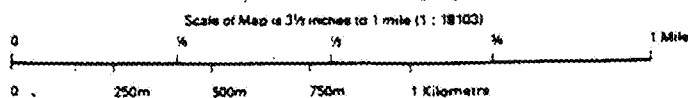
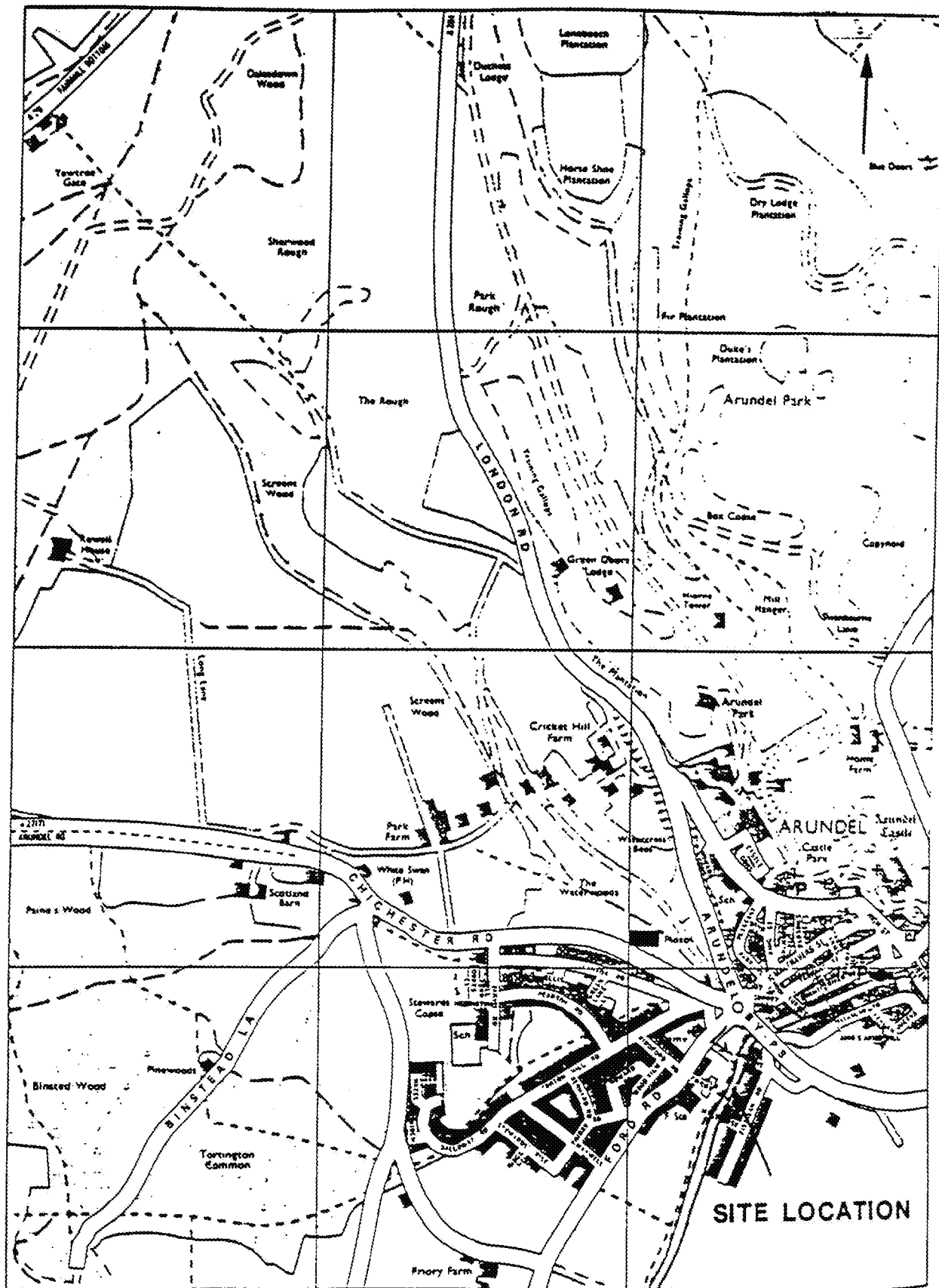


Figures



TITLE
Arundel, Ford Road (Ref SE12)
Site Location

WS Atkins Environment
a division of WS Atkins Consultants Ltd.

Woodcote Grove, Ashley Road,
Epsom, Surrey. KT18 5BW

Tel. (0372) 726140
Fax. (0372) 740055

11/12/2000

Drawn
KM

Checked
NJL

Approved
JES

Scale
N/A

Drawing Number
Figure 1

Reference
A71430

Appendix A
Selected factual exerts from WS Atkins Environmental Liability
Assessment Report, Arundel, Ford Road (Ref SE12), 1994

Appendix A :

WS Atkins Environmental Liability Assessment Report, Arundel, Ford Road (Ref SE12), 1994 :

Factual exerts included:

Cover Page

Page 1 : Contents

Pages 7 – 8 : Geology and Ground Conditions

Pages 9 – 16 : Site History and Potential Contaminants

Appendix A : Information Sources

Appendix B : Ordnance Survey Maps

Appendix E : Service Plans

Appendix F : Desk Study Report by Harrison & Company 1988.

Appendix A :

WS Atkins Environmental Liability Assessment Report, Arundel, Ford Road (Ref SE12), 1994 :

Factual exerts included:

Cover Page

Page 1 : Contents

Pages 7 – 8 : Geology and Ground Conditions

Pages 9 – 16 : Site History and Potential Contaminants

Appendix A : Information Sources

Appendix B : Ordnance Survey Maps

Appendix E : Service Plans

Appendix F : Desk Study Report by Harrison & Company 1988.

BRITISH GAS PROPERTIES

E5347/1994/APRIL

**ARUNDEL, FORD ROAD
(Ref SE12)
ENVIRONMENTAL LIABILITY
ASSESSMENT REPORT**

WS Atkins Environment
Woodcote Grove
Ashley Road
Epsom
Surrey
KT18 6DW



Client: British Gas Properties

Project: British Gas Environmental Liability
Assessment Report

Title: Arundel, Ford Road (Ref SE12)

Job No: E5347 ***Copy No:***

Document Reference: E5347/LR860.NL/gp

0	Client Issue	N Legg	JE Steeds	DJ Nancarrow	JE Steeds		
							Client
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised (PM)	Date	
		WS Atkins					

CONTENTS

1 INTRODUCTION.....Error! Bookmark not defined.

2 SITE LOCATION AND DESCRIPTION.....Error! Bookmark not defined.

3 GEOLOGY AND GROUND CONDITIONS5

4 SITE HISTORY AND POTENTIAL CONTAMINANTS7

5 SITE INVESTIGATION DATA.....Error! Bookmark not defined.

6 LIABILITY ASSESSMENTError! Bookmark not defined.

7 RECOMMENDATIONS : SITE INVESTIGATION AND REMEDIAL MEASUREError! Bookmark not defined

3 GEOLOGY AND GROUND CONDITIONS

Geology

- 3.1 The general geology in the vicinity of the site is shown on the British Geological Survey (BGS) 1:625,000 scale geological map No. 2. Other information was obtained from BGS Well Records Nos 21 and 88.
- 3.2 The solid geology of the study site is chalk overlain by sandy silty clay alluvium associated with the River Arun. The BGS borehole records indicate depths of alluvial material of 19m and 24m some 200m to the north east of the site. However, a site investigation by Harrison and Company of Thornton Heath in 1988 (see Chapter 5) indicated that less than 5m of alluvial material overlay the chalk (assuming the trial pits did not extend beyond 5m). Both BGS borehole records indicate the presence of groundwater in the Alluvium at approximately 2m depth. The deposits overlying the chalk are likely to be relatively permeable.

Hydrogeology

- 3.3 An NRA groundwater vulnerability map is not yet available for this area and similarly NRA Source Protection Zones are not yet completed for the region. The Southern Region's Appendix to the NRA's Policy and Practice for the Protection of Groundwater (Ref 6) indicates that under the former Southern Region Aquifer Protection Policy, the chalk is classified as Zone 1 in this area. [REDACTED]
[REDACTED]
[REDACTED]. The NRA have no records of any significant pollution incidents associated with the site.

- 3.4 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] A total of four groundwater abstractions are located within 2km of the study site. These are shown in Table 3.1. There may, in addition, be other unlicensed abstractions for which the NRA have no information.

Hydrology

- 3.5 The NRA indicated that the tidal stretch of the River Arun adjacent to the site is classed as Estuary Class A (Good Quality) based on an assessment of biological, aesthetic and water quality.
- 3.6 The NRA have no records of any licensed abstractions from the River Arun itself within 2km of the study site. However, their records indicate that there are four abstractions within that distance from other smaller watercourses that are part of its catchment. These abstractions are also shown in Table 3.1.

Table 3.1 : Water Abstraction Data

Grid No.	Details	Source	Annual Quantity Abstracted (m ³)
TQ 00250526	Private water undertaking	Chalk	4550.0
TQ 01870794	Wild Fowl and Wetlands Trust	Chalk	1991148.0
TQ 00890742	Fish Farm	Chalk	318220.0
TQ 01800778	Public water supply	Chalk	1647000.0
TQ 0126 0533	Spray irrigation	Surface	13636.2
TQ 99460563	Spray irrigation	Surface	2500.0
TQ 02250503	Fish Farm	Surface	332000.0
TQ 01510567	Spray irrigation	Surface	24999.7

4 SITE HISTORY AND POTENTIAL CONTAMINANTS

Site History

Introduction

- 4.1 The site history has been assessed using all available plans, records and anecdotal information (see Appendix A). Relevant Ordnance Survey maps are given in Appendix B and anecdotal information is given in Appendix C. The information has been summarized in Table 4.1 and Figure 3. All processes and activities which are likely to have, or are known to have, resulted in contamination have been included in Table 4.1. Each feature described in Table 4.1 is given a reference number which can be used to identify it on Figure 3. The history of adjacent land uses is presented in a similar manner in Table 4.2.

Information from Statutory Authorities

- 4.2 The Environment, Tourism and Leisure Department of Arun District Council have limited records of a landfilling operation in the area immediately to the south west of the study site. This was essentially infilling of the former baths in the 1950s and 1960s. Materials used included bottles, timber, ash and pottery. The Council's records do not state the exact depth or volumes of wastes involved but it is believed that the maximum depth of waste is approximately 3.0m. This area and the land further south west (the site of Tortington Ironworks between 1899 and the early 1960s) has since been developed for 40 houses with gardens. The Council stated that a site investigation was carried out prior to development. A total of 500m³ of topsoil was removed owing to the presence of copper, nickel, lead and zinc. The site investigation report concluded that there was "no major contamination threat".
- 4.3 West Sussex County Council Trading Standards Department have stated that a closed landfill site ("Canada Road Tip") is located within 250m of the site, to the north west. The landfill predates licensing regulations and the Council have no records of the depth or volume of waste involved. They believe, however, that the landfill received household waste and that tipping ceased in 1973 at the latest.

Potential Contaminants

Introduction

- 4.4 The following sections outline the principal forms of ground contamination which may be present on the site based on the previous industrial use and surrounding industries.

4.5

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4.6

The various activities which are thought likely to have resulted in ground or water resource contamination on this site are listed below in Table 4.3. [REDACTED]

[REDACTED]. The areas can again be identified using the reference numbers which correspond to those given in Figure 3.

4.7

The potential contaminants from adjacent site uses are presented in a similar manner in Table 4.4.

Table 4.1 : Historical Data Summary Sheet : Site Uses

Ref	Use/Feature	1875 OS	1899 OS	1912 OS	1914 OS	1933 OS	1937 OS	1946 OS	1961 OS	1971 OS	1994 SVI
1	Gasholder	North east of operational area	x	x	x	x	x	x	x	x	x
2	Drainage ditch	Through north of site and along western boundary	—	—	—	—	x	x	x	x	x
3	Buildings	South-western corner of site	—	—	—	—	—	—	—	—	x
4	Small circular structure (tank?)	North corner of operational area	x	x	x	x	x	x	x	x	x
5	Buildings	Operational area	—	—	—	—	—	Only two in north corner remained	—	x	x
6	Gasholder	*	North west corner of operational area							x	x
7	Gasholder		North of operational area						x	x	x
8	Small circular structure (tank?)	*	*	North east of operational area	?	?		?	?	x	x
9	Gasholder	*	*	*	*	*	Centre of site				x
10	Electricity sub station	*	*	*	*	*	*	*	*	North-east boundary	
11	Above ground tank	*	*	*	*	*	*	*	*	North-east boundary	Concrete base remaining
12	Valve pits	*	*	*	*	*	*	*	*	Centre of site	
13	Toilet	*	*	*	*	*	*	*	*	North-east boundary	

KEY	
?	Plan does not show this area or does not provide information
	Feature still present
x	Feature demolished/no longer present
OS	Ordnance Survey Map
BGP	British Gas Plan
AI	Anecdotal information from ex-employee
SVI	Site visit information
*	Feature not present

Notes:

- 1.
- 2.

Table 4.2 : Historical Data Summary Sheet : Adjacent Site Uses

Boundary	1875 OS	1899 OS	1912 OS	1914 OS	1933 OS	1937 OS	1946 OS	1961 OS	1971 OS	1994 SVI
North west	Greenfield	Cemetery beyond road	–	–	–	–	–	–	–	–
North east	Drainage ditch with greenfield beyond	–	–	–	–	–	–	–	–	–
South east	Drainage ditch with River Arun beyond	–	–	–	–	–	–	–	–	–
South west	Baths and "Works"	Baths, iron works and sewage works					Ironworks buildings labelled as "works"		Agricultural engineering works, boat builders, sewage works and fire station	New housing estate
West	Greenfield	Terraced houses with gardens	–	–	–	–	–	–	–	–

KEY	
?	Plan does not show this area or does not provide information
	Feature still present
x	Feature demolished/no longer present
OS	Ordnance Survey Map
BGP	British Gas Plan
AI	Anecdotal information from ex-employee
SVI	Site visit information
*	Feature not present

Notes:

1. [REDACTED]
2. The baths on the perimeter of the south-western boundary were infilled in the 1950s and 1960s (see paragraph 4.3).
3. A closed landfill is situated within 250m of the north-west boundary of the site (see paragraph 4.3).

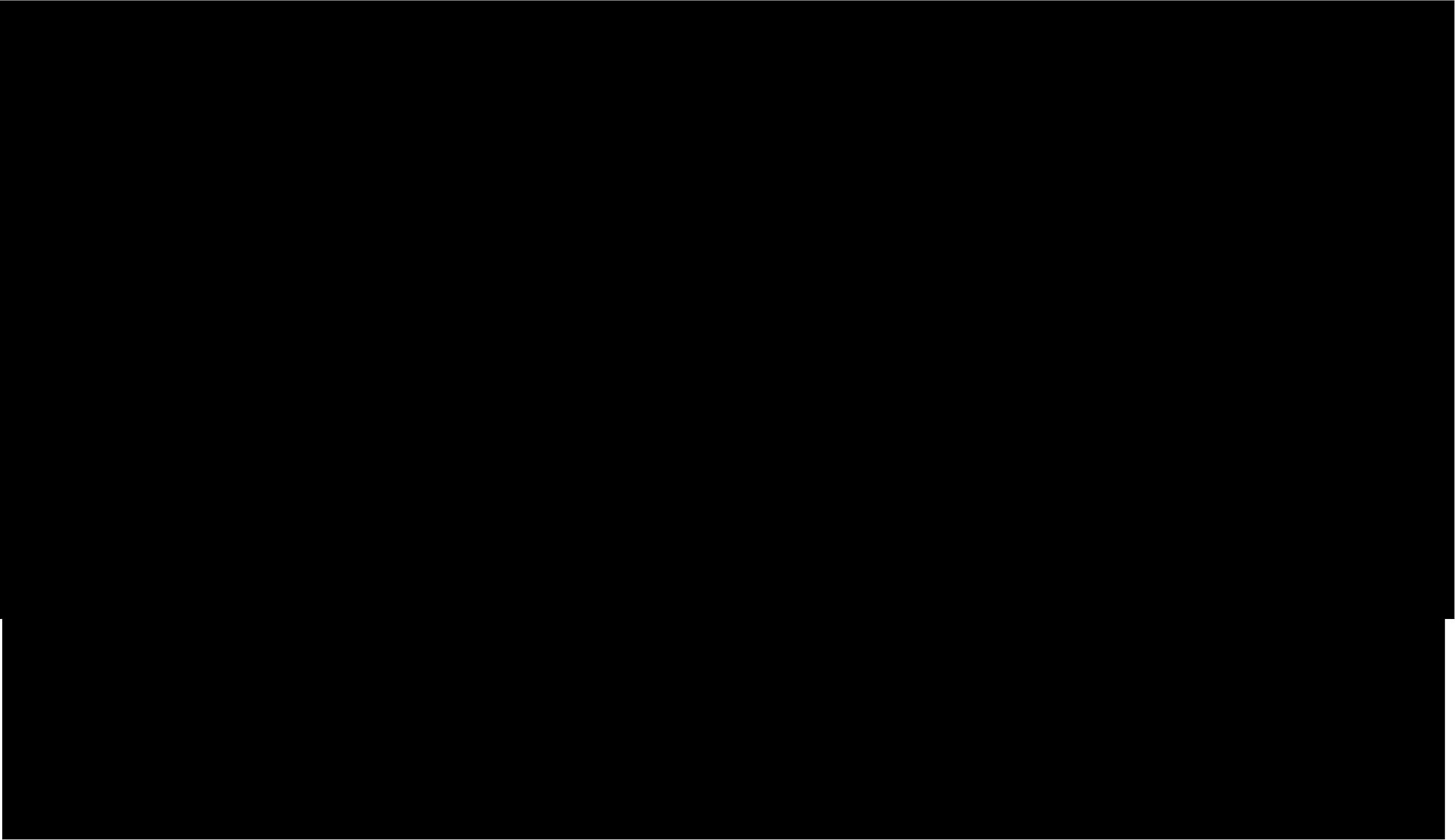
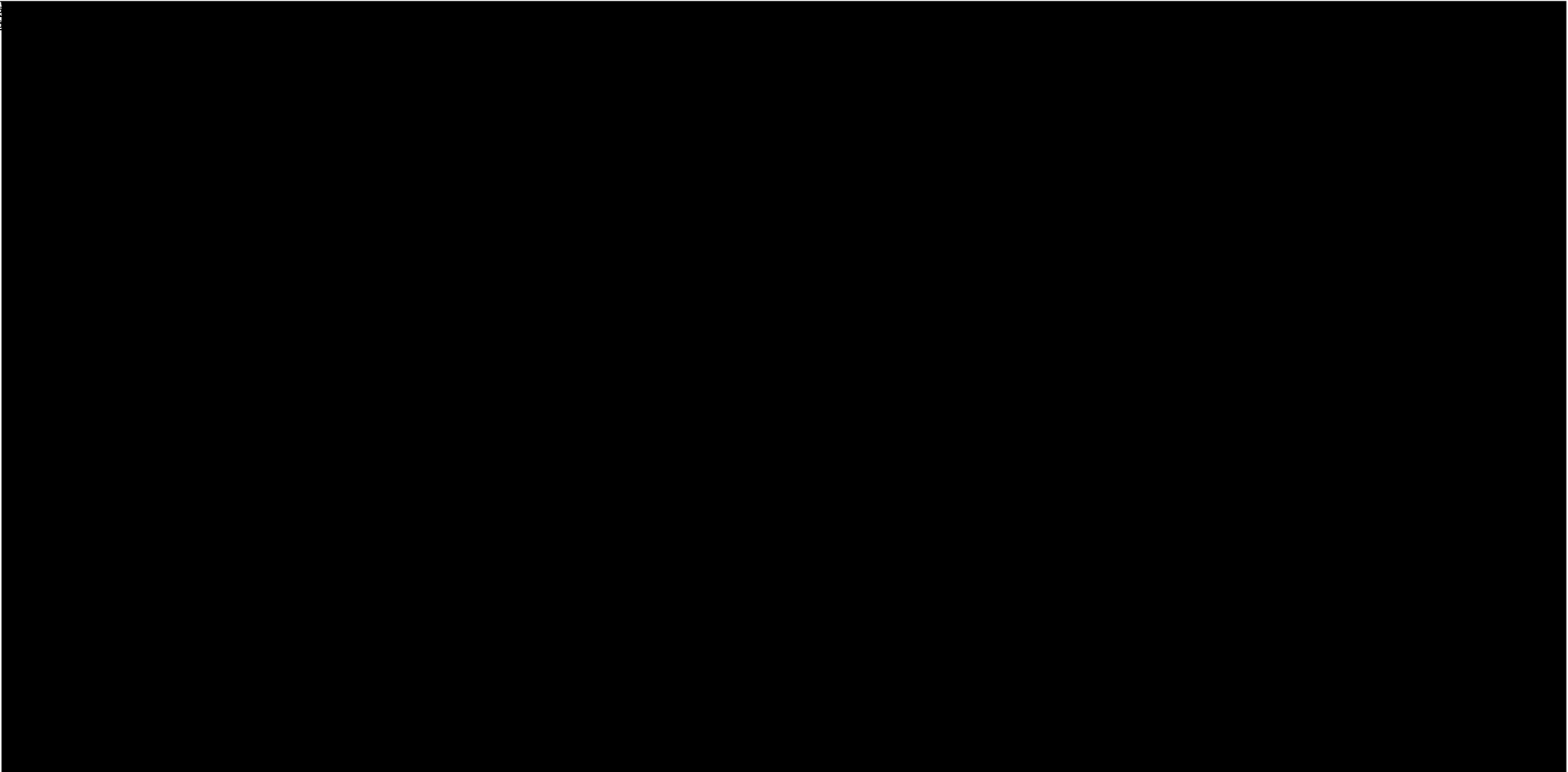
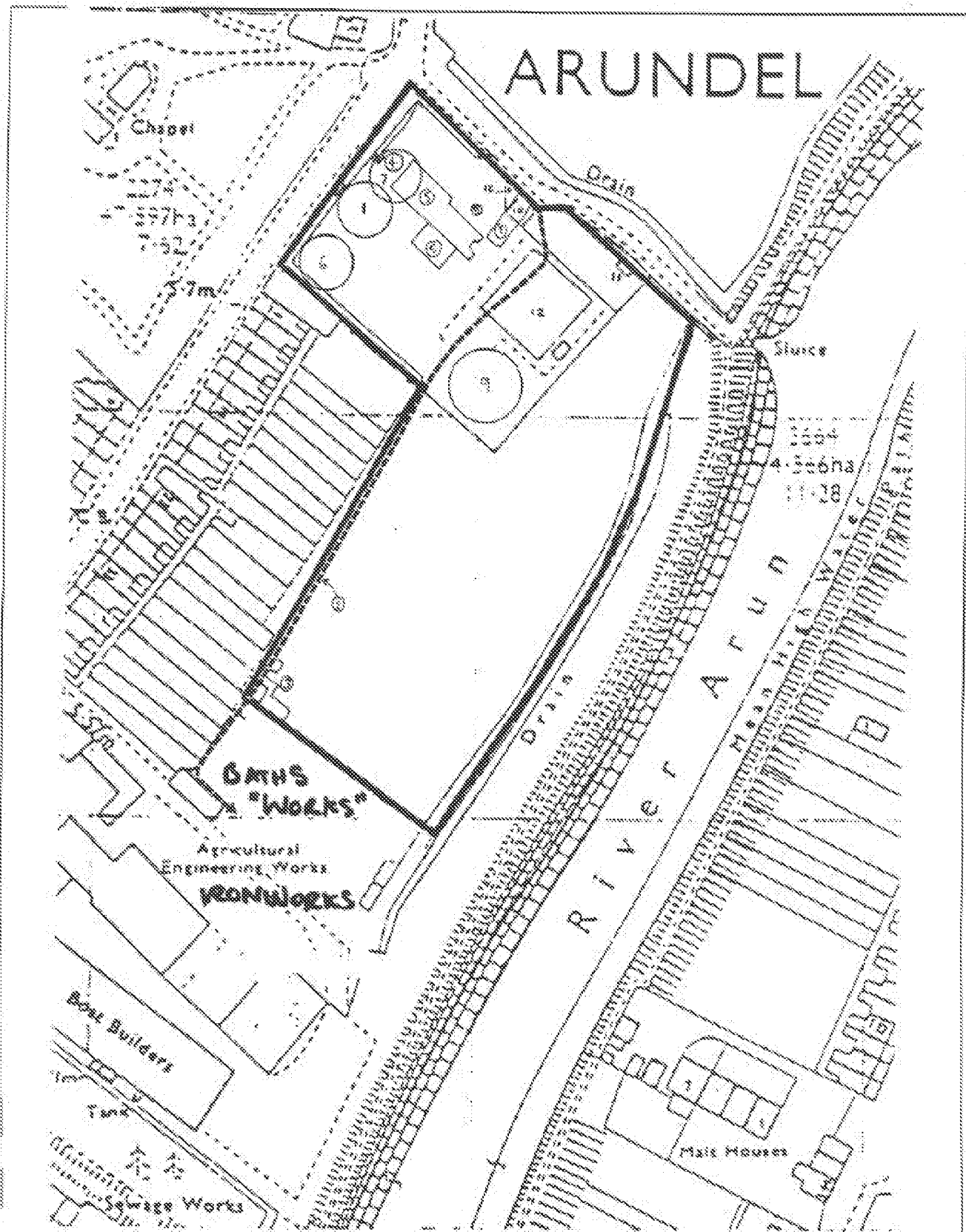


Table 4.3 : Potential Contaminants : Site Uses







Title

Arundel, Ford Road (Ref SE12)
Previous Process Activity Locations

WS Atkins Environment

a division of WS Atkins Consultants Ltd.

Woodcote Grove, Ashley Road,
Epsom, Surrey, KT18 5BW

Tel. (0372) 725140
Fax. (0372) 740055

Date

13/4/94

Drawn

NL

Checked

ES

Approved

JES

Scale

NTS

Drawing Number

Figure 3

Reference

E5347

APPENDIX A

INFORMATION SOURCES

**Table A.1 : British Gas Interpretative Reports
Information Sources Summary Sheet**

Study Site Name: Arundel, Ford Road (Ref SE12)

Type	Source	Data Sought (Date)	Data Obtained/ Copied (Date)
Ordnance Survey Maps	West Sussex Records Office Chichester	7/3/94	11/3/94
British Gas Archive Plans	British Gas North Thames 2nd Floor Elizabeth House c/o North Thames House London Road Staines Middlesex TW18 4AE The London Gas Museum British Gas Plc (North Thames) Twelve Trees Crescent Bromley-by-Bow London E3 3JH	25/2/94	None available
		6/4/94	None available
Service Plans	Regional Wayleave Officer British Gas South-Eastern Regional Headquarters Croydon Surrey The Drawing Office Southern Electric Lower Drayton Lane Cosham Portsmouth Hampshire PO6 2HF Development Services Southern Water Ltd	14/3/94	16/3/94
Gas			
Electricity		14/3/94	7/3/94
Water Supply		21/3/94	25/3/94

Type	Source	Data Sought (Date)	Data Obtained/ Copied (Date)
	Southern House Lewes Road Falmer Brighton BM9 9PI		
Sewer	Development Services Southern Water Ltd Southern House Lewes Road Falmer Brighton BM9 9PI	21/3/94	25/3/94
BT	BT Tunbridge Wells Kent	14/3/94	28/3/94
Mercury Communications	Utilities Manager Mercury Communications Mercury House Waterside Park Langshotts Lane Bracknell, Berkshire	14/3/94	21/3/94
NRA Information			
	Pollution Control Officer NRA Sussex Region Rivers House 3 Liverpool Gardens Worthing West Sussex	21/3/94	20/4/94
Pre-1974 waste disposal information, contamination and pollution information	Mr J Green Environmental Health Department Arun District Council Civic Centre Maltravers Road Littlehampton West Sussex Matthew Thompson Waste Regulation Department Trading Department West Sussex County Council The Tannery Westgate, Chichester	21/3/94 21/3/94	30/3/94 31/3/94
Geological information	British Geological Survey	24/3/94	27/3/94

Type	Source	Data Sought (Date)	Data Obtained/ Copied (Date)
Hydrogeological information	British Geological Survey - Hydrology Group	24/3/94	27/3/94
Site investigation data	British Gas North Thames 2nd Floor Elizabeth House c/o North Thames House London Road Staines Middlesex TW18 4AE	25/2/94	16/3/94
Anecdotal information from present or ex-employees (see Site Visit Record Sheet II)	Name: None available Position: Dates of employment:		

Table A.2 : Library Visit Record Sheet

Study Site Name:

Arundel, Ford Road (Ref SE12)

Date:

11/3/94

Library Name:

West Sussex Records Office

Signature:

Kika Mitchell

Chichester

Date	Edition	Scale	Ref No.	Copied
1875	-		LX III/1	—
1899	-		LX III/NW	—
1912	-		LX III/1	—
1914	-		LX III NW	—
1933	-		LX III/NW	—
1937	-		LX III/1	—
1938	Rev of 1909-10		LX III/NW	—
1946	Rev of 1909-10		LX III/NW	—
1961	-		TQ 100/NW	—

1971	-		TQ 0006/0106	-

Table A.3 : Archive Visit Record Sheet

Study Site Name: Arundel, Ford Road (Ref SE12) Date: March 1994

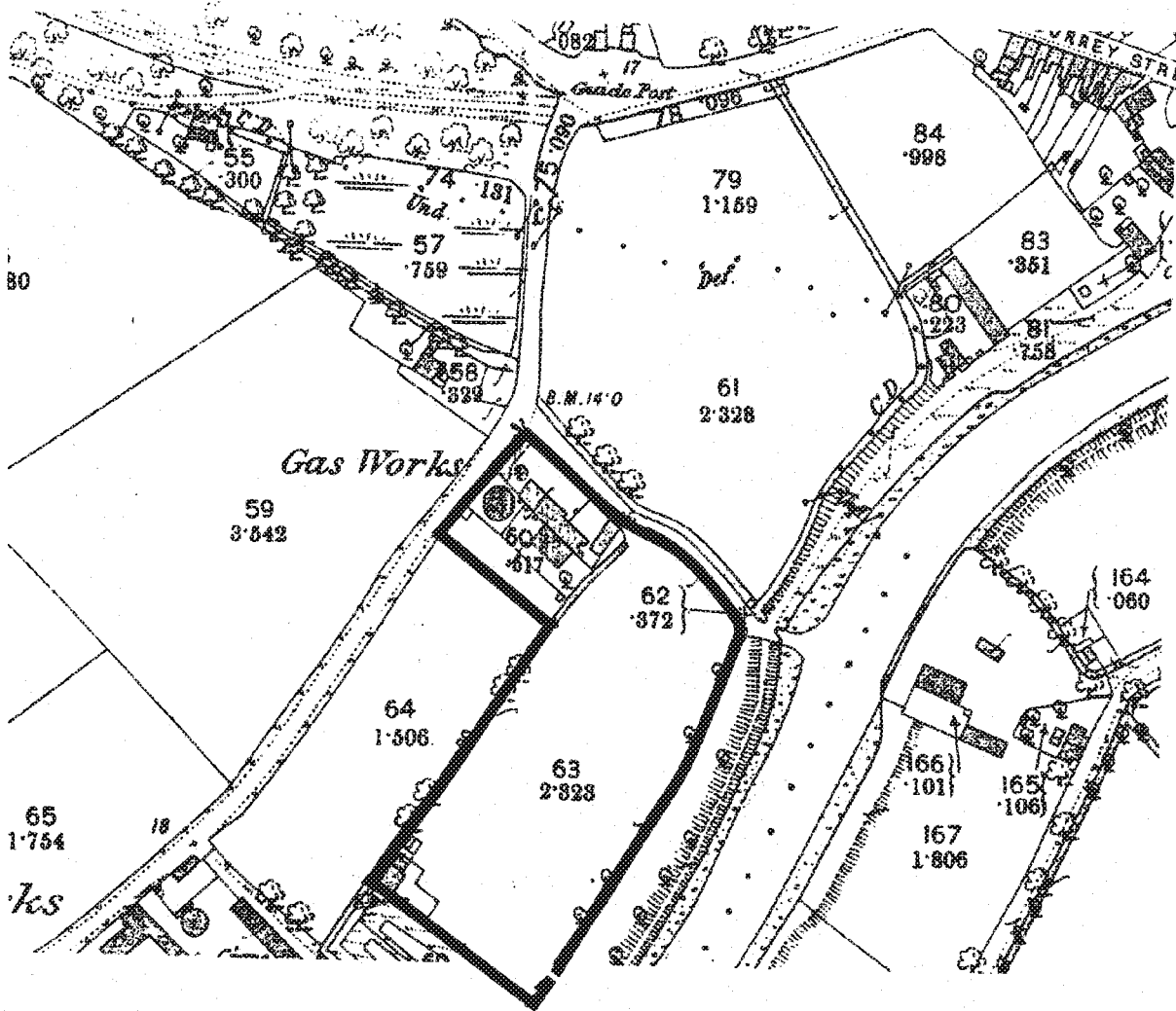
Archive Name:

Contact Name: John Beer

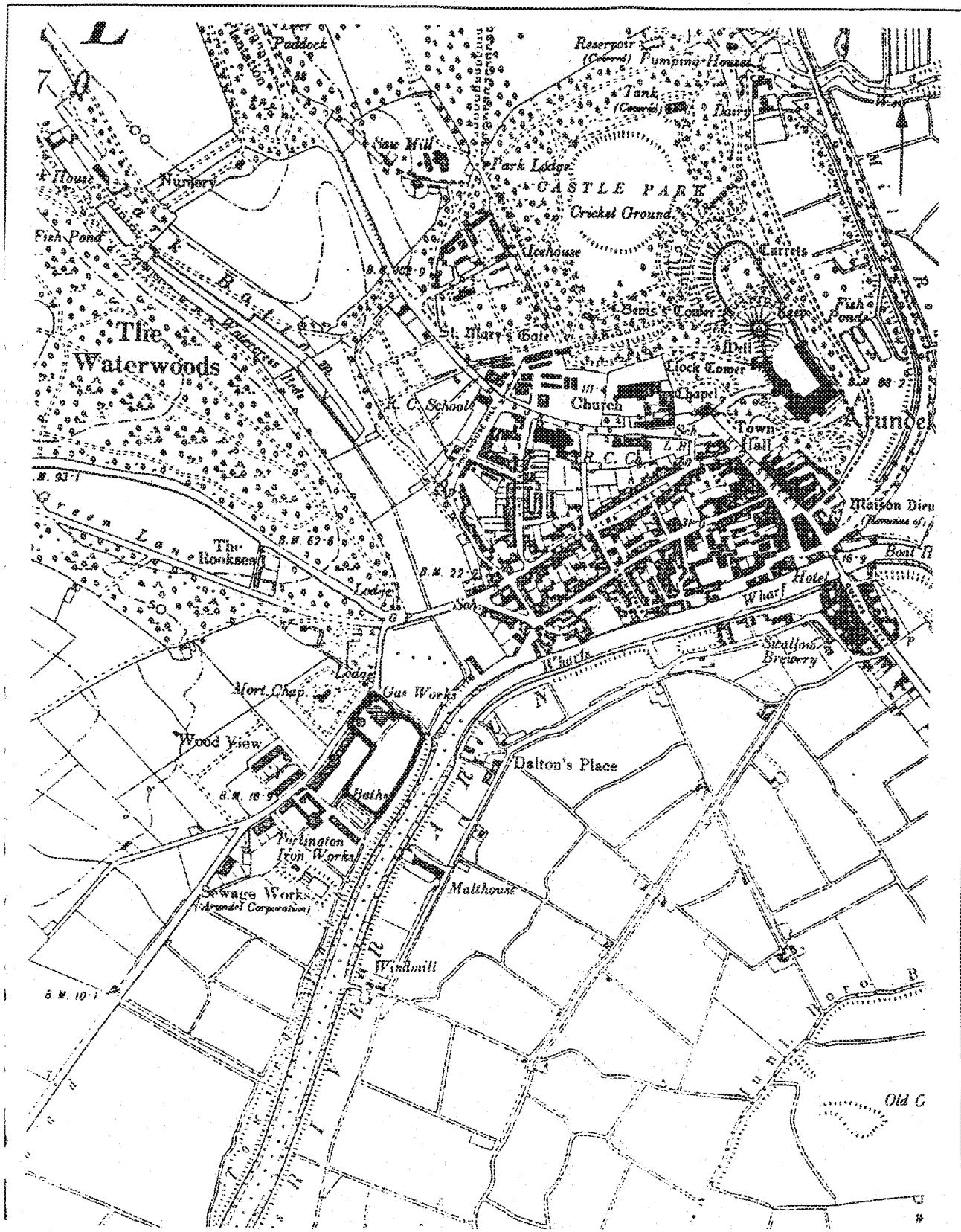
Plan/Record	Title	Date	Ref No.	Copied
Plan	Arundel Holder Station - mains layout	July 1976	DE/SX/4/200	—
Report	Desk study on a disused gasworks at Ford Road, Arundel	July 1993	C604A	—

APPENDIX B

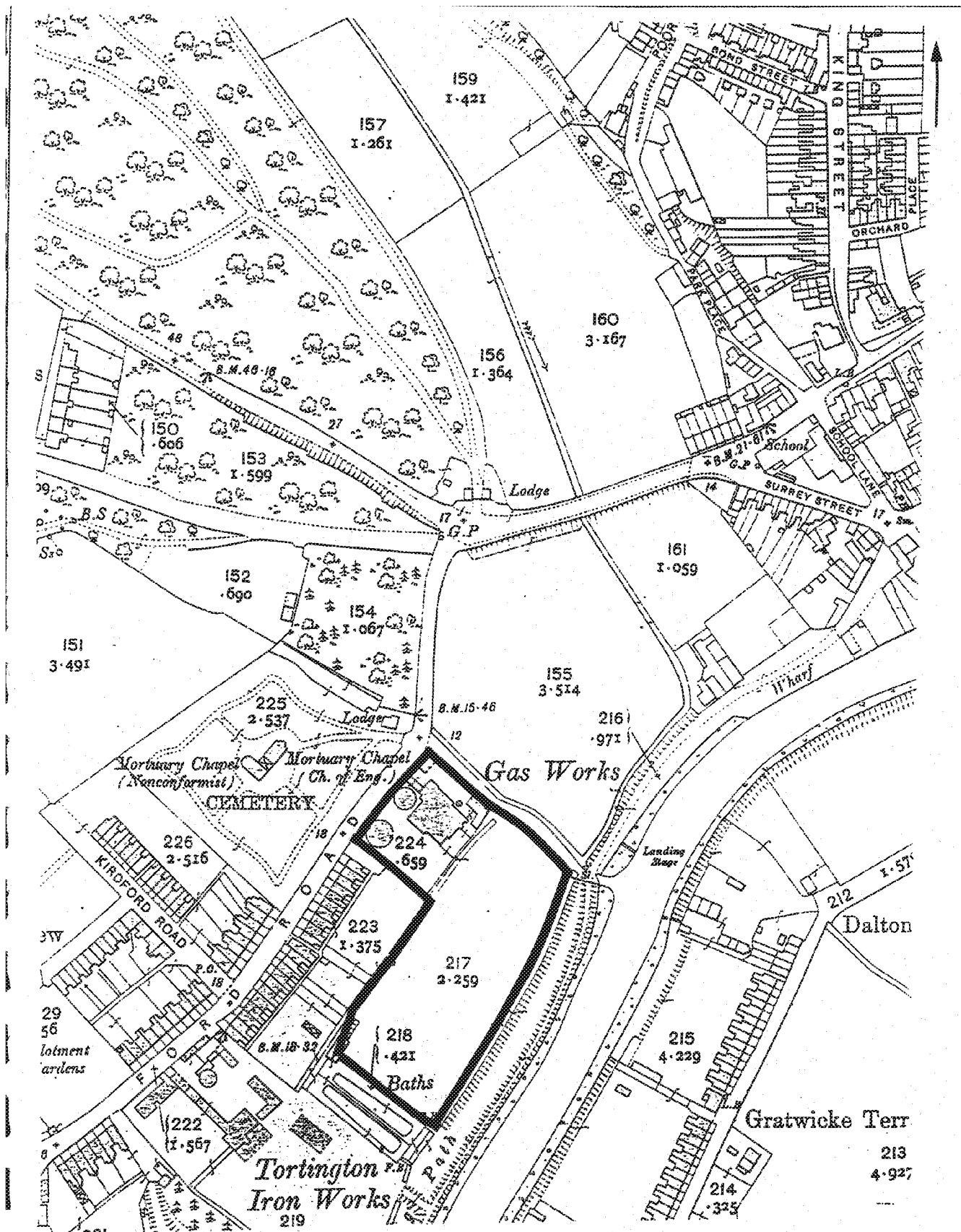
Ordnance Survey Maps

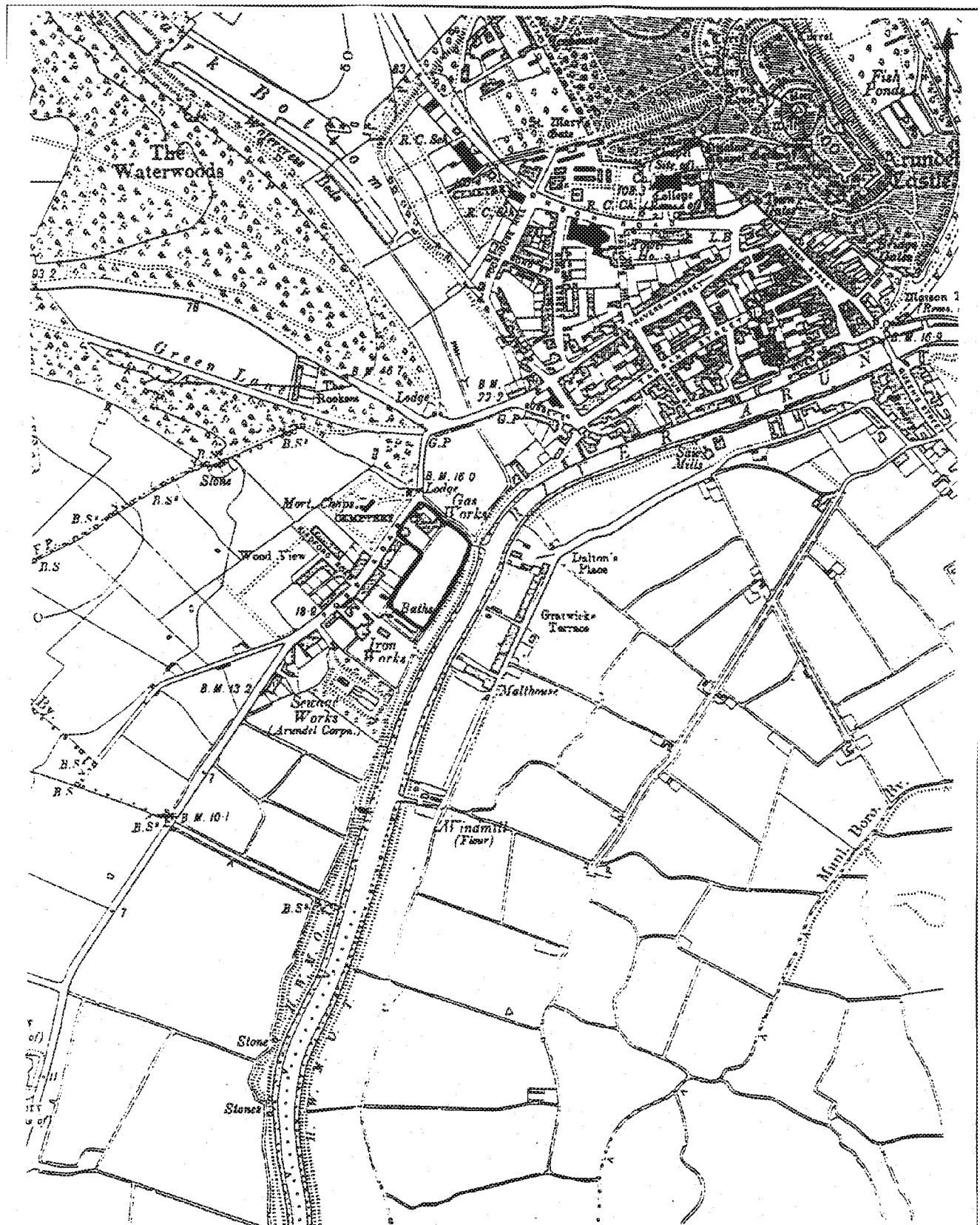


Title Arundel, Ford Road (Ref SE12) 1875 Ordnance Survey Map					WS Atkins Environment a division of WS Atkins Consultants Ltd. Woodcote Grove, Ashley Road. Epsom, Surrey. KT18 5BW		Tel. (0372) 726140 Fax. (0372) 740055
Date	Drawn	Checked	Approved	Scale	Drawing Number	Reference	
22/3/04	KM	NH	IFS	1:2500	R.1	F5347	



Title Arundel, Ford Road (Ref SE12) 1899 Ordnance Survey Map					WS Atkins Environment a division of WS Atkins Consultants Ltd. Woodcote Grove, Ashley Road. Epsom, Surrey, KT18 5BW Tel. (0372) 726140 Fax. (0372) 740055	
Date 23/3/94	Drawn KM	Checked NJL	Approved JES	Scale NTS	Drawing Number B.2	Reference E5347





Title

Arundel, Ford Road (Ref SE12)
1914 Ordnance Survey Map

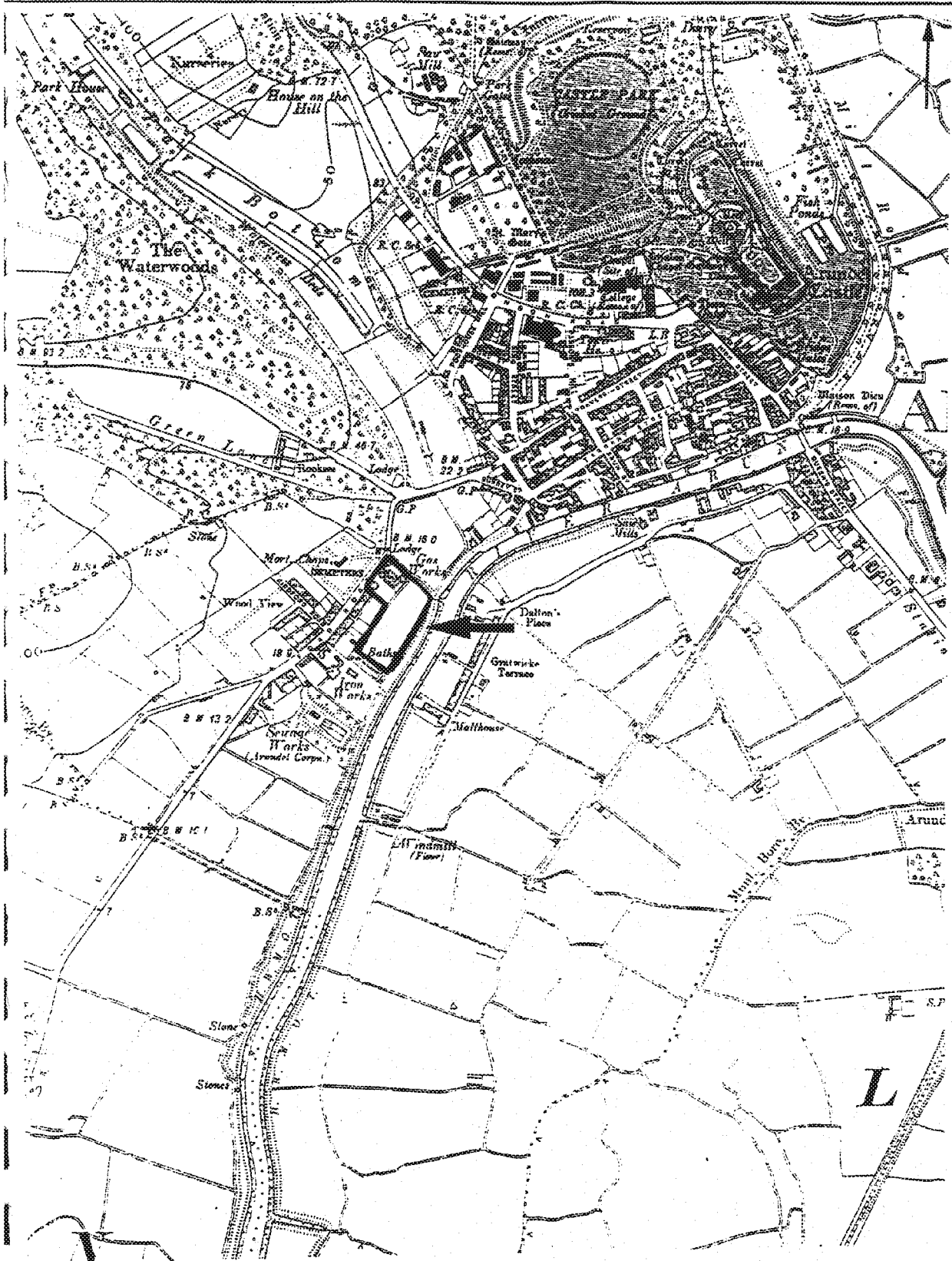
WS Atkins Environment

a division of WS Atkins Consultants Ltd.

Woodcote Grove, Ashley Road.
Epsom, Surrey, KT18 5BW

Tel. (0372) 726140
Fax. (0372) 740055

Date	Drawn	Checked	Approved	Scale	Drawing Number	Reference
23/3/94	KM	NJL	JES	NTS	B. 4	E5347



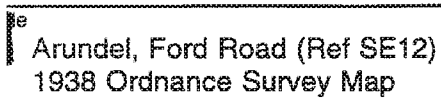
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Arundel, Ford Road (Ref SE12)
1933 Ordnance Survey Map

WS Atkins Environment
a division of WS Atkins Consultants Ltd.

Woodcote Grove, Ashley Road.
Epsom, Surrey, KT18 5BW

Tel. (0372) 726140
Fax. (0372) 740055

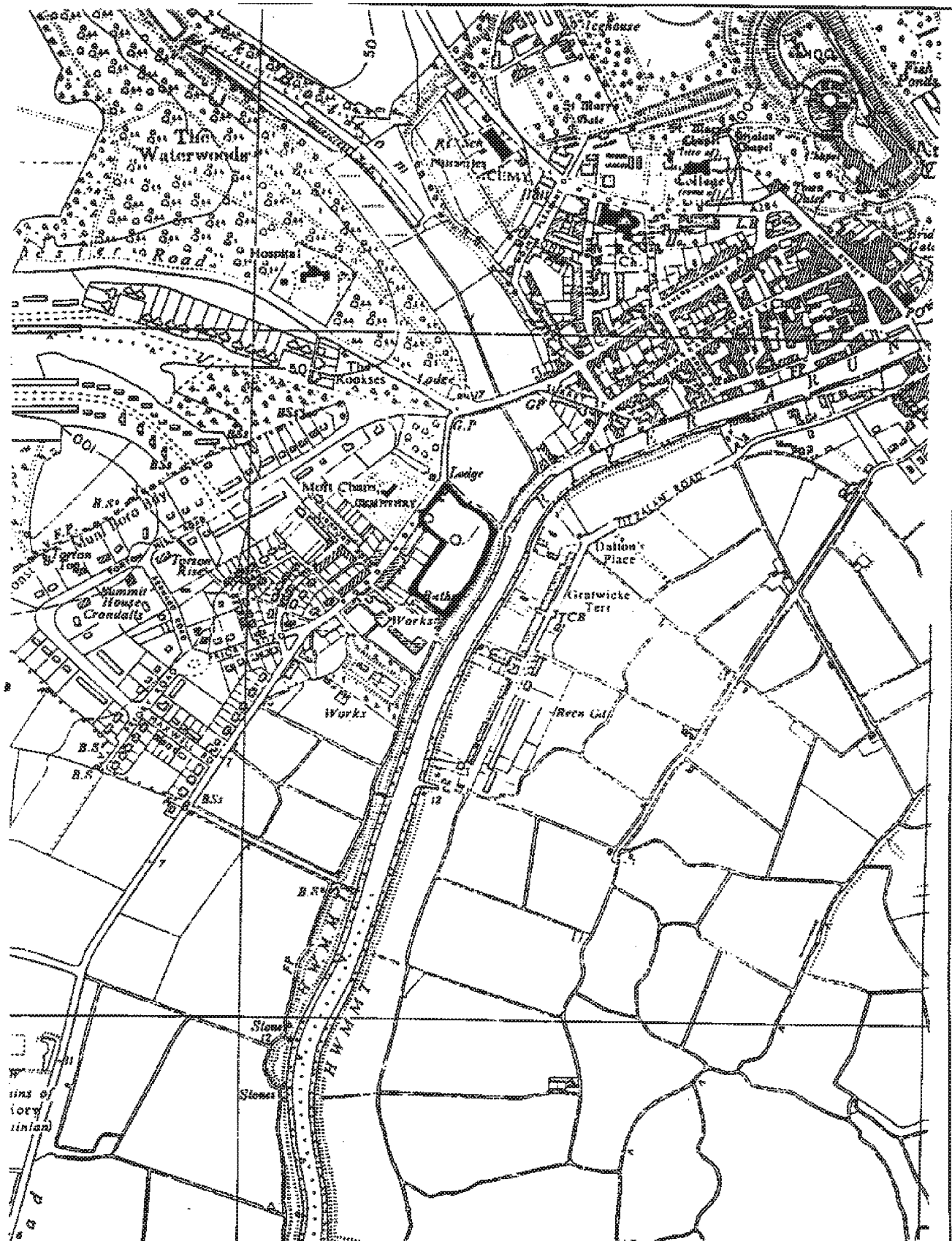
Date 23/3/94	Drawn KM	Checked NJL	Approved JES	Scale NTS	Drawing Number B.5	Reference E5347
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a division of WS Atkins Consultants Ltd.

Tel. (0372) 726140
Fax. (0372) 740055

Reference	E5347
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Arundel, Ford Road (Ref SE12):
1961 Ordnance Survey Map

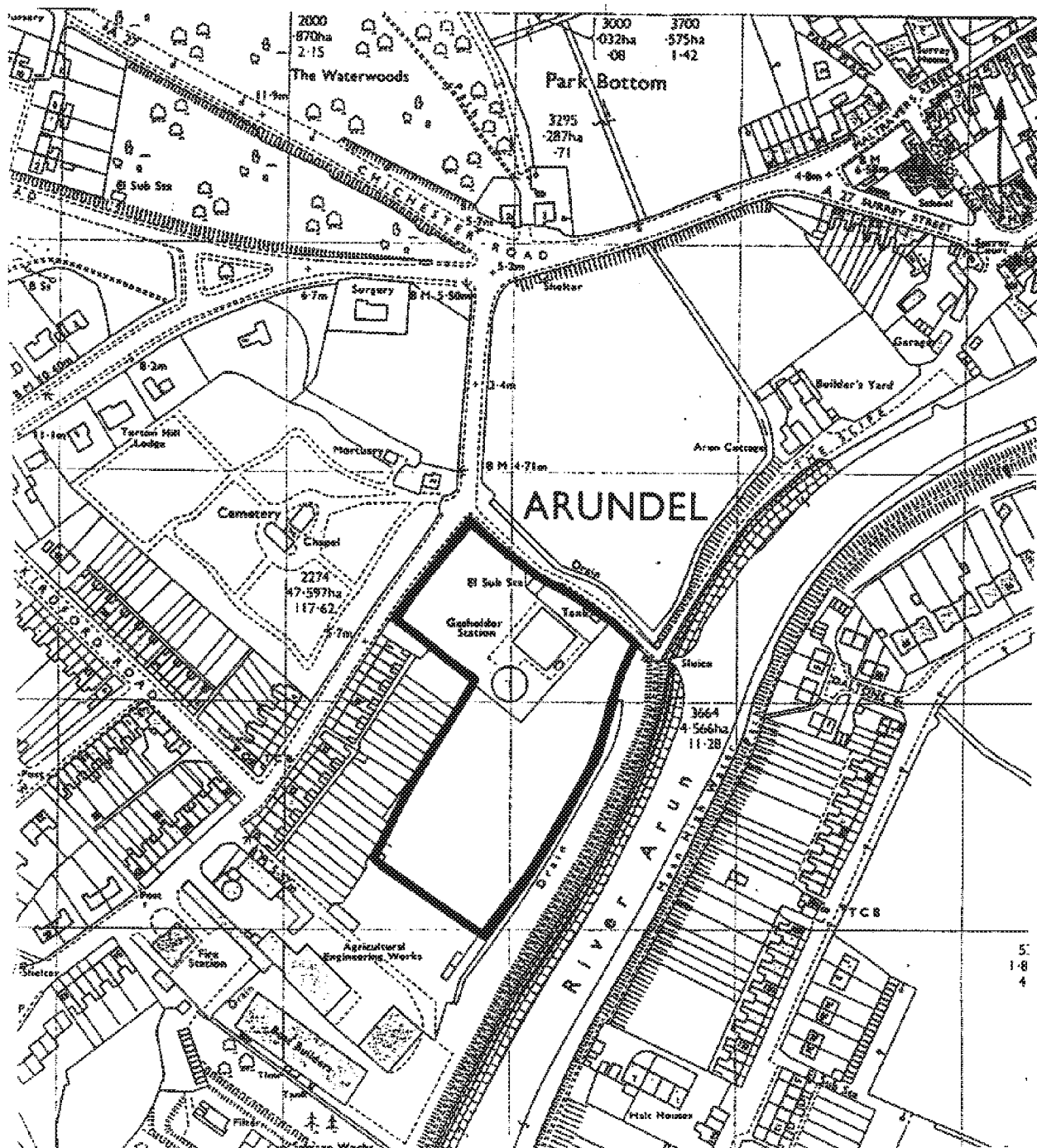
WS Atkins Environment

a division of WS Atkins Consultants Ltd.

Woodcote Grove, Ashley Road.
Epsom, Surrey. KT18 5BW

Tel. (0372) 726140
Fax. (0372) 740055

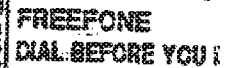
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3/94	KM	NJL	JES	NTS	B.S	E5347



File Arundel, Ford Road (Ref SE12): 1971 Ordnance Survey Map					WS Atkins Environment a division of WS Atkins Consultants Ltd. Woodcote Grove, Ashley Road. Epsom, Surrey. KT18 5BW Tel. (0372) 726140 Fax. (0372) 740055	
Date 3/3/94	Drawn KM	Checked NJL	Approved JES	Scale 1: 2500	Drawing Number B.9	Reference E5347

APPENDIX E

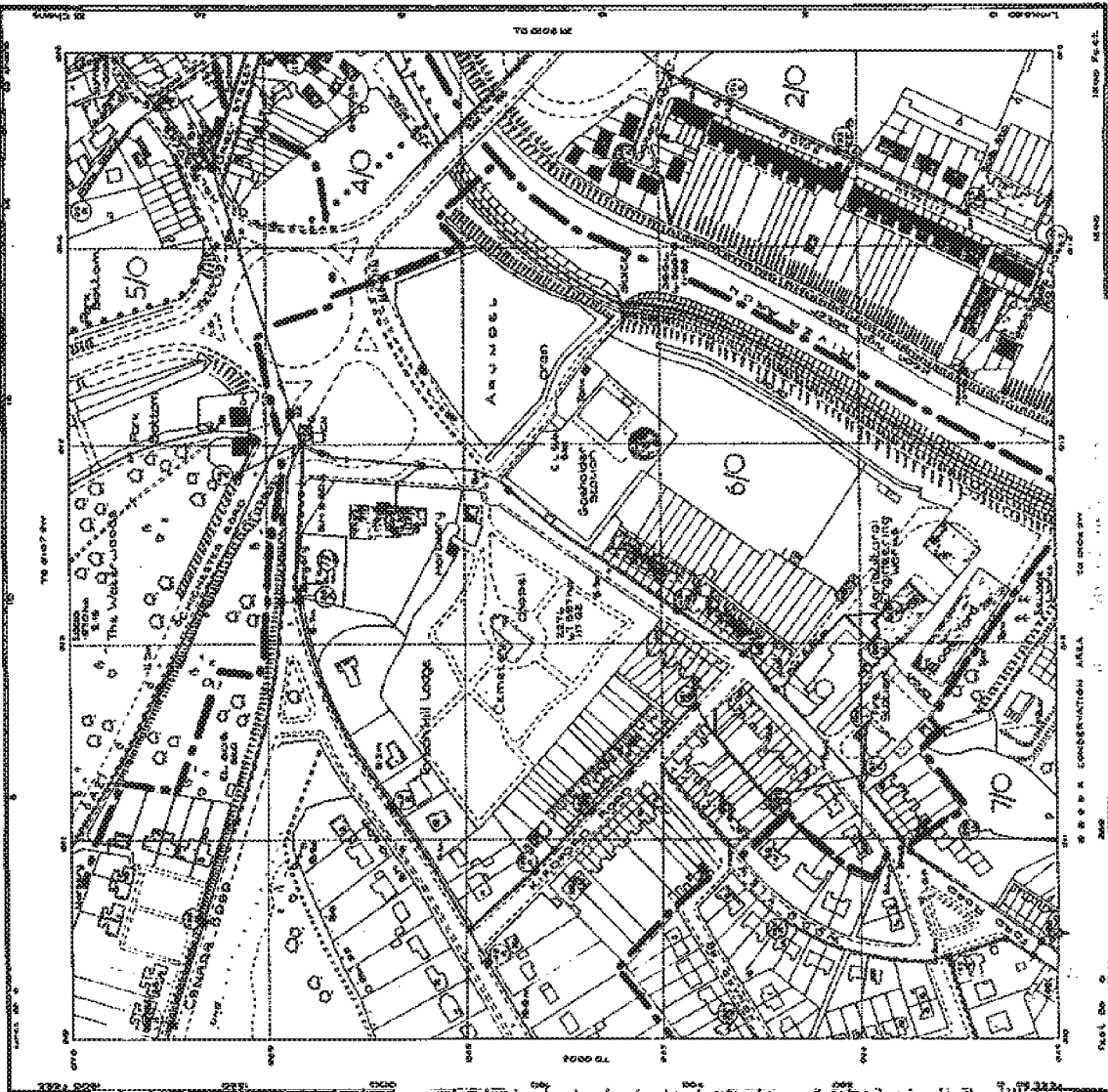
Service Plans



DATE: 23. 3. 96

pp P.L.Richards
Network Maintenance Centre Manager
PC Division Southern Home Counties East.

AUGUST



THE UNIVERSITY OF CHICAGO

ANNUAL TO DOES BY

TO DIRECTOR



IMPORTANT WARNING

Information concerning the location of British Telecommunications plc apparatus is given for your assistance and is intended for general guidance only, no guarantee is given of its accuracy. As British Telecommunications plc apparatus may exist at various depths and its routes may deviate within and in the vicinity of the highlighted area this information must not be relied upon in the event of excavations or other works made within or near the highlighted area.

For free on-site apparatus location and marking service call the exchange operator and ask for:-

FREEONE-DIAL BEFORE YOU DIAL

***** Please ensure your Contractor is aware of this Reference Number *****

ET REFERENCE NUMBER.....X195/96

EXCHANGE AREA ACCA

EXCHANGE AREA OF 166,000 AC.
OS MAP REF. 0166

DAN. *Anthony J. Danahy* CKO

DATE 12-3-26

Telecommunications apparatus shown

KEY TO LINE PLANT SYMBOLS

	EXISTING	PROPOSED
1. EXISTING		
2. PROPOSED		

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451 N. Thompson Avenue, Inc.,
Roxbury, Mass. 02119

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**Don't ask for
Dial 160 and ask for
Ernesto Dial before you die**

Freeone Mail Before You Log.

Figure 1

1



Direct Line:

Your Ref: 5347

When telephoning please ask for:

Our Ref: US/JG/PE/DR/3

16th March 1994

WS Atkins - Environment
Woodcote Grove
Ashley Road
Epsom
Surrey KT18 5BW

For the Attention of Ms N Legg

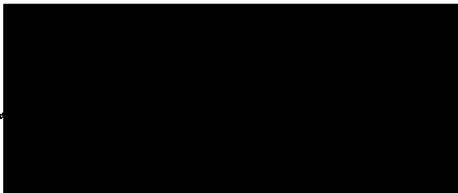
Dear Madam

SERVICES INFORMATION REQUEST

We are in receipt of your faxes dated 9th March 1994, reference your proposed works as per attached list.

Your works will not affect us at present as we have no apparatus in the area concerned. However, please continue to forward notices for major works in the area, as our future expansion plans may be affected.

Yours faithfully


D K NORRIS
Senior Utilities Officer
NETWORK PROVISIONING SERVICES

9729

NB: When sending plant enquiries can you please use GRID references for locations outside of large/major towns.

Please use our Utilities Department 

1-

:

- SE40 Tunberyard Lane, Lewes, E Sussex
- SE50 Ghyll Road, Heathfield, E Sussex
- SE11 Uckfield, E Sussex
- SE45 Bushypark Road, Hampton Wick, Surrey
- SE47 Lowerham Road, Kingston, Surrey
- SE10 Kingston Road, Leatherhead, Surrey
- SE13 Cranleigh Common, Cranleigh, Surrey
- SE12 Ford Road, Arundel, W Sussex
- SE92 Broadstairs, Kent
- SE41 Linksfield Road, Westgate-on-Sea, Kent
- SE19 Gas Road, Murston, Kent
- SE16 Gas Road, Milton Regis, Kent
- SE14 Marden Roadi Staplehurst, Kent

1

~3: **When sending plant enquiries can you please use GRID references for locations outside of large/major towns.**

Please use our Utilities Department fax number 0344 713211.

1



Your reference

5347

In any reply please quote

DO/MP/7/3



**SOUTHERN
ELECTRIC**

Solent Division

Lower Drayton Lane
Cosham
Portsmouth
Hampshire PO6 2HF
0706 0000

Mr. R. Youas
W. S. Atkins
Woodcote Grove
Ashley Road
Epsom, Surrey, KT18 5BW

Dear Sir/Madam

Cable Records (as at 7 March 1994)

Thank you for your letter/enquiry of the 7 March 1994 regarding Routes of electricity cables at: The Wells, Ford Road, Arundel.

Copies of the Company's Cable Records Plans, detailed below, are enclosed.

The plans show dimensions and normal depths for the buried cables, etc, when they were installed. It must be stressed, however, that alterations to road alignments, surface levels and buildings may have been made subsequent to the records being taken.

*It has not been possible to transfer our cable record on to your plan. Please note that the plans supplied are based on the location/map information provided by yourselves and, therefore, you are advised to satisfy yourself that the enclosed Cable Records Plans adequately cover the area of your proposed work.

The following general guidance is given.

Avoidance of DANGER from BURIED CABLES

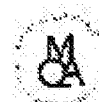
For more information, consult the Health and Safety Executive booklet HS(G)47 obtainable from HMSO. Guidance Notes are contained in Southern Electric "Watch It" leaflet, which sets out various "do's and don'ts when digging near buried cables; a copy is enclosed.

I would particularly draw your attention to the need to take out trial holes to determine the exact position and depth of cables to avoid the risk of injury to staff or damage to cables.

Avoidance of DANGER from OVERHEAD LINES

For more information, consult the Health and Safety Guidance Note GS.6 obtainable from HMSO. A second Southern Electric "Watch It" leaflet outlining precautions to be taken is enclosed.

If in any doubt about safety aspects of working in the vicinity of overhead lines, please do not hesitate to contact our Operations and Maintenance Section.



continued/...(page 2)

Cable Records - Service Connections

The location of connection cables to individual houses, street furniture, traffic signs, bus shelters and telephone kiosks installed before 1st October 1988 are not shown on the enclosed cable records, but these records can be inspected in our Drawing Office.

General Advice

- (a) Please ensure, where appropriate, your CONTRACTORS have a copy of this letter and enclosed Plan(s).
- (b) Please note that the costs of any repairs or claims made against Southern Electric as a result of your works will be invoiced to you or your Contractors.
- (c) Southern Electric retains the rights to its property, including disconnected cables and recovered materials.

If you would like any further information, please do not hesitate in contacting me.

Yours faithfully,


M. R. J. Parker
Drawing Office

Enc. Sheets:

H.V. TQ 0106N

L.V. TQ 0106N

"Watch It" for digging near U/G cables. 00-804-0 ✓

~~"Watch It" for working near O/W cables. 00 728-5~~

*To be deleted if not appropriate.

engl67_pg2

FOR OFFICIAL USE ONLY (To be completed by person compiling record)

MAINS RECORD PROFORMA

Please delete as appropriate.

LV Records	YES/NO
HV Records	YES/NO
Other Records	YES/NO

Signature:


ALWAYS REMEMBER THAT:

- a. If effective measures are not adopted to protect their equipment, Southern Electric will take steps to recover the cost of any damage caused. Promptness in reporting an incident will minimise costs.
- b. In most cases it is not practicable to unke cables dead without interrupting supplies to Southern Electric's customers.
- c. Persons causing damage resulting in loss of supply to Southern Electric customers can be held legally responsible for any damage to the plant or equipment of these customers.
- d. Given adequate notice Southern Electric will, wherever possible, give advice regarding special precautions which may be necessary on any site where particular problems are likely to be encountered. The right is reserved to make a charge for this service.
- e. Electricity cables can exist anywhere – under paths or roads, in gardens or driveways, on new housing or industrial development sites or even farmland.

FOR YOUR INFORMATION

This leaflet is intended to help all those who have to excavate ground. Having located danger areas, employers are asked to ensure that their operatives are fully instructed in the correct procedures.

The Health and Safety Executive have produced a document entitled 'Avoiding Danger from Underground Services', and Appendix 1 deals specifically with electric cables. Copies are available from HMSO's Accredited Agents and good booksellers, Ref H5 (G)47, ISBN 0118854925.

IN SITUATIONS OF DANGER, WHERE THE ADVICE CONTAINED IN THIS LEAFLET CANNOT BE FOLLOWED, CONSULT SOUTHERN ELECTRIC IMMEDIATELY, PREFERABLY AT THE LOCAL DIVISIONAL OFFICE.

SOUTHERN ELECTRIC plc

09-906-9111/00

Designed by McBride's Design Consultants

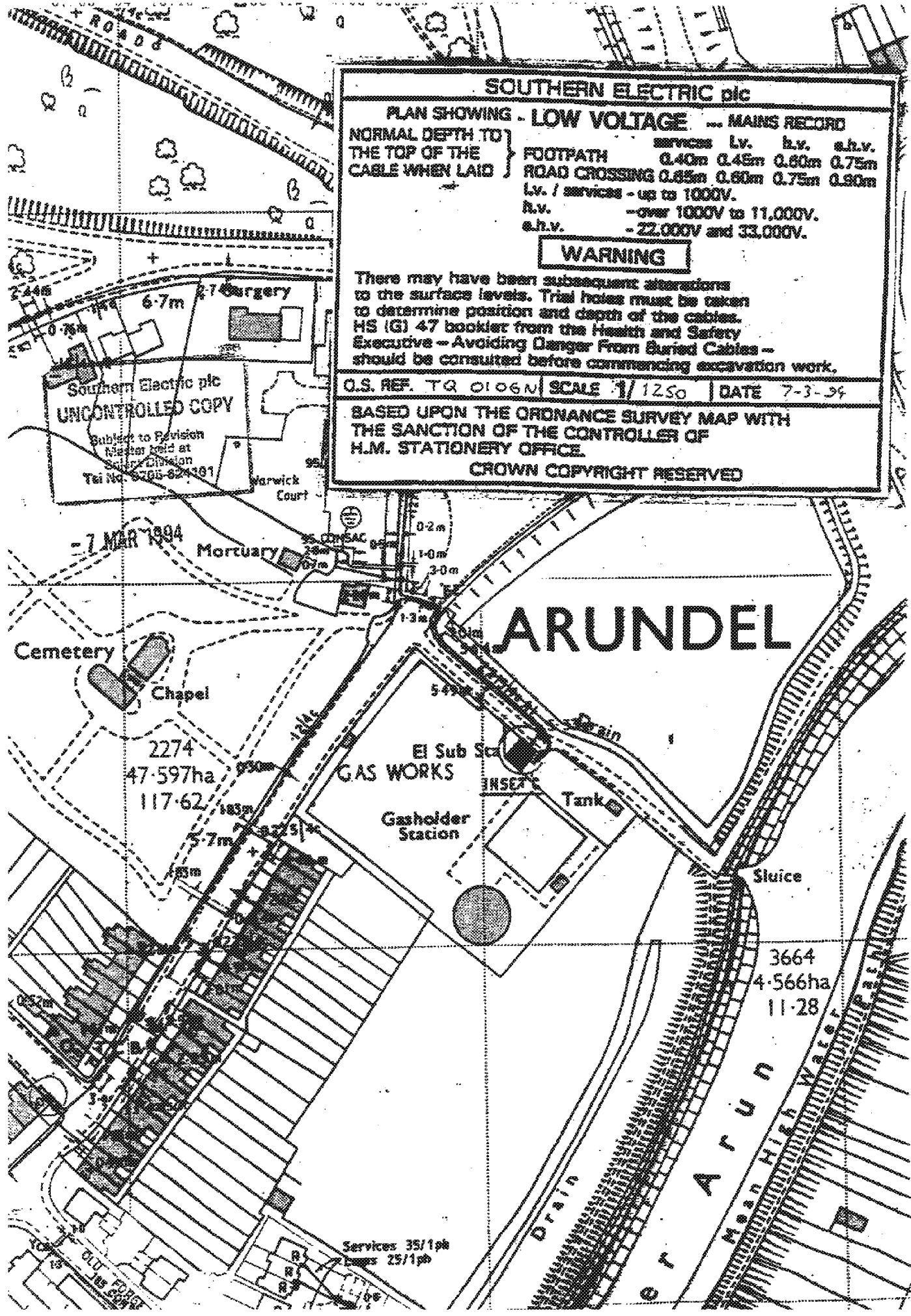
**SOUTHERN
ELECTRIC**



WATCH IT

*when digging in the vicinity of
underground electric cables*





SOUTHERN ELECTRIC plc

PLAN SHOWING - LOW VOLTAGE ... MAINS RECORD

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID

	services	lv.	h.v.	a.h.v.
FOOTPATH	0.40m	0.45m	0.60m	0.75m
ROAD CROSSING	0.65m	0.60m	0.75m	0.90m

lv. / services - up to 1000V.
h.v. - over 1000V to 11,000V.
a.h.v. - 22,000V and 33,000V.

WARNING

There may have been subsequent alterations to the surface levels. Trial holes must be taken to determine position and depth of the cables. HS (G) 47 booklet from the Health and Safety Executive - Avoiding Danger From Buried Cables - should be consulted before commencing excavation work.

O.S. REF. TQ 0106N | **SCALE 1/1250** | **DATE 7-3-94**

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE.

CROWN COPYRIGHT RESERVED

-2-

It must be noted that any costs incurred by British Gas PLC, for the repair or diversion of any mains and services as a result of your work, will be charged to yourselves on a Time and Material basis.

I trust the enclosed meets with your requirements.

Yours faithfully,



with Linzner
Engineering Support Manager
awley

enc

CRAWLEY DISTRICT

Requirements for Works undertaken by Promoting Authorities and Statutory Undertakers

- 1.1 Certain information has been indicated on our enclosed plan but as a general guide only in relation to your proposed work, and its accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability is accepted for any discrepancy, omission or deviation, and you are advised to verify and establish the actual position of mains and services on site before any mechanical excavating plant is used. It must be stressed that both direct and consequential damages to gas apparatus can be dangerous both for your employees and to the public. This factor should always be taken into consideration when working near gas apparatus. If during your work you uncover any plant which you suspect to belong to British Gas please contact the following-

Mr Simon Fairman

at Park Road, Worthing Tel. No. 0293-517788 Ext 9305

- 2.1 The following protective measures must be applied when excavating in the vicinity of British Gas Apparatus

- 2.2 Access to British Gas plant and facilities for inspection by British Gas staff must not be restricted. Notice is hereby given that under Section 69 (and 122) of the New Roads & Street Works Act 1991, British Gas require that the attached protective measures be taken when planning to excavate in the vicinity of its apparatus.

- 2.3 All gas plant must be located by hand digging prior to any mechanical excavation. After the plant has been located, mechanical excavation must not be carried out within 500mm of British Gas plant. The position and line of British Gas plant and apparatus should be marked with suitable markers. British Gas must be notified at least three days in advance if the following activities are to be carried out in the vicinity of British Gas apparatus:

Excavation deeper than 1.5m within 8m of apparatus.
Excavation within 10m of any above ground or below ground installation.
Excavation adjacent to any pressure control kiosk.

- 2.4 A minimum clearance of 1.5 times the diameter of the pipe being laid, or 250mm whichever is the greater, should be allowed between any plant being installed and an existing gas main to facilitate repair, whether the adjacent plant be parallel to or crossing the gas pipe. No plant should be laid over and along the line of a gas pipe irrespective of clearance.

- 2.5 No manhole, cover or other structure shall be built over, around or under a gas pipe and no work should be carried out which results in a reduction of cover or protection over a pipe, without prior consultation and agreement. Where excavations adjacent to any pipe affect its support, the pipe must be adequately protected to the satisfaction of British Gas.

- 2.6 Explosives shall not be used within 30m of British Gas Distribution plant without prior consultation and agreement.

- 2.7 No piling or boring shall be carried out within 15m of British Gas Distribution plant without prior consultation and agreement.

- 2.8 When gas plant has been exposed, welding or other hot works involving naked flames should only be carried out in close proximity to British Gas Distribution plant if great care is taken to avoid damage to plastic gas pipes or to the protective coatings of other pipes.

- 2.9 At no time should vehicles or construction equipment be used or placed over British Gas unprotected plant; suitably reinforced crossing points must be constructed. These crossing points should be clearly indicated and crossing at other places should be prevented. This is particularly important where reductions in side supports or ground cover are planned.

- 2.10 Material used for the surround backfill of British Gas plant must conform to the following requirements:

If sand, it must be well-graded to BS 882, Table 5 additional grading C.
It must not contain any sharp particles nor any particles greater than 18mm nominal size.
Foamed concrete should not be used.
It must be laid to a minimum depth of 100mm above the crown of the apparatus.

- 2.11 No power compaction should take place until 300mm of selected finefill has been suitably compacted.

- 2.12 Plant found when carrying out excavations must be adequately supported and concrete thrust blocks and the consolidated ground behind the thrust blocks must not be disturbed.
- 2.13 Shuttering shall be constructed so as to prevent fresh concrete encasing British Gas Distribution plant and to maintain the stated clearances. No concrete or other hard material must be placed or left under or adjacent to any gas pipe as this can cause fracture of a pipe at a later date. Concrete backfill should not be used closer than 300mm to a gas pipe.
- 2.14 British Gas has important plant in the vicinity of your works and any damage to it could have very serious and far-reaching consequences. In view of this and in the interest of safety, a meeting should be arranged before the commencement of the work on site between the representatives of the promoting authority and British Gas plc, including the contractors and any other interest parties. At this meeting the suggested programme of site works and plant safety should be discussed. Please arrange to convene a meeting well in advance of commencement on site.
- 2.15 Every possible precaution must be taken to avoid causing damage to British Gas plant during the progress of the works. All the costs incurred by British Gas for the repair of direct or consequential damage to the gas plant will be recharged to yourselves. Any damage to British Gas apparatus, including damage to wrapping or sleeving must be notified to the contact address and must be repaired before backfill.
- 2.16 British Gas plc reserves the right to divert any affected apparatus if proved necessary during the course of your works, the cost of which would be rechargeable to yourselves.
- 2.17 With regard to general safety of site works, reference should be made to HSE Guidance Note HS(G)47 'Avoiding danger from underground services' and to publication No. 7 of the National Joint Utilities Group (NJUG7). Please ensure that a copy of these publications is read by your Site Manager.

IF LEAKAGE IS CAUSED OR AN ESCAPE OF GAS IS SUSPECTED THE FOLLOWING ACTION SHOULD BE TAKEN AT ONCE

Remove all personnel and public from the immediate vicinity of the escape. Remember that if service to a building has been damaged, particularly if it has been pulled by an excavator, it may cause build-up of gas within the building due to gas travelling along the space around the pipe or due to unseen damage to the service within the building. Warn the occupants of the building and any adjoining buildings to leave until it has been established that it is safe for them to return. Inform the local British Gas Region by telephone on 0293-517788. Prevent any approach by the public, prohibit smoking, extinguish all naked flames and other sources of ignition within at least 15m from the leakage. Assist British Gas personnel, Police or Fire Services as requested.

The above requirements do not relieve you of the responsibility for taking all precautions necessary to safeguard British Gas Distribution plant and to avoid risk to persons and property. Should you require any further information or assistance, change your proposals or plans or starting data, please contact the Engineering Support Manager, Extension 2214.

NOTES OF IMPORTANCE

3. Reference to Para 2.3

The dimension of 500mm will generally apply to low pressure gas mains, services and plant, but it should be noted that this dimension (i.e 500mm) may be increased for gas mains, services and plant operating at gas pressures in excess of 75 millibars.

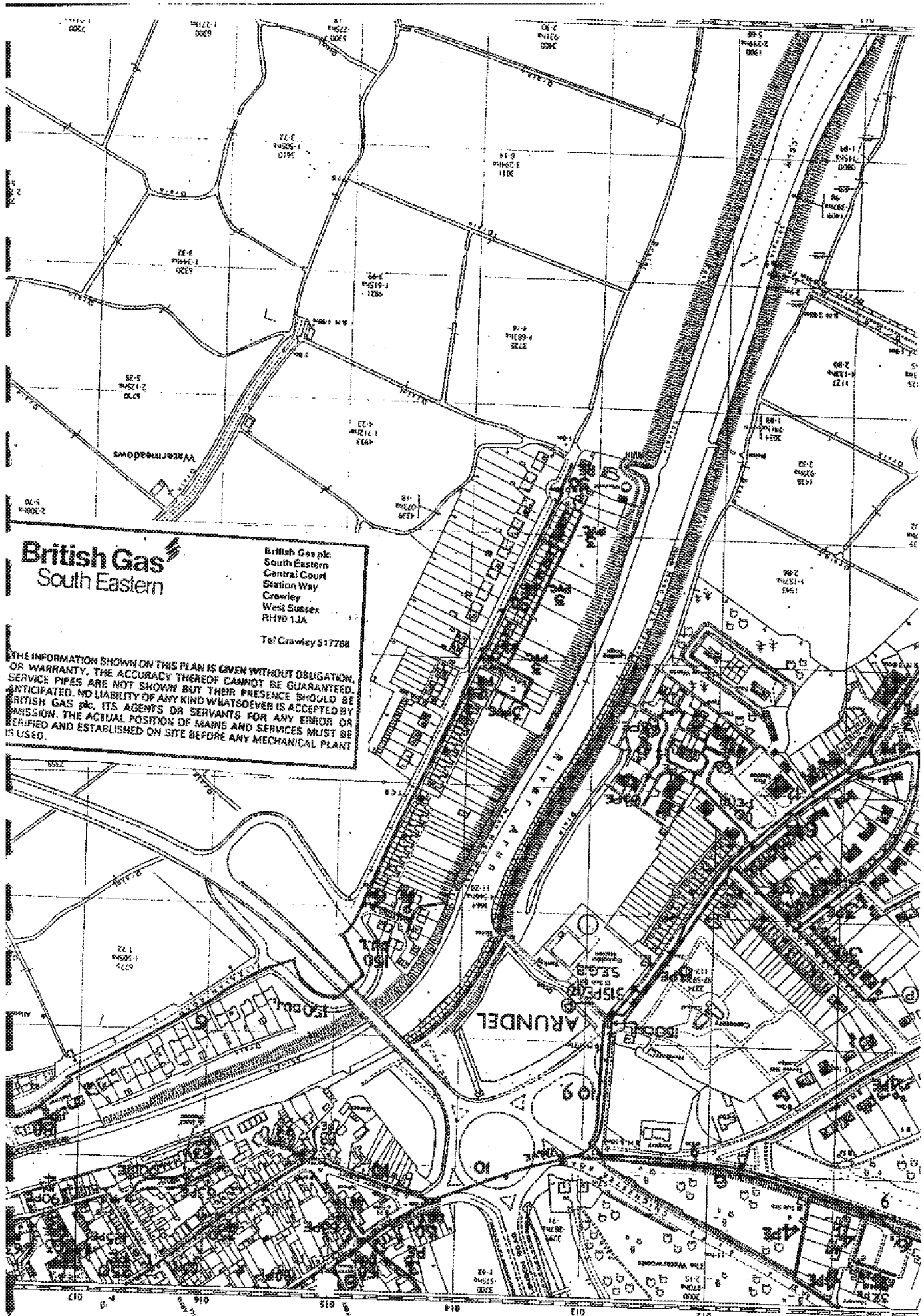
4. The requirements set out under Sector 1 and 2 only apply to mains, services and other gas plant under jurisdiction of the Engineering Manager.

Where High Pressure Steel Transmission Mains and plant with operating pressures up to 500 p.s.i. are affected, more stringent requirements are necessary. The Region's Officer responsible for the mains and plant is:

Transmission Engineer, British Gas plc, Katharine Street, Croydon, Surrey.

Where High Pressure Steel Transmission Mains and Plant are affected by your proposed works, the above Officer will decide and provide the necessary requirements to safeguard his mains, plant and equipment.

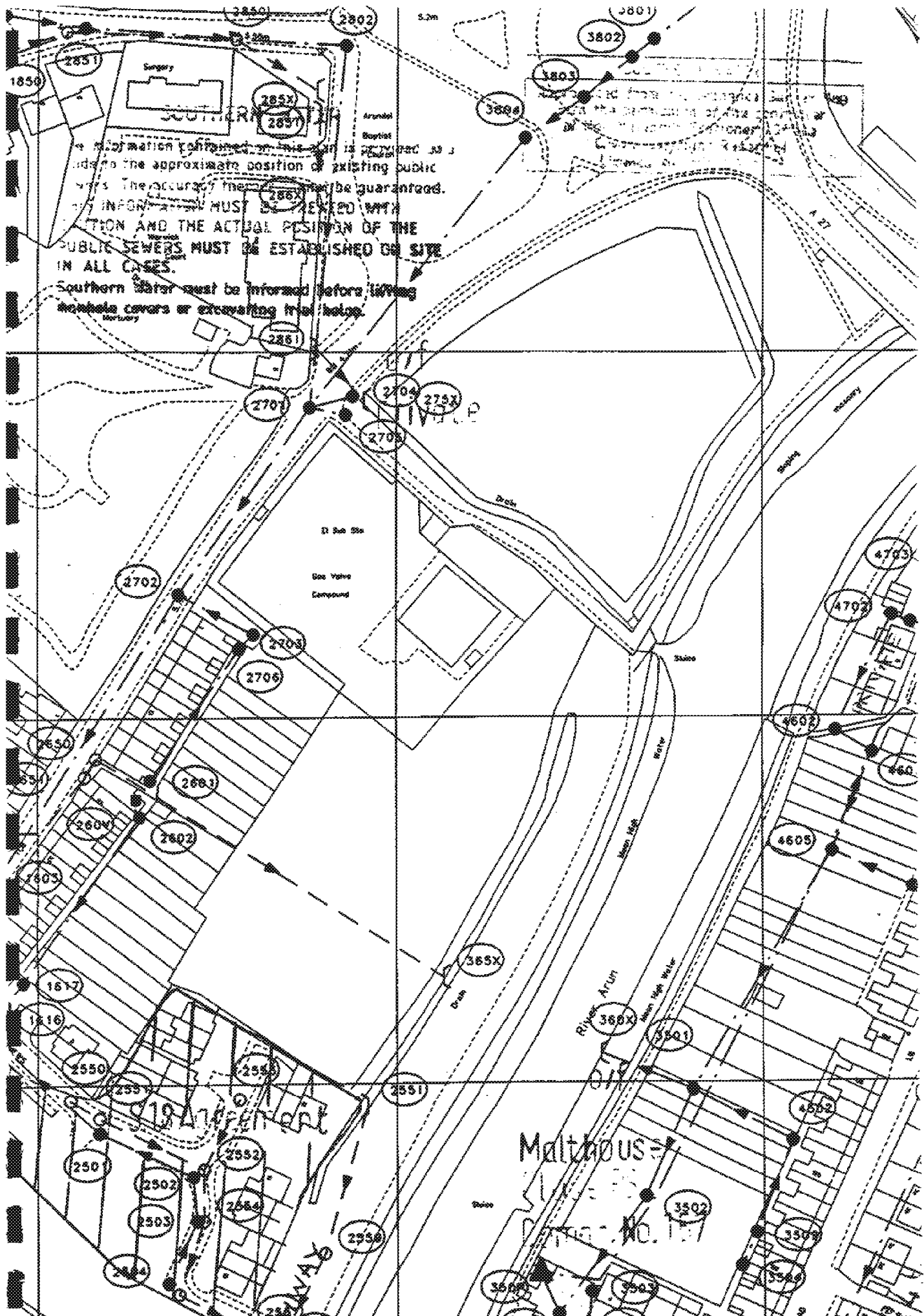
British Gas plc Registered Office: Rivemill House, 152 Grosvenor Road, London SW1V 3JL. Reg No. 2006000



British Gas
South Eastern

British Gas plc
South Eastern
Central Court
Station Way
Crawley
West Sussex
RH10 1JA
Tel Crawley 517788

THE INFORMATION SHOWN ON THIS PLAN IS GIVEN WITHOUT OBLIGATION OR WARRANTY. THE ACCURACY THEREOF CANNOT BE GUARANTEED. SERVICE PIPES ARE NOT SHOWN BUT THEIR PRESENCE SHOULD BE ANTICIPATED. NO LIABILITY OF ANY KIND WHATSOEVER IS ACCEPTED BY BRITISH GAS plc, ITS AGENTS OR SERVANTS FOR ANY ERROR OR OMISSION. THE ACTUAL POSITION OF MAINS AND SERVICES MUST BE VERIFIED AND ESTABLISHED ON SITE BEFORE ANY MECHANICAL PLANT IS USED.



APPENDIX F

Desk Study Report by Harrison and Company (1988)