

MIDDLE LEVEL BARRIER BANK : Archaeology

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OUSE WASHES MIDDLE LEVEL BARRIER BANK SCHEME

SUTTON GAULT RETAINING WALL

AN ARCHAEOLOGICAL WATCHING BRIEF

TL 4255 / 7984

SUMMARY

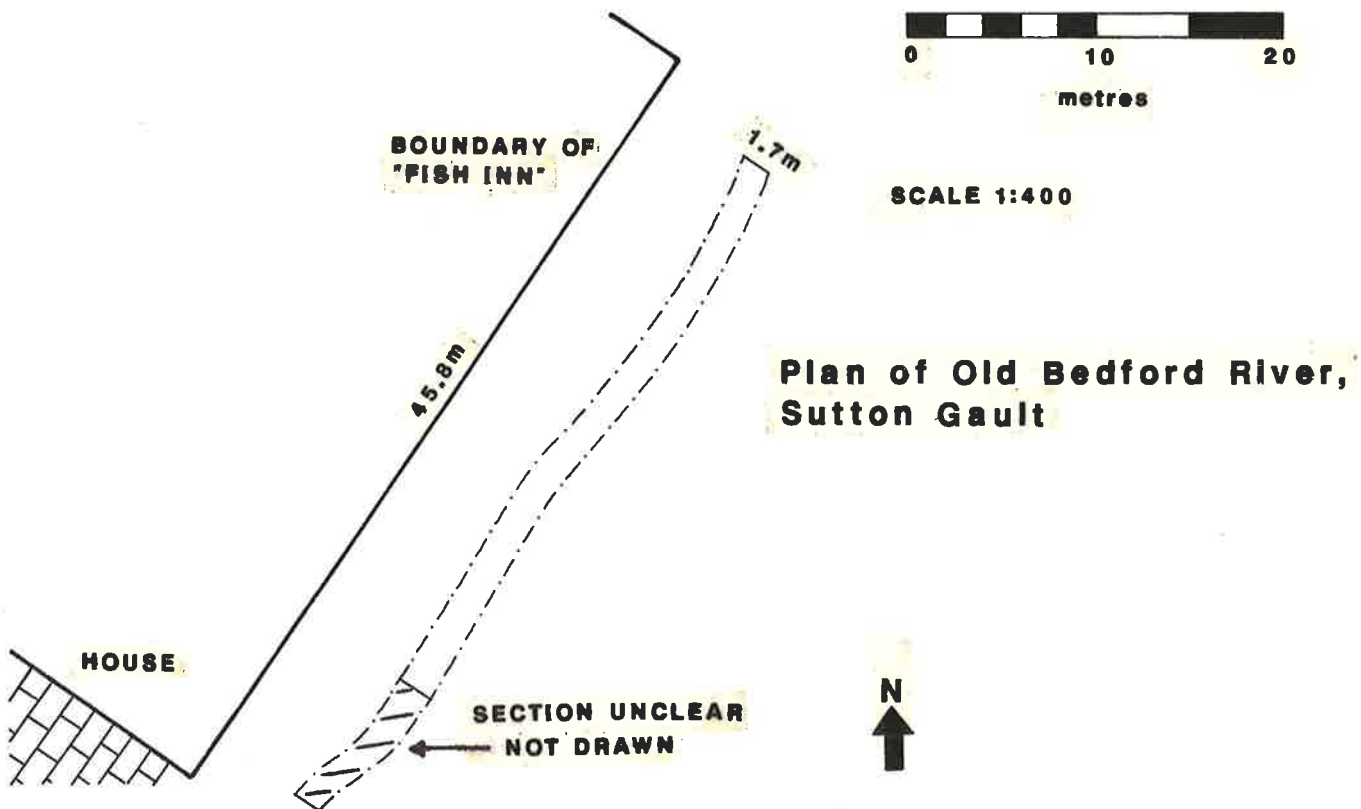
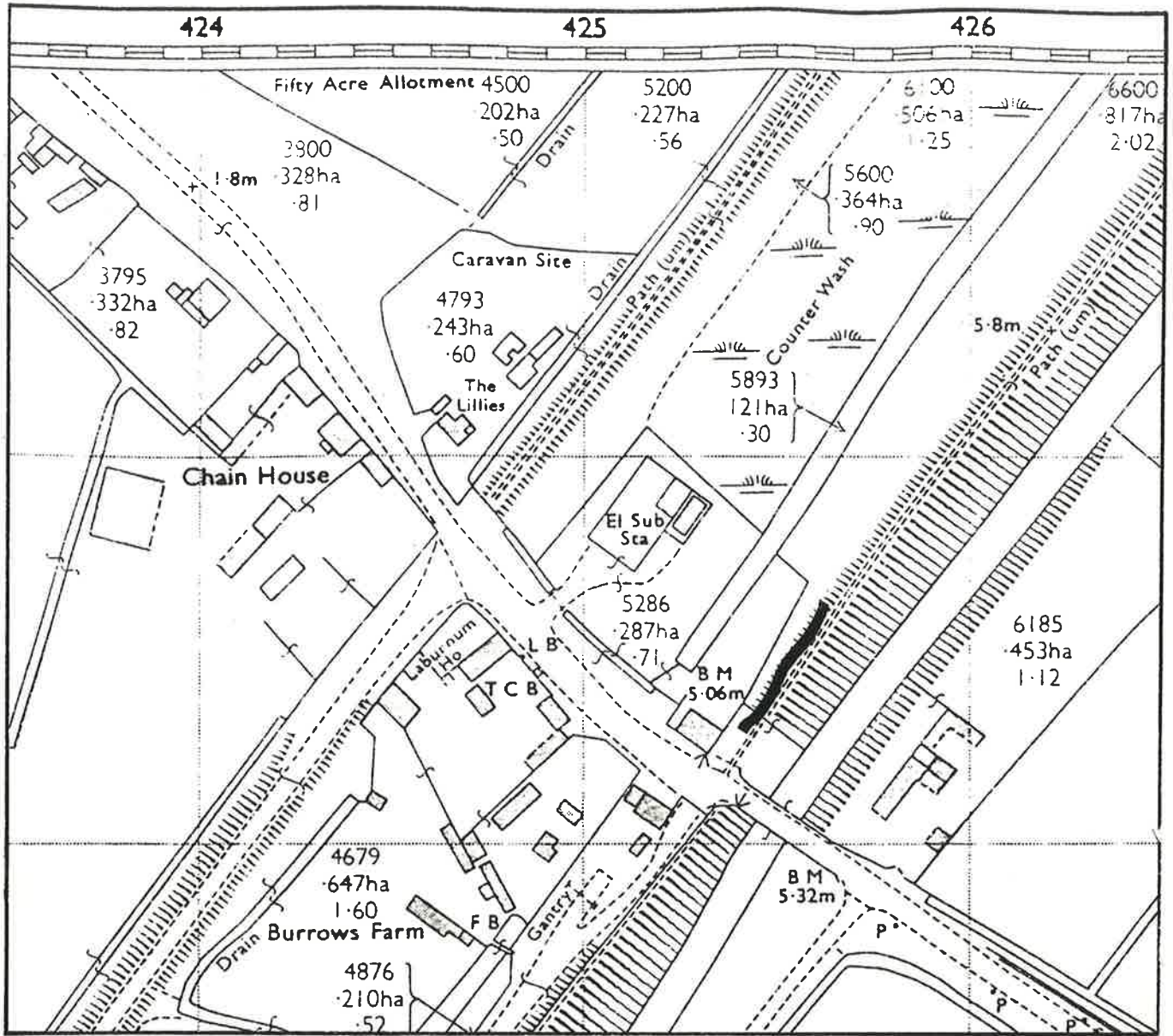
Extensive improvement works to the Middle Level Barrier Bank resulted in the need for monitoring, the objective to record features of archaeological interest exposed during construction works. The watching brief resulted in the recovery of a longitudinal section through the barrier bank exposing a constructional sequence from the seventeenth to twentieth centuries.

INTRODUCTION

The National Rivers Authority notified the County Archaeological Office of their intention to commence building works at Earith and Sutton Gault as well as bank improvement works south of The Gullet between the two parishes.

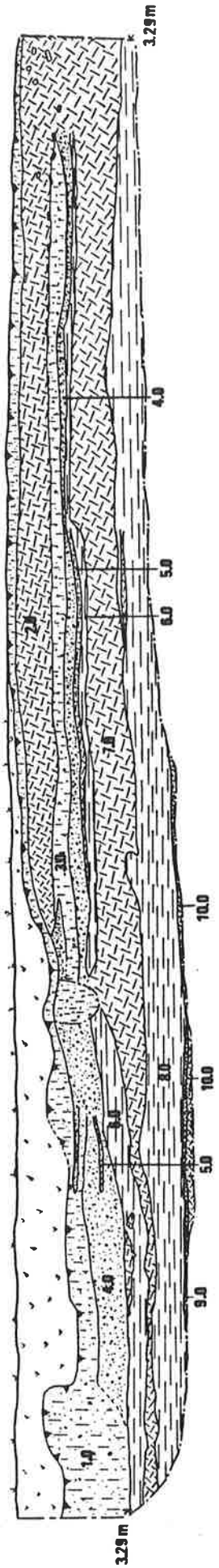
The Barrier Banks were originally built as the central feature of Sir Cornelius Vermuyden's improved scheme for the draining of the southern Fens (c1650-3). Their technological role remains essential to the drainage of this area, but less well appreciated is their historical significance. They represent perhaps the largest engineering project in pre-industrial European history (James 1990). The NRA's present scheme of works offers a unique opportunity to more accurately assess the original scheme and subsequent maintenance of the Banks and associated works (ibid).







The construction works at Sutton Gault were visited on 17th July 1990 by John Ette, Assistant County Archaeologist, accompanied by Nicholas James, a consultant with knowledge of the constructional history of the Middle and South Level Barrier Banks and associated works. Important stratigraphic layers were clearly exposed necessitating the need for an archaeological watching brief.



**Plan of Old Bedford River,
Sutton Gault**

NE SW



-  TURF
-  SILT
-  SAND/
GRAVEL
-  CLAY
-  PEAT
-  LOAM



Based upon Ordnance Survey Map No. (Edit):
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Longitudinal Section Through the Middle Level Barrier Bank

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ASSESSMENT

Watching brief recording of the exposed bank layers was undertaken by John Ette and Ben Robinson for Cambridgeshire County Archaeology Section on the 18th July, 1990.

Deep c.3.5m machine trenches had already been cut either side of The Causeway road adjacent to the bridge at Burrows Farm in advance of the insertion of concrete retaining walls (Fig 1). Part of the wall was already in place to the south of the road effectively preventing recording works. Modern make-up layers were observed in this section suggesting a disrupted stratigraphic sequence.

It was decided to record the unobscured section to the north of the road. The cut exposed a longitudinal section of bank measuring c. 40m long by c. 3m wide constructed in two steps. A measured section was drawn to record the sequence of layers by use of a datum levelled into a bench mark on the adjacent bridge at 5.32 M.O.D. The section was drawn at a scale of 1:50.

Recording work was undertaken in fine sunny weather conditions which persisted throughout the survey period. The irregularity of the sides of the cut caused difficulty in drawing a continuous section through all layers (Fig 2); in places lines are dashed where layers were obscured. The stepped side, however, enabled closer recording of the 3.5m high section.

SURVEY RESULTS

A total of 10 main stratigraphic layers were recorded in the section (Fig 2). The sequence showed that the bank is constructed largely of a series of clay and peat layers described in detail below:

Layer 10 - Light-grey sandy clay with 20% mid-orange mottling. Moderate charcoal inclusions throughout. Compacter than layer 9. More sticky and wet towards base of section.

Layer 9 - Dark-grey silts (compacted peats?). Occasional fine sand particles at its interface with the overlying peats. Compact and moist.

Layer 8 - Dark-grey/brown peat with moderate mid-orange mottling throughout. Interspersed with clay bands in two places. Occasional oyster shell inclusions. Looser and less compact than surrounding layers. Very moist internally weathering to a cracked surface.

Layer 7 - Light-grey clay with occasional mid-orange laminations. Very compact layer weathering into large blocks. Very dry.

Layer 6 - Very dark-grey peat. No obvious coarse components. Compact layer weathering to a cracked dry appearance indicating a very high humic content. Layer slopes down towards the north-east.

Layer 5 - Mid-brown clay. No coarse components. Very compact.

Layer 4 - Mid-orange sandy silt (30% sand). Frequent small pebble and shell inclusions throughout; occasional clay pipe-stems. Increasing mottled orange-brown silty loam component to the north-east. Layer is looser and more friable than all other fills excepting layer 1. Layer thickens and slopes down to the north-east.

Layer 3 - Mid-grey/brown clay loam. Moderate small pebbles throughout. Less compact than layer 2, more compact than layer 4. Layer is very dry cracking when weathering. Higher clay component towards the south-west.

Layer 2 - Light-grey clay, occasional brick and rubble inclusions increasing to moderate towards the south-west (bridge) end of section. Set at right angles into the bank are a series of 12 iron girders measuring some 50mm thick by 200mm wide each. The girders are visible along a 8m length of section near to the bridge at the interface of layers 2 and 3. The overlying clay layer is very compact and dry in consistency compared to adjacent layers.

Layer 1 - Mid-brown silty loam. Frequent small pebbles and high humic content. This topsoil layer is looser and dryer than all other layers.

INTERPRETATION

The 3.5 m deep 29m long section can be interpreted as exposing three major constructional phases based on the results of previous fieldwork and historical research (James 1990).

The sandy clay and peat layers at the bottom of the section (Fig. 2 layers 10, 9 and 8) are thought to have been deposited in the early 1650's forming the first phase of the Barrier Bank's construction.

The second phase was highly variable along parts of the barrier banks comprising a series of ad hoc and smaller-scale works. The clay, peat, sandy silt and clay loam layers (Fig.2 layers 7,6,5,4 and 3) may equate with successive consolidation works utilising various available materials. The hand-made tile and clay pipe-stems are suggestive of detritus from the 18th and 19th centuries, although no secure dating has been established.

The third phase of bank construction dates from the 1920's onward. These were major centrally controlled works. The bank was strengthened with clay rather than peat in most places. The top compact clay layer (Fig. 2 layer 2) recorded in section is thought to date to this period - perhaps specifically to 1947-8.

OTHER OBSERVATIONS

SUTTON GAULT BRIDGE

Observations were made during construction of a concrete pad crossing the road immediately to the west of the bridge at Sutton Gault. The pad construction trench measured some 0.80m deep and exposed hardcore forming the top 0.30m, the remainder comprising mid-grey/brown clay with occasional limestone fragments - suggesting that this is a make-up layer.

There was no indication of any surviving remains of earlier bridge structures visible within the trenches observed.

THE GULLET

An occasional watching brief was undertaken for the bank raising works south of the Gullet between Sutton Gault and Earith.

Approximately 1.4km of the bank was affected by the raising works which involved replacing the top capping clays which were subject to cracking and becoming permeable during winter flooding. Some 1 to 1.5m of the bank was removed down to the top of the sandy gravel layer (equivalent to layer 4 in the recorded section).

No sections were recorded as the works were limited to removal of the top clay and clay loam layers (equating with layers 2 and 3 in the recorded section). A photographic record was made of these works.

RECOMMENDATIONS

(A) THE BARRIER BANKS

In 1989-90, the NRA commissioned an archaeological consultant to assess stratigraphy recorded in the course of investigating the Barrier Banks (James 1990). This was a good way to make the most of the opportunity presented by the works along the Banks.

The NRA should build upon this early work. Whether or not by retaining a consultant, renewed provision should be made for archaeological assessment of the Banks and associated works.

(B) GUIDELINES FOR ARCHAEOLOGICAL WORKS ON NATIONAL RIVER AUTHORITY AND WATER COMPANY SCHEMES:

Early liaison with County Archaeologists prior to route selection/works schemes is essential to avoid sites of known archaeological importance. This can only be achieved by interrogation of the County Sites and Monuments Record (SMR). A desk-top assessment of known sites can be produced to aid planning and decision-making at this stage.

After route selection field-survey may be necessary to identify previously unrecorded sites (usually by fieldwalking).

Where damage to features of archaeological or historic importance is unavoidable field investigation followed by excavation is necessary. This may involve earthwork survey of upstanding remains, trial trenching, excavation and post-excavation works.

During construction, an archaeological watching brief is likely to be required during soil-stripping and trenching works to record any features not previously identified. Any finds made by construction staff should be promptly reported to the County Archaeological office and where possible left in-situ for rescue recovery.

Any programme of archaeological works whether desk-top evaluation or field investigation will require preparation of a report which should (after an appropriate period of time if necessary) enter the public domain.

These proposals should allow for the companies and authorities concerned to meet their responsibilities under the Water Act 1989 and comply with the Code of Practice on Conservation, Access and Recreation (DOE July 1989)

We recommend the use of archaeological consultants to assist in the formulation of proposals and undertaking of works deemed necessary to secure the preservation of sites and objects of archaeological and historic interest. The County archaeological office are willing to specify appropriate works and recommend a list of recognised archaeological contractors.

John Ette AIFA
Assistant County Archaeologist

21-June-1991

SOURCE:

James, N. 1990 "Report To The National Rivers Authority (Anglian Region) On The Archaeology Of The Barrier Banks Of The Middle And South Levels Of The Fens."