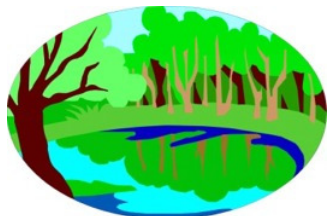




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Contents

| | |
|--|----|
| Abstract | 4 |
| Historical Context..... | 4 |
| Location of the Moor Pond Woods Project Area..... | 5 |
| Introduction to this project..... | 6 |
| Table 1: Relevant previous archaeological excavation in Moor Pond Woods, between 2001-2005 | 6 |
| Aims and objectives | 7 |
| Methodology. | 7 |
| Results | 8 |
| The finds | 8 |
| Environmental | 8 |
| Conclusions | 9 |
| 1. The sluice..... | 9 |
| 2. Suggestions for additional work | 9 |
| Archive..... | 10 |
| 1. Plans | 10 |
| 2. Sections | 10 |
| 3. Archived Images..... | 10 |
| 4. Artifacts | 10 |
| Acknowledgements..... | 10 |
| Bibliography | 11 |
| Illustrations | 12 |
| Figure 1 : Extract from the 1835 Sanderson map | 12 |
| Figure 2: Extract from the Montagu estate map of 1847..... | 13 |
| Figure 3: Map of the site of the sluice (extract from Sheppard (2003), figure 7)..... | 14 |
| Figure 4: Plan of Dam Banks East Sluice, as revealed by excavation July 2005..... | 15 |
| Figure 5: Dam Banks East Sluice, sections through the exposure July 2005 | 16 |
| Figure 6: Dam Banks East Sluice, side elevation of the sluice gate (north side)..... | 17 |
| Figure 7: Dam Banks East Sluice, north side facing north-east..... | 18 |
| Figure 8: Dam Banks East Sluice, north side facing north | 19 |
| Figure 9: Dam Banks East Sluice, south side facing south | 20 |

Abstract

This report was originally compiled in December 2005, but was revised in November 2014 to include additional contextual information, new mapping, and references to the project archives.

The site of the present investigation is 40m north of the Dam Banks South Sluice and bridge, west of Moor Road and between Papplewick Lane and Linby Lane. The OS reference centred on the site is SK 547 507.

The water system for the Robinson Mills appears to have been constructed between 1778 and 1830, although there may have been a mill (or mills) on this site before that. Evidence of the 1835 map and 1847 estate map, combined with observations onsite, suggest that there may have been several sluices within the Dam Banks section of the Project Area. A two day excavation programme was devised and carried out during July 2005 to investigate the site at Dam Banks in more detail. The investigation revealed new information about the construction and purpose of this sluice structure.

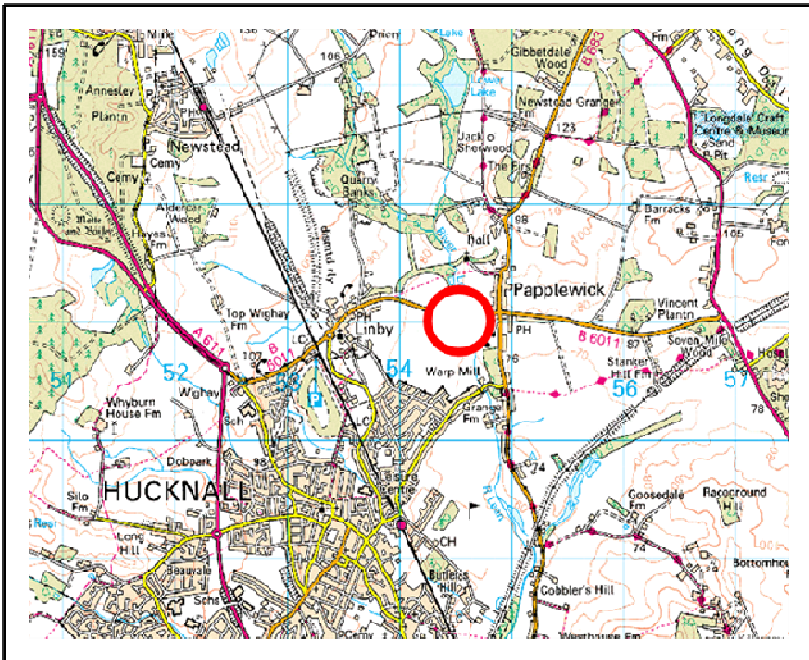
This project was a community archaeology study supervised by professional archaeologists from the Nottinghamshire Archaeology Service. Funding was made available through a grant from the Heritage Lottery Initiative.

Historical Context

George Robinson and sons probably took over the lease on the **Walk Mill** in the 1770s. Over the following 50 years the family built a series of water-powered cotton spinning mills fed by a complex water system. In 1778 they constructed the **Grange Mill** which used water from Walk Mill Pond. In 1782 they commissioned **Top Mill**, with its own reservoir (known as Papplewick Dam) fed from a header known as Top Upper Dam. Water from Top Upper Dam could also be used to supplement the supply at Grange Mill via a leat which follows the eastern shore of Papplewick Dam and passes southwards through Dam Banks. The **Middle Mill** was also built at this time and had a small pond which was probably fed by water transferred via the leat system from Top Upper Dam. **Forge Mill** dates from 1787. It had a pond fed from the Leen. A second Grange Mill was built in 1790 (this became known as **New Mill** to differentiate it from the existing **Old Mill** at the Grange). This mill seems to have used the water from Top Upper Dam. The final mill to be developed, in 1794, was the **Forest Mill** at Bulwell. It also had a mill pond fed by the river Leen. The Robinson family relinquished control of the mills in 1820 and in 1830 cotton-spinning ceased. It is known that Top Mill and Forge Mill were converted to be used for alternative purposes, and therefore parts of the water system remained operational until the mid-twentieth century.

The primary focus of the archaeological exploration in the Moor Pond Woods Project area is to gain understanding of the operation of the complex water system. What probably began in the 1780s as a fairly simple system of water control and storage would, of necessity, have had to have been altered and adjusted as additional demands were placed upon it. The water system is assumed to have reached its maximum extent by 1830. It continued to supply water to the two surviving mills but it is not known when specific sections of the system fell into disuse.

Location of the Moor Pond Woods Project Area



The Moor Pond Woods Project is a community environmental and archaeological project in the valley of the river Leen, near the village of Papplewick, Nottinghamshire.

The project area comprises four components:

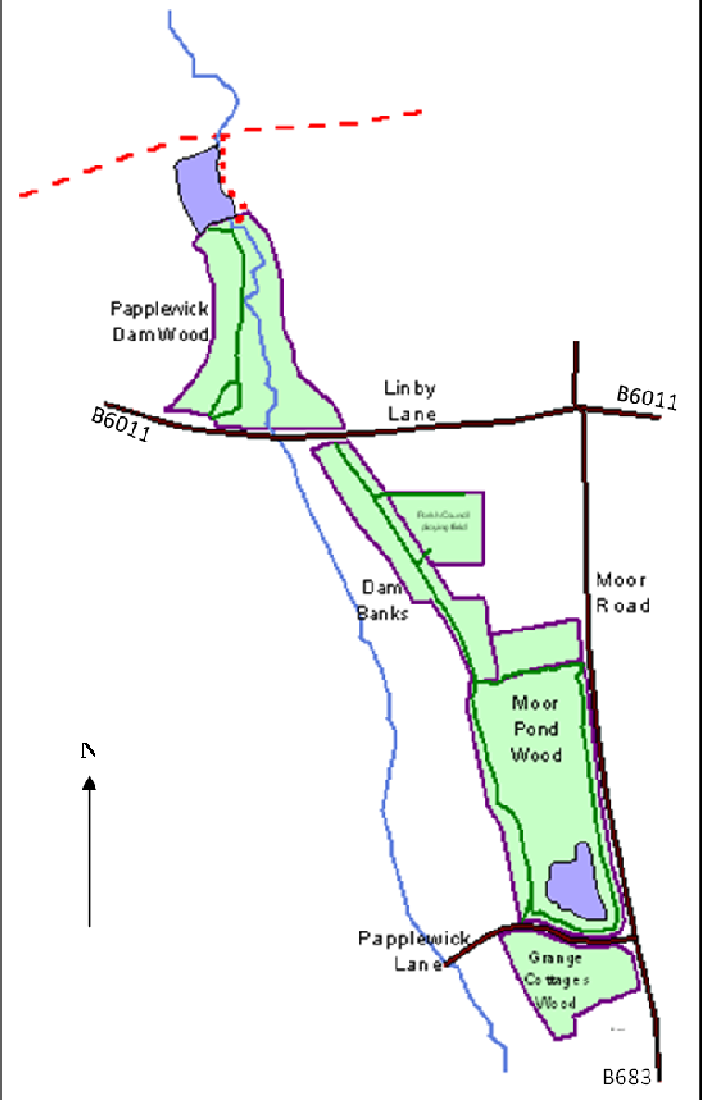
Papplewick Dam Wood – the site of a former reservoir, north of Linby Lane (B6011)

Moor Pond Wood – also the site of a reservoir between Moor Road (B683) and Papplewick Lane

Dam Banks – a strip of woodland along the line of a leat joining Linby Lane to Moor Pond Wood

Grange Cottages Wood – bounded by Papplewick Lane and Moor Road (B683)

Within this area are the remains of some of the ponds and leats that transferred water to the Robinson cotton mills.



Introduction to this project

Much of the evidence for the water system in Moor Pond Woods relies on interpretation of two cartographic sources, the Sanderson map of 1835 and the Montagu Estate map of 1847. A problem with this evidence is that the mills had ceased operation before 1835. As far as we can tell, the mill and buildings were not demolished until the 1850s but the system may not have been serviceable.

At this scale, Sanderson is not very clear but he appears to show that north of Moor Pond is a smaller pond, joined to the leat/pond feature that runs southwards through Dam Banks. (See figure 1) Field survey revealed that there is a large ash tree, marking an obvious break in the line of the embankment that separates these two features. There are stone blocks visible in its roots.

There is a bit more detail on the 1847 estate map, seen in figure 2. However, this map does not show an east-west channel linking the two features. Nevertheless the shape of the features is delineated more clearly and the positions of the other channels and ponds are in similar positions. This adds weight to the value of the Sanderson map as a fairly accurate source.

Based on these sources and the presence of the stonework in the roots of the tree, it was agreed to undertake archaeological exploration at the site.

Table 1: Relevant previous archaeological excavation in Moor Pond Woods, between 2001-2005

| Dates | Location | Summary of work carried out | Products |
|-----------------------|---|--|---|
| Nov 2002 and Mar 2005 | Dam Banks South Sluice. SK 5475 5075 | Two complex trenches to investigate sluice features. | (1) Extensive stonework excavated. (2) Recorded & reported (Sheppard, 2003) (3) Conserved and left on display. |

The excavation was supervised by members of Nottinghamshire County Council Archaeological Service, whilst the majority of the work was carried out by volunteers under the auspices of the Friends of Moor Pond Woods ('the Friends') and the Leen Valley Conservation Volunteers (LVCV). The work took place over one weekend as an event contributing to National Archaeology Week in July 2005, and public access and contributions were invited. Although the Friends and LVCV had been involved with Trent and Peak Archaeological Unit in the excavation of Dam Banks South Sluice during 2002-2004, this project was seen as an opportunity to build capacity within the groups by providing training in archaeological field techniques, surveying and recording. The village hall was booked to use as a base. A display was mounted, and refreshments offered to visitors. Guided tours of the excavation were offered on the Sunday morning.

Aims and objectives

1. To confirm that there was a sluice feature at this point, corroborating interpretation of the cartographic and morphological evidence.
2. To gather evidence on the construction of the feature allowing comparisons to be made with the stonework of Dam Banks South Sluice that lies 40m to the south.
3. To gather, if possible, evidence about the depth and width of the channels and movement of water.
4. To offer training in excavation techniques, recording and surveying techniques to those who offer to be involved.
5. To raise the public profile of the Friends of Moor Pond Woods and the Moor Pond Woods Project.

Methodology.

1. The turf was removed over a 5m by 4m area covering the identified remains. This revealed the curving wall on the north side and a short length of near vertical wall on the south-side.
2. The two main features were exposed and cleaned.
3. The trenches were surveyed and drawn. The method was to carry out a detailed survey using the line and offset technique. The point of origin was fixed using compass traverse from a datum point near the west end of the bridge. Levelling information was updated in 2014 when more accurate equipment became available.
4. The exposures were reburied and landscaped.

Results

1. The exposure. The excavations revealed that on the north side of the gap in the embankment there is a curved stone wall, with a 'sluice block' in the centre. To the south the tree probably stands on the corresponding wall. The stone in the roots is seen to be a 'sluice block', though measurements are not possible. Also on the south side there is a short length of wall at right angles to the embankment. See the plan in figure 4.
2. The north side. (See figures 5, 6, 7 and 8)
 - a. There was a near vertical wall on the north side of the excavation, made up of between 7 and 9 courses of square-cut stone. The courses are of uneven thickness and are either built without mortar or with a mortar that has weathered away.
 - b. There were three large shaped blocks providing a slot to hold the sluice-boards in place. They were seen to extend to a depth of 1.10m from the top, but the base was not found. The slot is 0.21m (8¼") wide and is recessed by 0.06m (2¾"). Only the top 0.07m of the bottom block was exposed during the weekend and it continued downwards.
 - c. The top block was wider than the others and shaped in both its length and width to create a curved profile. By levelling, the upper surface of the top block was calculated to be at an elevation of 0.07m above the blocks on the south sluice.
 - d. There were also two other intermittent courses of stone set into the embankment above the sluice blocks, but set back from the edge. The relationship between these and the other courses of stone was not determined.
 - e. In plan, the wall was observed to be curved around the embankment on both sides of the sluice.
3. The south side. (see figures 5 and 9)
 - a. On the south side of the sluice a 1.5m length of a vertical retaining wall was exposed, seen to extend to a depth of 1.30m from the top (but the base was not found). The wall was formed of blocks of roughly shaped Mansfield stone, in fairly even courses each of about 10cm thickness.
 - b. The wall extends further to the west, but time did not allow its full extent to be revealed. To the east, the wall is severely affected by tree roots. In the centre of the roots there is a sluice block, but its position and orientation were thought to have been changed by the growth of the roots.

The finds

There were no finds in this excavation

Environmental

No samples were retained for environmental testing

Conclusions

1. The sluice.

1. That there was indeed a sluice in the embankment separating the two pond features seen on the map in figure 2.
2. The height of the sluice block exposed on the north side is close to the height of the remaining blocks at the nearby South Sluice, perhaps indicating that the two sluices were worked in conjunction with each other. Of course, if there is a block missing at the south sluice that would probably have been a little higher than the east sluice.
3. The curving wall on both sides of the central sluice blocks may suggest that water could be allowed to flow through the aperture in either direction, at different times. This is in sharp contrast to the arrangement at the South Sluice, where the curved walls on the north of the feature channel towards the south but the south wall is straight, at right angles to the direction of flow.
4. The style of stonework exposed at the East Sluice resembled the stonework in the northeast wall of the South Sluice more than that in the 'jaws' of the South Sluice. We have concluded that the north-east segment of the South Sluice was probably a late-stage modification, and so we could suggest that the East Sluice is likely to also be part of this later phase.

2. Suggestions for additional work

1. The confirmed existence of a sluice at this location raises questions about the morphology of the surrounding area, and additional work could be undertaken to investigate the terraces in the leat/pond area to the west of the sluice, and to try to find out more about the smaller pond to the east of the sluice.
2. A more detailed survey needs to be carried out to assess the relative height of the various features, and perhaps to find out more about the movement of water through this part of the system.
3. The stone-work of the sluice was observed to be in good condition. At some point in the future the sluice could be re-excavated to reveal its full extent and conserved so that visitors can appreciate the site.

Archive

As a outcome of this investigation the following were added to the project archive.

1. Plans

1. Ref: DBES_plan1

2. Sections

1. Ref : DBES_plan1

3. Archived Images

| Image number | Description | Date | Direction of camera | Related plans and drawings | Photographer |
|-------------------|-----------------|------------|---------------------|----------------------------|--------------|
| MPW_20050723_001 | DBES excavation | 23/07/2005 | NE | | SW |
| MPW_20050723_002 | DBES excavation | 23/07/2005 | S | | SW |
| MPW_20050723_007 | DBES excavation | 23/07/2005 | E | | MB |
| MPW_20050724_003 | DBES excavation | 24/07/2005 | S | | SW |
| MPW_20050724_004 | DBES exposed | 24/07/2005 | NE | DBES_plan1 | SW |
| MPW_20050724_005 | DBES exposed | 24/07/2005 | NW | DBES_plan1 | SW |
| MPW_20050724_005b | DBES excavation | 24/07/2005 | N | | CW |
| MPW_20050724_006b | DBES excavation | 24/07/2005 | W | | CW |
| MPW_20050724_008 | DBES excavation | 24/07/2005 | S | | MB |

4. Artifacts

There were no finds in this excavation

Acknowledgements

The cost of this work was funded by grant aid from the Lottery Heritage Initiative, and the group is grateful for this support. Members of the Nottinghamshire Archaeological Service were present throughout, tolerant of our lack of expertise and enthusiastically delivered the training that had been a primary purpose of the event. Particular thanks are offered to Emily Gillott who co-ordinated their work. The Leen Valley Conservation Volunteers, led by Lee Scudder, offered invaluable assistance with the excavation.

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Illustrations

Figure 1 : Extract from the 1835 Sanderson map

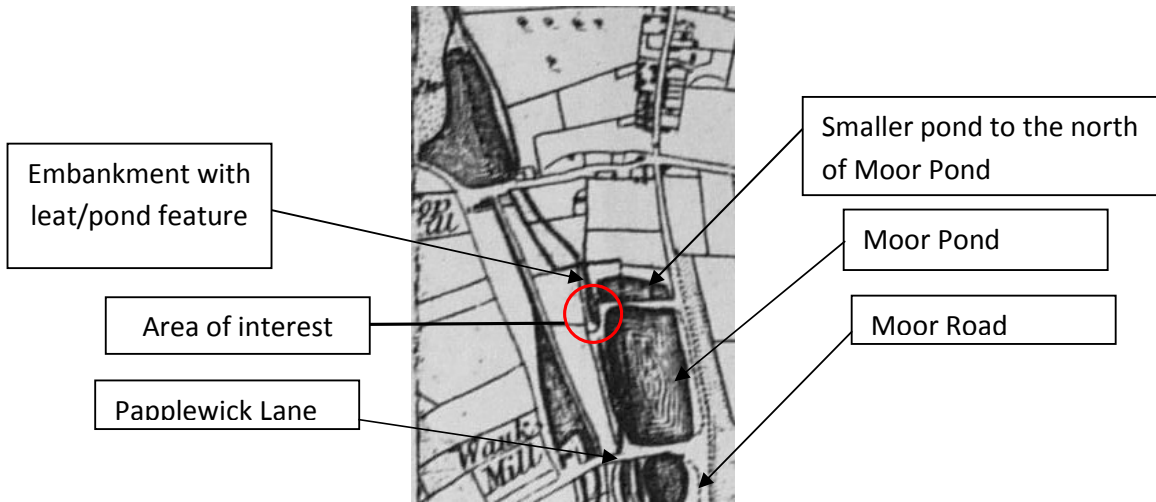


Figure 2: Extract from the Montagu estate map of 1847

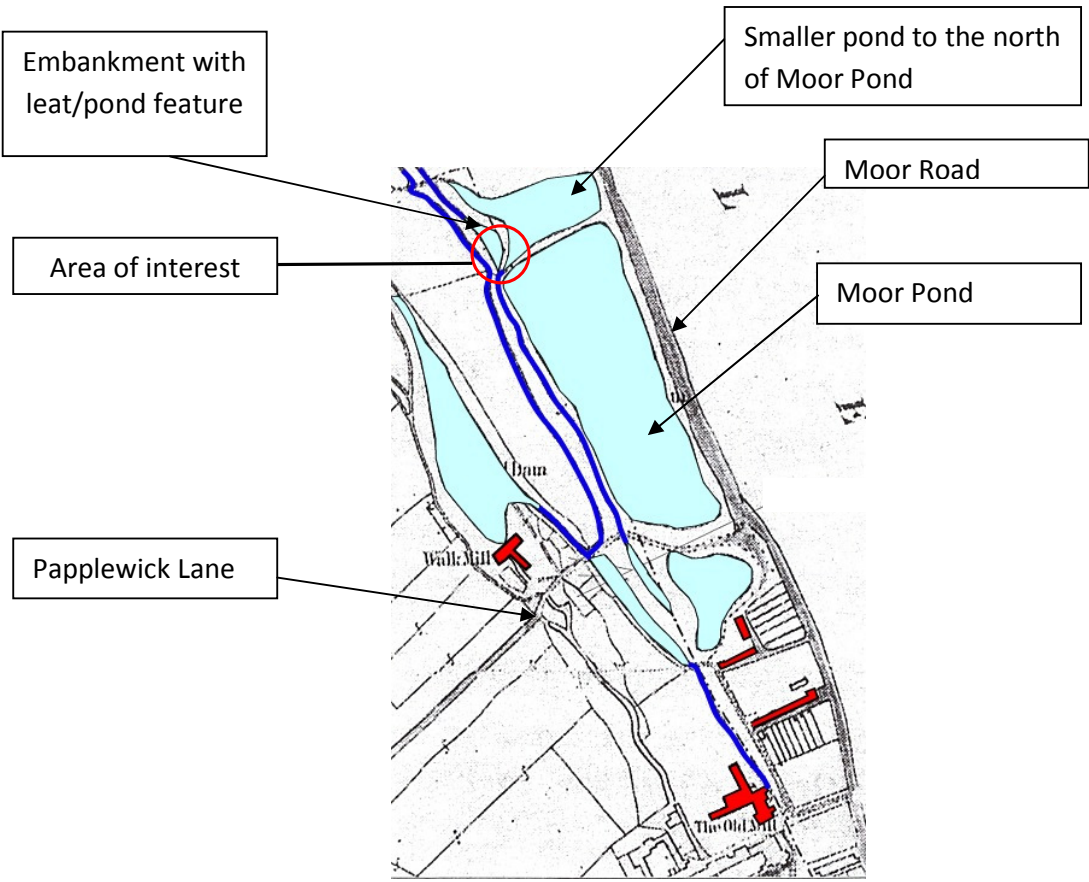


Figure 3: Map of the site of the sluice (extract from Sheppard (2003), figure 7)

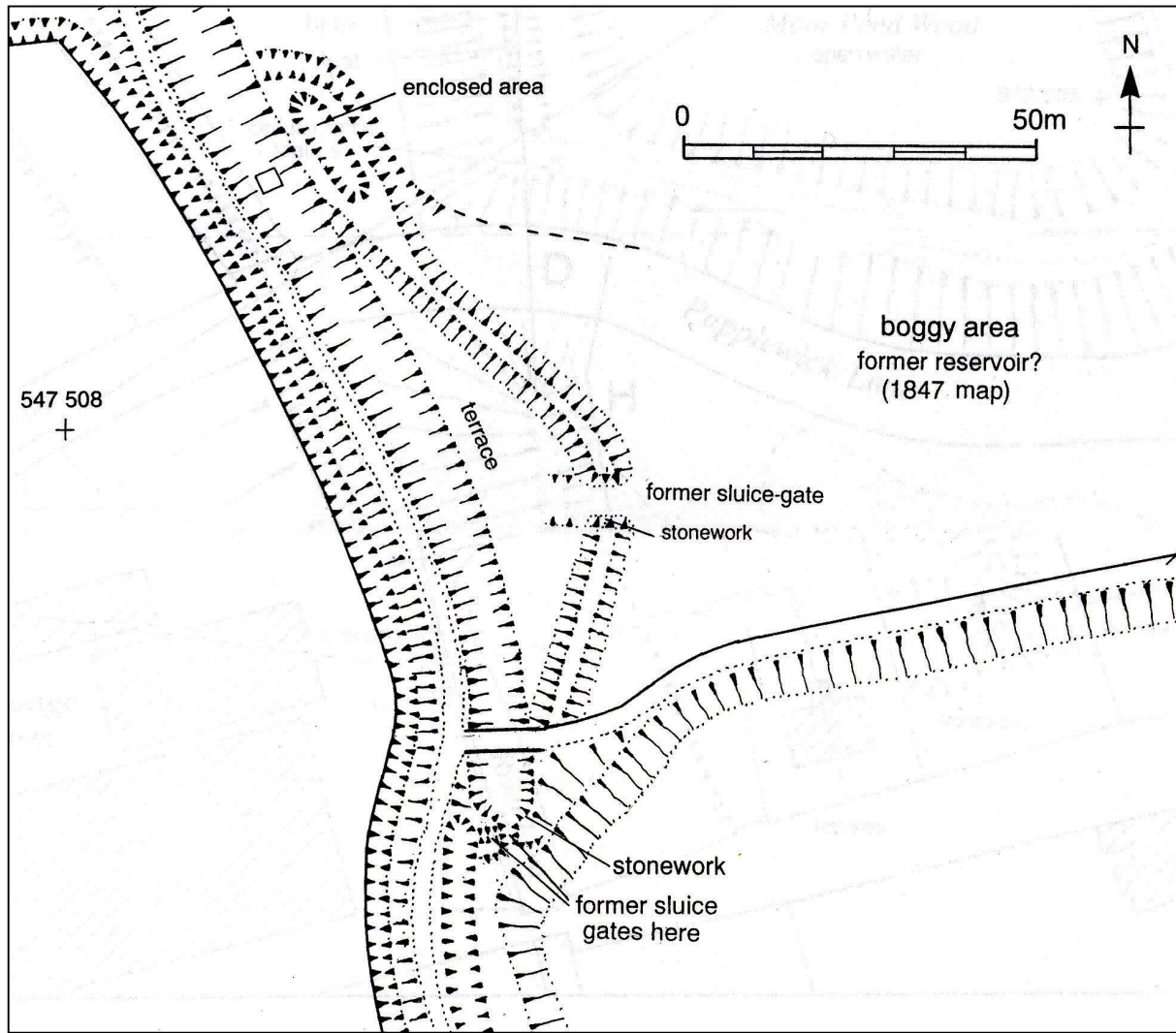


Figure 4: Plan of Dam Banks East Sluice, as revealed by excavation July 2005

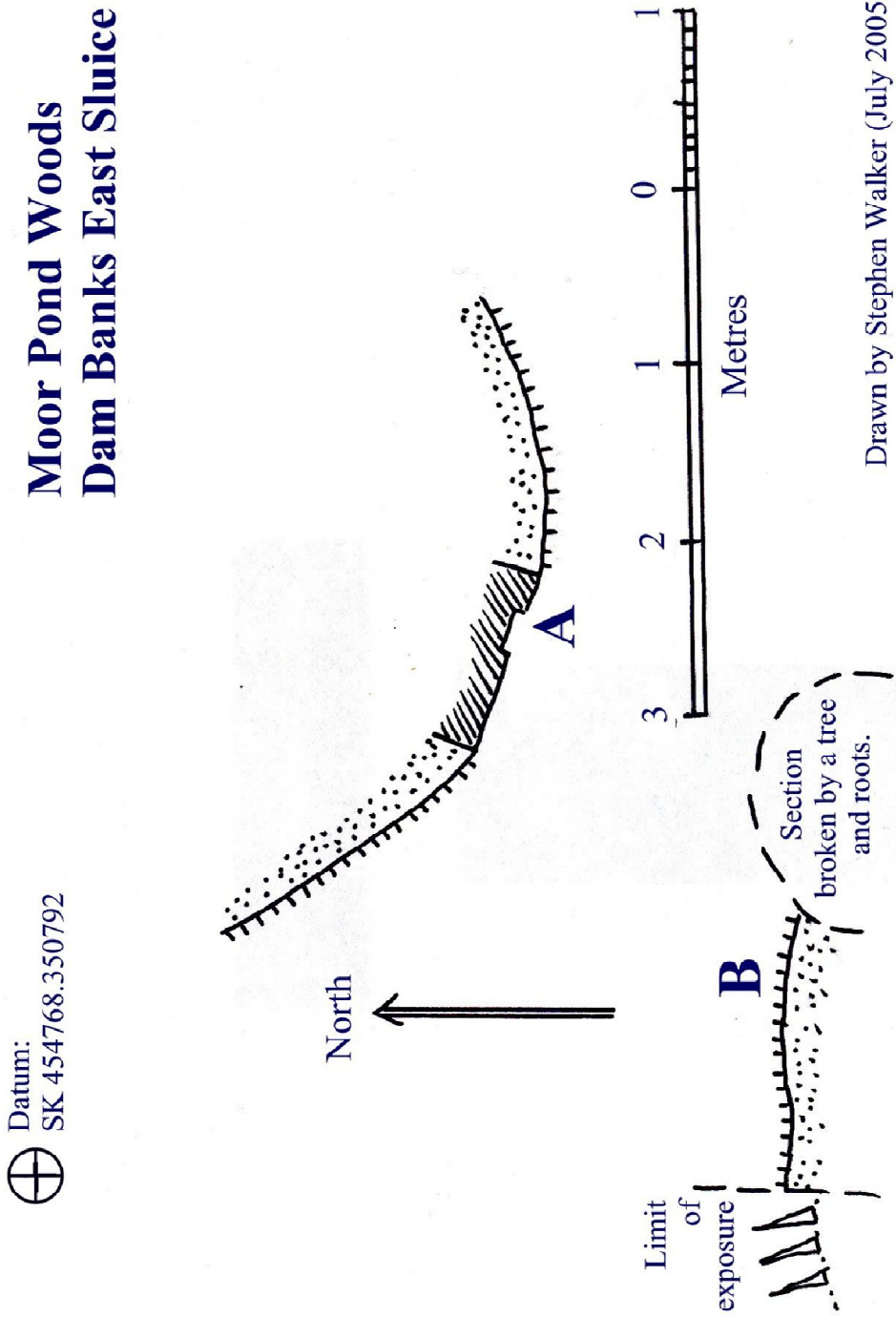
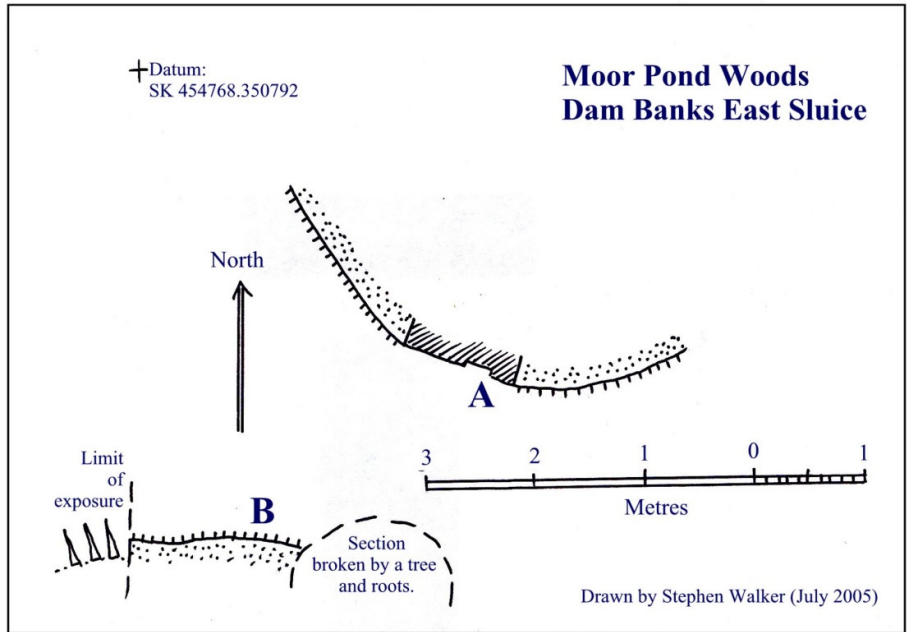
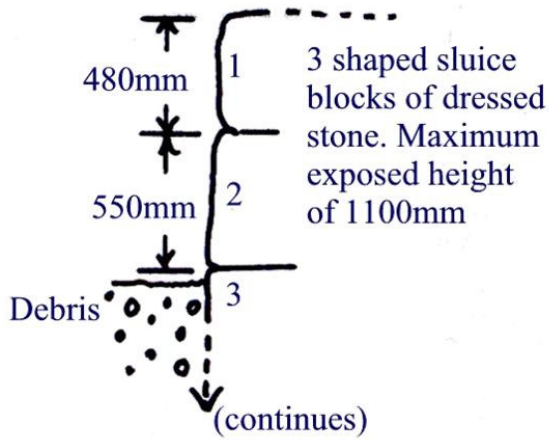


Figure 5: Dam Banks East Sluice, sections through the exposure July 2005



Section at A



Section at B

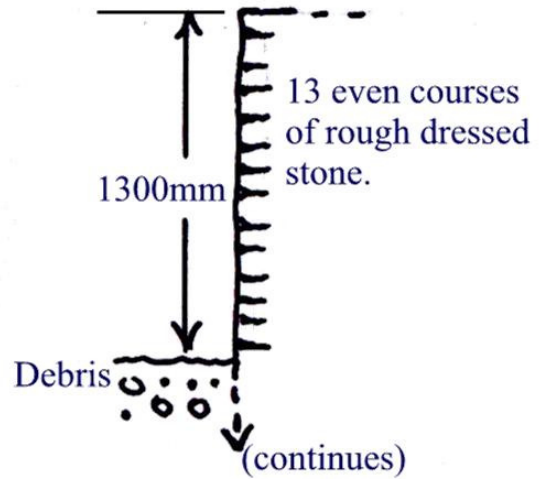


Figure 6: Dam Banks East Sluice, side elevation of the sluice gate (north side)

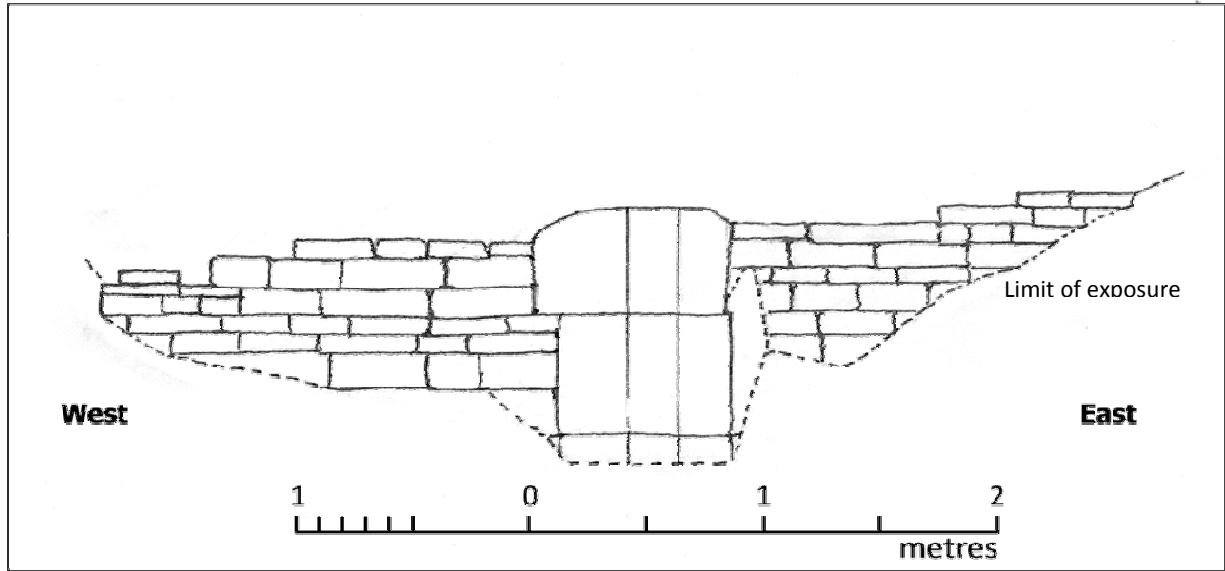


Figure 7: Dam Banks East Sluice, north side facing north-east



Figure 8: Dam Banks East Sluice, north side facing north



Figure 9: Dam Banks East Sluice, south side facing south



