

Land at Pagham Road

Geo-Environmental Phase 1 Desk Study

Hallam Land Management Ltd

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Appendices

Appendix – Historical Map Index – Ordnance Survey

1 Introduction

- 1.1** Brookbanks is appointed by Hallam Land Management Ltd to complete a Phase 1 Geo-Environmental Desk Study for a proposed development on Land at Pagham Road.
- 1.2** The objective of the study is to research the likely geotechnical and chemical characteristics of the soil and ground water environment.

2 Background Information

Location and Details

- 2.1 The site is bound to the north by open fields and to the west by woodland. To the south, the site is bound by an area of existing residential properties. To the east, the site is bound by Pagham Road, situated adjacent to which is the Pagham North Strategic Site allocation.
- 2.2 The Site is currently in agricultural use.
- 2.3 The Site location and boundary is shown indicatively on **Figure 2-1** below

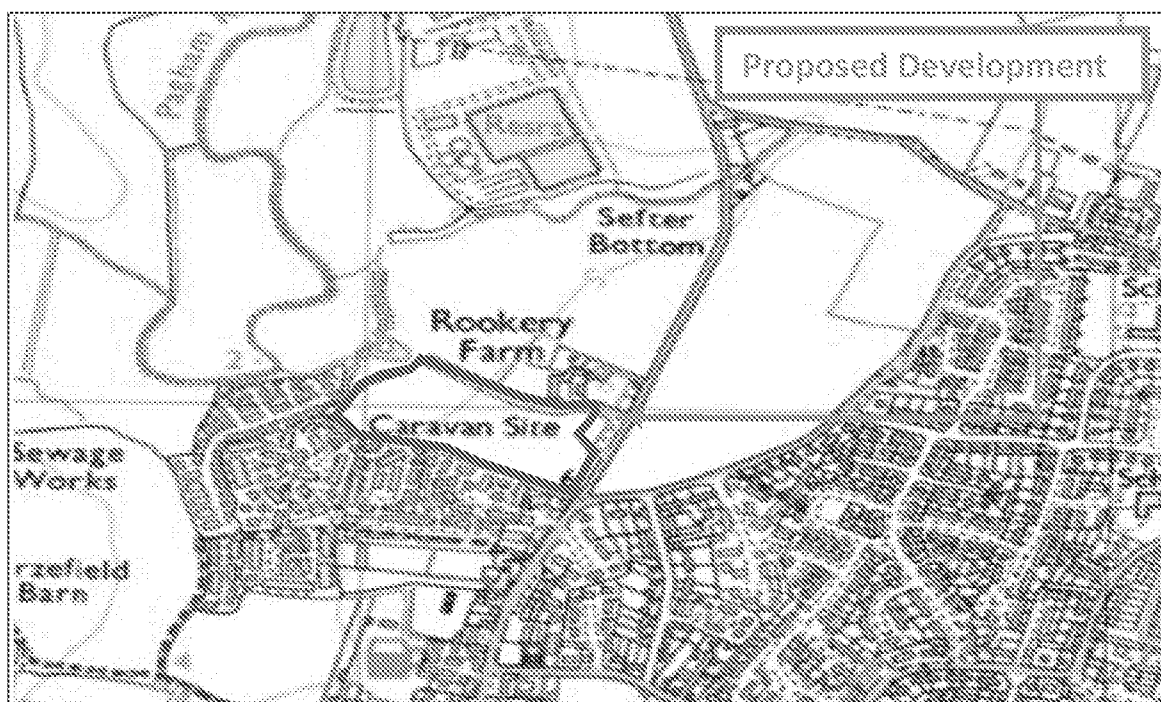


Figure 2-1: Site Location

Development Criteria

- 2.4 The construction of up to 106 new homes, formation of access onto Pagham Road, new pedestrian and cycle links, the laying out of open space, new strategic landscaping, habitat creation, drainage features and associated ground works and infrastructure.

Sources of Information

- 2.5 The following bodies were consulted during the study:

- | | | |
|-------------------------|---|--------------------|
| • Environmental Matters | - | Environment Agency |
| • Coal Mining | - | The Coal Authority |

2.6 The following information has been gathered during the study:

- | | | |
|---------------------------------|---|--|
| • Environmental Search | - | Landmark Envirocheck Reports, October 2021 |
| • Published Geology | - | British Geological Survey |
| • UXO Pre-desk Study Assessment | - | Zetica UXO, November 2021 |

3 Historical Site Uses

- 3.1** In appraising the Site history, published Ordnance Survey maps have been reviewed dating from 1880 up to the present day. A selection of large scale maps used in this report, are contained within the **Appendix**
- 3.2** Inspection of the Ordnance Survey maps has revealed that since 1880, the Site has largely remained undeveloped.
- 3.3** The surrounding area is shown to include a few potentially contaminative land uses. Since 1880, several roads and lanes have been present which has provided access around the surrounding area. Associated with the existing roads, developments of Nyetimber and Rose Green are built.
- 3.4** The historical activities described above, and further activities shown within the surrounding area are presented in **Table 3-1**.
- 3.5** The following potentially significant contaminative land uses are on or within close proximity of the site and will be further assessed within Section 10: **Agricultural, Roads (Access Track, Pagham Road and Hook Lane), Sewage Works and the Works**.

Site Use / Activity	Date First	Date Last Shown	Approximate Distance (m)	Direction
Pagham Road	1880	Still Present	Bounds	East
Access Track	1880	Still Present	Bounds	North East
Rookery Farmhouse	1880	Still Present	10	North East
Nyetimber / Rose Green	1933	Still Present	25	South / East
Hook Lane	1880	Still Present	50	South East
Caravan Site	1973	Still Present	50	South West
Sewage Works	2021	Still Present	350	North
Sewage Works	1973	Still Present	475	West
Works	2021	Still Present	700	North

Table 3-1: Onsite and Offsite Historical Site Uses

4 Recent & Current Site Usage

- 4.1** The Site is currently undeveloped. The historical map search suggests that the land has previously been set as agricultural land.

5 Ground Conditions

Geology

- 5.1 With reference to the British Geological Survey map, the Site is shown to be underlain by clay, silt, and sand of the London Clay Formation.
- 5.2 The majority of the Site highlights Superficial sand, silt and clay Deposits of the River Terrace Deposits (Undifferentiated). Areas to the north-west are shown to be overlain by sand and gravel River Beach Deposits, with the furthest west overlain by superficial clay, silt, sand and gravel Raised Marine Deposits.
- 5.3 There are no areas of Artificial Ground/ Made Ground or Landslip areas reported on Site.
- 5.4 The Site geology is illustrated below on **Figure 5-1** and **Figure 5-2**.

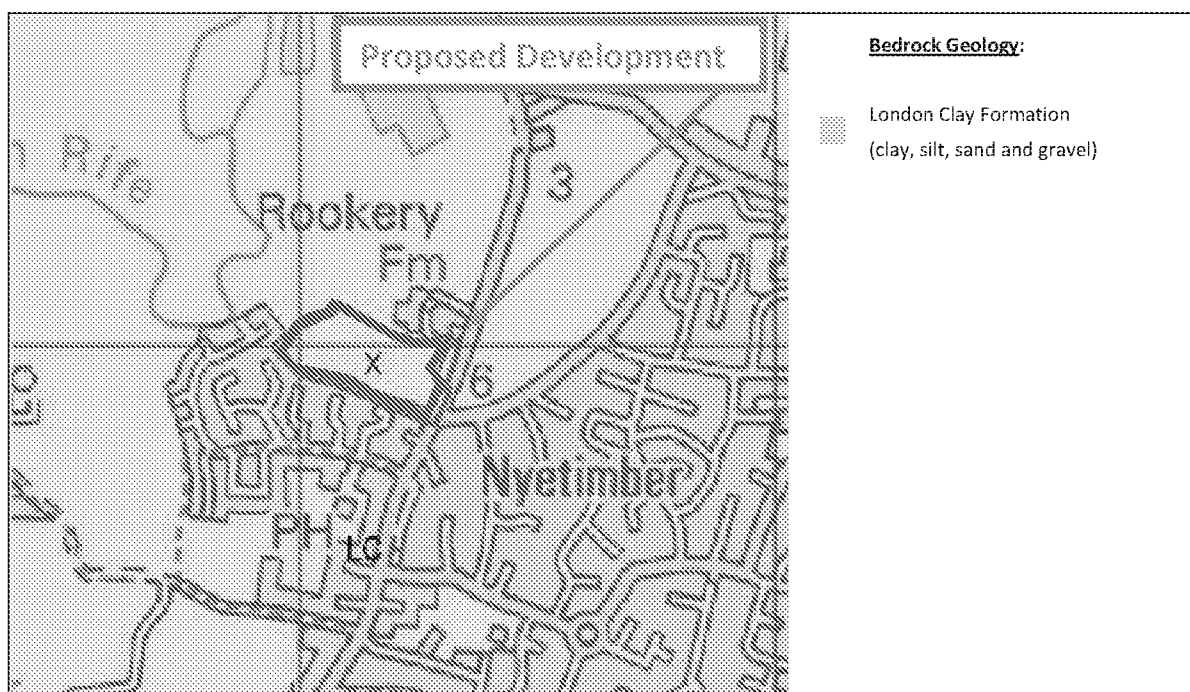


Figure 5-1: BGS Published Bedrock Geology

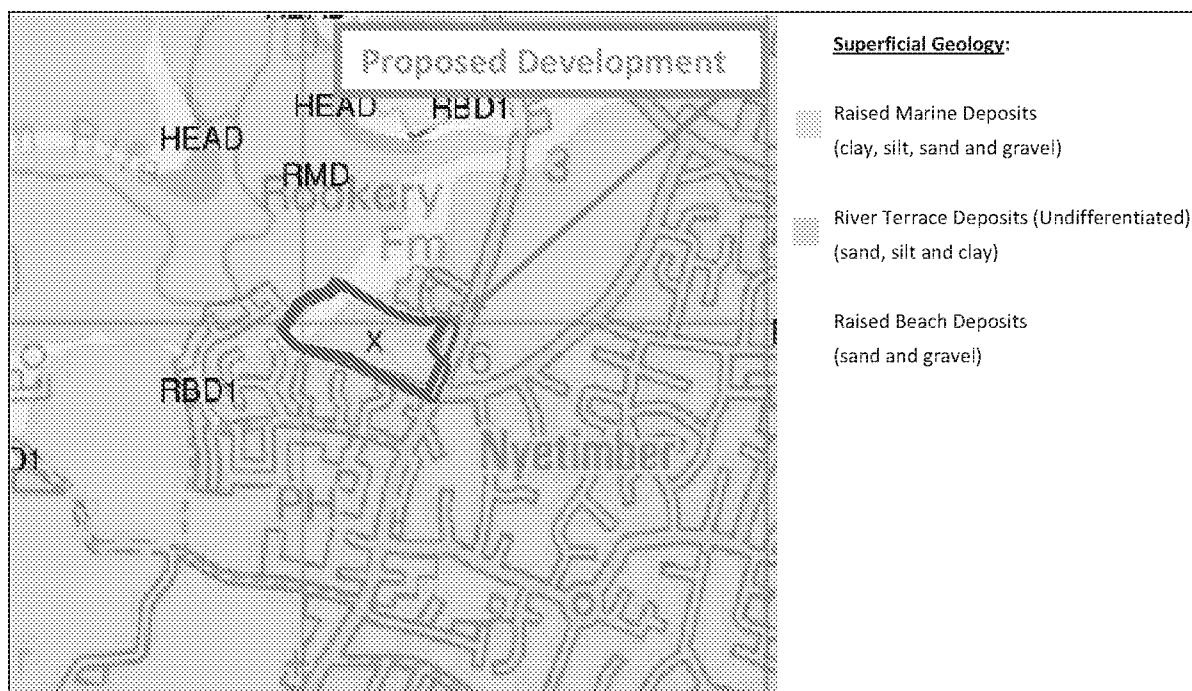


Figure 5-2: BGS Published Superficial Deposits

5.5 BGS records include the following ratings for a number of potential ground stability hazards on or within 250m of the Site boundary:

- | | |
|---------------------------------|-----------------|
| • Collapsible ground stability: | Low*/ Very Low* |
| • Compressible ground: | No Hazard* |
| • Ground Dissolution: | No Hazard* |
| • Landslide: | Very Low* |
| • Running Sand: | Very Low*/ Low* |
| • Shrinking & Swelling Clay: | Low* |

*stability hazard reported on Site

Mining

5.6 The Site is not reported to be in an area affected by **Coal Mining**.

5.7 The Site is not reported to be in an area affected by **Mining Instability, Man-Made Mining Cavities, Natural Cavities or Non Coal Mining Areas of Great Britain**.

5.8 There are five **BGS Recorded Mineral Sites** recorded within 1,000m of the Site boundary. These are further detailed in **Table 5-1**:

Site Name--Location	Status	Commodity	Distance (m)	Direction
Nyetimber Brick Field – Nyetimber, Bognor Regis	Ceased	Common Clay and Shale	239	South East
Lion Brickworks – Nyetimber, Pagham	Ceased	Common Clay and Shale	430	South East
Pagham Brickworks – Nyetimber, Pagham	Ceased	Common Clay and Shale	441	South East
Rose Green Brick Field – Aldwick, Bognor Regis	Ceased	Common Clay and Shale	605	East
Bowley Farm Gravel Pit – South Mundham, North Mundham	Ceased	Sand and Gravel	793	North West

Table 5-1: BGS Recorded Mineral Sites

Radon

- 5.9 The Site is shown to be situated within an intermediate probability area affected by radon, where between 1% and 3% of homes are above the action level.
- 5.10 It is reported that no radon protection measures are necessary for the construction of new developments within the Site.

Estimated Soil Chemistry

- 5.11 The Envirocheck report provides the following estimated soil chemistry* on Site, whereby the soil is described as 'rural'.

Potentially Harmful Elements	BGS Estimated Soil Chemistry Concentration (mg/kg)
Arsenic	< 15
Cadmium	< 1.8
Chromium	60 - 90
Lead	<100
Nickel	15 - 30

Table 5-2: Estimated Soil Chemistry

* The British Geological Survey (BGS) Estimated Soil Chemistry dataset provides modelled estimates of ambient background concentrations of Potentially Harmful Elements (PHE) in topsoil: Arsenic (As), Cadmium (Cd), Chromium (Cr), Nickel (Ni) and Lead (Pb). The data has been created by combining high resolution geochemical data (from the BGS G-BASE and Imperial College Wolfson geochemical survey database) and the soil parent material maps derived from the BGS DiGMapGB geological data and covers the whole of Great Britain (excluding London).

- 5.12** If required at the detailed design stage, confirmation of the existing site specific soil chemistry can be established via a Phase II ground investigation.

6 Hydrology

Flooding

- 6.1 The Environment Agency's (EA) National Generalised Modelling (NGM) Flood Zones Plan indicates predicted flood envelopes of Main Rivers across the UK. In many circumstances, the NGM is based on basic catchment characteristic data and modelling techniques. Where appropriate, more accurate Section 105 / SFRM models are produced using more robust analysis techniques.
- 6.2 With reference to EA Mapping, a watercourse is shown along the northern boundary of the Site, with further networks shown north and south of the Site.
- 6.3 **Figure 6-1** illustrates the main rivers consultations from EA mapping/ FEH Catchment Mapping:

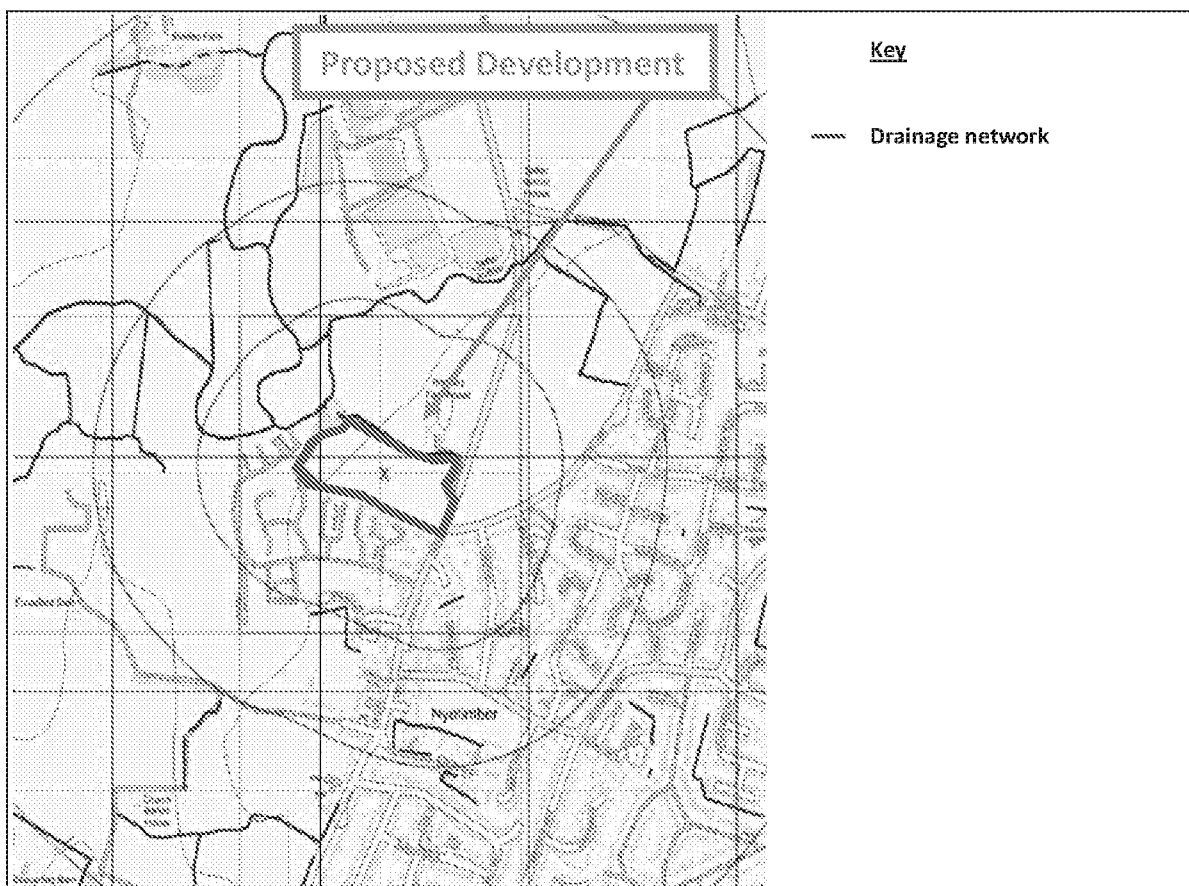


Figure 6-1: OS Water Network Map

- 6.4 The EA mapping shows that the majority of the Site lies within Flood Zone 1; being an area of Low Probability of flooding, outside both the 1 in 100 (1% AEP) and 1 in 1,000 (0.1% AEP) year flood events. However, the furthest west of the Site is shown to be situated within Flood Zone 3, as illustrated on **Figure 6-2**:

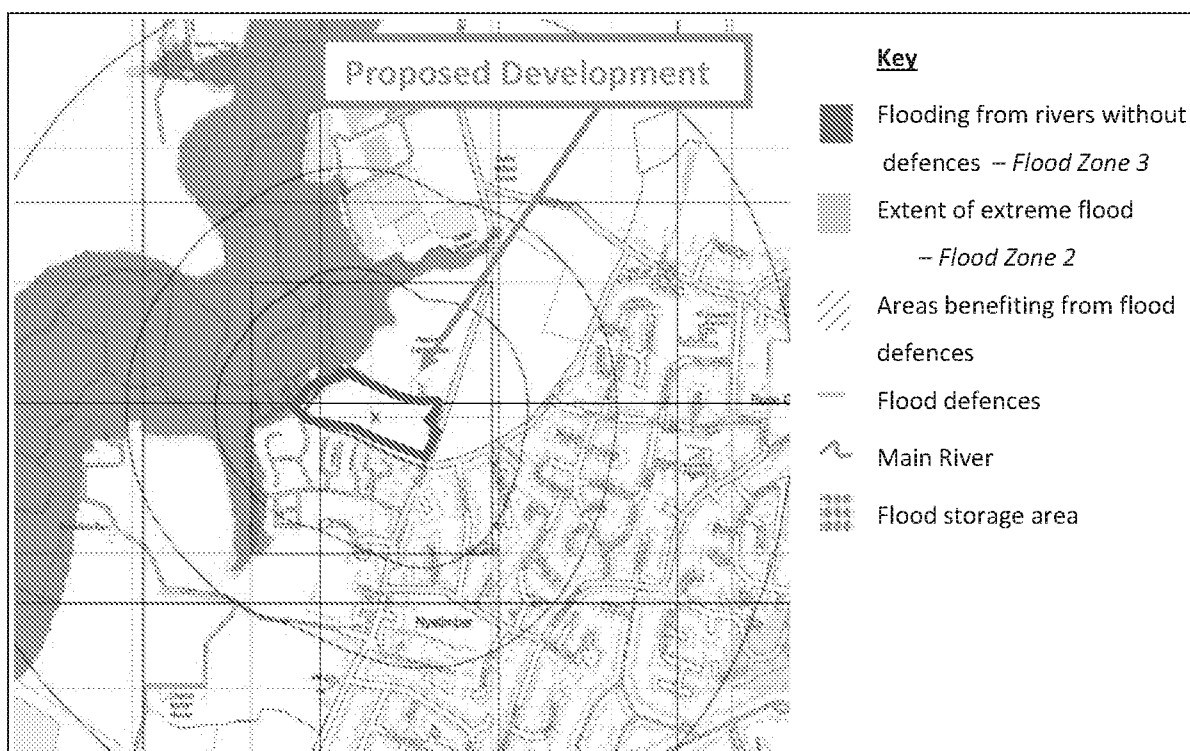


Figure 6-2: EA Flood Zone Plan showing 1 in 100 & 1 in 1,000 year Floodplains

6.5 Figure 6-3 illustrates areas the Site is situated within a very low risk of surface water flooding based off EA mapping, with some patches across the Site with an increased risk.

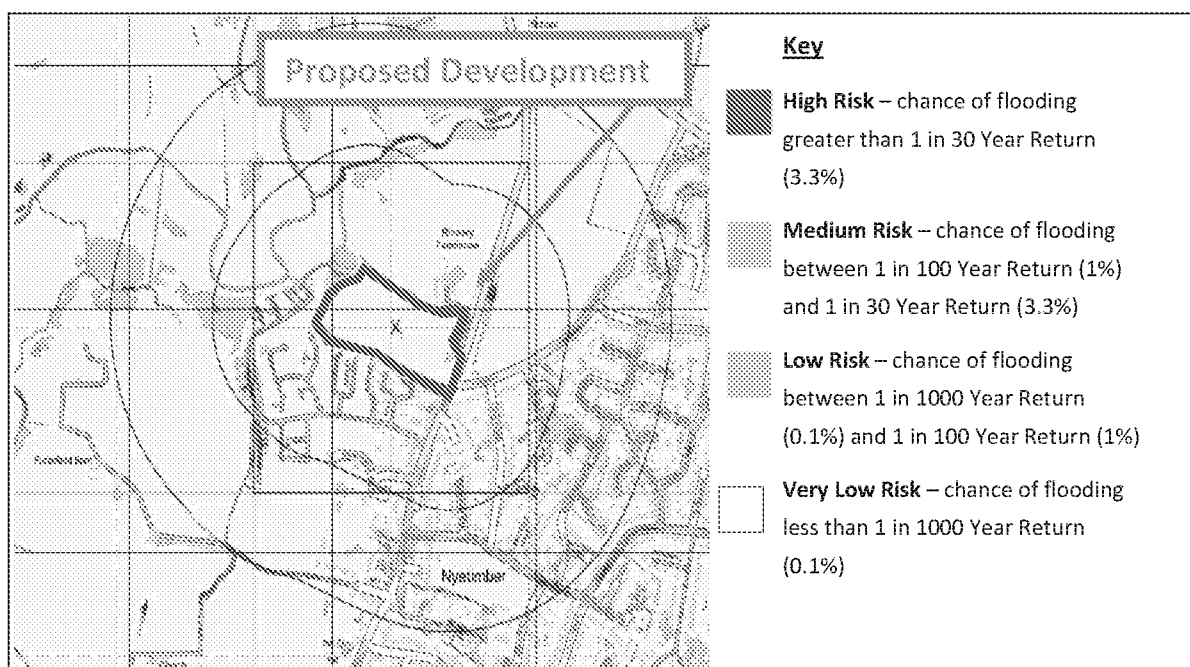


Figure 6-3: EA Long Term Flood Risk Maps – Flood risk from Surface Water

Discharge Consents

- 6.6** There are forty six **Discharge Consents**, reported within the Envirocheck Report, within 1,000m of the proposed site. One Discharge Consent is situated onsite to Mr H Phillips at Rookery Farm Barns, Pagham Road. This is for a Domestic Property (single – including Farm House) in 22nd December 1994, with a revocation date of the 31st March 1997 for Sewage Discharges (Final/Treated Effluent– Not Water Company). The current status is Lapsed (under Environment Act 1995, Schedule 23)
- 6.7** Twelve Discharge Consents are reported within 500m of the Site boundary, and these are further detailed in **Table 6-1**.

Operator – Location	Status	Effective Date	Receiving Water	Discharge Type	Distance (m)	Direction
Mr R & Mrs P Stanley – Farm Gate Cottage, Pagham Road	Post National Rivers Authority Legislation *	22/06/94	Freshwater Stream / River	Sewage Discharges – Final/Treated Effluent – Not Water Company	25	East
Algrey Homes Limited – Residential Development, On Site of Springfield Cottage, Nyetimber Lane	Pre National Rivers Authority Legislation **	03/04/70	Freshwater Stream / River	Discharge of Other Matter – Surface Water	172	South East
Mr S E & Mrs R M Rogers – Land at Springfield, Nyetimber Lane	Lapsed ***	31/10/66	Freshwater Stream / River	Discharge of Other Matter – Surface Water	220	South
E & L Berg Ltd – Managers Bungalow, Pagham Road	Lapsed ***	19/04/67	Freshwater Stream / River	Discharge of Other Matter – Surface Water	254	South
Algrey Homes Limited – Residential Development, On Site of Springfield Cottage, Nyetimber Lane	Pre National Rivers Authority Legislation **	03/04/70	Freshwater Stream / River	Discharge of Other Matter – Surface Water	263	South East
The Occupier – Nyetimber Garage	Lapsed ***	08/06/64	Freshwater Stream / River	Discharge of Other Matter – Surface Water	292	South
Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	382	South
Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	392	South

Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	402	South
Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	413	South
Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	416	South
Tamworth Park Construction Co Ltd – Residential Development, Land at 158-162 Pagham Road	Pre National Rivers Authority Legislation **	29/03/74	Freshwater Stream / River	Discharge of Other Matter – Surface Water	422	South

Table 6-1: New and Existing Discharge Consents (between 0 – 1,000m of the Site boundary)

*where issue date > 31/08/1989

** where issues date < 01/09/1989

*** (under Environment Act 1995, Schedule 23)

6.8 A further thirty-three Discharge Consents are reported between 501m and 1,000m of the Site boundary.

Water Quality

6.9 The Environment Agency monitor 40,000km of rivers across England. To help protect these areas each stretch of river was monitored between 1990 and 2009 and given a river quality grade. The General Quality Assessment (GQA) scheme was based upon the chemical quality of the water and graded from A to E, with A representing a river with very good water quality and E, a river with very poor water quality.

6.10 There are no **River Quality Biology Sampling Points** or **River Quality Chemistry Sampling Points** situated within 1km of the Site boundary.

Surface Water Abstraction

6.11 There are twelve **Surface Water Abstraction** permits recorded within 2,000m of the Site boundary. These are further detailed in **Table 6-2**.

Operator – Location	Abstraction Type	Permit Start Date	Permit End Date	Distance (m)	Direction
Tim Clarke – Pagham Rife	General Agriculture: Spray Irrigation – Storage	April 2016	Not Supplied	671	North
Barfoot Farms Ltd – Pagham Rife at Sefter Farm	General Agriculture: Spray Irrigation – Storage	July 2011	Not Supplied	671	North
Barfoot Farms Ltd – Pagham Rife at Sefter Farm	General Agriculture: Spray Irrigation – Storage	May 2011	Not Supplied	671	North
Tim Clarke – Pagham Rife	General Agriculture: Spray Irrigation – Storage	June 2009	Not Supplied	671	North
P Barfoot T/A B O B Packing Ltd – Pagham Rife at Sefter Farm	General Agriculture: Spray Irrigation – Storage	June 2009	Not Supplied	671	North
Tim Clarke – Pagham Rife	General Agriculture: Spray Irrigation – Storage	June 2009	Not Supplied	805	North
Ashmarden Limited – Point 'A' Church Barton Farm	General Agriculture: Spray Irrigation – Storage	December 2018	Not Supplied	858	West
Ashmarden Limited – Point 'A' Church Barton Farm	General Agriculture: Spray Irrigation – Storage	March 2016	Not Supplied	858	West
J Flemming Esq – North Mundam	Spray Irrigation	Not Supplied	Not Supplied	1390	North
Ashmarden Limited – Pagham Rife at Church Farm	General Agriculture: Spray Irrigation – Direct	December 2018	Not Supplied	1444	South West
Ashmarden Limited – Pagham Rife at Church Farm	General Agriculture: Spray Irrigation – Direct	April 2016	Not Supplied	1444	South West
Mr C Wheelere – Pagham Rife at Church Farm	General Agriculture: Spray Irrigation – Direct	June 2009	Not Supplied	1444	South West

Table 6-2: New and Existing Discharge Consents (between 0 – 1,000m of the Site boundary)

7 Hydrogeology

Bedrock and Superficial Aquifer Designations

- 7.1 The underlying sand of the London Clay Formation, forming Unproductive Strata. This is further illustrated below in **Figure 7-1**:

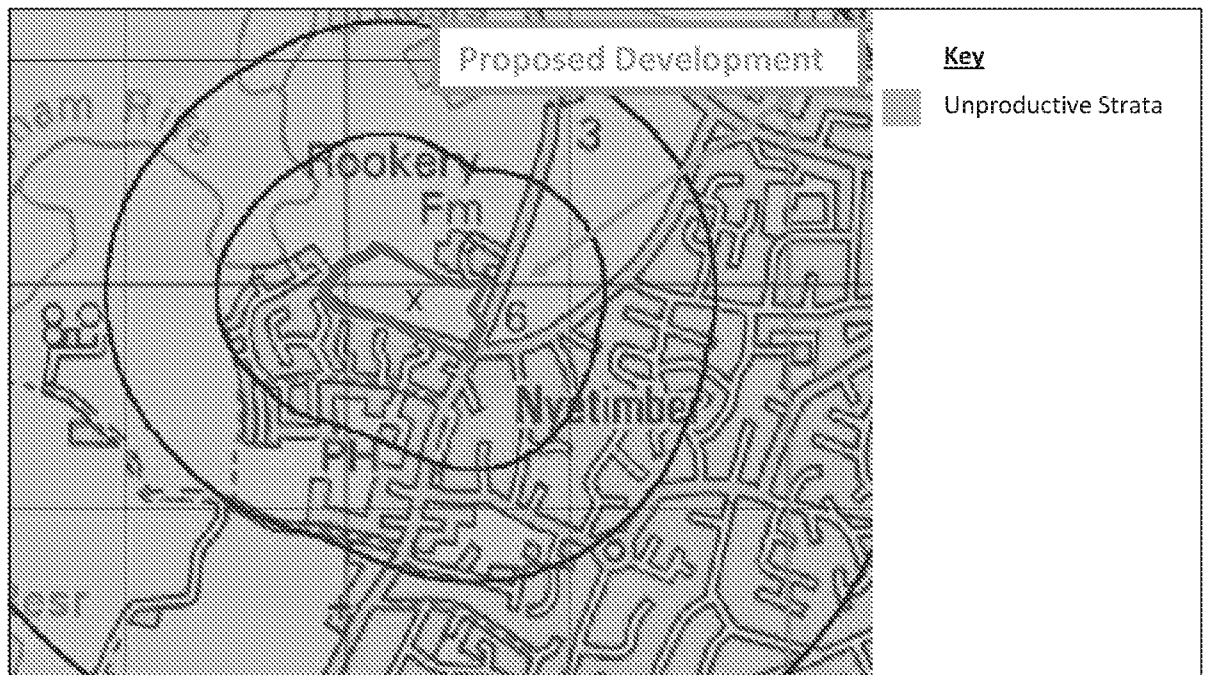


Figure 7-1: BGS Geology Designation

- 7.2 The superficial deposits identified on Site is shown to form a Secondary A Aquifer. This is further illustrated below in **Figure 7-2**:

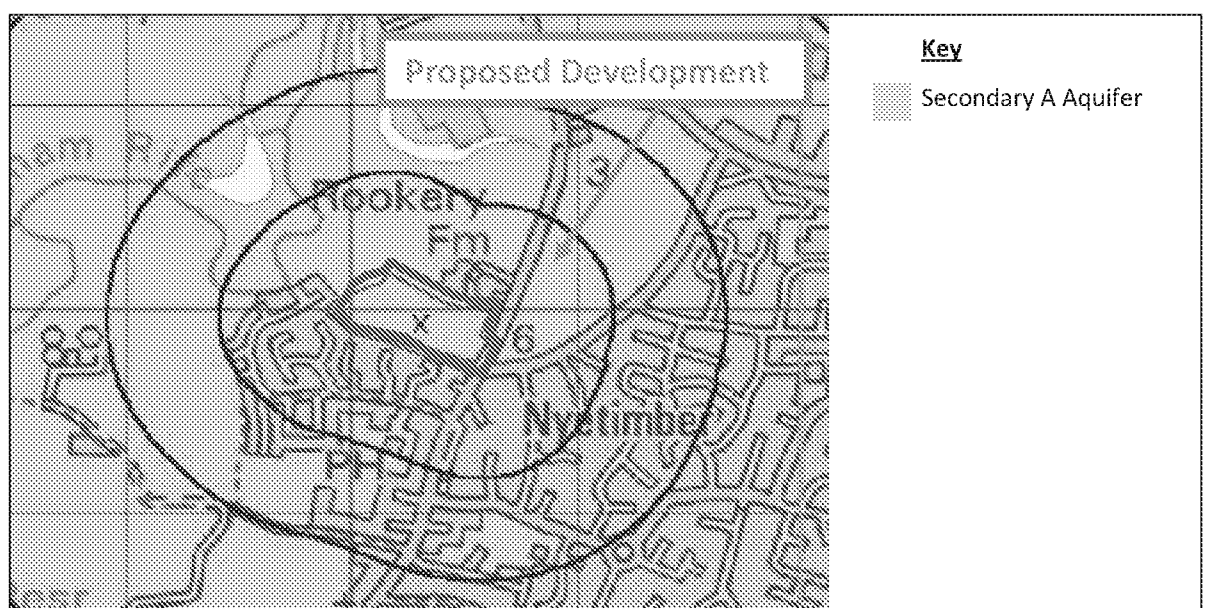


Figure 7-2: BGS Superficial Designation

- 7.3** The EA provides the following definitions for Secondary Aquifers and Unproductive Strata:

Secondary Aquifers - "These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:

Secondary A - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers."

Secondary B - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Undifferentiated - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive: These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow."

Groundwater Vulnerability

- 7.4** The EA has recently updated their Groundwater Vulnerability Zones (GVZ) Map, this now includes 5 risk categories (High, Medium – High, Medium, Medium – Low and Low). The Map summarises the overall risk to groundwater, taking into account groundwater vulnerability, the types of aquifer present (superficial and/or bedrock) and their designation status.
- 7.5** **Figure 7-3** is an extract of their simplified GVZ map, in which the indicative risk on Site is shown to form and 'High Superficial Deposits.

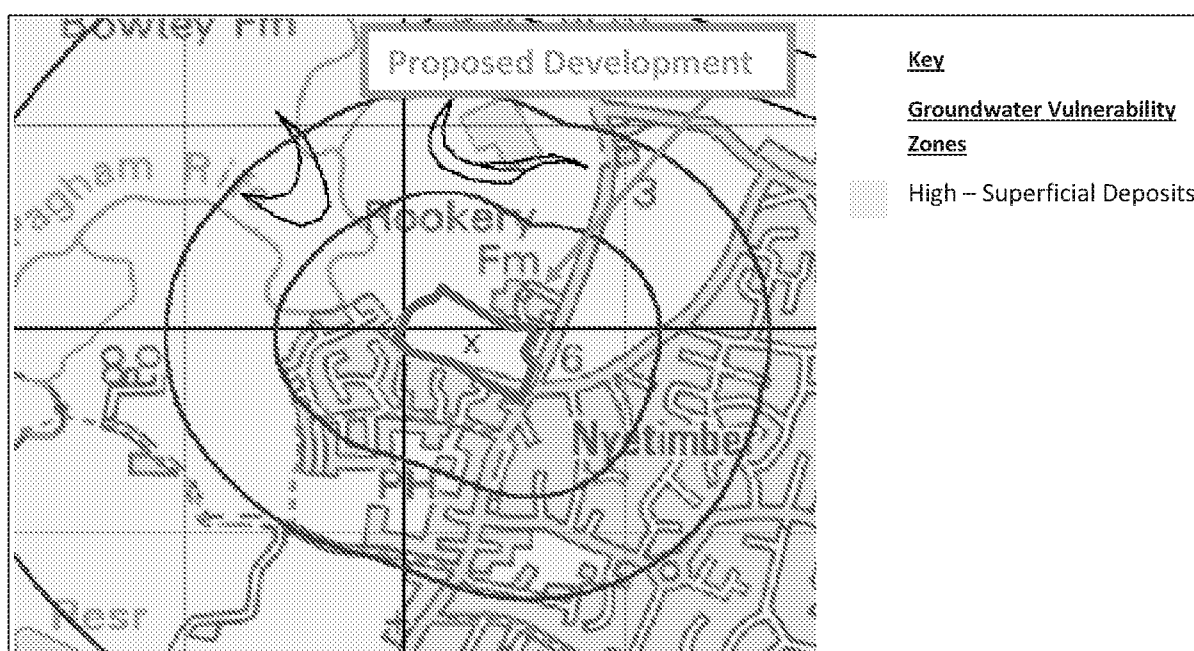


Figure 7-3: The EA's Groundwater Vulnerability Zones Map

7.6 The EA provides the following definitions for the five GVZs:

High – These are high priority groundwater resources that have very limited natural protection. This results in a high overall pollution risk to groundwater from surface activities. Operations or activities in these areas are likely to require additional measures over and above good practice pollution prevention requirements to ensure that groundwater isn't impacted.

Medium-high – These are high priority groundwater resources that have limited natural protection. This results in a medium-high overall pollution risk to groundwater from surface activities. Activities in these areas may require additional measures over and above good practice to ensure they do not cause groundwater pollution.

Medium – these are medium priority groundwater resources that have some natural protection resulting in a moderate overall groundwater risk. Activities in these areas should as a minimum follow good practice to ensure they do not cause groundwater pollution.

Medium-low - these are lower priority groundwater resources that have some natural protection resulting in a moderate to low overall groundwater pollution risk. Activities in these areas should follow good practice to ensure they do not cause groundwater pollution.

Low – these are low priority groundwater resources that have a high degree of natural protection. This reduces their overall risk of pollution from surface activities. However, activities in these areas may be a risk to surface water due to increased run-off from lower permeability soils and near-surface deposits. Activities in these areas should be adequately managed to ensure they do not cause either surface or groundwater pollution.

Groundwater Abstractions

7.7 There are two **Groundwater Abstraction** permits recorded within 2,000m of the Site boundary. These are further detailed in **Table 7-1**

Operator - Location	Abstraction Type	Permit Start Date	Permit End Date	Distance (m)	Direction
Mr R Clarke – Bowley Farm	General Farming and Domestic	November 1983	Not Supplied	941	North West
M A Ranger – Manor Farm	General Farming and Domestic	July 2000	Not Supplied	1778	North West

Table 7-1: New and Existing Discharge Consents (between 0 – 1,000m of the Site boundary)

Source Protection Zones

7.8 There are no **Source Protection Zones** within 1000m of the site boundary.

8 Potential Contaminative Uses & Statutory Registers

- 8.1** One **Integrated Pollution Prevention and Control** is situated within 1,000m of the Site boundary. This is to Barfoot Energy Ltd, situated at Seftor Farm approximately 693m north of the Site for Recovery or a mix of recovery and disposal of 50 T/D Non-Hazardous Waste involving Biological Treatment. The current status for this is effective, since 23rd December 2015.
- 8.2** There is one **Pollution Incidents to Controlled Waters** recorded within 1,000m of the Site boundary and this is further detailed in **Table 8-1**:

Property Type - Location	Incident Date	Pollutant	Incident Severity	Receiving Water	Distance (m)	Direction
Not Given – Rose Green Road/Hook Lane	28/02/93	Chemicals – Paints / Dyes	Category 3 – Minor Incident	Not Given	699	North West

Table 8-1: Pollution Incidents to Controlled Waters

- 8.3** None of the following have been recorded within 1,000m of the Site boundary:

- Contaminated Land Register Entries and Notices
- Enforcement and Prohibition Notices
- Integrated Pollution Controls
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Controls
- Local Authority Pollution Prevention and Control Enforcement
- Prosecutions Relating to Authorised Processes
- Prosecutions Relating to Controlled Waters
- Registered Radioactive Substance
- Substantiated Pollution Incident Register
- Water Industry Act Referrals

Hazardous Substances

- 8.4** There are no records of the following on or within a 1,000m radius of the Site boundary:

- Control of Major Accident Hazards Sites (COMAH)
- Explosive Sites
- Notification of Installations Handling Hazardous Substances (NIHHS)
- Planning Hazardous Substance Consents
- Planning Hazardous Substance Enforcements

- 8.5** There are twenty-three **Contemporary Trade Directory Entries** recorded within 1,000m of the Site boundary. Nine of these are situated within 500m of the Site boundary. These are further detailed in **Table 8-2**.

Name – Location	Classification	Status	Distance (m)	Direction
West Sussex Sporting Guns – 8 Hook Lane, Rose Green, Bognor Regis	Gunsmiths	Inactive	73	South East
Sutherland Communications – 34 Lion Road, Bognor Regis	Telecommunications Equipment & Systems	Inactive	135	South East
Above Kleen – Hook Lane, Rose Green, Bognor Regis	Cleaning Services – Domestic	Inactive	258	East
Chips Away – 10 Lion Road, Bognor Regis	Car Body Repairs	Inactive	271	South East
Aurora – 8 The Nyetimbers, Bognor Regis	Stained Glass Designers & Producers	Inactive	294	South East
Affordable Carpet Care – 17 Mill Park Road, Bognor Regis	Carpet, Curtain & Upholstery Cleaners	Active	313	South East
Apple Cleaning Services – 227c Pagham Road, Bognor Regis	Carpet, Curtain & Upholstery Cleaners	Inactive	350	South
Apple Cleaning Services – 227 Pagham Road, Bognor Regis	Carpet, Curtain & Upholstery Cleaners	Active	351	South
Crystal Cleaning Services – 4 Canterbury Close, Bognor Regis	Commercial Cleaning Services	Inactive	369	South

Table 8-2: Contemporary Trade Directory Entries located between 0 and 500m

- 8.6** A further fourteen Contemporary Trade Directories are situated between 501m and 1,000m from the Site boundary. These are further provided in **Table 8-3**.

Active	Inactive
Sound Equipment Systems Manufacturers	Domestic Appliances – Servicing, Repairs & Parts
Scaffolding & Work Platforms	Cleaning Services – Domestic
Architectural Woodwork	Boilers – Servicing, Replacements & Repairs
Refrigeration Equipment Manufacturers & Distributors	Refrigeration Equipment Manufacturers & Distributors (x2)
Carpet, Curtain & Upholstery Cleaners	Carpet, Curtain & Upholstery Cleaners
Refrigerators & Freezers – Servicing & Repairs	Marine Engineers
	Refrigerators & Freezers – Servicing & Repairs

Table 8-3: Contemporary Trade Directory Entries located between 501 and 1,000m

- 8.7** There are no **Fuel Station Entries** recorded within 1,000m of the Site boundary.

Waste

- 8.8** The Site is located within the **Local Authority Landfill Coverage** of West Sussex County Council (Landfill data has been supplied) and Arun District Council (has not supplied landfill data). Chichester District Council identified 733m from the Site does not have landfill data to supply.
- 8.9** There is one **Historical Landfill Site** recorded within 1,000m of the Site boundary. This is to Sefter Lodge located approximately 298m north of the Site. The first input data was on the 31st December 1950 and last input date was 31st December 1960. The waste deposited included inert, commercial and household waste.
- 8.10** There is one **Licensed Waste Management Facilities (Locations)** within 1,000m of the Site. This is to Barfoot Energy Ltd at Sefter Farm, Pagham Road, approximately 364m north of the Site, for Biological Treatment, which was issued on the 4th August 2010 to PPC.
- 8.11** A **Local Authority Recorded Landfill Site** is located approximately 334m north of the Site boundary at Sefter, Pagham Road. The type of waste and date of closure are not supplied.
- 8.12** There are three **Potentially Infilled Land (Non-Water)** recorded within 1,000m of the Site Boundary, and these are further detailed below in **Table 8-4**:

Use	Date of Mapping	Distance (m)	Direction
Unknown Filled Ground (Pit, quarry, etc.)	1976	162	East
Unknown Filled Ground (Pit, quarry, etc.)	1976	459	East
Unknown Filled Ground (Pit, quarry, etc.)	1976	796	North West

Table 8-4: Potentially Infilled Land (Non-Water)

- 8.13** There are five **Potentially Infilled Land (Water)** recorded within 1,000m of the Site Boundary, and these are further detailed below in **Table 8-5**:

Use	Date of Mapping	Distance (m)	Direction
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1961	432	West
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1961	476	South
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1961	604	South West
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1961	634	South
Unknown Filled Ground (Pond, Marsh, River, Stream, Dock, etc.)	1961	665	South

Table 8-5: Potentially Infilled Land (Water)

8.14 There are no provided reports of the following within 1,000m of the Site boundary:

- BGS Recorded Landfill Sites
- Integrated Pollution Control Registered Waste Sites
- Licensed Waste Management Facilities (Landfill Boundaries)
- Registered Landfill Sites
- Registered Waste Transfer Sites
- Registered Waste Treatment or Disposal Sites

Unexploded Ordnance (UXO)

8.15 The Zetica Regional Unexploded Bomb Risk Map for the Site has outlined the proposed development is potentially located within a low Bomb Risk area affected by UXO activity, as illustrated in **Figure 8-1**.

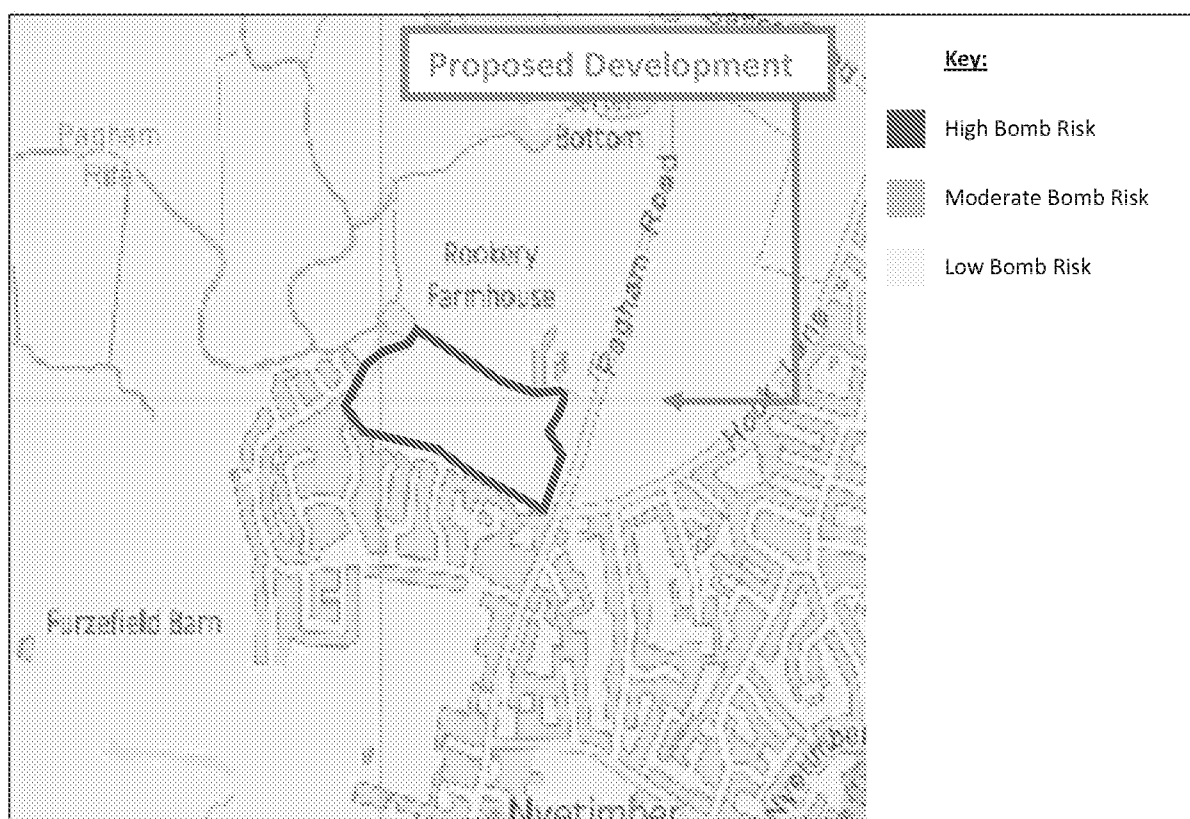


Figure 8-1: Zetica Regional Unexploded Bomb Risk Assessment Map for the Site

8.16 A 'Pre-Desk Study Assessment' (PDSA) Bomb Search has been requested from Zetica UXO, in which the risk of encountered items of UXO during intrusive works on Site will be assessed.

9 Environmental Setting

9.1 A **Nitrate Vulnerable Zones** is recorded within 1,000m of the Site boundary. This is the Pagham Rife NVZ situated within the north of the Site for Surface Water.

9.2 None of the following are reported within 1,000m of the Site boundary:

- Ancient Woodlands
- Areas of Adopted Green Belt
- Areas of Unadopted Green Belt
- Environmentally Sensitive Areas
- Forest Parks
- Local Nature Reserve
- Marine Nature Reserves
- National Nature Reserves
- National Parks
- Nitrate Sensitive Areas
- Ramsar Sites
- Site of Special Scientific Interest
- Special Areas of Conservation
- Special Protection Area
- World Heritage Sites

10 Site Conceptual Model

10.1 Guidance has been published by the Department of the Environment, Transport and the Regions (DETR Circular 02/2000) 'Environmental Protection Act 1990: Part 11A – Contaminated Land (20th March 2000)' which promotes the 'suitable for use approach'. This has since been replaced by the DEFRA: Contaminated Land Statutory Guidance (April 2012). The DEFRA note 'The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore need to be assessed on a site-by-site basis.

10.2 The "suitable for use" approach consists of three elements:

- Ensuring that land is suitable for its current use - in other words, identifying land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land); the new contaminated land regime provides general machinery to achieve same.
- Ensuring that land is made suitable for any new use, as planning permission is given for that new use - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given) for the development and, where necessary to avoid unacceptable risk to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes.
- Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought - in other words, recognising that the risks from contaminated land can be satisfactorily assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby risking distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

10.3 Also addressed within the DEFRA guidance is the issue of 'contaminated land'. 'Before the Local Authority can make the judgement that any land appears to be Contaminated Land on the basis that Significant Harm is being caused, or that there is a Significant Possibility of such harm being caused, the authority must therefore identify a Significant Pollutant Linkage.

10.4 This means that each of the following has been identified:

- A Contaminant Source
- A Pathway
- A Receptor

and that:

- The Contaminant is causing Significant Harm to that Receptor.

Or

- There is a Significant Possibility of such harm being caused by the Contaminant to the Receptor.

10.5 Where any of the three elements of the Source-Pathway-Receptor (SPR) are not present, there is no risk and therefore land cannot be classified as statutory 'contaminated land'.

- 10.6** In terms of controlled waters, DEFRA: Contaminated Land Statutory Guidance (April 2012) notes the following:

"A.35 Section 78A (9) defines the pollution of controlled waters as: 'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'.

A.36 Before determining that pollution of controlled waters is being, or is likely to be, caused, the local authority should be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. For this purpose, the local authority should regard something as being "likely" when they judge it more likely than not to occur.

A.37 Land should not be designated as contaminated land where:

- (a) A substance is already present in controlled waters;*
- (b) Entry into controlled waters of that substance from land has ceased; and*
- (c) It is not likely that further entry will take place.*

A.38 Substances should be regarded as having entered controlled waters where:

- (a) They are dissolved or suspended in those waters; or*
- (b) If they are immiscible with water they have direct contact with those waters on or beneath the surface of the water.*

A.39 The term "continuing to enter" should be taken to mean any entry additional to any which has already occurred."

- 10.7** In 2004 the Environment Agency published the 'Model Procedures for the Management of Land Contamination', CLR11, which provides the technical framework for applying a risk management process, based on the 'suitable for use' approach, when dealing with land affected by contamination.
- 10.8** In 2008, to enable the practical application of good practice of the EA's Model Procedures CLR11, R&D Publication 66 'Guidance for the Safe Development of Housing on Land Affected by Contamination' was published by the National House Builders Council (NHBC), the EA and the Chartered Institute of Environmental Health. Whilst written to be relevant to housing development it is also applicable to other forms of development where sites are land affected by contamination. The guidance describes in detail the process and activities involved for the identification and assessment of hazards for a Phase 1 assessment.
- 10.9** At Phase 1 stage, it is necessary to develop an initial conceptual site model to understand the possible relationships between contaminants, pathways and receptors. If a hazardous source, via an exposure pathway to a potential receptor can be established then there is a 'pollutant linkage', which is preliminarily risk assessed using parameters summarised in Table 10a, below. At this stage, the conceptual model is prepared without site specific soils, groundwater or gas testing and as such, the findings should be treated only as first and general indications of possible SPR linkages.
- 10.10** The primary potential sources of contamination are indicated below:

Agricultural Use	-	Soil and Water Contamination
Access Track, Pagham Road and Hook Lane	-	Soil and Water Contamination
Sewage Treatment Works	-	Soil and Water Contamination
Works	-	Soil and Water Contamination

10.11 The potential receptors at the site are:

- End users / site occupiers
- Adjacent users / occupiers
- Controlled waters
- Flora and fauna
- Buildings & construction materials

10.12 The potential pathways at the site are primarily:

- Direct ingestion of soil / water / fruit or vegetable
- Inhalation of dust / vapours
- Direct skin contact with the ground / water
- Regression of plant growth due to phytotoxic contamination
- Vertical and lateral migration of contamination

10.13 While limited information is available at this stage methodology has been developed to help identify the potential contamination risk and linkages. The severity of damaging effects and the likelihood of any linkage have been considered.

10.14 Given the potential consequence and likelihood, a risk rating is given, based on the following matrix:

		Consequence			
		Severe	Moderate	Mild	Minor
Probability (Likelihood)	Highly Likely	Very High	High	Medium	Low
	Likely	High	Medium	Medium/Low	Low
	Possible	Medium	Medium/Low	Low	Very Low
	Unlikely	Medium/Low	Low	Very Low	Very Low

Table 10-1: Risk Ratings

10.15 The risk ratings are described on the next page.

Very High:	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
High:	Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
Medium:	It is possible that without appropriate remediation action harm could arise to a designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.
Low:	It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild.
Very Low:	The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

10.16 A summary of the potential SPR linkages on site and within close proximity of the site are detailed in **Table 10-2**.

Source	Pathway	Receptor	Risk Rating	Potential Mitigation
<u>Contaminated soils</u> On-site: • Agricultural Off-site: • Agricultural/Farm Building • Existing Roads • Sewage Treatment Works • Works	Direct Ingestion & contact ⁽¹⁾	Site workers & occupiers	Low	-
	Inhalation of dust ⁽²⁾		Low	-
	Direct skin contact ⁽³⁾		Low	-
	Vertical & lateral migration ⁽⁴⁾	Controlled waters	Low	-
	Direct uptake ⁽⁵⁾	Flora	Low	-
	Direct contact ⁽⁶⁾	Building materials	Low	-
<u>Contaminated groundwater</u> On-site: • Agricultural Off-site: • Agricultural/Farm Building • Existing Roads • Sewage Treatment Works • Works	Direct Ingestion & contact ⁽⁷⁾	Site workers & occupiers	Low	-
	Direct skin contact ⁽⁸⁾		Low	-
	Vertical & lateral migration ⁽⁹⁾	Controlled waters	Low	-
	Direct uptake ⁽¹⁰⁾	Flora	Low	-
	Direct contact ⁽¹¹⁾	Building materials	Low	-
<u>Elevated gas</u> On-site: None Off-site: None	Vertical & Lateral Mitigation ⁽¹²⁾	Site workers & occupiers	Low	-
		Adjacent occupiers	Low	-

Table 10-2: Site SPR Summary

10.17 The following paragraphs outline the comments from the pathways identified in **Table 10-2** above.

10.18 (1) Direct Ingestion & Contact - Historically undeveloped Site, and is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.

10.19 (2) Inhalation of Dust - Historically undeveloped Site, and is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.

- 10.20 (3) Direct Skin Contact** - Historically undeveloped Site, and is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 10.21 (4) Vertical and Lateral Migration** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.22 (5) Direct Uptake** - Historically undeveloped Site and is currently in agricultural use.
- 10.23 (6) Direct Contact** - Historically undeveloped Site, and is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 10.24 (7) Direct Ingestion & Contact** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.25 (8) Direct Skin Contact** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.26 (9) Vertical & Lateral Migration** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.27 (10) Direct Uptake** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.28 (11) Direct Contact** - The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer. Groundwater flow into site is likely however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 10.29 (12) Vertical and Lateral Migration: Site Workers & Occupiers** - Historically undeveloped Site, and is currently in agricultural use. The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer No potential sources for gassing have been identified within an influencing distance of the proposed development
- 10.30 (12) Vertical and Lateral Migration: Adjacent Occupiers** - Historically undeveloped Site, and is currently in agricultural use. The bedrock geology for the Site is situated on a Unproductive Strata, with the Superficial deposits shown to form a Secondary A Aquifer No potential sources for gassing have been identified within an influencing distance of the proposed development

11 Discussion & Summary

Discussion

- 11.1 A review of readily available Site environmental data, including historical mapping and statutory registers and consultation with appropriate authorities has identified the following:

On-Site and Offsite

- 11.2 The Site comprises **Agricultural Land** which may include the following typical contaminants: Nitrogen, potassium and phosphorous contained within fertilisers; chemicals from pesticides and herbicides; coliform and non-coliform bacteria from livestock waste and manure application; and hydrocarbons from oil and fuel leakages from machinery. Taking into consideration the existing underlying geology and groundwater vulnerability, this feature generally provides a **low** rating for risk. However, this may vary depending on persistence of the chemicals used and further assessment of the Site's soils may be required at the detailed design stage to establish baseline ground conditions.

Off-Site

- 11.3 Potential contaminants from leakages and spillages from vehicles on the **Access Track, Pagham Road** and **Hook Lane** may include: heavy metals, oils, fuels and Polycyclic Aromatic Hydrocarbons. Further assessment of the site's soils will be required at the detailed design stage to establish baseline conditions. The risk rating is considered to be **Low** as the site being separated by highway ditches which would intercept any potential contaminated runoff and these roads are not considered to have high traffic volume.
- 11.4 Two **Sewage Works** are shown approximately 350m north of the site and 475m west of the Site. Potential contaminants may have included: metals, inorganic/organic compounds, acids/alkalis, asbestos, pathogenic micro-organisms, methane, carbon dioxide and hydrogen sulphide. The Sewage Works are shown to be a considerable distance from the Site and considering the underlying ground conditions, it has been considered to be a **Low** risk rating.
- 11.5 A **Works** is identified 700m north of the Site. Potential contaminants may have included: heavy metals, inorganic acids, VOCs, diesel fuels, solvents and oils. Further assessment of the site's soils may be required at the detailed design stage to establish baseline conditions. This is considered to be a **Low** risk rating due to the distance from the Site, and the underlying ground conditions.

Summary

- 11.6 After reviewing the historical mapping, geological data, hydrological data, sensitive land uses, industrial land uses, waste and hazardous substances, there are no uses identified on or within close proximity of the Site that are potentially contaminative and are likely to be prohibitive to the planned development.
- 11.7 The underlying ground conditions could be considered to be sensitive, with the superficial deposits situated on a Secondary A Aquifer, although the bedrock geology onsite is shown to form unproductive strata.
- 11.8 In addition, with the risk of Groundwater being high, it should be noted that mitigation measures will be installed where required. This can include concrete designed and placed in accordance with normal good practice taking account of pH and sulphate concentrations in the ground. Plastic pipes will not be used where the ground or groundwater contains significant levels of light hydrocarbons or phenol.

- 11.9** The overall contaminative risk at the site is considered to be **Low**, due to the limited potential contamination risks. In order to confirm the baseline ground conditions, it is recommended that a Phase II ground investigation is carried out across the Site.

12 Limitations

- 12.1** The benefits of this report are provided solely to Hallam Land Management Ltd. The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the Site. Brookbanks do not confer any third party rights for the information contained in the report.
- 12.2** All distances referred to in this report are measured from the boundary of the planned development Site unless otherwise advised.
- 12.3** Third party information has been used in the preparation of this report, which Brookbanks, by necessity assume is correct at the time of writing.

Appendix – Historical Map Index – Ordnance Survey

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		
	285 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		
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	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
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	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

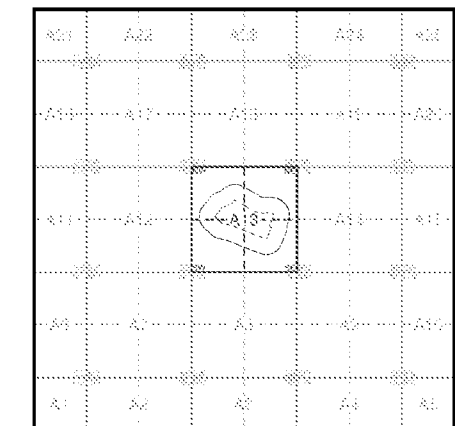
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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

Brookbanks Consulting

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Sussex	1:10,560	1880	2
Sussex	1:10,560	1899	3
Sussex	1:10,560	1912 - 1913	4
Sussex	1:10,560	1933	5
Sussex	1:10,560	1938	6
Historical Aerial Photography	1:10,560	1945 - 1949	7
Historical Aerial Photography	1:10,560	1949	8
Ordnance Survey Plan	1:10,000	1961	9
Ordnance Survey Plan	1:10,000	1969	10
Ordnance Survey Plan	1:10,000	1973 - 1979	11
Ordnance Survey Plan	1:10,000	1980	12
Ordnance Survey Plan	1:10,000	1990 - 1995	13
10K Raster Mapping	1:10,000	2000	14
10K Raster Mapping	1:10,000	2006	15
VectorMap Local	1:10,000	2021	16

Historical Map - Slice A



Order Details

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 National Grid Reference: 489150, 98960
 Slice: A
 Site Area (Ha): 4.92
 Search Buffer (m): 1000

Site Details

Land at Pagham

Landmark
 INFORMATION GROUP

Tel: 0844 844 9852
 Fax: 0844 844 9951
 Web: www.envisirocheck.co.uk

Brookbanks Consulting

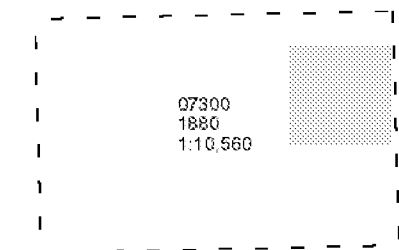
Sussex

Published 1880

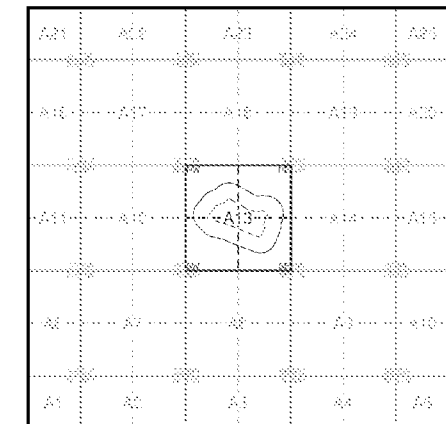
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. 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



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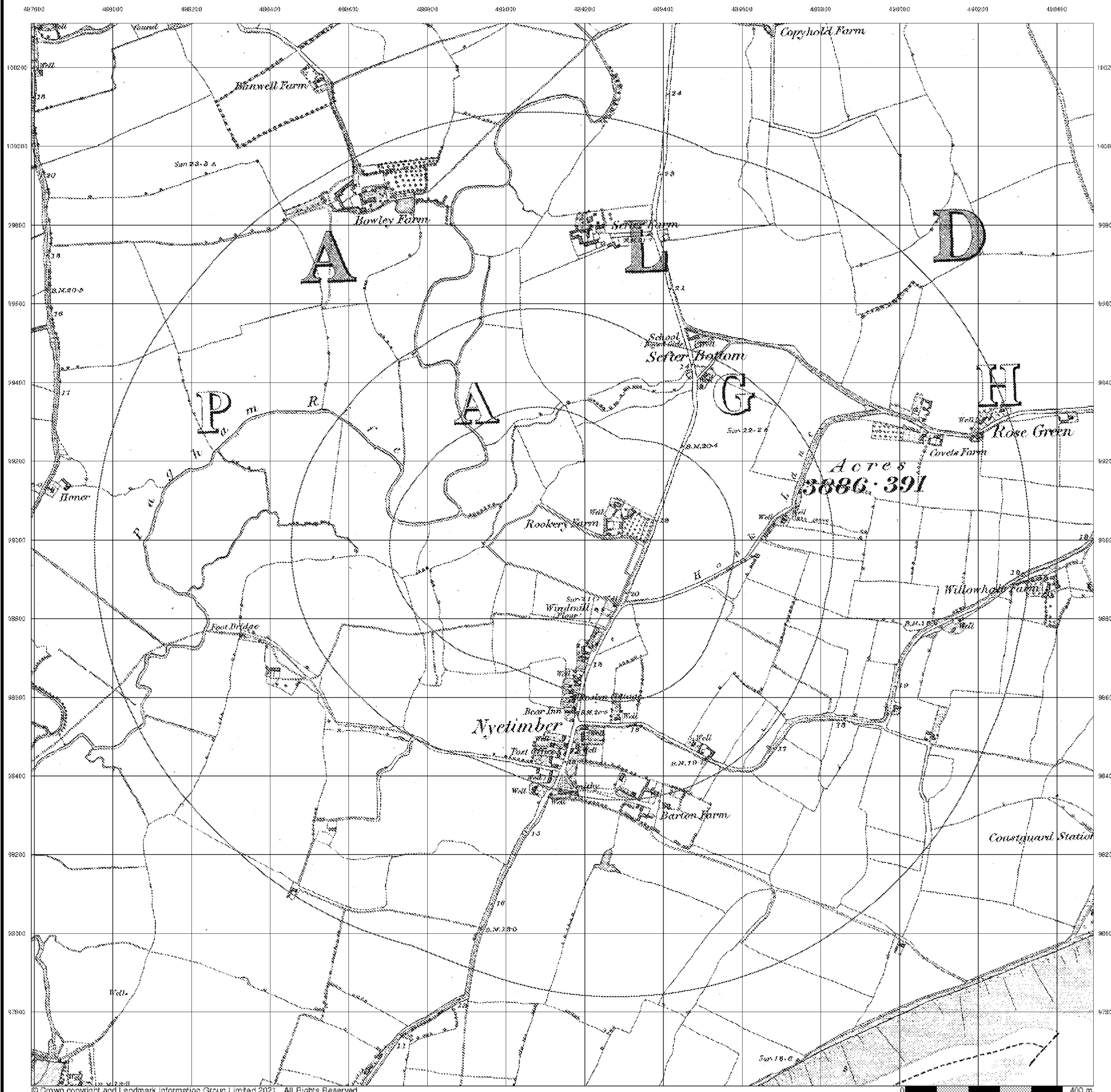
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Search Buffer (m): 1000

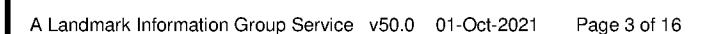
Site Details

Land at Pagham

Landmark
INFORMATION GROUP

Tel: 0844 844 9852
Fax: 0844 844 9951
Web: www.envisirocheck.co.uk





Brookbanks Consulting

Sussex

Published 1912 - 1913

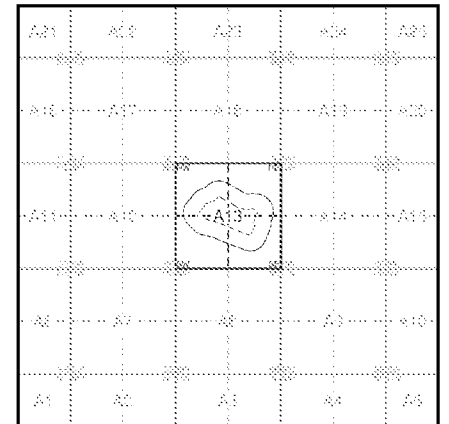
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. 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)

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073SE	1912	1:10,560

Historical Map - Slice A



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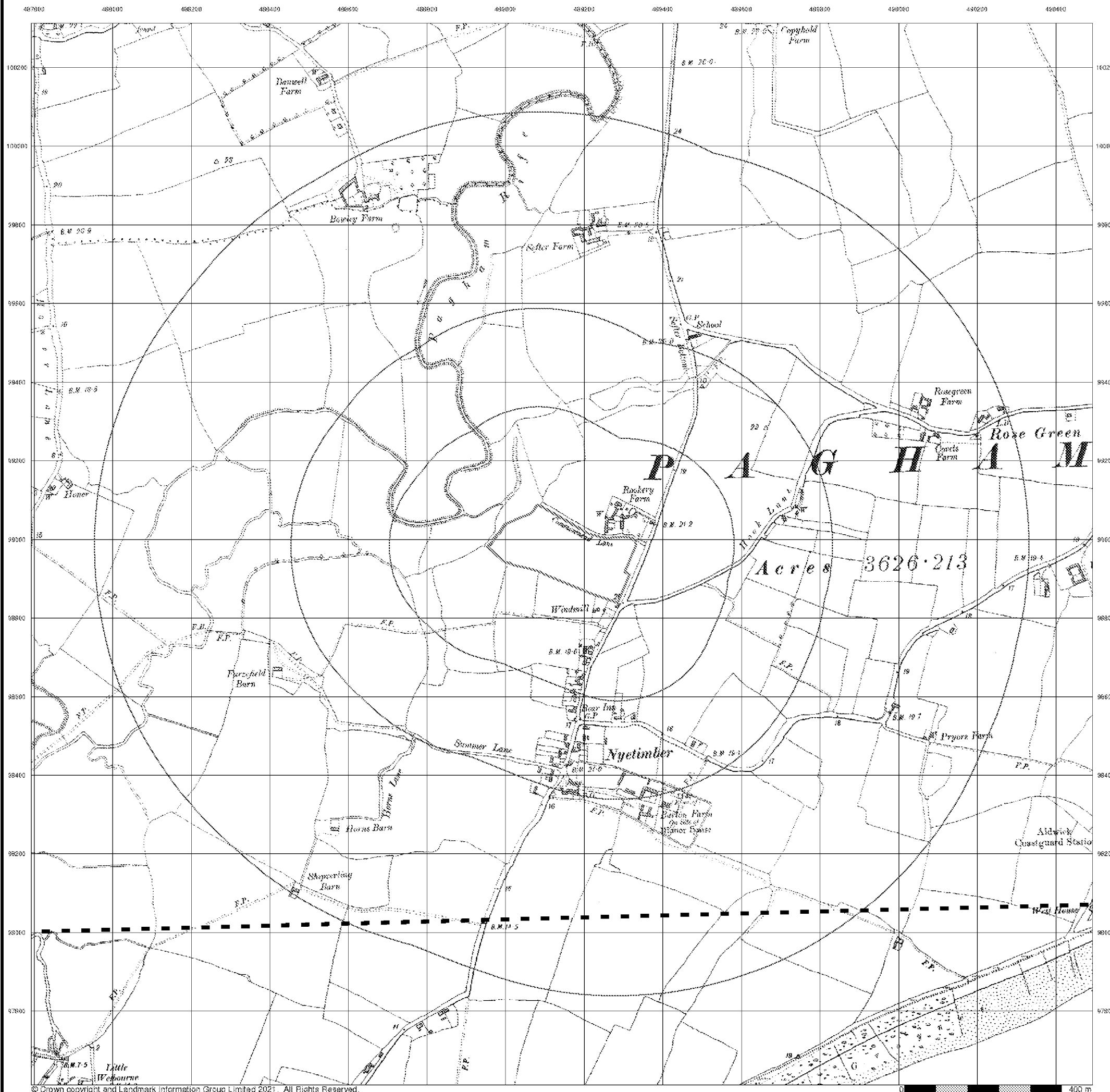
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 Slice: A
 Site Area (Ha): 4.92
 Search Buffer (m): 1000

Site Details

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Landmark
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073NE
1933
1:10.560

073SE
1933
1:10.560

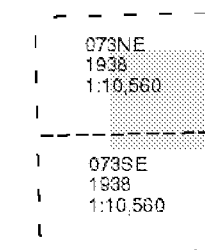
The figure shows a 5x5 grid of points labeled A1 through A25. The points are arranged in a regular pattern. A central square region is highlighted, containing points A11, A12, A13, A14, and A15. The grid is formed by dashed lines, and the central square is defined by solid lines.

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National Grid Reference: 489150, 98960
Police: A
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Search Buffer (m): 1000

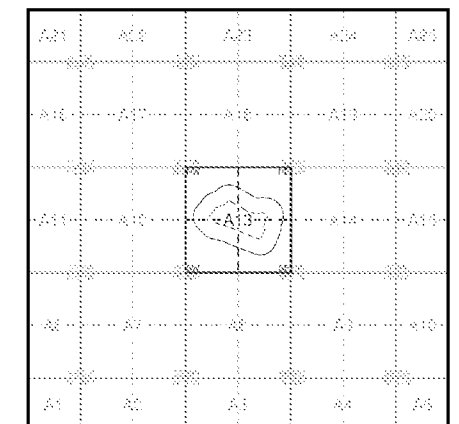
and at Pagham

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

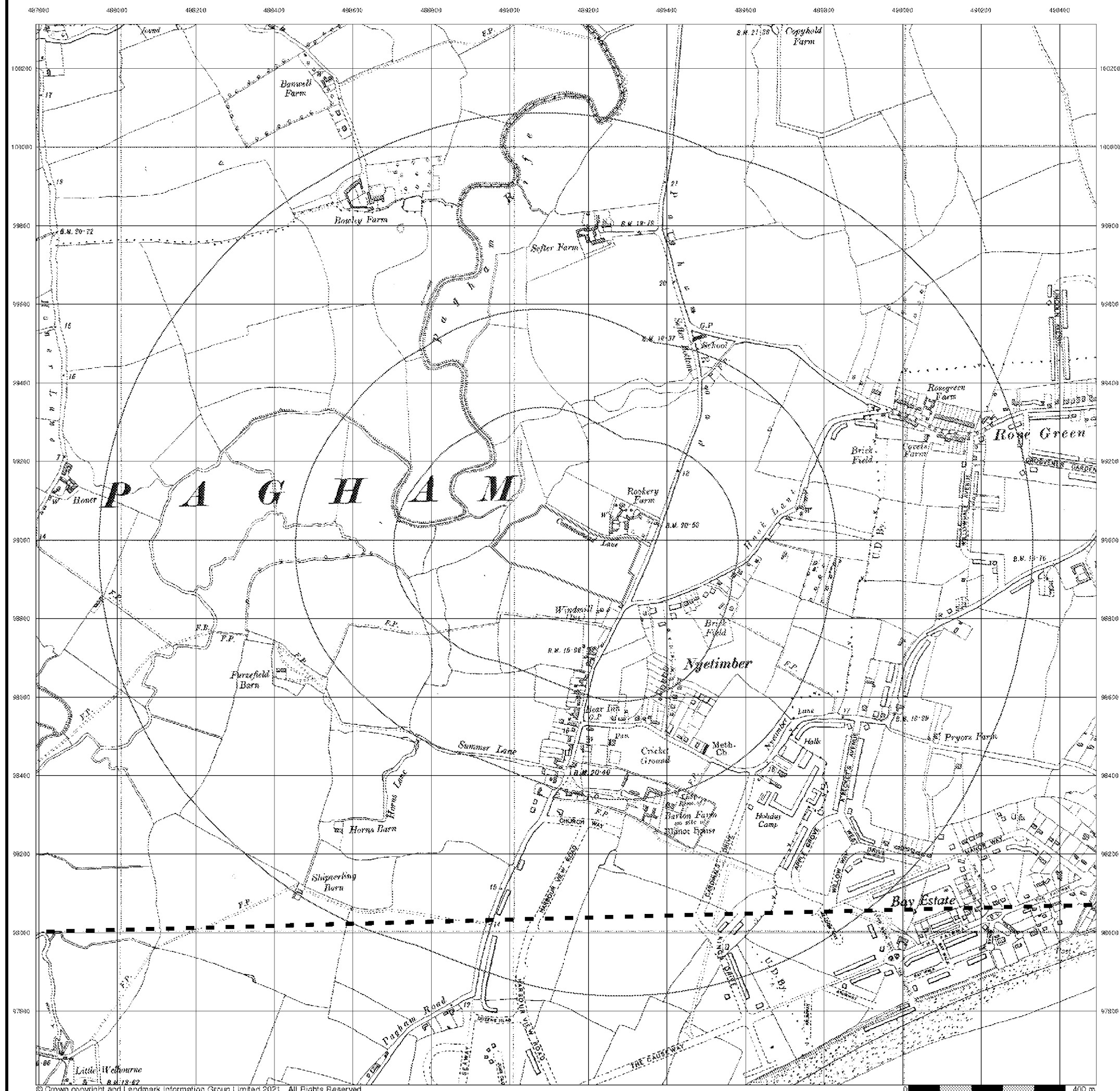
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Slice: A
Site Area (Ha): 4.92
Search Buffer (m): 1000

Site Details

Land at Pagham

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Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Brookbanks

Consulting

Historical Aerial Photography

Published 1945 - 1949

Source map scale - 1:10,560

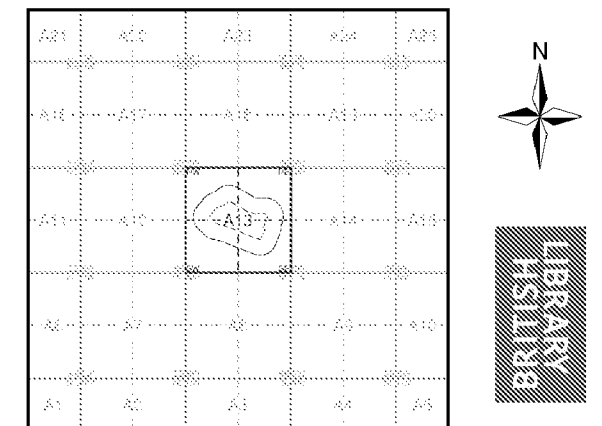
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's 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)

SU80SE 1949 1:10,560	SU90SW 1947 1:10,560
SZ80NE 1947 1:10,560	SZ90NW 1945 1:10,560

Historical Aerial Photography - Slice A



Order Details

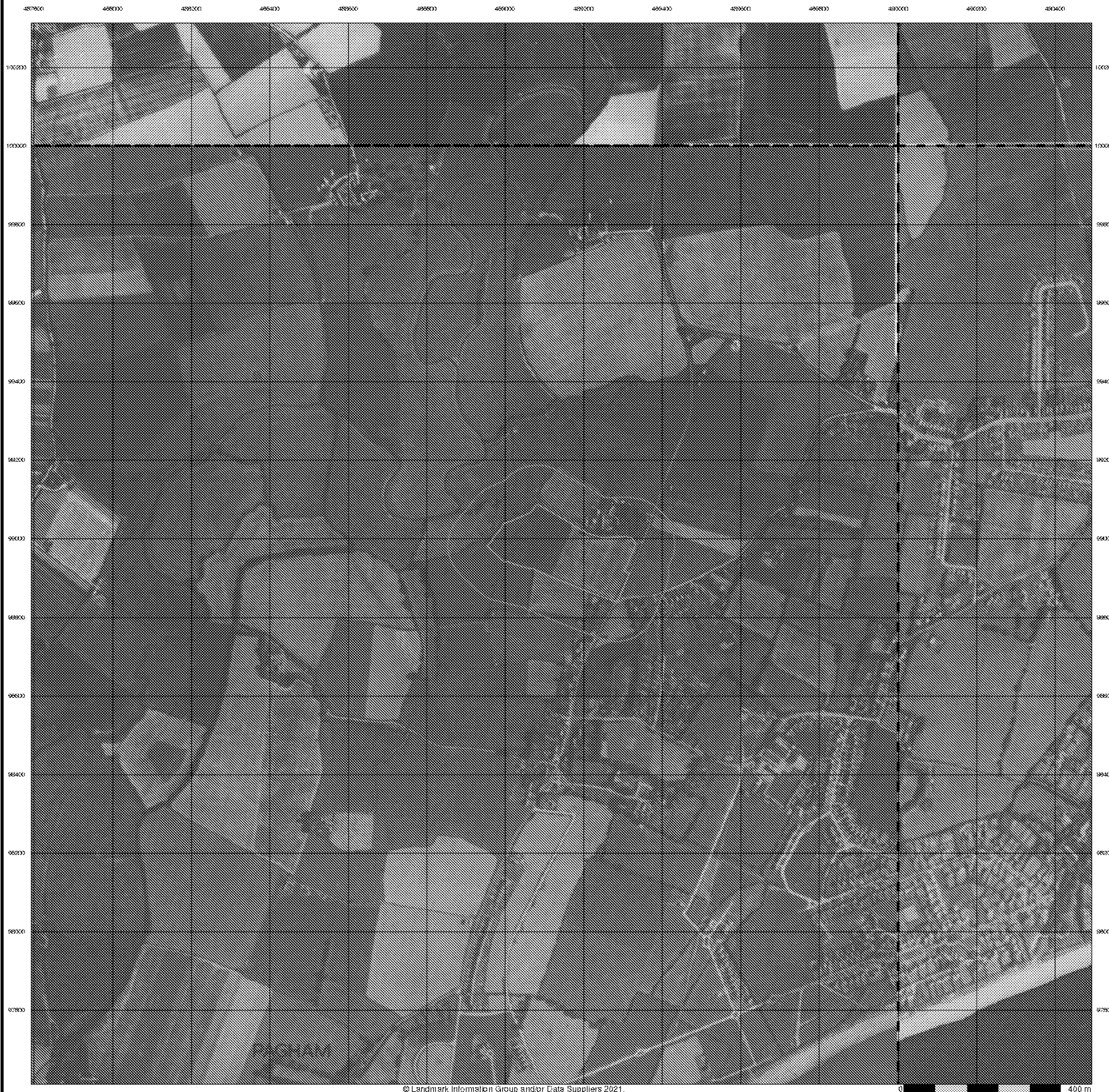
Order Number: 285698614_1_1
Customer Ref: PO00412
National Grid Reference: 489150, 98960
Slice: A
Site Area (Ha): 4.92
Search Buffer (m): 1000

Site Details

Land at Pagham

Landmark
INFORMATION GROUP

Tel: 0844 844 9852
Fax: 0844 844 9951
Web: www.envisirocheck.co.uk



Brookbanks Consulting

Ordnance Survey Plan

Published 1961

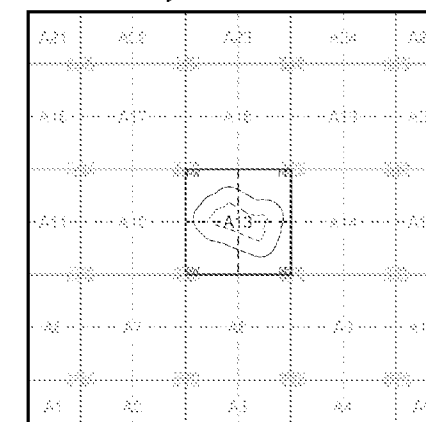
Source map scale - 1:10,000

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)

SU80SE	SU90SW
1961	1961
1:10,560	1:10,560
SZ89NE	SZ99NW
1961	1961
1:10,560	1:10,560

Historical Map - Slice A



Order Details

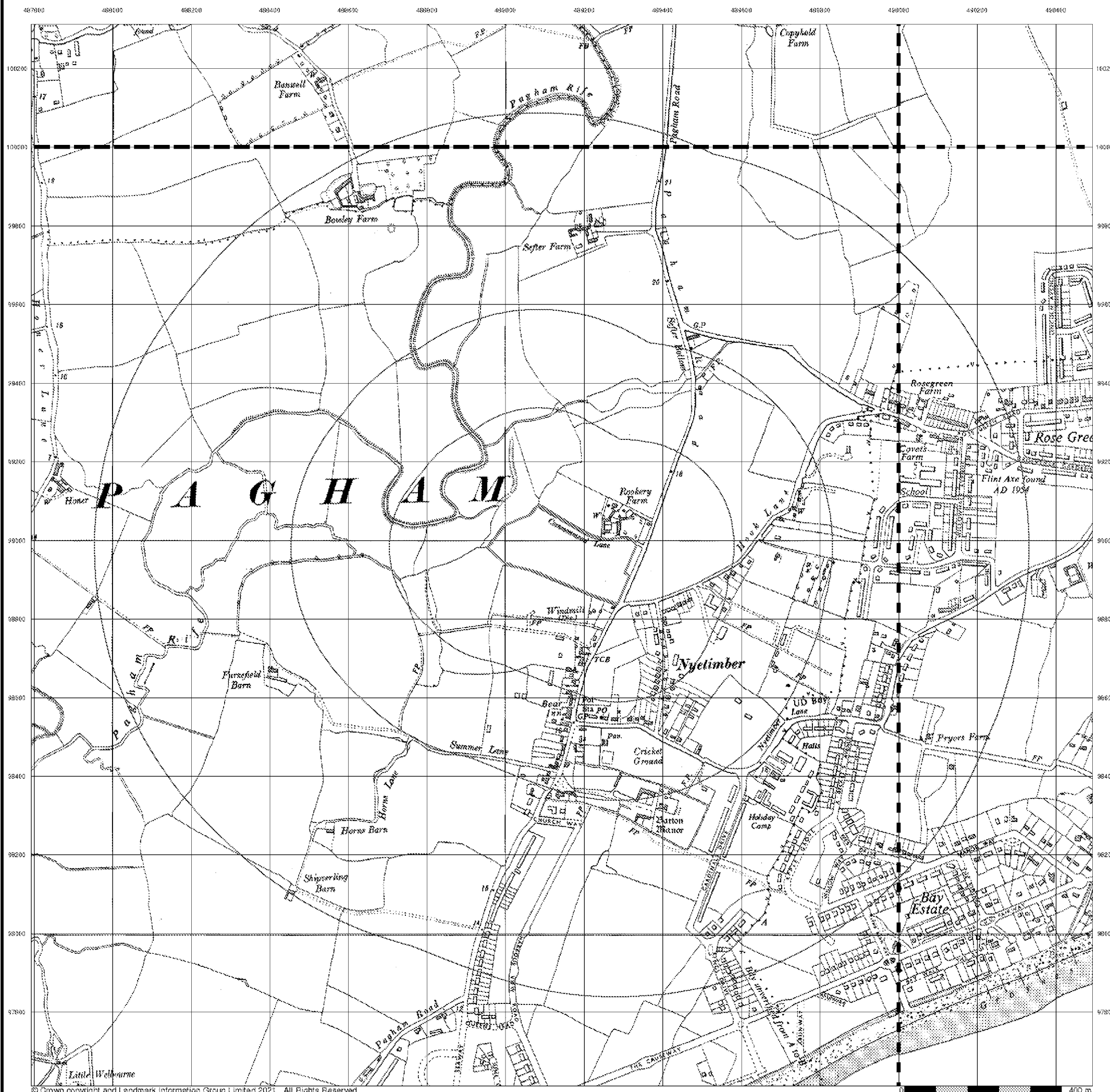
Order Number: 285698614_1_1
 Customer Ref: PO00412
 National Grid Reference: 489150, 98960
 Slice: A
 Site Area (Ha): 4.92
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 Web: www.envisirocheck.co.uk



Brookbanks

Consulting

Ordnance Survey Plan

Published 1973 - 1979

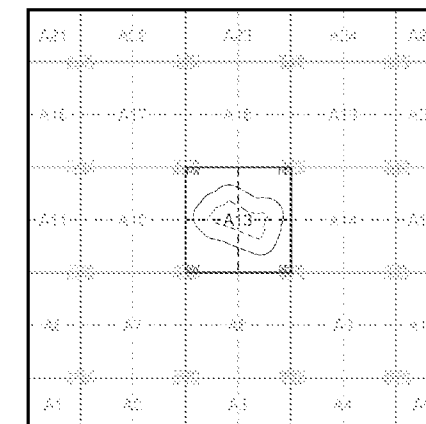
Source map scale - 1:10,000

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)

SU80SE	SU90SW
1973	1979
1:10,000	1:10,000
SZ89NE	SZ99NW
1976	1975
1:10,000	1:10,000

Historical Map - Slice A



Order Details

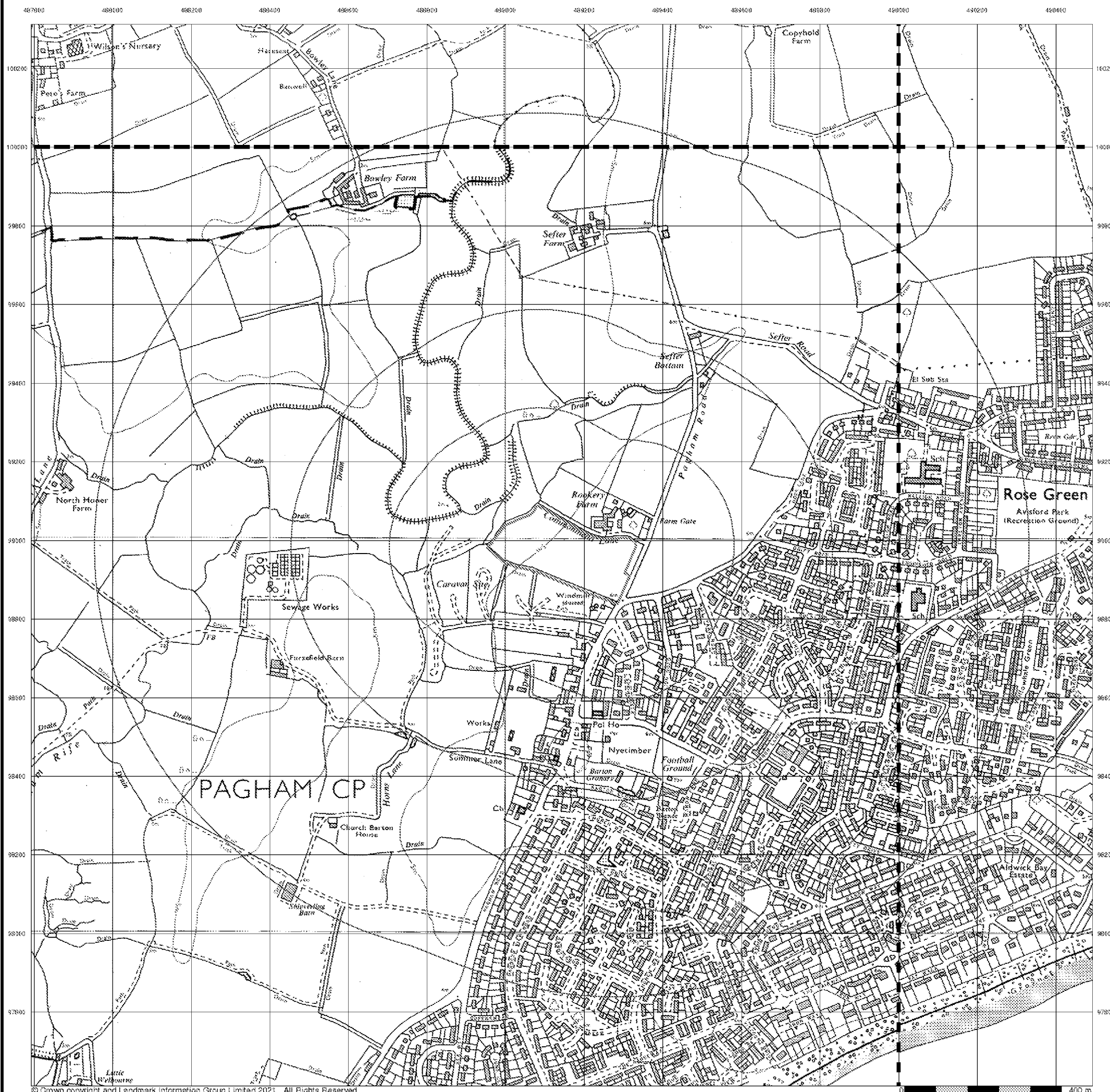
Order Number: 285698614_1_1
 Customer Ref: PO00412
 National Grid Reference: 489150, 98960
 Slice: A
 Site Area (Ha): 4.92
 Search Buffer (m): 1000

Site Details

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Landmark
 INFORMATION GROUP

Tel: 0844 844 9852
 Fax: 0844 844 9951
 Web: www.smwirocheck.co.uk



Brookbanks

Consulting

10k Raster Mapping

Published 2000

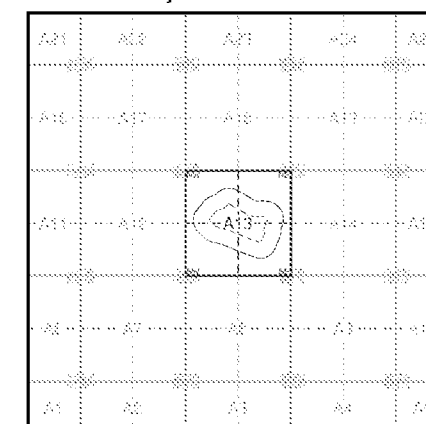
Source map scale - 1:10,000

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)

SU80SE	SU90SW
2000	2000
1:10,000	1:10,000
SZ88NE	SZ98NW
2000	2000
1:10,000	1:10,000

Historical Map - Slice A



Order Details

Order Number: 285698614_1_1
 Customer Ref: PO00412
 National Grid Reference: 489150, 98960
 Slice: A
 Site Area (Ha): 4.92
 Search Buffer (m): 1000

Site Details

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Landmark
 INFORMATION GROUP

Tel: 0844 844 9852
 Fax: 0844 844 9951
 Web: www.smwirocheck.co.uk



Brookbanks

Consulting

10k Raster Mapping

Published 2006

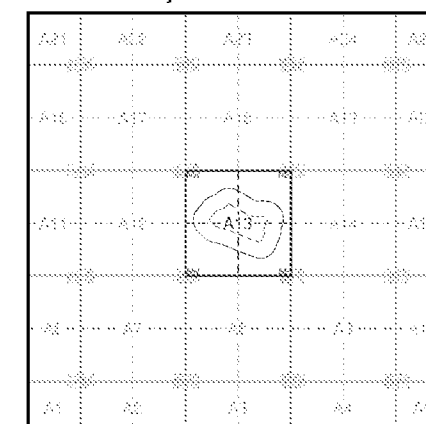
Source map scale - 1:10,000

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. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SU80SE	SU90SW
2006	2006
1:10,000	1:10,000
SZ88NE	SZ89NW
2006	2006
1:10,000	1:10,000

Historical Map - Slice A



Order Details

Order Number: 285698614_1_1
 Customer Ref: PO00412
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