

## Supply of Unpublished Survey Information

Published 1974

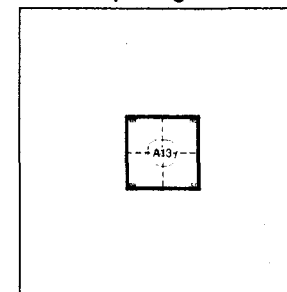
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

TQ2787NE	
1974	
1:1,250	
TQ2787SE	TQ2787SW
1974	1974
1:1,250	1:1,250

### Historical Map - Segment A13



### Order Details

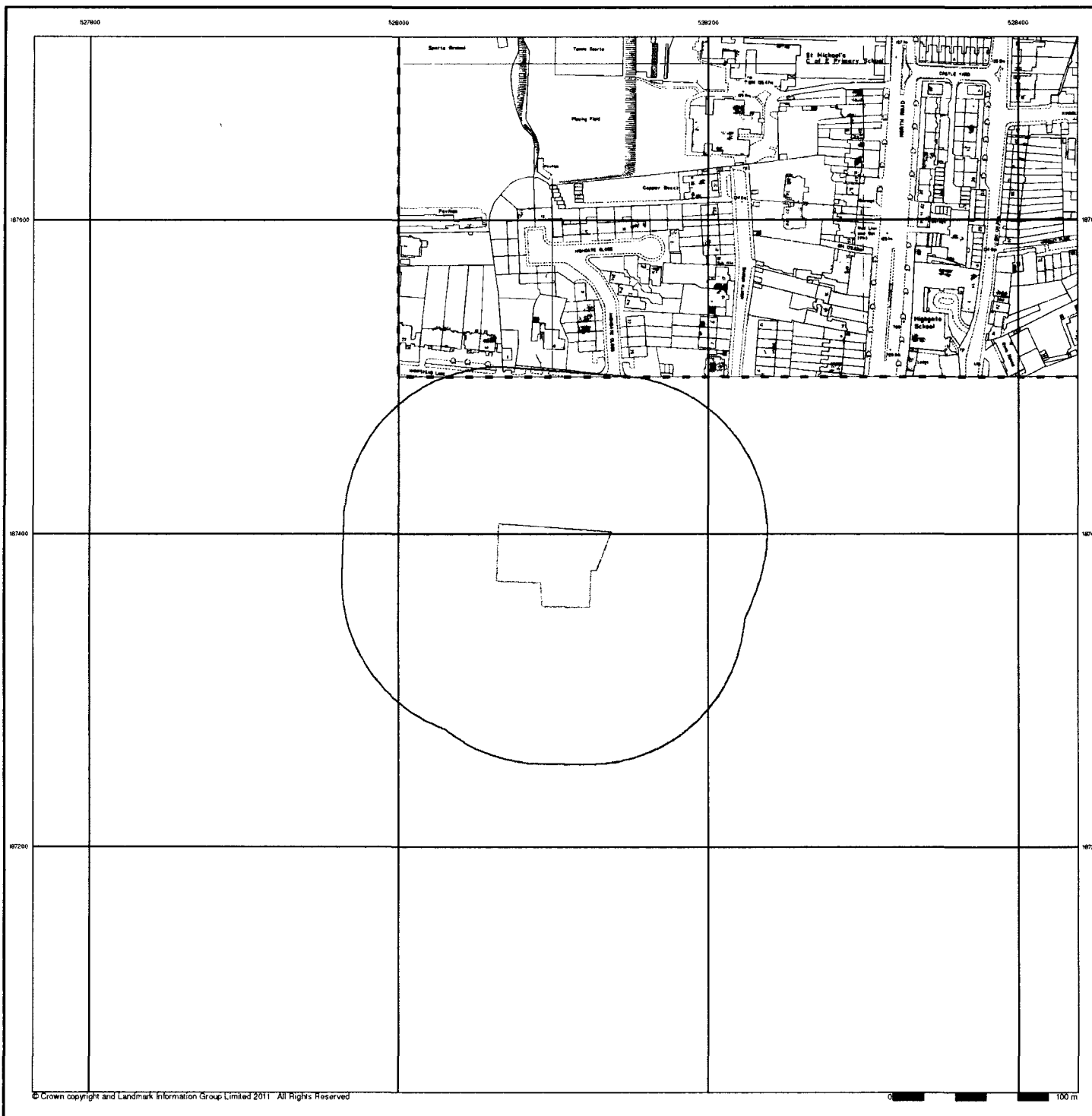
Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
 Search Buffer (m): 100

### Site Details

6 Fitzroy Park, LONDON, N6 6HP



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 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk



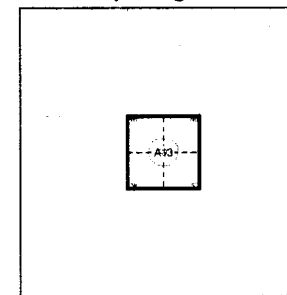
## Ordnance Survey Plan Published 1978 Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

### Map Name(s) and Date(s)

TO2887NW  
1978  
1:1,250

### Historical Map - Segment A13



### Order Details

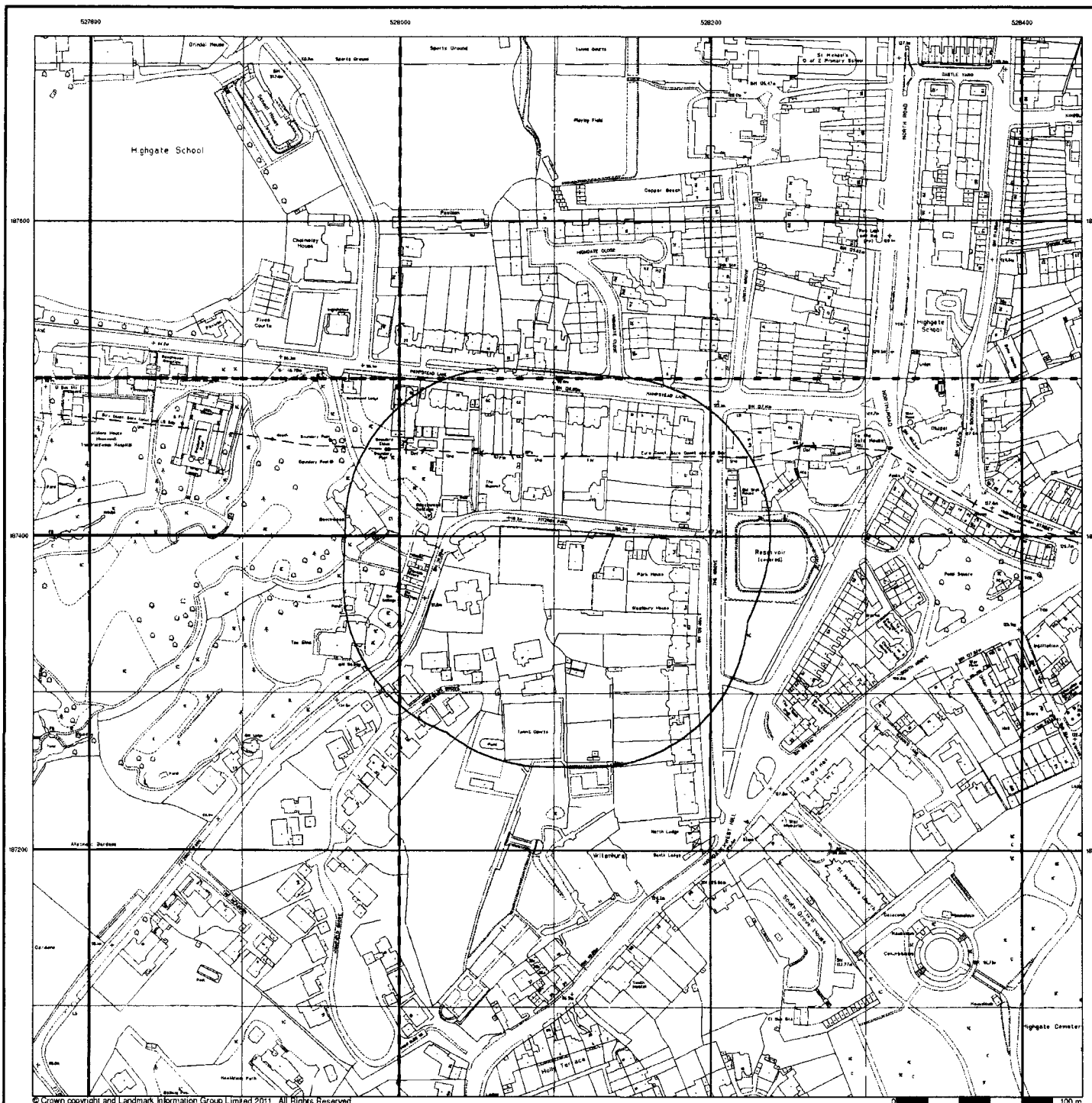
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## Large-Scale National Grid Data Published 1991

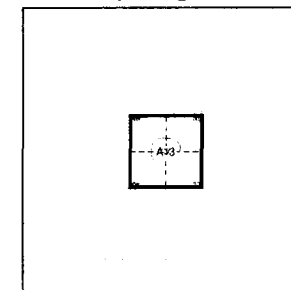
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

### Map Name(s) and Date(s)

TQ2787NE	TQ2887NW
1991	1991
1:1,250	1:1,250
TQ2787SE	TQ2887SW
1991	1991
1:1,250	1:1,250

### Historical Map - Segment A13



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# Historical Mapping Legends

## Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)		County & Civil Parish Boundary		
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)		County Burgh Boundary (Scotland)		
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

## Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Coppice		Bracken
	Heath		Rough Grassland
	Marsh		Reeds
	Saltings		
	Building		Direction of Flow of Water
	Glasshouse		Shingle
	Sloping Masonry		Sand
	Pylon		Electricity Transmission Line
	Pole		
	Cutting		Embankment
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		Administrative County, County Borough or County of City
	Municipal Borough, Urban or Rural District, Burgh or District Council		Borough, Burgh or County Constituency
	Civil Parish		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

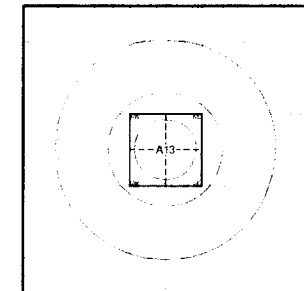
## 1:10,000 Raster Mapping

	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Middlesex	1:10,560	1873	3
Middlesex	1:10,560	1879	4
London	1:10,560	1886	5
Essex	1:10,560	1920	6
London	1:10,560	1920	7
Middlesex	1:10,560	1936	8
Middlesex	1:10,560	1938	9
Essex	1:10,560	1938	10
Historical Aerial Photography	1:10,560	1950	11
Ordnance Survey Plan	1:10,000	1951	12
Ordnance Survey Plan	1:10,000	1958	13
Ordnance Survey Plan	1:10,000	1968	14
Ordnance Survey Plan	1:10,000	1976	15
London	1:25,000	1985	16
Ordnance Survey Plan	1:10,000	1996	17
10K Raster Mapping	1:10,000	1999	18
10K Raster Mapping	1:10,000	2006	19
10K Raster Mapping	1:10,000	2011	20

## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
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 Site Area (Ha): 0.29  
 Search Buffer (m): 1000

## Site Details

6 Fitzroy Park, LONDON, N6 6HP

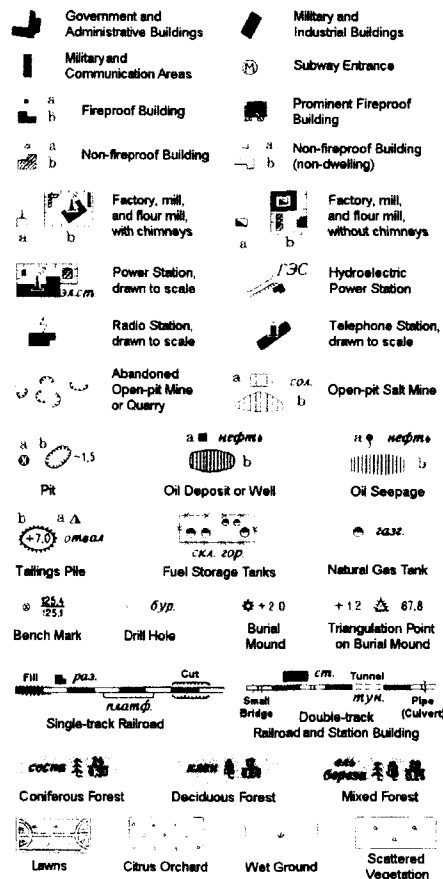


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# Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale



**243.8** Values for prominent elevations

**186.0** Numbers for spot elevations, depth soundings, contour lines, etc.

**0.2** Velocity of the current, width of river bed, depth of river

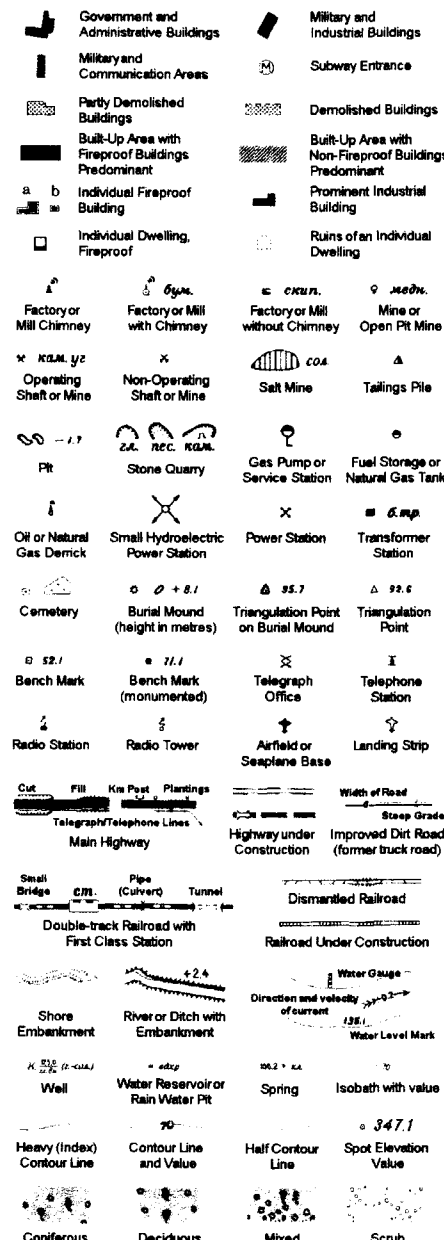
**180 120 12** Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

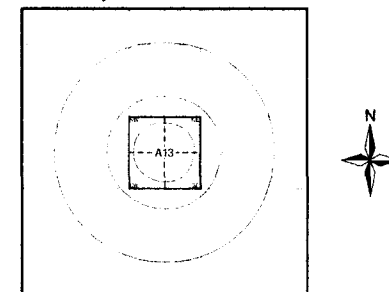


Key to Numbers on Mapping

## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Middlesex	1:10,560	1873	3
Middlesex	1:10,560	1879	4
London	1:10,560	1896	5
Essex	1:10,560	1920	6
London	1:10,560	1920	7
Middlesex	1:10,560	1936	8
Middlesex	1:10,560	1936	9
Essex	1:10,560	1936	10
Historical Aerial Photography	1:10,560	1950	11
Ordnance Survey Plan	1:10,000	1951	12
Ordnance Survey Plan	1:10,000	1958	13
Ordnance Survey Plan	1:10,000	1968	14
Ordnance Survey Plan	1:10,000	1976	15
London	1:25,000	1985	16
Ordnance Survey Plan	1:10,000	1996	17
10K Raster Mapping	1:10,000	1999	18
10K Raster Mapping	1:10,000	2006	19
10K Raster Mapping	1:10,000	2011	20

## Russian Map - Slice A



## Order Details

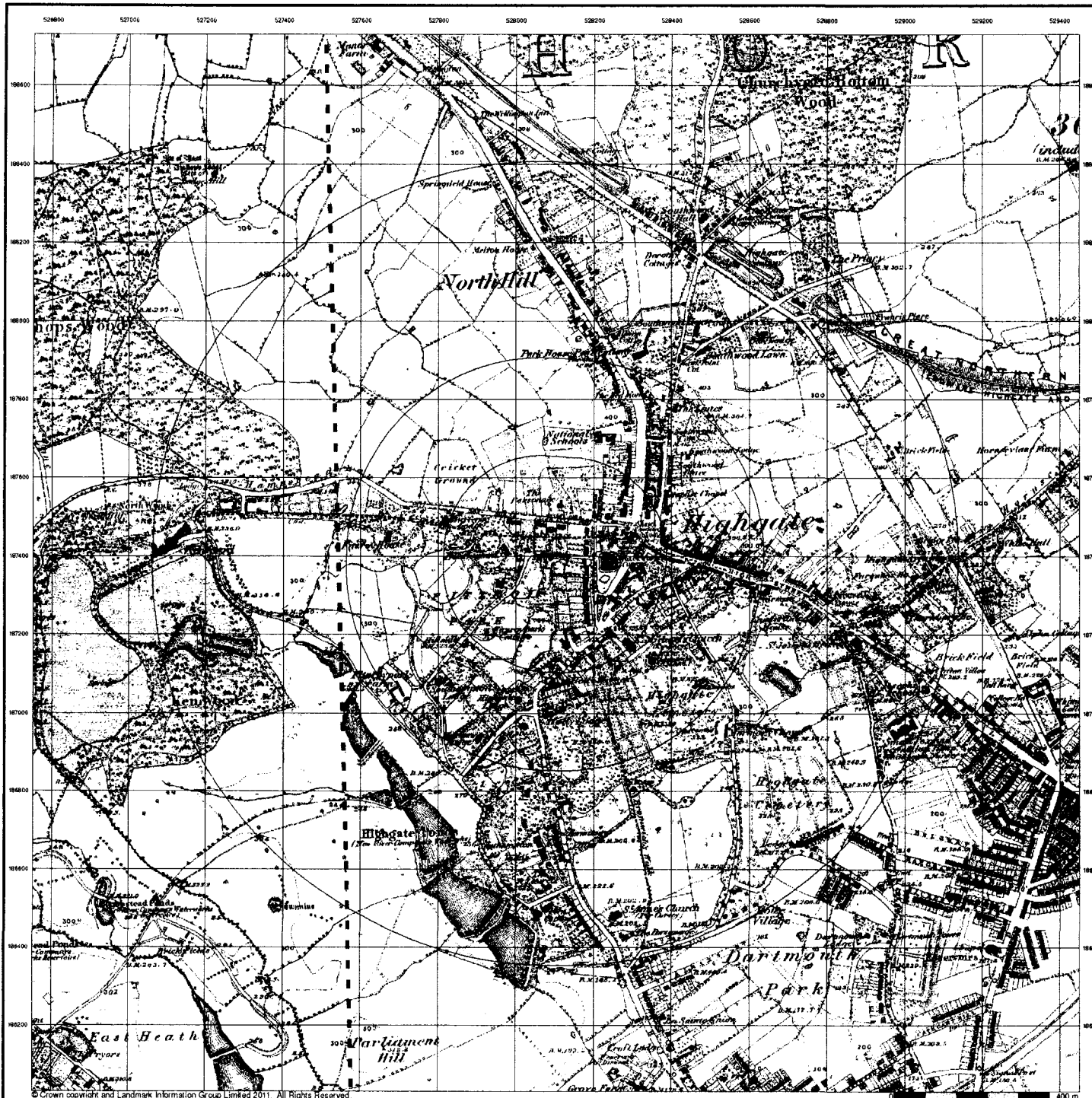
Order Number: 36810138\_1\_1  
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 National Grid Reference: 528100, 187380  
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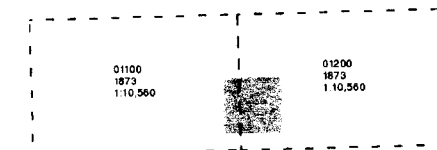


## Middlesex Published 1873

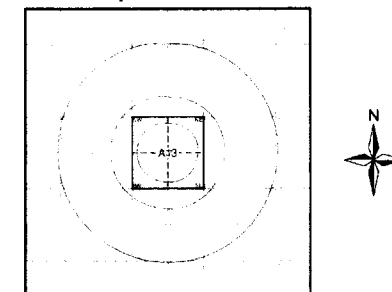
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

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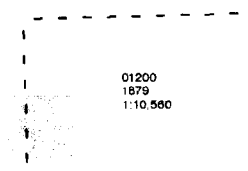
## Middlesex

Published 1879

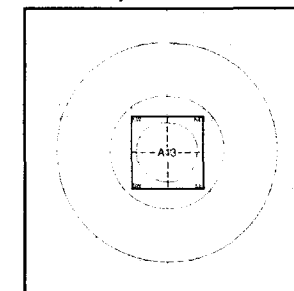
Source map scale - 1:10,560

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## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
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 Search Buffer (m): 1000

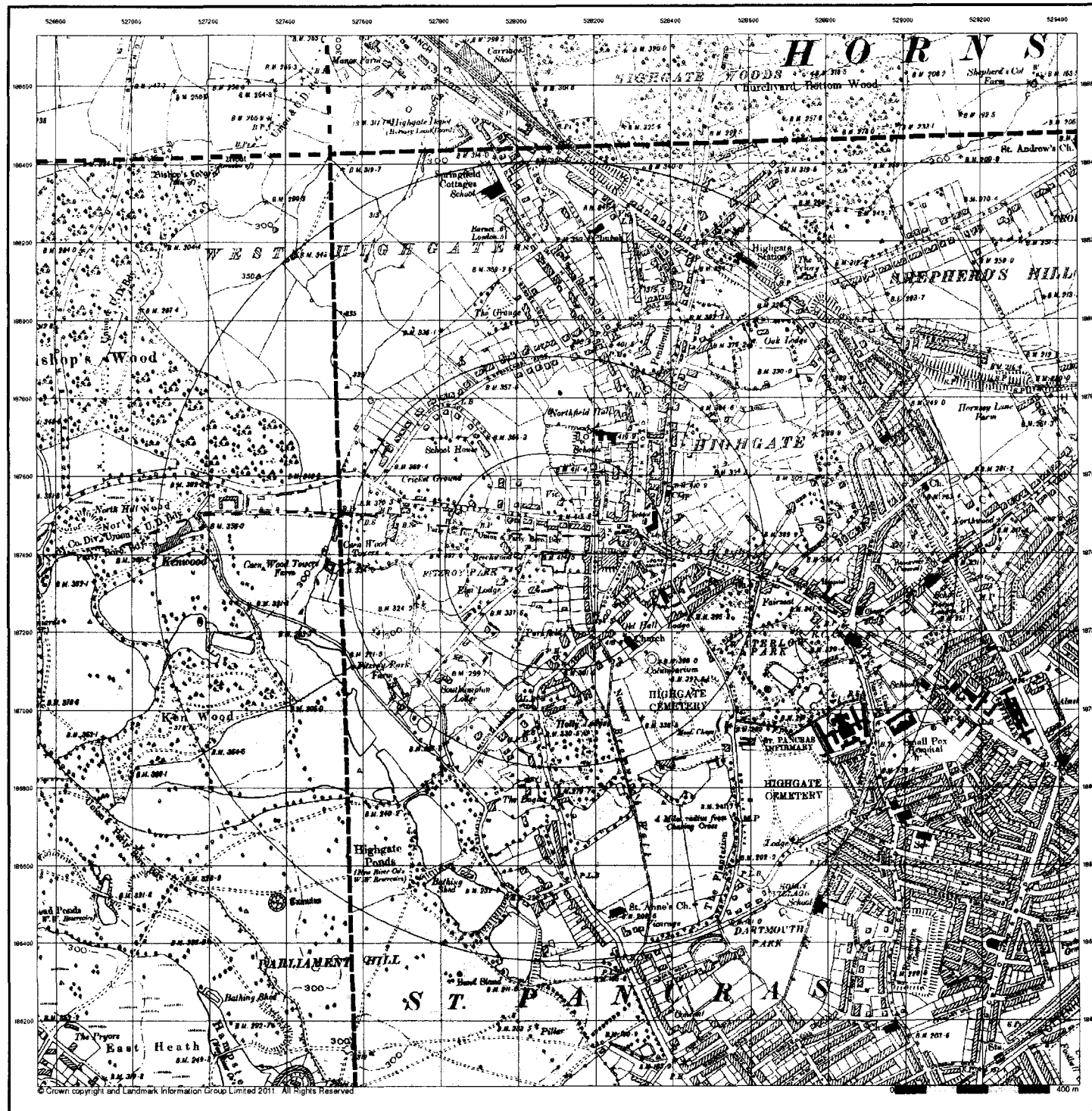
## Site Details

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London

Published 1896

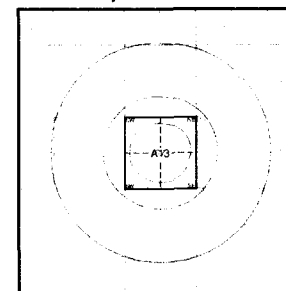
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Map Name(s) and Date(s)

002NE 1896 1:10,560	003NW 1896 1:10,560
002SE 1896 1:10,560	003SW 1896 1:10,560

Historical Map - Slice A



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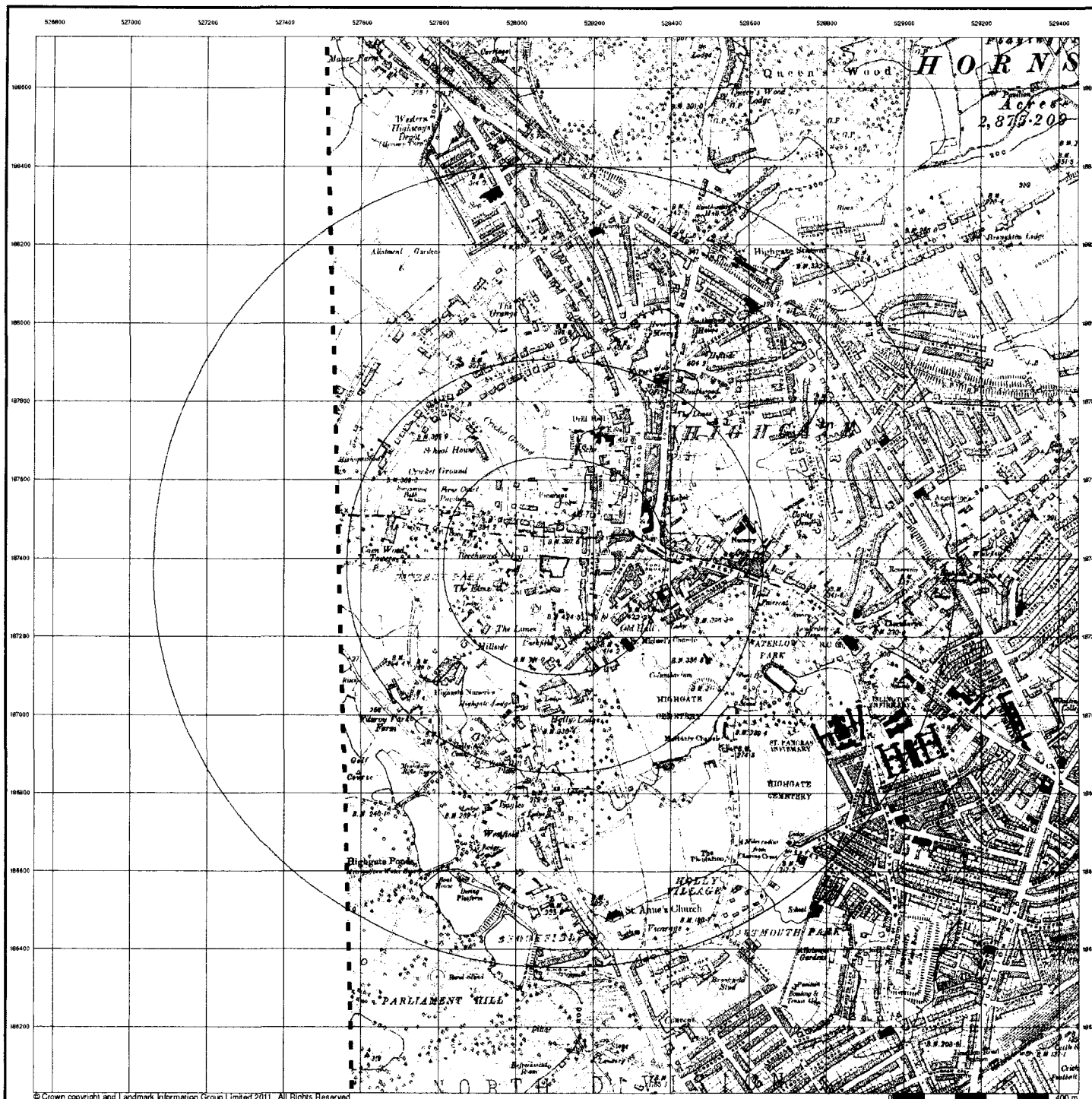
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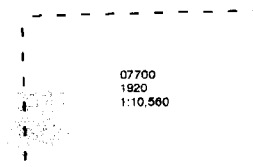
**Essex**

**Published 1920**

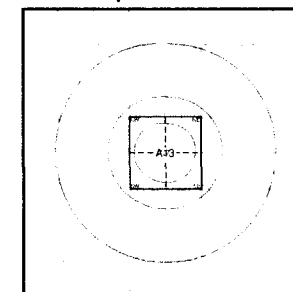
**Source map scale - 1:10,560**

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**Map Name(s) and Date(s)**



**Historical Map - Slice A**



**Order Details**

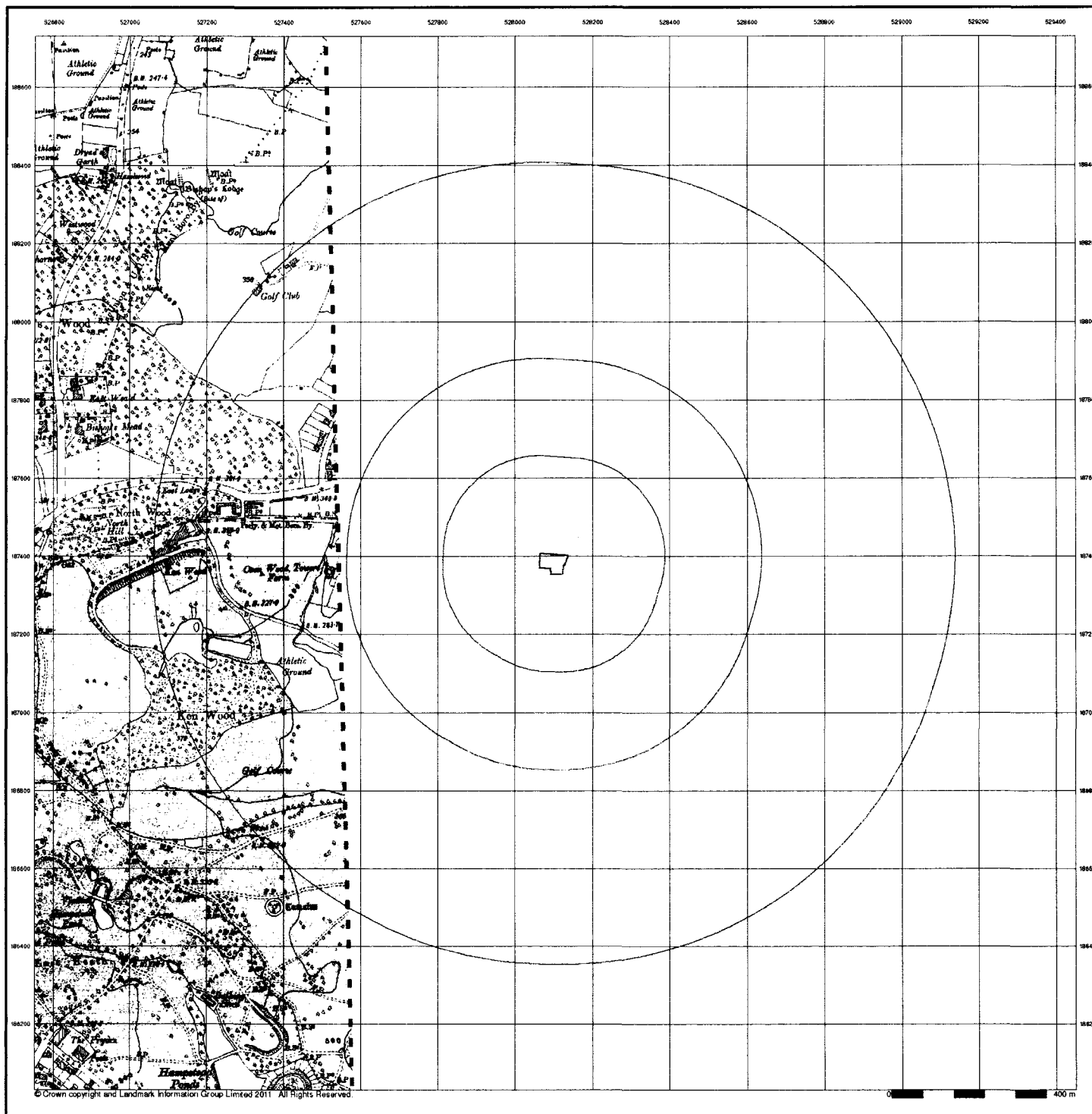
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**Site Details**

6 Fitzroy Park, LONDON, N6 6HP

**Landmark**  
Information Group

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Web: www.envirocheck.co.uk



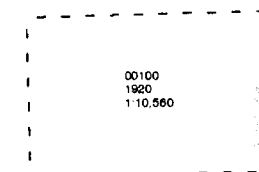
## London

### Published 1920

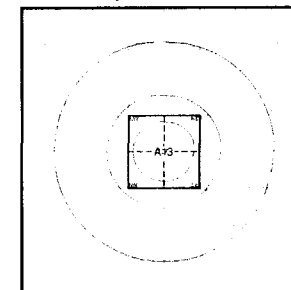
### Source map scale - 1:10,560

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### Map Name(s) and Date(s)



### Historical Map - Slice A



### Order Details

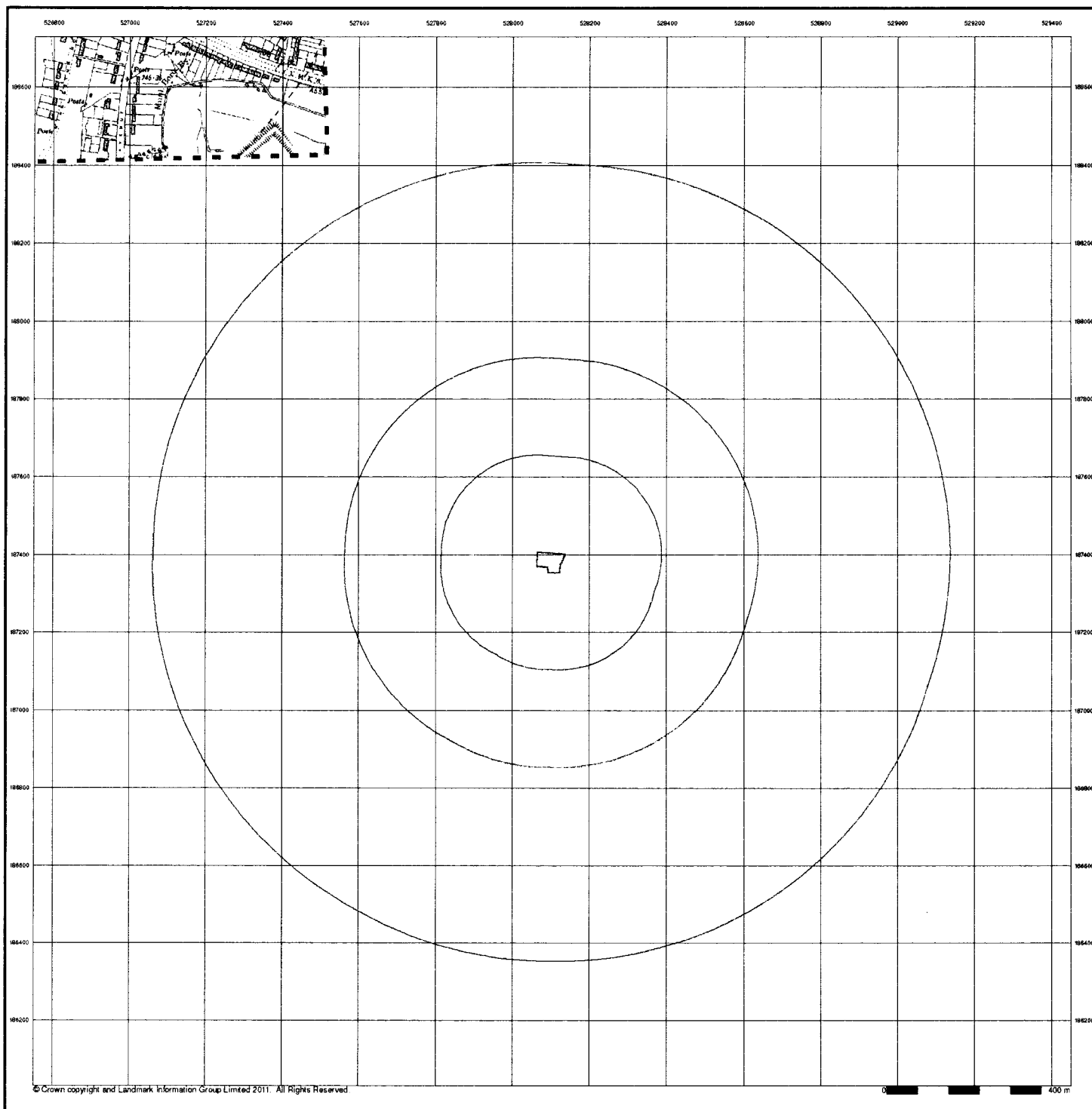
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## Middlesex Published 1936

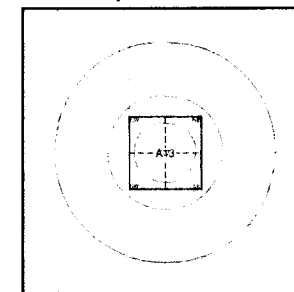
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### Map Name(s) and Date(s)

011NE  
1936  
1:10,560

### Historical Map - Slice A



### Order Details

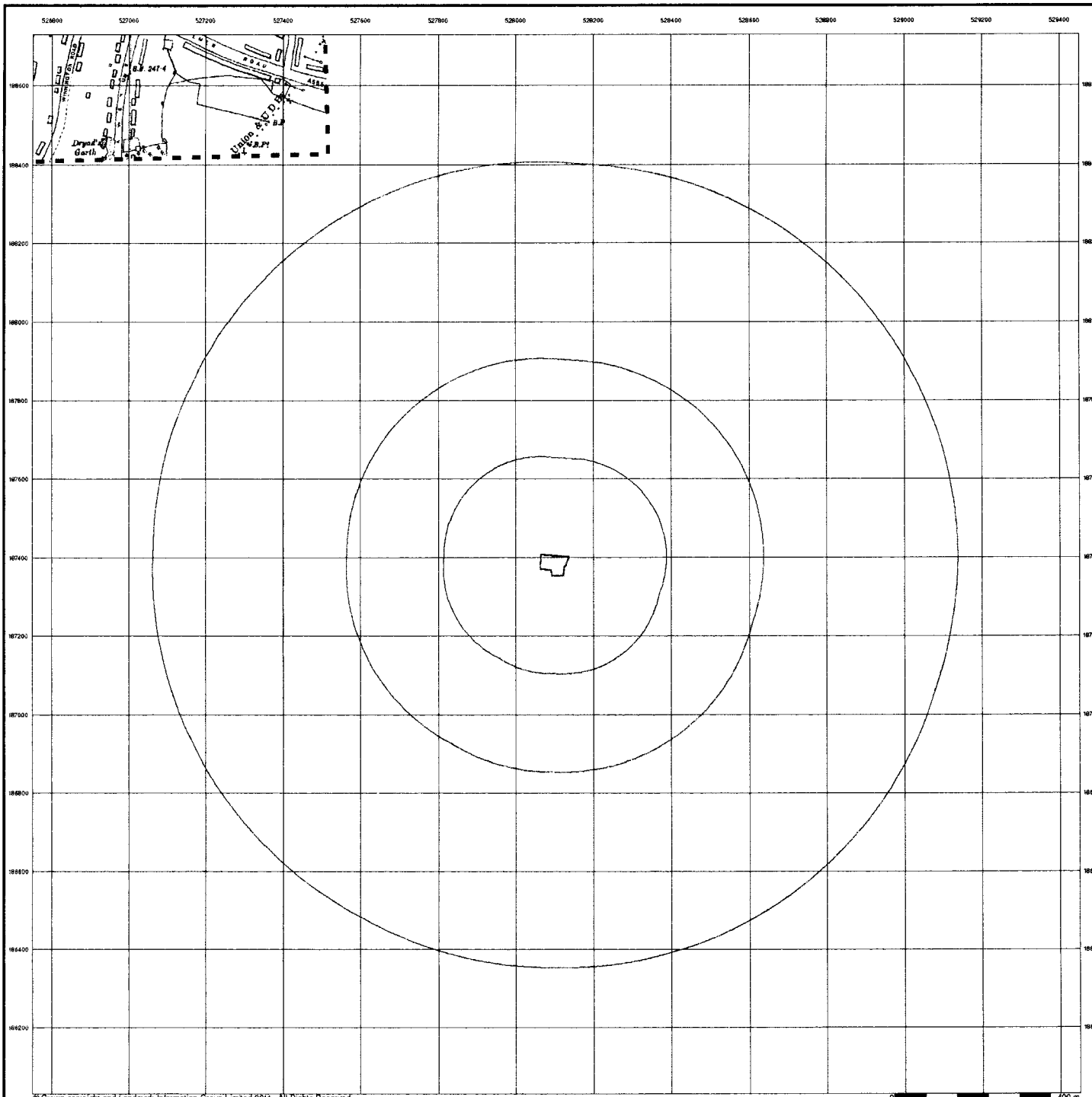
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## Middlesex Published 1938

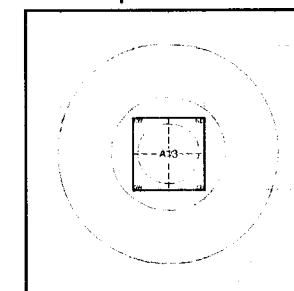
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### Map Name(s) and Date(s)

011NE  
1938  
1:10,560

### Historical Map - Slice A



### Order Details

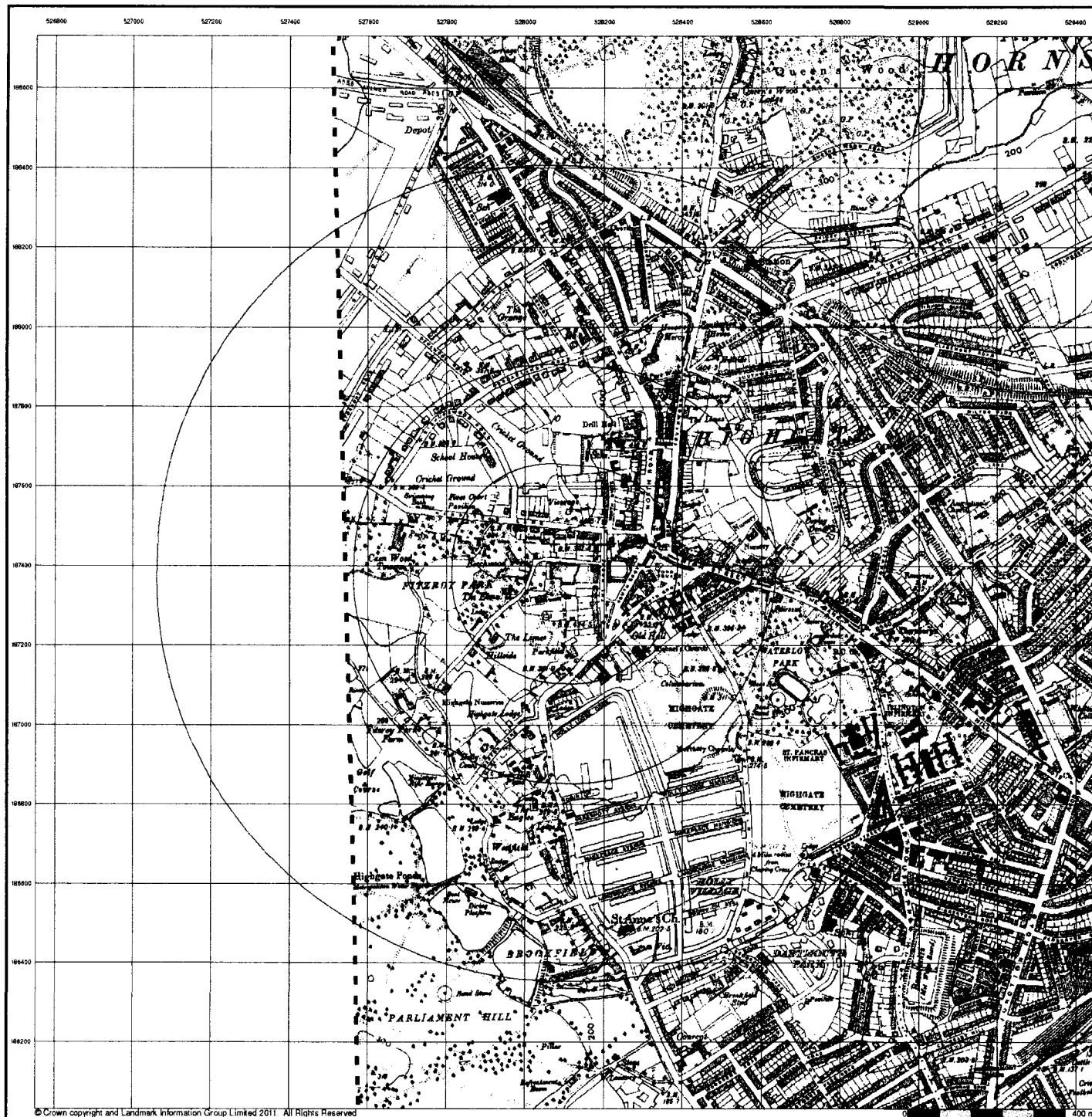
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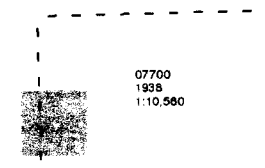
## Essex

Published 1938

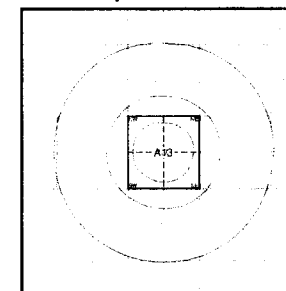
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

### Map Name(s) and Date(s)



### Historical Map - Slice A



### Order Details

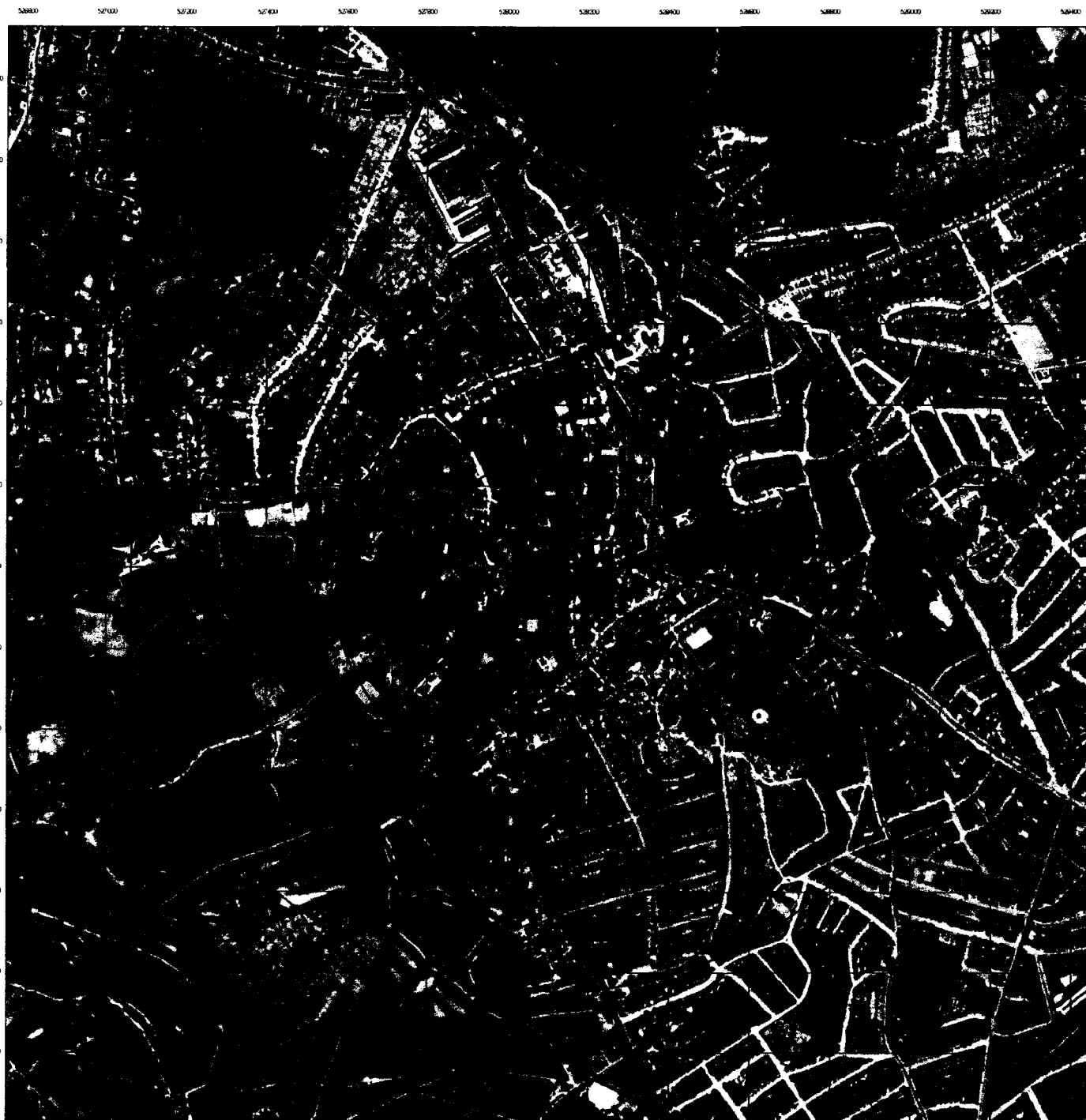
Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
 Search Buffer (m): 1000

### Site Details

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0 400 m



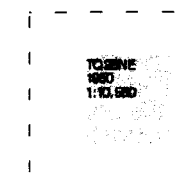
## Historical Aerial Photography Published 1950

**Source map scale - 1:10,560**

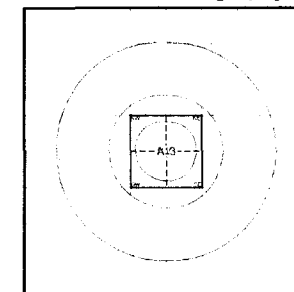
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950s meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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### Map Name(s) and Date(s)



### Historical Aerial Photography - Slice A



BRITISH  
LIBRARY

### Order Details

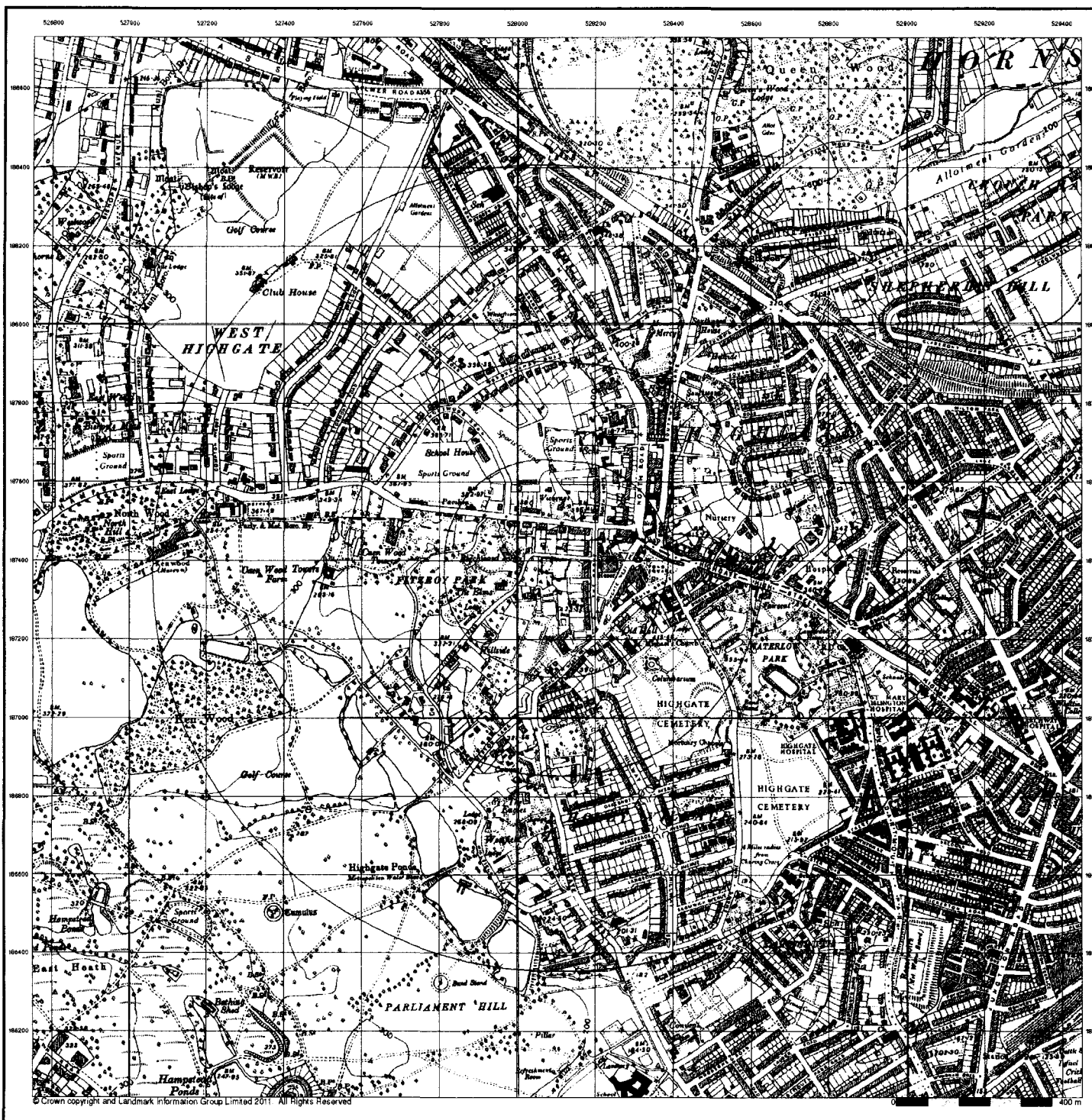
Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 1000

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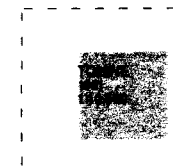
## Ordnance Survey Plan

Published 1951

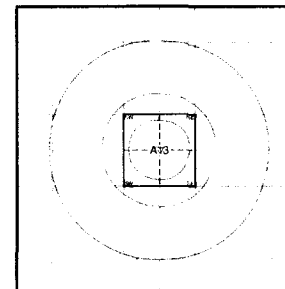
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published data given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
 Search Buffer (m): 1000

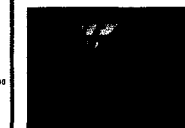
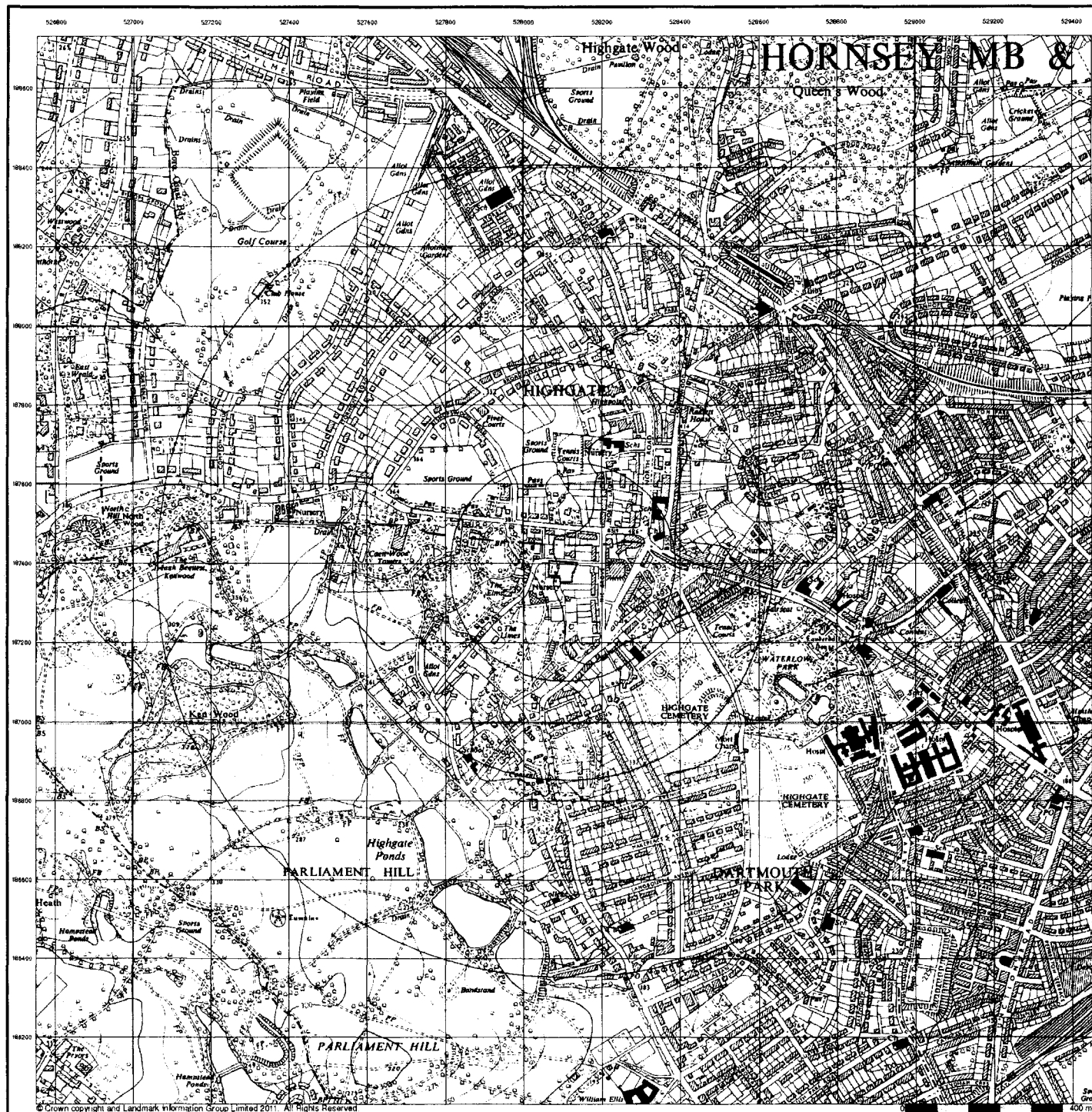
## Site Details

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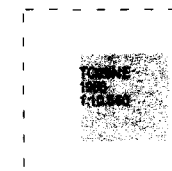
## Ordnance Survey Plan

Published 1958

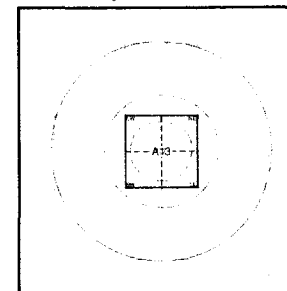
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas, these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

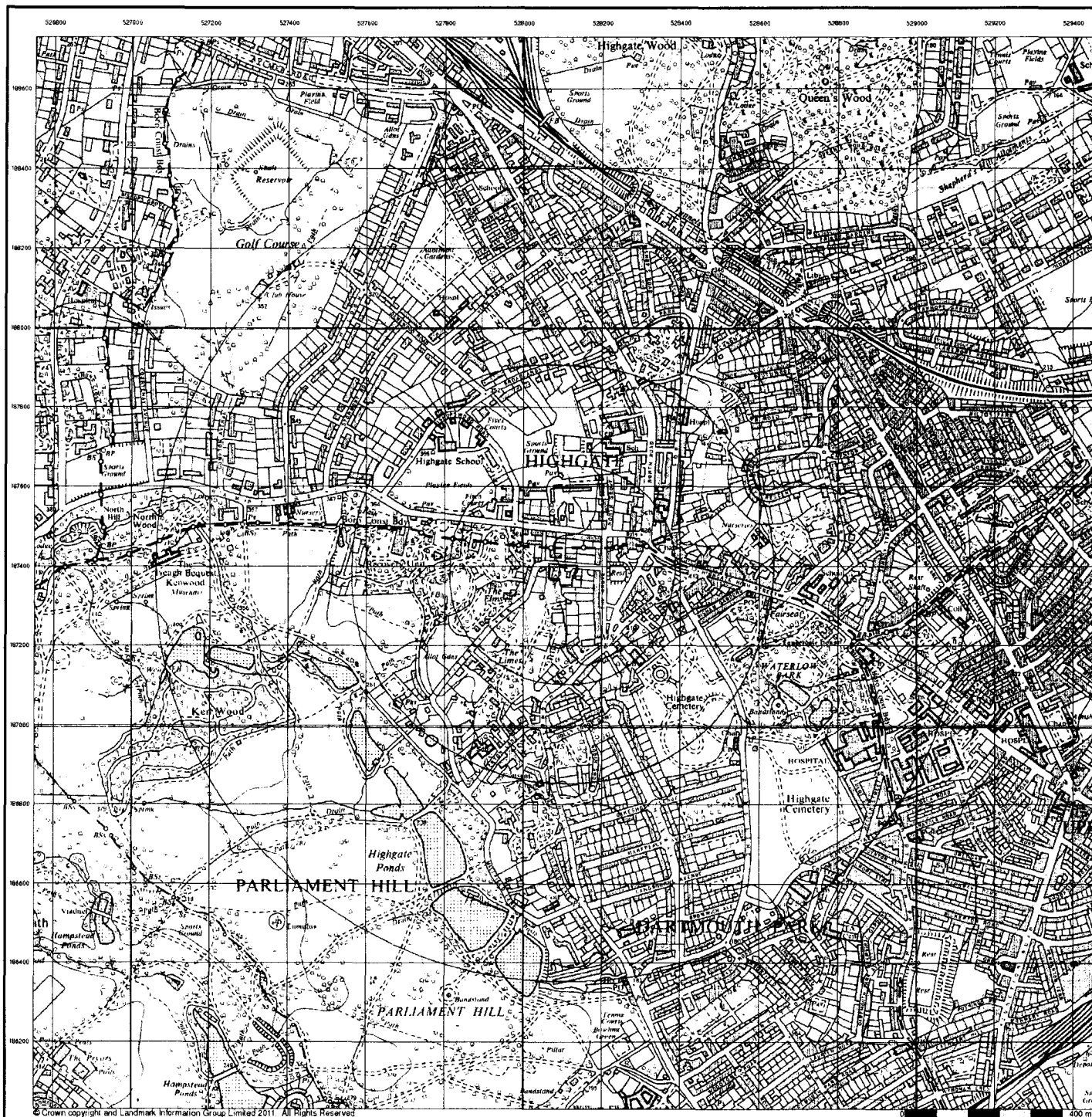
Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 1000

## Site Details

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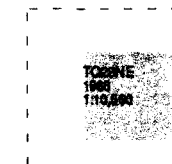


## Ordnance Survey Plan Published 1968

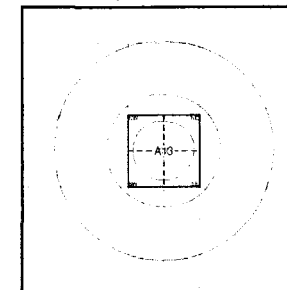
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

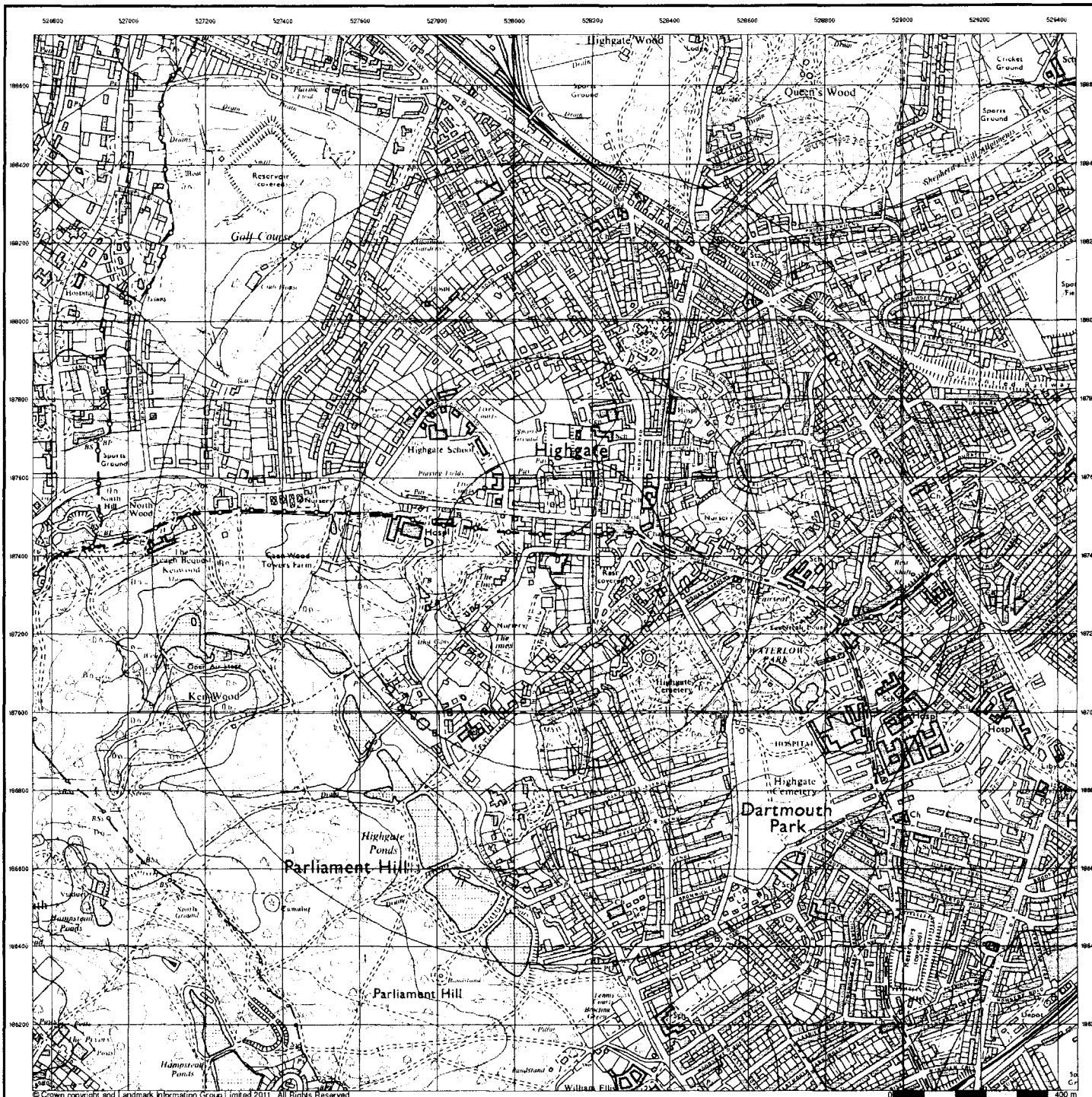
Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
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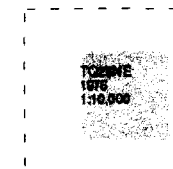
## Ordnance Survey Plan

Published 1976

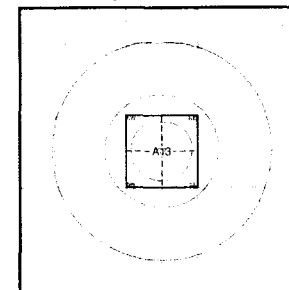
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

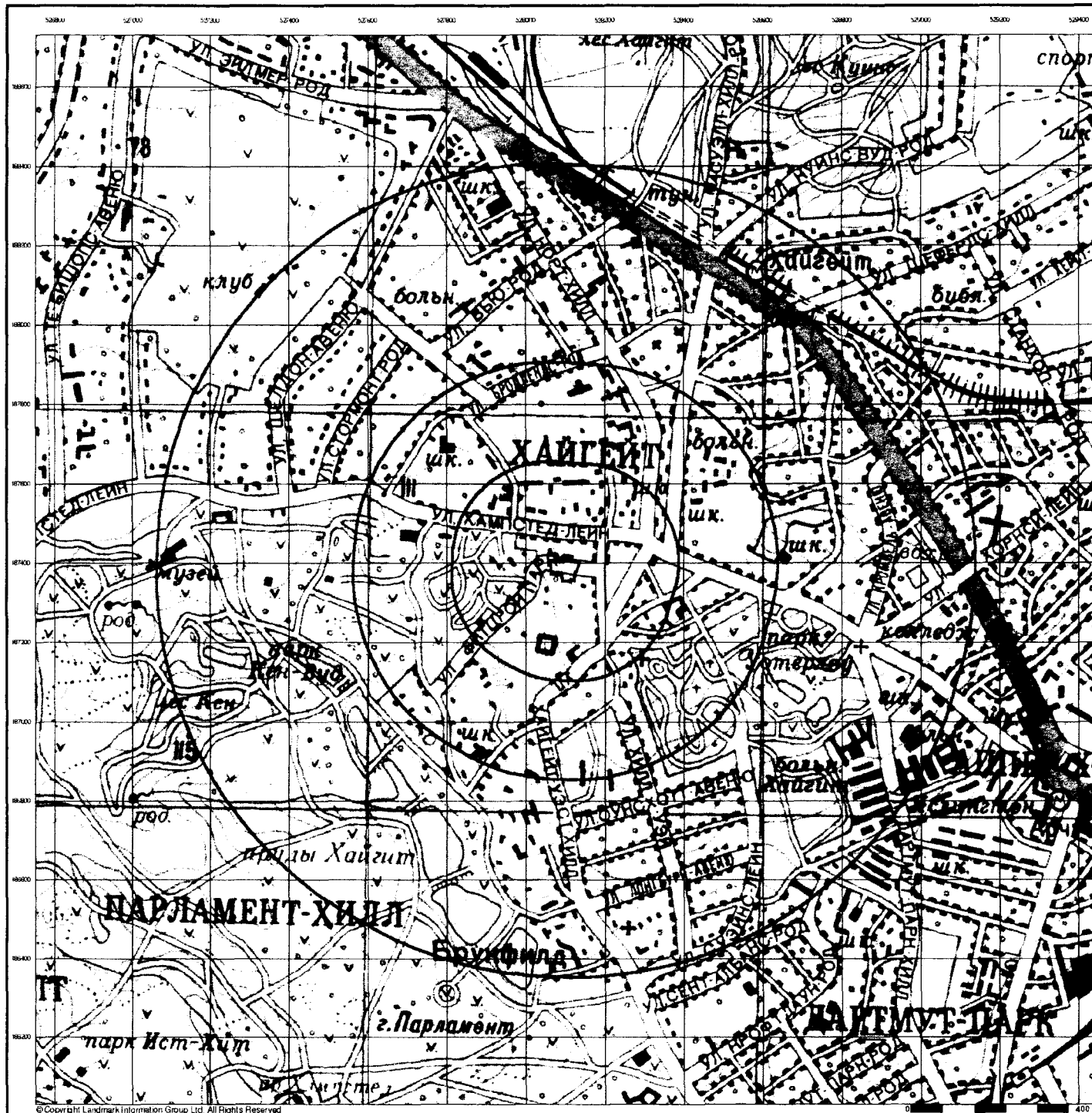
Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 1000

## Site Details

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London

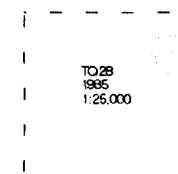
Published 1985

Source map scale - 1:25,000

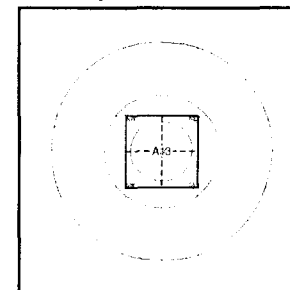
These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.

They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



Order Details

Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 1000

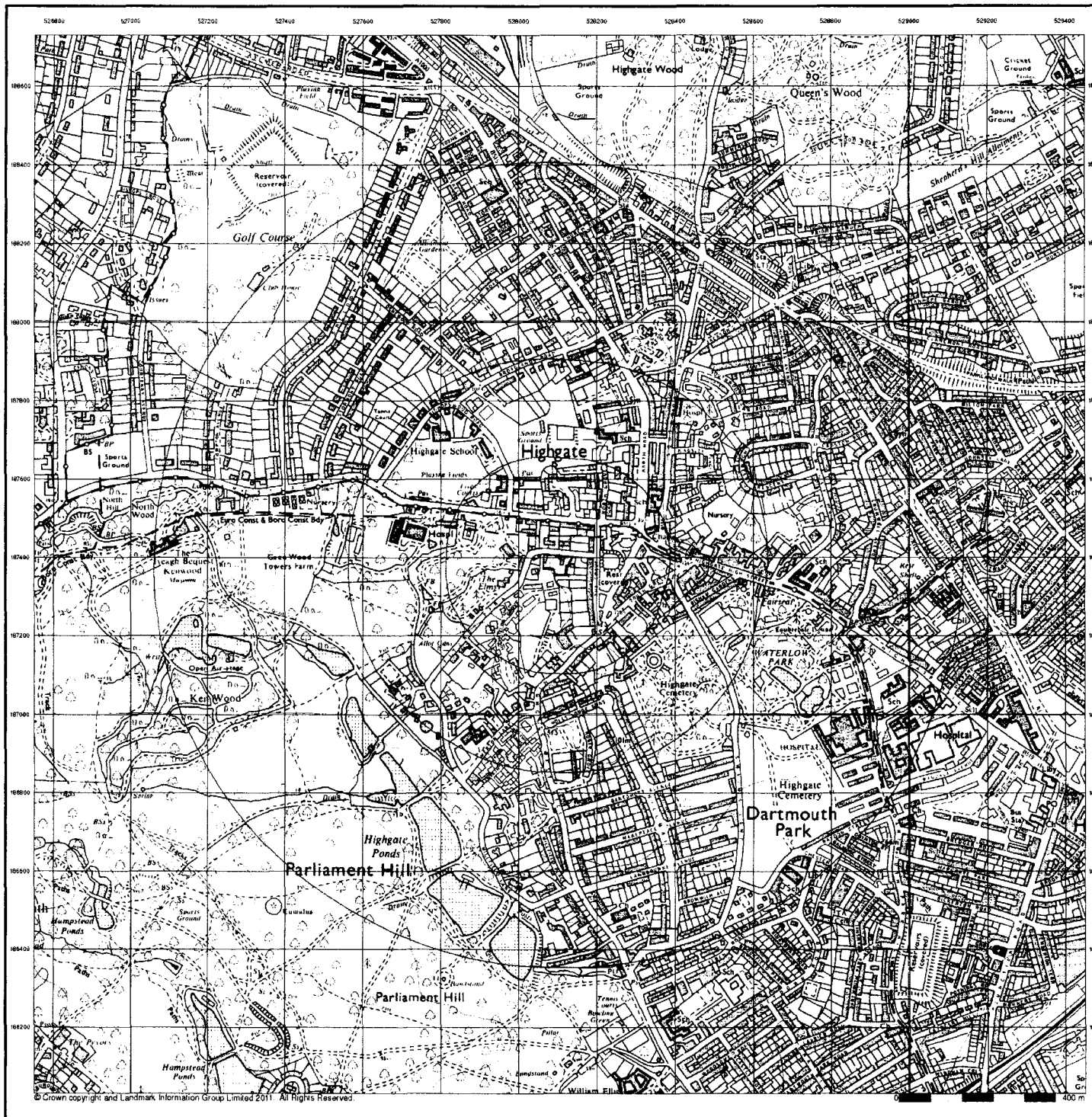
Site Details

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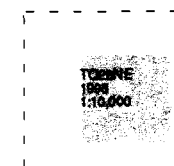


## Ordnance Survey Plan Published 1996

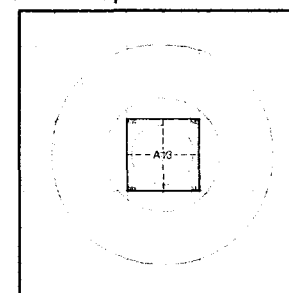
**Source map scale - 1:10,000**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1954 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 1000

## Site Details

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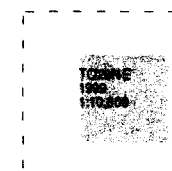
## 10k Raster Mapping

Published 1999

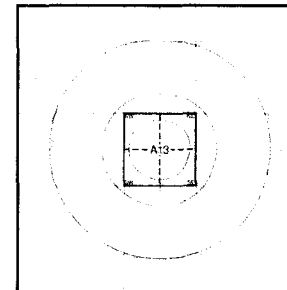
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
 Search Buffer (m): 1000

## Site Details

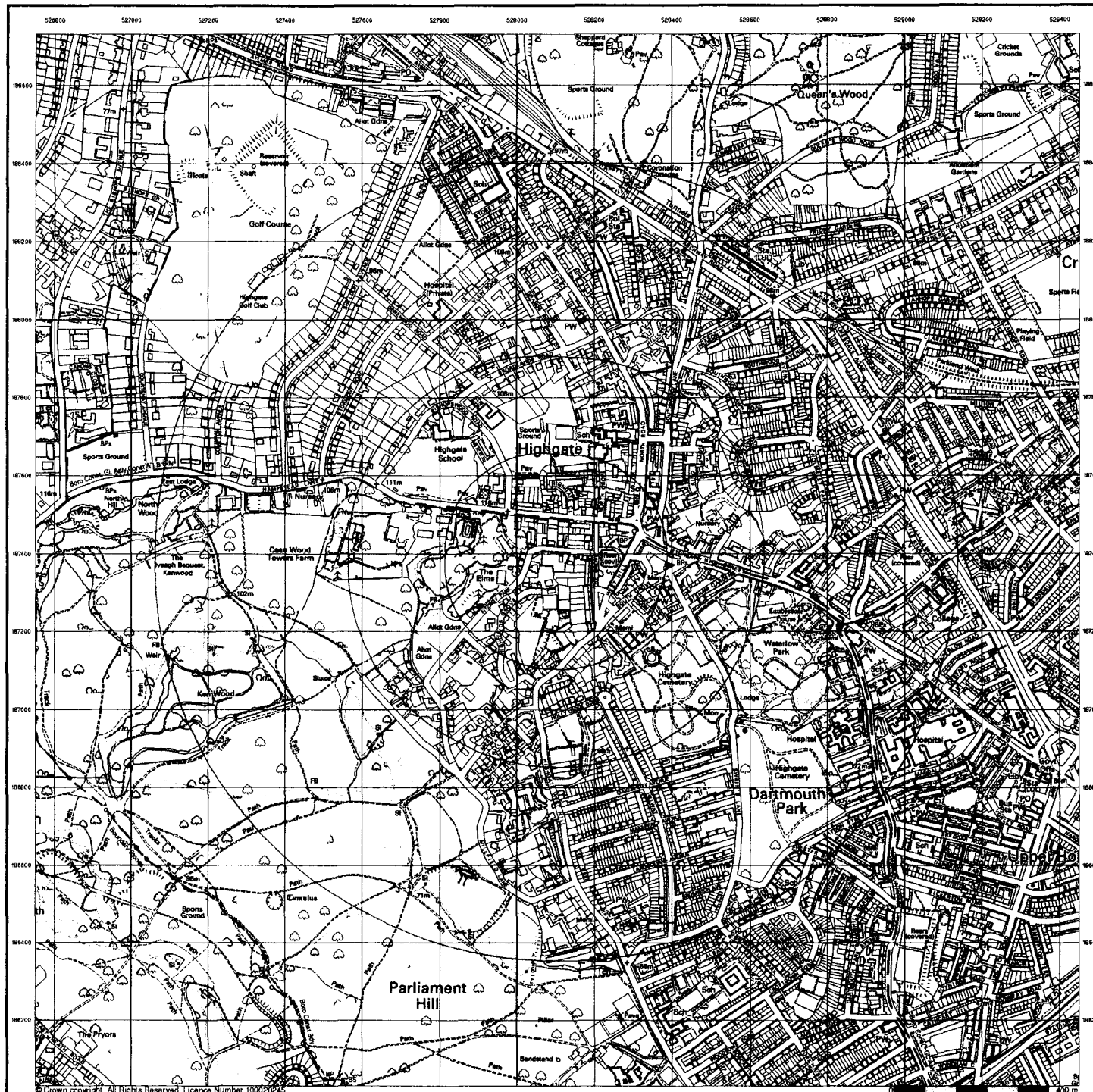
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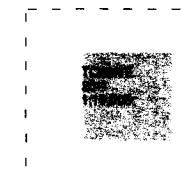
## 10k Raster Mapping

Published 2011

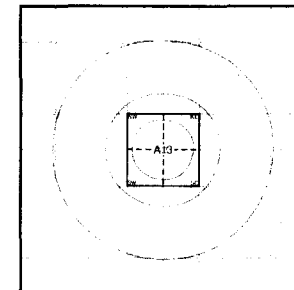
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

## Map Name(s) and Date(s)



## Historical Map - Slice A



## Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
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## Middlesex

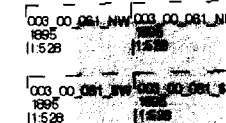
**Published 1895**

**Source map scale - 1:528**

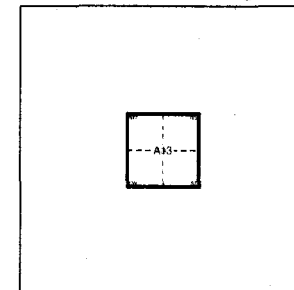
The 1:525 scale Ordnance Survey mapping was adopted in 1850 as an alternative to the 1:1056 scale, that had been deemed to be inadequate for sanitary planning, which had come very much to the fore following the passing of the Public Health Act of 1848. Around 29 towns in England and Wales were surveyed at this scale, the bulk of which were undertaken between 1850 and 1855. These were predominantly towns that were outside the areas being surveyed at 1:10,560 or 1:2500 scale. As well as showing the details characteristic of the later 1:500 plans, they show features of sanitary interest such as privies, taps, cow houses, cess pits, brew and bake houses and cart sheds and stables.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

## Map Name(s) and Date(s)



## Historical Town Plan - Segment A13



## Order Details

Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 0

## Site Details

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London

Published 1895

Source map scale - 1:1,056

The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys, although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500, the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

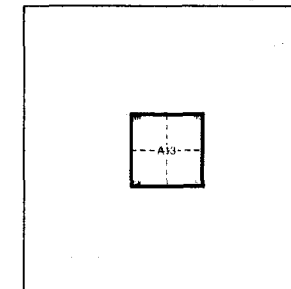
Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

#### Map Name(s) and Date(s)

003\_00\_001  
1895  
1:1,056

003\_00\_071  
1895  
1:1,056

#### Historical Town Plan - Segment A13



#### Order Details

Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 0

#### Site Details

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**LUSTRE**  
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London

Published 1937

Source map scale - 1:1,056

The 1:1056 scale of Ordnance Survey mapping was adopted from Ireland in 1848 and was used to survey towns with a population of over 4000, plus county towns of lesser population, in those counties mapped at the six-inch scale in 1841-55. The scale was the largest scale at which London was mapped by the Ordnance Survey and a 'skeleton' survey of the capital, showing little more than streets, street names, frontages and altitudes, was undertaken between 1848 and 1850. The majority of the 1:1056 surveys were later replaced by 1:500 surveys, although almost all the remainder were revised at this scale, sometimes more than once before 1895. The type of detail shown on the 1:1056 scale is broadly similar to that on 1:500, the apparent omission of minor details such as sewer access points and street lights may be as much a reflection of the generally earlier date of these plans, as of the specification of the map.

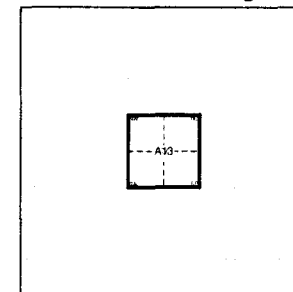
Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

#### Map Name(s) and Date(s)

003\_00\_061  
1937  
1:1,056

003\_00\_071  
1937  
1:1,056

#### Historical Town Plan - Segment A13



#### Order Details

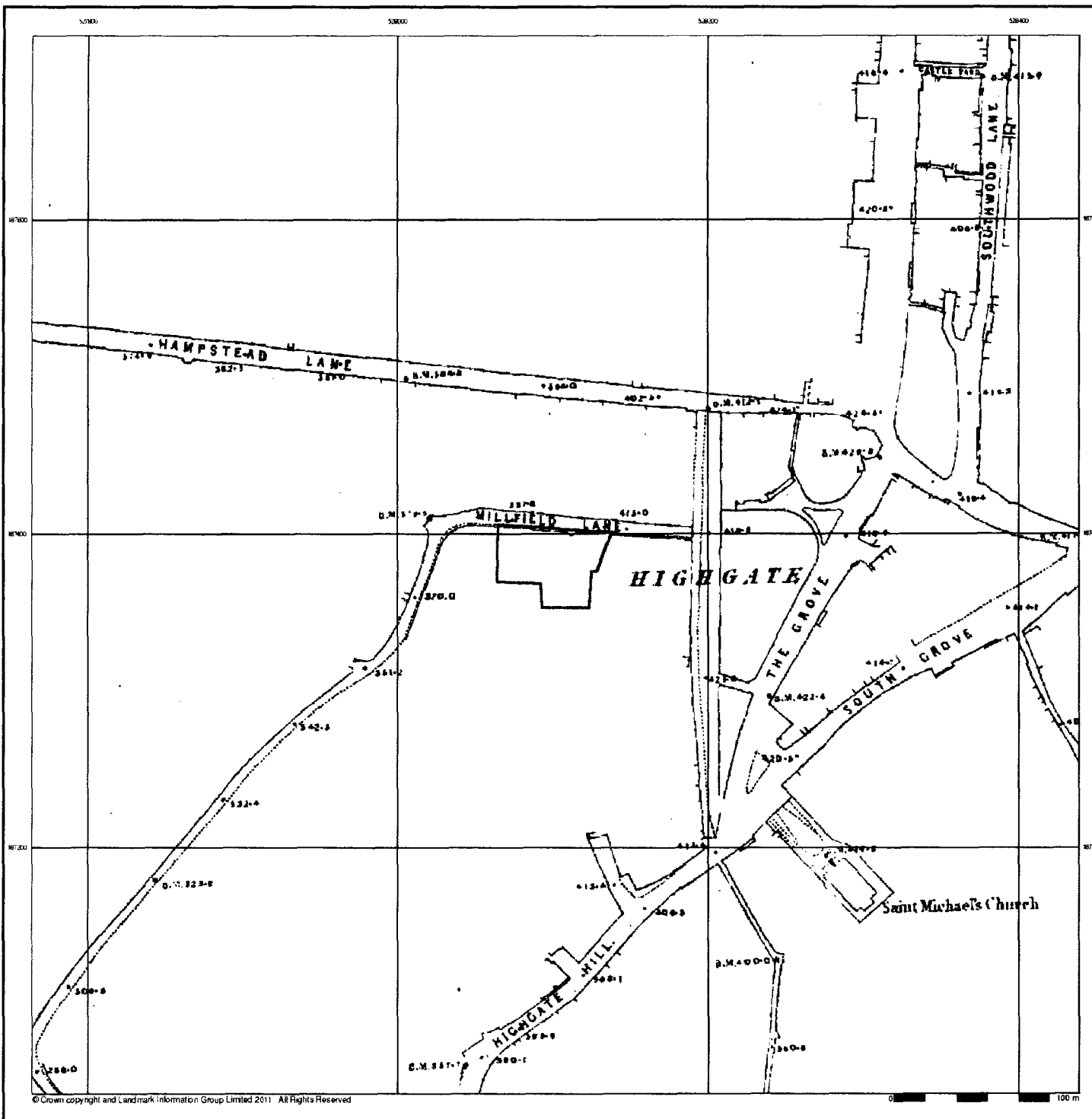
Order Number: 36810138\_1\_1  
Customer Ref: 1099  
National Grid Reference: 528100, 187380  
Slice: A  
Site Area (Ha): 0.29  
Search Buffer (m): 0

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## London

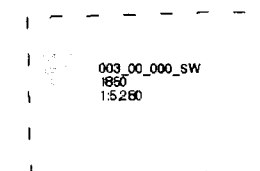
### Published 1850

### Source map scale - 1:5,280

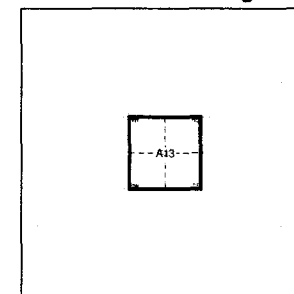
The historical town plans shown derive from Ordnance Survey mapping from the early to mid 1850s. The 1:2640 scale was introduced in the early 1850s, to survey districts covered by the Local Boards of Health and for a map of the Osborne Estate of Queen Victoria. The general style is similar to that of the early 1:2500s published shortly afterwards. 1:5280 scale was surveyed shortly afterwards in the mid 1850s as general purpose mapping with a standard of content similar to the more contemporary 1:10,560 mapping. The scale was also used for a reduction of the 1:1058 'skeleton survey' of London that was undertaken between 1848 and 1850.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

### Map Name(s) and Date(s)



### Historical Town Plan - Segment A13



### Order Details

Order Number: 36810138\_1\_1  
 Customer Ref: 1099  
 National Grid Reference: 528100, 187380  
 Slice: A  
 Site Area (Ha): 0.29  
 Search Buffer (m): 0

### Site Details

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# Asset Location Search



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RG1 8DB

**Search address supplied**      6  
Fitzroy Park  
London  
N6 6HP

**Your reference**                      0037 - Fitzroy Park, London  
**Our reference**                      ALS/ALS Standard/2011\_2129508

**Search date**                              24 November 2011

**You are now able to order your Asset Location Search requests online by visiting**  
**[www.thameswater-propertysearches.co.uk](http://www.thameswater-propertysearches.co.uk)**

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Slough SL1 4WW

DX 151280 Slough 13

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F 0118 923 6655/57  
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Registered in England and Wales  
No. 2366661, Registered office  
Cleanwater Court, Vastern Road  
Reading RG1 8DB



# Asset Location Search



**Search address supplied:** 6, Fitzroy Park, London, N6 6HP

Dear Sir / Madam

**An Asset Location Search is recommended when undertaking a site development.** It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

## Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0118 925 1504, or use the address below:

Thames Water Utilities Ltd  
Property Searches  
PO Box 3189  
Slough  
SL1 4WW

Tel: 0118 925 1504  
Fax: 0118 923 6657

Email: [searches@thameswater.co.uk](mailto:searches@thameswater.co.uk)  
Web: [www.thameswater-propertysearches.co.uk](http://www.thameswater-propertysearches.co.uk)

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# Asset Location Search



## Waste Water Services

**Please provide a copy extract from the public sewer map.**

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

## Clean Water Services

**Please provide a copy extract from the public water main map.**

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0845 920 0800. The Customer Centre can

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# Asset Location Search



also arrange for a full flow and pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

## Payment for this Search

A charge will be added to your suppliers account.

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# Asset Location Search



## Further contacts:

### Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)  
Thames Water  
Clear Water Court  
Vastern Road  
Reading  
RG1 8DB

Tel: 0845 850 2777  
Fax: 0118 923 6613  
Email: [developer.services@thameswater.co.uk](mailto:developer.services@thameswater.co.uk)

Should you require any further information regarding budget estimates, diversions or stopping up notices then please contact:

DevCon Team  
Asset Investment  
Thames Water  
Maple Lodge STW  
Denham Way  
Rickmansworth  
Hertfordshire  
WD3 9SQ

Tel: 01923 898 072  
Fax: 01923 898 106  
Email: [devcon.team@thameswater.co.uk](mailto:devcon.team@thameswater.co.uk)

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# Asset Location Search



## Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact our Kew Service Desk by writing to:

Clean Water Design  
Thames Water Utilities  
1 Kew Bridge Road  
Brentford  
Middlesex  
TW8 0EF

Tel: 0845 850 2777  
Fax: 0208 213 8833  
Email: [developer.services@thameswater.co.uk](mailto:developer.services@thameswater.co.uk)

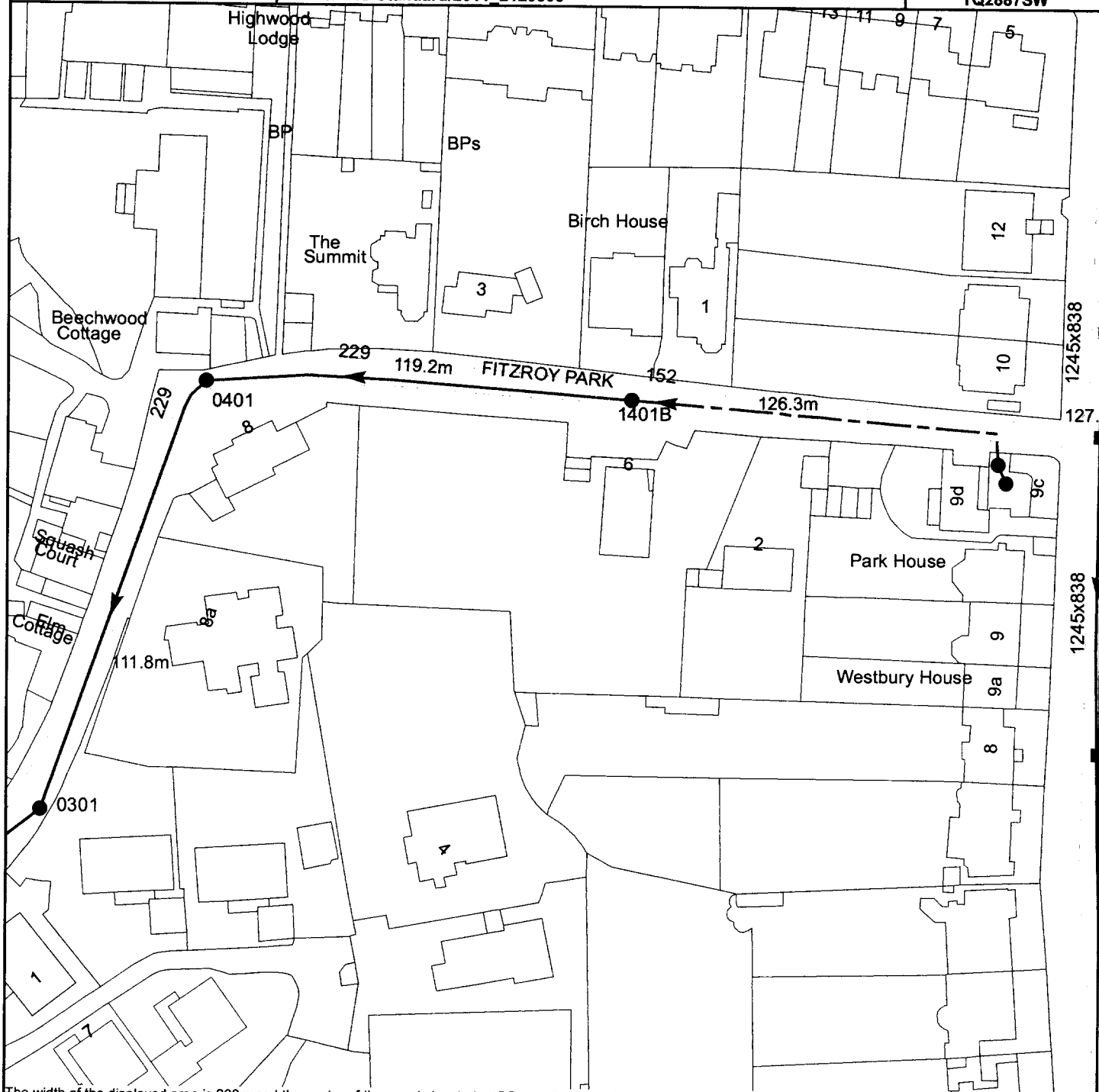
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The width of the displayed area is 200m and the centre of the map is located at OS coordinates 528101,187380

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. WU298557 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
0401	115.91	113.43
0301	n/a	n/a
1401B	124.05	120.49
1302	n/a	n/a
-	-	-
1301	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.





# ALS Sewer Map Key

## Public Sewer Types (Operated & Maintained by Thames Water)

**Foul:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

**Surface Water:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

**Combined:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

**Trunk Surface Water**

**Trunk Foul**

**Storm Relief**

**Trunk Combined**

**Vent Pipe**

**Bio-solids (Sludge)**

**Proposed Thames Surface Water Sewer**

**Proposed Thames Water Foul Sewer**

**Gallery**

**Foul Rising Main**

**Surface Water Rising Main**

**Combined Rising Main**

**Sludge Rising Main**

**Proposed Thames Water Rising Main**

**Vacuum**

### Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

## Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Damp Chase
- Fitting
- Meter
- Vent Column

## Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Control Valve
- Drop Pipe
- Ancillary
- Weir

## End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Outfall
- Undefined End
- Inlet

## Other Symbols

Symbols used on maps which do not fall under other general categories

- Public/Private Pumping Station
- Change of characteristic indicator (C.O.C.I.)
- Invert Level
- Summit

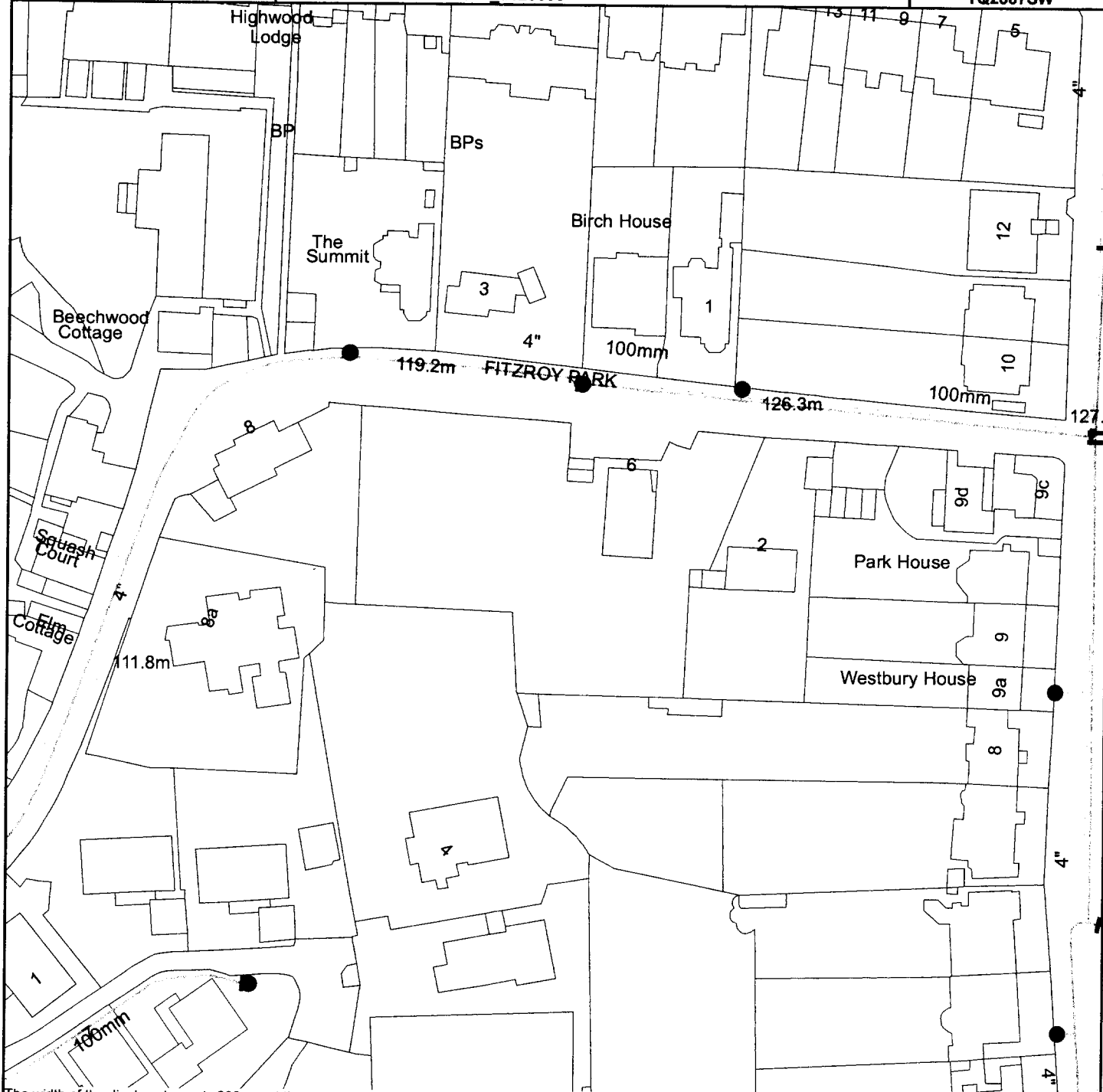
### Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Operational Site
- Chamber
- Tunnel
- Conduit Bridge

## Other Sewer Types (Not Operated or Maintained by Thames Water)

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gulley
- Culverted Watercourse
- Proposed
- Abandoned Sewer



The width of the displayed area is 200m and the centre of the map is located at OS coordinates 528101,187380

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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## ALS Water Map Key

### Water Pipes (Operated & Maintained by Thames Water)

4"	<b>Distribution Main:</b> The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
18"	<b>Trunk Main:</b> A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
3" SUPPLY	<b>Supply Main:</b> A supply main indicates that the water main is used as a supply for a single property or group of properties.
3" FIRE	<b>Fire Main:</b> Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
3" METERED	<b>Metered Pipe:</b> A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
—————	<b>Transmission Tunnel:</b> A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
-----	<b>Proposed Main:</b> A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

### Valves

I	General Purpose Valve
◆	Air Valve
▲	Pressure Control Valve
X	Customer Valve

### Hydrants

●	Single Hydrant
---	----------------

### Meters

■	Meter
---	-------

### End Items

Symbol indicating what happens at the end of a water main.

—	Blank Flange
—	Capped End
○	Emptying Pit
⊖	Undefined End
≡	Manifold
—	Customer Supply
—	Fire Supply

### Operational Sites

⊕	Booster Station
●	Other
●	Other (Proposed)
▲	Pumping Station
▲	Service Reservoir
⊕	Shaft Inspection
●	Treatment Works
⊙	Unknown
⚙	Water Tower

### Other Symbols

□	Data Logger
---	-------------

### Other Water Pipes (Not Operated or Maintained by Thames Water)

—————	<b>Other Water Company Main:</b> Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
—————	<b>Private Main:</b> Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

# Sewer Flooding

## History Enquiry



Thames Water Property Searches  
12  
Vastern Road  
Reading  
RG1 8DB

**Search address supplied**

6  
Fitzroy Park  
London  
N6 6HP

**Your reference**

0037 - Fitzroy Park, London

**Our reference**

SFH\_SFH\_Standard\_2011\_2129510

**Search date**

**24 November 2011**

Thames Water Utilities Ltd

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DX 151280 Slough 13

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I [www.thameswater-propertysearches.co.uk](http://www.thameswater-propertysearches.co.uk)

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# Sewer Flooding

## History Enquiry



**Search address supplied:** 6, Fitzroy Park, London, N6 6HP

**This search is recommended to check for any sewer flooding in a specific address or area**

TWUL, trading as Property Searches, are responsible in respect of the following:

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments

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# Sewer Flooding

## History Enquiry



### History of Sewer Flooding

#### **Is the requested address or area at risk of flooding due to overloaded public sewers?**

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website [www.thameswater.co.uk](http://www.thameswater.co.uk)

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## Appendix E

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Go

Enter a postcode or place name:

Other topics for this area...

Risk of Flooding from Rivers and Sea

N6 6HP

Go

Risk of Flooding from Rivers and Sea

## Map legend

Click on the map to see what is the Risk of Flooding at a particular location.

☒ Flood Maps

Flooding from rivers or sea without defences

Extent of extreme flood

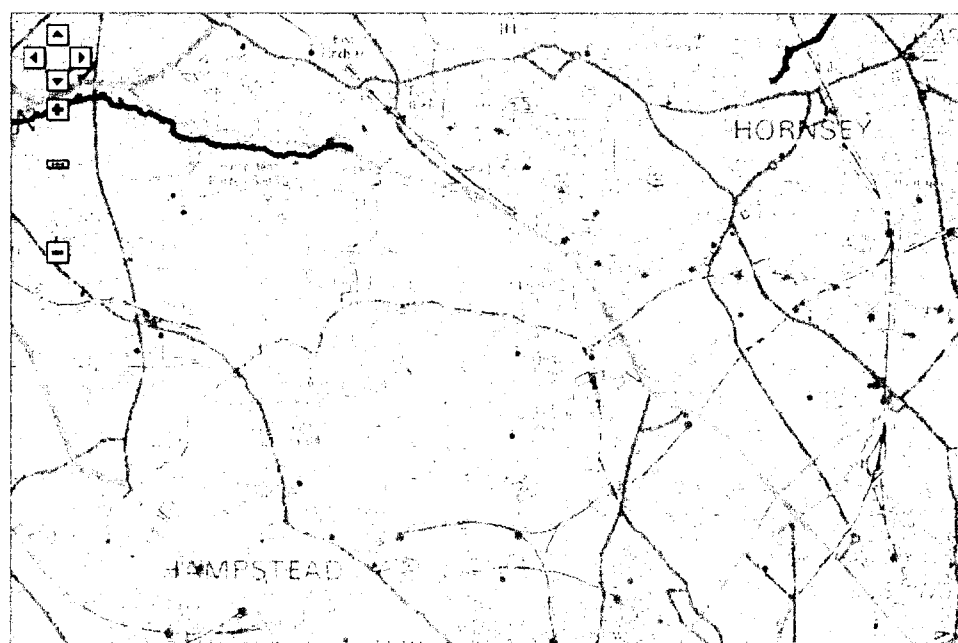
☒ Flood defences

☒ Areas benefiting from flood defences

☒ Main rivers

Map of N6 6HP at scale 1:40,000

Text only version



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## Flood Map – Information Warnings

## Manchester Ship Canal

Flood Mapping of the Manchester Ship Canal in Trafford, Salford and Warrington may be subject to revision as a result of representations. For further information please contact the Environment Agency on 03708 506 506.

Users of the Flood Zone Map should be aware that we have received a Judicial review challenge to the mapping of the Manchester Ship Canal at Trafford, Salford and Warrington on the ground that the preparation of the map is flawed in respect of our consideration of the role of the sluice gates in preventing flooding.

We are defending the challenge and believe and are advised that it is ill-founded. Nevertheless, pending determination of the challenge, users of the map need to consider whether the existence of the Challenge, and the basis of it, affects the weight they judge may be given to the zoning of the Manchester Ship Canal within the Flood Map.

## More about flooding:

## Understanding the flood map

A more detailed explanation to help you understand the flood map shown above.

## Current flood warnings

We provide flood warnings online 24 hours a day. Find out the current flood warning status in your local area.

## Flood map - your questions answered

Answers to commonly asked questions about the flood map.

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Enter a postcode or place name:

Other topics for this area...

Risk of Flooding from Reservoirs

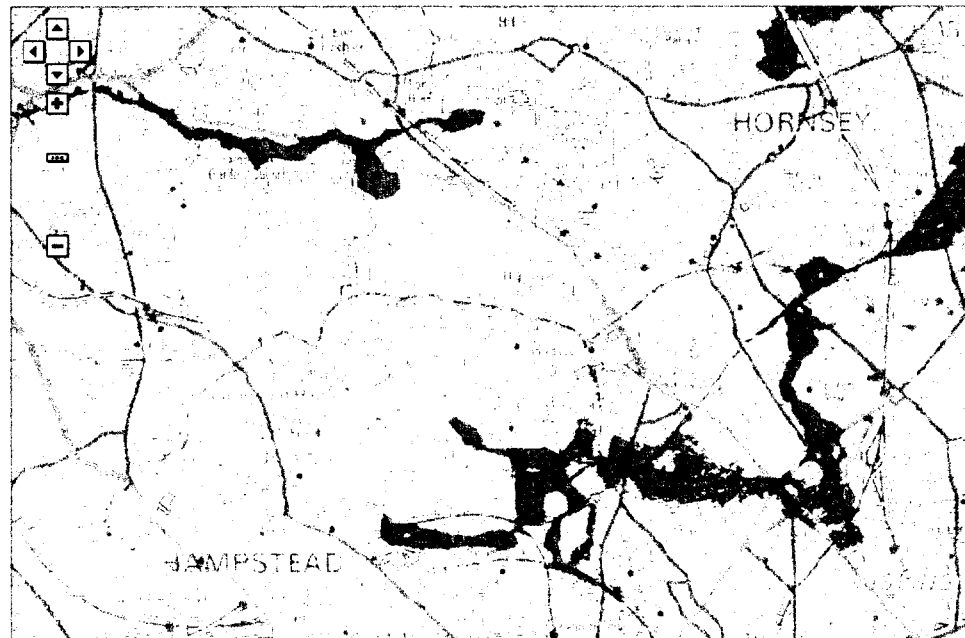
 

## Map legend

- Click within the extent of flooding to see which reservoirs affect this area
- ☒ Risk of Flooding from Reservoirs
- ☐ Maximum extent of flooding

Map of X: 528,113; Y: 187,384 at scale 1:40,000

Text only version



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Contains Royal Mail data © Royal Mail copyright and database right 2011

## Find out more:

This map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst case scenario, it's unlikely that any actual flood would be this large.

Remember - reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. Since then reservoir safety legislation has been introduced to make sure reservoirs are well maintained.

Please note that only flood maps for large reservoirs are displayed. Flood maps are not displayed for smaller reservoirs or for reservoirs commissioned after reservoir mapping began in spring 2009. The reservoir flood maps also don't give any information about how likely any area is to be flooded.

If your property is within the green highlighted area, then you could be affected by reservoir flooding. To find out more about the reservoirs that could cause this flooding, click on the map within the green highlighted area. You will find the name and ownership details of the reservoirs that could cause flooding in your area.

If you want to find out about local emergency plans you should contact the local authority responsible for that emergency plan but be aware that these reservoir flood plans may take some time to develop. You can find out which local authority to contact by clicking on the map.

[Reservoir flooding](#)[Guidance for people living near reservoirs](#)[Your questions answered](#)[Who to contact](#)

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## Appendix F

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Project No: 0037	Sheet: 1 of 4
Project Title: 6 Fitzroy Park, Highgate, London	
Engineer: LH	Date: 01/12/2011

#### Modified Rational (Wallingford) Method

1) Determine the 5 year 60 minute rainfall depth (m5-60) for the site location from Figure A.1 of the Rational Method

$$m5-60 = 21\text{mm}$$

Determine the ratio (r) of the 5 year 60 minute rainfall depth (m5-60) to the 5 year 2 day rainfall depth for the site location from Figure A.2 of the Rational Method

$$r = 0.4$$

2) Determine the rainfall depths in the 5 year return period event for all required storm durations (m5-D) from m5-D = Z1 (m5-60). Z1 is obtained from Figures A3.a and A3.b of the Rational Method

m5-5	Z1 = 0.36	m5-5 = 21 x 0.36 = 7.56mm
m5-15	Z1 = 0.64	m5-15 = 21 x 0.64 = 13.44mm
m5-30	Z1 = 0.79	m5-30 = 21 x 0.79 = 16.59mm
m5-60	Z1 = 1.00	m5-60 = 21 x 1.00 = 21.00mm

The calculation of peak runoff for storm durations up to 6 hours (m5-360) is desirable, however insufficient Z2 data (see below) is provided within the Rational Method to permit this and the use of FEH data is ill-advised for site specific assessments

3) Convert the 5 year rainfall depths to rainfall depths for all required return period events (mT-D) from MT-D = Z2 (m5-D). Z2 is obtained from Tables A1 and A2 of the Rational Method

m1-5	Z2 = 0.61	m1-5 = 7.56 x 0.61 = 4.61mm
m1-15	Z2 = 0.62	m1-15 = 13.44 x 0.62 = 8.33mm
m1-30	Z2 = 0.63	m1-30 = 16.59 x 0.63 = 10.45mm
m1-60	Z2 = 0.64	m1-60 = 21.00 x 0.64 = 13.44mm
m5-5	Z2 = 1.03	m5-5 = 7.56 x 1.03 = 7.79mm
m5-15	Z2 = 1.03	m5-15 = 13.44 x 1.03 = 13.84mm
m5-30	Z2 = 1.03	m5-30 = 16.59 x 1.03 = 17.09mm
m5-60	Z2 = 1.03	m5-60 = 21.00 x 1.03 = 21.63mm
m30-5	Z2 = 1.46	m30-5 = 7.56 x 1.46 = 11.04mm
m30-15	Z2 = 1.52	m30-15 = 13.44 x 1.52 = 20.43mm
m30-30	Z2 = 1.53	m30-30 = 16.59 x 1.53 = 25.38mm
m30-60	Z2 = 1.55	m30-60 = 21.00 x 1.55 = 32.55mm



Project No:	0037	Sheet:	2 of 4
Project Title:	6 Fitzroy Park, Highgate, London		
Engineer:	LH	Date:	01/12/2011

m100-5	Z2 = 1.85	m100-5 = 7.56 x 1.85 = 13.99mm
m100-15	Z2 = 1.97	m100-15 = 13.44 x 1.97 = 26.48mm
m100-30	Z2 = 2.00	m100-30 = 16.59 x 2.00 = 33.18mm
m100-60	Z2 = 2.03	m100-60 = 21.00 x 2.03 = 42.63mm

4) Convert the rainfall depths into point intensities using the equation:

$$i = \frac{mT-D}{D} \quad \text{where:}$$

$i$  = point intensity  
 $T$  = return period  
 $D$  = storm duration

$$\begin{aligned}
 m1-5 &= 4.61/(5/60) = 55.32\text{mm/hr} \\
 m1-15 &= 8.33/(15/60) = 33.32\text{mm/hr} \\
 m1-30 &= 10.45/(30/60) = 20.90\text{mm/hr} \\
 m1-60 &= 13.44/(60/60) = 13.44\text{mm/hr}
 \end{aligned}$$

$$\begin{aligned}
 m5-5 &= 7.79/(5/60) = 93.48\text{mm/hr} \\
 m5-15 &= 13.84/(15/60) = 55.36\text{mm/hr} \\
 m5-30 &= 17.09/(30/60) = 34.18\text{mm/hr} \\
 m5-60 &= 21.63/(60/60) = 21.63\text{mm/hr}
 \end{aligned}$$

$$\begin{aligned}
 m30-5 &= 11.04/(5/60) = 132.48\text{mm/hr} \\
 m30-15 &= 20.43/(15/60) = 81.72\text{mm/hr} \\
 m30-30 &= 25.38/(30/60) = 50.76\text{mm/hr} \\
 m30-60 &= 32.55/(60/60) = 32.55\text{mm/hr}
 \end{aligned}$$

$$\begin{aligned}
 m100-5 &= 13.99/(5/60) = 167.88\text{mm/hr} \\
 m100-15 &= 26.48/(15/60) = 105.92\text{mm/hr} \\
 m100-30 &= 33.18/(30/60) = 66.36\text{mm/hr} \\
 m100-60 &= 42.63/(60/60) = 42.63\text{mm/hr}
 \end{aligned}$$

5) Apply an aerial reduction factor (if required) to the rainfall using Figure A.4 of the Rational Method based on the site area of 2,800m<sup>2</sup> (0.002km<sup>2</sup> 0.28ha). Aerial reduction factors are only required for sites over 1km<sup>2</sup> in area and hence will not be applied to the rainfall intensities calculated above.

6) Adjust the peak rainfall intensities for the anticipated effects of climate change. This is done in line with the recommendations given in Appendix B of Planning Policy Statement 25 (PPS25) (Communities and Local Government 2006, updated 2010) which suggests an increase in peak rainfall intensity of 30% between 2085 and 2115, appropriate to the 100 year design lifetime of the development



Project No:	0037	Sheet:	3 of 4
Project Title:	6 Fitzroy Park, Highgate, London		
Engineer:	LH	Date:	01/12/2011

m1-5 =  $55.32 \times 1.3 = 71.92\text{mm/hr}$   
m1-15 =  $33.32 \times 1.3 = 43.32\text{mm/hr}$   
m1-30 =  $20.90 \times 1.3 = 22.17\text{mm/hr}$   
m1-60 =  $13.44 \times 1.3 = 17.47\text{mm/hr}$

m5-5 =  $93.48 \times 1.3 = 121.52\text{mm/hr}$   
m5-15 =  $55.36 \times 1.3 = 71.97\text{mm/hr}$   
m5-30 =  $34.18 \times 1.3 = 44.43\text{mm/hr}$   
m5-60 =  $21.63 \times 1.3 = 28.12\text{mm/hr}$

m30-5 =  $132.48 \times 1.3 = 172.22\text{mm/hr}$   
m30-15 =  $81.72 \times 1.3 = 106.24\text{mm/hr}$   
m30-30 =  $50.76 \times 1.3 = 65.99\text{mm/hr}$   
m30-60 =  $32.55 \times 1.3 = 42.32\text{mm/hr}$

m100-5 =  $167.88 \times 1.3 = 218.24\text{mm/hr}$   
m100-15 =  $105.92 \times 1.3 = 137.70\text{mm/hr}$   
m100-30 =  $66.36 \times 1.3 = 86.27\text{mm/hr}$   
m100-60 =  $42.63 \times 1.3 = 55.42\text{mm/hr}$

7) Calculate the existing peak runoff rates using the equation:

$$Q = 2.78 \text{ C i A}$$

where:

Q = peak discharge (l/s)

$C_v = 0.7$  (moderately permeable soils)

C = dimensionless coefficient where  $C = C_v \times C_R$

i = rainfall intensity (mm/hr)

$C_R = 1.30$  (recommended value)

A = contributing catchment area (ha)

The contributing catchment area comprises approximately  $636\text{m}^2$  (0.0636ha) of existing impermeable roof and hardstanding areas.

m1-5 =  $2.78 \times 0.7 \times 1.3 \times 71.92 \times 0.0636 = 11.57 \text{ l/s}$   
m1-15 =  $2.78 \times 0.7 \times 1.3 \times 43.32 \times 0.0636 = 6.97 \text{ l/s}$   
m1-30 =  $2.78 \times 0.7 \times 1.3 \times 22.17 \times 0.0636 = 3.57 \text{ l/s}$   
m1-60 =  $2.78 \times 0.7 \times 1.3 \times 17.47 \times 0.0636 = 2.81 \text{ l/s}$

m5-5 =  $2.78 \times 0.7 \times 1.3 \times 121.52 \times 0.0636 = 19.55 \text{ l/s}$   
m5-15 =  $2.78 \times 0.7 \times 1.3 \times 71.97 \times 0.0636 = 11.58 \text{ l/s}$   
m5-30 =  $2.78 \times 0.7 \times 1.3 \times 44.43 \times 0.0636 = 7.15 \text{ l/s}$   
m5-60 =  $2.78 \times 0.7 \times 1.3 \times 28.12 \times 0.0636 = 4.52 \text{ l/s}$



Project No:	0034	Sheet:	4 of 4
Project Title:	6 Fitzroy Park, Highgate, London		
Engineer:	LH	Date:	01/12/2011

$m_{30-5} = 2.78 \times 0.7 \times 1.3 \times 172.22 \times 0.0636 = 27.71 \text{ l/s}$   
 $m_{30-15} = 2.78 \times 0.7 \times 1.3 \times 106.24 \times 0.0636 = 17.09 \text{ l/s}$   
 $m_{30-30} = 2.78 \times 0.7 \times 1.3 \times 65.99 \times 0.0636 = 10.62 \text{ l/s}$   
 $m_{30-60} = 2.78 \times 0.7 \times 1.3 \times 42.32 \times 0.0636 = 6.81 \text{ l/s}$

$m_{100-5} = 2.78 \times 0.7 \times 1.3 \times 218.24 \times 0.0636 = 35.11 \text{ l/s}$   
 $m_{100-15} = 2.78 \times 0.7 \times 1.3 \times 137.70 \times 0.0636 = 22.16 \text{ l/s}$   
 $m_{100-30} = 2.78 \times 0.7 \times 1.3 \times 86.27 \times 0.0636 = 13.88 \text{ l/s}$   
 $m_{100-60} = 2.78 \times 0.7 \times 1.3 \times 55.42 \times 0.0636 = 8.92 \text{ l/s}$

8) Calculate the post-development peak runoff rates using the equation:

$$Q = 2.78 C_i A$$

where:

$C_v = 0.7$  (moderately permeable soils)

$Q$  = peak discharge (l/s)

$C$  = dimensionless coefficient where  $C = C_v \times C_R$

$i$  = rainfall intensity (mm/hr)

$C_R = 1.30$  (recommended value)

$A$  = contributing catchment area (ha)

The contributing catchment area comprises approximately  $636\text{m}^2$  (0.0636ha) of existing impermeable areas and  $39\text{m}^2$  (0.0039ha) of proposed new impermeable area. This gives a total post-development contributing area of  $675\text{m}^2$  (0.0675ha).

$m_{1-5} = 2.78 \times 0.7 \times 1.3 \times 71.92 \times 0.0675 = 12.28 \text{ l/s}$   
 $m_{1-15} = 2.78 \times 0.7 \times 1.3 \times 43.32 \times 0.0675 = 7.40 \text{ l/s}$   
 $m_{1-30} = 2.78 \times 0.7 \times 1.3 \times 22.17 \times 0.0675 = 3.79 \text{ l/s}$   
 $m_{1-60} = 2.78 \times 0.7 \times 1.3 \times 17.47 \times 0.0675 = 2.98 \text{ l/s}$

$m_{5-5} = 2.78 \times 0.7 \times 1.3 \times 121.52 \times 0.0675 = 20.75 \text{ l/s}$   
 $m_{5-15} = 2.78 \times 0.7 \times 1.3 \times 71.97 \times 0.0675 = 12.29 \text{ l/s}$   
 $m_{5-30} = 2.78 \times 0.7 \times 1.3 \times 44.43 \times 0.0675 = 7.59 \text{ l/s}$   
 $m_{5-60} = 2.78 \times 0.7 \times 1.3 \times 28.12 \times 0.0675 = 4.80 \text{ l/s}$

$m_{30-5} = 2.78 \times 0.7 \times 1.3 \times 172.22 \times 0.0675 = 29.41 \text{ l/s}$   
 $m_{30-15} = 2.78 \times 0.7 \times 1.3 \times 106.24 \times 0.0675 = 18.14 \text{ l/s}$   
 $m_{30-30} = 2.78 \times 0.7 \times 1.3 \times 65.99 \times 0.0675 = 11.27 \text{ l/s}$   
 $m_{30-60} = 2.78 \times 0.7 \times 1.3 \times 42.32 \times 0.0675 = 7.23 \text{ l/s}$

$m_{100-5} = 2.78 \times 0.7 \times 1.3 \times 218.24 \times 0.0675 = 37.27 \text{ l/s}$   
 $m_{100-15} = 2.78 \times 0.7 \times 1.3 \times 137.70 \times 0.0675 = 23.51 \text{ l/s}$   
 $m_{100-30} = 2.78 \times 0.7 \times 1.3 \times 86.27 \times 0.0675 = 14.73 \text{ l/s}$   
 $m_{100-60} = 2.78 \times 0.7 \times 1.3 \times 55.42 \times 0.0675 = 9.46 \text{ l/s}$

### IoH 124 Calculation of Greenfield Runoff

Project: 6 Fitzroy Park, Highgate, London, N6 6HP

Date: 02/12/2011

SAAR: 682mm Taken from FEH CD-ROM Version 3 and checked against Wallingford Procedure Volume 3 Map: Average Annual Rainfall (1941-1970) mm

Site area: 50ha / 0.5km<sup>2</sup> Always assumed to be 50ha with runoff rates adjusted pro-rata later for actual site area

Soil Type SPR value: 0.3 Wallingford soil grading taken from Wallingford Procedure Volume 3 Map: Winter rain acceptance potential and converted to SPR value using the Flood Studies Report conversion table, also checked against FEH CD-ROM Version 3 SPRHOST value

Wallingford soil grading	SPR value from FSR
1	0.10
2	0.30
3	0.37
4	0.47
5	0.53

$$QBAR = 0.00108 \times (AREA)^{0.89} \times (SAAR)^{1.17} \times (SOIL)^{2.17}$$

$$QBAR = 0.00108 \times 0.5^{0.89} \times 682^{1.17} \times 0.3^{2.17}$$

$$QBAR (50ha) = 0.088m^3/s$$

Runoff as calculated from the Regional Growth Curve Factor for FSR Hydrological Region 6/7:

Region 6/7	Growth Factor
1	0.85
2	0.88
5	1.28
10	1.62
25	2.14
30	2.24
50	2.62
100	3.19

$$Q1 \text{ 50ha} = 0.075 m^3/s = 75.129 l/s = 1.503 l/s/ha$$

$$Q5 \text{ 50ha} = 0.113 m^3/s = 113.135 l/s = 2.263 l/s/ha$$

$$Q25 \text{ 50ha} = 0.189 m^3/s = 189.148 l/s = 3.783 l/s/ha$$

$$Q30 \text{ 50ha} = 0.198 m^3/s = 197.987 l/s = 3.960 l/s/ha$$

$$Q100 \text{ 50ha} = 0.282 m^3/s = 281.954 l/s = 5.639 l/s/ha$$

Runoff as factored for site

Actual site area: 0.28ha / 2,800m<sup>2</sup>

QBAR Site = 0.0004 m<sup>3</sup>/s = 0.4 l/s = 1.578 l/s/ha

Q1 Site = 0.0004 m<sup>3</sup>/s = 0.4 l/s = 1.503 l/s/ha

Q5 Site = 0.0006 m<sup>3</sup>/s = 0.6 l/s = 2.263 l/s/ha

Q25 Site = 0.0011 m<sup>3</sup>/s = 1.1 l/s = 3.783 l/s/ha

Q30 Site = 0.0011 m<sup>3</sup>/s = 1.1 l/s = 3.960 l/s/ha

Q100 Site = 0.0016 m<sup>3</sup>/s = 1.6 l/s = 5.639 l/s/ha

Note: For Greenfield sites, the critical duration is generally not relevant and the prediction of the peak rate of runoff using loH124 does not require consideration of storm duration

Note: PPS 25 does not provide guidance on applying climate change to Greenfield runoff, only to peak rainfall intensities and river flows



## MicroDrainage outputs

### Quick Storage Estimate

Variables	
FSR Rainfall	Cv (Summer) 0.750
Return Period 100	Cv (Winter) 0.840
	Impermeable Area 0.068
Regi England and Wal	Maximum Allowable Discharge (l/s) 5.0
Ma M5-60 21 000	
Ratio R 0.400	Infiltration Coefficient 0.01000
	Safety Factor 2.0
	Climate Change (%) 30

Results

Design

Overview 2D

Overview 3D

Vt

Analyse OK Cancel Help

Enter Climate Change between -100 and 600

### Quick Storage Estimate

Results	
	Global Variables require approximate storage of between 16 m³ and 27 m³.
Variables	With Infiltration storage is reduced to between 15 m³ and 27 m³.
Results	These values are estimates only and should not be used for design purposes.
Design	
Overview 2D	
Overview 3D	
Vt	

Analyse OK Cancel Help

Enter Climate Change between -100 and 600

## Appendix G

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APPROXIMATE DIRECTION

Subject to detailed dimensional survey - Please note these drawings are based on existing drawings prepared by others. BB Partnership cannot be held responsible for any discrepancies and/or inaccuracy that may arise

SCHEME DESIGN SUBJECT TO  
STRUCTURAL ENGINEER / SERVICES ENGINEER  
& PLANNERS COMMENT

**BB PARTNERSHIP LTD**  
CHARTERED ARCHITECTS

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client Mr. & Mrs. McShane

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project 6 Fitzroy Park  
Highgate  
N6 6HP

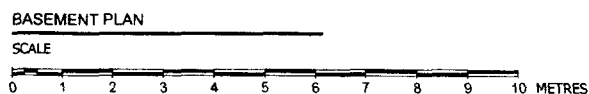
drawing Basement Plan Proposed

date Apr'12	scale 1:100 @ A3	drawn by NM
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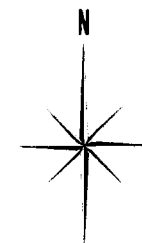






# Note

Use figured dimensions only. All dimensions are to be checked on site and any discrepancies, errors or omissions are to be reported to the architect prior to commencement of works.



APPROXIMATE DIRECTION

## KEY

- Existing Wall
- New Wall
- Existing Level
- Proposed Level

Subject to detailed dimensional survey - Please note these drawings are based on existing drawings prepared by others. BB Partnership cannot be held responsible for any discrepancies and/or inaccuracy that may arise

ALL DIMENSIONS APPROXIMATE

SCHEME DESIGN SUBJECT TO STRUCTURAL ENGINEER SERVICES ENGINEER & PLANNERS COMMENT

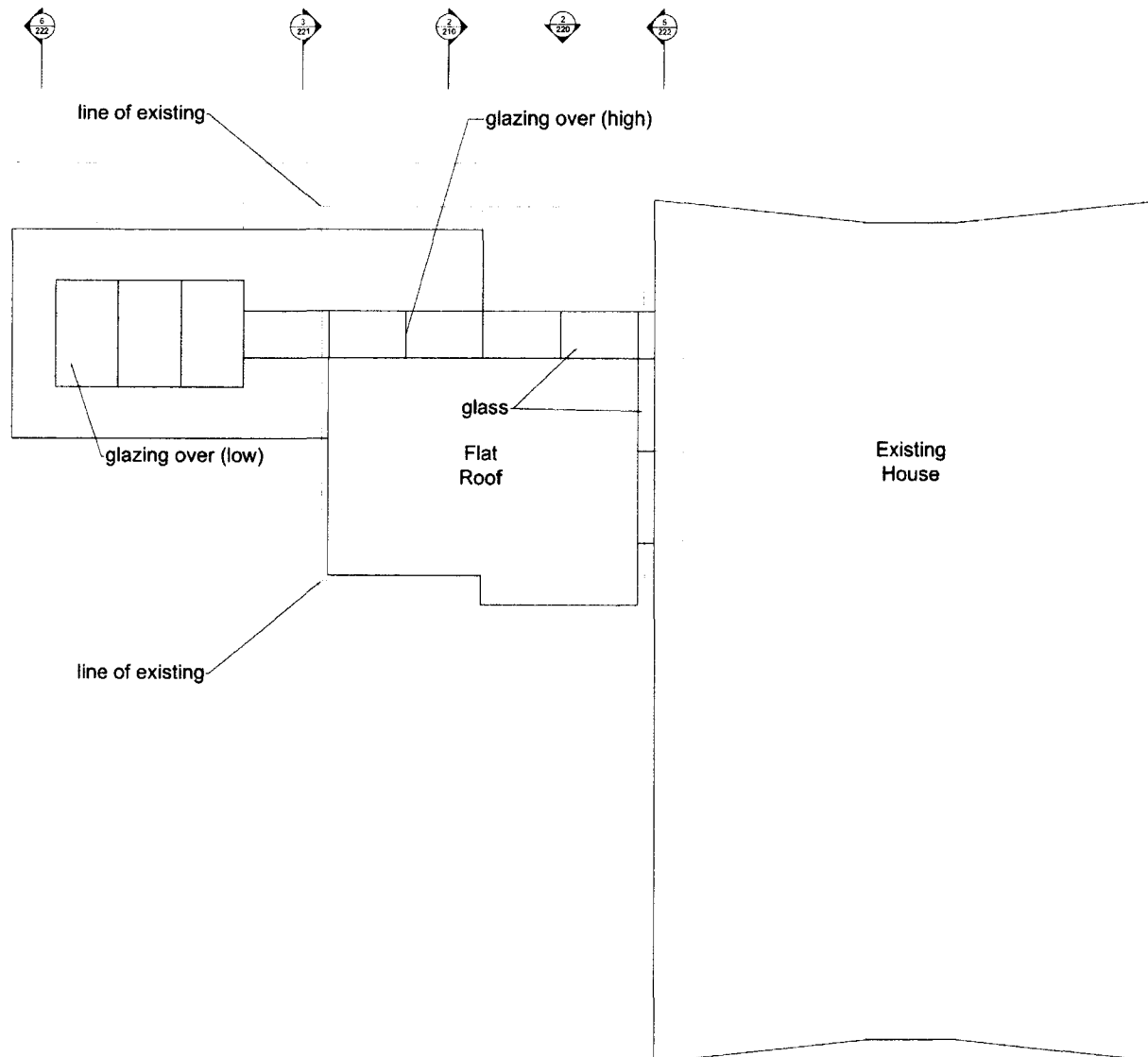
PRELIMINARY FOR COMMENT / DISCUSSION

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client Mr. S. Mrs. Message		
project 6 Fitzroy Park Highgate NG GHP		
drawing Roof Plan Proposed		
date Apr'12	scale 1:100 @ A3	drawn by NM
designed by	checked by	approved by
ESW_304		

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line of existing

line of existing

glazing over (high)

glazing over (low)

glass

Flat Roof

Existing House

line of existing

ROOF PLAN

SCALE

