Appendix B2

Buckinghamshire Scoping Opinion (November 2024)

East Claydon Greener Grid Park

Information accompanying a request for Buckinghamshire Council to form a Scoping Opinion

Statkraft UK Limited

23 August 2024

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Contents

1.0 Introduction

Purpose

1.1 This document provides information to assist Buckinghamshire Council in forming an Environmental Impact Assessment ('EIA') Scoping Opinion under Regulation 15 of the Town and Country Planning (EIA) Regulations 2017 (as updated) [Ref 1] ('the 2017 EIA Regulations').

1.2 This Scoping Report is submitted on behalf of Statkraft UK LTD (the 'Applicant'). It is submitted in respect of the proposed East Claydon Greener Grid Park ('the Proposed Development') at land north of the East Claydon substation ('the Site').

1.3 A plan is provided at Appendix 1 to this Scoping Report defining the overall extent of the Site.

Report Structure

1.4 The report is structured as follows: -

- Section 2.0 – provides background information about the need for the Proposed Development and the requirement for EIA;
- Section 3.0 – provides a description of the Site, its location and surroundings;
- Section 4.0 – provides a description of the key features of the Proposed Development and other developments proposed to be considered within the cumulative assessment;
- Sections 5.0-11.0 – provide a review of the potential environmental effects of the development as a means of identifying those matters to be scoped into the EIA;
- Section 12.0 – considers those matters capable of being scoped out of the EIA;
- Section 13.0 – summarises the proposed form and content of the Environmental Statement ('ES'), the team and summarises the other documents being submitted alongside the planning application;
- Section 14.0 – provides a summary of the proposed scope of the ES and concludes the report; and
- Sections 15.0-16.0 – provide relevant abbreviations, definitions and references.

1.5 This report is supported by the following Appendices:

1 Appendix 1 – Site Location Plan

2 Appendix 2 – Preliminary Site Layout Plan

3 Appendix 3 – Tree Survey

4 Appendix 4 – Cumulative Schemes Plan

5 Appendix 5 – LVIA Figures

6 Appendix 6 – Noise Figures

7 Appendix 7 – Heritage Figures

8 Appendix 8 – Preliminary Flood Risk Assessment and Drainage Strategy

9 Appendix 9 – Phase I Desk Study

10 Appendix 10 – Agricultural Land Classification survey

2.0 Background and Context

Requirement for EIA

2.1 In accordance with Regulation 15 of the 2017 EIA Regulations [Ref 1], which sets out the procedure to facilitate the preparation of Environmental Statements ('ES'), the Applicant confirms that they intend to submit an ES to Buckinghamshire Council with the planning application for a proposed 'Greener Grid Park' which includes a Battery Energy Storage System ('BESS').

2.2 The Proposed Development is considered to fall within Part 3(a) of Schedule 2 of the 2017 EIA Regulations [Ref 1] as an 'industrial installation for the production of electricity, steam and hot water (unless included in Schedule 1) '; which includes more than 0.5 hectares of land.

2.3 For Schedule 2 developments, the 2017 EIA Regulations [Ref 1] require that an EIA be undertaken where the development is "likely to have significant effects on the environment by virtue of factors such as its nature, size or location".

2.4 In determining whether the development is likely to give rise to significant environmental effects, reference should be made to Schedule 3 of the 2017 EIA Regulations [Ref 1]. This identifies three categories of criteria:-

1 Characteristics of the development such as: size and design; cumulative effects with existing development and/or approved development; use of natural resources (in particular land, soil, water and biodiversity); production of waste; pollution and nuisances; risk of major accidents and/or disasters relevant to the development concerned (including those caused by climate change, in accordance with scientific knowledge); and the risks to human health (for example due to water contamination or air pollution).

2 Location of the development (by reference to the environmental sensitivity of the area) such as: The existing and approved land use; the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground; the absorption capacity of the natural environment, paying particular attention to specified areas; densely populated areas; and landscapes and sites of historical, cultural or archaeological significance.

3 Characteristics of the potential impact, considering the likely significant effects of the development in relation to the above criteria with regard to the impact of development on:

   a Population and human health;

   b Biodiversity;

   c Land, soil water, air and climate;

   d Material assets, cultural heritage and the landscape; and

   e The interaction between the above factors.

2.5 Having regard in particular to the magnitude and spatial extent of the impact (e.g. geographical area and size of the population likely to be affected); the nature of the impact; the transboundary nature of the impact; the intensity and complexity of the impact; the probability of the impact; the expected onset, duration, frequency and reversibility of the impact; the cumulation of impacts with the impact of other existing and/or approved development; and the possibility of effectively reducing the impact.

2.6 In the light of these, EIA will be required for Schedule 2 development in three main types of case:-

1 Major development which are of more than local importance;

2 Developments located in particularly environmentally sensitive or vulnerable locations; and/or

3 Developments with unusually complex and potentially hazardous environmental effects.

2.7 It has been determined by the Applicant that the development should be subject to EIA to ensure that any likely significant effects can be identified, and mitigation and monitoring measures specified as required. In addition, the potential cumulative effects with other developments coming forward in the surrounding area are considered particularly relevant following pre-application discussions with officers.

2.8 To assist Buckinghamshire Council and consultees in forming an EIA Scoping Opinion, this report provides as much information as possible at this stage on the Proposed Development, the likely environmental effects and the suggested content of the ES. It includes information on:-

1 Site location and description;

2 Description of the nature and purpose of the Proposed Development;

3 Possible environmental effects; and

4 Proposed form of the ES.

2.9 To further assist in this consideration, the remainder of this section provides information on the background and need for the Proposed Development.

Need for the Development

2.10 Statkraft is Europe's largest generator of renewable energy, with origins going back almost 130 years. In the UK, Statkraft develop, own and operate wind, solar, green hydrogen, hydropower and Greener Grid Park projects. Since 2006, Statkraft has invested over £1.4 billion in the UK's renewable energy infrastructure and are market leaders in delivering innovative projects that ensure the reliability of our future green electricity supply.

2.11 Statkraft Greener Grid Parks are helping to achieve a renewables-ready network. As renewable energy generation increases across Great Britain, new ways to maintain system stability are required.

2.12 Greener Grid Parks are sites comprised of various grid stabilising equipment which, depending on the needs of the grid and technology choice, can import, store, and export

electricity. A Greener Grid Park is not a wind or solar farm or a power station. They resemble buildings that you might associate with agricultural barns, storage units or shipping containers.

2.13 The site has been chosen due to its strategic location on GB's grid network in the home counties, where National Grid Electricity System Operator (NGESO) have identified low network voltages. Locating the Greener Grid Park within a close proximity to East Claydon substation avoids lengthy electricity cables and ensures an efficient connection to the grid while minimising disturbance to the local area and environment. Statkraft Greener Grid Parks will reduce the need to operate fossil fuelled gas power stations saving costs, CO2 emissions and contributing to Buckinghamshire Council's pledge to reach Net Zero by 2030.

2.14 Battery storage development is a central component to the UK's sustainable energy objectives. This is reflected in national policy, in that the National Planning Policy Framework ('NPPF', paragraph 157) Ref 2 states that the planning system should support the transition to a low carbon future including supporting renewable and low carbon energy associated infrastructure. In addition, the Overarching National Policy Statement for Energy (EN-1) [Ref 3] requires management of the risks of security of energy supply by ensuring sufficient electricity capacity to meet demand at all times, which it notes will only be achieved by a diverse mix of technologies and supply routes. Battery storage is noted as having, "…a key role to play in achieving net zero and providing flexibility to the energy system, so that high volumes of low carbon power, heat and transport can be integrated."

Consultation

2.15 The Applicant is committed to a programme of consultation and engagement to assist in the ongoing iteration of the Proposed Development. Engagement with key stakeholders and statutory and non-statutory consultees who can assist the EIA team in the process of assessment will also continue as the work associated with the EIA proceeds.

3.0 Site Location and Description

3.1 In accordance with Regulation 15(2) of the 2017 EIA Regulations [Ref 1], a location plan is attached (see Appendix 1) which defines the maximum extent of land to which the EIA will relate. This area has been defined broadly at this time to allow flexibility in establishing the extent and form of development. This plan identifies the broad site boundary for the planning application.

The Site

3.2 The Site covers an area of approximately 41.9ha. It is located within the Aylesbury Vale area of Buckinghamshire, approximately 120m north-west of the National Grid East Claydon substation, and 650m north-east of East Claydon Village. The Site is bound to the north by vegetation at the natural field boundary, and to the south by East Claydon Road. The southwestern corner of the Site extends across East Claydon Road a short distance. The eastern Site boundary runs through agricultural fields adjacent to the Claydon Brook, before cutting in to run alongside the disused railway to meet East Claydon Road. The western Site boundary follows the path of the overhead electricity line, before doing the same.

3.3 The Site is comprised of agricultural arable fields, separated by landscape planting, trees and hedgerows around their perimeters. There is denser vegetation including hedgerows and treelines along the route of the disused railway track, which runs north-south through the Site. The route of the overhead electricity line runs north-west to south-east through the Site, connecting to the National Grid East Claydon substation south of East Claydon Road. There is one pylon located within the Site boundary, situated along the edge of the disused railway access track.

3.4 The Site is relatively flat. It falls from a high point of approximately 97.6mAOD at the southeast corner of the Site, to a low point of approximately 85mAOD at the northeast corner.

3.5 Existing access to the Site is via East Claydon Road along the route of the disused railway which forms a track through the Site. From East Claydon Road there is access to the A413 via Winslow, linking to Aylesbury, Buckingham, and connections to the M40 and M1.

3.6 The Environment Agency (EA) Flood Map for Planning [Ref 4] identifies the majority of the Site within Flood Zone 1 (less than 0.1% annual probability of river or sea flooding). Land along the Site's northeastern boundary, closest to Claydon Brook, falls within Flood Zones 2 and 3. The EA's Risk of Flooding From Surface Water shows a high risk of surface water flooding along the disused rail line, as well as along linear ditches at field boundaries at the north, centre, and within the southern portion of the Site.

3.7 As above, the Site comprises agricultural fields. Natural England's Provisional Agricultural Land Classification (ALC) map [Ref 5] identifies part of the western area of the Site as Grade 3 ('Good to moderate' quality), forming the eastern edge of a larger area of Grade 3 land that extends further to the south and west. The remainder of the Site is identified as Grade 4 ('Poor quality').

3.8 The eastern part of the Site falls within a Minerals Safeguarding Area (MSA) for Alluvium (clay, silt, sand, and gravel), as defined within the Buckinghamshire Minerals and Waste Local Plan (adopted July 2019) [Ref 6].

3.9 The Site is located within National Character Area: 108 - Upper Thames Clay Vales. At a local level, the Site and the immediate surrounding area is located within LCA 5.6 Claydon Valley (LCT 5) as defined in the Aylesbury Vale Landscape Character Assessment (2008) [Ref 7]. The following description is provided for the Upper Thames Clay Vales NCA:

"The shallow valley has a strong agricultural character notable for its lack of settlement and locally strong field pattern. The area has very small blocks of woodland and variable tree cover in hedgerows. There are good views across the valley from the upper valley sides. Woodland and tree cover of roadside and field-side trees lines, shelterbelts and small plantations interspersed with large scale

The Surroundings

3.10 Figure 3.2 below identifies the general location of the Site and features in its surroundings, as described in this section.

Figure 3.2 General Location of Site and Surroundings

Source: Google Earth, Lichfields' Annotations, approximate site boundary

3.11 The Site forms a part of a wider swathe of lowland agricultural land between Winslow and East Claydon either side of Claydon Brook. The settlements of Winslow and East Claydon occupy elevated locations above the valley.

3.12 The nearest settlement is East Claydon, a village located approximately 700m to the southwest of the Site. Verney Junction, a small hamlet, is located approximately 700m to the northwest of the Site, and the town of Winslow is approximately 1.5km to the northeast. Immediately south of the Site, beyond East Claydon Road, is a single residential dwelling, located off Winslow Road and adjacent to the National Grid East Claydon substation.

3.13 Immediately north of the Site is further agricultural land, with Verney Road, a minor road, running approximately 500m to the north of the Site from Winslow to Verney Junction. The route of the East West Railway line runs 600m to the north of the Site. This rail line is designated for Phase 2 of Network Rail's East West Rail project, connecting Cambridge and Oxford.

3.14 Claydon Brook, a tributary of Padbury Brook, is located approximately 20m to the east of the Site boundary at its nearest point, and flows north away from East Claydon Road.

3.15 The surroundings are predominantly characterised by agricultural fields, and are open in nature. There is a number of farms and small businesses surrounding the Site.

3.16 Monkomb Farm, comprising agricultural and residential buildings, is located approximately 175m west of the Site boundary. Tuckey Farm, including agricultural buildings and a fishery (G.Neal Fisheries) to the north of the farm, is approximately 350m east of the Site, beyond Claydon Brook. Berry Leys Farm is located approximately 600m east of the Site, to the immediate south of East Claydon Road. Furzen Farm is located approximately 750m north of the Site, beyond Verney Road and the railway line. Old Oak Farm is approximately 850m northeast of the Site, beyond Verney Road and adjacent to a small industrial park known as Addington Business Park. There is an unnamed farm southeast of East Claydon, approximately 550m south of the Site.

3.17 There is an area of woodland adjacent to the northern boundary of the Site, to the east of the disused railway line, which is designated as deciduous woodland under the Priority Habitat Inventory.

3.18 There are no Public Rights of Way within the Site. Public footpaths 3A/1 and 3/1 connect East Claydon Road with the wider landscape to the south of the Site. Footpath 1/1, approximately 450m to the east of the Site, connects East Claydon Road with the wider footpath network to the northeast of the Site. Bridleway 2/1, located approximately 200m to the west of the Site at its closest point, connects East Claydon with Verney Road to the north.

3.19 The closest designated wildlife site is a non-statutory Biological Notification Site called "Grassland near Addington" located 475m due north. The closest statutory designated wildlife site is Sheephouse Wood Site of Special Scientific Interest ('SSSI') located 4.4 km to the southwest.

3.20 In terms of heritage, there are no listed buildings within the Site. The nearest designated heritage asset is the Grade II listed Tuckey Farmhouse approximately 420m east of the Site. Within East Claydon Village there is a group of 11 listed buildings, including the Grade II*

Church of St Mary. Further to the west (approximately 2km) and southwest (approximately 1.5km) lies Middle Claydon and Botolph Claydon Conservation Areas, respectively. Further northeast (2.5km away) is Winslow Conservation Area.

3.21 The Grade II Registered Park and Garden, Claydon Park, is located approximately 1.9km east of the Site. Southwest of Padbury, approximately 4.4km northwest of the Site, is a Scheduled Monument – Norbury: a slight univallate hillfort.

4.0 Proposed Development

4.1 The 2017 EIA Regulations [Ref 1] require that a request for an EIA scoping opinion be accompanied by a brief description of the nature and purpose of the development.

Description of Main Works

4.2 The proposal is for a Greener Grid Park comprised of BESS and associated grid infrastructure, with a capacity of 500MW.

4.3 The BESS development will store excess energy generated by the National Grid, and, in doing so, provide a reserve power supply to the local electricity grid and in a wider context will enable further renewable energy generation to deploy onto the grid. It would operate for short periods of time to meet local power demand, and there will typically be long periods between operating times when the BESS is not in use. It would also act as a fall-back energy source at times when sources of renewable energy and the grid are reduced or do not generate sufficient electricity to meet demand.

Site Layout

4.4 The Proposed Development is in the early stages of design development, and a Preliminary Site Layout Plan is provided at Appendix 2 to this Scoping Report.

4.5 The proposed Greener Grid Park ('the developable area') will be located within the northern portion of the Site, and covers an area of circa 6.4ha. The site layout incorporates a 25m buffer from the 400kV electricity line and a 12m buffer from the 132kV line, where only landscaping is proposed.

4.6 The Applicant has secured a grid offer from National Grid to connect to East Claydon Substation. The connection will be installed underground, the preliminary route of the cable is shown on the plan included at Appendix 2. The works will form part of the Proposed Development, and be assessed by the EIA.

Main Development Components

4.7 The BESS is likely to comprise 5 blocks of 100MW, with each block consisting of modular battery energy storage units, inverter and transformers. The exact quantity of battery container units proposed is still being developed, however will all be located within the 'BESS development' area shown within the plan at Appendix 2. The main components that will make up the 'BESS development' will comprise:

1 Battery container units with inverter skids. Approximately 30 battery container units would be situated within each block, and each unit would be approximately 28 x 5m and 4m in height. The units will be of a recessive colour, likely to be a moss or olive green;

2 Metering substation compound, comprising a 400kV substation and a transformer yard, likely to contain 2no. transformers. It is anticipated the compound would use approximately 800sqm of the developable area;

3 A HV yard located within the developable area;

4 Emergency Diesel generators;

5 2no. comms buildings to house equipment used by maintenance personnel, anticipated to be 5.6m in height;

6 Water tank and hydrants as part of the fire protection system;

7 2no. metal or steel store buildings, anticipated to be 2.6m in height;

8 5no. control rooms, anticipated to be 2.6m in height;

9 2no. office buildings, anticipated to be 3.6m in height;

10 Internal access roads and 13no. car parking spaces for maintenance personnel;

11 CCTV masts (likely to be a maximum of 6m in height); and

12 Palisade perimeter and high voltage compound fencing (at a standard height of 3.4m) to secure the Site.

4.8 The elements of the Proposed Development will vary in height, and the tallest elements will be the transformers and substation, at approximately 10m in height. All other buildings and elements will vary between 2 and 6 metres in height.

Transport and Access

4.9 During operation, the Proposed Development would be accessed using the existing access from East Claydon Road, which would be extended northwards to the developable area, along the disused railway track.

4.10 During the operational phase, the Site will be unmanned, so very limited traffic will be generated by the Proposed Development. Operational traffic will predominantly relate to scheduled monthly maintenance visits. In addition, BESS developments require an annual maintenance visit which typically lasts for a week.

4.11 A temporary construction access is proposed to the west of the existing access, also from East Claydon Road. To minimise impacts during construction, a Construction Traffic Management Plan will be implemented which will include a construction vehicle routing plan. The routes will seek to avoid routing HGVs through sensitive residential areas.

Landscaping and SuDS

1 The proposal will incorporate a surface water drainage strategy and a new landscaping scheme, which aims to reduce the visible impacts of the Proposed Development. At this stage the strategy comprises:

2 Locating the battery compound within the more visually contained northern portion of the Site;

3 Retaining existing tree groups and belts, individual trees and hedges within and adjacent to the boundaries of the Site wherever possible;

4 Planting new native trees and shrub planting, characteristic of the local landscape, to provide screening to the main BESS compound and to strengthen the existing mature vegetation to the northern boundary of the Site;

5 Providing a species rich wildflower meadow to the northern areas of the Site; and

6 Incorporating two SuDS basins at the north of the Site as part of the surface water drainage strategy; and

7 Incorporating buffer zones between the central watercourse and the final location of the HV yard and other built components in accordance with Buckinghamshire County Council's Developer Advice for Surface Water Drainage Strategies [Ref 30], and Buckinghamshire Council's Watercourse Advice Note for the Aylesbury Vale Area [Ref 31].

4.12 The Proposed Development will retain the majority of tree cover, including the identified veteran tree within the Site which the Preliminary Layout has accounted for by way of a buffer zone as advised by the Tree Consultant. The proposed temporary construction access will require the removal of a short section of hedgerow, but retains nearby significant trees, as identified in the Tree Survey (Appendix 3 of this Report).

Operating Hours

4.13 Operating hours are currently unknown as they will relate directly to when period of demand for the reserve power supply occur. However, when in operation the Proposed Development will be unmanned and operated remotely, requiring only periodic maintenance engineers to visit the Site and a limited number of specialist jobs located offsite.

Construction

4.14 The construction of the Proposed Development will be unphased, and is currently estimated to take 18-24 months. The construction methods and key activities will be described within the ES and assessed within the EIA.

4.15 A Construction Environmental Management Plan ('CEMP') will be prepared prior to construction to ensure the implementation of measures to reduce any significant adverse effects during the construction process. An outline version of this will be appended to the ES.

Decommissioning

4.16 The EIA will assess the decommissioning period as a phase of the Proposed Development where relevant. The assumption will be applied that the Site will be returned to its former state (agricultural land) at the end of life stage, due to the nature of the development.

Consideration of Alternatives

4.17 Schedule 4 of the EIA Regulations [Ref 1] requires a consideration of the main alternatives for the development which have been studied by the applicant and the main reasons for the choices which have been made, taking account of environmental effects.

4.18 The Site is the only location identified by the Applicant for the Proposed Development, and the Applicant has not given, and will not be giving, consideration as part of the EIA to other sites for the developments of a similar scale. The Site has been selected for the following reasons:

1 NGESO have identified the area as having voltage issues on the electricity grid and the need for reactive power equipment.

2 Proximity to the national grid infrastructure into which the battery storage will provide back-up demand and grid stability. With transmission losses associated with the 'transport' of electricity, the closer the location to the substation, the more efficient and effective its contribution to satisfying local demand.

3 The network operator has confirmed that East Claydon substation has sufficient capacity to accept the connection.

4 The Site has adequate space for the BESS and ancillary equipment, has relatively flat ground levels to accommodate the development.

4.19 The EIA will, however, include a review of: -

1 The likely effects in the event that the Proposed Development does not come forward ('the no development scenario' or 'future baseline'); and

2 Consideration of the evolution of the design of the scheme and whether alternative forms of development would achieve the same objectives or have different or lesser environmental impacts.

4.20 The EIA team has been involved in the process of design iteration and emergence of the development. This process will be documented as part of the ES.

Other Developments and Cumulative Effects

4.21 In accordance with the 2017 EIA Regulations [Ref 1], the EIA will include an assessment of any direct and indirect cumulative effects arising from the inter-relationship between different impacts arising from the development when considered alongside any other development in the area surrounding the Site. The objective is to identify any combined impacts from the development or impacts from several developments; and if, whilst individually the impacts may be insignificant, could when considered together cause a further significant direct or indirect impact requiring mitigation.

4.22 In relation to other development, best practice dictates the cumulative assessment of this nature should have regard only to those developments which are 'reasonably foreseeable' (i.e. usually those under construction or with planning permission). The assessment is only capable of being carried out based on the information available at the time of the assessment.

4.23 The assessment should focus on those developments that have a high potential for significant cumulative impacts. For the Proposed Development, the initial review has therefore focused on those developments that, due to their proximity or scale, are most likely to contribute to cumulative impacts. Consideration has also been given to the areas within which cumulative impacts are most likely, using the following parameters to scope the cumulative assessment:

1 A 5km search area has been applied, which applies a generous buffer in the context of the study areas for each individual technical assessment scoped into the EIA; and

2 Consideration is given outside of this area, where appropriate in relation to the proposed construction access route (refer to Figure 8.1 and associated text), which will

include East Claydon Road, Granborough Road, Vicarage Road, the A413 and the A421 (providing access to the SRN to the east and west).

4.24 This analysis has identified the following developments to be considered as part of the cumulative assessment, but this will be kept under review and updated over the coming months as the EIA proceeds:

Table 4.1 Schemes Proposed for Consideration within the Cumulative Assessment

Site Address	Location in relation to the Proposed Development	LPA Planning Reference	Description of Development	Current Status
Tuckey Farm, East Claydon Road, Winslow, Buckinghamshire	Located c.20m east of the Site	19/00983/APP and 21/04255/APP	Ground mounted solar farm (25MW), ancillary infrastructure and associated works including the diversion of PROW	Not yet constructed. Application approved 29/04/21
Rookery Farm Granborough Buckinghamshire MK18 3NJ	Located c. 750m southeast of the Site	23/03875/APP	Development of a 500MW BESS by Statera, connected to the National Grid	Awaiting decision. Validated 15/12/23
Land To The East Of Fox Covert Great Horwood Buckinghamshire	Northeast of Addington, c.2.6km northeast of the Site	20/02582/APP	Construction of a 22MW solar farm	Not yet constructed. Approved 1/06/21 *It is requested that BC confirm whether this permission has expired*
Wings Farm Marston Road Granborough, MK18 3JX	Southwest of Granborough, c. 2.4km south of the Site	23/01939/SO	EIA Screening Opinion for a proposed 49.9MW solar farm with associated works	Full application yet to be submitted. EIA screening opinion issued 11/08/23 (EIA not required)
Adison Road, North of Calvert, Buckinghamshire.	Parcel 3 borders the East Claydon Substation, located c. 400m south of the Site. Main site is c.1.8km southwest of the Site.	NSIP - Rosefield Solar Farm	Solar generating station with a gross output of over 50 MW.	Pre-application stage, due to be submitted January – March 2025 Scoping report Nov 2023, SoS adopted its scoping opinion 21/12/23.
East West Rail Line	The rail line will run 600m-725m north from the Site	Will be progressed under the Development	The Network Rail (East West Rail) (Bicester to Bedford	Some sections due for completion Spring 2024. The EIA will assess sections

		Consent Order (DCO) process	Improvements) Order 2020	relevant to the Proposed Development.
Land from The South West Of Quainton To The North Of Grendon Underwood Doddershall Quainton Buckinghamshire	Running between Calvert and Quainton, approx. 5.3km southeast of the Site at its north-westerly point.	23/00529/APP Part of HS2 development	Realignment of Edgcott Road Overbridge and associated earthworks and other works associated with land within the Network Rail Marylebone to Claydon railway line	Awaiting decision. Validated 20/02/23.
National Grid East Claydon Substation	Approximately 100m south of the Site, across East Claydon Road	N/A	National Grid has published news of its intention to develop a replacement substation (with the preferred option shown to be to the immediate west of the existing substation.)	Application expected to be submitted to BC in 2025. Information published by National Grid will be relied upon, where available
Old Brickyard Farm Great Horwood Road Winslow Buckinghamshire MK18 3LY	To the north of Winslow, approx. 2.2km northeast of the Site.	Outline: 19/03482/AOP	Erection of up to 120 dwellings with all matters reserved, public open space, landscaping and sustainable drainage system	Outline approved 31/08/2021. Construction not yet started. Reserved matters for up to 6 dwellings approved 29/04/24 (23/02064/ADP)
Land Off Great Horwood Road Winslow Buckinghamshire	To the north of Winslow, approx. 2.5km northeast of The Site.	22/02214/ADP Outline: 18/03422/AOP	Residential development of 198 dwellings. Original outline 215 dwellings.	Reserved matters application 24/00491/ADP and NMA 22/B2214/NON awaiting decision, validated 12/02/24.

Land Adjacent To Verney Road Winslow	To the north of Winslow, approx. 1.8km northeast of the Site	16/C2504/NON Original outline: 13/02837/AOP	Residential development of 247 dwellings.	Outline approved 30/04/2014. Final phase under construction.

Source: Buckinghamshire Online Planning Register

4.25 A plan is included at Appendix 4 which shows the location of the cumulative schemes in relation to the Site.

4.26 The Local Planning Authority, within its pre-application response, has also identified the following development for consideration within the cumulative scenario:

- 21/02851/AOP – Outline permission for the 67,000sqm expansion of HM Prison Grendon, Springhill Road HP18 0TL (allowed at appeal in January 2024).

4.27 We have given consideration to the inclusion of this scheme within the cumulative assessment applying the parameters identified in paragraph 4.22 above. Due to the distance from the Proposed Development Site (located approximately 7.3km to the southwest), and that the scheme is not located along the proposed construction route for this development, it is considered that there is no likelihood for significant effects. There is unlikely to be any intervisibility (noting that the study areas for the LVIA, Heritage and Archaeology assessments are all under 5km) and no cumulative transport effects. This scheme is therefore proposed to be excluded from the cumulative assessment scenario.

4.28 If the authority is aware of any other proposals that it considers will need to be assessed in terms of potential cumulative effects, it would be appreciated if these could be identified as part of the EIA scoping opinion.

5.0 Landscape and Visual Impact

5.1 An assessment of Landscape and Visual Impacts (LVIA) will be undertaken to consider the potential effects of the Proposed Development on the character of the surrounding landscape, and the potential visual effects on identified key receptors. It is considered that LVIA should be scoped into the EIA due to the potential for significant effects.

5.2 Mark Evans, author of this input to the scoping report, is a Chartered Member of the Landscape Institute with over 20 years work experience within the field of Landscape Architecture, 10 years within the field of Landscape Planning. Mark has completed six Landscape and Visual ES chapters to date.

5.3 Two site visits were carried out on 10th April 2024, and 13th May 2024 respectively. On both occasions, a visual survey and a baseline assessment of the existing landscape condition and character was carried out to consider the key visual and landscape sensitivities of the Site. The LVIA ES chapter will describe and evaluate the anticipated change to landscape and visual amenity, and the extent to which these changes will affect the perception and views of the landscape.

5.4 The Site is located to the north-west of East Claydon Road between the settlements of East Claydon and Winslow. The Site encompasses portions of nine field parcels bisected north to south by a disused railway line. Two overhead high voltage power lines cross the southern portion of the Site serving East Claydon Substation to the south of East Claydon Road. There are no landscape, heritage or ecological designations covering the Site.

5.5 The Site sits within the National Character Area 108: Upper Thames Clay Vales. At a local level, the Site is located within Landscape Character Type (LCT) 5 Shallow Valleys and the constituent Landscape Character Area (LCA) 5.6 Claydon Valley as defined within the Aylesbury Vale Landscape Character Assessment (2008) [Ref 7]. The existing landscape of the Site is considered to be typical of the surrounding LCT and LCA in which the Site sits.

5.6 The Site is generally visually contained due to the existing mature vegetation within and surrounding the Site. There are, however, limited locations where the Site is prominent in views. Where views of the Site are available they typically contain the existing energy infrastructure within and adjacent to the Site.

Methodological Approach

5.7 An assessment of LVIA will be undertaken to consider the potential effects of the Proposed Development on the character of the surrounding landscape, and the potential visual effects on identified key receptors.

5.8 The LVIA chapter will be informed by and make reference to the following policy documents:

- The National Planning Policy Framework (2023) [Ref 2] - specifically those chapters considered relevant to landscape and visual amenity; and
- Vale of Aylesbury Local Plan 2013-2033 (2021) [Ref 8] - specifically those policies considered relevant to landscape and visual amenity.

5.9 The methodology draws upon the following established best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA) (Landscape Institute) (LI) and Institute of Environmental Management & Assessment (IEMA, 2013) [Ref 9]; and
- Landscape Character Assessment: Guidance for England and Scotland (Countryside Agency and Scottish Natural Heritage, 2002) [Ref 10].

5.10 The extent of the zone of influence for the Proposed Development, where it will be likely to result in significant visual effects or indirect effects on landscape character, is limited by the local landform, mature vegetation, and the extent of existing built form in the vicinity of the Site. The study area has initially been set at a radius of 2km from the centre of the Site. This is in line with GLVIA guidance [Ref 9]. The current baseline for the 2km study area comprises the settlement of East Claydon and touches on the outlying settlement of Winslow. The area includes a mixture of residential and agricultural farmland, including arable and pastoral land uses (Refer to Figure 5.1 'Site Location and Study Area', at Appendix 5 of this Report).

5.11 Based upon an initial, high-level, desk-based survey of the study area, the following landscape and visual receptors are considered most likely to be affected by the Proposed Development, the details of which is currently evolving. It is these elements and the those within the Site which are scoped into the assessment:

- Site landscape character;
- Local landscape character;
- Existing land use;
- Existing mature vegetation and landscape features within and in close proximity to the Site; and
- Site landform.

5.12 There are a number of heritage assets present within the study area. Botolph Claydon Conservation Areas lies to the south west of the Site. There are also a number of listed buildings located within the study area, these include:

- Grade II Listed Tuckey Farmhouse;
- Grade II Listed Tuchwood; and
- Grade II Listed Jasmine Cottage

5.13 In addition to landscape receptors and heritage assets, there are a number of locations anticipated to experience views towards the Site. These include:

- The adjacent Monkomb Farm complex to the west of the Site;
- Bridleway BM|ECL|2/1 to the west of the Site;
- Footpath BM|WIS|1/1 to east of the Site;
- Footpath BM|ADD|14/1 to the north east of the Site;
- Footpath BM|ECL|3/1 and BM|ECL|3A/1 to the south of the Site;
- East Claydon Road to the east of Berry Leys;
- Fringes of East Claydon to the south east.

5.14 A broad and representative selection of views suitable to illustrate the existing character of the study area and the potential effects of the Proposed Development are proposed for inclusion within the LVIA. The viewpoints are representative of views typically available to the Site from the surrounding area.

5.15 Figure 5.2 'Viewpoints – Close Range' and Figure 5.3 'Viewpoints' (both included at Appendix 5: LVIA Figures), illustrate the proposed 22 representative viewpoints for inclusion within the LVIA. The list of viewpoints will also be issued to Buckinghamshire Council separately for direct agreement. A lighting strategy being prepared for submission with the planning application and the LVIA will give consideration to night time and lighting impacts, such as number of lighting columns, hours of operation and LUX levels, based on the information prepared.

5.16 An appraisal of the character of the landscape will be made in the baseline assessment. It will be made through desk-based assessment and field study of aspects of landscape character, including landscape features, landscape character, designated landscapes and aesthetic/perceptual aspects. It will be informed by consideration of the landscape fabric of the area and will be made with reference to aspects of landscape, their nature and sensitivity. The appraisal will include the classification and description of the local LCT and LCA.

5.17 Assessment of the degree and nature of potential change to the LCT and LCA as a result of the Proposed Development will be made with reference to the viewpoints from within the areas, which will show the likely degree of change to the typical and important character attributes of each area.

5.18 The visual assessment will consider the effects of the Proposed Development on the specific views scoped into the LVIA and on the general visual amenity experienced by people.

5.19 For both landscape and visual effects, the effect significance will be established based on the:

- The sensitivity of the receptors (landscape or visual), which will be assigned within the ES Chapter, based upon the value attached to the landscape or view and the susceptibility to harm due to the Proposed Development; and
- The magnitude of the effect (the change brought about by the Proposed Development), which depends upon the scale and geographical extent of the change, and its duration and reversibility.

5.20 Sensitivity and magnitude will be determined using a combination of quantitative (objective) and qualitative (subjective) methods and will be assessed using professional judgement.

5.21 The assessment will follow step-by-step approach:

- Description of the existing landscape, with an evaluation of different areas;
- Consideration of the potential effects of the Proposed Development, and of receptor sensitivity to those effects;
- Assessment of the magnitude of each effect (involving judgements relating to the scale, extent and duration/reversibility of effects); and

- Assessment of the significance of each effect (involving judgements relating to how sensitivity and magnitude combine). At this stage, a separate judgement is made as to whether an effect is beneficial, neutral or adverse and whether it is significant in EIA terms.

Table 5.1 illustrates how the sensitivity and magnitude will be combined to determine the effect significance.

Table 5.1: Landscape and Visual Effects

		Sensitivity of Receptor to Change		
		High	Moderate	Low
Magnitude of Effect	Major	Major Adverse / Beneficial	Major – Moderate Adverse / Beneficial	Moderate – Minor Adverse / Beneficial
	Moderate	Major – Moderate Adverse / Beneficial	Moderate – Minor Adverse / Beneficial	Minor Adverse / Beneficial
	Minor	Moderate – Minor Adverse / Beneficial	Minor Adverse / Beneficial	Minor Adverse / Beneficial - Negligible
	Negligible	Negligible	Negligible	Negligible

5.22 Judgements about the sensitivity of the landscape or visual receptor and the magnitude of the effect each receptor will be combined to draw conclusions about the effect significance on a case-by-case basis. Note that for both landscape and visual receptors, 'there are no hard fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the local and landscape context and with the type of proposal' (LI and IEMA, 2013 [Ref 10], paragraphs 5.56 and 6.44).

5.23 For those assessments, effects of major/moderate or major significance will be considered 'significant' in that they are the principal landscape or visual effects of the Proposed Development. The identification of 'significant' effects equally does not necessarily mean that said effects would be unacceptable. Equally, effects considered to be 'not significant' should not be completely disregarded (LI and IEMA, 2013 [Ref 10]; paragraph 3.34), but are lesser effects which are considered, with professional judgement, to be less important in decisions regarding the landscape and visual effects of the Proposed Development.

Embedded Mitigation

5.24 The Proposed Development is landscape led and will be evolved in conjunction with the Applicant, design and consultant team in order to mitigate any landscape and visual effects. The Proposed Development will incorporate existing retained landscape features where possible, setting the Proposed Development into a landscape context that is consistent with the surrounding character, locating built form within a discrete location, away from any sensitive boundaries, where the Site is more visually contained. Native tree, shrub, hedgerow and wildflower meadow planting will be incorporated into the design to enhance existing screening and assist in improving upon the Site's biodiversity.

5.25 A Landscape Management Plan will be produced, subject to a planning condition, to ensure the landscape proposals and existing landscape features are maintained throughout the lifetime of the Proposed Development.

5.26 Embedded landscape and visual mitigation will therefore aim to reduce effects on the local landscape, softening the Site in views and setting built form away from sensitive boundaries.

Anticipated Effects

5.27 It is considered that LVIA should be scoped into the EIA report due to the potential significant landscape and visual effects of the Proposed Development.

Landscape Effects

5.28 There are anticipated to be potential significant effects on the following landscape receptors: -

- Existing mature vegetation and landscape features within the Site;
- Site landscape character; and
- Local landscape character.

Visual Effects

5.29 There are anticipated to be potential significant effects on the following visual receptors: -

- Residents within the Monkomb Farm complex;
- Users of Bridleway BM|ECL|2/1 to the west of the Site;
- Users of Footpath BM|WIS|1/1 to east of the Site;
- Users of Footpath BM|ADD|14/1 to the north east of the Site;
- Users of Footpath BM|ECL|3/1 to the south of the Site; and
- Users of Footpath BM|ECL|3A/1 to the south of the Site.

Potential Mitigation

5.30 Additional mitigation measures relating to the construction phase have been identified over and above those designed into the scheme in line with best practice.

5.31 These will involve the erection of Site security fencing to the perimeter of the enabling work area, together with protective fencing (to BS5837, 2012, 'Trees in Relation to Construction' [Ref 11]) to the existing trees and mature vegetation to be retained; creating a haul route; setting up the contractors compound; removal of the existing vegetation to facilitate development; and the stripping of grass and topsoil for the Proposed Development platforms.

5.32 The location, extent and height of the contractor's compound is yet to be determined, but will be determined in consultation with the contractor and landscape consultant, in order to reduce the impacts of these elements as much as possible.

5.33 All cabins and storage mounds will be as low as possible to minimise the visual effects of these elements. The contractor's cabins are to be of a muted and visually recessive colour to minimise the visual effect of these temporary elements in localised views. These measures will be detailed within a Framework or Outline Construction Environmental Management Plan (CEMP) to be submitted as part of the ES.

5.34 During construction, it is anticipated that the contractor's compound and working area would be lit. The lighting of the compound is to be low level and directional into the working area and impacts are not anticipated to be significant. During operation, lighting will only be activated during maintenance visits, and otherwise the site will not be lit. A lighting strategy is being developed for submission with the planning application, therefore consideration of this will form part of the LVIA. Lighting impacts will also be assessed separately within ecological assessments for impacts to protected species.

Summary

5.35 LVIA is proposed to be scoped into the EIA, and will cover both construction and operational phase effects. There are anticipated to be potential, significant landscape and visual effects on the following landscape and visual receptors: -

Landscape Effects

- Site landscape character; and
- Local landscape character.

Visual Effects

- Residents within the Monkomb Farm complex;
- Users of Bridleway BM|ECL|2/1 to the west of the Site;
- Users of Footpath BM|WIS|1/1 to east of the Site;
- Users of Footpath BM|ADD|14/1 to the northeast of the Site; and
- Users of Footpath BM|ECL|3/1 and BM|ECL|3A/1 to the south of the Site.

5.36 Where adverse impacts are identified these will be mitigated through the proposed landscape strategy, setting built form away from sensitive boundaries and softening the edge of the Proposed Development.

6.0 Noise

6.1 This Section of the Scoping Report has been prepared by TNEI Services Ltd (TNEI). Noise is proposed to be scoped into the EIA, as noise will be emitted during the construction, operation and decommission of the Proposed Development. Vibration will be emitted during the construction phase however vibration effects are not anticipated to be significant or notable during the operational phase. This Section provides a summary of the noise and vibration effects anticipated for each phase and, where appropriate, details of the proposed scope and methodology for the assessment work.

6.2 The Proposed Development will introduce new noise sources into the area in the form of construction plant and activities during the construction phase, and fixed plant during the operational phase, such as the battery cooling systems, battery inverter/MV transformer units and HV transformers.

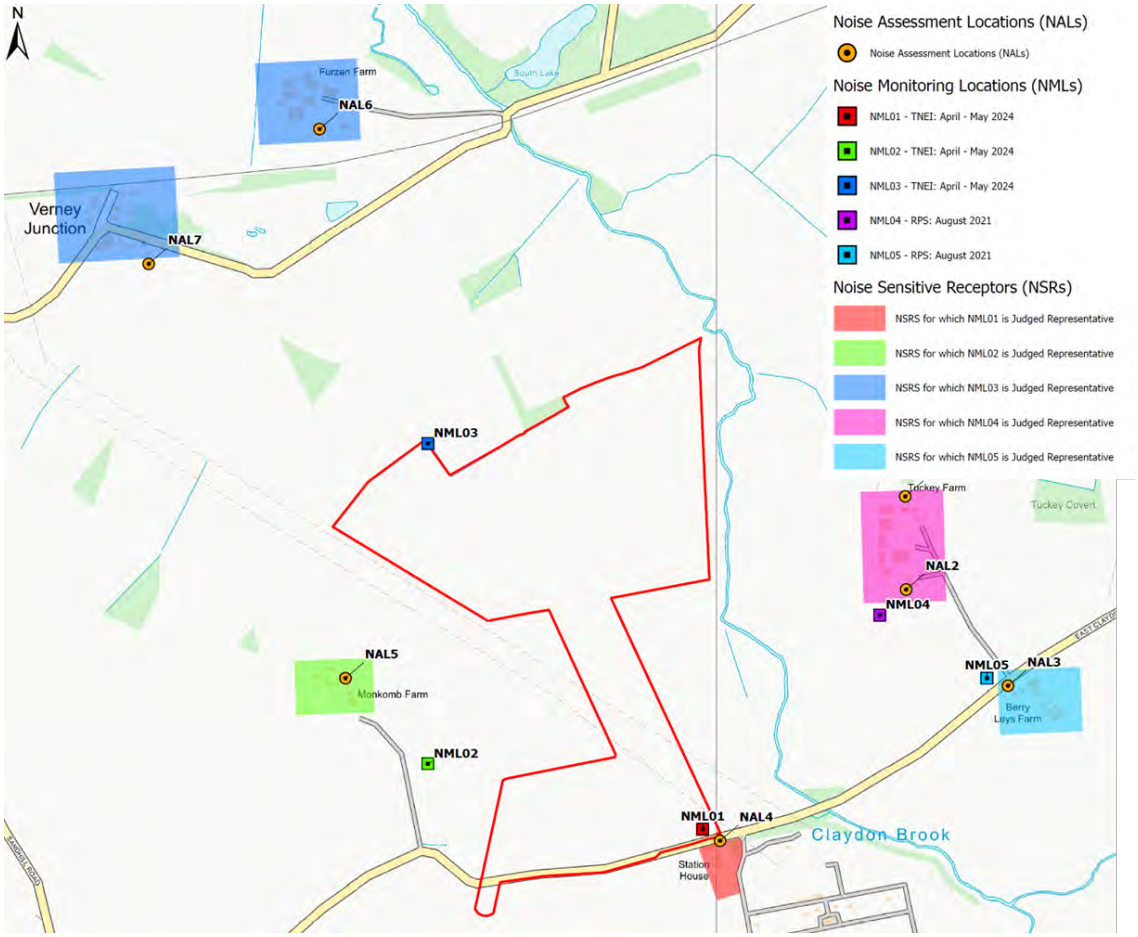
6.3 The nearest Noise Sensitive Receptors (NSRs), typically residential properties, that may be subject to the effects of noise from construction and/or operation of the Proposed Development have been identified, and baseline noise monitoring has already been undertaken at a sample of Noise Monitoring Locations (NMLs). The identified NSRs are identified in Figure 6.1 below (provided at full size at Appendix 6: Noise Figures) in context of the Site location. All NSRs are within approximately 1km of the Site and are scattered residential properties in a rural and relatively flat countryside setting. There are no major roads or industrial uses surrounding the Site that would dominate the existing noise environment. One NSR is immediately adjacent to the East Claydon National Grid Substation.

6.4 Noise monitoring has been undertaken at five NMLs in the area, as shown in Figure 6.1 and detailed in Table 6.1 below.

Table 6.1 – Noise Monitoring Locations where baseline noise levels have been measured

Location ID	Location Description	Surveyed by / when / Purpose	Duration of baseline noise survey
NML01	In the field immediately north of Station House	TNEI / April-May 2024 / To establish representative baseline levels at receptors to the south, west and north.	13 days
NML02	In the field south east of Monkomb Farm		
NML03	In the field to the north end of the Site. To represent Verney House and others to the north		
NML04	In the field near Tuckey Farm and Tuckey Barn	RPS / August-September 2021 / To establish representative baseline levels at receptors to the east, as part of the Tuckey Solar Farm development planning application.	8 days

Figure 6.1 – Noise Sensitive Receptors (See also Appendix 6)



Source: TNEI. NB. Site Location approximate.

6.5 The baseline background noise levels have therefore already been established and the measured baseline noise levels will be presented to the Buckinghamshire Council Aylesbury Vale Area Environmental Health team during the consultation and assessment process. Overall, the baseline levels may be qualified as low to very low. No new noise monitoring survey is anticipated to be required.

Methodological Approach

Construction and Decommissioning Noise and Vibration

6.6 During construction and decommissioning, noise and vibration will be generated mostly by construction plant on the Site and there would also be traffic noise generated off-site on local roads. The construction and decommissioning phases will be temporary and for a BESS development, the main impact generally considered for a detailed assessment is construction noise from on-site plant.

6.7 However, at this stage, based on experience working on BESS projects across the UK, TNEI do not consider that a detailed construction and decommissioning noise assessment will be

required and that the use of appropriate planning conditions to limit working hours and the use of good practice during construction should be sufficient to mitigate any potentially significant noise and vibration impacts. The use of good practice for noise and vibration will be confirmed in a Construction and Environmental Management Plan (CEMP), following good practice control measures indicated in British Standard (BS) 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' [Ref 12], Part 1 Noise and Part 2 Vibration. A framework version of the CEMP will be submitted as an appendix to the ES.

6.8 While the detail of construction activities is not yet confirmed, at present it is not anticipated that significant earth work or piling immediately near to NSRs will be required. However, the scope of assessment work will be reviewed should any such activities or methods be required.

6.9 Off-site road traffic noise associated with construction deliveries and construction staff driving to the Site will be temporary and is considered to be highly unlikely to give rise to significant noise impacts at nearby receptors found along the road network. At this stage, no assessment is anticipated to be required and this will be reviewed as the design evolves.

Operational Noise

6.10 Operational noise from developments of this nature is typically assessed in accordance with the BS4142:2014 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS4142) [Ref 13], and as such this is the proposed main assessment standard.

6.11 BS4142 [Ref 13] assesses potential operational noise impacts at NSRs, the methodology of which is summarised below:

- Establish representative background noise levels for the NSRs, typically from measurements as part of a noise survey (this step is already completed).
- Predict noise levels from the Proposed Development based on the proposed layout and candidate plant noise source data.
- Assesses the potential noise impact at the receptors and the requirement for noise mitigation. As part of the full assessment, the initial estimate of BS4142 [Ref 13] (i.e. comparison of background with the Proposed Development noise levels) will be considered as well as the full context as requested by BS4142 [Ref 13].

6.12 There are, for example, some situations where the initial estimate of BS4142 [Ref 13] is not the most relevant, Section 11 of BS4142 [Ref 13] states:

'Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.'

6.13 In 2020, the Association of Noise Consultants (ANC) produced a Technical Note [Ref 14] on BS4142 [Ref 13] to provide further guidance on the use of BS 4142. The Technical note state:

'There is no theoretical limit to how the context can or should influence the impact assessment, but any alteration of the conclusions of an assessment due to the context should be sufficiently explained and justified for the specific circumstances in question.'

6.14 As part of the assessment process, out of the list of all identified NSRs, a sample of the closest ones in any direction will be selected as Noise Assessment Locations (NALs) for a detailed noise assessment where predictions will be undertaken. Figure 6.1 shows seven NALs suggested for a detailed assessment. These are:

- NAL1 - Tuckey Farm
- NAL2 - Tuckey Barn
- NAL3 - Berry Leys Farm
- NAL4 - Station House
- NAL5 - Monkomb Farm
- NAL6 - Furzen Farm
- NAL7 - Verny House

6.15 Consultation with the Buckinghamshire Council Aylesbury Vale Area Environmental Health team will be undertaken at an early stage in the EIA process to discuss the noise survey results so far, the list of NSRs and the assessment methodology and criteria for operational noise. This will be undertaken alongside the EIA Scoping process.

Embedded Mitigation

6.16 For construction and decommissioning noise and vibration, which are suggested to be scoped out for a detailed assessment, good practice measures will be detailed within a Framework CEMP, to be appended to the ES.

6.17 For operational noise, the design process will allow for an iterative design of the BESS plant locations with noise one of the factors considered as part of the process, thus layout optimisation for noise is considered as embedded mitigation.

Anticipated Effects

6.18 No significant effects are anticipated from construction and decommissioning noise and vibration.

6.19 It is anticipated that with the use of appropriate plant selection and a layout designed to consider potential noise effect at the nearby receptors, any potential noise effects from the operational phase can be mitigated to a low impact in accordance with BS4142 [Ref 13], when considering the context. In EIA terms, this would likely result in a non-significant effect.

Potential Mitigation

6.20 The mitigation measures for the operational phase are likely to include provision of an acoustic fence around the perimeter or specific plant; location of the noisiest plant further away from key NSRs; and the considered selection of appropriate plant.

Summary

6.21 Noise associated with the Proposed Development has the potential to impact nearby NSRs (i.e. residential properties) therefore a detailed operational noise assessment is scoped into

this assessment. A direct consultation will be undertaken to discuss the noise survey results so far, the receptors and the assessment methodology and criteria for operational noise. It is proposed to scope out operational phase vibration, and construction / decommissioning phase noise and vibration, as potential effects can be readily mitigated as detailed above.

7.0 Biodiversity and Ecology

7.1 The biodiversity and ecology aspects of this report have been prepared by Applied Ecology Ltd (AEL) which is a practice registered with the Chartered Institute of Ecology and Environmental Management (CIEEM), and specifically by staff that are full members of CIEEM.

Methodological Approach

7.2 The following legislation and regulations will be considered in the Ecological Impact Assessment (EcIA):

- The Environment Act 2021 [Ref 15];
- The Wildlife and Countryside Act 1981 (as amended) [Ref 16];
- The Conservation of Habitats and Species Regulations 2017 (as amended) [Ref 17];
- The Countryside and Rights of Way Act 2000 [Ref 18];
- The Natural Environment and Rural Communities (NERC) Act 2006 [Ref 19];
- Protection of Badgers Act 1992 [Ref 20].

National Policy and Guidance

7.3 The following national policies and guidance will be considered:

- National Planning Policy Framework, 2024 [Ref 2];
- Planning Practice Guidance [Ref 21]; and
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services [Ref 22].

Assessment Methodology

7.4 This section outlines the methodology for the assessment of Biodiversity and Ecology Conservation within the EIA.

7.5 In order to ensure consistency between various disciplines and Chapters of the ES, the assessment methodology to be used will follow a standard prescribed method. However, where possible, the Ecology and Nature Conservation assessment will also follow the principles set out by the Guidelines for Ecological Impact Assessment in the UK and Ireland, published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) [Ref 23].

7.6 The EcIA approach can be summarised in six steps:

- identifying and characterising Important Ecological Features (IEFs);
- identifying and characterising impacts and their effects;
- identifying measures to avoid and mitigate impacts and their effects;
- assessing the significance of any residual effects after mitigation;

- identifying appropriate compensation measures to offset still significant residual effects;
- identifying opportunities for ecological enhancement.

Assessing the magnitude of impact

7.7 Characterising impacts refers to the changes expected in the extent and integrity of an Important Ecological Feature (IEF). It takes into consideration the fact that impacts on different IEFs can result in adverse or beneficial effects of differing magnitudes and duration and can also vary according to their timing and/or frequency of occurrence, and whether they can be reversed.

7.8 Magnitude refers to size, amount, intensity, and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.

7.9 Impact magnitude has been defined here as being Very Large, Large, Medium, Small and No Change, summarised in Table 7.1. The duration would be further characterised as Temporary (e.g. construction phase), Short-term (e.g. less than 5 years), Medium-term (e.g. 5-10 years) or Long-term (e.g. for the duration of the operational phase of the development).

Table 7.1 Criteria for assessing magnitude of ecological impact

Magnitude	Impact
Very Large	Total loss or very major alteration to key elements/ features of the baseline conditions such that post-development character/composition/ attributes will be fundamentally changed and may be lost altogether.
Large	Major direct or indirect impacts to key elements/features of the baseline conditions such that post-development character/composition/attributes will be fundamentally changed and the overall integrity of the site is threatened.
Medium	Direct or indirect impacts to one or more key elements/features of the site and/or its qualifying features, such that post-development character/composition/ attributes of baseline will be partially changed but the overall integrity of the site is not threatened (ecological integrity includes issues such as loss of habitat, fragmentation of habitat, disruption and loss of wildlife corridors, and ecological carrying capacity).
Small	Direct or indirect impacts will be discernible but underlying character/composition/ attributes of baseline condition will be similar to pre-development circumstances/patterns.
No Change	Direct or indirect impacts on integrity of area largely not discernible by standard methods.

Assessing the sensitivity of receptors

7.10 The sensitivity, value or importance of ecological features can be related to a wide range of ecosystem services that they can provide to the environment, people or wider society. These benefits can include the conservation of genetic diversity, people's enjoyment or understanding of biodiversity, or the health benefits of biodiversity. A summary of an approach to valuing ecological features in England can be found in Table 7.2. The table

shows how ecological importance can be ascertained using a combination of statutory measures (legally protected sites and species) and non-statutory but widely accepted measures, such as the presence of notable habitats and species considered to be conservation priorities.

Table 7.2 Criteria for assessing sensitivity of ecological receptors

Sensitivity	Receptors
Very High	An internationally designated site or potential/possible site (Special Protection Area (SPA), potential Special Protection Area (pSPA), Special Area of Conservation (SAC), possible Special Area of Conservation (pSAC), Ramsar site, Biogenetic Reserve, or an area which Natural England (NE) has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat that is essential to maintain the viability of that ecological resource. Any regularly occurring population of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive.
High	A nationally designated Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Marine Nature Reserve or a discrete area which NE has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified. A regularly occurring population of a nationally important species i.e. a priority species listed in the UK BAP and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act [Ref 16], or a UK Red Data Book species.
Medium	Non-statutory designated wildlife sites (e.g. Local Wildlife Sites (LWSs), Sites of Nature Conservation Interest (SNCIs) and Sites of Importance for Nature Conservation (SINCs)), and areas of semi-natural ancient woodland greater than 0.25 ha. Viable areas of key habitats identified in local/county BAPs or smaller areas of such habitats that are essential to maintain the viability of that ecological resource. Any regularly occurring, locally significant population of a species listed as being nationally scarce (occurring in 16-100 10 km squares in the UK) or in a relevant local/county BAP on account of its rarity or localisation.
Low	Habitats and areas that have no recognised nature conservation designation or status but are typically semi-natural habitats that are either scarce in the local area or appreciably enrich the local area's habitat resource.
Negligible	Habitats of little or no ecological value e.g. amenity grassland or hard standing.

Determining the Significance of Effect

7.11 It is broadly accepted that the significance of an effect reflects the relationship between two factors, namely the value, importance or sensitivity of the resource or receptors that might be affected; and the magnitude of the impact on them (i.e. the actual change taking place to the environment).

In accordance with CIEEM (2018) [Ref 23], a "significant effect" is one which undermines (adverse) or supports (benefits) biodiversity conservation objectives for a stated IEF, or for

biodiversity generally if this is more relevant to the circumstances being assessed. These significant effects are considered by an ecological professional to be sufficiently important to warrant explicit assessment and reporting so that a decision-maker is adequately informed of the environmental consequences of a proposed project. The level of effect has been based on professional judgement, with Table 7.3 used as a tool to assist with this process.

Table 7.3 Matrix for determining the significance of effect

Sensitivity	Very High	Major	Major / Moderate	Moderate	Minor / Negligible	No Impact
	High	Major / Moderate	Moderate	Minor	Minor / Negligible	
	Medium	Moderate	Moderate / Minor	Minor / Negligible	Negligible	
	Low	Minor	Minor / Negligible	Negligible	Negligible	
	Negligible	Minor / Negligible	Negligible	Negligible	No Impact	
		Very Large	Large	Medium	Small	No Change
		Magnitude of impact				

7.12 Effects identified as Major, Major/Moderate or Moderate are reported as "significant", and effects identified as Moderate/Minor, Minor, Minor/Negligible and Negligible are reported as "not significant". While the Matrix is used as a guide for the assessment, an element of professional judgement is also involved in determining the significance of effects

Baseline Conditions

7.13 The scope of the biodiversity and ecology assessment has been informed by a Buckinghamshire and Milton Keynes Environmental Records Centre (BMKERC) biological records [Ref 24] search of the Site and its immediately surrounding land, and a general walkover survey of the Proposed Development area completed by AEL 10 April 2024 that noted habitats and their likely protected species interest. A more wide ranging and detailed habitat mapping and protected species assessment of the developable area and wider Site was completed by AEL on 10 May 2024 which recorded breeding birds, badger field evidence and any other protected species interest. This was followed by a manual bat activity survey of the Site, completed on 27 May 2024 to record the presence of bat commuting routes / flyways. The manual survey was supported by a 14 night automated bat detector survey of the Site to record the assemblage of bats using the Site within the late spring (May) and early summer (June) bat active period.

7.14 The Site is not covered by any statutory or non-statutory wildlife site designation. The closest designated wildlife site is a non-statutory Biological Notification Site called "*Grassland near Addington*" located 475 m due north. The closest statutory designated wildlife site is called Sheephouse Wood Site of Special Scientific Interest (SSSI) located 4.4

km to the south west. Neither of these sites would be directly or indirectly adversely impacted by the Proposed Development.

7.15 The baseline ecology survey work completed in April, May and June 2024 has verified that the Site is comprised of arable land and improved grassland (sheep grazed pasture) of low nature conservation interest located either side of a narrow strip of broadleaved plantation woodland that runs along a disused rail embankment in the centre of the Site.

7.16 The protected faunal species interest of the development Site is limited to a small assemblage of breeding woodland and farmland birds including skylark *Alauda arvensis* which has a territory that partly overlaps the development area, and dunnock *Prunella modularis* that was holding territory at the northern end of the development area in May; badger *Meles meles* that has an active outlier sett in the disused rail embankment within the Site; and an assemblage of bats that forage along the rail embankment in small numbers.

7.17 No evidence of an important bat commuting route was recorded by the manual bat activity survey, with only a single common pipistrelle bat recorded commuting along the disused rail embankment during the survey. The bat assemblage within the area of the Proposed Development was dominated by common bat species with 90% of all recorded bat calls over the 14-night survey period being those of common pipistrelle *Pipistrellus pipistrellus*, followed by *soprano pipistrelle P. pygmaeus* (6%). A total of seven bat species were recorded making use of the air space within (or over) the Site during the survey and is an assemblage of County importance according to current UK Bat Assessment Guidelines [Ref 25]. There are no built structures or trees within the development area that could support roosting bats, but the roosting potential of trees potentially impacted by the construction access track will need to be assessed. The legally protected amphibian, great crested newt *Triturus cristatus* (GCN) is known from ponds in the wider area, but the development Site is located too far from any known pond and made up of habitats that are of negligible value to GCN to pose any obvious significant adverse risk to the species.

7.18 A follow-up manual bat activity survey of potential bat commuting features that could be directly impacted by the Proposed Development is proposed to be completed in the summer and autumn period (2024). A preliminary bat roost assessment of trees located near to the temporary construction access route will also be completed and may highlight the need for follow-up bat assessment. Beyond this, no further ecological survey work is proposed to be completed.

Embedded Mitigation

7.19 A nocturnal wildlife friendly lighting strategy will be designed to minimise potential direct or indirect lighting impacts on woodland habitats that are present within the Site and adjoining it to the north.

7.20 Site clearance to enable construction will take place outside of the bird nesting period in the months of September to February to avoid adverse impacts on nesting birds and their dependent young, or following a check by an ornithologist at other times that deems areas to be cleared free of nesting birds and the dependent young.

7.21 All below ground construction related excavations will be suitably ramped at night to ensure that badgers and other nocturnal faunal species have a means of egress should they become accidentally trapped within excavations.

Anticipated Effects

Scoped in

7.22 Prior to mitigation, the Proposed Development has the potential to result in a significant adverse effect on hedgerows and two protected species - badger and bats.

7.23 The Proposed Development may result in the loss of a hedgerow and a tree with bat roost potential.

7.24 An active outlier badger sett is present within the development area near to the proposed access track. It would be the intention to avoid direct adverse impacts on this sett by ensuring that construction operations are located at suitable stand-off distances from the sett. However, this is not certain at this stage and badger remains scoped in to the assessment as the Proposed Development has the potential to result in harm to badger setts through direct or indirect damage during construction.

7.25 The potential impact of the Proposed Development on bat activity is also scoped in due to the confirmed presence of a bat assemblage of County importance (that includes a number of light sensitive species) and the possibility of hedgerow habitat loss impacts and/or new lighting disrupting bat flyways / commuting routes.

7.26 The assessment will consider potential loss to territory of breeding woodland and farmland birds, including skylark and dunnock, as identified within the preliminary ecological assessment and species survey. Mitigation strategies will be identified where required on the basis of the results of the assessment.

Scoped out

7.27 The Proposed Development is considered unlikely to result in significant adverse effects on great crested newt (GCN) as the Site and developable area are comprised mainly of habitats that are of negligible value to GCN in their terrestrial life stages and is located too far from any local pond to constitute a risk to newts. The nearest known pond (confirmed as not supporting GCN in 2018) is 400m to the south-east and is separated from the Site area by a flowing watercourse.

7.28 Habitat loss impacts are scoped out as the Proposed Development will be sited on what is currently arable land and improved pasture grassland of low relatively biodiversity value. The Proposed Development may result in the removal of a block of trees along the disused rail embankment. None of the trees along the embankment have any obvious bat roost features, and the proposed break in the embankment vegetation would not constitute a significant barrier to foraging or commuting bats that may fly along the rail embankment. In summary, provided retained woodland areas within and adjoining the Site and developable area are kept unilluminated at night, significant adverse effects on bat activity within the Site are not expected to occur.

Potential Mitigation

7.29 The possible need to close badger setts within the Site and exclude their occupants under the auspices of a Natural England badger sett closure licence in advance of construction activities commencing is a recognised potential mitigation measure.

Summary

7.30 The Proposed Development is considered unlikely to result in significant adverse effects on biodiversity and ecology features, these aspects are scoped out of the assessment. Assessment of effects on hedgerows and two protected species - badger and bats – are scoped into the assessment.

8.0 Traffic and Transport

8.1 The Traffic and Transport section of this report has been prepared by Lee Kirby of WSP, who is a Chartered Transport Planning Professional with over 20 years' experience in transport planning including preparation of Transport Assessments and Transport ES Chapters.

8.2 This section sets out the proposed outline methodology for identifying and assessing the likely significant impacts and associated environmental effects of the Proposed Development. Traffic and Transport is proposed to be scoped into the EIA, and therefore the assessment will be set out within the ES Traffic and Transport chapter, supported by a suite of technical appendices. It should be noted that when the Proposed Development is operational, traffic flows generated will be minimal and not be significant due to the nature of the development, and there will be minimal impact on the surrounding highway network during this phase, and as such the operational phase assessment is to be scoped out of the EIA.

8.3 The proposed assessment will be read in conjunction with a Transport Statement, a Construction Traffic Management Plan and an Abnormal Indivisible Load Assessment Report which will be appended to the ES, and will provide further assessment of the proposed construction access strategy, the likely impacts on the surrounding highway network, and any proposed mitigation. The scope of these documents will be agreed with Buckinghamshire Council and National Highways as a separate exercise to the EIA scoping request. The Traffic and Transport chapter of the ES will consider the outcomes outlined in these documents as part of the process of identifying the potential for likely significant environmental impacts associated with traffic and transport.

Methodological Approach

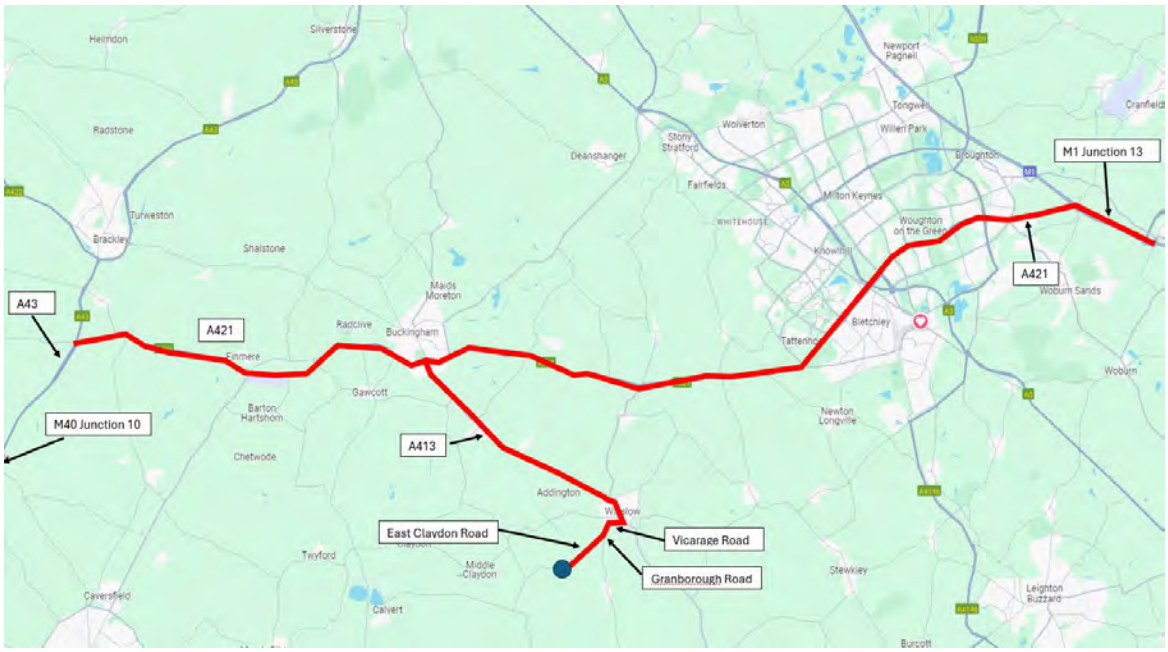
8.4 A site visit was undertaken on 10th April 2024 where observations were undertaken adjacent to the Site on East Claydon Road (existing traffic flows, speeds, access visibility etc) and on the wider local highway network surrounding the Site (existing traffic flows, roads widths, weight and height constraints etc) including Granborough Road, Vicarage Road, the A413, and the A421 to the east and west. These roads are likely to make up the proposed temporary construction access route (see study area details outlined below) for HGV's and Abnormal Indivisible Loads to and from the Site via the local and strategic road networks.

8.5 These initial observations indicated that existing traffic flows on East Claydon Road were low, but increased along the local highway network (proposed temporary construction access route) north towards Buckingham and onwards towards the strategic road network (SRN). They also indicated potential constraints including weight and height restrictions on the proposed temporary construction access route through Winslow, which will be investigated in more detail as part of the wider impact assessment of the Proposed Development as outlined above.

Study Area

The study area has been defined by the extent of the proposed temporary construction access route for HGV's and Abnormal Indivisible Loads to and from the site via the local and strategic road networks. This access route will include East Claydon Road, Granborough Road, Vicarage Road, the A413 and the A421. The A421 will provide access to the SRN to the east via the M1 Junction 13 and to the west via the A43 and the M40 Junction 10. The proposed temporary construction access route is outlined in Figure 8.1.

8.6 Figure 8.1 Study Area and Proposed Temporary Construction Access Route



8.7 It should be noted that the proposed temporary construction access route on the local highway network has been informed from referencing maps produced by Buckinghamshire Council on recommended HGV routes across the County which includes the A413 and the A421, and from observations made on the site visit in April as outlined above.

8.8 It can be seen in Figure 8.1 there are two construction route options proposed, to access the SRN via the A421 to the east and west. Discussions will need to be undertaken in relation to the proposed temporary construction access route with Buckinghamshire Council in relation to the local highway network and with National Highways in relation to the SRN. These discussions will take place as part of the scoping for the further assessment of the proposed construction access strategy as outlined above.

Traffic and Transport Data Collection

8.9 As part of the discussions outlined above in relation to the scoping for the further assessment of the proposed construction access strategy, consideration will be given to the collation of traffic and transport, and the need to undertake traffic count surveys on roads and at key junctions on the proposed temporary construction access route in agreement with Buckinghamshire County Council and National Highways.

Assessment Methodology

8.10 The IEMA document 'Guidelines for the Environmental Assessment of Traffic and Movement (July 2023)' [Ref 26] sets out the environmental criteria that should be considered as part of an EIA. The assessment will be undertaken in reference to this guidance. It is proposed that the following should be considered as the potential impacts that may arise in the construction phase of the Proposed Development:

- Driver severance;
- Driver delay;
- Pedestrian severance;
- Pedestrian delay;
- Pedestrian amenity;
- Fear and intimidation;
- Accident and safety; and
- Hazardous loads.

8.11 These impacts will be assessed and described within the ES Traffic and Transport chapter. The significance of an effect is a function of the magnitude of change due to the Proposed Development and the sensitivity of the affected receptor of receiving environment to change (as outlined in Chapter 3 of Design Manual for Roads and Bridges (DMRB) LA104 guidelines [Ref 27]). The magnitude of change and the sensitivity of the affected receptor or receiving environment will both be assessed on a scale of very high, high, medium, low and negligible, as outlined in Chapter 3 of DMRB LA104 Guidelines [Ref 27] (in Table 3.8.1) and shown in Table 8.1 below.

The significance of changes in traffic flows (in terms of primarily the impact of HGV's and Abnormal Indivisible Loads) on receptors for each of the environmental effects outlined above will be considered in relation to the significance matrix summarised in Table 8.1 below. It is assumed that for the purpose of this assessment that any effects of moderate significance or greater will be significant in EIA terms.

Table 8.1 Significance Matrix

	Magnitude of impact (degree of change)					
		No change	**Negligible**	**Minor**	**Moderate**	**Major**
Environmental value (sensitivity)	**Very high**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligi-ble	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

8.12 In the context of the Proposed Development, short to medium term (temporary) effects are generally considered to be those associated with the construction phase, and long term (temporary) effects are generally those associated with the operation phase. The long term effects remain temporary given the nature of the project.

Embedded Mitigation

8.13 The CTMP will include measures to manage the effects of HGV's and Abnormal Indivisible Loads during the construction phase of the Proposed Development. It will take into account the outcomes of the Abnormal Indivisible Load Assessment Report. The mitigation measures included within these reports will be considered as 'embedded mitigation' within the assessment and will include details of construction traffic access, routing, generation, and the overall management measures that will be implemented.

8.14 In relation the decommissioning of the Proposed Development it should be noted that BC officers previously mentioned this within a scoping opinion in relation to a nearby site (BC ref. 23/02205/SO, dated 18.09.2023). It is noted that there are several limitations to assessing this phase relating to predicting future traffic flows on the surrounding highway network so far in advance. However, it is likely that the same number and type of construction vehicles will be used in the decommissioning of the Proposed Development as will be used in the construction of the Proposed Development, and as such it is assumed that the same measures to manage the effects of HGV's and Abnormal Indivisible Loads during the decommissioning phase of the Proposed Development will be implemented in the absence of any other robust dataset.

Anticipated Effects

8.15 The construction of the Proposed Development will bring a temporary increase in traffic flows (in terms of HGVs and Abnormal Indivisible Loads) with the largest impact likely to be on the local highway network. There will also be a temporary increase in vehicular trips associated made with workers travelling to and from the Site at the beginning and end of

each day. The severity of the environmental effects of construction traffic activity will be assessed once construction vehicle trip figures have been determined.

8.16 Temporary disruption to road users including pedestrians, cyclists and road users arising from construction may also occur, potentially causing severance, fear and intimidation and amenity impacts. Construction activity may cause increased journey times of pedestrians, cyclists and road users. The ES Traffic and Transport Chapter will also consider the impact of construction activity on public transport services (if appropriate), particularly with respect to the effect on journey times and bus routes.

Potential Mitigation

8.17 Additional mitigation measures will be recommended where required in relation to any likely adverse significant effects identified through the assessment.

Summary

8.18 The summary of the key points from the above information is outlined as follows:

- It is proposed to scope construction and decommissioning effects into the Transport and Traffic chapter, and scope out operational phase assessment;
- Existing traffic flows on the immediate local highway network are low, but increase north towards the strategic highway network;
- A temporary construction access route is proposed to the north via Winslow and Buckingham and then along the A421 to the strategic road network;
- Potential weight and height constraints along the temporary construction access route which will be assessed as part of the wider impact assessment;
- A set of environmental criteria will be considered as part of the potential impacts due to construction, with the significance of changes in traffic flows on receptors for each of the environmental criteria being considered in relation to the significance matrix;
- A CTMP will be prepared and implemented to manage the effects of HGV's and Abnormal Indivisible Loads (in conjunction with the Abnormal Indivisible Load Assessment Report).
- A temporary increase in HGV's and Abnormal Indivisible Loads and vehicular trips associated with workers, resulting in temporary disruption to road users including pedestrians, cyclists, public transport services and road users; and
- The cumulative impact of any identified schemes will be considered as part of our assessment, and any required mitigation measures will be outlined in the CTMP.

9.0 Climate Change

9.1 This section of the Scoping Report has been produced by Hilson Moran (HM) in its capacity as sustainability consultants. The chapter focuses on the likely Climate Change and Greenhouse Gases (GHG) implications arising from the Proposed Development in order to define a framework for the forthcoming assessment.

9.2 The Proposed Development has the potential to result in climate change impacts during its construction, operation, and end of life phases. The assessment will assess the likely significant effects arising from the Proposed Development associated with climate change. It will consider the potential effects of construction and operational phases of the Proposed Development on climate change, as well as the effects of climate change on the Proposed Development.

9.3 Schedule 4 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) Ref 1 stipulates the 'Information for inclusion in Environmental Statements', with paragraph 5(f) stating inclusion of "the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change". In line with Schedule 4, it is deemed a Climate Change and GHG Chapter should form part as an ES chapter and should be scoped in the EIA. Given that one of the core drivers behind the development of the BESS is to facilitate the expansion of renewable energy sources and the electrification of heat technologies (traditionally fuels used fossil fuels), Climate Change is proposed to be scoped into the ES.

Methodological Approach

9.4 There is currently no singular industry approach or nationally adopted methodology for assessing GHG emissions within EIA and therefore the assessment approach in this chapter draws upon the IEMA guidance on 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' [Ref 28]. The section provides guidance on the assessment of the impact of climate change, within the context of EIA, emphasising the need for proportionality in the context of nation, sector and local GHG emissions. The guidance document sets out advice to the key components necessary to deliver a robust, appropriate, and consistent assessment.

9.5 The GHG assessment is a quantitative analysis accounting the level of emissions arising from the Proposed Development. The GHG emission calculations will consider the amount of carbon emissions or sinks arising from the construction and operation of the Proposed Development. The magnitude of impact on climate change is quantified as mass of GHG emissions expressed as tonnes of carbon dioxide equivalent (tCO2e) in total or per annum. This accounts for six key GHGs: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6).

9.6 The study area for the assessment will consider the emissions of GHG arising from construction and operation of the Proposed Development. For construction, some GHG emission will be emitted from within the EIA Study Area boundary, but the majority of the construction emissions will derive from the manufacture and transportation of the

construction products. The operational emissions of the Proposed Development will mainly be within the EIA Study Area unless any carbon offsetting off site has occurred. Operational emissions will include emissions arising from the Proposed Development in relation to transport, maintenance and the differential carbon offset between renewable energy used to charge the batteries and potential non-renewable energy carbon which is offset through the operation of the Proposed Development.

9.7 The construction figures for embodied energy will be based around RICS Benchmarks set out in 'Methodology to calculate embodied energy of materials'2 [Ref 29], based on use class of the Proposed Development. Further embodied carbon data will be obtained from the battery manufactures and equipment suppliers. Where data is not available, benchmark data will be used.

9.8 The emissions arising from transportation of materials during construction will be informed by the transport consultants' estimations of vehicle movement, types and frequency of vehicles. As the source of materials are not known, assumption of ~20km average distance will be taken.

9.9 The most significant climate change consideration is likely to be associated with the operation of the facility. The differential between the carbon factor of largely renewable electricity used to charge the batteries and potential non-renewable energy carbon which is offset through the operation of the BESS is likely to be a significant carbon saving. The main purpose of the Proposed Development is to facilitate the expansion and availability of the renewable energy in the National Grid, and hence significant carbon savings are likely to be predicted from the operational phase of the Proposed Development.

9.10 Of lesser significance will be the maintenance and transport related GHG emissions during operation. Operational transport emissions will be calculated by utilising estimation of trips per mode of transport provided by the transport consultant, arising from the Transport Assessment. These figures will be multiplied by the GHG emissions factors obtained from the BEIS publication on GHG Conversion Factors for Company Reporting which sets out GHG emission factors for a range of modes of transport. Assumptions for the average distance travelled per mode of transport (km per person per day), as advised by transport consultant, will be used to complete this exercise. The assessment of GHGs will not include identification of sensitive receptors, as GHG emissions do not directly affect specific locations or receptors but lead to indirect effects by contributing to climate change. Identification of sensitive areas for climate change has been undertaken by the IPCC3. Impacts on specific areas will not be included within this assessment, since the impacts of GHG emissions will affect the global atmosphere, and therefore need to be considered in a total context, rather than on localised areas.

9.11 Likewise, there will be some minor GHG emissions associated with the on site buildings and lighting of the compound.

As recommended by IEMA guidance on 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' [Ref 28], the assessment will take a highly precautionary approach where any net increase in GHG emissions is treated as having a likely significant effect. The criteria outlined below will be used to determine the significance of emissions both within the Site boundary and cumulative emissions, relative to the baseline CO2e emissions from the wider region (tCO2e taken from Carbon Budget and/or from the latest

data available). HM will consult with the Council to obtain their latest carbon emissions estimates. Consideration is also given to site emissions relative to national UK carbon emissions. An example of the significance criteria is shown below:

Table 9.1 Significance Criteria

Significance	Criteria
Major Adverse	Major increase (adverse) or decrease (beneficial) (above 1 %, XXX tCO_2e) in annual Council emissions.
Moderate Adverse	Moderate increase (above 0.1 %, XXX tCO_2e) in annual Buckinghamshire Council emissions.
Minor Adverse	Minor increase in GHG emissions below (0.1 %, XXX tCO_2e) in annual Buckinghamshire Council emissions, considered to be negligible.
Beneficial	A project that causes GHG emissions to be avoided or removed from the atmosphere has a beneficial effect that is significant.

Embedded Mitigation

9.12 It is anticipated that the operation of the facility will overall result in a significant carbon emissions saving over its lifetime. Nevertheless, there is potential for some significant carbon emissions associated with the construction phase of the Proposed Development in particular the selection and use of construction materials and transport of materials. These activities will be identified and suitable mitigation measures proposed.

Anticipated Effects

9.13 Overall, it is anticipated that the construction and operation of the Proposed Development will have a significant beneficial effect on regional and potentially national carbon emissions, and make a significant contribution of the transition to a low carbon economy.

Potential Mitigation

9.14 The operation of the Proposed Development is likely to have a significant beneficial effect on regional or national carbon emissions, however the significance of this will be fully assessed and any further mitigation solutions sought and implemented during the design development stage.

Summary

9.15 It is proposed that Climate Change is scoped into the EIA. The Climate Change Chapter will consider the likely Climate Change and Greenhouse Gases (GHG) implications arising from the construction and operation of the Proposed Development. It will consider the baseline Site conditions, the embodied carbon with the construction materials and the operational carbon emissions savings associated with the offsetting of non-renewable energy through its operation. The findings of the assessment will be compared to well established criteria to determine its impact on a regional and national scale.

9.16

10.0 Archaeology (Below Ground Heritage)

10.1 Headland Archaeology have produced an archaeological Desk-Based Assessment (DBA) for the Site. The 1 km study area radius around the Proposed Development Area (PDA) for the DBA was agreed with the Historic Environment Records Team for Buckinghamshire County Council ('BCC'). The DBA has informed this EIA Scoping text, and the full report will be appended to the ES Chapter.

10.2 The DBA identified that seven non-designated assets are recorded within the PDA and that there is a medium to high potential for archaeological remains ranging in date from the Romano-British to Post-Medieval periods to be present. Due to the potential for archaeological remains to be present and unknown preservation of non-designated heritage assets within the developable area of the Site it is considered that Archaeology (below ground heritage) should be scoped into the EIA.

10.3 The DBA identified no designated heritage assets recorded by the NHLE within the Site boundary. The non-designated heritage assets within the PDA relate to the Roman Road between Akeman Street at Fleet Marston and Thornborough (203400000), which is also an archaeological notification area, the former course of the Aylesbury to Buckingham Railway (578800000) and the extent for East Claydon parish (265700000). The remaining two non-designated heritage assets relate to isolated, unstratified metal findspots discovered during metal-detecting.

10.4 In the 1 km Study Area, a further 31 non-designated heritage assets are recorded by Buckinghamshire HER. A large proportion of these relate to isolated, unstratified metal findspots ranging in date from the Prehistoric to Post-Medieval periods, however a number relate to Early Medieval to Medieval settlement and agricultural activity in the surrounding landscape.

10.5 During the historical map regression, aerial photography and LiDAR analysis conducted as part of the DBA three possible further heritage assets have been identified. These relate to:

- possible ridge and furrow cultivation visible on an aerial photograph taken by the RAF in 1946 (HA001) which appear to have been levelled/disturbed on current LiDAR data;
- a former 19th century field system (HA002) and
- a footpath (HA003).

These are all of low importance.

10.6 A field visit was conducted on the 10th April 2024 in dry, overcast weather conditions. This field visit identified no above ground remains, apart from earthworks relating to the former course of the Aylesbury to Buckingham Railway (0578800000).

10.7 There is considered to be a medium to high potential for the presence of previously unknown archaeological remains from the Romano-British period onwards. The likely direct impacts from the scheme would be confined to the site clearance/excavation phase for the Proposed Development, which has the potential to truncate four heritage assets of low importance: a small section of the Akeman Street at Fleet Marston and Thornborough Roman Road, a small portion of buried ridge and furrow cultivation traces, the former course of the Aylesbury to Buckingham Railway, and a former 19th century field boundary.

Methodological Approach

10.8 The Proposed Development would result in a change to the existing baseline, this change might be considered as impacts according to the degree of change in relation to heritage significance. In accordance with EIA Regulations, the assessment would identify impacts and effects as direct or indirect, adverse or beneficial, and short-term, long-term or permanent.

10.9 Direct impacts are those which physically alter an asset and, therefore, its heritage significance. Impacts upon setting are those which affect the heritage significance of an asset by causing visual or sensory change within its setting.

10.10 Further consultation with the archaeological advisor for BCC will be carried out to discuss any evaluation that maybe required and confirm the scale, scope of and timing of any non-intrusive and/or intrusive evaluation. The results of which will be presented within the ES chapter. An archaeological geophysical survey has been instructed and the results will inform any further mitigation and will be presented with the ES chapter. A Written Scheme of Investigation (WSI) will be produced that agrees the scale and scope of archaeological geophysical survey with the archaeological advisor for BCC before commencement of the survey.

10.11 The need for, scope, and timing of intrusive evaluation will be negotiated and agreed with the statutory consultees following completion of the desk-based assessments and geophysical survey.

Embedded Mitigation

10.12 At the current time no embedded mitigation forms part of the Proposed Development. Following the geophysical survey and any intrusive evaluation the possibility of embedded mitigation will be reviewed.

Anticipated Effects

10.13 The assessment presented within the DBA has considered the evidence for the known archaeological and heritage resource within and surrounding the Site in order to establish the potential constraints and implications for construction of Proposed Development.

10.14 Direct impacts upon known or previously unknown buried archaeological remains have the potential to occur during the construction as a result of intrusive groundworks causing truncation, fragmentation or complete removal. Activities which may have an impact upon buried archaeological remains include soil stripping to accommodate BESS facility containers and infrastructure, excavation for any structural foundations within the BESS facility and excavation for buried cables.

10.15 The DBA identified three non-designated heritage assets recorded on Buckinghamshire HER within the PDA. These relate to the projected course of a Roman road, the earthwork remains of a railway and an area of ridge and furrow. In addition, one heritage asset of negligible importance was identified by the DBA within the PDA (part of a 19th century field system).

10.16 With regard to the Roman Road between Akeman Street at Fleet Marston and Thornborough of low (local) archaeological importance that potentially runs through the PDA. Minor direct impacts would likely occur during any soil stripping and/or excavation associated with the construction of the BESS facility, with a small section of a much larger heritage asset being removed.

10.17 Similarly, the former course of the Aylesbury to Buckingham railway (i.e. the disused railway as described in Section 3 of this Report) runs through the PDA with soil stripping and excavation incurring minor direct impacts on this non-designated heritage asset of low (local) importance (0578800000), removing a small section of a larger resource for an access road.

10.18 Ridge and furrow cultivation has been identified by aerial photography across the whole of the Site, that are considered to be of low archaeological importance, as LiDAR analysis suggests that these have been either levelled or disturbed by later ploughing. Minor direct impacts are likely to occur during any soil stripping or excavation for foundations, as only a small portion of the possible ridge and furrow cultivation will be directly impacted.

10.19 During the historical map regression part of a former 19th century field system of negligible importance was identified within the PDA (HA002). There is a potential for minor direct impact to one former field boundary during the soil stripping for the access road, as this would only require a small section of the former field boundary to be removed.

10.20 The DBA determined that there is a medium to high potential for below ground archaeological remains to be present within the PDA, associated with Medieval and Post-Medieval agricultural activity.

10.21 From assessment of the available evidence, the potential for hitherto unknown significant archaeological remains to be present within the Site is considered to be medium, and only minor direct impacts are anticipated.

Potential Mitigation

10.22 Where archaeological remains within the Site do not require preservation in situ and cannot be avoided through embedded mitigation (changes to the Proposed Development layout and/or construction methods), it is anticipated that additional mitigation to offset adverse impacts will take the form of a programme of archaeological investigation and recording. The need for and scope of such mitigation would be agreed with BCC's archaeological advisor. The scope and methodology of the mitigation will be set out in an outline written scheme of investigation WSI.

10.23 No additional mitigation during the operation phase is currently proposed, as it is anticipated that any impacts would have been mitigated prior to or during the construction phase.

Summary

10.24 Archaeology (below ground heritage) is proposed to be scoped into the EIA. A strategy of archaeological evaluation comprising geophysical survey in the first instance is proposed to assess the archaeological potential and preservation/survival of heritage assets within the PDA.

11.0 Built Heritage (Above Ground Heritage)

11.1 Headland Archaeology have produced a Heritage Statement (HS) for the Proposed Development. A study area radius of 1km was agreed with the Historic Environment Records Team for Buckinghamshire County Council. The HS identified that the nearest designated heritage asset to the Proposed Development is the Grade II listed Tuckey Farmhouse (NHLE 1228040), c. 420m to the east of the Site boundary. A further 11 listed buildings are present in the wider Study Area. These relate to listed buildings nucleated, c. 690m southwest of the Site boundary, within East Claydon.

11.2 A field visit was conducted on the 10th April 2024 in dry, overcast weather conditions. This field visit identified that no significant adverse visual effects are anticipated on the setting or significance of Tuckey Farmhouse as mature trees screen all views towards the PDA. Similarly, due to mature vegetation, local topography and intervening distance no significant adverse effects are envisaged on the setting and significance of listed buildings within the 1km Study Area, Therefore, it is considered that the scale and scope for assessment of built heritage (above ground heritage) within the EIA should be limited to cumulative effects only, as there is no potential for significant effects solely from the Proposed Development. This assessment will consider the likelihood for significant effects on built heritage assets from the cumulative scenario, of the Proposed Development alongside the other cumulative schemes committed in the surrounding area, as listed in Table 4.1 of this Report.

Methodological Approach

11.3 As above, Heritage Statement has been prepared in support of the project, that concludes that no adverse visual effects on the Grade II listed Tuckey Farmhouse, the nearest designated heritage asset to Site. The HS has informed this EIA Scoping text and will be appended to the ES when submitted.

11.4 Although no significant adverse visual effects are anticipated on the setting or significance on designated heritage assets within the Study Area, Historic England will be consulted on their opinion on the potential impacts to the Grade II* listed Church of St Mary, while the Buckinghamshire Council Conservation Officer will be consulted regarding their opinion on potential impacts on Conservation Areas and Grade II Listed Buildings as these lie outside of the remit of Historic England. This feedback will feed into the final version of the Heritage Statement, to be submitted with the planning application.

Embedded Mitigation

11.5 The proposed location of the BESS within the Site boundary (i.e. the developable area shown at Appendix 2 of this Scoping Report) has been selected following consideration of the topography of the Site to limit visibility from the wider surroundings and heritage assets.

Anticipated Effects

11.6 Impacts upon the setting of heritage assets in the area surrounding the Site may occur during the construction and operation of the Proposed Development as a result of visual or

other sensory changes (such as noise, light and movement) within their settings, such that our ability to appreciate the significance of the asset is adversely (or beneficially) affected.

11.7 The assessment within the HS identified two heritage assets sensitive to visual or other sensory changes which are within the visual envelope of the proposed development through the screening exercise presented in this DBA. Any change introduced by the likely nature of the proposed development, and the receiving environment, means that setting impacts are unlikely to be significant.

11.8 There is expected to be no adverse impact on the cultural significance of the grade II* listed Church of St Mary (NHLE 1289625), given the c. 1.2km intervening distance from the PDA (675m from the Site boundary). While the tower of the church is visible in the far distance from the north of the Site in areas which are not publicly accessible, the historical and current agricultural land-use of the PDA does not contribute to the architectural and historical significance of the church (see Figure 11.1, at Appendix 7 of this Report).

11.9 Similarly, no adverse visual impacts are anticipated on the cultural significance of Tuckey Farmhouse, which is the closest designated heritage asset to the PDA, as mature trees screen all views towards the PDA (see Figure 11.2, at Appendix 7 of this Report).

11.10 Cumulative effects on these assets are proposed to be scoped in due to the proximity of other proposed renewable energy developments (as detailed in Table 4.1 of this Report).

Potential Mitigation

11.11 No significant adverse visual impacts are anticipated on the setting and significance of designated heritage assets within the 1km Study Area from the proposed development. However, if after consultation significant impacts on the setting of heritage assets within the Study Area are considered possible by consultees and cannot be avoided through primary mitigation (changes to the Proposed Development layout), it is anticipated that additional mitigation to offset any adverse impacts will be required. This would most likely involve planting and landscaping to further screen the Proposed Development.

Summary

11.12 Built Heritage is proposed to be scoped into the EIA, and will assess the cumulative scenario only, as the Proposed Development alone will not give rise to any significant adverse visual impacts on designated heritage assets within 1km Study Area.

11.13 A Heritage Statement is being prepared and will be submitted with the Environmental Statement.

12.0 Other Matters for Consideration

12.1 The Proposed Development is unlikely to give rise to significant effects requiring consideration as part of the EIA in relation to the following issues. It is therefore considered that these topics can be scoped out of the EIA. Whilst not relevant matters for the EIA, information can be provided with any future planning application where relevant to ensure that the Council is informed on matters relevant to its review of the Proposed Development.

Water Resources and Flood Risk

12.2 A Preliminary Flood Risk Assessment and Drainage Strategy technical note (see Appendix 8) has been prepared by Motion in accordance with the NPPF Ref 2, PPG [Ref 21] and Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS) [Ref 32], which this section of the Scoping Report should be read alongside.

12.3 A BESS site is largely unmanned and therefore foul water discharge from the Site during operation will be limited, and if necessary, it will be designed to be in accordance with the Environment Agency general binding rules for small sewage discharges. No river or groundwater abstraction point is required for a BESS development.

12.4 During construction, good practice measures to control surface water run-off and to improve water quality will be implemented through a Construction Surface Water Management Plan (CSWMP) and a Construction Environmental Management Plan (CEMP) to be approved by the Council. A Framework CEMP will be submitted with the application, providing a summary of the measures that will be implemented through the CEMP.

12.5 The Site is located mainly within Flood Zone 1 (FZ1). A small area along the eastern boundary of the Site is within Flood Zone 2 (FZ2) and 3 (FZ3), where the Site borders Claydon Brook. The developable area where the BESS will be located is within the FZ1 area of the Site, at lowest flood risk and outside of the FZ2 and FZ3 boundary.

12.6 An existing linear drainage ditch runs south to north along the existing field access, and this has been accounted for in the indicative proposed site layout parameters, which ensure a minimum 10m buffer zone is provided from the BESS and HV yard. This is in accordance with local policy and guidance and will ensure that there are no significant effects in relation to the drainage ditch.

12.7 The Proposed Development extent (as shown within Appendix 2) will be located to the south of a network of existing watercourses that are connected to Claydon Brook main river to the north of the Site. The existing Site falls to these watercourses, and it is currently proposed for surface water runoff from the Proposed Development to drain by gravity to these watercourses, which will mimic the natural drainage of the Site.

12.8 The proposed BESS and associated development components (as listed in paragraph 4.7) are predominantly located in an area at very low risk of surface water flooding, with only a comparatively small proportion of the site located in areas that are currently at a low risk of surface water flooding. Surface water flooding will not be a constraint on this site as the development is predominantly kept out of these areas or will not displace surface water to other off-site areas.

12.9 The surface water drainage design for the Site will be based on Sustainable Drainage (SuDS) principles, including interception; source control; treatment; conveyance; peak flow and volume control; storage; and exceedance routes.

12.10 The provision of a multifunctional pervious surfacing and a SuDS design that integrates with the existing surface water flooding extent will accord with the requirements of NPPF Ref 2, PPG [Ref 21] and the Non-Statutory Technical Standards for SuDS [Ref 32]. This will be evidenced in the Flood Risk Assessment and Surface Water Drainage Strategy prepared by Motion, that will be submitted as part of the planning application, which will ensure no significant water resource or flood risk impacts occur.

12.11 It has been demonstrated through the Preliminary Flood Risk and Drainage Assessment and the subsequent informed siting of the Proposed Development there will not be any significant effects in relation to Water Resources and Flood Risk. This topic can therefore be scoped out of the EIA with a Flood Risk Assessment and Surface Water Drainage Strategy submitted as standalone documents within the planning application submission.

Ground Conditions and Contamination

12.12 A Phase I Desk Study issued by A-squared (July 2024) is provided at Appendix 9 of the Scoping Report which provides context to this scoping text. It will also be submitted with the planning application.

12.13 Potential contemporary on-site sources of contamination, for the developable area within the Site, include:

- The disused railway line – heavy metals and metalloids, acids / alkalis, PAHs, TPHs, VOC and elevated sulphate.
- Potential former agricultural land uses – nitrates, phosphates, pesticides.
- Alluvium – Ground gases.
- Infilled land (water) of former pond / river - heavy metals and metalloids, acids / alkalis, PAHs, asbestos, ground gases and elevated sulphate.

12.14 Due to the distance of potential off-site sources (i.e. the National Grid Substation) from the proposed developable area, and the underlying ground model, it is unlikely that contamination from off-site sources could migrate to the proposed developable area. For this reason, there is not considered to be any unacceptable risk from potential off-site sources of contaminants.

12.15 Based on geological mapping and historical borehole data (see Appendix 9), the northern and eastern areas of the Site are expected to be underlain by superficial deposits of Undifferentiated River Terrace Deposits and Alluvium. These superficial deposits directly overly the bedrock of the Stewartby Member. In the western and southern areas of the Site, superficial deposits are not present. Instead, the Site lies directly above the bedrock of the Weymouth Member.

12.16 Using available British Geological Survey (BGS) Geology of Britain web map services [Ref 33] and the previous site investigation data, a preliminary ground model of the Site has been produced. This is described in Appendix 9.

12.17 A preliminary Unexploded Ordnance (UXO) risk assessment has been undertaken and is included within Appendix 9. The assessment recommends (as per CIRIA C681 [Ref 34]) that a detailed UXO risk assessment is undertaken through examination of wartime conditions in the anticipated work area. Alternatively, UXO risk mitigation measures could be implemented into the design, either approach would ensure no significant effects arise.

12.18 According to Natural England's MAGIC online mapping [Ref 35] and the Envirocheck report within Phase I Desk Study (Appendix 7), the Site is not identified as being located within a groundwater Source Protection Zone (SPZ) and there are no SPZs recorded within 500m of the Site.

12.19 Data available from historical BGS boreholes indicates that the shallow groundwater table is present at 3m below ground level. However, this was observed within a borehole where glacial superficial deposits were present. These deposits are not anticipated within the proposed developable area. The other boreholes reviewed did not indicate shallow groundwater. Localised perched water may also be present associated with Made Ground at the Site.

12.20 There is only one groundwater abstraction point within a 1km radius of the Site and no surface water abstraction points. This groundwater abstraction is located 757m southwest of the Site and used for 'general farming and domestic'. Due to the distance from the Site and the underlying ground model, it is unlikely that potential on-site contamination (if present) would migrate to this abstraction point.

12.21 The Phase 1 Desk Study includes a review of potentially contaminative land uses, and the risks to future site users, infrastructure and controlled waters receptors are classified as either 'very low' or 'low' risk. Therefore, standard mitigation measures and construction controls for the Proposed Development will ensure there are no significant effects:

- Compliance with Part 2A of the Environmental Protection Act 1990 [Ref 36] will address any potential source-pathway-receptor issues in relation to ground contamination such that residual effects will be not significant;
- Though unlikely to be encountered, if asbestos-containing materials are found they will be managed in accordance with The Control of Asbestos Regulations (2012)[Ref 37];
- New pipes and utilities will be designed appropriately to reduce the risk of corrosion/ damage;
- A drainage strategy will be prepared;
- Standard control measures during construction will be adopted to reduce the contamination risks to construction workers and adjacent site users. These will be set out within the CEMP, and will include measures relating to waste minimisation, storage, handling and disposal, materials and chemicals storage, emergency procedures for spill response, drainage arrangements, training, site inspections and auditing.

12.22 With the implementation of the standard mitigation measures discussed above during the construction and operation of the Proposed Development, the likely effects on receptors are not considered to be significant, and therefore ground conditions and contamination can be scoped out of the EIA.

Agricultural Land Resources

12.23 The Proposed Development will involve an area of approximately 41.9ha.

12.24 The Site and surrounding land is shown as undifferentiated Grade 3 (good to moderate quality) land on the provisional ALC maps (MAFF, reprinted by Natural England 2010) [Ref 38]. It is shown on Natural England's "Likelihood of Best and Most Versatile" ('BMV') maps [Ref 39] as wholly in the "low likelihood of BMV (<20% area BMV)" category, which is the lowest category on the map.

12.25 Following an Agricultural Land Classification survey (provided at Appendix 10 of this Report), covering 63.4ha of land it was found that the area is solely made up of Subgrade 3b land quality and therefore, not of the best and most versatile land quality. There is no policy constraint to the use of non-BMV land for non-agricultural development.

12.26 Further, the Site is capable of being returned to agricultural land use at the end of life, and in this instance it is considered the land could be returned to the same ALC grade through careful handling of soils. Therefore, there will be no loss of BMV agricultural land, and should be no permanent loss of agricultural land. The ES will include details of the methods and processes proposed to ensure the careful handling of soils, within the description of the development.

12.27 Accordingly, it is unlikely that the Proposed Development will give rise to significant effects in relation to agricultural land and soils, and therefore this topics can be scoped out of the EIA.

Air Quality

12.28 The Site is not located in an Air Quality Management Area, or any other air quality sensitive designations. The nature of the Proposed Development is such that there are no air pollution effects associated with the operation of BESS. During the construction phase, any dust or transport emissions will be adequately managed through the implementation of a Construction Environmental Management Plan (CEMP), an outline version of which will be appended to the ES providing a summary of the types of measures that will be used during the construction and decommissioning phases.

12.29 As such, there will be no significant effects arising from air quality and this topic is therefore proposed to be scoped out the EIA.

Socio-Economics

12.30 The construction of the Proposed Development will generate some temporary employment opportunities in the local area, due to the nature of the development the construction activities will not last for a significant period of time (18-24 months). As such, it is unlikely that effects on local employment or spending will be significant during this phase.

12.31 In addition, the operational period of the Proposed Development will generate limited jobs, as BESS developments are unmanned and operated remotely, requiring only periodic maintenance engineers to visit the site and a limited number of specialist jobs located offsite. Socio-Economic effects are not expected to be significant, and therefore Socio-Economics can be scoped out of the EIA.

Human Health

12.32 Lichfields has reviewed the Council's EIA Screening Opinion (BC ref. 23/01438/SO, dated 08.06.2023) and Scoping Opinion (BC ref. 23/02205/SO, dated 18.09.2023) in relation to the live planning application for a BESS development of the same capacity located approximately 750metres southeast from the Site (BC ref. 23/03875/APP).

12.33 It is noted that the LPA raised in its Screening Opinion that it considered there could be significant effects in relation to noise, smoke pollution and electromagnetic fields ('EMFs'). Noise is proposed to be scoped into this EIA, addressed in Section 6 of this report; and smoke / risk of battery fire is addressed in the subsection below.

12.34 In relation to EMFs, it is confirmed that, as per the development proposed under application ref. 23/03875/APP, the Proposed Development subject of this Scoping Report will also not give rise to any impacts to human health receptors from EMFs. This is for the same reasons detailed within the Statera East Claydon BESS EIA Scoping Report (BC ref. 23/02205/SO) , specifically paragraphs 6.3.2 to 6.3.8. In summary:

- the Proposed Development will adhere to International Commission on NonIonizing Radiation Protection (ICNIRP) guidelines [Ref 40] in its design, construction and operation;
- the Proposed Development will not include any additional components which could give rise to these effects;
- battery units will be enclosed within an earthed enclosure; and
- the proposed substation component will be designed to National Grid standards, and will as a result ensure compliance with relevant EMF requirements.

12.35 Reliance on existing published information in scoping an EIA is consistent with industry best practice.

Risk of Major Accidents and Disasters / Project Vulnerability

12.36 In the context of EIA or otherwise, fire and/or explosion as a result of battery thermal runaway are the only events which constitute 'major accident' or 'disaster'.

12.37 The Proposed Development has been designed to minimise the risk of fire/explosion to 'As Low as Reasonably Practicable' ('ALARP'). The safety features embedded in the design of the Proposed Development, and operating procedures are based on current good engineering practice and the most relevant industry standards and codes, as detailed below:

- The Battery containers will be equipped with Battery Management Systems (BMS) which enact protection, monitoring, and control functionality over the BESS. The BMS will ensure the battery cells are maintained 24/7 with their safe-operating-envelope, and in case of deviation from operating norms, will be able to enact safety functions to prevent fault or failure; including thermal runway. This will include functionality to disconnect, shutdown, and isolate the system on detection of critically unsafe operating condition.

- The Battery chemistry will likely be Lithium Iron Phosphate (LFP). LFP batteries are considered to be the preferred choice for stationary energy applications due to their exceptional thermal stability, safety characteristics and durability. LFP batteries exhibit the lowest susceptibility to thermal runaway of the common chemistries utilised in utility scale BESS.
- The Battery containers will be spaced to prevent propagation or spread of any potential fire. Container spacing will be in line with the recommendations of the National Fire Protection Agency (NFPA) 855 Standard for the Installation of Stationary Energy Storage Systems [Ref 41] and supported by testing evidence per the UL9540A Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems [Ref 42]. These standards are routinely applied across BESS projects in the UK and internationally, to minimise the risk of fire propagation.
- The Applicant will actively address the requirements of the National Fire Chief Council's (NFCC) Grid Scale Battery Energy Storage System planning – Guidance for FRS [Ref 43]. The design and safety measures proposed will be discussed, developed, and agreed with the Buckinghamshire Fire and Rescue Service ahead of the submission of the planning application.

12.38 The planning application will be supported by the following individual technical documents which will adequately address fire safety and project vulnerability:

- An Outline Battery Safety Management Plan (OBSMP) will be prepared by DNV, which will detail and assess the fire mitigation strategy, demonstrating compliance with the NFCC guidance;
- A Dispersion Model Report will be prepared by DNV, which will assess fire smoke risk and evaluate the potential thermal effects and smoke impact on the local area in the event of a battery failure event. This assessment will use 3D Computational Fluid Dynamics (CFD); and
- A Fire Water Management Plan (FWMP) will be prepared by Motion, which will detail mitigation strategies proposed to address water pollution from fire water and thermal runway events.

12.39 Given the design of the Proposed Development will be in accordance with relevant fire safety standards and best practice, significant environmental effects are unlikely to arise in relation to fire, project vulnerability or accidents and disasters. This topic is therefore capable of being scoped out of the EIA.

Waste and Minerals

12.40 It is anticipated that construction waste will be addressed through adoption of best practise measures incorporated into the Construction Environmental Management Plan ('CEMP'), which will be in place prior to commencing any works on site. Potential streams of construction waste and estimated volumes will be included in the ES description of development chapter, as well as information on waste management measures that will be implemented.

12.41 There would not be any significant waste arising from the operation, due to the nature of the development.

12.42 Part of the Site is covered by a Minerals Safeguarding Area for Alluvium (clay, silt, sand, and gravel). In reference to the Buckinghamshire Minerals and Waste Local Plan, it is considered that the Proposed Development will not have significant effects on the availability of the allocated mineral resource, as the MSA extends beyond the Proposed Development Site. For this same reason, development of the Site will not place the future use of the mineral at risk, due to alternative areas being available locally and regionally. Lastly, the Site will be returned to its former state at the end of the proposed operational period, posing no permanent risk to ability to extract the minerals.

12.43 Given the above, it is considered that there is no potential for significant adverse environmental effects in relation to waste or minerals which would require further assessment as part of the EIA. Consideration of waste and minerals is therefore capable of being scoped out of the assessment.

Light

12.44 Lighting will be kept to an absolute minimum during the construction and operation of the Proposed Development. The external lighting design is still being developed, applying the following key principles:

12.45
- On a day-to-day basis the lighting would be off.
- Lighting will only be activated by motion sensors when there are scheduled maintenance visits or emergency repair visits required. In these instances, the development would provide an average of 50 lux within the HV compound, and an average of 10 lux at the welfare compound and battery perimeter.
- It is proposed that passive infrared (PIR) sensors will be located on each CCTV/lighting column to trigger the luminaire where movement is detected locally. All luminaires will also be able to be controlled remotely with the CCTV system.
- Luminaires mounted on columns will be no higher than 6m, with the colour temperature of the LED light source being 2200 kelvin (i.e. a warm white), which will mitigate ecological impacts from lighting and would have no detrimental effect to visual acuity for work. When in full operation, the target is that light spillage to adjacent woodland or ecologically sensitive areas will be limited to below 1 lux.

12.46 These design principles will be fed into the lighting strategy which will be submitted with the planning application. Effects from newly introduced lighting will be assessed within the Ecology and LVIA chapters of the ES, with reference to the lighting strategy. Given this context, significant environmental effects are unlikely to arise in relation to lighting and this can be scoped out of the EIA.

Arboriculture and Trees

12.47 A detailed tree survey (see Appendix 3) has been undertaken by Keen Consultants in accordance with BS5837:2012: Trees in relation to demolition, design and construction – Recommendations [Ref 44].

12.48 The tree survey identified a network of hedges dividing the agricultural land. Within the hedge lines are larger trees that contribute to the landscape character. A narrow, mixed, broadleaf tree belt extends broadly north-south along the eastern side of the former railway

line. It contains mostly young trees, many of which have been planted. At the northern end of this tree belt, immediately outside the site boundary, is a small copse of mostly broadleaf trees that is designated as priority habitat.

12.49 At the eastern edge of the site a veteran tree (tree number 60 in the tree schedule) has been identified. In accordance with Natural England standing guidance, a buffer has been allocated to the tree to ensure the site layout affords sufficient space to retain the tree unaffected.

12.50 The Proposed Site Layout respects the constraints posed by trees and hedges, and, subject to detail, can retain the majority of tree cover. A construction access requires the removal of a short section of roadside hedge but retains nearby significant trees.

12.51 Specifically, the veteran tree is distant from the proposed site layout and can be retained unaffected.

12.52 New tree and hedgerow planting is proposed. Weighed against the proposed tree/hedge loss this results in a net gain of tree cover at the site.

12.53 In summary, the tree survey information has informed the site layout and can result in minimal harm to the tree features at the site. A veteran tree is retained distal to the proposals. The proposed planting will secure a net gain of tree cover on the site.

13.0 General Approach and Form of the Environmental Statement

Methodological Approach to the EIA

13.1 The EIA will be prepared in accordance with the requirements of the Town and Country Planning (EIA) Regulations 2017 (as updated) and with reference to best practice including that published by the Institute of Environmental Management and Assessment ('IEMA'). All chapters contained within the ES will be prepared by competent experts. Information required or reasonably required to identify the significant environmental effects of the development, as defined by Schedule 4 of the Regulations will be provided as part of the ES.

13.2 The assessment will also include a consideration of relevant policy and legislation of relevance as well as considering comments received by consultees during the pre-submission period.

13.3 Each technical assessment will follow a consistent approach and format and including:-

1 Brief review of relevant policy and legislative context;

2 Confirmation of the detailed topic specific assessment methodology, consultation undertaken and confirmation on how the assessment relates to the standard significance criteria adopted for the EIA (see below);

3 Consideration of Baseline Conditions including an identification of sources of information, site history, current environmental conditions and future trends/anticipated changes to current conditions that could be anticipated without the scheme;

4 Identification of the potential effects including a summary of those resources/receptors likely to be affected, the sensitivity of those receptors to accommodate change; the degree of change resulting from the proposal taking into account embedded mitigation; the change of events or pathways linking cause to effect and a prediction of the significance of effects in terms of nature, extent and magnitude including whether it is direct/indirect, short/long term, permanent/temporary, beneficial/adverse;

5 The scope for incorporating mitigation measures to avoid, reduce, remedy or compensate for any identified effects; and

6 Identification of any effects remaining after mitigation.

7 The effects of individual environmental matters will be transcribed against a common list of significance criteria for the EIA which will comprise:-

8 Substantial/Major beneficial

9 Moderate beneficial

10 Minor beneficial

11 Neutral/negligible

12 Minor adverse

13 Moderate adverse

14 Substantial/Major adverse

13.4 The ES will include a clear description of the likely significant environmental effects on the environment including direct/indirect effects, secondary, cumulative, short/medium/long term, permanent/temporary and beneficial/adverse effects arising from the development.

Structure and Format of the Environmental Statement

13.5 The findings of the EIA will be set out in the ES which will comprise three volumes as follows:

- Volume 1 – Technical Assessments
- Volume 2 – Technical Figures and Appendices
- Volume 3 – Non-Technical Summary

13.6 The cumulative assessment will be presented in a standalone chapter of the ES ('Residual Effects and Cumulative Assessment') and will assess the Proposed Development alongside committed schemes in the wider area, as outlined in Table 4.1.

13.7 The following documents, as a minimum, will be included in the ES as technical appendices:-

- Lighting Strategy;
- Ecological Appraisal and Biodiversity Net Gain Review;
- Construction Traffic Management Plan;
- Framework Construction Environmental Management Plan;
- Transport Statement;
- Abnormal Indivisible Load Assessment;
- LVIA technical appendices;
- Archaeological Desk-Based Assessment; and
- Built Heritage Statement.

Associated Application

13.8 Notwithstanding the authority's view on the scope of the EIA, the application submission will also provide a range of information including the following:-

1 Planning Statement;

2 Plans and drawings;

3 Design and Access Statement;

4 Statement of Community Involvement;

5 Landscape Strategy and Plan;

6 Flood Risk Assessment;

7 Surface Water Drainage Strategy;

8 Construction Surface Water Management Plan;

9 Outline Battery Safety Management Plan;

10 Dispersion Modelling and Fire Plume Study;

11 Fire Water Management Plan (FWMP);

12 Phase 1 Ground Conditions Assessment; and

13 Agricultural Land Classification Survey.

The Team

13.9 The 2017 EIA Regulations requires that the EIA be prepared by competent experts. It is confirmed that the team undertaking the assessment work will have the relevant experience and competency to carry out the technical assessment work. The ES will include a statement on confirming how the requirements of the Regulations have been met.

13.10 The EIA will be co-ordinated by Lichfields with technical inputs to the EIA being provided by the relevant consultants as described above. Lichfields is accredited with an IEMA EIA 'Quality Mark' which is a scheme ensuring that EIA carried out by registrants achieves excellence.

14.0 Summary and Conclusions

14.1 This report has reviewed the various environmental effects associated with the Proposed Development and concludes that the following matters should be scoped into the EIA:

14.2
- Landscape and Visual Impact
- Noise
- Biodiversity and Ecology
- Traffic and Transport
- Climate Change
- Archaeology (Below Ground Heritage)
- Built Heritage (Above Ground Heritage) – cumulative scenario only

14.3 This report has also identified the following environmental aspects that are considered should be scoped out of the EIA process:

- Water Resources and Flood Risk
- Ground Conditions and Contamination
- Agricultural Land Resources
- Air Quality
- Socio-Economics
- Human Health
- Risk of Major Accidents and Disasters / Project Vulnerability
- Waste and Minerals
- Light
- Arboriculture and Trees

15.0 Abbreviations and Definitions

1	ALC	Agricultural Land Classification
2	BCC	Buckinghamshire County Council
3	BESS	Battery Energy Storage System
4	BMS	Battery Management Systems
5	BMV	Best and Most Versatile
6	CEMP	Construction Environmental Management Plan
7	CIEEM	Chartered Institute of Ecology and Environmental Management
8	CSWMP	Construction Surface Water Management Plan
9	CTMP	Construction Traffic Management Plan
10	DBA	Desk-Based Assessment
11	DCO	Development Consent Order
12	DMRB	Design Manual for Roads and Bridges
13	EA	Environment Agency
14	EcIA	Ecological Impact Assessment
15	EIA	Environmental Impact Assessment
16	ES	Environmental Statement
17	FWMP	Fire Water Management Plan
18	GCN	Great Crested Newt
19	GLVIA	Guidelines for Landscape and Visual Impact Assessment
20	HER	Historic Environment Records
21	HGV	Heavy Goods Vehicle
22	HS	Heritage Statement
23	HS2	High Speed 2
24	IEF	Important Ecological Feature
25	IEMA	Institute of Environmental Management & Assessment
26	LCA	Landscape Character Area
27	LCT	Landscape Character Type
28	LVIA	Landscape and Visual Impact
29	LWS	Local Wildlife Site
30	MSA	Minerals Safeguarding Area
31	NML	Noise Monitoring Locations
32	NPPF	National Planning Policy Framework

33	NSIP	Nationally Significant Infrastructure Project
34	NSR	Noise Sensitive Receptors
35	OBSMP	Outline Battery Safety Management Plan
36	PDA	Proposed Development Area
37	SAC	Special Area of Conservation
38	SINC	Sites of Importance for Nature Conservation
39	SRN	Strategic Road Network
40	SSSI	Site of Special Scientific Interest
41	SuDS	Sustainable Drainage System

16.0 # References

1 Town and Country Planning (EIA) Regulations 2017 (as updated)

2 National Planning Policy Framework (2023)

3 Overarching National Policy Statement for Energy (EN-1)

4 Environment Agency Flood Map for Planning

5 Natural England's Provisional Agricultural Land Classification (ALC) map

6 Buckinghamshire Minerals and Waste Local Plan (adopted July 2019)

7 Aylesbury Vale Landscape Character Assessment (2008)

8 Vale of Aylesbury Local Plan 2013-2033 (2021)

9 Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA) (Landscape Institute) (LI) and Institute of Environmental Management & Assessment (IEMA, 2013)

10 Landscape Character Assessment: Guidance for England and Scotland (Countryside Agency and Scottish Natural Heritage, 2002)

11 BS5837, 2012, 'Trees in Relation to Construction'

12 BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites'

13 BS 4142:2014 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142)

14 Association of Noise Consultants (ANC) BS 4142:2014+A1:2019 Technical Note March 2020 Version 1.0

15 The Environment Act 2021

16 The Wildlife and Countryside Act 1981 (as amended)

17 The Conservation of Habitats and Species Regulations 2017 (as amended)

18 The Countryside and Rights of Way Act 2000

19 The Natural Environment and Rural Communities (NERC) Act 2006

20 Protection of Badgers Act 1992

21 Planning Practice Guidance

22 Biodiversity 2020: A strategy for England's wildlife and ecosystem services

23 Guidelines for Ecological Impact Assessment in the UK and Ireland, published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)

24 Buckinghamshire and Milton Keynes Environmental Records Centre (BMKERC) biological records

25 Reason, P. F. and Wray, S. (2023) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. CIEEM.

26 IEMA 'Guidelines for the Environmental Assessment of Traffic and Movement (July 2023)'

27 Design Manual for Roads and Bridges LA104 Guidelines

28 IEMA guidance on 'Assessing Greenhouse Gas Emissions and Evaluating their Significance'

29 Royal Institution of Chartered Surveyors (2017) Whole life carbon assessment for the built environment

30 Buckinghamshire County Council Developer Advice for Surface Water Drainage Strategies 2017

31 Buckinghamshire Council Watercourse Advice Note for the Aylesbury Vale Area June 2022

32 Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS)

33 British Geological Survey (BGS) Geology of Britain web map services

34 CIRIA C681 - Unexploded ordnance (UXO) A guide for the construction industry (C681D) (2009)

35 DEFRA Multi-Agency Geographic Information for the Countryside (MAGIC Map)

36 DEFRA. (2012). Environmental Protection Act 1990: Part 2AContaminated Land Statutory Guidance

37 HSE. (2012) Control of Asbestos Regulations 2012

38 Provisional ALC Maps: MAFF, reprinted by Natural England 2010

39 Likelihood of Best and Most Versatile (BMV) Agricultural Land - Strategic scale map 2017

40 International Commission on NonIonizing Radiation Protection (ICNIRP) guidelines

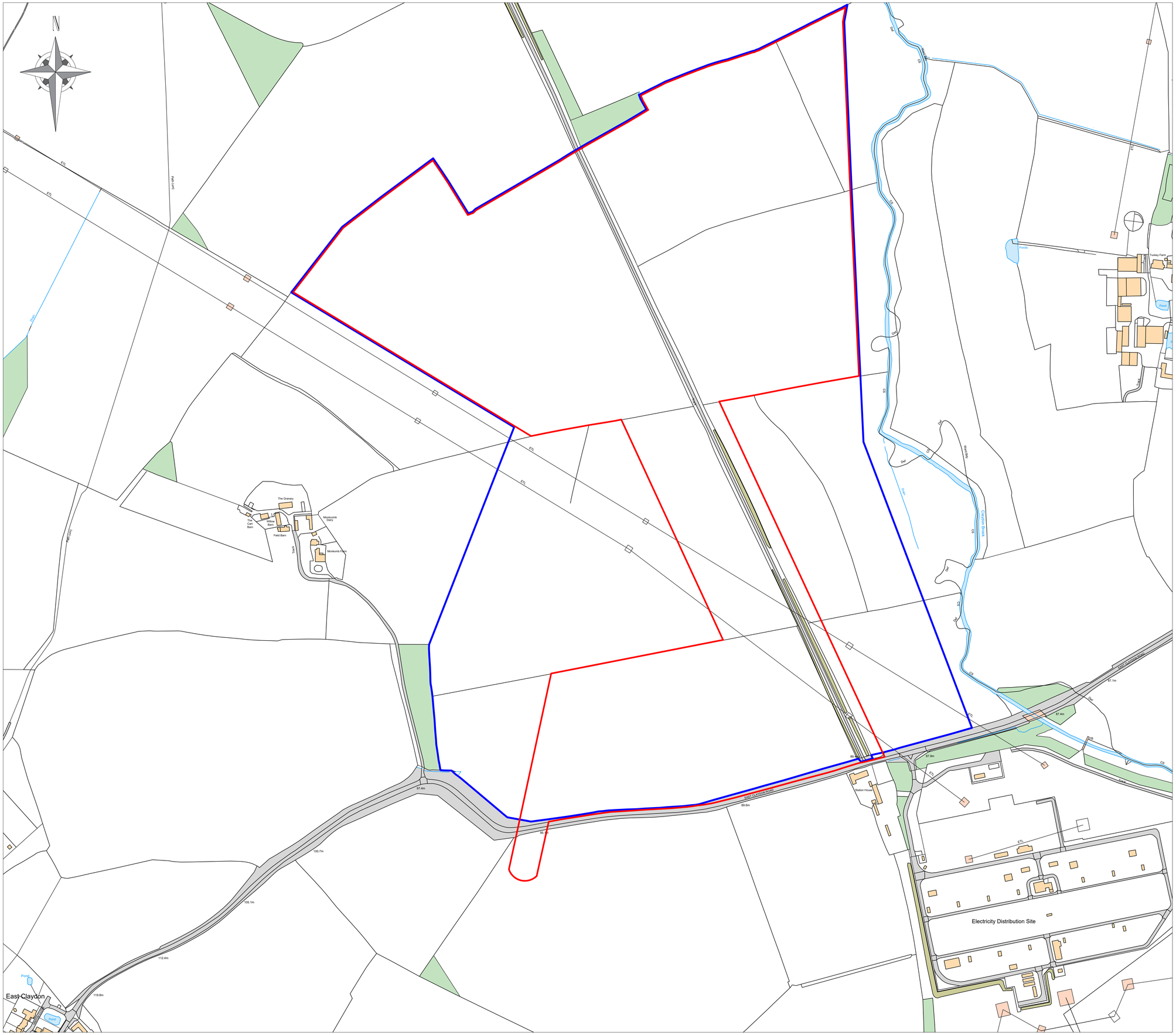
41 National Fire Protection Agency (NFPA) 855 Standard for the Installation of Stationary Energy Storage Systems

42 UL9540A Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

43 National Fire Chief Council's (NFCC) Grid Scale Battery Energy Storage System planning – Guidance for FRS

44 BS5837:2012: Trees in relation to demolition, design and construction – Recommendations

Appendix 1 **Site Location Plan**



LEGEND:

🟥 APPLICATION SITE BOUNDARY 🟥

🟦 LAND WITHIN THE CONTROL OF THE APPLICANT 🟦

0 50 100 200 300m

1:2500

Project:

East Claydon Greener Grid Park

Drawn by:

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Drawing Title:

East Claydon Site Location Plan

Drawn:	Issued:
RC	14.08.2024

Sheet Size:	Scale:	Revision:
A1	1:2500	00

Appendix 2 **Preliminary Site Layout Plan**

LEGEND:

- APPLICATION SITE BOUNDARY
- (1) PROPOSED DEVELOPMENT EXTENT
- (2) PROPOSED SOFT LANDSCAPING
- (3) OPERATIONAL ACCESS
- (4) EXISTING 400kV OVERHEAD LINE & ASSOCIATED 25m BUFFER EITHER SIDE
- (5) EXISTING 132kV OVERHEAD LINE & ASSOCIATED 12m BUFFER EITHER SIDE
- (6) PROPOSED TEMPORARY CONSTRUCTION ACCESS
- (7) PROPOSED SUDS BASINS
- (8) PROPOSED UNDERGROUND CABLE ROUTE TO POINT OF CONNECTION

N

Scale; 1; 5,000 Metres

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200

Project:

East Claydon Greener Grid Park

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Drawing Title:

Indicative Proposed Development Parameters Plan

Drawn:	Issued:	
RC	14.08.2024	
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Appendix 3 **Tree Survey**

Tree Survey

for land at

East Claydon BESS Development, Buckinghamshire

Client

Statkraft

May 2024

2291-KC-XX-YTREE-TreeSurvey-Rev0

The Studio, Timbers, Gables Road, Church Crookham, Fleet, Hampshire, GU52 6QY
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KEEN CONSULTANTS

CAVEATS

This report has been prepared for planning purposes only. It is not intended for the detailed design of foundations that requires a much finer level of detail to ensure a cost-effective scheme of foundations.

This report considers the health and safety of the trees in their context at the time of survey. Trees are natural organisms subject to change and a range of weather conditions. This report can only be relied on for a period of twelve months or immediately prior to detailed designing of site layout (if phased) to ensure hazards posed by trees can be identified and resolved.

We rely on Council and Government websites for factual information in respect of sites. Experience reveals these are not always reliable. Further checks should be made in advance of undertaking any work to trees.

Keen Consultants accept no responsibility or liability for any use that is made of this document other than by the client for the purpose for which it was commissioned and prepared.

Document history

Revision	Issue Status	Details	Approved/Date
Rev0	Final	Initial report	JK / 07 May 2024

Contents

Appendices

1.0 Introduction

1.1 This tree survey sets out the information about trees to inform the planning process about the quality of trees on site. Following the tree survey the information is extended to consider the impact to them from the proposed development and how construction may proceed whilst ensuring trees are successfully retained.

1.2 This tree survey informs the site analysis to identify the constraints and opportunities posed by trees.

1.3 The area subject of this survey consists of a broad expanse of agricultural land situated north of East Claydon Road, East Claydon.

1.4 The site is bounded on all sides by further agricultural land other than a cottage and sub-station that lie to the south of East Claydon Road.

1.5 The site is bisected broadly north-south by a former railway line. Along the former railway line is a broad band of trees, some of which have been planted.

1.6 East of the railway line the fields are pasture and these lead down to a small river at the eastern boundary. These fields are bisected by hedgerows of varying quality. The hedgerows contain some larger trees, notably ash and English oak.

1.7 West of the old railway line the fields are in arable production and again are divided by hedgerows containing ash and English oak.

1.8 The roadside boundary is also defined by hedgerow that contains predominantly ash with some oak.

1.9 Outside the northern boundary pf the site is a small parcel of mixed broadleaf woodland.

1.10 At the time of the tree survey we checked the online portals, including Buckinghamshire Council for statutory protection of trees applicable to the site. Online portals are not always reliable so before works are undertaken to trees a direct enquiry with the Council should be made.

- TREE PRESERVATION ORDERS - details were available online and showed that there are NO Tree Preservation Orders protecting trees upon the site.
- CONSERVATION AREAS - details were available online and confirmed that the site IS NOT within a Conservation Area.
- The MAGIC information portal revealed that Ancient and Semi-Natural Woodland IS NOT located within/adjacent to the site. Land adjoining the northern boundary of the site IS listed on the Priority Habitat Inventory - Deciduous Woodland (England)
- The online portal of the Woodland Trust, Ancient Tree Inventory, revealed that there are NO veteran trees recorded on site.

1.11 Nationally adopted guidance has been followed in the preparation of this report. *BS5837:2012: Trees in relation to design, demolition and construction – Recommendations* sets out a structure approach to considering trees during the development process. Guidance is given on the surveying of trees, the protected space that should be allocated to trees, what elements may give rise to harm to trees and what techniques can be deployed to minimise harm.

1.12 Sustainable development requires the coordination between disciplines throughout the project, accordingly the package of arboricultural information supports the design process and follows through to construction ensuring effective tree protection. We recognise the need to integrate with other disciplines to achieve a balanced approach to development proposals.

1.13 We set out how our key elements interact with others at Appendix1 of this report. The appendix provides comprehensive information about the stages of providing tree information within the planning process.

1.14 Further explanatory notes about tree survey information are given in Appendix2.

2.0 Tree survey

2.1 The objective of this tree survey is to assess the significant trees and woody vegetation on the site to obtain dimensions, assess their quality and evaluate their condition to provide sufficient information to enable decisions to be made on planning aspects of the site and its potential development.

2.2 The tree survey:

2.2.1 was conducted on the 25 April 2024 by Jago Keen, MSc, Dip.Arb., MArborA, MICFor from ground level, in accordance with the guidance in British Standard *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations*;

2.2.2 is intended for planning purposes only;

2.2.3 is not intended for the detailed design of foundations (further information upon vegetation can be provided upon request);

2.2.4 is not a detailed health and safety condition survey of trees;

2.2.5 recommends only preliminary works. Tree works required to achieve the scheme of development will be specified as part of a later stage;

2.2.6 places reliance on the topographical survey.

2.3 Details of each tree are recorded in the Schedule of Trees at Appendix3.

2.4 Site soil investigations have not been conducted. The (online) 'Geology of Britain Viewer' that contains British Geological Survey materials © NERC [2018] reveals the following soil information:

2.4.1 Bedrock geology: West Walton Formation - Mudstone

2.4.2 Superficial deposits: Till, Mid Pleistocene - Diamicton.

2.5 Survey information is used to prepare the constraints posed by trees on development. These constraints are shown on the Tree Constraints Plan. The Plan shows root protection areas prescribed by the guidance within BS5837 paragraph 4.6.2 and adjusted where appropriate as recommended in subsequent paragraph 4.6.3. The root protection area (RPA) is the minimum extent of rooting required to sustain the tree.

2.6 Trees change over time hence the contents of this survey can only be relied upon for a period of up to two years. The survey should be refreshed after two years or immediately prior to the design of detailed site layouts where they are phased.

3.0 Application of survey information

3.1 Trees place constraints on sites but they also provide opportunities in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of site layout design should be to avoid the RPA. Ideally, structures should be outside the root protection area to provide working space for construction however protection measures can be taken if such clearance, in isolated cases, is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

a) Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

b) Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods.

c) Service runs that cannot be routed outside the root protection area(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable. Offsite provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Appendix 1

Introduction to key elements of tree information

Sustainable development requires the coordination between disciplines throughout the project, accordingly the package of arboricultural information supports the design process and follows through to construction ensuring effective tree protection.

Keen Consultants break the process down to coordinate with the key elements within both the RIBA Plan of Work (2020) and '*British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations*', this is set out in the table and explained below.

Figure 1 - Keen Consultants co-ordinated approach with cross references to key guidance.

Keen Consultants Tree Information	RIBA Stage	BS5837
Tree Survey	Stage 1: Preparation and Briefing	Feasibility
Impact Assessment	Stage 3: Spatial Coordination	Proposals
Method Statement	Stage 4: Technical design	Technical Design
Site Monitoring	Stage 5: Manufacturing and Construction	Demolition and construction

This cross referenced approach ensures trees are a material consideration and those to be retained will be safeguarded.

Tree Survey and Tree Constraints Plan

To inform the design and layout of the proposed development a tree survey has been undertaken to identify the size and quality of trees both within the site and immediately offsite. We have then used this information to prepare the Tree Constraints Plan drawing that shows the location of each tree, its size and the area around each tree that needs to be considered during the design process. Once prepared this information has been provided to the design team so that they know what constraints the trees pose.

Impact Assessment and Tree Protection Plan

During the design process the design team has consulted with the arboriculturist to ascertain if constraints may be breached, consider options emerging from the design and what spaces for new trees are needed.

Once the design was finalised an impact assessment has been prepared to accompany the planning application. The impact assessment demonstrates the proposals meet national and local planning policy and guidance. It demonstrates the benefits of the retained trees and incorporates new tree planting.

Another essential element of any application is the Tree Protection Plan.

Method Statement

This statement sets out in words how each element of work is undertaken in relation to the trees. It dictates when activities occur and the method that will be used to achieve them. It will also set out a scheme of monitoring and supervision.

Site Monitoring

Following the receipt of planning consent, it is a requirement that the installation of the protective barriers and ground protection are supervised, together with operations such as excavations or surfacing close to trees.

This varies according to the intensity of development near trees, the process is set out to ensure what is planned for in the Tree Protection Plan and method statement is delivered.

Appendix 2

Tree Survey Explanatory Notes

The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of *British Standard 5837:2012 Trees in relation to design, demolition and construction-Recommendations* (BS5837). The survey has been undertaken by the qualified and experienced arboriculturist detailed at Table 1 of this report and they recorded information relating to all those trees within the site and those immediately adjacent to the site which may be of influence to layout design.

The results are recorded in the Schedule of Trees at Appendix 3.

Schedule of trees

Appendix 3 presents details of the individual trees, groups and hedgerows including heights, diameters at breast height, crown spread (given as a radial measurement of cardinal points from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention, and the root protection area information.

General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Details of the individual trees, groups and hedgerows

All trees were assessed for their quality and benefits within the context of proposed development in a transparent, understandable and systematic way.

Individuals

The default position is to record each tree as an individual for its unique contribution to the landscape

Groups and woodlands

Trees have been assessed as groups where it has been determined appropriate by the surveyor. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally.

Hedges and shrub masses

We consider a hedgerow to typically comprise a line of trees or shrubs that currently is subject to, or has undergone, a pruning regime to contain its dimensions.

For the tree survey hedgerows and substantial internal or boundary hedges (including evergreen screens) have either been recorded in the Tree Schedule, including lateral spread, height and stem diameter(s), or indicated on the Tree Constraints Plan.

A tree survey in accordance with BS5837 does not assess hedgerows against *The Hedgerow Regulations 1997* or specifically from an ecological perspective, as such would be outside the scope of the British Standard assessment.

Shrub masses are collectives of woody plants, rather than trees, and are recorded where they are a significant feature of the site. They have either been recorded in the Tree Schedule or indicated on the Tree Constraints Plan.

Individual trees within groups, woodlands and hedges

An assessment of individual trees within the groups has been made where there has been a clear need to differentiate between them for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

BS5837 Categorisation

Trees have been divided into one of four categories based on Table 1 of BS5837, 'Cascade chart for tree quality assessment'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B & C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

Please note that the estimated remaining life expectancy figures are taken for BS5837 and relate to their categorisation. The life expectancy figures are therefore arbitrary and may vary in reality.

Category (U)

Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.

Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.

Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.

Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

Category (A)

Shown green on Tree Constraints Plan: Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years and with potential to make a lasting contribution. Such trees may comprise:

Sub categories

1) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.

2) trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.

3) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.

Category (B)

Shown blue on Tree Constraints Plan: Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years and with potential to make a significant contribution. Such trees may comprise:

Sub categories

1) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
2) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
3) trees with material conservation or other cultural value.

Category (C)

Shown grey on Tree Constraints Plan: Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

Sub categories

1) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
2) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary/transient screening benefits.
3) trees with no material conservation or other cultural value.

Devising BS5837 root protection areas

Default situation

The root protection area is a function of the stem diameter, it is multiplied by 12 to give a radius. For multi-stemmed trees the stems are combined to provide an effective diameter figure which is then multiplied.

Initially the root protection area should be plotted as a circle, and in many situation it remains a circle.

Influenced situation

Adjustments to the root protection area are made where pre-existing site conditions that would influence root distribution are present. Typically this will be buildings and retaining walls, lighter structures such as hard surfacing, sheds and garages generally do not have the same influence.

Ponds, rivers and watercourses will also influence root distribution as waterlogged soils are not conducive to root growth. Rainwater attenuation and ditches are likely to have a lesser impact if they are dry for significant periods.

Veteran trees

Natural England have introduced Standing Guidance that requires the allocation of buffer zones to veteran (including ancient) trees. They have prescribed that a buffer zone of 15 times the stem diameter of the tree is allocated. This will result in a buffer zone of larger size (Natural England do not specify what shape it shall be) than the root protection area. Where veteran trees are identified during the tree survey they are allocated a Natural England buffer zone on the Tree Constraints Plan.

The Guidance says no development can take place within the buffer zone It is silent on what can and cannot be done when the land within the buffer zone is previously developed. The spirit of the guidance is to avoid harm to or improve the growing conditions of veteran trees.

With this added layer of protection it is important to establish if a tree is veteran or not. The Guidance was not intended to be applied to all mature trees but to the sub-set of trees that are of great age. This is analogous with the NPPF requirement to safeguard trees that have attained an age where they are worthy of veteran or ancient status.

It is therefore important to establish a basis for defining trees as veteran as opposed to those trees that may have veteran characteristics or those trees that are mature.

Stem size is a useful guide and, in combination with size, so are characteristics of the tree. If we consider the guidance on stem size being a suitable guide to classifying trees as veteran we see:

a) The most up to date (2013) guidance is that in [1]*Ancient and other veteran trees: further guidance on management* edited by David Lonsdale and published by The Tree Council in conjunction with The Ancient Tree Forum. Lonsdale considers that many trees may have veteran characteristics at any age however proposes, at a species level, size thresholds when a tree may be considered a veteran. A chart (see Figure 1 below) lists, species by species, the size criteria for trees reaching veteran status and then moving on to the later, ancient stage of life. Of those species listed in the chart we only need consider oak. We see that until trees attain a stem girth of around 3.6m (equivalent stem diameter of 1.15m) then an oak is only considered to be 'Locally notable'

b) A somewhat older (1999) publication, [2]*Veteran Trees: A guide to good management* edited by Helen Read and published by English Nature et al, is very similar in its definition by setting out three distinct bands for oak trees:

   i) those with a diameter of more than 1.0m are potentially interesting

   ii) those with a diameter of more than 1.5m are valuable in terms of conservation

   iii) those over 2.0m in diameter are truly ancient

c) English Nature's own [3]*Development of a veteran tree site assessment protocol (Report Number 628)* of 2005 sought to give more structure to grading sites where veteran trees were present. It considered that trees over 1.0m diameter could be classed as veteran.

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[1] *Ancient and other veteran trees: further guidance on management* edited by David Lonsdale and published by The Tree Council in conjunction with The Ancient Tree Forum

[2] *Veteran Trees: A guide to good management* edited by Helen Read and published by English Nature *et al*

[3] *Development of a veteran tree site assessment protocol* (Report Number 628) of 2005

In summary, a tree may enter its veteran stage at 1.0m diameter but a more reliable size threshold, as held out by the latest guidance on the matter, is 1.5m diameter.

The other factor, tree characteristics, is also worth considering as veteran tree characteristics can be found on even young trees. Of course, if we count every tree with veteran tree characteristics as veteran we do a disservice to those truly veteran trees that warrant protection.

Read (1999), as set out above, considers veteran tree characteristics as:

- large girth for species
- major trunk cavities or progressive hollowing
- naturally forming water pools
- decay hollows
- physical damage to trunk
- bark loss
- large quantities of deadwood within the crown
- sap runs
- crevices in the bark, under branches or on the root plate sheltered from direct rainfall
- fungal fruiting bodies
- high number of interdependent wildlife species
- epiphytic plants
- an 'old' look
- high aesthetic interest

Lonsdale (2013) adds to this list:

- progressive narrowing of successive annual increments in the stem
- changes in crown architecture
- progressive or episodic reduction in post-mature crown size, often known as retrenchment

Lonsdale also states that "In order to qualify as a veteran, the tree should show signs of crown retrenchment and signs of decay in the trunk, branches or roots, such as exposed deadwood or fungal fruit bodies".

The English Nature Report Number 628 refers to Read (1999) for a list of veteran features but does add that in addition a tree may also:

- have a pollard form or show indications of past management
- have a cultural/historic value
- be in a prominent position in the landscape

These three criteria, when examined, are not truly indicative of a veteran tree on their own as these criteria could be applied to street trees in peri-urban locations that date from the mid-20th century - many of those are of pollard form, have cultural and historic value and a prominent position in the landscape.

In summary, it is important to consider the size of the tree and its characteristics. Just because a tree is mature does not mean it is veteran neither does the presence of veteran characteristics alone.

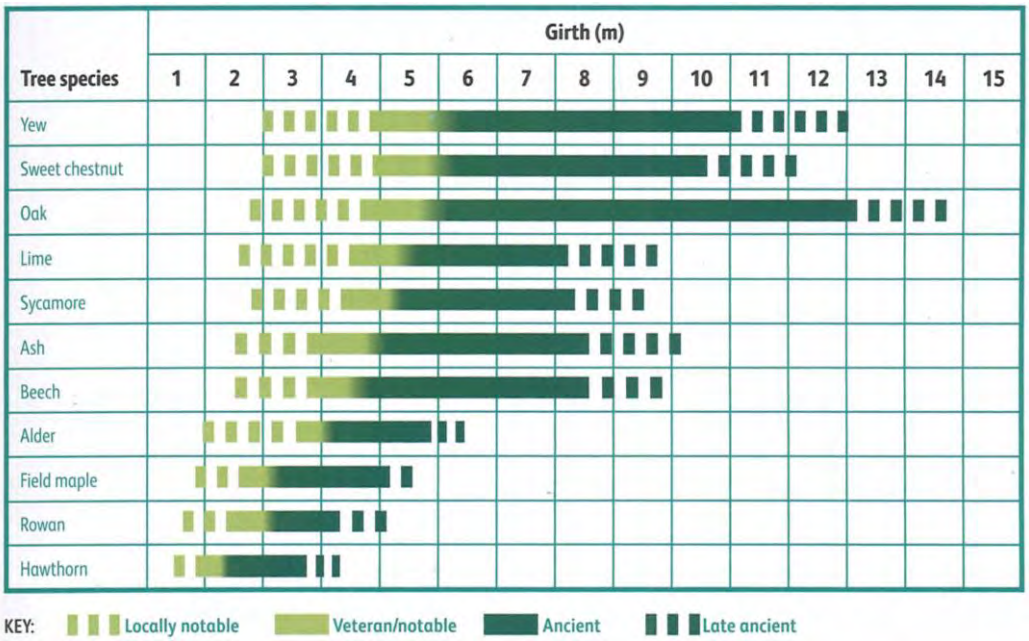

Figure 1- Chart of girth in relation to age and developmental classification of trees

Appendix 3

Schedule of Trees

for land at

East Claydon BESS Development, Buckinghamshire

Key to Tree Schedule

Column Heading	Explanation
Tree No.	Unique number corresponding with number on plan
Species	English names
Ht (m)	Height in metres
Branch Spread	Crown radius in metres to cardinal points of the compass
Stem diameters (cm)	All measurements conform to Annex C of BS 5837:2012 Single stem - Stem diameter in centimetres measured at 1.5m above ground level. Multi-stemmed tree with 2 to 5 stems – Diameter of each stem Multi-stemmed tree with more than 5 stems – Average stem diameter and number of stems
Height of crown clearance	Height in metres between the ground and underside of canopy
Height of first major branch and direction of growth	Height from ground level to base of first major branch and the approximate direction of growth
Abbreviations as suffix to a dimension	*Suffix 'e' denotes an estimated dimension.* *Suffix 'av' denotes an average dimension*
Age class	Age Class definitions: Y = Young S = Semi-mature E = Early mature M = Mature O = Over mature
Category grading (see Appendix A2 for detailed explanation) and Estimated remaining contribution (yrs)	Summary of BS 5837: 2012 categorisation: 1. Trees that do not warrant consideration for retention: U = those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management. 2. Trees to be considered for retention: A1, 2 or 3 = trees of high quality and value (substantial contribution >40 yrs) B1, 2 or 3 = trees of moderate quality and value (significant Contribution >20 yrs) C1, 2 or 3 = trees of low quality and value (but adequate, ie >10 yrs or young trees – until new planting can be established)
Estimated remaining contribution	Useful estimated remaining contribution of the tree or tree group
Condition	Brief description including physiological and structural defects
Preliminary management recommendations	Describes current arboricultural requirement for the tree in its current context and should be undertaken as soon as reasonably practicable.
Root protection radius	Radius of minimum root protection area in metres calculated from section 4.6 and Annex D of BS5837:2012
Root protection area	Total area of minimum root protection area extrapolated from root protection radius

Survey of trees on land north of East Claydon Sub-station & East Claydon Road, East Claydon

Tree No.	Species	Ht (m)	Branch Spread (m)				Stem diameters (cm)								Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
1	Ash	19	7	9	11	12	125e								5	5N	M	U	<10	Extensive stem decay due to *Inonotus hispidus* . Signs of Ash Dieback. Large broken section lodged within upper crown. Unsuited to long term retention		15.00	707
2	English oak	16	5	7	9	10	95e								2	2W	E	A1	>40	Broad spreading tree growing close to river, Main stem covered in ivy.		11.40	408
3	Group of elm	11av	4av				25av								0	-	S	C2	>10	Collection of elm, Some of which are dead. Interspersed with occasional hawthorn.		3.00	28
4	Group of crack willow	17av	10av				55av								0	-	E	C2	>10	Group of stems growing beyond river. All attaining proportions where they are liable to failure.		6.60	137
5	Ash	12	4	5	6	6	30								3	3SW	S	C1	>10	Small tree growing on verge adjoining ditch. Showing early signs of Ash Dieback.		3.60	41
6	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established and maintained hedgerow to rear of verge. Mixed species including hawthorn, blackthorn, elm, field maple and hazel.		1.20	5
7	Ash	12	4	6	7	5	45e								3	3SE	S	C1	>10	Small tree growing in hedgerow. Showing signs of Ash Dieback. Unsuited to long term retention.		5.40	92
8	Ash	10	3	4	4	5	50e								0	-	S	U	<10	Advanced Ash Dieback. Unsuited to retention adjoining the highway.		6.00	113
9	Mixed broadleaf hedgerow	6av	2av				10av								0	-	S	C2	>10	Section of hedgerow adjoining farm entrance. Primarily elm. Most of which are dead. Includes some hawthorn.		1.20	5
10	Group of ash	14av	7av				40av								2	2E	E	C2	>10	Cluster of three stems adjoining farm track entrance. All showing signs of advanced Ash Dieback. Unsuited to retention adjoining the highway.		4.80	72
11	Mixed broadleaf hedgerow	2av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow alongside former railway line. Mixed species including hawthorn and blackthorn.		1.20	5

Survey of trees on land north of East Claydon Sub-station & East Claydon Road, East Claydon

Tree No.	Species	Ht (m)	Branch Spread (m)				Stem diameters (cm)									Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
			N	E	S	W	Single Stem	2-5 stems					More than 5 stems												
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems											
12	Ash	15	7	8	8	9	57								3	3SW	E	C1	>10	Larger component of tree belt but showing signs of Ash Dieback. Unsuited to long term retention.		6.84	147
13	Ash	15	7	9	10	10	60								2	2SE	E	C1	>10	Larger component of tree belt but showing signs of Ash Dieback. Unsuited to long term retention.		7.20	163
14	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55
15	Ash	14	6	6	6	6	48								4	4S	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		5.76	104
16	Ash	12	5	5	4	3	40								2	2W	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		4.80	72
17	Ash	13	7	6	5	6	44								2	2W	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		5.28	88
18	Group of mixed broadleaves	7av	3av				15av								0	-	S	C2	>10	Collection of smaller trees underneath of overhead power lines. No tree of any particular merit. Mixed species including sycamore, hawthorn, ash and elder.		1.80	10
19	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55

Survey of trees on land north of East Claydon Sub-station & East Claydon Road, East Claydon

Tree No.	Species	Ht (m)	Branch Spread (m)				Stem diameters (cm)								Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
20	English oak	17	7	6	7	7	76								2	2N	E	B1	>20	Established tree growing to the west of old railway line. Reasonable shape and form.		9.12	261
21	Group of mixed broadleaves	2av	1av				10av								0	-	S	C2	>10	Collection of smaller tress that are maintained to provide clearance to overhead wires. Species include hawthorn, field maple, alder and sycamore.		1.20	5
22	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55
23	European larch	6	2	2	2	1	23								1,2	1.2S	S	C1	>10	Small tree growing to best of railway line.		2.76	24
24	English oak	11	6	5	6	6	33								2	2S	S	B1	>20	Small tree growing to best of railway line.		3.96	49
25	English oak	9	6	2	5	3	29								2	2N	S	C2	>10	Small tree growing to best of railway line.		3.48	38
26	Row of beech	11av	6av				30av								2	2N	S	B2	>20	Row of established trees to west of drive. Appear to have been planted.		3.60	41
27	English oak	12	5	5	5	4	45								2	2SW	S	B1	>20	Well formed tree growing to west of railway line.		5.40	92
28	English oak	17	9	8	8	8	80e								2	2S	M	A1	>40	Larger tree growing within hedgerow alongside ditch. Main stem covered in ivy.		9.60	290
29	Ash	14	6	6	6	6	46								3	3S	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.52	96
30	Ash	16	7	7	7	6	47								4	4N	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.64	100
31	Ash	7	6	7	6	7	49								3	3N	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.88	109
32	Southern beech	9	3	1	2	2	24								2	2N	S	C1	>10	Unusual species but suffering crown dieback.		2.88	26

Survey of trees on land north of East Claydon Sub-station & East Claydon Road, East Claydon

Tree No.	Species	Ht (m)	Branch Spread (m)				Stem diameters (cm)								Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
33	Southern beech	11	3	2	2	4	31								2	2N	S	C1	>10	Unusual species but suffering crown dieback.		3.72	43
34	English oak	11	4	2	3	3	30								2	2W	S	B1	>20	Reasonably well formed tree growing to west of railway line.		3.60	41
35	English oak	5	2	2	2	2	16								1.5	1.5S	Y	C1	>10	Small tree growing to west of railway line.		1.92	12
36	Southern beech	11	3	2	3	3	38								2	2SW	S	B1	>20	In better condition than other examples of this species.		4.56	65
37	English oak	13	7	5	6	6	39								1.8	1.8W	S	B1	>20	Well formed tree growing to west of railway line.		4.68	69
38	English oak	13	6	2	5	5	30								2	2W	S	B1	>20	Reasonably well formed tree growing to west of railway line.		3.60	41
39	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established hedgerow around boundary of field. Primarily hawthorn and blackthorn. Includes occasional larger ash and English oak. Ash is showing signs of Ash Dieback.		1.20	5
40	Mixed broadleaf hedgerow	5av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow growing alongside ditch. Species include hawthorn, blackthorn, elm, field maple and English oak.		1.80	10
41	Ash	15	7	6	7	9		45e	45e	45e					2	2N	E	C1	>10	Multi stemmed tree growing to north off ditch. Showing signs of Ash Dieback.		9.35	275
42	English oak	14	6	6	7	5	40e								3	3S	S	B2	>20	Larger component of hedgerow. Growing to north of ditch.		4.80	72
43	English oak	11	5	4	5	5	70e								3	3S	E	B2	>20	Larger component of hedgerow. Growing to north of ditch.		8.40	222
44	English oak	15	7	7	8	7	80e								4	4S	E	B2	>20	Larger component of hedgerow. Growing to north of ditch. Main stem smothered in ivy.		9.60	290
45	Mixed broadleaf copse	15av	4av				35av								0	-	E	B2	>20	Established block of woodland to north of site. Mixed species including English oak, ash, cherry and occasional Scots pine and Norway spruce.		4.20	55

Survey of trees on land north of East Claydon Sub-station & East Claydon Road, East Claydon

Tree No.	Species	Ht (m)	Branch Spread (m)				Stem diameters (cm)								Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
46	Ash	14	6	7	8	8	80e								3	3S	M	C2	>10	Contributes to woodland. Showing signs of Ash Dieback. Large cavity at circa 3-4 metres above ground level. Extensive hollowing. Potential ecological resource.		9.60	290
47	Mixed broadleaf hedgerow	6av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow along southern edge of copse. Growing to north of ditch.		1.80	10
48	Ash	15	7	6	8	8	70e								3	3S	E	C2	>10	Contributes to woodland group. Advanced Ash Dieback.		8.40	222
49	Ash	13	7	7	7	7	65e								3	3S	E	C2	>10	Contributes to woodland group. Advanced Ash Dieback.		7.80	191
50	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Well maintained hedgerow dividing fields. Predominantly hawthorn and blackthorn. Occasional elm and dogwood. Occasional gaps would benefit from restocking.		1.20	5
51	Ash	8	4	4	4	4		20e	15e						2	2S	S	C2	>10	Larger component of hedgerow showing signs of Ash Dieback.		3.00	28
52	Mixed broadleaf hedgerow	8av	3av				15av								0	-	E	B2	>20	Established, but outgrown, hedgerow between fields. Mixed species include hawthorn, blackthorn, elm and field maple.		1.80	10
53	English oak	18	8	9	10	12		82	98						3	3W	M	A1&3	>40	Larger component of hedgerow. Twin stemmed from ground level.		15.00	707
54	Mixed broadleaf hedgerow	6av	3av				30av								0	-	E	C2	>10	Established but derelict hedgerow with large gaps between. Plants within the hedgerow are of poor quality. Includes occasional ash that are showing advanced Ash Dieback. Would benefit from being brought back under management. This should be a gradual process to introduce new hedging plants within the row whilst retaining the ecological interest of the existing plants.		3.60	41

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			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
55	Group of mixed broadleaves	15av	8av				65av								0	-	E	B2	>20	Scattered clusters of trees alongside river corridor predominantly crack willow with some English oak, goat willow, hawthorn and blackthorn.		7.80	191
56	Mixed broadleaf hedgerow	2av	1.5av				15av								0	-	E	B2	>20	Established but sparse hedgerow. Browsing has removed much of the lower vegetation. Would benefit from being brought back under management.		1.80	10
57	Mixed broadleaf hedgerow	8av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Includes occasional taller elm. Would benefit from being brought back under management.		1.80	10
58	Group of ash	14av	7av				50av								0	-	E	C2	>10	Larger components of hedgerow. Were previously laid as part of the hedge. Now showing signs of Ash Dieback.		6.00	113
59	Mixed broadleaf hedgerow	3av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Extensive browsing at lower level. Would benefit from being brought back under management. Mixed species including hawthorn, elm and blackthorn.		1.80	10
60	English oak	16	7	7	11	9	174								2	2S	M	A1&3	>40	Veteran tree with numerous cavities, splits and decay features that are useful ecological resources. Lower stem hollowed with apertures around base. Old fungal fruit bodies of Ganoderma species of decay fungi. Cavities at greater height. One appears to be used by nesting birds.		15.00	707
61	English oak	16	7	6	7	9	100e								3	3S	E	A1	>40	Larger component of hedgerow. Main stem smothered in ivy.		12.00	452
62	Mixed broadleaf hedgerow	7av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Sparse from the base. Extensive browsing at lower level. Would benefit from being brought back under management. Mixed species including hawthorn, elm and blackthorn.		1.80	10

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			N	E	S	W	Single Stem	2-5 stems					More than 5 stems												
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems											
63	Ash	11	7	5	7	6	95e								3	3N	M	C1&3	>10	Extensive crown dieback. Hollowing of main stem. Ash Dieback. Of broad squat form and could be retained within the hedgerow as an ecological resource.		11.40	408
64	Ash	18	9	8	7	7	88								3	3W	M	C1	>10	Larger tree growing within hedgerow. Extensive dieback due to lack of vitality and Ash Dieback. Hollowing at base and at circa 3m above ground level.		10.56	350
65	Ash	12	5	6	6	6	75e								3	3S	M	C1	>10	Larger component of hedgerow. Extensive crown dieback. Numerous splits and hollows that are useful ecological resources.		9.00	255
66	Ash	15	7	7	7	7	95e								3	3W	M	C1	>10	Larger component of hedgerow. Past crown dieback. Current evidence of Ash Dieback. Main stem covered in ivy. Some hollows and cavities associated with past branch loss. These form usual ecological resources.		11.40	408
67	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Predominantly hawthorn and elm with some blackthorn.		1.20	5
68	Ash	15	8	8	6	7	75e								3	3W	M	C1	>10	Larger component of hedgerow. Some hollowing associated with past stem loss. Ash Dieback.		9.00	255
69	Ash	15	7	7	6	7	65e								3	3S	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback.		7.80	191
70	Ash	9	5	4	4	3	28								2	2NW	S	C1	>10	Larger component of hedgerow. Ash Dieback.		3.36	35
71	Ash	9	4	3	3	2	40e								2	2W	S	C1	>10	Larger component of hedgerow. Ash Dieback		4.80	72
72	Mixed broadleaf hedge	1.2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Predominantly hawthorn and elm with some blackthorn.		1.20	5
73	Ash	9	4	4	3	3	35e								2	2W	S	C1	>10	Larger component of hedgerow. Ash Dieback.		4.20	55

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			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
74	Ash	8	3	4	4	3							6	15	2	2SE	E	C1	>10	Larger component of hedgerow.		2.79	24
75	Mixed broadleaf hedgerow	2av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow alongside field. Predominantly blackthorn with some hawthorn and elm.		1.20	5
76	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Established and well maintained hedgerow extending west of site.		1.20	5
77	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established and well maintained hedgerow around garden. Mixed species include Pyracantha, beech, hawthorn.		1.20	5
78	Group of mixed trees	11av	6av				45av								2	2E	S	B2	>20	Collection of small trees growing within adjoining garden. Species include yew, Norway maple, Scots pine, birch, Cypress and English oak.		5.40	92
79	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Established hedgerow at edge of field. Predominately elm with some blackthorn and hawthorn.		1.20	5
80	Row of ash	10av	6av				45av								2	2E	S	C2	>10	Row of trees within hedgerow. All smothered in ivy. All showing signs of Ash Dieback.		5.40	92
81	Group of conifers	11av	3av				25av								0	-	S	C2	>10	Small pocket of conifers growing beyond boundary. Predominantly Scot pine with some Norway spruce. Includes occasional hawthorn, blackthorn and sycamore and some elm.		3.00	28
82	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established hedgerow at edge of field. Predominately elm with some blackthorn and hawthorn.		1.20	5
83	Ash	17	6	7	8	9	75e								2	2W	E	C1	>10	Larger component of hedgerow. Some past storm damage. Extensive Ash dieback.		9.00	255
84	English oak	15	7	7	10	9	75e								3	3W	E	A1	>40	Visually significant broad spreading tree growing within hedgerow. Main stem smothered in ivy.		9.00	255
85	English oak	14	6	6	6	4	65e								2	2N	E	B1	>20	Larger component of hedgerow.		7.80	191

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			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
86	Ash	9	4	4	4	4	30e								2	2N	S	C1	>10	Small tree growing within hedgerow.		3.60	41
87	Ash	12	6	7	7	8	85e								4	4N	E	C1	>10	Has lost its central leader in the past. Main stem smothered in ivy. Extensive Ash Dieback.		10.20	327
88	English oak	11	5	5	5	6	60e								2	2W	E	B1	>20	Larger tree within hedgerow. Squat form. Main stem smothered in ivy.		7.20	163
89	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow alongside road. Mixture of hawthorn, blackthorn, field maple and elm.		1.20	5
90	Ash	15	7	5	7	6	75e								2	2W	E	C1	>10	Extensive decay in upper stem. Ash Dieback. Unsuited to long term retention adjoining the highway.		9.00	255
91	English oak	17	10	8	9	11	110e								2	2SW	M	A1&3	>40	Visually significant tree alongside road. Some deadwood within crown. Ivy smothered.		13.20	547
92	Ash	14	7	6	6	6	75e								2	2W	E	C1	>10	Has lost its central leader in the past. Extensive Ash Dieback. Main stem covered in ivy. Unsuited to retention alongside the highway.		9.00	255
93	English oak	13	6	6	7	7	80e								2	2S	E	A1&3	>40	Broad spreading tree in hedgerow adjoining highway. Some decay and splits associated with past branch loss.		9.60	290
94	Ash	13	6	3	6	7	44								2	2S	S	C1	>10	Larger component of hedgerow. Advanced Ash Dieback.		5.28	88
95	English oak	15	7	8	7	6	85e								2	2N	M	A1&3	>40	Squat tree growing within hedgerow. Some decay and splits associated with past branch loss. Main stem partially smothered in ivy.		10.20	327
96	Ash	14	5	6	5	5	45e								2	2S	S	C1	>10	Larger component of hedgerow but showing advanced Ash Dieback. Main stem covered in ivy.		5.40	92
97	Mixed broadleaf hedgerow	8av	4av				20av								0	-	E	B2	>20	Established but outgrown hedgerow alongside road. Mixed species including hawthorn, blackthorn, field maple, goat willow and elm.		2.40	18

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			N	E	S	W	Single Stem	2-5 stems				More than 5 stems											
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
98	Group of ash	12av	6av				40av								0	-	S	C2	>10	Group of trees within hedgerow. All showing signs of Ash Dieback.		4.80	72
99	Mixed broadleaf hedgerow	1.5av	1av				10av								0	-	E	C2	>10	Sparse section of hedgerow that is mainly dominated by bramble. Contains occasional hawthorn and blackthorn.		1.20	5
100	Mixed broadleaf hedgerow	6av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Predominantly hawthorn and blackthorn.		1.80	10
101	Mixed broadleaf hedgerow	3av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow at edge of field. Contains occasional larger ash and English oak.		1.20	5
102	Group of hybrid poplar	9av	3av				25av								0	-	S	C2	>10	Group of young trees growing in verge adjoining road.		3.00	28
103	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Extensive browsing has removed much of lower foliage. Species include elm, hawthorn and blackthorn.		1.20	5
104	Ash	16	10	9	10	9	80e								3	3N	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback. Main stem partially smothered in dead ivy.		9.60	290
105	Elm	13	6	7	5	4	31								2	2NE	S	C1	>10	Has outgrown from hedgerow and sheltered by the adjoining ash. Attaining a size where it many succumbed to Dutch Elm Disease.		3.72	43
106	Ash	16	7	8	7	3	65e								3	3SE	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback. Unsuited to long term retention.		7.80	191
107	English oak	16	8	7	6	6	80e								3	3S	M	B3	>20	Lacking vitality but larger component of hedgerow. Some splits and cavities associated with past branch loss. Hollowing of lower stem. Can be retained for its ecological value.		9.60	290

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			N	E	S	W	Single Stem	2-5 stems					More than 5 stems										
								Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Mean dia	No. stems									
108	English oak	17	9	9	8	7	90e								3	3S	M	A1&3	>40	Larger component of hedgerow. Broad spreading form. Main stem partially smothered in ivy. Some splits and cavities associated with past branch loss.		10.80	366
109	English oak	16	8	9	9	9	89								3	3W	M	A1&3	>40	Larger component of hedgerow. Broad form. Some splits and cavities associated with past branch loss.		10.68	358

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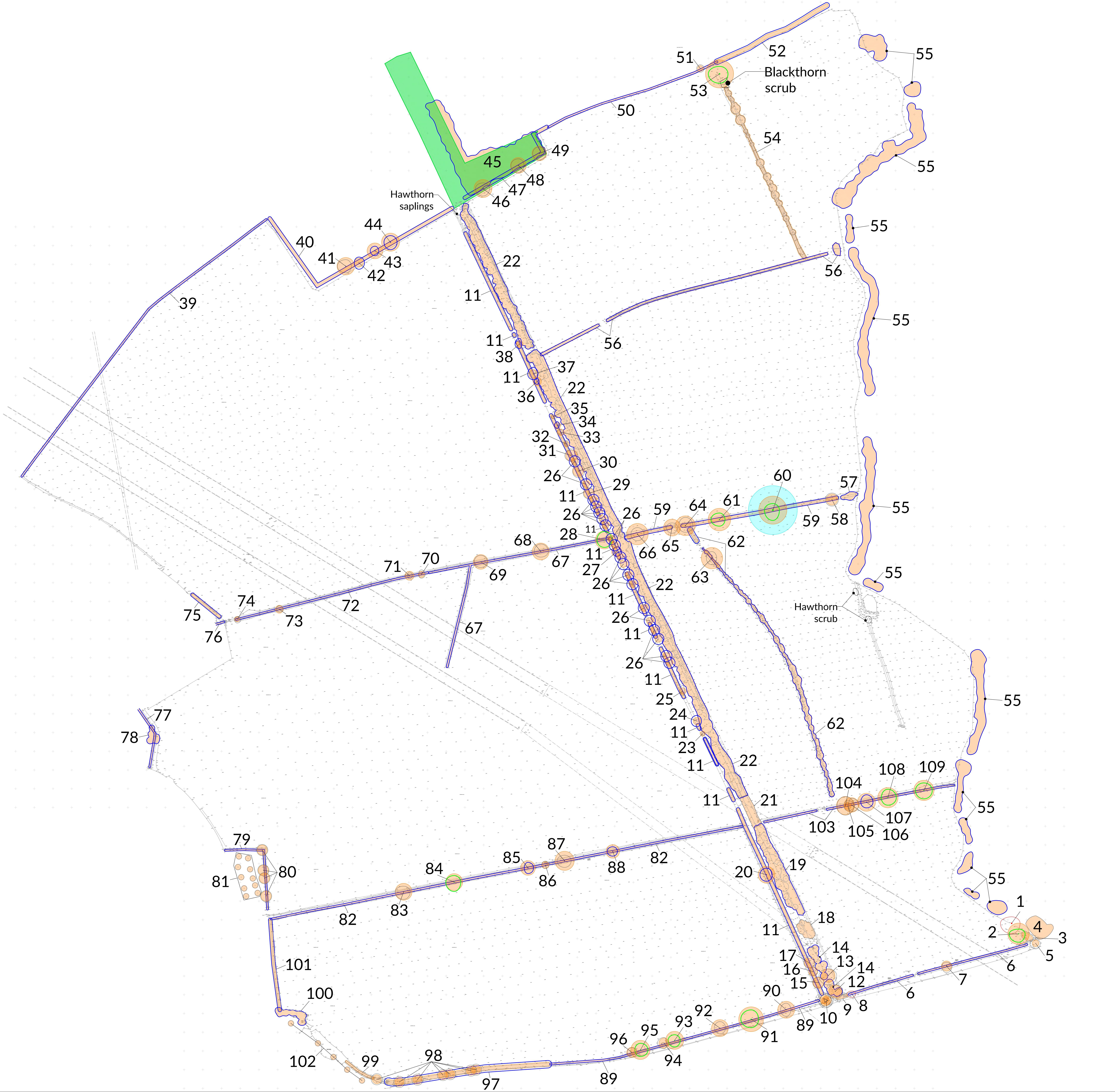
Tree No.	Species	Ht (m)	Branch Spread (m) N	E	S	W	Stem diameters (cm): Single Stem	2-5 stems: Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	More than 5 stems: Mean dia	No. stems	Height of crown clearance (m)	Height of first branch (m) and direction (compass point)	Age class	Category grading	Estimated remaining contribution (yrs)	Condition Physiological / Structural	Preliminary management recommendations	Root protection radius (m)	Root protection area sq.m
1	Ash	19	7	9	11	12	125e								5	5N	M	U	<10	Extensive stem decay due to *Inonotus hispidus*. Signs of Ash Dieback. Large broken section lodged within upper crown. Unsuited to long term retention		15.00	707
2	English oak	16	5	7	9	10	95e								2	2W	E	A1	>40	Broad spreading tree growing close to river, Main stem covered in ivy.		11.40	408
3	Group of elm	11av	4av				25av								0	-	S	C2	>10	Collection of elm, Some of which are dead. Interspersed with occasional hawthorn.		3.00	28
4	Group of crack willow	17av	10av				55av								0	-	E	C2	>10	Group of stems growing beyond river. All attaining proportions where they are liable to failure.		6.60	137
5	Ash	12	4	5	6	6	30								3	3SW	S	C1	>10	Small tree growing on verge adjoining ditch. Showing early signs of Ash Dieback.		3.60	41
6	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established and maintained hedgerow to rear of verge. Mixed species including hawthorn, blackthorn, elm, field maple and hazel.		1.20	5
7	Ash	12	4	6	7	5	45e								3	3SE	S	C1	>10	Small tree growing in hedgerow. Showing signs of Ash Dieback. Unsuited to long term retention.		5.40	92
8	Ash	10	3	4	4	5	50e								0	-	S	U	<10	Advanced Ash Dieback. Unsuited to retention adjoining the highway.		6.00	113
9	Mixed broadleaf hedgerow	6av	2av				10av								0	-	S	C2	>10	Section of hedgerow adjoining farm entrance. Primarily elm. Most of which are dead. Includes some hawthorn.		1.20	5
10	Group of ash	14av	7av				40av								2	2E	E	C2	>10	Cluster of three stems adjoining farm track entrance. All showing signs of advanced Ash Dieback. Unsuited to retention adjoining the highway.		4.80	72
11	Mixed broadleaf hedgerow	2av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow alongside former railway line. Mixed species including hawthorn and blackthorn.		1.20	5
12	Ash	15	7	8	8	9	57								3	3SW	E	C1	>10	Larger component of tree belt but showing signs of Ash Dieback. Unsuited to long term retention.		6.84	147
13	Ash	15	7	9	10	10	60								2	2SE	E	C1	>10	Larger component of tree belt but showing signs of Ash Dieback. Unsuited to long term retention.		7.20	163
14	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55
15	Ash	14	6	6	6	6	48								4	4S	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		5.76	104
16	Ash	12	5	5	4	3	40								2	2W	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		4.80	72
17	Ash	13	7	6	5	6	44								2	2W	E	C1	>10	Established tree growing on bank of old railway line. Showing signs of Ash Dieback.		5.28	88
18	Group of mixed broadleaves	7av	3av				15av								0	-	S	C2	>10	Collection of smaller trees underneath of overhead power lines. No tree of any particular merit. Mixed species including sycamore, hawthorn, ash and elder.		1.80	10
19	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55
20	English oak	17	7	6	7	7	76								2	2N	E	B1	>20	Established tree growing to the west of old railway line. Reasonable shape and form.		9.12	261
21	Group of mixed broadleaves	2av	1av				10av								0	-	S	C2	>10	Collection of smaller tress that are maintained to provide clearance to overhead wires. Species include hawthorn, field maple, alder and sycamore.		1.20	5
22	Mixed broadleaf tree belt	13av	4av				35av								0	-	S	B2	>20	Prominent band of trees growing to east of old railway line. Mixed species include hawthorn blackthorn, elder grey poplar, sycamore and English oak. Directly adjoining the old railway line it appears that trees have been planted rather than naturally established.		4.20	55
23	European larch	6	2	2	2	1	23								1,2	1.2S	S	C1	>10	Small tree growing to best of railway line.		2.76	24
24	English oak	11	6	5	6	6	33								2	2S	S	B1	>20	Small tree growing to best of railway line.		3.96	49
25	English oak	9	6	2	5	3	29								2	2N	S	C2	>10	Small tree growing to best of railway line.		3.48	38
26	Row of beech	11av	6av				30av								2	2N	S	B2	>20	Row of established trees to west of drive. Appear to have been planted.		3.60	41
27	English oak	12	5	5	5	4	45								2	2SW	S	B1	>20	Well formed tree growing to west of railway line.		5.40	92
28	English oak	17	9	8	8	8	80e								2	2S	M	A1	>40	Larger tree growing within hedgerow alongside ditch. Main stem covered in ivy.		9.60	290
29	Ash	14	6	6	6	6	46								3	3S	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.52	96
30	Ash	16	7	7	7	6	47								4	4N	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.64	100
31	Ash	7	6	7	6	7	49								3	3N	E	C1	>10	Established tree growing to west of railway line. Showing signs of Ash Dieback.		5.88	109
32	Southern beech	9	3	1	2	2	24								2	2N	S	C1	>10	Unusual species but suffering crown dieback.		2.88	26
33	Southern beech	11	3	2	2	4	31								2	2N	S	C1	>10	Unusual species but suffering crown dieback.		3.72	43
34	English oak	11	4	2	3	3	30								2	2W	S	B1	>20	Reasonably well formed tree growing to west of railway line.		3.60	41
35	English oak	5	2	2	2	2	16								1.5	1.5S	Y	C1	>10	Small tree growing to west of railway line.		1.92	12
36	Southern beech	11	3	2	3	3	38								2	2SW	S	B1	>20	In better condition than other examples of this species.		4.56	65
37	English oak	13	7	5	6	6	39								1.8	1.8W	S	B1	>20	Well formed tree growing to west of railway line.		4.68	69
38	English oak	13	6	2	5	5	30								2	2W	S	B1	>20	Reasonably well formed tree growing to west of railway line.		3.60	41
39	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established hedgerow around boundary of field. Primarily hawthorn and blackthorn. Includes occasional larger ash and English oak. Ash is showing signs of Ash Dieback.		1.20	5
40	Mixed broadleaf hedgerow	5av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow growing alongside ditch. Species include hawthorn, blackthorn, elm, field maple and English oak.		1.80	10
41	Ash	15	7	6	7	9		45e	45e	45e					2	2N	E	C1	>10	Multi stemmed tree growing to north off ditch. Showing signs of Ash Dieback.		9.35	275
42	English oak	14	6	6	7	5	40e								3	3S	S	B2	>20	Larger component of hedgerow. Growing to north of ditch.		4.80	72
43	English oak	11	5	4	5	5	70e								3	3S	E	B2	>20	Larger component of hedgerow. Growing to north of ditch.		8.40	222
44	English oak	15	7	7	8	7	80e								4	4S	E	B2	>20	Larger component of hedgerow. Growing to north of ditch. Main stem smothered in ivy.		9.60	290
45	Mixed broadleaf copse	15av	4av				35av								0	-	E	B2	>20	Established block of woodland to north of site. Mixed species including English oak, ash, cherry and occasional Scots pine and Norway spruce.		4.20	55
46	Ash	14	6	7	8	8	80e								3	3S	M	C2	>10	Contributes to woodland. Showing signs of Ash Dieback. Large cavity at circa 3-4 metres above ground level. Extensive hollowing. Potential ecological resource.		9.60	290
47	Mixed broadleaf hedgerow	6av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow along southern edge of copse. Growing to north of ditch.		1.80	10
48	Ash	15	7	6	8	8	70e								3	3S	E	C2	>10	Contributes to woodland group. Advanced Ash Dieback.		8.40	222
49	Ash	13	7	7	7	7	65e								3	3S	E	C2	>10	Contributes to woodland group. Advanced Ash Dieback.		7.80	191
50	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Well maintained hedgerow dividing fields. Predominantly hawthorn and blackthorn. Occasional elm and dogwood. Occasional gaps would benefit from restocking.		1.20	5
51	Ash	8	4	4	4	4		20e	15e						2	2S	S	C2	>10	Larger component of hedgerow showing signs of Ash Dieback.		3.00	28
52	Mixed broadleaf hedgerow	8av	3av				15av								0	-	E	B2	>20	Established, but outgrown, hedgerow between fields. Mixed species include hawthorn, blackthorn, elm and field maple.		1.80	10
53	English oak	18	8	9	10	12		82	98						3	3W	M	A1&3	>40	Larger component of hedgerow. Twin stemmed from ground level.		15.00	707
54	Mixed broadleaf hedgerow	6av	3av				30av								0	-	E	C2	>10	Established but derelict hedgerow with large gaps between. Plants within the hedgerow are of poor quality. Includes occasional ash that are showing advanced Ash Dieback. Would benefit from being brought back under management. This should be a gradual process to introduce new hedging plants within the row whilst retaining the ecological interest of the existing plants.		3.60	41
55	Group of mixed broadleaves	15av	8av				65av								0	-	E	B2	>20	Scattered clusters of trees alongside river corridor predominantly crack willow with some English oak, goat willow, hawthorn and blackthorn.		7.80	191
56	Mixed broadleaf hedgerow	2av	1.5av				15av								0	-	E	B2	>20	Established but sparse hedgerow. Browsing has removed much of the lower vegetation. Would benefit from being brought back under management.		1.80	10
57	Mixed broadleaf hedgerow	8av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Includes occasional taller elm. Would benefit from being brought back under management.		1.80	10
58	Group of ash	14av	7av				50av								0	-	E	C2	>10	Larger components of hedgerow. Were previously laid as part of the hedge. Now showing signs of Ash Dieback.		6.00	113
59	Mixed broadleaf hedgerow	3av	2av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Extensive browsing at lower level. Would benefit from being brought back under management. Mixed species including hawthorn, elm and blackthorn.		1.80	10
60	English oak	16	7	7	11	9	174								2	2S	M	A1&3	>40	Veteran tree with numerous cavities, splits and decay features that are useful ecological resources. Lower stem hollowed with apertures around base. Old fungal fruit bodies of Ganoderma species of decay fungi. Cavities at greater height. One appears to be used by nesting birds.		15.00	707
61	English oak	16	7	6	7	9	100e								3	3S	E	A1	>40	Larger component of hedgerow. Main stem smothered in ivy.		12.00	452
62	Mixed broadleaf hedgerow	7av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Sparse from the base. Extensive browsing at lower level. Would benefit from being brought back under management. Mixed species including hawthorn, elm and blackthorn.		1.80	10
63	Ash	11	7	5	7	6	95e								3	3N	M	C1&3	>10	Extensive crown dieback. Hollowing of main stem. Ash Dieback. Of broad squat form and could be retained within the hedgerow as an ecological resource.		11.40	408
64	Ash	18	9	8	7	7	88								3	3W	M	C1	>10	Larger tree growing within hedgerow. Extensive dieback due to lack of vitality and Ash Dieback. Hollowing at base and at circa 3m above ground level.		10.56	350
65	Ash	12	5	6	6	6	75e								3	3S	M	C1	>10	Larger component of hedgerow. Extensive crown dieback. Numerous splits and hollows that are useful ecological resources.		9.00	255
66	Ash	15	7	7	7	7	95e								3	3W	M	C1	>10	Larger component of hedgerow. Past crown dieback. Current evidence of Ash Dieback. Main stem covered in ivy. Some hollows and cavities associated with past branch loss. These form usual ecological resources.		11.40	408
67	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Predominantly hawthorn and elm with some blackthorn.		1.20	5
68	Ash	15	8	8	6	7	75e								3	3W	M	C1	>10	Larger component of hedgerow. Some hollowing associated with past stem loss. Ash Dieback.		9.00	255
69	Ash	15	7	7	6	7	65e								3	3S	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback.		7.80	191
70	Ash	9	5	4	4	3	28								2	2NW	S	C1	>10	Larger component of hedgerow. Ash Dieback.		3.36	35
71	Ash	9	4	3	3	2	40e								2	2W	S	C1	>10	Larger component of hedgerow. Ash Dieback		4.80	72
72	Mixed broadleaf hedge	1.2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Predominantly hawthorn and elm with some blackthorn.		1.20	5
73	Ash	9	4	4	3	3	35e								2	2W	S	C1	>10	Larger component of hedgerow. Ash Dieback.		4.20	55
74	Ash	8	3	4	4	3							6	15	2	2SE	E	C1	>10	Larger component of hedgerow.		2.79	24
75	Mixed broadleaf hedgerow	2av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow alongside field. Predominantly blackthorn with some hawthorn and elm.		1.20	5
76	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Established and well maintained hedgerow extending west of site.		1.20	5
77	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established and well maintained hedgerow around garden. Mixed species include Pyracantha, beech, hawthorn.		1.20	5
78	Group of mixed trees	11av	6av				45av								2	2E	S	B2	>20	Collection of small trees growing within adjoining garden. Species include yew, Norway maple, Scots pine, birch, Cypress and English oak.		5.40	92
79	Mixed broadleaf hedgerow	1.8av	1av				10av								0	-	E	B2	>20	Established hedgerow at edge of field. Predominately elm with some blackthorn and hawthorn.		1.20	5
80	Row of ash	10av	6av				45av								2	2E	S	C2	>10	Row of trees within hedgerow. All smothered in ivy. All showing signs of Ash Dieback.		5.40	92
81	Group of conifers	11av	3av				25av								0	-	S	C2	>10	Small pocket of conifers growing beyond boundary. Predominantly Scot pine with some Norway spruce. Includes occasional hawthorn, blackthorn and sycamore and some elm.		3.00	28
82	Mixed broadleaf hedgerow	2av	1av				10av								0	-	E	B2	>20	Established hedgerow at edge of field. Predominately elm with some blackthorn and hawthorn.		1.20	5
83	Ash	17	6	7	8	9	75e								2	2W	E	C1	>10	Larger component of hedgerow. Some past storm damage. Extensive Ash dieback.		9.00	255
84	English oak	15	7	7	10	9	75e								3	3W	E	A1	>40	Visually significant broad spreading tree growing within hedgerow. Main stem smothered in ivy.		9.00	255
85	English oak	14	6	6	6	4	65e								2	2N	E	B1	>20	Larger component of hedgerow.		7.80	191
86	Ash	9	4	4	4	4	30e								2	2N	S	C1	>10	Small tree growing within hedgerow.		3.60	41
87	Ash	12	6	7	7	8	85e								4	4N	E	C1	>10	Has lost its central leader in the past. Main stem smothered in ivy. Extensive Ash Dieback.		10.20	327
88	English oak	11	5	5	5	6	60e								2	2W	E	B1	>20	Larger tree within hedgerow. Squat form. Main stem smothered in ivy.		7.20	163
89	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow alongside road. Mixture of hawthorn, blackthorn, field maple and elm.		1.20	5
90	Ash	15	7	5	7	6	75e								2	2W	E	C1	>10	Extensive decay in upper stem. Ash Dieback. Unsuited to long term retention adjoining the highway.		9.00	255
91	English oak	17	10	8	9	11	110e								2	2SW	M	A1&3	>40	Visually significant tree alongside road. Some deadwood within crown. Ivy smothered.		13.20	547
92	Ash	14	7	6	6	6	75e								2	2W	E	C1	>10	Has lost its central leader in the past. Extensive Ash Dieback. Main stem covered in ivy. Unsuited to retention alongside the highway.		9.00	255
93	English oak	13	6	6	7	7	80e								2	2S	E	A1&3	>40	Broad spreading tree in hedgerow adjoining highway. Some decay and splits associated with past branch loss.		9.60	290
94	Ash	13	6	3	6	7	44								2	2S	S	C1	>10	Larger component of hedgerow. Advanced Ash Dieback.		5.28	88
95	English oak	15	7	8	7	6	85e								2	2N	M	A1&3	>40	Squat tree growing within hedgerow. Some decay and splits associated with past branch loss. Main stem partially smothered in ivy.		10.20	327
96	Ash	14	5	6	5	5	45e								2	2S	S	C1	>10	Larger component of hedgerow but showing advanced Ash Dieback. Main stem covered in ivy.		5.40	92
97	Mixed broadleaf hedgerow	8av	4av				20av								0	-	E	B2	>20	Established but outgrown hedgerow alongside road. Mixed species including hawthorn, blackthorn, field maple, goat willow and elm.		2.40	18
98	Group of ash	12av	6av				40av								0	-	S	C2	>10	Group of trees within hedgerow. All showing signs of Ash Dieback.		4.80	72
99	Mixed broadleaf hedgerow	1.5av	1av				10av								0	-	E	C2	>10	Sparse section of hedgerow that is mainly dominated by bramble. Contains occasional hawthorn and blackthorn.		1.20	5
100	Mixed broadleaf hedgerow	6av	3av				15av								0	-	E	B2	>20	Established but outgrown hedgerow. Predominantly hawthorn and blackthorn.		1.80	10
101	Mixed broadleaf hedgerow	3av	2av				10av								0	-	E	B2	>20	Established but outgrown hedgerow at edge of field. Contains occasional larger ash and English oak.		1.20	5
102	Group of hybrid poplar	9av	3av				25av								0	-	S	C2	>10	Group of young trees growing in verge adjoining road.		3.00	28
103	Mixed broadleaf hedge	2av	1av				10av								0	-	E	B2	>20	Established hedgerow between fields. Extensive browsing has removed much of lower foliage. Species include elm, hawthorn and blackthorn.		1.20	5
104	Ash	16	10	9	10	9	80e								3	3N	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback. Main stem partially smothered in dead ivy.		9.60	290
105	Elm	13	6	7	5	4	31								2	2NE	S	C1	>10	Has outgrown from hedgerow and sheltered by the adjoining ash. Attaining a size where it many succumbed to Dutch Elm Disease.		3.72	43
106	Ash	16	7	8	7	3	65e								3	3SE	E	C1	>10	Larger component of hedgerow. Advanced Ash Dieback. Unsuited to long term retention.		7.80	191
107	English oak	16	8	7	6	6	80e								3	3S	M	B3	>20	Lacking vitality but larger component of hedgerow. Some splits and cavities associated with past branch loss. Hollowing of lower stem. Can be retained for its ecological value.		9.60	290
108	English oak	17	9	9	8	7	90e								3	3S	M	A1&3	>40	Larger component of hedgerow. Broad spreading form. Main stem partially smothered in ivy. Some splits and cavities associated with past branch loss.		10.80	366
109	English oak	16	8	9	9	9	89								3	3W	M	A1&3	>40	Larger component of hedgerow. Broad form. Some splits and cavities associated with past branch loss.		10.68	358



NORTH

0 10m 35m 70m 140m

NOTES

1. **This tree survey information has been prepared for planning purposes only. Additional detail will be needed for foundation design.**
2. The original of this drawing was produced in colour - a monochrome copy should not be relied upon.
3. Scale for planning purposes only.
4. All dimensions to be checked on site.
5. The copyright of this document resides with Keen Consultants unless assigned in writing by the company.
6. Details shown on this drawing are devised with reference to *BS5837:2012:Trees in relation to design, demolition and construction - Recommendations.*
7. Check if Tree Preservation Order or Conservation Area protection applies to trees before undertaking tree works.
8. Priority Habitat Inventory - Deciduous Woodland (England) based on information from MAGIC website.
9. Topographical survey based on WARNER SURVEYS drawing number RT/224/0025/P/0001.
10. Where trees were not identified on the topographical survey they have been plotted by eye.

KEY

1. Trees to be considered for retention:
   (Coloured line indicates extent of canopy)
   - Tree Category A 1,2 or 3 - Trees of high quality
   - Tree Category B 1,2 or 3 - Trees of moderate quality
   - Tree Category C 1,2 or 3 - Trees of low quality
2. Trees unsuitable for retention:
   (Coloured line indicates extent of canopy)
   - Tree Category U - Trees that cannot realistically be retained due to their condition
3. Protection Areas:
   - Root Protection Area (RPA) (where RPAs overlap the shading will appear darker)
   - Natural England's recommended - 15 x stem diameter buffer
4. Tree/Hedge numbering:
   - 20 Tree number - refer to schedule for information
5. Designations:
   - Priority Habitat Inventory - Deciduous Woodland (England)

KEY TO TREE SCHEDULE

Column Heading	Explanation
Tree No.	Unique number corresponding with number on plan
Species	English names
Ht (m)	Height in metres
Branch Spread	Crown radius in metres to cardinal points of the compass
Stem Dia	All measurements conform to Annex C of BS 5837:2012 Single stem - Stem diameter in centimetres measured at 1.5m above ground level. Multi-stemmed tree with 2 to 5 stems - Diameter of each stem Multi-stemmed tree with more than 5 stems - Average stem diameter and number of stems
Height of crown clearance	Height in metres between the ground and underside of canopy
Height of first major branch and direction of growth	Height from ground level to base of first major branch and the approximate direction of growth
Abbreviations as suffix to a dimension	Suffix 'e' denotes an estimated dimension Suffix 'av' denotes an average dimension
Age Class	Age Class definitions: Y = Young S = Semi-mature E = Early mature M = Mature O = Over mature
Category grading	Summary of BS 5837: 2012 categorisation: 1. Trees unsuitable for retention: U = those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer that 10 years 2. Trees to be considered for retention: A1, 2 or 3 = trees of high quality (substantial contribution >40 yrs) B1, 2 or 3 = trees of moderate quality (significant contribution >20 yrs) C1, 2 or 3 = trees of low quality (but adequate, ie >10 yrs or young trees - until new planting can be established)
Estimated remaining contribution (yrs)	Note: Useful estimated remaining contribution of the tree or tree group based on figures stated in BS5837:2012
Condition	Brief description including physiological and structural defects
Preliminary management recommendations	Describes current arboricultural requirement for the tree in its current context
Root Protection Radius	Radius of minimum root protection area in metres calculated from section 4.6 and Annex D of BS5837:2012
Root Protection Area	Total area of minimum root protection area extrapolated from root protection radius

Rev	Description	Date
0	Preliminary issue	03.05.24

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Client
STATKRAFT

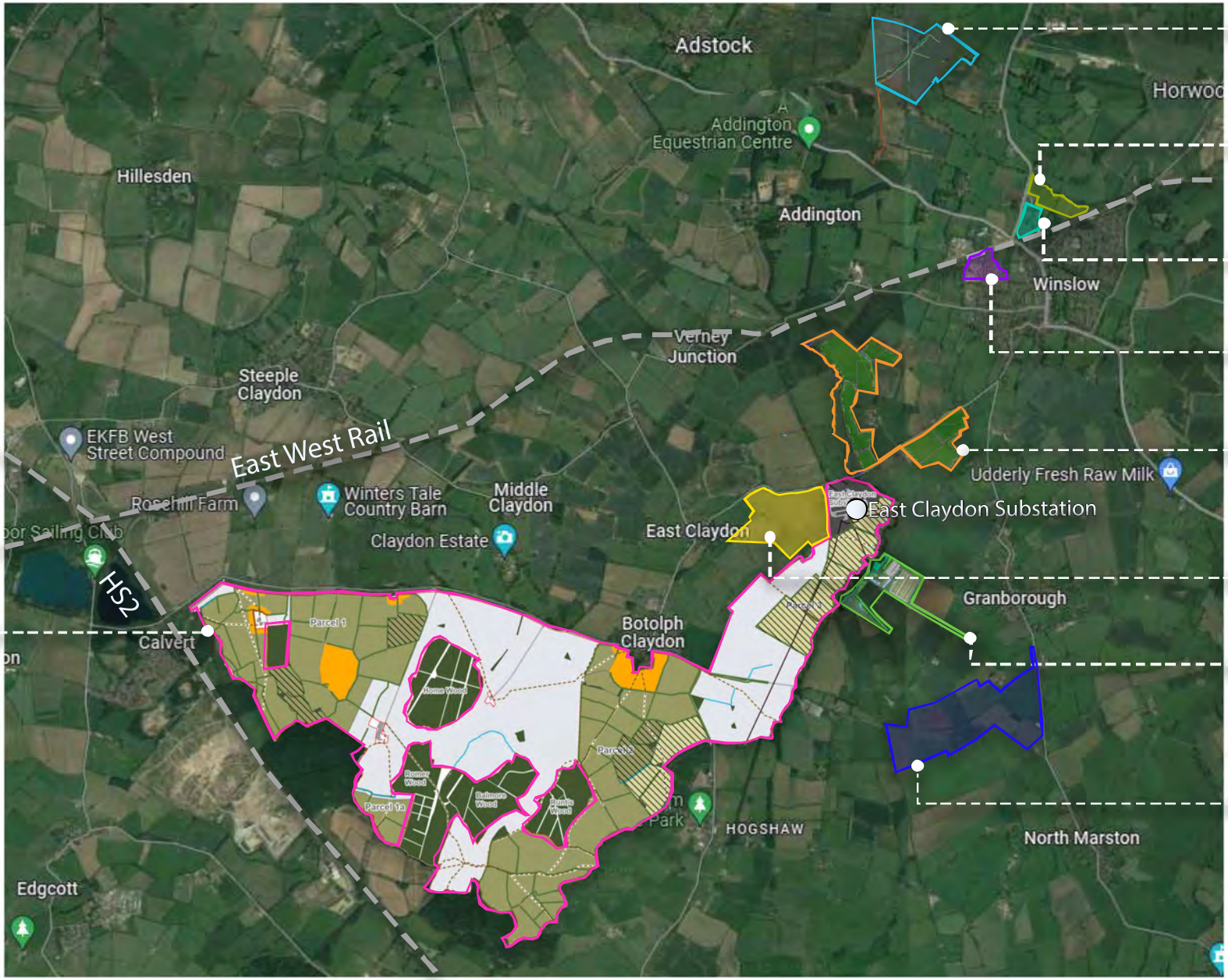
Project
LAND NORTH OF EAST CLAYDON SUB-STATION & EAST CLAYDON ROAD, EAST CLAYDON

Title
TREE CONSTRAINTS PLAN

Date	Scale
MAY 2024	1:1000@2A0
Drawn by	**Checked by**
MJE	JTK

Drawing Number
2291-KC-XX-YTREE-TCP01Rev0

Appendix 4 **Cumulative Schemes Plan**



Rosefield Solar Farm
incl. battery storage (NSIP)
Applicant: EDF Renewables
At Pre-application stage. Application for DCO expected to be submitted to PINS Jan-Mar 2025

LEGEND:
- Site Boundary
- Existing woodland
- Existing hedgerows retained and enhanced
- Existing watercourses
- Existing power lines
- Existing Public Rights of Way
- Existing National Grid Substation
- Potential area for solar development and/or mitigation and enhancement
- Potential area for solar development, project substation and/or consolidated battery storage and/or mitigation and enhancement
- Potential area for Collector Compound(s)
- Potential area for mitigation and/or enhancement
- Area for underground cable routes, access tracks and temporary construction compounds (locations to be determined)

20/02582/APP - Full application for Solar Farm and associated infrastructure
Fox Covert
Applicant: Low Carbon
Approved 1 June 2021 (completed)

22/B2214/NON - Non-material amendement to planning permission 22/02214/ADP re developemt of 198 dwellings
Applicant: BDW Trading Ltd. (David Wilson Homes)
Pending consideration

19/03482/AOP - Outline planning with all matters reserved up to 120 dwellings
Applicant: Land and Partners Ltd
Approved 31 Aug 2021 (contruction not started yet)

13/02837/AOP - Outline planning with all matters reserved up to 250 dwellings
Applicant: Land and Partners Ltd
Approved 30 April 2014 (final phase under construction)

19/00983/APP - Full application for Solar Farm and associated infrastructure
Tuckey Farm
Applicant: Elgin Energy EsCo
Approved 29 Apr 2021. All pre-commencement conditions discharged.

East Claydon Replacement Substation. At surveys and technical assessment stage. Application expected to be submitted to Bucks Council in 2025

23/03875/APP - Full application for BESS and associated infrastructure
Rookery Farm
Applicant: Statera
Application pending - likely to be determined Q3/Q4 2024

23/01939/SO - Screening Opinion for solar farm of up to 49.9MW
Wings Farm
Applicant: Noventum Power Ltd
EIA decision 11 Aug 2023

Appendix 5 **LVIA Figures**

KEY

- Site Boundary
- 1km
- 2km

0 200 400 600 800 1,000 m

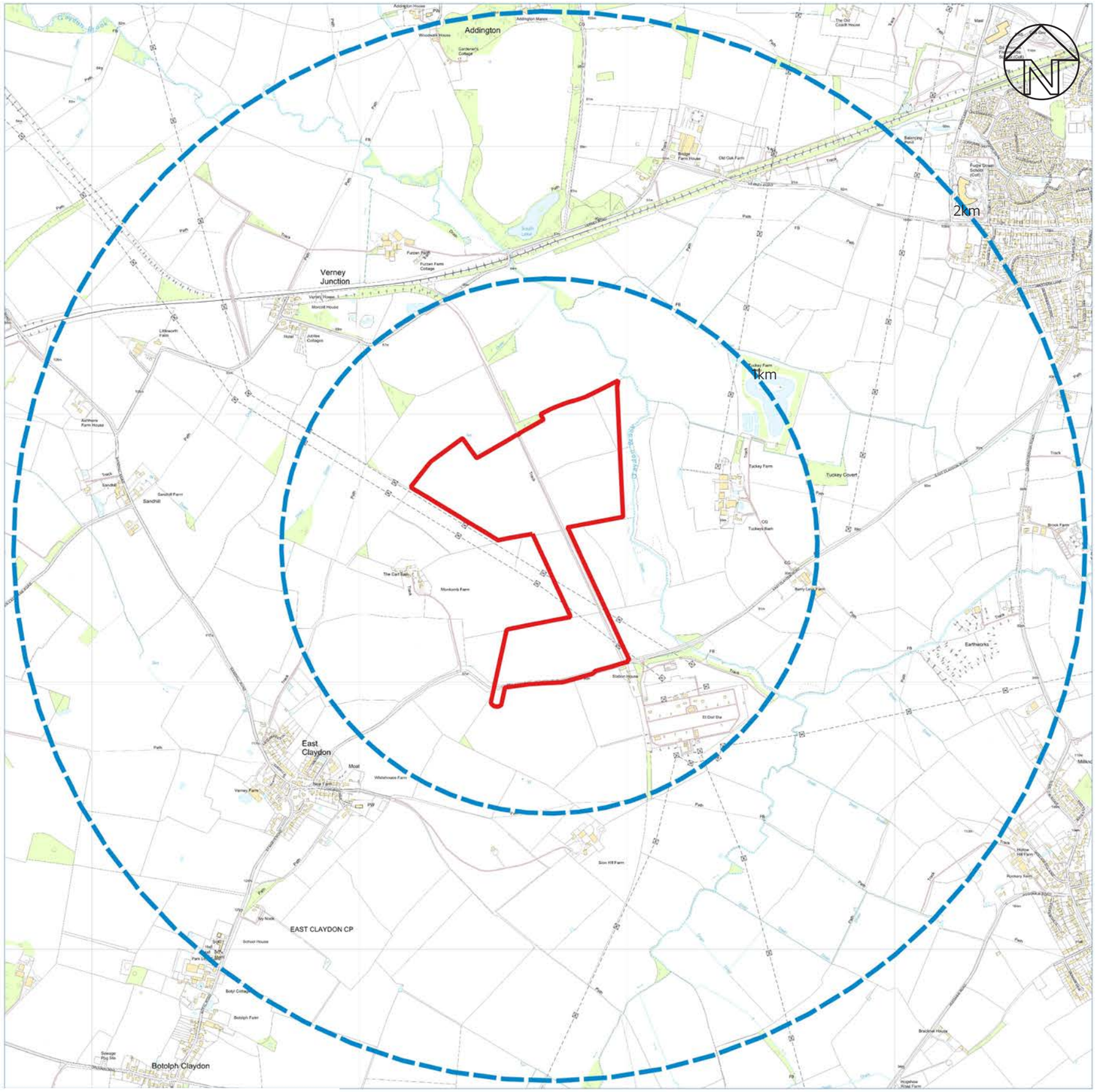


Figure 5.1 - Site Location and Study Area

KEY

Site Boundary

Viewpoints

0 100 200 300 400 500 m

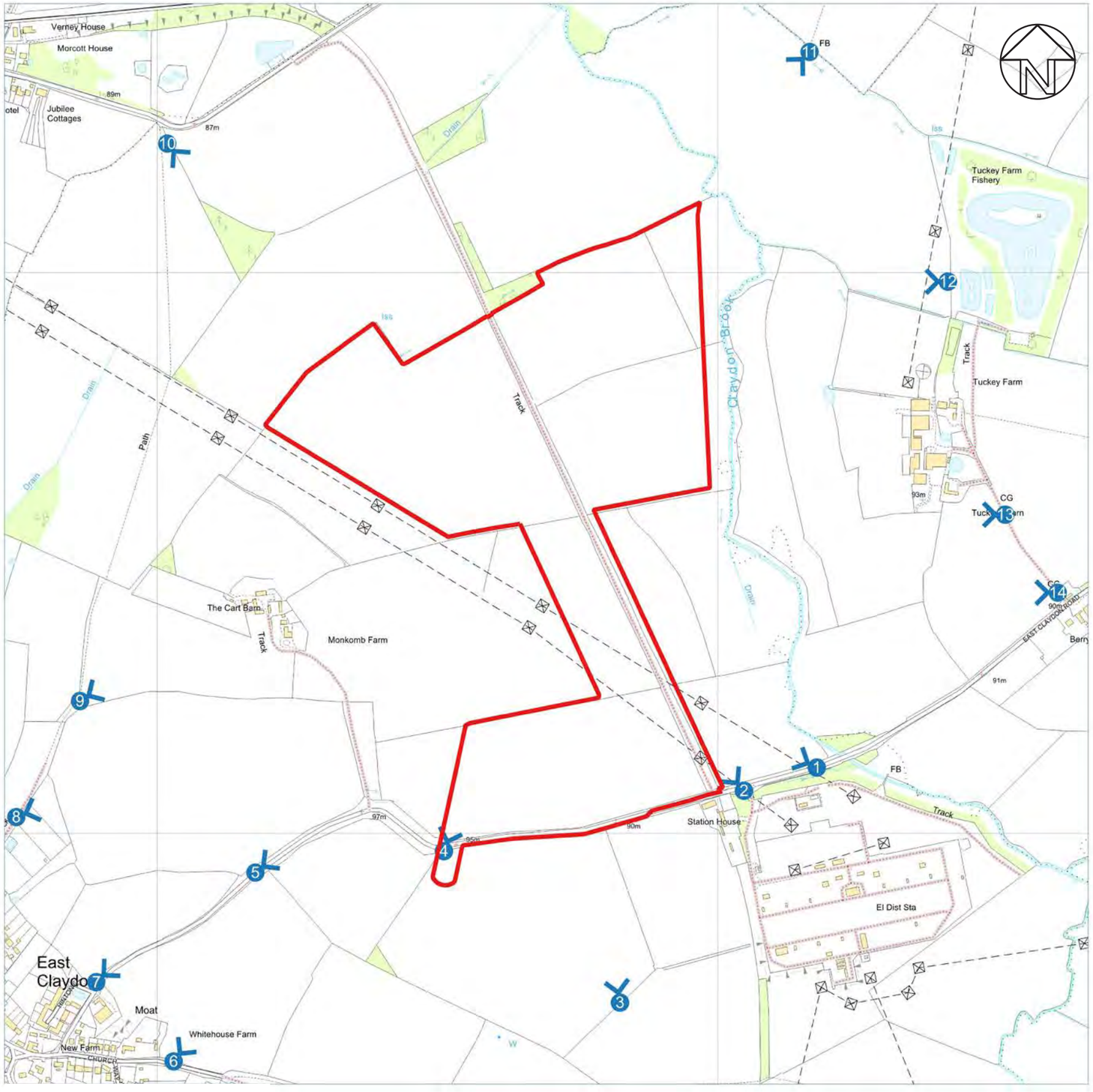


Figure 5.2 - Viewpoints - Close Range

KEY

- Site Boundary
- 1km
- 2km
- Viewpoints

0 200 400 600 800 1,000 m

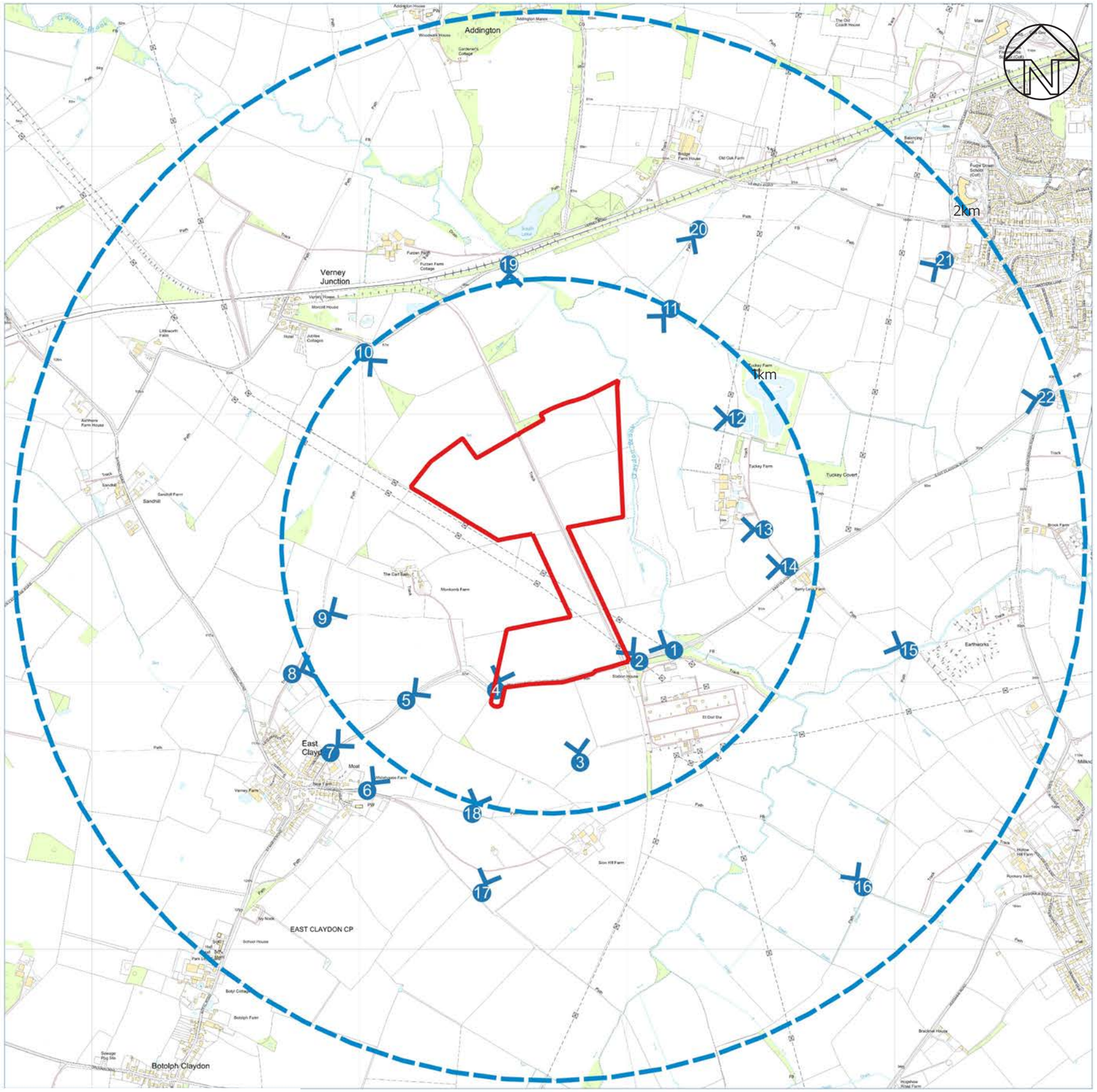


Figure 5.3 - Viewpoints

Appendix 6 **Noise Figures**

N

Furzen Farm

South Lake

NAL6

Verney Junction

NAL7

NML03

NAL1

Tuckey Farm

Tuckey Covert

NAL2

NML04

EAST CLAYDON ROAD

NAL5

Monkomb Farm

NML05

NAL3

Berry Leys Farm

NML02

NML01

NAL4

Claydon Brook

Station House

SANDHILL ROAD

0 0.5 1 Kilometre

Contains OS data © Crown copyright and database right 2024

LEGEND

Development Area Under Consideration

Noise Assessment Locations (NALs)

Noise Assessment Locations (NALs)

Noise Monitoring Locations (NMLs)

NML01 - TNEI: April - May 2024

NML02 - TNEI: April - May 2024

NML03 - TNEI: April - May 2024

NML04 - RPS: August 2021

NML05 - RPS: August 2021

Noise Sensitive Receptors (NSRs)

NSRS for which NML01 is Judged Representative

NSRS for which NML02 is Judged Representative

NSRS for which NML03 is Judged Representative

NSRS for which NML04 is Judged Representative

NSRS for which NML05 is Judged Representative

Rev.	Date	Amendment Details	Drawn	Approved
1	09/08/2024	UPDATED DEVELOPMENT AREA UNDER CONSIDERATION	JCM	MC
0	17/06/2024	FIRST ISSUE	JCM	MC

tnei

Client: Statkraft

Drawing Status: FOR PLANNING

Project Title: EAST CLAYDON GREENER GRID PARK

Drawing Title: FIGURE 6.1 NOISE MONITORING AND ASSESSMENT LOCATIONS

Scale:	Original Size:	Spatial Reference:
1:7,500	A3	British National Grid

Drawing Number: 16206-004

Appendix 7 **Heritage Figures**

Figure 11.1. View southwest towards East Claydon and the Tower of the Church of St Mary (indicated by red arrow) from north of former railway track.

Figure 11.2. View southeast towards Tuckey Farmhouse (indicative location illustrated by red arrow) from northeast field.

Appendix 8 **Preliminary Flood Risk Assessment and Drainage Strategy**

Technical Note 1: Flood Risk & Drainage Summary

Site:	Site north of the East Claydon Sub Station and East Claydon Road, East Claydon, Buckinghamshire, MK18 2LF
Prepared by:	Chris Gray
Approved by:	Jason Morgans
Date:	22 April 2024

84 North Street
Guildford
GU1 4AU

Tel: 01483 531300
www.motion.co.uk

1.0 General

1.1 This preliminary flood risk & drainage assessment has been produced to discuss the flood risks to the proposed development, from all sources. This preliminary flood risk & drainage assessment will also define how the site will manage its surface water so that the development does not increase flood risk in the area or to neighbouring properties/land. The Preliminary Site Layout can be found in Appendix A.

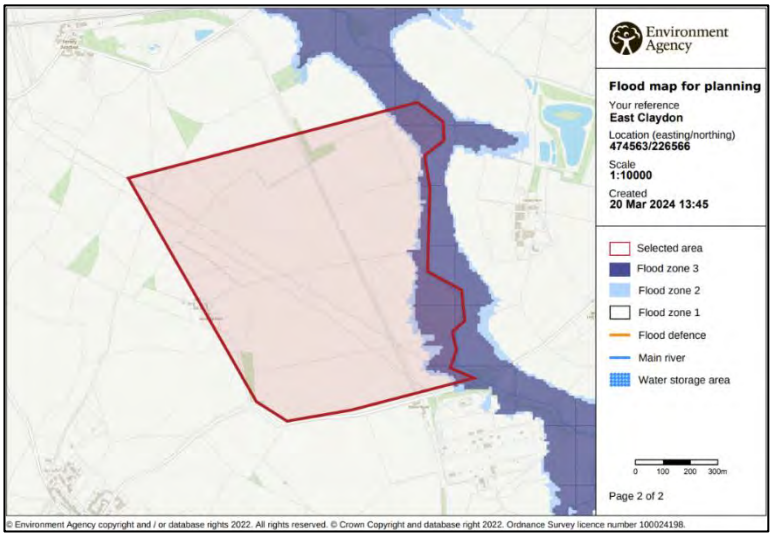
1.2 This Flood Risk & Drainage Summary follows the guidance set out in:

- National Planning Policy Framework (NPPF)
- Planning Practice Guidance (PPG) to the National Planning Policy Framework
- CIRIA SuDS Manual 2015 (C753)
- Environment Agency Rainfall Runoff Management for Developments
- Non-Statutory Technical Standards for SuDS (NSTS)
- Buckinghamshire Council's SuDs design guidance.

2.0 Existing Site

2.1 With reference to Figure 1 below, the approximately 61.48 hectares (ha) site is predominantly located within Flood Zone 1, except for the parts of the site along the eastern boundary adjacent to Claydon Brook which are located within Flood Zones 2 and 3.

Figure 1: Environment Agency (EA) Flood map for planning



2.2 With reference to the EA's Risk of Flooding From Surface Water (RoFSW) map in Figure 2, the site is predominantly located in the 'very low' surface water flood risk category. However, parts of the proposed site are located within the medium and high risk surface water flood extent, mainly associated with linear ditch / watercourse features that are present on the site.

Figure 2: EA RoFSW map

2.3 The site falls from a high point of around 97.60m Above Ordnance Datum (AOD) close to the southeast corner of the site, to a low point of around 85.00m AOD at the northeast corner of the site. The general slope from the high point to the low point is estimated to be around 1 in 85. The proposed battery energy storage (BESS) area is around 86.20m AOD.

2.4 The EA Statutory Main River Map confirms that the nearest main river (Claydon Brook) flows north approximately adjacent and to the east of the site.

2.5 Reference to the OS 1:10,000, 1949-1973 map series available to view on the National Library of Scotland Side by Side Georeferenced Maps Viewer Website shows an ordinary watercourse that flows from the northern boundary of the site towards Claydon Brook. The EA Statutory Main River Map also appears to show parts of the ordinary watercourse route, including the connection to Claydon Brook, approximately 480m north of the proposed BESS area.

2.6 The British Geological Survey (BGS) online 1:50,000 GeoIndex mapping identifies that:

- the underlying superficial geology is Alluvium, which is 'silty clay, but can contain layers of silt, sand, peat and a basal gravel'; and,
- the underlying solid geology is Stewartby Member Mudstone, which is 'commonly smooth, variably silty, calcareous, poorly fossiliferous, blocky mudstones'.

2.7 Defra's Magic Map website lists the soil as being 'slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils'.

2.8 Defra's Magic Map website indicates the site is in the Upper and Bedford Ouse Management Catchment; the superficial and bedrock geology are designated Secondary A and Unproductive aquifers respectively; and the Groundwater Vulnerability Map (England) classification is Low.

2.9 Defra's Magic Map website indicates the site is located in a drinking water safeguard zone.

2.10 Defra's Magic Map website indicates the site is not located in a drinking water protected area or a groundwater source protection zone.

2.11 The Government Check your long term flood risk website also indicates flooding from groundwater and reservoirs is unlikely in the site area.

Preliminary Drainage Strategy

2.12 The proposed BESS area is located to the south of a network of existing watercourses that are connected to Claydon Brook main river to the north of the site. The existing site falls to these watercourses and it is possible

for surface water runoff from the development to drain by gravity to these watercourses, which will mimic the natural drainage of the site.

2.13 The proposed BESS area and existing vehicle access / drive area are approximately 6.73 ha.

2.14 The greenfield runoff rates have been calculated using HR Wallingford's UKSuDS online calculator. The QBAR greenfield runoff rate for the additional impermeable area (6.73 ha) is estimated to be around 29.28 l/s.

2.15 On the basis infiltration of surface water is indicated not to be viable, the preliminary surface water drainage strategy for the site will look to use Type B partial infiltration and / or Type C no infiltration pervious pavements, swales and two approximately 750m^2 attenuation basins with permanent pools of water for the attenuation and disposal of surface water. HydroBrake Flow Control Chambers will control discharge to 29.28 l/s for the 100 year + 40% climate change critical rainfall event.

2.16 The surface water drainage strategy will be based on SuDS principles, including interception; source control; treatment; conveyance; peak flow and volume control; storage; and exceedance routes.

2.17 In conclusion, this Flood Risk & Drainage Summary Technical Note has shown that the proposed BESS area and existing vehicle access / drive area are at a low risk of fluvial flooding but are at up to a high risk of surface water flooding. Surface water flooding will not be a constraint on this site if the developed area is kept out of this area or does not displace surface water.

2.18 The site area indicates that the site has appropriate areas available for SuDS features that will manage surface water run-off sustainably for the 1 in 100-year + 40% critical rainfall event, without resulting in flooding on or off-site.

2.19 The site will restrict the discharge of surface water from the additional proposed impermeable areas to the existing QBAR greenfield runoff rate.

2.20 With regards to any future Planning Applications, a carefully considered scheme of surface water management should meet the requirements of the NPPF and does not pose a constraint to development.

Appendix A

Preliminary Site Layout

LEGEND:

- APPLICATION SITE BOUNDARY
- (1) PROPOSED DEVELOPMENT EXTENT
- (2) PROPOSED SOFT LANDSCAPING
- (3) OPERATIONAL ACCESS
- (4) EXISTING 400kV OVERHEAD LINE & ASSOCIATED 25m BUFFER EITHER SIDE
- (5) EXISTING 132kV OVERHEAD LINE & ASSOCIATED 12m BUFFER EITHER SIDE
- (6) PROPOSED TEMPORARY CONSTRUCTION ACCESS
- (7) PROPOSED SUDS BASINS
- (8) PROPOSED UNDERGROUND CABLE ROUTE TO POINT OF CONNECTION

N

Scale; 1; 5,000 Metres

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200

Project:

East Claydon Greener Grid Park

Drawn by:

Statkraft

Statkraft UK Ltd.
19th Floor, 22 Bishopsgate
London, EC2N 4BQ
Tel: +44 (0) 20 7549 1000

Drawing Title:

Indicative Proposed Development Parameters Plan

Drawn:	Issued:	
RC	14.08.2024	
Sheet Size: A3	Scale: 1:5000	Revision: 00

Appendix 9 **Phase I Desk Study**

A-squared Studio

East Claydon

Phase I Desk Study

August 2024

3358-A2S-XX-XX-RP-Y-0001-00

Project Name	East Claydon
Project Number	3358
Client	Litchfields Ltd on behalf of Statkraft Ltd
Document Name	Phase I Desk Study

A-squared Studio Engineers Ltd
One Westminster Bridge Rd
London, SE1 7XW

020 7620 2868
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Prepared by	Checked by	Approved by
Finlay Campbell MSci (Hons)	Kelley Swana BSc(Hons), MSc	A. Nikolic BEng(Hons), MSc, DIC, CEng, MICE, MSt(Cantab)
Senior Geo-environmental Consultant	Senior Geo-environmental Consultant	Director

Document Reference	Status	Notes	Revision	Issued by	Date
3358-A2S-XX-XX-RP-Y-0001-00	First Issue	-	00	FC	19/04/24
3358-A2S-XX-XX-RP-Y-0001-01	Second Issue	Updated red line and development line boundary. In addition, updated development plan and responses from EA and local authority.	01	FC	09/08/24

Contents

Appendices

1. Introduction

A-squared Studio Engineers Ltd (A-squared) has been engaged by Lichfields Ltd (Litchfield) on behalf of Statkraft UK Ltd (Statkraft) to prepare a phase I desk study report for the proposed development at the land north of East Claydon Substation, Claydon Road, MK18 2LF (herein called the 'wider site'). The proposed development is described in more detail in Section 6 but can generally be described as the development of a Battery Energy Storage System (BESS) development and associated features in the northern portion of the wider site with an access road.

1.1. Study Aims and Objectives

The desk study develops an initial Conceptual Site Model (CSM) and provides a qualitative Preliminary Risk Assessment (PRA) for the proposed development in accordance with *Land Contamination Risk Management* (LCRM) guidance, published by the Environment Agency on the UK Government website. The desk study has been prepared in the context of the *National Planning Policy Framework* (NPPF) and *The Building Regulations 2010, Approved Document C - Site preparation and resistance to contaminants and moisture (2004 Edition incorporating 2010 and 2013 amendments)*. The desk study includes an assessment of whether there are any unacceptable risks (ref. *LCRM* guidance) requiring further geo-environmental investigation.

Preliminary geotechnical assessment is not included in this desk study.

The outcomes of this desk study have been developed based on information current at the time of writing.

1.2. Information Sources

The desk study has been prepared based on information available in the public domain and in the provided documentation, including the following sources:

- *Envirocheck Report* for East Claydon prepared by Landmark Information Group, dated April 2024 (ref. 342200018_1_1), included in Appendix B.
- *Preliminary Unexploded Ordnance (UXO) Risk Assessment* for East Claydon prepared by RMS UXO Ltd, dated April 2024 (ref. IN)5135), included in Appendix C.
- Site walkover undertaken by representatives of A2S on 18th April 2024.
- British Geological Survey, GeoIndex Onshore GIS database (accessed 15th April 2024); https://mapapps2.bgs.ac.uk/geoindex/.
- Department for Environment, Food & Rural Affairs (DEFRA), Magic Map Application (accessed 15th April 2024); http://magic.defra.gov.uk/MagicMap.aspx.
- Historic England, online Aerial Photo Explorer (accessed 15th April 2024); https://historicengland.org.uk/images-books/archive/collections/aerial-photos/.
- UK Health Security Agency (UKHSA) and BGS radon mapping (accessed 15th April 2024); https://www.ukradon.org/information/ukmaps.
- Google Earth (ref. earth.google.com/web/), accessed 15th April 2024.
- Flood Maps for Planning (ref. https://flood-map-for-planning.service.gov.uk/) (accessed 15th April 2024).
- Local authority planning portal (ref. https://www.buckinghamshire.gov.uk/planning-and-building-control/view-and-comment-on-a-planning-application/), accessed 15th April 2024.

2. Site Setting

2.1. Location and Current Site Use

The site is located at East Claydon Substation, Claydon Road, MK18 2LF with the area of proposed development located in the most northerly portion, as shown in Figure 2.1. The approximate National Grid reference for the wider site is 474360, 226100 with a total wider site footprint of approximately 41.89 hectares. The area of the proposed development has a site footprint of approximately 9.5 hectares. The ground surface elevation across the wider site ranges from approximately 87m Above Ordnance Datum (AOD) in the north and east rising to approximately 90m AOD and 93m AOD to the south and west respectively. This change in elevation results in a gentle slope to the north and east across the entire wider site. Within the proposed development boundary, the ground surface is relatively flat with a surface elevation of approximately 87m AOD.

The proposed development and wider site area fall within the administrative boundaries of Buckinghamshire Council and currently consists of undeveloped land with a 'track' running through the center. This track is used as a pedestrian walkway and for agricultural vehicle (for example tractor) movement. Overhead electrical wires are present in the western portion of the wider site.

The current land uses within a 250 m radius surrounding the wider site are summarised in Table 2.1.

Figure 2.1 Location of the proposed development (red line reflects the wider site boundary and blue line the proposed development boundary used for this assessment)

Table 2.1 Surrounding land uses summary

Bearing from Site	Features directly adjacent to the wider site boundary	Other identified land uses and key structures
North	Undeveloped, soft landscaped fields	Up to and beyond 250m north of the wider site boundary are undeveloped, soft landscaped fields.
South	East Claydon Road, a single carriageway road.	Up to and beyond 250m south of the wider site boundary is predominantly undeveloped, soft landscaped fields. However, a large National Grid Substation is present approximately 120m south of the wider site boundary (780m south of the proposed development site boundary).
East	Undeveloped, soft landscaped fields	Up to and beyond 250m east of the wider site boundary are undeveloped, soft landscaped fields. A surface water feature named 'Claydon Brook' is located approximately 65m east of the wider site boundary (approximately 100m east of the proposed development boundary).
West	Undeveloped, soft landscaped fields	Up to and beyond 250m west of the wider site boundary are undeveloped, soft landscaped fields. Residential properties are located 250m west of the site. These are assumed to be part of farmland.

2.2. Site Walkover

A site walkover was undertaken by A-squared on the 18th April 2024. A summary is presented in this Section 2.2. Walkover records are included as Appendix D and these should be reviewed alongside the summary details below.

The wider site currently consists of a number of soft landscaped, undeveloped fields with a single track running in a north to south direction straight down the wider site centre. During the walkover it was noted that sheep were grazing on the field and therefore there is potential that the developed area and wider site has agricultural uses. The track in the centre of the site has a soft landscaped surfacing with gravel and is lined on either side by dense vegetation including trees and bushes in addition to shallower surface drainage ditches predominantly consisting of decaying leaf matter. Water was sporadically observed within these drainage ditches and was shallow with no observable flow direction. Each ditch was approximately less than 0.5m deep.

The northern portion of the site (north adjacent to the development area) was bordered by dense vegetation and another surface water drain. Similar to the drains along the track, the drain which runs along the northern site border was shallow and did not contain a substantial amount of water.

Other notable features identified on site include a pile of metal structures located in the central region and two electrical power lines that cut across the wider site in a northwest to southeast direction. The towers to support these lines are spread across the fields with one tower placed on the track in the southern portion of the wider site. On inspection, none of these features had evidence of any surface staining from former activities such as chemical spills in their vicinity.

During the walkover no industrial infrastructure (such as tanks or pipe work), storage of significant chemicals or evidence of former spills / leaks from vehicles were observed.

A site features plan can be observed as Figure 2.2 below.

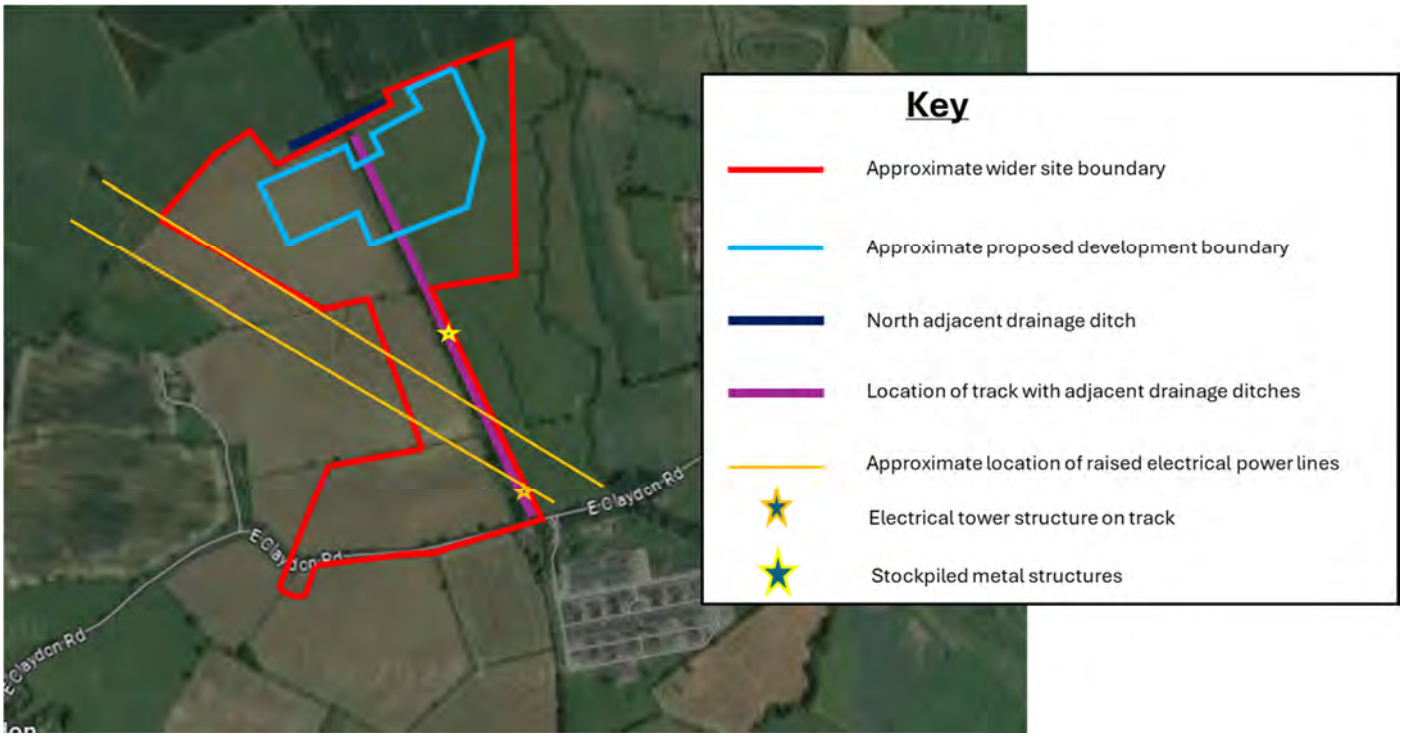


Figure 2.2 Site features plan

2.3. Planning Records

The Local Authority Planning Portal has been searched for relevant records both on site and within a 50m radius of the wider site boundary. The following planning reference numbers have been identified relating to previous applications made for the wider site

- 96/00098/AEL

This application, in addition to the applications within a 50m radius of the site, did not contain any relevant geo-environmental documentation.

2.4. Regulatory Consultation

Requests for information have been made to the following bodies:

- Environment Agency (EA), contacted via email on the 10th April 2024. Response received on the 8th May 2024.
- Buckinghamshire Council (BC), contacted via email on the 10th April 2024. Response received on the 10th May 2024.

The response for BC did not contain any additional information that was not already stated within the Envirocheck Report.

Response from the EA did include a pollution incident not stated within the Envirocheck Report. This incident involved 'sewage grey water' and occurred in April 2013. This incident was located on the south-west boarder of the wider site which is approximately 700m south-west of the development boundary. Due to the distance and direction of this incident from the development area, it is not assessed further as a potential contamination source.

Copies of the regulatory consultation undertaken are included as Appendix E.

2.5. Unexploded Ordnance

An Unexploded Ordnance (UXO) risk assessment has been carried out by RMS UXO Ltd (RMS), included in Appendix C. The assessment indicates that during the war, the Rural District of Winslow was subject to a very-low level of bombing. As the site was occupied largely by undeveloped land during World War 2 (WWII) and a photograph was not available at this stage, any evidence of

damage occurring will not have been visible within sources consulted at a preliminary stage. As the site is located in close proximity to incidents of allied High Explosive (HE) bombs being dropped and aircraft crashes during WWII, the site is considered at a likely risk from UXO contamination in the form of air delivered bombs.

As per CIRIA C681, recommendations suggest advancing to a detailed UXO risk assessment through examination of wartime conditions in the anticipated work area. Before or instead of a detailed assessment, implementing UXO risk mitigation measure for planned intrusive works is advisable.

The above provides a summary of the available UXO risk assessment. However, the full assessment provided in Appendix C must be referred to and takes precedence.

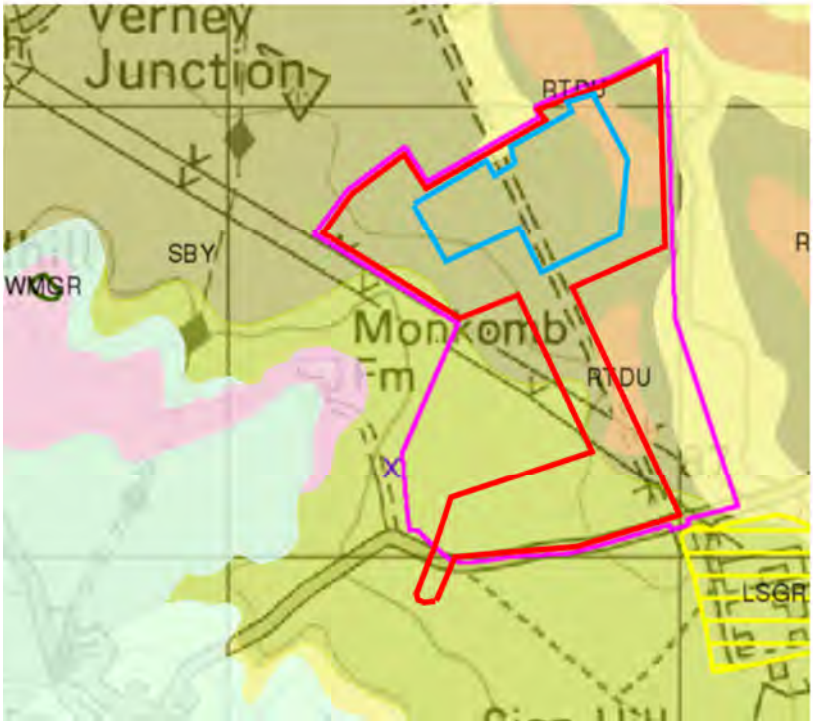
Details of risk management strategies are outlined in *CIRIA C681*.

3. Geological Setting

3.1. Site Geology and Anticipated Ground Conditions

Figure 3.1 illustrates the location of the development within the context of a regional geological map. The map illustrates the spatial distribution of superficial (drift) deposits and bedrock outcrops at the ground surface.

The geology map indicates that within the northern and eastern portion of the wider site superficial deposits of Undifferentiated River Terrace Deposits and Alluvium are present. These superficial deposits directly overly the bedrock of the Stewartby Member. In the western and southern portion of the wider site superficial deposits are not present. Instead, the site lies directly above the bedrock of the Weymouth Member. In the northern portion of the site on which the proposed development is located, superficial deposits of the Alluvium and Undifferentiated River Terrace Deposits are present along the northern and eastern border underlain by the Stewartby Member. The Stewartby Member and Weymouth Member are both part of the Oxford Clay Formation.



Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	LSGR	Landscaped Ground (Undivided)	Artificially Modified Ground	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Not Supplied - Cromerian
	TILMP	Till, Mid Pleistocene	Diamicton	Not Supplied - Cromerian
	GDU	Glacial Deposits	Clay, Silt and Sand	Not Supplied - Pleistocene
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WEY	Weymouth Member	Mudstone	Not Supplied - Oxfordian
	WWB	West Walton Formation	Mudstone	Not Supplied - Oxfordian
	SBY	Stewartby Member	Mudstone	Not Supplied - Callovian
	PET	Peterborough Member	Mudstone	Not Supplied - Callovian

Approximate site location marked by red and proposed development boundary by blue. Envirocheck boundary marked by purple.

Figure 3.1 Geological context of the site

The British Geological Survey (BGS) Geology of Britain web map services provide access to the geographic locations and logs of historical borehole investigations and well installations. Historical boreholes surrounding the site are shown in Figure 3.2. The following historical records have been reviewed as part of this assessment; SP72NW184, SP72NW2, SP72NW195, SP72NW170 and SP72NW193. Table 3.1 summarises the preliminary ground model adopted in this desk study, based on the information reviewed. None of the BGS borehole locations are within 500m of the development boundary.

Figure 3.2 Locations of BGS boreholes in close proximity to the site boundary

Table 3.1 Preliminary ground model

Unit	Elevation[1] (mOD)	Depth[1] (m bgl)	Thickness (m)	Description
Topsoil	87.0 – 100.0	0.0	0.5	Grass over soft to firm dark greyish brown, slight gravelly and slightly sandy clay.
Alluvium[2]	86.5 – 95.5	0.5	0.5	Purple mottled dark grey slightly sandy clayey organic silt.
River Terrace Deposits[2]	86.5 – 95.5	0.5	0.5	Firm light brown mottled light grey slightly sandy slightly gravelly clay.
Oxford Clay Formation[3]	86.5 – 95.5	0.5	60.0m >Base not proven	Stiff orangish brown clay with occasional limestone strata encountered at depth

1. Elevation and depth refer to top of stratum
2. Limited presence
3. Formed of Stewartby Member and Weymouth Member

3.2. Groundwater and Hydrogeology

The superficial deposits of the Alluvium and Undifferentiated River Terrace Deposits are classified as Secondary A Aquifers, defined as containing permeable layers capable of supporting water supplies at a local rather than strategic scale, in some cases forming an important source of base flow to rivers. These strata are aquifers formerly classified as Minor Aquifers.

The Oxford Clay Formation (Stewartby Member and Weymouth Member) is listed as Unproductive Strata. Unproductive Strata are low permeability strata that are not considered to retain significant quantities of groundwater. If groundwater is present within Unproductive Strata, for example within more permeable lenses or small fissures, it is typically discontinuous, of low value and very low sensitivity.

Data available from historical BGS boreholes (SP72NW184) indicates that the shallow groundwater table is present at 3m below ground level (bgl). However, this was observed within a borehole where glacial superficial deposits were present. These deposits are not anticipated with the boundary of the proposed development. All other boreholes reviewed did not indicated shallow groundwater.

The site is not identified as being located within a groundwater Source Protection Zone (SPZ) and there are no SPZs recorded within 500m of the wider site.

Localised perched water may also be present associated with any Made Ground at the site.

There is only one abstraction point within a 1km radius of the site. This groundwater abstraction is located 757m southwest of the wider site boundary and operated by J P Hinton for a 'general farming and domestic' use. Due to the distance from the proposed development and the underlying ground model, it is unlikely for any potential on-site contamination to migrate to this abstractor point. For this reason, the groundwater abstraction point 757m southwest is not assessed further herein as a potential receptor.

3.3. Hydrology

The Envirocheck report lists two surface water features on site. A review of sensitivity maps, Google Earth and observations during the site walkover have identified this feature as an inland river along the central northern boundary (flowing eastwards) and on the southwestern border of the wider site (flowing eastwards). No surface water features are present within the boundary of the proposed development.

Other notable surface water features within a 500m radius of the wider site boundary include an inland river north adjacent, an inland river south adjacent to the wider site (approximately 750m south of the proposed development boundary) and the Claydon Brook flowing northwards approximately 60m east of the wider site boundary at its closest point (approximately 100m east of the proposed development boundary).

There are no surface water abstraction points within a 1km radius of the wider site boundary.

3.4. Mining and Mineral Extraction

The site is not listed within the Envirocheck Report as within an area affected by coal mining.

There are no BGS Mineral Site entries listed within the Envirocheck Report within 500m of the site.

No record of mining instability, man-made mining cavities or natural cavities have been recorded within 500m.

3.5. Radon

UK Health Security Agency (UKHSA) and BGS radon mapping indicates that the site is in an area with less than 1% of homes estimated to be at or above the Action Level. *The Building Regulations 2010, Approved Document C* state that without a site-specific Radon Risk Report the maximum requirement for radon protection in these areas is none.

Since no new basement is to be incorporated for the proposed development, no further radon assessment is required, and no radon protection needs to be incorporated into the proposed building fabric.

4. Site History

Detailed historical maps, fire insurance plans and aerial photographs of the site and surrounding area dated between 1883 and 2024 (at scales of 1:1,056, 1:1,250, 1:2,500, 1:5,280, 1:10,000 and 1:10,560), provided as part of the Envirocheck Report (Appendix B), have been reviewed as part of the study. This process has been undertaken to identify any former land uses at the site and within the surrounding area that may have geo-environmental implications for the proposed redevelopment.

The findings are summarised in Table 4.1. Only features considered to have a potential geo-environmental impact on the site and usually within a notional 250m radius of the site boundaries are presented and discussed, with any potentially infilled land identified within 500m of the site also included. Any distances quoted for features remote from the site have been scaled from the maps and are approximate. Other information sources available in the public domain have also been reviewed to support this assessment, including the Historic England online Aerial Photo Explorer and historical aerial photographs available on Google Earth.

Table 4.1 History of the site and surrounding areas

Historical Feature	Distance and Bearing from Site	Date of First Map Appearance	Date of Last Map Appearance	Potential to Impact the Site?
On-Site (within Site boundary)				
The site is undeveloped land that has a railway line running through its centre in a north to south direction	-	1883	1984	Yes
Small stream and pond along the northern portion of the site (assumed infilled in 1977)	-	1883	1977	Yes
Railway line running through the centre of the site converted into a track	-	1984	Present	No
On-Site (within development boundary)				
The site is undeveloped land that has a railway line running through its centre in a north to south direction	-	1883	1984	Yes
Small stream and pond along the northern portion of the site (assumed infilled in 1977)	-	1883	1977	Yes
Railway line running through the centre of the site converted into a track	-	1984	Present	No
Off-site				
Winslow Road Station	South adjacent (approx. 700m south of development boundary)	1883	1958	No (due to distance from the proposed development site and the underlying ground model)
National Grid electrical sub station	120m south (approx. 700m south of development boundary)	1984	1958	No (due to distance from the proposed development site and

Historical Feature	Distance and Bearing from Site	Date of First Map Appearance	Date of Last Map Appearance	Potential to Impact the Site?
				the underlying ground model)

5. Environmental Designations and Data

5.1. Regulatory Data

Regulatory data from the Envirocheck Report in close proximity to the development site (generally within 250m of the site boundary, but with the inclusion of landfill and other notable infilled ground within 500m of the site) has been summarised in Table 5.1. The information provided for each item in Table 5.1 has been summarised from the Envirocheck Report for risk assessment purposes. For a full breakdown of the regulatory data refer to the Envirocheck Report in Appendix B.

Table 5.1 Summary of regulatory data

Item	Distance and Bearing from Site	Information	Potential to Impact the Site?
		Agency & Hydrogeological	
Discharge Consents *Records on site*: 0 *Records within 0-250m*: 2	226 SW	**Operator**: National Grid Co Plc (Ang Reg) **Status**: Post National River Authority Legislation where issue date >31/08/1989 **Discharge Type**: Trade effluent – Site drainage **Receiving water**: Claydon Brook	No (due to distance from the proposed development site, the underlying ground model and that the discharge is straight into the Claydon Brook)
	238 SW	**Operator**: National Grid Co Plc **Status**: New consent (water resources Act 1991, Section 88 & schedule 10 as amended by Environmental Agency 1995) **Discharge Type**: Sewage Discharge – Final / treated effluent – not water company onto Land/into watercourse **Receiving water**: Claydon Brook	No (due to distance from the proposed development site, the underlying ground model and that the discharge is straight into the Claydon Brook)
Pollution Incidents to Controlled Waters *Records on site*: 0 *Records within 0-250m*: 1	64m E	**Receiving Water**: Freshwater stream / brook **Date**: 9th April 1996 **Pollutant**: Miscellaneous - Natural **Severity**: Category 3 – Minor incident	No (due to distance from the proposed development site and the underlying ground model)
		Waste and Landfill	
Potentially Infilled Land (Water) *Records on site*: 1 *Records within 0-250m*: 0 *Records within 250-500m*: 2	On-site (however north adjacent to the development boundary)	**Use**: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) **Date of Mapping**: 1959	Yes
	342m S	**Use**: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) **Date of Mapping**: 1959	No (due to distance from the proposed development site and the underlying ground model)

Item	Distance and Bearing from Site	Information	Potential to Impact the Site?
	708m W	**Use**: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) **Date of Mapping**: 1959	No (due to distance from the proposed development site and the underlying ground model)
Facilities Registered as using Hazardous Substances			
No relevant records			
Industrial Land Uses and Points of Interest *(potential sources of contamination are identified within 100 m of the site boundary, indicates a viable pathway to the site may be present)*			
No relevant records			

5.2. Flood Risk

Flood Maps for Planning (ref. https://flood-map-for-planning.service.gov.uk/, accessed 15th April 2024) indicates that in the southeastern portion of the wider site is located within Flood Zone 3 i.e. has the highest risk, with a 1% or higher chance from rivers or 0.5% from the sea. The area of the proposed development is within a Flood Zone 1 i.e. there is a low probability of flooding

No further consideration of flood risk is given in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.

5.3. Ecology, Flora and Fauna

No records of potentially sensitive ecological receptors as defined by the *Environmental Protection Act (1990) Part 2a (as amended)* have been identified on site or within a 500m radius of the wider site boundary. However, the wider site and proposed development area are within a Nitrate Vulnerable Zone.

An assessment of potential invasive species is not included in this report.

6. Proposed Development

The scheme for the proposed development comprises the development of a BESS. This consists of establishing numerous battery containers with associated structures such as water tanks, control rooms, storage and welfare units. The layout of the proposed development is still to be confirmed however, the development area can be viewed as Figure 6.1. Figure 6.1 indicates that the track which cuts across the central portion of the site will be updated with hard standing material and act as an access road for the BESS.

The proposed BESS area looks to be completely covered in hard standing with no new areas of proposed soft landscaping.

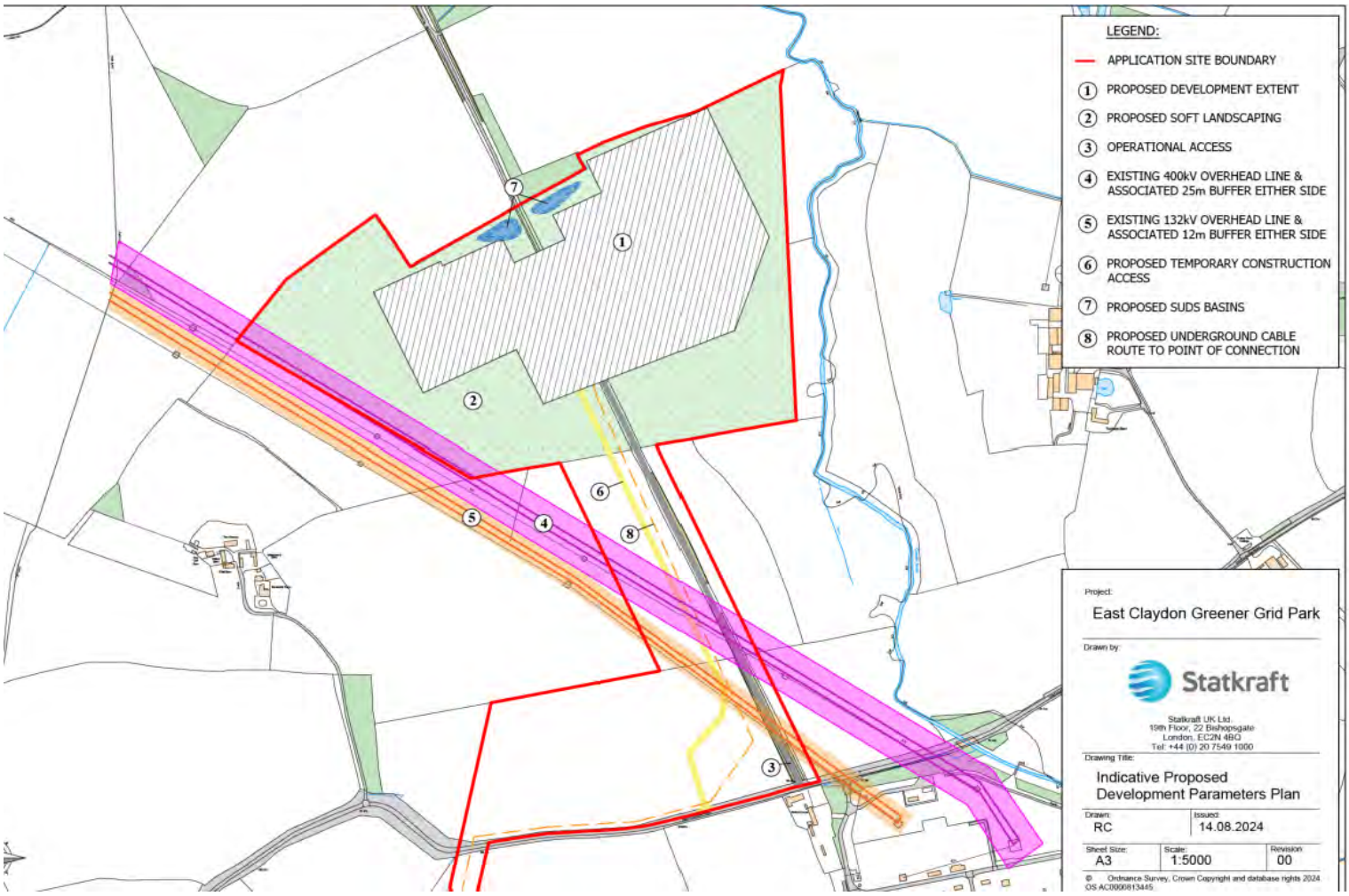


Figure 6.1 Diagram showing proposed developmet layout

7. Conceptual Site Model (CSM) and Preliminary Risk Assessment (PRA)

A means to qualitatively assess the risk posed by potential land contamination to a proposed development is to prepare an initial CSM and carry out a PRA. An initial CSM represents the characteristics of the site influencing the possible relationships between identified potential contaminant sources, pathways and receptors. A PRA is undertaken for each potentially complete source-pathway-receptor linkage (potential contaminant linkage).

An initial CSM and PRA for the proposed development is set-out below in consideration of all the information detailed in the earlier sections of this report. Should any changes be made to the proposed development compared to the details presented herein, or should any new information become available, then the PRA must be updated. Section 7 is a PRA for the **Development Area**.

7.1. Potential Contaminants of Concern

The relevant potential on- and off-site contamination sources are summarised in this section. Off-site potential sources of contamination within 100 m of the site boundary are identified and considered further, as well as potential sources of contamination within 250 m of the site boundary. Relevant potential ground gas sources within 500 m of the site are also identified.

Current and former residential land-uses, retail units, offices and other general commercial uses (non-industrial) are not considered potential sources of contamination unless stated otherwise.

Naturally occurring radon risks are discussed separately in Section 3.

Please be aware that the nature of historical records mean that every potential source of contamination may not be detailed in the available documents. Therefore, there is potential for additional sources of contamination to be present.

7.1.1. On-Site Sources

- Former railway line – heavy metals and metalloids, acids / alkalis, PAHs, TPHs, VOC and elevated sulphate.
- Potential former agricultural land uses – nitrates, phosphates, pesticides.
- Alluvium – Ground gases.
- Infilled land (water) of former pond / river - heavy metals and metalloids, acids / alkalis, PAHs, asbestos, ground gases and elevated sulphate.

Potential source location plans are included as Figure 7.1.

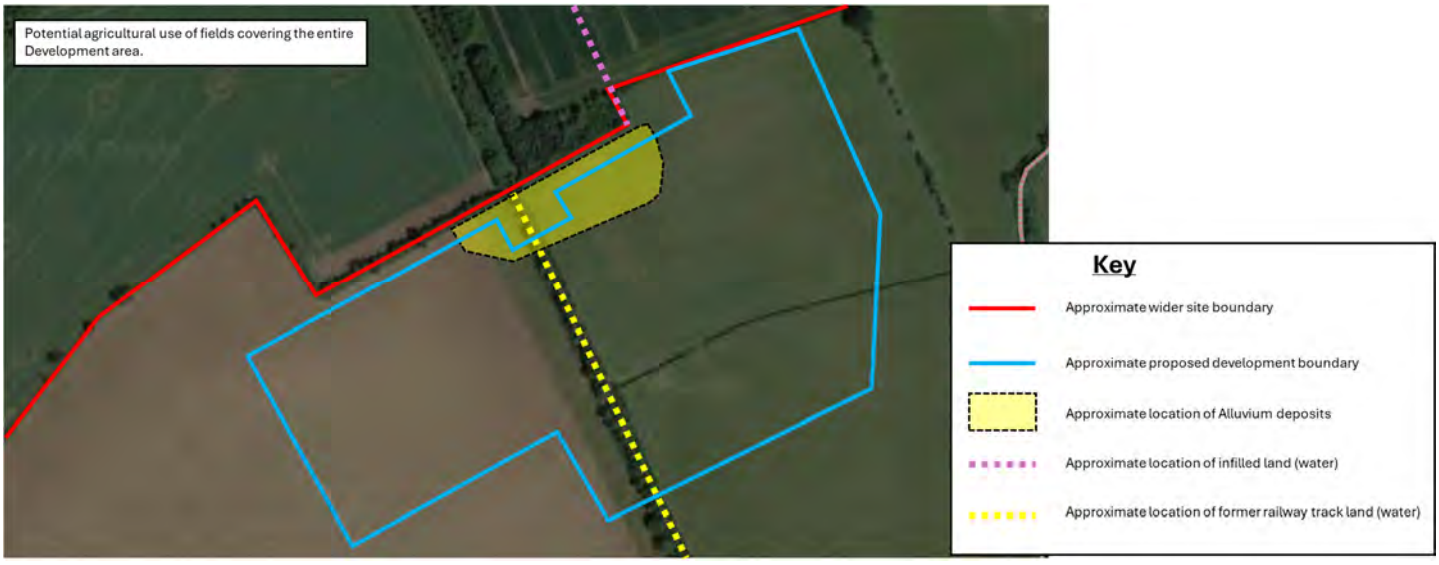


Figure 7.1 Potential on-site contamination sources

7.1.2. Off-Site Sources

Due to the distance of potential off-site sources (i.e National Grid Substation) from the proposed development boundary and the underlying ground model, it is unlikely for contamination sourced from off-site to migrate onto the proposed development. For this reason, no potential off-site sources for the proposed development have been assessed.

Notes -

TPH – total petroleum hydrocarbons (inc. BTEX)

PAH – polycyclic aromatic hydrocarbons

VOC – volatile organic compounds

Asbestos – potential free fibres, debris and / or fragments of asbestos containing material (ACM).

Ground gas – methane, carbon dioxide, carbon monoxide and / or hydrogen sulphide (excludes soil vapour)

7.2. Potential Pathways

Potential pathways identified as part of this assessment include:

7.2.1. On-Site Human Health

- Dermal contact or ingestion of soil particles at the site.
- Inhalation of ground gas, soil vapour or soil particles at the site.
- Water supply pipes installed as part of the proposed redevelopment becoming compromised by contamination, followed by ingestion of the contaminated water supply.

7.2.2. Off-Site Human Health

- Inhalation of wind-blown soil particles liberated from the site surface.
- Migration off-site at shallow depth followed by direct contact / inhalation / ingestion of contaminated soil particles (e.g. off-site migration via preferential pathways and / or shallow perched water).
- Off-site migration of ground gas or soil vapour followed by accumulation and inhalation within nearby buildings.
- Migration off-site at shallow depth (e.g. via preferential pathways and / or shallow perched groundwater), followed by impact to water supply pipes and ingestion of contaminated water supply.

7.2.3. On-Site Buildings and Below Ground Structures

- Direct contact of new building structures / foundations with ‘aggressive’ ground and / or grossly impacted soils.
- Accumulation of ground gas or soil vapour within buildings followed by ignition.

7.2.4. Off-Site Buildings and Below Ground Structures

- Migration off-site via preferential pathways, shallow groundwater and / or shallow perched water followed by direct contact with building structures / foundations.
- Off-site migration of ground gas or soil vapour followed by accumulation and ignition within nearby buildings.

7.2.5. Controlled Waters

- Leaching in the unsaturated zone.
- Perched water percolation and / or lateral migration.
- Migration via advection and diffusion in the saturated zone.
- Vertical and lateral migration of free-phase product in the unsaturated and / or saturated zones.

7.2.6. Sensitive Ecology, Flora and Fauna

- On-site ingestion / dermal contact / inhalation / root uptake.

- Off-site migration at shallow depth (e.g. via preferential pathways and / or shallow perched water) followed by ingestion / dermal contact / inhalation / root uptake.
- Off-site migration via controlled waters pathways followed by ingestion / dermal contact / inhalation / root uptake.

7.3. Potential Receptors

Potential receptors identified as part of this assessment include:

- Human health of proposed site end users (commercial users).
- Property including on-site (proposed).
- Controlled waters (groundwater) - Secondary A Aquifer associated with the superficial deposits anticipated beneath the site (Alluvium and Undifferentiated River Terrace Deposits).
- Controlled waters (surface waters) – Inland river along the northern border of the site.
- Controlled waters (surface waters) – Inland river north adjacent to the proposed development area and Claydon Brook 270m east along the northern border of the site.
- Flora and fauna in proposed soft-landscaped areas and off-site.

Due to the location of the proposed development, there is unlikely to be any human health receptors or off-site properties (closest being residential homes 250m west) within a 250m radius of the site. Due to the underling ground model it is unlikely for on-site contamination to migrate off-site these distances. For this reason, off-site human health receptors and properties/buildings have not been assessed further.

Due to the distance of the on the inland river in the southeast corner of the wider site from the proposed development area (approximately 600m southwest) and the inland river 750m south of the proposed development boundary in addition to the underlying ground model, it is unlikely for any contamination sourced within the proposed development area to migrate this distance. Therefore, this inland river has not been assessed further as a potential controlled water receptor.

Risks to site workers and the environment (from potential land contamination) during the construction phase of the proposed redevelopment can be appropriately managed by successful implementation of construction phase risk assessments and method statements (RAMS). The associated construction phase risks from potential contamination are not considered further in this document but should be appropriately considered and mitigated by the Principal Contractor in their preparation and implementation of construction phase RAMS and Construction Phase Plan (CPP).

7.4. Summary of Potential Contaminant Linkages

There are some potentially complete contaminant linkages based on the identified sources, pathways and receptors. Table 7.1 presents a PRA for contaminant linkages relevant for the proposed development. Qualitative risk classifications are provided in accordance with *CIRIA C552: Contaminated Land Risk Assessment, A Guide to Good Practice (Rudland et al., 2001)* (see summary in Appendix A). Where there is no potentially complete contaminant linkage then no risk classification is provided. The PRA is applicable to current climatic conditions and those that may be expected in future due to human induced climate change.

Table 7.1 Preliminary Risk Assessment (PRA)

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
On-site See Section 7.1.1	Direct contact with soil	Human health of proposed site end users (see Section 7.3)	Yes (the proposed development site has a completely sealed surface	Low
	Inhalation of windblown soil			Low

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
	Ingestion of soil		therefore exposure is limited)	Low
	Impact to water supply pipes followed by ingestion of contaminated water supply		Yes (Former site use is unlikely to have generated substantial contamination to impact water supply pipes on site)	Low
	Ground gas generation and inhalation		Yes (Though sources of ground gas have been identified on site in the form of Alluvium and infilled land (water), the infilled land (water), is likely to have degassed since being infill in 1977 (47 years at time of writing) along with the Alluvium.	Low
	Soil vapour generation and inhalation		Yes (Though volatile contamination has been identified on site, due to the site history it is unlikely for substantial volatile contamination to have been generated)	Low
	Direct contact	On-site buildings / structures (proposed)	Yes (Structures may be constructed in impacted soils or be subjected to sulphate “attack”)	Low to moderate †
	Migration followed by ignition of ground gas		Yes (Though sources of ground gas have been identified on site in the form of Alluvium and infilled land (water), the infilled land (water) is likely to have degassed since being infill in 1977 (47 years at time of writing) along with the Alluvium.	Low
	Migration followed by ignition of soil vapour		Yes (Though volatile contamination has been identified on site, due to the site history it is	Low

Potential Contaminant Source	Potential Pathway	Potential Receptor	Potential Contaminant Linkage	Risk Level Classification
			unlikely for substantial volatile contamination to have been generated)	
	Leaching and migration to groundwater via the unsaturated zone; Perched water percolation or lateral migration; Migration via advection and diffusion in the saturated zone; and Vertical and lateral migration of free-phase product in the unsaturated and saturated zones.	Controlled waters - Underlying Secondary A Aquifer (Alluvium and Undifferentiated River Terrace Deposits)	Yes (Ground model indicated shallow groundwater may be present associated with natural superficial deposits beneath the site however, site history is unlikely to have sourced substantial contamination)	Low
		Inland river north adjacent to proposed development area and Claydon Brook 270m east		
	On-site ingestion / dermal contact / inhalation / root uptake	Flora and fauna in proposed soft-landscaped areas at the site	No (the proposed development has no areas of soft landscaping)	No classification
	Off-site migration at shallow depth followed by ingestion / dermal contact / inhalation / root uptake	Off-site flora and fauna in soft-landscaped areas nearby	Yes (proposed development is surrounded by soft landscaping and is classed as a nitrate vulnerable zone. However, the former site use is an unlikely source of substantial nitrate contamination)	Very Low

† - unacceptable risk (ref. *LCRM* guidance)

The PRA has identified potentially complete source-pathway-receptor linkages for on-site sources of contamination with generally a 'very low' to 'low' risk classification. This is principally due to the history of the site having no substantial former commercial /industrial activities identified. The PRA indicates that there are no unacceptable risks to human health (via soil ingestion, inhalation and dermal contact pathways), sensitive ecology, controlled waters and off-site buildings / structures. However, 'low to moderate' risk have been identified for proposed on-site buildings / structures due to potential sulphate attack on proposed below-ground concrete structures which can be undertaken as part of a geotechnical investigation. On this basis, targeted geo-environmental ground investigation is not necessary. However, although not strictly necessary, it would be prudent to undertake opportunistic geo-environmental soil sampling during any geotechnical ground investigation, followed by interpretive reporting to update the ground model. If unexpected significant contamination was identified, then the land contamination risk assessments could be reappraised

Design of a future geo-environmental site investigation is outside the scope of this document.

7.5. Data Gaps and Uncertainties

Key data gaps and uncertainties identified in the CSM at this stage include:

- No previous ground investigations specific to contamination have been made available, therefore no information on the actual presence, or absence, of contamination is currently available.
- Depth to groundwater and flow direction are conceptual at this stage.

The identified key data gaps can be addressed by undertaking the recommended geo-environmental ground investigation.

8. Closing Remarks

A-squared has been engaged by Lichfields Ltd on behalf of Statkraft UK Ltd to prepare a phase I desk study report for the proposed development at the land north of East Claydon Substation, Claydon Road, MK18 2LF. The site is current undeveloped soft landscaped fields with the proposed scheme comprising the development of a Battery Energy Storage System development and associated features in the northern portion of the wider site with an access road.

The proposed development area is underlain by superficial deposits of the Alluvium and Undifferentiated River Terrace Deposits along the northern and eastern border which in turn are underlain by the bedrock of the Stewartby Member which is part of the Oxford Clay Formation.

The PRA has identified potentially complete source-pathway-receptor linkages for on-site sources of contamination with generally a 'very low' to 'low' risk classification. This is principally due to the history of the site having no substantial former commercial /industrial activities identified. The PRA indicates that there are no unacceptable risks to human health (via soil ingestion, inhalation and dermal contact pathways), sensitive ecology, controlled waters and off-site buildings / structures. However, 'low to moderate' risk have been identified for proposed on-site buildings / structures due to potential sulphate attack on proposed below-ground concrete structures which can be undertaken as part of a geotechnical investigation. On this basis, targeted geo-environmental ground investigation is not necessary. However, although not strictly necessary, it would be prudent to undertake opportunistic geo-environmental soil sampling during any geotechnical ground investigation, followed by interpretive reporting to update the ground model. If unexpected significant contamination was identified, then the land contamination risk assessments could be reappraised

No further radon assessment is required and no radon protection needs to be incorporated into the proposed building fabric.

The final specification for newly installed water supply pipes should be based on the risk assessments and recommendations presented herein and also agreed with the statutory undertaker. It is anticipated that uprated water supply pipe construction may not be necessary.

Risks to site workers and the environment (from potential land contamination) during the construction phase of the proposed redevelopment can be appropriately managed by successful implementation of construction phase RAMS. The associated construction phase risks from potential contamination should be appropriately considered and mitigated by the Principal Contractor in their preparation and implementation of construction phase RAMS and CPP.

This desk study should be made available to those preparing the operational site Health & Safety File for the proposed development.

As per CIRIA C681, recommendations suggest advancing to a detailed UXO risk assessment through examination of wartime conditions in the anticipated work area is recommended. Before or instead of a detailed assessment, implementing UXO risk mitigation measure for planned intrusive works is advisable.

Should any changes be made to the proposed development compared to the details presented herein, or should any new information become available, then the assessments included in this desk study must be updated.

The Client should inform A-squared of the foundation termination depths once final designs have been prepared so that no requirement for a foundation works risk assessment can be confirmed.

Appendix A: Qualitative Risk Assessment Matrix

A-squared Studio Engineers Ltd. qualitative risk assessment for geo-environmental purposes is undertaken in accordance with *CIRIA C552: Contaminated Land Risk Assessment, A Guide to Good Practice (Rudland et al., 2001)*. The CIRIA C552 risk categories and the assessment methodology are summarised below in Table A.1, Table A.2 and Table A.3. Potential magnitude and potential likelihood are both classified to enable a risk rating to be assessed.

Potential magnitude takes into account the potential consequences should a complete source–pathway–receptor linkage be present. Potential magnitude is classified as per Table A.1.

Table A.1 Definition of potential magnitude of consequence

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings / property, major pollution to controlled waters.
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures.
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures.
Minor	Damage to non-sensitive ecosystems or species.

Potential likelihood takes into account the presence of the hazard and receptor as well as the integrity of the pathway for exposure, i.e., whether a source-pathway-receptor linkage is present or not. Potential likelihood is classified as per Table A.2.

Table A.2 Definition of potential likelihood of exposure

Category	Definition
High Likelihood	Pollutant linkage may be present and is almost certain to occur in the long-term. Or there is evidence of harm to the receptor.
Likely	Pollutant linkage may be present, and it is probable that it will occur over the long-term.
Low Likelihood	Pollutant linkage may be present, and there is a possibility that it will occur, although there is no certainty that it will do so.
Unlikely	Pollutant linkage may be present, but it is improbable that it will occur.

The potential magnitude of consequence and the potential likelihood of exposure are assessed in accordance with the risk matrix presented in Table A.3.

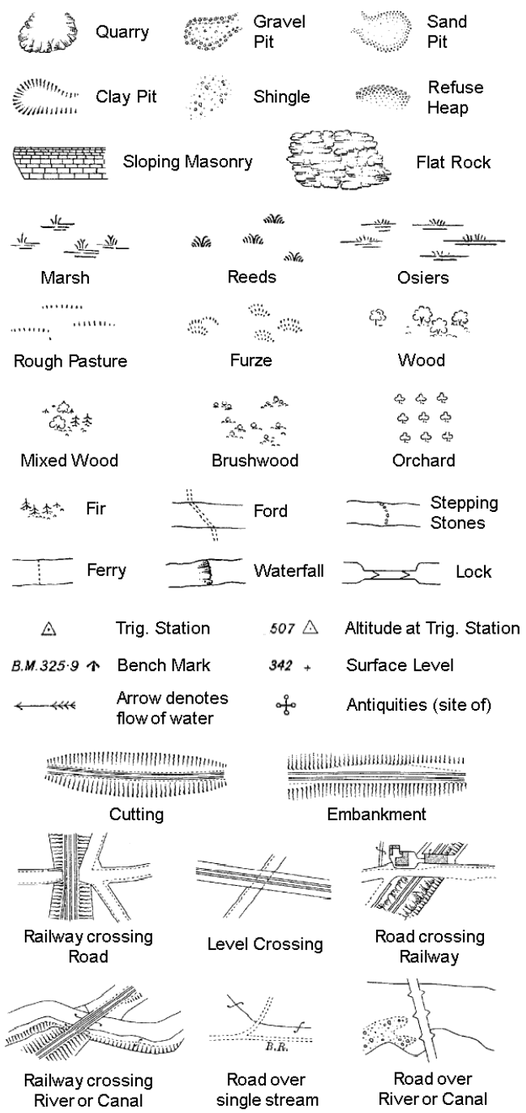
Table A.3 Geo-environmental risk assessment matrix

		Potential Magnitude of Consequence			
		Severe	Medium	Mild	Minor
Potential Likelihood of Exposure	High Likelihood	Very High	High	Moderate	Low to Moderate
	Likely	High	Moderate	Low to Moderate	Low
	Low Likelihood	Moderate	Low to Moderate	Low	Very Low
	Unlikely	Low to Moderate	Low	Very Low	Very Low

Appendix B: Envirocheck Report

Historical Mapping Legends

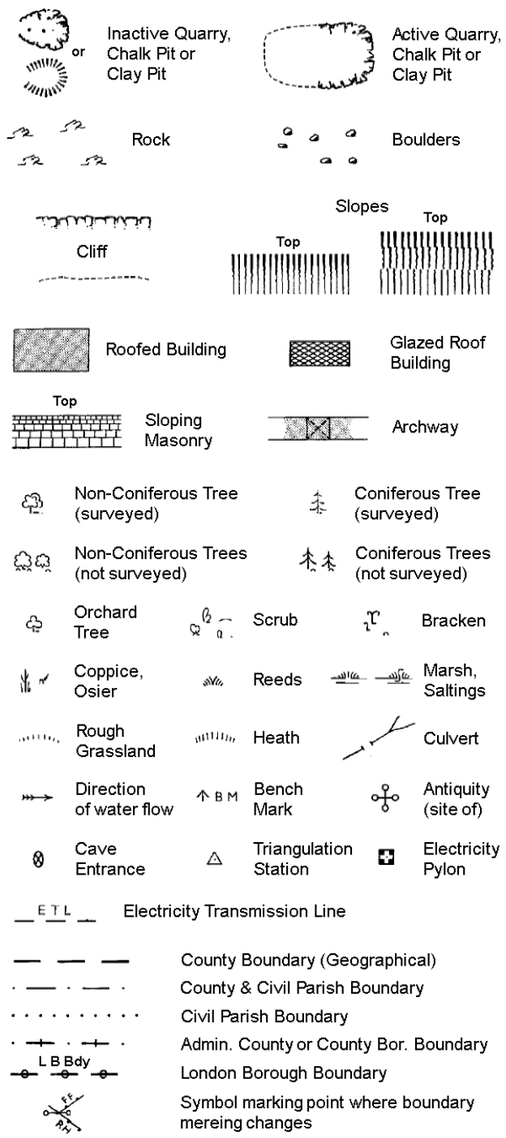
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

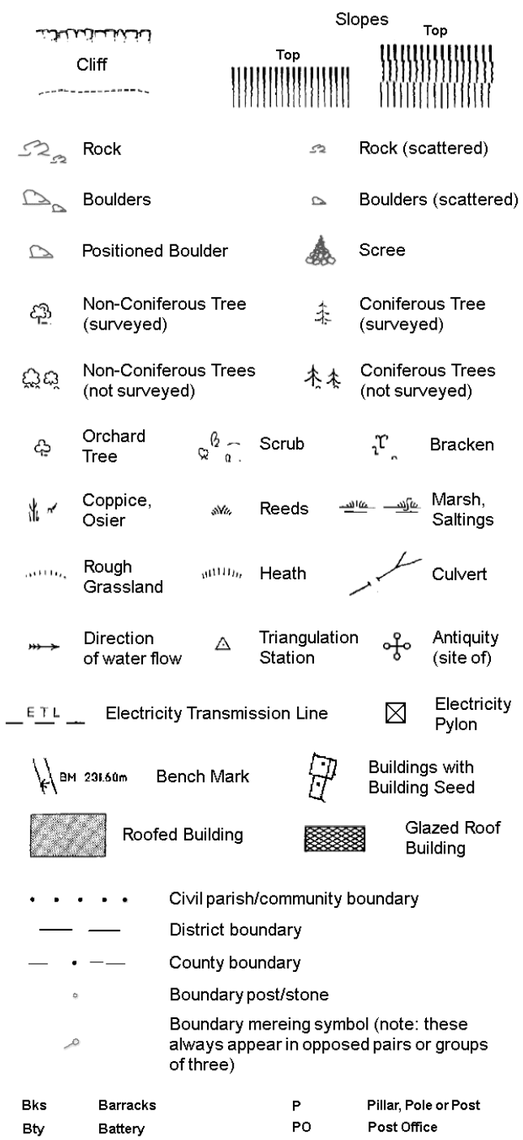
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

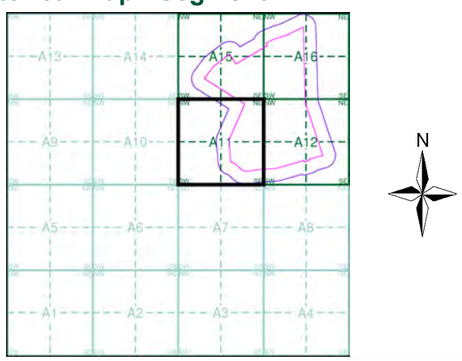
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

Envirocheck®
LANDMARK INFORMATION GROUP®

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Buckinghamshire	1:2,500	1878 - 1879	2
Buckinghamshire	1:2,500	1899	3
Buckinghamshire	1:2,500	1923 - 1925	4
Ordnance Survey Plan	1:2,500	1977 - 1978	5
Large-Scale National Grid Data	1:2,500	1993	6
Historical Aerial Photography	1:2,500	1999	7

Historical Map - Segment A11



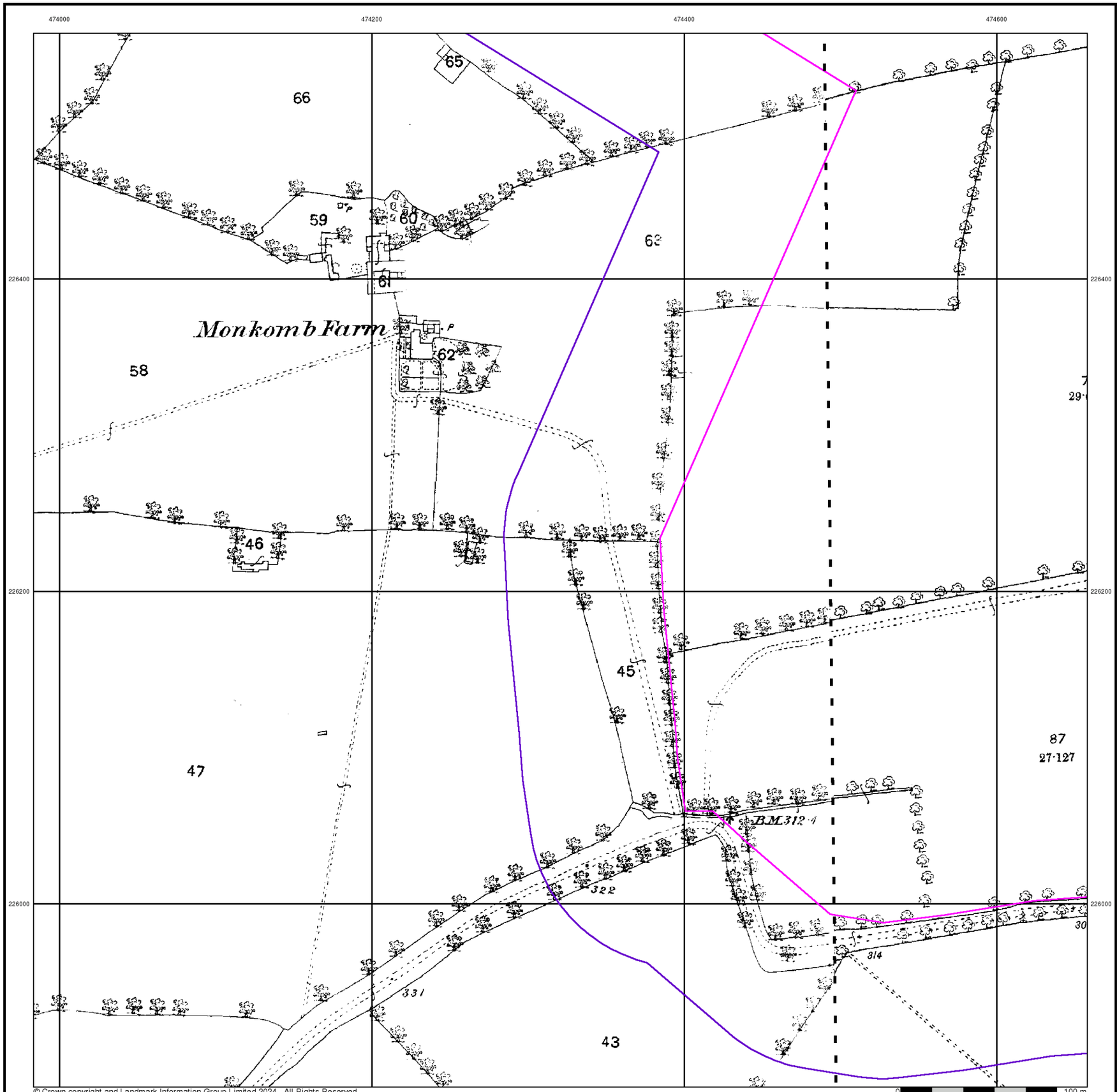
Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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



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LANDMARK INFORMATION GROUP®

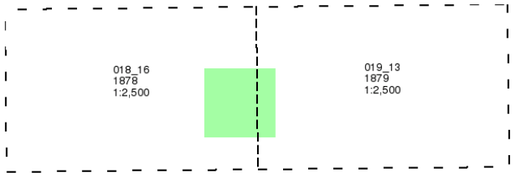
Buckinghamshire

Published 1878 - 1879

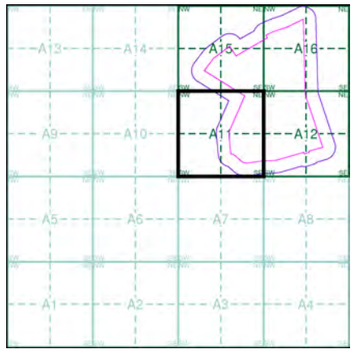
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



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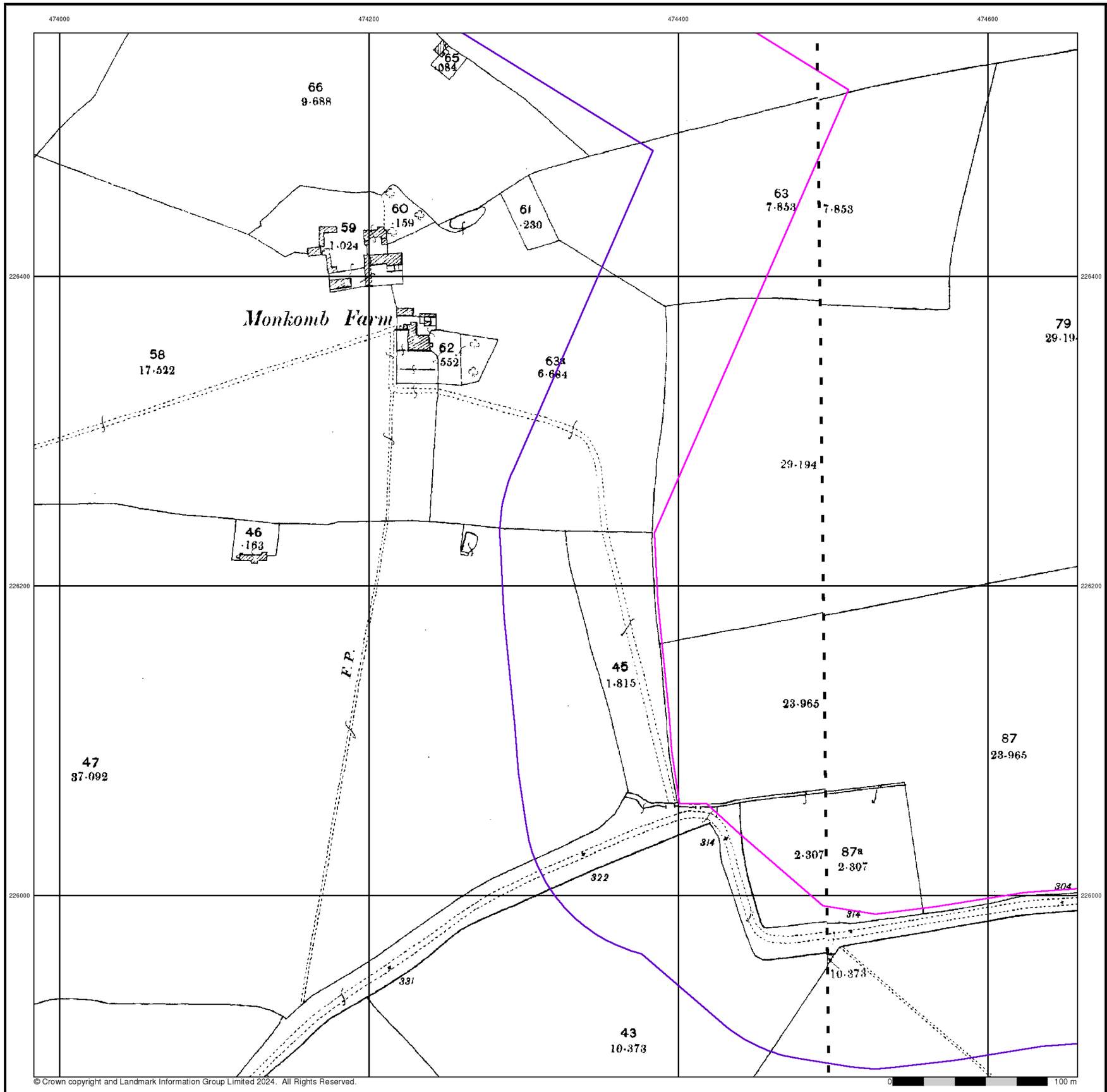

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LANDMARK INFORMATION GROUP®

Buckinghamshire

Published 1899

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 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.

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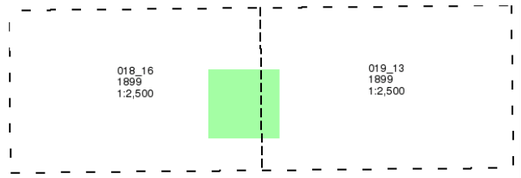
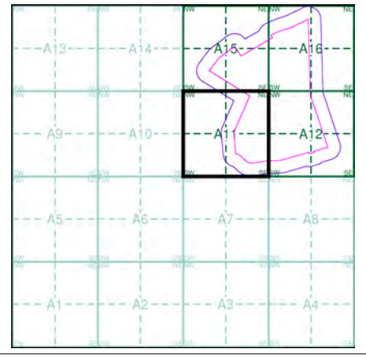


Historical Map - Segment A11



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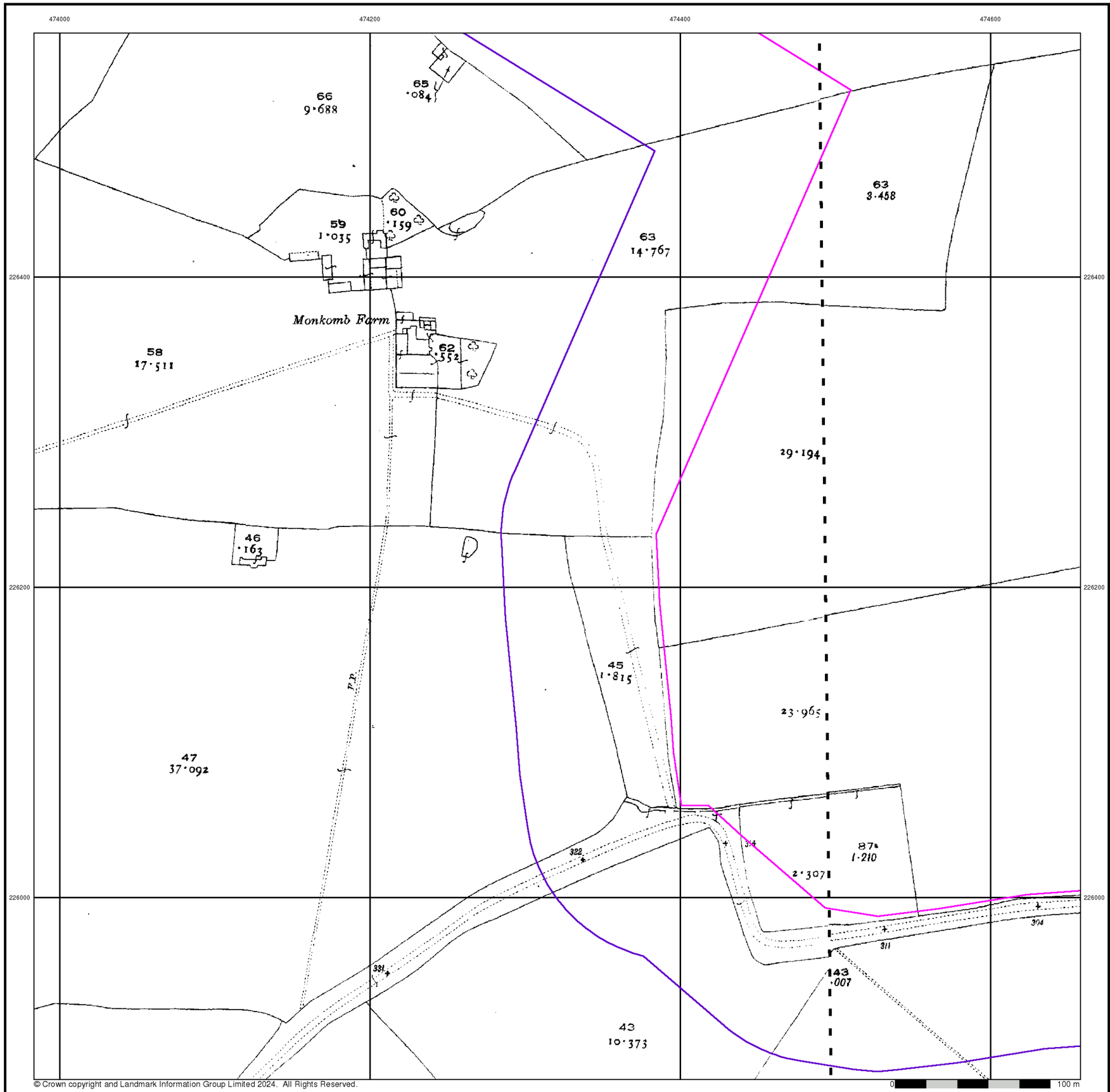

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LANDMARK INFORMATION GROUP®

Buckinghamshire

Published 1923 - 1925

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 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.

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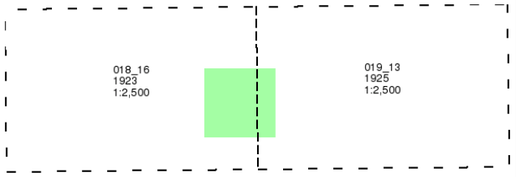
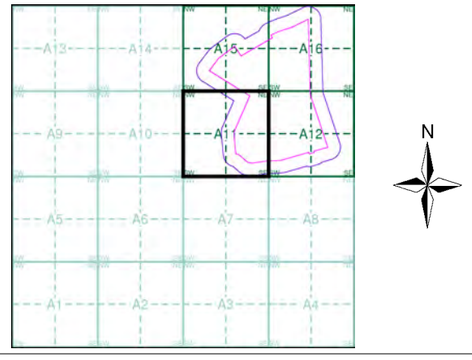


Historical Map - Segment A11



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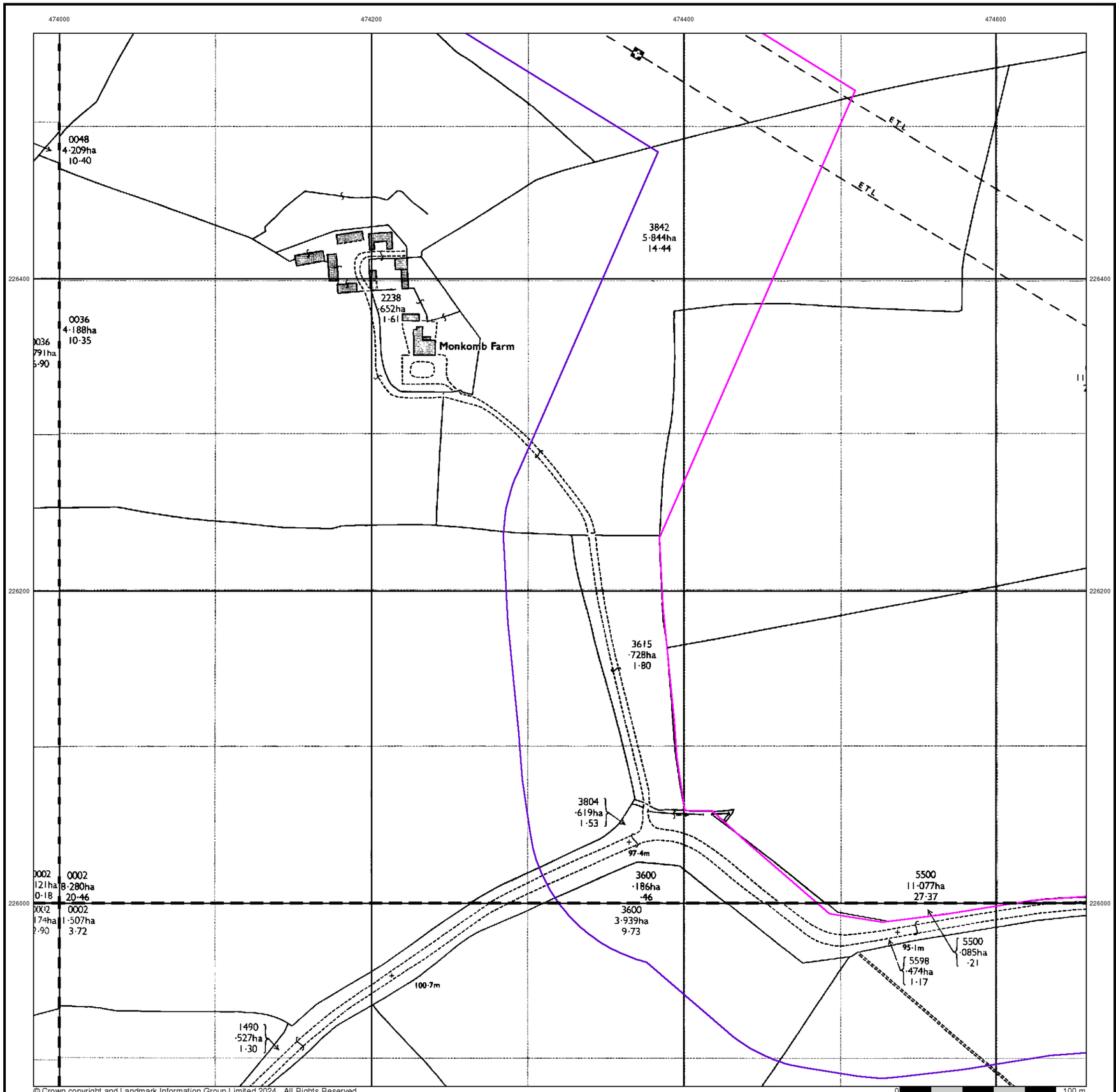

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LANDMARK INFORMATION GROUP®

Ordnance Survey Plan

Published 1977 - 1978

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 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.

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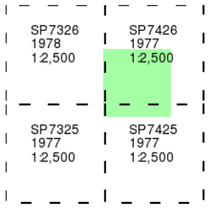
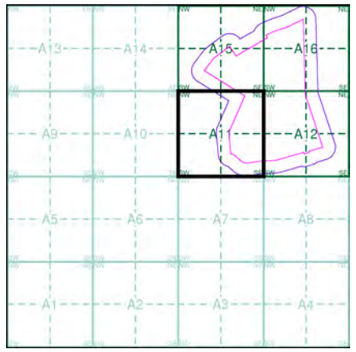


Historical Map - Segment A11



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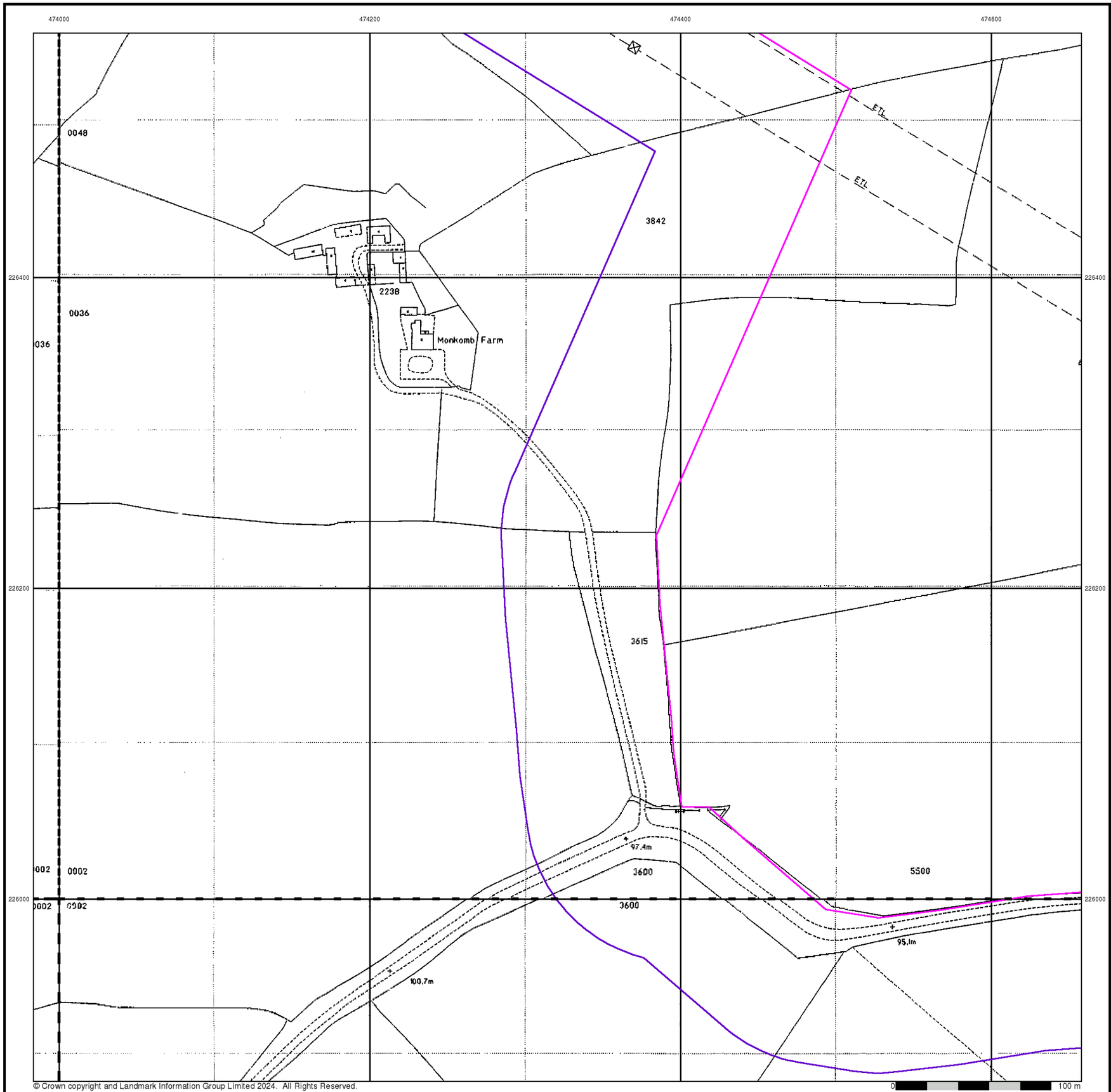

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LANDMARK INFORMATION GROUP®

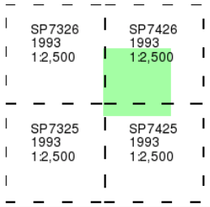
Large-Scale National Grid Data

Published 1993

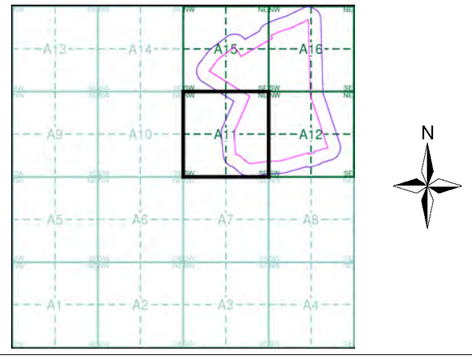
Source map scale - 1:2,500

'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 fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



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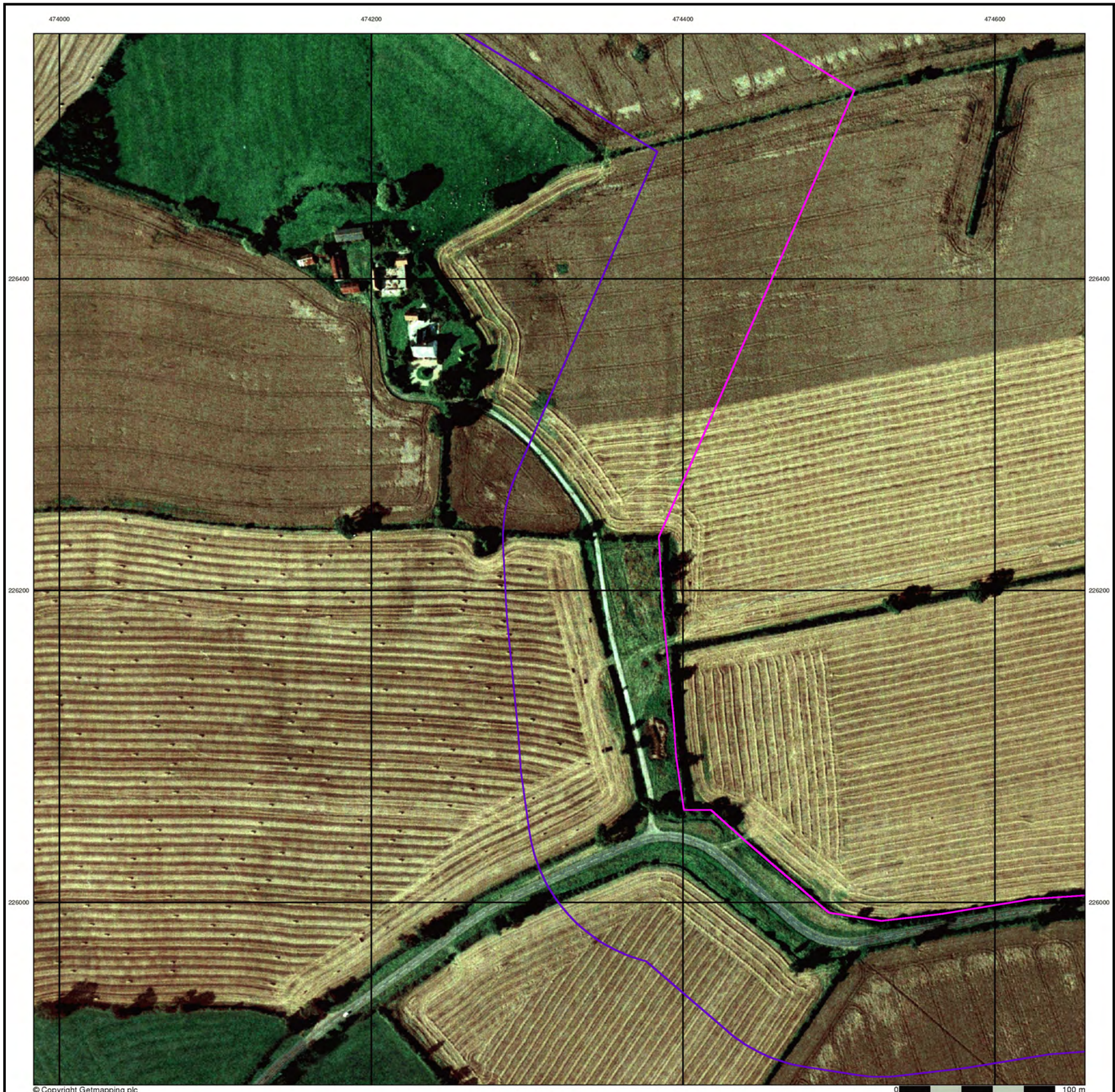

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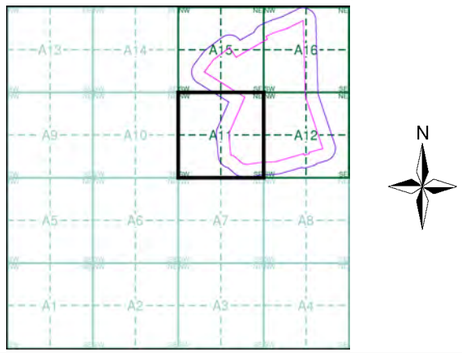
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A11



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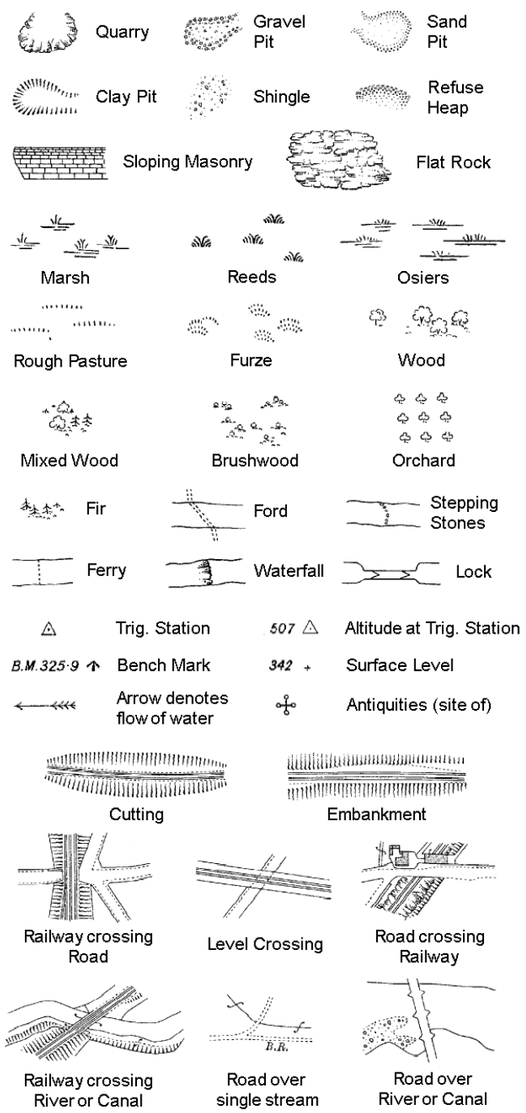
Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

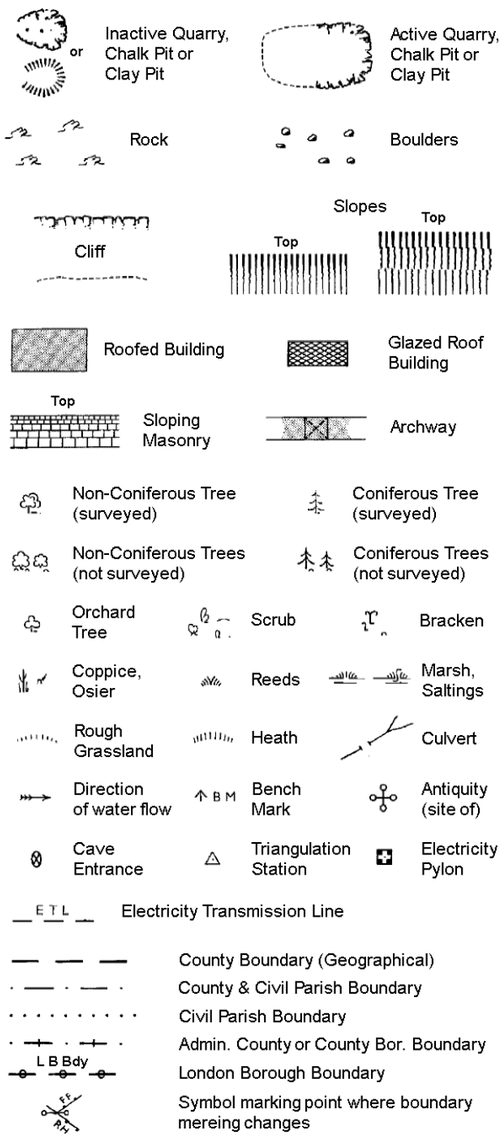
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

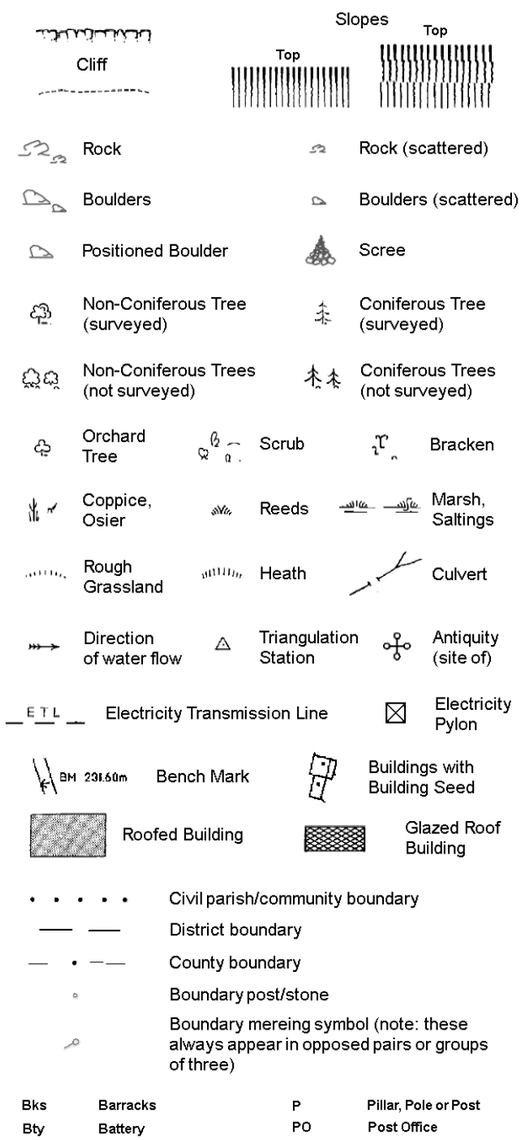
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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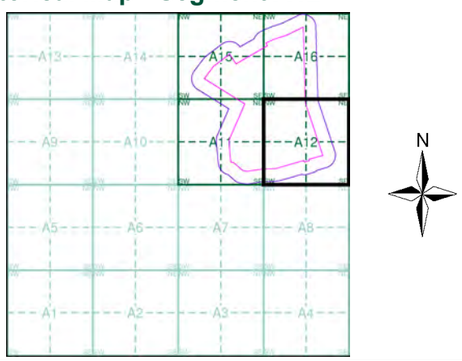
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Buckinghamshire	1:2,500	1879	2
Buckinghamshire	1:2,500	1899	3
Buckinghamshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1977	5
Large-Scale National Grid Data	1:2,500	1993	6
Historical Aerial Photography	1:2,500	1999	7

Historical Map - Segment A12



Order Details

Order Number:	342200018_1_1
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National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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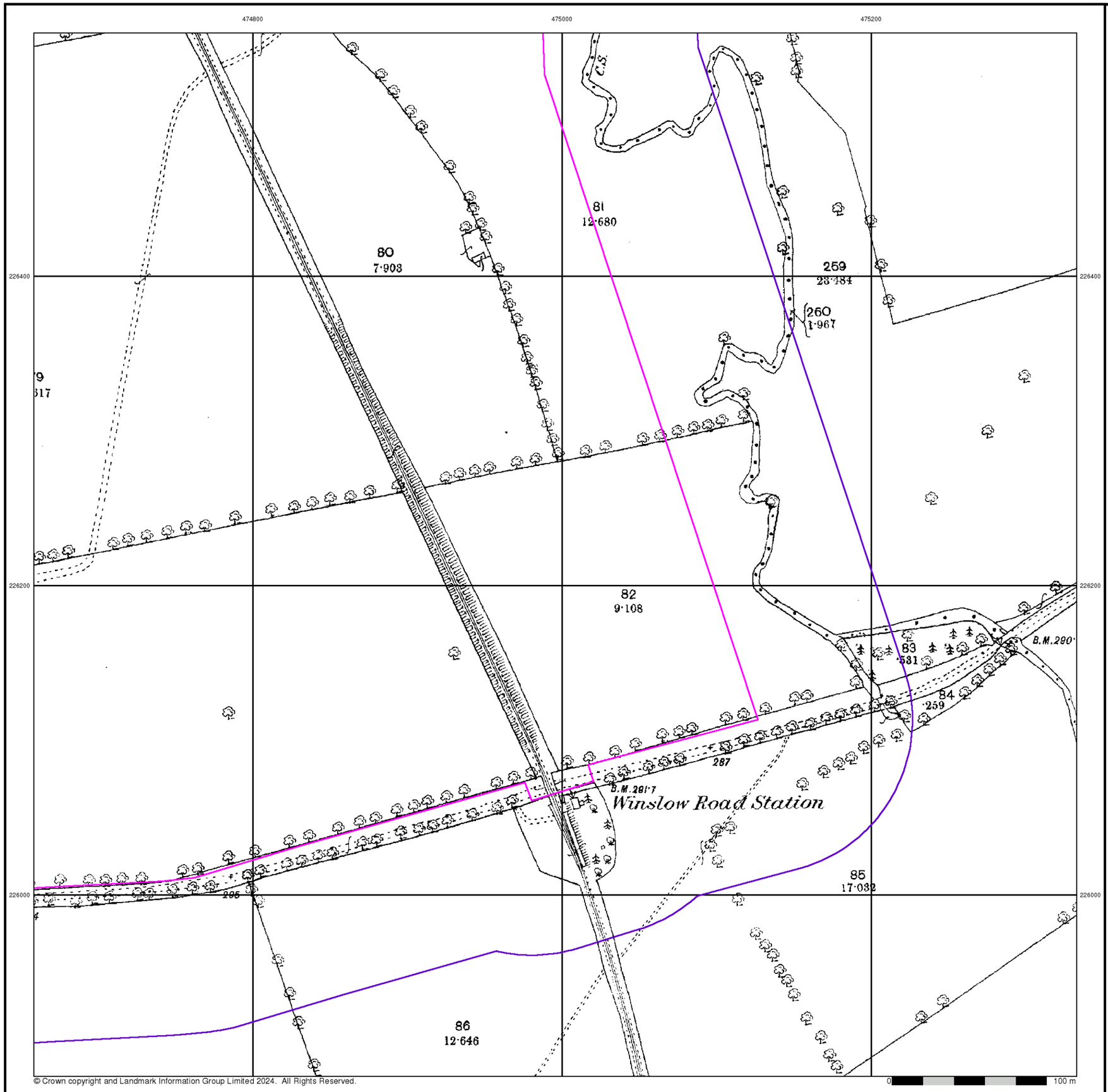

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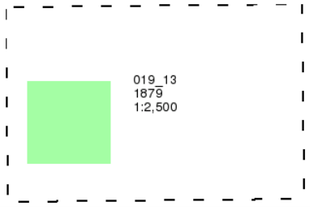
Buckinghamshire

Published 1879

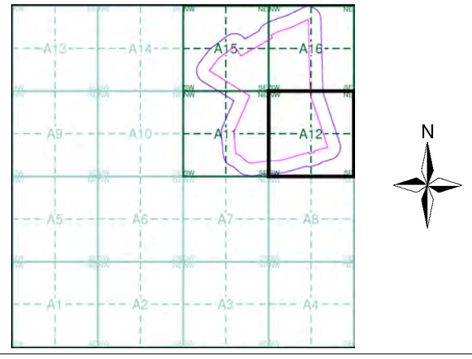
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A12



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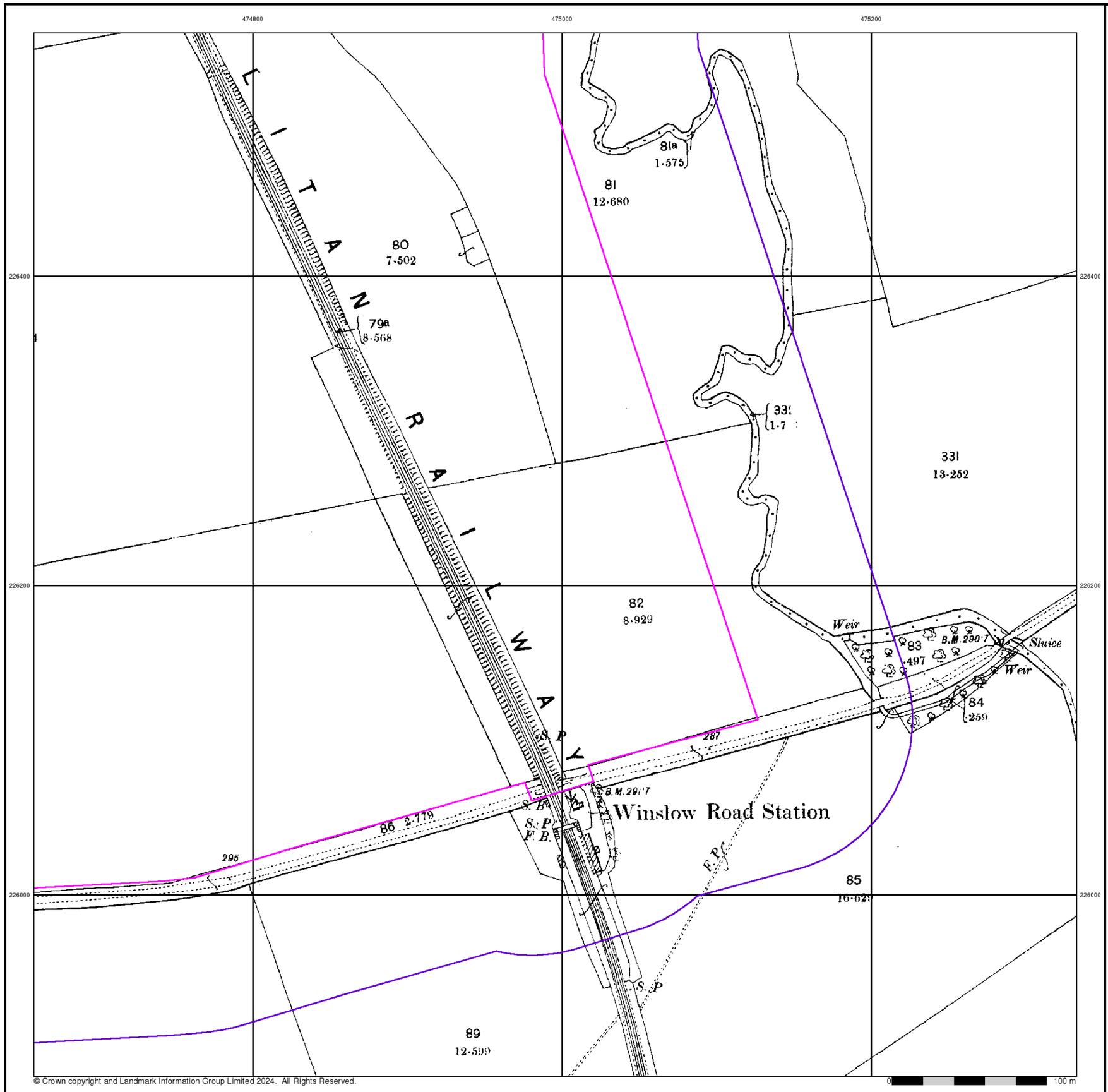

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LANDMARK INFORMATION GROUP®

Buckinghamshire

Published 1899

Source map scale - 1:2,500

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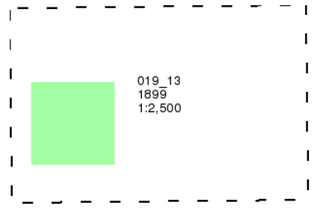
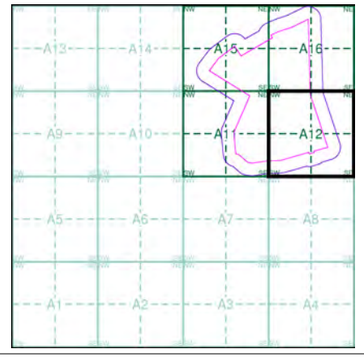


Historical Map - Segment A12



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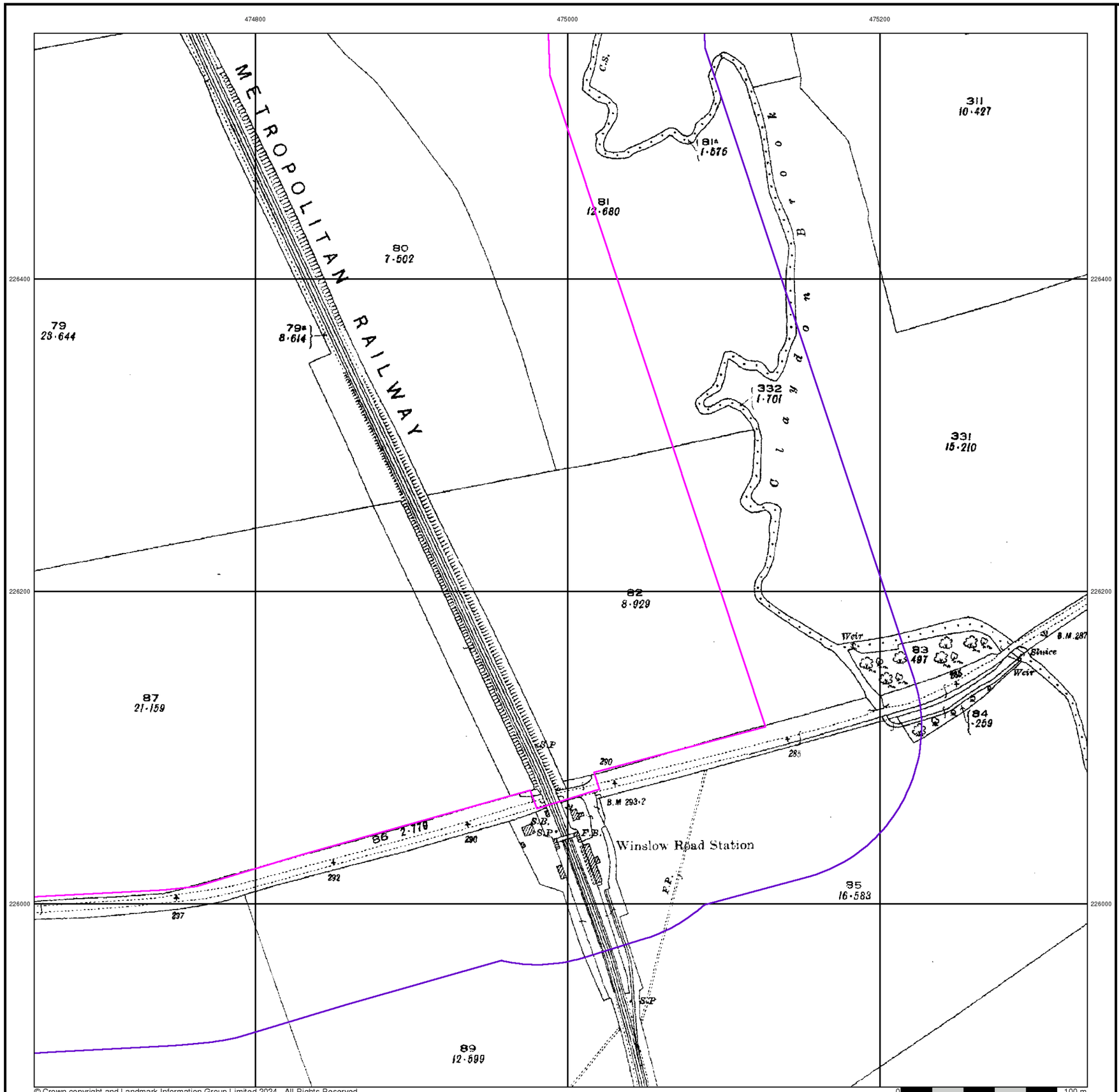

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Buckinghamshire

Published 1925

Source map scale - 1:2,500

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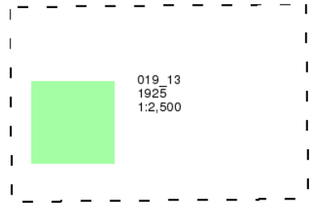
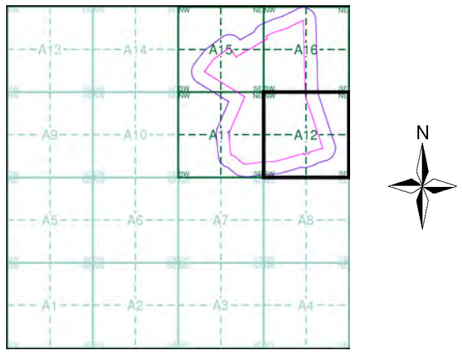


Historical Map - Segment A12



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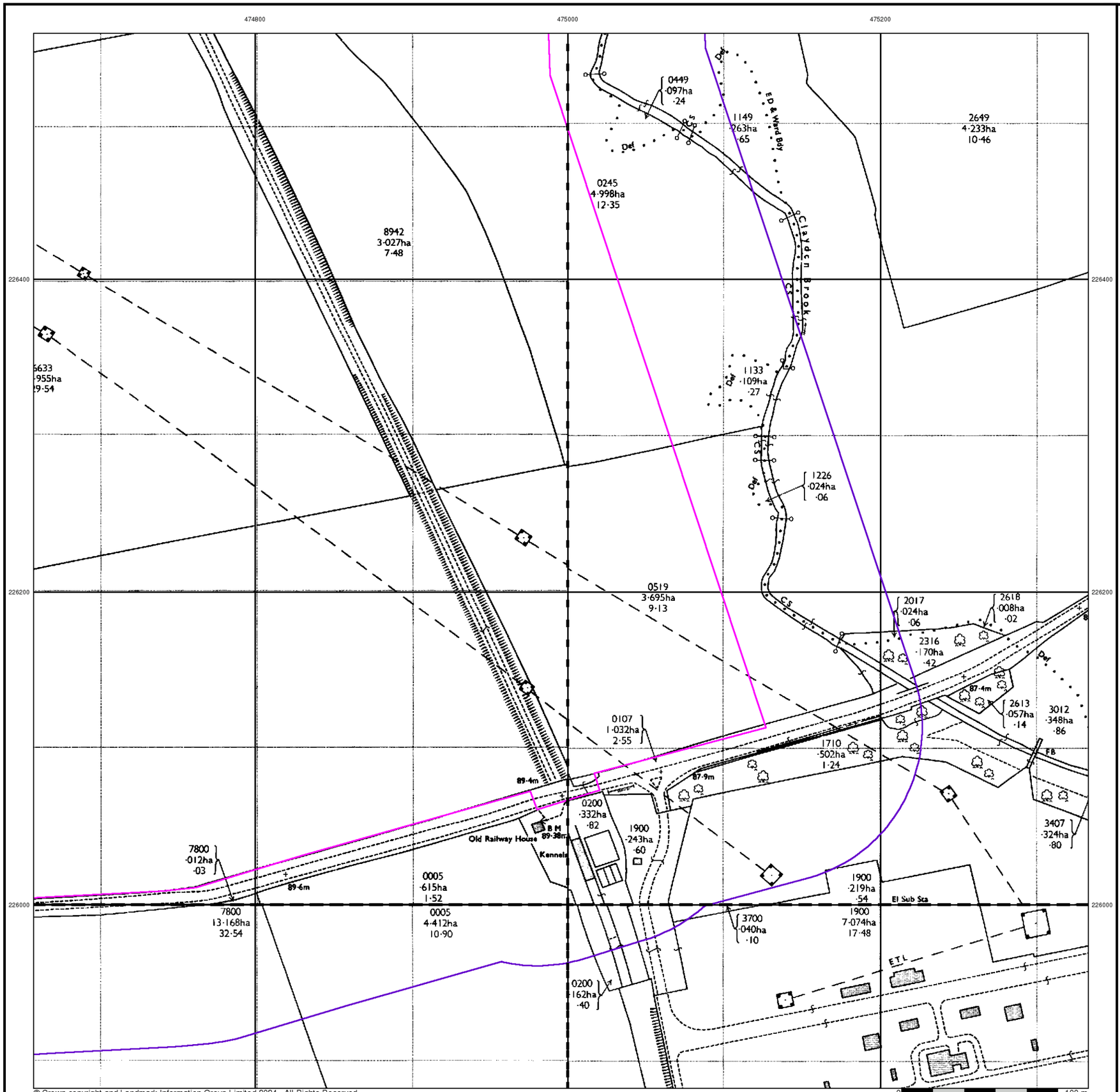

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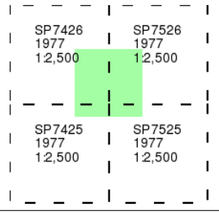
Ordnance Survey Plan

Published 1977

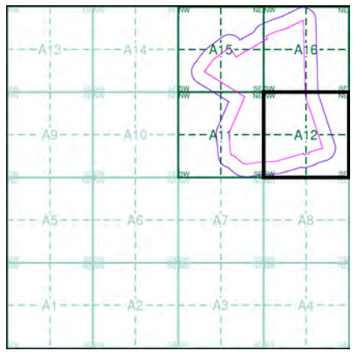
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A12



Order Details

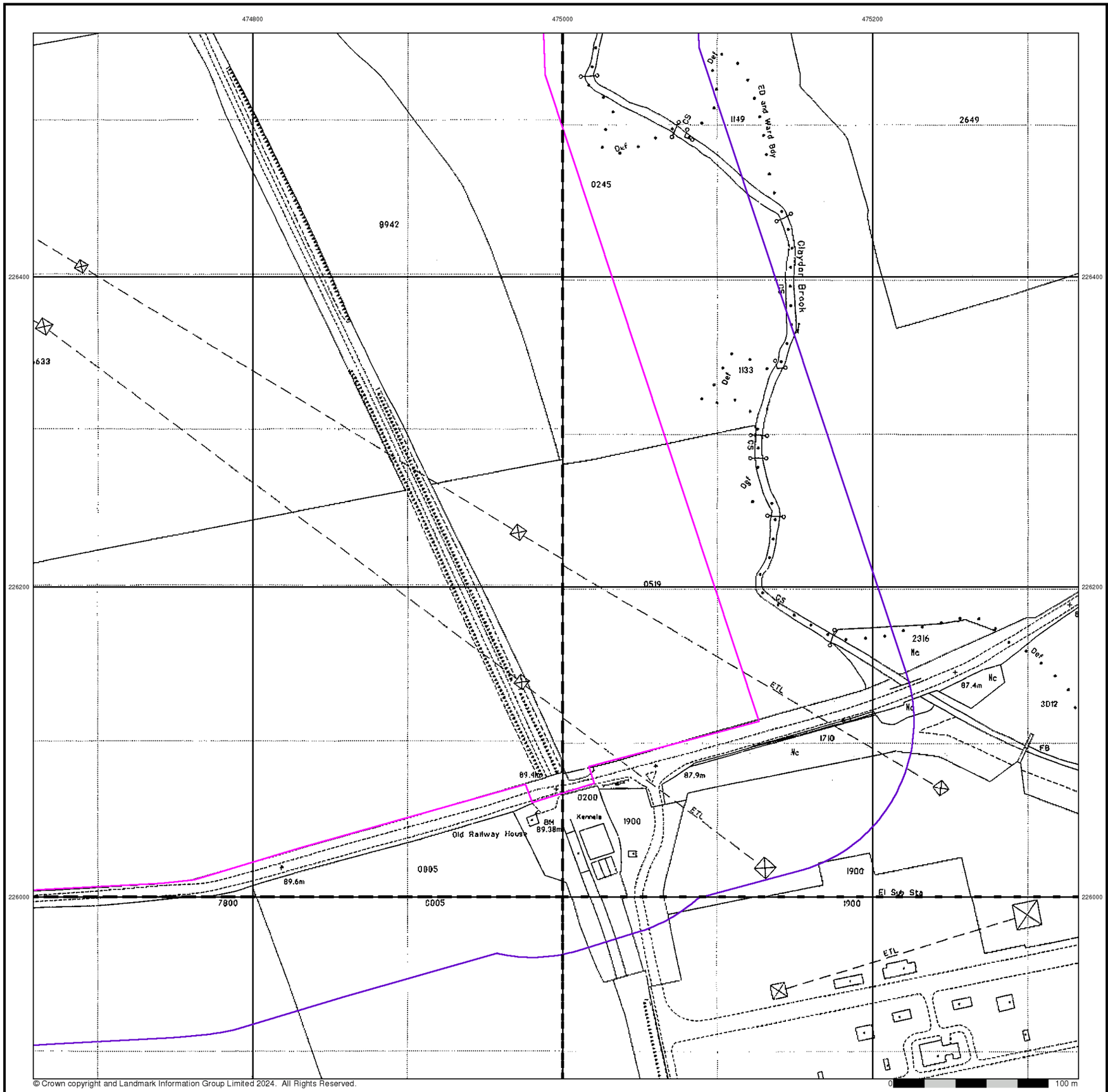
Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP

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



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LANDMARK INFORMATION GROUP®

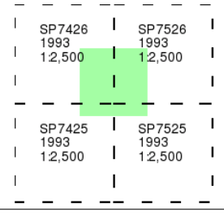
Large-Scale National Grid Data

Published 1993

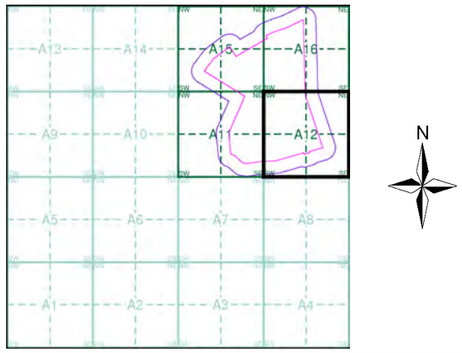
Source map scale - 1:2,500

'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 fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A12



Order Details

Order Number:	342200018_1_1
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National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
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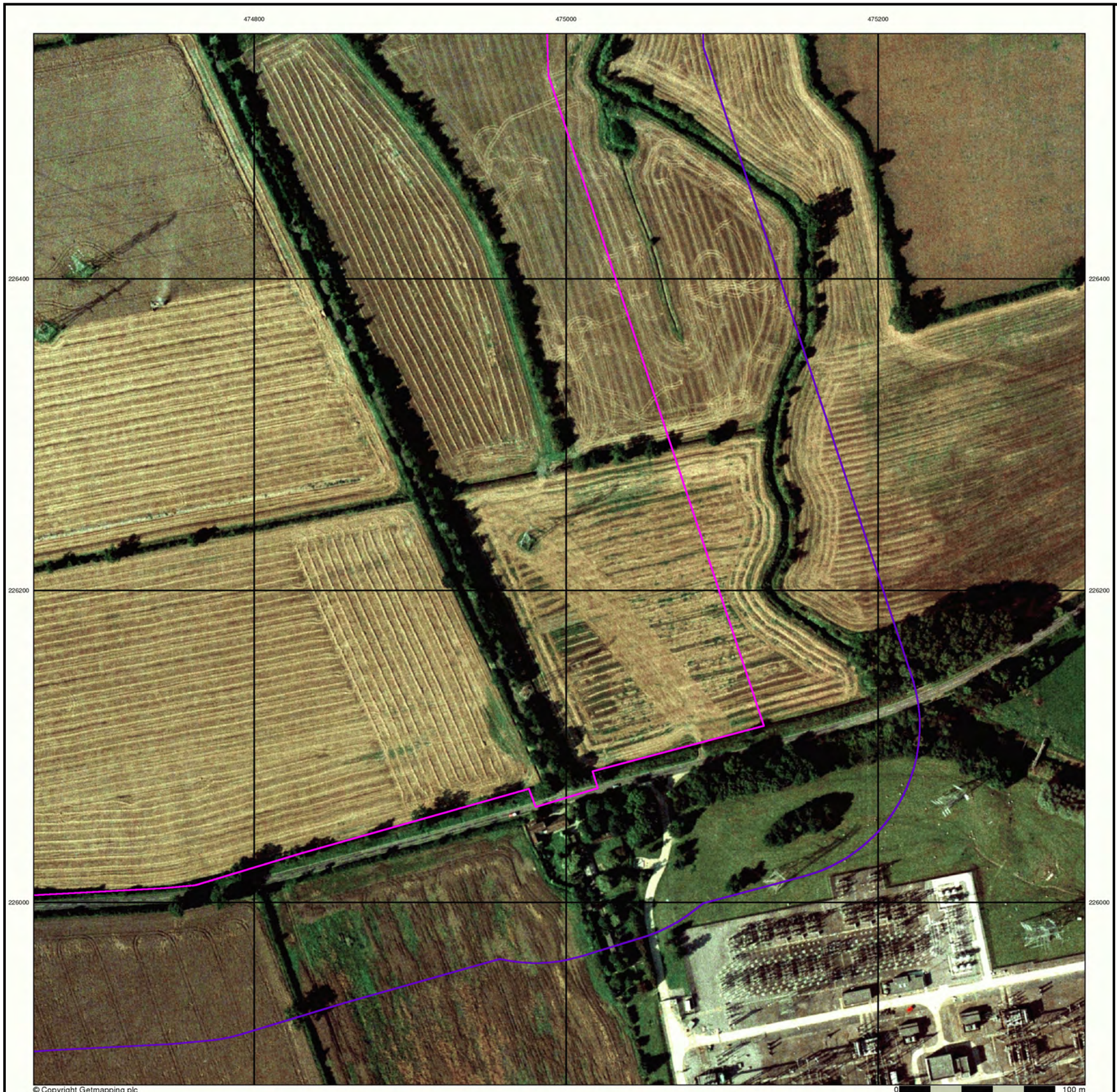

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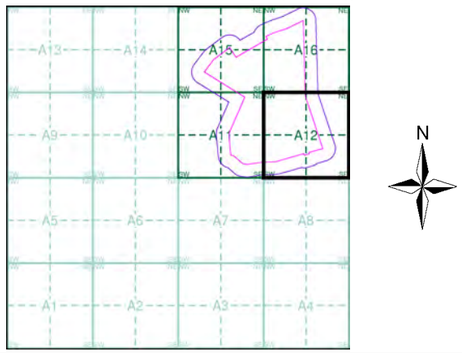
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A12



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

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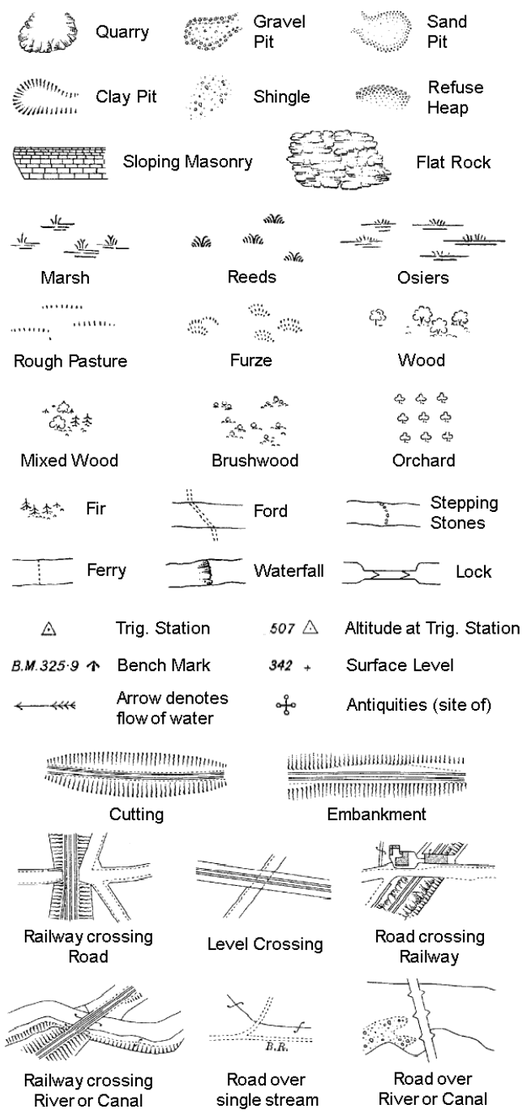
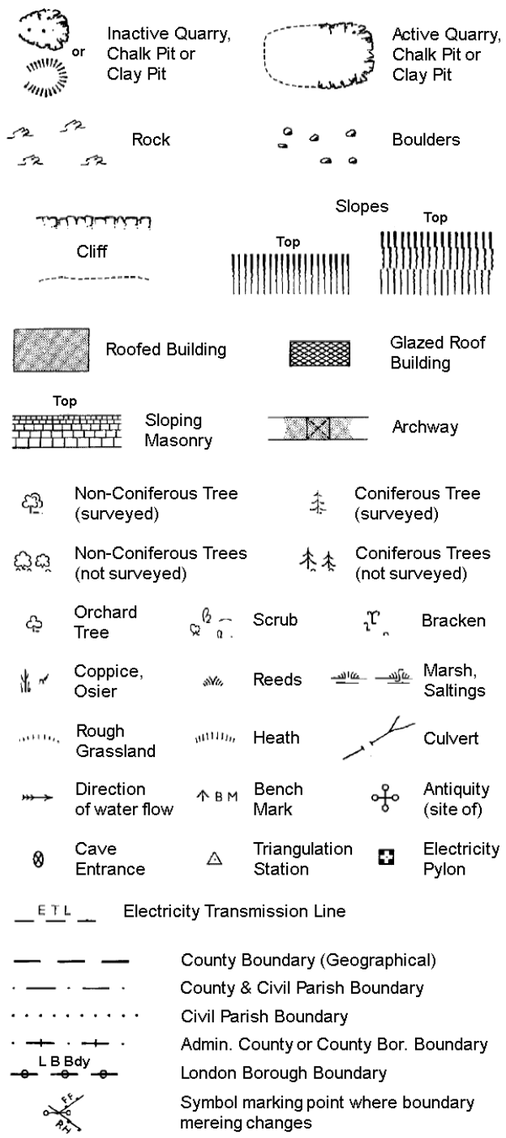
Historical Mapping Legends

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



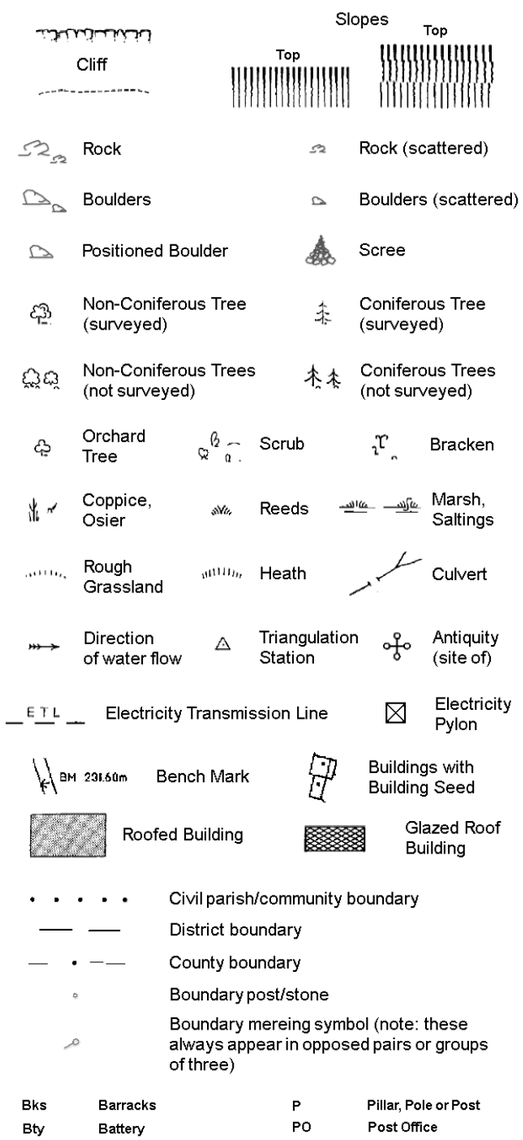
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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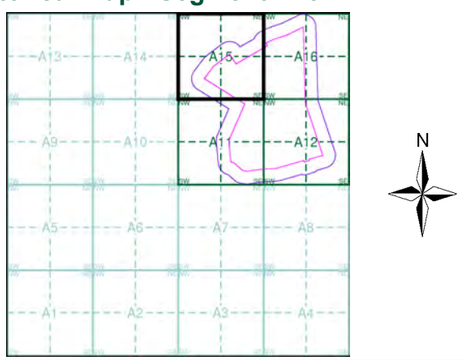
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Buckinghamshire	1:2,500	1878 - 1880	2
Buckinghamshire	1:2,500	1899 - 1900	3
Buckinghamshire	1:2,500	1923 - 1925	4
Ordnance Survey Plan	1:2,500	1977 - 1978	5
Large-Scale National Grid Data	1:2,500	1993	6
Historical Aerial Photography	1:2,500	1999	7

Historical Map - Segment A15



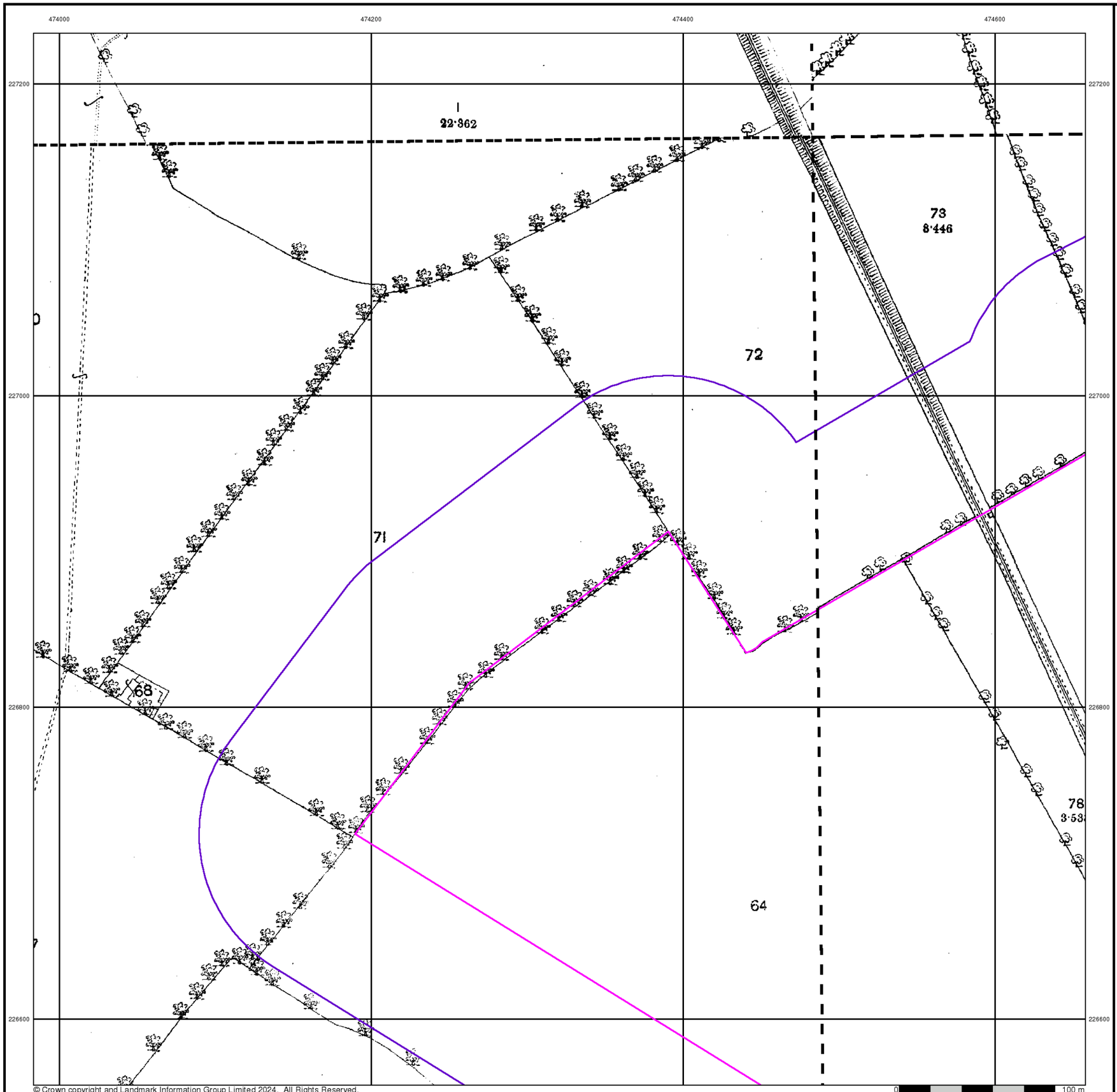
Order Details

Order Number: 342200018_1_1
Customer Ref: 3358
National Grid Reference: 474360, 226200
Slice: A
Site Area (Ha): 61.62
Search Buffer (m): 100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark® INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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LANDMARK INFORMATION GROUP®

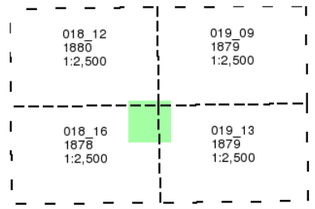
Buckinghamshire

Published 1878 - 1880

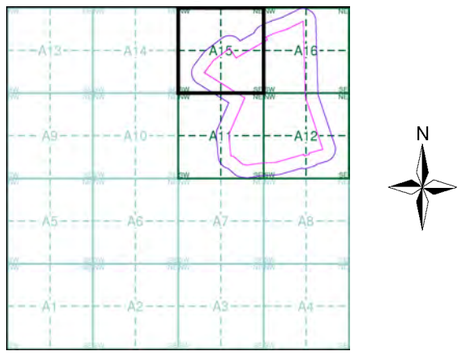
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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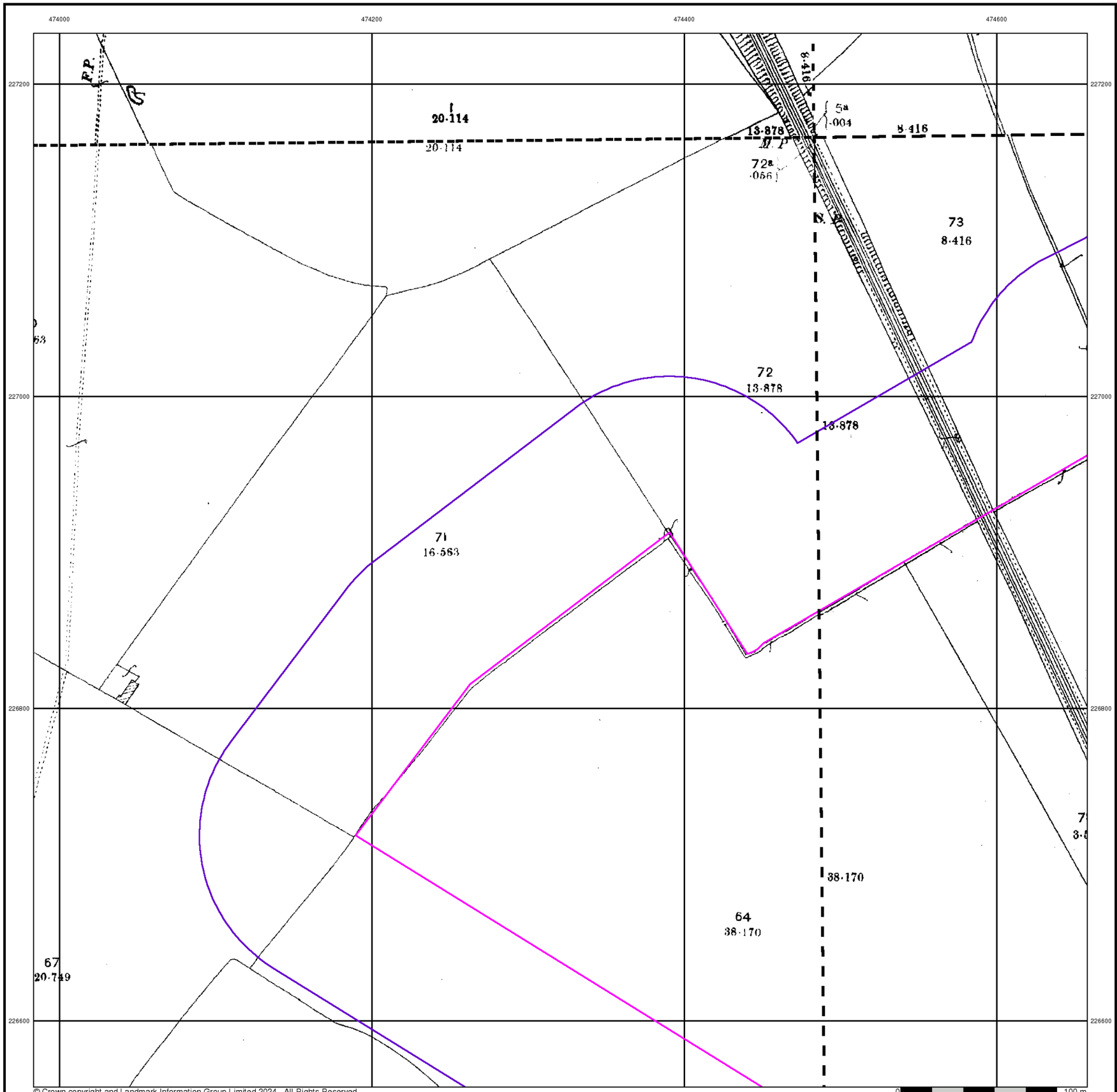

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LANDMARK INFORMATION GROUP®

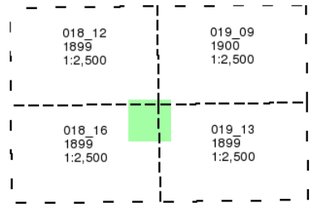
Buckinghamshire

Published 1899 - 1900

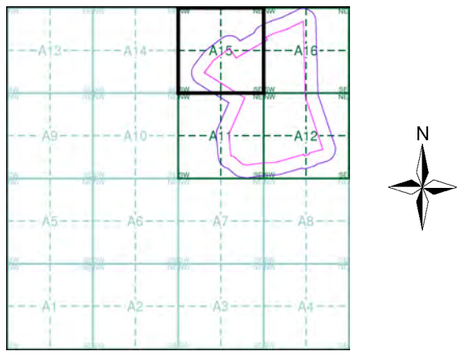
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A15



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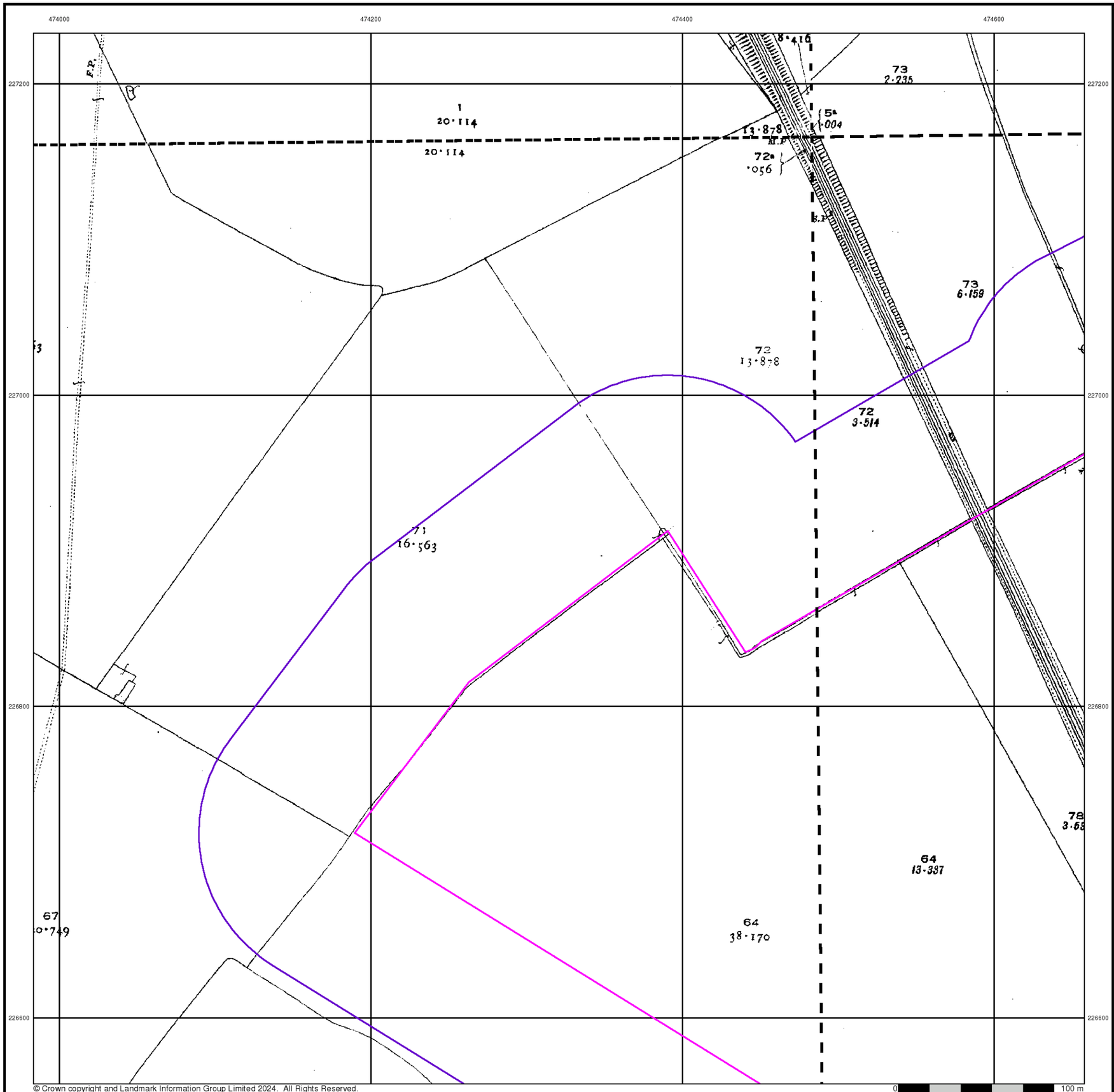

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LANDMARK INFORMATION GROUP®

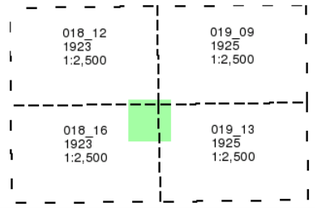
Buckinghamshire

Published 1923 - 1925

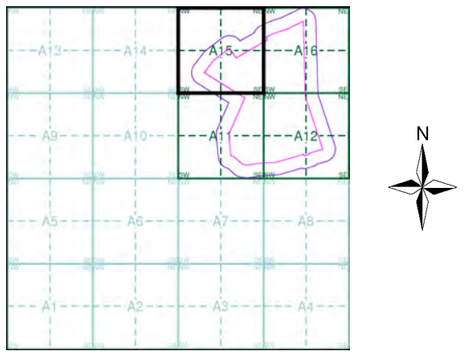
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
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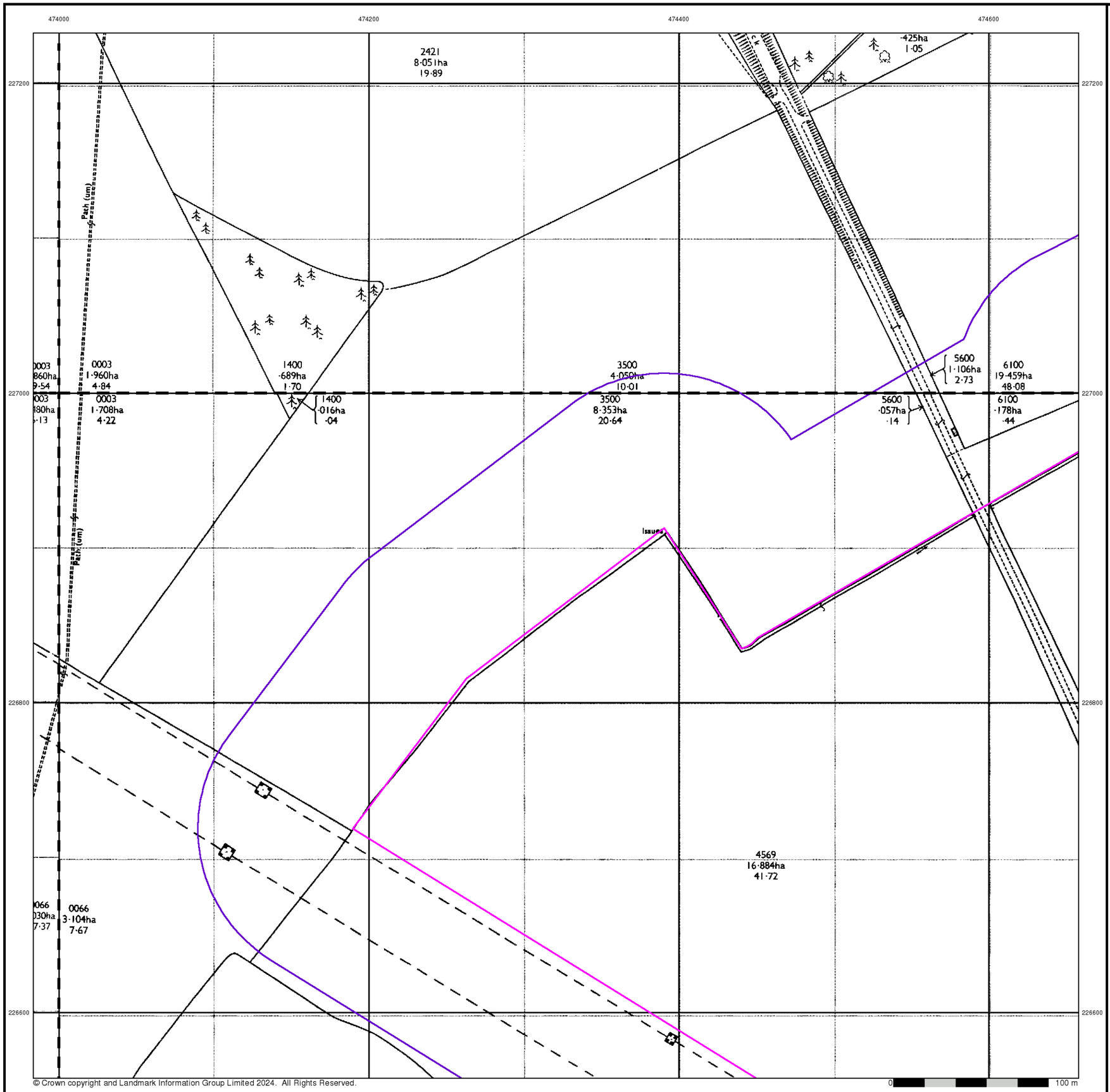

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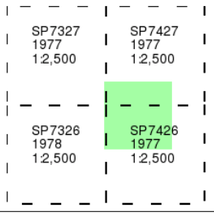
LANDMARK INFORMATION GROUP®

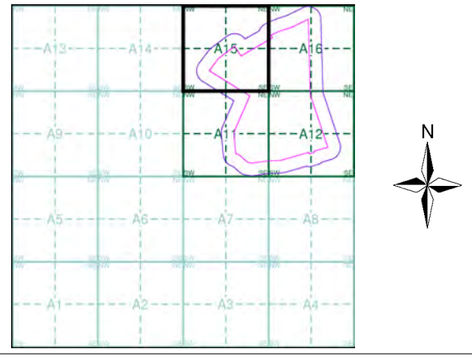
Ordnance Survey Plan
Published 1977 - 1978
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A15



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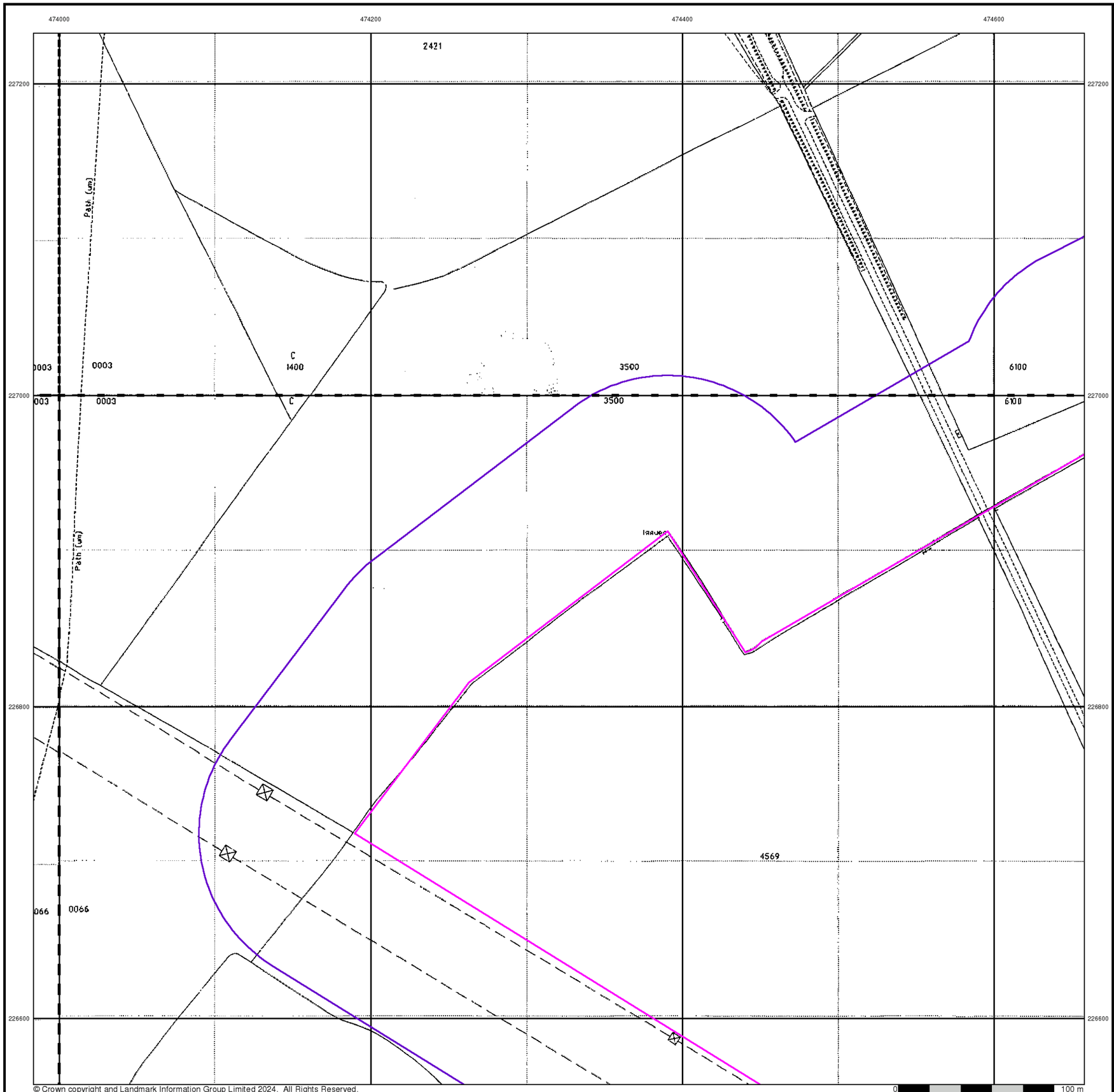

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LANDMARK INFORMATION GROUP®

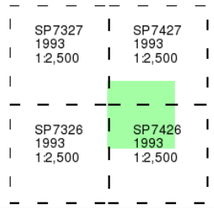
Large-Scale National Grid Data

Published 1993

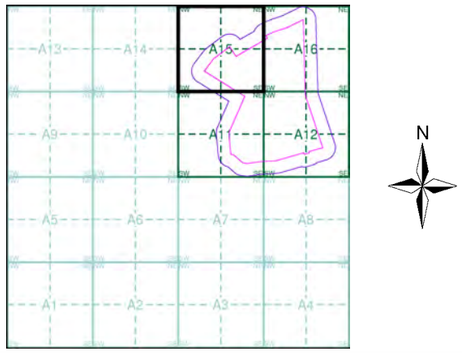
Source map scale - 1:2,500

'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 fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A15



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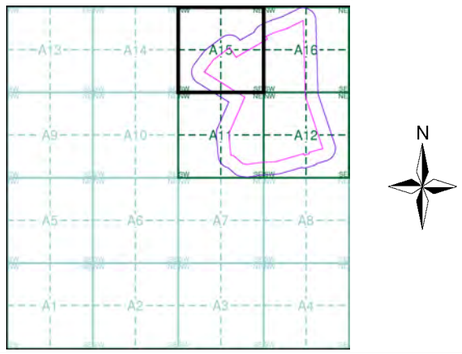
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A15



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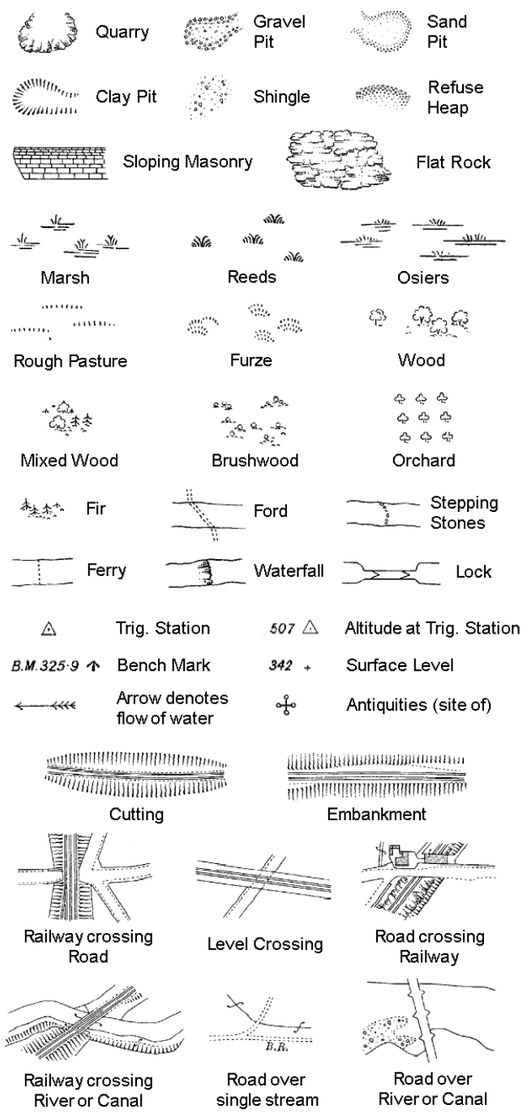
Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

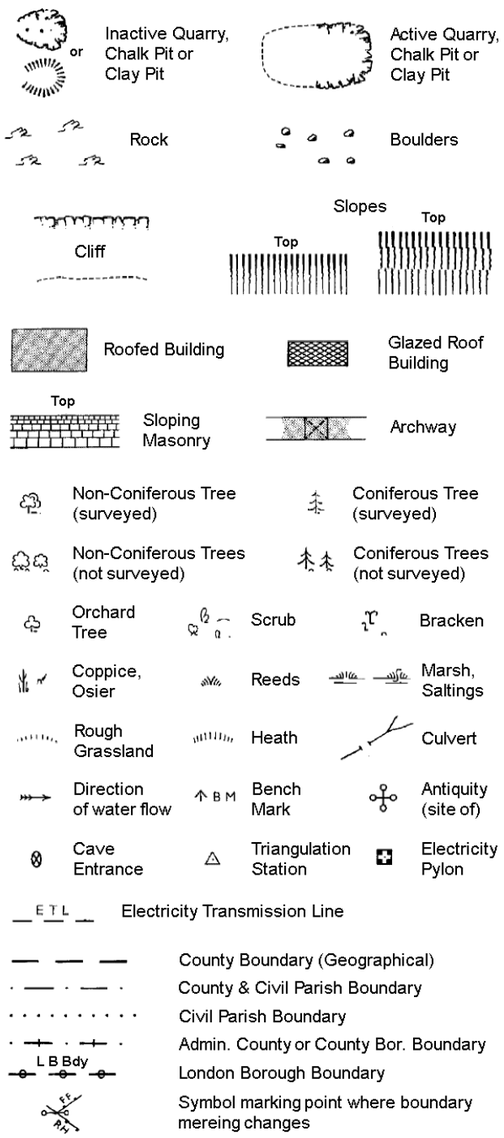
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

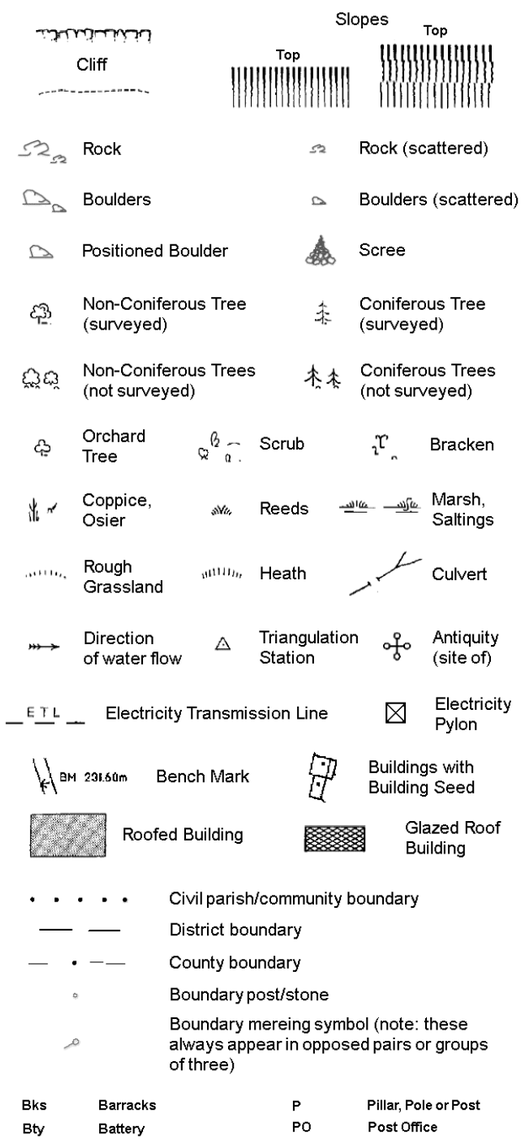
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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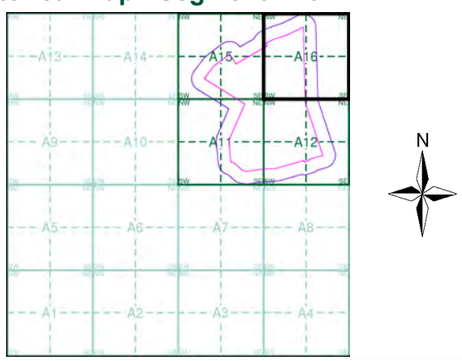
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Buckinghamshire	1:2,500	1879	2
Buckinghamshire	1:2,500	1899 - 1900	3
Buckinghamshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1977	5
Large-Scale National Grid Data	1:2,500	1993	6
Historical Aerial Photography	1:2,500	1999	7

Historical Map - Segment A16



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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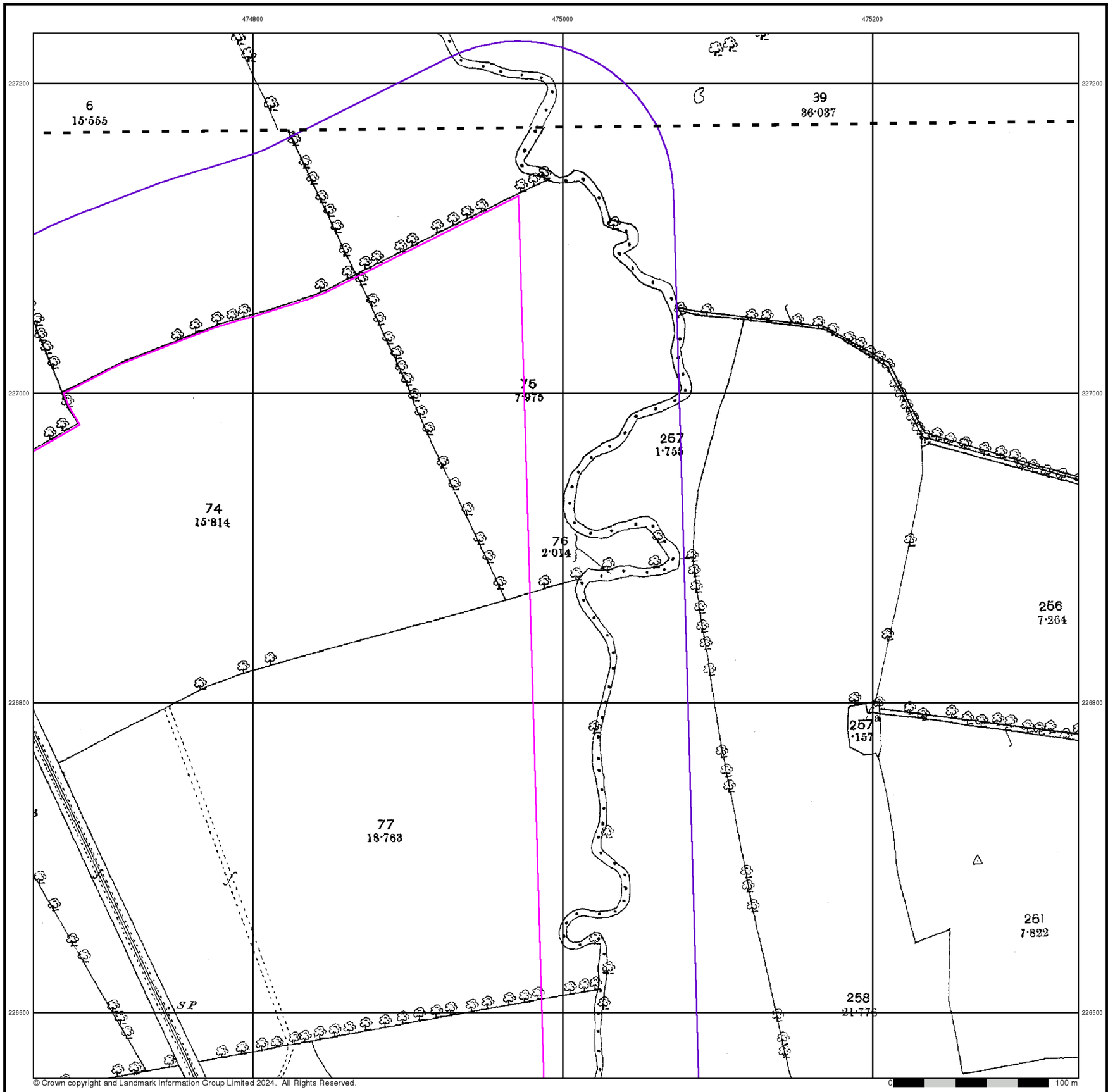
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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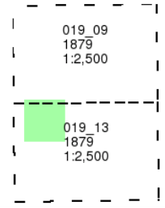
Buckinghamshire

Published 1879

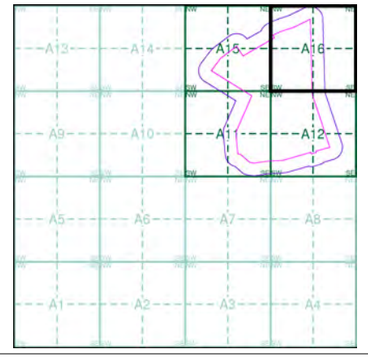
Source map scale - 1:2,500

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 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A16



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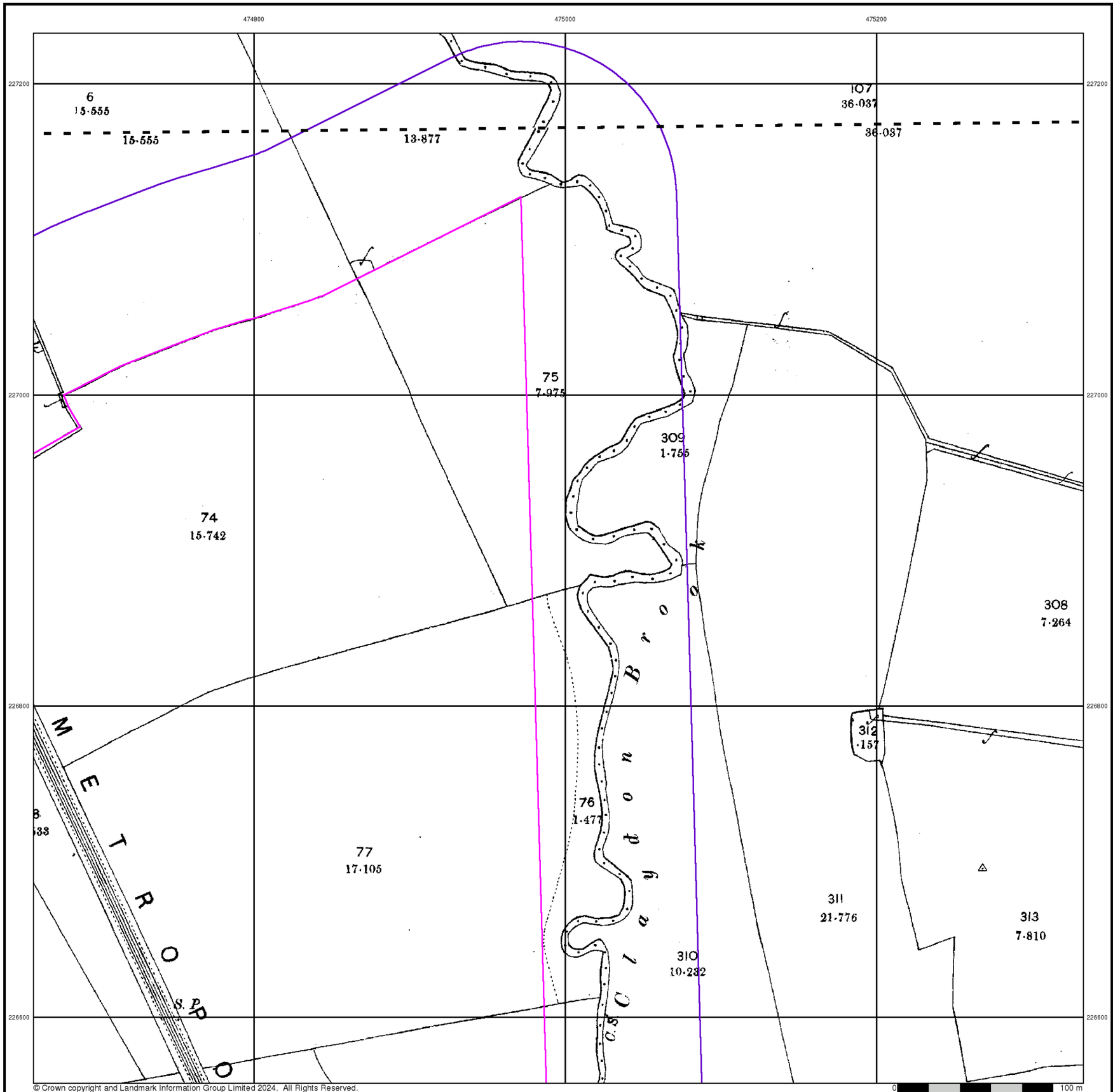

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Buckinghamshire

Published 1899 - 1900

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 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.

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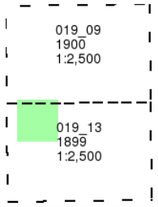

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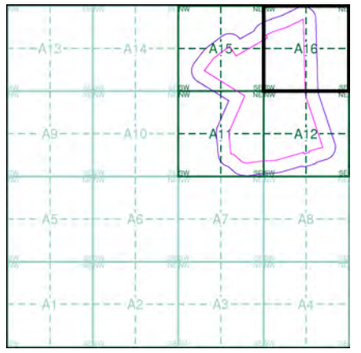

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Slice:	A
Site Area (Ha):	61.62
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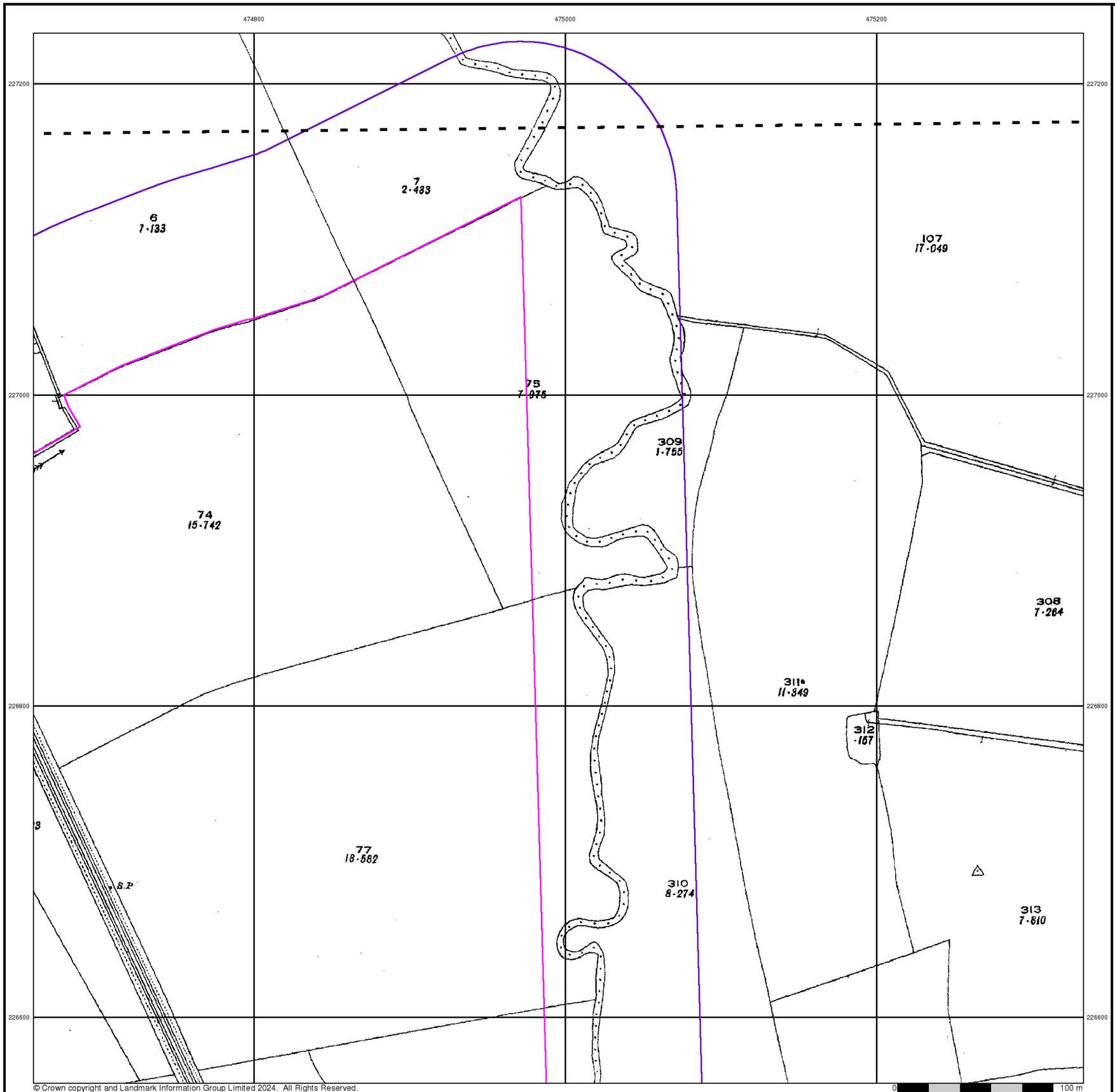

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Buckinghamshire

Published 1925

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 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.

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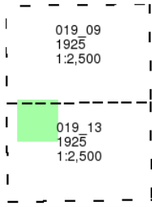
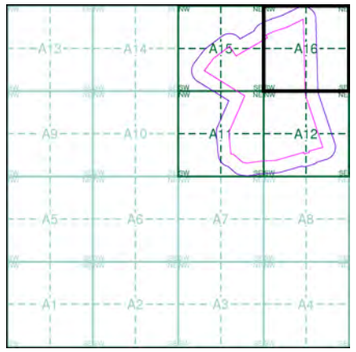


Historical Map - Segment A16



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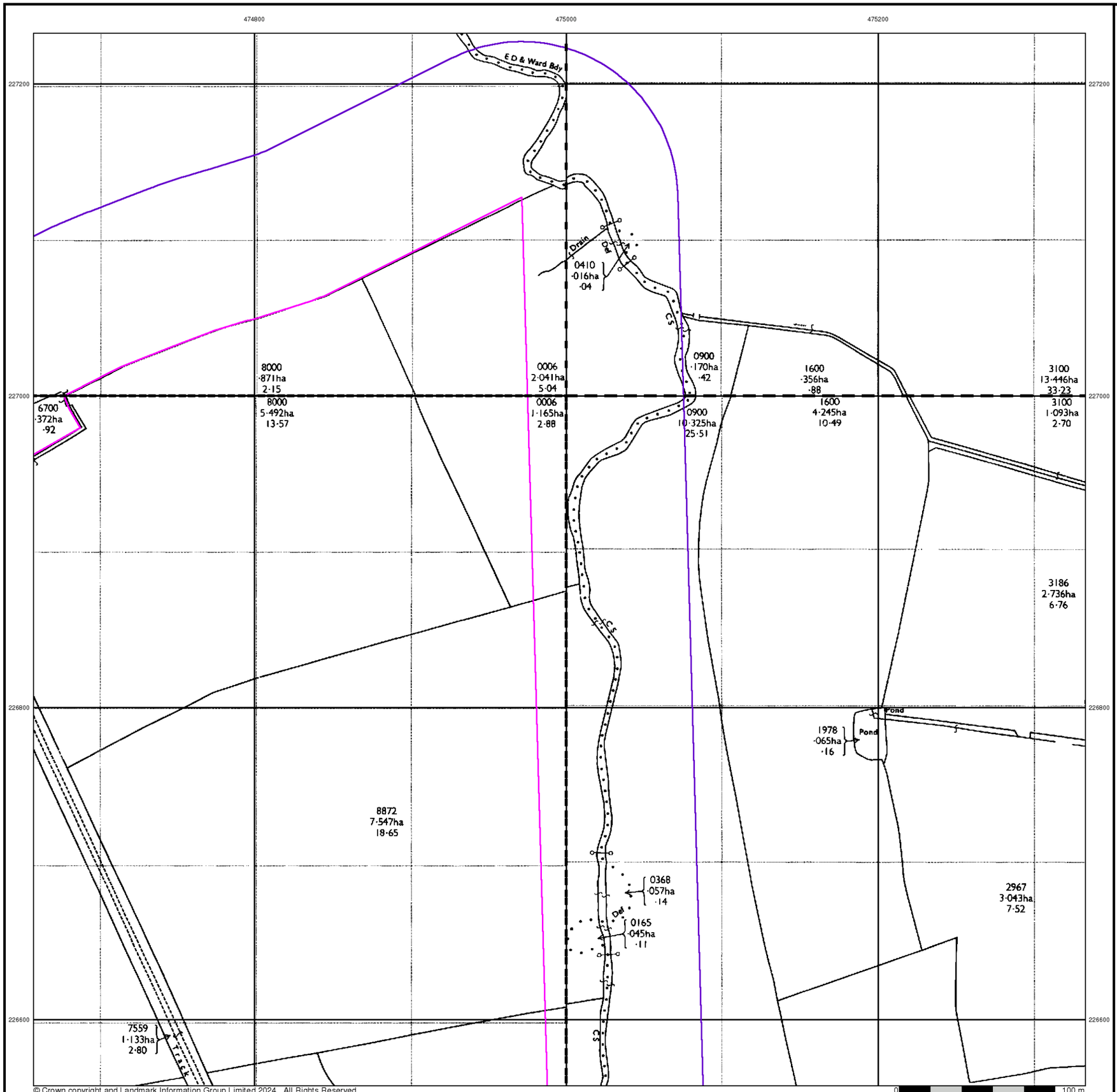

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Ordnance Survey Plan

Published 1977

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 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.

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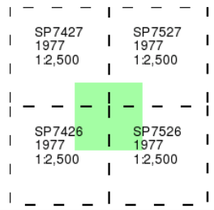
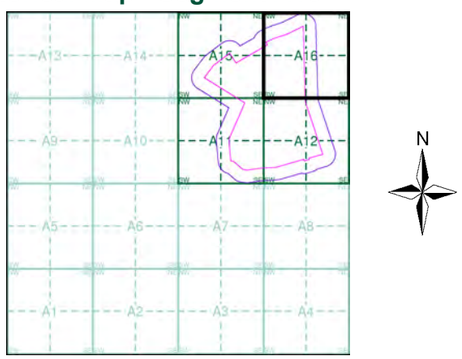


Historical Map - Segment A16



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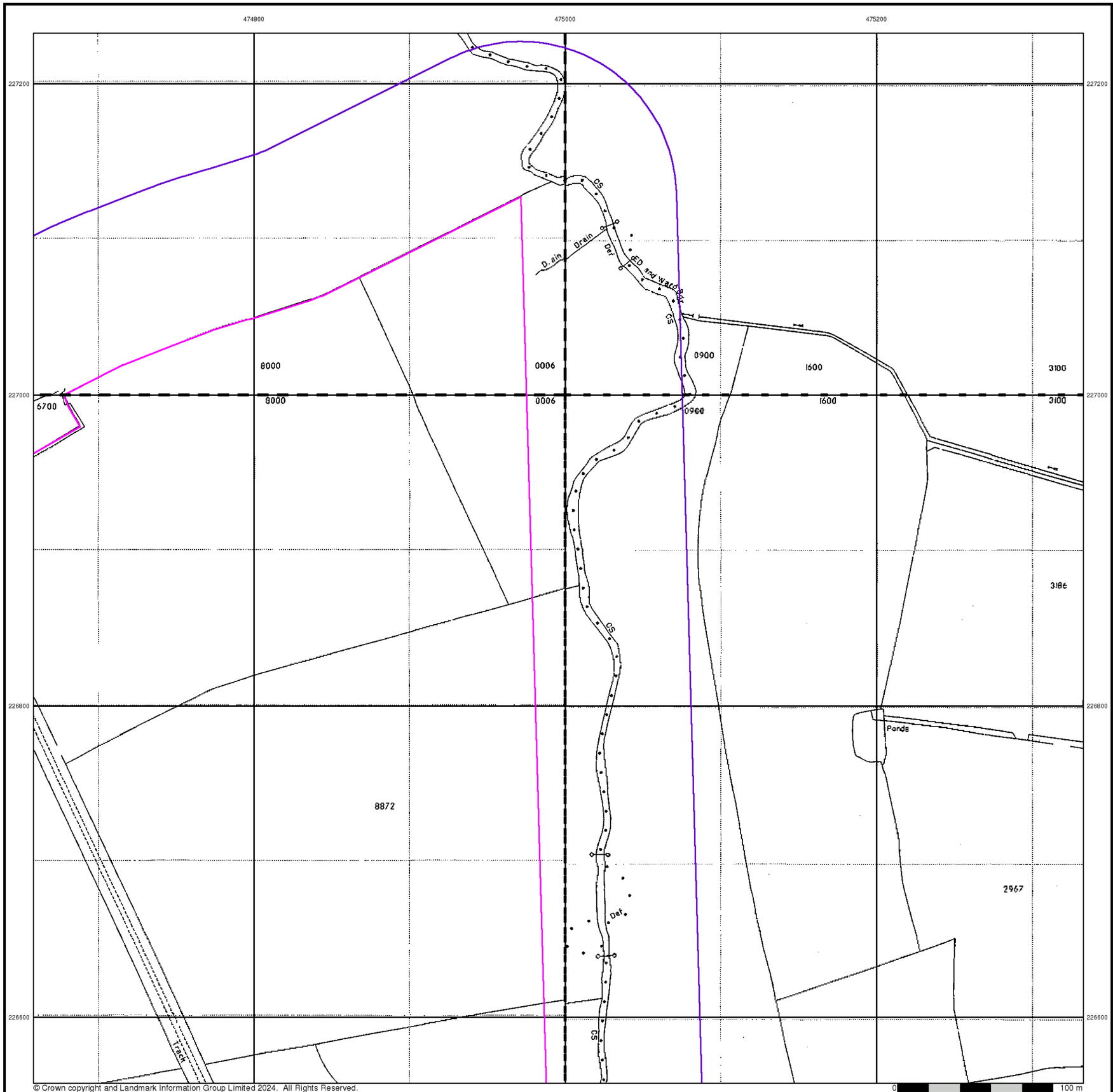

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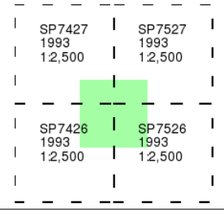
Large-Scale National Grid Data

Published 1993

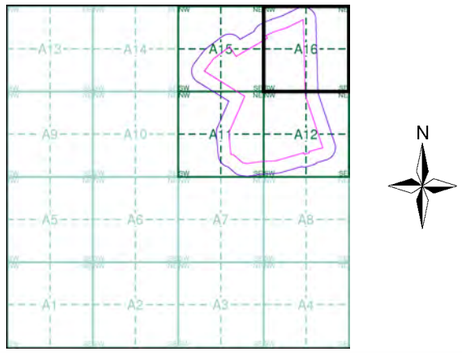
Source map scale - 1:2,500

'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 fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A16



Order Details

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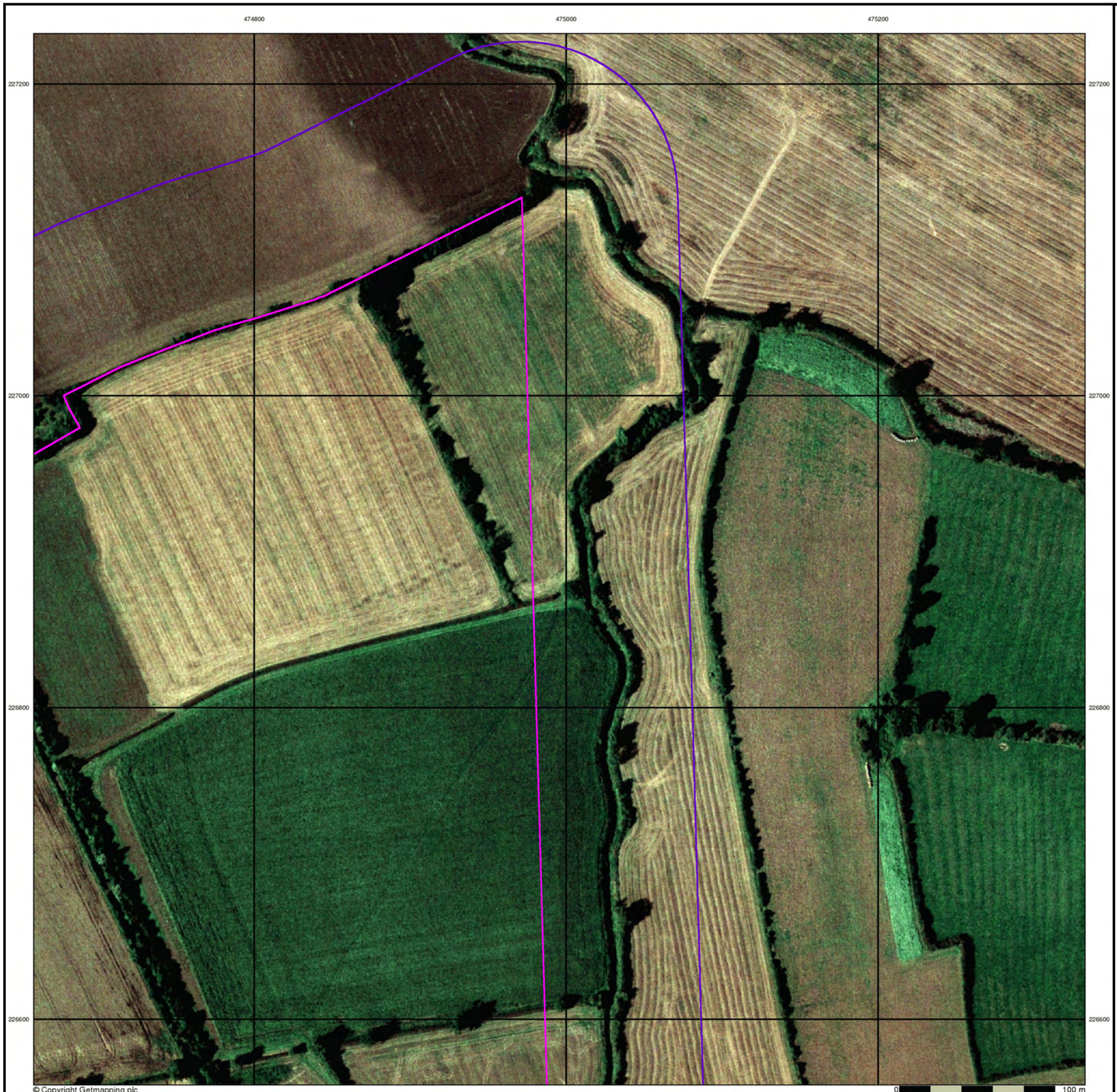

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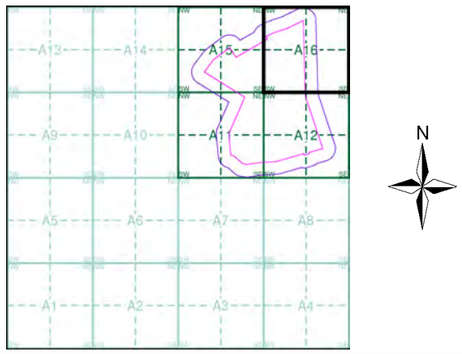
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A16



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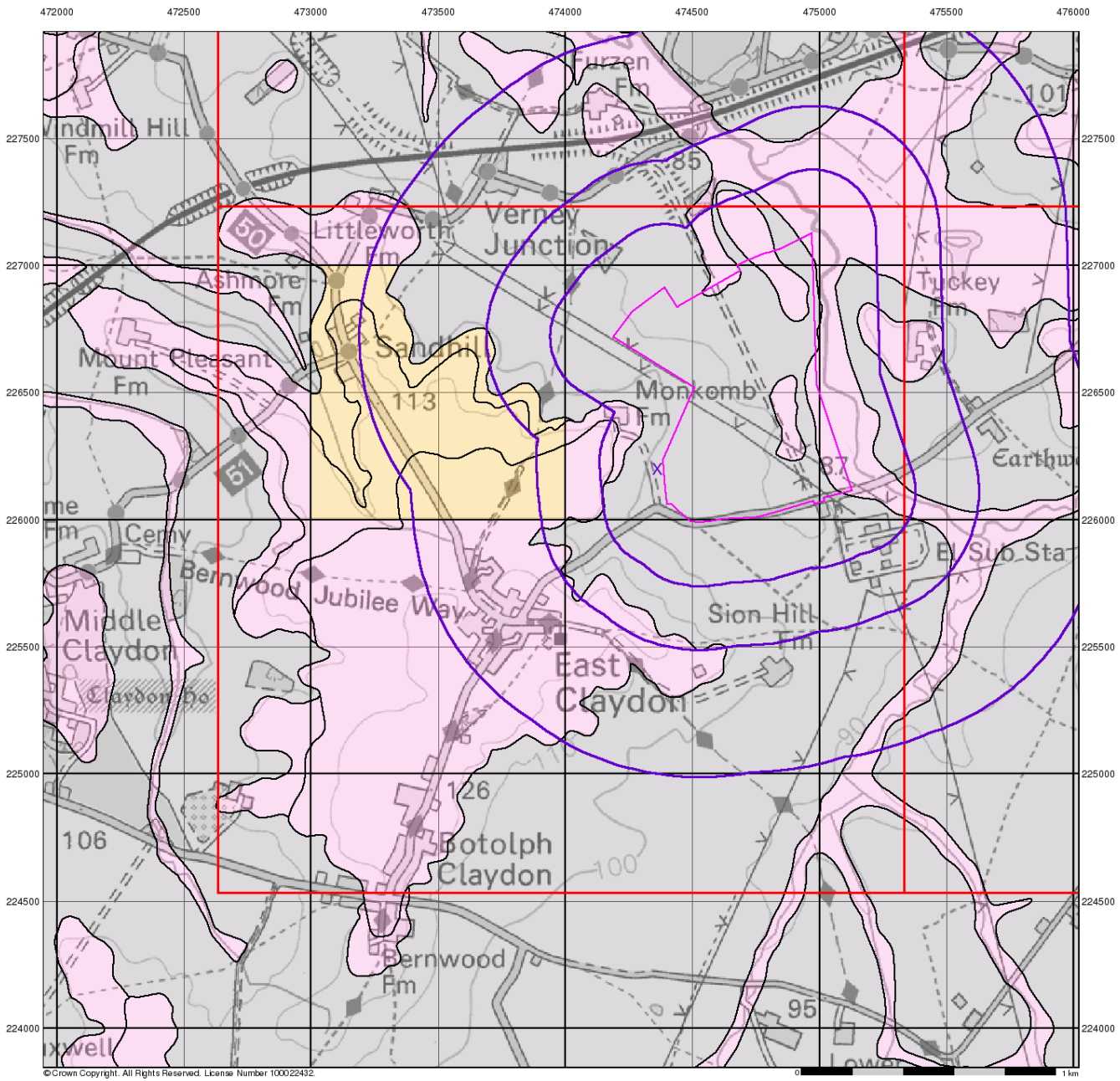

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Groundwater Vulnerability

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

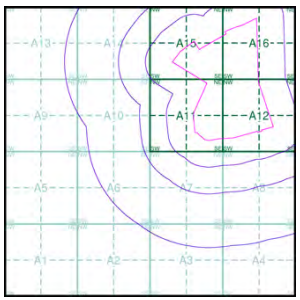
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details

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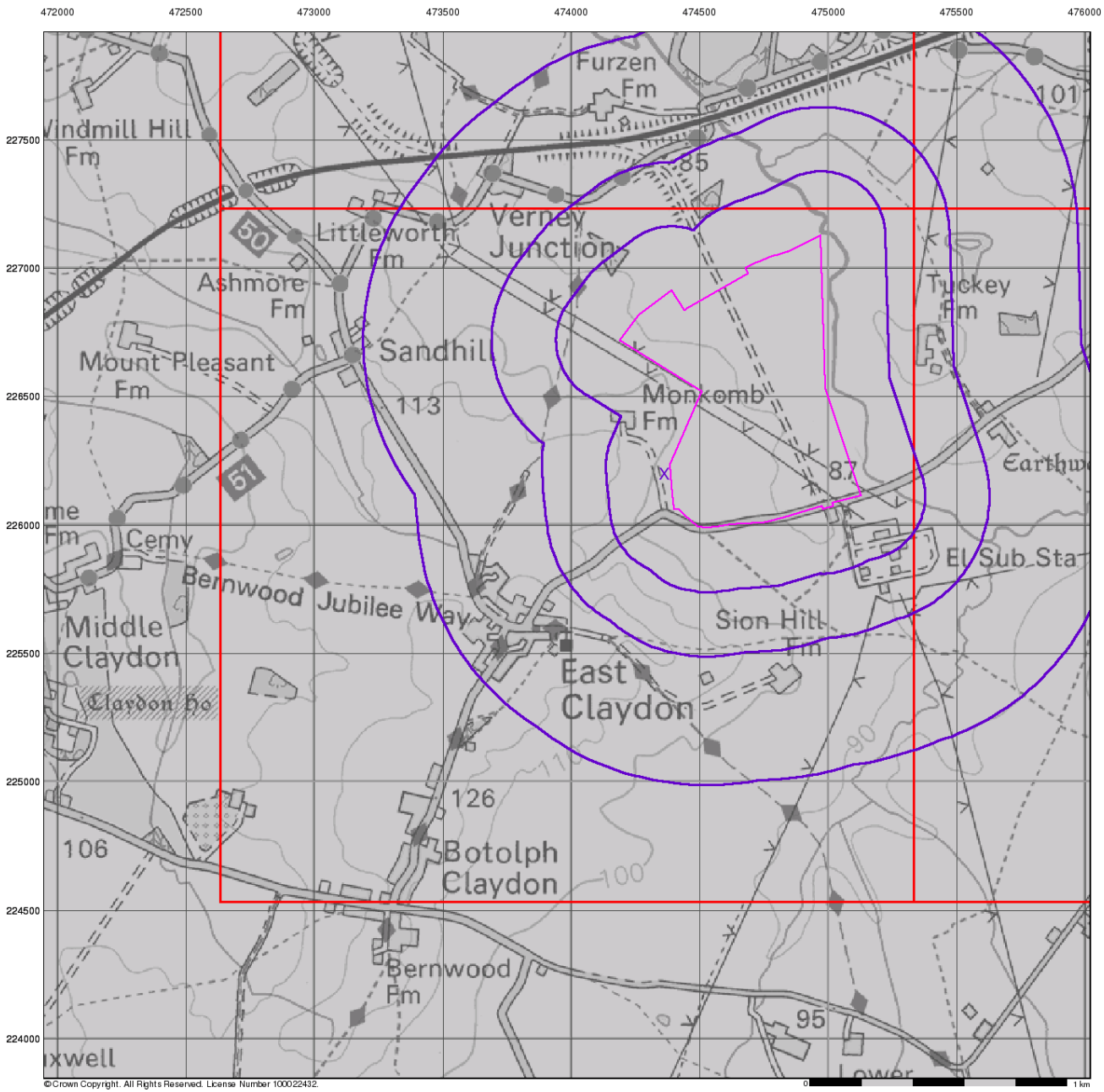

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Bedrock Aquifer Designation

General

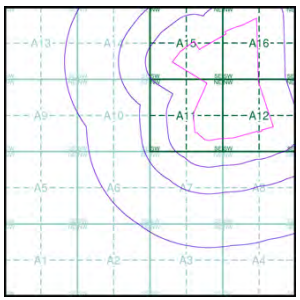
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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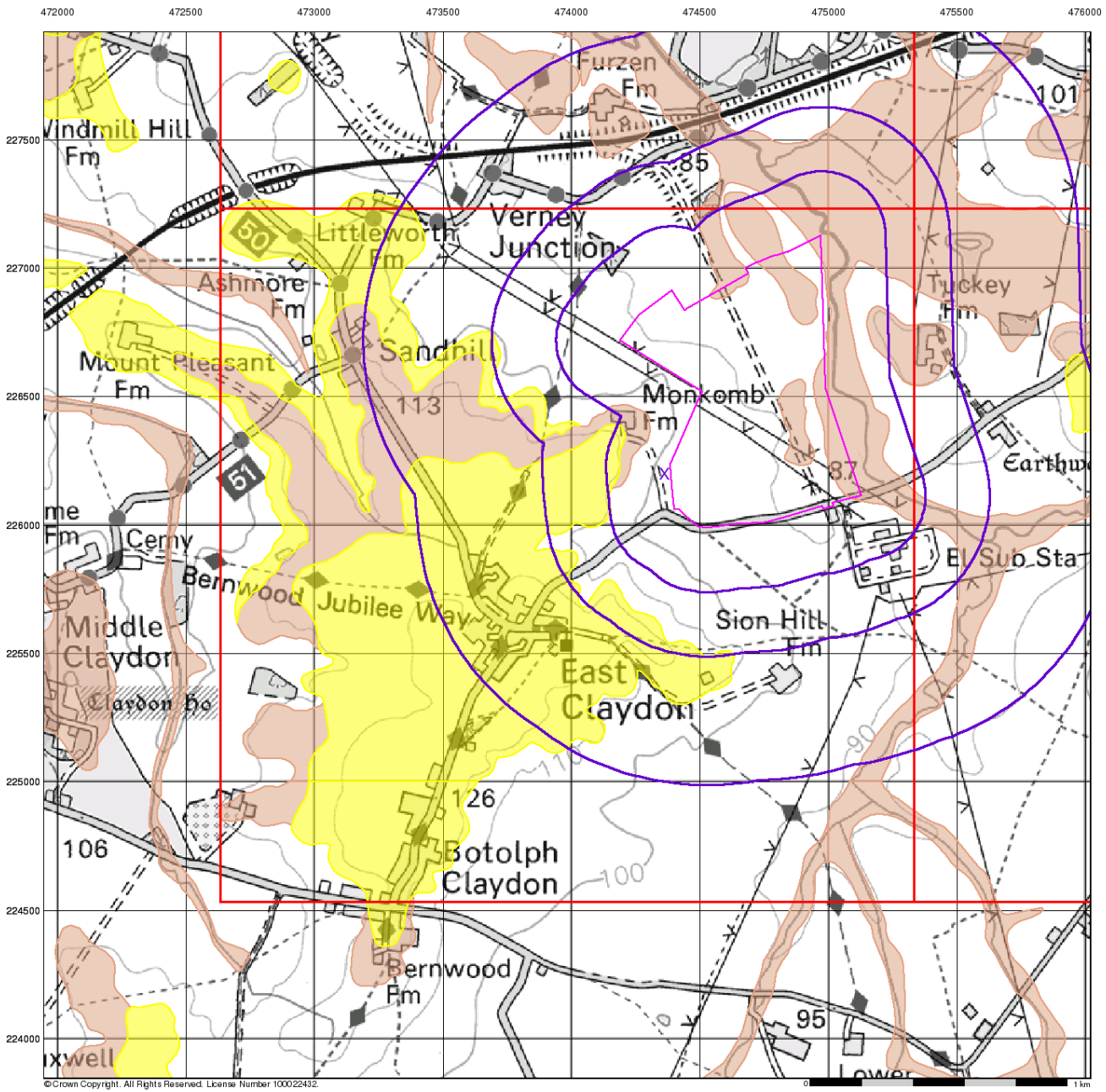

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Superficial Aquifer Designation

General

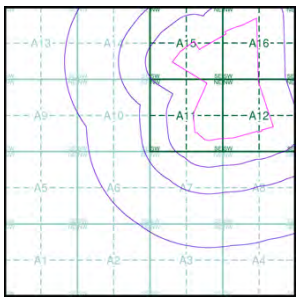
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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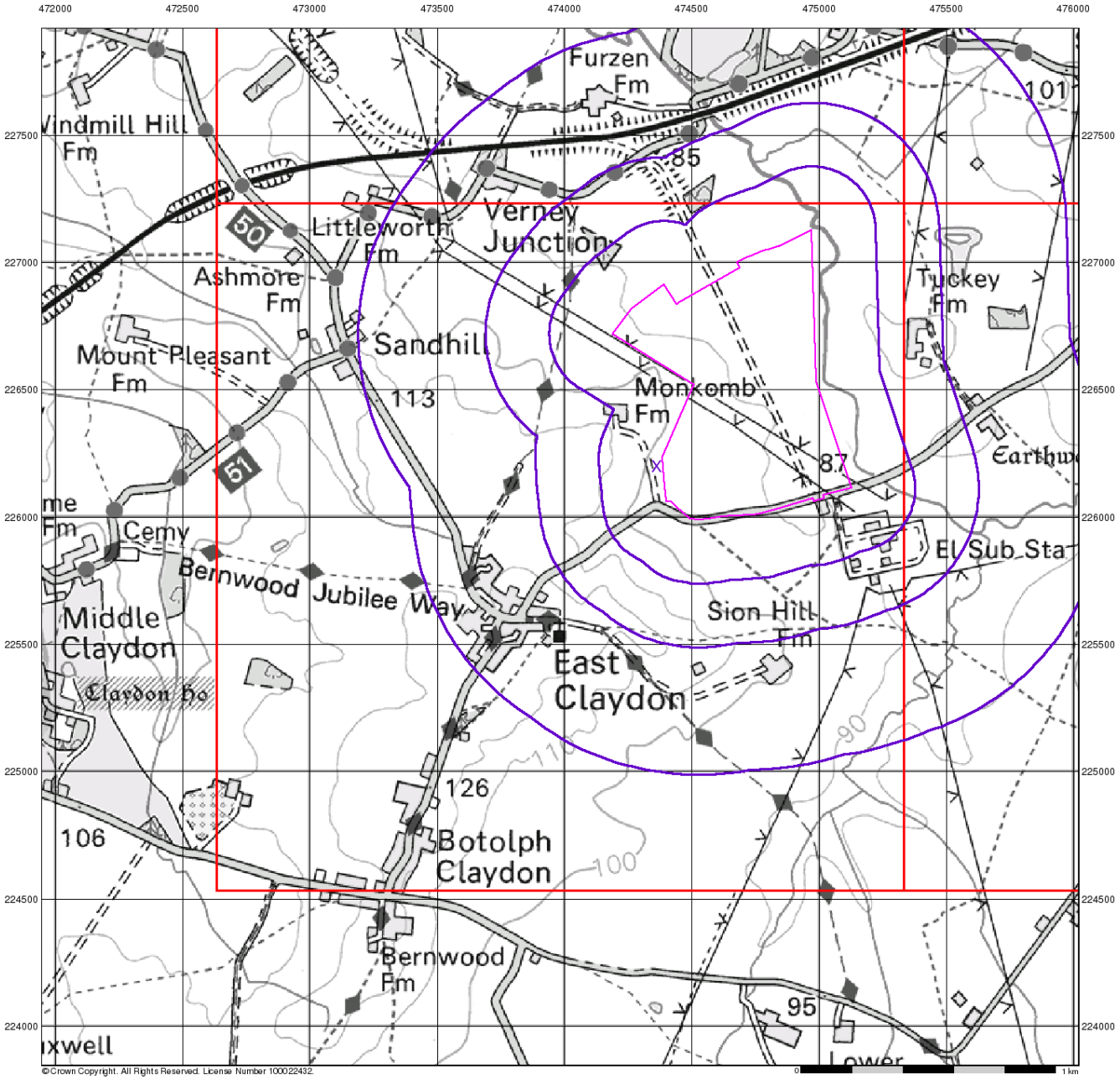

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Source Protection Zones

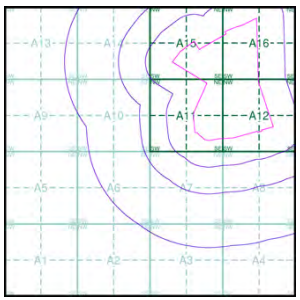
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



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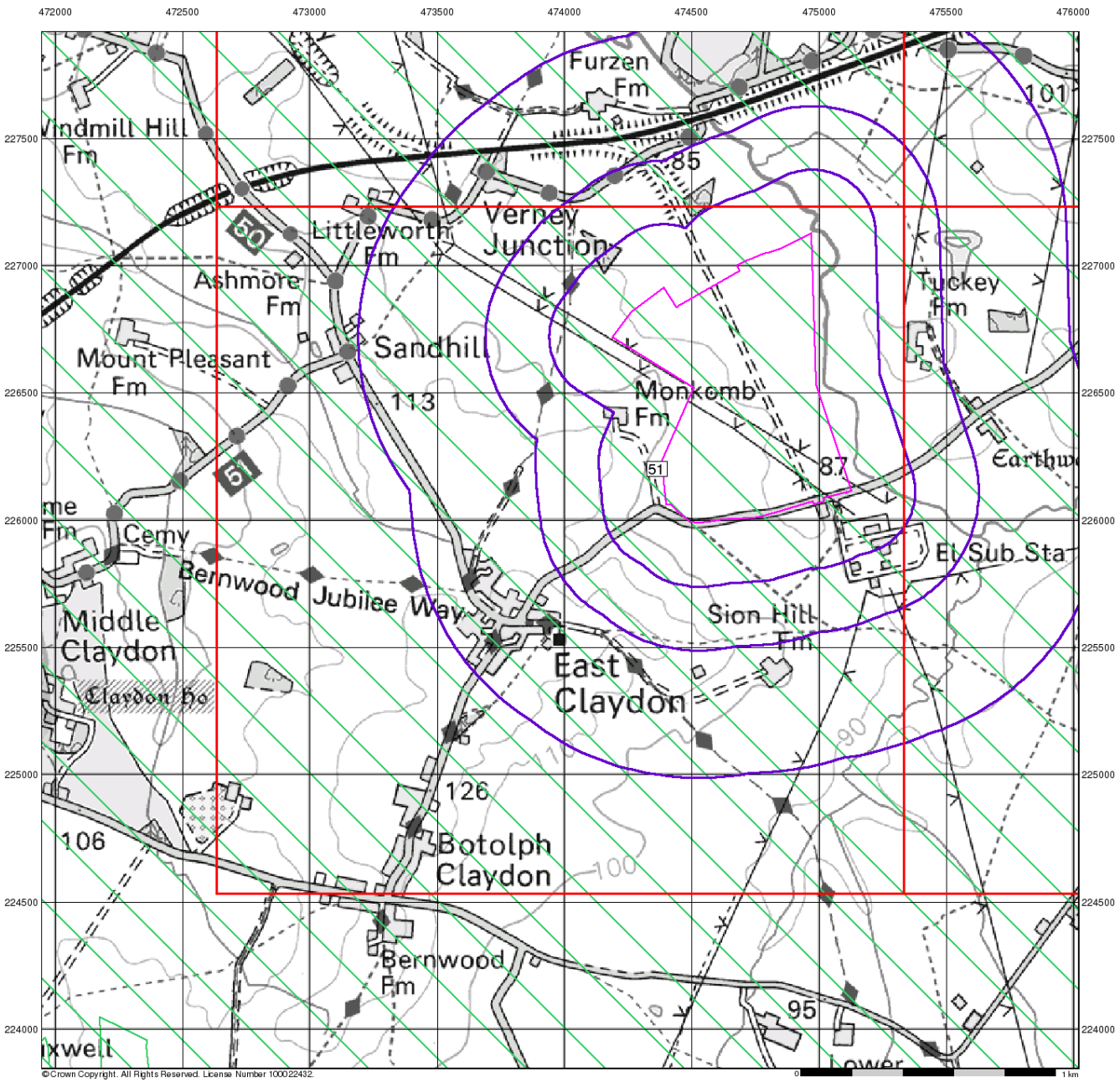

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Sensitive Land Uses

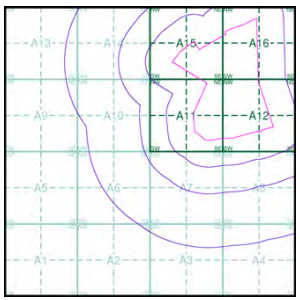
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



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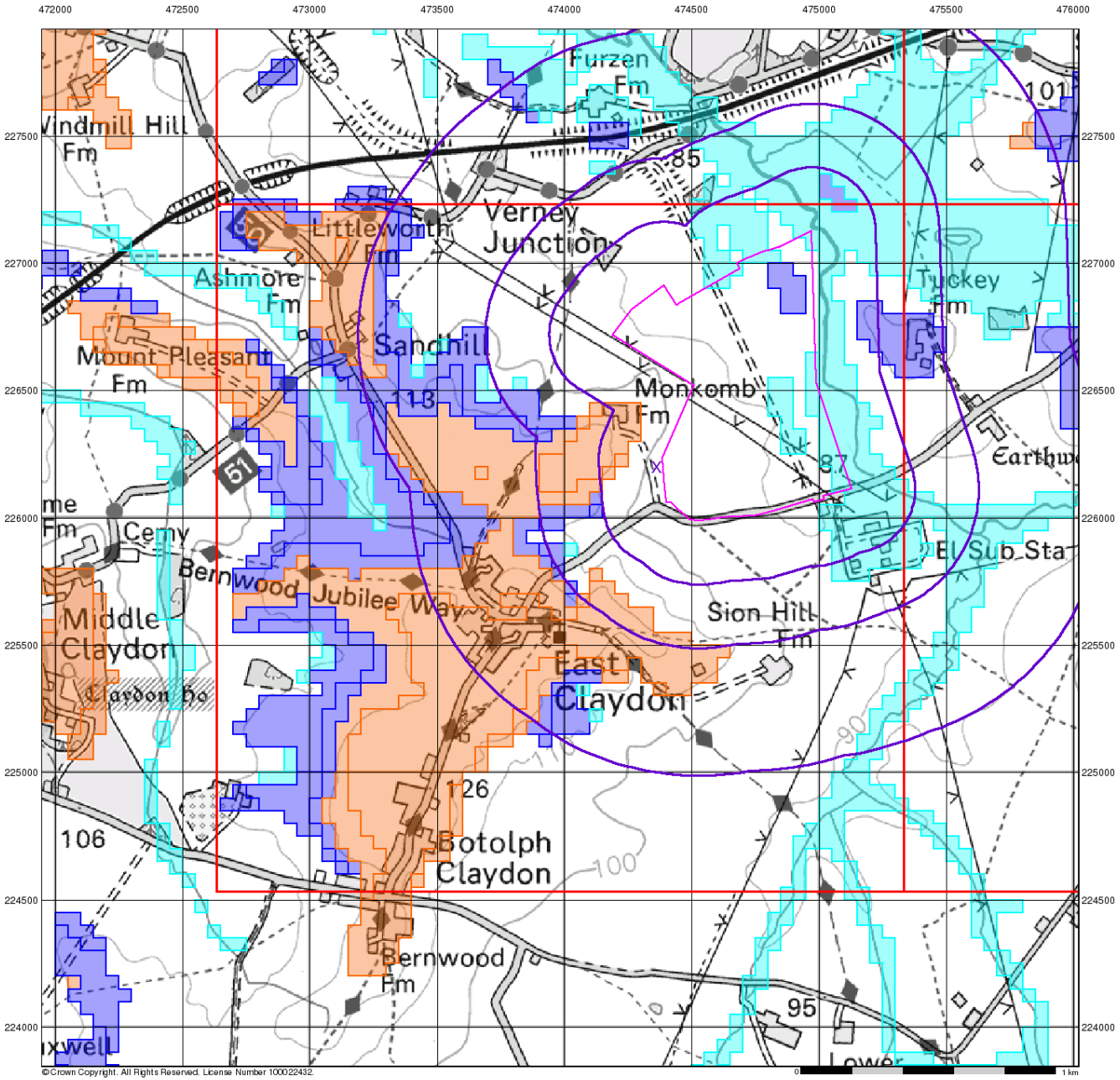


Envirocheck

LANDMARK INFORMATION GROUP

BGS Flood GFS Data

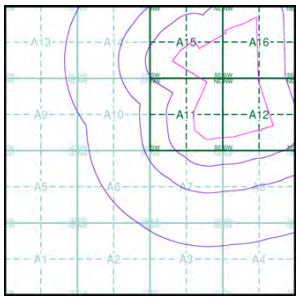
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



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Web: www.envirocheck.co.uk

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
342200018_1_1

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474360, 226200

Slice:
A

Site Area (Ha):
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Search Buffer (m):
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Site Details:

East Claydon
Buckingham
Buckinghamshire
MK18 2LF

Client Details:

Mr A Fasano
A-squared Studio
66 Church Road
Richmond
TW10 6LN

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LANDMARK INFORMATION GROUP®

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2				6
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3	Yes			
Pollution Incidents to Controlled Waters	pg 3		1		
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 3	1			
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 4				1 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 4	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 7	Yes		n/a	n/a
Flooding from Rivers or Sea without Defences	pg 7	Yes		n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 7	4	12	4	11

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 12	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 12				2
Potentially Infilled Land (Water)	pg 12	1			1
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 13	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 13	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 14				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 16	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 18				4
Fuel Station Entries					
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 18				2
Points of Interest - Public Infrastructure	pg 18				2
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 19	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A15NE (N)	0	1	474550 226900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NW (E)	0	1	474950 226400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12SE (E)	0	1	475000 226202
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A16SW (NE)	0	1	474850 226800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NW (NE)	0	1	474800 226400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NW (NW)	104	1	474300 226300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A16NE (NE)	108	1	475050 227200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SW (W)	135	1	474250 226202
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A16SE (NE)	167	1	475150 226700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SW (W)	187	1	474200 226200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11SW (W)	240	1	474150 226150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (SW)	245	1	474150 226100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (SW)	250	1	474150 226050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NW (NW)	250	1	474150 226400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (SW)	299	1	474100 226050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NW (NW)	308	1	474100 226350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11NW (NW)	345	1	474050 226350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NW (SW)	361	1	474150 225800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11NW (W)	363	1	474000 226350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NW (S)	369	1	474200 225750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10NE (NW)	380	1	473850 226500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A11SW (SW)	386	1	474050 225900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (SW)	405	1	474000 226000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (SW)	432	1	474000 225900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10NE (W)	440	1	473950 226300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NW (SW)	468	1	474050 225750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NW (SW)	469	1	474100 225700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	(N)	477	1	474200 227350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10NE (W)	491	1	473750 226450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NE (SW)	497	1	473950 225850
1	**Discharge Consents** Operator: Palmerston Mercantile Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Adj Verney Arms Verney Junction, Winslow, Bucks, Mk18 2jz Authority: Environment Agency, Anglian Region Catchment Area: Padbury Brook (Steeple Clay Reference: Prcnf05981 Permit Version: 1 Effective Date: 6th October 1997 Issued Date: 6th October 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Claydon Brook **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A14NE (NW)	546	2	473840 227160
1	**Discharge Consents** Operator: Cattell Mrs Property Type: FOOD+BEVERAGE SERVICES/CAFE/RESTAURANT/PUB Location: The Verney Arms Verney Junction, Middle Claydon, Bucks, Mk18 2jz Authority: Environment Agency, Anglian Region Catchment Area: Not Given Reference: Prcnf14012 Permit Version: 1 Effective Date: 26th January 1998 Issued Date: 26th January 1998 Revocation Date: Not Supplied Discharge Type: Sewage And Trade Combined - Unspecified Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Claydon Brook **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A14NE (NW)	554	2	473830 227160
2	**Discharge Consents** Operator: The Claydon Estate Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Sion Hill, East Claydon Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr1nfg0265u Permit Version: 1 Effective Date: 29th November 1962 Issued Date: 29th November 1962 Revocation Date: 20th February 1991 Discharge Type: Agricultural effluents Discharge Environment: Not Supplied Receiving Water: Not Supplied **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A8SW (SE)	612	2	474800 225400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: The Claydon Estate Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Granborough Road Farm, East Claydon Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr1nfg0265h Permit Version: 1 Effective Date: 29th November 1962 Issued Date: 29th November 1962 Revocation Date: 20th February 1991 Discharge Type: Agricultural effluents Discharge Environment: Not Supplied Receiving Water: Not Supplied **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	688	2	474000 225500
4	**Discharge Consents** Operator: The Claydon Estate Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Phoenix Fruit Farms Ltd., East Claydon Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr1nfg0265q Permit Version: 1 Effective Date: 29th November 1962 Issued Date: 29th November 1962 Revocation Date: 20th February 1991 Discharge Type: Agricultural effluents Discharge Environment: Not Supplied Receiving Water: Not Supplied **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A6NE (SW)	757	2	473800 225600
5	**Discharge Consents** Operator: The Claydon Estate Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Verney Farm, East Claydon Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr1nfg0265w Permit Version: 1 Effective Date: 29th November 1962 Issued Date: 29th November 1962 Revocation Date: 20th February 1991 Discharge Type: Agricultural effluents Discharge Environment: Not Supplied Receiving Water: Not Supplied **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A6NW (SW)	923	2	473600 225600
	Nearest Surface Water Feature	A15SE (N)	0	-	474440 226833
6	**Pollution Incidents to Controlled Waters** Property Type: Not Applicable Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Natural Note: Tributary Padbury Brook Incident Date: 9th April 1996 Incident Reference: 3172 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Algal Bloom Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (E)	64	2	475001 226001
	River Quality Name: Claydon Bk. GQA Grade: River Quality B Reach: Winslow Stw ..... Horwood Trib Estimated Distance (km): 5.2 Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A12NE (E)	0	2	475090 226247

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Water Abstractions** Operator: J P Hinton Licence Number: 6/33/02/*G/0078 Permit Version: 100 Location: Well At East Claydon Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Great Oolite; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st May 1967 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6NE (SW)	757	2	473800 225600
	Water Abstractions Operator: A R Capel Licence Number: 6/33/02/*G/0069 Permit Version: 100 Location: Well At Sandhill. Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Great Oolite; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st September 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NW (W)	1329	2	472900 226400
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A11SE (E)	0	3	474361 226202
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A12SE (E)	0	3	475000 226202

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A16NW (NE)	0	3	474748 227000
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A15NE (N)	0	3	474552 227000
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A12NW (E)	0	3	474830 226258
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A16SW (NE)	0	3	474880 226792

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A15SE (N)	0	3	474548 226882
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A12NW (E)	0	3	474988 226291
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A12NE (E)	0	3	475000 226248
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: No Data	A11SE (S)	0	3	474361 226000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: High	A16NW (N)	0	3	474677 227000
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A11SE (E)	0	3	474361 226202
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A12SE (E)	0	3	475000 226202
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A12NW (E)	0	3	474830 226258
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A16SW (NE)	0	3	474880 226792
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A12NW (E)	0	3	474988 226291
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A15SE (N)	0	3	474548 226882
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A12NE (E)	0	3	475000 226248
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A12NW (E)	0	2	474948 226342
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A12NW (E)	0	2	474978 226352
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 57.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A11SE (S)	0	4	474378 226059
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A15SE (N)	0	4	474440 226833

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A15NE (N)	0	4	474589 226921
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 141.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A15NE (N)	0	4	474597 226925
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 247.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A16NW (N)	4	4	474678 227004
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SE (E)	6	4	475025 226072
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 131.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SE (E)	15	4	475121 226097
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 83.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SE (E)	15	4	475041 226076
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 536.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Claydon Brook Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A16NE (NE)	18	4	475073 227052
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 166.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12NE (NE)	21	4	475026 226485
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A11SE (S)	23	4	474375 226061

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 580.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Claydon Brook Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12NE (NE)	25	4	475015 226530
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A11SE (S)	26	4	474367 226063
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 536.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Claydon Brook Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12NE (NE)	28	4	475020 226525
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 431.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A16NE (NE)	99	4	475073 227052
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 447.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Claydon Brook Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SE (E)	117	4	475242 226126
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 119.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A15NE (N)	281	4	474478 227196
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 210.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SE (NW)	301	4	473831 226678
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SE (NW)	362	4	473828 226671
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SE (NW)	365	4	473823 226661

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14NE (NW)	633	4	473666 227075
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14NE (NW)	636	4	473660 227070
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (NW)	638	4	473534 226893
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 499.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	(SE)	748	4	475383 225363
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (W)	809	4	473389 226602
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 26.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A10SW (W)	834	4	473584 225896
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 239.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A10SW (W)	851	4	473563 225911
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 189.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8SE (SE)	891	4	475274 225220
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 137.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8SE (SE)	910	4	475329 225218

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 280.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A4NE (SE)	987	4	475152 225064
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 473.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A4NE (SE)	987	4	475215 225102

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Aylesbury Vale District Council - Has supplied landfill data		0	6	474361 226202
	Local Authority Landfill Coverage Name: Buckinghamshire County Council - Has supplied landfill data		0	5	474361 226202
39	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A9NE (W)	961	-	473275 226412
40	**Potentially Infilled Land (Non-Water)** Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A13SE (W)	975	-	473218 226637
41	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A16NW (N)	0	-	474686 226997
42	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A6NE (SW)	613	-	473880 225738

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Kellaways Formation And Oxford Clay Formation (Undifferentiated)	A11SE (E)	0	1	474361 226202
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (S)	0	1	474361 226000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NW (E)	0	1	474830 226258
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16SW (NE)	0	1	474880 226792
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (E)	0	1	474361 226202
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16NE (NE)	75	1	475083 227108
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12NE (E)	85	1	475213 226266

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11SW (W)	118	1	474229 226219
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16SE (NE)	170	1	475179 226691
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SW (SW)	363	1	474043 226000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SW (SW)	407	1	474000 225992
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	(SE)	628	1	475600 225621
43	**BGS Recorded Mineral Sites** Site Name: Greenacres Sand Pit Location: Sandhill, East Claydon, Buckingham, Buckinghamshire Source: British Geological Survey, National Geoscience Information Service Reference: 74591 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A13SE (W)	989	1	473204 226644
	BGS Measured Urban Soil Chemistry No data available				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SW (NE)	0	1	474880 226792
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474830 226258
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	118	1	474229 226219
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	170	1	475179 226691
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	239	1	474143 226244

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	**Contemporary Trade Directory Entries** Name: A J Spittles Ltd Location: 6, Lacemakers Close, East Claydon, Buckingham, MK18 2FA Classification: Electrical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	713	-	473736 225802
45	**Contemporary Trade Directory Entries** Name: Stephen Brown Antiques Location: New Farm, 2, St. Marys Road, East Claydon, Buckingham, MK18 2NA Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	736	-	473797 225639
46	**Contemporary Trade Directory Entries** Name: Aylesbury Truck Engineering Services Ltd Location: Sandhill Road, East Claydon, Buckingham, MK18 2LY Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	777	-	473663 225817
47	**Contemporary Trade Directory Entries** Name: A & M Cleaning Location: Jasmine Cottage,St. Marys Rd, East Claydon, Buckingham, Buckinghamshire, MK18 2LX Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A6SE (SW)	901	-	473722 225467
48	**Points of Interest - Manufacturing and Production** Name: Pit Location: MK18 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A8SW (SE)	576	7	474886 225449
49	**Points of Interest - Manufacturing and Production** Name: R H Dickins Location: Verney Farmhouse 1, Sandhill Road, East Claydon, Buckingham, MK18 2FY Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A6NW (SW)	872	7	473643 225628
50	**Points of Interest - Public Infrastructure** Name: Slurry Location: MK18 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A8SW (SE)	572	7	474886 225453
50	**Points of Interest - Public Infrastructure** Name: Slurry Pit Location: MK18 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A8SW (SE)	581	7	474904 225448

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	**Nitrate Vulnerable Zones** Name: Great Ouse Nvz Description: Surface Water Source: Environment Agency, Head Office	A11SE (E)	0	3	474361 226202

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	December 2019	Annual Rolling Update
Buckinghamshire Council	December 2019	Annual Rolling Update
Environment Agency - Head Office	November 2023	Annually
Discharge Consents		
Environment Agency - Anglian Region	January 2024	Quarterly
Environment Agency - Thames Region	January 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - West Thames Area	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	February 2015	Variable
Buckinghamshire Council	February 2015	Variable
Local Authority Pollution Prevention and Controls		
Buckinghamshire Council	February 2015	Annual Rolling Update
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	February 2015	Not Applicable
Local Authority Pollution Prevention and Control Enforcements		
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	February 2015	Variable
Buckinghamshire Council	February 2015	Variable
Nearest Surface Water Feature		
Ordnance Survey	February 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Thames Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - West Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - West Area	January 2024	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified

Data Currency

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	January 2024	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - West Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - West Area	January 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - West Thames Area	January 2023	Quarterly
Environment Agency - Thames Region - West Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	February 2003	Not Applicable
Buckinghamshire Council	February 2003	Not Applicable
Buckinghamshire County Council	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health	October 2018	
Buckinghamshire Council	October 2018	
Buckinghamshire County Council	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Thames Region - West Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - West Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - West Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Aylesbury Vale District Council (now part of Buckinghamshire Council)	February 2016	Variable
Buckinghamshire Council	February 2016	Variable
Buckinghamshire County Council	February 2023	Variable
Planning Hazardous Substance Consents		
Aylesbury Vale District Council (now part of Buckinghamshire Council)	February 2016	Variable
Buckinghamshire Council	February 2016	Variable
Buckinghamshire County Council	February 2023	Variable

Data Currency

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Data Currency

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	March 2024	Quarterly
Points of Interest - Education and Health PointX	March 2024	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2024	Quarterly
Points of Interest - Public Infrastructure PointX	March 2024	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2024	Quarterly
Underground Electrical Cables National Grid	February 2023	Bi-Annually

Data Currency

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	October 2023	Bi-Annually
Areas of Adopted Green Belt		
Aylesbury Vale District Council (now part of Buckinghamshire Council)	February 2024	Quarterly
Buckinghamshire Council	February 2024	Quarterly
Areas of Unadopted Green Belt		
Aylesbury Vale District Council (now part of Buckinghamshire Council)	February 2024	Quarterly
Buckinghamshire Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	March 2023	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	November 2023	Bi-Annually
Special Areas of Conservation		
Natural England	October 2023	Bi-Annually
Special Protection Areas		
Natural England	October 2023	Bi-Annually

Data Suppliers

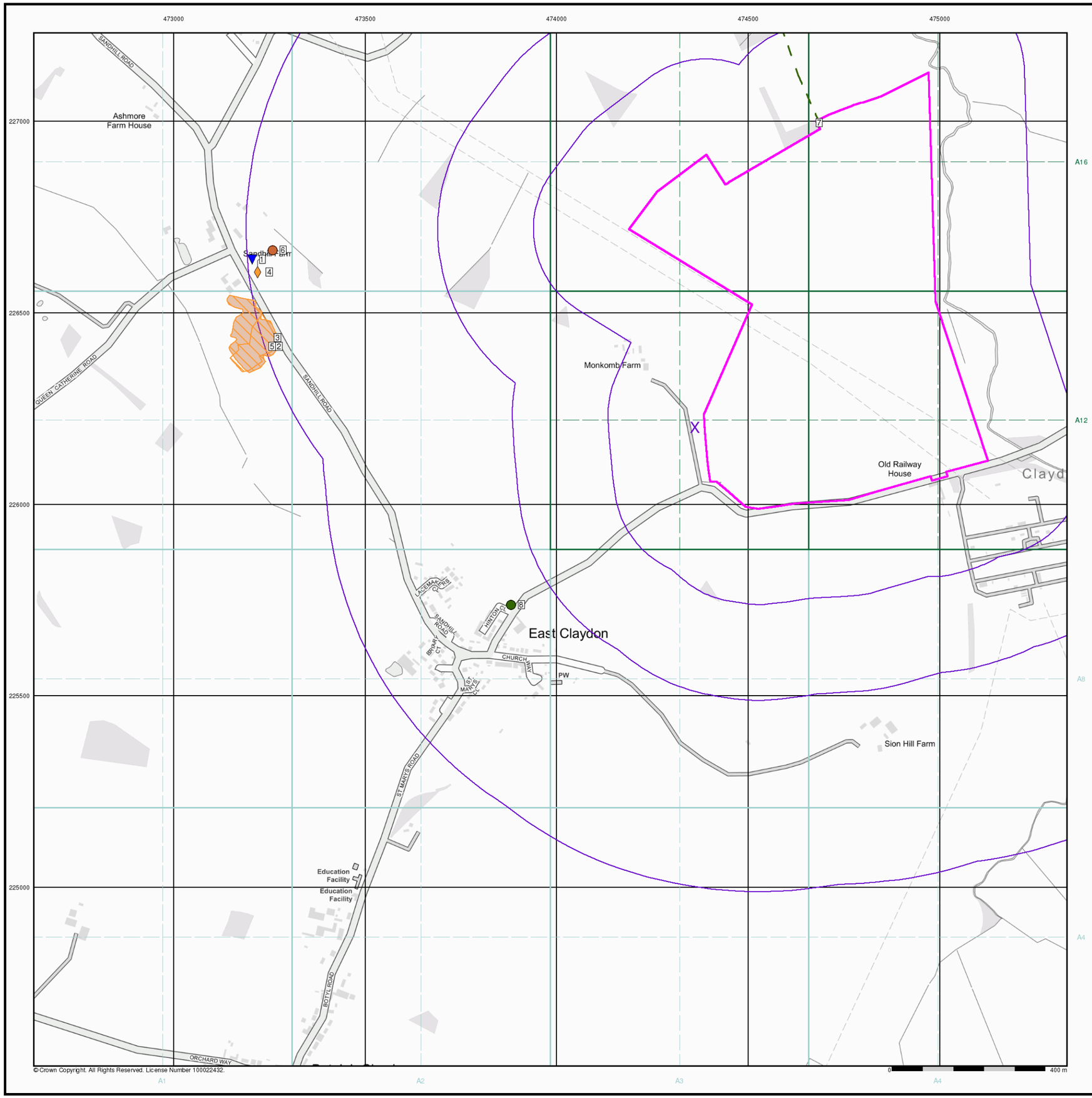
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Buckinghamshire County Council** County Hall, Aylesbury, Buckinghamshire, HP20 1UA	Telephone: 01296 395900 Fax: 01296 88887 Website: www.buckscc.gov.uk
6	**Aylesbury Vale District Council (now part of Buckinghamshire Council) - Environmental Health** Customer Service Centre, 66 High Street, Aylesbury, Buckinghamshire, HP20 1SD	Telephone: 01296 585858 Fax: 01296 398804 Website: www.aylesburyvaledc.gov.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



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Historical Land Use Information (1:10,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts	◆		
Disturbed Ground	◆		
General Quarrying	◆		
Heap, unknown constituents	◆		
Mineral Railway	◆		
Mining and Quarrying General	◆		
Mining of Coal & Lignite	◆		
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits	◆		

Historical Land Use

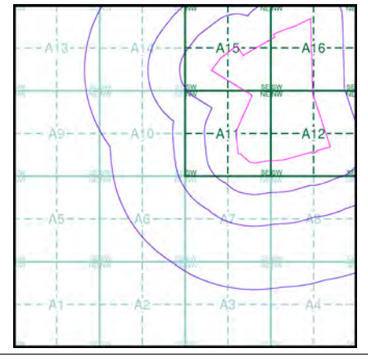
	Point	Line	Polygon
Potentially Infilled Land (Non-Water)	●		
Potentially Infilled Land (Water)	●		
Former Marsh	✠		

Mining Data

Potential Mining Area

BGS Recorded Mineral Site

Mining and Ground Stability - Slice A



Order Details

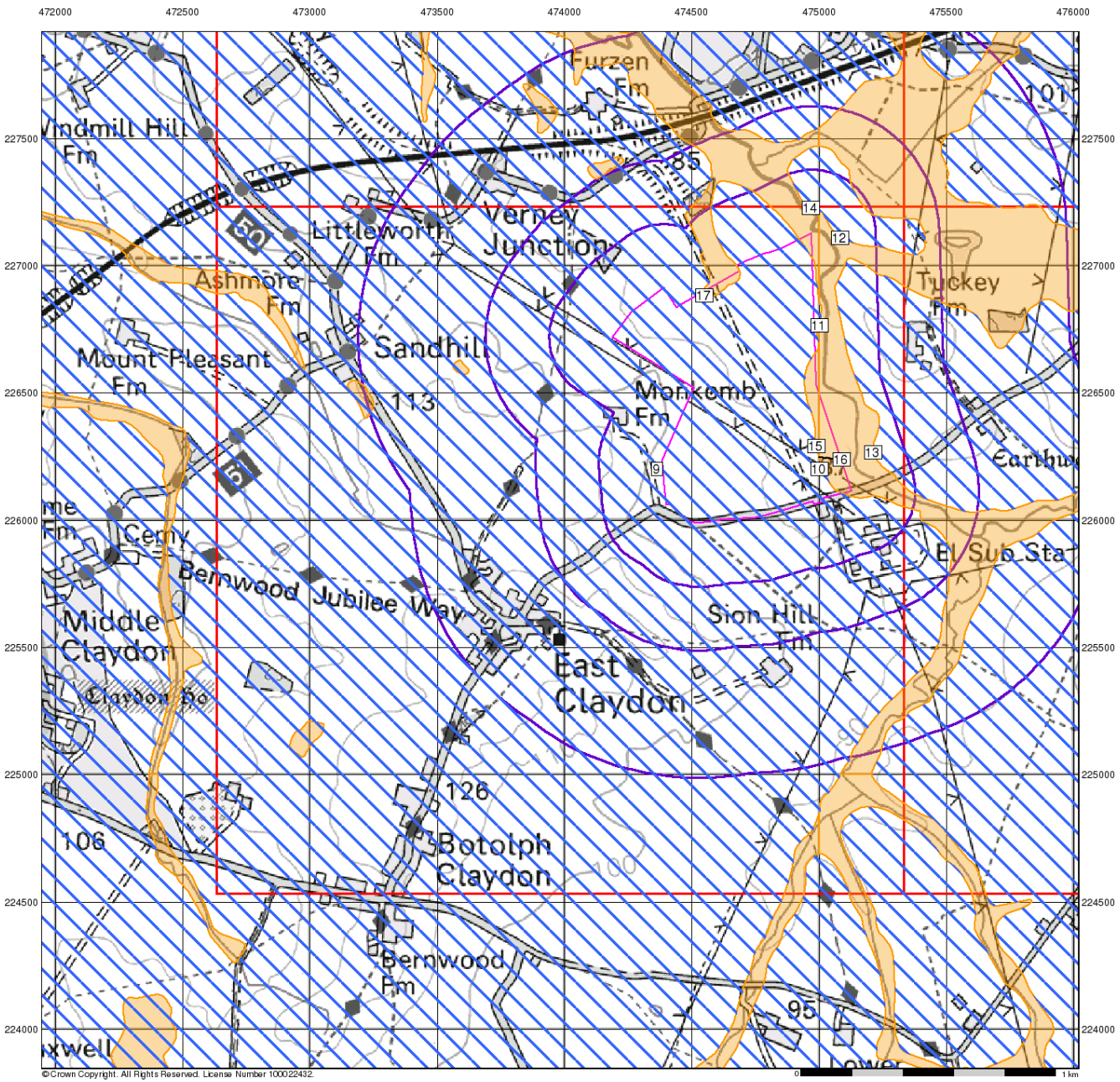
Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP

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



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Ground Stability Data (1:50,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Potential for Compressible Ground Stability Hazards

High | Low | Moderate | Very Low

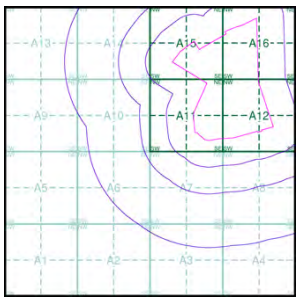
Potential for Collapsible Ground Stability Hazards

High | Low | Moderate | Very Low

Brine Pumping and Salt Mining

	Point	Polygon
Brine Pumping Related Feature	▲	▨
Salt Mining Related Feature	▲	▨

Mining and Ground Stability - Slice A



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
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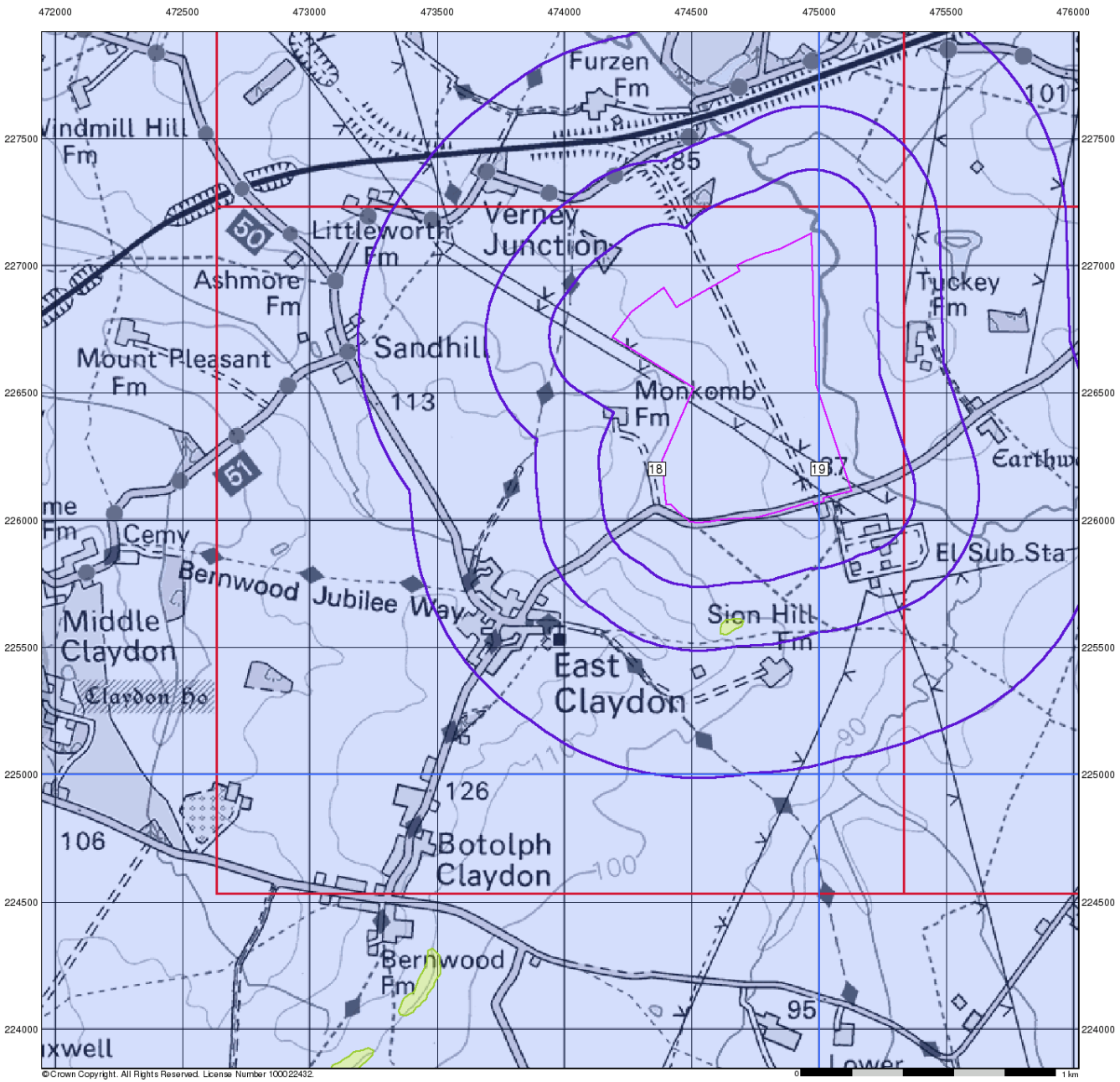

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Ground Stability Data (1:50,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

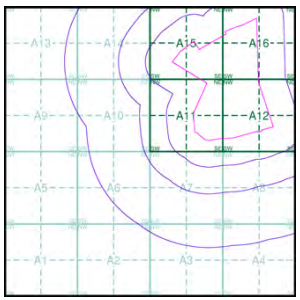
Potential for Landslide Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Ground Dissolution Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



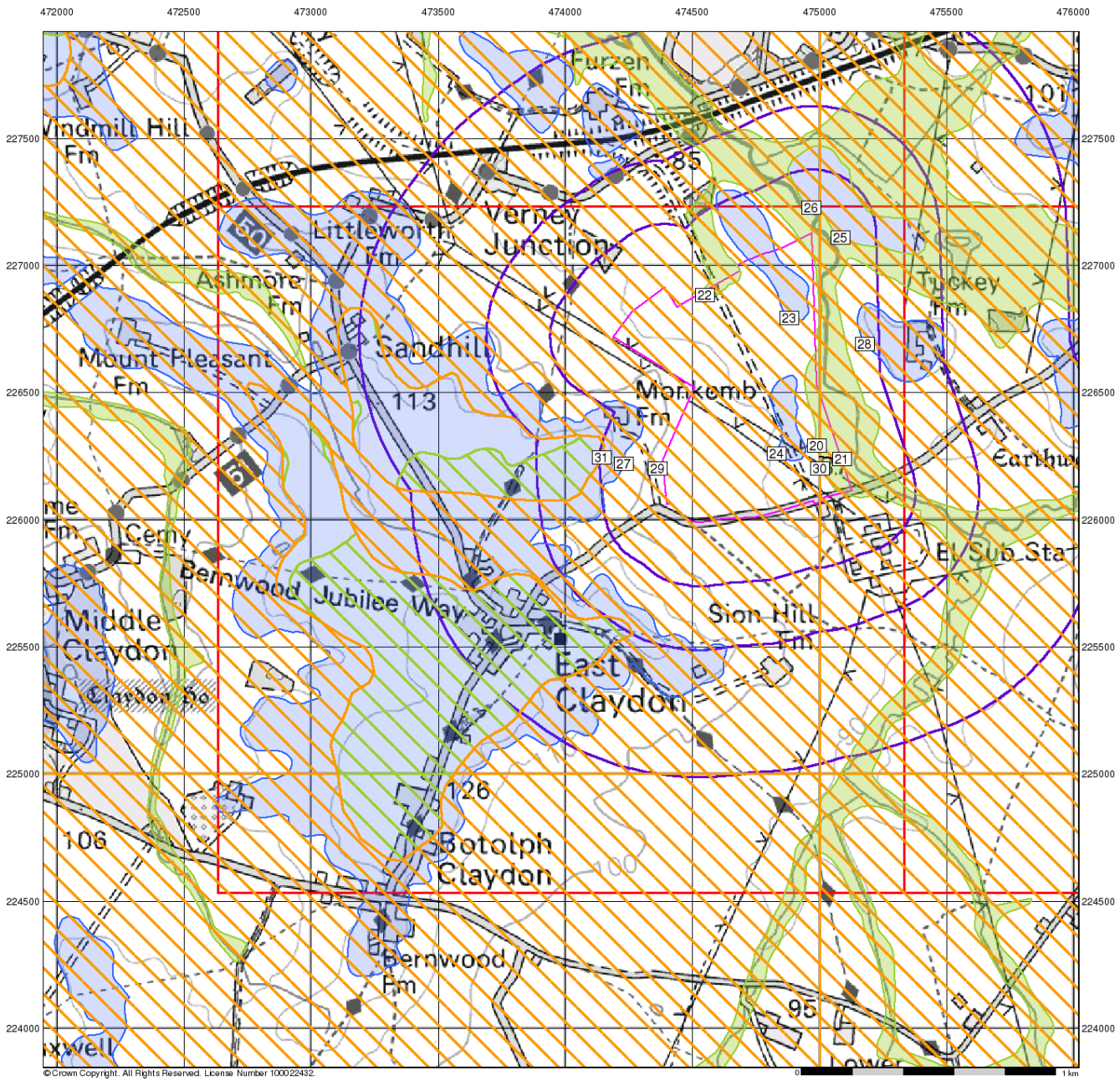
Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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



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Ground Stability Data (1:50,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

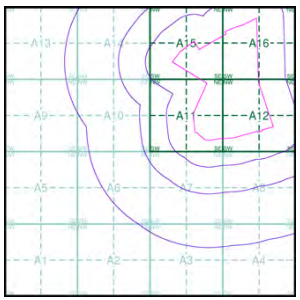
Potential for Running Sand Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP
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Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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Envirocheck® Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:
342200018_1_1

Customer Reference:
3358

National Grid Reference:
474360, 226200

Slice:
A

Site Area (Ha):
61.62

Search Buffer (m):
1000

Site Details:

East Claydon
Buckingham
Buckinghamshire
MK18 2LF

Client Details:

Mr A Fasano
A-squared Studio
66 Church Road
Richmond
TW10 6LN

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Contents

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Mining and Natural Cavities Data					
BGS Recorded Mineral Sites	pg 1				1
Coal Mining Affected Areas			n/a	n/a	n/a
Man Made Mining Cavities					
Mining Instability			n/a	n/a	n/a
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential Mining Areas					
Historical Land Use Information (1:2,500)					
Extractive Industries or Potential Excavations from 1855-1909 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1893-1915 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1906-1937 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1924-1949 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1950-1980 (100m)				n/a	n/a
Subterranean Features (100m)				n/a	n/a
Historical Land Use Information (1:10,000)					
Air Shafts					
Disturbed Ground					
General Quarrying					
Heap, unknown constituents					
Mineral Railway					
Mining & quarrying general					
Mining of coal & lignite					
Quarrying of sand & clay, operation of sand & gravel pits	pg 2				3
Former Marshes					
Potentially Infilled Land (Non-Water)	pg 2				2
Potentially Infilled Land (Water)	pg 2	1			1
Ground Stability Data (1:50,000)					
CBSCB Compensation District			n/a	n/a	n/a
Brine Pumping Related Features					
Brine Subsidence Solution Area					
Potential for Collapsible Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 3	Yes		n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 4	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 4	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 4	Yes	Yes	n/a	n/a
Salt Mining Related Features					

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Summary

Report Version v53.0

Mining and Natural Cavities Data

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**BGS Recorded Mineral Sites** Site Name: Greenacres Sand Pit Location: Sandhill, East Claydon, Buckingham, Buckinghamshire Source: British Geological Survey, National Geoscience Information Service Reference: 74591 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A13SE (W)	989	1	473204 226644
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				

Historical Land Use Information (1:10,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	**Quarrying of sand & clay, operation of sand & gravel pits** Use: Not Supplied Date of Mapping: 1952	A9NE (W)	961	-	473275 226412
3	**Quarrying of sand & clay, operation of sand & gravel pits** Use: Not Supplied Date of Mapping: 1885	A9NE (W)	963	-	473271 226432
4	**Quarrying of sand & clay, operation of sand & gravel pits** Use: Not Supplied Date of Mapping: 1923	A13SE (W)	975	-	473218 226637
5	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A9NE (W)	961	-	473275 226412
6	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A13SE (W)	975	-	473218 226637
7	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A16NW (N)	0	-	474686 226997
8	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A6NE (SW)	613	-	473880 225738

Ground Stability Data (1:50,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
9	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
10	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
11	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
12	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
13	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
14	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
15	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
16	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
17	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202

Ground Stability Data (1:50,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
18	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
19	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
20	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474988 226291
21	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	0	1	475000 226248
22	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	474548 226882
23	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SW (NE)	0	1	474880 226792
24	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12NW (E)	0	1	474830 226258
25	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NE (NE)	75	1	475083 227108
26	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	94	1	474966 227226
27	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	118	1	474229 226219
28	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	170	1	475179 226691
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A16SE (NE)	19	1	475000 226763
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12NE (E)	85	1	475213 226266
29	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11SE (E)	0	1	474361 226202
30	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	1	475000 226202
31	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	239	1	474143 226244

Historical Map List

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	SP7325	1977
Ordnance Survey Plan	SP7327	1977
Ordnance Survey Plan	SP7425	1977
Ordnance Survey Plan	SP7425	1977
Ordnance Survey Plan	SP7426	1977
Ordnance Survey Plan	SP7426	1977
Ordnance Survey Plan	SP7426	1977
Ordnance Survey Plan	SP7426	1977
Ordnance Survey Plan	SP7427	1977
Ordnance Survey Plan	SP7427	1977
Ordnance Survey Plan	SP7525	1977
Ordnance Survey Plan	SP7526	1977
Ordnance Survey Plan	SP7526	1977
Ordnance Survey Plan	SP7527	1977
Ordnance Survey Plan	SP7326	1978
Ordnance Survey Plan	SP7326	1978

Historical Map List

The following mapping has been analysed for Historical Land Use Information (1:10,000):

1:10,560	Mapsheet	Published Date
Buckinghamshire	023_00	1883
Oxfordshire	018_00	1885
Buckinghamshire	019_00	1885
Buckinghamshire	022_00	1885
Buckinghamshire	018_SE	1900
Buckinghamshire	019_SW	1900
Buckinghamshire	022_NE	1900
Buckinghamshire	023_NW	1900
Buckinghamshire	018_00	1923
Oxfordshire	018_00	1923
Buckinghamshire	019_SW	1926
Buckinghamshire	018_00	1952
Buckinghamshire	019_SW	1952
Buckinghamshire	022_NE	1952
Buckinghamshire	023_NW	1952
Ordnance Survey Plan	SP72NE	1958
Ordnance Survey Plan	SP72SE	1958
Ordnance Survey Plan	SP72SW	1958
Ordnance Survey Plan	SP72NW	1959
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	SP72NW	1984
Ordnance Survey Plan	SP72SE	1984
Ordnance Survey Plan	SP72SW	1984
Ordnance Survey Plan	SP72NE	1985

Data Currency

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	December 2023	Bi-Annually
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Natural Cavities Stantec UK Ltd	December 2023	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	**Version**	**Update Cycle**
Subterranean Features Landmark Information Group Limited	July 2023	Bi-Annually
Ground Stability Data (1:50,000)	**Version**	**Update Cycle**
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	 As notified
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
British Geological Survey	British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
The Coal Authority	The Coal Authority
Ove Arup	ARUP
Stantec UK Ltd	Stantec
Wardell Armstrong	wardell armstrong your earth our world
Johnson Poole & Bloomer	JPB

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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Historical Land Use Information (1:2,500)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

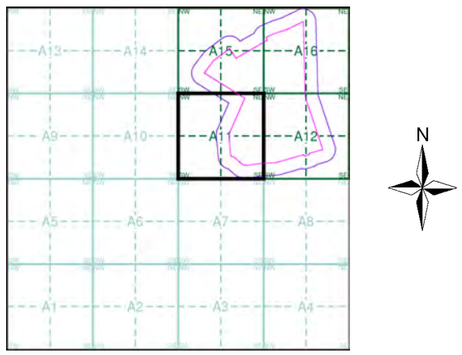
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▭
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A11



Order Details

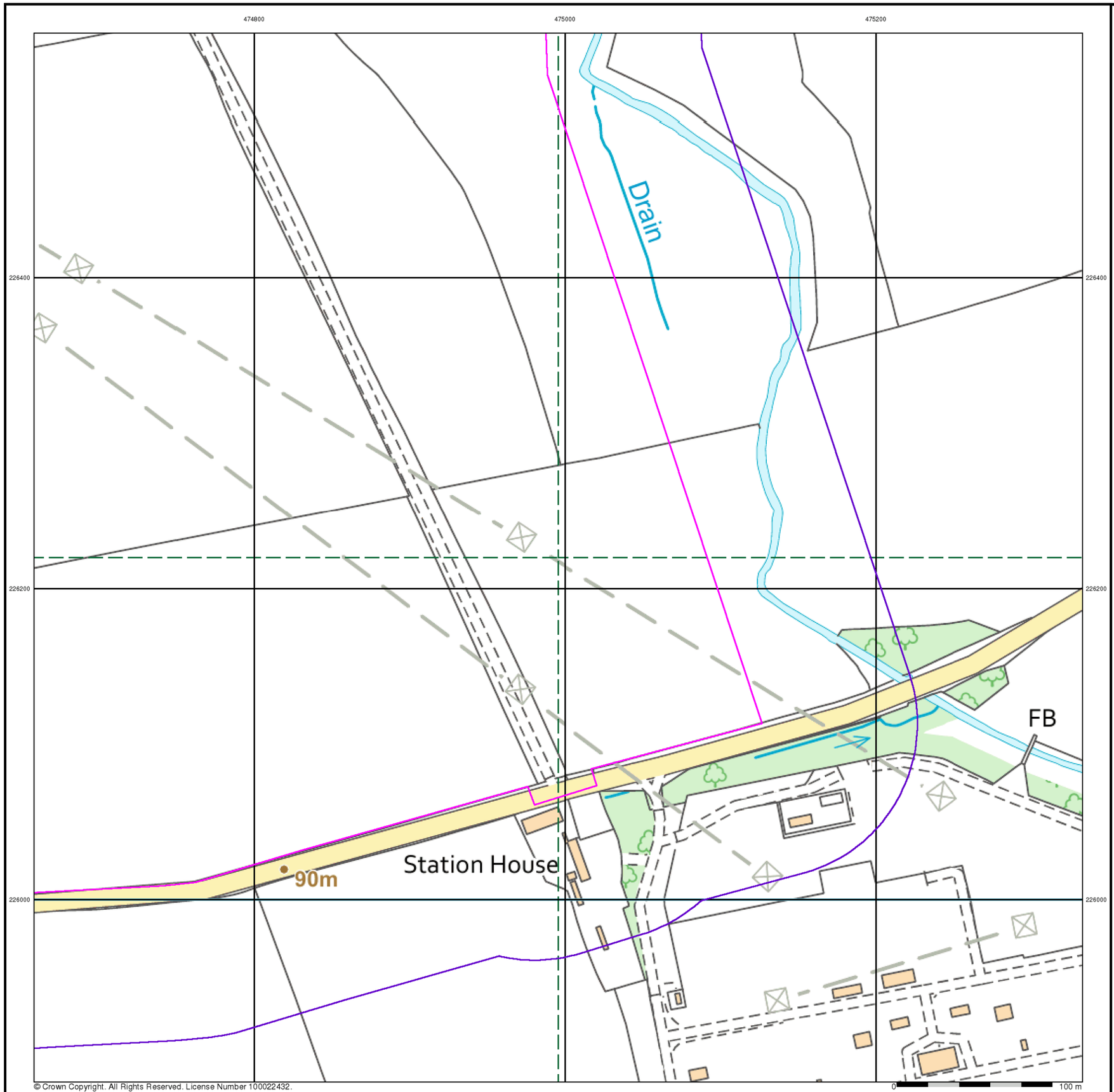
Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Plot Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP

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



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Historical Land Use Information (1:2,500)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

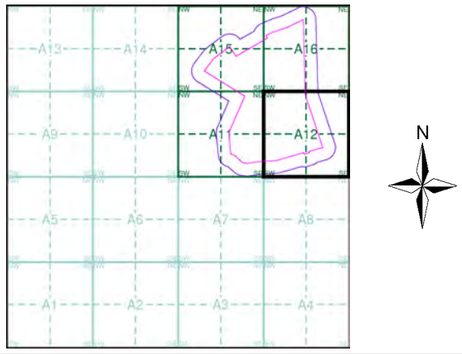
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▤
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A12



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Plot Buffer (m):	100

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP

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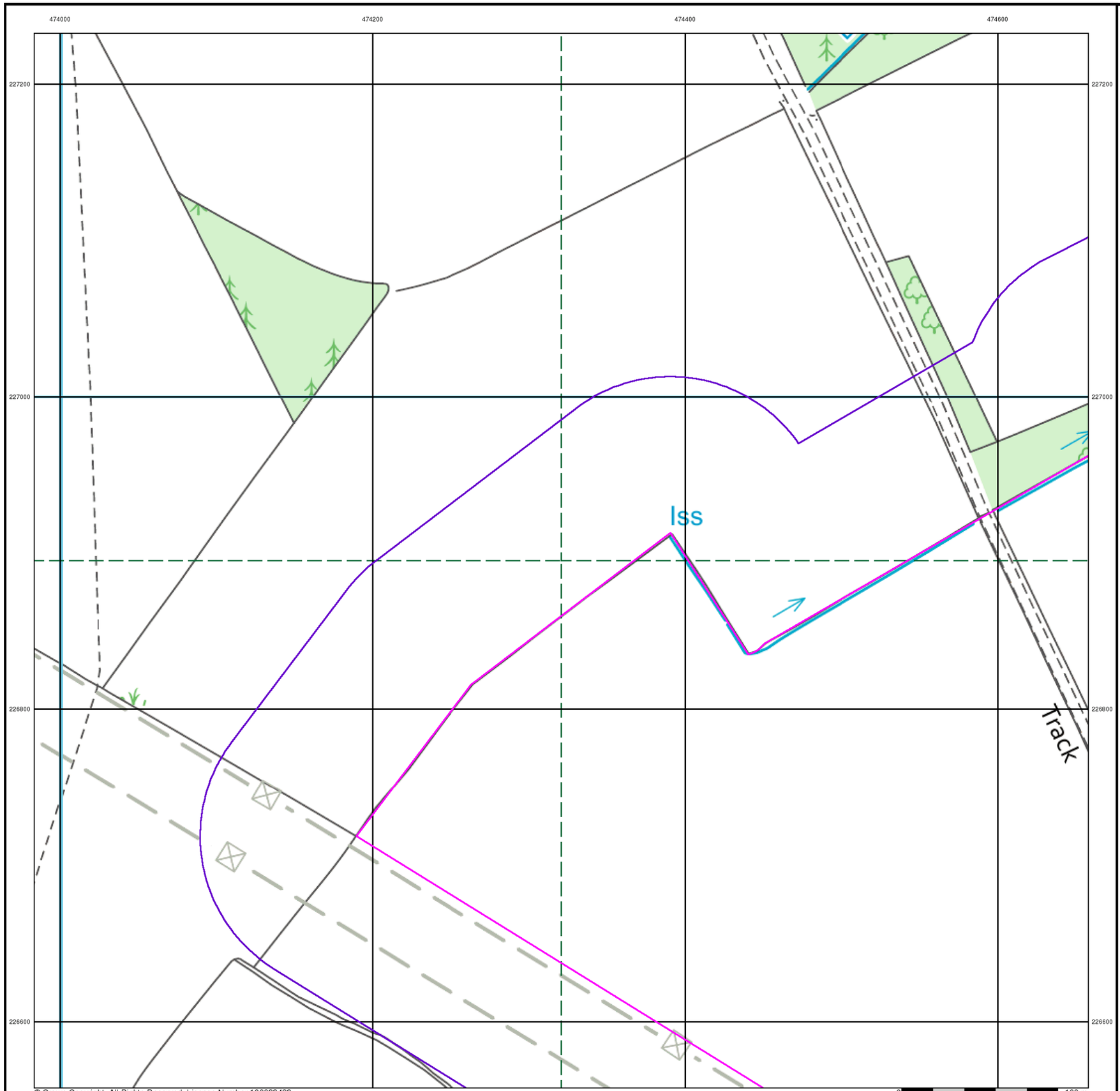

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Historical Land Use Information (1:2,500)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

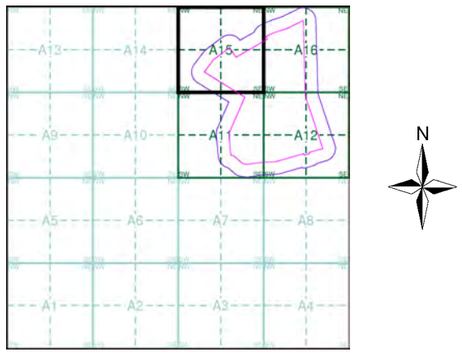
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▦
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A15



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Plot Buffer (m):	100

Site Details

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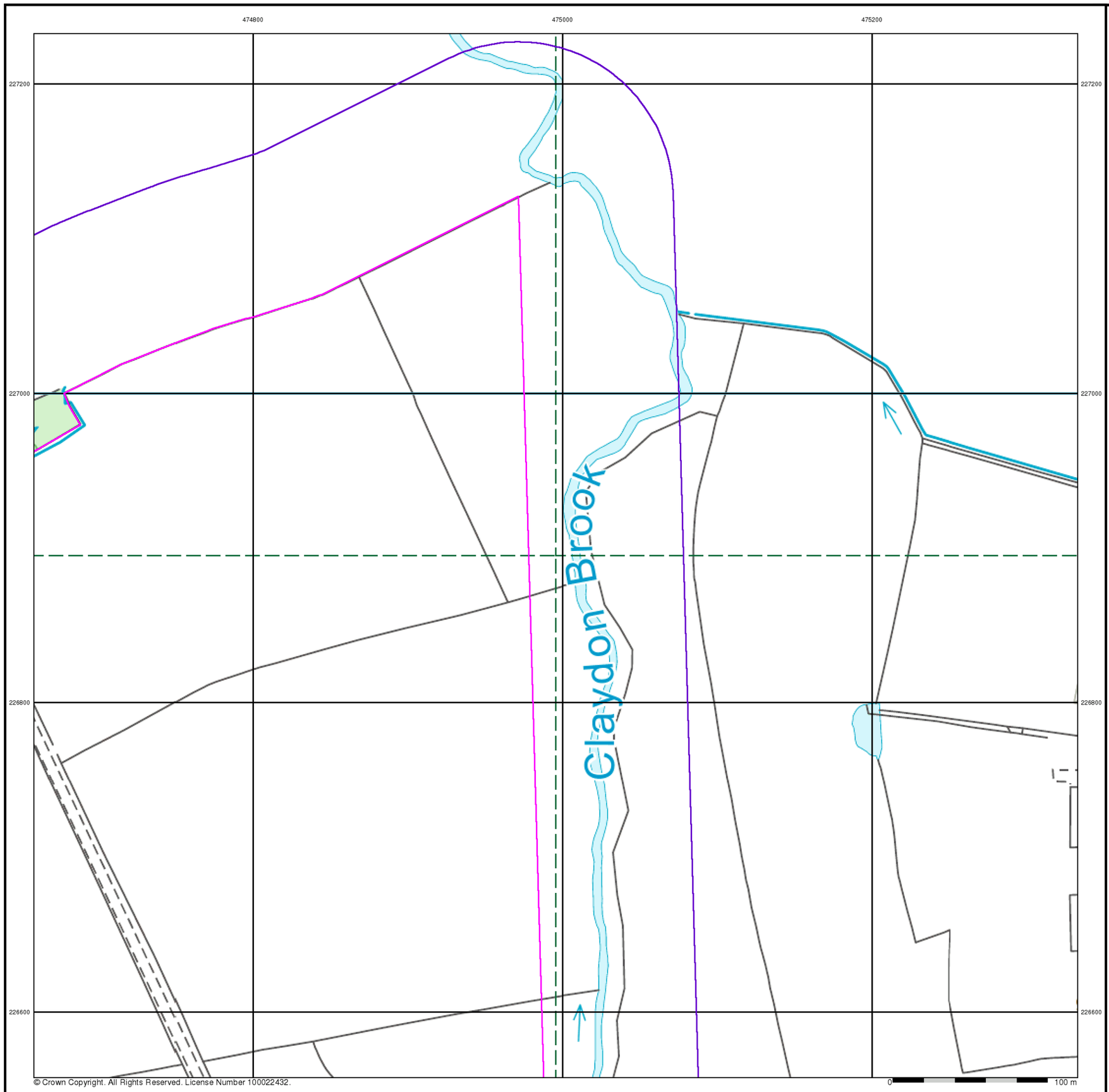

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Historical Land Use Information (1:2,500)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Map ID

Several of Type at Location

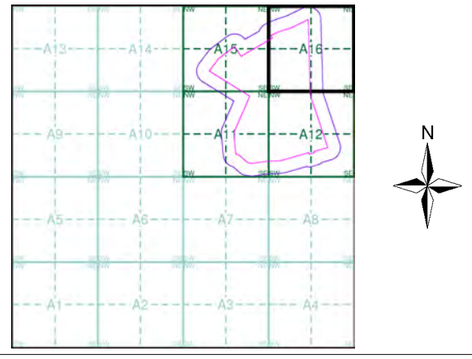
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▤
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A16



Order Details

Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Plot Buffer (m):	100

Site Details

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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	LSGR	Landscaped Ground (Undivided)	Artificially Modified Ground	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Not Supplied - Cromerian
	TILMP	Till, Mid Pleistocene	Diamicton	Not Supplied - Cromerian
	GDU	Glacial Deposits	Clay, Silt and Sand	Not Supplied - Pleistocene
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WEY	Weymouth Member	Mudstone	Not Supplied - Oxfordian
	WWB	West Walton Formation	Mudstone	Not Supplied - Oxfordian
	SBY	Stewartby Member	Mudstone	Not Supplied - Callovian
	PET	Peterborough Member	Mudstone	Not Supplied - Callovian

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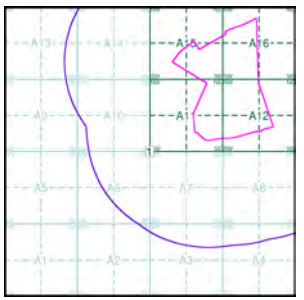
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**219**
Map Name:	**Buckingham**
Map Date:	**2002**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Available**
Faults:	**Not Supplied**
Landslip:	**Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



Order Details:

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Customer Reference:	3358
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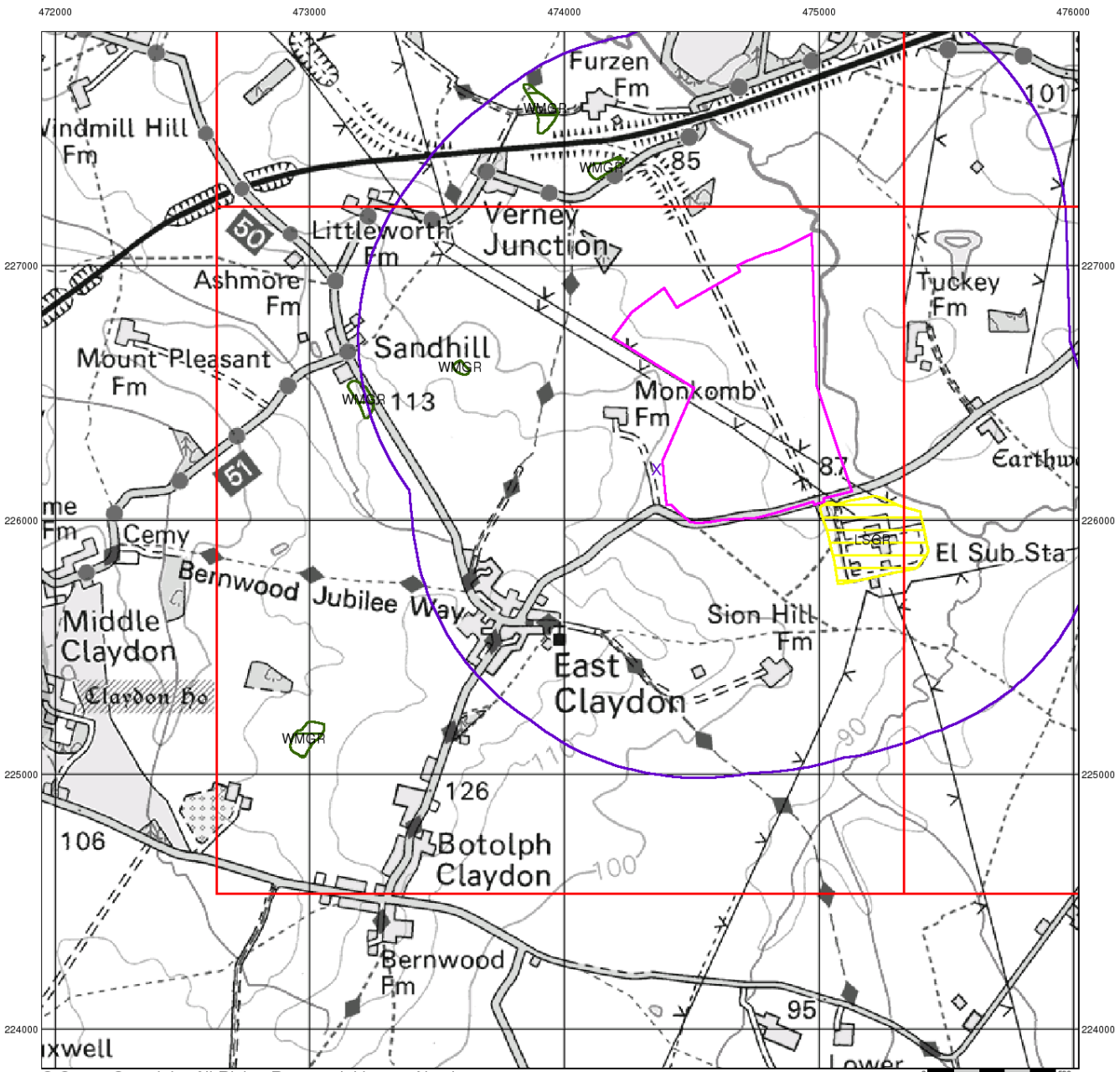
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details:

East Claydon, Buckingham, Buckinghamshire, MK18 2LF



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Artificial Ground and Landslip

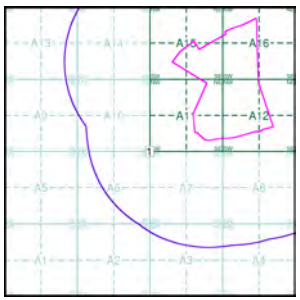
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

Order Number:	342200018_1_1
Customer Reference:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

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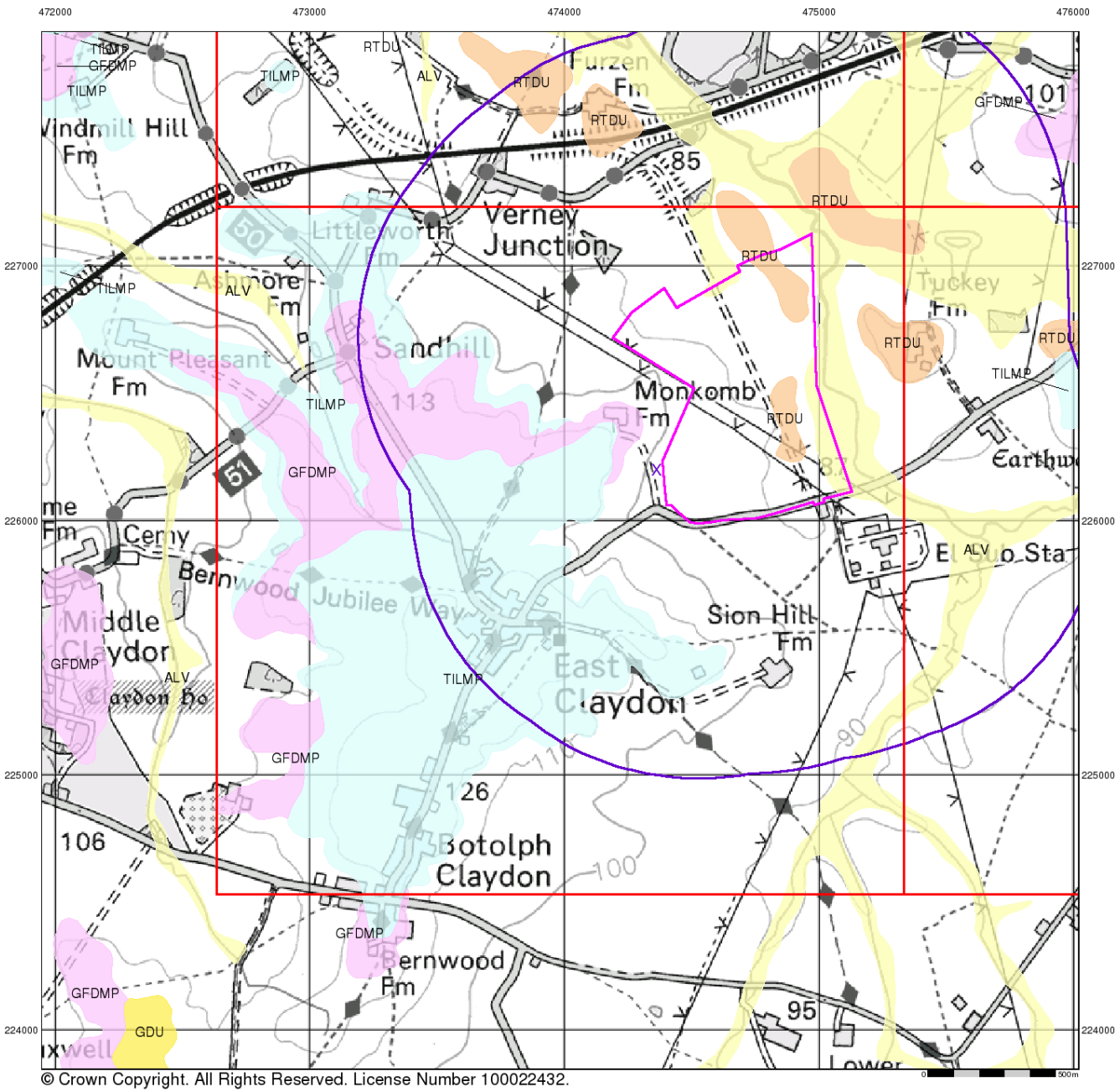

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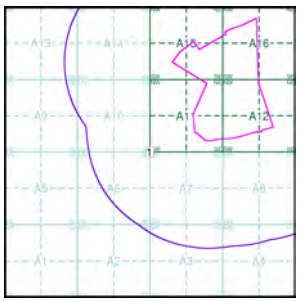
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

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Customer Reference:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details:

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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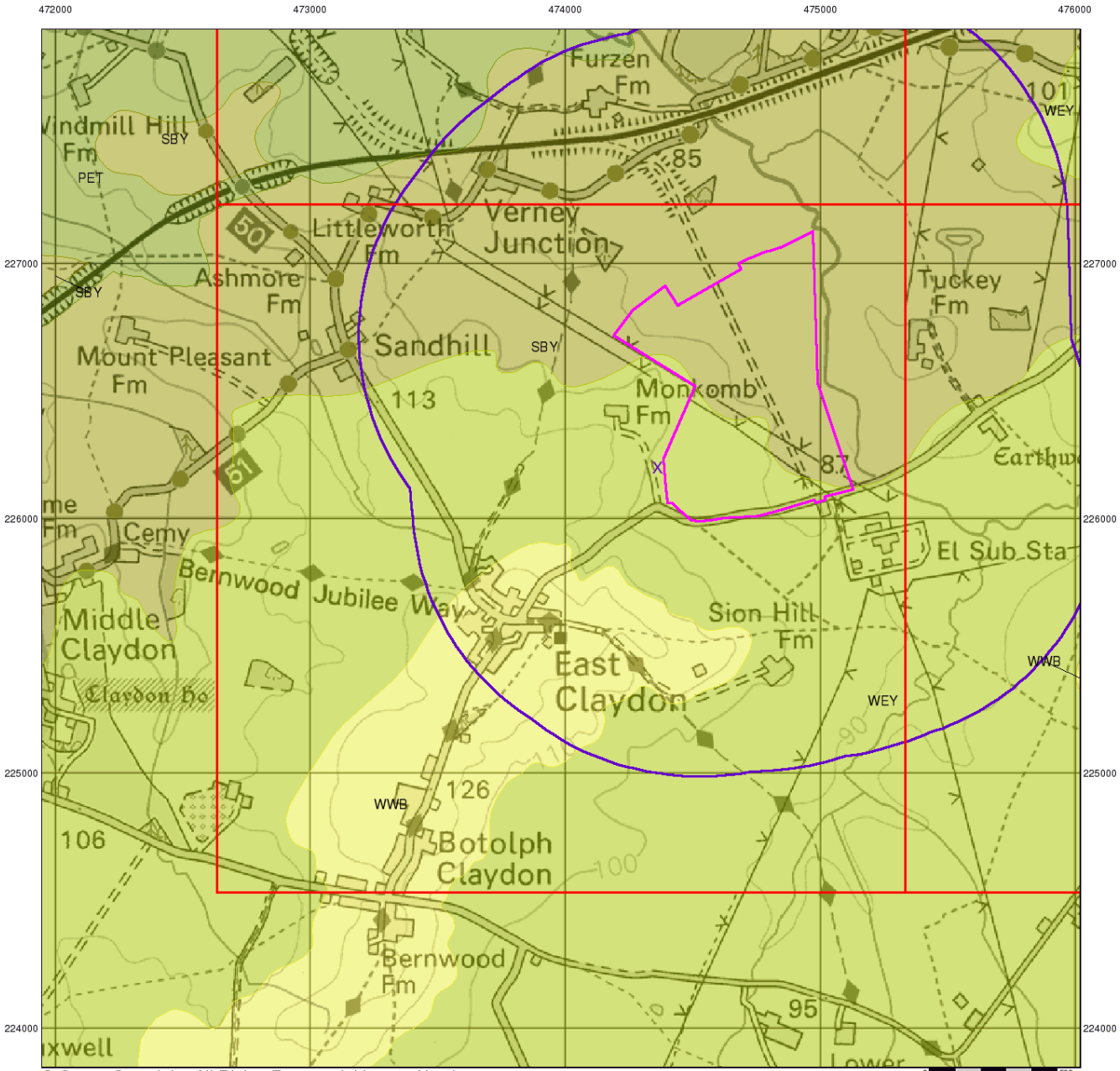

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Bedrock and Faults

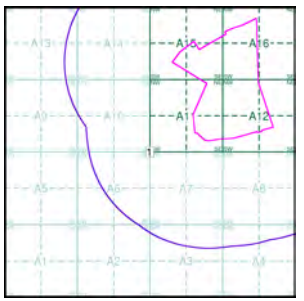
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

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Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details:

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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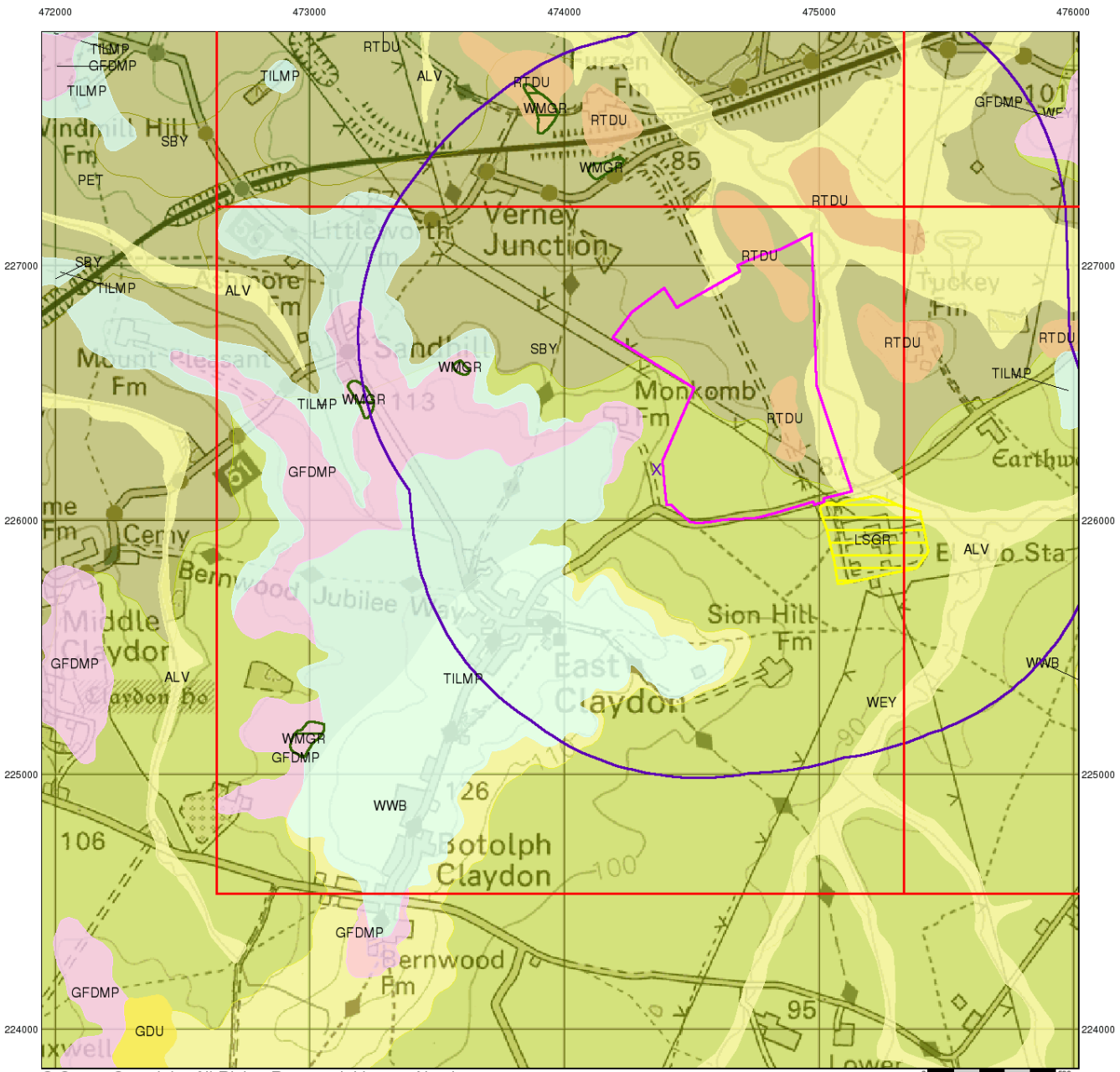

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

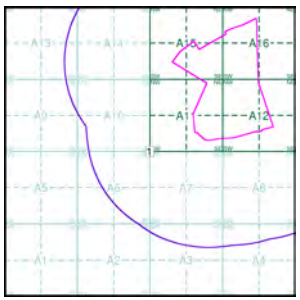
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number:	342200018_1_1
Customer Reference:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details:

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

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
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
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
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
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
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m 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

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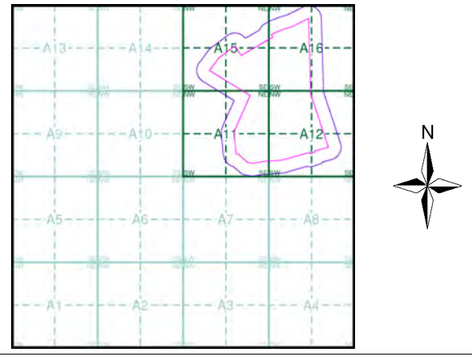
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Buckinghamshire	1:10,560	1883 - 1885	2
Oxfordshire	1:10,560	1885	3
Buckinghamshire	1:10,560	1900	4
Buckinghamshire	1:10,560	1900	5
Buckinghamshire	1:10,560	1923 - 1926	6
Historical Aerial Photography	1:10,560	1947	7
Buckinghamshire	1:10,560	1952	8
Ordnance Survey Plan	1:10,000	1958 - 1959	9
Ordnance Survey Plan	1:10,000	1966	10
Ordnance Survey Plan	1:10,000	1984 - 1985	11
10K Raster Mapping	1:10,000	1999	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2024	14

Historical Map - Slice A



Order Details

Order Number: 342200018_1_1
Customer Ref: 3358
National Grid Reference: 474360, 226200
Slice: A
Site Area (Ha): 61.62
Search Buffer (m): 1000

Site Details

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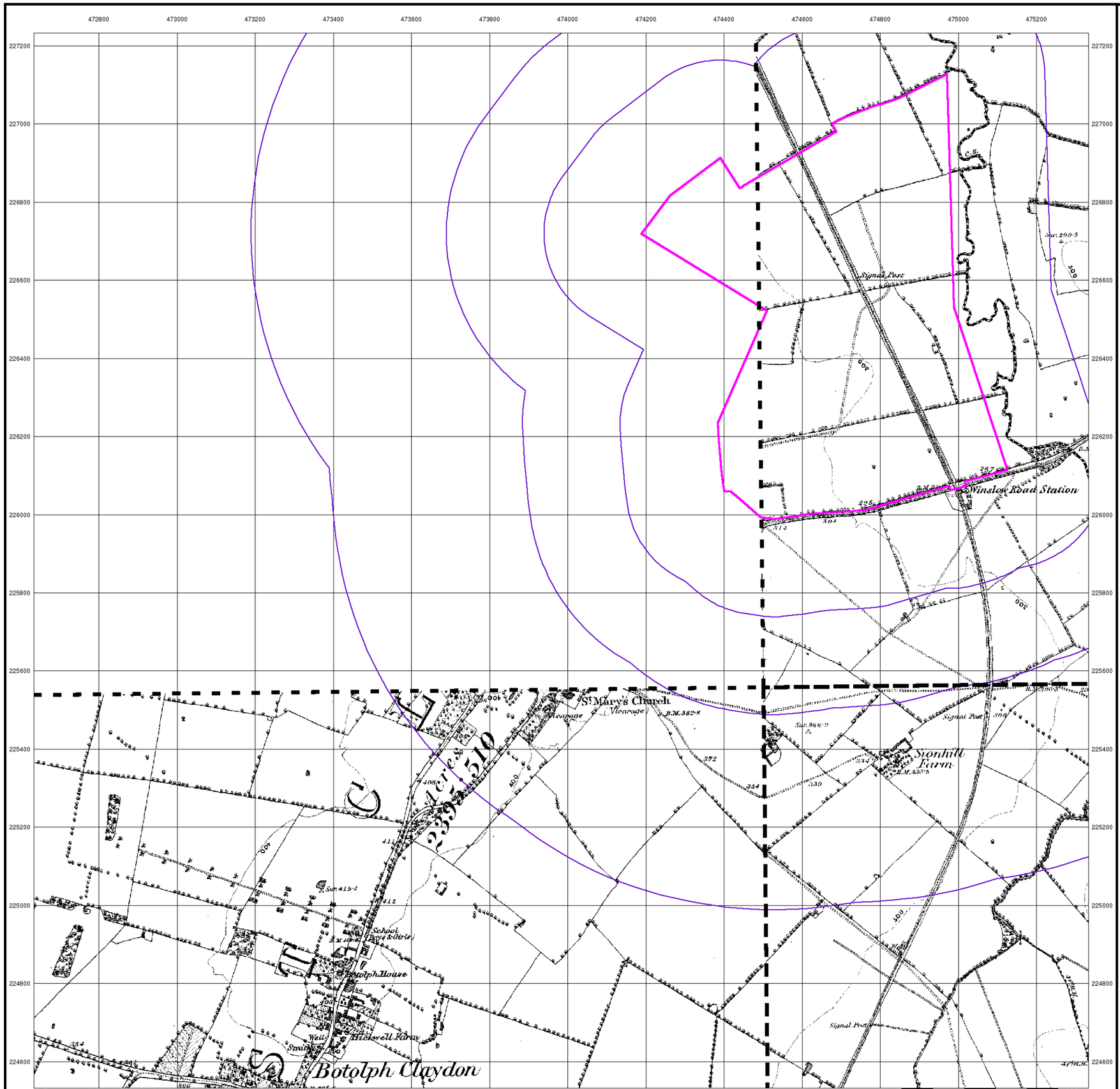

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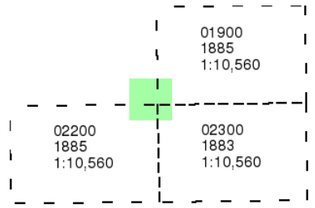
Buckinghamshire

Published 1883 - 1885

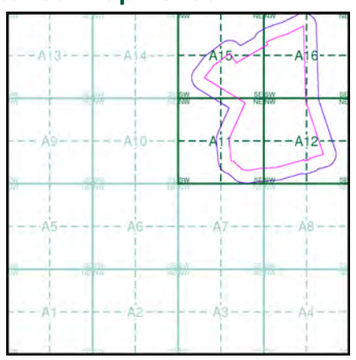
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



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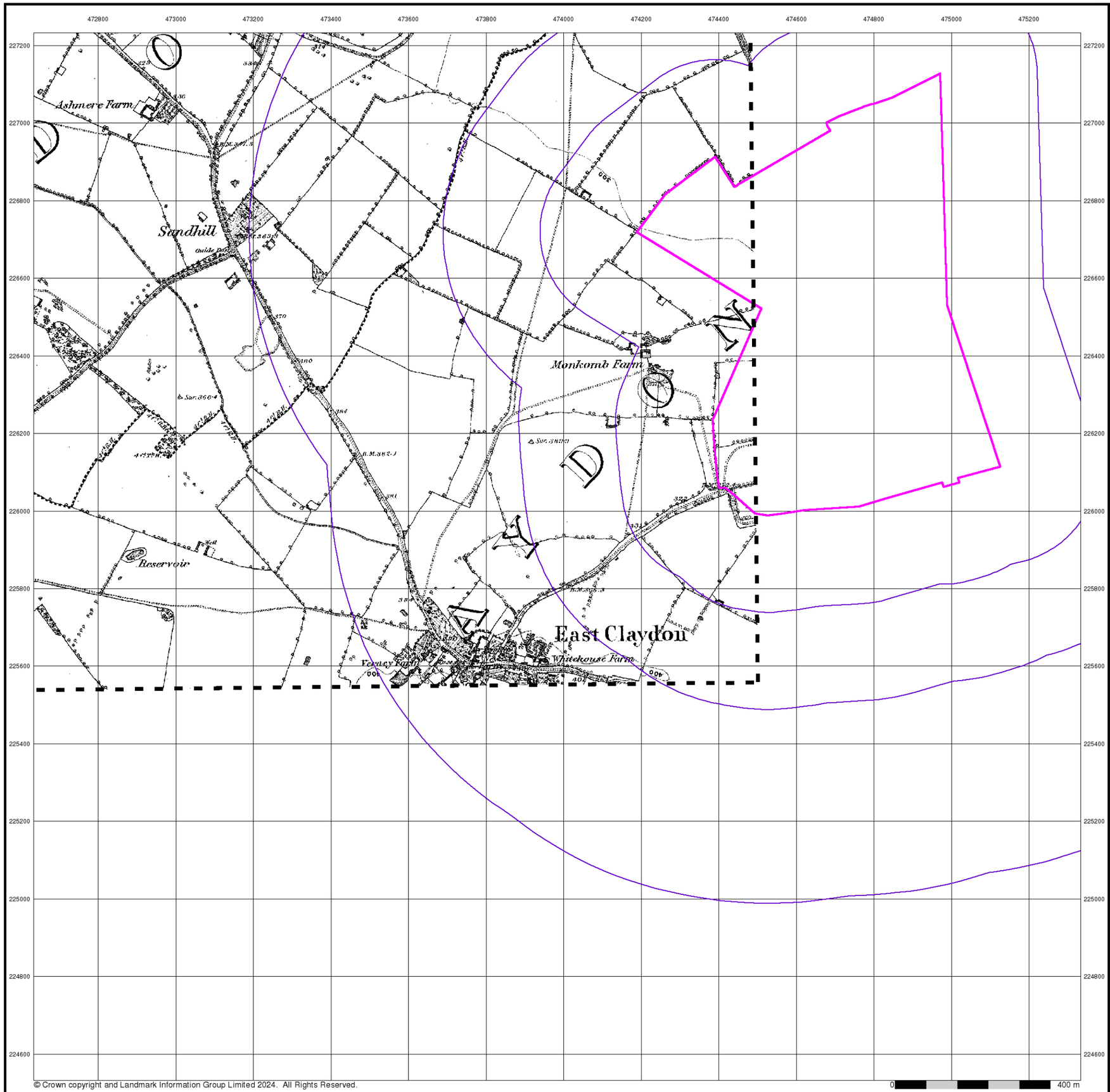

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Oxfordshire

Published 1885

Source map scale - 1:10,560

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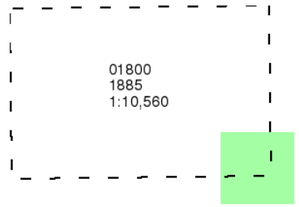
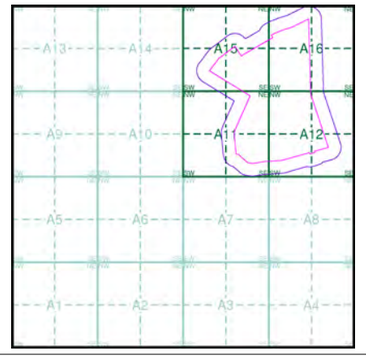
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

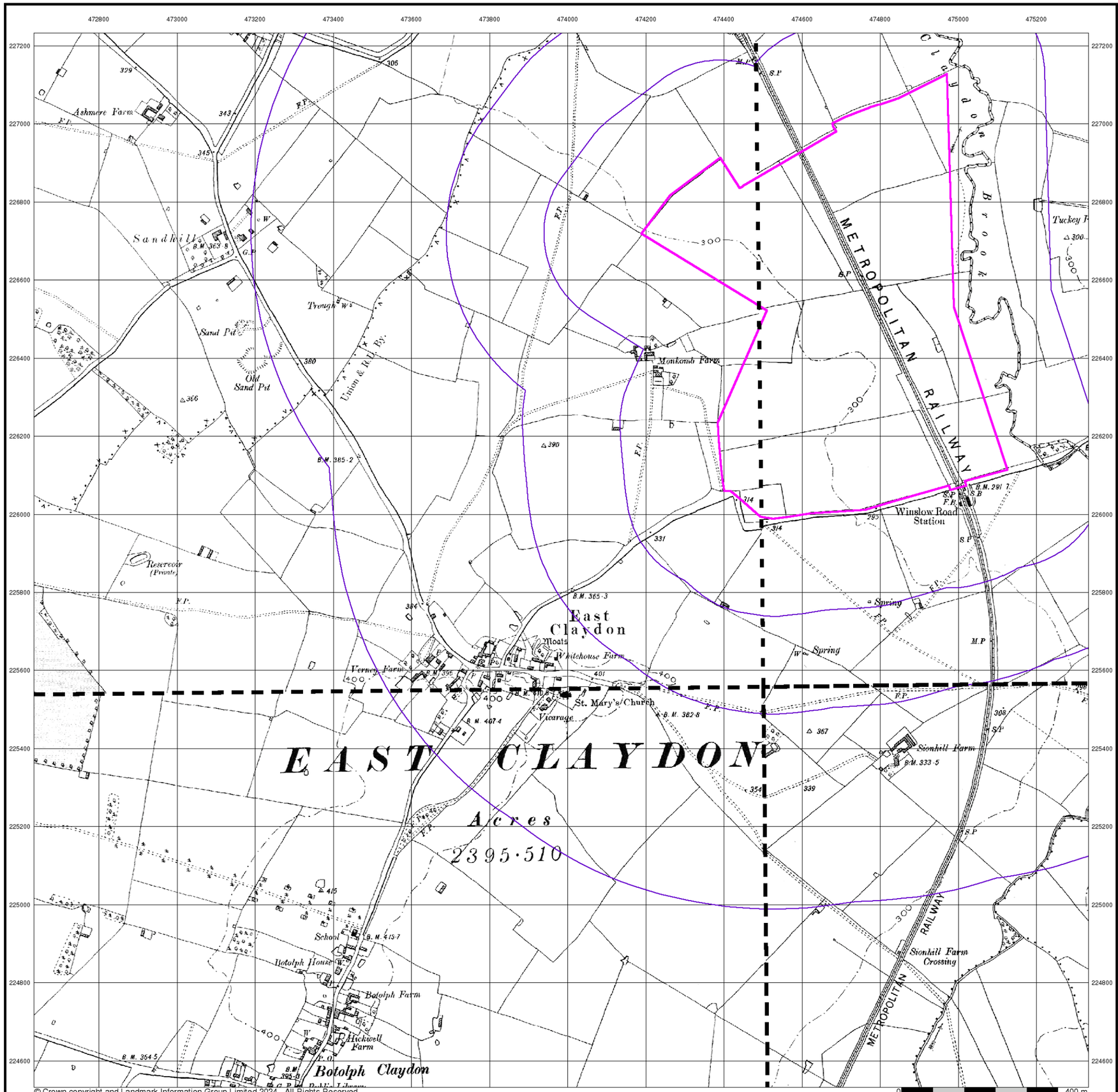
Order Number:	342200018_1_1
Customer Ref:	3358
National Grid Reference:	474360, 226200
Slice:	A
Site Area (Ha):	61.62
Search Buffer (m):	1000

Site Details

East Claydon, Buckingham, Buckinghamshire, MK18 2LF

Landmark INFORMATION GROUP

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



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Buckinghamshire

Published 1900

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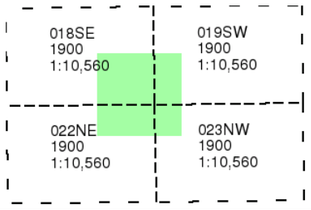
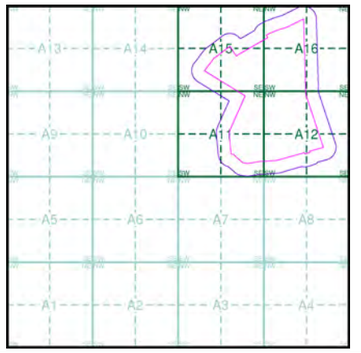


Historical Map - Slice A



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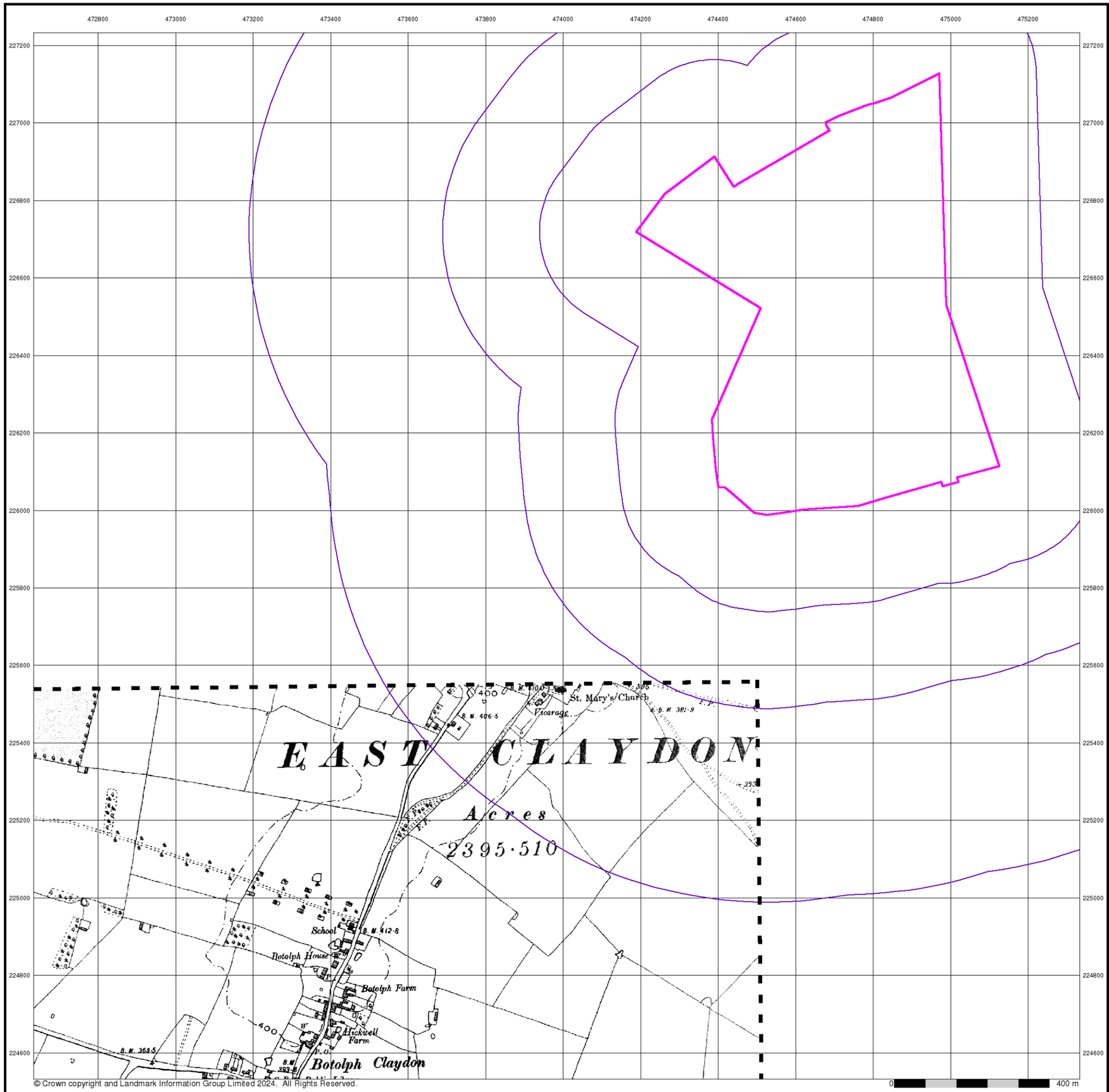

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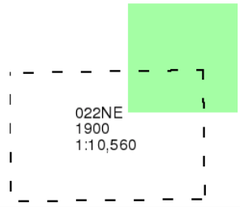

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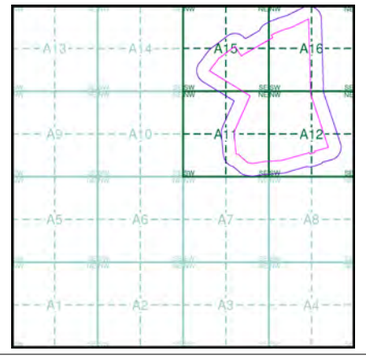

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