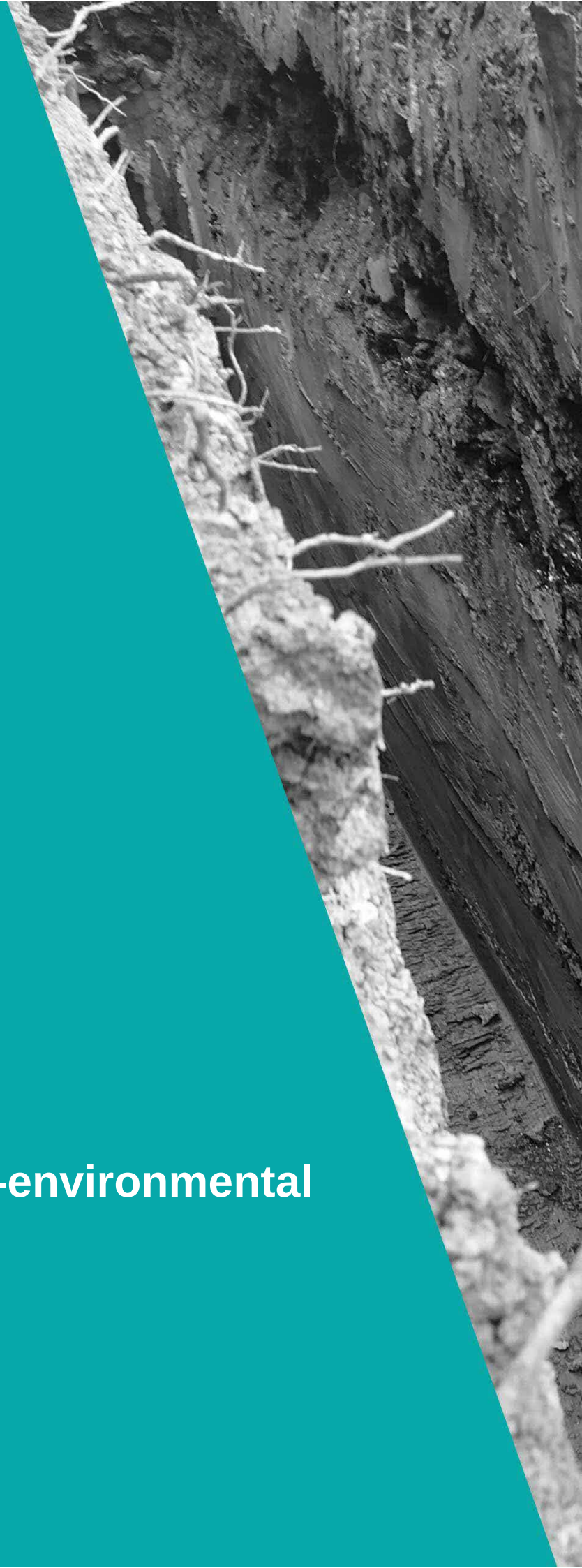
Eastwood
CONSULTING ENGINEERS



Phase 1
Geotechnical & Geo-environmental Site Investigation

Tilstock Road, Tilstock

Boningale Homes Limited

11 September 2024

Eastwood
CONSULTING ENGINEERS

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PHASE 1
GEOTECHNICAL AND GEO-ENVIRONMENTAL SITE INVESTIGATION

TILSTOCK ROAD, TILSTOCK

FOR

BONINGALE HOMES LIMITED

ISSUE 2

48888-ECE-XX-XX-RP-C-0003 **11 September 2024**

PHASE 1
GEOTECHNICAL AND GEO-ENVIRONMENTAL SITE INVESTIGATION

TILSTOCK ROAD, TILSTOCK

FOR

BONINGALE HOMES LIMITED

Job No.	:	48888
Report Status	:	Issue 2
Document Date	:	11 September 2024
Approved	:	[redacted]
		Kate Edwards
		Technical Director

CONTENTS

APPENDICES

1.0 EXECUTIVE SUMMARY

1. The approximately 4.1-hectare site is located to the east of Tilstock Road, north of Tilstock in Shropshire. The site is currently part of a larger field and features two small circular (<5%) surface-flooding features in the south east and central north west of the site and a pond is present on the north western boundary, surrounded by trees. The site has had no previous development other than small, localized ponds.

2. The site is being considered for development with residential properties of conventional construction with private gardens, as well as a care home with associated car parking and landscaping.

3. The geological maps show superficial glaciofluvial deposits (i.e., sand and gravel) to cover the entire site. The underlying solid geology is shown to comprise Lias Group mudstone.

4. The site does not lie within a Groundwater Source Protection Zone. The superficial deposits are classed as a Secondary A aquifer whilst the underlying mudstone bedrock are Unproductive Strata.

5. Topsoil is anticipated to be present across the entire site. Minimal made ground is expected, except for within infilled ponds. The natural ground is expected to consist of superficial glaciofluvial deposits, described on mapping as ‘sand and gravel’ but in nearby boreholes as marl with granular bands. Mudstone bedrock is expected to be present at depth. Shallow groundwater is expected.

6. A shallow water table is expected, however the shallow superficial deposits are expected to be a suitable bearing material for spread foundations. Time of year when pulling footings needs to be considered. Piled foundations will need to be considered if constructing footings during wetter times of the year, particularly where other deepening factors such as tree influence and backfilled ponds need to be taken into account.

7. However if the water table is lower, for example in summer months, the most suitable foundations could be strip or trench fill footings.

8. The stability of trenches may be poor in made ground and where shallow groundwater is encountered.

9. Where a higher water table is present, a thickened road construction may be necessary.

10. Soakaways are not likely to be viable due to the presence of a shallow water table.

11. No radon precautions are expected to be required.

12. Although the onsite pond backfill material may pose a gas risk, given its relatively small size it is expected that the material can be excavated and placed in POS areas. An alternative approach would be to leave the material in situ, and carry out a gas monitoring programme to determine if plots in close proximity to the backfilled pond require gas measures.

13. Significant levels of contamination are not expected to be encountered. Where the pond backfill remains in place (<10% of the site), a capping in overlying gardens as well as an increased level of sulphate measures in concrete should be allowed for. Protective water supply pipes may also be necessary for this localised area.

14. Before more definite information regarding the properties of the ground and any contamination present can be given, an intrusive investigation will be required.

15. The conclusions made in this report in relation to contamination are subject to agreement by the approving bodies and your warranty provider.

2.0 INTRODUCTION

2.1 Terms of Reference

This report presents the findings of a Phase 1 Geotechnical and Geo-environmental Site Investigation carried out by Eastwood & Partners (Consulting Engineers) Limited trading as Eastwood Consulting Engineers (ECE) for, and on the instructions of Boningale Homes Limited. Any other parties using the information in this report do so at their own risk and any duty of care is excluded.

2.2 Context

ECE are not aware of any previous investigations undertaken at the site.

2.3 Aims and Objectives

The aims and objectives of this investigation were as follows:

To assimilate and review information extracted from published documentation and a site walkover to derive an outline conceptual model identifying potential contaminants, pathways and receptors, as well as possible linkages between these;

To detail the expected ground conditions and their geotechnical properties enabling outline foundation proposals to be made for the proposed residential development; and

To outline proposals for a Phase 2 intrusive investigation, the purpose of which would be to obtain information to test the conceptual model and assess the risks to receptors as well as to confirm the foundation proposals.

2.4 Scope of Investigation

The investigation involved a review of information extracted from published documentation. Information regarding the current and former land uses both on and surrounding the site, as well as the environmental sensitivity of the location as determined by factors including geology, hydrogeology and hydrology have been examined.

Information analysed has been obtained from a variety of sources and included the following:

A Landmark Envirocheck;

British Geological Survey maps and memoirs; and

A site walkover.

2.5 Limitations of Investigation

This report is based on the assumption that the site will be developed with residential properties of conventional construction with private gardens, areas of public open space, and a care home with associated car parking. It is assumed that existing ground levels will not alter significantly. If this is not the case, then the advice given in this report may not be appropriate.

Where assessments of site areas affected in particular ways are given, these are approximate. All information, comments and opinions given in this report are based on the documentary information examined. This report considers the ground and groundwater and does not cover any buildings, their fabric or the constituents of any hardstanding. Risks to ecological receptors, such as bats, have not been considered.

3.0 THE SITE

3.1 Description

The approximately 4.1-hectare site is located to the east of Tilstock Road, north of Tilstock in Shropshire. The site is centred on grid reference 354285, 338120 and is accessed by a gate to the south west. A telephone post and wire are present to the south west corner, crossing the site access.

The site is currently part of a larger field and features two small circular (<5%) surface-flooded features in the south east and central north west of the site. A pond is present on the north western boundary, surrounded by trees.

The site surface has an appearance of a gentle slope down to the east. A topographical survey has been reviewed; there is a localised elevated area at around 106.6 m AOD in the centre of the site. Ground levels appear to generally fall to around 102 m AOD in the south east (average gradient 1 in 35), 105.6 m AOD in the north west and 105 m AOD in the south west.

A wooden fence is present in the south western (<5%) of the site, which restricts access to this part of the site.

The southern boundary is formed of large mature trees with residential buildings to the south whilst the northern and western boundaries are formed of a hedgerow with Tilstock Road to the west. An electric fence denotes the eastern boundary, with a pond visible beyond to the north east.

In the surrounding area, there are agricultural fields to the north and east of the site, and an overhead power cable in the eastern field in a north south orientation. The village of Tilstock is located to the south of the site.

Photographs from the site walkover are included in the Appendix.

3.2 History

Historical Ordnance Survey maps have been reviewed in the Envirocheck to assess the previous use of the site and surrounding area. The maps, together with the Envirocheck, can be found in the Appendix.

The Envirocheck was originally purchased for a smaller site area; since obtaining the Envirocheck, the site boundary has expanded to the north.

3.2.1 The Site

The earliest map dated 1880 shows the site comprises open fields with a large pond, approximately 30 m in length, in the centre of the site. A second pond is also indicated on the north western boundary. A track also crosses the site in a north east, south west orientation. The western boundary is formed by a tree-lined road. The southern boundary comprises a field boundary.

Between 1955 and 1971, the central pond and the track are no longer shown. By 1971 a field boundary crosses the northern third of the site in a north-west, south-east orientation. By 1995, this field boundary has been removed.

Satellite imagery dated 2018 shows there is a circular feature to the south east which is assumed to be a surface water feature. By satellite imagery dated 2022, there is a circular feature to the central north of the site, potentially another location of a surface water feature.

The map dated 2023 confirms the south eastern feature is a pond.

No further significant changes are shown to the present day.

3.2.2 The Surrounding Area

The earliest historical map from 1880 shows the surrounding area to the north, east and south to comprise predominately of fields. A road follows the western boundary of the site and the village of Tilstock is located adjacent to the south western boundary of the site with properties present adjacent to the road to the south west of the site. A number of ponds and pumps are present between 10 and 250 m around the site.

By the 1920s, housing had been built around 150 m south east of the site. One of the larger ponds around 225 m south west of the site had been infilled by the 1970s.

Historical aerial photography dated 2000 shows a circular feature approximately 75 m to the east of the site. Satellite imagery dated 2012 shows this circular feature to be a surface water feature.

No further changes are shown to the present.

3.3 Geology

The geological maps, SJ53NW (1:10,000), Nantwich 122 (1:50,000), and the British Geological Survey (BGS) Online Viewer have been consulted.

The geological maps show superficial glaciofluvial deposits (i.e., sand and gravel) to cover the entire site. The underlying solid geology is shown to comprise Lias Group mudstone.

No faults are indicated to be present on site.

The solid geology is shown to dip approximately 25 degrees to the north west.

Nearby boreholes located approximately 225 m to the south east and south of the site, recorded superficial deposits to be at least 15 m thick, comprising of marl with sand and gravel bands. Water strikes were recorded at around 5 to 16 m bgl.

3.4 Hydrogeology

The superficial deposits beneath the site are classified as a Secondary A Aquifer. This is defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The underlying bedrock is classified as Unproductive Strata. This is defined as strata that is unable to provide usable water supplies.

According to the Envirocheck, there are two ground water abstractions within 250 m of the site, located 73 m to the west and 180 m to the south. Both abstractions are used for 'general farming and domestic'.

The Envirocheck states that the site does not lie within a Groundwater Source Protection Zone.

3.5 Hydrology

According to the Envirocheck, the nearest surface water feature is a pond, located in the south east of the site.

3.6 Extractive Industries

3.6.1 Coal

The Coal Authority Interactive Map indicates that the site is not within a coal mining reporting area and therefore is not considered to be a significant risk to the site.

3.6.2 Sand Pits

Two sand pits are present on the historical maps approximately 700 to 850 m to the south of the site, labelled as 'old' on the 1902 map. The outline of the pit is still visible up until the 1973 map, when it is no longer shown and is presumed to have been infilled.

There is no evidence on the geological or historical maps to indicate sand extraction has taken place on the site.

3.7 Ground Gas

According to the Envirocheck, the site is within a lower probability radon (less than 1% of homes are estimated to be at or above the Action Level) area therefore no radon protective measures are considered necessary in the construction of new dwellings or extensions.

Given the site history, a significant depth of made ground is not anticipated below the site. The exception would be within the backfilled pond, which may contain organic material.

No active or historic landfill sites are recorded by the Envirocheck within 500 m of the site.

The Envirocheck records four potentially infilled water features within 250 m of the site:

0 m to the north west.

153 m to the south west.

208 m to the south.

243 m to the west.

The historical maps indicate that these features are ponds which were infilled by 1971.

The ponds offsite are expected to be too small to be a source of ground gas. Although the onsite pond backfill material may pose a gas risk, given its relatively small size it is expected that the material can be excavated and placed in POS areas. An alternative approach would be to leave the material in situ, and carry out a gas monitoring programme to determine if plots in close proximity to the backfilled pond require gas measures.

3.8 Pollution Incidents to Controlled Waters

The Envirocheck does not list any pollution incidents to controlled waters within 250 m of the site. The nearest incident was recorded in 1998, 263 m north east of the site, relating to oils into a watercourse; it was classified as a category 3 – minor incident. Given the length of time since this incident, it is not considered to pose a significant risk to the site.

3.9 Local Authority Pollution Prevention and Controls

The Envirocheck does not list any controls within 500 m of the site.

3.10 Discharge Consents

The Envirocheck does not record any discharge consents located within 250 m of the site.

3.11 Flooding

The Envirocheck does not record the site to be at risk of flooding from rivers or seas.

A small area (<5%) to the south east of the site is at low risk (1000-year return) of flooding from surface water.

The entire site has the potential for groundwater flooding of property situated below ground level to occur.

3.12 Soil Geochemistry

The Envirocheck estimates the following concentrations of arsenic, cadmium, chromium, nickel and lead to be present in the natural soil at the site. These have been compared to the appropriate assessment value protective of residential human health receptors with homegrown produce.

Contaminant	Estimated Concentration (mg/kg)	Assessment Value (mg/kg)
Arsenic	<15 to 25	37
Cadmium	<1.8	11
Chromium	40 to 90	910
Lead	<100	200
Nickel	<15 to 30	180

The concentrations of these contaminants are not therefore expected to be elevated within natural ground.

3.13 Contemporary Trade Directory Entries and Fuel Station Entries

There are two contemporary trade directory entries recorded within 250 m of the site, relating to an inactive tyre dealers 77 m to the south west and an active garage services 134 m to the south west.

One fuel station is recorded within 250 m of the site, located 137 m to the south west of the site and is regarded as obsolete.

4.0 EXPECTED GROUND CONDITIONS

4.1 Topsoil

Topsoil is anticipated to cover the entire site.

4.2 Made Ground

Given the site history, a significant depth of made ground is not anticipated. Made ground may be present within any infilled ponds, and may contain reworked natural material with a high organic content.

4.3 Natural Ground

The geological maps indicate glaciofluvial deposits will cover the entire site. A nearby borehole shows that superficial deposits are present to at least 15 m bgl, and described as cohesive with granular bands.

Below the superficial deposits, mudstone bedrock is expected.

4.4 Groundwater

Given the geology and presence of ponds both on site and within the surrounding area, groundwater is expected to lie at shallow depth.

5.0 OUTLINE CONCEPTUAL MODEL

The site is being considered for development with residential properties of conventional construction with private gardens, as well as a care home with associated car parking and landscaping.

5.1 Potential Sources of Contamination

Historically, the site has had no significant development other than small ponds (<10% of site area).

Although a significant thickness is not anticipated, any made ground which is present on the site may contain elevated concentrations of metals/metalloids, polycyclic aromatic hydrocarbons (PAHs), asbestos fibres and sulphates. A high organic content may be present within pond backfill.

The Lias mudstone may contain naturally elevated sulphide concentrations; however the strata are expected to lie at depth below the site and should not come into contact with concrete structures. This will need to confirmed as part of an intrusive investigation.

5.2 Ground Gas

No radon protective measures are required.

Backfilled ponds may contain organic material which could pose a gas risk. One option is to excavate the material and place it within POS areas, away from site end users. Another option is to leave the material in situ and carry out a gas monitoring programme to determine if gas measures are required for plots overlying and in close proximity to the pond.

5.3 Potential Pollutant Linkages

The following table details the possible sources and associated contaminants of concern, pathways and receptors:

Source	Potential Contaminants	Potential Pathways	Potential Receptors
Made ground	Heavy metals/metalloids Asbestos PAHs	Ingestion Inhalation Direct contact Biological uptake Migration through ground	Site residents and visitors to the site Site construction workers Aquifers: Secondary A (superficial); Unproductive (bedrock); Plants Water supply pipes
Made or natural ground	Sulphates Low pH	Direct contact	Below ground concrete
Pond backfill	Ground gas	Inhalation Migration through ground	Site residents and visitors to the site Site construction workers Buildings

5.4 Remedial Measures

Significant levels of contamination are not expected to be encountered.

The topsoil on the site is expected to be considered suitable for reuse; however, this would need to be verified by chemical testing.

A limited thickness of made ground may be present within the backfilled pond (<10% of site area). At this stage it is considered that allowance is made for the following:

A minimum 600 mm thick clean capping is likely to be required for gardens and landscaped areas overlying made ground;

A minimum DS-2 AC-2 level of sulphate precautions should be allowed for, applying to below ground concrete structures within contact of made ground; and

Protective water supply pipes in made ground;

Gas measures in plots overlying and in close proximity to backfilled ponds.

6.0 GEOTECHNICAL APPRAISAL

6.1 General

Topsoil is anticipated to be present across the entire site. Minimal made ground is expected, except for within infilled ponds. The natural ground is expected to consist of superficial glaciofluvial deposits, described on mapping as 'sand and gravel' but in nearby boreholes as marl with granular bands. Mudstone bedrock is expected to be present at depth. Shallow groundwater is expected.

The Party Wall Act will need to be considered for structures associated with neighbouring properties along the site boundaries.

6.2 Foundations

A shallow water table is expected. However the shallow superficial deposits are expected to be a suitable bearing material for spread foundations. Time of year when pulling footings needs to be considered.

Where a shallow water table is present and footings are due to be case in wetter times of the year, piled foundations should be allowed for.

However if the water table is lower, for example in summer months, the most suitable foundations could be strip or trench fill footings through any soft or made ground onto undisturbed non-desiccated natural ground below. Footings within clay are dependent on the volume change potential of the soil. This would need to be determined as part of an intrusive investigation.

If made ground deeper than 2.5 m is encountered, notably in the location of the backfilled ponds, and for plots within the influence of trees where a shallow water table is present, then piled foundations would be required.

Where foundations are in clay and within influencing distance of past, present or proposed trees, the footing depth will need to be increased in accordance with the NHBC Standards Chapter 4.2. Precautions against soil heave due to the influence of past or present trees are likely to be required in spread footings wherever the footing depth is greater than 1500 mm, and for piled foundations within influence of trees.

Where foundations span across different ground types, e.g., sand, gravel, clay and rock, they should be taken down to found on the same material, or thickened and reinforced to minimise the effects of differential settlement.

A shallow water table is expected to be present, therefore groundwater control may need to be allowed for, and the time of year considered for commencing deeper excavations.

6.3 Ground Slabs

Where less than 600 mm of made ground is present, ground bearing slabs will be appropriate. Elsewhere, reinforced suspended slabs or precast concrete floors with a minimum 150 mm high ventilated void should be used.

6.4 Superstructure Precautions

No additional superstructure precautions will be required due to the ground conditions encountered.

6.5 Excavation Problems & Obstructions

The stability of trenches may be poor in made ground and where shallow groundwater is encountered.

Temporary support will be required in accordance with current Health & Safety Regulations wherever access is required to trenches deeper than 1.2 m or less where there is risk of collapse. Support will therefore be required in accordance with current Health & Safety Regulations wherever access is required to trenches deeper than 1.2 m or less where there is risk of collapse.

6.6 Roads

A CBR value of at least 2% is likely to be appropriate for road design. The ground should be assumed to be frost susceptible and a minimum construction thickness of 450 mm will therefore apply.

Where a higher water table is present, a thickened road construction may be necessary.

It is recommended that CBR tests are undertaken along any proposed roads prior to construction so that more accurate CBR values can be obtained.

6.7 Surface Water Drainage

Soakaways are unlikely to be viable, given the expected presence of a shallow water table. Infiltration testing, undertaken as part of an intrusive investigation, will be required to confirm this.

7.0 RECOMMENDATIONS FOR FURTHER WORK

Before more definite information regarding the properties of the ground and any contamination present can be given, an intrusive ground investigation will be required. Investigation by mechanically dug trial pits would be the preferred method of investigating the soils on site, as this allows a larger volume of soil to be viewed.

Boreholes are recommended to confirm the strength of the superficial deposits and determine if bedrock lies at an influencing depth of the new development.

If a gas monitoring programme was to be undertaken whilst the pond backfill is still in situ, boreholes would be required for the installation of gas and groundwater monitoring wells, and a gas monitoring programme undertaken to determine the current gassing regime of the site.

Infiltration testing should be undertaken to assess the feasibility of surface water discharge by soakaways.

The potential pollutant linkages presented in Section 5.3 will need to be investigated by means of soil analysis. The chemical testing suite should be chosen to cover the range of potential contaminants indicated. Geotechnical testing should be carried out on clay soils to determine their volume change potential.

Appendix 1

Site Walkover Photographs

View of the south west of the site, facing north east.

View of the north west of the site, facing south east.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	1&2

TILSTOCK ROAD, TILSTOCK

BONINGALE HOMES LIMITED

WALKOVER PHOTOGRAPHS

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View of the north east corner of the site, facing south west.

View of the south east corner of the site, facing north west.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	3&4

TILSTOCK ROAD, TILSTOCK

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WALKOVER PHOTOGRAPHS

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View of the entrance off Tilstock Road in the south west of the site, facing east.

View of the entrance off Tilstock Road and telephone wire over the entrance of the south west of the site, facing west.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	5&6

TILSTOCK ROAD, TILSTOCK

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WALKOVER PHOTOGRAPHS

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View of Tilstock Road to the south west of the site along the western boundary, facing north.

View of Tilstock Road to the north west of the site along the western boundary, facing south.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	7&8

TILSTOCK ROAD, TILSTOCK

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View of the pond to the north west of the site, adjacent to Tilstock Road, facing west.

View of the surface water flooding in the south east of the site, facing north west.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	9&10

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WALKOVER PHOTOGRAPHS

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View of surface water flooding in the central area of the site, facing south east.

View of the surface water flooding to the east of the site, facing north east.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	11&12

TILSTOCK ROAD, TILSTOCK

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View of the southern boundary, facing east.

View of the western boundary, facing north west.

Prepared	BR	Checked	KE	Job No.	48888	Date	25.03.2024	Photograph No.	11&12

TILSTOCK ROAD, TILSTOCK

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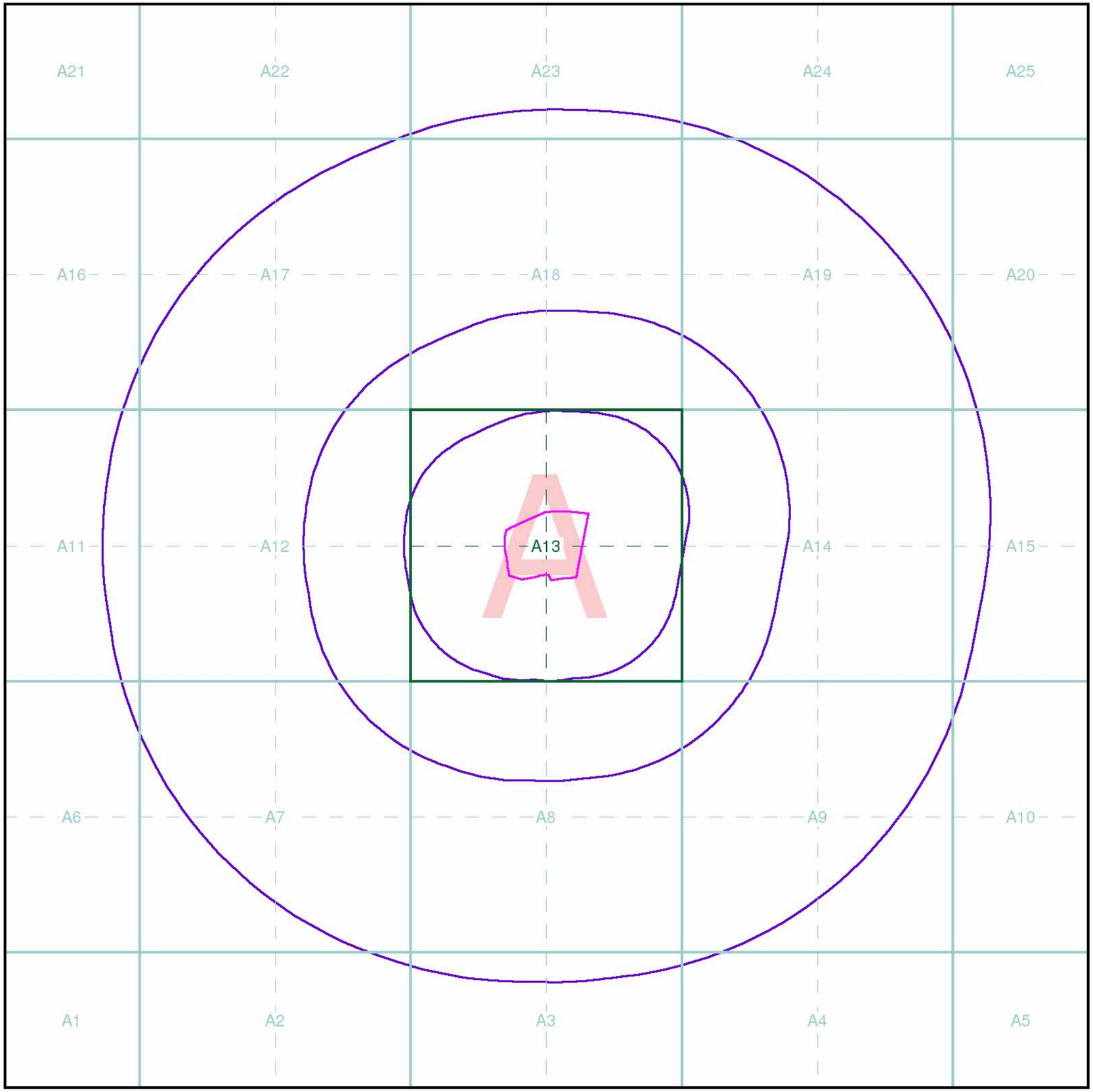
Appendix 2

Landmark Envirocheck



Envirocheck®

LANDMARK INFORMATION GROUP®

Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mrs L Mitchell, Eastwood & Partners Ltd, St Andrews House, 23 Kingfield Road, Sheffield, S11 9AS

Order Details

Order Number:	339123021_1_1
Customer Ref:	48888
National Grid Reference:	354270, 338060
Site Area (Ha):	2.9
Search Buffer (m):	1000

Site Details

Site at 354280, 338070

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

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Web: www.envirocheck.co.uk

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
•285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy.
County Borough Boundary (England)
Co. Burgh Bdy.
County Burgh Boundary (Scotland)
R.D. Bdy.
Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

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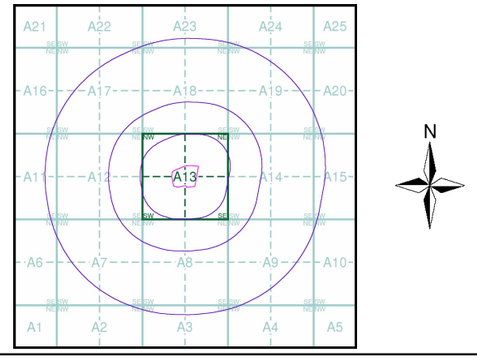
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Flintshire	1:10,560	1878	2
Cheshire	1:10,560	1881	3
Shropshire	1:10,560	1884	4
Flintshire	1:10,560	1900	5
Shropshire	1:10,560	1902	6
Flintshire	1:10,560	1914 - 1915	7
Flintshire	1:10,560	1914 - 1915	8
Shropshire	1:10,560	1929	9
Shropshire	1:10,560	1929	10
Shropshire	1:10,560	1929	11
Shropshire	1:10,560	1938	12
Ordnance Survey Plan	1:10,000	1954	13
Ordnance Survey Plan	1:10,000	1955	14
Ordnance Survey Plan	1:10,000	1973	15
10K Raster Mapping	1:10,000	2000	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2023	18

Historical Map - Slice A



Order Details

Order Number:	339123021_1_1
Customer Ref:	48888
National Grid Reference:	354280, 338060
Slice:	A
Site Area (Ha):	2.9
Search Buffer (m):	1000

Site Details

Site at 354280, 338070

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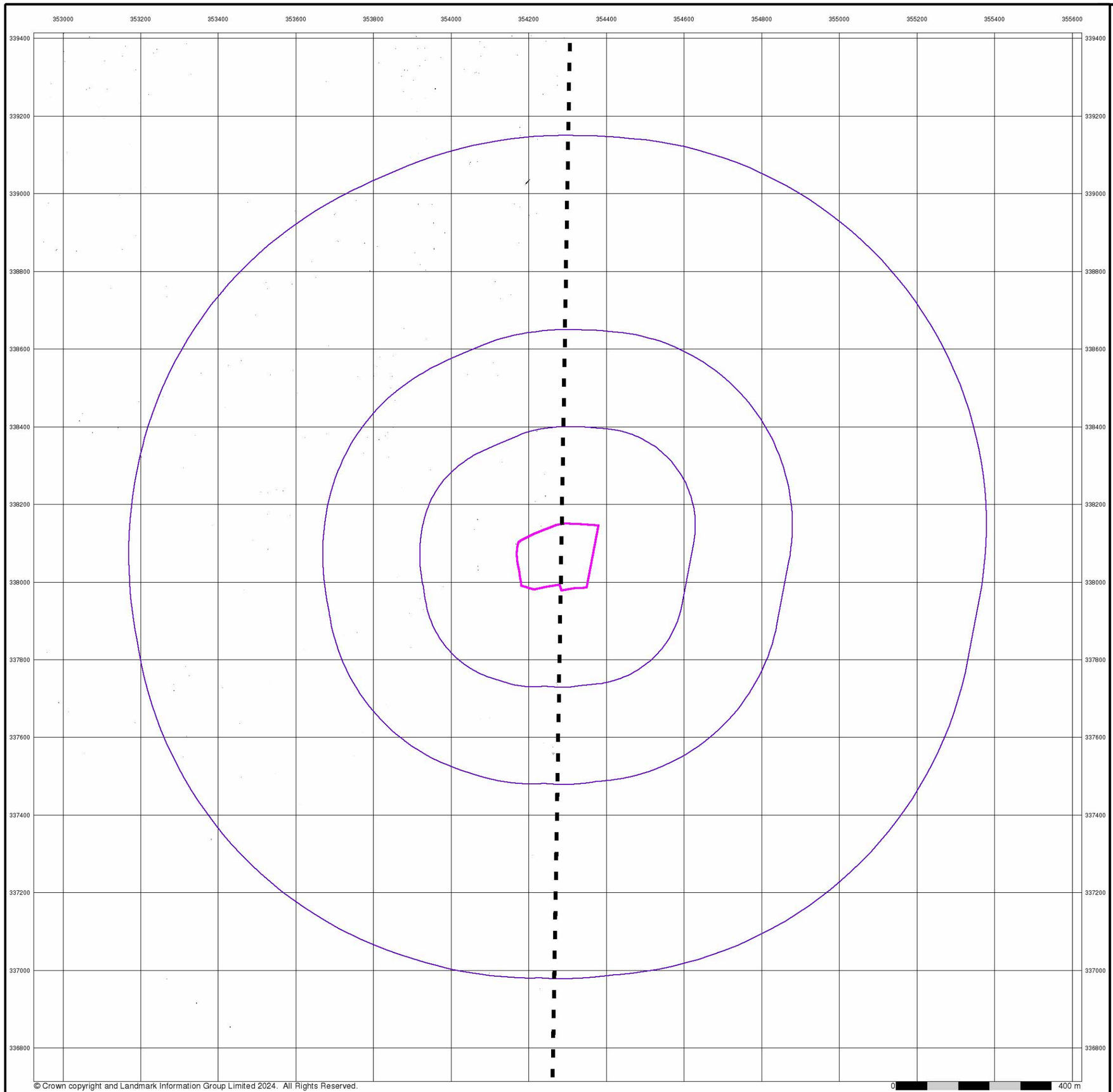
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Flintshire

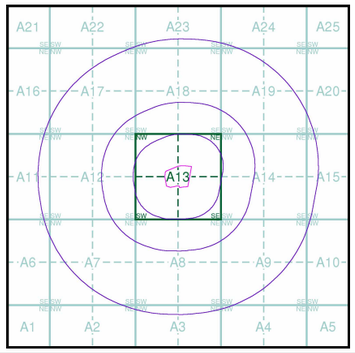
Published 1878

Source map scale - 1:10,560

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

Map Name(s) and Date(s)

Historical Map - Slice A



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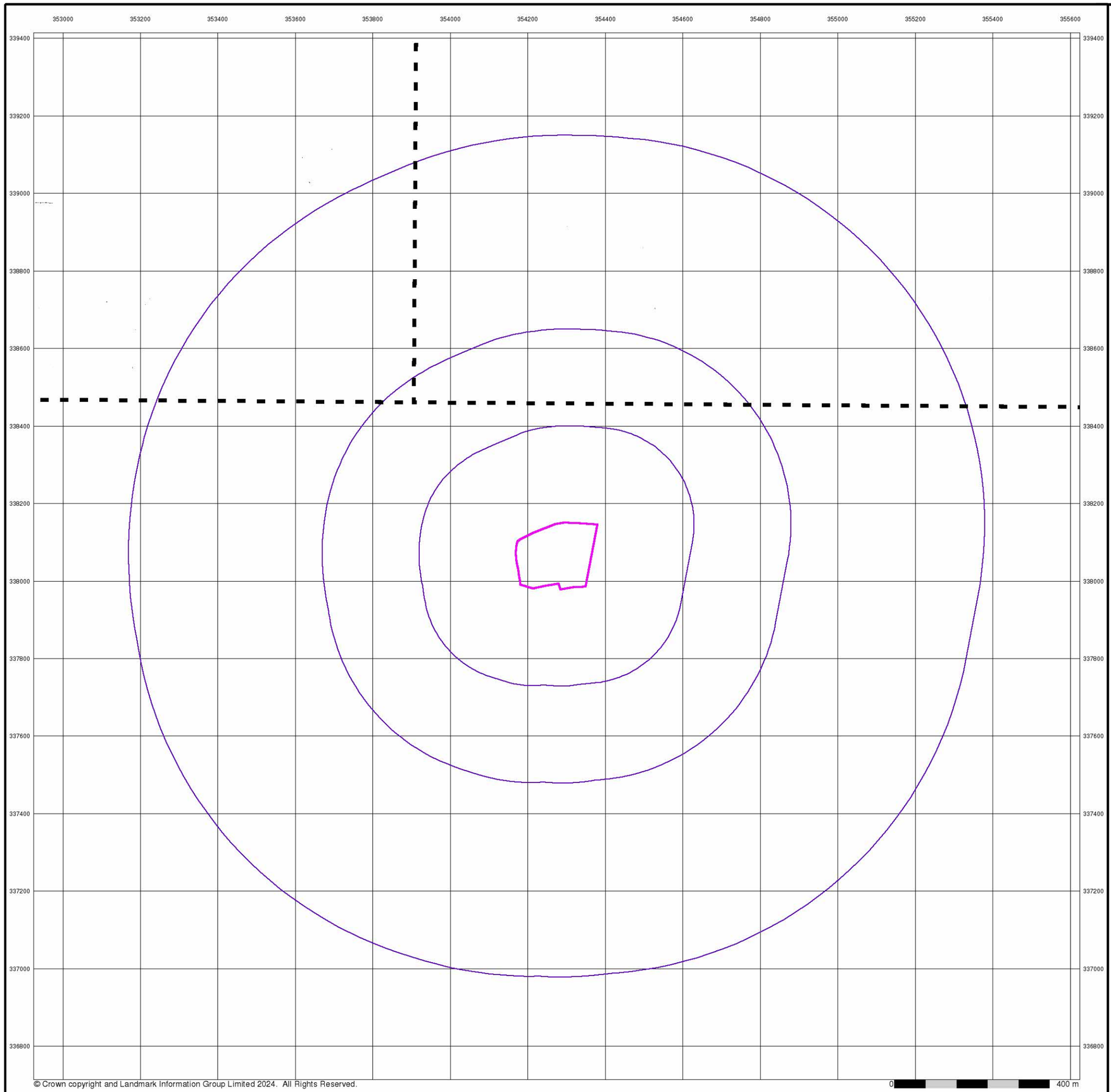

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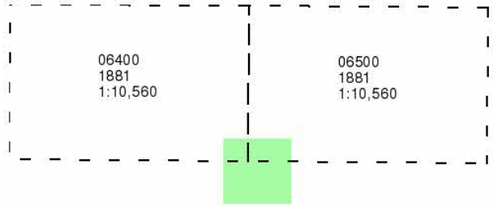
Cheshire

Published 1881

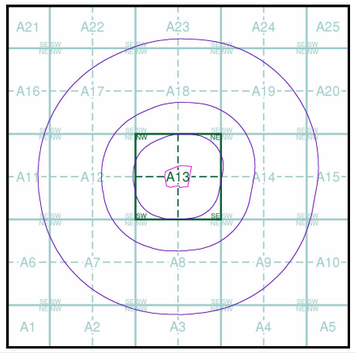
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



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