



Geotechnical &
Environmental
Consultants

Station Road
Earl Shilton

**Combined Phase I and Phase II Exploratory Investigation
For
Colin Burton Builders Ltd**



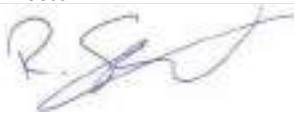
GeoDyne Limited
Clarendon House, Clarendon Park, Clumber Avenue,
Nottingham, NG5 1AH
Tel: 0115 962 0001 Email: info@geodyne.co.uk

Contents

	Page No
1.0 INTRODUCTION	1
2.0 SITE DESCRIPTION AND HISTORY	3
3.0 GEOLOGY & ENVIRONMENTAL SETTING	10
4.0 PRELIMINARY CONCEPTUAL SITE MODEL	16
5.0 EXPLORATORY INVESTIGATION	22
6.0 LABORATORY TESTING & CONTAMINATION ASSESSMENT	25
7.0 GROUND GAS & GROUNDWATER MONITORING	29
8.0 REVISED CONCEPTUAL SITE MODEL	37
9.0 CONCLUSIONS & RECOMMENDATIONS	42

Appendices

I	Site Location Plan
II	Annotated Site Plan
III	Proposed Site Layout
IV	General Views of Site
V	Historical Plans
VI	Landmark Geological Maps
VII	Landmark Envirocheck Report
VIII	ZeticaUXO Pre-Desk Study Assessment
IX	Exploratory Hole Location Plan
X	Plan Showing Depth to Base of Made Ground
XI	Exploratory Hole Logs
XII	Plates
XIII	Laboratory Soil Test Results
XIV	Ground Gas and Water Level Monitoring Results
XV	Conditions & Limitation

Project No: 43207		Date: 5 th February 2024	
Issue/revision	Prepared by	Checked By	Approved By
	Ben Parry BSc (Hons) MSc FGS Geo-Environmental Engineer	Richard Spencer BSc (Hons) MEng MSc Director	Richard Spencer BSc (Hons) MEng MSc Director
			
Comments			

EXECUTIVE SUMMARY

Ground Conditions	Made Ground was encountered to depths of between 0.40m and 2.20m. The Made Ground varied considerably in composition. Organic plant remains were encountered in WS4 consistent with the location having been the site of a former pond. In WS1 to WS3 the Made Ground was underlain by the Bosworth Clay Member. This highly variable strata comprised interbedded soft, locally firm and firm to stiff red-brown silty sandy CLAY and loose to medium dense red-brown SAND. In WS4 the Made Ground was underlain by wet CLAY between 2.20m and 3.20m. Below 3.20m the Bosworth Clay Member was present as a very stiff silty CLAY.
Foundation Design	The shallow Made Ground and low strength natural soils are considered unsuitable to support structural loads. Foundations for the proposed dwellings and ancillary structures will require piling. Consideration may be given to ground improvement as an alternative, subject to specialist contractors advice.
Floor Slab Design	Pre-cast beam and block floor. Sub floor ventilation and a well installed gas membrane is required.
Building Near Trees	Foundation depths should be designed to take into account the influence of existing, proposed or recently removed trees, assuming Clay soils of a low volume change potential in accordance with NHBC standards.
Ground Gas Precautions	Characteristic Situation CS2.
Water	Water at depths between 1.60m (WS2) and 2.50m (WS3) begl during drilling. Subsequent monitoring revealed standing water varying 0.90m and 1.62m begl.
Radon	No radon precautions are required.
Excavations and stability	Excavations will require sidewall support for health and safety reasons, and potentially for constructional reasons where water seepages occur within the near surface granular soils. Collapse of sand pockets may result in over dig locally within excavations.
Sulphate Classification	Design Sulfate Class DS-1, Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1.
Contamination Assessment	Samples of Made Ground and Natural Strata tested did not reveal elevated concentrations of the determinands tested, when compared to Tier 1 GAC for a residential with plant uptake end use. Asbestos (loose Amosite fibres) has been identified locally in the Made Ground in WS3.
Remediation Proposals	Topsoil should be carefully excavated, stockpiled and tested to confirm its suitability for re-use on site. Made Ground should be carefully excavated, stockpiled and tested to confirm its suitability for retention on site; alternatively remove the Made Ground from the site. In the proposed gardens: - Where natural soils are present at formation level, provide nominal clean topsoil. - Where Made Ground is exposed at formation level test the Made Ground to confirm that the material is suitable prior to placing clean topsoil. If the Made Ground is contaminated then remove it from site. - In all gardens provide a minimum of 600mm of clean subsoil and topsoil, either by placement of capping or exposure of natural soils beneath the topsoil. - Where asbestos is present, 1.00m of clean subsoil and topsoil capping.
Off-Site Disposal	If off-site disposal is required a new contamination assessment may be required to include bespoke leachate analysis (i.e. Waste Acceptance Criteria [WAC] testing) to classify the soils for off-site disposal with testing criteria to assess whether the soil is hazardous, non-hazardous or inert waste.
Construction Workers	It is recommended that construction personnel involved with direct contact with the soils at the site use appropriate PPE equipment (i.e. boots, gloves and overalls) together with hygiene facilities in accordance with general health and safety guidelines.
Utilities	Prior to development of the site, we would recommend that a copy of this report is supplied to the appropriate utility companies, and that their recommendations relating to appropriate supply pipes are adhered to.
Unforeseen Circumstances	Should any areas of potentially contaminated soil be encountered during site construction works we would recommend consultation with GeoDyne Limited to ensure that our recommendations continue to apply.
Licenses, Permits etc.	The Contractor/Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the earthworks at the site.
Recommended Further Works	Deep boreholes (cable percussive or rotary) for pile design information. Observation of ground in north central area of the site for evidence of former brickworks buildings. Any Made Ground in boreholes or potentially significant contamination should be subject to further assessment.

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Limited has been instructed by HSSP Architects on behalf of the Client, Colin Burton Builders Ltd, to undertake a Combined Phase I and Phase II Exploratory Investigation on a site at Station Road, Earl Shilton. A site location plan (Figure No. 43207/01) is included as Appendix I.

1.2 Scope of Works

The scope of the Phase I Desk Study included the following:

- A site walkover.
- Commission of a Landmark Envirocheck report relating to the site.
- Commission the use of Landmark Envirocheck Analysis tool.
- Commission of Landmark geological mapping data.
- Review of the sites radon status.
- Review of available historical and contemporary Ordnance Survey publications relating to the site.
- Review of the sites geology, hydrology, hydrogeology and groundwater vulnerability.
- Review of the sites coal mining status.
- Commission of a ZeticaUXO Pre-Desk Study Assessment.
- Production of a preliminary site-specific preliminary Conceptual Site Model (pCSM).

Phase II Exploratory Investigation works comprised:

- A sub-contracted utility avoidance scan of proposed exploratory hole locations.
- A series of window sample boreholes in the accessible areas of the site.
- Geotechnical and environmental soils testing.

1.3 Project Understanding

We understand that it is proposed to develop the site with detached residential dwellings including private gardens together with areas of hard standing for vehicle access and parking.

A plan provided by the Client showing the proposed site layout is included in Appendix II.

Where the proposals are not consistent with our current understanding (for example if the site is proposed to be redeveloped for an alternative end use) it would be necessary to review our assessment.

1.4 Limitations

The conclusions and recommendations made in this report are limited to those that can be made based on the findings of the investigation. Where comments are made based on information obtained from third parties, GeoDyne Limited assumes that all third party information is true and correct. No independent action has been undertaken to validate the findings of third parties.

This report has been prepared in accordance with our understanding of current good practice. However changes to good practice, guidance or legislation may necessitate revision of this report after the date of issue.

GeoDyne Limited has prepared this report for the use and reliance of the Clients, Colin Burton Builders Ltd, in accordance with our Standard Conditions and Limitations (included in Appendix XV).

This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Limited. Reliance may not be placed on our report until all invoices associated with the project have been paid.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Description

The site comprises an irregularly shaped parcel of land located to the rear of 223 Station Road, Earl Shilton. The site of the proposed development may be centred around approximate Ordnance Survey National Grid Reference 446350E 296780N and extends to approximately 0.31Ha (hectares).

A site walkover was undertaken on 8th December 2023 by an Engineer from GeoDyne Limited. At the time of our works the site comprised a partly overgrown area of rough grassland. Mature trees were present in the southeast of the site and along some of the site boundaries. Large patches of brambles prevented access to some parts of the site.

In general the site sloped gently down from northwest to southeast, with a pronounced slope at the eastern end and a dip towards the centre of the site.

The site was bounded to the west by the rear gardens of residential properties off Station Road. Where accessible it was observed that the site boundaries in this area were generally marked by hedging, albeit pedestrian access was available via a path leading to No. 223a Station Road.

The northern boundary was formed with the site of a residential development known as '*The Kilns*' which was under construction. The site boundary was not accessible for large parts of its length and enabling works at The Kilns appeared to have resulted in the loss of some of the original fencing on the northern site boundary. At the time of our visit the site was secured along the northern boundary by Heras fencing associated with The Kilns site.

The eastern site boundary was formed with Breach Lane and marked by a featherboard fence and a barred metal gate that had been covered by a featherboard fencing panel. This gate forms the principal access onto the site.

The southern site boundary was formed with a small area of wooded open space and marked by partly overgrown wooden post and rail fencing.

An area in the southeast of the site has been segregated from the rest of the site by a post and rail fence. Mature trees were present within the enclosed area.

In addition to the vehicular access off Breach Lane, pedestrian access was also afforded by a wooden gate from the garden of 223a Station Road.

On site buildings comprised a pair of derelict and collapsing wooden sheds in the north of the site together with a small brick building in the south that had no roof. The wooden sheds could not be approached because of the surrounding brambles. A number of concrete lintels were identified amongst the brambles near the centre of the site; other construction waste including potential Asbestos Containing Materials (ACMs) may be present. Piles of arboricultural waste were also identified on site as was a pile of what appeared to be the remains of dismantled chipboard-laminate furniture. Other waste materials may be present in the inaccessible sheds and the areas overgrown with brambles.

A Volkswagen van was present to the east of the brick building. This vehicle did not appear to have been moved for some time.

The annotated site plan presented as Appendix III shows the location of principal features of the site.

Appendix IV includes a plan showing general views of the site.

Figure 1 below shows the site in context in a 2023 aerial photograph. At the time of our site visit the field to the immediate north of site was being developed with residential properties.

Figure 1: 2023 Aerial Photograph (site demarcated in red).



2.2 Site History

The historical and contemporary Ordnance Survey publications included within the Landmark Envirocheck report have been reviewed by GeoDyne to establish the history of the site and its environmental setting. The historical Ordnance Survey maps are included as Appendix V of this report.

We would note that the boundary marked on the historical sheets within the Envirocheck report appears to 'shift' on several of the maps due to scaling inaccuracies between maps of differing dates. This is a function of Envirocheck transposition algorithms. The key findings of the historical search are summarised in Table 1.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	Features On Site	Features Off Site
1880s	- The site forms part of a larger agricultural field. - The southern and eastern site boundary appears to coincide with part of the southern and eastern boundaries of the larger field, otherwise the site boundary is not defined on historical mapping.	- The site is shown to be in a predominantly agricultural area to the south of Earl Shilton, generally comprising fields. - A track is shown running north to south adjacent to the eastern site boundary. - A footpath, marked 'F.P.', is shown running from the track adjacent to the southeast corner of the site towards the southeast. - A second footpath is shown starting from the same point and running south for approximately 30m before turning east to intercept the first path approximately 210m southeast of the site. - A watercourse is indicated flowing approximately west to east, 35m south of the site. - A small building is shown near the watercourse approximately 40m south of the site.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	Features On Site	Features Off Site
		- A small pond is shown near the watercourse approximately 40m south of the southeast corner of the site. - A road, later identified as 'Station Road', is shown approximately 55m west of the site running northeast to southwest. - A pond is shown approximately 195m southwest of the site. - Various earthworks are indicated between 90m and 250m west of the site. - A group of buildings, identified as 'The Lodge', are shown approximately 210m north of the site. - A group of earthworks, identified as 'Old Fish Ponds' are shown approximately 270m southwest of the site.
1890s	No data.	No data.
1900s	- The site and the area to its immediate north is identified as a 'Brick Works'. - A 'Well' is shown near the centre of the site. 'Kilns', including a circular building, are shown to be present in the north of the site. - Two buildings are shown to straddle the northern site boundary. - A boundary is shown crossing the site from northeast to southwest.	- Buildings are shown straddling the site boundary with a further building approximately 12m north of the site. - An excavation is shown immediately to the north of this building. - A path is shown running west to east from Station Road to the offsite buildings. 'Allotment Gardens' are shown to the east of the track beyond the eastern site boundary.
1910s	- The Brick Works is now labelled as being disused. - The remains of the circular building are still shown. - The other Brick Works buildings are no longer recorded. - The Well is no longer shown.	- The Brick Works buildings are no longer recorded. - The excavation to the north of the site is shown to have been enlarged. - A pond is shown within the excavation, approximately 50m north of the site.
1920s	No data.	No data.
1930s	The site appears essentially unchanged.	A linear structure is shown running north parallel to Station Road from approximately 30m west of the site.
1940s	No data.	No data.
1950s	The site appears essentially unchanged.	- Detached residential properties are shown from the western site boundary on either side of Station Road. - A building is shown 90m southeast of the site. - A building is shown 175m south of the southeast site corner.
1960s	- The western part of the site appears to have become incorporated in the grounds of a house (223 Station Road) located 25m west of the site. - A large 'Pond' is shown in the east of the site.	- The excavation to the north of the site is now shown to be marsh. - A large 'Fish Pond' is shown from 80m west of the site. - A group of buildings are shown associated with the existing building 90m southeast of the site. - Residential development is shown along the east side of Station Road from 110m southwest of the site. - The building 175m south of the southeast site corner is labelled 'Breach Lands'. - A 'Refuse Tip' is shown 200m northwest of the site.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	Features On Site	Features Off Site
		Some further residential development is shown to the north of the site.
1970s	The site appears essentially unchanged.	- The Refuse Tip is no longer shown. - Glasshouses are indicated from 250m south of the site.
1980s	The site appears essentially unchanged.	- An additional building is shown on the site of 223 Station Road. - The former excavation to the north of the site is no longer shown. - The marsh to the north of the site is no longer shown. - The pond to the north of the site is no longer shown. - A Pumping Station, marked 'Ppg Sta', is shown approximately 80m southwest of the site. - An electricity sub-station, marked 'El Sub Sta', is shown approximately 120m northeast of the site. - A building 130m southwest of the site is shown to have been considerably enlarged. - Further residential development is shown from 140m west of the site. - The glasshouses to the south of the site are no longer shown.
1990s	- The site appears to have become incorporated into the garden of 223 Station Road. 3No. small buildings are shown in the northwest of the site. - The onsite pond is no longer shown.	Residential development is shown around 'Wileman's Close' from 120m north of the site.
2000s	The site appears essentially unchanged.	- A small building is shown approximately 75m north of the site. - Further residential development is shown to the north of the site.
2010s	The site appears essentially unchanged.	Further residential development is shown from approximately 100m east of the site.
2020s	The site appears essentially unchanged.	The surrounding area appears essentially unchanged.

2.3 Landmark Envirocheck Analysis and Historical Mapping

Figures 2 to 5 below have been produced from Landmark Envirocheck Analysis software and show the progressive development of the site and surrounding area.

Figure 2: 1888 historical mapping (site demarcated in red).



Figure 3: 1903 historical mapping (site demarcated in red).



Figure 5: 1985 historical mapping (site demarcated in red).



3.0 GEOLOGY & ENVIRONMENTAL SETTING

3.1 Sources

The following geological publications were referred to:

- BGS online Interactive Map Viewer and Lexicon of Named Rock Units.
- British Geological Survey (BGS) 1:50,000 Series Sheet 155 'Coalville' Solid & Drift edition (1982).
- British Geological Survey (BGS) 1:50,000 Series Sheet 169 'Coventry' Solid & Drift edition (1994).
- BGS 1:10000 Series Geological Map SP49NE (1983)
- Landmark 1:50,000 Geological Mapping.
- The Coal Authority Interactive Map Viewer.

3.2 Geology

Superficial Deposits

Superficial deposits are indicated to be present immediately underlying the site. The geological sources consulted indicate that the superficial deposits comprise Alluvium of Holocene age (shown to be present in the south of the site), underlain by Pleistocene glacial deposits of the Bosworth Clay Member, the Wigston Member and the Wolston Sand and Gravel.

Alluvium is described on available mapping as comprising '*Clay, Silt Sand and Gravel*'.

The Bosworth Clay Member is described on available mapping as comprising '*Clay and Silt*'.

The Wigston Member is described on available mapping as comprising '*Sand and Gravel*'.

The Wolston Sand and Gravel is described on available mapping as comprising '*Sand and Gravel*'.

Bedrock

The viewed geological maps indicate that the superficial deposits are underlain by bedrock of the Mercia Mudstone Group.

The Mercia Mudstone Group is described in the BGS lexicon as being '*Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite are widespread; thin sandstones are also present.*'

The Landmark geological maps are presented as Appendix VI.

3.3 Faults

No faults are indicated present within the site or within the immediate vicinity of the site.

3.4 Man-Made Deposits

No man-made deposits or worked ground are indicated to be present within the site boundary or within the immediate vicinity of the site on geological mapping. However, historical evidence indicates that the site was formerly part of a Brick Works and Made Ground may be present associated with this historical use. Furthermore, a pond was historically shown present within the site and therefore Made Ground associated with backfilling of the pond is expected to be present.

3.5 Landmark Envirocheck Report

A Landmark Envirocheck report was commissioned to assist in ascertaining the environmental setting of the site.

The full Envirocheck report is presented in Appendix VII and has revealed the following relevant information. Details are only listed where they are within potential influencing distance i.e. <250m of the site.

3.5.1 Agency and Hydrological

Aquifer Status

The aquifer designation maps are presented in Appendix VII and are based on geological mapping provided by the British Geological Survey. Different aquifer classifications may be applied to superficial (drift) deposits (typically forming shallow perched groundwater units where present) and bedrock aquifers (which may contain regional groundwater units). Possible aquifer designations comprise Principal Aquifers, Secondary (A, B or Undifferentiated) Aquifers and Unproductive Strata.

The Landmark report indicates that the bedrock at the site is designated as a Secondary B Aquifer

Secondary B Aquifers are described by the Environment Agency as *'...mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers.'*

The Envirocheck report indicates that the superficial deposits at the site are designated as Secondary Aquifers - Undifferentiated.

Secondary Undifferentiated Aquifers are described by the Environment Agency as *'...aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.'*

Groundwater Vulnerability

The Groundwater Vulnerability map is presented in Appendix VII and is based on data supplied by the Environment Agency.

The superficial deposits beneath the site are classified as having a Medium Vulnerability with bedrock flow through well connected fractures. The pollutant speed is indicated to be *'Intermediate'*.

Source Protection Zone Status

Source Protection Zones (SPZs) relate to a zone placed around a well or borehole for the protection of groundwater resources principally for public drinking water supply. The groundwater source catchments can be divided into three main zones – Inner (Zone I), Outer (Zone II) and Total Catchment (Zone III).

The Landmark report indicates that the site does not lie within a defined source protection zone.

Surface Waters

The Envirocheck report includes 12No. entries for watercourses within 250m of the site, the nearest of which is the stream running parallel to the site southern boundary and located 13m southwest of the site in the Envirocheck report.

Ponds are present in the area to the west and southwest of the site.

Flood Risk Status

The site is not shown to be at risk of flooding from rivers or the sea.

The Envirocheck report indicates that there is potential for groundwater flooding to occur at surface across the entire site.

Discharge Consents

The Envirocheck report identifies 2No. historical discharge consents within 250m of the site. One refers to a '*Storm Tank/CSO on Sewerage Network (Water Company)*' and is located to a position 74m west of the site. This consent was revoked in August 2012. The second consent refers to a '*Pumping Station on Sewerage Network (Water Company)*' and is located to a position 79m west of the site. This consent was revoked in January 2010.

3.5.2 Waste

The Envirocheck report does not indicate that there are any recorded landfill sites within 250m of the site. However, a majority of the site is indicated to be infilled land associated with historical brick works.

Potentially Infilled Land

The majority of the site, and the area to the immediate north, is shown as Potentially Infilled Land (Non-Water) in the Envirocheck report. This is not shown to extend into the western extremity of the site.

3.5.3 Hazardous Substances

There are no Hazardous Substances sites (i.e. sites dealing with explosives etc.) identified on the site, or within a 250m radius of the site, in the Landmark report.

3.5.4 Geological Issues

Radon

The Envirocheck report identifies that the site is in a lower probability radon area (less than 1% of homes are estimated to be at or above the action level). On this basis, the Envirocheck report indicates that no radon protective measures are necessary in the construction of new dwellings/buildings or extensions at the site.

Ground Stability Hazards

The Landmark report indicates that there is Moderate potential for compressible ground stability hazards at the site. The potential for other ground stability hazards at the site is assessed as between Very Low and No Hazard.

BGS Soil Chemistry

The BGS has prepared estimated soil concentration maps for several metals (including Arsenic, Lead, Nickel, Chromium and Cadmium), which are extrapolated from records available for use within their assessments.

Whilst potentially useful for the inference of Natural Metal Enrichment (NME) of the natural soils in a general locale, the data should not be used to inform any detailed decisions with regards to the chemistry of a particular site as it does not allow for anthropogenic affects.

Estimates of the soil chemistry at the site indicate anticipated concentrations of Arsenic of <15mg/kg, Cadmium of <1.8mg/kg, Chromium of 40-60mg/kg, Lead of <100mg/kg and Nickel of 15-30mg/kg. Copies of the datasheets are included in Appendix VII.

Based on the information supplied within the Envirocheck report, the site is not shown to be located within an area where significant Natural Metal Enrichment of the underlying natural soils is likely to be present.

BGS Recorded Mineral Sites

The Envirocheck report identifies '*Station Road Brick Works*' which is centred approximately 29m northeast of the site but extending across the majority of the current development site. This appears to relate to the historical Brick Works discussed in Section 2.2 of this report.

Coal Mining

The Envirocheck report indicates that the site is in an area which is not affected by coal mining. This is confirmed by the Coal Authority Interactive Viewer.

BGS Borehole Records

As part of our works we have reviewed available online BGS borehole records, which indicate that there are no historical borehole records available that specifically relate to the subject site.

Non Coal Mining Areas of Great Britain

The site is identified as '*No Hazard*'.

3.5.5 Contemporary Trade Directory Entries

The Envirocheck report lists a single active Contemporary Trade Directory Entry within 250m of the site. The entry relates to M C P Oils, classified as a Recycling Service and positioned to a location 138m east of the site at what appears to be a residential address.

3.5.6 Points of Interest

3No. points of interest are recorded in the Envirocheck report: M C P Oils (see above), a Sewage Pumping Station located 181m to the southeast and a Play Area located 170m east of the site.

3.5.7 Sensitive Land Uses

The site is indicated to be underlain by a Nitrate Sensitive Zone relating to surface water.

In our experience a majority of this area of the country is defined as a Nitrate Vulnerable Zone and this classification is considered not to present a potential risk to the development of the site.

3.6 Unexploded Ordnance Risk

GeoDyne has commissioned a Pre-Desk Study Assessment of the site from ZeticaUXO which has not identified any records of historic bombing at the site and concludes that *'A detailed desk study, whilst always prudent, is not considered essential in this instance.'* The ZeticaUXO Pre-Desk Study Assessment is included as Appendix VIII.

3.7 Land Use Assessment

As part of the land use assessment, reference has been made to the *'Desk Reference Guide to potentially Contaminative Land Uses'* produced by Mr P Syms and published jointly by the ISVA (The Professional Society for Valuers and Auctioneers) in association with The Royal Institution of Chartered Surveyors (RICS) and the Chartered Institute of Environmental Health (CIEH).

We have also made reference to the Department for Environment, Food and Rural Affairs and the Environment Agency Contaminated Land Report CLR8 *'Potential Contaminants for the Assessment of Land'* (March 2002). Although now formally withdrawn, this document identifies key contaminants which may potentially be present at a site as a result of a given historical land use and is considered useful as a ready reference.

3.7.1 On Site Assessment

The site historically comprised part of a Brick Works with an associated quarry to the north and potentially encroaching into the north of the site. The Brick Works did not extend to the western extremity of the site. The site has remained undeveloped since industrial use ceased. Small buildings and a large pond have historically been present on site. Made Ground may be present.

Based on the information obtained from the desk study, our walkover of the site and our experience of similar sites, potential contamination that may be present could include:

- Metals associated with any Made Ground, residual contamination or Natural Metal Enrichment (NME) in Natural Strata.
- Polycyclic Aromatic Hydrocarbons (PAHs) derived from any carbonaceous or ashy inclusions in the near surface soils.
- Acid/Sulphate contaminated soils.

- Asbestos from existing and historical buildings or potential waste materials on site.
- Elevated ground gases (i.e. Methane and Carbon Dioxide) associated with former on-site and off-site infilled excavations, Made Ground and ponds.

3.7.2 Off-Site Assessment

The area to the immediate north of the site was a brick pit and has remained undeveloped since industrial use ended. A pond was present within the footprint of the former brick pit. Made Ground may also be present. The remainder of the surrounding area is predominantly residential in character.

There are no off-site sources of contamination that would be considered to present any more risk than the identified on-site sources.

4.0 PRELIMINARY CONCEPTUAL SITE MODEL

4.1 General

The DEFRA publication '*Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*' (dated April 2012) states the following with regards to the production of a Conceptual Site Model (CSM) for a site:

'The process of risk assessment involves understanding the risks presented by land, and the associated uncertainties. In practice, this understanding is usually developed and communicated in the form of a "conceptual model"'. The development of a CSM is typically undertaken in an iterative process, reflecting the changes in understanding as more detailed site information becomes available.

In developing a CSM, and specifically in the context of land contamination, consideration needs to be given to three essential elements; which form the basis of any risk present. The statutory guidance sections 3.8 and 3.9 (April 2012) states the following:

(a) *'A "contaminant" is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters.*

(b) *A "receptor" is something that could be adversely affected by a contaminant, for example a person, an organism, and ecosystem, property, or controlled waters...*

(c) *A "pathway" is a route by which a receptor is or might be affected by a contaminant.*

The term "contaminant linkage" means the relationship between a contaminant, a pathway and a receptor.' For a contaminant linkage to be plausible, all three elements need to be present.

In undertaking a risk assessment and deriving a CSM for the purposes of the redevelopment of a site (i.e. planning and development control) reference has been made to both the Model Procedures for the Management of Land Contamination, as well as the National Planning Policy Framework (NPPF).

The preliminary CSM should identify the hazards (source of potential contamination) and should set out the potential pollutant linkages with a view to identifying the nature and magnitude of the potential risks to receptors.

In order to undertake the foregoing assessment, consideration is required with respect to the probability or likelihood of the linkage occurring and the severity and significance of the potential consequences; taking account the nature of the pollutant linkage and the potential severity of the hazard and the sensitivity of the receptor within the context of the proposed land use (in consideration of the planning regime).

Consideration of consequence/severity, probability/likelihood and risk has been based on the following guidance documentation:

- CIRIA C552 '*Contaminated Land Risk Assessment, A Guide to Good Practice*', 2001.
- EA R&D publication 66 '*Guidance for the Safe Development of Housing on Land Affected by Contamination*', 2008.

4.2 Classification of Consequences

In order to apply a consequence classification to a particular potential pollutant linkage, it is first necessary to define the terminology used within the classification system. The following terminology and definitions detailed in Table 2 have been adopted within our assessment, based on the guidance referenced in Section 4.1.

TABLE 2 – CLASSIFICATION OF CONSEQUENCES	
Classification	Definition
Severe	- Acute risks to human health. - Short-term risk of pollution of controlled waters or significant impact on controlled waters; e.g. large-scale pollution or very high levels of contamination. - Catastrophic damage to buildings or property (such as building explosion causing collapse). - Ecological system effects – immediate risks of major damage which is likely to result in irreversible substantial adverse changes in the functioning of the ecosystem or harm to a species of special interest that endangers the long-term maintenance of the population.
Medium	- Chronic risks to human health. - Pollution of sensitive water resources (such as leaching of contaminants into controlled waters) causing a significant effect on water quality. - Ecological system effects – Immediate risks of significant damage which may result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. - Significant damage to buildings, structures and services (for example foundation damage or rendering the building unsuitable for habitation).
Mild	- Non-permanent health effects to human health (i.e. exposure is unlikely to lead to 'significant harm' in the context of Part 2A of the Environmental Protection Act 1990). - Pollution of controlled waters or non-sensitive water resources (for example non-classified groundwater) that results in a short-lived effect to water quality or a marginal effect on amenity value, agriculture or commerce. - Minor damage to buildings, structures and services. - Ecological system effects – Minor or short-term damage which is unlikely to result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest. - Substantial damage to non-sensitive environments (such as arable farmland for example).
Minor	- No measurable effects on human health including non-permanent health effects to human health that are easily preventable by appropriate use of PPE/RPE. - Minor pollution of controlled waters including non-sensitive water resources with no discernible effects on water quality or ecosystems. - Minor damage to non-sensitive environments (including arable farmland for example). - Easily repairable effects of damage to buildings, structures, services or the environment (for example discolouration of concrete, loss of plants in a landscaping scheme etc.).

4.3 Classification of Probability

Once the possibility of a pollutant linkage has been established (noting that probability classification does not apply when there is no possibility of a linkage being present), the probability should be classified in accordance with Table 3.

TABLE 3 – CLASSIFICATION OF PROBABILITY		
Classification	Definition	Likelihood
High Likelihood	There is a pollutant linkage and an event is highly likely to occur in the short-term, and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution occurring.	>95% likelihood of Consequence Occurring
Likely	There is a pollutant linkage and it is probable that an event will occur. It is not inevitable, but possible in the short-term and likely over the long-term.	50 – 95% likelihood of Consequence Occurring

TABLE 3 – CLASSIFICATION OF PROBABILITY		
Classification	Definition	Likelihood
Low Likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short-term.	5 – 49% Likelihood of Consequence Occurring
Unlikely	There is a pollutant linkage and it is improbable that an event would occur even in the very long-term.	<5% likelihood of Consequence Occurring

4.4 Classification of Risk

In order to establish the relevant risk term applicable to the identified pollutant linkage, one of the risk phrases identified within Table 4 must be adopted, with the definitions of each risk term detailed within Table 5.

TABLE 4 - RISK CLASSIFICATION MATRIX (BASED ON CIRIA C552, 2001)					
		Consequence of Risk			
		Severe	Medium	Mild	Minor
Probability (Likelihood)	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Negligible
	Unlikely	Moderate/Low	Low	Negligible	Negligible or No Potential Risk

TABLE 5 - RISK CLASSIFICATION DEFINITIONS (BASED ON CIRIA C552, 2001 & MODIFIED BY GEODYNE)	
Very High	There is a high probability that severe harm will arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, there is a low likelihood that such harm would be severe, or if any harm were to occur it is more likely that the harm would be mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Moderate/Low	It is possible that harm could arise to a receptor. However, a combination of likelihood and consequence results in a risk that is above low but is not of sufficient concern to be classified as moderate. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely. Such harm would at worst normally be mild. The risk is unlikely to present a substantial liability. Some limited further investigation may be required to clarify the risk and any associated liability. If subsequent remediation works are necessary, they are likely to be limited in extent.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Negligible	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be any worse than mild. No liability would be associated with such risks.
No Potential Risk	There is no potential risk or liability where no pollutant linkage has been established.

4.5 Contaminant [C] - Pathway [P] - Receptor [R] Considerations

The following CPR assessment has been undertaken assuming a residential end-use with plant uptake.

4.6 Consideration of Potential Sources of Contamination [C]

Based on the findings of our desk-based works, the potential key sources of contamination at the site that would require consideration for the derivation of an initial CSM would be the following:

TABLE 6 – SUMMARY OF POTENTIAL CONTAMINANT SOURCES	
Potential Key Sources	Associated Contaminants
Made Ground associated with the historical use of the majority of the site as a Brick Works and with the former presence of large pond in the east of the site.	- Metals associated with any Made Ground. - Polycyclic Aromatic Hydrocarbons (PAHs) derived from any carbonaceous or ashy inclusions in the near surface soils. - Acid/Sulphate contaminated soils. - Asbestos from existing and historical buildings or potential waste materials on site. - Elevated ground gases associated with Made Ground and the former ponds.
Natural Strata	- Natural Metal Enrichment (NME) in Natural Strata. - Acid/Sulphate contaminated soils. - Residual contamination or Natural Metal Enrichment (NME) in Natural Strata.

4.7 Consideration of Potential Pathways [P]

The potential pathways at the site are primarily:

- Direct ingestion of soil.
- Plant uptake.
- Inhalation of dust.
- Direct skin contact with the ground.
- Direct contact with construction materials.
- Vertical and lateral migration of contamination.
- Vertical and lateral migration of potentially hazardous ground gases.

4.8 Consideration of Potential Receptors [R]

The potential receptors at the site are:

- The construction personnel (i.e. site workers) involved with the development of the site (typically short term (acute) exposure).
- The final end users (residents - typically long term (chronic) exposure and visitors – typically short term (acute) exposure).
- Controlled waters (i.e. underlying groundwater, stream).
- Buildings and construction materials.

4.9 Preliminary Risk Assessment / Conceptual Site Model

our preliminary conceptual model of possible pollutant linkages, applicable to the proposed site usage and based on our current understanding, is summarised in Table 7.

TABLE 7 – PRELIMINARY RISK ASSESSMENT SUMMARY TABLE DESK STUDY						
Potential Contaminant Source [C]	Potential Pathway(s) [P]	Potential Receptor [R]	Probability of CPR Linkage	Consequence of CPR Linkage	Risk Level	Comments / Justification
Made Ground	Direct contact, ingestion	End users	Likely	Medium	Moderate	Soil contamination may be present associated with the former uses of the site. We understand the proposed residential development will include private gardens.
	Leaching of Contaminants through unsaturated zone	Controlled Waters	Likely	Medium	Moderate	Made Ground may be locally present on site. Former uses of the site may represent a potential source of contamination. The superficial deposits anticipated beneath the site are classified as secondary undifferentiated aquifers, the bedrock is classified as a Secondary B Aquifer.
	Inhalation of fugitive dust	Neighbouring users	Unlikely	Medium	Low	Following completion of redevelopment, it is assumed the site will be covered by buildings/hardstanding or vegetated (which will bind the soil together). Dust generation on a chronic basis is considered unlikely at this stage.
	Direct contact, ingestion or inhalation of fugitive dust	Construction personnel	Likely	Medium	Moderate	Soil contamination may be present associated with uses of the site. Site personnel will inevitably come into contact with the soils at the site. Risks to site personnel are likely to be mitigated by the adoption of suitable PPE/RPE. ACMs may be present associated with the existing site buildings or concealed in overgrown areas of the site.
	Vertical and lateral migration of Ground Gases through soils or groundwater to indoor air	End users of new buildings (asphyxiation or explosion)	Low Likelihood	Severe	Moderate	Made Ground may be present at the site. A large pond was present in the east of the site. Any Made Ground at the site may be a potential source of Ground Gas (Methane and Carbon Dioxide). A programme of ground gas monitoring is required to investigate the ground gas regime and possible level of protection for the proposed buildings.
		Buildings (damage via explosion)	Low Likelihood	Severe	Moderate	
	Direct contact	Construction materials (concrete)	Low Likelihood	Mild	Moderate/Low	Subject to confirmation as part of the Phase II Exploratory works.
Natural Strata	Direct contact, ingestion or inhalation	End users	Unlikely	Medium	Low	Natural metal enrichment within the natural soils is not anticipated to be of significant concern.
	Direct contact	Construction materials (concrete)	Low Likelihood	Mild	Low	Water soluble sulphate/pH testing of the natural soils should be carried out to check the risks to buried concrete.

5.0 EXPLORATORY INVESTIGATION

5.1 Introduction

Sub-Surface Utility Avoidance Scan

Due to the anticipated presence of live buried services within and in the vicinity of the site, a sub-contracted sub-surface scan was undertaken around proposed exploratory hole locations to ensure the health and safety of site operatives and attempt to avoid services by the intrusive works.

Boreholes were positioned in accessible locations selected in advance of our site investigation works, to investigate ground conditions at the site whilst avoiding known services etc.

Exploratory Hole Locations

Table 8 summarises the reasoning behind the exploratory hole positions.

TABLE 8 – REASONING FOR EXPLORATORY HOLE LOCATIONS	
Exploratory Hole Reference	Reasoning Behind Location
WS1 to WS3	Located to provide general coverage of the site and to provide data on extent and nature of any Made Ground as well as the strength and depth to the Natural Strata.
WS4	Targeted to the location of the former pond to provide data on the ground conditions in the area and to facilitate installation of a ground gas monitoring point at a likely source of potentially hazardous ground gases.
Key WS – Window Sample Borehole	

Window Sample Boreholes

A programme of window sample boreholes, designated WS1 to WS4, were advanced at the site on 8th December 2023. The boreholes were positioned within the accessible areas of the site in order to obtain samples for geotechnical laboratory analysis and geotechnical data for foundation design. WS1 and WS2 were advanced to a depth of 5.00m below existing ground level (begl). WS3 and WS4 were terminated at 4.00m begl following SPT refusal.

Groundwater monitoring wells were installed to 4.00m in WS3 and WS4; because of blowing sand conditions in WS1 it was only possible to install a monitoring well to a depth of 3.70m in the 5.00m borehole.

Exploratory Hole Locations and Logs

A plan indicating the approximate locations of the exploratory holes (Figure No. 43207/02) is included in Appendix IX. A Plan Showing Depth to Base of Made Ground is included as Appendix X. Logs of the exploratory holes are presented in Appendix XI. A General views of the exploratory holes, arisings and borehole arisings are included in Appendix XII (Plates Nos. 43207/P1 to 43207/P5).

5.2 Ground Conditions

Made Ground was encountered to depths of between 0.40m (WS1) and 2.20m (WS4). The Made Ground encountered varied considerably in composition. Organic plant remains were encountered in WS4 which may be considered consistent with the location having been the site of a former pond.

In WS1 to WS3 the Made Ground was underlain by strata interpreted as the Bosworth Clay Member. This highly variable strata comprised interbedded soft, locally firm and firm to stiff red-brown silty sandy CLAY and loose to medium dense red-brown SAND. Some distinct beds are no more than 0.20m in depth with localised fine bands also recorded. In WS4 the Made Ground was underlain by Alluvium in the form of soft yellow-brown wet CLAY between 2.20m (the base of the Made Ground) and 3.20m. Below 3.20m the Bosworth Clay Member was present as a very stiff silty CLAY.

5.3 Water

Water was encountered at various depths between approximately 1.60m (WS2) and 2.50m (WS3) begl during drilling. Subsequent monitoring of wells installed in WS1, WS3 and WS4 revealed standing water varying between 0.90m and 1.62m begl over a six week monitoring period. It is noted that the monitoring of boreholes was carried out during periods of excessively wet weather and therefore represents the likely 'worst case' shallow water levels.

5.4 Stability and Excavations

The boreholes were cased to their full depth and were generally stable in the Clay strata during the short time they remained open as the casing was withdrawn. However blowing sand was a problem below 2.40m begl in WS1.

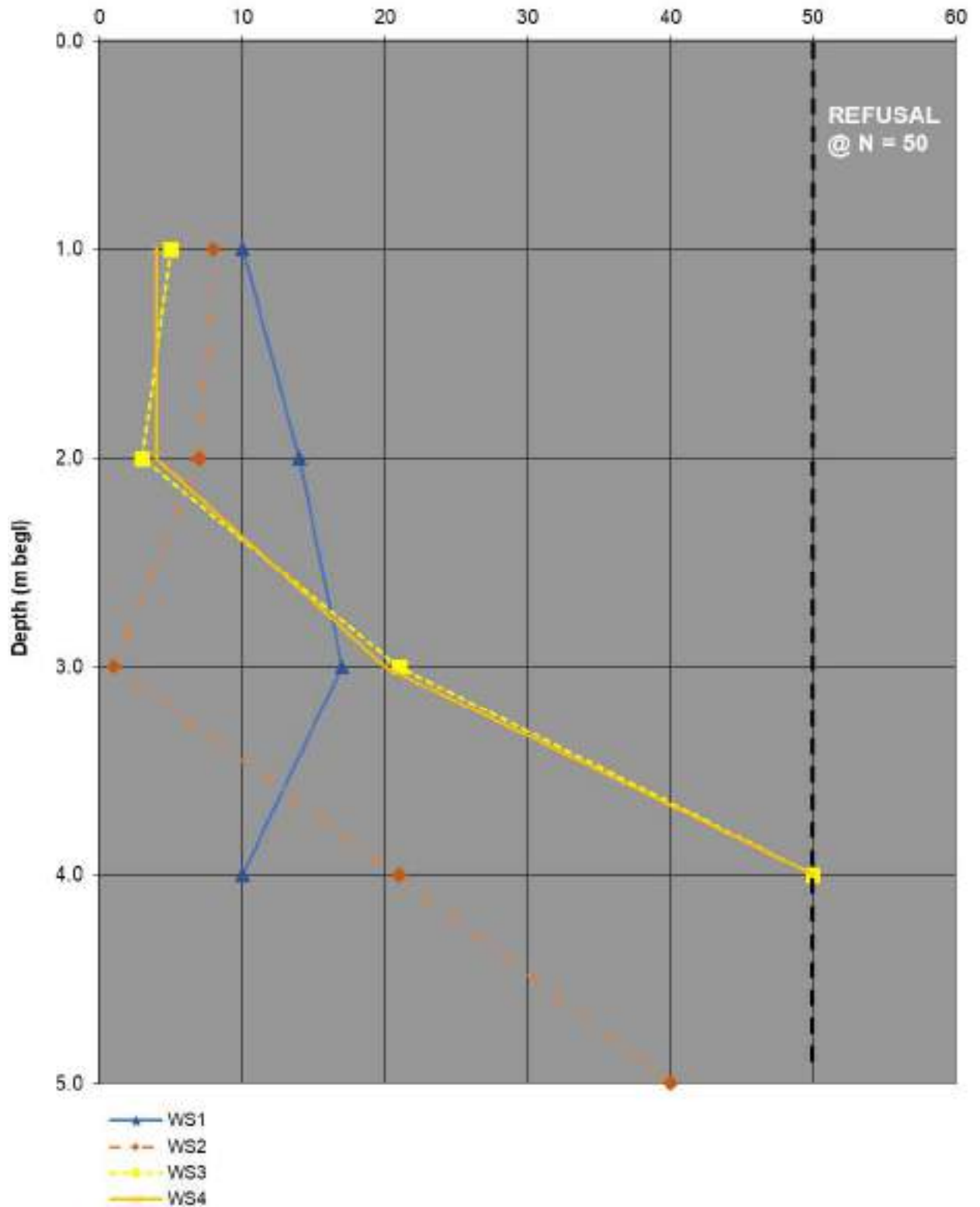
5.5 Standard Penetration Tests (SPTs)

Standard penetration tests (SPTs) were undertaken at 1m nominal centres in each borehole, from a depth of 1.00m begl.

WS1 was terminated in blowing sand where it was not possible to undertake an SPT, therefore the last SPT recorded in WS1 was at 4.00m begl.

SPT test results are included in the chart on the following page.

Chart 43207/01
Station Road, Earl Shilton
 SPT N Values Vs Depth (m begl)
 SPT N (Uncorrected)



6.0 LABORATORY TESTING & CONTAMINATION ASSESSMENT

6.1 Introduction

Geotechnical soil testing was undertaken on selected samples of the Made Ground and Natural Strata and comprised the following:

- 3No. Water Soluble Sulphate (2No. in the Made Ground, 1No. in the Natural Strata).
- 2No. Plasticity Index (PI) tests (2No. in the Natural Strata).

The following environmental soil testing was carried out on visually representative samples of Made Ground and Natural Strata recovered from the exploratory holes. The testing strategy was based on the land use assessment, and was considered sufficient to enable an assessment of the chemical status of the soils at the site:

- 6No. Standard contamination suites (including speciated PAH and TOC).
- 3No. Asbestos screening tests.

The geotechnical and environmental laboratory soil test results are presented in Appendix XIII of this report.

6.2 Geotechnical Soil Test Results

Water Soluble Sulphate

Water soluble sulphate testing was undertaken on a single sample of Made Ground and two samples of the Natural Strata recovered during the intrusive works. The results revealed water soluble sulphate concentrations between 0.02g/l and 0.03g/l SO₄. The pH values of the soils analysed were recorded as between 6.99 and 7.77.

In accordance with the Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005) the highest sulphate concentration should be used to indicate the Design Sulphate Class (i.e. assuming 0.03g/l SO₄), together with the lowest result for pH (6.99).

Therefore, in accordance with Special Digest 1:2005 the site falls into Design Sulfate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1. This classification has been made based on the assumption of potentially mobile groundwater conditions beneath the site and the presence of a brownfield location.

The sulphate and pH soil test results are presented in Appendix XIII of this report.

Plasticity Index Testing

Plasticity Index (PI) testing was undertaken on 2No. samples of visually cohesive Natural Strata to determine the volume change potential of the samples.

In accordance with NHBC Chapter 4.2 and the BRE Digest 240 '*Low-rise buildings on shrinkable clay soils: Part 1*' (1993), the reported PI value may be modified based on the portion of the sample retained on the 425µm sieve.

The results of the PI analysis are summarised in Table 9 below.

TABLE 9 – SUMMARY OF PLASTICITY INDEX (PI) DATA					
Sample Ref., Depth (begl)	Strata	Reported PI Value (%)	Portion Passing 425µm Sieve (%)	Modified PI Value (%)	Volume Change Potential
WS1, 1.20m-1.40m	CLAY	19	98	19	Low
WS2, 1.70m-1.90m	CLAY	18	93	17	Low

In accordance with the NHBC guidance and BRE Digest 240, the adjusted PI values reveal that the visually cohesive Natural Strata samples may be classified as having Low volume change potential according to Table 1 of BRE Digest 240. We recommend that a low volume change potential should be assumed for the Natural Strata at the site.

6.3 Contamination Assessment Rationale

It is understood that site is to be developed with a residential properties including private gardens. The land use category of residential with plant uptake end use is considered to be the most relevant in this instance.

6.3.1 Assessment Methodology

In order to undertake a Generic Quantitative Risk Assessment (GQRA) we have adopted the Suitable for Use Levels (S4ULs) published by LQM/CIEH in their publication referenced: Nathanail, C.P., McCaffrey, C. Gillett, A.G., Ogden, R.C. and Nathanail, J.F, 2015. '*The LQM/CIEH S4ULs for Human Health Risk Assessment*. Land Quality Press, Nottingham. All rights reserved.' In the absence of an S4UL screening value, we have made reference to the Category 4 Screening Levels (C4SLs) published by DEFRA.

In consideration of the available generic land uses utilised in the derivation of the adopted screening criteria, we have adopted a residential with plant uptake end-use scenario for the purposes of our assessments.

For assessment purposes, we have adopted a policy whereby determinands within the dataset are individually compared to the relevant screening value (i.e. individual S4ULs). Where determinands within the dataset are less than the appropriate screening value, the determinand is considered to be present at an acceptable concentration and no further assessment is required. Additional comment, statistical assessment or further Detailed Quantitative Risk Assessment (DQRA) may be provided where elevated values are revealed.

6.3.2 Selection of Soil Organic Matter (SOM) Content

The SOM content and soil type are used to provide an assessment of the applicability of the screening values adopted (the S4UL values are typically based upon SOM of 1%, 2.5% and 6%, as applicable).

Determinands have in the first instance, been compared to screening values adopting a conservative SOM of 1%. Where the determinand exceeds the relevant screening value at 1% SOM, a site specific SOM may be adopted as appropriate to derive more site-specific screening values and the dataset reassessed.

6.4 Sampling Strategy

The sampling strategy for the site was primarily to retrieve visually representative soil samples from a selection of locations that provide further coverage across the entire site area.

The ground conditions encountered during our Phase II works revealed the presence of two distinct types of material, i) Made Ground, ii) the underlying Natural Strata.

Visually representative samples were obtained during our Phase II works.

6.5 Contamination Analysis

6No. standard chemical contamination tests (including speciated PAH and TOC), and 3No. asbestos screens were carried out on samples collected during our site works.

As the proposed development is of a residential nature including private gardens, the Tier 1 GACs for residential with plant uptake end use development have been adopted for the contamination analysis.

For initial assessment purposes, the laboratory test results have been combined into a single dataset, for individual comparison against appropriate GACs.

6.6 Contamination Soil Test Results

The contamination assessment for the soils analysed at the site is summarised in Table 10.

Please note that screening values have only been used for determinands where they are present at concentrations in excess of the LOD on at least one occasion.

TABLE 10 – SUMMARY OF TIER 1 GAC ASSESSMENT RESIDENTIAL WITH PLANT UPTAKE END-USE				
Contaminants – Potentially Harmful to Human Health	No. of Samples Tested	Concentration Range (mg/kg)	Tier 1 GAC (mg/kg)	Tier 1 GAC Exceeded (Yes/No)
Metals				
Arsenic	6	2-9	37 S4UL	No
Cadmium	6	0.7-1.2	11 S4UL	No
Chromium III	6	13-43	910 S4UL	No
Inorganic Mercury*	6	<0.17-0.33	40 S4UL	No
Lead	6	17-153	200 C4SL	No
Nickel	6	12-34	130 S4UL	No
Copper	6	15-94	2400 S4UL	No
Zinc	6	60-340	3700 S4UL	No
Speciated PAHs				
Benzo(a)anthracene	6	<0.1-0.26	7.2 S4UL	No
Benzo(a)pyrene	6	<0.1-0.31	2.2 S4UL	No
Benzo(b)fluoranthene	6	<0.1-0.44	2.6 S4UL	No
Benzo(ghi)perylene	6	<0.1-0.23	320 S4UL	No
Benzo(k)fluoranthene	6	<0.1-0.14	77 S4UL	No
Chrysene	6	<0.1-0.31	15 S4UL	No
Fluoranthene	6	<0.1-0.46	280 S4UL	No
Indeno(123-cd)pyrene	6	<0.1-0.25	27 S4UL	No
Phenanthrene	6	<0.1-0.19	95 S4UL	No
Pyrene	6	<0.1-0.4	620 S4UL	No
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3026. All rights reserved. C4SL –value for Lead taken from DEFRA publication SP1010 and based on a residential with plant uptake end-use.				

All of the determinands assessed were present at individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory or below the appropriate Tier 1 GAC based on a residential with plant uptake end-use.

6.7 Asbestos Testing

Three samples from the Made Ground obtained from exploratory holes (WS1, WS3 and WS4) were tested for the presence of asbestos.

A single sample, from Made Ground in WS3 at 0.60m begl was found to contain amosite fibres. No asbestos was detected in the other two samples.

Asbestos quantification analysis has revealed that the asbestos represented 0.003% w/w of the sample analysed.

No visual evidence of any suspected ACMs was noted during the site works in the exploratory holes.

The CL:AIRE document '*Control of Asbestos Regulations 2012 - Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry guidance*' (2016) indicates that the loose fibres may be considered to be present at a 'very low' level in a single sample from the samples analysed at the site.

6.8 Contamination Assessment Summary

Samples of Made Ground and Natural Strata tested did not reveal elevated concentrations of the determinands tested, when compared to Tier 1 GAC for a residential with plant uptake end use.

However, asbestos (loose Amosite fibres) has been identified locally in the Made Ground in WS3 at a concentration of 0.003% w/w. Based upon the testing undertaken, asbestos may be locally present but it is considered that asbestos is not pervasively present within the Made Ground. ACMs may be present associated with the existing site buildings or in overgrown areas that were inaccessible at the time of our site works.

The concentrations of determinands detected are considered to be unlikely to present a potentially significant risk to Controlled Waters.

7.0 GROUND GAS & GROUNDWATER MONITORING

7.1 Introduction

The Phase I Desk Study information revealed the potential presence of ground gas with potential Made Ground and with former on-site and off-site ponds. The Made Ground backfill and pond sediments were considered to represent a potential source of hazardous ground gases (i.e., Methane and Carbon Dioxide) that may affect the proposed development. Similarly, any organic matter within the Alluvium also has the potential to produce ground gases.

Based on the foregoing, a programme of ground gas monitoring was included in the scope to determine the sites ground gas regime and possible requirement for ground gas protection measures for the proposed building.

7.2 Monitoring Installations

Upon completion, 3No. window sample boreholes (WS1, WS3 and WS4) were installed with combined ground gas and water monitoring wells to facilitate a programme of monitoring.

The full set of ground gas and water monitoring data is presented in Appendix XIV of this report.

7.3 Results of the Ground Gas Monitoring

A total of six monitoring visits generally over a six-week period have been undertaken at the site as part of our works. The ground gas monitoring results are summarised in Table 11 below.

TABLE 11 – SUMMARY OF GROUND GAS MONITORING DATA		
Parameter	Minimum % by volume (v/v)	Maximum % by volume (v/v)
Methane	0.0	0.0
Carbon Dioxide	0.0	6.9
Oxygen	5.2	21.1
Flow (l/h)	0.0	0.0
Key v/v - % by volume L/h – litres/hour ppm – Parts per million		

The atmospheric pressure at the time of the monitoring visits ranged between 992 and 1025. Atmospheric pressure below 1000mb (typically regarded as being low pressure) was encountered on three occasions during our ground gas monitoring programme.

Carbon Monoxide was also encountered in the range 0-2ppm; Hydrogen Sulphide was not encountered.

Water was encountered in the exploratory holes during the monitoring programme at depths ranging between 0.90m and 1.62m begl.

7.4 Appropriate Guidance

7.4.1 British Standard & CIRIA

The results of the ground gas monitoring have been reviewed with reference to the following documentation:

- CIRIA Report C665 'Assessing risks posed by hazardous ground gases to buildings' (2007).
- NHBC & RSK Group publication 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (March 2007).
- British Standard BS 8485 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' (2015+A1:2019).
- CIRIA Report C735 'Good practice on the testing and verification of protection systems for buildings against hazardous ground gases' (2011).

7.4.2 Gas Screening Value Calculation

BS 8485:2015+A1:2019 and CIRIA Report C665 recommend a risk-based methodology to ground gas assessment, the first step of which includes the calculation of a site-specific Gas Screening Value (GSV). The GSV of a particular ground gas regime equates to:

- $GSV (l/h) = \text{maximum borehole flow rate (l/h)} \times (\text{maximum gas concentration}/100)$.

The GSV should be calculated for both Methane and Carbon Dioxide (where appropriate) to determine a site-specific Characteristic Situation for each gas. The higher the calculated GSV, the greater the risk posed by the presence of ground gas. The CIRIA guidance document notes that '*...the GSV is a guideline value and not an absolute threshold*'.

7.4.3 Site Classification

The next step in the assessment process is determining the sites classification. Table 2 of BS 8485:2015+A1:2019 (reproduced below) presents six Characteristic Situations (CS) to assist in the classification of the site, based on the calculated GSV for Methane and Carbon Dioxide.

Table 2 — CS by site characteristic GSV

CS	Hazard potential	Site characteristic GSV ^{a)} L/h	Additional factors
CS1	Very low	<0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/h (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	–
CS4	Moderate to high	3.5 to <15	–
CS5	High	15 to <70	–
CS6	Very high	>70	–

^{a)} The figures used in this column are empirical.

NOTE The CS is equivalent to the characteristic GSV in CIRIA C665 [6].

7.4.4 Proposed Building Type

In accordance with BS 8485:2015+A1:2019, the CS classification for the site should be considered in conjunction with the proposed Building Type to determine the appropriate level of ground gas protection measures that should be installed to mitigate the risk posed by ground gases.

BS 8485:2015+A1:2019 notes *'The Building Type is determined based the proposed construction and use of the building, together with the control of future structural changes to the building and its maintenance (the building's management) should be assessed, since potential risks posed by ground gases are strongly influenced by these factors'*.

Subject to the development proposals, each building may be categorised as a whole, or for each different part of the building.

The Building Types presented in Table 3 of BS 8485:2015+A1:2019, are reproduced below.

Table 3 — *Building types*

	Type A	Type B	Type C	Type D
Ownership	Private	Private or commercial/ public, possible multiple	Commercial/ public	Commercial/ industrial
Control (change of use, structural alterations, ventilation)	None	Some but not all	Full	Full
Room sizes	Small	Small/ medium	Small to large	Large industrial/ retail park style

- **Type A building:** private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.
- **Type B building:** private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.
- **Type C building:** commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).
- **Type D building:** industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

7.4.5 Gas Protection Score (Number of Points to be Achieved)

Table 4 of BS 8485:2015+A1:2019, reproduced below, should be used to derive the minimum level of gas protection applicable to the Building Type, based on the CS determined from the calculated GSV. The Gas protection Score in Table 4 below is used to determine the level and type of protection measures used.

Table 4 — Gas protection score by CS and type of building

CS	Minimum gas protection score (points)			
	High risk	Medium risk		Low risk
	Type A building	Type B building	Type C building	Type D building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5 ^{a)}	5.5 ^{a)}	4.5	3.5
5	— ^{b)}	6 ^{a)} < 6.5 ^{a)}	5.5	4.5
6	— ^{b)}	— ^{b)}	6 ^{a)} — 6.5 ^{a)}	5 ^{a)} < 6 ^{a)}

^{a)} Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.

^{b)} The gas hazard is too high for this empirical method to be used to define the gas protection measures.

7.4.6 Methods of Achieving Gas Protection Scores

The appropriate level of precautions, to be designed in accordance with the point scoring system of BS 8485:2015+A1:2019, should therefore be determined for the specific type of developments based on the GSV and CS of the site. These may include a combination of two or more of the following three types of protection measures, which could be used to achieve the required score:

- The structural barrier of the floor slab, or of the basement slab and walls if a basement is present;
- Ventilation measures; and
- Gas resistant membrane which may include an element of verification and potentially integrity testing.

Verification and integrity testing should be undertaken in accordance with CIRIA report C735 'Good practice on the testing and verification of protection systems for buildings against hazardous ground gases' (2014) and would be detailed in a Ground Gas Verification Plan in advance of construction which should be agreed with the Local Planning Authority.

The points achieved for each element of the ground gas precautions are summarised in Tables 5, 6 and 7 of the British Standard. These tables are reproduced below.

Table 6 — Gas protection scores for ventilation protection measures

Protection element/system	Score	Comments
(a) Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)	0.5	Whenever possible a pressure relief pathway (as a minimum) should be installed in all gas protection measures systems. If the layer has a low permeability and/or is not terminated in a venting trench (or similar), then the score is zero.

Table 5 — Gas protection scores for the structural barrier

Floor and substructure design (see Annex A)	Score ^{A 1}
Precast suspended segmental subfloor (i.e. beam and block)	0
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 ⁸⁾
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing ⁹⁾ $\langle A_1 \rangle$ $\approx$ $\langle A_2 \rangle$	2
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing ⁹⁾ $\langle A_1 \rangle$ $\approx$ $\langle A_3 \rangle$	2.5

^{A)} The scores are conditional on breaches of floor slabs, etc., being effectively sealed.

⁸⁾ To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in (see [A.2.2.2](#)).

⁹⁾ The score is conditional on the waterproofing $\langle A_1 \rangle$ being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall). $\langle A_1 \rangle$

¹⁰⁾ $\langle A_1 \rangle$ If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with [Table 7](#), if it meets all the criteria for a gas resistant membrane in that table. $\langle A_1 \rangle$

(b) Passive sub floor dispersal layer:	2.5	Performance criteria for methane and carbon dioxide are shown in Figure B.6 and Figure B.7 , respectively.
Very good performance:	1.5	
Good performance:		
Media used to provide the dispersal layer are:		The ventilation effectiveness of different media depends on a number of different factors including the transmissivity of the medium, the width of the building, the side ventilation spacing and type and the thickness of the layer. The selected score should be assigned taking into account the recommendations in Annex B . Passive ventilation should be designed to meet at least "good performance", see Annex B .
• Clear void • Polystyrene void former blanket • Geocomposite void former blanket • No-fines gravel layer with gas drains • No-fines gravel layer		
(c) Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers	1.5 to 2.5	This system relies on continued serviceability of the pumps, therefore alarm and response systems should be in place. There should be robust management systems in place to ensure the continued maintenance of the system, including pumps and vents. Active ventilation should always be designed to meet at least "good performance", as described in Annex B.
(d) Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket	1.5 to 2.5	This system relies on continued operation of the pumps, therefore alarm and response systems should be in place. The score assigned should be based on the efficient "coverage" of the building footprint and the redundancy of the system. Active ventilation should always be designed to meet at least "good performance".
(e) Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park)	4	Assumes that the car park is vented to deal with car exhaust fumes, designed to <i>Buildings Regulations 2000, Approved Document F</i> [9].

7.5 Ground Gas Analysis

7.5.1 Gas Screening Value

Methane

No Methane was identified at the site during the monitoring programme.

Carbon Dioxide

A maximum Carbon Dioxide concentration of 6.9% by volume (v/v) was revealed by the monitoring undertaken. The maximum flow encountered during our monitoring programme was 0.2L/h.

The GSV for Carbon Dioxide at the site may be calculated as follows:

- $0.2 \times (6.9/100) = 0.0138 \text{ L/h}$

Assessment

Therefore, with a maximum GSV of 0.0138 L/h, a maximum carbon dioxide concentration of 6.9% by volume and a maximum flow rate of 0.2L/h, the site may be classified as 'CS1' in accordance with Table 2 of BS 8485 and based on the visits undertaken. However, where methane concentrations exceed 1% by volume and carbon dioxide concentrations exceed 5% by volume, the British Standard recommends that consideration should be given to increasing the ground gas regime from CS1 to CS2. Based on the monitoring results obtained at the site, Carbon dioxide concentrations greater than 5% by volume were recorded in WS3 on four of the six monitoring visits. In view of the recorded carbon dioxide concentrations and taking into consideration the historical uses of the site and its surroundings, it is recommended that the site classification is adjusted to '**CS2**'.

7.5.2 Building Type

We understand that it is proposed to construct a commercial property at the site. In accordance with Table 3 of BS 8485, **Building Type A** is considered to be the most appropriate classification.

7.5.3 Gas Protection Score

On the basis of a Characteristic Situation 2 (**CS2**) and the development proposals with buildings that may be designated as Building Type A and in accordance with Table 4 of BS 8485:2015+A1:2019, the minimum gas protection score for the site is **3.5 points**.

7.5.4 Recommended Level of Precaution

The site has been characterised as Characteristic Situation 2 (**CS2**) based on the gas data recorded. In accordance with Table 3 of BS 8485:2015+A1:2019, **Building Type A** is considered to be the most appropriate classification for the proposed dwellings and in accordance with Table 4 of BS 8485:2015+A1:2019, the minimum gas protection score for the site is **3.5 points**.

8.0 REVISED CONCEPTUAL SITE MODEL

8.1 Introduction

In accordance with industry good practice and current guidance, the Conceptual Model for the site presented in the Phase I Desk Study should be refined following acquisition and collection of additional data following completion of the site investigation works.

The potential contaminant linkages have been re-assessed to reflect the findings of the investigations and risk assessments completed. Our revised assessment following the site investigation works is provided in Table 16 below.

8.2 Classification of Consequences

In order to apply a consequence classification to a particular potential pollutant linkage, it is first necessary to define the terminology used within the classification system.

The following terminology and definitions detailed in Table 12 have been adopted within our assessment, based on current guidance.

TABLE 12 – CLASSIFICATION OF CONSEQUENCES	
Classification	Definition
Severe	• Acute risks to human health. • Short-term risk of pollution of controlled waters or significant impact on controlled waters, e.g. large-scale pollution or very high levels of contamination. • Catastrophic damage to buildings or property (such as building explosion causing collapse). • Ecological system effects – immediate risks of major damage which is likely to result in irreversible substantial adverse changes in the functioning of the ecosystem or harm to a species of special interest that endangers the long-term maintenance of the population.
Medium	• Chronic risks to human health. • Pollution of sensitive water resources (such as leaching of contaminants into controlled waters) causing a significant effect on water quality. • Ecological system effects – Immediate risks of significant damage which may result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. • Significant damage to buildings, structures and services (for example foundation damage or rendering the building unsuitable for habitation).
Mild	• Non-permanent health effects to human health (i.e. exposure is unlikely to lead to 'significant harm' in the context of Part 2A of the Environmental Protection Act 1990). • Pollution of controlled waters or non-sensitive water resources (for example non-classified groundwater) that results in a short-lived effect to water quality or a marginal effect on amenity value, agriculture or commerce. • Minor damage to buildings, structures and services. • Ecological system effects – Minor or short-term damage which is unlikely to result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest. • Substantial damage to non-sensitive environments (such as arable farmland for example).
Minor	• No measurable effects on human health including non-permanent health effects to human health that are easily preventable by appropriate use of PPE/RPE. • Minor pollution of controlled waters including non-sensitive water resources with no discernible effects on water quality or ecosystems. • Minor damage to non-sensitive environments (including arable farmland for example). • Easily repairable effects of damage to buildings, structures, services or the environment (for example discolouration of concrete, loss of plants in a landscaping scheme etc.).

8.3 Classification of Probability

Once the possibility of a pollutant linkage has been established (noting that probability classification does not apply when there is no possibility of a linkage being present), the probability should be classified in accordance with Table 13.

TABLE 13 – CLASSIFICATION OF PROBABILITY		
Classification	Definition	
High Likelihood	There is a pollutant linkage and an event is highly likely to occur in the short-term and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution occurring.	>95% likelihood of Consequence Occurring
Likely	There is a pollutant linkage and it is probable that an event will occur. It is not inevitable, but possible in the short-term and likely over the long-term.	50 – 95% likelihood of Consequence Occurring
Low Likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short-term.	5 – 49% Likelihood of Consequence Occurring
Unlikely	There is a pollutant linkage and it is improbable that an event would occur even in the very long-term.	<5% likelihood of Consequence Occurring

8.4 Classification of Risk

In order to establish the relevant risk term applicable to the identified pollutant linkage, one of the risk phrases identified within Table 14 must be adopted, with the definitions of each risk term detailed within Table 15.

TABLE 14 - RISK CLASSIFICATION MATRIX (BASED ON C552 CIRIA, 2001)					
		Consequence of Risk			
		Severe	Medium	Mild	Minor
Probability (Likelihood)	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Negligible
	Unlikely	Moderate/Low	Low	Negligible	Negligible or No Potential Risk

TABLE 15 - RISK CLASSIFICATION DEFINITIONS (BASED ON C552 CIRIA, 2001; MODIFIED BY GEODYNE)	
Very High	There is a high probability that severe harm will arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, there is a low likelihood that such harm would be severe, or if any harm were to occur it is more likely that the harm would be mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Moderate/Low	It is possible that harm could arise to a receptor. However, a combination of likelihood and

	consequence results in a risk that is above low but is not of sufficient concern to be classified as moderate. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely. Such harm would at worst normally be mild. The risk is unlikely to present a substantial liability. Some limited further investigation may be required to clarify the risk and any associated liability. If subsequent remediation works are necessary, they are likely to be limited in extent.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Negligible	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be any worse than mild. No liability would be associated with such risks.
No Potential Risk	There is no potential risk or liability where no pollutant linkage has been established.

8.5 Contaminant [C] - Pathway [P] - Receptor [R] Considerations

The following CPR assessment has been undertaken based on the assumption that the site will be developed for a residential with plant uptake end-use comprising residential dwellings with private gardens.

8.6 Consideration of Potential Sources of Contamination [C]

Based on the findings of our works, the potential key sources of contamination at the site would be the following that would require consideration for the derivation of an updated CSM:

- Metals associated with any Made Ground, residual contamination or Natural Metal Enrichment (NME) in Natural Strata.
- Polycyclic Aromatic Hydrocarbons (PAHs) derived from any carbonaceous or ashy inclusions in the near surface soils.
- Acid/Sulphate contaminated soils.
- Asbestos from existing and historical buildings on site.
- Elevated ground gases (i.e. Methane and Carbon Dioxide) associated with former on-site and off-site infilled excavations, Made Ground and ponds.

Made Ground was found during our intrusive site investigation works.

8.7 Consideration of Potential Pathways [P]

The potential pathways at the site identified by the Phase I Desk Study report are primarily:

- Direct ingestion of soil.
- Plant uptake.
- Inhalation of dust.
- Direct skin contact with the ground.
- Direct contact with construction materials.
- Vertical and lateral migration of contamination.
- Vertical and lateral migration of potentially hazardous ground gases.

8.8 Consideration of Potential Receptors [R]

The potential receptors at the site identified in the Phase I Desk Study report are:

- The construction personnel (i.e. site workers) involved with the development of the site (typically short term (acute) exposure).
- The final end users (residents - typically long term (chronic) exposure and visitors – typically short term (acute) exposure).
- Controlled waters (i.e. underlying groundwater, stream).
- Buildings and construction materials

8.9 Revised Risk Assessment / Conceptual Site Model

Our revised conceptual model of possible pollutant linkages, applicable to the proposed site usage and based on our current understanding, is summarised in Table 16.

TABLE 16 – REVISED RISK ASSESSMENT SUMMARY TABLE						
Potential Contaminant Source [C]	Potential Pathway(s) [P]	Potential Receptor [R]	Probability of CPR Linkage	Consequence of CPR Linkage	Risk Level	Comments / Justification
Made Ground	Direct contact, ingestion	End users	Low Likelihood	Medium	Moderate/Low	The proposed development will comprise residential properties with private gardens. No elevated contaminant concentrations in the samples tested have been revealed by the Phase II investigation works. Asbestos fibres have been identified in locally in the Made Ground at very low levels. Based on the current proposals, the area of localised asbestos contamination will be beneath the footprint a driveway near the centre of the site. However as there are private gardens proposed either side of the driveway, it is recommended that the Made Ground encountered in this area of site (up to 0.60m begl) is removed or a remedial capping layer will be required in areas of private gardens.
	Leaching of Contaminants through unsaturated zone	Controlled Waters	Unlikely	Medium	Low	No elevated contaminant concentrations in the samples tested have been revealed by the Phase II investigation works. The superficial deposits anticipated beneath the site are classified as secondary undifferentiated aquifers, the bedrock is classified as a Secondary B Aquifer.
	Inhalation of fugitive dust	Neighbouring users	Unlikely	Medium	Low	No elevated contaminant concentrations in the samples tested have been revealed by the Phase II investigation works. Asbestos fibres have been identified in locally in the Made Ground at very low levels. Following completion of development, it is assumed the site will be covered by buildings/hardstanding or vegetated (which will bind the soil together). Dust generation on a chronic basis is considered unlikely at this stage.
	Direct contact, ingestion or inhalation of fugitive dust	Construction personnel	Low Likelihood	Medium	Moderate/Low	No elevated contaminant concentrations in the samples tested have been revealed by the Phase II investigation works. Asbestos fibres have been identified in locally in the Made Ground at very low levels. Site personnel will inevitably come into contact with the soils at the site. Site workers should wear appropriate PPE and RPE and conform to general health and safety requirements. Appropriate measures (i.e. dust suppression) to mitigate the potential release of Asbestos fibres should be undertaken where suspected ACM are encountered during earthworks. A CAR-Soil 2012 compliant risk assessment should be undertaken by the contractor/client prior to commencing site works.

TABLE 16 – REVISED RISK ASSESSMENT SUMMARY TABLE

Potential Contaminant Source [C]	Potential Pathway(s) [P]	Potential Receptor [R]	Probability of CPR Linkage	Consequence of CPR Linkage	Risk Level	Comments / Justification
	Vertical and lateral migration of Ground Gases through soils or groundwater to indoor air	End users of new buildings (asphyxiation or explosion)	Low Likelihood	Severe	Moderate	Based on the ground gas monitoring undertaken, the site may be classified as Characteristic Situation 'CS2' in accordance with BS8485:2015+A1:2019. Gas protection measures are required at the site.
		Buildings (damage via explosion)	Low Likelihood	Severe	Moderate	
	Direct contact	Construction materials (concrete)	Unlikely	Mild	Negligible	Phase II Exploratory works have revealed that the site falls into Design Sulfate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s.
Natural Strata	Direct contact, ingestion or inhalation	End users	Unlikely	Medium	Low	The proposed development will comprise residential properties with private gardens. No elevated contaminant concentrations in the samples tested have been revealed by the Phase II investigation works.
	Direct contact	Construction materials (concrete)	Unlikely	Mild	Negligible	Phase II Exploratory works have revealed that the site falls into Design Sulfate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1.

9.0 CONCLUSIONS & RECOMMENDATIONS

9.1 Site Summary and Proposals

The findings of our Desk Study were that the site historically comprised part of a Brick Works with an associated backfilled quarry. The Brick Works did not extend to the western extremity of the site. The site has remained undeveloped since industrial use ceased. Small buildings and a large pond have historically been present on site.

GeoDyne was appointed to produce a Phase II intrusive site investigation to determine the contamination status of the site and to provide foundation recommendations.

It is understood that site is to be developed with residential properties including private gardens.

9.2 Ground Conditions

Made Ground was encountered to depths of between 0.40m (WS1) and 2.20m (WS4). The Made Ground encountered varied considerably in composition. Organic plant remains were encountered in WS4 which may be considered consistent with the location having been the site of a former pond.

In WS1 to WS3 the Made Ground was underlain by strata interpreted as the Bosworth Clay Member. This highly variable strata comprised interbedded soft, locally firm and firm to stiff red-brown silty sandy CLAY and loose to medium dense red-brown SAND. Some distinct beds are no more than 0.20m in depth with localised fine bands also recorded. In WS4 the Made Ground was underlain by Alluvium in the form of soft yellow-brown wet CLAY between 2.20m (the base of the Made Ground) and 3.20m. Below 3.20m the Bosworth Clay Member was present as a very stiff silty CLAY.

Water was encountered at various depths between approximately 1.60m (WS2) and 2.50m (WS3) begl during drilling. Subsequent monitoring of wells installed in WS1, WS3 and WS4 revealed standing water varying between 0.90m and 1.62m begl over a six week monitoring period. It is noted that the monitoring of boreholes was carried out during periods of excessively wet weather and therefore represents the likely 'worst case' shallow water levels.

9.3 Foundation Design

We understand that it is proposed to develop the site with detached residential dwellings including private gardens together with areas of hard standing for vehicle access and parking.

Plasticity index testing has revealed that soils with a low volume change potential should be adopted at the site.

The shallow Made Ground and low strength natural soils are considered unsuitable to support structural loads. Therefore, taking into consideration the depth of these unsuitable soils present across the site together with the presence of relatively shallow groundwater levels, it is considered that shallow spread foundations are not feasible at the site. Furthermore, competent soils are typically present at depth of circa 3-4m and therefore deepening of trench fill foundations to these depths is not feasible.

Therefore, foundations for the proposed dwellings and ancillary structures will require piling. Piles will need to penetrate the competent bedrock at depth and should be designed to take into account the shallow groundwater and the presence of low volume change soils (together with trees locally and sporadically around the site).

Further deep boreholes are recommended to provide parameters for pile design together with liaison with specialist piling contractors to confirm pile type and design.

Alternatively the use of ground improvement by vibro-stone/concrete columns or Controlled Modulus Columns (CMCs) may be considered. However, the low strength soils and shallow groundwater may exclude the use of these techniques and therefore further advice from specialist contractors should be sought if these options are to be considered for the site.

9.4 Ground Floor Slabs

Due to the presence of shallow Made Ground and low strength natural soils together with the requirement for ground gas precautions and a ventilated sub-floor void it is recommended that a pre-cast beam and block floor is adopted for the dwellings.

9.5 Ground Gas Protection and Radon

Based on the results of the ground gas monitoring undertaken at the site, it is considered that gas protection measures should be afforded to the proposed development at the site. Based on the information obtained from the site, it is recommended that gas protection measures corresponding to Characteristic Situation CS2 (in accordance with Table 4 of BS8485:2015+A1:2019) should be appropriate. The minimum gas protection score for CS2 is 3.5 points.

No radon protection measures are necessary although the inclusion of ground gas protection measures will afford a level of radon protection to the dwellings.

Typically, the following mitigation measures are considered appropriate to achieve the required level of protection to dwellings:

- Suspended floors (i.e. beam and block / beam and thermal insulation infill) – 0 Points.
- Provision of a clear ventilated void and periscopic air-brick ventilation and sub-floor cross ventilation – 1.5 Points (Good Performance Clear Void Dispersal Layer).
- To achieve a Very Good Performance Clear Void Dispersal Layer (2.5 points) in accordance with BS8485, the number of side vents (i.e. air-bricks) for a small to medium width buildings (up to 15m) should be 1500mm²/m run of wall on at least two sides, or 500mm² per square metre of floor area, whichever gives the greater area of opening. The minimum clear void space should be 100mm and there should be four or five times the area of the side vents provided to the internal obstructions (i.e. beams) to provide sub-floor cross ventilation.
- Provision of a well installed and verified low permeability proprietary gas resistant membrane (2 Points).
- The membrane should have proven resistance to the ground gases of concern, including methane (as well as carbon monoxide). The membrane should be suitably lapped and sealed and should be extended across wall cavities and lapped with cavity trays to effectively exclude ground gases from the footprint of the proposed buildings. The membrane should be inspected by a third party in accordance with the requirements of CIRIA C735.
- The membrane must be suitably robust to withstand the construction process and should be suitably protected following installation and inspection to minimise damage during construction.
- Service penetrations through the membrane should be kept to a minimum and should be suitably sealed to the membrane. Where the service penetrations (typically 150mm pipes) are to be used as ducting for smaller service pipes (e.g. water, electricity or gas supply etc.) an appropriate method of sealing the smaller pipes within the ducting should be

adopted (such as closed cell expanding foam), to minimise the risk of the ducting acting as a conduit for ground gases to enter the dwellings.

The foregoing precautions would score 3.5 Points (based on a Good Performance Clear Void Dispersal Layer) in accordance with BS8485:2015+A1:2019 and are therefore considered appropriate for the plots.

Alternative floor slab and ground gas protection measures that give a minimum protection score of 3.5 Points may be adopted at the site, to suit the requirements of the Client and subject to Local Authority approval.

In order to accord with Table 7 of BS8485 where a gas resistant membrane is proposed as part of gas protection measures, the membrane should be installed, inspected and validated by a third party in accordance with the requirements of CIRIA C735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gas*' (2014), for the gas protection points associated with installation of a gas resistant membrane to apply.

We would recommend that the membrane specified for the proposed buildings is installed by a suitably qualified specialist contractor in a quality controlled / quality assured (QA/QC) manner.

Verification of the membrane should include a third party visual inspection of the installed membrane, as a minimum, and may require integrity testing such as air lancing of the joints, dependent on the qualifications of the installer and the characteristic situation of the site. Otherwise a score of zero is awarded for the membrane and therefore the installed solution would fail to comply with BS 8485.

Once the design of ground gas precautions for the site have been finalised, we would recommend that a site specific Verification Plan is prepared in accordance with CIRIA guidance, to assist with verification of the gas protection measures.

Where the proposed dwellings are to benefit from a Buildmark warranty (i.e. NHBC, or similar) we would recommend liaison with the warranty provider with respect to the floor slab design and ground gas protection measures to ensure that the proposals fully satisfy their requirements.

9.6 Building Near Trees

Foundation depths should be designed to take into account the influence of existing, proposed or recently removed trees, assuming Clay soils of a low volume change potential in accordance with NHBC standards.

9.7 Water

Water was encountered at depths between approximately 1.60m and 2.50m begl during drilling. Subsequent monitoring revealed standing water between 0.90m and 1.62m begl over the monitoring period. The monitoring of boreholes was carried out during periods of excessively wet weather and therefore represents the likely 'worst case' shallow water levels.

Excavations may be susceptible to standing water following periods of wet weather. It should be noted that water levels may vary due to seasonal or other effects.

9.8 Excavations

Variable Made Ground and low strength water bearing soils were encountered at various depths. Instability of excavations should be anticipated across the site.

Excavations will require sidewall support for health and safety reasons, and potentially for constructional reasons where water seepages occur within the near surface granular soils. Collapse of sand pockets may result in over dig locally within excavations. The assessment of excavations and provision of support will be the responsibility of the contractor on site.

The shallow soils may be subject to further deterioration and softening if excavations are left open and exposed to wet weather.

9.9 Contamination

The soils analysed (both Made Ground and underlying Natural Strata) have been found to be generally free from elevated organic and inorganic compounds for the proposed residential with plant uptake end-use. However, there may be localised areas of Made Ground that have not been encountered during these works.

However, Asbestos (loose Amosite fibres) was locally encountered in WS3 at 0.60m begl at a concentration of 0.003% w/w ('very low') in the Made Ground.

9.10 Remediation Proposals

9.10.1 Made Ground

The general programme of remediation should be as follows:

- i. Carefully strip existing topsoil into a stockpile and test the stockpile (or multiple stockpiles) to confirm its suitability for re-use on site.
- ii. Carefully segregate the surface layer of Made Ground into a stockpile and test the stockpile to confirm its suitability for retention on site; alternatively remove the Made Ground from the site.
- iii. In the proposed gardens:
 - e) Where natural soils are present at formation level, provide nominal clean topsoil.
 - f) Where general Made Ground is exposed at formation level, test the Made Ground to confirm that the material is suitable prior to placing clean topsoil. If the Made Ground is contaminated then remove it from site.
 - g) In all gardens provide a minimum of 600mm of clean subsoil and topsoil, either by placement of capping or exposure of natural soils beneath the topsoil.
 - h) Where asbestos is present, 1.00m of clean subsoil and topsoil capping should be placed (see Section 9.10.2 below).

9.10.2 Asbestos Impacted Soils

The area of localised asbestos contaminated Made Ground identified in WS3 will predominantly be under the footprint of a proposed driveway.

Asbestos contaminated soils may remain on-site under hardstanding (proposed road or driveways) or a suitable remedial capping layer within adjacent gardens. Typically asbestos impacted soils may be allowed to remain below 1.00m below final ground level.

Alternatively the Made Ground in the area of WS3, up to 1.00m begl, and replaced with clean capping.

However, the potential release of fibres should be managed during construction works, particularly during periods of dry weather.

The potential release of asbestos fibres may be mitigated by dampening down soils during excavation.

9.11 Construction Workers

It is recommended that construction personnel involved with direct contact with the soils at the site use appropriate PPE and RPE equipment (i.e. boots, gloves, overalls etc.) together with hygiene facilities in accordance with general health and safety guidelines.

Asbestos fibres were locally identified at 'very low' levels within the shallow Made Ground soils in WS3 and there remains potential for ACMs to be present at the surface associated with the onsite sheds and any construction waste that may be present.

The presence of asbestos fibres would not necessarily mean the materials could not be retained within the site below a suitable remedial capping or retained below the existing concrete hardstanding but will require consideration of the following.

- Health and safety issues.
- A suitable Control of Asbestos Regulations (CAR-Soil 2012) risk assessment may be required.
- Provision of suitable RPE for site workers.
- Potentially asbestos fibre air monitoring to protect neighbouring building users.
- Careful excavation, segregation and storage of the potentially impacted gravels.
- Damping down of the excavated and/or exposed potentially impacted gravels.

The level of control measures required would be dependent on the quantity of asbestos present and the outcome of the CAR-Soil risk assessment.

The chosen Contractors Risk Assessment and Method Statements (RAMS) should include provision for the protection of site workers and the local environment from risks associated with asbestos handling and asbestos in soils.

A copy of this report should be included in the site health and safety file, and site workers (including future maintenance workers) should be made fully aware of the sites setting.

9.12 Historical Site Use and the Potential for Obstructions/Disturbed Ground

Based on historical mapping, buildings, a well and a pond have been present on site.

Historical mapping from 1903 and 1904 shows buildings associated with the former brick works in the north of the site and a well near the centre of the site. Figure 6 below is an extract from the 1903 historical map with the positions of the brick works buildings and the well indicated.



Figure 6: Detail of 1903 Historical Map Data showing the former Brick Works buildings and the on-site well

The well was not shown to be present after 1916 suggesting that it may have been filled or capped. No evidence of the well was found during our site investigation works but there is potential for the well to be present within the site.

If encountered the former well should be suitably stabilised (potentially using pressure grouting or backfilling) and foundations designed to avoid the feature. A site strip of surface topsoil and Made Ground to expose the Natural Strata across this area of the site may be prudent ahead of starting construction to attempt to identify whether any remains of the former well remain present on site.

The circular building shown on the 1903 map (see Figure 6 above) persists on maps until 1938, the other brickworks buildings were not recorded after 1916.

Figure 7 below is an extract from the 1963 historical map which shows the position of a large pond in the east of the site.

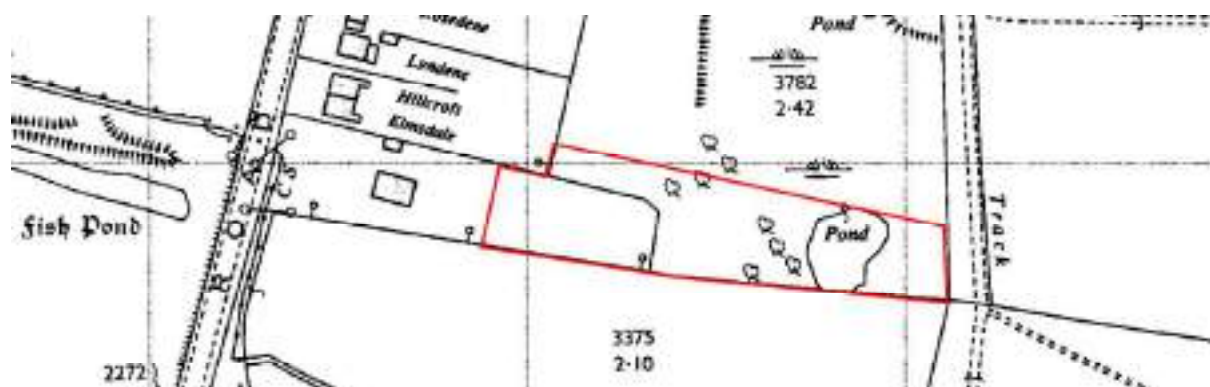


Figure 7: Detail of 1963 Historical Map Data showing the former on-site pond

During any construction works there is the potential for old foundations/infrastructure from historical buildings/structures or areas of disturbed ground to be encountered. The former pond may represent an area of deeper, potentially soft Made Ground.

These circumstances may result in the requirement to locally deepen/alter foundations and/or may reveal localised areas of previously unforeseen ground conditions, which if encountered should be treated in accordance with the protocols details in section 9.13 of this report.

9.13 Unforeseen Circumstances

Should any areas of potentially contaminated soil be encountered during site construction works, we would recommend consultation with GeoDyne to ensure that our recommendations continue to apply.

Any potentially contaminated soils should be left in-situ and subjected to further assessment, to potentially include further chemical testing and risk assessment.

The following procedure should be adhered to if any areas of previously unidentified suspected contamination are encountered during the development of the site:

- i. Suspected contaminated material will remain in-situ.
- ii. GeoDyne to be notified and will inform the Local Authority Environmental Health Department (if appropriate).
- iii. GeoDyne will undertake a visual assessment of the possible contamination, followed by appropriate sampling/testing (as necessary).
- iv. If necessary, an appropriate strategy to remove/remediate the contamination will be submitted to the Local Authority.

9.14 Licences, Permits, Registrations, Plans & Approvals

The Contractor/Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site.

These may include any Materials Management Plans (MMPs), Site Waste Management Plans (SWMPs) and/or Environmental Permits/Exemptions as necessary to enable the completion of the proposed works.

A MMP will require a Qualified Person Declaration (QPD) and verification.

9.15 Utilities

We would recommend that this report is supplied to utility companies (including water supply), and that their recommendations relating to appropriate supply pipes are adhered to.

9.16 Waste

The laboratory test results indicate that the natural soils may be regarded as suitable for re-use on site. However, where soils are excavated and surplus to requirements it may be necessary to consider off-site disposal or re-use of the natural soil arisings on alternative sites. For the purpose of off-site disposal, the results of the existing soils testing should be provided to landfill operators in the first instance to determine disposal costs. Waste Acceptance Criteria (WAC) testing may be required to ultimately determine the waste classification and disposal costs.

9.17 Statutory Consultation

A copy of this report should be supplied to the Local Planning Authority by the Client in support of any planning application in order to obtain written acceptance of the reports contents in advance of commencing construction.

9.18 Further Works

- Deep boreholes (cable percussive or rotary) for pile design information.
- Observation of ground in north central area of the site for evidence of former brickworks buildings.
- Any Made Ground in boreholes or potentially significant contamination should be subject to further assessment following the protocols detailed in Section 9.13 of this report.

APPENDIX I

Site Location Plan

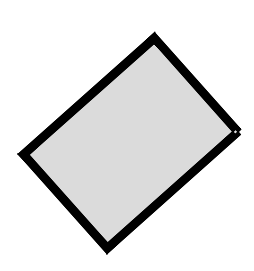


Reproduced from the Ordnance Survey Map with the Permission of the Controller of His Majesty's Stationery Office. Crown Copyright Reserved. Licence No. LAN1001274.

Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Site Location Plan	Revision		
		Figure No.	43207/01	

APPENDIX II

Proposed Site Layout



Proposed site boundary

Red line site area: 0.74 acres
0.30 hectare

Proposed tree planting

Existing tree planting (root protection in red)

Removed trees

1.8 BW - 1.8m brick wall (bricks to match dwellings)

Application
21/00607/FUL
approved 10
January 2022

COPYRIGHT NOTICE:
This drawing is the copyright of the Architects
and may not be reproduced or used except
by written permission.

Notes

This drawing is to be read in conjunction with all relevant drawings and specifications.

Scale from this drawing: linear dimensions (millimeters). All levels and dimensions to be checked on site and dimensional discrepancies are to be brought to the immediate attention of HSP Architects Ltd. Responsibility cannot be accepted for alteration and/or deviation from this design without written approval of HSP Architects Ltd.

Copyright reserved. This drawing may only be used for the client and location specified in the first block. It may not be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system.

Not for any works commencing on site, the engineer is to be contacted regarding the current status, if the engineer is not available, the architect is to be contacted.

Professional approval of this drawing:

The engineer certifies that the construction of the NBCC or Local Authority not-withstanding anything shown indicated on these drawings. All workmanship and materials to be the best of their respective kind and all equivalent of the appropriate British Standard Code of Practice. All relevant dimensions and levels to be checked on site and discrepancies are to be brought to the immediate attention of HSP Architects Ltd.

This drawing is to be read in conjunction with clients specification/employers requirements and structural drawings.

E 230420 MG Bin collection area added to site entrance
D 230117 MG Plans & elevs revised following client review
C 221207 MG Additional dwellings added
B 210827 MG Levels added
A 210705 MG Garage updated following client comments

Revision Notes.
Drawing Status.

PLANNING

hssp

architects

Pera Business Park, Nottingham Road
Melton Mowbray, LE13 0PB

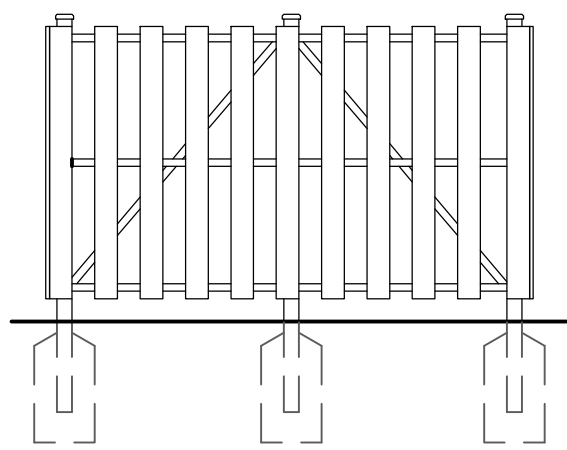
Telephone: 01664 563 288 Fax: 01664 563 360
E-Mail: info@hssparchitects.co.uk Web: www.hssparchitects.co.uk
Project:

Proposed houseing on land at rear of 223 Station Road, Earl Shilton, Leicestershire.

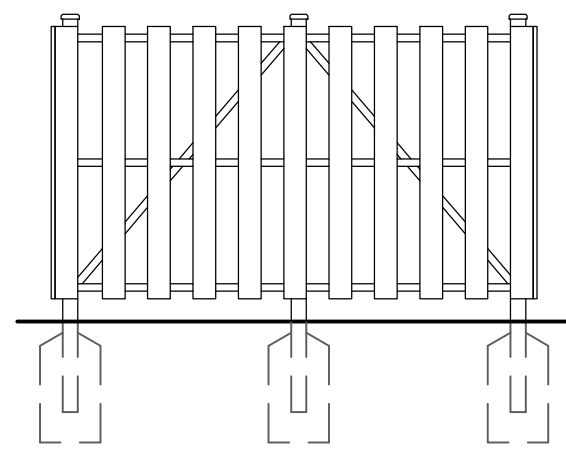
Title.	Proposed site plan
--------	--------------------

Scale. 1:200 & 1:50	Drawn. MG	Checked. JB	Date. June '21
Drawing No. 7637-03-01			Revision. E

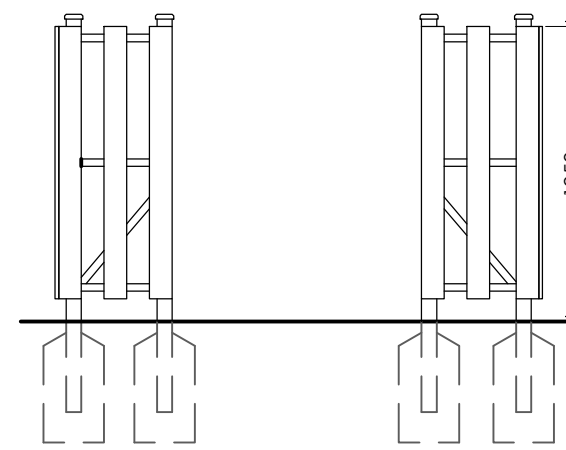
HSSP



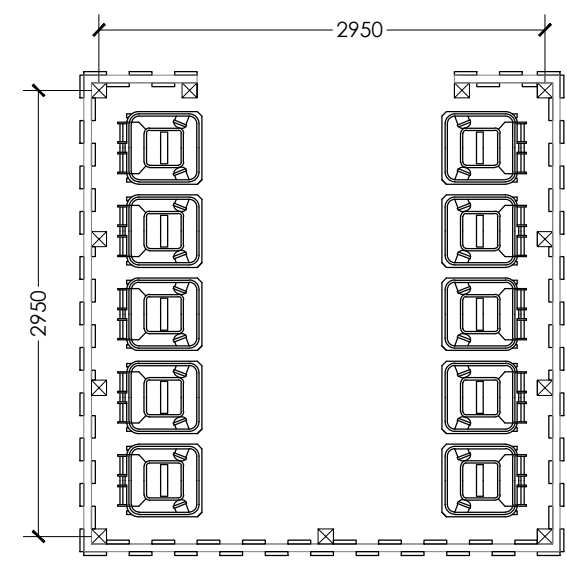
Bin store - rear elevation



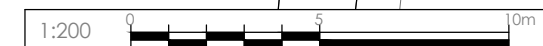
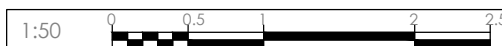
Bin store - side elevation



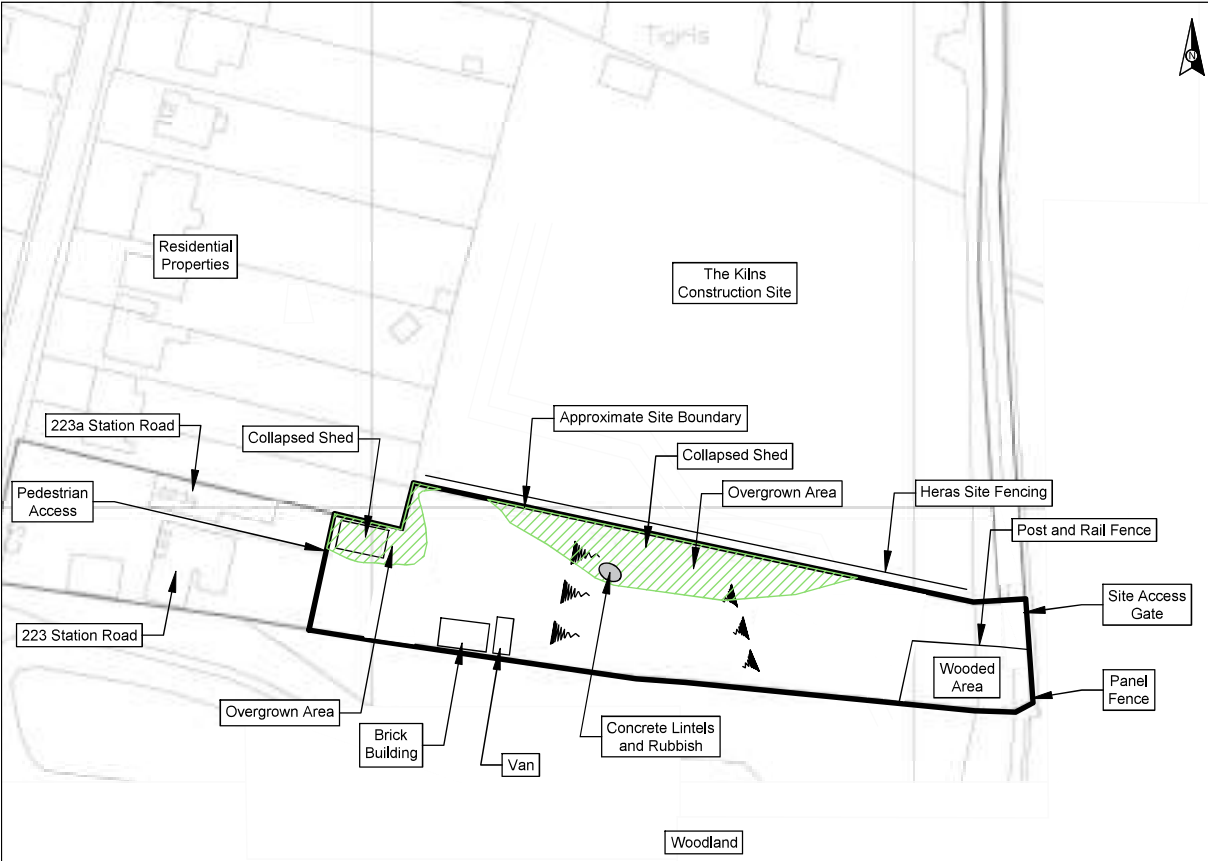
Bin store - front elevation



Bin store Pla



APPENDIX III
Annotated Site Plan



- © This drawing and the details depicted are the copyright of GeoDyne Limited and may not be reproduced except by written permission.
- Reproduced from the Ordnance Survey Map with the Permission of the Controller of His Majesty's Stationery Office. Crown Copyright Reserved, Licence No. LAN1001274.

Project No.	43207
Client	Colin Burton Builders Ltd
Project	223 Station Road, Earl Shilton, Leicestershire
Title	Annotated Site Plan
Drawn By	ACH
Checked By	BP
Approved By	RS
Scale	NTS
Date Drawn	14/12/2023
Revision	
Figure No.	43207/02



Nottingham 0115 962 0001
Derby 01332 290 798
info@geodyne.co.uk
www.geodyne.co.uk

APPENDIX IV

General Views of Site



- © This drawing and the details depicted are the copyright of GeoDyne Limited and may not be reproduced except by written permission.
- Reproduced from the Ordnance Survey Map with the Permission of the Controller of His Majesty's Stationery Office. Crown Copyright Reserved, Licence No. LAN1001274.

Project No. 43207

Client Colin Burton Builders Ltd

Project
223 Station Road, Earl Shilton,
Leicestershire

Title
Site Plan and General Views of Site

Drawn By ACH

Checked By BP

Approved By RS

Scale NTS

Date Drawn 14/12/2023

Revision

Figure No. 43207/03



Nottingham 0115 962 0001
Derby 01332 290 798

info@geodyne.co.uk
www.geodyne.co.uk

Drawing based on Site Location Plan provided by the Client Ref: 7637-01-01 Rev A Dated: 27/06/2019

APPENDIX V
Historical Plans

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

Quarry Gravel Pit Sand Pit
 Clay Pit Shingle Ballast Heap
 Sleeping Machinery Flat Rock
 Marsh Beach Cliffs
 Rough Pasture Fens Wood
 Meadowland Brushwood Orchard
 Rail Rf Foot Shipping Mounds
 Ferry Waterfall Lock
 Trip Station Bench-Mark Surface Level
 Arrow showing flow of water Arterial (aka of)
 Cutting Embankment
 Railway crossing Road Level Crossing Road crossing Railway
 Railway crossing Railway Road over Road Road over Road

[illegible]

Legend	
	Rock
	Buildings
	Positioned Boulder
	Non-Continuous Tree (surveys)
	Non-Continuous Trees (not surveyed)
	Isolated Tree
	Captain's Cabin
	High Ground
	Direction of water flow
	Electricity Transmission Line
	Electricity Pole
	Beach Mark
	Building with Building Base
	Roofed Building
	Roofed Building
	Chaplain's/Community boundary
	Diast. boundary
	County boundary
	Boundary post stone
	Boundary marking central pole (these always appear in grouped pairs or groups of 3/4/5)

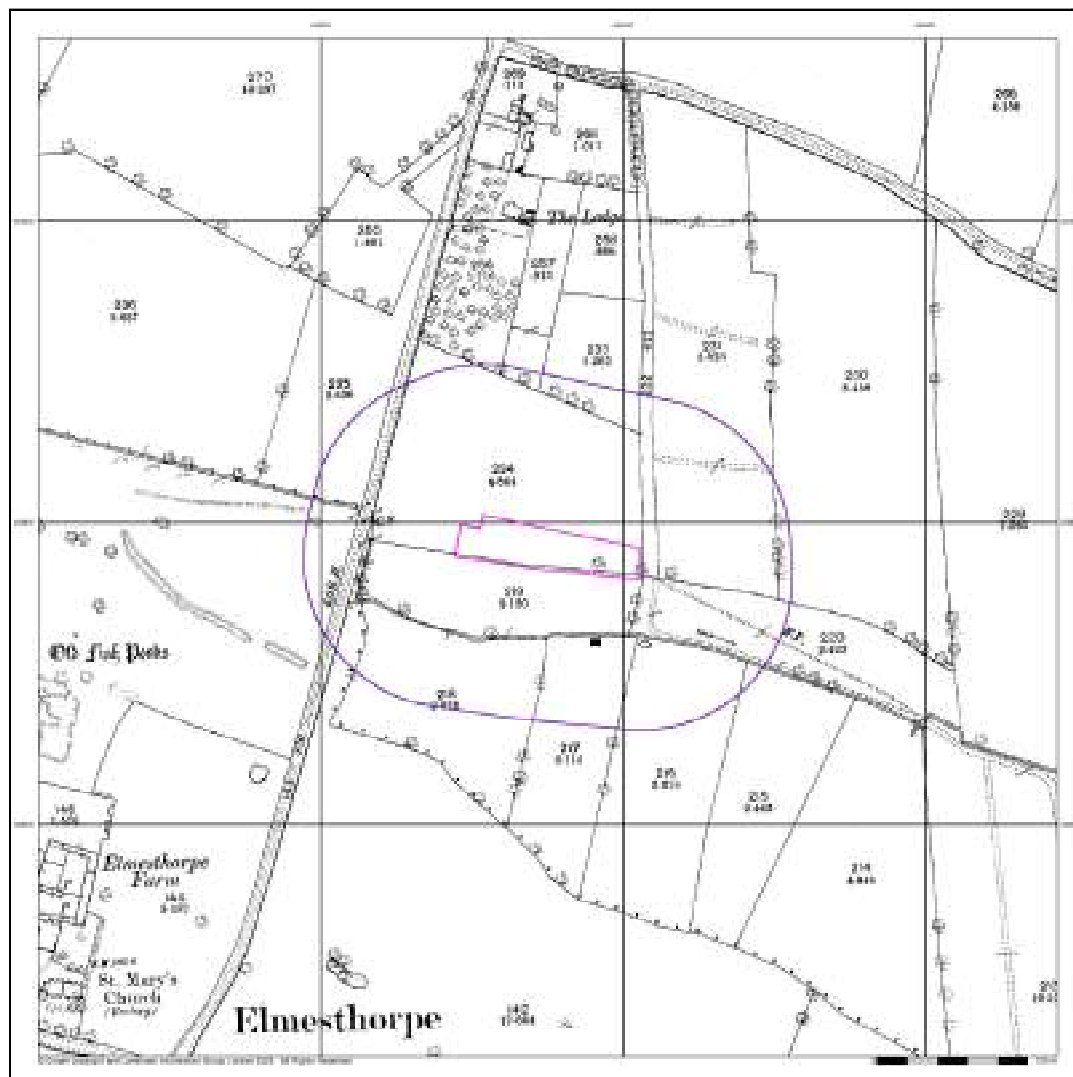


Mapping Type	Scale	Date	Project
Leicestershire	1:2,500	1888	2
Leicestershire	1:2,500	1903	3
Leicestershire	1:2,500	1916	4
Ordinance Survey Plan	1:2,500	1963 - 1969	5
Ordinance Survey Plan	1:2,500	1969 - 1985	6
Additional SIlMs	1:2,500	1971 - 1979	7
Ordinance Survey Plan	1:2,500	1985	8
Additional SIlMs	1:2,500	1985	9
Additional SIlMs	1:2,500	1989	10
Large-Scale National Grid Data	1:2,500	1994	11
Historical Aerial Photography	1:2,500	1999	12

A 10x10 grid with a 2x2 square highlighted in the center. The highlighted square contains the number 100. The grid is labeled with numbers 0 to 9 along the top and left edges.

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Station Road, Earl Shilton



GeoDyne

Leicestershire

Published 1888

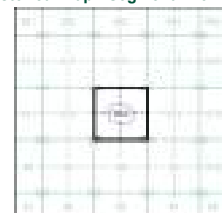
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

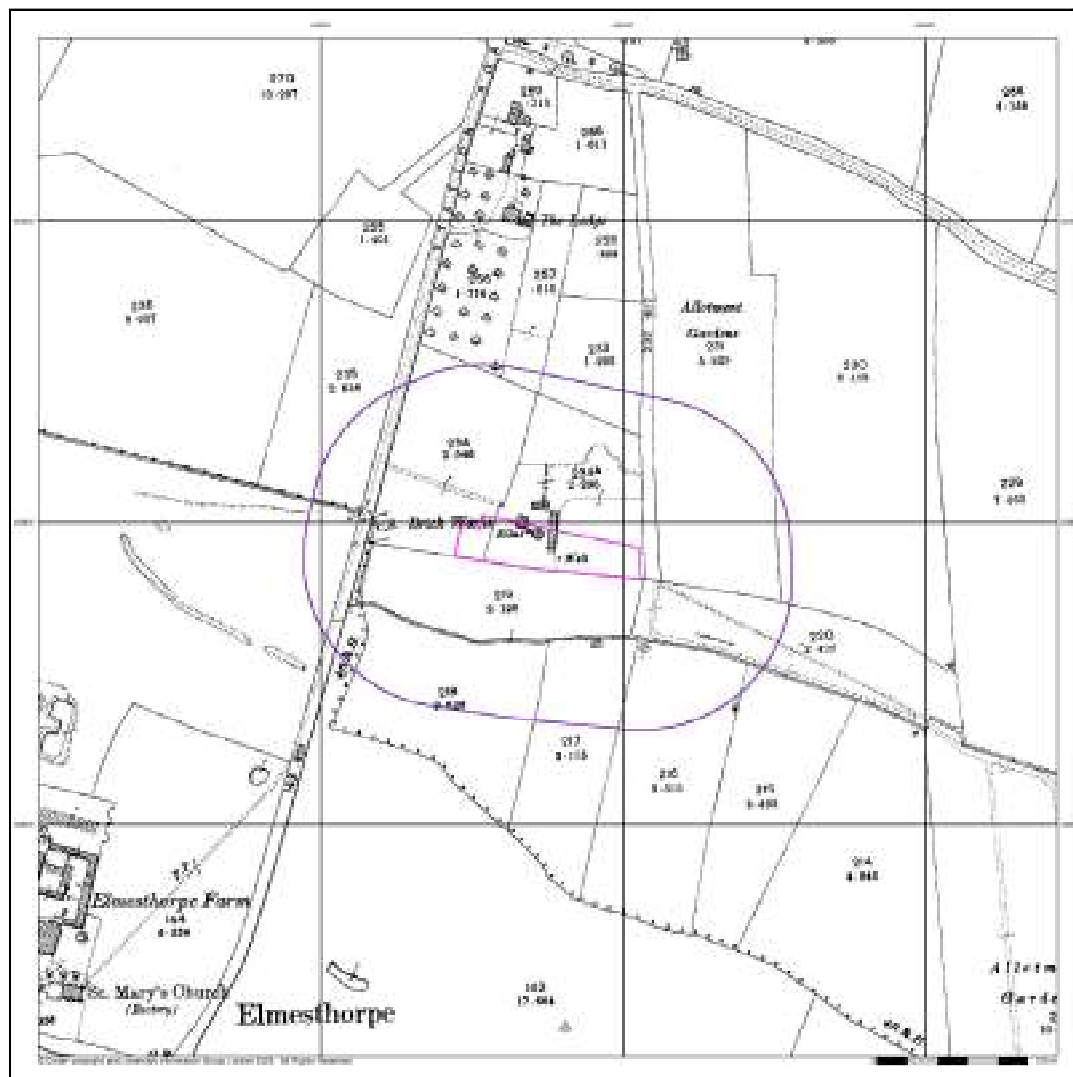
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark

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



GeoDyne

Leicestershire

Published 1903

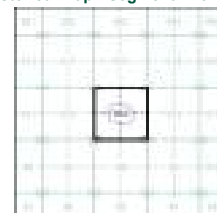
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

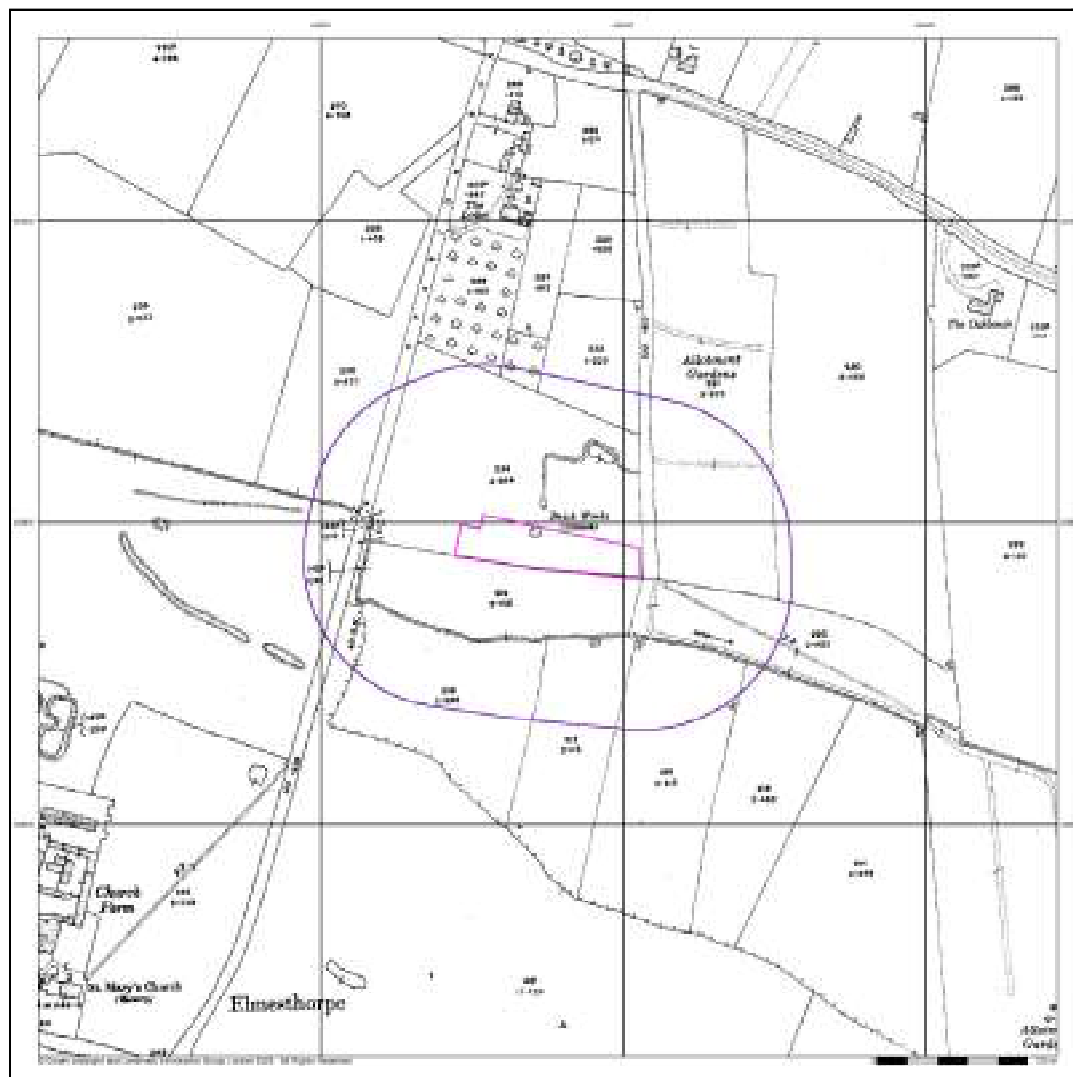
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark
A Landmark Information Group Service

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



GeoDyne

Leicestershire

Published 1916

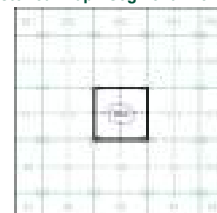
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

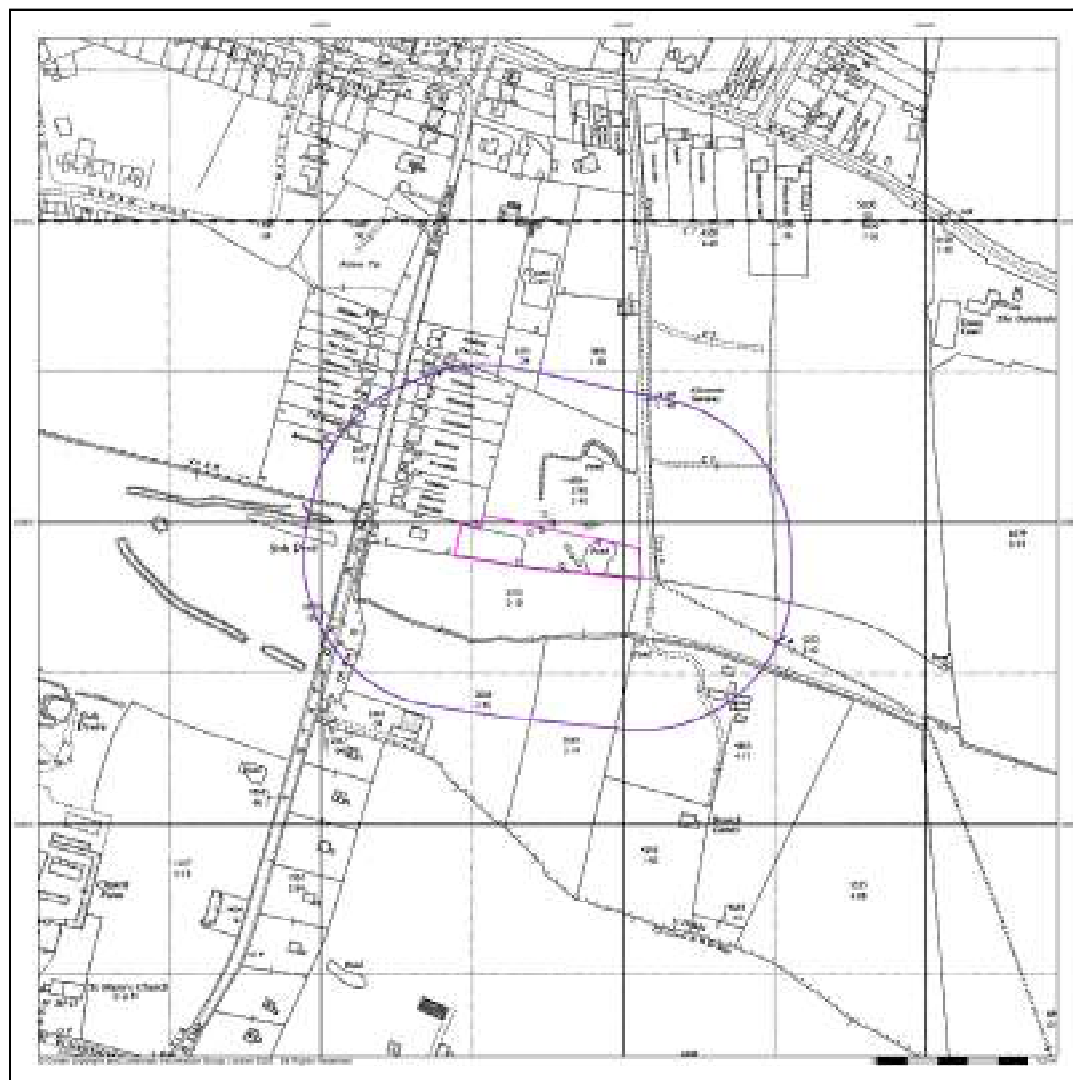
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark
Information Group

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



GeoDyne

Ordnance Survey Plan

Published 1963 - 1969

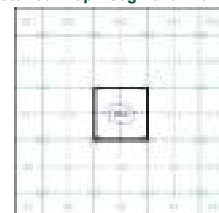
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

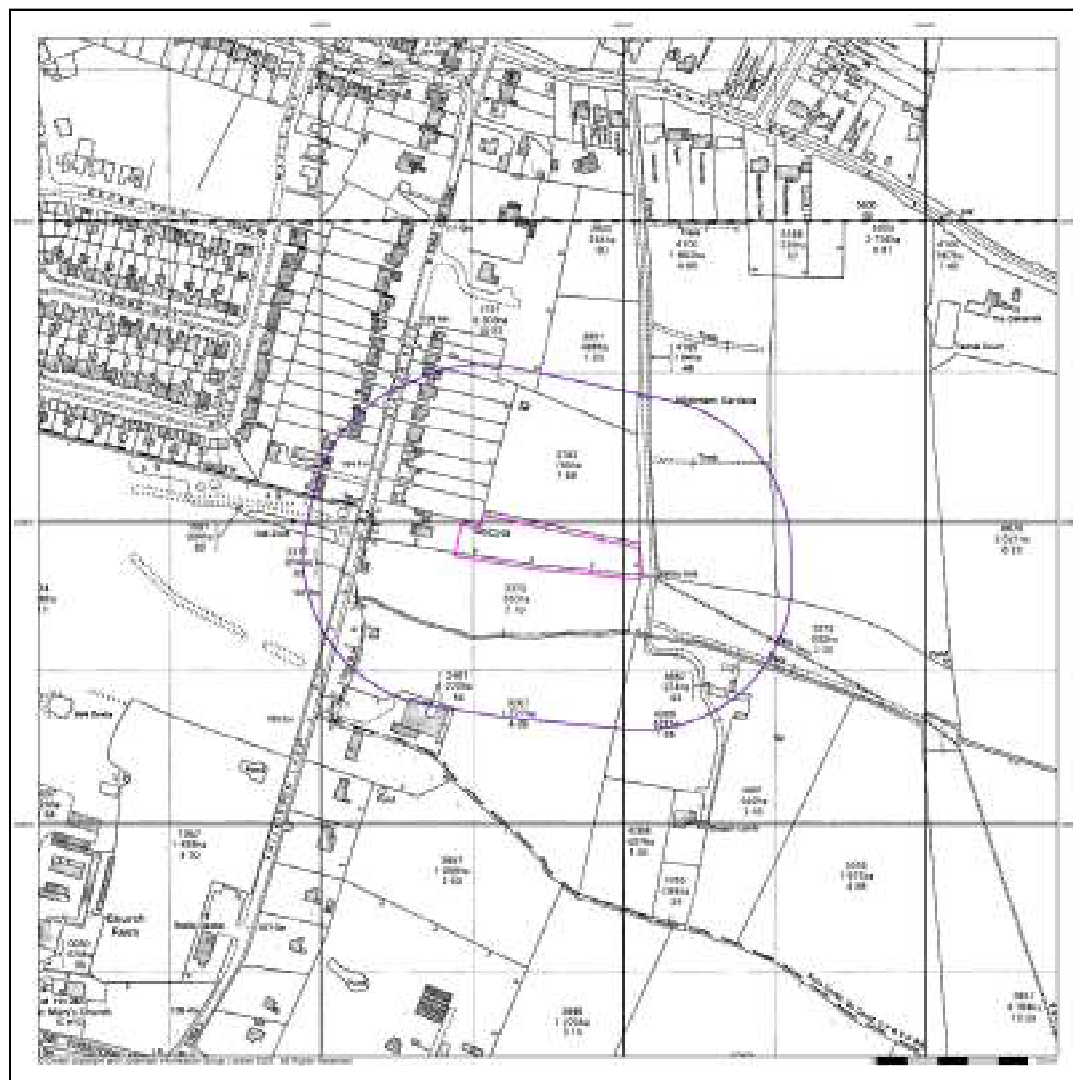
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark

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



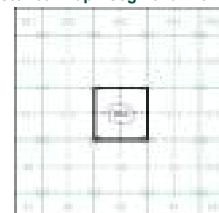
Ordnance Survey Plan
Published 1969 - 1985
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

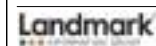


Order Details

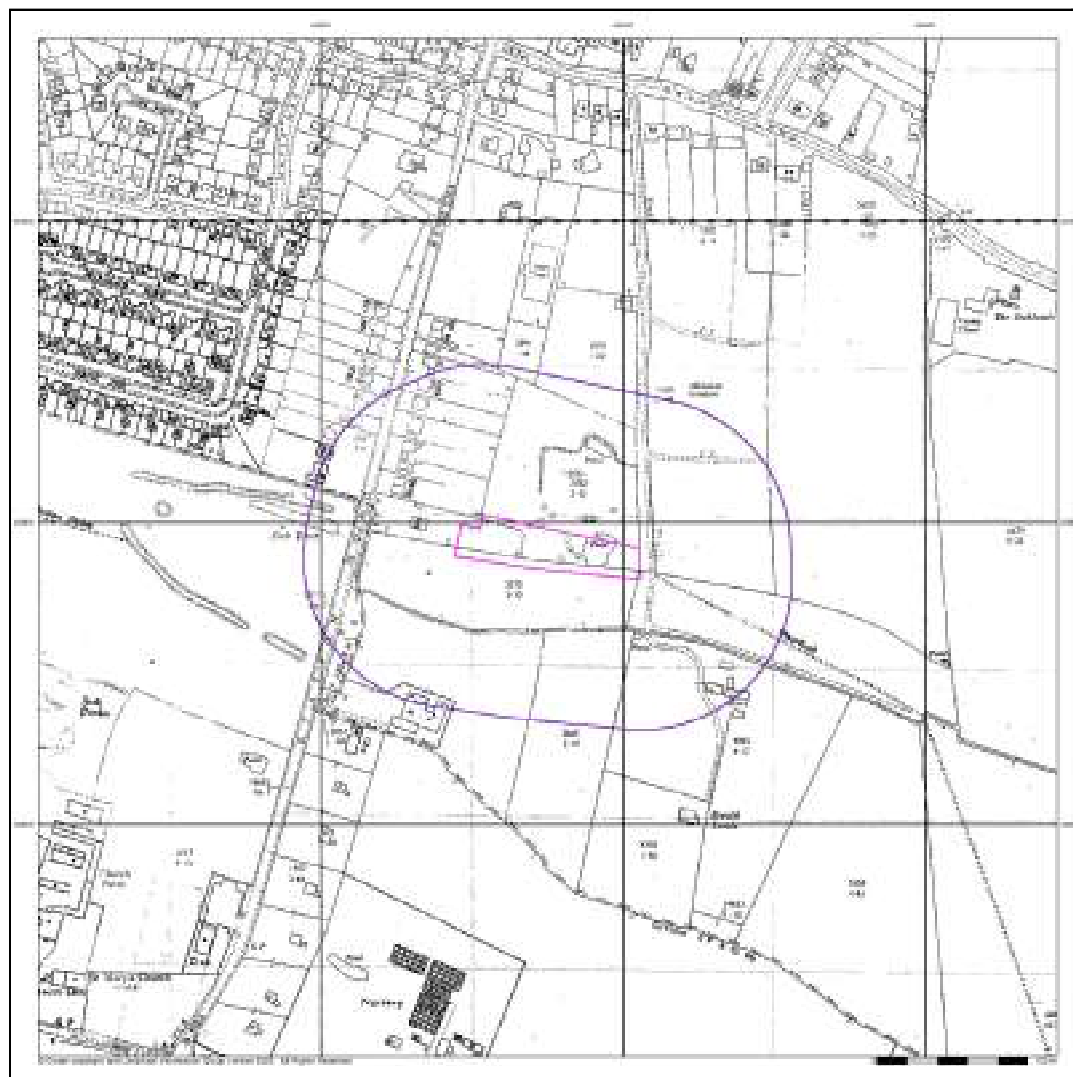
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton



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



GeoDyne

Additional SIMs

Published 1978 - 1979

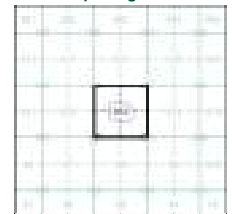
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

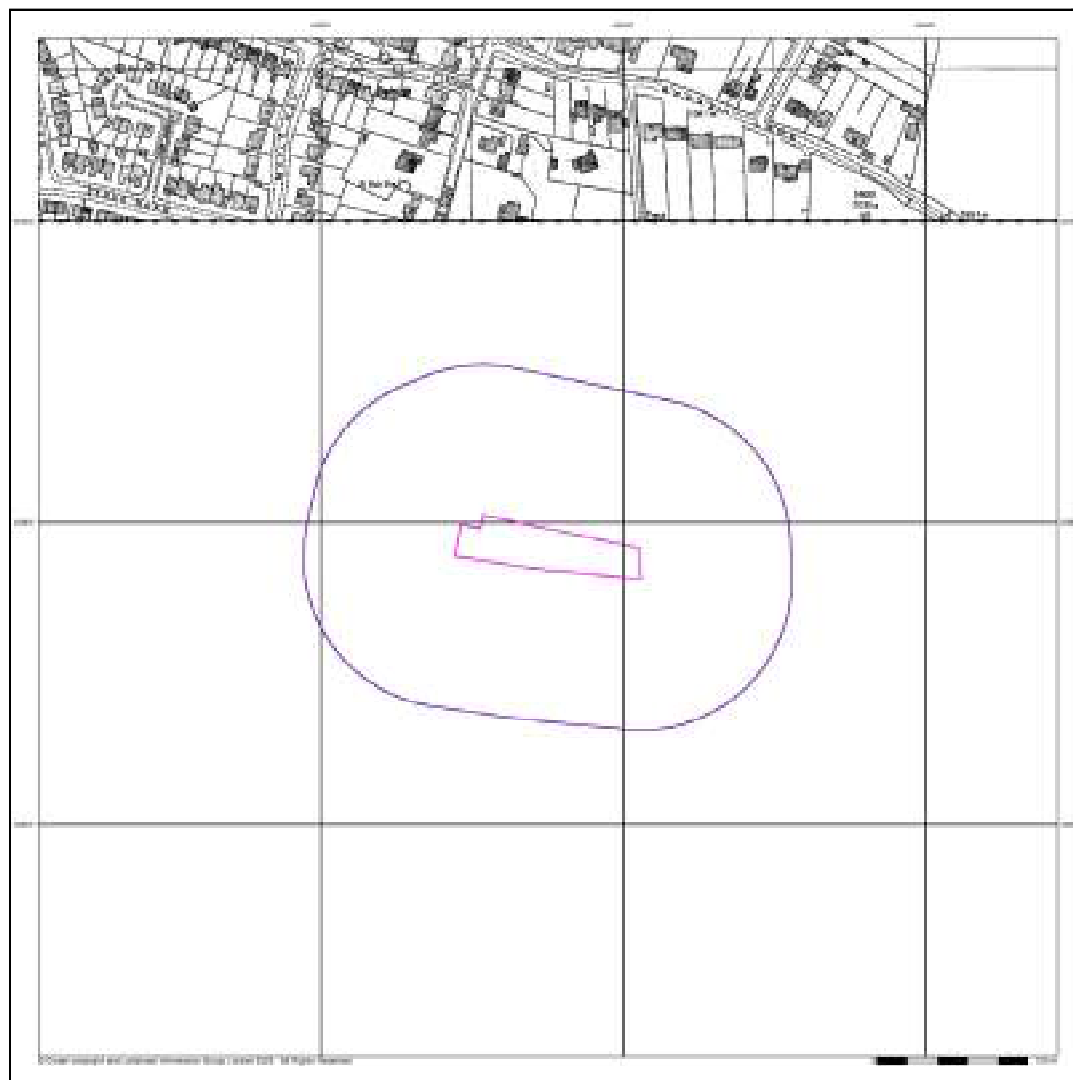
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark
A Landmark Information Group Service

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



Ordnance Survey Plan

Published 1983

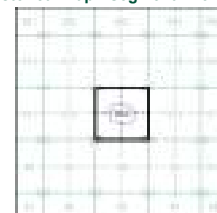
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

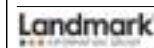


Order Details

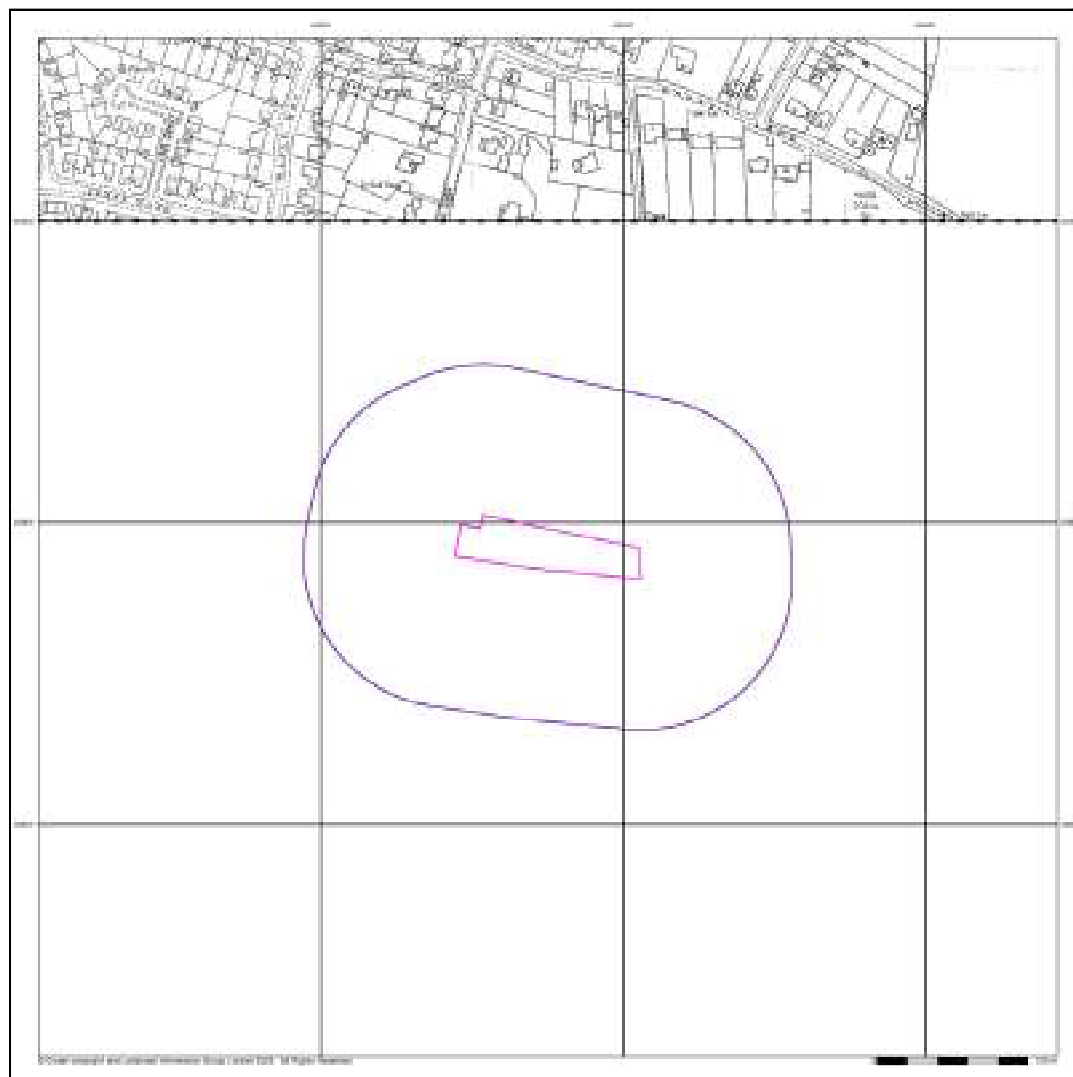
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton



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



GeoDyne

Additional SIMs

Published 1988

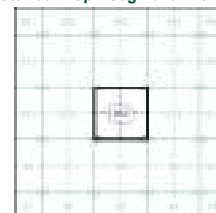
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

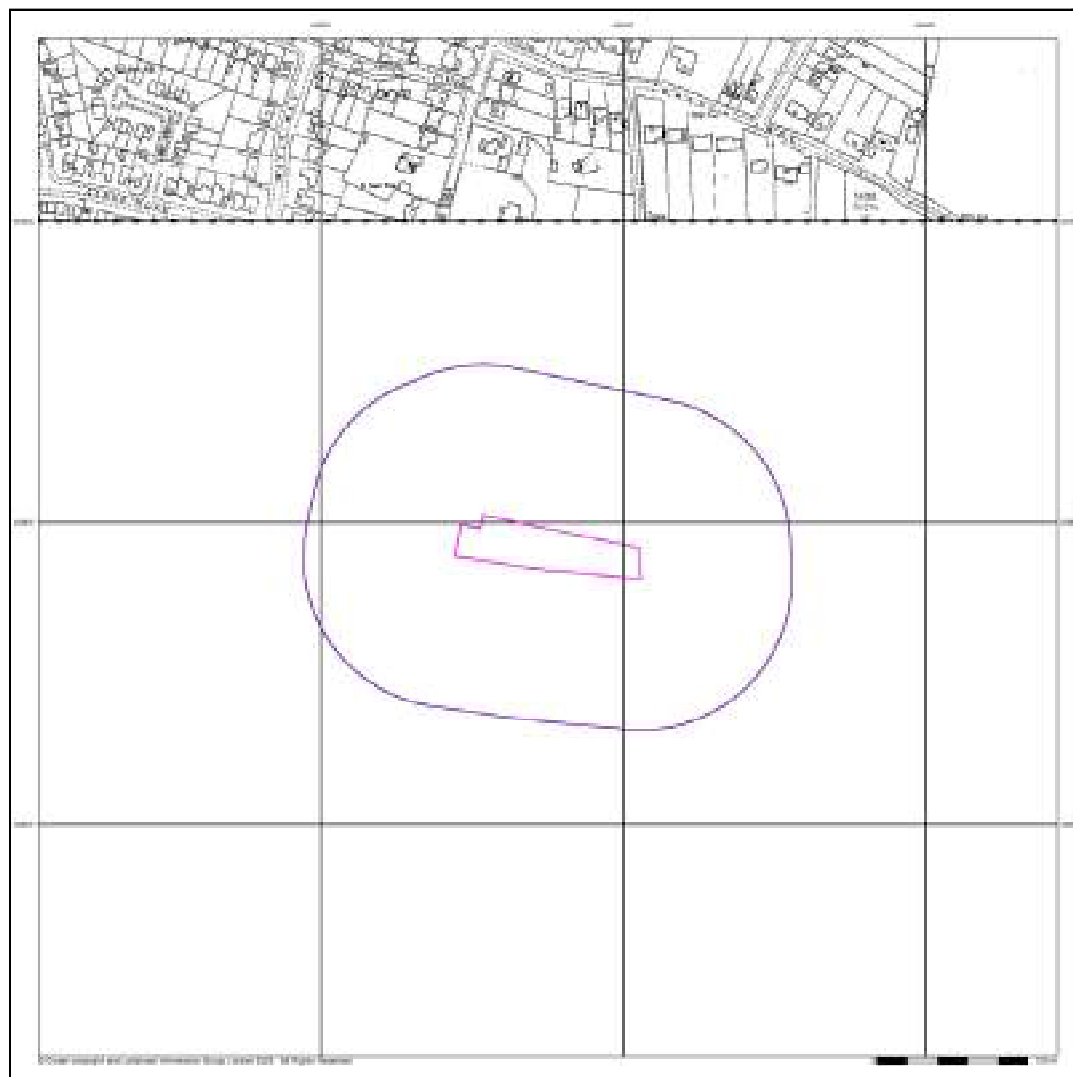
Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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

A Landmark Information Group Service v50.0 23-Nov-2023 Page 9 of 12



GeoDyne

Additional SIMs

Published 1989

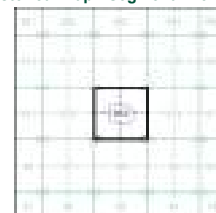
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

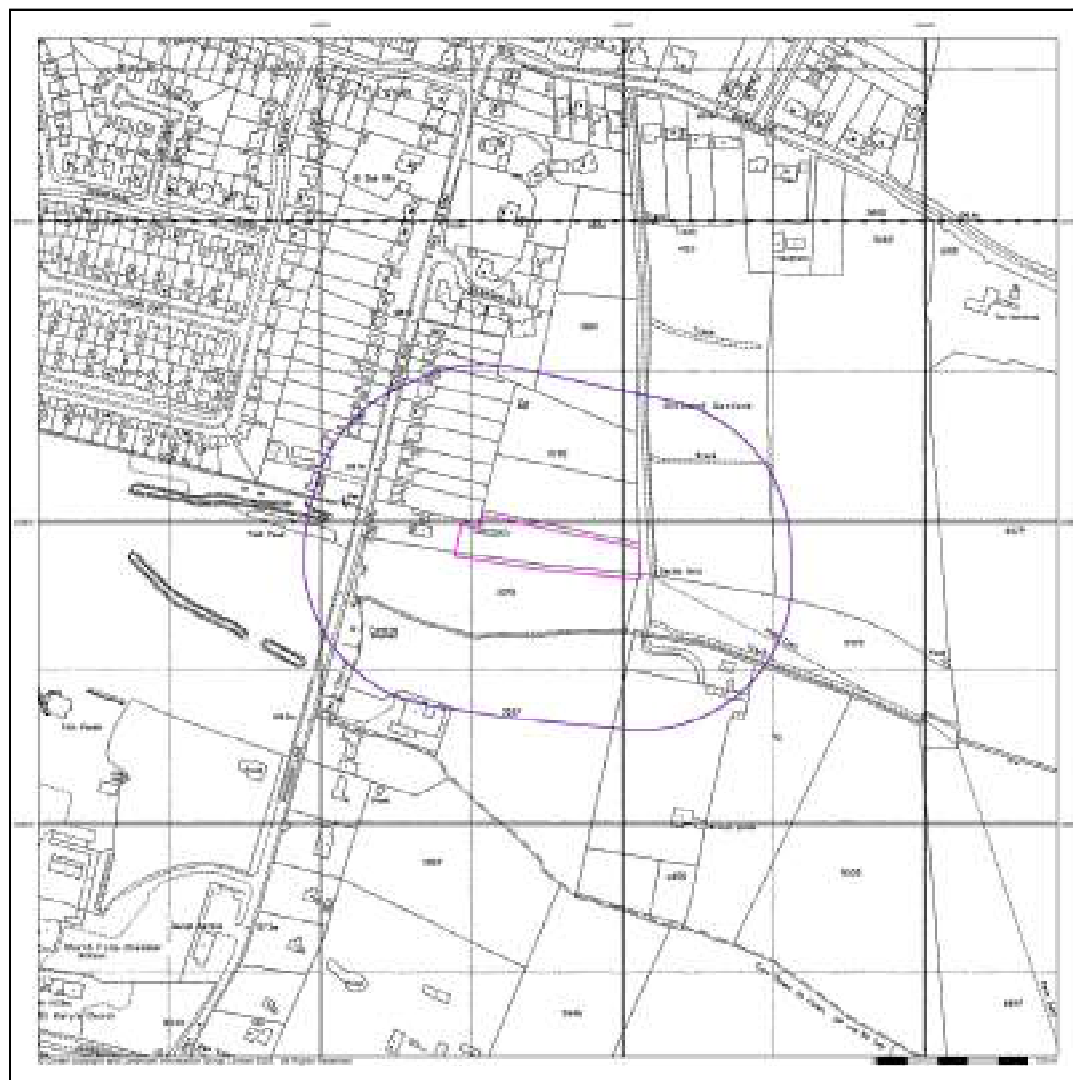
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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



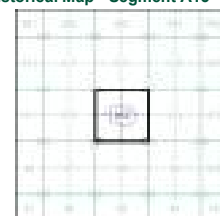
GeoDyne
Large-Scale National Grid Data
Published 1994
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

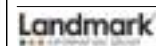


Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

Station Road, Earl Shilton



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



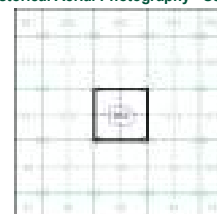
GeoDyne

Historical Aerial Photography

Published 1999

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

Historical Aerial Photography - Segment A13



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 100

Site Details

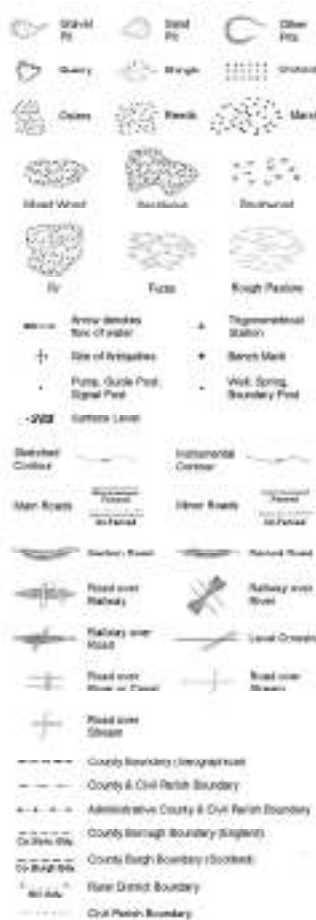
Station Road, Earl Shilton

Landmark
Aerial Photography

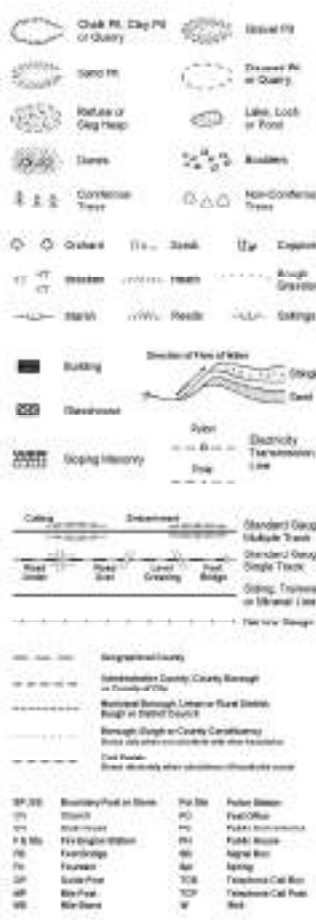
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.emscheck.co.uk

Historical Mapping Legends

Ordnance Survey County Series 1:10,560



Ordnance Survey Plan 1:10,000



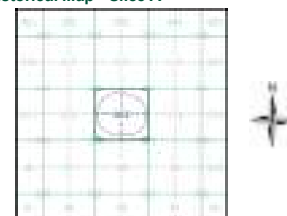
1:10,000 Raster Mapping



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Project
Leicestershire	1:10,560	1886 - 1887	2
Leicestershire	1:10,560	1904	3
Leicestershire	1:10,560	1919	4
Leicestershire	1:10,560	1938	5
Ordnance Survey Plan	1:10,000	1955	6
Ordnance Survey Plan	1:10,000	1968	7
Ordnance Survey Plan	1:10,000	1980	8
10K Raster Mapping	1:10,000	2000	9
10K Raster Mapping	1:10,000	2006	10
VectorMap Local	1:10,000	2023	11

Historical Map - Slice A

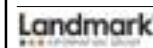


Order Details

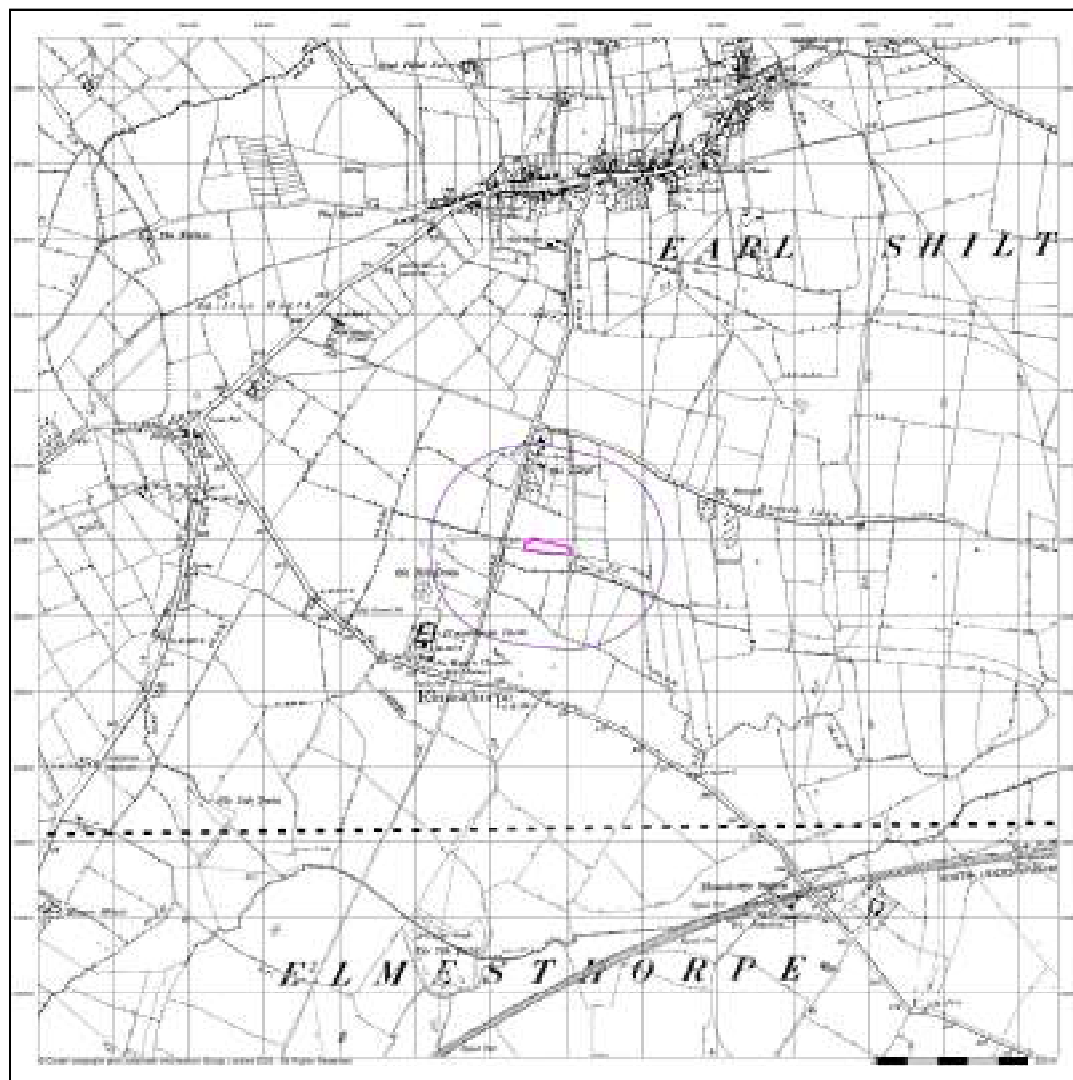
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton



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



GeoDyne

Leicestershire

Published 1886 - 1887

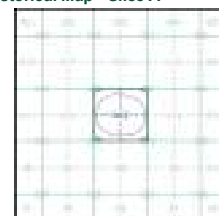
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

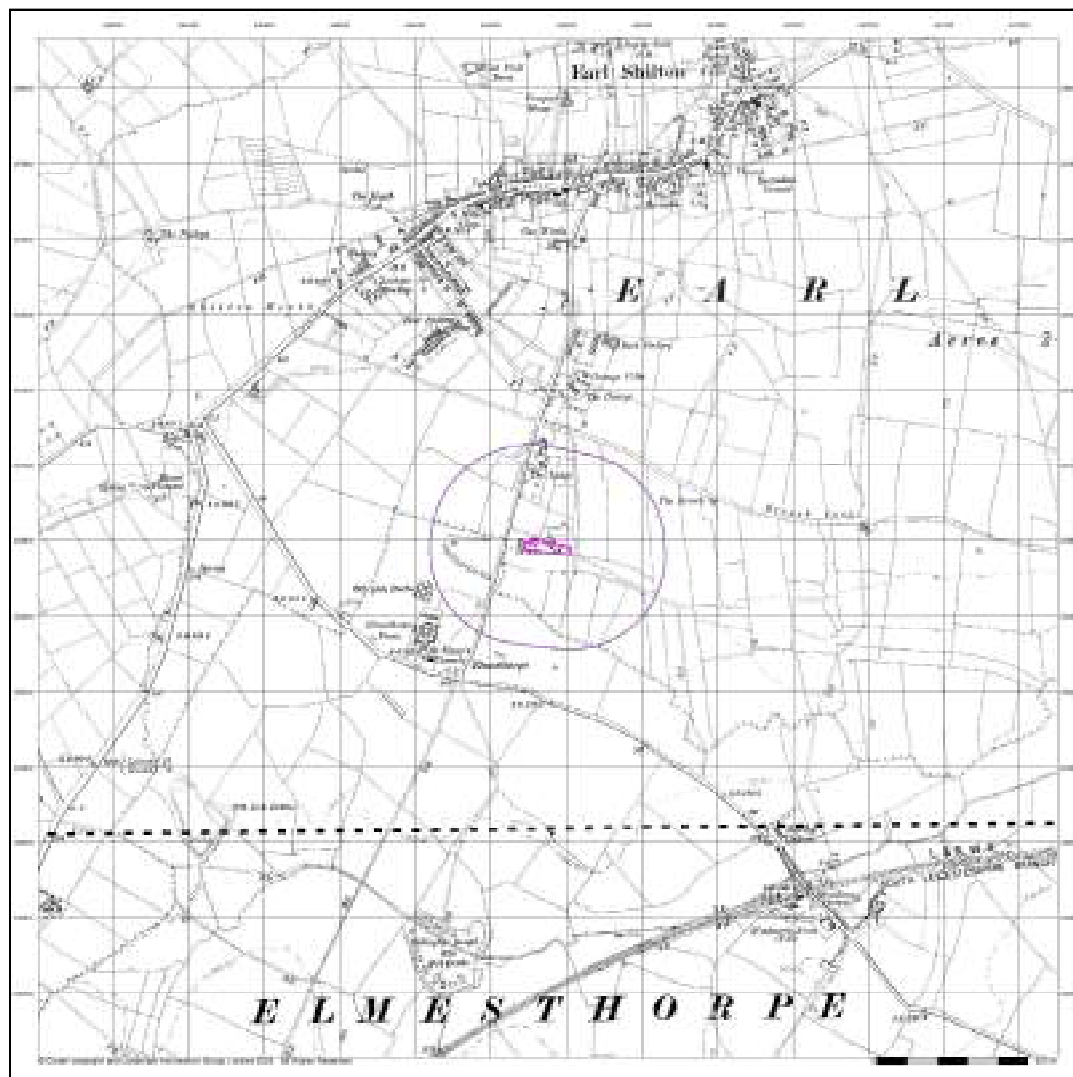
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark

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



GeoDyne

Leicestershire

Published 1904

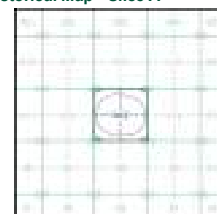
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

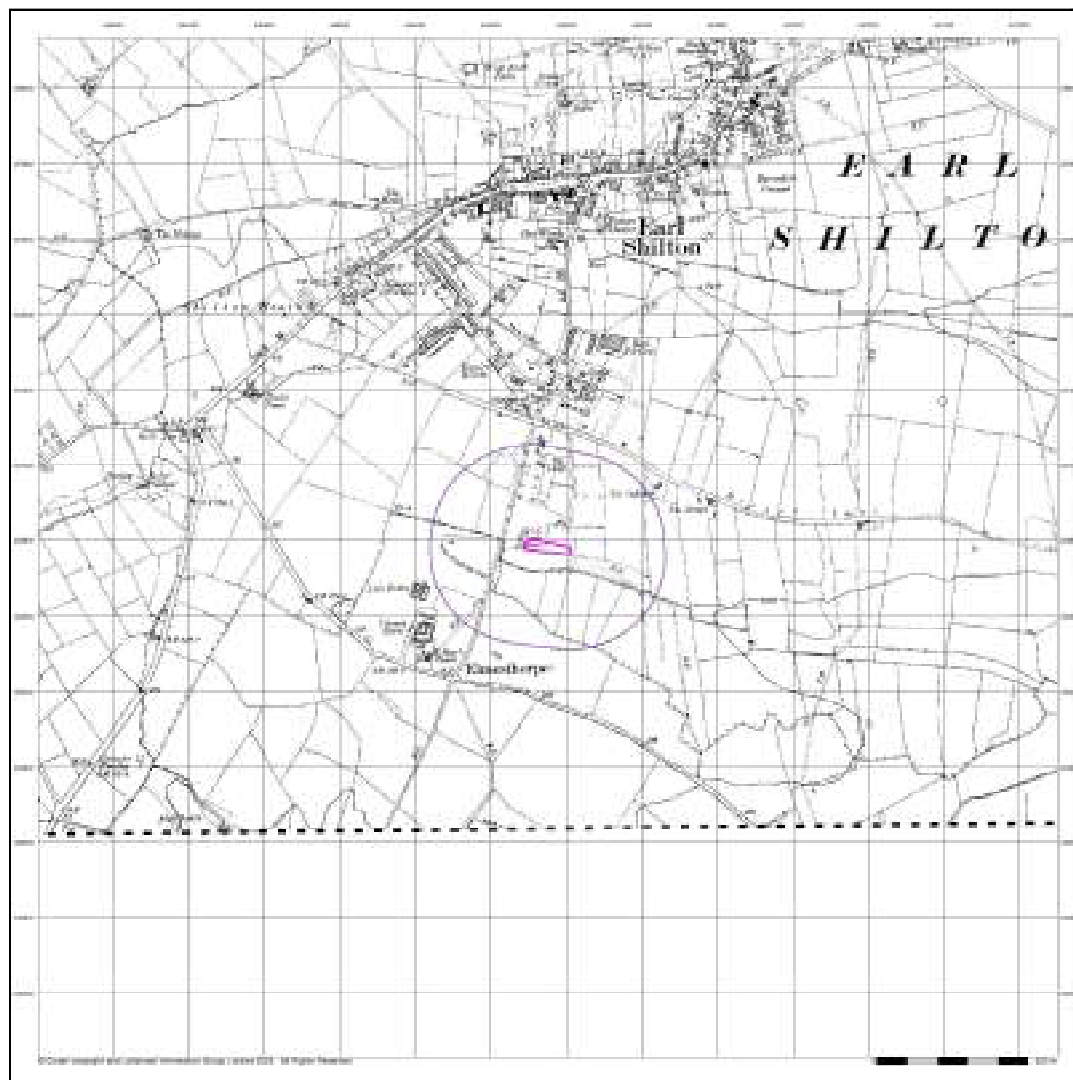
Site Details

Station Road, Earl Shilton

Landmark

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

A Landmark Information Group Service v50.0 23-Nov-2023 Page 3 of 11



Leicestershire

Published 1919

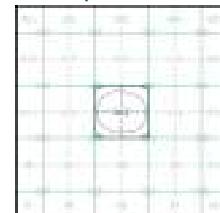
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

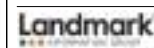


Order Details

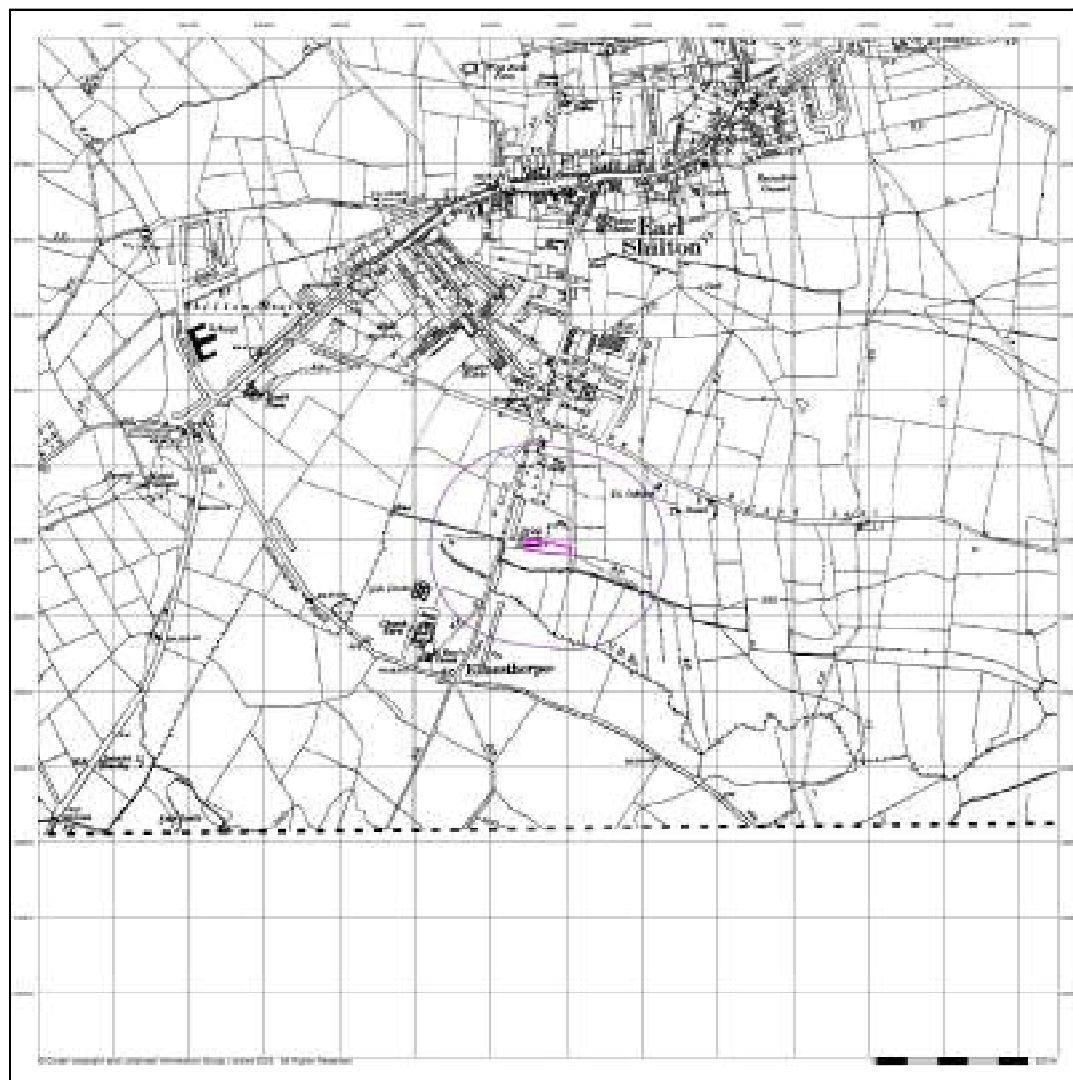
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton



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



Leicestershire

Published 1938

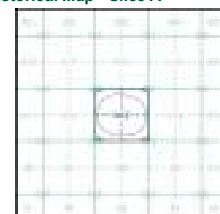
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

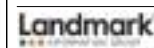


Order Details

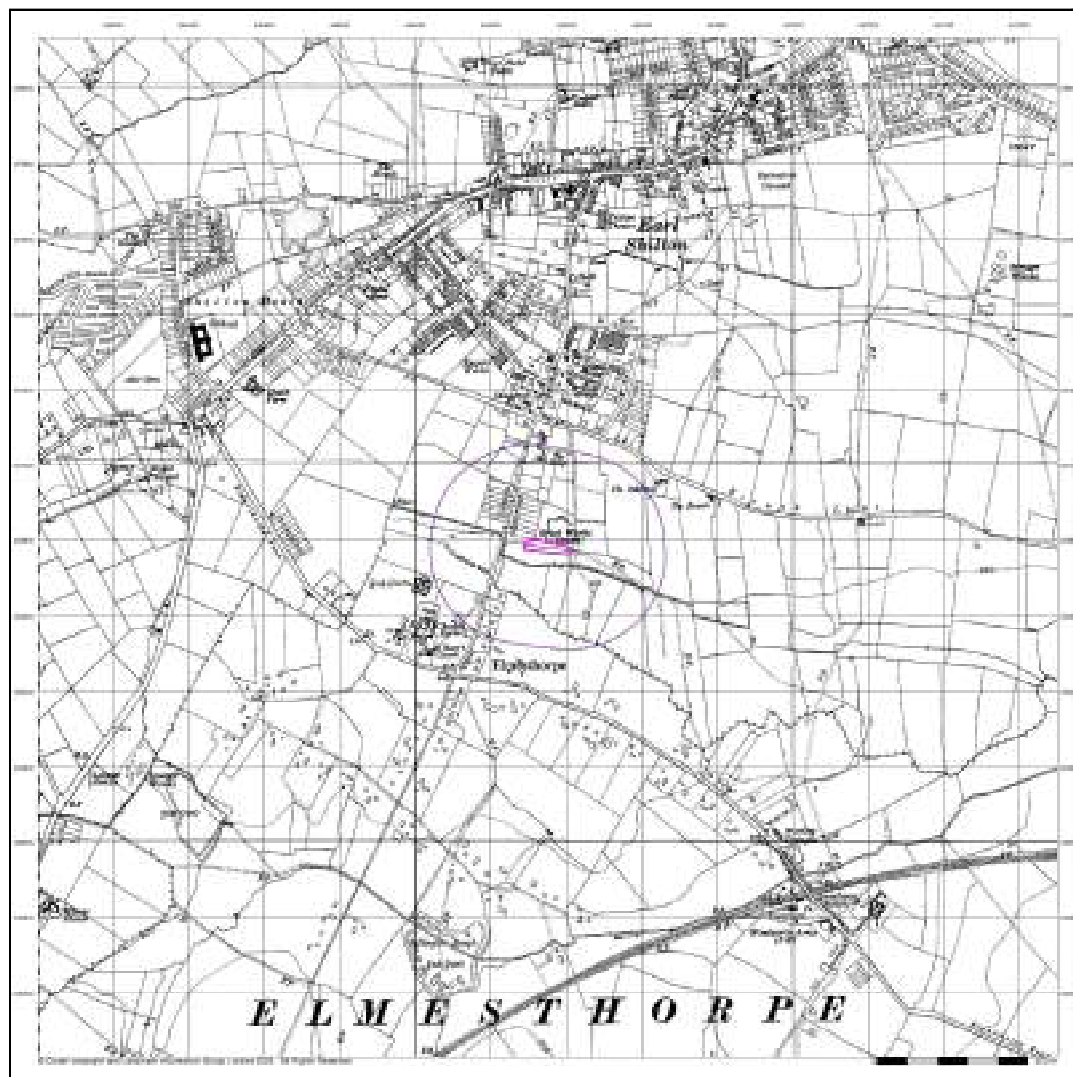
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton



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



GeoDyne

Ordnance Survey Plan
Published 1955

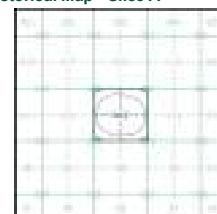
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

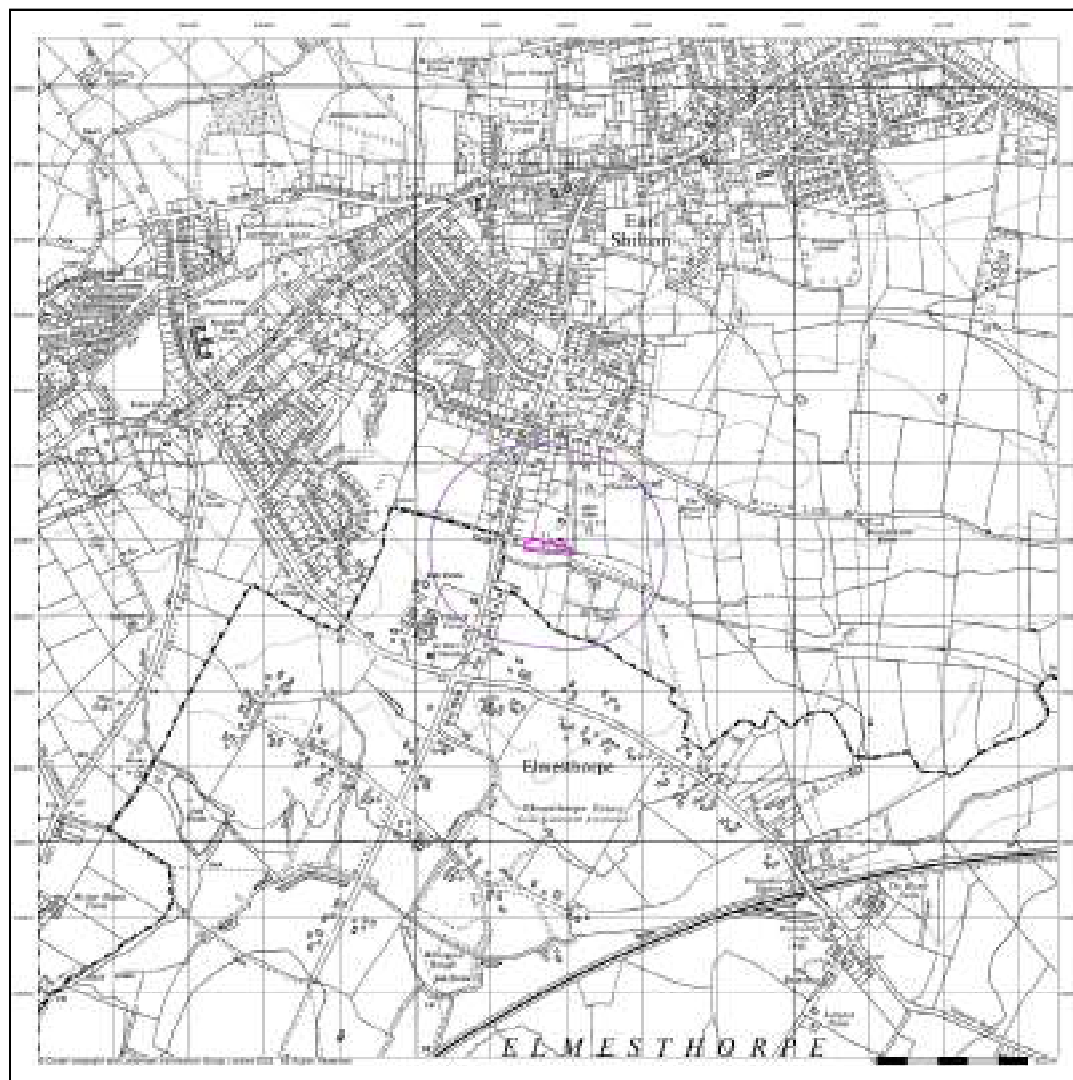
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark

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



Ordnance Survey Plan Published 1968

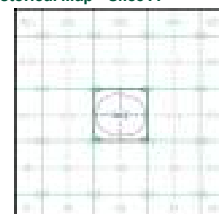
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,000 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,000 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

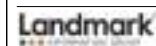


Order Details

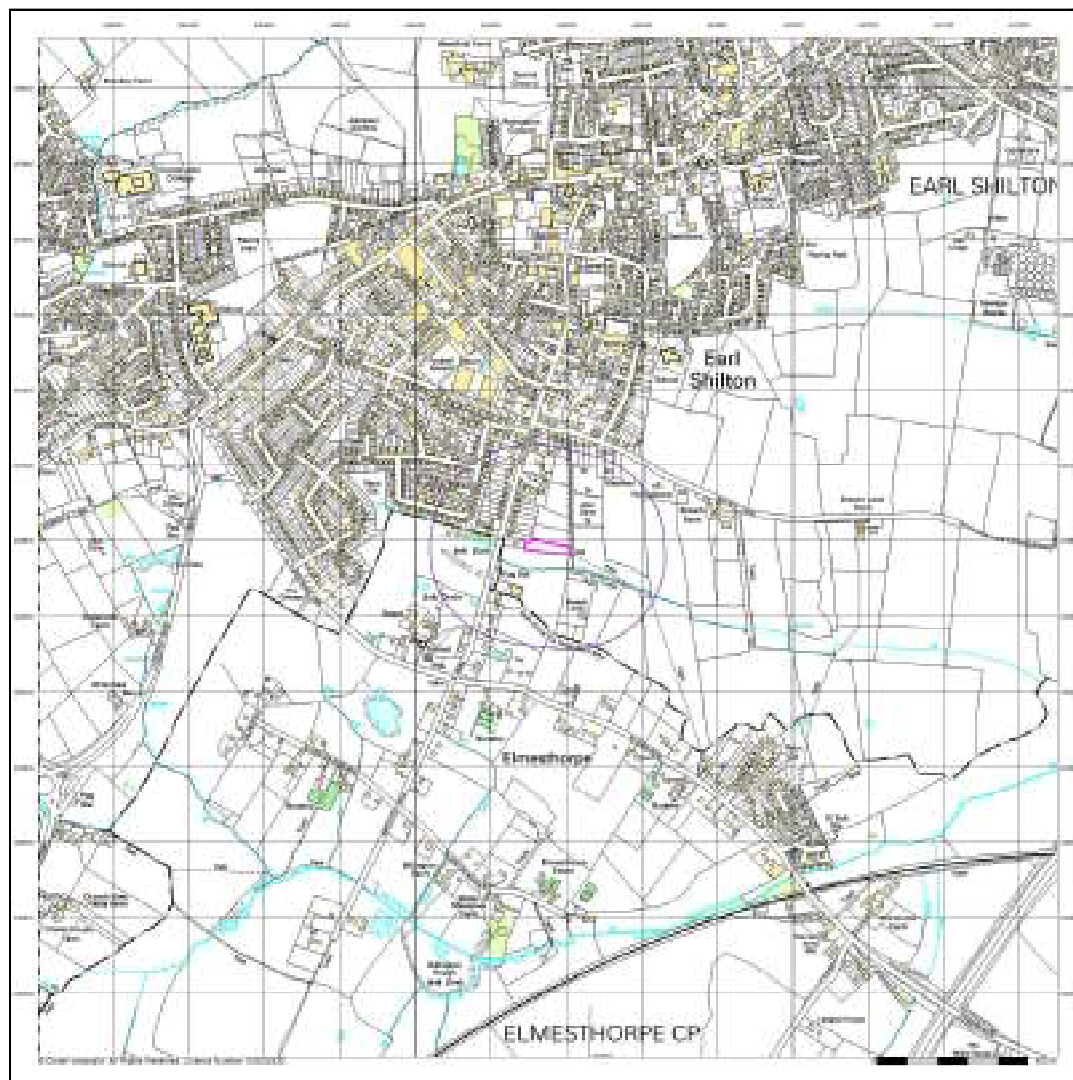
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton



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



GeoDyne

10k Raster Mapping

Published 2000

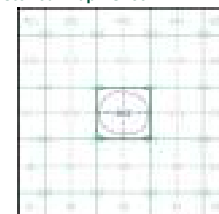
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

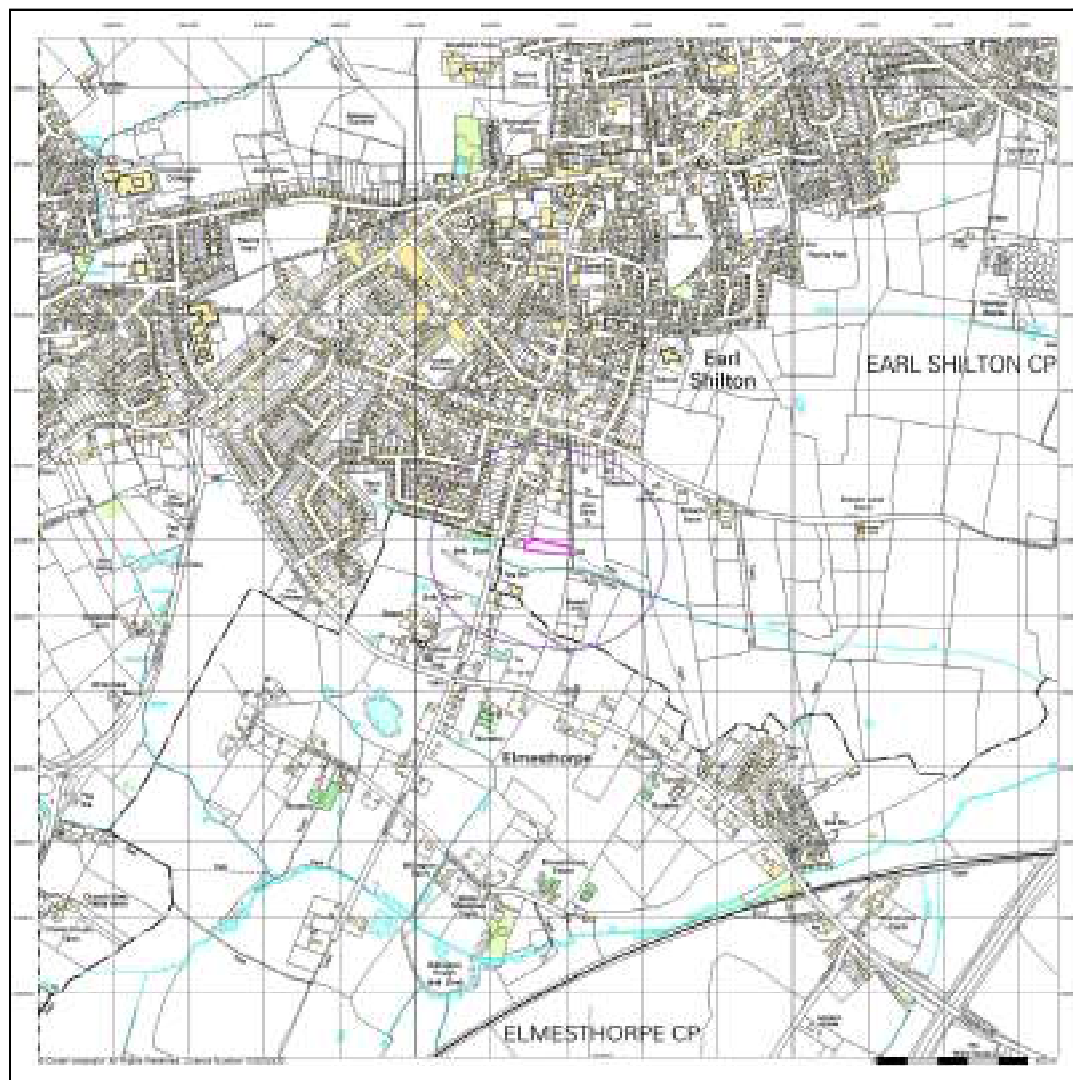
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark

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



GeoDyne

10k Raster Mapping

Published 2006

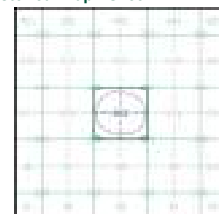
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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

APPENDIX VI

Landmark Geological Maps

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

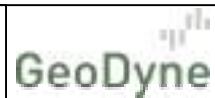
Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	BOSW	Bosworth Clay Member	Clay and Silt	Not Supplied - Anglian
	ODT	Oadby Member	Diamicton	Not Supplied - Anglian
	THT	THRUSINGTON MEMBER	Diamicton	Not Supplied - Anglian
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Not Supplied - Cromerian
	WIGS	WIGSTON MEMBER	Sand and Gravel	Not Supplied - Quaternary
	WOSG	Wolston Sand and Gravel	Sand and Gravel	Not Supplied - Quaternary
	RTD1	River Terrace Deposits, 1	Sand and Gravel	Not Supplied - Quaternary
	RTD2	River Terrace Deposits, 2	Sand and Gravel	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	EDW	Edwalton Member	Mudstone	Not Supplied - Carnian
	COT	Cotgrave Sandstone Member	Sandstone	Not Supplied - Carnian
	EDW	Edwalton Member	Siltstone, Dolomitic	Not Supplied - Carnian
	GUN	Gunthorpe Member	Mudstone	Not Supplied - Anisian
	MMG	Mercia Mudstone Group	Mudstone	Not Supplied - Early Triassic



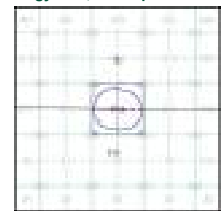
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps. The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	2	Map ID:	1
Map Sheet No:	155	Map Sheet No:	169
Map Name:	Coalville	Map Name:	Coventry
Map Date:	2010	Map Date:	1994
Bedrock Geology:	Available	Bedrock Geology:	Available
Superficial Geology:	Available	Superficial Geology:	Available
Artificial Geology:	Available	Artificial Geology:	Available
Faults:	Not Supplied	Faults:	Not Supplied
Landslip:	Available	Landslip:	Not Available
Rock Segments:	Not Supplied	Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

Order Number: 325985920_1_1
Customer Reference: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details:

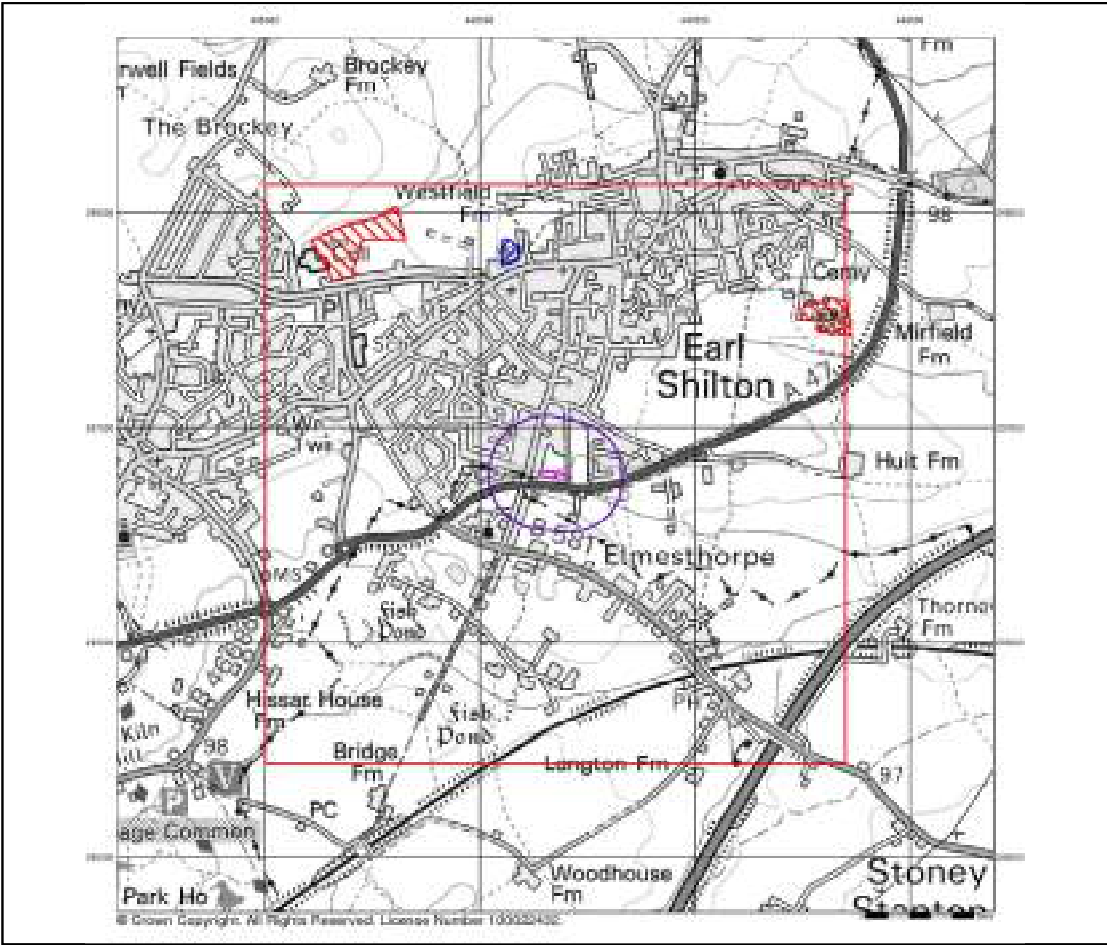
Station Road, Earl Shilton

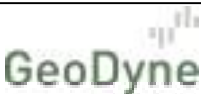


Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envisatrock.co.uk

v15.0 23-Nov-2023

Page 1 of 5





Artificial Ground and Landslip

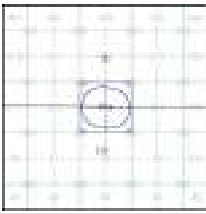
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

Order Number:	325985920_1_1
Customer Reference:	43207
National Grid Reference:	446350, 296780
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	250

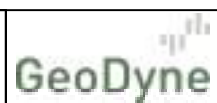
Site Details:

Station Road, Earl Shilton

Landmark

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

v15.0 23-Nov-2023



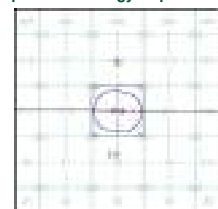
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

Order Number: 325985920_1_1
Customer Reference: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details:

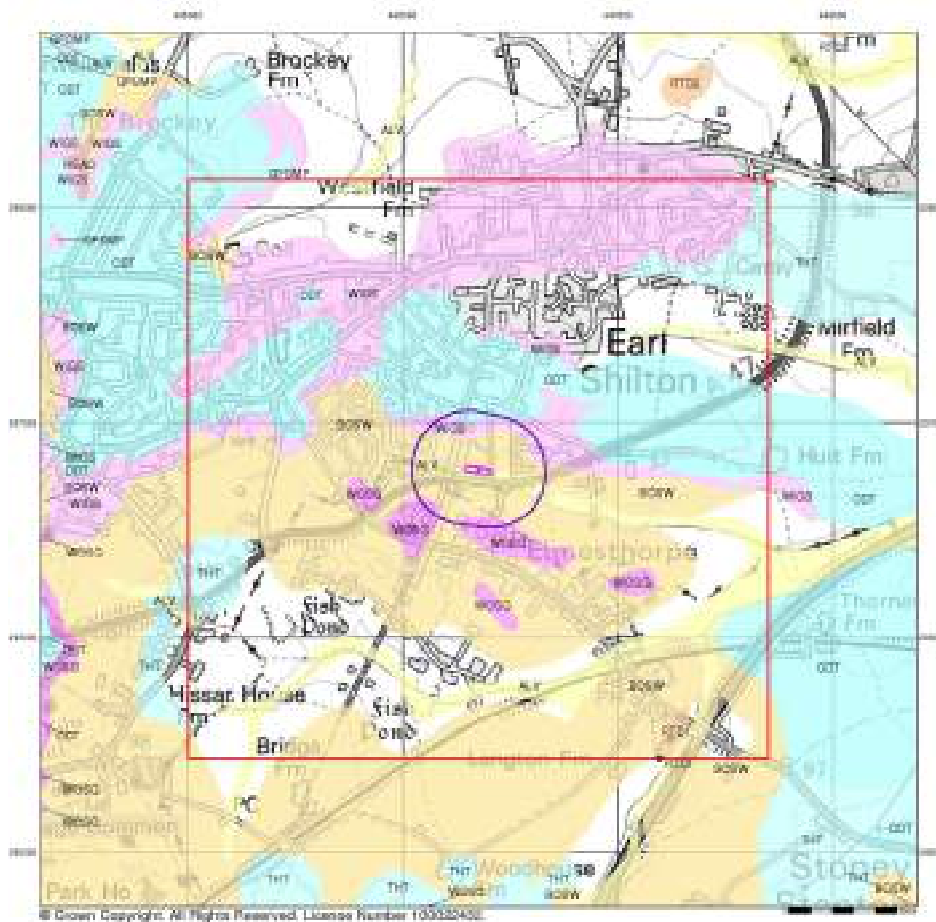
Station Road, Earl Shilton

Landmark
Geological Information Services

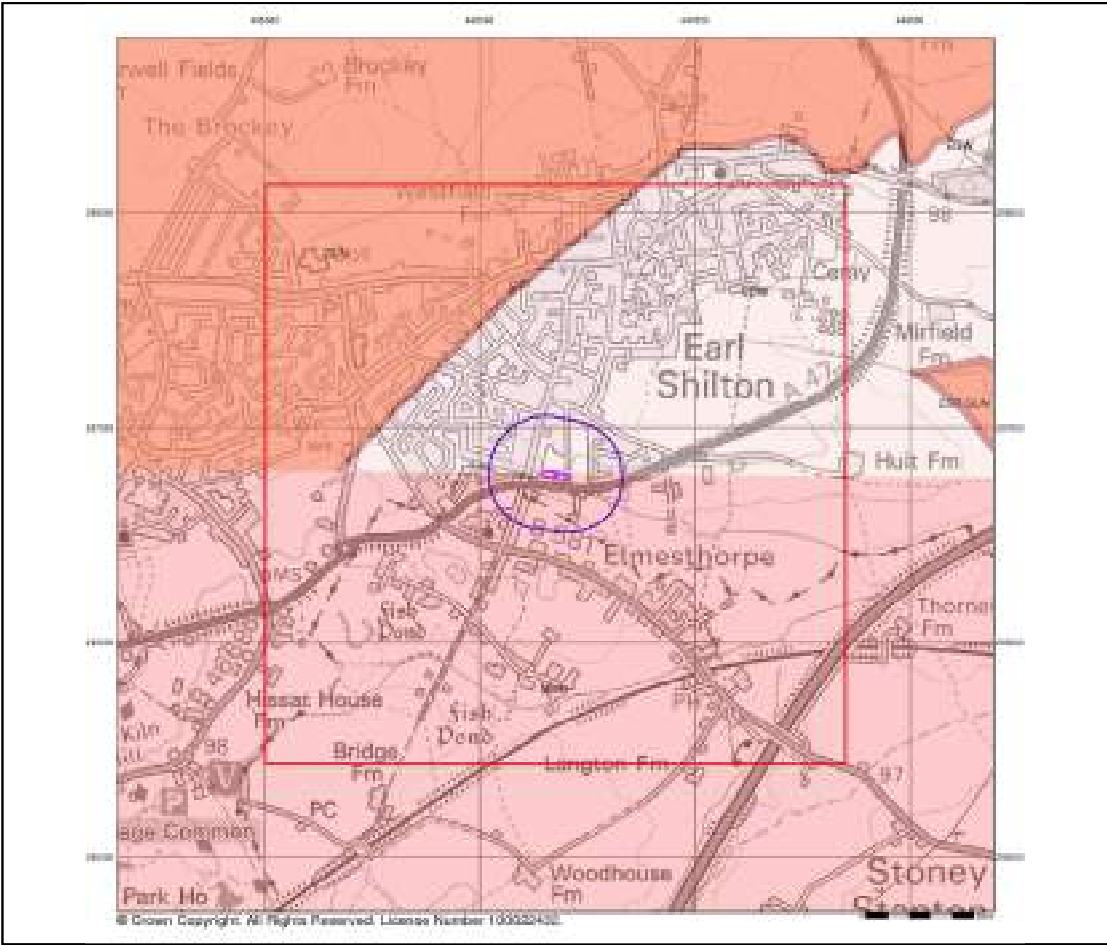
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envisatrock.co.uk

v15.0 23-Nov-2023

Page 3 of 5



© Crown Copyright. All Rights Reserved. Licence Number 100022432.



Bedrock and Faults

Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A

Order Details:

Order Number: 325985920_1_1
Customer Reference: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details:

Station Road, Earl Shilton

v15.0 23-Nov-2023

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

Page 4 of 5



Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

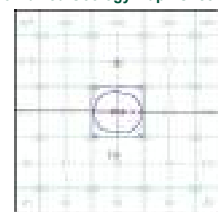
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 325985920_1_1
Customer Reference: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details:

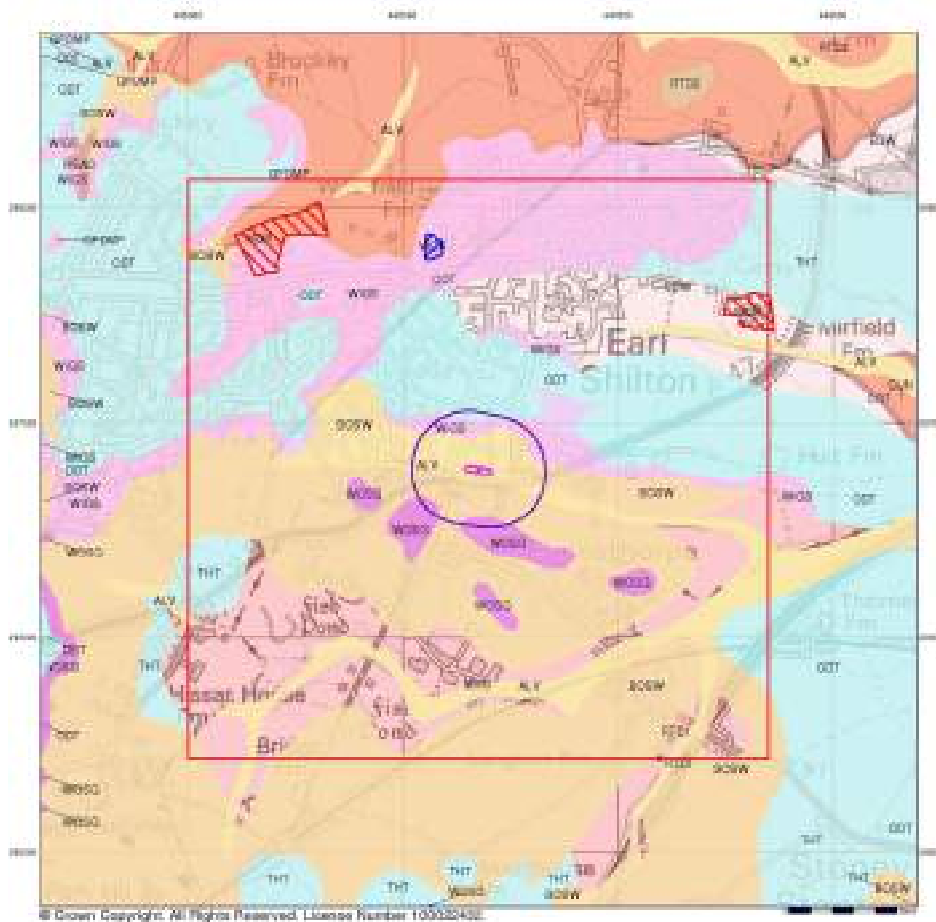
Station Road, Earl Shilton

Landmark
Geological Mapping & Analysis

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

v15.0 23-Nov-2023

Page 5 of 5



© Crown Copyright. All Rights Reserved. License Number 100022432.

APPENDIX VII

Landmark Envirocheck Report

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

325985920_1_1

Customer Reference:

43207

National Grid Reference:

446350, 296780

Slice:

A

Site Area (Ha):

0.31

Search Buffer (m):

250

Site Details:

Station Road

Earl Shilton

Client Details:

Mr J Hollands

GeoDyne Ltd

Clarendon House

Clarendon Business Park

Clumber Avenue

Nottingham

NG5 1AH

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	5
Hazardous Substances	-
Geological	6
Industrial Land Use	8
Sensitive Land Use	9
Data Currency	10
Data Suppliers	16
Useful Contacts	17

Introduction

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

Copyright Notice

© Landmark Information Group Limited 2023. The Copyright on the information and data and its format as contained in this Envirocheck® Report ("Report") is the property of Landmark Information Group Limited ("Landmark") and several other Data Providers, including (but not limited to) Ordnance Survey, British Geological Survey, the Environment Agency/Natural Resources Wales and Natural England, and must not be reproduced in whole or in part by photocopying or any other method. The Report is supplied under Landmark's Terms and Conditions accepted by the Customer. A copy of Landmark's Terms and Conditions can be found with the Index Map for this report. Additional copies of the Report may be obtained from Landmark, subject to Landmark's charges in force from time to time. The Copyright, design rights and any other intellectual rights shall remain the exclusive property of Landmark and /or other Data providers, whose Copyright material has been included in this Report. © Environment Agency & United Kingdom Research and Innovation 2023. © Natural Resources Wales & United Kingdom Research and Innovation 2023.

Natural England Copyright Notice

Site of Special Scientific Interest, National Nature Reserve, Ramsar, Special Protection Area, Special Conservation Area, Marine Nature Reserve data (derived from Ordnance Survey 1:10000 raster) is provided by, and used with the permission of, Natural England who retain the copyright and Intellectual Property Rights for the data.

Scottish Natural Heritage Copyright

Contains SNH information licensed under the Open Government Licence v3.0.

Ove Arup Copyright Notice

The Mining Instability data was obtained on licence from Ove Arup & Partners Limited (for further information, contact mining.review@arup.com). No reproduction or further use of such Data is to be made without the prior written consent of Ove Arup & Partners Limited. The supplied Mining Instability data is derived from publicly available records and other third party sources and neither Ove Arup & Partners nor Landmark warrant the accuracy or completeness of such information or data.

Stantec Copyright Notice

The cavity data presented has been extracted from the PBA (now Stantec UK Ltd) enhanced version of the original DEFRA national cavity databases. Stantec UK Ltd retain the copyright & intellectual property rights in the data. Whilst all reasonable efforts are made to check that the information contained in the cavity databases is accurate we do not warrant that the data is complete or error free. The information is based upon our own researches and those collated from a number of external sources and is continually being augmented and updated by Stantec UK Ltd. In no event shall Stantec UK Ltd or Landmark be liable for any loss or damage including, without limitation, indirect or consequential loss or damage arising from the use of this data.

Radon Potential dataset Copyright Notice

Information supplied from a joint dataset compiled by The British Geological Survey and Public Health England.

Natural Resources Wales Copyright Notice

Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Contains Ordnance Survey Data. Ordnance Survey Licence number 100019741. Crown Copyright and Database Right. Contains Natural Resources Wales information © Natural Resources Wales and Database Right. All rights Reserved. Some features of this information are based on digital spatial data licensed from the Centre for Ecology & Hydrology © NERC (CEH). Defra, Met Office and DARD Rivers Agency © Crown copyright. © Cranfield University. © James Hutton Institute. Contains OS data © Crown copyright and database right 2023. Land & Property Services © Crown copyright and database right.

Report Version v53.0

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

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Waste			
BGS Recorded Landfill Sites			
Historical Landfill Sites			
Integrated Pollution Control Registered Waste Sites			
Licensed Waste Management Facilities (Landfill Boundaries)			
Licensed Waste Management Facilities (Locations)			
Local Authority Landfill Coverage	pg 5	2	n/a
Local Authority Recorded Landfill Sites			
Potentially Infilled Land (Non-Water)	pg 5	1	
Potentially Infilled Land (Water)			
Registered Landfill Sites			
Registered Waste Transfer Sites			
Registered Waste Treatment or Disposal Sites			
Hazardous Substances			
Control of Major Accident Hazards Sites (COMAH)			
Explosive Sites			
Notification of Installations Handling Hazardous Substances (NIHHS)			
Planning Hazardous Substance Consents			
Planning Hazardous Substance Enforcements			

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Geological			
BGS 1:625,000 Solid Geology	pg 6	Yes	n/a
BGS Estimated Soil Chemistry	pg 6	Yes	Yes
BGS Recorded Mineral Sites	pg 6		1
BGS Urban Soil Chemistry			
BGS Urban Soil Chemistry Averages			
CBSCB Compensation District			n/a
Coal Mining Affected Areas			n/a
Mining Instability			n/a
Man-Made Mining Cavities			
Natural Cavities			
Non Coal Mining Areas of Great Britain			
Potential for Collapsible Ground Stability Hazards	pg 6	Yes	
Potential for Compressible Ground Stability Hazards	pg 6	Yes	
Potential for Ground Dissolution Stability Hazards			
Potential for Landslide Ground Stability Hazards	pg 7	Yes	
Potential for Running Sand Ground Stability Hazards	pg 7	Yes	Yes
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 7	Yes	Yes
Radon Potential - Radon Affected Areas			n/a
Radon Potential - Radon Protection Measures			n/a
Industrial Land Use			
Contemporary Trade Directory Entries	pg 8		2
Fuel Station Entries			
Points of Interest - Commercial Services	pg 8		1
Points of Interest - Education and Health			
Points of Interest - Manufacturing and Production			
Points of Interest - Public Infrastructure	pg 8		1
Points of Interest - Recreational and Environmental	pg 8		1
Gas Pipelines			
Underground Electrical Cables			

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Sensitive Land Use			
Ancient Woodland			
Areas of Adopted Green Belt			
Areas of Unadopted Green Belt			
Areas of Outstanding Natural Beauty			
Environmentally Sensitive Areas			
Forest Parks			
Local Nature Reserves			
Marine Nature Reserves			
National Nature Reserves			
National Parks			
Nitrate Sensitive Areas			
Nitrate Vulnerable Zones	pg 9	1	
Ramsar Sites			
Sites of Special Scientific Interest			
Special Areas of Conservation			
Special Protection Areas			
World Heritage Sites			

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (NE)	0	1	446351 296781
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	146	1	446351 296950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	182	1	446500 296950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	189	1	446150 296650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	190	1	446600 296800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	209	1	446150 296950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	213	1	446351 296550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	216	1	446450 296550
1	Discharge Consents Operator: Severn Trent Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Station Road Elmsthorpe, Elmsthorpe, Le9 7gg Authority: Environment Agency, Midlands Region Catchment Area: Upper Soar Catchment To Confluence With Sence Reference: Tsc3924 Permit Version: 1 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: 12th August 2011 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Local Ditch Status: Varied under EPR 2010 Positional Accuracy: Located by supplier to within 10m	A13SW (W)	74	2	446220 296750
1	Discharge Consents Operator: Severn Trent Water Limited Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Wilkinson Lane Ps - Stm & Emg O/F, Wilkinson Lane, Earl Shilton Authority: Environment Agency, Midlands Region Catchment Area: Upper Soar Catchment To Confluence With Sence Reference: T/50/12280/O Permit Version: 1 Effective Date: 22nd December 1987 Issued Date: 22nd December 1987 Revocation Date: 15th January 2010 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Breach Lane Brook Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A13SW (W)	79	2	446220 296740
	Nearest Surface Water Feature	A13SW (SW)	13	-	446297 296757

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial: >90% Patchiness: Superficial 3-10m Thickness: Superficial High Recharge:	A13SE (NE)	0	3	446351 296781
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial: >90% Patchiness: Superficial 3-10m Thickness: Superficial High Recharge:	A13NE (N)	0	3	446351 296792
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - B	A13SE (NE)	0	3	446351 296781
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NE (N)	0	3	446351 296792
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NE)	0	3	446351 296781
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
2	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 94.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SW (SW)	13	4	446297 296757
3	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SW (SW)	19	4	446297 296757

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 129.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SW (S)	19	4	446346 296747
5	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 136.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SE (SE)	40	4	446419 296723
6	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13NW (W)	60	4	446233 296805
7	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 15.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13NW (W)	72	4	446222 296809
8	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 29.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13NW (W)	87	4	446207 296813
9	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 263.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13NW (W)	117	4	446178 296819
10	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 128.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SW (W)	133	4	446157 296765
11	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 46.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SE (SE)	159	4	446550 296685
12	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 39.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SE (SE)	205	4	446593 296667

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 413.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Trent Primacy: 1	A13SE (SE)	236	4	446621 296653

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Leicestershire County Council - Has supplied landfill data		0	6	446351 296781
	Local Authority Landfill Coverage Name: Hinckley And Bosworth Borough Council - Has no landfill data to supply		0	5	446351 296781
	Local Authority Landfill Coverage Name: Blaby District Council - Has no landfill data to supply		58	7	446235 296802
14	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1980	A13SE (NE)	0	-	446351 296781

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Triassic Rocks (Undifferentiated)	A13SE (NE)	0	1	446351 296781
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (NE)	0	1	446351 296781
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A13NE (N)	196	1	446351 297000
15	BGS Recorded Mineral Sites Site Name: Station Road Brick Works Location: Earl Shilton, Hinckley, Leicestershire Source: British Geological Survey, National Geoscience Information Service Reference: 260195 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Bosworth Clay Member Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	29	1	446382 296818
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446303 296927
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	Contemporary Trade Directory Entries Name: M C P Oils Location: 5, OAKLANDS DRIVE, EARL SHILTON, LE9 7HT Classification: Recycling Services Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (E)	138	-	446545 296815
17	Contemporary Trade Directory Entries Name: J Thomas & Co Location: 6, Wilemans Close, Earl Shilton, Leicester, LE9 7GW Classification: Sewing Machines - Industrial Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (N)	176	-	446351 296976
18	Points of Interest - Commercial Services Name: M C P Oils Location: 5 Oaklands Drive, Earl Shilton, LE9 7HT Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A13NE (E)	138	8	446545 296815
19	Points of Interest - Public Infrastructure Name: Sewage Pumping Station Location: LE9 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13SE (SE)	181	8	446576 296687
20	Points of Interest - Recreational and Environmental Name: Play Area Location: LE9 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13NE (E)	170	8	446563 296859

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	Nitrate Vulnerable Zones Name: Soar R Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SE (NE)	0	3	446351 296781

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Environment Agency - Head Office Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department	June 2020 September 2017 September 2017	Annually Annual Rolling Update Annual Rolling Update
Discharge Consents Environment Agency - Midlands Region	July 2023	Quarterly
Enforcement and Prohibition Notices Environment Agency - Midlands Region	March 2013	
Integrated Pollution Controls Environment Agency - Midlands Region	January 2009	
Integrated Pollution Prevention And Control Environment Agency - Midlands Region	January 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department	December 2015 December 2020	Variable Variable
Local Authority Pollution Prevention and Controls Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department	December 2015 December 2020	Not Applicable Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department	December 2015 June 2014	Variable Variable
Nearest Surface Water Feature Ordnance Survey	September 2023	
Pollution Incidents to Controlled Waters Environment Agency - Midlands Region	December 1999	
Prosecutions Relating to Authorised Processes Environment Agency - Midlands Region	July 2015	
Prosecutions Relating to Controlled Waters Environment Agency - Midlands Region	March 2013	
Registered Radioactive Substances Environment Agency - Midlands Region Environment Agency - Head Office	June 2016 May 2023	As notified Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	October 2023 October 2023	Quarterly Quarterly
Water Abstractions Environment Agency - Midlands Region	October 2023	Quarterly
Water Industry Act Referrals Environment Agency - Midlands Region	October 2017	
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified

Agency & Hydrological	Version	Update Cycle
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	August 2023	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	October 2023	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Midlands Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	July 2023 July 2023	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	January 2023 January 2023	Quarterly Quarterly
Local Authority Landfill Coverage Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department Leicestershire County Council	February 2003 February 2003 February 2003	Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Blaby District Council - Environmental Health Department Hinckley And Bosworth Borough Council - Environmental Health Department Leicestershire County Council	October 2018 October 2018 October 2018	
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	
Registered Landfill Sites Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	March 2006 March 2006	Not Applicable Not Applicable
Registered Waste Transfer Sites Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	April 2018 April 2018	
Registered Waste Treatment or Disposal Sites Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area	June 2015 June 2015	
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	March 2023	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements Hinckley And Bosworth Borough Council Leicestershire County Council Blaby District Council - Planning Department	February 2016 July 2023 March 2023	Variable Variable Variable
Planning Hazardous Substance Consents Blaby District Council - Planning Department Hinckley And Bosworth Borough Council Leicestershire County Council	February 2016 February 2016 February 2016	Variable Variable Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2023	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2023	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	September 2023	Quarterly
Points of Interest - Education and Health PointX	September 2023	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2023	Quarterly
Points of Interest - Public Infrastructure PointX	September 2023	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2023	Quarterly
Underground Electrical Cables National Grid	February 2023	Bi-Annually

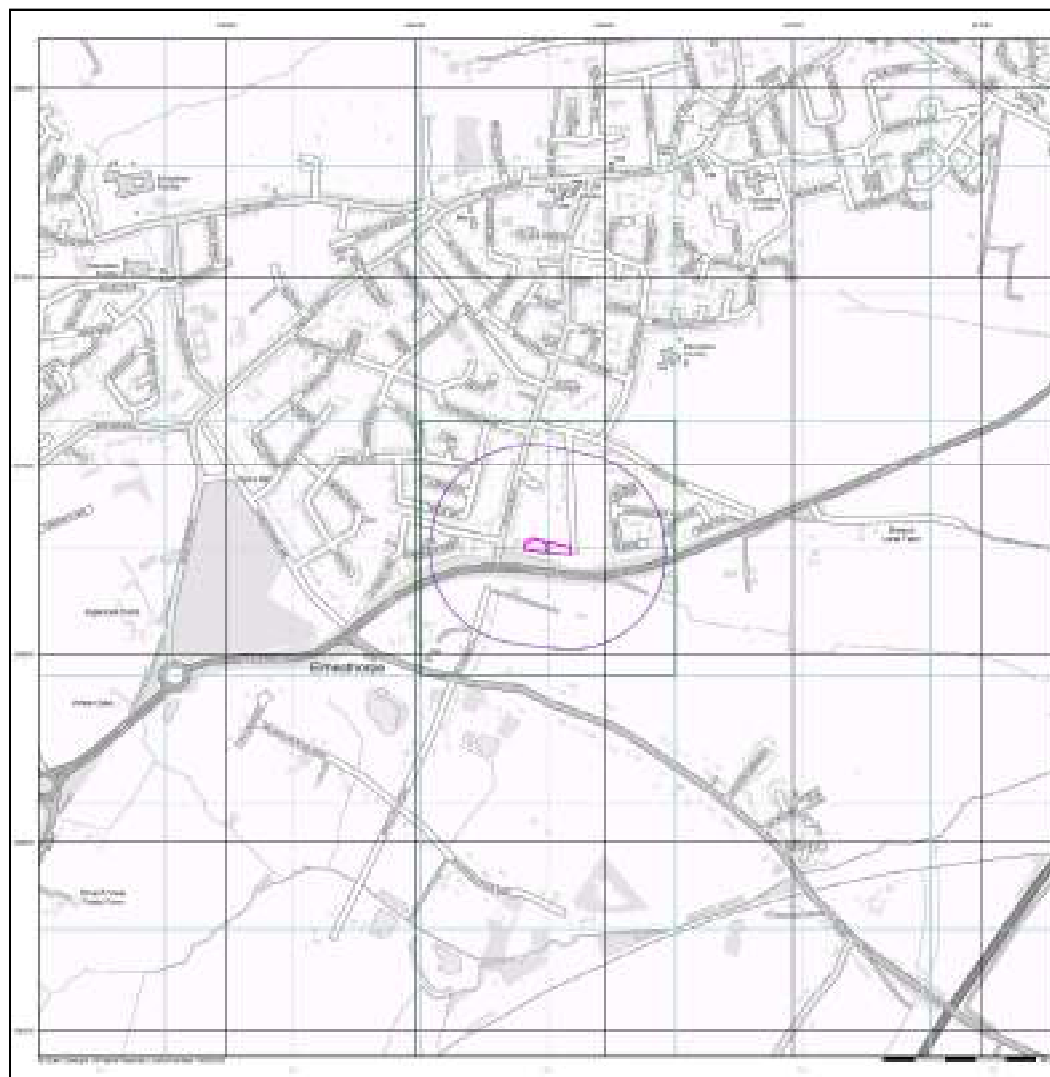
Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	April 2023	Bi-Annually
Areas of Adopted Green Belt Blaby District Council - Planning Department Hinckley And Bosworth Borough Council	August 2023 August 2023	Quarterly Quarterly
Areas of Unadopted Green Belt Blaby District Council - Planning Department Hinckley And Bosworth Borough Council	August 2023 August 2023	Quarterly Quarterly
Areas of Outstanding Natural Beauty Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas Natural England	August 2023	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Natural England	August 2023	Bi-Annually
Marine Nature Reserves Natural England	October 2023	Bi-Annually
National Nature Reserves Natural England	August 2023	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 March 2023	Bi-Annually
Ramsar Sites Natural England	October 2023	Bi-Annually
Sites of Special Scientific Interest Natural England	November 2023	Bi-Annually
Special Areas of Conservation Natural England	October 2023	Bi-Annually
Special Protection Areas Natural England	October 2023	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	Environment Agency - Head Office Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	Hinckley And Bosworth Borough Council - Environmental Health Department First Floor, Florence House, St Marys Road, Hinckley, Leicestershire, LE10 1EQ	Telephone: 01455 238141 Fax: 01455 890228 Website: www.hinckley-bosworth.gov.uk
6	Leicestershire County Council County Hall, Glenfield, Leicestershire, LE3 8RH	Website: www.leics.gov.uk
7	Blaby District Council - Environmental Health Department Council Offices, Desford Road, Narborough, Leicester, Leicestershire, LE9 5EP	Telephone: 0116 2750555 Fax: 0116 275368 Website: www.blaby.gov.uk
8	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
9	Natural England County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



GeoDyne

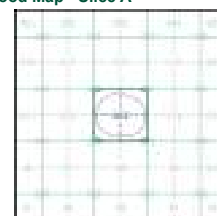
General

- GeoDyne
- GeoDyne
- GeoDyne

Agency and Hydrological (Flood)

- Agency Flood Risk Review (See other Schemes (2m 2))
- Flood Risk Area (See other Schemes (2m 2))
- Area/Designation Flood Risk
- Flood Risk Storage Area
- Flood Risk

Flood Map - Slice A



Order Details

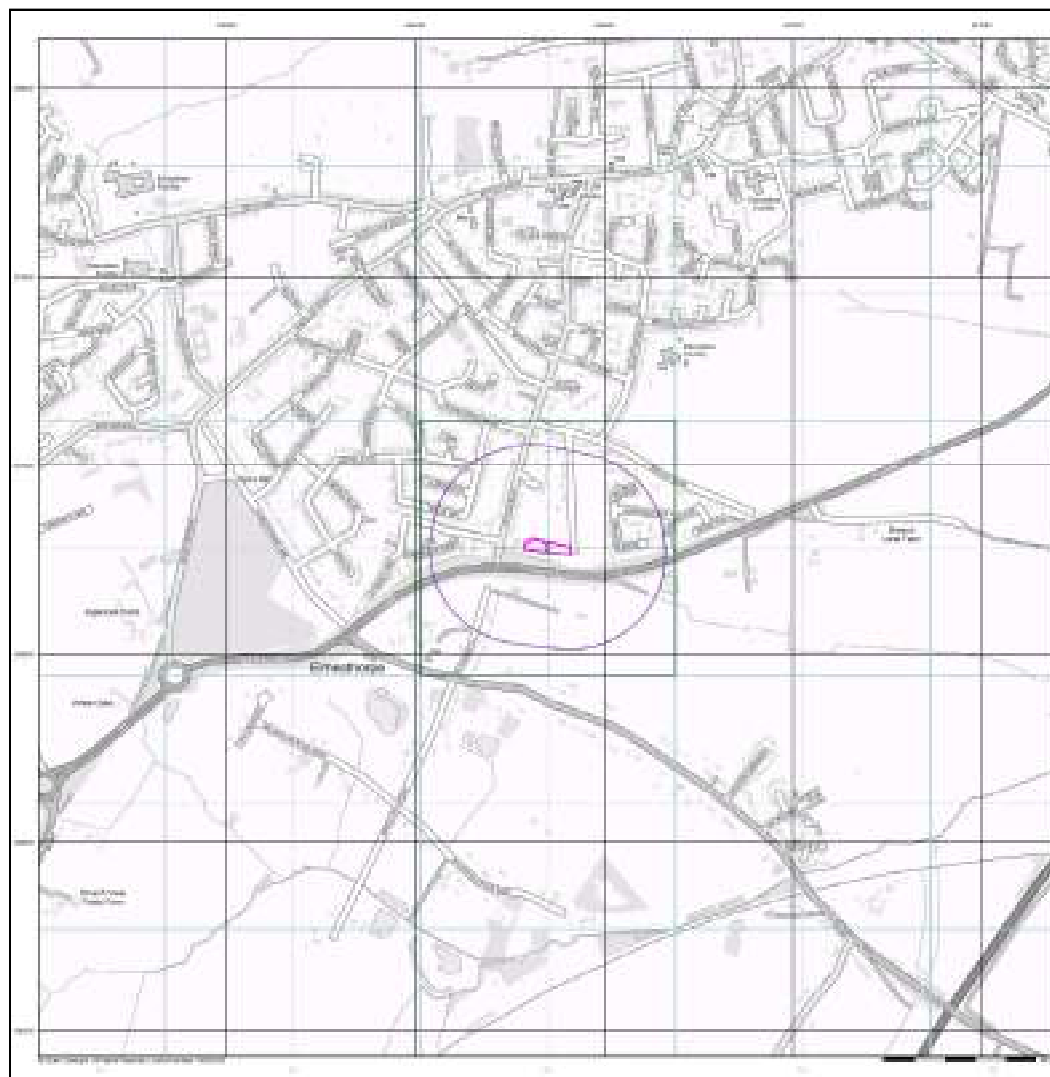
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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



GeoDyne

General

- ☐ GeoDyne
- ☐ GeoDyne/GeoDyne
- ☐ GeoDyne/GeoDyne
- ☐ GeoDyne
- ☐ GeoDyne/GeoDyne

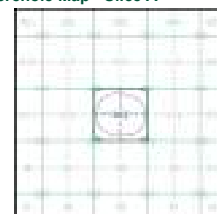
Agency and Hydrological (Boreholes)

- ☐ Borehole/Agency
- ☐ Borehole/Agency
- ☐ Borehole/Agency
- ☐ Borehole
- ☐ Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

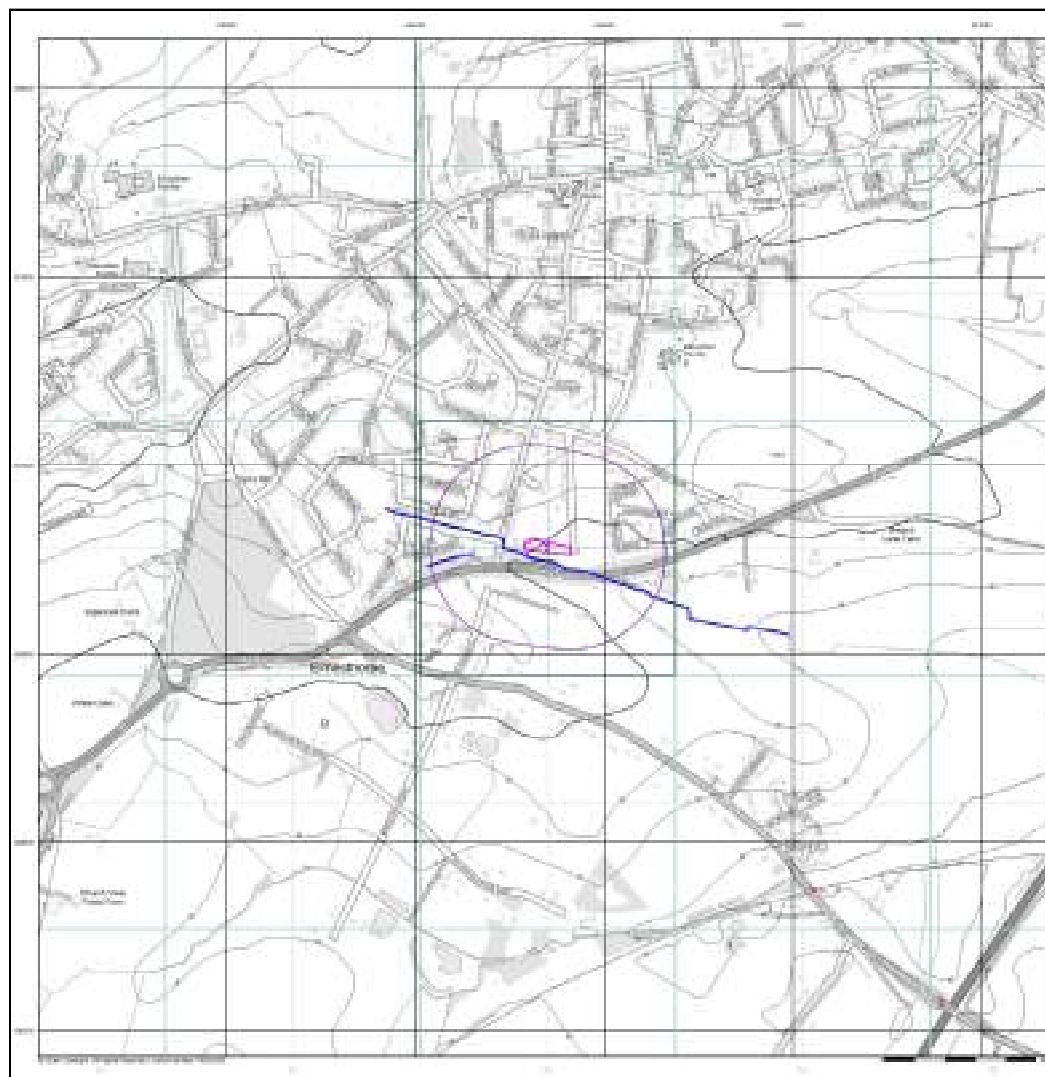
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
envirocheck.co.uk

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



GeoDyne

General
On Specified Site
On Specified Boundary
X Missing Information Point

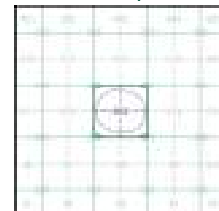
On Water Network Data

Color	Class
Blue	Water
Green	Grass
Yellow	Field
Red	Urban
Black	Other
Light Blue	Water
Dark Blue	Water
Light Green	Grass
Dark Green	Grass
Light Yellow	Field
Dark Yellow	Field
Light Red	Urban
Dark Red	Urban
Light Black	Other
Dark Black	Other

Contours (Height in meters)

Shaded Contour	Water Level
Shaded Contour	Water Level
Spot Height	Spot Height

OS Water Network Map - Slice A



Order Details

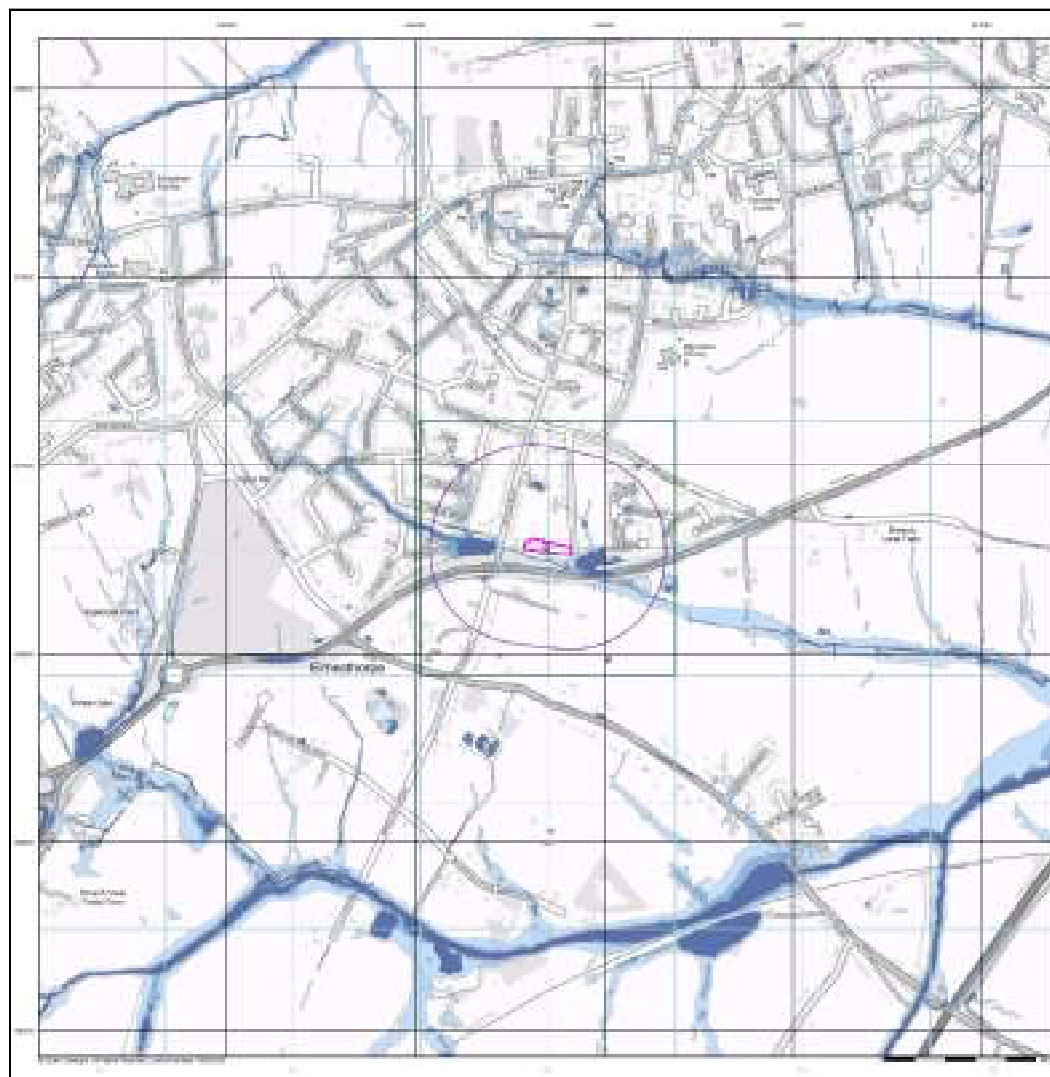
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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



GeoDyne

General

- Open Space
- Greenfield
- Brownfield

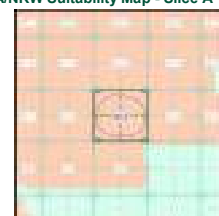
Risk of Flooding from Surface Water

- High (100 Year AEP)
- Medium (100 Year AEP)
- Low (100 Year AEP)

Suitability

- Suitable for development
- Marginal
- Unsuitable
- Very Unsuitable
- Very High
- High

EA/NRW Suitability Map - Slice A



Order Details

Order Number: 325985920_1_1
 Customer Ref: 43207
 National Grid Reference: 446350, 296780
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 250

Site Details

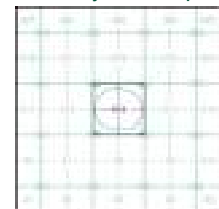
Station Road, Earl Shilton

Landmark
 Environmental Services

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



Site Sensitivity Context Map - Slice A



Order Details

Order Number: 325985920_1_1
 Customer Ref: 43207
 National Grid Reference: 446350, 296780
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

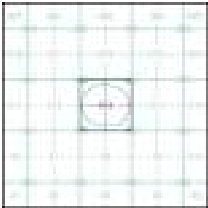


GeoDyne

Bedrock Aquifer Designation

- General**
- Symbol for
 - Symbol for
 - Symbol for
- Agency and Hydrological**
- Geological Classes**
- Primary Aquifer
 - Secondary A Aquifer
 - Secondary B Aquifer
 - Secondary Unfractured
 - Unproductive Class
 - Unknown
 - Unknown (Lake and Landfill)

Site Sensitivity Context Map - Slice A



Order Details

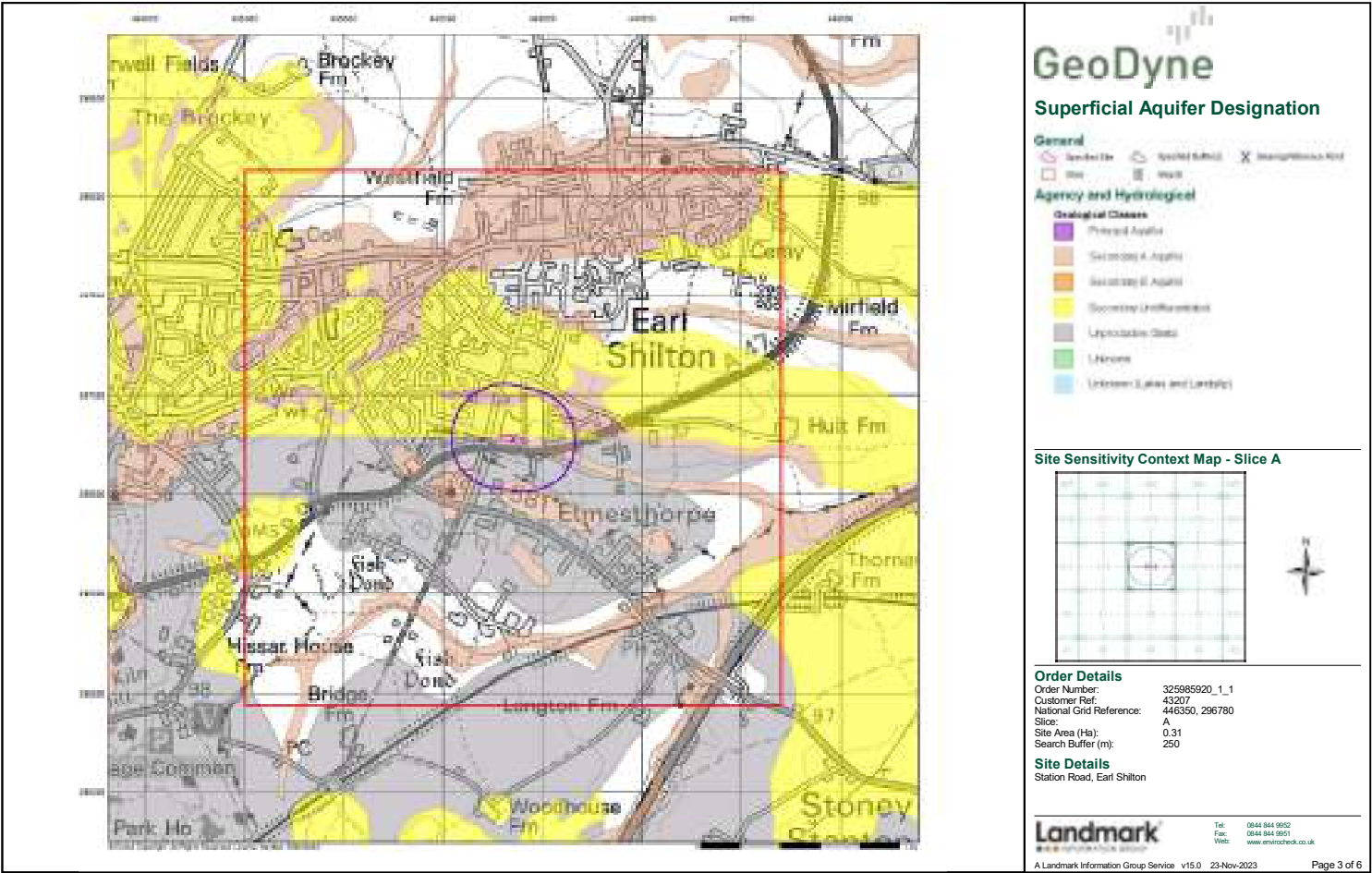
Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Site: A
Site Area (Ha): 0.31
Search Buffer (m): 250

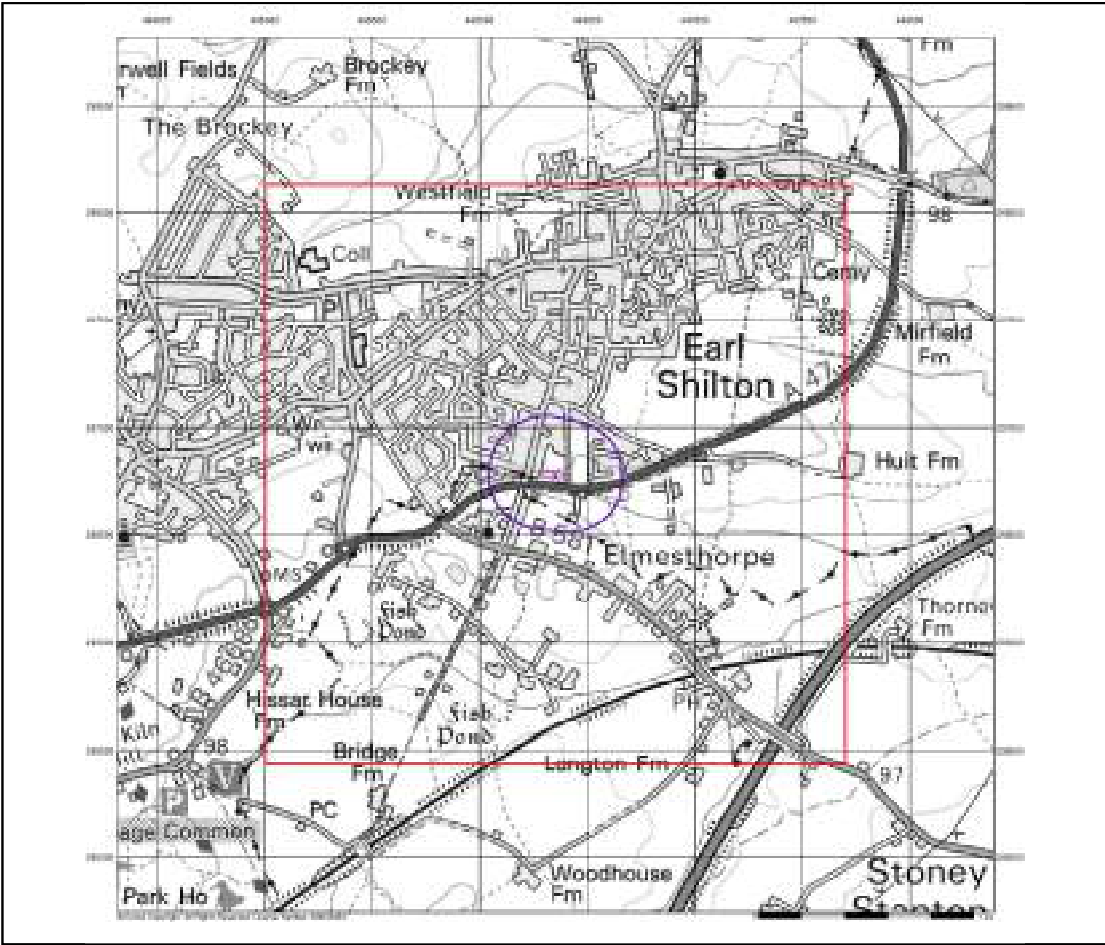
Site Details

Station Road, Earl Shilton

Landmark

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







Source Protection Zones

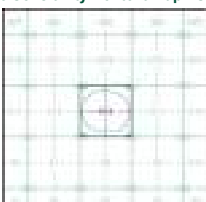
General

- Boundary Line
- Source Protection Zone
- Watercourse
- Watercourse
- Watercourse

Agency and Hydrological

- Watercourse Zone 1
- Watercourse Zone 2
- Watercourse Zone 3
- Watercourse Zone 4
- Watercourse Zone 5
- Watercourse Zone 6
- Watercourse Zone 7
- Watercourse Zone 8
- Watercourse Zone 9
- Watercourse Zone 10
- Watercourse Zone 11
- Watercourse Zone 12
- Watercourse Zone 13
- Watercourse Zone 14
- Watercourse Zone 15
- Watercourse Zone 16
- Watercourse Zone 17
- Watercourse Zone 18
- Watercourse Zone 19
- Watercourse Zone 20
- Watercourse Zone 21
- Watercourse Zone 22
- Watercourse Zone 23
- Watercourse Zone 24
- Watercourse Zone 25
- Watercourse Zone 26
- Watercourse Zone 27
- Watercourse Zone 28
- Watercourse Zone 29
- Watercourse Zone 30
- Watercourse Zone 31
- Watercourse Zone 32
- Watercourse Zone 33
- Watercourse Zone 34
- Watercourse Zone 35
- Watercourse Zone 36
- Watercourse Zone 37
- Watercourse Zone 38
- Watercourse Zone 39
- Watercourse Zone 40
- Watercourse Zone 41
- Watercourse Zone 42
- Watercourse Zone 43
- Watercourse Zone 44
- Watercourse Zone 45
- Watercourse Zone 46
- Watercourse Zone 47
- Watercourse Zone 48
- Watercourse Zone 49
- Watercourse Zone 50
- Watercourse Zone 51
- Watercourse Zone 52
- Watercourse Zone 53
- Watercourse Zone 54
- Watercourse Zone 55
- Watercourse Zone 56
- Watercourse Zone 57
- Watercourse Zone 58
- Watercourse Zone 59
- Watercourse Zone 60
- Watercourse Zone 61
- Watercourse Zone 62
- Watercourse Zone 63
- Watercourse Zone 64
- Watercourse Zone 65
- Watercourse Zone 66
- Watercourse Zone 67
- Watercourse Zone 68
- Watercourse Zone 69
- Watercourse Zone 70
- Watercourse Zone 71
- Watercourse Zone 72
- Watercourse Zone 73
- Watercourse Zone 74
- Watercourse Zone 75
- Watercourse Zone 76
- Watercourse Zone 77
- Watercourse Zone 78
- Watercourse Zone 79
- Watercourse Zone 80
- Watercourse Zone 81
- Watercourse Zone 82
- Watercourse Zone 83
- Watercourse Zone 84
- Watercourse Zone 85
- Watercourse Zone 86
- Watercourse Zone 87
- Watercourse Zone 88
- Watercourse Zone 89
- Watercourse Zone 90
- Watercourse Zone 91
- Watercourse Zone 92
- Watercourse Zone 93
- Watercourse Zone 94
- Watercourse Zone 95
- Watercourse Zone 96
- Watercourse Zone 97
- Watercourse Zone 98
- Watercourse Zone 99
- Watercourse Zone 100

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

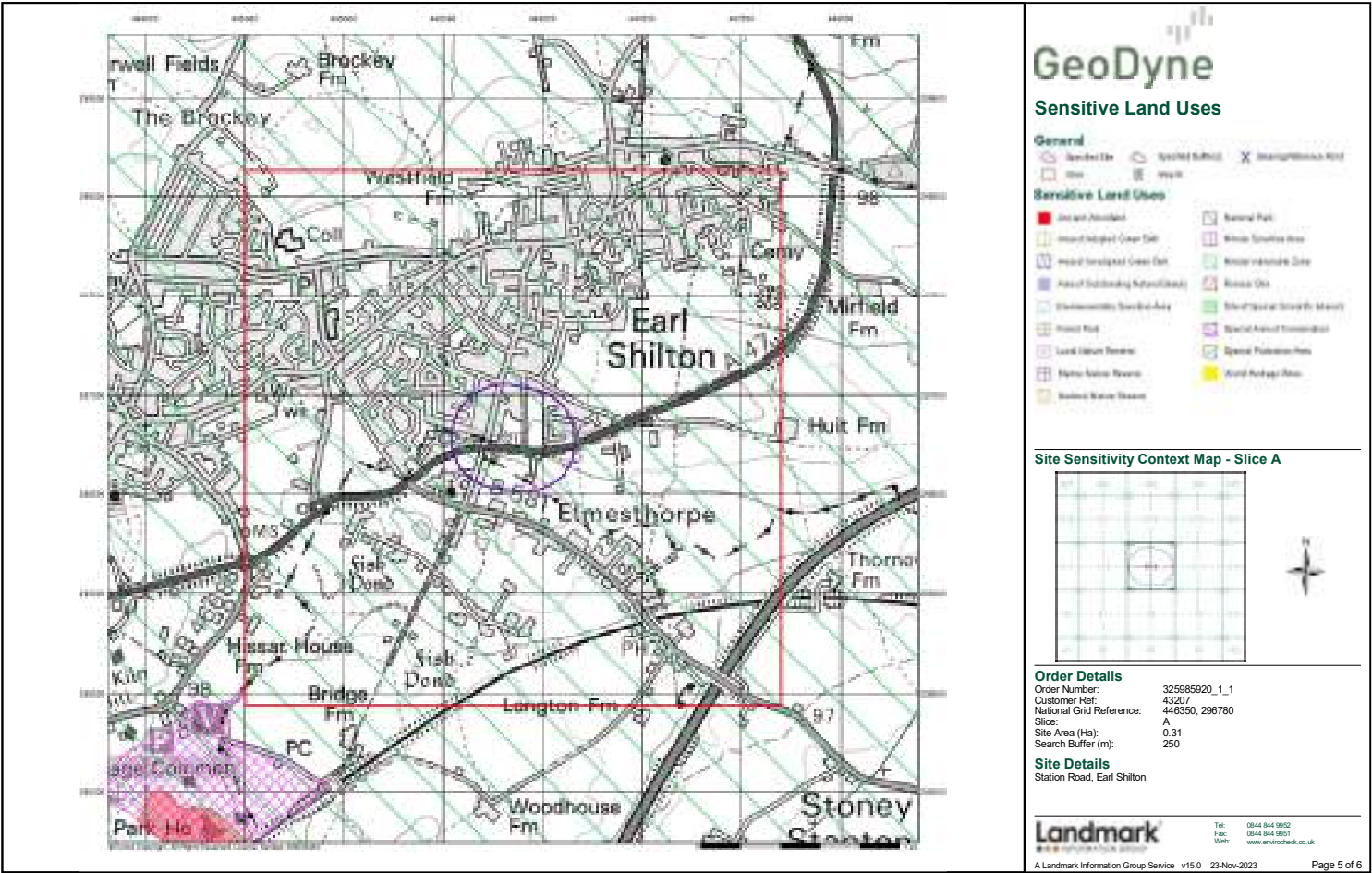
Site Details

Station Road, Earl Shilton

Landmark

A Landmark Information Group Service v15.0 23-Nov-2023

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





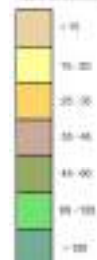
GeoDyne

General

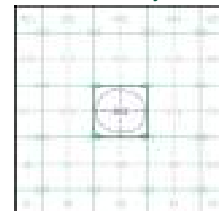
11 GeoDyne 12 GeoDyne 13 GeoDyne

Estimated Soil Chemistry Arsenic

Arsenic Concentration (mg/kg)



Estimated Soil Chemistry Arsenic - Slice A



Order Details

Order Details: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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



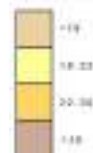
GeoDyne

General

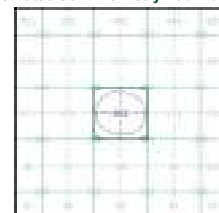
1. Location 2. Description 3. Description of Site

Estimated Soil Chemistry Cadmium

Cadmium Concentration (mg/kg)



Estimated Soil Chemistry Cadmium - Slice A



Order Details

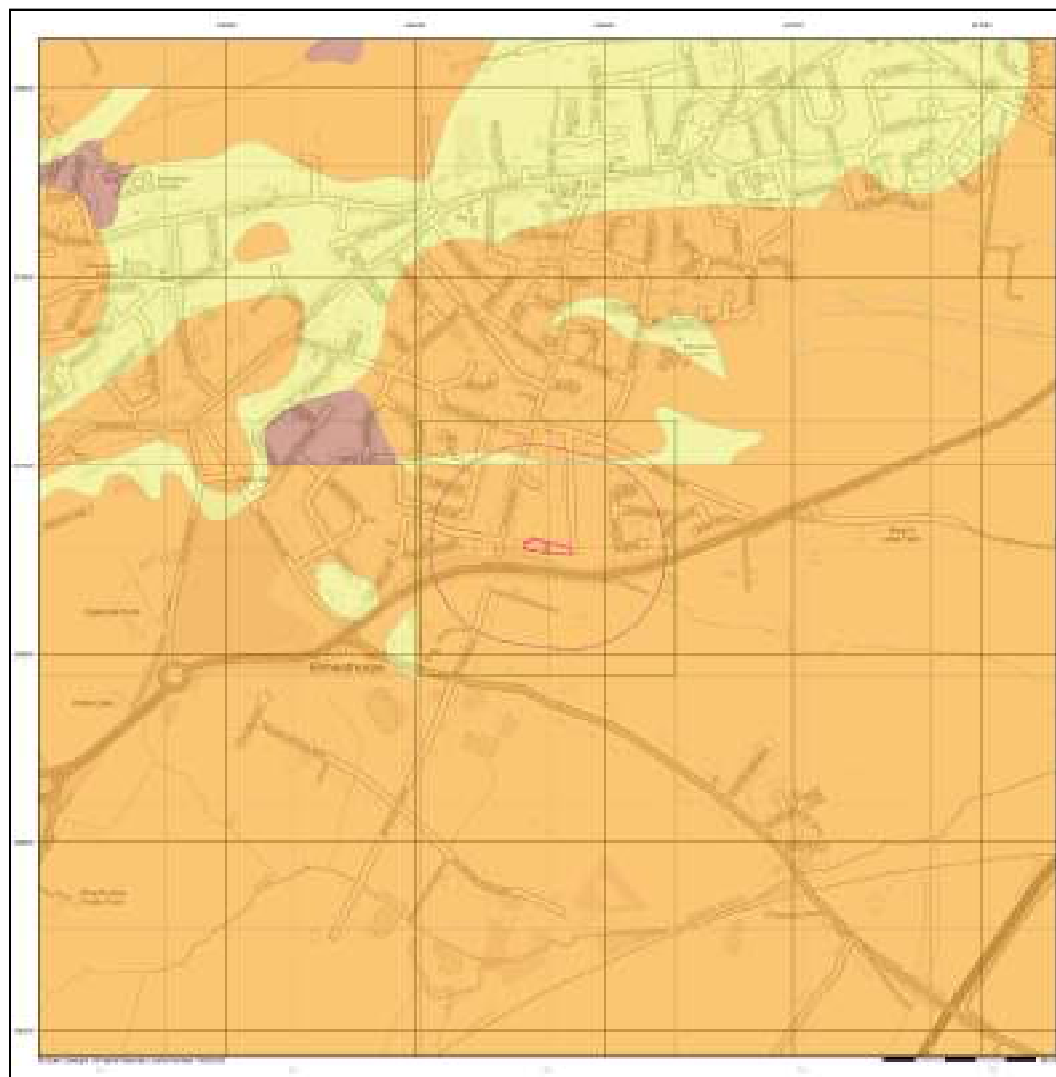
Order Details: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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



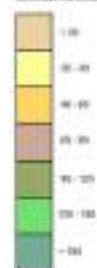
GeoDyne

General

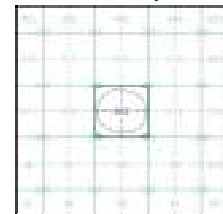
☐ GeoDyne ☐ GeoDyne & GeoDyne ☒ GeoDyne & GeoDyne

Estimated Soil Chemistry Chromium

Chromium Concentration (mg/kg)



Estimated Soil Chemistry Chromium - Slice A



Order Details

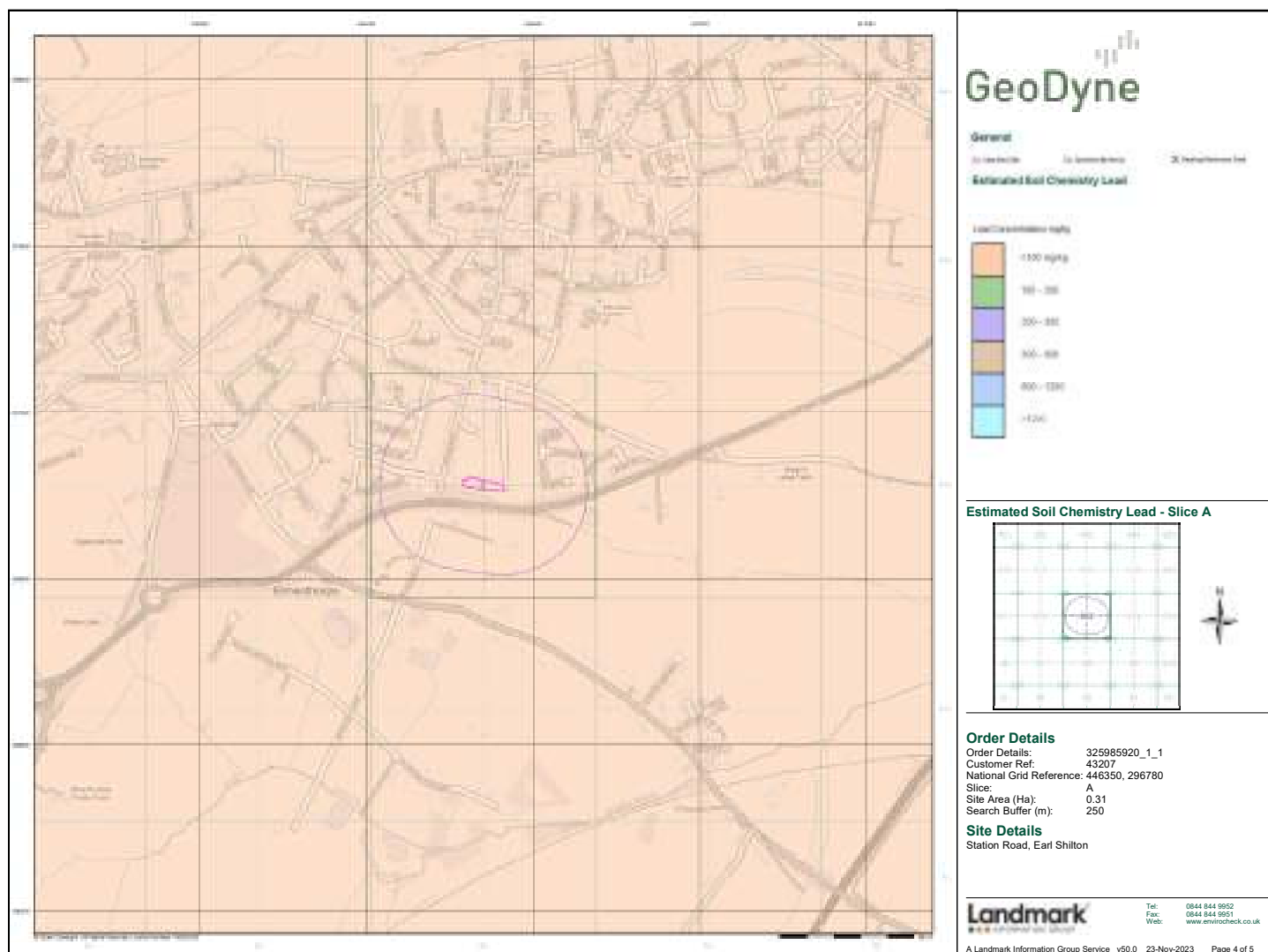
Order Details: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

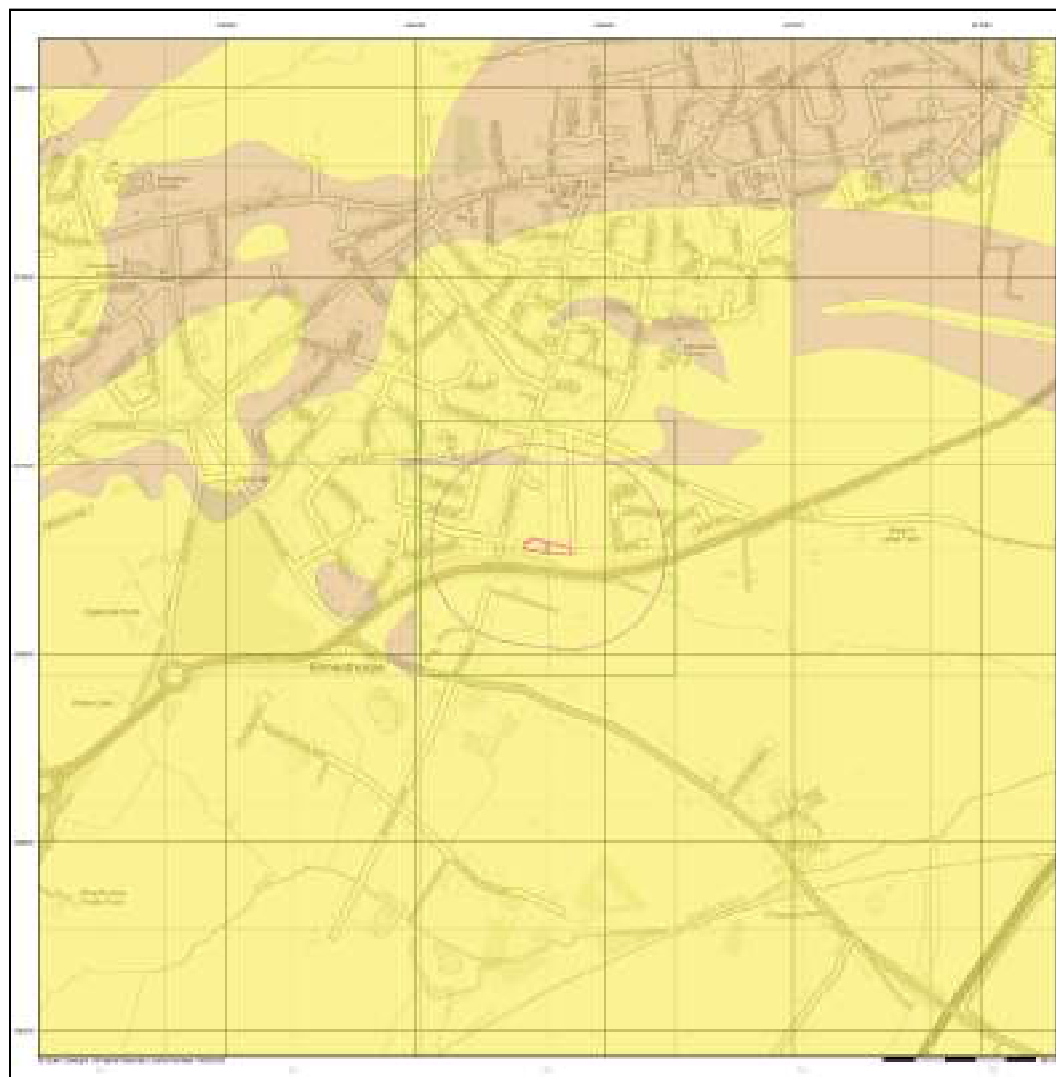
Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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





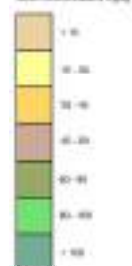
GeoDyne

Overview

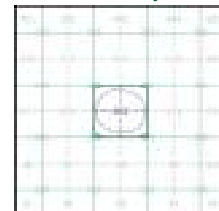
1. Overview 2. Overview 3. Overview

Estimated Soil Chemistry Nickel

Nickel Concentrations (mg/kg)



Estimated Soil Chemistry Nickel - Slice A



Order Details

Order Details: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
Environmental Services

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

Envirocheck[®] Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:

325985920_1_1

Customer Reference:

43207

National Grid Reference:

446350, 296780

Slice:

A

Site Area (Ha):

0.31

Search Buffer (m):

250

Site Details:

Station Road

Earl Shilton

Client Details:

Mr J Hollands

GeoDyne Ltd

Clarendon House

Clarendon Business Park

Clumber Avenue

Nottingham

NG5 1AH

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	1
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	2
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	3
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	4
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Historical Map List	5
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	6
Data Suppliers	7
Useful Contacts	8

Copyright Notice

© Landmark Information Group Limited 2023. The Copyright on the information and data and its format as contained in this Envirocheck® Report ("Report") is the property of Landmark Information Group Limited ("Landmark") and several other Data Providers, including (but not limited to) Ordnance Survey, British Geological Survey, and the Environment Agency/Natural Resources Wales, and must not be reproduced in whole or in part by photocopying or any other method. The Report is supplied under Landmark's Terms and Conditions accepted by the Customer. A copy of Landmark's Terms and Conditions can be found with the Index Map for this report. Additional copies of the Report may be obtained from Landmark, subject to Landmark's charges in force from time to time. The Copyright, design rights and any other intellectual rights shall remain the exclusive property of Landmark and /or other Data providers, whose Copyright material has been included in this Report.

© Copyright Stantec UK Limited. All rights reserved.

The brine subsidence data relating to the Droitwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

The Mining Instability data was obtained on licence from Ove Arup & Partners Limited (for further information, contact mining.review@arup.com). No reproduction or further use of such Data is to be made without the prior written consent of Ove Arup & Partners Limited. The supplied Mining Instability data is derived from publicly available records and other third party sources and neither Ove Arup & Partners nor Landmark warrant the accuracy or completeness of such information or data.

Report Version v53.0

Data Type	Page Number	On Site	0 to 250m
Mining and Natural Cavities Data			
BGS Recorded Mineral Sites	pg 1		1
Coal Mining Affected Areas			n/a
Man Made Mining Cavities			
Mining Instability			n/a
Natural Cavities			
Non Coal Mining Areas of Great Britain			
Potential Mining Areas			
Historical Land Use Information (1:2,500)			
Extractive Industries or Potential Excavations from 1855-1909 (100m)			
Extractive Industries or Potential Excavations from 1893-1915 (100m)			
Extractive Industries or Potential Excavations from 1906-1937 (100m)			
Extractive Industries or Potential Excavations from 1924-1949 (100m)			
Extractive Industries or Potential Excavations from 1950-1980 (100m)	pg 2	1	2
Subterranean Features (100m)			
Historical Land Use Information (1:10,000)			
Air Shafts			
Disturbed Ground			
General Quarrying			
Heap, unknown constituents			
Mineral Railway			
Mining & quarrying general			
Mining of coal & lignite			
Quarrying of sand & clay, operation of sand & gravel pits			
Former Marshes			
Potentially Infilled Land (Non-Water)	pg 3	1	
Potentially Infilled Land (Water)			
Ground Stability Data (1:50,000)			
CBSCB Compensation District			n/a
Brine Pumping Related Features			
Brine Subsidence Solution Area			
Potential for Collapsible Ground Stability Hazards	pg 4	Yes	
Potential for Compressible Ground Stability Hazards	pg 4	Yes	Yes
Potential for Ground Dissolution Stability Hazards	pg 4	Yes	
Potential for Landslide Ground Stability Hazards	pg 4	Yes	
Potential for Running Sand Ground Stability Hazards	pg 4	Yes	Yes
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 4	Yes	Yes
Salt Mining Related Features			

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	BGS Recorded Mineral Sites Site Name: Station Road Brick Works Location: Earl Shilton, Hinckley, Leicestershire Source: British Geological Survey, National Geoscience Information Service Reference: 260195 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Bosworth Clay Member Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	29	1	446382 296818
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	Extractive Industries or Potential Excavations from 1950-1980 Use: Pond First Map Published 1963 Date: Last Map Published N/A Date:	A13SE (E)	0	-	446374 296777
3	Extractive Industries or Potential Excavations from 1950-1980 Use: Pond First Map Published 1963 Date: Last Map Published N/A Date:	A13SE (SE)	43	-	446410 296720
4	Extractive Industries or Potential Excavations from 1950-1980 Use: Pond First Map Published 1963 Date: Last Map Published N/A Date:	A13NE (N)	50	-	446377 296844

Historical Land Use Information (1:10,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1980	A13SE (NE)	0	-	446351 296781

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBCSB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
6	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
7	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
8	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
9	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
10	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
11	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
12	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
13	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	446351 296780
14	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	446351 296781
15	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446319 296929
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	123	1	446303 296927
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	202	1	446169 296615
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	203	1	446336 296565

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	SP4696	1963
Ordnance Survey Plan	SP4697	1969

The following mapping has been analysed for Historical Land Use Information (1:10,000):

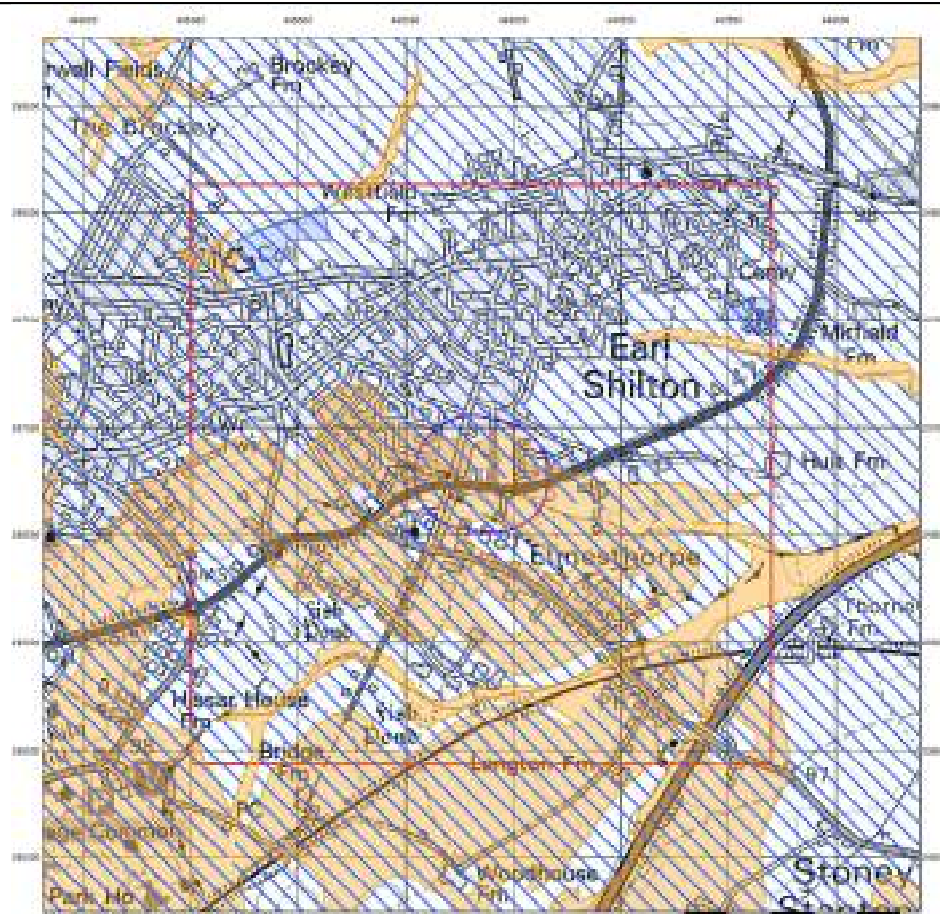
1:10,560	Mapsheet	Published Date
Leicestershire	036_SW	1889
Leicestershire	043_NW	1890
Leicestershire	036_SW	1904
Leicestershire	043_NW	1904
Ordnance Survey Plan	SP49NE	1955
1:10,000	Mapsheet	Published Date
Ordnance Survey Plan	SP49NE	1980

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2023	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	December 2022	Bi-Annually
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Natural Cavities Stantec UK Ltd	December 2022	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	Version	Update Cycle
Subterranean Features Landmark Information Group Limited	July 2023	Bi-Annually
Ground Stability Data (1:50,000)	Version	Update Cycle
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
The Coal Authority	
Ove Arup	
Stantec UK Ltd	
Wardell Armstrong	
Johnson Poole & Bloomer	

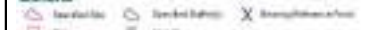
Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk



GeoDyne

Ground Stability Data (1:50,000)

General



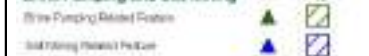
Potential for Compressible Ground Stability Hazards



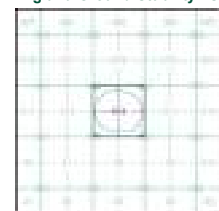
Potential for Collapsible Ground Stability Hazard



Brine Pumping and Salt Mining



Mining and Ground Stability - Slice A



Order Details

Order Number:	325985920_1_1
Customer Ref:	43207
National Grid Reference:	446350, 296780
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	250

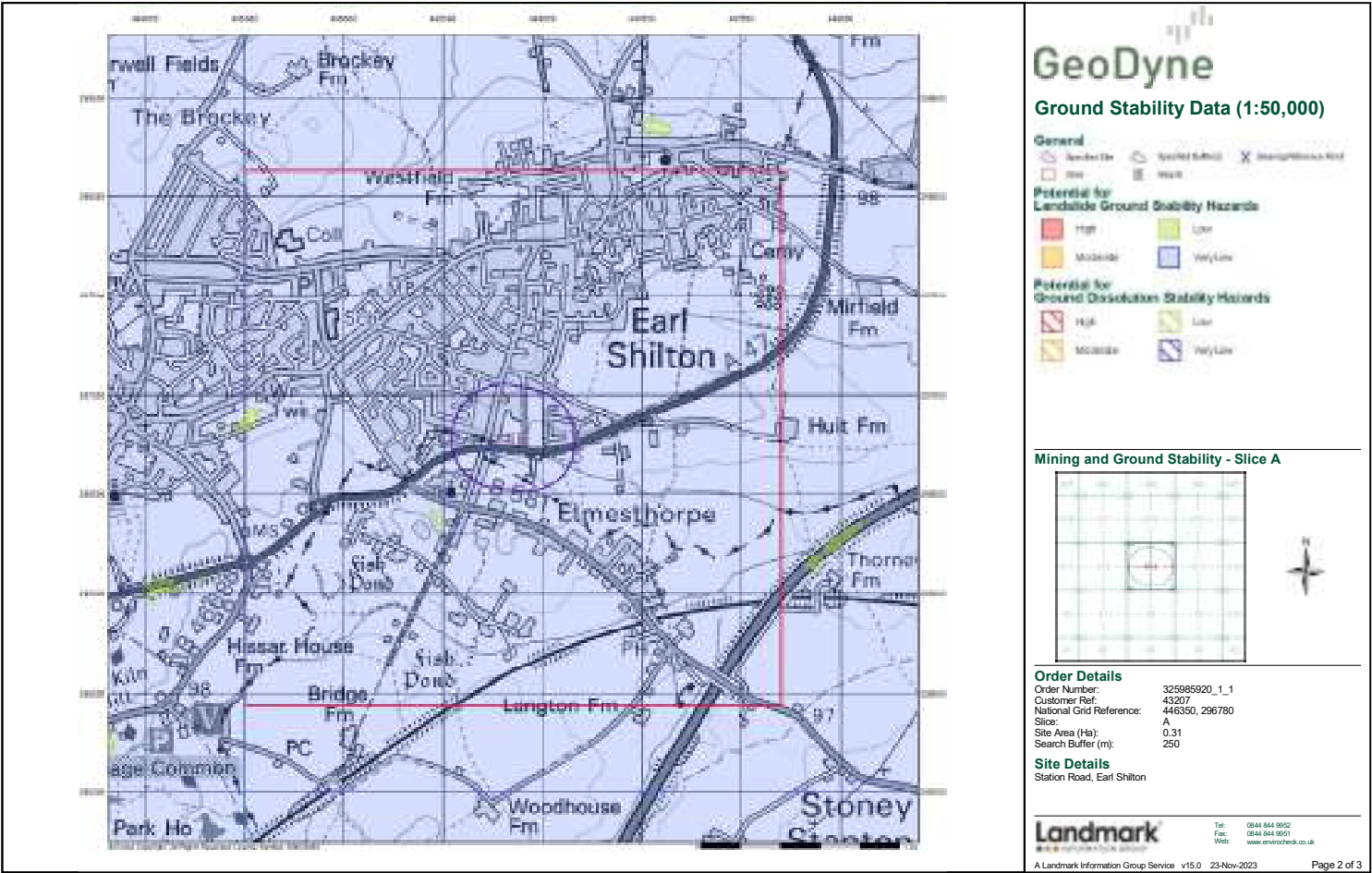
Site Details

Site Details

Station Road, Earl Shilton

Landmark

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



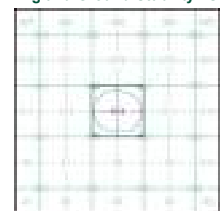


GeoDyne

Ground Stability Data (1:50,000)



Mining and Ground Stability - Slice A



Order Details

Order Number: 325985920_1_1
 Customer Ref: 43207
 National Grid Reference: 446350, 296780
 Slice: A
 Site Area (Ha): 0.31
 Search Buffer (m): 250

Site Details

Station Road, Earl Shilton

Landmark
 geotechnical information

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





GeoDyne

Historical Land Use Information (1:10,000)

General

Selected Site: ☒ Selected Features: ☒ Road/Infrastructure: ☒ Map of: ☒

Source of Topographical Data: ☒

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

Feature	1861	1881	1901
Iron Works			
Cast Iron Works			
Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			

Historical Land Use

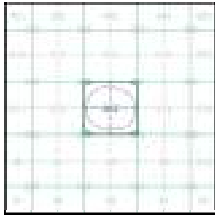
Feature	1861	1881	1901
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			
Other Cast Steel Works			
Other Cast Iron Works			

Mining Data

Selected Mining Data: ☒ Selected Mining Data: ☒

Source of Mining Data: ☒

Mining and Ground Stability - Slice A



Order Details

Order Number: 325985920_1_1
Customer Ref: 43207
National Grid Reference: 446350, 296780
Slice: A
Site Area (Ha): 0.31
Search Buffer (m): 250

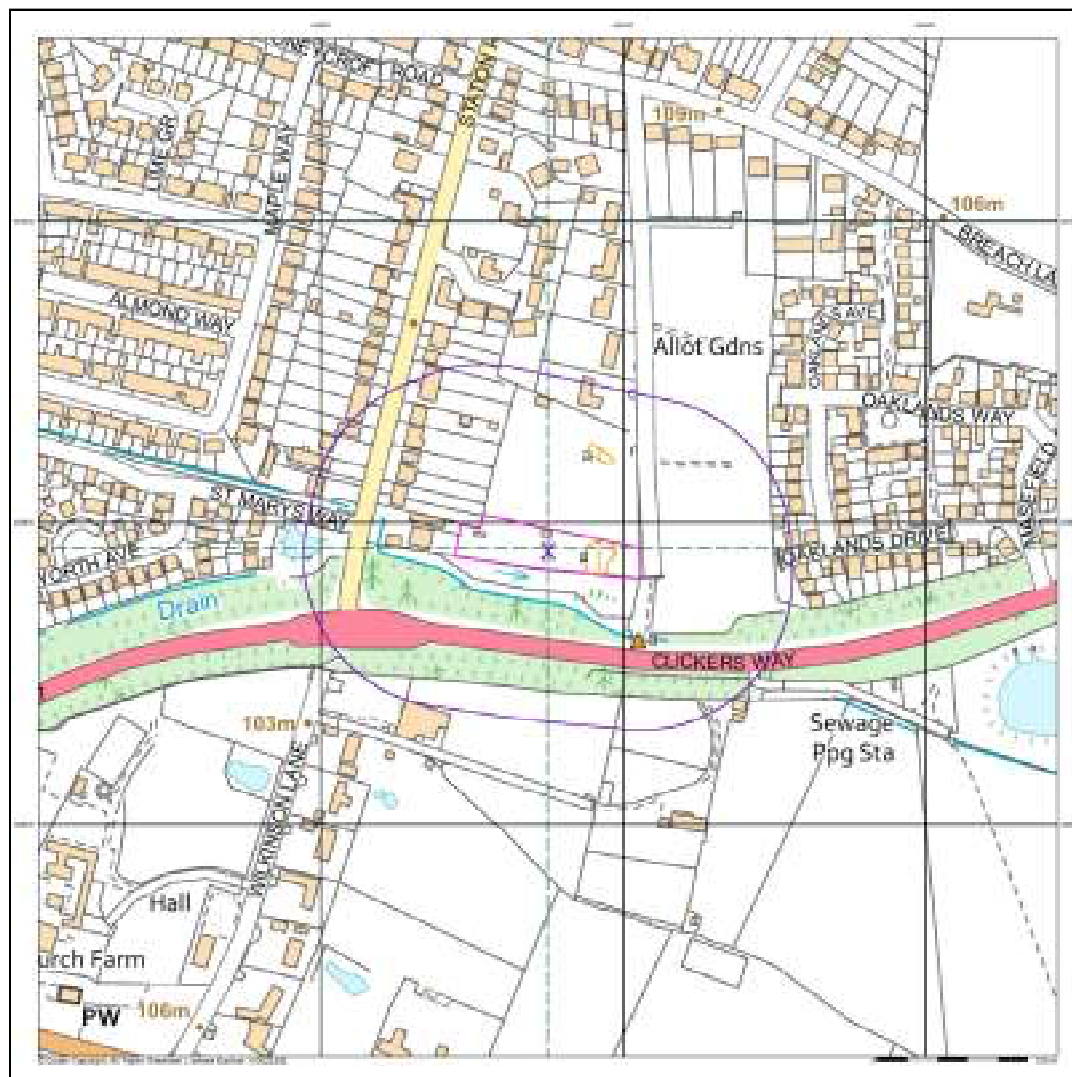
Site Details

Station Road, Earl Shilton

Landmark

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

A Landmark Information Group Service v50.0 23-Nov-2023 Page 1 of 1



GeoDyne

Historical Land Use Information (1:2,500)

General

☒ General
 ☒ Landmarks
 ☒ Boundary Lines
 ☒ Road

☒ Sewer & Drainage

Potentially Contaminative Industrial Sites (Extractive Industries Activity)

Activity	Point	Line	Polygon
Extractive Industries Activity from 1850 - 1900			
Extractive Industries Activity from 1900 - 1950			
Extractive Industries Activity from 1950 - 2000			
Extractive Industries Activity from 2000 - 2020			
Extractive Industries Activity from 2020 - 2023			

Subterranean Features

Feature	Point	Line	Polygon
Subterranean Feature			

Mining and Ground Stability - Segment A13

Order Details

Order Number: 325985920_1_1
 Customer Ref: 43207
 National Grid Reference: 446350, 296780
 Slice: A
 Site Area (Ha): 0.31
 Plot Buffer (m): 100

Site Details

Station Road, Earl Shilton

Landmark

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

A Landmark Information Group Service v50.0 23-Nov-2023 Page 1 of 1

APPENDIX VIII

ZeticaUXO Pre-Desk Study Assessment

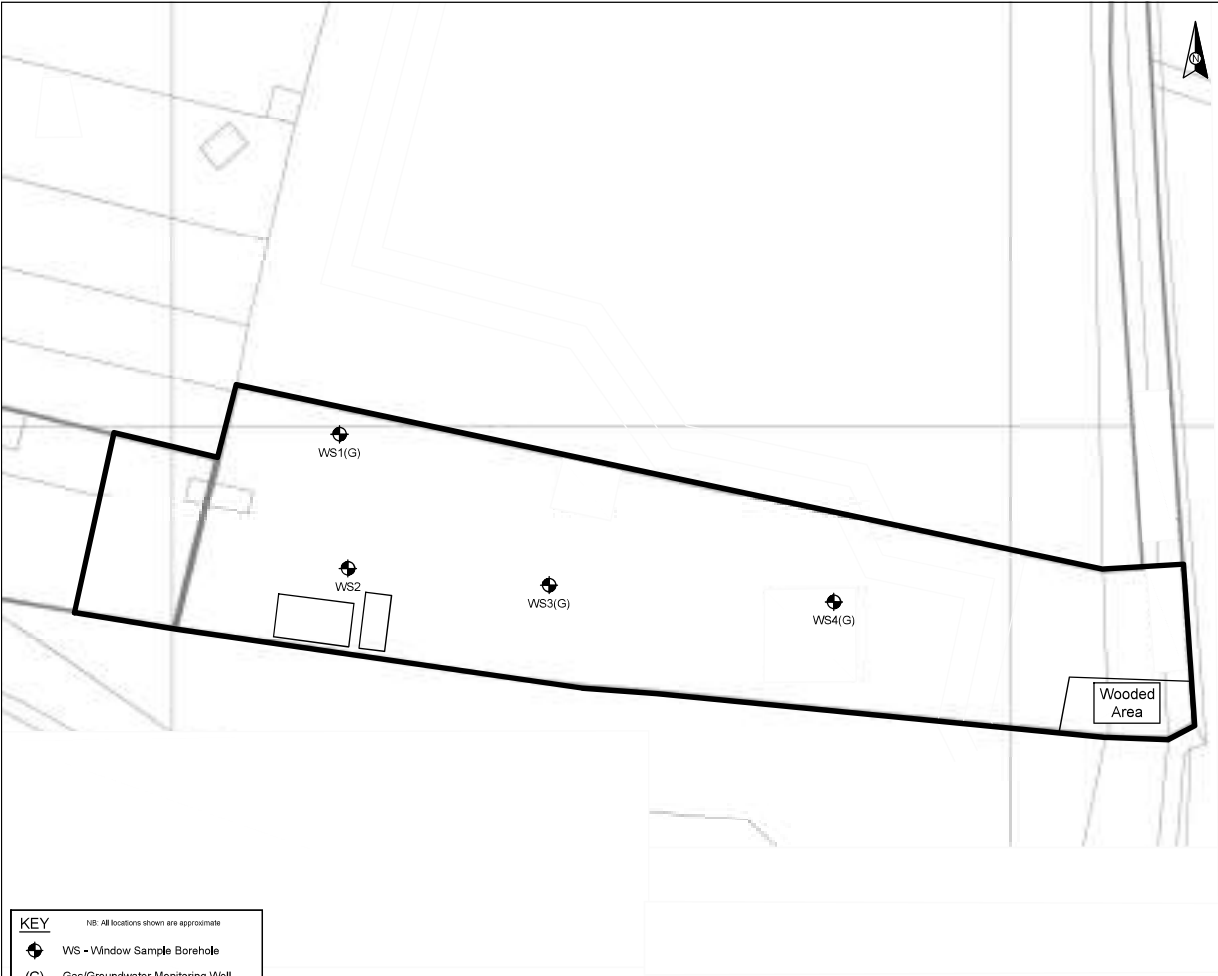
Pre-Desk Study Assessment

Site:	Station Road, Earl Shilton, Leicestershire
Client:	GeoDyne
Contact:	Lisa Salmon
Date:	5 th December 2023
Pre-WWI Military Activity on or Affecting the Site	None identified.
WWI Military Activity on or Affecting the Site	None identified.
WWI Strategic Targets (within 5km of Site)	The following strategic targets were located in the vicinity of the Site: ■ Transport infrastructure and public utilities. ■ Royal Flying Corps (RFC) Desford. ■ Military camps and training areas.
WWI Bombing	None identified on the Site.
Interwar Military Activity on or Affecting the Site	None identified.
WWII Military Activity on or Affecting the Site	None identified on the Site. Anecdotal evidence has been found to indicate that rural areas around Earl Shilton were used for military training during WWII, but no evidence has been found to indicate that such training took place on the Site.
WWII Strategic Targets (within 5km of Site)	The following strategic targets were located in the vicinity of the Site: ■ Transport infrastructure and public utilities. ■ Royal Air Force (RAF) Desford. ■ Military camps and training areas.
WWII Bombing Decoys (within 5km of Site)	None.
WWII Bombing	During WWII the Site was located in the Urban District (UD) of Hinkley, adjacent to the boundary of the Rural District (RD) of Blaby. Hinkley UD officially recorded 88No. High Explosive (HE) bombs with a bombing density of 7.4 bombs per 405 hectares (ha). Blaby RD officially recorded 73No. HE bombs with a bombing density of 2.2 bombs per 405ha. No readily available records have been found to indicate that the Site was bombed.
Post-WWII Military Activity on or Affecting the Site	None identified.
Recommendation	A detailed desk study, whilst always prudent, is not considered essential in this instance.
Further information	For information about Zetica's detailed UXO desk studies and other UXO services, please visit our website: www.zeticauxo.com . Details and downloadable resources covering the most common sources of UXO hazard affecting sites in the UK can be found here . If you have any further queries, please don't hesitate to get in contact with us at uxo@zetica.com or 01993 886 682.

This summary is based on a cursory review of readily available records. Caution is advised if you plan to action work based on this summary. It should be noted that where a potentially significant source of UXO hazard has been identified on the Site, the requirement for a detailed desk study and risk assessment has been confirmed and no further research will be undertaken at this stage. It is possible that further in-depth research as part of a detailed UXO desk study and risk assessment may identify other potential sources of UXO hazard on the Site.

APPENDIX IX

Exploratory Hole Location Plan



Drawing based on Site Location Plan provided by the Client Ref: 7637-01-01 Rev A Dated: 27/06/2019

- © This drawing and the details depicted are the copyright of GeoDyne Limited and may not be reproduced except by written permission.
- Reproduced from the Ordnance Survey Map with the Permission of the Controller of His Majesty's Stationery Office. Crown Copyright Reserved, Licence No. LAN1001274.

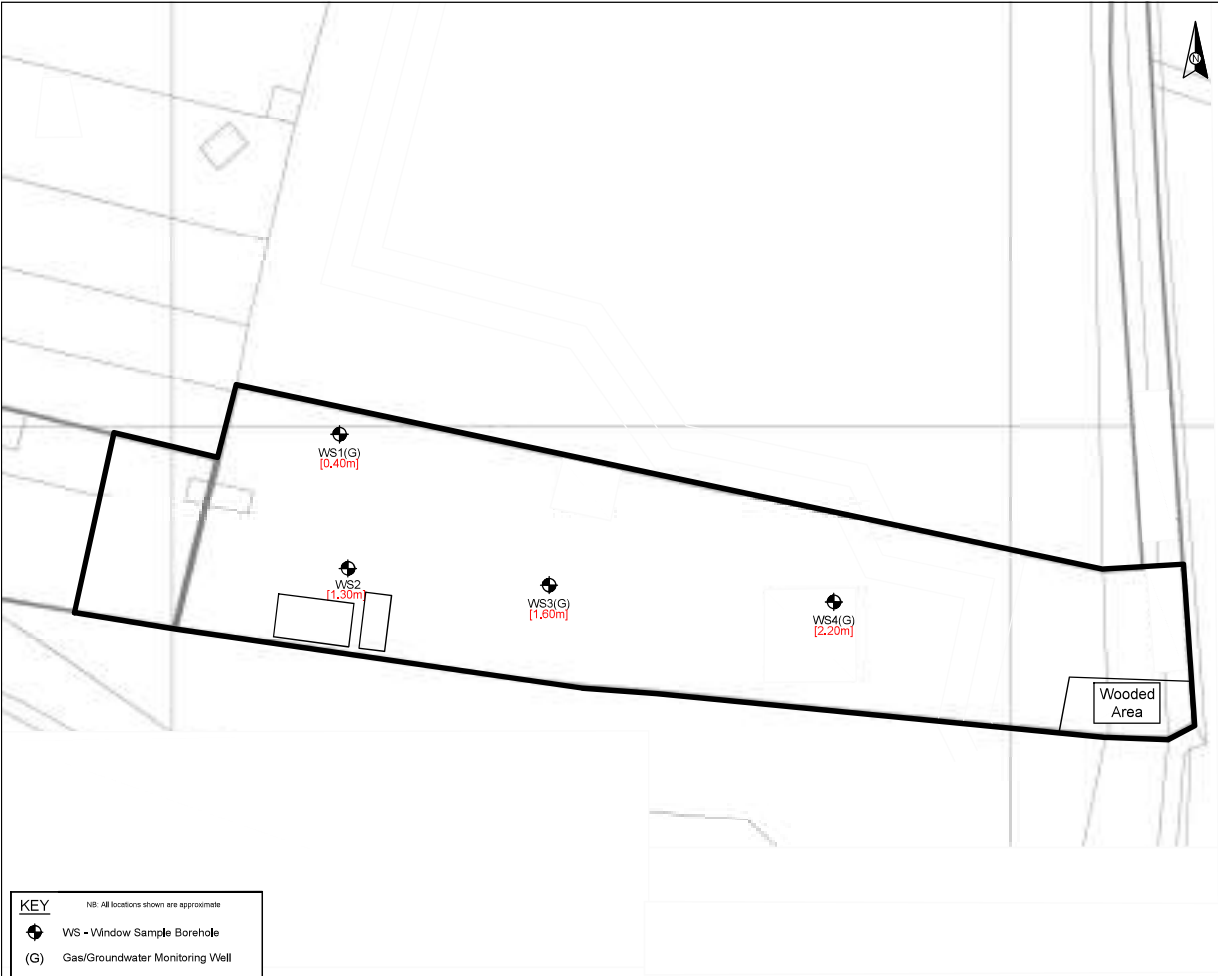
Project No.	43207
Client	Colin Burton Builders Ltd
Project	223 Station Road, Earl Shilton, Leicestershire
Title	Exploratory Hole Location Plan
Drawn By	ACH
Checked By	BP
Approved By	RS
Scale	NTS
Date Drawn	14/12/2023
Revision	
Figure No.	43207/04



Nottingham 0115 962 0001
Derby 01332 290 798
info@geodyne.co.uk
www.geodyne.co.uk

APPENDIX X

Plan Showing Depth to Base of Made Ground



• © This drawing and the details depicted are the copyright of GeoDyne Limited and may not be reproduced except by written permission.

• Reproduced from the Ordnance Survey Map with the Permission of the Controller of His Majesty's Stationery Office. Crown Copyright Reserved, Licence No. LAN1001274.

Project No.	43207
Client	Colin Burton Builders Ltd
Project	223 Station Road, Earl Shilton, Leicestershire
Title	Exploratory Hole Location Plan Showing Depth of Made Ground
Drawn By	ACH
Checked By	BP
Approved By	RS
Scale	NTS
Date Drawn	14/12/2023
Revision	
Figure No.	43207/05



Nottingham 0115 962 0001
Derby 01332 290 798
info@geodyne.co.uk
www.geodyne.co.uk

Drawing based on Site Location Plan provided by the Client Ref: 7637-01-01 Rev A Dated: 27/06/2019

APPENDIX XI

Exploratory Hole Logs



Unit 2.2 Clarendon House
Clarendon Park, Clumber Avenue
Nottingham NG5 1AH
Tel: 0115 962 0001
email: info@geodyne.co.uk

WS1

Project No. 43207

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
0.20	D/J	D1	10	Grass over brown silty sandy TOPSOIL (MADE GROUND - TOPSOIL)		0.10			
				Firm red-brown silty sandy clay with rare fine angular gravel of brick and occasional ashy fragments (MADE GROUND)		(0.30)			
0.50	D/J	D2		Firm locally stiff red-brown CLAY with rare fine to medium subrounded to rounded gravel of quartzite and occasional black organic fragments (BOSWORTH CLAY MEMBER)		0.40			
1.00 - 1.45	C	B1	10	...with thin sandy band at 1.00m		(1.30)			
1.20 - 1.40	B			...with thin silty pockets below 1.20m					
1.80	D	D3	14	Loose red-brown silty SAND with occasional clayey pockets (BOSWORTH CLAY MEMBER)		1.70			
2.00 - 2.45	C			Stiff red-brown CLAY with green-grey silty pockets (BOSWORTH CLAY MEMBER)		1.90 (0.50)			
2.40									
3.00 - 3.45	C	17	17	Loose to medium dense red-brown slightly silty wet fine to medium SAND (BOSWORTH CLAY MEMBER)		2.40 (1.40)			
4.00 - 4.45	C	10	10	Very stiff red-brown CLAY mottled grey-green and purple (BOSWORTH CLAY MEMBER)		3.80			
				Loose to medium dense red-brown slightly silty fine to medium SAND (BOSWORTH CLAY MEMBER)		4.00 (1.00)			
				...becoming drier below 3.60m					
End of Borehole at 5.00m						5.00	5.00		

Remarks

1. Borehole terminated at 5.00m in blowing sands.
2. Sides cased to 5.00m.
3. Water encountered at 2.40m
4. No SPT undertaken at 5.00m because of blowing sand.
5. Borehole fitted with plain pipe and bentonite seal from ground level to 0.70m and with slotted pipe in a gravel surround from 0.70m to 3.70m.
6. Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

Project: Station Road, Earl Shilton

Client: Colin Burton Builders Ltd

Logged: BP

Checked: RS

Field Book Ref: BP 22/01

Plant: Competitor Rig

Drawing Ref:

Date: 08/12/2023

Approved: RS

Scale: 1:25

WS1



Unit 2.2 Clarendon House
Clarendon Park, Clumber Avenue
Nottingham NG5 1AH
Tel: 0115 962 0001
email: info@geodyne.co.uk

WS2

Project No. 43207

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
0.40	D/J	D1	8	Grass over brown silty clayey TOPSOIL (MADE GROUND - TOPSOIL) Loose brown silty sand with rare brick and ash fragments (MADE GROUND)		0.10 (0.60)			
1.00 - 1.45	C			Loose brown clayey sand with fine to medium angular gravel of brick with occasional medium angular roof tile (MADE GROUND)		0.70 (0.60)			
1.50	D/J	D2		Firm red-brown silty sandy CLAY with rare gravel of fine to medium rounded to subrounded quartzite. (BOSWORTH CLAY MEMBER)		1.30			
1.70 - 1.90	B	B1	7	...becoming wet below 1.60m		(1.30)			
2.00 - 2.45	C					2.60			
3.00 - 3.45	C			Loose red-brown clayey gravelly SAND. Gravel is predominantly fine to medium subrounded to rounded quartzite with occasional sandstone (BOSWORTH CLAY MEMBER) Soft grey-brown sandy gravelly CLAY Gravel is predominantly fine to medium subrounded to rounded quartzite with occasional sandstone (BOSWORTH CLAY MEMBER)		2.80 3.00			
4.00 - 4.45	C		21	Very loose red-brown slightly gravelly SAND. Gravel is fine angular Mudstone (BOSWORTH CLAY MEMBER)		(0.50)			
				Very soft grey-brown silty sandy CLAY (BOSWORTH CLAY MEMBER)		3.50			
				Very stiff red-brown silty CLAY (BOSWORTH CLAY MEMBER)		3.70 (0.30)			
			21	Medium dense brown-grey wet slightly clayey silty slightly gravelly SAND. Gravel is fine to medium angular Mudstone (BOSWORTH CLAY MEMBER)		4.00 (1.00)			
5.00 - 5.45	C		40	End of Borehole at 5.00m		5.00	5.00		

Remarks

1. Borehole terminated on achieving 5.00m.
2. Sides cased to 5.00m.
3. Water encountered at 1.60m and 4.00m begl.
4. No SPT undertaken at 5.00m because of blowing sand conditions.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

Project: Station Road, Earl Shilton

Client: Colin Burton Builders Ltd

Logged: BP

Checked: RS

Field Book Ref: BP 22/01

Plant: Competitor Rig

Drawing Ref: WS2

Date: 08/12/2023

Approved: RS

Scale: 1:25



Unit 2.2 Clarendon House
Clarendon Park, Clumber Avenue
Nottingham NG5 1AH
Tel: 0115 962 0001
email: info@geodyne.co.uk

WS3

Project No. 43207

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
0.60	D/J	D1		Grass over brown clayey TOPSOIL (MADE GROUND - TOPSOIL)		0.10			
				Firm grey-brown sandy gravelly clay. Gravel is predominantly fine to medium angular clinker and coal (MADE GROUND)		0.20			
				Loose to medium dense red-brown sandy silt with rare fine to medium angular gravel of sandstone and rare brick (MADE GROUND)		(0.30)			
				Loose brown slightly clayey gravelly silt. Gravel is predominantly fine to medium sandstone with rare fine brick (MADE GROUND)		0.50			
				...with band of subangular clinker between 0.85m and 0.90m		0.90			
1.00 - 1.45	C		5	Firm orange-brown gravelly clay. Gravel is predominantly fine to medium subrounded to rounded quartzite with rare brick (MADE GROUND)		(0.70)			
				...with much ash below 1.50m		1.60			
1.70	D/J	D2		Soft locally firm red-brown silty sandy CLAY (BOSWORTH CLAY MEMBER)					
2.00 - 2.45	C		3						
2.40	D/J	D3		...becoming soft and moist below 2.50m		(1.90)			
				...becoming grey-brown below 2.70m					
3.00 - 3.45	C		21			3.50			
				Very stiff red-brown silty CLAY (BOSWORTH CLAY MEMBER)		(0.50)			
				...with narrow band of wet sand at 3.65m					
				...becoming very stiff below approximately 3.70m					
4.00 - 4.45	C		50/220mm	End of Borehole at 4.00m		4.00	4.00		

Remarks

1.Borehole terminated at 4.00m on refusal.
2.Sides cased to 4.00m.
3.Water encountered at 2.50m and 3.65m
4.Borehole fitted with plain pipe and bentonite seal from ground level to 1.00m and with slotted pipe in a gravel surround from 1.00m to 4.00m.
5..Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

Project: Station Road, Earl Shilton

Client: Colin Burton Builders Ltd

Logged: BP

Checked: RS

Field Book Ref: BP 22/01

Plant: Competitor Rig

Drawing Ref: WS3

Date: 08/12/2023

Approved: RS

Scale: 1:25



Unit 2.2 Clarendon House
Clarendon Park, Clumber Avenue
Nottingham NG5 1AH
Tel: 0115 962 0001
email: info@geodyne.co.uk

WS4

Project No. 43207

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
0.50	D/J	D1		Grass over brown clayey TOPSOIL (MADE GROUND - TOPSOIL) Medium dense brown clayey sand with cobble of brick at 0.30m (MADE GROUND)		0.10 (0.60)			
1.00 - 1.45	C		4	Medium dense grey brown clayey gravel of fine to coarse angular brick and occasional ash (MADE GROUND) Firm grey-brown ashy clay (MADE GROUND)		0.70 0.80 0.90 1.00			
1.30	D/J	D2		Loose to medium dense grey-brown gravel predominantly of brick and sandstone with rare ash (MADE GROUND) ...with cobble of concrete at 0.95m Loose dark grey-brown silt with gravel and cobbles of brick, sandstone and rare ash. (MADE GROUND)		 (1.20)			
2.00 - 2.45	C		4	...with band of brown plant remains at 1.90m					
2.30	D	D3		Soft to firm yellow brown slightly sandy silty wet CLAY (ALLUVIUM)		2.20 (1.00)			
3.00 - 3.45	C		20			3.20 (0.80)			
4.00 - 4.45	C		50/295mm	Very stiff red-brown mottled green-grey silty CLAY (BOSWORTH CLAY MEMBER)		4.00	4.00		
				End of Borehole at 4.00m					

Remarks

1. Borehole terminated at 4.00m on refusal.
2. Sides cased to 4.00m.
3. Water encountered at 2.30m
4. Borehole fitted with plain pipe and bentonite seal from ground level to 1.00m and with slotted pipe in a gravel surround from 1.00m to 4.00m.
5. Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

Project: Station Road, Earl Shilton

Client: Colin Burton Builders Ltd

Logged: BP

Checked: RS

Field Book Ref:

Plant: Competitor Rig

Drawing Ref:

Date: 08/12/2023

Approved: RS

BP 22/01

Scale: 1:25

WS4

APPENDIX XII

Plates

Access from Breach Lane



Access from 223a Station Road



Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Views from 223 Station Road, Earl Shilton, Leicestershire	Revision		43207/P1
		Figure No.		

Brick Building & Abandoned Van



Concrete Lintels

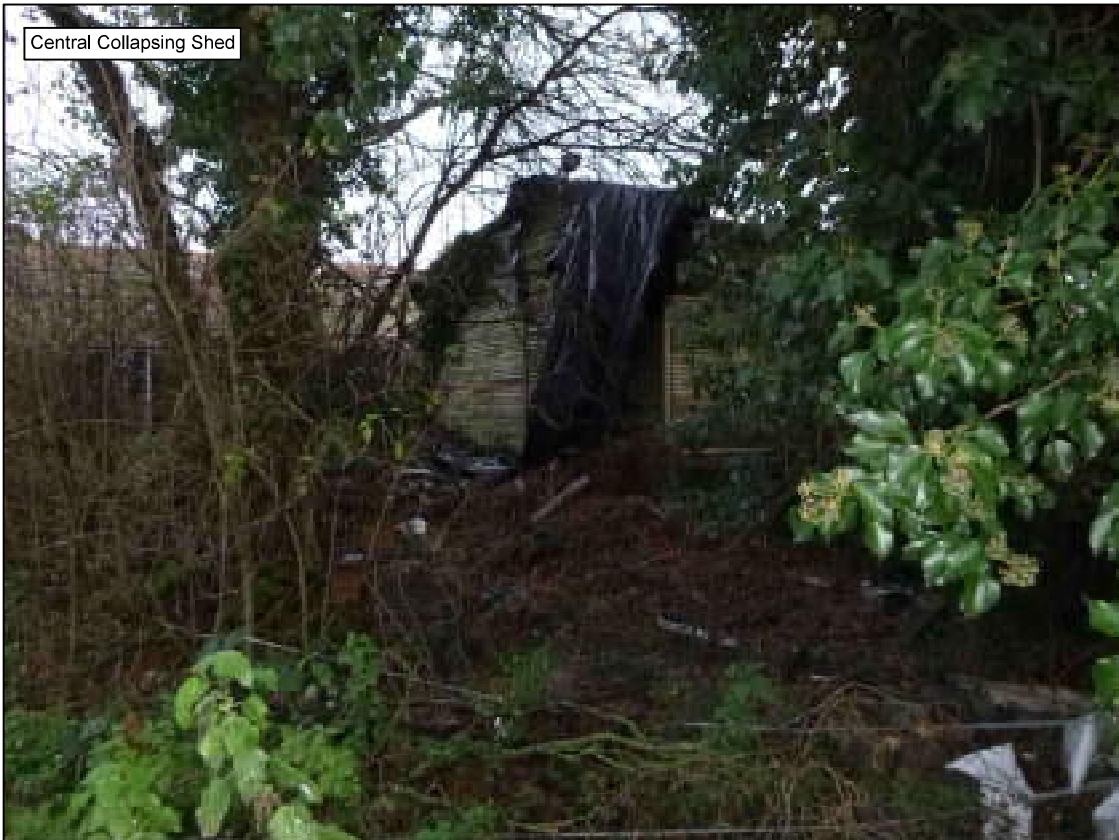


Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Views from 223 Station Road, Earl Shilton, Leicestershire	Revision		43207/P2
		Figure No.		

Western Collapsing Shed



Central Collapsing Shed



Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Views from 223 Station Road, Earl Shilton, Leicestershire	Revision		43207/P3
		Figure No.		



Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Views of Arising's from WS1 and WS2	Revision		43207/P4
		Figure No.		



Project No.	43207	Drawn By	ACH	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Colin Burton Builders Ltd	Checked By	BP	
		Approved By	RS	
Project	223 Station Road, Earl Shilton, Leicestershire	Scale	NTS	
		Date Drawn	14/12/2023	
Title	Views of Arising's from WS3 and WS4	Revision		43207/P5
		Figure No.		

APPENDIX XIII

Laboratory Soil Test Results

FINAL ANALYTICAL TEST REPORT

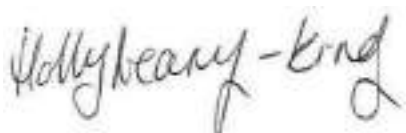
Envirolab Job Number: 23/12368
Issue Number: 1

Date: 18 December, 2023

Client: GeoDyne (Nottingham)
Unit 2.2 Clarendon House
Clarendon Park
Clumber Avenue
Nottingham
Nottinghamshire
UK
NG5 1AH

Project Manager: Ben Parry
Project Name: Station Road, Earl Shilton
Project Ref: 43207
Order No: 43207/BP
Date Samples Received: 13/12/23
Date Instructions Received: 13/12/23
Date Analysis Completed: 18/12/23

Approved by:

A handwritten signature in black ink that reads "Holly Neary-King". The signature is written in a cursive, flowing style.

Holly Neary-King
Sales Manager

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
% Stones >10mm _A	6.2	<0.1	<0.1	15.8	<0.1	<0.1	7.0	% w/w	0.1	A-T-044
pH _D ^{M#}	7.31	6.99	7.25	-	7.72	-	7.77	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	-	0.03	-	0.02	-	g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	1.30	0.57	1.64	-	1.70	-	0.91	% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	5	3	5	-	8	-	2	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	1.2	0.9	-	1.2	-	0.7	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	15	21	48	-	32	-	33	mg/kg	1	A-T-024s
Chromium _D ^{M#}	18	43	18	-	19	-	13	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	18	43	18	-	19	-	13	mg/kg	1	Calc
Lead _D ^{M#}	30	17	65	-	107	-	53	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	-	<0.17	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	15	34	12	-	14	-	12	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	60	63	114	-	163	-	76	mg/kg	5	A-T-024s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	-	-	Amosite	-	-			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	Loose Fibres	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	-	N/A	-	-			A-T-045

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.10	<0.10	0.20	-	0.26	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10	<0.10	0.24	-	0.31	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.10	<0.10	0.31	-	0.44	-	0.13	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10	<0.10	0.14	-	0.23	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10	<0.10	<0.10	-	0.14	-	<0.10	mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	<0.10	<0.10	0.25	-	0.31	-	<0.10	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	<0.10	<0.10	0.46	-	0.43	-	0.15	mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10	<0.10	0.18	-	0.25	-	<0.10	mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	<0.10	<0.10	0.14	-	0.13	-	<0.10	mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	<0.10	<0.10	0.40	-	0.40	-	0.14	mg/kg	0.1	A-T-019s
Total PAH-16MS _A	<0.10	<0.10	2.32	-	2.90	-	0.42	mg/kg	0.1	A-T-019s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
% Stones >10mm _A	3.2							% w/w	0.1	A-T-044
pH _D ^{M#}	7.68							pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03							g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	8.02							% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	9							mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.1							mg/kg	0.5	A-T-024s
Copper _D ^{M#}	94							mg/kg	1	A-T-024s
Chromium _D ^{M#}	19							mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1							mg/kg	1	A-T-040s
Chromium (trivalent)	19							mg/kg	1	Calc
Lead _D ^{M#}	153							mg/kg	1	A-T-024s
Mercury _D	0.33							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	22							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	340							mg/kg	5	A-T-024s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD									A-T-045
Asbestos Matrix (visual) _D	-									A-T-045
Asbestos Matrix (microscope) _D	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A									A-T-045

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.13							mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.15							mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	0.15							mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10							mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	0.32							mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	0.19							mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	0.26							mg/kg	0.1	A-T-019s
Total PAH-16MS _A	1.20							mg/kg	0.1	A-T-019s

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The results reported herein relate only to the material supplied to the laboratory.
 The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
 Analytical results reflect the quality of the sample at the time of analysis only.
 Opinions and Interpretations expressed are outside our scope of accreditation.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
 Stones etc. are not removed from the sample prior to analysis
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
 For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis.
 This is reported as '% stones >10mm'.
 For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
 All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
 Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
 Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Analysis Dates

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	23/12368/10
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)	D2 (MG)
Client Sample ID/Depth	WS1 0.20m	WS1 0.50m	WS2 0.40m	WS2 1.50m	WS3 0.60m	WS3 2.40m	WS4 0.50m	WS4 1.30m
Date Sampled	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23
A-T-019s								
A-T-024s								
A-T-026s								
A-T-031s								
A-T-032s								
A-T-040s								
A-T-044	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
A-T-045								
Calc								

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

SUPPLEMENT TO TEST REPORT 23/12368/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 23/12368
Issue Number: 2

Date: 09 January, 2024

Client: GeoDyne (Nottingham)
Unit 2.2 Clarendon House
Clarendon Park
Clumber Avenue
Nottingham
Nottinghamshire
UK
NG5 1AH

Project Manager: Ben Parry
Project Name: Station Road, Earl Shilton
Project Ref: 43207
Order No: 43207/BP
Date Samples Received: 13/12/23
Date Instructions Received: 13/12/23
Date Analysis Completed: 09/01/24

Approved by:

A handwritten signature in black ink, appearing to read "Sophie France". The signature is stylized, with a large, looped 'S' and 'F'.

Sophie France
Client Manager

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
% Stones >10mm _A	6.2	<0.1	<0.1	15.8	<0.1	<0.1	7.0	% w/w	0.1	A-T-044
pH _D ^{M#}	7.31	6.99	7.25	-	7.72	-	7.77	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	-	0.03	-	0.02	-	g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	1.30	0.57	1.64	-	1.70	-	0.91	% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	5	3	5	-	8	-	2	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	1.2	0.9	-	1.2	-	0.7	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	15	21	48	-	32	-	33	mg/kg	1	A-T-024s
Chromium _D ^{M#}	18	43	18	-	19	-	13	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	18	43	18	-	19	-	13	mg/kg	1	Calc
Lead _D ^{M#}	30	17	65	-	107	-	53	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	-	<0.17	-	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	15	34	12	-	14	-	12	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	-	<1	-	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	60	63	114	-	163	-	76	mg/kg	5	A-T-024s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	-	-	Amosite	-	-			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	Loose Fibres & Board	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	-	-	-	N/A	-	-			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _D	-	-	-	-	0.003	-	-	% w/w	0.001	A-T-054

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	Units	Limit of Detection	Method ref
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)			
Client Sample ID	WS1	WS1	WS2	WS2	WS3	WS3	WS4			
Depth to Top	0.20	0.50	0.40	1.50	0.60	2.40	0.50			
Depth To Bottom										
Date Sampled	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23	08-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	5AE	3	4AE	6AE	4AE	6AE	4ABE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.10	<0.10	0.20	-	0.26	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10	<0.10	0.24	-	0.31	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.10	<0.10	0.31	-	0.44	-	0.13	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10	<0.10	0.14	-	0.23	-	<0.10	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10	<0.10	<0.10	-	0.14	-	<0.10	mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	<0.10	<0.10	0.25	-	0.31	-	<0.10	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	<0.10	<0.10	0.46	-	0.43	-	0.15	mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10	<0.10	0.18	-	0.25	-	<0.10	mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	<0.10	<0.10	0.14	-	0.13	-	<0.10	mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	<0.10	<0.10	0.40	-	0.40	-	0.14	mg/kg	0.1	A-T-019s
Total PAH-16MS _A	<0.10	<0.10	2.32	-	2.90	-	0.42	mg/kg	0.1	A-T-019s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
% Stones >10mm _A	3.2							% w/w	0.1	A-T-044
pH _D ^{M#}	7.68							pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03							g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	8.02							% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	9							mg/kg	1	A-T-024s
Cadmium _D ^{M#}	1.1							mg/kg	0.5	A-T-024s
Copper _D ^{M#}	94							mg/kg	1	A-T-024s
Chromium _D ^{M#}	19							mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1							mg/kg	1	A-T-040s
Chromium (trivalent)	19							mg/kg	1	Calc
Lead _D ^{M#}	153							mg/kg	1	A-T-024s
Mercury _D	0.33							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	22							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	340							mg/kg	5	A-T-024s

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD									A-T-045
Asbestos Matrix (visual) _D	-									A-T-045
Asbestos Matrix (microscope) _D	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A									A-T-045

Envirolab Job Number: 23/12368

Client Project Name: Station Road, Earl Shilton

Client Project Ref: 43207

Lab Sample ID	23/12368/10							Units	Limit of Detection	Method ref
Client Sample No	D2 (MG)									
Client Sample ID	WS4									
Depth to Top	1.30									
Depth To Bottom										
Date Sampled	08-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AE									
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.13							mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.15							mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	0.15							mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10							mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	0.32							mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10							mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	0.19							mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	0.26							mg/kg	0.1	A-T-019s
Total PAH-16MS _A	1.20							mg/kg	0.1	A-T-019s

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The results reported herein relate only to the material supplied to the laboratory.
 The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
 Analytical results reflect the quality of the sample at the time of analysis only.
 Opinions and Interpretations expressed are outside our scope of accreditation.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “^”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
 Stones etc. are not removed from the sample prior to analysis
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).
 For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
 For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
 All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
 Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.
 Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.



Envirolab Analysis Dates

Lab Sample ID	23/12368/1	23/12368/2	23/12368/4	23/12368/5	23/12368/6	23/12368/8	23/12368/9	23/12368/10
Client Sample No	D1 (MG)	D2 (NS)	D1 (MG)	D2 (NS)	D1 (MG)	D3 (NS)	D1 (MG)	D2 (MG)
Client Sample ID/Depth	WS1 0.20m	WS1 0.50m	WS2 0.40m	WS2 1.50m	WS3 0.60m	WS3 2.40m	WS4 0.50m	WS4 1.30m
Date Sampled	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23	08/12/23
A-T-019s								
A-T-024s								
A-T-026s								
A-T-031s								
A-T-032s								
A-T-040s								
A-T-044	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
A-T-045								
A-T-054								
Calc								

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report



LABORATORY REPORT



Contract Number: PSL23/10527

Report Date: 05 January 2024

Client's Reference: 43207

Client Name: GeoDyne Notts

Unit 2.2 Clarendon House
Clarendon Park
Clumber Avenue
Nottingham
NG5 1AH

For the attention of: Ben Parry

Project Name: Station Road, Earl Shilton

Date Received: 15/12/2023

Date Commenced: 15/12/2023

Date Completed: 04/01/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)


M Fennell
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of



LABORATORY REPORT



A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)


M Fennell
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF011

Issue No.1

Approved by: L Pavey

03/01/2022

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

**Station Road, Earl Shilton**

Contract No:

PSL23/10527

Client Ref:

43207

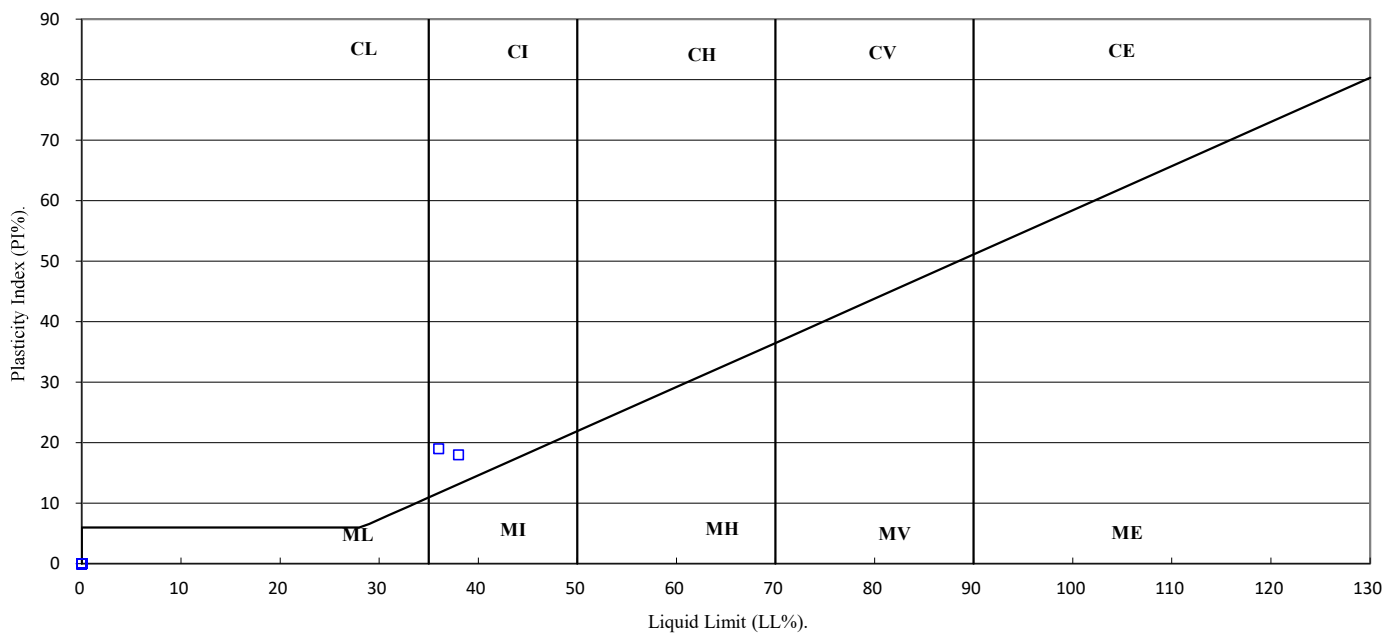
PSLRF006

Issue No.1

Approved By: L Pavey

03/01/2023

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



Station Road, Earl Shilton

Contract No:

PSL23/10527

Client Ref:

43207

PSLRF006

Issue No.1

Approved By: L Pavey

03/01/2023

APPENDIX XIV

Ground Gas and Water Level Monitoring Results



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	14/12/2023
Date	Overcast, Light Drizzle
Equipment	GA5000 (GEO20) + Dip meter
Weather	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	09:34	1008	Peak	0.0	2.4	19.3	1	0	0.0	1.30	180	
			Steady	0.0	2.3	19.3	0	0	0.0			
WS3	09:47	1008	Peak	0.0	2.7	16.7	1	0	0.1	0.90	240	
			Steady	0.0	0.5	20.3	0	0	0.1			
WS4	09:58	1008	Peak	0.0	0.6	20.6	0	0	0.1	1.20	150	
			Steady	0.0	0.5	20.8	0	0	0.0			
Ambient				0.0	21.2	0.0	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)
4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)
5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents
- NA - Not Applicable/ Not Available
- BOH - Bottom of Hole
- ND - Not Determined
- NGW - No groundwater encountered
- NR - None Recorded



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	21/12/2023
Date	Very Windy
Equipment	GA5000 (GEO20) + Dip meter
Weather	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	15:34	995	Peak	0.0	2.8	19.1	0	0	0.0	1.34	120	
			Steady	0.0	2.8	19.1	0	0	0.0			
WS3	15:42	997	Peak	0.0	4.4	11.5	2	0	0.0	1.43	150	
			Steady	0.0	4.2	11.5	1	0	0.0			
WS4	15:49	997	Peak	0.0	0.0	21.1	1	0	0.0	1.46	90	
			Steady	0.0	0.0	21.1	1	0	0.0			
Ambient				0.0	21.1	0.0	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)

2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)

4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)

5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	05/01/2024
Date	Clear
Equipment	GA5000 (GEO20) + Dip meter
Weather	NG

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	13:42	992	Peak	0.0	0.0	20.8	1	0	0.0	1.00	240	
			Steady	0.0	0.0	20.8	1	0	0.0			
WS3	13:36	992	Peak	0.0	6.5	5.2	1	0	0.0	1.09	210	
			Steady	0.0	6.5	5.2	1	0	0.0			
WS4	13:30	994	Peak	0.0	3.6	17.5	1	0	0.0	1.46	30	
			Steady	0.0	3.5	17.5	1	0	0.0			
Ambient				0.0	0.0	20.8	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)

2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)

4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)

5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	12/01/2024
Date	Overcast and cold
Equipment	GA5000 (GEO20) + Dip meter
Weather	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	14:15	1025	Peak	0.0	3.5	17.5	1	0	0.1	1.45	180	
			Steady	0.0	3.4	17.5	1	0	0.1			
WS3	14:25	1025	Peak	0.0	5.9	8.6	1	0	0.0	1.30	120	
			Steady	0.0	5.9	8.6	1	0	0.0			
WS4	14:38	1025	Peak	0.0	3.4	16.3	1	0	0.0	1.57	180	
			Steady	0.0	3.4	16.3	0	0	0.0			
Ambient				0.0	0.0	20.8	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)

2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)

4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)

5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	18/01/2024
Date	Cold and clear
Equipment	GA5000 (GEO20) + Dip meter
Weather	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	10:20	996	Peak	0.0	0.4	20.6	0	0	0.1	1.61	120	
			Steady	0.0	0.4	20.6	0	0	0.1			
WS3	10:26	994	Peak	0.0	6.9	11.2	0	0	0.1	1.53	120	
			Steady	0.0	6.8	11.2	0	0	0.1			
WS4	10:32	994	Peak	0.0	3.9	17.8	0	0	0.0	1.62	90	
			Steady	0.0	3.9	17.8	0	0	0.0			
Ambient				0.0	0.0	20.7	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)

2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)

4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)

5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents



Project No.	43207
Site Location	Station Road, Earl Shilton
Client	Colin Burton Builders Ltd
Operator	26/01/2024
Date	Sunny
Equipment	GA5000 (GEO20) + Dip meter
Weather	NG

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015												
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	CO (ppm)	H ₂ S (ppm)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Time to steady readings (secs)	Other Issues i.e. odour, condition of installation, etc
WS1	13:25	1018	Peak	0.0	3.4	16.5	1	0	0.0	1.58	270	
			Steady	0.0	3.4	16.5	0	0	0.0			
WS3	13:30	1018	Peak	0.0	6.0	9.9	1	0	0.0	1.61	120	
			Steady	0.0	5.9	10.1	0	0	0.0			
WS4	13:35	1018	Peak	0.0	3.3	18.2	0	0	0.2	1.50	90	
			Steady	0.0	3.3	18.2	0	0	0.1			
Ambient		1018		0.0	0.0	21.1	0	0				

Notes

- Cell is highlighted in the following conditions
1. Where Methane exceeds 1% v/v (after BR212)

2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

3. Where Carbon Monoxide exceeds 30ppm (after BS8576:2013)

4. Where Hydrogen Sulphide exceeds 5ppm (after BS8576:2013)

5. Where Oxygen is below 16% v/v (Coal Authority guidance)
- NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded
- Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

APPENDIX XV

Conditions and Limitations

Conditions & Limitations

Phase I Desk Studies

1. Works undertaken to provide the basis of the Phase I Desk Study report comprise a review of information available from a number of sources/parties (potentially also including the Client) together with a walk over of the site (where applicable and included within the quotation). The opinions given in the Phase I Desk Study are based on the information available from third parties/sources that has been obtained within the available timeframe. GeoDyne Limited assumes all third party information to be true and correct and therefore cannot accept liability for the accuracy of such information supplied.
2. Should additional information become available that may affect the comments and opinions made within the Phase I Desk Study, GeoDyne Limited reserves the right to review such information and make modifications to comments/opinions as appropriate.
3. It should be borne in mind that a Phase I Desk Study collates available information to generate a conceptual model of the site. The actual geotechnical and environmental considerations can only be fully quantified by intrusive investigation works to confirm the accuracy of the conceptual site model.

Phase II Intrusive Investigations

1. Our quotation assumes that access to the site will be arranged by others at no cost to ourselves.
2. We have assumed that free access is available throughout to the entire site and that works can be undertaken during a single mobilisation. Where restricted access is encountered, or where additional unscheduled mobilisations are required, additional costs may be incurred to the client.
3. We have assumed that all available information relating to buried services will be supplied by the Client at no cost to ourselves. No responsibility will be accepted for damage to underground services that have not been brought to our prior attention by the Client.
4. All excavations/boreholes will be backfilled with compacted arisings upon completion, with any excess arisings left proud of ground levels. Excess arisings will not be removed from the site unless specifically requested by the Client. Where we are requested to remove excess arisings, all associated costs will be passed to the Client.
5. We will attempt to leave the site in a clean and tidy state, however, it must be understood that some disturbance of the site is unavoidable during intrusive works.
6. Exploratory holes are positioned approximately on site by GeoDyne Limited. Should the client require precise locations of all exploratory points, additional fees will be incurred. It must be borne in mind that backfilled trial pits can create 'soft spots', therefore, should the Client wish to designate 'no dig' zones, for example under the footprint of proposed structures, these must be brought to our attention prior to commencement of works.
7. Groundwater observations relate to conditions encountered at the time of investigation. It must be understood that groundwater levels may vary as a result of recent climatic conditions or seasonal variation.
8. Trial pits and boreholes examine only a small proportion of the total site area. No liability can be accepted for conditions not revealed in exploratory holes, particularly between positions. All extrapolations of available data are given in good faith.

Payment

1. Payment terms are strictly 28 days from the invoice date. GeoDyne reserve the right to charge interest on any late payments.
2. Prior to commencement of works, we require receipt of formal written instruction from the party accepting full financial responsibility for the work. In the absence of such an instruction, we would expect the instructing Consulting Engineers/Architects to accept full financial responsibility for the works.
3. Receipt of instruction to commence work shall be taken as acceptance and compliance of the foregoing conditions.

Liability

1. GeoDyne Limited offer £5,000,000.00 Professional Indemnity Insurance (in aggregate over the year). This shall be the limit of our liability for works undertaken. No individual liability shall be implied to, or accepted by, any employee for works undertaken for and on the behalf of GeoDyne Limited.