GeoDyne

Geotechnical &
Environmental
Consultants

Lincs Gateway Phase 2

Combined Phase I Desk Study and Phase II Exploratory Investigation For Ashwood Homes

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Project No: D41115		**Date: 20th August 2021**	
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EXECUTIVE SUMMARY

GEOTECHNICAL CONSIDERATIONS	
Ground Conditions	Made Ground was encountered within 15 No. of the 21 No. exploratory holes advanced at the site, all within the western portion of the site. The Made Ground was encountered to depths of between 0.40m and 1.50m begl. Natural Topsoil was encountered at the surface within the eastern portion of the site (i.e. the agricultural field), to depths of between 0.25m and 0.30m begl. Beneath the Topsoil and Made Ground, the Natural Strata typically comprised firm locally stiff sandy SILT, which was underlain by a soft silty CLAY.
Foundation Design	Reference should be made to the Foundation Zoning Plan (Figure No. D41115/07). <u>Zone 1</u> Notable depths of Made Ground (including up to 1.50m begl) have been encountered in the western portion of the site, which may preclude the use of traditional strip / trench fill foundations. Deepening of potential shallow foundations through the Made Ground is considered more likely to encounter the less geotechnically competent soils (i.e. soft Clay). Based on the findings of the exploratory works carried out to date and the development proposals (which are understood to potentially comprise steel framed structures), it is recommended that a specialist foundation solution (e.g. piles or potentially controlled modulus columns for example) is adopted for the proposed buildings within this zone to suit the loading characteristics of the proposed structures. It would be necessary to undertake further intrusive works at the site involving cable percussive boreholes to assess the deeper ground conditions to assist with potential deeper foundation solutions (e.g. piles) for the proposed development. The use of a deeper founding solution (i.e. piles, for example) may need to be considered anyway if there is a need to raise site levels and / or where excessive loads from buildings are present and shallow foundations are not deemed appropriate, subject to advice from a Structural Engineer. <u>Zone 2</u> For the eastern portion of the site, Made Ground was not encountered within the window sampling boreholes advanced in this area. Due to the field containing a crop at the time of the exploratory works, it was not possible to undertake trial pits and shear vane readings from a range of depths within this portion of the site. It is considered that, subject to further trial pitting works when the crop has been harvested, it may be possible to adopt a shallow foundation solution in this area of the site (i.e. Structural Engineer designed strip or raft foundations to suit the loading characteristics of the proposed structures and incorporate mesh reinforcement, if considered appropriate). In the absence of trial pitting works in this area, it is recommended that a specialist foundation solution (e.g. piles or potentially controlled modulus columns for example) is also adopted for the proposed buildings within this zone to suit the loading characteristics of the proposed structures.
Floor Slab Design & Ground Gas Precautions	CS2 ground gas precautions are required at the site. The floor slab design would need to take into account the requirement for gas protection. Further gas monitoring could be carried out in the eastern portion (agricultural field) to determine the requirement for gas protection measures in this part of the site.
Radon	No precautions required.
Building Near Trees	Foundation designs may require locally adjusting in accordance with BRE guidance when building near existing, proposed or recently removed trees / hedgerows (where present). This includes heave to ground beams assuming that a piled foundation solution is to be adopted. Soils of a medium volume change potential should be assumed for design purposes. Deepening of foundations for trees is likely to lead to foundations penetrating the less geotechnically competent strata and piled foundations may need to be considered.
Water	Water is likely to be encountered within excavations for construction purposes at the site and dewatering of excavations are likely to be necessary.
Excavations/Stability	The assessment of excavations and provision of support will be the responsibility of the contractor on site.
Sulphate Classification	Design Class DS-1 / ACEC Class AC-1s. Further water soluble sulphate testing should be carried out in the area where the highest concentrations have been recorded to confirm the classification.
Coal Mining	No coal mining precautions or associated investigation works are required at the site.
CBRs	The remoulded soaked CBR testing has revealed CBR values for the Natural Strata between 1.3% and 2.5%.
Surface Water Drainage	Soakaway testing has not been undertaken at the site. Based on the findings of the exploratory holes, it is considered that the shallow soils beneath the site are likely to be of relatively low permeability and it is noted that shallow water levels have been recorded. If the Client wishes to consider the use of soakaways or permeable paving at the site, appropriate testing should be carried out.

ENVIRONMENTAL CONSIDERATIONS	
Contamination Assessment	The soils may be considered to be uncontaminated in the context of the proposed commercial end-use. There are considered to be no significant risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.
Remediation Proposals	No specific remediation works will be required other than the provision of suitable existing Natural Topsoil in proposed soft landscaped areas to provide a suitable growing media for plants.
GENERAL CONSIDERATIONS	
Construction Workers	Construction personnel should use appropriate PPE and RPE equipment and hygiene facilities.
Utilities	We would recommend that our report is supplied to utility companies and their recommendations are adhered to. With regard to water supply pipes, based on the laboratory testing undertaken across the site, it is likely that water supply pipes in the western portion of the proposed development are likely to require protective / barrier pipes. For the eastern portion (i.e. the agricultural field) where low contaminant concentrations were recorded (i.e. below Anglian Water pipeline threshold values), it is considered that protective / barrier pipes would not be required, subject to confirmation by Anglian Water.
Unforeseen Circumstances	Should any areas of potentially contaminated soil/anomalous features be encountered we would recommend consultation with GeoDyne.
Licenses 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 construction works at the site.
Statutory Consultation	We would recommend that our report is issued to the Local Authority (and Warranty Provider).

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Limited has been appointed by the Client, Ashwood Homes, to undertake a combined Phase I Desk Study & Phase II Exploratory Investigation on land located to the north of the A16 and east of Cowbit Road, Spalding. A site location plan (Figure No. D41115/01) is included in Appendix I.

1.2 Project Understanding

We understand that it is proposed to develop the site with commercial units as shown on the proposed layout plan included within Appendix II. The site is proposed to comprise Phase 2 of the development site, with the Phase 1 development completed to the south west of the study site which comprises a service station, hotel, public house and commercial units / offices.

This understanding has formed the basis of our report. Where our understanding is incorrect, it may be necessary to review our assessment to ensure that it continues to apply.

1.3 Objectives

The scope of works detailed herein have been designed to ascertain the key geotechnical and environmental issues pertaining to the proposed development.

1.4 Scope of Works

Based on the defined objectives of the works (detailed in Section 1.3), the scope of the Phase I Desk Study included the following:

- A site walkover.
- Review of available historical and contemporary Ordnance Survey publications relating to the site.
- Review of the site's geology, hydrology, hydrogeology and groundwater vulnerability.
- Review of the site's coal mining status.
- Review of the site's radon status.
- Commission of a full detailed Landmark Envirocheck Report relating to the site.
- Commission of Landmark geological mapping data.
- Production of a preliminary Conceptual Site Model (pCSM).

Phase II Exploratory Investigation works comprised:

- A sub-contracted sub-surface utility scan of proposed exploratory hole locations.
- A series of mechanically excavated trial pits and window sampling boreholes across accessible areas of the site.
- Geotechnical and environmental soil testing.
- An initial programme of ground gas and water level monitoring.
- Revision of the pCSM.

1.5 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 sole use and reliance of Ashwood Homes, in accordance with our standard Conditions & Limitations (included in Appendix XVI). 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 & HISTORY

2.1 Site Description

The site comprises an irregular shaped parcel of land located between Cowbit Road and the A16 to the south of Spalding, Lincolnshire. The site may be located centred around approximate Ordnance Survey National Grid Reference 524420E 319950N. The site covers an area of approximately 4.4 hectares.

At the time of our site works (June & July 2021), the site could be divided into two distinct areas. These areas comprise the eastern area and western area which were both sensibly level.

The eastern area comprised part of an agricultural field cropped with corn. An overgrown drain running west to east bisected the field through the central portion, which terminated in the western portion of the site. A further drain was present along the northern site boundary.

The western portion of the site comprised bare ground surfaced with reworked soils including a variety of anthropogenic materials such as plastic, timber, concrete and macadam fragments. A large stockpile of soil was present along the western site boundary. On a previous visit to the site (earlier in June 2021), numerous stockpiles were present across the western area, however, by the time of the site works it appears that the stockpiles had been relocated and combined into the one larger stockpile along the site boundary.

The site was accessed through a locked gate on the south western site boundary. A concrete track ran from the access gate towards the north east through part of the western portion of the site.

The site was generally surrounded by further agricultural fields, including the remainder of the field which comprises the eastern portion of the site. Phase 1 of the Lincs Gateway development was present beyond Cowbit Road to the south west of the site. The A16 road was present to the south east of the site. A number of residential properties were present to the north west of the site along Fen End Lane.

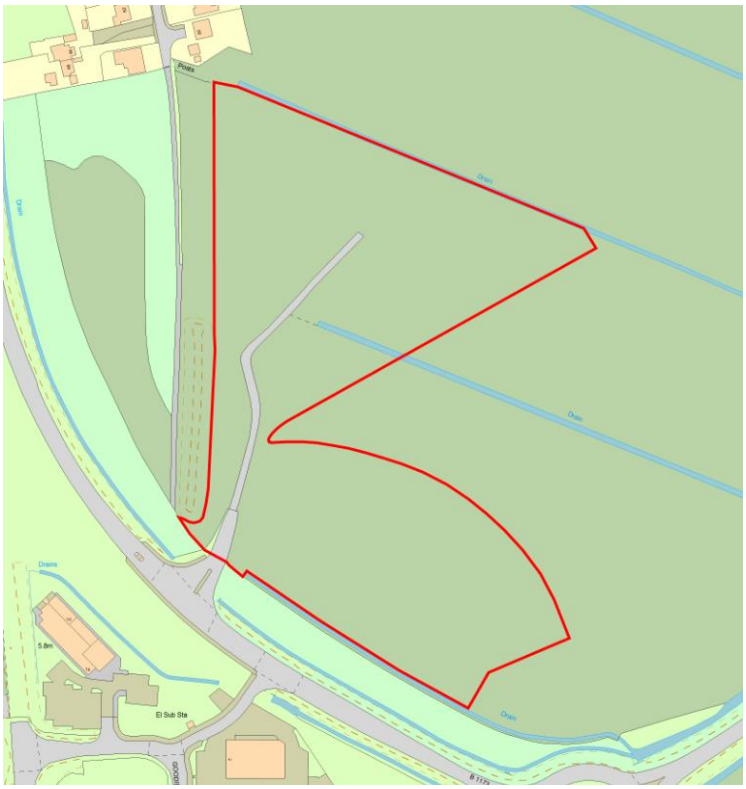
An annotated site plan showing the main features of the site and the immediate surrounding area is included as Appendix III of this report (Figure No. D41115/02) and a plan showing general views of the site is included as Appendix IV (Figure No. D41115/03).

An aerial photograph of the site, obtained from the Landmark Analysis tool commissioned as part of our works, is presented in Figure 1 on the following page, with the current OS mapping plan for the site and surrounding area presented in Figure 2.

Figure 1: Aerial photograph of the site (2021 image)



Figure 2: Current OS Mastermap Plan



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 mostly comprises parts of four undeveloped (potentially agricultural) fields. • A small number of buildings are indicated to encroach inside the site boundary in the north western area of the site, potentially associated with a farm which continued off-site to the west. • Three drains are shown on the site which are all orientated approximately east / south east to west / north west and run parallel to each other. The first drain runs parallel to the northern site boundary. A second drain bisects the site through the central portion. The third drain is present in the far south eastern corner of the site. The drains continue off-site to the east / south east.	• The site is generally surrounded by further agricultural fields with a number of drains. • *'Fen End Lane'* is located to the west of the site, with a small number of dwellings alongside. • Buildings associated with *'Hunt's Farm'* are present approximately 40m south of the site • *'New River Drove'*, an apparent drain, is located approximately 200m to the west of the site running in a north to south direction.
1890s	• No maps available for viewing.	• No maps available for viewing.
1900s	• The site remains essentially unchanged.	• The area surrounding the site remains essentially unchanged.
1910s and 1920s	• No maps available for viewing.	• No maps available for viewing.
1930s	• The site remains essentially unchanged.	• The area surrounding the site remains essentially unchanged. However, *'Hunt's Farm'* to the south of the site is now referenced as *'Adam's Farm'*.
1940s	• No maps available for viewing.	• No maps available for viewing.
1950s	• The drain in the south east corner of the site is no longer shown.	• The area surrounding the site remains essentially unchanged.
1960s	• The buildings present in the north western area of the site are no longer shown and appear to have been demolished. • In place of the former buildings above, a new building referenced as a *'Store'* is shown in the north western corner of the site. A further elongated building is shown to the south of the *'Store'*. • The western part of the drain through the central portion of the site appears to have been partially infilled and no longer fully bisects the site.	• The buildings associated with *'Adam's Farm'* to the south of the site appear to have been mostly demolished, with two small buildings remaining. • A small number of dwellings have been constructed along *'Fen End Lane'* to the north west of the site. • A number of drains within the local vicinity of the site appear to have been infilled.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	**Features on Site**	**Features off Site**
1970s	• The site remains essentially unchanged.	• The area surrounding the site remains essentially unchanged.
1980s	• A further large *'Store'* building has been constructed in the north western area of the site.	• Further dwellings have been constructed along *'Fen End Lane'* to the north west of the site.
1990s	• An apparent stockpile is shown to encroach into the south western corner of the site. • The 1999 aerial photograph shows the buildings in the north western corner of the site. The north eastern portion of the site is shown to comprise agricultural fields with crops. The majority of the southern portion of the site is not shown within the aerial imagery, however, the parts that are shown appear to be under agricultural use.	• A further number of drains within the local vicinity of the site appear to have been infilled to the north of the site. • An area of earthworks is shown to the south east of the site, associated with the construction of the A16 road. • The 1999 aerial photograph shows most of the surrounding land (where shown) to comprise agricultural fields, with residential dwellings to the north west of the site.
2000s	• The site remains essentially unchanged.	• The area surrounding the site remains essentially unchanged.
2021	• The buildings in the north western corner of the site are no longer shown and presumed to be demolished. • An access road is shown in the south west corner of the site, with a small track running north through the western portion of the site.	• The configuration of the roads to the south of the site has been altered. *'Barrier Bank'* is shown parallel to the southern site boundary. • *'Lincs Gateway Business Park'* (i.e. Lincs Gateway Phase 1) is shown to the south of the site, beyond *'Barrier Bank'*.

2.3 Aerial Photography & Historical Map Overlays

As part of the commissioned Landmark Report, the use of the Landmark Envirocheck Analysis tool was purchased to provide site specific aerial photographic imagery, and to provide the ability to undertake limited historical map overlay manipulation.

The following pictures (Figures 3 & 4) show overlays of the historical map publications, as shown on current aerial imagery.

Figure 3 shows most of the site as mostly agricultural fields. The drain bisecting the site is visible, along with the drain in the south of the site. The buildings encroaching onto the north west of the site are shown.

Figure 4 shows the buildings (constructed later) in the north western portion of the site. The drain bisecting the site has been partially infilled, with the drain in the south east corner of the site no longer shown and presumed infilled.

Figure 3: Current Aerial Imagery Overlain with 1931 - 1932 Historical Map Data.



Figure 4: Current Aerial Imagery Overlain with 1995 Historical Map Data.



3.0 GEOLOGY & ENVIRONMENTAL SETTING

3.1 Geological References

The following geological publications were referred to:

- BGS 1:50000 Series Sheet 144 *'Spalding'* (1992).
- Landmark geological map sheets (included in Appendix VI).
- The BGS online interactive map viewer and Lexicon of Named Rock Units.
- The Coal Authority online interactive map viewer.

3.2 Geology

Superficial Drift Deposits

The entire site and immediate surrounding area are indicated to be underlain by superficial drift deposits comprising Tidal Flat Deposits (formerly referred to as the Terrington Beds), which date from the Quaternary. These deposits are typically described as marine alluvium comprising salt marsh, tidal creek and river deposits (i.e. sandy silt, sand and clay). Drift deposits have the potential to alter rapidly in character and geotechnical properties both laterally and vertically over relatively short distances and may also be water bearing. Tidal Flat Deposits may also contain peat as pockets, lenses or discrete layers.

Bedrock Geology

Beneath the drift deposits across the entirety of the site, bedrock of the Oxford Clay Formation is indicated to be present, which dates from the Jurassic. The Oxford Clay Formation is described on the BGS Lexicon of Named Rock Units as *'Silicate-mudstone, grey, generally smooth so slightly silty, with sporadic beds of argillaceous limestone nodules…'.*

3.3 Faults

No faults are indicated to be present within the boundary of the site or within the immediate vicinity of the site, on the geological maps viewed.

3.4 Man-Made Deposits

The geological publications do not show the presence of any man-made deposits (i.e. Made Ground, Worked Ground or Landscaped Ground) beneath the site, or within a 250m radius of the site.

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 key relevant information (details are only listed where they are within potential influencing distance 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 to Landmark 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 superficial deposits (i.e. Tidal Flat Deposits) and the underlying bedrock (i.e. Oxford Clay Formation) are both classified as *'Unproductive Strata'*.

Unproductive Strata are described by the Environment Agency as *'rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.*'

Source Protection Zone Status

The site is not shown to lie within a Source Protection Zone (SPZ), as designated by the Environment Agency. SPZs relate to the protection of groundwater resources principally for public drinking water supply.

Flood Risk Status & BGS Groundwater Flooding Susceptibility

The site is indicated to be situated within an area at extreme risk from flooding from rivers or sea without defences.

This report does not constitute a formal flood risk assessment.

Water Abstractions

There are no entries related to the site or within 250m of the site boundary.

Discharge Consents

There are no entries related to the site or within 250m of the site boundary.

Surface Water

The nearest surface water feature is indicated to be present on site. This relates to the drain present in the central portion of the site and the drain along the northern boundary.

3.5.2 Waste

Landfill Sites

There are no entries relating to landfills or waste management (i.e. Historic Landfill Sites, Licensed Waste Management Facilities or Registered Waste Transer Sites) located within 250m of the site boundary.

Potentially Infilled Land

There are no Potentially Infilled Land (Water or Non-Water) entries located within 250m of the site boundary.

However, we would note that based on the review of the historical maps it appears that several drains have been historically infilled both at the site and within the surrounding area.

3.5.3 Hazardous Substances

There are no entries associated with hazardous substances (i.e. sites dealing with explosives etc.) within a 250m radius of the site, in the Landmark Envirocheck Report.

3.5.4 Geological Issues

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 effects. Estimates of the soil chemistry at the site indicate anticipated concentrations of Arsenic of <15mg/kg, Cadmium of <1.8mg/kg, Chromium of 60-90mg/kg, Lead <100mg/kg and Nickel of 15-30mg/kg.

Based on the information supplied within the Envirocheck report, the site is not shown to be located within an area where Natural Metal Enrichment of the underlying natural soils is likely to be present. However, this is only applicable to the specific determinands listed above.

Ground Stability Hazards

No significant ground stability hazards have been identified by the Landmark Envirocheck Report that relate to the site (including from collapsible, ground dissolution, landslide and shrinking or swelling clay ground stability hazards). However, it should be noted that the site is listed as having a Moderate Hazard Potential associated with both the Potential for Compressible Ground and Running Sand.

Radon

The Landmark Envirocheck Report identifies that the site lies within a lower probability Radon area and no Radon protective measures are necessary in the construction of new buildings.

BGS Borehole Records

There are no BGS borehole records for the site or within the immediate vicinity of the site.

3.5.5 Industrial Land Use

There are no industrial land use entries identified at the site.

Contemporary Trade Directory Entries

There is one contemporary trade directory entry recorded within 250m of the site, which relates to an 'Asphalt & Coated Macadam Laying Contractors' approximately 88m north west of the site. The entry is listed as inactive.

Fuel Stations

There is one fuel station entry recorded within 250m of the site, which related to 'Applegreen Spalding' and is located approximately 91m south of the site (within the area of the Phase I Development).

3.5.6 Sensitive Land Use

The site is identified as being within a Nitrate Vulnerable Zone. In our experience the 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 site.

3.6 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 desk based ready reference guide.

3.6.1 On Site Assessment

At the time of our works (June & July 2021), the eastern area of the site comprised a cropped field and the western portion of the site comprised bare ground surfaced with reworked soils including many anthropogenic materials.

Based on the reviewed historical information, the site was mostly undeveloped with the exception of a small number of buildings in the north eastern western of the site until the 1960s. In the 1960s, two buildings were constructed in the north western portion of the site, with a third building added in the 1980s. The buildings were demolished between 2006 and 2021. After demolition of the buildings, the western portion of the site contained stockpiled soils as noted during the site walkover. The eastern portion of the site has been used as agricultural land since the earliest historical mapping.

The site is not identified in any of the land-use categories adopted in the above publications. Based on the information obtained from our desk study enquiries, our walkover of the site and experience of similar sites, potential general soil contamination that may be present could include:

- Metals and metalloids associated with any potential localised Made Ground beneath the site.
- Polycyclic Aromatic Hydrocarbons (PAHs) from any ashy inclusions and/or carbonaceous inclusions in the near surface soils.
- Pesticides and herbicides associated with the agricultural use of the site including the cultivation of crops within the fields.
- Asbestos Containing Materials (ACMs) associated with the former structures at the site.
- Potentially hazardous ground gases (i.e. methane and carbon dioxide) associated with potentially organic superficial deposits beneath the site and infilled drains on the site.

3.6.2 Off Site Assessment

The site lies within an area currently and historically dominated by agricultural fields. With regards to potential sources of chemical contamination, based on the findings of the Phase I Desk Study enquiries, there are no significant potential sources of chemical contamination associated with land uses known to be present within close proximity to the site. The key risk drivers for the site are therefore considered to be the current and former on-site features.

Based on the information obtained from the desk study, the following sources of potentially hazardous ground gas (i.e. carbon dioxide and methane) have been identified within potential influencing distance (i.e. <250m) of the site:

- Made Ground potentially associated with infill materials to the former drains in close proximity to the site.

We would note that the reviewed historical publications have revealed the presence of former drains within the vicinity of the site which may have been infilled. Any infill materials to these features could represent potential sources of hazardous ground gas (i.e. carbon dioxide and methane) that may, under the right circumstances, affect the proposed development site. However, due to the small scale of these features, the generally low permeability of the strata surrounding the site and the distances of the majority of the features to the site, the risk of ground gas generation from these off-site sources is considered to be very low.

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, dated July 2018).

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
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 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 5 - RISK CLASSIFICATION DEFINITIONS (BASED ON C552 CIRIA, 2001)	
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 based on the assumption of a commercial end-use for the proposed development.

4.6 Consideration of Potential Sources of Contamination [C]

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

TABLE 6 – SUMMARY OF POTENTIAL CONTAMINANT SOURCES	
Areas of Potential Concern (APCs)	**Associated Contaminants**
Near Surface Soils (including potential localised Made Ground)	• Metals & Metalloids. • PAHs. • Pesticides and herbicides. • Asbestos. • Ground gases (including methane & carbon dioxide).
Off-site Infilled Features	• Ground gases (including methane & carbon dioxide).

4.7 Consideration of Potential Pathways [P]

The potential pathways at the site are primarily:

- Direct ingestion of soil
- Inhalation of fugitive dust and vapours.
- Direct skin contact with the ground.
- Direct ground contact with construction materials (including supply pipes).
- Vertical and lateral migration of contamination.
- Vertical and lateral migration of potentially hazardous ground gases/vapours.

4.8 Consideration of Potential Receptors [R]

The potential receptors at the site are:

- The final end users (employees – typically long term (chronic) exposure) and site visitors – (typically short term (acute) exposure).
- The construction personnel (i.e. site workers) involved with the development of the site (typically short term (acute) exposure).
- Neighbouring properties (off-site receptors).
- Controlled Waters (i.e. underlying groundwater and nearby surface waters).
- Buildings and construction materials (including buried utilities).

In preparing this CSM, it has been assumed that construction personnel involved with the development of the site (typically short term (acute) exposure) will adopt all necessary personal protective equipment (PPE and RPE etc.) and conform to health and safety requirements of their site-specific Risk Assessments and Method Statements (RAMS). Site workers have therefore not been included within the following table, as the adoption of these appropriate mitigation measures will result in an overall low risk of exposure to the C-P-R linkages identified.

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
Near Surface Soils (including potential localised Made Ground)	Direct contact, ingestion or inhalation of fugitive dust	End users	Low Likelihood	Medium	Moderate/Low	Made Ground is likely to be locally present in the north western portion of the site associated with demolition of the former buildings, along with any infill materials to former drains at the site. Made Ground or disturbed soils may also be present in the western area of the site as observed at surface during the site walkover associated with the stockpiled soils at the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site has predominantly been used for agricultural purposes including cropped fields. End users may come into contact with the in-situ soils. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Vertical and lateral migration	Neighbouring properties	Low Likelihood	Medium	Moderate/Low	Made Ground is likely to be locally present in the north western portion of the site associated with demolition of the former buildings, along with any infill materials to former drains at the site. Made Ground or disturbed soils may also be present in the western area of the site as observed at surface during the site walkover associated with the stockpiled soils at the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site has predominantly been used for agricultural purposes including cropped fields. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Leaching of contaminants through unsaturated zone and/or vertical and lateral migration	Controlled Waters	Low Likelihood	Medium	Moderate/Low	Made Ground is likely to be locally present in the north western portion of the site associated with demolition of the former buildings, along with any infill materials to former drains at the site. Made Ground or disturbed soils may also be present in the western area of the site as observed at surface during the site walkover associated with the stockpiled soils at the site.

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**
	Leaching of contaminants through unsaturated zone and/or vertical and lateral migration Cont.	Controlled Waters	Low Likelihood	Medium		No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site has predominantly been used for agricultural purposes including cropped fields. Both the underlying superficial (drift) deposits and bedrock are classified as Unproductive Strata. The site does not lie within a designated SPZ. Drains are present within the site boundary to the site. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Direct contact or contact with vapours	Plastic buildings products (e.g. water supply pipes) and buried concrete	Low Likelihood	Mild	Low	Made Ground is likely to be locally present in the north western portion of the site associated with demolition of the former buildings, along with any infill materials to former drains at the site. Made Ground or disturbed soils may also be present in the western area of the site as observed at surface during the site walkover associated with the stockpiled soils at the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site has predominantly been used for agricultural purposes including cropped fields. Made Ground may locally contain elevated levels of contaminants that may affect plastic building products. Anglian Water are likely to classify the site (or at least the western part) as 'Brownfield' and require upgraded water pipes. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Low Likelihood	Severe	Moderate	Made Ground is likely to be locally present in the north western portion of the site associated with demolition of the former buildings, along with any infill materials to former drains at the site. Organic deposits may also be present beneath the site. These features may represent potential sources of hazardous ground gases. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
Off-site Infilled Features	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Low Likelihood	Severe	Moderate	Made Ground associated with infill materials to former drains within the vicinity of the site represent sources of hazardous ground gases. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.

The foregoing preliminary conceptual model highlights the potential plausible pollutant linkages that may relate to the site and would therefore require addressing by appropriate Phase II Exploratory Works. The information contained within the conceptual model should be confirmed and revised upon completion of an appropriate intrusive investigation, as detailed in the following sections.

5.0 GROUND INVESTIGATION

5.1 Introduction

Sub-Surface Utility Avoidance Scan

Prior to the commencement of our intrusive works at the site a sub-contracted sub-surface utility scan was undertaken to attempt to avoid buried services during the intrusive works. Based on the results of the service scan and taking account of the requirement to avoid buried services, the exploratory holes were positioned to maximise the amount of information obtained at the site.

Trial Pits

A total of ten trial pits (TP1 to TP10) were excavated at the site on 28th June 2021. The pits were excavated to depths of up to 3.70m below existing ground level (begl).

Window Sampling Borehole Works

Eleven window sampling boreholes (WS1 to WS11) were advanced at the site on 30th June and 13th July 2021. The boreholes were advanced to depths up to 5.00m begl.

Standard Penetration Tests (SPTs) were undertaken generally at 1m centres in order to provide initial strength data for the near surface soils.

Following completion, five of the window sampling boreholes (WS2, WS5, WS7, WS9 and WS10) were installed with combined ground gas and water monitoring wells in order to facilitate an initial programme of ground gas and water level monitoring.

Exploratory Hole Locations/Logs

The approximate locations of the exploratory holes are indicated on the plan presented in Appendix VIII of this report (Figure No. D41115/04). The exploratory hole logs are presented in Appendix IX of this report.

5.2 Ground Conditions

The general ground conditions encountered across the site may be summarised as follows.

5.2.1 Made Ground

Made Ground was encountered within 15 No. of the exploratory holes advanced at the site, all within the western portion of the site. The Made Ground generally comprised gravelly clay over silt (locally gravel or sand) with inclusions of brick, concrete, macadam and limestone to depths of between 0.40m and 1.50m begl. In several locations, the gravelly clay was underlain by a grey organic silt. Made Ground topsoil was encountered in one location.

A plan showing the approximate depth to the base of the Made Ground (including localised Made Ground topsoil) encountered within the exploratory holes is included in Appendix X (Figure No. D41115/05).

5.2.2 Topsoil

Natural Topsoil was encountered at the surface within the eastern portion of the site (i.e. the agricultural field), to depths of between 0.25m and 0.30m begl.

5.2.3 Natural Strata

Beneath the Topsoil and Made Ground, the Natural Strata beneath the site typically comprised firm locally stiff sandy SILT.

Underlying the Silt soils, soft silty CLAY was encountered from depths of generally below 1.00m begl. In several locations, the silt was not present and the Made Ground / Topsoil were underlain directly by the Clay soils.

SAND was also locally present at the site, notably in WS1 which encountered Sand from below to topsoil to 5.00m begl.

The soils are considered to be typically representative of Tidal Flat Deposits, which are indicated by geological publications to underlie the site.

5.3 Visual & Olfactory Evidence of Soil Contamination

No hydrocarbon odours were noted within any of the exploratory holes at the site.

In the western portion of the site, macadam was encountered as a constituent of the Made Ground in seven of the exploratory holes (TP1 to TP4, TP6, WS8 and WS9). Ashy soils were noted within the Made Ground topsoil within TP9.

5.4 Water

The soils at the site were noted to become gradually damp / wet with depth. Slight water seepages were observed within the trial pits and window samples from variable depths generally below 1.00m begl.

5.5 Stability

The trial pits were initially generally stable during excavation and for the short time they were left open after completion before backfilling.

The boreholes were cased to 1.00m during advancement as a precautionary measure. Upon removal of the sampling tube at 5.00m begl, the borehole sides collapsed below 4.00m due to the nature of the soils and the presence of groundwater.

5.6 Plates

A photographic record of the exploratory investigation was obtained during the intrusive works. Selected photographs of the intrusive works are presented on the Plates presented in Appendix XI of this report (Plate Nos. 1 to 10).

5.7 Shear Vane Values

Shear vane testing was undertaken within the natural soils within the trial pits. Shear vane testing was also undertaken in selected boreholes where visually cohesive natural soils were encountered at a depth of 1.00m begl.

Shear vane values obtained from the trial pits at depths in excess of 1.20m begl were taken ex-situ due to health and safety reasons.

At depths of between 0.70m and 1.00m begl, the results typically revealed soil shear strength values of between 30kN/m^2 and 110kN/m^2. At depths of between 1.10m and 1.50m begl, the results typically revealed soil shear strength values of between 42kN/m^2 and 70kN/m^2, with higher values up to 94kN/m^2 recorded locally. At depths of greater than 1.50m begl, the results typically revealed soil shear strength values of between 15kN/m^2 and 50kN/m^2, with values up to 72kN/m^2 recorded in one location.

A Chart showing the shear vane values in relation to depth recorded in the trial pits is provided below. Table 8 shows a summary on the shear vane values between specific depth ranges. Individual shear vane results are provided on the exploratory hole logs included in Appendix IX of this report.

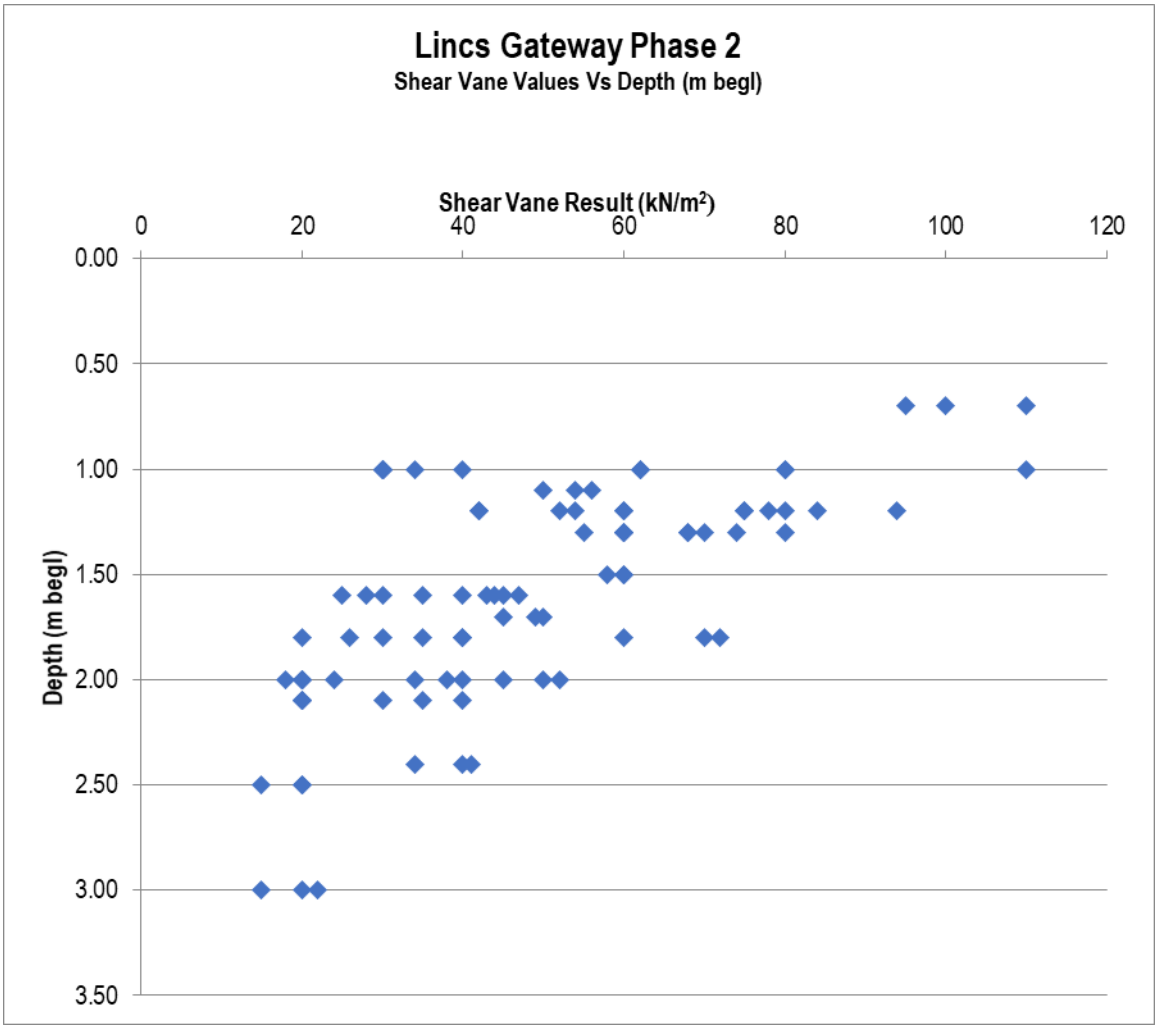


TABLE 8 – SUMMARY OF SHEAR VANE RESULTS			
Depth (m begl)	Minimum SV Reading (kN/m²)	Maximum SV Reading (kN/m²)	Average SV Reading (kN/m²)
0.70 - 1.00	30	110	61
1.10 - 1.50	42	94	64
1.60 - 2.00	18	72	38
2.10 – 3.00	15	41	26

5.8 Standard Penetration Test (SPT) Data

In order to establish a strength/depth profile of the strata beneath the site, SPT testing was undertaken in the boreholes.

At a depth of 1.00m begl, uncorrected SPT 'N' values of between 0 and 8 were typically recorded within the Natural Strata.

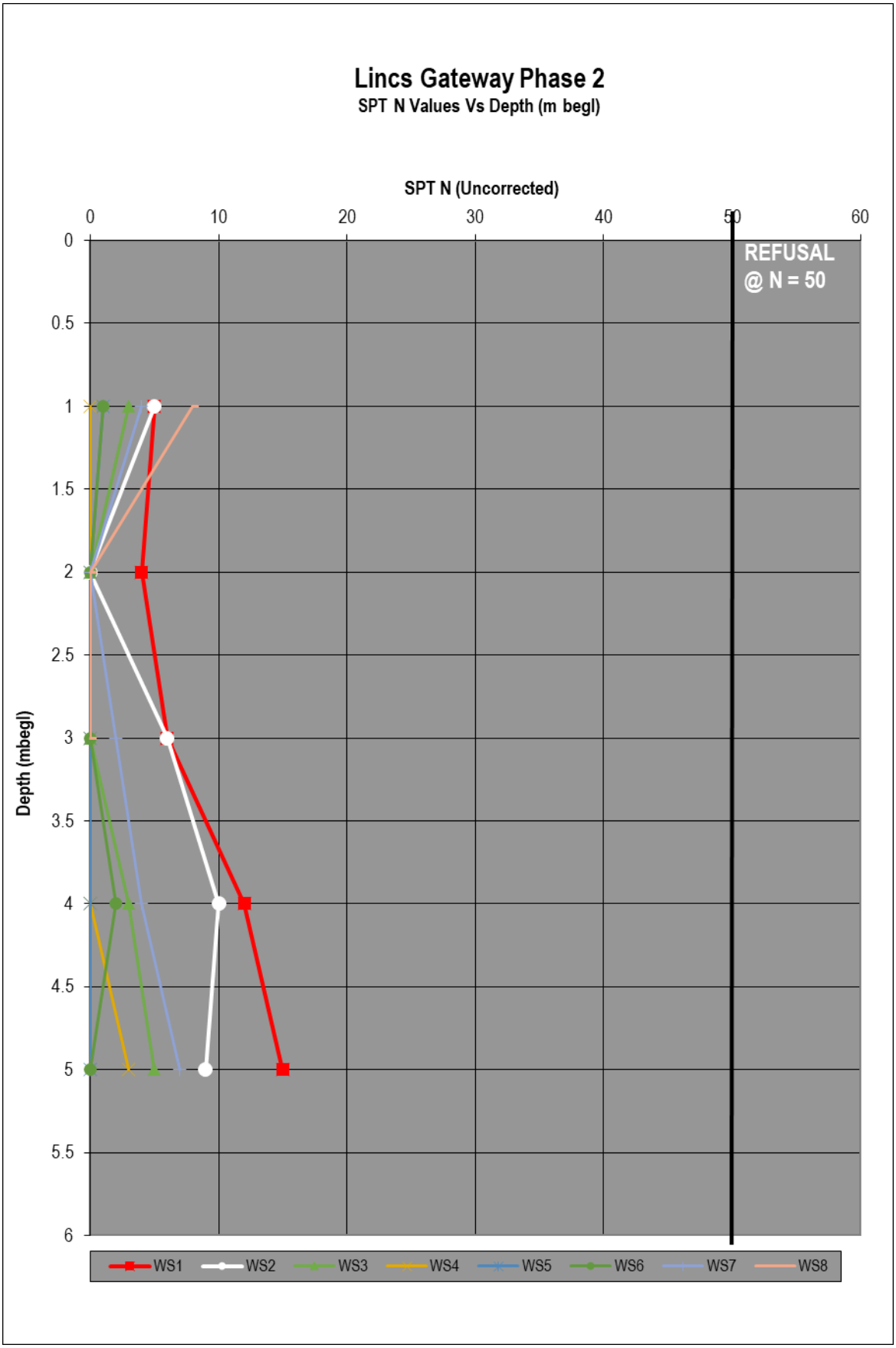
At a depth of 2.00m begl, the uncorrected SPT 'N' values were generally 0, although a SPT 'N' value of 4 was recorded in one location where Natural Sand was encountered.

At a depth of 3.00m begl, the uncorrected SPT 'N' values ranged between 0 and 6.

At a depth of 4.00m begl, the uncorrected SPT 'N' values of between 0 and 4 were typically recorded. Values of 12 and 10 were recorded within WS1 and WS2 respectively.

At a depth of 5.00m begl, the uncorrected SPT 'N' values of between 0 and 7 were typically recorded. Values of 15 and 9 were recorded within WS1 and WS2, respectively

An SPT Vs Depth Chart of the data obtained from the boreholes advanced at the site is shown on the chart on page 24.


Lincs Gateway Phase 2
SPT N Values Vs Depth (m begl)
SPT N (Uncorrected)
0
10
20
30
40
50
60
REFUSAL
@ N = 50
Depth (mbegl)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
WS1
WS2
WS3
WS4
WS5
WS6
WS7
WS8

6.0 LABORATORY TESTING & CONTAMINATION ASSESSMENT

6.1 Introduction

As part of our works a suite of geotechnical laboratory soils testing has been undertaken, which comprised the following:

- 9 No. Plasticity Index tests.
- 2 No. Particle Size Distribution tests.
- 9 No. Water soluble sulphate tests.
- 20 No. pH tests.
- 4 No. Remoulded Soaked CBR tests.

In addition, environmental soil testing was carried out on visually representative samples recovered from the exploratory holes. The testing strategy was based on the land use assessment and preliminary CSM derived by the desk study works, and was considered sufficient to enable an assessment of the chemical status of the soils at the site. The following testing has been undertaken as part of our works:

- 14 No. Metals suites.
- 14 No. Speciated Polycyclic Aromatic Hydrocarbons (PAHs).
- 4 No. Organochlorine & Organophosphate (OCP & OPP) Pesticide suites.
- 7 No. Asbestos tests.
- 9 No. Total Organic Carbon (TOC).
- 5 No. Anglian Water testing suites (including the following:
  - Phenols.
  - Volatile organic compounds (VOCs).
  - Semi-volatile organic compounds (SVOCs).
  - Speciated Total Petroleum Hydrocarbons (TPH) by Criteria Working Group (CWG) method tests (including aliphatic / aromatic carbon fractions, BTEX & MTBE).

All laboratory soil test results are included in Appendix XII.

6.2 Geotechnical Soil Test Results

Water Soluble Sulphate/pH

Water soluble sulphate testing was undertaken on 9 No. samples of the Natural Strata obtained during the site works. The testing revealed water soluble sulphate concentrations of between 13mg/l SO_4 and 515mg/l SO_4 within the samples analysed. The pH values of the samples of soils analysed (excluding topsoil) ranged between 7.44 and 8.80.

In accordance with the Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005) the mean of the highest two of the sulphate results should be used to indicate the Design Sulphate Class (i.e. 360mg/l SO_4), together with the mean of the 20% lowest of the pH values (7.75).

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-1s. This classification has been made based on the assumption of a brownfield location with potentially static groundwater conditions beneath the site.

It should be noted, however, that the results of the sulphate classification include a result of 515mg/kg in one sample (WS7 at 0.50 – 0.60m begl) within the Made Ground. This result is is notably higher than the other 8 No. results for the site. The Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005) states that if the water-soluble sulphate results for soil vary significantly, it may be appropriate to test further samples to obtain a more representative data set. The result of 515mg/kg in isolation would push the site into Design Sulfate Class DS-2 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s. Therefore, it would be prudent to undertake further water-soluble sulphate testing within the area of the elevated result to confirm the required concrete class. This would increase the dataset used in the assessment and provide a more accurate indication of the required concrete class.

Plasticity Index Tests

A total of 9 No. Plasticity Index tests have been undertaken on selected samples of the near surface Natural Strata obtained during the site works (i.e. Silt and Clay). In accordance with BRE Digest 240 '*Low-rise buildings on shrinkable clay soils: Part 1*' (1993) the reported PI values may be modified based on the portion of the sample passing the 425μm sieve.

The result of the PI analysis is summarised in Table 9.

TABLE 9 – SUMMARY OF PLASTICITY INDEX (PI) DATA

Sample Ref.	Reported PI Value (%)	Portion <425μm (%)	Modified PI Value (%)	Volume Change Potential
TP1, 1.00 – 1.10m (SILT)	14	98	14	Low
TP3, 1.70 – 1.80m (CLAY)	37	100	37	Medium
TP9, 1.20 – 1.30m (CLAY)	36	100	36	Medium
TP10, 0.60 – 0.70m (CLAY)	20	100	20	Medium
WS1, 2.50 – 2.60m (SAND)	Non-plastic			
WS2, 0.40 – 0.50m (SILT)	13	100	13	Low
WS3, 0.80 – 0.90m (CLAY)	17	98	17	Low
WS5, 1.20 – 1.30m (CLAY)	36	100	36	Medium
WS8, 1.80 – 2.00m (CLAY)	26	97	25	Medium

The testing has revealed that the soils analysed may be generally classified as low to medium volume change potential. Soils of a medium volume change potential should therefore be assumed for design purposes.

Particle Size Distribution (PSD) Tests

PSD analysis was undertaken on two samples of the near surface Natural Strata obtained during the site works. The testing revealed a Sand content of 70% and 30% Silt / Clay with within WS1; and 58% Silt / Clay with the remainder comprising Sand within WS2, which essentially confirms the visual description of the soils.

Remoulded Soaked California Bearing Ratio (CBR) Testing

Remoulded soaked California Bearing Ratio testing was undertaken on 4 No. samples of shallow soils across the site. The results of the recompacted CBR testing are summarised in Table 10 below. CBR values for the top and bottom of the remoulded soaked sample are recorded. The approximate locations of the CBR samples are shown on the plan presented in Appendix XIII (Figure No. D41115/06).

TABLE 10 – SUMMARY OF LABORATORY CBR TEST RESULTS				
Sample Ref.	**Depth (m begl)**	**Initial Moisture Content (%)**	**CBR Value Sample Top (%)**	**CBR Value Sample Bottom (%)**
TP5 (SILT / CLAY)	0.50 – 1.00	24.7 (Top) & 25.3 (Bottom)	2.0	2.5
TP8 (MADE GROUND)	0.40 – 0.90	29.2 (Top) & 26.4 (Bottom)	1.3	2.0
WS4 (SILT)	0.30 – 0.80	23.5 (Top) & 21.7 (Bottom)	1.8	2.0
WS11 (SILT)	0.40 – 1.00	TBC	TBC	TBC

The results for WS11 at 0.40-1.00m begl are currently awaited and will be provided under separate cover.

6.3 Contamination Assessment Rationale

We understand that it is proposed to develop the site for a commercial end-use.

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 commercial end-use with plant uptake 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, with all metals derived utilising 6% SOM as standard).

Where available at Tier 1 level, 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 an initial coverage across the entire site area (where access allowed). The sampling strategy was based on a review of the historical, geological and environmental information obtained from the Desk Study enquiries and the current and proposed site setting together with and the ground conditions encountered during our Phase II exploratory works.

The areas of potential concern identified at the site during the desk study with respect to ground contamination included the potential Made Ground associated with the former buildings in the north west portion of the site, the potential Made Ground noted at surface in the western portion of the site during the site walkover and the potential application of pesticides and herbicides to the agricultural fields. Exploratory holes were therefore advanced to target these specific features and also to provide general site coverage, taking account the access restrictions and the presence of known buried services.

Table 11 summarises the reasoning behind the exploratory hole positions.

TABLE 11 – REASONING FOR EXPLORATORY HOLE LOCATION

Exploratory Hole Reference	Reasoning Behind Location
WS1 to WS6	Targeted to the cultivated field not accessible with the excavator (in order to minimise damage to the crop).
TP3 to TP5, TP7 & WS7	Targeted to location of the former buildings in the north western area of the site.
TP8	Targeted to the partially infilled drain bisecting the site.
TP1 to TP10 & WS7 to WS10	Targeted to the area of potential Made Ground in the western portion
WS2, WS5, WS7, WS9 & WS10	General site coverage for the purposes of installing ground gas monitoring points beneath the locations of the proposed new commercial buildings.

Key
TP – Trial Pit
WS – Window Sampling Borehole

The ground conditions encountered during our Phase II works revealed the presence of three distinct types of material, i) Topsoil ii) Made Ground (including Made Ground topsoil) and iii) the underlying Natural Strata.

Representative samples of these soil types were obtained during our Phase II works and subjected to chemical analysis for a suite of contaminants deemed appropriate based on the findings of the Desk Study and the ground conditions encountered during the intrusive investigation. It is noted that the suite of contaminants detailed in Section 4.6 were considered to remain applicable as an initial chemical screen of the encountered soils following completion of the site investigation works.

6.5 Contamination Analysis

Contamination tests were undertaken on visually representative samples of the Made Ground including Made Ground topsoil (up to 12 No.), Natural Topsoil (3 No.) and underlying Natural Strata (3 No.) obtained from the site during our works.

In addition, three samples of the Topsoil and one sample of Made Ground topsoil across the site were subjected to pesticide analysis. Seven samples Made Ground were also subjected to asbestos analysis. Samples of the Made Ground (3 No.) and Natural Strata (2 No.) were also subjected to the suite of analysis required by Anglian Water.

For initial assessment purposes, we have collated the results into three datasets, for individual comparison of the reported determinand concentrations against appropriate Tier 1 GACs, namely Topsoil, Made Ground and the underlying undisturbed Natural Strata.

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.

6.6 Contamination Soil Test Results

6.6.1 Topsoil

The contamination assessment for the Topsoil at the site is summarised in Table 12.

TABLE 12 – SUMMARY OF TIER 1 GAC ASSESSMENT (TOPSOIL – COMMERCIAL 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	2	4 & 9	640 S4UL	No
Cadmium	2	0.6 (both)	190 S4UL	No
Chromium III	2	22 & 23	8600 S4UL	No
Copper	2	9 & 17	68000 S4UL	No
Lead	2	17 & 25	2300 C4SL	No
Mercury	2	<0.17 & 0.26	1100 S4UL	No
Nickel	2	19 (both)	980 S4UL	No
Zinc	2	50 & 57	730000 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 commercial end-use.

All of the determinands assessed for the Topsoil 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 commercial end-use.

6.6.2 Made Ground

The contamination assessment for the Made Ground (including Made Ground topsoil) at the site is summarised in Table 13.

TABLE 13 – SUMMARY OF TIER 1 GAC ASSESSMENT (MADE GROUND – COMMERCIAL 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	8	4 – 16	640 S4UL	No
Cadmium	8	<0.5 – 1.3	190 S4UL	No
Chromium III	8	14 – 40	8600 S4UL	No
Copper	8	12 – 22	68000 S4UL	No
Lead	8	10 – 29	2300 C4SL	No
Mercury	8	<0.17 – 1.66	1100 S4UL	No
Nickel	8	12 – 28	980 S4UL	No
Zinc	8	39 – 82	730000 S4UL	No
PAH				
Acenaphthene	8	<0.1 – 0.2	84000 S4UL	No
Anthracene	8	<0.1 – 1.5	520000 S4UL	No
Benzo(a)anthracene	8	<0.1 – 6.9	170 S4UL	No
Benzo(a)pyrene	8	<0.1 – 9.2	35 S4UL	No
Benzo(b)fluoranthene	8	<0.1– 9.5	44 S4UL	No
Benzo(ghi)perylene	8	<0.1 – 5.0	3900 S4UL	No
Benzo(k)fluoranthene	8	<0.1 – 3.7	1200 S4UL	No
Chrysene	8	<0.1 – 7.3	350 S4UL	No
Dibenzo(ah)anthracene	8	<0.1 – 1.2	3.5 S4UL	No
Fluoranthene	8	0.1 – 11.6	23000 S4UL	No
Indeno(123-cd)pyrene	8	<0.1 – 5.7	500 S4UL	No
Phenanthrene	8	<0.1 – 3.8	22000 S4UL	No
Pyrene	8	<0.1 – 10.6	54000 S4UL	No
Perylene	8	<0.1 – 0.239	NA	-
TPH				
Aliphatic >C16 – C35	3	<2 – 44	1600000 S4UL	No
Aromatic >C8 – C10	3	<1 – 2	3500 S4UL	No
Aromatic >C12 – C16	3	<1 – 2	36000 S4UL	No
Aromatic >C16 – C21	3	<1 – 9	28000 S4UL	No
Aromatic >C21 - C35	3	<1 – 89	28000 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 commercial end-use.
NA – Not available: No published current UK (or US EPA) generic assessment criteria (GAC) is currently available.

All of the determinands assessed for the Made Ground (including Made Ground topsoil) 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 generic assessment criteria (GAC) based on a commercial end-use.

Although the concentrations of potential contaminants are all below their respective human health generic assessment criteria based on the proposed commercial end use, two samples of the Made Ground (TP2 0.20-0.03m and TP6 0.30-0.40m) were noted to have notably higher PAH concentrations than other samples tested at the site. However, it is considered likely that these concentrations are associated with the fragments of macadam observed within these locations during the site works.

6.6.3 Natural Strata

The contamination assessment for the Natural Strata at the site is summarised in Table 14.

TABLE 14 – SUMMARY OF TIER 1 GAC ASSESSMENT (NATURAL STRATA - COMMERCIAL 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	4	3 – 12	640 $_{S4UL}$	No
Cadmium	4	<0.5 – 1.2	190 $_{S4UL}$	No
Chromium III	4	16 – 62	8600 $_{S4UL}$	No
Copper	4	6 – 22	68000 $_{S4UL}$	No
Lead	4	7 – 26	2300 $_{C4SL}$	No
Mercury	4	<0.17 – 0.26	1100 $_{S4UL}$	No
Nickel	4	16 – 54	980 $_{S4UL}$	No
Zinc	4	42 – 111	730000 $_{S4UL}$	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 commercial end-use.

All of the determinands assessed for the Made Ground (including Made Ground topsoil) 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 commercial end-use.

6.7 Asbestos

Seven samples of the Made Ground were analysed for asbestos (for any bulk fragments and/or fibres) by the laboratory. No asbestos was detected within any of the samples analysed from the site.

6.7 Pesticides

In total, 4 No. samples of the Topsoil (3 No. Natural topsoil and 1 No. Made Ground Topsoil) from across the site were tested for a suite of pesticides and herbicides. The results typically revealed individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory (i.e. <0.01mg/kg, <0.10mg/kg or <0.50mg/kg depending upon the determinand), with the exception of Pendimethalin.

Pendimethalin was detected at concentrations of between 0.01mg/kg and 0.05mg/kg in three samples (WS1 at 0.10-0.20m, WS3 at 0.10-0.20m and WS5 at 0.10-0.20m begl).

We would note that there are presently no publicly available generic screening criteria for soils for Pendimethalin specific to the UK setting. We have therefore reviewed other sources of screening criteria for comparison purposes.

USEPA (United States Environmental Protection Agency) have co-operated to prepare Screening Levels (SLs) '*Regional Screening Level (RSL) Resident Soil Table November 2020*' for use within Superfund sites (i.e. contaminated land). USEPA have provided a screening level of 19000mg/kg for pendimethalin. The pesticide concentrations recorded within topsoil sample at the site do not exceed this value.

6.7 Anglian Water Testing

Based on previous experience of sites within the Lincolnshire area, it was considered likely that Anglian Water would classify the western part of the site as a 'Brownfield' site for their assessment purposes, with the eastern portion comprising an agricultural field designated as 'Greenfield'. In view of this, soil samples were obtained from across each area of the site to enable an initial assessment of the likely requirements for the composition of the water supply pipework. As required by Anglian Water, soil samples should be obtained from between depths of approximately 500mm to 900mm below ground level and tested for a suite of contaminants deemed appropriate based on the guidance detailed within Anglian Water document entitled *'Information for developers about contaminated land and ground condition assessment'.* The purpose of the testing was to determine the presence of possible contaminants at the site and assess whether PE pipes would be sufficient for the site or whether protective / barrier water supply pipes would be necessary at the site.

The samples selected for specific testing were obtained from TP4, TP8, WS4, WS5 and WS10. It should be noted, however, that the sampling positions were selected prior to receipt of the current proposed layout, therefore three of the five sampling points (e.g. WS4, WS5 and TP8) are situated in the line of the proposed roads / likely pipeline routes (or within the 15m corridor).

The testing included the following:

- 5 No. Volatile Organic Compounds (VOCs).
- 5 No. Semi-Volatile Organic Compounds (SVOCs) including Cresols, Chlorinated Phenols and Speciated PAHs.
- 5 No. Total Phenols tests.
- 5 No. Speciated TPH tests (aliphatic/aromatic split, BTEX and MTBE).

In addition, two further soil samples obtained from across the site were also analysed at the laboratory at the required depths for speciated PAHs for human health assessment purposes. The results of these have also been examined in relation to the Anglian Water threshold values.

All laboratory soil test results are included in Appendix XII of this report.

The contamination assessment for the samples obtained at the site is summarised in Table 15.

TABLE 15 – ANGLIAN WATER SUITE DATA ASSESSMENT					
Parameter Group	**No. of Samples Tested**	**Concentration Range (mg/kg)**	**PE Threshold (mg/kg)**	**PE Threshold Exceeded (Yes or No)**	**Protective / Barrier Pipes Required (Yes or No)**
VOCs	5	All results below LOD	0.5 AW	No	No
BTEX + MTBE	5	All results below LOD	0.1 AW	No	No
SVOCs (including PAHs)	5	<LOD – 10.9	2 AW	**Yes**	**Yes**
Speciated PAHs only	2	0.1 – 2.4	2 AW	**Yes**	**Yes**
Phenols	5	All results below LOD	2 AW	No	No
Chlorinated Phenols	5	All results below LOD	2 AW	No	No
Mineral Oil C11-20	5	<LOD – 11	10 AW	**Yes**	**Yes**
Mineral Oil C21-C40	5	<LOD – 133	500 AW	No	No

Key

LOD – Laboratory Limit of Detection.
AW – Values taken from Pipe Selection Table within Anglian Water guidance document *'Investigation for developers about contaminated land and ground condition assessment'*, which is reproduced from UKWIR publication *'Guidance for the selection of water supply pipes to be used in Brownfield sites'*, (2010).

The testing undertaken at the site indicates that protective / barrier water supply pipes are likely to be required where the soil concentrations exceed the Anglian Water Threshold Values. It should be noted that the soils containing the contaminant concentrations above the Anglian Water Threshold Values were situated within the 'Brownfield' western portion of the site where the Made Ground was encountered. The soils tested in the 'Greenfield' eastern portion of the site contained low contaminant concentrations below Anglian Water Threshold Values. Further comments are contained with Section 9.3.6 of this report.

6.8 Contamination Assessment Summary

Human Health

Contamination testing was carried out on selected samples of the Made Ground (including localised Made Ground topsoil), Natural Topsoil and the underlying Natural Strata. On the basis of the chemical contamination assessment undertaken, the soils may be considered to be uncontaminated for the proposed commercial end-use (i.e. in relation to human health).

We would note that no visual or olfactory evidence of significant contamination was identified during the course of the exploratory investigation works.

Controlled Waters

Given the findings and interpretation of the laboratory contamination testing undertaken, together with the generally low groundwater sensitivity of the area, there are considered to be no significant risks posed to Controlled Waters by the contaminant concentrations recorded at the site.

7.0 GROUND GAS & WATER LEVEL MONITORING RESULTS

7.1 Introduction

Based on the potential presence of mainly on-site sources of potentially harmful ground gas, monitoring points were installed in selected completed boreholes to facilitate an initial programme of monitoring (i.e. for methane and carbon dioxide).

7.2 Monitoring Installations

Upon completion, five of the window sampling boreholes (WS2, WS5, WS7, WS9 and WS10) were installed with combined ground gas and water monitoring standpipes to a depth of 5.00m begl to facilitate an initial programme of monitoring. Installations were positioned beneath the approximate locations of proposed buildings at the site, with monitoring points in the area of potential sources of ground gas (including Made Ground deposits) and to provide general site coverage.

The ground gas and water monitoring data obtained from the site is presented in Appendix XIV of this report.

7.3 Results of the Ground Gas Monitoring

An initial six ground gas and water monitoring visits have been undertaken at the site over a six week period. The ground gas monitoring results are summarised in Table 16.

TABLE 16 – SUMMARY OF GROUND GAS MONITORING DATA

Parameter	Minimum	Maximum
Methane (v/v)	0.0	1.2
Carbon Dioxide (v/v)	0.0	6.0
Oxygen (v/v)	13.5	20.5
Peak Flow (L/h)	0.0	0.0
Steady Flow (L/h)	0.0	0.0

KEY
v/v - % by volume
L/h – litres/hour

Periods of rapidly falling atmospheric pressure are considered to be the optimum barometric conditions for gas emissions from the ground. Three of the ground gas monitoring visits have been undertaken during periods of falling atmospheric pressure.

The atmospheric pressure trends are summarised below:

- 16th July – Rise of 5mb
- 22nd July – Fall of 1mb
- 27th July– Fall of 2mb
- 2nd August – Rise of 4mb
- 9th August – Rise of 9mb
- 17th August – Fall of 3mb

The atmospheric pressure trends noted during the monitoring period do not appear to have affected the ground gas flow rates recorded during the monitoring period. No variations in flow rates were noted during the monitoring carried out, as no flow rates were recorded on any of the monitoring visits. The highest recorded carbon dioxide concentration of 6.0% by volume was detected when the atmospheric pressure fell by 3mb in the 24 hours prior to monitoring on 17th August 2021.

Water was recorded during the course of the monitoring programme, at depths ranging between 0.79m and 2.28m begl.

7.4 Appropriate Guidance

7.4.1 British Standard & CIRIA

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

- British Standard BS 8485 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*' (2019).
- CIRIA Report C665 '*Assessing risks posed by hazardous ground gases to buildings*' (2007).
- CIRIA Report C735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*' (2014).

7.4.2 Gas Screening Value Calculation

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) = maximum borehole flow rate (l/h) x (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 8485:2015+A1:2019+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 8485:2015+A1:2019+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.

8485:2015+A1:2019+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 8485:2015+A1:2019+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).

NOTE 2 Type A buildings are those where the risk of failure of the gas protection measures is likely to be most significant to the safety of the occupants and Type D buildings are those where this same risk is likely to be least significant.

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

Table 4 of 8485:2015+A1:2019+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)]	[A1] 6 [A1] [A)]	5.5	4.5
6	— [B)]	— [B)]	[A1] — [B)] [A1]	[A1] 6 [A1]

[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 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 Remediation Method Statement report 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 5 — *Gas protection scores for the structural barrier*

Floor and substructure design (see Annex A)	Score [A]
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 [B]
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing [C] [D]	2
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing [C] [D]	2.5

[A] The scores are conditional on breaches of floor slabs, etc., being effectively sealed.

[B] 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**).

[C] The score is conditional on the waterproofing 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).

[D] 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.

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 6 *(continued)*

Protection element/system	Score	Comments
(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: • Clear void • Polystyrene void former blanket • Geocomposite void former blanket • No-fines gravel layer with gas drains • No-fines gravel layer		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.
(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 *Buildings Regulations 2000, Approved Document F* [9].

Table 7 — *Gas protection score for the gas resistant membrane*

Protection element/system	Score	Comments
Gas resistant membrane meeting all of the following criteria: • sufficiently impervious ⟨A1⟩ , both in the sheet material [A)] and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane; ⟨A1⟩ • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • ⟨A1⟩ *Text deleted* ⟨A1⟩ • sufficiently strong ⟨A1⟩ [B)] ⟨A1⟩ to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); ⟨A1⟩ and to withstand in-service stresses (e.g. settlement if placed below a floor slab); ⟨A1⟩ • capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • verified in accordance with CIRIA C735 [N1].	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. ⟨A1⟩ *Text deleted* ⟨A1⟩ If a membrane is installed that does not meet all the criteria in column 1 then the score is zero.

[A)] ⟨A1⟩ A membrane with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious.

[B)] For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m² and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also **C.3**). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs. ⟨A1⟩

7.5 Ground Gas Analysis

7.5.1 Gas Screening Value & Site Classification

The ground gas monitoring undertaken to date has identified a maximum carbon dioxide concentration of 6.0% v/v and a maximum methane concentration of 1.2% v/v. Measurable peak or steady flow rates were not recorded during the monitoring visits. In the absence of a measurable steady flow rate, the limit of detection of the gas monitoring instrument (0.1 l/h) should be utilised. The atmospheric pressure trends noted during the monitoring period do not appear to have affected the low ground gas concentrations recorded.

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

- 0.1 x (1.2/100) = 0.0012 l/h

The GSV for carbon dioxide at the site may be calculated as follows:

- 0.1 x (6.0/100) = 0.006 l/h

Therefore, with a maximum GSV of 0.006 l/h, a carbon dioxide concentration of 6.0% by volume, a maximum methane concentration of 1.2% and no measurable steady flow rate, the site may be classified as '**CS1**' in accordance with Table 2 of BS 8485 and based on the visits undertaken. However, where carbon dioxide and concentrations exceed 5.0% v/v and methane concentrations exceed 1.0% v/v, 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 from the site, carbon dioxide concentrations above 5.0% by volume were recorded within two of the monitoring points in the western portion of the site, WS7 and WS10, with the methane concentration above 1.0% by volume also recorded within WS10. The carbon dioxide concentrations above 5.0% by volume were recorded on five of the gas monitoring visits within WS7 and on one visit within WS10. The methane concentration above 1.0% was recorded on one gas monitoring visit within WS10. In view of the above, it is recommended that the site is uplifted to '**CS2**'.

7.5.2 Building Type

We understand that it is proposed to construct small commercial units at the site and also office buildings. In accordance with Table 3 of BS 8485, **Building Type B** is considered likely to be the most appropriate classification for the office buildings and also possibly the commercial units, although **Building Type C** may be a more appropriate classification for the commercial units (subject to confirmation of their design and use).

7.5.3 Gas Protection Score

On the basis of Characteristic Situation (CS2) and the development proposals with structures 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 Comments

The results of the gas monitoring indicate that **CS2** ground gas precautions will be required with the proposed buildings based on a gas protection score of 3.5 points and in accordance with BS 8485 (2015_A1:2019). Further comments are contained within Section 9.5 of this report.

8.0 REVISED CONCEPTUAL SITE MODEL

8.1 Introduction

In accordance with the approach detailed within Section 4.0, the Conceptual Site Model (CSM) for the site should be refined following acquisition and collection of additional data following completion of the site investigation works.

Our revised assessment following the acquisition and collection of information from the site investigation works is provided in Table 17.

In preparing this CSM, it has been assumed that construction personnel involved with the development of the site (typically short term (acute) exposure) will adopt all necessary personal protective equipment (PPE and RPE etc.) and conform to health and safety requirements of their site-specific Risk Assessments and Method Statements (RAMS). Site workers have therefore not been included within the following table, as the adoption of these appropriate mitigation measures will result in an overall low risk of exposure to the C-P-R linkages identified.

TABLE 17 – REVISED RISK ASSESSMENT SUMMARY TABLE PHASE II EXPLORATORY INVESTIGATION							
Potential Contaminant Source [C]	**Potential Pathway(s) [P]**	**Potential Receptor [R]**	**Probability of CPR Linkage**	**Consequence of CPR Linkage**	**Risk Level**	**Comments / Justification**	**Residual Risk After Remedial / Mitigation Measures**
Near Surface Soils (including localised Made Ground)	Direct contact, ingestion or inhalation of fugitive dust	End users	Unlikely	Medium	Low	Based on the results of the laboratory testing undertaken, the soils may be regarded as uncontaminated based on a commercial end-use. The Made Ground in the western portion of the site is considered visually and compositionally undesirable with inclusions of concrete, brick and macadam fragments.	Low – as per 'Risk Level'
	Vertical and lateral migration	Neighbouring properties	Unlikely	Medium	Low	Based on the results of the laboratory testing undertaken, the soils may be regarded as uncontaminated based on a commercial end-use. No sources of potentially mobile hydrocarbon contamination have been identified and there was no visual or olfactory evidence of any significant contamination (i.e. hydrocarbon impacted soils, for example)	Low – as per 'Risk Level'
	Leaching of Contaminants through unsaturated zone and/or vertical and lateral migration	Controlled Waters	Unlikely	Medium	Low	Based on the results of the laboratory testing undertaken, the soils may be regarded as uncontaminated based on a commercial end-use. No sources of potentially mobile hydrocarbon contamination have been identified and there was no visual or olfactory evidence of any significant contamination (i.e. hydrocarbon impacted soils, for example). The underlying drift deposits and the underlying bedrock are both classified as Unproductive Strata. The site does not lie within a designated Source Protection Zone. There are no licensed water abstractions within the vicinity of the site. There are no rivers in the vicinity of the site, however, there are drains on site and within close proximity to the site. Laboratory testing of recovered soil samples obtained during the investigation works has not revealed sufficiently elevated concentrations that are considered to represent a significant risk to Controlled Waters.	Low – as per 'Risk Level'
	Direct contact or contact with vapours	Plastic buildings products (i.e. water supply pipes) and buried concrete	Likely	Medium	Moderate	With regard to potable water supply pipes, localised elevated mineral oil and SVOC concentrations have been recorded within the Made Ground in the western portion of the site. **Potential protection of potable water supply pipes are likely to be required by Anglian Water.** Design Class DS-1/ACEC Class AC-1s. (BRE Spec. Digest 1:2005).	Low
	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Likely	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 required at the site.**	Low

TABLE 17 – REVISED RISK ASSESSMENT SUMMARY TABLE PHASE II EXPLORATORY INVESTIGATION							
Potential Contaminant Source [C]	**Potential Pathway(s) [P]**	**Potential Receptor [R]**	**Probability of CPR Linkage**	**Consequence of CPR Linkage**	**Risk Level**	**Comments / Justification**	**Residual Risk After Remedial / Mitigation Measures**
Off-site Infilled Features	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via 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. However, it would appear that the ground gas concentrations recorded during the programme of monitoring are associated with on-site sources (i.e. potentially the Made Ground) rather than an off-site source. **Gas protection measures required at the site.**	Low

9.0 CONCLUSIONS & RECOMMENDATIONS

9.1 Site Summary

At the time of our site works (June & July 2021), the site could be divided into two distinct areas. The eastern area comprised part of an agricultural field cropped with corn. The western portion of the site comprised bare ground with reworked soils at surface including many anthropogenic materials such as plastic, timber, concrete and macadam. A large stockpile of soil was present along the western site boundary.

The site is indicated to be underlain by superficial drift comprising Tidal Flat Deposits. The underlying bedrock is indicated to comprise the Oxford Clay Formation.

9.2 Geotechnical Information

9.2.1 Ground Conditions

Made Ground was encountered within 15 No. of the exploratory holes advanced at the site, all within the western portion of the site. The Made Ground generally comprised gravelly clay over silt (locally gravel or sand) with inclusions of brick, concrete, macadam and limestone to depths of between 0.40m and 1.50m begl. In several locations, the gravelly clay was underlain by a grey organic silt. Made Ground topsoil was encountered at surface in one location.

Natural Topsoil was encountered at the surface within the eastern portion of the site (i.e. the agricultural field), to depths of between 0.25m and 0.30m begl.

Beneath the Topsoil and Made Ground, the Natural Strata typically comprised firm locally stiff sandy SILT, which was underlain by a soft silty CLAY.

9.2.2 Foundation Design

Reference should be made to the Foundation Zoning Plan (Figure No. D41115/07), which is presented in Appendix XV of this report.

Zone 1

Notable depths of Made Ground (including up to 1.50m begl) have been encountered in the exploratory holes advanced in this zone comprising the western portion of the site, which may preclude the use of traditional strip / trench fill foundations in this part of the site. It should also be noted that remnant foundations were encountered in one of the exploratory holes advanced in the north-western portion in the area where former buildings were situated as highlighted in the desk study. It is therefore anticipated that further potentially increased thicknesses of Made Ground may ultimately be present in the north western area once the foundations / remnant structures associated with the former buildings are exposed, demolished and grubbed out in due course.

Based on the findings of the exploratory holes, deepening of potential shallow foundations through the Made Ground is considered more likely to encounter the less geotechnically competent soils (i.e. soft Clay) observed during the exploratory works. Given the variability in the Made Ground depths and the ground conditions encountered in this portion of the site, the Client may wish to consider carrying out building-specific foundation assessments in certain areas of the site if further certainty is required regarding the use of a shallow foundation solution.

At this stage, based on the findings of the exploratory works carried out to date and the development proposals (which are understood to potentially comprise steel framed structures), it is recommended that a specialist foundation solution (e.g. piles or potentially controlled modulus columns for example) is adopted for the proposed buildings within this zone to suit the loading characteristics of the proposed structures. Should a piled foundation solution be adopted, advice from a specialist piling contractor should be sought to confirm the depths of the piles and the most feasible and cost-efficient type of pile to be used at the site, if required. If the potential for adopting controlled modulus columns is to be further explored, advice from a specialist contractor should be sought to confirm the feasibility of such a potential foundation solution. It should be noted the depth of the Tidal Flat Deposits could be a limiting factor on the potential feasibility of the use of controlled modulus columns at the site.

It would be necessary to undertake further intrusive works at the site involving cable percussive boreholes to assess the deeper ground conditions to assist with potential deeper foundation solutions (e.g. piles) for the proposed development.

The use of a deeper founding solution (i.e. piles, for example) may need to be considered anyway if there is a need to raise site levels and / or where excessive loads from buildings are present and shallow foundations are not deemed appropriate, subject to advice from a Structural Engineer.

Zone 2

It should be noted that for the eastern portion of the site, Made Ground was not encountered within the window sampling boreholes advanced in this area. Due to the field containing a crop at the time of the exploratory works (and the requirement to minimise damage to the crops), it was not possible to undertake trial pits and shear vane readings from a range of depths within this portion of the site.

It is considered that, subject to further trial pitting works when the crop has been harvested, it may be possible to adopt a shallow foundation solution in this area of the site (i.e. Structural Engineer designed strip or raft foundations to suit the loading characteristics of the proposed structures and incorporate mesh reinforcement, if considered appropriate). An allowable bearing pressure should be calculated following supplementary trial pitting works with shear vane readings. In such circumstances that a shallow foundation solution is feasible, minimum foundation depths and any requirements for potential deepening / adjusting of foundations would be specified.

In the absence of trial pitting works in this area, it is recommended that a specialist foundation solution (e.g. piles or potentially controlled modulus columns for example) is also adopted for the proposed buildings within this zone to suit the loading characteristics of the proposed structures.

9.2.3 Floor Slab Design & Ground Gases

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

Building Type B

If the proposed office buildings are designated as Building Type B, the minimum gas protection score for CS2 is 3.5 points. Typically, the following mitigation measures are considered appropriate to achieve the required level of protection to the buildings:

- 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).
- Provision of a well installed and verified low permeability proprietary gas resistant membrane (2 Points).

The foregoing precautions would achieve the minimum score of 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 office buildings.

Building Type C

If the proposed commercial units / buildings are designated as Building Type C, the minimum gas protection score for CS2 is 2.5 points. Typically, the following mitigation measures are considered appropriate to achieve the required level of protection to the buildings:

- Provision of pressure relief pathway (usually formed of low fines gravel or with a thin geo-composite blanket or strips terminating in a gravel trench external to the building) (0.5 Points).
- Provision of a well installed and verified low permeability proprietary gas resistant membrane (2 Points).

The foregoing precautions would score 2.5 points in accordance with BS 8485 and are therefore considered appropriate, based on the requirements for a minimum protection level of 2.5 points.

Membrane Details

For both of the potential building types, the membrane should have proven resistance to the ground gases of concern, including carbon dioxide and methane. 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.

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 buildings.

We would note that in accordance with Table 7 (BS 8485:2015) where a gas resistant membrane is proposed, 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. 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.

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.

Alternative floor slab and ground gas protection measures that give a minimum protection score of 3.5 Points and 2.5 Points respectively (depending upon the building type) may be adopted at the site, to suit the requirements of the Client and subject to Local Authority approval.

Where the proposed dwellings / buildings are to benefit from a Buildmark warranty, 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.

Potential Further Works

It should be noted, however, that the monitoring wells with the highest concentrations of methane (1.2% v/v) and carbon dioxide (6.0% v/v) recorded during the monitoring period were located in the western portion of the site, i.e. within the area of Made Ground. Within the eastern portion of the site (i.e. the cropped field), the maximum recorded carbon dioxide and methane concentrations were 4.1% v/v and 0.1% v/v respectively. Based on those results, no ground gas protection measures would be required.

Based on the above, it is therefore considered that if the Client wishes, further ground gas monitoring could be undertaken within the eastern portion of the site to potentially remove the requirement for ground gas protection measures within the new buildings within / close to the area where no Made Ground has been recorded in the eastern portion of the site. This would likely require the installation of additional monitoring points at the site. It should also be noted that the further gas monitoring works may not reduce / remove the requirement for ground gas protection measures in the eastern portion of the site.

9.2.5 Radon

No radon precautions are required at the site.

9.2.6 Building Near Trees

Foundation designs may require locally adjusting in accordance with BRE guidance when building near existing, proposed or recently removed trees / hedgerows (although it is noted that only a limited number of existing trees are present at the site, mainly around the western periphery). This includes heave to ground beams assuming that a piled foundation solution is to be adopted at the site.

Deepening of foundations for trees is likely to lead to foundations penetrating the less geotechnically competent strata and piled foundations may therefore need to be considered.

The geotechnical laboratory analysis carried out to date on the shallow soils has indicated that the natural Silt / Clay soils exhibit low volume to medium change potential characteristics, with the sand soils exhibiting non-plastic characteristics. For foundation design purposes, soils of a medium change potential should be assumed for design purposes across the entire site.

We would recommend that an arborist survey is undertaken to identify the species and heights of the existing trees and hedgerows at, and within influencing distance of the site, if not already completed.

9.2.7 Water

The soils at the site were noted to be become gradually damp / wet with depth. Slight water seepages were observed within the majority of the pits and window samples from variable depths generally below 1.00m begl and also to depths of 3.30m begl (and locally deeper).

During the subsequent water level monitoring within installed standpipes as part of the programme of gas monitoring, water levels have generally been recorded to range between approximately 1.10m and 2.28m begl, with water levels recorded as shallow as 0.79m begl in one location.

On the basis of the water levels observed during the exploratory works and subsequent monitoring, water is likely to be encountered within excavations for construction purposes at the site and dewatering of excavations are likely to be necessary.

Dewatering of excavations is considered more likely at the site if excavations are left open for a period of time (i.e. prior to the pouring of concrete and/or laying of drainage materials, for example) as water (held within the surrounding low permeability soils) will gradually seep/ingress into open excavations after relatively short periods. The low permeability soils at the site are also susceptible to standing water following periods of wet weather, which will increase the likelihood of needing to dewater.

The site is underlain by Tidal Flat Deposits and these deposits extend across much of South Lincolnshire and into Cambridgeshire. We have many years of experience of undertaking ground investigations on sites underlain by Tidal Flat Deposits in these regions. These soils are typically cohesive in nature and of generally low permeability. The soils encountered in trial pits advanced within these deposits generally become damper/water bearing with depth. Whilst there may be no initial evidence of water seepage/ingress within some of the trial pits immediately upon completion of excavation, water eventually finds its way into the pits if they are left open for several minutes. This is supported by the water levels encountered within monitoring wells, which often record shallow water within the Tidal Flat Deposits during periods of monitoring.

9.2.8 Excavations / Stability

The trial pits were initially generally stable during excavation and for the short time they were left open after completion before backfill.

The boreholes were cased to 1.00m during excavation as a precautionary measure. Upon removal of the sampling tube at 5.00m begl, the borehole sides collapsed below 4.00m due to the nature of the soils (Silt) and the presence of groundwater.

The assessment of excavations and provision of support will be the responsibility of the contractor on site.

The natural soils are likely to be subject to deterioration and softening if excavations are left open and exposed to wet weather. Any softened soils should be removed from excavations prior to the pouring of concrete and foundation construction.

9.2.9 Sulphate Classification

In accordance with BRE Special Digest 1 (2005), the site falls into Design Sulphate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s.

It should be noted, however, that the results of the Sulphate Classification include a result of 515mg/kg in one sample (WS7 at 0.50 – 0.60m begl) within the Made Ground. This result is notably higher than the other 8 No. results for the site. The Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005) states that is the water-soluble sulphate results for soil vary significantly, it may be appropriate to test further samples to obtain a more representative data set. The result of 515mg/kg would push the site into Design Sulfate Class DS-2 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s.

Therefore, it may be beneficial to undertake further water-soluble sulphate testing within the area of the elevated result to confirm the required concrete class. This would enlarge the dataset used in the assessment and provide a more accurate indication of the required concrete class.

9.2.10 Coal Mining

No coal mining precautions or associated investigation works are required at the site.

9.2.11 California Bearing Ratios (CBRs)

The remoulded soaked CBR testing has revealed CBR values for the Natural Strata between 1.3% and 2.5%.

The results for WS11 at 0.40-1.00m begl are currently awaited and will be provided under separate cover.

No frost susceptible material should be within 450mm of the ground surface in road construction.

9.2.12 Surface Water Drainage

Soakaway testing has not been undertaken at the site. Based on the findings of the exploratory holes, it is considered that the shallow soils beneath the site are likely to be of relatively low permeability and it is noted that shallow water levels have been recorded. If the Client wishes to consider the use of soakaways or permeable paving at the site, it is recommended that testing should be carried out in accordance with BRE Digest 365 '*Soakaway Design*' in order to inform potential soakaway design and / or permeable paving design.

9.3 Environmental Considerations

9.3.1 Soil Contamination Assessment

Soil contamination testing was carried out on selected samples of the Made Ground (including Made Ground topsoil), Topsoil and Natural Strata.

Human Health

On the basis of the chemical contamination assessment undertaken at the site, the soils may be considered to be uncontaminated in the context of the proposed commercial end-use (i.e. in relation to human health).

We would note that no obvious visual or olfactory evidence of significant soil contamination was identified during the course of the exploratory site investigation works.

Controlled Waters

Given the findings and interpretation of the laboratory contamination testing undertaken, together with the generally low groundwater sensitivity of the area, there are considered to be no significant risks posed to Controlled Waters by the contaminant concentrations recorded at the site.

9.3.2 Remediation Proposals

No specific remediation works will be required other than the provision of suitable existing Natural Topsoil in areas of soft landscaping to provide a suitable growing media for plants. It may be necessary to increase the thickness of the topsoil around the root balls of trees to suit the proposed planting regime.

9.3.3 Areas of Soft Landscape

The existing Natural Topsoil in the eastern portion of the site (i.e. the agricultural field) is considered chemically suitable for re-use within the proposed development (based on the laboratory testing carried out). The physical suitability of these soils should be assessed and determined on site by the developer.

Should there be a requirement to import topsoil to the site (although potentially unlikely), it will be necessary to test the topsoil at source to ensure it is suitably clean (prior to importation) in accordance with CLEA/generic guidance. The topsoil should also conform to BS3882: 2015 '*Specification for topsoil*', with respect to the presence of foreign objects, and ideally nutrient levels etc. The results of the chemical analysis on topsoil proposed for importation should be forwarded to the Local Authority (Environmental Health Officer) for approval (prior to importation).

9.3.4 Re-use of Existing Natural Strata

The uncontaminated Natural Strata may be regarded as chemically suitable for re-use within proposed areas of soft landscape as subsoil including to raise levels (as appropriate) or for landscaping/capping on alternative developments (subject to regulatory approval and the production of any necessary plans or permits) where surplus arisings are generated from the site and where suitable control measures are adopted to segregate the Made Ground soils (where necessary). The geotechnical suitability of the Natural Strata for re-use (such as for raising levels) would require confirmation / assessment and would be dependent upon the proposed end use of the area of placement.

9.3.5 Off Site Disposal & Waste Acceptance Criteria Testing

Excess uncontaminated soils (for example underlying Natural Strata) should be regarded as a potential asset and we would recommend that the re-use of excess uncontaminated soils on site or off-site is investigated in the first instance (subject to appropriate permits, plans and registrations etc).

If off-site disposal is required, the chemical testing regime can be different to the chemical testing required to assess the suitability of the soils for retention on site and the risks to human health. Therefore, a separate 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. However, the existing chemical test data will assist this process.

If disposal is necessary then the environmental laboratory test results (included within Appendix XII) should be provided to several landfill operators for consideration and cost provision in the first instance, prior to the material being removed from the site.

9.3.6 Water Supply Pipes

Based on the laboratory testing undertaken across the site, it is likely that water supply pipes in the western portion ('Brownfield' area) of the proposed development are likely to require protective / barrier pipes rather than standard pipework.

Based on the laboratory testing carried out in the eastern portion of the site (i.e. the agricultural 'Greenfield' area) where low contaminant concentrations were recorded (i.e. below Anglian Water pipeline threshold values), it is considered that protective / barrier pipes would not be required, subject to confirmation by Anglian Water.

In terms of the current proposed layout, it is considered that the proposed commercial units in the north western portion are likely to require protective / barrier pipes. However, the proposed office buildings in the south east portion are likely to require standard pipework, subject to confirmation by Anglian Water.

9.4 Flood Risk

The Landmark Envirocheck report has revealed the site to lie within an area identified as being at risk of flooding. It is recommended that advice be sought from a Drainage Consultant with respect to this matter. This report does not constitute a flood risk assessment.

9.5 General Considerations

9.5.1 Construction Workers

It is recommended that construction personnel involved with direct contact with the soils at the site use appropriate PPE equipment together with hygiene facilities in accordance with general health and safety guidelines.

The chosen Contractor should undertake the necessary Risk Assessments and Method Statements (RAMS) to determine the most appropriate protection required for safe working practices at the site.

A copy of all reports relating to the site should be included in the site health and safety file, and site workers should be made fully aware of the sites setting.

9.5.3 Other Utilities

Prior to development of the site, we would recommend that a copy of this report is supplied to utility companies, and that their recommendations relating to appropriate supply pipes are adhered to.

9.5.4 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. We will then undertake a visual assessment of the possible contamination, followed by appropriate sampling/testing (as necessary).
iii. If necessary, contamination will then be treated or removed from site. All necessary remediation works should be validated by testing in accordance with an approved strategy, with the relevant Regulators informed accordingly.

9.5.5 Licenses, Permits, Registrations, Plans and Approvals

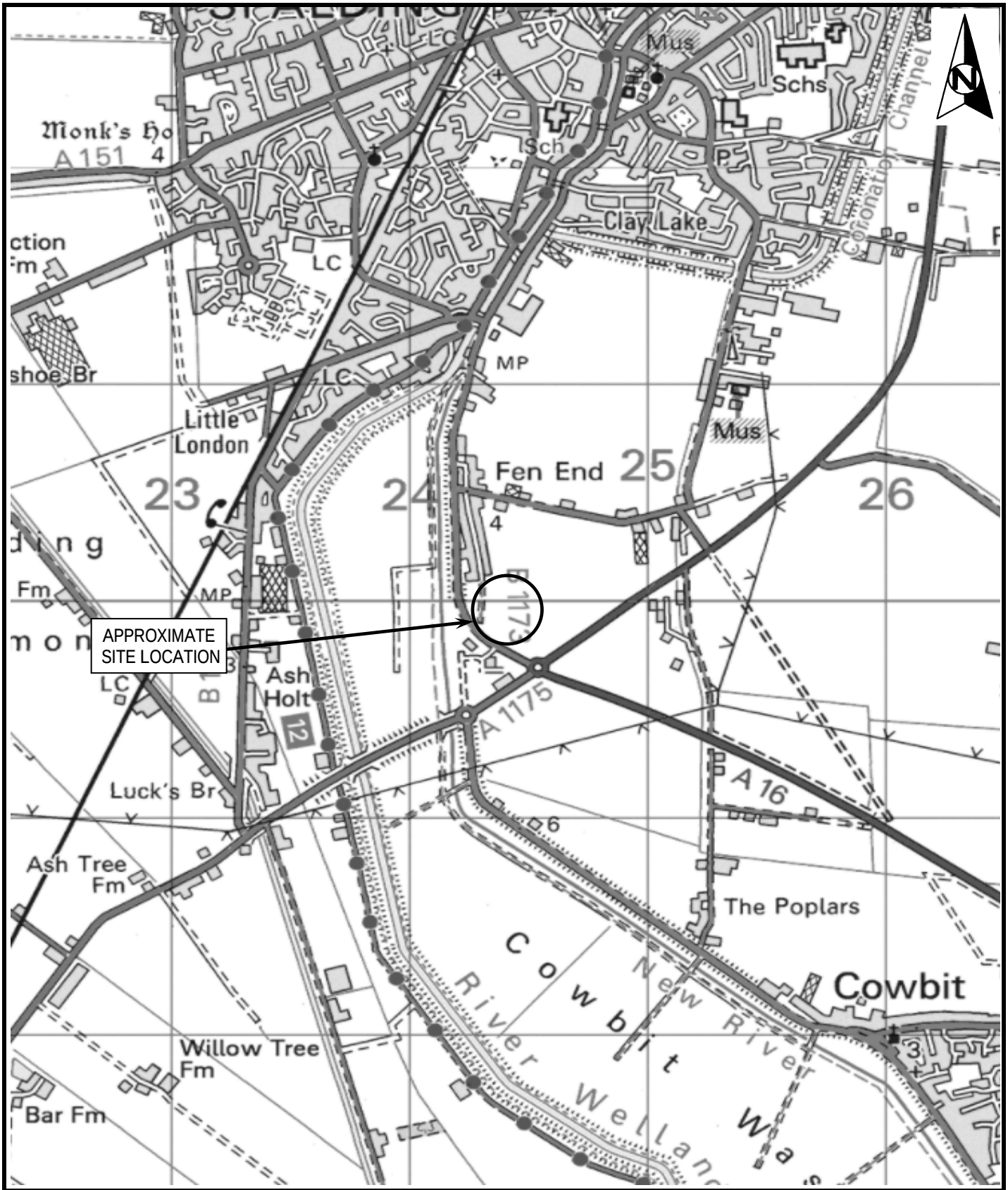
The Contractor/Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site. These may include any Materials Management Plans (MMPs), Site Waste Management Plans (SWMPs) and/or Environmental Permits/Exemptions as necessary to enable the completion of the proposed works. Any MMP should be accompanied by a Qualified Person Declaration (QPD) and will require verification in due course.

9.5.6 Statutory Consultation

In accordance with normal planning requirements, we would recommend that a copy of our report is issued by the Client to the Local Authority (and NHBC or other Warranty Provider, if necessary) for review/comment and approval prior to commencing with the development of the site.

APPENDIX I

Site Location Plan
(Figure No. D41115/01)



REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED. LICENCE NO. LAN 1001274

Project No.	D41115	Drawn	GH
Client	Ashwood Homes	Checked	DB
Project	Lincs Gateway - Phase II	Approved	DB
		Scale	NTS
		Date Drawn	13/08/2021
Title	Site Location Plan	Rev.	
		Figure No.	D41115/01

GeoDyne

GeoDyne

APPENDIX II

Proposed Development Plan

N

W E

S

40 meter Buffer Zone

oute of existing
ublic footpath
etained

EP
EP

ROUTE of EXISTING PUBLIC FOOTPATH

BUND

DRAIN

POND

LANDSCAPE ZONE

Block C Unit-8 Unit-7

Block B Unit-6 Unit-5 Unit-4

Block B Unit-3 Unit-2

Unit-1

Block C Unit-10 Unit-9

Block C Unit-11 Unit-12

Block B Unit-13 Unit-14 Unit-15

Block B Unit-16 Unit-17 Unit-18

Block C Unit-20 Unit-19

Block A Unit-24 Unit-23 Unit-22 Unit-21

NEW ROAD

SWALE

Personnel Entrance

Pedestrian Entrance

5m 7m 4m 6m 20m 16m 21.5m 23m 29.65m 9.80m 18.6m 16m 18.6m 7.3m 11m 15m 13m

Building 1

Building 2

Building 3

Building 4

40.80m 6m 15.6m

LANDSCAPE ZONE

SWALE

POND

LANDSCAPE ZONE

LINE OF EXISTING TREES

B1173

BNDRY.MRKR
POST

Building Type Schedule

Building Ref	Use Class	Ground Floor Sqft	Mezzanine Sqft	Parking	Notes
Block A	E(g)(iii)	1991	930	7 + 2 Dis	Light Industrial
Block B	E(g)(iii)	1991	930	6 + 1 Dis	Light Industrial
Block C	E(g)(iii)	1991	930	4 + 1 Dis	Light Industrial

Building Type Schedule

Building Ref	Use Class	Ground Floor Sqft	First Floor Sqft	Parking	Notes
Building 1	E(g)(i)	5522	5522	44 + 4 Dis	Offices
Building 2	E(g)(i)	5522	5522	47 + 4 Dis	Offices
Building 3	E(g)(i)	5522	5522	47 + 4 Dis	Offices
Building 4	E(g)(i)	5522	5522	47 + 4 Dis	Offices

KEY

Application Site Boundary

Adjacent Land in Applicants Ownership

Rev.	Date	Description
B	11.08.2020	Building 1 to 4 main entrance point changed.
A	14.07.2020	Industrial units layout rearranged. Additional parking added to building 1 - 4. Bund updated after topo survey.

ASHWOOD HOMES

1 Goodison Road, Lincs Gateway Business Park,
Spalding, Lincs, PE12 6FY **T: 01406 490590**

PROJECT:

Proposed Development at Lincs Gateway, North Spalding

DRAWING:

Site Layout

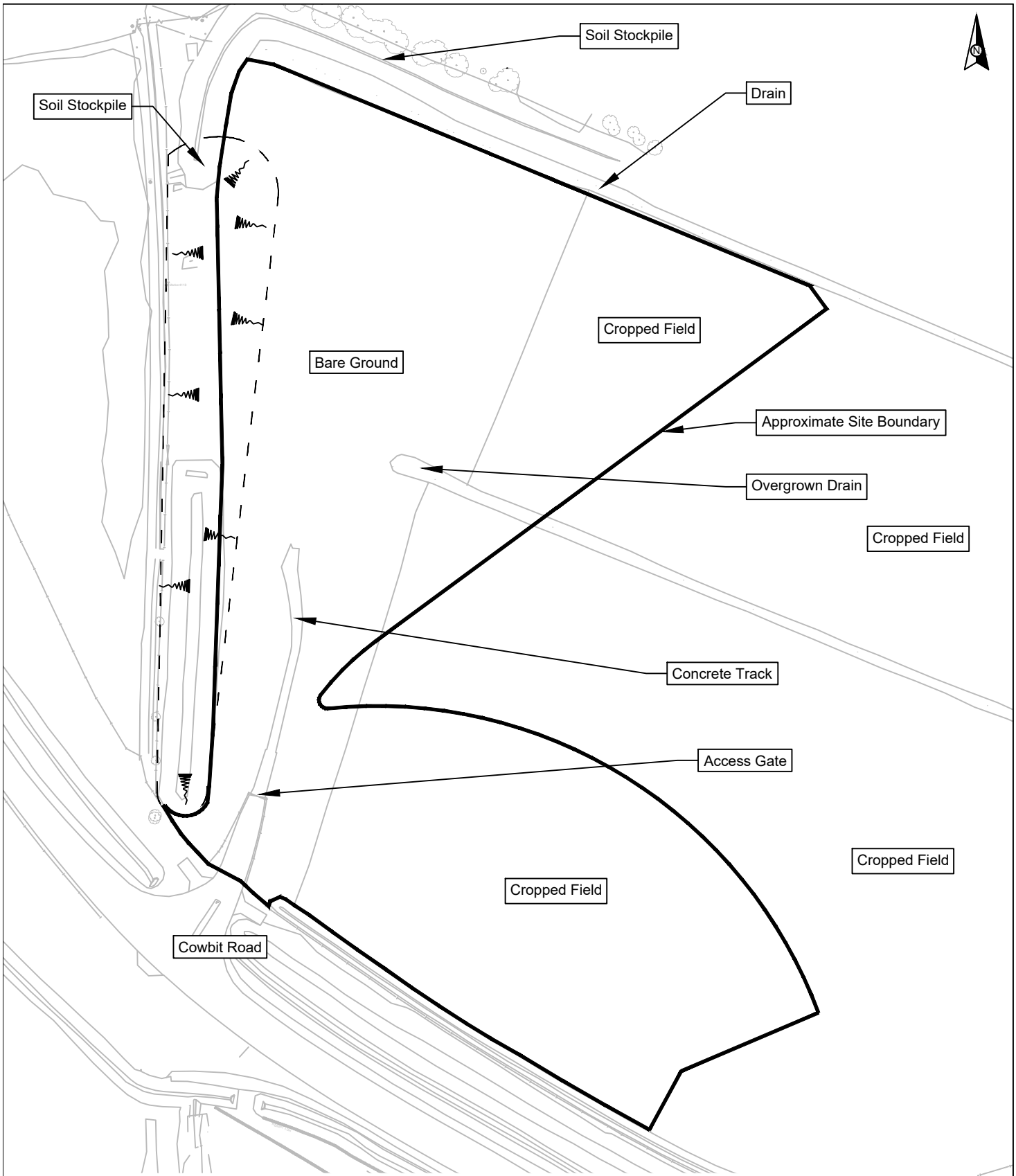
SCALE: 1:500@A1 DRAWN: MII

DATE: JULY.2021 REVISION: B

DRAWING No: 96-PL-SL-01

APPENDIX III

Annotated Site Plan
(Figure No. D41115/02)



Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DB
		Approved By	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	Annotated Site Plan	Revision	
		Figure No.	D41115/02

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APPENDIX IV

Site Plan Showing General Site Views
(Figure No. D41115/03)

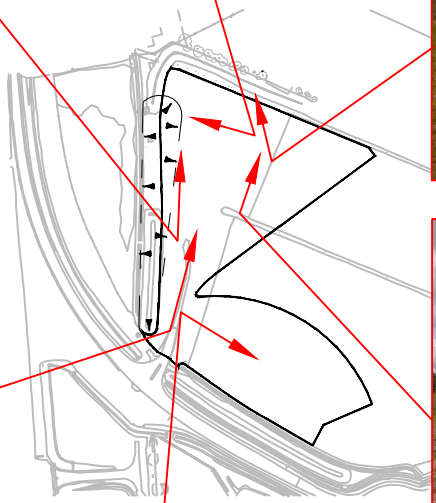














Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DB
		Approved By	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	Site Plan Showing General Site Views	Revision	
		Figure No.	D41115/03

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Nottingham 0115 962 0001
Derby 01332 290 798

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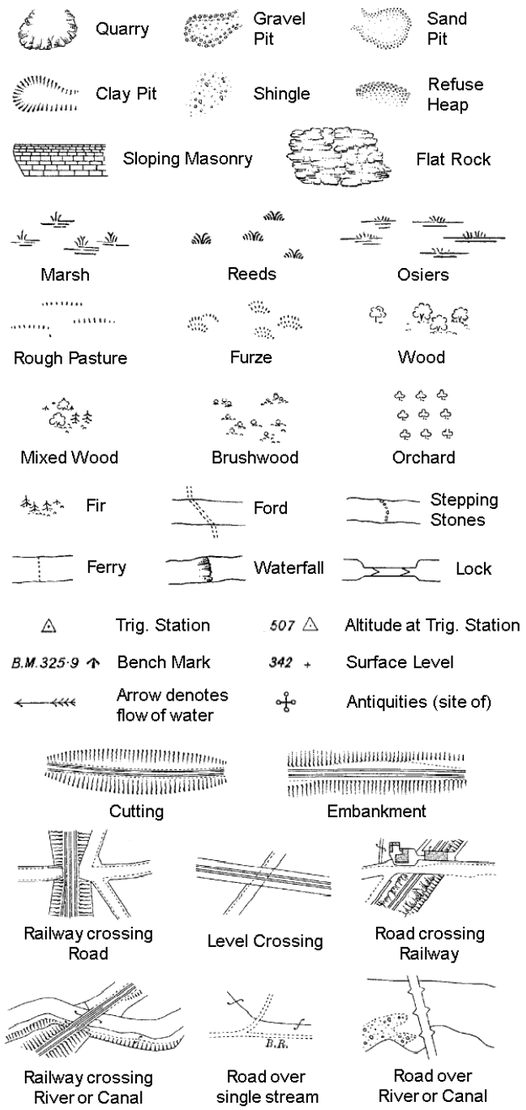
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APPENDIX V

Historical Plans

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

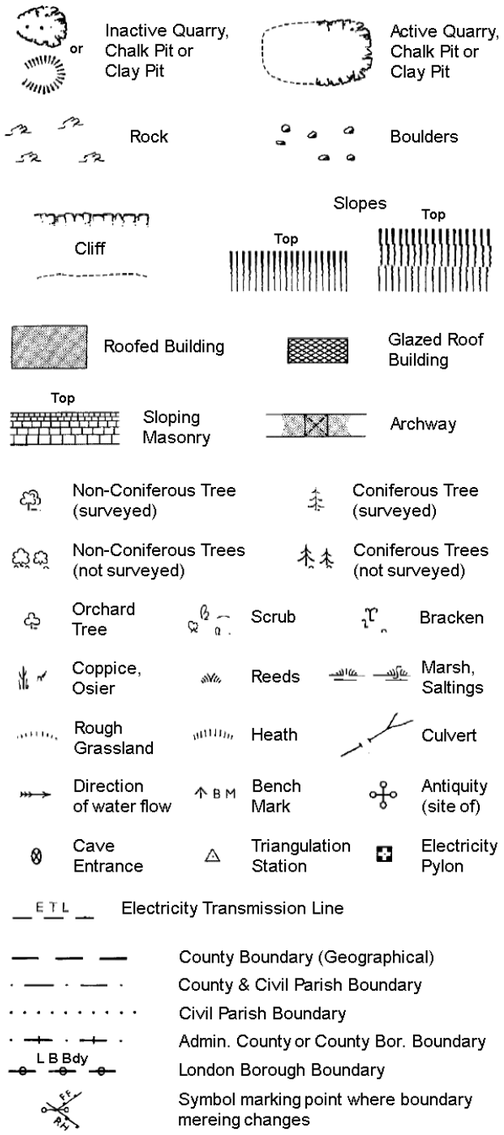
Administrative County & Civil Parish Boundary

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

Co. Burgh Bdy. County Burgh Boundary (Scotland)

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

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

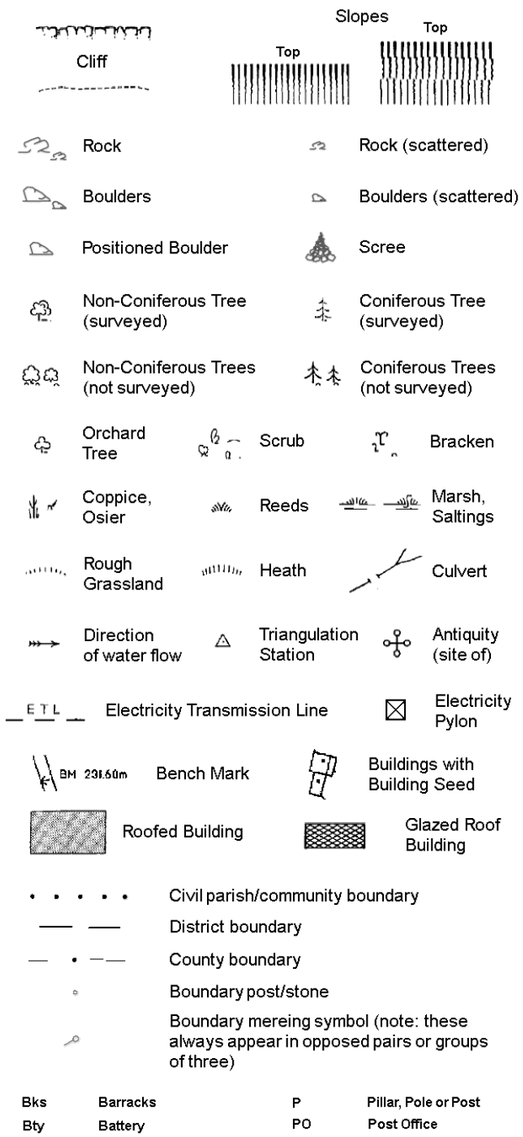
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

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

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



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

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

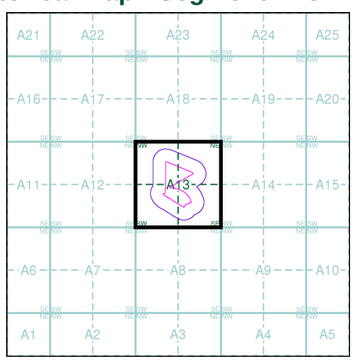
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity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

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:2,500	1888 - 1889	2
Lincolnshire	1:2,500	1904	3
Lincolnshire	1:2,500	1931 - 1932	4
Ordnance Survey Plan	1:2,500	1968 - 1969	5
Additional SIMs	1:2,500	1986	6
Large-Scale National Grid Data	1:2,500	1995	7
Large-Scale National Grid Data	1:2,500	1996	8
Historical Aerial Photography	1:2,500	1999	9

Historical Map - Segment A13



Order Details

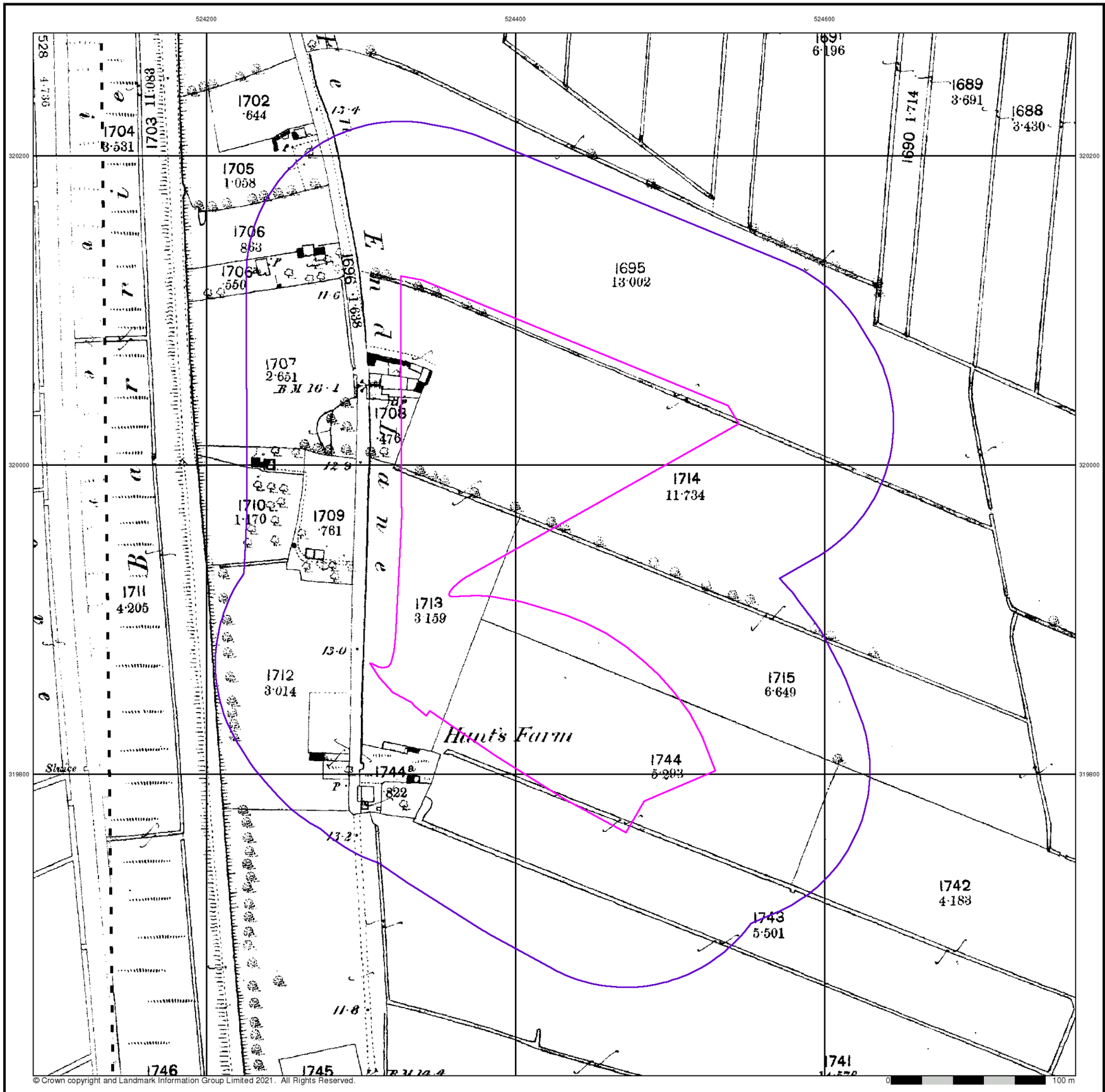
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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

Site Details

Lincs Gateway - Phase 2

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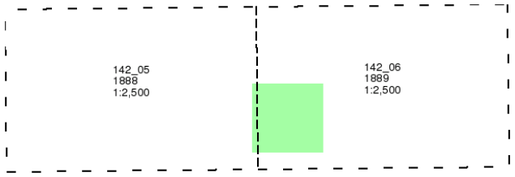
Lincolnshire

Published 1888 - 1889

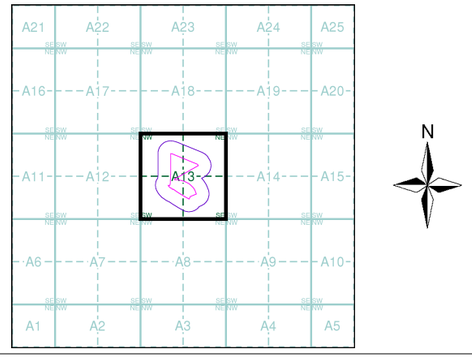
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



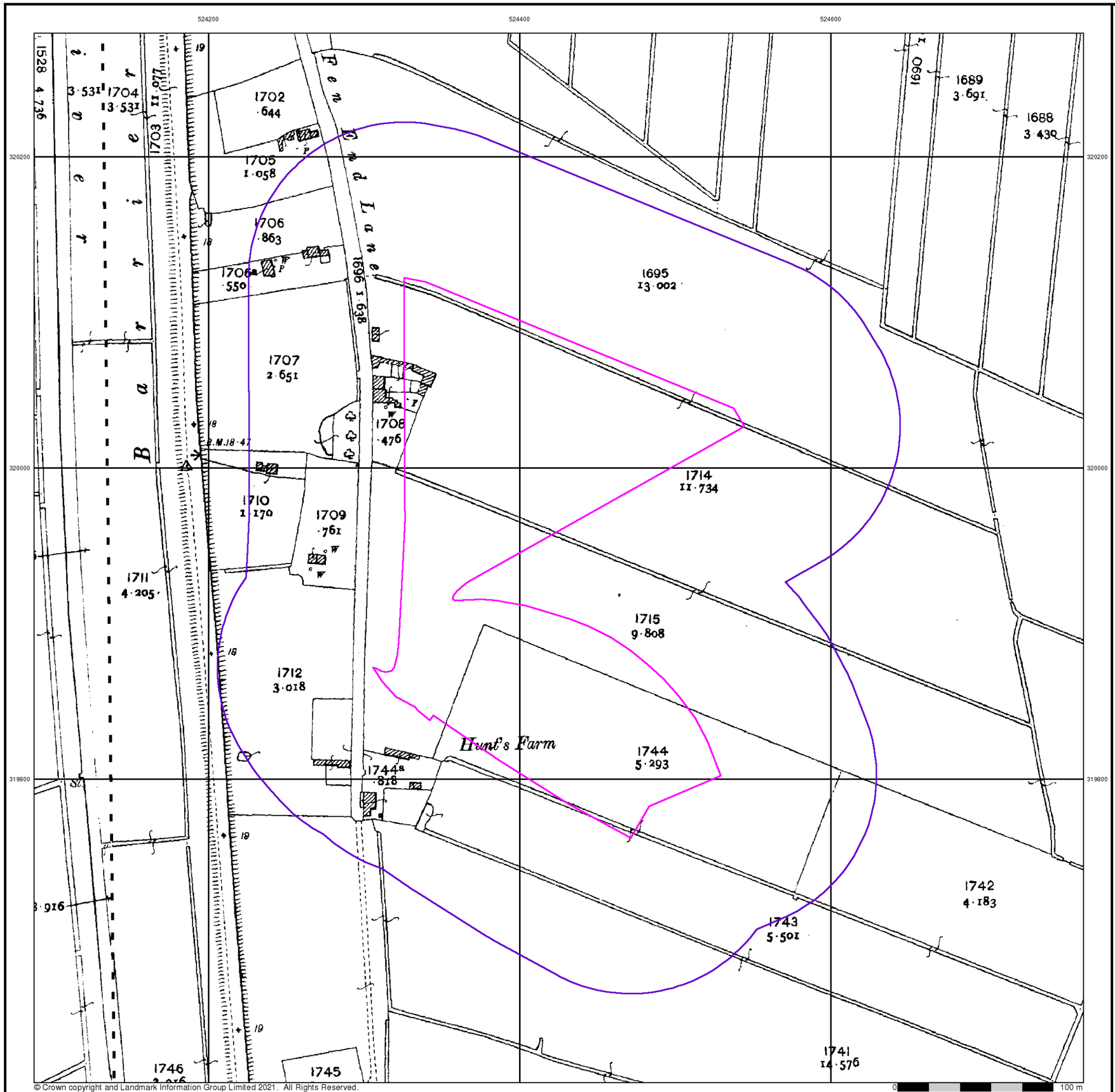
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

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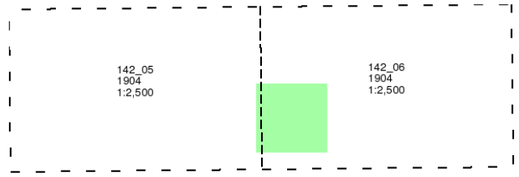
Lincolnshire

Published 1904

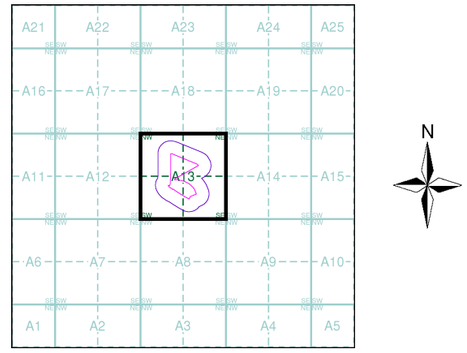
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



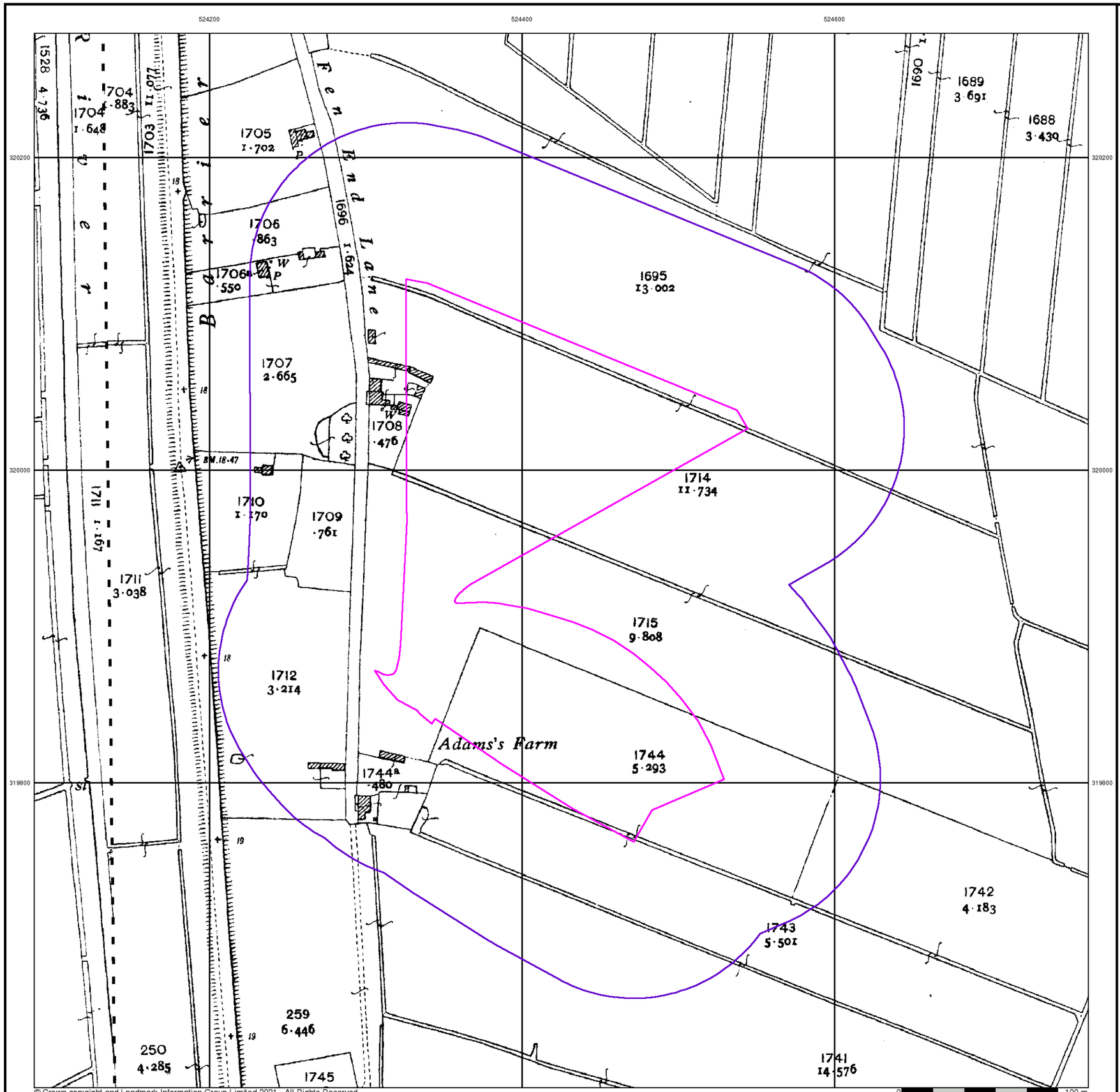
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National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

Site Details

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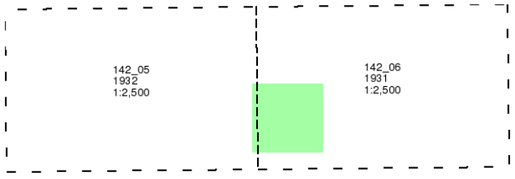
Lincolnshire

Published 1931 - 1932

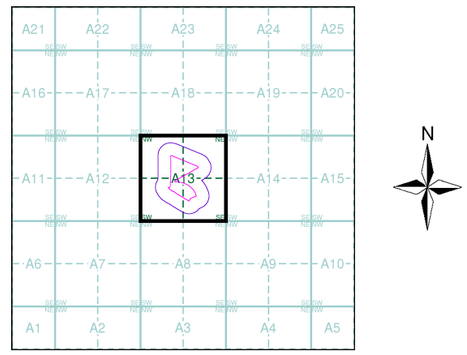
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

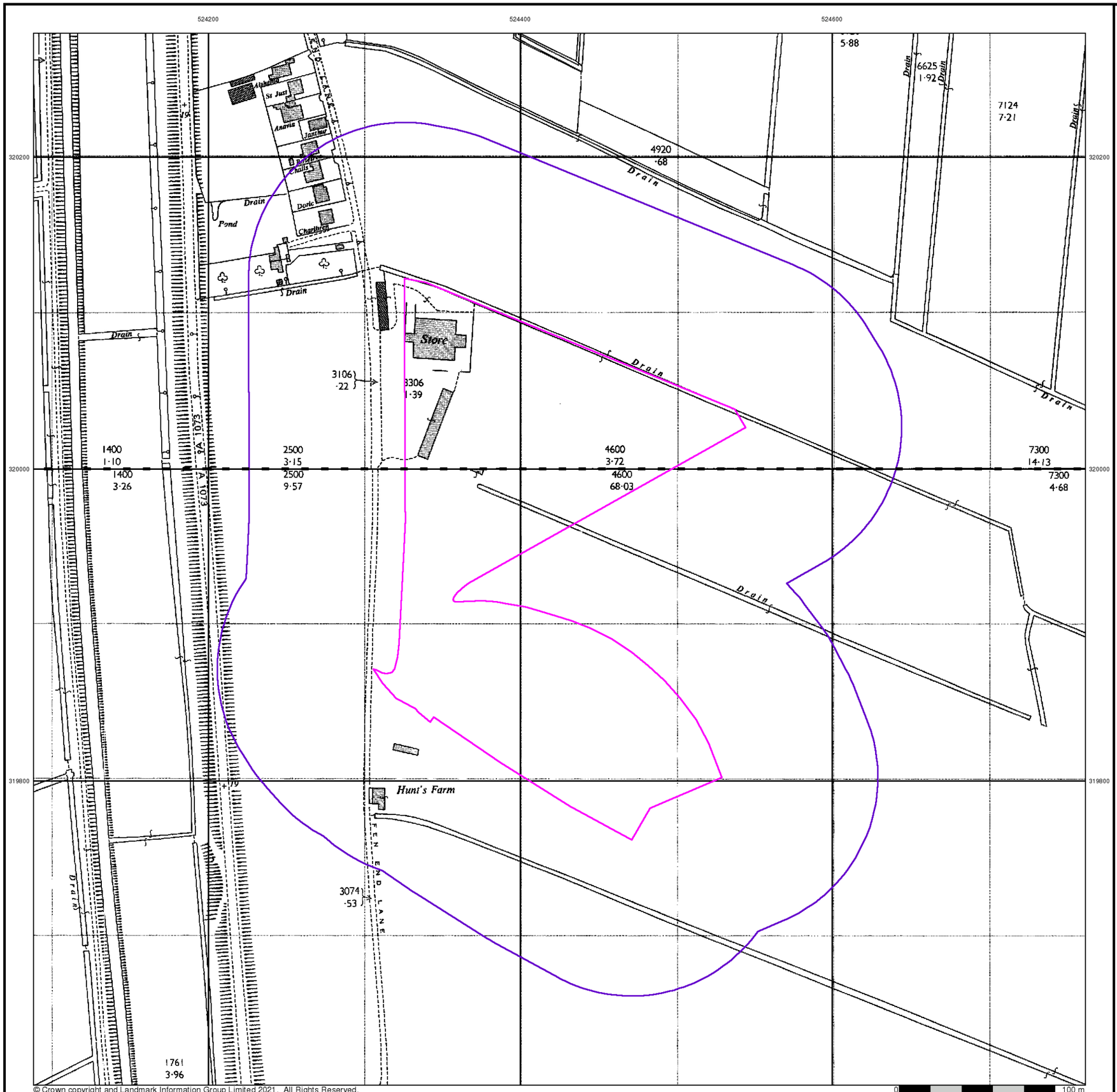
Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

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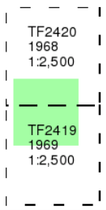
Ordnance Survey Plan

Published 1968 - 1969

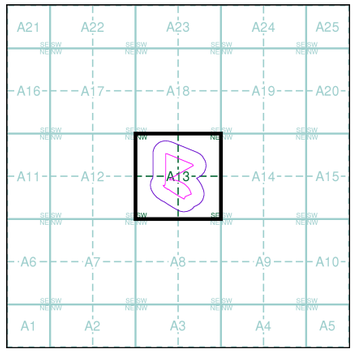
Source map scale - 1:2,500

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	280796934_1_1
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Slice:	A
Site Area (Ha):	4.41
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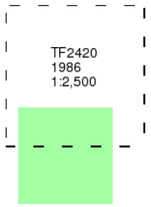
Additional SIMs

Published 1986

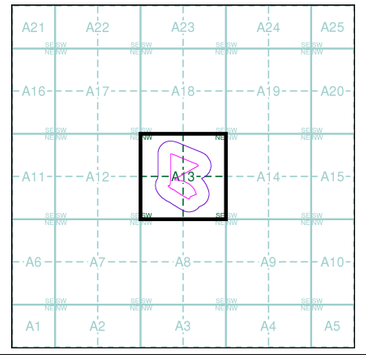
Source map scale - 1:2,500

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:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

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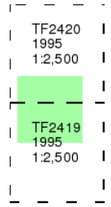
Large-Scale National Grid Data

Published 1995

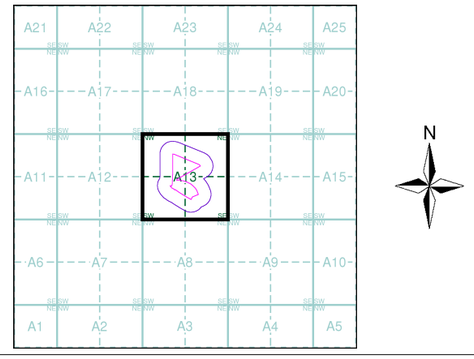
Source map scale - 1:2,500

'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:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

Site Details

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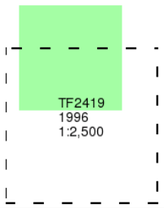
Large-Scale National Grid Data

Published 1996

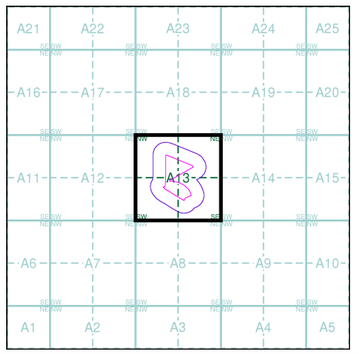
Source map scale - 1:2,500

'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



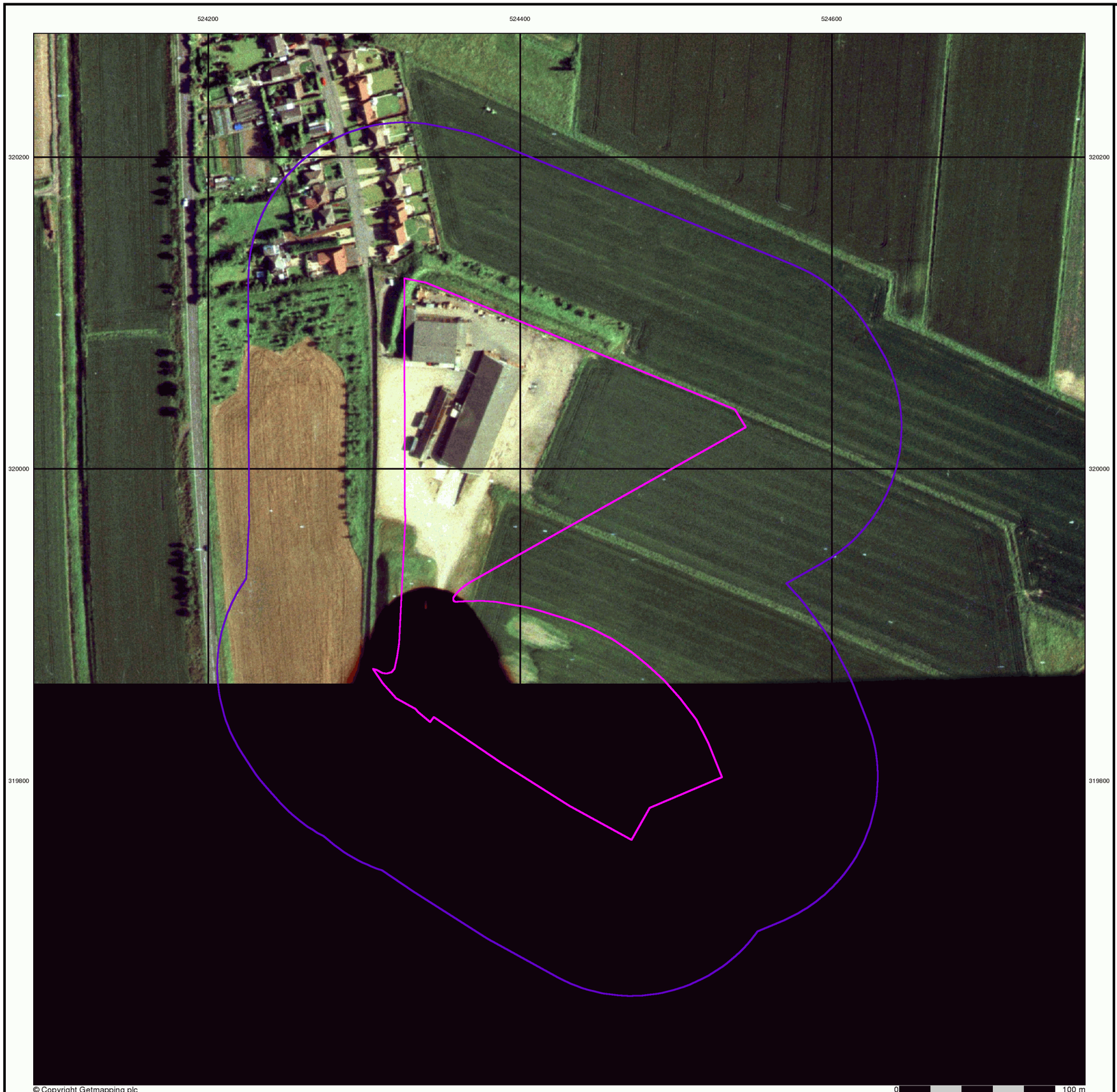
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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

Site Details

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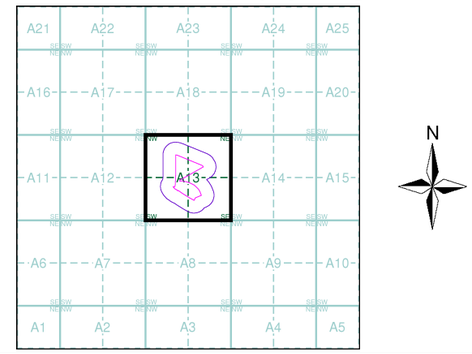
GeoDyne

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:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	100

Site Details

Lincs Gateway - Phase 2

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

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

Ordnance Survey Plan 1:10,000

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

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

1:10,000 Raster Mapping

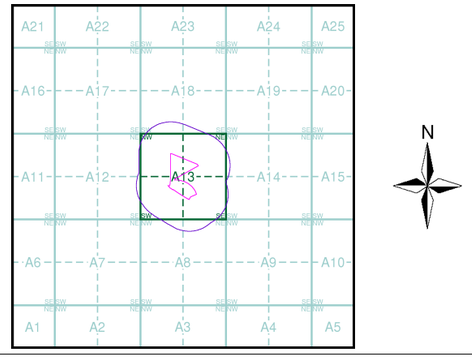
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community 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

GeoDyne

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:10,560	1887 - 1888	2
Lincolnshire	1:10,560	1906	3
Lincolnshire	1:10,560	1906	4
Lincolnshire	1:10,560	1932	5
Lincolnshire	1:10,560	1938 - 1952	6
Ordnance Survey Plan	1:10,000	1958 - 1959	7
Ordnance Survey Plan	1:10,000	1968	8
Ordnance Survey Plan	1:10,000	1971 - 1979	9
Ordnance Survey Plan	1:10,000	1982 - 1989	10
Ordnance Survey Plan	1:10,000	1991 - 1992	11
10K Raster Mapping	1:10,000	2000	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2021	14

Historical Map - Slice A



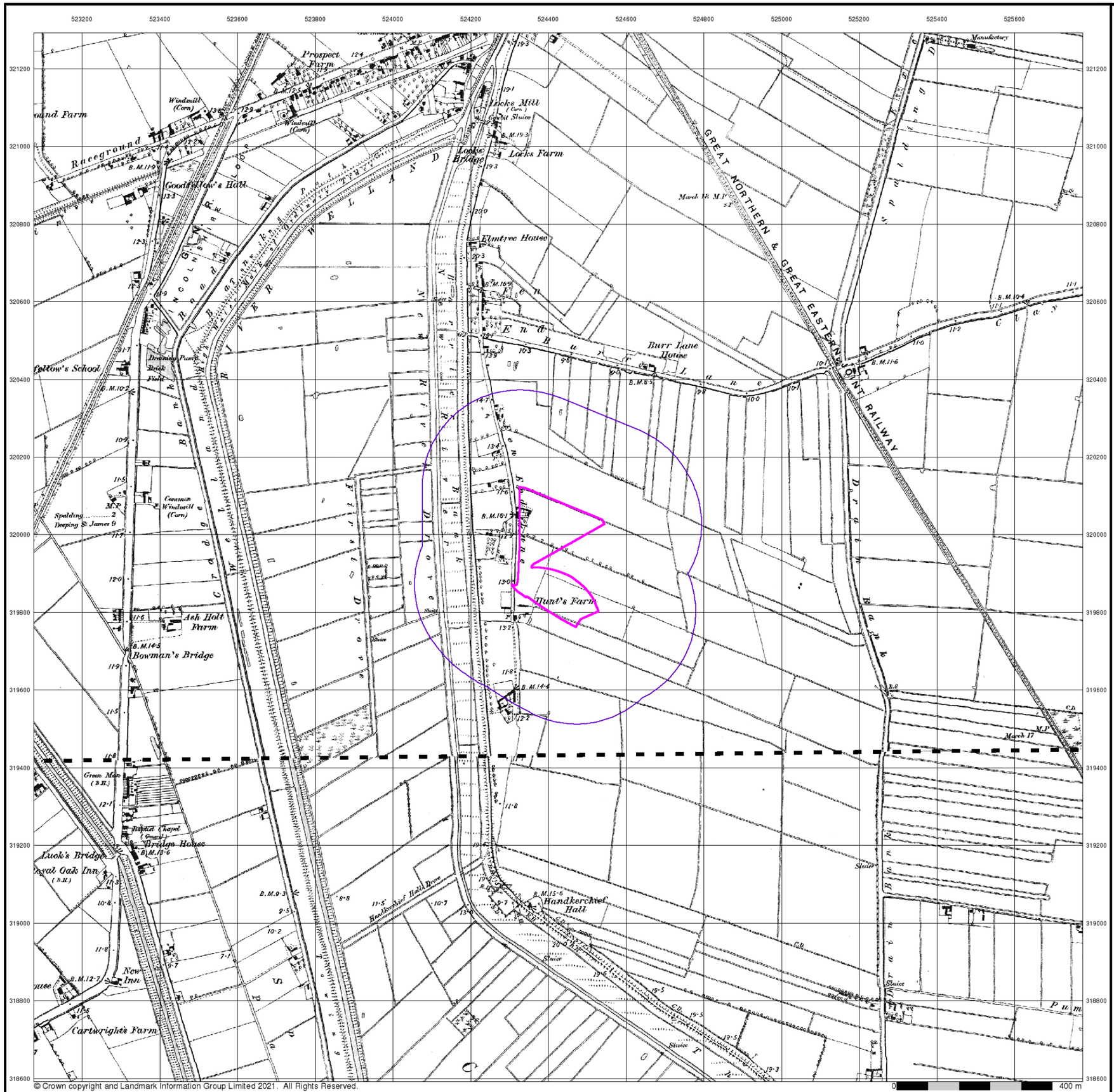
Order Details

Order Number: 280796934_1_1
Customer Ref: D41115
National Grid Reference: 524420, 319950
Slice: A
Site Area (Ha): 4.41
Search Buffer (m): 250

Site Details

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GeoDyne

Lincolnshire

Published 1887 - 1888

Source map scale - 1:10,560

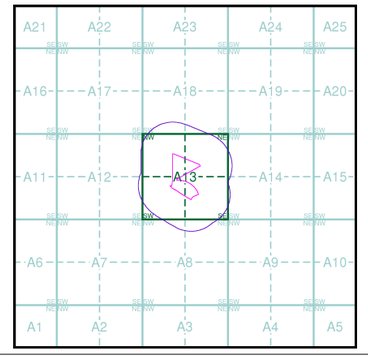
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

142NW
1888
1:10,560

142SW
1887
1:10,560

Historical Map - Slice A



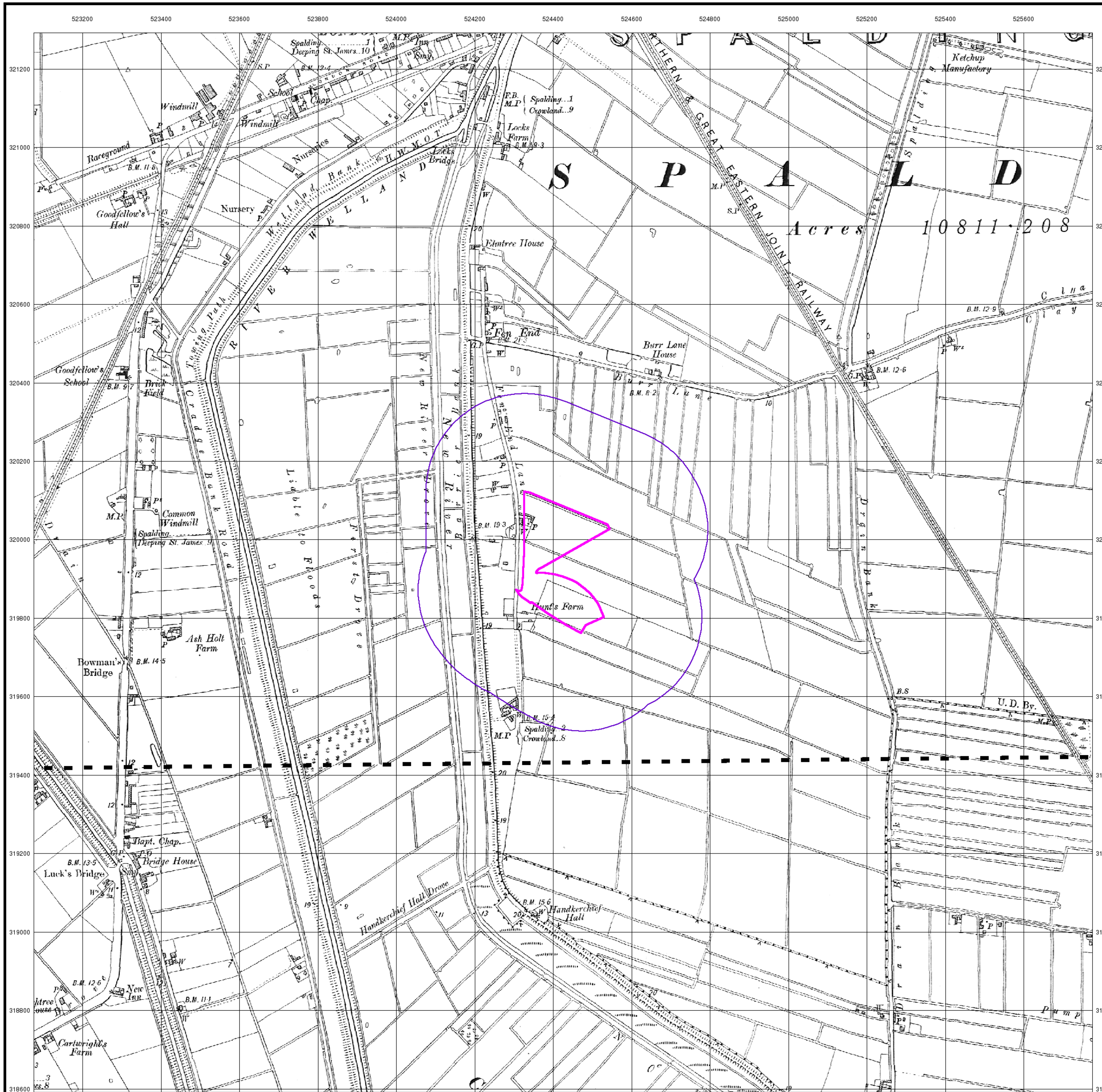
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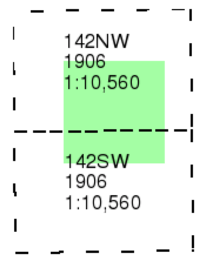
Lincolnshire

Published 1906

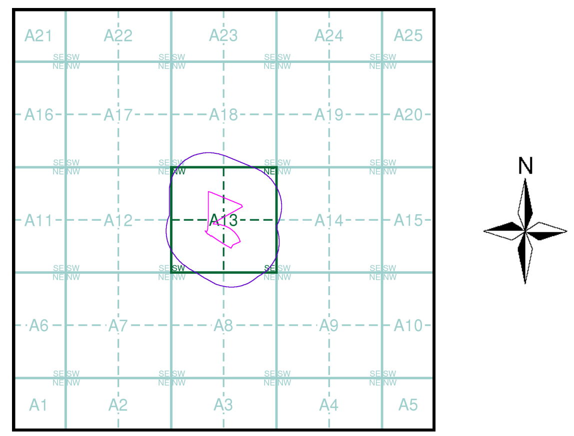
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



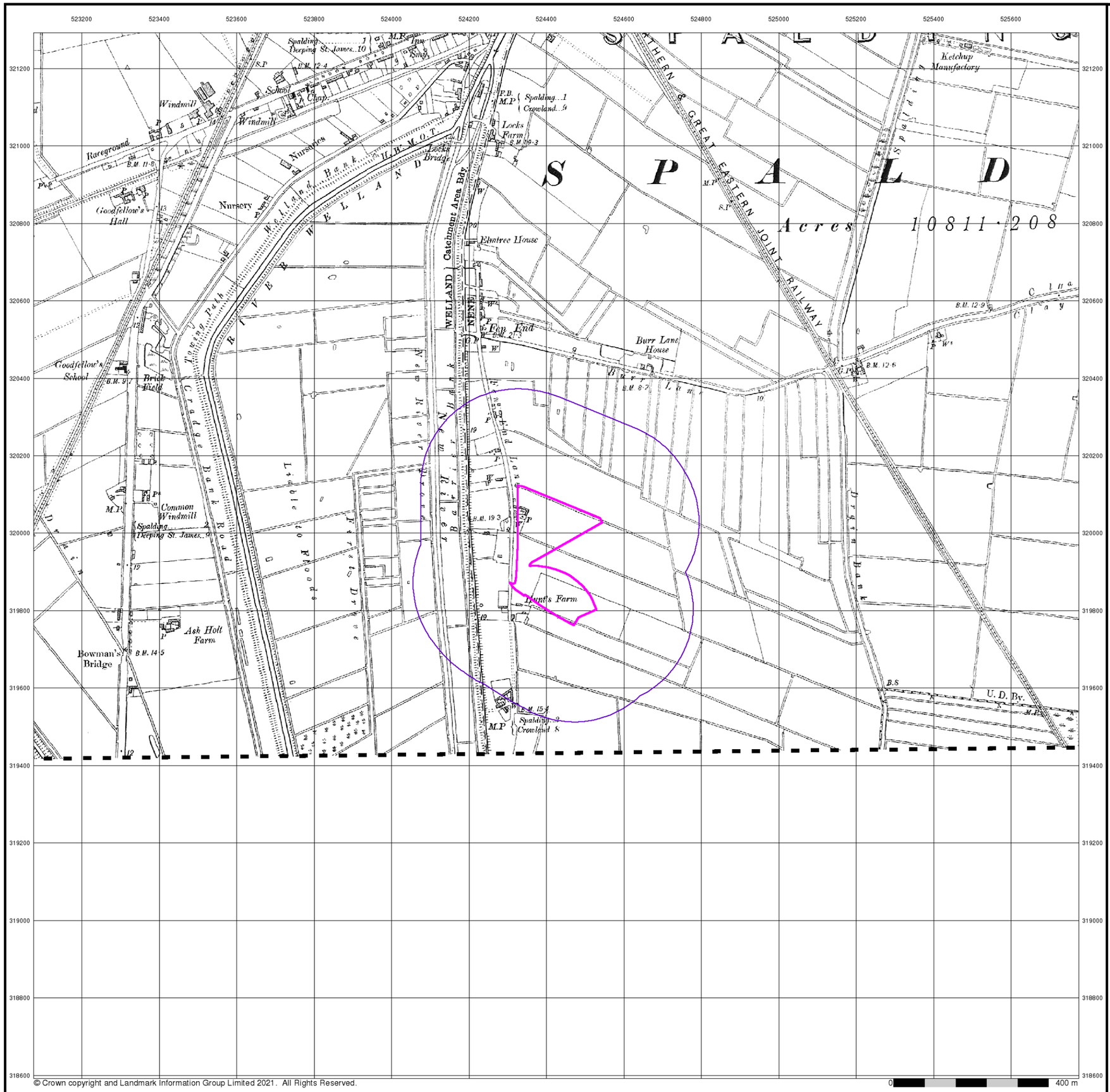
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0 400 m

GeoDyne

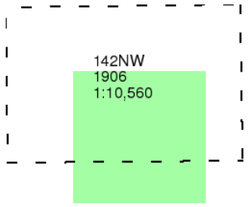
Lincolnshire

Published 1906

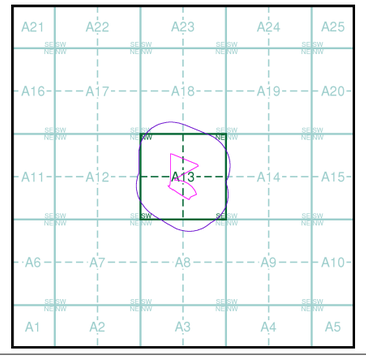
Source map scale - 1:10,560

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



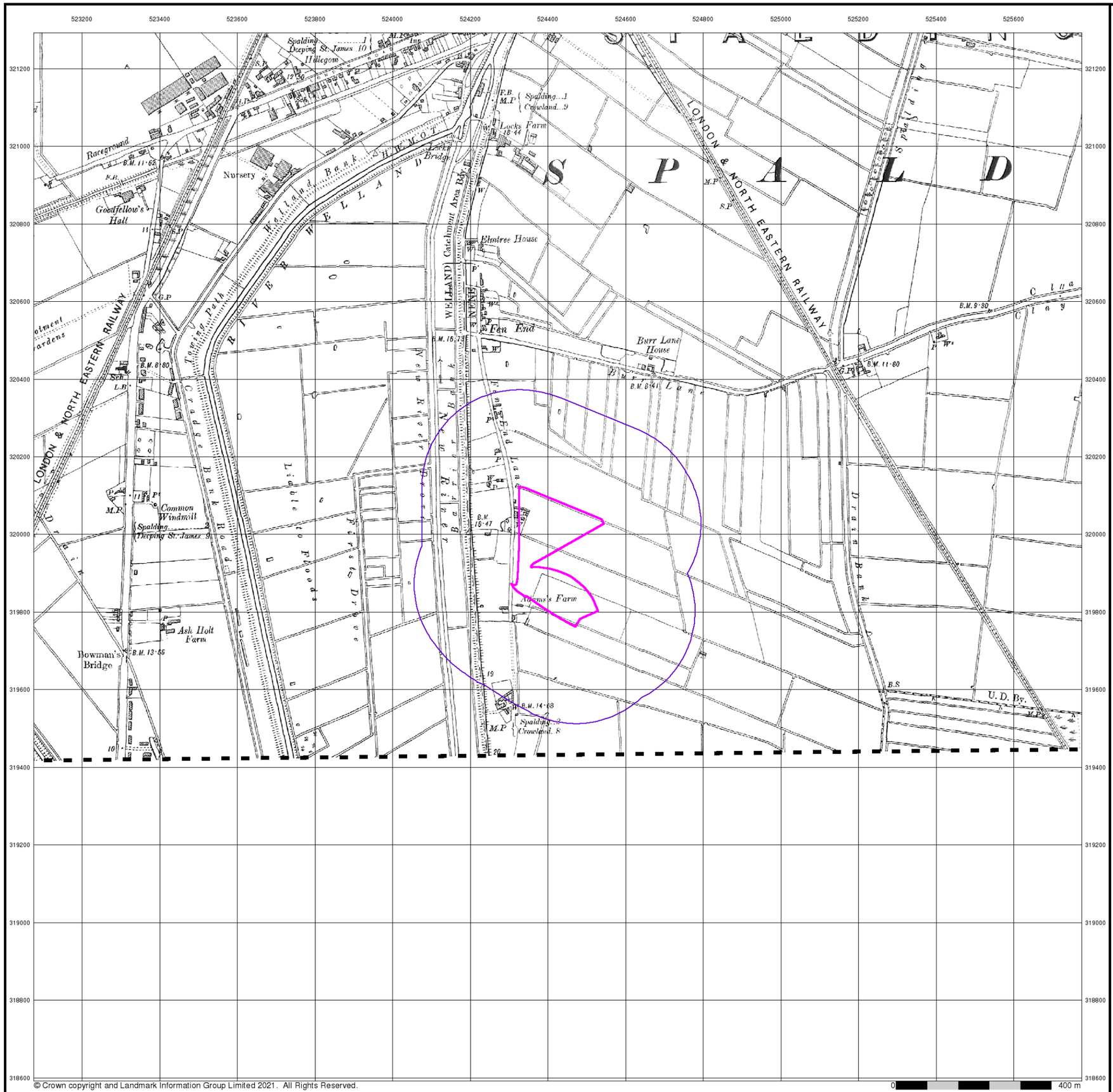
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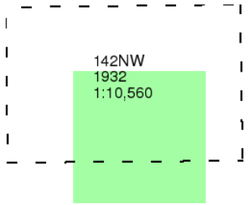
Lincolnshire

Published 1932

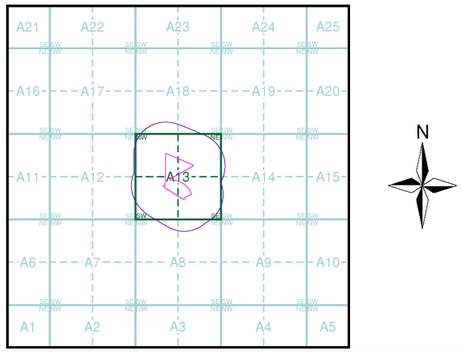
Source map scale - 1:10,560

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

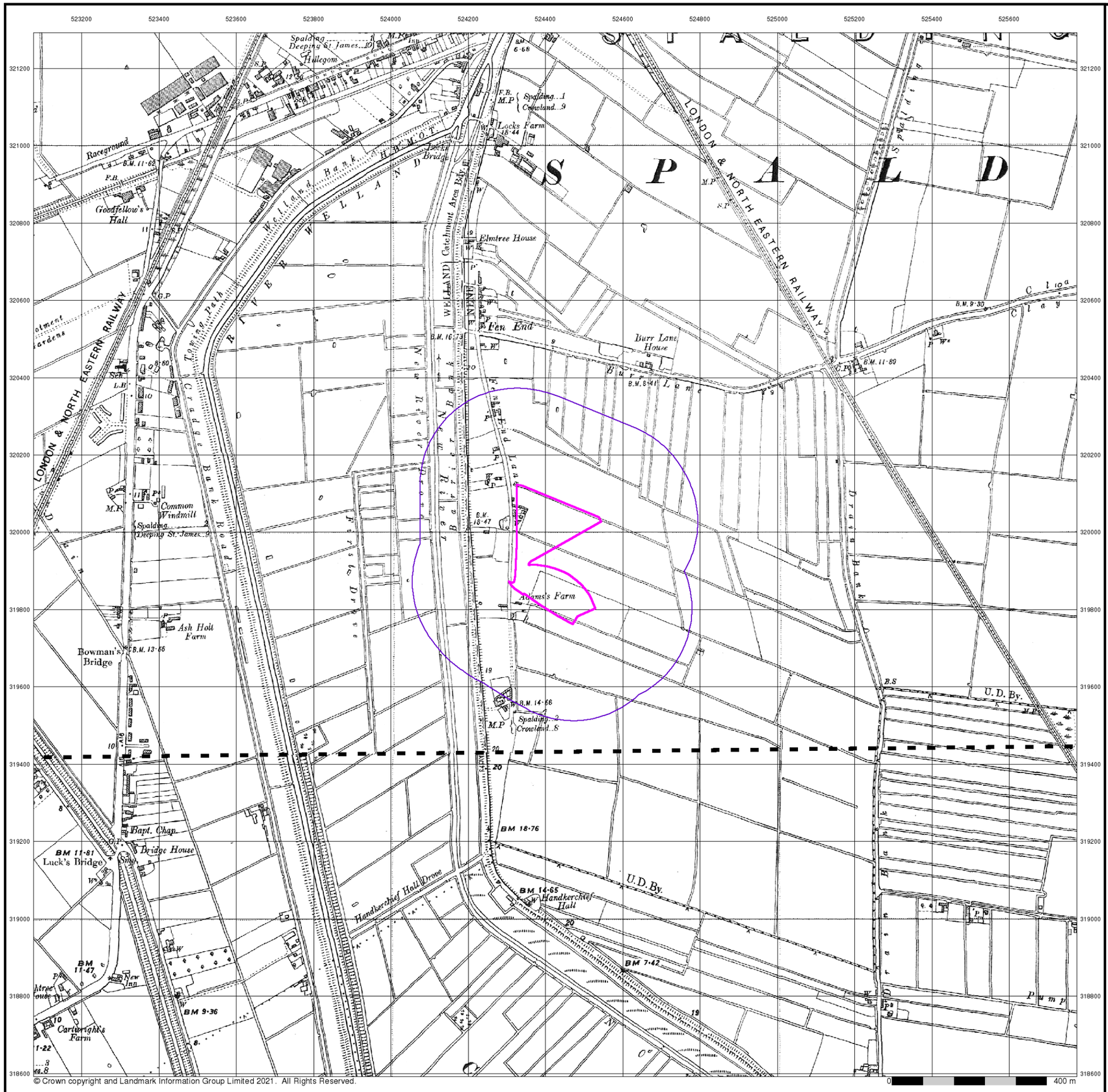
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Search Buffer (m):	250

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GeoDyne

Lincolnshire

Published 1938 - 1952

Source map scale - 1:10,560

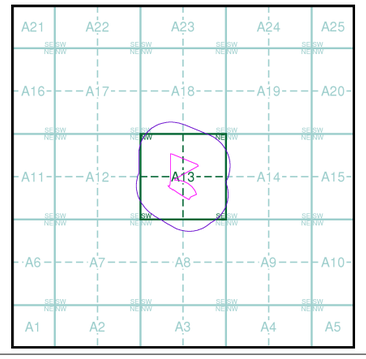
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Map Name(s) and Date(s)

142NW
1938
1:10,560

142SW
1952
1:10,560

Historical Map - Slice A



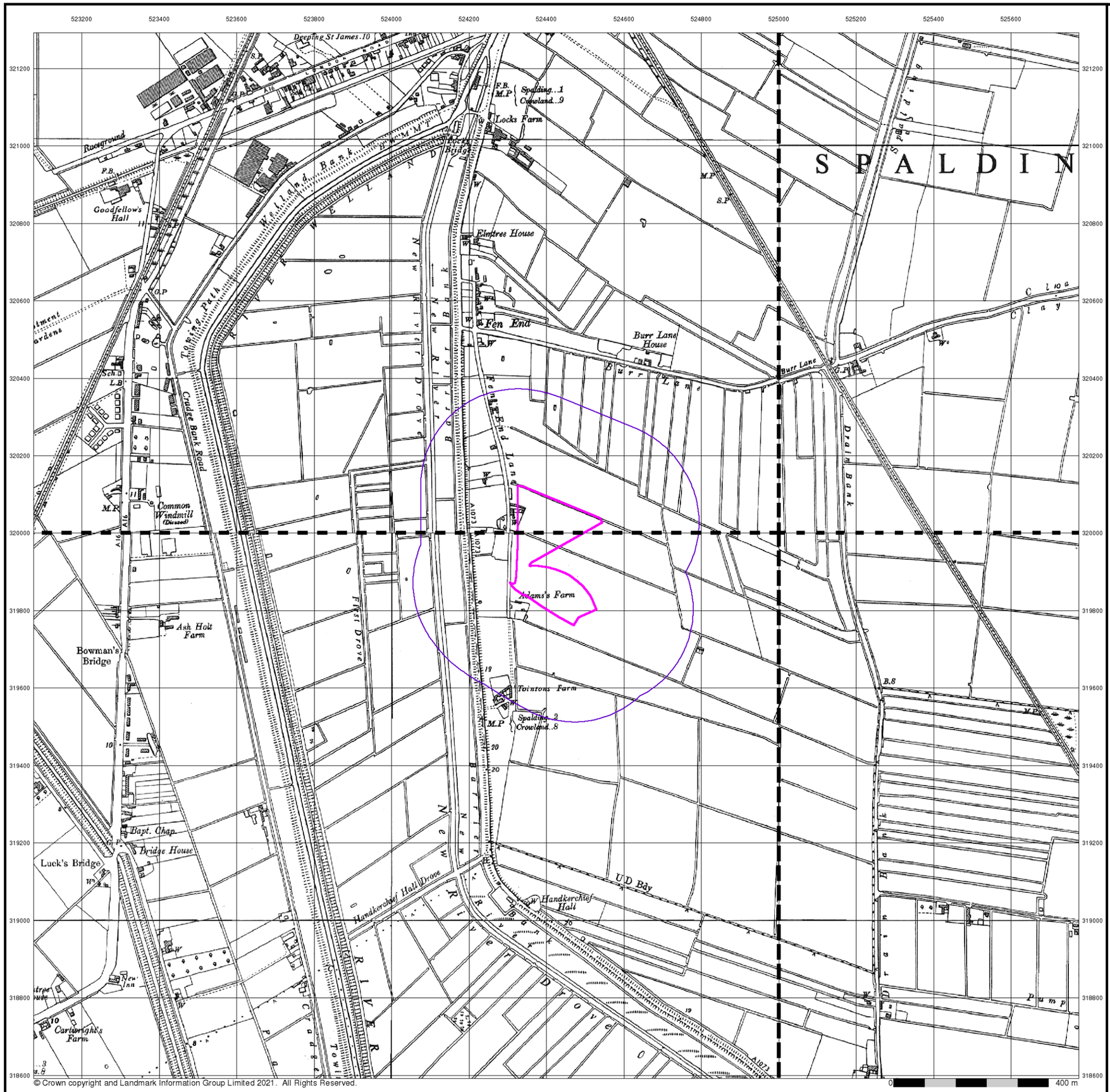
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Ordnance Survey Plan

Published 1958 - 1959

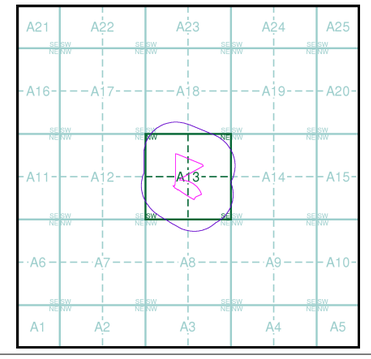
Source map scale - 1:10,000

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)

TF22SW 1959 1:10,560	TF22SE 1958 1:10,560
TF21NW 1958 1:10,560	TF21NE 1959 1:10,560

Historical Map - Slice A



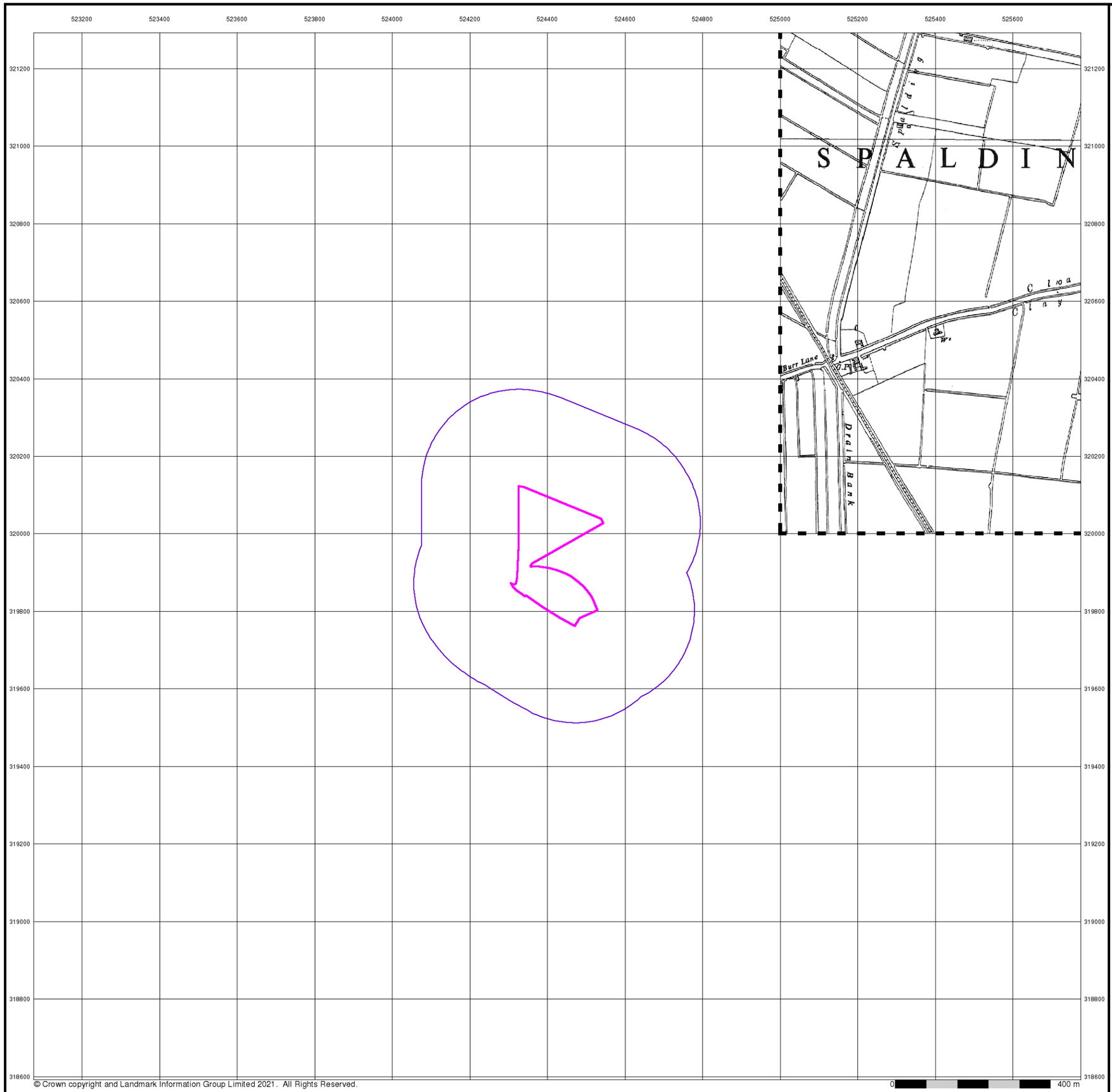
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Site Area (Ha):	4.41
Search Buffer (m):	250

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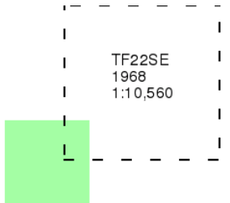
Ordnance Survey Plan

Published 1968

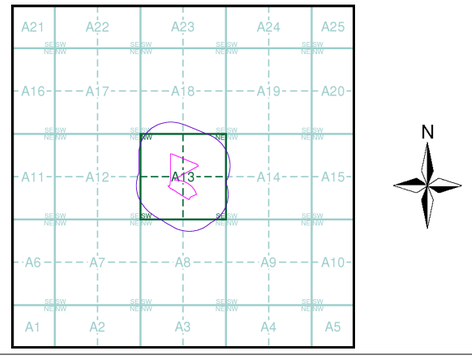
Source map scale - 1:10,000

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 1:10,560 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



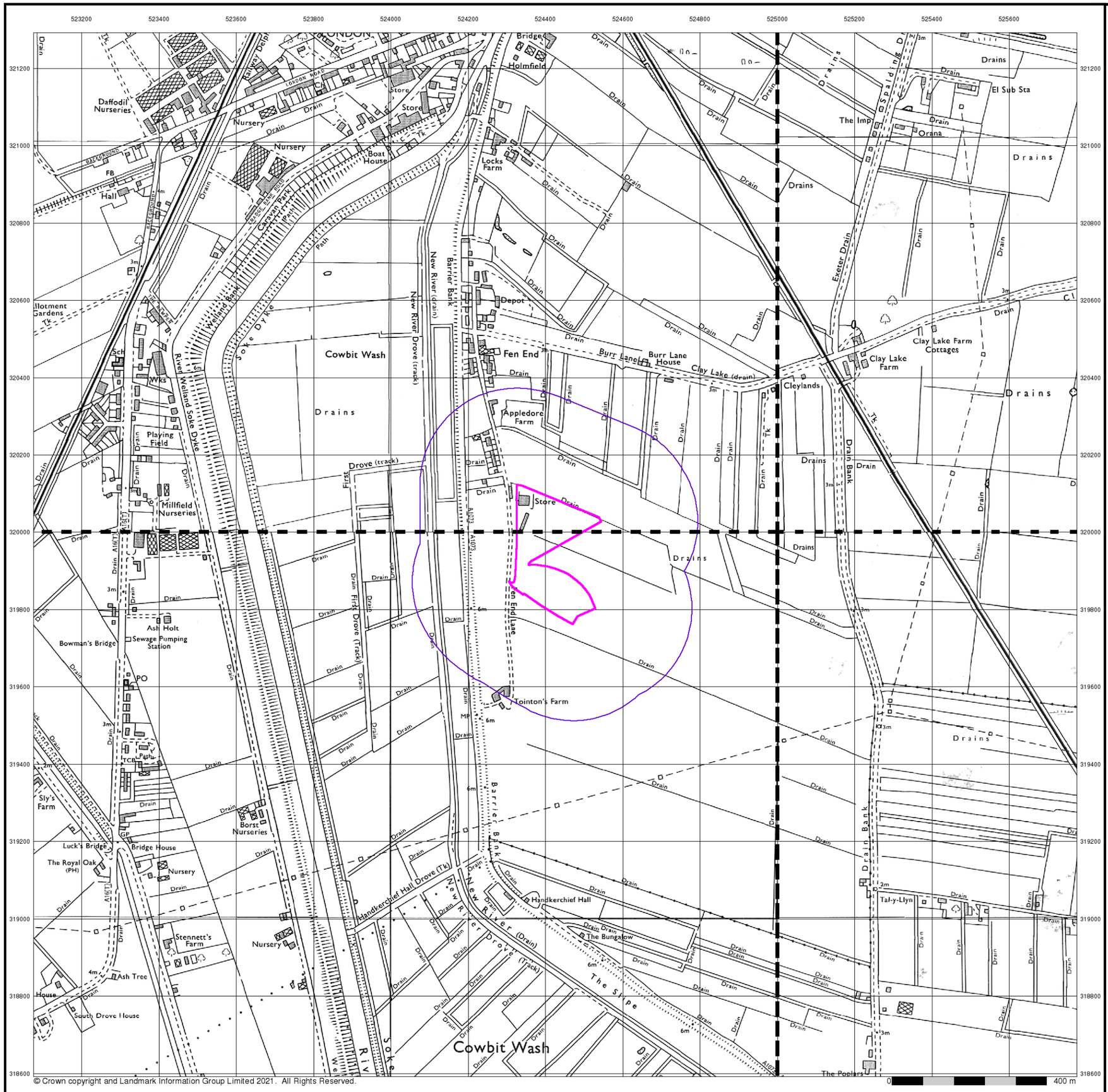
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Ordnance Survey Plan

Published 1971 - 1979

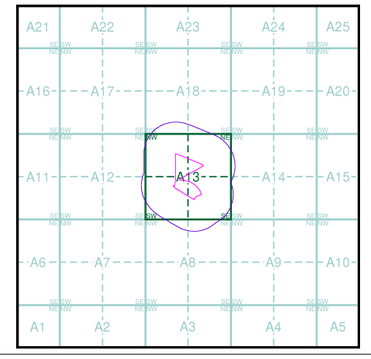
Source map scale - 1:10,000

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)

TF22SW 1971 1:10,000	TF22SE 1971 1:10,000
TF21NW 1979 1:10,000	TF21NE 1979 1:10,000

Historical Map - Slice A



Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
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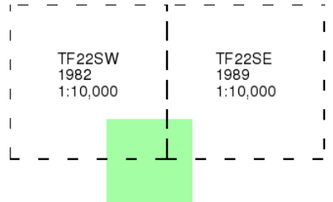
Ordnance Survey Plan

Published 1982 - 1989

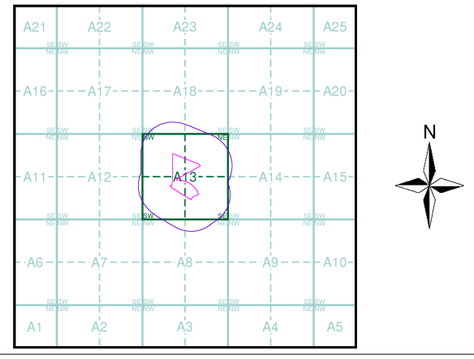
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

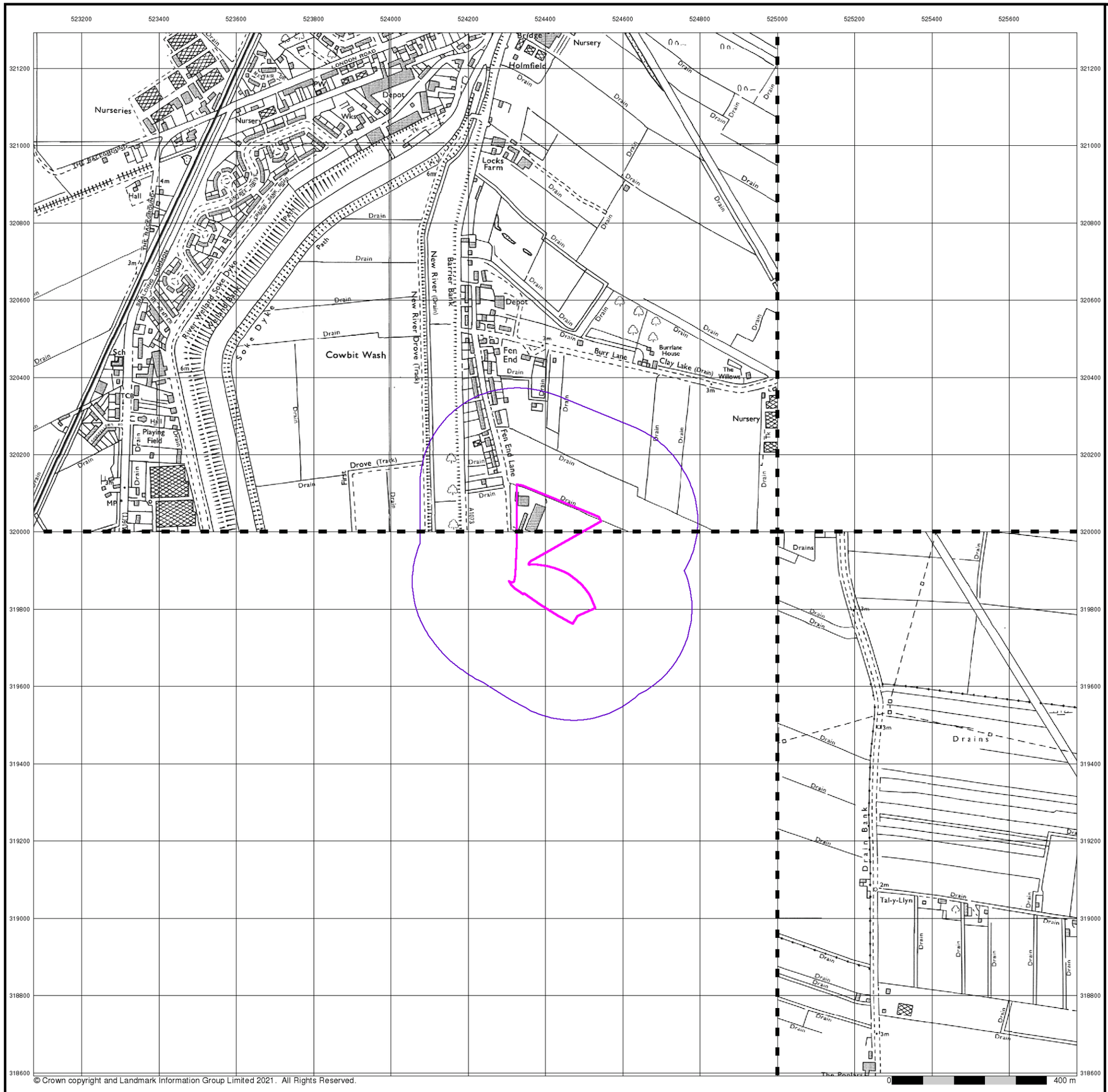
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Ordnance Survey Plan

Published 1991 - 1992

Source map scale - 1:10,000

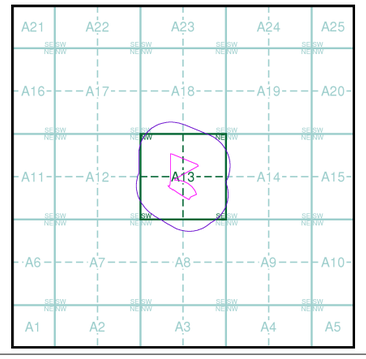
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Map Name(s) and Date(s)

TF22SW
1992
1:10,000

TF21NE
1991
1:10,000

Historical Map - Slice A



Order Details

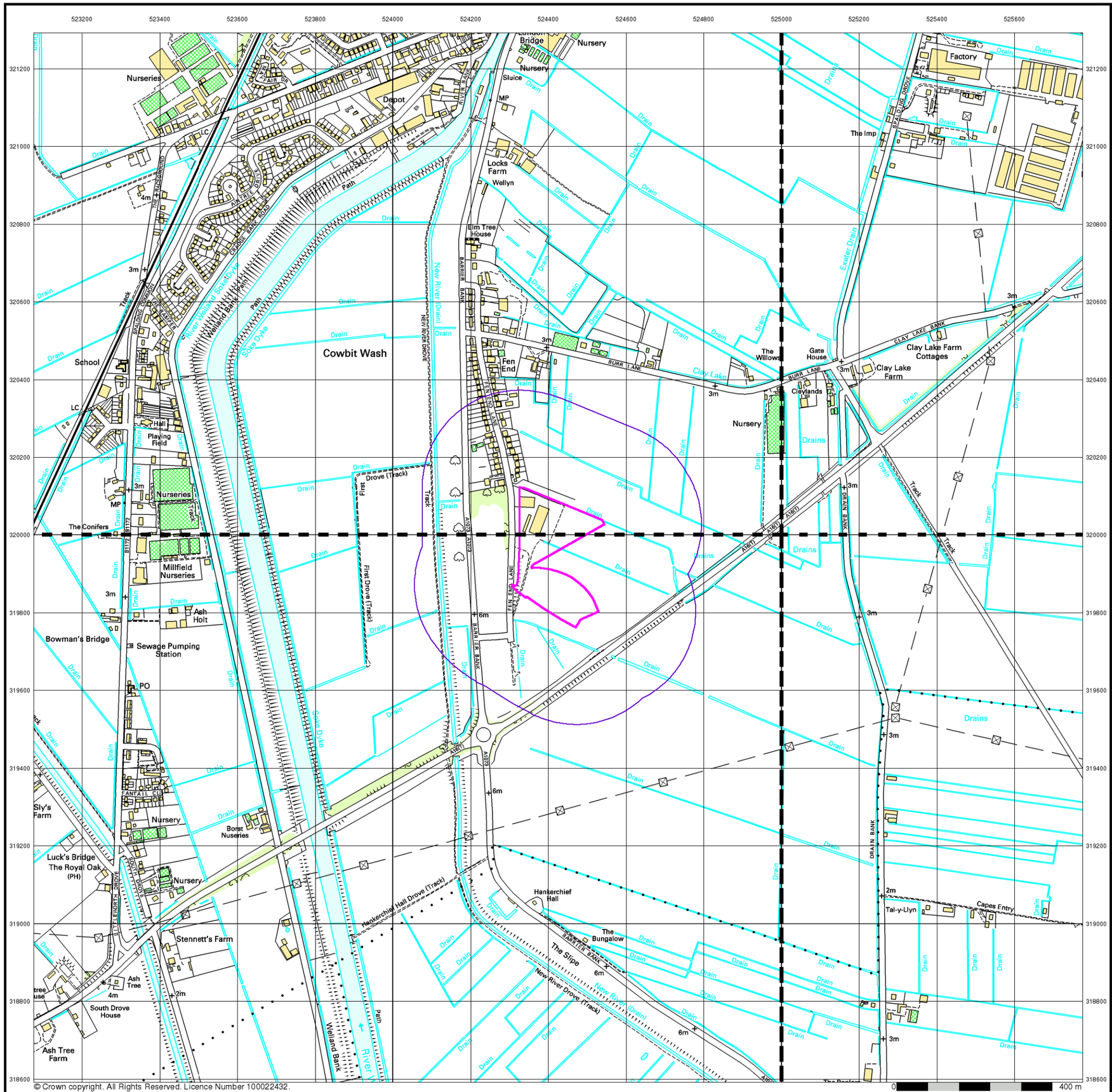
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10k Raster Mapping

Published 2000

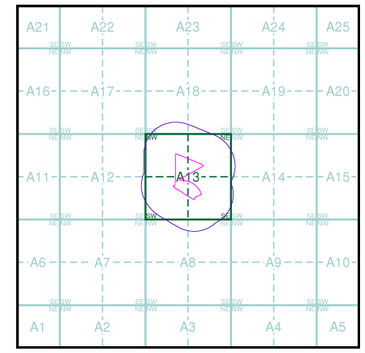
Source map scale - 1:10,000

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)

TF22SW 2000 1:10,000	TF22SE 2000 1:10,000
TF21NW 2000 1:10,000	TF21NE 2000 1:10,000

Historical Map - Slice A



Order Details

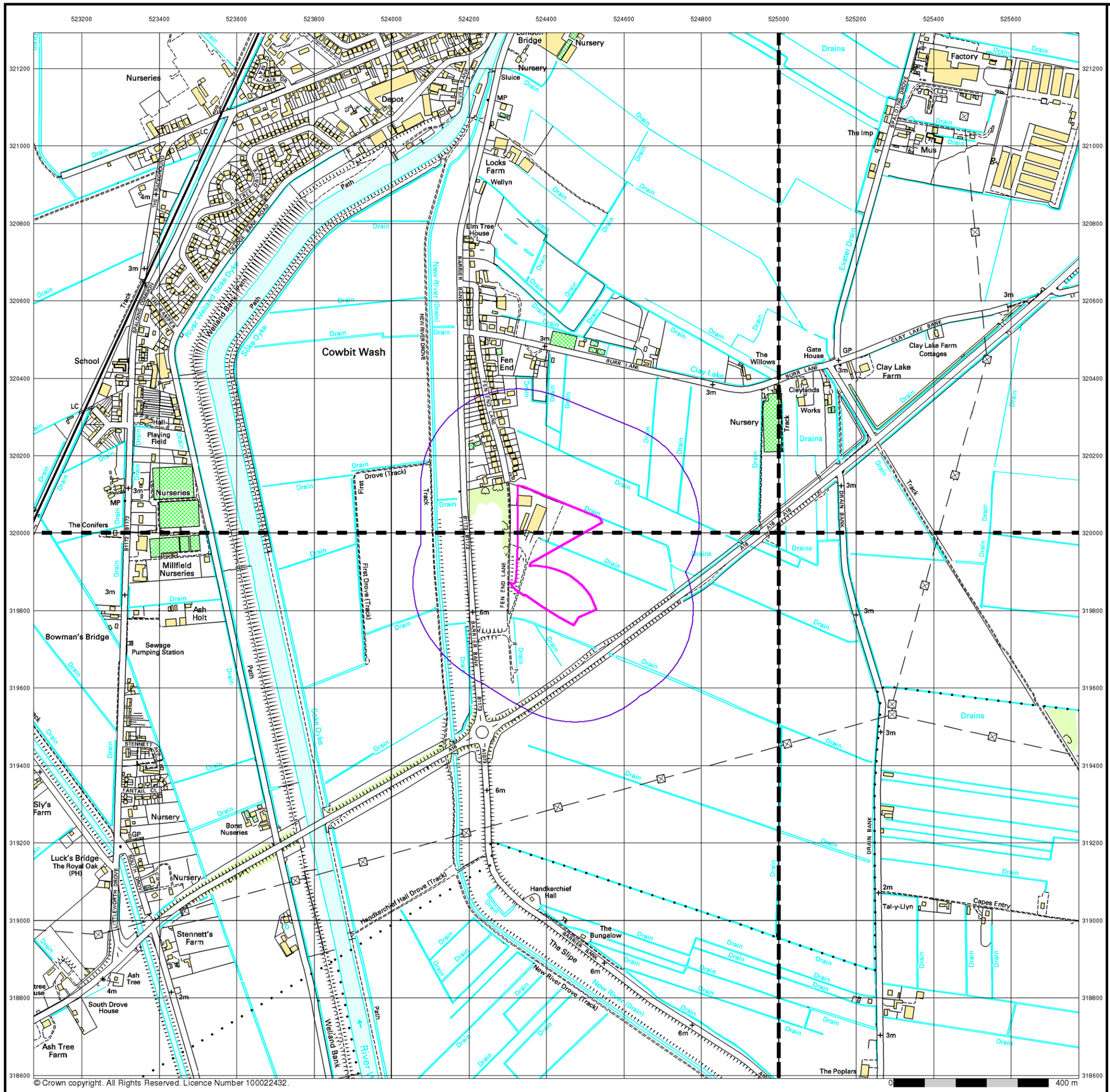
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National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

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10k Raster Mapping

Published 2006

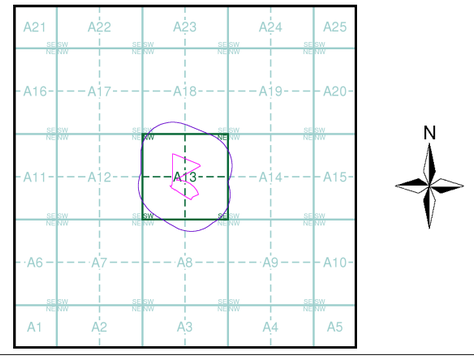
Source map scale - 1:10,000

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)

TF22SW 2006 1:10,000	TF22SE 2006 1:10,000
TF21NW 2006 1:10,000	TF21NE 2006 1:10,000

Historical Map - Slice A



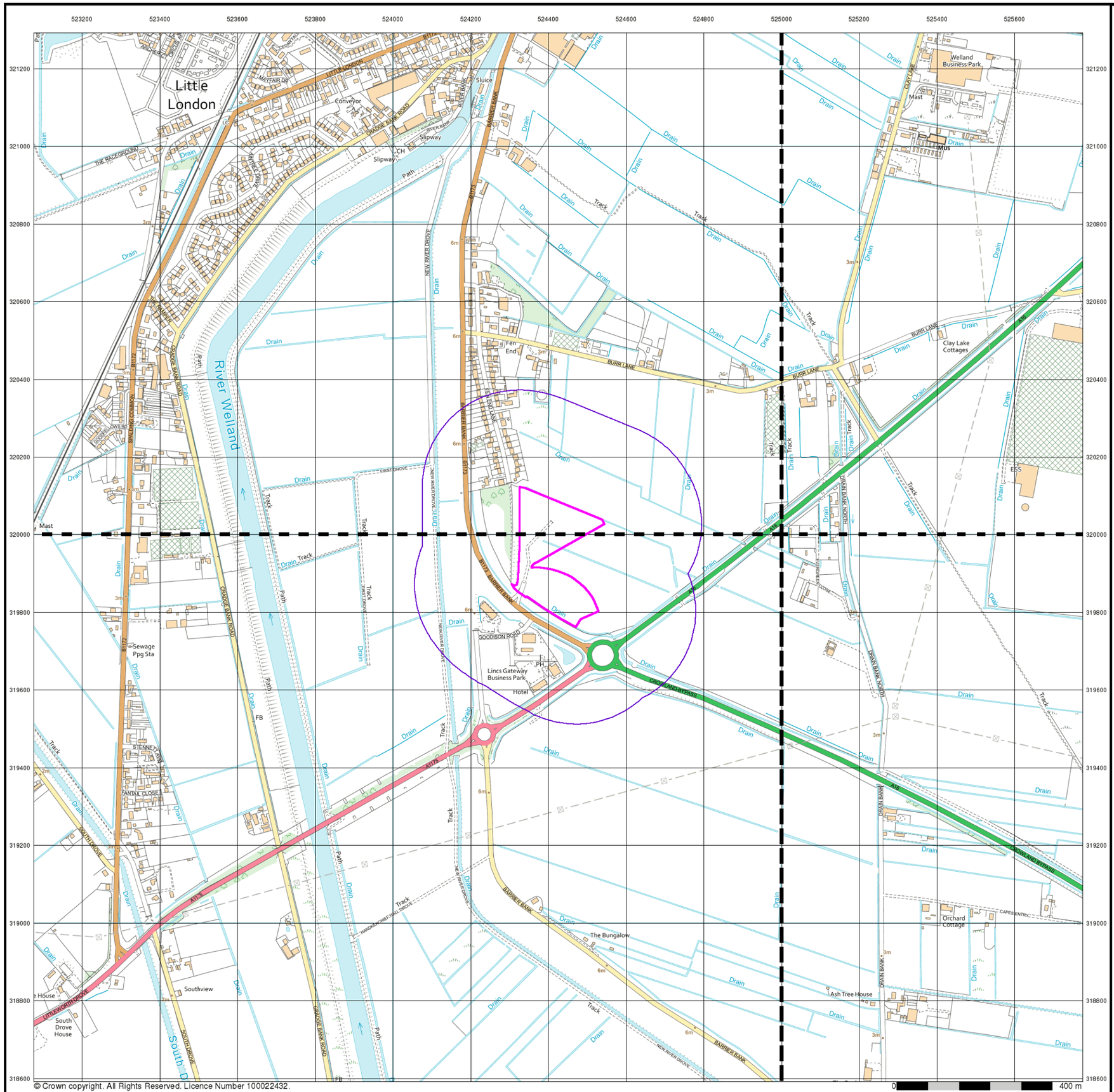
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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0 400 m

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VectorMap Local

Published 2021

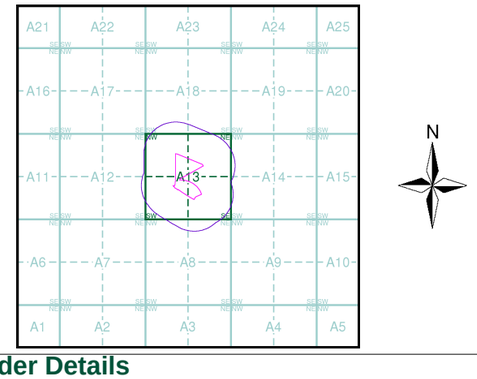
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

TF22SW 2021 Variable	TF22SE 2021 Variable
TF21NW 2021 Variable	TF21NE 2021 Variable

Historical Map - Slice A



Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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APPENDIX VI

Landmark Geological Maps

Geology 1:50,000 Maps Legends

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	TFD	Tidal Flat Deposits	Clay and Silt	Not Supplied - Holocene
	TFD1	Tidal Flat Deposits, 1	Clay and Silt	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	OXC	Oxford Clay Formation	Mudstone	Not Supplied - Callovian

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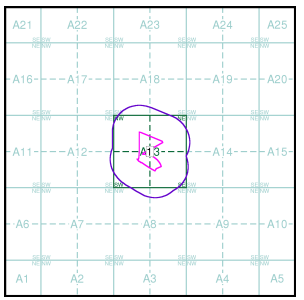
Geology 1:50,000 Maps

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

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**144**
Map Name:	**Spalding**
Map Date:	**1992**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



Order Details:

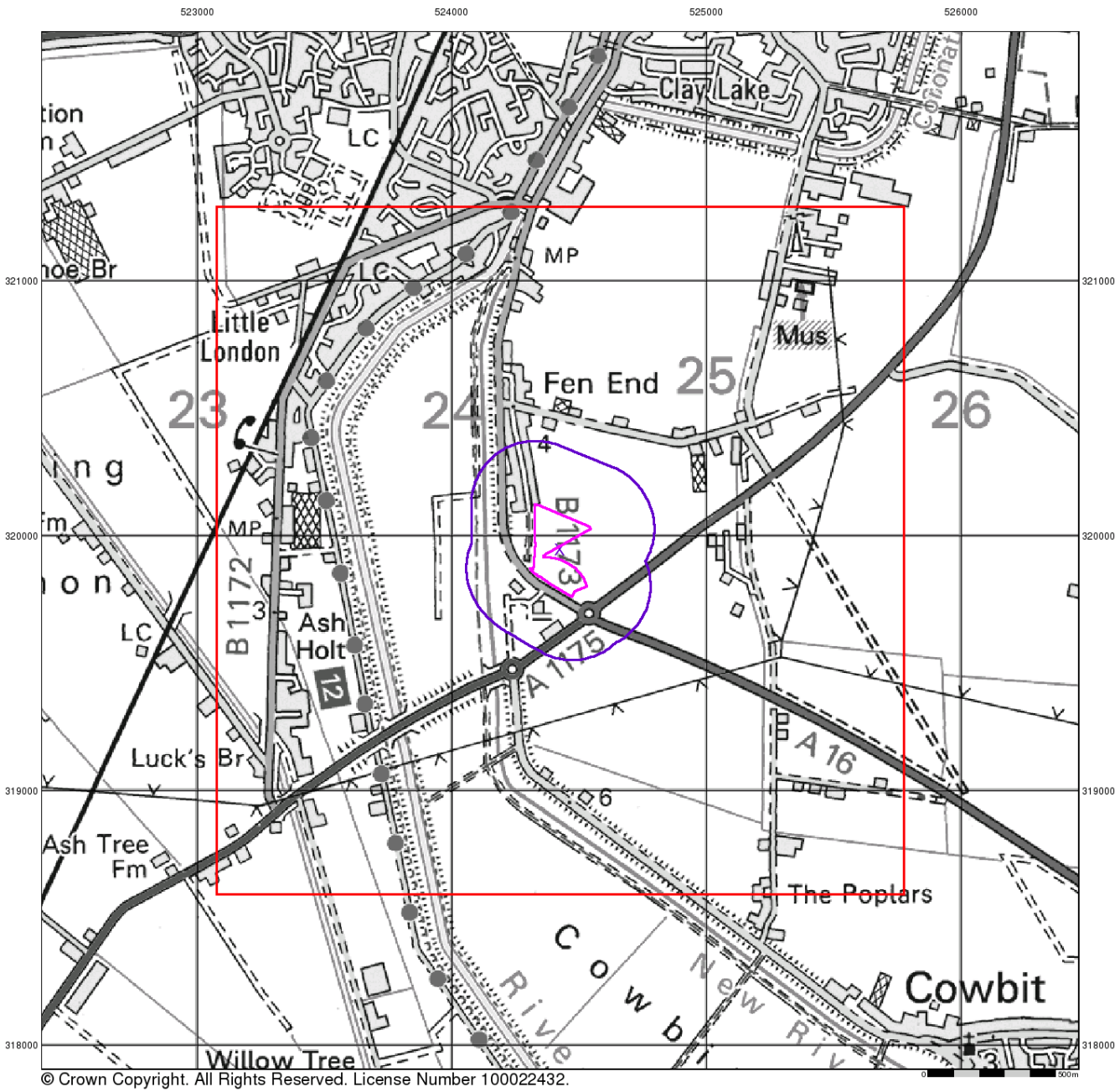
Order Number:	280796934_1_1
Customer Reference:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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Artificial Ground and Landslip

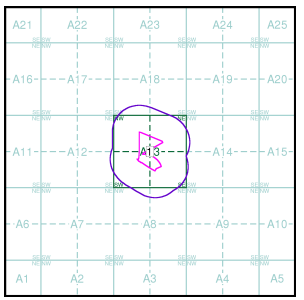
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions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

Artificial ground includes:

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

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

Artificial Ground and Landslip Map - Slice A



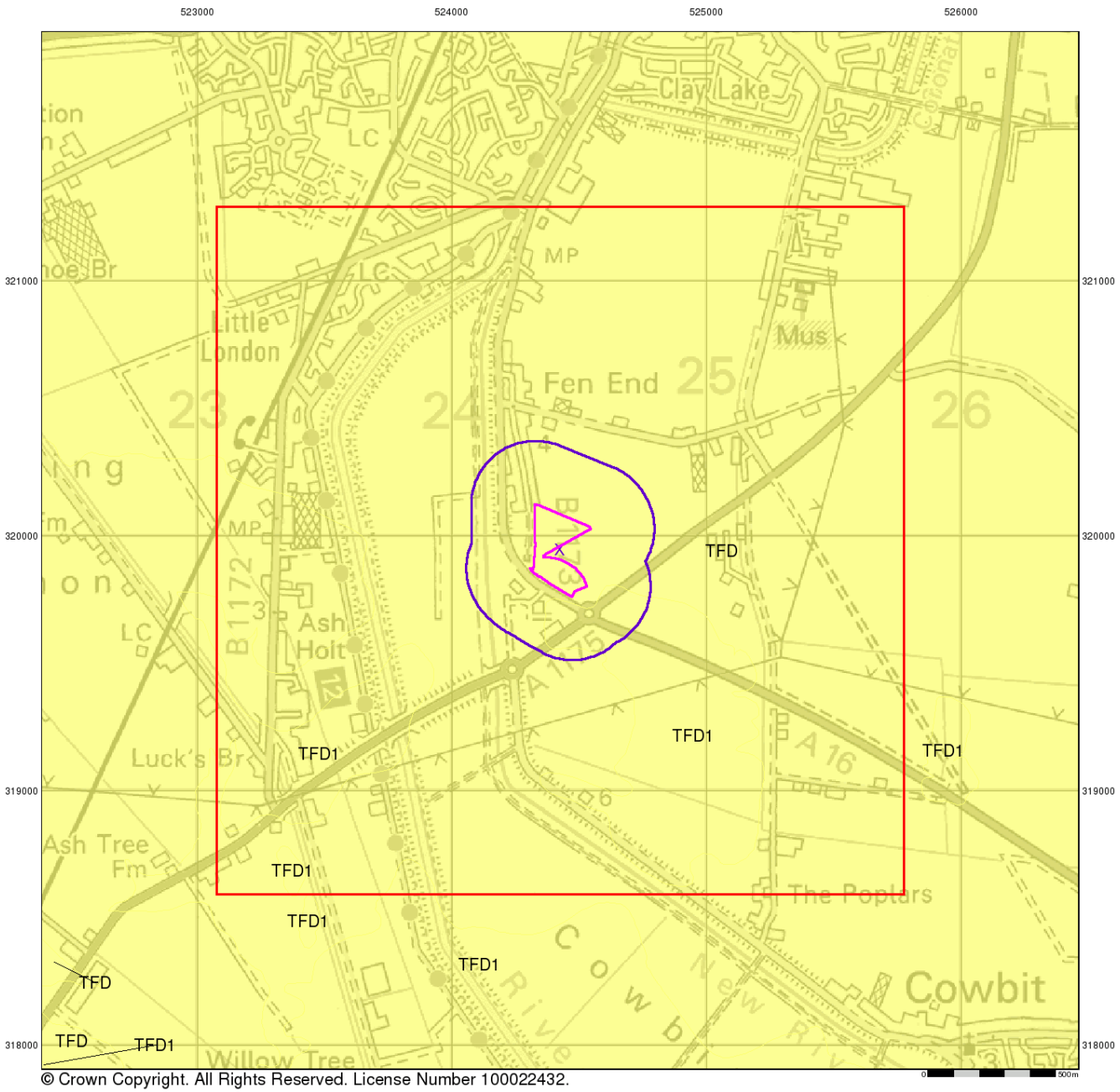
Order Details:

Order Number:	280796934_1_1
Customer Reference:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details:

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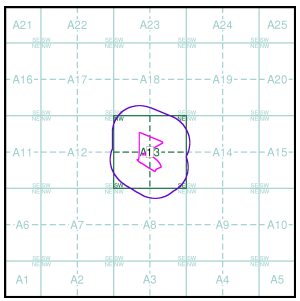
Superficial Geology

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

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

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

Superficial Geology Map - Slice A



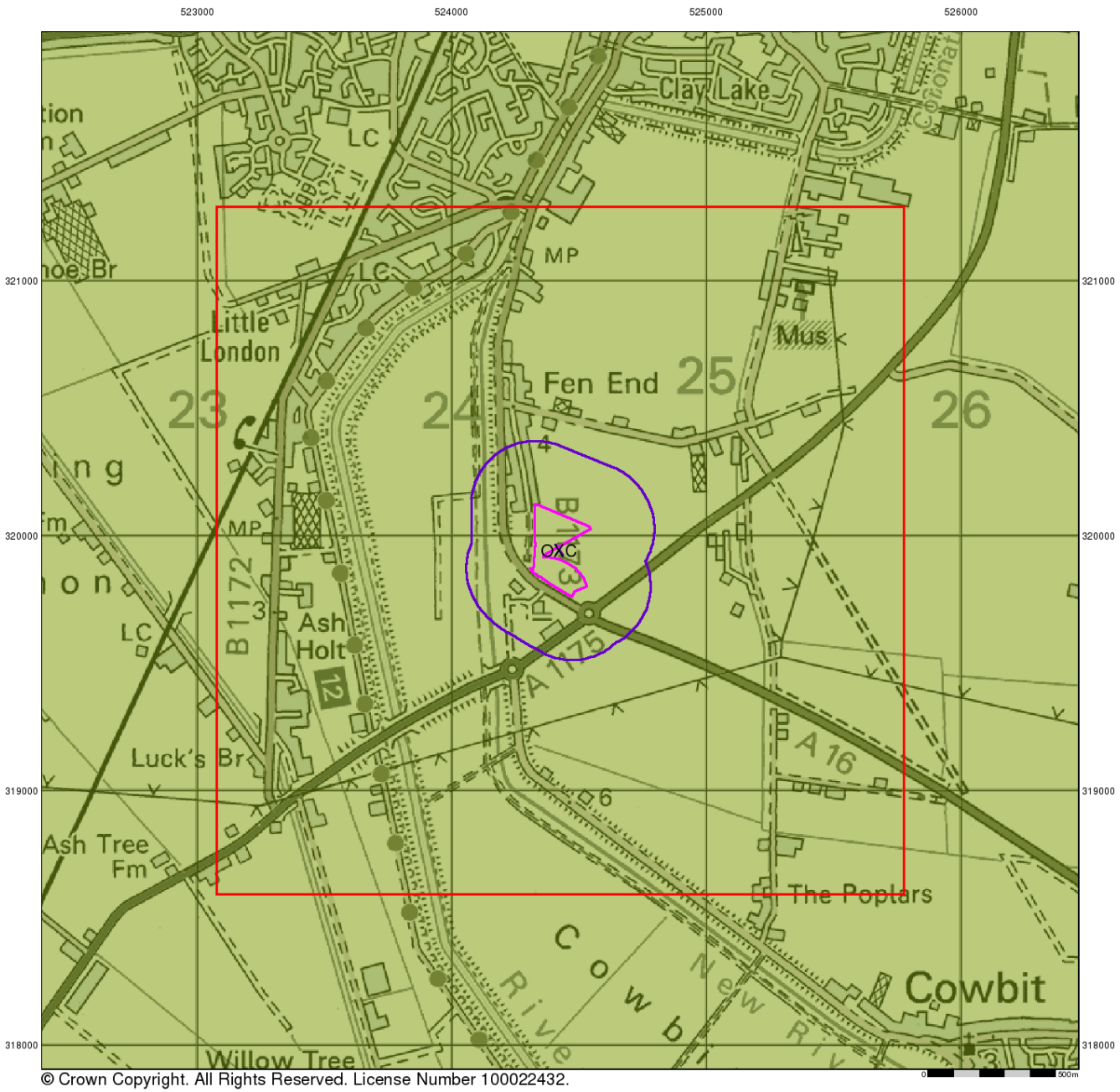
Order Details:

Order Number:	280796934_1_1
Customer Reference:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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Bedrock and Faults

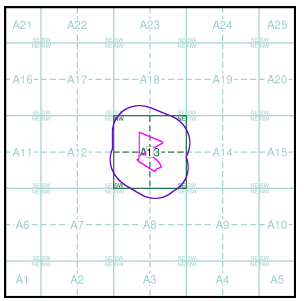
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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

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

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

Bedrock and Faults Map - Slice A



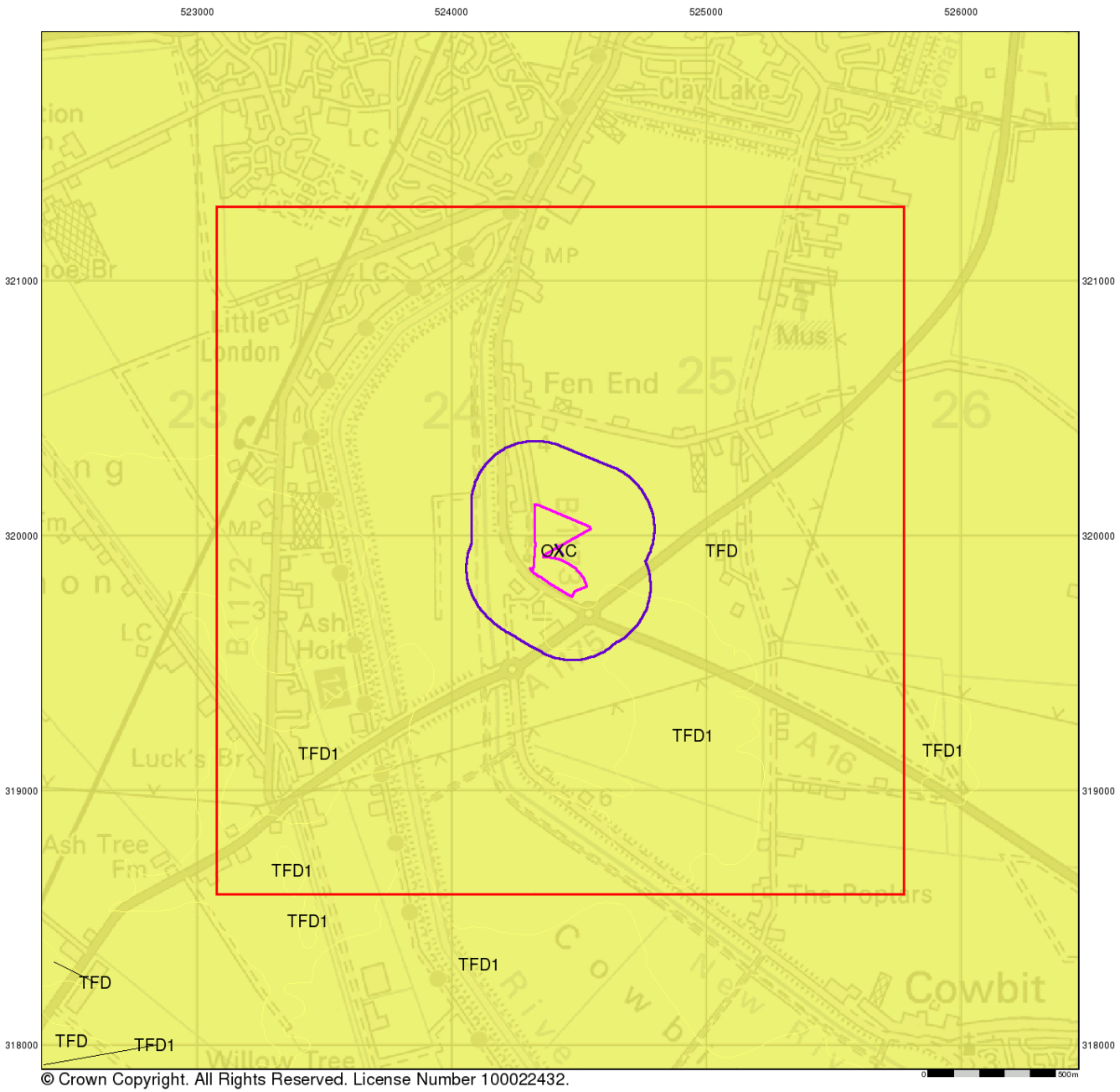
Order Details:

Order Number:	280796934_1_1
Customer Reference:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details:

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Combined Surface Geology

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

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

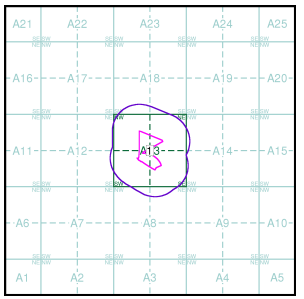
Additional Information

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

Contact

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

Combined Geology Map - Slice A



Order Details:

Order Number:	280796934_1_1
Customer Reference:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details:

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APPENDIX VII

Landmark Envirocheck Report

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
280796934_1_1

Customer Reference:
D41115

National Grid Reference:
524420, 319950

Slice:
A

Site Area (Ha):
4.41

Search Buffer (m):
250

Site Details:
Lincs Gateway - Phase 2

Client Details:
Mr J Hollands
GeoDyne Ltd
Clarendon House
Clarendon Business Park
Clumber Avenue
Nottingham
NG5 1AH

GeoDyne

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	11
Hazardous Substances	-
Geological	12
Industrial Land Use	14
Sensitive Land Use	15
Data Currency	16
Data Suppliers	21
Useful Contacts	22

Introduction

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

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Report Version v53.0

GeoDyne

Summary

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Agency & Hydrological			
BGS Groundwater Flooding Susceptibility			
Contaminated Land Register Entries and Notices			
Discharge Consents			
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		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 1	Yes	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a
Groundwater Vulnerability - Local Information			n/a
Bedrock Aquifer Designations	pg 1	Yes	n/a
Superficial Aquifer Designations	pg 1	Yes	n/a
Source Protection Zones			
Extreme Flooding from Rivers or Sea without Defences	pg 1	Yes	Yes
Flooding from Rivers or Sea without Defences	pg 2	Yes	Yes
Areas Benefiting from Flood Defences			
Flood Water Storage Areas	pg 3		Yes
Flood Defences	pg 4		Yes
OS Water Network Lines	pg 4	2	54

GeoDyne

Summary

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 11	2	n/a
Local Authority Recorded Landfill Sites			
Potentially Infilled Land (Non-Water)			
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			

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Summary

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Geological			
BGS 1:625,000 Solid Geology	pg 12	Yes	n/a
BGS Estimated Soil Chemistry	pg 12	Yes	
BGS Recorded Mineral Sites			
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			
Potential for Compressible Ground Stability Hazards	pg 12	Yes	
Potential for Ground Dissolution Stability Hazards			
Potential for Landslide Ground Stability Hazards	pg 12	Yes	
Potential for Running Sand Ground Stability Hazards	pg 12	Yes	
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 12	Yes	
Radon Potential - Radon Affected Areas			n/a
Radon Potential - Radon Protection Measures			n/a
Industrial Land Use			
Contemporary Trade Directory Entries	pg 14		1
Fuel Station Entries	pg 14		1
Points of Interest - Commercial Services			
Points of Interest - Education and Health			
Points of Interest - Manufacturing and Production	pg 14		1
Points of Interest - Public Infrastructure	pg 14		1
Points of Interest - Recreational and Environmental			
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 15	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
	Nearest Surface Water Feature	A13NE (N)	0	-	524471 320064
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: Low	A13NW (W)	0	2	524422 319946
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: Low	A13NW (N)	0	2	524422 320000
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (N)	0	2	524422 320000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (W)	0	2	524422 319946
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (W)	0	2	524422 319946
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (N)	0	2	524422 320000
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SW (SW)	0	1	524350 319867
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (W)	0	1	524370 319955
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (NW)	0	1	524375 320025
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (NW)	0	1	524380 320045
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (N)	0	1	524395 320050

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (W)	0	1	524358 319952
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13NW (W)	0	1	524422 319946
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (N)	2	1	524445 320080
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (N)	21	1	524380 320125
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (N)	23	1	524375 320130
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	70	1	524325 319770
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	85	1	524540 319710
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NW (N)	124	1	524422 320220
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	141	1	524550 319645
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	160	1	524670 319725
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SW (N)	213	1	524390 320326
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A8NW (S)	249	1	524359 319540
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SW (S)	0	1	524417 319794
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13NW (W)	0	1	524422 319946
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (W)	0	1	524388 319946
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	110	1	524545 319680

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	118	1	524628 319740
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	145	1	524640 319710
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	150	1	524580 319660
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	163	1	524590 319651
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	163	1	524688 319771
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	166	1	524685 319745
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A8NE (S)	173	1	524475 319590
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	177	1	524598 319640
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	180	1	524665 319685
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	186	1	524670 319681
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	195	1	524605 319621
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (N)	197	1	524505 320270
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A8NE (S)	223	1	524478 319540
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A8NE (S)	232	1	524480 319531
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A8NW (S)	249	1	524359 319540
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas Type: Flood Water Storage Areas Reference: Not Supplied	A13SW (W)	108	1	524194 319931

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Defences Type: Flood Defences Reference: Not Supplied	A13SW (W)	102	1	524199 319926
1	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 368.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	0	3	524472 320065
2	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 350.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	0	3	524430 319965
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 253.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	1	3	524347 319837
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 286.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	17	3	524303 319847
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	17	3	524317 319834
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 194.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	20	3	524329 319823
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (S)	44	3	524496 319726
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (S)	44	3	524496 319726
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 462.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (S)	48	3	524359 319767

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (S)	53	3	524359 319767
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 125.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	63	3	524329 319776
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	77	3	524566 319735
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 186.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	77	3	524566 319735
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	82	3	524570 319731
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	86	3	524226 319840
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 183.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	114	3	524588 319705
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	114	3	524588 319705
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 274.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (NE)	116	3	524526 320170

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 117.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	123	3	524432 320213
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	123	3	524432 320213
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 217.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (S)	128	3	524508 319640
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 89.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (NE)	130	3	524659 320088
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 316.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (NE)	130	3	524659 320088
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 522.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (S)	149	3	524520 319622
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 59.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	154	3	524192 319767
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 54.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	158	3	524169 320087
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 201.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	159	3	524191 319759

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	161	3	524615 319667
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 101.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	165	3	524436 320258
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 203.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	165	3	524436 320258
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 413.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	173	3	524628 319661
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 274.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: New River Catchment Name: Welland Primacy: 2	A13SW (W)	182	3	524120 319932
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	189	3	524129 319808
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: New River Catchment Name: Welland Primacy: 2	A13SW (SW)	189	3	524129 319808
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	195	3	524720 319836
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 110.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (E)	196	3	524739 320049

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 329.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (E)	196	3	524739 320049
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 189.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	203	3	524115 319803
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	205	3	524721 319923
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 299.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: New River Catchment Name: Welland Primacy: 2	A13SW (SW)	205	3	524133 319762
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (SE)	208	3	524736 319813
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	209	3	524722 319917
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	210	3	524734 319847
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	210	3	524731 319864
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	211	3	524727 319882

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	212	3	524725 319882
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 447.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: New River Catchment Name: Welland Primacy: 2	A13NW (NW)	212	3	524114 320082
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 28.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	213	3	524725 319906
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	214	3	524737 319850
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	216	3	524725 319910
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 139.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A18SW (N)	221	3	524401 320335
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 86.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SE (E)	225	3	524753 319825
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A8NW (S)	225	3	524388 319553
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A18SW (N)	226	3	524402 320336

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 196.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	241	3	524093 320185
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 168.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A8NW (S)	247	3	524366 319539

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: South Holland District Council - Has no landfill data to supply		0	5	524422 319946
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	4	524422 319946

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Kellaways Formation And Oxford Clay Formation (Undifferentiated)	A13NW (W)	0	6	524422 319946
	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: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	0	6	524422 319946
	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	A13NW (W)	0	6	524422 319946
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	6	524422 319946
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	6	524422 319946
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	6	524422 319946
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	6	524422 319946
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	6	524422 319946
	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	A13NW (W)	0	6	524422 319946

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	6	524422 320001
	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	A13NW (W)	0	6	524422 319946
	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	A13NW (N)	0	6	524422 320001

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	**Contemporary Trade Directory Entries** Name: D & G Surfacing Location: 64, Fen End Lane, SPALDING, Lincolnshire, PE12 6AD Classification: Asphalt & Coated Macadam Laying Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	88	-	524240 320138
58	**Fuel Station Entries** Name: Applegreen Spalding Location: 2, Goodison Road A16, Cowbit Lincs Gateway, Spalding, Lincolnshire, PE12 6FY Brand: Applegreen Premises Type: Service Area **Status: Open** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	91	-	524349 319729
59	**Points of Interest - Manufacturing and Production** Name: Business Park Location: PE12 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	157	7	524268 319700
60	**Points of Interest - Public Infrastructure** Name: Applegreen Spalding Location: Goodison Road, Cowbit, Spalding, South Holland, Lincolnshire, PE12 6FY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13SW (S)	91	7	524349 319729

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**Nitrate Vulnerable Zones** Name: River Welland Nvz Description: Surface Water Source: Environment Agency, Head Office	A13NW (W)	0	2	524422 319946

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Environment Agency - Head Office South Holland District Council - Environmental Services	 June 2020 October 2013	 Annually Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	 April 2021	 Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	 March 2013	
Integrated Pollution Controls Environment Agency - Anglian Region	 October 2008	
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	 April 2021	 Quarterly
Local Authority Integrated Pollution Prevention And Control South Holland District Council - Environmental Services	 October 2014	 Variable
Local Authority Pollution Prevention and Controls South Holland District Council - Environmental Services	 October 2014	 Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements South Holland District Council - Environmental Services	 October 2014	 Variable
Nearest Surface Water Feature Ordnance Survey	 January 2021	
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	 September 1999	
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	 March 2013	
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	 March 2013	
Registered Radioactive Substances Environment Agency - Anglian Region	 June 2016	 Annually
River Quality Environment Agency - Head Office	 November 2001	 Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	 July 2012	 Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	 July 2012	 Annually
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Northern Area	 April 2021	 Quarterly
Water Abstractions Environment Agency - Anglian Region	 April 2021	 Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	 October 2017	 Quarterly
Groundwater Vulnerability Map Environment Agency - Head Office	 June 2018	 As notified
Bedrock Aquifer Designations Environment Agency - Head Office	 January 2018	 Annually
Superficial Aquifer Designations Environment Agency - Head Office	 January 2018	 Annually
Source Protection Zones Environment Agency - Head Office	 May 2021	 Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 March 2021	 Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 March 2021	 Quarterly

Agency & Hydrological	Version	Update Cycle
Areas Benefiting from Flood Defences Environment Agency - Head Office	March 2021	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	March 2021	Quarterly
Flood Defences Environment Agency - Head Office	March 2021	Quarterly
OS Water Network Lines Ordnance Survey	June 2021	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water Suitability Environment Agency - Head Office	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - Head Office	May 2021	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Anglian Region - Northern Area	April 2021	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Anglian Region - Northern Area	April 2021	Quarterly
Local Authority Landfill Coverage Lincolnshire County Council South Holland District Council - Environmental Services	May 2000 May 2000	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Lincolnshire County Council South Holland District Council - Environmental Services	May 2000 May 2000	
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Northern Area	March 2003	
Registered Waste Treatment or Disposal Sites Environment Agency - Anglian Region - Northern Area	March 2003	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	
Planning Hazardous Substance Enforcements South Holland District Council Lincolnshire County Council - Highways and Planning Department	January 2016 June 2010	Variable Variable
Planning Hazardous Substance Consents Lincolnshire County Council - Highways and Planning Department South Holland District Council	August 2007 January 2016	Variable Variable
Geological	**Version**	**Update Cycle**
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	May 2021	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	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	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

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

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt South Holland District Council	June 2020	As notified
Areas of Unadopted Green Belt South Holland District Council	June 2020	As notified
Areas of Outstanding Natural Beauty Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2021	Bi-Annually
Marine Nature Reserves Natural England	July 2019	Bi-Annually
National Nature Reserves Natural England	January 2021	Bi-Annually
National Parks Natural England	April 2017	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2021	Bi-Annually
Special Areas of Conservation Natural England	July 2020	Bi-Annually
Special Protection Areas Natural England	February 2021	Bi-Annually

Data Suppliers

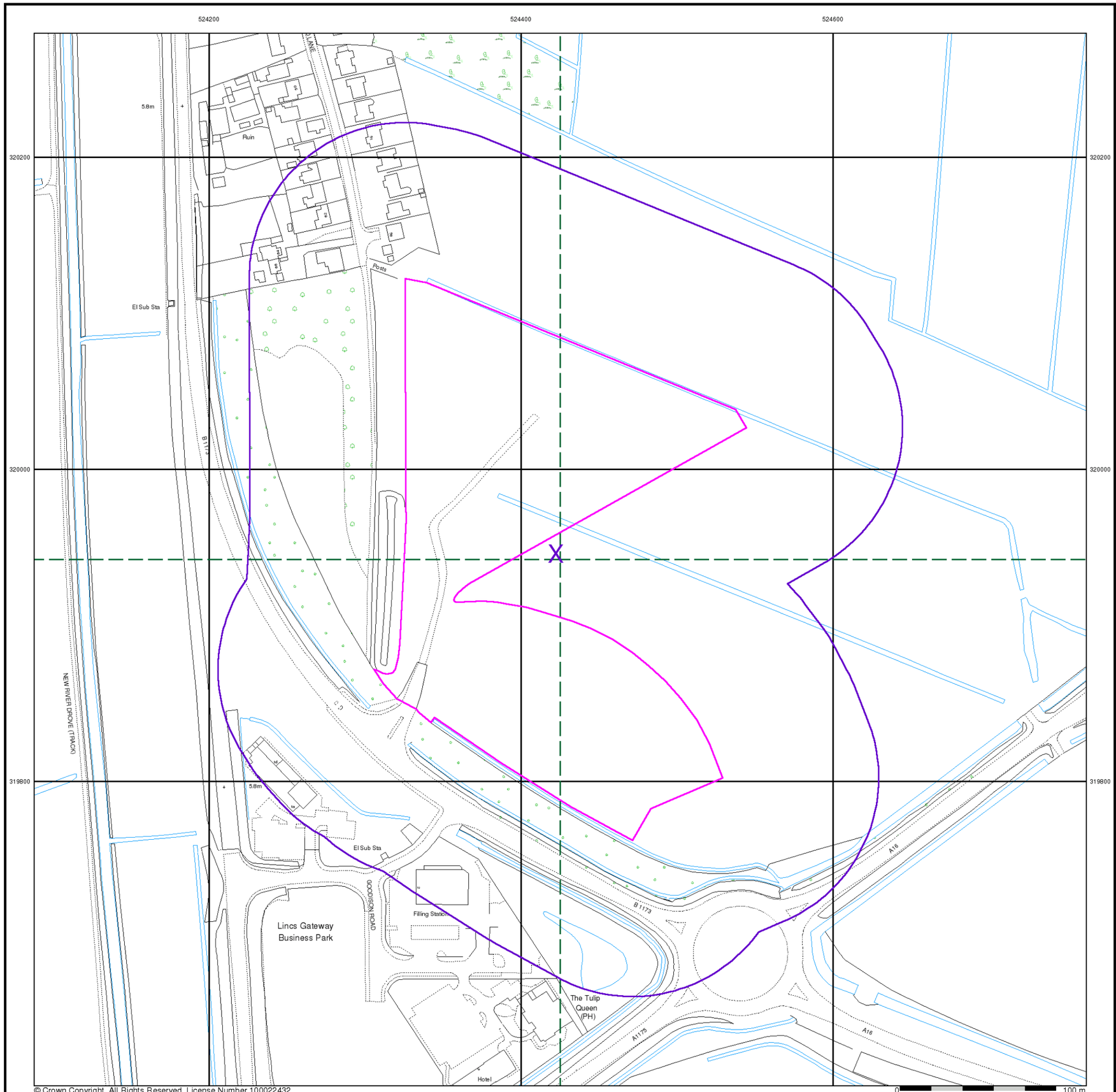
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	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	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Stantec UK Ltd	Stantec

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
2	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
3	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
4	**Lincolnshire County Council** 4th Floor, City Hall, Lincoln, Lincolnshire, LN1 1DN	Telephone: 01522 552222 Fax: 01522 552288 Email: PublicRelations@lincolnshire.gov.uk Website: www.lincolnshire.gov.uk
5	**South Holland District Council - Environmental Services** Council Offices, Priory Road, Spalding, Lincolnshire, PE11 2XE	Website: www.sholland.gov.uk
6	**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
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**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.



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GeoDyne

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

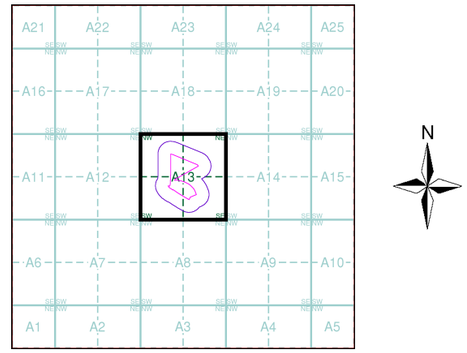
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A13



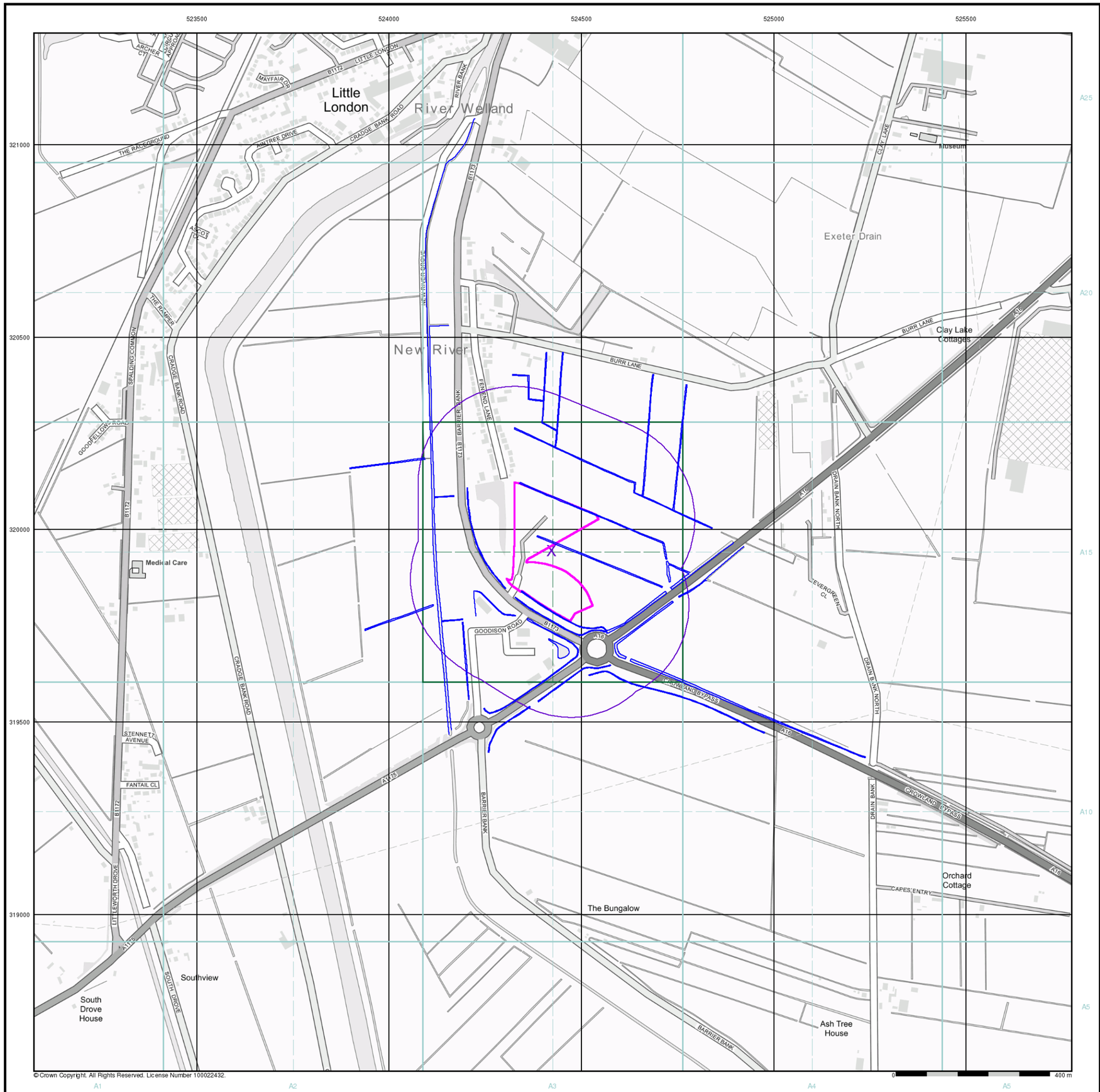
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Plot Buffer (m):	100

Site Details

Lincs Gateway - Phase 2

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



GeoDyne

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

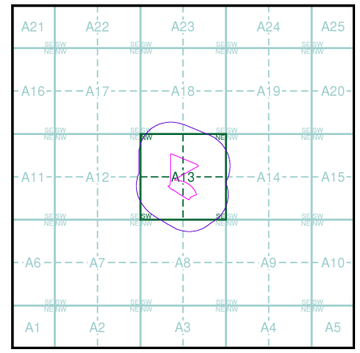
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
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- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

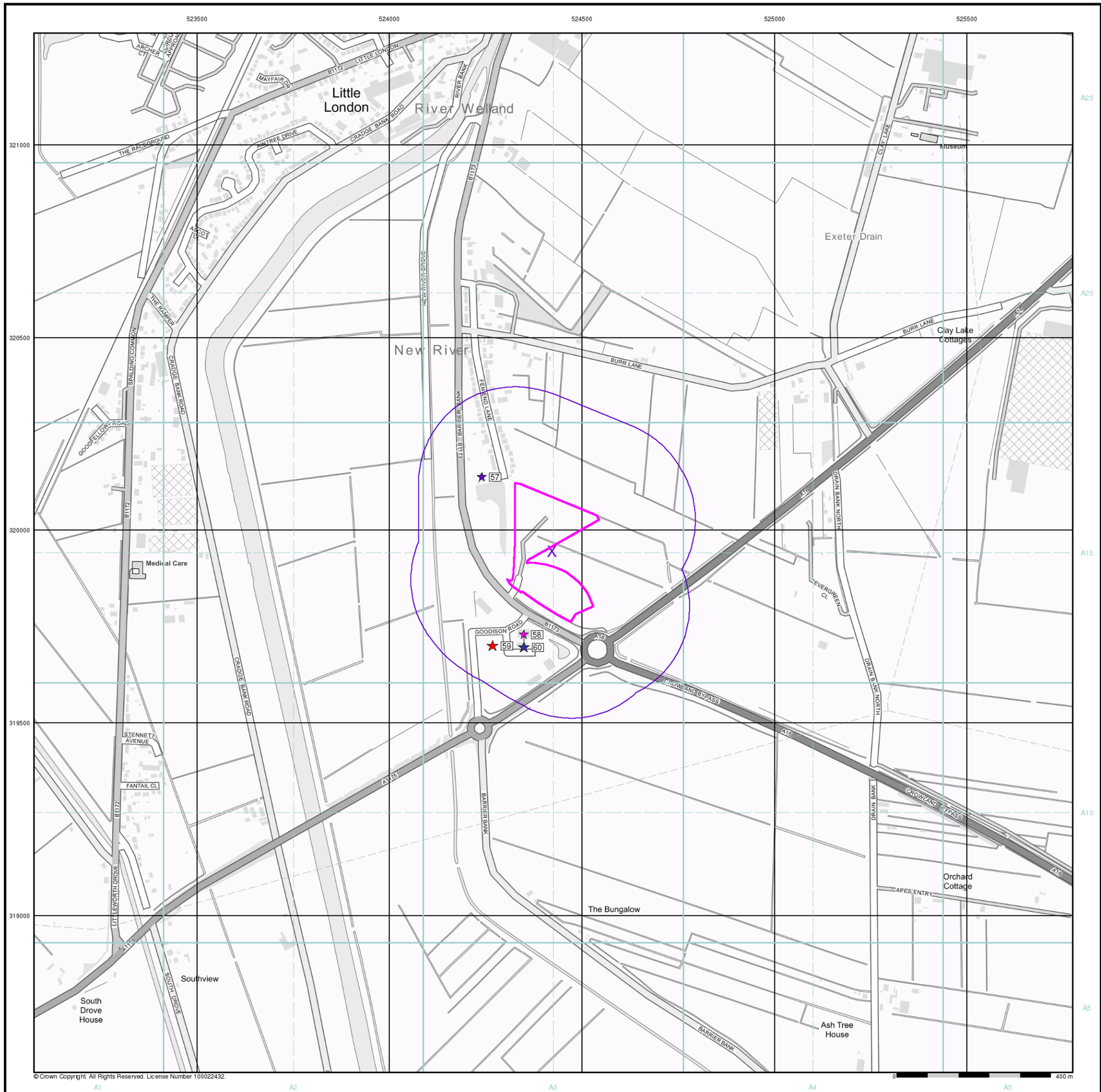
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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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GeoDyne

Industrial Land Use Map

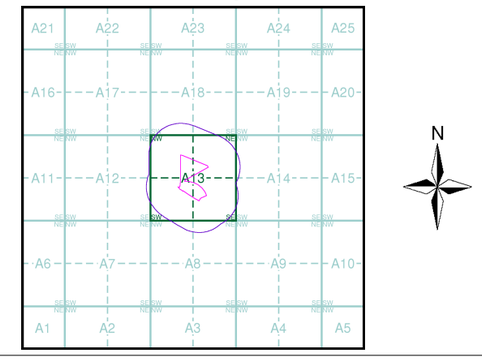
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

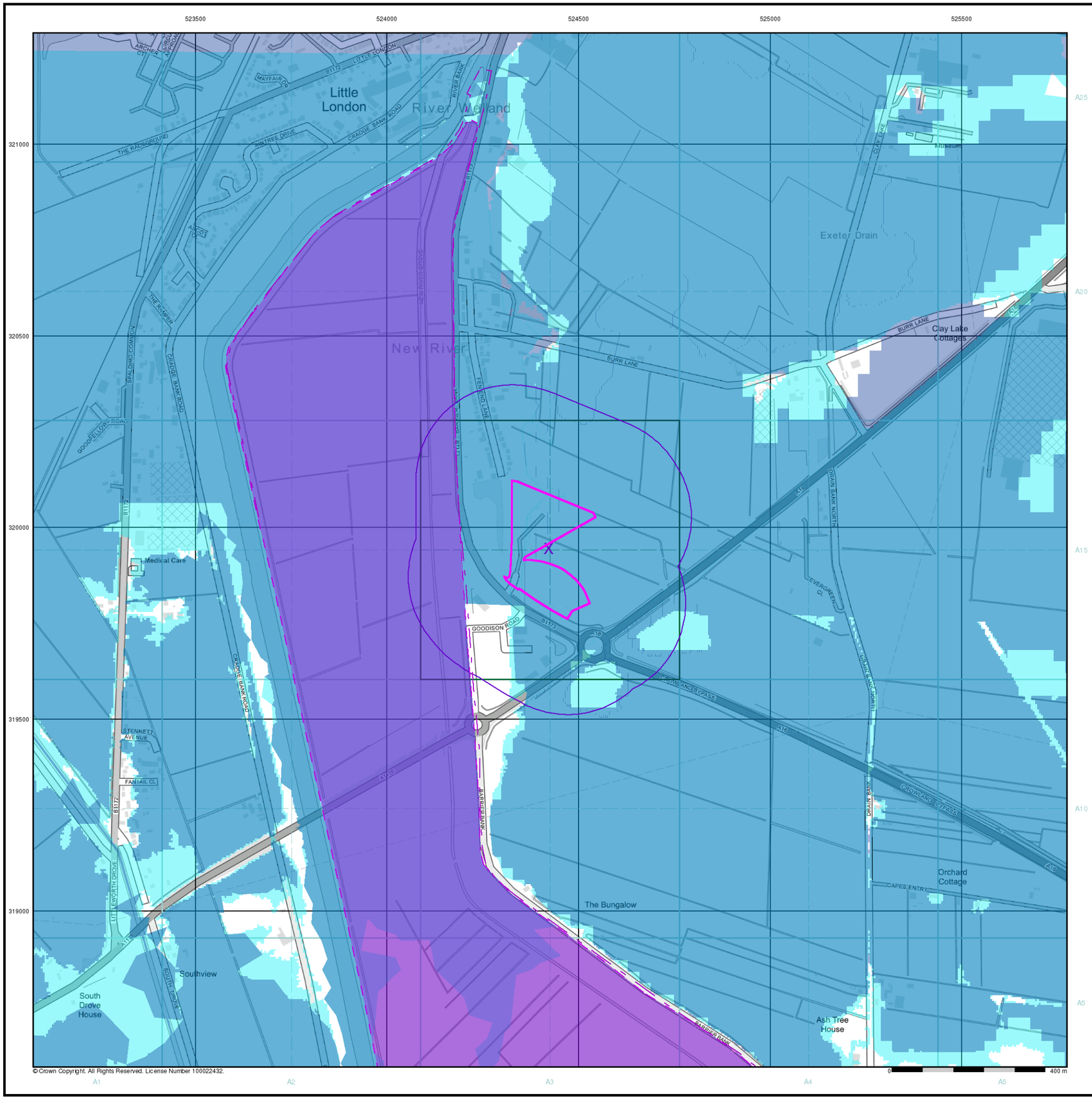
Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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GeoDyne

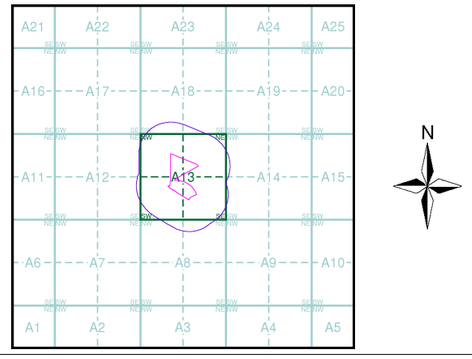
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

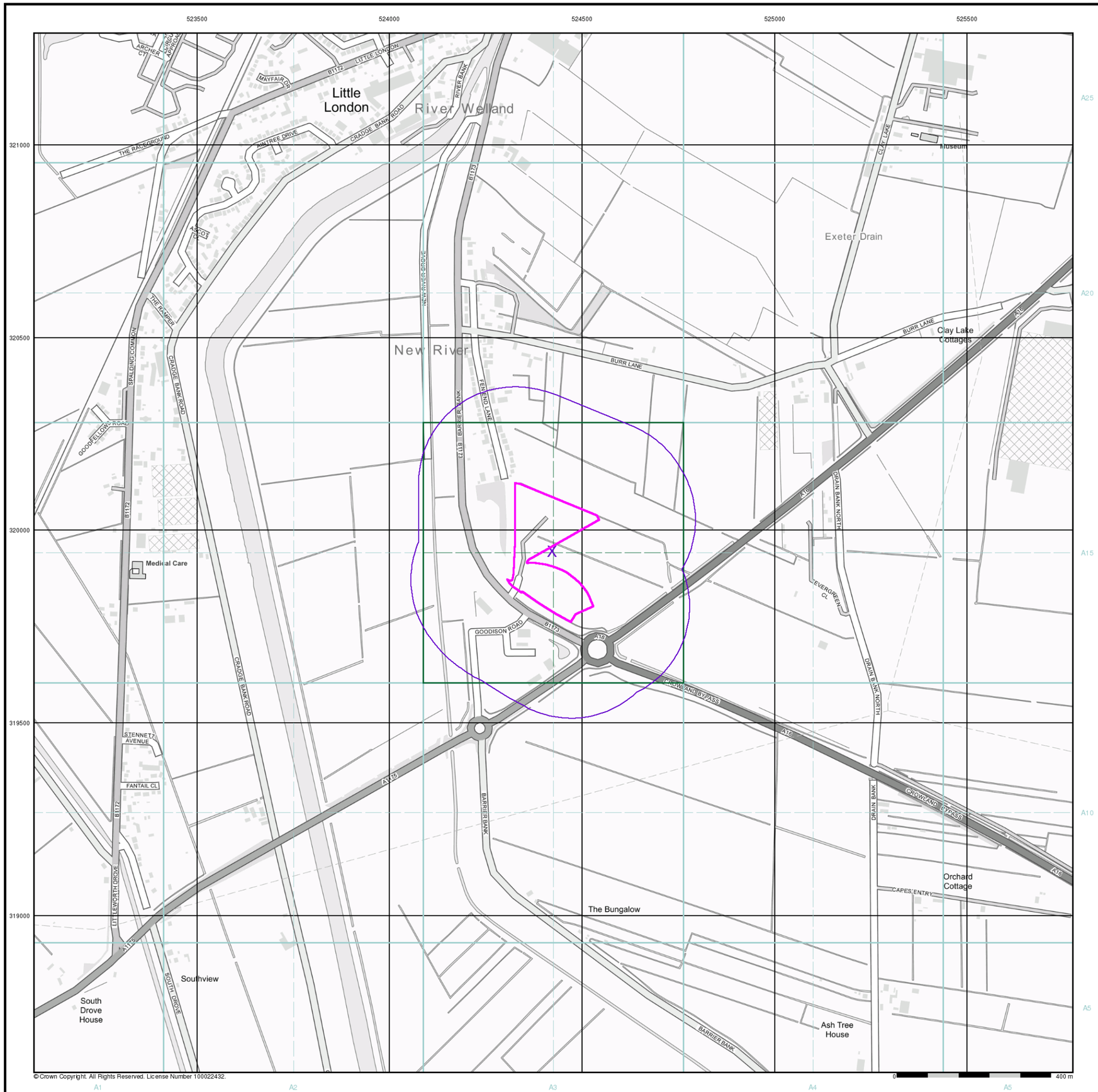
Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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GeoDyne

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

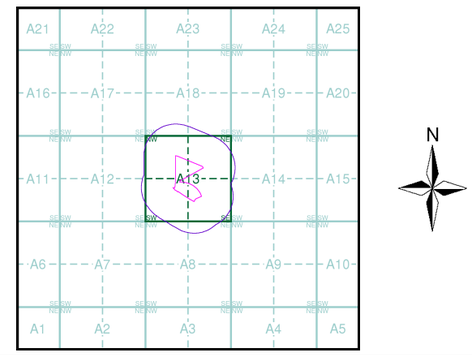
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- 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



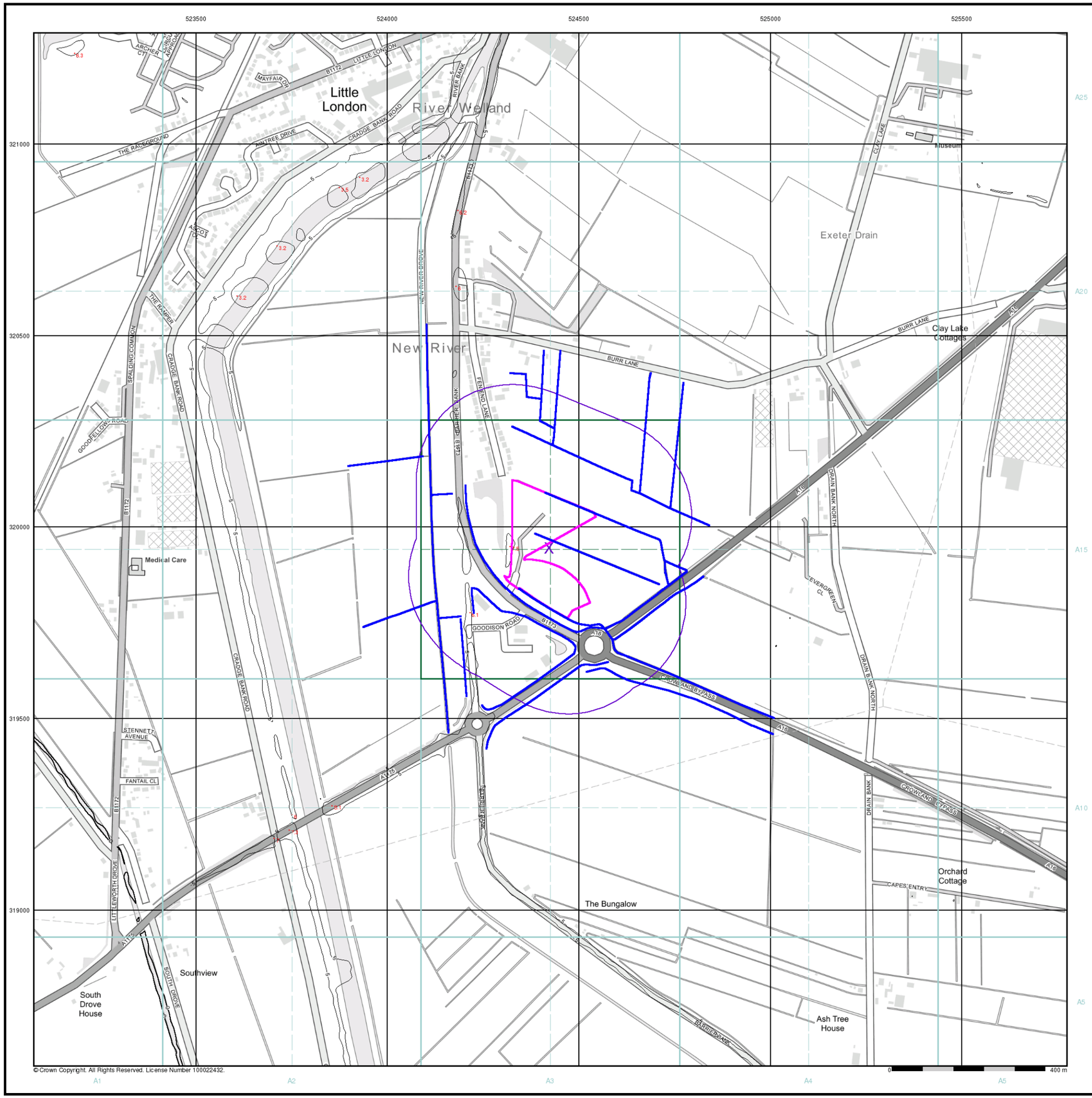
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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GeoDyne

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

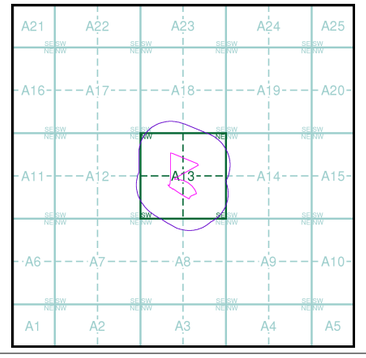
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



Order Details

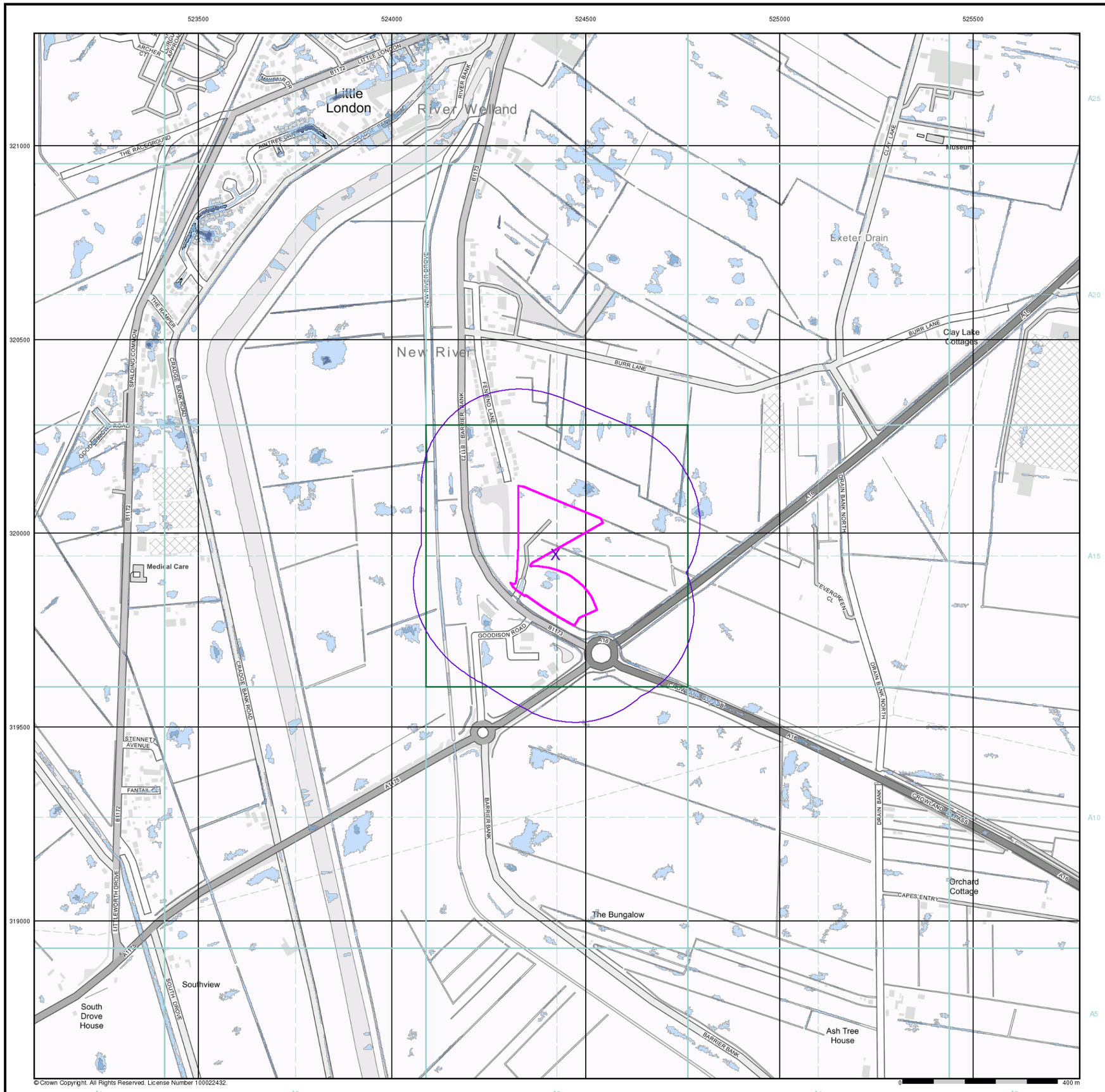
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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

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GeoDyne

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Risk of Flooding from Surface Water

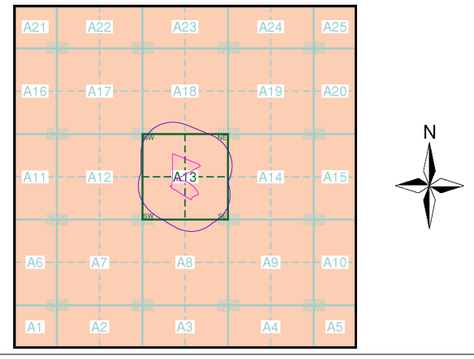
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

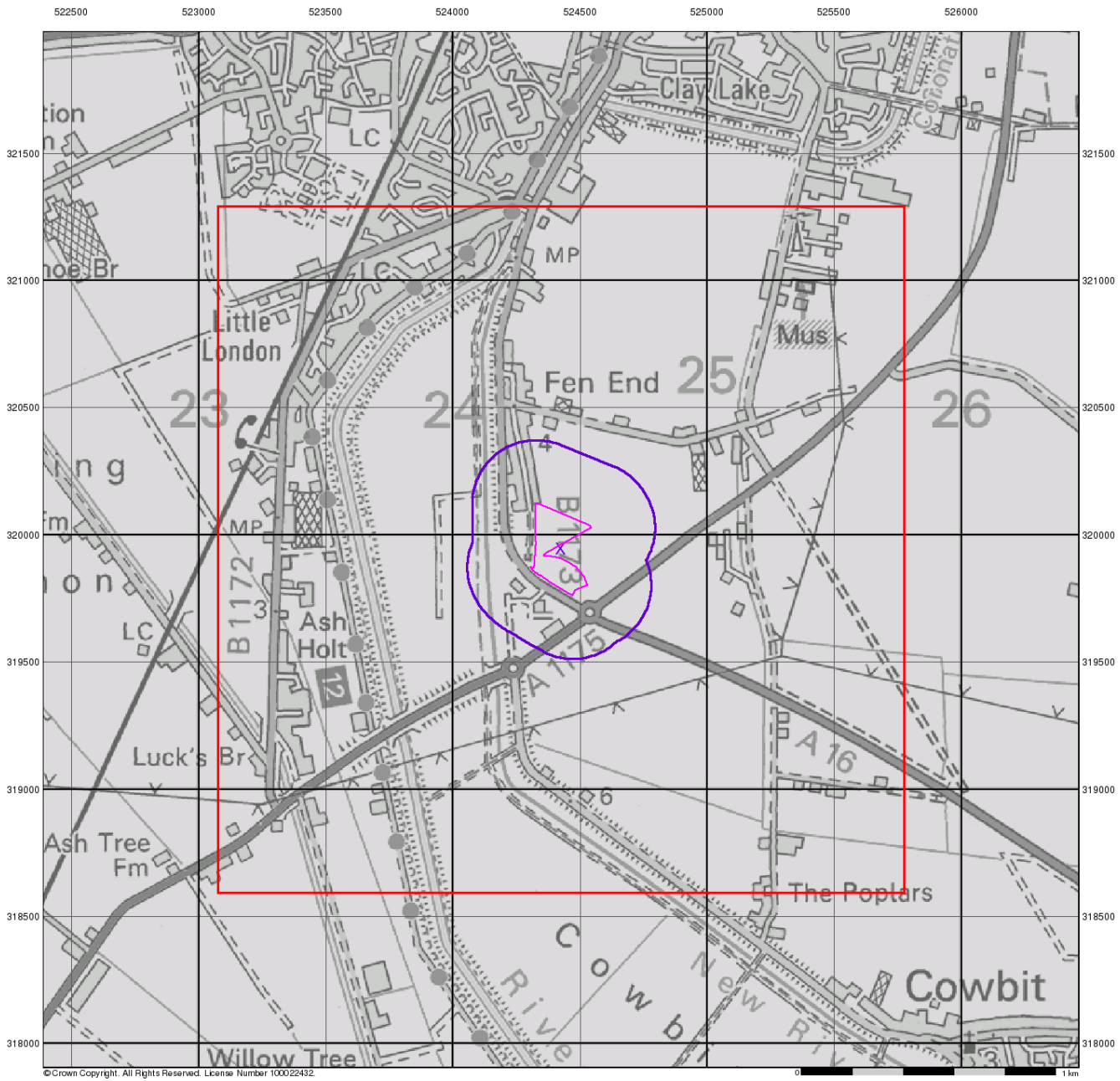
Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

Landmark INFORMATION GROUP

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GeoDyne

Groundwater Vulnerability

General

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

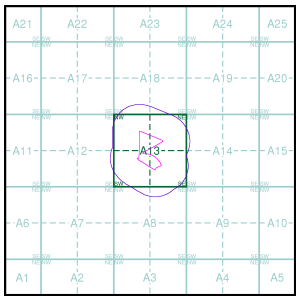
Agency and Hydrological

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

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



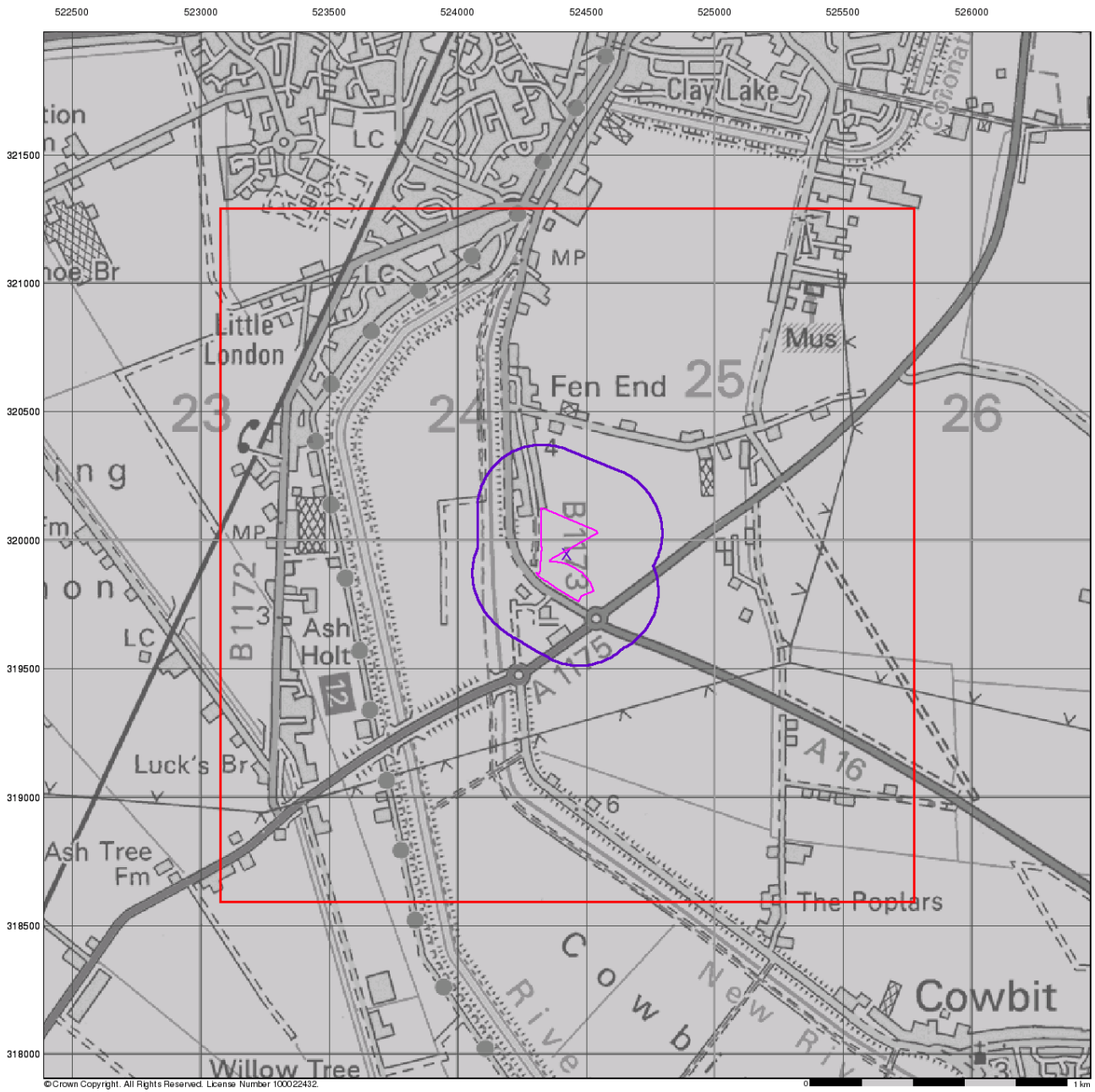
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

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



GeoDyne

Bedrock Aquifer Designation

General

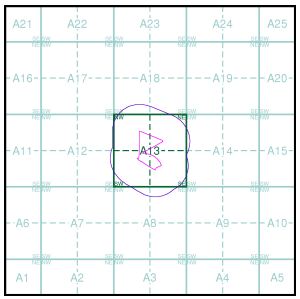
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A

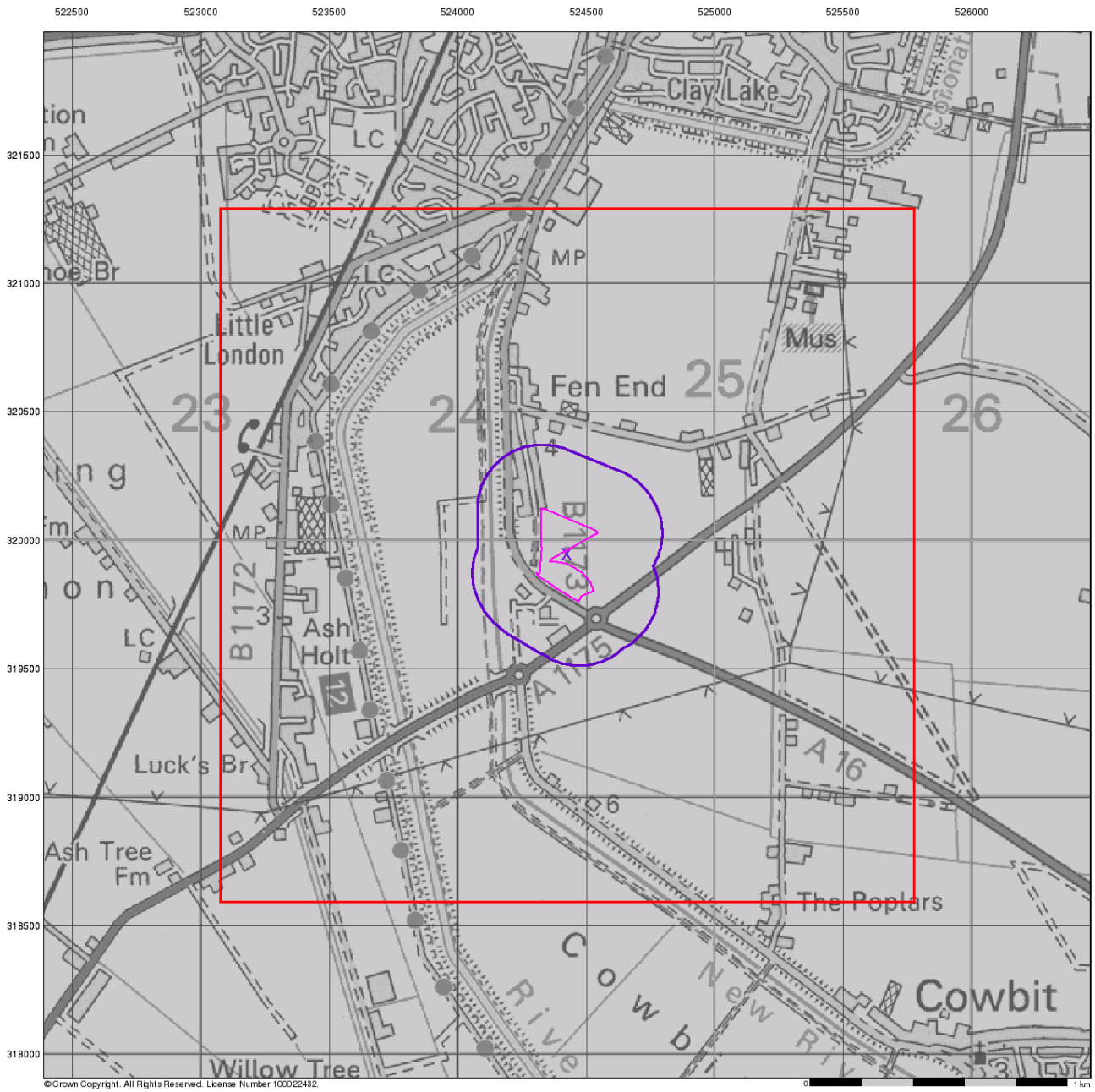


Order Details

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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2



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GeoDyne

Superficial Aquifer Designation

General

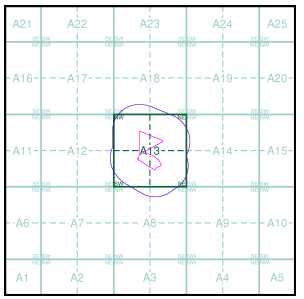
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



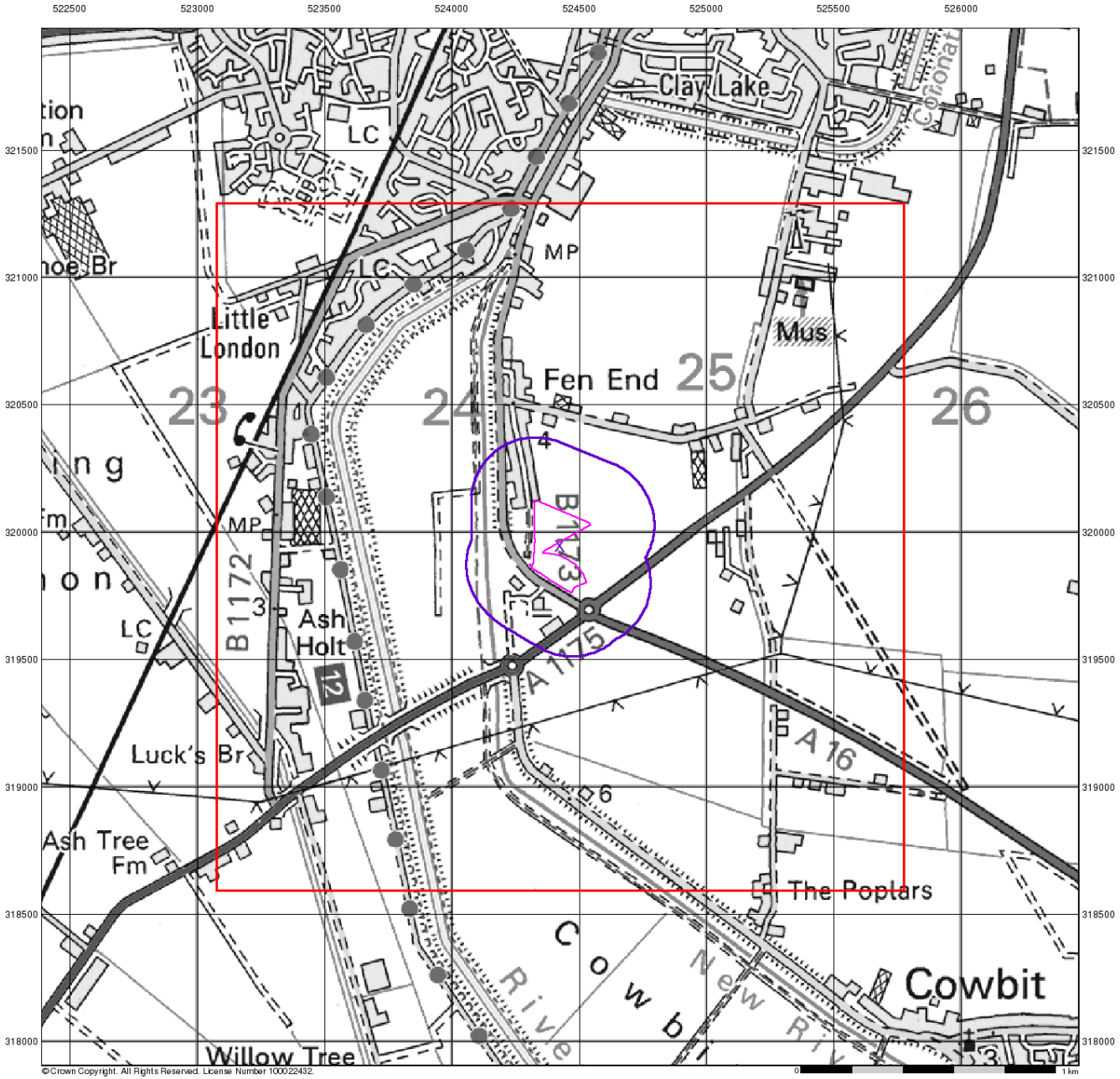
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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Source Protection Zones

General

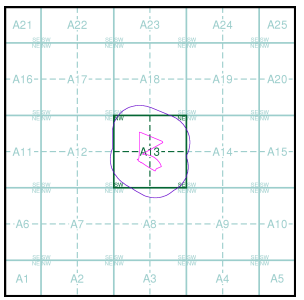
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A

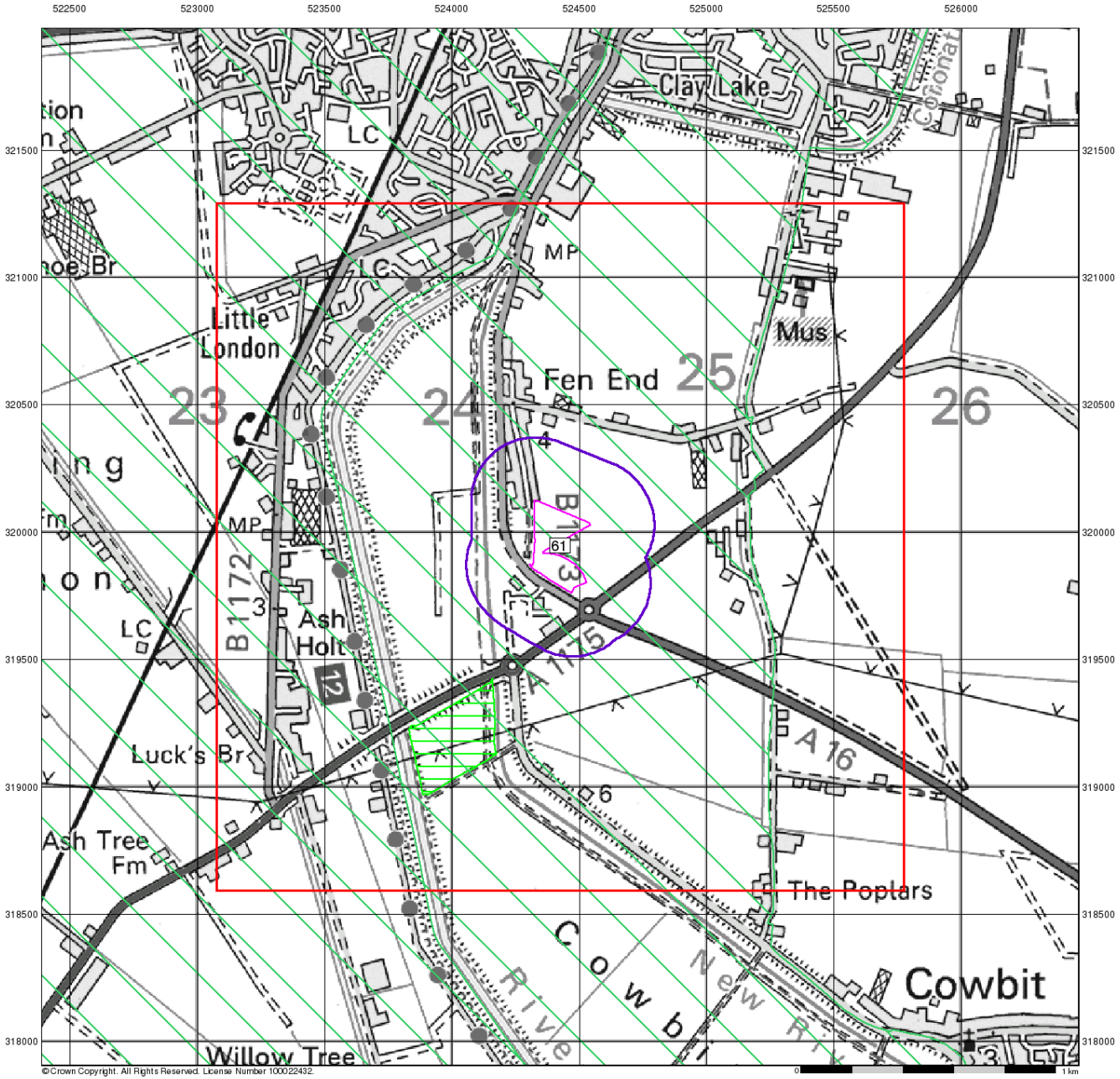


Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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Sensitive Land Uses

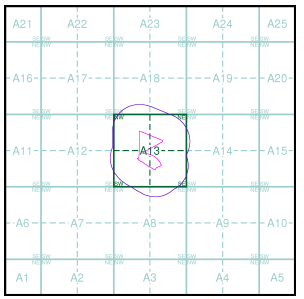
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A

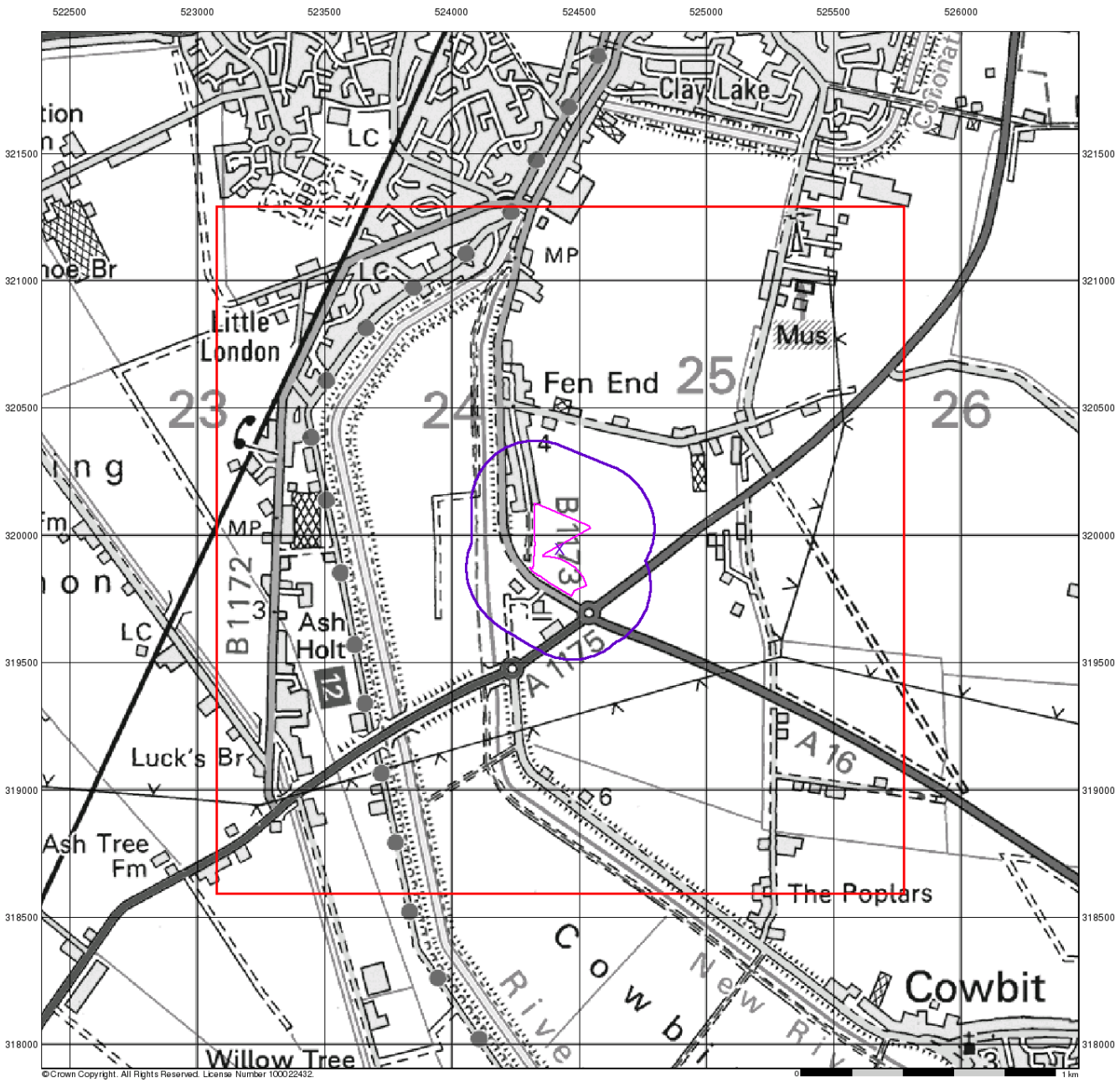


Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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BGS Flood GFS Data

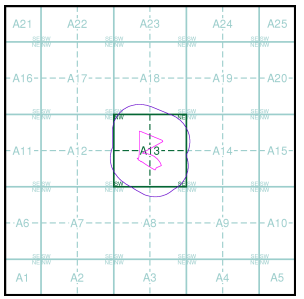
General

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

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



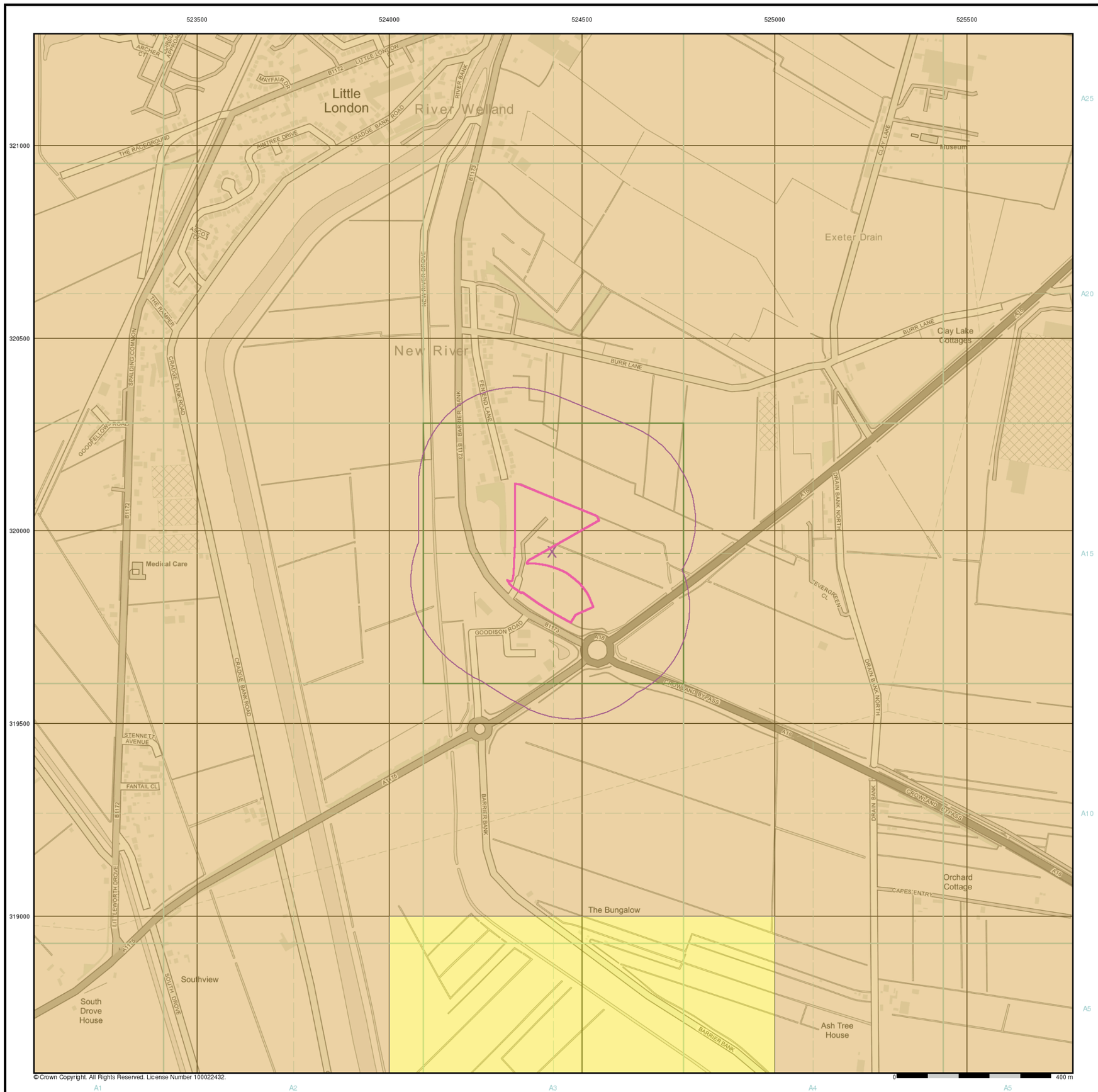
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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General

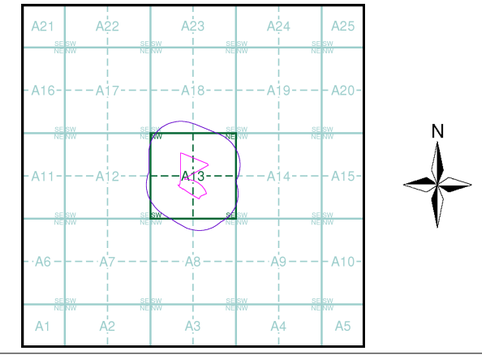
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Estimated Soil Chemistry Arsenic - Slice A



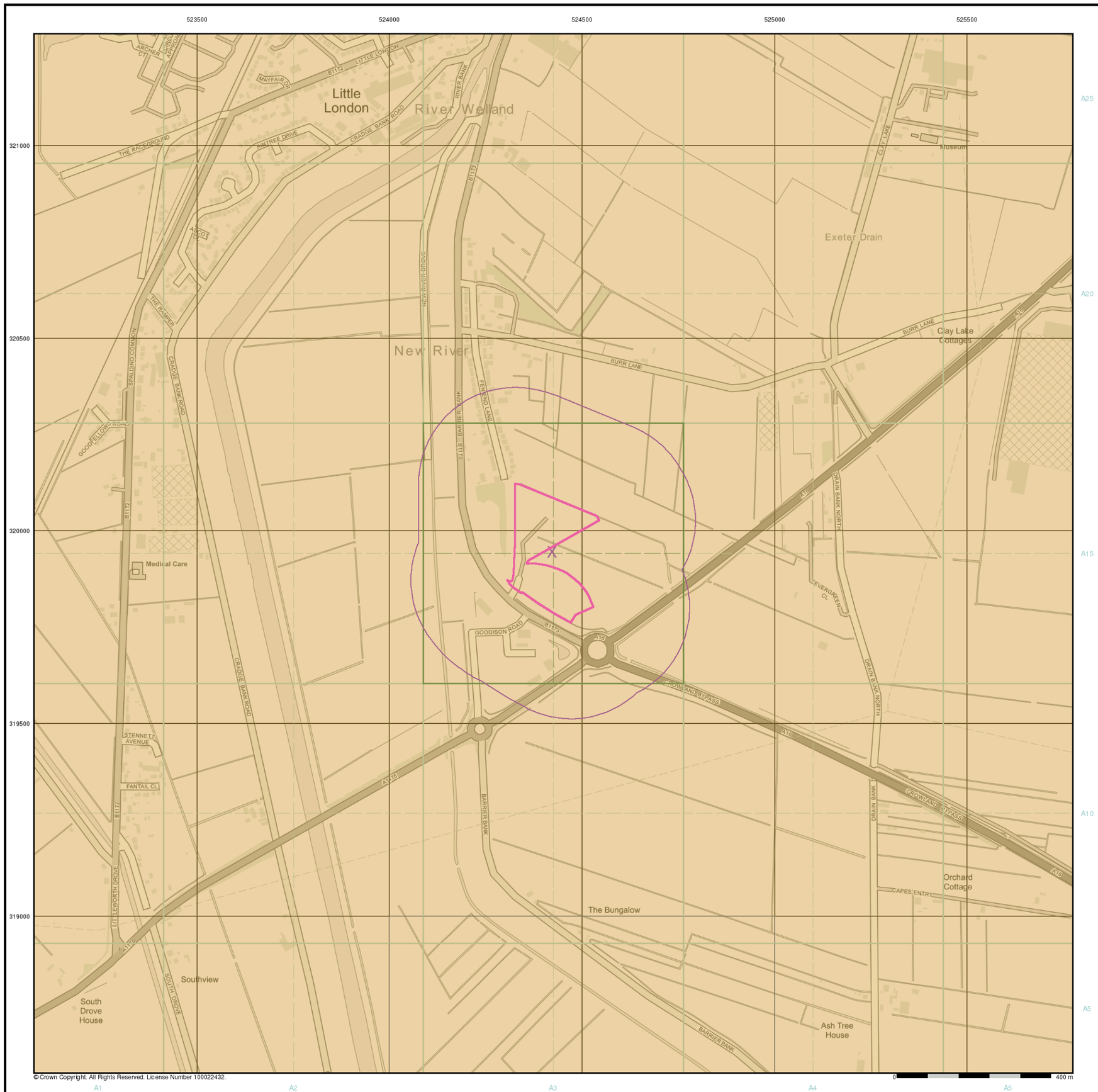
Order Details

Order Details:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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General

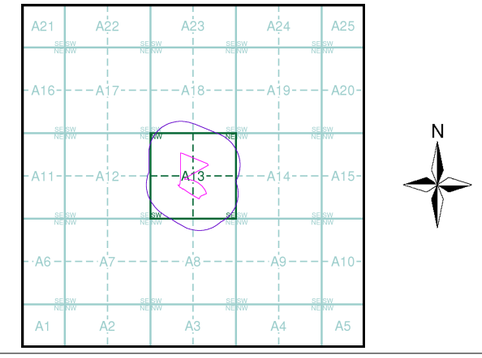
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Estimated Soil Chemistry Cadmium - Slice A



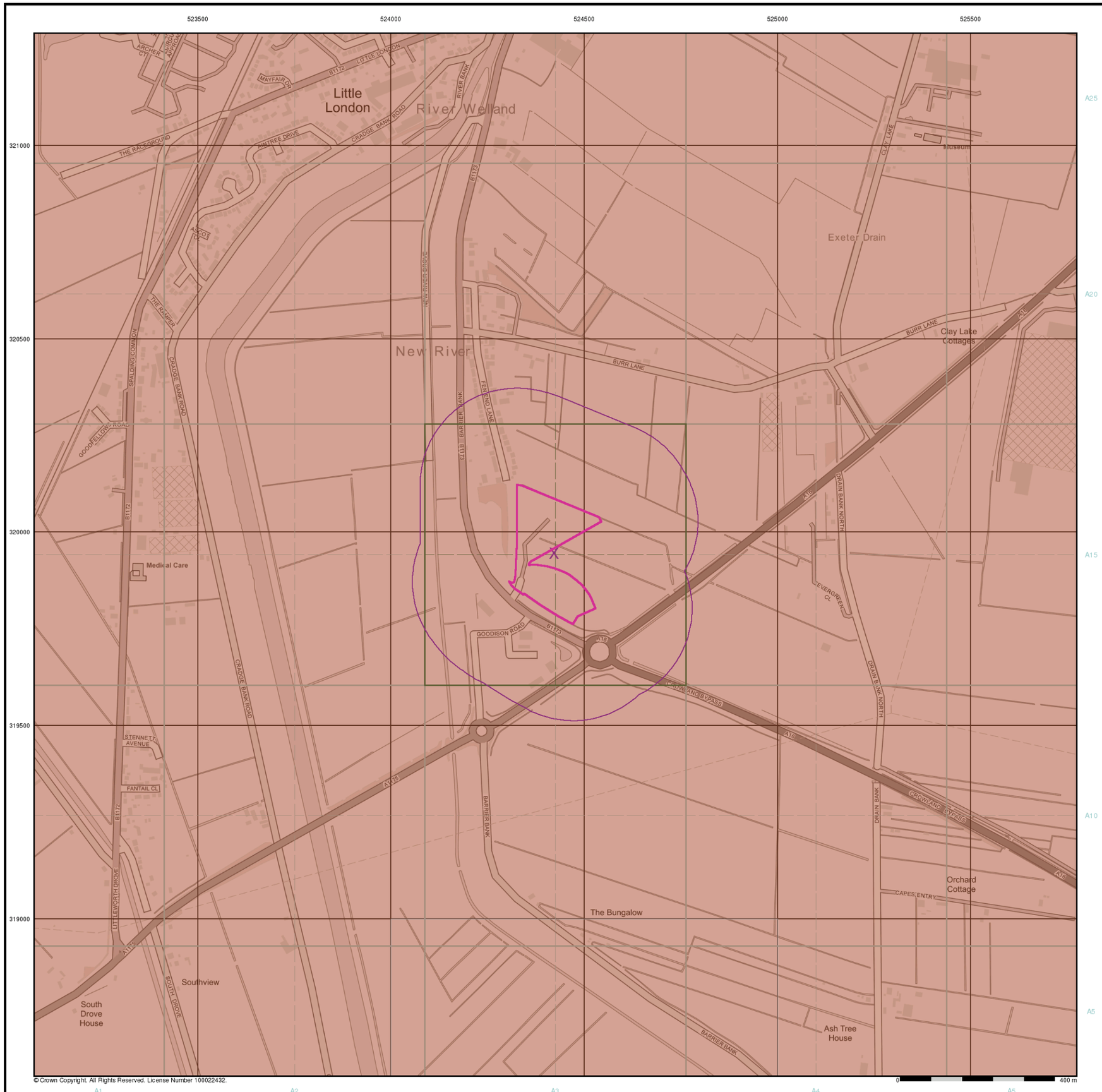
Order Details

Order Details:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

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General

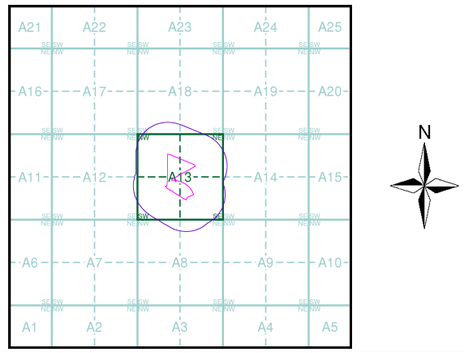
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Estimated Soil Chemistry Chromium - Slice A



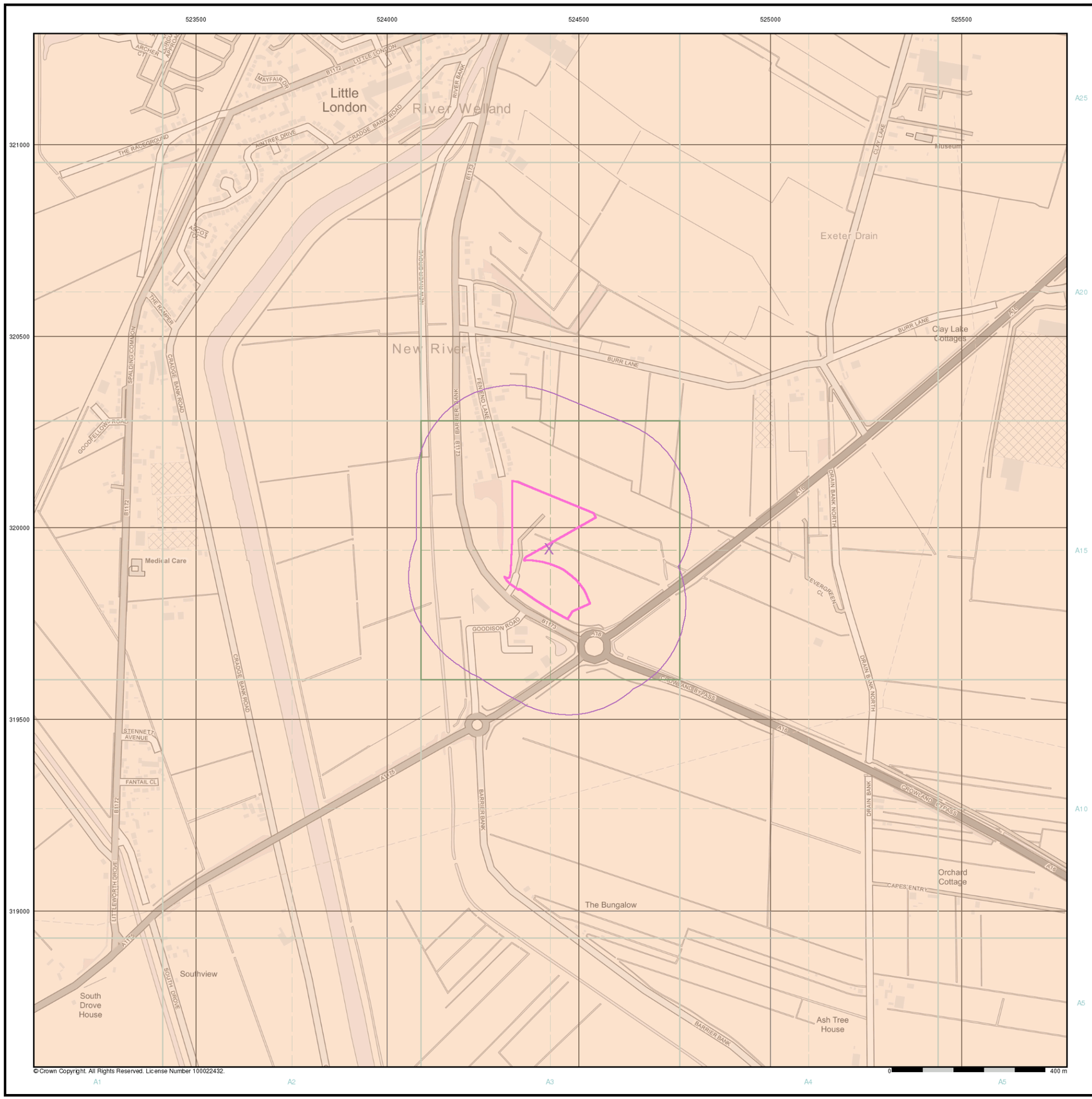
Order Details

Order Details:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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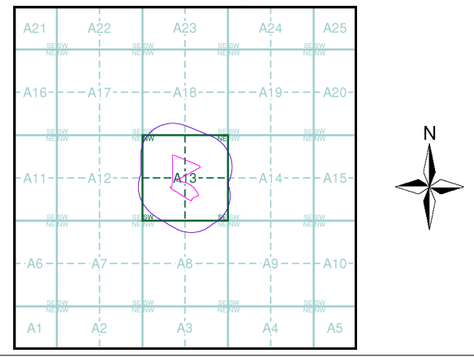
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- <100 mg/kg
- 100 - 200
- 200 - 300
- 300 - 600
- 600 - 1200
- >1200

Estimated Soil Chemistry Lead - Slice A



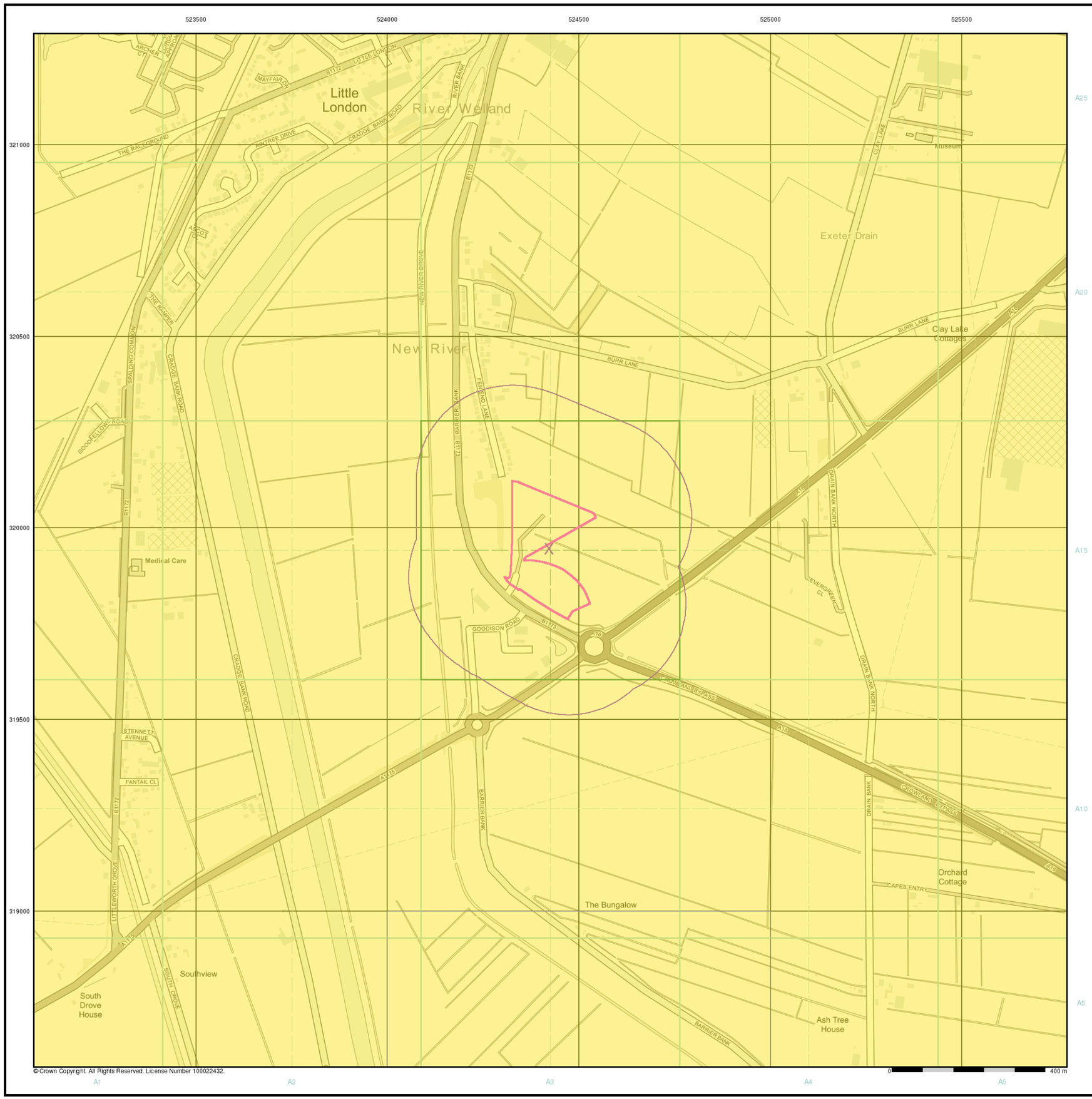
Order Details

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Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
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General

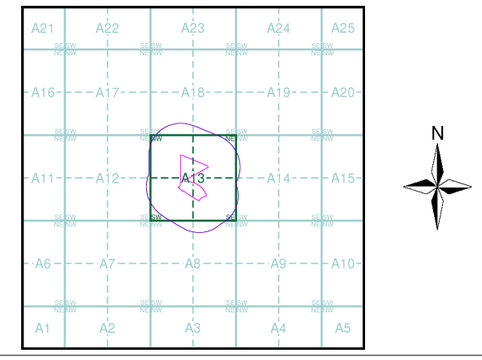
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Estimated Soil Chemistry Nickel - Slice A



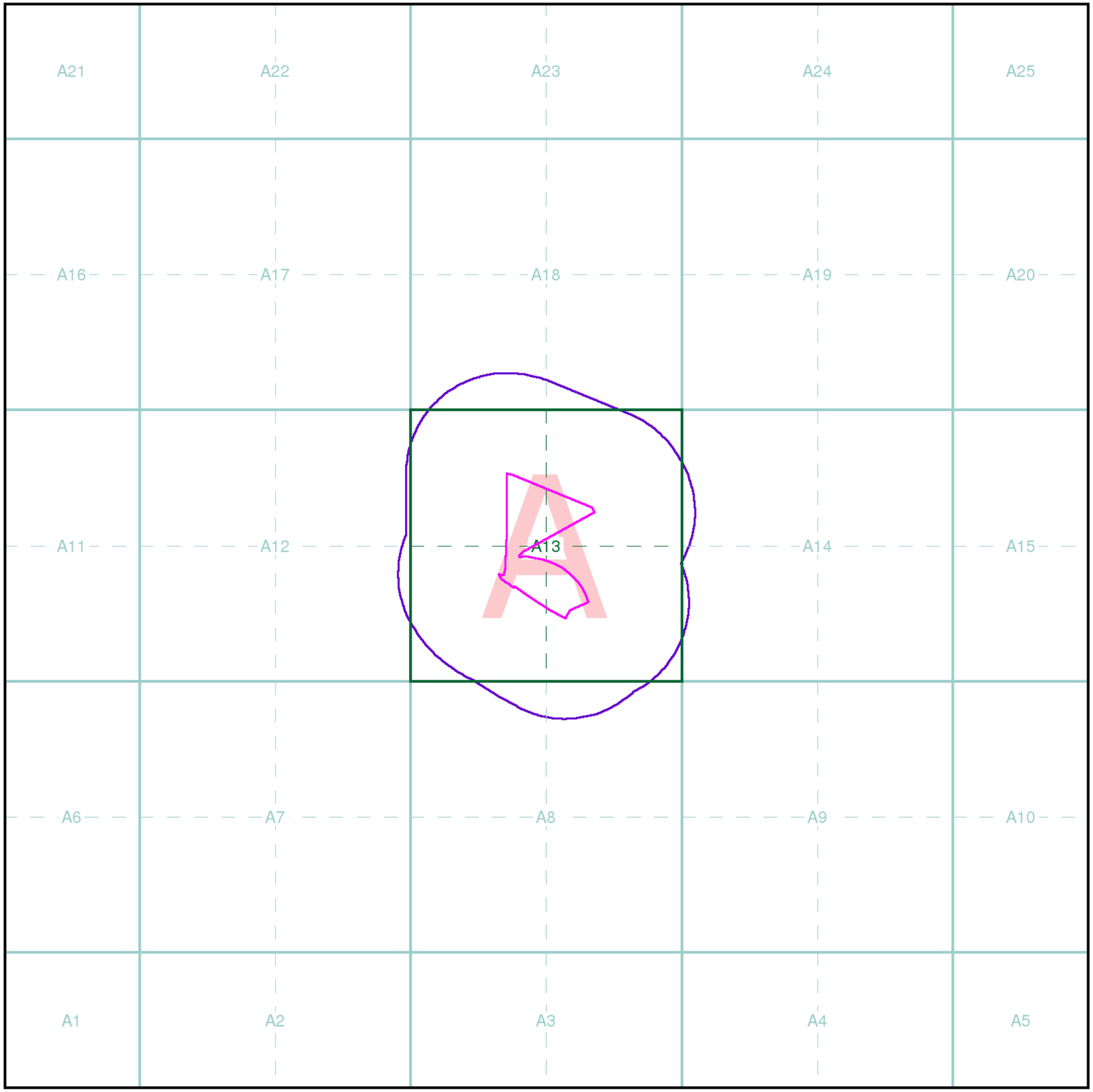
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Slice:	A
Site Area (Ha):	4.41
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Index Map

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

Mr J Hollands, GeoDyne Ltd, Clarendon House, Clarendon Business Park, Clumber Avenue, Nottingham, NG5 1AH

Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524410, 319950
Site Area (Ha):	4.41
Search Buffer (m):	250

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Envirocheck® Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:
280796934_1_1

Customer Reference:
D41115

National Grid Reference:
524420, 319950

Slice:
A

Site Area (Ha):
4.41

Search Buffer (m):
250

Site Details:

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Client Details:

Mr J Hollands
GeoDyne Ltd
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Nottingham
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Contents

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	-
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)	-
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)	-
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)	1
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	2
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	3
Data Suppliers	4
Useful Contacts	5

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The brine subsidence data relating to the Driotwich 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

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Summary

Data Type	Page Number	On Site	0 to 250m
Mining and Natural Cavities Data			
BGS Recorded Mineral Sites			
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)			
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)			
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 1	Yes	
Potential for Compressible Ground Stability Hazards	pg 1	Yes	
Potential for Ground Dissolution Stability Hazards	pg 1	Yes	
Potential for Landslide Ground Stability Hazards	pg 1	Yes	
Potential for Running Sand Ground Stability Hazards	pg 1	Yes	
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 1	Yes	
Salt Mining Related Features			

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Summary

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Ground Stability Data (1:50,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
1	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946
2	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946
3	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946
4	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
5	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946
6	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
7	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	524422 320000
8	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	1	524422 319946

Historical Map List

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

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	TF2420	1968
Ordnance Survey Plan	TF2419	1969

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

1:10,560	Mapsheet	Published Date
Lincolnshire	142_NW	1889
Lincolnshire	142_SW	1890
Lincolnshire	142_NW	1906
Lincolnshire	142_SW	1906
Lincolnshire	142_NW	1932
Lincolnshire	142_NW	1938
Lincolnshire	142_SW	1952
Ordnance Survey Plan	TF21NW	1958
Ordnance Survey Plan	TF22SE	1958
Ordnance Survey Plan	TF21NE	1959
Ordnance Survey Plan	TF22SW	1959
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	TF21NW	1979
Ordnance Survey Plan	TF22SE	1989
Ordnance Survey Plan	TF21NE	1991
Ordnance Survey Plan	TF22SW	1992

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	May 2021	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	May 2021	Bi-Annually
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural Cavities Stantec UK Ltd	May 2021	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	February 2020	Bi-Annually
Ground Stability Data (1:50,000)	**Version**	**Update Cycle**
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	As notified
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	Annual Rolling Update

Data Suppliers

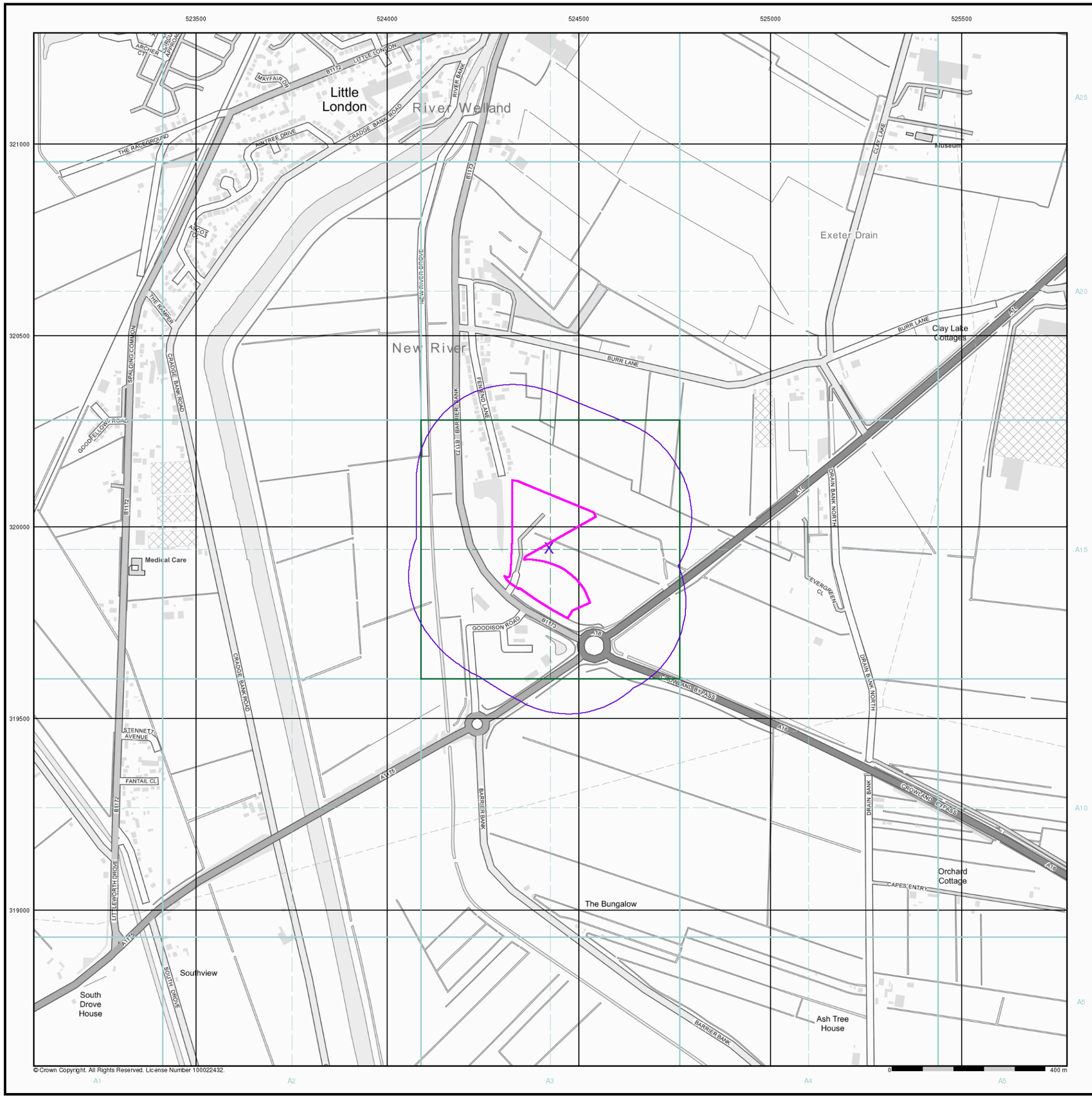
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
British Geological Survey	British Geological Survey, Natural Environment Research Council
The Coal Authority	The Coal Authority
Ove Arup	ARUP
Stantec UK Ltd	Stantec
Wardell Armstrong	wardell armstrong, your earth our world
Johnson Poole & Bloomer	JPB

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Useful Contacts

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



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Historical Land Use Information (1:10,000)

General

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

Several of Type at Location

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts			
Disturbed Ground			
General Quarrying			
Heap, unknown constituents			
Mineral Railway			
Mining and Quarrying General			
Mining of Coal & Lignite			
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits			

Historical Land Use

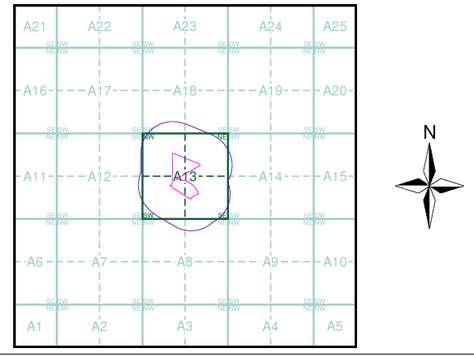
	Point	Line	Polygon
Potentially Infilled Land (Non-Water)			
Potentially Infilled Land (Water)			
Former Marsh			

Mining Data

Potential Mining Area

BGS Recorded Mineral Site

Mining and Ground Stability - Slice A



Order Details

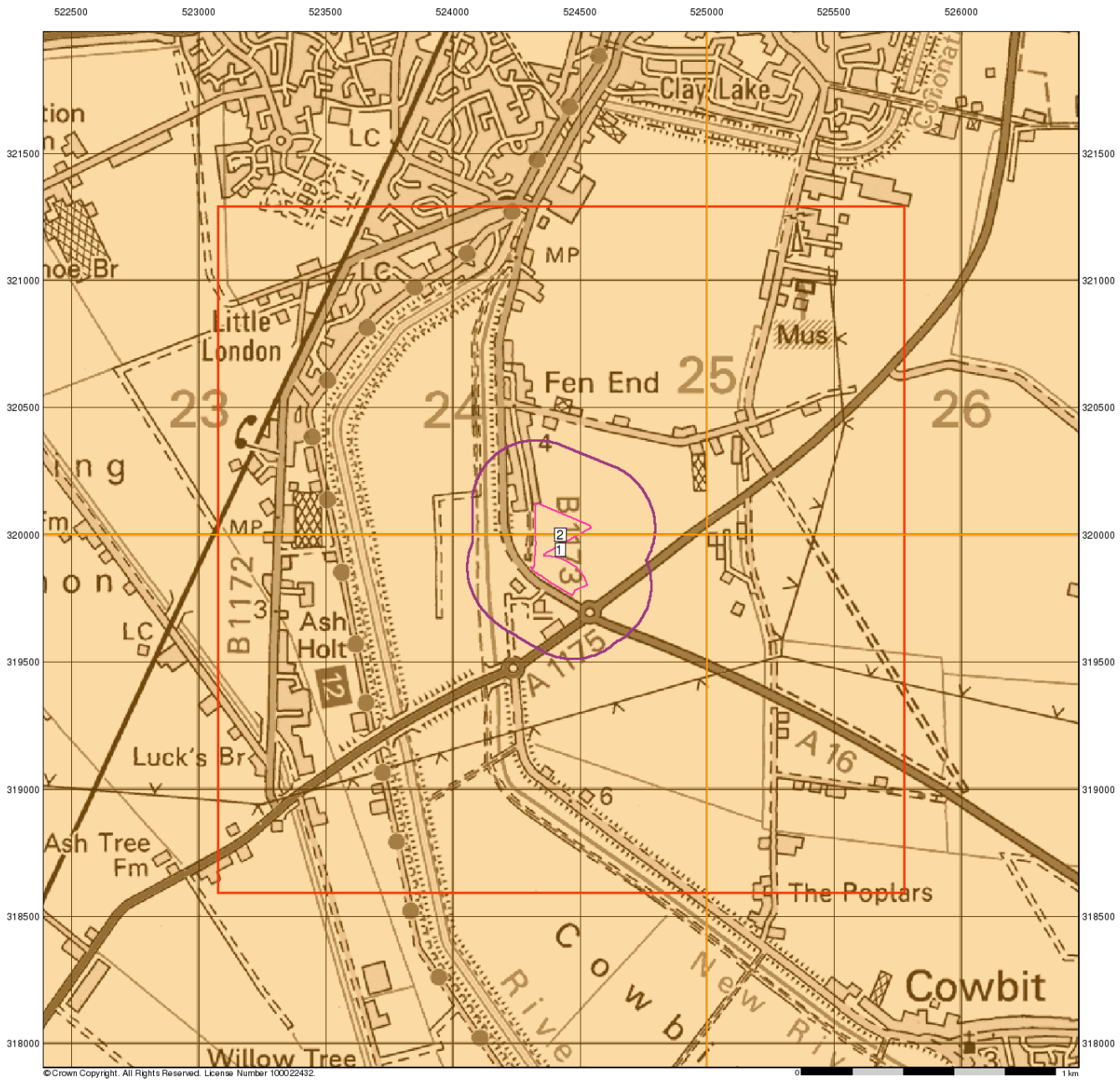
Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

Landmark INFORMATION GROUP

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Ground Stability Data (1:50,000)

General

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

Potential for Compressible Ground Stability Hazards

High | Low | Moderate | Very Low

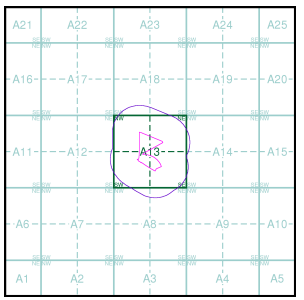
Potential for Collapsible Ground Stability Hazards

High | Low | Moderate | Very Low

Brine Pumping and Salt Mining

	Point	Polygon
Brine Pumping Related Feature	▲	▨
Salt Mining Related Feature	▲	▨

Mining and Ground Stability - Slice A



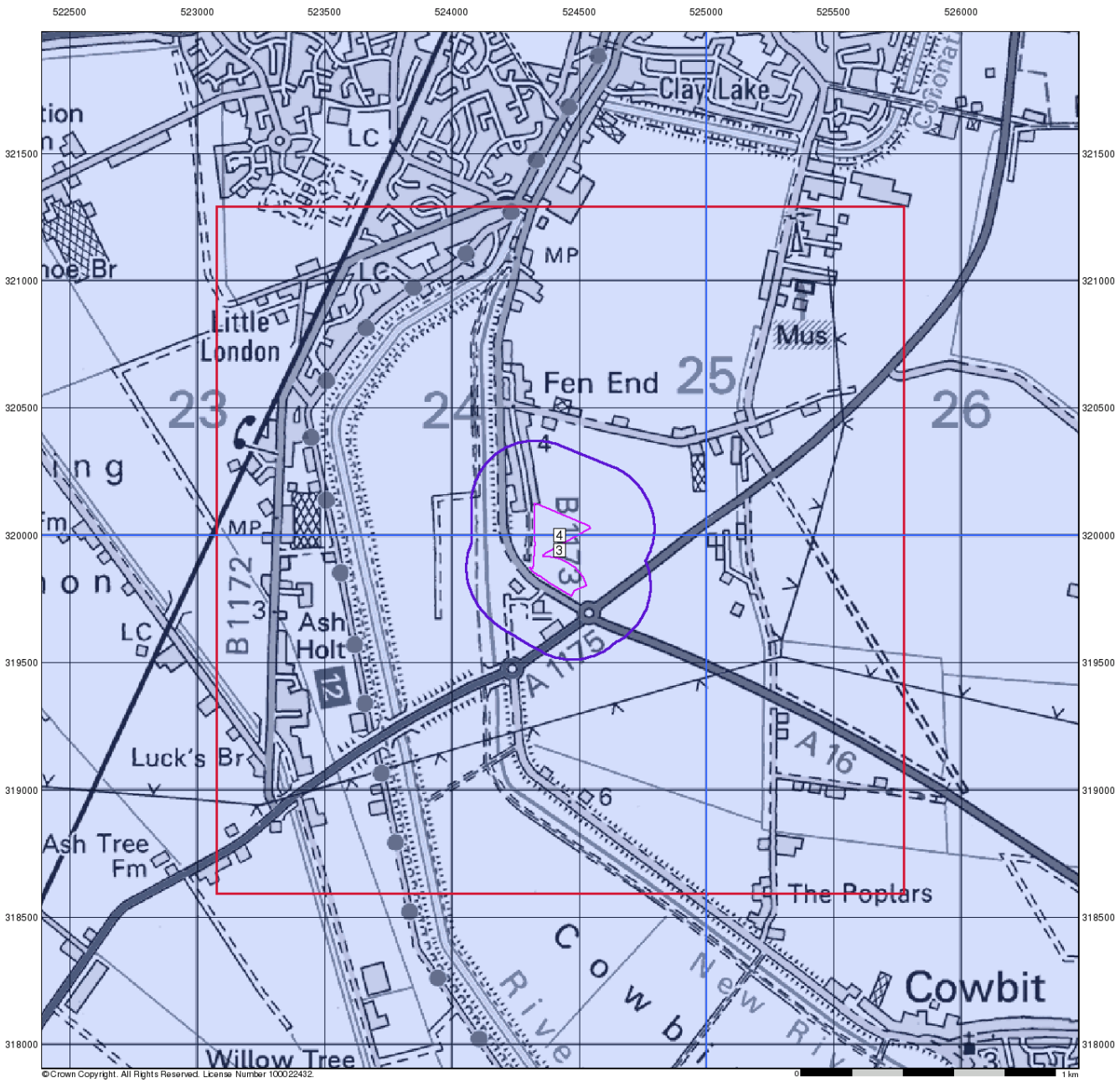
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

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Ground Stability Data (1:50,000)

General

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

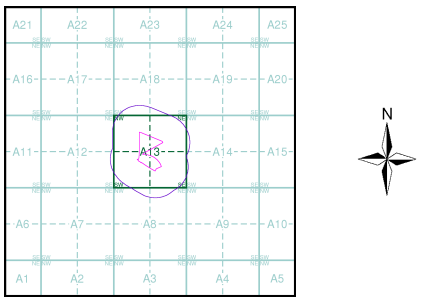
Potential for Landslide Ground Stability Hazards

High | Low
Moderate | Very Low

Potential for Ground Dissolution Stability Hazards

High | Low
Moderate | Very Low

Mining and Ground Stability - Slice A



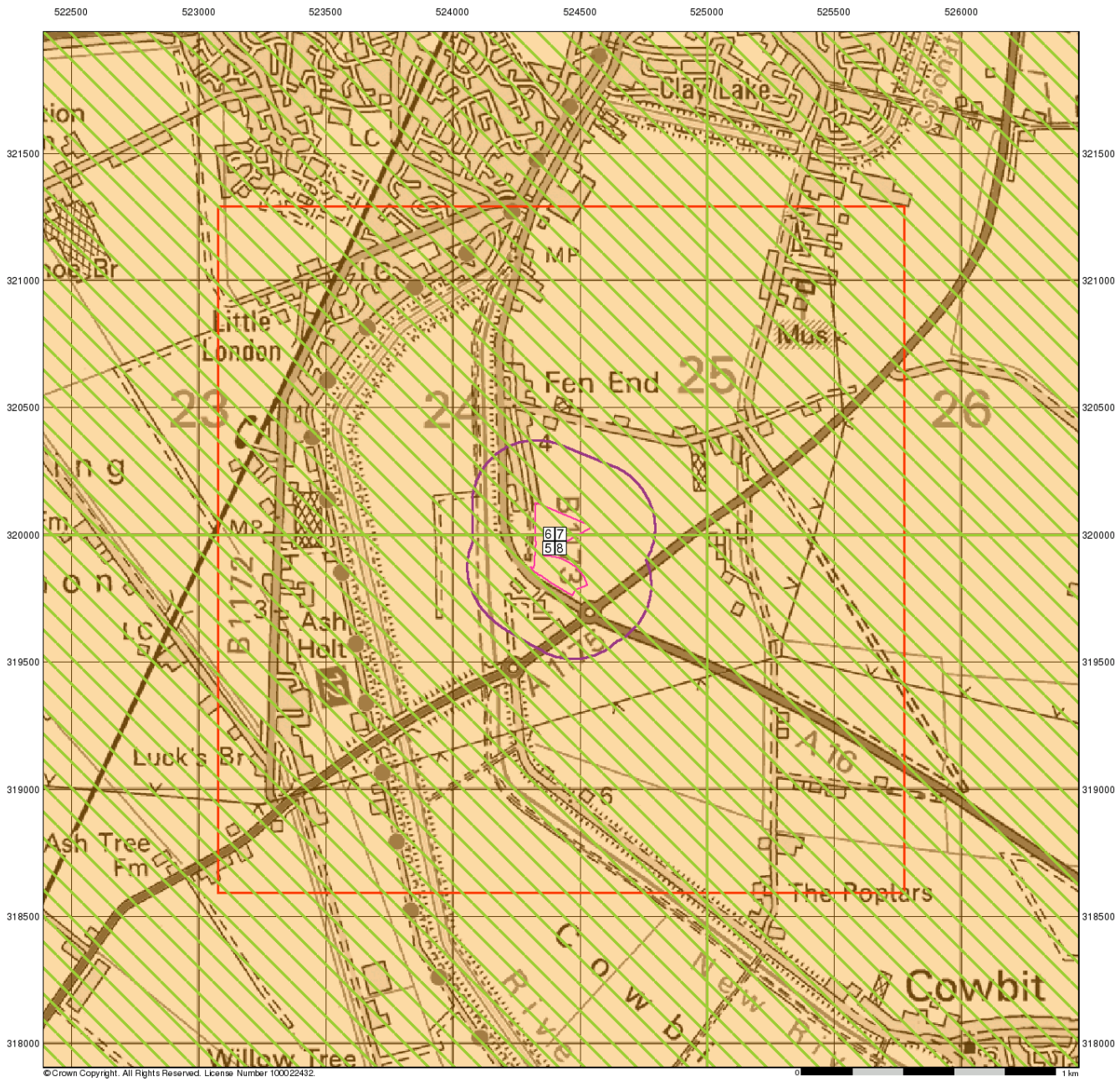
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

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Ground Stability Data (1:50,000)

General

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

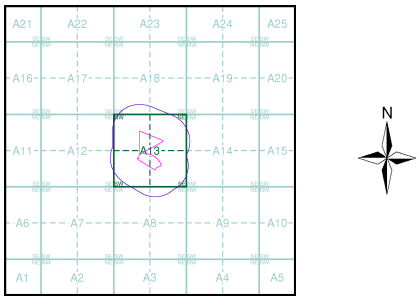
Potential for Running Sand Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



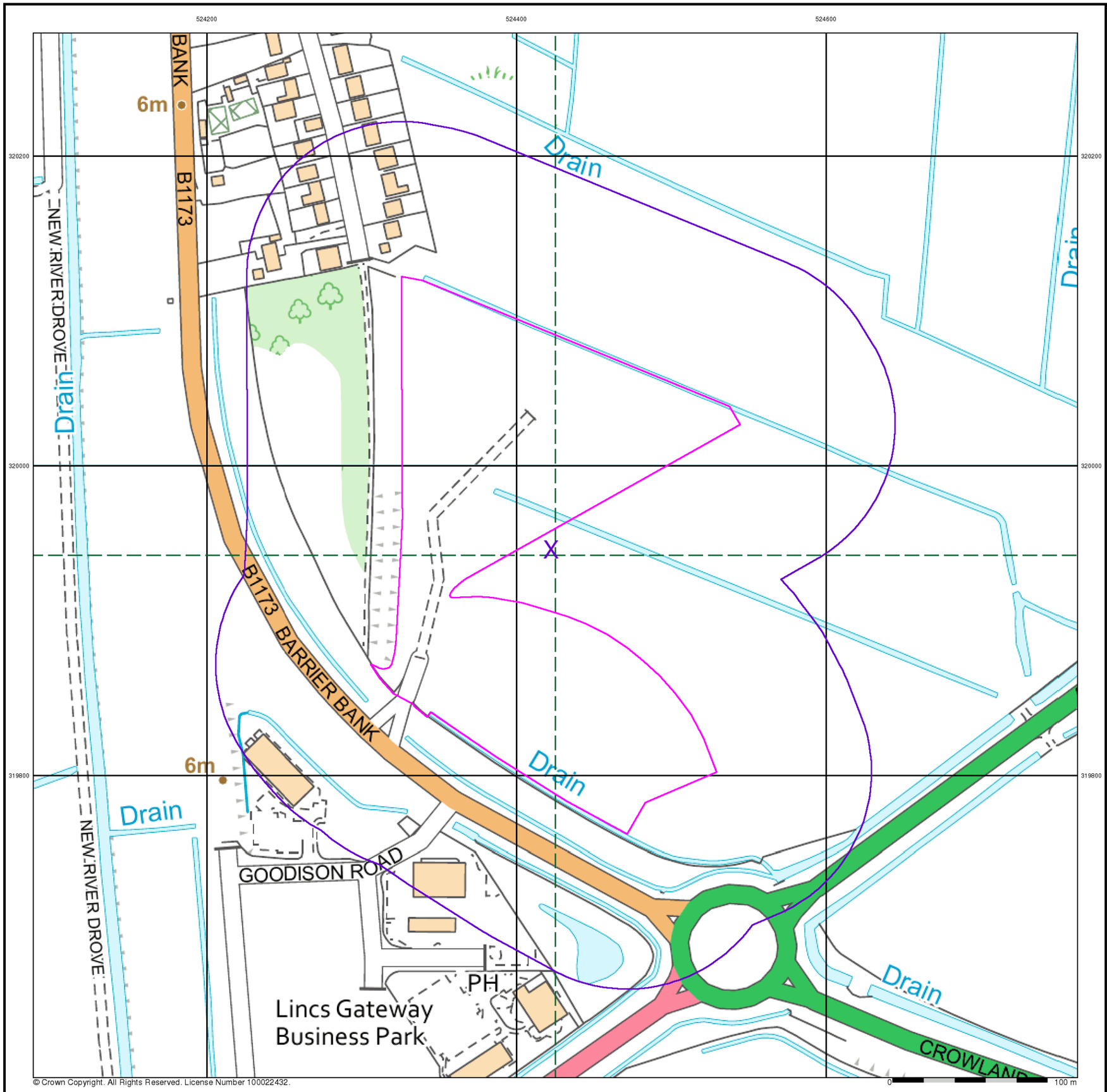
Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Search Buffer (m):	250

Site Details

Lincs Gateway - Phase 2

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Historical Land Use Information (1:2,500)

General

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

Several of Type at Location

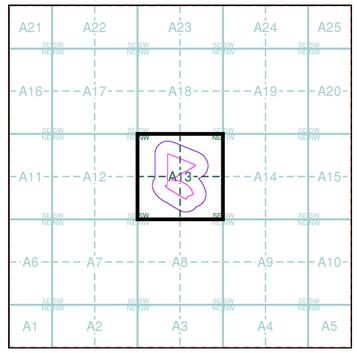
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▦
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A13



Order Details

Order Number:	280796934_1_1
Customer Ref:	D41115
National Grid Reference:	524420, 319950
Slice:	A
Site Area (Ha):	4.41
Plot Buffer (m):	100

Site Details

Lincs Gateway - Phase 2

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APPENDIX VIII

Exploratory Hole Location Plan
(Figure No. D41115/04)



Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DB
		Approved By	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	Exploratory Hole Location Plan	Revision	
		Figure No.	D41115/04

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APPENDIX IX

Exploratory Hole Logs
(TP1 to TP10, WS1 to WS11)

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TP1

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Dark brown sandy gravelly clay. Gravel is fine to coarse brick, macadam and concrete (MADE GROUND)		0.20 - 0.30	T	D			
...mottled dark grey with depth							
...less gravel with depth							
		0.90					
Stiff light brown sandy slightly clayey SILT (TIDAL FLAT DEPOSITS)		1.00 - 1.10	B	B	In-Situ SV	110	▽
...slight water seepages below 1.00m		1.00				80	
						80	
		1.30			Ex-Situ SV	60	
Firm brown mottled orange silty slightly sandy CLAY (TIDAL FLAT DEPOSITS)						68	
...becoming grey mottled below 1.50m with water ingress		1.50			Ex-Situ SV	68	
						58	
						60	
						60	
		2.00			Ex-Situ SV	45	
						50	
						52	
...rapid water ingress at 2.60m							▽
End of Trial Pit at 2.80m		2.80					

Remarks:

1.Sides generally stable.
2.Slight water seepages encountered below 1.00m. Rapid water ingress at 2.60m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP1
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP2

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy gravel of brick, concrete, macadam, flint, quartzite, sandstone and limestone (MADE GROUND)		0.20 - 0.30	T	D			
...concrete slab at 0.30m to 0.60m							
...brick and mortar (possible former building footing) at east and west end of pit		0.60					
Grey mottled dark grey sandy slightly clayey silt (MADE GROUND)		0.70 - 0.80	T	D			
Stiff light brown mottled grey very sandy SILT (TIDAL FLAT DEPOSITS)		1.10 - 1.20	T	D			
		1.10	B	B	In-Situ SV	80	
		1.20 - 1.30				84	
		1.20				94	
		1.50					▽
Firm brown silty damp CLAY (TIDAL FLAT DEPOSITS)		1.60			Ex-Situ SV	35	
...slight water seepages below 1.50m						43	
						44	
		2.40			Ex-Situ SV	34	
						40	
						41	
End of Trial Pit at 3.10m		3.10					

Remarks:

1.Sides generally stable.
2.Slight water seepages encountered below 1.50m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP2
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP3

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy gravel of brick, concrete, macadam, flint, quartzite, sandstone and limestone (MADE GROUND)		0.20					
Dark grey sandy silt with a slight organic odour and rare macadam and brick fragments (MADE GROUND)		0.40 - 0.50	T	D			
		1.45					
Black clayey amorphous PEAT (TIDAL FLAT DEPOSITS)		1.60			Ex-Situ	25	
Soft dark grey very silty CLAY (TIDAL FLAT DEPOSITS)		1.70 - 1.80	B	B	SV	28 30	
		2.00			Ex-Situ	18	
		2.10 - 2.20	T	D	SV	20 20	
		2.50			Ex-Situ	15	
					SV	20 20	
End of Trial Pit at 3.30m		3.30					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
Lincs Gateway - Phase 2			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP3
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP4

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown gravelly sand. Gravel is fine to course with cobbles and boulders of concrete, brick, macadam, roots, polystyrene and quartzite (MADE GROUND)		0.20 - 0.60	TJ	D/J			
		1.20					
Firm brown sandy silty CLAY (TIDAL FLAT DEPOSITS)		1.30			Ex-Situ SV	70 74 80	
		1.60 - 1.70	T	D			
		1.80			Ex-Situ SV	60 70 72	
...becoming soft and mottled grey below 2.20m							
...water ingress at 2.90m							▽
End of Trial Pit at 3.10m		3.10					

Remarks:

1.Sides generally stable.
2.Water ingress encountered at 2.90m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP4
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP5

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy gravelly clay. Gravel is fine to coarse brick, concrete, quartzite and twigs (MADE GROUND)		0.50 - 1.00	LB	LB			
Dark grey brown and dark grey sandy silt with a slight organic odour (MADE GROUND)		0.65 0.85					
Firm light orange mottled grey very sandy SILT (TIDAL FLAT DEPOSITS)		1.10			In-Situ SV	50 54	
Firm brown mottled grey silty CLAY (TIDAL FLAT DEPOSITS)		1.25 1.30			Ex-Situ SV	56 55	
		1.80 - 1.90	B	B	Ex-Situ SV	60 60 35	
...becoming soft and grey with peaty pockets below 2.10m		1.80				40 40	
End of Trial Pit at 3.40m		3.40					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP5
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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email: info@geodyne.co.uk

TP6

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy gravelly clay. Gravel is fine to coarse brick, concrete, quartzite, twigs and kerbstones (MADE GROUND)							
		0.30 - 0.40	T	D			
Black gravel of macadam and concrete (MADE GROUND)		0.30					
...macadam slab at 0.50m to 0.70m							
		0.70					
Grey clayey silty sand (MADE GROUND)		0.80 - 0.90	T	D			
		1.10					
Soft grey silty sandy CLAY (TIDAL FLAT DEPOSITS)							
...land drain at 1.50m with rapid water ingress							▽
		1.60			Ex-Situ SV	40 45 47	
Initially firm becoming soft grey silty CLAY (TIDAL FLAT DEPOSITS)							
...peaty pockets below 2.00m		2.10 - 2.20	T	D	Ex-Situ SV	30 35 40	
		2.10					
		2.70					
End of Trial Pit at 2.70m							

Remarks:

1.Sides generally stable.
2.Rapid water ingress encountered at 1.50m from land drain.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP6
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP7

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy gravelly clay. Gravel is fine to coarse brick, concrete, quartzite and twigs (MADE GROUND)							
		0.60					
Dark grey clayey sandy silt (possible natural strata) (MADE GROUND)							
		1.00 - 1.10	T	D			
		1.50					
Soft dark grey silty CLAY (TIDAL FLAT DEPOSITS)							
...pockets of peat below 1.80m and slight water seepages		1.80			Ex-Situ SV	20 26	▽
		2.00			Ex-Situ SV	30 20 20 24	
		2.50 - 2.60	T	D			
		3.00			Ex-Situ SV	15 20 22	
End of Trial Pit at 3.30m		3.30					

Remarks:

1.Sides generally stable.
2.Slight water seepages encountered at 1.80m

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP7
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP8

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sand gravelly clay. Gravel is fine to coarse subrounded to subangular brick, quartzite and mortar (MADE GROUND)		0.40 - 0.90	LB	LB			
...less gravelly with depth		0.50 - 1.00	J	J			
		1.00					
Firm brown silty CLAY (TIDAL FLAT DEPOSITS)		1.20			Ex-Situ SV	54 60 60	
		1.70			Ex-Situ SV	45 49 50	
...soft and grey below 1.90m with peaty pockets and shells.		2.10			Ex-Situ SV	20 20 20	
End of Trial Pit at 3.30m		3.30					▽

Remarks:
1.Sides generally stable.
2.Slight water ingress encountered at base of trial pit.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP8
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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email: info@geodyne.co.uk

TP9

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown sandy slightly gravelly clayey topsoil. Gravel is fine to medium brick, concrete and quartzite (MADE GROUND - TOPSOIL) ...ashy band at 0.10m to 0.20m.		0.11 - 0.20	T	D			
Medium dense light orange very silty SAND (TIDAL FLAT DEPOSITS)		0.50					
Firm brown slightly silty slightly sandy CLAY. (TIDAL FLAT DEPOSITS)		1.00					
		1.20 - 1.30	B	B	Ex-Situ	42	
		1.20			SV	42	
						52	
...slight ingress at 1.90m							▽
		2.00			Ex-Situ	34	
					SV	38	
						40	
...grey and soft below 2.80m with rare peaty pockets.							
End of Trial Pit at 3.10m		3.10					

Remarks:

1.Sides generally stable.
2.Slight water ingress encountered at 2.30m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP9
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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TP10

Project No: D41115

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass over brown gravelly sandy clay. Gravel is fine to coarse brick, concrete, quartzite and flint (MADE GROUND)							
		0.60 - 0.70	B	B			
Stiff brown mottled grey slightly silty CLAY (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	100	
		0.70				110	
						95	
		1.20			Ex-Situ SV	75	
						75	
						78	
		1.70					
Firm grey silty CLAY (TIDAL FLAT DEPOSITS) ...mottled slightly green between 1.90m and 2.10m		2.00 - 2.10	T	B/D			
...slight water ingress below 2.30m							▽
...becoming soft and grey below 2.65m with rare peaty pockets							
		3.70					
End of Trial Pit at 3.70m							

Remarks:
1.Sides generally stable.
2.Slight water seepages encountered below 2.30m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: Lincs Gateway - Phase 2			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** JCB 3CX	**Drawing No.** TP10
Date: 28/06/2021	**Approved:** DB		**Scale:** 1:30	

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WS1

Project No. D41115

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						
0.10 - 0.20	D	T		Brown sandy slightly clayey silt topsoil (TOPSOIL)		(0.30)			
						0.30			
				Stiff brown slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)		(0.40)			
						0.70			
				Loose brown very silty SAND (TIDAL FLAT DEPOSITS)					
1.00 - 1.45	C		5				1.00		
1.10 - 1.20	D	T							
				...water seepages below 1.50m				▽	
2.00 - 2.45	C		4						
				...becoming grey below 2.20m					
2.50 - 2.60	B	B							
						(4.30)			
3.00 - 3.45	C		6						
4.00 - 4.45	C		12	...becoming medium dense with depth					
5.00 - 5.45	C		15			5.00			
				End of Borehole at 5.00m					

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.50m.
3.In-situ shear vane value of 30kN/m² obtained at 1.00m.

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS1

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WS2

Project No. D41115

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						
				Brown sandy slightly clayey silt topsoil (TOPSOIL)		(0.30)			
						0.30			
0.40 - 0.50	B	B		Firm brown mottled orange slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)					
1.00 - 1.45	C		5	...water seepages below 1.00m			1.00	▽	
				...no clay below 1.00m					
2.00 - 2.45	C		0	...slightly clayey between 1.90m and 2.40m					
				...becoming grey below 2.10m. Poor recovery between 2.00m and 3.00m					
						(4.70)			
3.00 - 3.45	C		6						
3.50 - 3.60	D	T		...rare black organic staining below 3.50m					
4.00 - 4.45	C		10	...slightly clayey between 4.00m and 4.50m					
5.00 - 5.45	C		9			5.00			
				End of Borehole at 5.00m					

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.00m.
3.In-situ shear vane value of 30kN/m² obtained at 1.00m.
4.Plain pipe installed from ground to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS2

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WS3

Project No. D41115

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						
0.10 - 0.20	D	T		Brown sandy slightly clayey silt topsoil (TOPSOIL)		0.25			
				Firm brown mottled orange slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)					
0.80 - 0.90	B	B							
1.00 - 1.45	C		3	...water seepages below 1.00m		(1.75)	1.00	▽	
2.00 - 2.45	C		0	No core recovered between 2.00m and 4.00m (TIDAL FLAT DEPOSITS)		2.00			
3.00 - 3.45	C		0			(2.00)			
4.00 - 4.45	C		3	Firm brown mottled orange slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)		4.00			
						(0.60)			
				Firm grey slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		4.60			
				...becoming brown below 4.80m		(0.40)			
5.00 - 5.45	C		5	End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.00m.
3.No recovery between 2.00m and 4.00m.
4.In-situ shear vane value of 62kN/m² obtained at 1.00m.

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS3

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WS4

Project No. D41115

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						
				Brown sandy slightly clayey silt topsoil (TOPSOIL)		(0.30)			
0.30 - 0.80	B	LB		Firm grey-brown and orange sandy SILT (TIDAL FLAT DEPOSITS)		0.30			
0.50 - 1.00	D/J	TJ				(0.50)			
				Firm becoming soft to firm brown sandy very silty CLAY (TIDAL FLAT DEPOSITS)		0.80			
1.00 - 1.45	C		0	...water seepages below 1.00m				▽	
						(1.20)			
2.00 - 2.45	C		0	No core recovery between 2.00m and 5.00m (TIDAL FLAT DEPOSITS)		2.00			
3.00 - 3.45	C		0						
						(3.00)			
4.00 - 4.45	C		0						
5.00 - 5.45	C		3	End of Borehole at 5.00m		5.00	5.00		

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.00m.
3.No recovery between 2.00m and 5.00m.
3.In-situ shear vane value of 40kN/m² obtained at 1.00m.

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS4

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WS5

Project No. D41115

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						
0.10 - 0.20	D	T		Brown sandy slightly clayey silt topsoil (TOPSOIL)		(0.30)			
						0.30			
				Firm brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)					
0.50 - 1.00	D/J	TJ				(0.40)			
						0.70			
				Firm brown slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)					
1.00 - 1.45	C		1				1.00		
1.20 - 1.30	B	B							
				...water seepages below 1.70m				▽	
2.00 - 2.45	C		0						
				...becoming soft and grey with black organic staining and small peaty pockets below 2.50m					
						(4.30)			
3.00 - 3.45	C		0						
4.00 - 4.45	C		0						
5.00 - 5.45	C		0			5.00			
				End of Borehole at 5.00m					

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.70m.
3.In-situ shear vane value of 62kN/m² obtained at 1.00m.
4.Plain pipe installed from ground to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS5

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WS6

Project No. D41115

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						
				Brown sandy slightly clayey silt topsoil (TOPSOIL)		(0.30)			
						0.30			
0.40 - 0.50	D	T		Firm brown sandy slightly clayey SILT (TIDAL FLAT DEPOSITS)					
				...land drain at 0.50m		(0.60)			
						0.90			
1.00 - 1.45	C		1	Soft to firm orange-brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)			1.00		
						1.10			
				Soft brown silty CLAY (TIDAL FLAT DEPOSITS)		(0.40)			
						1.50			
				No core recovery between 1.50m and 3.00m (TIDAL FLAT DEPOSITS) ...water seepages below 1.50m					
2.00 - 2.45	C		0						
						(1.50)			
3.00 - 3.45	C		0	Soft grey silty CLAY (TIDAL FLAT DEPOSITS)		3.00			
4.00 - 4.45	C		2			(2.00)			
5.00 - 5.45	C		0			5.00			
				End of Borehole at 5.00m					

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages at 1.50m.
3.No recovery between 1.50m and 3.00m.
4. In-situ shear vane value of 34kN/m² obtained at 1.00m.

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	30/06/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS6

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WS7

Project No. D41115

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						
				Mixture of grey brown silty clay and light brown sandy silt (MADE GROUND)					
0.50 - 0.60	D	T1				(1.00)			
1.00 - 1.45	C		4	Soft grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00	1.00		
						(0.65)			
				Firm light brown very sandy SILT (TIDAL FLAT DEPOSITS)		1.65			
						(0.35)			
2.00 - 2.45	C		0	Soft grey silty CLAY (TIDAL FLAT DEPOSITS) ...with peaty pockets between 2.00m and 2.40m		2.00			
3.00 - 3.45	C		2						
						(3.00)			
4.00 - 4.45	C		4						
5.00 - 5.45	C		7			5.00			
				End of Borehole at 5.00m					

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 1.50m.
3.In-situ shear vane value of 30kN/m² obtained at 1.00m.
4.Plain pipe installed from ground to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	PK	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	09/07/2021	**Approved:**	DB	BG21/01	**Scale:**	1:25	WS7

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WS8

Project No. D41115

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						
				Brown clayey gravelly sand. Gravel is quartzite and limestone (MADE GROUND)		0.15			
				Very loose sandy gravel. Gravel is quartzite, limestone and macadam (MADE GROUND)		(0.55)			
				Grey silty organic clay (TIDAL FLAT DEPOSITS)		0.70			
1.00 - 1.45	C		8			(0.60)			
				Firm light grey sandy SILT (TIDAL FLAT DEPOSITS)		1.30			
1.80 - 2.00	B	B1				(0.50)			
				Soft light grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.80			
2.00 - 2.45	C		0	No core recovery between 2.00m and 3.00m (TIDAL FLAT DEPOSITS)		2.00			
						(1.00)			
3.00 - 3.45	C		0	End of Borehole at 3.00m		3.00	3.00	▽	

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Sides stable below 1.00m.
2.Water seepages encountered at base of hole.

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	PK	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	09/07/2021	**Approved:**	DB	BG21/01	**Scale:**	1:25	WS8

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WS9

Project No. D41115

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						
				Dark brown loose gravelly silt with macadam and brick fragments (MADE GROUND)		0.25			
0.50 - 0.60	D	T2		Brown sandy gravelly clay. Gravel is brick, limestone and quartzite (MADE GROUND)		(0.45)			
				Grey clayey organic silt (MADE GROUND)		0.70			
						(0.75)	1.00		
				Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.45			
				...becoming soft and damp below approximately 2.00m					
				...with root remains below 2.40m					
				...peaty pockets with depth					
				...becoming very soft below approximately 3.00m		(3.55)			
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 5.00m.
3.In-situ shear vane value of 30kN/m² obtained at 1.00m.
4.Plain pipe installed from ground to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	PK	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	09/07/2021	**Approved:**	DB	BG21/01	**Scale:**	1:25	WS9

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WS10

Project No. D41115

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						
				Loose brown gravelly clay. Gravel composed of limestone, quartzite and brick (MADE GROUND)		0.20			
				Light grey gravelly clay. Gravel composed of limestone, quartzite and brick (MADE GROUND)		0.45			
0.50 - 1.00	D	T3		Dark grey silt (MADE GROUND)		0.70			
				Firm light grey sandy SILT (TIDAL FLAT DEPOSITS) ...becoming softer with depth		(0.50)	1.00		
				Soft light brown sandy SILT (TIDAL FLAT DEPOSITS)		1.20			
						(1.20)			
				Soft light brown silty CLAY (TIDAL FLAT DEPOSITS) ...becoming softer with depth		2.40			
				...peaty pockets below 3.70m		(2.40)			
				Very soft dark grey SILT (TIDAL FLAT DEPOSITS)		4.80			
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.No water encountered.
3.In-situ shear vane value of 30kN/m² obtained at 1.00m.
4.Plain pipe installed from ground to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	PK	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	09/07/2021	**Approved:**	DB	BG21/01	**Scale:**	1:25	WS10

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WS11

Project No. D41115

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						
				Brown gravelly silt. Gravel is limestone, quartzite and brick (MADE GROUND)		0.15			
				Firm brown clayey silt (MADE GROUND)		0.40			
0.40 - 1.00	B	B2		Firm light brown clayey SILT (TIDAL FLAT DEPOSITS) ...becoming softer with depth		(0.95)	1.00		
				Firm light grey sandy CLAY (TIDAL FLAT DEPOSITS)		1.35			
						(0.65)			
				No core recovery between 2.00m and 2.70m (TIDAL FLAT DEPOSITS)		2.00			
						(0.70)			
				Soft grey silty CLAY (TIDAL FLAT DEPOSITS) ...water encountered at 2.80m		2.70		▽	
				...becoming very soft with increasing depth		(2.30)			
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 1.00m as a precautionary measure. Borehole sides unstable below 4.00m.
2.Water seepages encountered at 2.80m.
3.No core recovery between 2.00m and 2.70m.

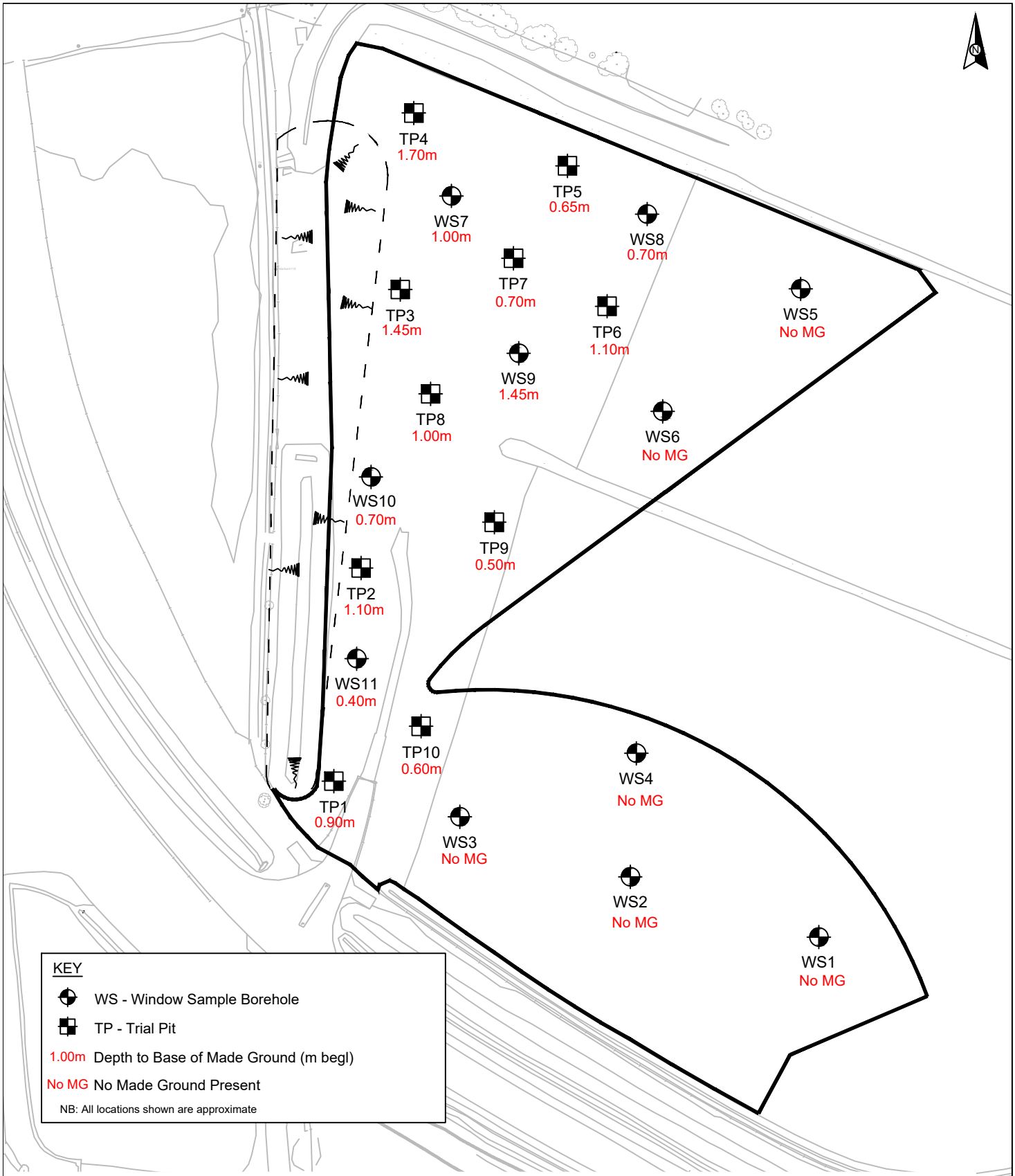
Key

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:	Lincs Gateway - Phase 2			**Client:**	Ashwood Homes		
Logged:	PK	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	09/07/2021	**Approved:**	DB	BG21/01	**Scale:**	1:25	WS11

APPENDIX X

Plan Showing Depth to Base of Made Ground
(Figure No. D41115/05)



Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DRAFT
		Approved By	DRAFT
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	20/07/2021
Title	Exploratory Hole Location Plan	Revision	
		Figure No.	D41115/05

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APPENDIX XI

Plates



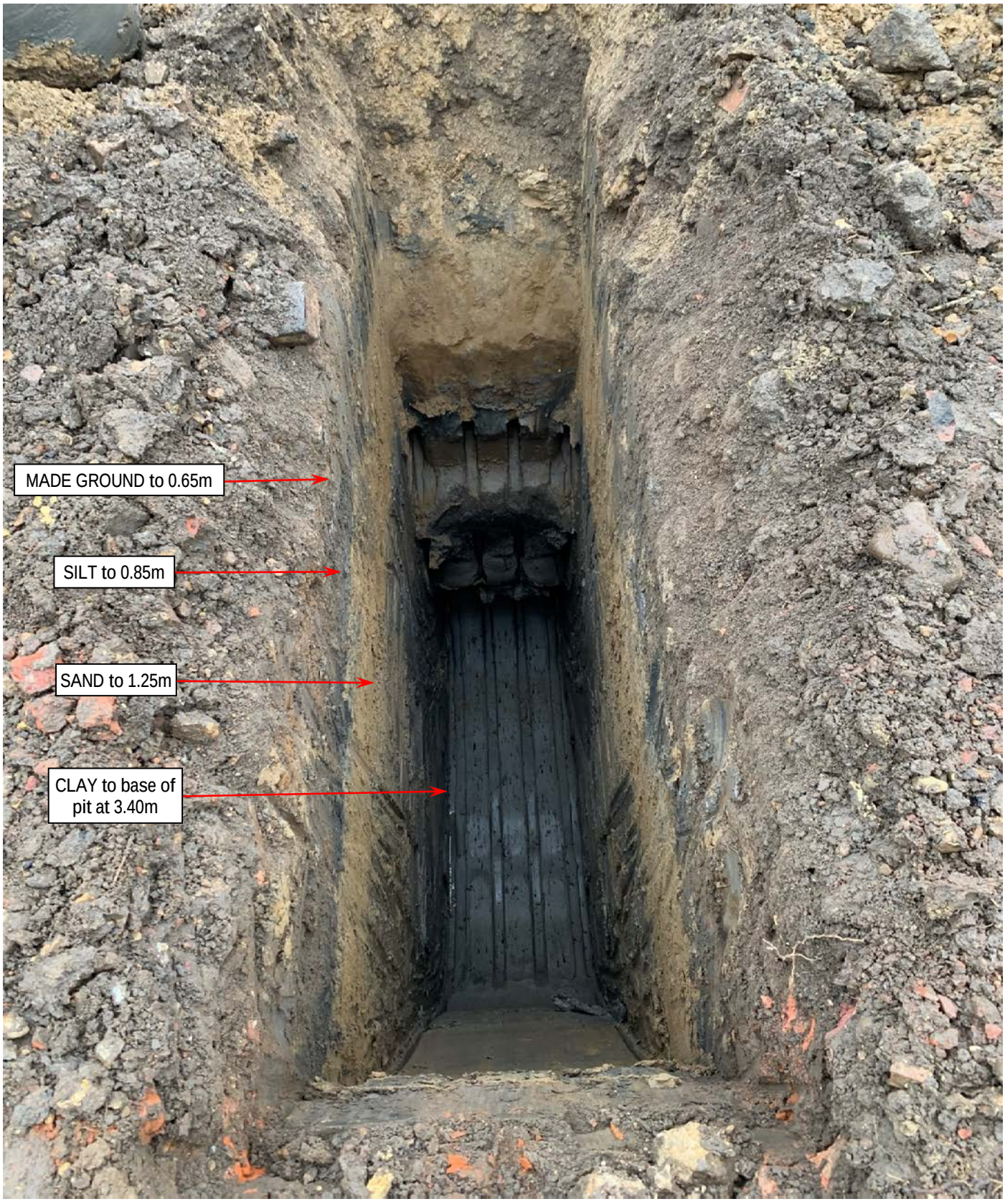
Project No.	D41115	Drawn	SJ
Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
		Rev.	
Title	TP1 - completed excavation	Plate No.	1

GeoDyne



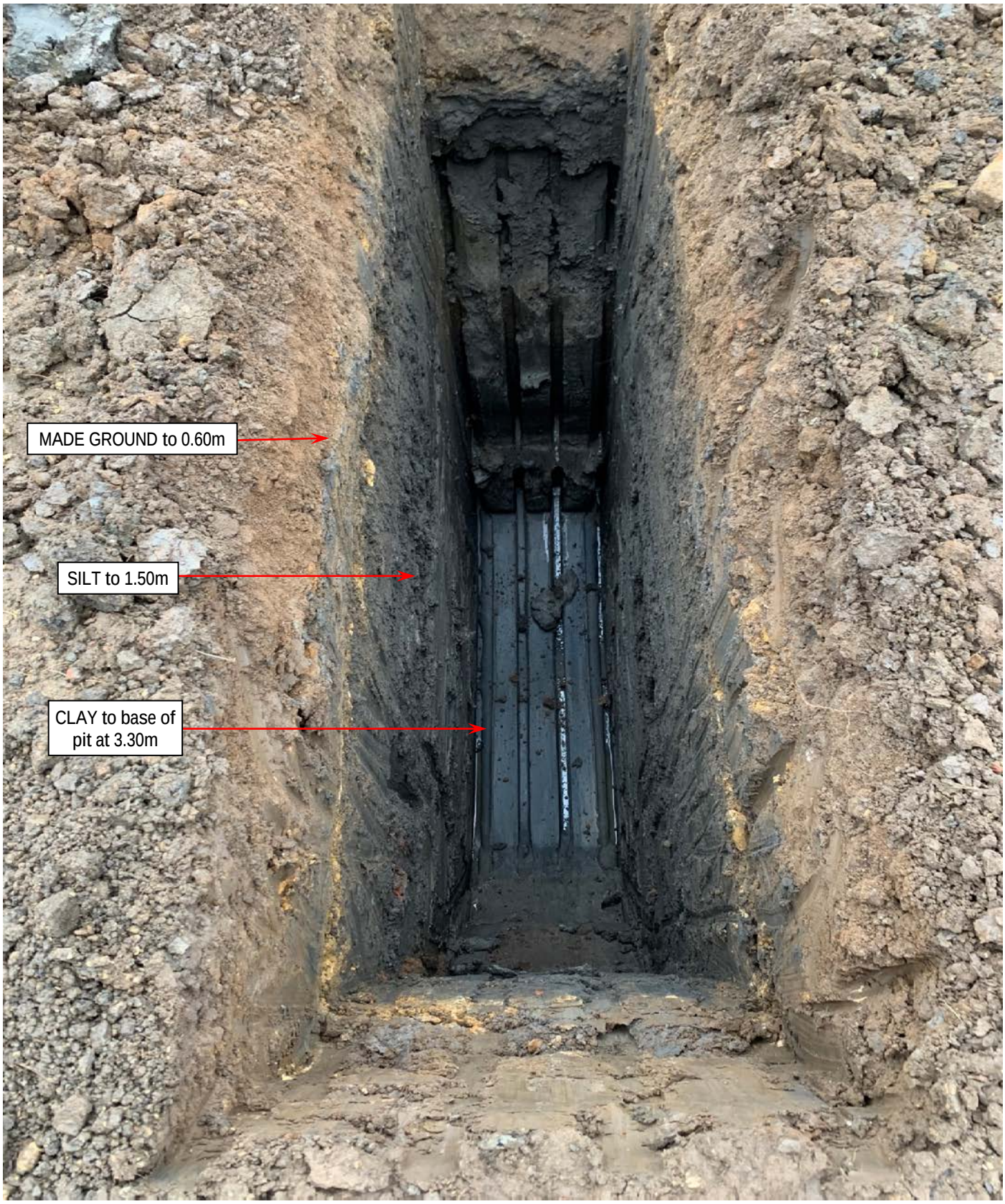
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Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	TP3 - completed excavation	Rev.	
		Plate No.	2

GeoDyne



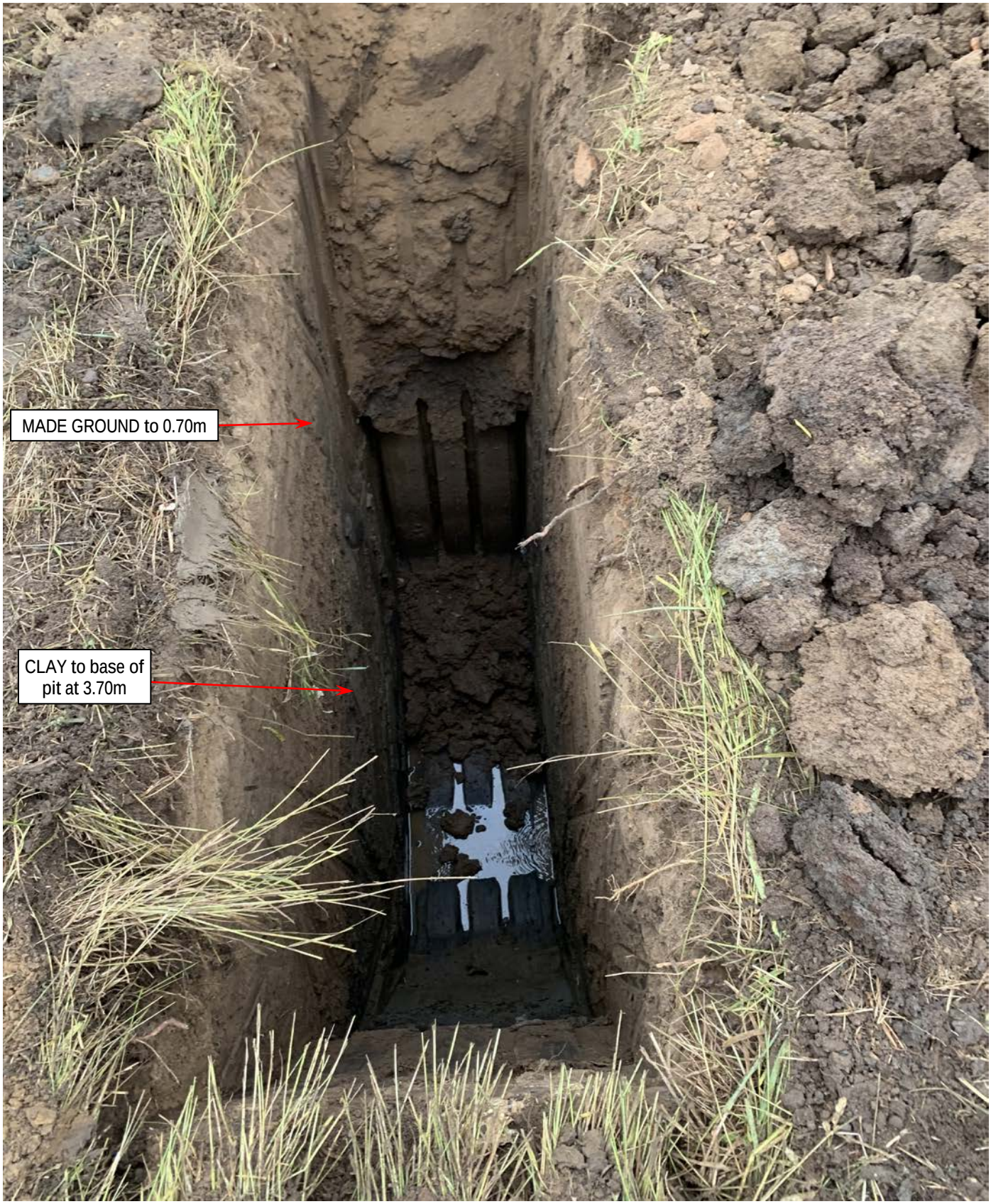
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Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	TP5 - completed excavation	Rev.	
		Plate No.	3

GeoDyne



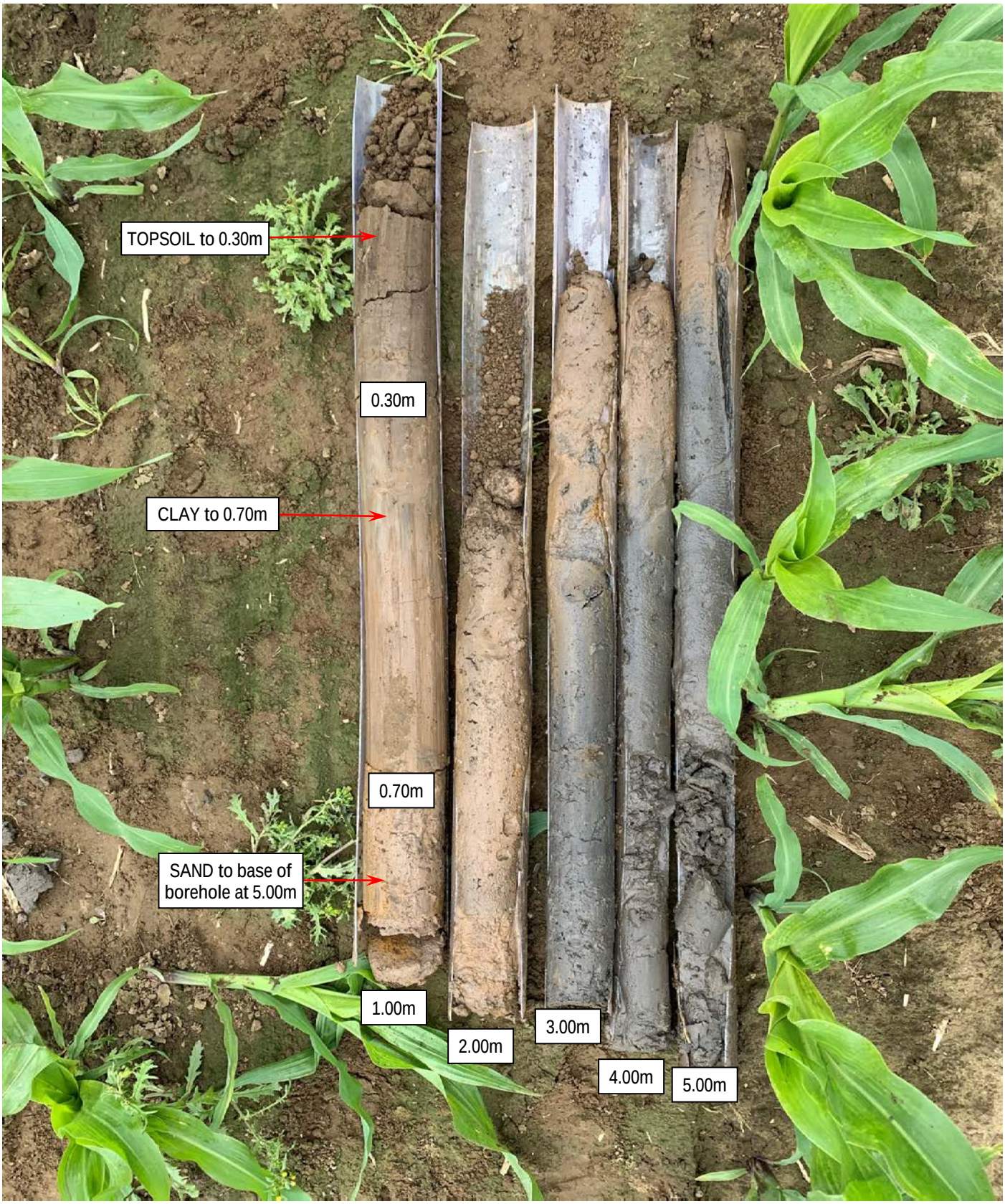
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Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	TP7 - completed excavation	Rev.	
		Plate No.	4

GeoDyne



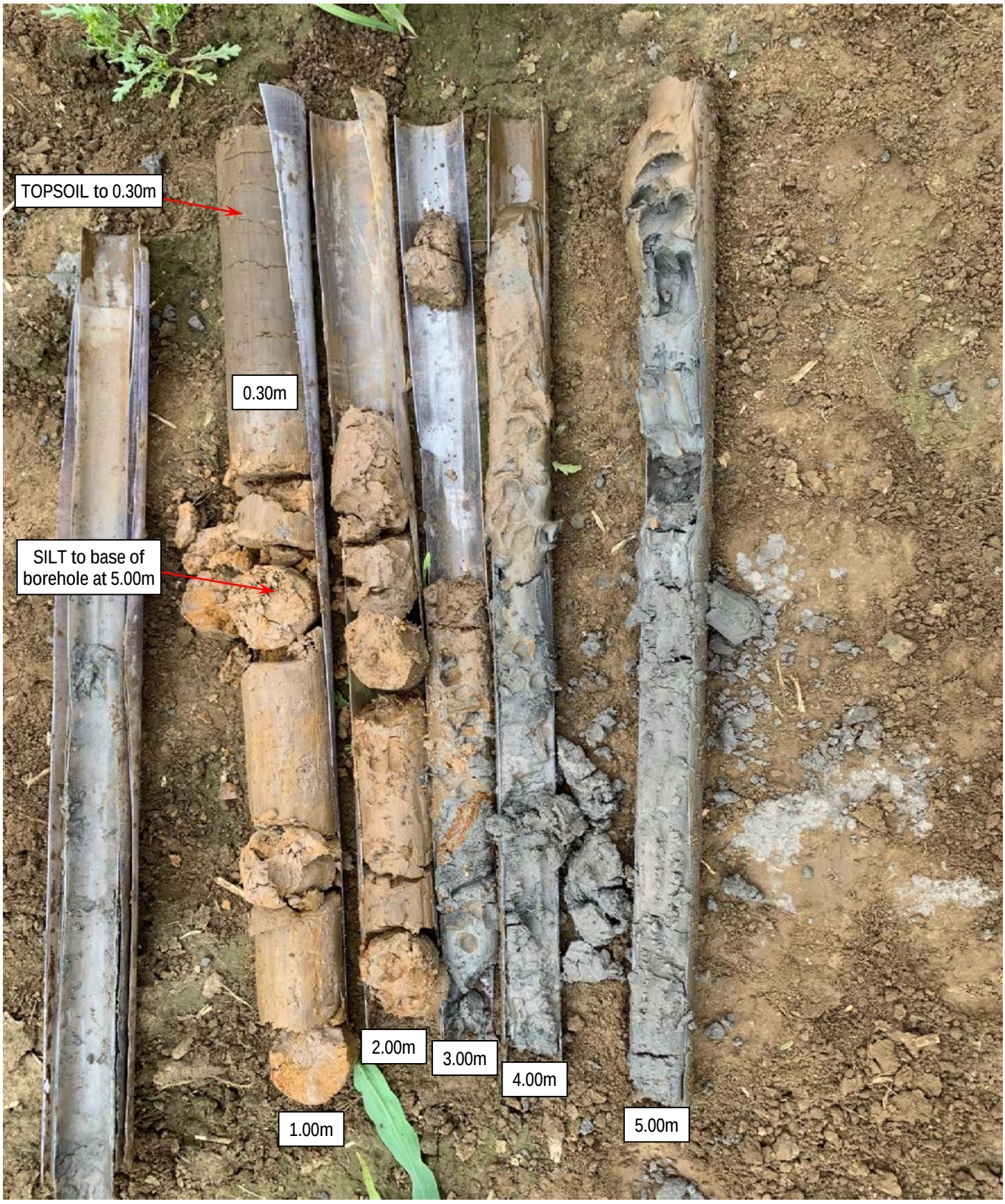
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Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
		Rev.	
Title	TP10 - completed excavation	Plate No.	5

GeoDyne



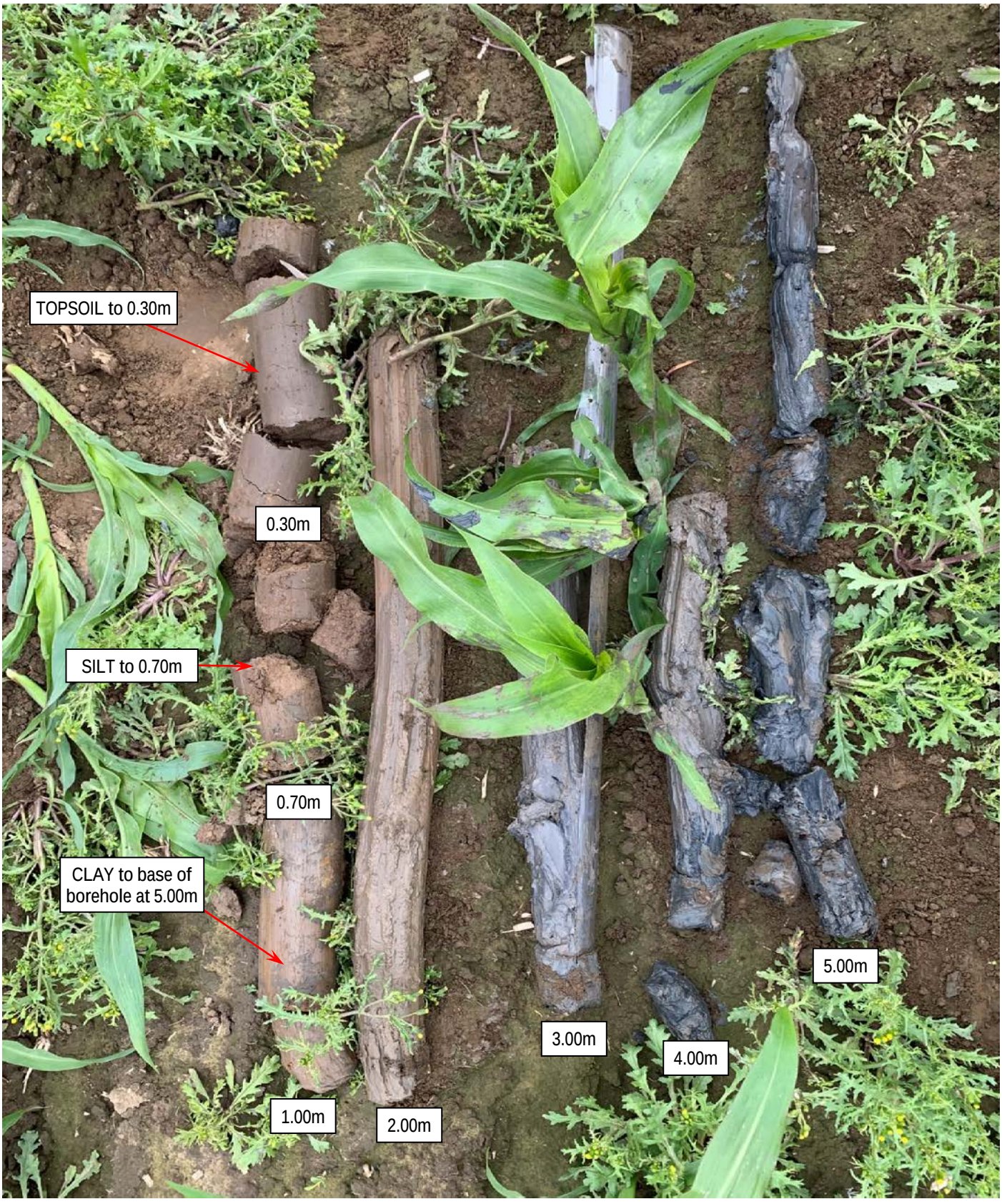
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Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
		Rev.	
Title	WS1 - Recovered cores	Plate No.	6

GeoDyne



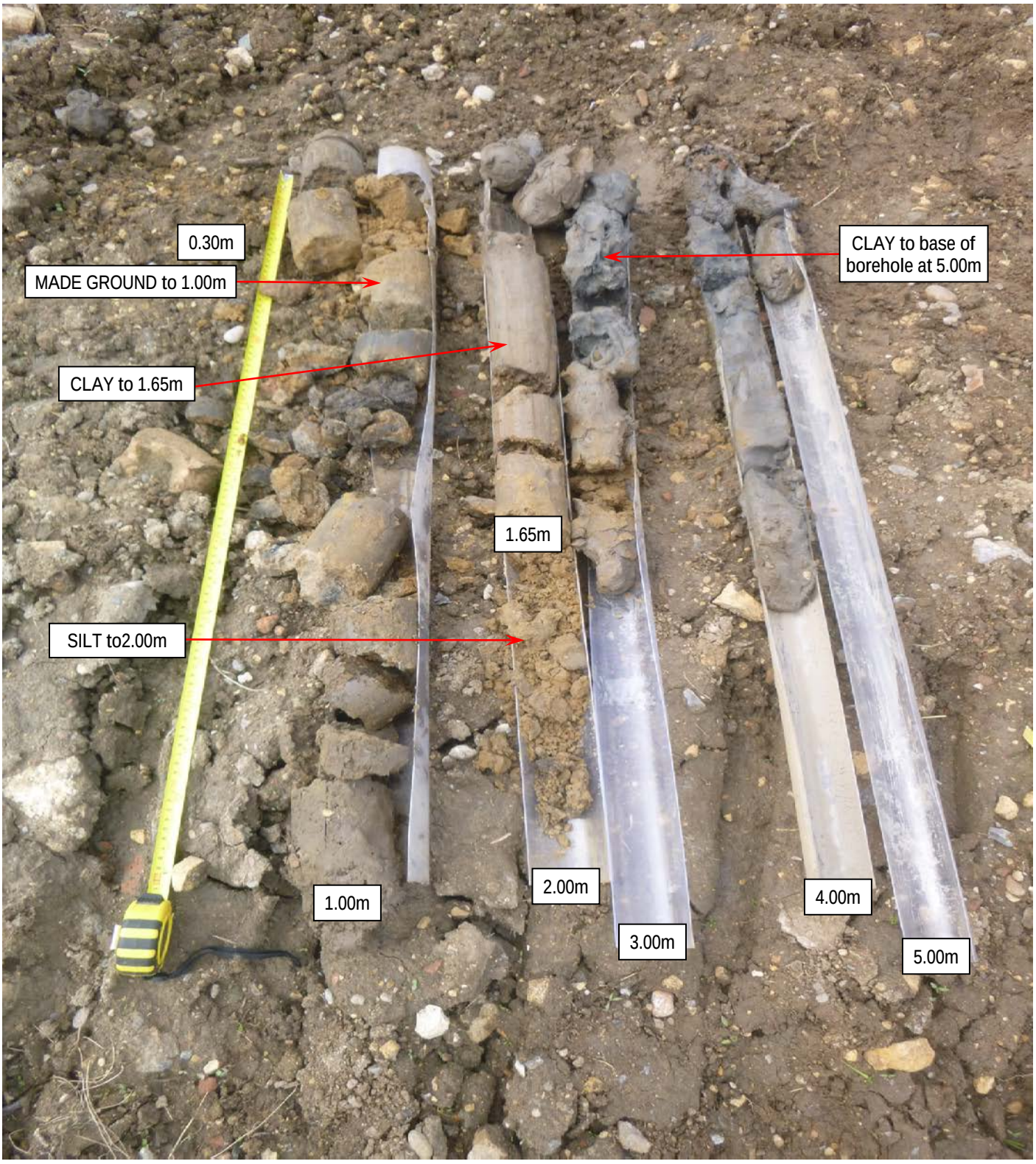
Project No.	D41115	Drawn	SJ
Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	WS2 - Recovered cores	Rev.	
		Plate No.	7

GeoDyne



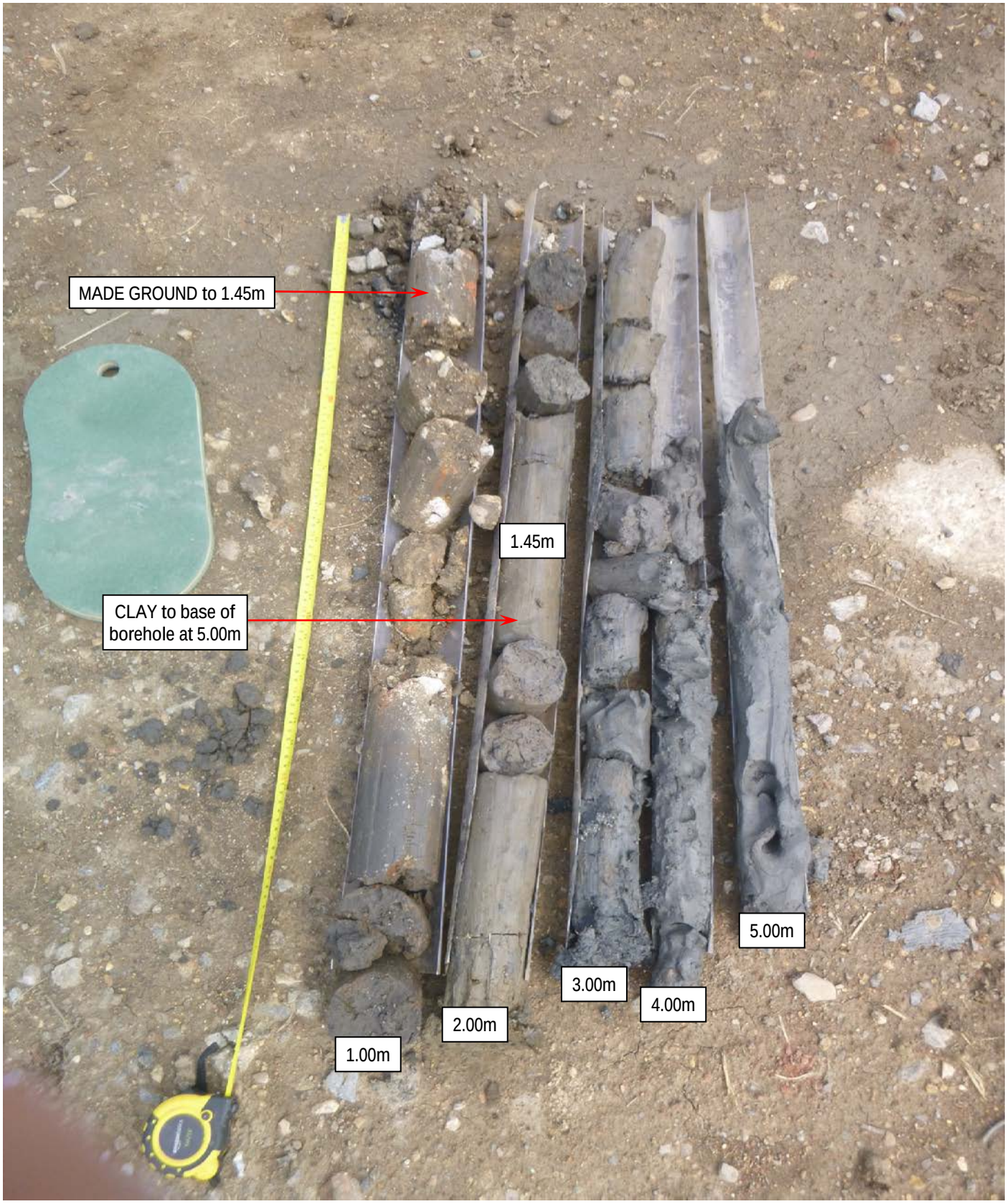
Project No.	D41115	Drawn	SJ
Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
		Rev.	
Title	WS5 - Recovered cores	Plate No.	8

GeoDyne



Project No.	D41115	Drawn	SJ
Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	WS7 - Recovered cores	Rev.	
		Plate No.	9

GeoDyne



Project No.	D41115	Drawn	SJ
Client	Ashwood Homes	Checked	DB
		Approved	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	WS9 - Recovered cores	Rev.	
		Plate No.	10

GeoDyne

GeoDyne

APPENDIX XII

Laboratory Soil Test Results

Kiwa CMT

Client: GeoDyne Ltd.
Unit 2.2 Clarendon House
Clumber Park
Clumber Avenue
Nottingham
NG5 1AH

Date: 18th August 2021

Lab Ref: 63594

Originator: Gavin Hallam

Order Ref: D41115/GH

Site: Lincs Gateway Phase 2

Kiwa CMT Testing
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
F +44 (0)1332 602607
E cmtenquiries@kiwa.co.uk

www.kiwa.co.uk/cmt

Samples:

11No. samples weighing between 1kg and 15kg each were sampled by the client and delivered to Kiwa CMT Testing on 2nd July 2021. Sampling certificates were not provided.

Requirements:

Determine the Plasticity Index and Water Content of 8No. samples in accordance with **BS EN ISO 17892-12:2018** and **BS EN ISO 17892-1:2014** respectively, the CBR Value of 3 No. soaked samples in accordance with **BS1377-4:1990** and the Particle Size Distribution in accordance with **BS1377-2:1990** of 2No. samples.

Note: Soaked CBR subcontracted.

Results:

The individual results sheets may be viewed on pages 2 to 4 of this report and relate solely to the samples provided.

Kiwa CMT Testing

Author: L Anaz
Technical Administrator

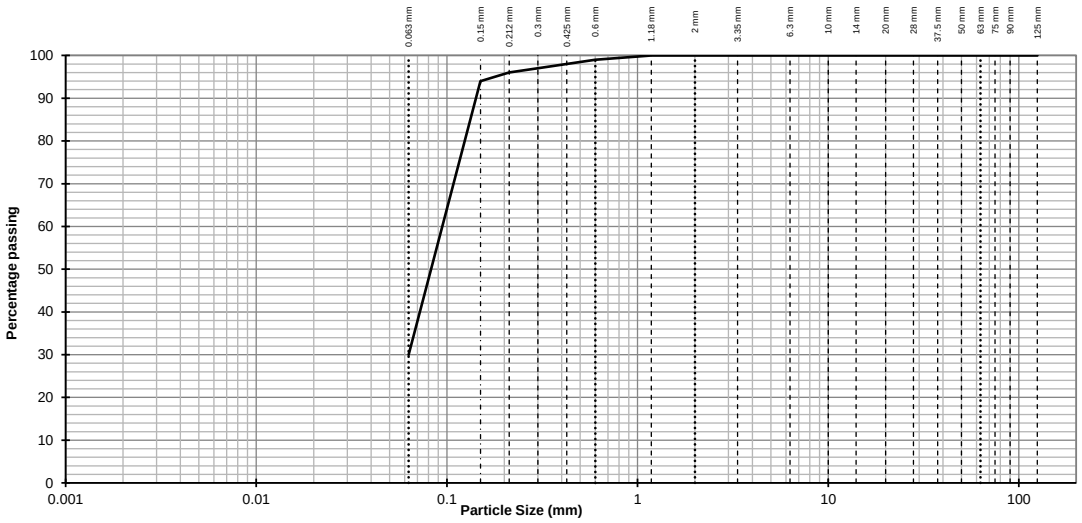
Checked and Approved by: J Eckford
Senior Geotechnical Technician

Kiwa CMT

Particle Size Distribution

Client:	GeoDyne Ltd.	**Sample ref:**	63594/WS1 2.50-2.60m	**Date Tested:**	07-14/07/2021	**Sampled by:**	Client
Site:	Lincs Gateway Phase 2	**Sampling cert.:**	Not given	**Sample size:**	1kg Approx.	**Source:**	Site
		Lab ref.:	63594	**Description:**	Grey very silty SAND		

Sieve Size (mm)	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	99
0.425	98
0.3	97
0.212	96
0.15	94
0.063	30



Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	70
Silt/Clay	30

Comments: Test carried out in accordance with **BS1377: Part 2: 1990: Clause 9.2**
Uniformity coefficient = 5 (For information only)

Kiwa CMT Testing

Signed: J Eckford
Senior Geotechnical Technician

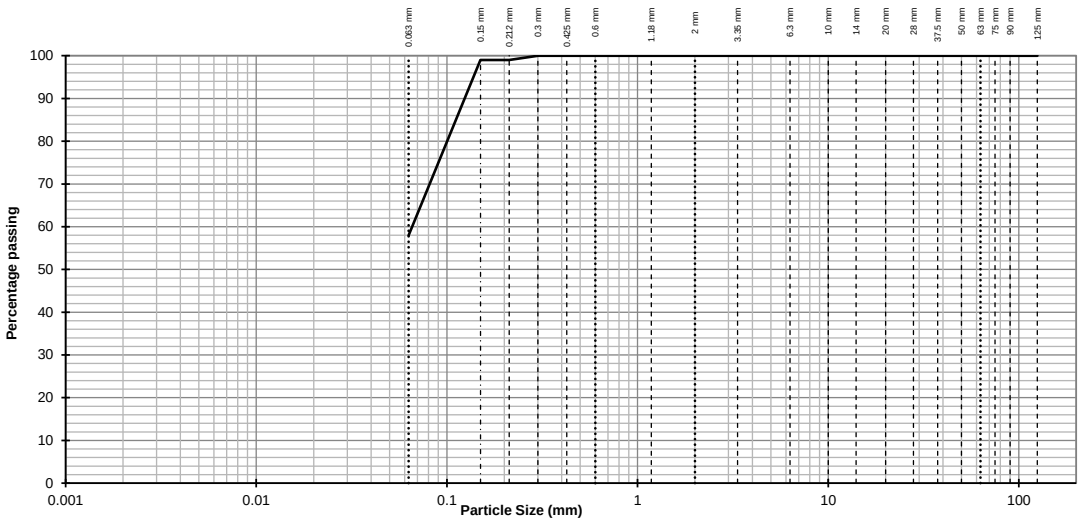
UKAS TESTING
0529

Kiwa CMT

Particle Size Distribution

Client:	GeoDyne Ltd.	**Sample ref:**	63594/WS2 0.40-0.50m	**Date Tested:**	07-14/07/2021	**Sampled by:**	Client
Site:	Lincs Gateway Phase 2	**Sampling cert.:**	Not given	**Sample size:**	2kg Approx.	**Source:**	Site
		Lab ref.:	63594	**Description:**	Light brown sandy SILT		

Sieve Size (mm)	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	100
0.212	99
0.15	99
0.063	58



Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL		COBBLES

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	42
Silt/Clay	58

Comments: Test carried out in accordance with **BS1377: Part 2: 1990: Clause 9.2**
Uniformity coefficient = 6 (For information only)

Kiwa CMT Testing

Signed: J Eckford
Senior Geotechnical Technician

UKAS TESTING
0529

Kiwa CMT

Certificate of Analysis for Plasticity Index & Water Content

Client: GeoDyne

Site: Lincs Gateway Phase 2

Lab Ref: 63594

Date of Test: 07-21/07/2021

Test Methods: BS EN ISO 17892-12:2018 - Liquid Limit/Plastic Limit/Plasticity Index - Fall Cone Method
BS EN ISO 17892-1:2014 - Water Content

Results:

Sample Ref	Material Description	LL Cone Data			LL (%)	PL (%)	PI (%)	% Retained on 425µm	Modified PI (%)*	Soil Classification	WC (%)
		Cone Pen	Water %	Factor							
63594/TP1 1.00-1.10m	Brown very silty CLAY	24.6 24.8	34.6 34.5	0.9543	33	19	14	2	14	CL	24.2
63594/TP3 1.70-1.80m	Grey silty CLAY	18.0 17.6	63.8 64.2	1.0398	67	30	37	0	37	CH	75.1
63594/TP9 1.20-1.30m	Brown sandy CLAY	18.6 18.2	62.2 62.2	1.0288	64	28	36	0	36	CH	48.9
63594/TP10 0.60-0.70m	Brown silty CLAY	18.8 18.4	40.0 39.9	1.0276	41	21	20	0	20	CI	27.2
63594/WS1 2.50-2.60m	Grey very silty SAND					Non plastic		2			42.5
63594/WS2 0.40-0.50m	Light brown sandy SILT	19.0 19.2	29.6 29.7	1.0135	30	17	13	0	13	CL	22.9
63594/WS3 0.80-0.90m	Light brown clayey SILT	21.0 21.2	34.5 34.7	0.9827	34	17	17	2	17	CL	26.4
63594/WS5 1.20-1.30m	Brown CLAY	18.6 18.2	61.7 61.7	1.0288	63	27	36	0	36	CH	51.5

The samples tested were disturbed and in their natural condition.
LL Test method - Fall Cone / One Point / Cone Spec 80g / 30 degrees
* Modified plasticity index relates to BRE Digest 240.
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = Water Content
BRE Digest 240 is not included in the UKAS schedule for this Laboratory.

Kiwa CMT Testing



Signed: J Eckford
Senior Geotechnical Technician

UKAS TESTING
0529

Kiwa CMT

celtest
INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Kiwa CMT (Testing) Ltd
Prime Parkway,
Prime Enterprise Park
Derby
DE1 3QB

Date: 18 August 2021
Test Report Ref: TR 817115

Order No: 32403

Page 1 of 3

Contract: Lincs Gateway Phase 2 - D41115

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Laboratory California Bearing Ratio of sample in accordance with **BS 1377: Part 4: Clause 7: 1990**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S96241**
Client Ref. No:	**63594/WS4 0.3-0.8m**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**08/07/2021**
Date of Start of Test:	**06/08/2021**
Sampling Location:	**WS4 0.3-0.8m**
Name of Source:	**WS4 0.3-0.8m**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**EM**
Material Description:	**Sandy Clay**
Target Specification:	**N/A**

RESULTS:

See attached

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These results relate only to the items tested.

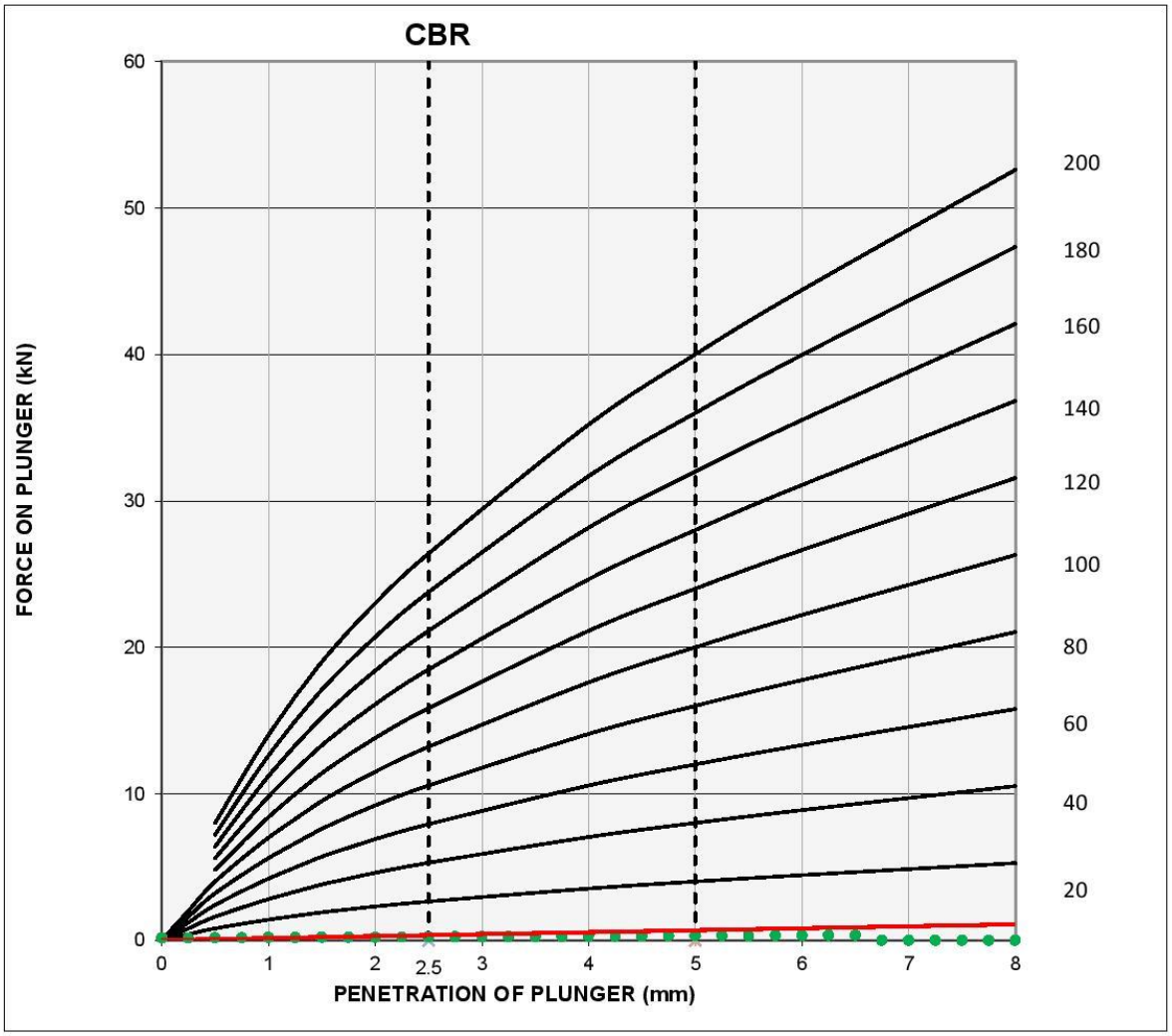
Comments:	Report checked and approved by:
Corrections are carried out in accordance with BS 1377 : Part 4: Clause 7: 1990 if applicable	N. Hughes Neil Hughes Technical Coordinator

Kiwa CMT

celtest
INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817115 - Page 2 of 3

Reference: 63594/WS4 0.3-0.8m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content(%): 23.5		Dry Density (Mg/m3): 1.564
CBR Value / Top (%): 1.8 (2 Sig Figures)		
Swell: 0.43		

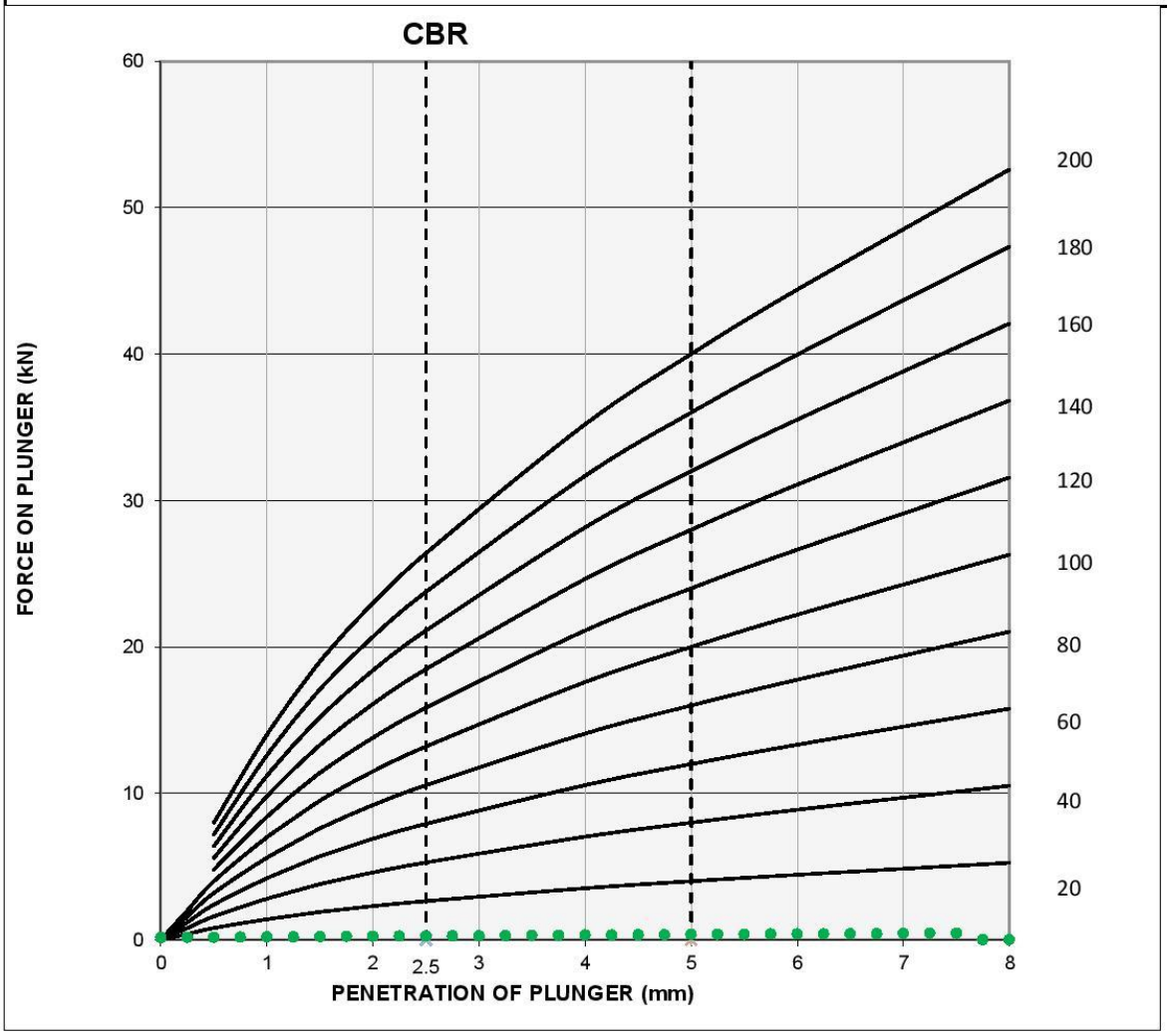


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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817115 - Page 3 of 3

Reference: 63594/WS4 0.3-0.8m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content (%): 21.7	Dry Density (Mg/m3): 1.564	
CBR Value / Bottom (%): 2 (2 Sig Figures)		
Swell: 0.43		



Kiwa CMT

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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Kiwa CMT (Testing) Ltd
Prime Parkway,
Prime Enterprise Park
Derby
DE1 3QB

Date: 17 August 2021
Test Report Ref: TR 817116

Order No: 32403

Page 1 of 3

Contract: Lincs Gateway Phase 2 - D41115

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Laboratory California Bearing Ratio of sample in accordance with **BS 1377: Part 4: Clause 7: 1990**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S96241**
Client Ref. No:	**63594/TP5 0.5-1.0m**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**08/07/2021**
Date of Start of Test:	**06/08/2021**
Sampling Location:	**TP5 0.5-1.0m**
Name of Source:	**TP5 0.5-1.0m**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**EM**
Material Description:	**Sandy Clay**
Target Specification:	**N/A**

RESULTS:

See attached

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These results relate only to the items tested.

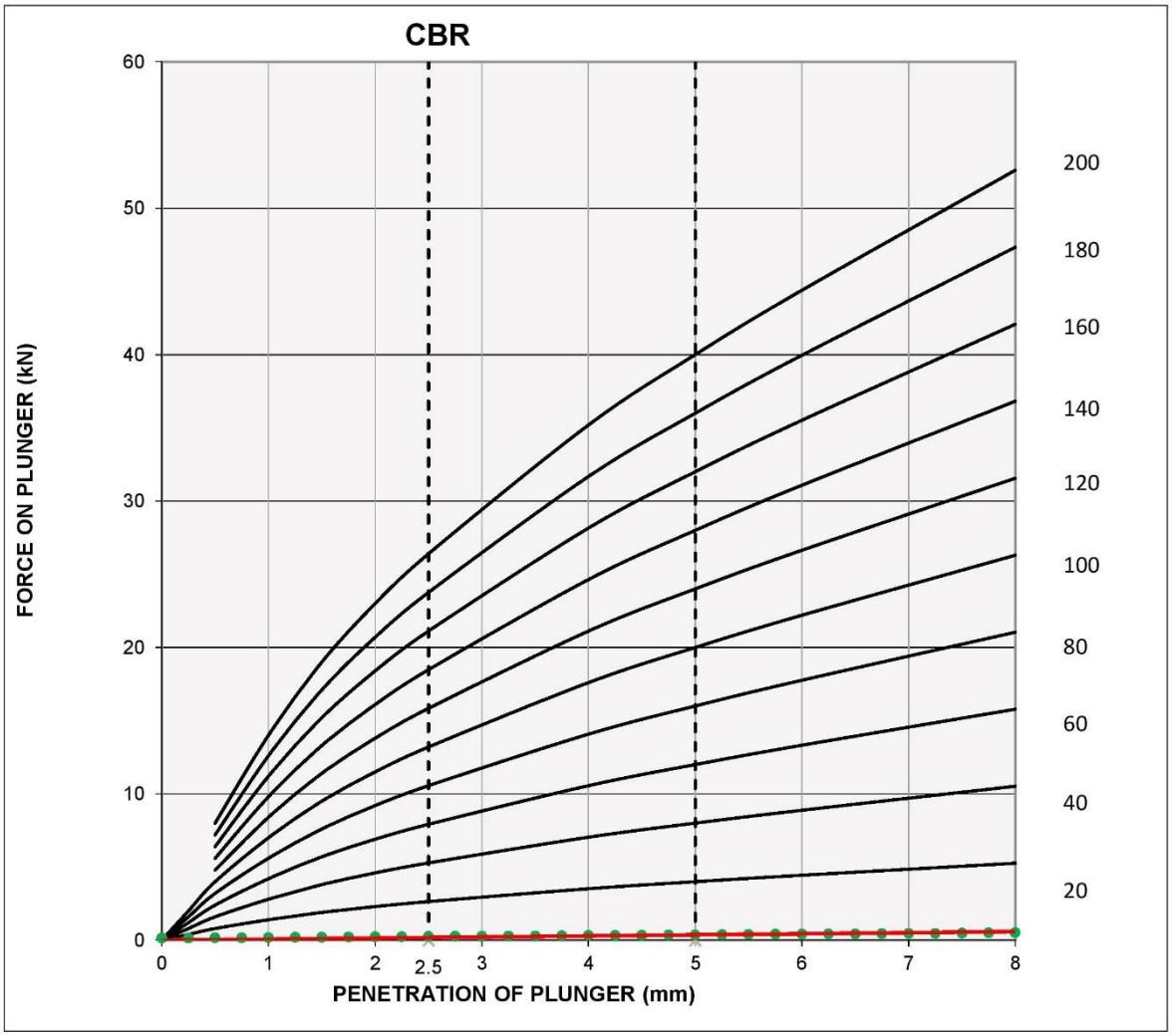
Comments:	Report checked and approved by:
Corrections are carried out in accordance with BS 1377 : Part 4: Clause 7: 1990 if applicable	N. Hughes Neil Hughes Technical Coordinator

Kiwa CMT

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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817116 - Page 2 of 3

Reference: 63594/TP5 0.5-1.0m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content(%): 24.7		Dry Density (Mg/m3): 1.581
CBR Value / Top (%): 2 (2 Sig Figures)		
Swell: 0.32		

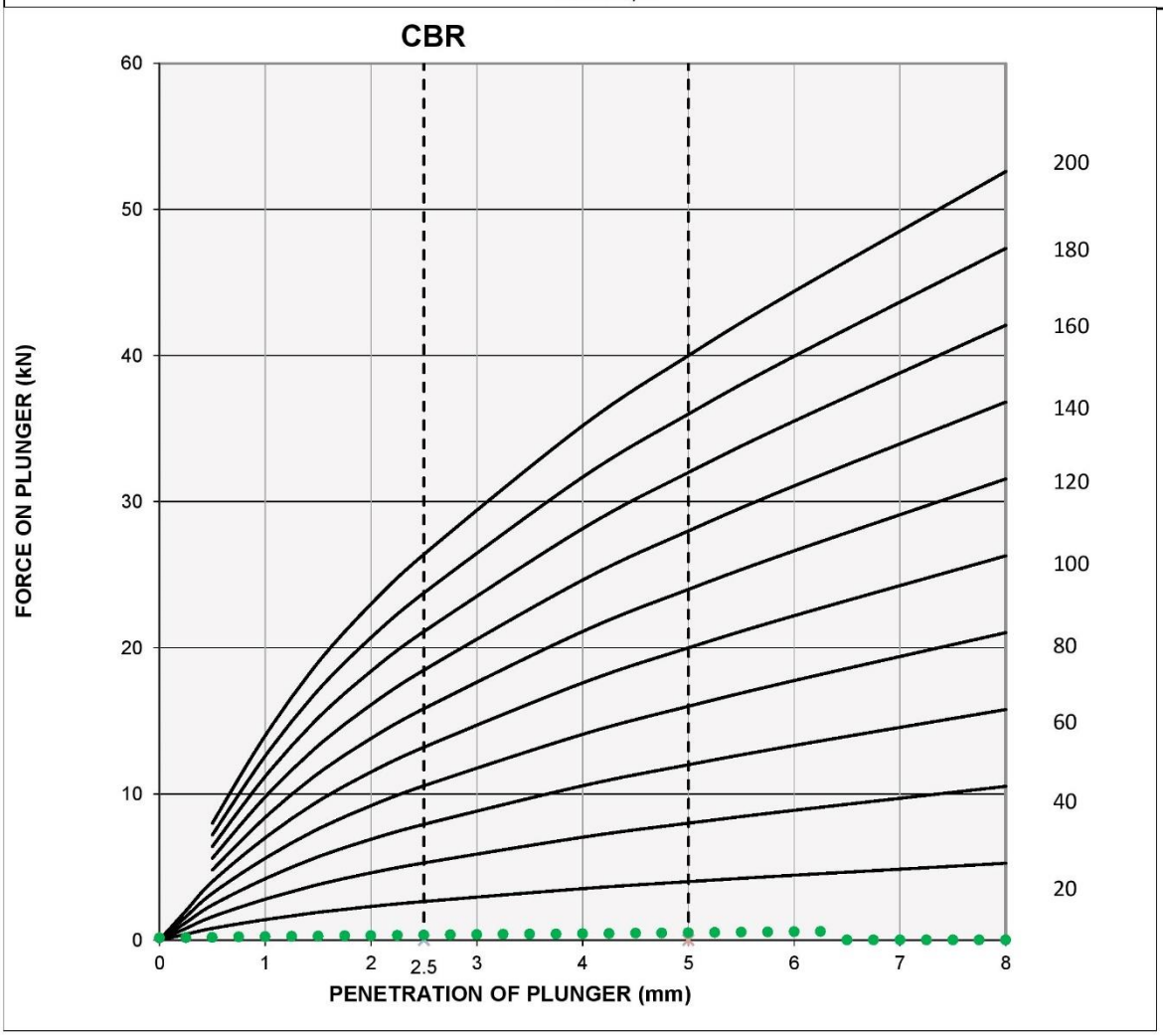


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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817116 - Page 3 of 3

Reference: 63594/TP5 0.5-1.0m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content (%): 25.3		Dry Density (Mg/m3): 1.581
CBR Value / Bottom (%): 2.5 (2 Sig Figures)		
Swell: N/A		



Kiwa CMT

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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Kiwa CMT (Testing) Ltd
Prime Parkway,
Prime Enterprise Park
Derby
DE1 3QB

Date: 18 August 2021
Test Report Ref: TR 817117

Order No: 32403

Page 1 of 3

Contract: Lincs Gateway Phase 2 - D41115

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Laboratory California Bearing Ratio of sample in accordance with **BS 1377: Part 4: Clause 7: 1990**

SAMPLE DETAILS:

Certificate of sampling received:	**No**
Laboratory Ref. No:	**S96241**
Client Ref. No:	**63594/TP8 0.4-0.9m**
Date and Time of Sampling:	**Unknown**
Date of Receipt at Lab:	**08/07/2021**
Date of Start of Test:	**06/08/2021**
Sampling Location:	**TP8 0.4-0.9m**
Name of Source:	**TP8 0.4-0.9m**
Method of Sampling:	**Unknown**
Sampled By:	**Client (Test results apply to sample as received)**
Tested By:	**EM**
Material Description:	**Sandy Clay**
Target Specification:	**N/A**

RESULTS:

See attached

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

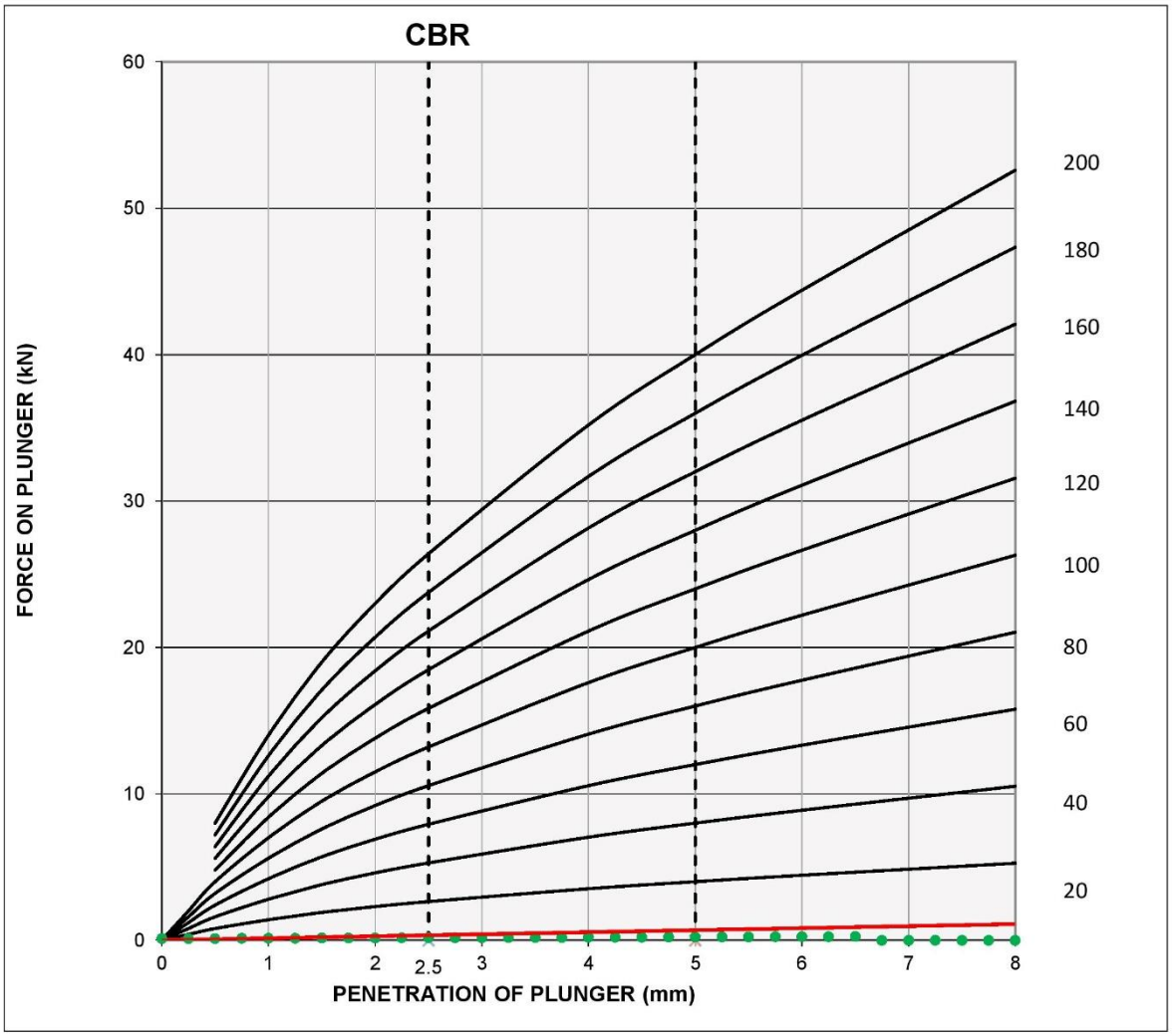
Comments:	Report checked and approved by:
Corrections are carried out in accordance with BS 1377 : Part 4: Clause 7: 1990 if applicable	N. Hughes Neil Hughes Technical Coordinator

Kiwa CMT

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INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817117 - Page 2 of 3

Reference: 63594/TP8 0.4-0.9m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content(%): 29.2		Dry Density (Mg/m3): 1.503
CBR Value / Top (%): 1.3 (2 Sig Figures)		
Swell: 0.50		

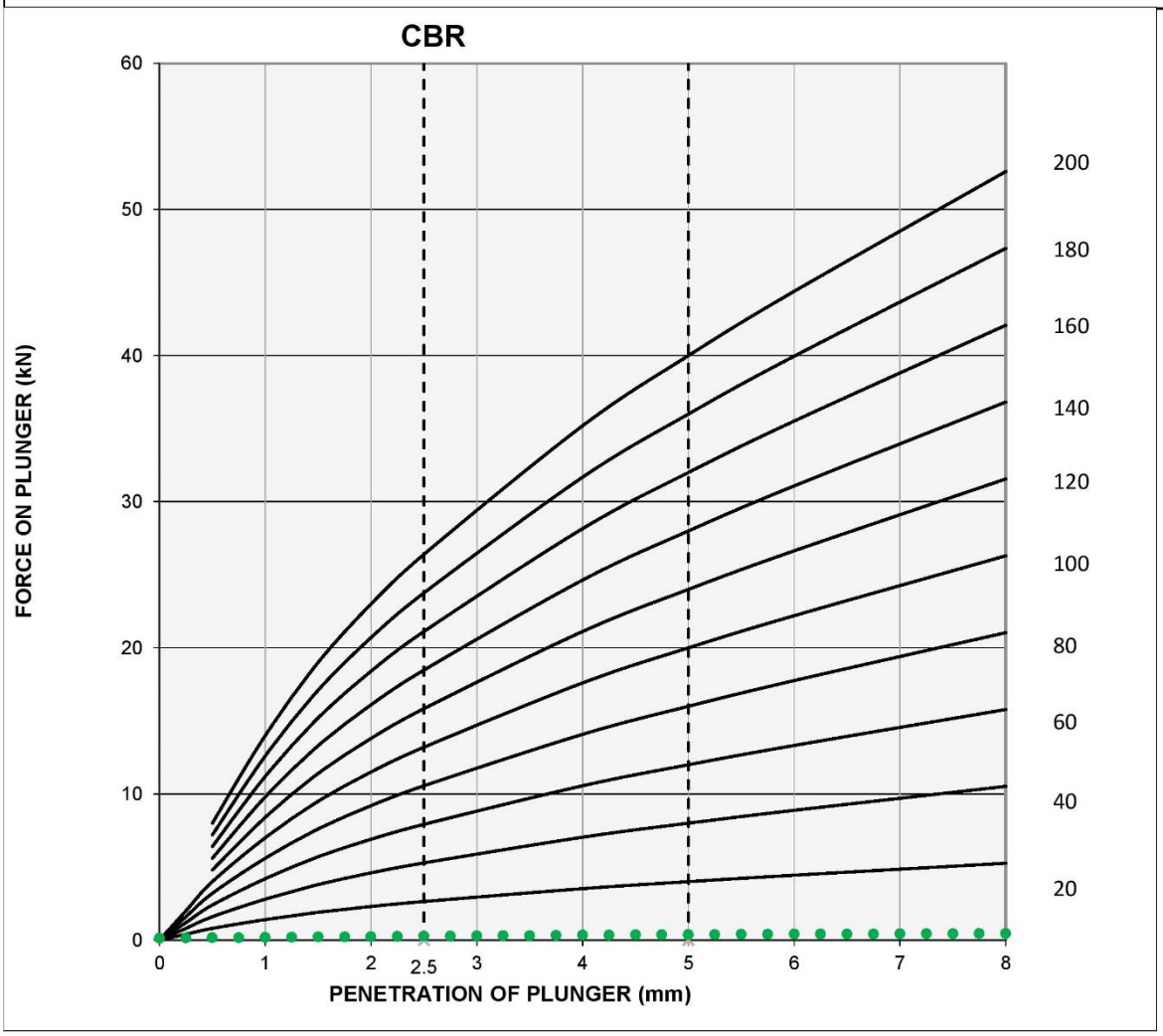


Kiwa CMT

celtest
INDEPENDENT MATERIALS TESTING | DIAMOND DRILLING & SAWING

Test Report Ref: TR 817117 - Page 3 of 3

Reference: 63594/TP8 0.4-0.9m		
Soaked	Period of Soaking: 4 Days	Date of CBR Test: 06/08/2021
Material: Sandy Clay		
Compaction Method: 2.5 kg Rammer		
Presence of Particles 20mm+ beneath plunger: NONE		% Greater than 20mm: 0
Moisture Content (%): 26.4		Dry Density (Mg/m3): 1.503
CBR Value / Bottom (%): 2 (2 Sig Figures)		
Swell: 0.50		



Kiwa CMT

Client: GeoDyne Ltd.
Unit 2.2 Clarendon House
Clumber Park
Clumber Avenue
Nottingham
NG5 1AH

Date: 30th July 2021

Lab Ref: 63599

Originator: Gavin Hallam

Order Ref: D41115

Site: Lincs Gateway Phase 2

Kiwa CMT Testing
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
F +44 (0)1332 602607
E cmtenquiries@kiwa.co.uk

www.kiwa.co.uk/cmt

Samples:

2No. samples weighing between 2kg and 5kg each were sampled by the client and delivered to Kiwa CMT Testing on 13th July 2021. Sampling certificates were not provided.

Requirements:

Determine the Plasticity Index and Water Content of 1No. sample in accordance with **BS EN ISO 17892-12:2018** and **BS EN ISO 17892-1:2014** respectively and determine the CBR Value of 1 No. soaked sample in accordance with **BS1377-4:1990**.

Note: Soaked CBR subcontracted.

Results:

The individual results sheets may be viewed on pages 2 to 4 of this report and relate solely to the samples provided.

Kiwa CMT Testing



Author: L Anaz
Technical Administrator



Checked and Approved by: J Eckford
Senior Geotechnical Technician

Kiwa CMT

Certificate of Analysis for Plasticity Index & Water Content

Client: GeoDyne Ltd. **Site**: Lincs Gateway Phase 2

Lab Ref: 63599 **Date of Test:** 14-21/07/2021

Test Methods: BS EN ISO 17892-12:2018 - Liquid Limit/Plastic Limit/Plasticity Index - Fall Cone Method
BS EN ISO 17892-1:2014 - Water Content

Results:

Sample Ref	Material Description	LL Cone Data			LL (%)	PL (%)	PI (%)	% Retained on 425µm	Modified PI (%)*	Soil Classification	WC (%)
		Cone Pen	Water %	Factor							
63599/WS8 1.80-2.00m	Brown very silty CLAY	22.3 22.3	53.0 53.3	0.9616	51	25	26	3	25	CH	46.6

The samples tested were disturbed and in their natural condition.
LL Test method - Fall Cone / One Point / Cone Spec 80g / 30 degrees
* Modified plasticity index relates to BRE Digest 240.
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = Water Content
BRE Digest 240 is not included in the UKAS schedule for this Laboratory.

Kiwa CMT Testing



Signed: J Eckford
Senior Geotechnical Technician

UKAS TESTING
0529

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 21/07296/1

Amendments: Re-issue following query/investigation

Envirolab Job Number: 21/07296
Issue Number: 2 **Date:** 19 August, 2021

Client:
GeoDyne (Derby)
9 Brunel Parkway
Pride Park
Derby
Derbyshire
UK
DE24 8HR

Project Manager: Gavin Hallam
Project Name: Lincs Gateway Phase 2
Project Ref: D41115
Order No: D41115/GH
Date Samples Received: 02/07/21
Date Instructions Received: 05/07/21
Date Analysis Completed: 19/08/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Danielle Brierley
Client Manager

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
% Stones >10mm$_A$	-	8.7	<0.1	-	18.2	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D$[M#]	-	8.30	8.59	-	7.96	8.58	8.80	pH	0.01	A-T-031s
pH BRE$_D$[M#]	-	-	8.59	-	-	-	-	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$[M#]	-	-	56	-	-	-	-	mg/l	10	A-T-026s
Phenols - Total by HPLC$_A$	-	-	-	-	<0.2	-	-	mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$[M#]	-	1.10	0.44	-	-	0.77	4.20	% w/w	0.03	A-T-032s
Arsenic$_D$[M#]	-	6	5	-	4	12	16	mg/kg	1	A-T-024s
Cadmium$_D$[M#]	-	0.5	<0.5	-	0.6	1.2	1.3	mg/kg	0.5	A-T-024s
Copper$_D$[M#]	-	13	6	-	15	22	19	mg/kg	1	A-T-024s
Chromium$_D$[M#]	-	19	16	-	20	62	24	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	-	<1	<1	-	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	-	19	16	-	20	62	24	mg/kg	1	Calc
Lead$_D$[M#]	-	22	7	-	29	26	26	mg/kg	1	A-T-024s
Mercury$_D$	-	0.63	0.26	-	0.50	<0.17	1.66	mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	-	16	16	-	14	54	23	mg/kg	1	A-T-024s
Selenium$_D$[M#]	-	<1	<1	-	<1	<1	<1	mg/kg	1	A-T-024s
Zinc$_D$[M#]	-	61	42	-	64	111	82	mg/kg	5	A-T-024s
Ali >C5-C6$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Ali >C10-C12$_A$[M#]	-	-	-	-	<1	-	-	mg/kg	1	A-T-055s
Ali >C12-C16$_A$[M#]	-	-	-	-	<1	-	-	mg/kg	1	A-T-055s
Ali >C16-C21$_A$[M#]	-	-	-	-	<1	-	-	mg/kg	1	A-T-055s
Ali >C21-C35$_A$[M#]	-	-	-	-	44	-	-	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	-	-	45	-	-	mg/kg	1	A-T-055s
Aro >C5-C7$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$[#]	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
Aro >C10-C12$_A$	-	-	-	-	<1	-	-	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	-	-	2	-	-	mg/kg	1	A-T-055s
Aro >C16-C21$_A$[M#]	-	-	-	-	9	-	-	mg/kg	1	A-T-055s
Aro >C21-C35$_A$[M#]	-	-	-	-	89	-	-	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	-	-	102	-	-	mg/kg	1	A-T-055s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
TPH (Ali & Aro >C5-C35)$_{A}$	-	-	-	-	147	-	-	mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	-	-	-	-	<0.01	-	-	mg/kg	0.01	A-T-022s

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Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	NAD	-	-	NAD	-	-	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A	-	-	N/A	-	-	N/A			A-T-045

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Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
PAH-16MS										
Acenaphthene$_A^{M\#}$	-	0.2	<0.1	-	-	<0.1	<1.0	mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	-	<0.1	<0.1	-	-	<0.1	<1.0	mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	-	0.8	<0.1	-	-	<0.1	1.5	mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	-	4.8	<0.1	-	-	<0.1	6.9	mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	-	5.6	<0.1	-	-	<0.1	9.2	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	-	5.9	<0.1	-	-	<0.1	9.5	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	-	2.5	<0.1	-	-	<0.1	5.0	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	-	2.1	<0.1	-	-	<0.1	3.7	mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	-	4.2	<0.1	-	-	<0.1	7.3	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	-	0.6	<0.1	-	-	<0.1	1.2	mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	-	8.9	<0.1	-	-	<0.1	11.6	mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	-	<0.1	<0.1	-	-	<0.1	<1.0	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	-	3.1	<0.1	-	-	<0.1	5.7	mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	-	<0.1	<0.1	-	-	<0.1	<1.0	mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	-	2.5	<0.1	-	-	<0.1	3.8	mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	-	8.5	<0.1	-	-	<0.1	10.6	mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	-	49.7	<0.1	-	-	<0.1	76.0	mg/kg	0.1	A-T-019s

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Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
SVOC										
4-Bromophenyl phenyl ether$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Carbazole$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	-	-	-	<500	-	-	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Acenaphthylene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Acenaphthene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Anthracene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	-	-	-	-	709	-	-	µg/kg	100	A-T-052s
Benzo(b)fluoranthene$_A$	-	-	-	-	1330	-	-	µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	-	-	-	-	331	-	-	µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	-	-	-	-	1080	-	-	µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	-	-	-	-	853	-	-	µg/kg	100	A-T-052s

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Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
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Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
Chrysene$_A$	-	-	-	-	733	-	-	µg/kg	100	A-T-052s
Fluoranthene$_A$	-	-	-	-	1200	-	-	µg/kg	100	A-T-052s
Fluorene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	-	-	-	842	-	-	µg/kg	100	A-T-052s
Phenanthrene$_A$	-	-	-	-	293	-	-	µg/kg	100	A-T-052s
Pyrene$_A$	-	-	-	-	1150	-	-	µg/kg	100	A-T-052s
Naphthalene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	-	-	-	-	187	-	-	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Phenol$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Pentachlorophenol (SVOC)$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
n-Dioctylphthalate$_A$	-	-	-	-	<500	-	-	µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Isophorone$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Hexachlorocyclopentadiene$_A$	-	-	-	-	<100	-	-	µg/kg	100	A-T-052s
Perylene$_A$	-	-	-	-	239	-	-	µg/kg	100	A-T-052s

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Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
VOC										
Dichlorodifluoromethane$_{A}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	-	-	-	<10	-	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	-	-	-	<5	-	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	-	-	-	<5	-	-	µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	-	-	-	<2	-	-	µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	-	-	-	<10	-	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	-	-	-	<3	-	-	µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3	TP4	TP4	TP6			
Depth to Top	0.20	0.20	1.10	0.40	0.20	1.60	0.30			
Depth To Bottom	0.30	0.30	1.20	0.50	0.60	1.70	0.40			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Solid			
Sample Matrix Code	6	6AE	5	6A	4AE	3	7			
Chlorobenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Isopropylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	-	-	-	-	<2	-	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	-	-	-	-	<2	-	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	-	-	-	-	<3	-	-	µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	-	-	-	-	<1	-	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	-	-	-	-	<3	-	-	µg/kg	3	A-T-006s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
% Stones >10mm$_A$	<0.1	7.9	<0.1	9.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D$[M#]	-	-	8.33	8.49	-	7.84	-	pH	0.01	A-T-031s
pH BRE$_D$[M#]	8.16	8.32	-	-	8.24	-	8.74	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$[M#]	159	205	-	-	158	-	13	mg/l	10	A-T-026s
Phenols - Total by HPLC$_A$	-	-	<0.2	-	-	-	-	mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$[M#]	-	-	-	0.68	-	1.70	-	% w/w	0.03	A-T-032s
Arsenic$_D$[M#]	-	-	4	5	-	4	-	mg/kg	1	A-T-024s
Cadmium$_D$[M#]	-	-	0.6	<0.5	-	0.6	-	mg/kg	0.5	A-T-024s
Copper$_D$[M#]	-	-	13	12	-	9	-	mg/kg	1	A-T-024s
Chromium$_D$[M#]	-	-	30	14	-	22	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	-	-	<1	<1	-	<1	-	mg/kg	1	A-T-040s
Chromium (trivalent)	-	-	30	14	-	22	-	mg/kg	1	Calc
Lead$_D$[M#]	-	-	17	10	-	17	-	mg/kg	1	A-T-024s
Mercury$_D$	-	-	<0.17	0.54	-	<0.17	-	mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	-	-	27	12	-	19	-	mg/kg	1	A-T-024s
Selenium$_D$[M#]	-	-	<1	<1	-	<1	-	mg/kg	1	A-T-024s
Zinc$_D$[M#]	-	-	70	39	-	50	-	mg/kg	5	A-T-024s
Ali >C5-C6$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Ali >C10-C12$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C12-C16$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C16-C21$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Ali >C21-C35$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C5-C7$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$[#]	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
Aro >C10-C12$_A$	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C16-C21$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Aro >C21-C35$_A$[M#]	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
TPH (Ali & Aro >C5-C35)$_A$	-	-	<1	-	-	-	-	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	-	<0.01	-	-	-	-	mg/kg	0.01	A-T-022s

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	-	NAD	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	-	N/A	-	-	-			A-T-045
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Tecnazene$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Trifluralin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Simazine$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Atrazine$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Quintozene (PCNB)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorothalonil$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Triallate$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Heptachlor$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Aldrin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Triadimefon$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Telodrin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Isodrin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Pendimethalin$_{A}$	-	-	-	<0.01	-	0.05	-	mg/kg	0.01	A-T-056
Heptachlor epoxide$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDE (2,4)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan I (Alpha)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDE (4,4)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Dieldrin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDD (2,4)$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin$_{A}$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
Endosulphan II (Beta)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDD (4,4)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDT (2,4)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Aldehyde$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Ketone$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan Sulphate$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDT (4,4)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-Methoxychlor$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-Methoxychlor$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin I (cis)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin II (trans)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Dichlorvos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Mevinphos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Demeton-S$_A$	-	-	-	<0.50	-	<0.50	-	mg/kg	0.5	A-T-056
Demeton-O$_A$	-	-	-	<0.50	-	<0.50	-	mg/kg	0.5	A-T-056
Phorate$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Dimethoate$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Propetamphos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Diazinon (Dimpylate)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Disulfoton$_A$	-	-	-	<0.10	-	<0.10	-	mg/kg	0.1	A-T-056
Etrimphos$_A$	-	-	-	#	-	#	-	mg/kg	0.01	A-T-056
Chlorpyrifos-methyl$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Methyl Parathion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Pirimiphos-methyl$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fenitrothion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fensulphothion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fenthion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Malathion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorfenvinphos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorpyrifos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Trichloronate$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion)$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Ethion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
Triazophos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Carbophenothion$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Phosalone$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-methyl$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-ethyl$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Coumaphos$_A$	-	-	-	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
PAH-16MS										
Acenaphthene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	-	-	-	0.2	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	-	-	-	0.2	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	-	-	-	0.2	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	-	-	-	0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	-	-	-	0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	-	-	-	0.2	-	<0.1	-	mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	-	-	-	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	-	-	-	0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	-	-	-	1.1	-	<0.1	-	mg/kg	0.1	A-T-019s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
SVOC										
4-Bromophenyl phenyl ether$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Carbazole$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	-	<500	-	-	-	-	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Acenaphthylene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Acenaphthene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Anthracene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Benzo(b)fluoranthene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
Chrysene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Fluoranthene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Fluorene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Phenanthrene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Pyrene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Naphthalene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Phenol$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Pentachlorophenol (SVOC)$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
n-Dioctylphthalate$_A$	-	-	<500	-	-	-	-	µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Isophorone$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Hexachlorocyclopentadiene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s
Perylene$_A$	-	-	<100	-	-	-	-	µg/kg	100	A-T-052s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
VOC										
Dichlorodifluoromethane$_{A}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	-	<10	-	-	-	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	-	<5	-	-	-	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	-	<5	-	-	-	-	µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	-	<2	-	-	-	-	µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	-	<10	-	-	-	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	-	<3	-	-	-	-	µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15	21/07296/16	21/07296/17	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP6	TP7	TP8	TP9	TP10	WS1	WS1			
Depth to Top	0.70	1.00	0.50	0.10	2.00	0.10	1.10			
Depth To Bottom	0.80	1.10	1.00	0.20	2.10	0.20	1.20			
Date Sampled	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6	6A	3	4AE	6	6E	5			
Chlorobenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Ethylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
m & p Xylene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
o-Xylene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Styrene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Bromoform$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Isopropylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
Bromobenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
n-Propylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
2-Chlorotoluene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
4-Chlorotoluene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
tert-Butylbenzene$_A^{\#}$	-	-	<2	-	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
sec-Butylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
4-Isopropyltoluene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_A$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
n-Butylbenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_A$	-	-	<2	-	-	-	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_A$	-	-	<3	-	-	-	-	µg/kg	3	A-T-006s
Hexachlorobutadiene$_A^{\#}$	-	-	<1	-	-	-	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_A$	-	-	<3	-	-	-	-	µg/kg	3	A-T-006s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	-	-	8.48	8.17	8.62	-		pH	0.01	A-T-031s
pH BRE$_D$$^{M\#}$	8.42	-	-	-	-	8.38		pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	113	-	-	-	-	14		mg/l	10	A-T-026s
Phenols - Total by HPLC$_A$	-	-	<0.2	-	<0.2	-		mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$$^{M\#}$	-	-	-	1.38	-	-		% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	-	-	11	9	3	-		mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	-	-	0.7	0.6	0.6	-		mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	-	-	11	17	8	-		mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	-	-	30	23	25	-		mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	-	-	<1	<1	<1	-		mg/kg	1	A-T-040s
Chromium (trivalent)	-	-	30	23	25	-		mg/kg	1	Calc
Lead$_D$$^{M\#}$	-	-	14	25	12	-		mg/kg	1	A-T-024s
Mercury$_D$	-	-	<0.17	0.26	<0.17	-		mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	-	-	27	19	23	-		mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	-	-	<1	<1	<1	-		mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	-	-	61	57	48	-		mg/kg	5	A-T-024s
Ali >C5-C6$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Ali >C10-C12$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Ali >C12-C16$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Ali >C16-C21$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Ali >C21-C35$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Aro >C5-C7$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Aro >C7-C8$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$$^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
Aro >C10-C12$_A$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Aro >C16-C21$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Aro >C21-C35$_A$$^{M\#}$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
TPH (Ali & Aro >C5-C35)$_A$	-	-	<1	-	<1	-		mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	-	<0.01	-	<0.01	-		mg/kg	0.01	A-T-022s

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Tecnazene$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Trifluralin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Simazine$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Atrazine$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Quintozene (PCNB)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Chlorothalonil$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Triallate$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Heptachlor$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Aldrin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Triadimefon$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Telodrin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Isodrin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Pendimethalin$_A$	-	0.01	-	0.02	-	-		mg/kg	0.01	A-T-056
Heptachlor epoxide$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
trans-Chlordane (Gamma)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
o,p-DDE (2,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Endosulphan I (Alpha)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
cis-Chlordane (Alpha)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
p,p-DDE (4,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Dieldrin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
o,p-DDD (2,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Endrin$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Endosulphan II (Beta)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
p,p-DDD (4,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
o,p-DDT (2,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Endrin Aldehyde$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Endrin Ketone$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
Endosulphan Sulphate$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
p,p-DDT (4,4)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
o,p-Methoxychlor$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
p,p-Methoxychlor$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Permethrin I (cis)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Permethrin II (trans)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Dichlorvos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Mevinphos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Demeton-S$_A$	-	<0.50	-	<0.50	-	-		mg/kg	0.5	A-T-056
Demeton-O$_A$	-	<0.50	-	<0.50	-	-		mg/kg	0.5	A-T-056
Phorate$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Dimethoate$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Propetamphos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Diazinon (Dimpylate)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Disulfoton$_A$	-	<0.10	-	<0.10	-	-		mg/kg	0.1	A-T-056
Etrimphos$_A$	-	#	-	#	-	-		mg/kg	0.01	A-T-056
Chlorpyrifos-methyl$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Methyl Parathion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Pirimiphos-methyl$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Fenitrothion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Fensulphothion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Fenthion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Malathion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Chlorfenvinphos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Chlorpyrifos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Trichloronate$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Prothiofos (Tokuthion)$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Ethion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Triazophos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Carbophenothion$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Phosalone$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Azinphos-methyl$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056
Azinphos-ethyl$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
Coumaphos$_A$	-	<0.01	-	<0.01	-	-		mg/kg	0.01	A-T-056

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
PAH-16MS										
Acenaphthene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	-	-	-	<0.1	-	-		mg/kg	0.1	A-T-019s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
SVOC										
4-Bromophenyl phenyl ether$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Carbazole$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	-	<500	-	<500	-		µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Acenaphthylene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Acenaphthene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Anthracene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Benzo(b)fluoranthene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
Chrysene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Fluoranthene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Fluorene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Phenanthrene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Pyrene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Naphthalene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Phenol$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Pentachlorophenol (SVOC)$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
n-Dioctylphthalate$_A$	-	-	<500	-	<500	-		µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Isophorone$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Hexachlorocyclopentadiene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s
Perylene$_A$	-	-	<100	-	<100	-		µg/kg	100	A-T-052s

Envirolab Job Number: 21/07296

Client Project Name: Lincs Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
VOC										
Dichlorodifluoromethane$_{A}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	-	<10	-	<10	-		µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	-	<5	-	<5	-		µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	-	<5	-	<5	-		µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	-	<2	-	<2	-		µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	-	<10	-	<10	-		µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	-	<3	-	<3	-		µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s

Lab Sample ID	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS2	WS3	WS4	WS5	WS5	WS6				
Depth to Top	3.50	0.10	0.50	0.10	0.50	0.40				
Depth To Bottom	3.60	0.20	1.00	0.20	1.00	0.50				
Date Sampled	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	6	5	6	5	6				
Chlorobenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Isopropylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	-	-	<2	-	<2	-		µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	-	-	<2	-	<2	-		µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	-	-	<3	-	<3	-		µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	-	-	<1	-	<1	-		µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	-	-	<3	-	<3	-		µg/kg	3	A-T-006s

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 with the same delivery, will be disposed of six weeks after 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 the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples 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.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

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 analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

v1

Envirolab Analysis Dates

Lab Sample ID	21/07296/1	21/07296/2	21/07296/4	21/07296/5	21/07296/7	21/07296/8	21/07296/9	21/07296/10	21/07296/12	21/07296/13	21/07296/14	21/07296/15
Client Sample No												
Client Sample ID/Depth	TP1 0.20-0.30m	TP2 0.20-0.30m	TP2 1.10-1.20m	TP3 0.40-0.50m	TP4 0.20-0.60m	TP4 1.60-1.70m	TP6 0.30-0.40m	TP6 0.70-0.80m	TP7 1.00-1.10m	TP8 0.50-1.00m	TP9 0.10-0.20m	TP10 2.00-2.10m
Date Sampled	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	28/06/21	30/06/21
A-T-006s					08/07/2021					08/07/2021		
A-T-019s		08/07/2021	08/07/2021			08/07/2021	08/07/2021				08/07/2021	
A-T-022s					19/08/2021					19/08/2021		
A-T-024s		12/07/2021	12/07/2021		12/07/2021	12/07/2021	12/07/2021			12/07/2021	12/07/2021	
A-T-026s			08/07/2021					08/07/2021	08/07/2021			08/07/2021
A-T-031s		09/07/2021	09/07/2021		09/07/2021	09/07/2021	09/07/2021	09/07/2021	09/07/2021	09/07/2021	09/07/2021	09/07/2021
A-T-032s		12/07/2021	12/07/2021			12/07/2021	12/07/2021				12/07/2021	
A-T-040s		08/07/2021	08/07/2021		08/07/2021	08/07/2021	08/07/2021			08/07/2021	08/07/2021	
A-T-044		08/07/2021	08/07/2021		08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021
A-T-045	06/07/2021			06/07/2021			06/07/2021	06/07/2021			06/07/2021	
A-T-050s					06/07/2021					06/07/2021		
A-T-052s					08/07/2021					08/07/2021		
A-T-055s					08/07/2021					08/07/2021		
A-T-056											09/07/2021	
Calc		12/07/2021	12/07/2021		12/07/2021	12/07/2021	12/07/2021			12/07/2021	12/07/2021	

Lab Sample ID	21/07296/16	21/07296/17	21/07296/18	21/07296/19	21/07296/20	21/07296/21	21/07296/22	21/07296/23
Client Sample No								
Client Sample ID/Depth	WS1 0.10-0.20m	WS1 1.10-1.20m	WS2 3.50-3.60m	WS3 0.10-0.20m	WS4 0.50-1.00m	WS5 0.10-0.20m	WS5 0.50-1.00m	WS6 0.40-0.50m
Date Sampled	30/06/21	30/06/21	30/06/21	30/06/21	30/06/21	30/06/21	30/06/21	30/06/21
A-T-006s					08/07/2021		08/07/2021	
A-T-019s	08/07/2021					08/07/2021		
A-T-022s					19/08/2021		19/08/2021	
A-T-024s	12/07/2021				12/07/2021	12/07/2021	12/07/2021	
A-T-026s		08/07/2021	08/07/2021					08/07/2021
A-T-031s	09/07/2021	09/07/2021	09/07/2021		09/07/2021	09/07/2021	09/07/2021	09/07/2021
A-T-032s	12/07/2021					12/07/2021		
A-T-040s	08/07/2021				08/07/2021	08/07/2021	08/07/2021	
A-T-044	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021	08/07/2021
A-T-045								
A-T-050s					06/07/2021		06/07/2021	
A-T-052s					08/07/2021		08/07/2021	
A-T-055s					08/07/2021		08/07/2021	
A-T-056	09/07/2021			09/07/2021		09/07/2021		
Calc	12/07/2021				12/07/2021	12/07/2021	12/07/2021	

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

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 21/07645/1

Amendments: Re-issue following query/investigation

Envirolab Job Number: 21/07645
Issue Number: 2 **Date:** 19 August, 2021

Client:
GeoDyne (Derby)
9 Brunel Parkway
Pride Park
Derby
Derbyshire
UK
DE24 8HR

Project Manager: Gavin Hallam
Project Name: Linc Gateway Phase 2
Project Ref: D41115
Order No: D41115/GH
Date Samples Received: 14/07/21
Date Instructions Received: 14/07/21
Date Analysis Completed: 19/08/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Danielle Brierley
Client Manager

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
% Stones >10mm$_A$	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.44	7.80	7.79					pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	515	68	-					mg/l	10	A-T-026s
Phenols - Total by HPLC$_A$	-	-	<0.2					mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$$^{M\#}$	1.50	1.31	-					% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	6	9	10					mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	0.5	0.9	0.9					mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	21	17	16					mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	23	40	36					mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1					mg/kg	1	A-T-040s
Chromium (trivalent)	23	40	36					mg/kg	1	Calc
Lead$_D$$^{M\#}$	29	16	15					mg/kg	1	A-T-024s
Mercury$_D$	0.26	<0.17	0.25					mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	19	28	26					mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1					mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	65	70	73					mg/kg	5	A-T-024s
Ali >C5-C6$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Ali >C10-C12$_A$$^{M\#}$	-	-	<1					mg/kg	1	A-T-055s
Ali >C12-C16$_A$$^{M\#}$	-	-	<1					mg/kg	1	A-T-055s
Ali >C16-C21$_A$$^{M\#}$	-	-	<1					mg/kg	1	A-T-055s
Ali >C21-C35$_A$$^{M\#}$	-	-	3					mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	3					mg/kg	1	A-T-055s
Aro >C5-C7$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$$^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
Aro >C10-C12$_A$	-	-	<1					mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	<1					mg/kg	1	A-T-055s
Aro >C16-C21$_A$$^{M\#}$	-	-	<1					mg/kg	1	A-T-055s
Aro >C21-C35$_A$$^{M\#}$	-	-	1					mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	1					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	-	-	4					mg/kg	1	A-T-055s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
BTEX - Benzene$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	-	-	<0.01					mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_D^{\#}$	NAD	NAD	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_D$	N/A	N/A	-							A-T-045

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.1	0.1	-					mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	0.1	0.4	-					mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	<0.1	<0.1	-					mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	<0.1	0.1	-					mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	<0.1	0.3	-					mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	0.1	2.4	-					mg/kg	0.1	A-T-019s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
SVOC										
4-Bromophenyl phenyl ether$_A$	-	-	<100					µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	-	<100					µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	-	<100					µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	-	<100					µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	-	<100					µg/kg	100	A-T-052s
Carbazole$_A$	-	-	<100					µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	-	<100					µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	-	<500					µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	-	<100					µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	-	<100					µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	-	<100					µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	-	<100					µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	-	<100					µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	-	<100					µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	-	<100					µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	-	<100					µg/kg	100	A-T-052s
Acenaphthylene$_A$	-	-	<100					µg/kg	100	A-T-052s
Acenaphthene$_A$	-	-	<100					µg/kg	100	A-T-052s
Anthracene$_A$	-	-	<100					µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	-	-	<100					µg/kg	100	A-T-052s
Benzo(b)fluoranthene$_A$	-	-	<100					µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	-	-	<100					µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	-	-	<100					µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	-	-	<100					µg/kg	100	A-T-052s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
Chrysene$_A$	-	-	<100					µg/kg	100	A-T-052s
Fluoranthene$_A$	-	-	<100					µg/kg	100	A-T-052s
Fluorene$_A$	-	-	<100					µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	-	<100					µg/kg	100	A-T-052s
Phenanthrene$_A$	-	-	<100					µg/kg	100	A-T-052s
Pyrene$_A$	-	-	<100					µg/kg	100	A-T-052s
Naphthalene$_A$	-	-	<100					µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	-	-	<100					µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	-	<100					µg/kg	100	A-T-052s
Phenol$_A$	-	-	<100					µg/kg	100	A-T-052s
Pentachlorophenol (SVOC)$_A$	-	-	<100					µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	-	<100					µg/kg	100	A-T-052s
n-Dioctylphthalate$_A$	-	-	<500					µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	-	<100					µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	-	<100					µg/kg	100	A-T-052s
Isophorone$_A$	-	-	<100					µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	-	<100					µg/kg	100	A-T-052s
Hexachlorocyclopentadiene$_A$	-	-	<100					µg/kg	100	A-T-052s
Perylene$_A$	-	-	<100					µg/kg	100	A-T-052s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
VOC										
Dichlorodifluoromethane$_{A}$	-	-	<1					µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	-	<10					µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	-	<5					µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	-	<5					µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	-	<2					µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	-	<10					µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	-	<3					µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s

Envirolab Job Number: 21/07645

Client Project Name: Linc Gateway Phase 2

Client Project Ref: D41115

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS7	WS9	WS10							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom	0.60	0.60	1.00							
Date Sampled	09-Jul-21	09-Jul-21	09-Jul-21							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	6AE	6	6							
Chlorobenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	-	-	<1					µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Isopropylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	-	-	<1					µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	-	-	<2					µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	-	-	<1					µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	-	-	<2					µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	-	-	<3					µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	-	-	<1					µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	-	-	<3					µg/kg	3	A-T-006s

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 with the same delivery, will be disposed of six weeks after 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 the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples 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.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

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 analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

v1

Envirolab Analysis Dates

Lab Sample ID	21/07645/1	21/07645/2	21/07645/3
Client Sample No			
Client Sample ID/Depth	WS7 0.50-0.60m	WS9 0.50-0.60m	WS10 0.50-1.00m
Date Sampled	09/07/21	09/07/21	09/07/21
A-T-006s			16/07/2021
A-T-019s	20/07/2021	20/07/2021	
A-T-022s			19/08/2021
A-T-024s	21/07/2021	21/07/2021	21/07/2021
A-T-026s	21/07/2021	21/07/2021	
A-T-031s	21/07/2021	21/07/2021	21/07/2021
A-T-032s	22/07/2021	22/07/2021	
A-T-040s	21/07/2021	21/07/2021	21/07/2021
A-T-044	19/07/2021	19/07/2021	19/07/2021
A-T-045	15/07/2021	15/07/2021	
A-T-050s			20/07/2021
A-T-052s			19/07/2021
A-T-055s			21/07/2021
Calc	21/07/2021	21/07/2021	21/07/2021

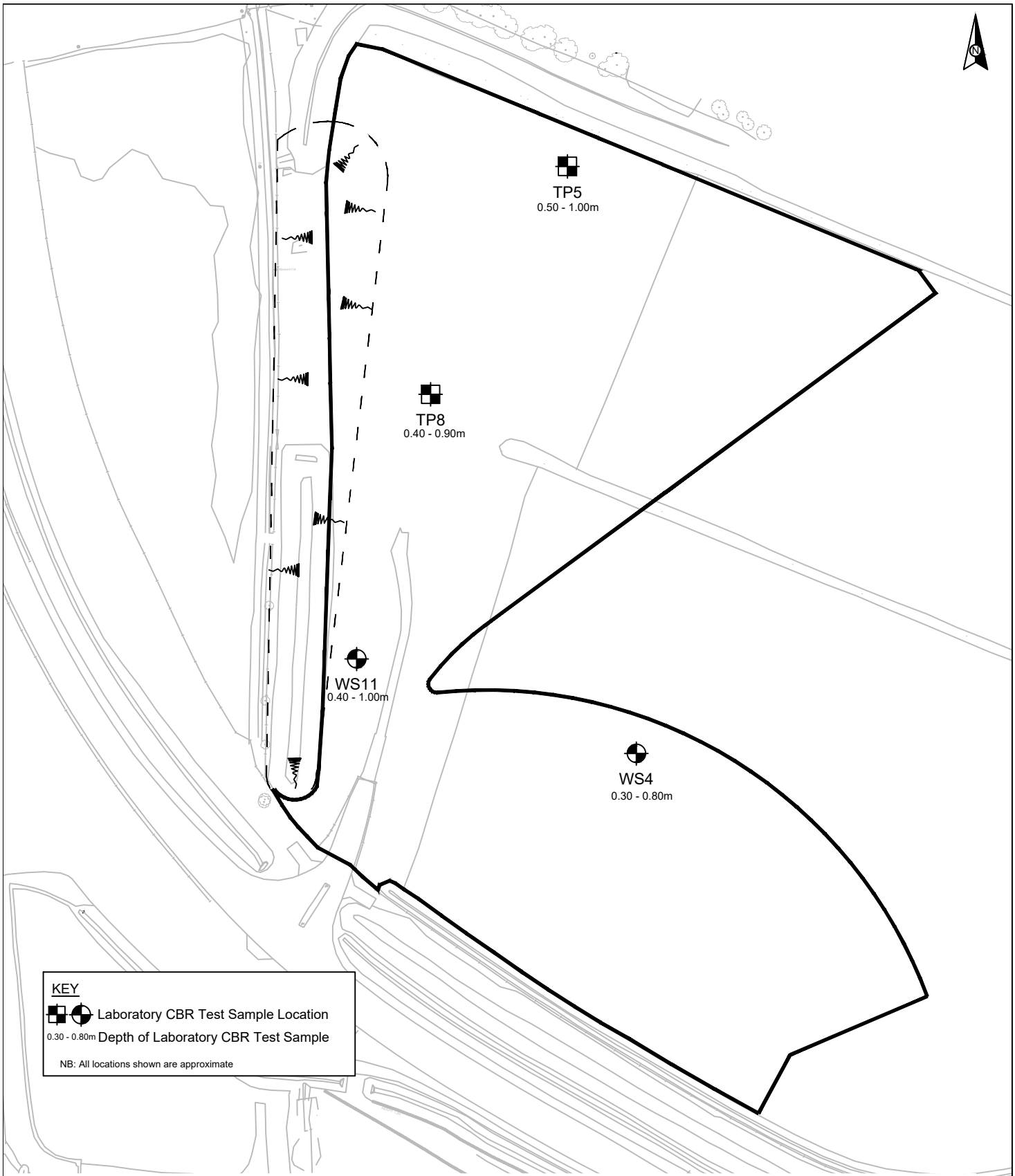
The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

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APPENDIX XIII

Laboratory CBR Test Location Plan
(Figure No. D41115/06)



Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DRAFT
		Approved By	DRAFT
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	20/07/2021
Title	Laboratory CBR Test Location Plan	Revision	
		Figure No.	D41115/06

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APPENDIX XIV

Ground Gas & Water Level Monitoring Results

Project No.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	16/07/2021
Weather	Sunny and warm
Atmospheric Pressure Trend	Rise of 5mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	PK

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	10:20	1026	Peak	0.0	1.9	19.0	0	0	45	120	0.0	1.60	
			Steady	0.0	1.9	19.0	0	0			0.0		
WS5	10:44	1026	Peak	0.0	0.5	20.1	0	0	25	120	0.0	1.22	
			Steady	0.0	0.4	20.1	0	0			0.0		
WS7	10:56	1026	Peak	0.0	5.5	17.8	0	0	50	120	0.0	1.24	
			Steady	0.0	5.5	17.8	0	0			0.0		
WS9	10:35	1026	Peak	0.0	0.1	20.3	0	0	30	120	0.0	1.20	
			Steady	0.0	0.1	20.3	0	0			0.0		
WS10	11:07	1026	Peak	1.2	5.9	13.5	0	0	40	120	0.0	1.35	
			Steady	1.2	5.9	13.5	0	0			0.0		
Ambient				0.0	0.0	20.6	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 Oxygen is below 16% (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.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	22/07/2021
Weather	Sunny and hot
Atmospheric Pressure Trend	Fall of 1mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	GH

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	13:01	1023	Peak	0.0	1.1	19.5	0	0	15	120	0.0	1.37	
			Steady	0.0	1.1	19.5	0	0			0.0		
WS5	13:40	1023	Peak	0.0	0.5	19.8	0	0	15	120	0.0	1.18	
			Steady	0.0	0.3	19.8	0	0			0.0		
WS7	13:27	1023	Peak	0.0	5.0	17.4	0	0	20	120	0.0	1.10	
			Steady	0.0	5.0	17.4	0	0			0.0		
WS9	13:17	1023	Peak	0.0	0.3	20.5	0	0	5	120	0.0	0.79	
			Steady	0.0	0.3	20.5	0	0			0.0		
WS10	13:09	1023	Peak	0.0	2.1	18.2	0	0	20	120	0.0	1.22	
			Steady	0.0	2.0	18.3	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 Oxygen is below 16% (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.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	22/07/2021
Weather	Cloudy with showers, mild
Atmospheric Pressure Trend	Fall of 2mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	PK

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	14:15	1007	Peak	0.0	1.0	19.9	0	0	25	120	0.0	1.78	
			Steady	0.0	1.0	19.9	0	0			0.0		
WS5	13:50	1007	Peak	0.0	0.3	20.3	0	0	25	120	0.0	1.40	
			Steady	0.0	0.2	20.3	0	0			0.0		
WS7	13:37	1007	Peak	0.0	3.1	18.8	0	0	35	120	0.0	1.40	
			Steady	0.0	3.1	18.8	0	0			0.0		
WS9	13:26	1007	Peak	0.0	0.0	20.5	0	0	20	120	0.0	1.31	
			Steady	0.0	0.0	20.5	0	0			0.0		
WS10	13:15	1007	Peak	0.0	1.6	19.6	0	0	25	120	0.0	2.28	
			Steady	0.0	1.5	19.6	0	0			0.0		
Ambient				0.0	0.0	20.6	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 Oxygen is below 16% (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.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	02/08/2021
Weather	Slightly overcast and warm
Atmospheric Pressure Trend	Rise of 4mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	BG

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	12:14	1015	Peak	0.1	1.5	19.8	0	0	15	120	0.0	1.53	
			Steady	0.0	1.5	19.8	0	0			0.0		
WS5	12:30	1015	Peak	0.0	0.4	20.3	0	0	70	120	0.0	1.30	
			Steady	0.0	0.1	20.5	0	0			0.0		
WS7	12:36	1015	Peak	0.0	5.1	17.0	0	0	45	120	0.0	1.17	
			Steady	0.0	5.1	17.0	0	0			0.0		
WS9	12:44	1015	Peak	0.0	0.7	19.8	0	0	50	120	0.0	0.96	
			Steady	0.0	0.7	19.8	0	0			0.0		
WS10	12:49	1015	Peak	0.0	2.8	17.8	0	0	55	120	0.0	1.35	
			Steady	0.0	2.7	17.9	0	0			0.0		
Ambient				0.0	0.0	21.0	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 Oxygen is below 16% (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.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	09/08/2021
Weather	Slightly overcast, warm and windy
Atmospheric Pressure Trend	Rise of 9mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	BG

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	12:14	1009	Peak	0.1	3.2	18.4	0	0	120	150	0.0	1.66	
			Steady	0.0	3.2	18.4	0	0			0.0		
WS5	12:30	1009	Peak	0.0	0.5	19.9	0	0	120	180	0.0	1.36	
			Steady	0.0	0.1	20.2	0	0			0.0		
WS7	12:36	1009	Peak	0.0	5.2	16.9	0	0	120	180	0.0	1.20	
			Steady	0.0	5.2	17.2	0	0			0.0		
WS9	12:44	1009	Peak	0.0	0.7	19.8	0	0	90	150	0.0	1.03	
			Steady	0.0	0.6	19.8	0	0			0.0		
WS10	12:49	1009	Peak	0.1	4.6	15.3	0	0	600	640	0.0	1.40	
			Steady	0.1	0.6	20.3	0	0			0.0		
Ambient				0.0	0.0	21.0	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 Oxygen is below 16% (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.	D41115
Client	Ashwood Homes
Site Location	Lincs Gateway - Phase 2
Date	17/08/2021
Weather	Slightly overcast and windy
Atmospheric Pressure Trend	Fall of 3mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	BG

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)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS2	12:47	1016	Peak	0.1	4.1	17.6	0	0	60	150	0.0	1.69	
			Steady	0.1	4.1	17.6	0	0			0.0		
WS5	13:01	1016	Peak	0.1	0.6	20.0	0	0	120	150	0.0	1.42	
			Steady	0.1	0.3	20.5	0	0			0.0		
WS7	13:16	1016	Peak	0.1	6.0	16.7	0	0	90	150	0.0	1.25	
			Steady	0.1	6.0	16.7	0	0			0.0		
WS9	13:24	1016	Peak	0.1	1.3	19.6	0	0	90	150	0.0	1.06	
			Steady	0.1	1.3	19.6	0	0			0.0		
WS10	13:32	1016	Peak	0.1	1.6	18.7	0	0	60	180	0.0	1.43	
			Steady	0.1	1.6	18.8	0	0			0.0		
Ambient				0.0	0.0	21.0	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 Oxygen is below 16% (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

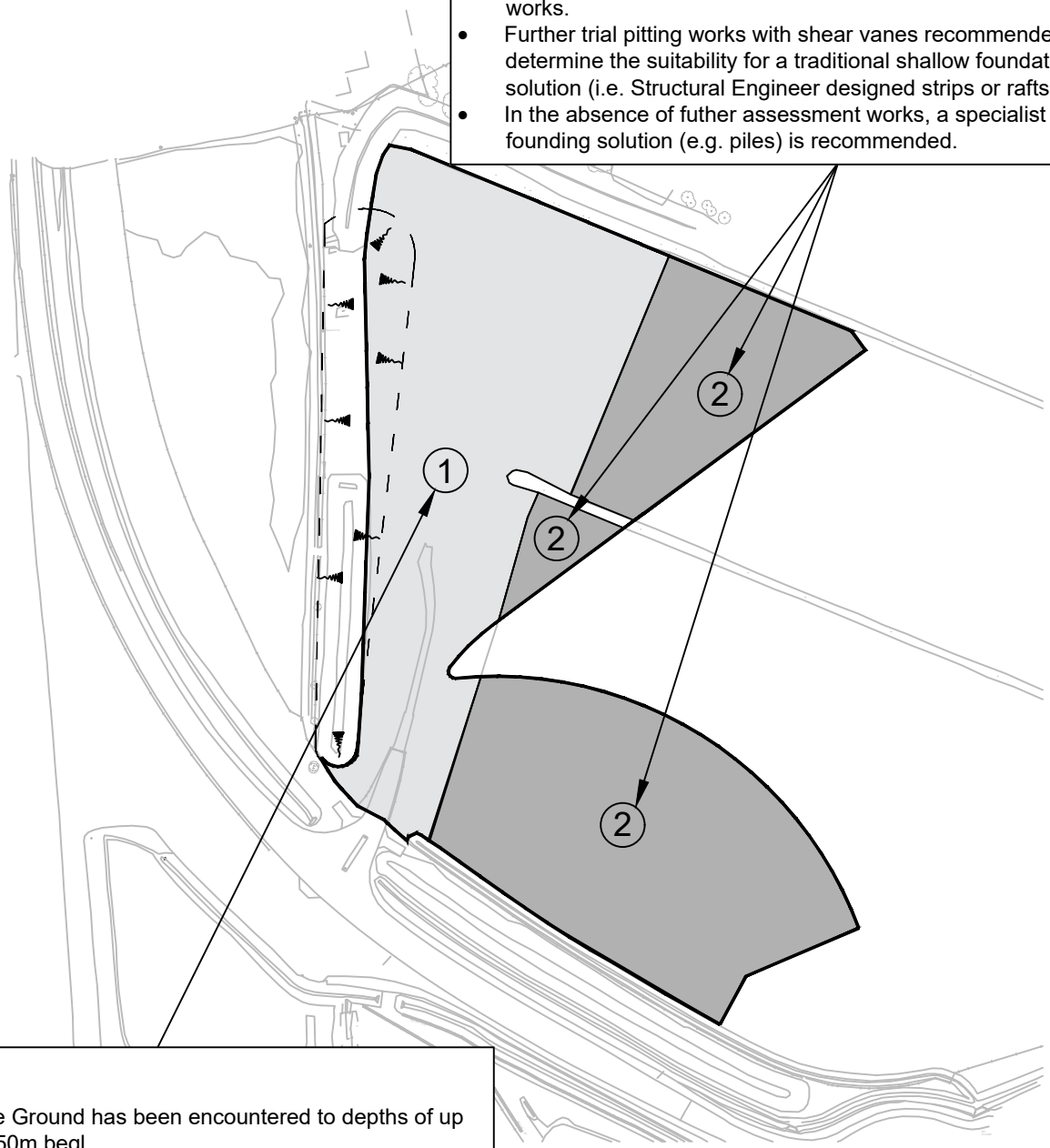
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APPENDIX XV

Foundation Zoning Plan
(Figure No. D41115/07)

ZONE ②

- No Made Ground has been encountered in the window sample boreholes advanced in the area.
- Limited geotechnical information currently obtained for shallow soils due to the presence of crops during the site works.
- Further trial pitting works with shear vanes recommended to determine the suitability for a traditional shallow foundation solution (i.e. Structural Engineer designed strips or rafts).
- In the absence of futher assessment works, a specialist founding solution (e.g. piles) is recommended.



ZONE ①

- Made Ground has been encountered to depths of up to 1.50m begl.
- Traditional shallow foundations likely to encounter less geotechnically competent soils if deepened through Made Ground.
- Specialist founding solution (e.g. piles) recommended

Drawing based on Topographical Survey by Anglia Land Surveys Drawing No. ALS5957/500/02 Dated: January 2013. Used, edited and reproduced with permission of the Client.

Project No.	D41115	Drawn By	GH
Client	Ashwood Homes	Checked By	DB
		Approved By	DB
Project	Lincs Gateway - Phase 2	Scale	NTS
		Date Drawn	13/08/2021
Title	Foundation Zoning Plan	Revision	
		Figure No.	D41115/07

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APPENDIX XVI

Conditions & 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.

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.