

# Cathedral Green, Full Street, Derby, Derbyshire.

National Grid Reference: SK 3532 3654 (centred)

## **Watching Brief** **Report 1085c.1(1) © ARCUS 2008**

### **Fieldwork**

Steve Baker and Adam Tinsley

### **Reporting**

Steve Baker and Adam Tinsley

### **Illustrations**

Tom Sparrow

### **Archive**

Ben Graves

Checked by:	Passed for submission to client:
Date:	Date:
Richard O'Neill BA MIFA <i>Project Manager</i>	Dr James Symonds MIFA <i>Director</i>

## OASIS SUMMARY FORM

PROJECT DETAILS		
OASIS identifier	Arcus2-39524	
Project title	Archaeological Watching Brief Cathedral Green, Full Street, Derby, Derbyshire	
Short description of the project	<p>Following a phase of evaluation test trenching ARCUS undertook an archaeological watching brief on re-landscaping of a public area adjacent to the River Derwent in the area known as Cathedral Green, Derby. Reduction of the ground level revealed that much of the remains relating to the former silk doubling mill of John Lomb, established during the 1720s, had been removed during the construction of deep water tanks associated with the 20<sup>th</sup>-century power station. However, the brick footprint of sections of the shop floor and enclosing walls were encountered and proved to have been laid upon a series of wooden sleepers and piles. The rotting of these last features probably resulted in the eventual collapse of the mill.</p> <p>Human remains (minimum of two individuals) recovered on the site following completion of the watching brief are probably derived from a nearby burial ground. The burial ground may have been associated with the former almshouses fronting Full Street, or with All Saints' (now Derby Cathedral) or St Michael's Parish Churches located in the vicinity of the site. The remains were most likely disturbed during the insertion of an iron pipe thought to relate to the construction of an extension to the Electricity Power Station in the early 1900s.</p>	
Project dates	February to March 2008 and August 2008	
Previous/future work	ARCUS 1085b-evaluation trenching at Cathedral Green (June 2007)	
Monument type and period	Silk Mill/doubling mill-post medieval (1720's)	
Significant finds (artefact type and period)	Human remains (minimum of two individuals)	
PROJECT LOCATION		
County/Parish	Derbyshire, Derby	
Site address	Cathedral Green, Full Street, Derby DE1 3AF	
Site co-ordinates	SK 3532 3654	
Site area	c 500 square metres	
Height OD	45m	
PROJECT CREATORS		
Organisation	ARCUS	
Project brief originator	Derbyshire County Council	
Project design originator	ARCUS	
Project supervisor	Steve Baker and Adam Tinsley	
Project manager	Steve Baker and Richard O'Neill	
Sponsor or funding body	Dean and Dyball	
PROJECT ARCHIVES		
Archive Type	Location/Accession no.	Content (e.g. pottery, metalwork, etc)
Physical	Derby Museum	Brick; Human bone; Animal bone; Clay pipe
Paper	Derby Musuem and Art Gallery	Report, context sheets, plans, photographs etc.
Digital	None	
BIBLIOGRAPHY		
Title	Archaeological watching brief at Cathedral Green, Full Street, Derby, Derbyshire	
Report no	1085c.1(1)	
Author	Steve Baker and Adam Tinsley	
Date	January 2009	

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## **NON-TECHNICAL SUMMARY**

*ARCUS were commissioned by Dean and Dyball Construction to carry out an archaeological watching brief during re-landscaping works at Cathedral Green, Full Street, Derby (SK 3532 3654). The works were undertaken between February and March 2008 and in August 2008, and focused on excavations for the fulcrum mechanism of a new swing bridge, as well as cutting back of the river bank to house the bridge in the closed position. The fulcrum was situated at the southern end of the former island in the River Derwent, formerly housing the doubling shop of John Lombe's silk mill from the 1720s onwards. The raised southern end of the island proved to have been much disturbed during construction of the early 20<sup>th</sup>-century power station on the site, with deep tanks associated with water intake and outflow to the River Derwent. Footings of the extreme southern end of the doubling shop were identified in the baulk of the edge of excavation just to the south of this zone of disturbance. Further to the north, beyond the zone of deep tanking, a further portion of the doubling shop survived, preserved just above ground level across its entire width. The brick wall footings of the building proved to have been laid on wooden sleeper foundations, with wooden piles beneath driven into the river silts. A section of internal brick floor also survived. The northern end of the building had, however, been totally destroyed during the 20<sup>th</sup>-century building and landscaping.*

*Human remains (minimum of two individuals) recovered on the site following completion of the watching brief are probably derived from a nearby burial ground. The burial ground may have been associated with the former almshouses fronting Full Street, or with All Saints' (now Derby Cathedral) St Michael's Parish Churches located in the vicinity of the site. The remains were most likely disturbed during the insertion of an iron pipe thought to relate to the construction of an extension to the Electricity Power Station in the early 1900s.*

# 1 INTRODUCTION

ARCUS were commissioned by Dean and Dyball Construction to carry out an archaeological watching brief during re-landscaping works at Cathedral Green, Full Street, Derby, Derbyshire (centred SK 3532 3654). A desk-based assessment (May 2007) and a programme of trial trenching and evaluation (Baker 2007) were carried out to inform the planning application relating to the re-landscaping work by Derby City Council. The Development Control Archaeologist (DCA) at Derbyshire County Council determined that archaeological watching brief was required on specific areas of the site likely to be impacted by groundworks for a proposed swing bridge across the River Derwent.

This document is a report on the archaeological watching brief carried out during February to March 2008 and later during August 2008.

## 1.1 Site Location

The site, centred on SK 3532 3654, is located to the east of Full Street, Derby, adjacent to Derby Cathedral (**Illustration 1**). The site is bounded to the north by Silk Mill Lane, to the west by Full Street, to the east by the River Derwent, and to the south by a currently derelict site awaiting redevelopment. The site is relatively level, with a gradual drop eastward towards the river. Before re-landscaping, the western area of the site was laid to grass, with semi-mature trees in places. Towards the river, the site was terraced downward, with formal raised flowerbeds and areas of concrete and stone paving.

## 1.2 Geology

The underlying geology consists of Pleistocene and Recent Alluvium, overlying Permo-Triassic Keuper Marl with Skerry Bands.

# 2 ARCHAEOLOGICAL BACKGROUND.

An archaeological desk-based assessment of the application area was undertaken by ARCUS (May 2007) on behalf of Derby City Council. The conclusions of this report are briefly summarised here.

The available records showed no prehistoric and only a few Roman finds within 500m of the application area. The site is considered likely to have been subject to frequent flooding during the prehistoric to late-medieval periods, and may have been on the outskirts of the medieval town. The mill race may have been in existence from the medieval period onwards. Tofts were recorded at the end of the 16<sup>th</sup> century, and the street frontage had been developed by 1610, with houses shown on Speed's map. The rear of the properties was occupied by gardens or burgage plots stretching down to the river. Most of the houses appear to have been rebuilt in the 18<sup>th</sup> century, including the Duke of Devonshire's almshouses, founded in 1599 opposite the cathedral and rebuilt in 1774.

The long, unpowered doubling shop for Lombe's silk mill was built at the east side of the site in 1721-24. This was based upon an Italian design and was established in order to twist the silk fibres into a usable thread. The building contained three floors of doubler's workshops, with a taller two-storey compting house at the north end. A brewhouse was located in the cellar of the compting house in the 18<sup>th</sup> century. The

mill continued in use throughout the 18<sup>th</sup> and 19<sup>th</sup> centuries, with the doubling shop collapsing in the 1890s due to rotting of the wooden piles on which it was constructed.

The Corporation Baths were constructed towards the south end of the site in 1856, and a terrace of houses had been laid out at right angles to Full Street, north of the almshouses, by 1852. Further houses were built on the south side of Silk Mill Lane between 1883 and 1901. The Corporation bought most of the Full Street property in the late 19<sup>th</sup>/early 20<sup>th</sup> centuries to accommodate the construction of an extension of the Electricity Power Station built to the north of Silk Mill Lane in 1894. The almshouses and the properties to the north and east were demolished between 1908 and 1914, for the power station extension. The Corporation Baths were demolished c.1932. The power station was closed in 1969 and demolished in 1972. The site was converted into a park, known as Cathedral Green, and the mill race was filled in.

Trial trenching by ARCUS during June 2007 (Baker 2007) was carried out to establish the positions of the bridge, mill stream and doubling shop associated with the 18<sup>th</sup> - century silk mill, and to determine the preservation and potential of buried archaeology in advance of re-landscaping of the site.

The 18<sup>th</sup>-century bridge proved to be remarkably well-preserved, with exterior walls, stone cutwaters and brick vaulted arches surviving with little modern disturbance. Retaining walls associated with the mill stream were also encountered. These appeared to represent a late 19<sup>th</sup>-century or early 20<sup>th</sup>-century phase of building. The western wall of the doubling shop was identified, with an internal brick floor surviving adjacent. The southern end of the doubling shop appeared to have been disturbed by activity during the early 20<sup>th</sup> century.

### **3 AIMS OF THE PROJECT**

The requirement for archaeological fieldwork arose from the need to mitigate the impact of groundworks associated with the re-landscaping of the site. The majority of re-landscaping was judged to be minimal in impact, or to impact areas known to have low archaeological potential, such as the footprint of the former power station. However, groundworks associated with the new swing bridge across the Derwent were considered likely to impact upon the remains of the 18<sup>th</sup>-century silk mill doubling shop. Specific aims were as follows:

- to record and to characterise any archaeological remains exposed during site groundworks; and
- to provide further information relating to the structural layout and preservation of the 18<sup>th</sup>-century silk mill doubling shop, particularly at the southern end where the results of the 2007 trial trenching were unclear.

### **4 METHODOLOGY**

All work on site was carried out in accordance with current industry best practice (IFA 2001).

The groundworks subject to archaeological watching brief comprised:

- excavation in preparation for the fulcrum mechanism of the swing bridge, on the raised southern end of the 'island' area adjacent to the River Derwent; and



- excavation along the bank edge of the River Derwent to accommodate the swing bridge in the closed position.

The project was managed for ARCUS by Steve Baker and subsequently by Richard O'Neill. Fieldwork was carried out by Steve Baker during February and March 2008 and by Adam Tinsley during August 2008.

## 5 RESULTS

### 5.1 Scope of Watching Brief and Levels of Preservation

Groundworks on the raised southern end of the island area adjacent to the River Derwent were monitored. The raised area, corresponding to Trial Trench 4 in the earlier evaluation (Baker 2007), was lowered by 2m, with brick and concrete footings below this level removed to permit unimpeded piling.

The watching brief in this area confirmed the results of Trial Trench 4, that much of the raised area at the southern end of the island consisted of made ground inserted during the 20<sup>th</sup> century. This material proved to be backfilling two tanks, each 2m deep, associated with the early 20<sup>th</sup>-century power station on the site (**Plate 1**). Brick arched conduits to the river were identified and presumably related to water intake from, and outflow to, the Derwent. The tanks were constructed of 3-inch blue brick with rectangular frogs set within a hard cementitious mortar. Excavation of these tanks had completely removed any remains of the silk mill doubling shop in this area. To the south of this zone of disturbance, however, the brick footings of the extreme southern end of the doubling shop survived. Beyond this point further excavation was undertaken but reduction of the ground level was not sufficient to encounter any other remains relating to the former silk mill or associated structures.

To the north of the power station tanks ground levels were reduced over the footprint of the doubling shop to prepare a platform for piling behind the new riverside retaining wall. The full width of the doubling shop was encountered in this area, preserved just above ground level, with both wall footings present, as well as a section of internal brick floor. To the north of this area, the building appeared to have been truncated during re-landscaping of the site in the later 20<sup>th</sup> century.

### 5.2 Eighteenth Century Doubling Shop

The footings of the 18<sup>th</sup>-century doubling shop were encountered in two main locations, with the deep disturbance caused by the power station tanks between the two areas (**Illustration 2**).

To the south of the tanks, the extreme southern end of the doubling shop was represented by a section of each of the side walls, approximately 2m in length, visible within the edge of excavation (contexts 008 and 009, **Plate 2**). Construction was in a plain, hand-made orange-red brick, 6cm/2¼ inch thick, and the side walls were four skins thick in a hard pale brown lime mortar. The uppermost surviving course of these structures was 0.71m below the ground surface in the raised southern area of the island. No internal floors survived, and there was considerable disturbance from later concrete bases and from the high-voltage cables immediately to the south. The internal width of the building at this southern end was around 6m, considerably broader than the internal width further to the north. This is probably due to the stepping-out of the structure towards the southern end, shown on historic maps. Further to the south of this wall reduction of the ground level was not sufficient to

expose any other structural remains.

To the north of the two power station tanks, a 14m length of the doubling shop survived. At the southern end, this was restricted to the wooden sleeper beam footing of the eastern wall (context 007), and also the wooden piles beneath, one or two of which were seen briefly in sondage before water levels rose (**Plate 3**). Preservation increased northward, and 9.40m of the brick structure was preserved across its entire width, with both wall footings and a section of internal brick floor surviving (**Plates 4 and 5**).

The walls at this point (contexts 001 to the east and 006 to the west) were three-skins thick, in the same 2¼-inch brick as the southern end (dimensions 24cm x 11.5cm x 6cm), set in a pale, almost greenish-brown sandy lime mortar with charcoal flecks. The specialist report indicates that such bricks were of early 18<sup>th</sup>-century origin and corroborates the date for the construction of the doubling shop sometime during the 1720s (see Section 6 below). The eastern wall survived flush with the internal brick floor, and a sondage revealed five courses above the level of the timber footing. The flooring consisted of a rectangular-section sleeper 0.33m wide and 0.15m thick. Because of water ingress from the river it was not possible to enter sondages to fully record the underlying wooden piles driven into the river silts. These were directly below the sleeper beam, and appeared to be of sub-circular section, spaced approximately 0.40m apart. The western wall of the building (also encountered in Trial Trench 3 during the 2007 evaluation), was better preserved, with a maximum of 7 courses (0.46m) surviving above the level of the internal brick floor.

The internal floor (context 004), 4.68m wide from wall to wall, was composed of a single layer of bricks laid flat directly onto the underlying river silt, a homogenous grey-brown sandy silt. An edging course against the eastern wall lay at a slightly lower level (2cm below the rest of the internal floor), and may have been used for drainage. This edging course was also in a different style of brick from both the walls and the internal floor, being a rough, plain hand-made red brick 3 inches thick (dimensions 23.5cm x 11.5cm x 7.5cm), and was laid longitudinally against the eastern wall (context 003). The specialist report indicates that the brick sample from this context may be of a later date, 18<sup>th</sup>- to 19<sup>th</sup>-century, and the structure may consequently represent a later internal modification of the building. The remainder of the internal floor was in offset courses laid end-to-end and running transversely across the width of the doubling shop. The floor was in a plain hand-made red brick only 2 inches thick (dimensions 23cm x 11cm x 5cm). In this instance the brick sample appears to be indicative of a late 17<sup>th</sup>-century date and probably indicates the re-use of material in the initial construction of doubling shop.

The floor was disturbed in patches, presumably during landscaping of the site during the 1980s, when the new paved surfaces came very close to the floor level of the doubling shop. Further to the north, the zone of preservation was interrupted by more landscaping disturbance, and a concrete-lined pipe trench cutting across the entire building.

### 5.3 Human and animal remains

Animal and human bones were uncovered during development works carried out following completion of the watching brief. The remains are thought to have been discovered during the removal of an iron cast pipe in the south-western corner of the site (marked red on **Illustration 1**). The assemblage comprised fragmented animal and human bones displaying a poor state of preservation. The bones were collected

by the police specialist and forwarded for osteological analysis and identification (see Section 7). Associated finds included a bowl of a clay tobacco pipe and a single oyster shell.

The presence of human remains on the site could be related to a former burial ground associated with the former All Saints Church (now Derby Cathedral) or alms houses formerly fronting Full Street. The animal remains could be linked to agricultural activity on the site as well as domestic consumption (further discussion in Section 7).

## **6 BRICK (BY J. TIBBLES)**

### **6.1 Summary**

Dating of bricks is highly contentious due to their re-useable nature as a valuable building commodity and therefore dates given are dates of brick manufacture and not necessarily that of the structure.

Wall (context 001) and floor (context 004) had been constructed with bricks either manufactured before 1720 (therefore reused) or with bricks manufactured in the early 18<sup>th</sup> century. Structure (context 003) is a late 18<sup>th</sup>- to 19<sup>th</sup>-century addition/alteration.

Without thin sections and fabric analysis the source of the clays is unlikely to be identified.

### **6.2 Introduction**

A visual examination of the building material assemblage recorded a total of three complete bricks weighing 8840g. It should be noted that the diversity of size and colour within brick and tile caused during the manufacturing process must be taken into consideration when comparing samples within collected assemblages and local typologies. The varying sizes and colours can be attributed to the variation in the clays used, shrinkage during drying, firing within the kiln or clamp and the location of the brick/tile within the kiln. The dating of ceramic building material can be highly contentious due to its re-usable nature and therefore the date range given is that of the known dates where such bricks have been recorded.

### **6.3 Methodology**

The assemblage was examined using a x15 magnification lens where applicable to aid dating, though fabric analysis was not undertaken as this was considered beyond the scope of this assessment. Information regarding the dimensions, shape and fabric (where applicable) was recorded and catalogued accordingly and a Munsell colour code has been incorporated where appropriate. The presence of the original surfaces was also taken into consideration to aid identification.

### **6.4 The assemblage**

The assemblage comprised three complete post-medieval bricks dating from c. 16<sup>th</sup>/17<sup>th</sup> century to the early 19<sup>th</sup> century.

At York in 1505 bricks were standardised at 10" x 5" x 2½". Parliament in 1571 decreed that the size of a brick should be 9" x 4½" x 2¼" and again in 1725 the brick size should not be less than 9" x 4¼" x 2½"-2 ". *By 1850 the size of bricks around London were*

generally 9" x 4½" x 3" (Dobson 1850, 38) although by the turn of the 20<sup>th</sup> century this size varied slightly throughout the country (Rivington 1919, 106).

The three brick examples suggest a date range between the late 16<sup>th</sup> and early 19<sup>th</sup> centuries. All dates are the approximate dates of the manufacture of the examined bricks and not necessarily the date of the structures.

#### **6.4.1 Wall (context 001)**

Single complete brick with dimensions of 245mm x 115mm x 60mm (9¾" x 4½" x 2"). Fabric F3.

Brunskill (1990, 38) states that after the Restoration of 1660, thicker bricks usually 2", were customary and Lloyd (1925, 97-98) lists bricks of a similar size in use c.mid-16<sup>th</sup> century. Bricks of a similar size, although fractionally shorter, (9½" x 4½" x 2½") were in use in the early 18<sup>th</sup> century in East Yorkshire (Pevsner 1995, 709).

The dimensions and characteristics of this brick indicate that wall (context 3) is likely to have been constructed, or at least existed in the early 18<sup>th</sup> century. However, the bricks may have been reclaimed.

#### **6.4.2 Structure (context 003)**

Single complete brick with dimensions 240mm x 115mm x 75mm (9½" x 4½" x 3"). Fabric F2.

According to Lloyd (1925) bricks of this size have been recorded in the second half of the 18<sup>th</sup> century at Rodney Street, Liverpool; however, the buildings were constructed between 1780 and 1840 (Liverpool Planning Report 1979). By 1850 a size of 9" x 4½" x 3" had become standard (Dobson 1850, 33). The heavily burnt header and beginnings of vitrification suggest that the brick was sold as a *second* (poor quality) brick.

The dimensions of this brick indicate that structure (context 003) is a late 18<sup>th</sup>- to 19<sup>th</sup>-century addition/alteration.

#### **6.4.3 Floor (context 004)**

The two joining fragments of brick gave an overall brick size of 230mm x 110mm x 55mm (9" x 4¼" x 2¼"). Fabric F1.

Slop moulded. Both stretcher surfaces display heavy wear and when the wear became too uneven the brick has been turned and the uneven surface placed face down. The brick size is conducive with late 17<sup>th</sup>-century sizes (Lloyd 1923, 98-99); however, the bricks may have been reclaimed to lay within the floor.

### **6.5 Discussion**

Dating of bricks is highly contentious due to their re-use nature as a valuable building commodity. The standardisation of bricks by Parliament over the centuries helped to create a more uniform brick and better architecture. However, it should be noted that although statutes were binding with severe fines for those contravening, it would be naive to believe that all pre-mechanical brickmakers adhered strictly to these sizes at all times. Therefore a degree of caution must be exercised in using brick size as an indication of age as little can be concluded from a single brick (Campbell and Saint 2002, 181)

In conclusion, wall 001 and floor 004 had been constructed with bricks either manufactured before 1720 (therefore reused) or with bricks manufactured in the

early 18<sup>th</sup> century. Structure 003 is a late 18<sup>th</sup>-19<sup>th</sup>-century addition/alteration.

The brick industry was operating in Derbyshire from the early 1600s and Sudbury Hall 8 miles west of Derby, was constructed in 1664 using local bricks. Brindley's canal was not opened until the late 18<sup>th</sup> century; therefore it is unlikely that the bricks have been 'imported'.

Without thin sections and fabric analysis the source of the clays is unlikely to be identified.

## 6.6 Recommendations

Fabric analysis was not undertaken as it was considered beyond the scope of this assessment; however, thin sectioning may assist in the clay source location. A short note should be produced in a relevant journal on the assemblage. No further work is regarded as necessary on the assemblage, which is of limited evidential value. It is recommended upon completion of work on the ceramic building material assemblage it should be retained and deposited as part of the finds assemblage as a whole within the appropriate museum.

## 7 BONES (BY L. MILLER)

### 7.1 Minimum Number of Individuals

The bone assemblage uncovered during works on the site comprises human and animal bones, which were counted separately to establish minimum number of individuals. Minimum number of individuals (MNI) refers to the fewest possible number of people or animal present in a skeletal assemblage, calculated on number of repeated bones. The results are summarised in **Table 1**.

**Table 1:** Summary of animal and human bones

	Human	Horse	Sheep	Cow	Large Ungulate	Bird	Hare	Other	♀	♀ Animal
<b>No. of Bones</b>	14	8	1	1	5	1	1	3	5	3
<b>MNI</b>	2	1	1	1		1	1			

#### 7.1.1 Human bone

Human bone assemblage comprising 14 fragments was examined with an attempt to ascertain the minimum number, sex and age of individuals (**Table 2**).

Several repeated bones were found in the assemblage suggesting that the remains belong to at least two individuals (**Table 3**). The observations are as follows:

- There are two fragments of the same section of right parietal bone. Even if the fragment of parietal bone were a left piece, this would also be repeating a section already present. The characteristic squamous suture present between the temporal and parietal bones identified the fragment of parietal bone.
- Observations and calculations revolving around the sex of the individuals produce both male and female results. Physical observations from the middle cranial fossa (length of mastoid process and zygomatic ridge extension), right

and left parietals (parietal eminences), tibia (metrical analysis) and radius (metrical analysis) produce female results. Calculations from the scapula produce male results. Although it is not recommended to confirm the sex of an individual from one calculation/observation, as there can be anomalies within the human population, the result obtained from the scapula fell heavily into the male banding.

- The last piece of evidence pointing to the possibility of there being at least two individuals is associated with epiphyseal fusion. A distal epiphysis of the left fourth human metacarpal present within the assemblage is not yet fused; the fusion occurs at the age of 14-16 (in both males and females). This places the individual below the age of 16. Comparing this with the fusion times within the scapula, it can be noted that the acromion fuses to the scapula between the ages of 18-20, putting the age of this individual above 18. This, again, gives evidence to there being two individuals present.

From the two individuals present, it can be ascertained that a male and a female are represented. One individual is above the age of 18 (fusion of the acromion to the scapula body) and one is below the age of 16 (unfused distal epiphysis of the left fourth metacarpal). It was possible to assess the height of the female individual being between 147.8cm and 155.1cm. There is no evidence of disease, manner or cause of death.

**Table 2:** Human bones used to ascertain the sex and age

<p><b>Bone 1: middle cranial fossa</b></p>	<p>Present: Right and left petrous temporal; sella turcica and clivus with foramen magnum; left petrous temporal broken off; clean break</p> <p>Bone condition: Extremely weathered, very dark and muddy, considerable charring (ore-like) on inferior side, black and orange</p> <p>Details: Right mastoid process has a score of 2 (Standards 1994), length of 21mm; no zygomatic ridge extension; right external auditory meatus ovalloid, no distinct tympanic plate or glenoid fossa; left optic canal enlarged; right anterior clinoid process fused; petrous temporals are at 45-degree angles</p> <p>Results:</p> <p>Age: Undeterminable</p> <p>Sex: Possibly female (based on mastoid process size and no zygomatic ridge extension)</p>
<p><b>Bone 2: right and left parietals</b></p>	<p>Present: Right and left parietal bones</p> <p>Bone condition: Clean break along coronal suture (suture comprises break edge); break on each side is at temporal junction; posterior break is not on lambdoid; posterior crack on right parietal (clear break); heavily muddied and discoloured, cortical bone loss due to extreme weathering; evidence of trowel marks on superior left parietal</p> <p>Details: Pronounced foramen adjacent to coronal suture; heavily pronounced meningeal grooves; large parietal eminences; sagittal suture appears to be obliterated</p> <p>Results:</p> <p>Age: 34-63 ± 12.6 years (if all cranial sutures match to the sagittal suture) (Meindl and Lovejoy 1985)</p> <p>Sex: Possibly female (based on large parietal eminences)</p>

<p><b>Bone 3: right tibia</b></p>	<p>Bone condition: Extensive staining and discolouration; muddied, roots attached; discoloured break along insertion sight for <i>tibialis anterior</i></p> <p>Details: Medial intercondylar tubercle very pronounced; epiphyses fused</p> <p>Tibial measurements: Distal epiphyseal breadth = 45mm; Maximum diameter at nutrient foramen = 30mm; Biological length = 31.8cm</p> <p>Results:</p> <p>Age: 18 + (Scheuer and Black 2004) (based on fusion of epiphyses)</p> <p>Sex: Female (based on tibial calculations)</p> <p>Stature: 151.46cm ± 3.66cm</p>
<p><b>Bone 4: distal left radius</b></p>	<p>Bone condition: Discoloured, muddied and weathered; transverse, dark break along midshaft of radius</p> <p>Details: Sharp interosseous border, epiphyses fused</p> <p>Radial measurements: midshaft sagittal diameter = 13mm; midshaft transverse diameter = 10mm</p> <p>Results:</p> <p>Age: 17 + (Scheuer and Black 2004) (based on fusion of epiphyses)</p> <p>Sex: Female (based on radial calculations)</p>
<p><b>Bone 5: lateral part of left scapula</b></p>	<p>Present: Lateral part of the left scapula, featuring the lateral margin, spine of scapula, glenoid fossa and acromion.</p> <p>Bone condition: Extremely weathered, all breaks dark</p> <p>Details: Acromion fused to scapula body</p> <p>Scapula Measurements (Bass 1995; Krogman and Iscan 1986; Berrisbeitia 1989)</p> <p>Glenoid fossa length - &lt;34 (Female), 34-36 (P), &gt;37 (Male); Glenoid fossa length = 42mm</p> <p>Results:</p> <p>Age: 20+ (Scheuer and Black, 2004) (based on fusion of acromion to scapula body)</p> <p>Sex: Male</p>

### 7.1.2 *Animal bone*

A total of 29 fragments of animal bone are present in the assemblage (**Table 1 and 3**). The majority of the bones (n=8) are identified as horse, most probably one individual as none of the bones are repeated. A small number of cow, sheep, bird and hare bones are also present in the assemblage.

**Table 3:** Results of bone assessment

Bones	Identification	Total
Human	right parietal (2 fragments), left parietal, 2 temporal fragments, left scapula fragment, 3 ribs (including 1 left and 11 <sup>th</sup> or 12 <sup>th</sup> rib), left radial midshaft, left 4 <sup>th</sup> metacarpal, right tibia, proximal right fibula, left fibular midshaft	14
Horse	mandible (teeth very worn), mandibular molar (severely worn), pelvis, left tibia, proximal femur, metapodal, 2 <sup>nd</sup> phalanx, calcaneus	8
Sheep	left metatarsus	1
Cow	distal femur	1
Large ungulate	mandibular fragment, 3 rib fragments, proximal metapodal	5
Bird	tarsometatarsus	1
Hare	proximal tibia	1
Other	3 fragments of bone	3
Unidentified	2 fragments, 2 long bone fragments, long bone fragment (smaller long bone)	5
?Animal	long bone fragment, fragment of mandible or scapula, fragment with clean cut	3

## 7.2 Summary

The condition, nature of bones discovered and the history of the site strongly suggest that the remains are archaeological rather than forensic in nature.

The extreme weathering and discolouration of the bones, in addition to their brittle condition due to severe loss of collagen over a long period of time, suggests prolonged deposition in the ground. The external surface of the right and left parietal bone fragments shows extreme cortical degradation. On the inner surface, there is a mark of ossific disturbance, which runs parallel to the coronal suture with slight angulations distally on the right side. This may suggest that the fragment was partly submerged in waterlogged soil for a considerable period of time.

The bones had suffered severe fragmentation, most probably during the insertion of a nearby iron pipe thought to be associated with the construction of the Electricity Power Station on the site in the early 1900s. The human remains may have originated from a burial ground associated with the former almshouses which once fronted Full Street. Alternatively they may have originated from a burial ground associated with All Saints' (now Derby Cathedral) or St Michael's Parish Churches located in the vicinity of the site. The bones were found approximately 80m to the northeast of the cathedral, which is thought to lie on the site of an original church founded by King Edward I in about 943 as a royal collegiate church. The current cathedral building originates from the 14<sup>th</sup> century.

Animal remains uncovered on the site may be derived from a stables present on Full Street in the late 19<sup>th</sup> century, agricultural activity in the surrounding area, and/or domestic consumption. The stables on Full Street were located at house number 16, only three doors away from an almshouse located at number 13.



## 8 MISCELLANEOUS ITEMS (BY L. HARVEY)

A total of two miscellaneous items, including a shell and a clay pipe fragment, were recovered during the excavations at the Silk Mill site. Both finds were recovered from an unstratified context together with human and animal remains.

### 8.1 Description

The shell assemblage consists entirely of a single common oyster shell fragment (*Ostrea edulis*). These are often found in large quantities on medieval and post-medieval sites. The shell is likely to be evidence of kitchen waste and refuse disposal.

The incomplete clay tobacco pipe comprises a long parallel bowl, thin walled, with a large pedestal spur. It is likely to date between 1690 and 1740 based on typologies by Ayto (1994, 7).

### 8.2 Discussion

The material types and objects presented here are typical of those found in post-medieval domestic or industrial contexts. Whilst the clay pipe should be retained for the site archive, the oyster shell may be discarded in the usual manner.

## 9 SUMMARY AND CONCLUSIONS

The results of the watching brief supplement the results of the evaluation trenching carried out during 2007 (Baker 2007), particularly in terms of the build and structure of the silk mill doubling shop built during the 1720s. Excavation at the southern end of the island has definitively established the position of the southern end of the doubling shop, and further north the full width of the building has been exposed. Of especial interest are the wooden sleeper footings and piles, which supported a substantial three-storey brick building, and may have contributed to its collapse during the 1890s. To the south of the doubling shop the ground level was reduced but this proved to be of insufficient depth to expose any further remains, such as ancillary buildings, should they have existed in this area.

Human remains (minimum of two individuals) recovered on the site following completion of the watching brief are probably derived from a nearby burial ground. The burial ground may have been associated with the former almshouses fronting Full Street; or with All Saints' (now Derby Cathedral) or St Michael's Parish Churches located in the vicinity of the site. The remains were most likely disturbed during the insertion of an iron pipe thought to relate to the construction of an extension to the Electricity Power Station in the early 1900s.

## 10 ARCHIVE

The project archive will be deposited with the Derby Museum and Art Gallery. The archive will be prepared by ARCUS staff in accordance with the requirements specified in MORPHE (English Heritage 2006) and UKIC guidelines (1990). In addition, copies of this report will be deposited with Derbyshire Historic Environment Record, circulated to the client and retained in the offices of ARCUS.

## 11 COPYRIGHT

ARCUS may assign copyright to the developers upon written request, but retains the right to be identified as the author of all project documentation and reports defined in the Copyright, Designs and Patents Act 1988 (Chapter IV, s79).

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## 13 APPENDICES

## APPENDIX 1

### List of contexts

Site code	Context number	Context type	Description
1085c	1	structure	wall - 5 courses deep
1085c	2	structure	timber footing of wall
1085c	3	structure	brick floor
1085c	4	structure	brick floor
1085c	5	deposit	sandy silt deposit

## APPENDIX 2

### List of finds

Site code	Context	Material	No. of pieces	Notes
1085c	3	cbm	1	1 brick from structure 3
1085c	4	cbm	1	1 brick from floor 4
1085c	1	cbm	1	1 brick from wall 1

## 14 ILLUSTRATIONS

## 15 PLATES



Plate 1: Deep tank associated with the early 20<sup>th</sup>-century power station, beneath the raised southern end of the island. Note the brick arched outlet beneath the pump. View north-east.



Plate 2: South-western corner of the doubling shop, visible in trench baulk. View south-west



Plate 3: East wall of doubling shop (001), with section of internal brick floor (004). Note the wall footing rests on a wooden sleeper foundation (002). View North



Plate 4: High level view of doubling shop site, showing the surviving footings and floor (centre). View south.





Plate 5: Doubling shop floor and footings. View south.



Plate 6: Location (marked with 'A') of uncovered bones



Plate 7: Part of bone assemblage recovered from development site