 OS map (Fig 9). Features 405 and 406 appear to be supports, perhaps a base for machinery. Features within the western half of Trench 4 were recorded at a similar depth relative to the modern floor surface of the warehouse, to the floor surfaces within both Trench 3 and 6, and therefore may be contemporary. The features identified to the east of wall 408 can only really be described as foundations, possibly floor supports, but appear earlier and therefore relating to interior features of the 1849 phase of the mill.
- 4.3.5 The surviving structures within Trench 5 were more identifiable, by virtue of the presence of fire brick and other materials, and suggest the structures in this area relate to an engine/boiler room powering the original mill. The main feature within Trench 5 was the potential sunken base of a boiler bed comprised of contexts 510, 511, and floor 509. Further features located to the east of the potential boiler bed, appeared to relate to the boiler system and were likely the partial remains of a flue systems. This was supported by the identification of several cast iron pipes in and around the brick structures. No information was recovered to allow comment on the type of boiler or engine used to power the mill and further evidence of power transfer mechanisms have either been removed during demolition or else exist further north of the limits of the trench. Excavations in this direction were constrained by the presence of the upstanding warehouse building.

4.4 Conclusion

4.4.1 To summarise, the evaluation at the former site of Queen's Mill, Lancaster, identified surviving structural remains that could be closely related to the main mill building, as well as a series of outbuildings identified further to the east of the mill on historic mapping of the mill complex. These remains were variably preserved below the modern surfaces associated with the subsequent B&Q warehouse and carparking area, although modern drainage and other intrusions had truncated elements of the remains, particularly in relation to the outbuildings. Remains relating to the main mill building indicated several phases of construction or modification which can be related to the expansion of the mill as documented by the cartographic evidence. In one area, structural features containing elements of fire brick appear to relate to the original



engine or boiler house, and a potential boiler bed and limited aspects of a potential flue system were identified. However, no evidence indicative of the type of engine or boiler were identified and have likely been removed during demolition of the mill and subsequent development of the site.



APPENDIX A TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench 1		
General description	Orientation	E-W
Not excavated due to services	Length (m)	5m
	Width (m)	2m
	Avg. depth (m)	-

Trench 2	Trench 2							
General o	description	n			Orientation	E-W		
Evaluatio	n trench t	targeting	external	walls. Modern overburden,	Length (m)	10m		
overlying	natural sa	nd and g	ravel No	Archaeology	Width (m)	2m		
					Avg. depth (m)	0.6m		
Context	Туре	Width	Depth	Description	Finds	Date		
No.		(m)	(m)					
200	Layer	2m	0.15m	Tarmac	-	-		
201	Layer	2m	-	-				
202	Layer	2m	-	Natural	-	-		

Trench 3	Trench 3							
General o	lescription				Orientation	E-W		
Trench hi	ighlighting p	otential	internal	structures. Contained later	Length (m)	5m		
phase cor	ncrete floor				Width (m)	2m		
					Avg. depth (m)	0.5m		
Context	Туре	Width	Depth	Description	Finds	Date		
No.		(m)	(m)					
301	Structure	2m	-	Floor surface	-	20 th C		
302	Structure	-	20 th C					
303	Layer	2m	0.3m	overburden	-	20 th C		
304	Layer	2m	0.5m	Modern Floor	-	20 th C		

Trench 4 and 4b							
General o	description		Orientation	E-W			
Trench ta	argeted on	external	walls of	the main mill. Contained	Length (m)	10m	
several fo	oundations a	nd struct	ural elen	nents	Width (m)	2m	
					Avg. depth (m)	1.2m	
Context	Туре	Width	Depth	Description	Finds	Date	
No.		(m)	(m)				
401	Layer	2m	0.3m	Overburden	-	-	
402	Structure	0.24m	0.12m	Wall	-	-	
403	Structure	0.4m	0.12m	Wall	-	19 th C	
404	Layer	2m	0.3m	Overburden	-	-	
405	Structure	0.5m	-	Concrete pad	-	19 th C	
406	Structure	0.6m	-	Concrete pad	-	19 th C	
407	Structure	2m	0.1m	Concrete floor	-	19 th C	
408	Structure	0.7m	0.3m	Wall	-	19 th C	
409	Layer	2m	0.3m	Overburden	-	-	



410	Structure	1.3m	0.1m	Concrete pad	-	19 th C
411	Layer	2m	0.3m	Overburden	-	-
412	Structure	0.4m	0.24	Wall	-	19 th C
413	Structure	0.4m	0.24	Wall	-	19 th C
414	Layer	2m	0.3m	Overburden	-	-
415	Layer	2m	0.3m	Overburden	-	-
416	Layer	2m	0.5m	Hardcore	-	-
417	Layer	2m	0.3m	Overburden	-	-
418	Structure	1m	-	Stone floor	-	19 th C
419	Structure	0.7m	0.3m	Wall same as 408	-	19 th C
420	Structure	0.7m	0.3m	Wall same as 408	-	19 th C
421	Layer	2m	0.02m	Clay surface	-	-
422	Structure	0.4m	0.24m	Wall	-	19 th C
423	Structure	0.7m	0.3m	Wall same as 408	-	19 th C
424	Structure	0.7m	0.3m	Wall same as 408	-	19 th C
425	Structure	0.45m	-	Wall	-	19 th C
426	Structure	0.45m	-	Wall same as 425	-	19 th C
427	Structure	1m	-	Stone Floor same as 418	-	19 th C
428	Structure	-	5cm	Slate floor	-	19 th C

Trench 5	and 5b					
General o	description			Orientation	E-W	
Trench ta	rgeting sout	hern wal	nain mill building	Length (m)	15m	
				Width (m)	2m	
				Avg. depth (m)	1m	
Context	Туре	Width	Depth	Description	Finds	Date
No.		(m)	(m)			
500	Structure	0.7m	-	Brick Surface	-	19 th C
501	Structure	0.46m	8cm	Wall	-	19 th C
502	Structure	0.7m	-	Wall	-	19 th C
503	Structure	0.34m		Wall	-	19 th C
504	Structure	0.34m	-	Wall	-	19 th C
505	Structure	1.5m	-	Brick Surface	-	19 th C
506	Structure	0.46m	8cm	Wall	-	19 th C
507	Structure	2m	0.1m	Concrete Surface	-	20 th C
508	Structure	0.5m	-	Brick Surface	-	19 th C
509	Structure	1.2m	-	Brick Surface	-	19 th C
510	Structure	0.24m	0.5m	Wall	-	19 th C
511	Structure	1.2m	0.5m	Wall	-	19 th C
512	Layer	2m	0.3m	Overburden	-	-
513	Layer	2m	0.3m	Overburden	-	-
514	Layer	2m	0.3m	Overburden	-	-
515	Layer	2m	0.3m	Overburden	-	-
516	Structure	0.9m	0.18m	Brick Structure	-	19 th C
517	Structure	1.1m	0.18m	Brick Structure	-	19 th C
518	Layer	2m	0.3m	Overburden	-	-
519	Structure	0.24m	0.4m	Wall	-	19 th C
520	Layer	2m	0.3m	Overburden	-	-



521	Structure	0.24m	0.4m	Wall	-	19 th C
522	Layer	2m	0.1m	Concrete	-	-
523	Layer	2m	0.3m	Hardcore	-	-
524	Layer	2m	0.3m	Overburden	-	-

Trench 6	Trench 6										
General c	lescription	Orientation	E-W								
Trench ta	rgeting Exte	rnal wall	of the m	nain mill building, contained	Length (m)	16m					
several w	all foundation	ons			Width (m)	2m					
					Avg. depth (m)	0.8m					
Context	Туре	Width	Depth	Description	Finds	Date					
No.		(m)	(m)								
600	Layer	-	-	Natural	-	-					
601	Structure	2m	0.08m	Concrete Floor	-	20 th C					
602	Structure	2m	0.2m	Concrete Floor	-	20 th C					
603	Layer	2m	0.4m	Overburden	-	-					
604	Layer	0.5m	0.3m	Hardcore	-	-					
605	Layer	0.5m	0.5m	Concrete	-	-					
606	Structure	-	0.1m	Wall	-	19 th C					

Trench 7										
General o	lescription	Orientation	NW-SE							
Trench ta	rgeting outk	Length (m)	10m							
					Width (m)	2m				
					Avg. depth (m)	0.7m				
Context	Туре	Width	Depth	Description	Finds	Date				
No.		(m)	(m)							
700	Layer	2m	0.15m	Concrete	-	-				
701	Layer	2m	0.2m	Hardcore	-	-				
702	Layer	2m	0.2m	Overburden	-	-				
703	Structure	0.3m	0.2m	Wall	-	19 th C				
704	Structure	0.5m	0.5m	Wal	-	19 th C				
705	Structure	0.5m	0.5m	Wall	-	19 th C				

Trench 8	Trench 8										
General o	description	Orientation	NE-SW								
Trench ta	rgeting outh	Length (m)	10m								
a culvert.					Width (m)	2m					
					Avg. depth (m)	0.5m					
Context	Туре	Width	Depth	Description	Finds	Date					
No.		(m)	(m)								
800	Layer	2m	0.2m	Concrete	-	-					
801	Layer	2m	0.1m	Hardcore	-	-					
802	Layer	2m	0.2m	Overburden	-	-					
803	Structure	0.6m	0.12m	Culvert	-	19 th C					
804	Structure	0.5m	0.12m	Wall	-	19 th C					
805	Structure	0.4m	0.12m	Wall	-	19 th C					
806	Structure	0.45m	0.15m	Wall	-	19 th C					



Trench 9										
General o	description	Orientation	NE-SW							
Trench ta	rgeting outk	ouildings.	Containe	ed several wall foundations.	Length (m)	10m				
					Width (m)	2m				
		_	_		Avg. depth (m)	0.7m				
Context	Туре	Width	Depth	Description	Finds	Date				
No.		(m)	(m)							
9000	Layer	2m	0.3m	Overburden	-	-				
9001	Structure	0.46m	0.3m	Wall	-	19 th C				
9002	Structure	0.5m	0.3m	Wall	-	19 th C				
9003	Layer	2m	0.3m	Hardcore	-	-				
9004	Layer	2m	0.1m	Tarmac	-	-				
9005	Structure	0.4m	0.8m	Wall	-	19 th C				
9006	Structure	0.26m	0.1m	Wall	-	19 th C				

Trench 10										
General o	descriptio		Orientation	NE-SW						
Trench ta	rgeting o	utbuildin	gs. No ard	chaeology present	Length (m)	10m				
				Width (m)	2m					
					Avg. depth (m)	0.78m				
Context	Type	Width	Depth	Description	Finds	Date				
No.		(m)	(m)							
1000	Layer	2m	0.1m	Tarmac	-	-				
1001	Layer	2m	0.35m	Hardcore	-	-				
1002	Layer	2m	0.3m	Overburden	-	-				
1003	Layer	2m	-	Natural	-	-				

Trench 11											
General description Crientation E-W											
Trench targeted on outbuildings. Contained several wall Length (m) 5m											
foundatio	foundations Width (m) 2m										
					Avg. depth (m)	0.5m					
Context	Туре	Width	Depth	Description	Finds	Date					
No.		(m)	(m)								
1100	Layer	2m	0.1m	Tarmac	-	-					
1101	Layer	2m	0.2m	Hardcore	-	-					
1102	Layer	2m	0.2m	Overburden	-	-					
1103	Structure	0.45m	-	Wall	-	19 th C					
1104	Structure	0.35m	-	Wall	-	19 th C					
1105	Structure	0.35m	-	Wall	-	19 th C					

Trench 12		
General description	Orientation	NE-SW
Trench targeted on an external wall. No archaeology present.	Length (m)	10m
	Width (m)	2m
	Avg. depth (m)	0.8m



Context	Туре	Width	Depth	Description	Finds	Date
No.		(m)	(m)			
1200	Layer	2m	-	Natural	-	-
1201	Layer	2m	0.25m	Overburden	-	-
1202	Layer	2m	0.15m	Overburden	-	-
1203	Layer	2m	0.3m	Hardcore	-	-
1204	Layer	2m	0.1m	Tarmac	-	-

Trench 13	Trench 13										
General o	descriptio	n	Orientation	E-W							
Trench lo	cated in b	olank area	a, No arcl	naeology present.	Length (m)	15m					
					Width (m) 2r						
					Avg. depth (m)	0.6m					
Context	Type	Width	Depth	Description	Finds	Date					
No.		(m)	(m)								
1300	Layer	2m	-	Natural	-	-					
1301	Layer	2m	0.25m	Overburden	-	-					
1302	Layer	2m	0.25m	Hardcore	-	-					
1303	Layer	2m	0.1m	Tarmac	-	-					

Trench 14	Trench 14										
General o	lescription	Orientation	N-S								
Trench lo	cated in bl	ank area	, contain	ned suspected 20 th Century	Length (m)	14m					
remains.					Width (m)	2m					
					Avg. depth (m)	0.5m					
Context	Туре	Width	Depth	Description	Finds	Date					
No.		(m)	(m)								
1400	Layer	-	-	Natural	-	-					
1401	Layer	2m	0.2m	Overburden	-	-					
1402	Layer	2m	0.2m	Hardcore	-	-					
1403	Layer	2m	0.1m	Tarmac	-	-					
1404	Structure	0.2m	0.12m	Brick Wall	-	20 th C					
1405	Structure	2.5m	-	Concrete Floor	-	20 th C					



Appendix B FIGURES

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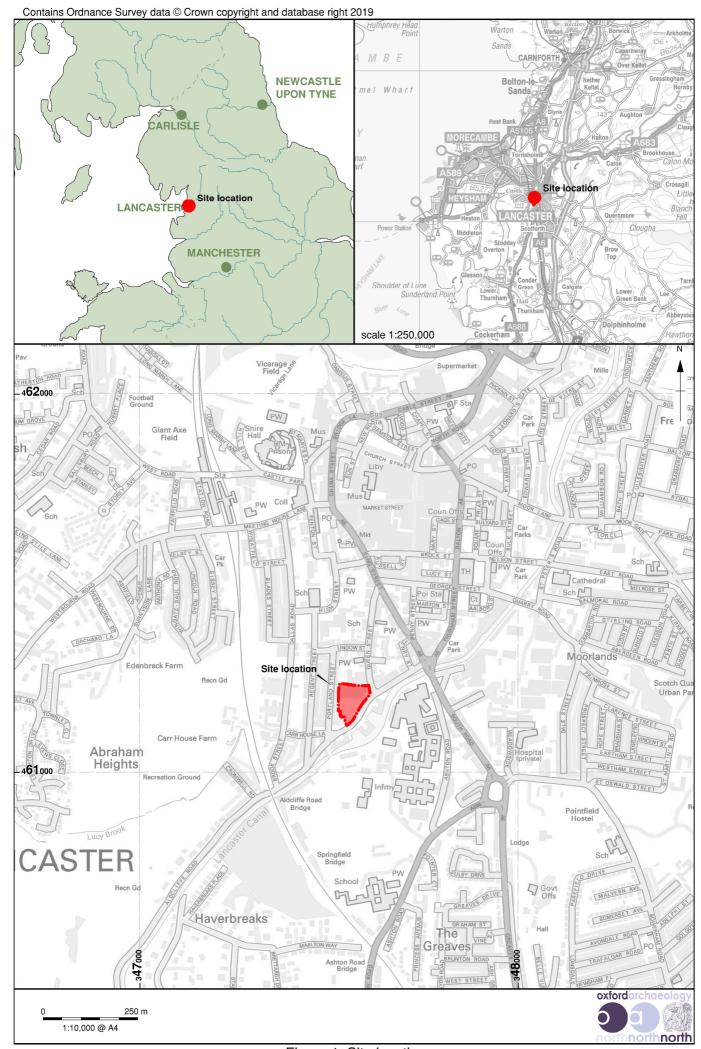


Figure 1: Site location

Fig 2 Evaluation trench plan

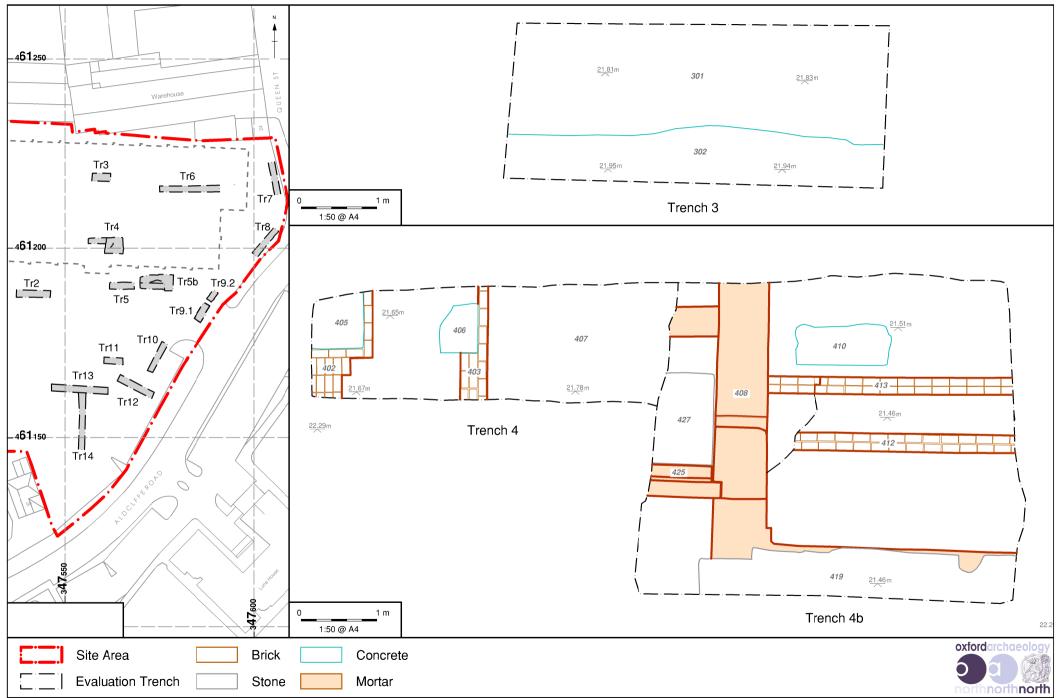


Figure 3: Plans of trenches 3, 4 and 4b

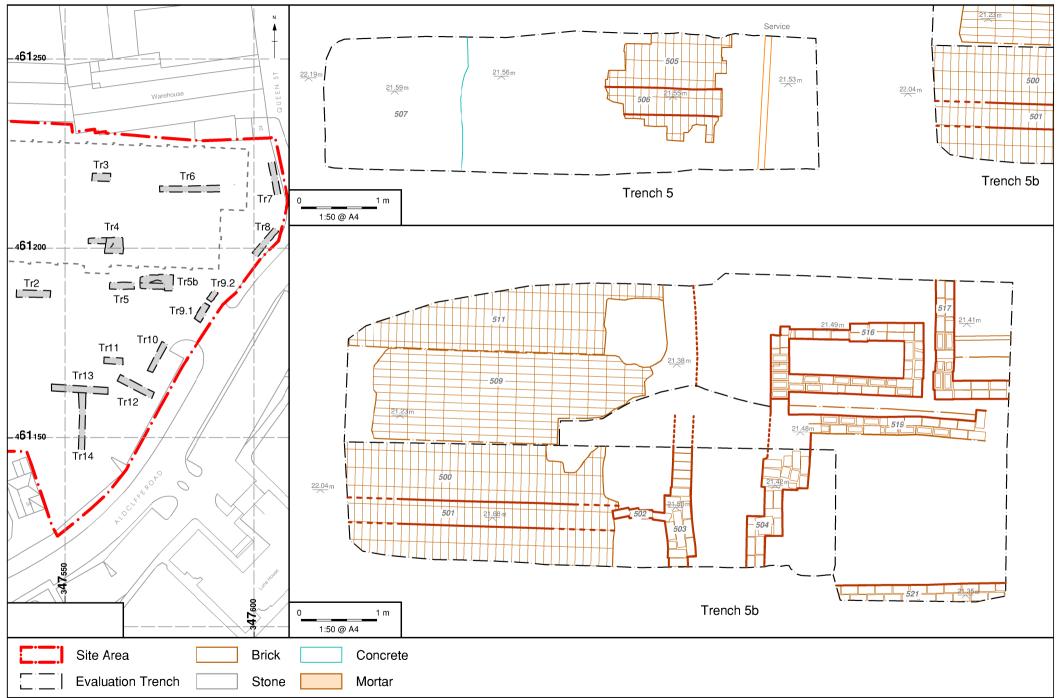


Figure 4: Plans of trenches 5 and 5b

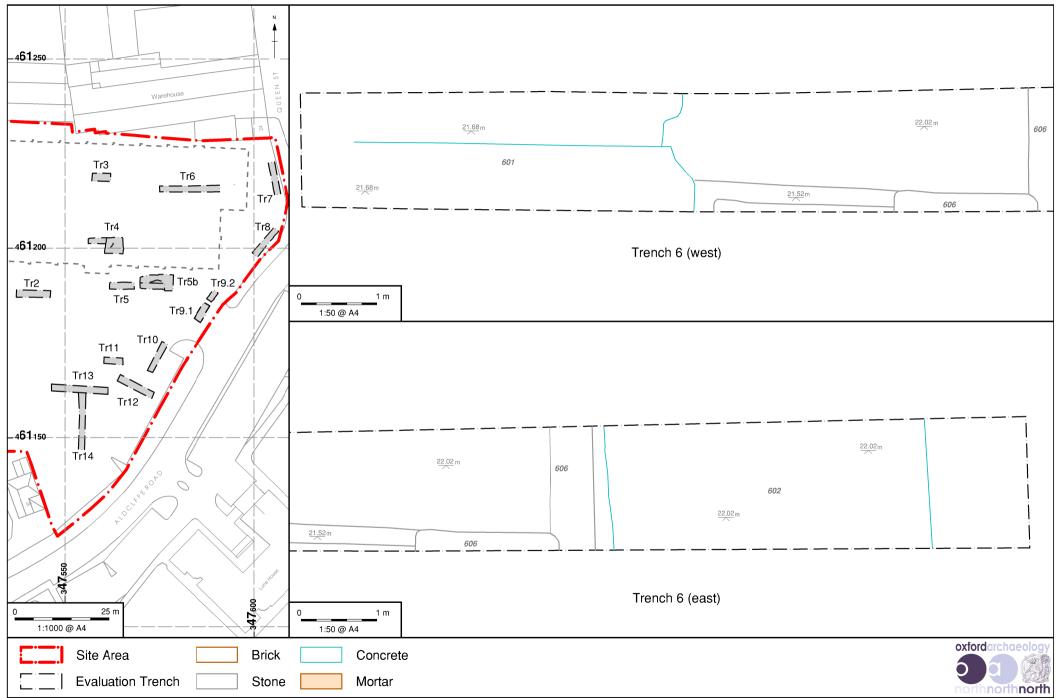


Figure 5: Plan of trench 6

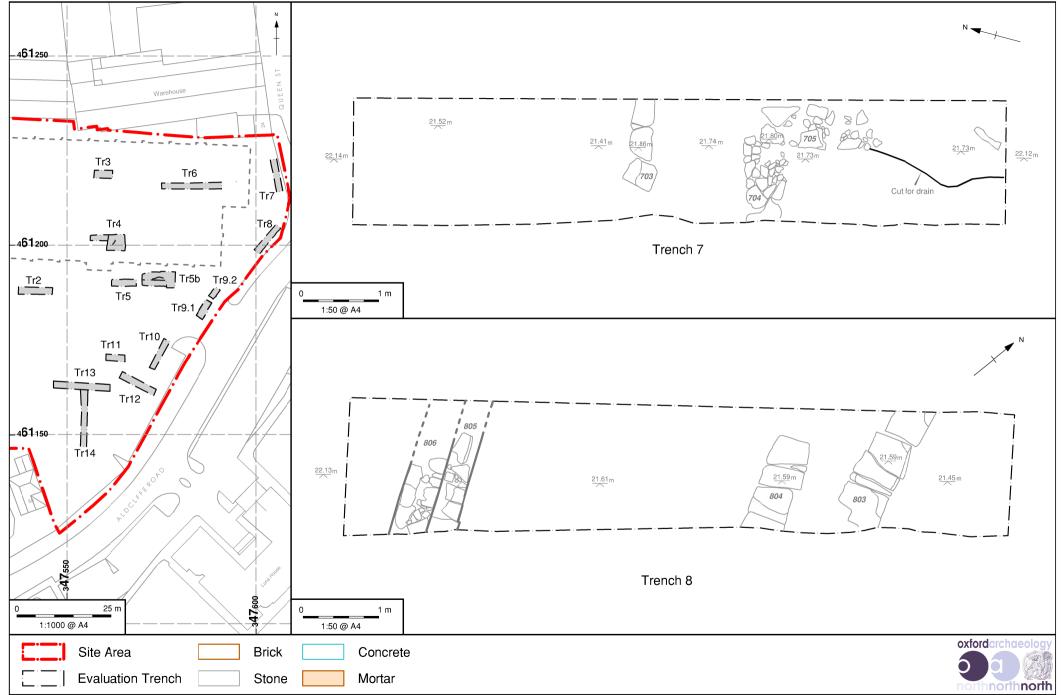


Figure 6: Plan of trenches 7 and 8

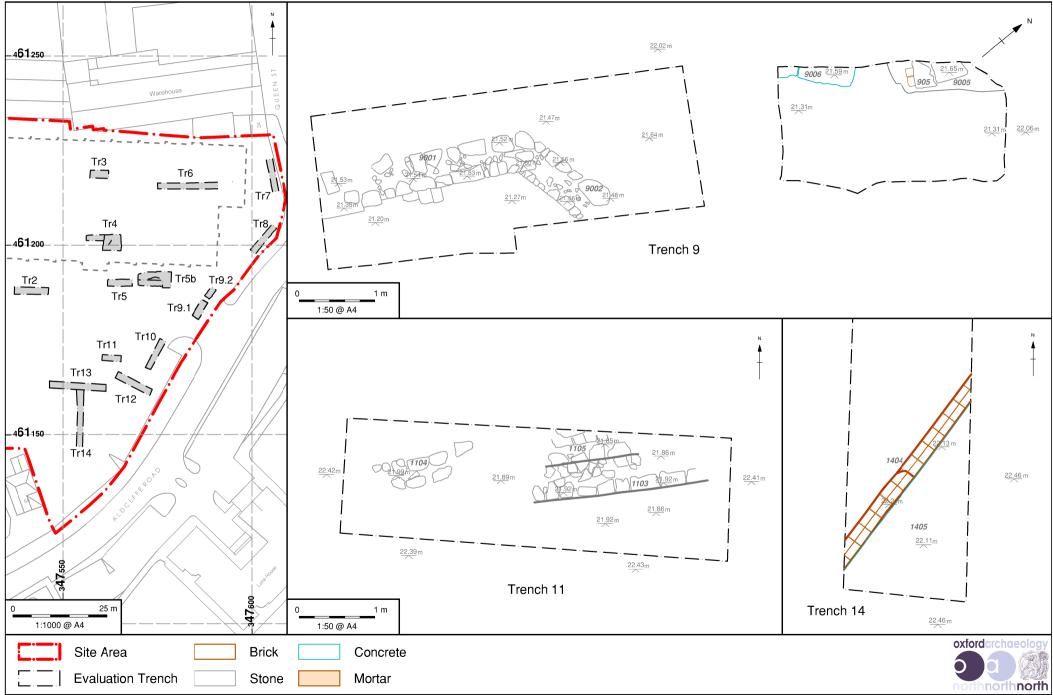


Figure 7: Plan of trenches 9, 11 and 14

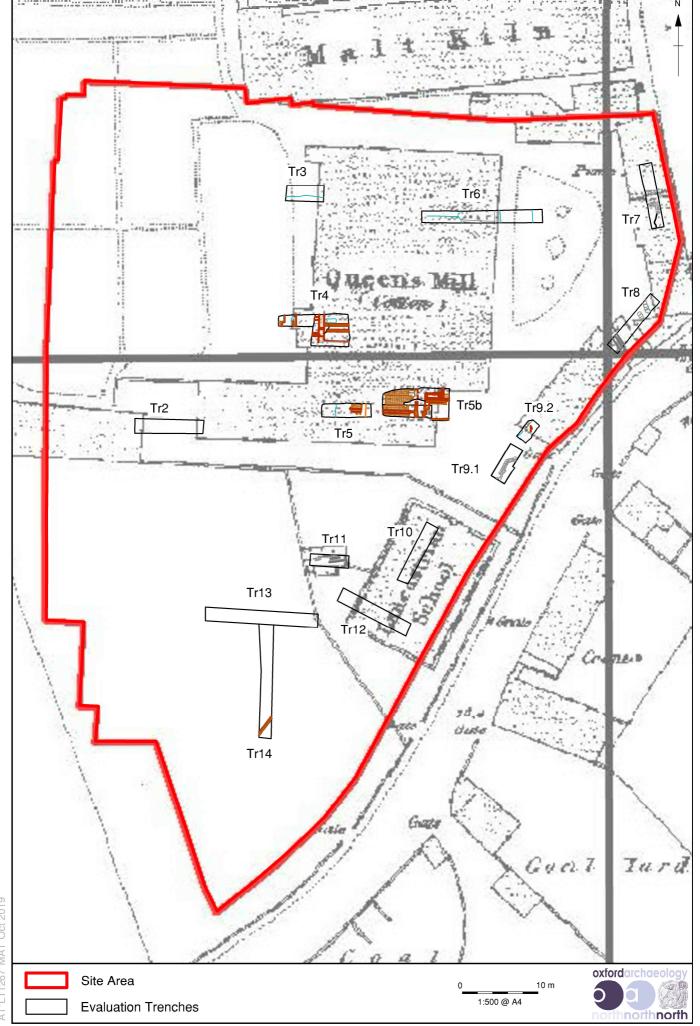


Figure 8: Evaluation trenches superimposed on the Ordnance Survey 1-500 map of 1849

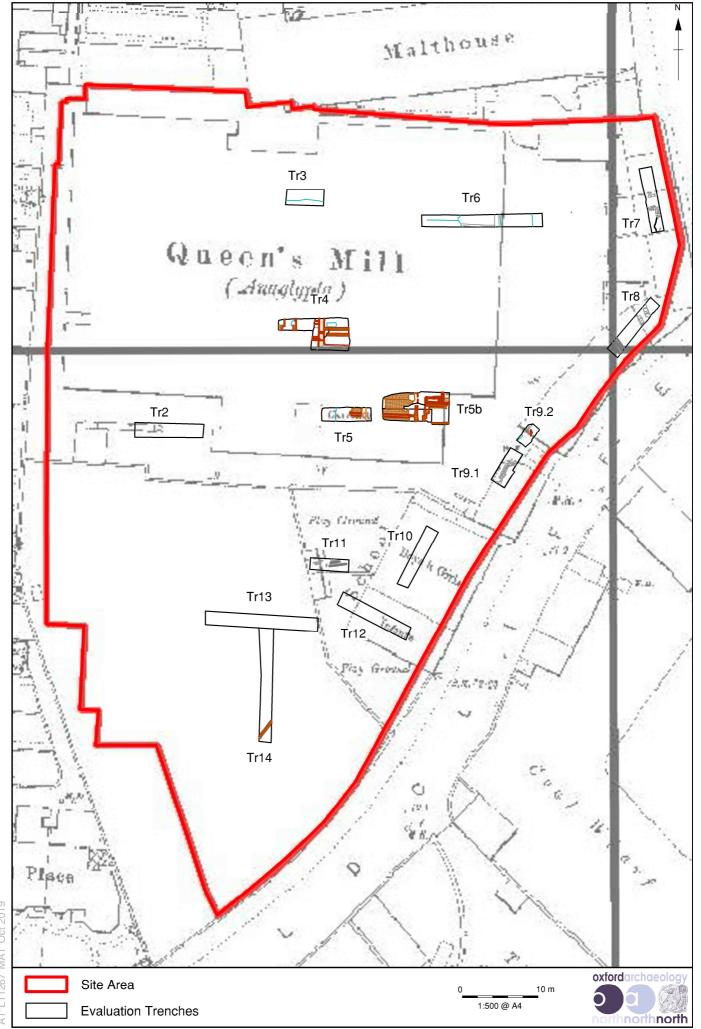


Figure 9: Evaluation trenches superimposed on the Ordnance Survey 1-500 map of 1892



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Appendix D Written Scheme of Investigation

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Land off Aldcliffe Road, Lancaster Archaeological Written Scheme of Investigation September 2019



Land off Aldcliffe Road, Lancaster Archaeological Written Scheme of Investigation September 2019

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1 Report

Archaeological Written Scheme of Investigation

Site

Land off Aldcliffe Road, Lancaster

Date

September 2019

Planning Authority

Lancaster City Council

Approximate Site Centre

NRG SD 47561 61196

Prepared By

Dr Rob Smith MCIfA

Approved By

Rob Bourn MCIfA

Report Status

Final

Issue Date

September 2019

Orion Reference

PN1808



2 Contents

- 1.0 Introduction
- 2.0 Aims and Objectives
- 3.0 Methodology
- 4.0 Timetable and Personnel
- **5.0** Summary and Conclusions
- **6.0** Monitoring
- 7.0 Insurance
- 8.0 Health and Safety



- 1.1 This document represents a Written Scheme of Investigation (WSI) for undertaking an archaeological programme of works on land off Aldcliffe Road, Lancaster (Figure 1). The site (hereafter referred to as the 'study site') is located at grid reference NGR SD 47561 61196.
- 1.2 The archaeological works will comprise a programme of archaeological fieldwork; initially taking the form of a trial trench evaluation.
- 1.3 It is acknowledged that should archaeological remains be discovered during the trial trench evaluation then further additional excavation work (comprising strip and record of parts of the site) may be required by the Local Planning Authority's archaeological advisor.
- 1.4 The strip and record excavation will be discussed with the Local Planning Authority's archaeological advisor and their approval secured, prior to this work commencing.
- 1.5 The proposed development is for retail warehousing and car parking.



2.0 Aims and Objectives

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- 2.1 The principal aim of the archaeological programme of works will be to determine the character, extent, date, integrity, state of preservation and quality of any archaeological remains present; therefore, ensuring their preservation by record.
- 2.2 To address the main aim, the general objectives are to:
 - Ensure the recording of archaeological assets discovered during the archaeological works;
 - Ensure that any below-ground archaeological deposits exposed are promptly identified; and
 - Ensure the recording of archaeological remains, to place this record in its local context and to make this record available.
- 2.3 This specification conforms to the requirements of current national and local planning policy (including NPPF [2018]). It has been designed in accordance with current best archaeological practice. All archaeological works will confirm to the standards and guidance of the Chartered Institute of Archaeologists (CIfA), and the appropriate national and local standards and guidelines; these include:
 - Management of Recording Projects in the Historic Environment: MORPHE (English Heritage 2006);
 - Code of Conduct (Institute of Field Archaeologists [revised edition] 2014);
 - Standard and Guidance for Archaeological Field Evaluation (Chartered Institute for Archaeologists [revised edition] 2014); and
 - Standard and Guidance for Archaeological Excavation (Chartered Institute for Archaeologists [revised edition] 2014).



Programme of Archaeological Works

- 3.1 As highlighted above, the archaeological programme of works will comprise the following:
 - The excavation of fourteen archaeological trial trenches of varying sizes (T1, T3 and T11 measure 5 m x 1.8 m, T2, T4, T7, T8, T9, T10 and T12 measure 10 m x 1.8 m and T5, T6, T13 and T14 measure 15 m x 1.8 m). The locations of the proposed trial trenches are shown on Figure 1;
 - The strip and record excavation on certain areas of the site (the extent of the strip and record will be determined by the results of the evaluation trenches); and
 - Report production.

Recording

- 3.2 The trial trenches and any areas subject to strip and record will be accurately tied into the National Grid, preferably by an Electronic Distance Measurer (EDM) or Total Station and located onto a 1: 2,500 scale map of the area.
- 3.3 The trial trenches/areas of strip and record may be opened and the modern overburden removed (after utilisation of a suitable breaker) down to the first significant archaeological horizon in successive level spits of a maximum 0.2 m. thickness, by the use of an appropriate machine using a wide toothless ditching blade. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits. Any machine work must be carried out under direct archaeological supervision and the machine halted if significant archaeological deposits are encountered. The top of the first significant archaeological horizon may be exposed by the machine but must then be cleaned by hand and inspected for features, and then dug by hand.
- 3.4 All archaeological remains will be hand excavated in an archaeologically controlled and stratigraphic manner sufficient to meet the aims and objectives of the project. The complete stratigraphic sequence, down to naturally occurring deposits will be excavated and the work will investigate and record all inter-relationships between features. Provision should be made for the use of shoring/stepping to accomplish this if necessary. All trenches are to be the stated dimensions at their base. The following strategy will be employed:
 - Linear features: a minimum sample of 20% of each linear feature, such as ditches. Each section should be at least 1 m wide and, where possible, sections will be located and recorded adjacent to the trench edge. All intersections will be investigated to determine the relationship(s) between the component features. All termini will be investigated. If upon excavation of the sample section no datable artefacts are recovered, then the remainder of the feature within the trench should be rapidly excavated up to 100%. A mechanical excavator may be employed to remove the upper fills but the primary fills should be quickly hand excavated to maximise retrieval of artefacts.
 - Other linear and discrete features: all stake-holes, post-holes, pits, ring ditches, kilns, and other structural/funerary/industrial features will be 50% excavated in the first instance, recorded in section, and then fully excavated. All intersections will be investigated to determine the relationship(s) between the component features.
 Where possible, sections will be located and recorded adjacent to the trench edge.



- Built structures: walls, floors, etc. will be excavated sufficient to establish their form, phasing, construction techniques. All intersections will be investigated to determine the relationship(s) between the component features.
- 3.5 No archaeological deposits should be entirely removed unless this is unavoidable in achieving the objectives of this evaluation, although all features identified are expected to be half-sectioned and the full depth of archaeological deposits must be assessed. All trenches are to be the stated dimensions at their base.
- 3.6 All artefacts are to be retained for processing and analysis except for unstratified 20th century material, which may be noted and discarded. Finds will be stored in secure, appropriate conditions following the guidelines in *First Aid for Finds* (3rd edition).
- 3.7 The excavation areas will be cleaned sufficiently to enhance the definition of features and a base plan produced at a suitable scale using a GPS.
- 3.8 All structures, deposits and finds will be recorded according to accepted professional standards.
- 3.9 Individual descriptions of all archaeological strata and features exposed or excavated will be entered onto prepared pro-forma recording sheets. Sample recording sheets, sample registers, finds recording sheets, access catalogues, and photo record cards will also be used.
- 3.10 Plans indicating the location of all archaeological features encountered will be drawn at an appropriate scale. The location and extent of archaeological features will be recorded by EDM or Total Station.
- 3.11 Archaeological features will be plotted on an overall plan at a scale of either 1:100 or 1:50. Areas of significant remains or areas of complex stratigraphy will be planned in greater detail at 1:20 or 1:10 scale as appropriate. Plans and sections will include context numbers and Ordnance Datum (OD) spot heights for all principal strata and features.
- 3.12 A photographic record of the project will be maintained. This will include colour prints, and digital images, illustrating the detail and context of the principal features and finds discovered. A photographic scale should be used for each photo and the size of the scale divisions be stated. The photographic record will also include working shots to illustrate more generally the progress of the programme of archaeological works.

Finds and Samples

- 3.13 A high priority will be given to dating any finds exposed. All artefactual and ecofactual material revealed during the excavation will be retained for recording and assessment and, where appropriate, further analysis and will be treated in accordance with the CIfA Guidelines for the collection, documentation, conservation and research of archaeological material (2008).
- 3.14 All finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in the UK Institute for Conservation's Conservation Guideline No 2 (1983). Appropriate guidelines set out in the Museums and Galleries Commissions Standards in the Museum Care of Archaeological Collections (1991) will also be followed.
- 3.15 Bulk environmental samples must be taken from all securely stratified deposits using a strategy which combines systematic and judgement sampling, but which also follows the methodologies outlined in the English Heritage (2011) Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-Excavation (2nd edition) guidance.



- 3.16 Samples for specialist environmental analysis and scientific dating (soil profiles, archaeomagnetic dating, dendrochrology, etc.) should be taken if suitable material is encountered during the excavation. The Historic England Science Advisor should be consulted, and provision should be made for an appropriate specialist(s) to visit the site, take samples and discuss the sampling strategy, if necessary.
- 3.17 Techniques employed may include: sampling working surfaces; sieving for glass fragments; checking for hammer scale; and intensive sampling within a closely spaced grid. Appropriate analytical techniques should be employed in both laboratory assessment and the field (e.g. portable XRF). General environmental sampling should be employed to examine evidence of environmental pollution and the origins of industrial fuels.
- 3.18 If appropriate scientific dating techniques should be used. In addition to C14 dating thermosluminescence and archaeomagnetic dating should also be considered.
- 3.19 A conservation strategy must be developed in collaboration with a recognised laboratory. All finds must be assessed in order to recover information that will contribute to an understanding of their deterioration and hence preservation potential, as well as identifying potential for further investigation. Furthermore, all finds must be stabilised and packaged in accordance with the requirements of the receiving museum. As a guiding principle, only artefacts of a "displayable" quality would warrant full conservation, but metalwork and coinage from stratified contexts would be expected to be x-rayed if necessary, and conservation costs should also be included as a contingency.
- 3.20 Should finds and features be made that might constitute 'Treasure' under the definition of the *Treasure Act* (1996), these will, if possible, be archaeologically excavated and removed to a safe place. Such finds will also be reported immediately to the local coroner (within 14 days, in accordance with the Act).
- 3.21 Any human remains that are discovered will initially be left in-situ, covered and protected, and the Local Planning Authority's archaeological advisor informed of their discovery. If removal is necessary, this will comply with the relevant legislation, any Ministry of Justice and local environmental health regulations, and the appropriate Historic England advice.

Reporting and Archive

- **3.22** Details of style and format will be determined by the archaeological contractor. In any event it will include:
 - An executive summary of the work undertaken, and the results obtained;
 - The aims and methods adopted during the programme of archaeological works;
 - The nature, location, extent, date, significance and quality of any archaeological deposits and material uncovered;
 - The nature and location of the features and deposits encountered;
 - Appropriate illustrative material such as maps, plans, sections, drawings and photographs; including a site location plan at 1: 2,500, a site plan at 1: 1,250, and where appropriate, large-scale specific plans;
 - A summary of results; and
 - A description of the archive contents and details of its location for long-term storage.



- 3.23 The report will also include a finds report including: any pottery, glass and clay tobacco pipes discovered during the archaeological works, as well as all other artefacts that may be discovered. A specialist report on all animal or human bone discovered during the excavation will also be included. Pottery and ceramic building material will be recorded by sherd count and weight by ware type and, if appropriate, from within context groups.
- 3.24 The discussion of the archaeological potential of the site will also include reference to the potential indicated by the finds and environmental evidence.
- 3.25 Copies of the report will be submitted to the Local Planning Authority's archaeological advisor to demonstrate compliance with the requirements of the archaeological works. One digital copy of the report will also be provided to the Lancashire HER. Copies will also be uploaded as part of the ADS OASIS database record.
- 3.26 The site archive, to include all project records and cultural material produced by the archaeological works, will be prepared in accordance with guidance issued by the Archaeological Archives Forum (AAF) (Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation [Brown 2011]) and deposited to the Lancaster City Museum. Should this not be possible, the archive should be deposited with the Lancashire County Museums Service. An accession code from the relevant Museum will be obtained prior to the deposition of the archive.
- 3.27 The archive will also be prepared in line with the CIfA Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives (2009).



- **4.1** Following approval of this WSI, it is anticipated that the archaeological works will be undertaken at the start of September 2019.
- 4.2 The archaeological works will be undertaken under the overall supervision of Dr Robert Smith (Director, Orion Heritage). Robert is an ClfA member and Orion Heritage is a Registered Archaeological Organisation.
- 4.3 Curriculum Vitaes of key personnel can be provided to the Local Planning Authority's archaeological advisor in advance of the archaeological works commencing.



5.0 Monitoring

- 5.1 The aim of monitoring is to ensure that the archaeological works is undertaken within the limits set out in this WSI, and to the satisfaction of the Local Planning Authority's archaeological advisor.
- 5.2 Robert Smith will monitor the implementation of the archaeological works on behalf of the developers.
- 5.3 The Local Planning Authority's archaeological advisor will be free to visit the site by prior arrangement. They will monitor the implementation of the archaeological works on behalf of Lancaster City Council Planning Department and will assess the work being undertaken on site against the methodology detailed in this specification.
- 5.4 The Local Planning Authority's archaeological advisor will also be responsible for considering any changes to the specification of any of the archaeological works. Any such alterations should be agreed in writing with the relevant parties prior to commencement of on-site works, or at the earliest available opportunity thereafter.



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- 6.0 Insurance
- 6.1 Both Orion Heritage and the nominated archaeological contractor can produce evidence of Public Liability, Professional Indemnity Insurance and/or general 'all risk' insurance.



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7.0 Health and Safety

- 7.1 All works will follow the *Health and Safety at Work Act* (1974), applicable regulations and codes of practice, and recommendations of the Standing Conference of Archaeological Unit Managers (SCAUM) *Health and Safety in Field Archaeology* (1986).
- 7.2 All archaeological staff will undertake their operations with safe working practices.
- 7.3 All staff will be made aware of the hazards and any necessary measures which need to be taken regarding those hazards.
- 7.4 A site-specific Risk Assessment can be prepared and submitted, if requested.



Title:

Overlay showing 1849, 1892 and 2018 OS Maps

Address:

Aldcliffe Road, Leicester

Scale at A4: 1:500 0 10m





Appendix E SITE SUMMARY DETAILS

Site name: Land off Aldcliffe Road, Lancaster, Lancashire

Site code: ARL19

Grid Reference SD 47561 61196 **Type:** Evaluation Report

Date and duration: 24th September to 4th October 2019 (9 days)

Area of Site 290m²

Location of archive: The archive is currently held at OA North, Mill 3, Moor Lane Mills,

Moor Lane, Lancaster, LA1 1QD, and will be deposited with Lancaster Museum in due course, under the following accession

number tbc:

Summary of Results: Between 24th September and 4th October 2019 Oxford Archaeology

North conducted an archaeological evaluation at the site of the former B&Q warehouse, off Aldcliffe Road, Lancaster, Lancashire. At the request of Orion Heritage Ltd, fourteen trenches were proposed targeting remains of the former Queen's Mill building that occupied the site, as well as several outbuildings. The results of the evaluation show that structural remains relating to the mill survive reasonably well beneath the footprint of the modern warehouse, though survival around the perimeter of the site is less so. This report is a presentation

of those results.





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