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**River Deben Alleviation  
of Low Flows Scheme: An  
Environmental Appraisal**

**Appendices**

May, 1994

Report No 94/3/821

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029136

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**APPENDIX A  
COUNTY WILDLIFE SITE AND SSSI DATA**



SARUM HUNDRETT  
COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Eyke Meadows

Parish: Eyke

Grid Ref: TM 317528

Map No: 35SW

Area: 4.4ha

Description of Features:

An area of cattle-grazed, unimproved meadow situated on the edge of the River Deben floodplain. A high water table is maintained by a number of springs, which flow east-west across the site. A good range of wet meadow species was recorded here, including valerian, southern marsh orchid, meadow saxifrage and oval sedge. In addition the dykes associated with the site are of botanical interest, supporting species such as water starwort, hornwort and purple loosestrife. Lapwing were known to have nested on the site in 1989.

GRID REFERENCE: TM 317528



SCALE:  
1: 10,000

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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Lower Hacheston Meadow Parish: Hacheston

Grid Ref: TM 318567

Map No: 35NW

Area: 0.1ha

Description of Features:

One of the improved pastures which is situated adjacent to the Campsey Ash/Wickham Market road contains a remnant, species diverse wetland habitat which has not been affected by agricultural chemicals. This corner of the meadow, which is only 0.1 hectare in area, supports a good population of plants which are becoming increasingly rare in Suffolk for example ragged robin, marsh marigold and square-stalked St John's-wort.

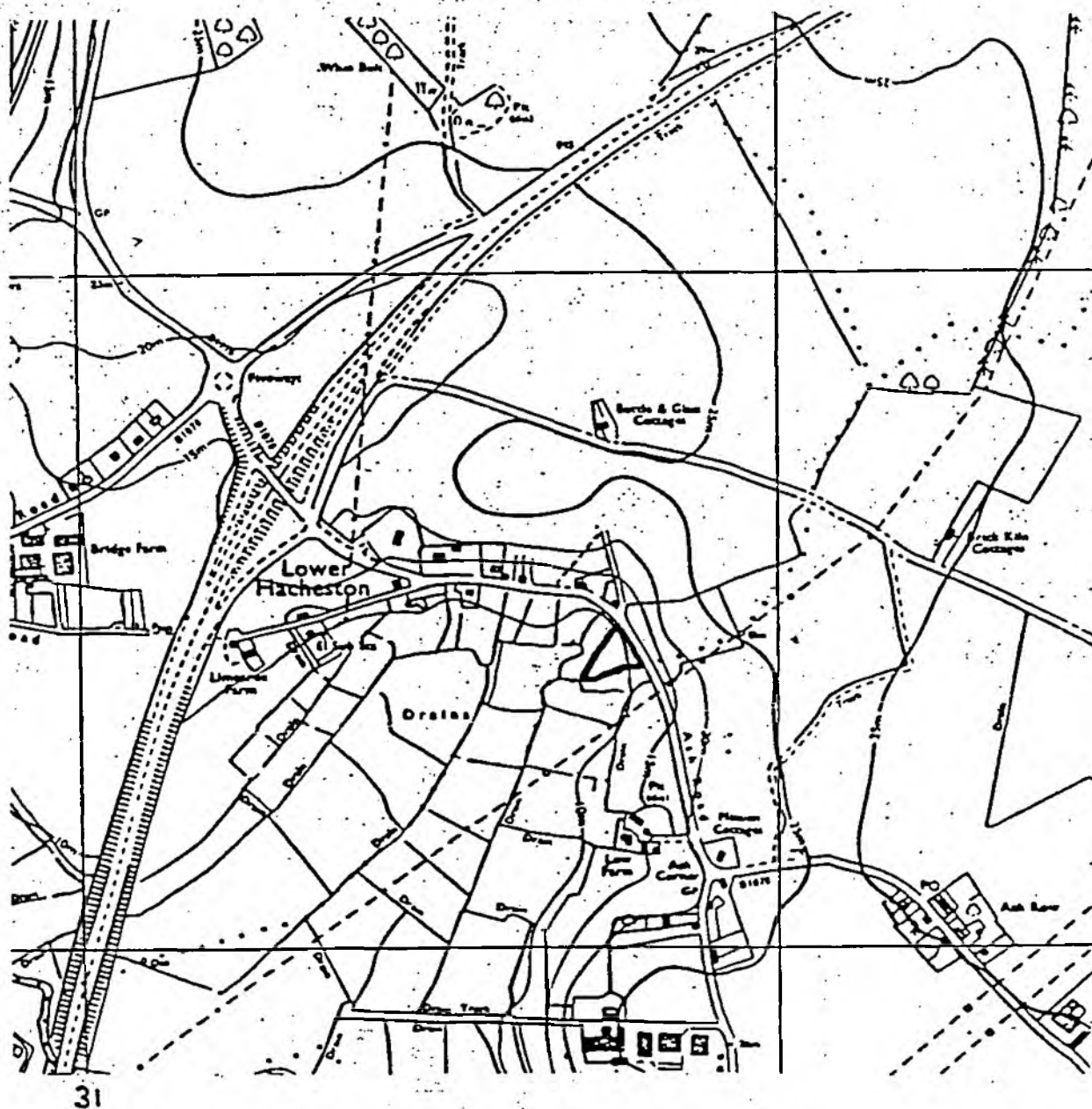
SITE BOUNDARY MAP

SITE NAME:

Lower Hacheston Meadow

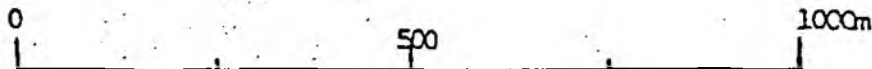
GRID REFERENCE:

TM 318567



SCALE:

1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Letheringham Meadow Parish: Letheringham

Grid Ref: TM 273582 Map No: 25NE

Area: 1.2ha

Description of Features:

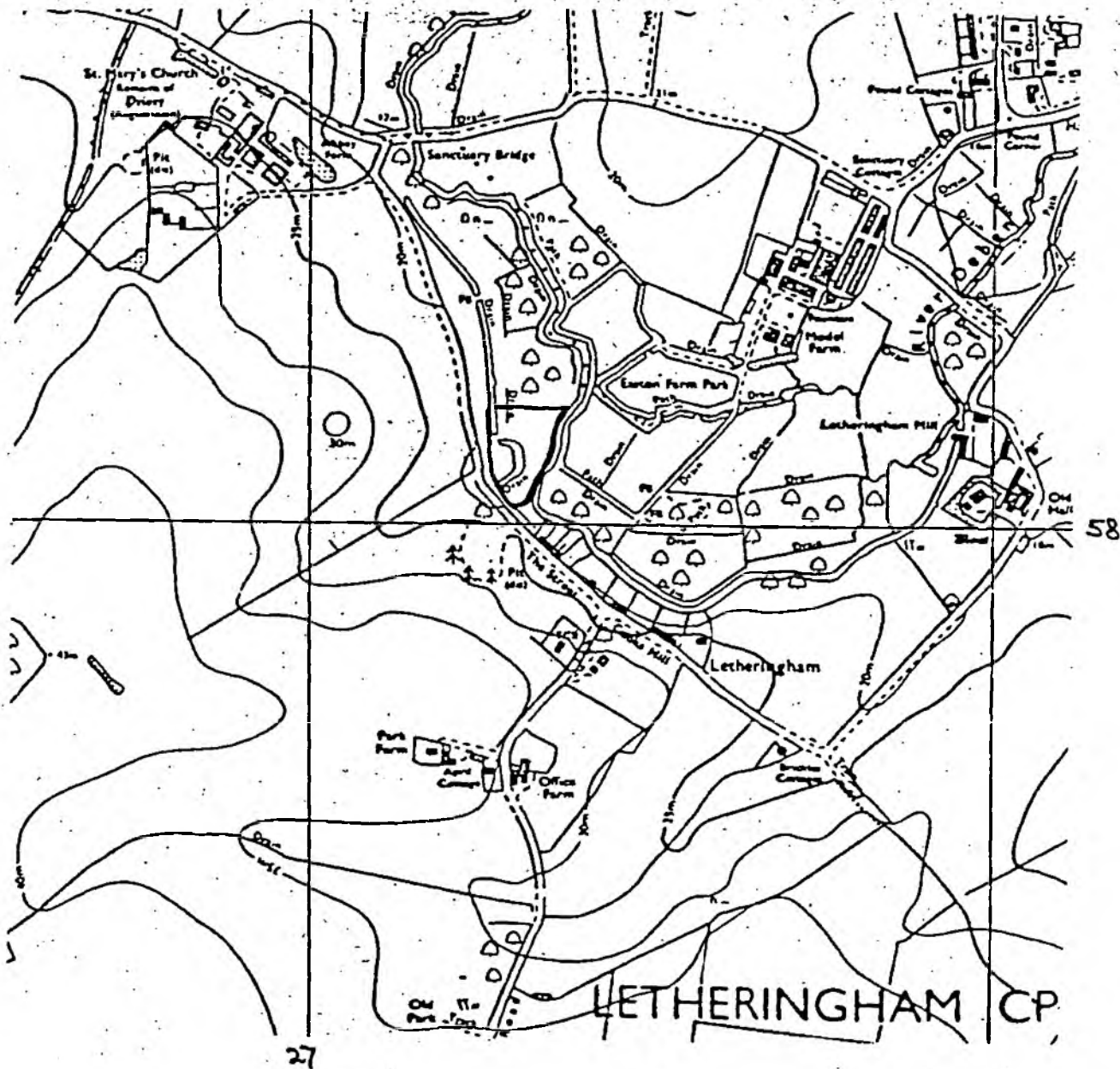
An area of wet, herb-rich meadow situated adjacent to a poplar plantation, close to the River Deben, and downstream from Sanctuary Bridge. It supports a wide range of plants associated with this habitat including southern marsh orchid, valerian, angelica and ragged robin. Artificial ponds situated close by are fringed with clumps of rush, sedge and bankside plants such as purple loosestrife and hemp agrimony. These ponds, in association with the wet meadow, provide an important habitat for dragonflies, butterflies and other invertebrates. Tufted duck, coot, mallard, moorhen and Canada geese breed in the system of dykes and ponds.



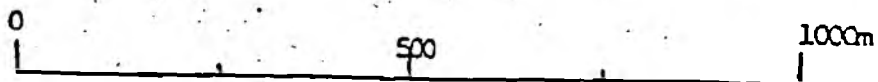
# SITE BOUNDARY MAP

SITE NAME: Letheringham Meadow

GRID REFERENCE: TM 273582



SCALE:  
1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Wood adjacent to  
River Deben

Parish: Letheringham

Grid Ref: TM 285573

Map No: 25NE

Area: 1.2ha

Description of Features:

This alder carr woodland in the Deben valley adjoins an area of reedbed abutting the river itself. Additional species include ash, hawthorn and a variety of willows. The ground flora indicates the wet nature of this woodland, including reed, purple loosestrife, meadow-rue, water mint and yellow flag. The owner also recorded marsh marigold in the wood. Wet alder carr adjoining a river provides a particularly important source of invertebrates and nesting sites for breeding birds. In addition to reed and sedge warblers using the reedbed, many woodland birds have been observed in this woodland. During a survey carried out in 1989, blackbird, robin, blue tit, wren, turtle dove and whitethroat were recorded in good numbers throughout the wood.

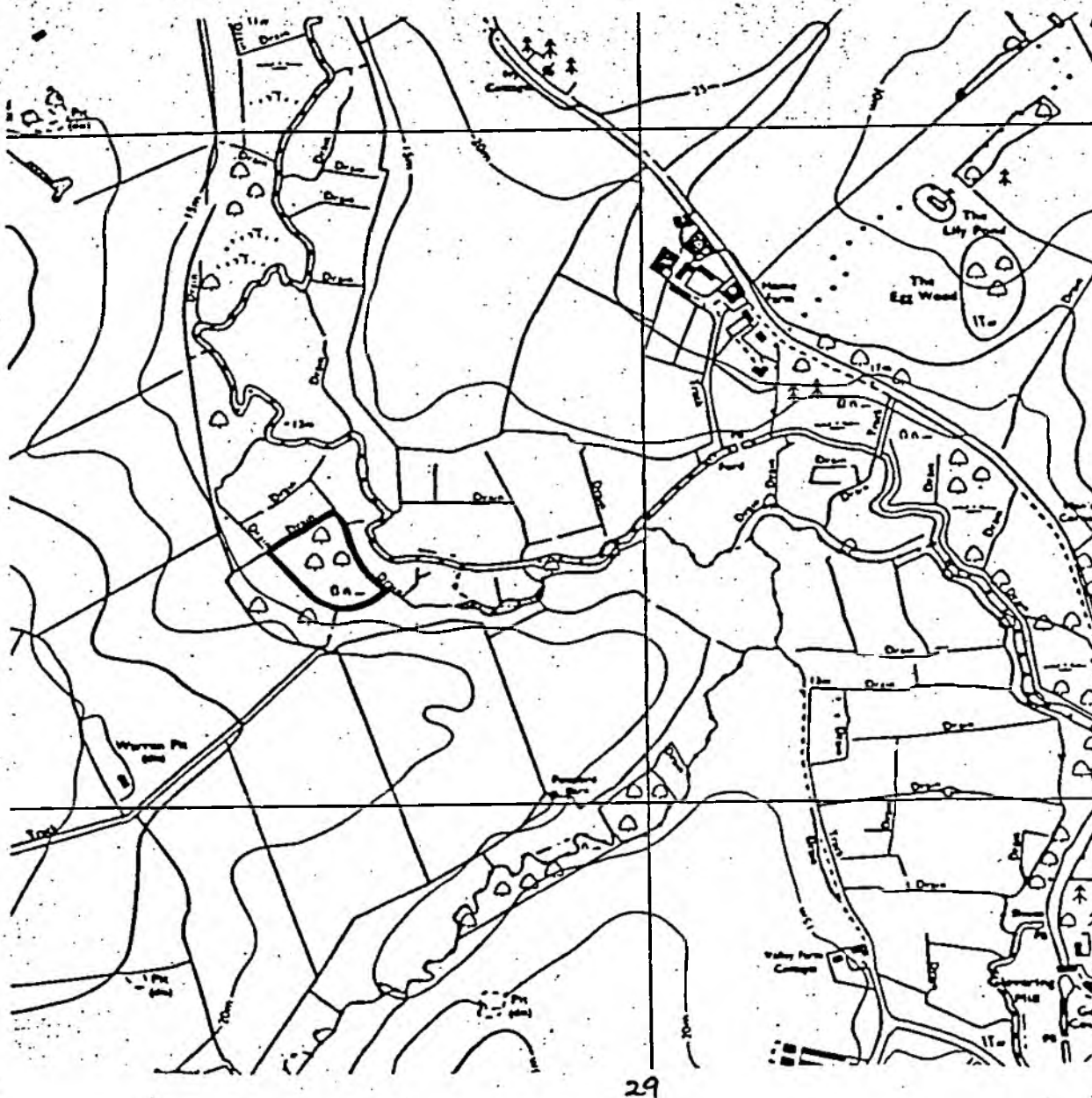
SITE BOUNDARY MAP

SITE NAME:

Wood adjacent to River Deben

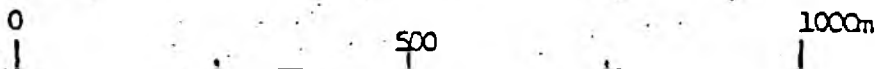
GRID REFERENCE:

TM 285573



SCALE:

1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Rowanwood Cottage  
Marsh

Parish: Pettistree/Ufford

Grid Ref: TM 294537

Map No: 25SE

Area: 3.5ha

Description of Features:

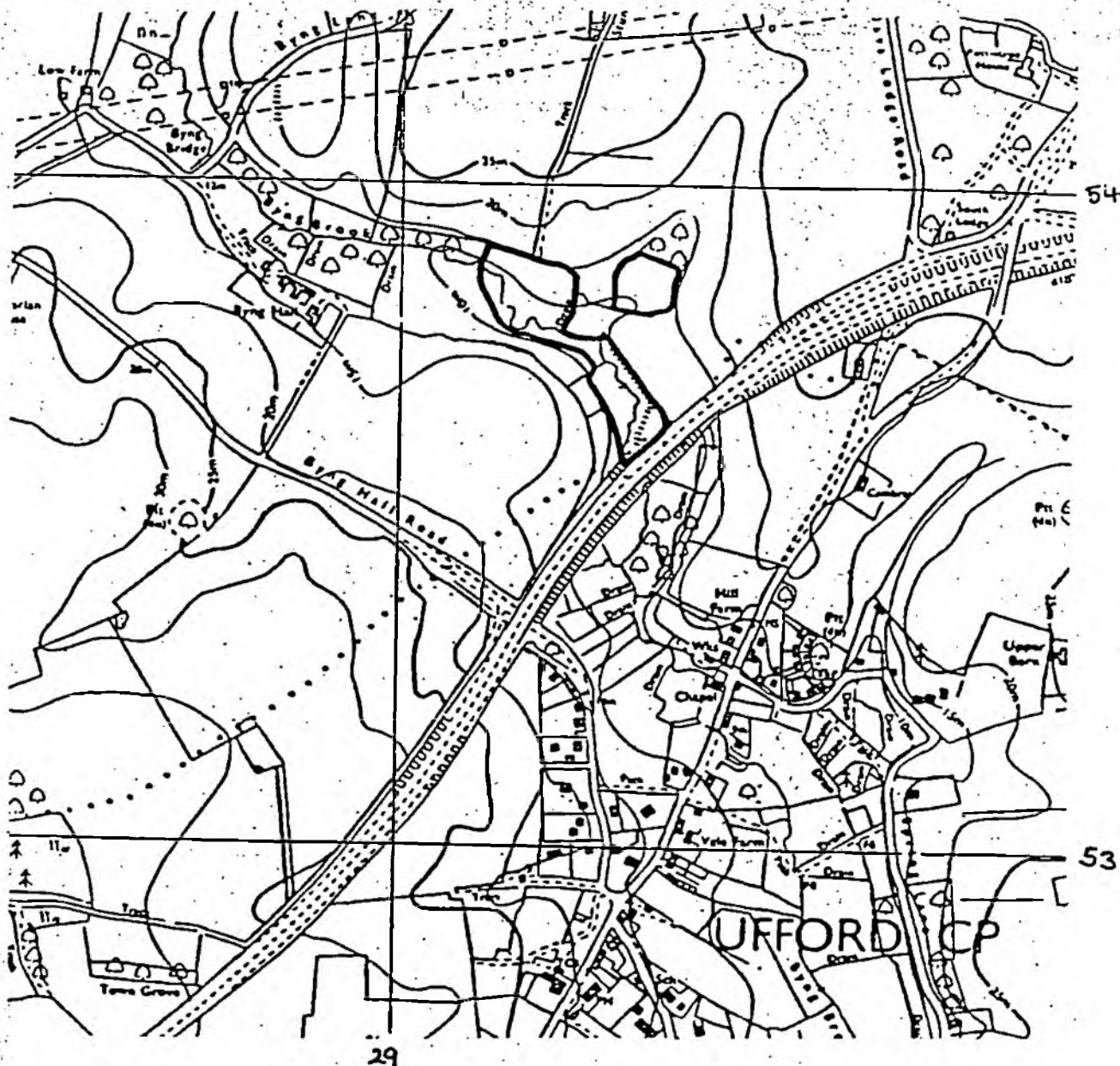
An area of wet grassland in a small sloping valley. A number of boggy hollows are possibly the result of springs or blocked drainage ditches. Most of the site is mown several times a year to prevent the invasion of meadowsweet and willowherb. Although the first cut may be very early on in the year the main grassland remains fairly rich in species, these include lesser water-parsnip, southern marsh orchid, fen bedstraw, ragged robin, kingcup and bugle. The boggy hollows which are left uncut have a variety of different plants, for example greater tussock sedge, hairy willowherb and marsh marigold. Drier areas are colonised by nettles and a little reed canary-grass. The western edge is dominated by an area of alder carr. The ground flora in the woodland includes angelica, moschatel and ramsons, which predominates in the area next to the stream.



# SITE BOUNDARY MAP

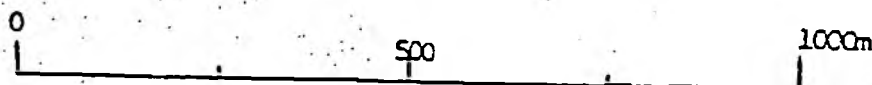
SITE NAME: Rowanwood Cottage Marsh

GRID REFERENCE: TM 294537



SCALE:

1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Boon's Meadow

Parish: Ufford

Grid Ref: TM 297532

Map No: 25SE

Area: 1.8ha

Description of Features:

This wet meadow, intersected by drainage ditches and grazed for part of the year, represents an unimproved grassland habitat that is rapidly disappearing in Suffolk. The extensive species list of Boon's Meadow reflects the diversity and importance of such habitats. Among the flora are included southern marsh orchid, ragged robin, fleabane and fen bedstraw. Undoubtedly, the site is of high conservation value.

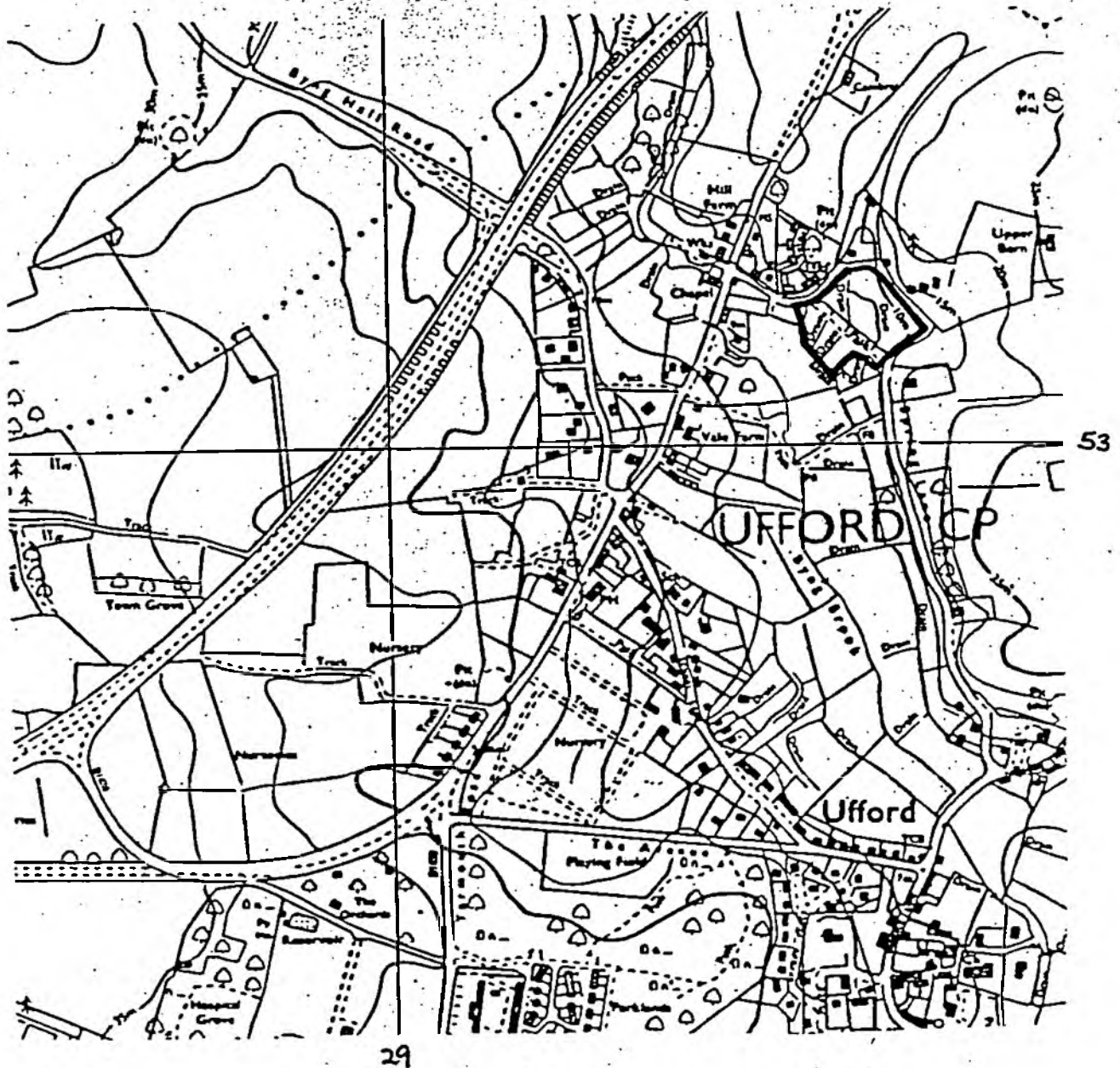
SITE BOUNDARY MAP

SITE NAME:

Boon's Meadow

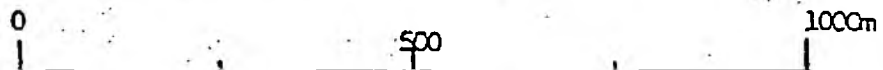
GRID REFERENCE:

TM 297532



SCALE:

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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Low Nursery

Parish: Brandeston/Hoo

Grid Ref: TM 243600

Map No: 25NW/26SW

Area: 6.7ha

Description of Features:

A mature alder carr on wet land to the north of the River Deben. Not very dense, other species include oak, beech, horse-chestnut, yew, hawthorn and elder. To the north side there is a newly planted area of poplars, with the least disturbed part of the wood in the middle section. Ground flora includes wood avens, soft rush, dog's-mercury, bamboo, bugle, lesser celandine, burdock and false brome.

This woodland, in close proximity to open water provides an important source of invertebrates and nesting sites for a wide variety of woodland and waterside birds.

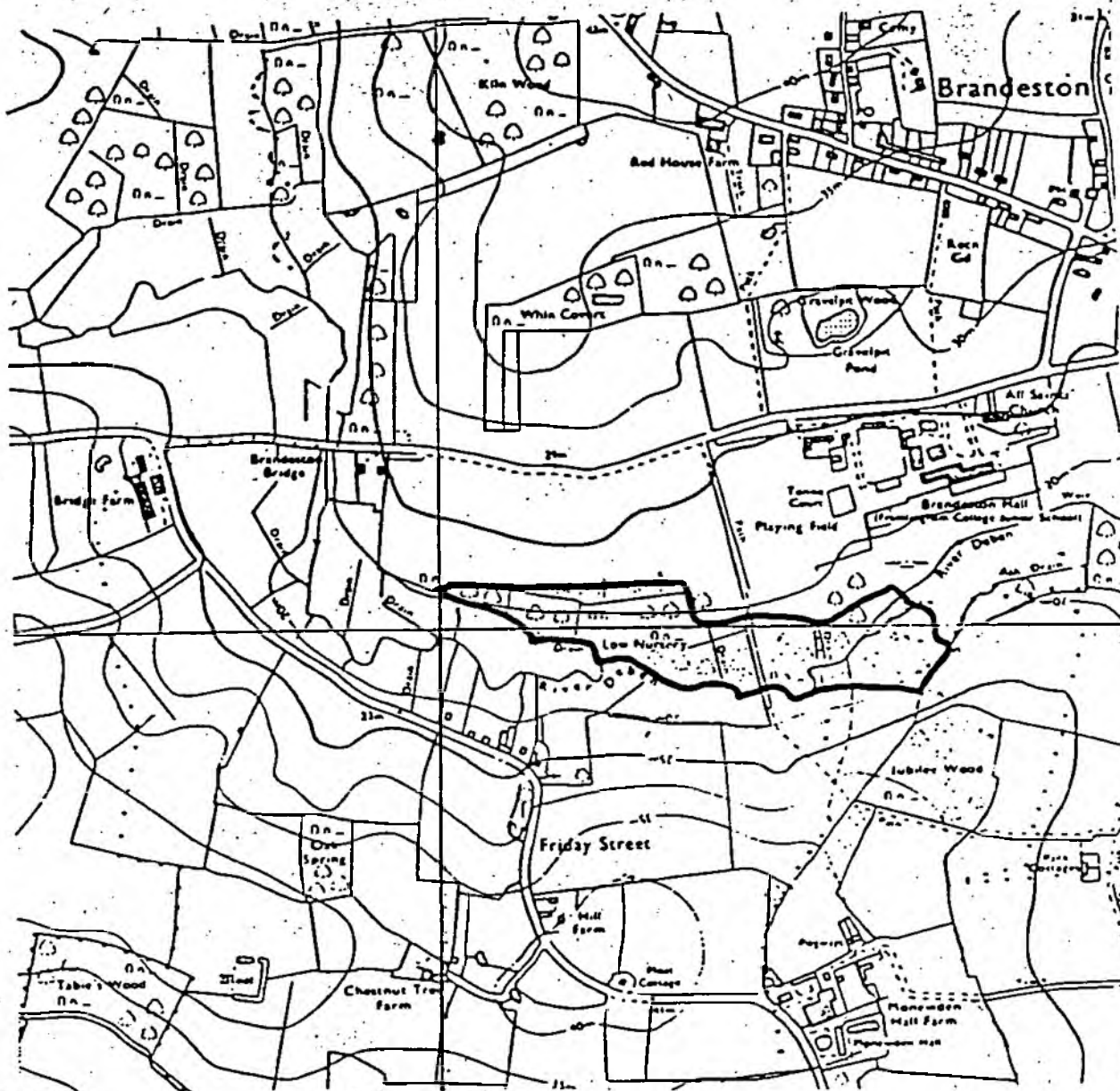
During a survey of Low Nursery in 1989, a total of 31 bird species was recorded in the wood with tits, warblers and thrushes much in evidence. Significant amounts of dead wood attract woodpeckers which nest in the wood.



# SITE BOUNDARY MAP

SITE NAME: Low Nursery

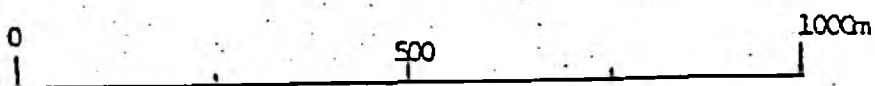
GRID REFERENCE: TM 243600



60

SCALE:

1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: River Deben  
(sections)

Parish: Brandeston/Kettleburgh/  
Letheringham/  
Wickham Market

Grid Ref: TM 246600- TM 296566

Map No: 25NE/26SW

Area: -

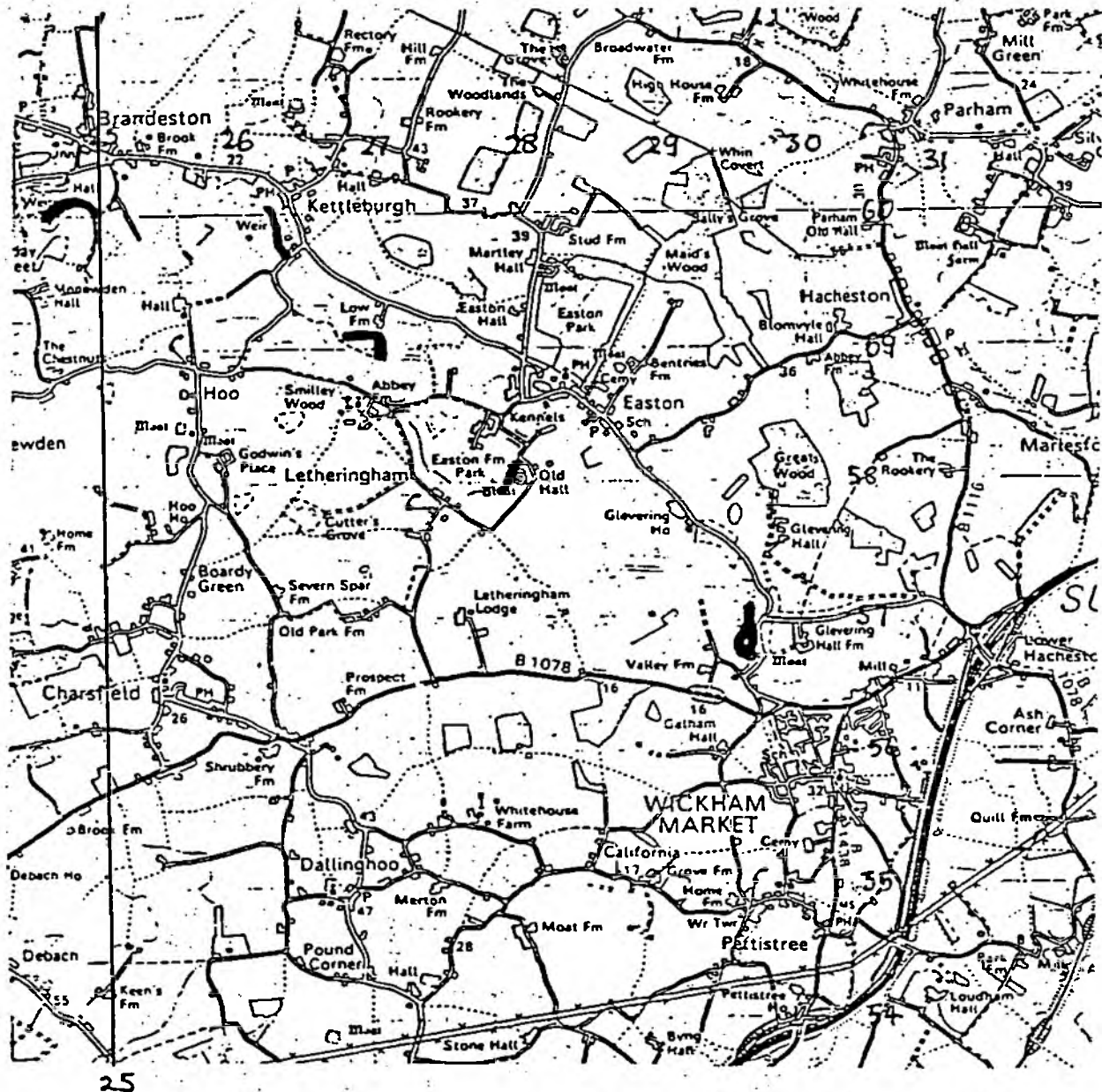
Description of Features:

Water quality is particularly good in these stretches of the River Deben and fish, dragonflies and damselflies are present in large numbers. A wide range of both aquatic and emergent species have been recorded, including unusual riverine plants for example river water-dropwort (a scarce plant in the region), white water lily, flowering rush and mare's-tail. A wide poached shelf along some sections of the river bank supports many marshland plants including gypsywort, lesser water parsnip and purple loosestrife.

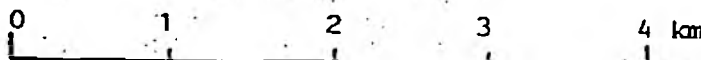
SITE BOUNDARY MAP

SITE NAME: River Deben (Sections)

GRID REFERENCE: TM 246600 - TM 296566



SCALE:



1: 50,000

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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Decoy Pond, Ashe Abbey Parish: Campsey Ash

Grid Ref: TM 317546

Map No: 35SW

Area: 7ha

Description of Features:

The woodland surrounds a large, originally man-made lake fed by the River Deben. To the north is a larch and conifer woodland. The remaining woodland consists of alder and hazel coppice, oak, beech, horse-chestnut, ash, willow, Turkey oak and rhododendron. The ground flora is varied with patches of rank fen vegetation including reed and hairy willowherb. This is interspersed with a more interesting flora which includes hemp agrimony, yellow iris and angelica. Bracken dominates the drier areas in the wood. The lake supports a good population of both yellow and white water lily. The latter species is an indicator of unpolluted water. A kingfisher was observed on a number of occasions on the edge of the lake.



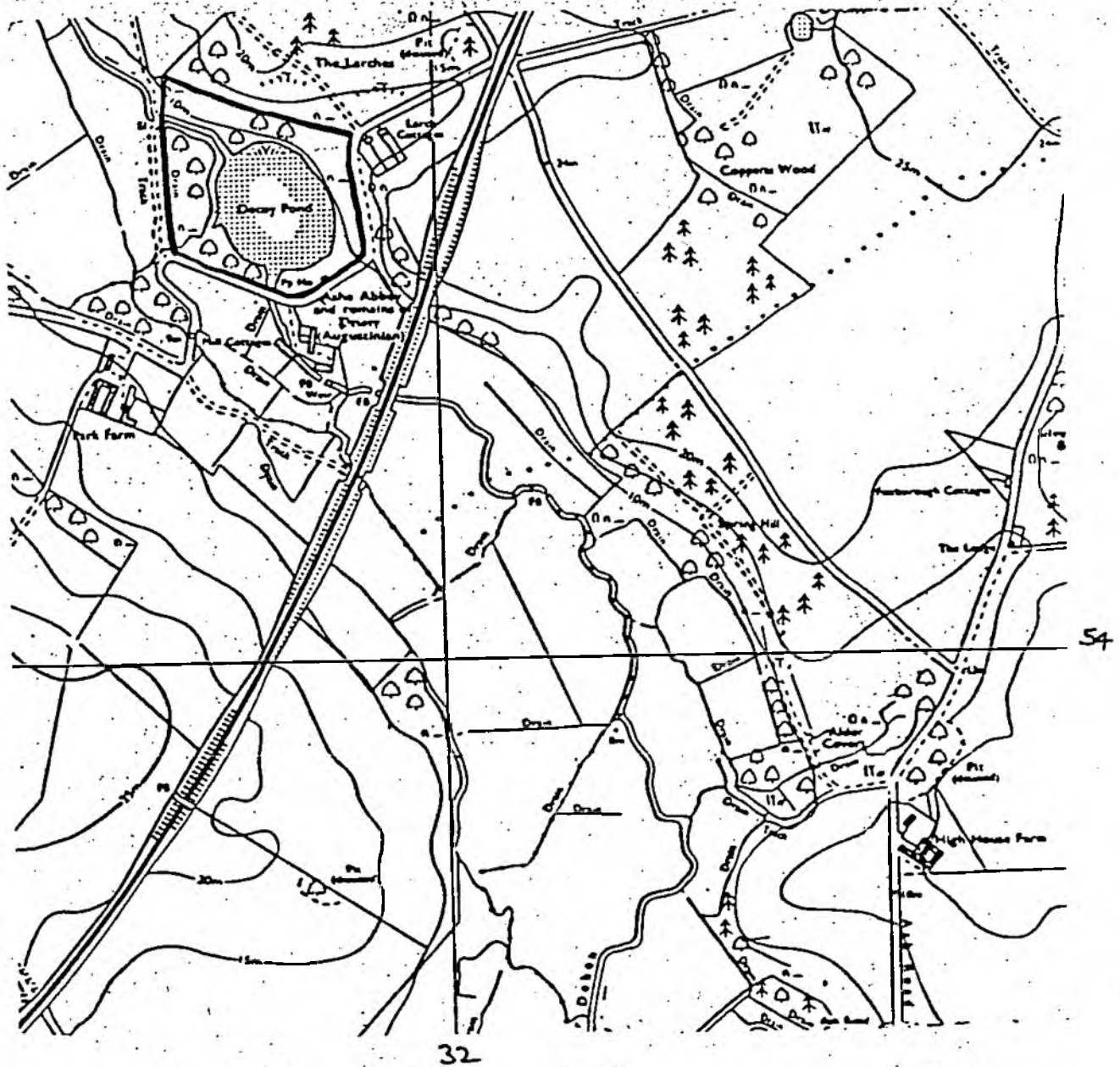
# SITE BOUNDARY MAP

SITE NAME:

Decoy Pond, Ashe Abbey

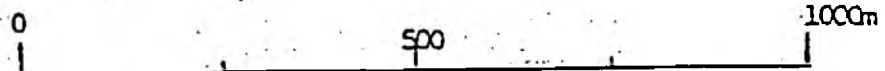
GRID REFERENCE:

TM 317546



SCALE:

1: 10,000



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COUNTY WILDLIFE SITESSITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Grove Farm Golf  
Course

Parish: Cretingham

Grid Ref: TM 231607

Map No: 26SW

Area: 1.6ha

Description of Features:

This golf course at Cretingham has been developed on a site with impeded drainage close to the River Deben. The main conservation value of the site lies in the diversity of habitat which is present. The fairways are bordered with areas of wet meadow and are cut late in the summer to conserve the species-rich flora. Common spike-rush, southern marsh orchid, ragged robin and yellow iris are amongst the many wild flowers growing here.

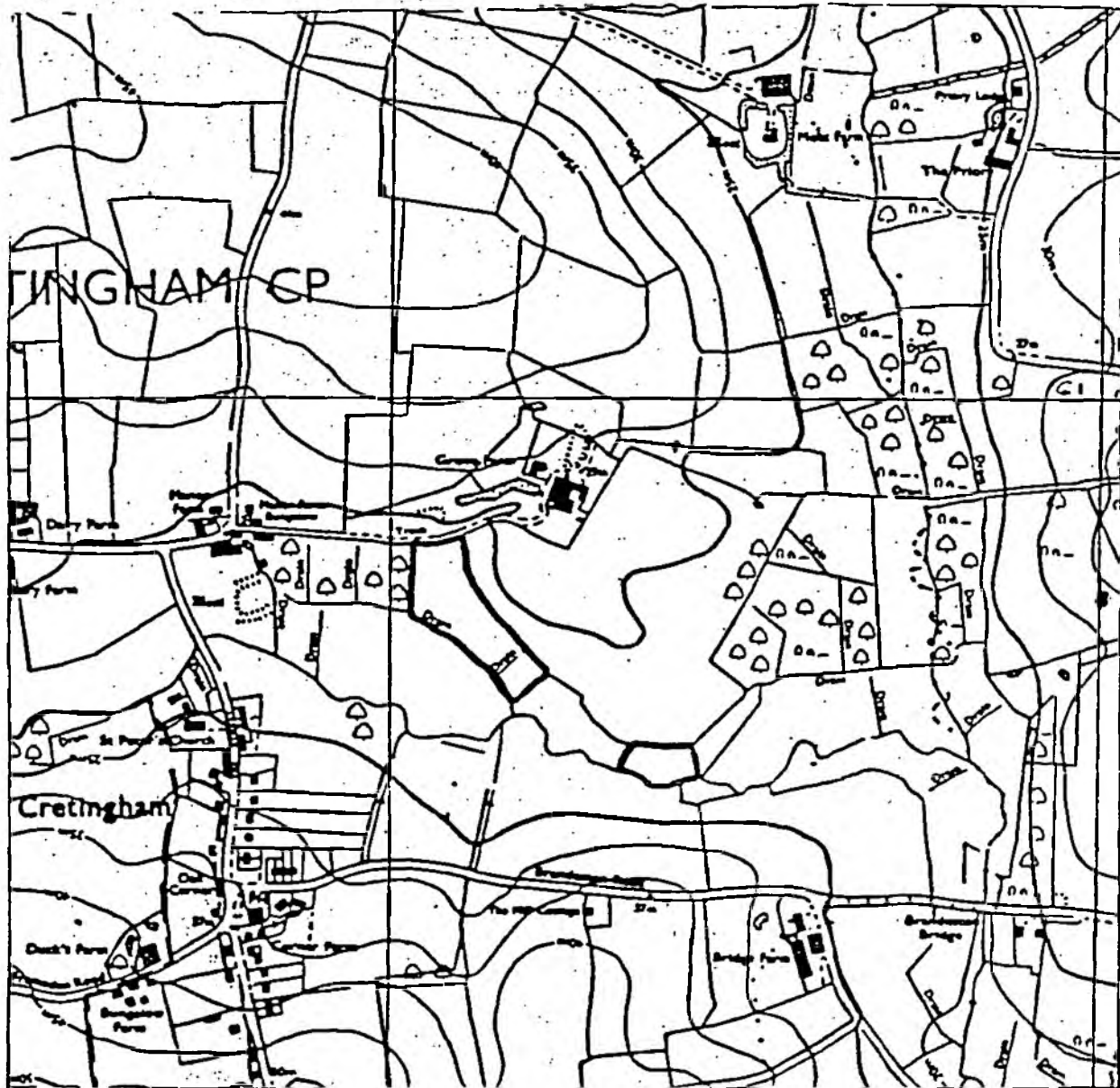
A large pond with an island has been constructed in the centre of one of the fairways and is fringed with rush, reedmace and water plantain. This provides a valuable nesting site for water birds including coot and moorhen.

Hedges with scattered mature alders and willows separate the fairways and these are interspersed with pockets of tall unmanaged fen vegetation. These areas, dominated by rushes and sedges also support other wild flowers for example knapweed, greater bird's-foot trefoil and meadowsweet.

# SITE BOUNDARY MAP

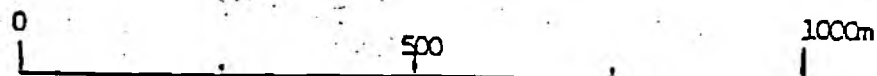
SITE NAME: Grove Farm Golf Course

GRID REFERENCE: TM 231607



SCALE:

1: 10,000



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COUNTY WILDLIFE SITES

SITE SHEET - SUFFOLK COASTAL DISTRICT

Site Name: Reves Hall Meadow

Parish: Eyke

Grid Ref: TM 314519

Map No: 35SW

Area: 1.2ha

Description of Features:

This site consists of a wet meadow and a number of species-rich dykes, situated to the north of Reves Hall, in the River Deben floodplain. The marsh, which has been neglected for a number of years is now managed by an annual hay cut in the late summer. This form of management has encouraged a herb-rich plant community to develop. In addition to the southern marsh orchids which are abundant here, valerian, marsh arrow-grass, ragged robin and distant sedge also occur frequently. A number of dykes to the east of a nearby track are also included in this site. Although most of the pasture has been improved, a 1-2m wide strip alongside the dykes appears to be unaffected by agricultural chemicals and supports a variety of emergent and aquatic plant species. Dragonflies and damselflies are also numerous in this area.



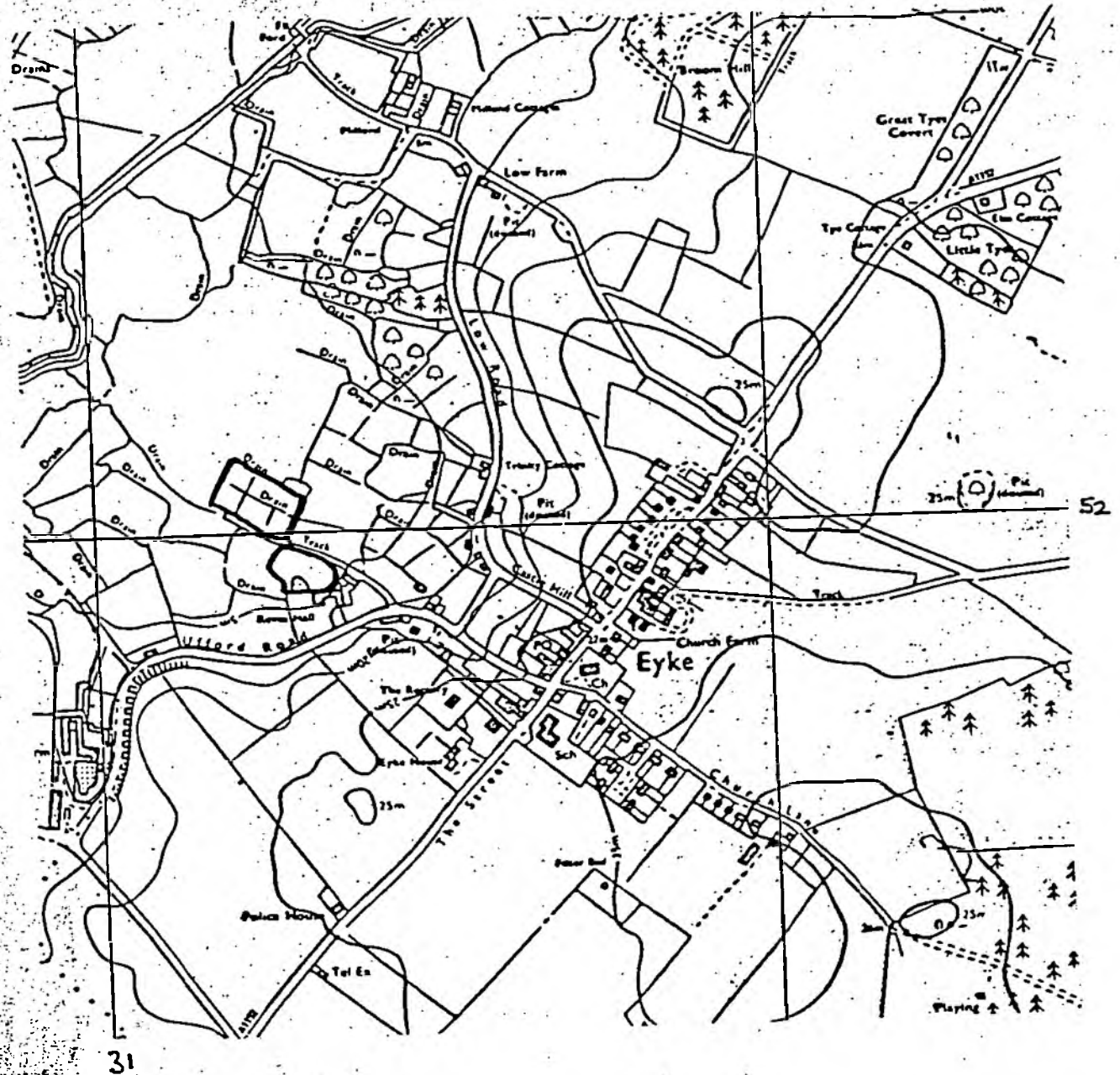
# SITE BOUNDARY MAP

SITE NAME:

Reves Hall Meadow

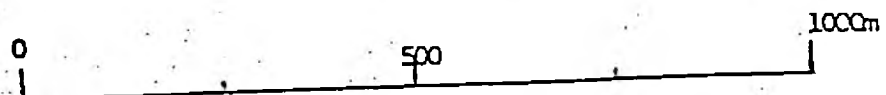
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SCALE:

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COUNTY: Suffolk

SITE NAME: FOX FRITILLARY MEADOW,  
FRAMSDEN

DISTRICT: Mid Suffolk

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Mid Suffolk District Council

National Grid Reference: TM 188606 Area: 2.30 (ha.) 5.68 (ac.)

Ordnance Survey Sheet 1:50,000: 156 1:10,000: TM 16 NW

Date Notified (Under 1949 Act): 1958 Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1983 Date of Last Revision: -

Other Information:

Formally known as Boundary Farm, Framsdene. Site reduced in size at re-notification, Nature reserve owned by Suffolk Trust for Nature Conservation.

Reasons for Notification:

This site consists of a small unimproved species-rich meadow situated in a valley bottom on heavy alluvial soils. The meadow supports the largest and best known population of Snakes-head Fritillary (Fritillaria meleagris) in East Anglia, a plant which is rare and which has a limited national distribution.

The grass sward contains a mixture of grasses including Meadow Foxtail (Alonecurus pratensis), Red Fescue (Festuca rubra), Creeping Bent (Agrostis stolonifera), Yorkshire Fog (Holcus lanatus), Crested Dog's-Tail (Cynosurus cristatus) and Rough-stalked Meadow-Grass (Poa trivialis) with a good variety of herbs typical of alluvial meadows. These include Meadowsweet (Filipendula ulmaria), Cowslip (Primula veris), Cuckooflower (Cardamine pratensis) and Ragged Robin (Lychnis flos-cuculi).

Site name: FOX FRITILLARY MEADOW, FRAMSDEN, SUFFOLK

1. Cultivation, including ploughing, rotovating, harrowing, and re-seeding.
2. The introduction of grazing and changes in the grazing regime (including type of stock or intensity or seasonal pattern of grazing and cessation of grazing).
3. The introduction of stock feeding and changes in stock feeding practice, including changes in the number of animals stocked.
4. Changes in the mowing or cutting regime (including hay making to silage and cessation).
5. Application of manure, fertilisers and lime.
6. Application of pesticides, including herbicides (weedkillers).
7. Dumping, spreading or discharge of any materials.
8. Burning.
9. The release into the site of any wild, feral or domestic animal\*, plant or seed  
\* 'animal' includes any mammal, reptile, amphibian, bird, fish or invertebrate.
11. The destruction, displacement, removal or cutting of any plant or plant remains, including herb, hedge and turf.
12. The introduction of tree and/or woodland management<sup>+</sup> and changes in tree and/or woodland management<sup>+</sup>  
+ including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand of underwood, changes in species composition, cessation of management.
- 13a. Drainage (including the use of mole, tile, tunnel or other artificial drains).
- 13b. Modification of the structure of watercourses (eg. streams, springs, ditches and drains), including their banks and beds, as by re-alignment, re-grading and dredging.
14. The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes).
15. Infilling of ditches, or drains.
20. Extraction of minerals, including sand and gravel, topsoil, subsoil, and spoil.
21. Construction, removal or destruction of roads, tracks, walls, fences, hard-stands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
22. Storage of materials.
23. Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.
26. Use of vehicles or craft likely to damage or disturb the grassland.
27. Recreational or other activities likely to damage the vegetation.
28. Introduction of game management and changes in game management and hunting practice.

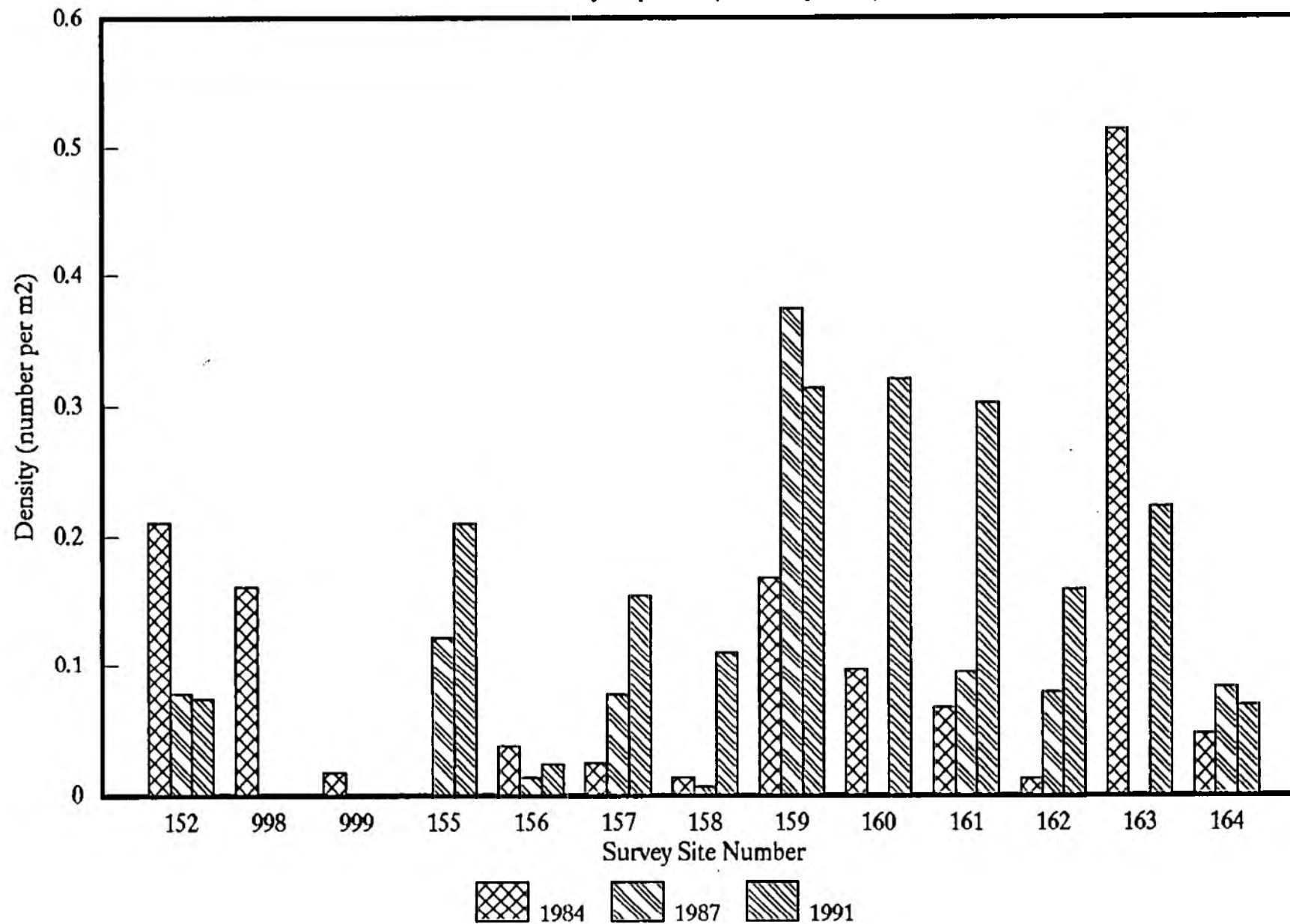


**APPENDIX B  
BACKGROUND FISHERIES DATA**



# River Deben Fisheries Data

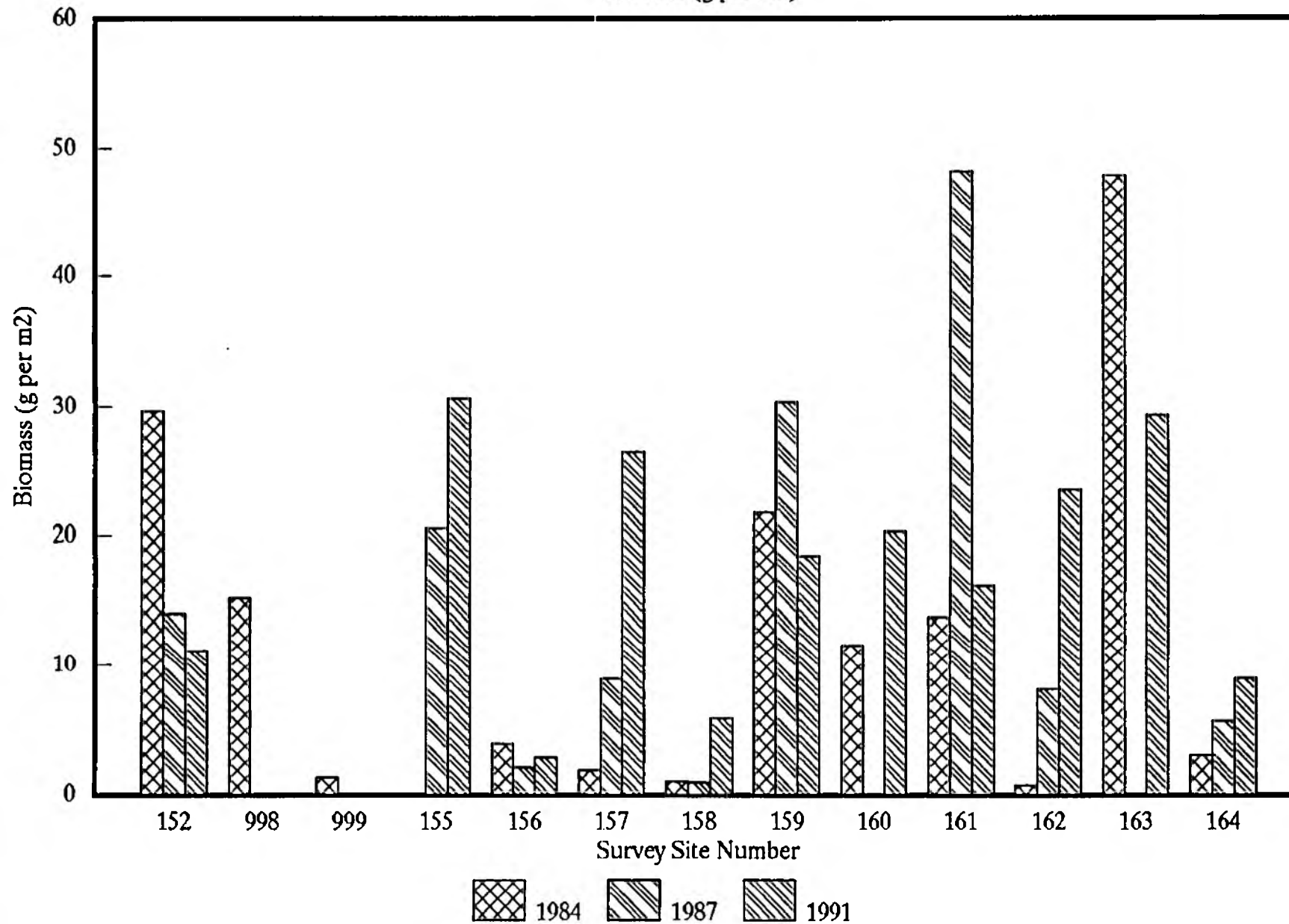
Density Captured (number per m2)





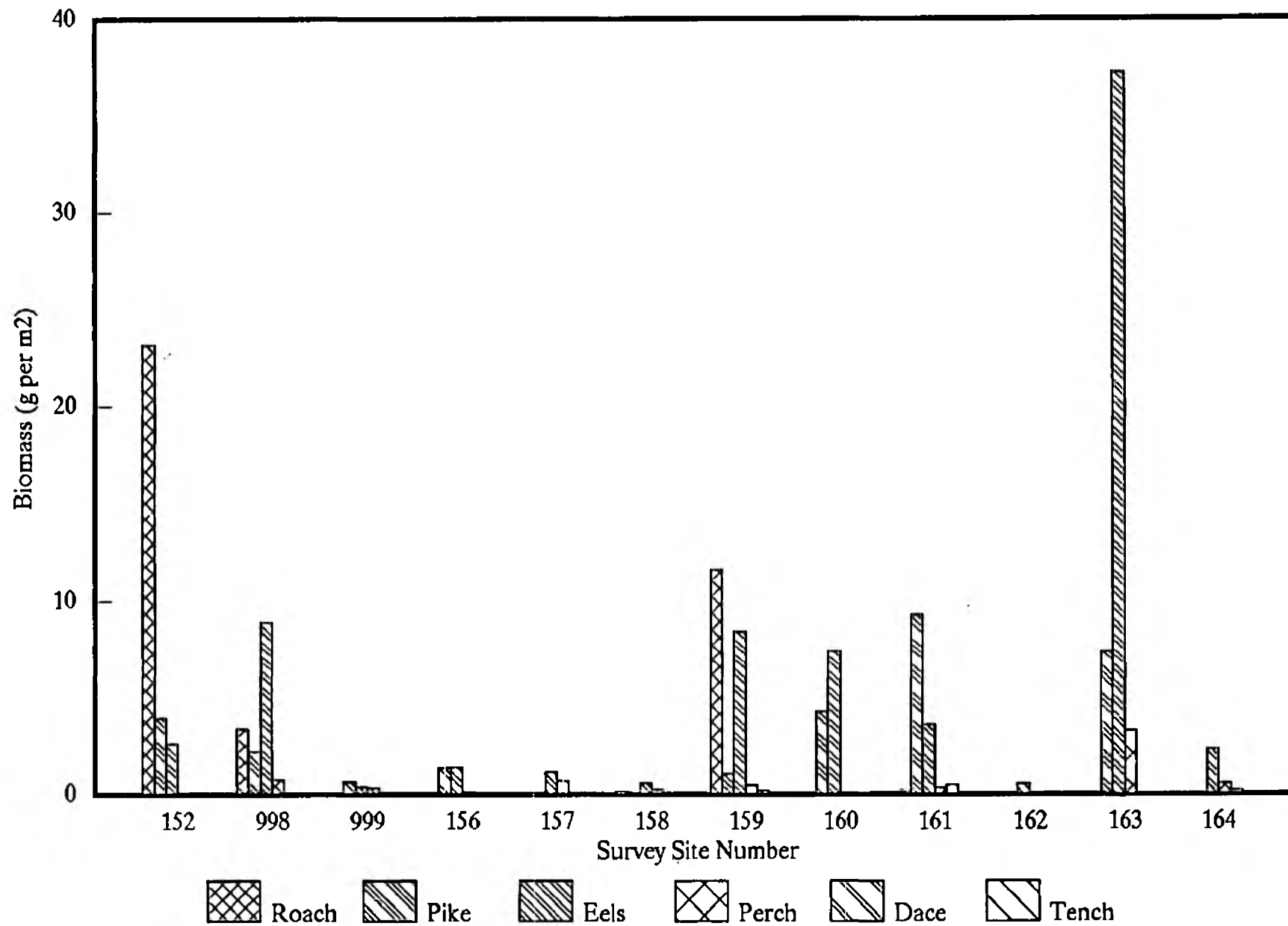
# River Deben Fisheries Data

Biomass (g per m<sup>2</sup>)



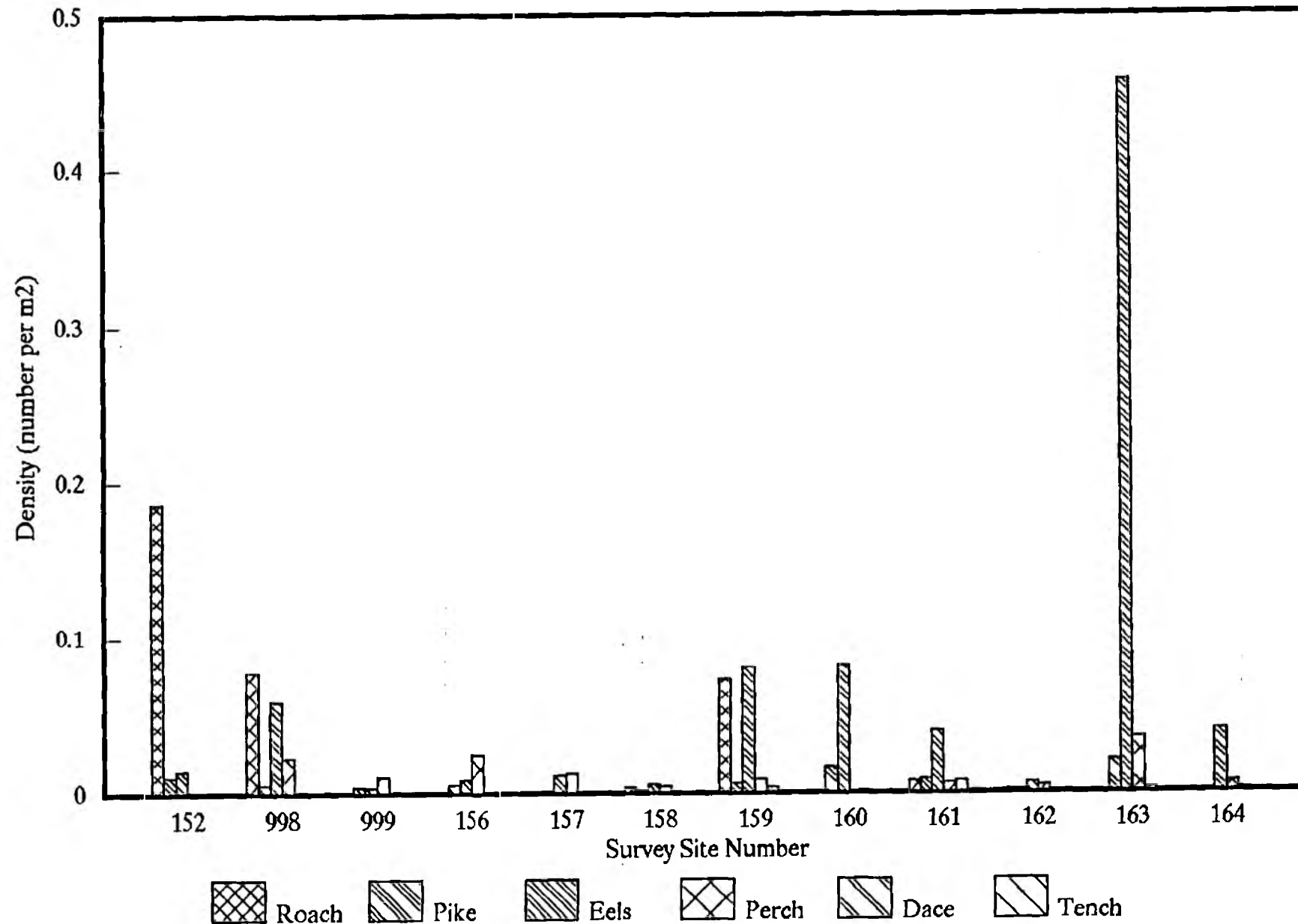
# River Deben Fisheries Data

1984 – Biomass of Fish > 10cm



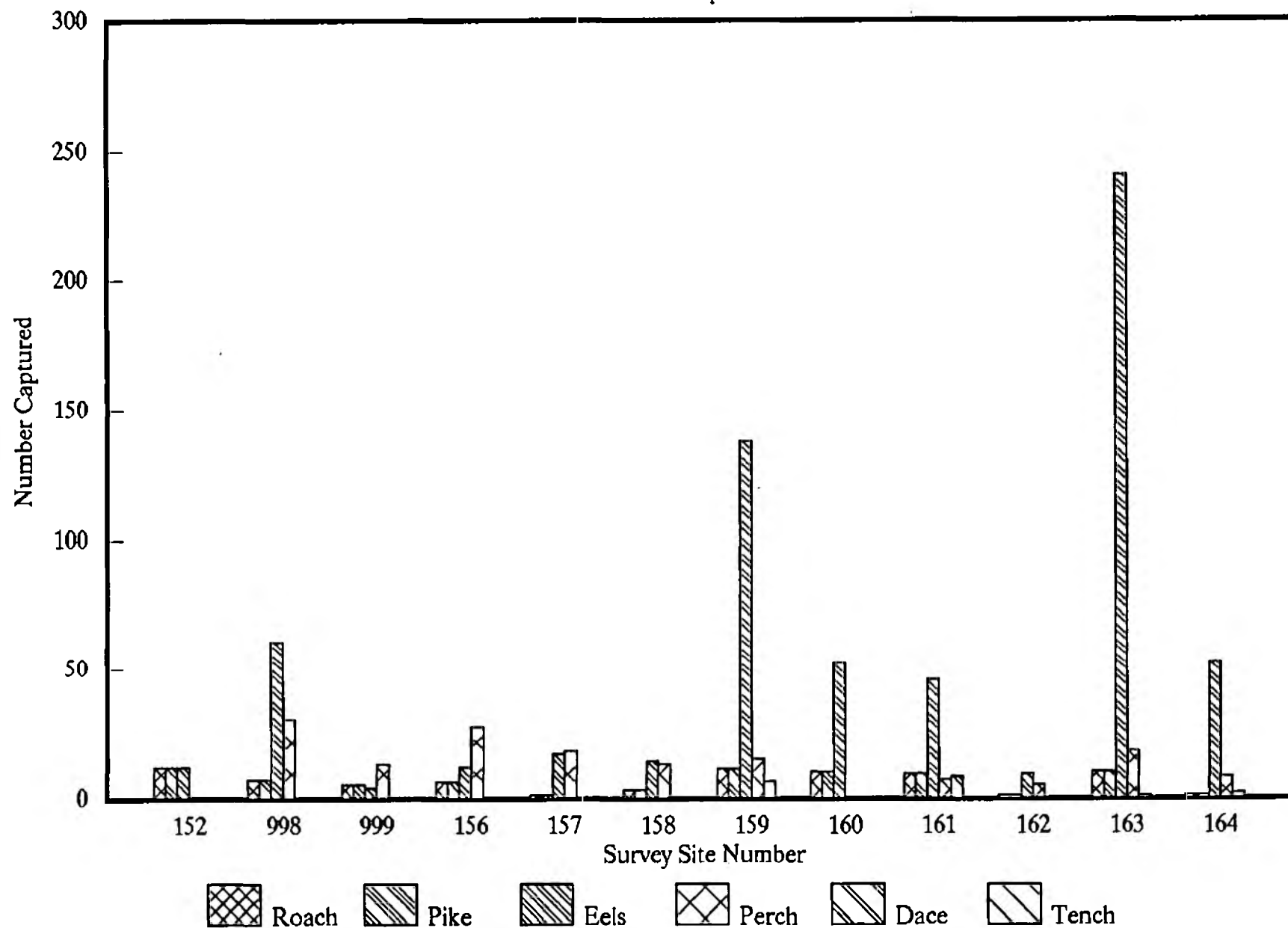
# River Deben Fisheries Data

1984 - Density of Fish > 10cm



# River Deben Fisheries Data

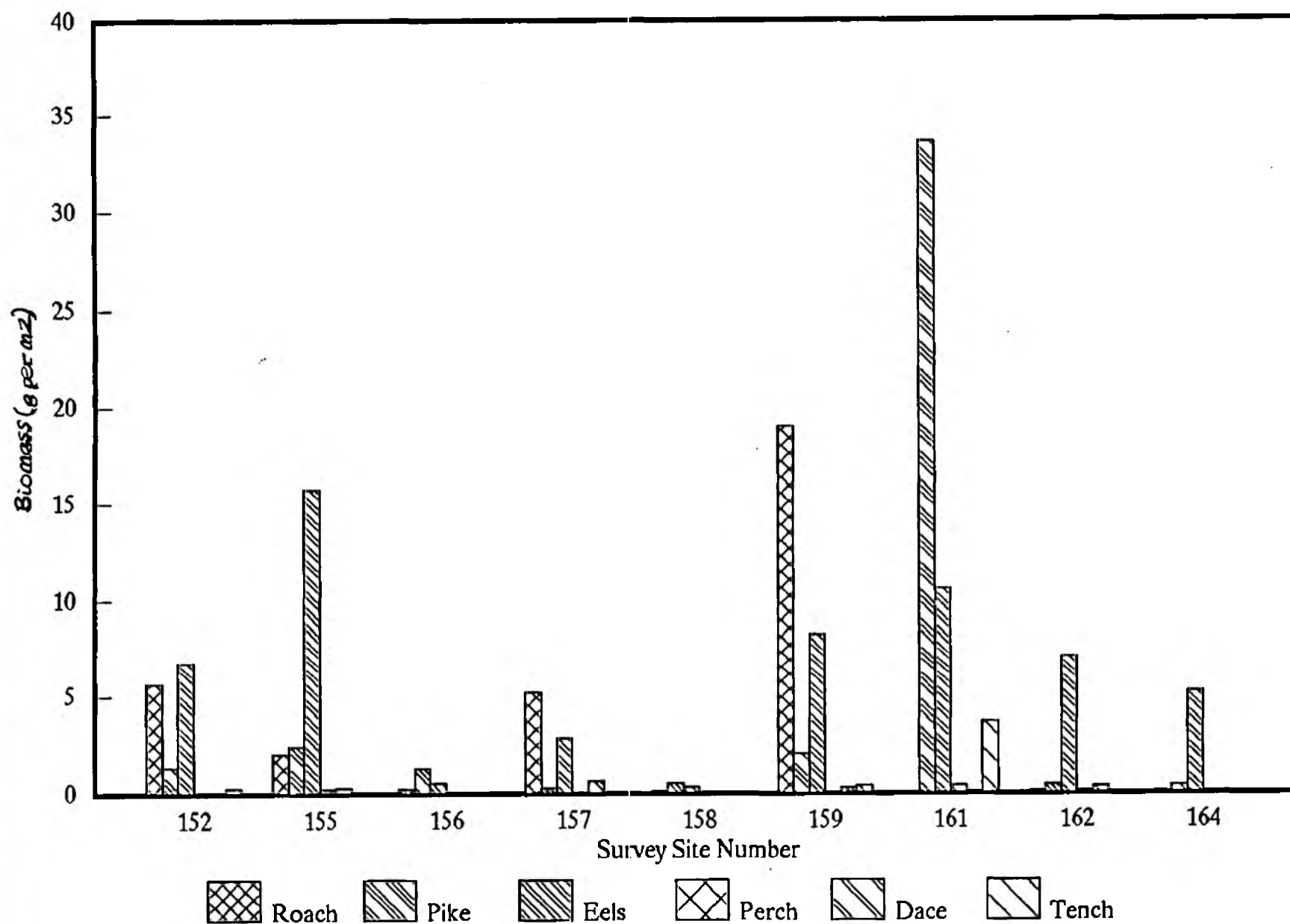
1984 – Fish Captured >10cm





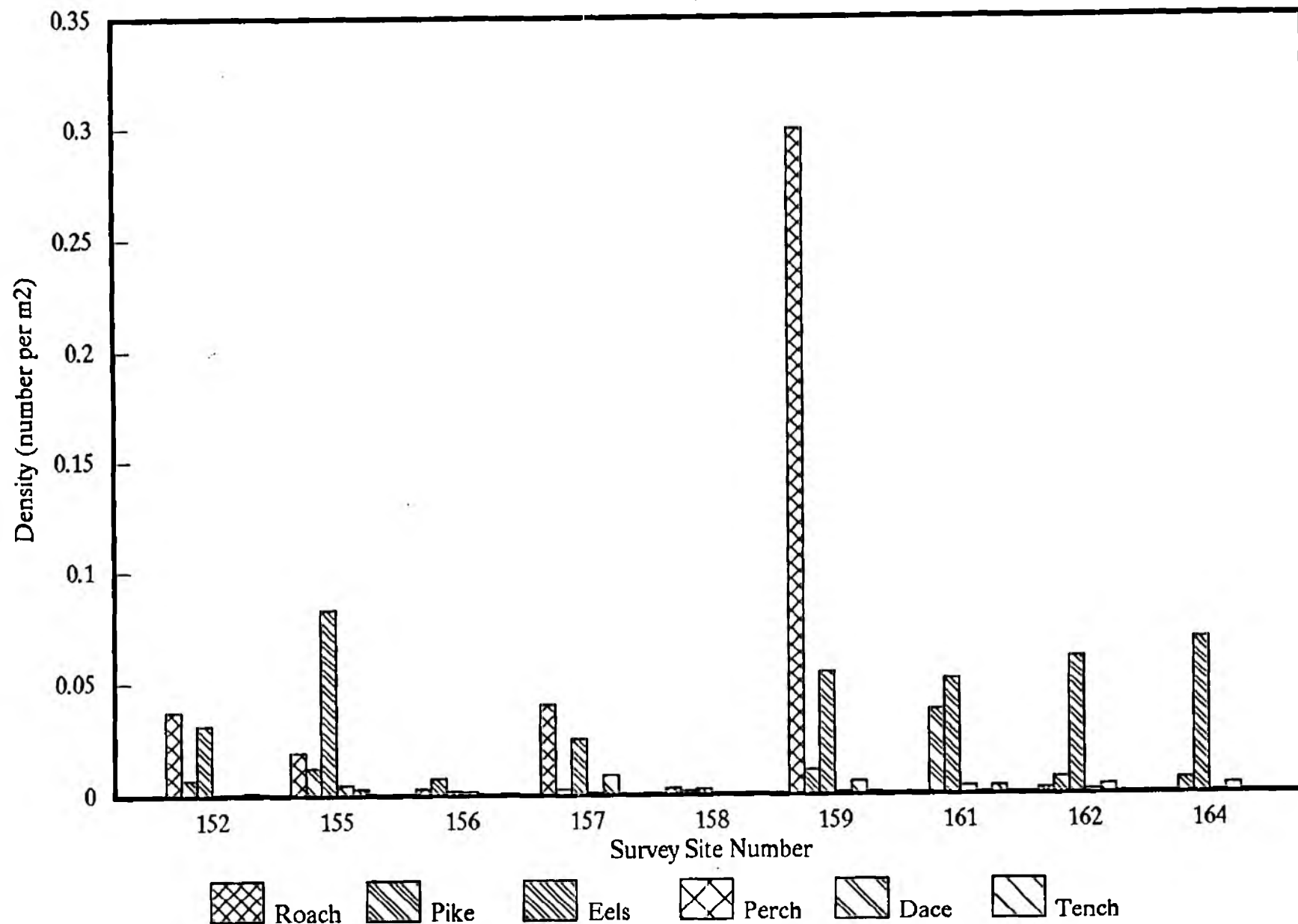
# River Deben Fisheries Data

1987 - Biomass of Fish > 10cm



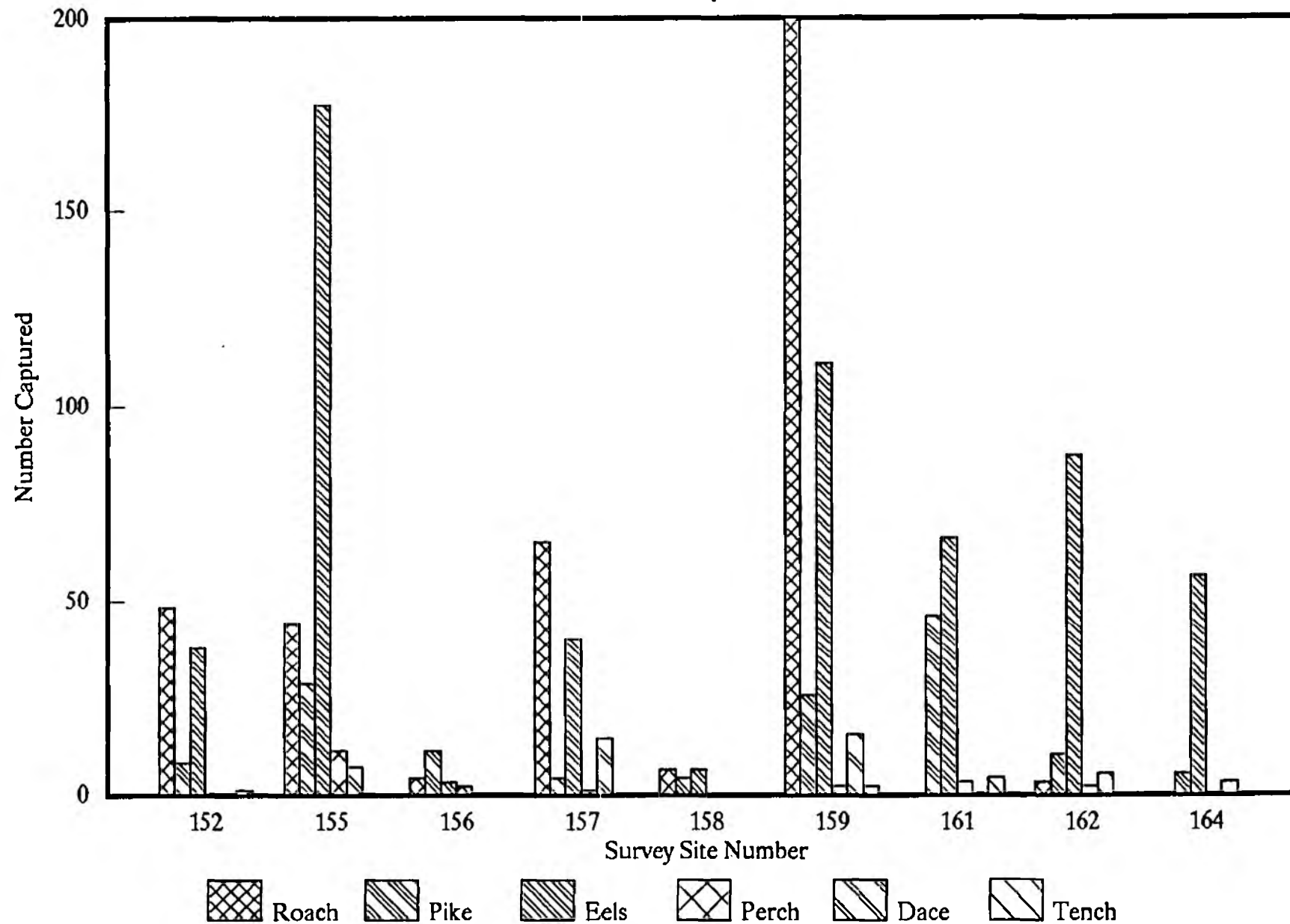
# River Deben Fisheries Data

1987 – Density of Fish > 10cm



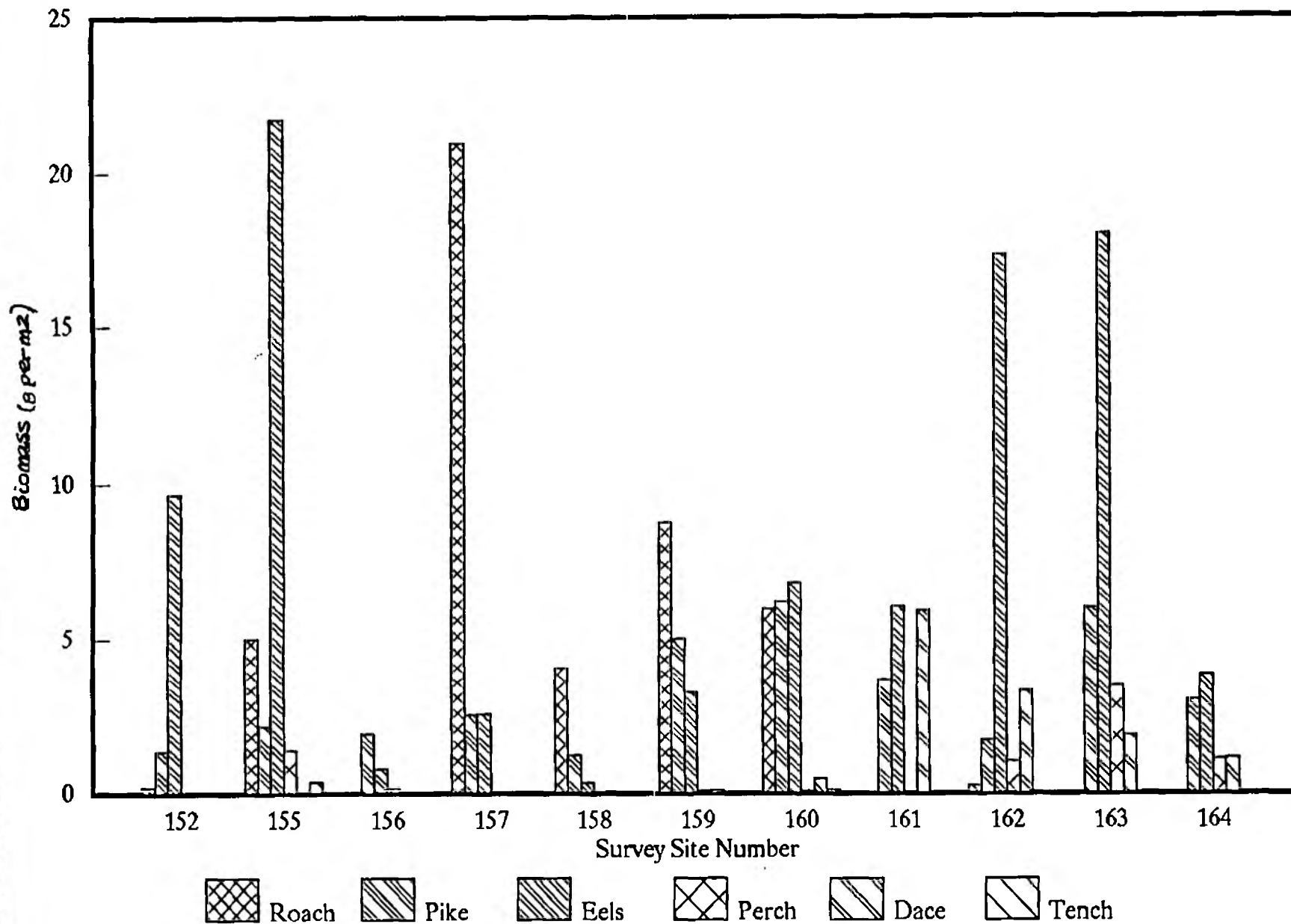
# River Deben Fisheries Data

1987 – Fish Captured >10cm



# River Deben Fisheries Data

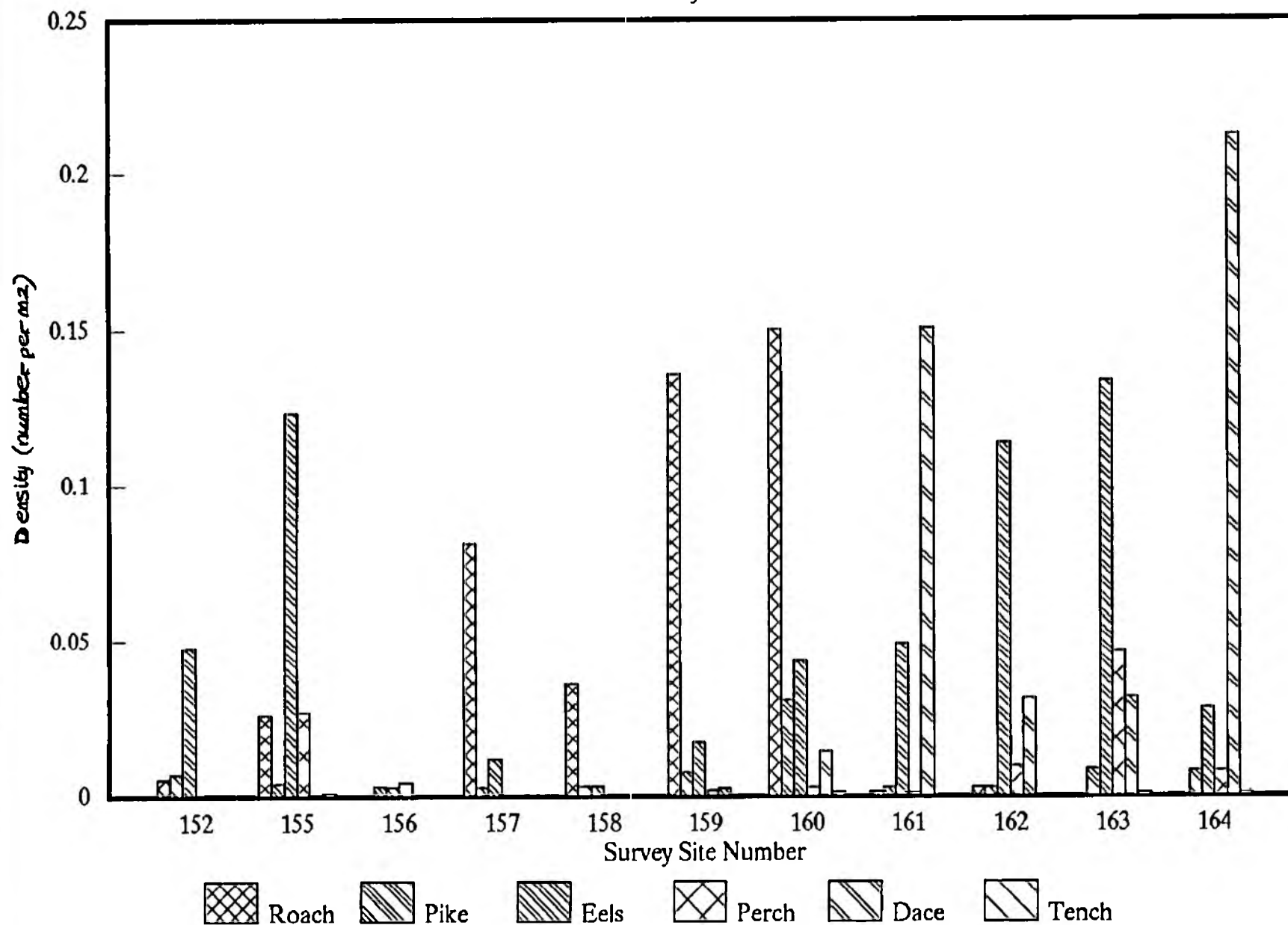
1991 – Biomass of Fish > 10cm





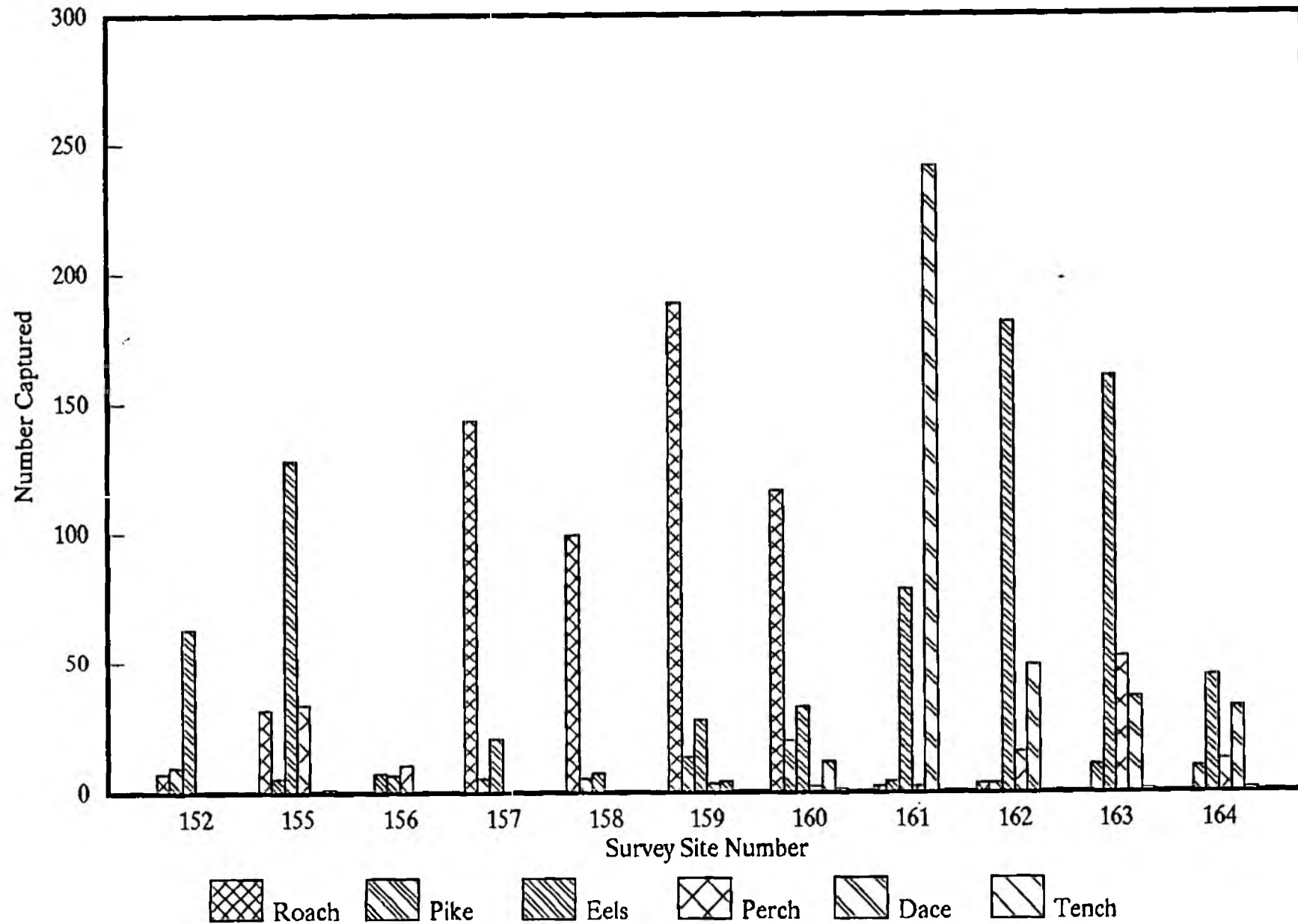
# River Deben Fisheries Data

1991 – Density of Fish > 10cm



# River Deben Fisheries Data

1991 – Fish Captured > 10cm



## **APPENDIX C BACKGROUND WATER QUALITY DATA**

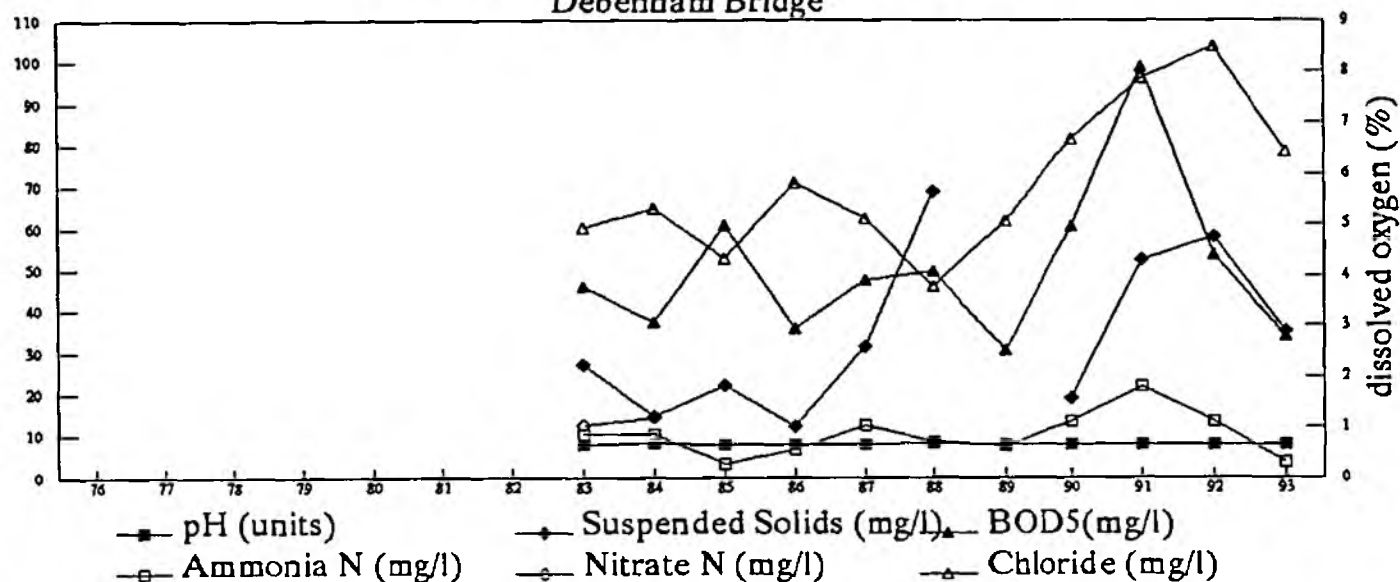




Sample Point -	Debenham Bridge		NCR -		TM 180026		Mean Values											
Year	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Parameter																		
pH								8	8.18	8.03	8.03	7.91	8.11	8.08	7.83	7.97	8.07	8.08
S. Solids								27.2	14.78	22.33	12.18	31.38	88.78	4.08	18	82.8	88	35
BOD								3.78	3.08	4.98	2.83	3.88	4.08	2.48	4.98	8.1	4.4	2.77
Ammonia N								0.88	0.88	0.28	8.84	1.03	0.71	0.83	1.1	1.79	1.11	0.29
Nitrate								12.73	14.33									
Chloride								83.1	84.8	82.8	71.1	82.4	48.1	81.8	81.8	88.1	103.7	78.3
Temp (mean)								9.2	9.2	11.8	7	10	10.7	7.8	9.8	8.3	9.8	11.1
Temp (max)								18	18	18	12	18	18	18	18.8	13	18	18
DO (mean)								88.3	82	86.3	82.9	86.3	81.8	82	71.8	87	79.1	87.9
DO (min)								48	48	84	80	48	80	88	10.7	72	30	64

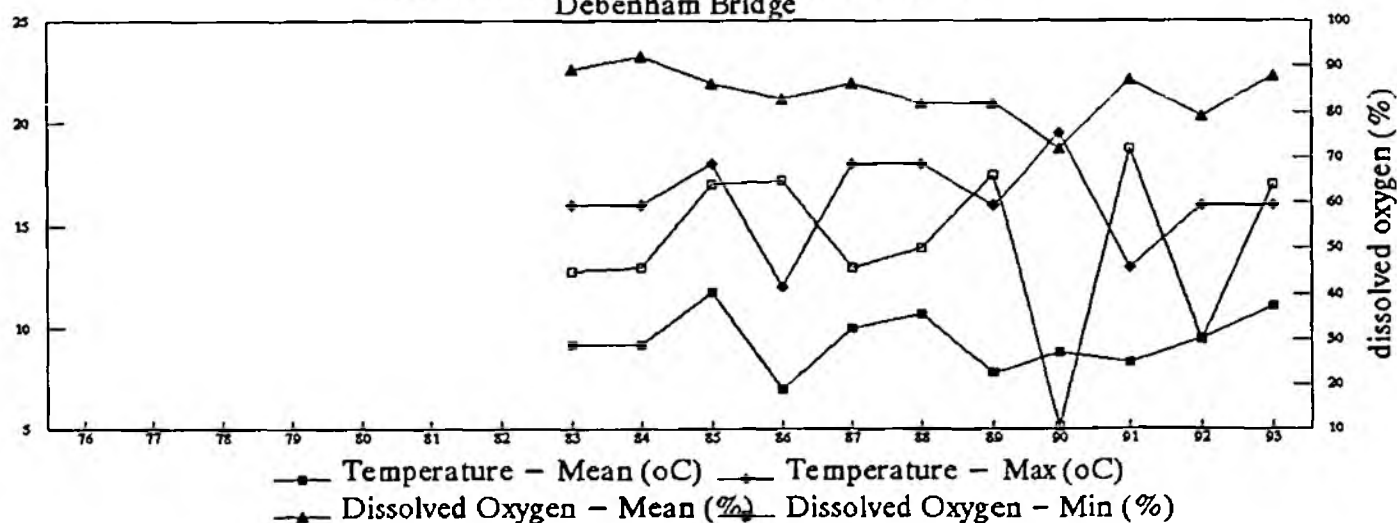
## Water Quality Record

Debenham Bridge



## Water Quality Record

Debenham Bridge



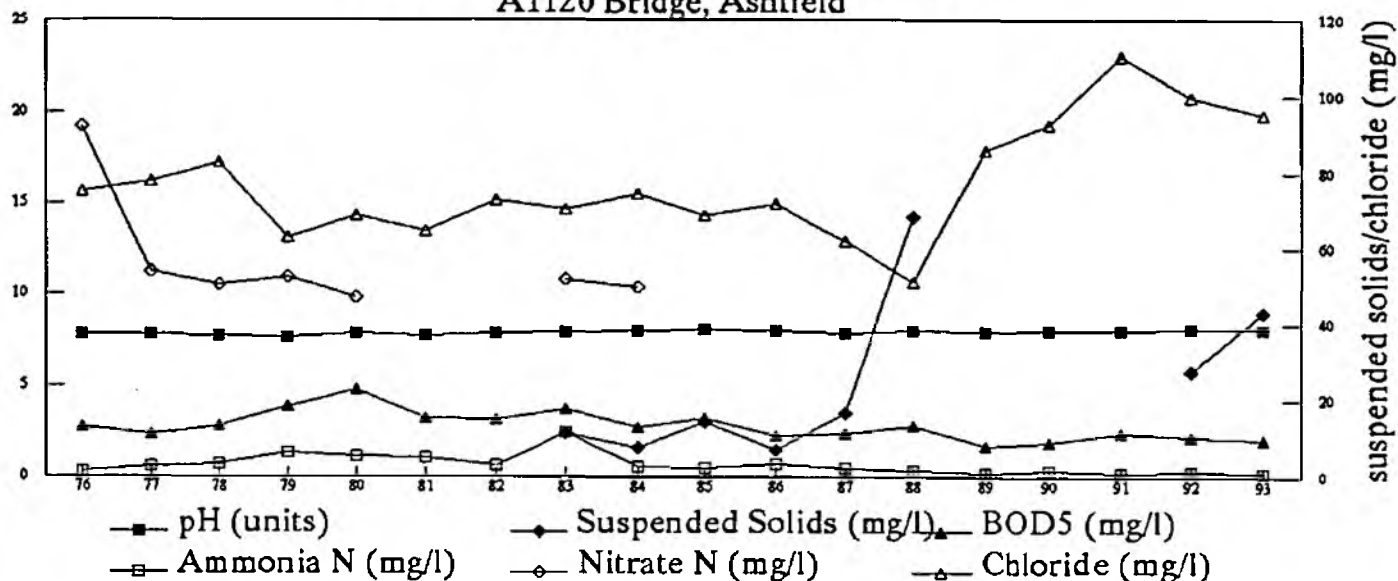
Sample Point - A1120 Bridge, Ashfield NGFI - TM203616

Mean Value

Year	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
pH	7.75	7.6	7.71	7.67	7.83	7.71	7.63	7.86	7.88	8.08	8.01	7.88	8.02	7.83	7.98	8	8.08	8.03
Solids								11.46	7.67	14.33	8.95	16.79	88.38				27.8	43
BOD	2.7	2.32	2.81	3.82	4.74	3.19	3.12	3.7	3.78	3.19	2.25	2.4	2.81	1.88	1.86	2.41	2.18	2.03
Ammonia N	0.27	0.05	0.71	1.35	1.08	1.03	0.62	2.44	0.09	0.47	0.89	0.47	0.33	0.2	0.333	0.22	0.28	0.18
Nitrate	18.2	11.21	10.61	10.98	9.89	8.6	72.8	70.4	74.8	68.8	71.8	61.8	51.3	65.9	82.8	110.5	88.7	86.2
Chloride	75	77.9	82.9	83.1	88.7	84.8												
Temp (mean)	10.1	10.4	8.4	9.9	9.7	8.4	10.8	10.7	9.7	10.8	10.5	9.8	10.3	9.8	10.4	10.4	10.3	11.8
Temp (max)	18	17	18	19	17	17	15.6	18	19	18	21	15	16	17	18	17	18	19
DO (mean)	88.2	84.8	71.3	71.2	70.8	77.7	74.2	88.9	88.6	86.7	81.8	87.4	89.2	80.8	78.1	82.7	82	83.3
DO (min)	88	7.7	42	47	38	46	44	60	80	80	18	61	78	50	13.3	62	64	46

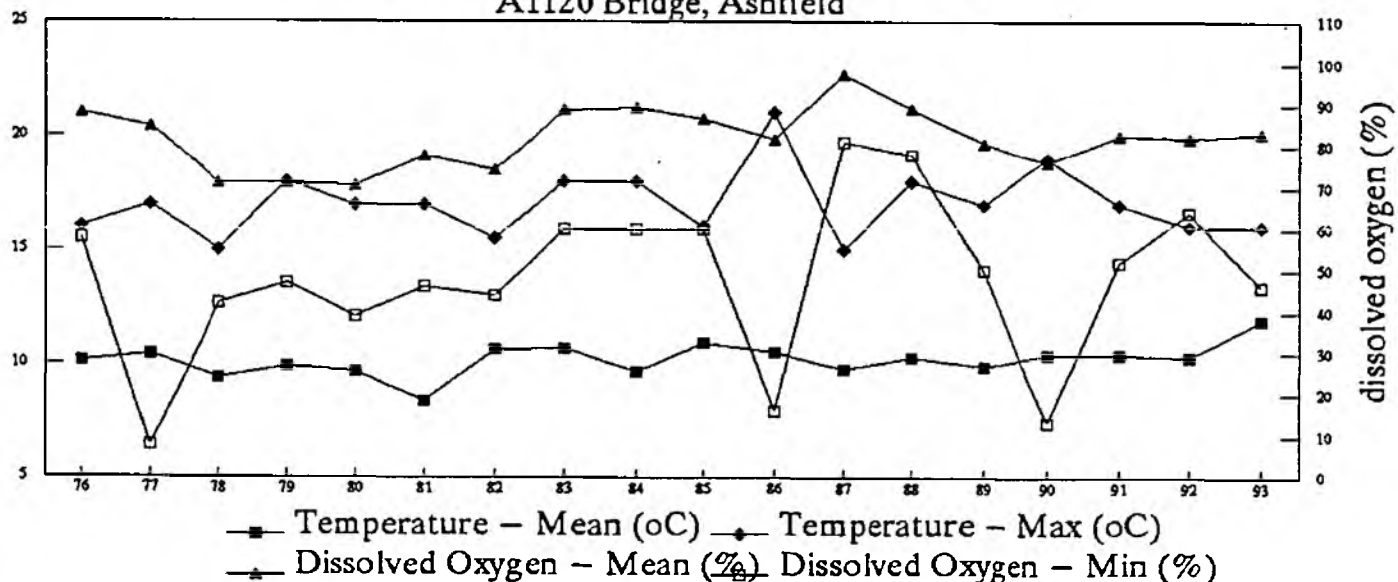
## Water Quality Record

A1120 Bridge, Ashfield



## Water Quality Record

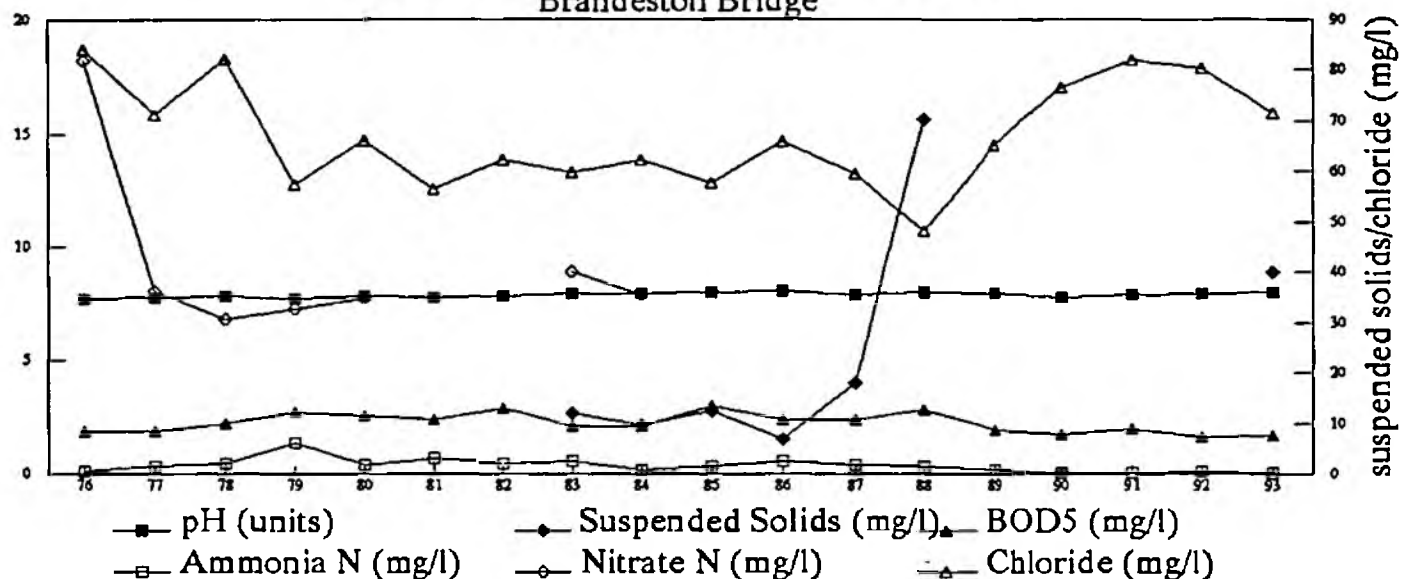
A1120 Bridge, Ashfield



Sample Point --	Brandeston Bridge		NCR --		BAC28803		Mean Values												
Year / Parameter	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	
pH	7.74	7.76	7.81	7.73	7.84	7.8	7.83	7.82	7.84	8.01	8.08	7.88	8.03	7.84	7.78	7.88	7.87	7.86	
S.Solids								12.08	8.83	12.44	8.83	18.17	70.3	18.17	70.3	18.17	70.3	40	
BOD	1.8	1.88	2.2	2.74	2.88	2.41	2.88	4.08	8.12	2.88	2.38	2.38	2.82	1.84	1.78	2.01	1.88	1.88	
Ammonia N	0.15	0.34	0.48	1.37	0.43	0.88	0.48	0.88	0.2	0.38	0.8	0.43	0.34	0.18	0.08	0.08	0.13	0.1	
Nitrate	18.17	8.08	8.8	7.3	7.74			8.8	7.88										
Chloride	84	71.1	82.1	87.8	88.2	88.8	82.4	88.8	82.5	87.8	88	88.5	48.2	85.1	78.4	81.7	80.2	71.4	
Temp (near)	10.2	8.8	8.8	8.7	8.8	7.8	10.2	10.8	11.1	11.8	10.3	9.8	10	10.5	10.8	10.3	10.3	12.2	
Temp (max)	18	18	18	18	17	18	18.8	18	19	18	22	18	17	18	20	17	18	18	
DO (near)	80.3	88.8	79.5	75.2	78.8	83.8	78.1	80.2	85.4	88.7	88.8	88.3	83.5	80.2	73.8	78.7	78.7	74.8	
DO (min)	71	80	88	48	81	43	85	72	82	70	88	84	78	88	80	40	88	42	

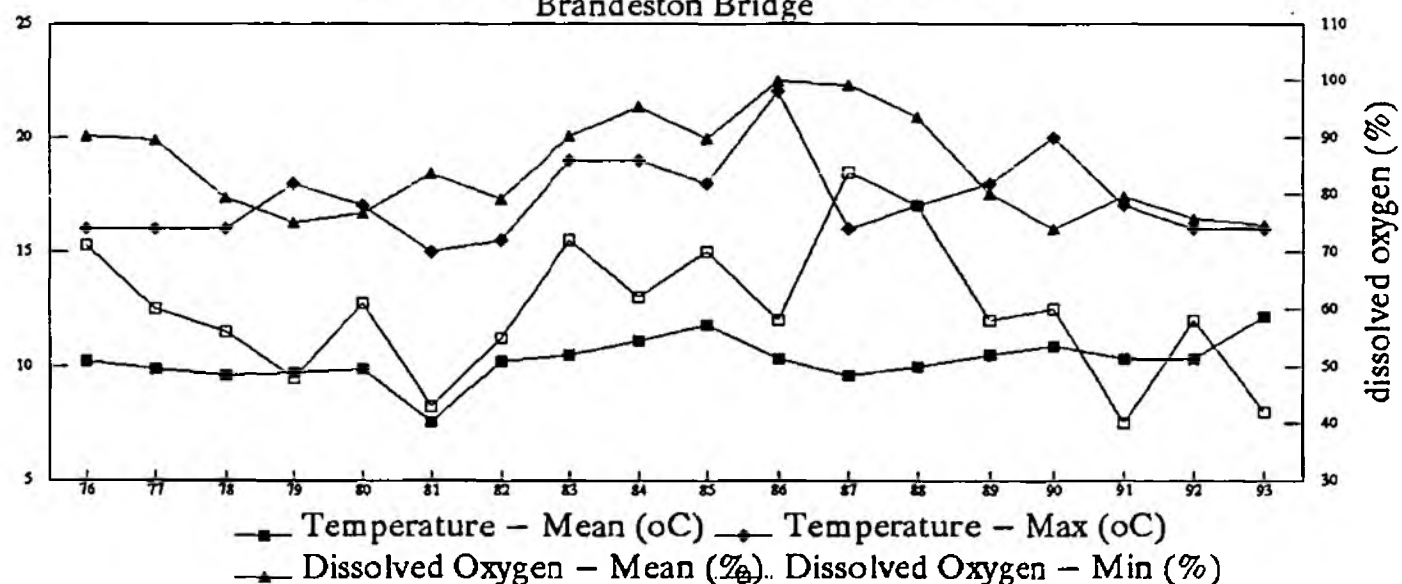
## Water Quality Record

Brandeston Bridge



## Water Quality Record

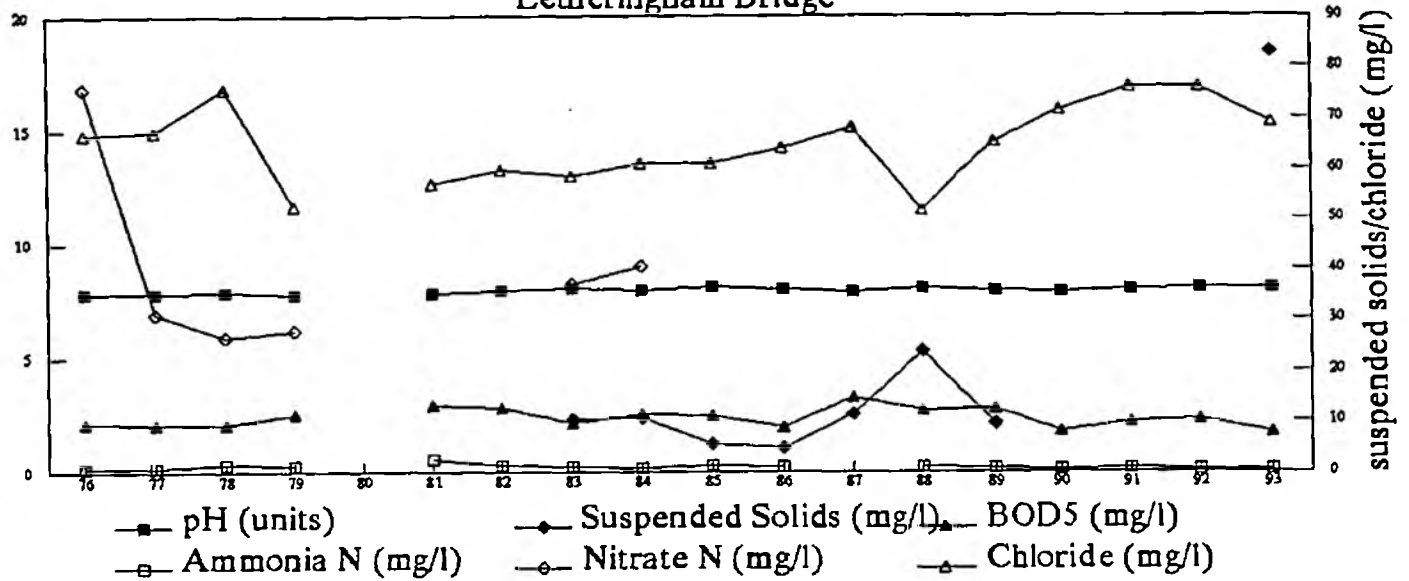
Brandeston Bridge



Sample Point --	Letheringham Bridge				NCR --	TM271588														Mean Values			
Year	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93					
Parameter																							
pH	7.81	7.78	7.83	7.74		7.8	7.88	8.01	7.82	8.08	7.88	7.88	8.02	7.82	7.85	7.88	8.01	8					
B.Solids								10.42	18.67	8.44	4.82	11.41	22.73	9.8				8					
BOD	8.1	8.08	2.07	2.81		2.82	2.81	2.11	2.81	2.45	1.88	3.23	2.88	2.75	1.78	2.2	2.28	1.73					
Ammonia N	0.14	0.16	0.34	0.28		0.32	0.27	0.21	0.17	0.28	0.19		0.22	0.14	0.1	0.13	0.11	0.1					
Nitrate	18.67	6.88	5.81	5.18				8.2															
Chloride	68.7	67.3	78.9	62.3		66.8	66.7	66.3	60.8	60.8	64	67.9	81.8	66.1	71.4	78.1	78.1	68					
Temp (mean)	11.8	11.3	10.4	11		8.4	11.7	11.3	11.3	11	10.7	10.1	10	11.3	11	11	10.4	12.6					
Temp (max)	19	18	17	20		19	17.5	20	20	18	21	17	18	20	20	19	18	18					
DO (mean)	83.5	84.8	74.5	83.3		87.4	91.8	93.8	98.8	97.1	98.4	87	88.3	82	84.4	83.8	87.1	78.6					
DO (min)	82	81	81	86		80	88	88	88	72	80	80	70	80	88	72	80	48					

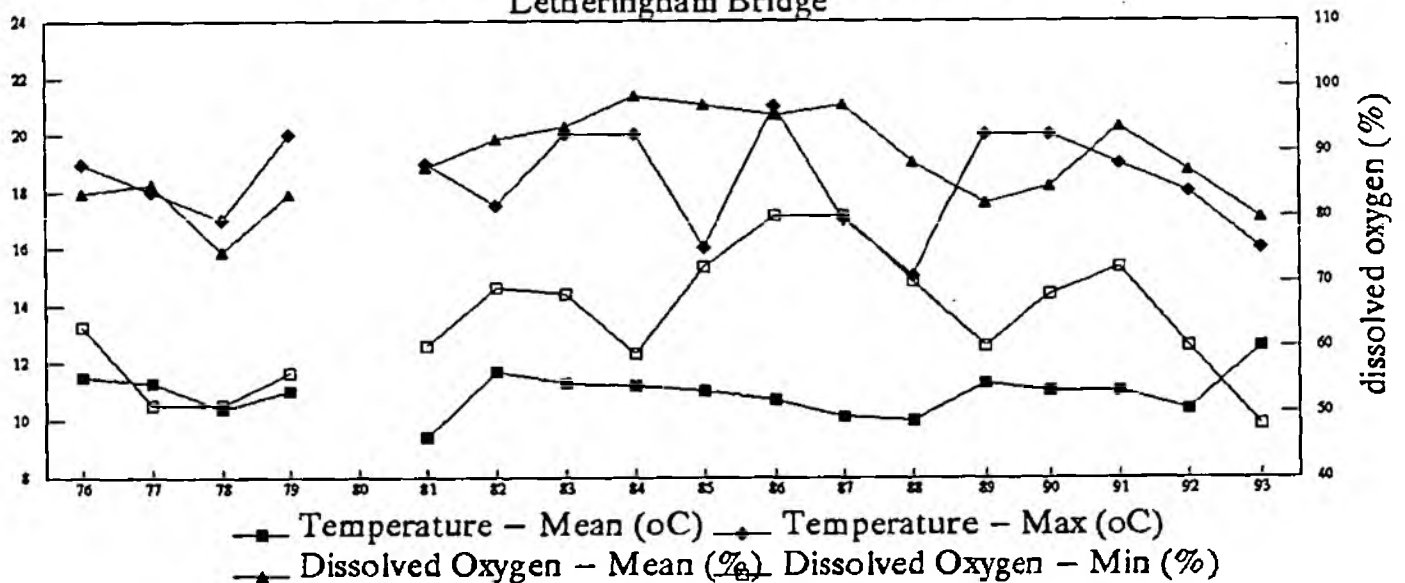
## Water Quality Record

Letheringham Bridge



## Water Quality Record

Letheringham Bridge

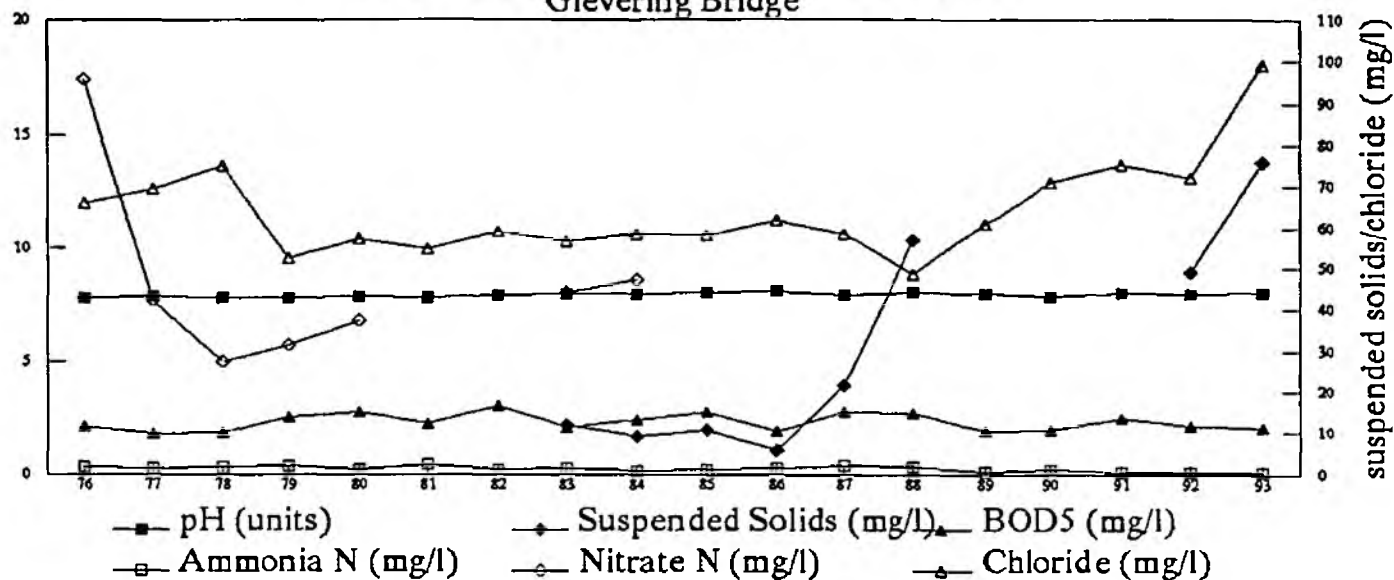




Sample Point --	Gleaving Bridge		MGR --		TM 20 05 08		Mean Values												
Year Parameter	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	
pH	7.79	7.84	7.82	7.8	7.84	7.81	7.8	7.89	7.98	8.05	8.08	7.9	8.04	7.99	7.85	8.02	7.88	8.05	
S.Solids								12	9.18	10.7	8.92	21.88	58.75				48	78	
BOD	2.1	1.8	1.84	2.52	2.78	2.25	3.05	2.07	2.38	2.72	1.88	2.78	2.7	1.8	1.85	2.44	2.1	2.08	
Ammonia N	0.33	0.28	0.3	0.4	0.19	0.42	0.19	0.28	0.17	0.22	0.28	0.38	0.32	0.12	0.2	0.09	0.09	0.1	
Nitrate	17.4	7.65	4.98	5.71	8.78			8.05	8.8										
Chloride	68	69.4	78	82.5	87.2	84.7	88	88.8	88.4	88.2	81.7	88.5	48.8	80.8	71.1	75.3	72.3	88.1	
Temp (mean)	11.8	11.1	10.3	11.8	10.2	8.9	11.4	10.9	11.2	12	11	10.4	10.3	11.3	11.2	11.6	10.6	12.7	
Temp (max)	19	17	17	20	17	17	18	21	20	19	20	17	17	20	20	20	18	17	
DO (mean)	88.7	86	86.1	85.8	80.1	88.5	88.1	88.8	102.7	87.7	82.8	85.8	88.8	88.8	83.2	82.7	84.7	88	
DO (min)	81	72	81	85	81	70	84	86	74	78	80	88	70	82	72	72	80	88	

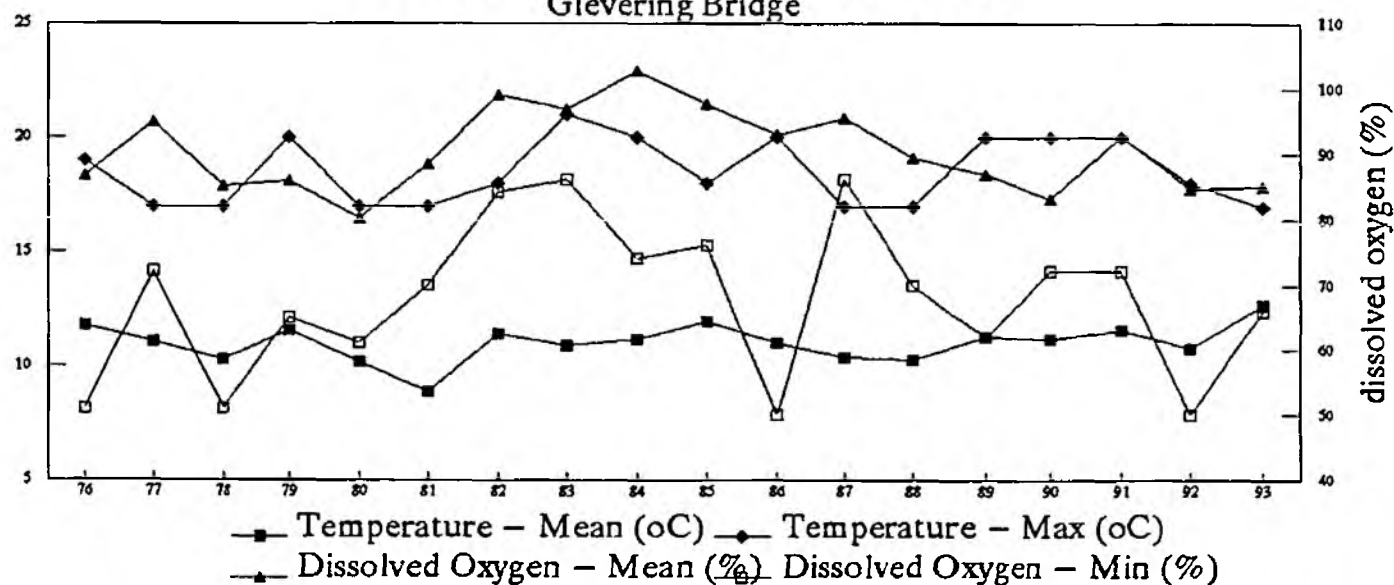
## Water Quality Record

Gleaving Bridge



## Water Quality Record

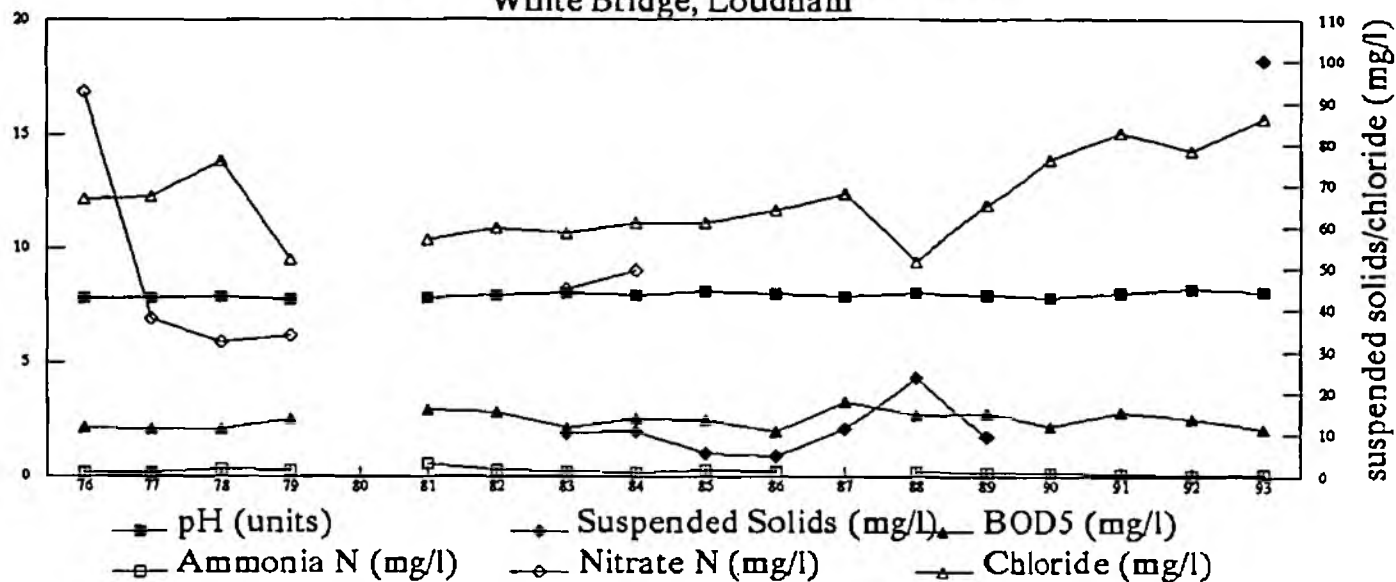
Gleaving Bridge



Sample Point -	White Bridge, Loudham NGR -				TM31053														
Year	76	77	78	79	Mean Values														
Parameter					80	81	82	83	84	85	86	87	88	89	90	91	92	93	
pH	7.81	7.76	7.83	7.74		7.8	7.88	8.01	7.82	8.08	7.88	7.88	8.02	7.82	7.79	8.01	8.17	8.08	
S.Solids								10.42	10.67	0.44	4.82	11.41	23.73	9.5				100	
BOD	8.1	8.08	8.07	8.81		2.82	2.81	2.11	2.81	2.48	1.88	3.23	2.88	2.75	2.2	2.79	2.82	2.08	
Ammonia N	0.14	0.18	0.34	0.28		0.52	0.27	0.21	0.17	0.28	0.19	0.22	0.14	0.14	0.14	0.08	0.07	0.08	
Nitrate	16.87	6.89	8.91	8.16				8.2	8										
Chloride	88.7	87.3	75.8	82.3		88.8	88.7	88.3	83.8	83.8	84	87.8	81.8	88.1	78.3	82.8	78.4	88.2	
Temp (mean)	11.5	11.3	10.4	11		9.4	11.7	11.3	11.2	11	10.7	10.1	10	11.3	11.1	11.8	11	12.8	
Temp (max)	18	18	17	20		19	17.5	20	20	18	20	17	15	20	20	21	18	17	
DO (mean)	83.5	84.9	74.5	83.3		87.4	81.8	83.8	88.5	87.1	88.4	87	88.3	82	78.4	88.7	80.6	84.8	
DO (min)	83	81	81	88		80	88	88	88	72	80	80	80	80	88	84	82	80	

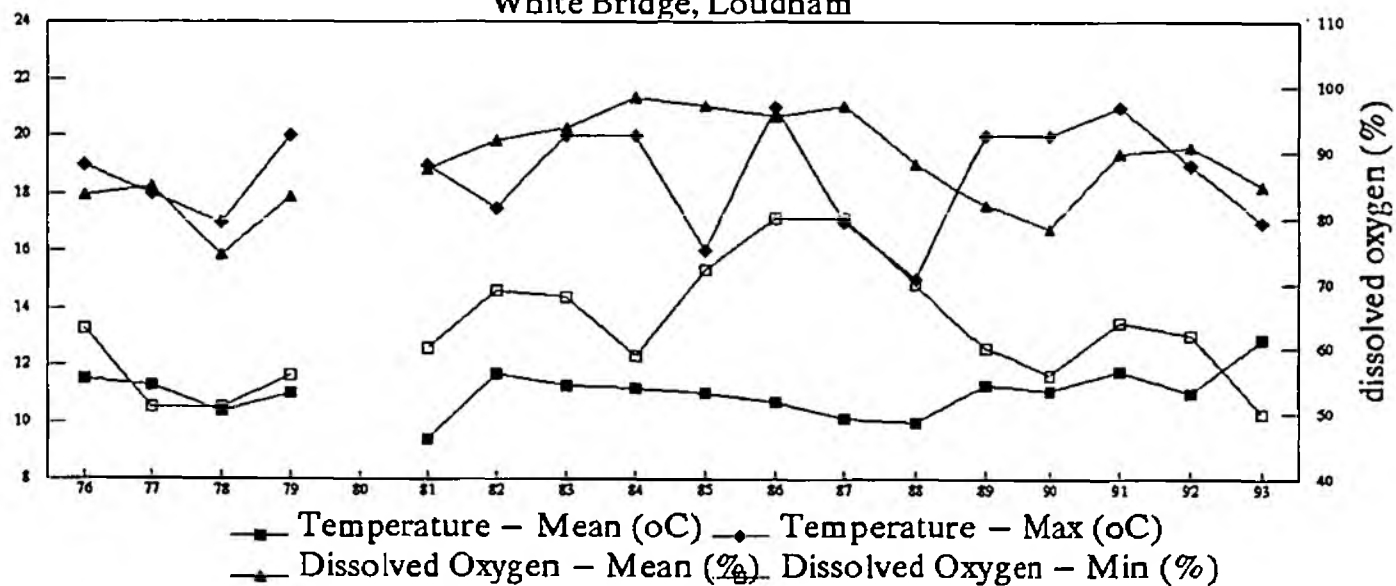
## Water Quality Record

White Bridge, Loudham



## Water Quality Record

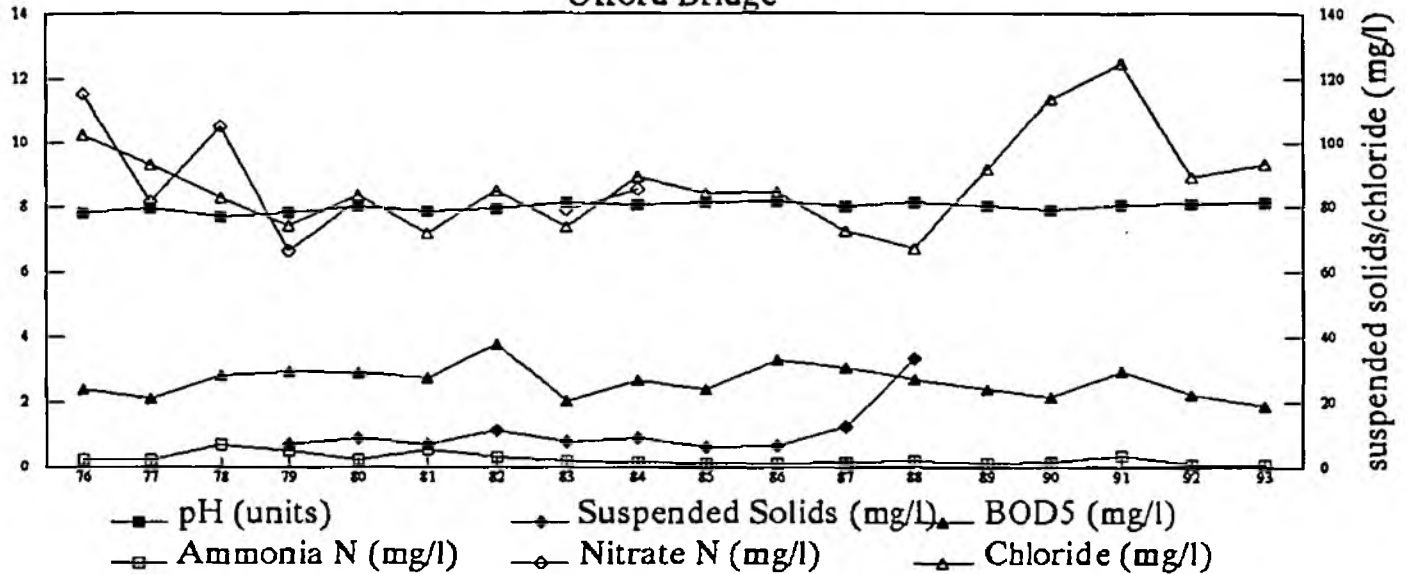
White Bridge, Loudham



Sample Point -	Ufford Bridge		NGR -		TM300510		Mean Values												
Year Parameter	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	
pH	7.83	7.97	7.71	7.83	8	7.87	7.95	8.13	8.04	8.18	8.18	8.02	8.15	8.03	7.89	8.07	8.08	8.13	
S.Solids				7.14	8.94	7.03	11.29	7.82	8.08	8.11	8.71	12.58	31.25						
BOD	2.4	2.1	2.81	2.86	2.91	2.75	3.77	3.03	2.98	2.38	3.28	3.08	2.7	2.38	2.14	2.98	2.25	1.88	
Ammonia N	0.22	0.22	0.71	0.48	0.29	0.55	0.29	0.13	0.1	0.12	0.16	0.17	0.11	0.13	0.33	0.08	0.08		
Nitrate	11.53	6.18	10.51	6.63	8.2		7.8	8.53											
Chloride	102.2	93.3	82.8	74.2	83.9	72	84.6	73.9	88.4	84.25	84.8	72.9	87.3	91.4	113.8	124.8	88.2	83.3	
Temp (mean)	11.2	11.1	8.4	10.8	10.8	8.2	11.3	11.8	11.8	12.1	11.4	11.1	10.8	11.8	10.7	12.3	12	12.2	
Temp (max)	18	18	18	20	18	20	21	21	22	17	22	19	17	21	20	21	20	17	
DO (mean)	84.2	81.3	71.3	80.3	86.3	88.8	87.6	108.3	108.8	103	110.2	108.4	83.2	88.7	81.8	88.3	84.8	84.8	
DO (min)	84	88	42	88	71	85	73	88	84	80	80	84	78	88	80	84	84	82	

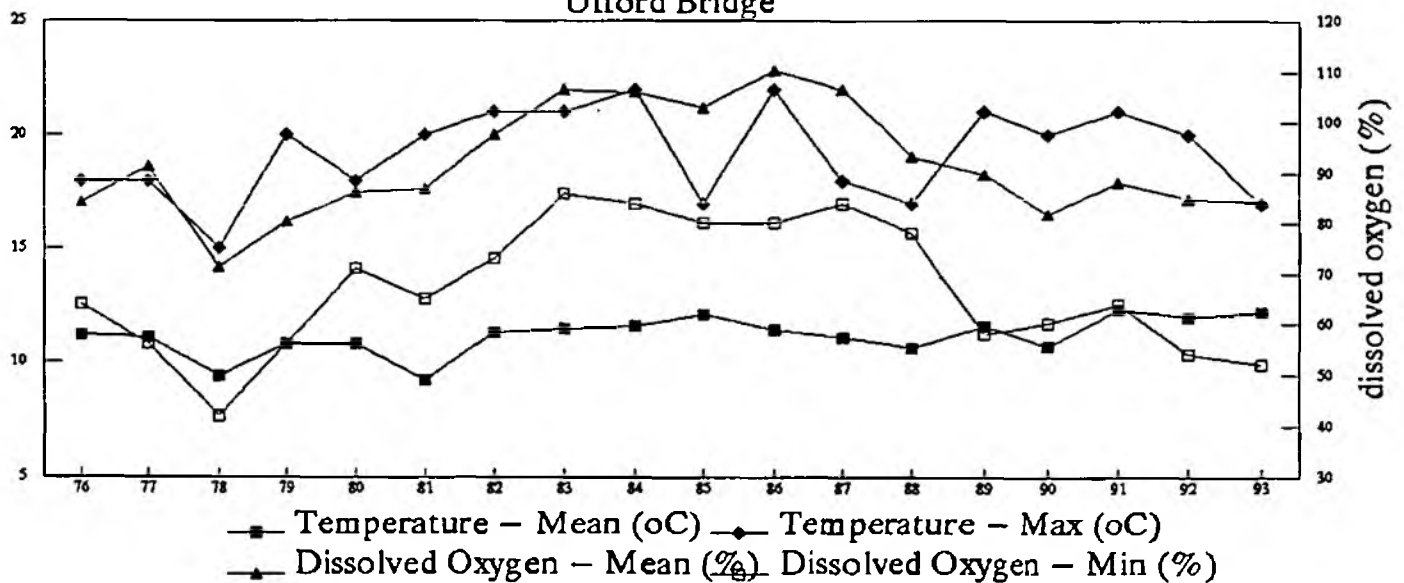
## Water Quality Record

Ufford Bridge



## Water Quality Record

Ufford Bridge



# Water Quality Record



**APPENDIX D  
POLLUTION INCIDENTS RECORDS**



Date	Watercourse	Site	Significant ?	Code	Comments
18/02/90	RIVER DEBEN	RAF BENTWATERS	.T.	OLPO	Spillage of approx. 10000 lit RAF Bentwaters STW,. USAF p quantity of oil reachedriver. installed boom andabsorbents whilstcleanup progressed. W
25/04/89	R. DEREN	ASPALL CYDER	.T.	OIWO	Report of stream black at De following morning brook black not deoxygenated. Sourcefound septic effluent released when 25Apr. Septic effluent from p together with pumped liquor taken and dischargestopped. but D.O.between 80 - 100% .
28/04/89	RIVER DEREN	DITCH AT MICKFIELD	.T.	OLPO	600+ gallons diesel to ditch leaking mobile tanker. Owner and informed N.R.A. Oilcontc

Report date: 01/03/94 time: 15:27:38 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1091 Report Date: 01/05/91 Time: 14:19 Cat: 2 Status: CM

UIC: TM 155 582 Pollutant Group: Organic Farm Waste  
Pollutant: PSB pigs:slurry store burst/leaking Investigating Officer: R A W

Reported By: David Mitchell, Pettaugh Type of reporter: PU

Address: Tel: 0473 890593

Watercourse: R Deben  
Location/parish: Crowfield Trib at Crowfield

Date of occurrence: 01/05/91 Time: :

Reported Details:  
Piggery lagoon failure. Leakage to field drains to ditch. Sampled at road culver  
t Ipswich Way Pettaugh. Site generally inadequate from Council planners advice.

Wcourse type: RIV Hyd Catch: 35/06 PWS Intake Closure?: no  
Fish Deaths?: no Total Number: Warning Letter?: yes

Investigation Details (including species of any fish/animals killed):  
Ditches dammed. Advised to take professional advice and re-vamp entire site.

Additional comments?:

Area comments:

Response time: 000:

Suspected source: Battle, Whitehouse Fm, Crowfld  
Address: M W Battle, Lewes Fm, Pettaugh Rd,  
Stonham Aspal.

Tel:

BOD Affected:

Other bodies involved:

Prosecution considered?: no Convicted?: Revisit required?: no

Significant Incident Form filled in?: yes  
Recharge?:

Modification date: 06/01/94



Report date: 01/03/94 time: 15:28:00 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1232 Report Date: 16/10/91 Time: 09:29 Cat: 2 Status: CM

CR: TM 230 631 Pollutant Group: Oil and related products  
Pollutant: RTA road traffic accident Investigating Officer: R A W

Reported By: Suffolk Police Type of reporter: ES

Address: Tel: 0473 611611

Watercourse: R Deben  
Location/parish: Earl Soham Earl Soham village

Date of occurrence: 16/10/91 Time: 12:00

Reported Details:

HGV 30gallon diesel tank split. Fuel to river at Earl Soham Bridge. Absorbants deployed. To be recharged.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure?: no  
Fish Deaths?: no Total Number: Warning Letter?: no

Investigation Details (including species of any fish/animals killed):

Ford Cargo E483RWY Philip Greenwood 129 Sycamore Close Bradford  
Ford Cortina + caravan Albert Butler 61 Putnoe Heights Bedford PC809COBB  
Additional comments?: yes

Parties involved:

1) Albert Butler, 61, Putnoe Heights, Bedford. Ford Cortina+caravan NCT 912Y  
2) Ford Cargo, E483 RWY  
Hired by: Lampways, Analby House, Knowles Lane, Bradford.  
Hired from: Transhire, Britannia Court, Clifford Street, Bradford.  
Insurance Companies replies that Guilty party is Lampways and their own insurance.

Area comments:

Response time: 000:

Suspected source: Road Traffic Acc, Earl Soham  
Address:

Tel:

RQO Affected: LW, MA

Other bodies involved:

Prosecution considered?: Convicted?: Revisit required?:

Significant Incident Form filled in?: yes

Recharge?: Rechargeable

Modification date: 10/08/92

Report date: 01/03/94 time: 15:28:56 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1297 Report Date: 28/01/92 Time: 14:00 Cat: 2 Status: CM

GP: TM 174 632 Pollutant Group: Anglian Water other sewage  
Pollutant: SSO sewer overflow Investigating Officer: W.J.B

Reported By: C. Shulver Type of reporter: PU  
Address: 10, Ipswich Road,  
Debenham. Tel: 860585

Watercourse: River Deben  
Location/parish: Debenham

Date of occurrence: 28/01/92 Time: 14:00

Reported Details:

Sewer Overflowing to river opposite Cherry Tree public house Debenham.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure?: no  
Fish Deaths?: no Total Number: Warning Letter?: yes

Investigation Details (including species of any fish/animals killed):  
Blocked sewer causing overflow to river. A.W.S., informed and District Council  
unblocking sewer and cleansing watercourse.  
Additional comments?:

Area comments:

Response time: 001:00

Suspected source: A.W.S. blocked sewer overflow  
Address: ng. Debenham.

Tel:

RPO Affected: MA,

Other bodies involved: A.W.S., M.S.D.C..

Prosecution considered?: no Convicted?: Revisit required?: no

Significant Incident Form filled in?: yes  
Recharge?:

Modification date: 10/08/92

Report date: 01/03/94 time: 15:29:11 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1348 Report Date: 10/03/92 Time: 14:29 Cat: 2 Status: CM

TM 145 606 Pollutant Group: Organic Farm Waste  
Pollutant: PSB pigs:slurry store burst/leaking Investigating Officer: RAW

Reported By: Mr Howson Type of reporter: PU  
Address: Millgreen Farm, Stonham Aspal  
Tel: 0449 711715

Watercourse: Deben  
Location/parish: Stonham Aspal

Date of occurrence: Time: :

Reported Details:  
Mr Howsons lagoon leaking

Course type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? Total Number: Warning Letter ?:

Investigation Details (including species of any fish/animals killed):  
Pigery with lagoon leaking to piped surface water drain. Banhams (original  
builders) brought in to advise.  
Additional comments ?:

Area comments:

Response time: 000:

Suspected source: Mr Howson,  
Address: Millgreen Farm, Stonham Aspal

Tel:

RIP Affected:

Other bodies involved:

Prosecution considered ? Convicted ? Revisit required ?:

Significant Incident Form filled in ? : yes  
Recharge ?:

Modification date: 10/08/92

Report date: 01/03/94 time: 15:29:24 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1484 Report Date: 24/08/92 Time: 10:30 Cat: 2 Status: CM

OP: TM 262 598 Pollutant Group: Organic Farm Waste  
Pollutant: OTH other organic farm waste Investigating Officer: RAW

Reported By: Mr N Brown Type of reporter: PU  
Address: Watermill House, Kettleburgh  
Tel: 0728 723839

Watercourse: R Deben  
Location/parish: Kettleburgh

Date of occurrence: 24/08/92 Time: :

Reported Details:  
Dead Fish in R Deben u/s of wier in his grounds.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ?: yes Total Number: 210 Warning Letter ?: no

Investigation Details (including species of any fish/animals killed):  
Extensive investigations. Very short length of river affected. Evidence to over  
night rain washing in a deoxygenating slug from stream at Kettleburgh village.  
Additional comments ?: yes

Investigations on first day found all inflowing streams between kill and  
healthy fish at Brandeston to be clean except that from Red House Farm,  
Brandeston consequently a Formal Sample was collected. However subsequent  
investigations proved he was not responsible for fish deaths. Guilty stream  
appeared to be that at the road junction in Kettleburgh although apparently  
clean on inspections. Suspensions principally with Rectory Farm a piggery on  
this stream to be investigated further. Further investigations found Rectory  
Farm no longer keeps pigs, two piggeries at Street Farm and one at Church Farm  
inspected and found no evidence of any significant pollution having occurred.

Area comments:

Response time: 002:

Suspected source: Kettleburgh  
Address:

Tel:

RQO Affected: F2, LW,SI,MA

Other bodies involved:

Prosecution considered ?: Convicted ?: Revisit required ?: no

Significant Incident Form filled in ?: yes  
Recharge ?:

Modification date: 04/09/92

Report date: 01/03/94    time: 15:29:43    Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1529    Report Date: 24/10/92    Time: 10:00    Cat: 2    Status: CM

IP: TM 274 487    Pollutant Group: Oil and related products  
Pollutant: OTH other    Investigating Officer: BRJ

Reported By: Mr Burman    Type of reporter: PU  
Address: 4 Lime Kiln Quay  
Woodbridge    Tel:

Watercourse: Deben Estuary  
Location/parish: Woodbridge

Date of occurrence:    Time:    :

Reported Details:  
Mell and oil iridescence on water by Woodbridge Tide Mill.

Course type: EST    Hyd Catch: 35/10    PWS Intake Closure ?:  
Fish Deaths ?    Total Number:    Warning Letter ? : yes

Investigation Details (including species of any fish/animals killed):  
Mr N Wright of 17 Quay Street Woodbridge baling out his boat after spilling  
oil Boat name AMAS PORT ADELAIDE.  
Additional comments ?:

Area comments:

Response time: 001:

Suspected source: Mr N Wright from private boat  
Address: Woodbridge

Tel:

RC Affected:

Other bodies involved:

Prosecution considered ?    Convicted ?    Revisit required ?:

Significant Incident Form filled in ?:  
Recharge ?:

Modification date: 30/10/92



Report date: 01/03/94 time: 15:30:40 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1548 Report Date: 30/11/92 Time: 15:30 Cat: 2 Status: CM

TM 234 635 Pollutant Group: Organic Farm Waste  
Pollutant: PLR pigs:land runoff Investigating Officer: RAW

Reported By: Headmaster Type of reporter: PU

Address: Earl Soham Junior School

Tel:

Watercourse: R Deben,  
Location/parish: Earl Soham

Date of occurrence: 30/11/92 Time: :

Reported Details:

Slurry effluent coming down stream past school. Started about middle of day.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? : Total Number: Warning Letter ? : yes

Investigation Details (including species of any fish/animals killed):  
Whitehouse Farm, owner Hinton Farms, Earl Soham Lodge. Farmhand disposed of two  
slurry tankers of effluent on waste land reached stream via land drains.  
Additional comments ? : yes

Land completely saturated and had been unsuitable for any spreading for about  
three weeks. Farm only has two week capacity pits. Another farm Yew Tree has  
almost full lagoon.

Area comments:

Response time: 000:45

Suspected source: Whitehouse Farm,  
Address: Hinton Farms Earl Soham Lodge

Tel: 0728 625232

RQO Affected:

Other bodies involved:

Prosecution considered ? : Convicted ? : Revisit required ? : no

Significant Incident Form filled in ? :

Recharge ? :

Modification date: 01/12/92

Report date: 01/03/94 time: 15:31:33 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1747 Report Date: 05/08/93 Time: 07:53 Cat: 2 Status: CM

NR: TM 273 485 Pollutant Group: Anglian Water other sewage  
Pollutant: SSO sewer overflow Investigating Officer: RAW

Reported By: Christine Knights Type of reporter: PU

Address: Knights Boatyard Woodbridge

Tel:

Watercourse: Deben Estuary

Location/parish: Woodbridge

Date of occurrence: 05/08/93

Time: :

Reported Details:

Sewer outfall between station and Eversons overflowing all night and this morning.

Watercourse type: EST Hyd Catch: 35/10 PWS Intake Closure ?:  
Fish Deaths ? : Total Number: Warning Letter ? :

Investigation Details (including species of any fish/animals killed):  
Notified AWS Ltd Beccles who notified Council to attend. BAW inspected

Additional comments ?:

Area comments:

Response time: 000:10

Suspected source: Woodbridge sewerage system  
Address: AWS Ltd Beccles

Tel:

PO Affected:

Other bodies involved: Suffolk Coastal D C

Prosecution considered ? : Convicted ? : Revisit required ? :

Significant Incident Form filled in ? :  
Recharge ? :

Modification date: 05/08/93

Report date: 01/03/94 time: 15:31:55 - Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1793 Report Date: 30/09/93 Time: 09:35 Cat: 2 Status: CM

ICR: TM 290 501 Pollutant Group: Miscellaneous  
Pollutant: MIS Miscellaneous Investigating Officer: RAW

Reported By: Mr Alexander Type of reporter: PU  
Address: 5 Saxon Way, Melton. Via Suffolk Coastal  
D C Tel:

Watercourse: Deben Trib of Estuary  
Location/parish: Melton

Date of occurrence: 29/09/93 Time: :

Reported Details:  
Dead Eels and foul smell at Wilford Bridge Picnic site. Site run by D C Leisure  
and Conservation.

Watercourse type: RIV Hyd Catch: 35/10 PWS Intake Closure ?:  
Fish Deaths ?: yes Total Number: 20 Warning Letter ?: no

Investigation Details (including species of any fish/animals killed):  
Picnic site water environment inundated with wildfowl and public feeding them  
resulting in excessive organic load to water, septicity and death of eels.  
Additional comments ?:

Area comments:

Response time: 001:

Suspected source: Natural and "duck-food"  
Address: Wilford Bridge, Picnic and Conservation  
Site, Melton Tel:

PO Affected:

Other bodies involved: Suffolk Coastal D C

Prosecution considered ? : Convicted ? : Revisit required ? : no

Significant Incident Form filled in ? :  
Recharge ? :

Modification date: 06/01/94

Report date: 01/03/94 time: 15:32:16 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1851 Report Date: 09/12/93 Time: 16:28 Cat: 2 Status: CM

FR: TM 217 577 Pollutant Group: Organic Farm Waste  
Pollutant: PSP pigs:slurry store poor operatn Investigating Officer: RAW

Reported By: B Woodrow Type of reporter: NR  
Address: NRA Ipswich  
Tel:

Watercourse: Deben  
Location/parish: Cretingham

Date of occurrence: 02/12/93 Time: :

Reported Details:  
is effluent in roadside ditch from Garnhams Barn Farm Cretingham..

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? : Total Number: Warning Letter ? : yes

Investigation Details (including species of any fish/animals killed):  
Inadequate effluent containment on site advised owners: Cuttings of North Park  
Farm, Helmingham to take remedial action.  
Additional comments ?:

Area comments:

Response time: 024:

Suspected source: Garhams Barn Farm (Cuttings)  
Address: Cretingham

Tel:

RCC Affected:

Other bodies involved:

Prosecution considered ? : Convicted ? : Revisit required ? : yes

Significant Incident Form filled in ? :  
Recharge ? :

Modification date: 06/01/94

Report date: 01/03/94 time: 15:32:51 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1852 Report Date: 09/12/93 Time: 16:46 Cat: 2 Status: CM

Report No.: TM 187 552 Pollutant Group: Organic Industrial Waste  
Pollutant: IND industrial source Investigating Officer: RAW

Reported By: Mr Bradshaw Type of reporter: PU  
Address: Neighbour to Whites Fruit Farm,  
Ashbocking Tel: 0473 214054

Watercourse: Deben  
Location/parish: Ashbocking

Date of occurrence: Time: :

Reported Details:  
Pollution of roadside watercourse via land drain by effluent from Whites Fruit  
Farm apple juice processing.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? : Total Number: Warning Letter ? : yes

Investigation Details (including species of any fish/animals killed):  
Failure Of Whites Fruit Farm to soakaway effluent significant pollution of ditch  
from land drain. Sampled. Spoke and advised over telephone with Mr Mallinson.  
Additional comments ? : yes

Mr Mallinson manager was aware of problem and considered badly advised in past.  
Remedial methods advised.

Area comments:

Response time: 000:00

Suspected source: Whites Fruit Farm Ashbocking  
Address:

Tel:

Report Affected:

Other bodies involved:

Prosecution considered ? : Convicted ? : Revisit required ? : yes

Significant Incident Form filled in ? :  
Recharge ? :

Modification date: 06/01/94



Report date: 01/03/94 time: 15:34:29 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1860 Report Date: 23/12/93 Time: 10:23 Cat: 2 Status: CM

ICP: TM 185 551 Pollutant Group: Organic Industrial Waste  
Pollutant: OTH Other Investigating Officer: RAW

Reported By: Teresa Seals Type of reporter: PU  
Address: Downie Produce, Ashbocking  
Tel: 0473 890202

Watercourse: Deben  
Location/parish: Ashbocking

Date of occurrence: Time: :

Reported Details:  
As previously reported re- Whites Fruit Farm Effluent disposal, now reporting a  
deteriorating situation.

Watercourse type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? : Total Number: Warning Letter ? : yes

Investigation Details (including species of any fish/animals killed):  
Meeting with Lawrence Mallinson to investigate and speed up action on 4 1 94.

Additional comments ?:

Area comments:

Response time: 000:00

Suspected source: Whites Fruit Farm  
Address: Ashbocking

Tel:

PO Affected:

Other bodies involved:

Prosecution considered ? : Convicted ? : Revisit required ? : yes

Significant Incident Form filled in ? :  
Recharge ? :

Modification date: 06/01/94

Report date: 01/03/94 time: 15:34:51 Status codes: UI Under investigation  
CM Completed

INCIDENT RECORDS ENTRY FORM

Report No.: EI 1884 Report Date: 21/01/94 Time: 13:57 Cat: 2 Status: CM

NGR: TM 183 606 Pollutant Group: Investigating Officer: GR

Reported By: Suffolk Police via Control Type of reporter: ES  
Address: Martlesham Tel: 0473 611611

Watercourse: R. Deben, Pettaugh W/C  
Location/parish: Pettaugh

Date of occurrence: 20/01/94 Time: :

Reported Details:  
Car in ditch A1120, 1.5 miles Yoxford side of Pettaugh. Oil pollution.

W'course type: RIV Hyd Catch: 35/06 PWS Intake Closure ?:  
Fish Deaths ? : no Total Number: Warning Letter ? : no

Investigation Details (including species of any fish/animals killed):  
Stolen car incident number 158 20/1/94. Car in water course leaking sump oil.  
Sorbant pads around leaking area.  
Additional comments ? : no

Area comments:

Response time: :15

Suspected source: Stolen Car  
Address: Pettaugh W/C A1120

Tel:

RQO Affected: LA

Other bodies involved: Police force.

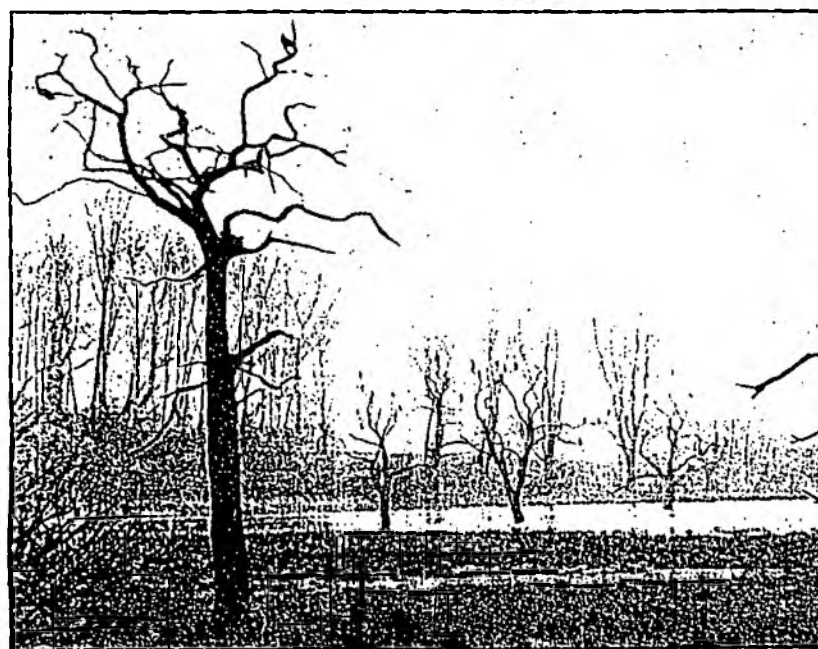
Prosecution considered ? : Convicted ? : Revisit required ? : no

Significant Incident Form filled in ? :  
Recharge ? :

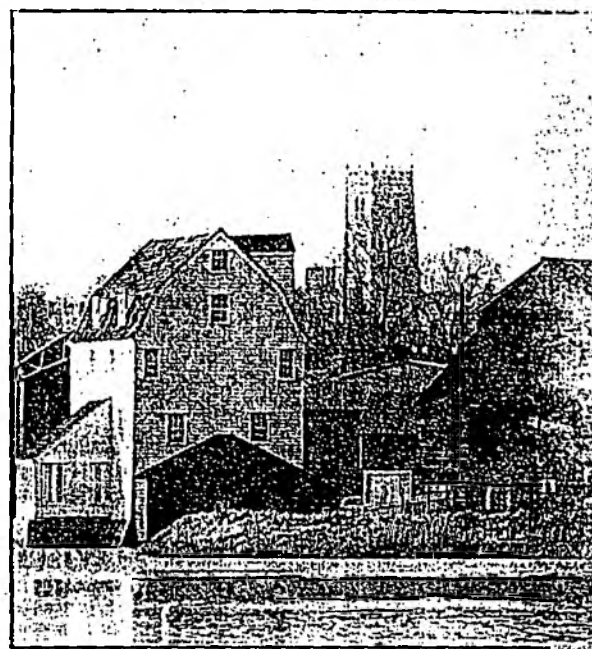
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## **APPENDIX E ARCHIVE LOCAL STUDIES INFORMATION**





Skeletal dead trees provide ideal roost sites for cormorants at Melton.



Woodbridge's famous Tide Mill and the granary flank St. Mary's Church.

# Group aims to guard Deben

POURING oil on to the potentially-troubled waters of the River Deben is not a particularly appropriate metaphor for the aims of a new watchdog group.

Pollution is one of the many threats which the River Deben Association seeks to avert. For the group's members it will be more a matter of pouring devotion on to the Deben by forming an 'umbrella' group which unites rather than divides its many interests.

## At the helm

At the helm so far has been a steering committee whose members had worked behind the scenes prior to an inaugural meeting to be held at Woodbridge Community Hall on May 4. Then, they hope, the association will be launched with public support.

## 'IT SHOULD BE A THING OF BEAUTY'

Story: JOHN GRANT

Pictures: JOHN KERR

A draft constitution will be presented and from then on the need to conserve the estuary's unique charm, while reconciling the interests which use and depend upon the river, will be high on the agenda.

Steering committee member Mrs. Ann Huxley said, "So much history and life has been bound up with the river. It has supplied business and recreation to people for centuries while remaining very beautiful.

"We do not want to stop all development but we want to ensure that any development taking place is sensitive, responsible and respectful of the river's charm and character.

"We are hoping that the widest range of interests will be represented. We want to be an inclusive association, not an exclusive one," she said.

Widely acclaimed as one of Britain's most beautiful estuaries, the Deben has a magnetic charm which has attracted people such as Col. Ian Batty to dedicate much of their spare time to act as guardians of its character.

Col. Batty, an enthusiastic sailor and a forceful advocate on the estuary's behalf, is a committee member whose depth of feeling for the Deben is plain to see.

"The 1990s could be the make or break decade for the Deben," he said. Some river views had remained

unaltered for centuries but the ever-increasing clamour for recreational and commercial development made him fear for the future.

The east side of the estuary, from which the world-famous Sutton Hoo prehistoric site overlooked the river and where an attractive tapestry of rolling wooded slopes and wide horizons was largely in private ownership, should remain "inviolate", he said.

"The estuary has a lovely charm and gentle beauty all of its own. It is relatively small and all of its features are in proportion to each other," he said.

"There are rolling meadows with lovely churches set in them; the views of Woodbridge are superb and there are beautiful woodlands along the estuary sides. As you approach the sea the rolling character gives way to

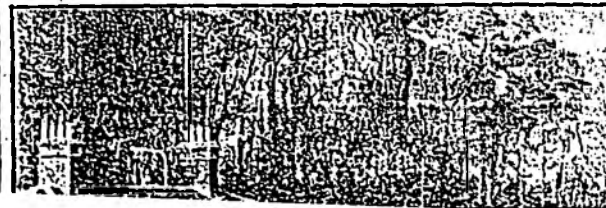
lower-lying land with broad vistas and so you have a variation of character within the estuary's length.

"Added to that there is a 10ft tidal range which gives a diversity too, so there are distinct differences to enjoy from one day to the next."

Another devoted Deben man, Woodbridge shipwright Mr. Frank Knights, who has spent about 60 years on or alongside the estuary, said, "The River Deben is not overdeveloped at present and there is a general tranquility about the river.

"It is a way of life to me. It has a different atmosphere from the South Coast rivers which are choc-a-bloc."

The special atmosphere of the River Deben is the very thing the new association will seek to preserve, without taking a dogmatic anti-development approach. It wants to ensure the river remains a living thing of beauty rather than become a cob-webbed museum piece.



STORY AND DATE

STAR 19/4/90

SUBJECT

RIVER DEBEN ASSOCIATION



E.A.D.T.

6.2.1978.

(1)

DEBEN, river

## East Anglian rivers | The Deben

THE River Deben rises within sight of the lofty television transmitter mast at Mendlesham, but until it reaches the outskirts of Debenham it is no more than a trickle of water in a field ditch. It is only when it gets within a mile or so of Debenham that the stream really makes its presence felt, by spreading out across a lane which it has adopted as its course. After heavy rain the lane, which leads only to a farm and an isolated house, really does resemble a river — one which is deep enough for youngsters to sail their paper boats. Even in Debenham itself the infant river asserts itself, spreading out over the appropriately named Water Street, before plunging back into its own channel to make its winding way towards Creetingham and Easton.

In its upper reaches it is a very different river from that known to the yachtsmen who sail from Woodbridge down past Waldringfield and Ramsholt and out over the bar at Felixstowe Ferry. Above Wilford Bridge the trees shade the river and the placid water lies mirror-like even in winter; down below the wind howls across the marshes and cuts the surface of the river into fast-moving lines of white-topped wavelets. Each has its own attraction.

THE Sutton Hoo burial on the heathland above the Deben, perhaps the greatest and most significant archaeological discovery made in Britain this century, links East Anglia firmly with Scandinavia. For it is to Sweden that archaeologists have to go to find parallels to the Suffolk find.

As work proceeds on the conservation and reconstruction of the artefacts recovered from the burial ship it becomes clear that the royal dynasty of East Anglia in the 7th Century was of Swedish origin. Almost certainly some of the items which make up the treasure had been brought from Sweden, and it is appropriate, therefore, that some of them will be lent by the British Museum for a special exhibition in Stockholm in the spring of 1980.

The 1939 excavation was essentially a rescue dig, improvised and carried through under the threat of war. A re-excavation was planned in the 1960s to answer some of the questions raised by the earlier discoveries, but in spite of the work that has gone on since this great royal treasure remains something of a puzzle for the experts.

Perhaps the puzzle may be unravelled to some extent when the other barrows at Sutton Hoo, some of them probably earlier than the ship burial, are in

vestigated by British Museum experts. Mr. Rupert Bruce-Mitford, who has written a full account of the excavations and of the subsequent research at the British Museum, has said that "we are only at the beginning of a process of revelation."

Perhaps the site of the Anglo-Saxon royal palace at Rendlesham will also be found one day. The so-called palace would have been no more than a timber-built hall, but its discovery and investigation, together with further excavation of the Sutton Hoo graveyard, could yield a comprehensive and altogether fascinating picture of the life and progress of a Saxon dynasty in one of the most interesting phases of English history.

WOODBIDGE tide mill is now the only survivor in working order of a type of corn mill which used to be found on many an estuary around the East Anglian coast. And there are hopes that when a new millpond has been constructed the machinery will turn again for demonstration purposes.

The timber-framed mill, whose weatherboarding was for many years covered by a workaday coat of corrugated iron, has been restored by a trust and handed over to Woodbridge Town Council as a showplace and historical relic. Its preservation, originally promoted by a private individual and only at the second stage by a public trust, is a fine example of the new attitude to industrial monuments.



Above: The stark tracery of the winter trees is reflected sharply in the tranquil waters of the river between Wickham Market and Easton. GLEVERING 32 1978

# Problems flowing for region's river

**E**AST Anglia's rivers are under stress — from water abstraction, pollution, development and recreation.

The Waveney and the Deben are suffering from low flows as abstraction problems are exacerbated by the relentless drought.

Despite the lack of rainfall, the leaching of nitrate fertilizer and the discharge of industrial effluent into the region's rivers goes on, chemicals being present in higher densities because of the low water volume.

According to the latest water quality report from the National Rivers Authority, the percentage of river length meeting official standards fell by four per cent to 70 pc last year as a result of the drought.

Meanwhile, the upper Orwell estuary, an internationally-important area for over-wintering birds, remains the most polluted estuary in East Anglia while the stretch of the Gipping which flows towards Ipswich Docks is the most polluted river area in the region.

High recreational use of rivers such as the Deben and Alde is causing increased concern while plans for new marinas threaten wildlife habitat and the traditional landscape.

The Council for the Protection of Rural England is launching a campaign to try to harness public anxiety about the state of the nation's rivers.

It wants people to lobby their MPs, local councils and relevant watchdog organisations if they suspect their local river is under stress.

This could be indicated by the presence of scum on the surface, dead fish or litter which has been carelessly dumped.

It might be because of over-crowding of boats on busy stretches of waterway, leaving little room for other forms of recreation or wildlife, or a river might be drying out when it previously did not.

This is the situation at Redgrave and Lopham Fen

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**Environment  
Correspondent  
David Green**  
reports on the  
growing pressure  
being put on our  
rivers.

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on the Suffolk — Norfolk border, the source of the River Waveney.

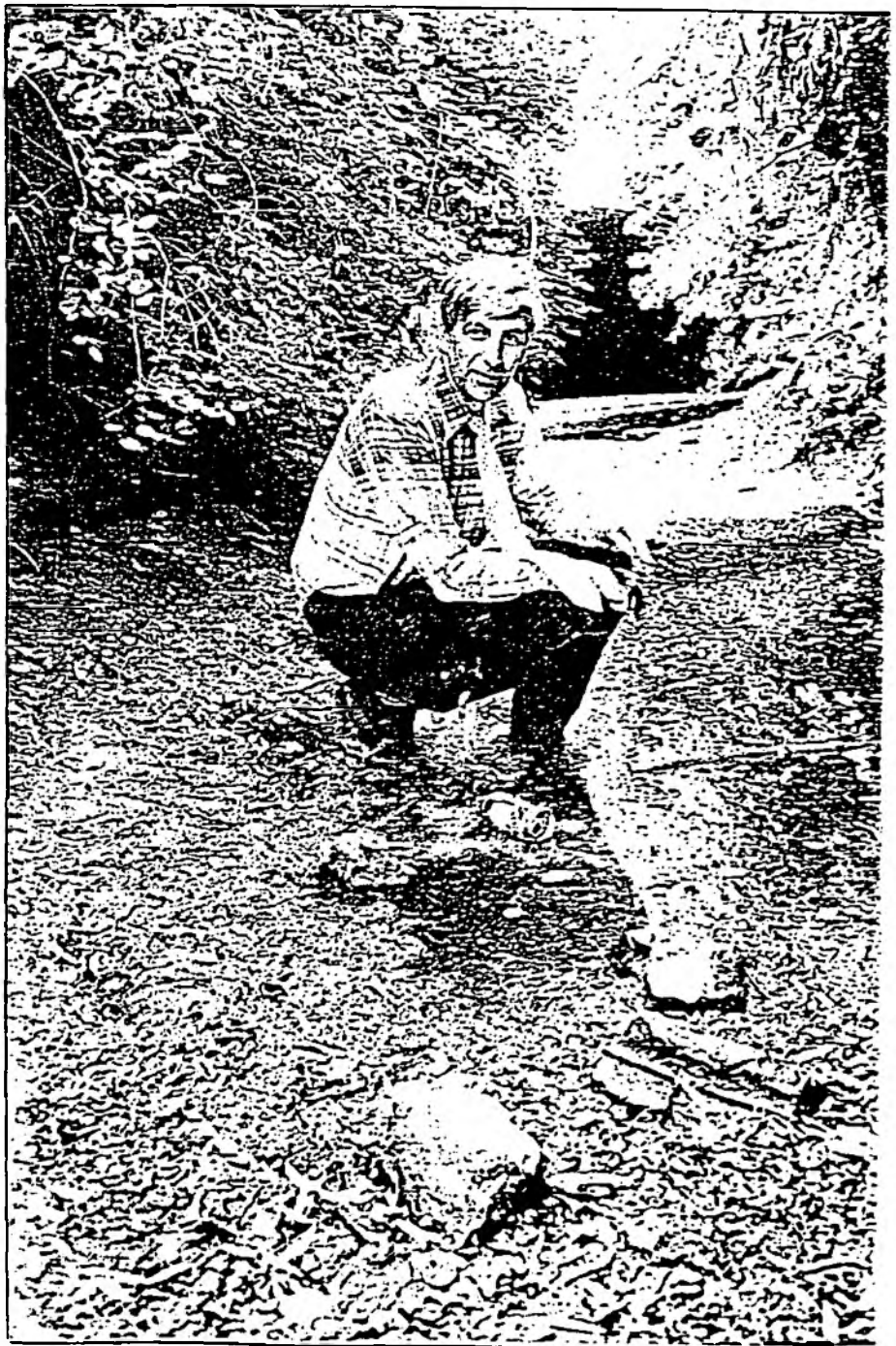
The fen, a valuable wetland site for wildlife, has been drying out for years and a gully which was the first visible sign of the Waveney is now stone dry.

Suffolk Water, the Lowestoft-based company which has a borehole on the fen, admits water abstraction is partly to blame and efforts are now being made to find a new borehole site.

Council for the Protection of Rural England campaigns officer Mr. William Sheate said that, despite a very wet June, more than 40 rivers around the country, including the Waveney and the Deben, were suffering from low flows or drying out because too much water was being taken from the ground-water which fed them.

"Rivers face other problems too and the public is an excellent but unused resource for identifying and reporting the problems," he said.

"Rivers hold a very special place in many peoples' hearts and that emotional attachment can be channelled to very good effect in helping to protect the aquatic environment."



Paul Edwards at a stretch of the dried up River Deben at Debenham

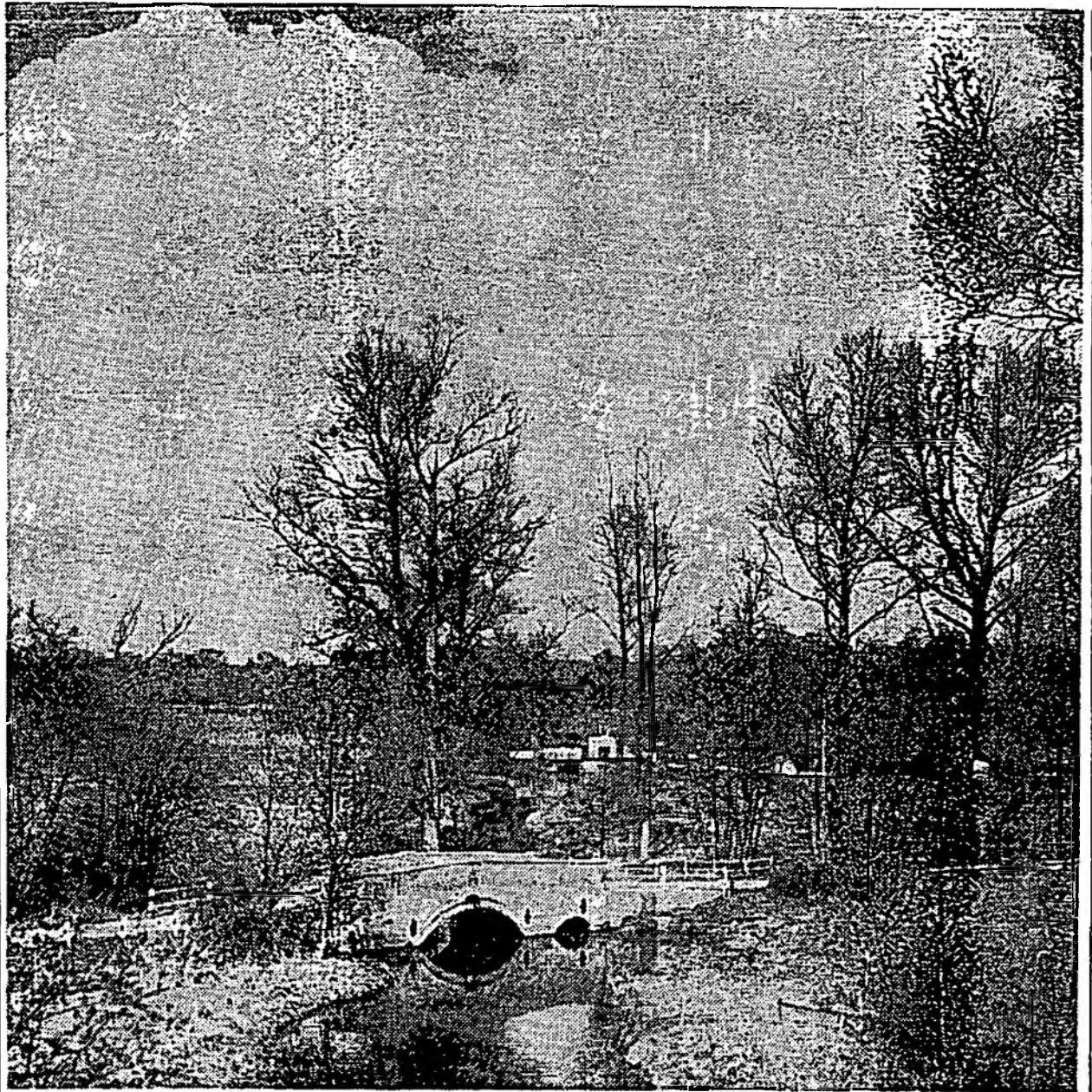


Star 6.1.62.



Three young boys pause for a moment to admire the setting sun reflecting on swollen waters of the River Deben caused by the recent thaw at Wickham Market yesterday.

EAST ANGLIAN DAILY TIMES, SATURDAY, APRIL 28, 1956



THE SUFFOLK SCENE: A high level view point of Deben Valley overlooking Glevering Bridge, near Wickham Market.



# POCKET HISTORIES OF SUFFOLK PARISHES.

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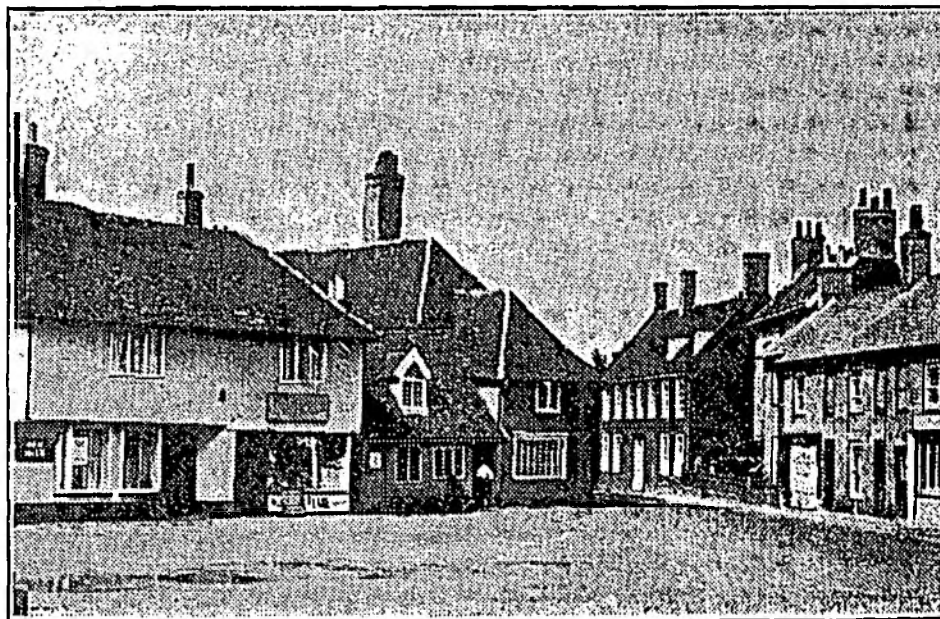
No. 240.—WICKHAM MARKET.

Everybody who has travelled the road between Ipswich and Saxmundham, or further, must have seen the leaden spire of the church at Wickham Market, for here is a landmark impossible to avoid. In fact, from practically every direction it is noticeable, its greyness contrasting with the green of the countryside, and in itself suggesting the proximity of a parish of some importance.

And Wickham Market itself can be described as a fairly imposing place at the present day, a village, in fact, much larger than the others in the district, and therefore a convenient shopping centre. For even now there is a certain activity here which one associates with a small country town, and if the word "town" is a misnomer such was certainly not the case in the years gone by.

As its name suggests, Wickham Market once had a market, and a weekly one at that, a privilege granted during the reign of the sixth Henry, whilst the right to hold two fairs here annually was provided at about the same time. All these old-time privileges, however, have been surrendered these many years, so that at the present the Market in Wickham seems to live in name only.

But this compact little place, with its several attractive inns, its mills by the side of the pleasant River Deben, its rather extensive green, and its air of prosperity, as suggested by the various shops, this place on the main road, in its way typical of the larger villages or the smaller towns of the countryside, was even more important than mention of its market and fairs suggests, for here was also a Town Hall, in which the Quarter Sessions were held. Time, however, served Wickham Market in the same way as it has served many other places, and eventually this concrete example of civic dignity, as illustrated by the sessions, was removed to the larger town of Woodbridge, and the Town Hall itself was entirely demolished—



OLD HOUSES IN THE SQUARE.

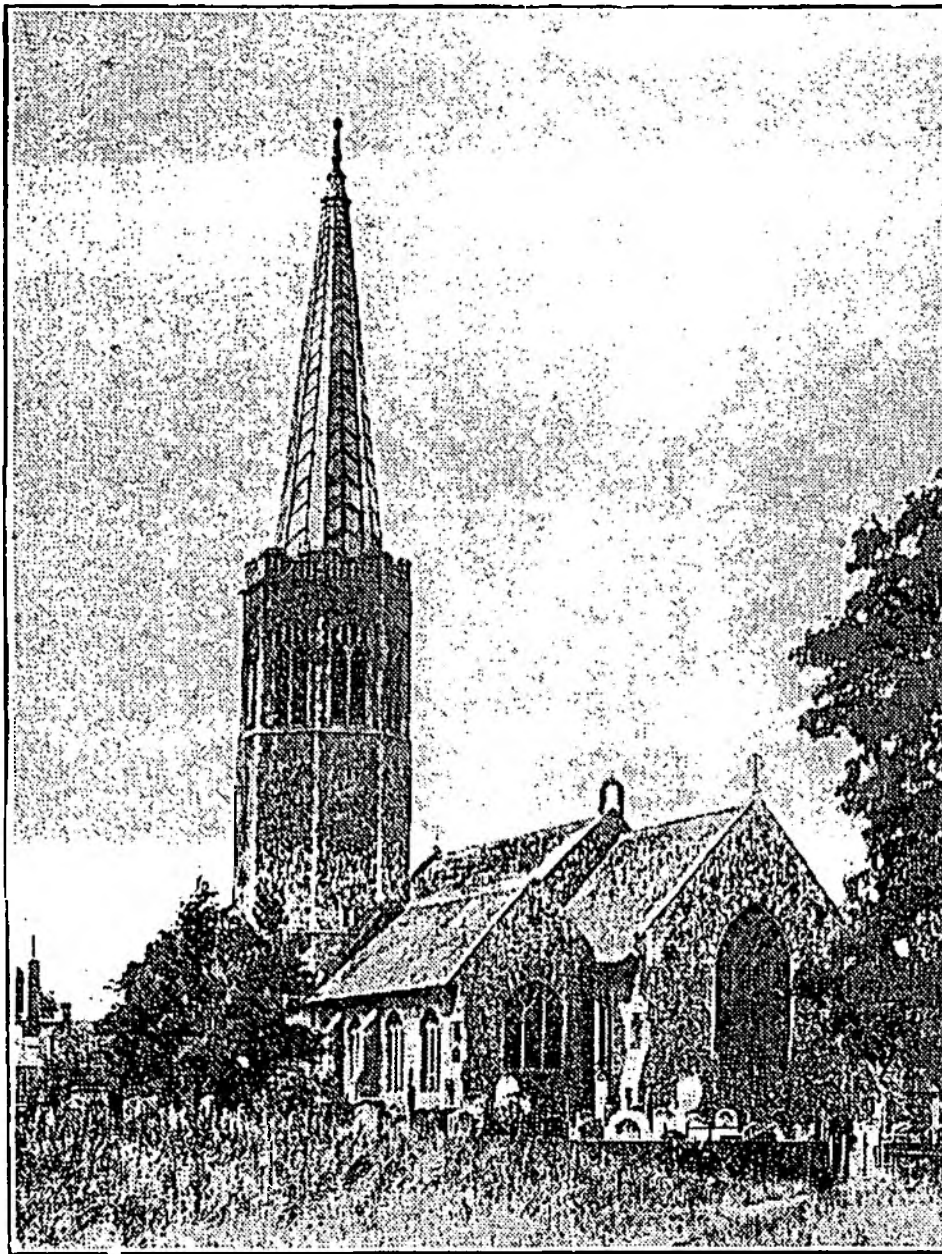
seemingly by orders of the lord of the manor. Fortunately, however, the materials remaining were not wasted altogether, for they were utilised in the building of a farmhouse at Letheringham, afterwards known as the Old Hall.

Before going any further, however, a brief glance at the house of worship will not be out of place, and I use the word "brief" with some reason, for, although there are many objects worth inspection in connection with the church of All Saints', the general interior appearance seems somewhat modern, and therefore devoid of interest. On the other hand, however, those who care to make a careful survey of the building will discover several items which will

well repay the slight trouble necessary in discovering their existence.

As I have mentioned, the tower—or, rather, spire—that tall erection of which even the ships on the ocean, several miles away, are able to get glimpses, I cannot do better than by giving a short description of this, and in the first place we discover that it reaches the no inconsiderable altitude of some hundred and twenty feet, whilst from the tower itself numerous churches can be seen. Various authorities suggest anything from thirty to fifty, in fact, but as I have never taken the trouble to count them, and obviously the question of visibility enters very thoroughly into the matter, I am unable to express a definite opinion either way.





CHURCH OF ALL SAINTS.

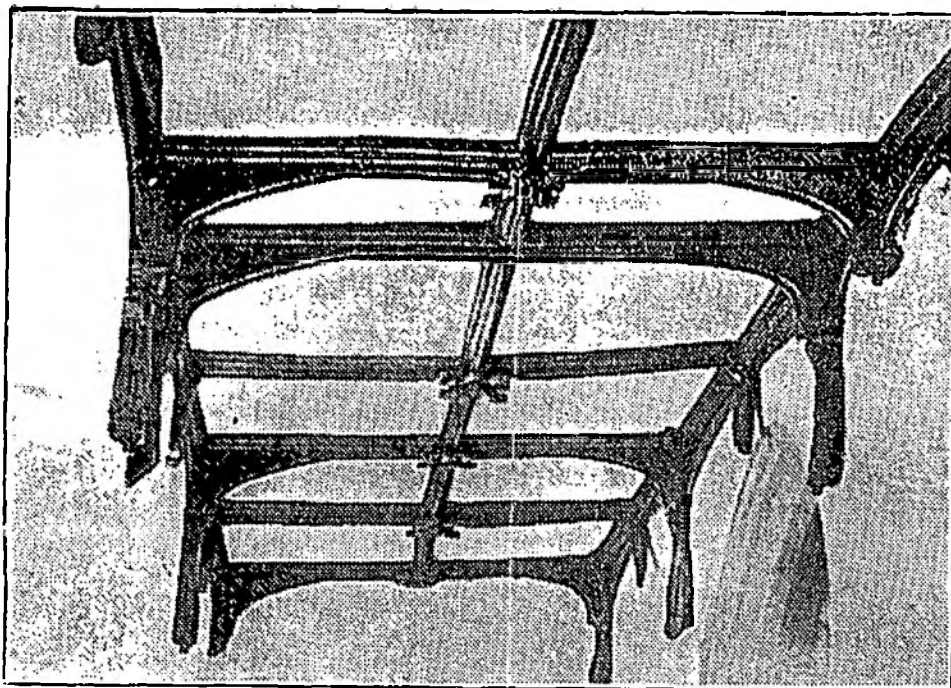
Another interesting fact emerges in connection with the tower and spire, for, although six bells are in existence, one of these—the smallest of them all—is suspended outside the spire, and is believed to be the original sanctus bell, and, mentioning this, it is worth while noticing that the cot in which the sanctus bell was originally placed can still be seen on the Eastern gable of the nave. Also, when restoration occurred at one time an exit from the nave to the bell-chamber was brought to light, the door itself being in a good state of preservation.

Fortunately the font in the church at Wickham Market can be described as really beautiful. With its trefoiled panels and its crocketed canopies, all of which date from the Decorated period, it presents an appearance of maturity and refinement which is definitely imposing, whilst the fact that traces of the original colouring are still in existence gives it an additional air of distinction. All Saints', however, is rather strange in this respect, for whereas so much of its interior forcibly reminds the visitor of the Victorian era, and all the misspent efforts of well-meaning but misguided would-be benefactors so far as ecclesiastical architecture was concerned, there are several objects which carry the mind back far into the past—a past when even the humblest laboured to beautify and to embellish his own particular place of worship.

Another example of the latter idea can be seen in the Western doorway, with its crocketed canopy and pinnacles, whilst a niche exists on either side. Then, above all this is a window of three lights which possesses tracery of some interest, whilst over this window is another and smaller niche.

Not a great deal more can be written of the church, for, unlike a number of others, its claim to interest is confined to only a small number of items, a fact probably surprising to those who have seen its spire from a distance, and wondered what kind of building nestled at its base. In the chancel, however, are several windows possessing excellent tracery, whilst the South wall exhibits a piscina and sedilia, all of which belong to the Decorated period.

A rather interesting memorial—if the word may be used in this respect—is the chapel or aisle which exists to the South of the nave; for here we discover a link with one of those



WOODWORK IN THE SOUTH AISLE ROOF.

pious men of old who served the church conscientiously enough during their lifetime, and who at their deaths bequeathed a sum of money for its further beautification.

This chapel, in fact, owes its existence to a certain Walter Fulburn, or Fulburn, who died in 1489, and who left enough money to make this addition to the church possible. Incidentally, it is in this monument to his memory that his remains are resting, so that it acts not only as a chapel but as a mausoleum.

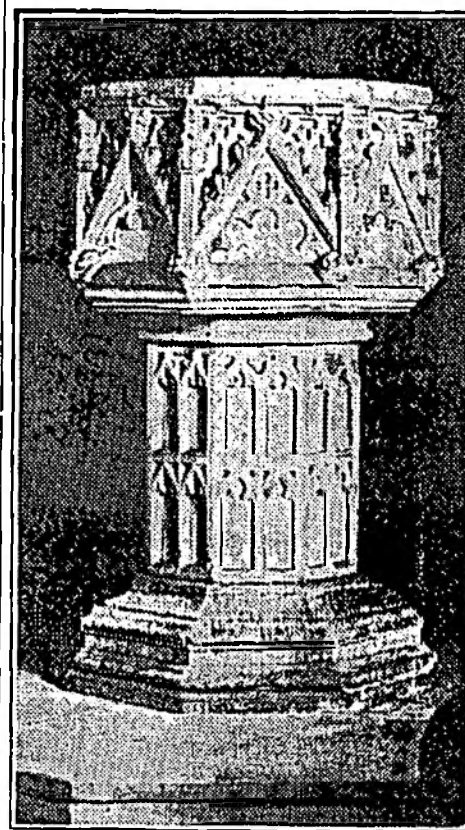
In view of the comparative importance of Wickham Market in days gone by, it is now advisable to take a brief glance at its early pages, at the various people who have been connected with its different manors and of other matters which shed some kind of a light upon its ancient activities.

And being situated in a district which embraces the village of Ufford, it is not surprising to discover that the famous family which took its name from the latter

place was once intimately associated with Wickham Market. The principal manor here, in fact, was owned by the Uffords in very early times, but this estate, with the church, afterwards became the property of the nuns at Campsea Ashe, whilst various other manors here were possessed by the same religious establishment. At the Dissolution, however, these latter estates were presented by Henry the Eighth to Sir Anthony Wingfield, whose seat was at Letheringham, a fact which lends interest to the statement of an ancient writer that a "considerable part of that Towne (Wickham Market) doth belong" to that particular gentleman. Sir Anthony seems to have been a man who was entirely in favour with the king, for he was nominated by Henry to assist the executors of his will, for which scarcely onerous task he was presented with the useful sum of £200 a year; also, he was captain of the guard, vice-chamberlain, a knight of the garter, and a member of the privy council, these, of course,

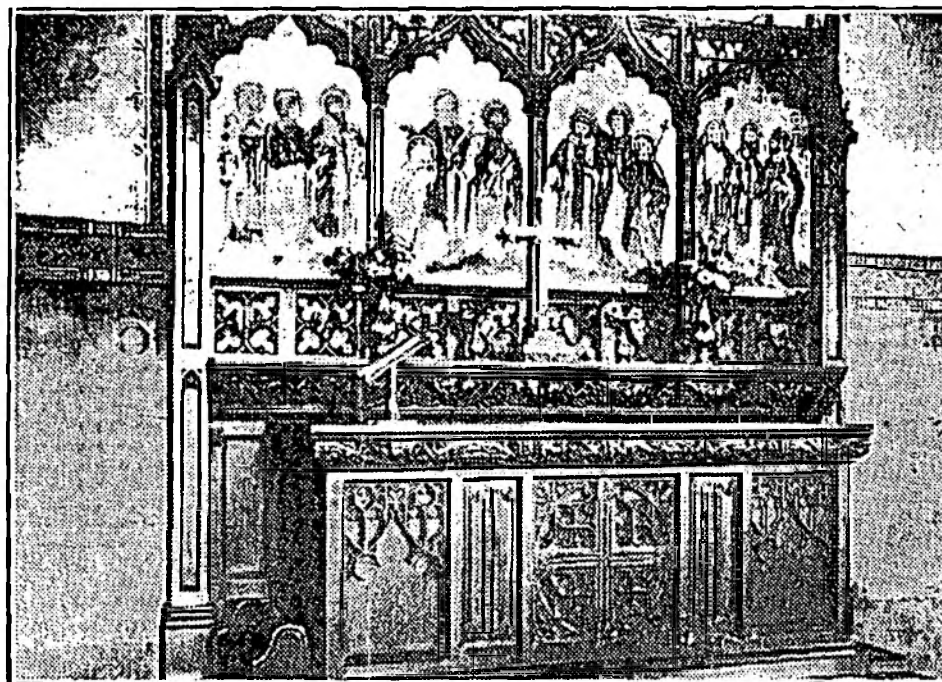
amongst other honourable occupations of an official nature.

It was a descendant of Sir Anthony Wingfield who sold the various estates belonging to the family in this particular part of the country to the Honourable William Nassau Zulestein, master of the robes to the third William, one of whose party he was when William landed in



DECORATED STYLE FONT.

England, and at the sword's point forced James the Second to relinquish the Crown. Zulestein, of course, was eventually raised to the peerage under the title of the Earl of Rochford, but as the story of his family has been dealt with in a previous article, it is unnecessary to give any further details.



ALTAR AND REREDOS.

Amongst the different people who have had associations with Wickham Market perhaps the name which most readily leaps into the mind is that of John Kirby, who lived in the village from 1732 until his death occurred in 1763. Kirby, of course, needs no introduction. His work on the different parishes of Suffolk is quoted even at the present time, and although, naturally enough, his descriptions in the *Suffolk Traveller* are on the brief side, the compilation must have been an almost monumental task in those days of slow transport and inefficient means of communication.

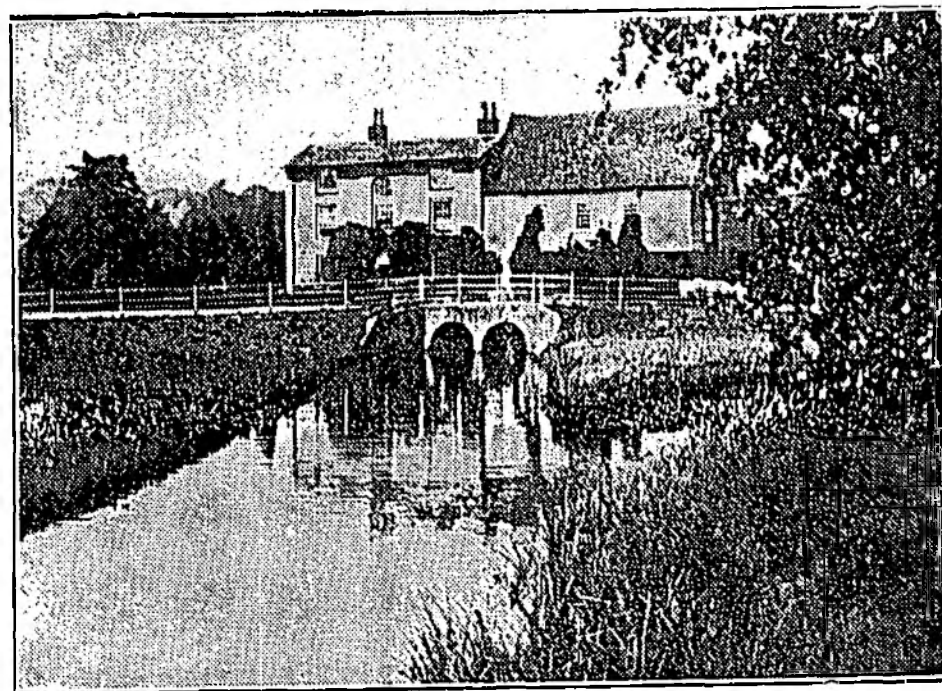
John Kirby's connection with Wickham Market is well known to practically everybody, but it is not so generally appreciated that his son, John Joshua, also played his part in emphasising the different attractions of his native county. Where the elder Kirby, however, expressed himself in words, John, the younger, used the medium of the sketch-book, with the result that he published quite an imposing collection of works of art, amongst which were many depictions of churches and other noble buildings in Suffolk. And that his efforts were appreciated by no less a person than the great

Gainsborough shows their quality, for so intimate with Kirby was the former that he requested to be buried beside his friend in the churchyard at Kew.

Quite a number of charities have been bequeathed at various times to the needy of Wickham Market, including a town estate in the nearby village of Hacheston, but perhaps the most interesting of them all owes its existence to Thomas Woods, Bishop of Lichfield and Coventry, who in the year 1690 left fifteen pounds a year to four poor men of the parish, which amount was to be derived from his estates at Barham. His heir, however, seems to have possessed a nature far less charitable than that of the worthy bishop, for, when he obtained possession of the property he promptly ignored this particular obligation. It was not until some fifty years later, in fact, that the law stepped in and enforced payments. However, when this occurred, the miserly heir probably regretted his evasion of responsibility, for he was not only compelled to pay the annual sum originally bequeathed, but a further amount of six pounds a year as a matter of interest, and as this was to continue for ever, the "four poor men" of future generations were probably delighted with the course that events had taken!

Having said so much of Wickham Market, space forbids any further mention of its story, although there are many more items which might be recorded. But even to-day, although many of its past glories have departed, it still exists in a more or less prosperous condition. For in its long street there is always the busy hum of traffic; its shops and hostleries still show a brave face to the world; and over the village and surrounding countryside there is a landmark which also conveys a message: the tall bespired tower of the church gazing serenely, dwarfing in its lofty dignity the habitations which nestle at its very base.

YEOMAN.



A PEACEFUL SCENE ON THE RIVER.

Reprinted from the *Suffolk Chronicle and Mercury*, August 7th, 1931.



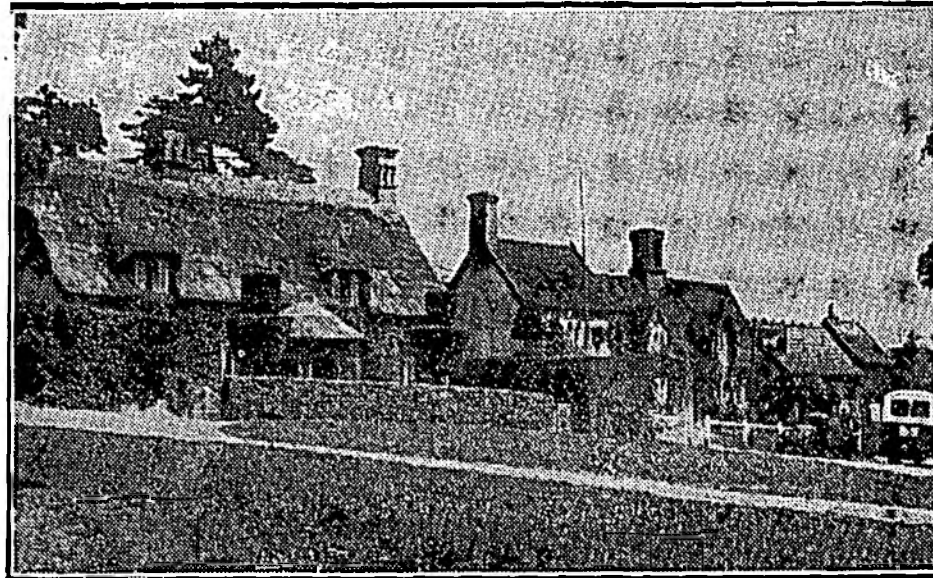
# POCKET HISTORIES OF SUFFOLK PARISHES.

No. 178.—EASTON.

At the risk of being accused of using unnecessary verbiage and laudatory phrases in writing this article, I must certainly remark that the village of Easton is one of the most delightful and picturesque in all Suffolk, and I am convinced that anybody who has lingered here, during this month of May especially, will have no fault to find with my description. Pleasant greens and timbered houses; wonderful cottages, thatched and altogether refreshing to the townsman's eye; an inn whose garden is fragrant with old-world flowers, and seeming so snug and cosy that even the most rabid teetotaler must feel tempted to partake of the homely comforts suggested by the sign of the White Horse—Easton, a village model in its planning, situated in a hollow by the banks of the now narrow Deben, so that it appears to resemble some wonderful example of the artist's handicraft, dropped in all its colourful eloquence amidst the green and inviting meadows.

And what of Easton's story? Is it peaceable or warlike, quiet or ringing with the clash of arms? To answer this is comparatively simple, for Easton, despite its association with martial figures, has had an existence in keeping with its placid appearance. Of its very early days it is unnecessary to write, but in the fourteenth and fifteenth centuries the manor was in the possession of a family named Charles, and in 1453 Thomas Charles sold it to Sir John Wingfield, and in the hands of this famous Suffolk line the manor remained until 1677, just fifty years after Sir Anthony Wingfield removed to Easton and erected the first mansion, known as the White House.

The next owner was the Honourable William Henry Nassau de Zulestein, who took his name from the province in Utrecht so called, and of which he was lord. Undoubtedly a man well in favour with the king, for he was not only master of the robes to William III., but was



PART OF THE GREEN.

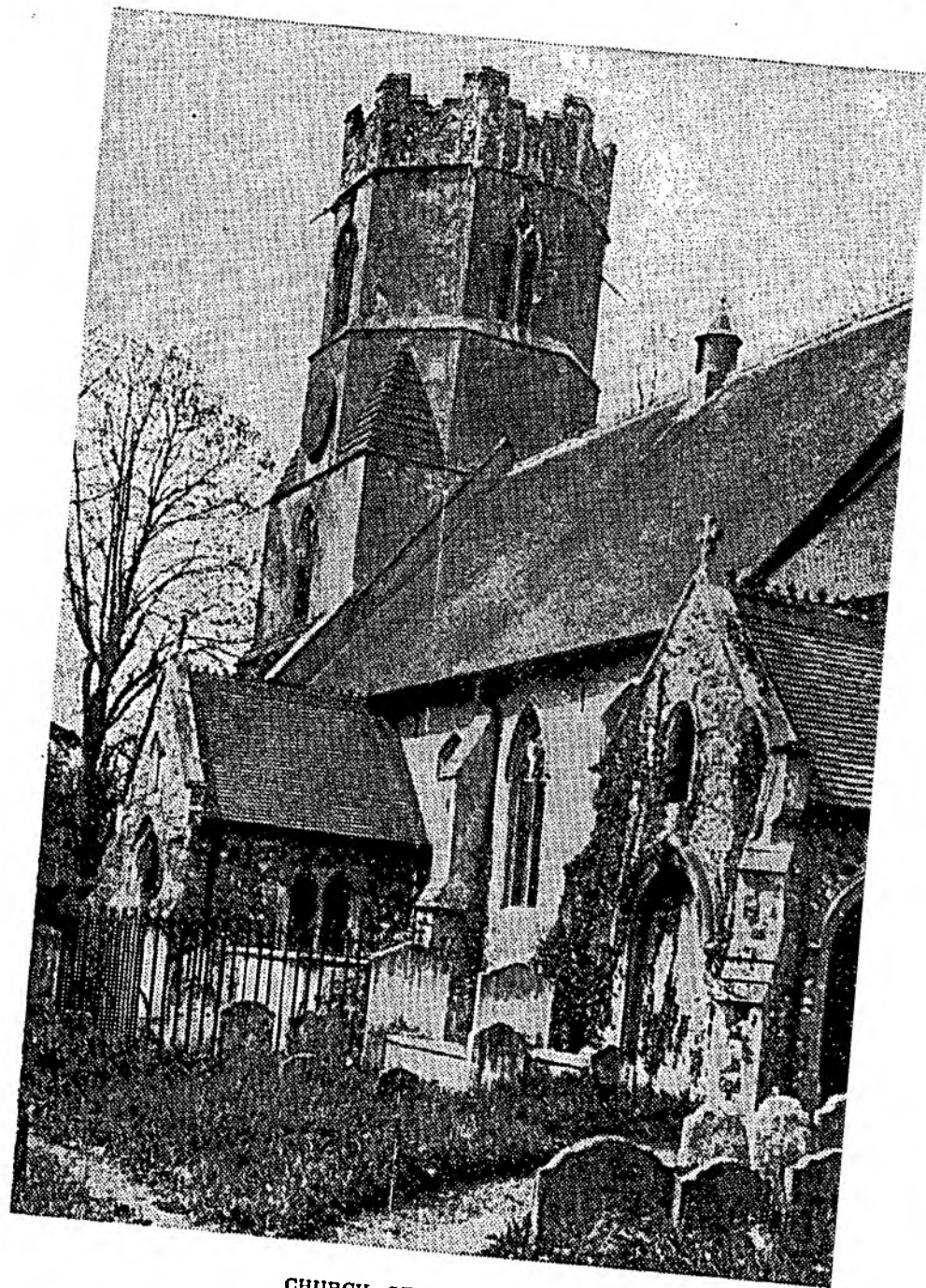
afterwards created Baron of Enfield, Viscount Tunbridge and Earl of Rochford. At his death he was succeeded by William Henry, his son, who died fighting whilst commanding the left wing of the English Army in Spain. This occurred in 1710, and eventually the estate was sold by his nephew, the fourth earl, to a younger brother, who married the Dowager Duchess of Hamilton and Brandon, and the latter family were the owners of Easton until quite recently.

Of the White House built by Sir Anthony Wingfield nothing remains, and even the modern mansion, which stood in the beautiful and expansive park, has been demolished. Fortunately, however, other interesting places exist, and not the least of these is the fine old farm residence which can be seen a short distance

from the heart of the village. This is known as Martley Hall, and in connection with its name is an interesting story, for at the time of the Domesday Survey Martley was an entirely separate village, even although no church or other religious house existed within its boundaries—a fact which probably explains its later union with Easton.

When the Conqueror was active in bestowing various estates upon his especial favourites, he gave the Manor of Martley to Hervey de Bourges, and about the middle of the thirteenth century Sir Hugh Peche was in occupation, and at the marriage of his daughter Margery to Roger de la Haye he settled Martley and other property on the fortunate couple, although later on it followed the same course as Easton and





CHURCH OF ALL SAINTS.

passed to the Charles family, and from them to the Wingfields.

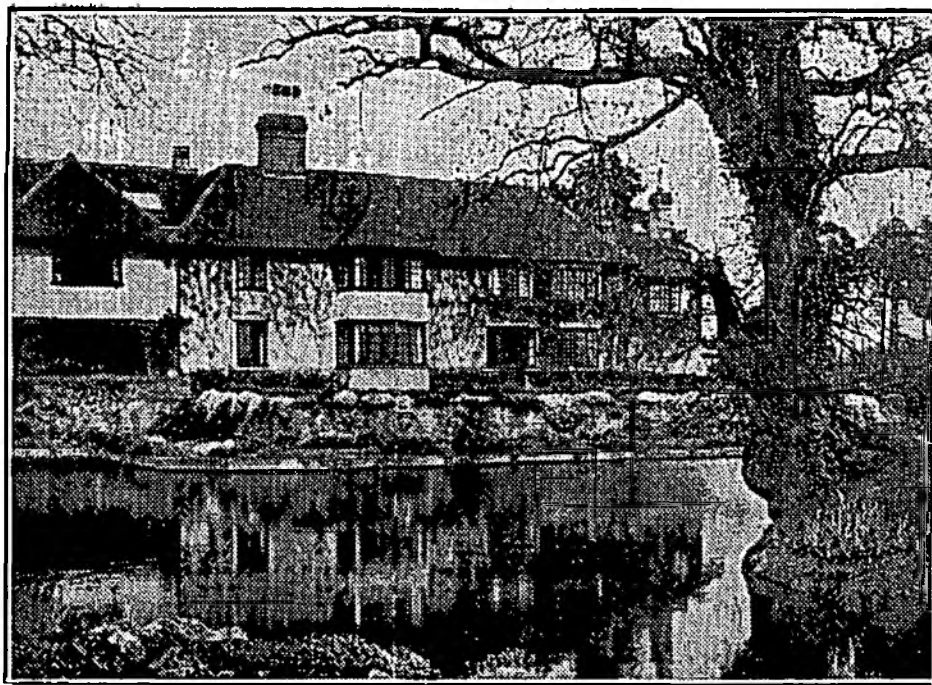
To-day Martley Hall is a magnificent building, partly dating from the sixteenth century, and surrounded by the same moat which served as a line of defence for the original castle-like structure of stone, when good Sir Hugh Peche provided his daughter with such a handsome dowry. And almost opposite this pleasant residence is another known as The Kennels, and



MONUMENT TO DAME MARY  
WINGFIELD.

although this is not so imposing on one of the buildings are the arms of the Hamiltons.

Before going any further, however, it is advisable to retrace our footsteps to the centre of Easton, and to visit the house of worship, in which are several associations with the different owners of the manor. Set in a secluded churchyard, almost heavy with the fragrant scent of lilac, and on the fringe of the park, the church of All Saints contains chancel, nave,



MARTLEY HALL.

South porch—over which is a niche with the figure missing—and embattled Western tower, and partly dates from the end of the 13th century. The upper part of the tower is octagonal, and was probably rebuilt in this fashion about three hundred years ago, when—possibly through a storm—the old square belfry was destroyed.

At the first glance the interior seems peculiarly long, perhaps through the fact that no chancel steps exist. Some beautiful medieval coloured glass has fortunately escaped the attentions of the Puritan iconoclasts, who did a certain amount of damage here, and there are many hatchments; but probably the most interesting objects the church contains are the brasses in the chancel, which are certainly some of the best preserved in the county.

One of these shows the figure of a knight in complete plate armour, with his feet resting on a hound. Although the inscription has disappeared, it has been suggested that the effigy refers to Sir John Brooke, who died in

the early part of the 15th century; but it is generally believed that Sir John was interred at Easton Bavent, in the neighbourhood of Southwold. Such being the case, Mr. Claude Morley, F.E.S., F.Z.S.—to whom I am greatly indebted for various facts in connection with this article—has no hesitation in stating that the brass refers to Sir Thomas Charles, patron of the church and lord of the manor of Easton, whose death occurred in 1419.

Two more brasses—both of them in remarkably good condition—can be seen close to that mentioned above, one of these showing a man in armour, with a shield of twenty quarterings and an inscription that "Here lyeth John Wingfield of Eston esqyr," who was buried in "the year of Our Lord God 1584." The other refers to Radcliffe, daughter of Sir Gilbert Gerrard, Knight, and wife of Sir Thomas Wingfield, Knight, and takes the form of a lady dressed in the fashion of the Elizabethan period, with two shields and an inscription, which gives the date of her death as 1601.

Several monuments can be seen on the North wall of the nave, including one to Dame Mary, late wife of Sir Henry Wingfield, and another, of a type common to the period, in memory of William Henry, fifth Earl of Rochford, who died unmarried just a hundred years ago, at which date the title became extinct.

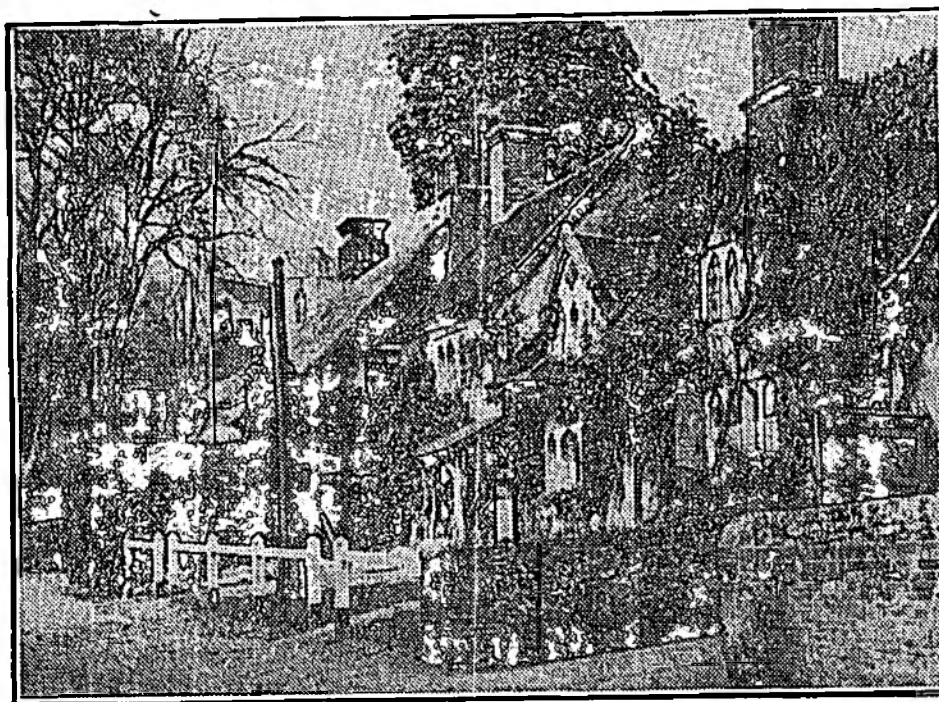
In the vestry is a list of rectors, commencing with John de Brok in 1302, and continuing in an unbroken line until the present day. To



A BUILDING AT THE KENNELS BEARING THE HAMILTON ARMS.

the South of the nave is the memorial window of William Alexander, eleventh Duke of Hamilton and Brandon, whose death occurred in 1863, and in this connection it is worth noting that a new organ was presented to the church in 1888 by the Duchess.

The font is plain and octagonal, but to the South of the chancel are the remains of a



THE WHITE HORSE INN.

double piscina, and in the sanctuary are two remarkable pews of carved oak, dating from the early part of the seventeenth century and bearing the arms of the Wingfields. A monument, rather more imposing than is usual in a small place of worship, can be seen on the North wall of the nave, and gives the names of the nineteen men of the village who died in the war, a list in the porch telling the details of those who actually went.

And now to mention the rough story of any native of Easton who left behind a name of some importance, and, incidentally, gave his birthplace a certain amount of distinction. In this connection, naturally enough, the Wingfields spring most readily to the mind; but, as their doings are associated to a large extent with so many places other than the subject of this particular article, and their various affairs have been faithfully dealt with on various occasions, I am purposely passing by their

exploits. Yet two men of humbler birth have inscribed their names so boldly in the book of endeavour that they have won a place for themselves in the Dictionary of National Biography—that volume of plain facts where military figures rub shoulders with scholars, where men of all the arts and practical seekers after scientific truth have had their stories placed upon record for all to see and for all to admire.

One of these inhabitants of Easton was Thomas Short, M.D., "a somewhat celebrated physician," who first saw the light in 1635, and whose father was rector of the parish. Originally he attended school at Bury St. Edmund's, and from there went to St. John's College, Cambridge, where "his genius disposed for the practice of physick," so effectively, in fact, that at his death—he was buried in St. James's Chapel, London—he left behind a name for medical skill far beyond the ordinary.

The other son of Easton who deserves more than a mention came at a much later date, and was of an altogether different calibre, and there are people living to-day who are able to remember a few particulars about his career, for the death of James Clarke, a fairly well-known antiquary, only occurred in 1861. His discoveries revealed nothing startling, or little that threw any light on any particular subject, but his very enthusiasm and his wholehearted devotion to the pursuit he loved made him an ardent collector of all sorts of trifles having connection with the story of other days, more especially anything to do with his native county. Also, he was a zealous member of the British Archaeological Association, to whose journal he was a fairly prolific contributor, and even although his notes were of no outstanding importance they aroused a certain amount of interest. Perhaps the work for which he is best known, however, is "The Suffolk Antiquary," a freakish effort in verse dealing with matters of local discovery and containing items of local information, and published in 1849. As a literary production it was hopeless—even the writer, realising his limitations with the poetical pen, described it as "doggerel rhyme"—but in other ways it exercises a certain appeal to those interested in the story of Suffolk, and its various relics, and as such is worth perusing.

Thus this pleasant little village by the side of the River Deben—now, as already mentioned, a small stream, but on whose then broad bosom our Saxon ancestors sailed their ships—has a story at once forcible and quiet, both impressive and reserved. Great families have flourished here; their sons have won fame in many spheres, on the battlefields of Europe and in the courts of Royalty. Yet, on the other hand, names like those of the two inhabitants referred to above seem more in harmony with this delightful spot. For the village of Easton appears to typify all that is best and brightest in the life of the country, and the fact that the Easton Harriers have their kennels here assists to preserve the atmosphere of an England so alive to old-world pleasures, so gracious in aspect, so restful and inviting, that against its virgin background the things of to-day seem singularly avaricious and almost sordid by comparison.

YEOMAN.



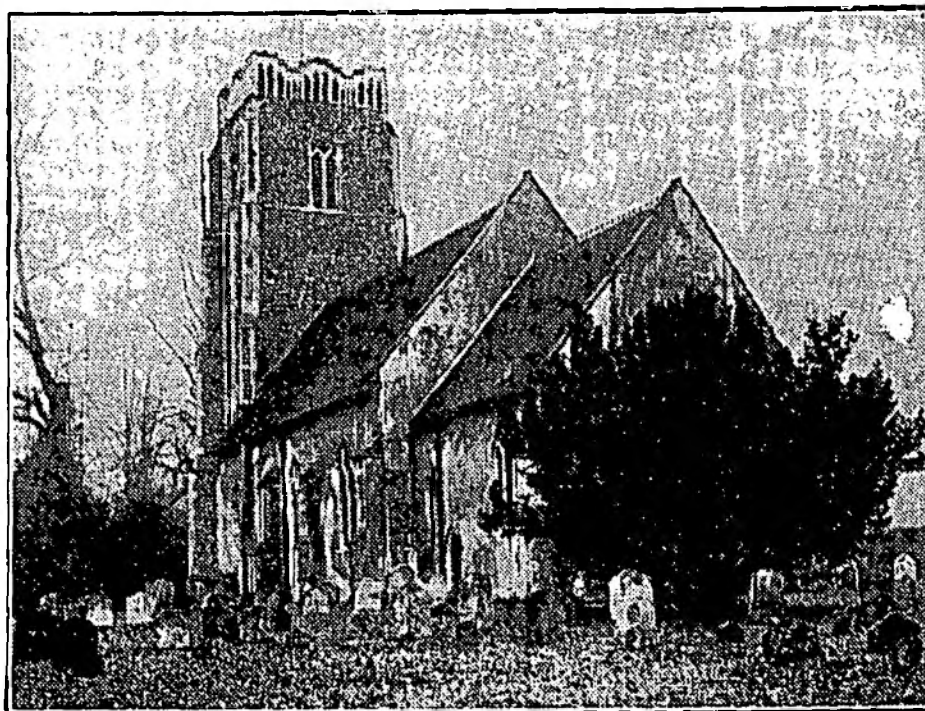
# POCKET HISTORIES OF SUFFOLK PARISHES.

No. 165—BRANDESTON.

Woodland and fruitful fields, pleasant pastures and sheltered copses—all these abound within the confines of Brandeston village, for here is a district in which one finds that countryside so appealing to the lover of Suffolk, with pleasant little cottages and more pretentious farmsteads, and close-cropped hedges contrasting with spreading vegetation. Then there is the Deben—here a mere rippling stream—following its placid course by well-tilled soil and lush marshes, where red and white cows are eating their fill of the rich grass, and the country seems almost deserted except for the glimpse of a sturdy labourer doing his share in preparing the land for the fruitful harvest to come.

But two ancient buildings in Brandeston must exert an irresistible appeal to those interested in the story of the past, and, as is more often than not the case with our country villages, these are situated within a stone's throw of one another, and both are also in sylvan surroundings. These, of course, are the place of worship and the Hall, and it is of the latter that we will first speak, for this "mansion, seated under the fostering wings of the ancient church," as it was once described, is a building of charm and interest, and this despite the fact that a considerable amount of rebuilding has been necessary for its preservation.

For Brandeston Hall, although originally erected so long ago as the reign of the sixth King Edward, was almost entirely destroyed by a serious conflagration which occurred in the middle of the last century, and in connection with this the then owner was undoubtedly unfortunate, for he had only just purchased the estate and was undertaking considerable renovations at the mansion. And to show how extensive the fire was it is only necessary to mention that practically all the original building was demolished, although, fortunately, the East wing, which contained the library, was saved. Yet, to-day, Brandeston Hall still retains more than



CHURCH OF ALL SAINTS.

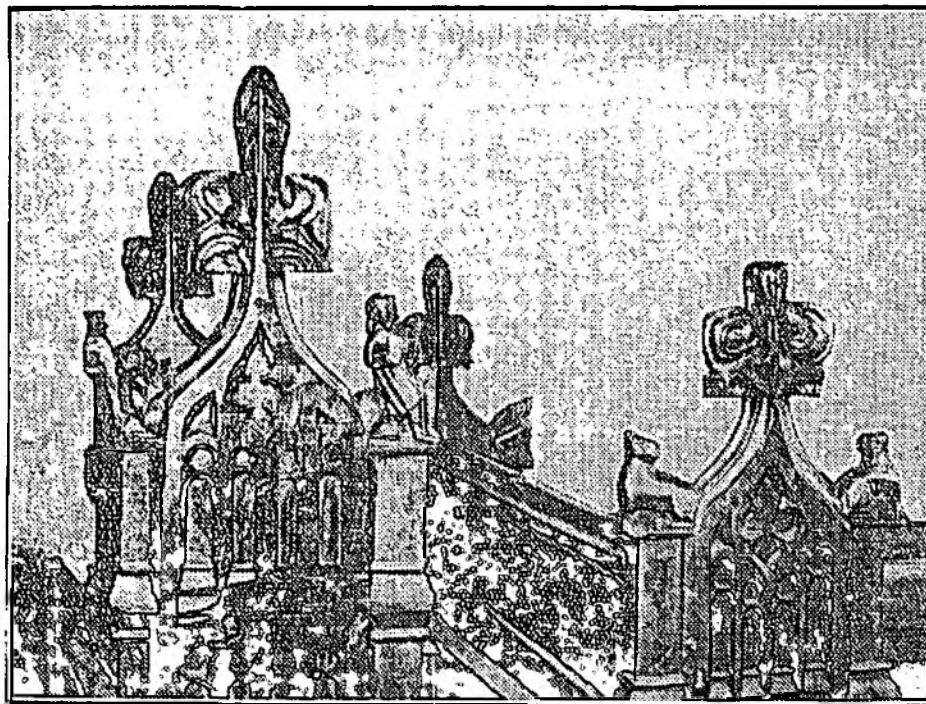
a hint of its old-time architecture, for, although extensively restored and even enlarged, there still broods there a spirit of the past, a certain fascination of other days, a peculiar suggestion of a more picturesque period than our own.

And picturesque—although hackneyed—is undoubtedly the only word to use when describing the mansion, for its bricks seem more mellowed than otherwise, and its appearance apparently in keeping with the time which saw its original erection. Yet, of course, much of this is un-

doubtedly due to its inspiring surroundings, for with its glorious turf and shrubs, alive with choice memories, and splendid in their appearance of a ripe old age, with its towering trees, noble in their aspect, there is a glory which only the years can bestow, and which in its very splendour gives an atmosphere of grandeur, allied with a certain rural simplicity.

And what of the people who lived here? First of all, it is advisable to inspect the records of the Manor, and in the time of William the Conqueror we find that this was held by a cer-



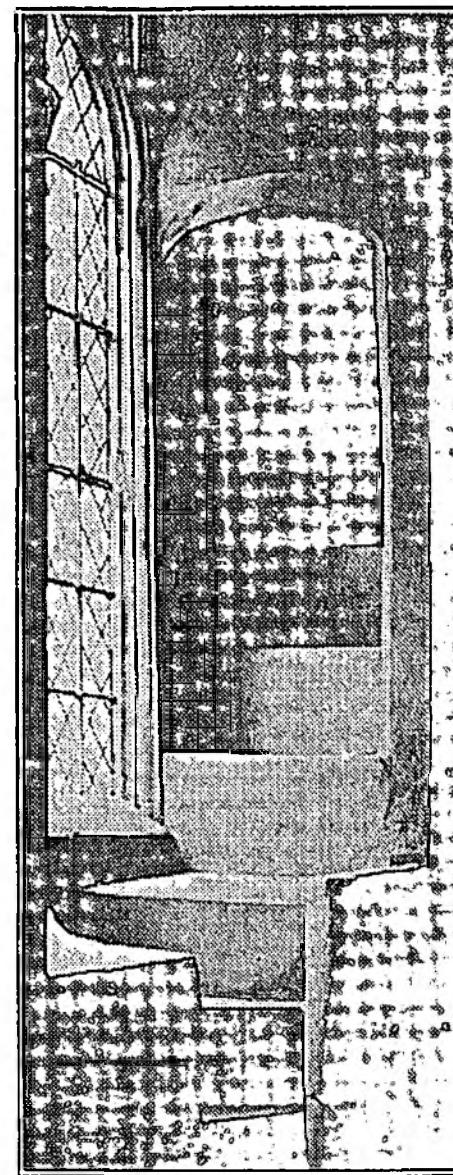


SOME OF THE REMAINING ANCIENT BENCHES.

tain Odo de Campania, later passing to the Burwells, the Weylands, the Tuddenhams, and the Bedingfields. And from one of the latter Andrew Revett purchased the manor, and he it was who apparently erected the present mansion, or, at least, that part which still exists. In the Revett family the manor, "with the River Deben gently gliding through," remained for some three hundred years, and perhaps the most interesting, as well as the most famous, member that the line produced was Nicholas Revett, who was born at Brandeston Hall in 1720, and was not only an ingenious draughtsman, but also accompanied John Stuart on most of his travels, besides being joint-editor with the latter of "Antiquities and Ruins of Athens," in which city they made their home for a number of years. Another volume of a similar nature with which Nicholas Revett was connected—although in this case he alone was responsible—

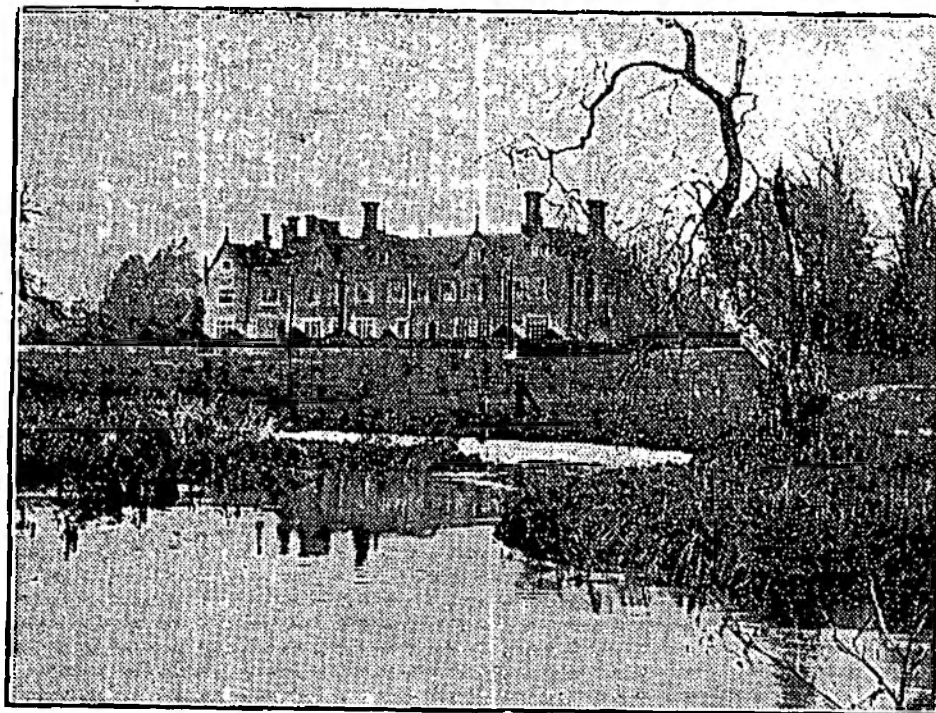
was "Ionian Antiquities," but besides his ability in this direction he was a brilliant ecclesiastical architect, and amongst the churches he designed was that of Argot St. Lawrence, in the county of Hertfordshire.

Amongst other people of importance connected with Brandeston Hall must be mentioned Charles Austin, who purchased the manor from the Revetts. Born at Creeting Mill in 1799, he was originally intended for a surgeon, but as this occupation failed to appeal he was sent to Cambridge University, afterwards embracing the legal profession. And that law gained what medicine lost was amply proved, for Charles Austin has been described as the "first lawyer in England," and even from a purely mercenary point of view he was undoubtedly unique, his income during one year being computed at from forty thousand to a hundred thousand pounds. To tell the full story of this distinguished man would need more space



STAIRCASE FORMERLY LEADING TO THE ROOD-LOFT.

than I have at my command; suffice it to say that his skill at the parliamentary bar was remarkable; his forceful cross-examinations and



BRANDESTON HALL.

power of oratory extraordinary; whilst the fact that he was offered the high office of Solicitor-General necessitates no embroidery. Also, he was a fine scholar and a student of the classics, besides being a writer of some note, whilst after his retirement he became High Steward of Ipswich and Chairman of the Quarter Sessions for East Suffolk.

As already mentioned, the church and the Hall at Brandeston practically adjoin, and because of this the luxuriant churchyard of the former naturally creates no surprise. Yet the magnificent clipped hedge which lines either side of the path leading to the South porch is certainly delightful, for its very greenness appeals whilst the neatness of its pattern speaks of the careful and conscientious use of the shears through many years and by many hands.

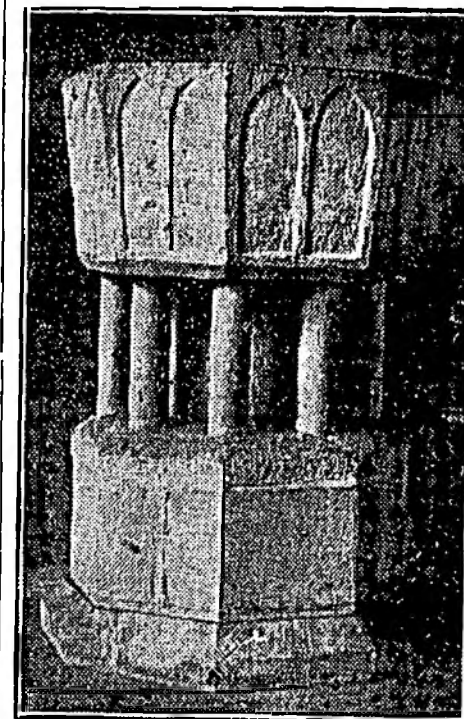
Fortunately the church of All Saints, with its chancel and nave, its South porch mentioned above, and its embattled Western tower containing six bells, presents several points of

interest, and this is obvious directly one enters, for immediately a number of floorstones are noticed, including several to the Stebbings, and which belong to the seventeenth century. It is, however, two others which have a certain bearing upon the story of Brandeston and numerous other places in the district, for these mention the name of Hawes, and it was Robert Hawes who was an "Industrious compiler of the History of the Loes Hundred," in which, of course, Brandeston is situated.

It was in 1665 that Robert Hawes was born at Brandeston, and he eventually became steward of the lordship of Framlingham to Pembroke College, Cambridge, and from his various notes on the Loes Hundred the well-known history of Framlingham was extracted. And to Pembroke College the author presented a manuscript copy of his work, for which, as a sign of appreciation, the college gave him a large silver cup and cover, "not as an adequate reward of his merits, but as a memorial of their

grateful acceptance of his favour." Robert's death occurred at Framlingham in 1731, and he was interred in the church there, where his floorstone may still be seen.

Although All Saints' was thoroughly restored in 1862, and is chiefly seated with modern benches, quite a number of old ones exist, although, unfortunately, their quaint carving has been considerably mutilated. The early octagonal font, also, shows a certain amount of renovation, and the rood loft stairs in the North



wall are certainly in an excellent state of preservation, whilst it is strange to see a piscina and sedilia to the South of the nave.

In the chancel, as one would naturally expect, are several floorstones to various of the Revettas, and on the North wall is an excellent seventeenth century monument belonging to the same family, and which seems in almost perfect condition, and, to all intents and purposes,



COTTAGES IN THE VILLAGE.

practically undamaged, either by the hand of man or by the less violent action of time.

Several pieces of stained glass, undoubtedly of the early sixteenth century, can be seen in the chancel South window, amongst the designs being the figure of an abbot and a monk. And this symbolises a rather interesting fact, for from 1561 to 1511 a certain John, monk at the Abbey at Bury St. Edmund's, was vicar of Brandeston, his abbot being William of Coddenham, and the above representations undoubtedly refer to these two.

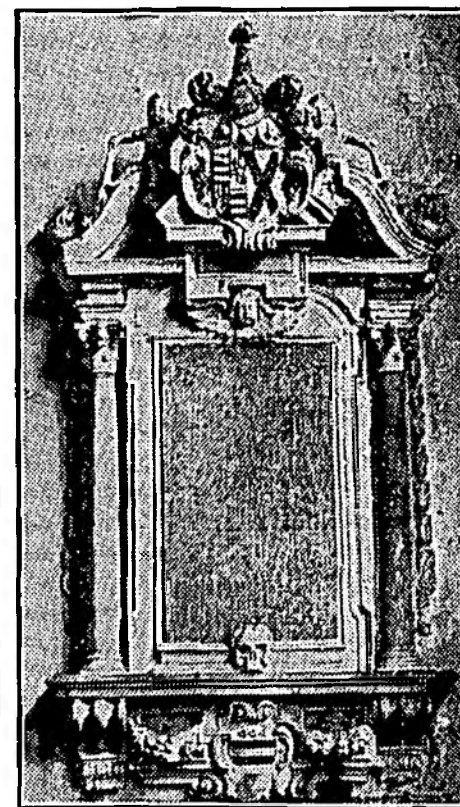
And whilst mentioning this particular incumbent, it is as well, perhaps, to discuss two others who once held office here. One of these bears a name which anybody who has taken interest in the literary story of our county will scarcely fail to read without a smile, for who has not heard of the Rev. John Clubbe, B.A., rector of Whatfield, who, in 1758, published that delicious satire on the ways of antiquarians in general and of one in particular: "The History

and Antiquities of the ancient Villa of Wheatfield, in the County of Suffolk"?

It was the son of this droll cleric, the Rev. William Clubbe, LL.B., who fulfilled the duties of vicar at Brandeston for some forty-five years, and he himself was the writer of a number of publications, in several of which he exhibited the natural wit and the happy pen one would naturally expect from the offspring of a father whose alleged historical effort had made hundreds laugh unrestrainedly and the dignified few grind their teeth.

Unfortunately, the story of another of Brandeston's vicars is one of tragedy stark and terrible, of horrifying practices, and pitiful superstition. Thank goodness, the belief in witchcraft and its kindred ideas is practically non-existent in the enlightened present, but even in comparatively recent times it was a very real thing indeed. Not that its effect always took the form of ducking in the village pond poor old women whose only offence was age,

and whose only condemnation came from ignorant tittle-tattle, for in some cases it was inspired by a distorted view of religion. And this is what occurred in the case of the Rev. John Lowes, or Lewes, for this ill-fated country vicar was accused of failing to conform with the rites of the Established Church, for which he was hanged for witchcraft in 1646, at Bury



THE REVETT MEMORIAL.

St. Edmund's, although there is at least one consolation to be gained from the sorry story, and that is the fact that he was amongst the last to suffer this grim punishment for what we should regard to-day as merely an affair of conscience.

So far as the advowson and the tithes of the church are concerned, these were given to the Priory at Woodbridge by Sir Thomas Weyland

at the end of the thirteenth century, and after the dissolution came into the hands of the famous Seckford family, subsequently being used to support various dissenting meeting-houses in London. Thus, we have the strange fact that for over a hundred and thirty years Nonconformist trustees were patrons of a Church of England living.

But many strange things happened in the past, and will in the future, although the former are often buried deep beneath the mouldering

leaves of historical research. Yet whatever is of interest, either to ourselves or to posterity, deserves resuscitating or preserving, as the case may be, for surely the tale of those who have gone before should never be allowed to fade into oblivion for the sake of a little care? Monuments have their uses: their inscriptions oftentimes help to link together the lives of those whose names are there engraved. Ancient masonry and noble plies breathe the personality of many a former occupant, for their very mortar

is pregnant with the faintly whispered story of the past. Even in the mighty trees beneath which the lords and ladies of another day once played their parts a story can be found, and because of this, monument and mansion and tree, all of them should be preserved whenever possible, safe from vandal hands and for the benefit of those alive to-day and those others yet to come.

YEOMAN.

Reprinted from the Suffolk Chronicle and Mercury, February 28th, 1930.



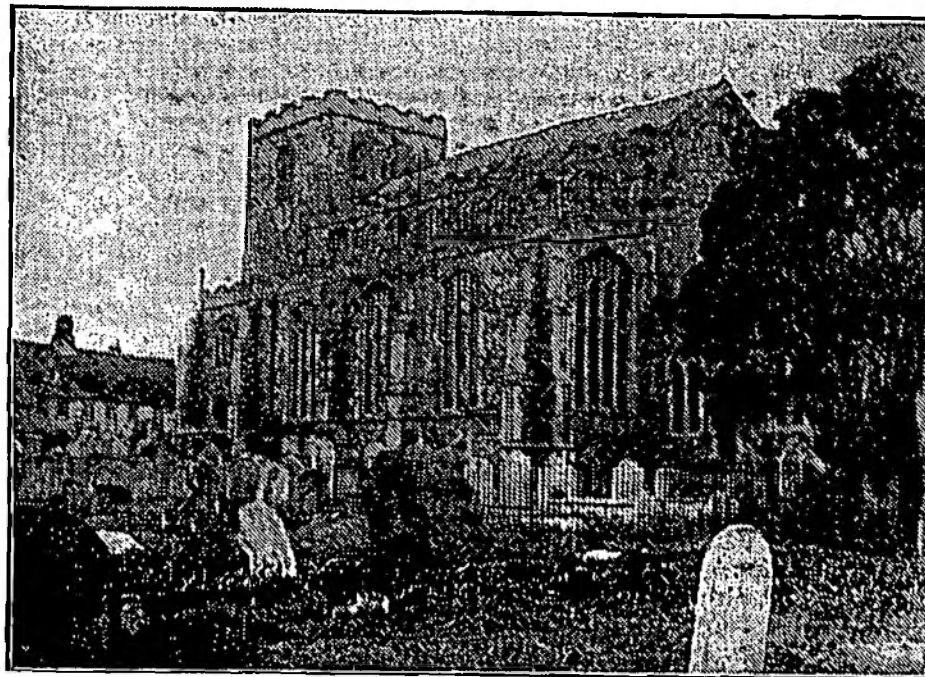
# POCKET HISTORIES OF SUFFOLK PARISHES.

No. 33—DEBENHAM.

Some hundred years ago Debenham was described as "a very clean town, situated on a rising hill," and these words are true enough to-day. Although there is little that by any stretch of the imagination can be called up-to-date in Debenham, there is a certain neatness connected with its ancient streets and an appearance of pink and white freshness about its timbered houses which are responsible for making the town a place of infinite interest. To those who prefer the hustle of an industrial neighbourhood, Debenham would undoubtedly prove a sore disappointment, but to the others—less engrossed in the material side of things, and more interested in the study of the past—there is a quiet dignity and a certain attraction which is not only pleasing but undoubtedly appealing in a restful, care-free kind of way. And this old-world spot—apparently unmarred by the stinging blows dealt by the hand of time and seemingly unruffled by the gales of progress—is well worth the visiting. In the *Domesday Book* mention is made of three churches, but only one of these—Saint Mary's, the register of which dates from 1559—now remains. Consisting of aisles and nave, clerestory, chancel, and embattled Western tower—which tower with its magnificent porch is considered to be the finest in the county, and was built some thousand years ago—the church is an edifice of flint and stone, in the Early English, Perpendicular and Decorated styles. In the tower are eight bells, and one of them has the following quaint verse:—

"In Wedlock's bonds all ye who join  
With hands your hearts unite,  
So shall our tuneful tongues combine  
To laud the nuptial rite."

Against the South wall is the monument and tomb of John Simson, who died in 1697, and left a bequest for a quantity of bread to be distributed after every Sunday evening service, besides an annual grant of clothes to the poor,



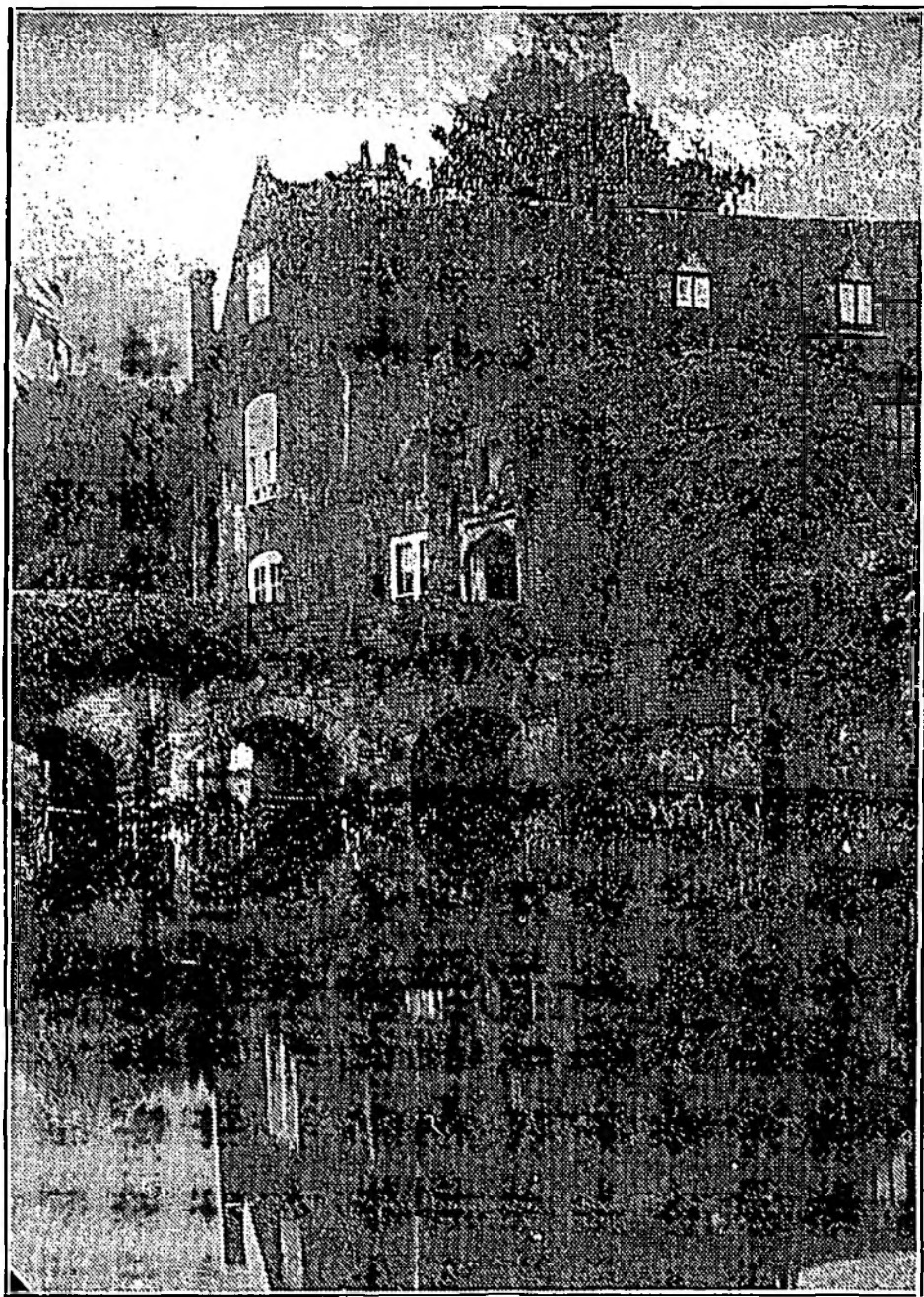
but the most interesting part of the church is undoubtedly the chancel, where there are several relics of the families who had their being in Debenham many years ago. Included in these are two half-length brasses, believed to be those of John Framlingham and his wife, Margaret, who lived at Crowe's Hall about the early part of the fifteenth century. Their descendant, Charles Framlingham, was knighted in 1581, and became Sheriff of Suffolk three years later, and he is buried in a beautiful altar tomb of alabaster. It shows the effigies of himself and one of his wives, and above these the inscription—

"Here lieth the bodie of Sir Charles Framlingham, Knight, who dyed the 28 daye of July, Ano. 1595. The sayde Syr Charles had

two wyfes, the first named Doretye, daughter of Sir Clement Helgham, Knight, and by her he had issue, Clement that dyed without issue and Anne that was married to Sir Bassingborne Gawdye, Knight, and for his second wyfe he had Elizabeth, daughter of Sir Thomas Barnardiston, Knight, which second wyfe overliued the said Syr Charles, and caused this monument be erected, Ano. 1598."

Another interesting inscription is on a brass plate attached to the south wall—a plate which was removed from a vault in May, 1806. It is far too long to quote in detail, but the quaintness of the wording and the sentiments it contains seem somewhat strange to modern ideas. The brass was formerly on the coffin of Charles Gawdy, Knight, who "in his life time was blessed in the happie choice of a most ver-





CROW'S HALL

tuous wife . . . . a Lady, to say no more, severely modest, and of a most pure and unblemished conjugall affection." Sir Charles was a stout adherent to the Protestant religion, besides being an ardent supporter of King Charles the First in his struggle with the Roundheads, and through this unwavering loyalty to a lost cause he was considerably the poorer, as he was compelled by the Parliament to pay a fine of £529, and an annuity of £150 to the church—the latter amount being remitted at the Restoration. This happened, however, several years too late as far as Sir Charles was concerned, his death having occurred in 1650—a death he met with every sign of calmness, as, according to the inscription, "he departed, I cannot say hee died, for, by a voluntary, cheerful and devout resignation of him selfe into the hands of the Almighty (to the wonder and astonishment of the beholders) though he prevented not the stroake, yet assuredly he felt not the bitterness of Death." Could anybody wish for a better end?

The chancel also contains a piscina and some old stalls with poppy heads, but the church was reseated in carved oak about fifty years back, when the aisles were restored, a gallery being removed at the same time. Steps which originally led to the rood-loft still exist in an excellent state of preservation, but the loft itself was probably demolished during the reign of Edward the Sixth. A link with a famous battle of the past is provided by a tablet recording the death of Robert Green, a lieutenant of the Royal Marines, who was killed whilst fighting on the "Royal Sovereign" at Trafalgar.

At the present time Debenham can scarcely be described as a place of any great importance, but in early days it was a thriving town, for which the River Deben—then a navigable waterway—was, no doubt, partly responsible. As far back as Norman times the inhabitants possessed the privilege of holding a weekly market and an annual fair, and although the former ceased to exist about the middle of the eighteenth century, it was revived about 1850, and continued for some time. The fair, however, was held without a break from its original inception until about fifty years ago.

As a further proof of the former importance of Debenham, it originally contained at least seven manors, whilst the Priory of Ely owned

certain possessions here in the time of Edward the Confessor; and in connection with this it is interesting to discover that about a hundred and twenty years ago the foundations of an ancient and massive building were brought to light on a place known as the Priory Field. One of the manors belonged to the Priory of Butley, but was eventually granted to Francis Framlingham by Henry the Eighth, and later, through mar-



GATEWAY AT CROW'S HALL.

riage, came into the possession of the Gawdy family, who had their seat at Crow's Hall, that beautiful old moated mansion which is now a farmhouse. Afterwards the manor was purchased by John Pitt, Esquire, described as a "worthy gentleman." There appears to have been a Crow's Hall in Debenham as far back as the early fourteenth century, but some of the Crow family were living in

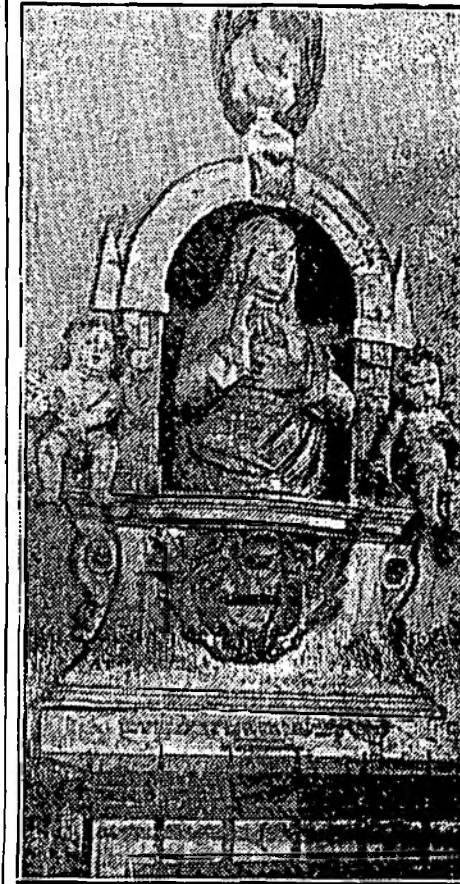
the town many years before that date. The present building was probably erected by one of the Framlinghams about four hundred years ago, and even to-day it retains more than a trace of its former magnificence. In fact, it is one of the old homes of England to which the passing of the centuries has given a beauty that only age can bestow, lending it an air of quiet dignity combined with a certain stateliness which seems to suggest that it holds in its keeping many a secret of the past—a past of more than ordinary interest.

Another of the old manor houses is Ulverston Hall, which is also now a farmhouse. This moated residence gave its name to the Ulverston family, who owned it soon after the Norman Conquest, and eventually the hall and manor came into the possession of Henry Tooley, who died in 1551 and bequeathed it, together with Sackvyls, another manor, to the corporation of Ipswich for charitable purposes. Another charity was provided by Sir Robert Hitcham, who directed in his will that twenty poor children of the parish should be educated at the school he endowed at Framlingham, but for some reason or other this was found to be impracticable, and to carry out his desire an amount of £20 per annum was allowed for the provision of a school and schoolmaster in Debenham—which certainly seems a more sensible arrangement.

One calamity, at least, has overtaken the town, for in March, 1744, it suffered severely from a great fire, which, starting at a baker's, was responsible for destroying in a very few hours over thirty houses. This conflagration would probably have become far less serious if the weather had been different, but owing to an exceptionally dry season water was difficult to obtain, with the result that the large number of willing helpers were severely handicapped in their fight against the flames.

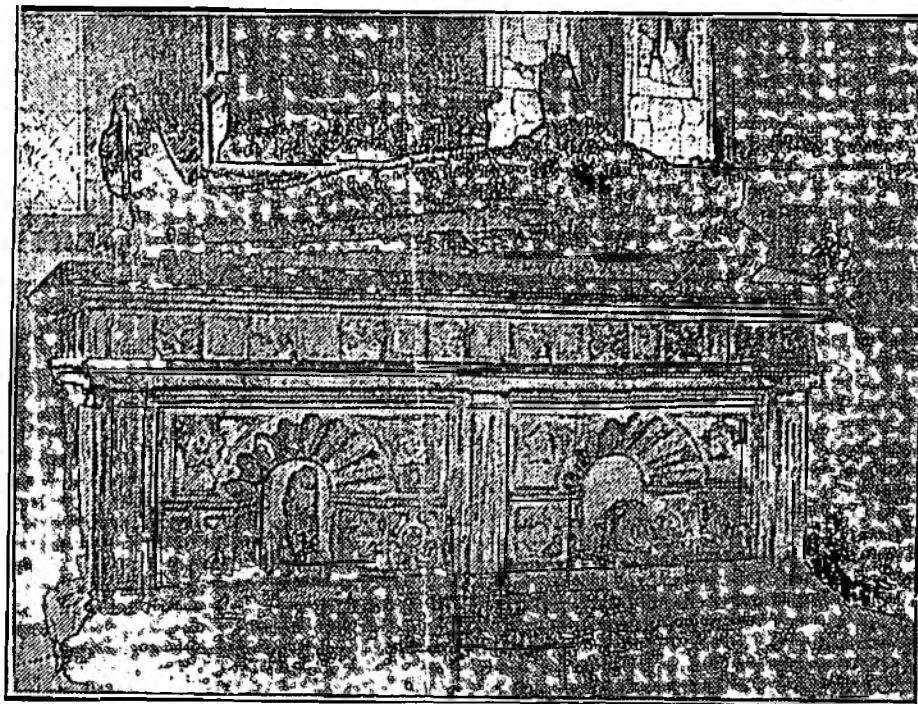
It is not often that one finds a Nonconformist place of worship having more sittings than the church, but the Congregational Chapel at Debenham, which was erected as far back as 1824, is able to claim this satisfaction—if satisfaction it be—for whereas St. Mary's can accommodate a congregation of 550, the chapel has room for 150 more than this. A building which seems to stand out amongst its older neighbours is the Foresters' Hall, built in 1905,

whilst in one respect Debenham has set an example which many other places might well have considered. This is in connection with its war memorial, for instead of a useless piece of masonry—which in the course of a few years will probably have lost its original significance



THE SIMSON MONUMENT.

—its inhabitants have very wisely chosen a reminder of lasting worth and utility. This takes the form of an Institute, and although to some people a building of that kind probably lacks the significance of a cenotaph, it is surely a better policy to provide something for the living—something that will remind



TOMB OF SIR CHARLES FRAMLINGHAM.

them every time they pass through its doors of the reason for its existence, and thus keep the lamp of remembrance burning in the hearts of men, now and in the future.

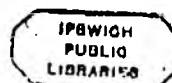
Debenham seems originally to have been founded by the Anglo-Saxons, and it has been suggested that it was the home of one of their

princes. Also, according to White, the Kings of East Anglia "occasionally held their courts here," but some authorities question both these statements. After the Conquest, it was held by four of William's mightiest barons, one of whom was Robert Malet, of Eye, but chiefly through rebelling against their liege they lost

their property, and the manor was divided amongst several families, and perhaps this association with many ancient lines accounts for much that on the surface seems inexplicable in connection with Debenham. There is scarcely a town of its size existing anywhere which seems quite so much in touch with the medieval, as its streets and the very appearance of its buildings seem to speak more of the past than the present. Many places, through the decay of some industry which at one time made them prosperous, have a certain desolate appearance, as though the best things of life have passed them by, but this is not true with Debenham. The quietness which exists here to-day is not due to any cessation of industry or the dwindling of trade, but is simply the natural atmosphere of a place more or less wrapped up in its history—not broodingly, but in a somewhat puzzled way, as though wondering why the world around has changed to such an extent—and in the changing left it with its dreams of the past as an only consolation.

For although Debenham has a light railway, opened in 1908, and the town is lighted by gas, there is nothing of the commercial in its outlook. Even its market square seems to typify the simplicity of former days rather than tell of busy people rushing here and there buying and selling and bargaining. But, after all, the fact that places like Debenham—even in go-as-you-please Suffolk—are few and far between makes them all the more interesting, and not only interesting, but soothing—veritable oases in the deserts of modern existence. And because of this who would wish them otherwise?

YEOMAN.



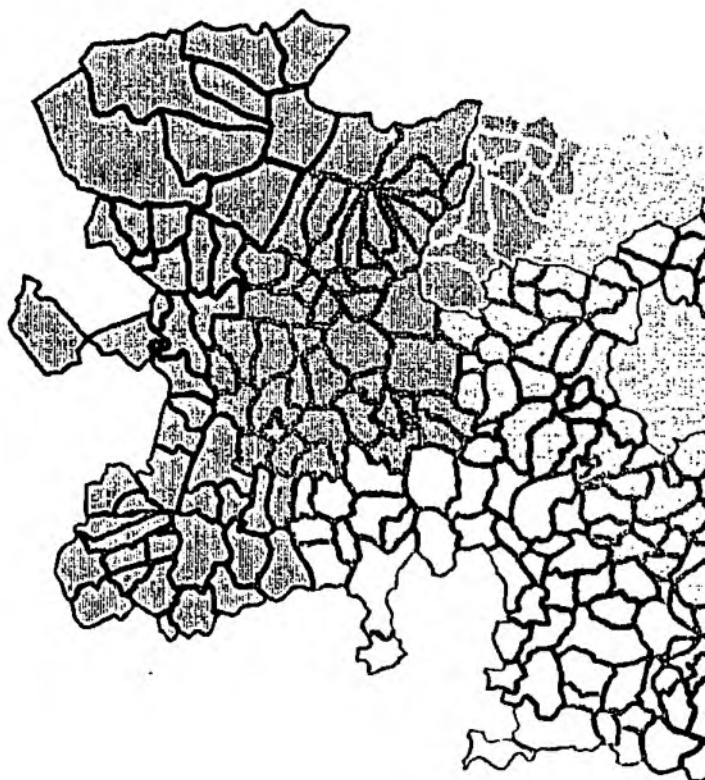
**APPENDIX F  
MAFF LAND USE STATISTICS AND  
ENVIRONMENTALLY SENSITIVE AREAS INFORMATION**



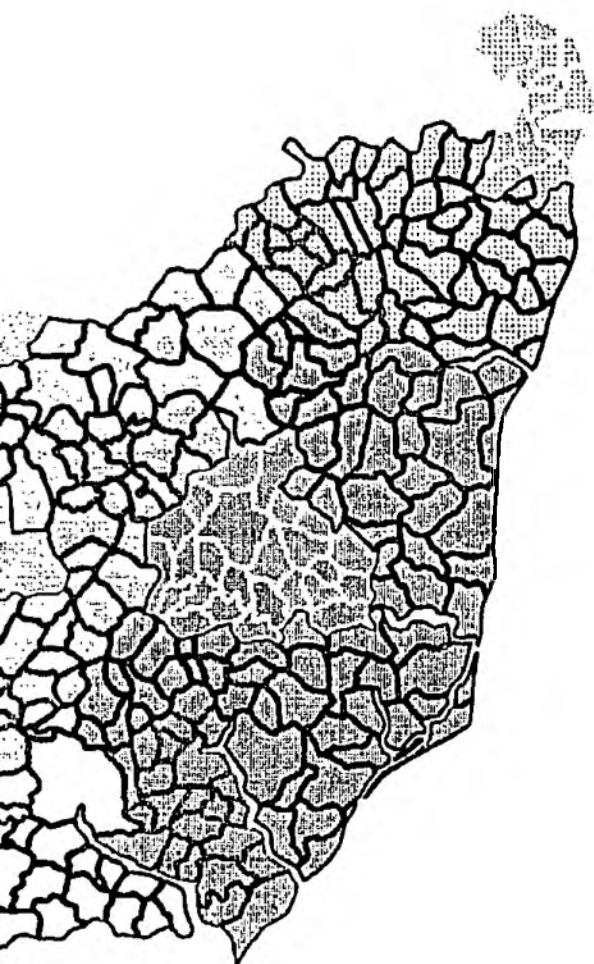


## Agricultural Districts






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OLK



## Parish Groups

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**Agricultural and Horticultural Census: 1 June 1988**  
**Small Area Statistics (excluding minor holdings)**

County		SUFFOLK		Agricultural District		5		Parish Group		3	
LAND USE						Item number on census form (E = England, W = Wales)		Hectares		No. of holdings	
Total area on holdings						1		14842		103	
Land rented						2		2979		33	
Land owned						3		11863		93	
Total crops and fallow (tillage)						4		11060		72	
Recent and temporary grassland (< 5 years)						5		435		23	
Permanent grassland (> 5 years)						6		1512		78	
Rough grazing (sole rights)						7		232		30	
Woodland						8		768		42	
Set-Aside						not collected		n/a		n/a	
All other land						9		835		69	
CROPPING											
Cereals:						11		2282		37	
Wheat						12		1899		44	
Winter barley						13		1104		44	
Spring barley						14-16, 33		268		11	
Other cereals (excluding maize)						Total of above		5551		56	
Total cereals (excluding maize)						18W, 19		788		34	
Other crops:						20		1677		44	
Potatoes (early and maincrop)						21E		0		0	
Sugar beet (not stockseed)						22		1225		38	
Hops						23,27		645		26	
Horticultural crops						29		512		19	
Field beans and peas for harvesting dry						not collected		n/a		n/a	
Oilseed rape						17,24-26, 28, 31, 32		653		39	
Linseed											
Other crops and bare fallow											
HORTICULTURE											
Vegetables:						170-175		Ⓢ		Ⓢ	
Brassicas						178, 181, 183 - 186		Ⓢ		Ⓢ	
Carrots, parsnips, beetroot and onions						187, 189, 190, 192, 195, 198		Ⓢ		Ⓢ	
Peas and beans						197, 198		Ⓢ		Ⓢ	
Lettuce and celery						199, 200		Ⓢ		Ⓢ	
Other vegetables						Total of above (201)		Ⓢ		Ⓢ	
Total vegetables grown in the open						205		Ⓢ		Ⓢ	
Area under glass or plastic						207 - 216		Ⓢ		Ⓢ	
Fruit:						218-225		Ⓢ		Ⓢ	
Top fruit						Total of above (226)		Ⓢ		Ⓢ	
Small fruit						238		Ⓢ		Ⓢ	
Total fruit						244		Ⓢ		Ⓢ	
Ornamentals:											
Hardy nursery stock											
Bulbs and flowers grown in the open											
LIVESTOCK								Number			
Cattle:						70, 72		785		7	
Dairy herd						71, 73		228		15	
Beef herd						74-77, 82, 85, 86, 94W, 95W		383		18	
Breeding herd replacements (cows and heifers over 1 year for breeding)						78-81, 83, 84		649		25	
Other cattle over 1 year						87-91		1268		25	
Cattle and calves under 1 year						Total of above (92)		3293		36	
Total cattle and calves						100-102		1886		14	
Pigs:						103-110		16241		19	
Breeding sows and gilts in pig (breeding herd)						Total of above (111)		18127		19	
All other pigs						113, 114		1635		17	
Total pigs						118		1465		17	
Sheep:						115-117		128		9	
Breeding ewes (breeding flock)						Total of above (119)		3227		18	
Lambs under 1 year						121-124		9638		16	
Other sheep						126, 133, 134		18		***	
Total sheep						127, 128		0		0	
Fowls:						Total of above (137)		9658		16	
Hens and pullets for producing eggs for eating						142, 143		6		***	
Fowls for breeding											
Table chicken											
Total fowls											
Goats:											
All goats											
LABOUR FORCE											
Farmers, partners and directors - full time						50, 53		67		51	
Farmers, partners and directors - part time						51, 54		43		36	
Spouses and other regular family workers						52, 55, 57-60		40		33	
Managers and regular hired workers						56, 61-64		411		48	
Seasonal or casual workers						65, 66		146		20	
Total agricultural labour force (excluding trainees)						Total of above (69)		707		83	
Regular workers - full time						57, 58, 61, 62		300		44	
Regular workers - part time						59, 60, 63, 64		82		29	
Regular workers - male						57, 59, 61, 63		305		48	
Regular workers - female						58, 60, 62, 64		78		20	
HOLDINGS BY FARM TYPE (Based on Standard Man Days)				HOLDINGS BY TILLAGE AND GRASS AREA		HOLDINGS BY STANDARD MAN DAYS		HOLDINGS BY EC FARM TYPE (Based on Standard Gross Margins)			
Mixed	5							Dairy			0
Part time	40	0 < 5 hectares	30	0 - 249	40	Less Favoured Area cattle & sheep					0
Dairy	0	5 < 20 hectares	15	250 - 499	10	Lowland cattle, sheep and cropping					15
Beef and sheep	0	20 < 50 hectares	10	500 - 999	15	Cereals and cropping					50
Pigs and poultry	10	50 < 100 hectares	5	1000 - 1999	15	Pigs and poultry					10
Cropping	40	100 + hectares	40	2000 +	25	Horticulture					10
Horticulture	10					Nil holdings					15
Note: data in these sections are rounded to the nearest 5 holdings.											

Note: data in these sections are rounded to the nearest 5 holdings.

\*\*\* To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area.

Ⓢ Not published but the value of the item is included in sub-totals.

### Not published and the value of the item is not included in sub-totals.

Ministry of Agriculture, Fisheries and Food  
Government Buildings,  
Epsom Road,  
GUILDFORD, Surrey GU1 2LD

**Agricultural and Horticultural Census: 1 June 1992**  
**Small Area Statistics (excluding minor holdings)**

County		Agricultural District		Parish Group	
SUFFOLK		5		3	
LAND USE		Farm number on census form (E = England, W = Wales)		Hectares	No. of holdings
Total area on holdings		1		15638	105
Land rented		2		2840	38
Land owned		3		12798	90
Total crops and fallow (biilage)		35		10044	72
Recent and temporary grassland (< 5 years)		5		1112	33
Permanent grassland (> 5 years)		6		1270	69
Rough grazing (sole rights)		7		365	28
Woodland		8		1019	49
Set-Aside		34		489	15
All other land		9		1336	73
CROPPING					
Cereals:	Wheat	11		2061	41
	Winter barley	12		1686	43
	Spring barley	13		495	21
	Other cereals (excluding maize)	14-16 33		192	7
	Total cereals (excluding maize)	Total of above		4434	52
	Potatoes (early and maincrop)	18W, 19		1222	37
	Sugar beet (not stockfeed)	20		1541	47
	Hops	21E		0	0
	Horticultural crops	22		1080	33
	Field beans and peas for harvesting dry	23 27		252	15
Other crops:	Oilseed rape	29		335	12
	Linseed	30		547	24
	Other crops and bare fallow	17, 24-26, 28, 31 32		633	33
HORTICULTURE					
Vegetables:	Brassicas	170, 172-175		0	0
	Carrots, parsnips, beetroot and onions	178, 181, 182, 185, 186		0	0
	Peas and beans	187, 189, 190, 192, 195, 196		0	0
	Lettuce and celery	197, 198		0	0
	Other vegetables	199, 200		0	0
	Total vegetables grown in the open	Total of above (201)		0	0
Area under glass or plastic		205		0	0
Fruit	Top fruit	207, 208E, 209, 210E, 211-218		0	0
	Small fruit	218-225		0	0
	Total fruit	Total of above (226)		0	0
Ornamentals:	Hardy nursery stock	236		0	0
	Bulbs and flowers grown in the open	244		0	0
LIVESTOCK				Number	
Cattle:	Dairy herd	70, 72		767	8
	Beef herd	71, 73		482	23
	Breeding herd replacements (cows and heifers over 1 year for breeding)	74-77, 82, 85, 88, 94W, 95W		483	18
	Other cattle over 1 year	78-81, 83, 84		543	25
	Cattle and calves under 1 year	87-91		810	28
	Total cattle and calves	Total of above (92)		3085	36
Pigs:	Breeding sows and gilts in pig (breeding herd)	100-102		6512	19
	All other pigs	103-110		33475	22
	Total pigs	Total of above (111)		39987	22
Sheep:	Breeding ewes (breeding flock)	113, 114		2741	19
	Lambs under 1 year	118		3679	17
	Other sheep	115-117		108	8
	Total sheep	Total of above (119)		6523	20
Fowls:	Hens and pullets for producing eggs for eating	121-124		411	13
	Fowls for breeding	126, 133, 134		42	7
	Table chicken	127, 128		0	0
	Total fowls	Total of above (137)		453	14
Goats:		144		0	0
LABOUR FORCE					
Farmers, partners and directors - full time		50, 53		59	48
Farmers, partners and directors - part time		51, 54		50	40
Spouses and other regular family workers		52, 55, 57-60		56	35
Managers and regular hired workers		56, 61-64		398	48
Seasonal or casual workers		65, 68		100	27
Total agricultural labour force (excluding trainees)		Total of above (69)		105	87
Regular workers - full time		57, 58, 61, 62		321	48
Regular workers - part time		59, 60, 63, 64		56	22
Regular workers - male		57, 59, 61, 63		310	50
Regular workers - female		58, 60, 62, 64		10	21
HOLDINGS BY FARM TYPE (Based on Standard Man Days)		HOLDINGS BY TILLAGE AND GRASS AREA		HOLDINGS BY STANDARD MAN DAYS	
Mixed	5				
Part time	40	0 < 5 hectares	30	0 - 249	40
Dairy	0	5 < 20 hectares	15	250 - 499	10
Beef and sheep	5	20 < 50 hectares	10	500 - 999	10
Pigs and poultry	10	50 < 100 hectares	10	1000 - 1999	15
Cropping	35	100 + hectares	40	2000 +	30
Horticulture	10				
				HOLDINGS BY EC FARM TYPE (Based on Standard Gross Margins)	
				Dairy	0
				Less Favoured Area cattle & sheep	0
				Lowland cattle, sheep and cropping	20
				Cereals and cropping	45
				Pigs and poultry	15
				Horticulture	10
				Nil holdings	15

Note: data in these sections are rounded to the nearest 5 holdings.

\*\*\* To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area.

0 Not published but the value of the item is included in sub-totals.

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Ministry of Agriculture, Fisheries and Food  
Government Buildings  
Epsom Road,  
GUILDFORD, Surrey GU1 2LD



**Agricultural and Horticultural Census: 1 June 1988**

**Small Area Statistics (excluding minor holdings)**

County <b>SUFFOLK</b>		Agricultural District <b>5</b>		Parish Group <b>1</b>	
<b>LAND USE</b>		Item number on census form (E = England, W = Wales)		Hectares	No. of holdings
Total area on holdings		1		6083	112
Land rented		2		1078	31
Land owned		3		5005	104
Total crops and fallow (tillage)		4		5177	78
Recent and temporary grassland (< 5 years)		5		96	15
Permanent grassland (> 5 years)		6		575	70
Rough grazing (sole rights)		7		55	17
Woodland		8		31	19
Set-Aside		not collected		n/a	n/a
All other land		9		148	75
<b>CROPPING</b>					
Cereals:	Wheat	11		2078	57
	Winter barley	12		740	34
	Spring barley	13		821	49
	Other cereals (excluding maize)	14-16, 33		26	6
	Total cereals (excluding maize)	Total of above		3665	68
	Potatoes (early and maincrop)	18W, 19		10	---
	Sugar beet (not stockfeed)	20		228	10
	Hops	21E		0	0
	Horticultural crops	22		195	18
	Field beans and peas for harvesting dry	23, 27		520	39
	Oilseed rape	29		323	21
	Linseed	not collected		n/a	n/a
	Other crops and bare fallow	17, 24-26, 28, 31, 32		237	26
<b>HORTICULTURE</b>					
Vegetables:	Brassicas	170-175		Ⓢ	Ⓢ
	Carrots, parsnips, beetroot and onions	176, 181, 183 - 186		Ⓢ	Ⓢ
	Peas and beans	187, 189, 190, 192, 195, 196		Ⓢ	Ⓢ
	Lettuce and celery	197, 198		Ⓢ	Ⓢ
	Other vegetables	199, 200		Ⓢ	Ⓢ
	Total vegetables grown in the open	Total of above (201)		Ⓢ	Ⓢ
Area under glass or plastic		205		Ⓢ	Ⓢ
Fruit:	Top fruit	207 - 216		Ⓢ	Ⓢ
	Small fruit	216-225		Ⓢ	Ⓢ
	Total fruit	Total of above (226)		Ⓢ	Ⓢ
Ornamentals:	Hardy nursery stock	236		Ⓢ	Ⓢ
	Bulbs and flowers grown in the open	244		Ⓢ	Ⓢ
<b>LIVESTOCK</b>				Number	
Cattle:	Dairy herd	70, 72		238	5
	Beef herd	71, 73		114	13
	Breeding herd replacements (cows and heifers over 1 year for breeding)	74-77, 82, 85, 86, 94W, 95W		157	17
	Other cattle over 1 year	78-81, 83, 84		625	20
	Cattle and calves under 1 year	87-91		677	25
	Total cattle and calves	Total of above (92)		2111	33
Pigs:	Breeding sows and gilts in pig (breeding herd)	100-102		2217	15
	All other pigs	103-110		22645	19
	Total pigs	Total of above (111)		24862	20
Sheep:	Breeding ewes (breeding flock)	113, 114		473	14
	Lambs under 1 year	118		618	14
	Other sheep	115-117		37	9
	Total sheep	Total of above (119)		1128	13
Fowls:	Hens and pullets for producing eggs for eating	121-124		3848	22
	Fowls for breeding	126, 133, 134		18	7
	Table chicken	127, 128		694140	4
	Total fowls	Total of above (137)		697804	24
Goats:		142, 143		76	5
<b>LABOUR FORCE</b>					
Farmers, partners and directors - full time		50, 53		90	66
Farmers, partners and directors - part time		51, 54		45	40
Spouses and other regular family workers		52, 55, 57-60		46	32
Managers and regular hired workers		56, 61-64		100	36
Seasonal or casual workers		65, 66		55	13
Total agricultural labour force (excluding trainees)		Total of above (69)		338	97
Regular workers - full time		57, 58, 61, 62		90	39
Regular workers - part time		59, 60, 63, 64		28	20
Regular workers - male		57, 59, 61, 63		105	44
Regular workers - female		58, 60, 62, 64		13	10
<b>HOLDINGS BY FARM TYPE</b> (Based on Standard Man Days)		<b>HOLDINGS BY TILLAGE AND GRASS AREA</b>		<b>HOLDINGS BY STANDARD MAN DAYS</b>	
Mixed	5	0 < 5 hectares	30	0 - 249	70
Part time	70	5 < 20 hectares	20	250 - 499	20
Dairy	0	20 < 50 hectares	20	500 - 999	5
Beef and sheep	0	50 < 100 hectares	20	1000 - 1999	10
Pigs and poultry	10	100 + hectares	15	2000 +	10
Cropping	20				
Horticulture	5				
<b>HOLDINGS BY EC FARM TYPE</b> (Based on Standard Gross Margins)					
Dairy				0	
Less Favoured Area cattle & sheep				0	
Lowland cattle, sheep and cropping				15	
Cereals and cropping				65	
Pigs and poultry				15	
Horticulture				5	
Nil holdings				10	

Note: data in these sections are rounded to the nearest 5 holdings.

\*\*\* To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area.

Ⓢ Not published but the value of the item is included in sub-totals.

#### Not published and the value of the item is not included in sub-totals.

Ministry of Agriculture, Fisheries and Food  
Government Buildings,  
Epsom Road,  
GUILDFORD, Surrey GU1 2LD

**Agricultural and Horticultural Census: 1 June 1992**  
**Small Area Statistics (excluding minor holdings)**

County		Agricultural District		Parish Group	
SUFFOLK		5		1	
<b>LAND USE</b>		Item number on census form (E = England, W = Wales)	Hectares	No. of holdings	
Total area on holdings		1	6338	104	
Land rented		2	1333	29	
Land owned		3	5005	98	
Total crops and fallow (tillage)		35	4921	64	
Recent and temporary grassland (< 5 years)		5	132	21	
Permanent grassland (> 5 years)		6	718	59	
Rough grazing (sole rights)		7	61	18	
Woodland		8	89	24	
Set-Aside		34	198	11	
All other land		9	200	74	
<b>CROPPING</b>					
Cereals:	Wheat	11	2920	56	
	Winter barley	12	578	30	
	Spring barley	13	116	11	
	Other cereals (excluding maize)	14-18, 33	29	5	
	Total cereals (excluding maize)	Total of above	3641	59	
	Potatoes (early and maincrop)	18W, 19	0	0	
	Sugar beet (not stock/seed)	20	226	9	
	Hops	21E	0	0	
	Horticultural crops	22	227	14	
	Field beans and peas for harvesting dry	23, 27	315	24	
	Oilseed rape	29	354	18	
	Linseed	30	107	10	
	Other crops and bare fallow	17, 24-26, 28, 31, 32	51	10	
<b>HORTICULTURE</b>					
Vegetables:	Brassicas	170, 172-175	0	0	
	Carrots, parsnips, beetroot and onions	178, 181, 182, 185, 186	0	0	
	Peas and beans	187, 189, 190, 192, 195, 196	0	0	
	Lettuce and celery	197, 198	0	0	
	Other vegetables	199, 200	0	0	
	Total vegetables grown in the open	Total of above (201)	0	0	
	Area under glass or plastic	205	0	0	
Fruit:	Tree fruit	207, 208E, 209, 210E, 211-216	0	0	
	Small fruit	216-225	0	0	
	Total fruit	Total of above (226)	0	0	
Ornamentals:	Hardy nursery stock	236	0	0	
	Bulbs and flowers grown in the open	244	0	0	
<b>LIVESTOCK</b>			Number		
Cattle:	Dairy herd	70, 72	255	---	
	Beef herd	71, 73	221	15	
	Breeding herd replacements (cows and heifers over 1 year for breeding)	74-77, 82, 85, 86, 94W, 95W	102	13	
	Other cattle over 1 year	78-81, 83, 84	545	16	
	Cattle and calves under 1 year	87-91	903	25	
	Total cattle and calves	Total of above (92)	2025	28	
Pigs:	Breeding sows and gilts in pig (breeding herd)	100-102	2052	9	
	All other pigs	103-110	24763	12	
	Total pigs	Total of above (111)	26815	12	
Sheep:	Breeding ewes (breeding flock)	113, 114	600	14	
	Lambs under 1 year	118	820	13	
	Other sheep	115-117	47	11	
	Total sheep	Total of above (119)	1467	15	
Fowls:	Hens and pullets for producing eggs for eating	121-124	1372	16	
	Fowls for breeding	125, 133, 134	8	3	
	Table chicken	127, 128	231851	---	
	Total fowls	Total of above (137)	233231	19	
Goats:	All goats	144	77	4	
<b>LABOUR FORCE</b>					
Farmers, partners and directors - full time		50, 53	77	53	
Farmers, partners and directors - part time		51, 54	42	39	
Spouses and other regular family workers		52, 55, 57-60	42	27	
Managers and regular hired workers		58, 61-64	127	33	
Seasonal or casual workers		65, 68	34	9	
Total agricultural labour force (excluding trainees)		Total of above (69)	322	90	
Regular workers - full time		57, 58, 61, 62	93	31	
Regular workers - part time		59, 60, 63, 64	51	23	
Regular workers - male		57, 59, 61, 63	113	39	
Regular workers - female		58, 60, 62, 64	31	10	
<b>HOLDINGS BY FARM TYPE</b> (Based on Standard Man Days)		<b>HOLDINGS BY TILLAGE AND GRASS AREA</b>	<b>HOLDINGS BY STANDARD MAN DAYS</b>	<b>HOLDINGS BY EC FARM TYPE</b> (Based on Standard Gross Margins)	
Mixed	5			Dairy	0
Part time	60	0 < 5 hectares	0 - 249	Less Favoured Area cattle & sheep	0
Dairy	0	5 < 20 hectares	250 - 499	Lowland cattle, sheep and cropping	10
Beef and sheep	5	20 < 50 hectares	500 - 999	Cereals and cropping	50
Pigs and poultry	10	50 < 100 hectares	1000 - 1999	Pigs and poultry	15
Cropping	20	100 + hectares	2000 +	Horticulture	5
Horticulture	5			Nil holdings	20

Note: data in these sections are rounded to the nearest 5 holdings.

--- To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area.

0 Not published but the value of the item is included in sub-totals.

000 Not published and the value of the item is not included in sub-totals.

Ministry of Agriculture, Fisheries and Food  
Government Buildings,  
Epsom Road,  
GUILDFORD, Surrey GU1 2LD

**Agricultural and Horticultural Census: 1 June 1988**  
**Small Area Statistics (excluding minor holdings)**

County		Agricultural District		Parish Group	
SUFFOLK		5		4	
<b>LAND USE</b>		Item number on census form (E = England, W = Wales)		Hectares	No. of holdings
Total area on holdings		1	7024	93	
Land rented		2	1795	25	
Land owned		3	5229	89	
Total crops and fallow (tillage)		4	5728	72	
Recent and temporary grassland (< 5 years)		5	244	18	
Permanent grassland (> 5 years)		6	589	59	
Rough grazing (sole rights)		7	51	14	
Woodland		8	218	24	
Set-Aside		not collected	n/a	n/a	
All other land		9	218	54	
<b>CROPPING</b>					
Cereals:	Wheat	11	2525	57	
	Winter barley	12	625	36	
	Spring barley	13	680	43	
	Other cereals (excluding maize)	14-18, 33	21	4	
	Total cereals (excluding maize)	Total of above	3851	63	
	Potatoes (early and maincrop)	18W, 19	39	---	
	Sugar beet (not stockfeed)	20	400	18	
	Hops	21E	15	---	
	Horticultural crops	22	378	22	
	Field beans and peas for harvesting dry	23, 27	459	37	
Other crops:	Oilseed rape	29	443	23	
	Linseed	not collected	n/a	n/a	
	Other crops and bare fallow	17, 24-28, 28, 31, 32	143	19	
<b>HORTICULTURE</b>					
Vegetables:	Brassicas	170-175	Ⓢ	Ⓢ	
	Carrots, parsnips, beetroot and onions	178, 181, 183 - 188	Ⓢ	Ⓢ	
	Peas and beans	187, 189, 190, 192, 195, 198	Ⓢ	Ⓢ	
	Lettuce and celery	197, 198	Ⓢ	Ⓢ	
	Other vegetables	199, 200	Ⓢ	Ⓢ	
	Total vegetables grown in the open	Total of above (201)	Ⓢ	Ⓢ	
Area under glass or plastic		205	Ⓢ	Ⓢ	
Fruit:	Top fruit	207 - 216	Ⓢ	Ⓢ	
	Small fruit	218-225	Ⓢ	Ⓢ	
	Total fruit	Total of above (226)	Ⓢ	Ⓢ	
	Ornamentals:	236	Ⓢ	Ⓢ	
Hardy nursery stock		244	Ⓢ	Ⓢ	
Bulbs and flowers grown in the open					
<b>LIVESTOCK</b>			Number		
Cattle:	Dairy herd	70, 72	485	4	
	Beef herd	71, 73	57	5	
	Breeding herd replacements (cows and heifers over 1 year for breeding)	74-77, 82, 85, 88, 94W, 95W	410	10	
	Other cattle over 1 year	78-81, 83, 84	197	12	
	Cattle and calves under 1 year	87-91	534	15	
	Total cattle and calves	Total of above (92)	1883	21	
Pigs:	Breeding sows and gilts in pig (breeding herd)	100-102	3114	18	
	All other pigs	103-110	28919	24	
	Total pigs	Total of above (111)	30033	24	
Sheep:	Breeding ewes (breeding flock)	113, 114	760	11	
	Lambs under 1 year	118	961	11	
	Other sheep	115-117	20	7	
	Total sheep	Total of above (119)	1741	11	
Fowls:	Hens and pullets for producing eggs for eating	121-124	3054	21	
	Fowls for breeding	126, 133, 134	27	6	
	Table chicken	127, 128	4018	---	
	Total fowls	Total of above (137)	7037	21	
Goats:		142, 143	28	---	
<b>LABOUR FORCE</b>					
Farmers, partners and directors - full time		50, 53	72	54	
Farmers, partners and directors - part time		51, 54	31	30	
Spouses and other regular family workers		52, 55, 57-60	54	38	
Managers and regular hired workers		58, 61-64	138	38	
Seasonal or casual workers		65, 68	53	15	
Total agricultural labour force (excluding trainees)		Total of above (88)	347	82	
Regular workers - full time		57, 58, 61, 62	124	38	
Regular workers - part time		59, 60, 63, 64	26	17	
Regular workers - male		57, 59, 61, 63	137	43	
Regular workers - female		58, 60, 62, 64	13	9	
<b>HOLDINGS BY FARM TYPE</b> (Based on Standard Man Days)		<b>HOLDINGS BY TILLAGE AND GRASS AREA</b>		<b>HOLDINGS BY EC FARM TYPE</b> (Based on Standard Gross Margins)	
Mixed	5			Dairy	0
Part time	45	0 < 5 hectares	15	Less Favoured Area cattle & sheep	0
Dairy	0	5 < 20 hectares	20	Lowland cattle, sheep and cropping	10
Beef and sheep	0	20 < 50 hectares	15	Cereals and cropping	60
Pigs and poultry	15	50 < 100 hectares	20	Pigs and poultry	15
Cropping	20	100 + hectares	20	Horticulture	5
Horticulture	5			Nil holdings	5

Note: data in these sections are rounded to the nearest 5 holdings.

\*\*\* To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area.

Ⓢ Not published but the value of the item is included in sub-totals.

### Not published and the value of the item is not included in sub-totals.

Ministry of Agriculture, Fisheries and Food  
Government Buildings,  
Epsom Road,  
GUILDFORD, Surrey GU1 2LD

County		Agricultural District		Parish Group	
SUFFOLK		5		4	
LAND USE		Item number on census form (E = England, W = Wales)		Hectares	No. of holdings
Total area on holdings		1		6963	102
Land rented		2		1748	28
Land owned		3		5219	97
Total crops and fallow (billage)		35		5415	72
Recent and temporary grassland (< 5 years)		5		183	23
Permanent grassland (> 5 years)		8		508	60
Rough grazing (sole rights)		7		98	17
Woodland		6		258	29
Set-Aside		34		251	10
All other land		9		258	68
CROPPING					
Cereals:	Wheat	11		2708	59
	Winter barley	12		841	36
	Spring barley	13		51	5
	Other cereals (excluding maize)	14-18, 33		18	3
	Total cereals (excluding maize)	Total of above		3618	62
Other crops:	Potatoes (early and maincrop)	18W, 19		91	4
	Sugar beet (not stockfeed)	20		313	13
	Hops	21E		0	0
	Horticultural crops	22		334	21
	Field beans and peas for harvesting dry	23, 27		299	25
	Oilseed rape	29		552	20
	Linseed	30		85	8
	Other crops and bare fallow	17, 24-26, 28, 31, 32		124	14
HORTICULTURE					
Vegetables:	Brassicas	170, 172-175		0	0
	Carrots, parsnips, beetroot and onions	178, 181, 182, 185, 188		0	0
	Peas and beans	187, 189, 190, 192, 195, 198		0	0
	Lettuce and celery	197, 198		0	0
	Other vegetables	199, 200		0	0
	Total vegetables grown in the open	Total of above (201)		0	0
Area under glass or plastic		205		0	0
Fruit:	Top fruit	207, 208E, 209, 210E, 211-216		0	0
	Small fruit	218-225		0	0
	Total fruit	Total of above (226)		0	0
Ornamentals:	Hardy nursery stock	238		0	0
	Bulbs and flowers grown in the open	244		0	0
LIVESTOCK				Number	
Cattle:	Dairy herd	70, 72		475	5
	Beef herd	71, 73		160	9
	Breeding herd replacements (cows and heifers over 1 year for breeding)	74-77, 82, 85, 88, 94W, 95W		259	14
	Other cattle over 1 year	78-81, 83, 84		289	18
	Cattle and calves under 1 year	87-91		877	18
	Total cattle and calves	Total of above (92)		1840	28
Pigs:	Breeding sows and gilts in pig (breeding herd)	100-102		2829	13
	All other pigs	103-110		28216	21
	Total pigs	Total of above (111)		31046	21
Sheep:	Breeding ewes (breeding flock)	113, 114		318	7
	Lambs under 1 year	118		219	8
	Other sheep	115-117		20	4
	Total sheep	Total of above (119)		557	7
Fowls:	Hens and pullets for producing eggs for eating	121-124		3903	20
	Fowls for breeding	126, 133, 134		23	4
	Table chicken	127, 128		57983	---
	Total fowls	Total of above (137)		61869	20
Goats:	All goats	144		43	5
LABOUR FORCE					
Farmers, partners and directors - full time		50, 53		61	49
Farmers, partners and directors - part time		51, 54		44	42
Spouses and other regular family workers		52, 55, 57-60		35	29
Managers and regular hired workers		58, 61-64		134	31
Seasonal or casual workers		65, 66		23	16
Total agricultural labour force (excluding trainees)		Total of above (69)		297	89
Regular workers - full time		57, 58, 61, 62		101	28
Regular workers - part time		59, 60, 63, 64		36	16
Regular workers - male		57, 59, 61, 63		111	34
Regular workers - female		58, 60, 62, 64		28	9
HOLDINGS BY FARM TYPE (Based on Standard Man Days)		HOLDINGS BY TILLAGE AND GRASS AREA		HOLDINGS BY STANDARD MAN DAYS	
Mixed	5	0 < 5 hectares	35	0 - 249	55
Part time	55	5 < 20 hectares	20	250 - 499	15
Dairy	0	20 < 50 hectares	15	500 - 999	15
Beef and sheep	5	50 < 100 hectares	20	1000 - 1999	10
Pigs and poultry	15	100 + hectares	20	2000 +	5
Cropping	20				
Horticulture	5				
HOLDINGS BY EC FARM TYPE (Based on Standard Gross Margins)					
Dairy				0	
Less Favoured Area cattle & sheep				0	
Lowland cattle, sheep and cropping				10	
Cereals and cropping				55	
Pigs and poultry				15	
Horticulture				10	
Nil holdings				15	

Note: data in these sections are rounded to the nearest 5 holdings.

--- To prevent disclosure of information about individual holdings the number of holdings has been suppressed and the data averaged over a wider area

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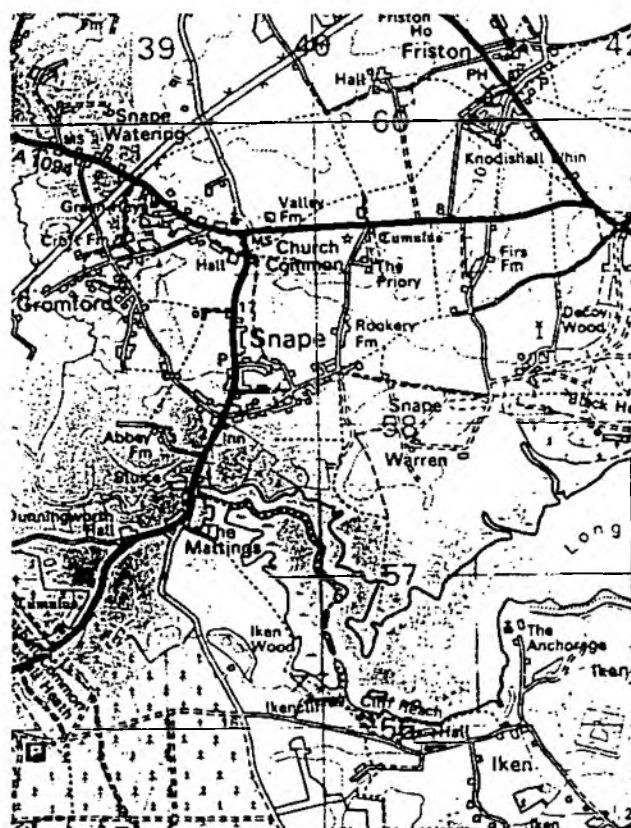
Ministry of Agriculture, Fisheries and Food  
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Epsom Road,  
GUILDFORD, Surrey GU1 2LD



ENVIRONMENT

*matters*

# Suffolk River Valleys



GUIDELINES  
FOR FARMERS

Environmentally  
Sensitive Areas



# Suffolk River Valleys ESA

## GUIDELINES FOR FARMERS

### INTRODUCTION

The river valleys of eastern and southern Suffolk contain areas of grassland and associated reedbeds, ditches, hedgerows and trees which set them apart from the broader arable landscape of the hinterland. The valleys have been designated as an ESA not only because of this contrast but also because they are highly attractive in their own right. The area is also nationally and internationally important for its wetland bird populations. The coastal marshes and river valleys provide a valuable range of habitats for these birds and also for a variety of other wildlife. Many of the valleys also have considerable archaeological interest. The purpose of the ESA is therefore to encourage management practices which help to conserve, enhance and restore these features. The boundary of the ESA is shown on the map enclosed in the folder.

If you enter the scheme you will be expected to farm in sympathy with the special environment of the Suffolk River Valleys ESA. In particular you should abide by the Codes of Good Agricultural Practice published by the Ministry as well as following the guidelines set out in this booklet. The guidelines describe in detail what you will be asked to do if you enter an agreement, and why. They also include a full description of a voluntary access tier and those items which are eligible for inclusion in a Conservation Plan should you choose to adopt one. If you have any difficulty in following the guidelines or with any other aspect of the scheme, the Ministry has appointed a Project Officer, from ADAS, to help you.

Your Project Officer for Suffolk River Valleys is Tim Sloane (0284 753271). He is your first point of contact should you experience any practical problems in following the guidelines. Exceptionally, he may be able to arrange for approval of variations but no changes may be made without written confirmation from the Ministry's Regional Service Centre.

### TIER 1 - GRASSLAND

#### Purpose:

To maintain the Suffolk River Valleys ESA landscape and grassland.

#### Conditions of Entry:

You must enter all of your permanent grassland within the ESA as at 1 January 1993 and all land reverted from arable to grassland under a previous ESA agreement into at least Tier 1. Permanent grassland is defined as grassland which has not been ploughed or reseeded for at least 5 years. You must observe all of the guidelines set out below.

#### Payment:

£70 per ha for permanent grassland.  
£220 per ha for any land reverted to grassland under a previous ESA agreement.

**Maintain grassland and do not plough, level or re-seed the land. You may use a chain harrow or roller but no other form of cultivation is allowed.**

- Grassland is an important feature of the landscape. Cultivation and re-seeding (including direct drilling, slot-seeding and over-sowing) change the composition of the sward and reduce the variety of plants in grassland which is still flower-rich. Re-seeded pasture has a uniformity and smoothness of appearance which detracts from the more traditional landscape of the area.
- Chain harrowing and rolling may benefit pastures, while maintaining species richness, but to minimise risk to ground-nesting birds it should be carried out as soon as possible after fields are closed up for hay or silage. If carried out during the period 1 April to mid-July, these operations are likely to disturb ground-nesting birds. If they are not disturbed they have a better chance of raising their young successfully.

**Grazed with livestock other than pigs or poultry but avoid poaching, undergrazing or overgrazing.**

- Overgrazing and poaching damage the sward. This will reduce production and can destroy the more delicate plants. The land will tend to lose its wildlife interest because of the lack of shelter and food for birds and mammals.
- Undergrazing leads to the spread of coarse grasses and woody plants. These are of little value for grazing and as they spread there is an overall reduction in the variety of plants in the sward.

- Horses have selective grazing habits which can lead to infestations of unwanted plant growth such as nettles, thistles and docks. To prevent the spread of these and other unwanted plants cut where possible or otherwise use herbicides for their control - see below. Where horses are grazed, weed problems are reduced by ensuring that they are always grazed in conjunction with other livestock. Pigs and poultry are not allowed because of the damage they can do to the sward.

**If you cut the grass for hay or silage, graze the aftermath.**

- Using the grass for hay or silage is a normal form of grassland management, but in order to maintain the sward's composition grazing is most important. Additionally, grazing animals contribute to the landscape character of the area.

**Do not increase your existing application rates of inorganic or organic fertiliser and, in any case, do not exceed 250 kg of total nitrogen per hectare per year. Do not apply organic fertiliser within 50 metres of a spring, well or borehole that supplies water for human consumption, or within 10 metres of a watercourse.**

- The fertiliser restrictions are aimed at reducing the amount of nitrate leaching likely to occur. Any application above the crop fertiliser requirement, apart from being wasteful, is likely to lead to pollution. The restrictions applied exclude only deposits by livestock during grazing.
- Fertilisers encourage the growth of the more agriculturally productive grasses, and these grasses tend to dominate the sward at the expense of other varieties of grass and wild flowers.
- Many rarer flowering plants cannot survive high nutrient levels in the soil.
- Your existing fertiliser application rates may be such that interesting flora and fauna still exist in your pastures. If you were to increase your fertiliser rates these plants could well disappear.

**Do not use fungicides or insecticides.**

- Fungicides and insecticides can destroy valuable wildlife.
- Insecticides do not include sheep dip.

**Do not apply herbicides except to control nettles, spear thistle, creeping or field thistle, curled dock, broad-leaved dock, ragwort or bracken. Infestations of these weeds must be controlled either by cutting or by herbicides. Apply herbicides by wick applicator or by spot treatment. Where bracken cannot be controlled by mechanical means then Asulam must be used.**

- Herbicides can also destroy valuable wildlife. They should not be used unless absolutely necessary to control particular problems, and then only with the consent of the Project Officer.
- Herbicides must not be used to control any weeds except those named above but it is essential that infestations of those weeds are controlled. To avoid unnecessary damage, they must be applied only by spot treatment or wick applicator except for bracken control. Use traditional methods of mechanical control wherever possible.
- All chemicals should be used in accordance with the Control of Pesticides Regulations 1986. The MAFF/Health and Safety Commission *Code of Practice for the Safe Use of Pesticides on Farms and Holdings* provides practical guidance to farmers and growers in meeting their legal obligations. As with all pesticides, you must exercise special care to avoid pollution and in particular you should consult the NRA before using pesticides for bracken control near water.
- If you have weed problems which need chemical control beyond permitted levels, please consult the Project Officer.

**Do not install underdrainage or mole drainage or use a sub-soiler. Do not improve or substantially modify your existing drainage system so as to bring about improved drainage.**

- Underdrainage will alter the water levels in the soil and more sensitive plants in the pasture may suffer from the resulting drier conditions.

**Maintain existing ditches and dykes (including banks and margins) in rotation over the period of your agreement by mechanical means, not sprays. Spoil must be levelled, after allowing to dry out, but must not be used to fill low areas.**

- Watercourses and ditches should be cleaned at sufficiently regular intervals to maintain their water depth and wildlife value. Lack of cleaning makes it difficult to maintain adequate water levels. Cleaning from alternate sides allows for recolonisation of plants and invertebrates. Advice on a suitable rotational

maintenance programme (to include depth, profile, extent and frequency) is available from the Project Officer.

- Herbicides must not be used to control aquatic plants and bankside vegetation.
- After spoil has been dried and spread, reseedling is advisable to reduce weed problems. You should consult the Project Officer to obtain prior agreement for this work. Spoil must not be used to fill low areas since these can provide valuable habitats for plants, birds and other wildlife. They tend to remain wetter and to provide important feeding areas for birds. Filling these areas with dredgings would destroy that interest. Dredgings should be spread with care so as to ensure that these low areas are not lost.
- The restoration of ditches may be included in your Conservation Plan.

#### **Maintain trees, pollarded willows, ponds and reedbeds using traditional methods.**

- Trees are common either in hedgerows or standing in isolation where hedges may once have stood. They are an important feature of the landscape and care should be taken to preserve them either when cutting the hedges or in the normal course of farming the land. Where trees (notably willows) have traditionally been pollarded, you should continue this practice.
- Ponds and reedbeds are important reserves for wildlife and should be maintained. Ponds can be expensive to rejuvenate and you will not be expected to incur unreasonable expense under your ESA agreement.
- The Project Officer will let you know where you can get further advice on the maintenance of trees, ponds and reedbeds. Grants may be available from MAFF and other sources for the improvement of these features or they may be included in your Conservation Plan.

**Do not remove any hedges, banks or parts thereof. Maintain all hedges using traditional methods and materials. All stockproof hedges must be kept in a stockproof condition. For a supplementary payment of £8 per hectare you may agree a programme to restore your non-stockproof hedges. This may involve replanting, laying, coppicing, gapping and back-fencing. You will be required to restore at least 2 metres per hectare of agreement land per annum.**

- If the hedgerows in the Suffolk River Valleys are to be conserved they need to be managed in a traditional manner. This will include regular trimming, laying, coppicing and gapping up. Protective back-fencing must also be maintained.

- Hedges provide valuable shelter for stock, nesting cover for birds and can also be a significant feature in the landscape so they should be protected. If you are responsible for them you should ensure that:

- i) hedges are not grubbed out;
- ii) hedge trimming is not too frequent as this reduces vigour. Trimming in rotation not more frequently than every 2-3 years would benefit wildlife and reduce costs. Trimming should take place either in early spring prior to the nesting season or preferably, very late in the autumn to allow any fruits to be eaten by birds or small mammals. Care should be taken when trimming to allow young hedgerow trees to flourish;
- iii) hedges can be cut using modern machinery but it is preferable if they are cut to a shape that is traditional to the area.

- Your hedge restoration programme for non-stockproof hedges must be agreed in advance with your Project Officer. It must include the restoration over the period of your agreement of at least 2 metres per hectare of agreement land per annum to traditional management by replanting, laying, coppicing, gapping and back-fencing, as necessary. This means that if your agreement covers, say, 50ha then your programme must include 100m of hedge to be restored in each year of your agreement. You will not be able to claim any other grant aid for this programme.

- In your Conservation Plan you may include the planting, laying or coppicing of any additional hedgerow not included in your hedgerow restoration programme.

**Do not damage, destroy or remove any feature of archaeological or historical value or interest. Obtain written advice on the management of known and important archaeological sites and historical features on land covered by your agreement.**

- You will be expected to farm the land so that Scheduled Ancient Monuments and other features or sites of archaeological or historical interest are not damaged. Such features and sites will include archaeological earthworks such as burial mounds or prehistoric land boundaries, remains of past agricultural practices, historical walls and hedges, and disused barns and other buildings. In practice, many of the conditions in these guidelines will give the necessary protection, but work to provide enhanced protection or management may be included in your Conservation Plan. You can obtain further advice from the Project Officer.

- Scheduled Ancient Monuments on your land are already protected by law and it is an offence to damage them. Certain works of management or repair may need formal Scheduled Monument Consent, and you should consult your Project Officer where in doubt. You may be able to receive a grant from English Heritage for works of beneficial management, but in general EH grants will not be available alongside ESA payments.
- The Project Officer will be able to advise on the importance of any particular sites and features or where necessary can advise on a suitable source of further advice. If you know of any important archaeological site or historical feature on your agreement land, you must seek appropriate advice on specific management practices which will protect and maintain them in good condition. The County Archaeological Officer will in most cases be able to provide the necessary written advice.

**Obtain written advice on siting, design and materials before constructing buildings or roads or carrying out any other engineering or construction works which do not require planning permission or prior notification determination by the local planning authority.**

- If you are considering development which:
  - (i) does NOT need planning permission; and
  - (ii) does NOT need prior notification determination by the Local Planning Authority under the General Development Order 1988. (as amended), you must seek advice from the Project Officer on siting and materials before starting work.
- If your project needs planning permission or prior notification determination you are not obliged to consult the Project Officer about the siting and materials. Nevertheless, if you would like advice in drawing up your proposals to help you reach agreement with the Local Planning Authority, the Project Officer will be able to advise you.

**Obtain written advice on the management of woodland, scrub or reedbeds or proposals to plant any new woodland unless previously obtained under a former ESA agreement.**

- Woodland, trees, copses, scrub and reedbeds are a significant part of the landscape and require positive management to maintain their value.
- If you are responsible for woodland and trees, you must obtain written advice on their management unless such advice has been obtained previously under a former ESA agreement. Such advice must be sought within two years

of the start of your agreement and, ideally, should be implemented during the period of your agreement. The Project Officer will advise you on appropriate sources of advice. The Forestry Authority's Woodland Grant Scheme (WGS) offers grant aid for the planting, regeneration and management of new and existing woodland. Further information is available in the WGS Applicant's Pack which your Project Officer can supply. If you are applying for a Woodland Management Grant under the WGS you may also be eligible for a 'Plan Preparation Grant' of £100 from the Forestry Authority. The rotational coppicing of alder carr woodland may also be eligible for grant assistance from the Forestry Authority from whom you should seek further advice.

- The encroachment of scrub onto river valley grassland can shade out wild flowers and affect the invertebrates which they support. However, in some situations it can be beneficial by providing food and shelter for birds and invertebrates such as butterflies. Dense patches of scrub can also be important where they occur along river banks for animals such as otters. Management is therefore very important and you must obtain written advice. The Project Officer can guide you on where to seek that advice.
- Work to control scrub or manage reedbeds may be included in your Conservation Plan.

**Dispose of sheep dip safely. Do not spread sheep dip where it may affect areas of nature conservation value.**

- Spent sheep dip should be disposed of as soon as practicable after dipping. It should never be discharged into a watercourse. Any pollution of ground or surface waters is an offence under the Water Resources Act 1991 which is enforced by the National Rivers Authority (NRA). You should consult the NRA if there is any doubt about the risk of polluting ground or surface waters.
- ADAS can provide advice on the safe disposal of sheep dip. The MAFF *Code of Good Agricultural Practice for the Protection of Water* advises that the NRA should be consulted if there is any doubt on the suitability of any disposal method, eg soakaways.
- Sheep dip may be spread onto land at low application rates if you have a suitable area. Some sheep dip chemicals are poisonous to animals and may damage plants. You should consult your Project Officer if there is any risk to the nature conservation value of any land.
- If you cannot find a suitable area of land on the farm where spent dip can be spread safely, you should store it in a suitable holding tank until it is collected by an approved waste disposal contractor. You can get details of local

contractors from the local Waste Disposal Authority. Your County or District Council can provide guidance.

■ Further advice is contained in the advisory notes for farmers entitled *The Safe Handling and Disposal of Sheep Dips*. This was last updated in June 1992 and has been sent to all sheep farmers in England and Wales. Additional copies are available free of charge from the Veterinary Medicines Directorate, Woodham Lane, Addlestone, Surrey, KT15 3NB, Tel: 0932 336911.

## TIER 2 - LOW-INPUT GRASSLAND

**Purpose:** To enhance the ecological interest of grassland.

**Conditions of Entry:** At the Ministry's discretion you may enter any part of your Tier 1 land which has either significant ecological interest or potential. All previous Tier 2 agreement land is eligible. You must observe all the Tier 1 requirements *plus* the additional prescriptions set out below.

**Payment:** Permanent grassland £180 per ha.  
Grassland reverted from arable £260 per ha.

**Where the land lies on the flood plain or is inherently wet you must ensure that water levels:**

- (i) are maintained at not more than 45 cm (18") below marsh level between 31 March and 31 October;
- (ii) provide at least 30 cm (12") of water in the bottom of the ditches between 31 October and 1 March;
- (iii) begin to be raised no later than 1 March in order to achieve the required summer freeboard as early as possible.

■ Where possible, and where the maintenance of ditch and dyke water levels is within your control, you must manage the land under a wet grassland regime.

■ Lowering water tables and drying out the land in the flood plain with pumps and gravity drainage leads to the loss of many plants which require moist soil. Damp ground conditions are also essential for over-wintering and breeding birds.

■ The normal system of keeping relatively high ditch water levels to provide drinking water for stock is also essential for aquatic flora in the ditches and their

associated fauna. If ditches are allowed to dry out they will be depleted of many important species.

■ There may also be sites outside the floodplain which have existing or potential ecological interest due to the presence of a spring or a high water table which maintains a wetland habitat interest in the meadow. You will be encouraged to enter such land into Tier 2, and to manage it under a wet grassland regime.

**Do not carry out any form of mechanical operations between 1 April and 16 July.**

■ This is aimed at protecting nesting birds from possible disturbance. It covers chain harrowing, rolling, boom spraying, topping and all other mechanical operations.

**Do not graze between 1 April and 15 May where the land lies on the flood plain or is inherently wet.**

- This will reduce the likelihood of disturbance to and destruction of nests and birds with their young.
- Some birds will be breeding up to mid-June but the aim of this guideline is to allow birds to establish their nests.

**Do not top the sward or cut for hay or silage before 16 July.**

■ Cutting grass for hay or silage too early in the season will disturb ground-nesting birds and may lead to the destruction of their nests and young fledglings. Most of the grasses and herbs found in the sward will have finished by this time and their seed should be set.

**Do not apply inorganic or organic fertilisers except for farmyard manure (FYM) produced on your farm. Do not apply slurry, pig or poultry manure or sewage sludge. Do not apply more than your existing application rate of FYM and in any event, do not apply more than 12.5 tonnes per hectare (5 tons per acre) per year and then only as a single dressing. Do not apply any FYM between 1 April and 16 July.**

■ Applying fertilisers would encourage growth of the more agriculturally productive grasses. These grasses tend to dominate the sward at the expense of other varieties of grass and wildflowers.

■ Many rarer flowering plants cannot survive where soil nutrient levels are high.

■ The application of slurry may damage the sward and pollute the ditches, as well as smothering the more delicate plants. High nitrogen applications can lead to run-off, thereby polluting watercourses and ditches.



- You may continue to apply home-produced FYM to maintain, but not increase, soil fertility.
- If no FYM is applied at present, none must be applied in the future.
- FYM should be applied only when ground conditions allow and then only in a single dressing. It must not be applied during the period 1 April to 16 July to avoid disturbing ground-nesting birds.
- Avoid spreading FYM close to the edges of fields and into ditches, watercourses or hedges as this can cause pollution and damage flora and fauna.
- All FYM should be spread in accordance with the MAFF Codes of Good Agricultural Practice for the Protection of Water and Air.

**Do not apply lime, slag or any substance to reduce soil acidity.**

- Lime can kill flora which is characteristic of certain acid soils.
- If you feel that any of your fields need lime please consult the Project Officer.

**Restrict supplementary feeding of livestock to areas agreed in advance.**

- Supplementary feeding of livestock on grassland, particularly during the winter months, can result in poaching and localised enrichment due to dunging. This can damage the sward physically and reduce the number of plant species.
- At the start of your agreement, you must agree sites for supplementary feeding with the Project Officer.

**Within two years of the start of your agreement you must agree a plan of ditch/dyke management and implement it thereafter.**

- A rotational programme of ditch/dyke maintenance must be drawn up and agreed with the Project Officer within 2 years of the start of your agreement.
- This builds on the requirement in Tier 1 and is aimed at protecting the aquatic flora to ensure that they thrive.

## **TIER 2A - MARSHLAND**

**Purpose:** To further enhance the ecological interest of wet grassland by creating marshland conditions.

**Conditions of Entry:** At the Ministry's discretion you may enter any Tier 2 low-input grassland where you are able to maintain the water table at marsh level for the required period. You must observe all the Tier 2 requirements *plus* the additional prescriptions set out below in order to obtain a supplementary payment:

**Payment:** £30 per ha.

**Begin to raise your water level to winter level no later than 1 November and maintain the water table at marsh level so as to create field wetness or occasional shallow pools between 1 January and 30 April.**

- Agreement holders must achieve these high water levels. They have been chosen to benefit the environmental interest of the land, particularly its suitability for over-wintering and breeding birds. The interest will be maximised by the creation of shallow pools interspersed with drier areas.
- Normally this will only apply to agreement holders who have independent control over dyke water levels. In other cases IDB (Internal Drainage Board) agreement may be needed and their co-operation obtained to achieve these levels.
- High water levels might also help to preserve archaeological remains.

**Do not graze with livestock between 1 November and 15 May.**

- This reduces the likelihood of damage to the sward during the winter months and particularly benefits the wetter, peaty marshes.
- Wet marshes may support nests for breeding waders. These could be trampled by grazing in April and May. Early spring grazing of such marshes is not allowed.

### TIER 3 - ARABLE REVERSION TO GRASSLAND

**Purpose:** To revert arable land to grassland.

**Conditions of Entry:** You may enter all or any part of your land which was in arable cropping or ley grassland which formed part of an arable system on 31 August 1992. Grassland which has been under ley management for longer than 5 years is not eligible. Once under grassland, management must be at least according to the prescriptions for Tier 1. In the first year you will be allowed to carry out certain practices which are prohibited in Tier 1 to enable you to establish a grass sward. These practices are set out below.

**Payment:** £220 per ha.

Cease arable production and establish a grass sward within 12 months of the start of the agreement.

During the first 12 months of the agreement do not apply any of the following without obtaining prior approval:

- (i) organic or inorganic fertilisers;
- (ii) lime, slag or any substance designed to reduce soil acidity;
- (iii) pesticides.

From the start of your agreement you must follow all the Tier 1 prescriptions from 'Do not install underdrainage ...' onwards after the 12 month period you must also follow the remaining guidelines in Tier 1 except you must not apply more than 125 kg/ha of nitrogen per year and must use no more than 90 kg/ha of nitrogen in any one application.

■ Reversion to grassland will:

- i) encourage a gradual recolonisation of some of the characteristic wildlife found on river valley grassland;
- ii) avoid damaging or destroying historic features by ploughing or other soil cultivations;
- iii) enhance the river valley landscape;
- iv) promote soil stabilisation on slopes liable to soil erosion.

■ You may choose to revert to grassland using your own choice of seed mixture and then managing the land in accordance with the Tier 1 guidelines.

■ If you choose to sow a conservation grass seed mixture, the additional costs may be included in your Conservation Plan.

### PUBLIC ACCESS TIER

**Purpose:** To provide new opportunities for public access for walking and other quiet recreation.

**Conditions of Entry:** At the Ministry's discretion you may enter one or more access routes on enclosed non-arable land which is also entered into one of the ESA's other tiers. In order to ensure that the routes selected will offer real practical benefits for the public, only land which offers new or significant additional access opportunities will be eligible. Land which is subject to an existing public right of way will not be accepted.

The Ministry will assess all applications against the following criteria:

**Situation:** the proposed access route should be adjacent to a landscape feature such as woodland or a watercourse *or* should offer new access to a historic site or outstanding vantage point *or* be on the fringes of a town or village *or* link two or more existing public rights of way *or* provide a new circular walk of at least one mile.

**Accessibility:** routes should also be easy to reach on foot *or* be readily accessible from a public road and close to a suitable place for car parking.

Acceptance of land submitted for entry to the access tier will depend on the extent to which the aim of the tier and the above criteria are met.

Land will not be accepted if public access is likely to be contrary to the ESA's other objectives, e.g. by damaging nature conservation interests or sensitive features of historic importance.

**Payment:** £170 per kilometre (£274 per mile).

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The payments will be made on strips 10 metres wide along the side or sides of fields, or across fields. These will be known as the 'access route'. Payments will not be made for adjacent strips in the same field.

The access payments will be *in addition* to other ESA payments made on the land.

The following guidelines apply to the access route and, in some cases, to fields crossed by it.

**Make the access route available for public access at no charge.**

- New access opportunities created as a result of participation in this tier must not be charged for.
- Participation in this tier will not restrict or modify existing rights of way over your land.
- In order to encourage public use of the access route you will be required to send details of it to your local parish council and these may be displayed locally on noticeboards. Details of the access route will be publicised more widely at the discretion of the Ministry.

**Maintain a free passage over the access route.**

- Grass and other vegetation should be cut back if necessary to maintain the access route in a suitable condition for walking. If this cutting is contrary to the other ESA management guidelines which apply to the land crossed by the access route, then *always* consult the Project Officer.
- The route should not be obstructed by, for example, farm machinery.
- In the event of public access leading to significant surface erosion of any part of the route, you should consult the Project Officer about what remedial action should be taken.

**Do not erect new fences on or adjacent to the access route without the prior written approval of the Ministry.**

- New fences can obstruct access and have a detrimental effect on the landscape. You should therefore consult the Project Officer about any plans to erect new fences on the access route or in fields crossed by it. You do not need to seek permission if you are repairing an existing fence.

**Keep the access route and fields crossed by it free of litter and other refuse.**

- Any litter should be cleared from the route and fields crossed by it at regular intervals. They should also be kept clear of other types of refuse such as disused machinery or vehicles.
- These requirements are necessary to protect your stock, the public, wildlife and the appearance of the land.

**Exclude bulls from the access route and fields crossed by it, except for bulls which do not exceed the age of 10 months or are not of a recognised dairy breed and are at large in any field or enclosure in which cows and heifers are also at large.**

- This reflects existing legislation with regard to bulls on public rights of way.
- Bulls of a recognised dairy breed are: Ayrshire, British Friesian, British Holstein, Dairy Shorthorn, Guernsey, Jersey and Kerry.

**Agree with the Ministry in writing in advance the public liability insurance cover which you will maintain for the duration of the access agreement.**

- A duty of care is placed on occupiers by the Occupiers Liability Act 1957 and you will therefore be expected to keep the access route safe for public use.
- Even so, because accidents may still happen, you will be required to confirm on your application form that you have public liability insurance. This must be maintained for the duration of your agreement at a level of at least £1 million, which is a standard figure in many farm insurance policies.

**Provide and maintain adequate means of entry to the access route.**

- Where the access route crosses more than one field, adequate means of entry to each field must be provided as well as to both ends of the route. Entry should normally be by means of gates, stiles or footbridges which should be maintained in a safe condition at all times. The construction and restoration of these items may be included in your conservation plan.

**Affix and maintain appropriate signboards and waymarking.**

- In order to help the public use the access route, signboards and waymarks are needed. The Project Officer will supply you with these free of charge and it

will be your responsibility to fix them in place and maintain them.

- A signboard (approximately 20cm by 30cm), which will be provided by the Project Officer, should be placed in a readily readable position at each end of the access route. It will provide details of the route, indicate that no new permanent right of way is being created, warn visitors not to disturb farm stock or wildlife and, if you wish, ask them to keep dogs on a lead.

- Small waymarking arrow signs provided by the Project Officer should also normally be placed at occasional intervals on the route, for example when it passes from one field to another. These are of a standard design and can easily be fixed in place at points agreed with the Project Officer.

Do not permit any of the following activities on the access route or on fields crossed by it: camping, caravanning, lighting of fires, organised games or sports, riding of motor vehicles (except those used for agricultural operations on the land) without the Ministry's prior written approval.

- Such activities may conflict with ESA objectives by having a detrimental effect on the landscape and on wildlife habitats.

- The exclusion of these activities will be indicated on the signboards.

- If, exceptionally, you wish to permit any of these activities you should make this clear when submitting your application. Exceptions will only be made if the Ministry judges that there will be no detriment to the objectives of the ESA.

**Agree with the Ministry in writing whether the riding of horses or cycles may be permitted on the access route.**

- Horse riding and cycling may be allowed on suitable land where there is no risk of these activities causing damage to wildlife habitats, the landscape or archaeological and historic features.

- You will be asked to indicate on your application form whether you consider that the proposed access route is suitable for horse riding or cycling. If the Ministry agrees, this will then be set down in your agreement from the outset.

- If horse riding or cycling is not allowed, this can be indicated on the signboards.

**If you wish to apply for temporary closure of the access route you must agree this with the Ministry in writing in advance. Where temporary closure is permitted you must post signs giving notice of the intended closure and the reasons for it at each entry point to the access route at least two weeks in advance of the date of closure.**

- The public must be allowed free access to the access route except where prior written approval is given by the Ministry for temporary closure. Such permission will be at the discretion of the Project Officer and will only be given for specific purposes (e.g. to allow pest control). In general, closure will be allowed for no more than 10 days per year, although a longer closure may be permitted under exceptional circumstances. If possible, you should agree the timing of any likely need for temporary closure with the Project Officer at the start of your agreement.

# Suffolk River Valleys ESA

## GUIDELINES FOR CONSERVATION PLAN CAPITAL WORKS

### INTRODUCTION

This section provides guidance on the types of capital works which may be included in your conservation plan. Your plan may include any of the items set out below provided they are designed to improve the landscape or wildlife habitats or to preserve historic remains on any of your land which falls within the ESA boundary. In addition, participants in the access tier may be eligible to include facilities associated with the provision of public access in their conservation plan. Acceptance of any item into your plan will be at the discretion of the Ministry.

As a guiding principle, you should aim to adopt local practices and traditions and use materials in keeping with these. The Project Officer will be pleased to discuss your proposals with you and to offer advice on their eligibility.

The following notes outline the range of work for each item. You may choose any item singly or in combination. The maximum grant payable to you is calculated by multiplying your agreement area at the start of the plan by £75 per hectare subject to a grant ceiling of £1500 per year i.e. £3000 for a two year Conservation Plan. Following these notes is a summary list of eligible items together with the rate of grant payable. Included in the folder is an example map which will help you when filling in your application form.

### Planting, laying or coppicing of hedges not included in your Tier 1 hedge restoration programme

#### *Hedge planting*

Eligible work includes the planting of new hedges and the reinstatement or gapping up of existing hedges. It includes ground preparation and planting, which must take place between October and March. The plants must be of species appropriate to the locality.

Local planting practices should be followed with the minimum requirement being double rows 150mm (6") apart with the plants staggered at 250mm (10") spacing. The hedge must be protected from livestock and rabbits, kept weeded and any dead plants replaced as necessary to ensure the satisfactory establishment of a stockproof hedge.

#### *Hedge laying*

Hedge laying must be done in accordance with the local tradition. The laying must achieve a complete reconditioning of the hedge in which all or selected stems are partially cut, pulled over and maintained in position by staking, interweaving or other local practice, so as to produce a stockproof barrier which afterwards will only require routine maintenance. On completion, all excess timber and brushwood must be cleared away or burned on carefully chosen areas where there will be no environmental damage. The maintenance operations of cutting back and trimming are not eligible.

#### *Hedge coppicing*

In some areas, coppicing has been the traditional practice. Equally, if the timber in a hedge is too large for laying, coppicing is more appropriate. Such work should be done in accordance with the local practice, and involves cutting off the timber at or very near to ground level, and casting up the bank/ditching spoil. The coppicing work must be protected by suitable temporary protective fencing to prevent livestock and rabbits grazing the regrowth. All excess timber or brushwood should be cleared away or burnt on carefully chosen areas where there will be no environmental damage.

### Restoration of ponds

The restoration of existing ponds that are silted up or overgrown may be included in your Plan. The restoration of an existing pond is usually easier and more beneficial to wildlife than the creation of a new one.

### Provision of water penning structures or other works designed to control water levels

To achieve the required water levels it may be necessary in some locations to install water retaining structures in ditches.

Designs will vary to suit local conditions and will include suitable structures of soil or clay, timber or other material which meet the approval of the IDB where appropriate.

Two types of construction are envisaged:

- a) a simple soil or clay bund for small ditches;
- b) a timber sluice allowing levels to be adjusted.

In some situations, it may be necessary for pumps to be installed.

These structures must retain water at a level higher than that to which it would naturally drain. Retaining a high water table will allow a return to traditional grassland management which creates an attractive landscape and is beneficial to wildlife.

Works on NRA main rivers and IDB ditches fall within the control of these organisations. If, however, it is necessary to construct water level penning structures on your own ditches you can include such works in your Plan. Nevertheless, such works may require the approval of the IDB.

### Restoration of ditches and dykes

Traditionally, ditches are important not only for drainage but



also to provide drinking water for stock and to confine the stock within the fields. The ditches, with their associated flora and fauna, are important elements in this wetland landscape.

In recent times some ditches have been allowed to become filled in. Only where the restoration of the ditches will enhance both the wildlife and landscape interest of the area can such work be included in your Plan.

Eligible work will include any necessary clearance work with the ditches being dug to appropriate dimensions and gradients, in accordance with good practice. Care should be taken to avoid endangering the stability of roads, buildings, etc.

Slips in the side-slopes that occur whilst work is in progress or shortly after completion are to be made good and appropriate remedial measures taken to prevent recurrence. Deposition of material dug from ditches is to be agreed with the Project Officer.

#### **Restoration of reedbeds and sedgebeds**

Reedbeds and sedgebeds are good wildlife habitats. To maintain a range of different stages of growth, which are important for insects and birds, reedbeds should ideally be managed by rotation. The Project Officer will be able to offer advice on suitable methods of restoration which should be based on local traditional practice.

#### **Provision of fencing and water supplies associated with the reintroduction of grazing**

These items are eligible on your Tier 3 land for reversion to grassland only where their provision is essential to achieve good environmental management and appropriate grazing levels.

Fences must be designed to a suitable British Standard (BS) specification. Work on water supply systems must be carried out to appropriate BS specifications and in accordance with water by-laws. Measures to avoid freezing, eg correct ball valve insulation at the trough, must be included.

#### **Management of scrub**

A management or clearance programme for scrub may be included in your Plan. The aim is to maintain a balance between these types of vegetation and grassland taking into account landscape, wildlife and historical interests. Scattered shrubs, thickets etc provide valuable habitats but if they are allowed to spread unchecked, characteristic landscapes and their associated wildlife can be lost. Clearance will be most beneficial where grass or other vegetation remains between or under bushes.

Acceptable techniques for removal include manual cutting followed by either chemical treatment of stumps or cutting regrowth. Pulling stumps or bulldozing scrub is not normally acceptable as it may easily damage archaeological remains. Cut material need not be removed from the site provided regrowth can be adequately prevented. Burning is not encouraged because of damage to the habitat.

#### **Control of bracken**

Bracken can be a useful landscape component and wildlife habitat. All areas to be controlled should be discussed and agreed with the Project Officer. Control can be achieved by mechanical means or, where this is not possible, by chemical means using an approved chemical eg Asulam. You should avoid spraying where there are ferns other than bracken. To ensure that the control programme is effective and produces a lasting improvement in the grazing, wildlife, historical and landscape values of the land you should follow up with suitable treatment to promote the growth of the remaining vegetation to hinder the regrowth of the bracken.

NB Chemicals for bracken control must be approved and should be applied strictly in accordance with the Control of Pesticides Regulations 1986, and with any supplementary manufacturers instructions and advised precautions. You should exercise special care to avoid pollution and in particular you must obtain the agreement of the National Rivers Authority before using chemicals for bracken control in water catchment areas.

#### **The creation or improvement of herb-rich meadows**

The creation or improvement of meadows is eligible for inclusion in your Conservation Plan where this consists of a programme of operations designed to create a more floristically rich sward. You will first need to establish whether your site is suitable in consultation with the Project Officer and if so prepare a programme identifying any operations necessary which may include:

- a) surface cultivation, e.g. use of chain harrow;
- b) sowing of seeds, e.g. slot-seeding using a seed mixture containing only local species native to the area;
- c) restricted application of herbicides;
- d) altering mowing regimes and grazing patterns.

#### **Works to protect historical and archaeological features**

Scheduled Ancient Monuments on your land will be protected under the law and you may be receiving a grant

from English Heritage for their protection and management.

However, it may be possible to protect historical or archaeological features on your farm by cutting down tree or scrub cover without disturbing the ground, re-siting water troughs away from sites or carrying out structural repairs. If you have an historical feature or ancient monument on your land, and you require further advice on how to manage it, the Project Officer can put you in touch with English Heritage or your County Archaeological Department.

#### Facilities for public access

The cost of providing and restoring gates, stiles and footbridges for the purpose of facilitating public access under an access tier agreement may be included in your conservation plan. All work should be carried out to match local traditional construction.

### SUFFOLK RIVER VALLEYS ESA: CONSERVATION PLAN — ELIGIBLE ITEMS

<i>MAFF Work Code</i>	<i>Eligible Item</i>	<i>Level of Grant %</i>
1	Works to protect historical and archaeological features	80
3	Planting of hedges not included in your Tier 1 hedge restoration programme	40
4	Laying or coppicing of hedges not included in your Tier 1 hedge restoration programme	40
6	Restoration of ponds	50
7	Management of scrub	50
13	Restoration of ditches and dykes	30
14	Provision of water penning structures or other works designed to control water levels	80
15	Creation or improvement of herb rich meadows	50
16	Restoration of reedbeds and sedgebeds	50
22	Provision of water supplies and fencing associated with the reintroduction of grazing	40
23	Control of bracken	50
40	Provision and restoration of gates for public access	80
41	Provision and restoration of stiles for public access	80
42	Provision and restoration of footbridges for public access	80



**Ministry of Agriculture, Fisheries and Food**

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**SRV/ESA/2**

**Revised 1994**

Produced on an environmentally friendly ECO-CHECK ★ ★ ★ ★ paper

## **APPENDIX G SPRAY IRRIGATION RETURNS**





RIVER DEBEN SI ABSTRACTIONS 1970-91																						TCM	UPSTREAM OF NAUNTON HALL GAUGING STATION																					
LIC NO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991																						
43	41	36	41	63	44	36	45	36	22	9	11	24	0	16	20	0	2	0	11	4	0	0																						
80	37	10	22	21	7	38	32	22	45	47	36	23	40	47	44	17	28	12	33	82	111	62																						
61	10	2	12	6	14	8	11	11	3	11	23	0	8	13	14	2	4	0	10	2	16	16																						
82	16	13	54	56	71	63	67	50	55	93	70	52	48	47	36	11	21	2	11	53	66	46																						
84	8	1	6	8	10	8	13	6	0	0	0	2	4	7	7	0	0	0	3	0	0	0																						
68																																												
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	10	24	12	5	7	42	0																						
88																																												
85																																												
TOTAL																																												
TCMA	112	62	135	157	146	153	168	124	124	160	139	100	89	130	156	40	79	25	74	147	236	123																						

## **APPENDIX H HYDROTECHNICA BASE FLOW GRAPHS**



Figure 3.2

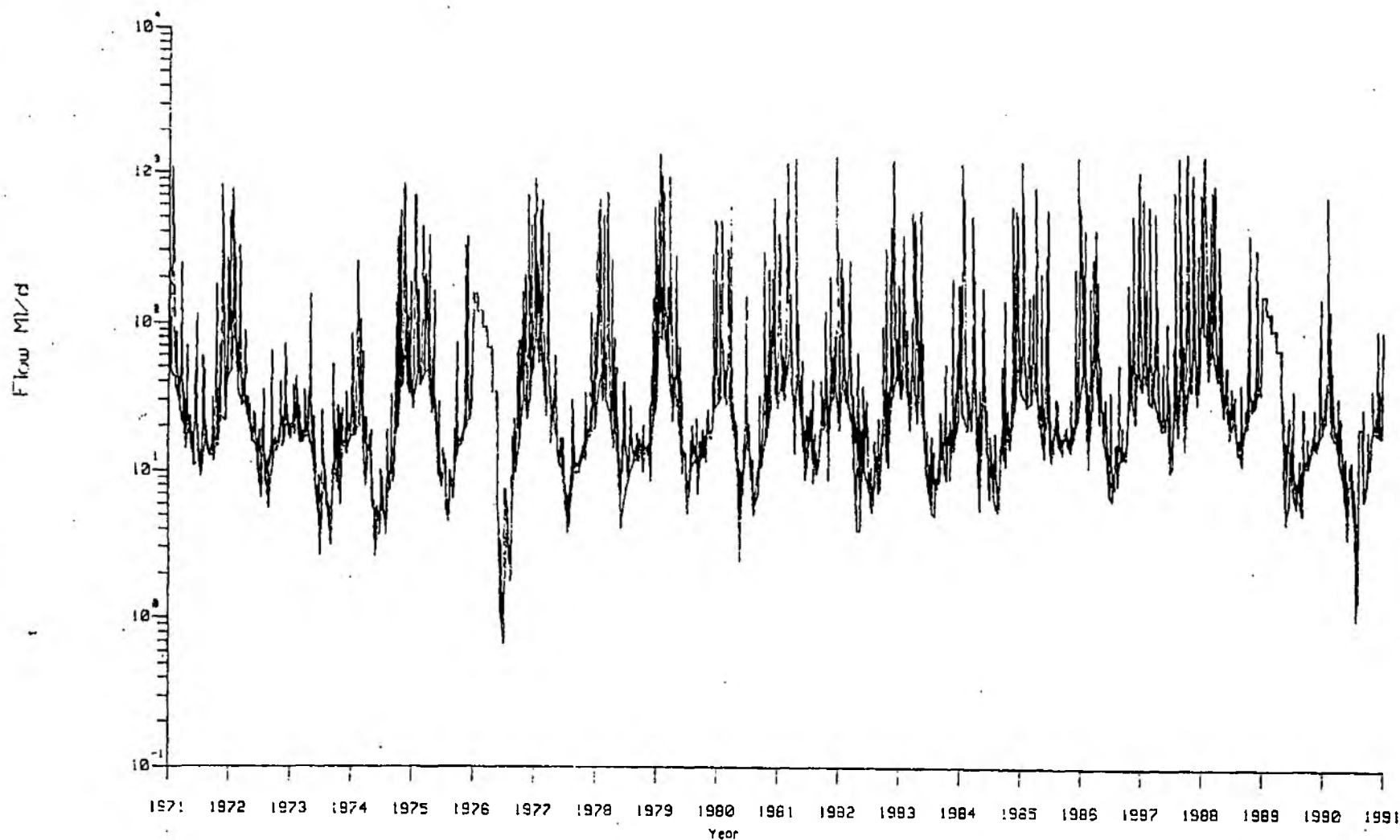


FIGURE 3.5.3 I H BASEFLOW SEPARATION OF RIVER DEBEN AT NAUNTON HALL

Drawing No: 15199/R3/353

Date: NOVEMBER 1992

Scale: AS SHOWN

HYDROTECHNICA

Figure 3.5.4

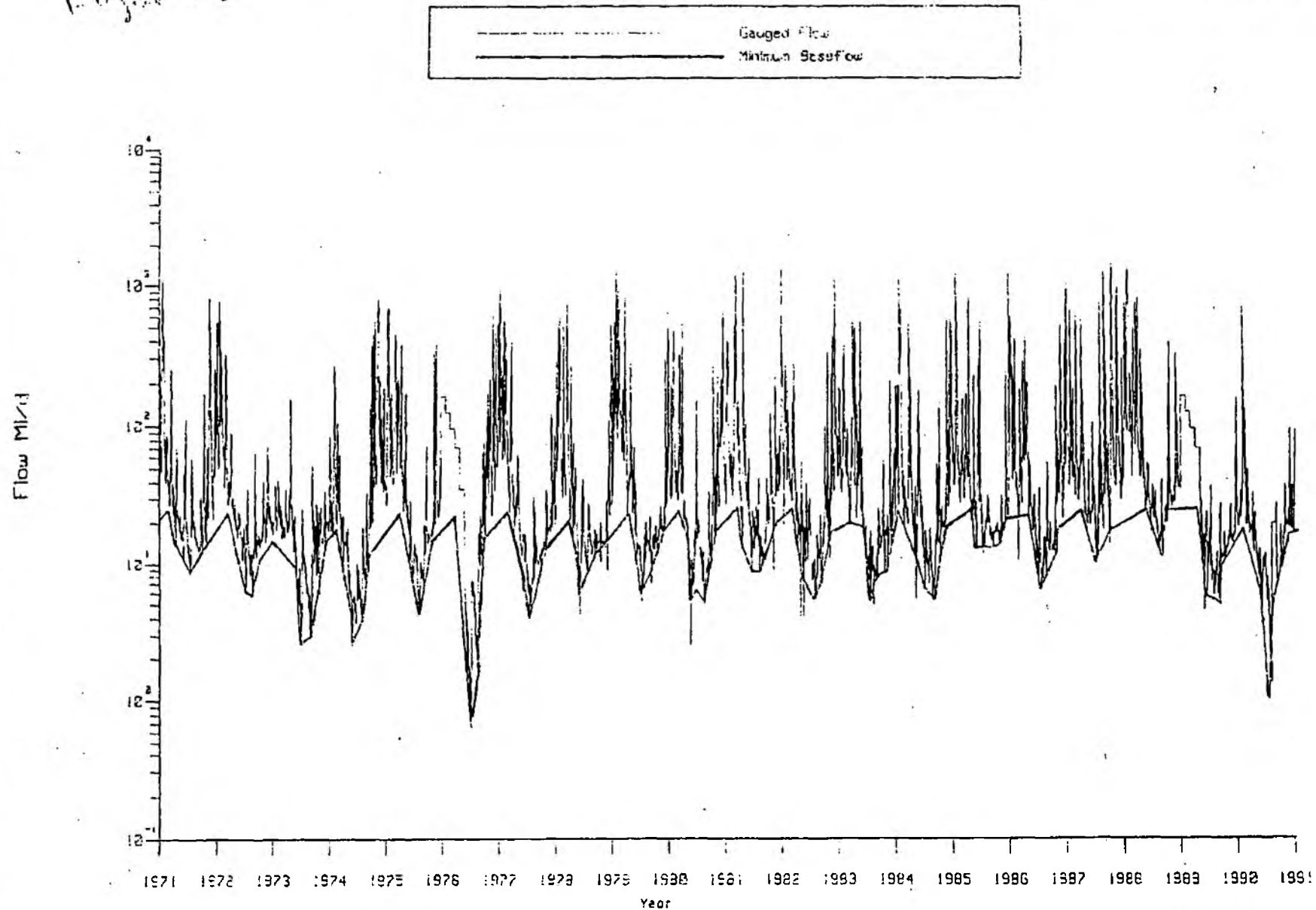


FIGURE 3.5.4 SUBJECTIVE BASEFLOW SEPARATION OF RIVER DEBEN AT NAUNTON HALL

Drawing No: 15199/R3/354

Date: NOVEMBER 1992

Scale: AS SHOWN

HYDROTECHNICA



**APPENDIX I  
SOUTHERN SCIENCE FLOW GAUGING DATA**





# Brunelton

Equation for impellor no 3-9251  
Range 0.09-9.94 revs per second

Site	R. Deben Site 2				Stage	3-9251			
Date	22-Mar-94				Impellor no				
horiz dis	depth	revs	revs/second	velocity	av Velocity	av depth	width	discharge	
m	m			m3/s	m3/s	m	m	m3/s	
0	0	0	0.000	0.000	0.135	0.145	0.800	0.016	
0.8	0.29	62	1.033	0.269	0.282	0.290	1.000	0.082	
1.8	0.29	68	1.133	0.295	0.276	0.360	1.000	0.099	
2.8	0.43	59	0.983	0.257	0.252	0.390	1.000	0.098	
3.8	0.35	57	0.950	0.248	0.173	0.225	1.000	0.039	
4.8	0.1	21	0.350	0.098	0.049	0.050	1.000	0.002	
5.8	0	0	0.000	0.000	0.000	0.000	0.000	0.000	

Total 0.337

Equation for Impellor no 100.206  
 Range 0.11 – 11.66 revs per second

Site River-Deben-Site-3  
 Date 22-Mar-94

*average*  
*width*

Stage Impellor no velocity m3/s	100.206 av Velocity m3/s	av depth m	width m	discharge m3/s
horiz dis m	depth m	revs	revs/second	
0	0	0	0.000	0.000
0.4	0.25	0	0.000	0.000
0.9	0.36	154	2.567	0.287
1.4	0.35	203	3.383	0.371
1.9	0.31	124	2.067	0.234
2.4	0.09	0	0.000	0.000

Total 0.142



Earl Soham Watercourse  
Kings Hill

Processed Data

Depth	A	R	R2/3	S	S1/2	n	1/n	Q m3/s	V m/s
0	0	0	0	0.00096	0.030984	0.035	28.57143	0	0
0.01	0.008	0.006	0.03302	0.00096	0.030984	0.035	28.57143	0.000234	0.029231
0.02	0.016	0.012	0.052416	0.00096	0.030984	0.035	28.57143	0.000742	0.046402
0.03	0.024	0.018	0.068685	0.00096	0.030984	0.035	28.57143	0.001459	0.060803
0.04	0.032	0.024	0.083205	0.00096	0.030984	0.035	28.57143	0.002357	0.073658
0.05	0.04	0.03	0.096551	0.00096	0.030984	0.035	28.57143	0.003419	0.085472
0.06	0.048	0.036	0.10903	0.00096	0.030984	0.035	28.57143	0.004633	0.096519
0.07	0.056	0.042	0.12083	0.00096	0.030984	0.035	28.57143	0.00599	0.106965
0.08	0.064	0.048	0.13208	0.00096	0.030984	0.035	28.57143	0.007483	0.116924
0.09	0.072	0.054	0.142869	0.00096	0.030984	0.035	28.57143	0.009106	0.126475
0.1	0.08	0.06	0.153265	0.00096	0.030984	0.035	28.57143	0.010854	0.135678
0.11	0.1	0.07	0.169853	0.00096	0.030984	0.035	28.57143	0.015036	0.150363
0.12	0.12	0.08	0.185667	0.00096	0.030984	0.035	28.57143	0.019723	0.164362
0.13	0.14125	0.08625	0.195215	0.00096	0.030984	0.035	28.57143	0.02441	0.172815
0.14	0.1625	0.0925	0.204535	0.00096	0.030984	0.035	28.57143	0.029423	0.181065
0.15	0.18375	0.09875	0.213648	0.00096	0.030984	0.035	28.57143	0.034753	0.189132
0.16	0.205	0.105	0.22257	0.00096	0.030984	0.035	28.57143	0.040391	0.197031
0.17	0.22625	0.11125	0.231316	0.00096	0.030984	0.035	28.57143	0.04633	0.204774
0.18	0.2475	0.1175	0.239901	0.00096	0.030984	0.035	28.57143	0.052562	0.212373
0.19	0.26875	0.12375	0.248334	0.00096	0.030984	0.035	28.57143	0.059082	0.219839
0.2	0.29	0.13	0.256626	0.00096	0.030984	0.035	28.57143	0.065882	0.227179
0.21	0.341	0.1392	0.268595	0.00096	0.030984	0.035	28.57143	0.081081	0.237775
0.22	0.392	0.1484	0.280303	0.00096	0.030984	0.035	28.57143	0.097271	0.248139
0.23	0.443	0.1576	0.291771	0.00096	0.030984	0.035	28.57143	0.114423	0.258292
0.24	0.494	0.1668	0.303019	0.00096	0.030984	0.035	28.57143	0.132515	0.268248
0.25	0.545	0.176	0.314061	0.00096	0.030984	0.035	28.57143	0.151523	0.278023
0.26	0.596	0.1852	0.324912	0.00096	0.030984	0.035	28.57143	0.171427	0.287629
0.27	0.647	0.1944	0.335585	0.00096	0.030984	0.035	28.57143	0.192209	0.297078
0.28	0.698	0.2036	0.346091	0.00096	0.030984	0.035	28.57143	0.213852	0.306378
0.29	0.749	0.2128	0.356439	0.00096	0.030984	0.035	28.57143	0.236339	0.315539
0.3	0.8	0.222	0.36664	0.00096	0.030984	0.035	28.57143	0.259655	0.324569
0.31	0.851	0.2312	0.3767	0.00096	0.030984	0.035	28.57143	0.283787	0.333475
0.32	0.9	0.24	0.386199	0.00096	0.030984	0.035	28.57143	0.307696	0.341884
0.33	0.9276	0.2488	0.395583	0.00096	0.030984	0.035	28.57143	0.324837	0.350191
0.34	0.9552	0.2576	0.404857	0.00096	0.030984	0.035	28.57143	0.342344	0.358401
0.35	0.9828	0.2664	0.414025	0.00096	0.030984	0.035	28.57143	0.360213	0.366517
0.36	1.0104	0.2752	0.423093	0.00096	0.030984	0.035	28.57143	0.37844	0.374545
0.37	1.038	0.284	0.432065	0.00096	0.030984	0.035	28.57143	0.397022	0.382487
0.38	1.0656	0.2928	0.440945	0.00096	0.030984	0.035	28.57143	0.415955	0.390348
0.39	1.0932	0.3016	0.449736	0.00096	0.030984	0.035	28.57143	0.435236	0.39813
0.4	1.1208	0.3104	0.458442	0.00096	0.030984	0.035	28.57143	0.454863	0.405837
0.41	1.1484	0.3192	0.467066	0.00096	0.030984	0.035	28.57143	0.474831	0.413472
0.42	1.176	0.328	0.475612	0.00096	0.030984	0.035	28.57143	0.495139	0.421037
0.43	1.2036	0.3368	0.484081	0.00096	0.030984	0.035	28.57143	0.515784	0.428534
0.44	1.2312	0.3456	0.492477	0.00096	0.030984	0.035	28.57143	0.536762	0.435967
0.45	1.2588	0.3544	0.500801	0.00096	0.030984	0.035	28.57143	0.558071	0.443336
0.46	1.2864	0.3632	0.509057	0.00096	0.030984	0.035	28.57143	0.57971	0.450645
0.47	1.314	0.372	0.517247	0.00096	0.030984	0.035	28.57143	0.601674	0.457895
0.48	1.3416	0.3808	0.525373	0.00096	0.030984	0.035	28.57143	0.623962	0.465088
0.49	1.3692	0.3896	0.533436	0.00096	0.030984	0.035	28.57143	0.646571	0.472226
0.5	1.3968	0.3984	0.541438	0.00096	0.030984	0.035	28.57143	0.6695	0.47931
0.51	1.4244	0.4072	0.549382	0.00096	0.030984	0.035	28.57143	0.692746	0.486342
0.52	1.452	0.416	0.557269	0.00096	0.030984	0.035	28.57143	0.716307	0.493324
0.53	1.4796	0.4248	0.5651	0.00096	0.030984	0.035	28.57143	0.74018	0.500257
0.54	1.5072	0.4336	0.572878	0.00096	0.030984	0.035	28.57143	0.764364	0.507142
0.55	1.5348	0.4424	0.580603	0.00096	0.030984	0.035	28.57143	0.788857	0.513981
0.56	1.5624	0.4512	0.588277	0.00096	0.030984	0.035	28.57143	0.813657	0.520774
0.57	1.59	0.46	0.595901	0.00096	0.030984	0.035	28.57143	0.838762	0.527523
0.82	3.67	0.69	0.780849	0.00096	0.030984	0.035	28.57143	2.536885	0.691249
1.15	4.59	0.94	0.959589	0.00096	0.030984	0.035	28.57143	3.899112	0.84948

## Appendix 4

River Deben  
Winston Grange

## Processed Data

Depth	A	R	R2/3	S	S1/2	n	1/n	Q m3/s	V m/s
0	0	0	0	0.0009	0.03	0.041	24.39024	0	0
0.01	0.007	0.006	0.03302	0.0009	0.03	0.041	24.39024	0.000169	0.024161
0.02	0.014	0.012	0.052416	0.0009	0.03	0.041	24.39024	0.000537	0.038353
0.03	0.021	0.018	0.068685	0.0009	0.03	0.041	24.39024	0.001055	0.050257
0.04	0.028	0.024	0.083205	0.0009	0.03	0.041	24.39024	0.001705	0.060882
0.05	0.035	0.03	0.096551	0.0009	0.03	0.041	24.39024	0.002473	0.070647
0.06	0.042	0.036	0.10903	0.0009	0.03	0.041	24.39024	0.003351	0.079778
0.07	0.049	0.042	0.12083	0.0009	0.03	0.041	24.39024	0.004332	0.088412
0.08	0.056	0.048	0.13208	0.0009	0.03	0.041	24.39024	0.005412	0.096644
0.09	0.063	0.054	0.142869	0.0009	0.03	0.041	24.39024	0.006586	0.104538
0.1	0.07	0.06	0.153265	0.0009	0.03	0.041	24.39024	0.00785	0.112145
0.11	0.0894	0.0675	0.165784	0.0009	0.03	0.041	24.39024	0.010845	0.121306
0.12	0.1088	0.075	0.177848	0.0009	0.03	0.041	24.39024	0.014158	0.130132
0.13	0.1282	0.0825	0.189515	0.0009	0.03	0.041	24.39024	0.017777	0.138669
0.14	0.1476	0.09	0.200833	0.0009	0.03	0.041	24.39024	0.02169	0.146951
0.15	0.167	0.0975	0.211841	0.0009	0.03	0.041	24.39024	0.025886	0.155006
0.16	0.1864	0.105	0.22257	0.0009	0.03	0.041	24.39024	0.030356	0.162856
0.17	0.2058	0.1125	0.233046	0.0009	0.03	0.041	24.39024	0.035093	0.170521
0.18	0.2252	0.12	0.243292	0.0009	0.03	0.041	24.39024	0.04009	0.178018
0.19	0.2446	0.1275	0.253326	0.0009	0.03	0.041	24.39024	0.045339	0.18536
0.2	0.264	0.135	0.263165	0.0009	0.03	0.041	24.39024	0.050836	0.19256
0.21	0.2834	0.1425	0.272824	0.0009	0.03	0.041	24.39024	0.056574	0.199627
0.22	0.3028	0.15	0.282314	0.0009	0.03	0.041	24.39024	0.06255	0.206571
0.23	0.3222	0.1575	0.291648	0.0009	0.03	0.041	24.39024	0.068758	0.213401
0.24	0.3416	0.165	0.300835	0.0009	0.03	0.041	24.39024	0.075194	0.220123
0.25	0.361	0.1725	0.309883	0.0009	0.03	0.041	24.39024	0.081854	0.226744
0.26	0.38	0.18	0.318801	0.0009	0.03	0.041	24.39024	0.088642	0.233269
0.27	0.408	0.1881	0.328295	0.0009	0.03	0.041	24.39024	0.098008	0.240216
0.28	0.436	0.1962	0.337653	0.0009	0.03	0.041	24.39024	0.10772	0.247063
0.29	0.464	0.2043	0.346883	0.0009	0.03	0.041	24.39024	0.117771	0.253817
0.3	0.492	0.2124	0.355992	0.0009	0.03	0.041	24.39024	0.128157	0.260482
0.31	0.52	0.2205	0.364986	0.0009	0.03	0.041	24.39024	0.138873	0.267063
0.32	0.548	0.2286	0.373871	0.0009	0.03	0.041	24.39024	0.149913	0.273564
0.33	0.576	0.2367	0.382651	0.0009	0.03	0.041	24.39024	0.161273	0.279989
0.34	0.604	0.2448	0.391332	0.0009	0.03	0.041	24.39024	0.17295	0.28634
0.35	0.632	0.2529	0.399917	0.0009	0.03	0.041	24.39024	0.184937	0.292622
0.36	0.66	0.261	0.408411	0.0009	0.03	0.041	24.39024	0.197233	0.298837
0.37	0.688	0.2691	0.416818	0.0009	0.03	0.041	24.39024	0.209832	0.304989
0.38	0.716	0.2772	0.425141	0.0009	0.03	0.041	24.39024	0.222732	0.311078
0.39	0.744	0.2853	0.433383	0.0009	0.03	0.041	24.39024	0.235929	0.317109
0.4	0.772	0.2934	0.441547	0.0009	0.03	0.041	24.39024	0.24942	0.323083
0.41	0.8	0.3015	0.449637	0.0009	0.03	0.041	24.39024	0.263202	0.329002
0.42	0.83	0.31	0.458048	0.0009	0.03	0.041	24.39024	0.27818	0.335157
0.43	0.865	0.315	0.46296	0.0009	0.03	0.041	24.39024	0.29302	0.338751
0.44	0.9	0.32	0.467846	0.0009	0.03	0.041	24.39024	0.308094	0.342327
0.45	0.946	0.325333	0.47303	0.0009	0.03	0.041	24.39024	0.327429	0.346119
0.46	0.992	0.330666	0.478185	0.0009	0.03	0.041	24.39024	0.347093	0.349892
0.47	1.038	0.335999	0.483313	0.0009	0.03	0.041	24.39024	0.367082	0.353644
0.48	1.084	0.341332	0.488414	0.0009	0.03	0.041	24.39024	0.387395	0.357376
0.49	1.13	0.346665	0.493488	0.0009	0.03	0.041	24.39024	0.40803	0.361089
0.5	1.176	0.351998	0.498536	0.0009	0.03	0.041	24.39024	0.428984	0.364782
0.51	1.222	0.357331	0.503559	0.0009	0.03	0.041	24.39024	0.450255	0.368458
0.52	1.268	0.362664	0.508557	0.0009	0.03	0.041	24.39024	0.471841	0.372115
0.53	1.314	0.367997	0.51353	0.0009	0.03	0.041	24.39024	0.49374	0.375754
0.54	1.36	0.37333	0.518479	0.0009	0.03	0.041	24.39024	0.51595	0.379375
0.55	1.406	0.378663	0.523405	0.0009	0.03	0.041	24.39024	0.538469	0.382979
0.56	1.452	0.383996	0.528308	0.0009	0.03	0.041	24.39024	0.561295	0.386567
0.57	1.498	0.389329	0.533188	0.0009	0.03	0.041	24.39024	0.584426	0.390138
0.58	1.544	0.394662	0.538046	0.0009	0.03	0.041	24.39024	0.607861	0.393692
0.59	1.59	0.4	0.542887	0.0009	0.03	0.041	24.39024	0.631602	0.397234
0.96	3.67	0.69	0.780849	0.0009	0.03	0.041	24.39024	2.096866	0.571353
1.11	4.59	0.82	0.876079	0.0009	0.03	0.041	24.39024	2.942343	0.641033

# Appendix L

River Deben  
Brandeston

## Processed Data

Depth	A	R	R2/3	S	S1/2	n	1/n	Q m3/s	V m/s
0	0	0	0	0.00036	0.018974	0.035	28.57143	0	0
0.01	0.0075	0.006667	0.035423	0.00036	0.018974	0.035	28.57143	0.000144	0.019203
0.02	0.015	0.013333	0.05623	0.00036	0.018974	0.035	28.57143	0.000457	0.030483
0.03	0.0225	0.02	0.073682	0.00036	0.018974	0.035	28.57143	0.000899	0.039943
0.04	0.03	0.026666	0.089259	0.00036	0.018974	0.035	28.57143	0.001452	0.048388
0.05	0.0375	0.033333	0.103576	0.00036	0.018974	0.035	28.57143	0.002106	0.056149
0.06	0.045	0.04	0.116962	0.00036	0.018974	0.035	28.57143	0.002853	0.063406
0.07	0.0525	0.046666	0.129622	0.00036	0.018974	0.035	28.57143	0.003689	0.070268
0.08	0.06	0.053333	0.14169	0.00036	0.018974	0.035	28.57143	0.004609	0.076811
0.09	0.0675	0.059999	0.153264	0.00036	0.018974	0.035	28.57143	0.005608	0.083085
0.1	0.075	0.066666	0.164416	0.00036	0.018974	0.035	28.57143	0.006685	0.089131
0.11	0.0825	0.073333	0.175202	0.00036	0.018974	0.035	28.57143	0.007836	0.094978
0.12	0.09	0.08	0.185667	0.00036	0.018974	0.035	28.57143	0.009059	0.100651
0.13	0.106667	0.083	0.19028	0.00036	0.018974	0.035	28.57143	0.011003	0.103152
0.14	0.123333	0.086	0.194838	0.00036	0.018974	0.035	28.57143	0.013027	0.105622
0.15	0.14	0.09	0.200833	0.00036	0.018974	0.035	28.57143	0.015242	0.108873
0.16	0.17	0.0925	0.204535	0.00036	0.018974	0.035	28.57143	0.01885	0.110879
0.17	0.2	0.095	0.208204	0.00036	0.018974	0.035	28.57143	0.022574	0.112868
0.18	0.23	0.0975	0.211841	0.00036	0.018974	0.035	28.57143	0.026413	0.11484
0.19	0.26	0.1	0.215447	0.00036	0.018974	0.035	28.57143	0.030367	0.116795
0.2	0.29875	0.1075	0.226089	0.00036	0.018974	0.035	28.57143	0.036616	0.122564
0.21	0.3375	0.115	0.236486	0.00036	0.018974	0.035	28.57143	0.043268	0.1282
0.22	0.37625	0.1225	0.246659	0.00036	0.018974	0.035	28.57143	0.05031	0.133715
0.23	0.415	0.13	0.256626	0.00036	0.018974	0.035	28.57143	0.057734	0.139118
0.24	0.45375	0.1375	0.266404	0.00036	0.018974	0.035	28.57143	0.06553	0.144419
0.25	0.4925	0.145	0.276005	0.00036	0.018974	0.035	28.57143	0.07369	0.149624
0.26	0.53125	0.1525	0.285443	0.00036	0.018974	0.035	28.57143	0.082205	0.15474
0.27	0.57	0.16	0.294726	0.00036	0.018974	0.035	28.57143	0.09107	0.159772
0.28	0.623	0.16666	0.302849	0.00036	0.018974	0.035	28.57143	0.102282	0.164176
0.29	0.676	0.17332	0.310864	0.00036	0.018974	0.035	28.57143	0.11392	0.168521
0.3	0.73	0.18	0.318801	0.00036	0.018974	0.035	28.57143	0.126161	0.172824
0.31	0.788	0.187333	0.327402	0.00036	0.018974	0.035	28.57143	0.139859	0.177486
0.32	0.846	0.194333	0.335508	0.00036	0.018974	0.035	28.57143	0.153871	0.18188
0.33	0.904	0.201333	0.343517	0.00036	0.018974	0.035	28.57143	0.168345	0.186222
0.34	0.962	0.208333	0.351434	0.00036	0.018974	0.035	28.57143	0.183274	0.190514
0.35	1.02	0.215333	0.359263	0.00036	0.018974	0.035	28.57143	0.198653	0.194758
0.36	1.078	0.222333	0.367007	0.00036	0.018974	0.035	28.57143	0.214475	0.198956
0.37	1.136	0.229333	0.37467	0.00036	0.018974	0.035	28.57143	0.230733	0.20311
0.38	1.194	0.236333	0.382256	0.00036	0.018974	0.035	28.57143	0.247424	0.207223
0.39	1.252	0.243333	0.389767	0.00036	0.018974	0.035	28.57143	0.264541	0.211295
0.4	1.31	0.250333	0.397207	0.00036	0.018974	0.035	28.57143	0.282079	0.215328
0.41	1.368	0.257333	0.404577	0.00036	0.018974	0.035	28.57143	0.300034	0.219323
0.42	1.426	0.264333	0.411881	0.00036	0.018974	0.035	28.57143	0.318401	0.223283
0.43	1.484	0.271333	0.419121	0.00036	0.018974	0.035	28.57143	0.337176	0.227207
0.44	1.542	0.278333	0.426299	0.00036	0.018974	0.035	28.57143	0.356354	0.231098
0.45	1.6	0.29	0.438129	0.00036	0.018974	0.035	28.57143	0.380019	0.237512
0.46	1.677	0.297	0.445151	0.00036	0.018974	0.035	28.57143	0.404692	0.241319
0.47	1.754	0.304	0.452119	0.00036	0.018974	0.035	28.57143	0.429898	0.245096
0.48	1.83	0.31	0.458048	0.00036	0.018974	0.035	28.57143	0.454407	0.24831
1.32	10.09	1	1	0.00036	0.018974	0.035	28.57143	5.469837	0.542105
1.55	12.75	1.19	1.12296	0.00036	0.018974	0.035	28.57143	7.761712	0.608762

**APPENDIX J  
MIKE 11 CROSS SECTIONAL INFORMATION**



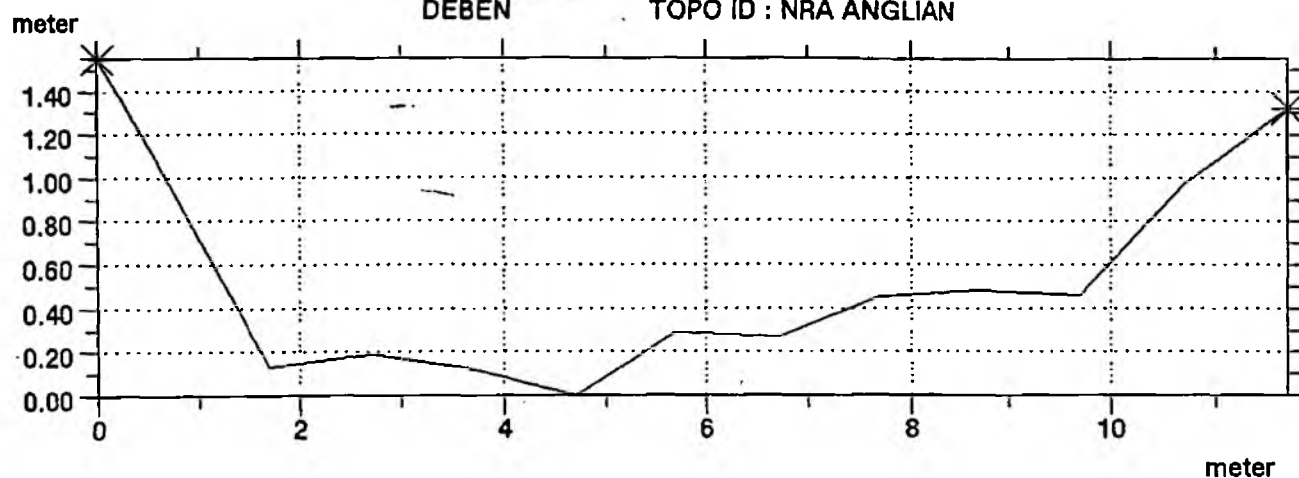


Figure 7

Brandes //

DEBEN

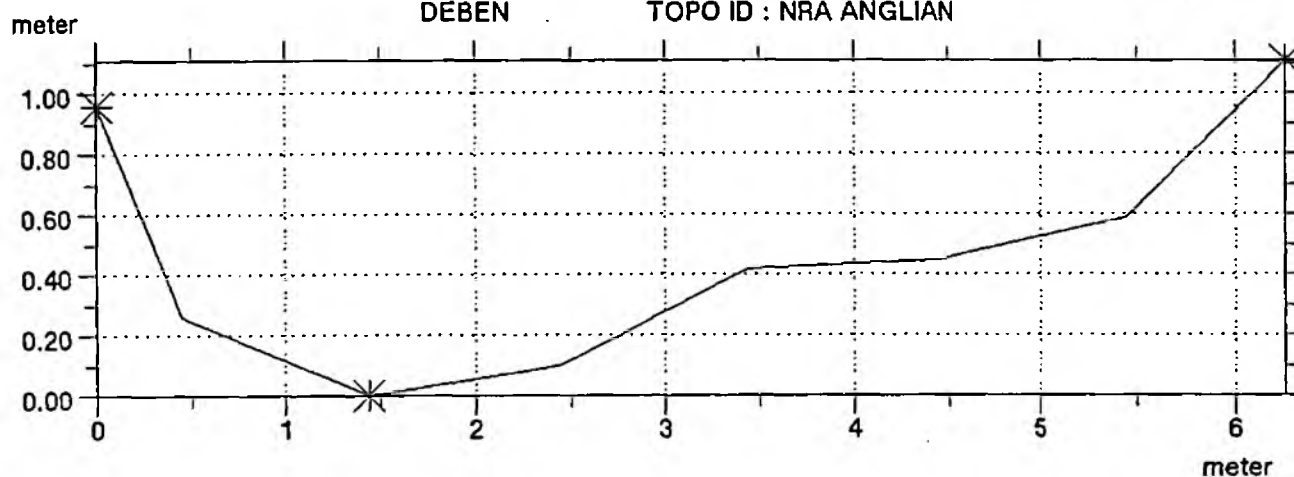
TOPO ID : NRA ANGLIAN



Winston

DEBEN

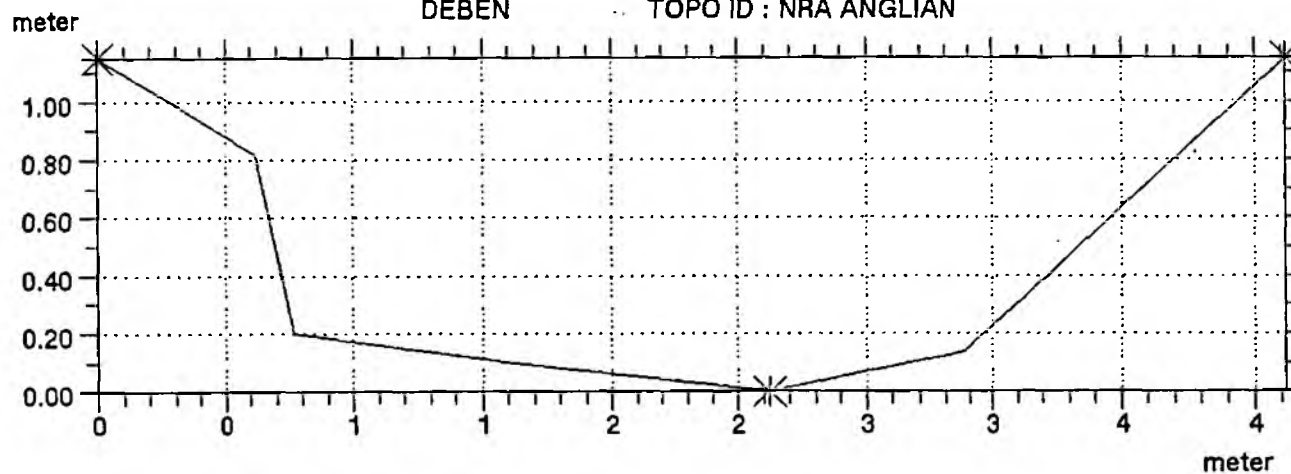
TOPO ID : NRA ANGLIAN



Earl Soham

DEBEN

TOPO ID : NRA ANGLIAN



		<b>MIKE 11</b> Dwg no.:
DATA BASE : DEBEN		

Figure 8

NRA ANGLIAN

DEBEN

Brandeston

COORDINATES

0  
FLOW DIRECTION

0  
PROCESSED DATA

Level	Cross sec	Hydraulic	Width	Add. fl.	Resist.
(m)	area (m2)	radius (m)	(m)	areas (m2)	factor
0.00	0.00	0.00	0.00	0.0	1.00
0.12	0.09	0.08	1.41	0.0	1.00
0.15	0.14	0.09	2.34	0.0	1.00
0.19	0.26	0.10	3.73	0.0	1.00
0.27	0.57	0.16	4.10	0.0	1.00
0.30	0.73	0.18	5.38	0.0	1.00
0.45	1.60	0.29	6.38	0.0	1.00
0.48	1.83	0.31	8.46	0.0	1.00
1.32	10.09	1.00	11.42	0.0	1.00
1.55	12.75	1.19	11.70	0.0	1.00

\*\*\*\*\*  
NRA ANGLIAN

DEBEN

Winston

COORDINATES

0  
FLOW DIRECTION

0  
PROCESSED DATA

Level	Cross sec	Hydraulic	Width	Add. fl.	Resist.
(m)	area (m2)	radius (m)	(m)	areas (m2)	factor
0.00	0.00	0.00	0.00	0.0	1.00
0.10	0.07	0.06	1.39	0.0	1.00
0.26	0.38	0.18	2.50	0.0	1.00
0.42	0.83	0.31	3.10	0.0	1.00
0.44	0.90	0.32	3.85	0.0	1.00
0.59	1.59	0.40	5.21	0.0	1.00
0.96	3.67	0.69	6.02	0.0	1.00
1.11	4.59	0.82	6.26	0.0	1.00

\*\*\*\*\*  
NRA ANGLIAN

DEBEN

Earl Soham

COORDINATES

0  
FLOW DIRECTION

0  
PROCESSED DATA

Level	Cross sec	Hydraulic	Width	Add. fl.	Resist.
(m)	area (m2)	radius (m)	(m)	areas (m2)	factor
0.00	0.00	0.00	0.00	0.0	1.00
0.10	0.08	0.06	1.54	0.0	1.00
0.12	0.12	0.08	1.86	0.0	1.00
0.20	0.29	0.13	2.69	0.0	1.00
0.32	0.63	0.24	2.88	0.0	1.00
0.57	1.39	0.46	3.24	0.0	1.00
0.82	2.25	0.69	3.60	0.0	1.00
1.15	3.60	0.94	4.62	0.0	1.00

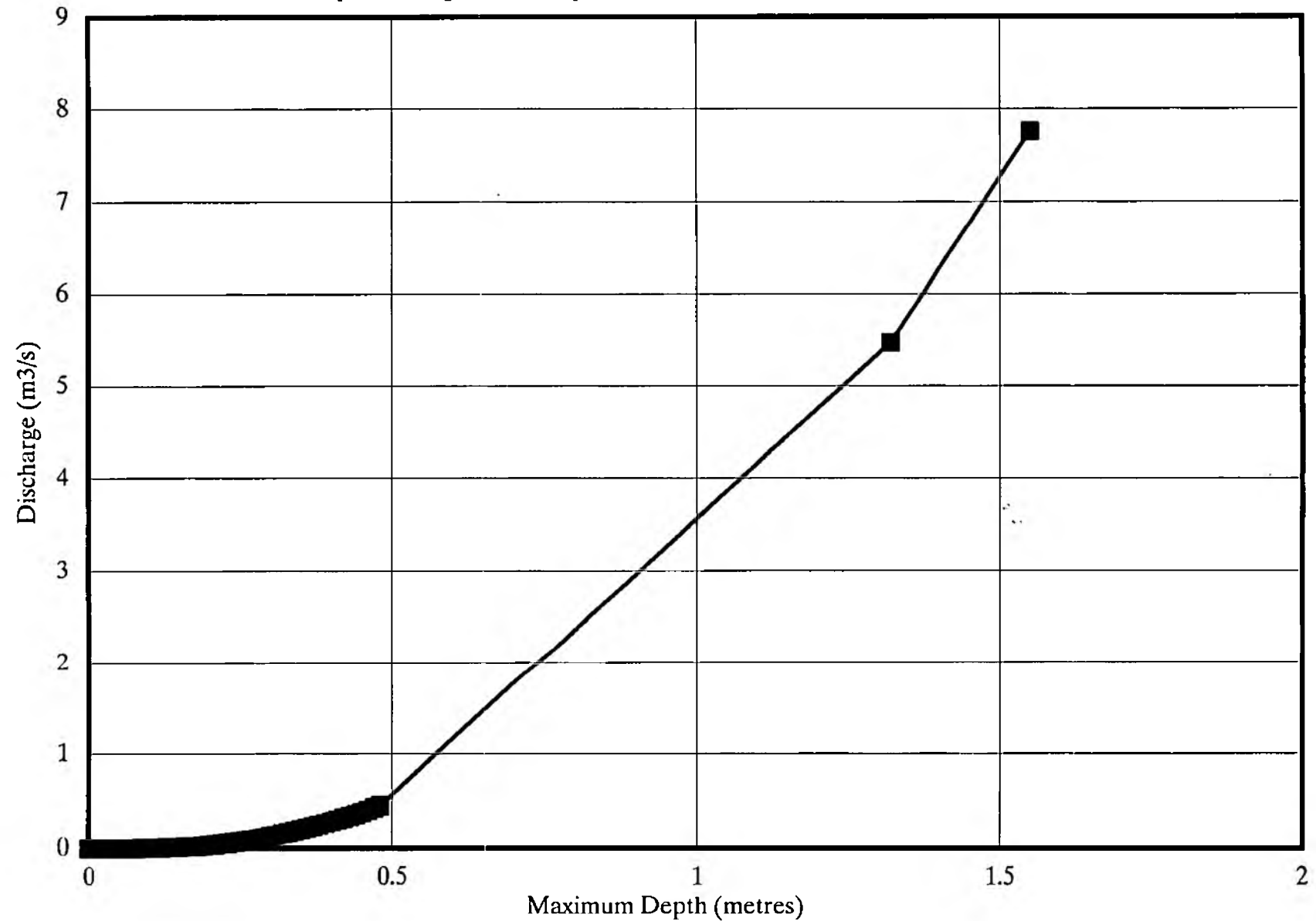
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**APPENDIX K  
DISCHARGE:VELOCITY:DEPTH CALCULATIONS**



# River Deben Brandeston

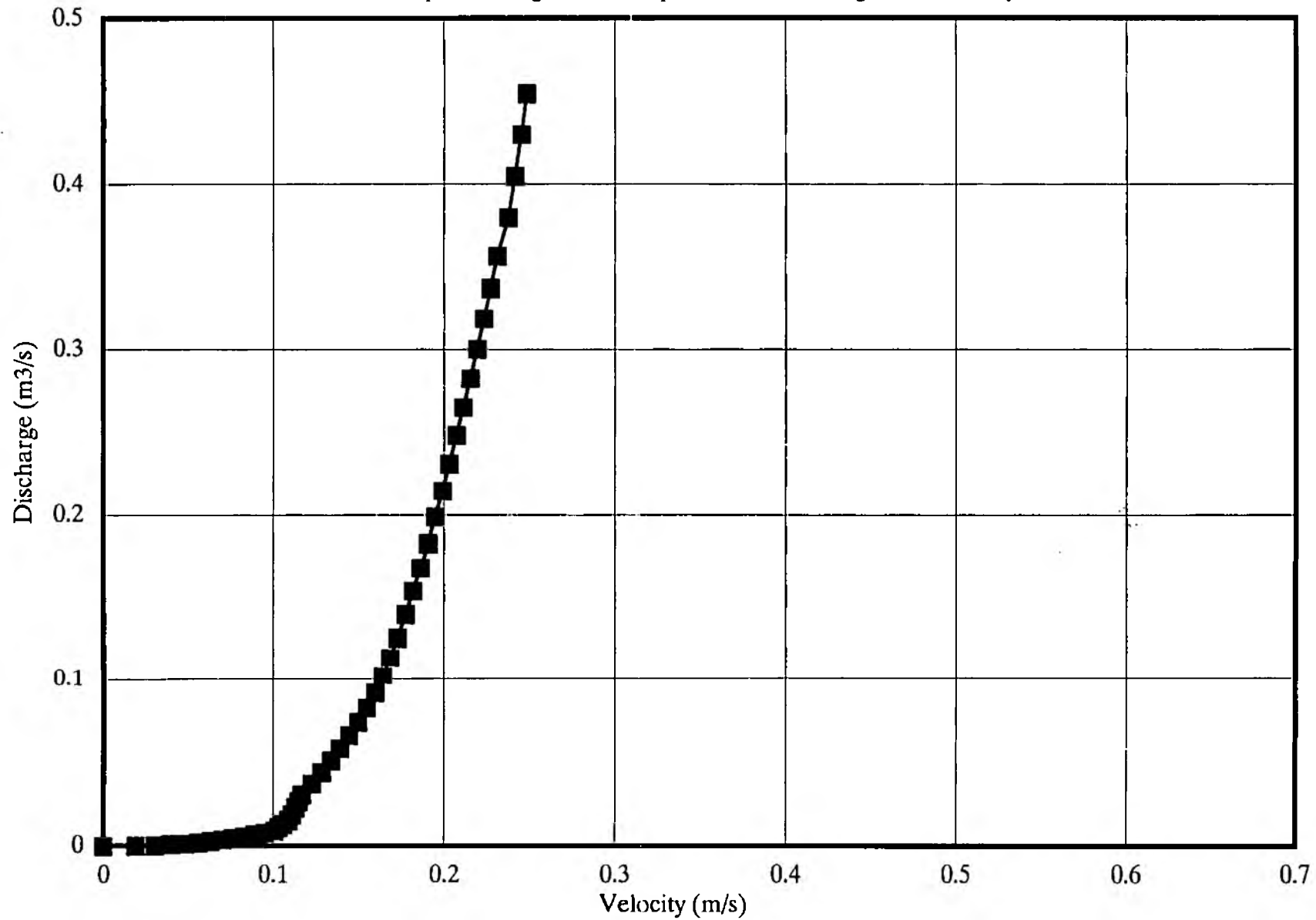
Graph showing relationship between Discharge and Maximum Water Depth





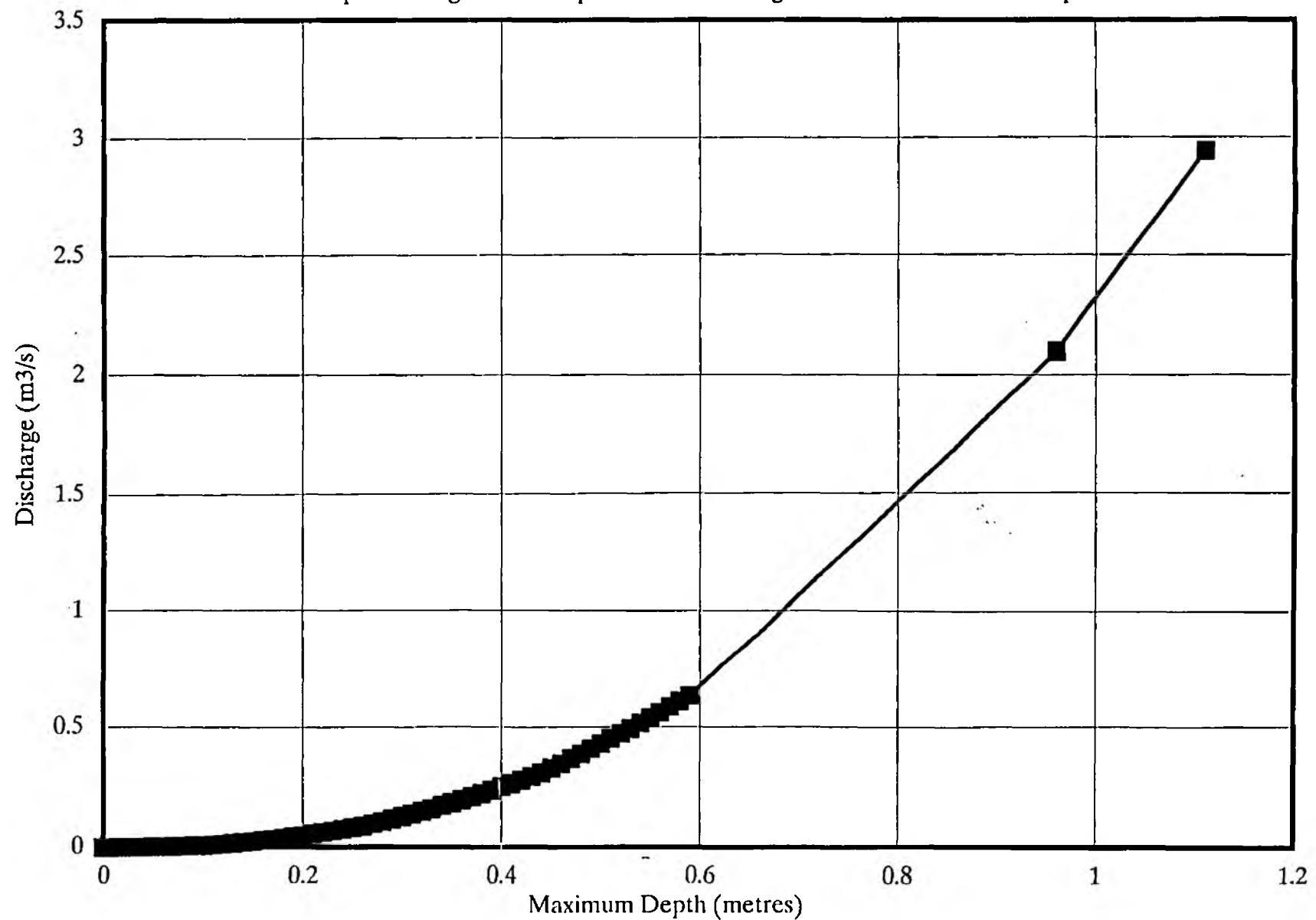
# River Deben Brandeston

Graph showing relationship between Discharge and Velocity



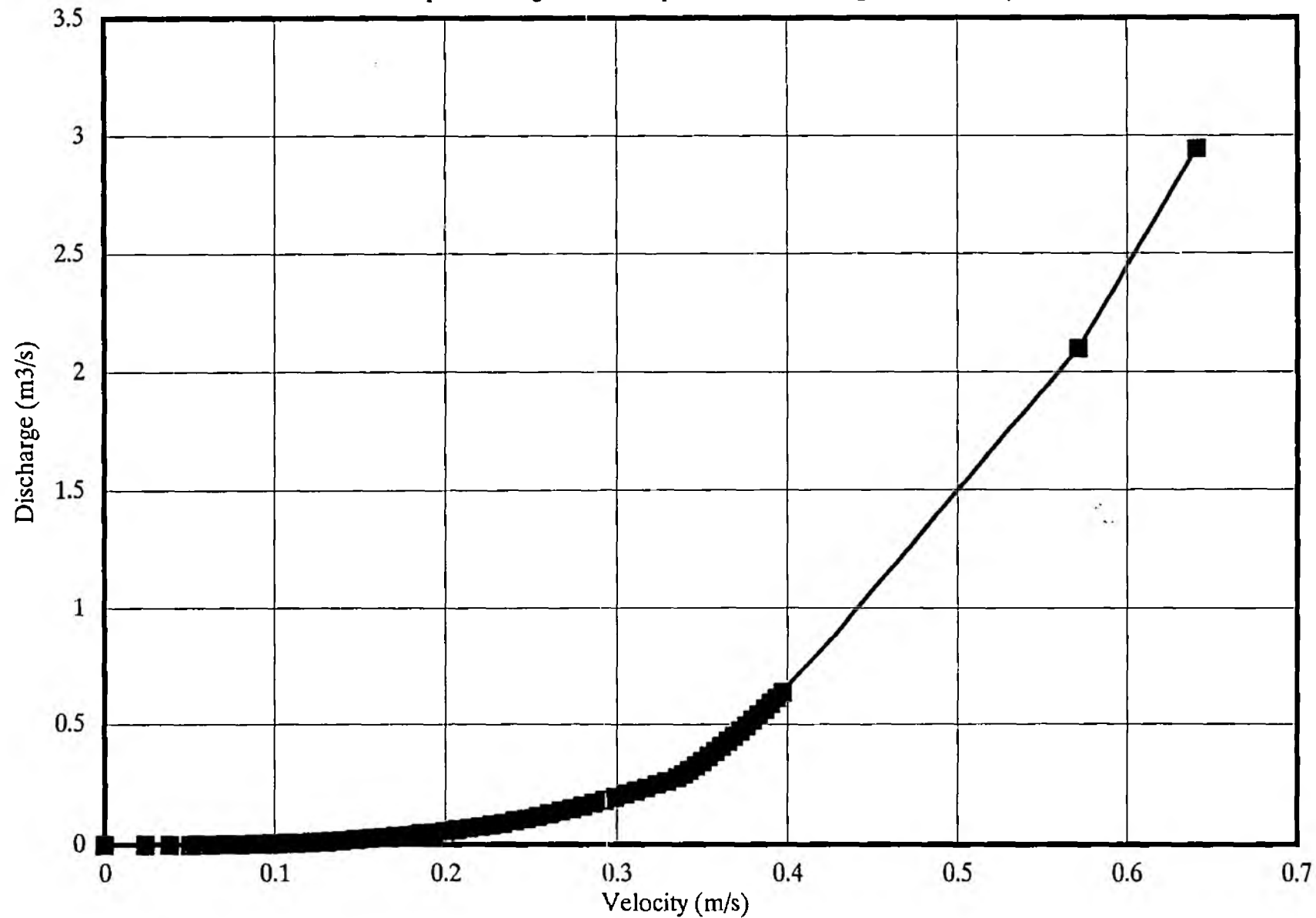
# River Deben Winston Grange

Graph showing relationship between Discharge and Maximum Water Depth



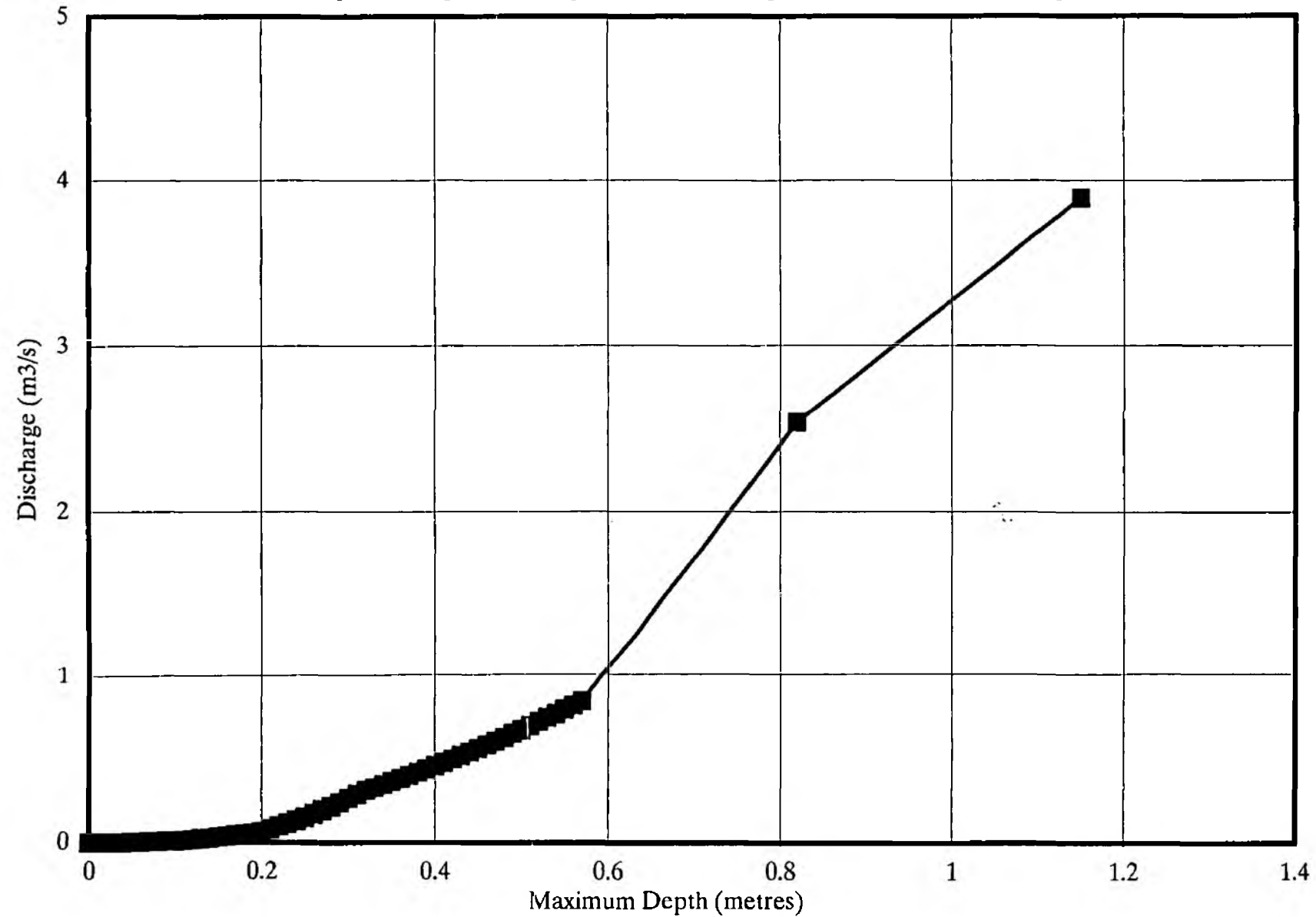
# River Deben Winston Grange

Graph showing relationship between Discharge and Velocity



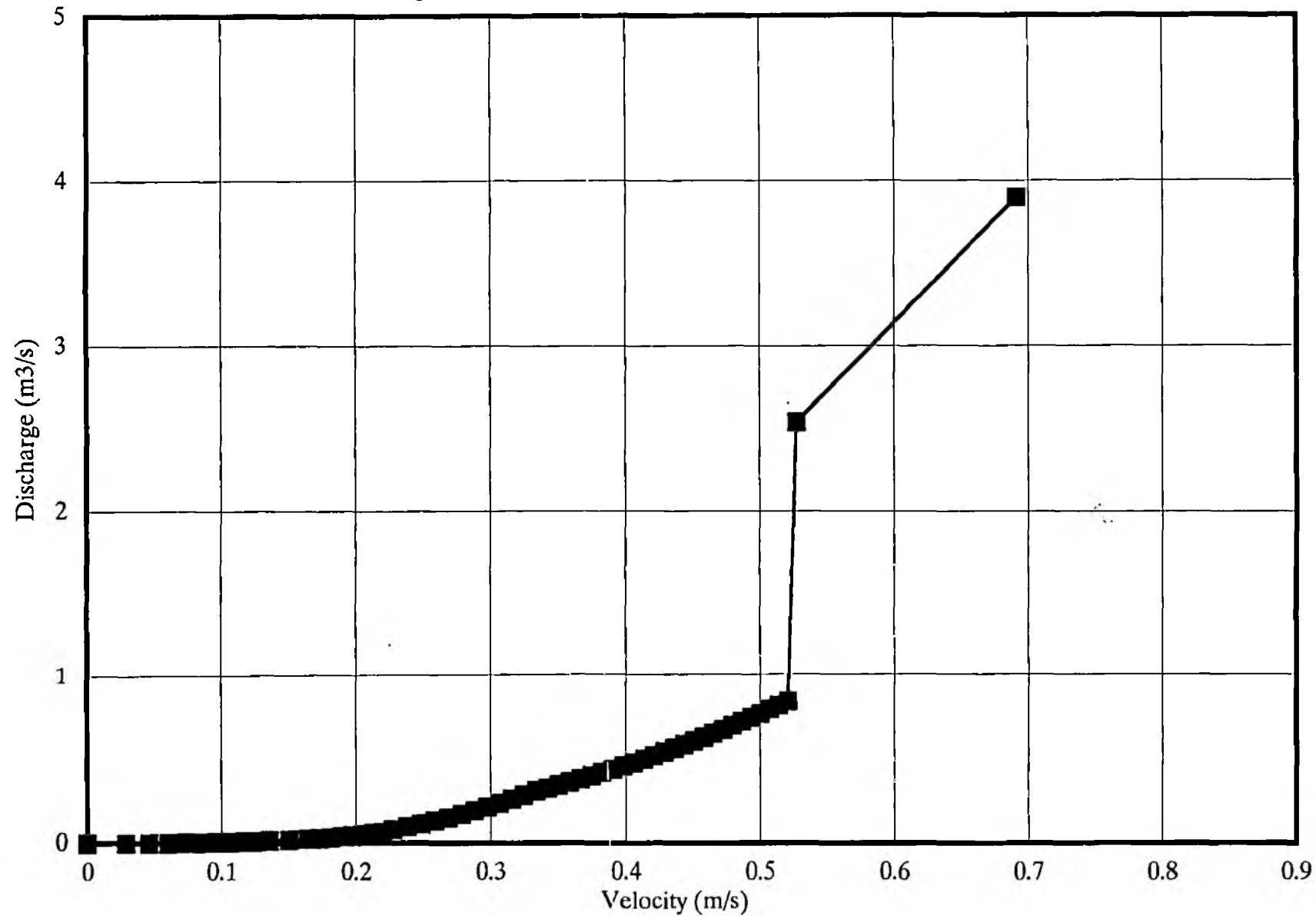
# Earl Soham Watercourse Kings Hill

Graph showing relationship between Discharge and Maximum Water Depth



# Earl Soham Watercourse Kings Hill

Graph showing relationship between Discharge and Velocity





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