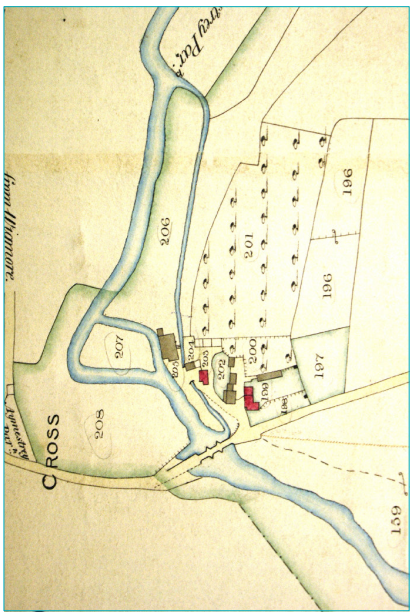
Archaeological Investigations Ltd

Mortimer's Cross Mill, Lucton
Herefordshire



Archaeological survey and recording
November 2008

Hereford Archaeology Series 806

ARCHAEOLOGICAL INVESTIGATIONS LTD

Manager: A Boucher BSc MIFA

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Mortimer's Cross Mill, Lucton, Herefordshire: an archaeological survey of the sluice gates, 2008

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Cover picture: an extract of the 1840 Tithe map of Lucton

For: English Heritage

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Contents:

Figures:

Plates:

Tables:

1 Summary

Project name: Mortimer's Cross Mill

Location: Lucton, Herefordshire

Grid reference: NGR SO 42589 63827

Type: archaeological survey

Date: 2008

Client: English Heritage

Scheduled Ancient Monument: 45160

There has probably been a mill at Mortimer's Cross since the 15th century when, during the Battle of Mortimer's Cross (1461) troops of Edward Earl of March retreated over a weir to the north of the cross-roads. Although weirs were used to trap fish the majority of weirs on the Lugg were associated with mills.

At least two mills operated below the weir at Mortimer's Cross; a paper mill and a corn mill. The only existing mill building is a small post-medieval corn mill that survives in a complete and working state.

In 2007 floods on the river damaged 2 of the 3 sluice gates that control the flow of water into the mill leat while the third gate was left to bear the full brunt of the water flow. Because of the damage to the gates a schedule of works was established for their repair. Included in the works was a detailed drawn and photographic survey of the affected sluices to inform the design for the repair and replacement of the timbers and the refitting of fixtures and sluice machinery.

2 Introduction

Mortimer's Cross Mill is in the guardianship of the Secretary of State and in the care of English Heritage. The monument includes; the 18th century mill building and its associated water-management system, which includes three sluice gates, and the buried remains of an earlier paper mill to the north. A series of quarries to the east of the mill leat are also under care.

Archaeological Investigations Ltd was commissioned by English Heritage to survey the damaged sluice gates. The work was carried out between February and November, 2008.

3 Geology and topography

The River Lugg rises on Beacon Hill in the community of Llangunillo, in Wales and joins the River Wye at Mordiford, 6km southeast of Hereford. The course of the river runs for over 70km through Herefordshire and is joined along the way by both the Arrow and the Frome rivers. The river has 5 distinct topographical areas and from Kinsham to Mortimer's Cross it is characterised by high relief and the dissection of the river. From Mortimer's Cross it opens to a wide valley floor expanding for some 2km.

The mill lies on this broad flood plain of the river immediately north east of the crossing of the north to south A4110 and the east to west B4362.

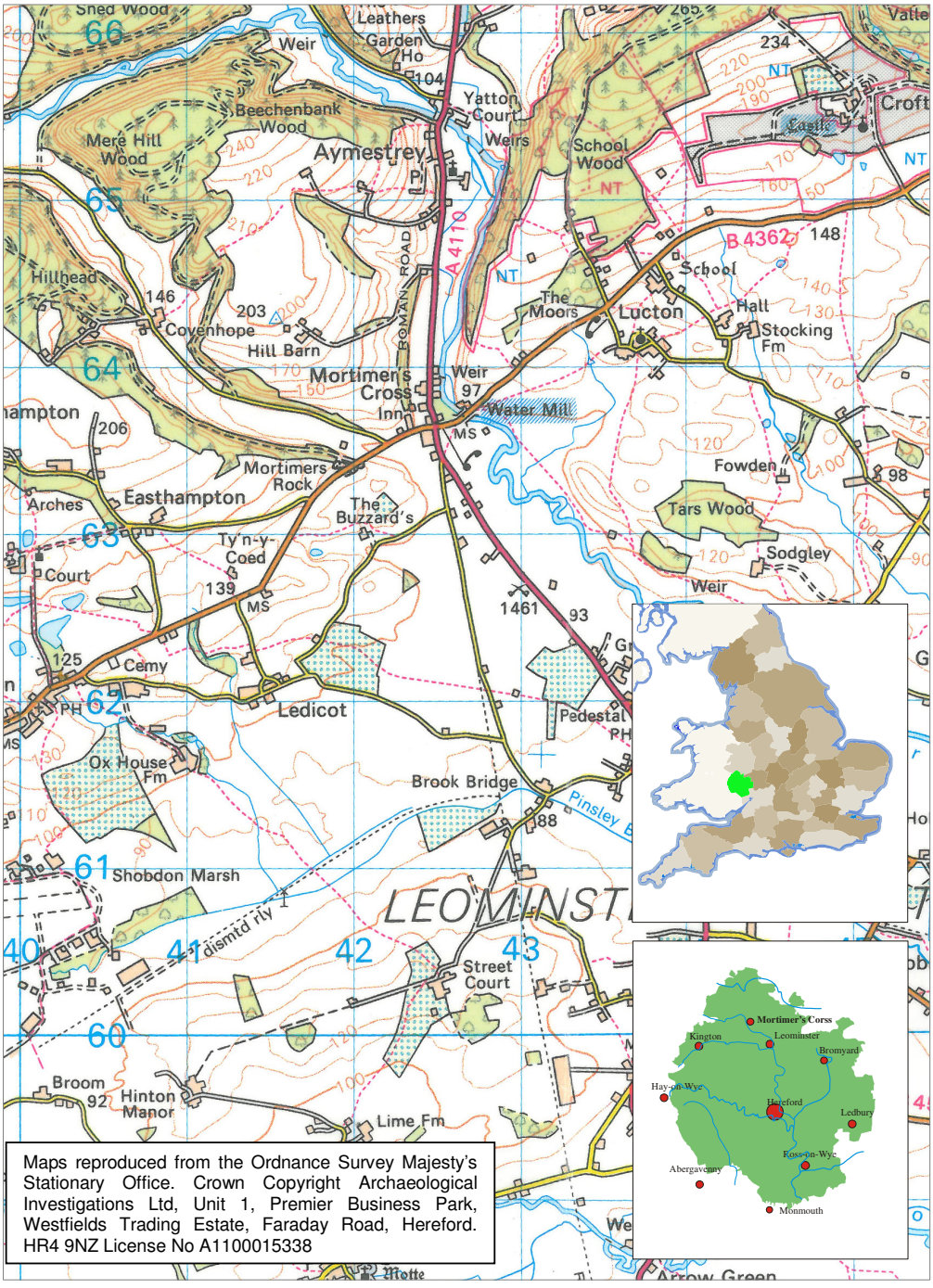

Figure 1: Mortimer's Cross in Herefordshire, England

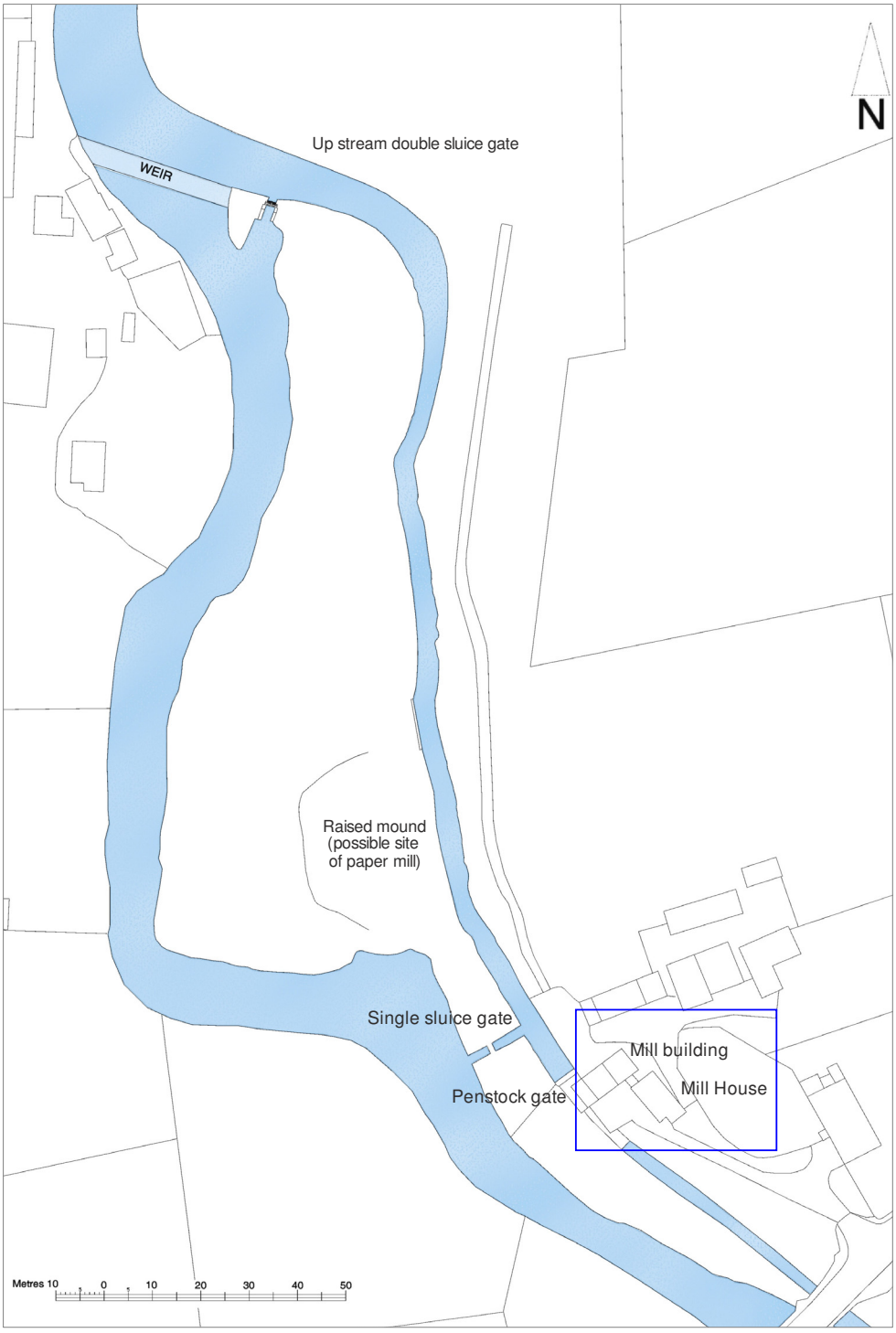

Figure 2: the location of Mortimer's Cross Mill

4 Historical and archaeological background

The first known mill in Herefordshire was recently discovered at Wellington and has been dated by dendrochronolgy to 696 AD. By the time of the Domesday Survey of 1086 there were at least 116 mills. This includes 16 in and around the important manor of Leominster.

Kingsland, to the north-west of Leominster, was in the Hazeltree Hundred and the Herefordshire Domesday records that before the conquest it was held by King Edward. It had 15 hides and in lordship 5 ploughs with a further three ploughs possible. There were 21 villagers in Kingsland living in 9 smallholdings that had 17 ploughs, 10 ploughmen, 2 slaves and 6 freedmen. There were 2 mills valued at 26s 4d and a fishery of 500 eels.

The eels would have been farmed, possibly in millponds. If the water driving the wheel was too shallow or too slow, a millpond had to be made by damming the stream just above the mill.

The tenants of the manor were forced to use the mill attached to their manor and were obliged to give the miller a 10% cut. The lord also got a cut. Many millers had a bad reputation for taking advantage of customers and cheating them. Millers were notorious for having the fattest pigs in the district – not all of their customer's grain was ground to flour! In 1774 two nearby mills in Kingsland were almost destroyed by angry locals aggrieved with the miller.

The mills and weirs on the River Lugg were recorded in the 17th century but the survey was unsigned and undated. Recent study has suggested that the surveyor was a Mr Daniel Dunnell, who was employed by Trustees of the 1695 Navigation Act (Brian, 1994). The act was to make the rivers Wye and Lugg navigable on their lower reaches. This was to be done by buying up all the mills so that their associated weirs could be removed. The main survey was on the River Wye from Chepstow Bridge to Hereford. On the Wye almost all of the weirs were fishing weirs whereas on the Lugg all were associated with mills. The Lugg was surveyed as far as Leominster and the mills recorded are shown in Figure 14. A total of 10 mills are recorded and accounts are given of the compensation made to the mill owners for the destruction of their weirs. Without the weirs the mills would not be able to function.

The mills in Leominster were not included in the survey as they were beyond the planned navigable area. Nine mills are recorded in Leominster on the Herefordshire Sites and Monuments Record.

The first indication of a mill at Mortimer's Cross comes from an account of the Battle of Mortimer's Cross in 1461. A strong attack by the Lancastrians was made against Edward Earl of March's right flank. They retreated over a weir to the north of the cross-roads. A weir is a good indication that a mill was nearby (Delaney, 1997).

Early documentary references to the mills at Mortimer's Cross include deeds dated to 1748[1] and 1760[2] and a reference to the mill 'situated in a large plain' (Pococke, 1756).

The 1748 Indenture replaces an earlier one that was granted to Thomas Jones by Richard Harper. Richard died in 1748 and the new owners of the mill, Mary Malyn and Thomas Fytche, renewed the lease to Thomas Jones. As well as mentioning the paper mill and other buildings it mentions a piece of pasture ground formerly belonging to a fulling mill or 'walk mill', a name that derived from the medieval practice of treading cloth in troughs of water to bind and shrink the fabrics. The land to the south-east of the present mill is known as Walk Mill Grounds and is probably the area where the cloth was laid out to dry.

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1 Herefordshire Record Office ref C94/131
2 Herefordshire Record Office ref C94/131

The 1760 deed renews the lease to Thomas Jones and refers to a 'stock of water grist mills together with the said mills' implying there are a number of wheels operating, one of which may have been the paper mill to the north. The 1760 lease was for 99 years at a price of £21, 15s per annum.[3] Thomas Jones, Master of Paperworks, died in 1765. His gravestone survives in Lucton.

In the early 1820s the paper mill was being worked by Henry Pearson Cooke and is recorded as paper mill 148 in an Excise Letter. By 1824 this number discontinued. Meanwhile in 1823, paper mill 536, Mortimer's Cross, is in the occupation of James Wade, papermaker, to whose name that of George Wood was added in 1824.

The paper mill is shown on the 1840 Tithe map (see Figure 4) and was a much larger building than the corn mill. The Tithe shows many more buildings than the latter OS maps. The buildings were probably all industrial, making use of the power generated by the water. The buildings included a barn and garden buildings and probably a cider mill and the workshop of a stonemason, who was known to ply his trade from here. The Tithe Appointment shows that the land and buildings around the miller were rented to a Riddle Selwood Esquire and others at a cost of £20, 3s 39d. The owner was William Trevelyan Kevill Davies. To the north of the mills were quarries and limekilns. The mills, quarries and limekilns were all within the grounds of the Croft Estate, which was auctioned off in 1924. Although no records survive it is likely that the millers would have paid rent to Lord Croft, which probably included 'sticks of eels. As there is no millpond these would have been caught in traps. One stick equals 25 eels.

Although not shown on the Tithe map an east to west leat is shown on the 1903 OS map. The leat is some 35m north west of the mill and includes the remains of a now disused sluice. The leat is now in-filled but when open would have acted as a flood relief mechanism for the paper mill.

The present mill dates from around 1760 and is principally constructed of Aymestrey Limestone quarried at the site. The windows are wooden framed and the roof of slate. There are three floors each connected by the chain hoist which passes through trap doors. The top floor would have been where the grain was initially stored. It would have been ground on the middle or 'stone floor' and packed on the ground or 'spout floor'. Sacks containing the finished product would be stored in the sackshed, which was supposed to be the only part of the mill free of rats. Sacks would have been stored on the first floor and loaded onto carts via a chute.

The mill could have been operated by one person but an assistant was normally employed. In 1871 new machinery was installed. A very interesting account of life at the mill comes from Florrie Juckes who after leaving school in 1919 (aged 14) went to work as a housemaid at the Mill House. At this time the mill was run by Charles Hellaby, who took on the running of the mill from his farther Edward. In Florrie's account, recorded by DT Delaney (who lives in the Mill House) the mill worked 7 days a week grinding barley, wheat and Indian corn. It was bagged at the mill and carted to buyers by Henry Wheeler who lived in a cottage down the road.

After Charles Hellaby the mill passed to the Biggs family. After the death of her father Mary Biggs inherited the mill in 1932. It continued to operate until the late 1940's, grinding oats and other fodder for animal feed.

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[3] Herefordshire Record Office ref SRO/151

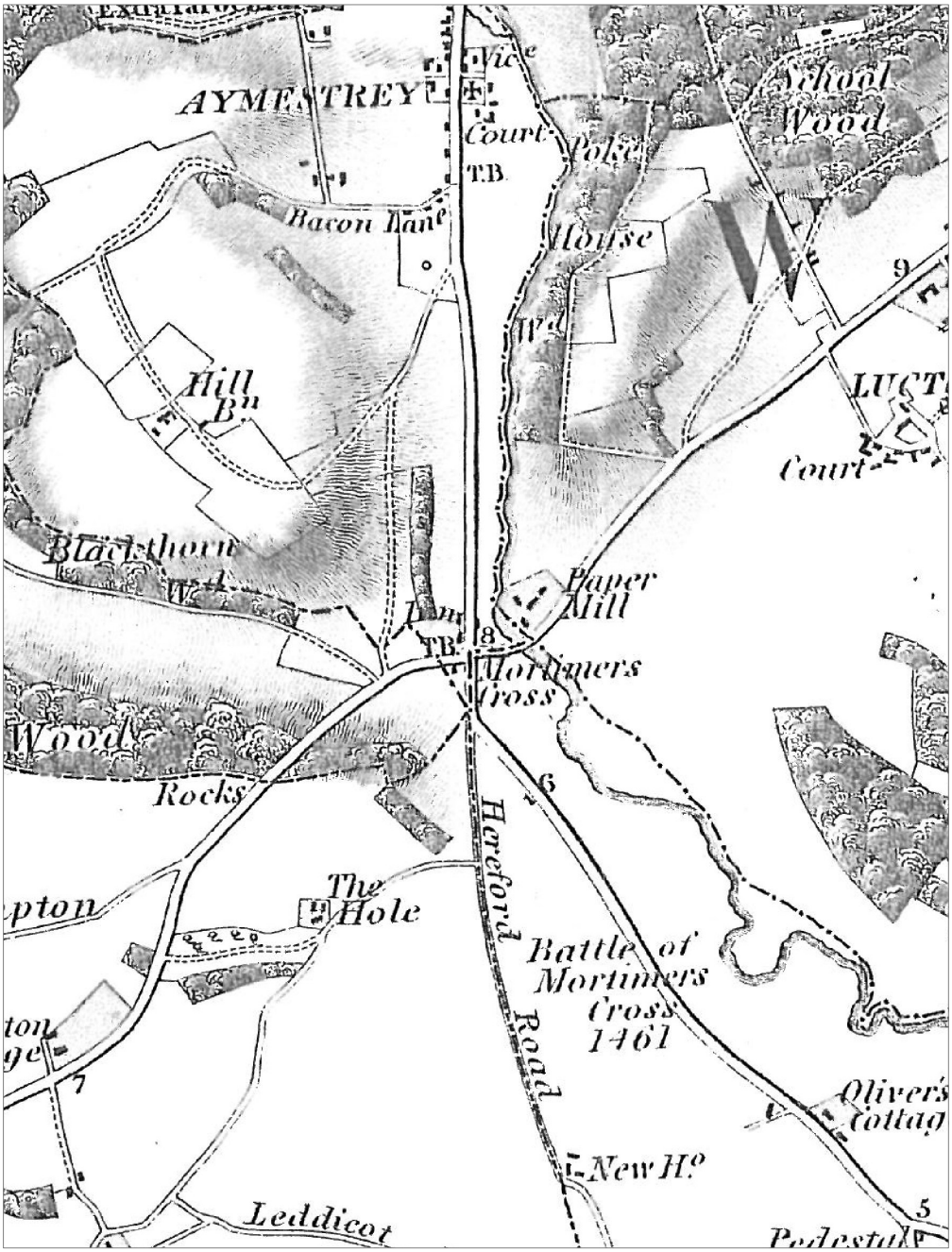


Figure 3: Mortimer's Cross paper mill recorded on Byrant's 1835 map of Herefordshire

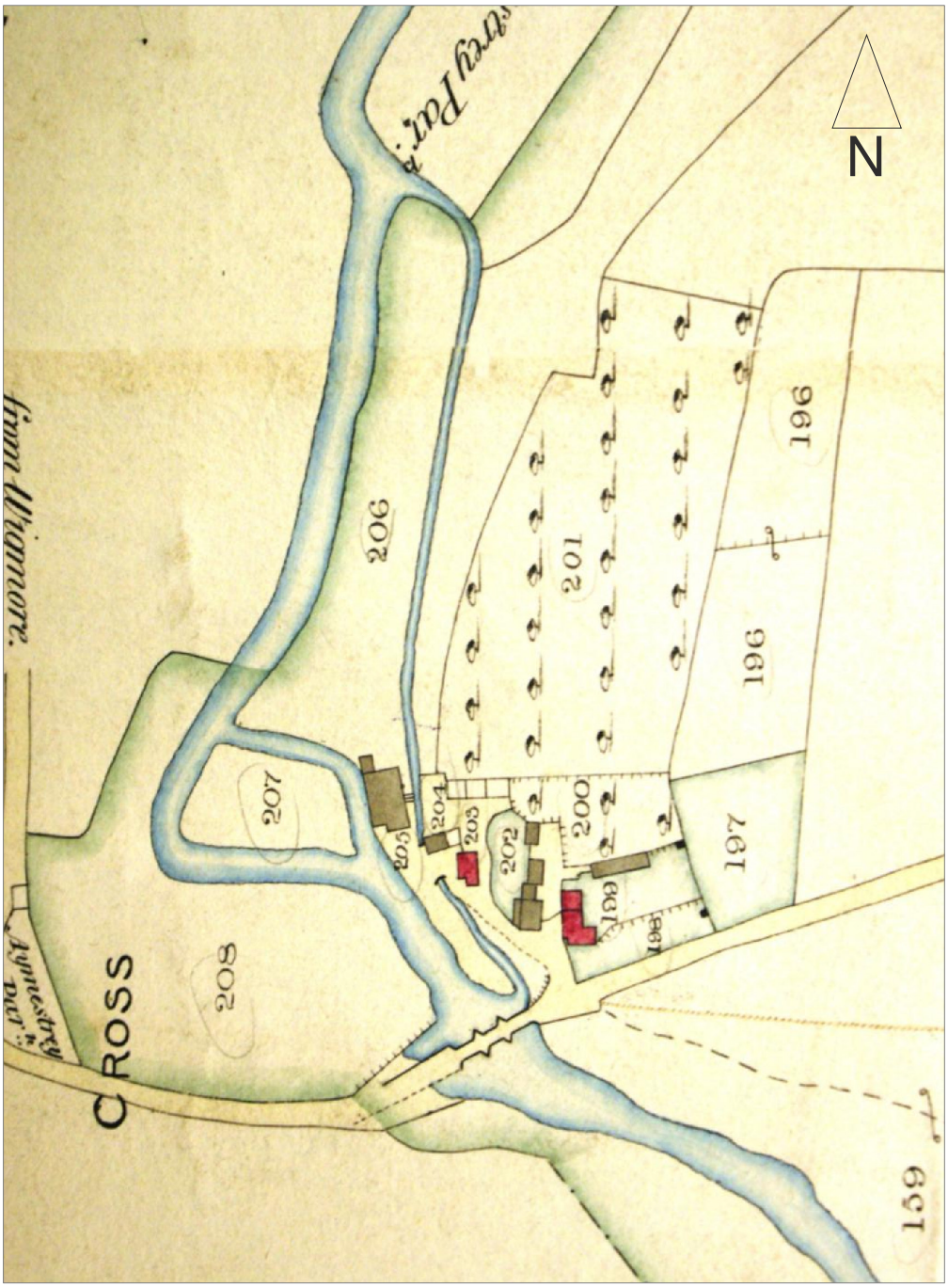
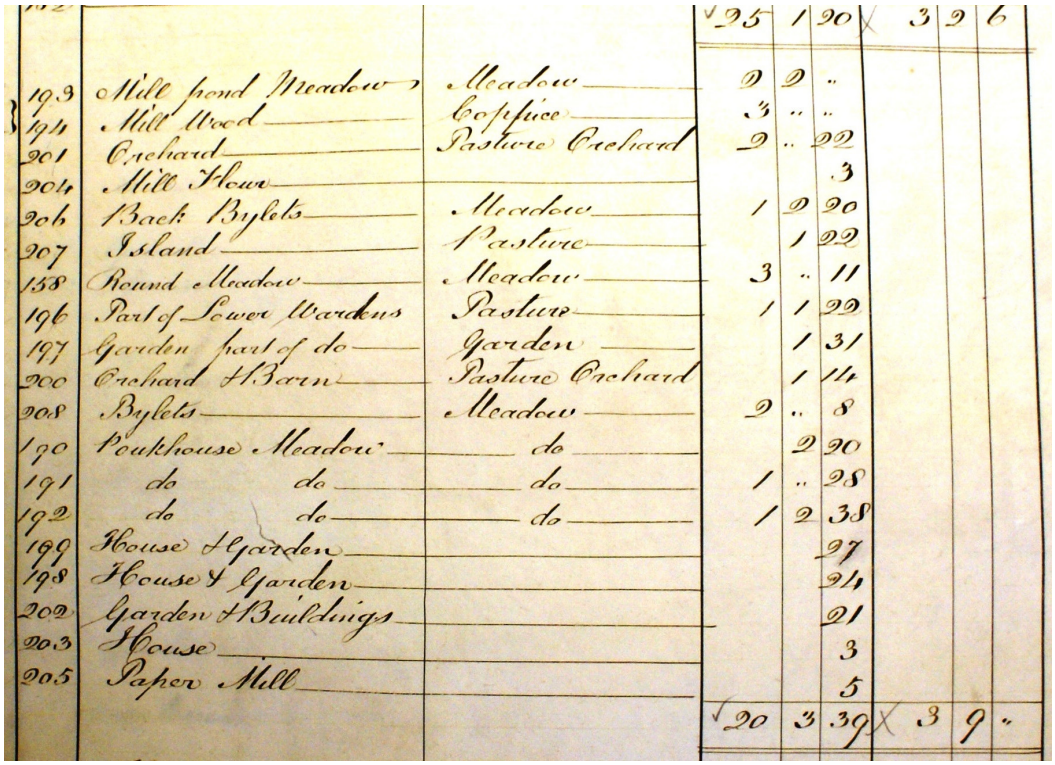


Figure 4: the leat and mill buildings on the 1840 Tithe map of Lucton. Building 204 is the present mill building and 205 the former paper mill.



			35	1	20	3	2	6
193	Mill pond Meadow	Meadow	2	2	..			
194	Mill Wood	Coppice	3	..	..			
201	Orchard	Pasture Orchard	2	..	22			
201a	Mill Flow				3			
206	Back Byletts	Meadow	1	2	20			
207	Island	Pasture		1	22			
158	Round Meadow	Meadow	3	..	11			
196	Part of Sower Wardens	Pasture	1	1	22			
197	Garden part of do	Garden		1	31			
200	Orchard & Barn	Pasture Orchard		1	14			
208	Byletts	Meadow	2	..	8			
190	Poukhouse Meadow	do		2	20			
191	do do	do	1	..	28			
192	do do	do	1	2	38			
199	House & Garden				27			
198	House & Garden				24			
202	Garden & Buildings				21			
203	House				3			
205	Paper Mill				5			
			20	3	39	3	9	..

Figure 5: the Tithe apportionment showing the land rented to Riddle Selwood Esquire

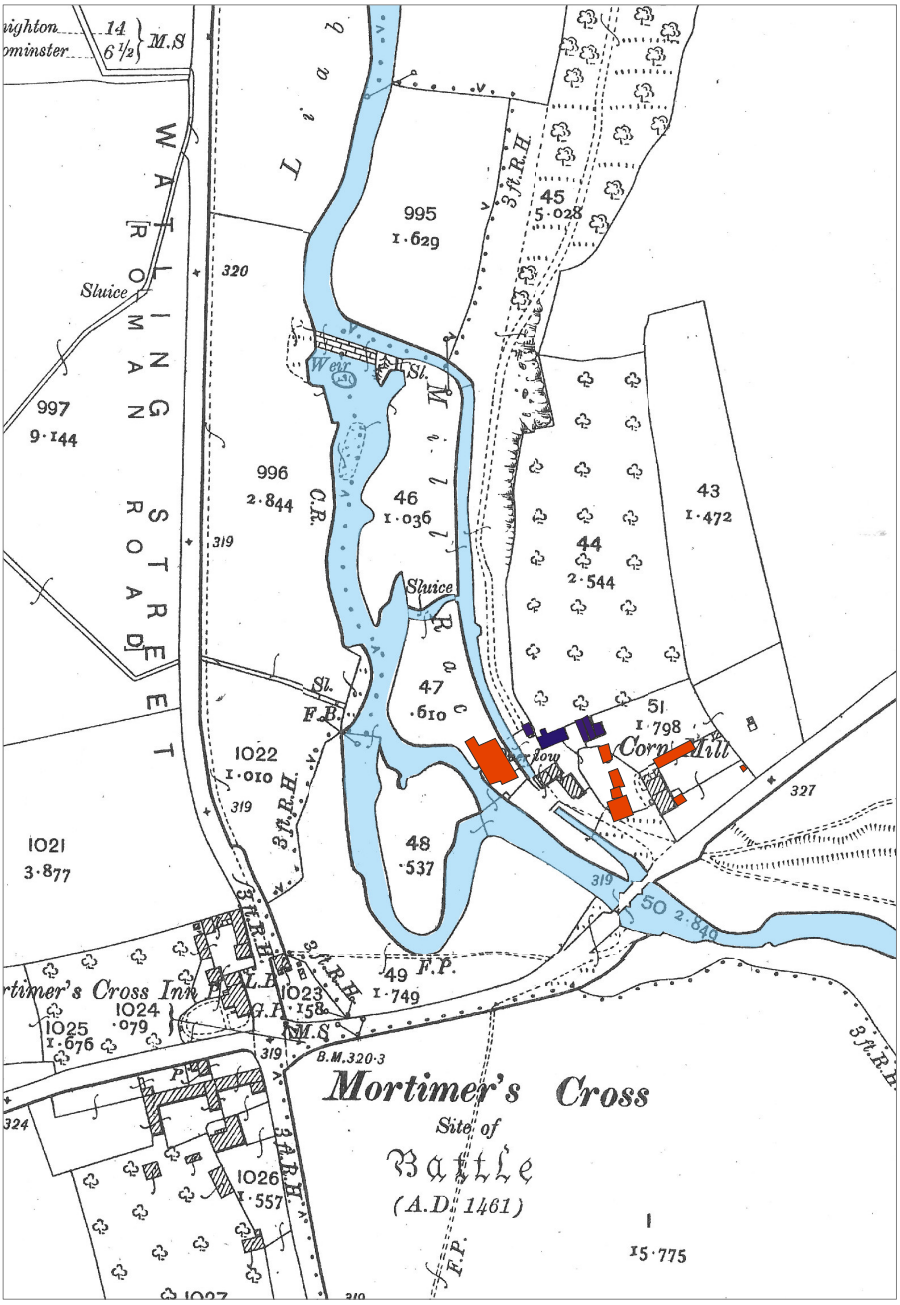


Figure 6: the 1903 Ordnance Survey Herefordshire Sheet XI 4 1:2500 (rescaled). The red buildings have disappeared since the 1840 Tithe – these include the paper mill (205) outbuildings associated with garden 202 and a barn in orchard 200.

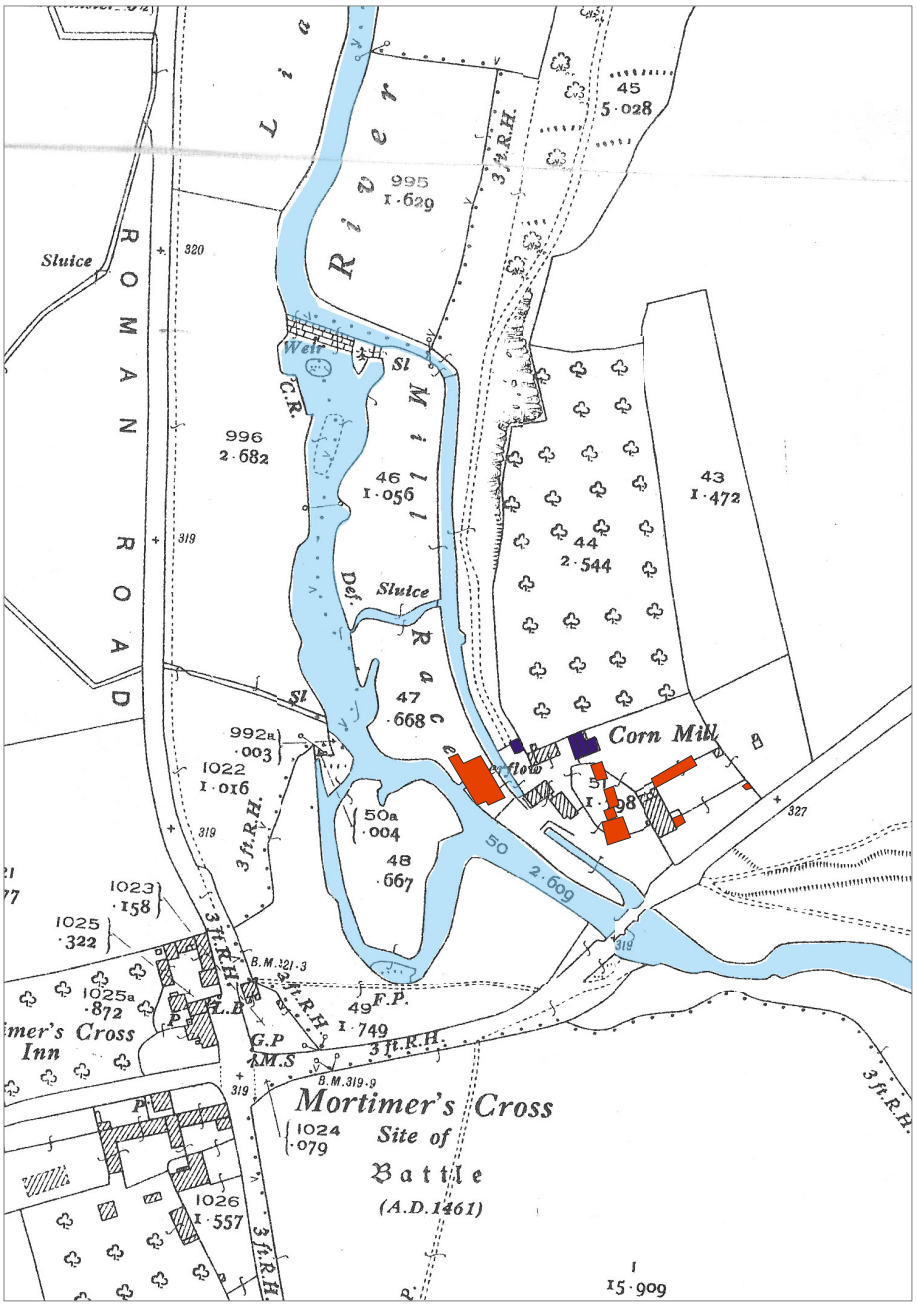


Figure 7: 1923 Ordnance Survey Herefordshire Sheet XI 4 1:2500 (rescaled)

5 Aims and objectives

The aim of the project was to record the 3 sluice gates before their repair by English Heritage. The objectives are to improve the understanding of the mill and its features and to inform the design for the repair and replacement of the timbers and the refitting of fixtures and sluice machinery.

6 Method

The Penstock and the Double sluice gates were recorded through a combination of hand drawn elevations and plans (1:10) and digital survey using a TCR 1105R EDM. The stations of the EDM were set using a Trimble RTK R6 GPS. The survey included all fixtures and fittings and notes on material used in construction. No drawings were made of the down stream single sluice gate as no repairs were necessary to the gate. It was included in the digital photographic survey.

A digital photographic survey was carried out on all three sluice gates (see Appendix 1 and CD 1 and 2).

7 Results

The sluice gates

There are 3 sluice gates associated with the post-medieval mill and two were damaged by the floods in 2007. The two damaged gates were surveyed prior to their repair.

Up stream double sluice gate

Some 200m north of the mill building a stone weir extends for *c*27m across the River Lugg, allowing water to be diverted south eastwards into the leat. Flow through the leat is regulated by a double sluice gate at the east end of the weir. The sluice has a cobbled stone base, stone wing-walls and two modern wooden slides. The upper gate consists of a double opening rising sluice gate with independently controlled ratchet lift operated gates (see Figure 8 and Figure 9).

The sluice gate spans an aperture of approximately 1.85m with the two gate openings being equal to 1.40m of the width of the sluice. The gates are constructed from vertically stacked oak boards (see thumbnail 20), keyed together with iron dowels, running in two perpendicular channels located within the main frame posts. The runner slots have galvanised 'u' section steel channel inserted into the uprights which are more importantly offset towards the flow of the water (see thumbnail 86), The gate boards are clamped between the slotted lifting handle and further strength is added through two vertical placed timbers bolted to the gate boards on the downstream face. In order to prevent damage from floating debris, an iron plate was fastened to the lower portion of the gates (see thumbnail 19).

Both gates are opened with a rack and ratchet operated lifting mechanism attached to the rear of the gate and bolted through a spreader plate to the access bridge (see thumbnail 192, 209 & 232). The lifting mechanism functions only when removing the gate from the water flow, the locking ratchet being used to keep the gate out of the water. Gravity is used to lower/close the gate.

The main outer frame posts of the sluice are set into slots within the wing walls whilst being bolted and mortared into the upright position. They are keyed into a sleeper beam below the water level which in turn is keyed into a cut slot in the base of the sluice (see thumbnail 309 & 449). The lower beam represented the oldest part of the gate. The beam

sockets and peg holes did not reflect the size and shape of the main upright posts of the current sluice gate (see thumbnail 433).

The sluice gate was in a very poor condition when surveyed and displayed many repairs to the frame work and gates with the addition of inserted upright planks on the upstream face, replacing rotten parts of the frame work. The central post had completely rotted away from the lower beam and was held in place through the addition of a secondary bolted support block on the down stream face, embedded into the bed of the sluice (see thumbnail 222 & 439).

South of the sluice the leat has straight sides and a flat bottom that is partially lined. Low mounds on either side of the leat are probably spoil from episodes of de-silting the leat.

Penstock gate

The penstock, a sluice operated from inside the mill, controlled the flow of water onto the wheel. The gate (see Figure 11) is controlled in a similar way to that of the double sluice gate through a rack and gear mechanism operated on a spindle controlled from within the mill building. The penstock consists of a sliding door, which moves over an aperture in a frame, which in turn is secured onto a wooden structure inserted before the water wheel (see Figure 11). A similar arrangement of galvanized channels were cut into the main frame support the gate and allowed free movement. Unlike the upper sluice gate the penstock gate sits at an angle of 21º off vertical on a sealing head to the flow of the race.

The wheel, which has eight wooden spokes, iron paddles, iron hub-plates and modern steel vanes, is a middle breast shot. It produces around 12 horse power (9KW) and is powered through kinetic and impulse energy from water hitting the paddles. The wheel is cast iron and was made by the Miles Factory of Leominster. The wheel drives a system of modern, bevelled iron gear wheels, the pit wheel and the wallower, which convert the power to a vertical axle. From here the power is transferred via three wheels to the vertical spindles which pass up to the first floor through the lower millstones, known as bedstones, to rotate the upper stones used for grinding.

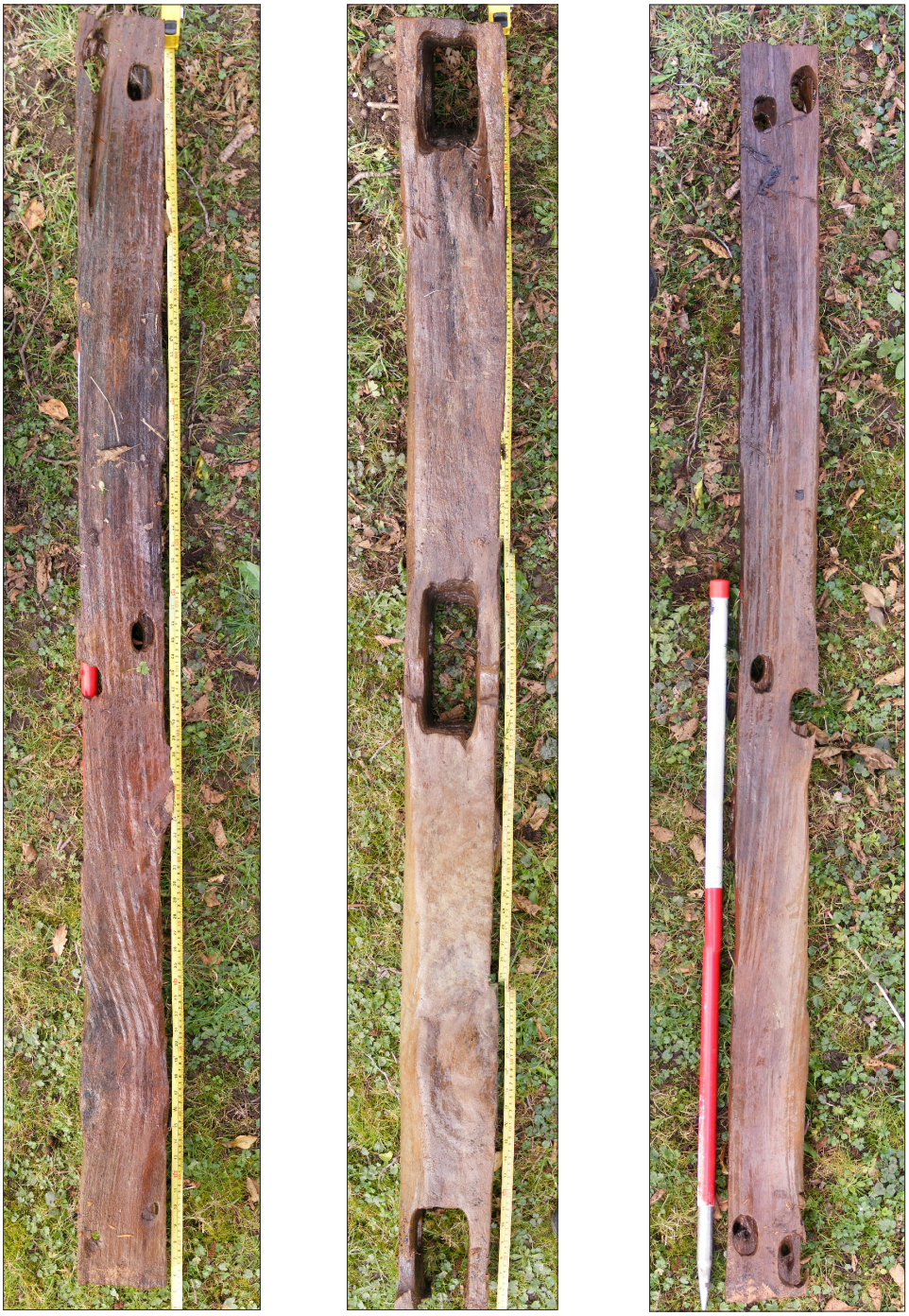


Plate 1: the original bottom beam from the double sluice gate

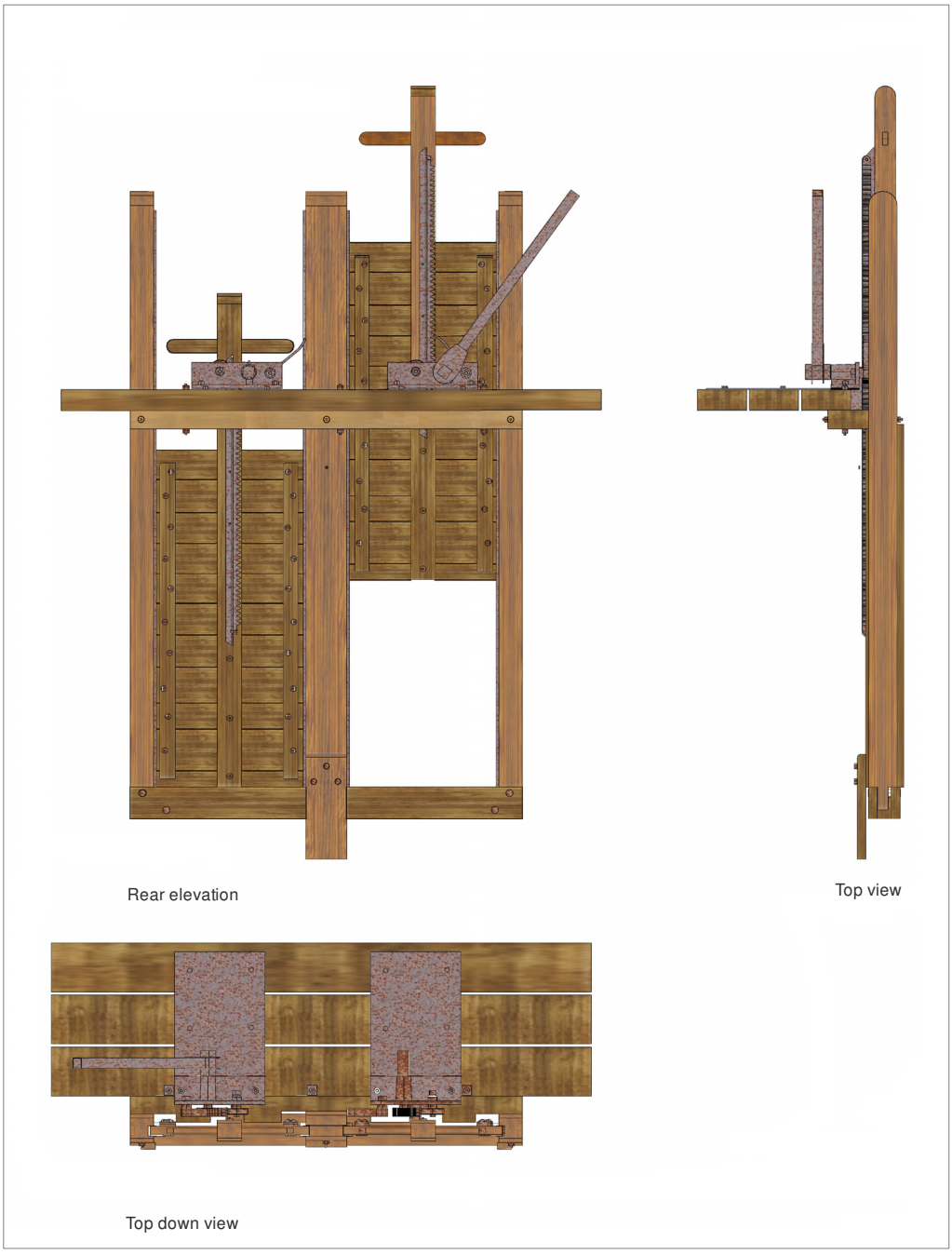


Figure 8: reconstruction of the double sluice gate

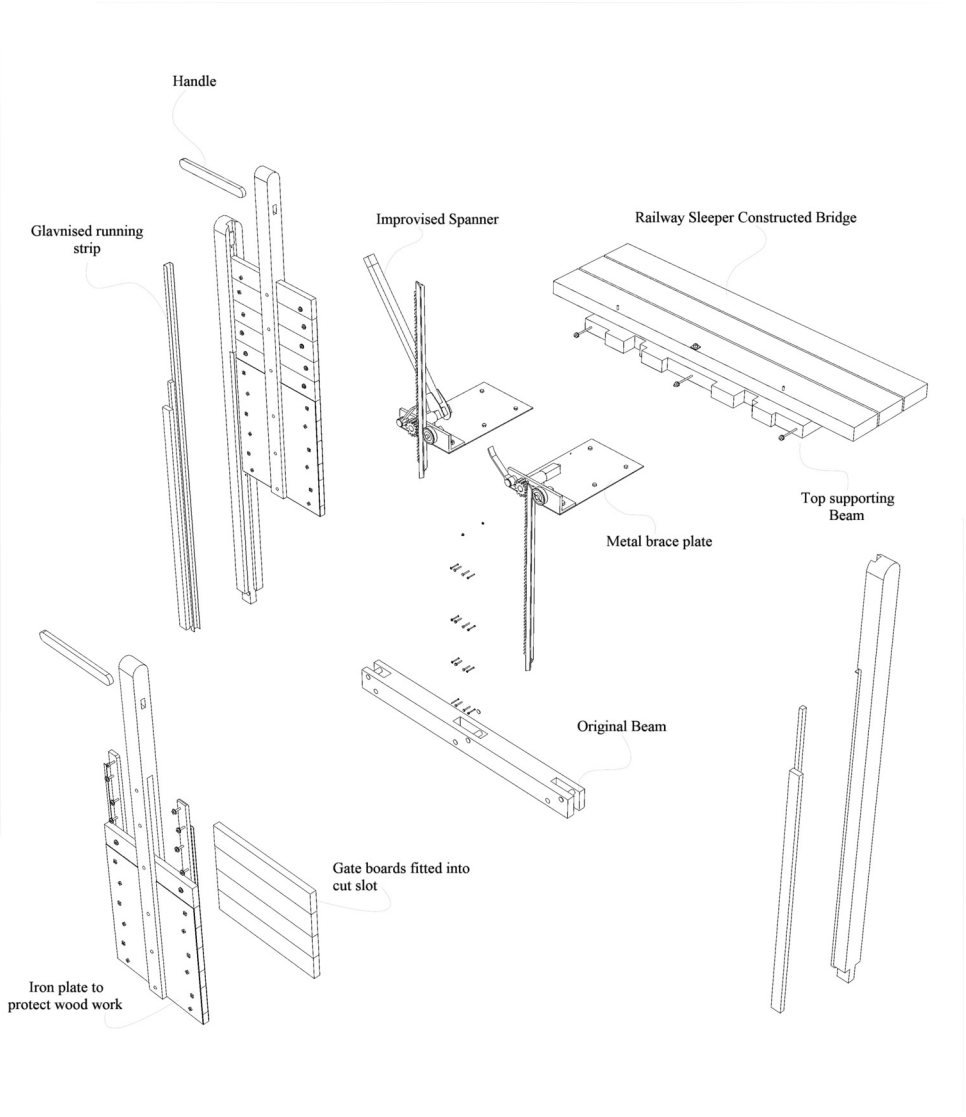


Figure 9: exploded view of the double sluice gate

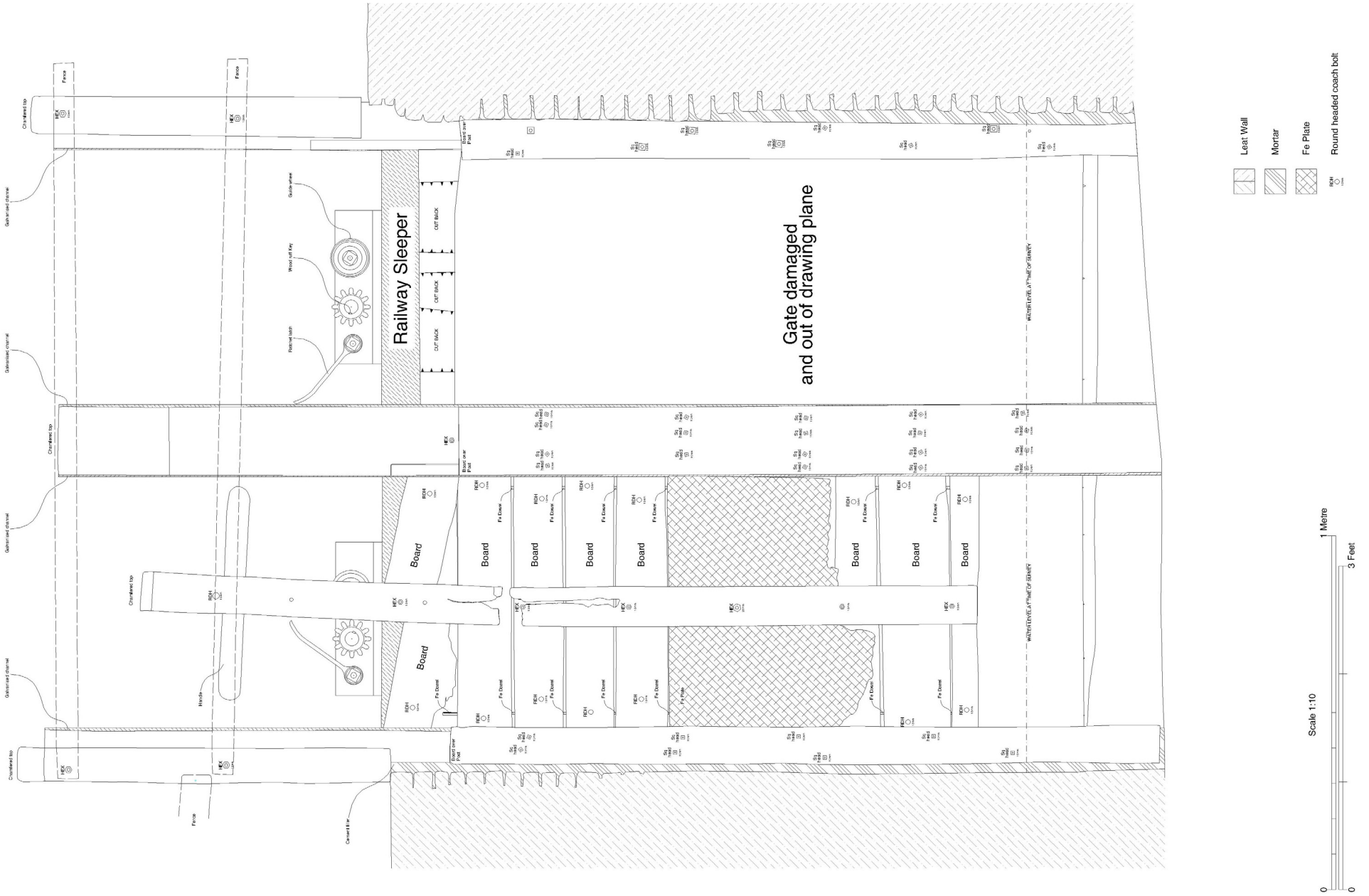


Figure 10: Up-stream elevation of the double sluice gate

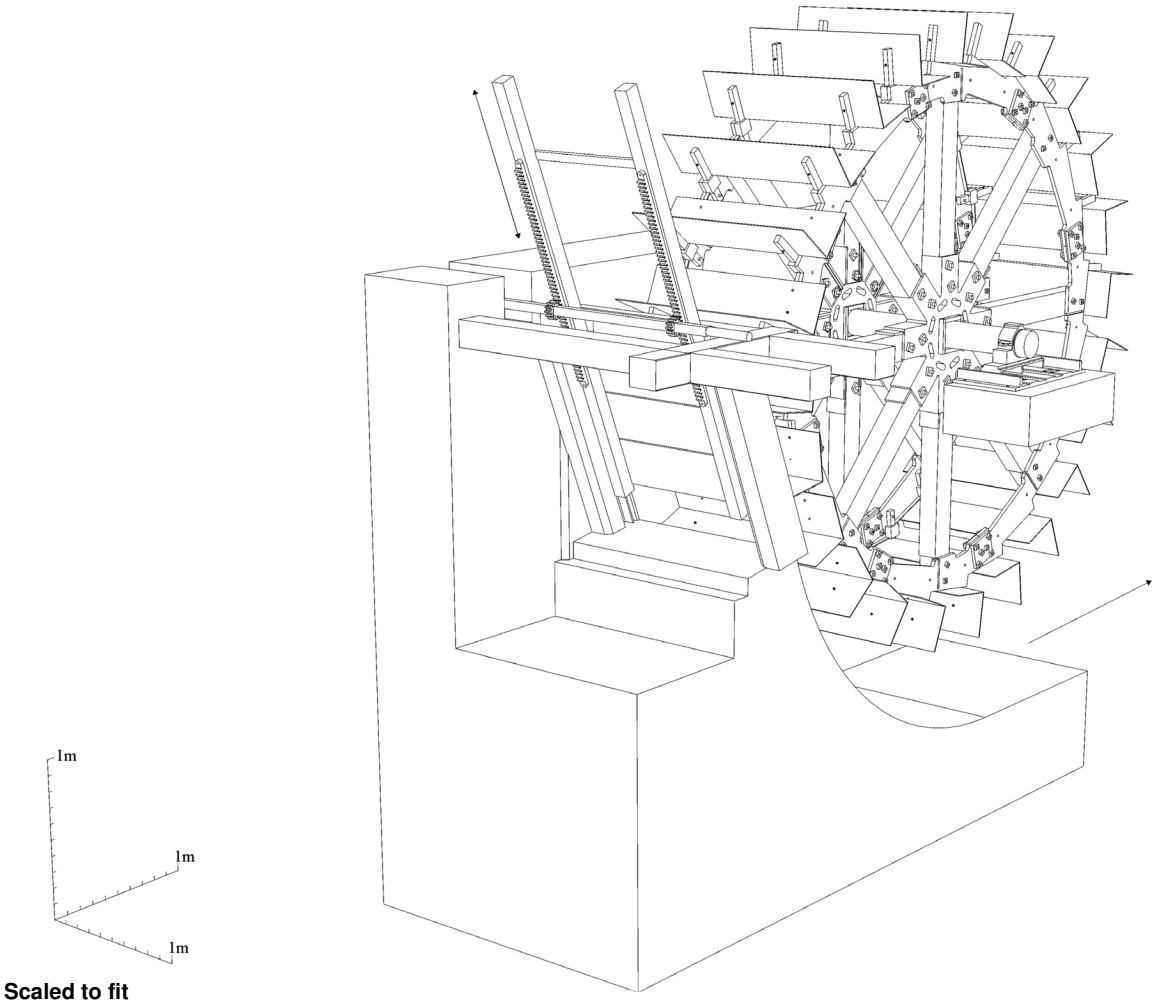


Figure 11: Isometric reconstruction of the Penstock Gate and water wheel

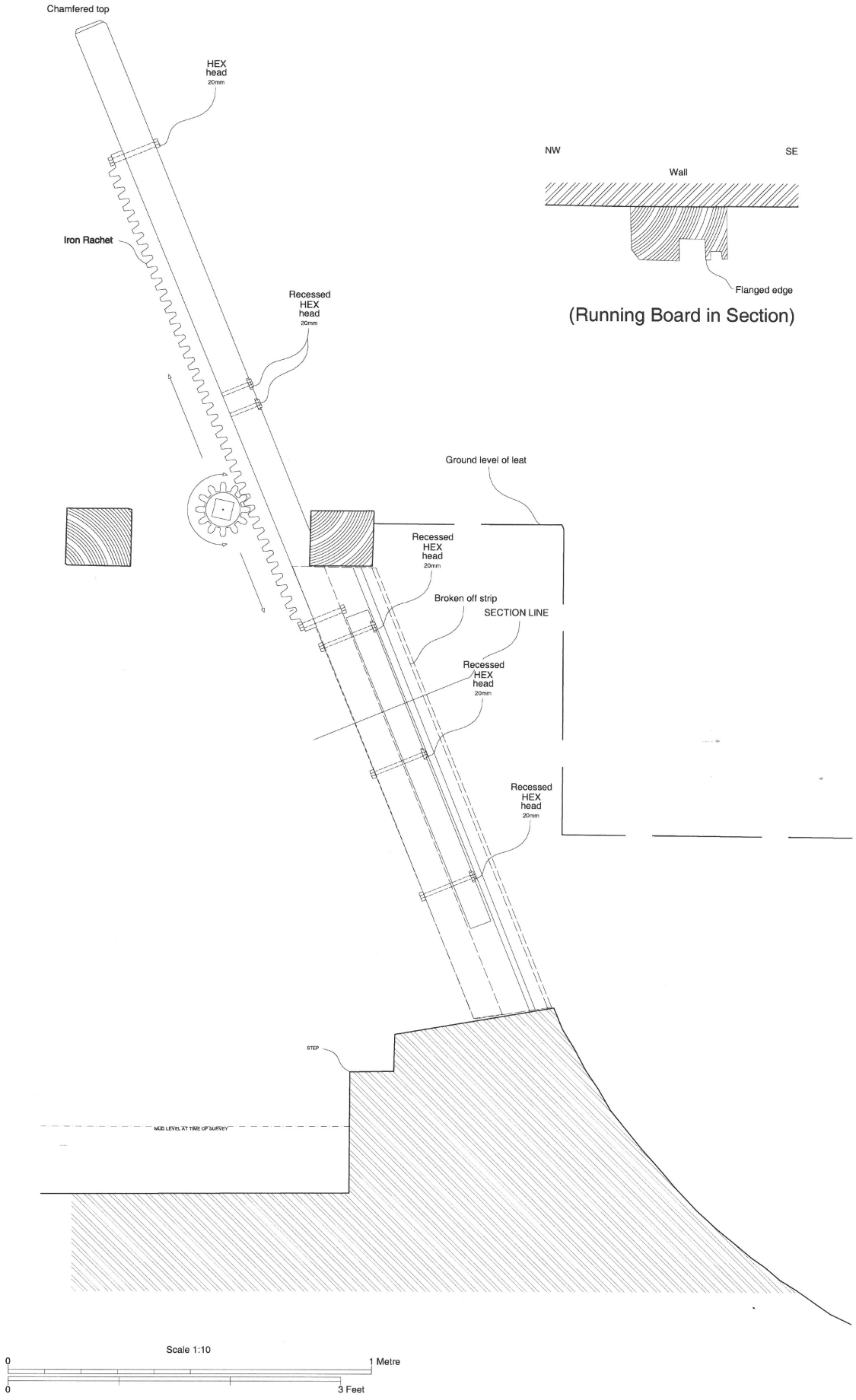


Figure 12: cross-section through the penstock gate

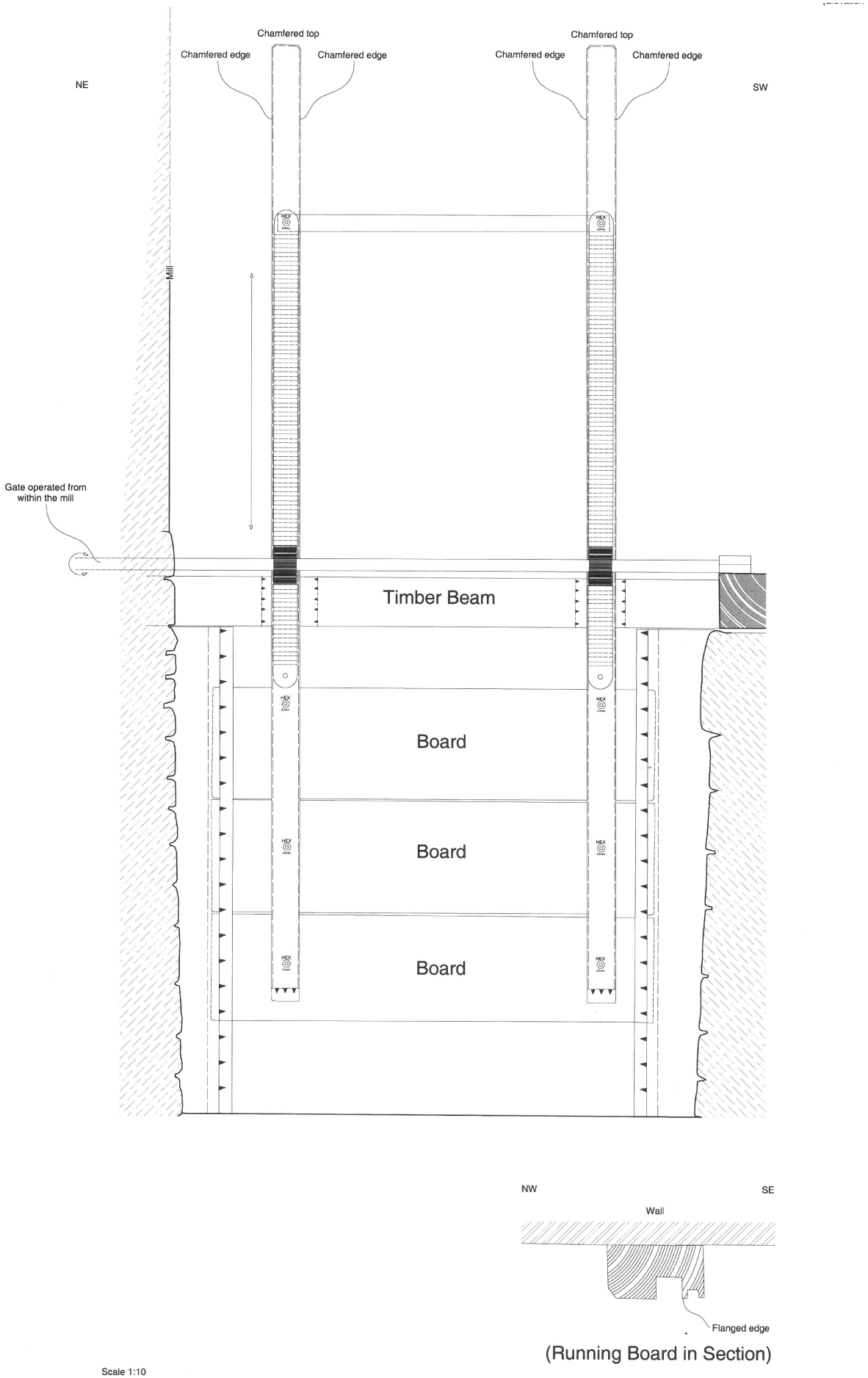


Figure 13: elevation of the Penstock Gate

8 Discussion

The 1695 survey of weirs and mills on the River Lugg recorded the rent paid by the millers for both the mill and associated lands. A comparison with the rent paid by Thomas Jones in 1760 would suggest that the collection of mills at Mortimer's Cross were fairly small. Mills in and to the north of Leominster would have not have been affected by the changes made to the river under the 1695 Navigation Act and would have been on the only working mills on the Lugg. Some of the mills in Leominster and indeed Mortimer's Cross operated well into the 20th century.

Mill	**Number and type**	**Rent of mill (per annum)**	**Rent of land (per annum)**
Hampton Mill	-	£10 – estimate only	-
Tidnor Mill	corn mill	£39	£17
Lugg Mill	-	£37	£3
Shelwick Mill	3 mills	£40	£45
King's Mill	3 mills	£30	£10
Wisteston Mill	2 corn mills	£2, 10s	£11
Friers Mill	2 mills ruinous	£10	£30
Bodenham Mill	2 mills	£11, 10s	£3, 10s
Hampton court Mills	mills	£30	-
Eaton Mills	mills	£30	£10
Mortimer's Mill	paper mill	Mill and lands in 1760 £21, 15	

Table 1: rents of mills on the lower Lugg in 1695 and at Mortimer's cross in 1760

It is not only the sluice gates that have been affected by the flow of the river. The map regression below (Figure 15) shows the changing course of the river from the 1840 Tithe map. At that time an island exists in the river between the main course and a smaller channel that may have been associated with the now vanished paper mill. By 1903 the course of the river had migrated so far south that it was in danger of washing away the east to west road that crossed the river.

At some stage after 1903 the course of the river must have been deliberately changed. The main channel was blocked and the flow diverted into the smaller channel that flowed north of the island. This change to the river has preserved the road and the bridge.

Figure 14: the mills and weirs along the River Lugg

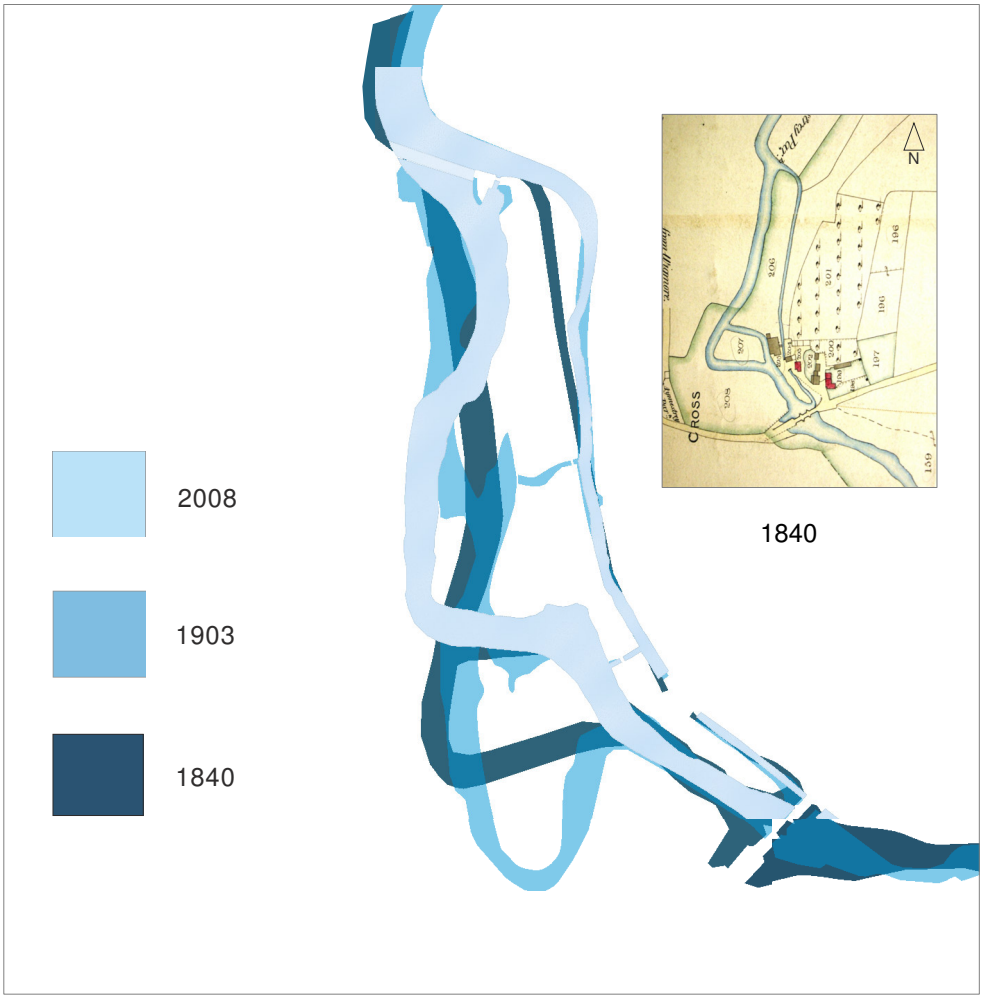


Figure 15: the changing course of the river from 1840 Tithe map

9 Conclusions

The project as a whole has allowed the survey and repair of the two sluice gates damaged by floods in 2007. This is not the first time the gates have been repaired; the only piece of original timer from the gates was the bottom beam from the Double sluice gate (see Plate 1, pg 14). The map regression of the river has shown its changing course and of possible concern to the long term management of the mill is the erosion of the river towards the top section of the leat and the double sluice gate.

10 Site archive

The site records are currently held by AIL at their offices in Hereford. Following the completion of all work on the project the archive will deposited with English heritage.

Appendix 1: photographic register - digital

Site name: Mortimer's cross Mill, SMR 45160

Site Code: ----MCM----~~Accession Number~~ ---- AI ltd Film number DIGITAL SMR 45160 (frame number)

Digital exp	Direction facing	Scale	Context/ subject /description	Date & disk Id
0.	S	×	Detail of broken gate plank and winding gear (left sluice gate upstream)	31/03/2008---(1)
1.	S	✓	Detail of wining gear (dark)	31/03/2008---(1)
2.	S	✓	Detail of top plank (broken) (left sluice, seen from upstream)	31/03/2008---(1)
3.	S	×	Detail of fence fixing and left upright	31/03/2008---(1)
4.	S	✓	Detail of fence fixing and top of left sluice gate	31/03/2008---(1)
5.	S	✓	Detail of gate planking, progression down left gate	31/03/2008----(1)
6.	S	✓	Detail of left gate planking and bolts	31/03/2008---(1)
7.	S	✓	Detail of left gate planking and bolts	31/03/2008---(1)
8.	S	✓	Detail of left gate planking and bolts (dark)	31/03/2008---(1)
9.	S	✓	Detail of left gate planking and bolts (dark)	31/03/2008---(1)
10.	S	✓	Detail of left gate iron sheet lower portion	31/03/2008---(1)
11.	S	✓	Detail of left gate iron sheet lower portion	31/03/2008---(1)
12.	S	✓	Detail of left gate iron sheet lower portion	31/03/2008---(1)
13.	S	✓	Detail of left gate planking, right side, top	31/03/2008---(1)
14.	S	✓	Detail of left gate, broken upright handle and fixing details	31/03/2008---(1)
15.	S	✓	Detail of left gate, broken upright handle and fixing details	31/03/2008---(1)
16.	S	✓	Detail of left gate planking, right side	31/03/2008---(1)
17.	S	✓	Detail of left gate iron sheet top portion	31/03/2008---(1)
18.	S	✓	Detail of left gate iron sheet middle portion	31/03/2008---(1)
19.	S	✓	Detail of left gate iron sheet lower portion	31/03/2008---(1)
20.	S	✓	Detail of left gate iron sheet lower portion and exposed planking	31/03/2008---(1)
21.	S	✓	Detail of left gate iron sheet lower portion and exposed planking	31/03/2008---(1)

22.	S	✓	Detail of central post, bolt details and inserted edge	31/03/2008---(1)
23.	S	✓	Detail of central post, bolt details and inserted edge	31/03/2008---(1)
24.	S	✓	Detail of central post, bolt details and inserted edge	31/03/2008---(1)
25.	S	✓	Detail of central post, bolt details and inserted edge	31/03/2008---(1)
26.	S	✓	Detail of central post, bolt details and inserted edge	31/03/2008---(1)
27.	S	✓	Detail of central post, bolt details and inserted edge (high water)	31/03/2008---(1)
28.	S	✓	Detail or right hand gate, handle and winding gear in background	31/03/2008---(1)
29.	S	✓	Detail or right hand gate, handle and winding gear in background	31/03/2008---(1)
30.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
31.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
32.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
33.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
34.	S	✓	Detail or right hand gate, left hand side, planking and fixings (dark)	31/03/2008---(1)
35.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
36.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
37.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
38.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
39.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
40.	S	✓	Detail or right hand gate, left hand side, planking and fixings	31/03/2008---(1)
41.	S	✓	Detail or right hand gate, right hand side, planking and fixings	31/03/2008---(1)
42.	S	✓	Detail or right hand gate, right hand side, planking and fixings	31/03/2008---(1)
43.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
44.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
45.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
46.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)

47.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
48.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
49.	S	✓	Detail or right hand gate, right hand side, right hand post	31/03/2008---(1)
50.	S	✓	Detail of right hand post, fixings	31/03/2008---(1)
51.	S	✓	Detail of right hand post, fixings	31/03/2008---(1)
52.	S	✓	Detail of right hand post, fixings	31/03/2008---(1)
53.	S	✓	Detail of right hand post, fixings	31/03/2008---(1)
54.	S	✓	Detail of central post, extra support	31/03/2008---(1)
55.	S	✓	Detail of inserted repair in central post	31/03/2008---(1)
56.	S	✓	Detail of cut out in rear deck planking for gate mechanism	31/03/2008---(1)
57.	S (down)	✓	Detail of cut out in rear deck planking for gate mechanism	31/03/2008---(1)
58.	S (down)	✓	Detail of cut out in rear deck planking for gate mechanism	31/03/2008---(1)
59.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
60.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
61.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
62.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
63.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
64.	S	✓	Detail of winding gear, left hand side	31/03/2008---(1)
65.	S	✓	Detail of cut away for gate movement	31/03/2008---(1)
66.	S	✓	Detail of cut away for gate movement	31/03/2008---(1)
67.	S	✓	Detail of rack gear, left hand gate	31/03/2008---(1)
68.	S	✓	Detail of right hand post inserted fixing	31/03/2008---(1)
69.	S	✓	Detail of right hand fence mounting and inserted repair	31/03/2008---(1)
70.	S	✓	Detail of planking damage	31/03/2008---(1)
71.	S	✓	Detail of fixing bolts	31/03/2008---(1)
72.	S	✓	Detail of fixing bolts	31/03/2008---(1)
73.	S	✓	Detail of fixing bolts Central post	31/03/2008---(1)

74.	S	✓	Detail of fixing bolts Central post	31/03/2008---(1)
75.	S	✓	Detail of fixing bolts Central post	31/03/2008---(1)
76.	S	✓	Detail of fixing bolts Gate support timber (rh side lh gate)	31/03/2008---(1)
77.	S	✓	Detail of fixing bolts left hand gate (rh side)	31/03/2008---(1)
78.	S	✓	Detail of fixing bolts left hand gate (rh side)	31/03/2008---(1)
79.	S (down)	✓	Detail of gap between winding gear and gate (rh gate)	31/03/2008---(1)
80.	W	✓	Detail of rack gear (top mount) (rh gate)	31/03/2008---(1)
81.	W	✓	Detail of rack gear (top mount) (rh gate)	31/03/2008---(1)
82.	S (down)	✓	Planking detail (rh gate)	31/03/2008---(1)
83.	S	✓	Bolt detail , fence fixing	31/03/2008---(1)
84.	W	✓	Chanel detail, fixing right hand post	31/03/2008---(1)
85.	W	✓	Chanel detail, fixing right hand post	31/03/2008---(1)
86.	(down)	✓	Top down channel cut, fixing showing offset	31/03/2008---(1)
87.	(down)	✓	Gate in sit-u, located in channel	31/03/2008---(1)
88.	(down)	✓	Detail of rot in post	31/03/2008---(1)
89.	S	✓	Detail of fracture wood of handle post left hand gate	31/03/2008---(1)
90.	S	✓	Detail of fixings	31/03/2008---(1)
91.	S	✓	Detail of fixings, Main Gate, central post	31/03/2008---(1)
92.	S	✓	Detail of fixings, Main Gate, central post	31/03/2008---(1)
93.	E	×	View of right hand gate and support post, showing fence support	31/03/2008---(1)
94.	S	×	View of break in right hand gate central post	31/03/2008---(1)
95.	S	×	View of lower sq bolt arrangement in central post	31/03/2008---(1)
96.	S	×	View of lower portion of central post, displace left hand gate	31/03/2008---(1)
97.	W	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)
98.	W	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)
99.	W	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)

100.	W	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)
101.	W	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)
102.	W (down)	✓	View of masonry/ opening of up stream sluice wall	31/03/2008---(1)
103.	W (down)	✓	View of fence mounting	31/03/2008---(1)
104.	N (down)	✓	Left hand winding gear from above	31/03/2008---(1)
105.	N (down)	✓	Left hand winding gear from above	31/03/2008---(1)
106.	N (down)	✓	Left hand winding gear from above	31/03/2008---(1)
107.	N (down)	✓	Left hand winding gear from above	31/03/2008---(1)
108.	N (down)	✓	Left hand winding gear from above	31/03/2008---(1)
109.	E (down)	✓	Left hand winding gear from above	31/03/2008---(1)
110.	E (down)	✓	Left hand winding gear from above	31/03/2008---(1)
111.	E	×	View of east wing wall, up stream	31/03/2008---(1)
112.	E	×	View of archaeological recording in progress	31/03/2008---(1)
113.	W	×	View of water flowing of weir	31/03/2008---(1)
114.	E (down)	✓	Right hand winding gear from above	31/03/2008---(1)
115.	E (down)	✓	Right hand winding gear from above	31/03/2008---(1)
116.	N (down)	✓	Right hand winding gear from above	31/03/2008---(1)
117.	N (down)	✓	Right hand winding gear from above	31/03/2008---(1)
118.	E	✓	Detail of Right hand winding	31/03/2008---(1)
119.	E	✓	Detail of Right hand winding	31/03/2008---(1)
120.	E	✓	Detail of Right hand winding	31/03/2008---(1)
121.	N	✓	Detail of right hand rack	31/03/2008---(1)
122.	N (down)	✓	Detail of right hand rack	31/03/2008---(1)
123.	N	✓	Detail of right hand rack mounting bolt	31/03/2008---(1)
124.	N	✓	Detail of right hand rack mounting	31/03/2008---(1)
125.	N	✓	Detail of right hand rack teeth	31/03/2008---(1)
126.	N	✓	Detail of right hand rack teeth and latching mechanism	31/03/2008---(1)

127.	E (down)	✓	Detail of right hand winding point	31/03/2008---(1)
128.	E (down)	✓	Detail of right hand winding gear and rack	31/03/2008---(1)
129.	E	✓	View of winding gear and gates	31/03/2008---(1)
130.	E	✓	View of bridge planking, down stream of gate	31/03/2008---(1)
131.	NW	×	General view of double sluice gate in relation to area	31/03/2008---(1)
132.	W	×	General view of double sluice gate in relation to weir	31/03/2008---(1)
133.	N	×	General view of upstream double sluice gate	31/03/2008---(1)
134.	N	×	General view of upstream double sluice gate	31/03/2008---(1)
135.	N	×	General view of upstream double sluice gate	31/03/2008---(1)
136.	N	×	General view of upstream double sluice gate	31/03/2008---(1)
137.	N	×	General view of upstream double sluice gate	31/03/2008---(1)
138.	N	×	Detail view of upstream double sluice gate	31/03/2008---(1)
139.	N	×	Detail view of upstream double sluice gate	31/03/2008---(1)
140.	N	×	Detail view of upstream double sluice gate, fence mounting	31/03/2008---(1)
141.	N	×	Detail view of upstream double sluice gate, fence mounting	31/03/2008---(1)
142.	N	×	General view of work in progress	31/03/2008---(1)
143.	N	×	Detail view of upstream double sluice gate, fence mounting	31/03/2008---(1)
144.	W	×	View of west wing wall down stream double sluice gate	31/03/2008---(1)
145.	W	×	View of west wing wall down stream double sluice gate	31/03/2008---(1)
146.	W	×	View of left hand gate from above, rope holding it in place	31/03/2008---(1)
147.	W	×	View of left hand gate from above, rope holding it in place	31/03/2008---(1)
148.	W	×	View of left hand gate from above, rope holding it in place	31/03/2008---(1)
149.	-	×	Detail of galvanized angle iron fence	31/03/2008---(1)
150.	E	×	View of fence types	31/03/2008---(1)
151.	-	✓	View of fence post	31/03/2008---(1)
152.	N	✓	Plank detail	31/03/2008---(1)

153.	N (down)	✓	Latching mechanism	31/03/2008---(1)
154.	W (down)	✓	Oiling point on winding shaft	31/03/2008---(1)
155.	W (down)	✓	Detail of winding shaft	31/03/2008---(1)
156.	W (down)	✓	Detail of mounting nut	31/03/2008---(1)
157.	W (down)	✓	Detail of mounting bolts	31/03/2008---(1)
158.	W(down)	✓	Detail of running mill wheel, spacing and plate thickness	31/03/2008---(1)
159.	W	✓	Detail of rack teeth and angled mounting bracket	31/03/2008---(1)
160.	N (down)	✓	Detail of gate winding gear	31/03/2008---(1)
161.	W	✓	Detail of rack teeth and angled mounting bracket	31/03/2008---(1)
162.	N (down)	✓	Detail of rack teeth and angled mounting bracket	31/03/2008---(1)
163.	N (down)	✓	Detail of winding gear	31/03/2008---(1)
164.	N	✓	Detail of winding gear mounting bolt	31/03/2008---(1)
165.	N	✓	Detail of winding gear mounting bolt	31/03/2008---(1)
166.	N	✓	Detail of winding gear mounting bolt	31/03/2008---(1)
167.	N	✓	Detail of winding gear mounting bolt	31/03/2008---(1)
168.	N (down)	✓	Detail of winding gear mounting bolts	31/03/2008---(1)
169.	N (down)	×	Detail of running mill wheel, spacing and plate thickness	31/03/2008---(1)
170.	W (down)	×	View of left hand winding gear	31/03/2008---(1)
171.	N (down)	×	View of right hand winding gear	31/03/2008---(1)
172.	N (down)	×	View of right hand rack gear	31/03/2008---(1)
173.	E (down)	×	View of collapsed left hand gate from up stream	31/03/2008---(1)
174.	E (down)	×	View of collapsed left hand gate from up stream	31/03/2008---(1)
175.	E (down)	×	View of collapsed left hand gate from up stream	31/03/2008---(1)
176.	E (down)	×	View of collapsed left hand gate from up stream	31/03/2008---(1)
177.	E (down)	×	Detail of lower portion of central post and lower beam	31/03/2008---(1)
178.	E (down)	×	View of collapsed left hand gate from up stream	31/03/2008---(1)

179.	E(down)	×	View down into sluice from up stream (dark)	31/03/2008---(1)
180.	E	×	View of down stream wing wall	31/03/2008---(1)
181.	E	×	View of down stream wing wall	31/03/2008---(1)
182.	E	×	View of down stream wing wall	31/03/2008---(1)
183.	N	×	View of vegetation taken from down stream of sluice gate	31/03/2008---(1)
184.	N	×	View of vegetation taken from down stream of sluice gate	31/03/2008---(1)
185.	N	×	View of vegetation taken from down stream of sluice gate	31/03/2008---(1)
186.	N	×	View of vegetation taken from down stream of sluice gate	31/03/2008---(1)
187.	E	×	View of angled support brackets attaching fence to bridge planking	31/03/2008---(1)
188.	E	×	Detailed view of wing wall	31/03/2008---(1)
189.	N	×	View of down stream fence	31/03/2008---(1)
190.	N (down)	×	View of winding gear and collapsed left hand gate	31/03/2008---(1)
191.	E (down)	×	View of winding gear and right hand gate	31/03/2008---(1)
192.	E (down)	×	View of both set of winding gear	31/03/2008---(1)
193.	E	×	View of angled bracket hold right hand rack mechanism	31/03/2008---(1)
194.	E	×	View of inserted galvanized channel in gate runners	31/03/2008---(1)
195.	N (down)	✓	Detailed view of left hand winding gear	31/03/2008---(1)
196.	N (down)	✓	Detailed view of left hand winding gear	31/03/2008---(1)
197.	N (down)	✓	Detailed view of left hand winding gear	31/03/2008---(1)
198.	N (down)	✓	Detailed view of left hand winding gear	31/03/2008---(1)
199.	N (down)	✓	Detailed view of left hand winding gear	31/03/2008---(1)
200.	N (down)	×	Detailed view of left hand winding gear	31/03/2008---(1)
201.	N (down)	×	Detailed view of left hand winding gear	31/03/2008---(1)
202.	N (down)	×	Detailed view of left hand winding gear	31/03/2008---(1)
203.	-	✓	Detailed view of rack mechanism	31/03/2008---(1)
204.	-	✓	Detailed view of rack mechanism	31/03/2008---(1)
205.	-	✓	Detailed view of rack mechanism	31/03/2008---(1)

206.	-	✓	Detailed view of rack mechanism	31/03/2008---(1)
207.	N	✓	Detailed view of rack mechanism and winding gear	31/03/2008---(1)
208.	N	✓	View of metal work	31/03/2008---(1)
209.	N (down)	×	View of left hand winding gear	31/03/2008---(1)
210.	E (down)	×	View of left hand winding gear	31/03/2008---(1)
211.	E (down)	×	View of left hand winding gear	31/03/2008---(1)
212.	N	×	View of right hand sluice gate seen from below bridge	31/03/2008---(1)
213.	N	×	View of right hand sluice gate seen from below bridge	31/03/2008---(1)
214.	N	×	View of right hand sluice gate seen from below bridge	31/03/2008---(1)
215.	N	×	View of right hand rack seen from below bridge	31/03/2008---(1)
216.	N	×	View of right hand rack seen from below bridge	31/03/2008---(1)
217.	N	×	View of right hand rack seen from below bridge	31/03/2008---(1)
218.	N	×	View of right hand rack seen from below bridge	31/03/2008---(1)
219.	N	×	View beneath bridge of front cut plank	31/03/2008---(1)
220.	N	×	View beneath bridge of front cut plank	31/03/2008---(1)
221.	N	×	View of lower right hand post seen from upstream	31/03/2008---(1)
222.	N	×	View of lower central post and support bracket seen from upstream	31/03/2008---(1)
223.	N	×	Inserted iron runner, remains in left hand collapsed gate	31/03/2008---(1)
224.	N	×	Inserted iron runner, remains in left hand collapsed gate	31/03/2008---(1)
225.	N	×	Detail of broken woodwork in left hand gate	31/03/2008---(1)
226.	N	×	Detail of broken woodwork in left hand gate	31/03/2008---(1)
227.	N (down)	×	Top down view of inserted support post	31/03/2008---(1)
228.	W	×	View of collapsing wing wall	31/03/2008---(1)
229.	W	×	View of collapsing wing wall	31/03/2008---(1)
230.	E	×	General view of double slice gate	31/03/2008---(1)
231.	E	×	General view of double slice gate	31/03/2008---(1)
232.	S	✓	Detailed view of right hand winding gear and	31/03/2008---(1)

			rack mechanism	
233.	S	✓	Detailed view of right hand winding gear and rack mechanism	31/03/2008---(1)
234.	(down)	×	Top down view of right hand gate handle	31/03/2008---(1)
235.	(down)	×	Top down view of right hand gate	31/03/2008---(1)
236.	N (down)	×	Top down view of right hand gate	31/03/2008---(1)
237.	N (down)	×	Top down view of galvanized gate runner channel	31/03/2008---(1)
238.	N(down)	×	Top down view of galvanized gate runner channel	31/03/2008---(1)
239.	N(down)	×	Top down view of right hand runner channel and mechanism	31/03/2008---(1)
240.	N (down)	×	Top down view of left hand runner channel and mechanism	31/03/2008---(1)
241.	N (down)	×	Top down view of left hand mechanism	31/03/2008---(1)
242.	N (down)	×	Top down view of left hand runner channel and mechanism	31/03/2008---(1)
243.	N (down)	×	View of gate in runner channel	31/03/2008---(1)
244.	N (down)	×	View of gate in runner channel	31/03/2008---(1)
245.	N (down)	×	View of gate in runner channel	31/03/2008---(1)
246.	N (down)	×	View of gate in runner channel	31/03/2008---(1)
247.	-	×	Rack mounting point collapsed left hand gate	31/03/2008---(1)
248.	W	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
249.	W	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
250.	E	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
251.	E	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
252.	E	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
253.	E	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
254.	(down)	×	View of lower beam (dark)	31/03/2008---(1)
255.	(down)	×	View of lower beam (dark)	31/03/2008---(1)
256.	(down)	×	View of lower beam (dark)	31/03/2008---(1)
257.	(down)	×	View of lower beam (dark)	31/03/2008---(1)

258.	(down)	×	View of lower beam (dark)	31/03/2008---(1)
259.	S	×	View of sluice, after double gate	31/03/2008---(1)
260.	S	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
261.	S	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
262.	S	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
263.	S	×	General view of double sluice in relation to surrounding	31/03/2008---(1)
264.	W	×	General view of ongoing works	31/03/2008---(1)
265.	W	×	General view of ongoing works	31/03/2008---(1)
266.	S	×	View of down stream flow	31/03/2008---(1)
267.	N	×	View of down stream flow	31/03/2008---(1)
268.	N	×	View of down stream flow and gates	31/03/2008---(1)
269.	N	×	View of down stream flow and gates	31/03/2008---(1)
270.	N	×	View of down stream flow and gates	31/03/2008---(1)
271.	N	×	View of down stream flow and gates	31/03/2008---(1)
272.	N	×	View of down stream flow and gates	31/03/2008---(1)
273.	N	×	View of down stream flow and gates	31/03/2008---(1)
274.	N	×	View of down stream flow and gates	31/03/2008---(1)
275.	N	×	View of step in stone work	31/03/2008---(1)
276.	W	×	View of west wing wall, down stream	31/03/2008---(1)
277.	W	×	View of west wing wall, down stream	31/03/2008---(1)
278.	W	×	View of west wing wall, down stream	31/03/2008---(1)
279.	W	×	View of west wing wall, down stream	31/03/2008---(1)
280.	W	×	View of west wing wall, down stream	31/03/2008---(1)
281.	W	×	View of west wing wall, down stream	31/03/2008---(1)
282.	S	×	General view of sluice flowing towards mill wheel,	31/03/2008---(1)
283.	S	×	General view of sluice flowing towards mill wheel,	31/03/2008---(1)
284.	S	×	General view of sluice flowing towards mill wheel,	31/03/2008---(1)

285.	S	×	View of lower beam below water and joint into right hand upright	31/03/2008---(1)
286.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
287.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
288.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
289.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
290.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
291.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
292.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
293.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
294.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
295.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
296.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
297.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
298.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
299.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
300.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
301.	S	×	View of lower beam below water and joint into uprights	31/03/2008---(1)
302.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
303.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
304.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
305.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
306.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
307.	-	✓	Detail of improvised winding spanner / handle	31/03/2008---(1)
308.	N	✓	View of lower beam and joint into uprights	31/03/2008---(1)
309.	N	✓	View of lower beam and joint into uprights	31/03/2008---(1)
310.	N	✓	View of lower beam and joint into uprights	31/03/2008---(1)

311.	N	✓	View of lower beam and joint into uprights	31/03/2008---(1)
312.	N	✓	View of lower beam and joint into uprights	31/03/2008---(1)
313.	N	✓	View of collapsed gate	31/03/2008---(1)
314.	N	✓	View of sluice gates from down stream	31/03/2008---(1)
315.	N	✓	View of sluice gates from down stream	31/03/2008---(1)
316.	N	✓	View of sluice gates from down stream	31/03/2008---(1)
317.	N	×	General view of stone lined channel down stream of gates	31/03/2008---(1)
318.	N	×	General view of stone lined channel down stream of gates	31/03/2008---(1)
319.	E	✓	Detail of galvanized angle bracket	31/03/2008---(1)
320.	N	✓	Detail of gate post left hand side	31/03/2008---(1)
321.	N	✓	Detail of gate post left hand side	31/03/2008---(1)
322.	N	✓	Detail of gate post left hand side	31/03/2008---(1)
323.	N	✓	Detail of gate post left hand side	31/03/2008---(1)
324.	N	✓	Detail of gate post left hand side	31/03/2008---(1)
325.	N	✓	Detail of central post from down stream	31/03/2008---(1)
326.	N	✓	Detail of iron running strip	31/03/2008---(1)
327.	N	✓	Detail of iron running strip	31/03/2008---(1)
328.	N	✓	Detail of iron running strip	31/03/2008---(1)
329.	S	✓	Detail of stone lined sluice channel down stream	31/03/2008---(1)
330.	S	✓	Detail of stone lined sluice channel down stream	31/03/2008---(1)
331.	S	✓	Detail of stone lined sluice channel down stream	31/03/2008---(1)
332.	S	✓	Detail of stone lined sluice channel down stream	31/03/2008---(1)
333.	N	×	Detail of east wing wall	31/03/2008---(1)
334.	W	×	General view of weir	31/03/2008---(1)
335.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
336.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
337.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)

338.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
339.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
340.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
341.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
342.	S	✓	View of lower beam and joint into uprights	31/03/2008---(1)
343.	S	×	View of lower beam and joint into uprights	31/03/2008---(1)
344.	S	×	View of lower beam and joint into uprights	31/03/2008---(1)
345.	S	×	View of lower beam and joint into uprights	31/03/2008---(1)
346.	S	×	View of lower beam and joint into uprights	31/03/2008---(1)
347.	N	×	View upstream of lower beam	31/03/2008---(1)
348.	N	×	View upstream of lower beam	31/03/2008---(1)
349.	N	×	View upstream of lower beam	31/03/2008---(1)
350.	N	×	View upstream of lower beam	31/03/2008---(1)
351.	S	×	General view of single sluice gate	31/03/2008---(1)
352.	W	×	General view of single sluice gate	31/03/2008---(1)
353.	W	×	General view of single sluice gate showing flow	31/03/2008---(1)
354.	S	×	General view of penstock gate and mill wheel,	31/03/2008---(1)
355.	S	×	General view of penstock gate and mill wheel,	31/03/2008---(1)
356.	W	×	General view of penstock gate and mill wheel,	31/03/2008---(1)
357.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
358.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
359.	W	×	General view of mill wheel, bearing housing	31/03/2008---(1)
360.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
361.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
362.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
363.	N	×	General view of mill wheel, iron work	31/03/2008---(1)
364.	S	×	General view of mill wheel, iron work	31/03/2008---(1)

365.	S	×	General view of stone work below mill wheel,	31/03/2008---(1)
366.	W	×	General view of mill wheel, iron work	31/03/2008---(1)
367.	N	×	General view of mill wheel, iron work	31/03/2008---(1)
368.	N	×	General view of mill wheel, bearing housing	31/03/2008---(1)
369.	N	×	General view of single sluice gate	31/03/2008---(1)
370.	W	✓		31/03/2008---(1)
371.	N	✓	General view of single sluice gate	31/03/2008---(1)
372.	N	✓	Detail view of single sluice gate winding mechanism	31/03/2008---(1)
373.	S	✓	Detail view of single sluice gate winding mechanism	31/03/2008---(1)
374.	S	✓	Detail view of single sluice gate winding mechanism	31/03/2008---(1)
375.	W	✓	Detail view of single sluice gate	31/03/2008---(1)
376.	W	✓	General view of mill wheel, iron work	31/03/2008---(1)
377.	W	✓	General view of mill wheel, iron work	31/03/2008---(1)
378.	W	✓	General view of mill wheel, iron work	31/03/2008---(1)
379.	N	×	View of weir from down stream	31/03/2008---(1)
380.	W	×	View of double sluice gate, working progress	31/03/2008---(1)
381.	N	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)
382.	N	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)
383.	N	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)
384.	W	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)
385.	W	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)
386.	W	×	View of double sluice gate, iron protection bars, upstream	31/03/2008---(1)

Photographs taken during removal of double sluice gate

387.	-	×	Upright post detail and winding gear	31/03/2008---(1)
388.	-	×	Upright post detail and winding gear	31/03/2008---(1)
389.	-	×	Upright post detail and winding gear	31/03/2008---(1)

390.	E	×	View of east approach to double sluice gate	31/03/2008---(1)
391.	E	×	View of east approach to double sluice gate	31/03/2008---(1)
392.	S	×	View of sluice down stream of double slice gate	31/03/2008---(1)
393.	-	✓	Detail of the rack gear	31/03/2008---(1)
394.	-	✓	Detail of the rack gear	31/03/2008---(1)
395.	-	✓	Detail of the rack gear	31/03/2008---(1)
396.	-	✓	Detail of the rack gear	31/03/2008---(1)
397.	-	✓	Detail of the rack gear	31/03/2008---(1)
398.	-	✓	Detail of the rack gear	31/03/2008---(1)
399.	-	✓	Detail of the rack gear	31/03/2008---(1)
400.	-	✓	Detail of the rack gear	31/03/2008---(1)
401.	-	✓	Detail of the rack gear	31/03/2008---(1)
402.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
403.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
404.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
405.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
406.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
407.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
408.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
409.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
410.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
411.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
412.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
413.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
414.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
415.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)
416.	-	✓	Detail of the slice gate during removal	31/03/2008---(1)

417.	-	✓	Detail of the rack gear	31/03/2008---(1)
418.	-	✓	Detail of the rack gear	31/03/2008---(1)
419.	-	✓	Detail of the rack gear	31/03/2008---(1)
420.	-	✓	Detail of the rack gear	31/03/2008---(1)
421.	-	✓	Detail of the rack gear	31/03/2008---(1)
422.	-	✓	Detail of the rack gear	31/03/2008---(1)
423.	-	✓	Detail of winding mechanism	31/03/2008---(1)
424.	-	✓	Detail of right hand gate handle	31/03/2008---(1)
425.	-	✓	Detail of right hand gate handle	31/03/2008---(1)
426.	-	✓	Detail of right hand gate handle	31/03/2008---(1)
427.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
428.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
429.	-	✓	View of lower joint of upright post	31/03/2008---(1)
430.	-	✓	View of lower joint of upright post	31/03/2008---(1)
431.	-	✓	View of lower joint of upright post	31/03/2008---(1)
432.	-	✓	View of lower joint of upright post	31/03/2008---(1)
433.	-	✓	View of lower joint of upright post	31/03/2008---(1)
434.	-	✓	View of lower joint of upright post	31/03/2008---(1)
435.	-	✓	View of lower joint of upright post	31/03/2008---(1)
436.	-	✓	View of lower joint of upright post	31/03/2008---(1)
437.	-	✓	View of upright post channel	31/03/2008---(1)
438.	-	✓	View of upright post channel and lower inserted support beam	31/03/2008---(1)
439.	-	✓	View of upright post channel and lower inserted support beam	31/03/2008---(1)
440.	-	✓	View of upright post channel and lower inserted support beam	31/03/2008---(1)
441.	-	✓	Gate detail	31/03/2008---(1)
442.	-	✓	Gate detail	31/03/2008---(1)
443.	-	×	General view of gate removal work ongoing	31/03/2008---(1)

444.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
445.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
446.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
447.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
448.	-	×	General view of gate removal work ongoing	31/03/2008---(1)
449.	-	×	View of lower beam during removal	31/03/2008---(1)
450.	-	×	View of lower beam during removal	31/03/2008---(1)
451.	-	×	View of lower beam during removal	31/03/2008---(2)
452.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
453.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
454.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
455.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
456.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
457.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
458.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
459.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
460.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
461.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
462.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
463.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
464.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
465.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
466.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
467.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
468.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
469.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
470.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)

471.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
472.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
473.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
474.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
475.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
476.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
477.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
478.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
479.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
480.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
481.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
482.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
483.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
484.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
485.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
486.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
487.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
488.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
489.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
490.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
491.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
492.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
493.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
494.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
495.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
496.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
497.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)

498.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
499.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
500.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
501.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
502.	-	✓	Composite detail of lower cill beam joints	31/03/2008---(2)
503.	-	✓	Composite detail of lower upright cilll beam joint	31/03/2008---(2)
504.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
505.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
506.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
507.	-	×	General view of gate removal work ongoing	31/03/2008---(2)
508.	-	×	General view of gate removal work ongoing	31/03/2008---(2)

Photographs taken during the removal of the penstock gate

509.	S	×	Detail of the rack gear on the penstock gate	31/03/2008---(2)
510.	S	×	Detail of the gate support board, penstock gate	31/03/2008---(2)
511.	S	×	Detail of the gate support board, penstock gate	31/03/2008---(2)
512.	S	×	Detail of the gate support board, penstock gate	31/03/2008---(2)
513.	S	×	Detail of the gate support board, penstock gate	31/03/2008---(2)
514.	S	×	Detail of the rack gear on the penstock gate	31/03/2008---(2)
515.	E	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
516.	N	×	Detail of the log trap, penstock gate	31/03/2008---(2)
517.	E	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
518.	W	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
519.	E	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
520.	E	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
521.	W	✓	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
522.	W	✓	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)

523.	E (down)	✓	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
524.	E	✓	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
525.	E	✓	Detail of the penstock gate	31/03/2008---(2)
526.	E (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
527.	S(down)	✓	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
528.	E(down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
529.	W	✓	Detail of the penstock gate	31/03/2008---(2)
530.	W	✓	Detail of the penstock gate	31/03/2008---(2)
531.	W	✓	Detail of the penstock gate	31/03/2008---(2)
532.	W	✓	General view of mill wheel, iron work	31/03/2008---(2)
533.	N	✓	General view of mill wheel, iron work	31/03/2008---(2)
534.	N	✓	General view of mill wheel, iron work	31/03/2008---(2)
535.	S	✓	General view of mill wheel, iron work and main bearing housing	31/03/2008---(2)
536.	S	✓	General view of mill wheel, iron work and main bearing housing	31/03/2008---(2)
537.	S	×	General of the arch stone work above the tail race	31/03/2008---(2)
538.	N	✓	General view of the on going works	31/03/2008---(2)
539.	W	×	General view of mill wheel, iron work	31/03/2008---(2)
540.	W	×	General view of mill wheel, iron work, showing internal gear	31/03/2008---(2)
541.	W	✓	General view of mill wheel, iron work	31/03/2008---(2)
542.	N	✓	General view of mill wheel, iron work	31/03/2008---(2)
543.	N	✓	General view of mill wheel, iron work	31/03/2008---(2)
544.	N	✓	General view of mill wheel, iron work	31/03/2008---(2)
545.	S	×	Detail view of the mill wheel, main bearing housing	31/03/2008---(2)
546.	S	×	Detail view of the mill wheel, main bearing housing	31/03/2008---(2)
547.	N (down)	×	Detail view of the mill wheel, main bearing housing	31/03/2008---(2)
548.	S (down)	×	Detail view of the mill wheel, main bearing housing	31/03/2008---(2)

549.	W	×	General view of mill wheel, iron work	31/03/2008---(2)
550.	W	×	General view of mill wheel, iron work	31/03/2008---(2)
551.	W	×	General view of mill wheel, iron work	31/03/2008---(2)
552.	N	×	Penstock gate lower wood work	31/03/2008---(2)
553.	N	×	Penstock gate lower wood work	31/03/2008---(2)
554.	N	×	Penstock gate lower wood work	31/03/2008---(2)
555.	N	×	Penstock gate lower wood work	31/03/2008---(2)
556.	W (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
557.	W (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
558.	W (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
559.	N	×	View of the log trap, penstock gate	31/03/2008---(2)
560.	S	×	General view of mill wheel, iron work	31/03/2008---(2)
561.	S	×	General view of mill wheel, iron work	31/03/2008---(2)
562.	S	×	General view of mill wheel, iron work	31/03/2008---(2)
563.	N	×	Penstock gate lower wood work	31/03/2008---(2)
564.	N	×	Penstock gate lower wood work	31/03/2008---(2)
565.	N	×	Penstock gate lower wood work	31/03/2008---(2)
566.	N	×	Penstock gate lower wood work	31/03/2008---(2)
567.	N	×	Penstock gate lower wood work	31/03/2008---(2)
568.	W (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
569.	W (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
570.	S (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
571.	S (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
572.	S (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
573.	S(down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
574.	S (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)

575.	S (down)	×	Detail of the rack gear and opening mechanism, penstock gate	31/03/2008---(2)
576.	S	×	General view of mill wheel, iron work	31/03/2008---(2)

Table 2: digital photographic register – the corresponding digital images are shown on the following pages


SMR45160 (0)


SMR45160 (1)


SMR45160 (2)


SMR45160 (3)

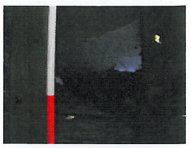

SMR45160 (4)


SMR45160 (5)


SMR45160 (6)


SMR45160 (7)


SMR45160 (8)


SMR45160 (9)


SMR45160 (10)


SMR45160 (11)


SMR45160 (12)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SMR45160 (14)


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SMR45160 (16)


SMR45160 (17)


SMR45160 (18)


SMR45160 (19)


SMR45160 (20)


SMR45160 (21)


SMR45160 (22)


SMR45160 (23)


SMR45160 (24)


SMR45160 (25)


SMR45160 (26)


SMR45160 (27)


SMR45160 (28)


SMR45160 (29)


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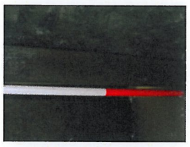
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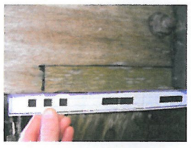
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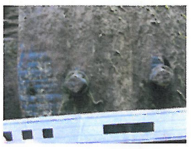
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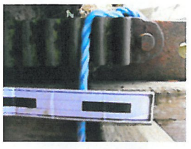
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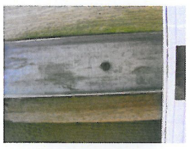
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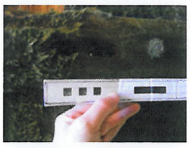
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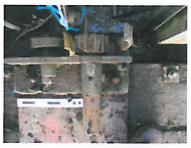
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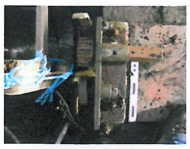
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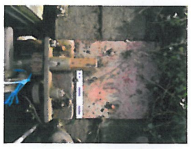
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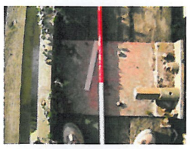
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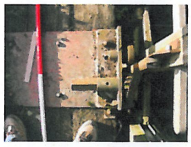
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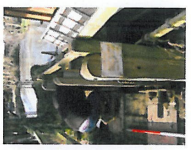
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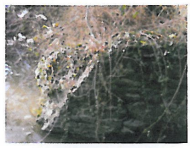
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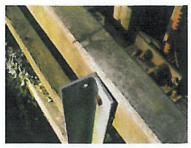
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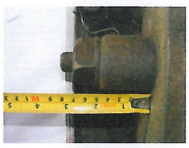
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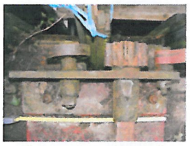
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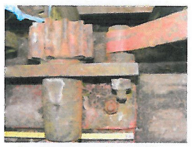
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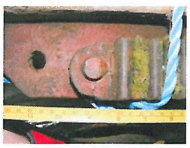
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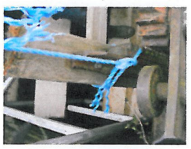
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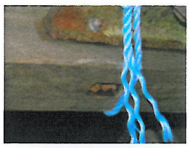
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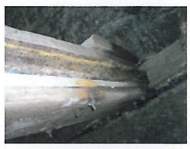
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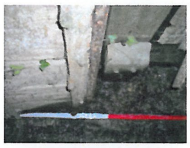
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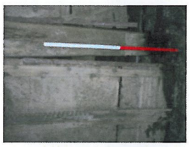
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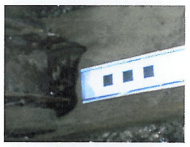
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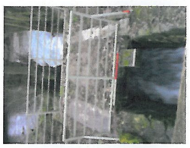
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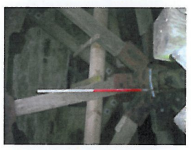
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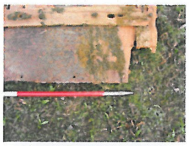
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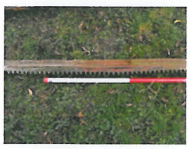
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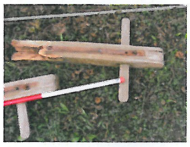
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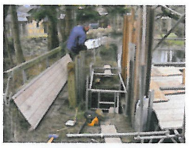
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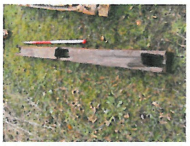
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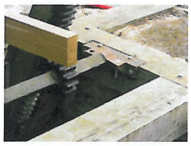
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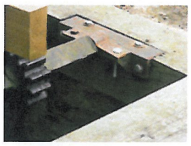
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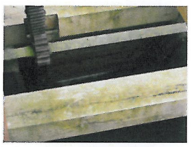
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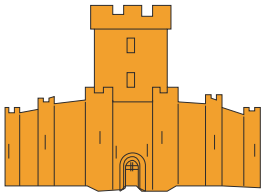

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