

Site Details:

Shaftsbury Theatre, WC2H 8DP

Client Ref: EMS_444986_596606
Report Ref: EMS-444986_596606
Grid Ref: 530136, 181353

Map Name: County Series

Map date: 1894-1895

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1884
Revised 1884
Edition N/A
Copyright N/A
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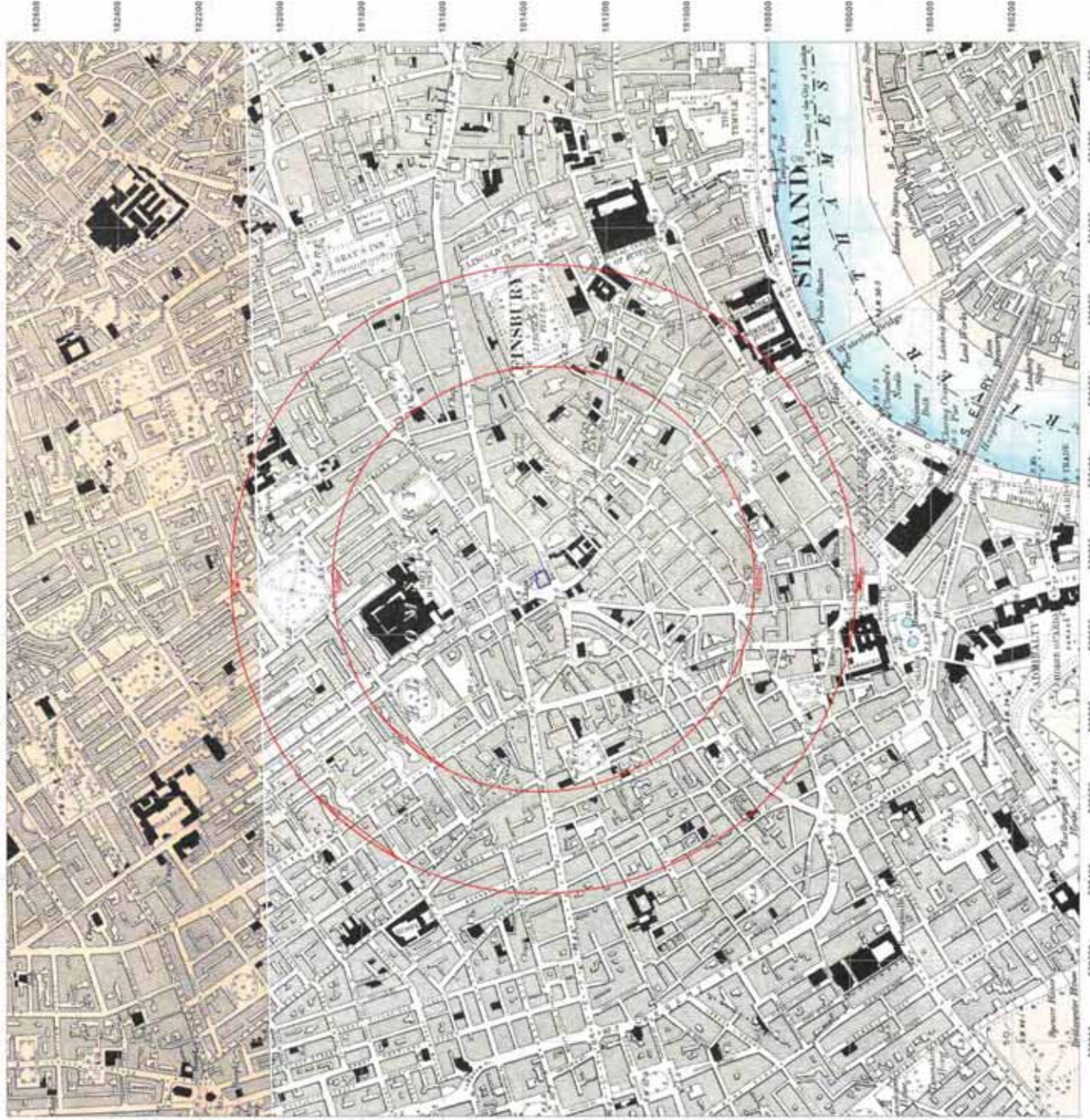
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Map Name: County Series

Map date: 1895

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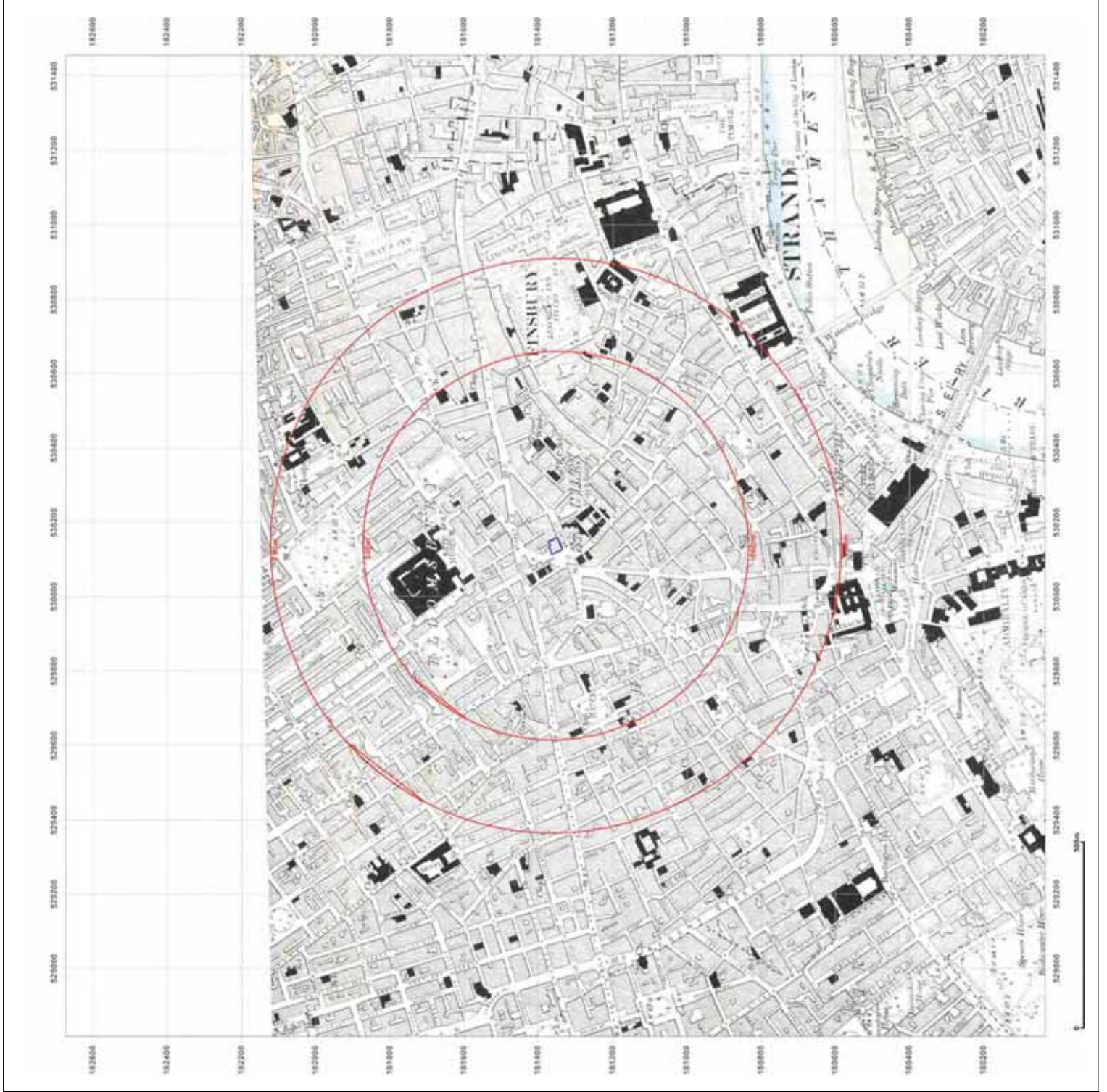
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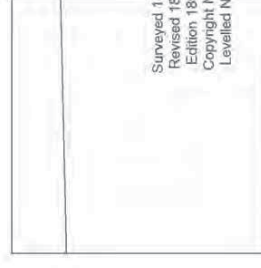
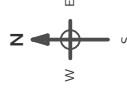
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Grid Ref: 530136, 181353

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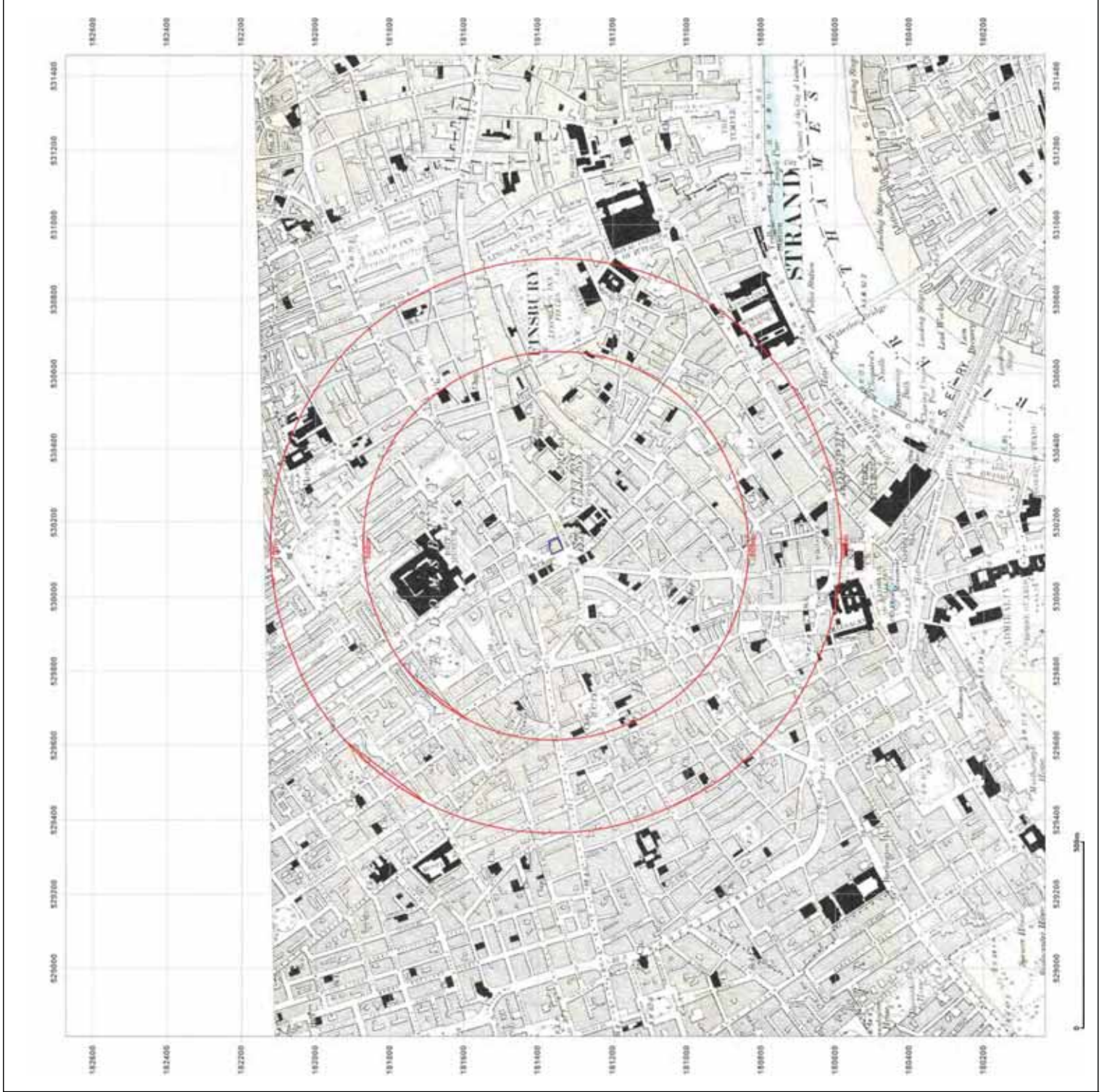
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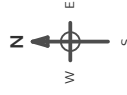
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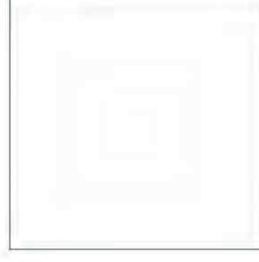
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Revised 1919
Edition 1920
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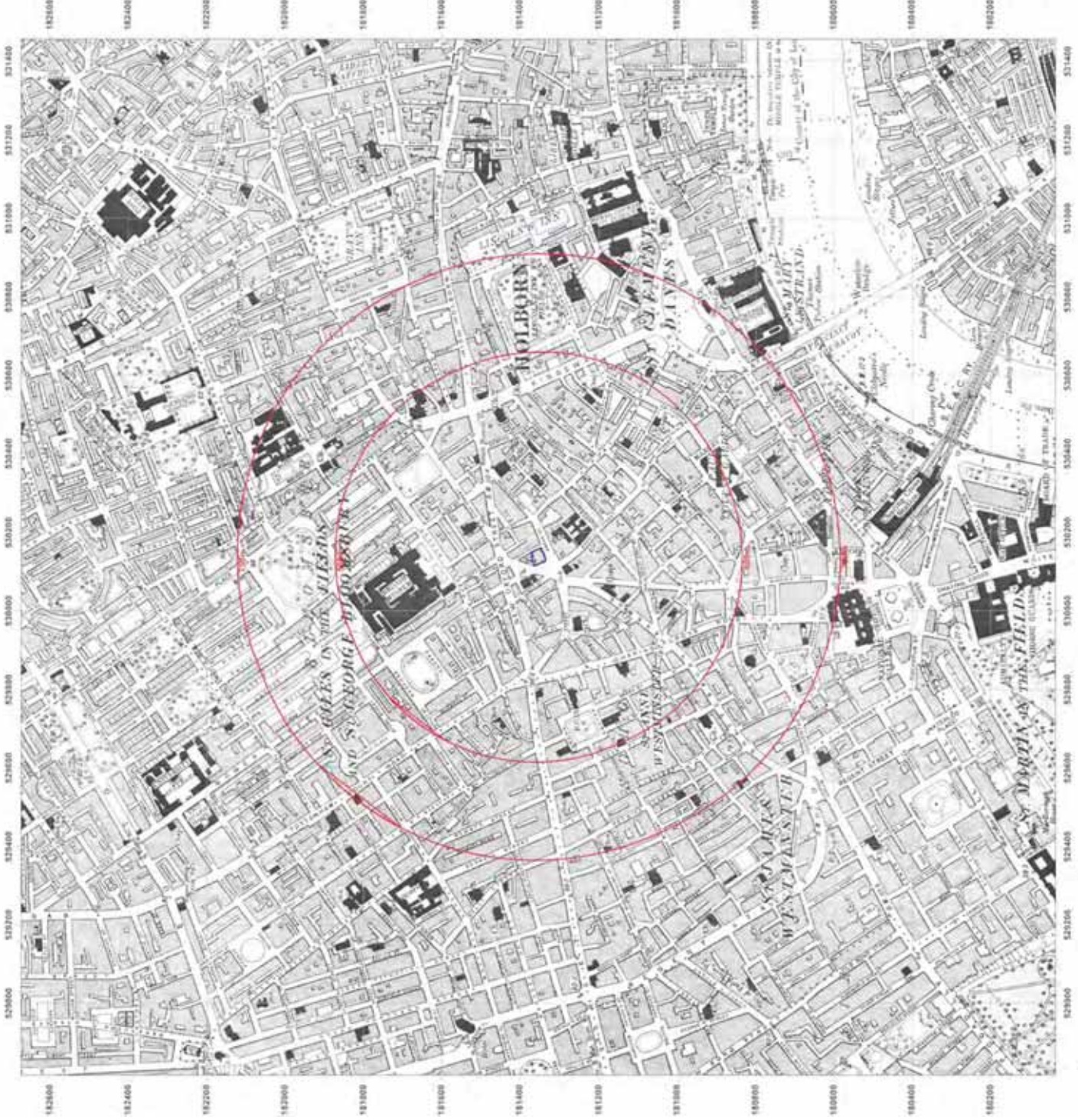
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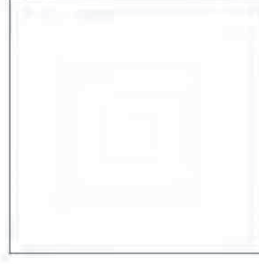
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Surveyed 1872
Revised 1938
Edition N/A
Copyright N/A
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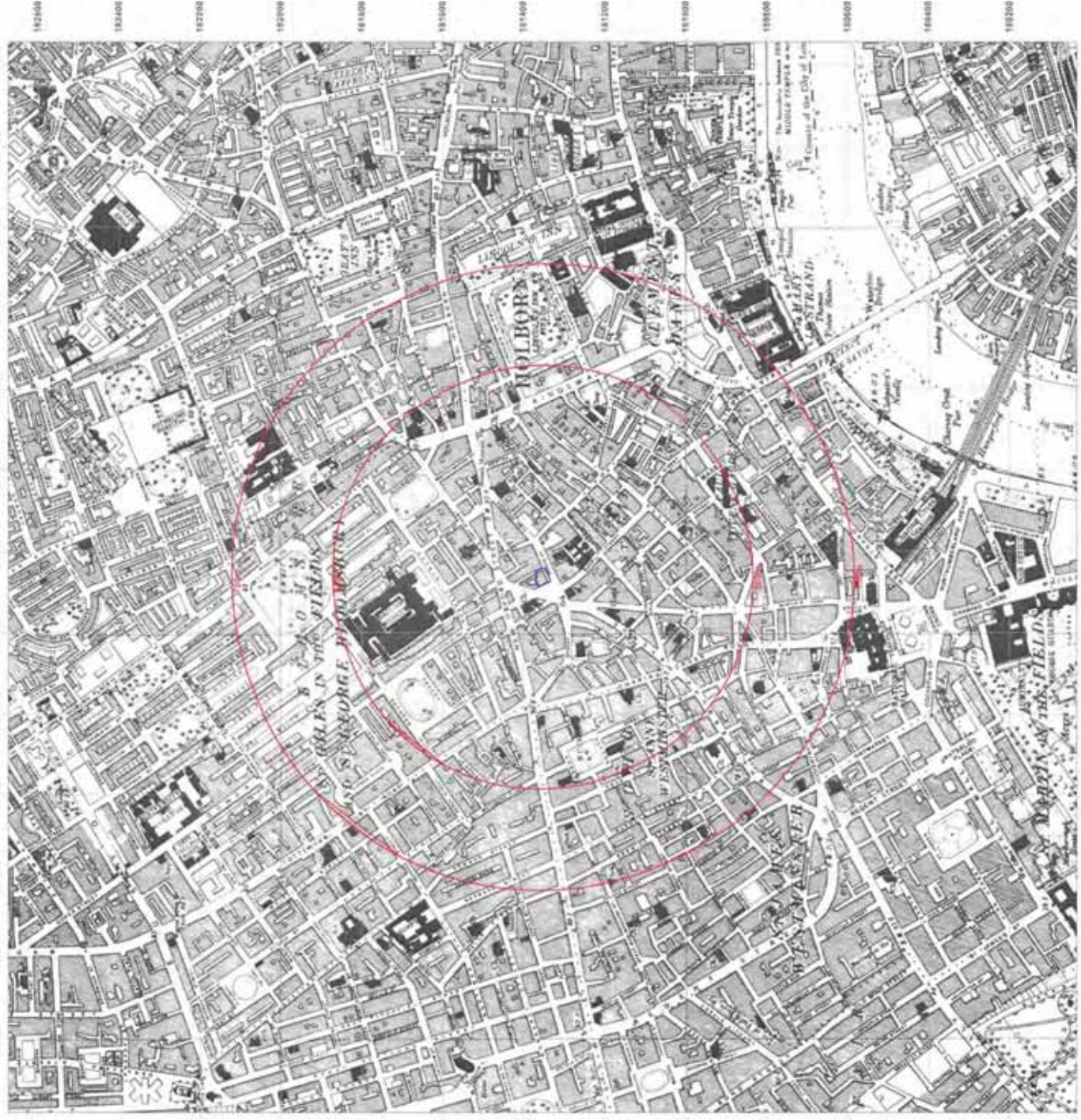
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Grid Ref: 530136, 181353

Map Name: Provisional

Map date: 1948-1951

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised 1949
Edition N/A
Copyright 1951
Levelled N/A

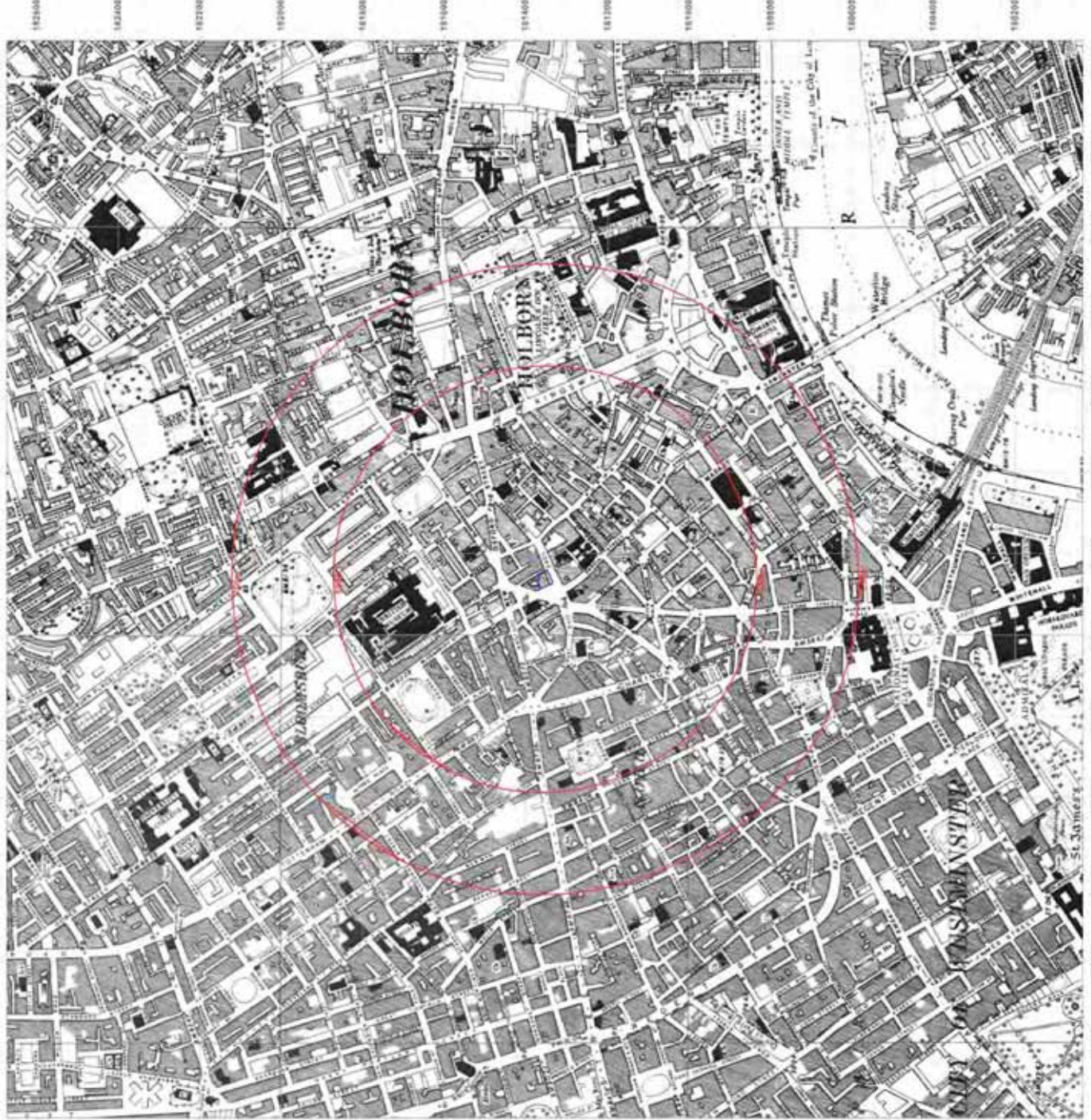
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Grid Ref: 530136, 181353

Map Name: Provisional

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Printed at: 1:10,560



Surveyed 1957
Revised 1957
Edition N/A
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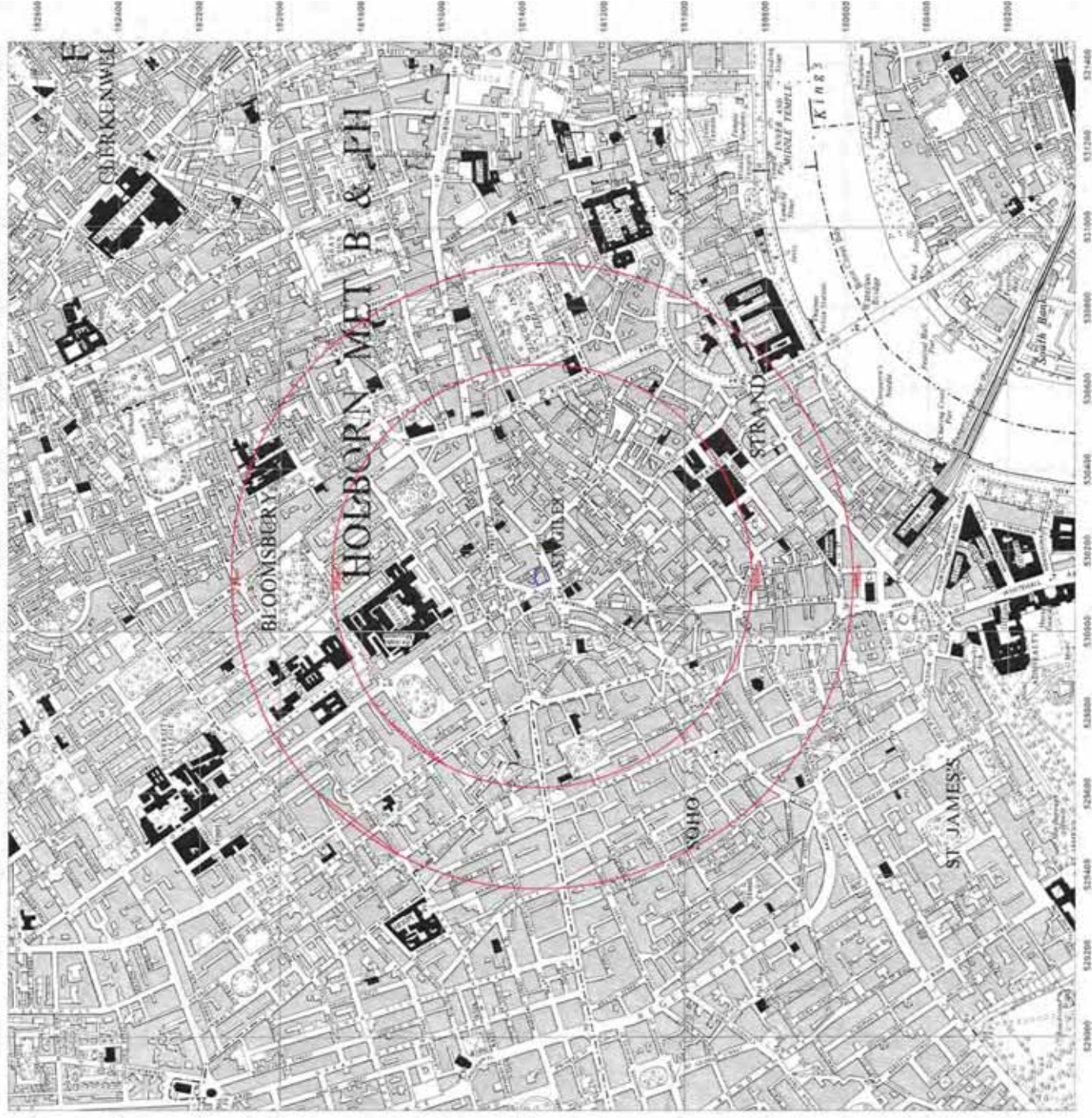
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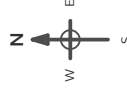
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Report Ref: EMS-444986_596606
Grid Ref: 530136, 181353

Map Name: Provisional

Map date: 1966-1968

Scale: 1:10,560

Printed at: 1:10,560



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Edition N/A
Copyright N/A
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Surveyed 1963
Revised 1965
Edition N/A
Copyright 1966
Levelled N/A



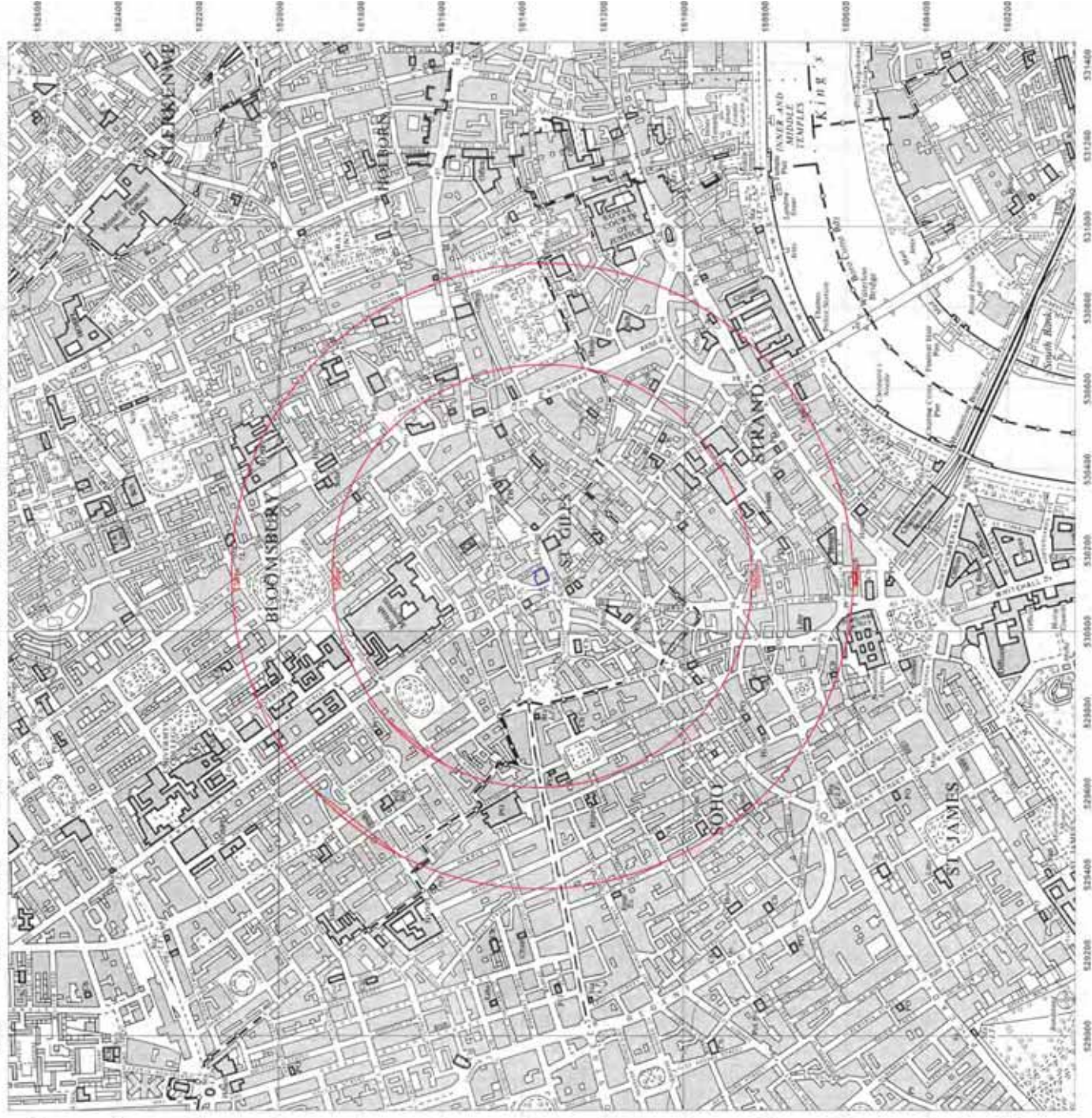
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Client Ref: EMS-444986_596606
Report Ref: EMS-444986_596606
Grid Ref: 530136, 181353

Map Name: National Grid

Map date: 1971-1973

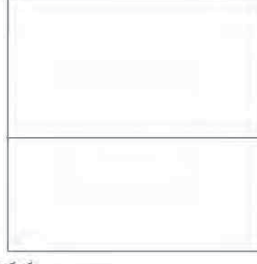
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Printed at: 1:10,000



Surveyed 1972
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1971
Revised 1971
Edition N/A
Copyright N/A
Levelled N/A



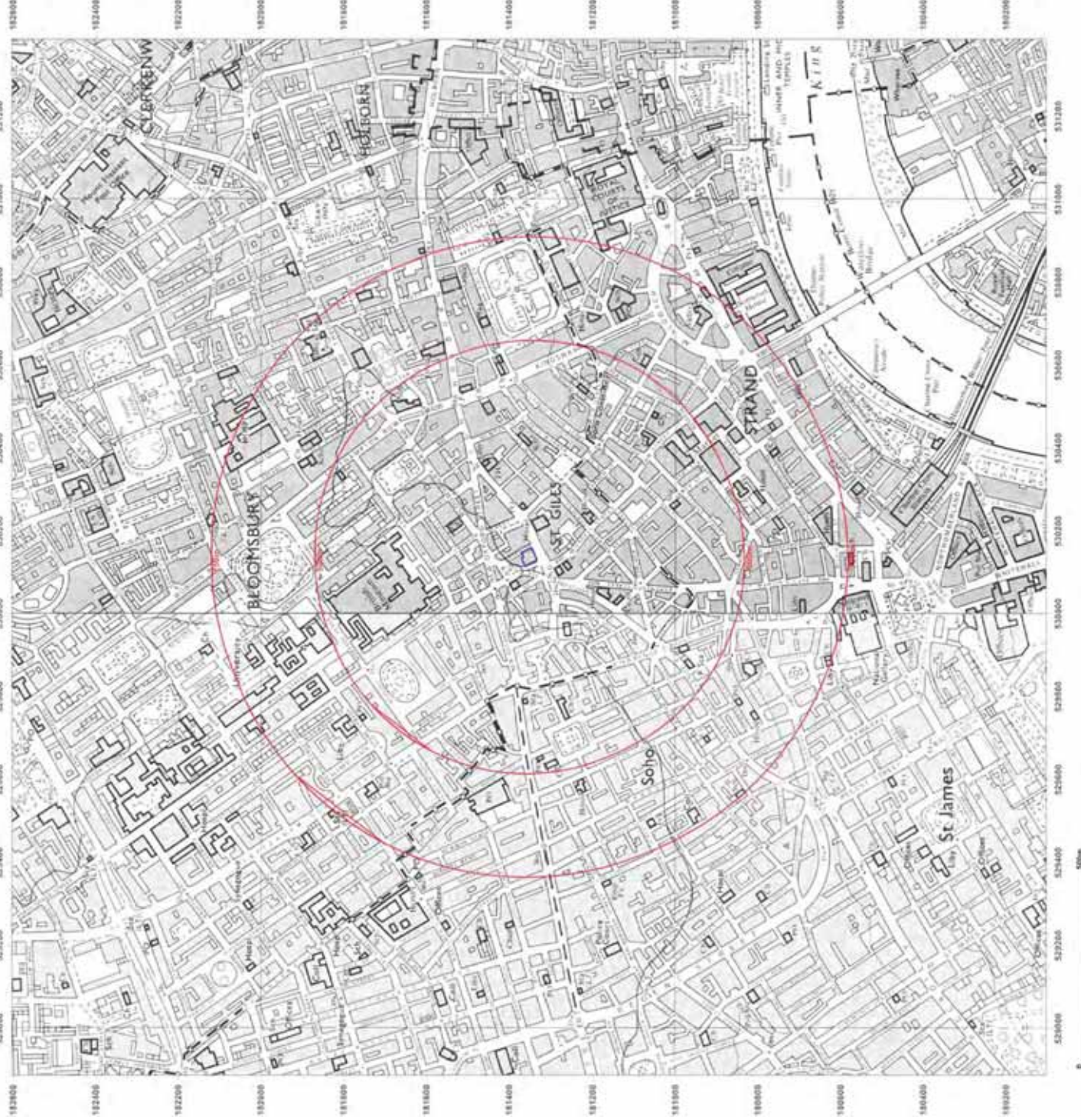
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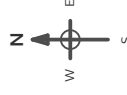
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Grid Ref: 530136, 181353

Map Name: National Grid

Map date: 1976

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1974
Revised 1976
Edition N/A
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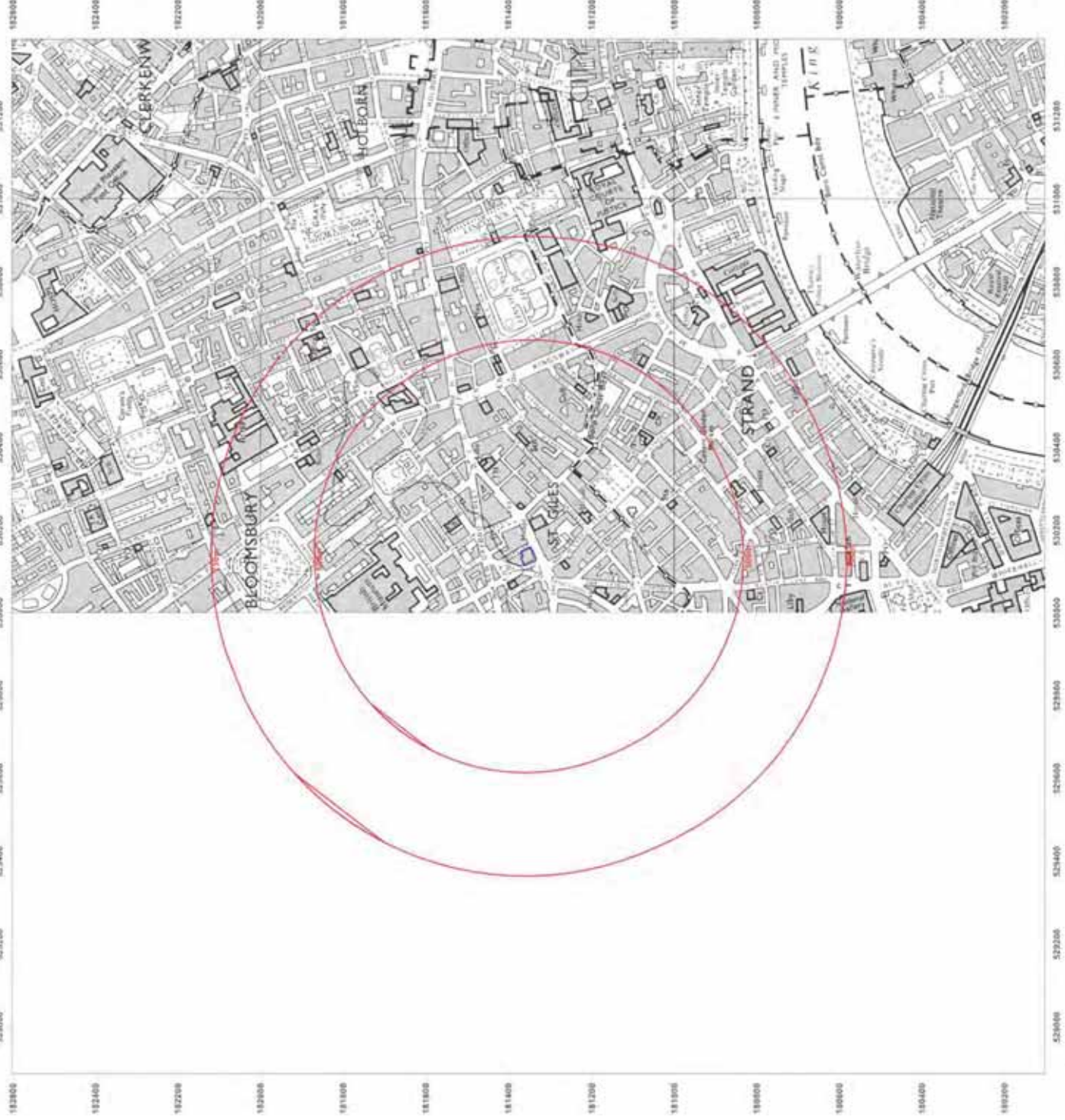
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Site Details:

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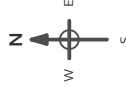
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Map Name: National Grid

Map date: 1989-1994

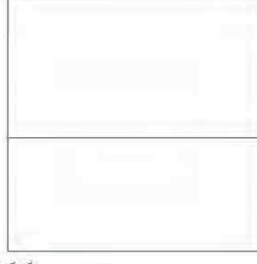
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Edition N/A
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Surveyed 1984
Revised 1984
Edition N/A
Copyright N/A
Levelled N/A



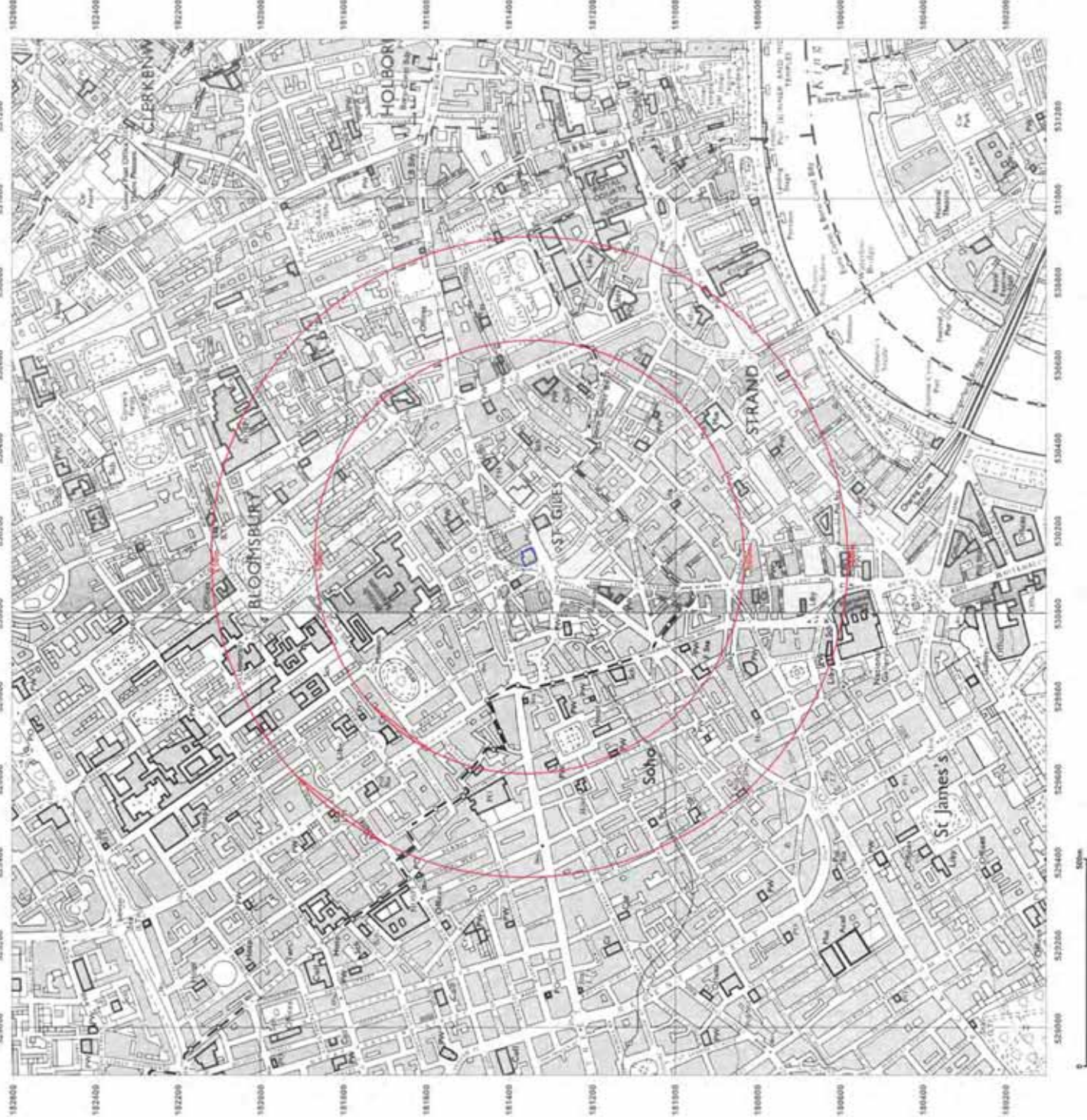
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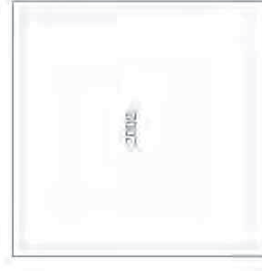
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Grid Ref: 530136, 181353

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

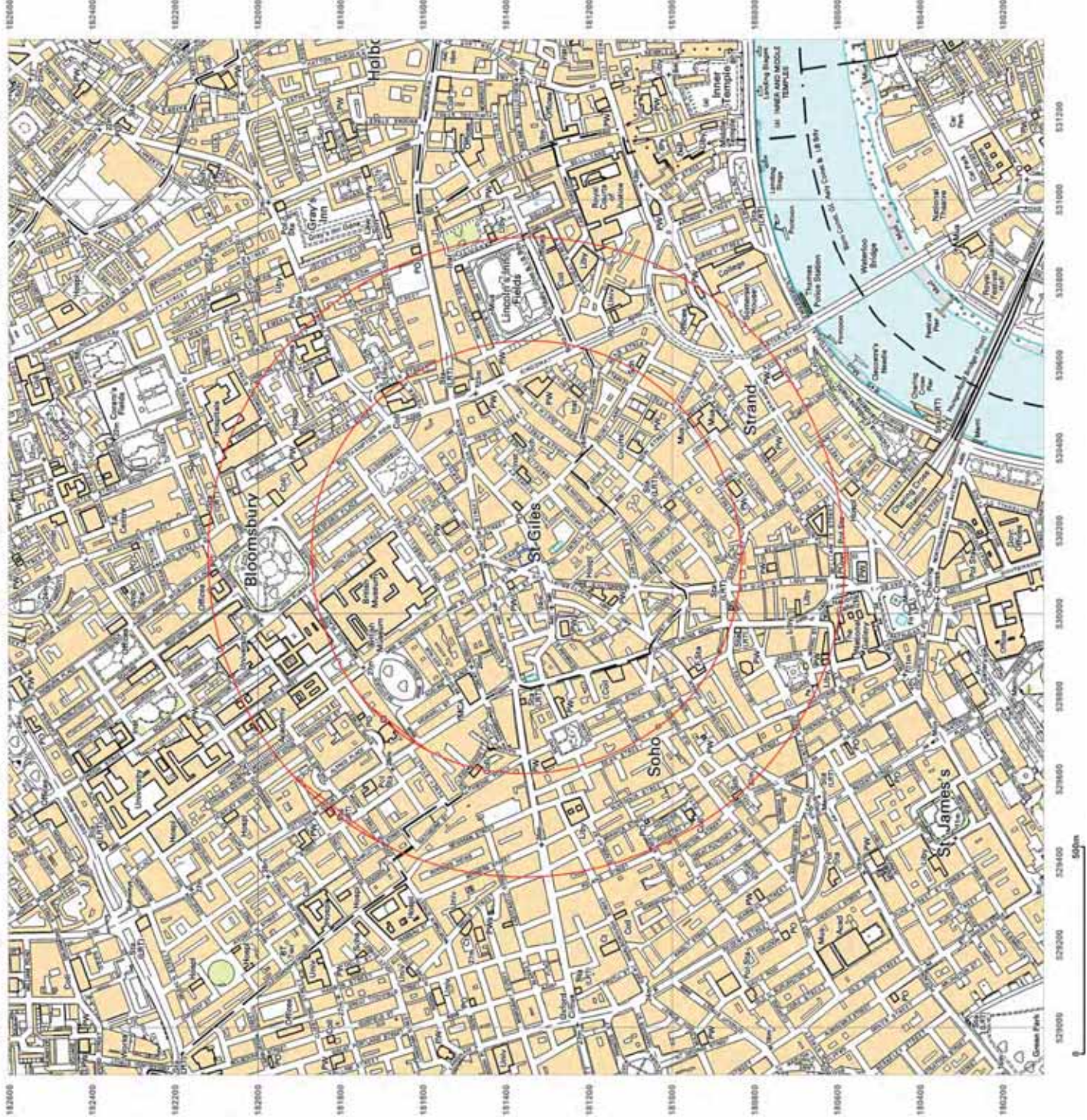
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Client Ref: EMS_444986_596606
Report Ref: EMS-444986_596606
Grid Ref: 530136, 181353

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



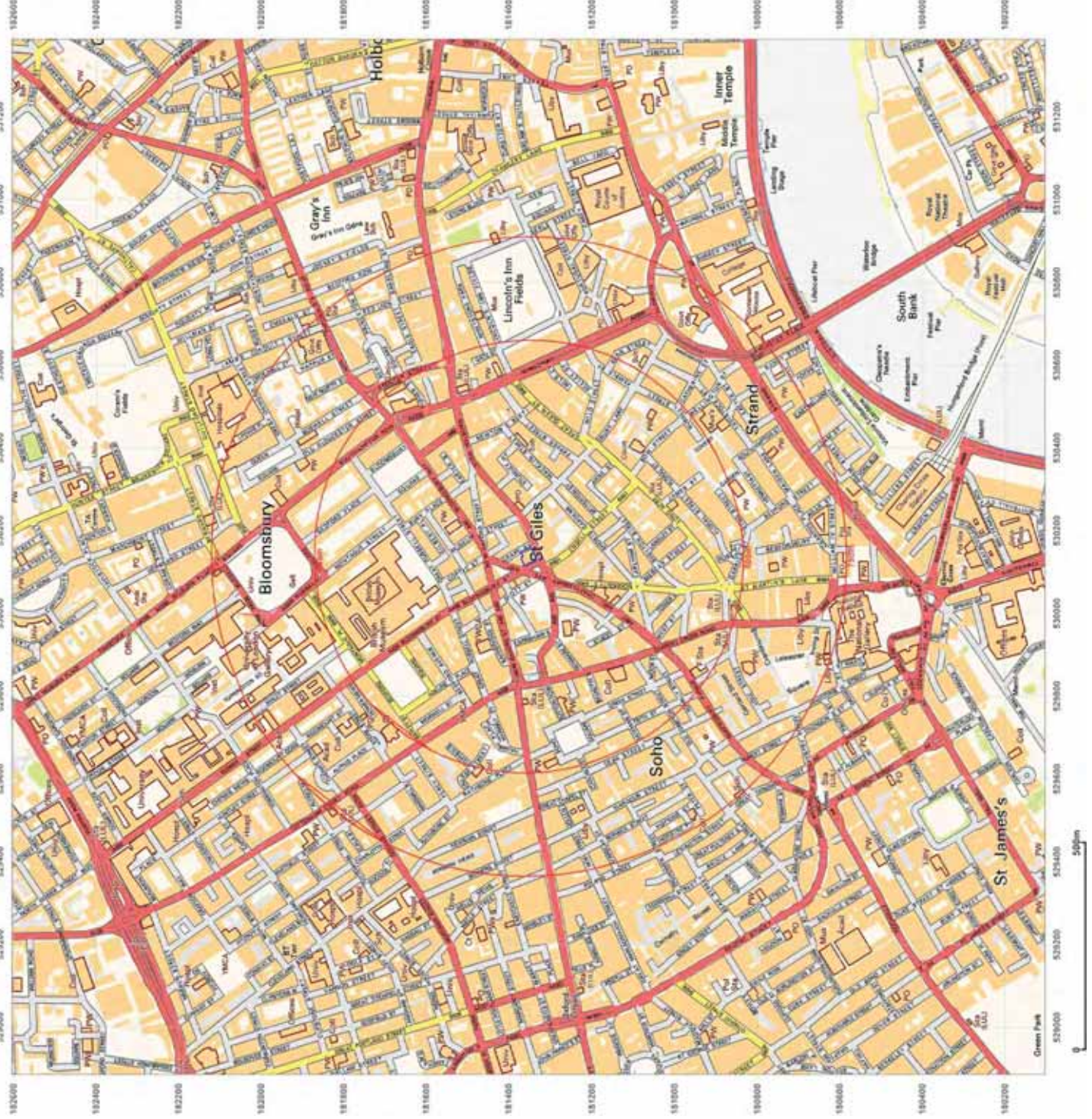
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Site Details:

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Client Ref: EMS_444986_596606
Report Ref: EMS-444986_596606
Grid Ref: 530136, 181353

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



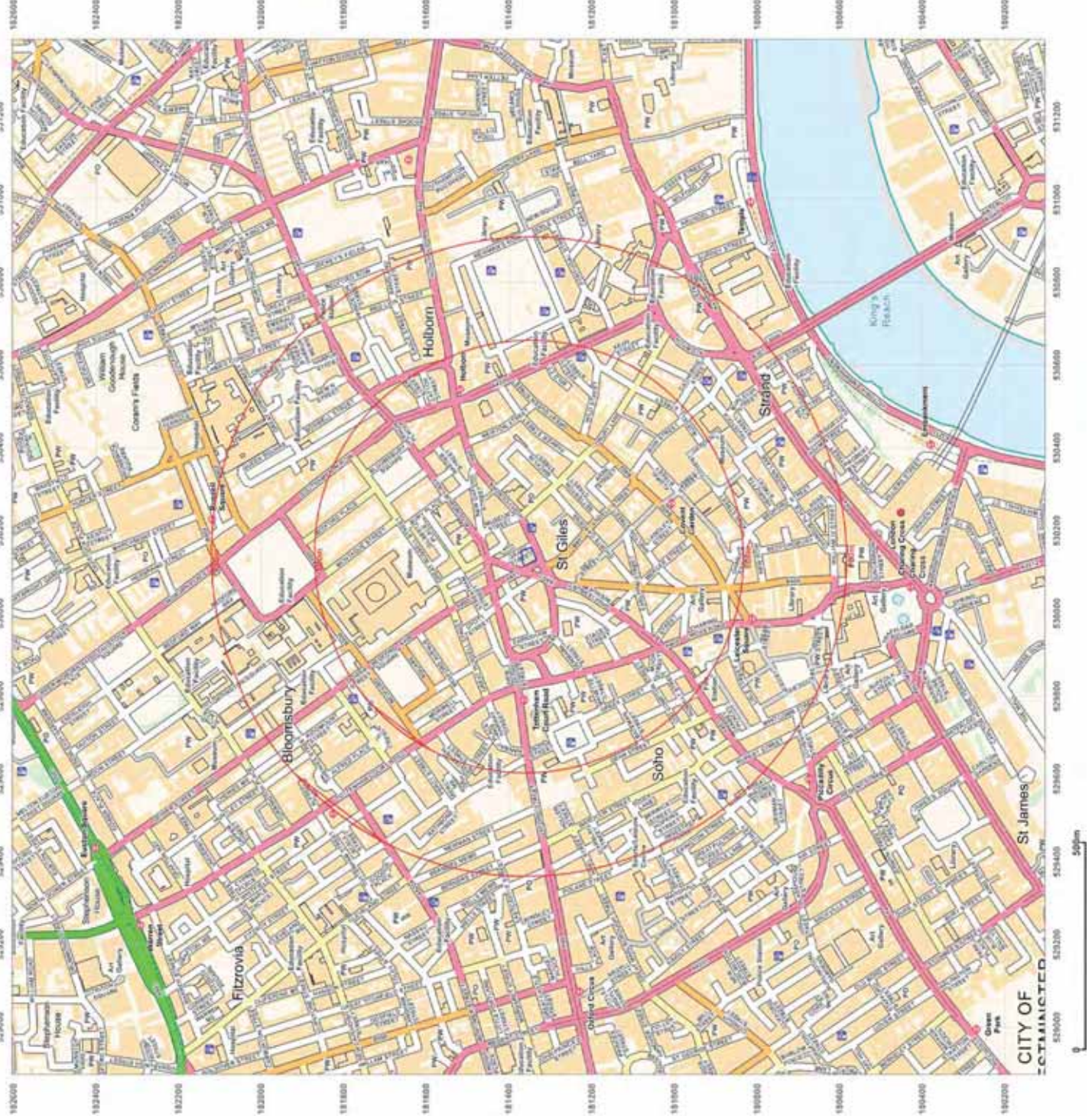
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County Series 1:10,560 scale

VEGETATION

Deciduous Wood
Fir Wood
Mixed Wood
Orchard
Rough Pasture
Marsh
Reeds
Furze
Oskers

ROADS

Railway over Road
Road over River (of Canal)
Railway over River
Road over Stream
Raised Road

RAILWAYS

Double Lines of Railway
Single Lines of Railway and Tramway

GENERAL FEATURES

Gravel Pit
Quarry
Other Pits
Sand Pit
Shingle
Antiquities, Site of
Arrow, showing direction of flow of water
Trigonometrical Station

BOUNDARIES

County Boundary
Parish Boundary
Parliamentary Division Boundary
Union Boundary
Rural District Boundary

National Grid 1:10,000 scale

HEIGHTS (METRES)

Values are given in metres above mean sea level at Newlyn.

Surface heights determined by ground survey.

Spot heights and other elevations shown on large scale maps and bench marks, but information is not available from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

ROCK FEATURES

Limestone
Volcanic
Boilers
Outcrop
Beds

ABBREVIATIONS

BP/BS Boundary Post or Stone
Ch Church
CH Club House
F Sta Fire Station
FB Foot Bridge
Fountain
GP Guide Post
MP/MS Mile Post or Stone
P Pole or Post
Pol St Police Station

PO Post Office
PC Public Convenience
PH Public House
S Stone
Spring
TCB Telephone Call Box
TCP Telephone Call Post
TH Town Hill
W Well
Y Youth Hostel

CONVERSION SCALE

Metres - Feet

2000 Metres = 6600 Feet

1500 Metres = 4950 Feet

1000 Metres = 3300 Feet

500 Metres = 1650 Feet

0 Metres = 0 Feet

ROADS

Road
Track
Path

Where unfenced shown by potted lines.

RAILWAYS

Cutting
Embankment
Level crossing
Foot Bridge
Road over
Road under

Multiple track
Single track
Standard gauge
Siding, tramway or mineral line
Narrow gauge

GENERAL FEATURES

Aniquity, (site of)
Boulders
Building
Pylon
Electricity transmission line
Glethouse
Triangulation station

Lake, loch or pond
Sloping masonry
Chalk pit, clay pit or quarry
Gravel pit
Sand pit
Refuse or slag heap
Shingle
Sand

VEGETATION

Bracken, rough grassland
Scrub
Heath
Marsh
Saltings
Reeds
Coppice
Orchard
Coniferous trees
Non-coniferous trees

In some areas bracken () and rough grassland () are shown separately.



Historical Map Pack Legend

County Series & National Grid 1:10,560 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

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Historical Map Pack Legend

County Series

1:1,250 scale



County Series & National Grid

1:2,500 scale

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National Grid 1:2,500 / 1:1,250 scale

GENERAL FEATURES	
	Nucleonium Tip
	Colliery Tip
	Quarry
	Sand Pit
	Slips
	Full Rock
	Single
	Sand
	Shrubland
	Related Heap
	Quarry
	Sand Pit
	Gravel Pit
	Spring Memory
	Archway
	Guard Rail Building

BOUNDARIES

	England & Wales
	County Boundary (geographical)
	County & Civil Parish Boundary (concernous)
	Admin County or County Borough Boundary
	London Borough Boundary
	District Boundaries based on civil parish
	England, Wales & Scotland
	Civil Parish Boundary
	Parly & Ward Boundaries based on civil parish
	Parly & Ward Boundaries not based on civil parish
	Scotland
	County Boundary (geographical)
	County Council Boundary
	County of the City Boundary
	Burgh Boundary
	District Council Boundary
	District Boundary

ABBREVIATIONS

	Beer House		Signal Light
	Bench Mark		Mail Pickup
	Boundary Stone		National Trail
	Club House		National Trust for Scotland
	Drinking Fountain		National Trust for Scotland
	Electricity Transmission Line		National Trust for Scotland
	Fire Alarm Pillar		National Trust for Scotland
	Fundamental Bench Mark		National Trust for Scotland
	Regatta		National Trust for Scotland

County Series 1:2,500 scale

GENERAL FEATURES	
	Shale
	Sandstone
	Gneiss
	Granite
	Slate
	Trough
	Well
	M.S. Moving Ring
	M.S. Moving Stone
	M.S. Boundary Stone
	M.S. Boundary Post

ROADS

	Road level single above		Road crossing railway
	Road over River or Canal		Railway crossing Road
	Railway crossing level of Canal		Level Crossing
	Railway crossing level of Canal		Cliffing

ABBREVIATIONS

	Trigonometrical Station		Shale
	AGL at Trigonometrical Station		Trough
	Bench Mark		Spring
	Surface Level		M.S. Moving Ring
	M.S. Moving Stone		M.S. Moving Stone
	M.S. Boundary Stone		M.S. Boundary Stone
	M.S. Boundary Post		M.S. Boundary Post
	M.S. Boundary Post		M.S. Boundary Post
	M.S. Boundary Post		M.S. Boundary Post



APPENDIX B SITE INVESTIGATION

Factual Site Investigation Report



Desk Studies | Risk Assessments | Site Investigations | Geotechnical | Contamination Investigations | Remediation Design and Validation

Site: Shaftesbury Theatre, 210 Shaftesbury Ave, City of London,
WC2H 8DP

Client: Theatre of Comedy Company Ltd

Report Date: 25th January 2013

Project Reference: J11265

SUMMARY

The site comprises the stage area of the Shaftesbury Theatre, including rooms and space below the stage. It is proposed to install piling in order to increase the loading capacity of the stage.

Geological records indicate the site to be underlain by Terrace Gravels over London Clay.

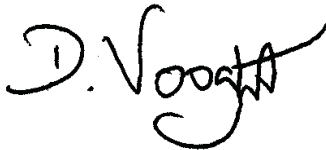
A single borehole was drilled from stage level to 25.2 m below basement floor level.

The soils encountered comprised London Clay to a depth of approximately 25 m below the level of the stage, overlying mottled clays of the Lambeth Group.

Groundwater was not encountered in this investigation.

The site investigation was conducted and this report has been prepared for the sole internal use and reliance of Theatre of Comedy Company Ltd and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The findings and opinions conveyed via this Site Investigation Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd believes are reliable. Nevertheless, Southern Testing Laboratories Ltd cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.



D. Vooght MSc
(Countersigned)



T. Lees MSc
(Signed)

For and on behalf of Southern Testing Laboratories Limited

STL: J11265
25 January 2013

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3	PROPOSED CONSTRUCTION	1
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7	METHOD	2
8	SOILS AS FOUND	2
C	FIELD TESTING AND SAMPLING.....	3
D	GEOTECHNICAL LABORATORY TESTS.....	3

APPENDIX A	Site Plans and Exploratory Hole Logs
APPENDIX B	Field Sampling and in-situ Test Methods & Results
APPENDIX C	Geotechnical Laboratory Test Methods & Results

A INTRODUCTION

1 Authority

Our authority for carrying out this work is contained in a project order from Theatre of Comedy Company Ltd, dated 19th November 2012.

2 Location

The site is located on Shaftesbury Avenue, approximately 0.6 km east of Tottenham Court Road underground station, London. The approximate National Grid Reference of the site is TQ 301 813.

3 Proposed Construction

We understand that it is proposed to install a series of piles beneath the stage.

4 Object

This is a Phase II geotechnical investigation (Tier 1).

The object of the investigation was to assess foundation bearing conditions and other soil parameters relevant to the proposed development and to aid pile design

5 Scope

This factual report presents our exploratory hole logs and test results. As with any site there may be differences in soil conditions between exploratory hole positions.

This factual report is not an engineering design and the figures and calculations contained in the report should be used by the Engineer, taking note that variations will apply, according to variations in design loading, in techniques used, and in site conditions. Our figures therefore should not supersede the Engineer's design.

Contamination issues are not considered in this report.

The findings conveyed via this Factual Site Investigation Report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Limited believes are reliable. Nevertheless, Southern Testing Laboratories Limited cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The site investigation was conducted and this report has been prepared for the sole internal use and reliance of Theatre of Comedy Company Ltd and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorization of Southern Testing Laboratories Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

6 Geology

The indicated geology is London Clay over Lambeth Group.

London Clay

London Clay is a well-known stiff (high strength) blue-grey, fissured clay, which weathers to a brown colour near the surface. It contains thin layers of nodular calcareous mudstone - "claystone" - from place to place, and crystals of water clear calcium sulphate (selenite) are common. Although slopes will stand in the clay at steep angles in the short term, the long-term stable slope angle is about 7° for grassed, or cleared slopes, and a few degrees more for wooded slopes.

Lambeth Group (Woolwich and Reading Beds)

The Woolwich Beds, part of the Lambeth Formation, consist largely of grey to grey-brown interlaminated fine-grained sands silts and clays. Shelly beds have been identified in both the top and bottom of the formation, with the basal shelly beds being of greater thickness and more readily identifiable. Interlaminated sands and silts and pockets of striped loams may occur in southeastern areas of the London basin. Rock strength bands of weakly cemented shells and limestone can be encountered, particularly in the area between Lewisham and Bermondsey. (Ref: Engineering in the Lambeth Group, CIRIA C583, 2004)

B SITE INVESTIGATION

7 Method

The strategy adopted for the intrusive investigation comprised the following:

- 1 No borehole was drilled to a depth of 25.2 m below the basement floor using a light percussion, 150mm diameter, shell and auger boring rig. Due to restrictions regarding access to the borehole location an electric breakdown cable percussive rig was utilised. In this investigation ground level is taken as the stage level. The floor of the basement from which intrusive drilling commenced is 2.8 m below this level. In total the basement level is approximately 6 m below street level.

The location of the exploratory hole is shown in Figure 1 in Appendix A.

The fieldwork was carried out between the 14th and 16th of January 2013.

8 Soils as Found

The soils encountered are described in detail in the attached exploratory hole logs (Appendix A), but in general comprised a stiff to very stiff London Clay over the Lambeth Group (previously the Woolwich and Reading Beds). A summary is given below.

Depth	Thickness	Soil Type	Description
GL – 2.8 m	-	VOID	Open space between stage and basement floor.
2.8 – 2.9 m	0.1 m	CONCRETE	Concrete slab.
2.9 – 3.2 m	0.3 m	MADE GROUND	Sub base consisting of brick and concrete fragments in a clay matrix.
3.2 – 24.5 m	21.3 m	CLAY (LONDON CLAY)	Stiff to very stiff, high strength, dark grey brown clay. With possible selenite crystals.
24.5 m +	Base not reached	CLAY (LAMBETH GROUP)	Very stiff, very high strength blue grey mottled red brown clays.

C FIELD TESTING AND SAMPLING

The following in-situ test and sampling methods were employed. Descriptions are given in Appendix B together with the test results.

- Standard Penetration Tests
- Disturbed samples
- U100 undisturbed samples

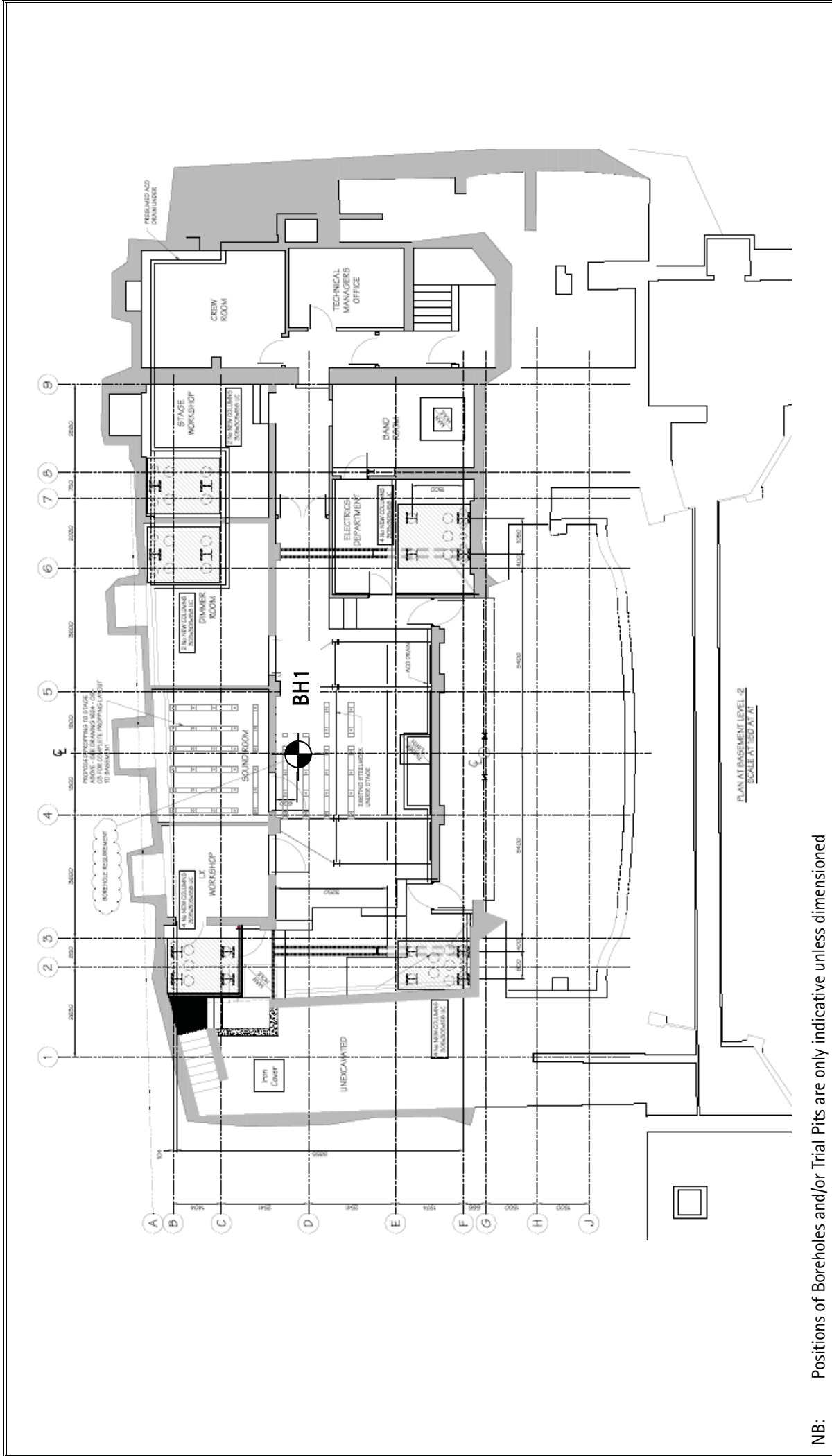
D GEOTECHNICAL LABORATORY TESTS

The following tests were carried out on selected samples. Test method references and results are given in Appendix C.

- pH value;
- Natural moisture content;
- Atterberg limits;
- Water soluble sulphate content;
- Undrained 100 mm diameter Triaxial tests.

APPENDIX A

Site Plans and Exploratory Hole Logs



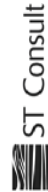
NB: Positions of Boreholes and/or Trial Pits are only indicative unless dimensioned

Site: Shaftesbury Theatre, London

Date: 25 January 2013



Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4DA
ST Consult: Twicken Barns, Brixworth Road, Creton, Northampton NN6 8NN



Borehole location

STL: J11265





















Fig No: 1

Site : **Shaftesbury Theatre**

Client : **MJ Consulting**

Drilling Method : Shell and Auger (150mm)

National Grid Reference		TQ 301 813	
Start date	14/01/2013	End date	15/01/2013
Ground level		Backfill date	16/01/2013
Logged by	TL	Engineer	DV
Final depth	28.00	Page	1 of 2

Piezometer or Monitoring well	Testing		Samples		Strata					
	Depth	Penetration Test (N value) (U/blows)	Depth	Type	Thickness	Level	Legend	Depth	Strata Descriptions	
					2.80					Void space between stage and basement floor
			2.90	B	0.10			2.80	CONCRETE	CONCRETE slab
	3.50	U (23)	3.50	U	0.30			2.90	MADE GROUND	MADE GROUND comprising fine to coarse GRAVEL consisting of crushed brick and concrete in a dark brown clay matrix
	3.60	ucs (300)	4.00	D				3.20	CLAY	
	4.00	ucs (360)	4.00	D						Stiff to very stiff, high strength, dark greyish brown, thinly to thickly laminated CLAY with occasional extremely to very closely spaced fissuring in random orientation. With rare very fine clear crystals (possibly selenite).
	5.00	SPT (17)	5.50	D						
	5.00	ucs (350)								
	6.00	ucs (350)								
	6.50	U (25)	6.50	U						
	7.00	ucs (360)	7.00	D						
	8.00	SPT (22)	8.50	D						
	8.00	ucs (490)								
	8.50	ucs (500)								
	9.50	ucs (490)	9.50	U						
	9.50	U (25)	10.00	D						
	11.00	SPT (26)	11.50	D						
	11.50	ucs (590)								
	12.50	U (34)	12.50	U						
			13.00	D						
	14.00	SPT (29)			21.30					
	14.50	ucs (600)	14.50	D						

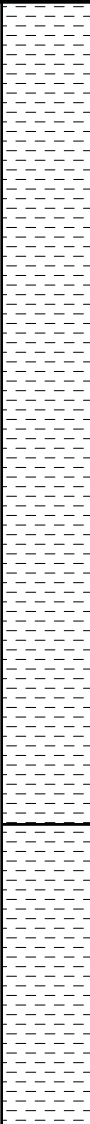
Hole Diameters			Water Strikes						Chiselling Time			General Remarks
Depth (m)	Hole (mm)	Casing (mm)	Date	Water (m)	Casing (m)	Time (mins)	Rose to (m)	Sealed (m)	From (m)	To (m)	Time (hrs)	
3.50	150	150										

Site : **Shaftesbury Theatre**

Client : **MJ Consulting**

Drilling Method : Shell and Auger (150mm)

National Grid Reference		TQ 301 813	
Start date	14/01/2013	End date	15/01/2013
Ground level		Backfill date	16/01/2013
Logged by	TL	Engineer	DV
Final depth	28.00	Page	2 of 2

Piezometer or Monitoring well	Testing		Samples		Strata				
	Depth	Penetration Test (N value) U/blows	Depth	Type	Thickness	Level	Legend	Depth	Strata Descriptions
	15.50	U (35)	15.50	U					
			16.00	D					
	17.00	SPT (29)							
			17.50	D					
	18.95	U (35)	18.95	U					
			19.00	D					
	20.00	SPT (50 for 75mm)							
			20.50	D					
	21.50	U (38)	21.50	U					
			22.00	D					
	23.00	SPT (40)							
			23.50	D					
	24.95	U (50)	24.95	U			24.50	CLAY	Very stiff, very high strength blue grey mottled red brown fissured CLAY. Fissures are extremely closely to closely spaced and randomly orientated.
			25.00	D					
	26.00	SPT (51)			3.50				
	26.00	ucs (600)	26.50	D					
	27.50	U (50)	27.50	U					
	28.00	ucs (600)	28.00	D			28.00		End of Borehole

Hole Diameters			Water Strikes						Chiselling Time			General Remarks
Depth (m)	Hole (mm)	Casing (mm)	Date	Water (m)	Casing (m)	Time (mins)	Rose to (m)	Sealed (m)	From (m)	To (m)	Time (hrs)	
3.50	150	150										

APPENDIX B

Field Sampling and in-situ Test Methods & Results

Field Sampling and in-situ Test Methods

Disturbed Samples

Disturbed samples were taken from the trial holes intervals and stored in sealed glass jars and polythene bags, as appropriate.

Undisturbed U100 Samples

Undisturbed U100 samples were taken in the clay soils at appropriate intervals. These samples are taken in a 100 mm diameter, 450 mm long, thin-walled steel tube, and are sealed with paraffin wax and tightly fitting end caps for transporting to the laboratory.

Standard Penetration Test

The Standard Penetration (SPT) Test is specified in BS EN ISO 22476-3 : 2005. In this test, a 51mm diameter open-ended tube is driven into the ground by a 63.5 kg hammer falling freely through 760 mm. The tube is seated by driving to a penetration of 150mm, or by 25 standard blows, whichever occurs first. It is then driven for a maximum of a further 300mm and the number of blows is termed the penetration resistance (N). If 300mm penetration cannot be achieved in 50 blows (100 blows in soft rock), the test drive is terminated.

When testing in gravels, a conical end piece is attached to the tube. The test is then called an SPT(C).

This test provides an indirect method of assessing the properties of cohesionless soils, and the following table (after Terzaghi and Peck) gives the approximate condition:-

Number Blows (N)	Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
Over 50	Very Dense

Clay

An approximate value for the shear strength of clay may be obtained using Stroud (1974), which paper indicates that the cohesive strength is a function of plasticity and SPT 'N' value. The relation is:

$$C_u = f_i \times N \text{ kPa}$$

$$C_u = \text{undrained shear strength}$$

$$f_i = \text{factor related to plasticity index and ranging from 4 to more than 6}$$

The SPT test is not generally accepted as giving a reliable indication of the strength of cohesive soils but it does give a guide; often the following table:-

Number Blows (N)	Soil Strength
Less than 2	Very Soft (Very Low Strength)
2 – 5	Soft (Low Strength)
5 – 10	Firm (Medium Strength)
10 – 15	Stiff (High Strength)
15 – 30	Very Stiff (Very High Strength)

APPENDIX C

Geotechnical Laboratory Test Methods & Results

Determination of pH value

The pH value is a measure of acidity or alkalinity. It is measured using an electrometric meter, directly in the case of water, or in a soil suspension in distilled water.

Moisture Content

A sample of soil is dried to constant dry weight at a temperature of 105 degrees centigrade and the moisture content determined.

Atterberg Limit Tests

This is a valuable classification test, which is used to determine the moisture contents at which a soil changes from a liquid through a plastic to a solid state and gives an indication of the clay quantities present in the soil.

2 : 1 Water Extract Sulphate Test

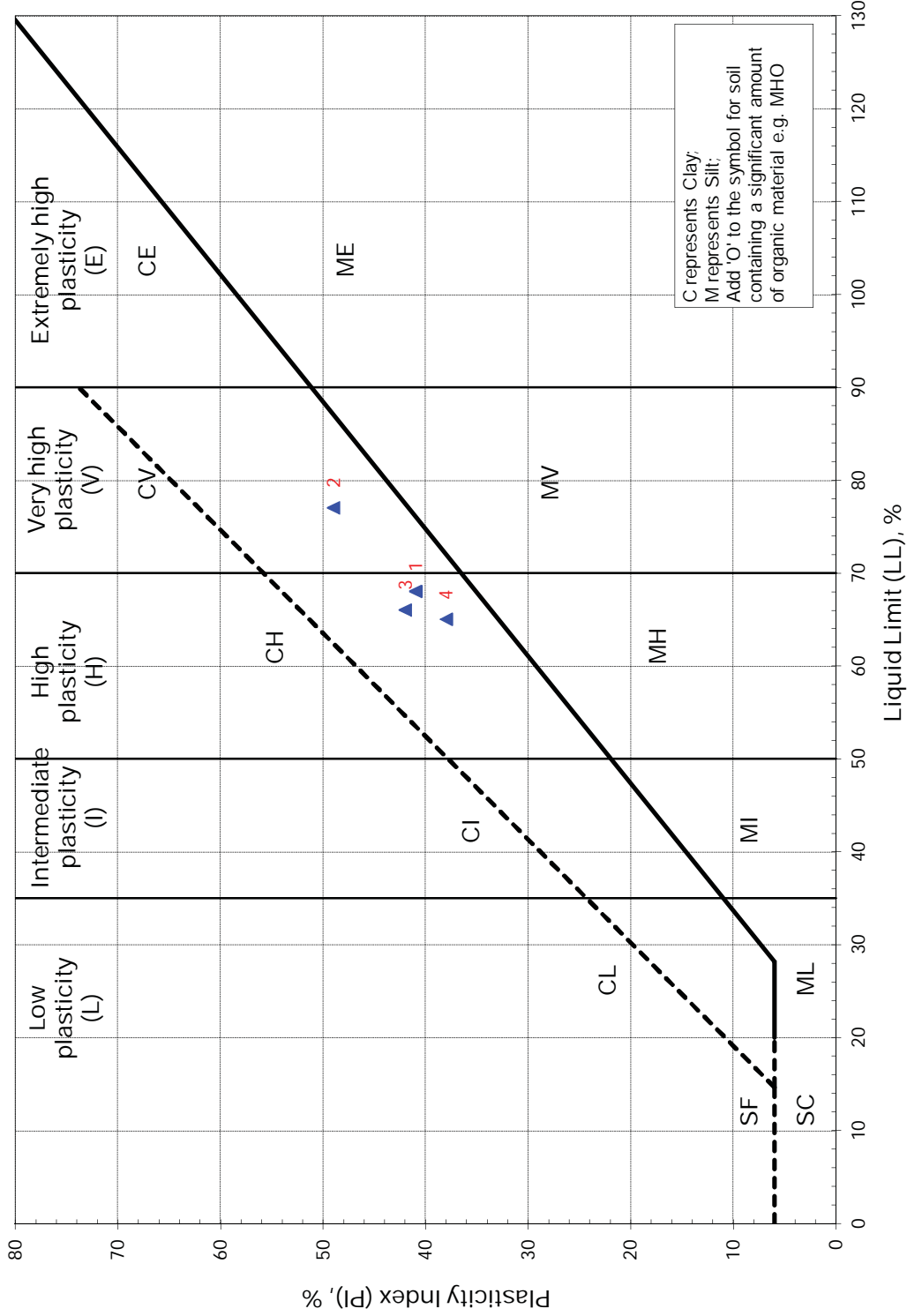
When the water soluble sulphate content, as described above, is classified as Class III or over a 2 : 1 water : soil extract is prepared and the sulphate content determined gravimetrically.

This ensures that only the more readily soluble sulphates - those most likely to attack concrete - are determined.

Triaxial Compression Test

Shear characteristics of the soil are obtained by the undrained triaxial test. In this test, 38mm diameter or 100mm diameter samples were tested in compression under a series of varied lateral pressures, and the angle of shearing resistance and apparent cohesion obtained.

Plasticity Chart for Atterberg Limit Test Results



Sample List	Statistics
1 BH1@5.5m	Liquid Limit
2 BH1@12m	Max
3 BH1@16m	Min
4 BH1@26.5m	Average
	77
	65
	69
	Plastic Limit
	Max
	Min
	Average
	28
	24
	27
	Plasticity Index
	Max
	Min
	Average
	49
	38
	43

Project Name: Shaftesbury Theatre

Project No: J11265

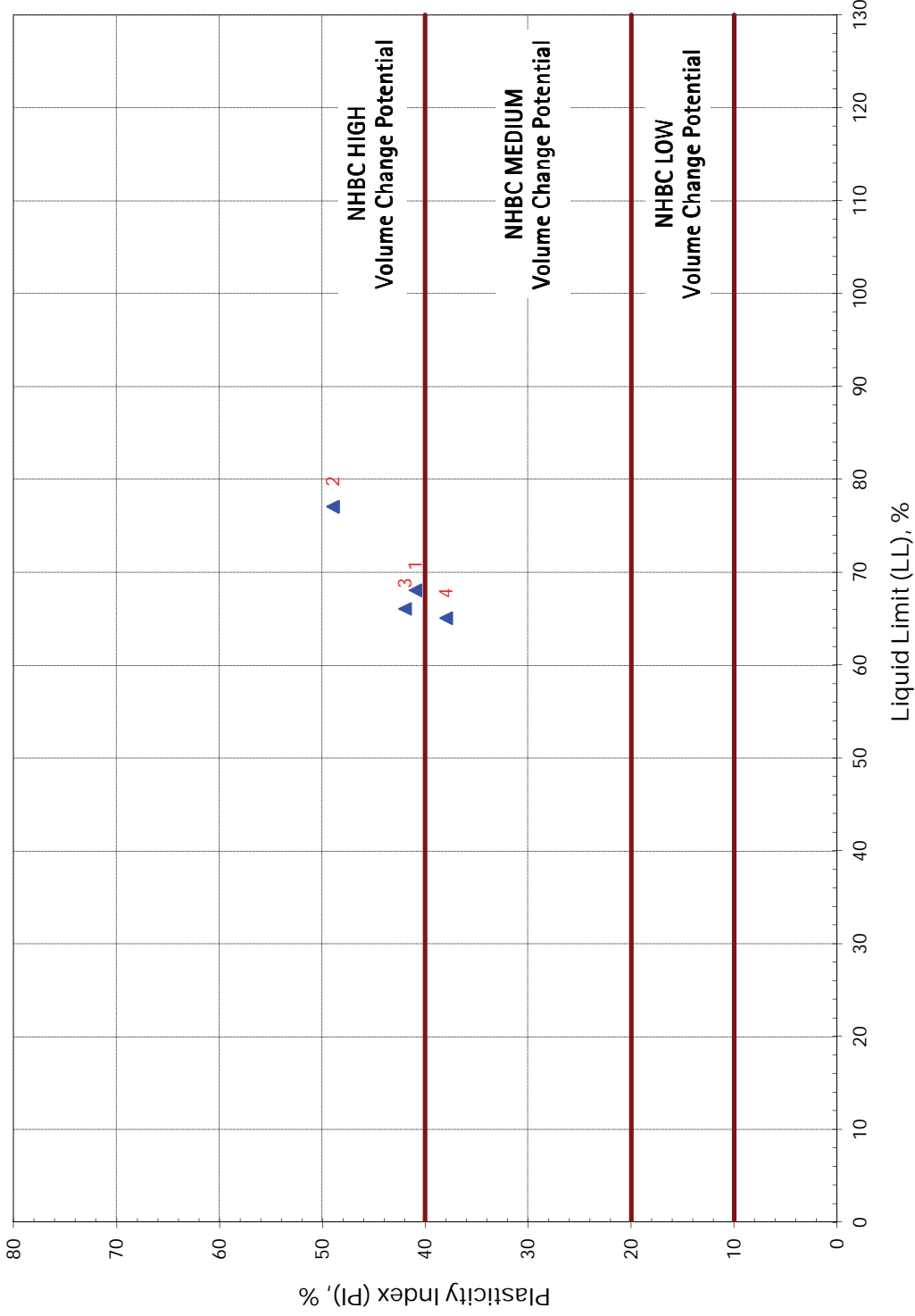
Project Engineer: DV

Client: MJ Consulting

Date: 23/01/2013

Figure No. 2

Plot Relating Soil Plasticity to NH C Classification for Volume Change Potential



Sample List

- 1 BH1@5.5m
- 2 BH1@12m
- 3 BH1@16m
- 4 BH1@26.5m

Statistics

liquid limit	77
Max	77
Min	65
Average	69
elastic limit	28
Max	28
Min	24
Average	27
elasticity index	49
Max	49
Min	38
Average	43

Project Name: **Shaftesbury Theatre** Project No: **J11265** Project Engineer: **DV**

Client: **MJ Consulting** Date: **23/01/2013** Figure No. **3**

Atterberg Limits Test Result Summary Sheet

Test carried out in accordance with BS 13 21 0 2003 1.3.2 .2 .3 5.3 5.

Project No : *J11265* Checked by : *S* Date: *23 Jan 2013*

Project Name : *Shaftesbury Theatre*

Client : *MJ Consulting*

Plot No	TH No	Depth m	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index	Class ification	% Passing m	Visual Description
1	1	5.50	27.5	66	2	1	C	100	Very stiff very high strength dark grey C .
2	1	12.00	27.2	66	2		CV	100	dark grey to black very high strength dark grey C .
3	1	16.00	23.5	66	2	2	C	100	Very stiff very high strength dark grey slightly sandy C .
4	1	26.50	27.5	65	2	3	C	100	Very stiff very high strength reddish brown mottled light grey C .

Soil groundwater Sulphate Content Test Results

Test carried out in accordance with BS 5395-5.6

Project No : **J11265**

Client : **MJ Consulting**

Project Name : **Shaftesbury Theatre**

Tested by : **STL**

Checked : **AS**

Date : **24-Jan-13**

TH No	Depth	Sample Type	Soil Sulphate in water Extract		groundwater Sulphate	Total Potential Sulphate		pH Value	Percentage Passing mm Sieve	Visual Description
			g l ⁻¹ SO ₃	B mg l ⁻¹ SO ₄		g l ⁻¹ SO ₃	B mg l ⁻¹ SO ₄			
H	m	Soil	0.21	252				7.9	100.0	ery stiff very high strength grey sandy C A
H		Soil	0.16	192				8.0	100.0	Hard extremely high strength dark grey C A
H		Soil	0.40	480				8.0	100.0	ery stiff very high strength dark slightly sandy C A
H		Soil	0.22	264				8.5	100.0	Hard fissured extremely high strength dark grey sandy C A
H		Soil	0.05	60				9.1	100.0	Hard fissured extremely high strength blue grey mottled red brown C A

Summary Sheet Triaxial Compression Test Results BS1377 7 1990 1994

TH No	Depth m	Moisture Content	ul Density Mg m ³	Dry Density Mg m ³	Cell Pressure a	De iator Stress a	Apparent Cohesion C _u a	Visual Description	Sample Type	CS by Hand Pen m ²
Proj No: J11265 Project Name: Shaftesbury Theatre Checked y: AS Date: 23/01/2013										
H		26.1	1.0	1.50	20	256.5	12.2	Very stiff fissure slightly sandy	100	60
H		2.	1.	1.	5	2.6	122.3	Very stiff fissure slightly sandy	100	560
H		2.1	1.	1.6	135	20.2	10.1	Very stiff e slightly sandy	100	600
H		2.1	1.	1.3	15	335.	16.	Very stiff fissure brown slightly sandy	100	600
H		26.	1.1	1.51	255	6.	23.2	Very stiff fissure brown slightly sandy	100	600
H		25.	1.2	1.53	315	56.	23.	Very stiff fissure brown slightly sandy	100	600
H		25.5	1.	1.50	35	.2	2.1	Very stiff fissure brown slightly sandy	100	600
H		1.	2.03	1.6	35	6.5	3.3	Very stiff fissure brown slightly sandy	100	600

Summary Sheet Triaxial Compression Test Results BS1377 7 1990 1994

Proj No: **J11265** Project Name: **Shaftesbury Theatre** Checked by: AS Date: **23/01/2013**

TH No	Depth m	Moisture Content	ul Density Mg m ³	Dry Density Mg m ³	Cell Pressure a	De iator Stress a	Apparent Cohesion C _u a	Visual Description	Sample Type	CS by Hand Pen m ²
H		1.0	2.0	1.1	5	1 2.5	1.3	Very stiff e trelly high strength light grey ottle orange brown sandy C .	100	600



Scientific Analysis Laboratories Ltd

Certificate of Analysis

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Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: 312763-1

Date of Report: 30-Jan-2013

Customer: Southern Testing Laboratories
Keeble House
Stuart Way
East Grinstead
West Sussex
RH19 4QA

Customer Contact: Mr David Vooght

Customer Job Reference: J11265

Customer Purchase Order: STL8657C

Customer Site Reference: Shaftesbury Theatre, Shaftesbury

Date Job Received at SAL: 22-Jan-2013

Date Analysis Started: 23-Jan-2013

Date Analysis Completed: 30-Jan-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22



Report checked
and authorised by :

Issued by :
Miss Sarah Brown
Analyst

SAL Reference: 312763 Project Site: Shaftesbury Theatre, Shaftesbury Customer Reference: J11265 Soil Analysed as Soil BRE SD1 (SE)					
SAL Reference					312763 001
Customer Sample Reference					BH1 @ 2.70m
Date Sampled					16-JAN-2013
Determinand	Method	Test Sample	LOD	Units	
(Water soluble) Ammonia expressed as NH4	T306	AR	0.01	g/l	<0.01
(Water soluble) Cl-	T426	A40	0.01	g/l	0.04
Magnesium	T112	A40	1	mg/l	11
(Water soluble) NO3	T426	A40	0.01	g/l	<0.01
pH	T7	A40			8.0
SO4(Total)	T102	A40	0.01	%	0.23
(Water Soluble) SO4-- expressed as SO4	T242	A40	0.01	g/l	0.29
Sulphur (total)	T6	A40	0.01	%	0.81

Index to symbols used in 312763-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T6	ICP/OES
T7	Probe
T102	ICP/OES (HCl extract)
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T426	2:1 Extraction / IC
T112	ICP/OES (SIM)(Water Extract)
T306	2:1 Extraction / Colorimetry

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
(Water soluble) Ammonia expressed as NH4	T306	AR	0.01	g/l	N	001
(Water soluble) Cl-	T426	A40	0.01	g/l	N	001
Magnesium	T112	A40	1	mg/l	N	001
(Water soluble) NO3	T426	A40	0.01	g/l	N	001
pH	T7	A40			U	001
SO4(Total)	T102	A40	0.01	%	U	001
(Water Soluble) SO4-- expressed as SO4	T242	A40	0.01	g/l	U	001
Sulphur (total)	T6	A40	0.01	%	U	001



TRIAL PIT 3

Client: The Theatre of Comedy Company

Appendix B

Site: Shaftsbury Theatre

Job No: 371647

Scale: NTS

Source: Site Observations



APPENDIX C PROPOSED DEVELOPMENT PLANS AND SECTIONS

Revisions
A 17109 BASSETT ISSUE FOR INFORMATION
BY CJK
DC JRP
CC JPS

NOTES



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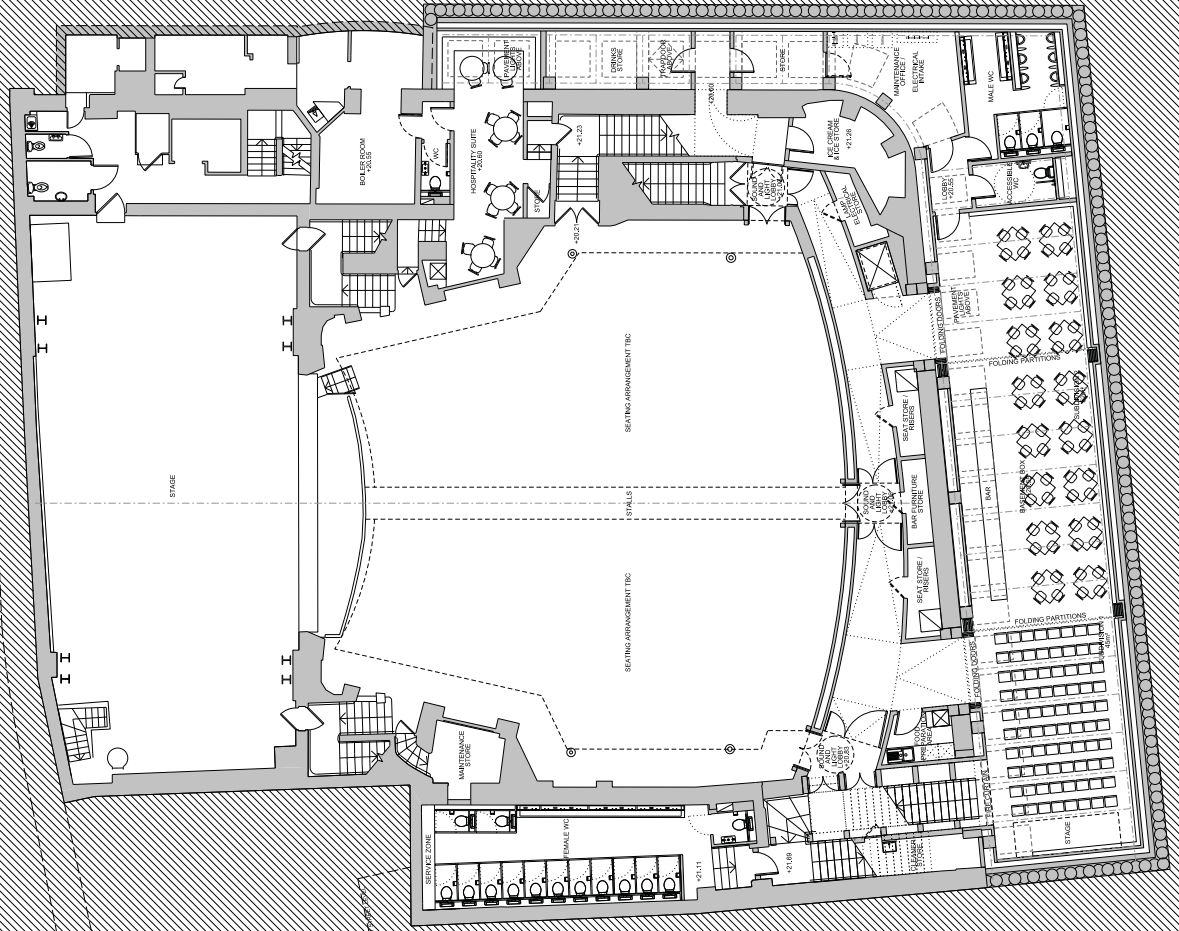
Project No. 1702

Shaftesbury Theatre
The Theatre of Comedy Company

Drawing Title
Proposed Plan
Basement
Stalls Level

Revision/Submit
A

Drawing Number
1702_20_099
Scale @ A3
1: 200
Scale @ A1
1: 100
Revision Date
171109
BY JKL 09



Notes



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www.bennettsassociates.com

Project No. 1702

Shaftesbury Theatre
The Theatre of Comedy Company

Drawing Title
Proposed Plan
Ground Floor
Lower Royal Circle

Drawing Number
1702_20_100

Scale @ A3
1: 200

Scale @ A1
1: 100

Revision Date
17/10/09

Revision/Submitability
A

17/10/09

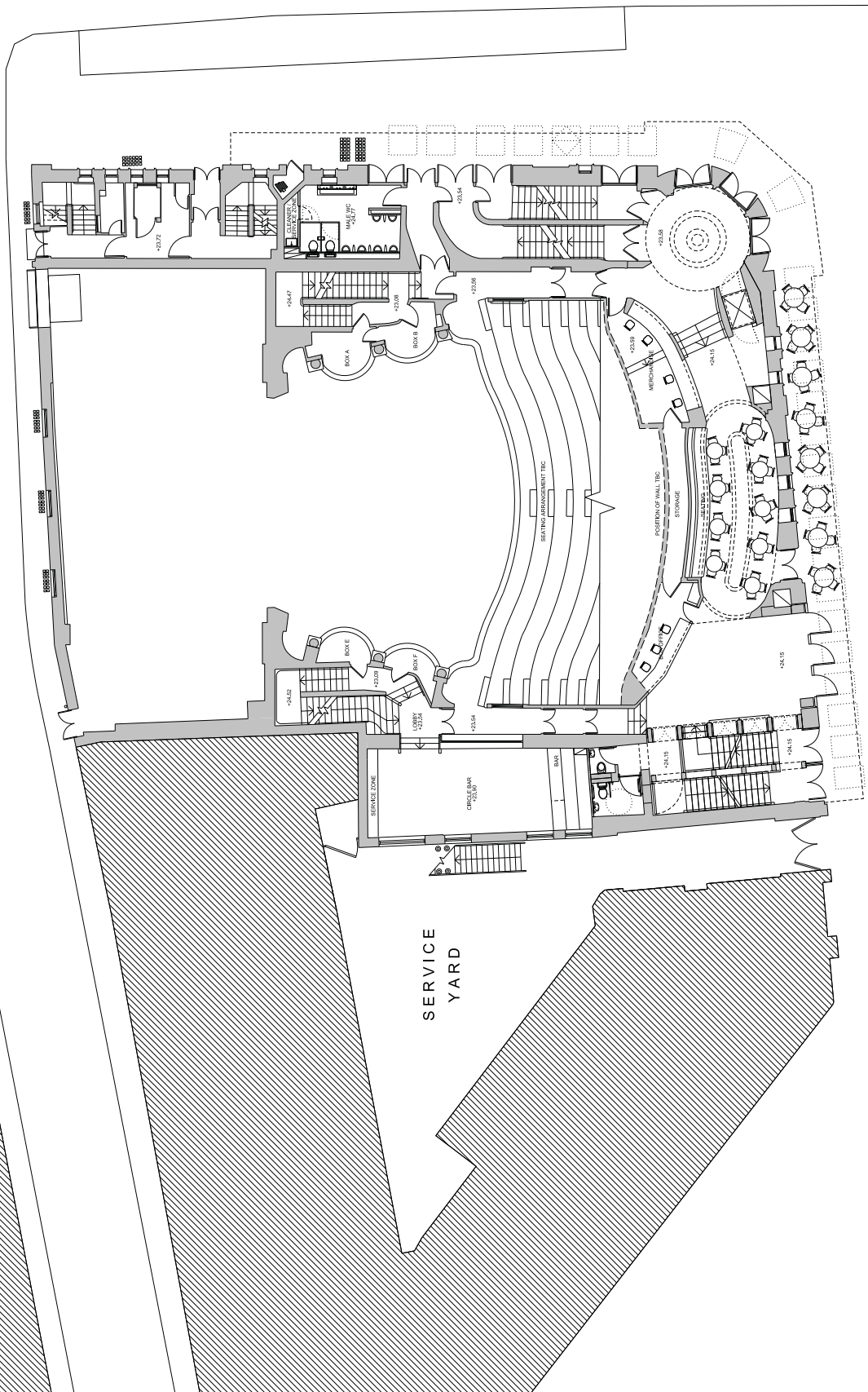
GRAPE STREET

HIGH HOLBORN

PRINCES CIRCUS

SERVICE YARD

SHAFTESBURY AVENUE



Notes



Shaftesbury Theatre

**BENNETTS
 ASSOCIATES**

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 E mail@bennettsassociates.com
 For Bennetts Associates, see www.bennettsassociates.com

Project No. 1702

Shaftesbury Theatre
 The Theatre of Comedy Company

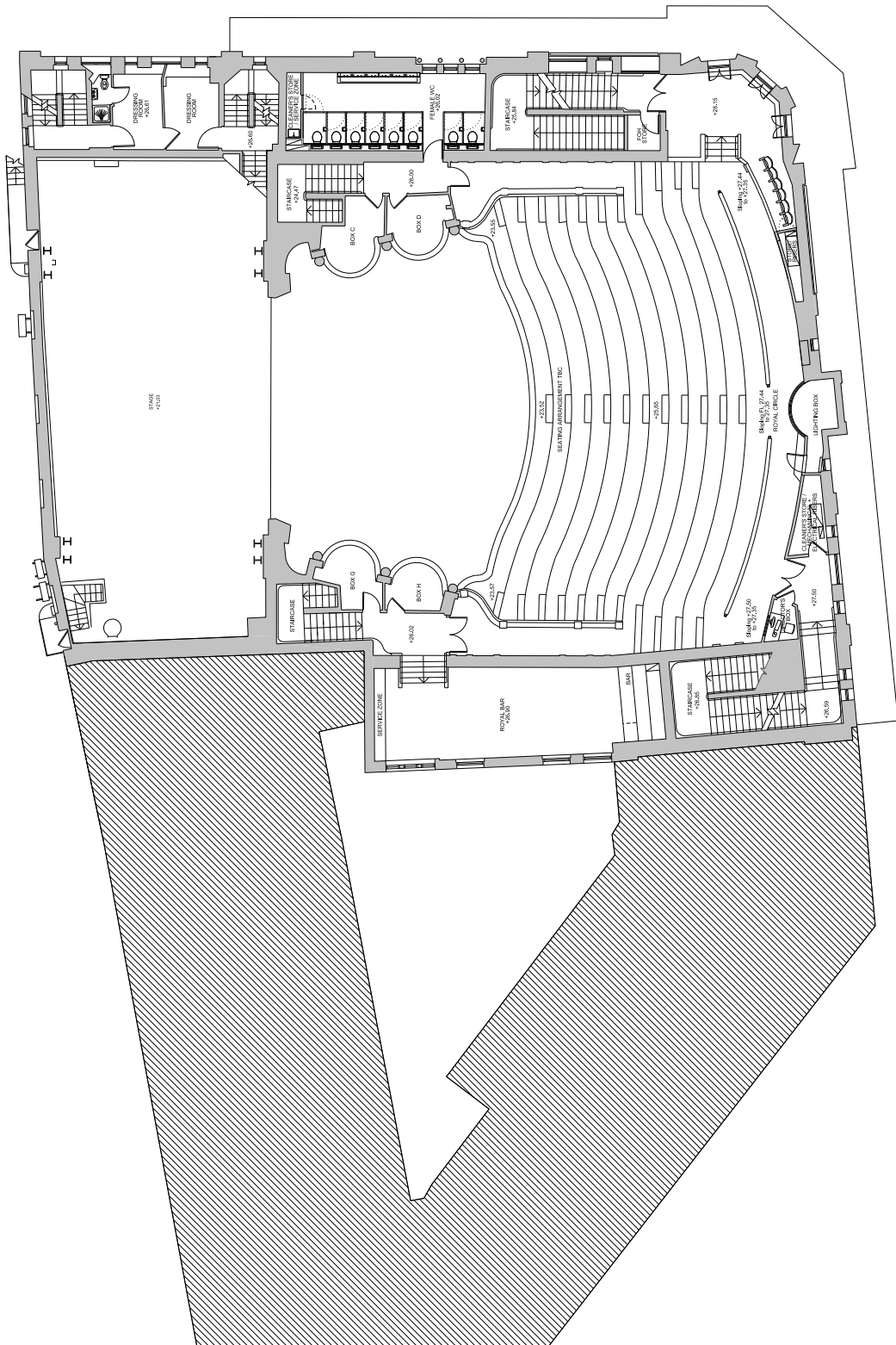
Drawing Title

Proposed Plan
 First Floor
 Upper Royal Circle

Drawing Number
 1702_20_101

Revision/Submittal
 A

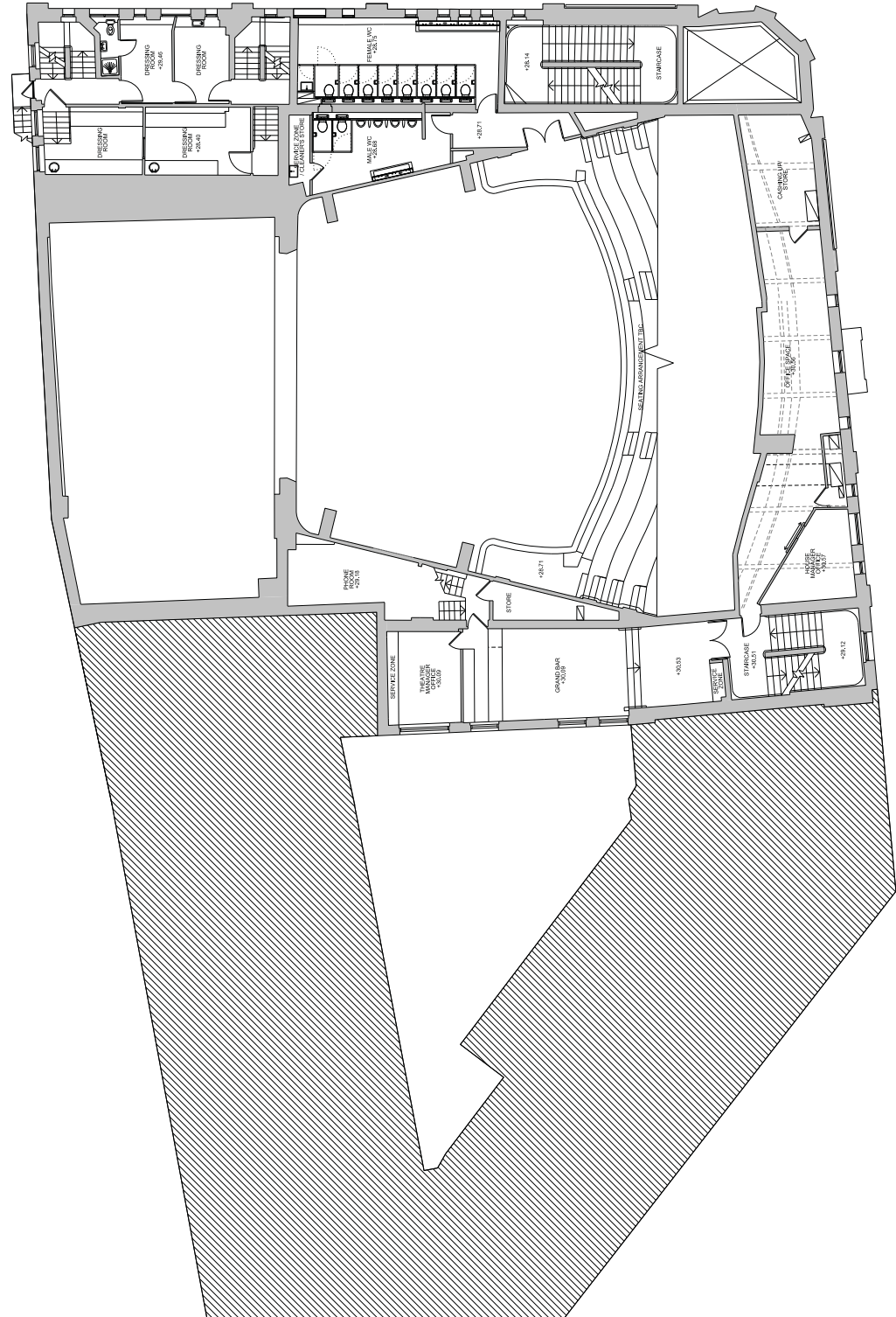
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 Scale @ A1 1:100
 Revision Date 171109
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Revisions
 A. 171016 ISSUE FOR INFORMATION
 B. 171103 ISSUE FOR INFORMATION

BY: CLK
 DC: RB
 CC: PB

Notes



The Theatre of Comedy Company
Shaftesbury Theatre

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Project: **Shaftesbury Theatre**
 The Theatre of Comedy Company

Project No.: 1702

Drawing Title:
Proposed Plan
Second Floor
Lower Grand Circle

Drawing Number:
1702_20_102

Scale @ A3: 1:200
 Scale @ A1: 1:100

Revision/Submit:
 A

Revision Date:
171109

17.11.10

Notes



The Theatre of Comedy Company
Shaftesbury Theatre

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Project No. 1702
Shaftesbury Theatre
 The Theatre of Comedy Company

Drawing Title
Proposed Plan
Third Floor
Upper Grand Circle

Drawing Number
1702_20_103

Revision/Submit
 A

Scale @ A3
 1:200

Scale @ A1
 1:100

Revision Date
 171109

TY AM 02

