



Pudding Hill, Brierley, Barnsley
Bernard Williams Associates
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PHASE 1 DESK STUDY

Pudding Hill, Brierley, Barnsley

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Revision	Date	Prepared By	Checked By
Final	January 2013	P Finnimore <i>Geotechnical Engineer</i>	R Woods <i>Geotechnical Engineer</i>

1 EXECUTIVE SUMMARY

Site Address	Park View, Brierley, Barnsley S72 9EN
Site Description	The site is covered with short grass, small shrubs and mature/immature trees mark the western boundary. The north and western boundaries are marked with wooden fencing. The site is level in its topography
Site History	
On Site	The site was undeveloped until the constructed the site was developed with residential housing between 1962 and 1983, the site is now undeveloped
Off Site	The surrounding has seen only the development of housing and a quarry to the east of the site.
Proposed End Use	Residential housing with soft landscaping.
Environmental Setting	
<i>Landfill & Waste</i>	No Landfills or Waste Management Sites are located within 700m radius of the site.
<i>Regulated Industries</i>	The closest Contemporary Trade Directory Entry is for Good Da Garden Services which is located 127m southwest of the site.
<i>Geology</i>	The solid geology beneath the site is likely to comprise Middle Coal Measures and the drift deposits are shown to weathered rock. The Brierley Coal Seam is shown to sub-crop 700m south and dip beneath the site. A fault runs 70m east of the site from northeast to southwest.
<i>Mining</i>	The mining report indicates that there three known worked seams below the site, the shallowest is located at a depth of 207m and has a cross section of 180cm and was extracted before 1960.
<i>Hydrogeology</i>	The solid geology is classified as a Secondary A Aquifer by the Environment Agency.
<i>Hydrology</i>	The nearest surface water feature is located 241m west of the site.
<i>Flooding</i>	The site is not at risk of flooding.
<i>Radon Gas</i>	No radon protection measures are required for new buildings on site.
Preliminary Geotechnical Assessment	Given the expected ground conditions noted above, the use of traditional strip footings for the new structure is anticipated at present. Where loose made ground or soft/loose natural deposits are encountered, foundations will need to be taken through the made ground/disturbed ground into underlying natural strata of adequate bearing capacity.
Preliminary Contamination Assessment	The desk study has shown that the site is likely to have been exposed to contamination with construction/demolition waste from the former residential development the most likely source.
Potential Sources of Ground Gas	Underlying coal measures, made ground and former quarry to the east. Ground gas assessment is recommended.
Environmental Protection Act 1990	For the site to be designated as contaminated under Part 2A of the EPA 1990, a proven source-pathway-receptor linkage has to be present. No such linkage has yet been proven; however on site investigation works are proposed.
Risk Assessment	Based on the information contained in this report, it is the opinion of Solmek that the site represents a low/medium environmental risk.
Phase Two Recommendations	A series of small percussive boreholes to competent ground with insitu testing and samples taken for geotechnical and contamination testing. Ground gas pipes installed in the small percussive boreholes.

2 INTRODUCTION AND SCOPE OF INVESTIGATION

Solmek were instructed by Bernard Williams Associates to undertake a desk study on a parcel of land off Park View, Brierley, Barnsley. The site is outlined for the development of residential properties with soft landscaping.

The following steps may be required in the investigation and remediation of potentially contaminated land:

- Phase 1: Desk Study
- Phase 2: Intrusive Investigation
- Phase 3: Remediation Statement
- Phase 4: Validation Reports

Phases 1 and 2 are generally required in the redevelopment of most sites. Phases 3 and 4 are subject to the findings of the initial stages. This report represents Phase 1 of the site investigation.

The purpose of this Phase 1 Desk Study is to evaluate likely ground conditions and significant environmental issues at the site, and to plan the scope of subsequent phases of investigation.

This report may be regarded as a Preliminary Risk Assessment in accordance with the Environment Agency's guidance document *Model Procedures for the Management of Land Contamination* (CLR 11, 2004).

This Phase 1 Desk Study has been undertaken with due regard to current contaminated land guidance issued by the Royal Institution of Chartered Surveyors (RICS) together with BS 10175: 2001, "*Code of Practice for the Investigation of Potentially Contaminated Land*" and relevant sections of BS 5930: 1999, "*Code of Practice for Site Investigations*".

The objectives of the investigation are as follows:

- To determine the land use history of the site from an inspection of available Historical Maps
- To determine the environmental setting of the site from available sources
- To determine whether past mining may have had an influence on the site
- To determine whether the site has previously been used for purposes that may have given rise to significant ground contamination
- To provide recommendations for further investigation.

3 SITE WALKOVER AND DESCRIPTION

3.1 General

The centre of the site is located at OS Grid Ref 441690, 411080 and covers an area of approximately 0.14Ha. The site is undeveloped land off Park View, Brierley, Barnsley.

The preliminary site inspection was undertaken on the 12th January 2013 and site photographs are presented in Appendix A.

3.2 Site Features

The desk study area comprised a parcel of land which is located to the west of the Park View, Brierley. The site is covered with covered with short grass, small shrubs and mature/immature. The north and western boundaries are marked with wooden fencing. The site is level in topography.

There were no visual signs of contamination noted during the site walkover however a number of services manhole were noted around the site.

3.3 Off Site Features

The site is set in a predominantly residential area.

4 SITE HISTORY

In order to determine the history of the site, previous editions of Historical Maps and Ordnance Survey Plans were inspected. The historical maps are presented in Appendix B.

Table 1 presents a summary of the history of the area which includes plots from 1854 to 2012. The summary focuses on the historical land uses and changes relevant to the site and the proposed end use. Measurements are taken from the centre of the site and all distances quoted are approximate.

TABLE 1: SUMMARY OF SITE HISTORY

OS Map Edition	On-site Features	Off-site Features
1854 1:10,056	The site is located within agricultural land with a road marking the southern boundary of the site	The surrounding area is mainly agricultural with the town of Brierley located 650m west of the site. The surrounding area is labelled as Pudding Hill with a sandstone quarry located 30m east of the site.
1893 1:2,500	No changes noted.	The quarry to the east is labelled as old. A wooded area is noted to the north and a marsh area named Flashes is located 150m east of the site.
1894 1:10,056	No changes noted.	A railway has been constructed 750m north of the site.
1907 1:10,560	No changes noted.	The majority of the marsh is marked as rough pasture and Hemsworth Isolation Hospital is located 700m east of the site.
1919 1:2,500	No significant changes noted.	No significant changes noted.
1938 1:10,560	No changes noted to the site.	The woods to the north have been cleared and houses have been constructed 50m northwest and 10m north of the site. Brierley Colliery has been constructed 700m west of the site.
1955-56 1:10,000	Development of houses has started on the site.	Brierley Colliery is labelled as disused.
1962 1:2,500	Four semi-detached houses have been constructed on the site; the southern extent of the site remains undeveloped.	Houses have been constructed 200m west of the site.
1967 1:10,000	No changes noted to the site.	No significant changes noted.
1976 1:2,500	No changes noted to the site.	Houses have been constructed 200m west of the site.
1983-84 1:10,000	No changes noted to the site.	Railway to the north has been dismantled and former colliery to the west is now a depot. Former hospital has been demolished.
1983-88 1:2,500	The houses on site have been demolished.	Houses to the east of the site have been demolished.
1993 1:2,500	No changes noted to the site.	No significant changes noted.
2006 1:10,000	No changes noted to the site.	No significant change.
2012 1:10,000	No changes noted to the site.	No significant change.

Potential contamination sources identified via historical plans

The site was undeveloped until the construction of residential housing, present on site between 1962 and 1983, the site is now undeveloped. Contamination from historical land uses are identified with construction/demolition waste the most likely source.

5 ENVIRONMENTAL SETTING

5.1 Information Sources

The environmental setting of the site was determined through reference to the following:

- Landmark Envirocheck Report (including historical map extracts)
- British Geological Survey (BGS) 1:50,000 scale sheet No 87 Barnsley solid and drift
- BRE Publication BR211 Radon: Guidance on Protective Measures for New Dwellings

5.2 Landfill and Waste

No Landfills or Waste Management Sites are located within 700m radius of the site.

5.3 Regulated Industries

The closest Contemporary Trade Directory Entry is for Good Day Garden Services which is located 127m southwest of the site.

5.4 Geology

The solid geology beneath the site is likely to comprise Middle Coal Measures of Upper Carboniferous Age. The drift deposits are not shown and are likely to comprise weathered rock.

The Brierley Coal Seam is shown to sub-crop 700m south and dip beneath the site. A fault runs 70m east of the site from northeast to southwest.

5.5 Mining & Quarrying

A coal mining search report for the site from David Bellis Consulting Surveyors dated, 9th January 2013 is presented in Appendix D.

The mining report indicates that there three known worked seams below the site, the shallowest (Shafton) is located at a depth of 207m and has a cross section of 180cm and was extracted before 1960.

The report states that there are no known shafts or adits within 20m of the property.

The report also states that old workings are present but all settlement is likely to have completed long ago

The Envirocheck report highlights that the closest BGS Mineral sites is located 73m east of the site which extracted sandstone using opencast methods, however operation have ceased along with all other entries within 1km.

5.6 Geological Hazards and Instability

The Envirocheck Report indicates that a very low risk is posed by collapsible ground, shrinking/swelling clays and landslide stability hazards. No hazard is posed by compressible ground, running sand or ground dissolution is noted.

5.7 Hydrogeology

Using the Environment Agency's Policy and Practice for the Protection of Groundwater the solid geology beneath the site is classified as a Secondary A Aquifer.

The soils on the site have a high leaching potential.

The site does not lie within a source protection zone.

5.8 Hydrology

The nearest surface water feature is located 241m west of the site.

5.9 Sensitive Land Use

An area of adopted Green Belt is located 45m south and 783m east of the site.

The site lies within a Nitrate Vulnerable Zone.

5.10 Flooding

The site is not at risk of flooding.

5.11 Radon Gas

In accordance with the procedure described in BRE Publication BR211 *Radon: Guidance on Protective Measures for New Dwellings*, no radon protection measures are required for new buildings on the site.

6 CONCEPTUAL SITE MODEL

6.1 General

Based on the information presented in the preceding Sections, and in accordance with the CLR11 guidance noted in Section 1, a Preliminary Conceptual Site Model has been produced.

The main features of the model are discussed in the following sections together with preliminary recommendations where appropriate.

6.2 Likely Ground Conditions

It is expected that, based on available information, ground conditions are likely to comprise shallow made ground which is expected to be deepest in line with the footings of the former buildings and is likely to comprise demolition rubble. Drift deposits are expected to comprise of weathered rock, sandy clays or clayey sands.

6.3 Potential Buried Obstructions

Potential obstructions are possible from the former buildings; obstructions may include footings and flooring for the former buildings.

6.4 Preliminary Geotechnical Assessment

Given the expected ground conditions noted above, the use of traditional strip footings for the new structure is anticipated at present. Where loose made ground or soft/loose natural deposits are encountered, foundations will need to be taken through the made ground/disturbed ground into underlying natural strata of adequate bearing capacity.

6.5 Mining Assessment

The mining report indicates that there three known worked seams below the site, the shallowest is located at a depth of 207m and has a cross section of 180cm this should not affect the integrity of the proposed structure. No further intrusive works are recommended.

6.6 Preliminary Contamination Assessment

The desk study has shown that the site is likely to have been exposed to contamination with construction/demolition waste from the former residential development the most likely source.

In view of the current site uses, chemical contamination testing is considered necessary. The following

chemical testing suite should be considered for selected soil samples:

TABLE 2: POTENTIAL PRIORITY CONTAMINANTS

Inorganic Contaminants	Organic Contaminants
Arsenic, Boron, Cadmium, Chromium, Lead, Mercury, Nickel, Zinc, Selenium, Free Cyanide, Soluble Sulphate, pH, asbestos	Phenol

It should be noted that the above potential contaminants are considered to be commonly associated with the specified past land uses of the site, and adjacent land use. Risk assessment should be undertaken for contamination identified during intrusive investigation.

Potential pathways which link the potential contaminants to end users of the site and controlled waters (receptors) include the following:

- Ingestion of soil (outdoors) / dust (indoors)
- Skin contact with soil (outdoors) / dust (indoors)
- Inhalation of dust (outdoors and indoors)
- contamination via buried water pipes
- Surface water run-off, including via existing drainage infrastructure
- Downward infiltration of leachable contaminants to groundwater

6.7 Potential Sources of Ground Gas

Ground gases such as carbon dioxide and methane can be classed as a form of contamination. Potential sources of ground gases include:

- Made Ground
- Quarries, Infilled Clay Pits & Infilled Ponds
- Underlying Natural Strata (alluvium, peat and chalk)
- Petrol re-fuelling sites (which also includes Volatile Organic Compounds)
- Landfill (on and off-site)
- Coal measures

Based on historical map evidence and consideration of the sites environmental setting the table below shows a preliminary comparison of *consequence* against *probability* where ground gas is considered a potential threat to human health.

TABLE 3: POTENTIAL GROUND GAS POLLUTION LINKAGES

Potential Sources	Potential Pathway	Receptor
Hazardous mine gases from Coal Measures strata (CO ₂ , CO and CH ₄).	Ingress and Accumulation into buildings from vertical and horizontal migration	Future users of site are likely to include adults and children. Construction workers (in particular utility workers).
Made ground is expected (CO ₂ , CO and CH ₄).	Ingress and Accumulation into buildings from vertical and horizontal migration	
Former Quarry to the east of site (CO ₂ , CO and CH ₄).		
Preliminary Comparison of Consequence verses Probability		
	Classification	Justification
Probability (Based on Table 8.1, CIRIA C665, 2007)	LOW LIKELIHOOD	Site is located within a coal mining area.
		Possible ground gas from made ground.
Consequence (Based on Table 8.2, CIRIA C665, 2007)	MEDIUM	Residential housing is proposed

Consequence vs. Probability	Risk	Details
(Based on Table 8.3, CIRIA C665, 2007)	LOW-MODERATE RISK	It is possible that harm could arise to a designated receptor from an identified hazard. Investigation is required to clarify the risk and remedial works may be required in the long term. (Based on Table 8.4, CIRIA C665, 2007)

6.8 Risk Assessment for Contaminated Land

As part of this Phase 1 Desk Study, a preliminary conceptual model and risk assessment is produced. This assessment should be revised following the Phase 2 Site Investigation outlining a qualitative risk assessment. Should there be unacceptable risks to the various receptors/end-users following the Phase 2 works, then a remediation strategy may be required to outline measures to satisfy Part 2A of the Environmental Protection Act (1990). The above measures are inline with CLR11 – Model Procedures.

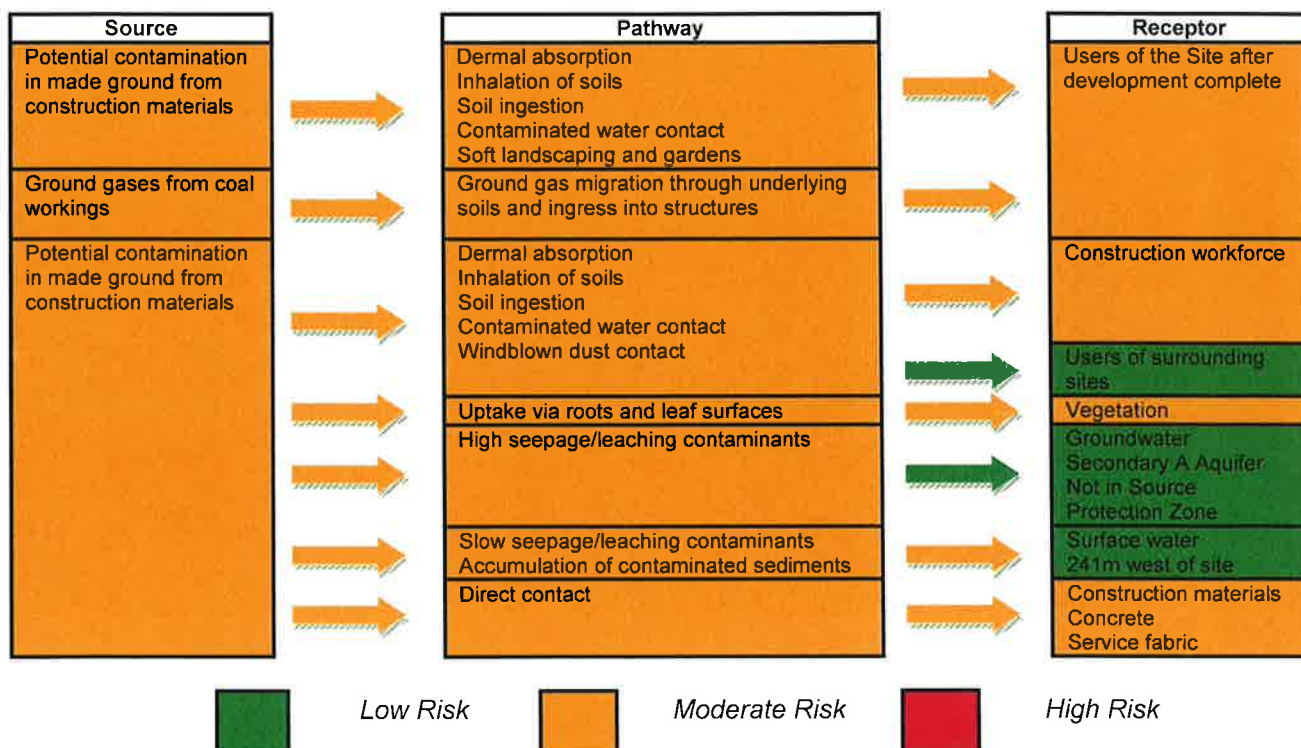
The results of the chemical contamination testing as part of the Phase 2 investigation should be compared to a series of Generic Assessment Criteria (GAC) for a residential development with plant up-take based on the current CLEA model.

6.9 Conceptual Site Model

The conceptual model collates the salient aspects of the site to form a model which should enable comparison after fieldwork and testing. This model identifies the potential pollution linkages that may influence the proposed development and geotechnical considerations.

The risk ratings are based on the current potential liabilities and likely potential future liabilities. The risks posed by the geotechnical and contamination aspects of the site will be revised following site works, and any mitigating action required added.

TABLE 4: PRELIMINARY CONCEPTUAL MODEL

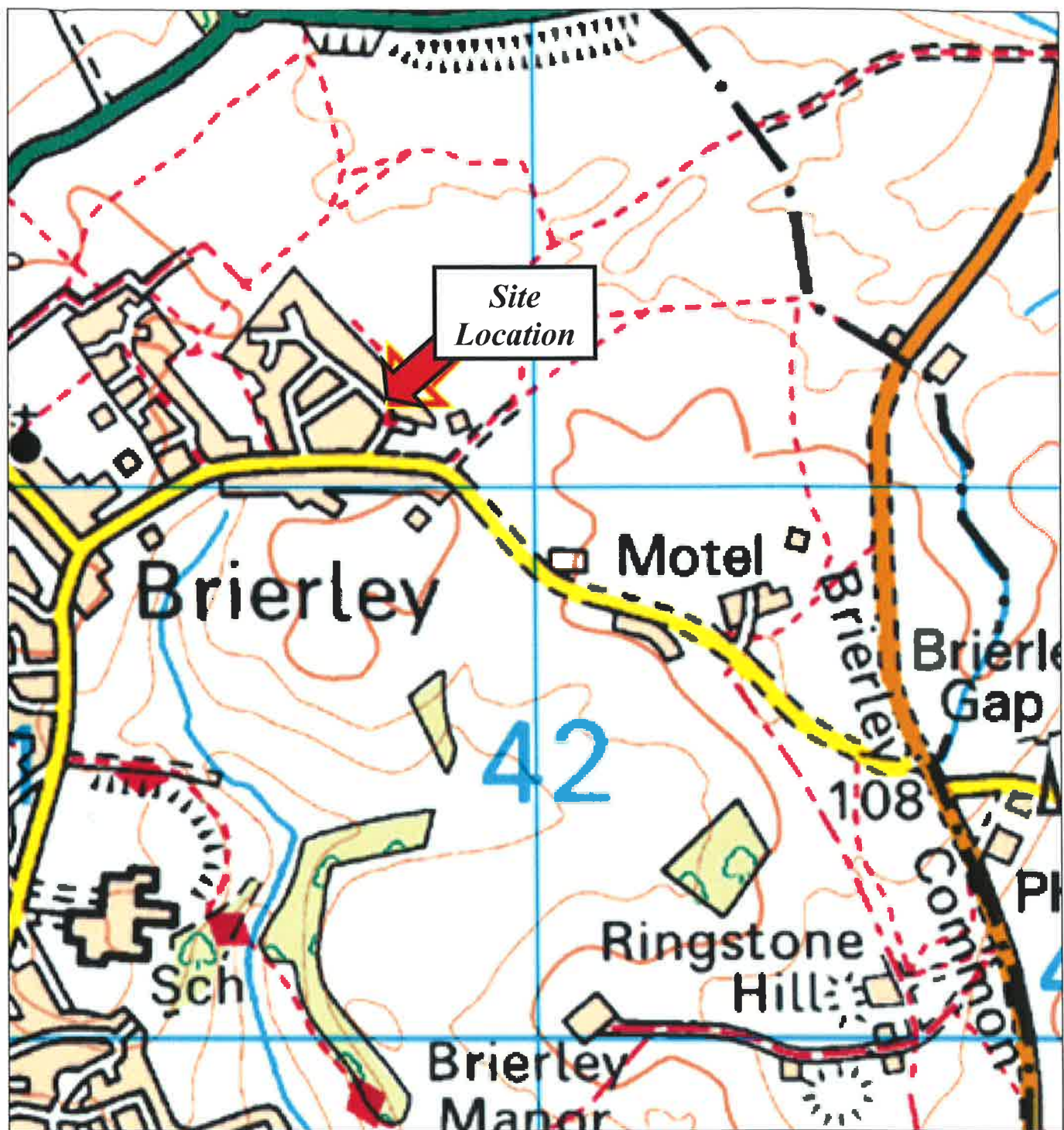


7 PROPOSED PHASE TWO INTRUSIVE WORKS

A Phase 2 Site Investigation should be undertaken to verify the assumptions made in the Preliminary Conceptual Site Model and to provide data for foundation design.

Appendix A

Drawings & Photographs



Client:	Bernard Williams Associates
Project:	Pudding Hill, Brierley, Barnsley
Title:	Site Location Map
DRG No:	Figure 1
Date:	January 2013



Client:	Bernard Williams Associates
Project:	Pudding Hill, Brierley, Barnsley
Title:	Current Site Plan
DRG No:	Figure 2
Date	January 2013



Plate 1: View north from the east of the site



Plate 2: View north from the south of the site.

Client:	Bernard Williams Associates
Project:	Pudding Hill, Brierley, Barnsley
Title:	Plates 1 & 2
DRG No:	Figure 3
Date	January 2013



Plate 3: View northwest from the northeast of the site.



Plate 4: View south from the northeast of the site.

Client:	Bernard Williams Associates
Project:	Pudding Hill, Brierley, Barnsley
Title:	Plates 3 & 4
DRG No:	Figure 4
Date	January 2013

Appendix B

Historical Maps

Yorkshire

Published 1854

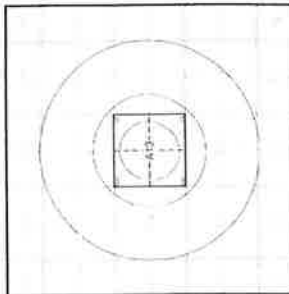
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1940'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, but recent surveys of a single area 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

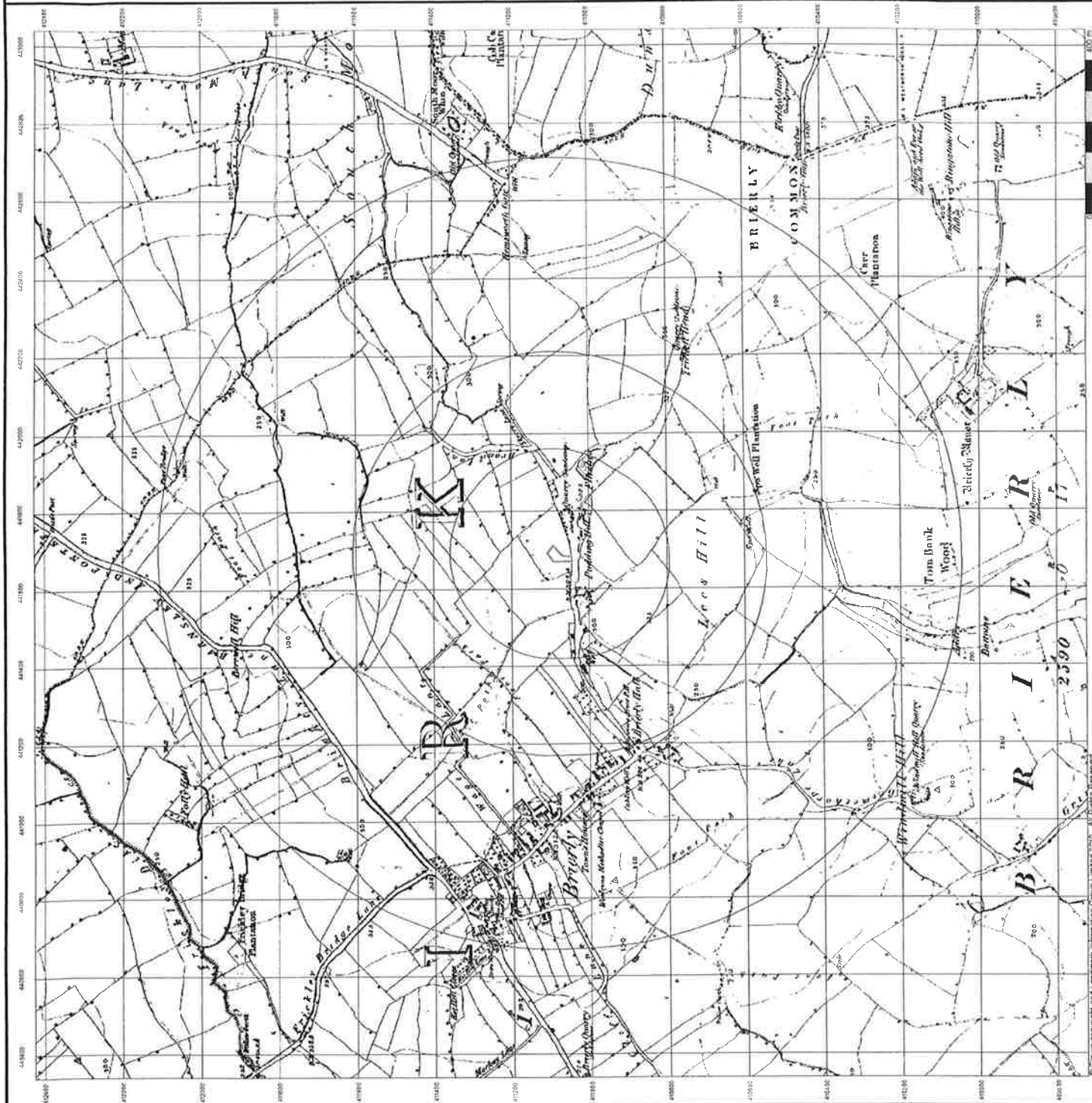


Order Details

Order Number: 43395913_1.1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Yorkshire

Published 1893

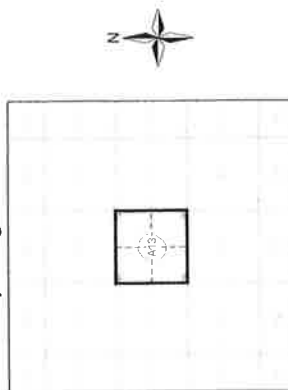
Source map scale - 1:2,500

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 1833, 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 adjoining areas.

Map Name(s) and Date(s)

263_10	1893	1:2,500
263_14	1893	1:2,500

Historical Map - Segment A13

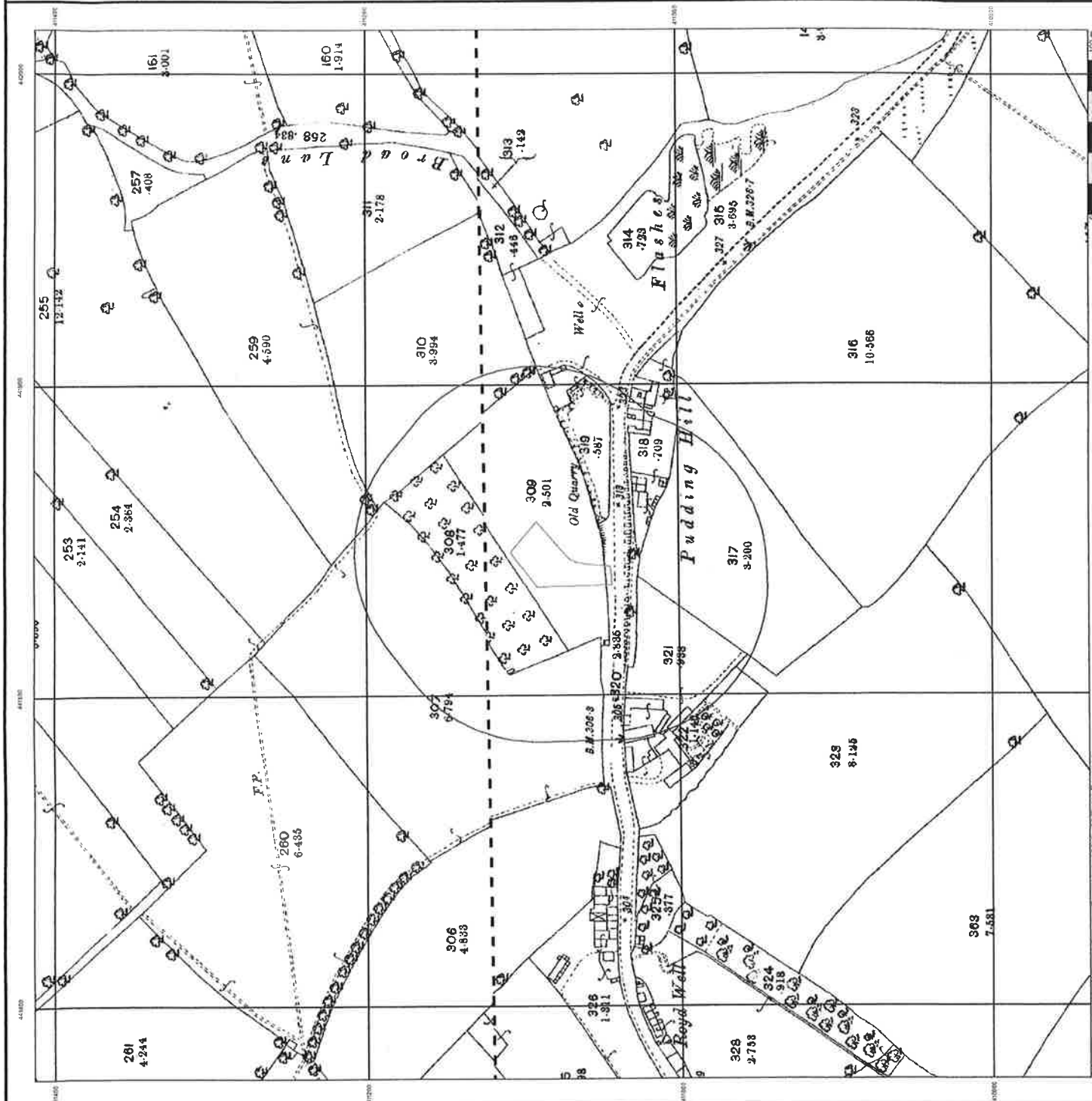


Order Details

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 Search Buffer (m): 100

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Yorkshire

Published 1894

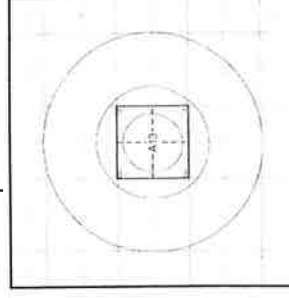
Source map scale - 1:10,560

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 1936, all OS maps were based on a datum of 1830. In 1936, the datum was changed to 1936. 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: 43395913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN

Yorkshire

Published 1907

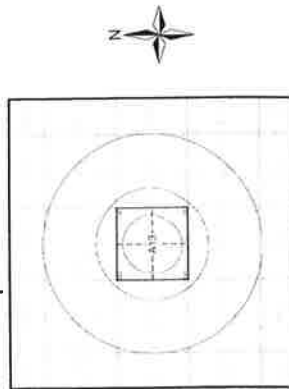
Source map scale - 1:10,560

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 in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of other sources. These maps appear to have been initially overlaid 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

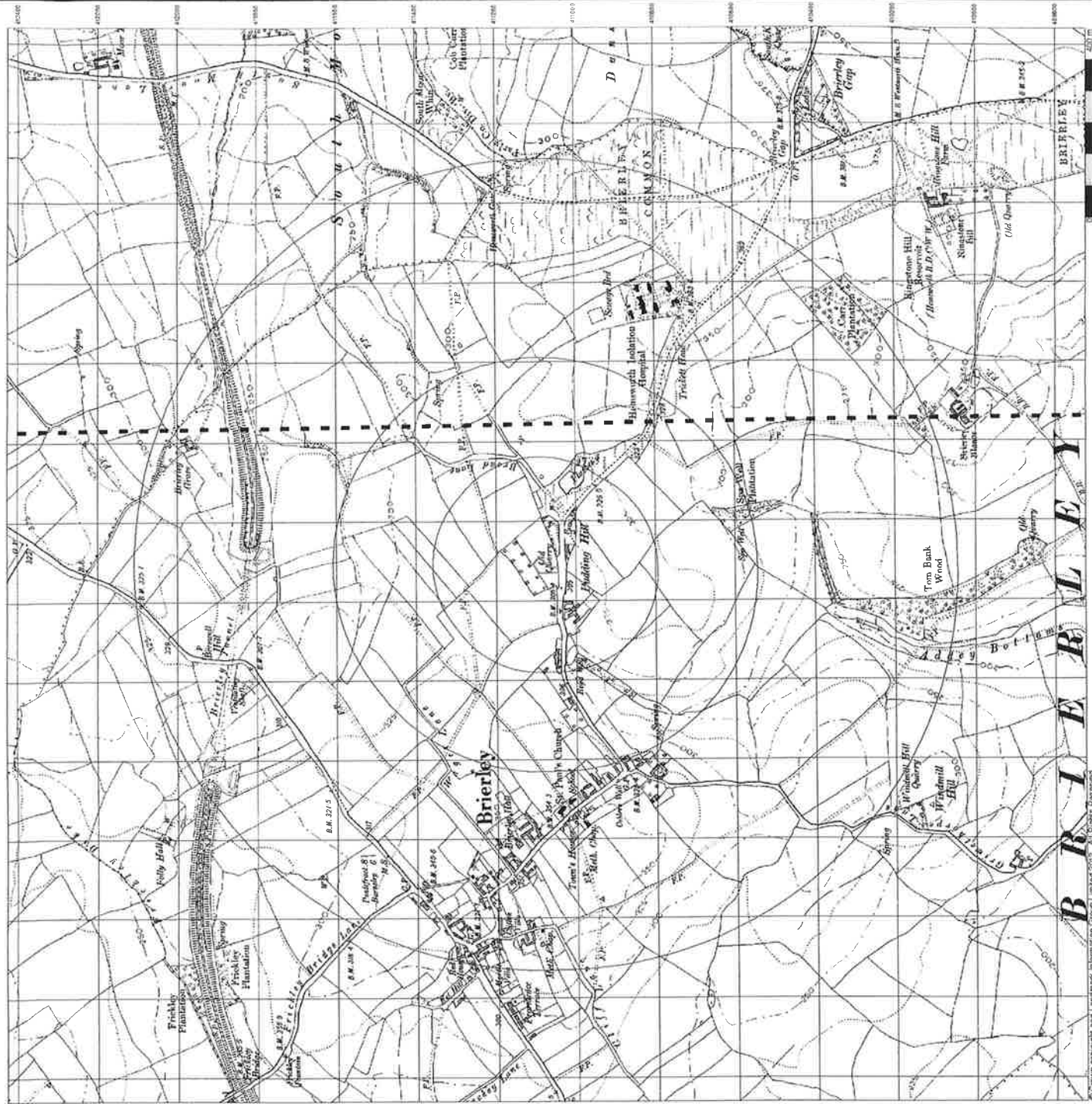


Order Details

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 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



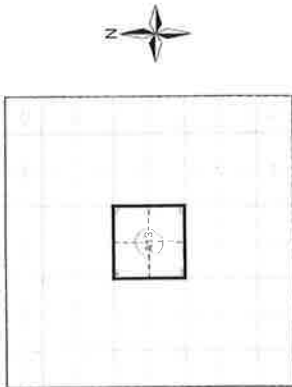
Yorkshire Published 1919 Source map scale - 1:2,500

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 1898 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 1840, all maps of a single county or group of counties, projected on the Cassini projection, were drawn to the same scale, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

253_10	253_14
1:2,500	1:2,500

Historical Map - Segment A13

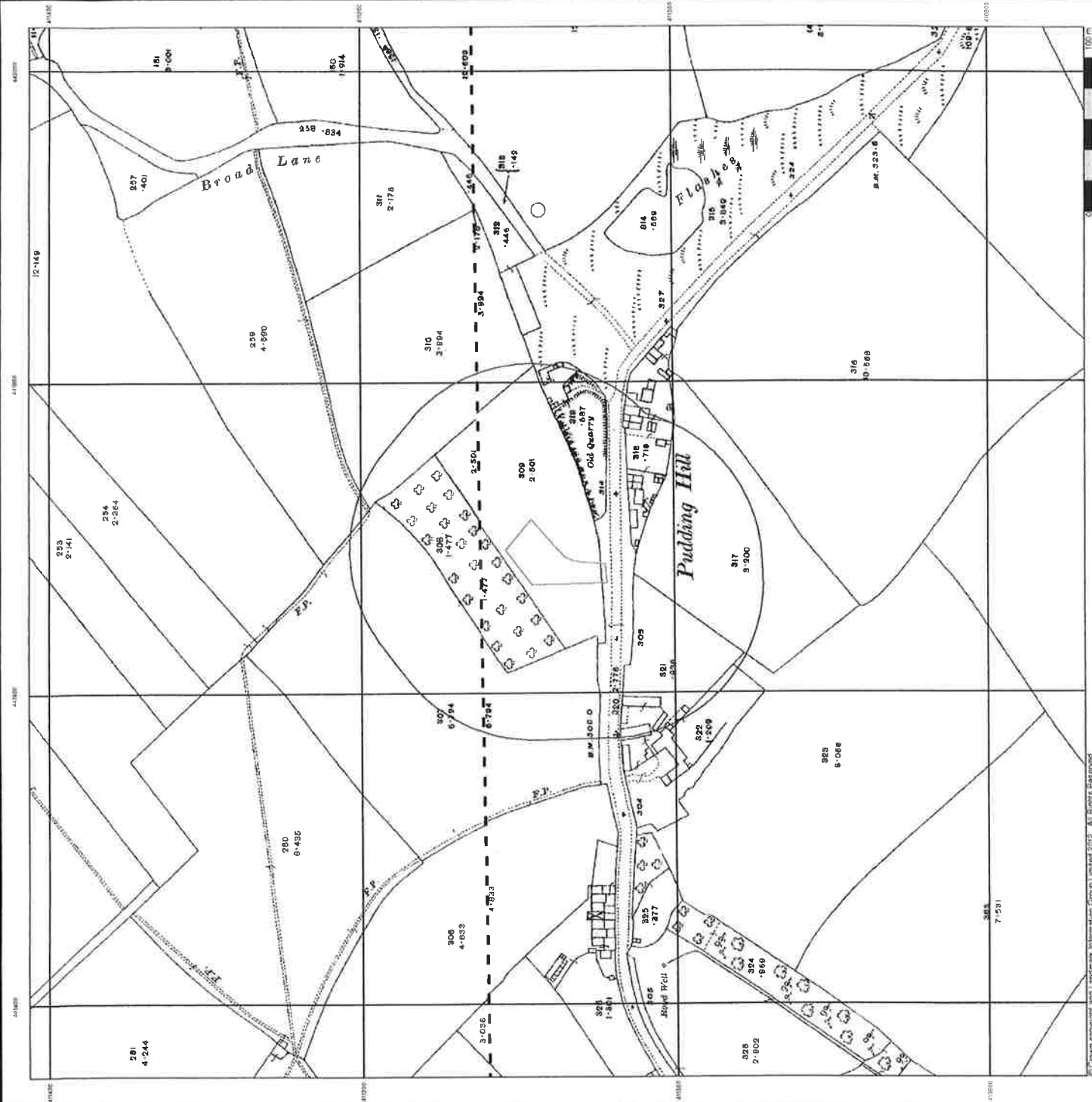


Order Details

Order Number: 43395913_1_1
Customer Ref: S130109
National Grid Reference: 441690, 411080
Slice: A
Site Area (Ha): 0.14
Search Buffer (m): 100

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



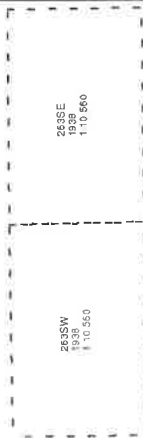
Yorkshire

Published 1938

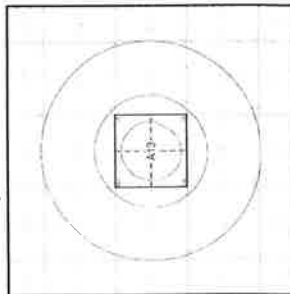
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1940'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 start inaccuracies in cutting across county boundaries. The 1907 edition of the Ordnance Survey's 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 43395913_1_1
Customer Ref S130109
National Grid Reference 441690, 411080
Slice A
Site Area (Ha) 0.14
Search Buffer (m) 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN

Ordnance Survey Plan

Published 1955 - 1956

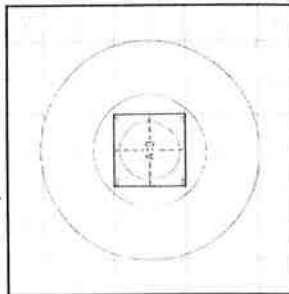
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1940's. In 1854 at the scale 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 different editions in outlying areas. From 1936, the 1:10,560 maps were produced on a single national edition, with 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 revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SE41SW 1	1956
SE40NW 1	1955

Historical Map - Slice A

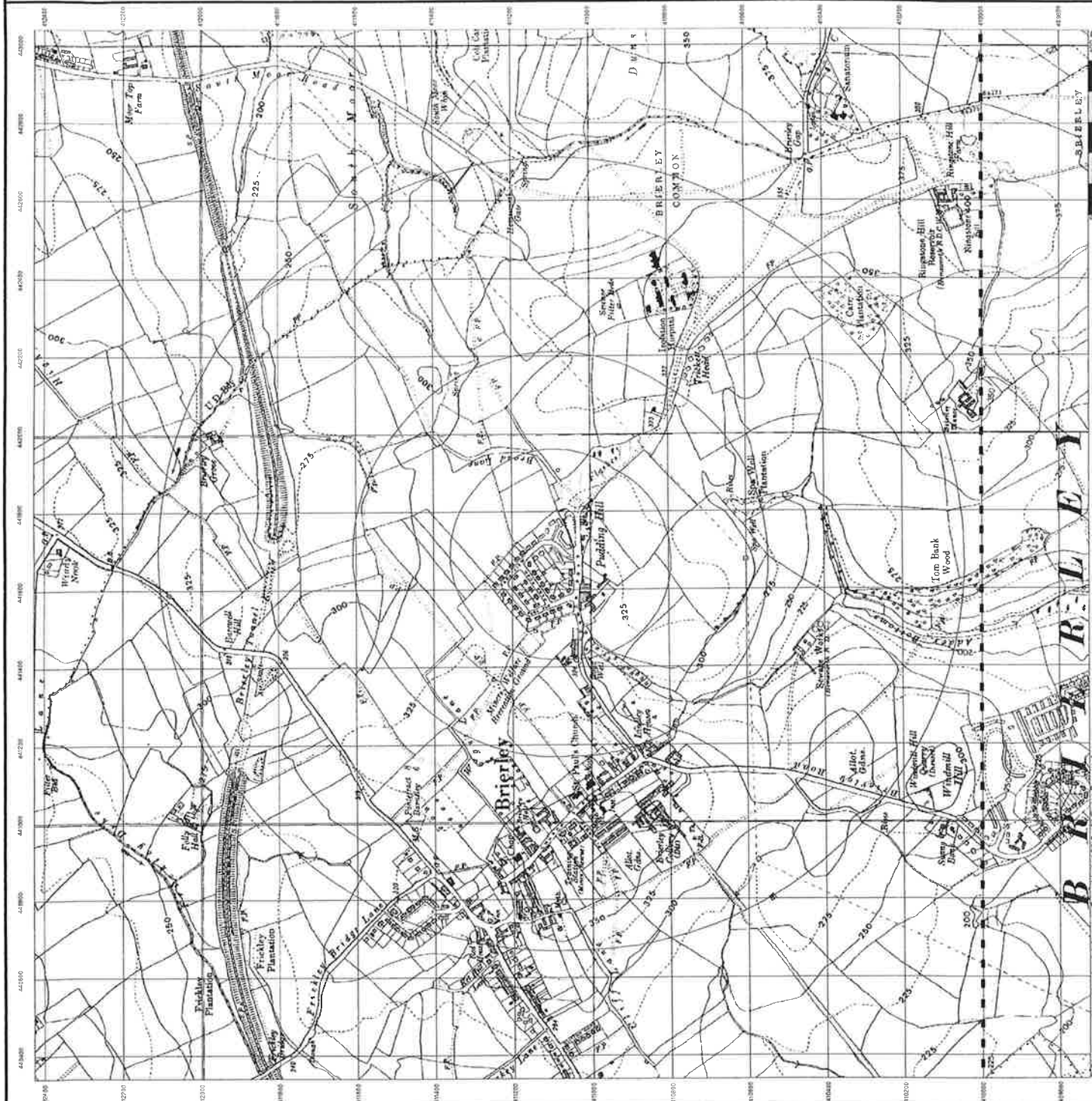


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Ordnance Survey Plan Published 1967

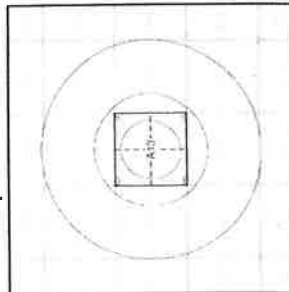
Source map scale - 1:10,000

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 adjoining areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 maps to the Transverse Mercator Projection. These maps were initially overlaid 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)

SE4SW	1967
1:10,560	
SE4NW	1950
1:10,560	

Historical Map - Slice A

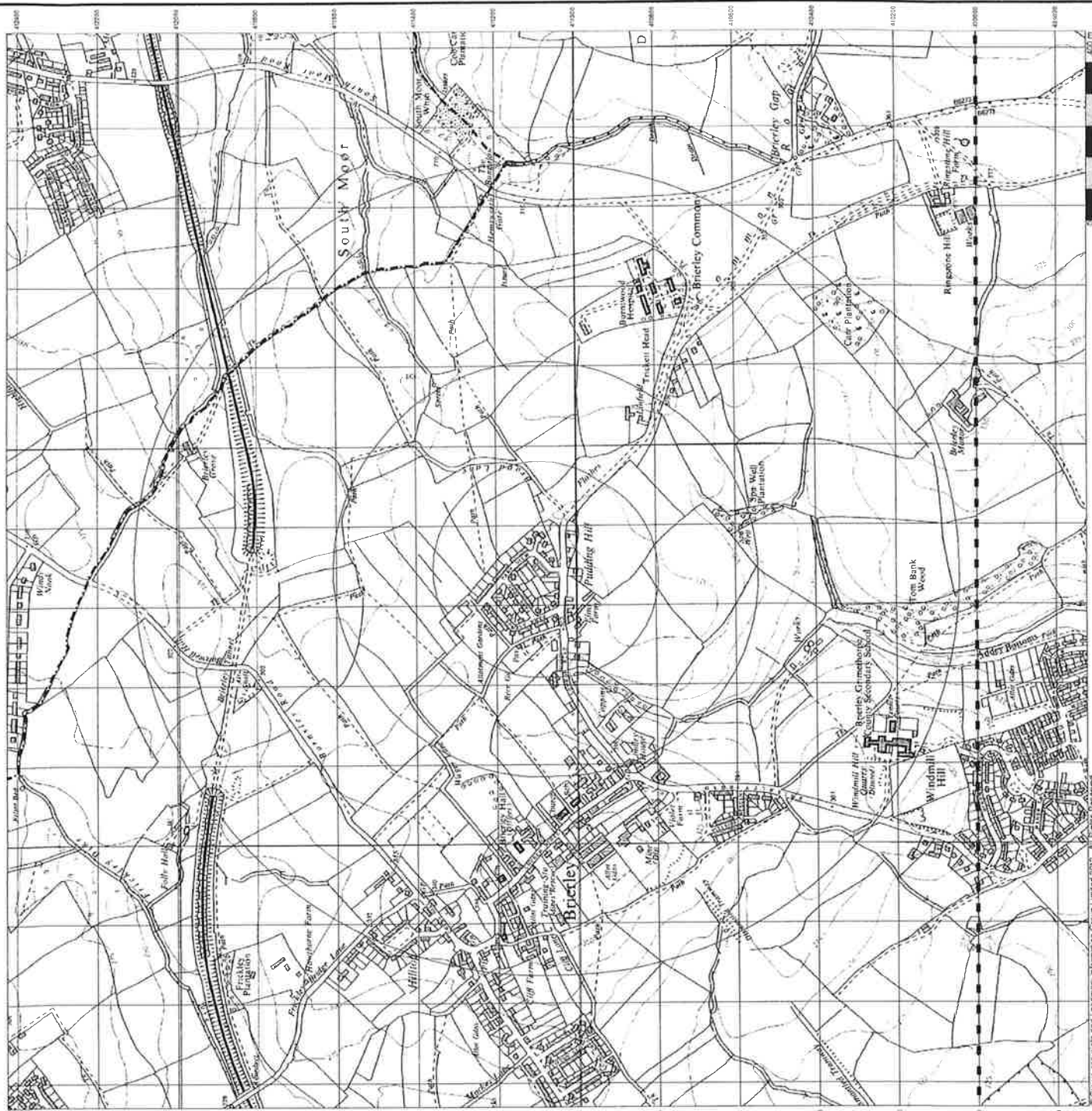


Order Details

Order Number: 4335913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Supply of Unpublished Survey Information

Published 1976

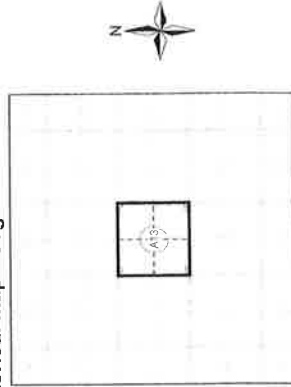
Source map scale - 1:2,500

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)

SE4111	1976	1:2,500
SE4110	1976	1:2,500

Historical Map - Segment A13

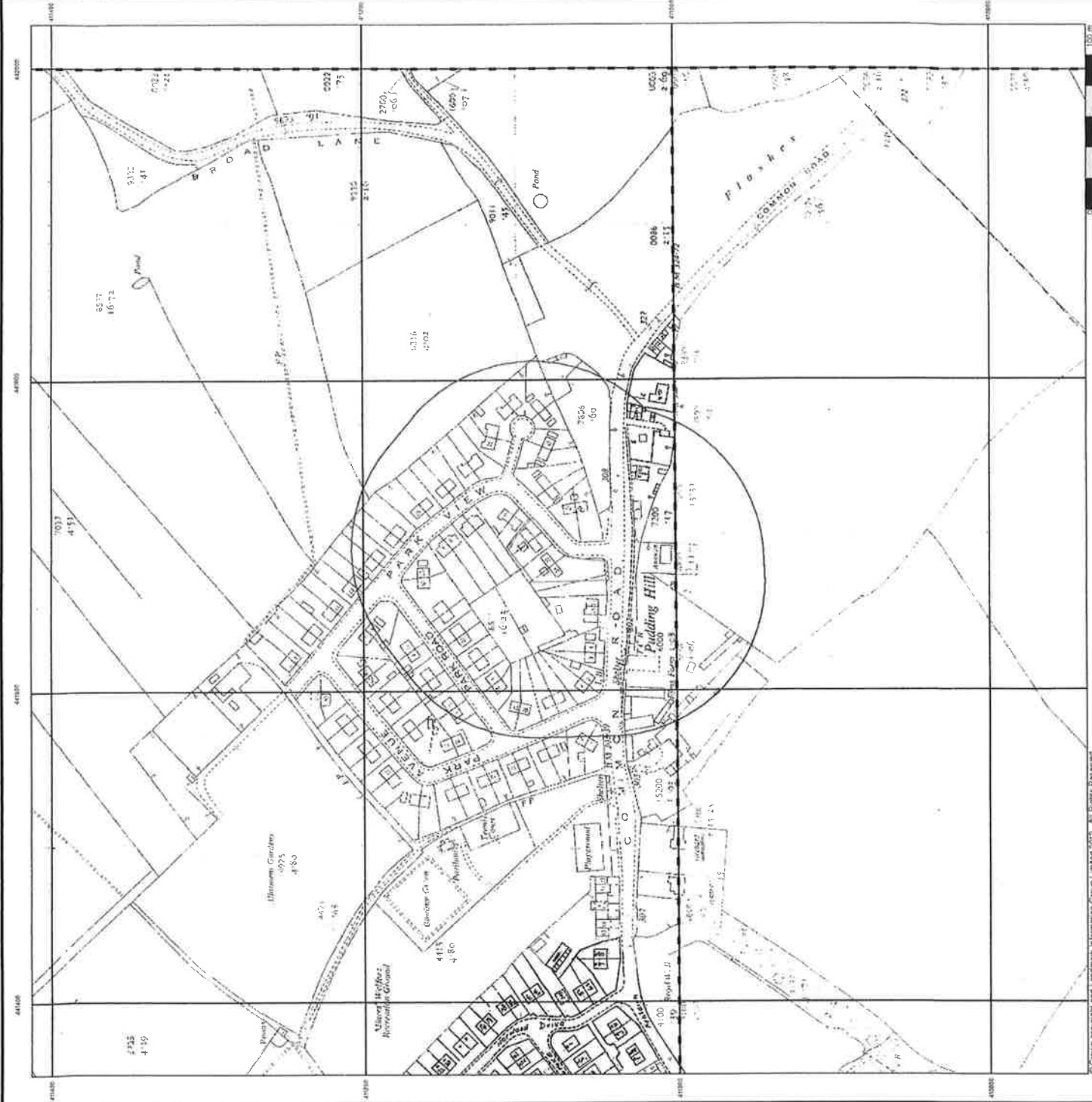


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109_1
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 100

Site Details

Pudding Hill, Brierley, BARNSLEY, South Yorkshire, S72 9EN



Ordnance Survey Plan Published 1983 - 1984

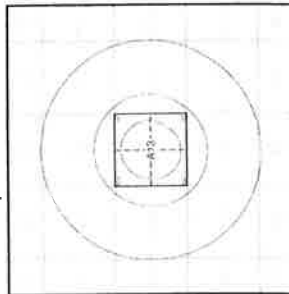
Source map scale - 1:10,000

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 1:10,000 maps. The plan scale of 1:10,000 is used for the majority of the maps. The maps were produced by the Ordnance Survey, which was based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in adjoining areas. In the late 1940's a Provisional Edition was produced, which updated the 1:10,000 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)

SE41SW	1
1984	
1:10,000	
SE40NW	1
1983	
1:10,000	

Historical Map - Slice A

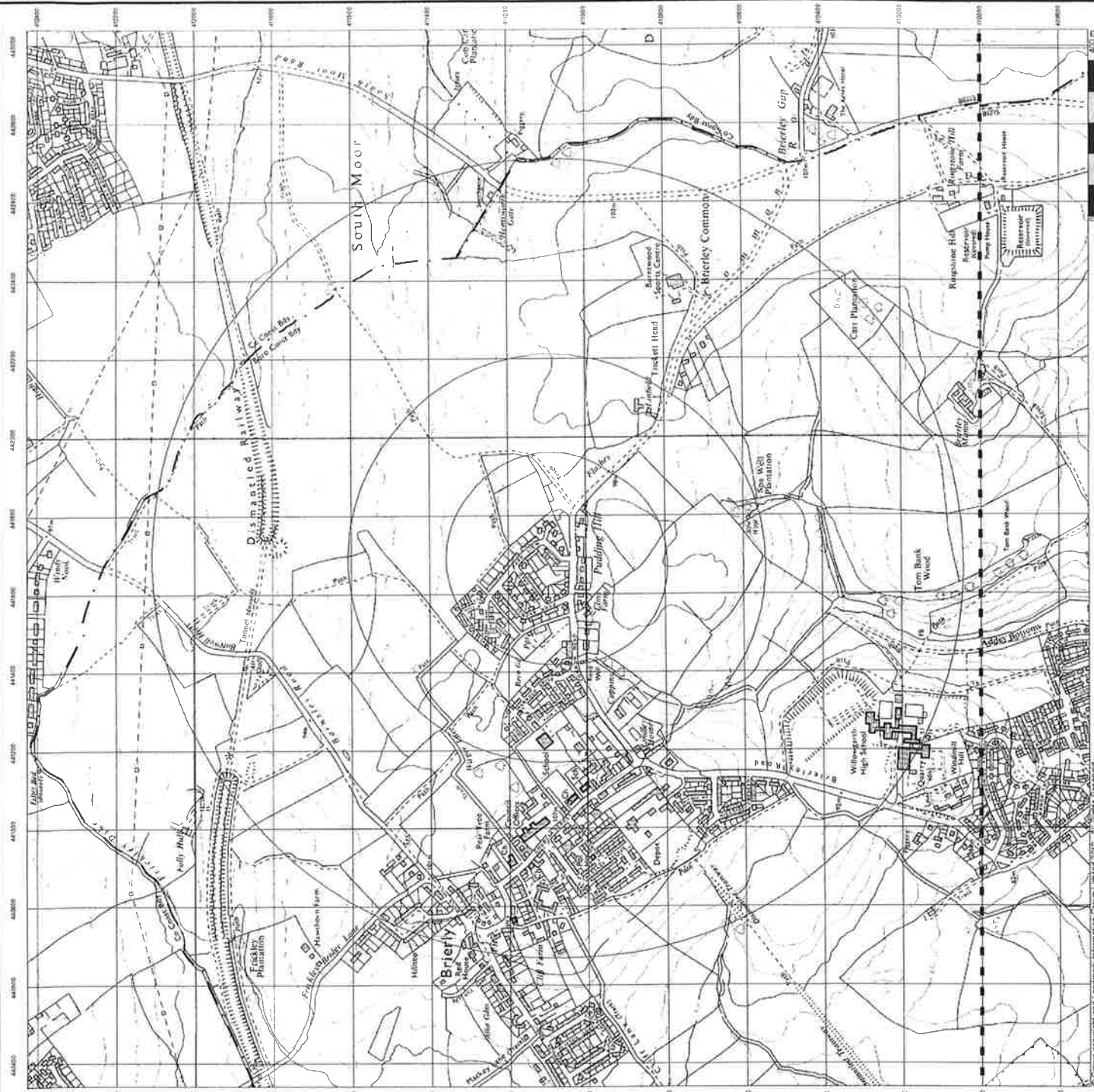


Order Details

Order Number: 43395913_1_1
Customer Ref: S130109
National Grid Reference: 441690, 411080
Slice: A
Site Area (Ha): 0.14
Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Additional SIMs

Published 1983 - 1988

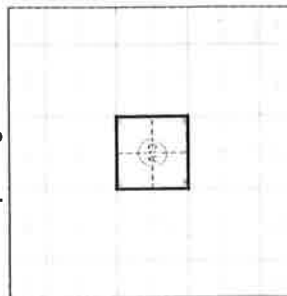
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's Survey of Information on Microfilm) are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SE411	SE411
1988	1983
1:2,500	1:2,500
SE410	SE410
1988	1983
1:2,500	1:2,500

Historical Map - Segment A13

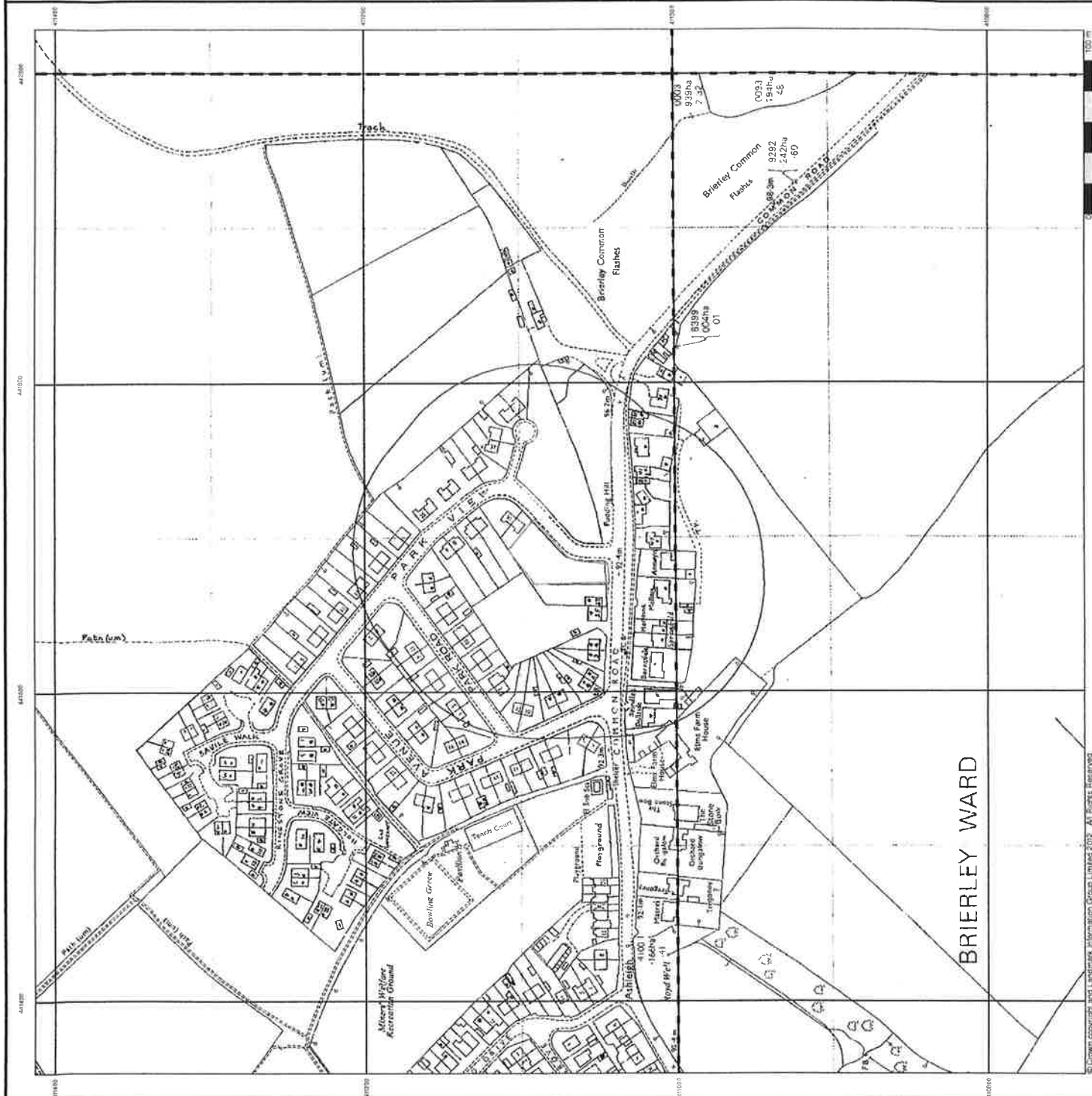


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 100

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



Large-Scale National Grid Data

Published 1993

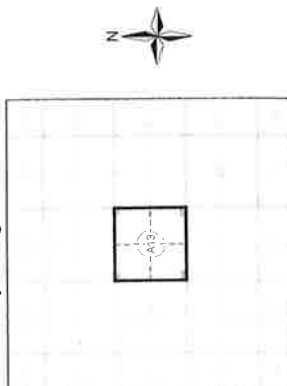
Source map scale - 1:2,500

'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 forerunners 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)

SE4111	SE4211
1993	1993
1:2,500	1:2,500
SE4110	SE4210
1993	1993
1:2,500	1:2,500

Historical Map - Segment A13

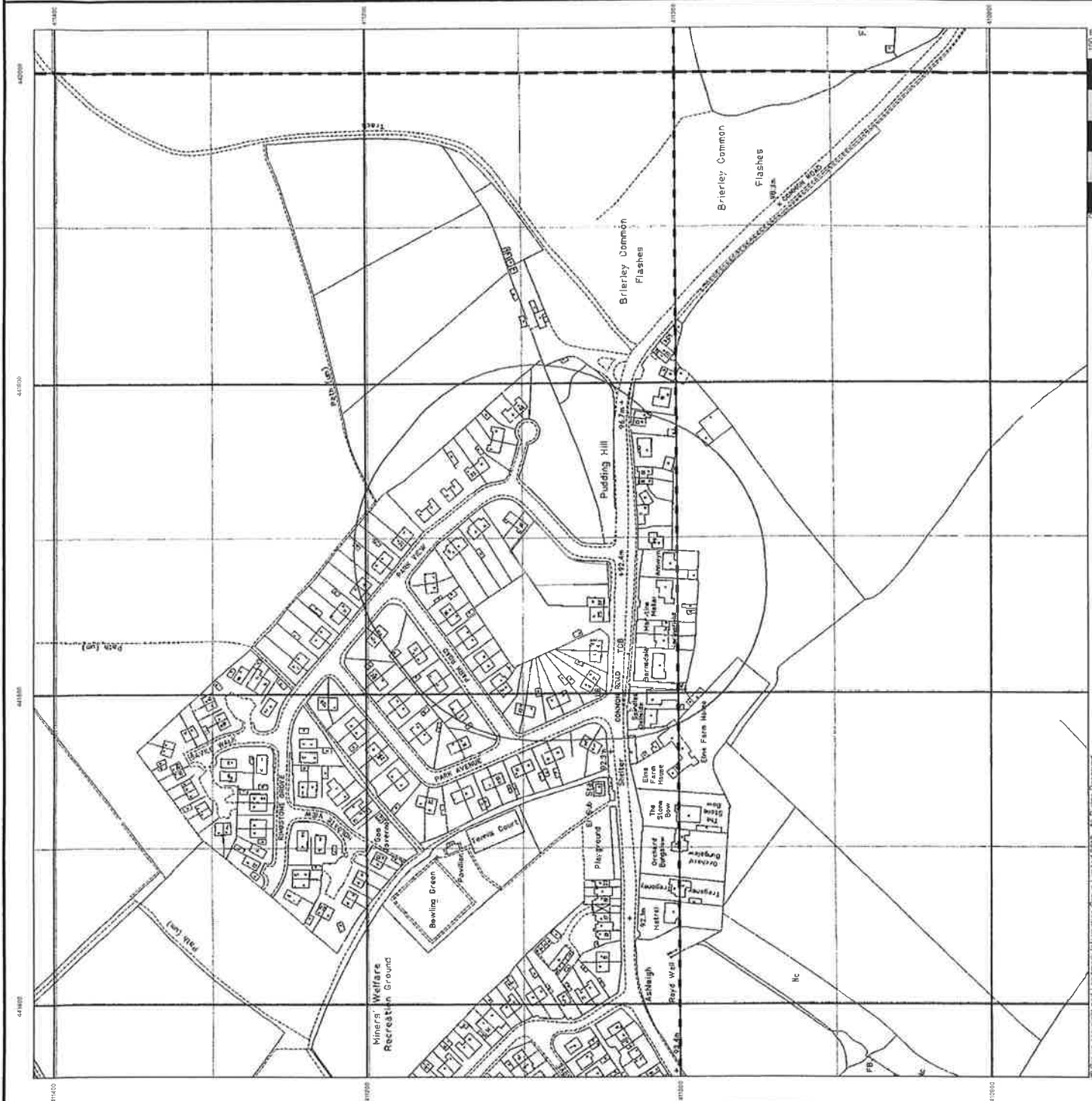


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 100

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



10k Raster Mapping

Published 2006

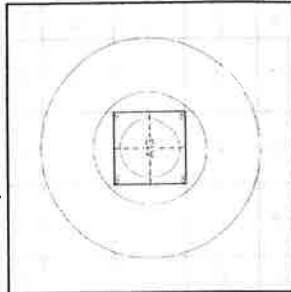
Source map scale - 1:10,000

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. Other information depicted includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

- SE4SW 1
- 2006
- 1:10,000
- SE40NW 1
- 2006
- 1:10,000

Historical Map - Slice A

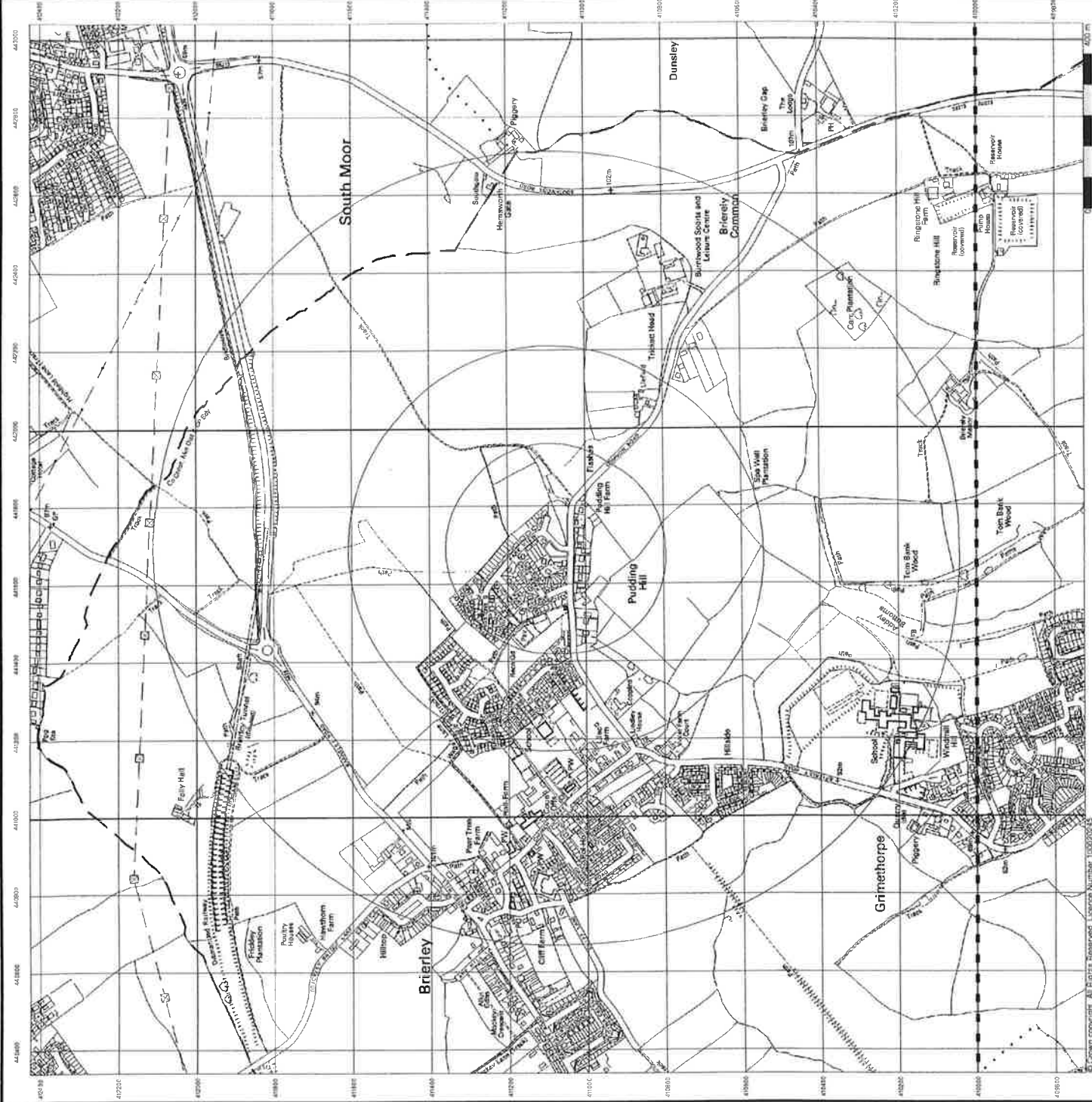


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109_
 National Grid Reference: 441690, 411080
 Slice: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



10k Raster Mapping

Published 2012

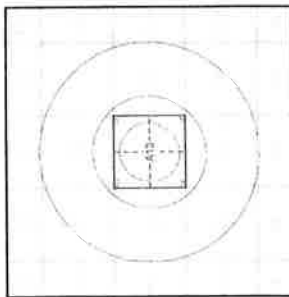
Source map scale - 1:10,000

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 depicts includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

- SE41SW 1
- 2012
- 1:10,000
- SE40NW 1
- 2012
- 1:10,000

Historical Map - Slice A

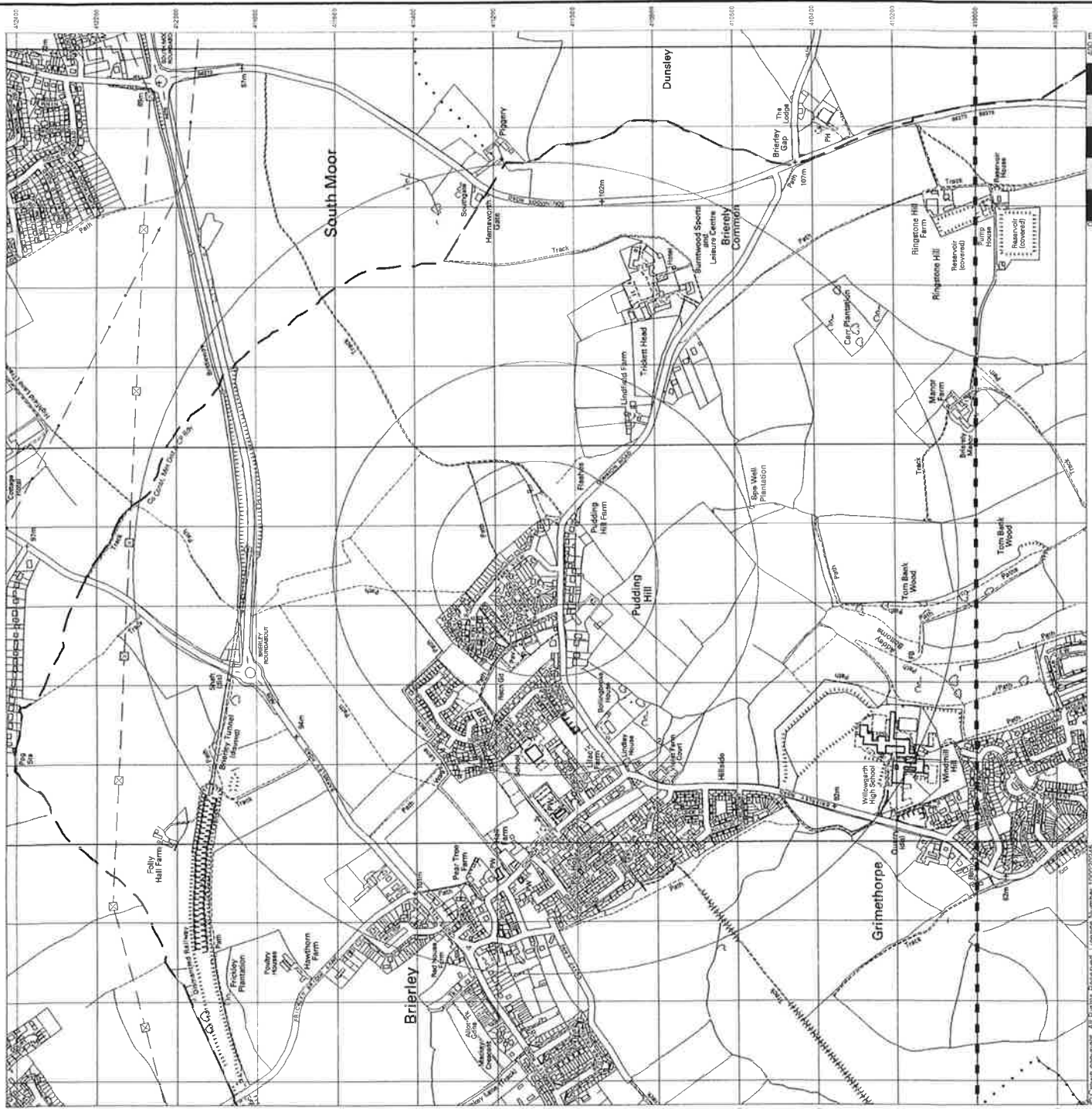


Order Details

Order Number: 43395913_1_1
 Customer Ref: S130109
 National Grid Reference: 441690, 411080
 Site: A
 Site Area (Ha): 0.14
 Search Buffer (m): 1000

Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN



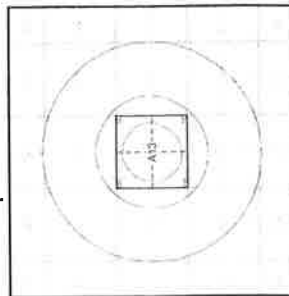
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1907	4
Yorkshire	1:10,560	1930	5
Yorkshire	1:10,560	1933	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1938 - 1948	8
Yorkshire	1:10,560	1948	9
Ordnance Survey Plan	1:10,000	1955 - 1958	10
Ordnance Survey Plan	1:10,000	1967	11
Ordnance Survey Plan	1:10,000	1983 - 1984	12
Ordnance Survey Plan	1:10,000	1989	13
10K Raster Mapping	1:10,000	2006	14
10K Raster Mapping	1:10,000	2012	15

Historical Map - Slice A



Order Details

Order Number: 43395913_1.1
 Customer Ref: S130109
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 Site Area (Ha): 0.14
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Site Details

Pudding Hill, Brierley, BARNESLEY, South Yorkshire, S72 9EN

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Ordnance Survey Plan 1:10,000

1:10,000 Raster Mapping

																														
Gravel Pit	Sand Pit	Other Pits	Quarry	Shingle	Reeds	Marsh	Brushwood	Deciduous	Mixed Wood	Fir	Arrow denotes flow of water	Site of Antiquities	Pump, Guide Post, Signal Post	Surface Level	Sketched Contour	Main Roads	Minor Roads	Sunken Road	Road over Railway	Railway over Road	Road over River or Canal	Road over Stream	County Boundary (Geographical)	County & Civil Parish Boundary	Administrative County & Civil Parish Boundary	County Borough Boundary (England)	County Borough Boundary (Scotland)	Rural District Boundary	RD Bay	Civil Parish Boundary

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

Envirocheck Report