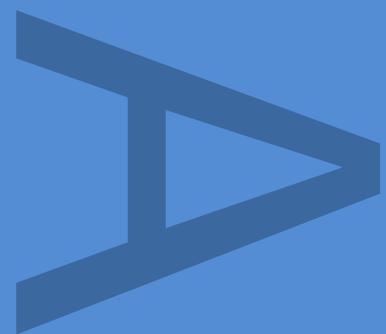


Land at Norwich Research Park,
South Development Area:
Anglian Water Gravity Foul
Sewer Construction Scheme,
Archaeological Monitoring and
Recording

June 2015



LAND AT NORWICH RESEARCH PARK, SOUTH
DEVELOPMENT AREA:
ANGLIAN WATER GRAVITY FOUL SEWER
CONSTRUCTION SCHEME

ARCHAEOLOGICAL MONITORING

Quality Control

Pre-Construct Archaeology Ltd	
Project Number	K3949
Report Number	R12138

	Name & Title	Signature	Date
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Land at Norwich Research Park, South Development Area, Anglian Water Gravity Foul Sewer Construction Scheme: Archaeological Monitoring and Recording

Local Planning Authority: Norfolk County Council

Planning Reference: SEW 09746

Central National Grid Reference: TG 1778 0771

Site Code: ENF137326

Report No. R12138

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ABSTRACT

This report describes the results of archaeological monitoring and recording carried out by Pre-Construct Archaeology at Norwich Research Park, South Development Area (TG 1778 0771) between the 5th May 2015 and the 8th June 2015. The archaeological work was commissioned by Anglian Water as part of the construction of a gravity foul sewer in response to an archaeological brief issued by James Albone of the Historic Environment Service of Norfolk County Council (HES/NCC). The aim of the work was to ensure that any archaeological remains exposed during groundworks were recorded, recovered and interpreted.

No archaeological features were seen during monitoring but unstratified worked flints of probable Mesolithic/Early Neolithic date and a single sherd of undiagnostic medieval/post-medieval pottery were found in the topsoil and subsoil.

1 INTRODUCTION

- 1.1 An archaeological monitoring and recording was undertaken by Pre-Construct Archaeology Ltd on land at Norwich Research Park, South Development Area (NPR) (centred on Ordnance Survey National Grid Reference (NGR) TG 1778 0771) from the 5th May 2015 to the 8th June 2015 (Figure 1).
- 1.2 The archaeological work was commissioned by Anglian Water in response to an archaeological brief attached to the construction of a gravity foul sewer (Planning Reference SEW 09746).
- 1.3 The evaluation was carried out in accordance with a Written Scheme of Investigation (WSI) prepared by Lawrence Morgan-Shelbourne of PCA (Morgan-Shelbourne 2015) in response to a Brief for archaeological monitoring and recording issued by James Albone of HES/NCC.
- 1.4 The main aim of the monitoring process will be to monitor any groundwork likely to impact on archaeological features and deposits and to record the results ensuring that all archaeological remains are recorded, recovered and interpreted to an acceptable standard.
- 1.5 A total of 0.81 km of pipe easement was monitored.
- 1.6 This report describes the results of the monitoring. The site archive will be deposited at Norfolk County Council Archaeology Store.

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

2.1.1 The subject site is characterised by a bedrock formation of Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk and Culver Chalk. This formed during the Cretaceous period approximately 71-94 million years ago.

2.1.2 The overlying superficial deposit is the Sheringham Cliffs Formation formed in the Quaternary period up to 3 million years ago through glacial scouring and subsequent glaciofluvial deposition processes – (British Geological Survey Viewer).

2.2 Topography

2.2.1 The site is located within the Yare River valley, with the river itself meandering to the east of the site where the existing Yare Valley trunk sewer is located.

2.2.2 The area investigated cut through the University of East Anglia sports fields and its adjacent marsh, and skirted the northern edge of the N&N hospital trust grounds. The pipeline runs from Hethersett Lane in the west down to the River Yare in the east.

2.2.3 The area slopes west to east from Hethersett Lane down to the River Yare. A spot height taken at the most westerly limits of the pipeline is recorded at c.18m Over Datum (OD). A spot height taken at the most easterly limits of the pipeline is recorded at c.14m OD, while the River Yare runs through at c.10m OD.

3 ARCHAEOLOGICAL BACKGROUND

3.1 General

3.1.1 The route of the proposed sewerage pipeline lies within the valley of the River Yare, an area where archaeological sites and artefacts of prehistoric and Roman date have previously been recorded.

3.1.2 Due to the marshy, waterlogged nature of certain areas located proximate to the River Yare there was potential that heritage assets with palaeoenvironmental remains may be present.

4 METHODOLOGY

4.1 Monitoring

- 4.1.1 Archaeological monitoring was undertaken on all groundworks likely to impact on any archaeological remains (Figure 2).
- 4.1.2 Ground reduction was carried out under archaeological supervision using either a 15-ton or 20-ton tracked mechanical excavator fitted with a 2.0m wide toothless ditching bucket. Topsoil and subsoil deposits were removed in spits down to the level as required by Barhale to conduct their works. Exposed surfaces were cleaned by trowel and hoe as appropriate.
- 4.1.3 Metal-detecting was carried out during the topsoil and subsoil stripping and throughout the excavation process. Archaeological features and spoil heaps were scanned by metal-detector as they were encountered/ created.
- 4.1.4 Field excavation techniques and recording methods are detailed in the PCA Fieldwork Induction Manual (Operations Manual I) by Joanna Taylor and Gary Brown (2009).

4.2 Recording Methodology

- 4.2.1 Deposits or the removal of deposits judged by the excavating archaeologist to constitute individual events were each assigned a unique record number (often referred to within British archaeology as 'context numbers') and recorded on individual pre-printed forms (Taylor and Brown 2009). Archaeological processes recognised by the deposition of material are signified in this report by round brackets (thus), while events constituting the removal of deposits are referred to here as 'cuts' and signified by square brackets [thus]. The record numbers assigned to cuts and deposits are entirely arbitrary and in no way reflect the chronological order in which events took place. All deposits recorded during the evaluation are listed in Appendix 2. Artefacts recovered during excavation were assigned to the record number of the deposit from which they were retrieved.
- 4.2.2 High-resolution digital photographs were taken at all stages of the evaluation process. Digital photographs were taken of all archaeological features and

deposits.

- 4.2.3 Artefacts and ecofacts were collected by hand and assigned to the record number of the deposit from which they were retrieved, receiving appropriate care prior to removal from the site (IfA 2001; Walker 1990; Watkinson 1981).

5 ARCHAEOLOGICAL SEQUENCE

5.1 Introduction

5.1.1 No archaeological features were seen during the monitoring of the groundworks; however several struck flints were found in the topsoil. These flints were found along most of the pipe easement and compound west of the River Yare, except in the northern part of field C where landscaping for the sports field had truncated the area.

FIELD A PIPE EASEMENT	Figure: 2		Plate: 1
Trench Alignment: NW-SE	Length: 0.18km		
Deposit	Context No.	Average Depth (m)	
Topsoil (Turf)	(106)	0.20m+	
Ploughsoil	(107)	0.05m+	
Summary: Six struck flints of probable Late Mesolithic/Early Neolithic date and one sherd of undiagnostic medieval/post-medieval pottery were recovered from the plough horizon (107).			

FIELD C PIPE EASEMENT	FIGURE: 2		PLATE: 2, 6
Trench Alignment: N-S and NW-SE	Length: 0.30km		
Deposit	Context No.	Average Depth (m)	
Topsoil	(103)	0.20m+	
Made Ground	(104)	0.10m+	
Summary: Five struck flints of probable Late Mesolithic/Early Neolithic date were recovered from the Topsoil (103). Also along the northern run of the pipe easement Made Ground (104) was noted which is interpreted as the result of landscaping for this fields current use as a sport playing field.			

FIELD C COMPOUND	FIGURE: 2	PLATE: 3
Trench Alignment: N/A	Length: N/A	
Deposit	Context No.	Average Depth (m)
Topsoil	(101)	0.20m+
Summary: Seven struck flints of probable Late Mesolithic/Early Neolithic date were recovered from the Topsoil (101).		

FIELD D PIPE EASEMENT	FIGURE: 2	PLATE: 4, 7
Trench Alignment: W-E	Length:0.18km	
Deposit	Context No.	Average Depth (m)
Topsoil	(105)	0.20m+
Summary: Three struck flints of probable Late Mesolithic/Early Neolithic date were recovered from the Topsoil (105)		

FIELD E PIPE EASEMENT	FIGURE: 2	PLATE: 6
Trench Alignment: W-E and N-S	Length: 0.15km	
Deposit	Context No.	Average Depth (m)
Topsoil	(102)	0.30m+
Summary: No archaeological finds were seen.		

6 THE FINDS AND ENVIRONMENTAL EVIDENCE

6.1 Flint By Barry Bishop

Introduction

- 6.1.1 The archaeological investigations at the above site resulted in the recovery of 21 struck flints, all from topsoil deposits and therefore can be considered as residually deposited. This report quantifies and describes the material, offers some comments on its significance and recommends any further work required. All metrical descriptions follow the methodology of Saville (1980).

Quantification

Context	Flake	Prismatic blade	Blade-like flake	Core	Backed blade	Scraper	Total
101	5	1	1				7
103	2			1	1	1	5
105		2	1				3
107	4	1		1			6

Table 1: Quantification of Struck Flint from the Norwich Research Park

6.2 Description

Raw Materials

- 6.2.1 The assemblage was manufactured from a mottled translucent dark grey / opaque light grey 'glassy' flint of good knapping quality. Many pieces retain a thin, rough and weathered cortex that suggests the raw materials comprised derived nodules that can be found within the glacial tills and gravel terraces commonly present along this part of the Yare valley.

Condition

- 6.2.2 The condition of individual pieces is variable but nearly all show some chipping and abrasion and in many cases this is quite severe. This is consistent with material that has spent considerable time within a dynamic burial environment such as the plough-zone, and there is no evidence from any context for in-situ or contemporary flintworking. The degree of edge chipping and abrasion makes the identification of edge-retouch or use-wear

problematic, resulting in a possible under representation of such pieces within this report.

Technology and Typology

- 6.2.3 The technological traits of the assemblage do vary, suggesting that it is not chronologically integral, but there is a high proportion of pieces that derive from a blade-based reduction system which can be dated to the Mesolithic or Early Neolithic periods. These include the blades and blade-like flakes, and both cores also show some evidence for the manufacture of narrow flakes or blades. Both of these have been extensively reduced, the one from context [107] having a keeled platform whilst that from [103] has a single principal platform but with further flakes removed from several other directions. Of the two retouched pieces, the backed blade from context [103] is also typical of Mesolithic or Early Neolithic industries. This has abrupt retouch and edge crushing along its convex right margin suggesting it may have been used as a cutting implement, although its original form is obscured by extensive post-depositional damage. The other retouched implement, an end scraper from the same context, is less chronologically diagnostic but it has been made on a thick broad flake with a wide and obtuse striking platform, suggesting the possibility that it could be of Bronze Age date (cf Young and Humphrey 1999; Humphrey 2003). One or two of the other flakes are similarly 'squat' and rather crudely struck (cf Martingell 1990; 2003) and may represent additional evidence for later prehistoric flintworking at the site.

Discussion

- 6.2.4 This assemblage contains no truly typologically diagnostic pieces but the majority of the pieces can be dated to the Mesolithic or Early Neolithic by their technological attributes. With the absence of typologically diagnostic pieces it is difficult to separate the products from these two periods, although it is worth noting that whilst most of the blades are prismatic they are also fairly large and chunky, and neither of the cores has been carefully pre-shaped or prepared. Whilst the assemblage is too small to make close analogies, it is perhaps technologically most comparable to Early Neolithic flintwork from the Yare valley, particularly the very large assemblage from

near-by at Colney as well those from Keswick and Thorpe St Andrew (Robins 2004; Bishop and Proctor 2011; Bishop forthcoming). A few pieces may indicate later prehistoric occupation at the site, but unfortunately even taken as a whole the assemblage is too small to indicate the precise chronology or nature of the activities undertaken here.

Recommendations

- 6.2.5 Due to its size, the paucity of diagnostic implements and lack of associated structural evidence, the interpretational potential of this assemblage is limited and no further analytical work is proposed. Nevertheless, it does indicate Mesolithic or Early Neolithic activity and possible later Bronze Age or Iron Age activity in the vicinity of the site, and therefore has the potential to contribute to a broader understanding of the prehistoric occupation of this part of the Yare Valley. It should therefore be mentioned in the local Historic Environment Record and a brief description, which can be largely gleaned from this report, should be included in any published account of the fieldwork. Bishop, B.J. (forthcoming) *The Lithic Material*. In: G. Trimble, *Prehistoric activity in the Yare Valley, Norfolk: Harford Park and Ride*. East Anglian Archaeology.

7 DISCUSSION & CONCLUSIONS

7.1 No archaeological features were seen during the monitoring of the south development area at Norwich Research Park. Worked flints of Late Mesolithic or Early Neolithic date and a sherd of undiagnostic medieval or post-medieval pottery were found in the topsoil and subsoil. A few pieces of flint might be later prehistoric in date, however the material is generally undiagnostic and simply indicates 'background noise', highlighting the potential for additional finds in the area.

8 ACKNOWLEDGEMENTS

8.1 Pre-Construct Archaeology Ltd would like to thank Anglia Water for commissioning the work and Barhale for operating the excavator. PCA are also grateful to James Albone of Historic Environment Service of Norfolk County Council for his advice and for monitoring the work. The author would like to thank Mark Hinman for managing the project and PCA's CAD department for preparing the figures.

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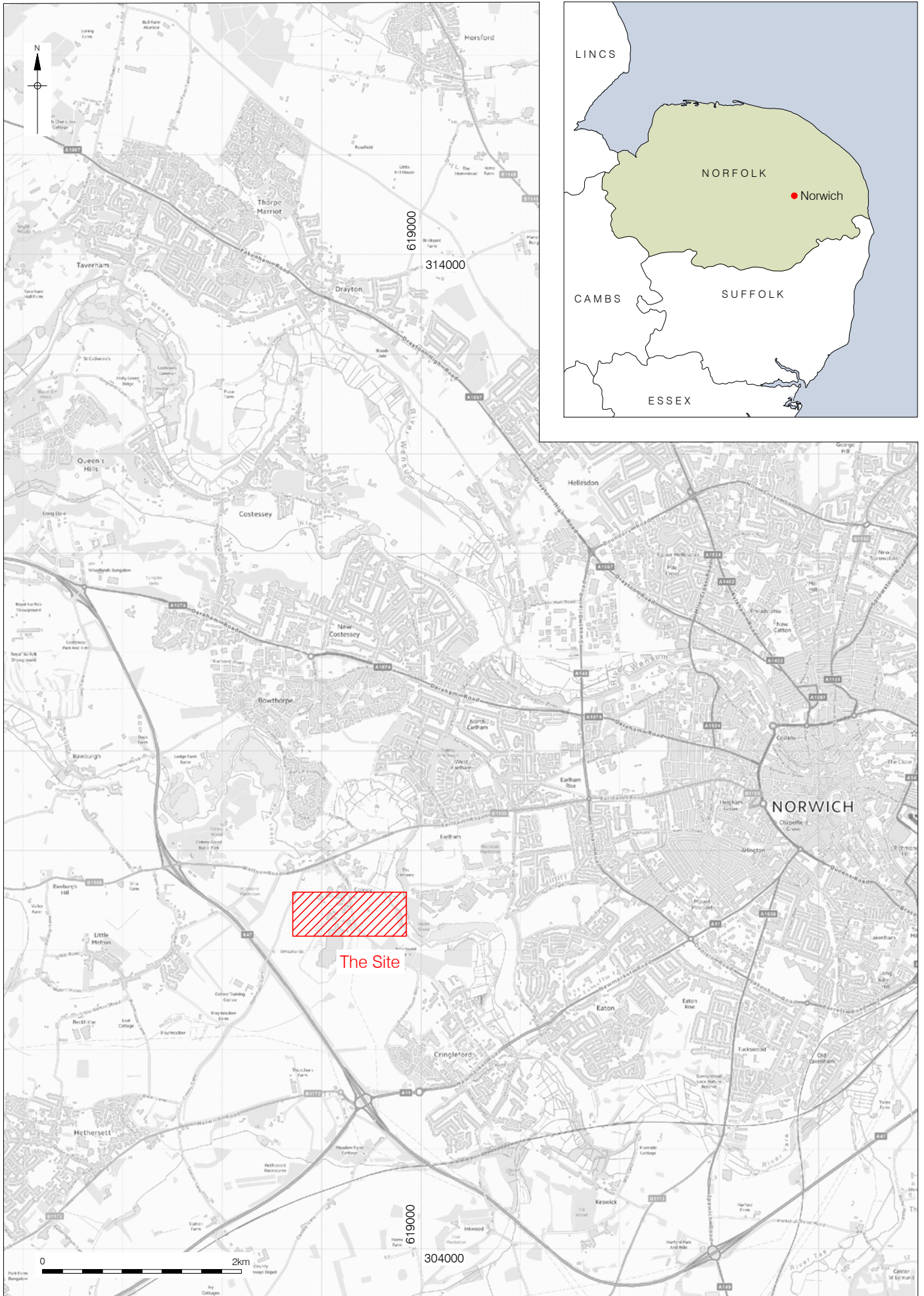
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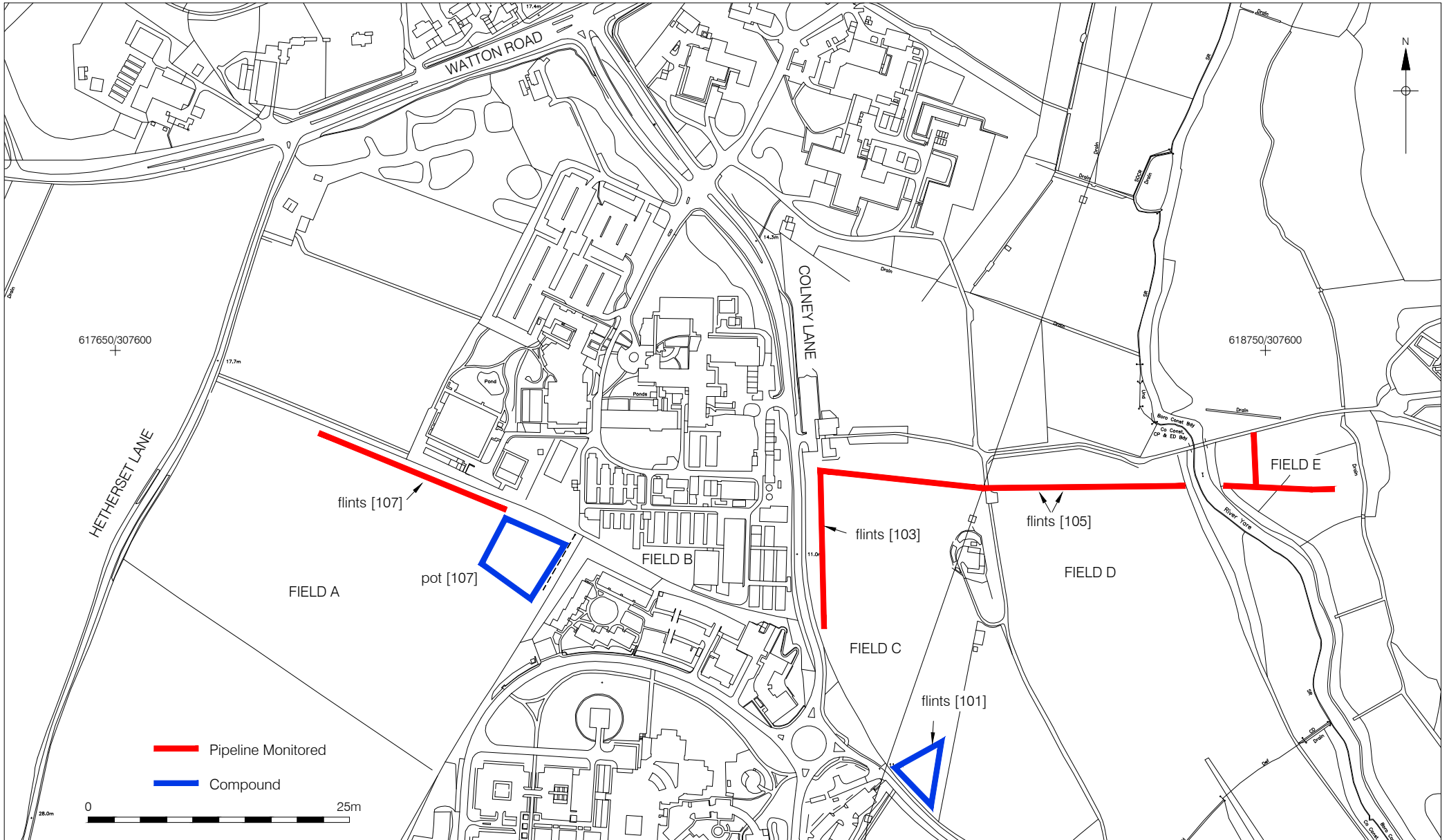
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9.2 Websites

- 1) <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>. Date accessed 06/2015





Mapping provided by the client
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 24/06/15 JS

Figure 2
 Areas Monitored
 1:5,000 at A4

10 APPENDIX 1: PLATES



Plate 1: Pipe easement in field A, view north-west



Plate 2: Pipe easement in field C, view north



Plate 3: Compound in field C, view south-west



Plate 4: Pipe easement in field D, view east



Plate 5: Pipe easement in field E, view east



Plate 6: Pipe easement in field C after monitoring finished, view south-west



Plate 7: Pipe easement in field D, view west

11 APPENDIX 2: CONTEXT INDEX

Context	Cut	Type	Category	Interpretation	Field
100	-	Layer	Topsoil	Overburden	A
101	-	Layer	Topsoil	Overburden	C
102	-	Layer	Topsoil	Overburden	E
103	-	Layer	Topsoil	Overburden	C
104	-	Layer	Made Ground	Overburden	C
105	-	Layer	Topsoil	Overburden	D
106	-	Layer	Topsoil (turfline)	Overburden	A
107	-	Layer	Plough Soil	Overburden	A

12 APPENDIX 3: ATTENDANCE

Date	Staff	Works monitored
05/05/2015	K. Hanson	Pipe Easement stripping in Field E
06/05/2015	K. Hanson	Compound stripping in Field C
07/05/2015	K. Hanson	Easement access route stripping in Field E
08/05/2015	K. Hanson	No stripping occurred, reasons unknown to author.
11/05/2015	K. Hanson	Pipe Easement stripping in Field C
12/05/2015	K. Hanson	Pipe Easement stripping in Field C
13/05/2015	K. Hanson	Pipe Easement stripping in Field D
14/05/2015	K. Hanson	Pipe Easement stripping in Field D
08/06/2015	K. Hanson	Pipe Easement stripping in Field A

13 APPENDIX 4: OASIS FORM

OASIS ID: preconst1-213858

Project details

Project name Land at Norwich Research Park, South Development Area: Anglian Water Gravity Foul Sewer Construction Scheme

Short description of the project This report describes the results of archaeological monitoring and recording carried out by Pre-Construct Archaeology at Norwich Research Park, South Development Area (TG 1778 0771) between the 5th May 2015 and the 8th June 2015. The archaeological work was commissioned by Anglian Water as part of the construction of a gravity foul sewer in response to an archaeological brief issued by James Albone of the Historic Environment Service of Norfolk County Council (HES/NCC). The aim of the work was to ensure that any archaeological remains exposed during groundworks were recorded, recovered and interpreted. No archaeological features were seen during monitoring but unstratified worked flint and a sherd of undiagnostic medieval/post-medieval pottery were found in the topsoil and subsoil.

Project dates Start: 05-05-2015 End: 08-06-2015

Previous/future work No / No

Any associated project reference codes ENF137326 - Sitecode

Type of project Recording project

Site status None

Current Land use Cultivated Land 2 - Operations to a depth less than 0.25m

Current Land use Other 14 - Recreational usage

Monument type NONE None

Significant Finds FLINT Uncertain

Significant Finds POT Medieval

Investigation type ""Watching Brief""

Prompt Planning condition

Project location

Country England

Site location NORFOLK NORWICH NORWICH Norwich Research Park

Study area 0.81 Kilometres

Site coordinates TG 1778 0771 52.6229118979 1.21790891665 52 37 22 N 001 13 04 E Point

Project creators

Name of Pre-Construct Archaeology Ltd.
Organisation

Project brief Anglian Water
originator

Project design Mark Hinman
originator

Project Mark Hinman
director/manager

Project supervisor Karl Hanson

Type of Developer
sponsor/funding
body

Name of Anglian Water
sponsor/funding
body

Project archives

Physical Archive Norfolk Museums and Archaeology Service

recipient

Physical Archive ID ENF137326

Physical Contents "Ceramics","Worked stone/lithics"

Digital Archive recipient Norfolk Museum and Archaeology Service

Digital Archive ID ENF137326

Digital Contents "none"

Digital Media available "Database","Images raster / digital photography","Text"

Paper Archive recipient Norfolk Museums and Archaeology Service

Paper Archive ID ENF137326

Paper Contents "none"

Paper Media available "Context sheet","Diary","Drawing","Map"

Project bibliography

1

Grey literature (unpublished document/manuscript)

Publication type

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