FINAL

Bicester Heritage

Phase 1 Desk Study

&

Phase 2 Site Investigation Report

New Technical Site

Bicester Heritage

Launton

Bicester

OX26 5HA

Report No: 18-08-08

November 2018

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EXECUTIVE SUMMARY

Site Location	New Technical Site, Bicester Heritage, Launton, Bicester, OX26 5HA
OS Grid Reference	SP591242
Development Proposals	It is proposed to develop the site with eight new small industrial units, along with associated parking and hard landscaping. It is envisaged that the new units will be of a steel portal frame construction, with ground bearing floor slabs and discrete pad foundations.
Published Geology	Reference to British Geological Survey maps indicates that the site is underlain by Jurassic bedrock of the Cornbrash Formation, overlying the Forest Marble Formation. No significant superficial deposits are recorded locally.
Site History	It has been well documented that prior to the adoption of the site by Bicester Heritage, that the investigation area was operated by the RAF as an Airbase, and such features as, the pyrotechnics store, bomb shelters/bunkers and the coal storage yard, are contained within the investigation area.
Ground Conditions Encountered	The exploratory field work undertaken during this investigation has identified that the site is generally underlain by thin Topsoil (down to a maximum depth of 0.40m bgl) overlying localised Made Ground (encountered down to a maximum depth of 0.40m bgl) overlying a weathered Cornbrash Formation (down to a maximum depth of 1.0m bgl) becoming un-weathered Cornbrash Formation. Rock quality strata was then proven down to, 1.60m and 2.0m bgl across the site, using a rotary auger follow-on borehole. Contrary to the geological maps however no Forest Marble Formation soils were encountered.
Groundwater Encountered	Long-term Monitoring undertaken at the site on three occasions however recorded groundwater at depths of between 1.28m bgl and below the base of the standpipe at 1.90m/2.0m depth.
Foundations	It is recommended that foundations are placed onto the non-shrinkable, un-weathered Cornbrash Formation, to reduce the risk of differential settlement under applied foundation loadings, given the strata is encountered relatively shallow across the site.
Contamination	Given the results of the desk study, intrusive investigation and laboratory testing, no significant source-pathway-receptor linkage exists at the site and consequently no additional human health risk assessment is considered necessary at the site. Additionally it is considered that there is no elevated risk of Controlled Waters pollution from development at this site.
Chemical Attack On Buried Concrete	Made Ground: DS-2, AC-1s Topsoil: DS-1, AC-1 Cornbrash Formation: DS-1, AC-1d
Waste Soil Classification	Made Ground: Locally Hazardous (non-hazardous elsewhere). Topsoil: Non-Hazardous Tarmac: Non-Hazardous Engineered Fill: Inert Cornbrash Formation: Inert
Recommendations	During the Second World War, the investigation area, was an RAF airfield, and due to this local wartime activity, the risk is more tangible, given the risk of British/allied UXO risk is at medium, the presence of the existing pyrotechnics store and the fuse encountered, it would be prudent to assume that other items of risk may be present within the area of the pyrotechnics store and possible across the whole site. Therefore we recommend that a UXO expert is in attendance during groundworks at the site. Furthermore in line with best practise we recommend a watching brief should be undertaken during the construction phase, and if during development any previously undiscovered contamination (including visual or olfactory evidence) is found then site management should be immediately informed and inspection by a suitably qualified person should be undertaken. Additionally further testing of the site for waste classification purposes may be able to further zone, and or reduce the zones of Hazardous and nonhazardous Made Ground Soils.

This executive summary must be read in conjunction with this report.

GROUND INVESTIGATION REPORT

INTRODUCTION

Geo-Integrity Ltd were commissioned by Ridge Property & construction Consultants on behalf of the client Bicester Heritage, to undertake a site investigation at the proposed New Technical Site, Bicester Heritage, Launton, Bicester, OX26 5HA. This Phase I desk study and Phase II intrusive investigation has been completed to gather geotechnical and geo-environmental data.

This report describes desk based searches of geological, environmental and historical information, the fieldwork and laboratory testing undertaken and provides an interpretative section of the geotechnical and geo-environmental data from this investigation to inform the proposed development.

The site is located at National Grid Reference SP591242.

The report is likely to be reviewed by the Local Authority with reference to the NPPF. Once the development is completed, and as a minimum, land must not be capable of being determined as 'contaminated land' under the terms of Part IIA of the Environmental Protection Act 1990. However, it also states that "Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner." As such the desk study in this report is the first stage in investigating whether the site is likely to be considered "contaminated", in accordance with clause 121.

The objectives of this phase I and phase II interpretative report are:-

- To undertake a site walkover to identify any potential pollution sources or geotechnical hazards on the site.
- To gather historical, geological and environmental information.
- To complete a preliminary site conceptual model so that potential pollutant linkages can be established and investigated further.
- Briefly summarise the site development proposals and site setting.
- To describe and report the fieldwork undertaken at the site.
- To describe and report the chemical laboratory work undertaken on selected samples.
- To describe and report the geotechnical laboratory work undertaken on selected samples.
- To provide an interpretation of the results of this investigation with regards to the geo-environmental and waste disposal implications for the proposed development.

The investigation was performed in accordance with the general requirements of BS 5930:2015, BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006) and other relevant related standards identified below. The fieldwork took place on the 17th and 18th September 2018.

SOURCES OF INFORMATION

The following sources of information have been used to compile this report:-

- Extracts of available historical Ordnance Survey (OS) maps covering the period from 1880 to 2014, which are presented in the Appendices.
- Groundsure Report Ref GS-5417491 and GS-5417492 included in the Appendices.
- The British Geological Survey (BGS) and Environment Agency (EA) websites.
- A site reconnaissance visit undertaken on the 30th August 2018.
- Information from various internet sites on site history and environmental setting.

It should be noted that the information provided in the desk study is obtained from independent third party sources. It is provided in good faith, but no guarantee can be provided as to its accuracy. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.

DEVELOPMENT PROPOSALS

It is proposed to develop the site with eight new small industrial units, along with associated parking and hard landscaping. It is envisaged that the new units will be of a steel portal frame construction, with ground bearing floor slabs and discrete pad foundations.

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PHASE I DESK STUDY

WALKOVER SURVEY

A site walkover survey was undertaken on the 30th August 2018. Site location and layout plans are included in the Appendices.

The site is situated in the western corner of the Bicester Heritage site (old RAF Bicester), bordered by Skimmingdish Lane.

The Investigation area comprised three distinct adjoining zones:

1. A recently cleared area of previously overgrown trees, disused for years, surrounding the old alignment of the A4421 Skimmingdish Lane, with the remnants of a disused RAF pyrotechnics store, in the west of the area.
2. The old coal yard, located within the present day fence line of the Bicester Heritage site, which comprised a concrete floored area (approximately 40m by 50m), currently the area is used for the storage of materials, equipment and classic automobiles. Steel rails were present in the concrete slab, indicating the use of a locomotive to move the coal around or to/from the airbase.
3. An area of soft landscaping with Second World War Era bomb shelters, located to the east/ southeast of the other areas.

Significant vegetation is present along existing boundaries and has been recently cleared from zone one.

During the site walkover potential point sources of contamination were encountered which generally relate to the long historical legacy of the areas, with the known use and/or storage of fuels, and probable presence of explosives and associated heavy metals.

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GEOLOGY

Published Geology

Reference to the British Geological Survey website and Sheet 219; Buckingham; 2002; indicates that the site is underlain by Jurassic bedrock of the Cornbrash Formation, overlying the Forest Marble Formation. No significant superficial deposits are recorded locally.

Bedrock

The Cornbrash Formation is generally represented as a bedded, bluish grey fossiliferous limestone, weathering to a yellowish brown near surface. The Formation occurs up 4m in thickness in this area.

The Forest Marble Formation is, generally represented by a calcareous greenish-grey mudstone, with localised cross-bedded limestone units. The Formation is recorded at the surface over the western half of the site, with no overlying Cornbrash. The Formation occurs up to 7m in thickness in this area.

Solution Features

Limestone, as a calcium-carbonate rich rock, is highly susceptible to dissolution by water containing carbon dioxide. This dissolution can create features within the limestone, grouped together under the generic term ‘dissolution features’.

Karst dissolution features are documented to occur within the limestone of the Cornbrash Formation, however, within the Forest Marble Formation it is likely that if any features are present, that their scale will be somewhat limited, due to the presence of the cross-bedded mudstones. However the desk study information records a negligible risk from ground dissolution instability hazards beneath the site.

Historical Boreholes

The British Geological Survey holds records of exploratory holes, historically put down within the surrounding area during previous investigations. These nearby borehole logs recorded the Cornbrash from ground level to a depth of approximately 3m depth, overlying the Forest Marble Formation to 6.40m bgl, overlying the White Limestone Formation to approximately 18m bgl.

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HISTORY OF THE SITE

The history of the site has been established by the review of freely available information and old Ordnance Survey maps going back to 1880. The maps and any other relevant information are included in the appendices and indicated the following.

Ordnance Survey

The earliest maps dated 1880, records the investigation area to be located along/around a section of Skimmingdish Lane, a single carriageway, located within rural open/undeveloped fields. Trees are recorded along the alignment of the lane. No notable or significant surrounding land uses are recorded at this time, within the rural area.

The next available maps from the 1920s identify initial development of the site and surrounding area, which generally match the RAF buildings still at site today. However the structures recorded on the investigation area (northern central area and area of present day coal storage yard) appear to be long elongate structures. During this timeframe the pond within the eastern corner of the investigation area, is also recorded.

Due to national security at the time, subsequent maps, show no reference to any structures or significant features within the entire airbase, until the 1960s. Even the 1945 aerial imagery has been doctored to show open empty undeveloped fields. Contrary to this however the pyrotechnics store located within the investigation area is recorded on a map of the area from 1938.

Maps from the 1960s show the Airbase in entirety, with the site still located along the alignment of Skimmingdish Lane. At this time the pyrotechnics store, coal yard, grade two listed bunkers are recorded along with other buildings located centrally. Surrounding land uses of concern at this time of course include the Airbase, but also include identified features, such as tanks located approximately 50m southeast of the site, and a sewage treatment works approximately 100m south of the site.

Expansion of Bicester in the 1980s is recorded to the south of the site, with the removal of the sewage treatment plant 100m south of the site. In the 1990s the new, existing alignment of the A4421 (Skimmingdish Lane) is recorded with associated roundabout to the west of the site.

From the 1980s onward no detailed information on the site area was contained within the desk study information, however satellite imagery from the early 2000s shows the site to be at its

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INTEGRITY

contemporary present day appearance, with the exception of overgrown vegetation across the areas.

Online Historical Resources

Freely available articles and web-pages identified the following:

“Flying first took place at the airfield in 1911, with organised flying beginning in 1916 when a Training Depot was established. In January 1917, the Royal Flying Corps (the pre-cursor to the RAF) moved into the site. After the First World War all of the squadrons disbanded by 1920, and the airfield was closed in 1920 after being used briefly as a clearing centre for repatriated soldiers.

In 1925, work began on redeveloping the site as a bomber station, and flying began again in January 1928. Development of the station continued throughout this period, with many new buildings being erected.

Throughout the Second World War, RAF Bicester was used as a training centre, and post-war at the end of 1944, Bicester became a non-flying unit, used for maintenance, and later as a Motor Transport depot.

In 1976, the RAF ceased to use the airfield as a military base, but still maintained staff there to run the gliding training operation as adventure training for servicemen. In the mid-1980s, the USAF briefly used the Technical and Domestic Area for storage. In 1982 the USAF created a wartime contingency hospital using restored RAF World War II dormitories.

In the late 1990s, plans were proposed to develop the airfield for housing and industry, but they were abandoned due to strong local opposition and the historic nature of the site, and in 2002, Cherwell District Council designated the aerodrome as a Conservation Area.

In March 2013 Bicester Airfield was acquired from the MOD by Bicester Heritage Limited with the aim of developing the UK's first business park dedicated to historic motoring and aviation. Bicester Heritage aim to bring together the UK’s cottage industry of specialists in order to promote not just the preservation but, specifically, the use of vintage aeroplanes and motor cars”.

UNEXPLODED ORDNANCE AND BOMB SITES

Reference to the site specific unexploded bomb risk map (UXO) produced by Zetica indicates that the site is located in an area where there is a low risk of unexploded ordnance. Low-risk regions are those with a bombing density of up to 15 bombs per 1000 acres or less.

Care is however required when assessing the risk for specific sites where the risk may be higher because of local wartime activity, such as munitions factories, pivotal infrastructure, airfields and dummy airfields, many of which were removed from historical maps in the interest of national security. The site specific unexploded bomb risk map is included within the appendices.

During the Second World War, the investigation area, was an RAF airfield, and due to this local wartime activity, the risk is more tangible, therefore further action to mitigate the risk is considered prudent during development.

It is understood that Bicester Heritage hold more in-depth UXO risk data. A copy of the Preliminary Unexploded Ordnance Risk Assessment was made available to ourselves by the client, which is appended onto this report. In conclusion it summarises that whilst there is a low risk of UXO from German bombing of the area, the risk of British/allied UXO risk is at medium.

Due to this elevated risk the planned Phase II investigation is to be undertaken under the supervision of a UXO expert, with sub-surface scanning of the proposed exploratory locations, and it is recommended that such presence is required during ground works.

HYDROLOGY

The desk study information identifies the nearest surface watercourse as an un-named inland river approximately 38m southwest of the site.

However a pond feature was identified within the southeastern corner of the site during the walkover survey.

There are however no current surface water abstraction license located within 2000m of the site.

HYDROGEOLOGY

Reference to the Environment Agency website indicates that the site is located on a Secondary A Aquifer associated with the underlying Jurassic bedrock.

The aquifer designation data is based on geological mapping provided by the British Geological Survey. The maps are divided into two different types of aquifer designation:

Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.

Bedrock - solid permeable formations e.g. sandstone, chalk and limestone.

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For each type there are four designations:-Principal, Secondary A, Secondary B and Unproductive Strata, ranked by importance.

The site is recorded to be located outside of any Source Protection Zones.

A Source Protection Zone (SPZ) is a designated area around a well or abstraction borehole. An SPZ is generally divided into three zones (but can be a fourth).

There are no recorded groundwater abstraction license located within 500m of the site. Additionally there has been no recorded incidents to controlled waters within the surrounding area (250m) of the site area.

WASTE TREATMENT AND LANDFILL SITES

Landfills

There are no records of operational or historical landfill sites within close vicinity to the site area.

Other Waste Treatment Sites

There are no records of other waste treatment sites in close vicinity to the site area.

INDUSTRIAL USAGE SITES

Past/present potentially contaminative activities have been identified within the investigation area, with eight instances located within 250m of the site, which include;

- Precision Engineers
- Vehicle repair and testing services
- A container and storage company
- Electrical substation features
- Tanks (generic)
- Armed services (Airbase)

There are no recorded active or inactive fuel filling station is identified within 500m of the site.

Historical Site Usage

It has been well documented that prior to the adoption of the site by Bicester Heritage, that the investigation area was operated by the RAF as an Airbase, and such features as, pyrotechnics store, bomb shelters/bunkers and the coal storage yard, are contained within the investigation area.

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During the site walkover these potential point sources of contamination were encountered which each generally relate to the long historical legacy of the area, with the known use and/or storage of fuels, and probable presence of explosives and associated heavy metals.

Therefore it is considered that Made Ground is possibly present beneath the investigation area, and contamination relating to this historical usage development/redevelopment may be present.

WORKED OUT GROUND

Information supplied by the desk study material identified that an area of artificial infilled ground is located 51m southwest of the site, along with the old sewage works 85m southwest of the site recorded as historical ground workings. No further information on infilling or backfill composition is however recorded.

Reference is also given to limestone quarries within the surrounding area with the closes located 451m southeast of the site.

GROUND GASES

Radon

Information obtained from the BGS and the National Geoscience Information Service indicates that the site lies within an area where between 1% and 3% of homes exceed the action level of 200Bq/m^3 for radon gas. Therefore, no radon protection measures are necessary in the construction of new dwellings or extensions, on this site.

Landfill Gasses

In accordance with BS8576:2013 the site has provisionally assessed for the risk of ground gases. This has been done with reference to “A pragmatic approach to ground gas risk assessment for the 21st Century” Card and Wilson, 2011.

- No credible sources or pathways for landfill gas migration from an off-site landfill have been identified.
- The site has not been a registered landfill
- However an area of artificial ground is recorded within 51m of the site.
- The Made Ground is not expected to be 5m deep or an average of 3m in thickness at the site.
- The site is located on a carbonate rich rock that can produce carbon dioxide.

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- Radon protection measures are not recommended for this site.
- The site does not significantly lie on a potential naturally organic soil or humic or degradable Made Ground soil.

The site is located on a carbonate rich bedrock, consisting of Jurassic Limestones, which contain calcium carbonate that can produce carbon dioxide. However, this source is not normally of concern as volumes produced are usually low.

Whilst an area of artificial ground has been identified nearby given the underlying expected geology, it is considered unlikely that ground gas will be a risk to the investigation area, however as a precaution preliminary ground gas monitoring will be undertaken at the site, as part of the Phase II investigation.

POTENTIAL GEOTECHNICAL HAZARDS

The desk study information identified that the site does not lie within an area likely to be affected by natural cavities or mining (including coal mining) activities.

The risk of naturally occurring geotechnical hazards at the site is recorded in the Groundsure report to be as follows:

Ground Stability Hazard	Maximum Hazard Potential Rating
Collapsible deposits	Very Low
Compressible deposits	Negligible
Ground dissolution of soluble rocks	Very Low
Shrinking and swelling clays	Negligible
Landslides	Very Low
Running sand	Negligible

Although the recorded risk in the area is negligible, dissolution features are known to occur within the limestone of the Cornbrash Formation.

POTENTIALLY SENSITIVE LAND USES

The site is located within a Nitrate Vulnerable Zone.

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INITIAL CONCEPTUAL SITE MODEL

In accord with the Environment Agency CLR11 “Model Procedures for the Management of Contaminated Land” 2004, this desk study and site reconnaissance report constitutes a preliminary risk assessment in order to establish the potential presence of pollutant linkages.

Reference to the desk study and walkover survey indicates that potential point sources of contamination were encountered (pyrotechnics store, coal yard, general use as a Airbase) which each generally relate to the long historical legacy of the area, with the known use and/or storage of fuels, and probable presence of explosives and associated heavy metals.

Therefore it is considered that Made Ground is possibly present beneath the investigation area, and contamination relating to this historical usage may be present, which may be a potential risk to both human health and the environment, via a source/pathway/receptor linkage. Therefore it is recommended that as part of the Phase II investigation both a Human Health and Environmental risk assessment be undertaken, including sampling of the soils across the investigation area.

Additionally the risk of ground gases impacting the site was assessed and determined that given the possibility that the nearby area of artificial ground (identified from the desk study information) south of the site, may provide a source of ground gas to the development. Therefore to determine if such a risk is present ground gas monitoring will be undertaken part of the Phase II investigation.

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PHASE II INTRUSIVE INVESTIGATION

SITE WORK AND SAMPLING STRATEGY

The fieldwork was undertaken in accordance with BS 5930:2015, BS EN 1997-2 (2007) and BS EN ISO 22475-1 (2006), with the exploratory locations being selected by Geo-Integrity Ltd. The exploratory hole locations can be seen in the Appendices.

The fieldwork was undertaken on the 17th and 18th September and consisted of six boreholes and nine machine excavate trial pits across the site. Three of which were utilised as soakaway test locations, undertaken in general accord with 'BRE 365'.

The borehole drill rigs used at the site were also specialist modular percussive drilling rigs with rotary auger follow-on, to find rock-head and prove it. Gas and Groundwater monitoring standpipes were also installed within two boreholes at opposite ends of the site.

Disturbed samples were taken at selected depths down to the base of the holes for subsequent laboratory testing and inspection. On completion, all trial pits were carefully backfilled with arisings in thin layers, ensuring that excavated material was replaced in the same order as it had been removed.

GROUND CONDITIONS

Summary

The site and laboratory test work revealed that the general succession of strata can be represented by thin Topsoil overlying localised Made Ground overlying weathered becoming un-weathered Cornbrash Formation. Elsewhere at the site, both hardstanding and underlying subgrade/engineered fill was encountered in areas of the old road (TP3), and coal yard (TP8).

Descriptions of the strata encountered are given on the exploratory hole records, and are summarised below. Further information is provided on the exploratory hole logs within the appendices.

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GEO INTEGRITY

Topsoil

Encountered in ten of the exploratory holes from ground level, to a depth of between 0.05m and 0.40m below ground level. The material generally consisted of a soft dark brown sandy organic clay. Locally with roots rootlets and wood fragments.

Made Ground

Encountered locally across the site, from between ground level and 0.07m, down to a depth of between 0.15m and 0.50m depth. The material consisted of seemingly heavily reworked natural material (topsoil & Weathered Cornbrash) with local inclusions of brick, glass, metal and ceramic. Exploratory holes located near the area of the old coal storage yard, included some fragments of coal. A spent ignition fuse was also encountered in TP4 near the pyrotechnics store.

Elsewhere where the old road was situated on a slight embankment, of soft brown clayey sandy gravel of fine to coarse of brick and concrete, with intact cobbles of brick, (TP9).

Engineered Fill

Encountered locally beneath the tarmac hardstanding, down to a depth in excess of 0.52m. The material consisted of sorted limestone gravel, very similar in appearance to the underlying Insitu limestone.

Weathered Cornbrash Formation

Encountered across the site from between 0.05m and 0.30m, down to a depth of between 0.45m and 1.00m, above the more intact visibly bedded Limestone, and comprised weathered and very weathered characteristics.

Weathered material was generally encountered as a firm brown silty slightly sandy gravelly clay. Gravel was encountered as fine to coarse angular limestone.

Very weathered material was generally encountered within TP5 as a soft brown clayey silt.

Laboratory tests undertaken on representative cohesive samples revealed a range in fine soil content of between 37% and 100%. They also revealed moisture contents of between 14% and 30% and a plasticity index of 24% to 28%, which equates to an NHBC Volume Change Potential of medium.

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Cornbrash Formation

Encountered at each of the exploratory locations from depths of between 0.15m and 0.85m below ground level, rock quality strata was then proven down to, in excess of 1.60m and 2m bgl using a rotary auger follow-on borehole.

Recovered as a brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous limestone in trial pits and a brownish grey silty gravel of limestone (Pulverised during excavation). It is considered however that insitu the material represents bedded semi-weathered Cornbrash Formation (rock-head).

Laboratory tests undertaken on representative sample revealed a range in fine soil content of between 1% and 5%. Therefore given the low fines fraction the material is considered to be a non-shrinkable.

SPT 'N' values undertaken within the boreholes ranged from 38 to >50, the penetration resistance of the strata varied with depth and the results are interpreted generally to indicate weak becoming stronger rock quality strata.

Groundwater

Groundwater was not encountered within any of the exploratory holes to a depth of 2.0m bgl.

Long-term Monitoring undertaken at the site on three occasions however recorded groundwater at depths of between 1.28m bgl and below the base of the standpipe at 1.90m/2.0m depth.

BRE365 Infiltration Testing

Infiltration tests were carried out in locations TP1, TP2 and TP3, in general accord with BRE Digest 365 ‘Soakaway Design’.

Testing was undertaken in the underlying Cornbrash Formation in TP1 and TP2, with TP3 situated within the Engineered Fill beneath the old disused road and within the section of raised road embankment.

The results of the testing provided an infiltration rate of between $1.02x10^{-4}$m/s to $9.78x10^{-5}$m/s within the Cornbrash Formation, which is expected given that the material is a limestone, and fracture controlled flow, along defined fissures and bedding planes is likely somewhat in effect.

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The test undertaken in TP3 however did not soakaway, with a drop in water level of 1cm over a twenty-four hour period. Whilst the response zone within the exploratory hole was a seemingly sorted granular material, elsewhere (TP9) the old road embankment has been demonstrated to comprise of more cohesive deposits.

Therefore we recommend that for the purpose of conventional soakaways, that the overlying Made Soils are considered as effectively impermeable, but that the Cornbrash is likely a viable option for conventional soakaways.

Ground Gas

Ground gas monitoring was undertaken within the borehole standpipes at WS1 and WS5 as a part of this investigation, on three occasions, using a calibrated Gas Data GFM Series gas analyser.

The results revealed oxygen levels of between 18.7% and 20.3% by volume, Carbon dioxide levels of between 0% and 1.7% by volume, and methane levels below detectable limits. Peak ground gas flow rate of 0.0l/hr was recorded at every monitoring instance, at each standpipe.

Sulphate and pH Tests

Soluble sulphate and pH tests were carried out on twelve soil samples recovered from the exploratory holes. These recorded values as shown in the table below:

Parameter	**Range**
Soluble Sulphate (g/l)	<0.010 – 0.19
Total Sulphur %	0.018 – 0.27
Sulphate (Acid Soluble) %	0.043 – 0.12
pH units	8.1 – 8.7

California Bearing Ratio (CBR) Tests

Laboratory CBR tests were undertaken on a representative bulk sample of representative weathered Cornbrash Formation soils from across the site, remoulded using a 2.5kg compactive effort at natural water content. The results of the laboratory test identified a CBR value of 25.1%.

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Additionally in-situ TRL Dynamic Cone Penetrometer (DCP) tests was undertaken across the site, Four tests (CBR1 to CBR4) were undertaken within the road sub-base/engineered fill, with CBR5 undertaken in the weathered Cornbrash Formation.

Results provided a value of between 29% and 51% in the sub-base, and 28% in the weathered Cornbrash Formation.

Existing Foundations

TP7 was the location of a foundation inspection pit, and was located alongside the external concrete northern blast wall of the pyrotechnics store. A diagrammatical illustration of the exposed foundation is presented in Appendix B of this document. The footing of the wall was located at 0.80m bgl, and was founded on Cornbrash Formation soils.

Evidence of Contamination

No obvious or significant contamination was identified within the natural or Made Ground soils encountered during the field work. However some man-made materials were encountered within the Made Ground such as brick, glass, metal and ceramic. Exploratory holes located near the area of the old coal storage yard, included some fragments of coal, and a spent ignition fuse was encountered in TP4 near the pyrotechnics store. Therefore given the materials encountered and the legacy of the site, soils may contain elevated levels of possible contaminants. Therefore chemical testing has been undertaken at the site, see environmental risk assessments below.

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GEOENVIRONMENTAL TESTING

Geo-environmental laboratory testing was scheduled by Geo-Integrity on fourteen soil samples recovered during the fieldwork. The testing was carried out at a MCERTS and UKAS accredited laboratory. The results are presented in the Appendices.

Soil samples were tested for a varied suite containing the following

- Metals and inorganic substances
- Speciated Polyaromatic Hydrocarbons (PAH)
- Benzene, Toluene, Ethylbenzene and Xylene (BTEX)
- Total Petroleum Hydrocarbons (TPH), with eight band split
- The presence or absence of Asbestos.

All of which were tested of the presence or absence of Asbestos.

Furthermore two samples of representative Made Ground was tested for a single stage inert WAC test for final waste classification.

Additionally a sample of the tarmac blacktop from the old disused road was also tested for the presence or absence of Coal Tar.

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GEOTECHNICAL INTERPRETATIVE SECTION

GENERAL GROUND CONDITIONS INTERPRETATION

The exploratory field work undertaken during this investigation has identified that the site is generally underlain by thin Topsoil (down to a maximum depth of 0.40m bgl) overlying localised Made Ground (encountered down to a maximum depth of 0.40m bgl) overlying a weathered Cornbrash Formation (down to a maximum depth of 1.0m bgl) becoming un-weathered Cornbrash Formation. Rock quality strata was then proven down to, 1.60m and 2.0m bgl across the site, using a rotary auger follow-on borehole. Contrary to the geological maps however no Forest Marble Formation soils were encountered.

Elsewhere at the site, both hardstanding and underlying subgrade/engineered fill was encountered in areas of the old road (TP3), and coal yard (TP8). The old road, is partially located on an embankment within the southeastern area of the site. Exploratory holes proved that the small embankment comprised, Made Ground and engineered crushed limestone fill.

Groundwater was not encountered within any of the exploratory holes to a depth of 2.0m bgl. However long-term monitoring undertaken at the site recorded groundwater at depths of between 1.28m bgl and below the base of the standpipe at 1.90m/2.0m depth.

The desk study recorded the site at a negligible risk from shrinking and swelling clays. Laboratory tests however, have identified that the near surface cohesive soils down to a maximum depth of 1.00m beneath the site, exhibit an NHBC Volume Change Potential of medium, however the underlying un-weathered Cornbrash Formation is considered to be a non-shrinkable.

Furthermore although the recorded risk in the area is very low, significant soluble rocks are present. Problems are however considered to be unlikely except with considerable surface or subsurface water flow, which have not been identified at the site, during the walkover or site works. Therefore no special actions are required to avoid problems due to soluble rocks. No indication of any features was encountered during the siteworks and it is recommended that as good practice ground workers are aware of the potential risk, and should suspicious features be identified at the site, during groundworks, then site management should be immediately informed and inspection by a suitably qualified person should be undertaken.

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EXCAVATIONS

Conventional hydraulic plant should be satisfactory for excavating foundation and service trenches within the Made Ground and weathered limestone. Specialist breaking plant is likely to be required however to assist in the removal of intact limestone beds and the exiting old road across the site.

In line with HSE guidelines, all excavations requiring personnel access should be adequately supported to avoid the risk of collapse.

Shallow excavations are likely to remain dry in the short term. It should be appreciated however that seasonal variations may exist and hence groundwater entries may occur particularly during wetter months or after periods of inclement weather.

Consideration should be given to the effects of trees and shrubs on service runs that cross the site. Soil movements brought on by the influence of vegetation can severely disrupt the drain runs and mains services, and measures should be incorporated into the excavations to allow for future ground movements.

Should any trees be removed from site, care should be taken to ensure the root ball of each tree is completely removed from the ground. Given time, any remnant root fragments may weather down to produce localised areas of soft organic soils.

Where new foundations are placed over a felled tree, consideration should be given to spanning these features to ensure no soft spots result in localised settlement.

UXO Risk

During the Second World War, the investigation area, was an RAF airfield, and due to this local wartime activity, the risk is more tangible, therefore further action to mitigate the risk is considered prudent during development.

It is understood that Bicester Heritage hold more in-depth UXO risk data. A copy of the Preliminary Unexploded Ordnance Risk Assessment was made available to ourselves by the client, which is appended onto this report. In conclusion it summarises that whilst there is a low risk of UXO from German bombing of the area, the risk of British/allied UXO risk is at medium.

Due to this elevated risk the Phase II investigation was undertaken under the supervision of a UXO expert, with sub-surface scanning of the proposed exploratory locations.

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During excavation of TP4 at the site (near the pyrotechnics store), a spent ignition fuse was encountered and identified by the attending UXO expert. Therefore given the risk of British/allied UXO risk is at medium, the presence of the existing pyrotechnics store and the fuse encountered, it would be prudent to assume that other items of risk may be present within the area of the pyrotechnics store and possible across the whole site. Therefore we recommend that a UXO expert is in attendance during groundworks at the site.

FOUNDATIONS

Shallow Foundations

Shallow foundations may be considered across the investigation area providing the following criterion is followed;
The Made Ground (including any reworked deposits hardstanding or topsoil) is considered unsuitable as a bearing stratum, due to its variability, and potential for unacceptable total and differential settlement under applied foundation loadings.

Additionally given the proposals are for new small industrial units, it is recommended that foundations are placed onto the non-shrinkable, un-weathered Cornbrash Formation, to reduce the risk of differential settlement under applied foundation loadings, given the strata is encountered relatively shallow across the site.

The underlying (non-cohesive) un-weathered Cornbrash Formation is therefore considered to be a suitable bearing stratum for conventional shallow pad foundations at not less than 0.75m below existing ground level or 0.20m into the top of the (essentially granular) un-weathered Cornbrash Formation, whichever is the deeper (*it should be noted that locally across the site the un-weathered formation is not encountered until 1.0m bgl, and therefore founding depth in these areas would be at 1.20m bgl*).

At this depth a net allowable bearing pressure of 400kPa may be adopted for foundations not exceeding 1.0m in width. This allows for a factor of safety of three against failure and for settlements generally not to exceed 25mm during the construction process.

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FLOOR SLAB DESIGN

Floor slabs at the site can be ground bearing, provided any overlying Made Ground (including any reworked deposits hardstanding or topsoil) are stripped and removed, with the slab based on a blanket of good quality, free draining, well compacted granular material, placed prior to the construction of the floor slab, in order to make up the level.

SULPHATE ATTACK ON UNDERGROUND CONCRETE

Twelve soil samples from this investigation were scheduled for the measurement of water soluble sulphate, pH, Total Sulphur and Acid Soluble Sulphate (to investigate the potential for sulphate ions/pyrite) and to give an indication of the aggressivity of the ground in relation to buried concrete, as set out in the Building Research Establishment (BRE) Special Digest 1 (2005) Concrete in Aggressive Ground, Part 1: Assessing the aggressive chemical environment. The samples were recovered from depths ranging from 0.20m to 2.0m bgl, and were sourced from representative areas of Topsoil, Made Ground, weathered and un-weathered Cornbrash Formation.

Therefore in accordance with the BRE Special Digest, these results have been given in the table below, in relation to strata type and required Design Sulphate Class and site Aggressive Chemical Environment Classification (ACEC)**.**

Strata	Design Sulphate Class	Aggressive Chemical Environment Classification
Made Ground	**DS-2**	**AC-1s**
Topsoil	**DS-1**	**AC-1**
Cornbrash Formation	**DS-1**	**AC-1$_d$**

The recommendations given in the above digest, with respect to suitable concrete design and other associated precautions against sulphate attack, should be followed for all below ground level concrete.

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INTEGRITY

GAS PROTECTION

The risk of ground gases impacting the site was assessed by reference to the paper “A pragmatic approach to ground gas risk assessment for the 21st Century” Card and Wilson, 2011.

The risk of ground gases impacting the site was assessed, and determined that given the possibility that the nearby area of artificial ground (identified from the desk study information) south of the site, that this may provide a source of ground gas to the development.

Three confirmatory monitoring visits was undertaken at the site on the 28th of September and 12th and 19th of October 2018, in conjuncture with groundwater level monitoring, which recorded no carbon dioxide levels above 5% and no methane gas above detectable limits. A peak flow rate of 0.0l/h (zero) was also recorded.

Based on the conditions measured during the monitoring visits carried out to date, In accordance with BS8485:2015 and CIRIA C665, 2007 the site is currently classified as a Characteristic Situation 1 (CS1). Therefore it is currently considered that no gas protection is necessary with regard to methane or carbon dioxide gas.

Furthermore the site is located in an area where between 1% and 3% of homes exceed the action level of 200Bq/m3 for radon gas, and no radon protection measures are necessary in the construction of new dwellings or extensions.

Full details of gas concentrations and gas flow data recorded during the monitoring visits are given in Appendices.

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ACCESS ROADS AND PARKING

The structural design of a road or hard standing is based on the strength of the subgrade, which is assessed on the California Bearing Ratio (CBR) scale.

Laboratory CBR tests undertaken in the weathered Cornbrash Formation soils from across the site, provided an equivalent CBR of 25.1%, additionally an in-situ TRL Dynamic Cone Penetrometer (DCP) tests (CBR 5) provided an equivalent CBR result of 28%. Therefore it is currently recommended that a value of 25% is adopted for design in these soils.

Made Ground

In-situ TRL Dynamic Cone Penetrometer (DCP) tests were also undertaken beneath within the existing old road sub-base/engineered fill. Results provided a value of between 29% and 51% in the sub-base material.

Made Ground is has however been proven locally at the site, given the unknown origin of the soil, its variability and the likelihood and proven possibility for soft-spots, we recommend that any Made Ground areas of soft or deleterious material should be excavated, replaced with a properly compacted coarse-grained fill and proof rolled prior to construction.

In addition, to avoid uneven and excessive settlement in hard-standing areas it is recommended that in areas where pavements are placed onto of existing Made Ground that the following precautions are taken:-

- Heavy proof-rolling of the exposed sub-grade strata
- Excavation of soft spots encountered and replacement with well compacted granular material
- The usage of a geo-textile separator layer above the sub-grade
- Adopt an overall CBR value of <2% where testing has not been undertaken.

Furthermore the Made soils at the site should be considered to be frost susceptible, requiring a minimum pavement construction thickness of 450mm.

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GEO-ENVIRONMENTAL INTERPRETATION SECTION

RISKS TO HUMAN HEALTH

Introduction

Environment Agency guidance CLR 11, *Model Procedures for the Management of Land Contamination*, (EA, 2004), states that human health risk assessment should be undertaken by a tiered approach using the source-pathway-receptor principle. A desk study constitutes the first tier and this has been undertaken as part of this investigation. The conclusions of this phase were that:-

“Reference to the desk study and walkover survey indicates that potential point sources of contamination were encountered (pyrotechnics store, coal yard, general use as a Airbase) which each generally relate to the long historical legacy of the area, with the known use and/or storage of fuels, and probable presence of explosives and associated heavy metals.

Therefore it is considered that Made Ground is possibly present beneath the investigation area, and contamination relating to this historical usage development/redevelopment may be present, which may be a potential risk to both human health and the environment, via a source/pathway/receptor linkage”

Therefore as part of the Phase II investigation both a Human Health and Environmental risk assessment has been undertaken, including sampling of the soils across the investigation area. Results are analysed under the second tier, known as a Generic Quantitative Risk Assessment (GQRA), which uses generic guideline values to compare site chemical data against, and the final tier would be a Detailed Quantitative Risk Assessment (DQRA), which use data derived from the ground investigation to assess risks to identified receptors.

The assessment included in this report comprises a GQRA, which is undertaken by comparing soil contaminant concentrations from this investigation with conservative Generic Assessment Criteria (GAC). GAC for various land use and exposure scenarios have been selected from the following sources:

- CL:AIRE Category 4 Screening Levels (C4SL);
- LQM Suitable for Use Levels (S4UL);
- CL:AIRE/EIC/AGS GAC

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The GAC have been derived using the Environment Agency Contaminated Land Exposure Assessment (CLEA) model, for a range of land uses and exposure scenarios, including:

- Residential with the consumption of home-grown produce;
- Residential without the consumption of home-grown produce;
- Commercial;
- Allotments;
- Public Open Space near residential housing (POS_{resi}); and
- Public Open Space public park scenario (POS_{park})

Given the proposed setting is to include the expansion of the business park with eight new small industrial units, along with associated parking and hard landscaping. It is considered that a "Commercial" land use scenario is the most applicable to the site area.

Results of Chemical Testing

Of the fourteen representative soil samples screened as part of this investigation, against the relevant GAC for both 'commercial' land use scenario as described above, none have exceeded the relevant GACs.

Asbestos

Screening for the presence of asbestos did not reveal any asbestos containing material (ACM) or fibres in the fourteen samples tested.

Risk to End Users

Given the results of the desk study, intrusive investigation and laboratory testing, no significant source-pathway-receptor linkage exists at the site and consequently no additional human health risk assessment is considered necessary. However, this should be confirmed by the relevant Regulatory Authority as soon as possible prior to development.

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RISK TO CONTROLLED WATERS

The assessment of risks to controlled waters follows guidance provided by the Environment Agency and DEFRA in association with the Contaminated Land (England) Regulations 2000 (SI 2000/227). This guidance is Environment Agency's Remedial Targets Methodology Hydrogeological risk assessment for contaminated land (2006), as such these procedures have been followed.

Whilst some background levels of metals, TPHs and PAHs have been identified at the site within the variable Made Ground, It is considered that there is no elevated risk of Controlled Waters pollution from development at this site, due to the following mitigating factors:

- Encountered levels are below that of concern from a Human Health perspective
- There are no identified, current, significant sources of pollution at the site (i.e leaking tanks),
- The proposed development is to include many impermeable structures and hardstanding areas (effectively reducing the infiltration and migration of the determinants).
- The site is recorded to be located outside of any Source Protection Zones.
- There are no recorded surface or groundwater abstraction licenses located within 500m of the site.
- There have been no recorded pollution incidents to controlled waters within the surrounding area of the site.
- The site is not located within or in close proximity to any recorded sensitive land uses.

The Environment Agency is the regulatory body charged with protection of controlled waters and may be a consultee in the planning process. As above we recommend that the conclusions of this report are agreed with the relevant Local Authority at the earliest stage, to reduce potential delays to the development.

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WASTE DISPOSAL CLASSIFICATION

INTRODUCTION

Excavation for foundations or services will produce waste soil and possibly other waste streams. As a waste producer you have a duty of care under section 34 of the Environmental Protection Act 1990 to ensure, amongst other things that these wastes are:-

- Correctly stored
- Correctly classify
- Handed only to an authorised person
- Disposed of properly.

To aid with these obligations we have used HazWasteOnline to undertake the Hazard Assessment Screen as part of this investigation, to establish whether the sampled soils should be considered as either hazardous or non-hazardous waste. This classification process is in line with the Environment Agency's guidance WM3 "Guidance on the classification and assessment of waste", Version 1.1, May 2018.

RESULTS OF HAZARD ASSESSMENT

HazWaste Online Assessment

The full results of the HazWasteOnline analyses can be seen in the Appendices.

The HazWasteOnline classification summary sheet from this investigation provides a waste classification as follows:

Strata	Stage one Classification Result	Species of concern:
Made Ground	**Non-Hazardous (5 samples)** **Hazardous (1 sample)**	Elevated Copper and Zinc in TP4 at 0.25m
Topsoil	**Non-hazardous**	n/a
Tarmac (blacktop)	**Non-hazardous**	n/a
Engineered Fill	**Non-hazardous**	n/a
Cornbrash Formation	**Non-hazardous**	n/a

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Asbestos

No visible pieces of asbestos were detected (by the naked eye) in any of the exploratory holes. Laboratory testing for asbestos within each of the Made Ground samples, also recorded no presence of ACM or fibres (under a microscope). Therefore, asbestos was not considered further from a waste perspective.

Blacktop Tests

Road surfacings/blacktop can contain coal tars in concentrations which render the material hazardous and this largely depends on the age of the road. Coal tar was used until the mid 1980s. Road surfacings laid after this date are, therefore, likely to be non-hazardous. Once a road surface is excavated it becomes a waste and in order for this waste to be handled in accordance with the Duty of Care, it should be determined whether it is hazardous, or non-hazardous. The Environment Agency (EA) in their technical guidance WM3: Guidance on the classification and assessment of waste, 2015, make the following recommendations:

Coal tar is made up of a number of organic chemicals, but in the particular case of road surfacings the EA have determined that it is the concentration of benzo(a)pyrene that should be used to determine whether those materials should be classified as hazardous, or non-hazardous.

A representative blacktop sample was taken from TP3 along the old road section, and the sample were prepared in line with the 2013 ADEPT guidance. Results indicated that of the concentration of benzo(a)pyrene in the sample tested are at 15mg/kg. Therefore the results of this test confirmed that this material would be classified as non-hazardous.

Waste Acceptance Criteria (WAC) Testing Results

To further classify the waste soil for landfill disposal (stage two), Waste Acceptance Criteria (WAC) testing has been carried out on two Made Ground samples from the site.

The samples tested were from Made Ground soils recovered from TP7 at 0.10m and TP8 at 0.10m. Both soil samples identified during the first stage as non-hazardous.

The results show that one of the two samples (TP7 at 0.10m) failed the Inert waste criteria, due to elevated total TPH and Total Organic Carbon, with other samples passing the inert waste criteria, the laboratory testing results are presented in Appendices.

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Waste Classification

Uncontaminated soil can be classified as inert without testing, in accordance with EU Council Decision 2003/33/EC para. 2.1.1. As such, given the testing results, currently the underlying Cornbrash Formation soils and Engineered Fill from the site can be disposed of at an INERT Landfill site.

Therefore from the results of the HazWasteOnline spread sheets and the WAC testing, currently, the waste soil on this site is classified as follows.

	List of Waste code	Classification
Made Ground	17 05 03 (17 05 04)	Locally Hazardous (non-hazardous elsewhere)
Topsoil	17 05 04	Non-Hazardous
Tarmac (blacktop)	17 03 02	Non-Hazardous
Engineered Fill	17 05 04	Inert
Cornbrash Formation	17 05 04	Inert

A single sample of the six Made Ground samples tested identified elevated levels of copper and zinc in TP4 at 0.25m, therefore it is considered that Made Ground at the site presents two separate waste streams (non-hazardous and Hazardous). The Made Ground identified as hazardous is sourced from soils near the existing Pyrotechnics Store on the site, the soil descriptions identified that the soils contained more frequent occurrences of metal containing man-made fragments.

Therefore it is considered that currently the Made Ground within the area around the Pyrotechnics store, should be considered as hazardous, pending further testing, whilst elsewhere the Made Ground have been demonstrated as Non-Hazardous (although further testing may allow for zoning of inert Made Ground).

Analytical results relevant to the materials being disposed of should be provided to the landfill operators or waste management contractors to confirm whether it meets their license agreements and to confirm tipping costs.

All wastes removed from site should be consigned, transported and disposed of in full accordance with all relevant UK legislation.

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RE-USE OF MATERIAL ON SITE

Currently, if surplus arisings are 'fit for re-use' on the site and have not been treated, its re-use is allowed within the planning law. If it needs treating prior to re-use, exemptions can be sought from the Environment Agency to allow this activity.

Based upon the human health and groundwater risk assessments, the underlying soil is currently considered suitable for re-use on site. This analysis is however, dependent on the agreement of the Local Authority.

RECOMMENDATIONS

During the Second World War, the investigation area, was an RAF airfield, and due to this local wartime activity, the risk is more tangible, therefore further action to mitigate the risk is considered prudent during development. The Preliminary Unexploded Ordnance Risk Assessment of the site, summarises that risk of British/allied UXO risk is at medium. Due to this elevated risk, the Phase II investigation was undertaken under the supervision of a UXO expert, with sub-surface scanning of the proposed exploratory locations.

During excavation of TP4 at the site (near the pyrotechnics store), a spent ignition fuse was encountered and identified by the attending UXO expert. Therefore given the risk of British/allied UXO risk is at medium, the presence of the existing pyrotechnics store and the fuse encountered, it would be prudent to assume that other items of risk may be present within the area of the pyrotechnics store and possible across the whole site. Therefore we recommend that a UXO expert is in attendance during groundworks at the site.

Furthermore in line with best practise we recommend a watching brief should be undertaken during the construction phase, and if during development any previously undiscovered contamination (including visual or olfactory evidence) is found then site management should be immediately informed and inspection by a suitably qualified person should be undertaken.

Additionally further testing of the site for waste classification purposes may be able to further zone, and or reduce the zones of Hazardous and nonhazardous Made Ground Soils.

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GEO INTEGRITY

APPENDIX A

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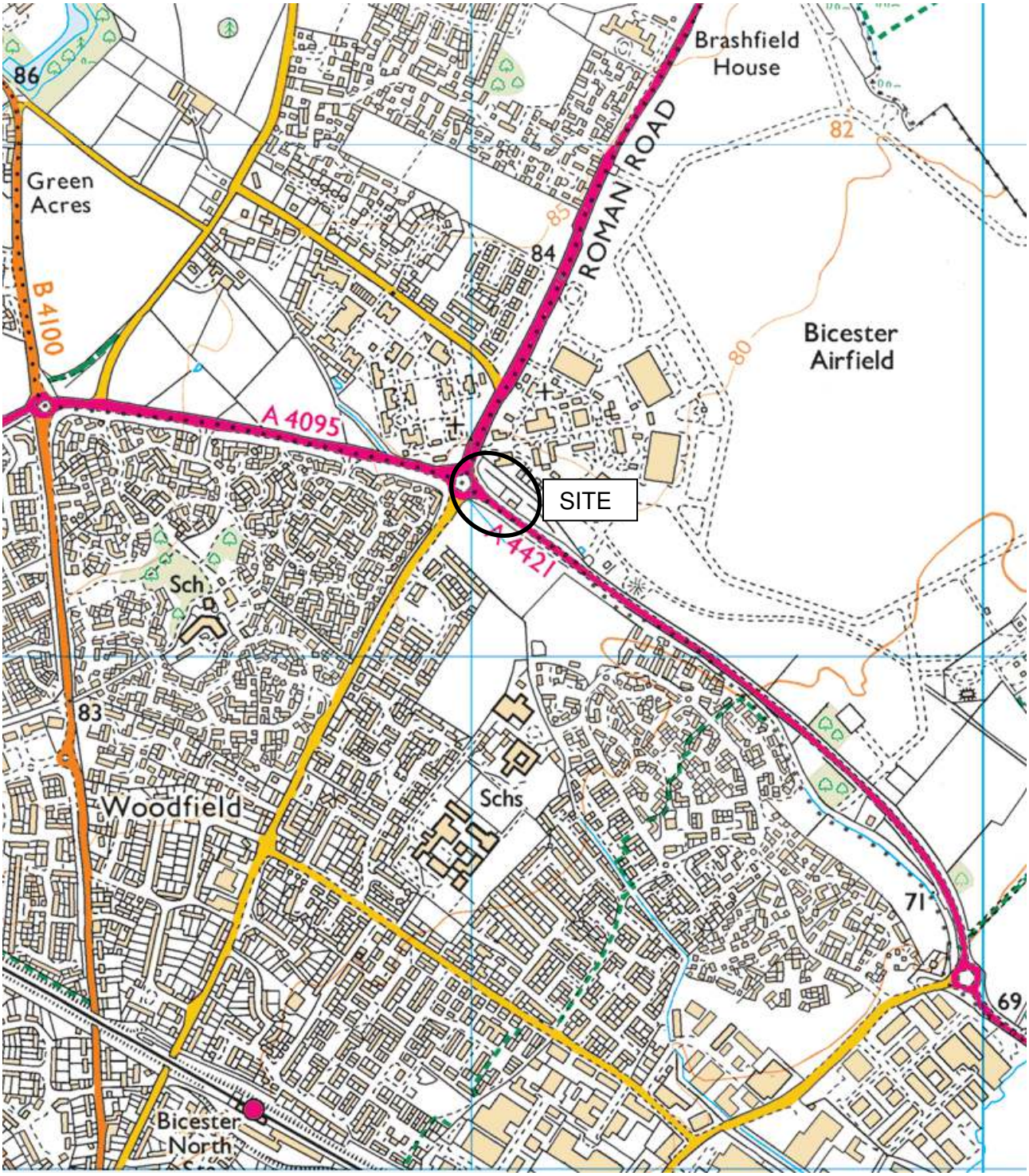

September 2018 **SITE LOCATION PLAN** Report No.:- 18-08-08

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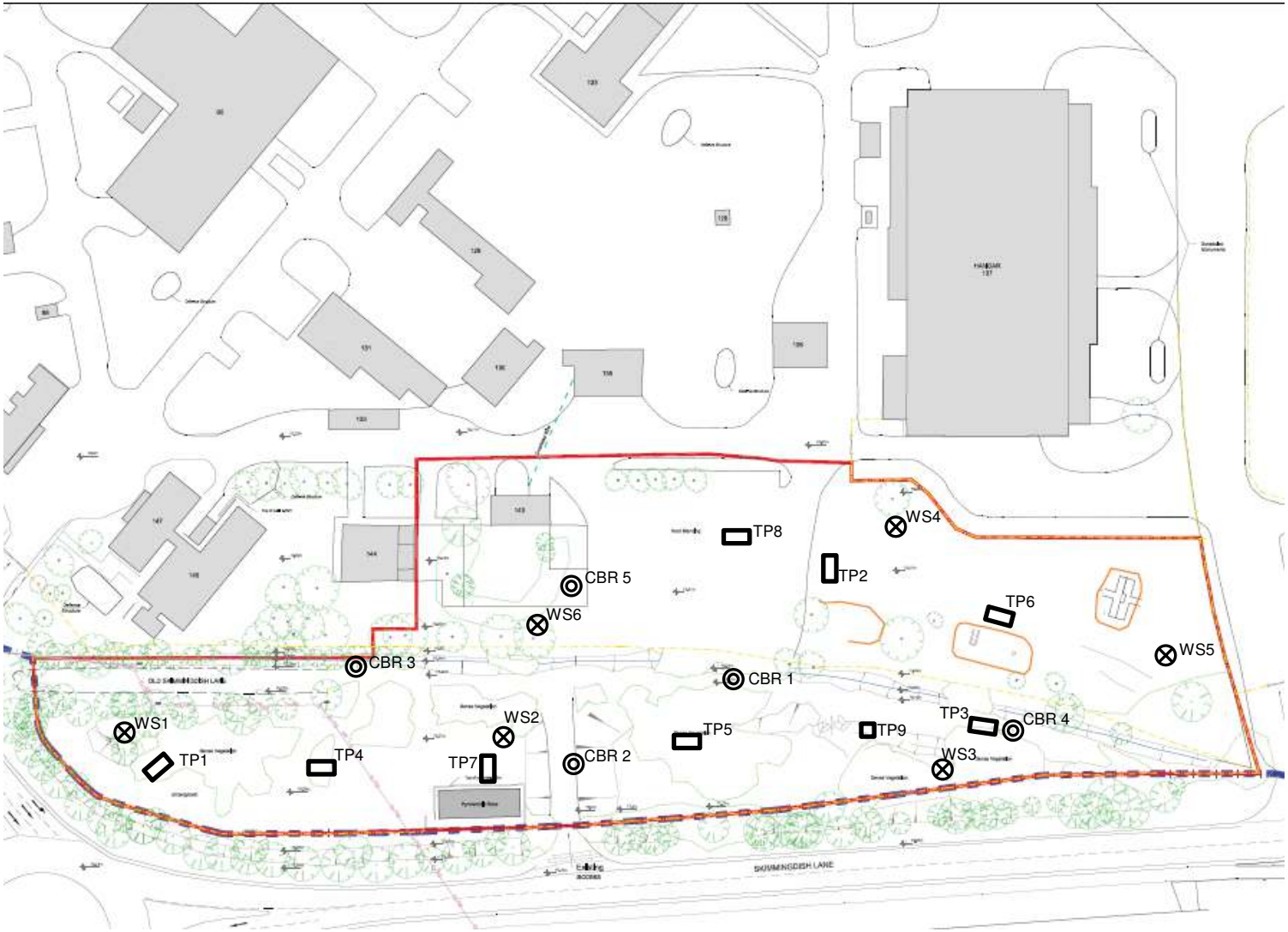

Key

- Continuous Tube Borehole
- Foundation Inspection Pit
- CBR Test Location

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Exploratory Hole Location Plan

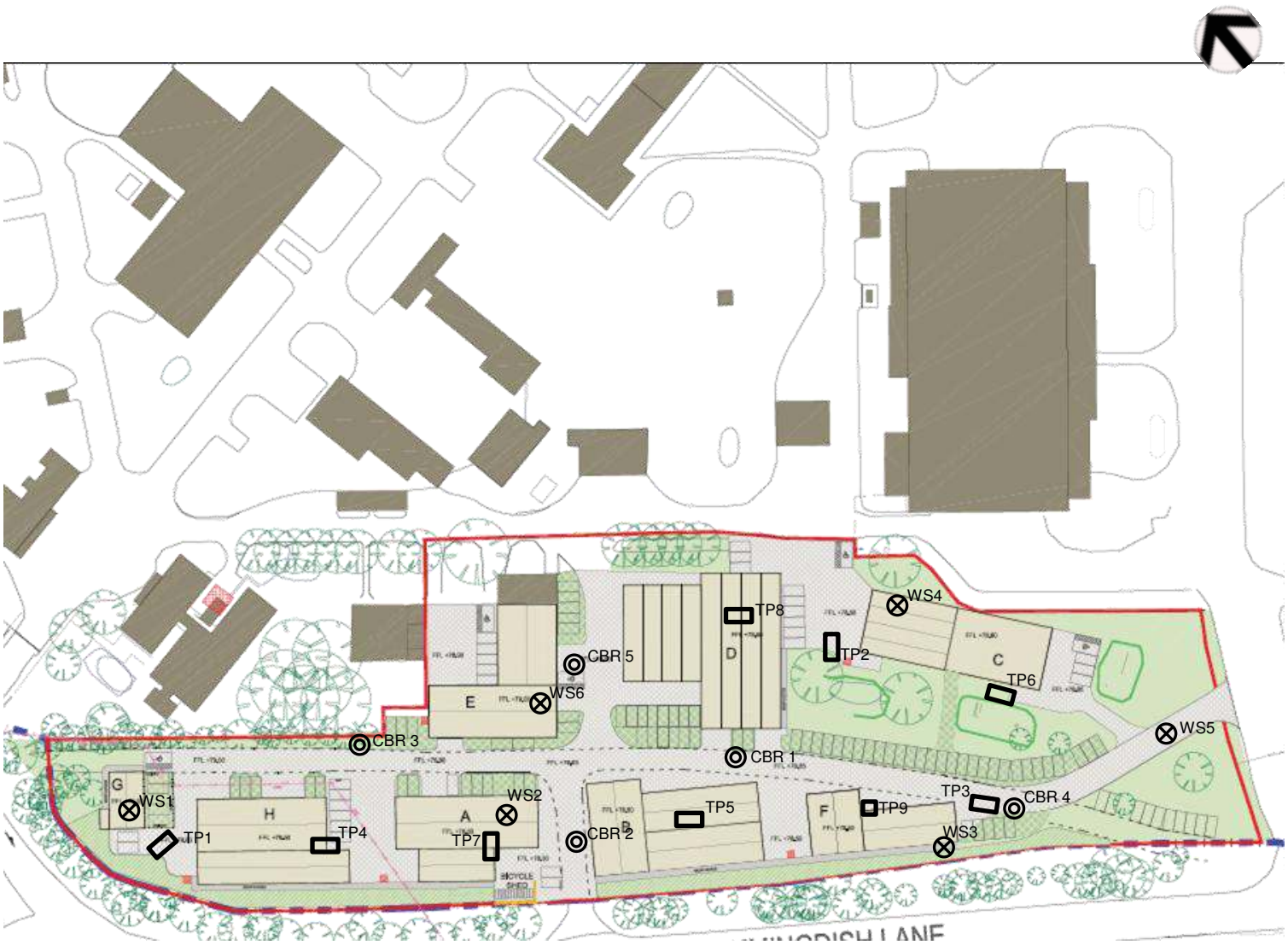
SITE:- New Technical Site, Bicester Heritage, OX26 5HA

JOB NO.:- 18-08-08

CLIENT:-
Bicester Heritage

Drawn	Checked
DL	MB

Existing



Key

- Continuous Tube Borehole
- Foundation Inspection Pit
- CBR Test Location

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Exploratory Hole Location Plan

SITE:- New Technical Site, Bicester Heritage, OX26 5HA

JOB NO.:- 18-08-08

CLIENT:-
Bicester Heritage

Drawn	Checked
DL	MB

Proposed

APPENDIX B

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CONTINUOUS TUBE WS 1

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 2.0m
DIAMETER 100mm-60mm
GROUNDWATER Dry

EASTINGS 459018
NORTHINGS 224359

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	Well Diagram	Depth (m)
		0.1		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.			0.1
D		0.2		CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.			0.2
		0.3					0.3
		0.4					0.4
D		0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.			0.5
		0.6					0.6
		0.7			N=<50		0.7
		0.8					0.8
		0.9					0.9
B		1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.			1
		1.1					1.1
		1.2					1.2
		1.3					1.3
		1.4					1.4
		1.5					1.5
		1.6					1.6
		1.7					1.7
		1.8					1.8
		1.9			N=<50		1.9
		2					2
				Termination Depth at:2.0 m In rock quality strata.			

Seal

Screen

produced by ESlog.ESdat.net on 19 Oct 2018

CONTINUOUS TUBE WS 2

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 1.90m
DIAMETER 100mm-60mm
GROUNDWATER dry

EASTINGS 459089
NORTHINGS 224301

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	Depth (m)
D		0.1		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots. CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.		0.1
		0.2				0.2
		0.3				0.3
		0.4				0.4
D		0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.		0.5
		0.6			N=<50	0.6
		0.7				0.7
		0.8				0.8
		0.9				0.9
		1				1
B		1.1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.		1.1
		1.2				1.2
		1.3				1.3
		1.4				1.4
		1.5				1.5
		1.6				1.6
		1.7				1.7
		1.8				1.8
		1.9			N=<50	1.9
				Termination Depth at: 1.90m In rock quality strata.		

CONTINUOUS TUBE WS 3

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 1.60m
DIAMETER 100mm-60mm
GROUNDWATER dry

EASTINGS 459159
NORTHINGS 224231

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY SB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	depth (m)
		0.1		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.		0.1
D		0.2		CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.		0.2
		0.3				0.3
		0.4				0.4
D		0.5				0.5
		0.6				0.6
		0.7		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.		0.7
		0.8			N=<50	0.8
		0.9				0.9
		1				1
B		1.1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.		1.1
		1.2				1.2
		1.3				1.3
		1.4				1.4
		1.5				1.5
		1.6			N=<50	1.6
		1.7		Termination Depth at: 1.60m In rock quality strata.		1.7
		1.8				1.8
		1.9				1.9

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CONTINUOUS TUBE WS 4

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 1.90m
DIAMETER 100mm-60mm
GROUNDWATER dry

EASTINGS 459191
NORTHINGS 224284

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	Depth (m)
		0		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.		0
D		0.1		MADE GROUND Dark grey ashy silty sandy GRAVEL. Gravel is fine to coarse angular of concrete.		0.1
		0.2				0.2
		0.3		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.		0.3
		0.4				0.4
D		0.5				0.5
		0.6			N=45	0.6
		0.7				0.7
		0.8				0.8
		0.9				0.9
		1				1
B		1.1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.		1.1
		1.2				1.2
		1.3				1.3
		1.4				1.4
		1.5				1.5
		1.6				1.6
		1.7				1.7
		1.8				1.8
		1.9			N=<50	1.9
				Termination Depth at: 1.90m In rock quality strata.		

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CONTINUOUS TUBE WS 5

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 1.90m
DIAMETER 100mm-60mm
GROUNDWATER dry

EASTINGS 459224
NORTHINGS 224224

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	Well Diagram	Depth (m)
D		0.1		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.			0.1
		0.2					0.2
		0.3					0.3
		0.4		CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.			0.4
D		0.5					0.5
		0.6					0.6
		0.7					0.7
		0.8			N=38		0.8
		0.9					0.9
B		1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.			1
		1.1					1.1
		1.2					1.2
		1.3					1.3
		1.4					1.4
		1.5					1.5
		1.6					1.6
		1.7					1.7
		1.8					1.8
		1.9			N=<50		1.9
				Termination Depth at: 1.90m In rock quality strata.			

Seal

Screen

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CONTINUOUS TUBE WS 6

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

DRILLING DATE 17/9/18
TOTAL DEPTH 1.8
DIAMETER 100mm to 60mm
GROUNDWATER dry

EASTINGS 459117
NORTHINGS 224315

COMMENTS

LOGGED BY DL
CHECKED BY MB

Samples	Groundwater	Depth (m)	Graphic Log	Material Description	SPT/kN/m2 (HV)	Depth (m)
D		0.1		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.		0.1
		0.2				0.2
		0.3				0.3
		0.4				0.4
D		0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.		0.5
		0.6			N=<50	0.6
		0.7				0.7
		0.8				0.8
		0.9				0.9
		1				1
B		1.1		CORNBRASH FORMATION Recovered as: Brownish grey silty gravel of LIMESTONE.		1.1
		1.2				1.2
		1.3				1.3
		1.4				1.4
		1.5				1.5
		1.6				1.6
		1.7				1.7
		1.8			N=<50	1.8
		1.9		Termination Depth at: 1.80m In rock quality strata.		1.9

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TRIAL PIT LOG TP 1

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.81m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 1.50m x 0.81m

EASTINGS 459025
NORTHINGS 224347

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
	D		0.05		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.	0.05
			0.1			0.1
	D		0.15		CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.	0.15
			0.2			0.2
			0.25			0.25
			0.3			0.3
			0.35			0.35
			0.4			0.4
			0.45			0.45
	D		0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.5
			0.55			0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75			0.75
			0.8			0.8
			0.85		Termination Depth at: 0.81m In rock quality strata	0.85
			0.9			0.9
			0.95			0.95

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TRIAL PIT LOG TP 2

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.50m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 1.50m

EASTINGS 459175
NORTHINGS 224283

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
	D		0.05		TOPSOIL Soft brown sandy CLAY.	0.05
			0.1		MADE GROUND Firm brown silty slightly sandy gravelly CLAY. Grave is fine to coarse sub angular to subrounded of coal fragments. with rare fragments of glass.	0.1
			0.15		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.15
	D		0.2			0.2
			0.25			0.25
			0.3			0.3
			0.35			0.35
			0.4			0.4
			0.45			0.45
			0.5			0.5
			0.55		Termination Depth at: 0.50m In rock quality strata	0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75			0.75
			0.8			0.8
			0.85			0.85
			0.9			0.9
			0.95			0.95

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TRIAL PIT LOG TP 3

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.52m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 1.70m

EASTINGS 459181
NORTHINGS 224229

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
			0.05		WOODCHIP	0.05
			0.1			0.1
			0.15			0.15
			0.2			0.2
			0.25		TARMAC	0.25
	D		0.3			0.3
			0.35		ENGINEERED FILL LIMESTONE GRAVEL	0.35
	D		0.4			0.4
			0.45			0.45
			0.5			0.5
			0.55		Termination Depth at: 0.52m In rock quality strata	0.55

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TRIAL PIT LOG TP 4

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.83m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 1.95m

EASTINGS 459050
NORTHINGS 224330

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
	D		0.05		MADE GROUND Dark brown silty slightly sandy GRAVEL. Gravel is fine to coarse of metal, ceramic, brick and concrete. With 1no spent ignition fuse.	0.05
			0.1			0.1
			0.15			0.15
			0.2			0.2
			0.25			0.25
			0.3			0.3
			0.35			0.35
			0.4			0.4
			0.45			0.45
			0.5			0.5
	D		0.55		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75			0.75
			0.8			0.8
			0.85		Termination Depth at: 0.83m In rock quality strata	0.85
			0.9			0.9
			0.95			0.95

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TRIAL PIT LOG TP 5

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.70m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 2.15m

EASTINGS 459115
NORTHINGS 224277

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
			0.05		TOPSOIL Soft brown sandy CLAY. With wood fragments and roots.	0.05
			0.1		CORNBRASH FORMATION - VERY WEATHERED Soft brown clayey SILT.	0.1
	D		0.2			0.2
			0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.5
	D		0.7			0.7
			0.75		Termination Depth at: 0.70m In rock quality strata	0.75
			0.95			0.95

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TRIAL PIT LOG TP 6

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.70m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 1.95m

EASTINGS 459195
NORTHINGS 224250

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
			0.05		TOPSOIL Soft brown sandy CLAY.	0.05
	D		0.1		MADE GROUND Soft brown sandy CLAY. With fragments of glass brick and 1no lead pipe.	0.1
			0.15			0.15
			0.2		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.2
			0.25			0.25
			0.3			0.3
			0.35			0.35
			0.4			0.4
			0.45			0.45
	D		0.5			0.5
			0.55			0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75		Termination Depth at: 0.70m In rock quality strata	0.75
			0.8			0.8
			0.85			0.85
			0.9			0.9
			0.95			0.95

TRIAL PIT LOG TP 7

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.90m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.70m x 2.50m

EASTINGS 459084
NORTHINGS 224297

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY SB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
	D		0.05		MADE GROUND Dark brown silty slightly sandy GRAVEL. Gravel is fine to coarse of metal, ceramic, brick and concrete.	0.05
			0.1			0.1
			0.15			0.15
			0.2			0.2
			0.25			0.25
			0.3			0.3
			0.35			0.35
			0.4			0.4
			0.45			0.45
	D		0.5		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.5
			0.55			0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75			0.75
			0.8			0.8
			0.85			0.85
			0.9			0.9
			0.95		Termination Depth at: 0.90m In rock quality strata	0.95

TRIAL PIT LOG TP 8

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.90m
EXCAVATION METHOD JCB 3CX
GROUNDWATER DRY
DIMENSIONS (W X L) 0.75m x 2.35m

EASTINGS 459165
NORTHINGS 224306

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
			0.05		CONCRETE	0.05
	D		0.1		MADE GROUND Soft brown clayey slightly gravelly slightly sandy SILT with rare coal fragments.	0.1
			0.15			0.15
			0.2			0.2
			0.25			0.25
			0.3			0.3
			0.35		CORNBRASH FORMATION - WEATHERED Firm brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular of limestone.	0.35
			0.4			0.4
			0.45			0.45
	D		0.5			0.5
			0.55			0.55
			0.6			0.6
			0.65			0.65
			0.7			0.7
			0.75			0.75
			0.8			0.8
			0.85		CORNBRASH FORMATION Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.	0.85
			0.9			0.9
					Termination Depth at: 0.90m In rock quality strata	
			0.95			0.95

TRIAL PIT LOG TP 9

PROJECT NUMBER 18-08-08
PROJECT NAME BICESTER HERITAGE
CLIENT BICESTER HERITAGE

EXCAVATION DATE 17/9/18
TOTAL DEPTH 0.50m
EXCAVATION METHOD Hand Excavated
GROUNDWATER DRY
DIMENSIONS (W X L) 0.3m x 0.30m

EASTINGS 459169
NORTHINGS 224240

COMMENTS Logged to BS14688:2013

LOGGED BY DL
CHECKED BY MB

Hand Vane (kN/m2)	Samples	Groundwater	Depth (m)	Graphic Log	Material Description	Depth (m)
	D		0.02		MADE GROUND Soft brown clayey sandy GRAVEL. Gravel is fine to coarse of brick concrete, with intact cobbles of brick.	0.02
			0.04			0.04
			0.06			0.06
			0.08			0.08
			0.1			0.1
			0.12			0.12
			0.14			0.14
			0.16			0.16
			0.18			0.18
			0.2			0.2
			0.22			0.22
			0.24			0.24
			0.26			0.26
			0.28			0.28
			0.3			0.3
			0.32			0.32
			0.34			0.34
			0.36			0.36
			0.38			0.38
			0.4		Termination Depth at: 0.38m upon obstruction	0.4
			0.42			0.42
			0.44			0.44
			0.46			0.46
			0.48			0.48

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INTEGRITY

4 Church Street, Maids Moreton, MK18 1QE.
Mob:- 07858 367 125
www.geo-integrity.co.uk

INSPECTION PIT CROSS SECTION

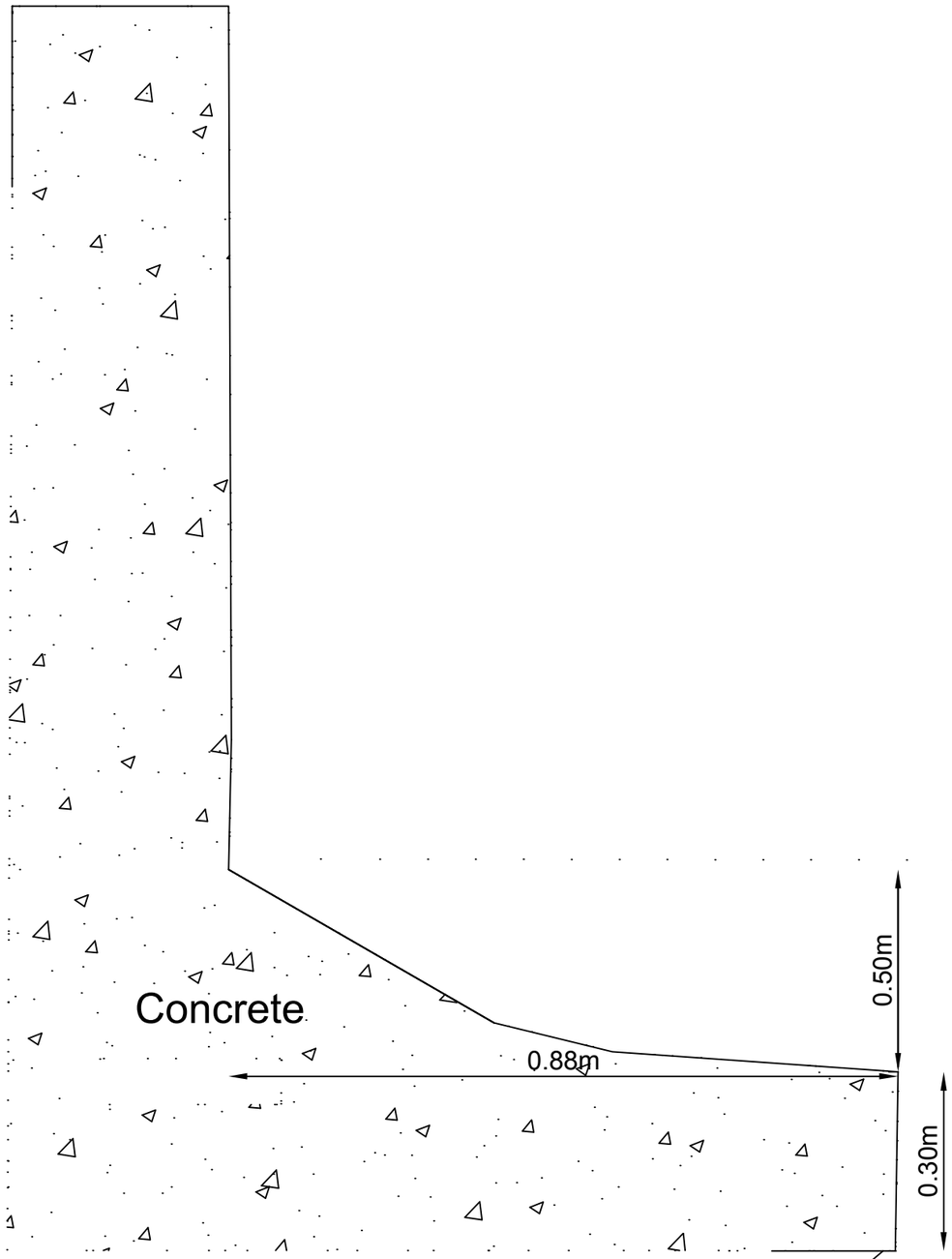
SITE:- New Technical Site, Bicester Heritage.

CLIENT:- Bicester Heritage

JOB NUMBER:- 18-08-08

DATE:- October 2018

TP 7



MADE GROUND
Dark brown silty slightly sandy GRAVEL. Gravel is fine to coarse of metal, ceramic, brick and concrete. With 1no spent ignition fuse.

CORNBRASH FORMATION
Brownish grey slightly silty slightly sandy gravelly cobbles of fossiliferous LIMESTONE.

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Trial Pit Infiltration Testing to BRE Digest 365

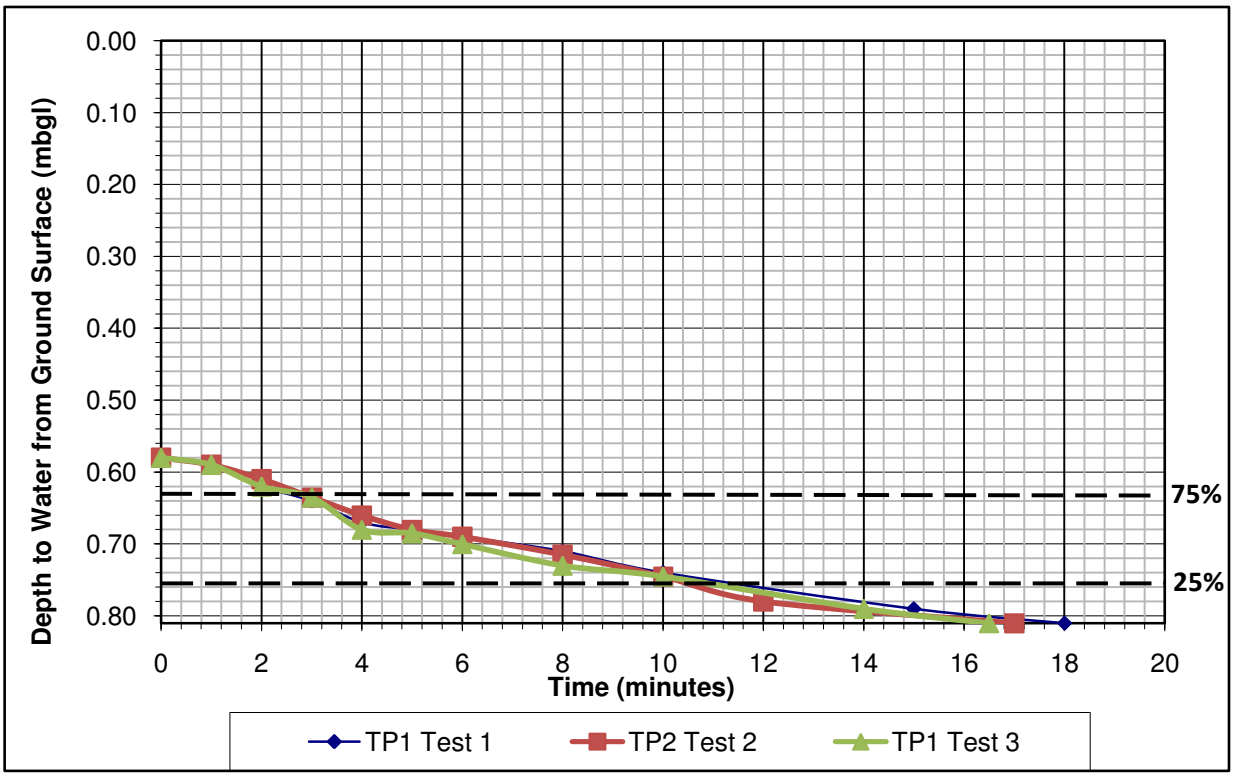
Client: Bicester Heritage
Site: New Technical Site
Dimensions: 0.70m x 1.50m x 0.81m (width x length x depth)

Report No: 18-08-08
Date Tested: 17/09/18
Test Location: TP1

Test Response Zone Description - : Weathered Limestone

Time	Depth BGL	Time	Depth BGL	Time	Depth BGL
0	0.58	8	0.71		
1	0.59	10	0.74		
2	0.62	15	0.79		
3	0.64	18	0.81		
4	0.67				
5	0.68				
6	0.69				

Calculated Soil Infiltration Rate = 1.42×10^{-4} m/s to 1.72×10^{-4} m/s



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Trial Pit Infiltration Testing to BRE Digest 365

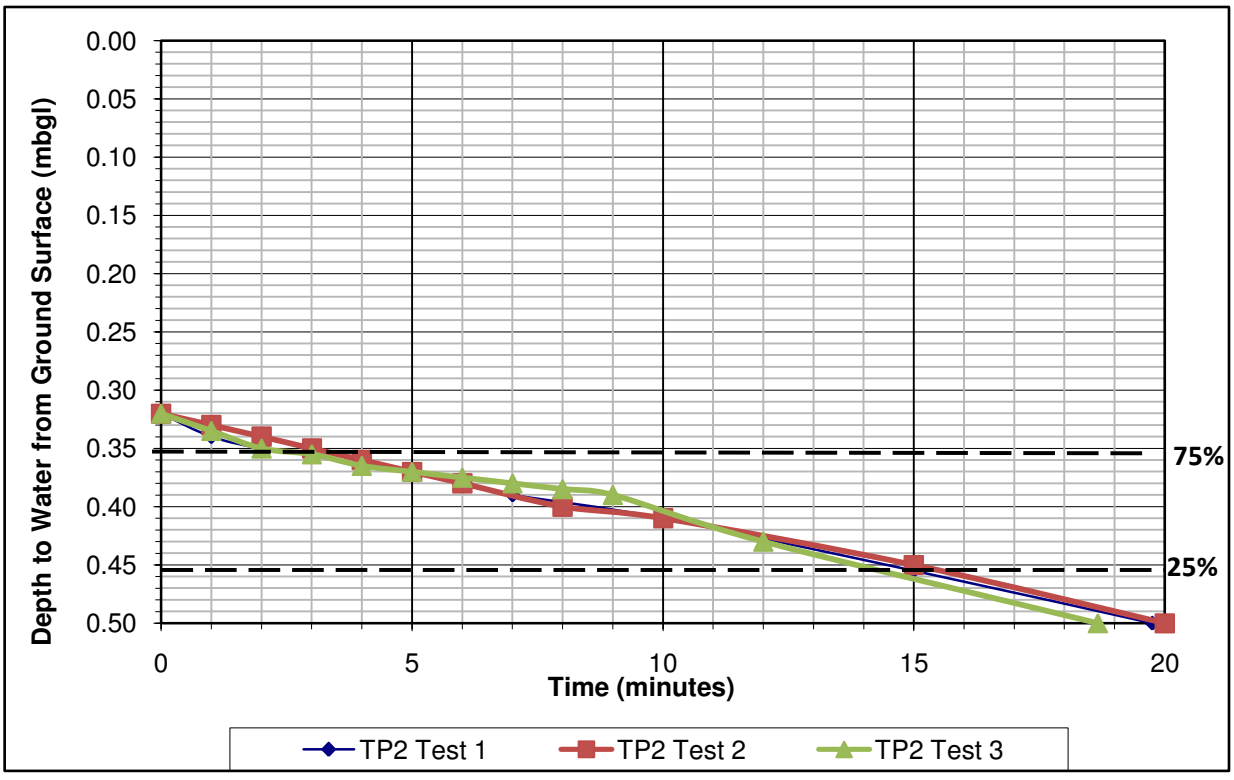
Client: Bicester Heritage
Site: New Technical Site
Dimensions: 0.60m x 1.90m x 0.50m (width x length x depth)

Report No: 18-08-08
Date Tested: 17/09/18
Test Location: TP2

Test Response Zone Description - : Weathered Limestone

Time	Depth BGL	Time	Depth BGL	Time	Depth BGL
0	0.32	7	0.39		
1	0.34	10	0.41		
2	0.35	15	0.46		
3	0.36	19.75	0.50		
4	0.37				
5	0.37				
6	0.38				

Calculated Soil Infiltration Rate = 9.78×10^{-5} m/s to 1.02×10^{-4} m/s



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Trial Pit Infiltration Testing to BRE Digest 365

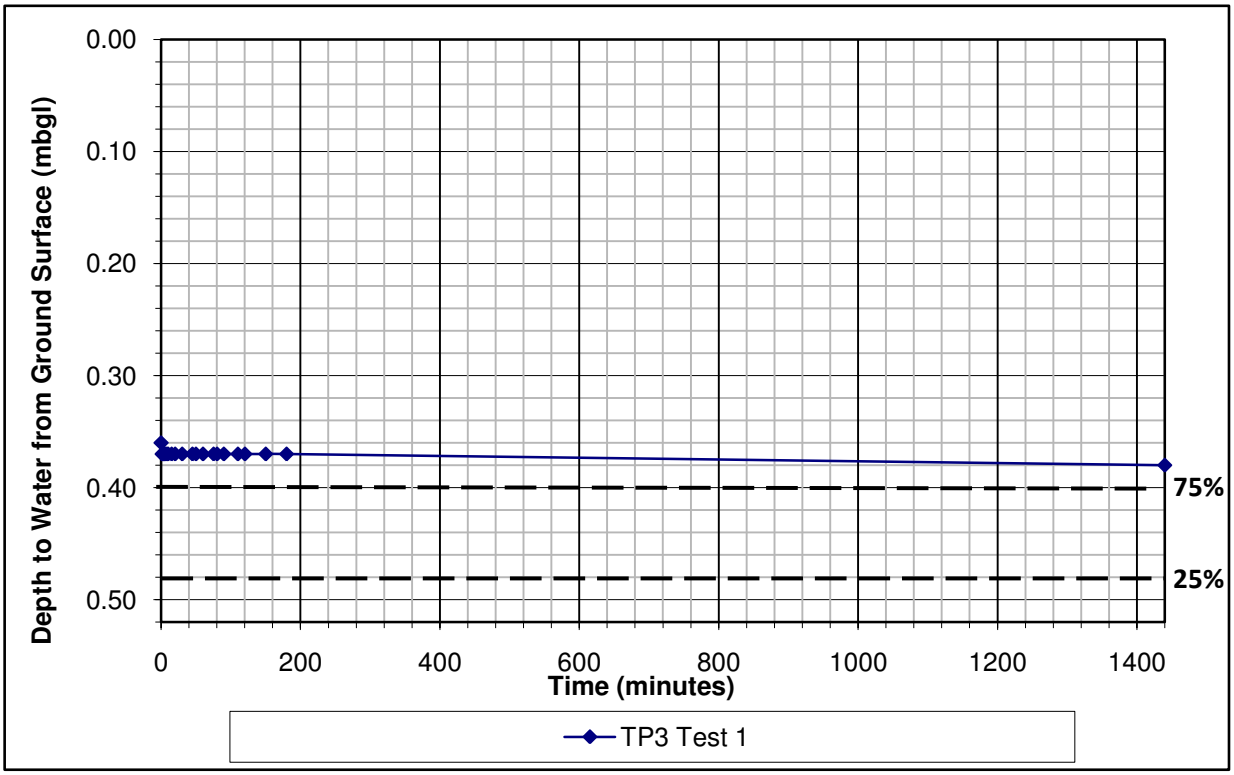
Client: Bicester Heritage
Site: New Technical Site
Dimensions: 0.70m x 1.30m x 0.52m (width x length x depth)

Report No: 18-08-08
Date Tested: 17/09/18
Test Location: TP3

Test Response Zone Description - : Made Ground

Time	Depth BGL	Time	Depth BGL	Time	Depth BGL
0	0.36	8	0.37	60	0.37
1	0.37	10	0.37	75	0.37
2	0.37	15	0.37	80	0.37
3	0.37	20	0.37	90	0.37
4	0.37	30	0.37	110	0.37
5	0.37	45	0.37	120	0.37
6	0.37	50	0.37	1440	0.38

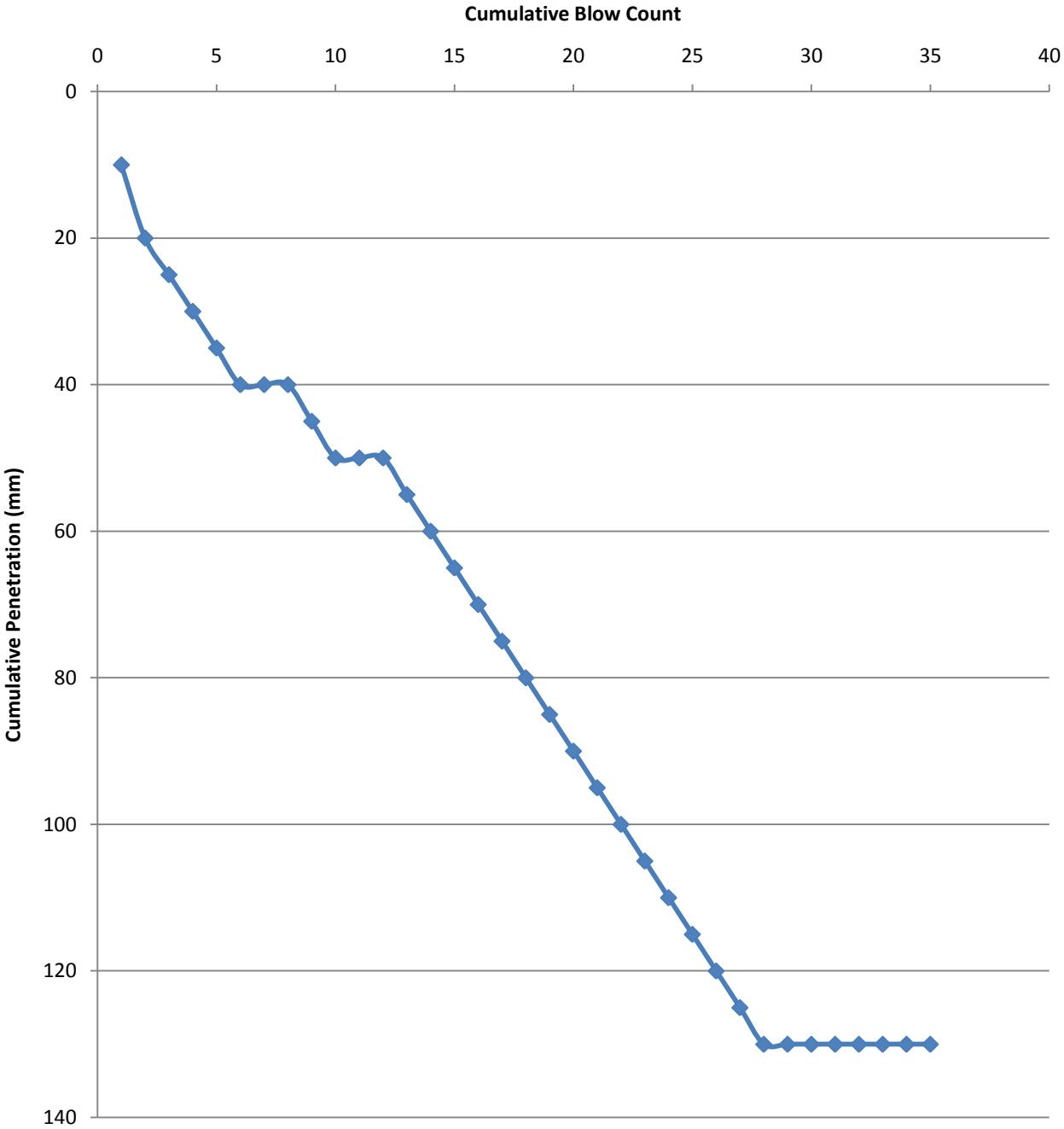
Unable to Calculated Average Soil Infiltration Rate
Comment: Insufficent drop in water level.



TRL DYNAMIC CONE PENETROMETER RECORD

Job No:- 18-08-08
Job Name:- Bicester
Equivelant CBR Result:- 51%
Position:- CBR 1
Depth below ground level at start of test:- 0.2

Cumulative Blows Vs Penetration (mm)

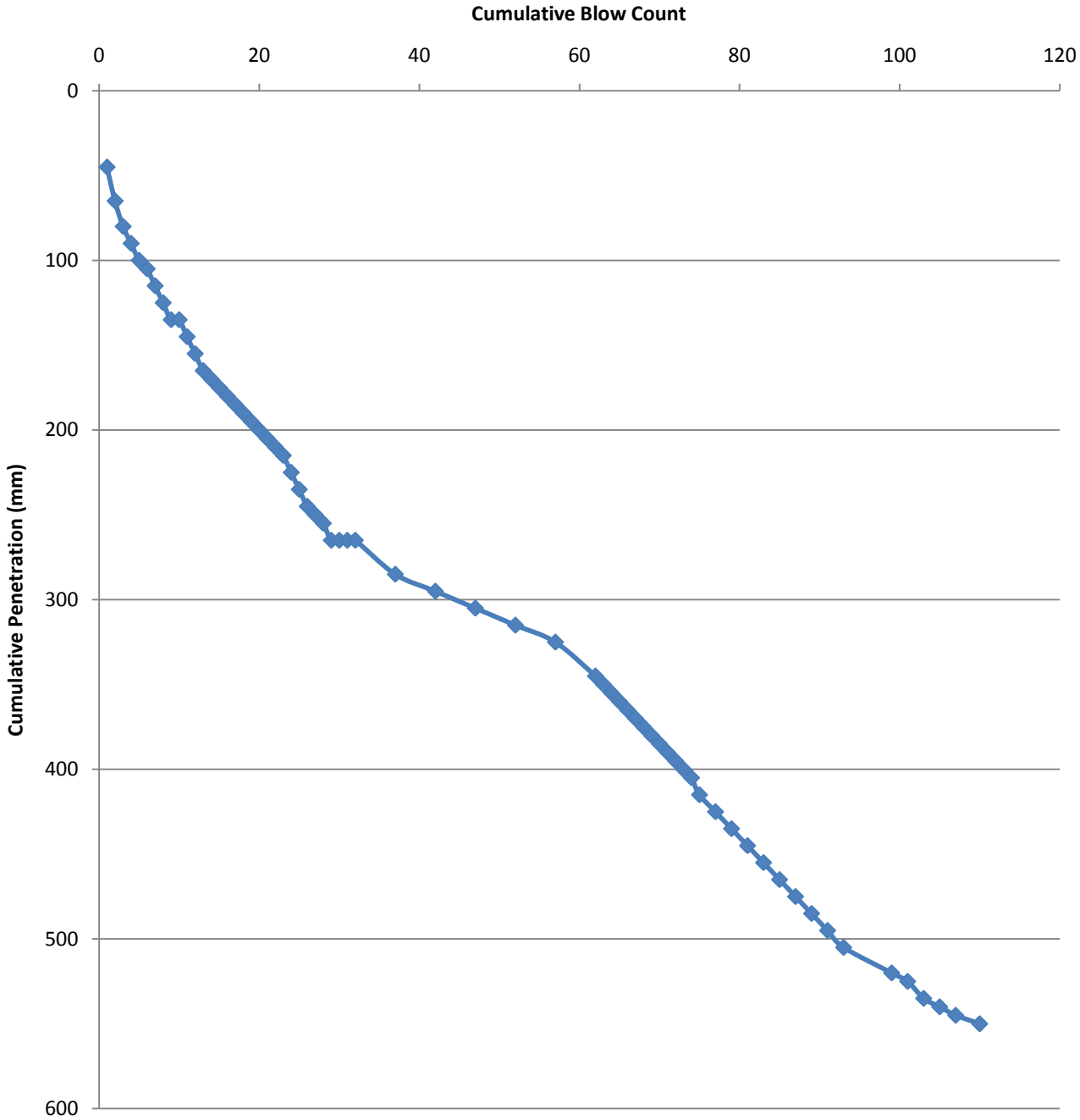


Geo-Integrity - 07858 367 125 - Email:-murraybateman@geo-integrity.co.uk

TRL DYNAMIC CONE PENETROMETER RECORD

Job No:- 18-08-08
Job Name:- Bicester
Equivelant CBR Result:- 32%
Position:- CBR 2
Depth below ground level at start of test:- 0.25

Cumulative Blows Vs Penetration (mm)

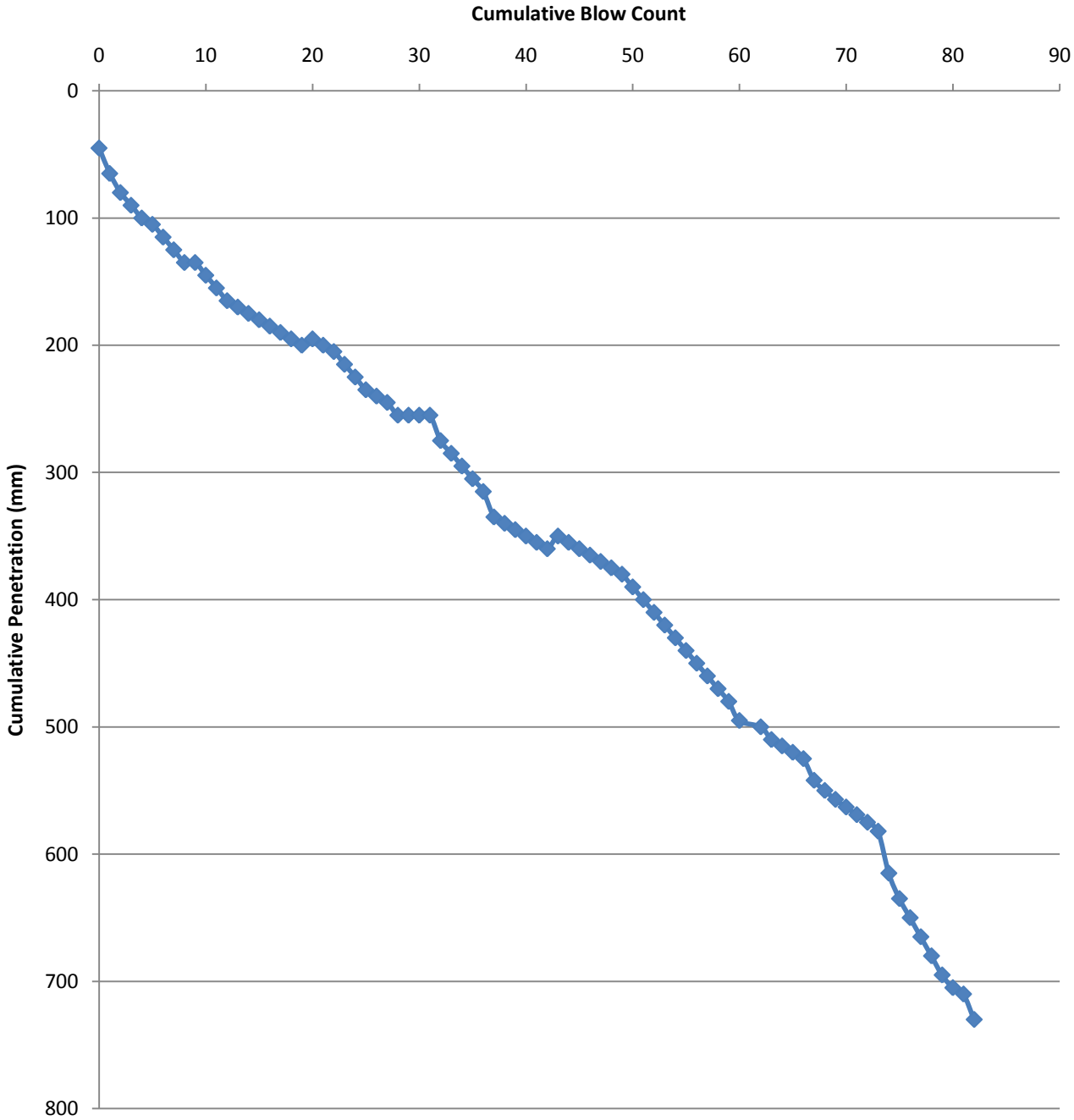


Geo-Integrity - 07858 367 125 - Email:-murraybateman@geo-integrity.co.uk

TRL DYNAMIC CONE PENETROMETER RECORD

Job No:- 18-08-08
Job Name:- Bicester
Equivelant CBR Result:- 29%
Position:- CBR 3
Depth below ground level at start of test:- 0.2

Cumulative Blows Vs Penetration (mm)

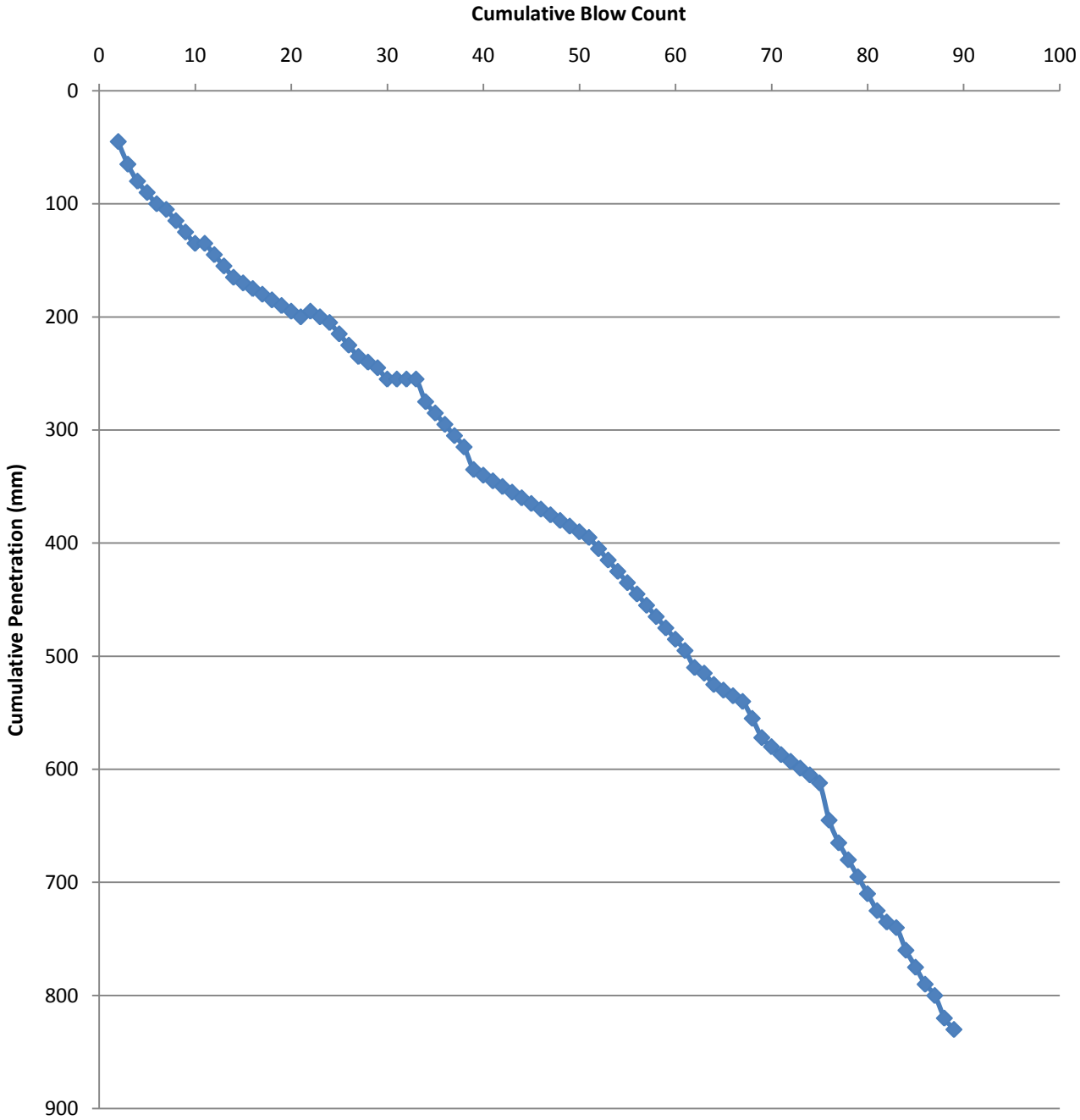


Geo-Integrity - 07858 367 125 - Email:-murraybateman@geo-integrity.co.uk

TRL DYNAMIC CONE PENETROMETER RECORD

Job No:- 18-08-08
Job Name:- Bicester
Equivelant CBR Result:- 35%
Position:- CBR 4
Depth below ground level at start of test:- 0.15

Cumulative Blows Vs Penetration (mm)

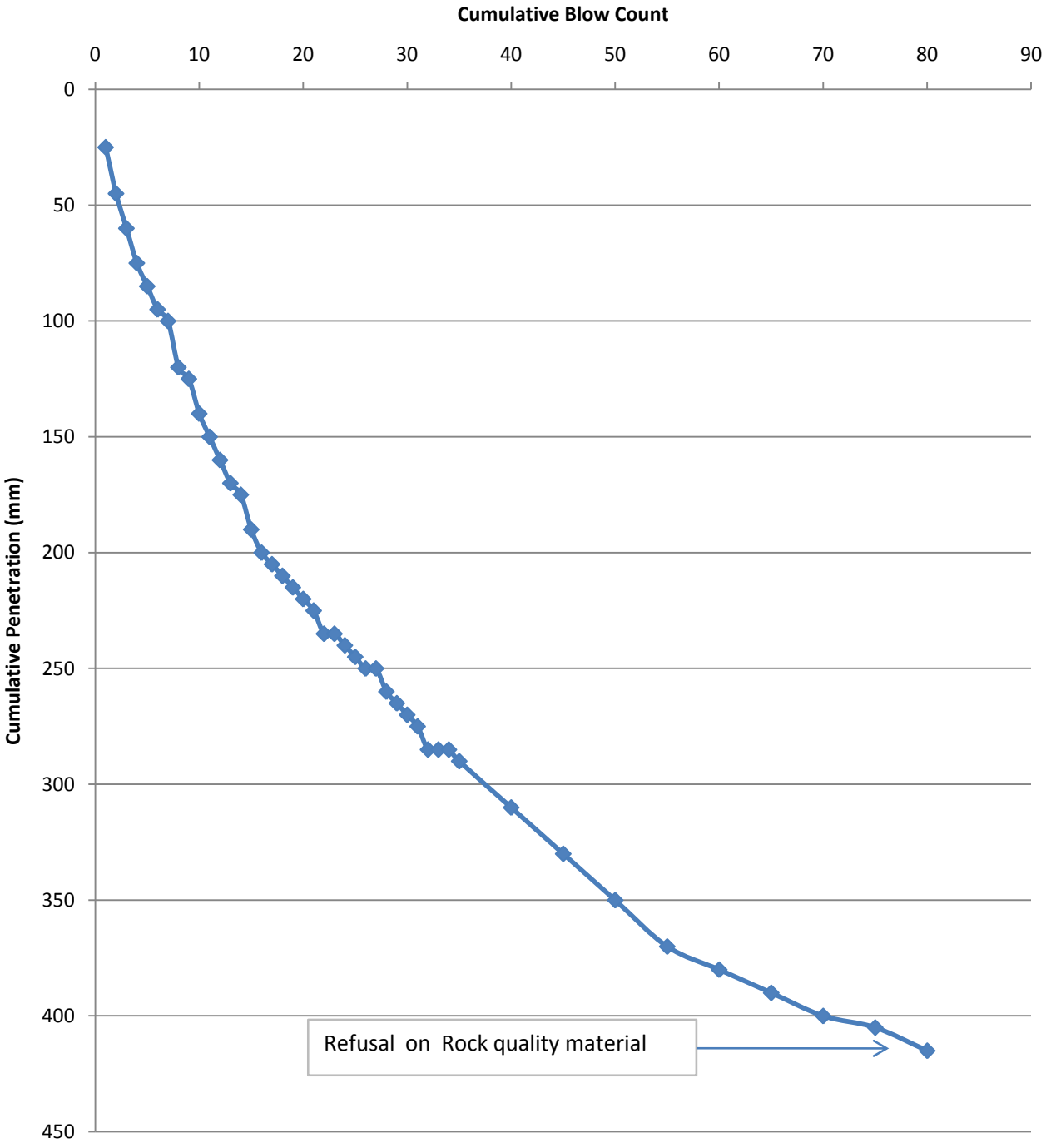


Geo-Integrity - 07858 367 125 - Email:-murraybateman@geo-integrity.co.uk

TRL DYNAMIC CONE PENETROMETER RECORD

Job No:- 18-08-08
Job Name:- Bicester
Equivelant CBR Result:- 28%
Position:- CBR 1
Depth below ground level at start of test:- 0.15m

Cumulative Blows Vs Penetration (mm)



Geo-Integrity - 07858 367 125 - Email:-murraybateman@geo-integrity.co.uk

APPENDIX C

Geo-Integrity, - 07858 367 125 Email:- murraybateman@geo-integrity.co.uk

Laboratory Report

2788

GEO Site & Testing Services Ltd

Contract Number: 40980

Client Ref: **18-08-08**
Client PO:

Report Date: **15-10-2018**

Client **Geo Integrity**
4 Church Street
Maids
Moreton
MK18 1QE

Contract Title: **Bicester Heritage, New Technical Site**
For the attention of: **Danny Lusardi**

Date Received: **01-10-2018**
Date Commenced: **01-10-2018**
Date Completed: **15-10-2018**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	2
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	2
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	4
CBR: Remoulded Specimen and tested at top only BS 1377:1990 - Part 4 : 7 - * UKAS	1
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Alex Wynn (Associate Director) - Ben Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Paul Evans (Quality/Technical Manager) - Richard John (Advanced Testing Manager) - Sean Penn (Administrative/Accounts Assistant)
Wayne Honey (Administrative/Quality Assistant)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5) DESCRIPTIONS	
Contract Number	40980	
Site Name	Bicester Heritage, New Technical Site	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
WS2		D	0.20	-		Brown fine to coarse gravelly clayey SILT.
TP5		D	0.20	-		Brown silty CLAY.
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
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				-		
				-		
				-		

Operators	Checked	15/10/2018	Ben Sharp (Contracts Manager)
Daniel Bassett	Approved	15/10/2018	Paul Evans (Quality/Technical Manager)

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2788

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)

Contract Number	40980
Site Name	Bicester Heritage, New Technical Site

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing .425mm %	Remarks
WS2		D	0.20	-		14	52	24	28	75	CH High Plasticity
TP5		D	0.20	-		30	62	38	24	100	MH High Plasticity
				-							
				-							
				-							
				-							
				-							
				-							
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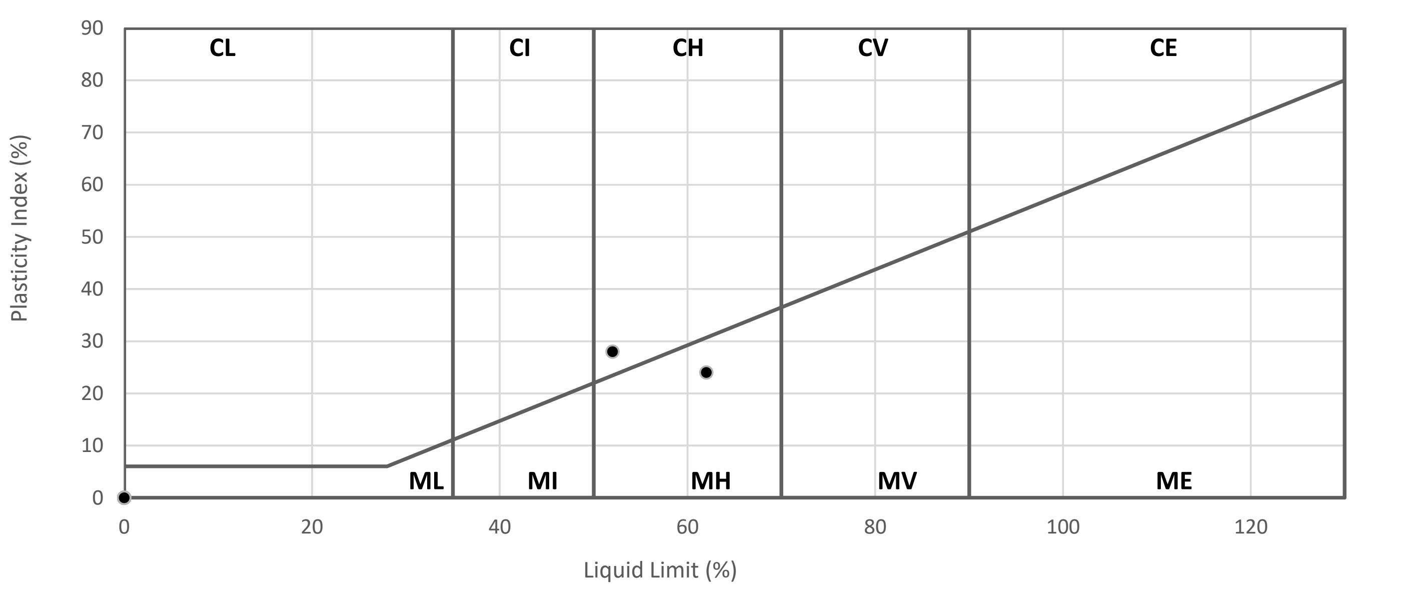
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

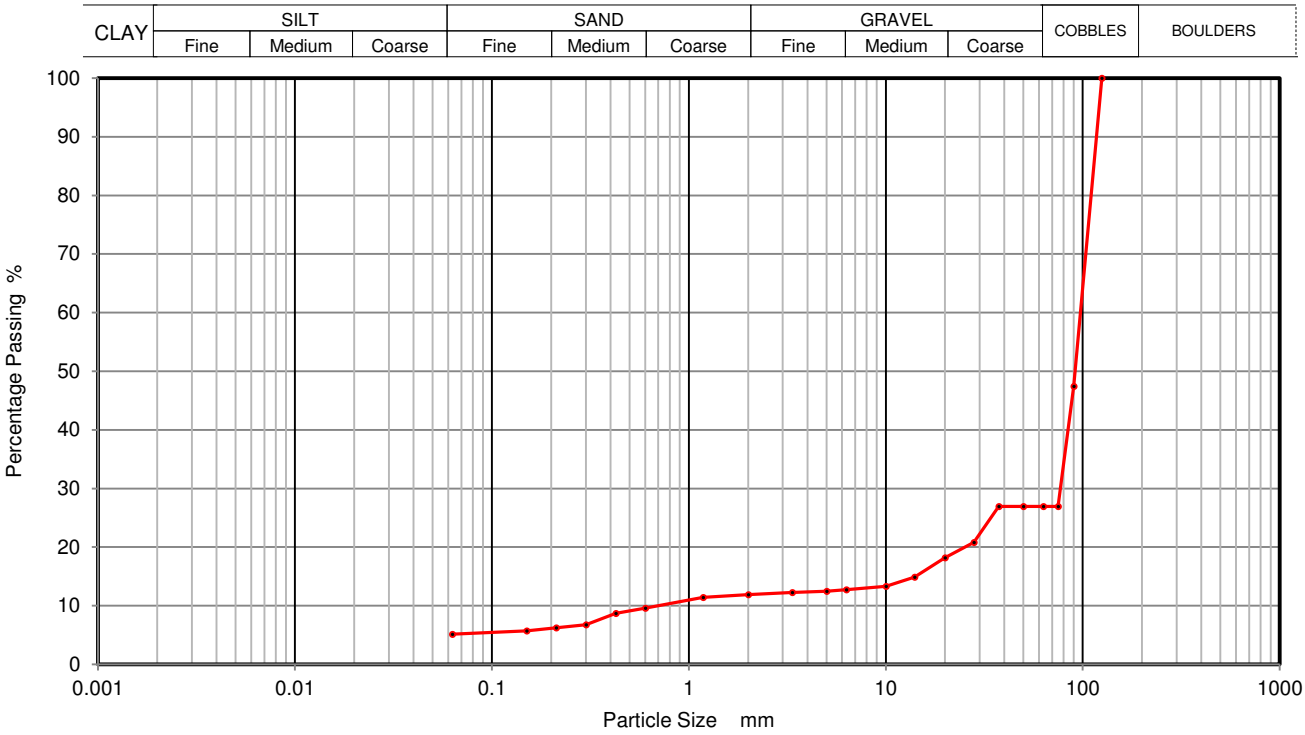
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	15/10/2018	Ben Sharp (Contracts Manager)
Daniel Bassett	Approved	15/10/2018	Paul Evans (Quality/Technical Manager)

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	40980
		Borehole/Pit No.	TP1
Site Name	Bicester Heritage, New Technical Site	Sample No.	
Soil Description	Brown slightly silty/clayey slightly fine to coarse sandy fine to coarse GRAVEL with many cobbles.	Depth Top	0.50
		Depth Base	
		Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	47	0.0060	
75	27	0.0019	
63	27		
50	27		
37.5	27		
28	21		
20	18		
14	15		
10	13		
6.3	13		
5	12		
3.35	12		
2	12		
1.18	11		
0.6	10		
0.425	9		
0.3	7		
0.212	6		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Cobbles	73
Gravel	15
Sand	7
Silt and Clay	5

Grading Analysis	
Uniformity Coefficient	

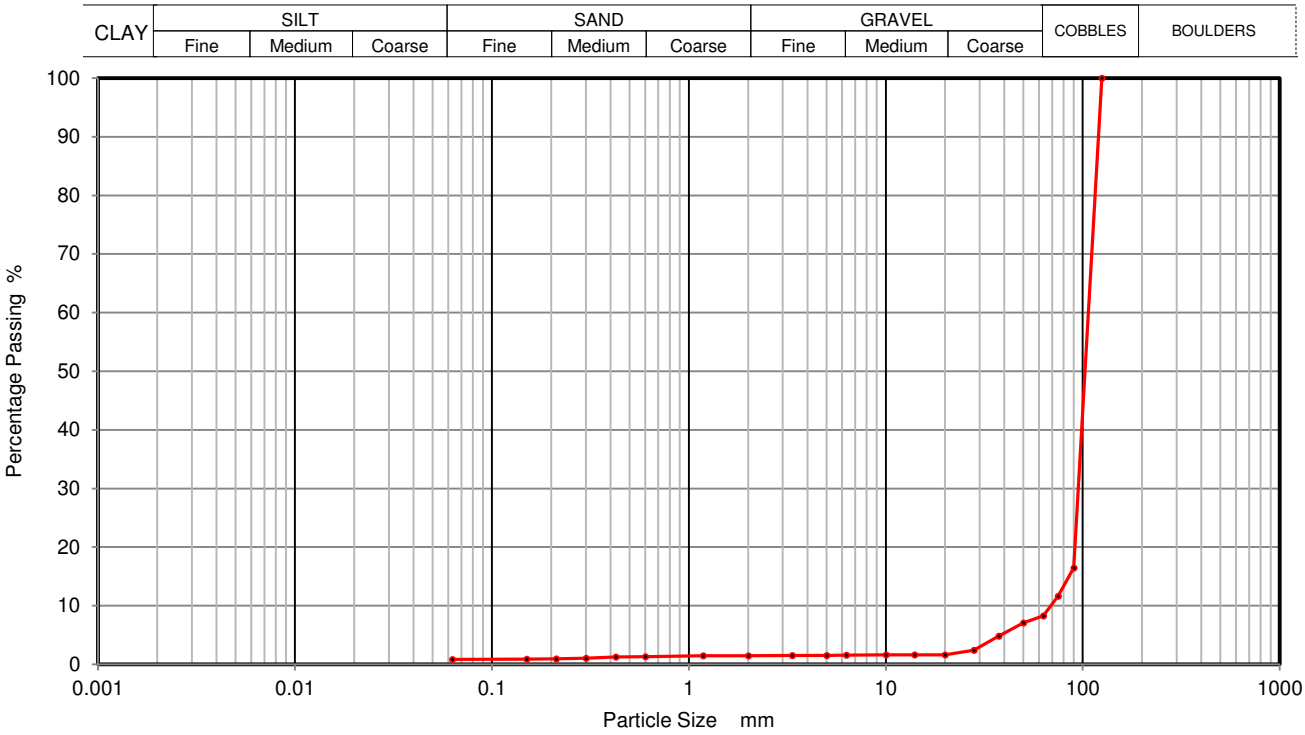
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	14/10/2018	Ben Sharp	
RO/MH	Approved	15/10/2018	Paul Evans	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	40980
		Borehole/Pit No.	TP4
Site Name	Bicester Heritage, New Technical Site	Sample No.	
Soil Description	Brown fine to coarse GRAVEL with many cobbles.	Depth Top	0.55
		Depth Base	
		Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	16	0.0060	
75	12	0.0019	
63	8		
50	7		
37.5	5		
28	2		
20	2		
14	2		
10	2		
6.3	2		
5	2		
3.35	2		
2	1		
1.18	1		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Cobbles	92
Gravel	7
Sand	0
Silt and Clay	1

Grading Analysis	
Uniformity Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	14/10/2018	Ben Sharp	
RO/MH	Approved	15/10/2018	Paul Evans	

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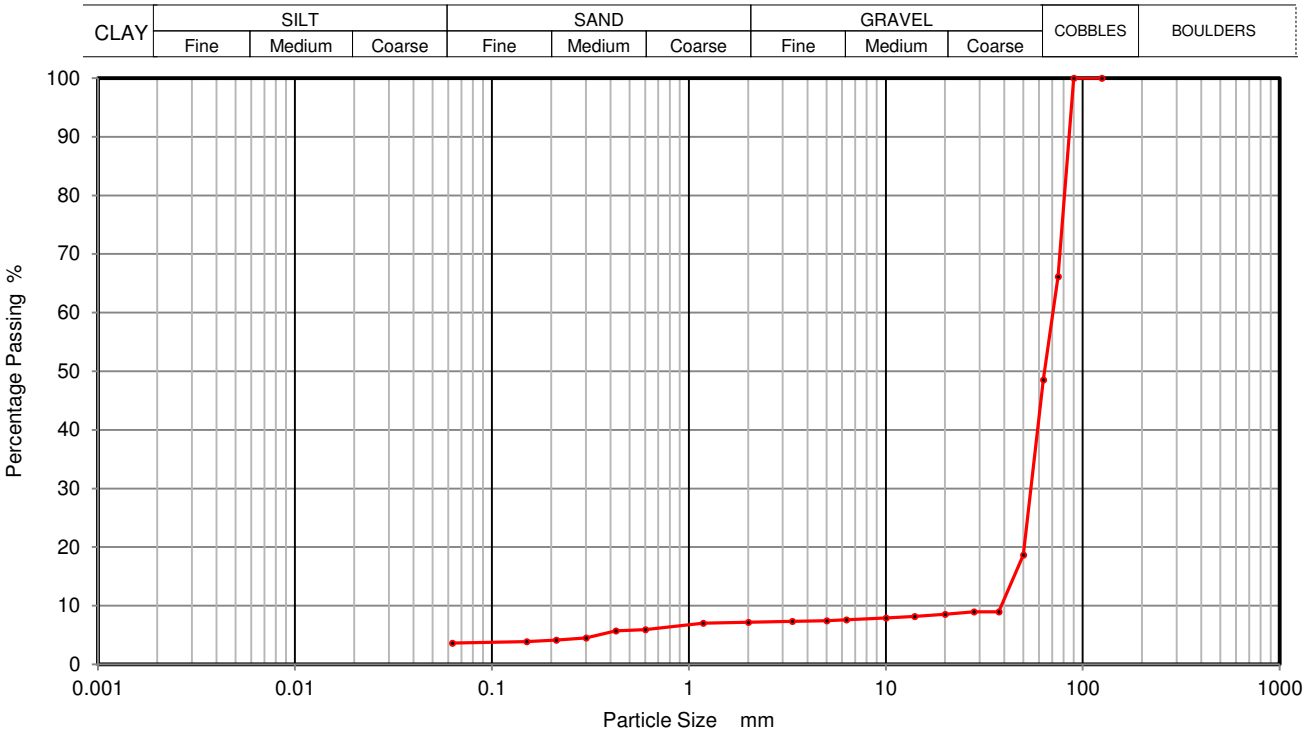
GSTL	**PARTICLE SIZE DISTRIBUTION** **BS 1377 Part 2:1990** **Wet Sieve, Clause 9.2**	Contract Number	**40980**
		Borehole/Pit No.	**TP5**
Site Name	**Bicester Heritage, New Technical Site**	Sample No.	
Soil Description	Brown fine to coarse GRAVEL with many cobbles.	Depth Top	**0.55**
		Depth Base	
		Sample Type	**D**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	66	0.0019	
63	49		
50	19		
37.5	9		
28	9		
20	9		
14	8		
10	8		
6.3	8		
5	7		
3.35	7		
2	7		
1.18	7		
0.6	6		
0.425	6		
0.3	5		
0.212	4		
0.15	4		
0.063	4		

Sample Proportions	% dry mass
Cobbles	51
Gravel	42
Sand	3
Silt and Clay	4

Grading Analysis	
Uniformity Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	14/10/2018	Ben Sharp	
RO/MH	Approved	15/10/2018	Paul Evans	

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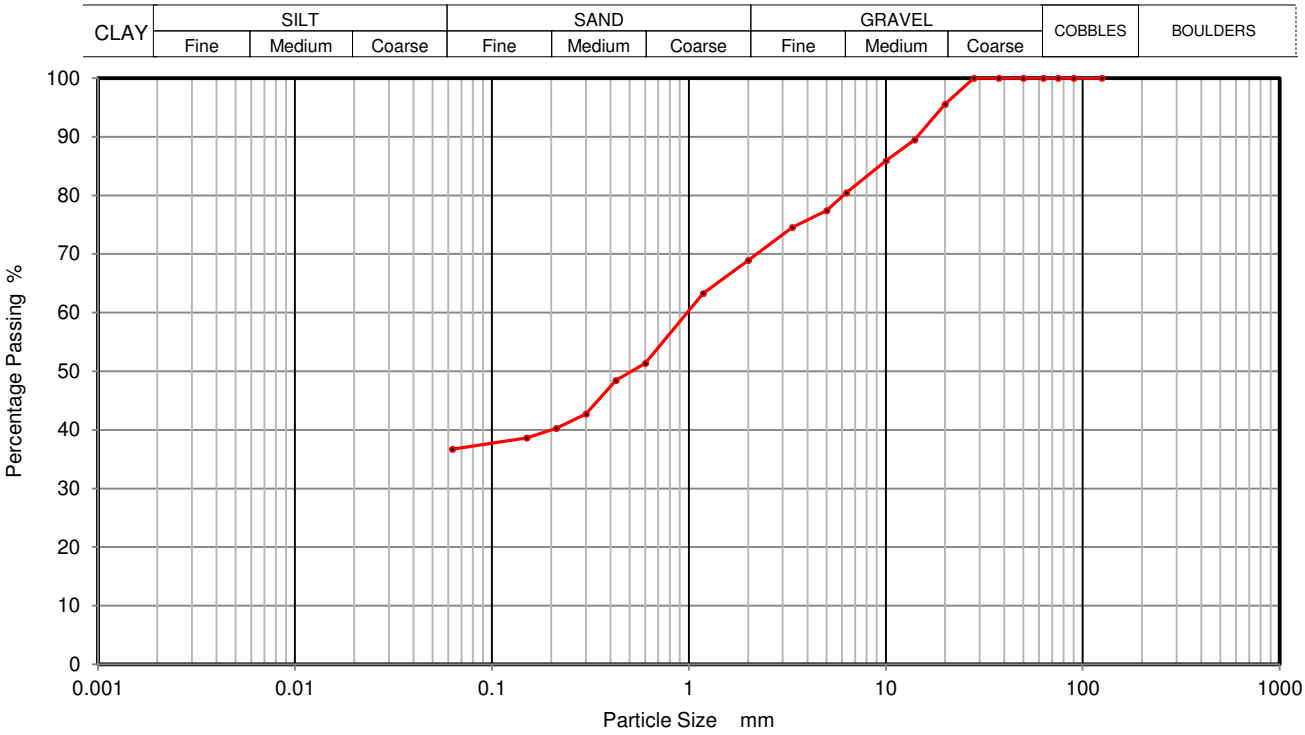
GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	40980
		Borehole/Pit No.	WS3
Site Name	**Bicester Heritage, New Technical Site**	Sample No.	
Soil Description	Brown fine to medium gravelly fine to coarse sandy silty CLAY.	Depth Top	0.50
		Depth Base	
		Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	89		
10	86		
6.3	80		
5	77		
3.35	75		
2	69		
1.18	63		
0.6	51		
0.425	48		
0.3	43		
0.212	40		
0.15	39		
0.063	37		

Sample Proportions	% dry mass
Cobbles	0
Gravel	31
Sand	32
Silt and Clay	37

Grading Analysis	
Uniformity Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	14/10/2018	Ben Sharp	
RO/MH	Approved	15/10/2018	Paul Evans	

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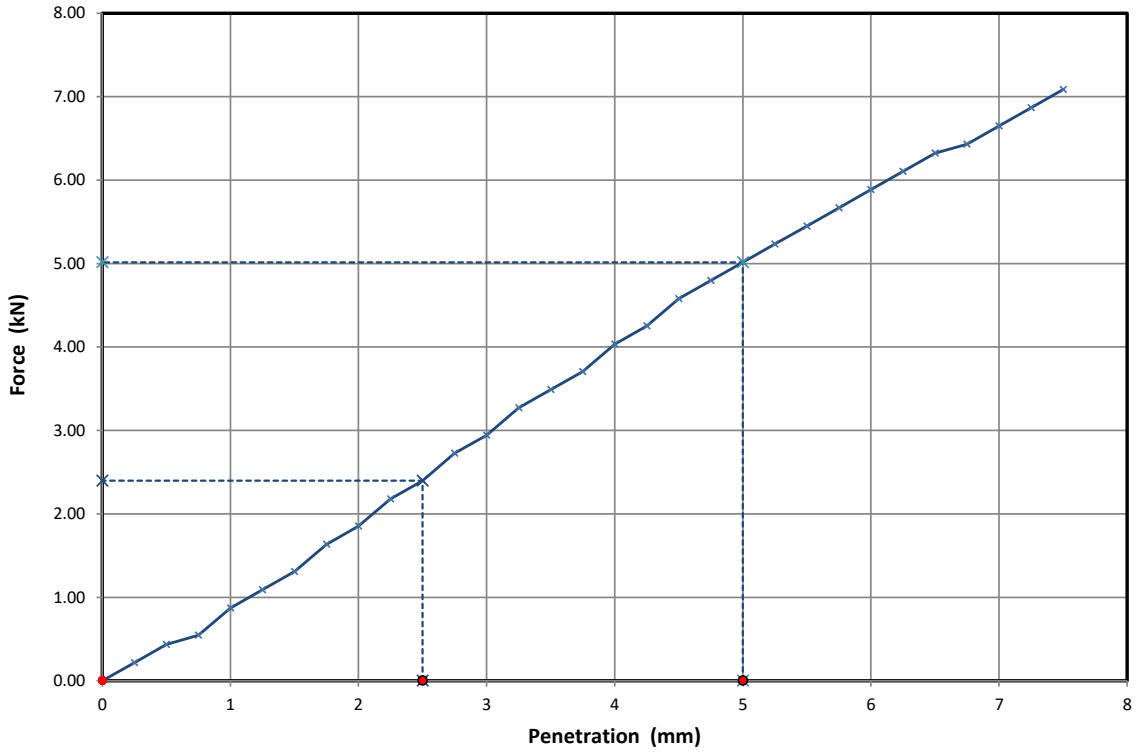
GSTL	California Bearing Ratio BS 1377: Part 4: 1990 Clause 7	Contract Number	40980
		Borehole/Pit No.	Group 2
Site Name	Bicester Heritage, New Technical Site	Sample No.	
Soil Description	Brown fine to coarse gravelly silty SAND	Depth Top	
Compaction Method	2.5 Kg Rammer	Depth Base	
Retained 20mm	12 %	Sample Type	B



Initial Sample Conditions	
Moisture Content (%)	7.7
Moisture Top (%)	8.5
Moisture Bottom (%)	
Bulk Density (Mg/m3)	1.69
Dry Density (Mg/m3)	1.57

Specified Testing Parameters	
Surcharge (Kg)	2
Soaking Time (hours)	N/A
Swelling (mm)	N/A
Remarks	

CBR Test Values			
2.5mm Top	18.2	2.5mm Bottom	
5mm Top	25.1	5mm Bottom	
CBR Value %	**25.1**	**CBR Value %**	

Operators	Checked	14/10/2018	Ben Sharp	
RO/MH	Approved	15/10/2018	Paul Evans	

UKAS TESTING 2788

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	18-29794-1
Initial Date of Issue:	08-Oct-2018
Client	Geo Integrity
Client Address:	4 Church Street Maids Moreton Bucks MK18 1QE
Contact(s):	Danny Lusardi
Project	Bicester Heritage, New Technical Site

Quotation No.:	Q16-07998	**Date Received:**	28-Sep-2018
Order No.:		**Date Instructed:**	28-Sep-2018
No. of Samples:	21		
Turnaround (Wkdays):	5	**Results Due:**	04-Oct-2018
Date Approved:	08-Oct-2018		

Approved By:

Details: Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity				**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998				**Chemtest Sample ID.:**	697306	697307	697308	697309	697310	697311	697312	697313	697314
				Client Sample ID.:	1	2	3	4	5	6	7	8	9
				Sample Location:	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.2	0.1	0.3	0.4	0.25	0.2	0.1	0.1	0.1
				Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018
				Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-		-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	7.7	6.9	< 0.020	0.40	20	23	3.6	< 0.020	13
pH	U	2010		N/A									
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010									
Total Sulphur	U	2175	%	0.010									
Sulphate (Acid Soluble)	U	2430	%	0.010									
Arsenic	U	2450	mg/kg	1.0	45	38		16	23	28	25	42	39
Cadmium	U	2450	mg/kg	0.10	0.14	0.51		< 0.10	10	0.33	0.25	0.25	0.24
Chromium	U	2450	mg/kg	1.0	22	24		2.1	47	36	11	26	24
Copper	U	2450	mg/kg	0.50	7.7	22		1.4	850	16	7.5	14	14
Mercury	U	2450	mg/kg	0.10	< 0.10	0.14		< 0.10	0.44	< 0.10	< 0.10	0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	30	41		3.6	54	39	13	36	33
Lead	U	2450	mg/kg	0.50	24	82		2.4	1200	45	71	42	41
Selenium	U	2450	mg/kg	0.20	0.25	< 0.20		< 0.20	0.44	1.0	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	23	66		3.1	1900	59	45	44	42
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TPH >C5-C6	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C6-C7	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C7-C8	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	3.2	< 1.0
TPH >C12-C16	N	2670	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	20	< 1.0
TPH >C16-C21	N	2670	mg/kg	1.0	< 1.0	24		< 1.0	< 1.0	< 1.0	71	40	< 1.0
TPH >C21-C35	N	2670	mg/kg	1.0	< 1.0	80		< 1.0	< 1.0	< 1.0	240	800	< 1.0
Total TPH >C5-C35	N	2670	mg/kg	10	< 10	100		< 10	< 10	< 10	310	870	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	0.36	11	< 0.10	0.28	< 0.10	0.38	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	1.1	3.6	< 0.10	1.8	< 0.10	0.19	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	0.14	18	< 0.10	1.6	< 0.10	0.23	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	0.29	19	< 0.10	0.35	< 0.10	0.19	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	2.3	81	< 0.10	3.3	< 0.10	2.7	3.2	0.17
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.37	32	< 0.10	0.97	< 0.10	0.78	0.34	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.6	68	0.11	3.5	0.25	6.5	1.8	0.38
Pyrene	U	2700	mg/kg	0.10	< 0.10	1.8	61	< 0.10	3.5	0.17	6.4	1.6	0.36
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.72	19	< 0.10	1.9	< 0.10	3.0	< 0.10	0.15
Chrysene	U	2700	mg/kg	0.10	< 0.10	1.4	28	< 0.10	2.9	< 0.10	4.2	< 0.10	0.37
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.3	19	< 0.10	2.1	< 0.10	3.9	< 0.10	0.25

Chemtest
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Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					**Chemtest Sample ID.:**	697306	697307	697308	697309	697310	697311	697312	697313	697314
					Client Sample ID.:	1	2	3	4	5	6	7	8	9
					Sample Location:	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.1	0.3	0.4	0.25	0.2	0.1	0.1	0.1
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		< 0.10	0.46	9.7	< 0.10	0.74	< 0.10	1.5	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		< 0.10	1.1	15	< 0.10	1.5	< 0.10	3.1	< 0.10	0.20
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		< 0.10	0.70	9.0	< 0.10	1.1	< 0.10	2.2	< 0.10	0.23
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	0.40	3.0	< 0.10	0.25	< 0.10	0.48	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		< 0.10	1.5	8.0	< 0.10	2.1	< 0.10	2.2	< 0.10	0.55
Total Of 16 PAH's	U	2700	mg/kg	2.0		< 2.0	16	400	< 2.0	28	< 2.0	38	6.9	2.7
Dichlorodifluoromethane	N	2760	µg/kg	1.0									< 1.0	
Chloromethane	U	2760	µg/kg	1.0									< 1.0	
Vinyl Chloride	U	2760	µg/kg	1.0									< 1.0	
Bromomethane	U	2760	µg/kg	20									< 20	
Chloroethane	N	2760	µg/kg	2.0									< 2.0	
Trichlorofluoromethane	U	2760	µg/kg	1.0									< 1.0	
1,1-Dichloroethene	U	2760	µg/kg	1.0									< 1.0	
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0									< 1.0	
1,1-Dichloroethane	U	2760	µg/kg	1.0									< 1.0	
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0									< 1.0	
Bromochloromethane	N	2760	µg/kg	5.0									< 5.0	
Trichloromethane	U	2760	µg/kg	1.0									< 1.0	
1,1,1-Trichloroethane	U	2760	µg/kg	1.0									< 1.0	
Tetrachloromethane	U	2760	µg/kg	1.0									< 1.0	
1,1-Dichloropropene	N	2760	µg/kg	1.0									< 1.0	
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	2760	µg/kg	2.0									< 2.0	
Trichloroethene	U	2760	µg/kg	1.0									< 1.0	
1,2-Dichloropropane	U	2760	µg/kg	1.0									< 1.0	
Dibromomethane	U	2760	µg/kg	1.0									< 1.0	
Bromodichloromethane	U	2760	µg/kg	5.0									< 5.0	
cis-1,3-Dichloropropene	N	2760	µg/kg	10									< 10	
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10									< 10	
1,1,2-Trichloroethane	U	2760	µg/kg	10									< 10	
Tetrachloroethene	U	2760	µg/kg	1.0									< 1.0	
1,3-Dichloropropane	N	2760	µg/kg	2.0									< 2.0	
Dibromochloromethane	N	2760	µg/kg	10									< 10	
1,2-Dibromoethane	U	2760	µg/kg	5.0									< 5.0	
Chlorobenzene	U	2760	µg/kg	1.0									< 1.0	
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0									< 2.0	
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					Chemtest Job No.:	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					Chemtest Sample ID.:	697306	697307	697308	697309	697310	697311	697312	697313	697314
					Client Sample ID.:	1	2	3	4	5	6	7	8	9
					Sample Location:	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.1	0.3	0.4	0.25	0.2	0.1	0.1	0.1
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	U	2760	µg/kg	1.0									< 1.0	
Tribromomethane	N	2760	µg/kg	1.0									< 1.0	
Isopropylbenzene	U	2760	µg/kg	1.0									< 1.0	
Bromobenzene	U	2760	µg/kg	1.0									< 1.0	
1,2,3-Trichloropropane	N	2760	µg/kg	50									< 50	
N-Propylbenzene	N	2760	µg/kg	1.0									< 1.0	
2-Chlorotoluene	U	2760	µg/kg	1.0									< 1.0	
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0									< 1.0	
4-Chlorotoluene	N	2760	µg/kg	1.0									< 1.0	
Tert-Butylbenzene	N	2760	µg/kg	1.0									< 1.0	
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0									< 1.0	
Sec-Butylbenzene	N	2760	µg/kg	1.0									< 1.0	
1,3-Dichlorobenzene	U	2760	µg/kg	1.0									< 1.0	
4-Isopropyltoluene	N	2760	µg/kg	1.0									< 1.0	
1,4-Dichlorobenzene	U	2760	µg/kg	1.0									< 1.0	
N-Butylbenzene	N	2760	µg/kg	1.0									< 1.0	
1,2-Dichlorobenzene	U	2760	µg/kg	1.0									< 1.0	
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50									< 50	
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0									< 1.0	
Hexachlorobutadiene	N	2760	µg/kg	1.0									< 1.0	
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0									< 2.0	
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0									< 1.0	
N-Nitrosodimethylamine	U	2790	mg/kg	0.50									< 0.50	
Phenol	U	2790	mg/kg	0.50									< 0.50	
2-Chlorophenol	U	2790	mg/kg	0.50									< 0.50	
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50									< 0.50	
1,3-Dichlorobenzene	U	2790	mg/kg	0.50									< 0.50	
1,4-Dichlorobenzene	N	2790	mg/kg	0.50									< 0.50	
1,2-Dichlorobenzene	U	2790	mg/kg	0.50									< 0.50	
2-Methylphenol	U	2790	mg/kg	0.50									< 0.50	
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50									< 0.50	
Hexachloroethane	N	2790	mg/kg	0.50									< 0.50	
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50									< 0.50	
4-Methylphenol	U	2790	mg/kg	0.50									< 0.50	
Nitrobenzene	U	2790	mg/kg	0.50									< 0.50	
Isophorone	U	2790	mg/kg	0.50									< 0.50	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					**Chemtest Sample ID.:**	697306	697307	697308	697309	697310	697311	697312	697313	697314
					Client Sample ID.:	1	2	3	4	5	6	7	8	9
					Sample Location:	TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.1	0.3	0.4	0.25	0.2	0.1	0.1	0.1
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
2-Nitrophenol	N	2790	mg/kg	0.50									< 0.50	
2,4-Dimethylphenol	N	2790	mg/kg	0.50									< 0.50	
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50									< 0.50	
2,4-Dichlorophenol	U	2790	mg/kg	0.50									< 0.50	
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50									< 0.50	
Naphthalene	U	2790	mg/kg	0.50									< 0.50	
4-Chloroaniline	N	2790	mg/kg	0.50									< 0.50	
Hexachlorobutadiene	U	2790	mg/kg	0.50									< 0.50	
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50									< 0.50	
2-Methylnaphthalene	U	2790	mg/kg	0.50									< 0.50	
4-Nitrophenol	N	2790	mg/kg	0.50									< 0.50	
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50									< 0.50	
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50									< 0.50	
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50									< 0.50	
2-Chloronaphthalene	U	2790	mg/kg	0.50									< 0.50	
2-Nitroaniline	U	2790	mg/kg	0.50									< 0.50	
Acenaphthylene	U	2790	mg/kg	0.50									< 0.50	
Dimethylphthalate	U	2790	mg/kg	0.50									< 0.50	
2,6-Dinitrotoluene	U	2790	mg/kg	0.50									< 0.50	
Acenaphthene	U	2790	mg/kg	0.50									< 0.50	
3-Nitroaniline	N	2790	mg/kg	0.50									< 0.50	
Dibenzofuran	U	2790	mg/kg	0.50									< 0.50	
4-Chlorophenylphenylether	U	2790	mg/kg	0.50									< 0.50	
2,4-Dinitrotoluene	U	2790	mg/kg	0.50									< 0.50	
Fluorene	U	2790	mg/kg	0.50									< 0.50	
Diethyl Phthalate	U	2790	mg/kg	0.50									< 0.50	
4-Nitroaniline	U	2790	mg/kg	0.50									< 0.50	
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50									< 0.50	
Azobenzene	U	2790	mg/kg	0.50									< 0.50	
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50									< 0.50	
Hexachlorobenzene	U	2790	mg/kg	0.50									< 0.50	
Pentachlorophenol	N	2790	mg/kg	0.50									< 0.50	
Phenanthrene	U	2790	mg/kg	0.50									2.9	
Anthracene	U	2790	mg/kg	0.50									0.96	
Carbazole	U	2790	mg/kg	0.50									< 0.50	
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50									5.3	
Fluoranthene	U	2790	mg/kg	0.50									3.4	
Pyrene	U	2790	mg/kg	0.50									2.5	

Chemtest
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Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697306	697307	697308	697309	697310	697311	697312	697313	697314
			Client Sample ID.:		1	2	3	4	5	6	7	8	9
			Sample Location:		TP1	TP2	TP3	TP3	TP4	TP5	TP6	TP7	TP8
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.2	0.1	0.3	0.4	0.25	0.2	0.1	0.1	0.1
			Date Sampled:		17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018	17-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Butylbenzyl Phthalate	U	2790	mg/kg	0.50								< 0.50	
Benzo[a]anthracene	U	2790	mg/kg	0.50								1.5	
Chrysene	U	2790	mg/kg	0.50								1.4	
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50								< 0.50	
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50								< 0.50	
Benzo[b]fluoranthene	U	2790	mg/kg	0.50								1.7	
Benzo[k]fluoranthene	U	2790	mg/kg	0.50								0.65	
Benzo[a]pyrene	U	2790	mg/kg	0.50								1.3	
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50								0.72	
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50								< 0.50	
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50								0.99	
Total Phenols	U	2920	mg/kg	0.30			28						

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					**Chemtest Sample ID.:**	697315	697316	697317	697318	697319	697320	697321	697322	697323
					Client Sample ID.:	10	11	12	13	14	15			
					Sample Location:	WS1	WS2	WS3	WS4	WS5	WS6	WS1	WS2	WS
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0	1.0
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A		-	-	-	-	-	-			
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected			
Moisture	N	2030	%	0.020		7.0	13	12	6.3	11	6.0	7.8	8.4	4.7
pH	U	2010		N/A		8.5	8.1	8.3	8.4	8.3	8.2	8.5	8.6	8.6
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		0.052	0.15	0.014	0.035	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Sulphur	U	2175	%	0.010		0.091	0.059	0.018	0.27	0.041	0.050	0.024	0.019	0.038
Sulphate (Acid Soluble)	U	2430	%	0.010		0.074	0.11	0.085	0.083	0.11	0.086	0.062	0.045	0.049
Arsenic	U	2450	mg/kg	1.0		39	35	37	35	33	48			
Cadmium	U	2450	mg/kg	0.10		0.22	0.93	0.25	0.76	0.24	0.89			
Chromium	U	2450	mg/kg	1.0		21	33	28	20	26	30			
Copper	U	2450	mg/kg	0.50		15	36	9.9	88	9.2	84			
Mercury	U	2450	mg/kg	0.10		0.12	0.12	< 0.10	0.28	0.11	0.13			
Nickel	U	2450	mg/kg	0.50		30	47	45	36	28	41			
Lead	U	2450	mg/kg	0.50		55	78	28	180	37	240			
Selenium	U	2450	mg/kg	0.20		< 0.20	0.32	< 0.20	0.31	0.51	< 0.20			
Zinc	U	2450	mg/kg	0.50		44	190	49	100	30	210			
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50			
TPH >C5-C6	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH >C6-C7	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH >C7-C8	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH >C8-C10	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
TPH >C10-C12	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	6.8	< 1.0	< 1.0			
TPH >C12-C16	N	2670	mg/kg	1.0		< 1.0	< 1.0	< 1.0	40	< 1.0	< 1.0			
TPH >C16-C21	N	2670	mg/kg	1.0		18	< 1.0	< 1.0	210	< 1.0	6.1			
TPH >C21-C35	N	2670	mg/kg	1.0		39	< 1.0	< 1.0	690	< 1.0	60			
Total TPH >C5-C35	N	2670	mg/kg	10		57	< 10	< 10	940	< 10	66			
Naphthalene	U	2700	mg/kg	0.10		0.67	< 0.10	< 0.10	6.2	< 0.10	0.43			
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	1.4	< 0.10	0.10			
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	1.3	< 0.10	< 0.10			
Fluorene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	2.6	< 0.10	< 0.10			
Phenanthrene	U	2700	mg/kg	0.10		0.52	0.22	< 0.10	12	< 0.10	0.50			
Anthracene	U	2700	mg/kg	0.10		0.18	0.11	< 0.10	2.9	< 0.10	0.14			
Fluoranthene	U	2700	mg/kg	0.10		0.70	0.86	0.12	30	0.46	1.1			
Pyrene	U	2700	mg/kg	0.10		0.63	0.57	0.10	30	0.44	1.1			
Benzo[a]anthracene	U	2700	mg/kg	0.10		0.46	< 0.10	< 0.10	14	0.23	0.45			
Chrysene	U	2700	mg/kg	0.10		0.86	< 0.10	< 0.10	19	0.20	0.77			
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		0.44	< 0.10	< 0.10	21	0.39	0.75			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					Chemtest Job No.:	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					Chemtest Sample ID.:	697315	697316	697317	697318	697319	697320	697321	697322	697323
					Client Sample ID.:	10	11	12	13	14	15			
					Sample Location:	WS1	WS2	WS3	WS4	WS5	WS6	WS1	WS2	WS
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0	1.0
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		0.13	< 0.10	< 0.10	7.9	< 0.10	0.38			
Benzo[a]pyrene	U	2700	mg/kg	0.10		0.50	< 0.10	< 0.10	15	0.38	0.58			
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		0.42	< 0.10	< 0.10	12	0.29	0.56			
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	3.3	< 0.10	0.13			
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		0.56	< 0.10	< 0.10	11	0.25	0.46			
Total Of 16 PAH's	U	2700	mg/kg	2.0		6.1	< 2.0	< 2.0	190	2.6	7.5			
Dichlorodifluoromethane	N	2760	µg/kg	1.0					< 1.0					
Chloromethane	U	2760	µg/kg	1.0					< 1.0					
Vinyl Chloride	U	2760	µg/kg	1.0					< 1.0					
Bromomethane	U	2760	µg/kg	20					< 20					
Chloroethane	N	2760	µg/kg	2.0					< 2.0					
Trichlorofluoromethane	U	2760	µg/kg	1.0					< 1.0					
1,1-Dichloroethene	U	2760	µg/kg	1.0					< 1.0					
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0					< 1.0					
1,1-Dichloroethane	U	2760	µg/kg	1.0					< 1.0					
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0					< 1.0					
Bromochloromethane	N	2760	µg/kg	5.0					< 5.0					
Trichloromethane	U	2760	µg/kg	1.0					< 1.0					
1,1,1-Trichloroethane	U	2760	µg/kg	1.0					< 1.0					
Tetrachloromethane	U	2760	µg/kg	1.0					< 1.0					
1,1-Dichloropropene	N	2760	µg/kg	1.0					< 1.0					
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
1,2-Dichloroethane	U	2760	µg/kg	2.0					< 2.0					
Trichloroethene	U	2760	µg/kg	1.0					< 1.0					
1,2-Dichloropropane	U	2760	µg/kg	1.0					< 1.0					
Dibromomethane	U	2760	µg/kg	1.0					< 1.0					
Bromodichloromethane	U	2760	µg/kg	5.0					< 5.0					
cis-1,3-Dichloropropene	N	2760	µg/kg	10					< 10					
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	1.4	< 1.0	< 1.0			
Trans-1,3-Dichloropropene	N	2760	µg/kg	10					< 10					
1,1,2-Trichloroethane	U	2760	µg/kg	10					< 10					
Tetrachloroethene	U	2760	µg/kg	1.0					< 1.0					
1,3-Dichloropropane	N	2760	µg/kg	2.0					< 2.0					
Dibromochloromethane	N	2760	µg/kg	10					< 10					
1,2-Dibromoethane	U	2760	µg/kg	5.0					< 5.0					
Chlorobenzene	U	2760	µg/kg	1.0					< 1.0					
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0					< 2.0					
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					**Chemtest Sample ID.:**	697315	697316	697317	697318	697319	697320	697321	697322	697323
					Client Sample ID.:	10	11	12	13	14	15			
					Sample Location:	WS1	WS2	WS3	WS4	WS5	WS6	WS1	WS2	WS
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0	1.0
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
o-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Styrene	U	2760	µg/kg	1.0					< 1.0					
Tribromomethane	N	2760	µg/kg	1.0					< 1.0					
Isopropylbenzene	U	2760	µg/kg	1.0					< 1.0					
Bromobenzene	U	2760	µg/kg	1.0					< 1.0					
1,2,3-Trichloropropane	N	2760	µg/kg	50					< 50					
N-Propylbenzene	N	2760	µg/kg	1.0					< 1.0					
2-Chlorotoluene	U	2760	µg/kg	1.0					< 1.0					
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0					< 1.0					
4-Chlorotoluene	N	2760	µg/kg	1.0					< 1.0					
Tert-Butylbenzene	N	2760	µg/kg	1.0					< 1.0					
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0					< 1.0					
Sec-Butylbenzene	N	2760	µg/kg	1.0					< 1.0					
1,3-Dichlorobenzene	U	2760	µg/kg	1.0					< 1.0					
4-Isopropyltoluene	N	2760	µg/kg	1.0					< 1.0					
1,4-Dichlorobenzene	U	2760	µg/kg	1.0					< 1.0					
N-Butylbenzene	N	2760	µg/kg	1.0					< 1.0					
1,2-Dichlorobenzene	U	2760	µg/kg	1.0					< 1.0					
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50					< 50					
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0					< 1.0					
Hexachlorobutadiene	N	2760	µg/kg	1.0					< 1.0					
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0					< 2.0					
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0					< 1.0					
N-Nitrosodimethylamine	U	2790	mg/kg	0.50					< 0.50					
Phenol	U	2790	mg/kg	0.50					< 0.50					
2-Chlorophenol	U	2790	mg/kg	0.50					< 0.50					
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50					< 0.50					
1,3-Dichlorobenzene	U	2790	mg/kg	0.50					< 0.50					
1,4-Dichlorobenzene	N	2790	mg/kg	0.50					< 0.50					
1,2-Dichlorobenzene	U	2790	mg/kg	0.50					< 0.50					
2-Methylphenol	U	2790	mg/kg	0.50					< 0.50					
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50					< 0.50					
Hexachloroethane	N	2790	mg/kg	0.50					< 0.50					
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50					< 0.50					
4-Methylphenol	U	2790	mg/kg	0.50					< 0.50					
Nitrobenzene	U	2790	mg/kg	0.50					< 0.50					
Isophorone	U	2790	mg/kg	0.50					< 0.50					

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity					**Chemtest Job No.:**	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998					**Chemtest Sample ID.:**	697315	697316	697317	697318	697319	697320	697321	697322	697323
					Client Sample ID.:	10	11	12	13	14	15			
					Sample Location:	WS1	WS2	WS3	WS4	WS5	WS6	WS1	WS2	WS
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0	1.0
					Date Sampled:	17-Sep-2018	17-Sep-2018	17-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
2-Nitrophenol	N	2790	mg/kg	0.50				< 0.50						
2,4-Dimethylphenol	N	2790	mg/kg	0.50				< 0.50						
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50				< 0.50						
2,4-Dichlorophenol	U	2790	mg/kg	0.50				< 0.50						
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50				< 0.50						
Naphthalene	U	2790	mg/kg	0.50				1.6						
4-Chloroaniline	N	2790	mg/kg	0.50				< 0.50						
Hexachlorobutadiene	U	2790	mg/kg	0.50				< 0.50						
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50				< 0.50						
2-Methylnaphthalene	U	2790	mg/kg	0.50				1.5						
4-Nitrophenol	N	2790	mg/kg	0.50				< 0.50						
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50				< 0.50						
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50				< 0.50						
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50				< 0.50						
2-Chloronaphthalene	U	2790	mg/kg	0.50				< 0.50						
2-Nitroaniline	U	2790	mg/kg	0.50				< 0.50						
Acenaphthylene	U	2790	mg/kg	0.50				< 0.50						
Dimethylphthalate	U	2790	mg/kg	0.50				< 0.50						
2,6-Dinitrotoluene	U	2790	mg/kg	0.50				< 0.50						
Acenaphthene	U	2790	mg/kg	0.50				< 0.50						
3-Nitroaniline	N	2790	mg/kg	0.50				< 0.50						
Dibenzofuran	U	2790	mg/kg	0.50				0.62						
4-Chlorophenylphenylether	U	2790	mg/kg	0.50				< 0.50						
2,4-Dinitrotoluene	U	2790	mg/kg	0.50				< 0.50						
Fluorene	U	2790	mg/kg	0.50				< 0.50						
Diethyl Phthalate	U	2790	mg/kg	0.50				< 0.50						
4-Nitroaniline	U	2790	mg/kg	0.50				< 0.50						
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50				< 0.50						
Azobenzene	U	2790	mg/kg	0.50				< 0.50						
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50				< 0.50						
Hexachlorobenzene	U	2790	mg/kg	0.50				< 0.50						
Pentachlorophenol	N	2790	mg/kg	0.50				< 0.50						
Phenanthrene	U	2790	mg/kg	0.50				9.2						
Anthracene	U	2790	mg/kg	0.50				2.2						
Carbazole	U	2790	mg/kg	0.50				0.86						
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50				< 0.50						
Fluoranthene	U	2790	mg/kg	0.50				22						
Pyrene	U	2790	mg/kg	0.50				18						

Chemtest
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Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697315	697316	697317	697318	697319	697320	697321	697322	697323
			Client Sample ID.:		10	11	12	13	14	15			
			Sample Location:		WS1	WS2	WS3	WS4	WS5	WS6	WS1	WS2	WS
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.2	0.2	0.2	0.2	0.2	0.2	1.0	1.0	1.0
			Date Sampled:		17-Sep-2018	17-Sep-2018	17-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Butylbenzyl Phthalate	U	2790	mg/kg	0.50				< 0.50					
Benzo[a]anthracene	U	2790	mg/kg	0.50				9.9					
Chrysene	U	2790	mg/kg	0.50				9.6					
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50				< 0.50					
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50				< 0.50					
Benzo[b]fluoranthene	U	2790	mg/kg	0.50				13					
Benzo[k]fluoranthene	U	2790	mg/kg	0.50				4.9					
Benzo[a]pyrene	U	2790	mg/kg	0.50				9.4					
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50				6.2					
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50				2.1					
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50				7.0					
Total Phenols	U	2920	mg/kg	0.30									

Chemtest
The right chemistry to deliver results

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697324	697325	697326
			Client Sample ID.:				
			Sample Location:		WS4	WS5	WS6
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.0
			Date Sampled:		18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A			
Asbestos Identification	U	2192	%	0.001			
Moisture	N	2030	%	0.020	5.6	7.3	8.1
pH	U	2010		N/A	8.7	8.6	8.3
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	0.19
Total Sulphur	U	2175	%	0.010	0.026	0.028	0.064
Sulphate (Acid Soluble)	U	2430	%	0.010	0.043	0.053	0.12
Arsenic	U	2450	mg/kg	1.0			
Cadmium	U	2450	mg/kg	0.10			
Chromium	U	2450	mg/kg	1.0			
Copper	U	2450	mg/kg	0.50			
Mercury	U	2450	mg/kg	0.10			
Nickel	U	2450	mg/kg	0.50			
Lead	U	2450	mg/kg	0.50			
Selenium	U	2450	mg/kg	0.20			
Zinc	U	2450	mg/kg	0.50			
Chromium (Hexavalent)	N	2490	mg/kg	0.50			
TPH >C5-C6	N	2670	mg/kg	1.0			
TPH >C6-C7	N	2670	mg/kg	1.0			
TPH >C7-C8	N	2670	mg/kg	1.0			
TPH >C8-C10	N	2670	mg/kg	1.0			
TPH >C10-C12	N	2670	mg/kg	1.0			
TPH >C12-C16	N	2670	mg/kg	1.0			
TPH >C16-C21	N	2670	mg/kg	1.0			
TPH >C21-C35	N	2670	mg/kg	1.0			
Total TPH >C5-C35	N	2670	mg/kg	10			
Naphthalene	U	2700	mg/kg	0.10			
Acenaphthylene	U	2700	mg/kg	0.10			
Acenaphthene	U	2700	mg/kg	0.10			
Fluorene	U	2700	mg/kg	0.10			
Phenanthrene	U	2700	mg/kg	0.10			
Anthracene	U	2700	mg/kg	0.10			
Fluoranthene	U	2700	mg/kg	0.10			
Pyrene	U	2700	mg/kg	0.10			
Benzo[a]anthracene	U	2700	mg/kg	0.10			
Chrysene	U	2700	mg/kg	0.10			
Benzo[b]fluoranthene	U	2700	mg/kg	0.10			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697324	697325	697326
			Client Sample ID.:				
			Sample Location:		WS4	WS5	WS6
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.0
			Date Sampled:		18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Benzo[k]fluoranthene	U	2700	mg/kg	0.10			
Benzo[a]pyrene	U	2700	mg/kg	0.10			
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10			
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10			
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10			
Total Of 16 PAH's	U	2700	mg/kg	2.0			
Dichlorodifluoromethane	N	2760	µg/kg	1.0			
Chloromethane	U	2760	µg/kg	1.0			
Vinyl Chloride	U	2760	µg/kg	1.0			
Bromomethane	U	2760	µg/kg	20			
Chloroethane	N	2760	µg/kg	2.0			
Trichlorofluoromethane	U	2760	µg/kg	1.0			
1,1-Dichloroethene	U	2760	µg/kg	1.0			
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0			
1,1-Dichloroethane	U	2760	µg/kg	1.0			
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0			
Bromochloromethane	N	2760	µg/kg	5.0			
Trichloromethane	U	2760	µg/kg	1.0			
1,1,1-Trichloroethane	U	2760	µg/kg	1.0			
Tetrachloromethane	U	2760	µg/kg	1.0			
1,1-Dichloropropene	N	2760	µg/kg	1.0			
Benzene	U	2760	µg/kg	1.0			
1,2-Dichloroethane	U	2760	µg/kg	2.0			
Trichloroethene	U	2760	µg/kg	1.0			
1,2-Dichloropropane	U	2760	µg/kg	1.0			
Dibromomethane	U	2760	µg/kg	1.0			
Bromodichloromethane	U	2760	µg/kg	5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10			
Toluene	U	2760	µg/kg	1.0			
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			
1,1,2-Trichloroethane	U	2760	µg/kg	10			
Tetrachloroethene	U	2760	µg/kg	1.0			
1,3-Dichloropropane	N	2760	µg/kg	2.0			
Dibromochloromethane	N	2760	µg/kg	10			
1,2-Dibromoethane	U	2760	µg/kg	5.0			
Chlorobenzene	U	2760	µg/kg	1.0			
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0			
Ethylbenzene	U	2760	µg/kg	1.0			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697324	697325	697326
			Client Sample ID.:				
			Sample Location:		WS4	WS5	WS6
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.0
			Date Sampled:		18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
m & p-Xylene	U	2760	µg/kg	1.0			
o-Xylene	U	2760	µg/kg	1.0			
Styrene	U	2760	µg/kg	1.0			
Tribromomethane	N	2760	µg/kg	1.0			
Isopropylbenzene	U	2760	µg/kg	1.0			
Bromobenzene	U	2760	µg/kg	1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50			
N-Propylbenzene	N	2760	µg/kg	1.0			
2-Chlorotoluene	U	2760	µg/kg	1.0			
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0			
4-Chlorotoluene	N	2760	µg/kg	1.0			
Tert-Butylbenzene	N	2760	µg/kg	1.0			
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0			
Sec-Butylbenzene	N	2760	µg/kg	1.0			
1,3-Dichlorobenzene	U	2760	µg/kg	1.0			
4-Isopropyltoluene	N	2760	µg/kg	1.0			
1,4-Dichlorobenzene	U	2760	µg/kg	1.0			
N-Butylbenzene	N	2760	µg/kg	1.0			
1,2-Dichlorobenzene	U	2760	µg/kg	1.0			
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50			
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0			
Hexachlorobutadiene	N	2760	µg/kg	1.0			
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0			
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0			
N-Nitrosodimethylamine	U	2790	mg/kg	0.50			
Phenol	U	2790	mg/kg	0.50			
2-Chlorophenol	U	2790	mg/kg	0.50			
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50			
1,3-Dichlorobenzene	U	2790	mg/kg	0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50			
1,2-Dichlorobenzene	U	2790	mg/kg	0.50			
2-Methylphenol	U	2790	mg/kg	0.50			
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50			
Hexachloroethane	N	2790	mg/kg	0.50			
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50			
4-Methylphenol	U	2790	mg/kg	0.50			
Nitrobenzene	U	2790	mg/kg	0.50			
Isophorone	U	2790	mg/kg	0.50			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697324	697325	697326
			Client Sample ID.:				
			Sample Location:		WS4	WS5	WS6
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.0
			Date Sampled:		18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
2-Nitrophenol	N	2790	mg/kg	0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50			
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50			
2,4-Dichlorophenol	U	2790	mg/kg	0.50			
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50			
Naphthalene	U	2790	mg/kg	0.50			
4-Chloroaniline	N	2790	mg/kg	0.50			
Hexachlorobutadiene	U	2790	mg/kg	0.50			
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50			
2-Methylnaphthalene	U	2790	mg/kg	0.50			
4-Nitrophenol	N	2790	mg/kg	0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50			
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50			
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50			
2-Chloronaphthalene	U	2790	mg/kg	0.50			
2-Nitroaniline	U	2790	mg/kg	0.50			
Acenaphthylene	U	2790	mg/kg	0.50			
Dimethylphthalate	U	2790	mg/kg	0.50			
2,6-Dinitrotoluene	U	2790	mg/kg	0.50			
Acenaphthene	U	2790	mg/kg	0.50			
3-Nitroaniline	N	2790	mg/kg	0.50			
Dibenzofuran	U	2790	mg/kg	0.50			
4-Chlorophenylphenylether	U	2790	mg/kg	0.50			
2,4-Dinitrotoluene	U	2790	mg/kg	0.50			
Fluorene	U	2790	mg/kg	0.50			
Diethyl Phthalate	U	2790	mg/kg	0.50			
4-Nitroaniline	U	2790	mg/kg	0.50			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50			
Azobenzene	U	2790	mg/kg	0.50			
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50			
Hexachlorobenzene	U	2790	mg/kg	0.50			
Pentachlorophenol	N	2790	mg/kg	0.50			
Phenanthrene	U	2790	mg/kg	0.50			
Anthracene	U	2790	mg/kg	0.50			
Carbazole	U	2790	mg/kg	0.50			
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50			
Fluoranthene	U	2790	mg/kg	0.50			
Pyrene	U	2790	mg/kg	0.50			

Results - Soil

Project: Bicester Heritage, New Technical Site

Client: Geo Integrity			**Chemtest Job No.:**		18-29794	18-29794	18-29794
Quotation No.: Q16-07998			**Chemtest Sample ID.:**		697324	697325	697326
			Client Sample ID.:				
			Sample Location:		WS4	WS5	WS6
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		1.0	1.0	1.0
			Date Sampled:		18-Sep-2018	18-Sep-2018	18-Sep-2018
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Butylbenzyl Phthalate	U	2790	mg/kg	0.50			
Benzo[a]anthracene	U	2790	mg/kg	0.50			
Chrysene	U	2790	mg/kg	0.50			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50			
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50			
Benzo[b]fluoranthene	U	2790	mg/kg	0.50			
Benzo[k]fluoranthene	U	2790	mg/kg	0.50			
Benzo[a]pyrene	U	2790	mg/kg	0.50			
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50			
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50			
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50			
Total Phenols	U	2920	mg/kg	0.30			

Results - Single Stage WAC

Project: Bicester Heritage, New Technical Site

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-29794						
Chemtest Sample ID:	697313						
Sample Ref:							
Sample ID:	8						
Sample Location:	TP7						
Top Depth(m):	0.1						
Bottom Depth(m):							
Sampling Date:	17-Sep-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	31	3	5	6
Loss On Ignition	2610	U	%	54	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	910	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	6.9	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0090	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0027	< 0.050	0.5	2	25
Barium	1450	U	0.017	< 0.50	20	100	300
Cadmium	1450	U	0.00017	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.030	0.30	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	0.0077	0.077	0.5	10	50
Antimony	1450	U	0.0016	0.016	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.025	< 0.50	4	50	200
Chloride	1220	U	4.0	40	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	27	270	1000	20000	50000
Total Dissolved Solids	1020	N	140	1400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	49	490	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	< 0.020

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Bicester Heritage, New Technical Site

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-29794						
Chemtest Sample ID:	697314						
Sample Ref:							
Sample ID:	9						
Sample Location:	TP8						
Top Depth(m):	0.1						
Bottom Depth(m):							
Sampling Date:	17-Sep-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	2.7	3	5	6
Loss On Ignition	2610	U	%	4.9	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	2.7	100	--	--
pH	2010	U		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.12	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0014	< 0.050	0.5	2	25
Barium	1450	U	0.0038	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0021	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	< 0.0010	< 0.050	0.5	10	30
Nickel	1450	U	0.0019	< 0.050	0.4	10	40
Lead	1450	U	0.0012	0.012	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0017	< 0.50	4	50	200
Chloride	1220	U	6.6	66	800	15000	25000
Fluoride	1220	U	0.33	3.3	10	150	500
Sulphate	1220	U	10	100	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	55	550	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS

Test Methods

SOP	Title	Parameters included	Method summary
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Chemtest
The right chemistry to deliver results

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

HazWasteOnline™

Waste Classification Report

JUJEK-XHHY6-L42A4

Job name

Bicester Heritage

Description/Comments

Project

18-08-08

Site

New Technical Site

Related Documents

#	Name	Description
None		

Waste Stream Template

WM3 v1.1 2018 compliant

Classified by

Name:
Danny Lusardi
Date:
26 Oct 2018 10:43 GMT
Telephone:
01280816409

Company:
Geo-Integrity Limited
4 Church Street
Maids Moreton
MK18 1QE

Report

Created by: Danny Lusardi
Created date: 26 Oct 2018 10:43 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP1	0.2	Non Hazardous		3
2	TP2	0.1	Non Hazardous		5
3	TP3	0.3	Non Hazardous		7
4	TP3[1]	0.4	Non Hazardous		9
5	TP4	0.25	Hazardous	HP 14	11
6	TP5	0.2	Non Hazardous		13
7	TP6	0.1	Non Hazardous		15
8	TP7	0.1	Non Hazardous		17
9	TP8	0.1	Non Hazardous		19
10	WS1	0.2	Non Hazardous		21
11	WS2	0.2	Non Hazardous		23
12	WS3	0.2	Non Hazardous		25

Classification of sample: TP1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP1
Sample Depth:
0.2 m
Moisture content:
7.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.7% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		45 mg/kg	1.32	54.84 mg/kg	0.00548 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.14 mg/kg	1.855	0.24 mg/kg	0.000024 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		22 mg/kg	1.462	29.678 mg/kg	0.00297 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		7.7 mg/kg	3.929	27.924 mg/kg	0.00279 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		30 mg/kg	2.976	82.413 mg/kg	0.00824 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	34.553 mg/kg	0.00222 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.25 mg/kg	2.554	0.589 mg/kg	0.0000589 %	✓	
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		23 mg/kg	2.469	52.421 mg/kg	0.00524 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
16		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
17		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
18		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
19		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
28		PAHs (total)				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
										Total:	0.0285 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP2
Sample Depth:
0.1 m
Moisture content:
6.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6.9% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		38 mg/kg	1.32	46.71 mg/kg	0.00467 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.51 mg/kg	1.855	0.881 mg/kg	0.0000881 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		24 mg/kg	1.462	32.657 mg/kg	0.00327 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		22 mg/kg	3.929	80.475 mg/kg	0.00805 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.14 mg/kg	1.353	0.176 mg/kg	0.0000176 %	✓	
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		41 mg/kg	2.976	113.607 mg/kg	0.0114 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	82 mg/kg	1.56	119.079 mg/kg	0.00763 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		66 mg/kg	2.469	151.728 mg/kg	0.0152 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11	TPH (C6 to C40) petroleum group			TPH		100 mg/kg		93.1 mg/kg	0.00931 %	✓	
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.36 mg/kg		0.335 mg/kg	0.0000335 %	✓	
13	acenaphthylene		205-917-1	208-96-8		1.1 mg/kg		1.024 mg/kg	0.000102 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				0.14	mg/kg		0.13	mg/kg	0.000013 %	✓	
			201-469-6	83-32-9									
15		fluorene				0.29	mg/kg		0.27	mg/kg	0.000027 %	✓	
			201-695-5	86-73-7									
16		phenanthrene				2.3	mg/kg		2.141	mg/kg	0.000214 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.37	mg/kg		0.344	mg/kg	0.0000344 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				1.6	mg/kg		1.49	mg/kg	0.000149 %	✓	
			205-912-4	206-44-0									
19		pyrene				1.8	mg/kg		1.676	mg/kg	0.000168 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.72	mg/kg		0.67	mg/kg	0.000067 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				1.4	mg/kg		1.303	mg/kg	0.00013 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				1.3	mg/kg		1.21	mg/kg	0.000121 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.46	mg/kg		0.428	mg/kg	0.0000428 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.1	mg/kg		1.024	mg/kg	0.000102 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				0.7	mg/kg		0.652	mg/kg	0.0000652 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.4	mg/kg		0.372	mg/kg	0.0000372 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				1.5	mg/kg		1.396	mg/kg	0.00014 %	✓	
			205-883-8	191-24-2									
28		PAHs (total)				16	mg/kg		14.896	mg/kg	0.00149 %	✓	
										Total:	0.0627 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00931%)

Classification of sample: TP3

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
TP3	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	
0.3 m	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		naphthalene	601-052-00-2	202-049-5	91-20-3		11 mg/kg		11 mg/kg	0.0011 %	✓	
2		acenaphthylene		205-917-1	208-96-8		3.6 mg/kg		3.6 mg/kg	0.00036 %	✓	
3		acenaphthene		201-469-6	83-32-9		18 mg/kg		18 mg/kg	0.0018 %	✓	
4		fluorene		201-695-5	86-73-7		19 mg/kg		19 mg/kg	0.0019 %	✓	
5		phenanthrene		201-581-5	85-01-8		81 mg/kg		81 mg/kg	0.0081 %	✓	
6		anthracene		204-371-1	120-12-7		32 mg/kg		32 mg/kg	0.0032 %	✓	
7		fluoranthene		205-912-4	206-44-0		68 mg/kg		68 mg/kg	0.0068 %	✓	
8		pyrene		204-927-3	129-00-0		61 mg/kg		61 mg/kg	0.0061 %	✓	
9		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		19 mg/kg		19 mg/kg	0.0019 %	✓	
10		chrysene	601-048-00-0	205-923-4	218-01-9		28 mg/kg		28 mg/kg	0.0028 %	✓	
11		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		19 mg/kg		19 mg/kg	0.0019 %	✓	
12		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		9.7 mg/kg		9.7 mg/kg	0.00097 %	✓	
13		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		15 mg/kg		15 mg/kg	0.0015 %	✓	
14		indeno[123-cd]pyrene		205-893-2	193-39-5		9 mg/kg		9 mg/kg	0.0009 %	✓	
15		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		3 mg/kg		3 mg/kg	0.0003 %	✓	
16		benzo[ghi]perylene		205-883-8	191-24-2		8 mg/kg		8 mg/kg	0.0008 %	✓	

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
17	●	PAHs (total)				400 mg/kg		400 mg/kg	0.04 %	✓	
								Total:	0.0804 %		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: TP3[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP3[1]
Sample Depth:
0.4 m
Moisture content:
0.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	21.041 mg/kg	0.0021 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		<0.1 mg/kg	1.855	<0.185 mg/kg	<0.0000185 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		2.1 mg/kg	1.462	3.057 mg/kg	0.000306 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		1.4 mg/kg	3.929	5.479 mg/kg	0.000548 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		3.6 mg/kg	2.976	10.672 mg/kg	0.00107 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	2.4 mg/kg	1.56	3.729 mg/kg	0.000239 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		3.1 mg/kg	2.469	7.624 mg/kg	0.000762 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
16		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
17		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
18		fluoranthene				0.11	mg/kg		0.11	mg/kg	0.000011 %	✓	
			205-912-4	206-44-0									
19		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
28		PAHs (total)				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
										Total:	0.00657 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP4

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample Name:
TP4
Sample Depth:
0.25 m
Moisture content:
20%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinands:

copper sulphate pentahydrate: (compound conc.: 0.267%)
zinc sulphate: (compound conc.: 0.375%)

Determinands

Moisture content: 20% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		23 mg/kg	1.32	24.294 mg/kg	0.00243 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		10 mg/kg	1.855	14.837 mg/kg	0.00148 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		47 mg/kg	1.462	54.954 mg/kg	0.0055 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		850 mg/kg	3.929	2671.756 mg/kg	0.267 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.44 mg/kg	1.353	0.476 mg/kg	0.0000476 %	✓	
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		54 mg/kg	2.976	128.575 mg/kg	0.0129 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	1200 mg/kg	1.56	1497.423 mg/kg	0.096 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.44 mg/kg	2.554	0.899 mg/kg	0.0000899 %	✓	
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		1900 mg/kg	2.469	3753.331 mg/kg	0.375 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
11	●	TPH (C6 to C40) petroleum group		TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
12		naphthalene				0.28	mg/kg		0.224	mg/kg	0.0000224 %	✓	
		601-052-00-2	202-049-5	91-20-3									
13	●	acenaphthylene				1.8	mg/kg		1.44	mg/kg	0.000144 %	✓	
			205-917-1	208-96-8									
14	●	acenaphthene				1.6	mg/kg		1.28	mg/kg	0.000128 %	✓	
			201-469-6	83-32-9									
15	●	fluorene				0.35	mg/kg		0.28	mg/kg	0.000028 %	✓	
			201-695-5	86-73-7									
16	●	phenanthrene				3.3	mg/kg		2.64	mg/kg	0.000264 %	✓	
			201-581-5	85-01-8									
17	●	anthracene				0.97	mg/kg		0.776	mg/kg	0.0000776 %	✓	
			204-371-1	120-12-7									
18	●	fluoranthene				3.5	mg/kg		2.8	mg/kg	0.00028 %	✓	
			205-912-4	206-44-0									
19	●	pyrene				3.5	mg/kg		2.8	mg/kg	0.00028 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				1.9	mg/kg		1.52	mg/kg	0.000152 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				2.9	mg/kg		2.32	mg/kg	0.000232 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				2.1	mg/kg		1.68	mg/kg	0.000168 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				0.74	mg/kg		0.592	mg/kg	0.0000592 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				1.5	mg/kg		1.2	mg/kg	0.00012 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				1.1	mg/kg		0.88	mg/kg	0.000088 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.25	mg/kg		0.2	mg/kg	0.00002 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				2.1	mg/kg		1.68	mg/kg	0.000168 %	✓	
			205-883-8	191-24-2									
28	●	PAHs (total)				28	mg/kg		22.4	mg/kg	0.00224 %	✓	
										Total:	0.766 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP5

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP5
Sample Depth:
0.2 m
Moisture content:
23%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 23% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		28 mg/kg	1.32	28.466 mg/kg	0.00285 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.33 mg/kg	1.855	0.471 mg/kg	0.0000471 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		36 mg/kg	1.462	40.514 mg/kg	0.00405 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		16 mg/kg	3.929	48.406 mg/kg	0.00484 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39 mg/kg	2.976	89.377 mg/kg	0.00894 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	45 mg/kg	1.56	54.048 mg/kg	0.00347 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1 mg/kg	2.554	1.966 mg/kg	0.000197 %	✓	
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		59 mg/kg	2.469	112.18 mg/kg	0.0112 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13	acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
16		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
17		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
18		fluoranthene				0.25	mg/kg		0.193	mg/kg	0.0000193 %	✓	
			205-912-4	206-44-0									
19		pyrene				0.17	mg/kg		0.131	mg/kg	0.0000131 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
28		PAHs (total)				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
										Total:	0.0371 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP6

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP6
Sample Depth:
0.1 m
Moisture content:
3.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 3.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		25 mg/kg	1.32	31.82 mg/kg	0.00318 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.25 mg/kg	1.855	0.447 mg/kg	0.0000447 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		11 mg/kg	1.462	15.498 mg/kg	0.00155 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		7.5 mg/kg	3.929	28.407 mg/kg	0.00284 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13 mg/kg	2.976	37.299 mg/kg	0.00373 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	71 mg/kg	1.56	106.76 mg/kg	0.00684 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		45 mg/kg	2.469	107.118 mg/kg	0.0107 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11	TPH (C6 to C40) petroleum group			TPH		310 mg/kg		298.84 mg/kg	0.0299 %	✓	
12	naphthalene	601-052-00-2	202-049-5	91-20-3		0.38 mg/kg		0.366 mg/kg	0.0000366 %	✓	
13	acenaphthylene		205-917-1	208-96-8		0.19 mg/kg		0.183 mg/kg	0.0000183 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				0.23	mg/kg		0.222	mg/kg	0.0000222 %	✓	
			201-469-6	83-32-9									
15	●	fluorene				0.19	mg/kg		0.183	mg/kg	0.0000183 %	✓	
			201-695-5	86-73-7									
16	●	phenanthrene				2.7	mg/kg		2.603	mg/kg	0.00026 %	✓	
			201-581-5	85-01-8									
17	●	anthracene				0.78	mg/kg		0.752	mg/kg	0.0000752 %	✓	
			204-371-1	120-12-7									
18	●	fluoranthene				6.5	mg/kg		6.266	mg/kg	0.000627 %	✓	
			205-912-4	206-44-0									
19	●	pyrene				6.4	mg/kg		6.17	mg/kg	0.000617 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				3	mg/kg		2.892	mg/kg	0.000289 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				4.2	mg/kg		4.049	mg/kg	0.000405 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				3.9	mg/kg		3.76	mg/kg	0.000376 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				1.5	mg/kg		1.446	mg/kg	0.000145 %	✓	
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				3.1	mg/kg		2.988	mg/kg	0.000299 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				2.2	mg/kg		2.121	mg/kg	0.000212 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				0.48	mg/kg		0.463	mg/kg	0.0000463 %	✓	
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				2.2	mg/kg		2.121	mg/kg	0.000212 %	✓	
			205-883-8	191-24-2									
28	●	PAHs (total)				38	mg/kg		36.632	mg/kg	0.00366 %	✓	
										Total:	0.0663 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0299%)

Classification of sample: TP7

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP7
Sample Depth:
0.1 m

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		42 mg/kg	1.32	55.454 mg/kg	0.00555 %	✓	
2	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.25 mg/kg	1.855	0.464 mg/kg	0.0000464 %	✓	
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %	✓	
4	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		14 mg/kg	3.929	55.007 mg/kg	0.0055 %	✓	
5	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %	✓	
6	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		36 mg/kg	2.976	107.146 mg/kg	0.0107 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	42 mg/kg	1.56	65.512 mg/kg	0.0042 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
9	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		44 mg/kg	2.469	108.649 mg/kg	0.0109 %	✓	
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
11	TPH (C6 to C40) petroleum group			TPH		870 mg/kg		870 mg/kg	0.087 %	✓	
12	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
13	acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
14	acenaphthene		201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
16		phenanthrene				3.2	mg/kg		3.2	mg/kg	0.00032 %	✓	
			201-581-5	85-01-8									
17		anthracene				0.34	mg/kg		0.34	mg/kg	0.000034 %	✓	
			204-371-1	120-12-7									
18		fluoranthene				1.8	mg/kg		1.8	mg/kg	0.00018 %	✓	
			205-912-4	206-44-0									
19		pyrene				1.6	mg/kg		1.6	mg/kg	0.00016 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
25		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
27		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
28		PAHs (total)				6.9	mg/kg		6.9	mg/kg	0.00069 %	✓	
										Total:	0.129 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.087%)

Classification of sample: TP8

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP8
Sample Depth:
0.1 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		39 mg/kg	1.32	44.799 mg/kg	0.00448 %	✓	
2		cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.24 mg/kg	1.855	0.387 mg/kg	0.0000387 %	✓	
3		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		24 mg/kg	1.462	30.517 mg/kg	0.00305 %	✓	
4		copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		14 mg/kg	3.929	47.856 mg/kg	0.00479 %	✓	
5		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
6		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		33 mg/kg	2.976	85.449 mg/kg	0.00854 %	✓	
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	41 mg/kg	1.56	55.639 mg/kg	0.00357 %	✓	
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<**LOD**
9		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		42 mg/kg	2.469	90.228 mg/kg	0.00902 %	✓	
10		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
11		TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13		acenaphthylene		205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14	●	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
15	●	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
16	●	phenanthrene				0.17	mg/kg		0.148	mg/kg	0.0000148 %	✓	
			201-581-5	85-01-8									
17	●	anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
18	●	fluoranthene				0.38	mg/kg		0.331	mg/kg	0.0000331 %	✓	
			205-912-4	206-44-0									
19	●	pyrene				0.36	mg/kg		0.313	mg/kg	0.0000313 %	✓	
			204-927-3	129-00-0									
20		benzo[a]anthracene				0.15	mg/kg		0.13	mg/kg	0.000013 %	✓	
		601-033-00-9	200-280-6	56-55-3									
21		chrysene				0.37	mg/kg		0.322	mg/kg	0.0000322 %	✓	
		601-048-00-0	205-923-4	218-01-9									
22		benzo[b]fluoranthene				0.25	mg/kg		0.218	mg/kg	0.0000218 %	✓	
		601-034-00-4	205-911-9	205-99-2									
23		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
24		benzo[a]pyrene; benzo[def]chrysene				0.2	mg/kg		0.174	mg/kg	0.0000174 %	✓	
		601-032-00-3	200-028-5	50-32-8									
25	●	indeno[123-cd]pyrene				0.23	mg/kg		0.2	mg/kg	0.00002 %	✓	
			205-893-2	193-39-5									
26		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
27	●	benzo[ghi]perylene				0.55	mg/kg		0.479	mg/kg	0.0000479 %	✓	
			205-883-8	191-24-2									
28	●	PAHs (total)				2.7	mg/kg		2.349	mg/kg	0.000235 %	✓	
										Total:	0.0352 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS1

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS1
Sample Depth:
0.2 m
Moisture content:
7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.5	pH		8.5	pH	8.5 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		39	mg/kg	1.32	47.888	mg/kg	0.00479 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.22	mg/kg	1.855	0.379	mg/kg	0.0000379 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		21	mg/kg	1.462	28.544	mg/kg	0.00285 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		15	mg/kg	3.929	54.81	mg/kg	0.00548 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.12	mg/kg	1.353	0.151	mg/kg	0.0000151 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		30	mg/kg	2.976	83.038	mg/kg	0.0083 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	55	mg/kg	1.56	79.785	mg/kg	0.00511 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		44	mg/kg	2.469	101.044	mg/kg	0.0101 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		57	mg/kg		53.01	mg/kg	0.0053 %	✓	
13	naphthalene	601-052-00-2	202-049-5	91-20-3		0.67	mg/kg		0.623	mg/kg	0.0000623 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene	205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
15		acenaphthene	201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
16		fluorene	201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
17		phenanthrene	201-581-5	85-01-8		0.52	mg/kg		0.484	mg/kg	0.0000484 %	✓	
18		anthracene	204-371-1	120-12-7		0.18	mg/kg		0.167	mg/kg	0.0000167 %	✓	
19		fluoranthene	205-912-4	206-44-0		0.7	mg/kg		0.651	mg/kg	0.0000651 %	✓	
20		pyrene	204-927-3	129-00-0		0.63	mg/kg		0.586	mg/kg	0.0000586 %	✓	
21		benzo[a]anthracene	200-280-6	56-55-3		0.46	mg/kg		0.428	mg/kg	0.0000428 %	✓	
		601-033-00-9											
22		chrysene	205-923-4	218-01-9		0.86	mg/kg		0.8	mg/kg	0.00008 %	✓	
		601-048-00-0											
23		benzo[b]fluoranthene	205-911-9	205-99-2		0.44	mg/kg		0.409	mg/kg	0.0000409 %	✓	
		601-034-00-4											
24		benzo[k]fluoranthene	205-916-6	207-08-9		0.13	mg/kg		0.121	mg/kg	0.0000121 %	✓	
		601-036-00-5											
25		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		0.5	mg/kg		0.465	mg/kg	0.0000465 %	✓	
		601-032-00-3											
26		indeno[123-cd]pyrene	205-893-2	193-39-5		0.42	mg/kg		0.391	mg/kg	0.0000391 %	✓	
27		dibenz[a,h]anthracene	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2											
28		benzo[ghi]perylene	205-883-8	191-24-2		0.56	mg/kg		0.521	mg/kg	0.0000521 %	✓	
29		PAHs (total)				6.1	mg/kg		5.673	mg/kg	0.000567 %	✓	
										Total:	0.0433 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0053%)

Classification of sample: WS2

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS2
Sample Depth:
0.2 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.1	pH		8.1	pH	8.1 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		35	mg/kg	1.32	40.204	mg/kg	0.00402 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.93	mg/kg	1.855	1.501	mg/kg	0.00015 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		33	mg/kg	1.462	41.961	mg/kg	0.0042 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		36	mg/kg	3.929	123.058	mg/kg	0.0123 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.12	mg/kg	1.353	0.141	mg/kg	0.0000141 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		47	mg/kg	2.976	121.699	mg/kg	0.0122 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	78	mg/kg	1.56	105.849	mg/kg	0.00679 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.32	mg/kg	2.554	0.711	mg/kg	0.0000711 %	✓	
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		190	mg/kg	2.469	408.175	mg/kg	0.0408 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				0.22	mg/kg		0.191	mg/kg	0.0000191 %	✓	
			201-581-5	85-01-8									
18		anthracene				0.11	mg/kg		0.0957	mg/kg	0.00000957 %	✓	
			204-371-1	120-12-7									
19		fluoranthene				0.86	mg/kg		0.748	mg/kg	0.0000748 %	✓	
			205-912-4	206-44-0									
20		pyrene				0.57	mg/kg		0.496	mg/kg	0.0000496 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
29		PAHs (total)				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
										Total:	0.0821 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS3

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS3
Sample Depth:
0.2 m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.3	pH		8.3	pH	8.3 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		37	mg/kg	1.32	42.99	mg/kg	0.0043 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.25	mg/kg	1.855	0.408	mg/kg	0.0000408 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		28	mg/kg	1.462	36.013	mg/kg	0.0036 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		9.9	mg/kg	3.929	34.23	mg/kg	0.00342 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		45	mg/kg	2.976	117.86	mg/kg	0.0118 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	28	mg/kg	1.56	38.434	mg/kg	0.00246 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		49	mg/kg	2.469	106.476	mg/kg	0.0106 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
18		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
19		fluoranthene				0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
			205-912-4	206-44-0									
20		pyrene				0.1	mg/kg		0.088	mg/kg	0.0000088 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
29		PAHs (total)				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
										Total:	0.0378 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS4

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS4
Sample Depth:
0.2 m
Moisture content:
6.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6.3% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.4	pH		8.4	pH	8.4 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		35	mg/kg	1.32	43.3	mg/kg	0.00433 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.76	mg/kg	1.855	1.321	mg/kg	0.000132 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		20	mg/kg	1.462	27.39	mg/kg	0.00274 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		88	mg/kg	3.929	323.974	mg/kg	0.0324 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.28	mg/kg	1.353	0.355	mg/kg	0.0000355 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		36	mg/kg	2.976	100.395	mg/kg	0.01 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	180	mg/kg	1.56	263.078	mg/kg	0.0169 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.31	mg/kg	2.554	0.742	mg/kg	0.0000742 %	✓	
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		100	mg/kg	2.469	231.373	mg/kg	0.0231 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		940	mg/kg		880.78	mg/kg	0.0881 %	✓	
13	naphthalene	601-052-00-2	202-049-5	91-20-3		6.2	mg/kg		5.809	mg/kg	0.000581 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				1.4	mg/kg		1.312	mg/kg	0.000131 %	✓	
			205-917-1	208-96-8									
15		acenaphthene				1.3	mg/kg		1.218	mg/kg	0.000122 %	✓	
			201-469-6	83-32-9									
16		fluorene				2.6	mg/kg		2.436	mg/kg	0.000244 %	✓	
			201-695-5	86-73-7									
17		phenanthrene				12	mg/kg		11.244	mg/kg	0.00112 %	✓	
			201-581-5	85-01-8									
18		anthracene				2.9	mg/kg		2.717	mg/kg	0.000272 %	✓	
			204-371-1	120-12-7									
19		fluoranthene				30	mg/kg		28.11	mg/kg	0.00281 %	✓	
			205-912-4	206-44-0									
20		pyrene				30	mg/kg		28.11	mg/kg	0.00281 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				14	mg/kg		13.118	mg/kg	0.00131 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				19	mg/kg		17.803	mg/kg	0.00178 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				21	mg/kg		19.677	mg/kg	0.00197 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				7.9	mg/kg		7.402	mg/kg	0.00074 %	✓	
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				15	mg/kg		14.055	mg/kg	0.00141 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				12	mg/kg		11.244	mg/kg	0.00112 %	✓	
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				3.3	mg/kg		3.092	mg/kg	0.000309 %	✓	
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				11	mg/kg		10.307	mg/kg	0.00103 %	✓	
			205-883-8	191-24-2									
29		PAHs (total)				190	mg/kg		178.03	mg/kg	0.0178 %	✓	
										Total:	0.213 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0881%)

Classification of sample: WS5

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS5
Sample Depth:
0.2 m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.3	pH		8.3	pH	8.3 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		33	mg/kg	1.32	38.778	mg/kg	0.00388 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.24	mg/kg	1.855	0.396	mg/kg	0.0000396 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		26	mg/kg	1.462	33.82	mg/kg	0.00338 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		9.2	mg/kg	3.929	32.171	mg/kg	0.00322 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.11	mg/kg	1.353	0.133	mg/kg	0.0000133 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		28	mg/kg	2.976	74.169	mg/kg	0.00742 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	37	mg/kg	1.56	51.365	mg/kg	0.00329 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.51	mg/kg	2.554	1.159	mg/kg	0.000116 %	✓	
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		30	mg/kg	2.469	65.93	mg/kg	0.00659 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
15		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
18		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
19		fluoranthene				0.46	mg/kg		0.409	mg/kg	0.0000409 %	✓	
			205-912-4	206-44-0									
20		pyrene				0.44	mg/kg		0.392	mg/kg	0.0000392 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				0.23	mg/kg		0.205	mg/kg	0.0000205 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				0.2	mg/kg		0.178	mg/kg	0.0000178 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				0.39	mg/kg		0.347	mg/kg	0.0000347 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				0.38	mg/kg		0.338	mg/kg	0.0000338 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				0.29	mg/kg		0.258	mg/kg	0.0000258 %	✓	
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				0.25	mg/kg		0.223	mg/kg	0.0000222 %	✓	
			205-883-8	191-24-2									
29		PAHs (total)				2.6	mg/kg		2.314	mg/kg	0.000231 %	✓	
										Total:	0.0296 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS6

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
WS6
Sample Depth:
0.2 m
Moisture content:
6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.2	pH		8.2	pH	8.2 pH		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		48	mg/kg	1.32	59.573	mg/kg	0.00596 %	✓	
3	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.89	mg/kg	1.855	1.552	mg/kg	0.000155 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		30	mg/kg	1.462	41.216	mg/kg	0.00412 %	✓	
5	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		84	mg/kg	3.929	310.238	mg/kg	0.031 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.13	mg/kg	1.353	0.165	mg/kg	0.0000165 %	✓	
7	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		41	mg/kg	2.976	114.705	mg/kg	0.0115 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	240	mg/kg	1.56	351.894	mg/kg	0.0226 %	✓	
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<**LOD**
10	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		210	mg/kg	2.469	487.439	mg/kg	0.0487 %	✓	
11	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		66	mg/kg		62.04	mg/kg	0.0062 %	✓	
13	naphthalene	601-052-00-2	202-049-5	91-20-3		0.43	mg/kg		0.404	mg/kg	0.0000404 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		acenaphthylene				0.1	mg/kg		0.094	mg/kg	0.0000094 %	✓	
			205-917-1	208-96-8									
15		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
16		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
17		phenanthrene				0.5	mg/kg		0.47	mg/kg	0.000047 %	✓	
			201-581-5	85-01-8									
18		anthracene				0.14	mg/kg		0.132	mg/kg	0.0000132 %	✓	
			204-371-1	120-12-7									
19		fluoranthene				1.1	mg/kg		1.034	mg/kg	0.000103 %	✓	
			205-912-4	206-44-0									
20		pyrene				1.1	mg/kg		1.034	mg/kg	0.000103 %	✓	
			204-927-3	129-00-0									
21		benzo[a]anthracene				0.45	mg/kg		0.423	mg/kg	0.0000423 %	✓	
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				0.77	mg/kg		0.724	mg/kg	0.0000724 %	✓	
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				0.75	mg/kg		0.705	mg/kg	0.0000705 %	✓	
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				0.38	mg/kg		0.357	mg/kg	0.0000357 %	✓	
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				0.58	mg/kg		0.545	mg/kg	0.0000545 %	✓	
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				0.56	mg/kg		0.526	mg/kg	0.0000526 %	✓	
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				0.13	mg/kg		0.122	mg/kg	0.0000122 %	✓	
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				0.46	mg/kg		0.432	mg/kg	0.0000432 %	✓	
			205-883-8	191-24-2									
29		PAHs (total)				7.5	mg/kg		7.05	mg/kg	0.000705 %	✓	
										Total:	0.132 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 Flammable : components of concern : TPH HP 3 can be discounted as this is a solid waste without a free draining liquid phase. Ref:Guidance on the classification and assessment of waste (1st Edition v1.1) Technical Guidance WM3, 2018.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0062%)

Appendix A: Classifier defined and non CLP determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

- **PAHs (total)**

Description/Comments: Worst case scenario combining risk phrases and substance specific thresholds from benzo[a]pyrene (CLP# 601-032-00-3) and benzo[a]anthracene (CLP# 601-033-00-9)
Data source: 2008/1272/EC – Table 3.2 of Annex VI of regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures and 2009/790/EC Annex IV – Annex IV of regulation 2009/790/EC - 1st Adaptation to Technical Progress for European Regulation 1272/2008
Data source date: 16 Dec 2008
Hazard Statements: Repr. 1B H360FD , Aquatic Chronic 1 H410 (M=100), Aquatic Acute 1 H400 (M=100), Muta. 1B H340 , Carc. 1B H350 >= 0.01 %, Carc. 1B H350 , Skin Sens. 1 H317

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds

cadmium {cadmium sulfate}

Worst Case Species Selected

chromium in chromium(III) compounds {chromium(III) oxide}

(enter justification for selecting this species)

copper {copper sulphate pentahydrate}

Worst Case Species Selected

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weigh

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

lead {lead chromate}

Worst Case Species Selected

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

(enter justification for selecting this species)

zinc {zinc sulphate}

Insufficient chromium present within sample for zinc chromate to be anticipated species, therefore next worse case species has been selected.

chromium in chromium(VI) compounds {chromium(VI) oxide}

(enter justification for selecting this species)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2018.279.3663.7481 (09 Oct 2018)
HazWasteOnline Database: 2018.279.3663.7481 (09 Oct 2018)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

APPENDIX D

Geo-Integrity, - 07858 367 125 Email:- murraybateman@geo-integrity.co.uk

Geo-Integrity Ltd

4, CHURCH STREET,
MAIDS MORETON, MK18 1QE

Groundsure Reference:	GS-5417491
Your Reference:	18-08-08
Report Date	11 Sep 2018
Report Delivery Method:	Email - pdf

Enviro Insight

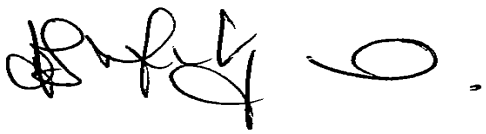
Address: BICESTER HERITAGE, BUCKINGHAM ROAD, BICESTER, OX27 8AL

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**BICESTER HERITAGE, BUCKINGHAM ROAD, BICESTER, OX27 8AL**
Date:	**11 Sep 2018**
Reference:	**GS-5417491**
Client:	**Geo-Integrity Ltd**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	20-Apr-2016
Grid Reference:	459133,224305
Site Size:	1.66ha

Report Reference: GS-5417491
Client Reference: 18-08-08

Contents Page

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	4	0	3	2
1.2 Additional Information – Historical Tank Database	0	3	5	8
1.3 Additional Information – Historical Energy Features Database	0	0	8	16
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	2	2

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	3
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	4	4	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	None identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	5
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	1
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	#250GWV#	#500GWV#	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	12	6	2	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	Yes	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	3
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	3
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	0	1	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Very Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Negligible
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Very Low
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Negligible
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

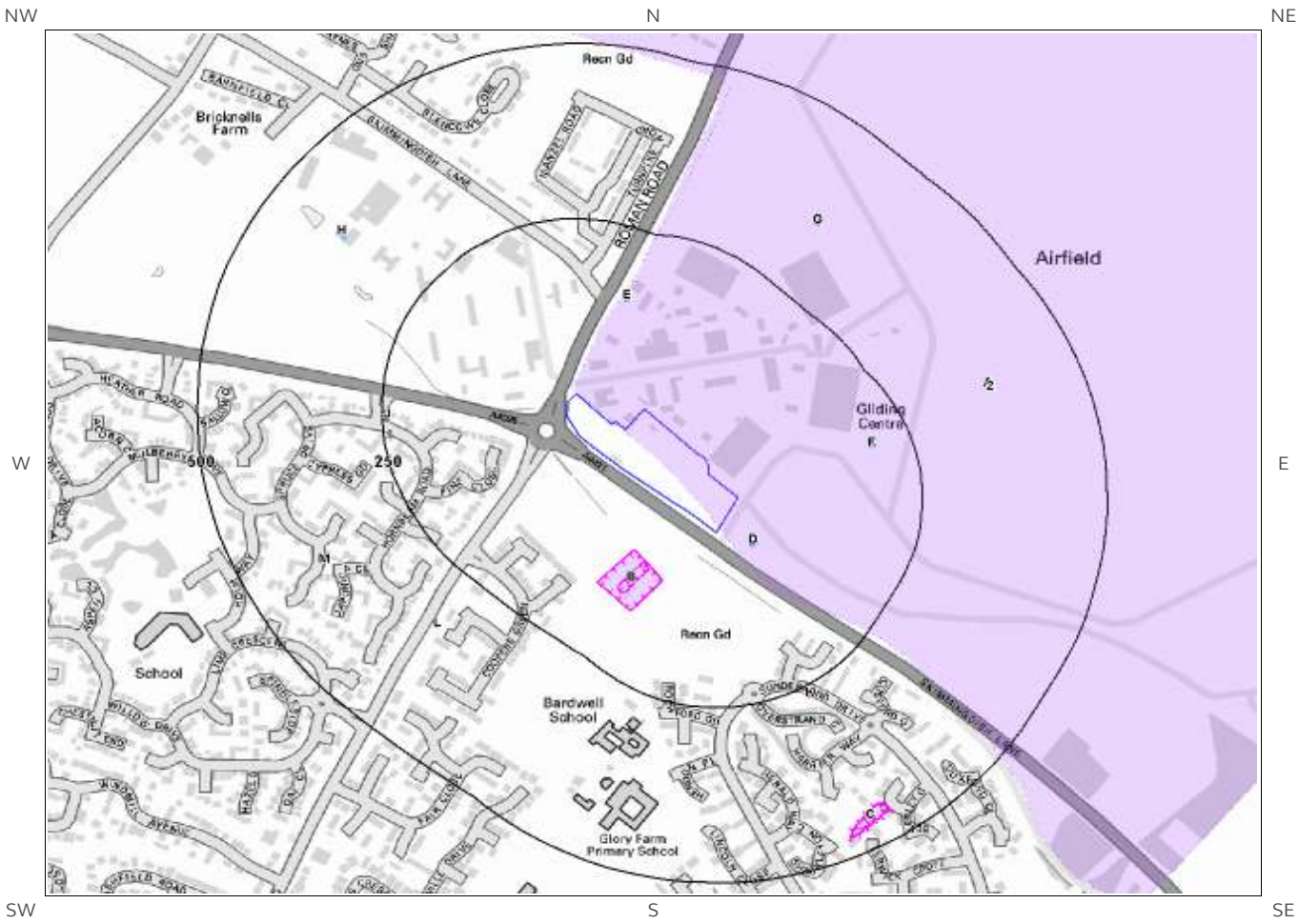
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 9

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Airfield	1966
2	0	On Site	Airfield	1995
3A	0	On Site	Airfield	1970
4A	0	On Site	Airfield	1985
5B	85	SW	Sewage Farm	1970
6B	93	SW	Filter Beds	1970
7B	129	SW	Unspecified Tanks	1950
8C	444	SE	Unspecified Old Quarry	1950
9C	445	SE	Unspecified Old Quarry	1938

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 16

ID	Distance (m)	Direction	Use	Date
10D	45	SE	Tanks	1990
11D	47	SE	Tanks	1966
12D	47	SE	Tanks	1994
13E	148	NE	Unspecified Tank	1994
14E	148	NE	Unspecified Tank	1966
15E	149	NE	Unspecified Tank	1990
16F	192	E	Unspecified Tank	1990
17F	195	E	Unspecified Tank	1966
18G	351	NE	Unspecified Tank	1990
19G	354	NE	Unspecified Tank	1966
20G	354	NE	Unspecified Tank	1994
21H	380	NW	Tanks	1996
22H	380	NW	Tanks	1999
23H	380	NW	Tanks	1996

24H	380	NW	Tanks	1995
25H	380	NW	Tanks	1995

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 24

ID	Distance (m)	Direction	Use	Date
26I	239	W	Electricity Substation	1992
27I	239	W	Electricity Substation	1992
28I	239	W	Electricity Substation	1993
29J	240	W	Electricity Substation	1995
30J	240	W	Electricity Substation	1996
31J	240	W	Electricity Substation	1999
32J	240	W	Electricity Substation	1995
33J	240	W	Electricity Substation	1996
34K	263	SE	Electricity Substation	1986
35K	264	SE	Electricity Substation	1995
36K	264	SE	Electricity Substation	1996
37K	265	SE	Electricity Substation	1995
38K	266	SE	Electricity Substation	1989
39L	329	SW	Electricity Substation	1995
40L	329	SW	Electricity Substation	1995
41L	329	SW	Electricity Substation	1996
42L	329	SW	Electricity Substation	1999
43L	329	SW	Electricity Substation	1996
44M	387	SW	Gas Governor	1995
45M	387	SW	Gas Governor	1996
46M	387	SW	Gas Governor	1996
47M	387	SW	Gas Governor	1999
48M	387	SW	Gas Governor	1995
49M	387	SW	Gas Governor	1993

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

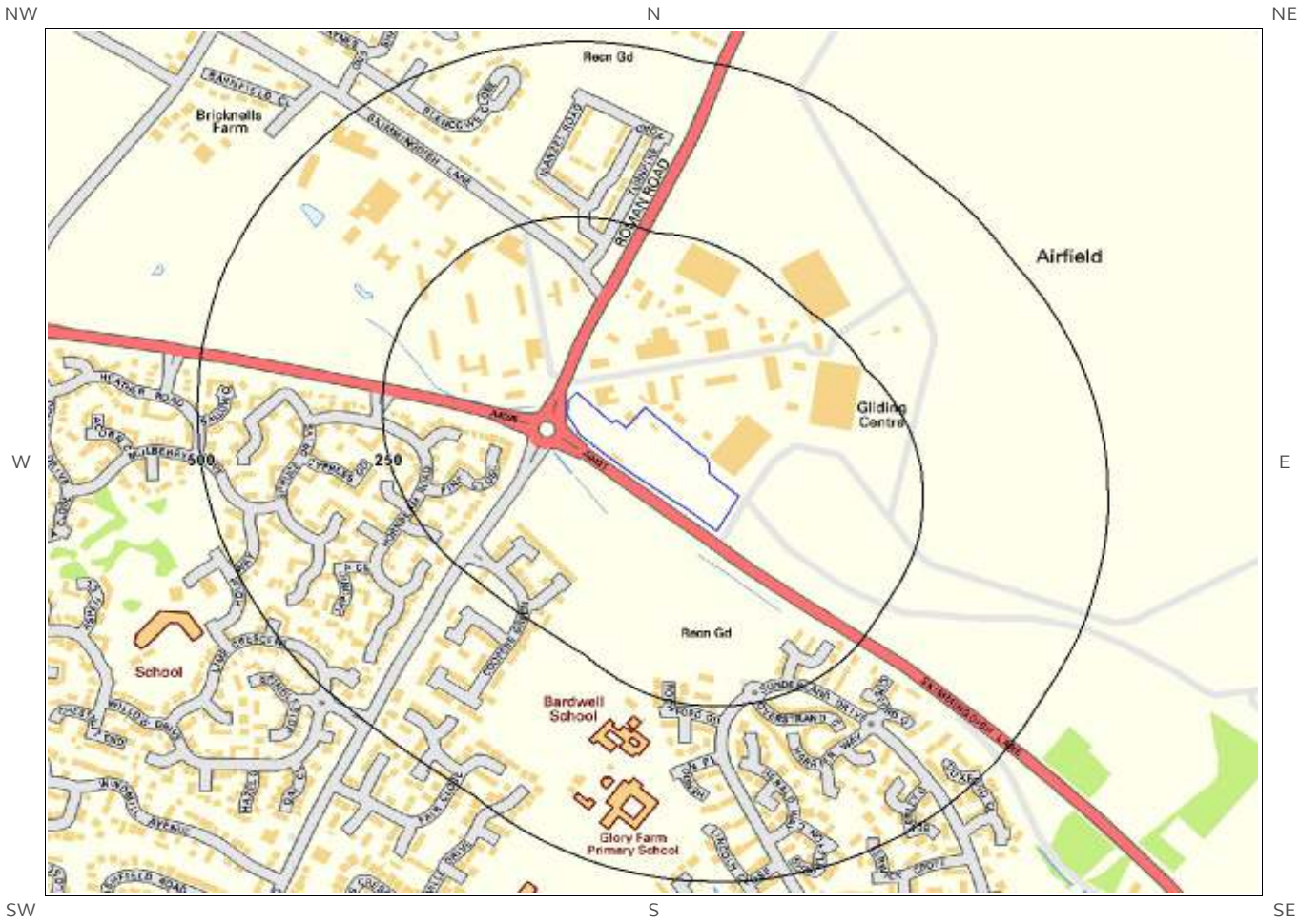
1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 4

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
50B	85	SW	Sewage Farm	1970
51B	93	SW	Filter Beds	1970
52C	444	SE	Unspecified Old Quarry	1950
53C	445	SE	Unspecified Old Quarry	1938

2. Environmental Permits, Incidents and Registers Map



Site Outline

Search Buffers (m)

Recorded Pollution Incident

Dangerous Substances (List 1)

Dangerous Substances (List 2)

Water Industry Referrals

Licensed Discharge Consents

Red List Discharge Consents

RAS 3 & 4 Authorisations

Part A(1) Authorised Processes and Historic IPC Authorisations

Part A(2) and Part B Authorised Processes

COMAH / NIHHS Sites

Sites Determined as Contaminated Land

Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: 0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations: 0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site: 0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: 0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site: 0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

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3. Landfill and Other Waste Sites Map

Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

1

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1069	NE		Site Address: Disused Tip at Elm Farm Quarry, Stratton Audley, Oxfordshire Waste Licence: - Site Reference: W15386, TP0533, 13.6.6025 Waste Type: Inert, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Oxfordshire County Council Licence Holder: Oxfordshire County Council First Recorded: 31-Dec-1948 Last Recorded: 31-Dec-1975

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

3

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1063	NE	459841 225350	Refuse Tip	1996 mapping	Polygon
Not shown	1067	NE	459841 225354	Refuse Tip	1975 mapping	Polygon
Not shown	1312	NE	460053 225436	Refuse Tip	1975 mapping	Polygon

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

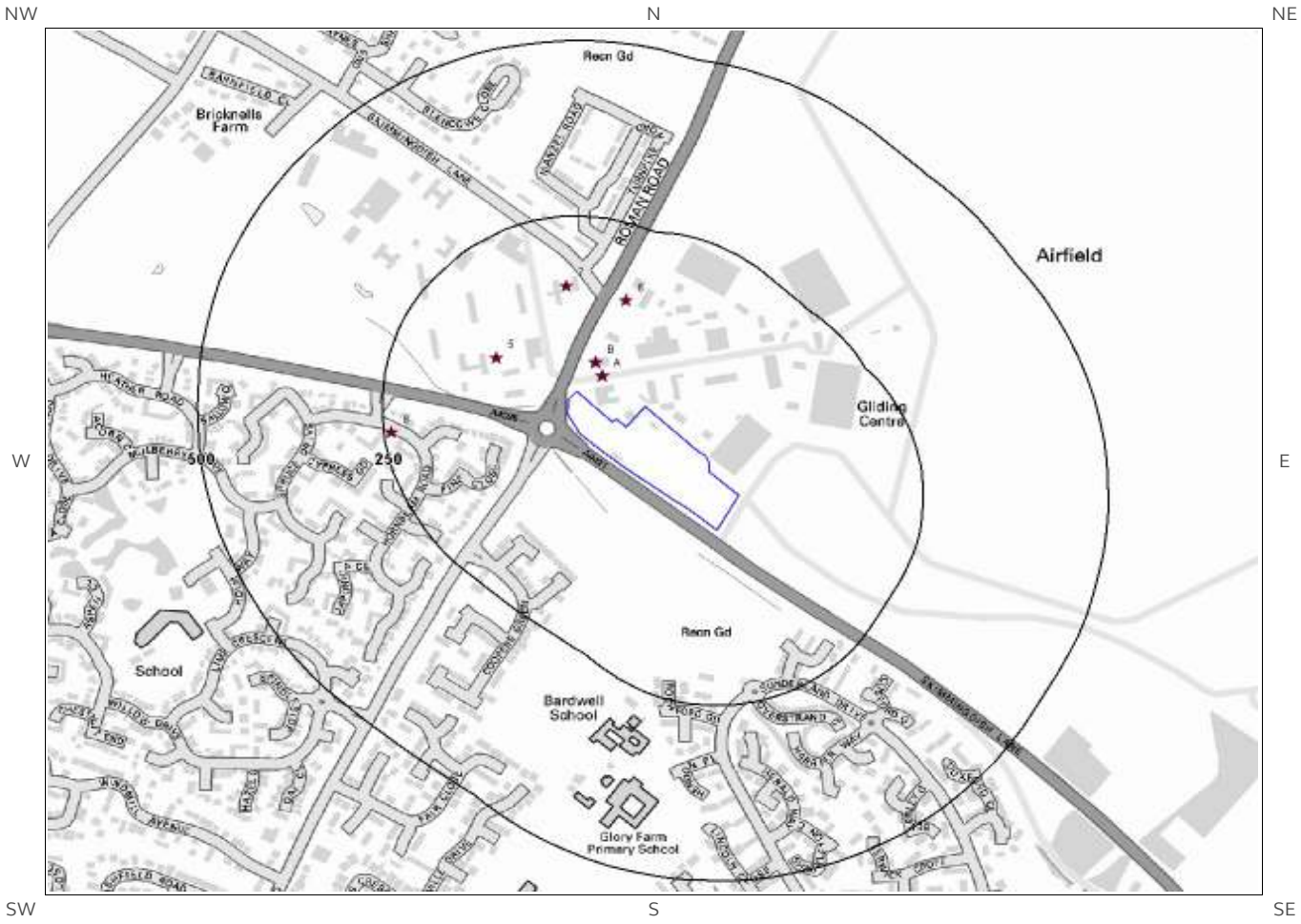
Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 8

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1A	40	NE	Heritage Engineering	459060 224410	Buckingham Road, Bicester, OX26 5HA	Precision Engineers	Engineering Services
2A	40	NE	The Motor Shed Ltd	459060 224410	Buckingham Road, Bicester, OX26 5HA	Vehicle Repair, Testing and Servicing	Repair and Servicing
3B	49	NE	Bicester Heritage Ltd	459051 224430	Buckingham Road, Bicester, OX26 5HA	Vehicle Repair, Testing and Servicing	Repair and Servicing
4B	49	NE	Historit Ltd	459051 224429	Buckingham Road, Bicester, OX27 8AL	Container and Storage	Transport, Storage and Delivery
5	115	NW	Electricity Sub Station	458917 224437	OX27	Electrical Features	Infrastructure and Facilities
6	146	NE	Tank	459092 224518	OX26	Tanks (Generic)	Industrial Features
7	152	N	Air Training Corps Headquarters	459011 224539	OX27	Armed Services	Central and Local Government
8	240	W	Electricity Sub Station	458775 224330	OX26	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

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5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.3 Bedrock and Solid Geology

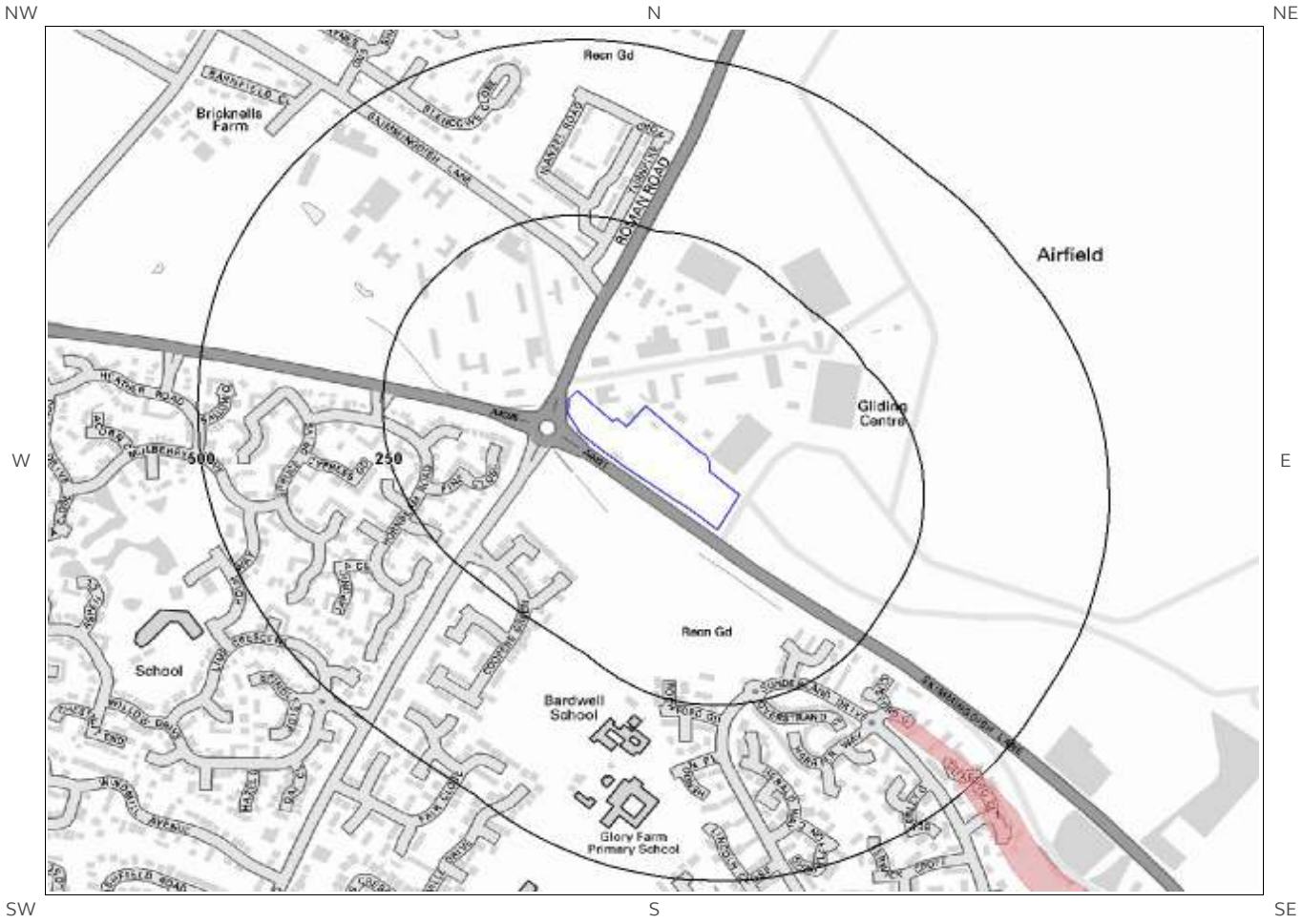
The database has been searched on site, including a 50m buffer.

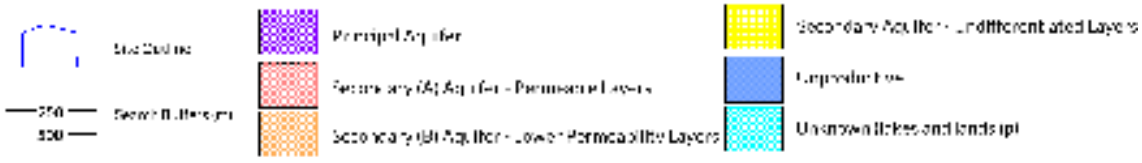
Lex Code	Description	Rock Type
CB-LMST	CORNBRASH FORMATION	LIMESTONE
FMB-LSMD	FOREST MARBLE FORMATION	LIMESTONE AND MUDSTONE, INTERBEDDED

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

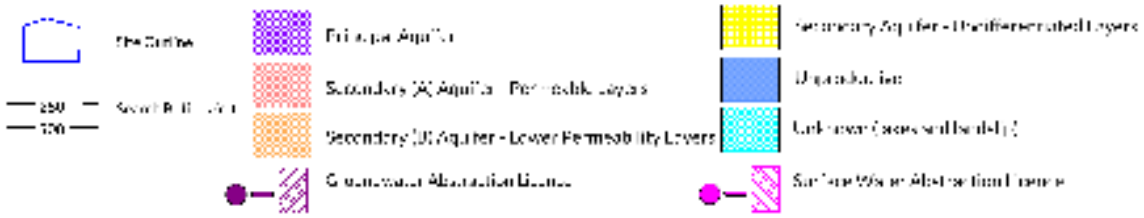
6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology

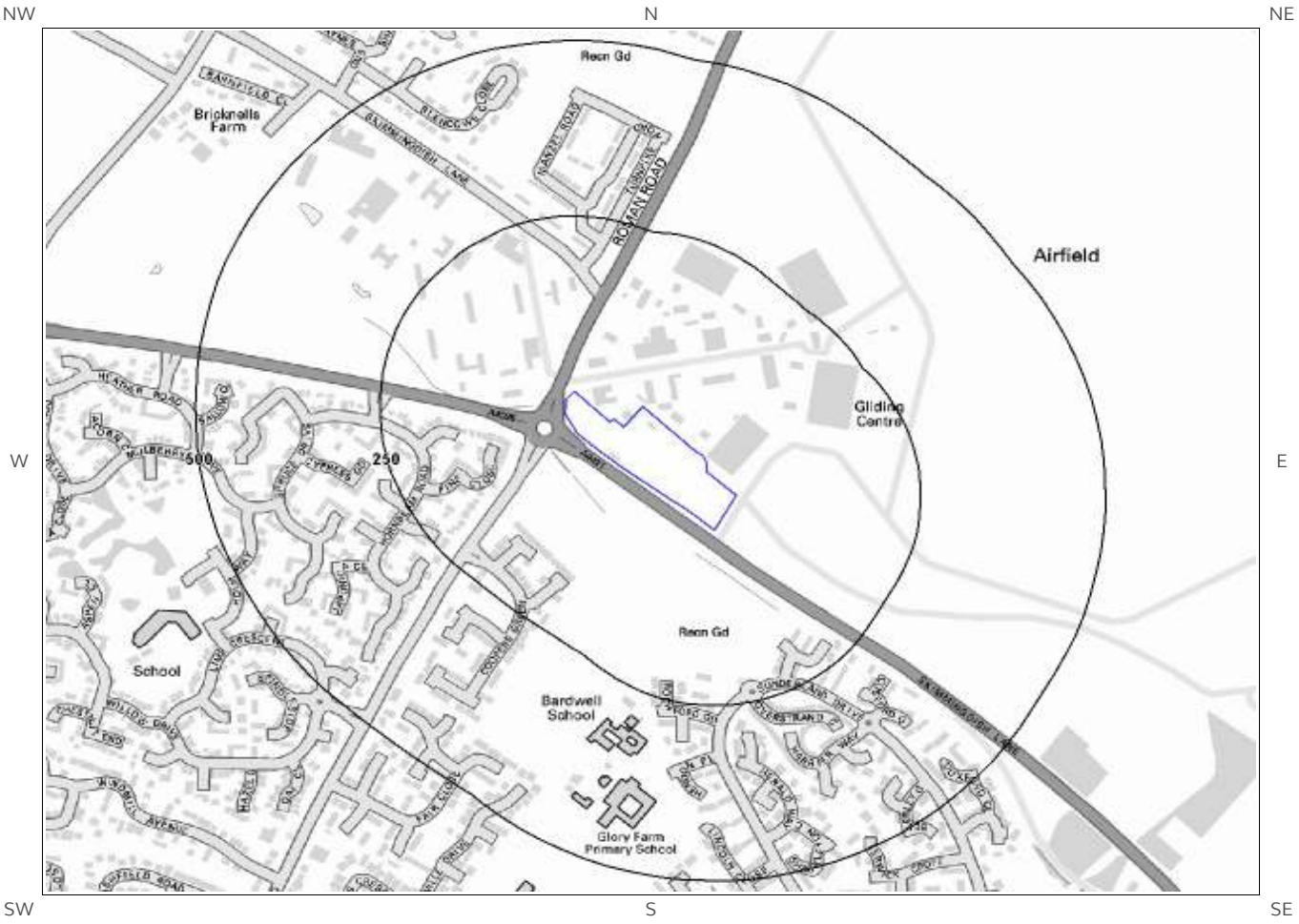




6b. Aquifer Within Bedrock Geology and Abstraction Licences



6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



Site Outline

250 Search Buffers (m)
500

Source Protection Zone 1 - Inner Catchment

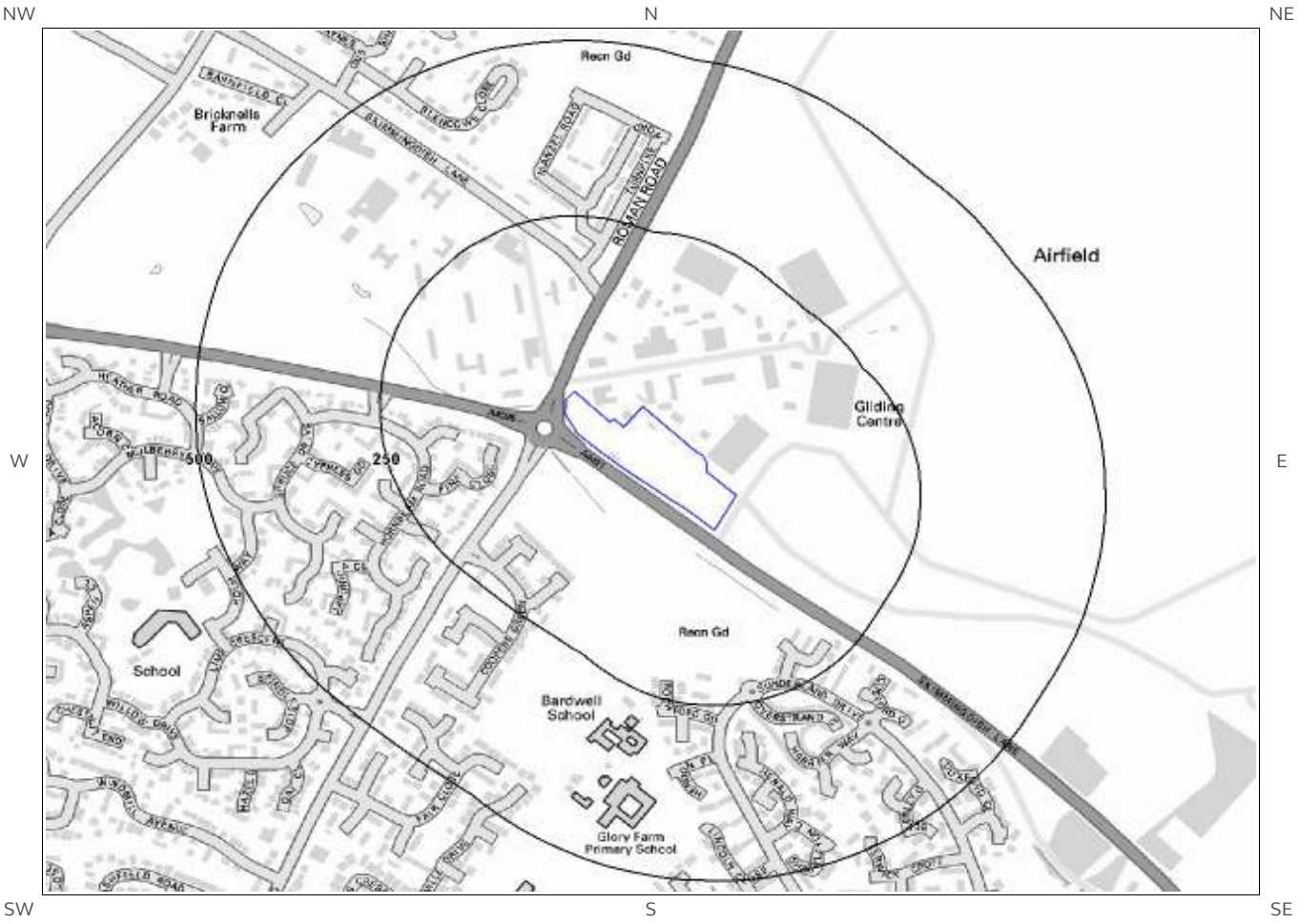
Source Protection Zone 2 - Outer Catchment

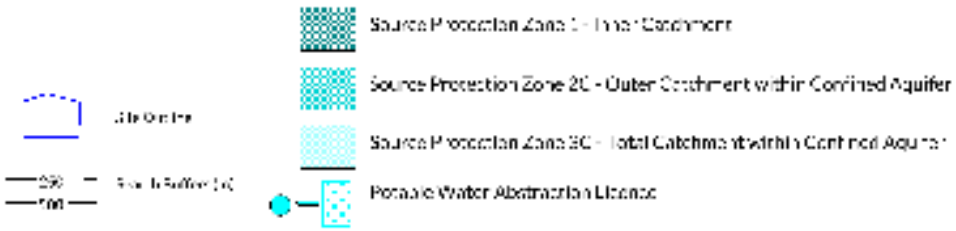
Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



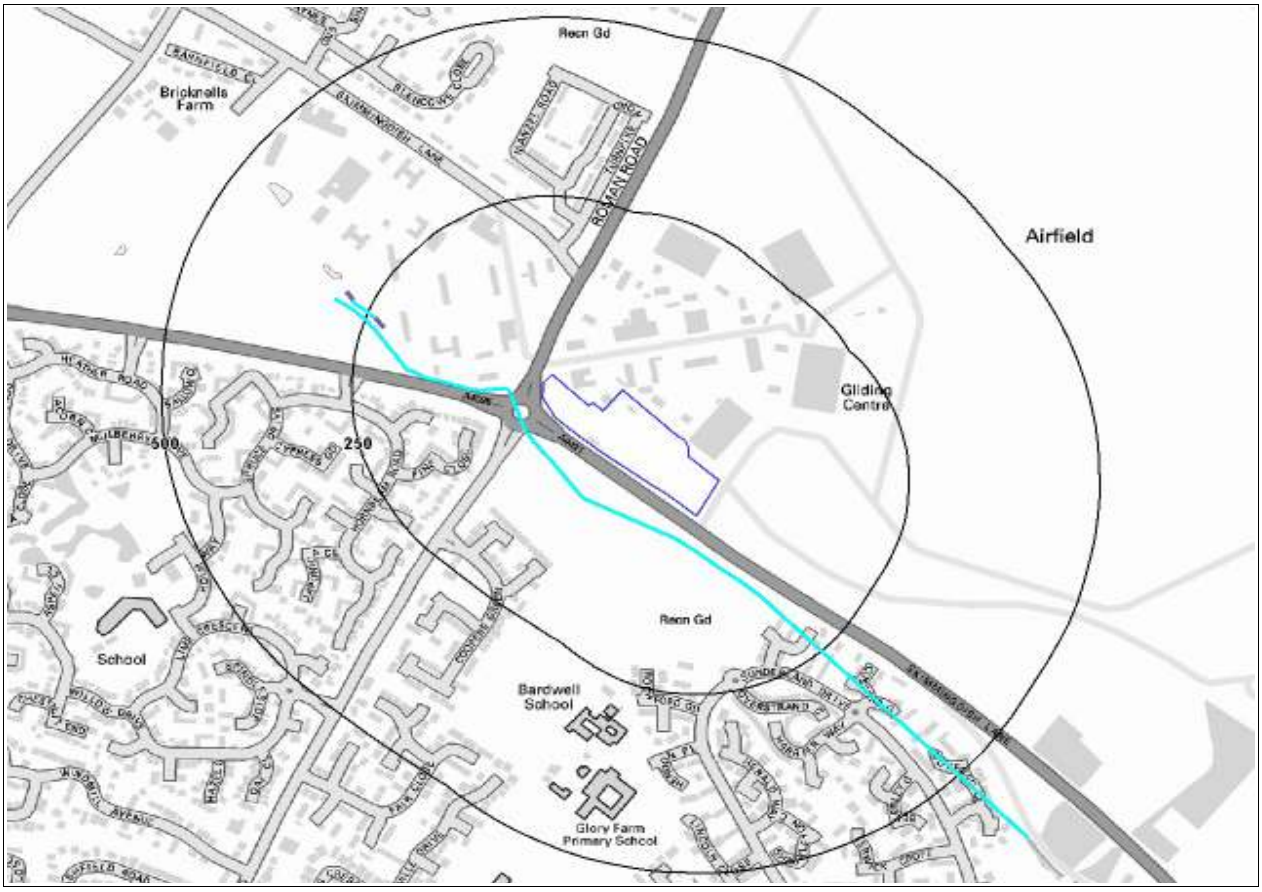


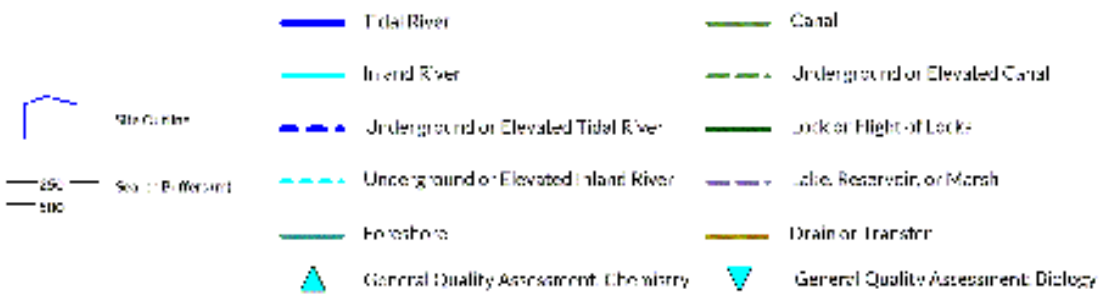
6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE





6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	352	SE	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

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	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

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	932	SW	458510 223550	Status: Historical Licence No: 28/39/14/0034 Details: General use relating to Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: BUCKINGHAM ROAD, BICESTER, - BOREHOLE 'A' Data Type: Point Name: SUNLIGHT SERVICE GROUP LTD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 100 Version Start Date: 04/12/1996 Version End Date:
Not shown	952	N	459300 225300	Status: Historical Licence No: 28/39/14/0291 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: THAMES GROUNDWATER Point: BRASHFIELD HOUSE, NR BICESTER, OXON Data Type: Point Name: BRASHFIELD MANAGEMENT LTD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/11/1980 Expiry Date: - Issue No: 100 Version Start Date: 30/01/1987 Version End Date:
Not shown	954	SW	458500 223530	Status: Historical Licence No: 28/39/14/0333 Details: General use relating to Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: BUCKINGHAM ROAD, BICESTER, OXON Data Type: Point Name: GIBBS HOLDINGS LTD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 26/07/1996 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 26/07/1996 Version End Date:
Not shown	1578	W	457441 224221	Status: Historical Licence No: 28/39/14/0348 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LORDS FARM - BOREHOLE Data Type: Point Name: W V MALINS & SON	Annual Volume (m^3): 17520 Max Daily Volume (m^3): 48 Original Application No: - Original Start Date: 22/03/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 01/04/2008 Version End Date:
Not shown	1578	W	457441 224221	Status: Active Licence No: 28/39/14/0348/R01 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LORDS FARM - BOREHOLE Data Type: Point Name: W V MALINS & SON	Annual Volume (m^3): 17520 Max Daily Volume (m^3): 48 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2018 Version End Date:
Not shown	1581	N	459500 225900	Status: Historical Licence No: 28/39/14/0315 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: THAMES GROUNDWATER Point: FRINGFORD LODGE FARM, BICESTER, OXON Data Type: Point Name: ELWORTHY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/03/1992 Expiry Date: - Issue No: 101 Version Start Date: 04/06/2003 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1581	N	459500 225900	Status: Historical Licence No: 28/39/14/0315 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: FRINGFORD LODGE FARM, BICESTER, OXON Data Type: Point Name: ELWORTHY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/03/1992 Expiry Date: - Issue No: 101 Version Start Date: 04/06/2003 Version End Date:
Not shown	1621	W	457400 224200	Status: Historical Licence No: 28/39/14/0348 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LORDS FARM - BOREHOLE Data Type: Point Name: W V MALINS & SON	Annual Volume (m^3): 17520 Max Daily Volume (m^3): 48 Original Application No: - Original Start Date: 22/03/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 01/04/2008 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details	
Not shown	952	N	459300 225300	Status: Historical Licence No: 28/39/14/0291 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: THAMES GROUNDWATER Point: BRASHFIELD HOUSE, NR BICESTER, OXON Data Type: Point Name: BRASHFIELD MANAGEMENT LTD	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/11/1980 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1581	N	459500 225900	Status: Historical Licence No: 28/39/14/0315 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Household Direct Source: THAMES GROUNDWATER Point: FRINGFORD LODGE FARM, BICESTER, OXON Data Type: Point Name: ELWORTHY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 09/03/1992 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site — Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.
497	S	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site — None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	38 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	38 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	41 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	41 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
4	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
5	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
8	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	42 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
6	46 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	46 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	141 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	141 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	222 W	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	222 W	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	239 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	239 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	275	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	275 NW	-	Lake, loch or reservoir.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

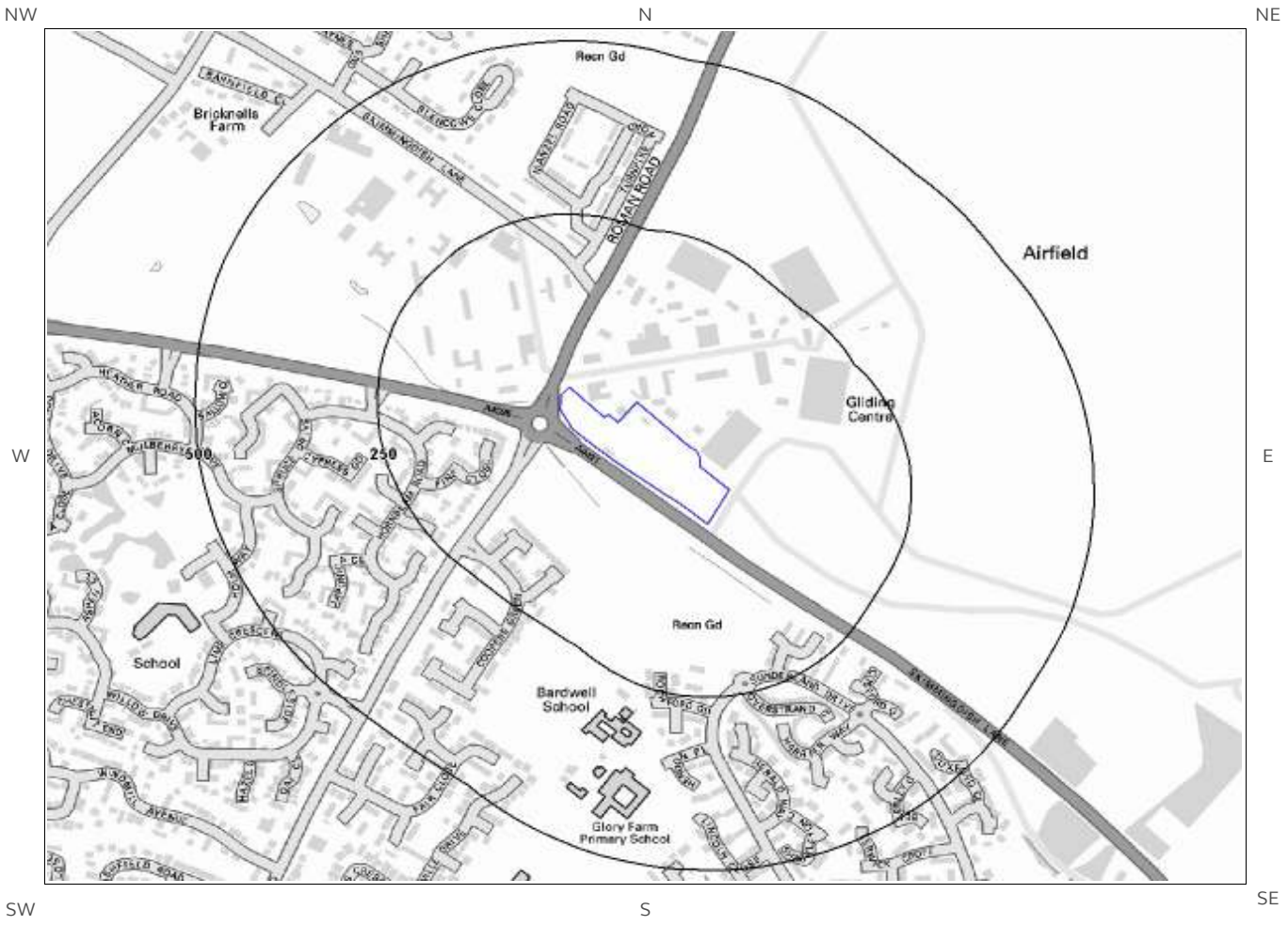
6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
41	SW
46	W
50	SW

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



Site Outline

Search Buffers (m)

Zone 2 Floodplain

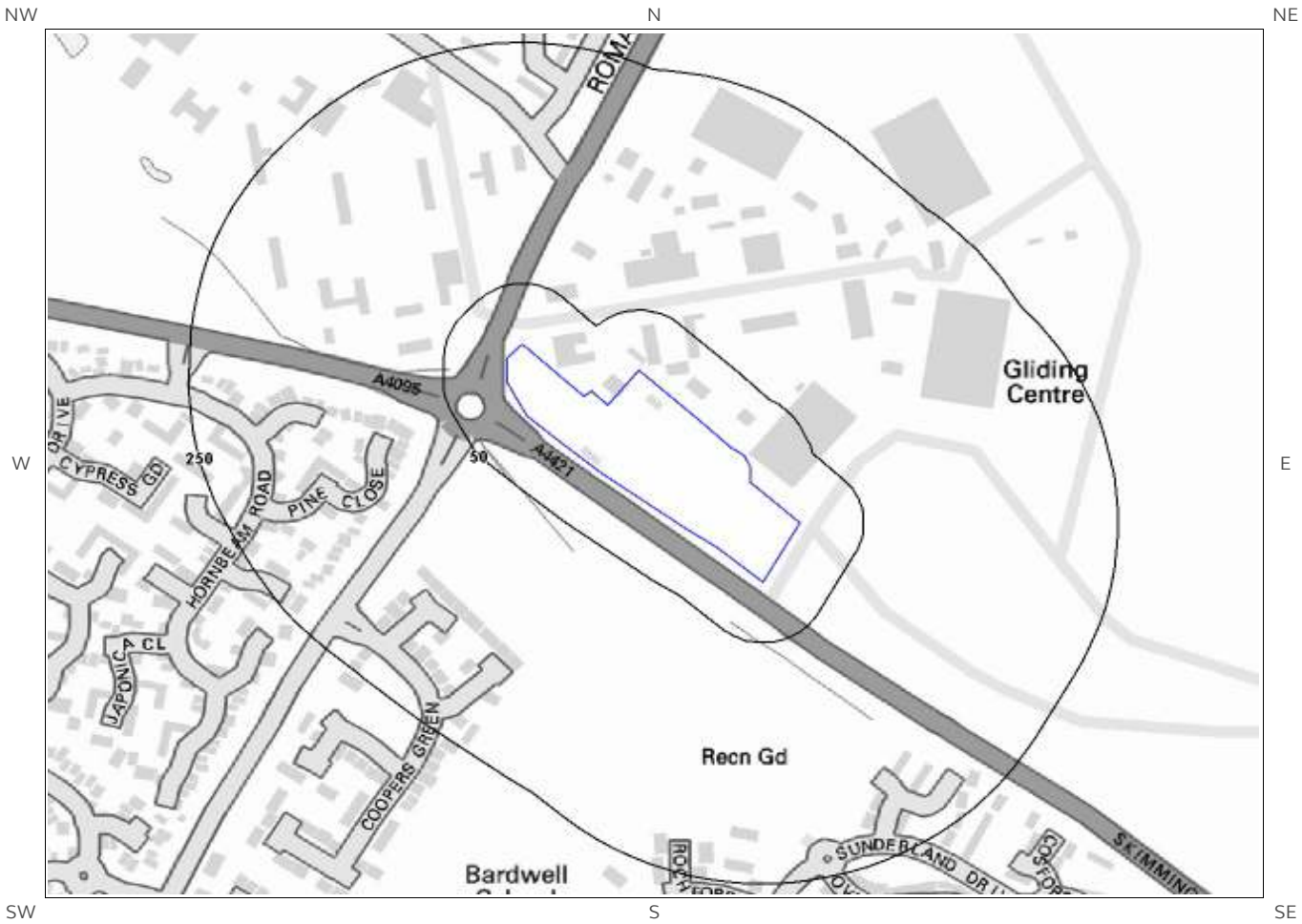
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



Site Outline

Search Buffers (m)

RoFRaS Rating

Very Low

Low

Medium

High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site	None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site	Identified
Clearwater Flooding or Superficial Deposits Flooding	Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

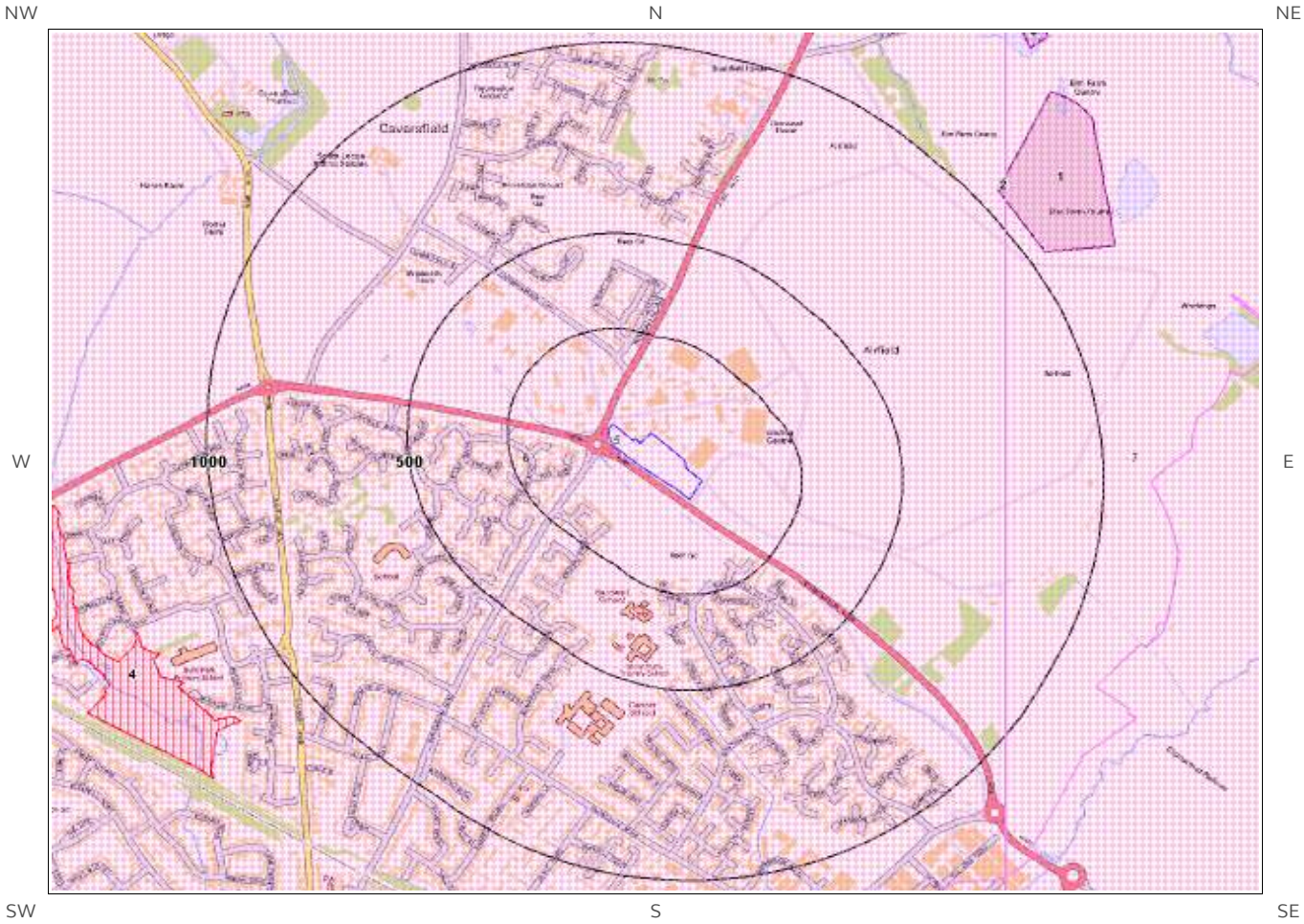
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site — Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

3

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
1	1045	NE	Stratton Audley Quarries	Natural England
2	1051	NE	Stratton Audley Quarries	Natural England
3	1380	NE	Stratton Audley Quarries	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

3

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1425	E	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1760	N	UNKNOWN	Ancient Replanted Woodland
Not shown	1835	N	UNKNOWN	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
4	1177	SW	Bure Park	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

3

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
5	0	On Site	Existing	DEFRA
6	0	On Site	Existing	DEFRA
7	756	E	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: **www.environment-agency.gov.uk**
Email: enquiries@environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email:**enquiries@phe.gov.uk**
Main switchboard**: 020 7654 8000**

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: Cherwell District Council
Phone: 01295 252 535
Web: http://www.cherwell-dc.gov.uk/
Address: Bodicote House, Bodicote, Banbury, Oxfordshire, OX15 4AA

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

https://www.groundsure.com/terms-and-conditions-may25-2018

Groundsure
LOCATION INTELLIGENCE

Geo-Integrity Ltd

4, CHURCH STREET,
MAIDS MORETON, MK18 1QE

Groundsure Reference:	GS-5417492
Your Reference:	18-08-08
Report Date	11 Sep 2018
Report Delivery Method:	Email - pdf

Geo Insight

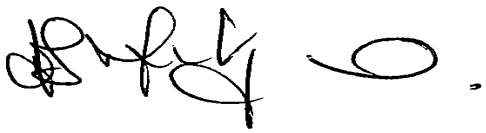
Address: BICESTER HERITAGE, BUCKINGHAM ROAD, BICESTER, OX27 8AL

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**BICESTER HERITAGE, BUCKINGHAM ROAD, BICESTER, OX27 8AL**
Date:	**11 Sep 2018**
Reference:	**GS-5417492**
Client:	**Geo-Integrity Ltd**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	20-Apr-2016
Grid Reference:	459133,224305
Site Size:	1.66ha

Contents Page

Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	No
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	No
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	2	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	1	4

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Negligible
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Very Low
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Negligible

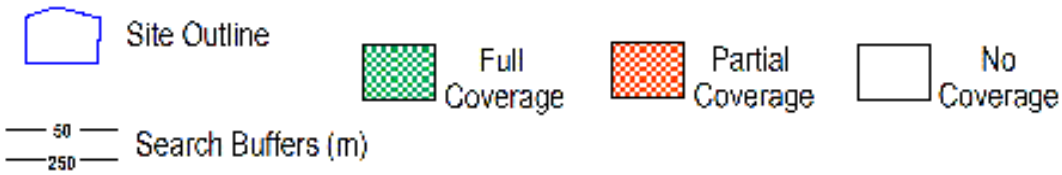
Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	1	9

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	2	2	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability

1_10,000 Availability Legend



Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	612.0	Some deposits are mapped	Full	Full	No coverage
3	756.0	No deposits are mapped	No coverage	No coverage	No coverage

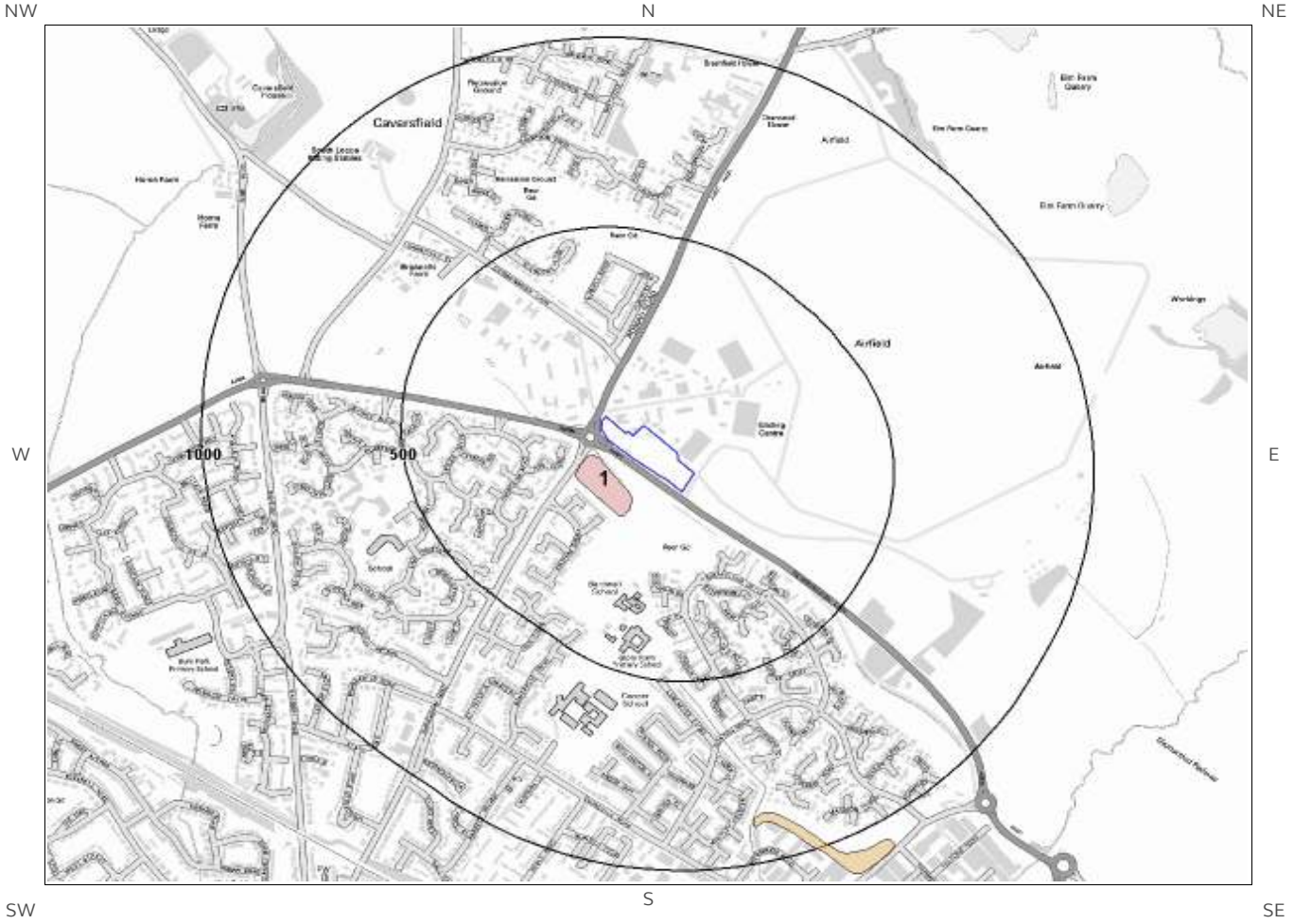
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

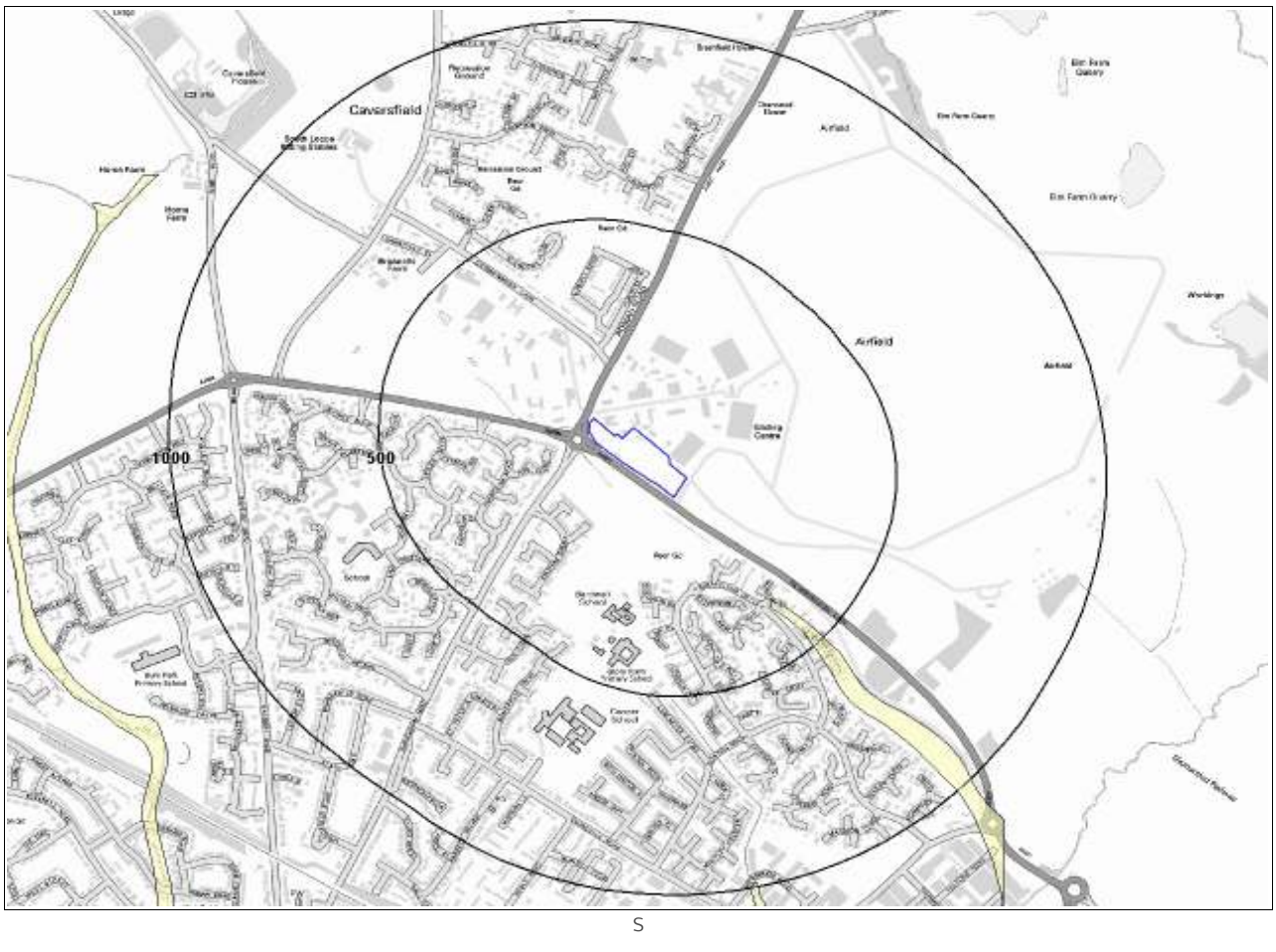
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	52.0	SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

Site Outline

Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	350.0	SE	ALV-CSV	Alluvium - Sandy Gravelly Clay	Clay, Sandy, Gravelly

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)

Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	FMB-LSMD	Forest Marble Formation - Interbedded Limestone And Mudstone	Bathonian Age
2	0.0	On Site	CB-LMST	Cornbrash Formation - Limestone	Callovian Age - Bathonian Age

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

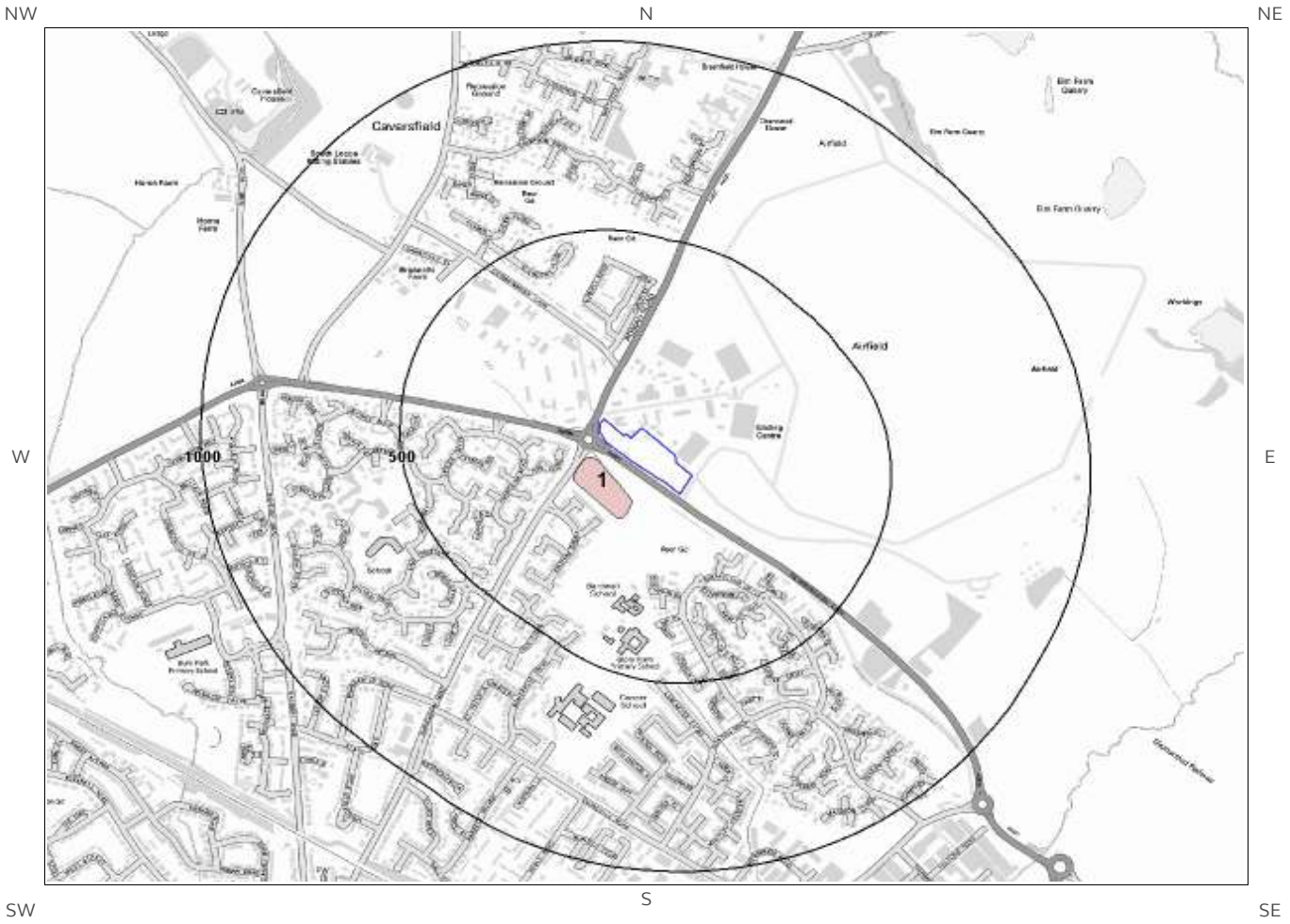
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



Site Outline

Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 219

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

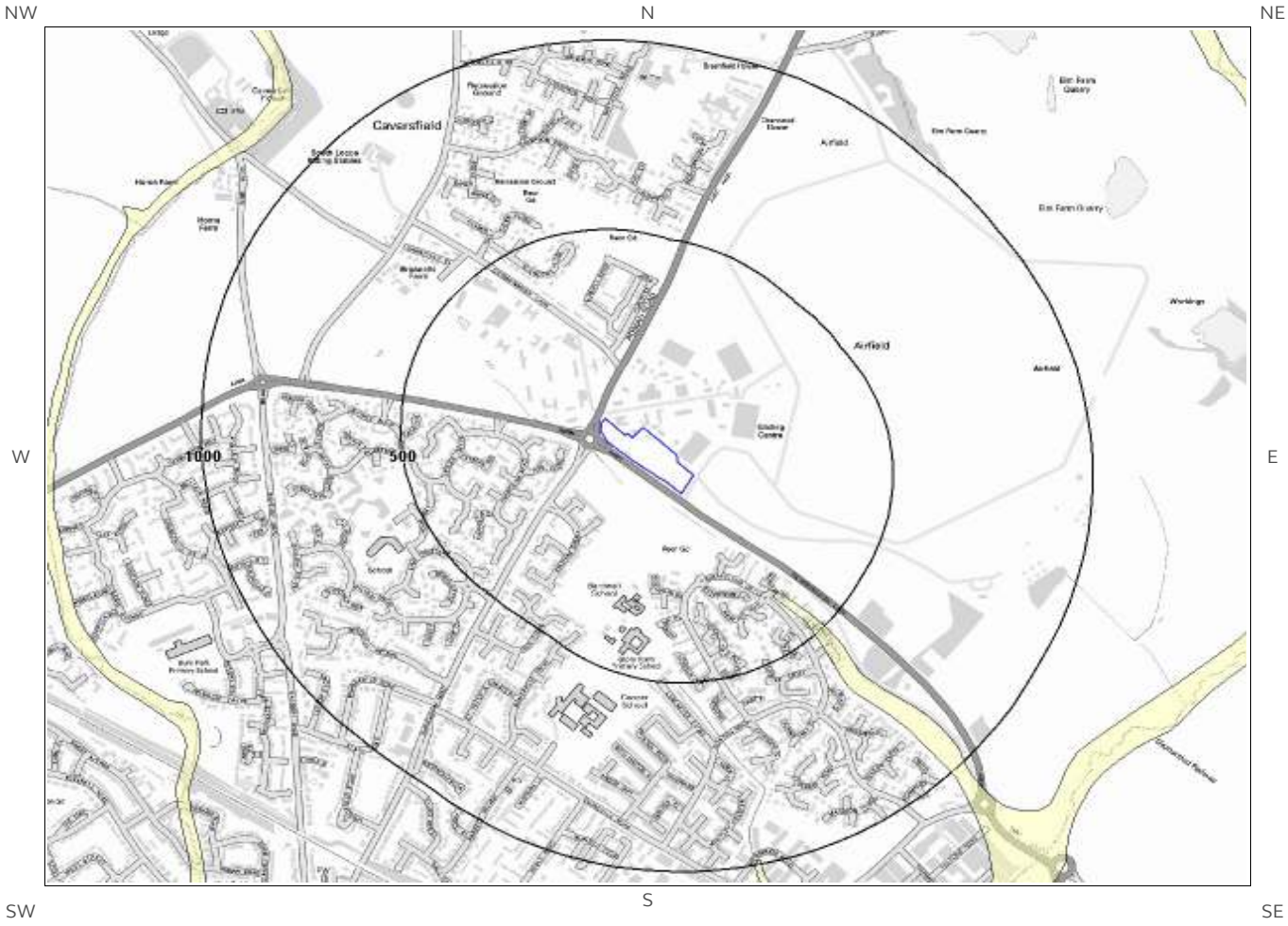
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	51.0	SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	352.0	SE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? No

Database searched and no data found.

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)

Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 219

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	CB-LMST	CORNBRASH FORMATION - LIMESTONE	BATHONIAN
2	0.0	On Site	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	High
0.0	On Site	Fracture	High	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

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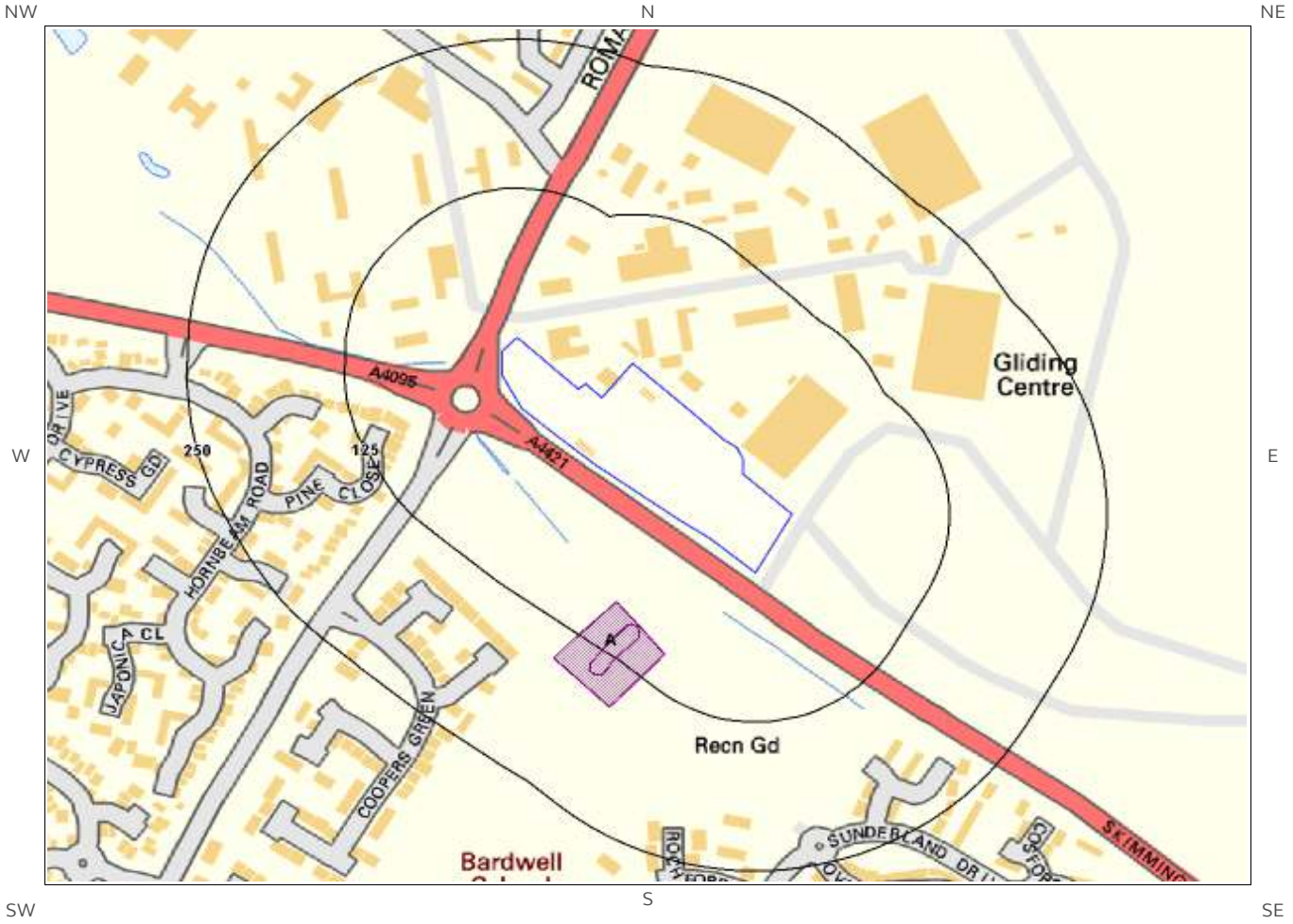
4 Ground Workings map



Ground Workings Legend

Site Outline

Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1A	85.0	SW	459099 224122	Sewage Farm	1970
2A	93.0	SW	459103 224126	Filter Beds	1970

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

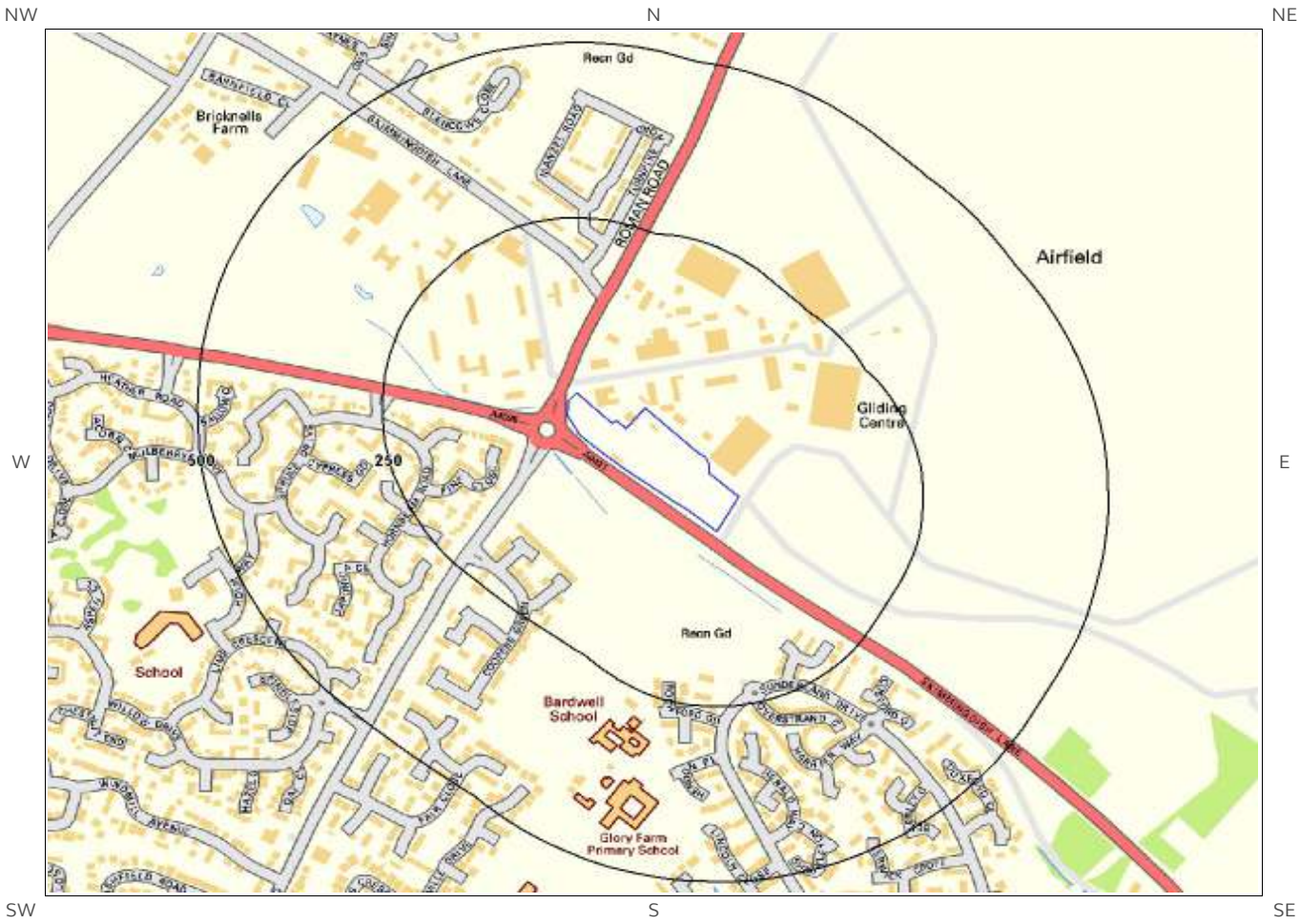
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	451.0	SE	459429 223793	Limestone	Filter Beds	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	620.0	SE	459712 223819	Limestone	Rose Cottages	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	869.0	NW	458675 225183	Limestone	Cuckoo Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	873.0	NW	458589 225144	Limestone	Vicarage House	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	998.0	NE	459547 225267	Limestone	Brashfield House	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

6 Natural Ground Subsidence

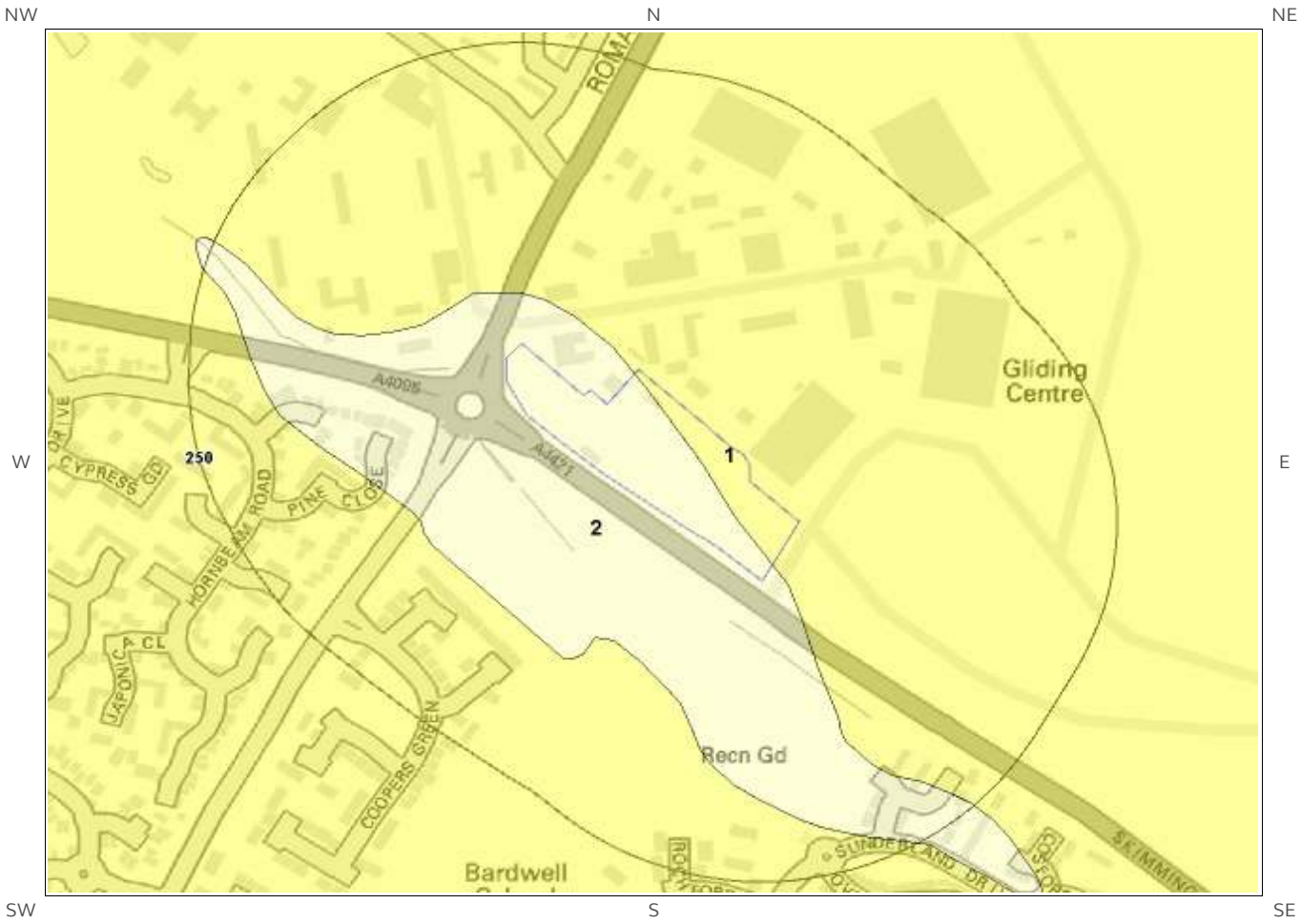
6.1 Shrink-Swell Clay map

Shrink Swell Clay Legend

6.2 Landslides map

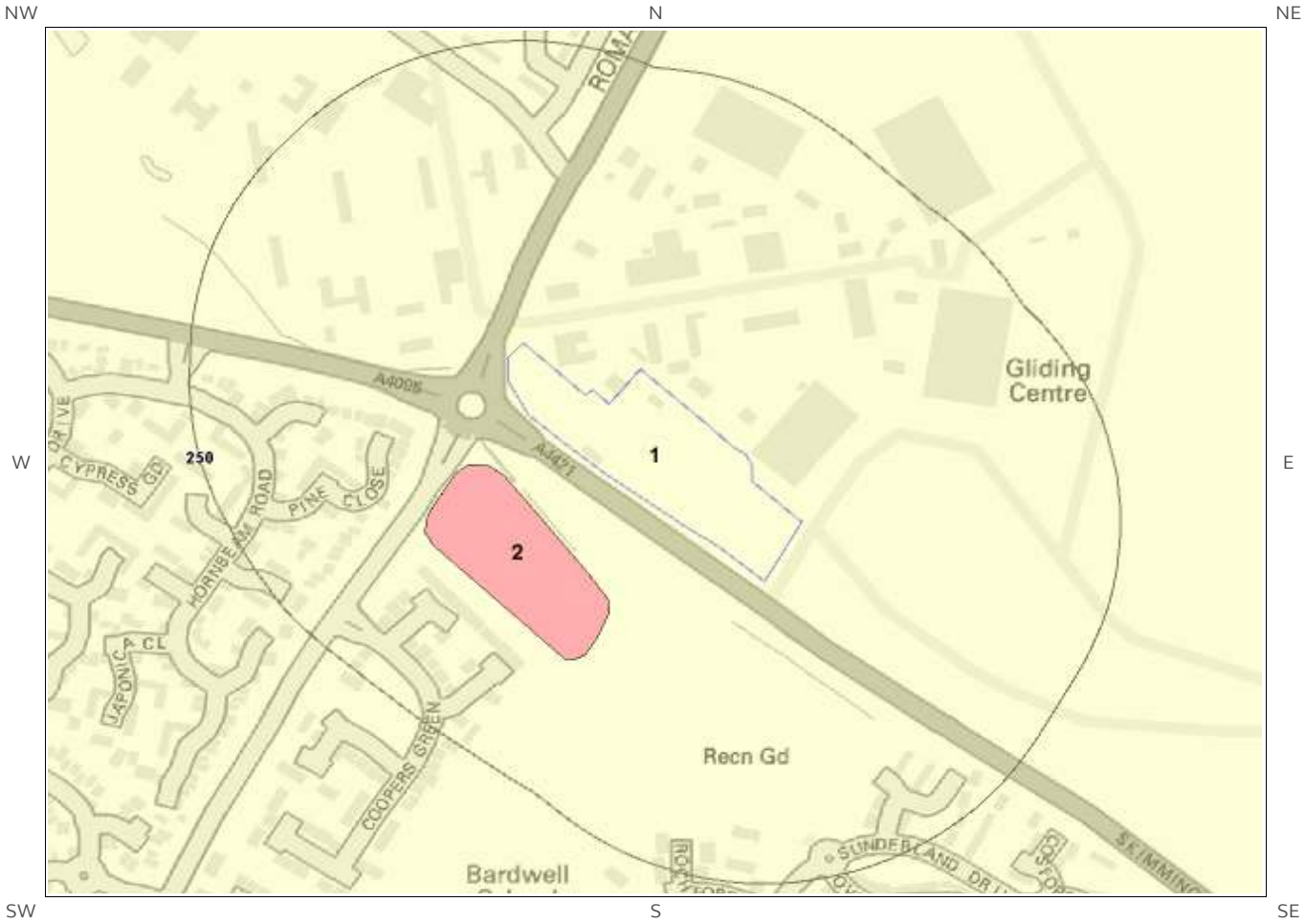
Landslides Legend

6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits map

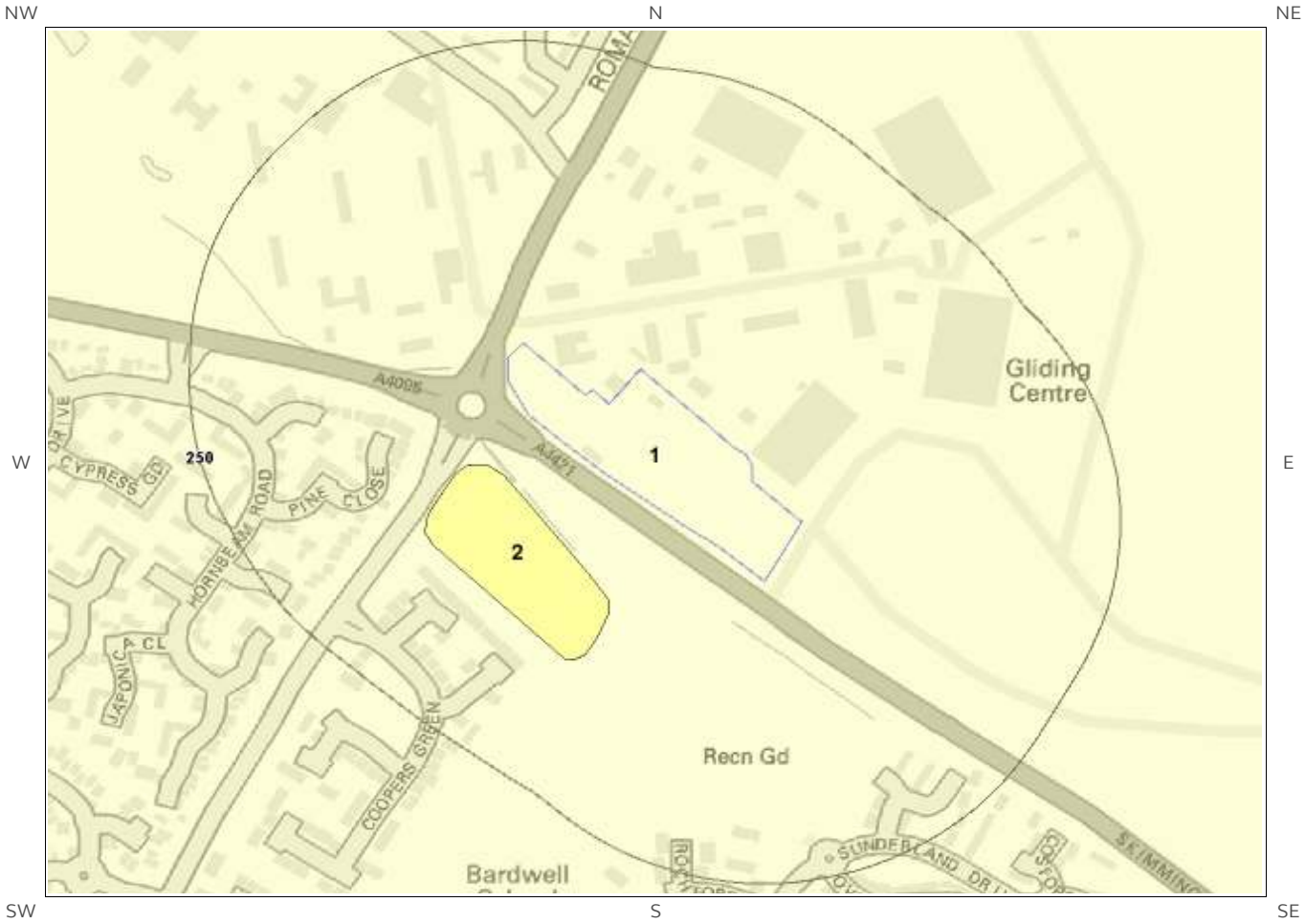


Compressible Deposits Legend

6.5 Collapsible Deposits map

Collapsible Deposits Legend

6.6 Running Sand map



Running Sand Legend

6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Very Low

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

* This includes an automatically generated 50m buffer zone around the site

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

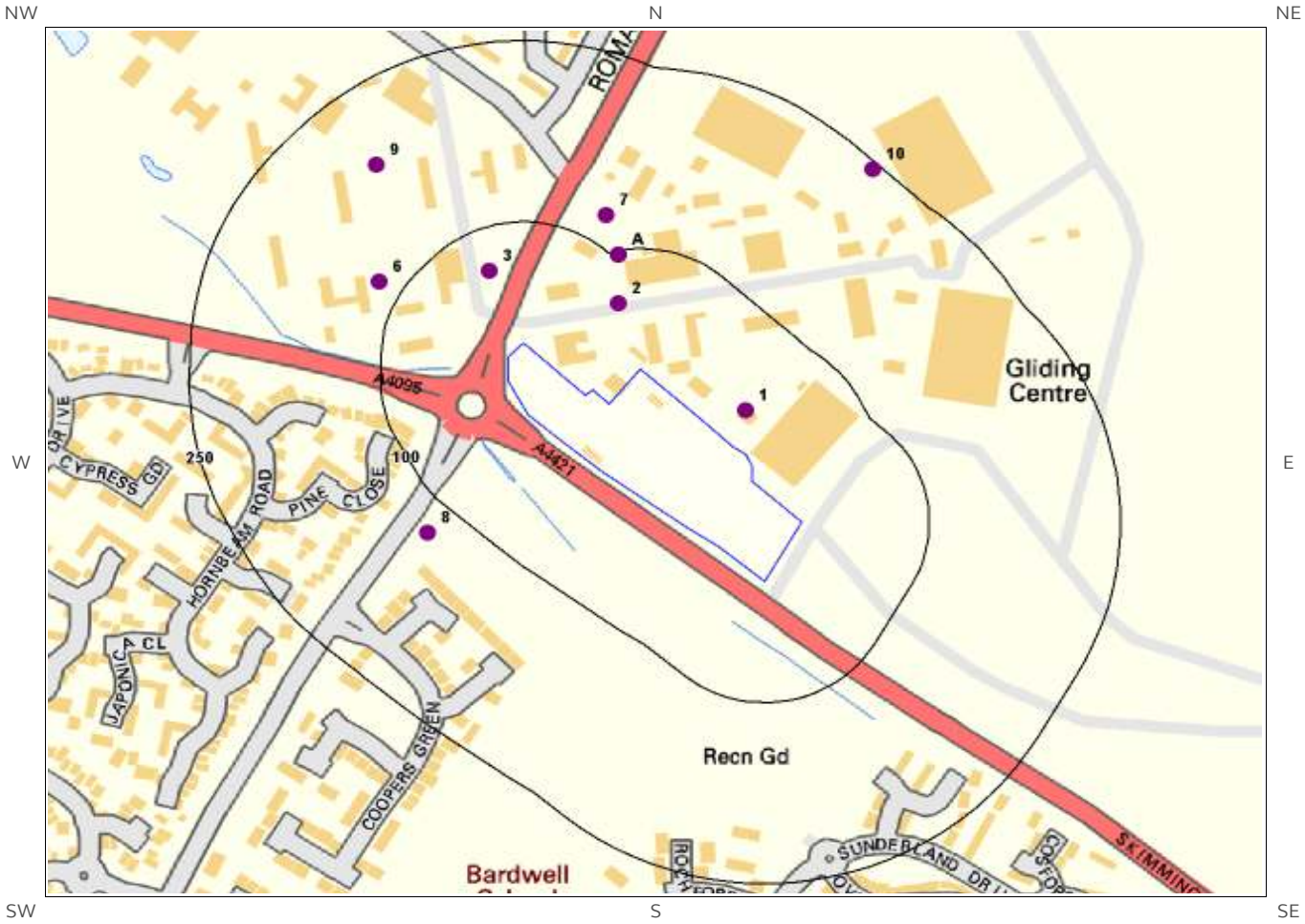
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 10

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	28.0	NE	459200 224331	SP52SE70	2.0	RAF BICESTER REPLACEMENT W/MAIN TP19
2	57.0	N	459100 224420	SP52SE68	2.0	RAF BICESTER REPLACEMENT W/MAIN TP17
3	65.0	NW	458999 224447	SP52SE66	2.0	RAF BICESTER REPLACEMENT W/MAIN TP15
4A	96.0	N	459100 224460	SP52SE14	43.0	BICESTER R.A.F. STATION
5A	96.0	N	459100 224460	SP52SE174	43.0	R.A.F.STATION BICESTER
6	119.0	NW	458912 224438	SP52SE65	2.0	RAF BICESTER REPLACEMENT W/MAIN TP14
7	123.0	NE	459090 224493	SP52SE67	2.0	RAF BICESTER REPLACEMENT W/MAIN TP16
8	126.0	SW	458950 224230	SP52SE54	5.0	CAVERSFIELD SEWER BICESTER BH370/4
9	187.0	NW	458910 224535	SP52SE64	2.0	RAF BICESTER REPLACEMENT W/MAIN TP13
10	244.0	NE	459300 224531	SP52SE69	2.0	RAF BICESTER REPLACEMENT W/MAIN TP18

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/336770
#2: scans.bgs.ac.uk/sobi_scans/boreholes/336768
#3: scans.bgs.ac.uk/sobi_scans/boreholes/336766
#4A: scans.bgs.ac.uk/sobi_scans/boreholes/336707
#5A: scans.bgs.ac.uk/sobi_scans/boreholes/336874
#6: scans.bgs.ac.uk/sobi_scans/boreholes/336765
#7: scans.bgs.ac.uk/sobi_scans/boreholes/336767
#8: scans.bgs.ac.uk/sobi_scans/boreholes/336754
#9: scans.bgs.ac.uk/sobi_scans/boreholes/336764
#10: scans.bgs.ac.uk/sobi_scans/boreholes/336769

8 Estimated Background Soil Chemistry

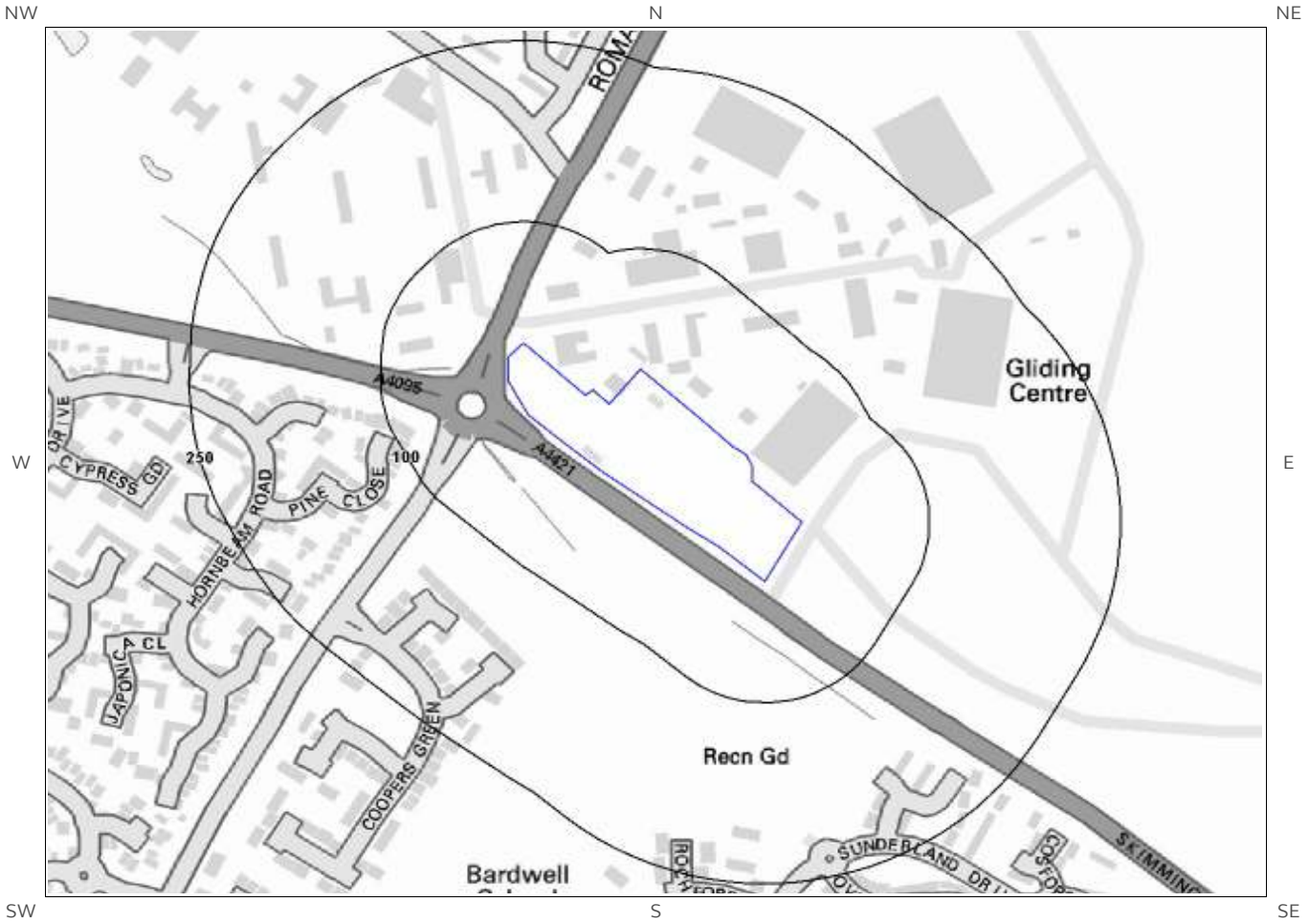
Records of background estimated soil chemistry within 250m of the study site boundary: 4

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
14.0	W	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
49.0	NW	RuralSoil	25 - 35 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

- Site Outline
- Search Buffers (m): 250, 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary?	No
Have any underground railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary?	No
Have any other railway tunnels been identified within 250m of the site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary?	No
Have any historical railway or tunnel features been identified within 250m of the study site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary?	No
Have any historical railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary?	No
Have any active railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project?	No
Is the study site within 500m of the route of the Crossrail 1 rail project?	No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

Groundsure Helpline

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info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
Main switchboard: 020 7654 8000

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DY5 3LH
Tel: +44 (0) 1384 262 000
Email:**enquiries.gs@jpb.co.uk**
Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Tel: 08456 050505
Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website:**http://www1.getmapping.com/**

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Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail:**reading@pba.co.uk**
Website:**http://www.peterbrett.com/home**

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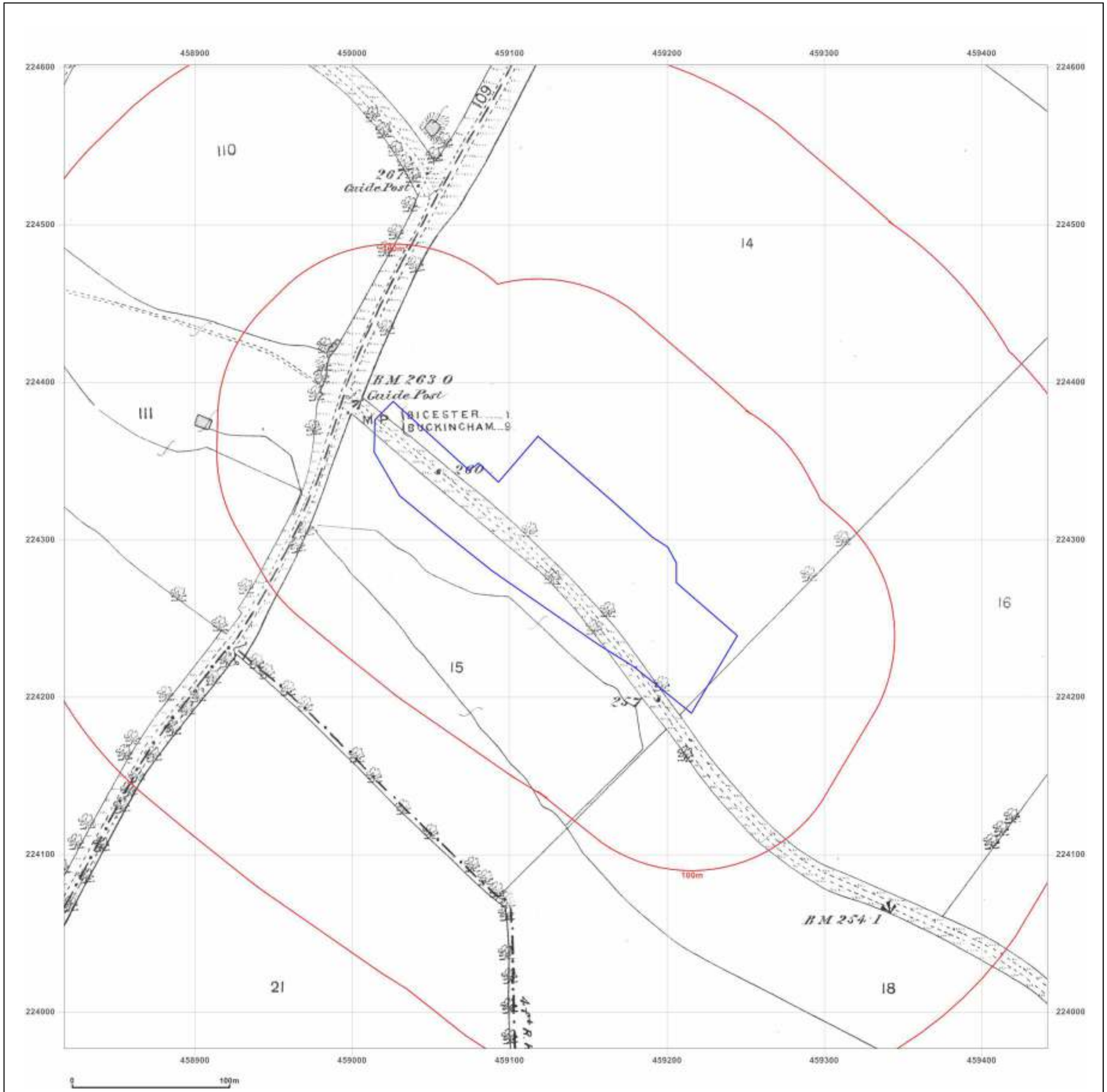

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series
Map date: **1881**
Scale: 1:2,500
Printed at: 1:2,500

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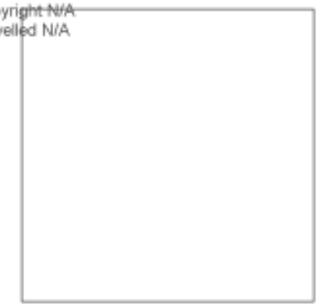
Surveyed 1881
Revised 1881
Edition N/A
Copyright N/A
Levelled N/A



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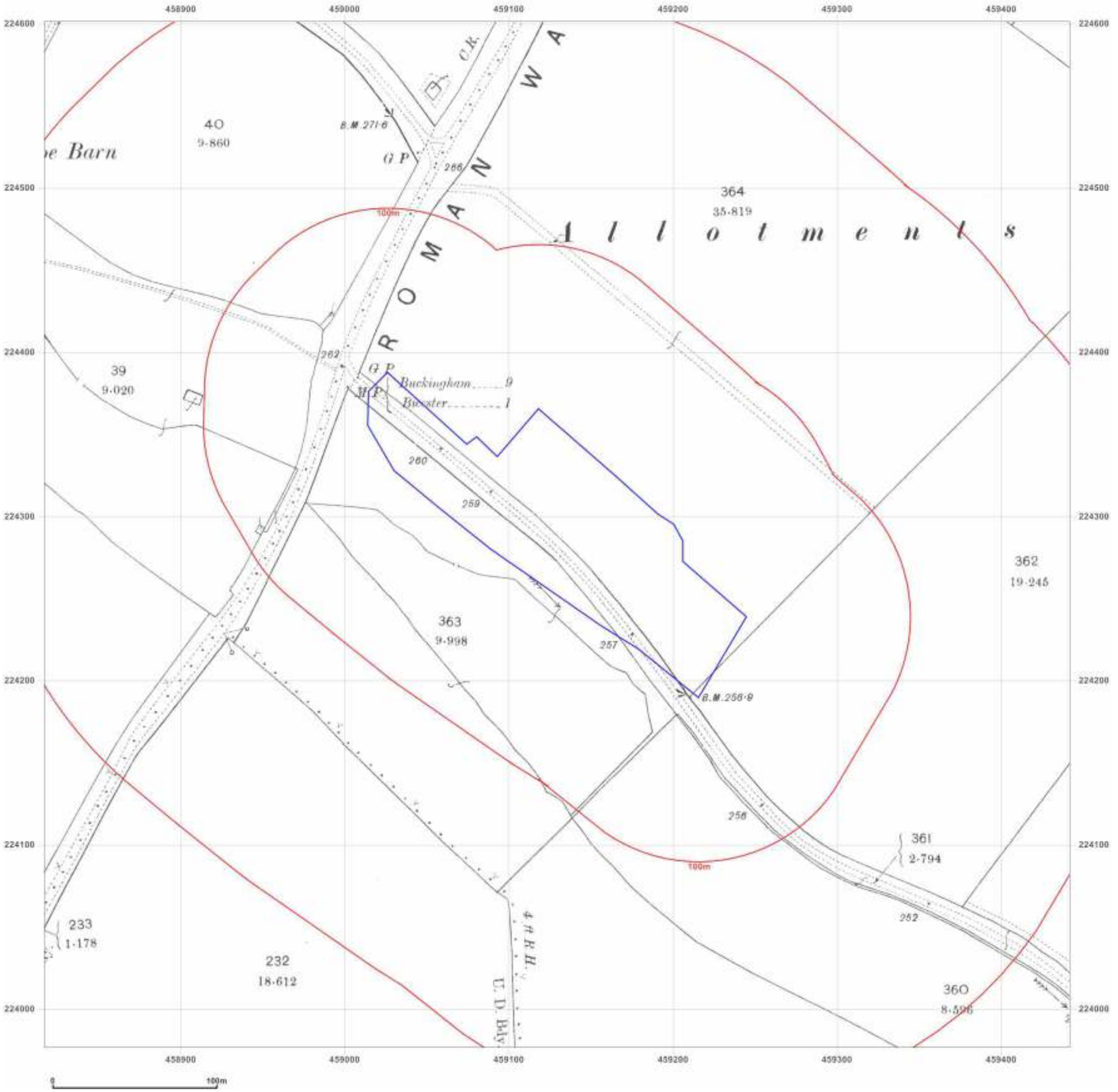

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series
Map date: **1899**
Scale: 1:2,500
Printed at: 1:2,500

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Revised 1899
Edition N/A
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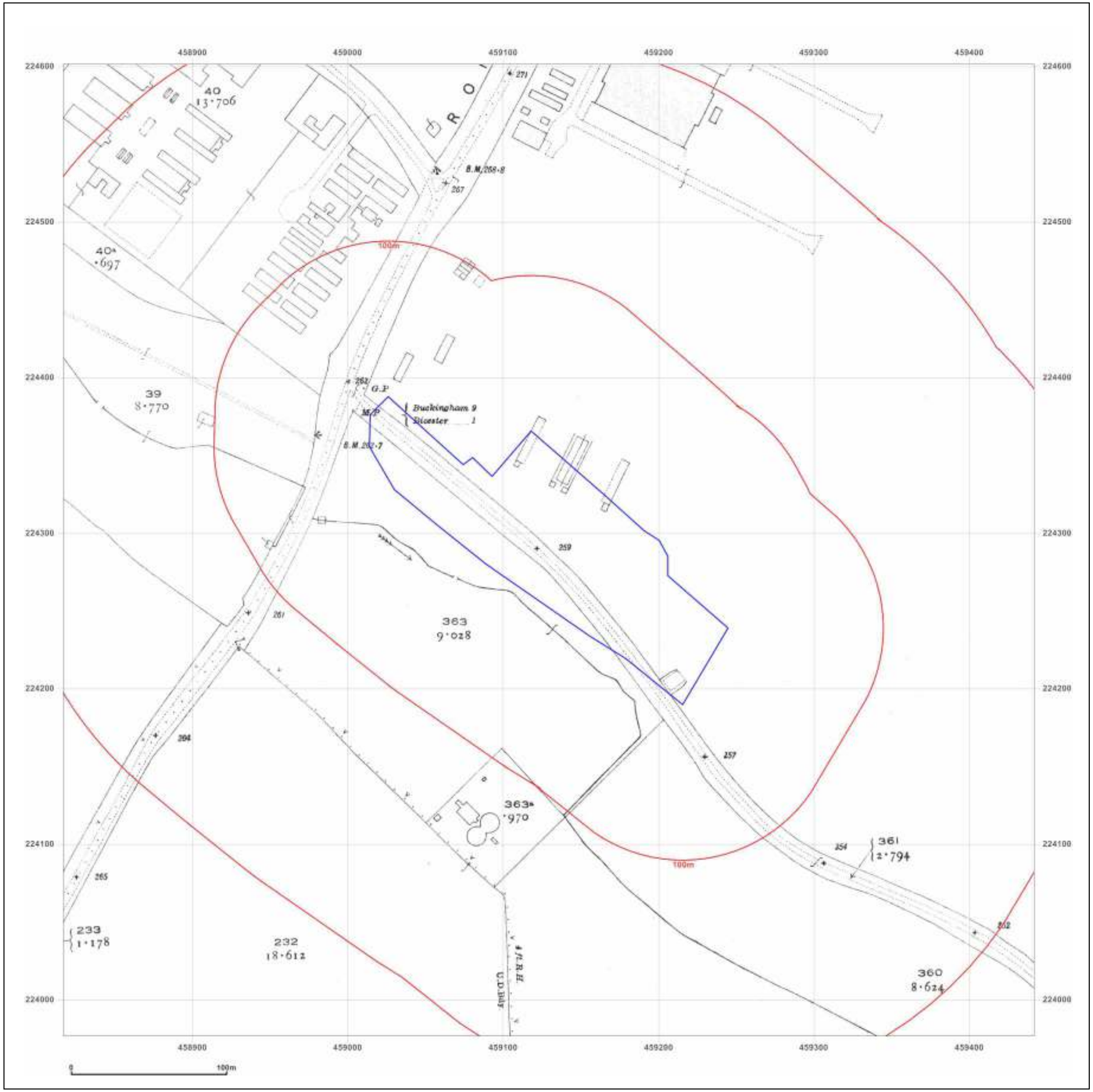

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series
Map date: **1922**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1922
Revised 1922
Edition N/A
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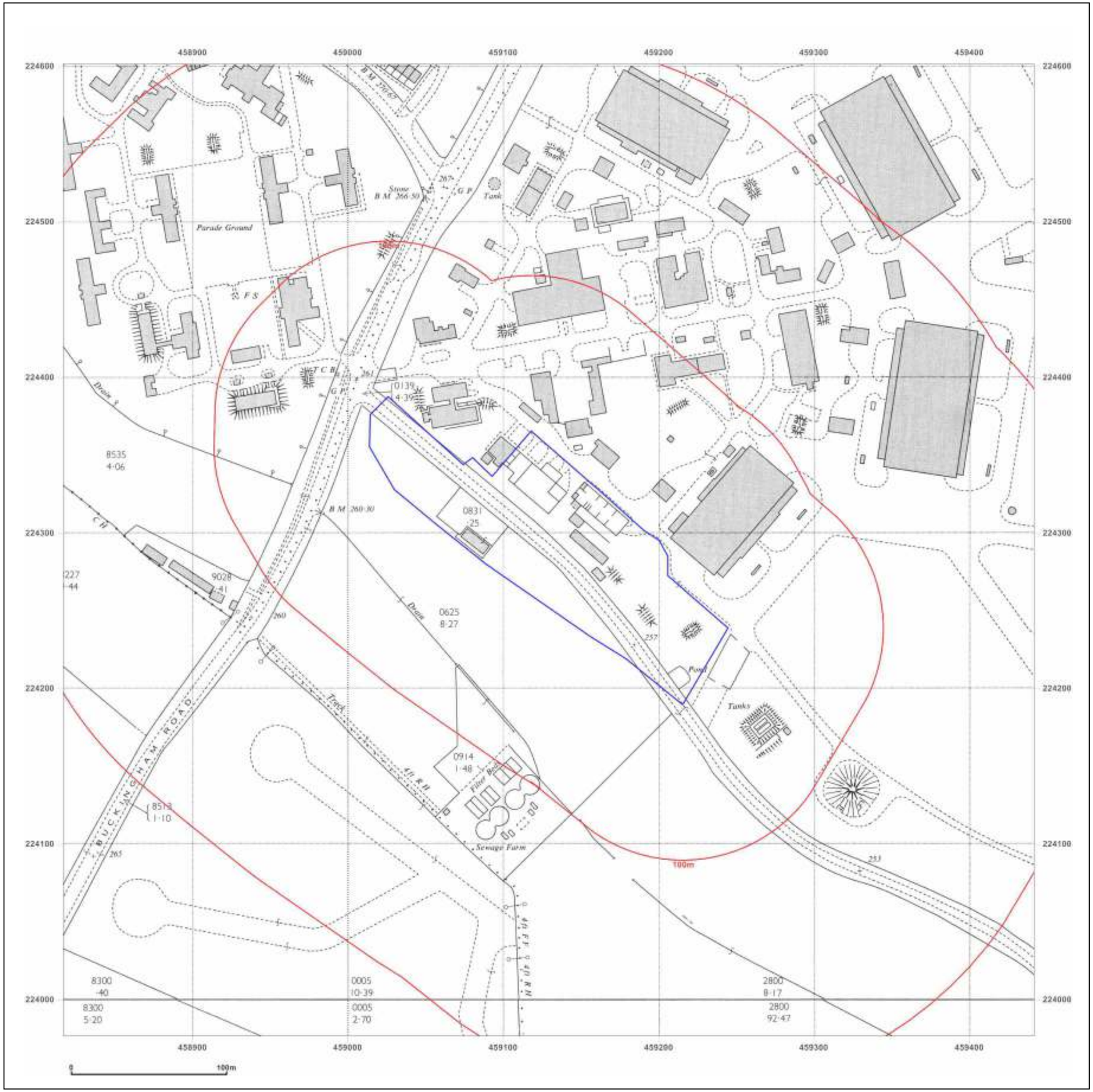

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1966**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1966
~~Revised 1966~~
Edition N/A
Copyright 1968
Levelled 1962

Surveyed 1966
Revised 1966
~~Edition N/A~~
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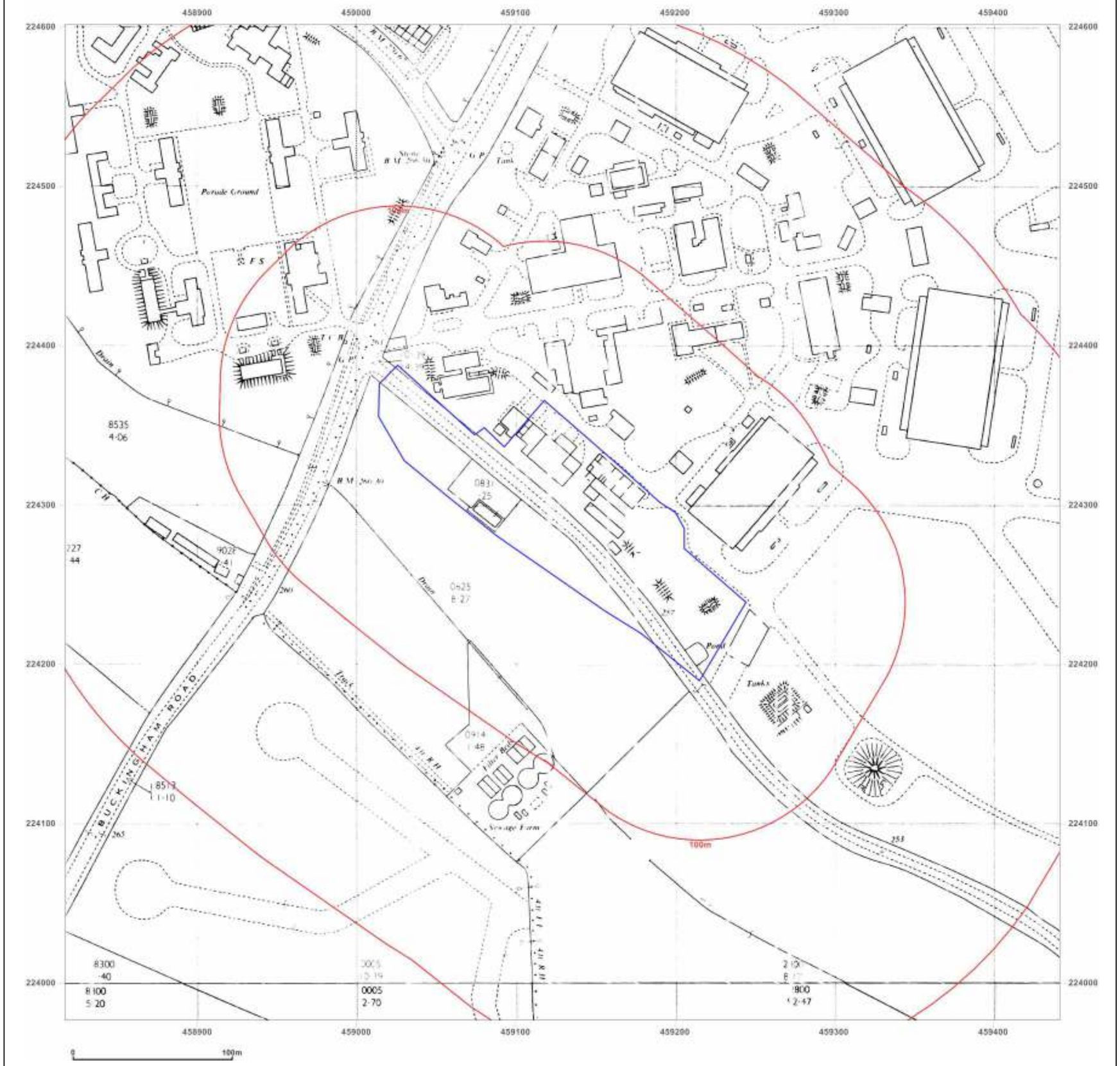

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1968**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1986-1991**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1970 Revised 1986 Edition N/A Copyright 1986 Levelled 1970	Surveyed 1968 Revised 1986 Edition N/A Copyright 1986 Levelled 1968

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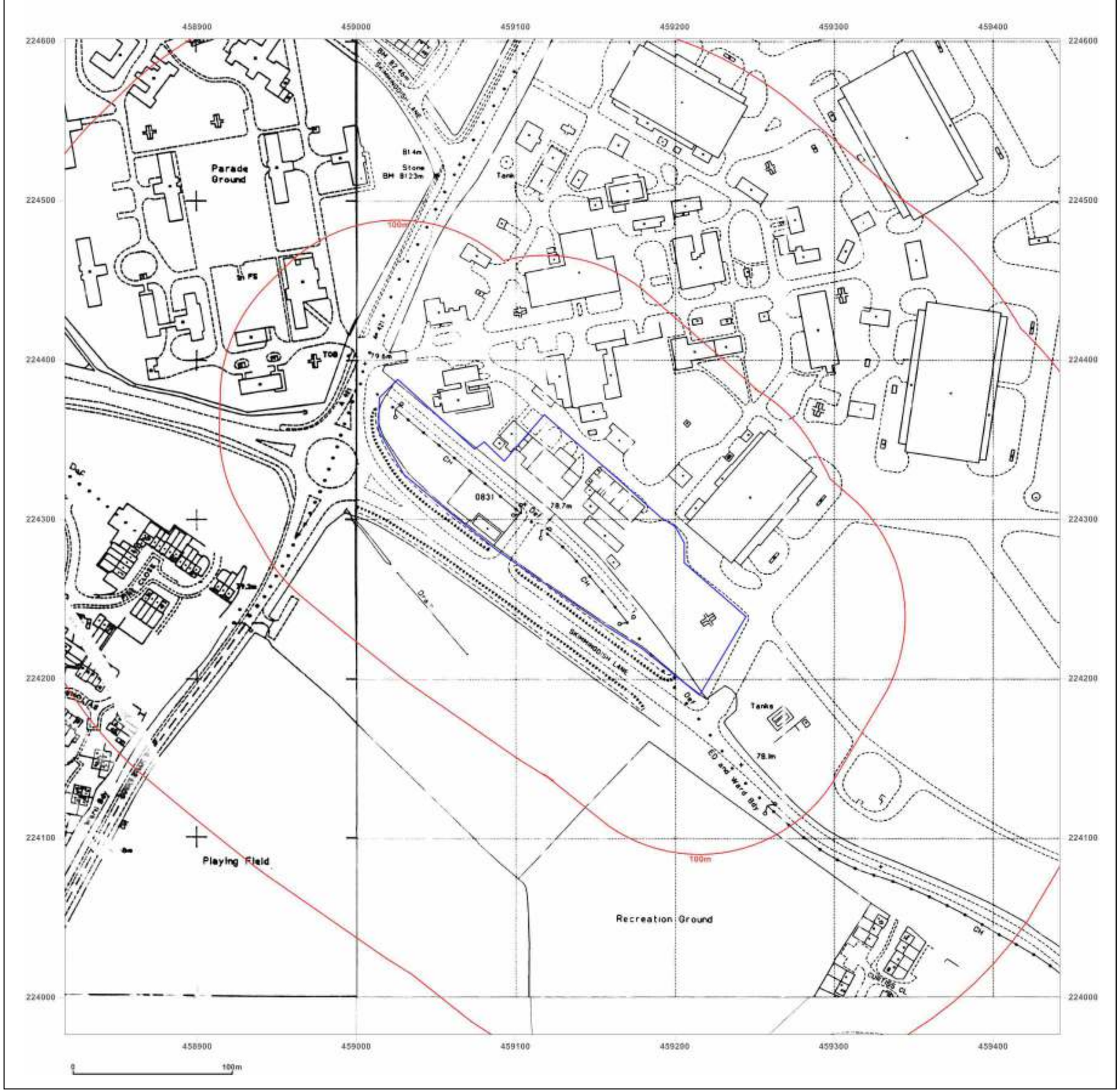

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1989-1994**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed 1970 Revised 1981 Edition N/A Copyright 1990 Levelled 1970	Surveyed 1968 Revised 1981 Edition N/A Copyright 1989 Levelled 1968

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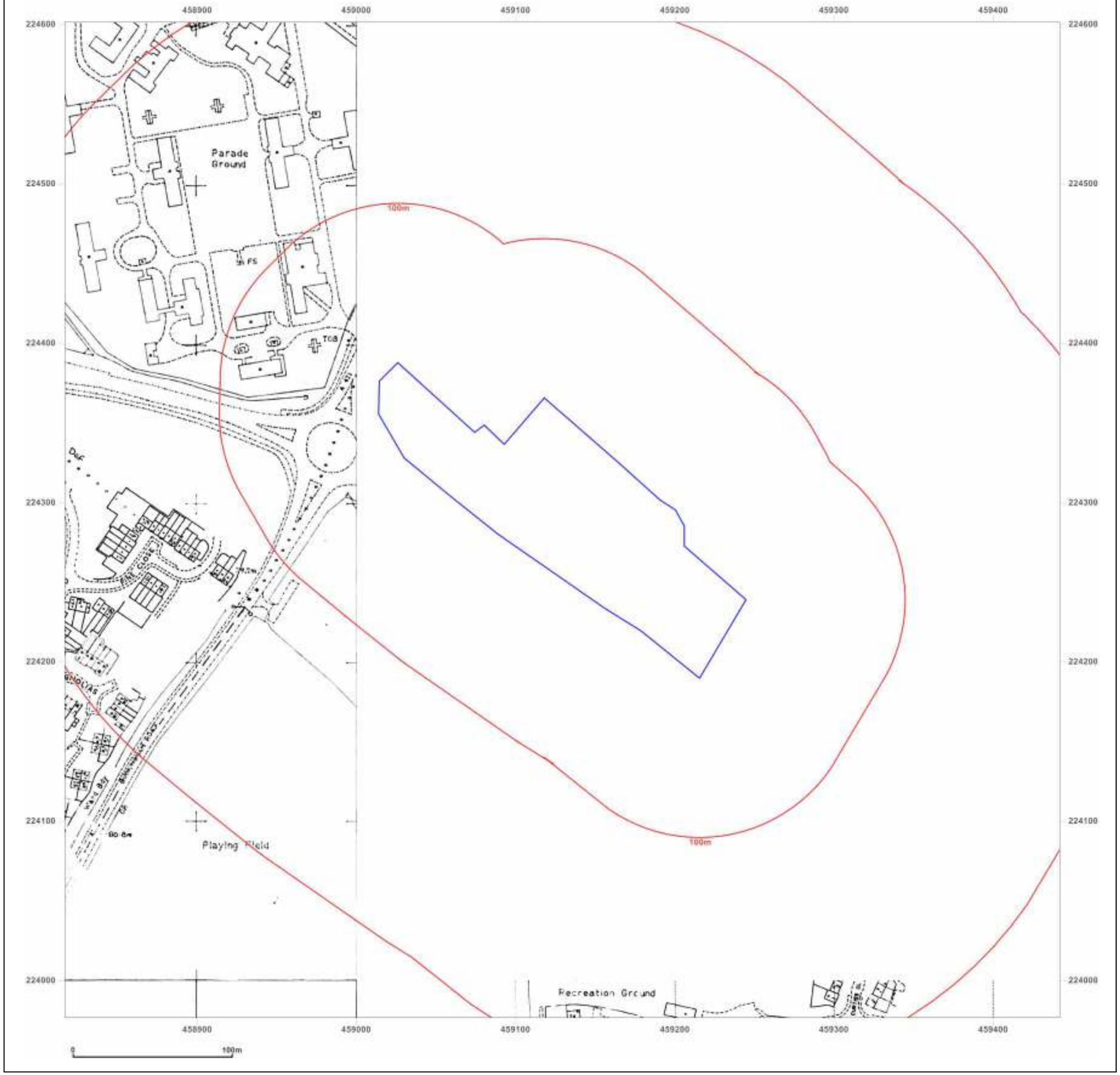

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BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1991-1994**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1966
Revised 1981
Edition N/A
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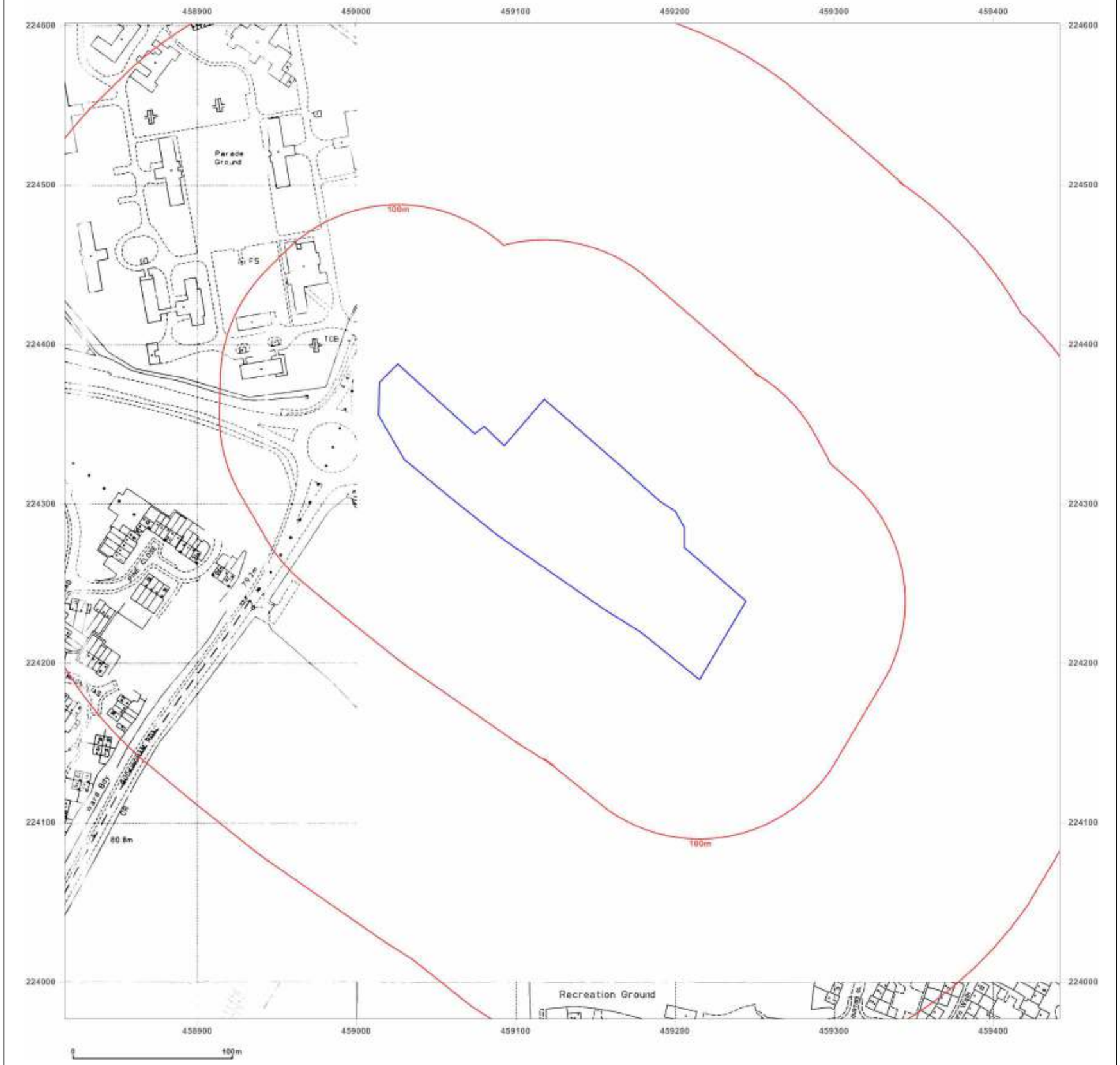

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Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1994-1995**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

Surveyed N/A
Revised N/A
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Levelled N/A

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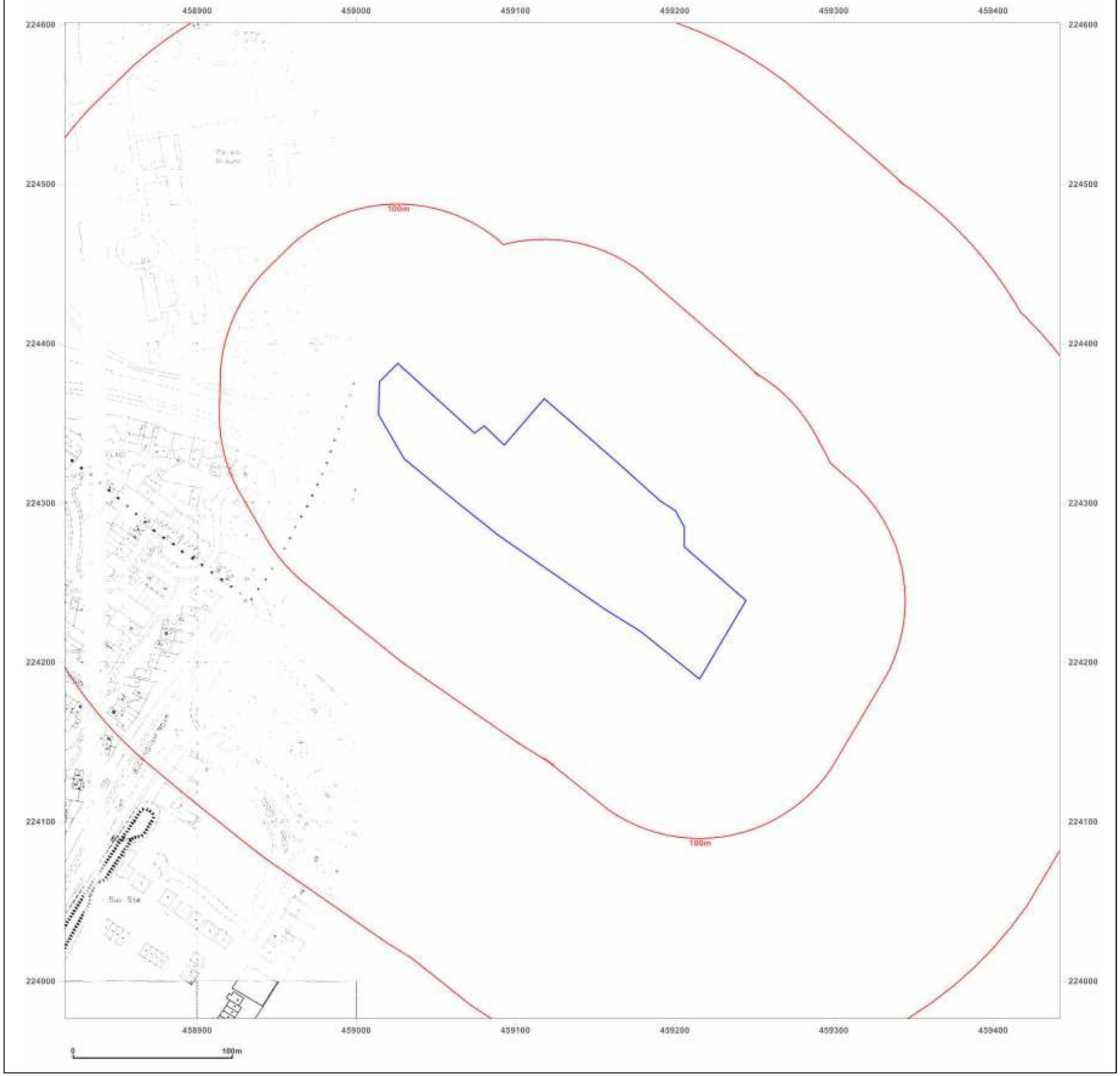

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BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

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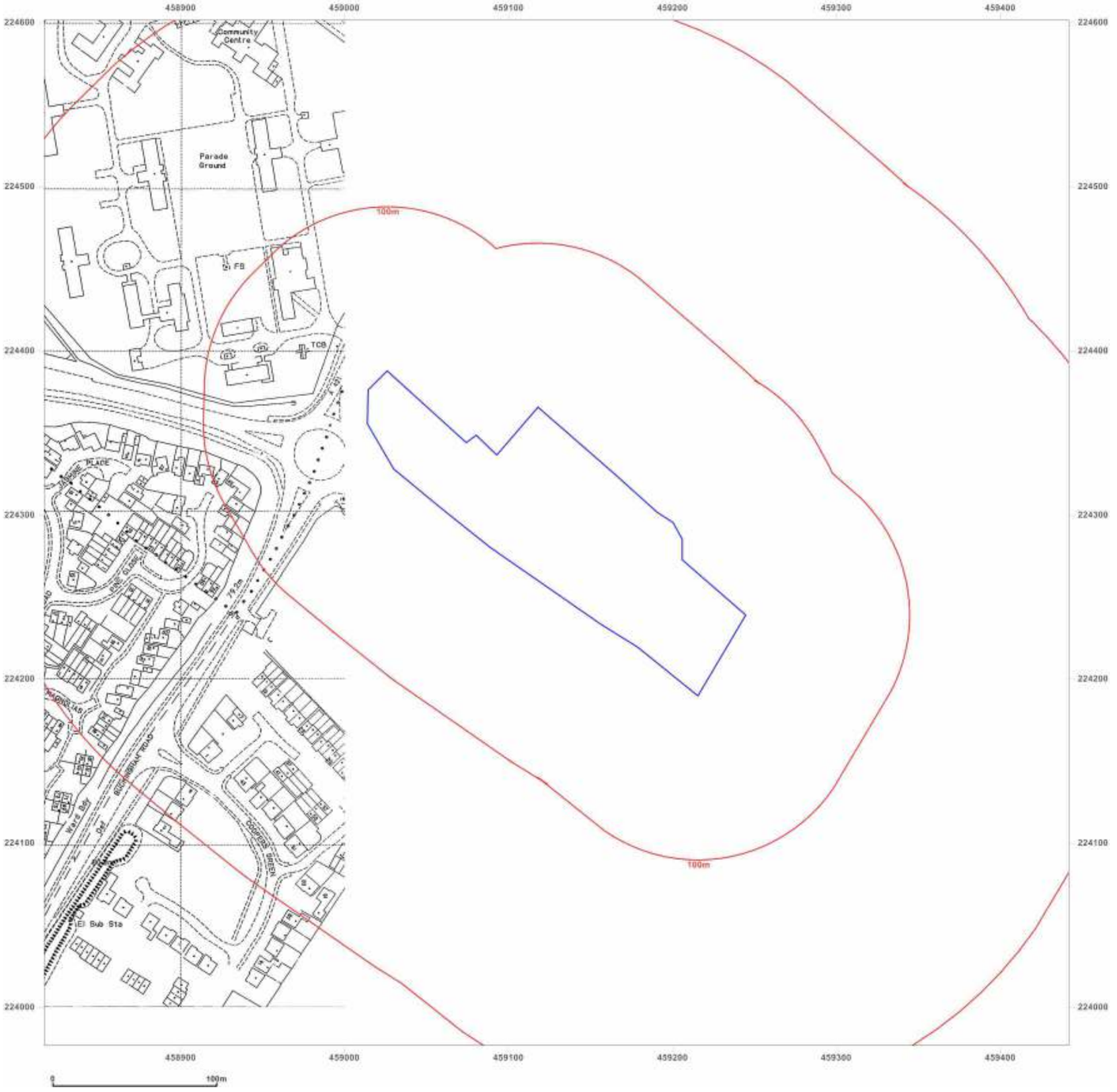

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BICESTER, OX27 8AL

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Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

N
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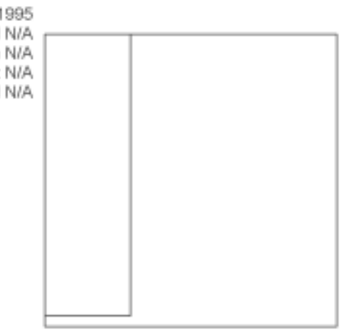
Surveyed 1995
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1993-1995**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1993
Revised 1993
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

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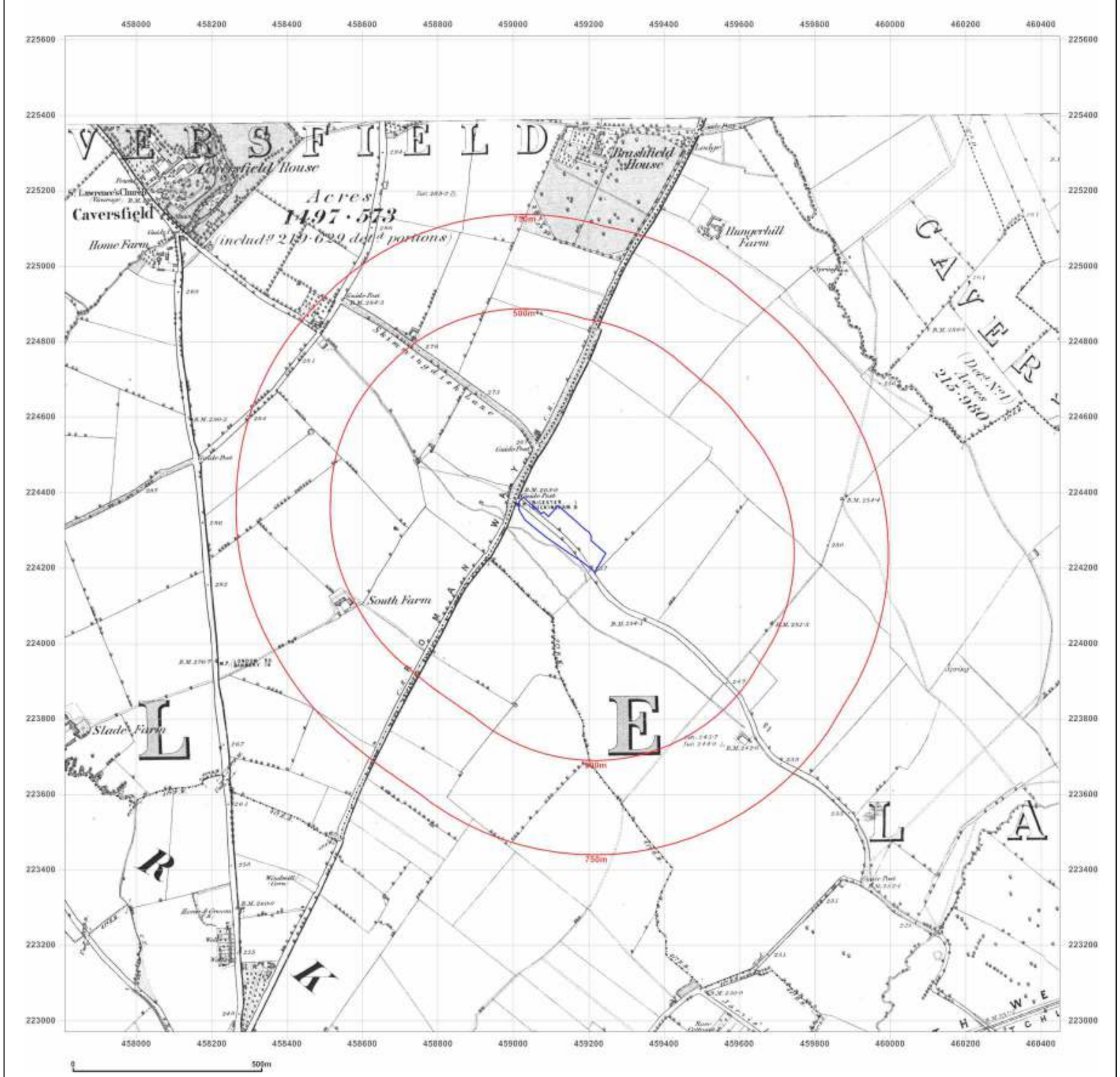

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series

Map date: **1880**

Scale: 1:10,560

Printed at: 1:10,560

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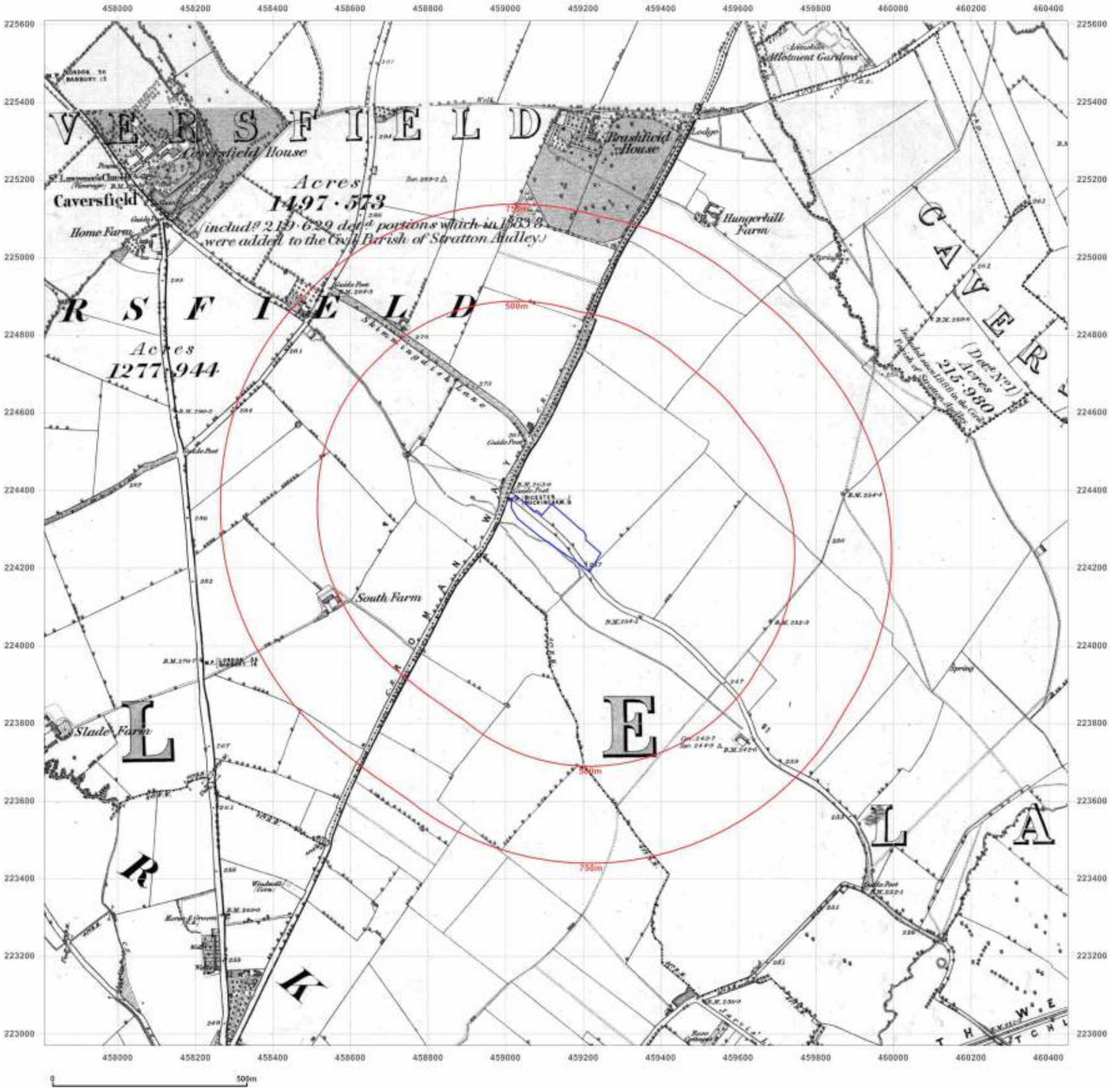
Production date: 11 September 2018

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series

Map date: **1880-1885**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1880
Revised 1880
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1880
Revised N/A
Edition 1885
Copyright N/A
Levelled N/A

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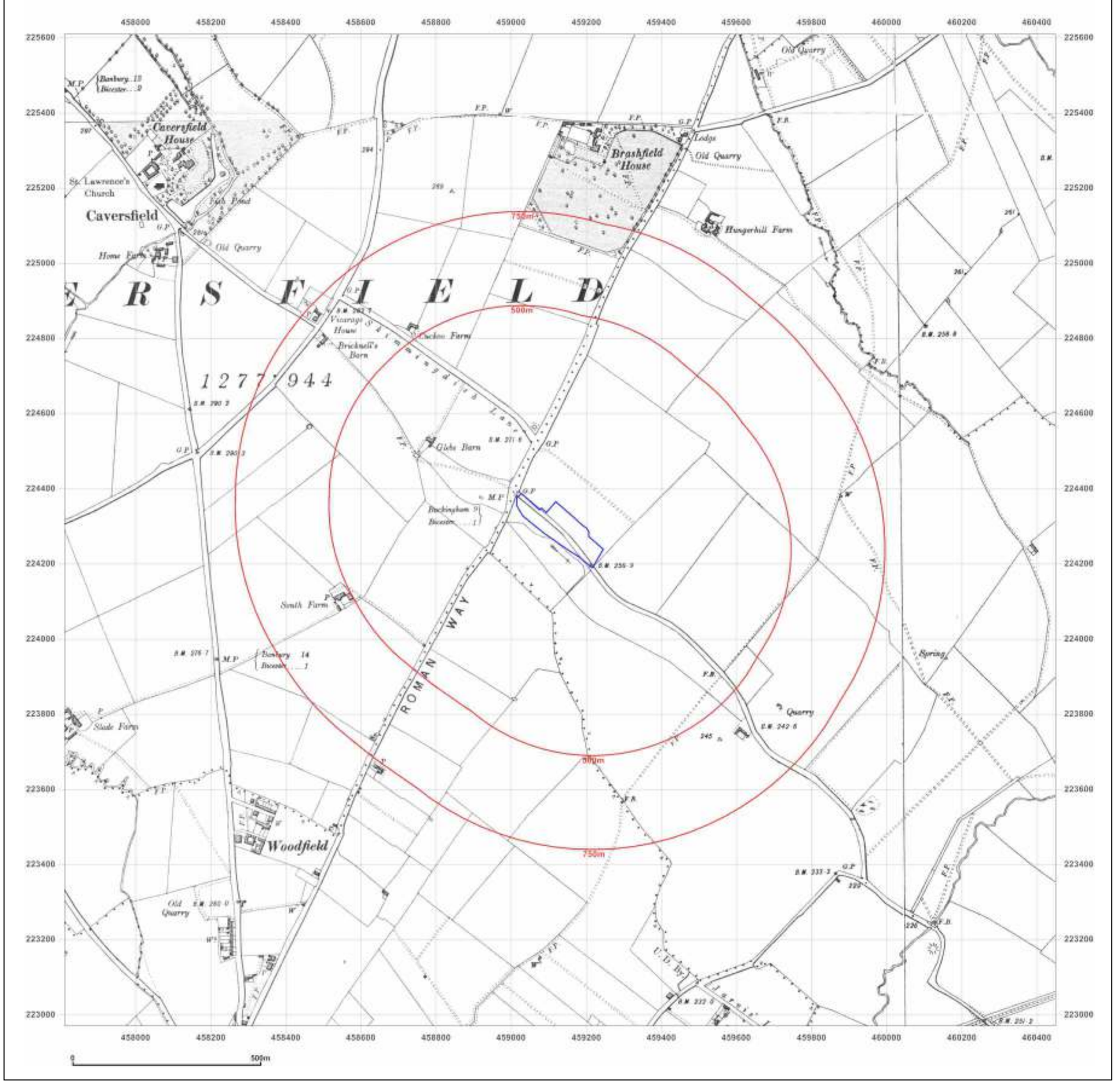

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1879
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1880
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

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Map legend available at:
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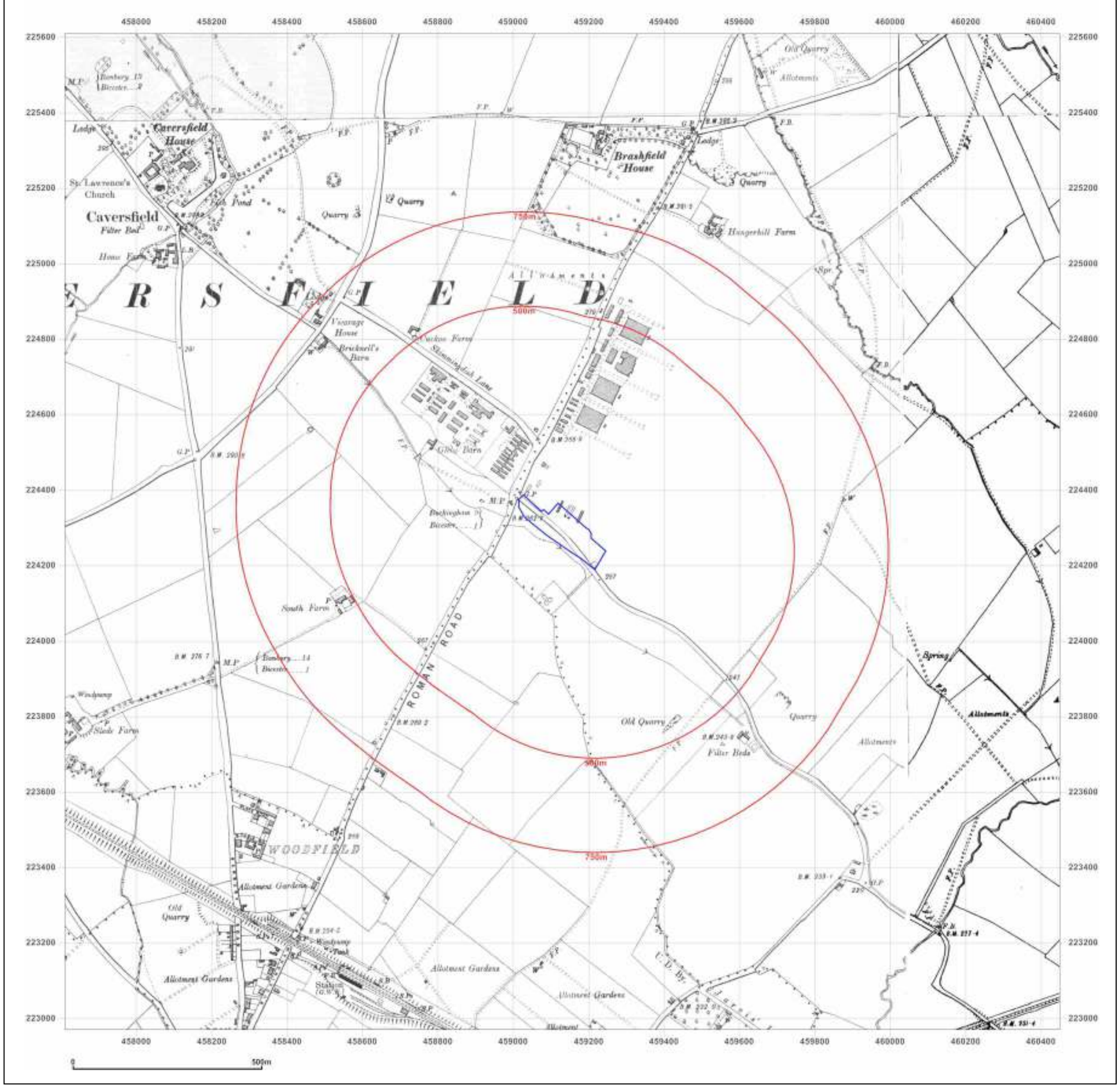

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series

Map date: **1919-1920**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1879
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

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

Surveyed 1879
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

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

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Production date: 11 September 2018

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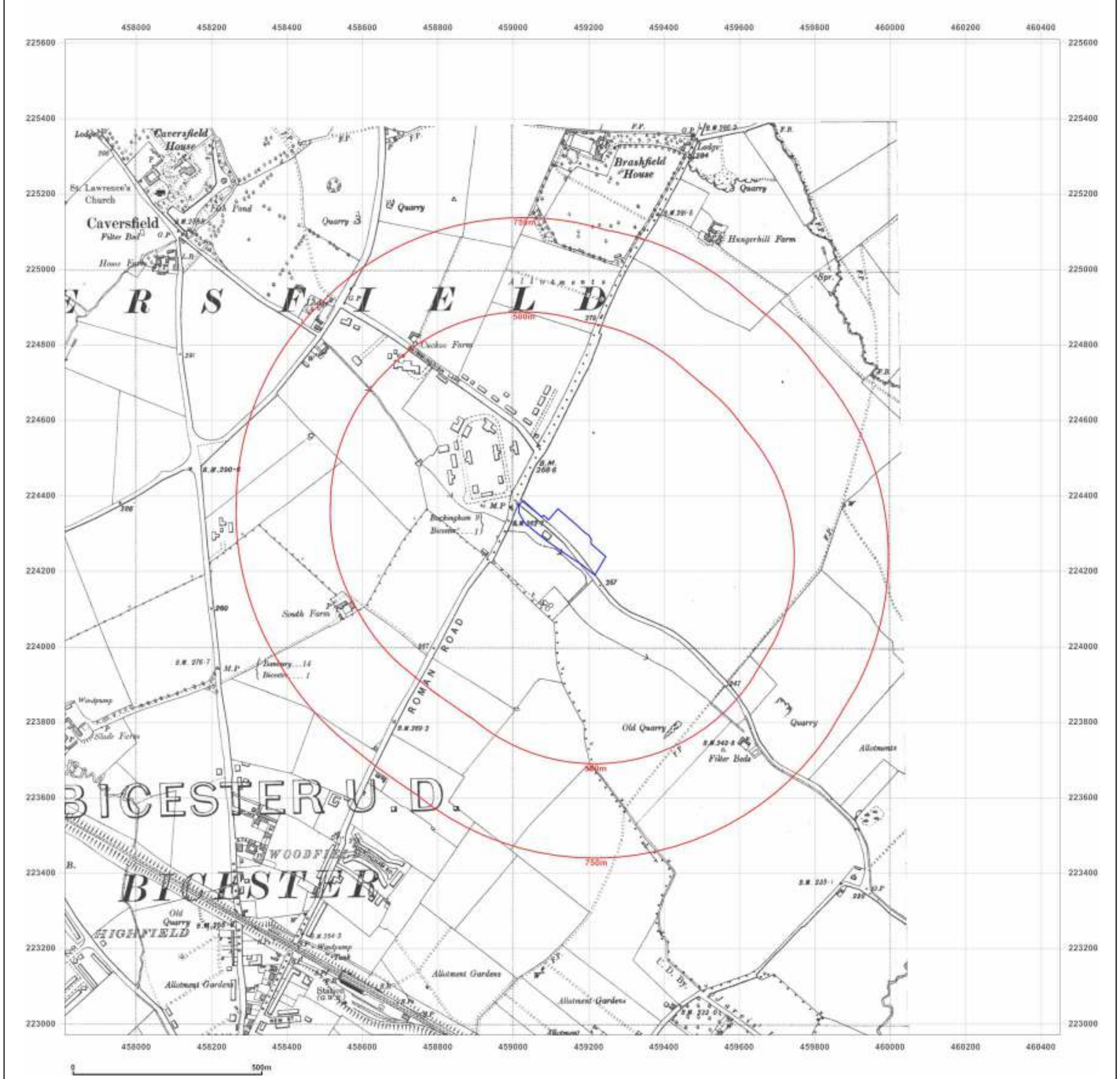

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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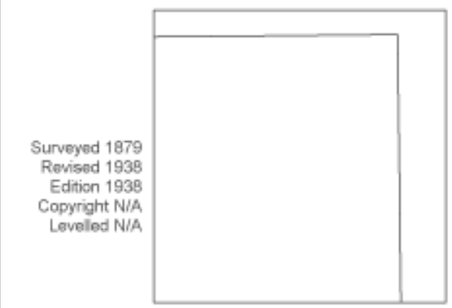

Surveyed 1879
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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Production date: 11 September 2018

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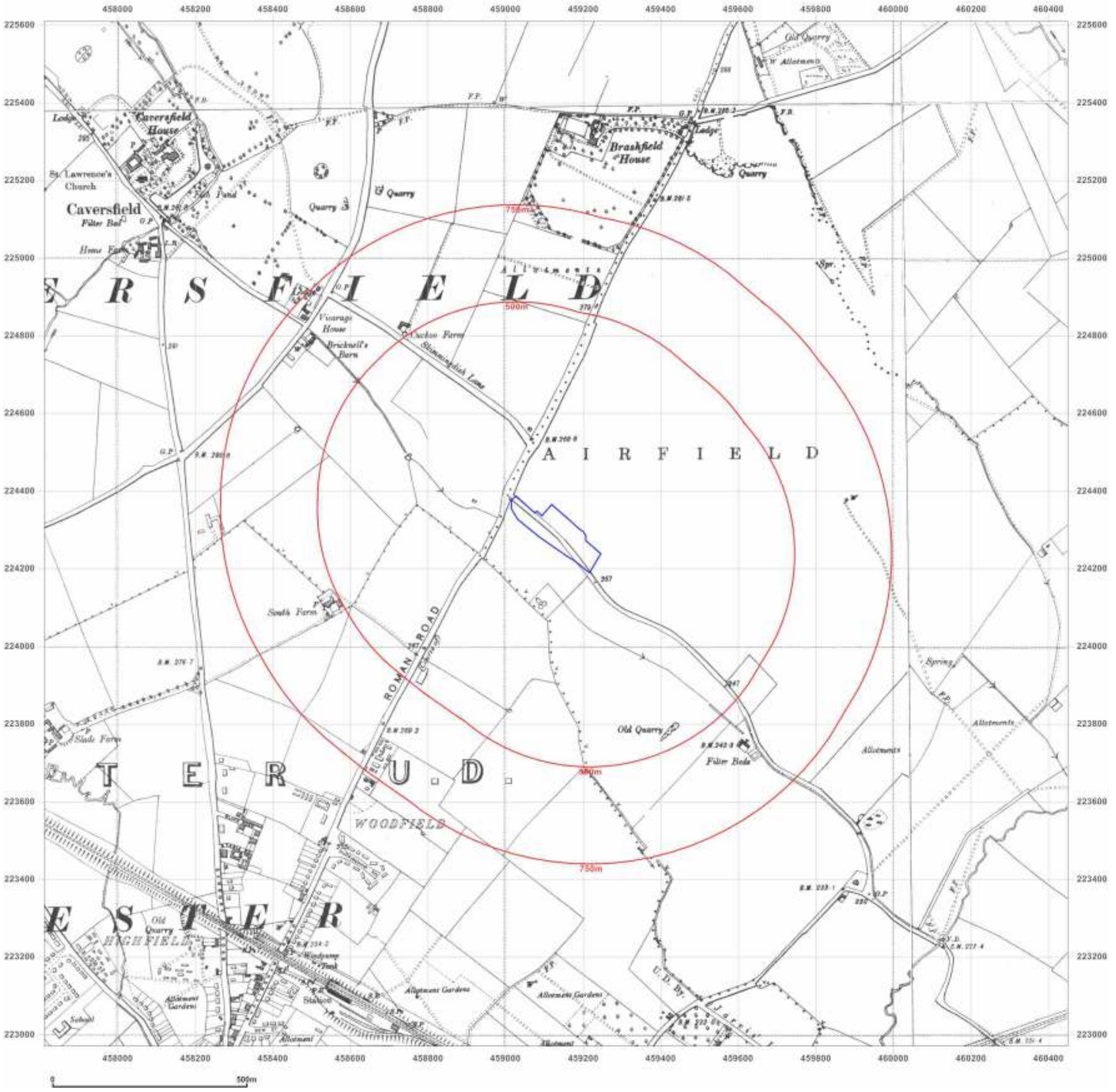

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: County Series
Map date: **1950**
Scale: 1:10,560
Printed at: 1:10,560

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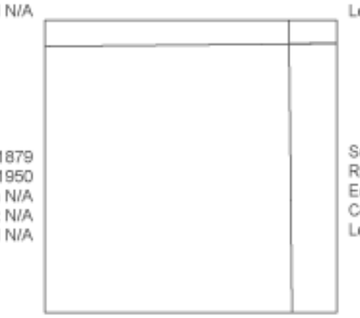
Surveyed 1879
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1879
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1879
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 11 September 2018

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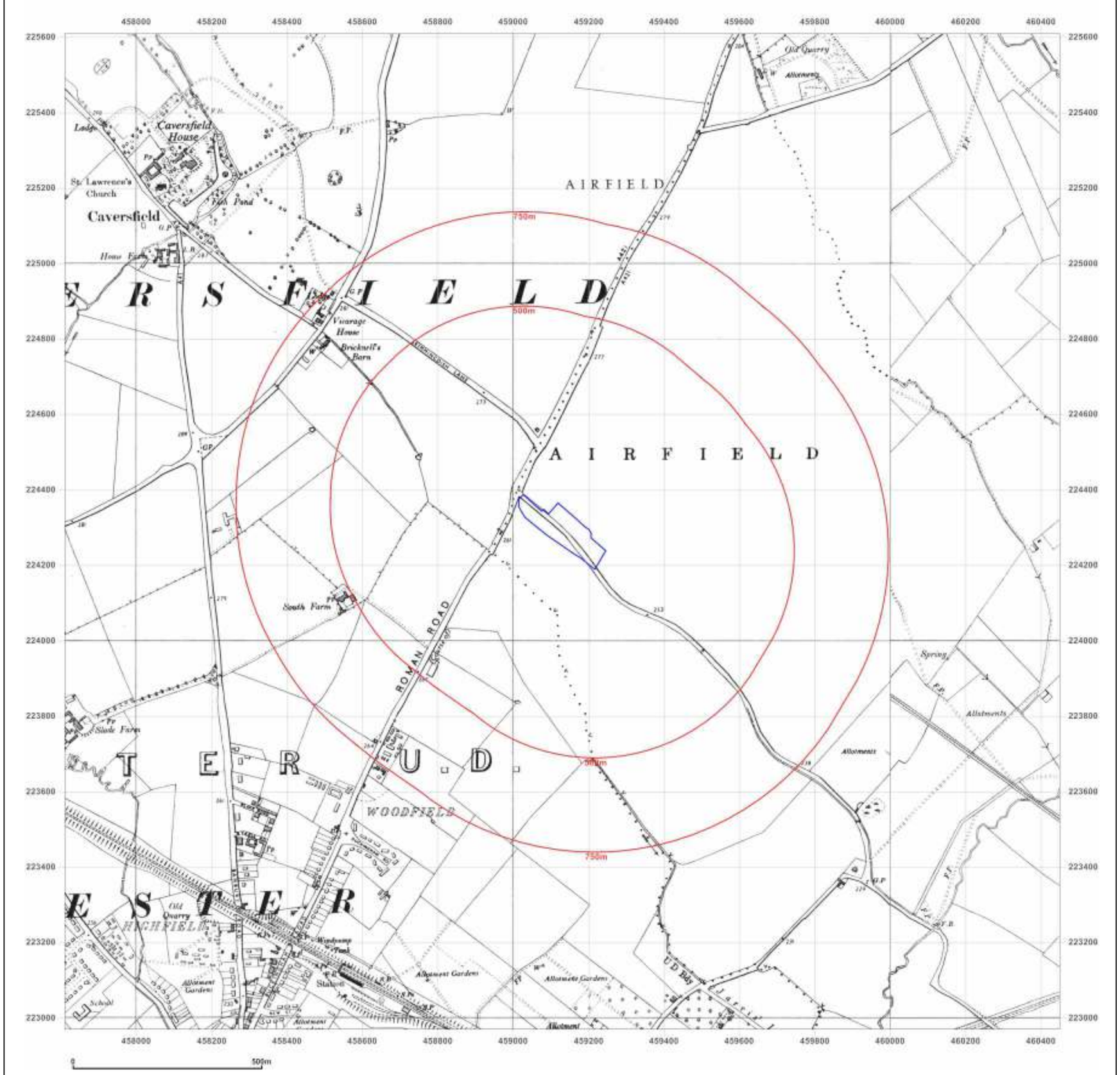

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: Provisional
Map date: **1950-1957**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised 1954
Edition N/A
Copyright 1955
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 11 September 2018

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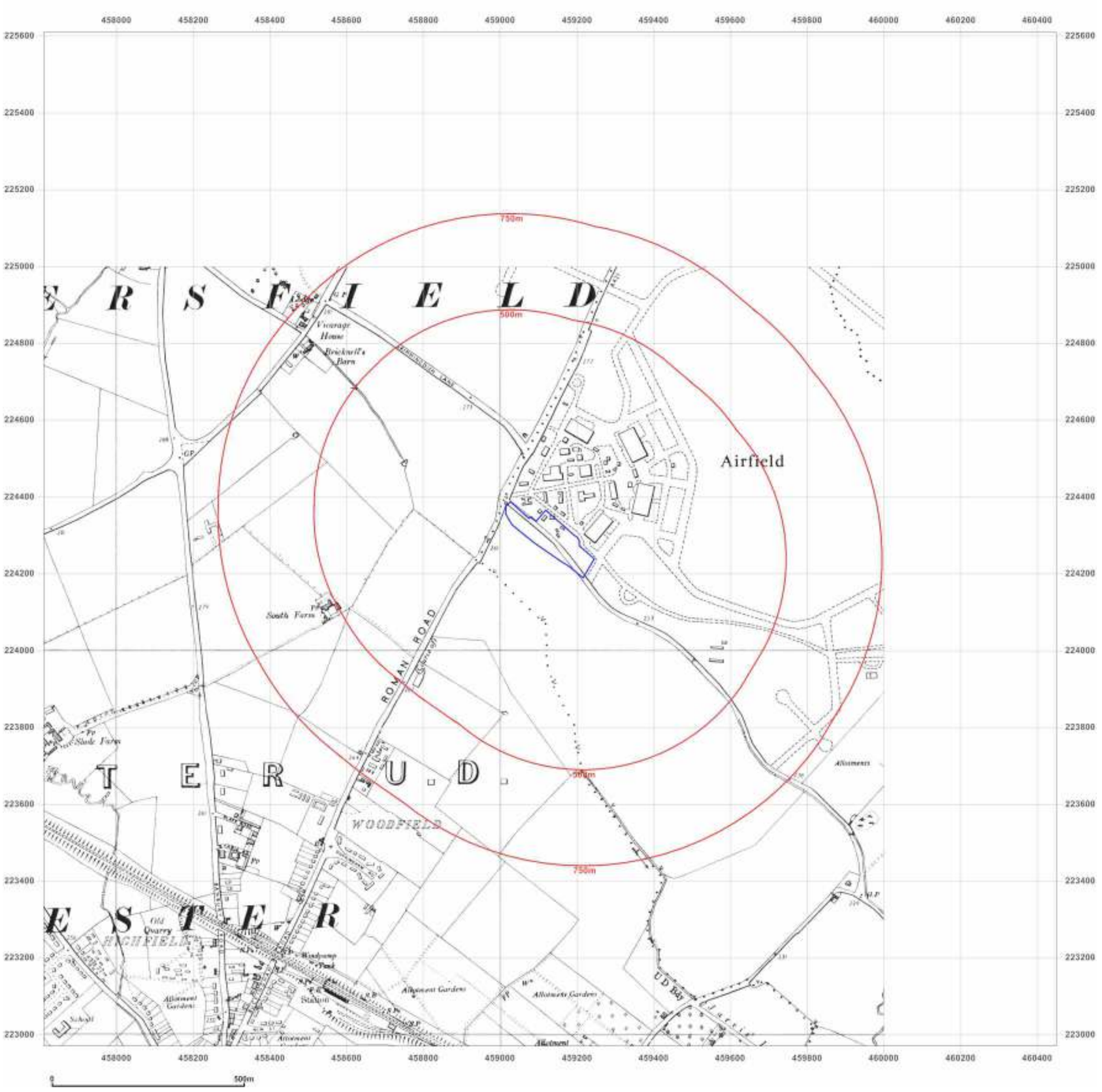

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: Provisional
Map date: **1966**
Scale: 1:10,560
Printed at: 1:10,560

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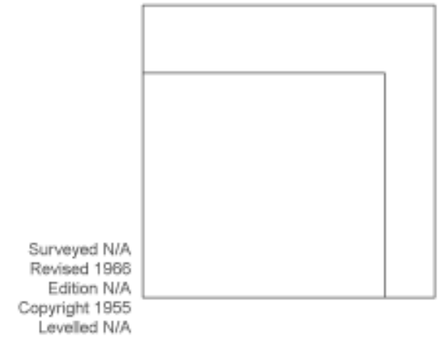

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Production date: 11 September 2018

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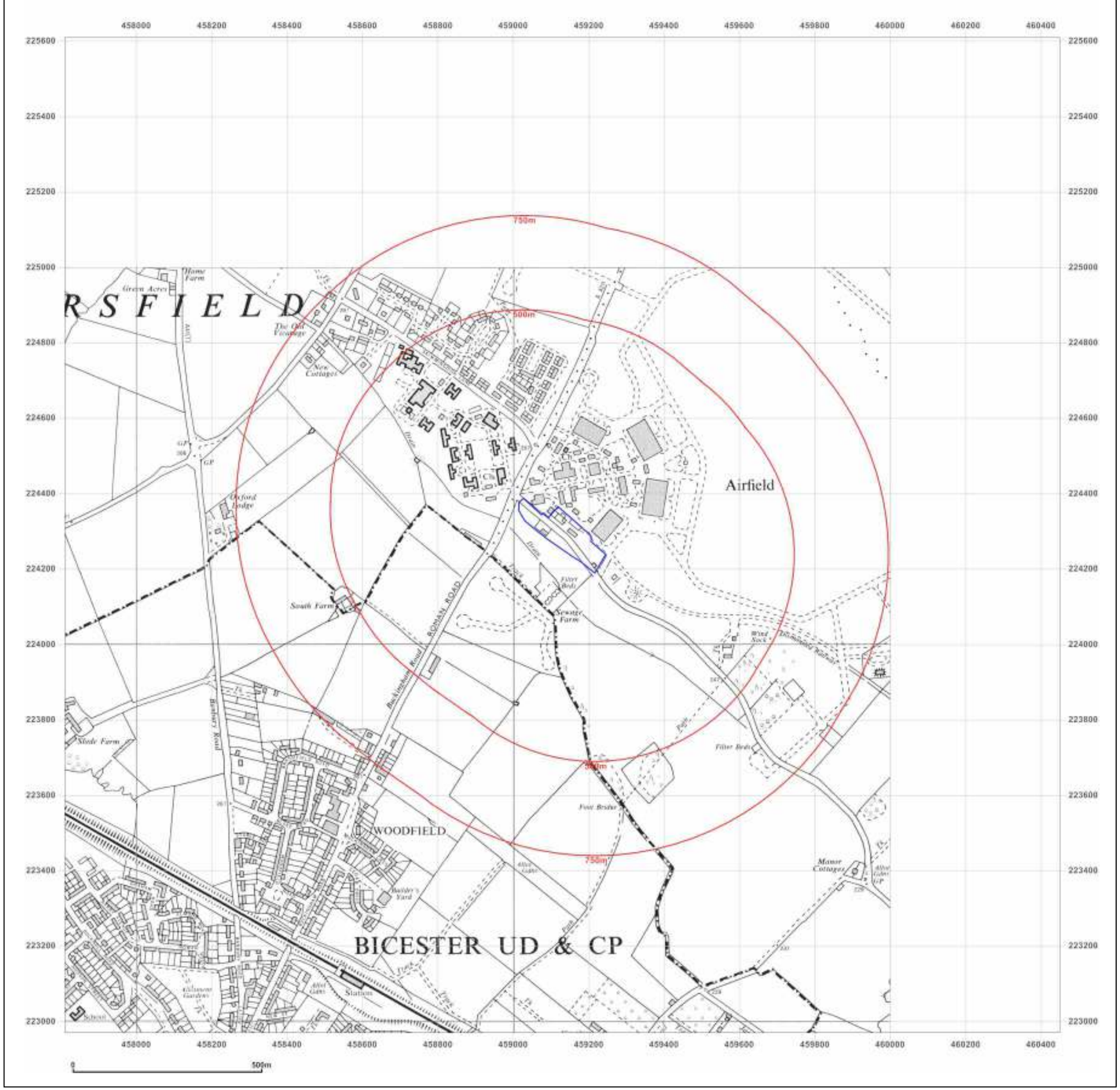

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: Provisional
Map date: **1970**
Scale: 1:10,560
Printed at: 1:10,560

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W: www.groundsure.com

Production date: 11 September 2018

Map legend available at:
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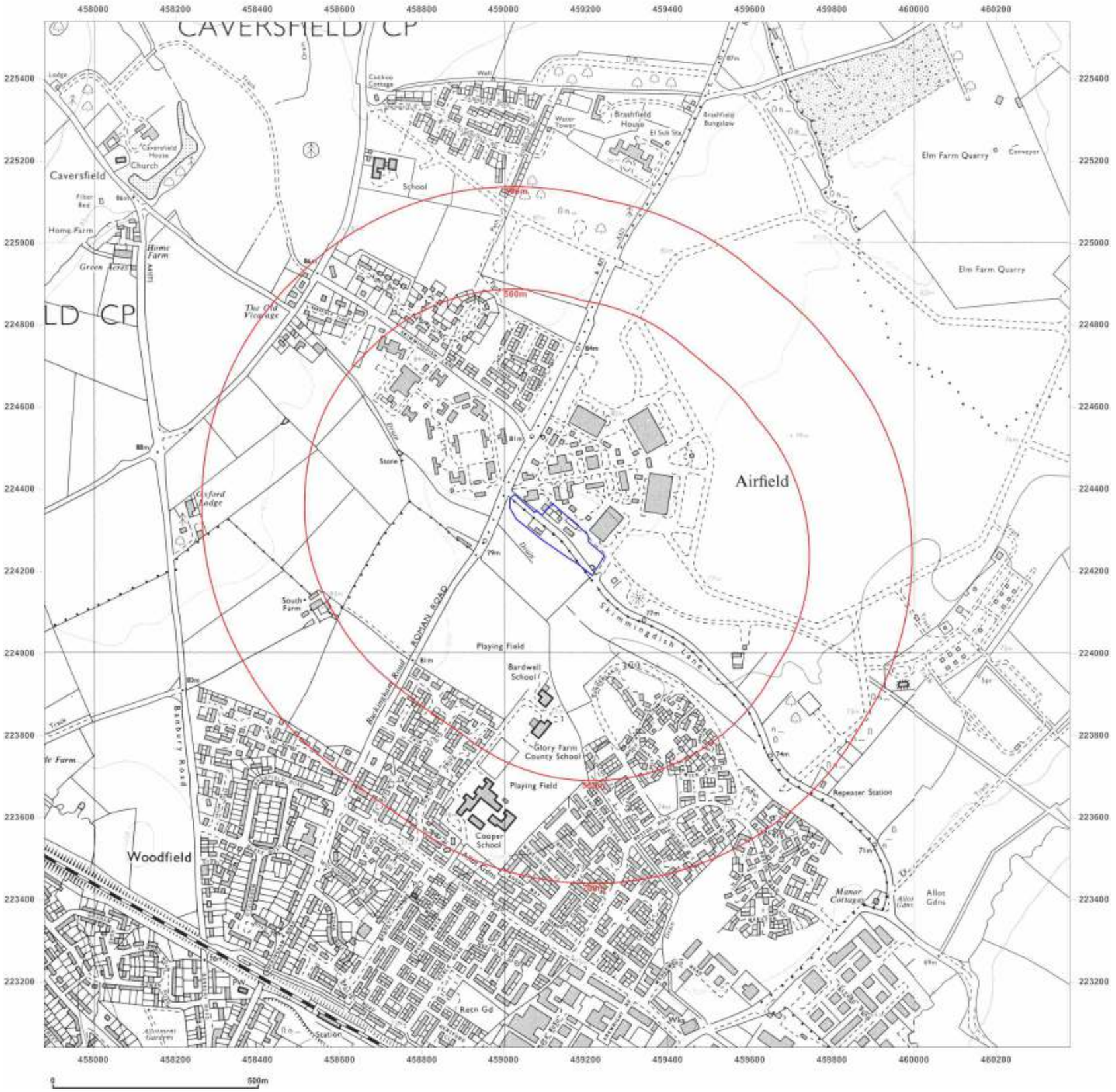

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1980-1985**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1975
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1983
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1978
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 11 September 2018

Map legend available at:
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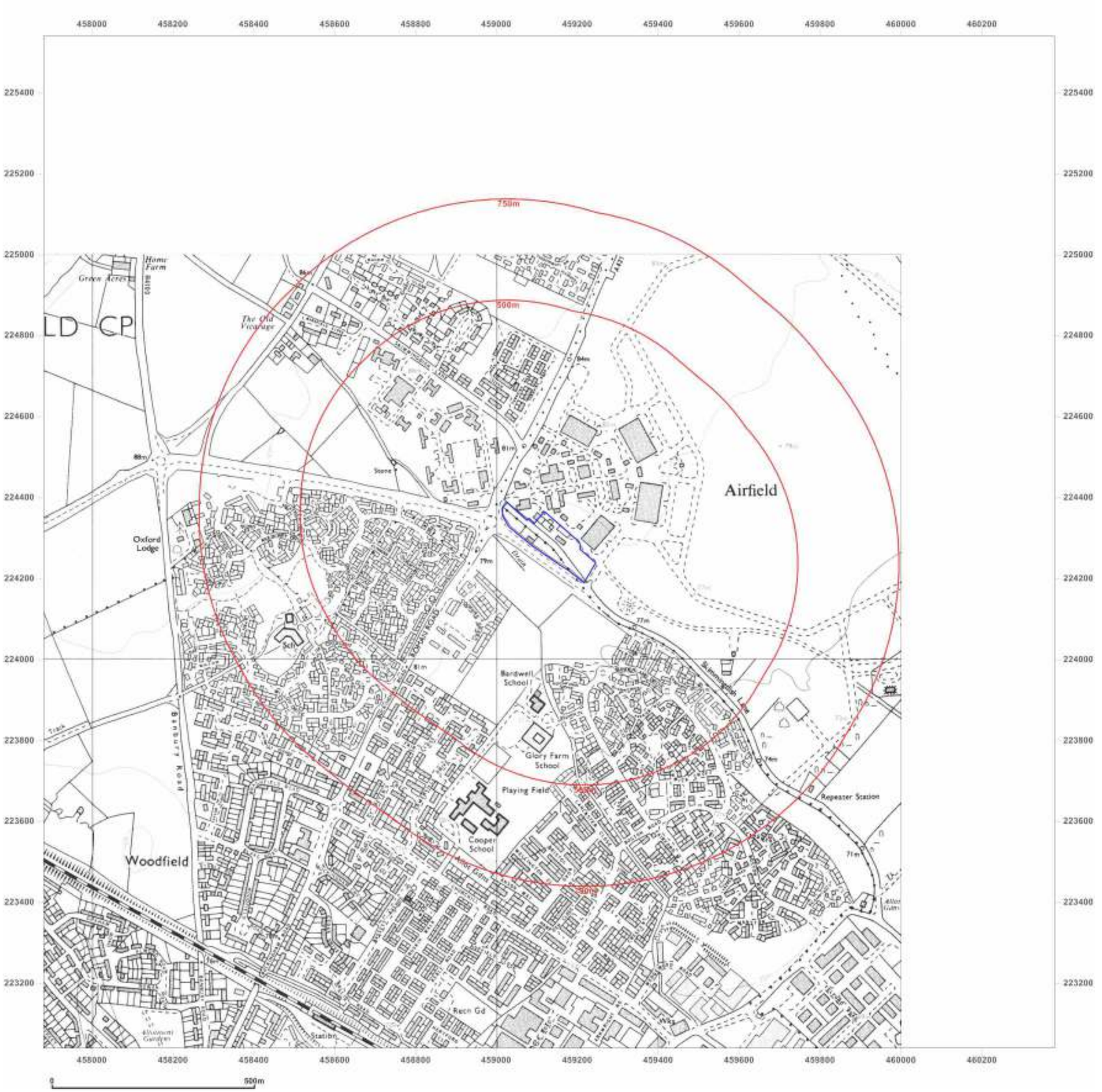

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **1995**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1983
Revised 1995
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 11 September 2018

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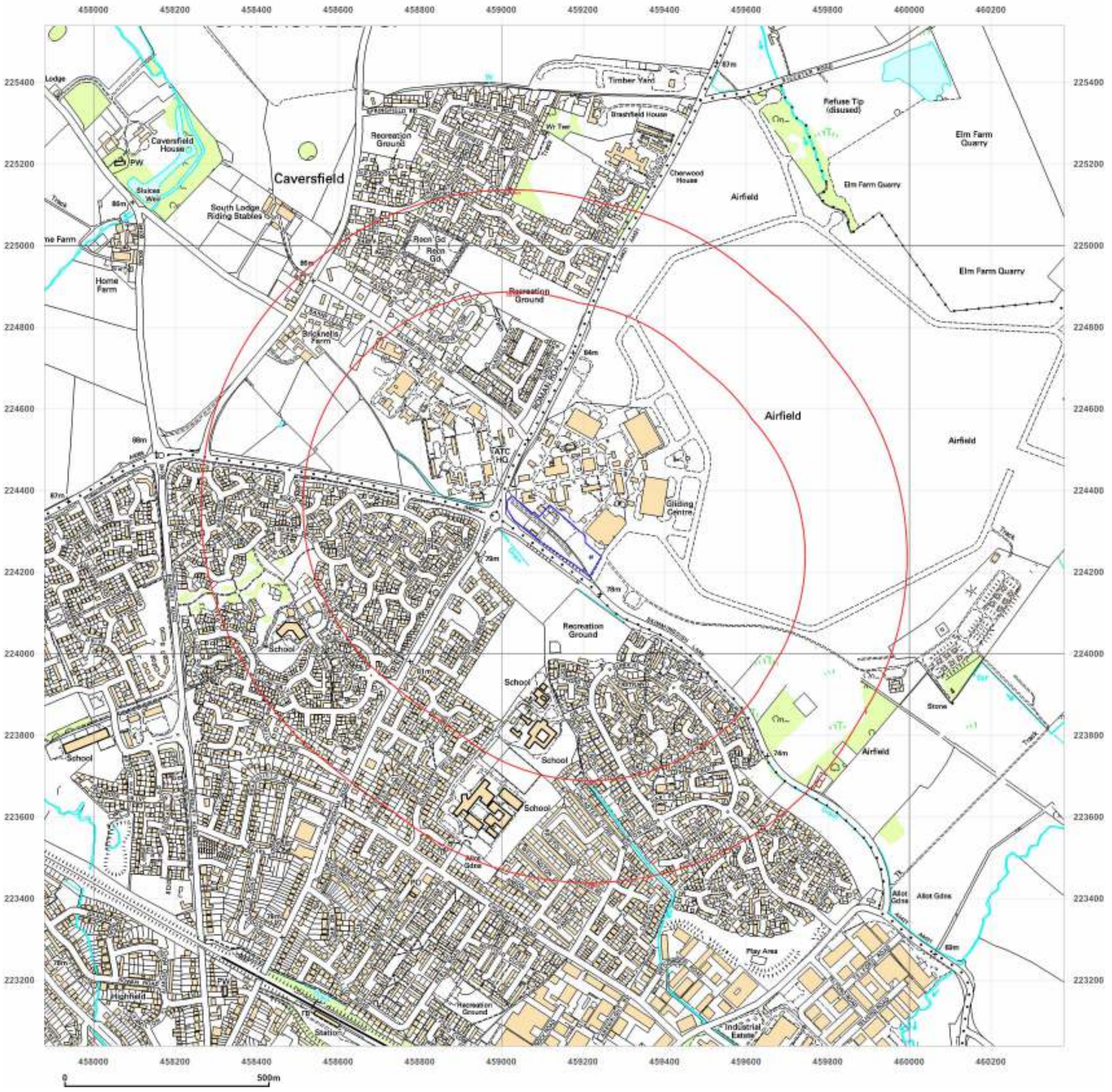

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: 1:10,000 Raster
Map date: **2002**
Scale: 1:10,000
Printed at: 1:10,000

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2002

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Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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Produced by
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W: www.groundsure.com

Production date: 11 September 2018

Map legend available at:
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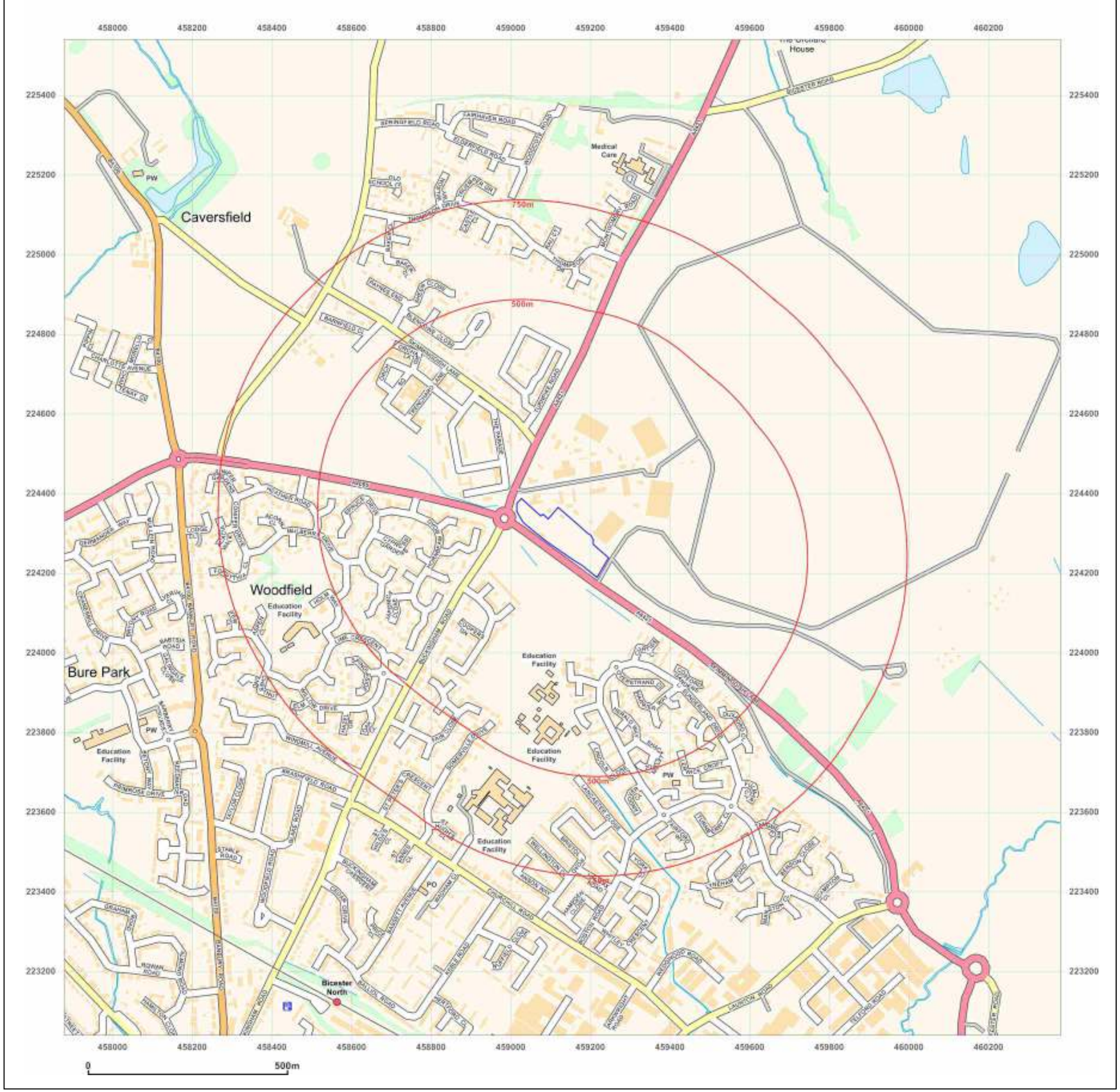

Groundsure INSIGHTS

Site Details:

BICESTER HERITAGE,
BUCKINGHAM ROAD,
BICESTER, OX27 8AL

Client Ref: 18-08-08
Report Ref: GS-5417493
Grid Ref: 459129, 224289

Map Name: National Grid
Map date: **2014**
Scale: 1:10,000
Printed at: 1:10,000

N
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2014

Powered by OS

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Production date: 11 September 2018

Map legend available at:
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Date	Job No.	BH	CH4(%)	LEL(%)	CO2(%)	O2(%)	H2S (ppm)	CO (ppm)	Hex(%)	PIDCf()	PkFlw (lh)	AP (mbar)	GW (m bgl)	Pmp (s)	Bal(%)
28/9/2018	18-08-08	WS1	0	0	1.4	19.3	0	0	0.001	1	0	1023	Dry	62	79.4
28/09/2018	18-08-08	WS5	0	0	0.9	19.8	0	0	0.001	1	0	1023	Dry	61	79.3
12/10/2018	18-08-08	WS1	0	0	0	20.3	0	0	0.003	1	-0.4	999	1.52	62	79.7
12/10/2018	18-08-08	WS5	0	0	1.4	19.1	0	0	0.002	1	-0.3	1000	1.52	61	79.5
19/10/2018	18-08-08	WS1	0	0	1.7	18.7	0	0	0.001	1	0	1017	1.28	62	79.6
19/10/2018	18-08-08	WS5	0	0	0.8	19.7	0	0	0	1	-9.6	1018	1.71	61	79.5
24/01/19	18-08-08	WS1	0	0	2.1	18.2	0	0	0.001	1	-0.7	1003	1.1	61	79.7
24/01/19	18-08-08	WS5	0	0	0.6	19.6	0	0	0	1	-0.9	1003	1.59	63	79.8