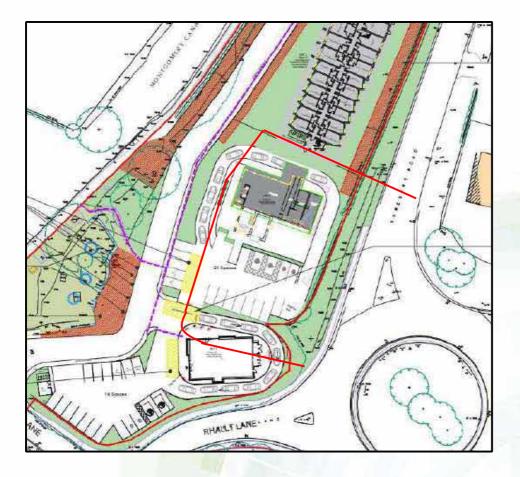


# LAND TO THE NORTH OF RHALLT LANE, WELSHPOOL

# Phase 1 - Preliminary Risk Assessment



**Report Prepared For** 

Report Ref: BEK-23048-1

KIM Property Investments Ltd

March 2023



# Project Quality Assurance Information Sheet

Site	Land to the north of Rhallt Lane, Welshpool
Report Title	Phase 1 - Preliminary Risk Assessment
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# LAND TO THE NORTH OF RHALLT LANE, WELSHPOOL

# Phase 1 - Preliminary Risk Assessment

**PROJECT NO:** 23048

**REPORT REF:** BEK-23048-1

DATE: March 2023

## **REVISION STATUS / HISTORY**

Rev	Date	Issue / Comment	Prepared	Checked

## **GENERAL REPORT LIMITATIONS**

BEK Enviro Limited (BEK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and BEK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by BEK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of BEK and the party for whom it was prepared. Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

Unless explicitly agreed otherwise, in writing, this report has been prepared under BEK's limited standard Terms and Conditions as included within our proposal to the Client.

The report needs to be considered in the light of the BEK proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.



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## 1. <u>INTRODUCTION</u>

- 1.1 Appointment
- 1.1.1 BEK Enviro (BEK) have been commissioned by KIM Property Investment Limited to prepare a preliminary risk assessment for a parcel of land located to the north of Rhallt Lane and to the west of Oswestry Road (A483), Welshpool to quantify the potential risks from contamination and ground gas with respect to the redevelopment of the site for commercial use.
- 1.1.2 The site location and layout are presented in BEK Drawings No 23048-1 and 23048-2, copies of which are presented in Appendix F.
- 1.2 Proposed Development
- 1.2.1 It is proposed to construct a Class A3 unit with a drive through and associated car parking.
- 1.2.2 The proposed development can be seen on REV-A Associates Drawing entitled 'Moors Farm, Mixed Use Redevelopment' (Drawing Ref: 'SHR17065-REVA-DR-A-002, dated 27<sup>th</sup> November 2020) a copy of which is presented in Appendix F.
- 1.2.3 The area to the south of the site has been assessed by BEK within a previous report entitled: BEK Phase 1- Preliminary Risk Assessment – Land to the North of Rhallt Lane (Ref: BEK 20771-1, dated October 2020). The area to which this PRA applies is highlighted in red in Figure 1.



Figure 1: Site Boundary



#### 1.3 Objective & Scope of Work

- 1.3.1 This report provides the details of the works undertaken by BEK to assess the potential risks from contamination considering the change of use to commercial.
- 1.3.2 To achieve the objective BEK will undertake the following:

Carry out a site inspection and take photographs Review the available relevant background information for the site, including:

- Recent Ordnance Survey Map
- Coal Authority Website
- BGS Web Page
- Site Specific GroundSure Reports
- Site Specific Historical Maps
- ZETICA UXO Information
- Plans provided by KIM Property Investment Limited

Develop a preliminary conceptual site model in accordance with guidance to identify potentially significant pollutant linkages specific to the proposed development

Establish areas of potential concern based on identified risks and/or potential risks

Identify any actions required to assess or reduce the risks identified

- 1.4 Limitations
- 1.4.1 The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserves the right to amend the conclusions and recommendations if further information becomes available.
- 1.4.2 However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.



### 2. <u>SITE DESCRIPTION</u>

- 2.1 Site Location
- 2.1.1 The site is located immediately west of the A483 and some 40 m north of Rhallt Lane. The site is approximately 2.4 km north-east of Welshpool and some 10.5 km south of Four Crosses.
- 2.1.2 The National Grid Reference for the centre of the site is 324179, 308927. The site location is shown on BEK Drawing No 23048-1, a copy of which is presented in Appendix F.
- 2.2 Site Layout & Description
- 2.2.1 An engineer from BEK visited the site on 29<sup>th</sup> March 2023 to carry out a site walkover/inspection. A selection of photographs illustrating the existing site layout are presented in Appendix E. The general site layout can be seen on BEK Drawing No 23048-2 in Appendix F.
- 2.2.2 The site comprises a roughly rectangularly shaped plot of land approximately 1600 m<sup>2</sup> which is occupied by Limekiln Cottage, associated outbuildings (to the north-west of the site) and associated grounds.
- 2.2.3 The two-storey residential dwelling (Limekiln Cottage) occupies the north-west of the centre of the site and is of part stone, part rendered construction with a slate roof. The cottage is in a generally poor state of repair. Access to the main property was not possible at the time of the site walkover. A wooden shed occupies the north-western corner of the site. An asphalt driveway occupies the northern and eastern peripheries of the site.
- 2.2.4 Landscaped garden areas (generally comprising overgrown grasses) lie in the central/south-western sections of the site. At the time of the site walkover, old furniture and general waste was noted to be scattered across the site. The site is accessed via a farm access track immediately south of the site which links to Rhallt Lane some 40 m south.
- 2.3 Surrounding Land Use
- 2.3.1 The site is located in a semi-rural area with residential/commercial buildings present within its immediately surrounding. The site is bordered on its eastern boundary by the A483. Montgomery Canal lies approximately 10 m west of the site, beyond which agricultural grassland is located. Agricultural grassland lies to the north of the site. A farm is present circa 50 m north-east of the site. Industrial estates are located some 170 m to the south-west and south-east of the site.



## 3. <u>SITE HISTORY</u>

3.1 The history of the site has been established using historical OS maps supplied by Groundsure. A selection of the maps reviewed is presented in Appendix A.

#### <u>1887-1888</u>

3.2 The earliest available maps dating from 1887 show the present-day Limekiln Cottage and a small outbuilding present in the north-western corner of the site. The remaining site is vacant besides sparce trees. A road runs along the southern periphery of the site. A further residential property lies some 5 m north-west of the site. A road and a crossroad lie 10 m south-east with a building (possible toll building) present in the centre of the road. The Shropshire Union Canal lies 10 m west of the site. Limekilns are situated some 20 m south-west. A complex of buildings (possible farm) lies some 50 m north-east of the site. Residential properties lie 120 m southwest of the site.

<u>1902</u>

3.3 The 1902 maps show a further three outbuildings on the western boundary of the site. A further outbuilding infringes on the north-western corner of the site (attached to the residential property to the north-west). A small outbuilding lies immediately north-east of the site. The building (presumed toll building) in the centre of the crossroads situated some 10 m to the east of the site is no longer present.

#### <u> 1966 - 1971</u>

3.4 The 1971 maps show the three outbuildings on the western boundary to have been demolished. Lime Kiln Cottage remains to the north-western of the centre and the outbuilding remains in the north-west of the site. The road which runs along the southern periphery of the site is marked Rhallt Lane. The road to the east is marked A483. The canal situated some 10 m west is marked 'disused'. The complex of buildings situated approximately 50 m north-east has been developed further and is marked 'Tan yr Hallt'.

#### <u>1984-1988</u>

3.5 The 1988 maps show the Limekiln Cottage grounds are now connected directly to the A483. There are no significant changes to the areas surrounding the site.



#### <u> 1995</u>

3.6 The 1995 maps show Limekiln Cottage grounds are no longer connected to the A483. The access road in the north has now been extended along the eastern and southern peripheries of the site linking to Rhallt Lane to the south-west of the site. Agricultural grassland immediately north of the site is now segmented into small fields. The crossroads 10 m south-east is now a 4-exit roundabout.

2003

3.7 The 2003 maps show no significant changes to the site. A new road has been constructed off Rhallt Lane some 10 m south of the site extending south-west. An industrial building lies adjacent to the new road some 170 m south-west of the site.

<u>2010</u>

3.8 The 2010 maps show no significant changes to the site. Further industrial development has occurred 170 m south of the site.

2020

3.9 The 2020 maps show no significant changes to the site. Expansion of Buttington Cross industrial estate has taken place to the south of the site. Two industrial buildings are located 40 m south-west of the site. Review of Groundsure records suggests this building belong to PYC group (complete construction services). A further building lies 60 m south (possibly representing a petrol station based on a review of Google Maps). A large industrial building lies 101 m south-east (cattle market based on a review of Google Maps).



## 4. <u>ENVIRONMENTAL SETTING</u>

- 4.0.1 An Enviro+GeoInsight Report has been obtained from Groundsure and information provided in these reports has been used within this section. A copy of this report is presented in Appendix B.
- 4.1 Geology
- 4.1.1 The site geology is illustrated in the Insight Report which has sourced data from several sources including British Geological Society (BGS), BRITPITS database and the Coal Authority.
- 4.1.2 Furthermore, site investigation information has been sought from the British Geological Society (BGS) website. There are six exploratory locations within 250 m of the site. The location of these boreholes is presented in Table 1.

Distance/Direction Date		BH Name	BH Ref	Depth (m)		
112 m S	3/6/69	WELSHPOOL BY-PASS. 29R	SJ20NW41	4.27		
140 m SE	3/6/69	WELSHPOOL BY-PASS. 30R	SJ20NW42	2.44		
156 m S	3/6/69	WELSHPOOL BY-PASS. 28R	SJ20NW40	2.44		
201 m S	4/6/69	WELSHPOOL BY-PASS. 27R	SJ20NW39	2.44		
220 m E	3/6/69	WELSHPOOL BY-PASS. 31R	SJ20NW43	2.44		
230 m SE	3/6/69	WELSHPOOL BY-PASS. 33R	SJ20NW45	4.57		
Table 1: BCS Barabale Data						

Table 1: BGS Borehole Data

- 4.1.3 The BGS boreholes indicated the presence of 'brown sandy topsoil' in all six locations to depths varying from 0.3 m (SJ20NW41 & SJ20NW45) to 0.46 m (SJ20NW39). This was underlain by 'Firm brown sandy stony clay' to the base of each borehole. The clay contained pieces of shale to a depth of 2.74 m within SJ20NW41 and cobbles between 2.74 m and 4.27 m within SJ20NW41.
- 4.1.4 Copies of the BGS Boreholes are provided within Appendix C.

#### Made Ground

- 4.1.5 According to the Enviro+GeoInsight Report there are no records of artificial deposits (made ground) below the site.
- 4.1.6 None of the six BGS boreholes located within 250 m of the site encountered made ground. Topsoil varying in depth from 0.3 m to 0.46 m was encountered in the vicinity of the site.



#### Superficial Geology

- 4.1.7 The Enviro+GeoInsight Report indicates that the superficial geology overlying the north-eastern, eastern, central and southern peripheries of the site comprises 'Glaciofluvial Fan Deposits' Formation. This strata generally comprises 'sand and gravel'.
- 4.1.8 The Enviro+GeoInsight Report states that the superficial strata overlying the western and north-western peripheries of the site comprises low permeability Glacial Till (Boulder Clay). This is likely to be regionally continuous and is likely to be present below the 'Glaciofluvial Fan Deposits' Formation.
- 4.1.9 Boreholes drilled within the vicinity of the site suggest that 'Boulder Clay' is present where 'Glaciofluvial Fan Deposits' are noted as the published geology.

#### <u>Bedrock</u>

4.1.10 The underlying solid geology comprises of the Nantglyn Flags Formation in the western section of the site which is generally described as 'mudstone, siltstone and sandstone'. The Forden Mudstone Formation is present across the eastern and central parts of the site. This comprises 'mudstone'

#### Linear Features

- 4.1.11 According to the Enviro+GeoInsight Report a 'fault, inferred' runs north-east to south-west slightly west of the centre of the site.
- 4.2 Mining & Ground Stability
- 4.2.1 The information provided by Groundsure indicates that the site is located within an area which is unlikely to have been affected by Coal Mining.
- 4.2.2 However, non-coal mining activities (Vein Mineral) have been carried out on site. However, these are noted to be 'localised small scale underground mining' and the 'potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered'.
- 4.2.3 In addition to the above, the Enviro & Geo Insight Report provides hazard ratings associated with ground subsidence at the site, as summarised below:

Very Low
Very Low
Negligible
Negligible
Very Low
Very Low



- 4.2.4 It can be seen from the above that the site is unlikely to be affected by natural ground instability.
- 4.3 Hydrogeology
- 4.3.1 The superficial Glaciofluvial Fan Deposits overlying the north-eastern, eastern, central and southern peripheries of the site are classified by the Environment Agency as a 'Secondary A Aquifer' which are described as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some case forming an important source of base flow to rivers.' Areas underlain by 'Till' are classified as 'Secondary Undifferentiated' which are assigned when 'is it not possible to attribute either category A or B to a rock type'.
- 4.3.2 The Boulder Clay is classified as a 'Secondary Undifferentiated' aquifer which is 'assigned where it is not possible to attribute either category A or B to a rock type.' These aquifers were formerly referred to as 'unproductive'.
- 4.3.3 The underlying bedrock is classified as a 'Secondary B Aquifer' which are noted to represent 'predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering'.
- 4.3.4 The Enviro & Geo Insight Report indicates the site is not located within groundwater source protection zone.
- 4.3.5 There are no groundwater abstractions located within 250 m of the site.
- 4.3.6 There is low risk from groundwater flooding at the site.
- 4.4 Hydrology
- 4.4.1 There are no surface water features located on site. The nearest water feature to the site is the Montgomery Canal which runs south-west to north some 10 m west of the site and is noted to contain water all year round.
- 4.4.2 There are no surface water abstractions located on or within 250 m of the site.
- 4.4.3 There is one licensed discharge to controlled waters located within 250 m of the site. This refers 'Sewage Discharges – Final/Treated Effluent' to Underground Strata' some 161 m south-west of the site. The consent is historical and was issued on 11<sup>th</sup> July 1977. No revocation date is provided.
- 4.4.4 Risks from river and coastal flooding have not been identified on site.



- 4.5 Contaminated Land & Landfill Activities
- 4.5.1 Information provided in the Enviro+GeoInsight Report indicated there are no current or historic landfill or waste sites located within 250 m of the site.
- 4.5.2 There are no waste exemptions located on or within 250 m of the site.
- 4.5.3 A total of 5 no. pollution incidents have taken place within 250 m of the site. These are summarised in Table 2.

Distance/Direction	Incident Date	Pollutant Description	Impact
36 m south-west	11/01/2017	Agricultural Materials &Waste	Water: Minor Air & Land: No Details
36 m south-west	11/01/2017	Not Provided	Water: Minor Air & Land: No Details
146 m South-West	st 16/07/2001 Oils and Fuel - Diesel		Water: Minor Air & Land: No Impact
215 m South	m South 23/09/2016 Atmospheric Pollutants & Effects - Smoke		Air: Minor Land & Water: No Details
215 m South	23/09/2016	Not Provided	Air: Minor Land & Water: No Details

Table 2: Summary of Pollution Incidents Located Within 250 m of the Site

4.5.4 There are no recorded Part A(1), A(2) or IPPC Authorised Activities within 250 m of the site.

However, a current Part B permit is held for Timber Manufacture some 178 m southwest of the site. No enforcements have been notified.

- 4.5.5 There are 7 current recorded potentially contaminative land uses within 250 m of the site, the closest of which is a limekiln located on site. This may have impacted upon the site. A further limekiln is present some 20 m west of the south-western corner of the site but is unlikely to have impacted on the site.
- 4.6 Sensitive Land Uses
- 4.6.1 The site is considered to have the potential to affect two ecological systems identified as statutory receptors in the DETR Circular 01/2006. These include a Special Area of Conservation (Otters and Floating water-plantain) and a Site of Special Scientific Interest within Montgomery Canal which is situated some 10 m west of the site. The canal should be considered to represent a potential receptor.
- 4.7 Radon
- 4.7.1 Groundsure reports that estimated between 1% and 3% of properties are affected by radon, therefore no radon protection measures are required in new builds at the site.



#### 4.8 Unexploded Ordnance

- 4.8.1 The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area with LOW risk from possible Unexploded Ordnance (UXO) resulting from the Second World War.
- 4.8.2 BEK do not consider any further assessment to be required with respect to UXO.



## 5. <u>POTENTIAL POLLUTANT LINKAGES</u>

- 5.1 General
- 5.1.1 This section identifies the potential contaminants of concern, sources, pathways and receptors that may be associated with the site based on its known history and the current condition and with respect to the proposed re-development of the site to commercial
- 5.1.2 This information is used to develop a conceptual model which is a qualitative description of potential sources of environmental pollutants, the pathways by which they are transported and the receptors:
  - i) Potential <u>sources</u> of contamination: these include any actual or potentially contaminating materials and activities, located either on or in the vicinity of the site.
  - ii) Potential <u>pathways</u> for contamination migration: these comprise the routes or mechanisms by which contaminants may migrate from the source to the receptor including environmental migration pathways and human health exposure pathways.
  - iii) Potential <u>receptors</u> of contamination: these include future land users, ecological systems, water resources and property.
- 5.2 Potential Contaminants of Concern
- 5.2.1 Based on the earliest available historical maps dating from 1887 the site was occupied by the present-day Limekiln Cottage, a small outbuilding present in the north-western corner of the site and a road along the southern periphery of the site. At this time, the remainder of the site was vacant besides sparce trees. On maps dating from 1902, a further three outbuildings were present on the western boundary of the site with a further outbuilding on the north-western corner of the site. From circa 1971 the three outbuildings on the western boundary of the site were no longer present (presumably demolished). At this time, Lime Kiln Cottage remained to the north-west of the centre and the outbuilding remained in the north-west of the site. At some time around 1988 the Limekiln Cottage grounds were connected directly to the A483. Circa 1995 the Limekiln Cottage grounds were no longer connected to the A483. The access road in the north was extended along the eastern and southern peripheries of the site linking to Rhallt Lane to the south-west of the site.
- 5.2.2 The historical use of the site as a small limekiln cottage industry may have impacted on the site. Contaminants of concern may be associated with the imported raw materials and waste products (heavy metals, PAH Compounds, speciated total petroleum hydrocarbons, sulphate, asbestos).



- 5.2.3 Moreover, made ground may be present below the former out buildings historically present in the west of the site, below the driveway/former roads on the northern, eastern and southern periphery and below the footprint of the current buildings on site. The nature and extent of any made ground present is currently unknown and could potentially contain contaminants of concern.
- 5.2.4 The potential contaminants of concern that may be present at the site are summarised below:

Potentially Significant Contaminants of Concern				
Arsenic	Zinc			
Cadmium	Sulphate			
Chromium	Cyanide			
Copper	Phenols			
Lead	Polycyclic Aromatic Hydrocarbons (PAHs)			
Mercury	Total Petroleum Hydrocarbons (TPH-CWG)			
Nickel	Asbestos			
Selenium	рН			

 Table 3: Potential Contaminants of Concern

- 5.2.5 It should be noted that the above list represents a broad range of potential contaminants of concern. Additional contaminants of concern should be considered if ground conditions differ from those anticipated.
- 5.2.6 Risks from ground gas are not anticipated at the site, however if a significant thickness of made ground (>3 m) is present or ground conditions contain a high level of organic matter then risks from ground gas should be considered.
- 5.3 Potential Pathways
- 5.3.1 The pathways through which contaminants may reach receptors are in part dependent by the nature and behaviour of the contaminant and the intended end use of the site.
- 5.3.2 The following potential pathways have been identified with respect to the existing site condition, the environmental setting and the re-development of the site for commercial use, which are assessed in the conceptual model:

Ingestion of contaminated soil/dust (soft landscaped areas only).

Inhalation of contaminative dust including asbestos fibres (during earthworks).

Dermal contact (soft landscaped areas only).



Dissolution or suspension (leaching) of contaminants into pore waters affecting plant growth.

Dissolution or suspension (leaching) of contaminants from site soils leading to lateral migration within perched waters to on/off-site receptors. Potential significant pathways include more permeable layers within the made ground/natural strata, underground services and piles/foundations.

Dissolution or suspension (leaching) of contaminants from site soils leading to contamination of groundwater.

Contamination affecting the integrity of service pipelines by direct contact.

Buildings affected by direct contact with elevated concentrations of sulphate and/or extreme pH.

- 5.4 Receptors
- 5.4.1 Potential site specific receptors that may be affected by contamination at the site are listed below:

#### Future Site Users

- 5.4.2 Future users of the site could be at risk from contamination present at the site.
- 5.4.3 Potential risks are associated with ingestion of soil, inhalation of contaminated dust (including asbestos) (during earthworks) and dermal contact with contaminants of concern. Risks to human health are only considered relevant in soft landscaped areas (if present).

#### **Construction Workers**

- 5.4.4 The primary risks to construction workers are associated with shallow excavations as asbestos could be present. Asbestos fibres (if present) can be released into the atmosphere during earthworks.
- 5.4.5 Standard personal protective equipment and site-specific risk assessments and method statements should reduce risks associated with other contaminants of concern due to short exposure duration.

#### Off Site Receptors

5.4.6 Off site receptors include nearby employees and customers of nearby businesses. Human health could be at risk if asbestos fibres are released during the development.



#### Flora

5.4.7 Heavy metals can be phytotoxic and if present can represent a potential risk to flora in the landscaped areas (if present).

#### **Buildings & Services**

5.4.8 The integrity of service pipes can be affected by concentrations of organic contamination.

#### **Controlled Waters**

- 5.4.9 There are no surface water features located on site. The Montgomery Canal runs south-west some 10 m west of the site and is noted to contain water all year round and is considered a potential receptor.
- 5.4.10 The superficial Glaciofluvial Fan Deposits overlying the north-eastern, eastern, central and southern peripheries of the site are classified by the Environment Agency as a 'Secondary A Aquifer'. The superficial strata across the remainder of the site comprises Boulder Clay. Any perched water contained within the shallow superficial deposits are not considered to represent a potentially significant receptor. The Boulder Clay is likely to be regionally continuous also being present at depth below the Glaciofluvial Fan Deposits.
- 5.4.11 The underlying bedrock is classified as a Secondary B Aquifer. Hydraulic continuity between any perched water trapped above the Boulder Clay and the deep aquifer is unlikely. The potential risks to deep groundwater quality are considered to be very low. It may be prudent to prove the presence of Boulder Clay during the site investigation works to confirm this.
- 5.4.12 The site is not located within a groundwater Source Protection Zone and there are no groundwater abstractions located within 250 m of the site.

#### Statutory Ecological Receptors

- 5.3.13 The potential for contamination to detrimentally impact on the two ecological systems identified some 10 m west is considered unlikely. These include a Special Area of Conservation (Otters and Floating water-plantain) and a Site of Special Scientific Interest within Montgomery Canal.
- 5.5 Preliminary Conceptual Model
- 5.5.1 The identified potential sources of contaminants, pathways and receptors have been assessed to establish plausible pollutant linkages. All potentially significant pollutant linkages are detailed in Table B, in Appendix D.



- 5.6 Potentially Significant Pollutant Linkages
- 5.6.1 A number of possible 'significant pollutant linkages' have been identified associated with the site.
- 5.6.2 Potential risks relating to the potential harm to the health of humans and/or domestic pets both on and off site due to the potential for direct contact with contaminants in the made ground and the ingestion of contaminated soil/dust (applies to groundworkers and end users in soft landscaped areas only, if present) (Link 1).
- 5.6.3 There is also the possibility of windblown particulates being inhaled by people/animals both on site and off site (applies to groundworkers and end users in soft landscaped areas only, if present) (Link 2).
- 5.6.4 Human health could be at risk by the inhalation of ground gases (Link 3) and/or volatile contamination migrating into properties on site (Link 4).
- 5.6.5 Property (including services, flora and fauna) could be affected by direct contact to high concentrations of contaminants (Link 5).
- 5.6.6 Dissolution or suspension (leaching) of contaminants from site soils leading to lateral migration within perched waters to off-site receptors (including the Canal 10 m west which is also considered an ecological receptor). Potential significant pathways include more permeable layers within the made ground/natural strata, underground services and piles/foundations (Link 6).
- 5.6.7 Dissolution or suspension (leaching) of contaminants from site soils leading to vertical migration of contaminants to the underlying groundwater present within the superficial Secondary A Aquifer and the underlying bedrock Secondary B Aquifer (Link 7).
- 5.6.8 Site investigation is required to identify site specific conditions and assess the risks associated with each identified plausible pollutant linkage.



## 6. <u>RECOMMENDATIONS</u>

- 6.1 Based on the findings of the Preliminary Risk Assessment herein, potential risks associated with potential contamination (human health, controlled waters, property and ecological receptors) have been identified with respect to the re-development of the site.
- 6.2 To quantify the potential risks BEK recommends that the following works should be undertaken:

#### Pre-Demolition Asbestos Survey

6.3 Given the age of the buildings on site, it is recommended that a pre-demolition asbestos survey be conducted on all buildings to be demolished by a specialist consultant.

#### Site Investigation

- 6.4 The investigation should comprise the drilling of a series of window sample boreholes to characterise the shallow ground conditions across the site. The borehole locations will target specific locations based on historical activities/features and non-targeted to provide indicative site wide information. The aim of the investigation will be to prove nature and thickness of any made ground present and to characterise the suitability of the soils for re-use and carry out in-situ strength testing (SPTs) to inform foundations options.
- 6.5 The site investigation should be supervised by an experienced engineer who will be responsible for recording ground conditions encountered.
- 6.6 The engineer will recover representative samples for chemical and geotechnical testing. All samples will be collected in appropriate sampling vessels, stored in a precooled cool box (where necessary) and dispatched to the laboratory within 24 hours.

#### Laboratory Testing

- 6.7 Following a review of the ground conditions encountered, a selection of made ground samples will be tested for the contaminants of concern listed in Table 3 of this report. If visual or olfactory evidence of contamination is encountered (including any made ground) during the site investigation then it may be necessary to undertake additional testing.
- 6.8 Depending on ground conditions encountered, samples will also be submitted for geotechnical testing. If natural clay is encountered, this will include tests for Plasticity Index and natural Moisture Content.



6.9 All testing will be carried out by a UKAS accredited laboratory to MCERTS standard (where applicable).

#### Risk Assessment

- 6.10 The investigation findings will be assessed as part of a quantitative risk assessment to amend the conceptual site model and identify any potential significant pollutant linkages. The assessment will be undertaken in accordance with current UK guidance and policy.
- 6.11 The site investigation data and laboratory test results will also be assessed as part of a geotechnical assessment to inform foundation design for the new build.

#### Reporting

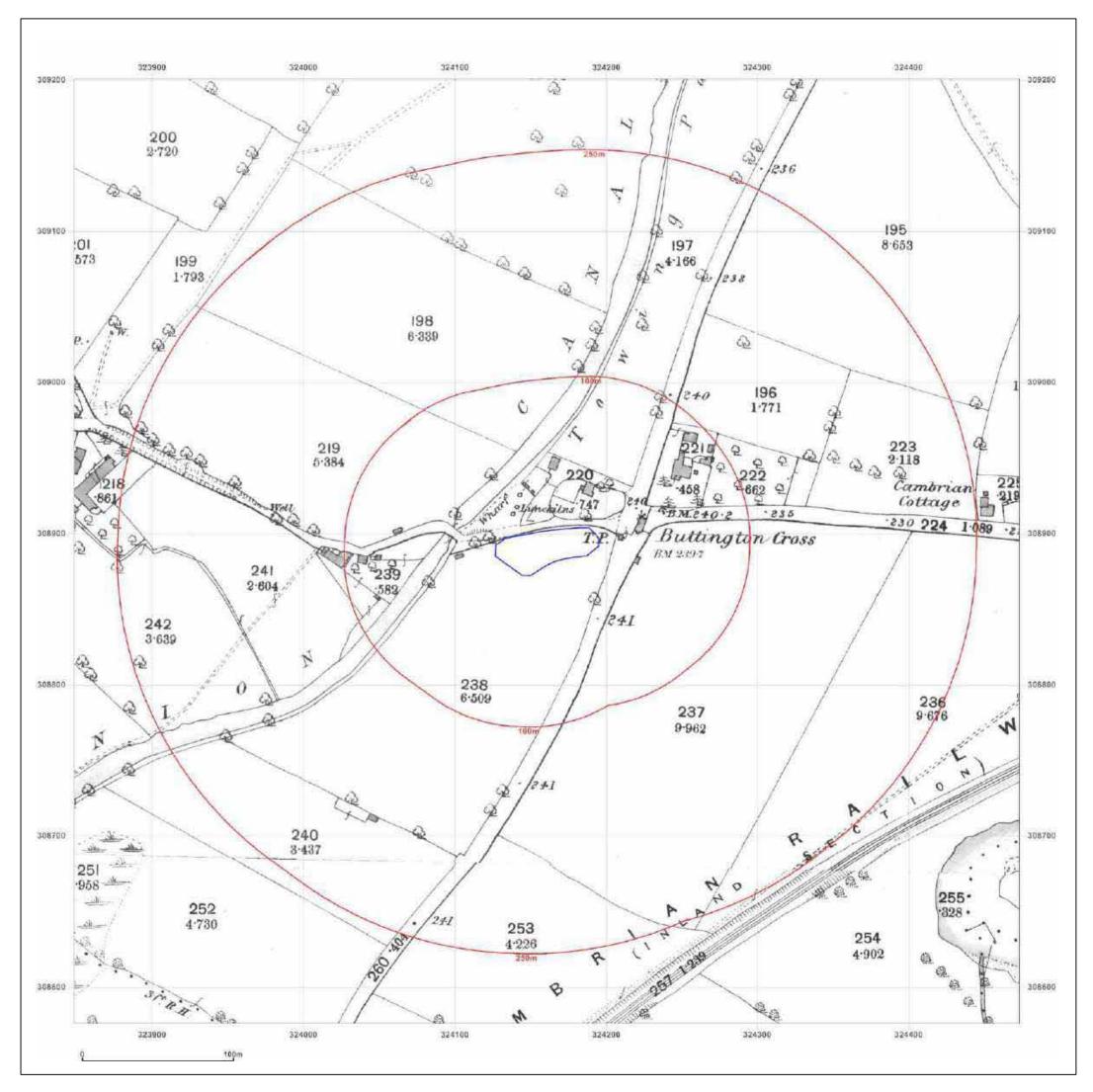
- 6.12 The investigation findings should be assessed in accordance with current UK policy and guidance to identify any potentially significant pollutant linkages and determine the requirements for mitigation and/or remediation.
- 6.13 The works undertaken will be detailed in a Site Investigation & Contamination Assessment report along with full justifications for the assessment and the conclusions/recommendations.

#### **Other Considerations**

- 6.14 It is recommended that the site investigation works are extended to cover geotechnical properties of the shallow ground to inform foundation design for the new builds.
- 6.15 It may be necessary to carry out soakaway testing to facilitate a drainage assessment.
- 6.16 We would also recommend that consideration is given to the requirements of the water supply service provider and the completion of the UKWIR risk assessment for water pipe selection.

# APPENDIX A

Historical OS Maps

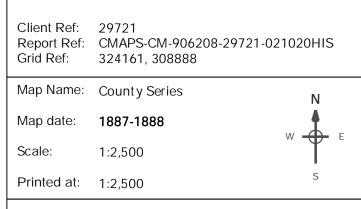


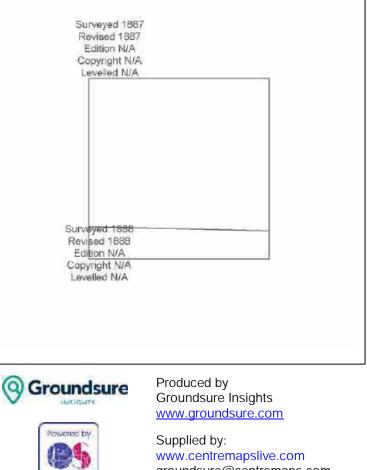
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Site Details



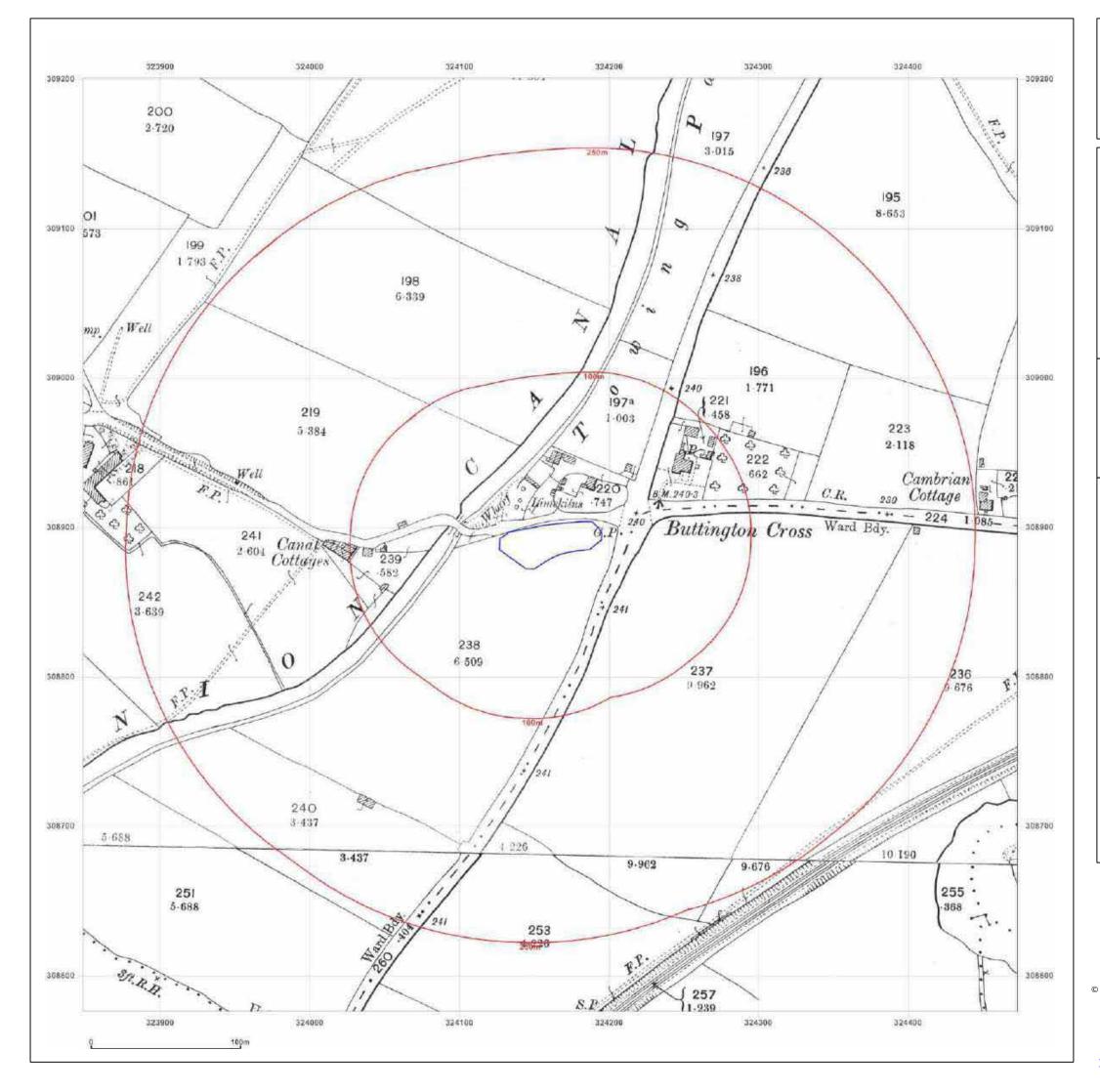




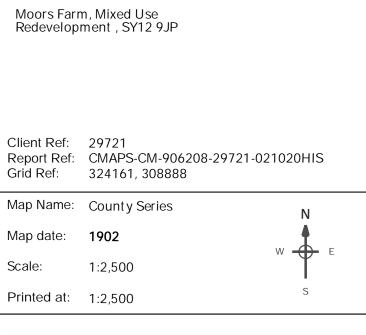
www.centremapslive.com groundsure@centremaps.com

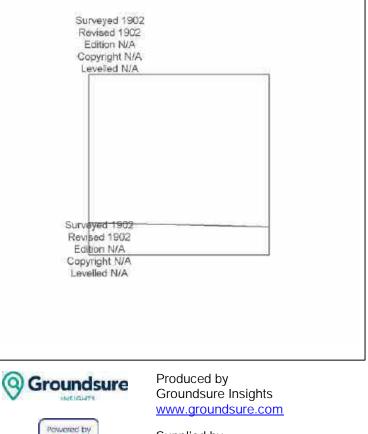
© Crown ccpyright and database rights 201 Ordnance Survey 100035207

Production date: 02 October 2020









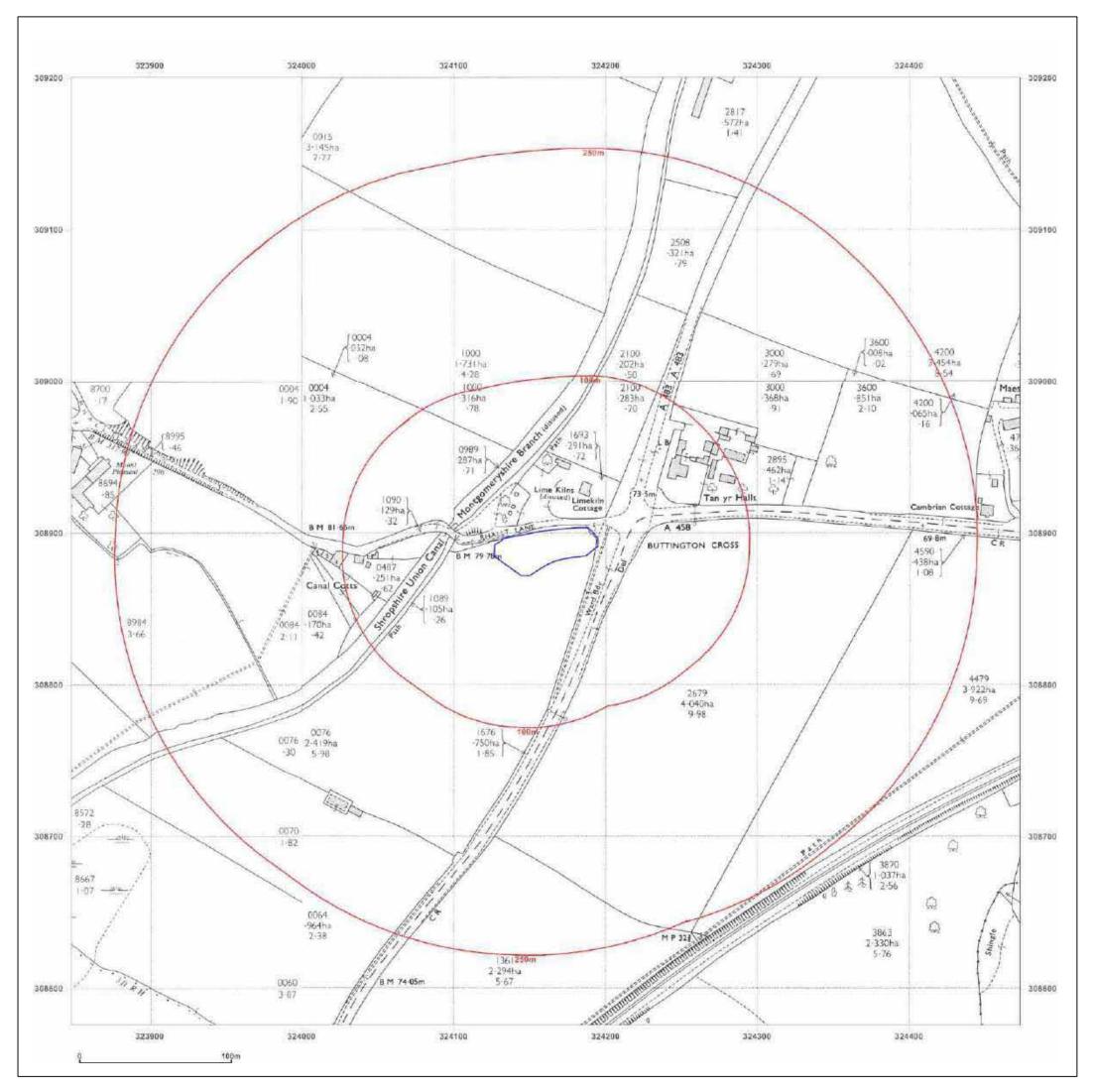
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Production date: 02 October 2020

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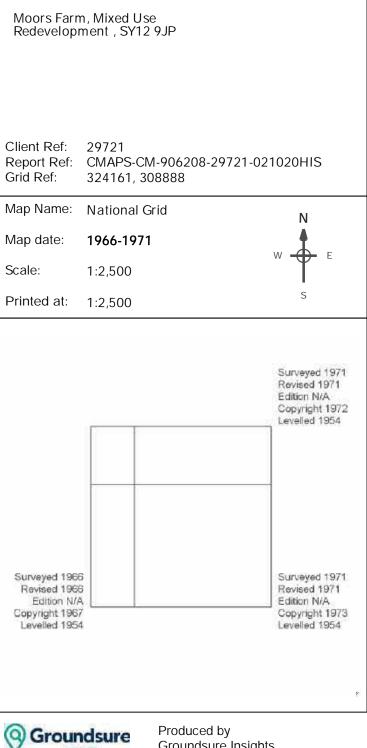
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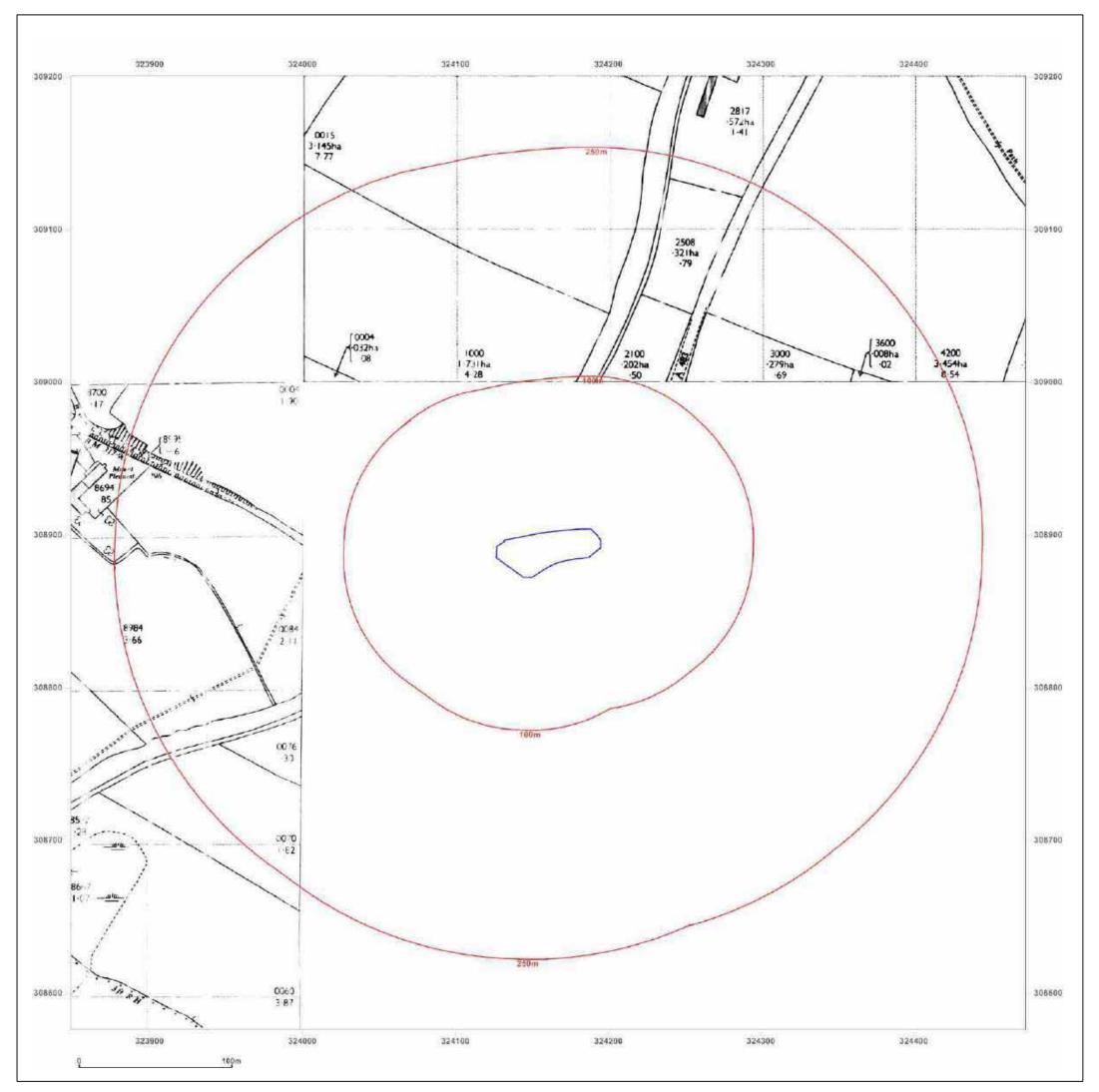


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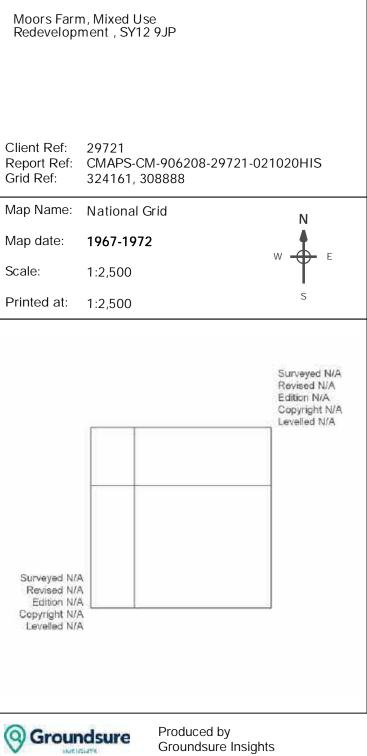
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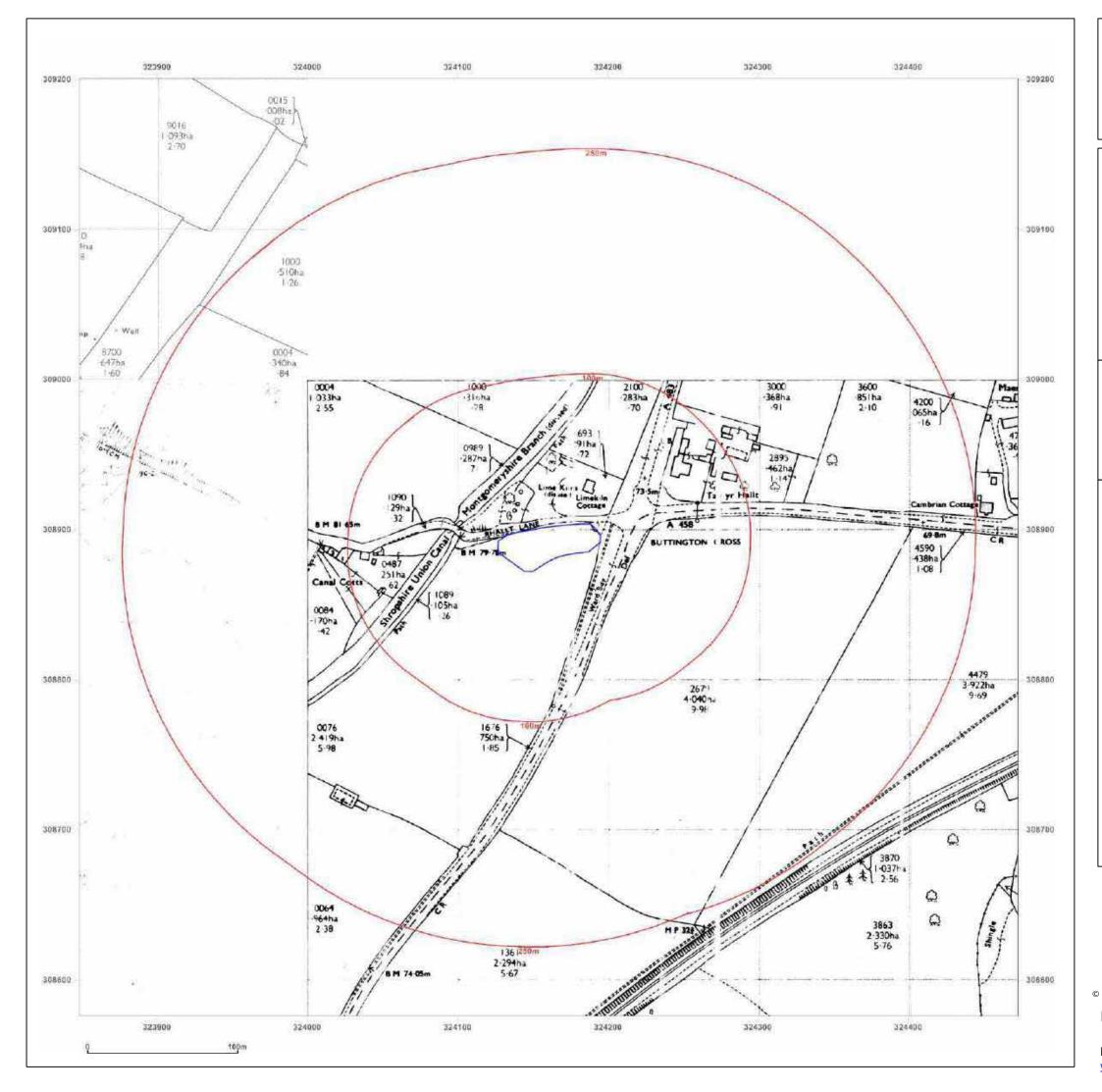


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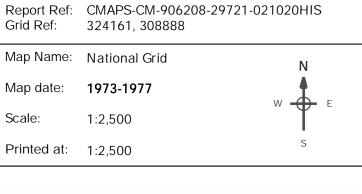
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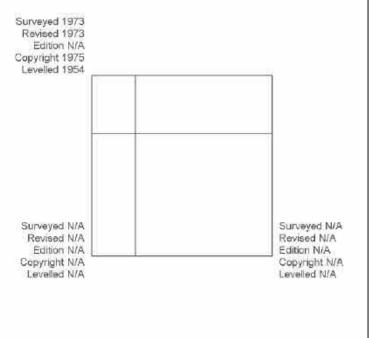
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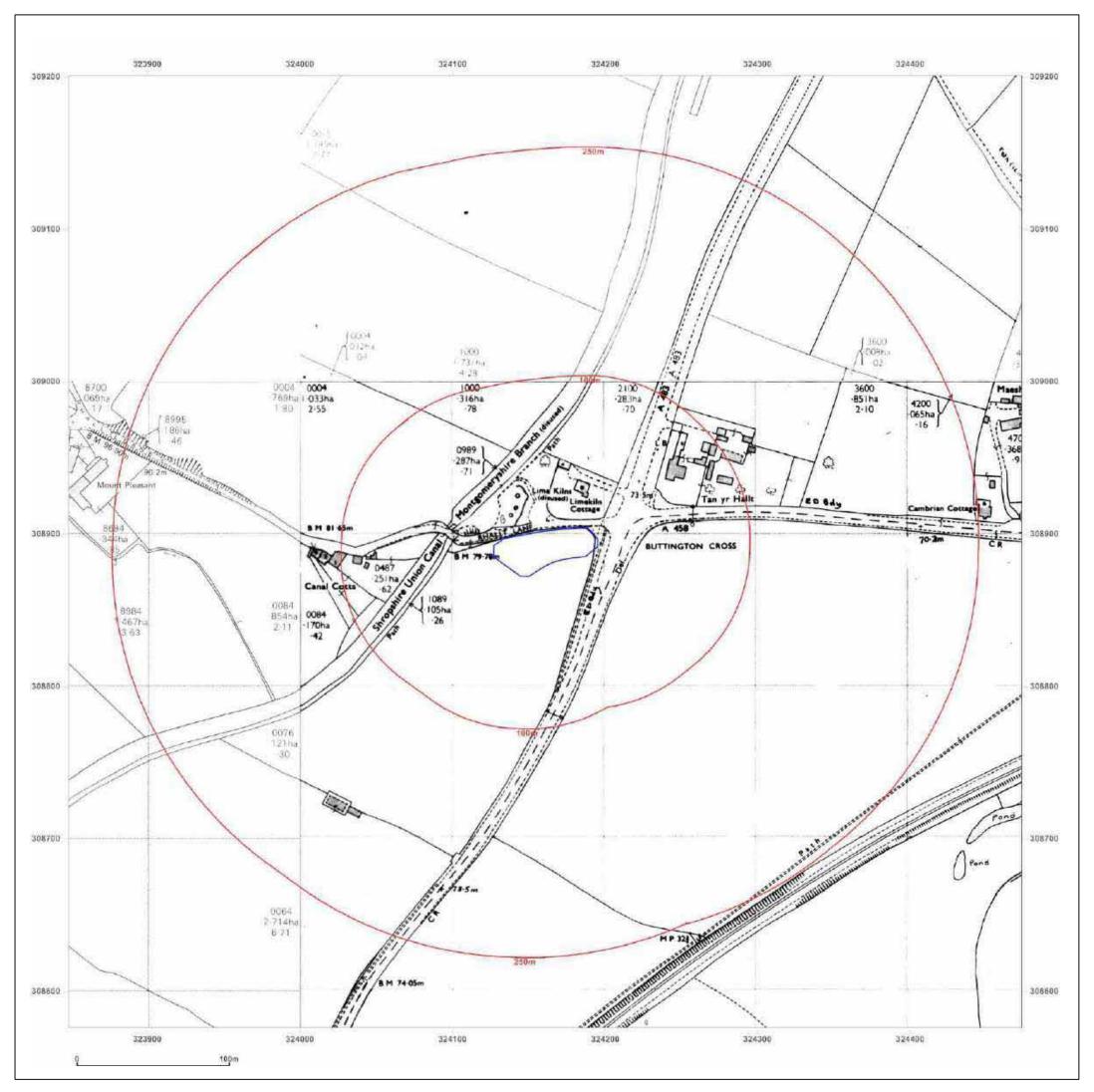






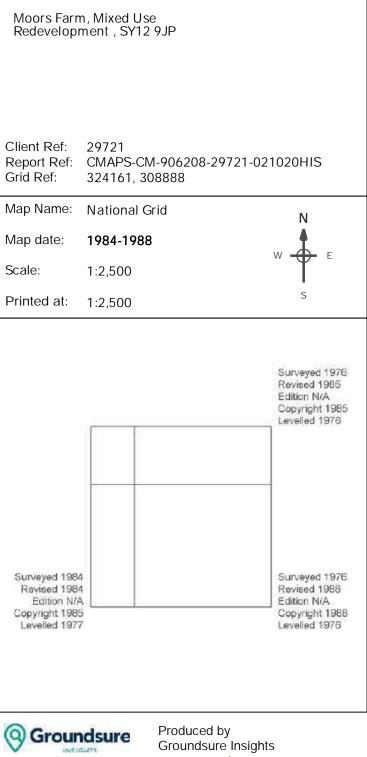


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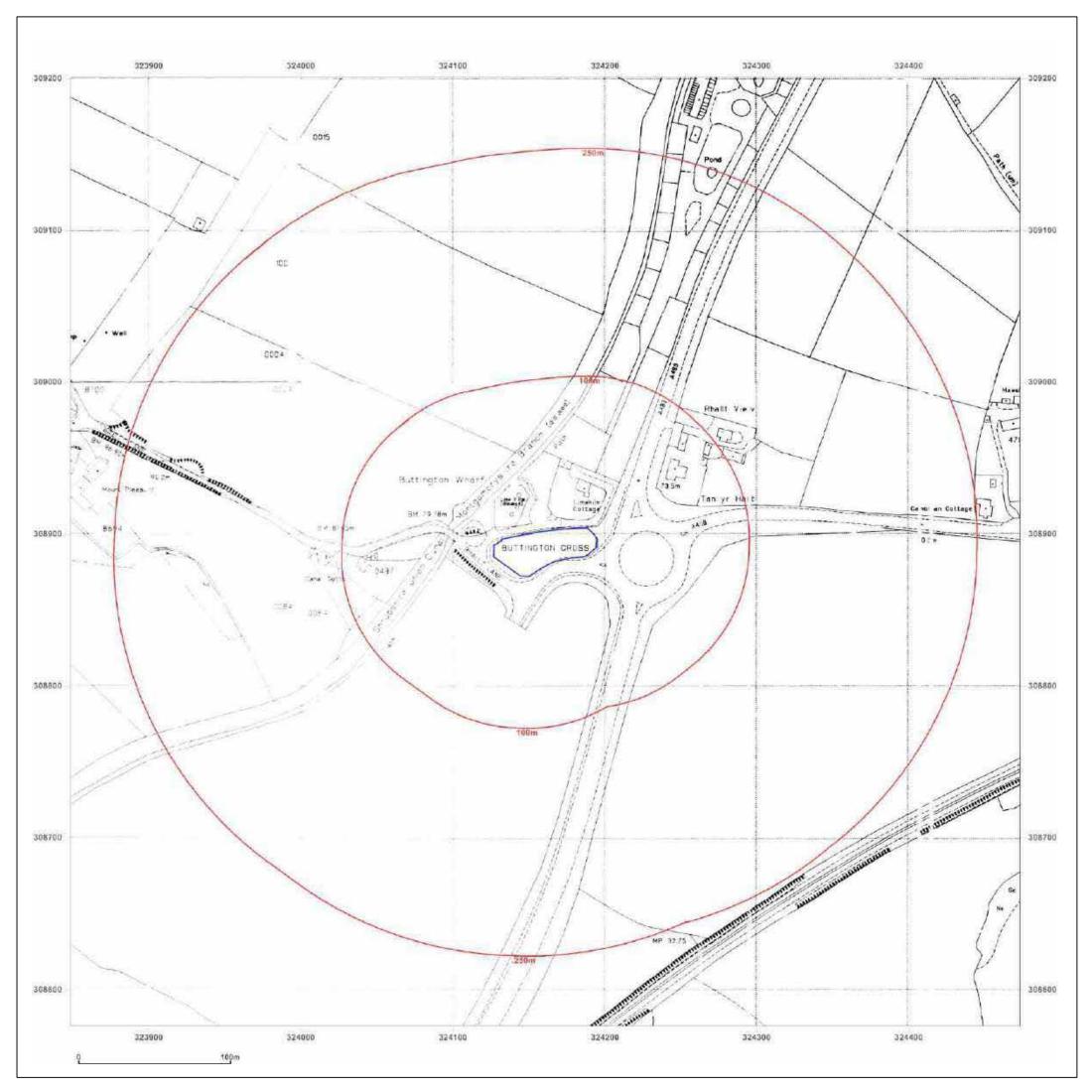
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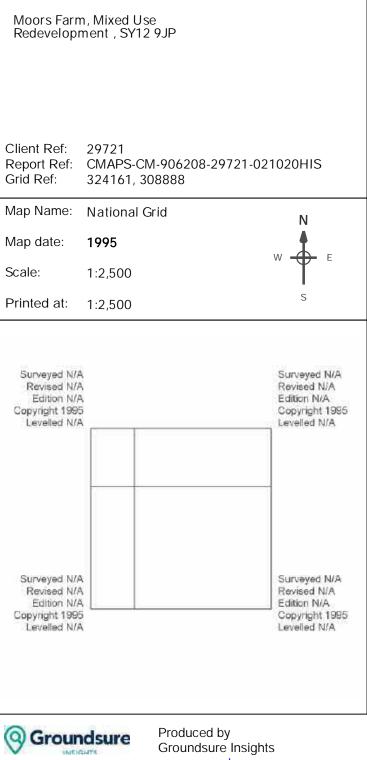
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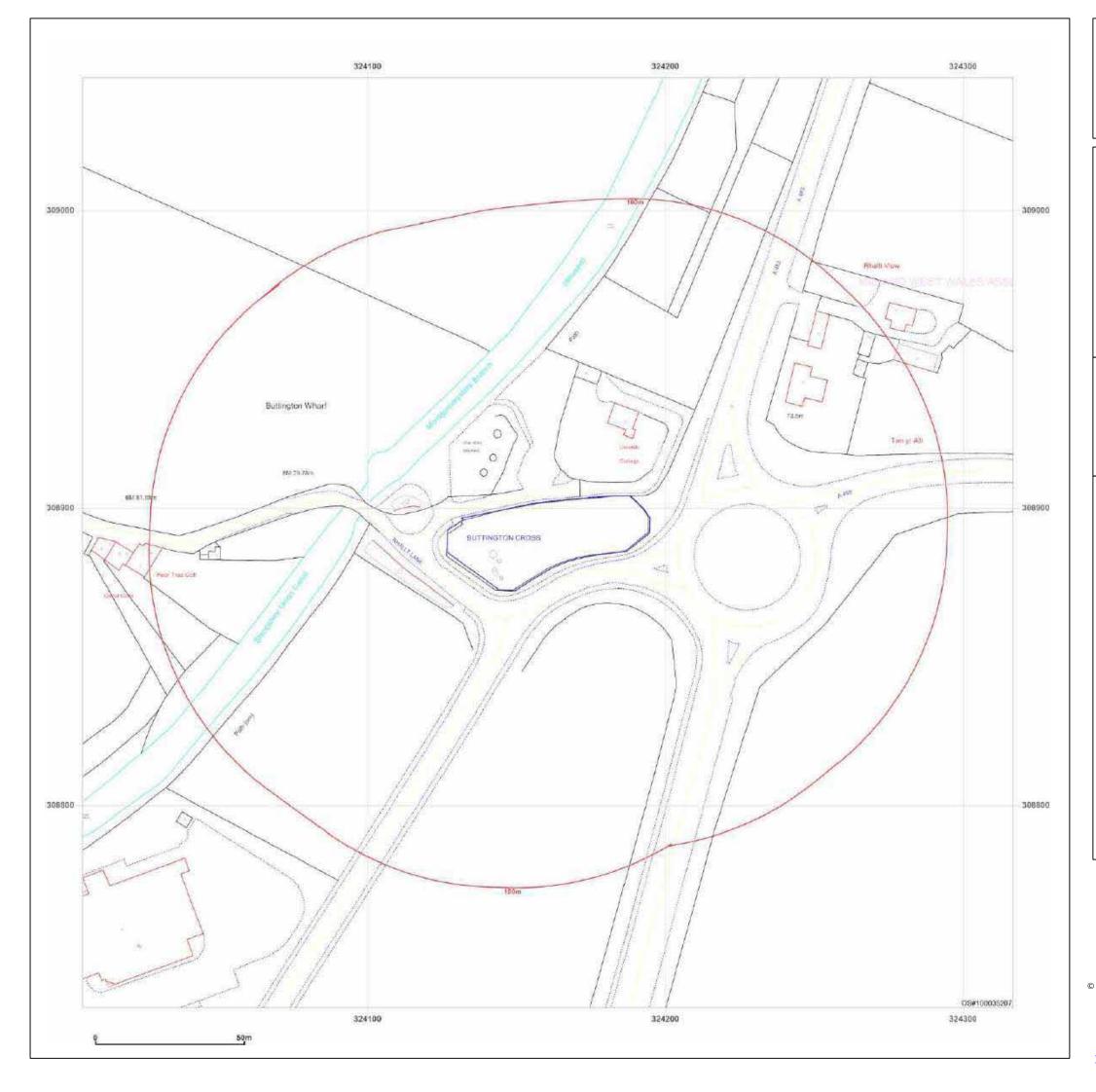


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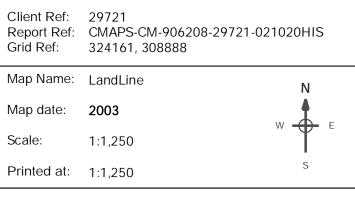
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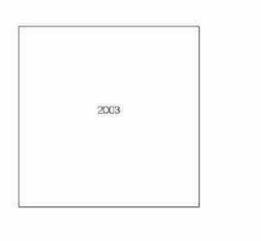
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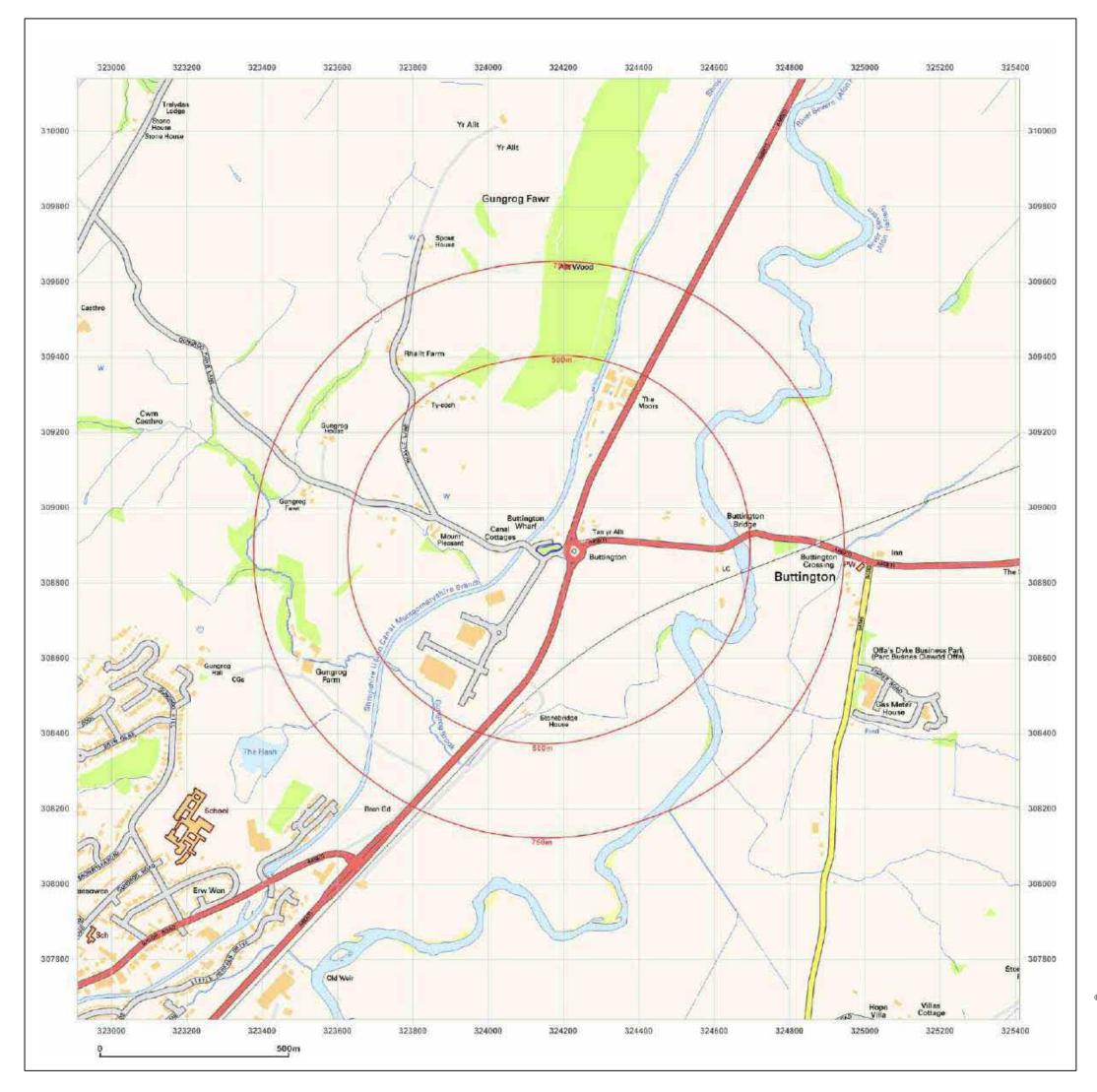
Moors Farm, Mixed Use Redevelopment, SY12 9JP





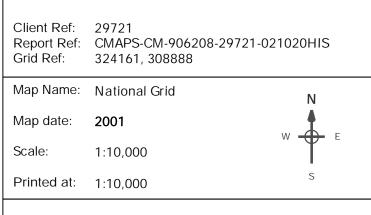


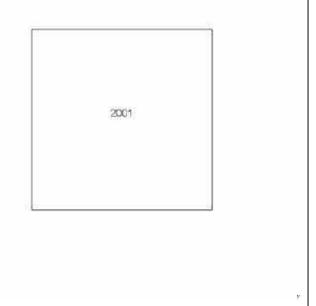
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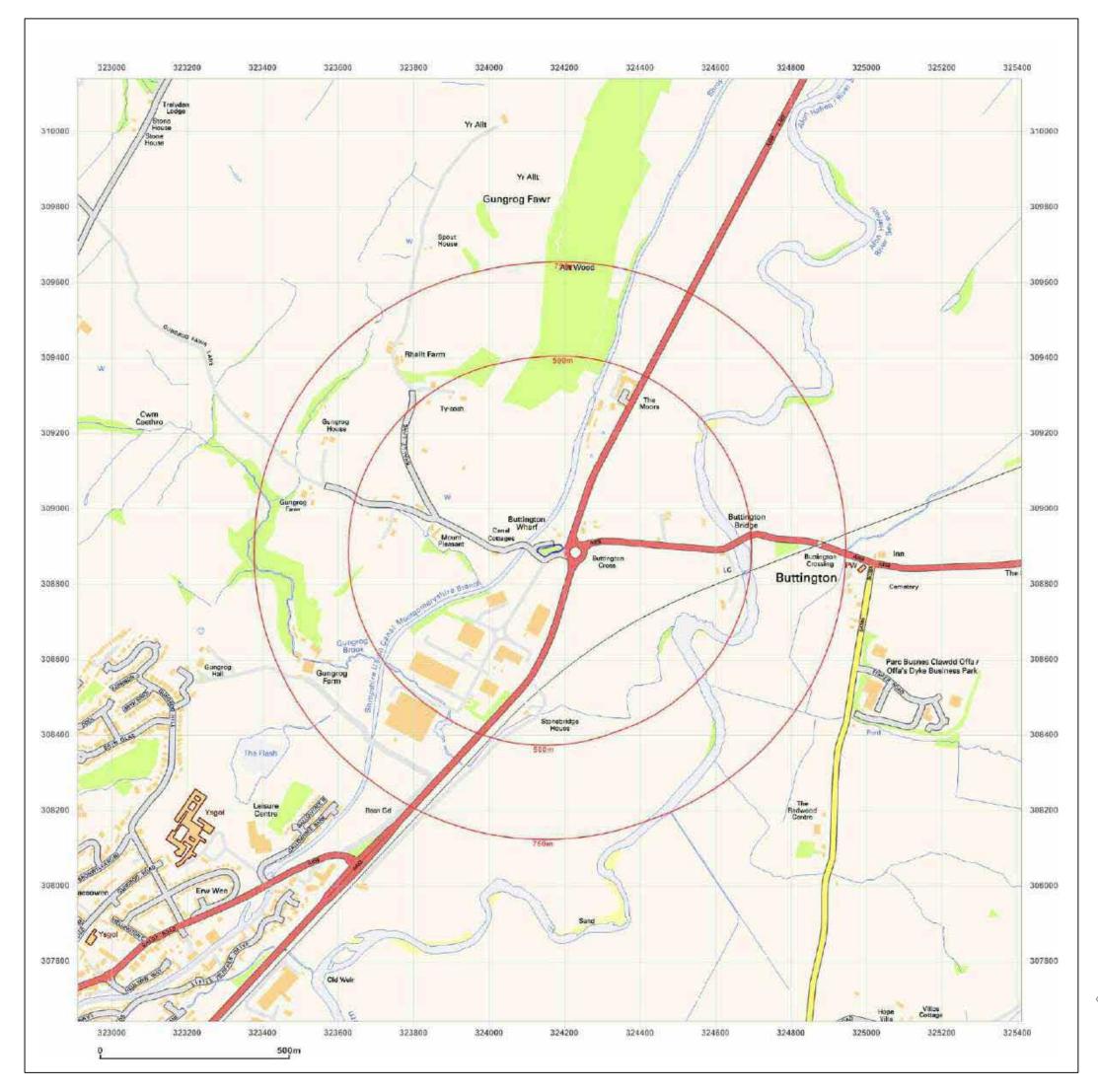
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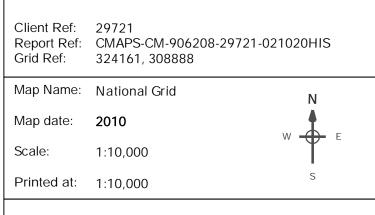


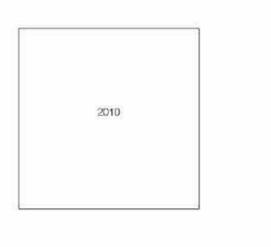
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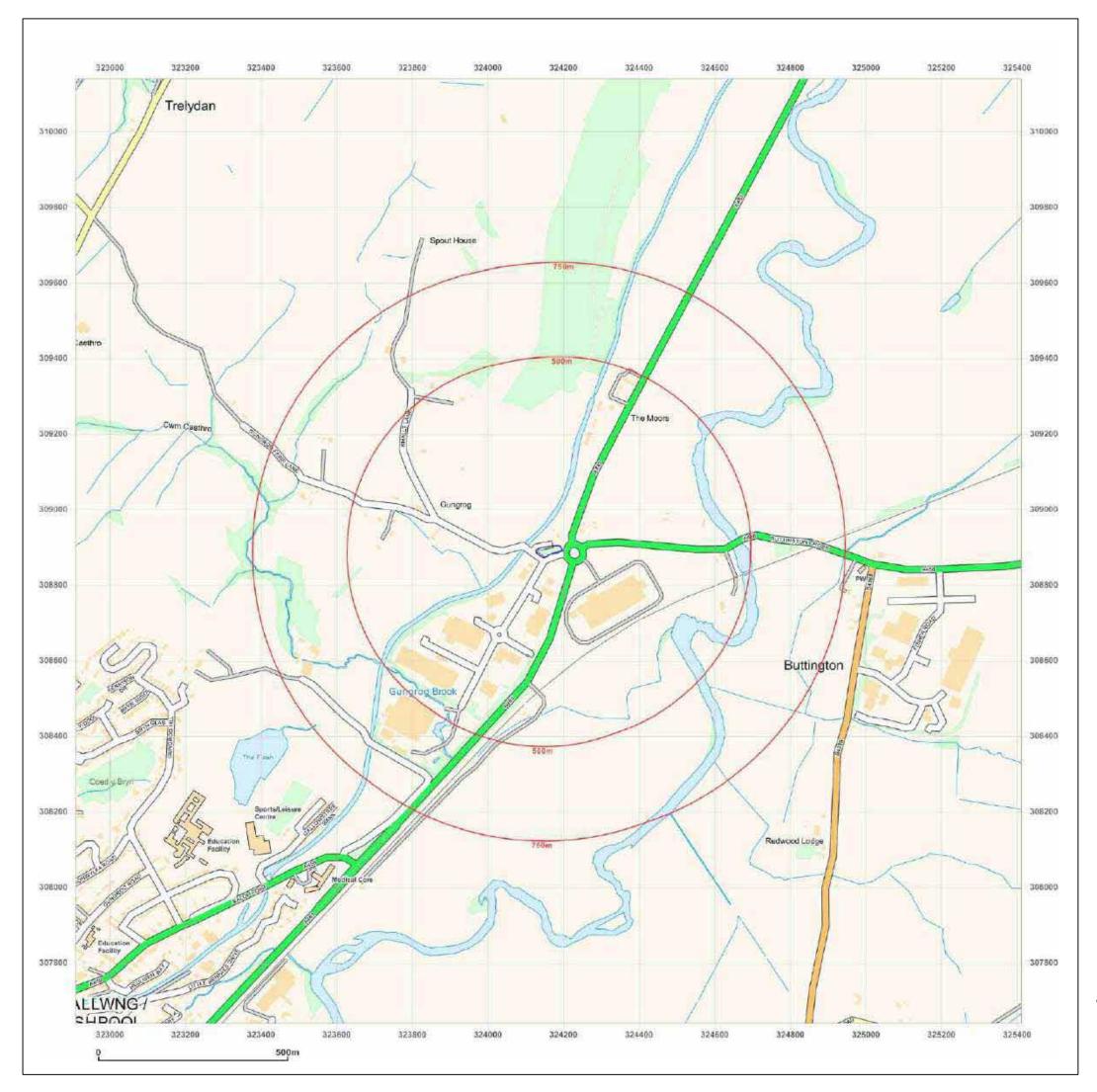
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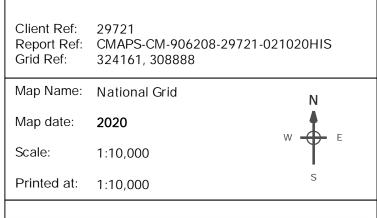


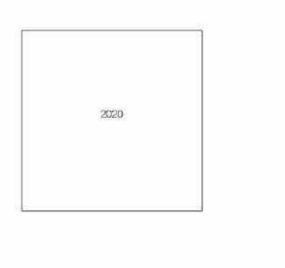
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Moors Farm, Mixed Use Redevelopment, SY12 9JP







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# APPENDIX B

Enviro+GeoInsight Report





## Moors Farm, Mixed Use Redevelopment, SY12 9JP

# Order Details

Date: 02/10/2020

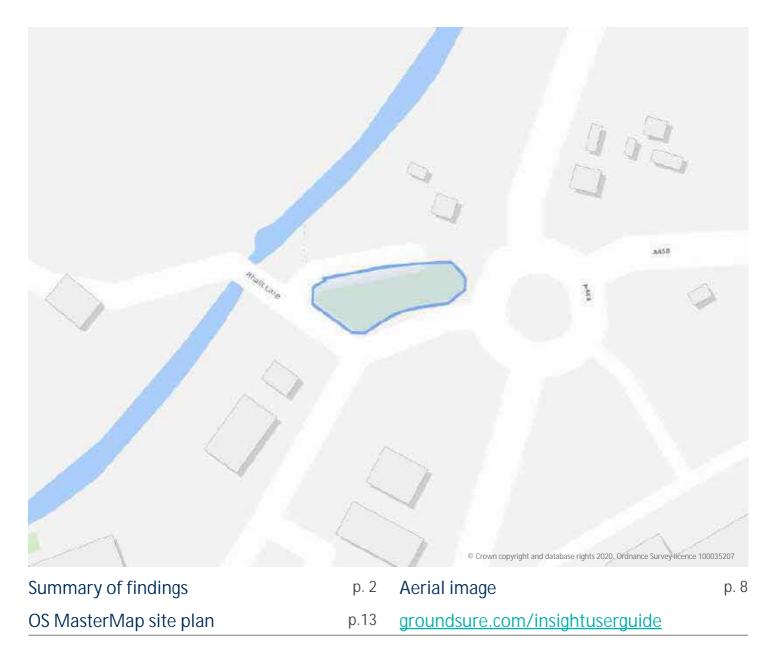
Your ref: 29721

Our Ref: CMAPS-CM-906208-29721-021020EDRGEO

Client: CENTREMAPS

# Site Details

Location:324160 308888Area:0.14 haAuthority:Powys County Council



Contact us with any questions at: info@groundsure.com 08444 159 000



# Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>14</u>	<u>1.1</u>	Historical industrial land uses	0	2	0	6	-
15	1.2	Historical tanks	0	0	0	0	-
<u>15</u>	<u>1.3</u>	Historical energy features	0	0	0	3	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<u>17</u>	<u>2.1</u>	Historical industrial land uses	0	2	0	7	-
18	2.2	Historical tanks	0	0	0	0	-
<u>18</u>	<u>2.3</u>	Historical energy features	0	0	0	3	-
19	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	0	0	-
21	3.6	Licensed waste sites	0	0	0	0	-
<u>21</u>	<u>3.7</u>	Waste exemptions	0	0	0	10	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>23</u>	4.1	Recent industrial land uses	0	3	4	-	-
<u>24</u>	4.2	Current or recent petrol stations	0	1	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
25	4.5	Sites determined as Contaminated Land	0	0	0	0	-





<u>36</u> 38	<u>5.7</u> 5.8	Surface water abstractions Potable abstractions	0 0	0	0 0	3 0	3 0
<u>35</u>	<u>5.6</u>	Groundwater abstractions	0	0	0	2	1
34	5.5	Groundwater vulnerability- local information	None (with	iin 0m)			
34	5.4	Groundwater vulnerability- soluble rock risk	None (with	iin 0m)			
<u>33</u>	<u>5.3</u>	Groundwater vulnerability	Identified (	within 50m)			
<u>32</u>	<u>5.2</u>	Bedrock aquifer	Identified (	within 500m	)		
<u>30</u>	<u>5.1</u>	Superficial aquifer	Identified (	within 500m	)		
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
29	4.21	Pollution inventory radioactive waste	0	0	0	0	-
29	4.20	Pollution inventory waste transfers	0	0	0	0	-
29	4.19	Pollution inventory substances	0	0	0	0	-
<u>28</u>	<u>4.18</u>	Pollution Incidents (EA/NRW)	0	2	3	2	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
27	4.16	List 1 Dangerous Substances	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
<u>26</u>	<u>4.13</u>	Licensed Discharges to controlled waters	0	0	1	1	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
<u>26</u>	<u>4.11</u>	Licensed pollutant release (Part A(2)/B)	0	0	1	1	-
26	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	_
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.6 4.7	Control of Major Accident Hazards (COMAH) Regulated explosive sites	0	0	0	0	-
			0			0	





<u>41</u>	<u>6.2</u>	Surface water features	0	2	1	-	-
<u>41</u>	<u>6.3</u>	WFD Surface water body catchments	1	-	-	-	-
<u>42</u>	<u>6.4</u>	WFD Surface water bodies	0	1	0	-	-
<u>42</u>	<u>6.5</u>	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
43	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (with	nin 50m)			
43	7.2	Historical Flood Events	0	0	0	-	-
43	7.3	Flood Defences	0	0	0	_	-
43	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
44	7.5	Flood Storage Areas	0	0	0	-	-
45	7.6	Flood Zone 2	None (with	nin 50m)			
45	7.7	Flood Zone 3	None (with	nin 50m)			
Page	Section	Surface water flooding					
<u>46</u>	<u>8.1</u>	Surface water flooding	1 in 30 yea	r, 0.3m - 1.0r	n (within 50	m)	
Page	Section	Croupdwater flooding					
i aye	Section	Groundwater flooding					
<u>48</u>	<u>9.1</u>	Groundwater flooding	Low (within	n 50m)			
_		-	Low (within On site	n 50m) 0-50m	50-250m	250-500m	500-2000m
<u>48</u>	<u>9.1</u>	Groundwater flooding			50-250m ()	250-500m ()	500-2000m 1
<u>48</u> Page	<u>9.1</u> Section	Groundwater flooding Environmental designations	On site	0-50m			
<u>48</u> Page <u>49</u>	<u>9.1</u> Section <u>10.1</u>	Groundwater flooding Environmental designations Sites of Special Scientific Interest (SSSI)	On site O	0-50m 1	0	0	1
<u>48</u> Page <u>49</u> 50	<u>9.1</u> Section <u>10.1</u> 10.2	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)	On site 0 0	0-50m 1 0	0	0	1 0
<u>48</u> Page <u>49</u> 50 <u>50</u>	9.1 Section 10.1 10.2 10.3	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)	On site 0 0 0	0-50m 1 0 1	0 0 0	0 0 0	1 0 0
<u>48</u> Page <u>49</u> 50 <u>50</u> 50	9.1 Section 10.1 10.2 10.3 10.4	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)	On site 0 0 0 0	0-50m 1 0 1 0	0 0 0 0	0 0 0 0	1 0 0 0
48 Page 49 50 50 50 50	9.1 Section 10.1 10.2 10.3 10.4 10.5	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)National Nature Reserves (NNR)	On site 0 0 0 0 0 0 0 0 0	0-50m 1 0 1 0 0	0 0 0 0	0 0 0 0	1 0 0 0 0
48 Page 49 50 50 50 51 51	9.1 Section 10.1 10.2 10.3 10.4 10.5 10.6	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)National Nature Reserves (NNR)Local Nature Reserves (LNR)	On site 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0-50m 1 0 1 0 0 0	0 0 0 0 0	0 0 0 0 0	1 0 0 0 0 0
48 Page 49 50 50 50 51 51 51	9.1 Section 10.1 10.2 10.3 10.4 10.5 10.6 10.7	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)National Nature Reserves (NNR)Local Nature Reserves (LNR)Designated Ancient Woodland	On site 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0-50m 1 0 1 0 0 0 0 0		0 0 0 0 0 0 4	1 0 0 0 0 0 30
48 Page 49 50 50 50 51 51 51 51 53	9.1         Section         10.1         10.2         10.3         10.4         10.5         10.6         10.7         10.8	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)National Nature Reserves (NNR)Local Nature Reserves (LNR)Designated Ancient WoodlandBiosphere Reserves	On site 0 0 0 0 0 0 0 0 0	0-50m 1 0 1 0 0 0 0 0 0 0		0 0 0 0 0 0 4 0	1 0 0 0 0 30 0
48 Page 49 50 50 50 51 51 51 53 53	9.1         Section         10.1         10.2         10.3         10.4         10.5         10.6         10.7         10.8         10.9	Groundwater floodingEnvironmental designationsSites of Special Scientific Interest (SSSI)Conserved wetland sites (Ramsar sites)Special Areas of Conservation (SAC)Special Protection Areas (SPA)National Nature Reserves (NNR)Local Nature Reserves (LNR)Designated Ancient WoodlandBiosphere ReservesForest Parks	On site 0 0 0 0 0 0 0 0 0	0-50m 1 0 1 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 4 0 0	1 0 0 0 0 0 30 0 0



Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

54 54 54 54	10.13 10.14 10.15	Possible Special Areas of Conservation (pSAC) Potential Special Protection Areas (pSPA) Nitrate Sensitive Areas	0 0 0	0	0 0	0 0	0
54 54	10.15			0	0	0	0
54		Nitrate Sensitive Areas	0				
	10.1/		0	0	0	0	0
FF	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
<u>55</u>	<u>10.17</u>	SSSI Impact Risk Zones	1	-	-	-	-
56	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
57	11.1	World Heritage Sites	0	0	0	_	-
58	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
58	11.3	National Parks	0	0	0	-	-
<u>58</u>	<u>11.4</u>	Listed Buildings	0	2	0	-	-
59	11.5	Conservation Areas	0	0	0	-	-
59	11.6	Scheduled Ancient Monuments	0	0	0	-	-
59	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
<u>60</u>	12.1	Agricultural Land Classification	Grade 2 (w	ithin 250m)			
61	12.2	Open Access Land	0	0	0	-	-
61	12.3	Tree Felling Licences	0	0	0	-	-
62	12.4	Environmental Stewardship Schemes	0	0	0	-	-
62	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
63	13.1	Priority Habitat Inventory	0	0	0	-	-
63	13.2	Habitat Networks	0	0	0	-	-
63	13.3	Open Mosaic Habitat	0	0	0	-	-
63	13.4	Limestone Pavement Orders	0	0	0	-	-
00		Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
Page	Section	Geology 1.10,000 scale					
	Section <u>14.1</u>	<u>10k Availability</u>	Identified (	within 500m	)		
Page			Identified (	within 500m 0	<b>)</b> 0	0	-





66	14.4	Landslip (10k)	0	0	0	0	-
67	14.5	Bedrock geology (10k)	0	0	0	0	-
67	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
<u>68</u>	<u>15.1</u>	<u>50k Availability</u>	Identified (	within 500m)	)		
69	15.2	Artificial and made ground (50k)	0	0	0	0	-
69	15.3	Artificial ground permeability (50k)	0	0	-	-	-
<u>70</u>	<u>15.4</u>	Superficial geology (50k)	1	1	0	2	-
<u>71</u>	<u>15.5</u>	Superficial permeability (50k)	Identified (	within 50m)			
71	15.6	Landslip (50k)	0	0	0	0	-
71	15.7	Landslip permeability (50k)	None (with	in 50m)			
<u>72</u>	<u>15.8</u>	Bedrock geology (50k)	2	0	0	2	-
<u>73</u>	<u>15.9</u>	Bedrock permeability (50k)	Identified (	within 50m)			
<u>73</u>	<u>15.10</u>	Bedrock faults and other linear features (50k)	1	0	0	2	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
<u>74</u>	<u>16.1</u>	BGS Boreholes	0	0	6	-	-
Page	Section	Natural ground subsidence					
<u>76</u>	<u>17.1</u>	Shrink swell clays	Very low (w	vithin 50m)			
<u>76</u> <u>77</u>	<u>17.1</u> <u>17.2</u>	<u>Shrink swell clays</u> <u>Running sands</u>	Very low (w Very low (w				
			Very low (w				
<u>77</u>	<u>17.2</u>	Running sands	Very low (w	vithin 50m) (within 50m)			
<u>77</u> <u>78</u>	<u>17.2</u> <u>17.3</u>	<u>Running sands</u> <u>Compressible deposits</u>	Very low (w Negligible (	vithin 50m) (within 50m) vithin 50m)			
<u>77</u> <u>78</u> <u>79</u>	<u>17.2</u> <u>17.3</u> <u>17.4</u>	Running sands Compressible deposits Collapsible deposits	Very low (w Negligible ( Very low (w Low (within	vithin 50m) (within 50m) vithin 50m)			
77 78 79 80	<u>17.2</u> <u>17.3</u> <u>17.4</u> <u>17.5</u>	Running sands Compressible deposits Collapsible deposits Landslides	Very low (w Negligible ( Very low (w Low (within	vithin 50m) (within 50m) vithin 50m) n 50m)	50-250m	250-500m	500-2000m
77 78 79 80 82	<u>17.2</u> <u>17.3</u> <u>17.4</u> <u>17.5</u> <u>17.6</u>	Running sands Compressible deposits Collapsible deposits Landslides Ground dissolution of soluble rocks	Very low (w Negligible ( Very low (w Low (withir Negligible (	vithin 50m) (within 50m) vithin 50m) n 50m) (within 50m)	<b>50-250m</b> 0	250-500m 0	500-2000m
77 78 79 80 82 Page	17.2 17.3 17.4 17.5 17.6 Section	Running sandsCompressible depositsCollapsible depositsLandslidesGround dissolution of soluble rocksMining, ground workings and natural cavities	Very low (w Negligible ( Very low (w Low (within Negligible ( On site	vithin 50m) (within 50m) vithin 50m) n 50m) (within 50m) 0-50m			500-2000m -
77 78 79 80 82 Page 83	17.2         17.3         17.4         17.5         17.6         Section         18.1	Running sandsCompressible depositsCollapsible depositsLandslidesGround dissolution of soluble rocksMining, ground workings and natural cavitiesNatural cavities	Very low (w Negligible ( Very low (w Low (within Negligible ( On site 0	vithin 50m) (within 50m) vithin 50m) n 50m) (within 50m) 0-50m	0	0	500-2000m - - -
77 78 79 80 82 Page 83 83	17.2         17.3         17.4         17.5         17.6         Section         18.1         18.2	Running sandsCompressible depositsCollapsible depositsLandslidesGround dissolution of soluble rocksMining, ground workings and natural cavitiesNatural cavitiesBritPits	Very low (w Negligible ( Very low (w Low (within Negligible ( On site 0 0	vithin 50m) (within 50m) vithin 50m) (within 50m) 0-50m 0 0	0	0	500-2000m - - - 0







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<u>85</u>	<u>18.6</u>	Non-coal mining	1	0	0	0	1
85	18.7	Mining cavities	0	0	0	0	0
<u>85</u>	<u>18.8</u>	JPB mining areas	Identified (	within 0m)			
86	18.9	Coal mining	None (with	in 0m)			
86	18.10	Brine areas	None (with	in 0m)			
86	18.11	Gypsum areas	None (with	in 0m)			
86	18.12	Tin mining	None (with	in 0m)			
87	18.13	Clay mining	None (with	in 0m)			
Page	Section	Radon					
<u>88</u>	<u>19.1</u>	Radon	Between 19	% and 3% (w	ithin 0m)		
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<u>89</u>	<u>20.1</u>	BGS Estimated Background Soil Chemistry	2	2	-	-	-
89	20.2	BGS Estimated Urban Soil Chemistry	0	0	_	-	-
89	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
89 Page	20.3 Section	BGS Measured Urban Soil Chemistry Railway infrastructure and projects	0 On site	0 0-50m	- 50-250m	- 250-500m	- 500-2000m
					- 50-250m 0	- 250-500m -	- 500-2000m -
Page	Section	Railway infrastructure and projects	On site	0-50m		- 250-500m - -	- 500-2000m -
Page 90	Section 21.1	Railway infrastructure and projects Underground railways (London)	On site O	0-50m ()	0	- 250-500m - -	- 500-2000m - -
<b>Page</b> 90 90	<b>Section</b> 21.1 21.2	Railway infrastructure and projects Underground railways (London) Underground railways (Non-London)	On site O O	0-50m 0 0	0	- 250-500m - - -	- 500-2000m - - -
<b>Page</b> 90 90 90	Section 21.1 21.2 21.3	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnels	On site 0 0 0	0-50m 0 0	0 0 0	- 250-500m - - -	- 500-2000m - - - -
Page       90       90       90       90       90	Section         21.1         21.2         21.3         21.4	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnelsHistorical railway and tunnel features	On site 0 0 0 0	0-50m 0 0 0	0 0 0	- 250-500m - - - -	- 500-2000m - - - -
Page       90       90       90       90       90       90       90	Section         21.1         21.2         21.3         21.4         21.5	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnelsHistorical railway and tunnel featuresRoyal Mail tunnels	On site 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0-50m 0 0 0 0	0 0 0 0	- 250-500m - - - - - -	- 500-2000m - - - - - - - - - - - -
Page         90         90         90         90         90         90         90         91	Section         21.1         21.2         21.3         21.4         21.5         21.6	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnelsHistorical railway and tunnel featuresRoyal Mail tunnelsHistorical railways	On site 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0-50m 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	- 250-500m - - - - - - - - - - - - - - - - - -	- 500-2000m - - - - - - - - - - - - - - - - - -
Page         90         90         90         90         90         91	Section21.121.221.321.421.521.621.7	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnelsHistorical railway and tunnel featuresRoyal Mail tunnelsHistorical railwaysRailways	On site 0 0 0 0 0 0 0 0 0	0-50m 0 0 0 0 0 0			- 500-2000m - - - - - - - - - - - - - - - - - -
Page         90         90         90         90         90         91         91	Section21.121.221.321.421.521.621.721.8	Railway infrastructure and projectsUnderground railways (London)Underground railways (Non-London)Railway tunnelsHistorical railway and tunnel featuresRoyal Mail tunnelsHistorical railwaysRailwaysRailways	On site 0 0 0 0 0 0 0 0 0	0-50m 0 0 0 0 0 0 0		- - - - - - 0	- 500-2000m - - - - - - - - - - - - - - - - - -





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# Recent aerial photograph



Capture Date: 07/05/2017 Site Area: 0.14ha





Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Recent site history - 2013 aerial photograph



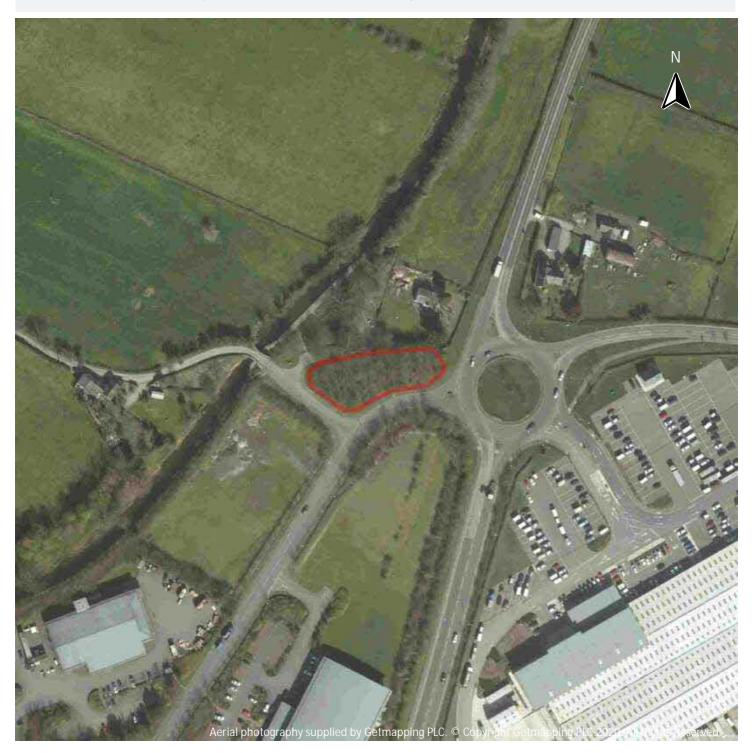
Capture Date: 14/07/2013 Site Area: 0.14ha





Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Recent site history - 2012 aerial photograph



Capture Date: 27/03/2012 Site Area: 0.14ha

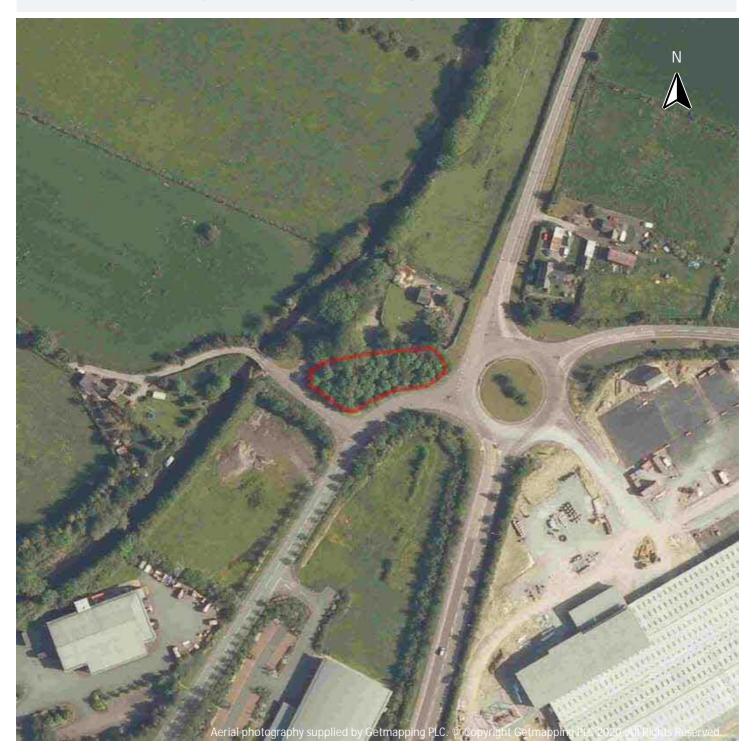






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Recent site history - 2009 aerial photograph



Capture Date: 31/05/2009 Site Area: 0.14ha







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Recent site history - 2000 aerial photograph



Capture Date: 25/08/2000 Site Area: 0.14ha

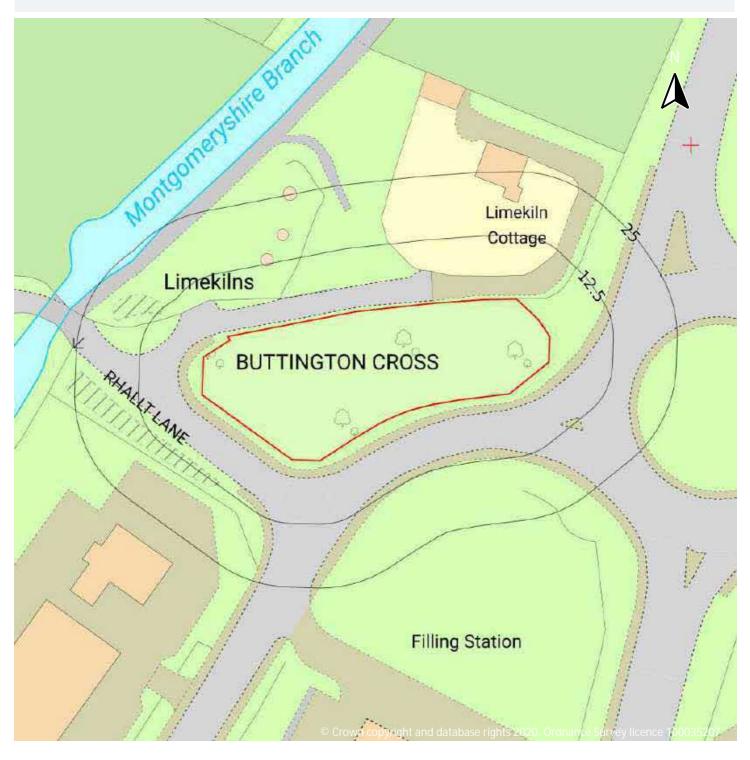






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# OS MasterMap site plan



Site Area: 0.14ha

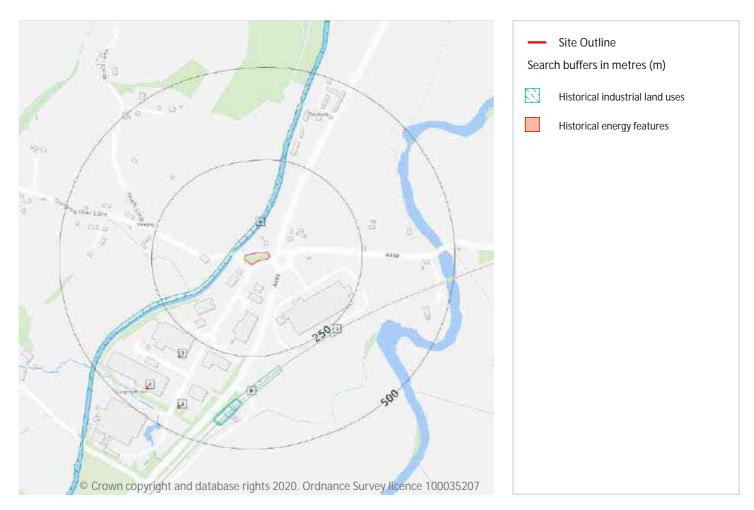






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# 1 Past land use



# 1.1 Historical industrial land uses

#### Records within 500m

8

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 14

ID	Location	Land use	Dates present	Group ID
А	30m NW	Disused Canal	1976 - 1978	988000







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

ID	Location	Land use	Dates present	Group ID
А	30m NW	Disused Canal	1960 - 1982	2367187
1	256m SE	Cuttings	1884	795087
В	283m S	Cuttings	1884	846624
В	365m S	Cuttings	1960	970616
В	366m S	Cuttings	1938	881023
В	385m S	Cuttings	1976	861701
В	386m S	Cuttings	1938 - 1949	924063

This data is sourced from Ordnance Survey / Groundsure.

# 1.2 Historical tanks

#### Records within 500m

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

# 1.3 Historical energy features

#### Records within 500m

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 14

ID	Location	Land use	Dates present	Group ID
2	314m SW	Electricity Substation	1998	59948
3	428m SW	Electricity Substation	1998	59944
4	430m SW	Electricity Substation	1998	59949

This data is sourced from Ordnance Survey / Groundsure.





3



Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

## 1.4 Historical petrol stations

#### Records within 500m

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Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

# 1.5 Historical garages

Records within 500m

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

# 1.6 Historical military land

#### Records within 500m

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

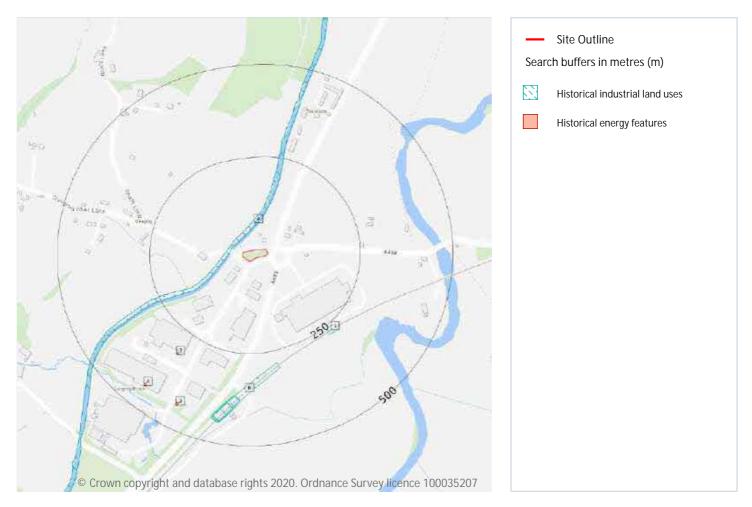






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# 2 Past land use - un-grouped



# 2.1 Historical industrial land uses

#### Records within 500m

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 17

ID	Location	Land Use	Date	Group ID
А	30m NW	Disused Canal	1976	988000
А	30m NW	Disused Canal	1960	2367187
1	256m SE	Cuttings	1884	795087







ID	Location	Land Use	Date	Group ID
В	283m S	Cuttings	1884	846624
В	365m S	Cuttings	1960	970616
В	366m S	Cuttings	1938	881023
В	385m S	Cuttings	1976	861701
В	386m S	Cuttings	1949	924063
В	386m S	Cuttings	1938	924063

This data is sourced from Ordnance Survey / Groundsure.

# 2.2 Historical tanks

Records within 500m	0	

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

# 2.3 Historical energy features

#### Records within 500m

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 17

ID	Location	Land Use	Date	Group ID
2	314m SW	Electricity Substation	1998	59948
3	428m SW	Electricity Substation	1998	59944
4	430m SW	Electricity Substation	1998	59949

This data is sourced from Ordnance Survey / Groundsure.







# 2.4 Historical petrol stations

#### Records within 500m

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

# 2.5 Historical garages

Records within 500m

0

0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.







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# 3 Waste and landfill



# 3.1 Active or recent landfill

#### Records within 500m

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 3.2 Historical landfill (BGS records)

#### Records within 500m

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.





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# 3.3 Historical landfill (LA/mapping records)

#### Records within 500m

#### Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

# 3.4 Historical landfill (EA/NRW records)

#### Records within 500m

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

#### 3.5 Historical waste sites

#### Records within 500m

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

# 3.6 Licensed waste sites

#### Records within 500m

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 3.7 Waste exemptions

#### Records within 500m

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on page 20







ID	Location	Site	Reference	Category	Sub- Categ ory	Description
1	283m SW	Wipak UK Ltd, Unit 3, Buttington Cross Enterprise Park, Tal-y-Bont, Y Trallwng, SY218SL	NRW- WME011221	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
А	388m N	The Moors, Oswestry Road, Welshpool, Powys, SY21 9JR	NRW- WME041131	Using waste exemption	On a farm	Use of waste in construction
A	388m N	The Moors, Oswestry Road, Welshpool, Powys, SY21 9JR	NRW- WME041131	Using waste exemption	On a farm	Burning of waste as a fuel in a small appliance
А	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Disposing of waste exemption	On a farm	Burning waste in the open
A	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Using waste exemption	On a farm	Use of waste in construction
А	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Using waste exemption	On a farm	Use of waste for a specified purpose
A	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
А	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Disposing of waste exemption	On a farm	Deposit of waste from dredging of inland waters
А	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	391m N	The Moors Oswestry Road Y Trallwng SY219JR	NRW- WME019169	Using waste exemption	On a farm	Incorporation of ash into soil

This data is sourced from the Environment Agency and Natural Resources Wales.







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Site Outline

Recent industrial land uses

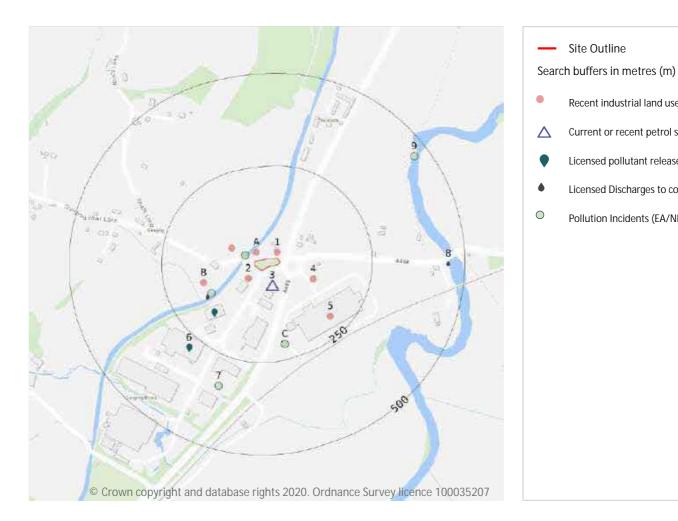
Current or recent petrol stations

Pollution Incidents (EA/NRW)

Licensed pollutant release (Part A(2)/B)

Licensed Discharges to controlled waters

# 4 Current industrial land use



# 4.1 Recent industrial land uses

#### Records within 250m

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on page 23

ID	Location	Company	Address	Activity	Category
1	16m N	Limekiln	Powys, SY21	Lime Kilns	Industrial Features
A	24m N	Limekilns (Disused)	Powys, SY21	Lime Kilns	Industrial Features
2	38m SW	PYC Group	Buttington Cross Enterprise Park, Buttington, Welshpool, Powys, SY21 8SL	Construction Completion Services	Construction Services







ID	Location	Company	Address	Activity	Category
А	73m NW	Buttington Wharf	Powys, SY21	Moorings and Unloading Facilities	Water
4	101m SE	Welshpool Livestock Sales (Cattle Market)	Powys, SY21	Livestock Markets	Food, Drink and Multi Item Retail
В	145m W	Enterprise Park	Powys, SY21	Business Parks and Industrial Estates	Industrial Features
5	198m SE	Welshpool Livestock Sales	Buttington Cross, Buttington, Welshpool, Powys, SY21 8SR	Livestock Markets	Food, Drink and Multi Item Retail

This data is sourced from Ordnance Survey.

# 4.2 Current or recent petrol stations

Records	within	500m
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Open, closed, under development and obsolete petrol stations.

#### Features are displayed on the Current industrial land use map on page 23

ID	Location	Company	Address	LPG	Status
3	48m SE	TEXACO	A483, Buttington Cross, Welshpool, Powys, SY21 8SL	No	Open

This data is sourced from Experian.

# 4.3 Electricity cables

Records within 500m			
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

# 4.4 Gas pipelines

Records within !	500m
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#### High pressure underground gas transmission pipelines.

This data is sourced from National Grid.





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#### Records within 500m

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

# 4.6 Control of Major Accident Hazards (COMAH)

#### Records within 500m

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

# 4.7 Regulated explosive sites

#### Records within 500m

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

# 4.8 Hazardous substance storage/usage

Records within 500m

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

# 4.9 Historical licensed industrial activities (IPC)

#### Records within 500m

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.







# 4.10 Licensed industrial activities (Part A(1))

#### Records within 500m

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.11 Licensed pollutant release (Part A(2)/B)

#### Records within 500m

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on page 23

ID	Location	Address	Details	
В	167m SW	Morland, Henfaes Lane, Welshpool, Powys, SY21 7BE	Process: Timber Manufacture Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
6	283m SW	Wi Pak, Unit 3 Buttington Business Park, Buttington Cross, Welshpool, Powys, SY21 8SL	0	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

# 4.12 Radioactive Substance Authorisations

# Records within 500m 0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.13 Licensed Discharges to controlled waters

Records within 500m

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991. Features are displayed on the Current industrial land use map on page 23





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ID	Location	Address	Details	
В	152m SW	3 & 4 CANAL COTTAGES, THE RHALLT, WELSHPOOL, POWYS	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: WQ/72/1288 Permit Version: 1 Receiving Water: UNDERGROUND STRATA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 11/07/1977 Effective Date: 11/07/1977 Revocation Date: -
8	455m E	BUTTINGTON CROSS BUSINESS PARK, BUTTINGTON CROSS, POWYS, SY3 8RA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: S/01/22720/S Permit Version: 1 Receiving Water: RIVER SEVERN	Status: SURRENDERED UNDER EPR 2010 Issue date: 15/11/1993 Effective Date: 15/11/1993 Revocation Date: 20/07/2010

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.14 Pollutant release to surface waters (Red List)

Records within 500m	Records	within	500m
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Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

#### 4.15 Pollutant release to public sewer

#### Records within 500m

#### Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.16 List 1 Dangerous Substances

#### Records within 500m

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.





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#### 4.17 List 2 Dangerous Substances

#### Records within 500m

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.18 Pollution Incidents (EA/NRW)

#### Records within 500m

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

#### Features are displayed on the Current industrial land use map on page 23

ID	Location	Details	
A	32m NW	Incident Date: 11/01/2017 Incident Identification: 1700171 Pollutant: Agricultural Materials and Waste Pollutant Description: Other Agricultural Material or Waste	Water Impact: Category 3 (Minor) Land Impact: No Details Air Impact: No Details
A	32m NW	Incident Date: 11/01/2017 Incident Identification: 1700171 Pollutant: - Pollutant Description: -	Water Impact: Category 3 (Minor) Land Impact: No Details Air Impact: No Details
В	138m SW	Incident Date: 16/07/2001 Incident Identification: 16801 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
С	208m S	Incident Date: 23/09/2016 Incident Identification: 1605796 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: No Details Land Impact: No Details Air Impact: Category 3 (Minor)
С	208m S	Incident Date: 23/09/2016 Incident Identification: 1605796 Pollutant: - Pollutant Description: -	Water Impact: No Details Land Impact: No Details Air Impact: Category 3 (Minor)
7	332m S	Incident Date: 05/11/2003 Incident Identification: 199895 Pollutant: Sewage Materials Pollutant Description: Final Effluent	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)







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ID	Location	Details	
9	460m NE	Incident Date: 04/06/2003 Incident Identification: 163211 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

# 4.19 Pollution inventory substances

#### Records within 500m

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

# 4.20 Pollution inventory waste transfers

#### Records within 500m

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

# 4.21 Pollution inventory radioactive waste

#### Records within 500m

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.





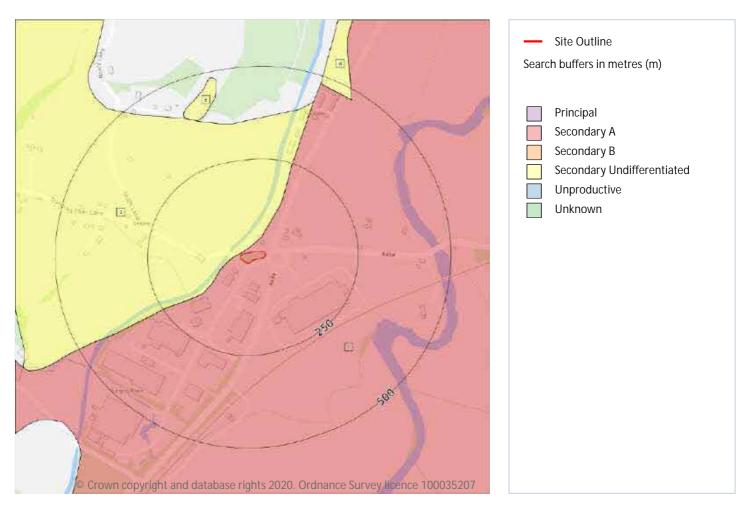
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Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# 5 Hydrogeology - Superficial aquifer



# 5.1 Superficial aquifer

#### Records within 500m

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on page 30

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	4m NW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type







ID	Location	Designation	Description
3	379m N	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	473m NE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.







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# Bedrock aquifer



# 5.2 Bedrock aquifer

Records within 500m 1				1	
Aqu	Aquifer status of groundwater held within bedrock geology.				
Fea	Features are displayed on the Bedrock aquifer map on page 32				
חו	Location	Designation	Description		

ID	LUCATION	Designation	Description
1	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

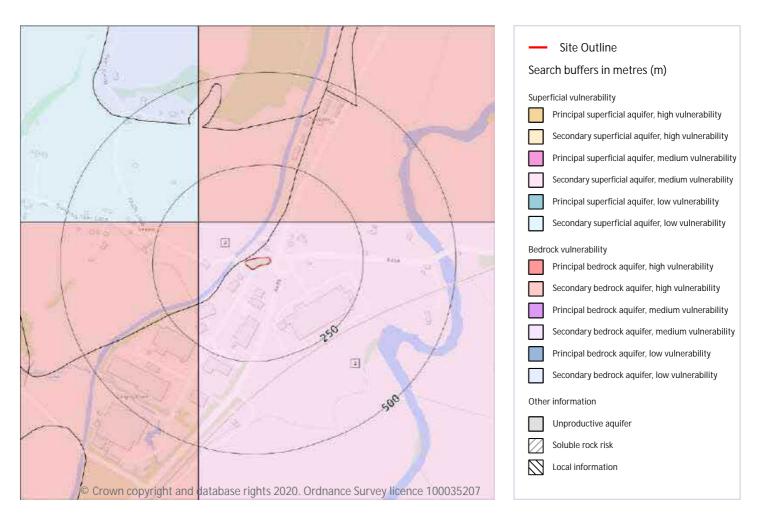






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# Groundwater vulnerability



# 5.3 Groundwater vulnerability

#### Records within 50m

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An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium Intermediate between high and low vulnerability.
- Low Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on page 33





ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
2	4m NW	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

# 5.4 Groundwater vulnerability- soluble rock risk

#### Records on site

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

# 5.5 Groundwater vulnerability- local information

#### Records on site

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



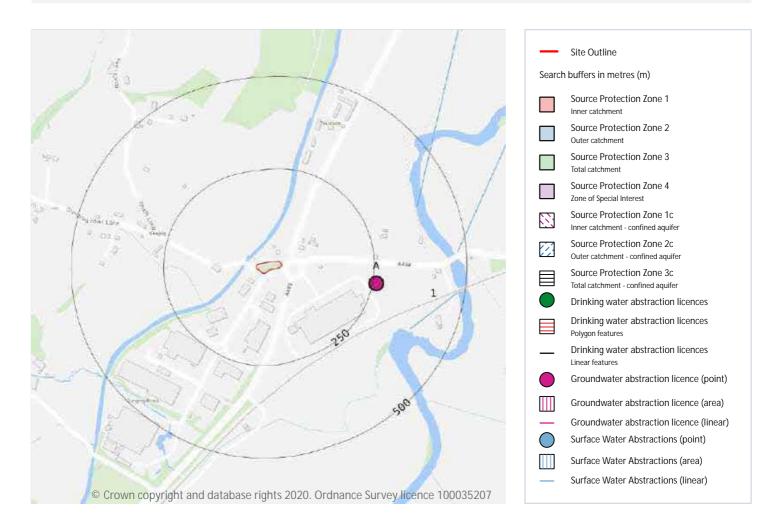


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Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Abstractions and Source Protection Zones



#### 5.6 Groundwater abstractions

#### Records within 2000m

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 35







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

ID	Location	Details	
A	259m E	Status: Historical Licence No: MD/054/0001/011 Details: General Washing/Process Washing Direct Source: Groundwater Midlands Region Point: BOREHOLE ADJ BUTTINGTON CROSS Data Type: Point Name: Welshpool Livestock Sales Limited Easting: 324450 Northing: 308844	Annual Volume (m <sup>3</sup> ): 45000 Max Daily Volume (m <sup>3</sup> ): 150 Original Application No: - Original Start Date: 10/02/2010 Expiry Date: 31/03/2022 Issue No: 2 Version Start Date: 24/06/2011 Version End Date: -
A	259m E	Status: Active Licence No: MD/054/0001/011 Details: General Washing / Process Washing - Medium Direct Source: - Point: - Data Type: Point Name: - Easting: 324450 Northing: 308844	Annual Volume (m <sup>3</sup> ): 45,000 Max Daily Volume (m <sup>3</sup> ): 182.40 Original Application No: - Original Start Date: Jun 24 2011 12:00AM Expiry Date: Mar 31 2022 12:00AM Issue No: - Version Start Date: - Version End Date: -
-	1903m S	Status: Historical Licence No: 18/54/01/0507 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: SEVERN BANKS - BOREHOLE/WELL Data Type: Point Name: LLOYD Easting: 323800 Northing: 307000	Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 05/10/1970 Expiry Date: - Issue No: 100 Version Start Date: 05/10/1970 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

# 5.7 Surface water abstractions

Records within 2000m		

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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 35







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

ID	Location	Details	
1	385m SE	Status: Historical Licence No: 18/54/01/0636 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: THE MOORS FARM BUTTINGTON- RIVER SEVERN -A Data Type: Line Name: SUCKLEY Easting: 324540 Northing: 308720	Annual Volume (m <sup>3</sup> ): 68182 Max Daily Volume (m <sup>3</sup> ): 3280 Original Application No: - Original Start Date: 30/11/1999 Expiry Date: 31/03/2018 Issue No: 4 Version Start Date: 29/06/2005 Version End Date: -
2	396m NE	Status: Historical Licence No: 18/54/01/0636 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: THE MOORS FARM BUTTINGTON - RIVER SEVERN-C Data Type: Line Name: SUCKLEY Easting: 324560 Northing: 309050	Annual Volume (m <sup>3</sup> ): 68182 Max Daily Volume (m <sup>3</sup> ): 3280 Original Application No: - Original Start Date: 30/11/1999 Expiry Date: 31/03/2018 Issue No: 4 Version Start Date: 29/06/2005 Version End Date: -
3	476m E	Status: Historical Licence No: 18/54/01/0636 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: THE MOORS FARM BUTTINGTON- RIVER SEVERN-B Data Type: Line Name: SUCKLEY Easting: 324670 Northing: 308930	Annual Volume (m <sup>3</sup> ): 68182 Max Daily Volume (m <sup>3</sup> ): 3280 Original Application No: - Original Start Date: 30/11/1999 Expiry Date: 31/03/2018 Issue No: 4 Version Start Date: 29/06/2005 Version End Date: -
-	1824m NE	Status: Historical Licence No: 18/54/01/0636 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: THE MOORS FARM BUTTINGTON - RIVER SEVERN-D Data Type: Line Name: SUCKLEY Easting: 325260 Northing: 310380	Annual Volume (m <sup>3</sup> ): 68182 Max Daily Volume (m <sup>3</sup> ): 3280 Original Application No: - Original Start Date: 30/11/1999 Expiry Date: 31/03/2018 Issue No: 4 Version Start Date: 29/06/2005 Version End Date: -







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

ID	Location	Details	
-	1967m SW	Status: Historical Licence No: 18/54/01/0169 Details: General Washing/Process Washing Direct Source: Surface Water Midlands Region Point: WELSHPOOL MARKET - SHROPSHIRE UNION CANAL Data Type: Point Name: BRITISH WATERWAYS BOARD Easting: 322770 Northing: 307460	Annual Volume (m <sup>3</sup> ): 27240 Max Daily Volume (m <sup>3</sup> ): 136.4 Original Application No: - Original Start Date: 24/01/1967 Expiry Date: 31/03/2009 Issue No: 102 Version Start Date: 18/04/2008 Version End Date: -
-	1967m SW	Status: Historical Licence No: MD/054/0001/006 Details: General Washing/Process Washing Direct Source: Surface Water Midlands Region Point: WELSHPOOL MARKET - SHROPSHIRE UNION CANAL Data Type: Point Name: BRITISH WATERWAYS BOARD Easting: 322770 Northing: 307460	Annual Volume (m <sup>3</sup> ): 27240 Max Daily Volume (m <sup>3</sup> ): 136.4 Original Application No: - Original Start Date: 01/04/2009 Expiry Date: 31/03/2011 Issue No: 1 Version Start Date: 01/04/2009 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

#### 5.8 Potable abstractions

#### Records within 2000m

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 5.9 Source Protection Zones

#### Records within 500m

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.





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### 5.10 Source Protection Zones (confined aquifer)

#### Records within 500m

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

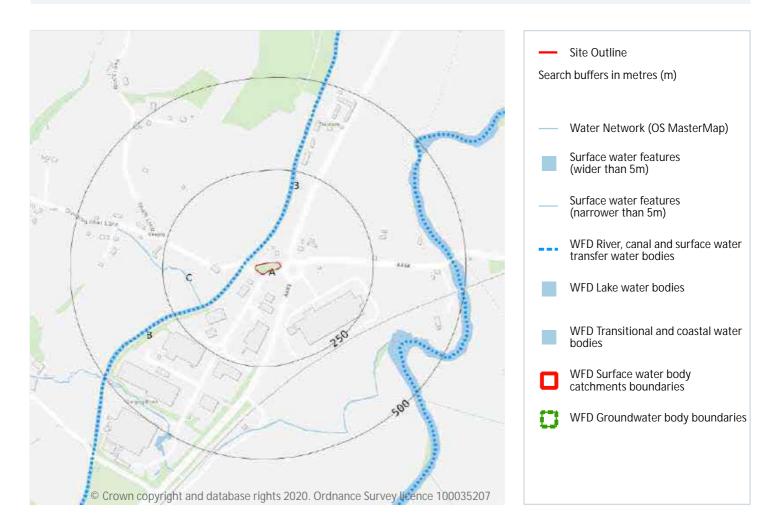






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# 6 Hydrology



# 6.1 Water Network (OS MasterMap)

#### Records within 250m

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

#### Features are displayed on the Hydrology map on page 40

ID	Location	Type of water feature	Ground level	Permanence	Name
3	27m NW	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Montgomery Canal







ID	Location	Type of water feature	Ground level	Permanence	Name
С	172m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
В	174m SW	Canal. A manmade watercourse for inland navigation.	On ground surface	Watercourse contains water year round (in normal circumstances)	Montgomery Canal

This data is sourced from the Ordnance Survey.

## 6.2 Surface water features

Records within 250m	3	}

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on page 40

This data is sourced from the Ordnance Survey.

### 6.3 WFD Surface water body catchments

#### Records on site

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on page 40

ID	Location	Туре	Water body catchment	Water body ID	Operational catchment	Management catchment
А	On site	River WB catchment	Severn - conf R Camlad to conf Bele Bk	GB109054049700	Severn Camlad to Trederwen	Severn Uplands

This data is sourced from the Environment Agency and Natural Resources Wales.







### 6.4 WFD Surface water bodies

#### Records identified

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on page 40

ID	Location	Туре	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	27m NW	Canal	Montgomery Canal, southern section	GB70910253				2016
10	388m SE	River	Severn - conf R Camlad to conf Bele Bk	GB109054049700	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

### 6.5 WFD Groundwater bodies

## Records on site

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on page 40

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
А	On site	Severn Uplands - Lower Palaeozoic	GB40902G205300	Poor	Poor	Good	2016

This data is sourced from the Environment Agency and Natural Resources Wales.





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# 7 River and coastal flooding

### 7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

#### Records within 50m

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

# 7.2 Historical Flood Events

#### Records within 250m

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

## 7.3 Flood Defences

Records within 250m

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 7.4 Areas Benefiting from Flood Defences

### Records within 250m

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.





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### 7.5 Flood Storage Areas

Records within 250m

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.







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# River and coastal flooding - Flood Zones

## 7.6 Flood Zone 2

Records within 50m

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

# 7.7 Flood Zone 3

Records within 50m

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

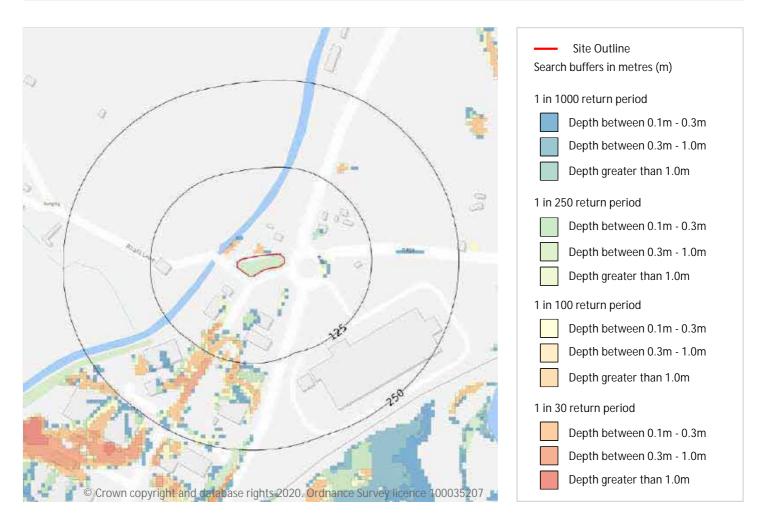






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# 8 Surface water flooding



## 8.1 Surface water flooding

#### Highest risk on site

Negligible

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on page 46

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.







#### The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

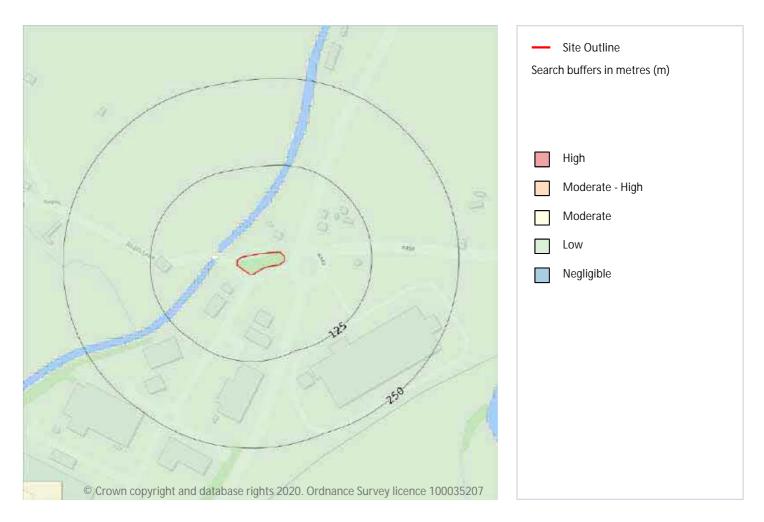






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# 9 Groundwater flooding



### 9.1 Groundwater flooding

Highest risk on site	Low
Highest risk within 50m	Low

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

#### Features are displayed on the Groundwater flooding map on page 48

This data is sourced from Ambiental Risk Analytics.

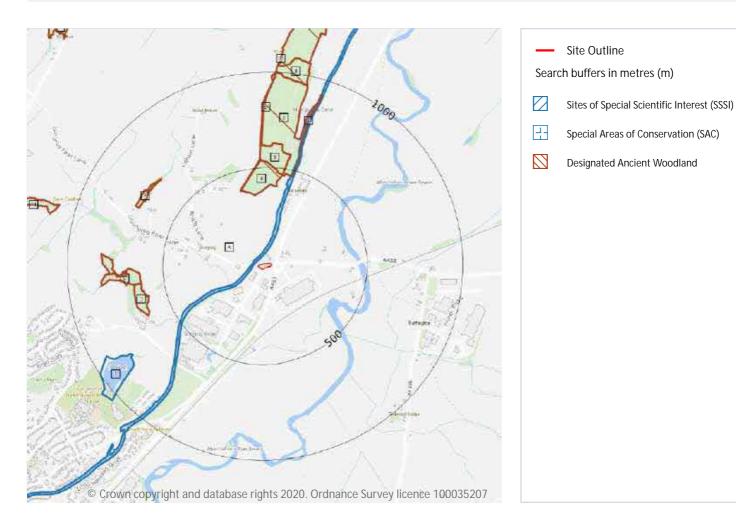






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# 10 Environmental designations



# 10.1 Sites of Special Scientific Interest (SSSI)

#### Records within 2000m

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on page 49

ID	Location	Name	Data source
А	21m NW	Montgomery Canal	Natural Resources Wales







ID	Location	Name	Data source
7	802m SW	Gungrog Flash	Natural Resources Wales

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

# 10.2 Conserved wetland sites (Ramsar sites)

#### Records within 2000m

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

# 10.3 Special Areas of Conservation (SAC)

#### Records within 2000m

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

#### Features are displayed on the Environmental designations map on page 49

ID	Location	Name	Features of interest	Habitat description	Data source
А	21m NW	Montgome ry Canal	Otter; Floating water-plantain.	Inland water bodies (Standing water, Running water); Heath, Scrub, Maquis and Garrigue, Phygrana; Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites); Dry grassland, Steppes	Natural Resources Wales

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

# 10.4 Special Protection Areas (SPA)

#### Records within 2000m

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



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#### 10.5 National Nature Reserves (NNR)

#### Records within 2000m

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

### 10.6 Local Nature Reserves (LNR)

#### Records within 2000m

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

### 10.7 Designated Ancient Woodland

#### Records within 2000m

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

#### Features are displayed on the Environmental designations map on page 49

ID	Location	Name	Woodland Type
В	361m N	Unknown	Restored Ancient Woodland Site
В	385m N	Unknown	Restored Ancient Woodland Site
1	464m N	Unknown	Plantation on Ancient Woodland Site
2	466m N	Unknown	Restored Ancient Woodland Site
3	591m W	Unknown	Ancient Semi Natural Woodland
4	605m N	Unknown	Ancient Semi Natural Woodland
5	618m N	Unknown	Restored Ancient Woodland Site
С	620m W	Unknown	Ancient Semi Natural Woodland
6	677m NW	Unknown	Restored Ancient Woodland Site
С	690m W	Unknown	Ancient Semi Natural Woodland





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ID	Location	Name	Woodland Type
8	949m N	Unknown	Plantation on Ancient Woodland Site
9	1032m N	Unknown	Restored Ancient Woodland Site
10	1037m N	Unknown	Restored Ancient Woodland Site
11	1089m W	Unknown	Ancient Semi Natural Woodland
12	1229m N	Unknown	Restored Ancient Woodland Site
-	1343m N	Unknown	Restored Ancient Woodland Site
-	1477m N	Unknown	Plantation on Ancient Woodland Site
-	1477m N	Unknown	Plantation on Ancient Woodland Site
E	1564m NW	Unknown	Ancient Semi Natural Woodland
E	1610m NW	Unknown	Restored Ancient Woodland Site
-	1650m NW	Unknown	Restored Ancient Woodland Site
-	1691m SW	Unknown	Restored Ancient Woodland Site
-	1709m N	Unknown	Ancient Semi Natural Woodland
-	1752m N	Unknown	Restored Ancient Woodland Site
-	1764m SE	Unknown	Plantation on Ancient Woodland Site
-	1802m NW	Unknown	Ancient Semi Natural Woodland
-	1822m N	Unknown	Ancient Semi Natural Woodland
-	1828m NW	Unknown	Ancient Semi Natural Woodland
-	1906m SE	Unknown	Ancient Semi Natural Woodland
-	1911m SE	Unknown	Ancient Semi Natural Woodland
-	1915m N	Unknown	Plantation on Ancient Woodland Site
-	1916m E	Unknown	Ancient Semi Natural Woodland
-	1918m E	Unknown	Ancient Semi Natural Woodland
-	1940m N	Unknown	Restored Ancient Woodland Site

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.







### 10.8 Biosphere Reserves

#### Records within 2000m

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

### 10.9 Forest Parks

Records within 2000m

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

### 10.10 Marine Conservation Zones

#### Records within 2000m

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

### 10.11 Green Belt

Records within 2000m0Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

## 10.12 Proposed Ramsar sites

Records within 2000m

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



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### 10.13 Possible Special Areas of Conservation (pSAC)

#### Records within 2000m

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

### 10.14 Potential Special Protection Areas (pSPA)

#### Records within 2000m

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

### 10.15 Nitrate Sensitive Areas

#### Records within 2000m

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

# 10.16 Nitrate Vulnerable Zones

#### Records within 2000m

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.





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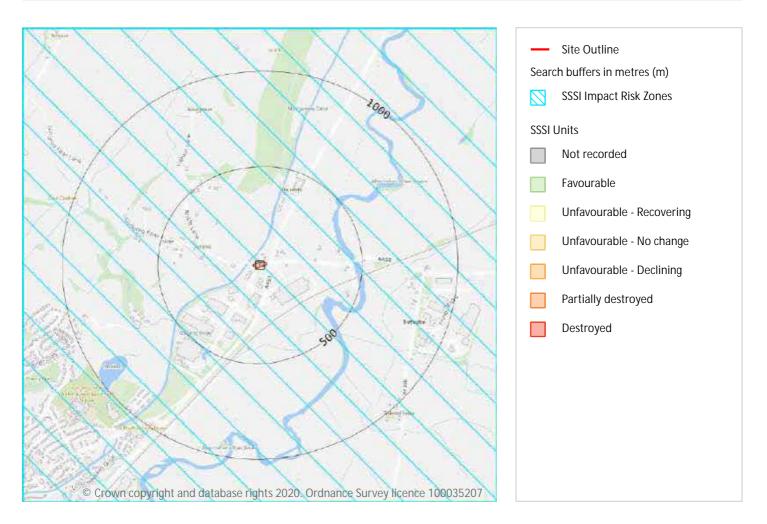
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# SSSI Impact Zones and Units



### 10.17 SSSI Impact Risk Zones

#### Records on site

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on page 55

	D	Location	Type of developments requiring consultation
1		On site	Air pollution - Livestock & poultry units with floorspace > 500m <sup>2</sup> , slurry lagoons > 4000m <sup>2</sup> . Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion







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This data is sourced from Natural England.

## 10.18 SSSI Units

Records within 2000m

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

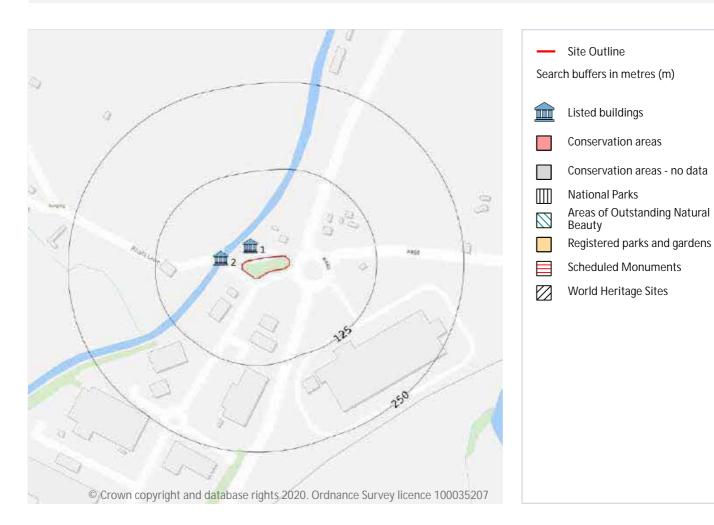






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# 11 Visual and cultural designations



## 11.1 World Heritage Sites

#### Records within 250m

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.







### 11.2 Area of Outstanding Natural Beauty

#### Records within 250m

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

## 11.3 National Parks

Records within 250m

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic wellbeing of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

## 11.4 Listed Buildings

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on page 57

ID	Location	Name	Grade	Reference Number	Listed date
1	21m N	Buttington Limekilns, Built Into The E Bank Of The Montgomeryshire Canal Immediately N Of Bridge 115		16753	29/02/1996
2	32m W	Bridge 115 Over The Montgomeryshire Canal, Carries The Lane Over The Canal At Buttington Wharf, Immediately W Of The Roundabout On The A483 At Buttington Cross		16752	29/02/1996

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.





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### 11.5 Conservation Areas

#### Records within 250m

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

## 11.6 Scheduled Ancient Monuments

#### Records within 250m

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

## 11.7 Registered Parks and Gardens

#### Records within 250m

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.





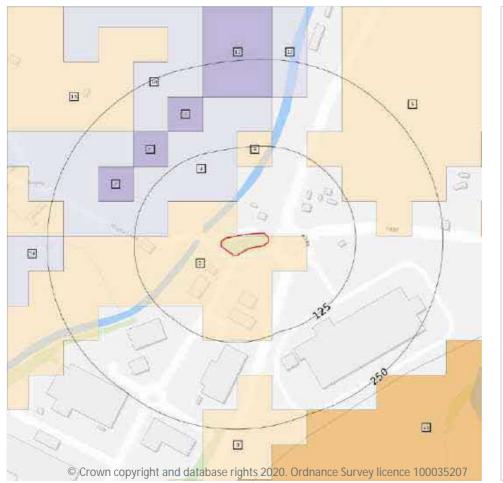
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# 12 Agricultural designations





## 12.1 Agricultural Land Classification

#### Records within 250m

14

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on page 60

ID	Location	Classification	Description
2	On site	Grade 3a	Good to moderate quality agricultural land
3	49m N	Grade 3b	Moderate quality agricultural land
4	96m N	Grade 3a	Good to moderate quality agricultural land





ID	Location	Classification	Description
5	114m NE	Grade 3a	Good to moderate quality agricultural land
6	132m NW	Grade 4	Poor quality agricultural land
7	139m NW	Grade 4	Poor quality agricultural land
8	157m N	Grade 4	Poor quality agricultural land
9	172m S	Grade 3a	Good to moderate quality agricultural land
10	174m NW	Grade 3b	Moderate quality agricultural land
11	196m N	Grade 4	Poor quality agricultural land
12	196m N	Grade 3b	Moderate quality agricultural land
13	202m NW	Grade 3a	Good to moderate quality agricultural land
14	227m W	Grade 3b	Moderate quality agricultural land
15	244m S	Grade 2	Good quality agricultural land

This data is sourced from Natural Resources Wales.

### 12.2 Open Access Land

#### Records within 250m

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

### 12.3 Tree Felling Licences

#### Records within 250m

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.





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### 12.4 Environmental Stewardship Schemes

#### Records within 250m

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.

### 12.5 Countryside Stewardship Schemes

Records within 250m

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.







# 13 Habitat designations

## 13.1 Priority Habitat Inventory

Records within 250m

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

### 13.2 Habitat Networks

Records within 250m

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

## 13.3 Open Mosaic Habitat

Records within 250m

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

## 13.4 Limestone Pavement Orders

Records within 250m

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



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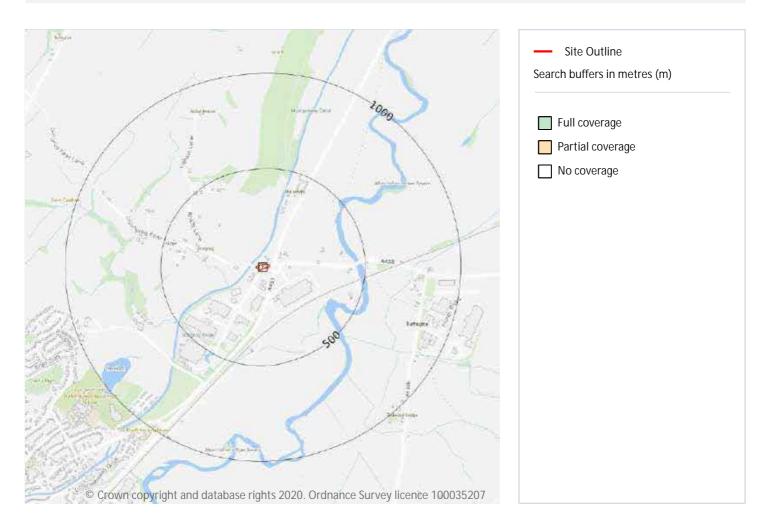
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# 14 Geology 1:10,000 scale - Availability



## 14.1 10k Availability

#### Records within 500m

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on page 64

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.







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# Geology 1:10,000 scale - Artificial and made ground

## 14.2 Artificial and made ground (10k)

Records within 500m

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.







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# Geology 1:10,000 scale - Superficial

### 14.3 Superficial geology (10k)

Records within 500m

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

### 14.4 Landslip (10k)

Records within 500m

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

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# Geology 1:10,000 scale - Bedrock

## 14.5 Bedrock geology (10k)

Records within 500m

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

This data is sourced from the British Geological Survey.

## 14.6 Bedrock faults and other linear features (10k)

#### Records within 500m

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

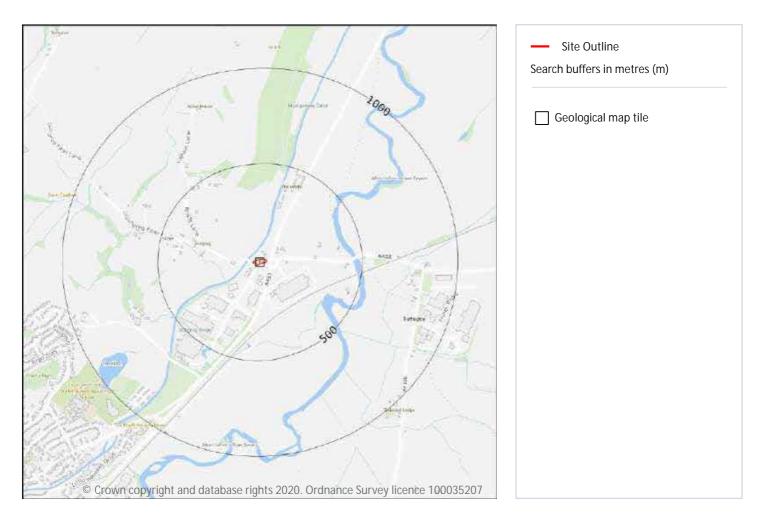






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# 15 Geology 1:50,000 scale - Availability



### 15.1 50k Availability

#### Records within 500m

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on page 68

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW151_welshpool

This data is sourced from the British Geological Survey.







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# Geology 1:50,000 scale - Artificial and made ground

### 15.2 Artificial and made ground (50k)

Records within 500m

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

## 15.3 Artificial ground permeability (50k)

Records within 50m

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).





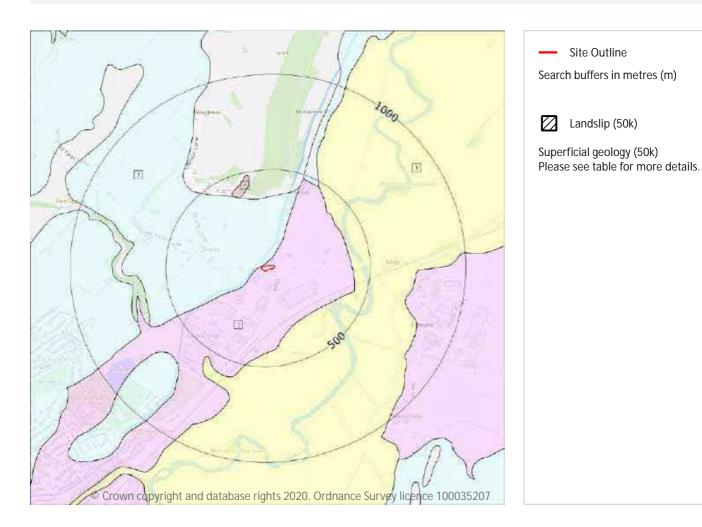


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Site Outline

Landslip (50k)

# Geology 1:50,000 scale - Superficial



## 15.4 Superficial geology (50k)

#### Records within 500m

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on page 70

ID	Location	LEX Code	Description	Rock description
1	On site	GFNQD-XSV	GLACIOFLUVIAL FAN DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	4m NW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	301m SE	ALV-XVSZC	ALLUVIUM	GRAVEL, SAND, SILT AND CLAY







2

ID	Location	LEX Code	Description	Rock description
4	379m N	HEAD- XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

# 15.5 Superficial permeability (50k)

#### Records within 50m

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	Very High	High
4m W	Mixed	High	Low

This data is sourced from the British Geological Survey.

# 15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

# 15.7 Landslip permeability (50k)

	Records within 50m	0	
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A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

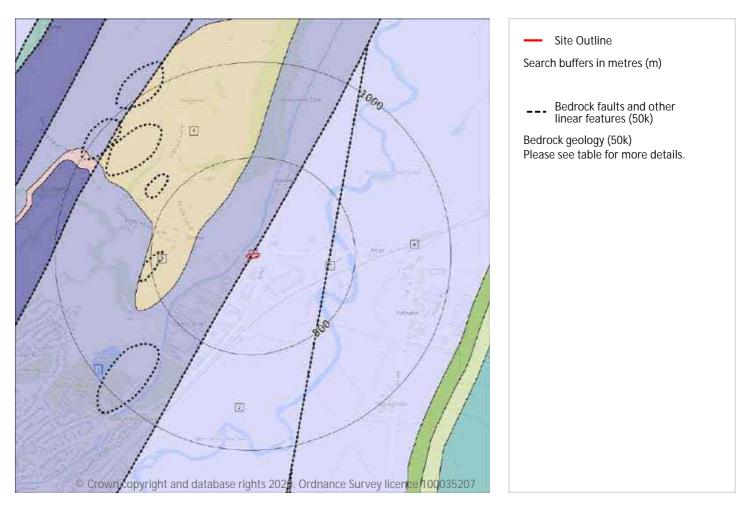






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# Geology 1:50,000 scale - Bedrock



## 15.8 Bedrock geology (50k)

#### Records within 500m

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on page 72

ID	Location	LEX Code	Description	Rock age
1	On site	On site NGF-MDSS NANTGLYN FLAGS FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE		-
2	On site		FORDEN MUDSTONE FORMATION - MUDSTONE	
Ζ	On site	FMF-MDST		-







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ID	Location	LEX Code	Description	Rock age
6	362m E	STHO-MDST	STONE HOUSE SHALE FORMATION - MUDSTONE	-

This data is sourced from the British Geological Survey.

## 15.9 Bedrock permeability (50k)

Records within 50m	2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability	
On site	Fracture	Low	Low	
On site	Fracture	Low	Low	

This data is sourced from the British Geological Survey.

### 15.10 Bedrock faults and other linear features (50k)

#### Records within 500m

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

#### Features are displayed on the Geology 1:50,000 scale - Bedrock map on page 72

ID	Location	Category	Description
3	On site	FAULT	Fault, inferred
5	362m E	FAULT	Fault, inferred
7	437m W	LANDFORM	Drumlin, form line at base

This data is sourced from the British Geological Survey.

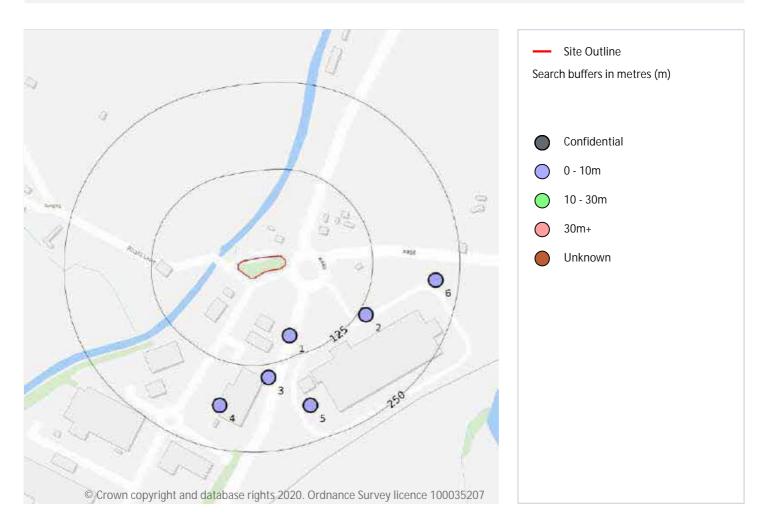






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# 16 Boreholes



## 16.1 BGS Boreholes

#### Records within 250m

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

### Features are displayed on the Boreholes map on page 74

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	96m S	324200 308790	WELSHPOOL BY-PASS. 29R	4.27	Ν	<u>141511</u>
2	136m SE	324310 308820	WELSHPOOL BY-PASS. 30R	2.44	Ν	141512
3	144m S	324170 308730	WELSHPOOL BY-PASS. 28R	2.44	Ν	<u>141510</u>







Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	188m S	324100 308690	WELSHPOOL BY-PASS. 27R	2.44	Ν	<u>141509</u>
5	199m SE	324230 308690	WELSHPOOL BY-PASS. 33R	4.57	Ν	<u>141515</u>
6	217m E	324410 308870	WELSHPOOL BY-PASS. 31R	2.44	Ν	<u>141513</u>

This data is sourced from the British Geological Survey.







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# 17 Natural ground subsidence - Shrink swell clays



## 17.1 Shrink swell clays

Records within 50m	1
The potential hazard presented by soils that absorb water when wet (making them swell), and lose w they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of c	
soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).	

Features are displayed on the Natural ground subsidence - Shrink swell clays map on page 76

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

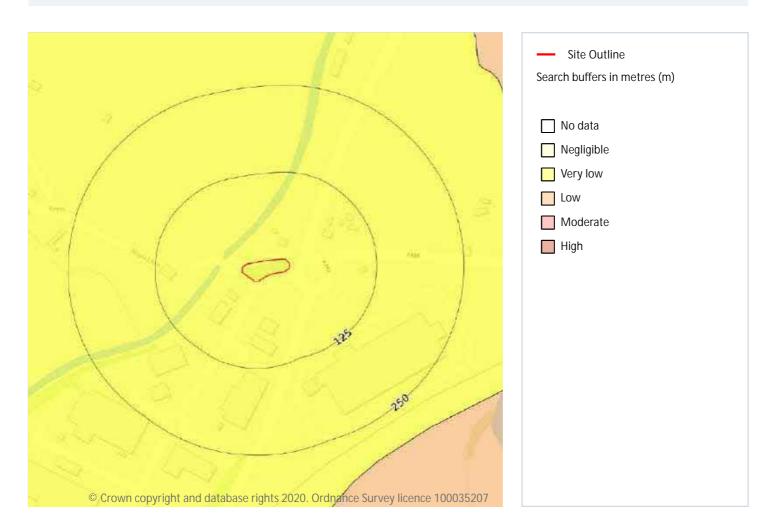






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# Natural ground subsidence - Running sands



## 17.2 Running sands

#### Records within 50m

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on page 77

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

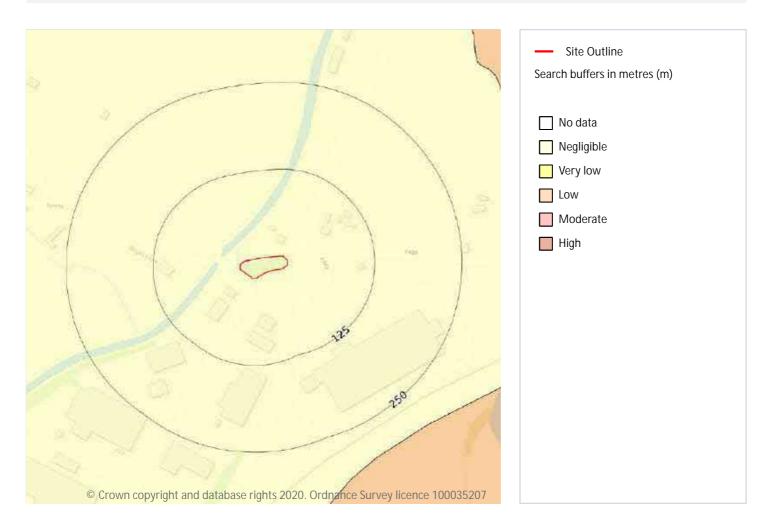
This data is sourced from the British Geological Survey.







# Natural ground subsidence - Compressible deposits



## 17.3 Compressible deposits

#### Records within 50m

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on page 78

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.

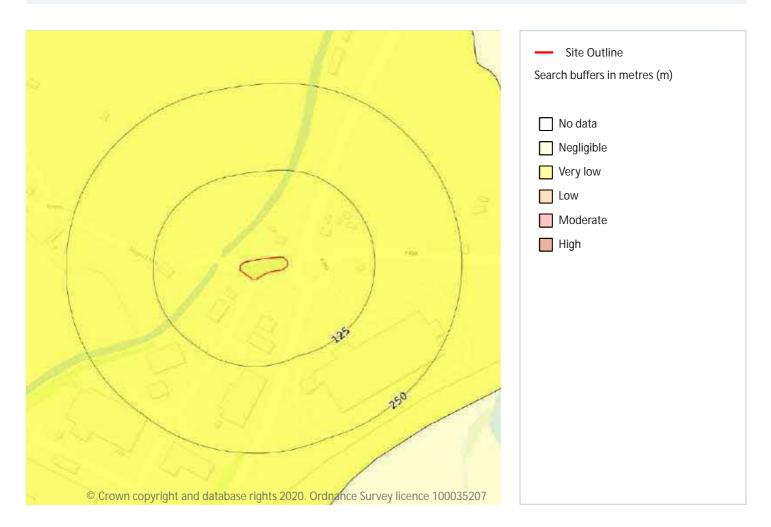






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# Natural ground subsidence - Collapsible deposits



## 17.4 Collapsible deposits

#### Records within 50m

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on page 79

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

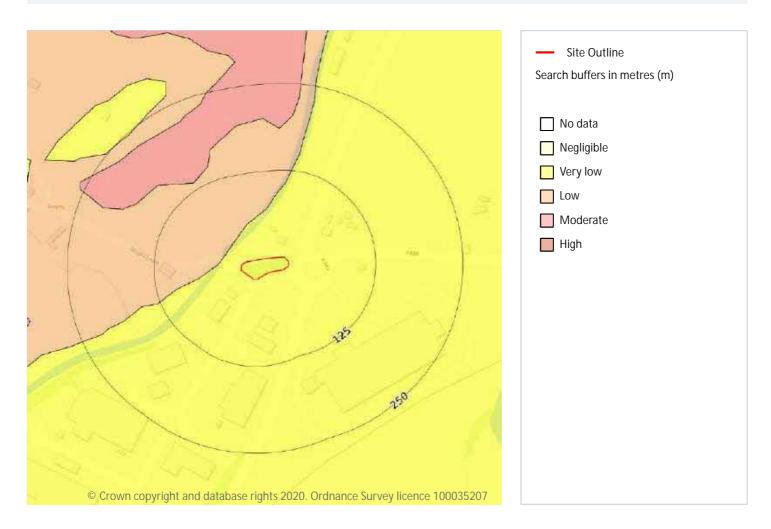






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# Natural ground subsidence - Landslides



### 17.5 Landslides

Records within 50m

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The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on page 80

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.







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Location	Hazard rating	Details
28m NW	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

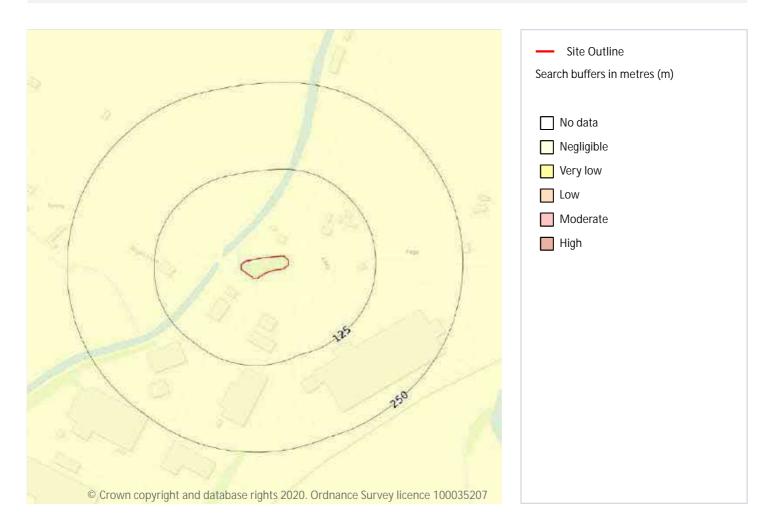
This data is sourced from the British Geological Survey.







# Natural ground subsidence - Ground dissolution of soluble rocks



## 17.6 Ground dissolution of soluble rocks

#### Records within 50m

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on page 82

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.

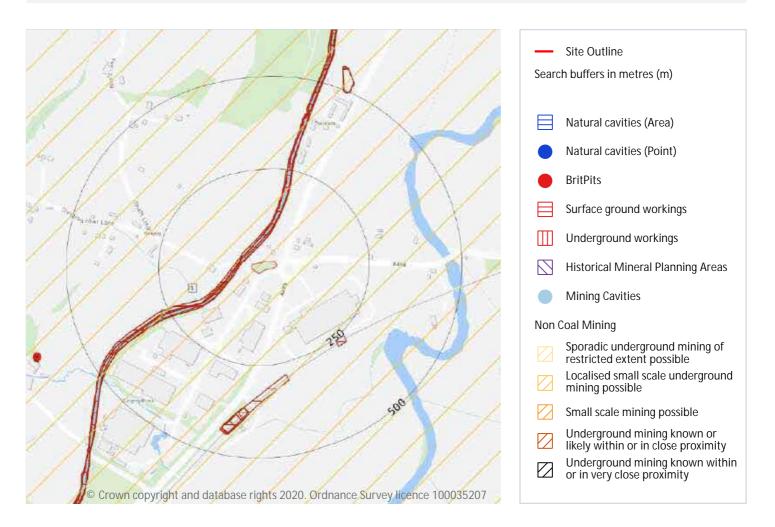






Ref: CMAPS-CM-906208-29721-021020EDRGEO Your ref: 29721 Grid ref: 324160 308888

# 18 Mining, ground workings and natural cavities



### 18.1 Natural cavities

#### Records within 500m

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Peter Brett Associates (PBA).







### 18.2 BritPits

Records within 500m

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

### 18.3 Surface ground workings

Records within 25
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Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on page 83

ID	Location	Land Use	Year of mapping	Mapping scale
А	22m NW	Canal	1949	1:10560
А	22m NW	Canal	1884	1:10560
А	24m NW	Canal	1938	1:10560
А	30m NW	Disused Canal	1976	1:10000
А	30m NW	Disused Canal	1960	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

## 18.4 Underground workings

Records within 1000m											0													
							~		0												<i>c</i>			

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

## 18.5 Historical Mineral Planning Areas

Records within 500m

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.





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This data is sourced from the British Geological Survey.

## 18.6 Non-coal mining

#### Records within 1000m

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining, ground workings and natural cavities map on page 83

ID	Location	Name	Commodity	Class	Likelihood
1	On site	Berwyn Hills	Vein Mineral	В	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	805m E	Berwyn Hills	Vein Mineral	В	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered

This data is sourced from the British Geological Survey.

## 18.7 Mining cavities

Records v	vithin 1000m				0	
		 <b>C</b> 1 1	 			

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Peter Brett Associates (PBA).

## 18.8 JPB mining areas

Records on site

Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.







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Location	Details
On site	Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

This data is sourced from Johnson Poole and Bloomer.

## 18.9 Coal mining

#### Records on site

#### Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

#### 18.10 Brine areas

#### Records on site

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

## 18.11 Gypsum areas

#### Records on site

#### Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

## 18.12 Tin mining

#### Records on site

#### Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.







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## 18.13 Clay mining

#### Records on site

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

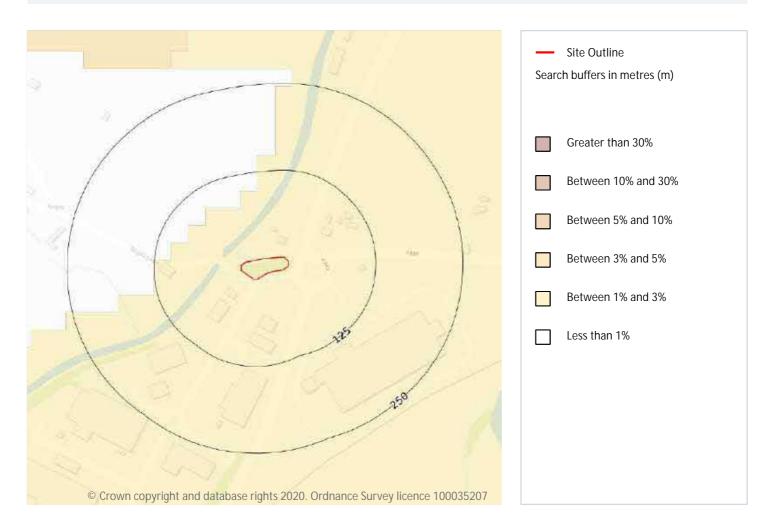






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# 19 Radon



## 19.1 Radon

#### Records on site

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on page 88

Location	Estimated properties affected	Radon Protection Measures required
On site	Between 1% and 3%	None

This data is sourced from the British Geological Survey and Public Health England.







# 20 Soil chemistry

## 20.1 BGS Estimated Background Soil Chemistry

#### Records within 50m

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km<sup>2</sup>. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km<sup>2</sup>; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
4m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
13m N	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

## 20.2 BGS Estimated Urban Soil Chemistry

#### Records within 50m

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km<sup>2</sup>).

This data is sourced from the British Geological Survey.

## 20.3 BGS Measured Urban Soil Chemistry

#### Records within 50m

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km<sup>2</sup>.

This data is sourced from the British Geological Survey.





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# 21 Railway infrastructure and projects

## 21.1 Underground railways (London)

Records within 250m

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

## 21.2 Underground railways (Non-London)

#### Records within 250m

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

## 21.3 Railway tunnels

Records within 250m

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

## 21.4 Historical railway and tunnel features

Records within 250m

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

## 21.5 Royal Mail tunnels

Records within 250m

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.





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This data is sourced from Groundsure/the Postal Museum.

## 21.6 Historical railways

#### Records within 250m

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

## 21.7 Railways

Records within 250m

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. This data is sourced from Ordnance Survey and OpenStreetMap.

## 21.8 Crossrail 1

Records within 500m

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

## 21.9 Crossrail 2

Records within 500m

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

## 21.10 HS2

#### Records within 500m

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.







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# Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <u>https://www.groundsure.com/sources-reference</u>.

# Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <u>https://www.groundsure.com/terms-and-conditions-jan-2020/</u>.

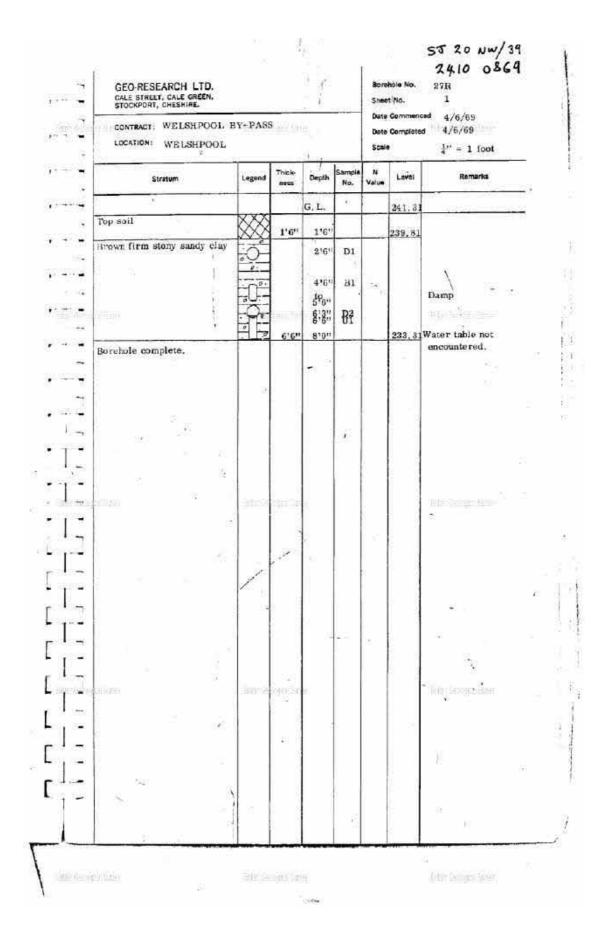




# APPENDIX C

**BGS Borehole Records** 





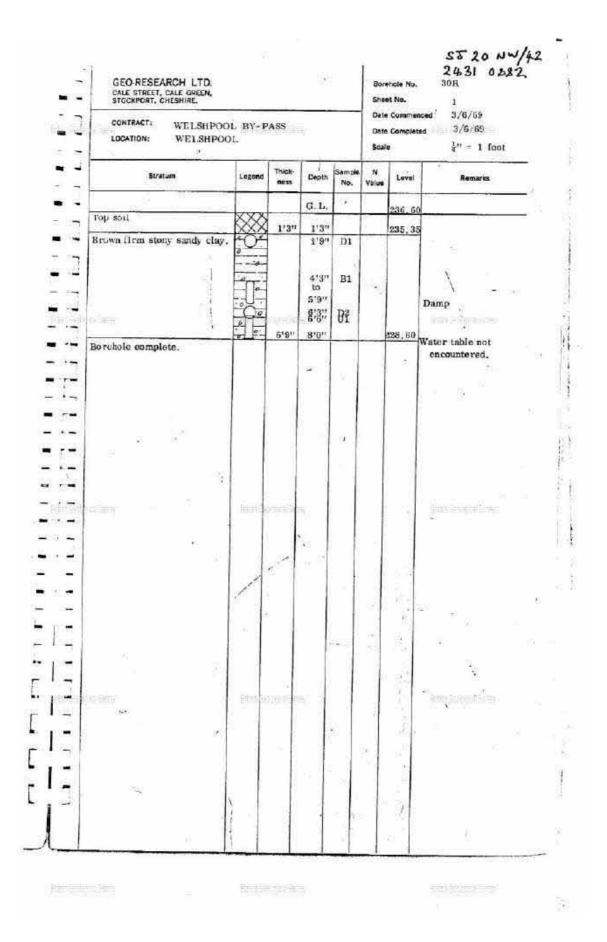


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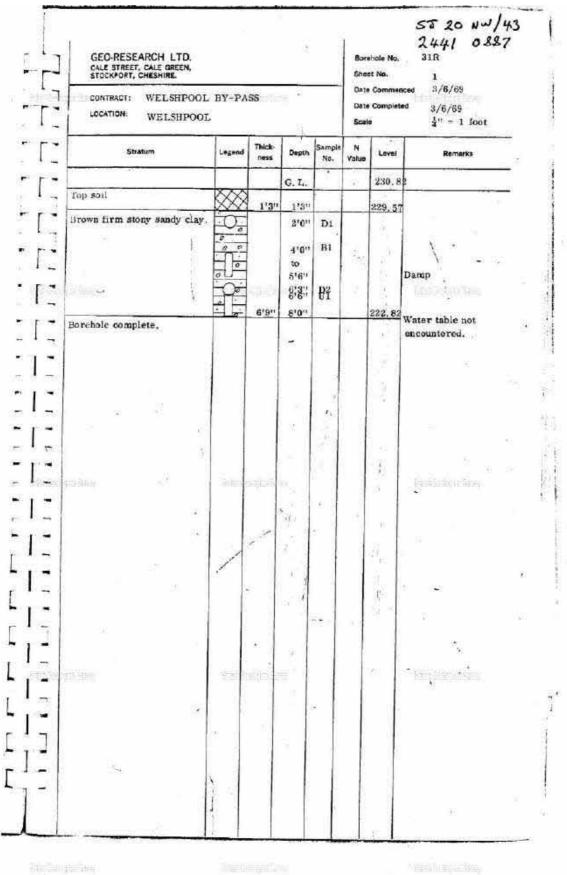


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# APPENDIX D

Preliminary Conceptual Model



## Table A: Potential Receptors to be Considered in the Preliminary Conceptual Model

DOTENTIAL		Include
POTENTIAL RECEPTOR	COMMENTS	
RECEIVER		PCM
PROPERTY: Other		
On Site		
Crops	None intended on site	×
Domestic Produce	None anticipated on site	×
Livestock	None anticipated on site	×
Domestic Animals	Unlikely	×
Game	Unlikely	×
Off Site	Desething in fields some on the set	
Crops	Possibly in fields surrounding site	_
Domestic Produce	Possibly in houses north-east of site	_
Livestock	Possibly in fields surrounding site	
Domestic Animals Game	May belong to adjacent residents	
	Possibly in fields surrounding site	
PROPERTY: Buildings On Site		
Un Site	Commercial Dreporty convices flore	
Off Cito	Commercial Property, services, flora	
Off Site	Desidential Droportion commercial proportion convince flore	
HUMANS	Residential Properties, commercial properties, services, flora	
On Site		
Customers	Customore	
Construction	Customers During ground excavations	
Workers	During ground excavations	
Employees	Coffee Shop Employees, Maintenance Person(s)	
Surface water users	No current surface water abstractions located on site	×
Off Site		
Residents	Residents located to the north-east of the site	
Recreational users	Recreational Walkers/users of canal walk	
Groundwater users	No groundwater abstractions within 250 m.	×
Controlled Waters		
On Site		
Surface Waters	There are no surface water features on site.	×
Groundwater	The superficial Glaciofluvial Fan Deposits are classified as a Secondary A Aquifer and	1000
	the bedrock is classified as a Secondary B Aquifer. Both are considered to represent	
	potential receptors. Based on the available published geological records it is possible	
	that both of these aquifers are in hydraulic continuity. Notwithstanding, a number of	
	BGS records for boreholes drilled within the vicinity of the site suggest that Boulder	
	Clay is present where 'Glaciofluvial Fan Deposits' are noted as the published geology.	
	The likely presence of laterally continuous impermeable superficial deposits across the	
	majority site will likely inhibit vertical migration of contamination to the underlying	
	bedrock. It may be prudent to prove the presence of boulder clay at the site.	1.1.5.1
Off Site		
Controlled Waters	There are no surface water features located on site. The Montgomery Canal runs	
	south-west to north some 10 m west of the site and is noted to contain water all year	And a second second
Factorial Systems	round and is considered a potential receptor.	
Ecological Systems		
On/Off Site	The site is considered to have the notantial to effect the contract site in the CO	
SSSIs, national nature	The site is considered to have the potential to affect two ecological systems identified	
reserves, SACs etc	as a statutory receptors in the DETR Circular 01/2006. These include a Special Area of	
	Conservation (Otters and Floating water-plantain) and a Site of Special Scientific Interest within Montgomery Canal which is situated some 10 m west of the site. The	
	canal should be considered to represent a potential receptor.	
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Link	Source	Hazard	Transport Mechanism	Pathway	Medium of Exposure	Receptor	Risk Summary*
1	Contaminated soils	Direct contact /ingestion of soil or dust	Direct contact with contaminated soil	Dermal contact/ingestion of soil at surface	Soil	Humans (on-site/off- site), domestic pets	Low
2	Contaminated soils	Particulate inhalation	Wind blown particulates	Inhalation of particulates	Air	Humans (on-site/off- site), domestic pets	Low
3	Contaminated Soils	Inhalation of Ground Gas	Degradation of contaminants generating ground gas through unsaturated zone to soil leading to inhalation	Inhalation of Gases	Air	Humans (on-site/ off-site, domestic pets)	Low
4	Contaminated Soils	Inhalation of Vapours	Volatilisation of Organic Compounds and migration to property	Inhalation of Vapours	Air	Humans (on-site/ off-site, domestic pets	Low
5	Contaminated Soils	Damage to structure/services	Direct contact of contaminants with building structures/services	Direct contact	Soil/Water	Flora, Services, concrete	Low
6	Contaminated Soils	Degradation of perched water quality	Dissolution or <mark>suspension of contaminants into perched waters and migration to off-site receptors off-site receptors off-site receptors off-site receptors off-site receptors off site receptors off site receptors of the second second</mark>	Dissolution or Suspension	Water	Perched Waters, Montgomery Canal (also an ecological receptor)	Low
7	Contaminated Soils	Pollution of underlying groundwater	Dissolution or suspension of contaminants into groundwaters (Superficial Aquifer within Glaciofluvial Fan Deposits and Bedrock Aquifer)	Dissolution or Suspension	Water	Groundwaters	Low

 Table B:
 Preliminary Conceptual Model

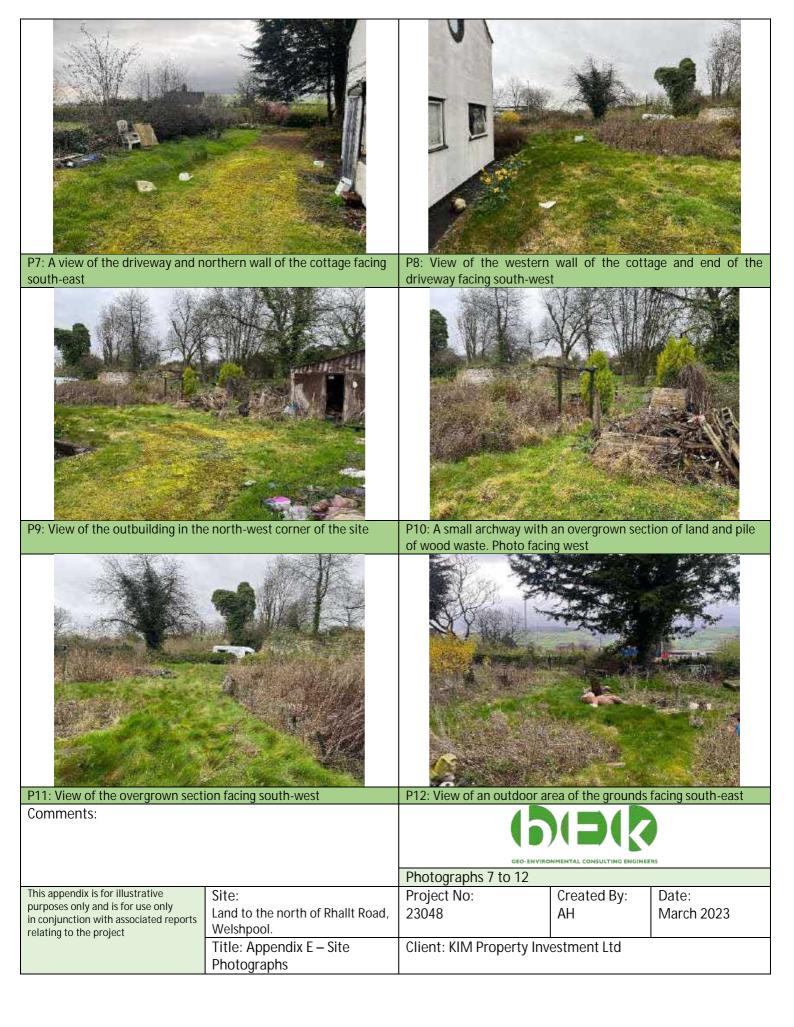
#### \*Relative Risk Screening and Prioritisation for further Investigation & or Assessment

High	Higher probability of occurrence and identification of primary sources of contamination with respect to most sensitive receptors.
Medium	Pollutant linkage generally dependent on the presence of other primary pollutant linkages and/or where pollutant linkage generally associated with less sensitive receptors.
Low	Lower probability of occurrence such as based on requirement for significant migration pathway or where pollutant linkage requires the presence of source contaminants at concentration likely to be much
	higher than other identified pollutant linkages.

# <u>APPENDIX E</u>

Site Photographs

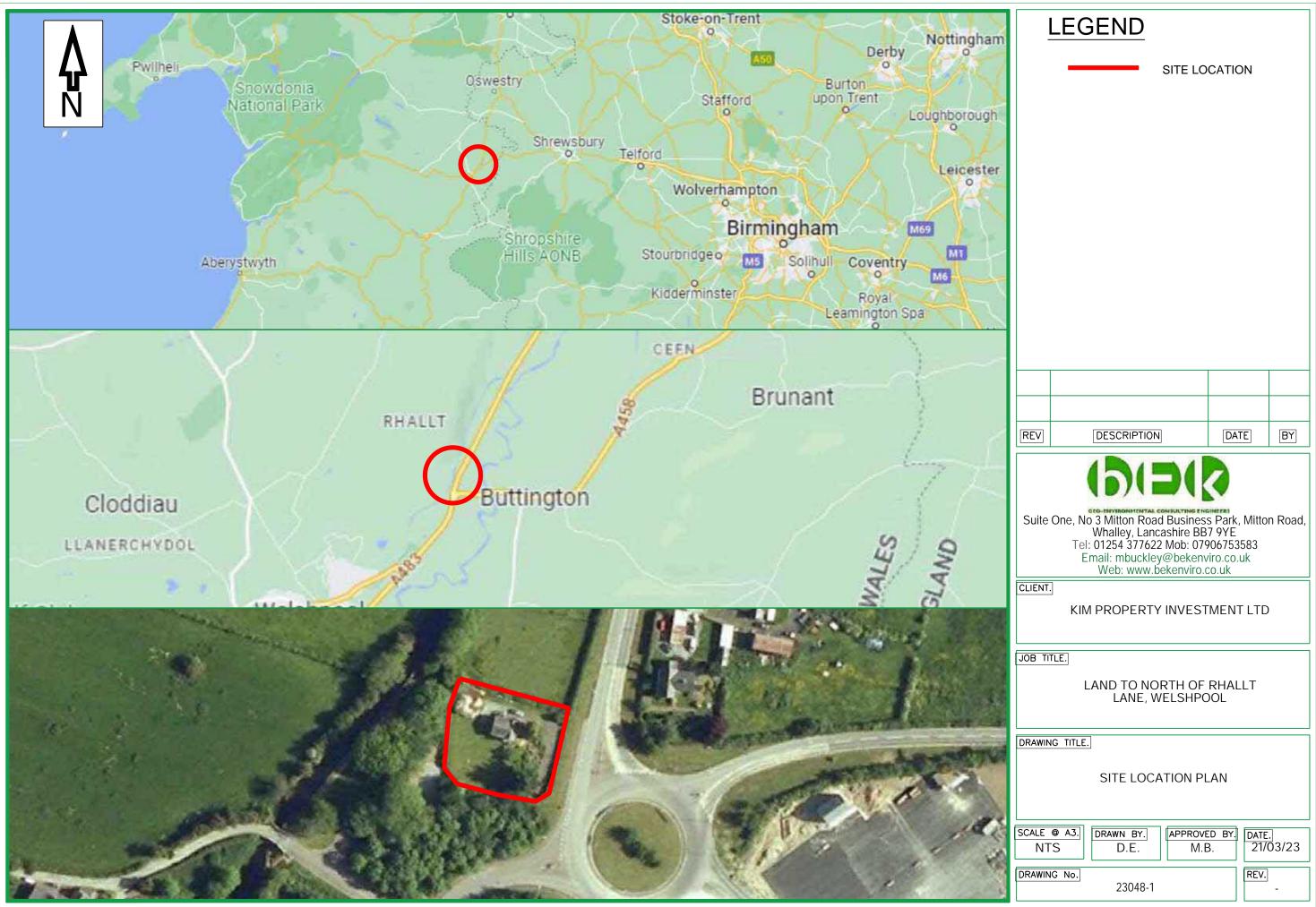
		and a standard stan		
D1 View of the driven is the				
P1: View of the driveway in the s	outh of the site facing north-east	P2: View of the driveway	racing south-west	2000 AL 10 100.5
P3: View of limekiln cottage facin	eg east	P4: Second view of the co	bttage facing south	east
E SIEA		4 CAR		14
P5: Third view of the cottage faci	ng south	P6: A view of agricultural	grassland to the no	orth of the site
Comments:		Photographs 1 to 6		ENGINEERS
This appendix is for illustrative	Site:	Project No:	Created By:	Date:
purposes only and is for use only in conjunction with associated reports relating to the project	Land to the north of Rhallt Road, Welshpool.	23048	AH	March 2023
	Title: Appendix E – Site Photographs	Client: KIM Property Ir	ivestment Ltd	



P13: A view of the southern wall	of the cottage facing north	P14: View of an outdoor	area south of the c	ottage facing south
P15: View facing north-east towards the A483 from the south-east		P16: View of the eastern wall of the cottage and land immediately behind facing north-east		
corner of the cottage				
P17: Land south of the cottage containing old furniture				
Comments:		GEO-ENVIRONMENTAL CONSULTING ENGINEERS Photographs 13 to 17		
This appendix is for illustrative purposes only and is for use only in conjunction with associated reports relating to the project	Site:	Project No:	Created By:	Date:
	Land to the north of Rhallt Road, Welshpool.	23048	AH	March 2023
	Title: Appendix E – Site	Client: KIM Property Investment Ltd		
	Photographs			

# APPENDIX F

Drawings



FILE\_NAME



