Roxhill Developments Limited

M1 Junction 15 West, Northampton

Revised Junction Design

Preliminary sources study report

Project no. 313588-02(02)

APRIL 2018

RSK GENERAL NOTES

Project No.: 313588-02(02)

Title: Preliminary sources study report:
M1 Junction 15 West, Northampton – Revised Junction Design

Client: Roxhill Developments Limited

Date: 10th April 2018

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Status: Final

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CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

1.1 Introduction

RSK Environment Limited (RSK) has been commissioned by Roxhill Developments Limited (the Client) to carry out a Preliminary Sources Study Report (PSSR) for the site of the proposed changes to the Junction 15 of the M1 motorway, Northampton.

This report is subject to the RSK service constraints given in Appendix A.

1.2 Terms of reference

This report comprises a desk study in general accordance with the requirements of:

- BS5930:1999+A2:2010 'Code of practice for site investigations' (Desk Study);
- Environment Agency CLR 11 2004a 'Model Procedures for the Management of Land Contamination' (Contaminated Land Risk Assessment);
- BS EN 1997-2:2007. Eurocode 7 — Geotechnical design — Part 2: Ground investigation and testing; and
- Highways England (Formerly Highways Agency) HD22/08, 'Managing Geotechnical Risk' (Preliminary Sources Study Report).

1.3 Proposed development

It is understood that the site (Junction 15) is being considered for revised changes to support the proposed main development site, located immediately to the west known as Northampton Gateway. The existing grade separated junction is to include a revised highway interchange arrangement with new road layout and additional widening and extension of on/off slip roads and selective widening of the current infrastructure. The works will include the following:

- Replacement / Revision of the existing junction
- Alterations and widening to all four slip roads.
- Local widening of the A508 carriageway
- Local widening of the A45 London Road
- Alterations to street lighting and signalisation
- Site clearance and demolition works
- Alterations to road signage
- The relocation and diversion of services including foul and surface water drainage

- Construction of new retaining walls and embankments
- Landscaping

1.4 Objective

The aim of this report is to evaluate the Client's liabilities and risks in order to support the design of the scheme and subsequent planning application process.

The subject of this report is the proposed changes to the M1 Junction 15 grade separated junction to support the main development site, adjacent to the west of the site. In accordance with the Client's specific objectives, requirements and brief; the objectives of this report are primarily:

- To provide a record of readily available information pertaining the site, including its development history;
- To review and consolidate any previously published information pertaining to the ground conditions at the site;
- To form the initial basis for the design and scoping of ground investigations required to inform the design of the proposed revisions; and
- To form the baseline for assessment of the geology, soils and groundwater elements for an Environmental Statement Chapter upon the geology, soils and ground conditions which is required to be submitted to support the proposed scheme.

1.5 Scope

The project has been carried out to an agreed brief as set out in RSK's proposal (ref. Northampton, Junction 15 M1 Strategic Rail Freight Interchange – M1 Junction 15 Revised Design - Desk Based Assessments to Support EIA, dated 16th January 2017).

The report presents the following:

- A study of local geology and ground conditions;
- The identification of associated potential geological and geotechnical hazards and risks;
- A study of land-use, development history and environmental data pertaining to the site and the surrounding area based primarily on an environmental database report obtained;
- The identification of aquifer vulnerability rating beneath the site and local water abstraction licenses from Environment Agency records and the environmental database report;
- A site reconnaissance inspection including photographic survey from legally and safe access points (public highway footways only);

- The identification of potential sources of contamination and targets at risk from possible contamination;
- A preliminary Conceptual Site Model (CSM) outlining potentially complete pollutant linkages for the site; and
- A preliminary Geotechnical Risk Register.

1.6 Background information

The site location and boundary extent of this study to which this report refers (the site) is shown in Figure 1.

The following scheme design master plan drawing has been provided to RSK by the client:

- Site Plan, Project No: 4054 Drawing No: R006 Rev: P1 prepared by pHp Architects, dated May 2016 (received from pHp June 2016).

This has been extracted and used within Figure 2 to show the anticipated revised junction design.

The most recent version of the M1 Junction 15 proposed revised design is detailed separately within BWB drawing NGW-BWB-GEN-XX-SK-C-SKO2 S3 Rev P7, BWB Ref; NTH 2315 dated 17.2.17.

The majority of the development site has been previously investigated by RSK and reported under the following covers:

- M1 Junction 15 West Preliminary sources study report' Ref. 312598-01(00), dated 17th October 2014, (previous Main development Site Area).
- 'M1 Junction 15 West Factual Ground Investigation Report' Ref. 312598-02(00), dated 10th November 2014, (previous Main Development Site Area).
- 'M1 Junction 15 West Preliminary ground investigation interpretive report' Ref. 312598-03(00), dated 10th November 2014, (previous Main Development Site Area).
- 'M1 Junction 15 West Main Development Site Preliminary sources study report' Ref 313418 -01(00), dated 7th December 2016, (current Main Development Site Area).
- 'M1 Junction 15 West, Roade Bypass Preliminary sources study report' Ref 313418-02(00), dated 7th December 2016, (required to Facilitate Current Main Development Site).
- 'M1 Junction 15 West Extended Development Site Supplementary Factual Ground Investigation Report' Ref 313582 -01(00), dated November 2017, (current Main Development Site Area).

- ‘M1 Junction 15 West Extended Development Site Supplementary Geotechnical and Geo-environmental Investigation Report’ Ref 313582 -02(00), dated November 2017, (current Main Development Site Area).

- ‘M1 Junction 15 West, Roade Bypass Factual Ground Investigation Report’ Ref 313583-01(00), dated November 2017.

- ‘M1 Junction 15 West, Roade Bypass Interpretative Ground Investigation Report’ Ref 313583-02(00), dated November 2017.

The area to which this report refers (M1 Junction 15) has previously been undergone construction circa 60 years ago as part of the construction of the M1 to form a grade separated junction over the M1. This has been the subject of further remodelling and construction to improve traffic flow to new developments associated with the development of Grange Park. Investigation works for this remodelling were undertaken in 1999. Reports which provide detailed accounts of these studies where identified upon the HAGDMS website include;

- ‘M1 Junction 15 Reconstruction, Grange Park, Northampton S278 Works: Preliminary Sources Study Report’ Ref 17256, dated January 1999 undertaken for Symonds Group Ltd.

- ‘M1 Junction 15 Reconstruction, Grange Park, Northampton: Ground Investigation’ Ref 18837, dated March 1999 undertaken for Symonds Group Ltd.

- ‘M1 Grange Park Junction 15 Reconstruction: Geotechnical Interpretative Report’ Ref 18838, dated 25th June 1999 undertaken for Symonds Group Ltd.

Further asset inspection record sheets have been provided by Highways England which detail inspections of the embankments and cuttings related to the Junction undertaken in 2013.

The proposed main development site, adjacent to and west of Junction 15 of the M1 has since been expanded to include additional areas further to the west. As such, the current configuration of Junction 15 is considered unsuitable to manage the proposed flow of traffic associated with the enlarged main site development, requiring a new highway interchange arrangement. Information obtained as part of the above reports has been reviewed and used to inform the opinions and recommendations included within this preliminary sources study report update.

1.7 Limitations

The comments given in this report and the opinions expressed are based on the available data and observations made during the walkover studies on accessible parts of the site; however, there may be conditions pertaining to the site that have not been disclosed by the desk-based study, and therefore could not be taken into account.

2 SITE DETAILS

2.1 Site location

The site area covers approximately 13 hectares, the centre of which is defined by the following National Grid Reference co-ordinates; 475600, 254720. The surrounding land use has historically been utilised for agricultural purposes, with existing fields beyond the southern and western site boundary. The site is bound to the east by industrial/commercial units with residential properties beyond; collectively forming Grange Park and to the north by the historical Wooton Quarry Landfill.

The village of Collingtree is situated approximately 0.50km north-west of the site, whilst the villages of Courteenhall and Roade are noted to be present some 2km south-east of the site. The site location is presented within Figure 1.

2.2 Local topography, geography and geomorphology

The site and the surrounding area lies within a formerly glaciated area, as such, the land is gently undulating with a general rise from the south towards the north. At its highest, the site elevation is approximately 86m AOD located where the A45 London Road branches onto Junction 15, down to its lowest elevation of approximately 80m AOD, along the western boundary.

The M1 motorway centrally dissects the site, trending approximately north-west to south-east and is located within a shallow cutting, whilst embankments mark the outer extents of the on/off slip roads and A508 and A45 approach roads.

The geological sequence beneath the site is understood to comprise Oadby Member Glacial Till (Superficial) anticipated to be primarily cohesive overlying Glaciofluvial Deposits (Superficial) anticipated to be primarily granular in nature all overlying the Whitby Mudstone Formation (Solid deposits) likely to comprise weathered laminated fossiliferrous mudstone laminated with thin siltstone or silty mudstone beds and rare fine-grained calcareous sandstone beds. Logs identified within previous studies undertaken by Symonds Group Ltd and within BGS logs undertaken within the embankment identify made ground soils across the site from variable depths ranging from 0.20 to 4.30m bgl, confirming the construction make up of the existing embankment.

2.3 Site description

A site walkover (limited to safe areas of the public highway footways) for the purpose of the Junction 15 M1 revisions was undertaken on the 16th February 2017. Photographs and associated descriptions are included in Appendix J together with a walkover survey.

The site comprises the grade separated Junction, Junction 15 of the M1 which bridges over the M1 motorway, with on/off slip roads approaching the junction roughly from the north-west, south-east. The A508 comprises a single carriageway road used predominantly by cars and occasional heavy goods vehicles to access the M1 from the south. The road itself was noted to camber up to the approaching junction and rising to be approximately 5m higher than the neighbouring cropped fields to the south-east and south-west of the site. The A45 London Road, a major road in England which runs from Birmingham to Daventry, resumes at M1 Junction 15, heading north towards Northampton. The A45 was noted to be at a similar elevation on the approach to the roundabout junction; whilst neighbouring land was noted to be approximately 1 to 2m lower than the road. Saxon Avenue is a minor road leading from the north-east of the junction and is the main point of access to Grange Park industrial/ commercial development. The road itself was noted to camber up to the approaching junction and to be approximately 4m higher than the neighbouring Grange Park.

The site is predominantly covered with a hard standing associated with the aforementioned infrastructure. However, embankments comprising soft landscaping and dense vegetation do typically mark the outer extents of the A508 and on/ off slip roads to Junction 15. Soft landscaping is noted to be present on the roundabouts which manage the traffic flow of this junction. It should be noted that a telecom mast is located within the agricultural field which bounds the south-west extent of the site.

A brook flows along the south-western embankment of the A508, which culverts under the A508 and continues along the M1 motorway. Similarly, a brook flows along the A45, towards the Junction were it is culverted under Saxon Avenue, resuming at surface in Grange Park where it continues to flow adjacent to the M1 motorway.

Supplied plans and markers identified during the site walkover, indicate the presence of existing utilities across the site and the wider environ. BT and Western Power underground utilities lay under the western pavement of the A508, Junction 15 and A45. Whilst, Virgin Media and Western Power underground utilities lay under the eastern pavement of the A508, Junction 15 and A45 feeding Grange Park, until they cross the A45 road to feed into the Hilton Hotel, situated north-west of the site. Evidence of surface repair / scarring is present along pavement areas of the site near to inspection covers for existing water drains/ underground cables. It is not clear whether these features are associated with work to the water drains/ underground cables, or repairs to the surface of the pavement. A series of photographs showing the current condition of the site are presented within Appendix J.

Data and Asset inspections provided by Highways England suggest embankment slopes on the on and off slips vary in steepness between 20 and 30 degrees and locally desiccation, tree dislocation, tension cracks, bulging and local instability have been noted in the past although these have not been classed major risks but which appear to indicate some insipient instability in local areas that will need to be considered as part of any earthworks widening designs.

3 SOURCES OF INFORMATION

3.1 Research

The desk-based research undertaken to support this report comprised a review of published information available within the public domain and information provided by or obtained for the Client (as detailed in Table 1: Sources of information reviewed below). In addition, a visual site inspection was undertaken by RSK on 7th August 2014 and updated on the 22nd July 2016 and subsequently on the 16th February 2017.

Table 1: Sources of information reviewed

Information	Status
Landmark Envirocheck Report (2014 & update 2016)	✓
Landmark Envirocheck historical OS maps	✓
Groundwater Vulnerability Map (Landmark digital reproduction)	✓
1:10, 000 Geology Maps (Landmark digital reproduction)	✓
BGS Geological Map 1:50,000 series (sheet 202, Towcester, Solid and Drift)	✓
BGS borehole database	✓
Existing services information (Provided by Client)	✓
Environment Agency (online resource)	✓
Local Authority Consultation (Contaminated Land & Building Control) (2014 & 2016)	✓
Highways England HAGDMS web site search	✓
Northamptonshire County Council Website (Minerals & Waste Development Frameworks)	✓
DEFRA Enquiry (Animal Burial) (2014 & 2016)	✓
DETR (PBA) Natural Cavities Database Search	NA
Coal Authority Interactive Viewer and Gazetteer (online resource)	✓
Coal Authority Mining Report	NA
Zetica UXB Risk Maps (online)	✓
Aerial photograph (online satellite image & 1947)	✓
Previous investigations undertaken by RSK and alternative consultancies	✓

Key: NA = Not applicable, AR = Awaiting response, ✓ = Information received

3.2 Responses to enquiries

Copies of the correspondence sent and received from the various enquiries and print outs of data obtained from the various data sources other than the Landmark

Environmental Database and available BGS borehole data are included within Appendices F, G & H respectively.

It should be noted that Appendix I contains information obtained as part of the original investigation (2014) and Appendix H includes updated responses received with respect to the expansion of the main development site proposal, which includes Junction 15 of the M1 (2016). Both appendices include copies of the original enquiries from RSK and responses received in return from the various consulties. The available responses are briefly summarised below;

3.2.1 South Northamptonshire Council

The local authority for South Northamptonshire was originally contacted on 2nd October 2014 with regards to the main development site, adjacent west of Junction 15 of the M1. Due to the expansion of the western and southern boundaries of the proposed development site, subsequent enquires were made on 6th September 2016. The site boundary plan attached to this enquiry, defining the site, included Junction 15. As such, previous lines of enquiry are considered applicable to the current investigation.

Records were consulted with regards to identifying any potential for natural geohazards and contamination hazards within the boundaries of the site and the wider environment. In particular they were asked to confirm whether any part of the site is, or has been, classified as contaminated land; or has been subject to remedial action.

The full historical response to the original proposed main development (2014) and the revised scheme (2016) are included within Appendix I and H respectively, and the key consultation findings are summarised below.

The response indicates that the site and the wider environment is not, and has not previously, been designated as contaminated land, or subject to any remedial action. No natural geohazards were identified.

3.2.2 Environment Agency

The Environmental Agency was originally contacted on 2nd October 2014 with regards to the main development site, adjacent west of Junction 15 of the M1. Due to the expansion of the western and southern boundaries of the proposed development site, subsequent enquires were made on 20th July 2016. The site boundary plan attached to this enquiry, defining the site, included Junction 15. As such, no further enquires where deemed necessary.

Records were consulted with regards to identifying any potential for contamination hazards particularly with respect to controlled water at the site and the wider environment. In particular they were asked to confirm whether any part of the site is, or has been, classified as contaminated land; or has been subject to remedial action.

The full historical response to the original proposed main development (2014) and the revised scheme (2016) are included within Appendix I and H respectively, and the key consultation findings are summarised below.

The response indicates that the Agency consider that the controlled waters at or beneath the site are of low environmental sensitivity with the site being considered to be underlain by unproductive strata. The Agency confirms that they are not aware of any contamination issues relating to the site.

The Agency confirms that they have no records of landfills being present on the site. They do however confirm that Wooton Landfill lies adjacent north of the site. Courteenhall Grange Farm Pit a historic landfill is located approximately 180m to the north of the site. Blisworth Lodge Farm Landfill lies approximately 1.5km to the south west of the site.

3.2.3 Department of Environment, Food and Rural Affairs (DEFRA)

The Department of Environment, Food and Rural Affairs (DEFRA) were previously contacted (6th September 2016), in order to obtain records of any on-farm burial of fallen/buried livestock, given the current land use of the surrounding area being predominantly farmland. The defined site included Junction 15 of the M1, therefore is applicable to the current investigation.

The full response issued by DEFRA is presented as Appendix H and indicates that there are no records of on-farm burial having taken place at the site or the wider environment. It is therefore considered unlikely that the site will have been impacted by detrimental gas or leachate production associated with the sub-surface decomposition of buried livestock; although the possibility of illegitimate burial cannot be discounted.

3.3 Additional site specific information

3.3.1 Available Exploratory Hole data

Exploratory hole data was obtained from the British Geological Survey (BGS), from the field records of the intrusive investigation obtained from Symonds Group Ltd (1999) obtained from the Highways England Geotechnical Data Management System (HEGDMS) and from the field records of the RSK intrusive investigation (2014).

Borehole records held by the BGS and by Symonds Group Limited relating to the former revisions to M1/Junction 15, indicate that there are a number of records available for boreholes previously advanced along the course of the M1, and thus within the boundaries of the site. The relevant borehole logs have been included in Appendix G and are reproduced under the Open Government Licence. The relative positions of the available exploratory holes are included on Figure 6.

The BGS borehole records indicate a variable ground profile, typically comprising topsoil over superficial clayey sands and sandy clays associated with the superficial Oadby Member (Glacial Till) and Glaciofluvial Deposits, to depths ranging from 2.10 to 7.60m bgl, over the weathered mudstones of the Whitby Mudstone Member (formerly referred to as the Weathered Lias Clay).

Made ground / Engineering Fill soils are encountered within BH15902405 and BH15902406 of the BGS logs and across several boreholes advanced for the 1999 revisions to the junction. The soils encountered across the site range in depth from 0.20 to 4.30m bgl, with the greatest depths located with areas of embankment.

The exploratory holes undertaken as part of the previous RSK site investigation Ref. 312598 within close proximity to the current site, similarly revealed a ground profile comprising a variable thickness of agricultural topsoil and subsoil over drift deposits including, the Oadby Member (Glacial Till) over Glaciofluvial deposits encountered at depth. Both the superficial deposits encountered contained bands of cohesive and granular strata. Underlying these drift deposits the strata of the Whitby Mudstone Formation was primarily clay with weathered siltstone and mudstone bands.

The previous investigation also indicated that localised perched water tables exist within discrete pockets of sands and gravels within the Oadby Member (Glacial Till) at varying levels. The variable nature of the granular and cohesive strata present throughout the Oadby Member deposits results in pockets of water bearing granular strata which are not thought to be linked or consistent across the site.

Deeper instruments placed within or across the granular Glaciofluvial deposits at depth seem to suggest a continuous water table is present within these strata at depths of around 79 to 80m AOD.

3.3.2 Environment Agency

The Environment Agency's interactive maps on their "What's in Your Back Yard" web site were consulted to confirm information obtained within the Landmark Environmental Database search. In summary the following can be confirmed;

- The site is not within a groundwater source protection zone.
- The site is not within a drinking water protected area.
- The geology beneath the site is largely designated as unproductive strata. Lenses of Glaciofluvial Deposits have been mapped to the north-west of the site, which are designated as a Secondary A Aquifer. However, it is considered unlikely that such materials encroach onto the site itself.
- There are no recorded pollution incidents present at the site.
- There are no recorded historic or authorised landfills present beneath the site.
- Wooton Landfill lies adjacent north of the site at an approximate grid reference of SP7579455364.
- The site is not within a flood risk area.

3.3.3 Highways England

Highways England have provided additional asset inspection data to supplement the reports obtained and identified as part of the HA GDMS data base Search undertaken. This information has confirmed slopes on the on and off slips vary in steepness between 20 and 30 degrees and locally desiccation, tree dislocation, tension cracks, bulging and local instability have been noted in the past although these have not been classed major risks they do indicate some insipient instability in local areas that will need to be considered as part of any earthworks widening designs where they affect these areas. It is understood that further asset inspections are due to be carried out this year as part of the rolling 5 year programme of inspections. These will need to be reviewed at detailed design stage to further inform the design of ground investigations, ground model and scheme designs and mitigation.

3.3.4 Coal Authority

The Coal Authority interactive web site and Coal Mining and Brine Subsidence Claims gazetteer was consulted and the site does not fall within a Coal Mining Reporting Area.

The geology beneath the site also confirms that the site will not be subject to coal mining. Therefore, no specific request for information was made to the Coal Authority.

4 HISTORY OF SITE AND SURROUNDING AREA

4.1 Former and current site and surrounding area uses

The following former and current land uses of the site and the surrounding area are taken from the Ordnance Survey maps presented in Appendix F. Reference to historical maps provides invaluable information regarding the land use history of the site and wider environ, however, it should be noted that historical evidence may be incomplete between successive maps, particularly during war time events/periods. Table 2 indicates the inferred history of the site whilst Table 3 indicates the inferred history of the surrounding area.

Table 2: History of site

Date	Former & Current Site Use
1884	The site is almost entirely covered by fields, each divided by hedge rows with some trees noted to be present, typically around the periphery. Collingtree Lodge and associated outbuildings are noted to be present within the northern region of the site, access via a two lane road which trends north to south, similar to the current configuration as the A45 London Road.
1900-01	No significant change, however the trees which were formerly within the boundaries of the site are no longer present upon mapping of this time.
1927	Limited data available.
1952	The two lane road which dissects the site from north to south has been renamed upon mapping as the A508. An orchard associated with Collingtree Lodge may encroach onto the northern boundary of the site.
1958	No significant change.
1965-68	Major development with regards to infrastructure across the site. 1965 to 1968 brought on the construction of the M1 motorway and the original grade separated Junction 15 configuration above the M1 linking the A508 to the M1 and the road network to the east. It is apparent that the A508, running perpendicular to the M1, has been widened to allow the management of the flow of traffic associated with the introduction of the M1 motorway. The M1 is located with a shallow cutting, whilst embankments mark the outer extents of the on/off slip roads. Soft landscaping, coniferous and non-coniferous trees line areas of embankment.
1977	Limited data available, no significant change noted.
1980-83	No significant change noted.
1990-92	Limited data available across the majority of the site. No significant changes apparent along the northern boundary of the site.

Date	Former & Current Site Use
1993	No significant changes noted.
1999	No significant changes noted upon mapping, however it is understood that revisions to the junction were undertaken from 1999 onwards. The ground investigation works were undertaken for Symonds Group Ltd.
2016	Current configuration of Junction 15 of the M1 is current identified on mapping of this time.

Table 3: History of surrounding area

Date	Former & Current Surrounding Land Use
1884	The 1km radius around the site is predominantly covered by fields, each divided by hedge rows with several non-coniferous trees noted, particularly around the periphery of the site. Collingtree Lodge is located within the boundaries of the site, however several outbuildings and associated hard standing is noted to lie outside the boundary of the site along the northern boundary. Approximately 250m north-east of the site is Courteenhall Grange, with access off a single tracked road, which connects to the presently named A45 London Road. An access track off the currently named A45 marks the southern boundary of the site and continues through to Rectory Farm, approximately 700m south-west of the site. The village of Collingtree is located 0.50km north-west of the site, whilst the village of Courteenhall is located approximately 1km south of the site. A branch line of the London North Western Railway is located 1km west of the site, travelling broadly north to south. Watermill Spinney is located approximately 800m south of the site. A spring is located at Watermill Spinney and a brook runs north, joining to a second unnamed brook approximately 300m south of the site.
1900-01	Allotment gardens are noted to be upon mapping of this time, adjacent north-west of the site.
1927	Limited data available.
1952	An orchard associated with Collingtree Lodge marks the northern boundary of the site. Expansion of residential/ commercial properties within the village of Collingtree, approximately 0.50km north-west of the site. The unnamed two lane road which transects the site centrally north to south, continuing off-site, has been named the A508.
1958	No significant change.
1965-68	Limited data to the south west of the site. The M1 motorway has been constructed centrally through the site, trending roughly north-west to south-east, continuing off-site towards the villages of Collingtree in the north and Roade in the south.
1979	Limited data available.
1982-83	Expansion of residential/ commercial properties within the village of Collingtree, approximately 0.50km north-west of the site. The spring in Watermill Spinney is no longer marked.
1990-92	Limited data available south of the site. A hotel is noted to be present, adjacent north of the site, which is the current

Date	Former & Current Surrounding Land Use
	configuration of the Hilton Northampton, with playing fields and associated sports facilities beyond.
1993	Limited data except the extreme west of the site, no significant change noted.
1999	No significant changes noted.
2016	A hotel (Holiday Inn) and commercial/ industrial development is marked adjacent east of the site, with residential properties beyond, collectively forming Grange Park.

5 DESK STUDY INFORMATION

The British geological Survey (BGS) plans and maps obtained have been reviewed to determine the anticipated geology beneath the site.

It is envisaged that the local geology beneath the site will be in line with the summary below detailed within Table 4 and are shown on Figures 3 & 4.

Table 4: Anticipate geology of site

Geology	Comment
Surfacing and Buried Structures: (source: Previous SI Envirocheck History Maps, Site Observation)	The majority of the site appears to be covered with hard standing associated with the current configuration of Junction 15, the associated on/off slip roads, and the north-south trending A45 London Road. As such, diamond coring would be required to penetrate the hardstand to facilitate any intrusive works. Areas of soft landscaping are restricted to areas of embankment, typically around the periphery of the site.
Made Ground / Topsoil: (source: Previous SI BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	The majority of the site is anticipated to be underlain by a road-pavement make-up comprising variations of **Asphalt, Sub-base**, with a possible **Basal Capping layer.** Additionally, it is anticipated that a sub-grade profile comprising **Made Ground soils/ Engineering Fill** associated with the construction of the embankments for the grade separated Junction 15 and on/off slip roads and the widening of the north to south trending A508, from the 1960's. Previous investigations associated with the development of Grange Park and the reconstruction of the junction have identified made ground soils and engineering fill to be present to depths ranging from 0.20 to 4.30m bgl. The soils encountered are noted to be variable, comprising clays, sands and gravels and appear to be predominantly reused natural deposits. Where the proposed revisions to the A45 London Road are anticipated to encroach on to the agricultural fields within the southern half of the site, it is anticipated that a cultivated plough layer, resulting in a sub soil or growing medium (Agricultural Topsoil) will be encountered, rather than topsoil associated with gardens. Previous RSK investigations (2014) have identified **Agricultural Topsoil** to be present to depths between 0.30 to 0.40m bgl. On occasion (WS1) **Subsoil** was identified to be present below the agricultural topsoil to a thickness of 0.30m. The agricultural topsoil comprised brown sandy slightly gravelly clay or slightly gravelly clayey sand. While the subsoil comprised orange brown slightly sandy slightly gravelly clay or clayey sand.
Drift Deposits: (source: Previous SI BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	The majority of the site appears to be underlain by a mantle of **Oadby Member** (Diamicton Till / Glacial Till) which typically comprises firm to stiff brown or dark grey slightly sandy slightly gravelly silty CLAY and was found to be on average between 2.00 to 4.00m thick but extended to 7.00m along the northern boundary of the site, off the A45. Along the western extent of the site **Glaciofluvial Deposits** have been mapped from ground level and beneath the Oadby Member, to depths of greater than 7.00m bgl. The deposits were generally found to be between 0.40 and 7.30m in thickness, and comprised orange brown occasionally slightly clayey gravelly sand or sand and gravel with the sand being predominant and mostly medium sized.
Bedrock (source: Previous SI	The entirety of the site is indicated to be underlain by **Whitby Mudstone Formation** located below the overlying superficial deposits and have been

Geology	Comment
BGS Maps, Available Borehole Logs, Envirocheck Geology & History Maps, memoirs)	identified to the full extent of the investigation within the boundaries of the site (7.60m bgl), although desk top information would suggest that the Whitby Mudstone Formation could extend up to 120m in thickness. These deposits appeared to generally comprise dark grey occasionally slightly sandy occasionally very silty clay and rarely silt, with bands of mudstone and siltstone.
Mining (source: Coal Authority web viewer, BGS Maps, Available Borehole Logs, Envirocheck records, Geology & History Maps)	None Identified.
Faults (source: BGS Maps, Available Borehole Logs, Envirocheck Geology Maps, memoirs)	None Identified within the boundaries of the site. The nearest fault line is noted to be present 1km south-east of the site and trends perpendicular to the M1 motorway.
Opencast Quarrying (source: Coal Authority web viewer, BGS Maps, Envirocheck History Maps)	Several sand and gravel quarries are noted to be present within approximately 0.5 to 1Km of the site, although none are anticipated to be present within the boundaries of the site. A site at Milton Malsor located 1km south-west of the site, beyond the London North-Western railway line, has allocated permissions for the extraction of up to 1.2M tonnes of glacial sands and gravels. It is however not being exploited at this time.
Mineral Protection (source: Local Authority Plan)	The entirety of the site falls within a Mineral Safeguarding and Consultation Areas (MSA & MCA) associated with the sand and gravels of the Glaciofluvial Deposits. Related to this is the submission for 'Preventing land use conflict – buffer for allocated sites' extends across the extreme northern boundary of the site. The above areas have been reproduced and are shown on Figure 7 of this report.
Soil Chemistry (source: Envirocheck / BGS)	Available soil chemistry data suggests that the natural soils anticipated to be present across the site are unlikely to contain any significantly elevated concentrations of contaminants that would be considered to represent a risk to Human Health for a commercial development. This was confirmed by the preliminary ground investigations.

It is envisaged that the local hydrogeology beneath the site will be in line with the summary detailed within Table 5.

Table 5: Hydrogeology

Hydrogeology	Comment
Aquifer Classification: (source: Envirocheck & EA Web)	The hydrogeology of the site is primarily characterised by the presence of **Unproductive Strata** (the **Oadby Member** and the **Whitby Mudstone Formation**), defined as predominantly low permeability layers with negligible significance for water supply or river base flow. The **Glaciofluvial Deposits**, which are anticipated to encroach into the north-western / western portion of the site, are classified as a **Secondary A Aquifer**. Secondary A Aquifers are defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Hydrogeology	Comment
Aquifer Vulnerability: (source: Envirocheck & EA Web)	The site predominantly consists of unproductive strata and is therefore generally considered to have a Low Vulnerability to contamination; however, due to the glaciofluvial deposits being a Secondary A Aquifer, it is considered that parts of the site, particularly in the north-west/ west, have an Intermediate Vulnerability. The Envirocheck report notes that soils of intermediate leaching potential can possibly transmit a wider range of pollutants.
Groundwater Abstractions: (source: Envirocheck & EA Web)	There are three groundwater abstraction license points located within 1km of the site boundary. The nearest one is held at B.E.S.D & N.L Capsey in Collingtree, approximately 705m north-west of the site. The abstraction is used for general agricultural purposes. The status is classed as revoked. Given the geological model it is unlikely that there is any connectivity to this abstraction well.
Groundwater Source Protection Zones: (source: Envirocheck & EA Web)	In terms of aquifer protection, the EA generally adopts a three-fold classification of source protection zones (SPZ) for public supply abstraction wells. Zone 1 or 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source. Zone 2 or 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants. Zone 3 or 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source. Information available on the EA website and Envirocheck report indicates that the site **does not** lie within a currently designated groundwater abstraction SPZ.

Given the nature of the site and the surrounding area, it is envisaged that the local hydrology will be in line with the summary below detailed within Table 6.

Table 6: Hydrology

Hydrology	Comment
Surface Waters: (source: Envirocheck, EA-web)	Two unnamed secondary rivers, flowing north-east to south-west, have been identified within the northern and southern regions of the site. The surface water features are connected via an extended culvert beneath the M1 motorway. In addition there are a further two extended culverts below Saxon Avenue and the south-eastern on-slip to the M1 motorway. The secondary river, typically flows in southerly direction, dissipating and branching off into three tertiary river approximately 250m south of the site.
Land Drainage (source: Envirocheck, Historical plans, site observations)	Observations made during the site walkover identified the presence of surface drains at the site. Where soft cover is identified within areas of embankment, surface run-off is likely to discharge directly into the underlying soils via infiltration. In addition, where the proposed revisions to the A45 London Road are anticipated to encroach on to agricultural fields, drainage ditches are noted to be present alongside the hedgerows which mark field boundaries within this area. These ditches are not all in continuity with each other but in general drain towards the south east of the site. The site has a general slope to the south / south east of the site where the unnamed brook (classed as a tertiary river) flows from west to east in the south of the site.

Hydrology	Comment
Floodplain: (source: Envirocheck, Historical plans, EA-web)	The indicative floodplain map for the area, published by the EA, shows the site is not located in a flood plain.
Flooding: (source: Envirocheck, Historical plans, EA-web)	The Envirocheck report has identified numerous reference points for the potential for groundwater flooding to occur. The EA indicates that the site is unlikely to be flooded by a river. Further consideration on the potential for flooding in relation to the development will need to be assessed and presented within a specific Flood Risk Assessment for the site.
River Quality: (source: Envirocheck, EA-web)	There are no river quality records available in the vicinity of the site.
Surface Water Abstractions: (source: Envirocheck, EA-web)	According to the supplied Envirocheck report, there are records of one surface abstraction point located with 1km of the site. The record is held by Collingtree Park Golf Course, approximately 938m north of the site. The license is held under permit number 5/32/04/*S/052b, the effective date was not made available, however it is known that water abstracted was utilised for spray irrigation purposes.
Discharge Consents: (source: Envirocheck, EA-web)	There are five records of licensed discharge consents identified within a 1km radius of the site. The nearest one is held by The Old Sandpit Garage, off the A508, approximately 624m north of the site. The license is held under permit number PR5NF5134 and was effective from 18th March 1986 for the discharge of other matter surface water in to a freshwater stream/ river.

Information from within the desk-based research endeavoured to investigate any natural ground hazards located on the site, a summary is provided below within Table 7.

Table 7: Natural ground hazards of site

Ground Hazards	Comment
Subsidence: (source: Envirocheck, Geology Maps, available GI data and Site Observation)	**Potential for Landslide Ground Stability Hazards**: very low.
Instability: (source: Envirocheck, Geology Maps, available GI data and Site Observation)	**Potential for Collapsible Ground Stability Hazards**: very low. **Potential for Compressible Ground Stability Hazards**: no hazard. **Potential Ground Dissolution Stability Hazards**: no hazard. **Potential for Running Sand Ground Stability Hazards**: very low. **Potential for Shrinking or Swelling Clay Ground Stability Hazards**: low.
Radon Gas: (source:	Given the proposed development is driven towards revisions of the current configuration of Junction 15 of the M1; the potential for radon gases to be of

Ground Hazards	Comment
Envirocheck, BRE, Public Health England HPA-RPD-033 d)	concern is negligible. The environmental database report (Envirocheck report, dated 13th February 2017) indicates that the site is located within a lower probability radon area, as defined by the Documents of the National Radiological Protection Board (Radon Atlas of England and Wales, NRPB-W26-2002). No protection measures are deemed necessary with regards to construction.

The desk-based research endeavoured to obtain records on the details of any pollution incidents, landfill sites and industrial uses of the site and other environmental related records, a summary is provided below within Table 8.

Table 8: Environmental information: pollution, landfill and industrial land use

Environmental Information	Comment
Landfill Sites: (source: Envirocheck, EA-web, Historical Plans)	There are three recorded licensed waste management facilities within 500m of the site, all related to the historical Wooton Quarry adjacent north of the site. While the nearest results all relate to a co-disposal landfill site, more recent entries, positioned further from site although still at Wooton Quarry, indicate the landfill accepts or has accepted solid (inert, degradable, putrescible), domestic, difficult, bonded asbestos and toxic (non-special) waste. Wooton Quarry was backfilled with solid inert waste in 1985. During the walkover survey (16th February 2017), it was noted the presence of gas and leachate pumping/ monitoring stations across the landfill, used to monitor and mitigate the levels of both methane and leachates within the different landfill cells. Please see site photographs within Appendix J.
Fuel Stations: (source: Envirocheck, Site Observations)	There are no fuel stations on or within 250m of the site. The nearest fuel station is located approximately 588m north of the site at Grange Farm Service Station and is currently operational and utilised for re-fuelling purposes.
Potentially Polluting Industry (source: Envirocheck, EA-web, Historical Plans)	There are no active Potentially Polluting Industries on or within 250m of the site.
Pollution Incidents (source: Envirocheck, EA-web)	There have been two recorded pollution incidents to controlled waters within the boundaries of the site, all located at the existing Junction 15 of the M1 motorway. Both recorded incidents are identified as being minor, relating to incidents involving diesel being released into either groundwater of surface water between 1998 and 1999. There are records of one other pollution incident recorded within 500m of the site. The incident is identified as being minor, similarly to the above, involving diesel being released into surface water in 1998.
Sensitive Land Use (Envirocheck)	No national or internationally designated sensitive land uses such as sites of special scientific interest (SSSI) were identified on site. It should be noted that the site is designated a Nitrate Vulnerable Zone, as is the entirety of the Collingtree area of Northampton, potentially due to a historical agricultural land use pre 1884, and as such, no further consideration is thought necessary. It is however understood that a separate ecological survey of the main development site has been undertaken by others. The original report supplied to

Environmental Information	Comment
	RSK in 2014, identified that no constraints lie within the boundary of the current study site, relating to Junction 15. However, it is noted that there is the possibility for Great Crested Newts to be present within the pond at the Rectory Farm. Two badger sets, one located within hedgerow within agricultural field's south-west of the site and another located within hedgerows adjacent south-west of the site. There is a potential barn owl roost within derelict farm buildings relating to Rectory Farm, and two trees with a moderate bat roosting potential along the western boundary of the site.
Unexploded Bombs (Zetica UXB Risk Maps)	Based upon the Zetica UXB Risk Map for Northamptonshire the risk for this site is **low**.
Invasive Plant Species	Japanese knotweed is a non-native, highly invasive species and spreads via rhizomes (underground 'stems') rather than seeds in the UK. It is found in a range of habitats across the UK including roadsides, riverbanks and derelict land. **Japanese knotweed was not identified to be present during the site walkover.** However it should be noted that an ecological assessment of the site was outside the scope of this assessment and the authors are not ecologists.

6 PRELIMINARY CONTAMINATED LAND RISK ASSESSMENT

The Preliminary Contaminated Land Risk Assessment presented in Appendix D is based on the anticipated ground conditions of the site outlined upon Figures 3 to 6. The main identified risks are discussed below in more detail however reference should be made to the risk matrix to understand all of the risks assessed.

6.1 Potential sources of contamination

Likely ground contamination resulting from the current and former land uses has been determined from the desk study research and reference to; the Environment Agency Publication CLR 8 'Potential Contaminants for the Assessment of Land' and the relevant Department of the Environment Industry Profiles.

Based upon the aforementioned desk-study information, Made Ground/ Engineering Fill associated with the construction of the grade separated embankment junction and subsequent reconstructions of the infrastructure associated with Junction 15 and the M1 motorway appears to be the primary potential contaminative source across the site. In addition, where the proposed revisions to widening the A508 are anticipated to encroach on to agricultural fields within the south-western extent of the site; there is a very low possibility for farming related activities (pesticides/ herbicides and spillages) to be a contaminative source.

The only source of significance within the surrounding area is the historical Wooton Quarry landfill noted adjacent to and north of the site.

Information gained from the previous RSK ground investigation within the main development site, adjacent to and south-east of the current study site, suggests that neither ground gases nor contaminant migration associated with the historical inert landfill, are anticipated to be affecting the main site.

As noted within section 5, above, at the time of the walkover survey gas/ leachate monitoring/ pumping stations were in use across the many cells of the landfill. Such applications are used to monitor and ultimately manage the gas/ leachate concentrations produced from the decomposing waste. These systems are used to manage and minimise the possibility of gas and or leachates migrating off site.

Visual or olfactory indicators of potential gross contamination were not encountered during the site walkover (16th February 2017).

Table 9 details the following areas that have been identified to be potential risks which may need further investigation with respect to ground related contamination source potential within the site area.

Table 9: Identified risks of potential contamination sources

	Contaminants of concern	Notes
On-site		
General **Made Ground/ Engineering Fill** associated with the development/ reconstruction of infrastructure relating to Junction 15 and the M1.	Fill material (potentially including heavy metals, ash, clinker, sulphates, polycyclic aromatic hydrocarbons (PAHs), asbestos etc.)	Made ground soils/ engineering fill noted upon BGS logs and during previous ground investigations across the site. No notes of gross contamination recorded upon logs of previous investigations relating to the site and indeed the ground appears to be primarily reworked natural soils which appear to represent a low potential contamination risk.
Farming related activities restricted to agricultural fields which encroach on to the south-western extent of the site.	Potential for pesticides and herbicides to have been used on site as part of general farm activities, also the potential for minor hydrocarbon spillages/leaks from plant breakdowns.	None.
On-site		
Wooton Quarry Landfill adjacent north of the site.	Ground gas/ leachate movement onto the site.	Groundwater flow is considered to travel in a south-easterly direction and as such there is a potential for contaminants to migrate towards the site if the Landfill is not lined and leachate not managed. However visual evidence suggests that the site is a modern managed facility and therefore the risk is anticipated to be very low.

6.2 Potential contamination pathways

In accordance with the Environment Agency Publication CLR 10 'The Contaminated Land Exposure Assessment Model' the potential pathways by which the on-site contaminants may affect the health of the future construction workers/ end users of the site:

- Inhalation of vapour
- Inhalation of fugitive dust
- Ingestion and absorption by direct contact; including hand to mouth contact and absorption through the skin.

In addition, potential pathways by which the on-site contaminants may affect the existing and future potential receptors at the site are:

- Migration by surface run-off; including in suspension or solution.

- Transportation via the land drains in to the sewerage system or to outlets into the environment (drainage ditches and streams).
- Migration in solution via groundwater; including leaching in the unsaturated zone and diffusion in the saturated zone. (Limited pathway only plausible where granular glaciofluvials are present close to surface)
- Plant uptake; through root systems in areas of soft landscaping.

6.3 Potential existing receptors

With the exception of the potential for made ground across the site and the general use of herbicides and pesticides within the agricultural fields which encroach onto the southern boundary, the site does not exhibit any clear signs of past or present contamination sources. The majority of the site has a cover of hard standing (Roads) with soft landscaping areas restricted to embankments sides and farm land on areas where new embankment slip roads are required to extend; however this will be disturbed during revisions to the current configuration of Junction 15. As such, the receptors may include:

- Groundwater within the Glaciofluvial Deposits in the north-west of the site (Secondary A Aquifer)
- Surface water drainage to on-site unnamed secondary rivers.
- Local flora and fauna & potentially crops.
- Current uses of the Junction 15 infrastructure/ M1 motorway.
- Adjacent land users and property.
- Ecological receptors

6.4 Potential future receptors

Site re-development will involve the re-development of the M1 Junction 15 grade separated junction to support and manage the increased traffic flow as a result of the main development site, which lies adjacent west / south-west of the site. The construction of the revised junction is likely to involve earthworks, particularly with reference to embankment areas, which will potentially generate fugitive dust and may bring site workers into contact with contaminated soils, if present. The duration of exposure to any on-site contaminants is likely to be limited; the degree of exposure may be significant.

However, visual and olfactory evidence from the walkover and available information, including history and geology, suggests that significant contamination is not likely to be present.

Potential future receptors are:

- Site construction workers.
- End users.

- New infrastructure, buried pipes and services.
- New structural foundations.
- Future landscaping and planting.

Please note that risks to construction workers are considered to be managed through health and safety procedures including CDM regulations.

6.5 Data gaps and uncertainties

Some uncertainty is present along limited sections of the Junction which were not completely visible/ accessible due to the traffic flow of the Junction/ Motorway at the time of the walkover. As such, not all of the site has been physically viewed at the time of the undertaking of this report.

There is some degree of uncertainty with regards to the composition of soils across the site post the reconstruction works of Junction 15 relating to the development of Grange Park from 1999 onwards. The embankments are understood to comprise a profile of general fill with some cover of class 4 topsoil's and subsoil materials on embankment slopes; the chemical make-up of which is unknown as was not made available within historical reports undertaken by Symonds Group in 1999. In addition, the site has experienced variations of change/ development from the last ground investigation report. Considering the time lapse from the previous investigation and the subsequent reconstructions undertaken across the site, some nominal ground investigation is potentially required to confirm the previous ground model and potential for contamination in shallow soils and the groundwater to inform detailed design, particularly in areas outside of the existing embankment where the new embankment will be required to be widened.

However, based upon the available information from desk based studies and previous investigations across the site and wider environment, it is considered that contamination risks are likely to be low.

6.6 Preliminary contaminated land risk assessment

An estimate of the risk associated with each linkage is summarised in the Preliminary Contamination Risk Assessment risk matrix included within Appendix D. The risk classification has been undertaken in accordance with CIRIA C552 (Rudland et al., 2001), a summary of which is included in Appendix C.

The initial findings of the assessment are as follows:

A risk of significant contamination being present across the majority of the site is considered unlikely. Given the data presented within previous site investigations and the aforementioned desk study data, the site was primarily agricultural fields till the 1960's upon the development of the M1 motorway and subsequent revisions associated with the addition of Grange Park which have resulted in the M1 motorway being created in

shallow cutting and an embankment to form the grade separated Junction (Junction 15 M1) and bridge over the M1.

There is considered to be a low potential risk of contamination associated with Made Ground/ Engineering Fill associated with the original development of the embankment and subsequent revisions of the infrastructure associated with Junction 15 and the M1 motorway. However available ground investigation work some of which appears to have been carried out through the embankment does not suggest the fill materials placed to form the embankment warrant a significant risk, indeed the materials as described appear to be primarily reworked natural strata with the odd inert foreign body such as bricks present.

Where the proposed revisions to widening the A508 encroach onto agricultural fields along the south-west and south-east boundaries, there is a low potential for contamination associated with general farming activities to be present in the natural soils. Potential contamination may include the potential for minor fuel spillages or leaks from farm plant and machinery and the past use of persistent and harmful pesticide and herbicide chemicals, particularly pre 2000.

Wooton Quarry Landfill facility is located adjacent to but beyond the northern extents of the site boundary, separated by the A45 London Road. This may represent a potential risk for ground gases to migrate onto site. Additionally, there is the possibility that mobile contaminants could migrate towards the eastern extent of the site as the general groundwater flow is thought to be towards the south-east. As noted previously, the landfill is historical and was backfilled with inert waste in 1985. At the time of the walkover survey, gas and leachate monitoring/ pumping stations were noted across the landfill cells, which are used to monitor potential contaminants and ultimately control/ mitigate levels through their pumping stations. Therefore the risks related to this off site source are considered to be low.

Based on the evidence collated from the historical plans, environmental databases, searches and site walkover, with the exception of the above, it is considered unlikely that the site has any other significant sources of contamination present.

Generally across the site the relative risks resulting from potential pathway linkages at the site can be considered as ***Low.***

6.6.1 Risk to human health during construction

Although no Made Ground soils were present within the Preliminary Ground Investigation relating to the Main Development Site or identified during the walkover, BGS logs and previous GI undertaken by Symonds Group (1999) indicate the presence of Made Ground/Engineered Fill soils relating to the original development and subsequent revisions of the M1 motorway and Junction 15. The chemical makeup of these soils is unknown and was not available within the information obtained from the HAGDMS. However strata descriptions do not raise concerns and appear to suggest that the strata are primarily reworked natural strata with the odd inert foreign body such as bricks present. As such, the risks to human health during construction are generally considered to be ***Low***. Similarly, with regards to asbestos containing materials

potentially present within said made ground, the risk to human health during construction is considered to be ***Moderate and vigilance will need to be maintained where exposing existing engineered fill materials.***

6.6.2 Risk to human health post construction

Although no Made Ground soils were present within the Preliminary Ground Investigation relating to the Main Development Site or identified during the walkover, BGS logs and previous GI undertaken by Symonds Group (1999) indicate the presence of Made Ground/Engineered Fill soils relating to the original development and subsequent revisions of the M1 motorway and Junction 15. The chemical makeup of these soils is unknown and was not available within the information obtained from the HAGDMS. However strata descriptions do not raise concerns and appear to suggest that the strata are primarily reworked natural strata with the odd inert foreign body such as bricks present. As such, the risks to human health during construction are generally considered to be ***Low***. The revisions to the infrastructure will be constructed using clean site won materials or/and suitable clean imported material and considering the scheme of the site and the presence of hard standing, the risk post development is considered to be ***Low***.

6.6.3 Risk to local ecology and landscaping planting

Given that the majority of the site has a cover of hard standing relating to the current configuration of the site, soft landscaping is typically restricted to areas of embankment around the periphery of the site. During the time of the walkover, although February, the flora appeared to be in relatively good condition. Considering BGS logs and previous GI undertaken by Symonds Group (1999) within the boundaries of the site, Made Ground soils are considered to present across the site and it is likely that plant uptake will come into contact with said made ground. However available ground investigation work some of which appears to have been carried out through the embankment does not suggest the fill materials placed to form the embankment warrant a significant risk, indeed the materials as described appear to be primarily reworked natural strata with the odd inert foreign body such as bricks present. Therefore as current planting is in good health and taking on board the strata descriptions of logs through the fill there is therefore only considered to be a ***Low risk to ecology and landscape planting from the existing embankment.***

Given that the revisions to the junction will be constructed using clean site won materials or/and suitable clean imported material and considering the scheme of the site and the presence of hard standing, the risk post development is also considered to be ***Low.***

6.6.4 Risk to surface water

There is a potential risk of contamination associated with Made Ground/ Engineering Fill associated with the original development and subsequent revisions of the infrastructure associated with Junction 15 and the M1 motorway. However, considering that hard standing does cover and will cover the majority of the site upon completion of the proposed revisions and given the cohesive nature of the natural strata, and the notes

upon existing materials and materials to be used detailed above, the risk to surface water from exposure to soils and groundwater is considered to be ***Low.***

6.6.5 Risk to groundwater

There is a potential risk of contamination associated with Made Ground/ Engineering Fill associated with the original development and subsequent revisions of the infrastructure associated with Junction 15 and the M1 motorway. However, considering that hard standing does cover and will cover the majority of the site upon completion of the proposed revisions and given the cohesive nature of the natural strata and the notes upon existing materials and materials to be used detailed above the risk to groundwater from exposure to soils is considered to be ***Low.***

6.6.6 Risk due to ground gas

The Envirocheck database report and the walkover survey identified a historical landfill adjacent to and beyond the northern boundary of the site and east of the A45 London Road. It is understood that this was filled with inert wastes.

During the walkover leachate and gas monitoring/ pumping stations were identified to be in operation on this landfill and this suggests that the gas and leachate is being managed which would minimise any risk of migration on to the subject site.

Review of available ground investigation work some of which appears to have been carried out into the subject site, through the embankment does not suggest the fill materials placed to form the embankment warrant a significant risk either, indeed the materials as described appear to be primarily reworked natural strata with the odd inert foreign body such as bricks present. Therefore the gassing potential of the existing strata is regarded to be ***Low.***

Previous Ground Investigation has been undertaken and 4 monitoring visits to monitor soil gas and groundwater within areas of the main SRFI development site immediately adjacent to the subject site. This monitoring confirms that no significant or elevated concentrations of harmful gases are present within the strata beneath the site.

If further investigation is undertaken then wells and monitoring should be undertaken to confirm risks particularly nearer to the offsite landfill.

It is recommended that a precautionary approach should be taken where entry into below ground excavations and confined spaces should always be atmosphere tested before and during entry.

6.6.7 Risk to buried structures and services

The evidence available at the time of this report suggests that Made Ground/ Engineered Fill soils are known to be present across the majority of the site, associated with the construction and subsequent revisions of the M1 motorway and Junction 15 upon embankment. As such, contamination relating to made ground/engineered fill is

considered to be a ***Moderate*** risk of exposure to in ground site works, and a ***Low*** risk to end users, surface water receptors and groundwater.

Additionally, information to date suggest that naturally occurring elevated sulphates in the form of sulphate crystals (gypsum) are likely to be present within cohesive soils present beneath the site and as such there is considered to be a ***High*** risk of exposure to aggressive substances that are likely to affect in ground concrete mix design and soil stabilisation techniques.

6.7 Requirement for further assessment

It is recommended that further investigation is undertaken to examine the existing embankment fill materials and to confirm its chemical make up at enabling works stage where uncovered.

In addition it is recommended that further ground investigation is undertaken in the areas where the junction embankments are to be extended to accommodate the new junction highways layouts.

Opportunities should be taken to install ground gas and groundwater monitoring wells where ever possible to confirm the current ground model and conditions beneath the site likely to be disturbed or affected by the proposed junction changes.

It is recommended that further investigation, testing and assessment of the underlying geology is undertaken to determine the potential for aggressive naturally occurring substances likely to affect in ground concrete.

7 ASSESSMENT OF GEOTECHNICAL RISKS

7.1 Preliminary geohazard and geotechnical assessment

Using all of the available information and taking into account the expected ground model for the site outlined upon Figures 3 to 6 the Preliminary Geotechnical Risk Register presented in Appendix E has been prepared and highlights several potential risks associated with the site. The main identified risks are discussed below in more detail, however, reference should be made to the risk matrix to understand all of the risks assessed.

7.1.1 Mining and natural cavities

The site is not within an area affected by coal mining or brine extraction. The geology is not conducive to the formation of large natural cavities.

7.1.2 Man made voids or obstructions

A major cut and fill reprofilling of the site was undertaken in the 1960's during the original development of the site, with subsequent further reprofilling undertaken from 1999 relating to the construction of Grange Park. Although the walkover and the Environmental Database Report did not highlight any voids, basements, sumps, tanks, wells and audits, vigilance is required during construction works.

7.1.3 Earthworks

Due to the nature of the proposed revisions across the junction, some form of earthworks is anticipated to be required to achieve the proposed redevelopment of the site.

In order to reduce the risk of excessive cost for offsite disposal and on site importation it is assumed that where possible site won materials will be utilised, arising from the main SRFI development site which will all fall under the same redline planning development boundary and which will comprise clean natural strata.

It is recommended that a ground investigation is undertaken. This will be aimed at providing data on the materials beneath areas of embankment widening required. This should confirm the strength of the soils which will bear the weight of embankment materials.

It is anticipated that the majority of the natural strata beneath the site will be cohesive in nature and therefore moisture content sensitive, this may additionally be the case for the made ground soils which are variable (clays/sands/gravels). Many UK cohesive soils tend to be wet of the optimum for compaction and as such, there is considered to be a moderate risk that these soils may need soil modification and/or stabilisation to render them suitable for reuse within structural fill beneath roads and hard standing.

When considering lime modification or stabilisation account must be taken of the risks of creating heave through the chemical reaction with naturally occurring sulphates within the clays soils present.

7.1.4 Existing cut slopes

There are several existing cut slopes located within the boundaries of the site, typically relating to the M1 which trends north-west to south-east through the site. These appear to be stable in the current form and it is not anticipated that the changes to the junction arrangements will change the loading on these cuttings and as such the risks to the existing cutting are considered to be negligible although checks maybe necessary at detailed design stage if it is determined that any additional loading is likely to impact upon these slopes particularly as the slopes are recorded by Highways England to vary between 20 and 30 degrees.

7.1.5 Existing embankment slopes

There are several embankment slopes on the site, all of which relate to the raised approach to the grade separated junction and in particular relate to the on/ off slip roads and the A508 and A45 London Road. At the time of the walkover, the embankments did not appear to be showing any signs of instability (viewed from legally accessible safe public highway footways) although no detailed slope inspections were undertaken. Data and Asset inspections provided by Highways England suggest embankment slopes on the on and off slips vary in steepness between 20 and 30 degrees and asset inspections last carried out in 2013 indicated local desiccation, tree dislocation, tension cracks, bulging although these have not been classed major risks they appear to indicate some insipient instability in local areas that will need to be considered as part of any earthworks embankment widening designs.

Widening of the existing embankments will require earthmoving in typically restrictive spaces adjacent to the present infrastructure at the site. Further investigation of the strata immediately adjacent to and beneath these embankment extensions as well as into the adjoining embankments will be necessary to allow assessment of the proposed future embankment stability and settlement and to facilitate detailed designs to be formulated.

7.1.6 Proposed cut slope design

No new cuttings required.

7.1.7 Proposed embankment design

Embankments are proposed for the site and these are believed to be required for structural purpose around the periphery of the site due to the widening of current infrastructure, requiring earthmoving.

It is anticipated that significant cost will be incurred in the formation of the embankments due to the volumes of materials required to be placed. It is assumed that clean site won materials (won from the main SRFI Site Area) will be suitable for reuse within the embankment construction to avoid excessive costs for importation of materials to form

the embankment. The design of the embankment will need to take account of the classification of the materials being utilised for its construction. Options for increasing side slopes and reducing footprint and volume may be explored and these may include reinforced embankments (geogrids) or soil stabilisation (lime and cement) or even retaining walls if required.

The risk of failure of embankments is increased where fine grained soils are used to construct them particularly if insufficient compaction and drainage is designed and the works proceed too quickly. Therefore it is recommended that staged construction is undertaken and that granular basal layers is installed and linked to the wider drainage network to avoid the build-up of pore water pressures in fine soils as works progress. This will aid and speed up consolidation and increase stability. Alternatively or additionally the use of soil stabilisation or reinforced earth might be considered.

Embankment slopes must be designed appropriately with regard to the stability of the soils being used to construct the embankment and take account of the strength of the underlying foundation soils and adjoining embankments and the presence of any adjacent features such as cuttings.

Drainage will need to be carefully designed to cope with surface water and to avoid runneling and softening of the slope faces and softening in the foundation soils, in particular at the toe of the slopes.

Targeted Ground Investigation is recommended to confirm the underlying ground conditions beneath the footprints of the proposed new embankment widening so that embankment foundation assessments with respect to settlement and slope stability may be made. Investigation is required to be undertaken in areas of cut material to assess the classification and suitability of cut materials for reuse to allow the embankment designs to be refined.

7.1.8 Cut to fill transition zones

It is anticipated that there could be a transition within the boundaries of the site. This change from cut in to past fill to newly filled areas can cause differential settlement. Proposed roads and the widening of existing roads are likely to be constructed across such cut and fill transition zones and as such design of earthworks and roads will require careful consideration and design within these areas.

7.1.9 Earthworks – Materials Reuse

In this case it is expected that the new parts of the proposed embankments will be constructed from site won arisings from the major cutting works which will be taking place on the main SRFI development site which will all form part of the overall scheme red line planning boundary.

It is expected that granular fractions of the Glaciofluvial Deposits present within the northern areas of the site would be most suitable for reuse within embankment fill as a Class 1 general fill. Whilst cohesive soils and mudstones mixed with weathered siltstones and sandstones are likely to breakdown under excavation and compaction to form more cohesive soils in line with Class 2 materials.

There is considered to be a low to moderate risk that the underlying mudstone and perhaps the overlying cohesive till (derived in part from the underlying strata) and possible made ground will include high sulphates. As such careful consideration should be given to the design and specification of earthworks given to the potential for sulphate induced heave especially where the materials noted above are used within a cut and fill program where soils would be significantly disturbed allowing a greater oxidation potential. Soil stabilisation techniques will also require careful consideration for the same reasons. Such materials would however be suitable for reuse within landscape features where the potential for heave does not present a risk.

According to the CL:AIRE guidance "The Definition of Waste: Development Industry Code of Practice" (version 2, March 2011), any material that may be otherwise considered by the Environment Agency as waste (such as made ground), if dealt with in accordance with the Code of Practice under a Materials Management Plan (MMP) will not be considered as waste if used for the purposes of land development. Any Clean and Naturally occurring material may be reused on the site of origin without the need to be included within an MMP.

Ground investigation is recommended to confirm the ground conditions, strata properties and soil chemistry within areas of cut (re-use materials).

7.1.10 Aggressive soil chemistry

The soils beneath the site are known to include naturally occurring sulphates (gypsum) and as such in ground concrete will need to be designed to accommodate the risks represented by contact with such sulphate containing soils.

In addition consideration will need to be given to the potential for sulphate induced heave especially where the materials noted above are used within a cut and fill program where soils would be significantly disturbed allowing a greater oxidation potential, this can be a particular problem where lime stabilisation is utilised to improve soil strengths

7.1.11 Highway construction

As the site is likely to require earthworks to achieve the required proposed levels of the widened roads, it is anticipated that engineering earthworks design specification will be provided to cover these elements and is likely to include a performance specification for the formation levels in both cut and fill embankment areas. Embankment earthworks designs will need to be checked for foundation bearing, settlement and slope stability to ensure that the embankments will not suffer detrimental settlement or failure once constructed.

7.1.12 Groundwater levels

The prevailing groundwater table within the area of the main development site, south/ south-west of Junction 15, has been tentatively confirmed within the Preliminary Ground Investigation to be present at depths of 79 to 80m AOD within the deep underlying Glaciofluvial Deposits. However, it should be noted that the groundwater monitoring programme was undertaken over a limited period.

The Oadby Member and Whitby Mudstone Formation are generally classed as unproductive strata although the Oadby Member is known to contain water bearing granular layers and the Whitby Mudstone may have confined permeable siltstone or limestone bands within it, which may yield local water strikes.

It appears from the previous Preliminary Ground Investigation undertaken within the main development site, that granular lenses within the Oadby Member Till did yield perched/ confined water, although no one consistent groundwater table was present as these sand and gravel lenses are randomly distributed through these deposits and not in continuity.

Further targeted ground investigation is recommended to allow the installation of groundwater monitoring instrumentation in critical areas and to facilitate groundwater monitoring to be undertaken to establish a prevailing groundwater table.

7.1.13 Drainage

It is anticipated that the majority of the natural strata and made ground soils will not be conducive to infiltration drainage techniques as these are predominantly cohesive in nature.

7.2 Requirement for assessment

A Ground Investigation report and Geotechnical Interpretative report produced by Symonds Group Ltd (dated March/ June 1999) is available and was undertaken previously at the Junction.

Ground investigations have also been undertaken on the main SRFI development site which lies adjacent to and north and west of Junction 15.

These reports confirm an anticipated ground model and soil properties for the current boundaries of the site comprising made ground /engineered fill material typically over Oadby Till, with Glaciofluvials restricted to the north / north-west with the Whitby Mudstone found at depth.

The significant geotechnical issues associated with the revised design of the grade separated Junction (Junction 15 of the M1) that require further investigation and assessment include:

- Full detailed Topographical Survey
- A detailed baseline study of the existing junction (asset) condition including structures, drainage, utilities and embankments where affected.
- Investigation of ground conditions beneath the embankment widening areas.
- Confirmation of local groundwater table beneath the embankment widening areas.
- Where possible further investigation of existing embankment make up particularly where new embankment widening is adjoining.
- Investigation of source materials from main SRFI site (not part of this work).

8 BASIS FOR DESIGN OF GROUND INVESTIGATION

A review of the currently available data and the contaminated land and geotechnical risk assessments presented above indicates the following issues that require further investigation:

8.1 General concept

The purpose of a ground investigation across the site would be to obtain geotechnical information to assist the design of the proposed junction revisions and to confirm the findings of the desk study. This in conjunction with the existing site investigation data will be used to formulate a geotechnical model which would be used for highway and structural design purposes.

In particular the investigation would provide information on the following;

- Full detailed Topographical Survey
- A detailed baseline study of the existing junction (asset) condition including structures, drainage, utilities and embankments where affected.
- Investigation of ground conditions beneath the embankment widening areas. Opportunities should be taken to install ground gas and groundwater monitoring wells where ever possible to confirm the current ground model and conditions beneath the site likely to be disturbed or affected by the proposed junction widening.
- It is recommended that further investigation, testing and assessment of the underlying geology is undertaken to determine the potential for aggressive naturally occurring substances likely to affect in ground concrete.
- Where possible further investigation of existing embankment make up particularly where new embankment widening to confirm its chemical and geotechnical properties (possible at detail design stage).
- Investigation of source materials from main SRFI site (not part of this work).

Techniques should aim to examine both near surface and deep strata and obtain sufficient samples for soil classification, preliminary earthworks testing, strength testing, settlement properties, soil chemistry and contamination assessments. It is important to stress that deep boreholes are recommended to be undertaken in areas of potential filling to confirm the deeper geology to assist in slope stability analysis. Boreholes should be instrumented to allow monitoring of both soil gas and most importantly groundwater levels across the site. Where existing instability has been identified by Highways England in areas immediately adjacent too or affected by the proposed works some targeted investigation should also be considered perhaps supplemented with instrumentation to monitor movement (slip indicators, inclinometers or/ and detailed regular topographical surveys with movement targets).

Some targeted investigation will be required specifically aimed at the areas of embankments to facilitate slope stability modelling and earthworks assessments.

Given the current site conditions and use and the anticipated geology it is recommended that the following ground investigation techniques are used:

- Trial Pits
- Cable Percussion Boreholes
- Dynamic Sampling and Rotary Follow using a Slope climbing rig

It is recommended that a Ground Investigation specification should be developed which takes account of areas yet o be investigated with regards to Junction 15, site conditions, restrictions, services, utilities and the proposed development. The specification should aim to target depth for investigation techniques at individual locations and the primary purpose for each exploratory position. This should be agreed with Highways England or their appointed representatives.

8.2 Restrictions and constraints to ground investigation

The issues in Table 10 below have been identified from the preliminary information provided to date they should be highlighted to the ground investigation contractor prior to site works.

Table 10: Restrictions and constraints to ground investigation

Restriction/Constraint	Yes	No	?	Comment
Ecology				
Great Crested Newts			✓	Previous ecological Investigations of the main development site, identified the potential presence of Great Crested Newts, badgers, bat roosts and lizards. RSK investigations would be undertaken in Junction 15 area, particularly within areas of proposed changes and as such are unlikely to impact upon ecological species as they will either be highway verges and lands or agricultural fields. Ecologist's advice and confirmation to be sought before proceeding with field works.
Badgers			✓	
Bats			✓	
Lizards			✓	
Japanese Knotweed			✓	
Tree Preservation Orders			✓	
Nesting Birds			✓	No Japanese Knotweed has been observed at the site.
Archaeology				
Buried features		✓		None known.
Listed Buildings		✓		No known listed buildings present at the site.
Physical Limitations & Access				

Restriction/Constraint	Yes	No	?	Comment
Restricted Areas	✓			Due to the current configuration of the site, there are areas that are restricted/ inaccessible and are likely to remain so throughout any future ground investigations. Particular areas include embankment slopes and highways. Given the busy nature of the junction it is not anticipated that any investigation would be feasible that would affect or restrict the junction operation unless traffic management and lane closures are employed perhaps including weekend or night works. Therefore works on or very close to the carriageway including the need for access/egress to the carriageway requiring Traffic Management may not be feasible.
Rough Ground	✓			Rough ground is typically restricted to areas of embankment. The south-west and south-east corners of the site are dominated by arable land in various states of crop. It is anticipated that investigations may be restricted by farming operations in some areas, particularly where crop remains, however provided land access agreements can be formed then ground investigations into the surrounding lands beneath areas of proposed embankments may be possible. Similarly some localised investigations into the embankment slopes might also be possible from the down slope side.
Soft Ground	✓			Ploughed fields will be difficult to access across for plant and machinery in the south-west and south-east of the site.
Steep Slopes	✓			Steep slopes are present around the periphery of the site relating to areas of embankment, particularly in the south along the on-off slip roads and A508.
Narrow/Restricted Access	✓			Access tracks and field margins used for access around the south-west and south-eastern areas of the site. These tracks are particularly narrow and are gated. Restricted access to areas of embankment due to the presence of wooden and metal bollards. Restricted access to the vast majority of the site, due to its current use as a junction feeding on to the M1 motorway and the vast majority of hard standing/ possible concrete covering the site.
Buried features			✓	None noted at the time of the site walkover, and no features noted within the Environmental Database report or within previous GI reports.
Active Site	✓			The entire junction site is an active open highway junction heavily trafficked. Surrounding areas are farmland.
Buildings / Hard-standing	✓			Hardstanding covers the majority of the site, associated with areas of defined highways infrastructure. It is not considered necessary to disturb areas of current hard standing within any future GI. Boreholes would be placed with areas of proposed widening.
Residential Area		✓		None within the boundaries of the site or the

Restriction/Constraint	Yes	No	?	Comment
				immediate vicinity.
Traffic Management	✓			Traffic Management would be required to control traffic flow around the junction in order to mobilise works and access/egress positions even when off carriageway.
Crops	✓			Arable fields bound the M1 along the south and these encroach onto the south-western and south-eastern boundaries of the site.
Livestock		✓		
Health and Safety				
Buried Contamination			✓	BGS logs and logs from previous investigations undertaken by Symonds Group Ltd (1999) within the boundaries of the site identify the presence of made ground/engineer fill soils as such there is the potential for contamination to be present within shallow soils and groundwater across the site. No chemical results were made available by the HAGDMS with regards to previous investigations at the site. However the contamination potential is deemed to be low as soil descriptions suggest the embankment is constructed from predominantly natural reworked soils which appear to be relatively inert.
Buried & Overhead Services	✓			From previously acquired plans and notes made during the walkover, it is apparent that underground services are present across the site. They are thought to typically trend north to south from the A508, over the motorway bridge, continuing onto the A45 London Road and Saxon Avenue. A electricity mast is present within the south-west arable field, adjacent to the A508.
Notes:? = Unknown				

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions and recommendations

There is little evidence to suggest there are any significant potential sources of contamination likely to be present that would detrimentally impact upon the proposed scheme design.

The geology of the site will impact upon the geotechnical elements of the detailed design; however these conditions are not anticipated to represent significant risks and would be anticipated to be resolved by normal engineering design and construction methods.

There are also no identified particular natural geohazards that would significantly impact the scheme.

It is however considered important to undertake some ground investigation in areas of proposed embankment widening and extensions to confirm the underlying ground including gas and groundwater regime. It would also be helpful to undertake some investigations into the makeup and geotechnical and chemical nature of the existing embankments where they will be extended and widened.

BIBLIOGRAPHY

Boyle, R. A. and Witherington, P. J. (2007), 'Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present', National House-Building Council and RSK Group.

British Geological Survey (2001), Sheet Number 202, Solid & Drift Edition, scale 1:50 000.

British Geological Survey (2002), Engineering Geology of British Rocks and Soils – Mudstones of the Mercia Mudstone Group.

British Standards Institution (1990), 'BS 1377:1990 Methods of test for soils for civil engineering purposes.

British Standards Institution (1999), 'BS 5930:1999 (+A2:2010). Code of practice for site investigations'.

British Standards Institution (2004), 'BS EN 1997 -1:2004 Eurocode 7: Geotechnical Design – Part 1: General Rules.

British Standards Institution (2007), 'BS EN 1997 -2:2007 Eurocode 7: Geotechnical Design – Part 2: ground Investigation & testing.

British Standards Institution (2009), 'BS 6031:2009. Code of practice for Earthworks.

British Standards Institution (2011), 'BS 10175:2011. Investigation of potentially contaminated sites: Code of practice'.

Building Research Establishment (2005), *BRE Special Digest 1: Concrete in aggressive ground* (London: BRE).

Building Research Establishment (2007) *BRE Digest 365. Soakaway design* (London: BRE).

Chartered Institute for Environmental Health and Land Quality Management (2009), 'The LQM/CIEH Generic Assessment Criteria for Human Health', second edition.

Chartered Institute of Environmental Health (CIEH) and CL:AIRE (2008), *Guidance on Comparing Soil Contamination Data with a Critical Concentration* (London: CIEH).

CL:AIRE (2009), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).

CL:AIRE (2011), *CL:AIRE Code of Practice. The Definition of Waste: Development Industry Code of Practice, Version 2* (London: CL:AIRE).

Dangerous Substances Directive (76/464.EEC).

Department for Environment, Food and Rural Affairs (2010), *The River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Directions 2010* (London: HMSO).

Environment Agency (2004a), *Model Procedures for the Management of Contaminated Land. Contaminated Land Report Number 11 (CLR11),* September (Bristol: Environment Agency).

Environment Agency (2004b), 'Policy Number 199_04, dated 9 March 2004, Part IIA – Detailed Quantitative Assessment of Chronic Risks to Human Health from Contaminated Soils'.

Environment Agency (2006a), 'Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination'.

Environment Agency (2006b), 'The Knotweed Code of Practice – managing Japanese Knotweed on development sites'.

Environment Agency (2008), *Science Report SC050021/SR7. Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values* (Bristol: Environment Agency).

Environment Agency (2009a), Contaminated Land Exposure Assessment (CLEA) software, version 1.06.

Environment Agency (2009b), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2*, January (Bristol: Environment Agency).

Environment Agency (2009c), 'Science Report SC050021 March 2009, May 2009 and September 2009.

Environment Agency (2009d), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).

Environment Agency (2010a), 'GPLC1 – Guiding Principles of Land Contamination', 'GPLC2 – Frequency Asked Questions, Technical Information, Detailed Advice and References', and 'GPLC3 – Reporting Checklists', all March.

Environment Agency (2011) Chemical Standards Database.

Environment Agency (no date) Freshwater environmental quality standards.

Environment Agency www.environment-agency.gov.uk/.

Hartless, R. (1991), 'BRE Report 212: Construction of new buildings on gas-contaminated land', Building Research Establishment.

Highways England (Formerly Highways Agency); Design Manual For Roads and Bridges; Volume 4 Geotechnical And Drainage Section 1 Earthworks Part 2 HD22/08 Managing Geotechnical Risk (August 2008).

Highways England (Formerly Highways Agency); Design Manual For Roads and Bridges

Highways England (Formerly Highways Agency); Manual of Contract Documents For Highway Works, Specification For Highway Works 2008.

Landmark Information Group (2013), 'Envirocheck report reference 49432360_1_1', dated 24 September 2013.

Norbury, D. (2010), *Soil and Rock Description in Engineering Practice* (Caithness: Whittles).

Office of the Deputy Prime Minister (2004), *Planning Policy Statement 23: Planning and Pollution Control* (London: The Stationery Office).

Part IIA of the Environmental Protection Act (Contaminated Land Regulations (England) 2002 (London: HMSO).

Rudland, D. J., Lancefield, R. M. and Mayell, P. N. (2001), *CIRIA C552. Contaminated Land Risk Assessment: A Guide to Good Practice* (London: CIRIA).

Stone, K., Murray, A., Cooke, S., Foran, J., Gooderham, L., (2009) CIRIA C681, Unexploded Ordnance (UXO). A guide or the construction industry.

The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (London: HMSO).

The Surface Waters (Dangerous Substances) (Classification) Regulations 1998 (London: HMSO).

The Water Supply (Water Quality) Regulations 1989, 2000 and 2001 (London: HMSO).

Transport and Road Research Laboratory (1970), 'TRRL Road Note 29 (Appendix 1). Road pavement design'.

Transport and Road Research Laboratory (1984), 'TRRL Report LR1132 (Table C1)'.

UK Water Industry Research (2010) *UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (London: UKWIR).

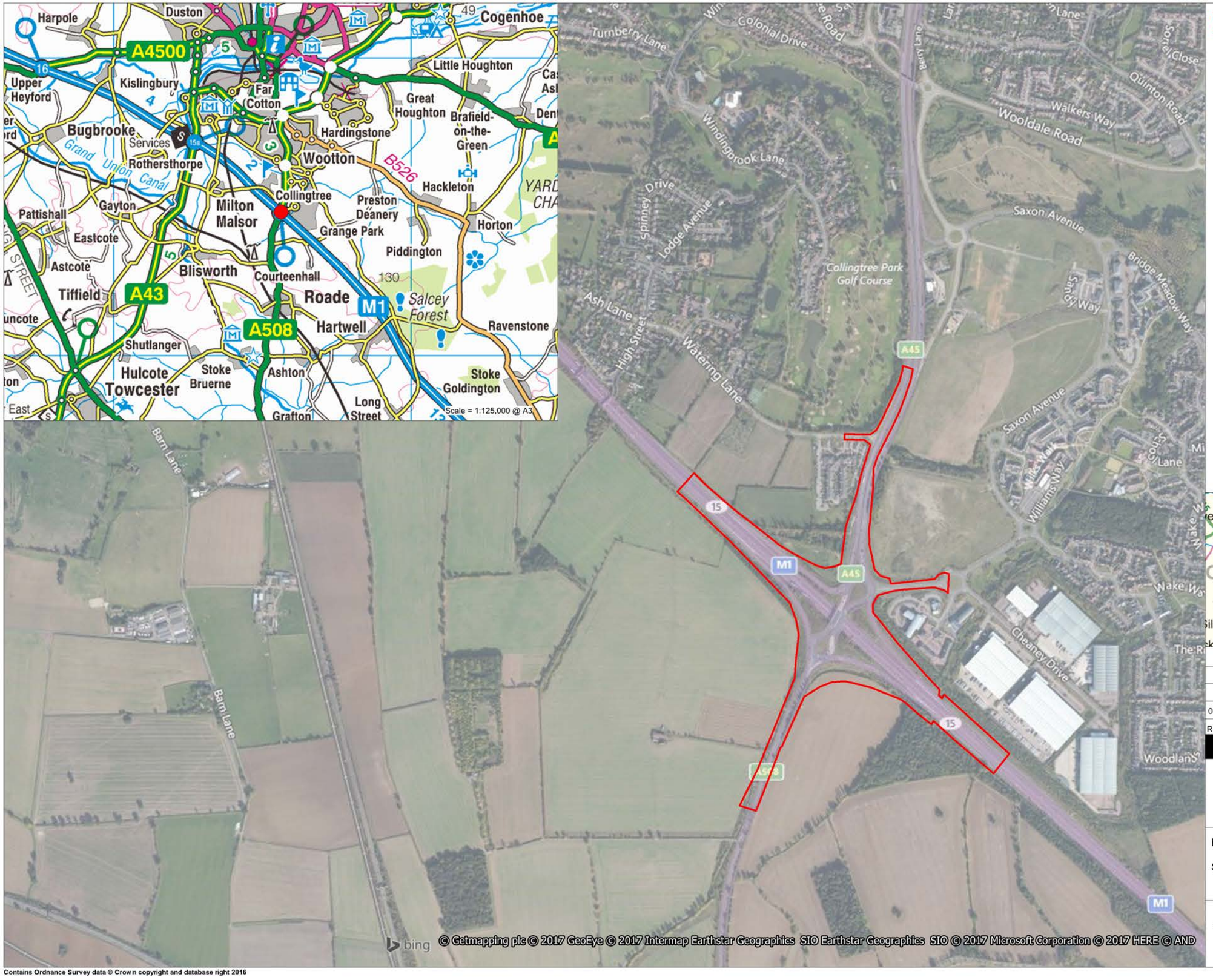
Water Framework Directive (2000/60/EC).

Wilson, S., Oliver, S., Mallet, H., Hutchings, H. and Card, G. (2007), *CIRIA Report C665: Assessing risks posed by hazardous ground gases to buildings* (London: CIRIA).

World Health Organization (2004), *Guidelines for drinking-water quality*, 3rd edn (Geneva: WHO).

WRc plc (2002), 'Polycyclic Aromatic Hydrocarbons (PAH): Priorities for Environmental Quality Standard Development, R&D Technical Report P45'.

FIGURES



Site Location

Rev	Date	Description	Drn	Chk	App
00	16.02.17	313588	SP	RG	MS

M1 J15 - Revised Junction Design

RSK

Figure 1

Site Loction Plan

0 300

Metres

Scale = 1:10,000 @ A3

N W E S

REV 00

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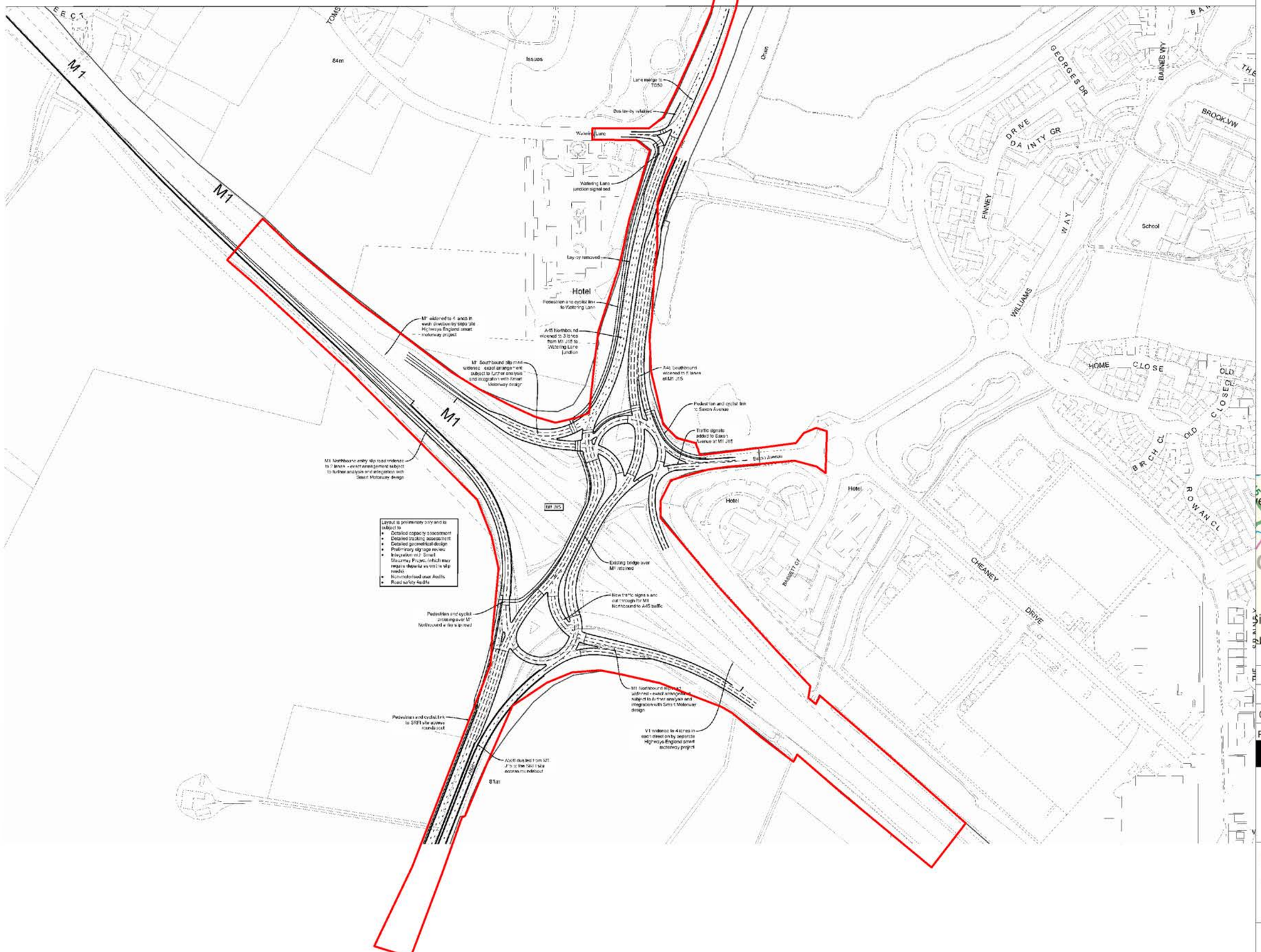
Site boundary



Rev	Date	Description	Drn	Chk	App
00	16.02.17	313588	SP	RG	MS

M1 J15 - Revised Junction Design

RSK

Figure 2

Proposed Development Plan

0 150
metres
Scale = 1:5,000 @ A3

N W E S

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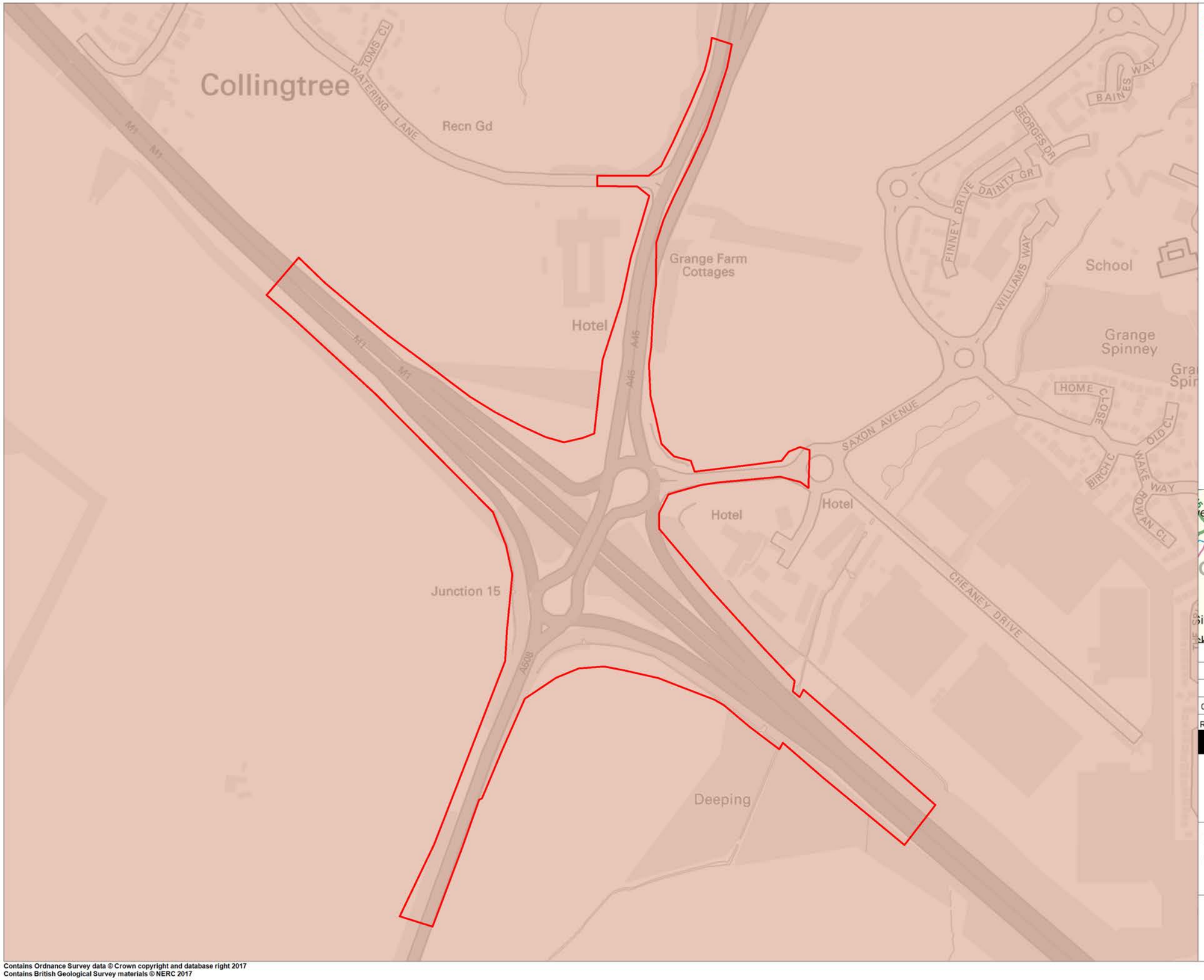
Proposed plan provided by client, Drawing; Newest Proposed Development.pdf



Site boundary

Whitby Mudstone Formation - Mudstone

Rev	Date	Description	Drn	Chk	App
00	16.02.17	313588	SP	RG	MS

M1 J15 - Revised Junction Design

RSK

Figure 3

Bedrock Geology

0 150

metres

Scale = 1:5,000 @ A3

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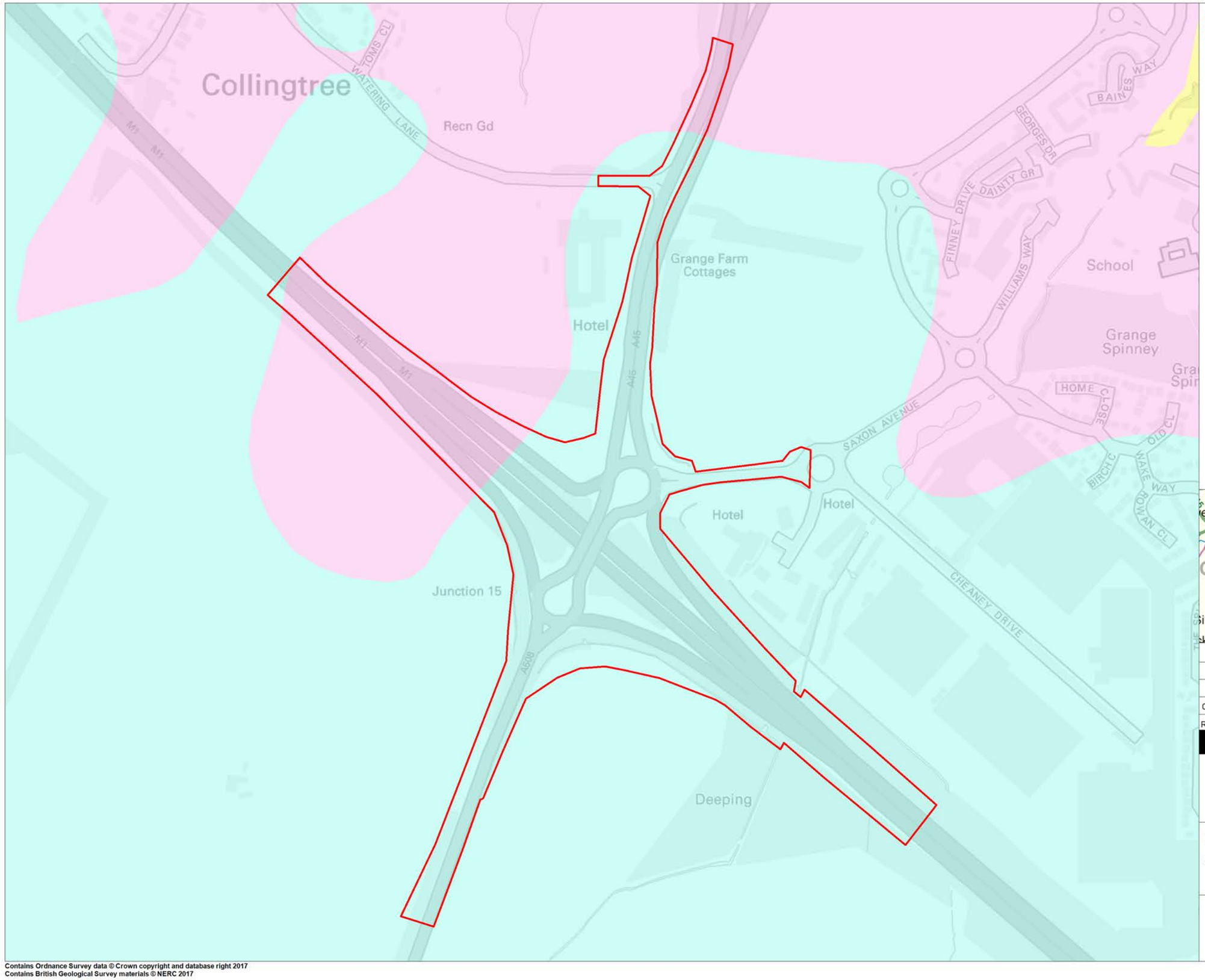

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M1 J15 - Revised Junction Design

RSK

Figure 4

Superficial Geology

0 150

metres

Scale = 1:5,000 @ A3

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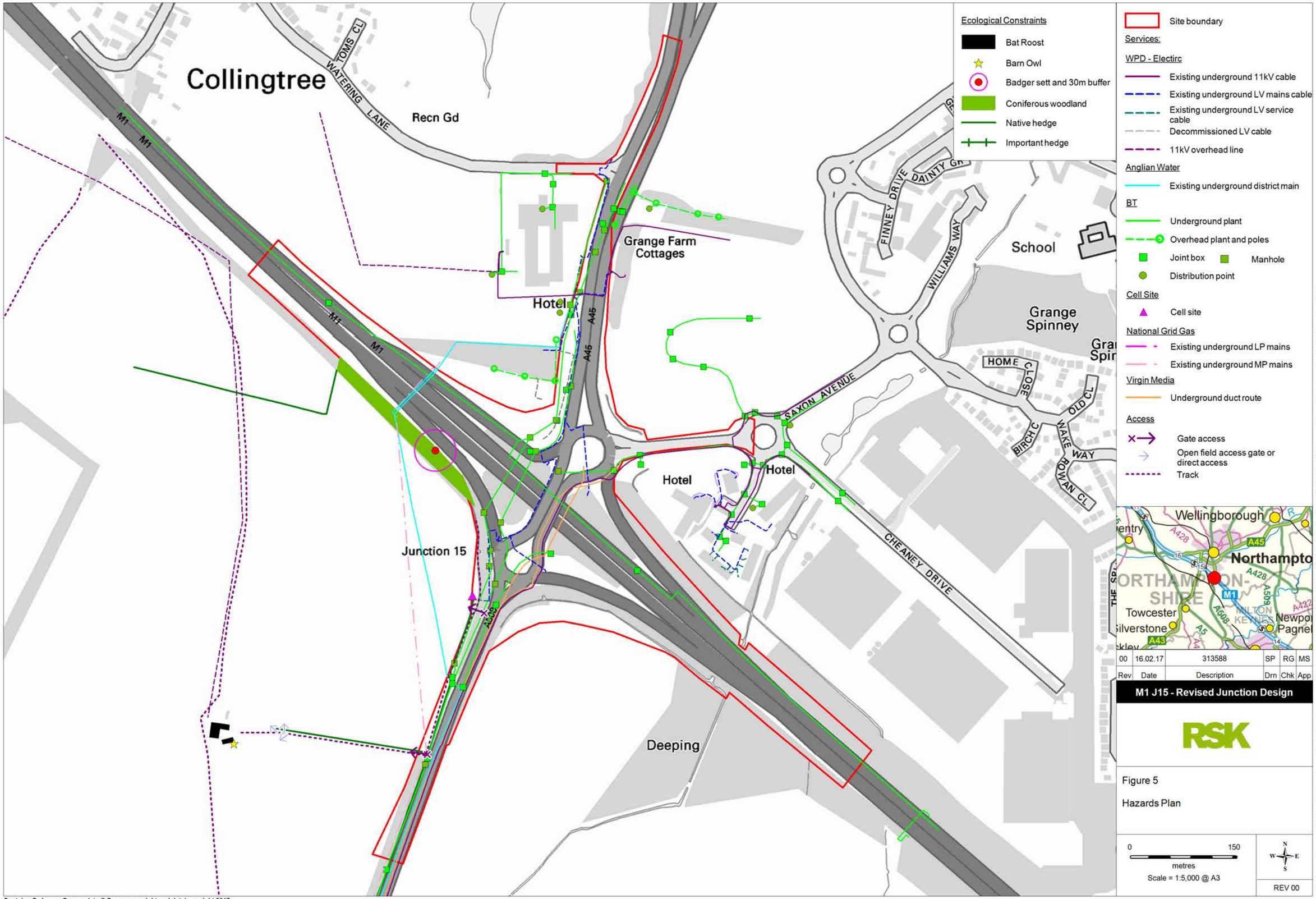

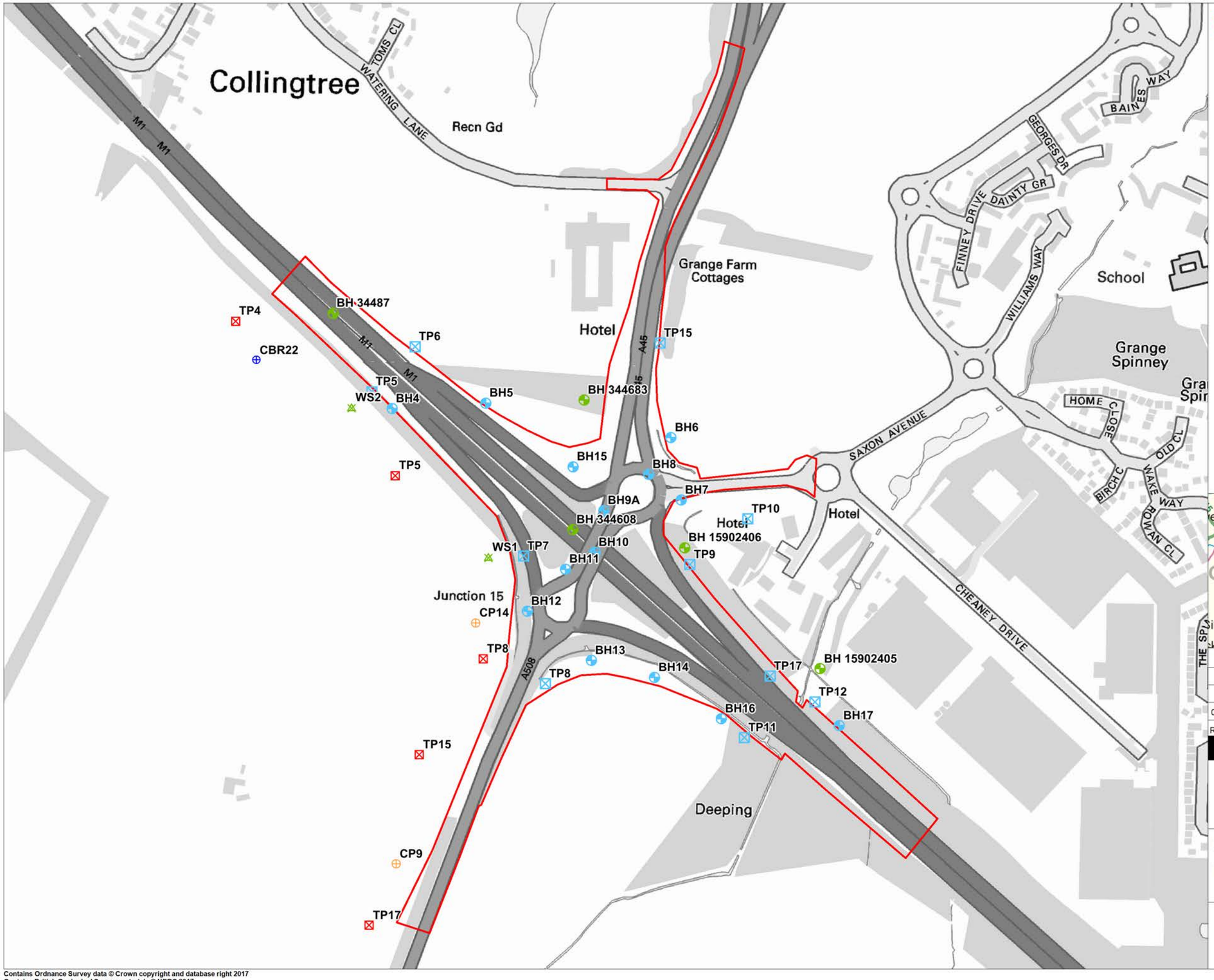

Site boundary

Preventing land use conflict - buffer for allocated sites (Submission)

Mineral Safeguarding and Consultation Areas (MSA & MCA)

Collingtree

TOMS CL

WATERING LANE

Recn Gd

M1

Grange Farm Cottages

Hotel

A45

BAINES WAY

GEORGES DR

DAINTY GR

FINNEY DRIVE

WILLIAMS WAY

School

Grange Spinney

HOME CLOSE

OLD CL

BIRCH C

WAKE WAY

ROWAN CL

SAXON AVENUE

Hotel

Hotel

CHEANEY DRIVE

Junction 15

A509

Deeping

Rev	Date	Description	Drn	Chk	App
00	16.02.17	313588	SP	RG	MS

M1 J15 - Revised Junction Design

RSK

Figure 7

Mineral Safe Guard Plan

0 150

metres

Scale = 1:5,000 @ A3

N W E S

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APPENDIX A
SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Roxhill Developments Limited (the "client") in accordance with the terms of a contract between RSK and the "client", dated July 2014. The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be** well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.

8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.

9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B
SUMMARY OF LEGISLATION AND POLICY RELATING TO CONTAMINATED LAND

Part IIA of the Environmental Protection Act 1990 (EPA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered to include all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA of the EPA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2010 provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2010 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use.

PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF).

The new framework has only limited guidance on contaminated land, as follows:

- *"planning policies and decisions should also ensure that:*
    - *the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;*
    - *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
    - *adequate site investigation information, prepared by a competent person, is presented".*

APPENDIX C
RISK ASSESSMENT METHODOLOGY

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. Under CLR11, three stages of risk assessment exist: preliminary, generic quantitative and detailed quantitative. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) pollutant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in ‘significant harm’ as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in ‘Draft Circular on Contaminated Land’, DETR 2000)
- medium: chronic damage to human health (‘significant harm’ as defined in ‘Draft Circular on Contaminated Land’, DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem

- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the table below.

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**Highly likely**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- Very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required.
- High: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term.
- Moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.
- Low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild.
- Very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

APPENDIX D
PRELIMINARY CONTAMINATED LAND RISK ASSESSMENT MATRIX

Contaminated Land Risk Assessment

In accordance with Environment Agency publication CLR 11 '*Model Procedures for the Management of Land Contamination*', a preliminary contaminated land risk assessment has been developed for the Site.

The risk assessment has been carried out using the risk model defined and outlined in the following table.

Potential sources have been identified from the desk study information and the guidance provided in EA publication CLR 8 '*Potential Contaminants for the Assessment of Land*'.

Hazard linkages will be determined by the proposed investigation and the risk re-assessed on the basis of the viability of the linkage.

If the hazard linkage is confirmed then remediation or management solutions will be proposed to ensure that no unacceptable risk remains following development.

	Category	Definition
Potential Severity	***Severe***	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters
	Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures
	Mild	Pollution of non sensitive waters, minor damage to buildings or structures
	Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non sensitive ecosystems or species
Probability of Risk	***High Likelihood***	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
	Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
	Low Likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
	Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

		Potential severity			
		Severe	***Medium***	***Mild***	***Minor***
Probability of Risk	***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

Contaminated Land Risk Assessment (Conceptual Site Model)

Source (type and location)	Pathway	Receptor	Initial Assessment from Desk Study Information			Proposed Investigation /Comments	Hazard Linkage	Revised Risk	Proposed Remediation / Management	Residual Risk
			Severity	Prob.	Risk					
Petroleum hydrocarbon compounds (petrol, diesel & oil) and associated volatile organic compounds within shallow soil / groundwater **(associated with minor spills and releases associated with neighbouring agricultural fields and current use of the site as motorway junction).**	Inhalation of vapour	Site workers	Medium	Unlikely	**Low**	The potential source identified relates to the possibility of minor isolated spillages and leaks from agricultural machinery within the arable fields. Widening of the northbound slip road and A508 will encroach into these areas. Additionally spillages/ leaks may additionally relate to the current use of the site as a junction of the M1 motorway, however hardstanding covers the majority of the site and was observed to be in relatively good condition at the time of the walkover, limiting migration pathways to mains drainage. In addition, It should be noted that cohesive soils are anticipated across much of the site, excluding the north-western boundary of the site, would prevent/ limit potential pathways. **Ground Investigation to be undertaken** in areas not previously investigated if necessary to inform detailed design and to confirm these assumptions. Identified Made Ground, or materials thought to be contaminated by visual or olfactory identification should be chemically tested. Where no Made Ground or visual or olfactory signs of contamination are identified a general screening of shallow near surface site soils should be undertaken. Groundwater monitoring wells to be installed and where feasible groundwater samples to be taken and testing to confirm existing groundwater quality in areas not previously investigated.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Ingestion and absorption via direct contact	Site workers	Medium	Unlikely	**Low**		TBC	TBC		TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Migration by surface run-off	Surface water drainage	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Migration by liquid flow	Surface water drainage	Medium	Unlikely	**Low**		TBC	TBC		TBC
		Aquifer	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Plant uptake	Local flora	Mild	Unlikely	**Very Low**		TBC	TBC		TBC
Toxic & phytotoxic heavy metals and semi metals within natural & made ground soils/ groundwater	Inhalation of fugitive dust	Site workers	Medium	Unlikely	**Low**	Where the site encroaches on to agricultural fields used for arable farming, metals may result from certain soil improvement fertilisers and from the use of sewage sludge's if ever used in the past. While the areas associated with the M1 and current configuration of Junction 15, may comprise made ground. It is unknown whether the raised A roads/ on/ off slip roads and embankments are likely re-deposited soils from the cuttings of the M1. Hardstanding covers the majority of the site and was observed to be in relatively good condition at the time of the walkover. In addition, It should be noted that cohesive soils are anticipated across much of the site, excluding the north-western boundary of the site, would prevent/ limit potential pathways. **Ground Investigation to be undertaken** in areas not previously investigated to inform detailed design and to confirm these assumptions. Where no Made Ground or visual or olfactory signs of contamination are identified a general screening of shallow near surface site soils should be undertaken. Groundwater monitoring wells to be installed and where feasible groundwater samples to be taken and testing to confirm existing groundwater quality in areas not previously investigated.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Ingestion and absorption via direct contact	Site workers	Medium	Unlikely	**Low**		TBC	TBC		TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Migration by surface run-off	Surface water drainage	Medium	Low likelihood	**Low**		TBC	TBC		TBC
	Migration in solution via groundwater	Surface water drainage	Medium	Low likelihood	**Low**		TBC	TBC		TBC
		Aquifer	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Plant uptake	Local flora	Mild	Likely	**Low**		TBC	TBC		TBC

Source (type and location)	Pathway	Receptor	Initial Assessment from Desk Study Information			Proposed Investigation	Hazard Linkage	Revised Risk	Proposed Remediation / Management	Residual Risk
			Severity	Prob.	Risk					
Fly Tipped Material	Ingestion and absorption via direct contact	Site workers	Medium	Low likelihood	**Moderate /Low**	Site walkover suggests there is no obvious significant fly tipped materials at the site.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		End users	Medium	Low likelihood	**Moderate /Low**					TBC
Asbestos within Made Ground (**associated with the current development of Junction 15 and the aligning embankments)**	Inhalation of fugitive dust	Site workers	Medium	Likely	**Moderate**	There is the potential for made ground to be present across the site, associated with the current site use as Junction 15. The composition of the embankments is currently unknown and as there is the potential for made ground soils to form these features which align the periphery of the site. Therefore, there is the possibility of asbestos to be associated with made ground soils, considering the age of the development of the site. However the site will have a covering of hardstanding limiting potential migration pathways to end users. Made ground soils to be examined and tested at the enabling works stage.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
Ground Gas from Made Ground and natural strata beneath the site.	Migration in to excavations/ workings	Site workers	Severe	Unlikely	**Moderate / Low**	Prior to the sites current configuration, the site was Greenfield, with no signs of naturally occurring sources of potential soil gas. The previous investigation relating to the main development site did not indicate any elevated concentrations of ground gases to be present in the natural strata. However, considering BGS logs of the area, made ground soils are anticipated to be present across the site (embankments), and as such, a potential source of soil gas is present. It should be noted that cohesive soils would prevent/ limit potential pathways and available information on embankment fill materials do not suggest a high gasing potential for made ground soils these being primarily natural soils origins with low to negligible organic matter contents. Made ground soils to be examined and tested at the enabling works stage.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
Aggressive substances (sulphates, acids, phenols, petroleum) in Shallow soils / groundwater	Direct contact with construction materials	Buried Structures	Medium	High Likelihood	**High**	Available data suggests the potential presence of naturally occurring high sulphates levels in deep Whitby Mudstone Formation and also likely to be present in the overlying Oadby Till. Previous investigations have indicated that elevated concentrations of sulphates exist at the site in shallow soils. Development concrete mix designs to compensate for identified risks. **General Ground Investigation to be undertaken** in areas not previously investigated to inform detailed design and to confirm these assumptions.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		Buried Services	Medium	High Likelihood	**High**		TBC	TBC		TBC
Herbicides and Pesticides within shallow soil **(associated with the arable fields)**	Inhalation of vapour	Site workers	Medium	Unlikely	**Low**	Widening of the northbound slip road and A508 will encroach into the arable fields which are noted adjacent south of the M1 motorway at Junction 15. These fields are identified as being part of a modern arable farm. Modern arable farming should only utilise non persistent biodegradable safe pesticides and herbicides for crop production which are licensed and controlled. However, the use of environmentally persistent pesticides and herbicides may have historically been used in arable farming and as such the presence of widespread soil contamination by	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Ingestion and absorption via direct contact	Site workers	Medium	Unlikely	**Low**		TBC	TBC		TBC
		End users	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Migration by surface run-off	Surface water drainage	Medium	Unlikely	**Low**		TBC	TBC		TBC

	Migration by liquid flow	Surface water drainage	Medium	Unlikely	**Low**	older uncontrolled and unlicensed persistent and dangerous herbicides and pesticides is considered possible though is unlikely. Previous ground Investigation testing for the main development site did not reveal any elevated concentrations. **General Ground Investigation to be undertaken** in areas not previously investigated to inform detailed design and to confirm these assumptions.	TBC	TBC		TBC
		Aquifer	Medium	Unlikely	**Low**		TBC	TBC		TBC
	Plant uptake	Local flora	Medium	Unlikely	**Low**		TBC	TBC		TBC
Ground Gas migration from Wooton Quarry historical landfill adjacent north of the site.	Migration in to excavations	Site workers	Severe	Unlikley	**Moderate/ Low**	Historical Wooton Quarry landfill noted adjacent north of the site. During the walkover leachate and gas monitoring/ pumping stations were identified to be in operation at the site of the historical landfill to monitor both forms of contaminant. Previous Ground Investigation has been undertaken and 4 monitoring visits to monitor soil gas and groundwater within areas of the main development site. This monitoring confirms that no significant or elevated concentrations of harmful gases are present within the strata beneath the site. If further investigation is undertaken then wells and monitoring should be undertaken to confirm risks particularly nearer to the off site landfill.	TBC	TBC	To Be Confirmed Following Ground Investigation	TBC
	Migration in to development	End Users	Severe	Unlikely	**Low**		TBC	TBC		TBC

APPENDIX E
PRELIMINARY GEOTECHNICAL RISK REGISTER

Preliminary Geotechnical Risk Register

The wider development site covers an area of approximately 172Ha, the centre of which is defined by the following National Grid co-ordinates: 474940, 254715. The site is bound to the north east by the M1 motorway, to the south east by the A508 road and to the south west and north west by a railway. This risk register refers specifically to the area of M1 Junction 15 where proposed amendments to the design of the junction are required to accommodate the additional traffic loads likely to arise from the development and to increase the efficiency of the junction.

Geotechnical Risk Register

The Geotechnical Risk Register has been compiled to show the degree of risk attached to various ground related aspects of the proposed development. The purpose of the register is to provide an assessment of the risk to the project posed by common ground related problems, and to identify suitable mitigation measures for the control of risk to an acceptable level. The risk register should be developed and refined as the geotechnical design and assessment progresses such that the register will allow the management of the geotechnical risks.

The inclusion of a risk in the register does not constitute confirmation that the problem actually exists at the site. A probability of 'very unlikely' is indicative of a condition which the available data suggests should not be present. The calculated risk is not the risk that the impact will occur it is the risk that the mitigation will be required to enable the project to progress. For the purposes of this risk register the magnitude of each impact and the resulting severity of risk is measured against that which would could 'normally' be expected for each element. Before incorporation into a project risk register the impacts and risks for each element should be moderated by an assessment of the cost and time implication of individual mitigation measures.

The Geotechnical Risk Register has been developed in general accordance with the guidance presented in ICE/DETR Document 'Managing Geotechnical Risk' (2001) and the HA documents HD41/03 and HD22/02. The degree of risk (R) is determined by combining an assessment of the probability (P) of the hazard occurring with an assessment of the Impact (I) the hazard and associated mitigation will cause if it occurs (R = P x I). The scale against which the probability and impact are measure and the resulting degree of risk determined is presented below.

Probability	(P)
Very Likely (VLk)	5
Likely (Lk)	4
Plausible (P)	3
Unlikely (U)	2
Very Unlikely (VU)	1

x

Impact	(I)
Very High (VH)	5
High (H)	4
Medium (M)	3
Low (Lw)	2
Very Low (VLw)	1

=

(R)	Risk
20 – 25	Severe (Sv)
15 – 19	Substantial (Sb)
10 – 14	Moderate (Md)
5 – 9	Minor (Mn)
1 – 4	None / Negligible (N)

	Site / Ground Conditions	Hazard	Potential Impact	Before Control			Comments and Proposed Mitigation	RR
				P	I	R		
Contaminated Land	Previous site use	Contaminated Ground	Health and safety, environmental damage, pollution requiring Remediation	Lk 4	H 3	Mn 6	Up to the 1960's the site and wider area appears to have been primarily greenfield. However, major development and cut and fill profiling occurred from the 1960's with regards to the current infrastructure across the site, resulting in the M1 motorway and associated Junction 15. It is anticipated that made ground soils, of variable depths, are present across the site. Areas of embankment and or cambered roads may be constructed on imported fill material, or potentially from the cut material from the redevelopment of the M1 motorway which has been cut into the localised geology. **Supplementary Ground Investigations will be required in due course on inaccessible and uninvestigated areas**. See separate Contaminated Land Risk Assessments for further details.	TBC
Underground Voids	Mine Shafts	Shaft Collapse	Surface deformation, structural damage. Health and Safety	VU 1	H 4	N 4	Site is not within mining area as defined on Coal Authority (CA) gazetteer and web site. Previous investigation confirmed geology, and this confirms neglible risks.	TBC
	Shallow Mining	Workings Collapse crown holes, subsidence	Surface deformation, structural damage.	VU 1	H 4	N 4	Site is not within mining area as defined on Coal Authority (CA) gazetteer and web site. Previous investigation confirmed geology, and this confirms neglible risks.	TBC
	Deep Mining	Workings Consolidation, subsidence	Surface deformation	VU 1	M 3	N 3	Site is not within mining area as defined on Coal Authority (CA) gazetteer and web site. Previous investigation confirmed geology, and this confirms neglible risks.	TBC
	Natural cavities; solution features, Caves and Gulls	Unstable natural ground	Surface deformation, structural damage. Health and Safety	VU 1	M 3	N 3	Geology not conducive to the formation of solution features.	TBC
	Other voids; basements, sumps, tanks, wells and adits etc.	Collapse, subsidence	Surface deformation, structural damage. Health and Safety	P 3	Lw 2	Mn 6	The vast majority of the site was disturbed during the 1960's to develop the present infrastructure, although the walkover did not indicate any possible voids, man made or otherwise at the site. **Vigilance required during construction works**	TBC

	Condition	Hazard	Impact	P	I	R	Comment / Mitigation	RR
Slopes and Earthworks	Existing steep slopes on site	Slope failure	Site stability; surface deformation at crest, structural damage to services , highways and adjoining property.	VLk 5	H 4	Sv 20	There are several embankments and partial cuttings within the boundaries of the site along the M1, A roads and the on/ off slip roads. At the time of the walkover the embankments appeared stable showing no sign of significant instability from the limited access available (viewed only from public highways footways). HE observations from asset inspections in 2013 however, suggest some minor desiccation, possible tension cracks, tree dislocation and localised bulging in parts of the M1 on/off slip road embankments suggesting localised instability might be present. These assessments also suggested that the slopes were of the order of 20 -30 degrees, considered to be oversteep for long term stability given the geology. It is understood that further inspections are planned by HE later this year. The proposed new design revisions will include the widening of the existing A45, A508 and Saxon Avenue, and the widening of the on/off slip roads, utilising 1:3 (18 degrees) side slopes at this preliminary stage. This would therefore increase stability. Upon granting of the DCO, review of latest HE inspections will need to be carried out to aid the design of **Supplementary Ground Investigations required to confirm the ground model and strata properties beneath the proposed embankment widening to allow assessment of settlement and slope stability to be undertaken and detailed design and earthworks specifications to be provided for approval by HE.**	TBC
	Gradient on site	Earthworks required to accommodate layout of proposed revisions	Increased cost of development	VLk 5	H 4	Sv 20		TBC
	As-dug cut material unsuitable as fill	Unstable earthworks	Surface deformation, structural damage	P 3	H 4	Md 12	It is anticipated that the majority of materials within potential cut areas will be suitable for reuse, however these materials are expected to be sensitive to moisture content change and could be wet of optimum allowable ranges to allow structural reuse. Therefore soils may need modification or stabilisation in structural fill areas and will need careful handling throughout the works. Preliminary ground investigations have confirmed soil strata classification and properties, **Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC
	Embankment Stability	Slope failure	Site stability; surface deformation at crest, structural damage to services , highways and adjoining property.	P 3	VH 5	Sb 15	Slopes will need to be carefully assessed, modelled and designed and will need to accommodate suitable drainage systems. **Supplementary Ground Investigations will be required to confirm the ground model and strata properties where embankment widening and where existing cuttings might be impacted by design changes to allow assessment of slope stability to be undertaken.**	TBC
	Cutting Stability	Slope failure		P 3	VH 5	Sb 15		TBC
	Insufficient suitable fill	Import required to achieve design levels	Increased cost of development	P 3	H 4	Md 12	A careful cut to fill balance should be achieved to avoid the unnecessary importation of fill materials. **Preliminary ground investigations have confirmed soil strata classification and properties, Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC

	Condition	Hazard	Impact	P	I	R	Comment / Mitigation	RR
Foundations & Substructures	Loose or soft, compressible soils at shallow depth	Ground unsuitable for proposed revisions	Excess settlement or alternative foundations	P 3	H 4	Md 12	Anticipated geology is not expected to be particularly susceptible to significant risks of settlement. **Preliminary ground investigations have confirmed soil strata classification and properties, Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC
	Adjacent Structures	Works on site affecting stability of adjacent structures	Alternative design or altered development layout.	Lk 4	H 4	Sb 16	Buildings associated with Grange Park noted to the north and east of the site. The design of proposed cuttings and embankment fill will need to be suitably robust and take into account the proximity and loading from or onto the M1, A508 and A45. **Preliminary ground investigations have confirmed soil strata classification and properties however Supplementary Ground Investigation targeted at specific areas of concern maybe required to confirm ground model and specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC
	Differential Settlement	Settlements / heave beneath roads as a result fo cut to fill works.	Damage to roads and structures.	P 3	H 4	Md 12	Careful design has to be undertaken to smooth the transition from cut insitu materials to engineered fill materials. **Design will need to take account of specification for earthworks which may need to include soil stabilisation improvement. Any stabilisation needs to take account of the risk of heave from the presence of naturally occurring high sulphate concentrations in the soils. The use of geogrids and granular layers or blocks might need to be considered in transition zones.**	TBC
	Aggressive Ground Chemistry	Attack of buried concrete	Protection required	Lk 4	M 3	Md 12	Available information suggests that gypsum a naturally occurring sulphate could be present within several strata beneath the site and this will require more resistant concrete mix designs to be used to protect in ground concrete from attack. Preliminary ground investigations have confirmed soil strata classification and properties, **Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated**.	TBC

	Condition	Hazard	Impact	P	I	R	Comment / Mitigation	RR
Floor slabs and Road Pavements	Soft and compressible near surface soil	Low CBR due to soft formation	Surface damage or alternative design	U 2	M 3	Mn 6	CBR is anticipated to be low for the predominantly cohesive soils expected to be present across the site. CBR will be highly dependent upon ground conditions exposed following completion of earthworks and as such will depend upon earthworks specification and prevailing weather conditions. **Ground Investigation is required to confirm the ground model and strata properties.**	TBC
	Frost susceptible soils	Frost Heave	Surface damage or alternative design	P 3	M 3	Mn 9	Final road pavement construction thickness design should incorporate this risk.	TBC
Drainage & Flooding	High groundwater	Effects cutting levels and cutting depths.	Affecting cut fill balance feasibility	Lk 4	H 4	Sb 16	The site is generally underlain by low permeability, unproductive strata (Oadby Member and Whitby Mudstone Formation), although, shallow perched groundwater may be present within the Glaciofluvial Deposits in the north and north-west of the site. Preliminary ground investigations have confirmed general but variable groundwater tables, **Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC
	Embankment earthworks and cutting slopes will require drainage.	Insufficient attenuation soakaways/ponds to accommodate earthworks drainage	Flooding	Lk 4	M 3	Md 12	Drainage designs to accommodate expected drainage from earthworks slopes and cutting drains in addition to hardstandings and highways surface water run off.	TBC
	Local watercourse	Flooding	Flood protection required	P 3	H 4	Md 12	The site is not located within an area at risk of flooding, however specialist flood risk assessment and drainage designs may be required by others.	
	Condition	Hazard	Impact	P	I	R	Comment / Mitigation	RR
ues	Loose or unstable strata at shallow depth	Excavation Instability	Collapse or support required. Health and safety	P 3	H 4	Md 12	The majority of strata expected to be present across the site are anticipated to be generally stable in the short term during excavation. If glaciofluvial deposits are encountered along the northern/ north-western boundaries of the site, there are likely to be unstable and this could be exasperated with the presence of groundwater. Should man entry be required suitable support or battering back of excavation sides will be required and atmospheres will need to be tested. **Preliminary ground investigations have confirmed soil strata classification and properties, Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC

Temporary Works & Construction Issu	Hard Strata / obstructions at shallow depth	Hard Digging / Hard driving	Increase cost and delay	VLk 5	M 3	Sb 15	Hard strata in the form of bedrock mudstones may be present at depth within the solid geology and could be encountered as part of the major earthworks. In addition, hard standing covers the majority of the site. Made ground soils are anticipated, the composition and depth of which is unknown. **Preliminary ground investigations have confirmed soil strata classification and properties, Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed**	TBC
	Presence of UNRECORDED sensitive underground services.	Damage during works posing risk to H&S of personnel and public	Increased cost of delay and for unplanned diversions and protection or repair.	P 3	H 4	Md 12	Vigilance throughout works. Ensure up to date service drawings are obtained and site is scanned before works commence and ensure all necessary diversions have been programmed and undertaken prior to any main works if required.	TBC
	Shallow Groundwater	Inundation of Excavations	Increase cost and delay. Health and safety	Lk 4	H 4	Sb 16	Shallow groundwater tables are anticipated to be possible within the shallow Glaciofluvial Deposits in the north and north-west. Discrete confined groundwater tables may be expected to be present within the more permeable bands throughout the Oadby Member deposits beneath the site and could be intersected by deep cuttings and earthworks. **Preliminary ground investigations have confirmed variable groundwater levels, Supplementary Ground Investigation maybe required to confirm specific strata properties for detailed design and to investigate areas previously not investigated.**	TBC
	Contaminated Ground	Precautions for Groundworkers	Increase cost and delay. Health and safety	P 3	M 3	Mn 9	Vigilance throughout works. Seek advice of Environmental Engineer if any identified unusual odorous or visually contaminated materials encountered. **Ground Investigation is required to confirm the ground model and strata properties.**	TBC
	Contaminated Ground	Increased Disposal Costs	Increase cost and delay. Health and safety	P 3	M 3	Mn 9		

Note: The register only considers geotechnical risk other risks may be present on site, including in-ground risks such as; ecology, archaeology, buried services, UXO etc., which are outside the scope of this assessment.

APPENDIX F
ENVIRONMENTAL DATABASE INFORMATION

Envirocheck®
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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
113971408_1_1

Customer Reference:
312598

National Grid Reference:
475600, 254720

Slice:
A

Site Area (Ha):
12.87

Search Buffer (m):
1000

Site Details:

M1 Junction 15
NORTHAMPTON

Client Details:

Mrs D Martin
RSK Environment Ltd
Abbey Park
Humber Road
Coventry
CV3 4AQ

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LANDMARK INFORMATION GROUP®

Contents

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 the attached 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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Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v50.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3				5
Prosecutions Relating to Controlled Waters			n/a	n/a	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	pg 4			1	2
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 5	2		1	1
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	pg 6				3 (*4)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 7	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 8		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 8		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Detailed River Network Lines	pg 8	Yes	Yes	Yes	n/a
Detailed River Network Offline Drainage	pg 12		Yes	Yes	n/a

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 13				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 13		1	3	2
Licensed Waste Management Facilities (Locations)	pg 14				2
Local Authority Landfill Coverage	pg 14	3	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 14				4
Registered Landfill Sites	pg 15			1	5
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					
Geological					
BGS 1:625,000 Solid Geology	pg 19	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 19				2
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 19	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 19	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 19	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 19	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 21		6	4	14
Fuel Station Entries	pg 23				1
Gas Pipelines					
Underground Electrical Cables					
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 24	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NW (SE)	0	1	475850 254550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NE (W)	0	1	475550 254700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (NW)	0	1	475500 254800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (NW)	0	1	475550 254750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10SE (N)	0	1	475600 254750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A10SE (N)	0	1	475601 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A6NE (W)	0	1	475600 254719
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A6NE (N)	0	1	475601 254719
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NW (E)	0	1	475700 254719
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A6NE (S)	0	1	475601 254650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10SE (NW)	0	1	475550 254800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (N)	0	1	475600 254800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A10SE (N)	0	1	475601 254750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10SE (NW)	0	1	475500 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (N)	0	1	475550 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (N)	0	1	475600 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (N)	0	1	475601 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (NE)	0	1	475700 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NE (S)	0	1	475601 254700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NW (E)	0	1	475650 254700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (N)	24	1	475600 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SE (NW)	35	1	475400 255000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NW (SE)	57	1	475900 254500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NW (N)	89	1	475700 255150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SW (NE)	101	1	475800 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SW (NW)	187	1	475200 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SW (NW)	211	1	475150 254950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (NE)	228	1	476000 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A10NE (NW)	228	1	475400 255200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (E)	274	1	476100 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	299	1	476100 254350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11NE (NE)	300	1	476000 255100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	336	1	476100 254300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	337	1	476150 254350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10NE (N)	351	1	475550 255400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NW (W)	353	1	475000 254719
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A11SE (NE)	358	1	476150 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10SW (NW)	369	1	475000 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	370	1	476150 254300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (E)	373	1	476200 254800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SW (S)	389	1	475750 254100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A6NW (W)	403	1	474950 254719
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	406	1	476150 254250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10NW (NW)	410	1	475000 255100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A6NW (SW)	423	1	475000 254450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11NE (NE)	423	1	476100 255200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NW (W)	426	1	475000 254650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7SE (SE)	440	1	476200 254250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A11SE (NE)	451	1	476250 255000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A10NW (NW)	461	1	475250 255400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NE (NE)	466	1	476100 255300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A6NW (W)	470	1	474950 254650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SW (E)	474	1	476300 254850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8SW (SE)	489	1	476300 254300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SE)	491	1	476350 254400
1	**Discharge Consents** Operator: Mr S Mangaleswaran Property Type: SHOP INCL GARDEN CENTRE/RETAIL TRADE(NOT MOTOR VEHICLE) Location: Garage The Old Sandpit, A508 Near Courteenhall, Northampton Authority: Environment Agency, Anglian Region Catchment Area: Not Given Reference: Pr5nf5134 Permit Version: 1 Effective Date: 18th March 1986 Issued Date: 18th March 1986 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Trib Wootton Brook **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A15SW (N)	624	2	475840 255670
2	**Discharge Consents** Operator: Courteenhall Estates Ltd Property Type: Not Supplied Location: The Old Sandpit, A508 Courteenhall, Northampton, Nn7 2qe Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr5lf5135 Permit Version: 1 Effective Date: 18th March 1986 Issued Date: 18th March 1986 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A15SW (N)	666	2	475920 255690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Viridor Waste Wootton Ltd Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Wootton Landfill Site A508 (Southbound), Grange Park, Collingtree, Northampton, Nn4 0jn Authority: Environment Agency, Anglian Region Catchment Area: Wootton Brook (Gayton) Reference: Prnnf01209 Permit Version: 2 Effective Date: 28th March 2001 Issued Date: 28th March 2001 Revocation Date: 5th August 2011 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: Trib Wootton Brook **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A15NE (NE)	795	2	476080 255760
4	**Discharge Consents** Operator: Sandspinners Ltd Property Type: MINERAL/GRAVEL EXTRACTION/QUARRYING Location: Wootton Quarry Courteenhall Grange Farm, Junction 15, M1 Authority: Environment Agency, Anglian Region Catchment Area: Wootton Brook (Gayton) Reference: Prnnf03317 Permit Version: 1 Effective Date: 24th October 1990 Issued Date: 24th October 1990 Revocation Date: 26th November 2002 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: Trib Wootton Brook **Status: Consent revoked: Discharge ceased (Water Resources Act 1991, Schedule 10 & 6)** Positional Accuracy: Located by supplier to within 100m	A15NE (NE)	850	2	476120 255800
5	**Discharge Consents** Operator: Viridor Waste Management Property Type: MINERAL/GRAVEL EXTRACTION/QUARRYING Location: Wootton Quarry, Wootton, Northants, Nn4 0ly Authority: Environment Agency, Anglian Region Catchment Area: Wootton Brook (Gayton) Reference: Prnnf01209 Permit Version: 1 Effective Date: 28th September 1989 Issued Date: 28th September 1989 Revocation Date: 27th March 2001 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: Trib Wootton Brook **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A15NE (NE)	945	2	476220 255850
6	**Local Authority Pollution Prevention and Controls** Name: Grange Park Dry Cleaners Location: Unit 2 Wilks Walk, Grange Park, Northampton, Nn4 5dl Authority: South Northamptonshire Council, Environmental Health Department Permit Reference: DC/02 Dated: 31st January 2014 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A11NE (NE)	429	3	476144 255141
7	**Local Authority Pollution Prevention and Controls** Name: Grange Farm Service Station Location: Grange Farm, A508 Southbound, Collingtree, NORTHAMPTON, Northamptonshire, NN7 0LY Authority: South Northamptonshire Council, Environmental Health Department Permit Reference: 78/1.2/05 Dated: 23rd December 1998 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A15SW (N)	587	3	475844 255630

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Local Authority Pollution Prevention and Controls** Name: Murco Service Station Location: London Road, Northampton, Nn4 9aj Authority: Northampton Borough Council, Environmental Health Department Permit Reference: 78 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A15SW (N)	589	4	475844 255633
	Nearest Surface Water Feature	A6NE (S)	0	-	475608 254618
8	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Kettering District, NORTHAMPTON Authority: Environment Agency, Anglian Region Pollutant: Oils - Diesel (Including Agricultural) Note: Wootton Brook Incident Date: 1st March 1999 Incident Reference: 3645 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A6NE (S)	0	2	475600 254700
9	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Kettering District Authority: Environment Agency, Anglian Region Pollutant: Oils - Diesel (Including Agricultural) Note: Wootton Brook Incident Date: 18th June 1998 Incident Reference: 3411 Catchment Area: Not Given Receiving Water: Groundwater Cause of Incident: Leaking Tank Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SW (NE)	0	2	475700 254800
10	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Kettering District Authority: Environment Agency, Anglian Region Pollutant: Oils - Diesel (Including Agricultural) Note: Wootton Brook Incident Date: 11th May 1998 Incident Reference: 3390 Catchment Area: Not Given Receiving Water: Potential River Cause of Incident: Collision Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (E)	321	2	476200 254500
11	**Pollution Incidents to Controlled Waters** Property Type: Landfill/Waste Disposal Site Location: Kettering District Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Tip Leachate Note: Wootton Brook Incident Date: 17th October 1994 Incident Reference: 2180 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Vandalism Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A15SE (NE)	811	2	476200 255700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Water Abstractions** Operator: B.E.S.D. & N.L. Capsey Licence Number: 5/32/04/*g/010 Permit Version: Not Supplied Location: Well At, COLLINGTREE Authority: Environment Agency, Anglian Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 1140 Details: Miscellaneous Jurassic; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14SW (NW)	705	2	475100 255600
13	**Water Abstractions** Operator: J L Sears Licence Number: 5/32/04/*g/049 Permit Version: Not Supplied Location: Well At, GLEBE HOUSE Authority: Environment Agency, Anglian Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1 Yearly Rate (m3): 13640 Details: Northampton Sanstone; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SE (NW)	823	2	474940 255640
14	**Water Abstractions** Operator: Collingtree Park Golf Course Licence Number: 5/32/04/*s/052b Permit Version: Not Supplied Location: Wootton Brook Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 12 Yearly Rate (m3): 570000 Details: Not Supplied Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A15NW (N)	938	2	475700 256000
	Water Abstractions Operator: H C Sargeant & Sons Licence Number: 5/32/04/*S/0042 Permit Version: 100 Location: Spring At Milton Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NW)	1395	2	474600 256100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Pang (West Indies) Ltd Licence Number: 5/32/04/*S/0037 Permit Version: 100 Location: Underground Spring-Lower Farm Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 8 Yearly Rate (m3): 2046 Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 1973 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(E)	1797	2	477680 254640
	Water Abstractions Operator: Pang (West Indies Ltd) Licence Number: 5/32/04/*s/037 Permit Version: Not Supplied Location: Underground Spring, Lower Farm, QUINTON, Northamptonshire Authority: Environment Agency, Anglian Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 2 Yearly Rate (m3): 7730 Details: Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1797	2	477680 254635
	Water Abstractions Operator: A J Kelcher Esq Licence Number: 5/32/04/*g/034 Permit Version: Not Supplied Location: Borehole Thorpewood Farm, ROADE Authority: Environment Agency, Anglian Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 4 Yearly Rate (m3): 10000 Details: Northampton Sanstone; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SW)	1958	2	474480 252680
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000	A6NE (N)	0	2	475601 254719
	Groundwater Vulnerability Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000	A10SE (NW)	0	2	475473 254815
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A6NE (N)	0	1	475601 254719
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A10SE (N)	0	1	475601 255000
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A10SE (N)	0	1	475601 255000
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A10SE (NW)	0	1	475468 254837

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A6NE (N)	0	1	475601 254719
	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	A11SE (E)	148	2	475971 254860
	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	A11SE (E)	163	2	475990 254830
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
15	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A11SW (NE)	0	2	475716 254869
16	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A11SW (NE)	0	2	475752 254808
17	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A6NE (W)	0	2	475505 254711
18	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A11SW (NE)	0	2	475730 254783

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A11SW (E)	1	2	475736 254774
20	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NW (E)	7	2	475902 254597
21	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NW (SE)	10	2	475847 254506
22	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NW (SE)	34	2	475844 254501
23	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NW (E)	41	2	475902 254597
24	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NW (E)	43	2	475912 254637

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference:	A7NW (E)	43	2	475796 254703
26	**Detailed River Network Lines** River Type: Primary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Flood Risk Management Indicative/Statutory Main River Water Course Name: WOOTTON BROOK Water Course Reference: 5372	A11SE (E)	231	2	476052 254881
27	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7NE (SE)	249	2	476091 254419
28	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7SE (SE)	343	2	476100 254291
29	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A6SE (S)	343	2	475397 254052
30	**Detailed River Network Lines** River Type: Secondary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Management Status: Other Rivers Water Course Name: Not Supplied Water Course Reference: Not Supplied	A6SE (S)	343	2	475397 254052

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**Detailed River Network Lines** River Type: Tertiary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A7SE (SE)	347	2	476098 254283
32	**Detailed River Network Lines** River Type: Tertiary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A2NE (S)	350	2	475393 254045
33	**Detailed River Network Lines** River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A2NE (S)	363	2	475337 254043
34	**Detailed River Network Lines** River Type: Tertiary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A2NE (SW)	410	2	475290 254008
35	**Detailed River Network Lines** River Type: Tertiary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A2NE (S)	476	2	475509 253916
36	**Detailed River Network Lines** River Type: Tertiary River River Name: Not Supplied Hydrographic Area: B05 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk Other Rivers Management Status: Water Course Name: Not Supplied Water Course Reference: Not Supplied	A2NE (S)	476	2	475509 253916

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**Detailed River Network Offline Drainage** River Type: Tertiary River Hydrographic Area: D005	A7SE (SE)	200	2	475986 254385
38	**Detailed River Network Offline Drainage** River Type: Tertiary River Hydrographic Area: D005	A7SE (SE)	216	2	475985 254366
39	**Detailed River Network Offline Drainage** River Type: Tertiary River Hydrographic Area: D005	A10NE (N)	311	2	475520 255346

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**Historical Landfill Sites** Licence Holder: Tarmac Construction Location: Collingtree Name: Courteenhall Grange Farm Pit Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD02323 First Input Date: 1st May 1986 Last Input Date: 31st October 1986 Specified Waste Type: Deposited Waste included Inert and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: S/042, S/012	A15SW (N)	538	2	475830 255583
41	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70662 Location: Sandspinners Ltd, Wooton Quarry, A508 (Southbound), Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status: Closure** Issued: 22nd February 1993 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A11NW (N)	144	2	475730 255202
42	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70647 Location: A508, Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Large (Equal to or greater than 75,000 tonnes per year) **Licence Status: Inactive** Issued: 1st June 1992 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A11NE (NE)	380	2	475998 255297
43	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70647 Location: Sandspinners Ltd, Wooton Quarry, A508, Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status: Closure** Issued: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A11NE (NE)	381	2	475999 255298
44	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70647 Location: Sandspinners Ltd, Wooton Quarry, A508, Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status: Closure** Issued: 1st June 1992 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A11NE (NE)	383	2	476000 255299
45	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70647 Location: Sandspinners Ltd, Wooton Quarry, A508, Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status: Closure** Issued: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A15SE (NE)	570	2	476023 255532

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Wooton Quarry Licence Number: 70662 Location: Sandspinners Ltd, Wooton Quarry, A508 (Southbound), Collingtree, Northants, NN4 0LY Licence Holder: Viridor Waste Wootton Ltd Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites Max Input Rate: Not Supplied **Licence Status:** **Closure** Issued: 22nd February 1993 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A15SE (NE)	639	2	476095 255564
47	**Licensed Waste Management Facilities (Locations)** Licence Number: 70662 Location: Wooton Quarry, A508 Southbound, Collingtree, Northamptonshire, NN4 0LY Operator Name: Viridor Waste Wootton Limited Operator Location: Not Supplied Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites **Licence Status:** **Expired** Issued: 22nd February 1993 Last Modified: 26th April 2016 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A16SW (NE)	743	2	476300 255500
47	**Licensed Waste Management Facilities (Locations)** Licence Number: 70647 Location: Wootton Quarry, A508 Southbound, Collingtree, Northamptonshire, NN4 0LY Operator Name: Viridor Waste Wootton Limited Operator Location: Not Supplied Authority: Environment Agency - Anglian Region, Northern Area Site Category: Co-disposal Landfill Sites **Licence Status:** **Modified** Issued: 1st June 1992 Last Modified: 16th May 2016 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A16SW (NE)	743	2	476300 255500
	Local Authority Landfill Coverage Name: South Northamptonshire District Council - Has supplied landfill data		0	3	475601 254719
	Local Authority Landfill Coverage Name: Northamptonshire County Council - Has supplied landfill data		0	5	475601 254719
	Local Authority Landfill Coverage Name: Northampton Borough Council - Has no landfill data to supply		0	4	475660 254802
48	**Local Authority Recorded Landfill Sites** Location: Courteenhall Grange Farm, Collingtree Reference: S42 Authority: South Northamptonshire Council, Environmental Health Department **Last Reported Status:** **Closed** Types of Waste: Solid Inert Date of Closure: 31/12/1986 Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Applicable	A15SW (N)	669	3	475900 255700
49	**Local Authority Recorded Landfill Sites** Location: Courteenhall Grange Pit, Collingtree Reference: S12 Authority: South Northamptonshire Council, Environmental Health Department **Last Reported Status:** **Closed** Types of Waste: Solid Inert, Solid Degradable, Asbestos Date of Closure: 31/01/1983 Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Applicable	A15SE (N)	706	3	476000 255700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	**Local Authority Recorded Landfill Sites** Location: Sandspinners Limited, Wootton Quarry, Collingtree Reference: S62 Authority: South Northamptonshire Council, Environmental Health Department **Last Reported Status:** **Open** Types of Waste: Solid Inert, Solid Degradable, Solid Putrescible, Domestic, Difficult, Asbestos (Excluding Fibrous Asbestos), Toxic Date of Closure: Not Supplied Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Applicable	A16SW (NE)	743	3	476300 255500
50	**Local Authority Recorded Landfill Sites** Location: Sandspinners Limited, Wootton Quarry, Collingtree Reference: S106 Authority: South Northamptonshire Council, Environmental Health Department **Last Reported Status:** **Open** Types of Waste: Solid Inert, Solid Degradable, Solid Putrescible, Domestic, Difficult, Bonded Asbestos, Toxic (Non-Special Only) Date of Closure: Not Supplied Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Applicable	A16SW (NE)	754	3	476322 255488
51	**Registered Landfill Sites** Licence Holder: Sandspinners Ltd Licence Reference: S/062 Site Location: Wootton Quarry (A508 Southbound), Collingtree, Courteenhall, NORTHAMPTON, Northamptonshire, NN4 0LY Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: Greendale Court, Clyst St Mary, EXETER, Devon, EX5 1AW Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Record supersededSuperseded Dated: 1st June 1992 Preceded By Licence: Not Given Superseded By Licence: S/062 Positional Accuracy: Positioned by the supplier Boundary Accuracy: Good Authorised Waste: Northants Cat. A1 -Solid Inert (Soils) Northants Cat. A2 -Sol.Inert (Inc.Dem) Northants Cat. B - Slowly Decompose Northants Cat. C - Putresc./Domestic Prohibited Waste: Asbestos Waste N.O.S.	A11NE (NE)	390	2	475992 255319

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**Registered Landfill Sites** Licence Holder: Viridor Waste Wootton Ltd Licence Reference: S/106 Site Location: Wooton Quarry (Ext), Collingtree, Courteenhall, Northampton, Northamptonshire Licence Easting: 476000 Licence Northing: 255500 Operator Location: Great Western House, Station Approach, TAUNTON, Somerset, TA1 1QW Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Operational as far as is knownOperational Dated: 31st May 1995 Preceded By Licence: S/106 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bonded Asbestos Northants Cat. A1 -Solid Inert (Soils) Northants Cat. A2 -Sol.Inert (Inc.Dem) Northants Cat. B - Slowly Decompose Northants Cat. C - Putresc./Domestic Spec.Waste (Epa'90:S62/1996 Regs) Prohibited Waste: Sodium/Potassium/Calcium Oxides Special Wastes Waste N.O.S. Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Northants Cat. D - Difficult 6<Ph<9 Northants Cat. F - Toxic	A15SE (NE)	531	2	476000 255500
53	**Registered Landfill Sites** Licence Holder: Sandspinners Ltd Licence Reference: S/012 Site Location: Old Grange Sandpit, Courteenhall Grange Farm, Northampton, Northamptonshire Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: 15 Dawlish Road, Alphington, Exeter, Devon Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 9th December 1983 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Positioned by the supplier Boundary Accuracy: Good Authorised Waste: Asbestos Northamptonshire Category C * Northants/Lincs Category A * Northants/Lincs Category B * Prohibited Waste: Liquid Wastes Waste N.O.S	A15SW (N)	540	2	475835 255585

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	**Registered Landfill Sites** Licence Holder: Viridor Waste Wootton Ltd Licence Reference: S/062 Site Location: Wootton Quarry (A508 Southbound), Collingtree, Courteenhall, NORTHAMPTON, Northamptonshire, NN4 0LY Licence Easting: 476200 Licence Northing: 255500 Operator Location: Great Western House, Station Approach, TAUNTON, Somerset, TA1 1QW Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Operational as far as is knownOperational Dated: 28th March 1994 Preceded By Licence: S/062 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bonded Asbestos Northants Cat. A1 -Solid Inert (Soils) Northants Cat. A2 -Sol.Inert (Inc.Dem) Northants Cat. B - Slowly Decompose Northants Cat. C - Putresc./Domestic Whole & Shredded Tyres Whole Tyres Prohibited Waste: Fibrous Forms Of Asbestos Sodium/Potassium/Calcium Oxides Spec.Waste (Epa'90:S62/1996 Regs) Special Wastes (As In S17 1980) Waste N.O.S. Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Non-Special Toxic Waste Northants Cat. D - Difficult 6<Ph<9	A15SE (NE)	665	2	476200 255500
54	**Registered Landfill Sites** Licence Holder: Sandspinners Ltd Licence Reference: S/106 Site Location: Wooton Quarry (Ext), Collingtree, Courteenhall, Northampton, Northamptonshire Licence Easting: 476200 Licence Northing: 255500 Operator Location: Greendale Court, Clyst St Mary, EXETER, Devon, EX5 1AW Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Record supersededSuperseded Dated: 22nd February 1993 Preceded By Licence: Not Given Superseded By Licence: S/106 Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Northants Cat. A1 -Solid Inert (Soils) Northants Cat. A2 -Sol.Inert (Inc.Dem) Prohibited Waste: Waste N.O.S.	A15SE (NE)	665	2	476200 255500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**Registered Landfill Sites** Licence Holder: Tarmac Construction Licence Reference: S/042 Site Location: Courteenhall Grange Farm, Northampton, Northamptonshire Licence Easting: 475900 Licence Northing: 255700 Operator Location: M1 Site Off Junction 16, Upper Heywood, Northampton, Northamptonshire Authority: Environment Agency - Anglian Region, Northern Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1986 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Northants/Lincs Cat. A -Sol.Inert * Prohibited Waste: Asbestos Northants Cat. C -Sol. Putres./Dom. * Northants/Lincs Cat. B -Sol.Semiinert*	A15SW (N)	669	2	475900 255700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Lias Group	A6NE (N)	0	1	475601 254719
56	**BGS Recorded Mineral Sites** Site Name: Wootton Location: A508 (Southbound), Collingtree, Northampton, Northamptonshire, Nn4 0ly Source: British Geological Survey, National Geoscience Information Service Reference: 3394 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Sand And Gravel Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 100m	A15SE (NE)	665	1	476200 255500
57	**BGS Recorded Mineral Sites** Site Name: Collingtree Sand Pits Location: , Collingtree, Northampton, Northamptonshire Source: British Geological Survey, National Geoscience Information Service Reference: 139756 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A15SW (N)	722	1	475954 255737
	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: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	475601 254719

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	0	1	475601 255000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10SE (NW)	0	1	475468 254837
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10SE (N)	27	1	475581 255000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10SW (NW)	210	1	475172 255000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (NE)	210	1	476026 254908
	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	A10SE (N)	0	1	475601 255001
	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	A6NE (N)	0	1	475601 254719
	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	A10SE (N)	0	1	475601 255001
	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	A6NE (N)	0	1	475601 254719

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
58	**Contemporary Trade Directory Entries** Name: Magnatech Energy Location: Unit 9/B, Basset Court, Loake Close, Grange Park, Northampton, NN4 5EZ Classification: Energy Efficient Products and Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (E)	71	-	475860 254656
59	**Contemporary Trade Directory Entries** Name: Avenue Gates Ltd Location: Unit 13, Basset Court, Loake Close, Grange Park, Northampton, NN4 5EZ Classification: Gate Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (E)	81	-	475838 254679
59	**Contemporary Trade Directory Entries** Name: Ge Fanuc Automation Cnc (Uk) Ltd Location: Unit 15, Basset Court, Loake Close, Grange Park, Northampton, NN4 5EZ Classification: Electronic Component Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (E)	89	-	475839 254710
59	**Contemporary Trade Directory Entries** Name: Arbonne Location: Unit 16,Basset Court,Loake Cl, Grange Pk, Northampton, Northamptonshire, NN4 5EZ Classification: Cosmetic Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A7NW (E)	130	-	475884 254711
60	**Contemporary Trade Directory Entries** Name: Philips Speech Processing Location: Cheaney Drive, Northampton, NN4 5FB Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (E)	200	-	476071 254629
60	**Contemporary Trade Directory Entries** Name: Europa Location: Grange Park 2-3 Warehouse, Cheaney Drive, Grange Park, Northampton, NN4 5FB Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NE (E)	200	-	476071 254629
61	**Contemporary Trade Directory Entries** Name: Yusen Logistics Location: Safety Centre, Cheaney Drive, Grange Park, Northampton, NN4 5FB Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (E)	276	-	476102 254812
61	**Contemporary Trade Directory Entries** Name: Combisafe Location: Safety Centre, Cheaney Drive, Grange Park, Northampton, NN4 5FB Classification: Scaffolding & Work Platforms **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (E)	276	-	476102 254812
62	**Contemporary Trade Directory Entries** Name: Grange Park Location: Unit 2, Wilks Walk, Grange Park, Northampton, NN4 5DW Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NE (NE)	429	-	476144 255141
62	**Contemporary Trade Directory Entries** Name: Grange Park Dry Cleaners Location: 2, Wilks Walk, Grange Park, Northampton, NN4 5DW Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NE (NE)	429	-	476144 255141
63	**Contemporary Trade Directory Entries** Name: Viridor Waste Management Ltd Location: London Road, Northampton, NN4 0LY Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	562	-	475921 255578

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	**Contemporary Trade Directory Entries** Name: The Sourcers Location: 12, The Ridings, Grange Park, Northampton, Northamptonshire, NN4 5BN Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	575	-	476416 254778
64	**Contemporary Trade Directory Entries** Name: Eco Fireplace Ltd Location: 36, The Ridings, Grange Park, Northampton, NN4 5BN Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	601	-	476450 254761
65	**Contemporary Trade Directory Entries** Name: Save Service Station Location: London Rd, Collingtree, Northampton, Northamptonshir, NN4 0LY Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A15SW (N)	582	-	475816 255632
65	**Contemporary Trade Directory Entries** Name: Kartik Location: London Road, Northampton, Northamptonshire, NN4 0LY Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A15SW (N)	587	-	475844 255631
65	**Contemporary Trade Directory Entries** Name: Grange Farm Auto Point Location: London Road, Collingtree, Northampton, Northamptonshire, NN4 0LY Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (N)	587	-	475844 255631
66	**Contemporary Trade Directory Entries** Name: A J S Services Location: 66, Woodlands, Grange Park, Northampton, NN4 5FX Classification: Domestic Appliances - Servicing, Repairs & Parts **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (E)	597	-	476463 254409
67	**Contemporary Trade Directory Entries** Name: Trophy Pet Foods Location: The Ridings, Grange Pk, Northampton, Northamptonshire, NN4 5BN Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12SW (E)	638	-	476498 254734
68	**Contemporary Trade Directory Entries** Name: Collingtree Coaches Location: 25, Ash Lane, Collingtree, Northampton, NN4 0ND Classification: Bus & Coach Operators & Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (NW)	725	-	474919 255494
69	**Contemporary Trade Directory Entries** Name: Absolute Cleaning Services Location: 14, Great Ground Walk, Northampton, NN4 5BB Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	732	-	476548 254951
70	**Contemporary Trade Directory Entries** Name: Love From Australia Ltd Location: 7, Primrose Walk, Grange Park, Northampton, NN4 5DE Classification: Leather Garments & Products **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (E)	778	-	476662 254546
71	**Contemporary Trade Directory Entries** Name: Forterra Location: 5 Grange Park Court,Roman Way, Grange Park, Northampton, Northamptonshire, NN4 5EA Classification: Brick Manufacturers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A16SW (NE)	851	-	476351 255609

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**Contemporary Trade Directory Entries** Name: Princess Sparkles Location: 28, Bluebell Rise, Grange Park, Northampton, NN4 5DF Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SE (E)	869	-	476720 254317
73	**Contemporary Trade Directory Entries** Name: Niklz Nates Location: 3, Cony Walk, Grange Park, Northampton, NN4 5DJ Classification: Gate Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	912	-	476716 255035
74	**Fuel Station Entries** Name: Grange Farm Service Station Location: Grange Farm Service Station, London Road, Northampton, NN4 0LY Brand: Bp Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A15SW (N)	588	-	475844 255631

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
75	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A6NE (N)	0	6	475601 254719

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
South Northamptonshire Council - Environment Division	August 2013	Annual Rolling Update
Northampton Borough Council - Environmental Health Department	February 2013	Annual Rolling Update
Milton Keynes Council - Environmental Health Division	October 2015	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	October 2016	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Anglian Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	January 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
South Northamptonshire Council - Environmental Health Department	December 2014	Annual Rolling Update
Northampton Borough Council - Environmental Health Department	February 2013	Annual Rolling Update
Milton Keynes Council - Environmental Health Department	June 2016	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
South Northamptonshire Council - Environmental Health Department	December 2014	Annual Rolling Update
Milton Keynes Council - Environmental Health Department	June 2016	Annual Rolling Update
Northampton Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
South Northamptonshire Council - Environmental Health Department	December 2014	Annual Rolling Update
Milton Keynes Council - Environmental Health Department	June 2016	Annual Rolling Update
Northampton Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	As notified
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 - Central Area	January 2017	Quarterly
Environment Agency - Anglian Region - Northern Area	January 2017	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	October 2016	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	January 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified

Data Currency

Agency & Hydrological	Version	Update Cycle
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones Environment Agency - Head Office	October 2016	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2016	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2016	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	November 2016	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	November 2016	Quarterly
Flood Defences Environment Agency - Head Office	November 2016	Quarterly
Detailed River Network Lines Environment Agency - Head Office	September 2014	Annually
Detailed River Network Offline Drainage Environment Agency - Head Office	March 2012	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	January 2017	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 - Central Area	August 2016	Quarterly
Environment Agency - Anglian Region - Northern Area	August 2016	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Central Area	October 2016	Quarterly
Environment Agency - Anglian Region - Northern Area	October 2016	Quarterly
Local Authority Landfill Coverage		
Milton Keynes Council - Planning and Transport Department	May 2000	Not Applicable
Northampton Borough Council - Environmental Health Department	May 2000	Not Applicable
Northamptonshire County Council	May 2000	Not Applicable
South Northamptonshire Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Milton Keynes Council - Planning and Transport Department	May 2000	Not Applicable
Northampton Borough Council - Environmental Health Department	May 2000	Not Applicable
Northamptonshire County Council	May 2000	Not Applicable
South Northamptonshire Council - Environmental Health Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	July 2016	Bi-Annually
Explosive Sites		
Health and Safety Executive	September 2016	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Milton Keynes Council - Planning and Transport Department	February 2016	Annual Rolling Update
Northampton Borough Council - Planning Department	February 2016	Annual Rolling Update
South Northamptonshire Council	February 2016	Annual Rolling Update
Northamptonshire County Council	November 2011	Annual Rolling Update
Planning Hazardous Substance Consents		
Milton Keynes Council - Planning and Transport Department	February 2016	Annual Rolling Update
Northampton Borough Council - Planning Department	February 2016	Annual Rolling Update
South Northamptonshire Council	February 2016	Annual Rolling Update
Northamptonshire County Council	May 2013	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	October 2016	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
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	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	November 2016	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2016	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	August 2016	Bi-Annually
Areas of Outstanding Natural Beauty Natural England	January 2017	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	January 2017	Bi-Annually
Marine Nature Reserves Natural England	January 2017	Bi-Annually
National Nature Reserves Natural England	January 2017	Bi-Annually
National Parks Natural England	August 2016	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	Annually
Ramsar Sites Natural England	January 2017	Bi-Annually
Sites of Special Scientific Interest Natural England	April 2016	Bi-Annually
Special Areas of Conservation Natural England	January 2017	Bi-Annually
Special Protection Areas Natural England	January 2017	Bi-Annually
World Heritage Sites English Heritage - National Monument Record Centre	September 2015	Bi-Annually

Data Suppliers

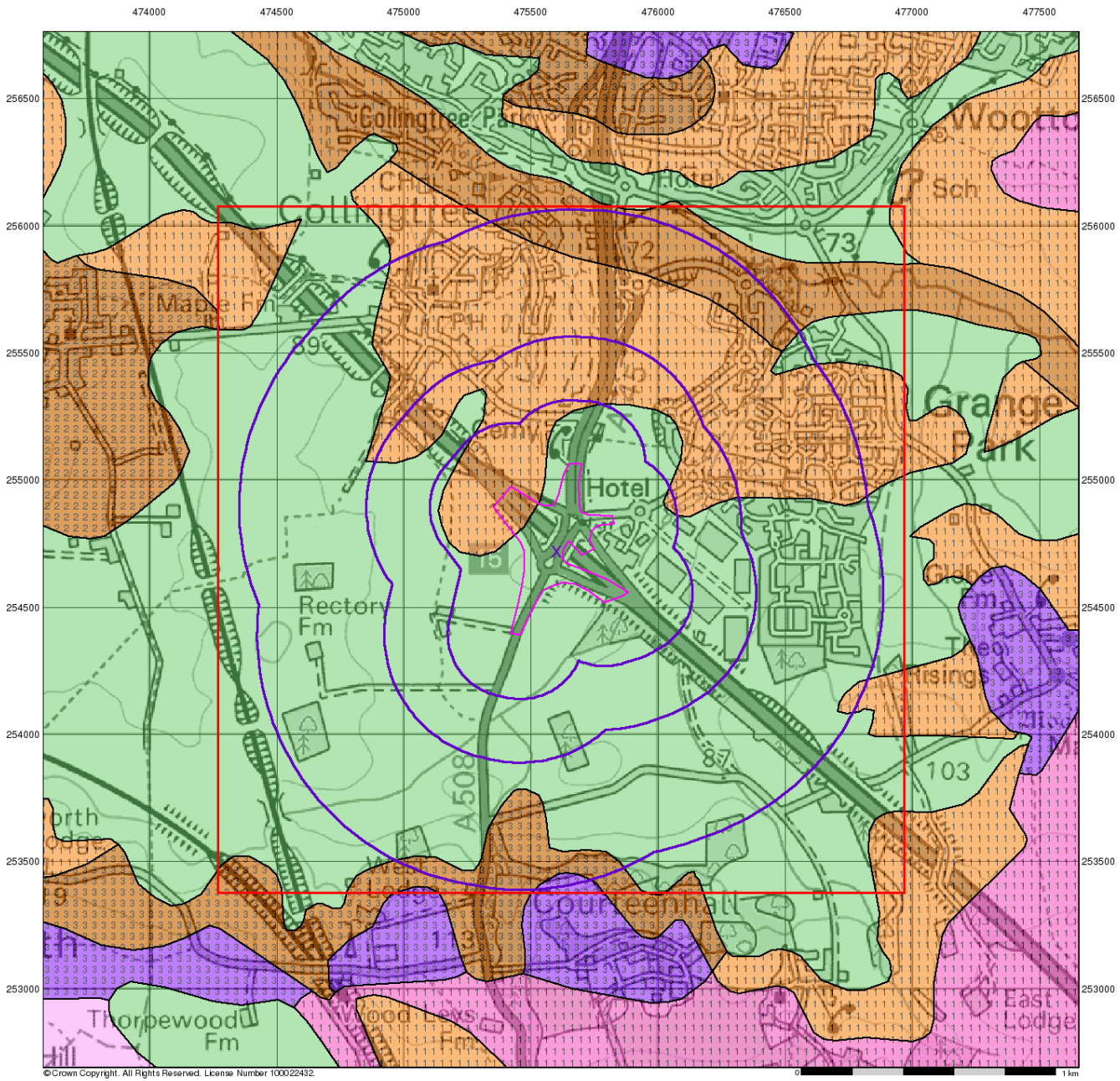
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**South Northamptonshire Council - Environmental Health Department** Springfields, Towcester, Northamptonshire, NN12 6AE	Telephone: 0845 2300226 Fax: 01327 359219 Website: www.southnorthants.gov.uk
4	**Northampton Borough Council - Environmental Health Department** Cliftonville House, Bedford Road, Northampton, Northamptonshire, NN4 7NR	Telephone: 0300 330 7000 Website: www.northampton.gov.uk
5	**Northamptonshire County Council** County Hall, Northampton, Northamptonshire, NN1 1DN	Telephone: 0300 126 1000 Website: www.northamptonshire.gov.uk
6	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
7	**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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Groundwater Vulnerability

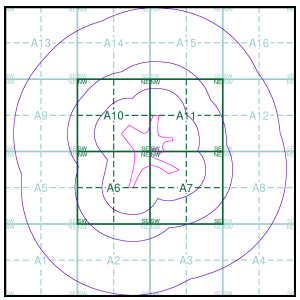
General

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

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



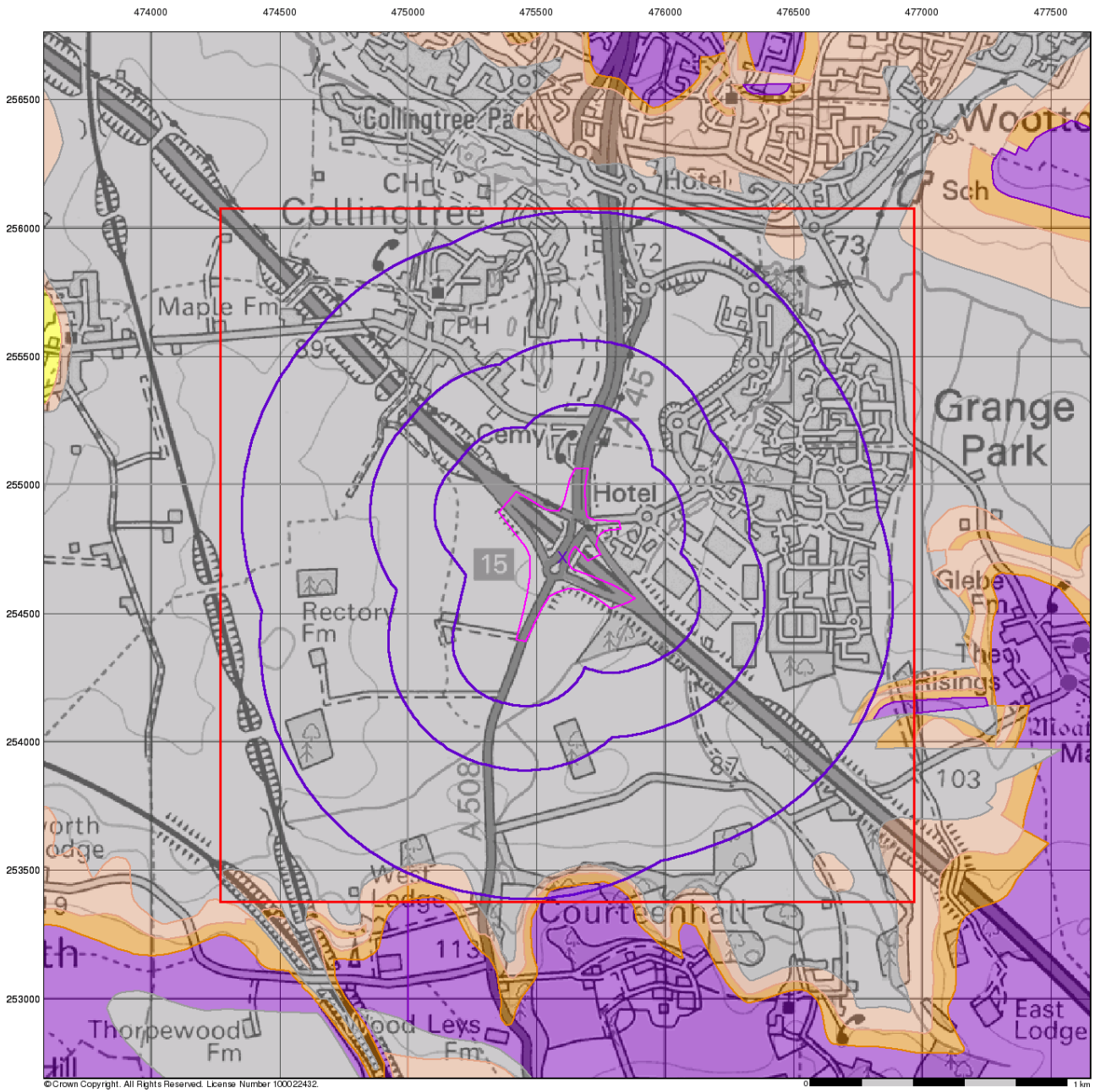
Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON

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



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Bedrock Aquifer Designation

General

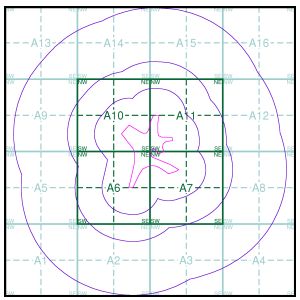
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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

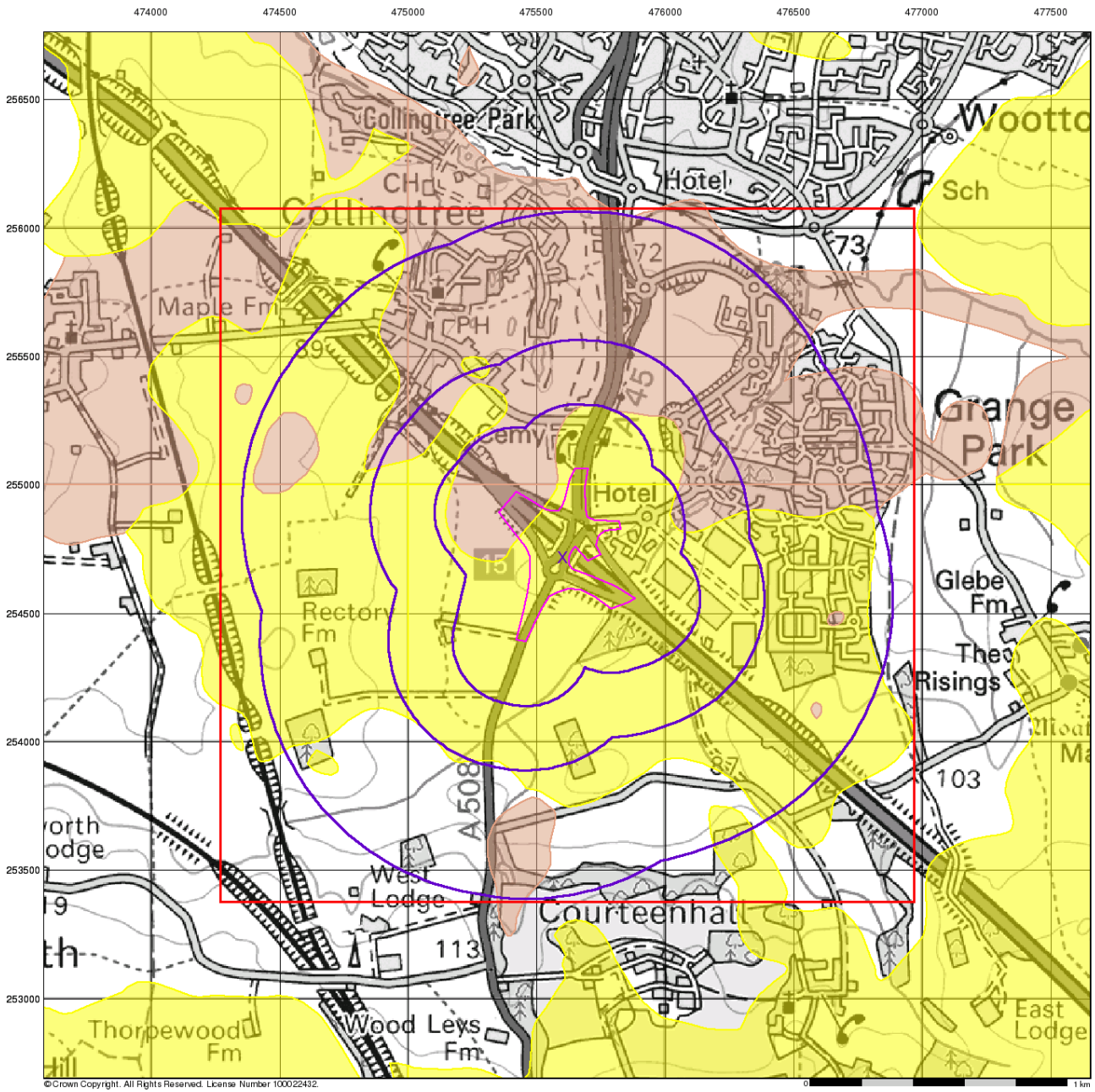


Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON



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Superficial Aquifer Designation

General

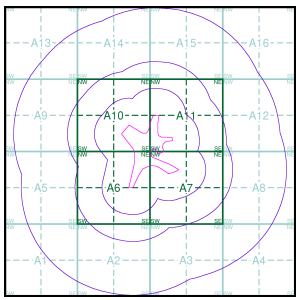
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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

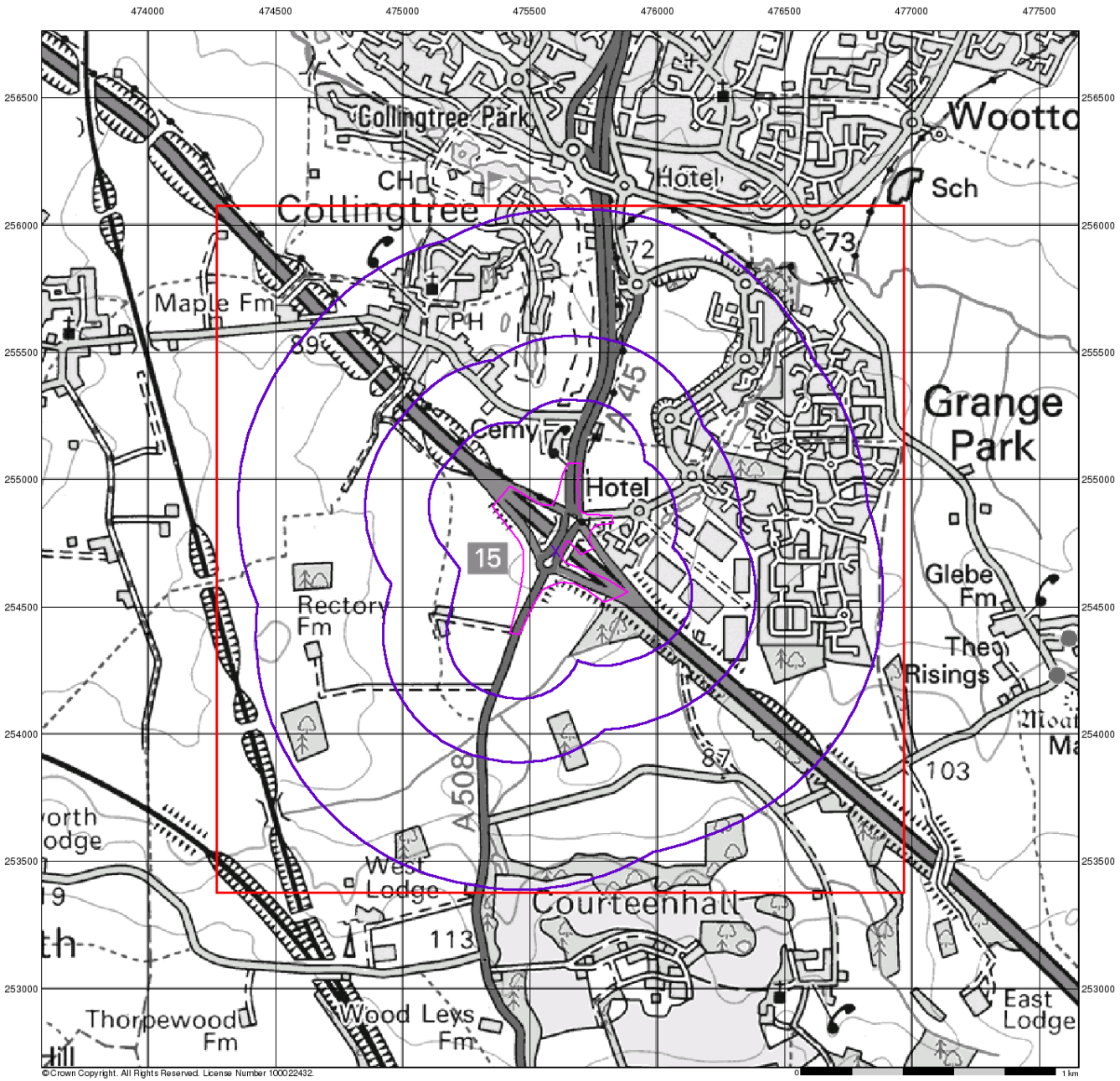


Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON



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Source Protection Zones

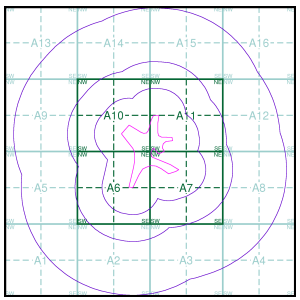
General

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)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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Sensitive Land Uses

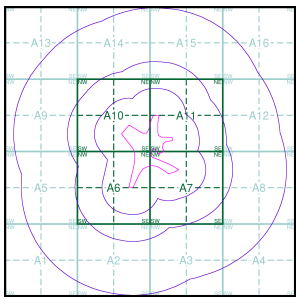
General

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



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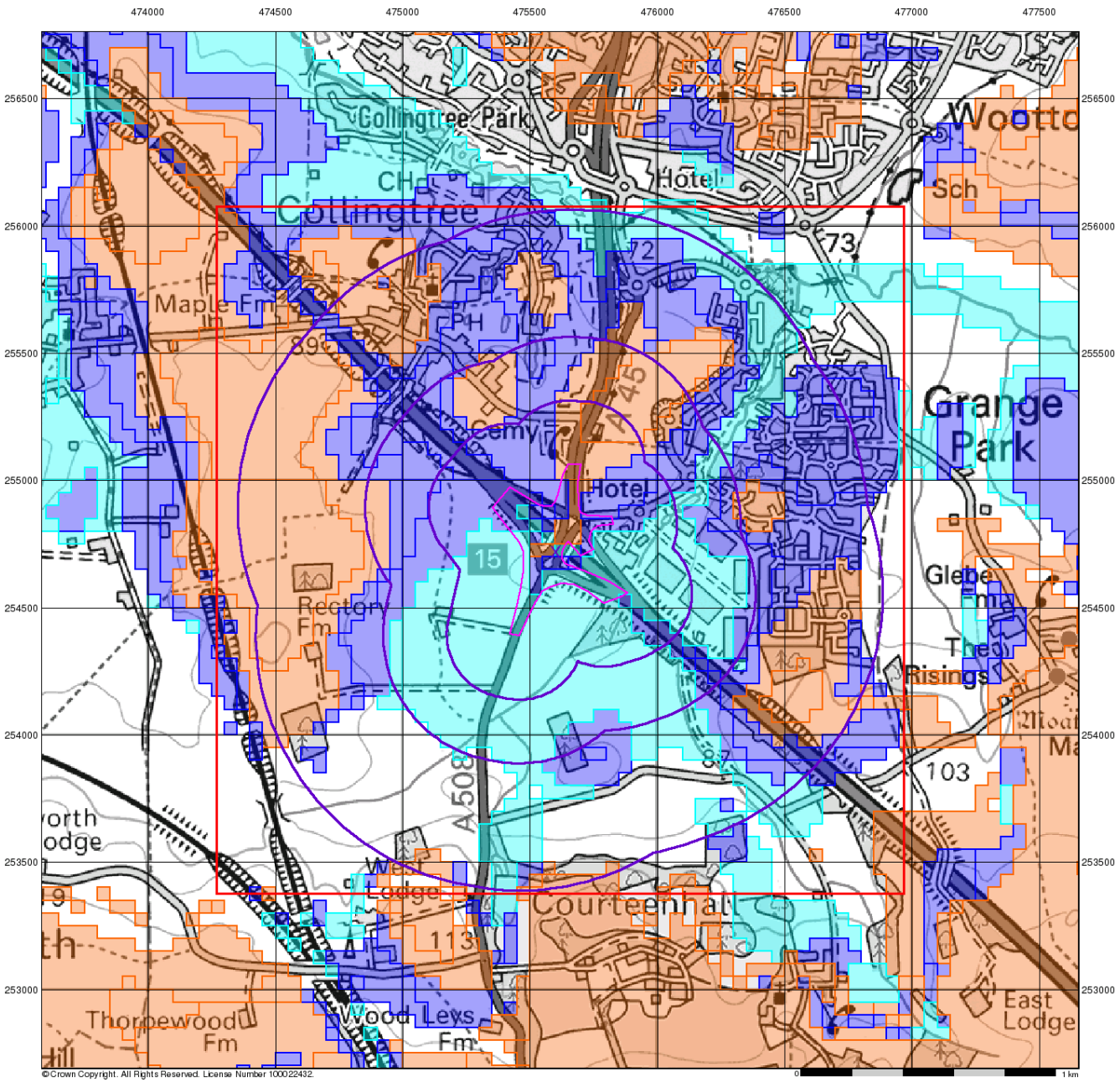

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BGS Flood GFS Data

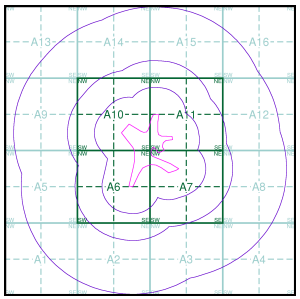
General

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



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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Flandrian
	ODT	Oadby Member	Diamicton	Anglian - Anglian
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Ipswichian - Cromerian
	TUFA	Tufa	Tufa, Calcareous	Quaternary - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WBRO	Wellingborough Limestone Member	Limestone	Bathonian - Bathonian
	BWL	Blisworth Limestone Formation	Limestone	Bathonian - Bathonian
	BWC	Blisworth Clay Formation	Mudstone	Bathonian - Bathonian
	CB	Cornbrash Formation	Limestone	Callovian - Bathonian
	STAM	Stamford Member	Sandstone and Siltstone, Interbedded	Bathonian - Bajocian
	RLD	Rutland Formation	Mudstone	Bathonian - Bajocian
	NS	Northampton Sand Formation	Ironstone, Ooidal	Aalenian - Aalenian
	WHM	Whitby Mudstone Formation	Mudstone	Toarcian - Toarcian
	MRB	Marlstone Rock Formation	Limestone, Ferruginous	Toarcian - Pliensbachian
	DYS	Dyrham Formation	Siltstone and Mudstone, Interbedded	Pliensbachian - Pliensbachian
		Faults		

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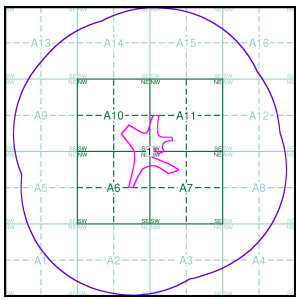
Geology 1:50,000 Maps

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: 202
Map Name: Towcester
Map Date: 1969
Bedrock Geology: Available
Superficial Geology: Available
Artificial Geology: Available
Faults: Not Supplied
Landslip: Available
Rock Segments: Not Supplied

Geology 1:50,000 Maps - Slice A



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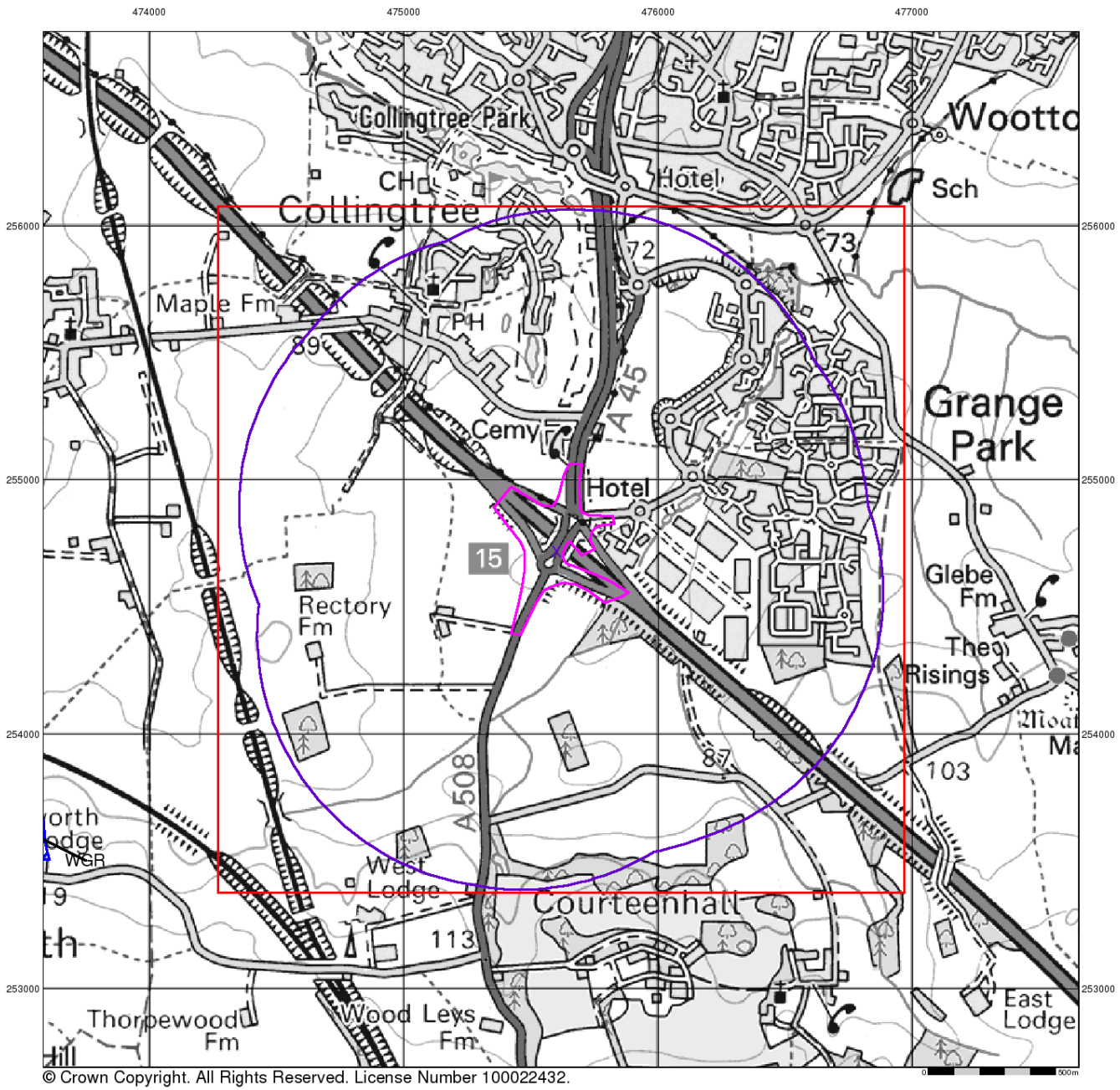

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Artificial Ground and Landslip

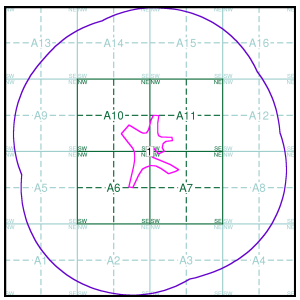
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions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



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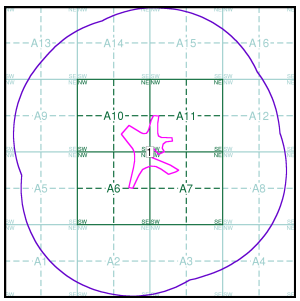
Superficial Geology

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



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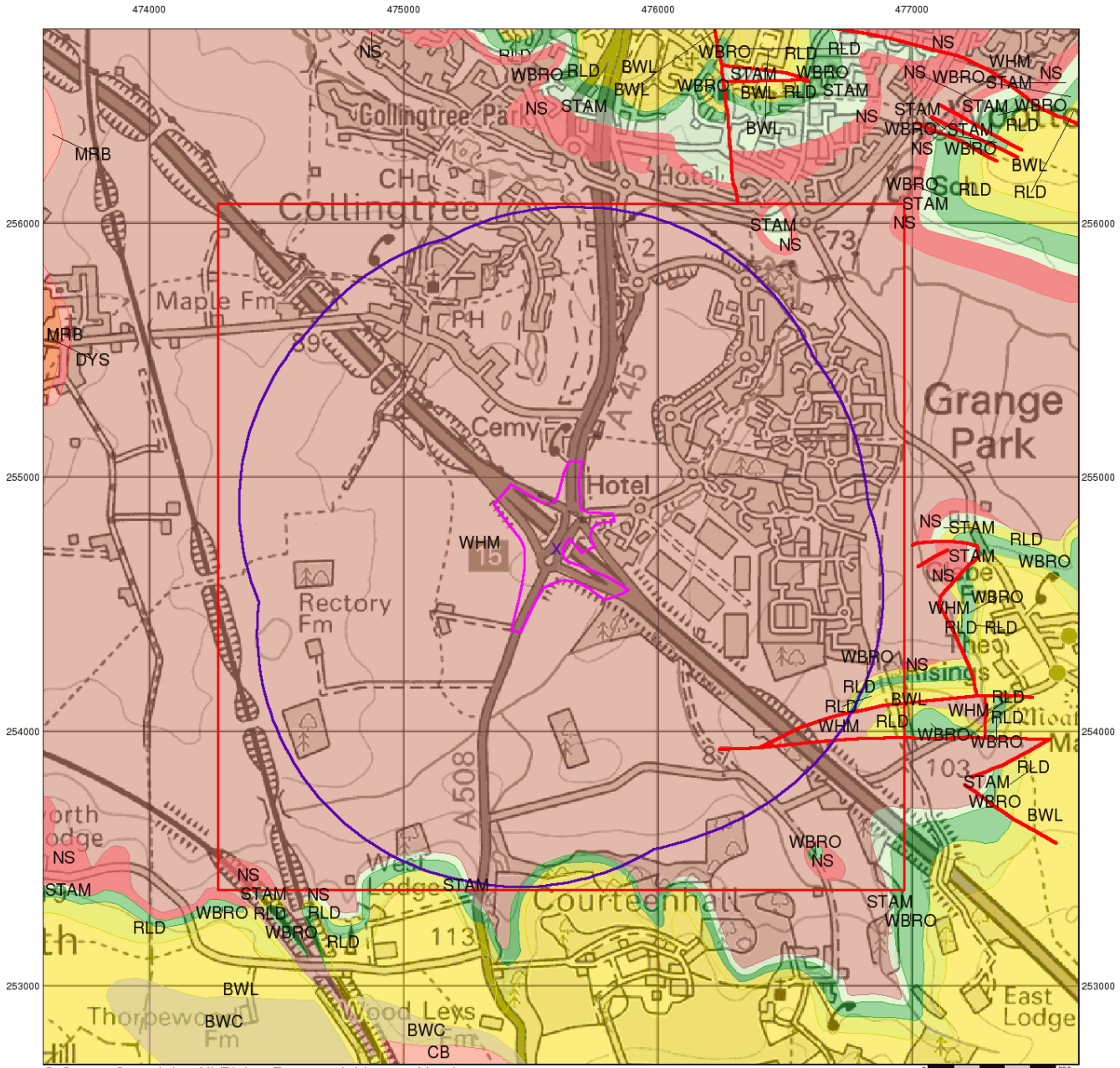

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Bedrock and Faults

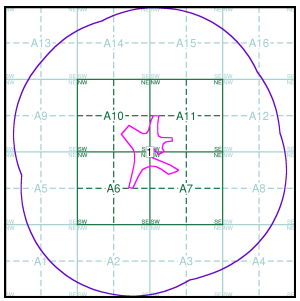
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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



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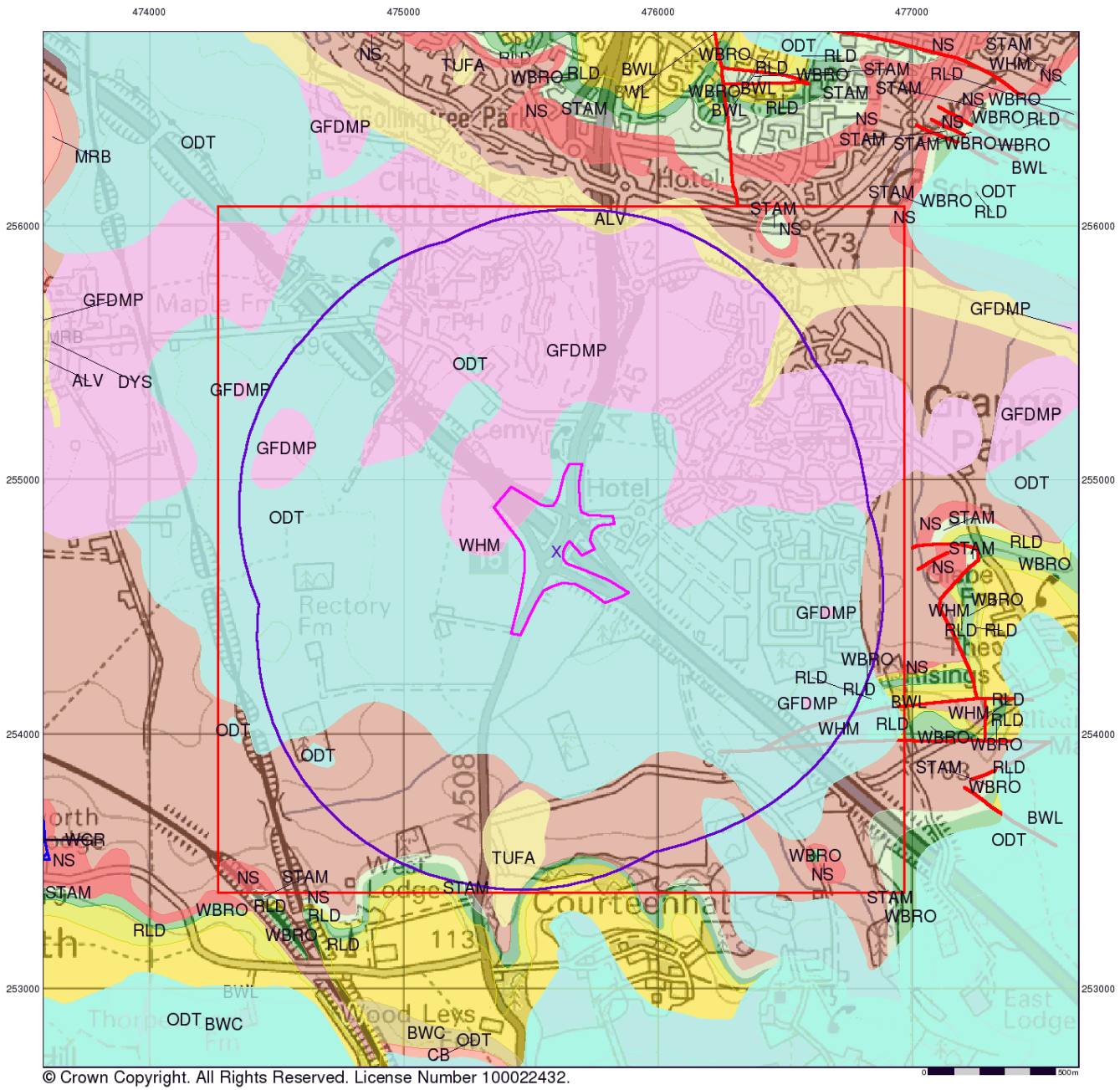

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Combined Surface Geology

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.

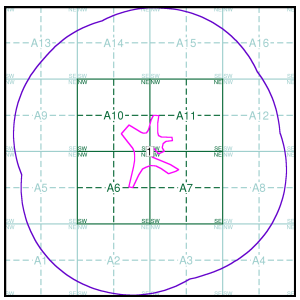
Additional Information

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



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Site Details:

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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

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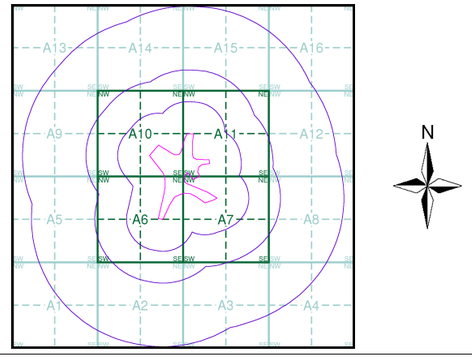
Historical Mapping & Photography included:

Historical Map - Slice A



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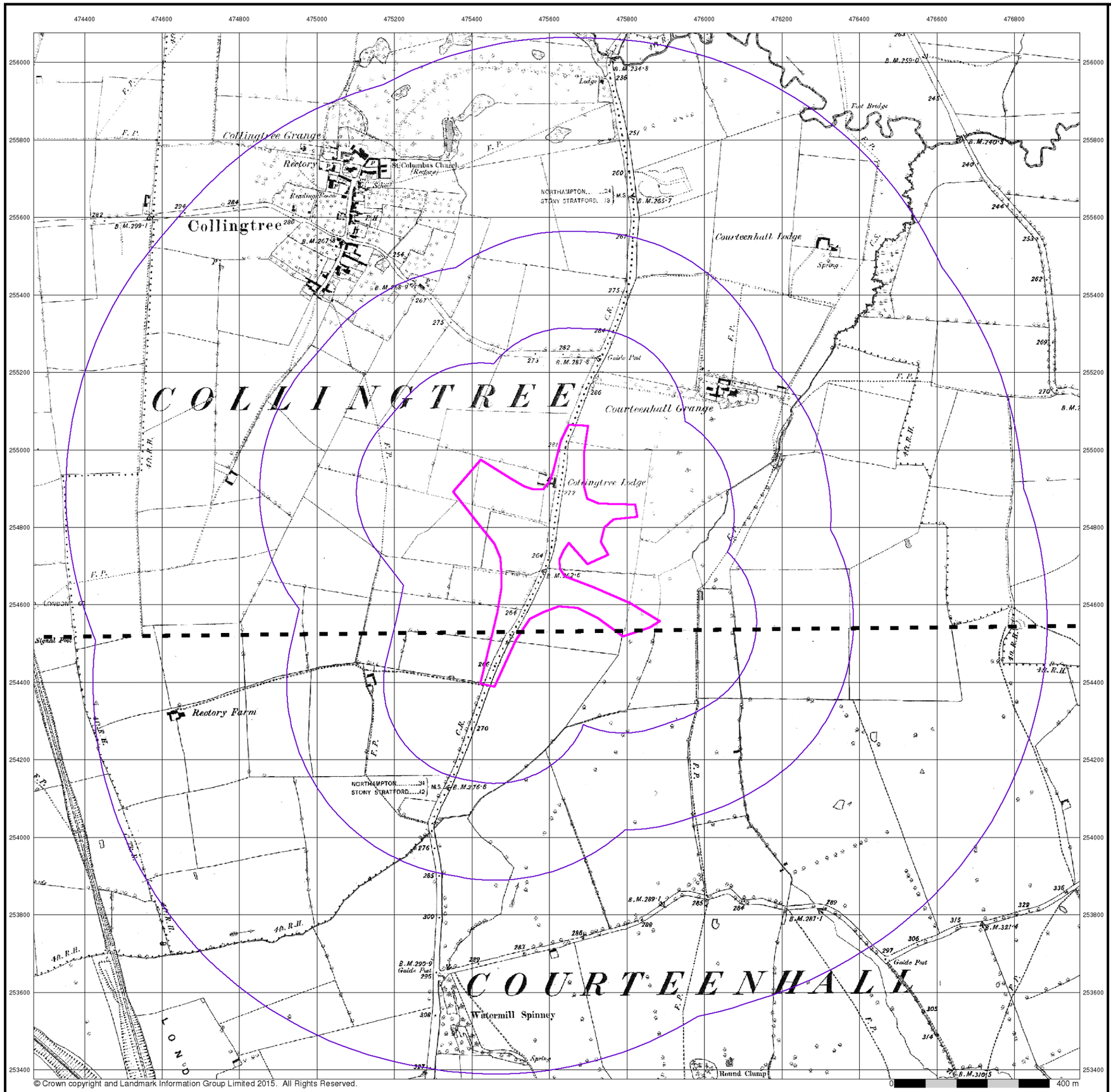

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Northamptonshire

Published 1884

Source map scale - 1:10,560

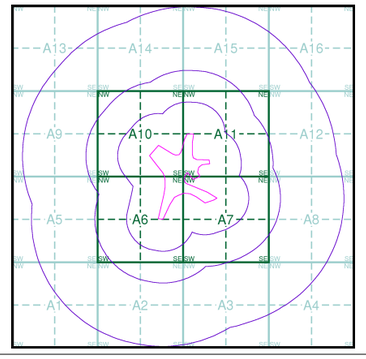
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some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

052NW
1884
1:10,560

052SW
1884
1:10,560

Historical Map - Slice A



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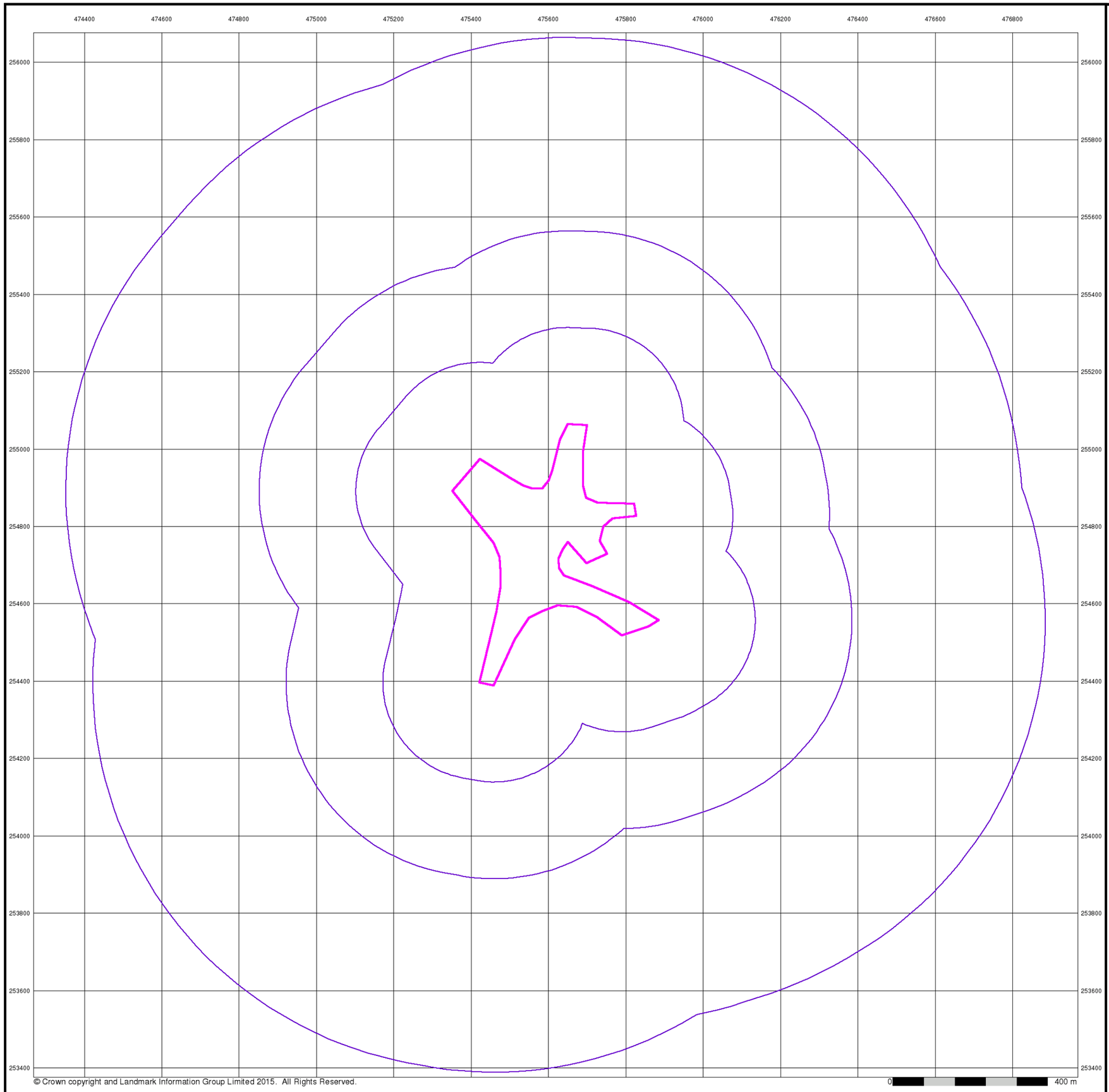

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Buckinghamshire

Published 1885

Source map scale - 1:10,560

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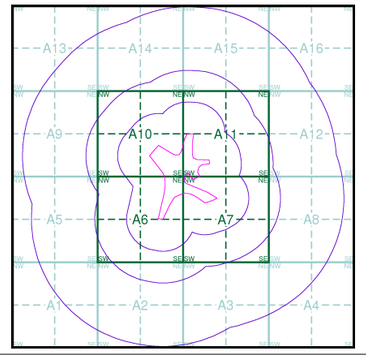
Map Name(s) and Date(s)

00100
1885
1:10,560

Historical Map - Slice A



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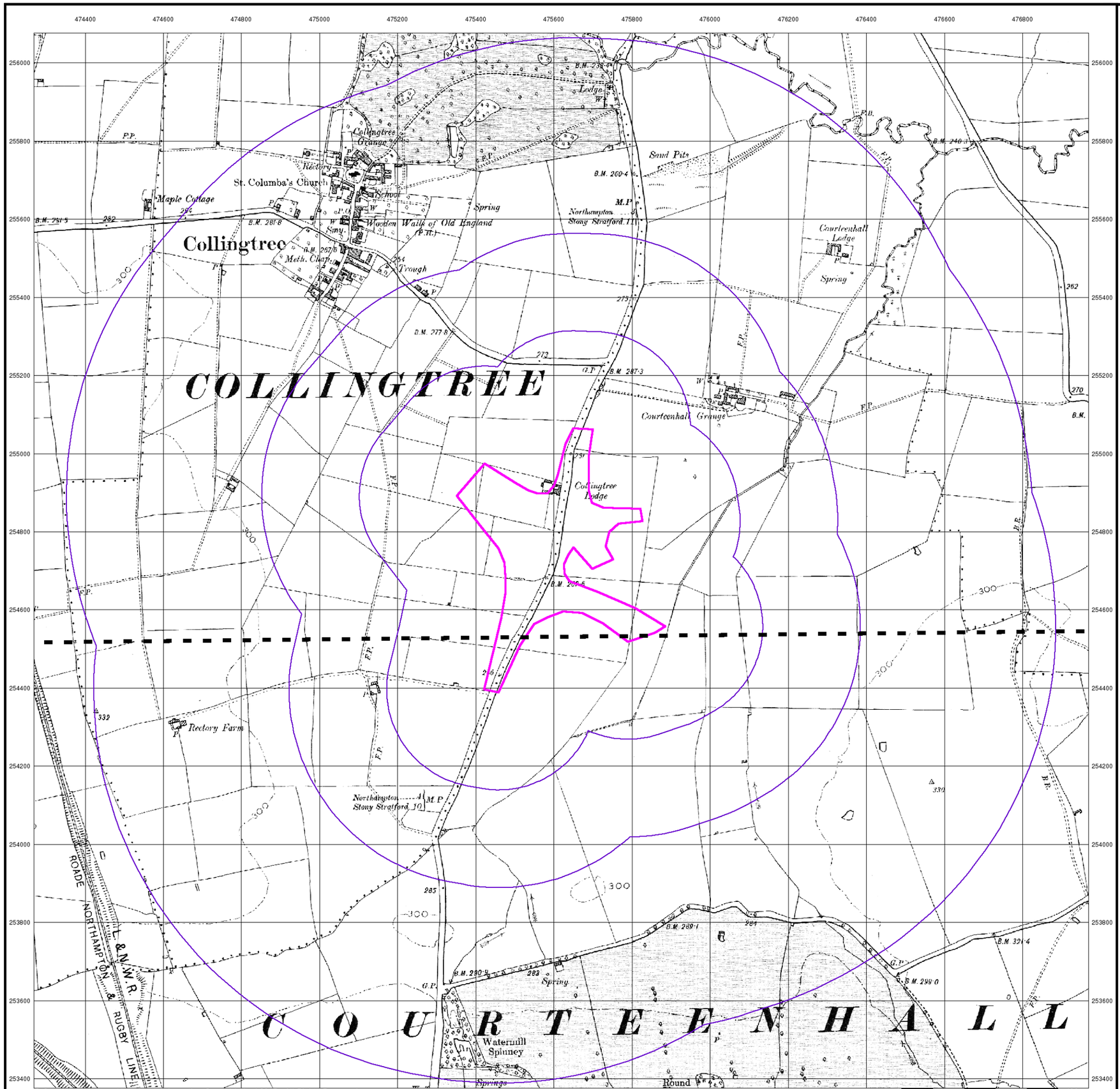

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Northamptonshire

Published 1900 - 1901

Source map scale - 1:10,560

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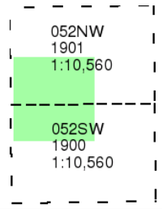
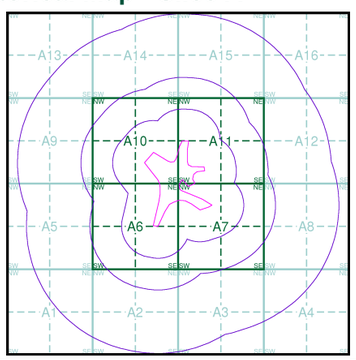
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON

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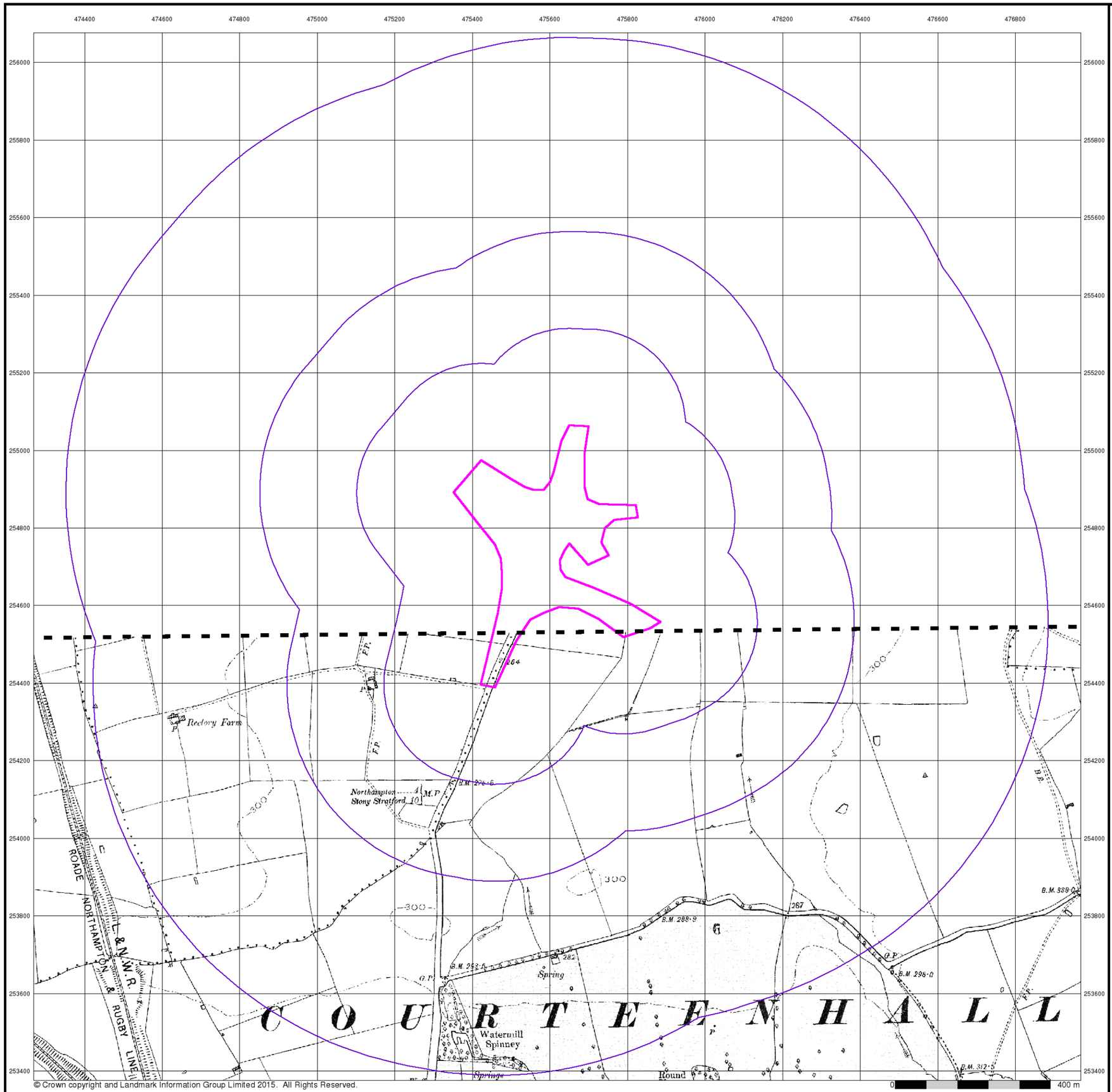
Web: www.envirocheck.co.uk



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Northamptonshire

Published 1900

Source map scale - 1:10,560

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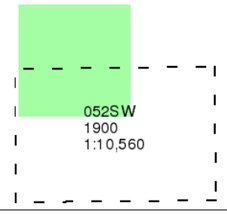
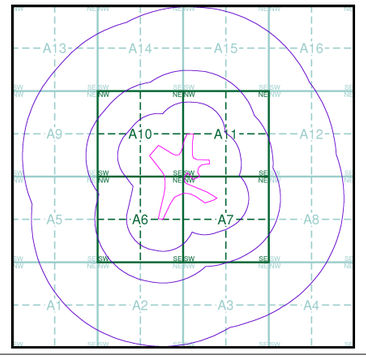
Map Name(s) and Date(s)



Historical Map - Slice A



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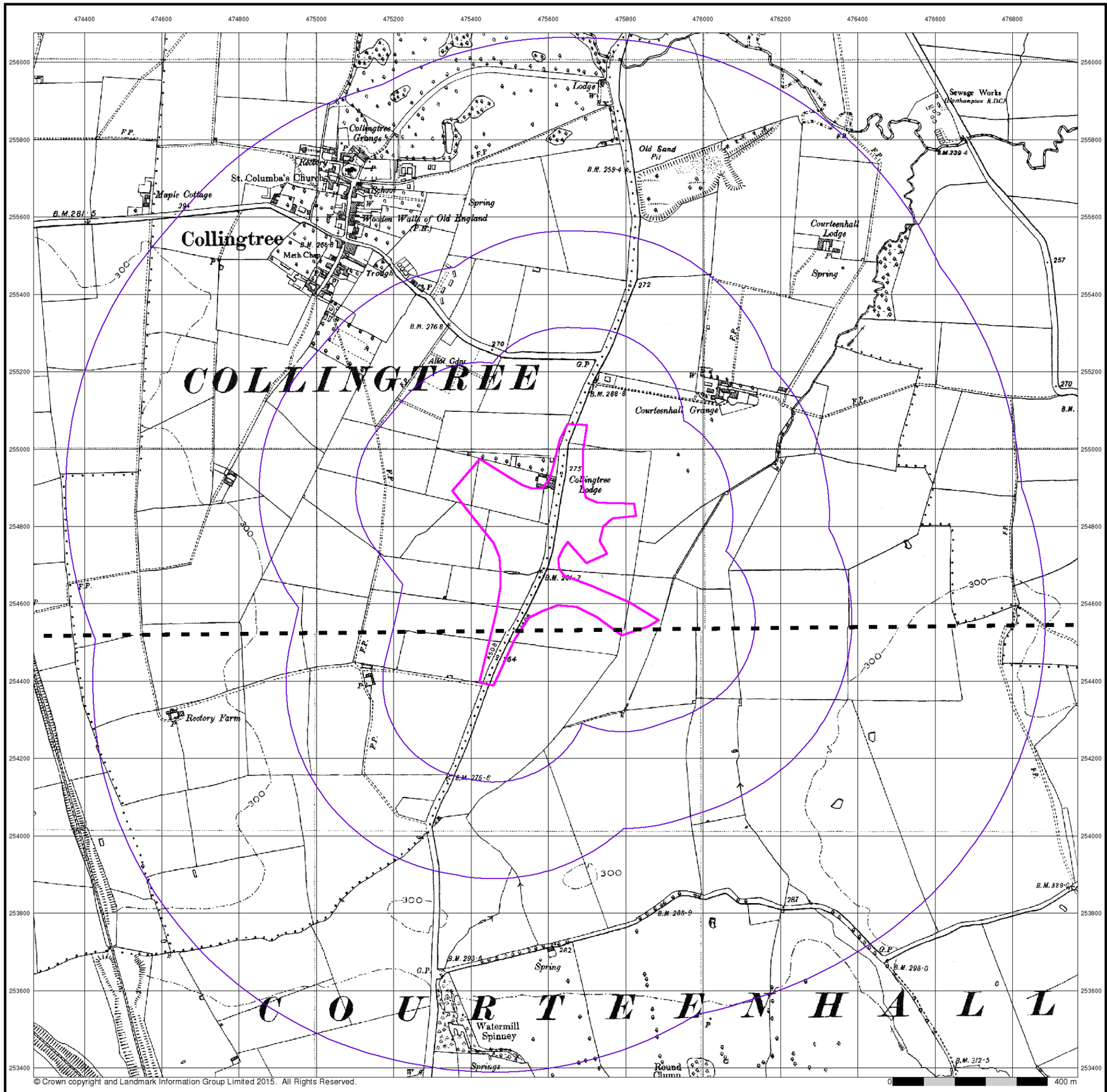

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Northamptonshire

Published 1952

Source map scale - 1:10,560

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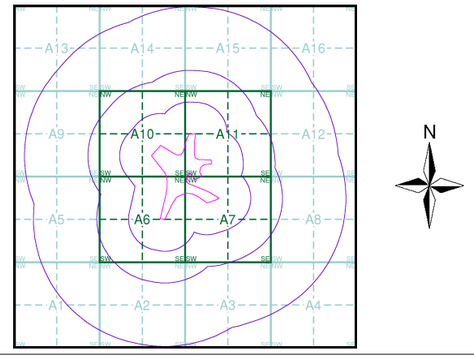
Map Name(s) and Date(s)

052NW
1952
1:10,560

052SW
1952
1:10,560

Historical Map - Slice A



Order Details

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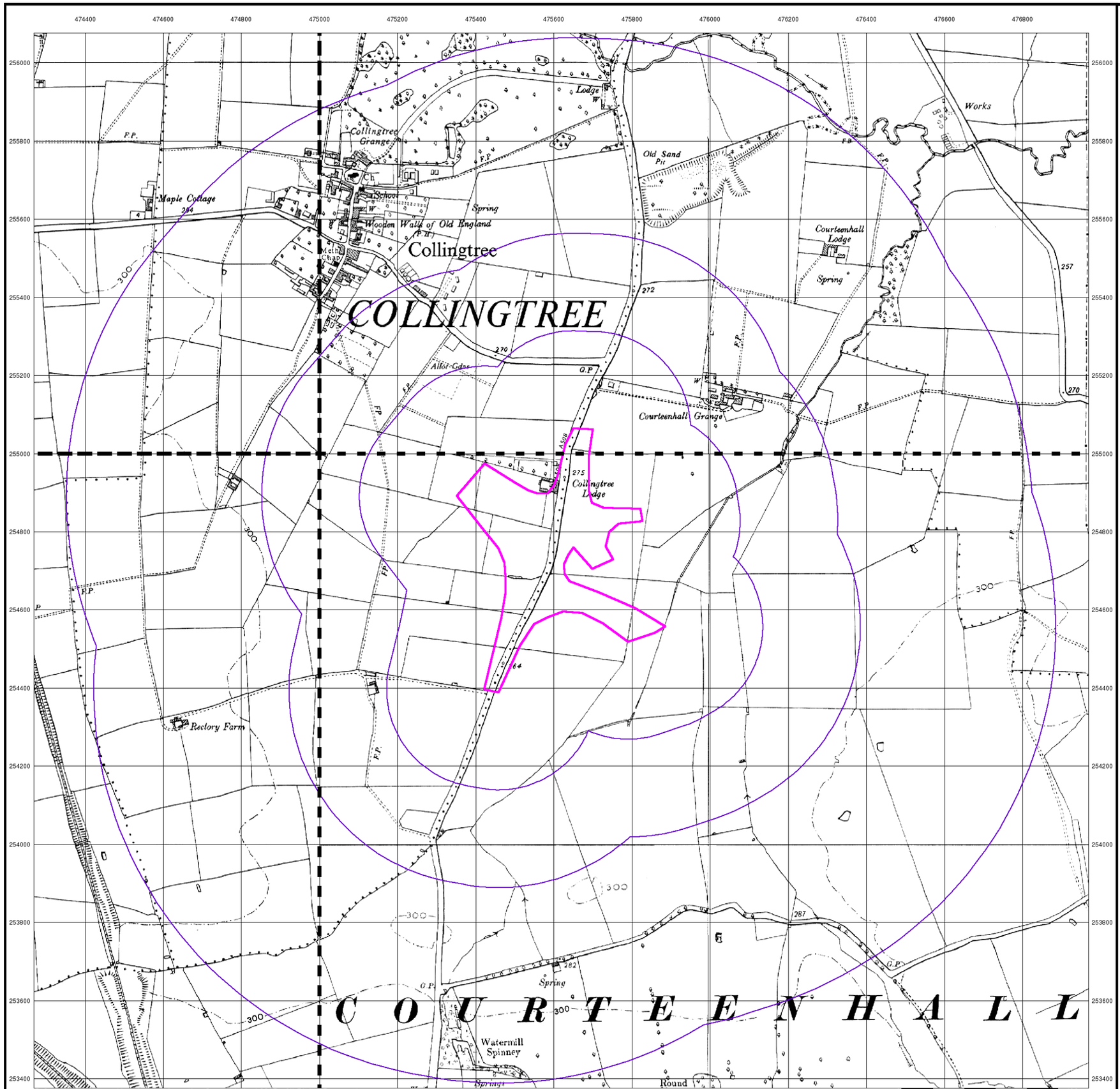

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Ordnance Survey Plan

Published 1958

Source map scale - 1:10,000

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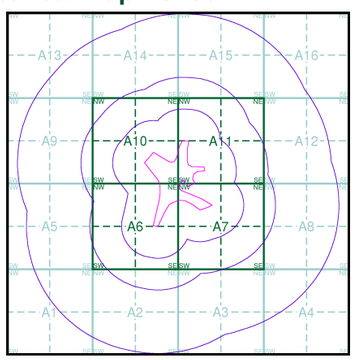
Map Name(s) and Date(s)

SP75NW 1958 1:10,560	SP75NE 1958 1:10,560
SP75SW 1958 1:10,560	SP75SE 1958 1:10,560

Historical Map - Slice A



Order Details

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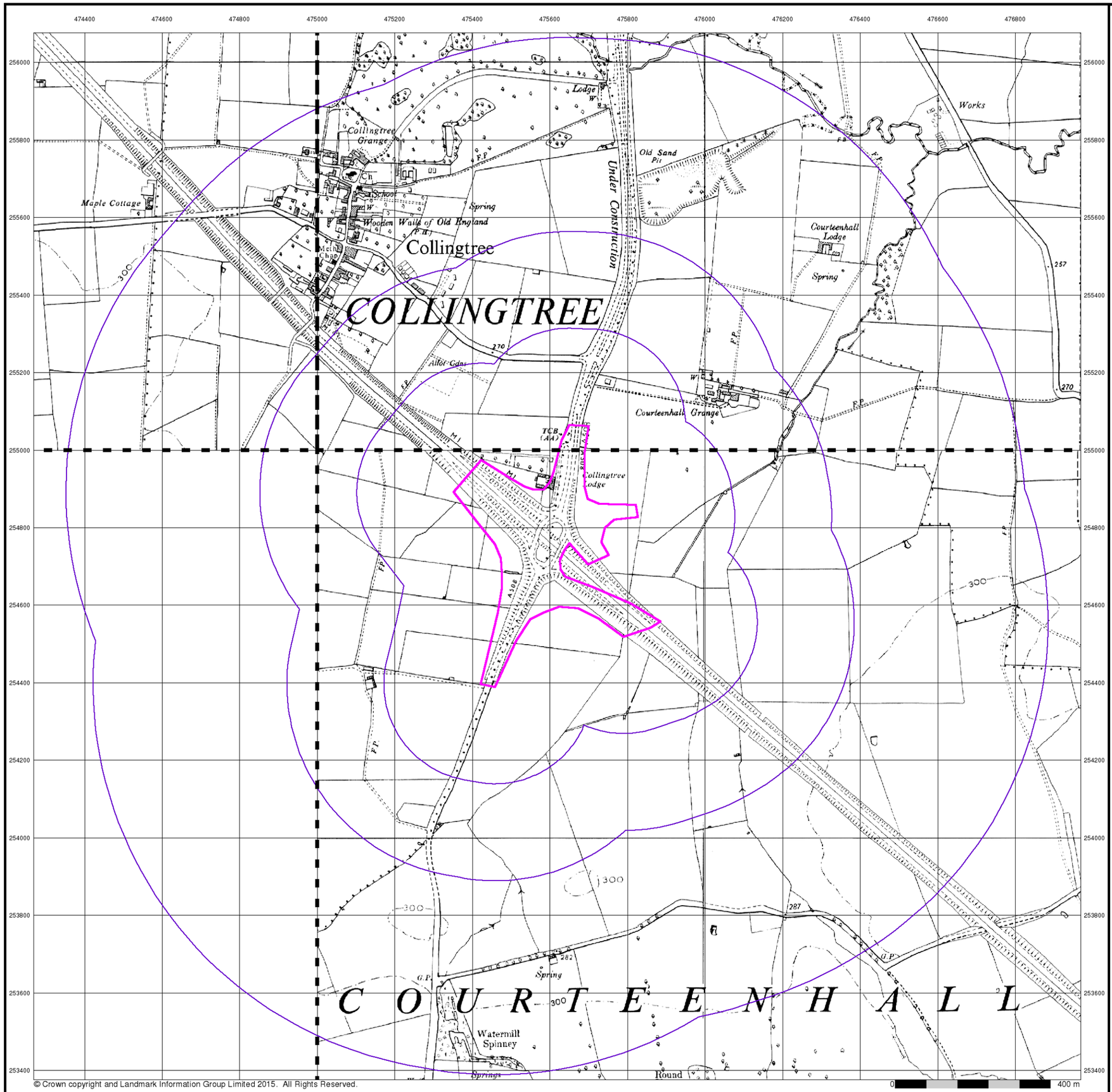

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Ordnance Survey Plan

Published 1965 - 1968

Source map scale - 1:10,000

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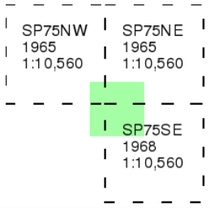
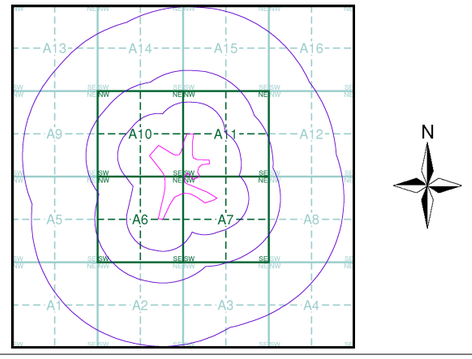
Map Name(s) and Date(s)



Historical Map - Slice A



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Ordnance Survey Plan

Published 1968

Source map scale - 1:10,000

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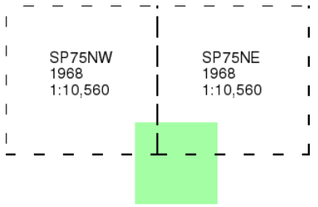
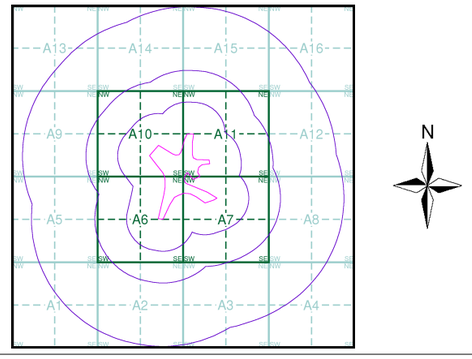
Map Name(s) and Date(s)



Historical Map - Slice A



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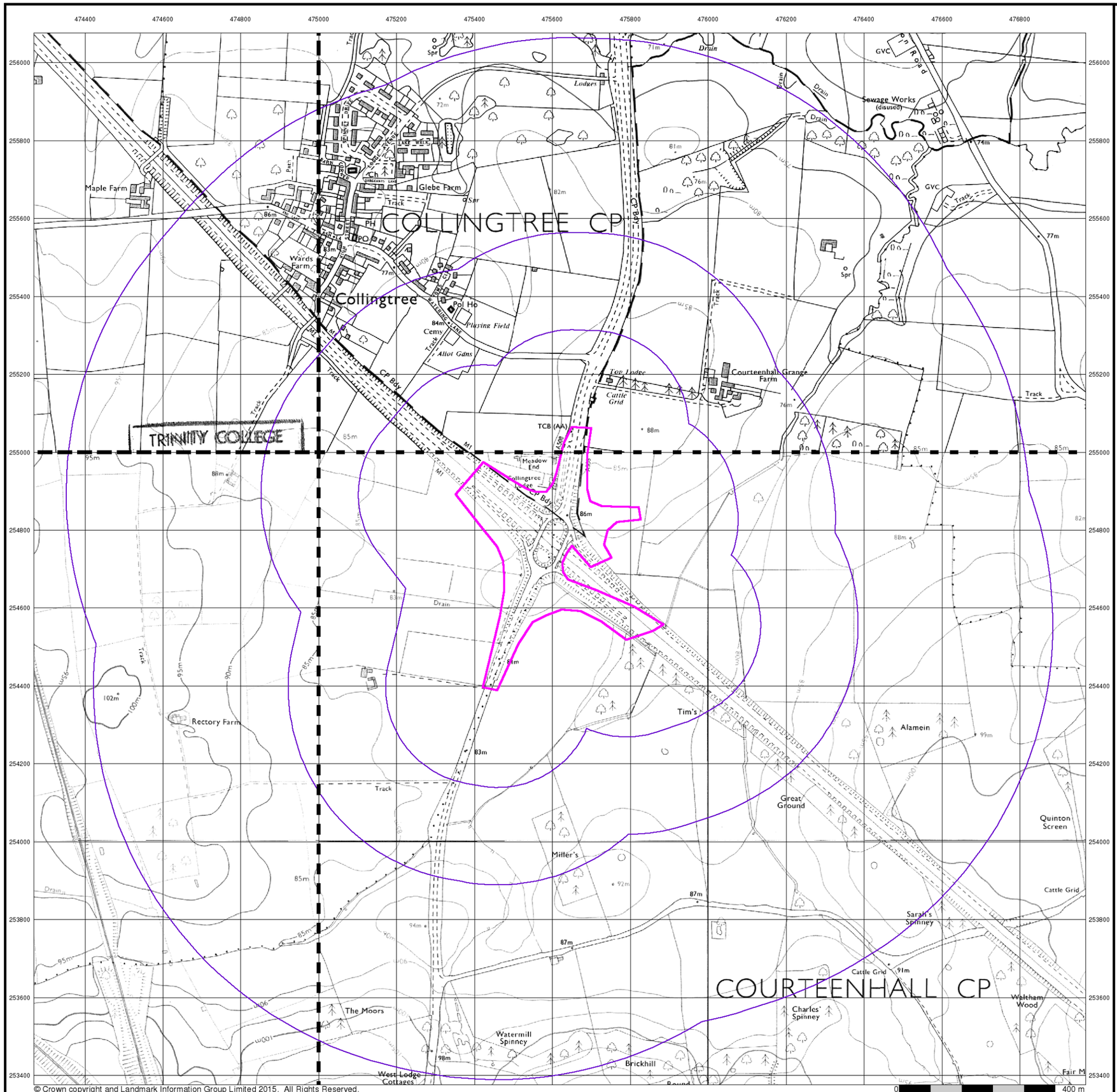

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Ordnance Survey Plan

Published 1982 - 1983

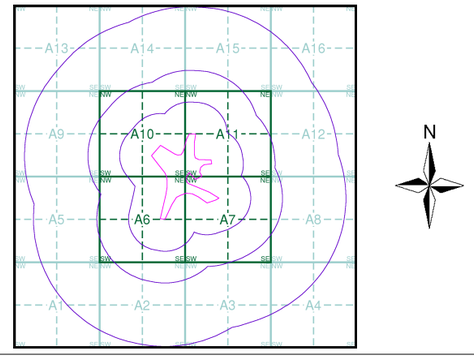
Source map scale - 1:10,000

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)

SP75NW 1983 1:10,000	SP75NE 1983 1:10,000
SP75SW 1982 1:10,000	SP75SE 1982 1:10,000

Historical Map - Slice A



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

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Ordnance Survey Plan

Published 1990 - 1992

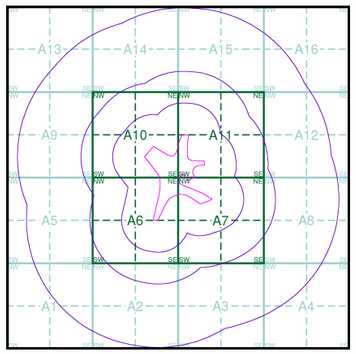
Source map scale - 1:10,000

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)

SP75NW 1990 1:10,000
SP75NE 1992 1:10,000
SP75SW 1990 1:10,000

Historical Map - Slice A



Order Details

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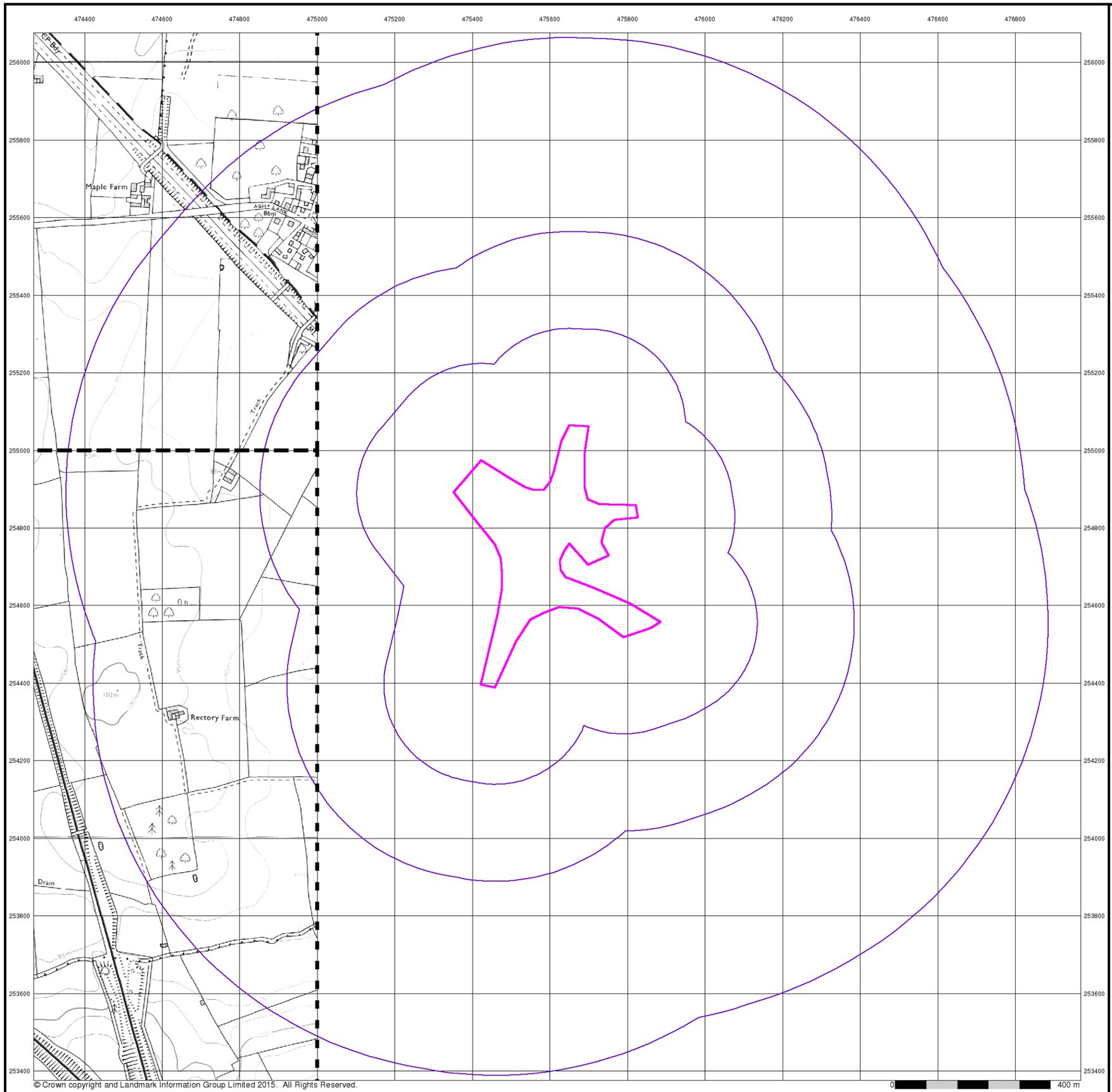

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Ordnance Survey Plan

Published 1993

Source map scale - 1:10,000

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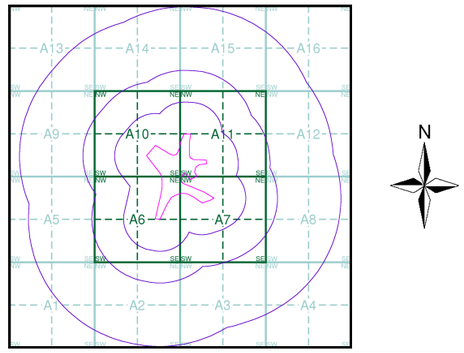
Map Name(s) and Date(s)

SP75NW
1993
1:10,000

SP75SW
1993
1:10,000

Historical Map - Slice A



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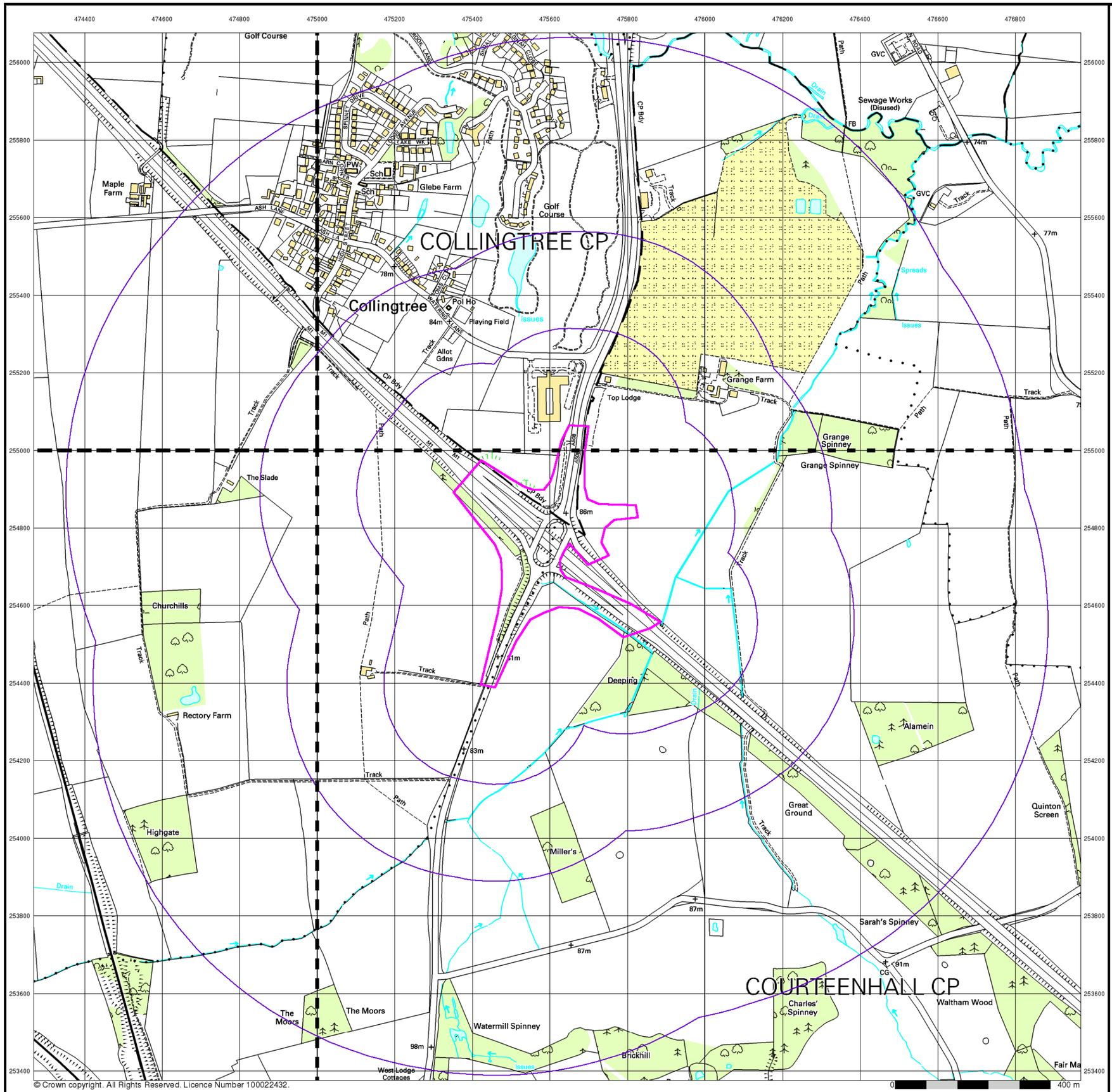

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10k Raster Mapping

Published 1999

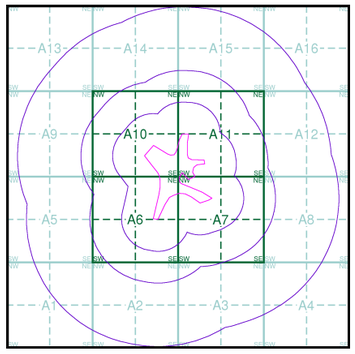
Source map scale - 1:10,000

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)

SP75NW 1999 1:10,000	SP75NE 1999 1:10,000
SP75SW 1999 1:10,000	SP75SE 1999 1:10,000

Historical Map - Slice A



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Street View

Published 2016

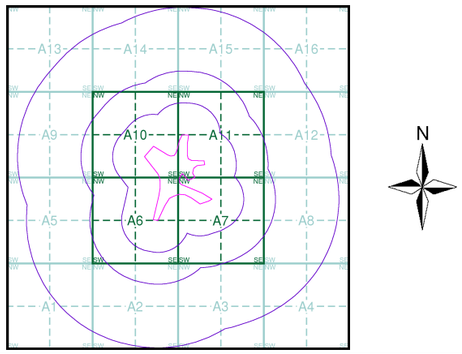
Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

SP75NW 2016 1:10,000	SP75NE 2016 1:10,000
SP75SW 2016 1:10,000	SP75SE 2016 1:10,000

Street View Map - Slice A



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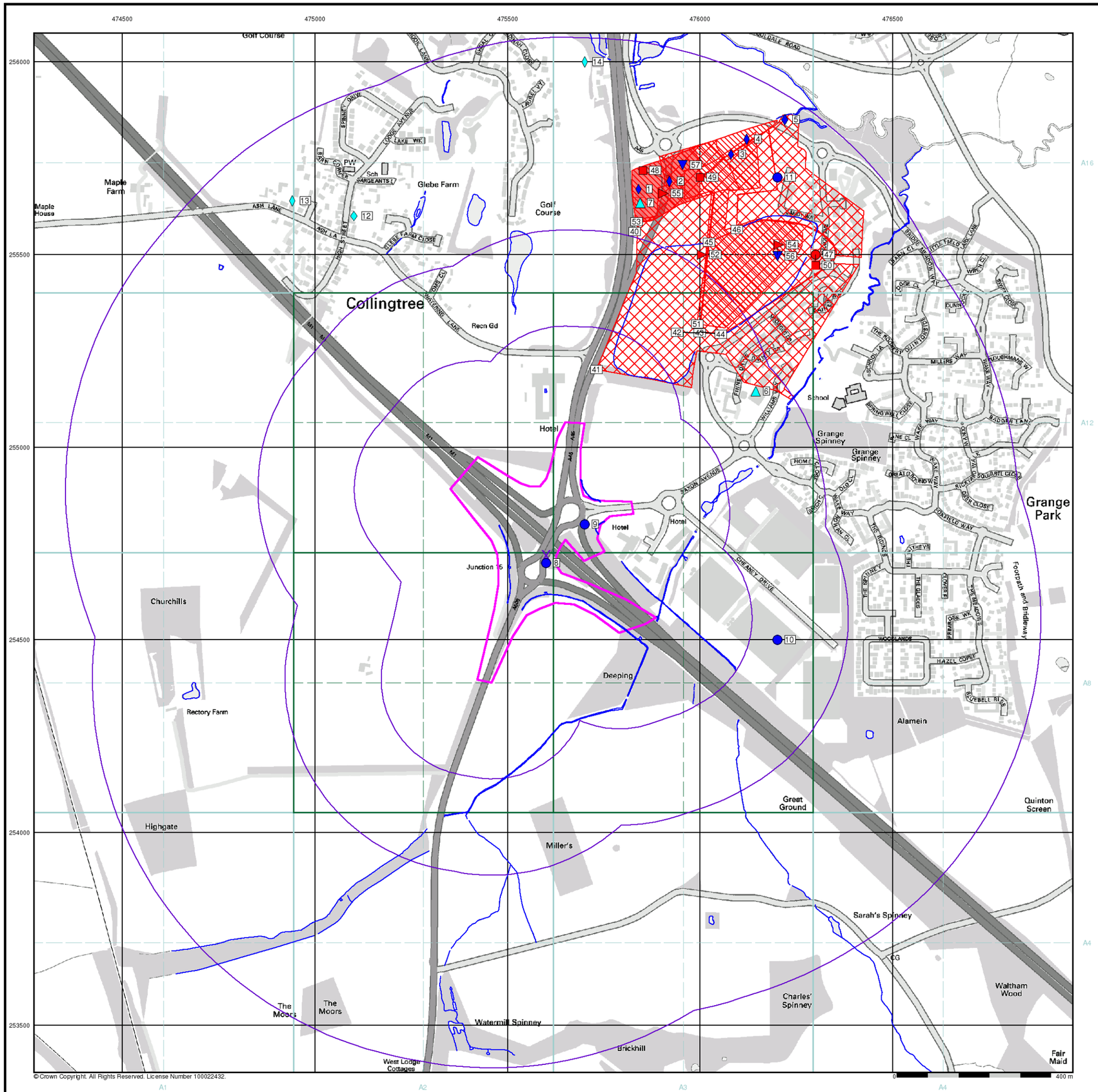

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General

- 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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

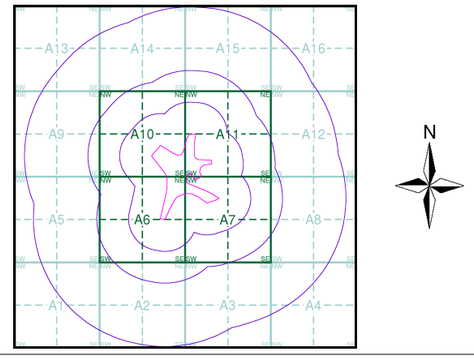
Waste

- 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
- 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

Hazardous Substances

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

Site Sensitivity Map - Slice A



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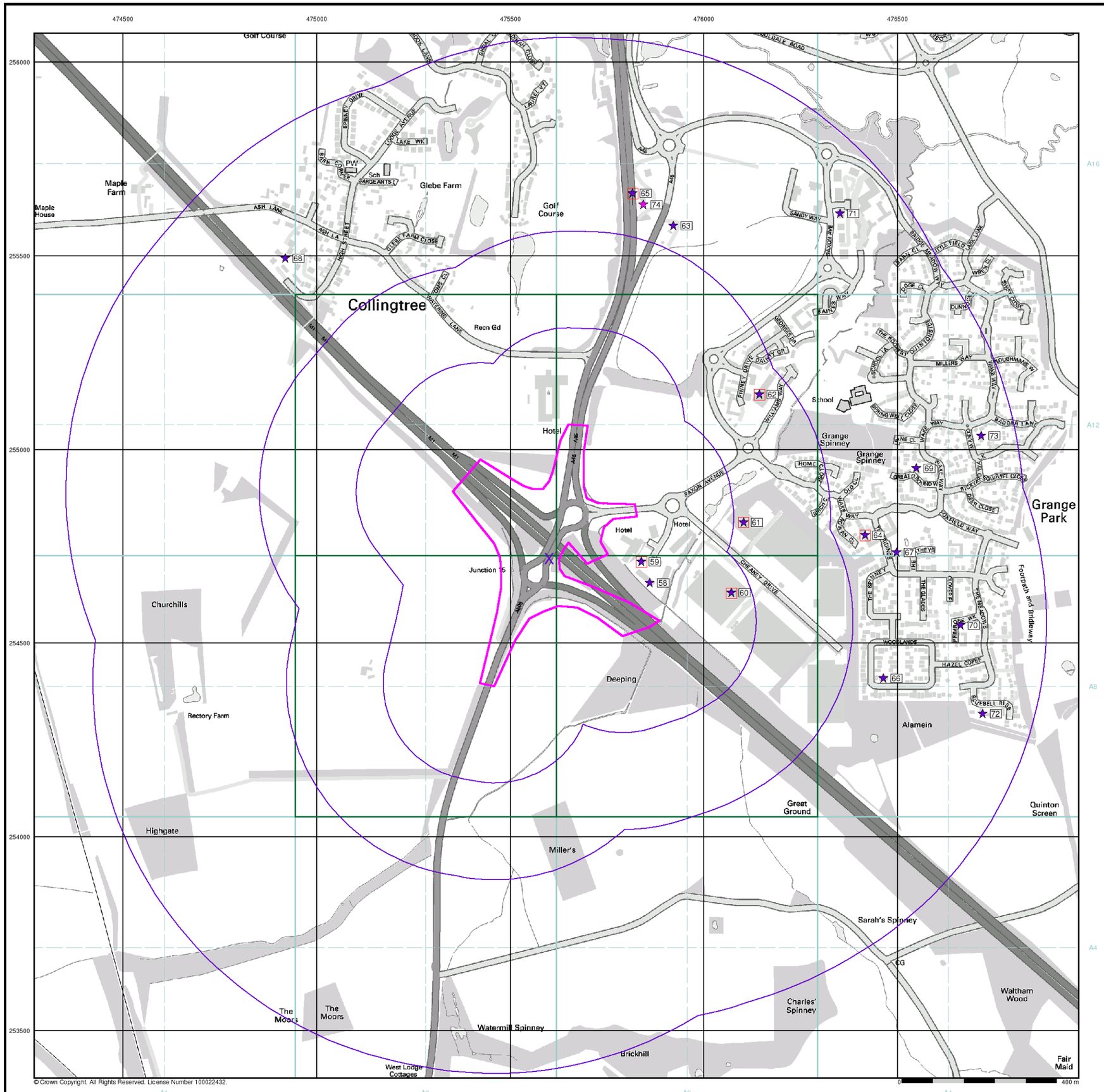

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Industrial Land Use Map

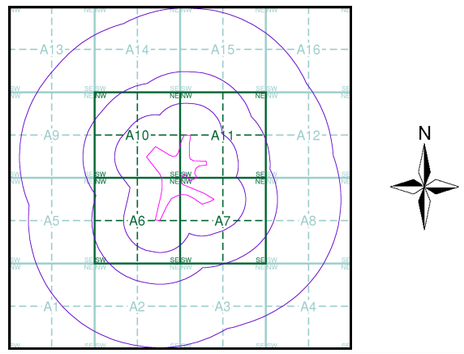
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON

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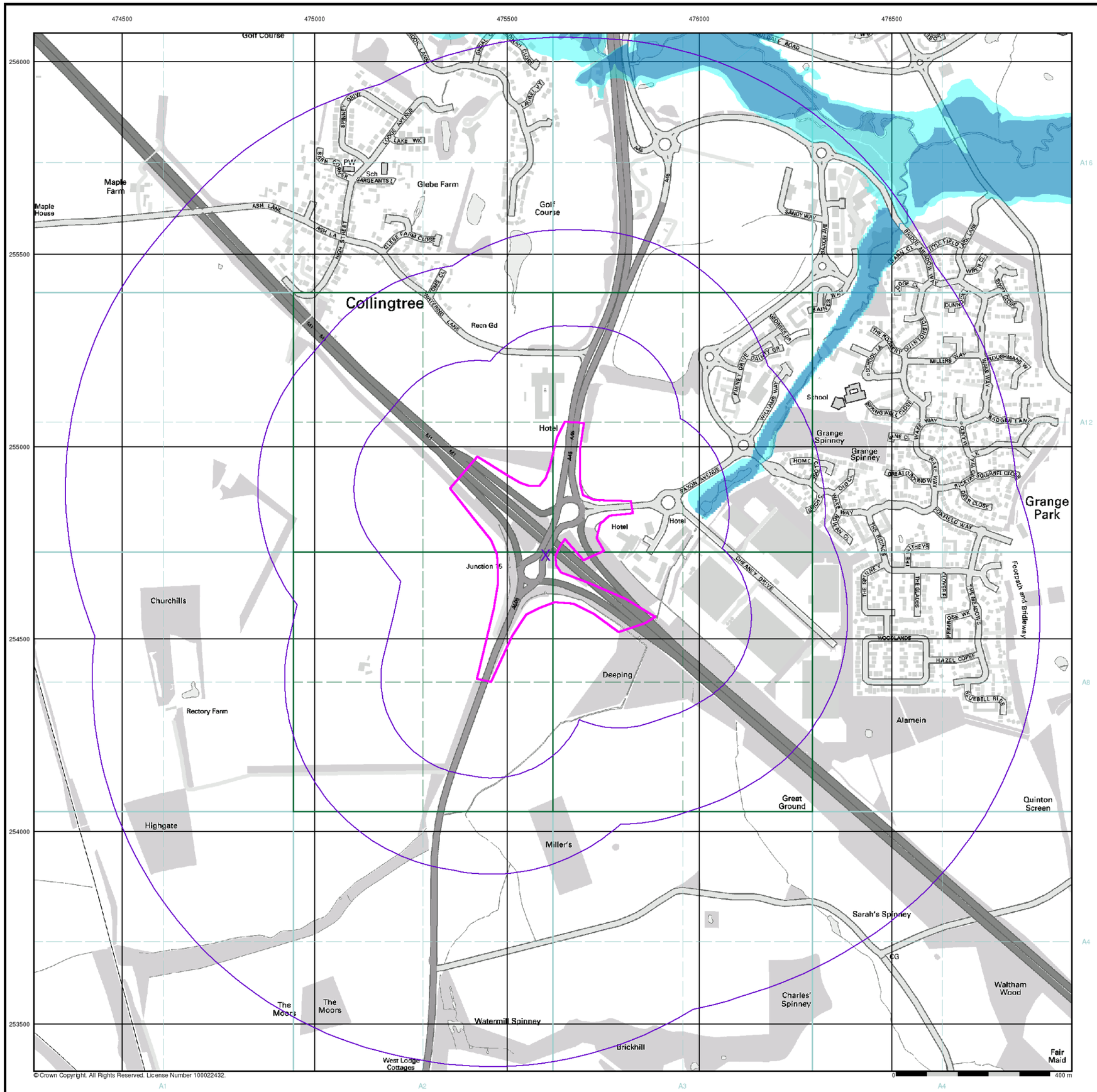
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

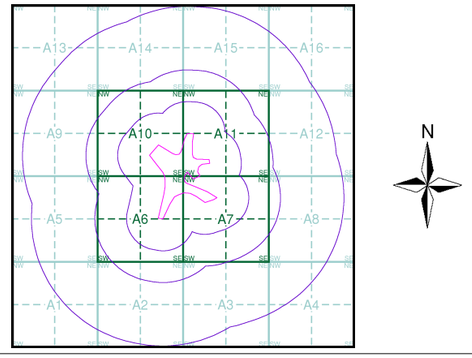
General

- 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



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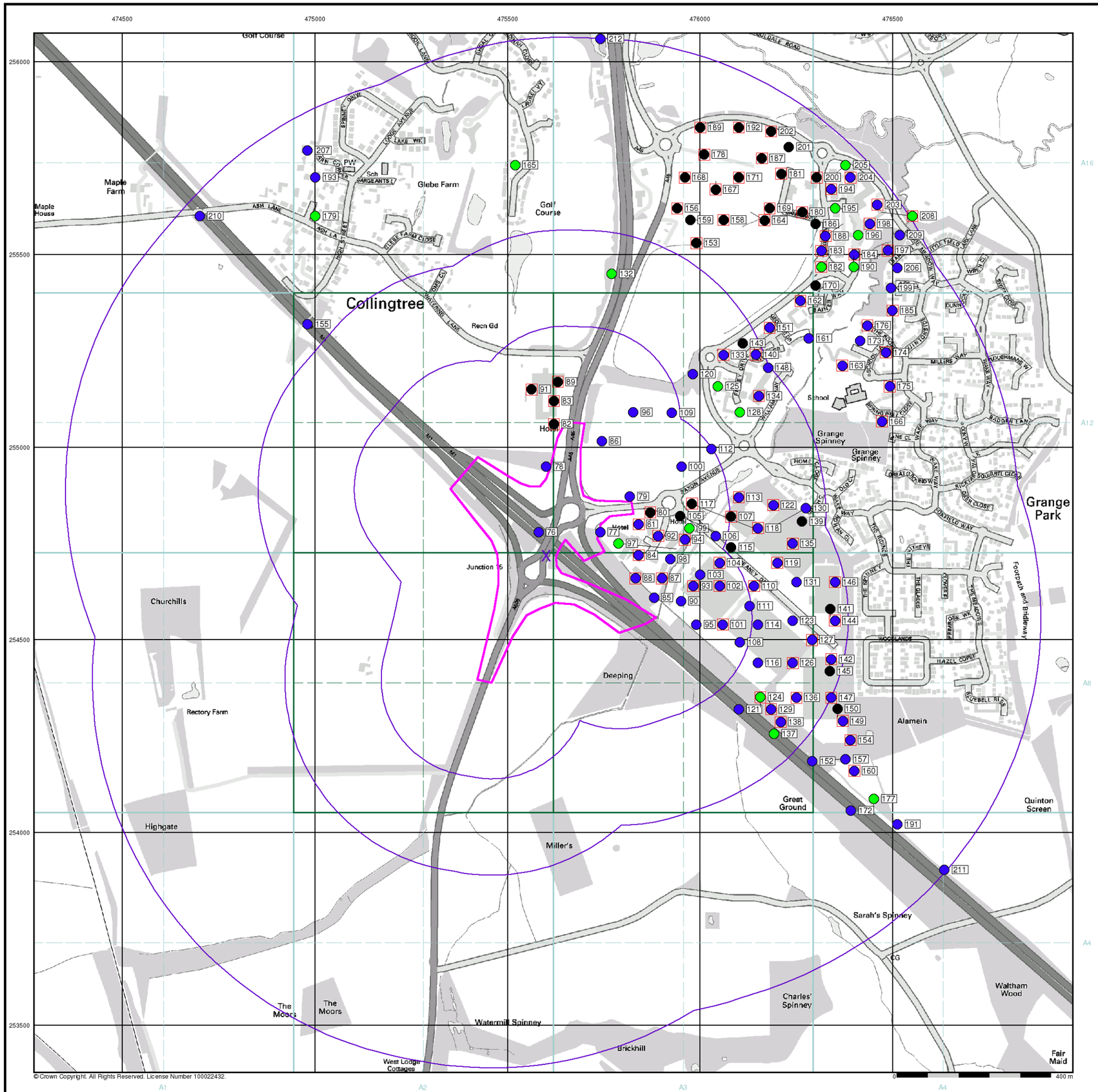


Envirocheck®

LANDMARK INFORMATION GROUP®

General

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

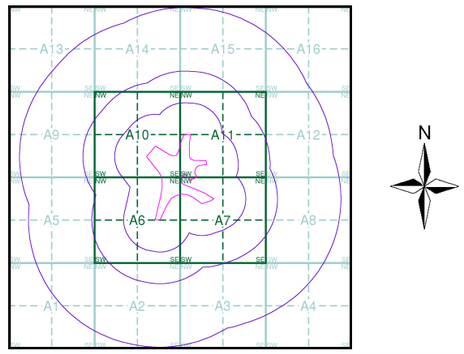
Agency and Hydrological (Boreholes)

- 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



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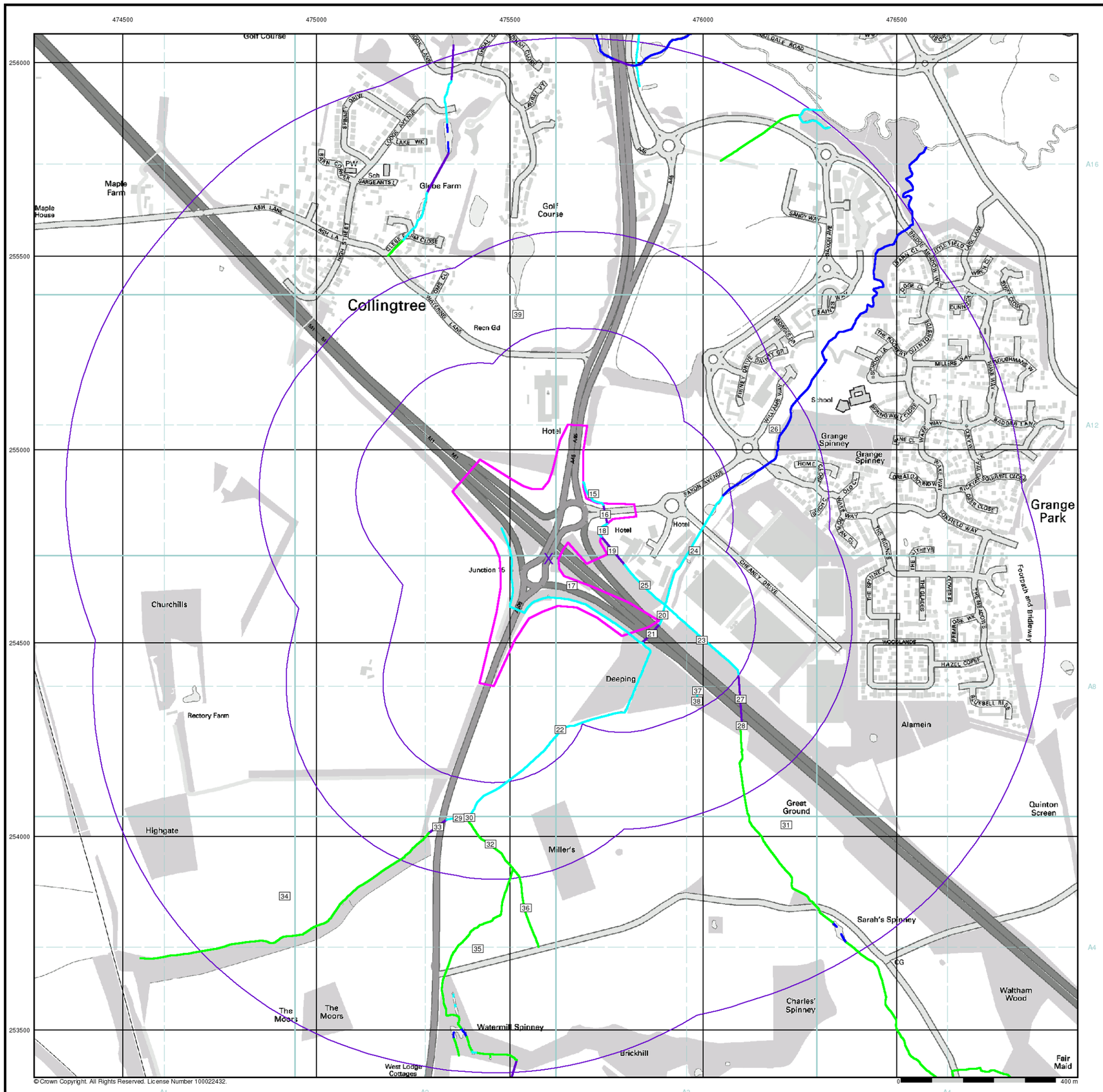


Envirocheck®

LANDMARK INFORMATION GROUP®

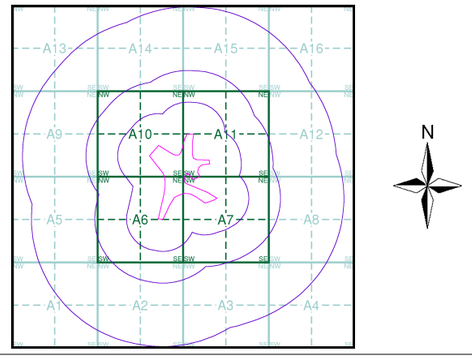
General

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

Detailed River Network Data

- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Undefined River
- Lake/Reservoir
- Offline Drainage Feature
- Extended Culvert (greater than 50m)
- Underground River (inferred)
- Underground River (local knowledge)
- Downstream of High Water Mark
- Downstream of Seaward Extension
- Not assigned River feature

EA/NRW Detailed River Network Map - Slice A



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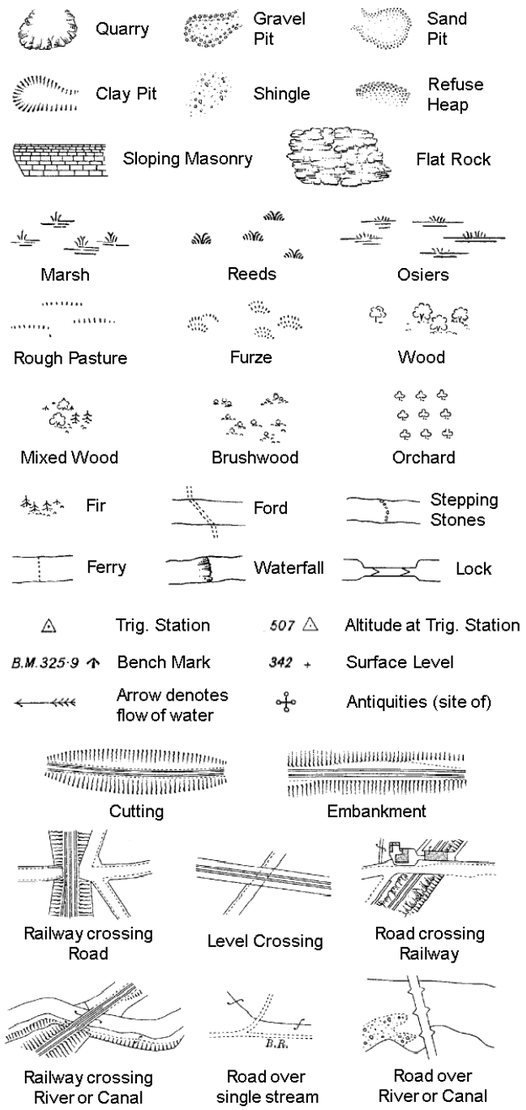
Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

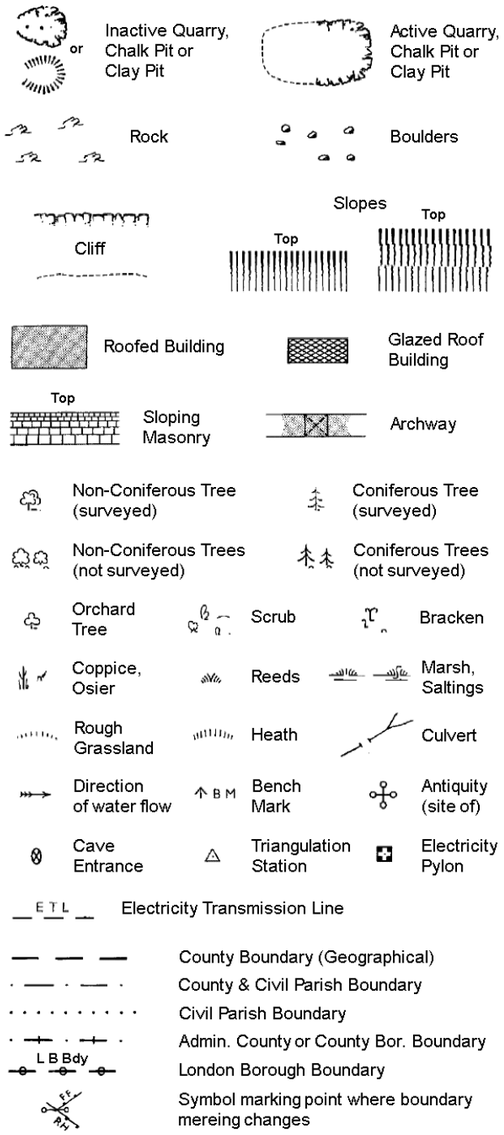
Administrative County & Civil Parish Boundary

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

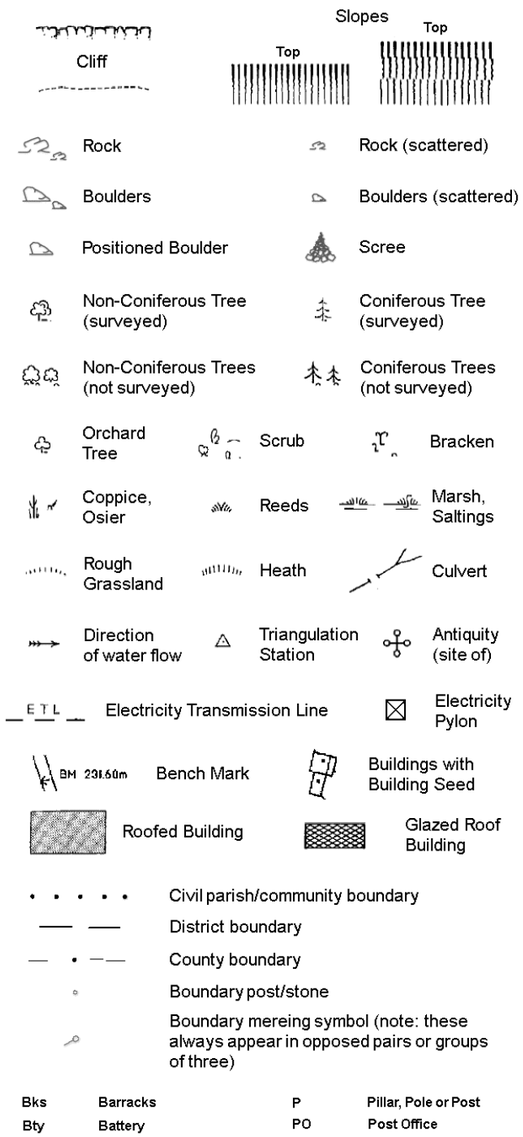
Admin. County or County Bor. Boundary

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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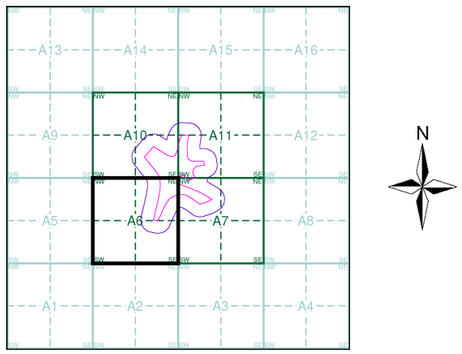
Historical Mapping & Photography included:

Historical Map - Segment A6



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

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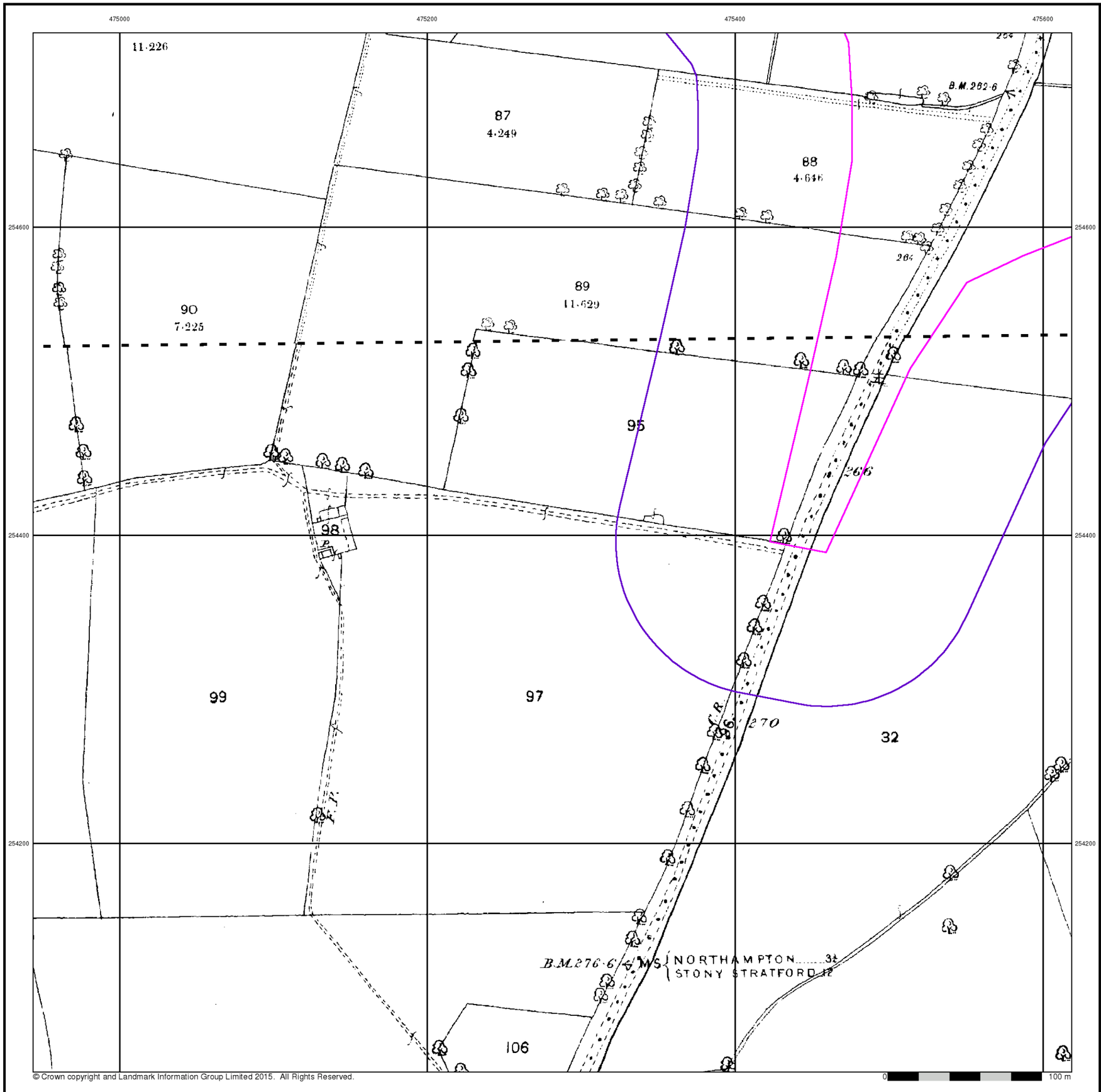

0 100 m

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Northamptonshire

Published 1885

Source map scale - 1:2,500

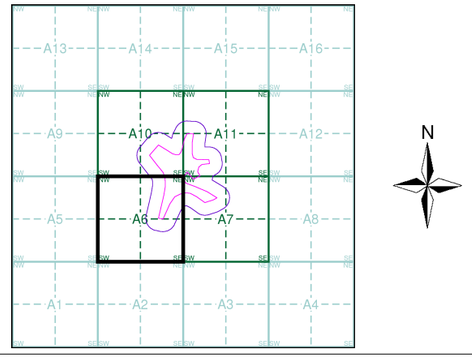
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

052_05
1885
1:2,500

052_09
1885
1:2,500

Historical Map - Segment A6



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M1 Junction 15, NORTHAMPTON

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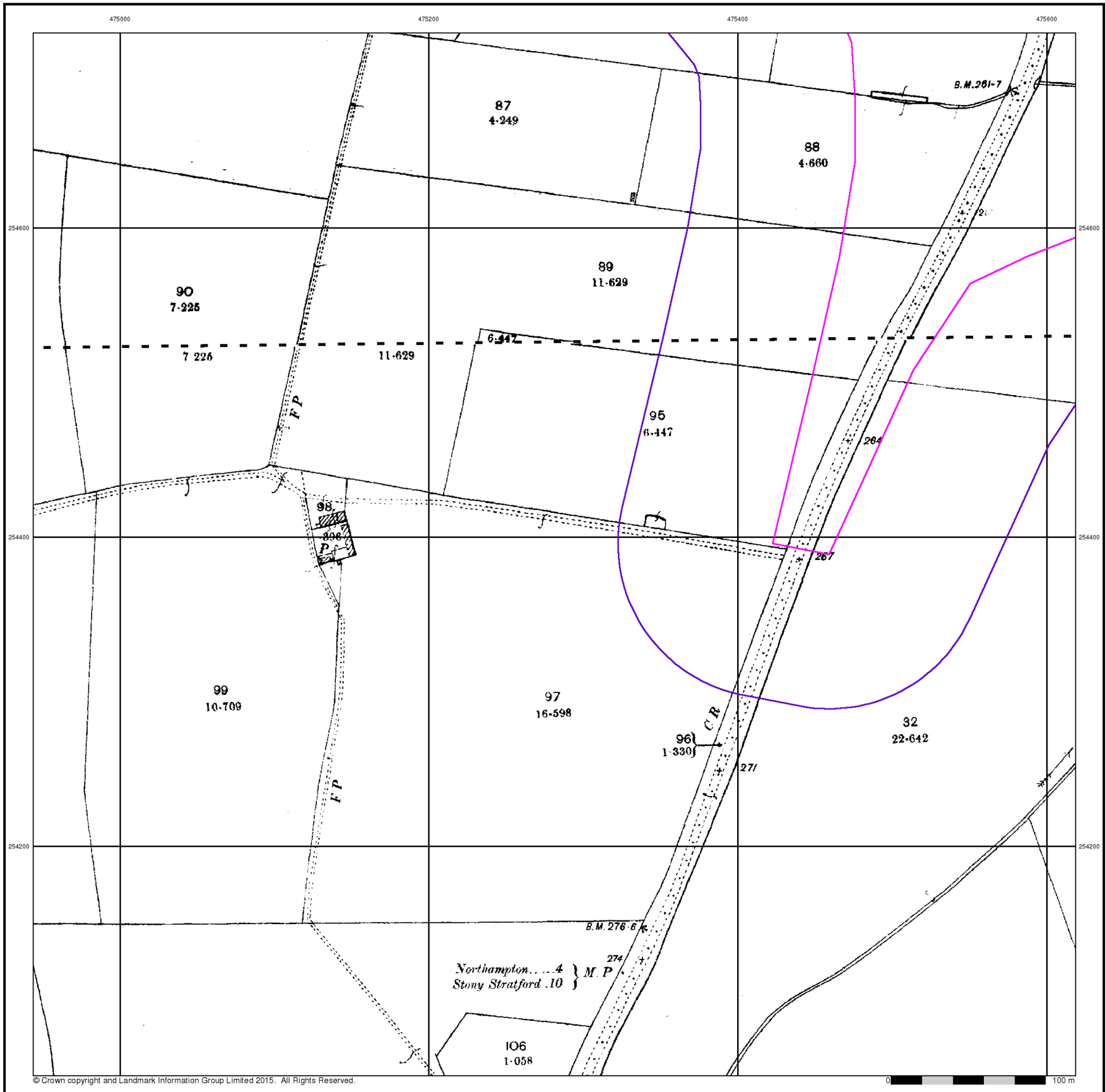

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Northamptonshire

Published 1900

Source map scale - 1:2,500

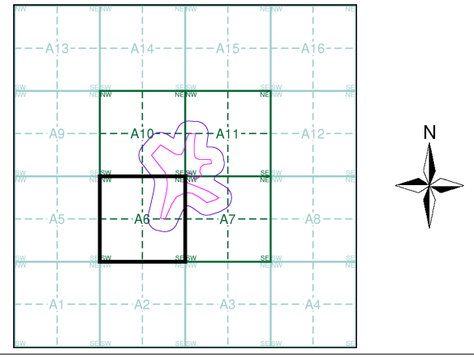
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

052_05
1900
1:2,500

052_09
1900
1:2,500

Historical Map - Segment A6



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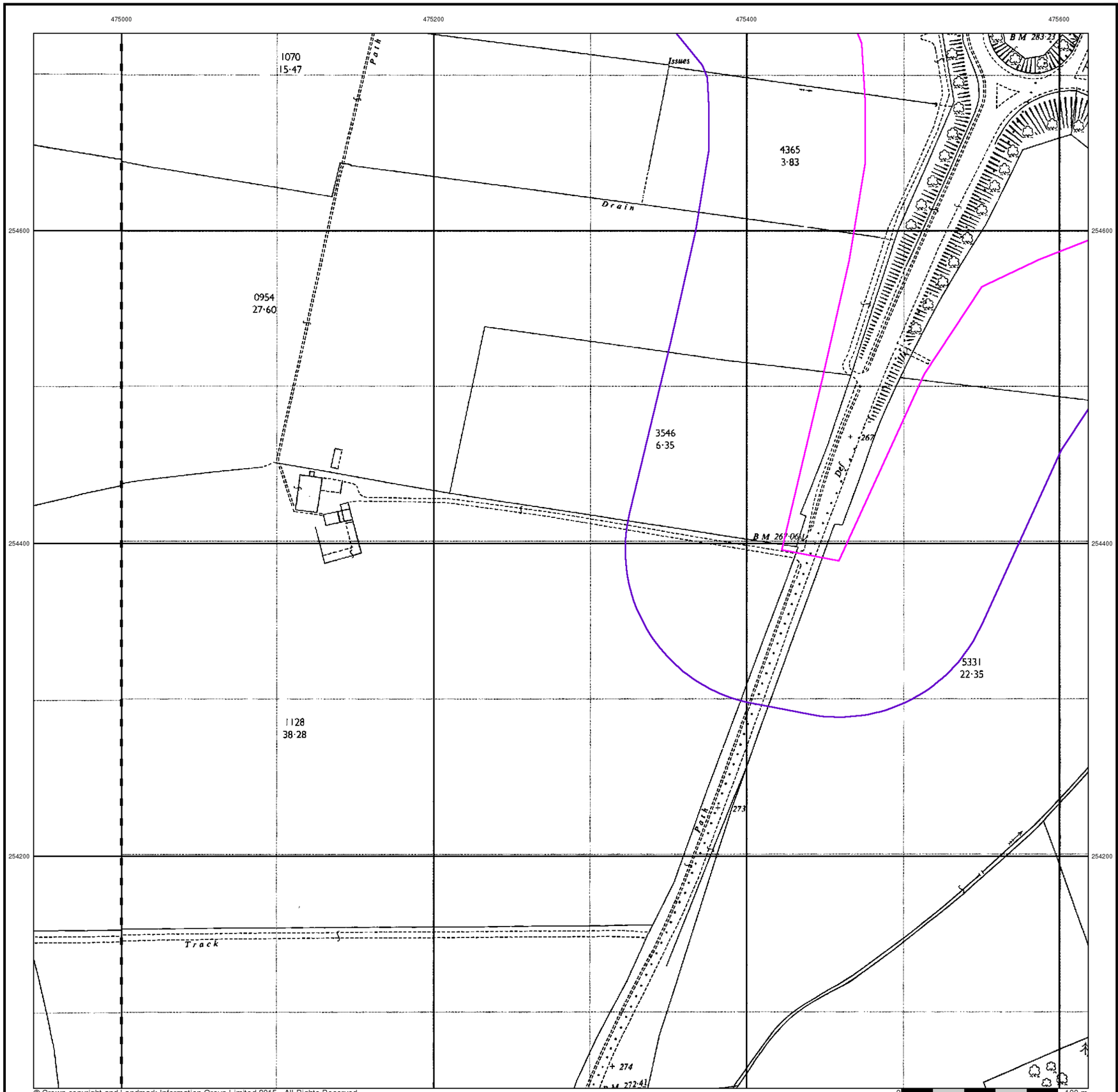

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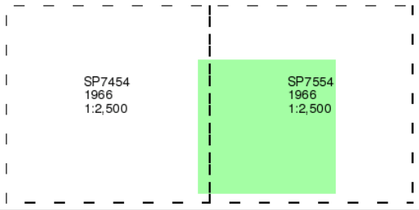
Ordnance Survey Plan

Published 1966

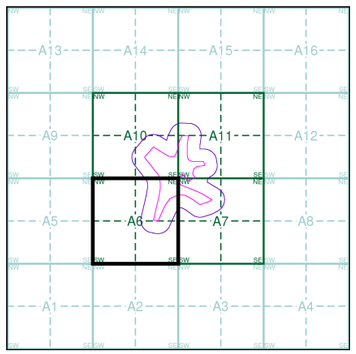
Source map scale - 1:2,500

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 A6



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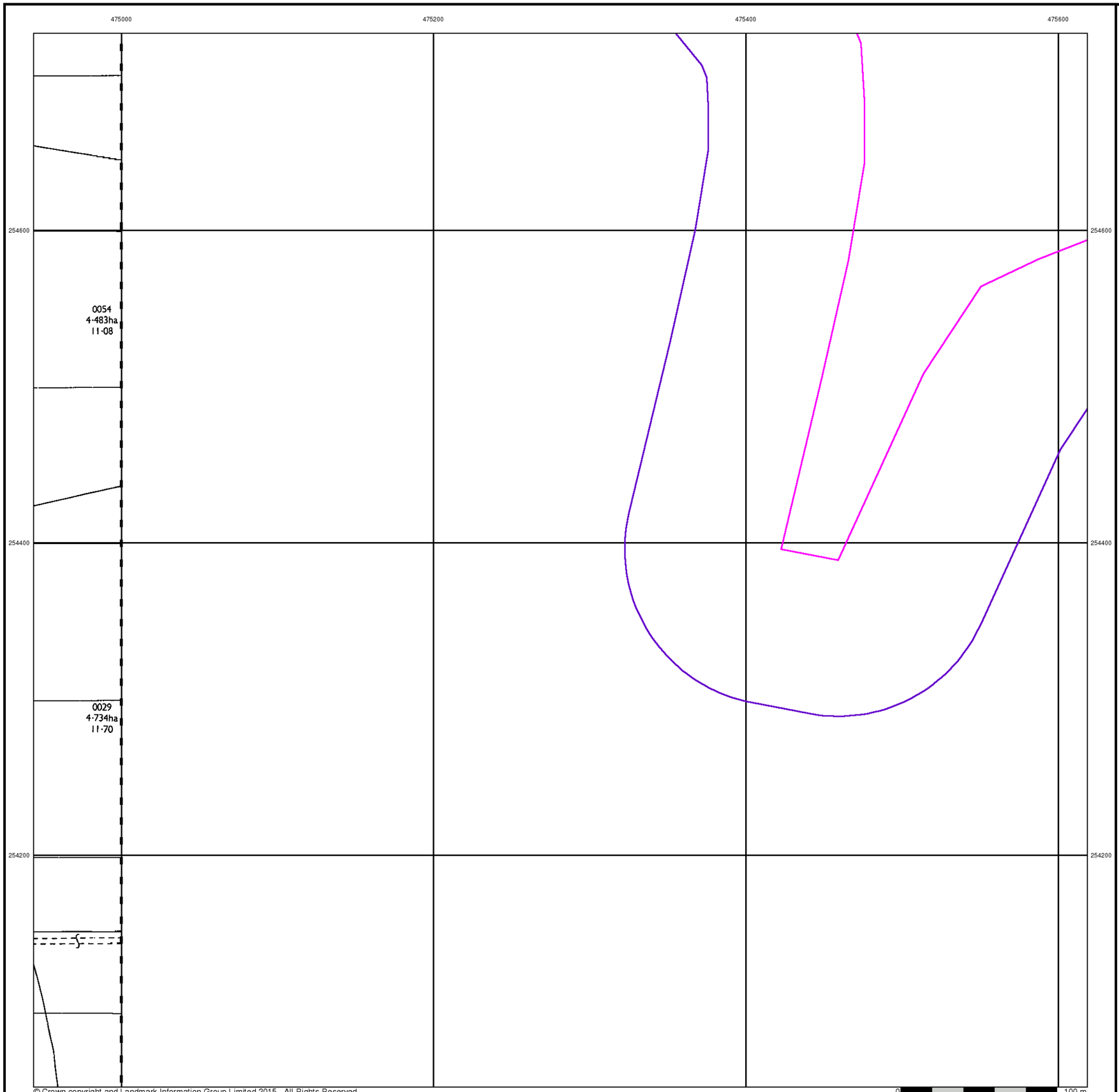

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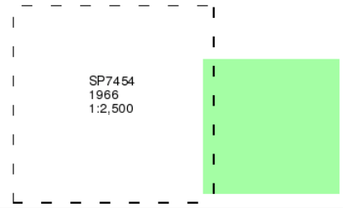
Additional SIMs

Published 1966

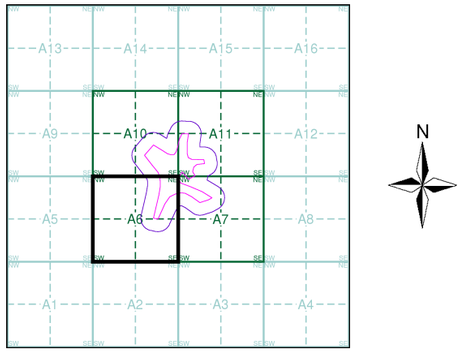
Source map scale - 1:2,500

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 A6



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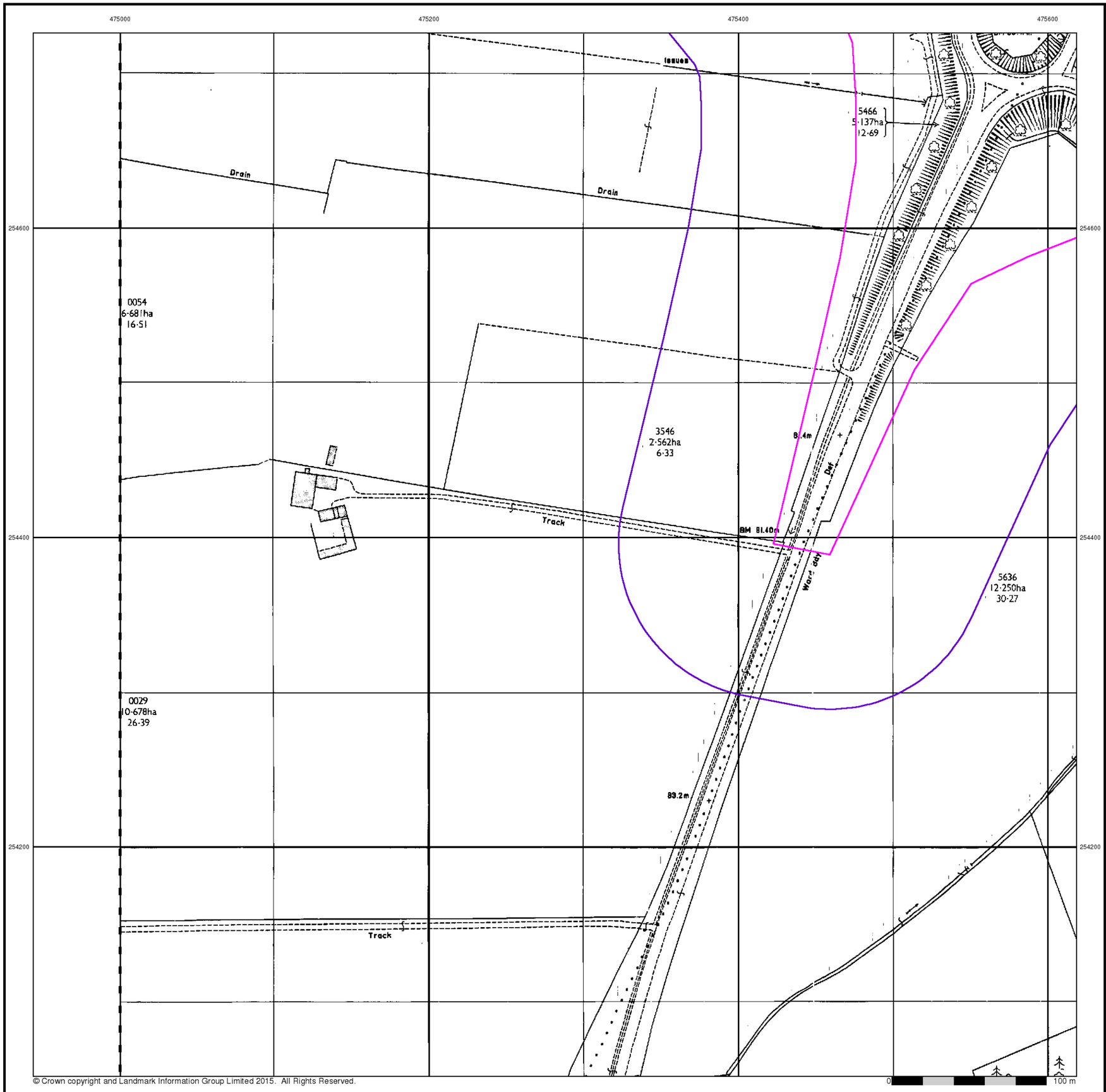

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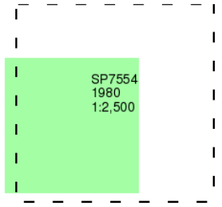
Ordnance Survey Plan

Published 1980

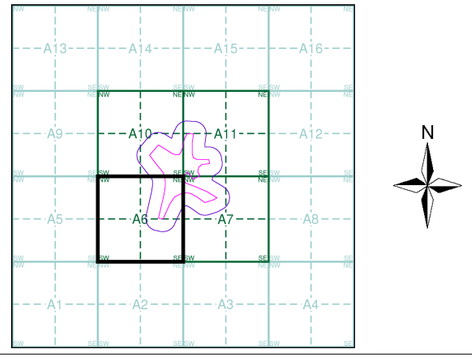
Source map scale - 1:2,500

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 A6



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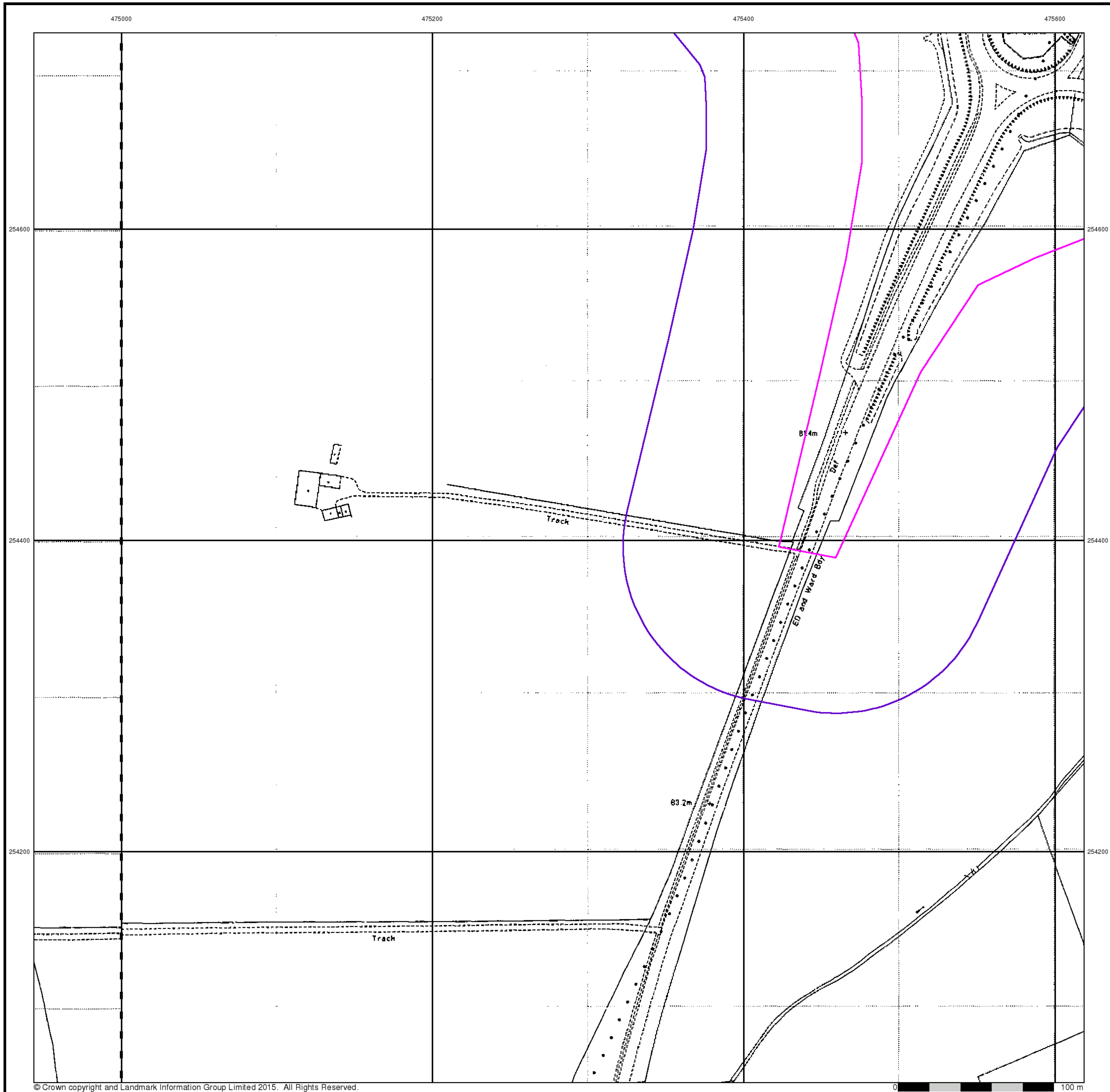

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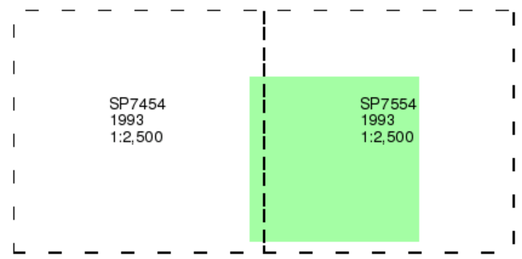
Large-Scale National Grid Data

Published 1993

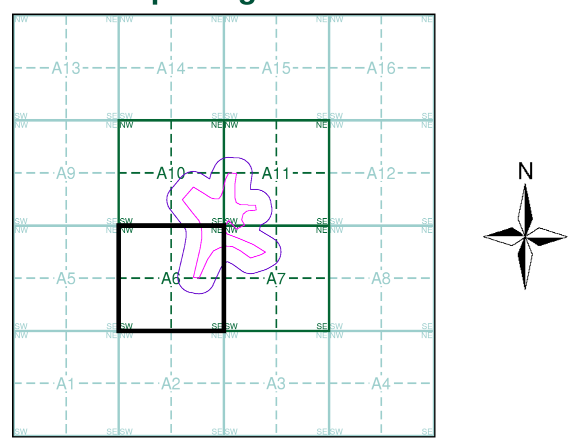
Source map scale - 1:2,500

'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 A6



Order Details

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Customer Ref: 312598
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Slice: A
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Search Buffer (m): 100

Site Details

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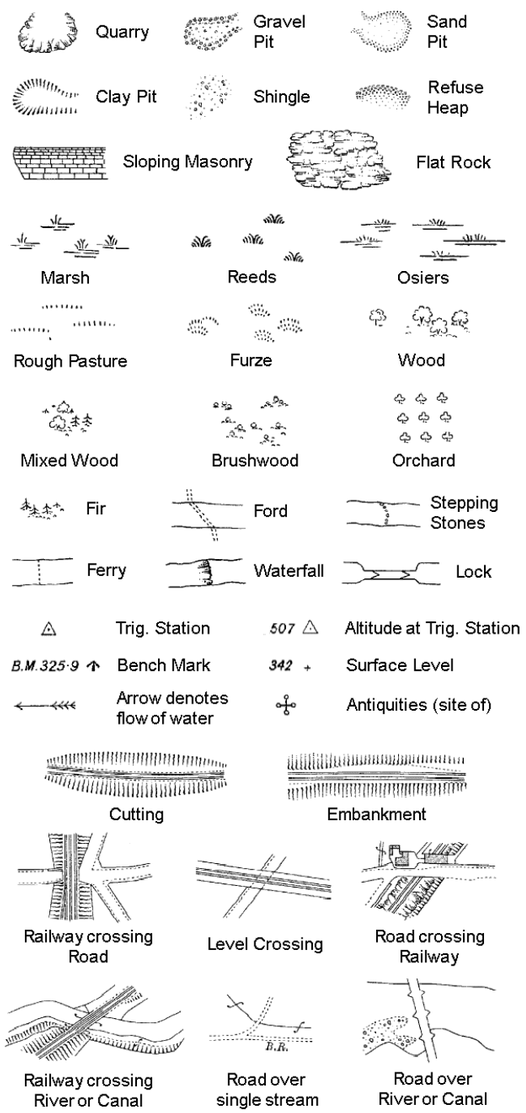
Web: www.envirocheck.co.uk

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)

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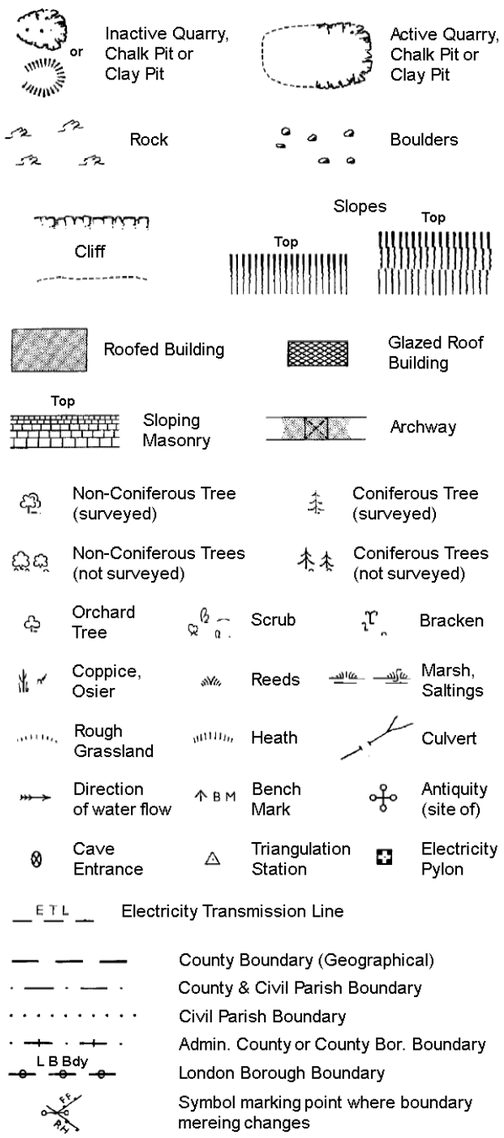
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



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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

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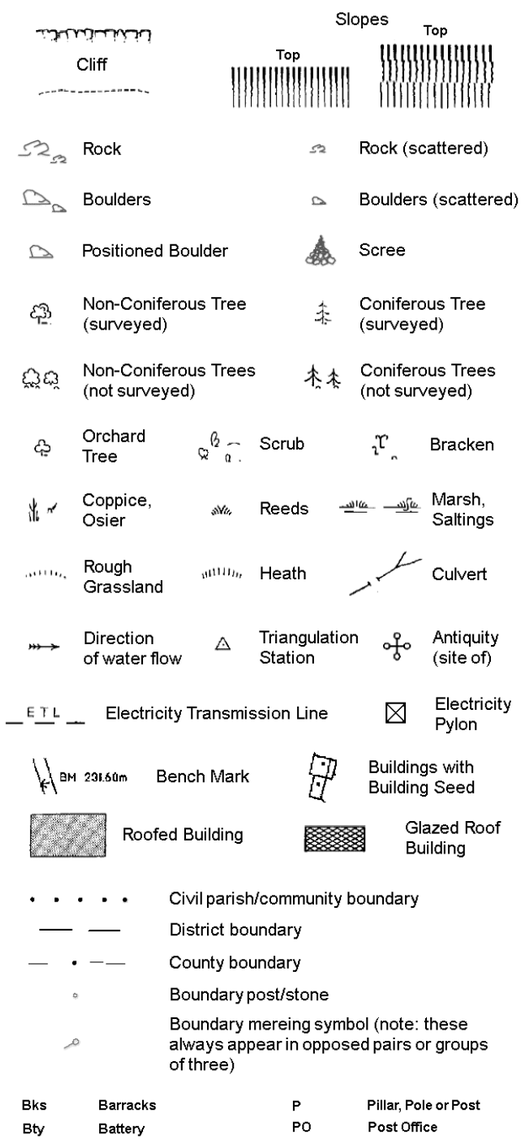
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone 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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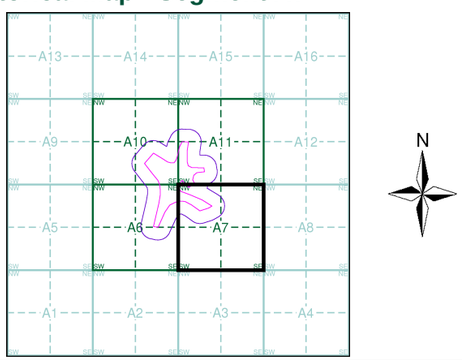
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Northamptonshire	1:2,500	1885	2
Northamptonshire	1:2,500	1900	3
Ordnance Survey Plan	1:2,500	1966	4
Additional SIMs	1:2,500	1966	5
Ordnance Survey Plan	1:2,500	1980	6
Large-Scale National Grid Data	1:2,500	1993	7

Historical Map - Segment A7



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

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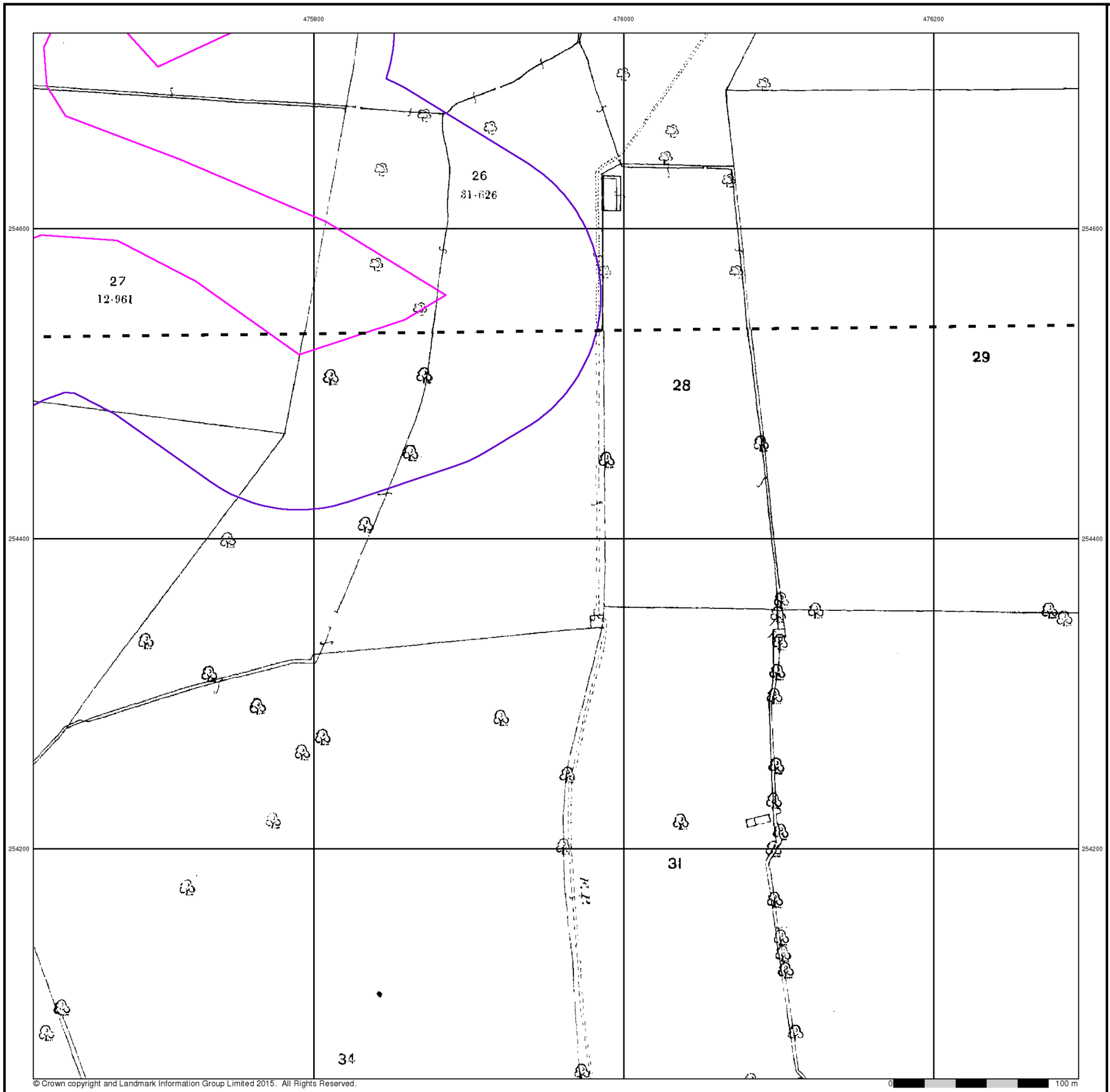

0 100 m

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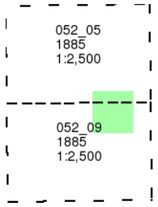
Northamptonshire

Published 1885

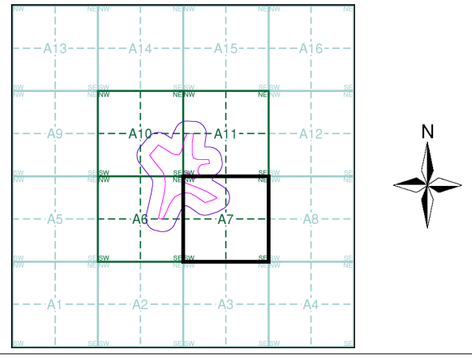
Source map scale - 1:2,500

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 A7



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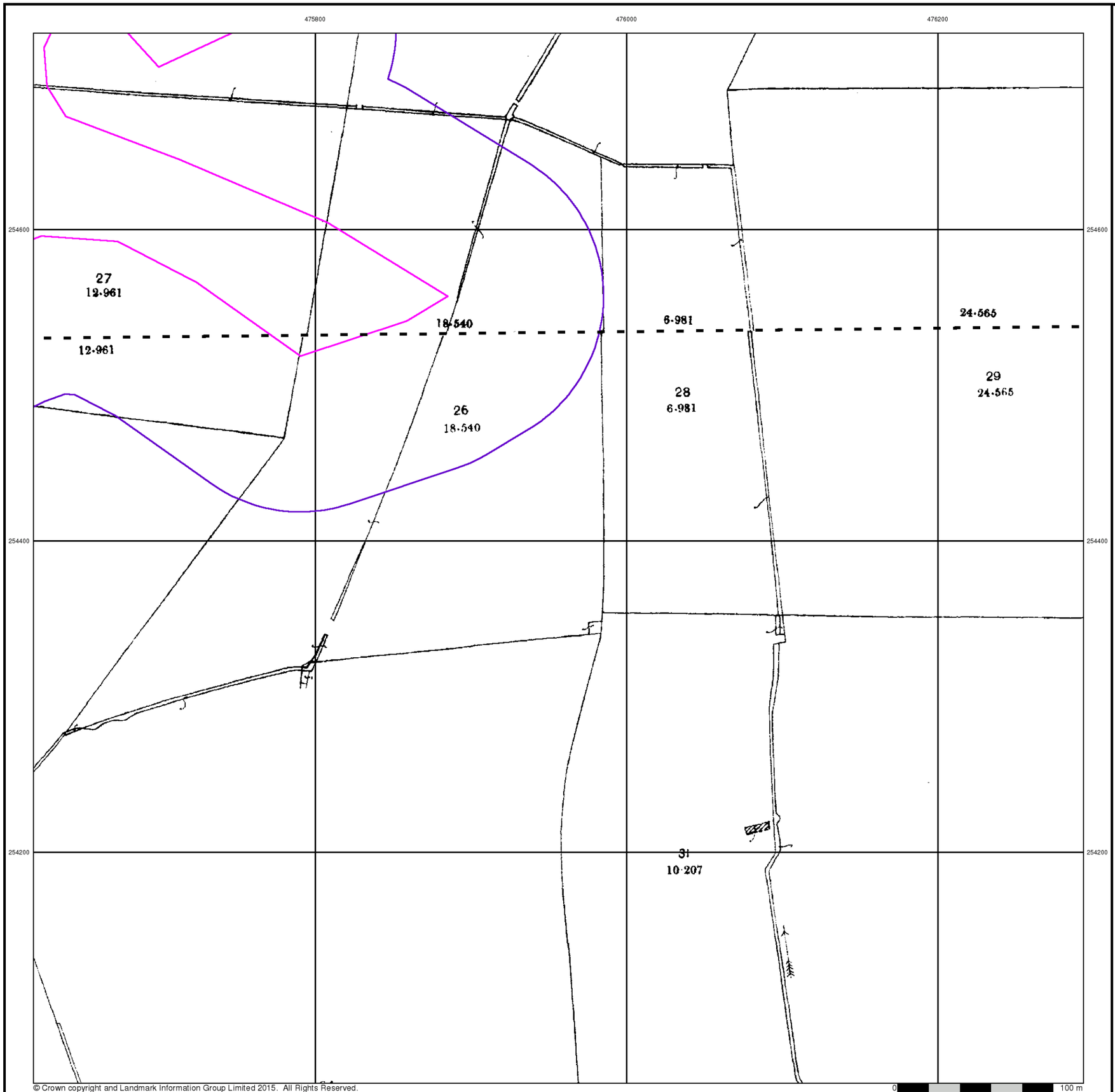

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Northamptonshire

Published 1900

Source map scale - 1:2,500

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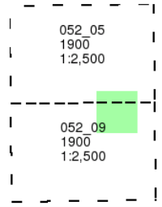
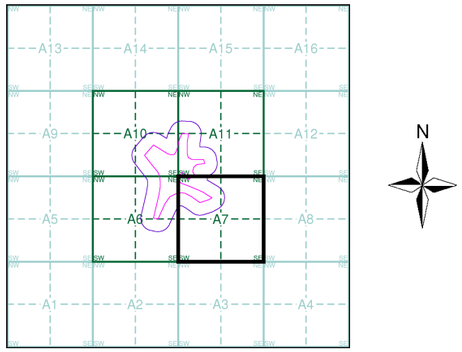


Historical Map - Segment A7



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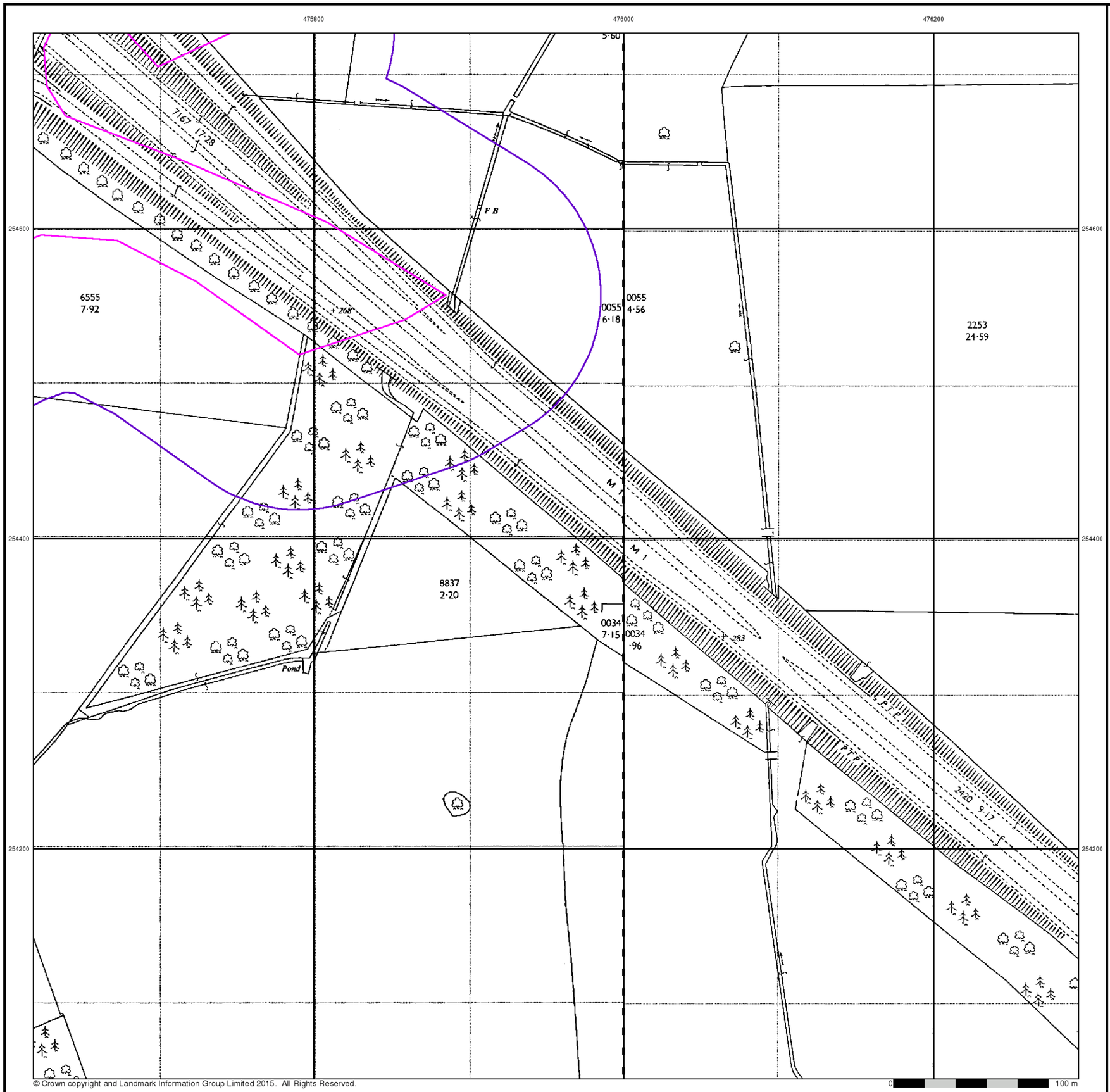

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Ordnance Survey Plan

Published 1966

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.

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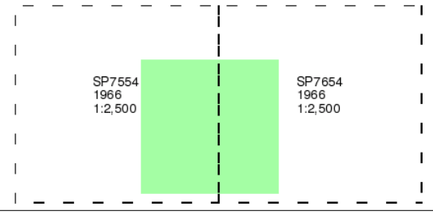
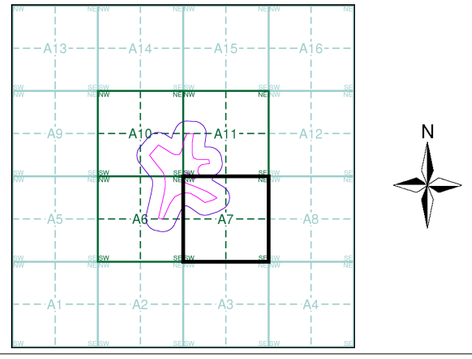


Historical Map - Segment A7



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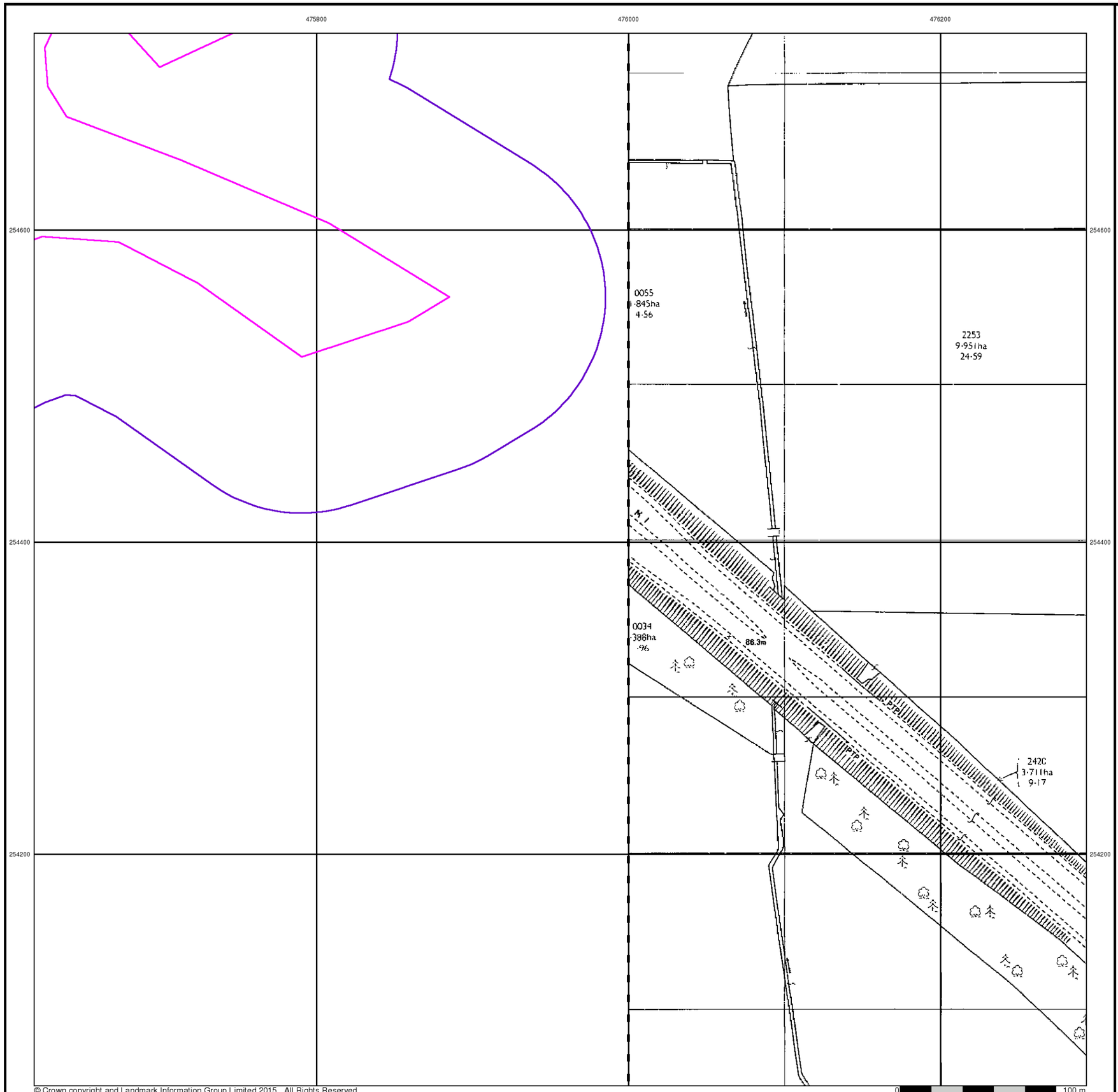

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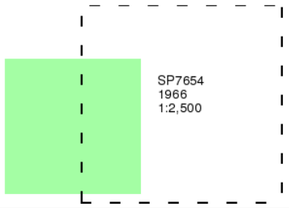
Additional SIMs

Published 1966

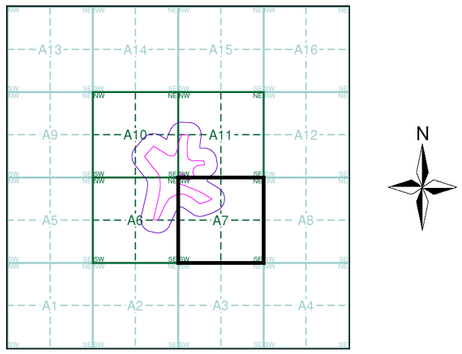
Source map scale - 1:2,500

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 A7



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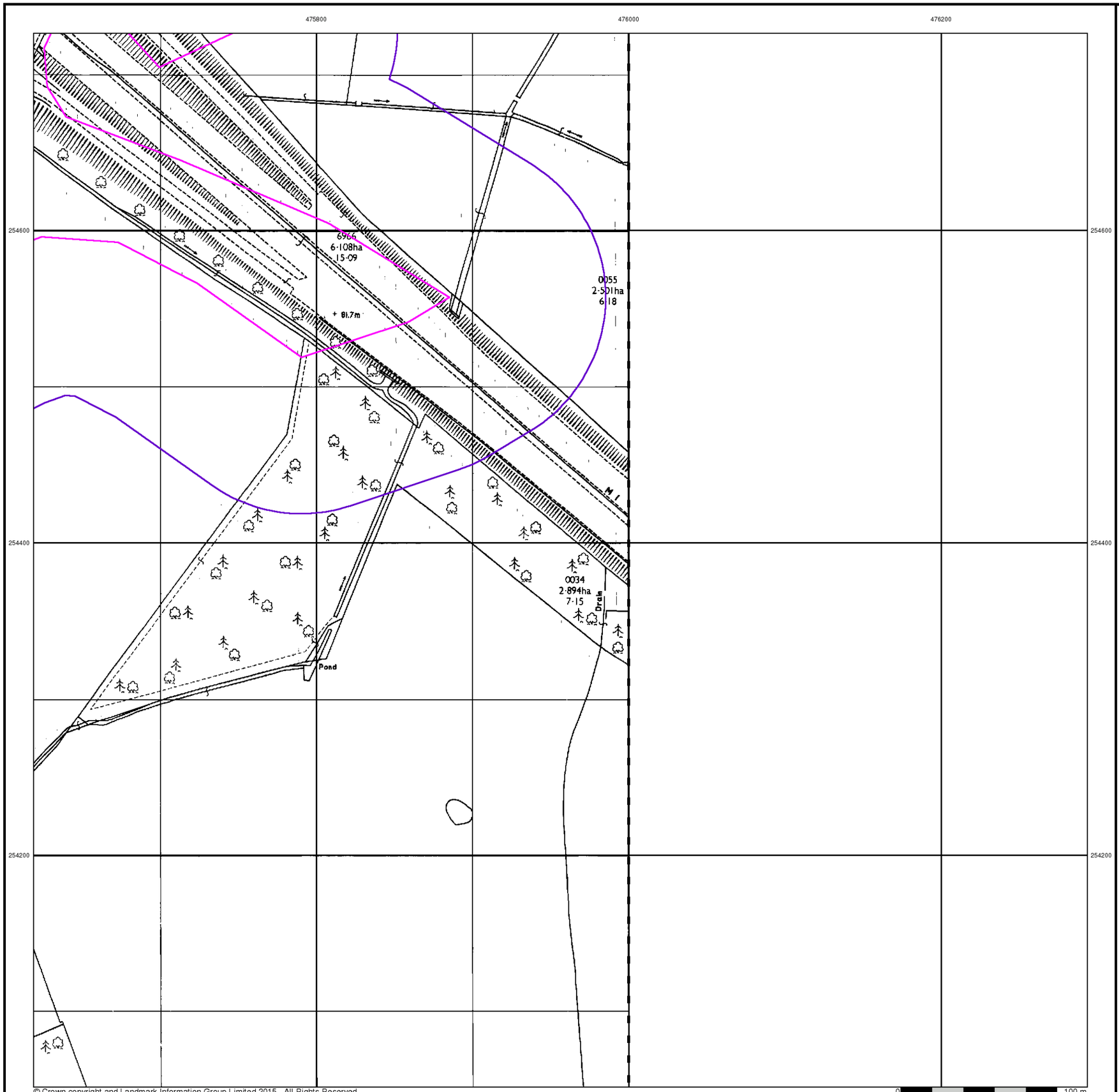

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Ordnance Survey Plan

Published 1980

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.

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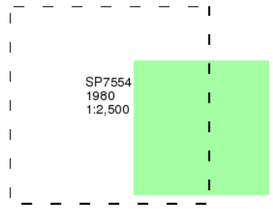
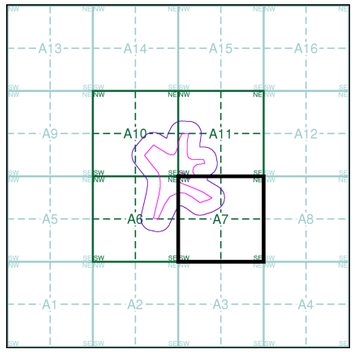


Historical Map - Segment A7



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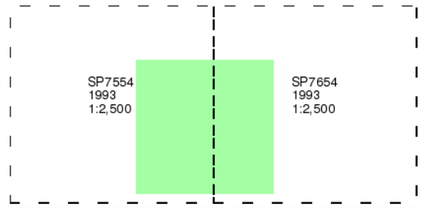
Large-Scale National Grid Data

Published 1993

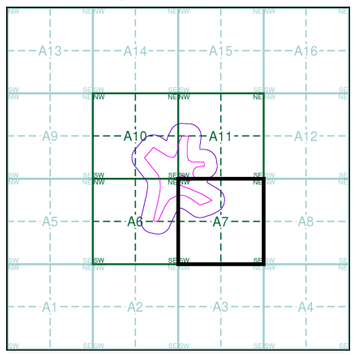
Source map scale - 1:2,500

'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 A7



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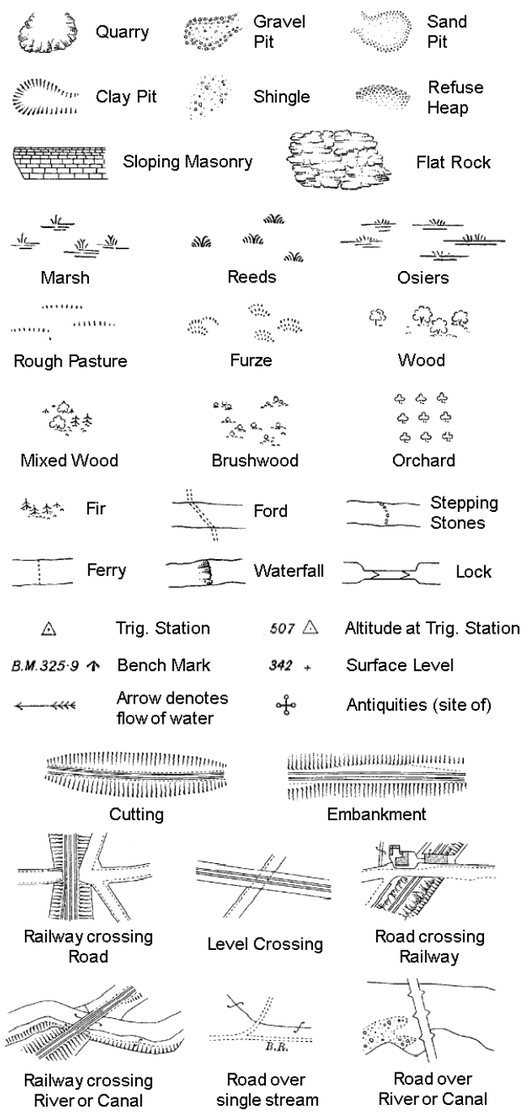
Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

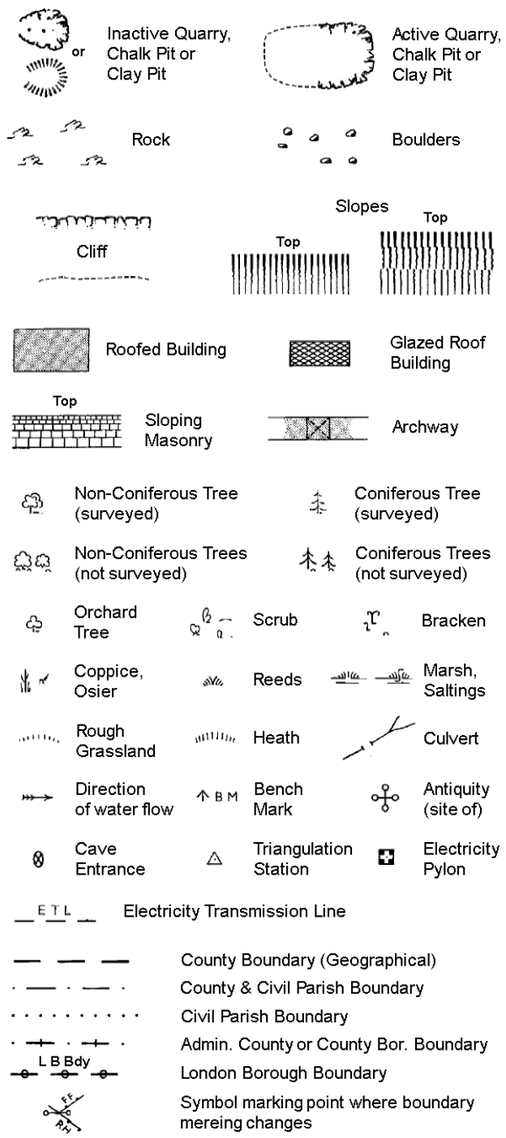
Administrative County & Civil Parish Boundary

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
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MH	Manhole	Tr	Trough
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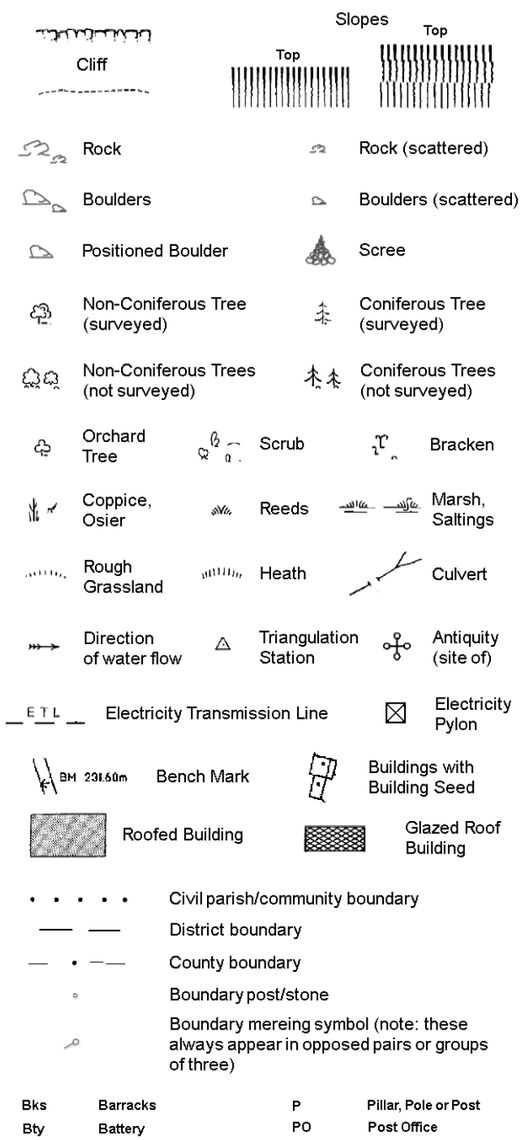
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

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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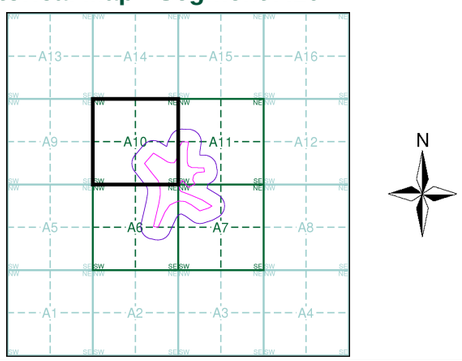
Historical Mapping & Photography included:

Historical Map - Segment A10



Order Details

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Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

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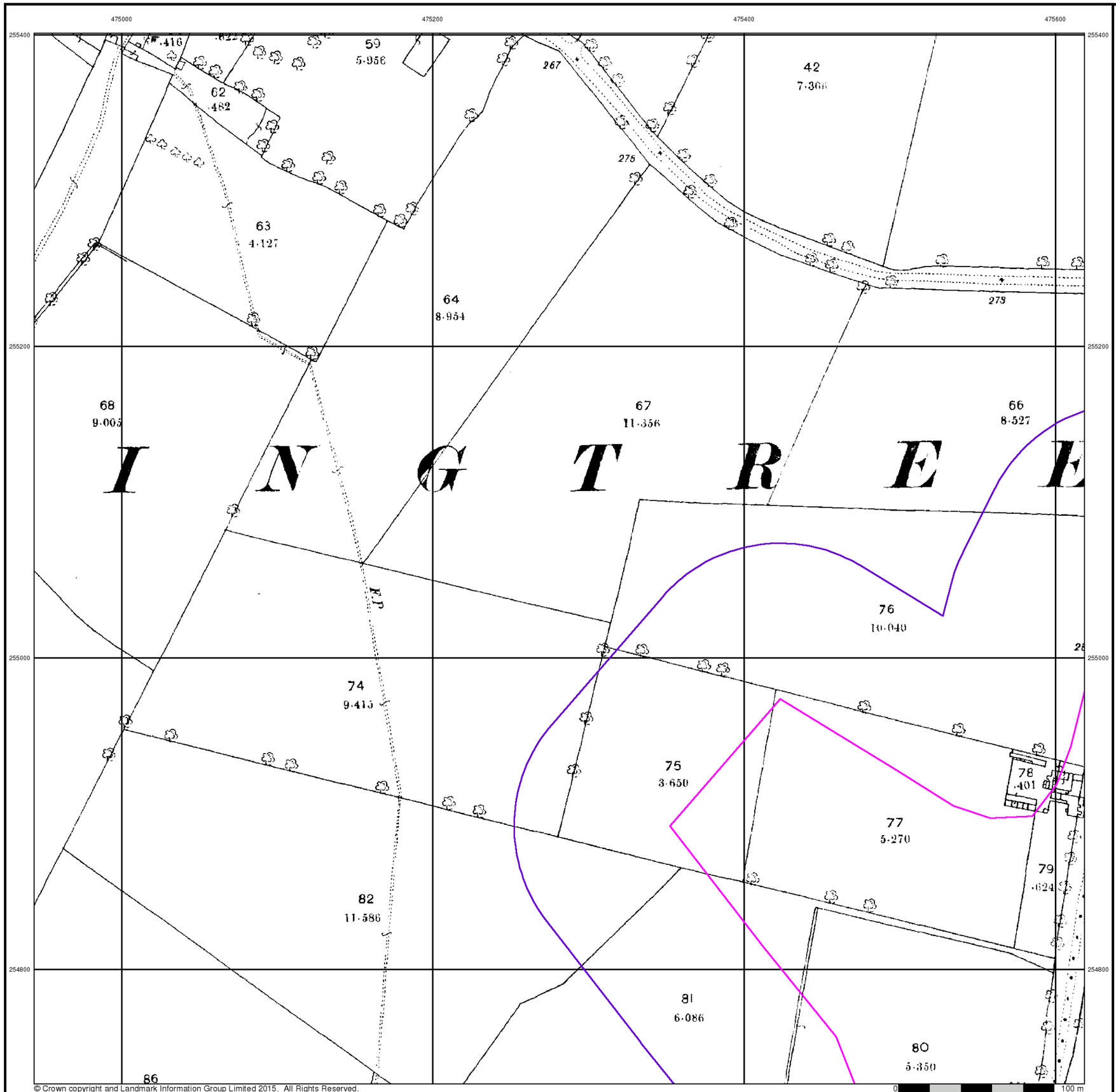
Web: www.envirocheck.co.uk



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Northamptonshire

Published 1885

Source map scale - 1:2,500

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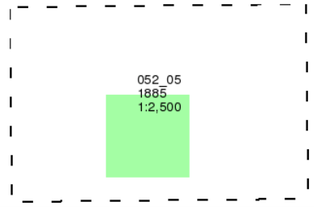
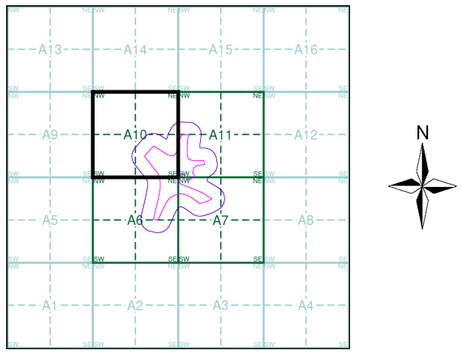
Map Name(s) and Date(s)



Historical Map - Segment A10



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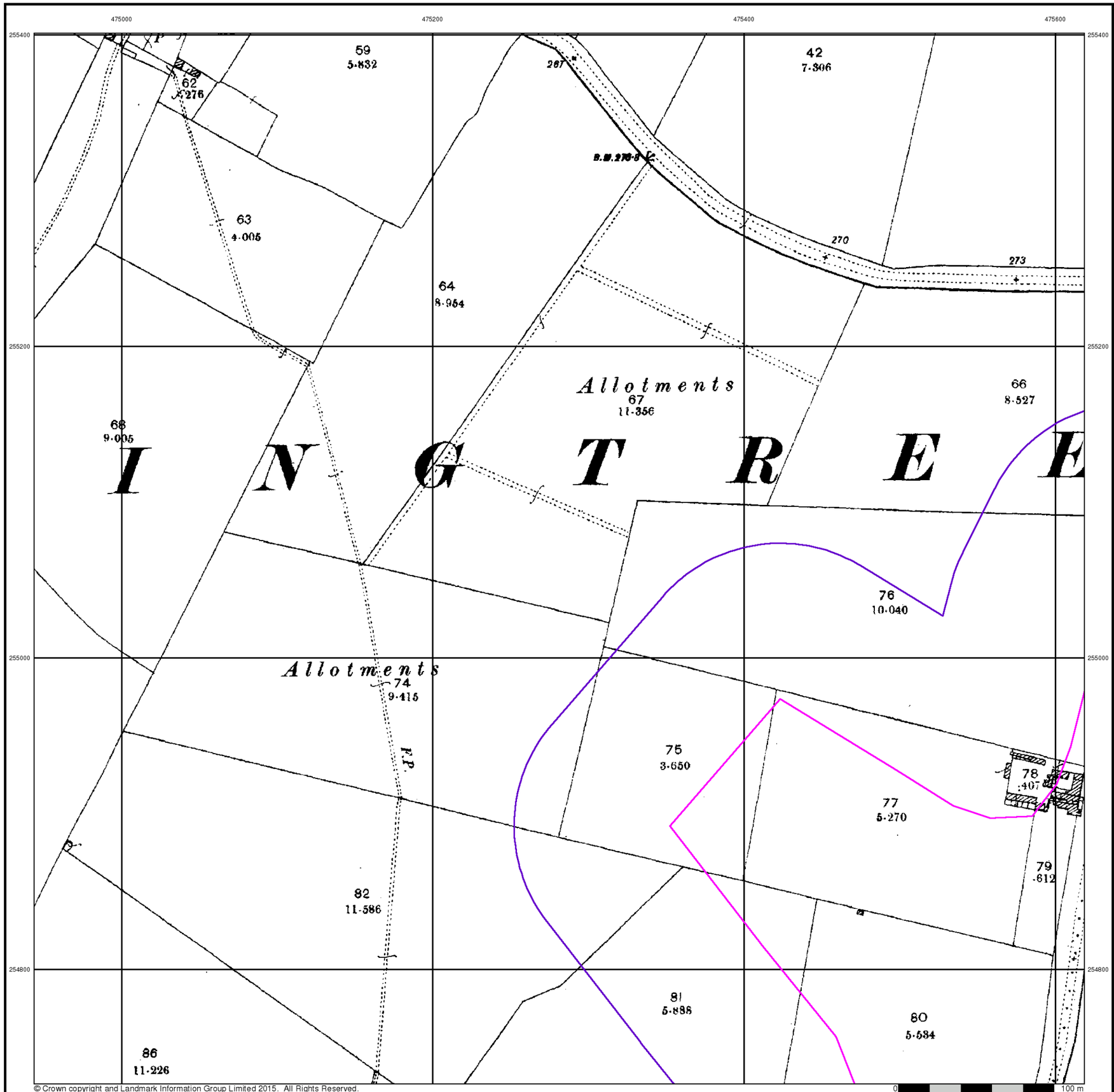

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LANDMARK INFORMATION GROUP®

Northamptonshire

Published 1900

Source map scale - 1:2,500

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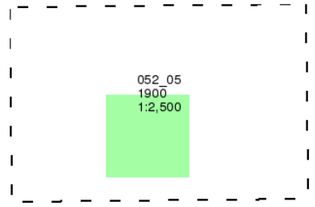
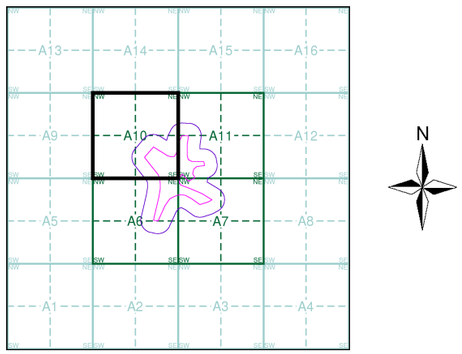


Historical Map - Segment A10



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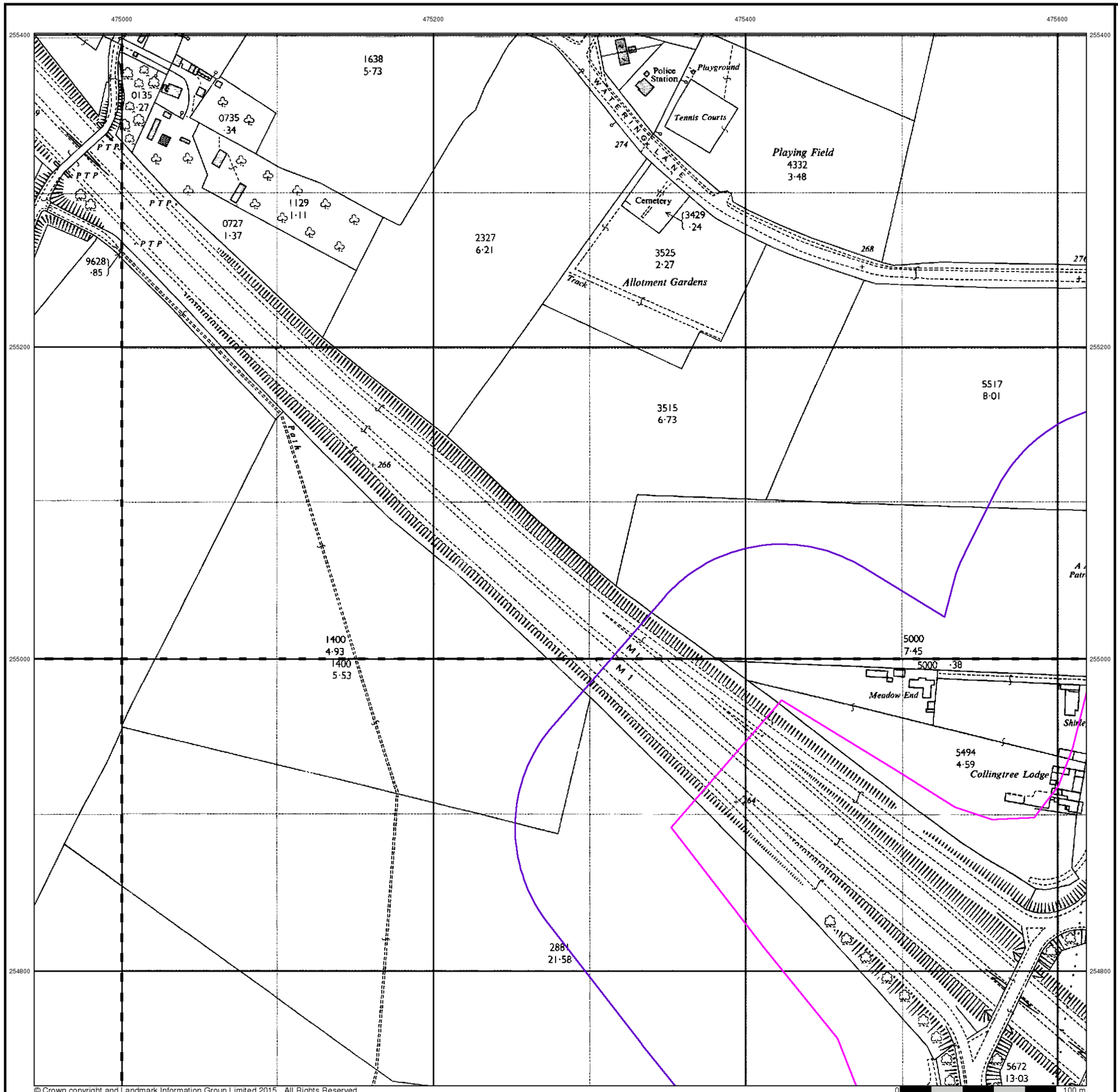

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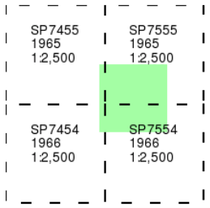
Ordnance Survey Plan

Published 1965 - 1966

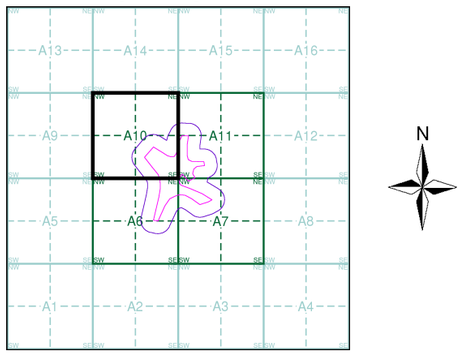
Source map scale - 1:2,500

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 A10



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

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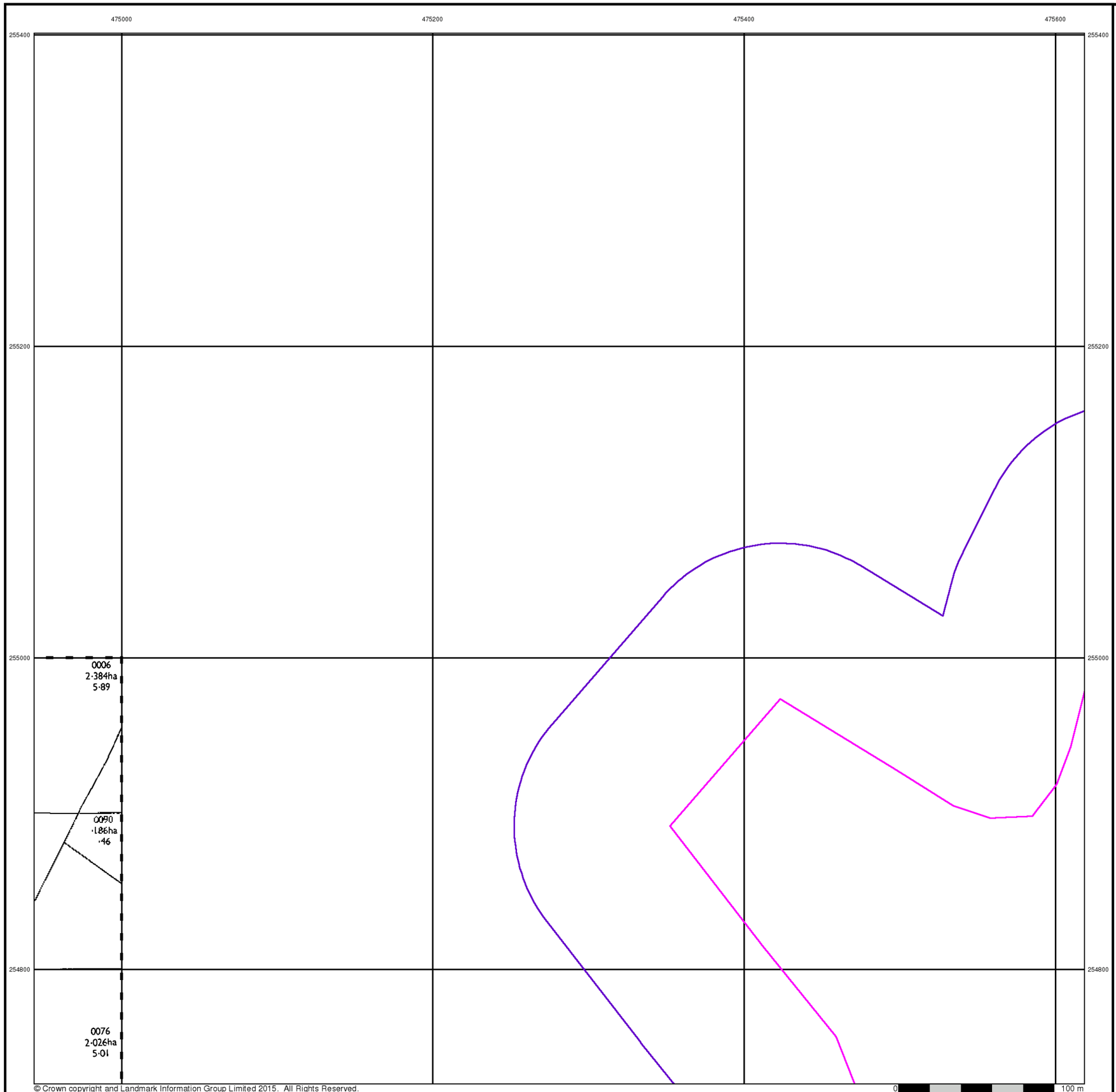

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Additional SIMs

Published 1966

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.

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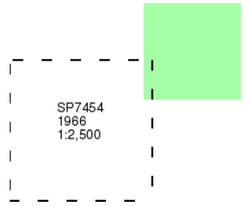
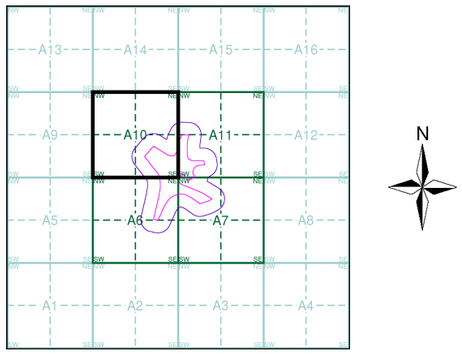


Historical Map - Segment A10



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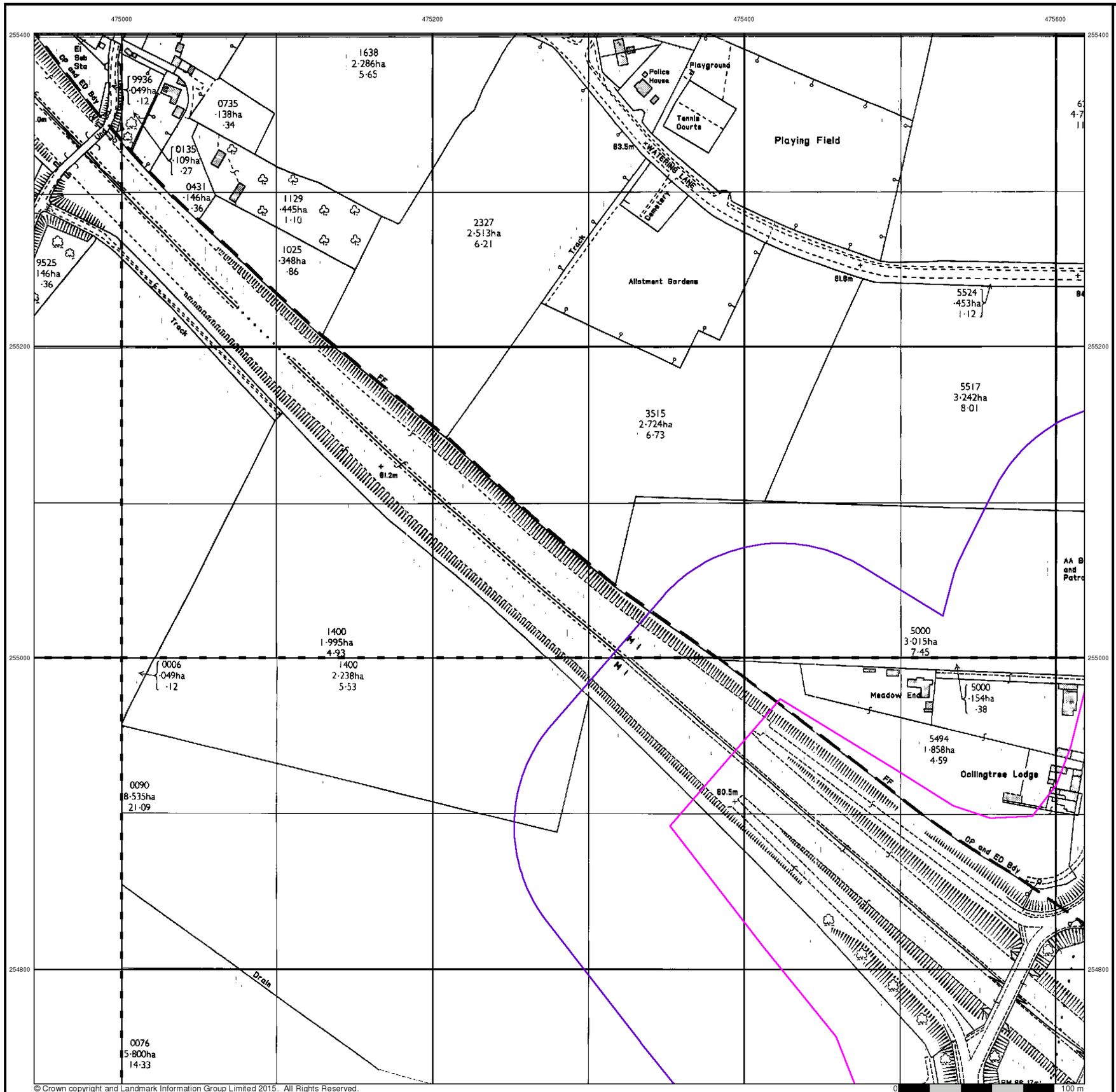

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Ordnance Survey Plan

Published 1977 - 1980

Source map scale - 1:2,500

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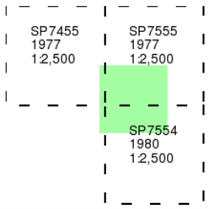
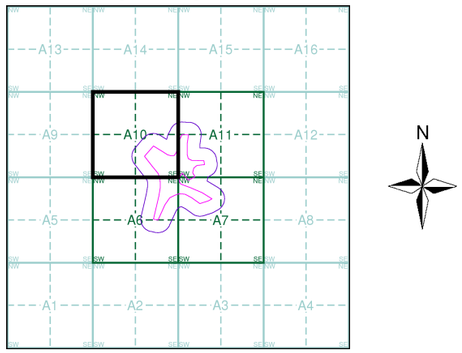


Historical Map - Segment A10



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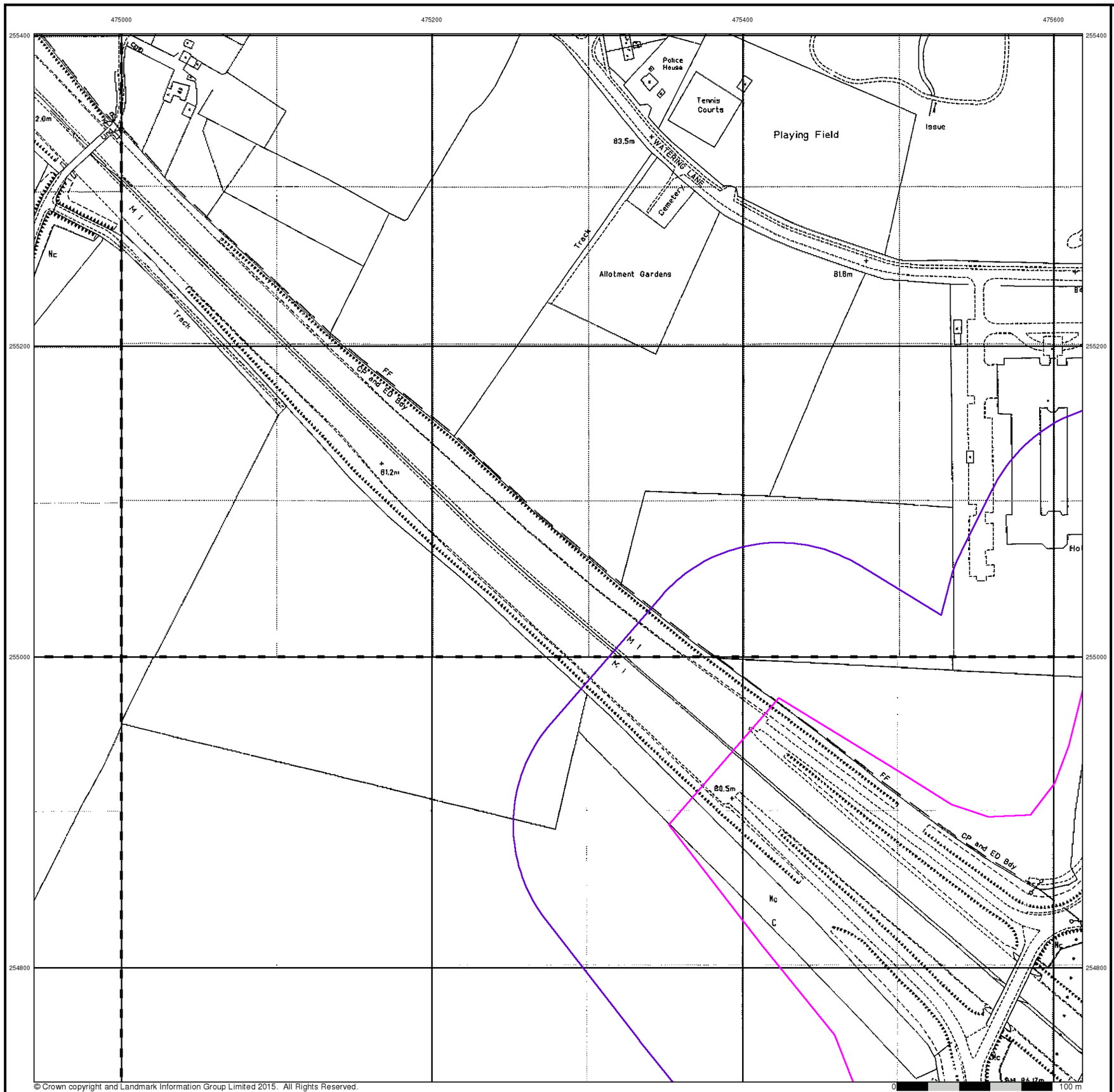

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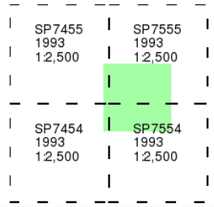
Large-Scale National Grid Data

Published 1993

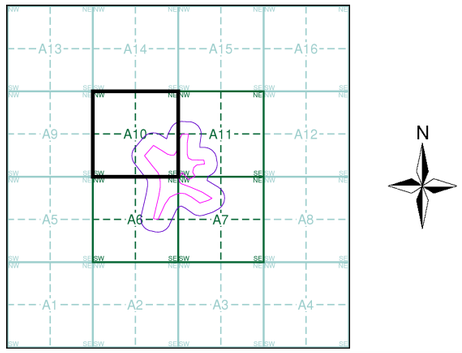
Source map scale - 1:2,500

'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 A10



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Published 1996

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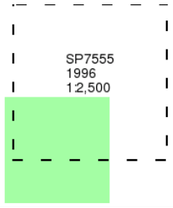
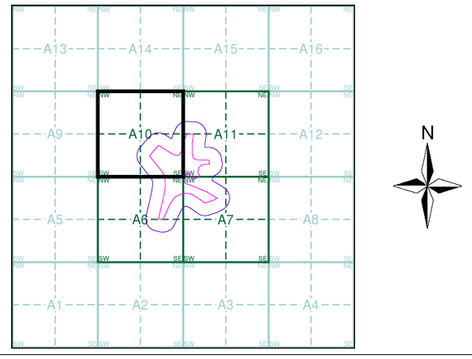


Historical Map - Segment A10



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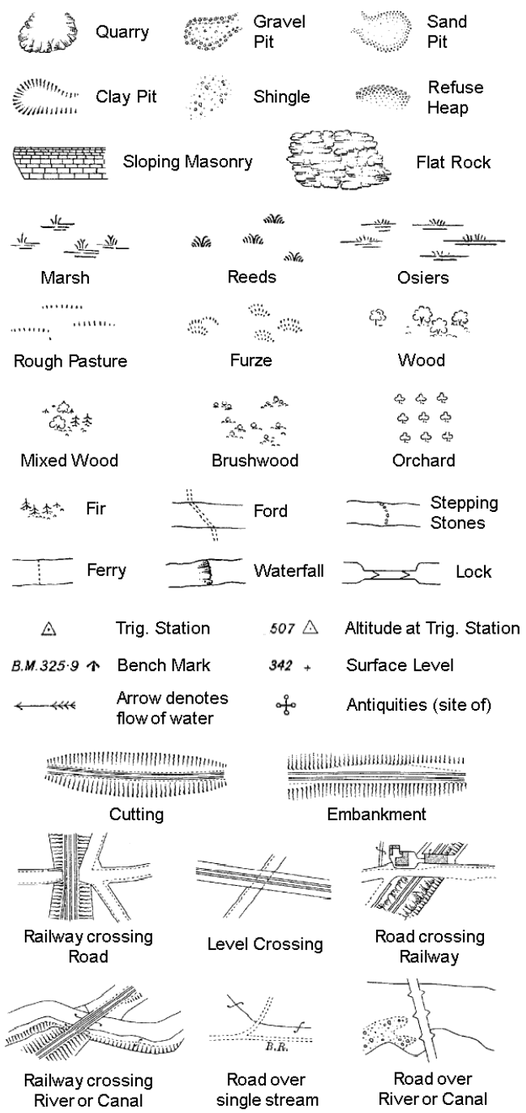
Historical Mapping Legends

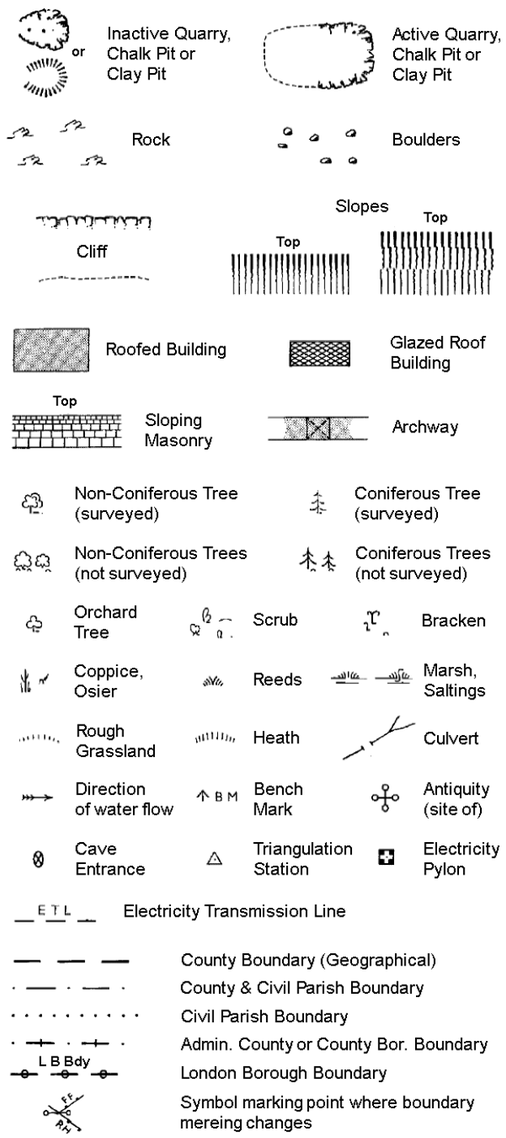
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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

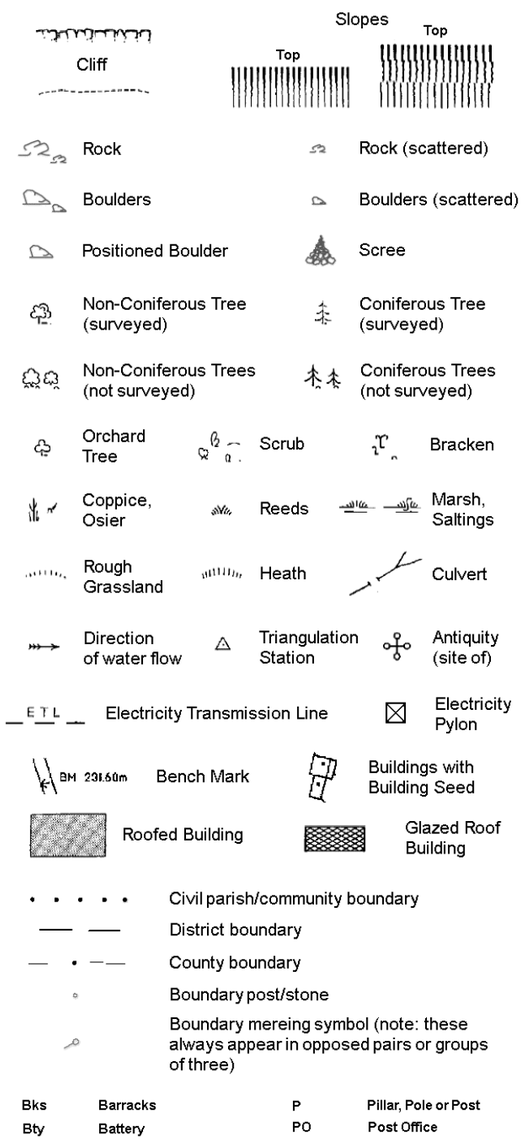
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



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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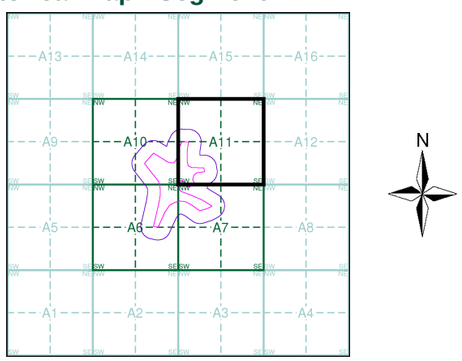
Historical Mapping & Photography included:

Historical Map - Segment A11



Order Details

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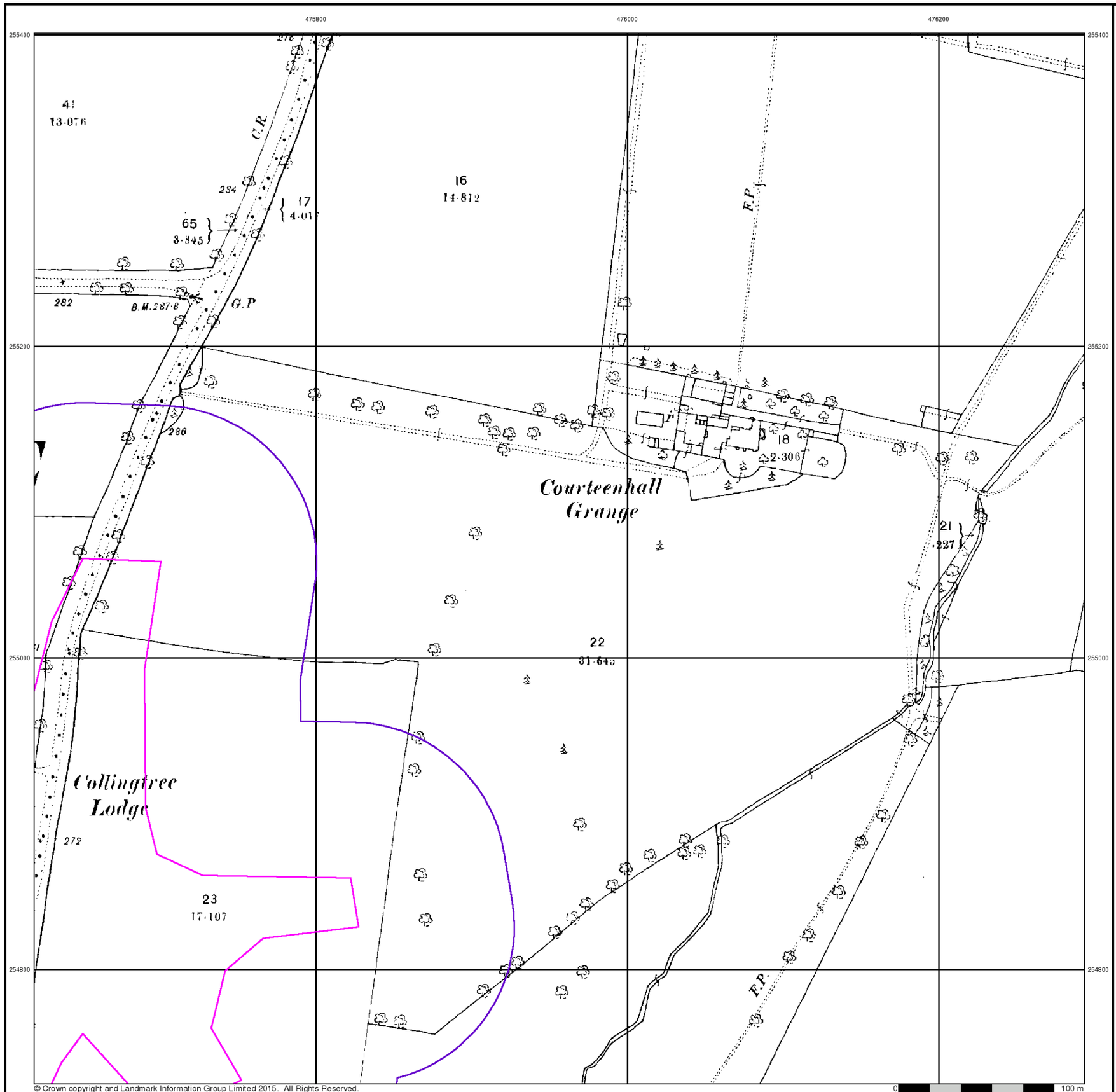

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Northamptonshire

Published 1885

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.

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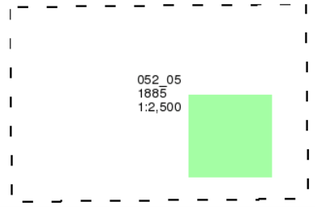
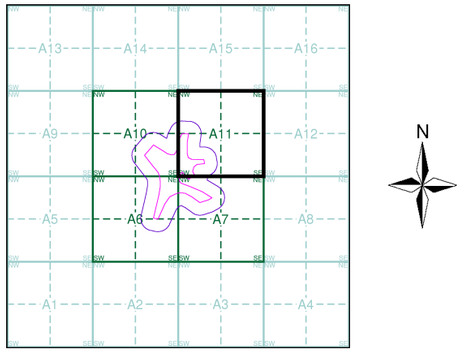


Historical Map - Segment A11



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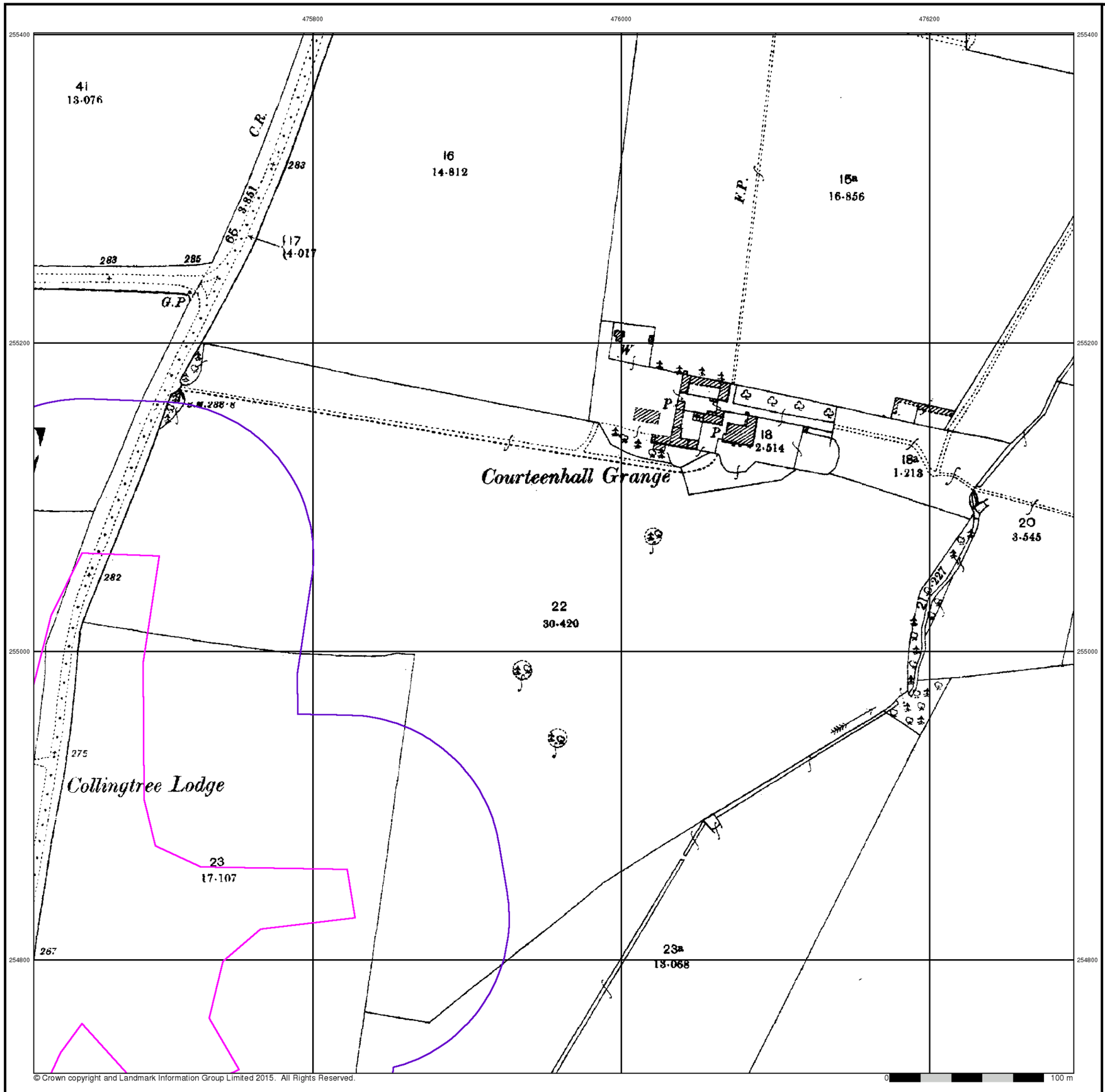

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Northamptonshire

Published 1900

Source map scale - 1:2,500

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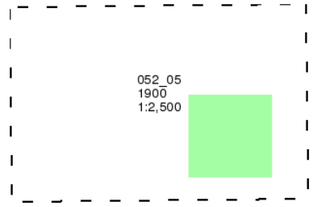
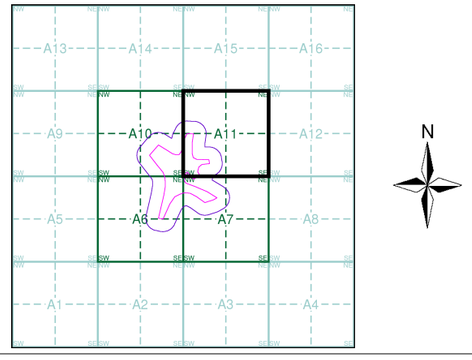


Historical Map - Segment A11



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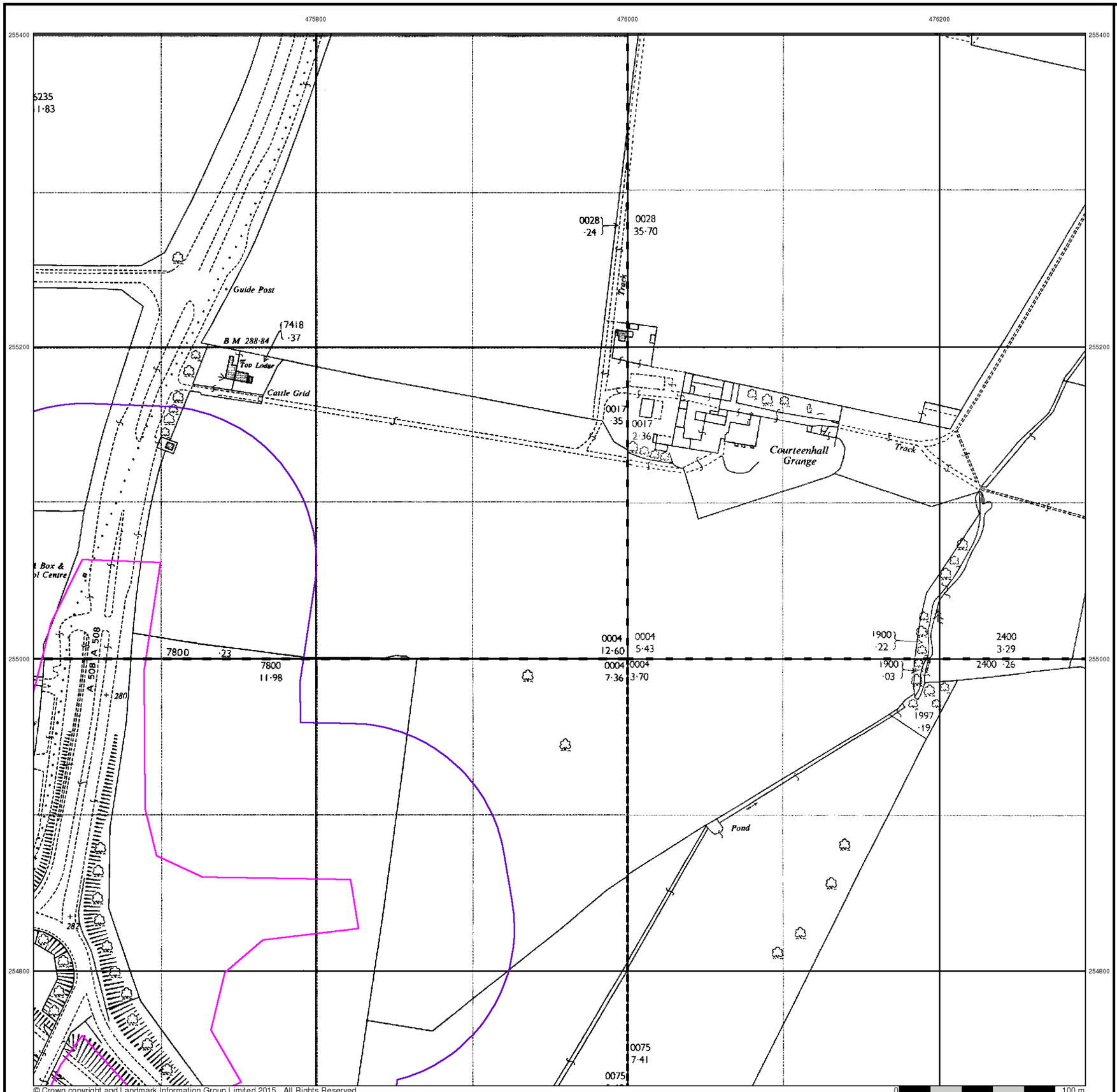

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Ordnance Survey Plan

Published 1965 - 1966

Source map scale - 1:2,500

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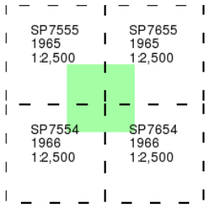
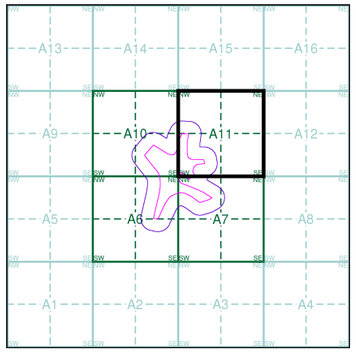


Historical Map - Segment A11



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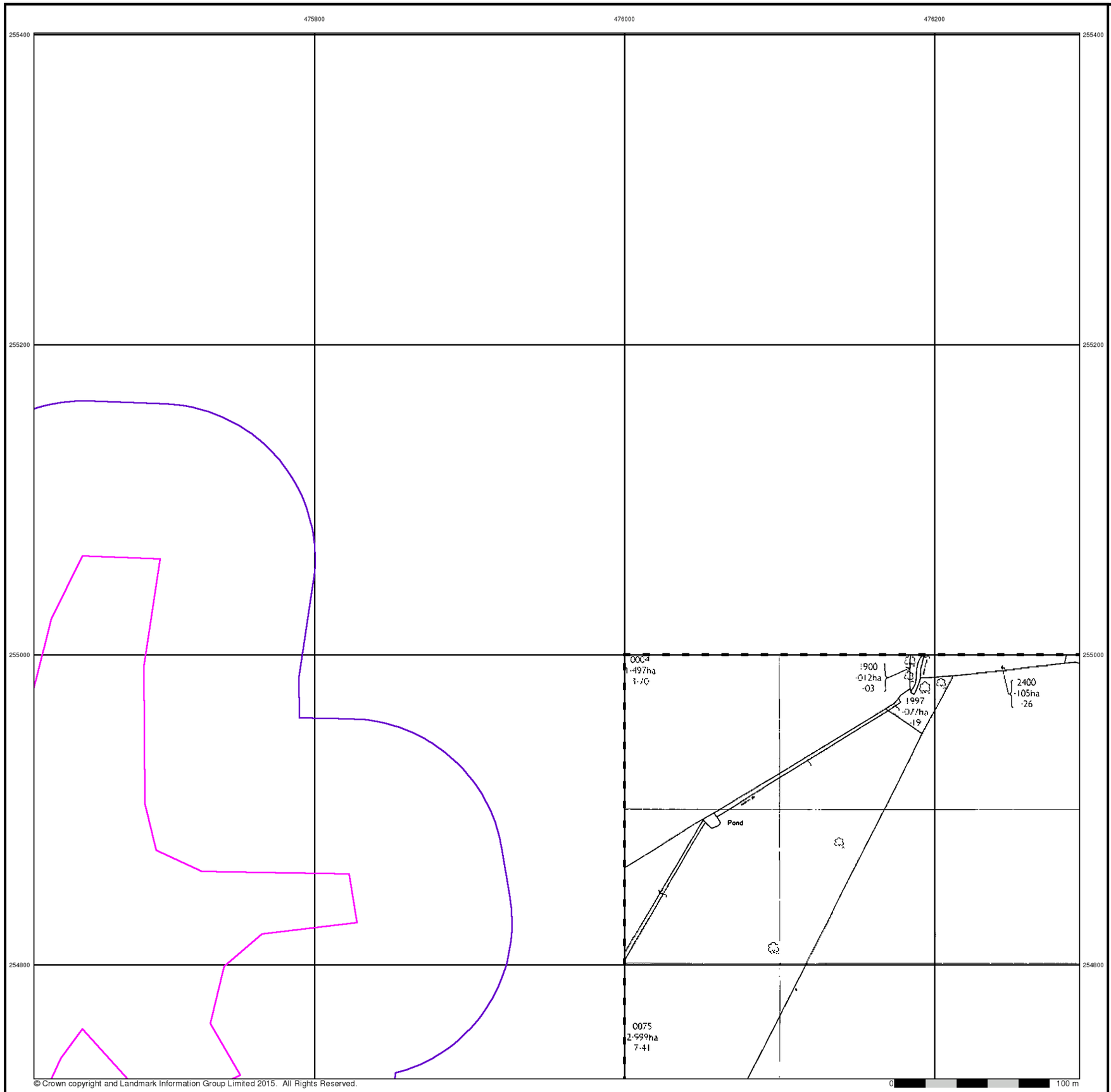

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Additional SIMs

Published 1966

Source map scale - 1:2,500

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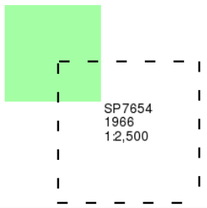
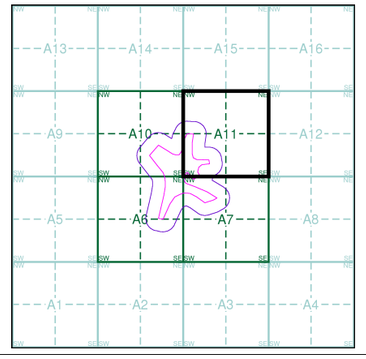


Historical Map - Segment A11



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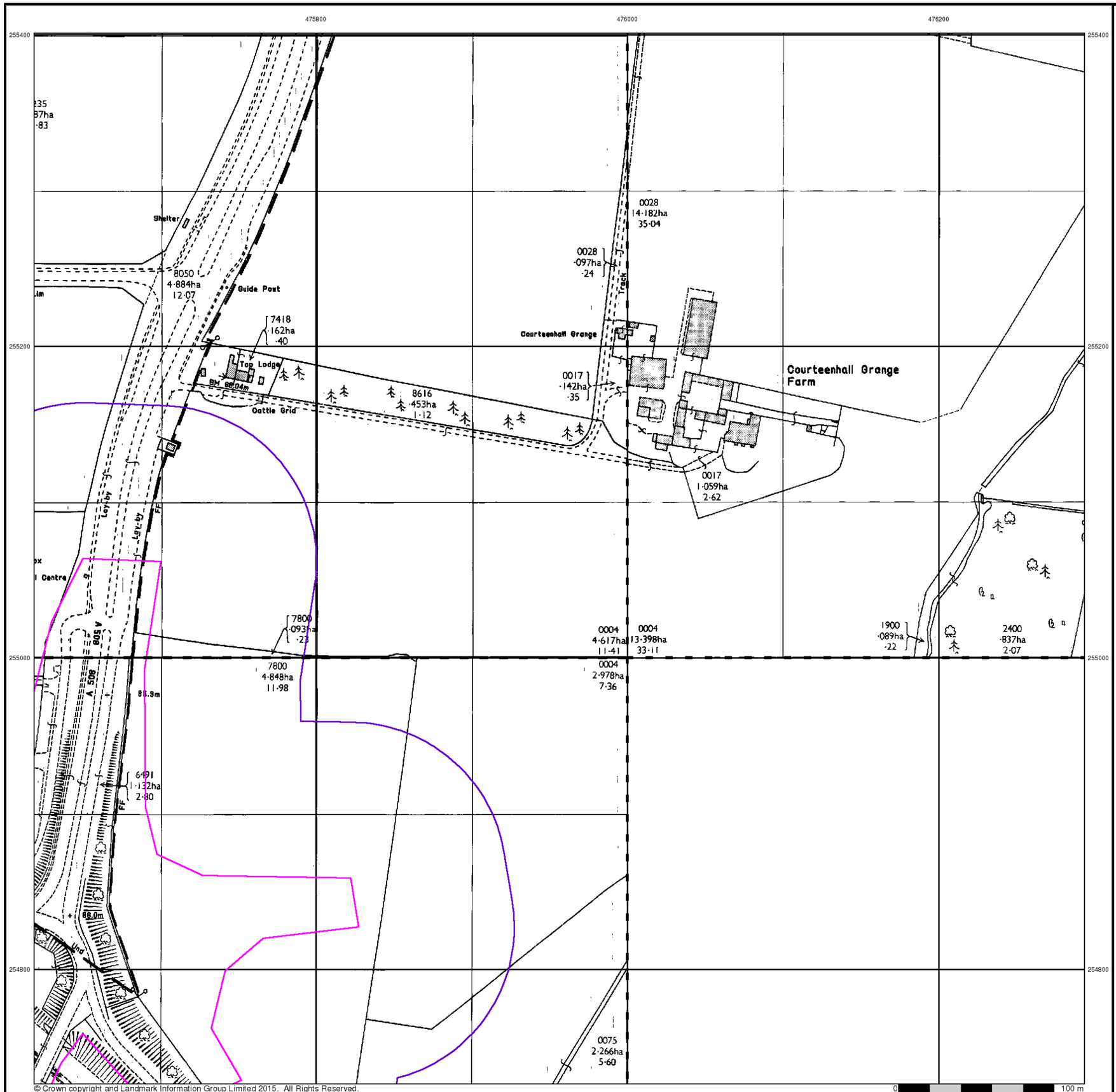

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Ordnance Survey Plan

Published 1977 - 1980

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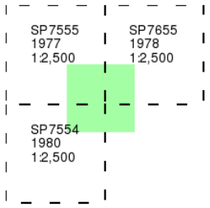

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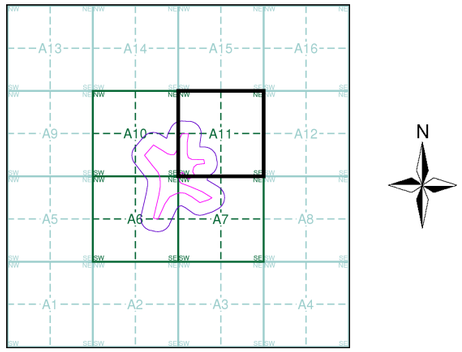

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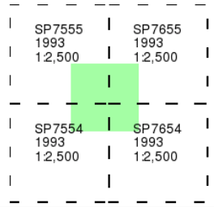
Large-Scale National Grid Data

Published 1993

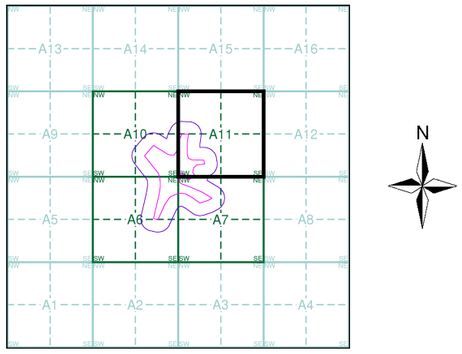
Source map scale - 1:2,500

'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 A11



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

Landmark® INFORMATION GROUP

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

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LANDMARK INFORMATION GROUP®

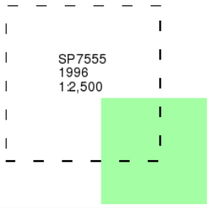
Large-Scale National Grid Data

Published 1996

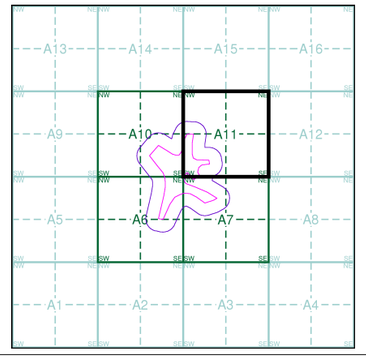
Source map scale - 1:2,500

'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 A11



Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475600, 254720
Slice:	A
Site Area (Ha):	12.87
Search Buffer (m):	100

Site Details

M1 Junction 15, NORTHAMPTON

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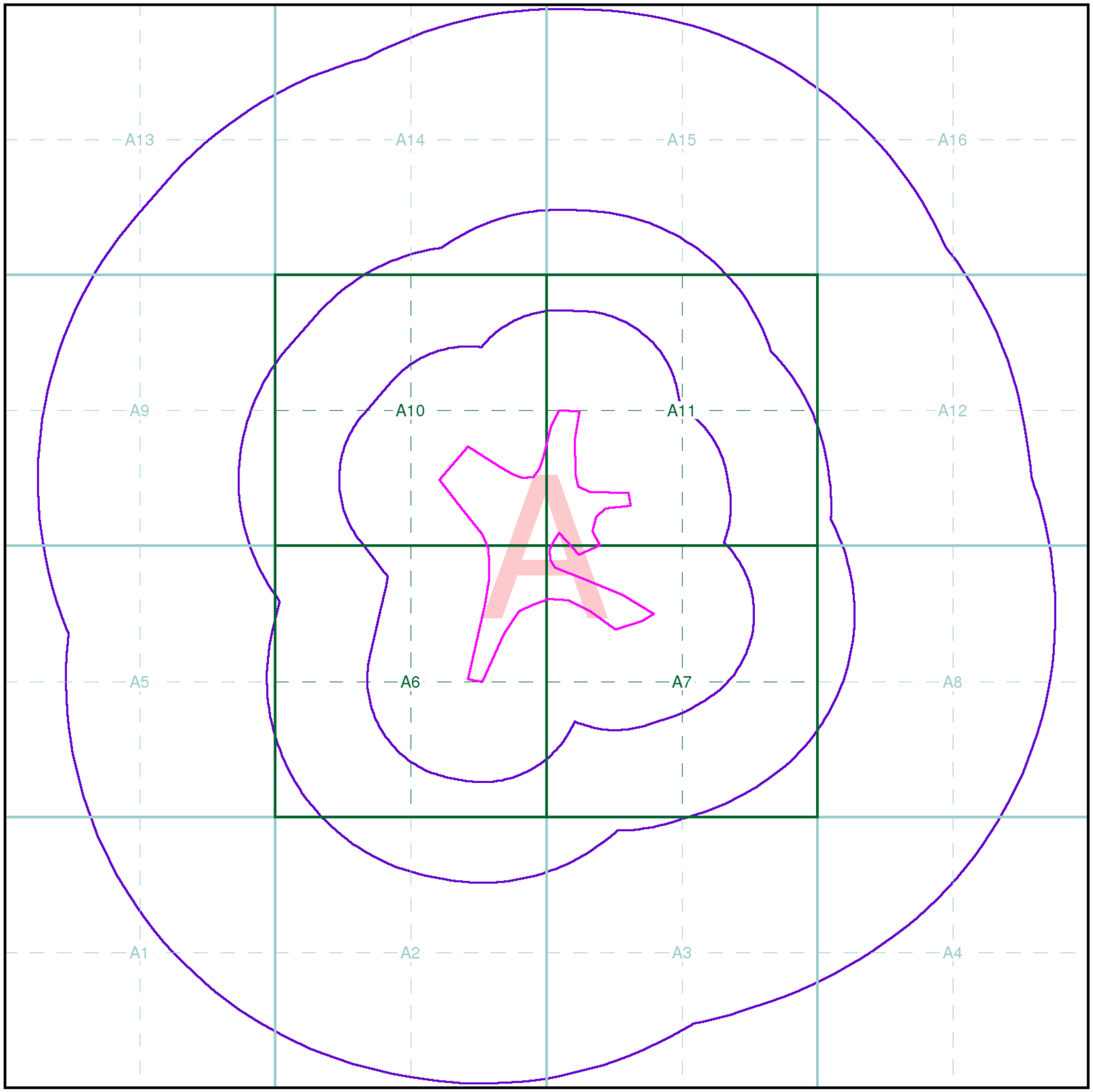

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Index Map

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

Mrs D Martin, RSK Environment Ltd, Abbey Park, Humber Road, Coventry, CV3 4AQ

Order Details

Order Number:	113971408_1_1
Customer Ref:	312598
National Grid Reference:	475590, 254750
Site Area (Ha):	12.87
Search Buffer (m):	1000

Site Details

M1 Junction 15, NORTHAMPTON

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http://www.landmarkinfo.co.uk/Terms/Show/515

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APPENDIX G
EXISTING EXPLORATORY HOLE RECORDS

BGS ID: 344287 : BGS Reference: SP75NW237
British National Grid (27700) : 474980,255320
Report an issue with this borehole

<< < Prev Page 1 of 1 Next > >>

SP 75 NW /237
7498 5532

RECORD OF BOREHOLE

MINISTRY OF TRANSPORT AND CIVIL AVIATION.

M.1 MOTORWAY

PROFILE M		CUSTOMERS NO. 313
0-3		TOPSOIL
0-8	0-5	BROWN SANDY CLAY AND ROOTS
6-8		BROWN SAND
7-6		END OF BOREHOLE

M.1 PLANS AVAILABLE IN MOTORWAY CABINET

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 344608 : BGS Reference: SP75SE9
British National Grid (27700) : 475580,254780
Report an issue with this borehole

SP 75 SE/9
7558 5478

RECORD OF BOREHOLE

MINISTRY OF TRANSPORT AND CIVIL AVIATION

M.1 MOTORWAY

PROFILE

CUSTOMERS NO.
312

	M	
	0·4	TOPSOIL
1·3	0·9	CLAYEY SAND
1·9	0·6	BLUE MOTTLED CHALKY CLAY (BOULDER CLAY)
2·5	0·6	BROWN SAND
	2·1	FIRM BLUE CHALKY CLAY (BOULDER CLAY)
4·6		
	3·0	FIRM BLUE CLAY (LIAS)
7·6		END OF BOREHOLE

M.1 PLANS AVAILABLE IN MOTORWAY CABINET

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 344683 : BGS Reference: SP75SE84
British National Grid (27700) : 475600,254950
Report an issue with this borehole

<< < Prev Page 2 of 2 Next > >>

INLAND WATER SURVEY

RECORDS OF WELL-MEASUREMENTS

SCHOOL : N' Campton & Scl

North Sheet.
SIX-INCH FIELD-SLIP : 52 NW/W

SP75SE

Well No.	Location of Site and notes on character of water, etc.	Height of Surface above O.D.	Total Depth of Well	Depths to Water					
				Mar. 1937	Oct. 1937	Mar. 1938	Oct. 1938	Mar. 1939	Oct. 1939
76	SP 7560 5495 Coleington Lodge (45) Brick lined. Dia 5'. Supplies house - good drinking water, very hard (38° Clarke)	275'	16'	13'	14.6	13.6'			

D 31452-1 1000 D/d 8506 2/37 R P

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site Grange Park Hotel Site, Northampton			**Trial Pit Number** TP504
Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)** 79.30	**Client** Grange Park Developments Ltd	**Job Number** P2399
	Location 475746 E 254789 N	**Dates** 19/11/1999	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30-0.30	D01		0 blows	79.10	0.20	Firm dark yellow-brown slightly sandy silty with a little fine to medium, occasionally coarse, rounded predominantly quartz gravel. (MADE GROUND)		
1.00-1.00	I01		0 blows		(1.40)	Stiff to very stiff, extremely closely fissured, medium grey and grey-brown, slightly sandy, locally sandy, silty CLAY with a little to some fine to medium, occasionally coarse, predominantly rounded chalk gravel and some flint and occasional mudstone/siltstone gravel. (GLACIAL DEPOSITS)		
				77.70	1.60	Loose to dense dark grey becoming brown silty fine to medium, some coarse, SAND and fine to medium predominantly sandstone GRAVEL. (GLACIAL SAND & GRAVEL)		
					(0.50)			
2.40-2.40	D02		0 blows	77.20	2.10	Stiff to very stiff, extremely closely to closely fissured, faintly thickly laminated to very thinly bedded medium grey becoming dark grey silty CLAY with fine to medium subangular mudstone gravel lithorelicts. Some polished fissure surfaces. (WEATHERED LIAS CLAY)		
					(0.60)			
				76.60	2.70	Complete at 2.70m		

Plan

Remarks

1. Trial pit dry when dug, backfilled immediately. 2. Slight spalling from 1.60m to 2.10m bgl.

Scale (approx)	Logged By	Figure No.
1:50	GRD	

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 344683 : BGS Reference: SP75SE84
British National Grid (27700) : 475600,254950
Report an issue with this borehole

<< < Prev Page 2 of 2 Next > >>

INLAND WATER SURVEY

RECORDS OF WELL-MEASUREMENTS

SCHOOL : N' Campton & Scl

North Sheet.
SIX-INCH FIELD-SLIP : 52 NW/W

SP75SE

Well No.	Location of Site and notes on character of water, etc.	Height of Surface above O.D.	Total Depth of Well	Depths to Water					
				Mar. 1937	Oct. 1937	Mar. 1938	Oct. 1938	Mar. 1939	Oct. 1939
76	SP 7560 5495 Coleington Lodge (45) Brick lined. Dia 5'. Supplies house - good drinking water, very hard (38° Clarke)	275'	16'	13'	14.6	13.6'			

D 31452-1 1000 D/d 8506 2/37 R P

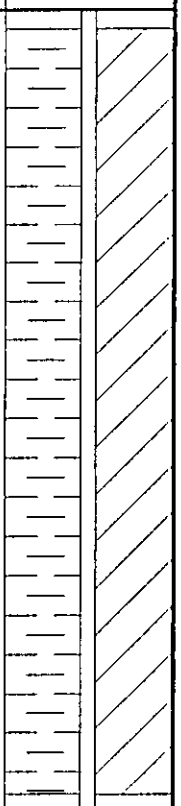
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	8.90	27/01 DRY	49
11.00	D			
11.50-11.90	SD			50/ 250
12.50	D			
13.10-13.48	SD	8.90	DRY	50/ 225
14.30	D			
14.70-15.02	SD	8.90	DRY	50/ 170

Strata

Description	Depth (Thickness)	Level
	(6.82)	
End of Borehole.	15.02	68.11

Legend



Equipment: Cable percussion

Borehole Dia (mm) 150 to 15.02m

Casing Dia (mm) 150 to 8.90m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.13 m OD

Coordinates 475580.119 mE
254862.973 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 15(2 of 2)

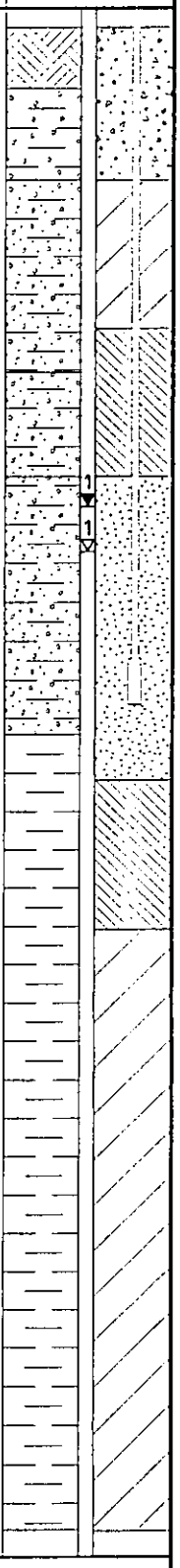
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			15/01 1999	
0.00			18/01	
0.50-0.95	SD	NIL	DRY	9
0.50-1.00	B			
1.50-1.95	U(29)	1.00	DRY	
1.95-2.10	D			
2.30	D			
2.50-2.95	SD	1.00	DRY	21
2.50-3.00	B			
3.00	D			
3.50-3.95	SD	1.50	3.50	25
3.50-4.00	B			
3.50	W			
4.50-4.95	U(37)			
4.95-5.10	D			
5.50-5.95	SD	4.00	DRY	29
5.50-6.00	B			
6.50	D			
7.00-7.45	U(52)	4.00	DRY	
7.45-7.60	D			
8.00	D			
8.50-8.95	SD	4.00	DRY	33
8.50-9.00	B			
9.40-9.85	U(65)	4.00	DRY	
9.85-10.00	D			
10.00			19/01	

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL**	G.L. (0.40)	79.50
Firm brown mottled grey CLAY with a little subrounded fine chalk and siltstone gravel. Occasional rootlets.	0.40 (0.60)	79.10
Firm brown mottled grey slightly sandy CLAY with a little subangular to subrounded fine to medium chalk and quartzitic gravel.	1.00 (1.30)	78.50
Stiff grey brown slightly sandy CLAY with some subangular to subrounded fine to medium chalk and flint gravel.	2.30 (0.70)	77.20
Stiff grey slightly sandy CLAY with a little subrounded fine chalk, siltstone, and mudstone gravel. From 3.50m to 3.60m: siltstone cobble	3.00 (1.70)	76.50
Stiff grey CLAY with occasional subrounded fine siltstone gravel.	4.70 (5.30)	74.80
At 8.50m: light grey siltstone lamination		
Below 9.40m: very stiff		
End of Borehole.	10.00	69.50

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.00m

Casing Dia (mm): 150 to 4.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	3.50	Rose to 3.20m in 20 mins 3.40/3.30/3.25 in 5/10/15 mins	

Ground Level 79.50 m OD

Coordinates 475784.470 mE 254530.069 mN

Drilled by MN

Logged by CM

Checked by CM

Remarks 1. On completion of the borehole a 19mm piezometer was installed with the tip at 4.50m and the sand response zone from 5.00 to 3.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 16(1 of 1)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.30	B		08/01 1999	
0.30-0.70	B			
0.50	W			
0.70-1.20	B			
1.20-1.65	SD	1.20	0.50	22
1.90	D			
2.20-2.65	U(41)	2.20	WET	
2.65	D			
2.90	D			
3.20-3.65	U(46)	3.00	DRY	
3.65	D			
3.90	D			
4.20-4.65	SD	3.00	DRY	36
4.90	D			
5.20-5.65	U(58)	3.00	DRY	
5.65	D			
6.10	D			
6.60-7.05	SD	3.00	DRY	43
7.60	D			
8.10-8.51	SD	3.00	DRY	50/ 255
9.10	D			
9.70-10.10	SD	3.00	DRY	50/ 235

Strata

Description	Depth (Thickness)	Level
	G.L.	79.51
Firm dark brown slightly sandy CLAY with a little angular to subrounded fine to medium quartzitic gravel. Occasional plant remnants.	0.30	79.21
	(0.40)	
Firm light brown slightly sandy CLAY with a little angular to subrounded fine to medium quartzitic gravel.	0.70	78.81
	(0.60)	
Firm to stiff light brown CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.30	78.21
Stiff grey mottled brown CLAY with occasional silt partings.	(0.90)	
Below 1.90m: a little angular fine to medium gravel size selenite crystals.	2.20	77.31
Stiff grey CLAY.	(0.70)	
Stiff becoming very stiff blue grey CLAY with occasional subrounded fine to medium siltstone gravel.	2.90	76.61
From 5.20 to 6.10m: occasional silt partings.	(7.20)	

Legend: 1

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.10m

Casing Dia (mm): 150 to 3.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	0.30	Slow seepage	

Ground Level: 79.51 m OD

Coordinates: 475943.399 mE, 254522.381 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. Service inspection pit hand excavated to 1.20m.
2. A little water was added between 2.80 and 9.70m to assist drilling.
3. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 17(1 of 2)

Sampling					Strata			
Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Legend
			08/01			10.10	69.42	
					End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.10m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 79.51 m OD

Coordinates 475943.399 mE
254522.381 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 17(2 of 2)

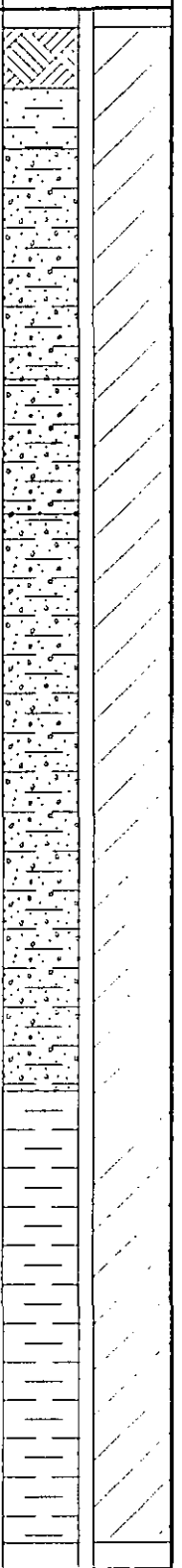
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			14/01 1999	
0.40	D			
0.50-0.95	SD		DRY	14
0.50-1.00	B			
0.80	D			
1.50-1.95	U(66)	1.50	DRY	
1.95-2.10	D			
2.30	D			
2.50-2.95	SD	1.50	DRY	37
2.50-3.00	B			
3.50-3.95	U(59)	1.50	DRY	
3.95-4.10	D			
4.50-4.95	SD	1.50	DRY	34
5.50-5.95	U(65)	1.50	DRY	
5.95-6.10	D			
6.50	D			
7.00-7.45	SD	1.50	DRY	31
7.00-7.50	B			
8.00	D			
8.50-8.95	SD	1.50	DRY	39
8.50-9.00	B			
9.50	D			

Strata

Description	Depth (Thickness)	Level
Brown TOPSOIL**	G.L.	81.49
	(0.40)	
Desiccated firm light brown slightly sandy CLAY.	0.40	81.09
	(0.40)	
Desiccated stiff to very stiff grey brown slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	0.80	80.69
Below 1.70m: brown mottled grey	(1.50)	
Very stiff grey mottled brown slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel	2.30	79.19
	(0.90)	
Very stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	3.20	78.29
Below 4.50m: occasional silty fine sand partings	(3.80)	
Stiff to very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	7.00	74.49
	(3.45)	

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 1.50m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 81.49 m OD

Coordinates 475947.328 mE
254412.435 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 18(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	1.50	14/01 DRY	36

Strata

Description	Depth (Thickness)	Level
End of Borehole.	10.45	71.04

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.45m

Casing Dia (mm) 150 to 1.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 81.49 m OD
Coordinates 475947.328 mE
254412.435 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 18(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01 1999	
0.50-0.95	SD			5
0.50-0.95	B			
1.30	D			
1.50-1.95	U(24)	1.50		
1.95-2.10	D			
2.50-2.95	SD	2.50		11
2.50-3.00	B			
3.00	D			
3.50	SD	3.00		50/ 75

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Soft brown mottled dark brown slightly sandy clay with occasional angular to subrounded fine to medium chalk gravel. Occasional rootlets.	G.L. (1.30)	
MADE GROUND: Firm grey mottled brown slightly sandy clay with occasional angular to subrounded fine to medium chalk gravel.	1.30 (1.00)	
MADE GROUND: Firm brown mottled grey clay with a little angular fine to medium chalk and quartzitic gravel.	2.30 (1.20)	
MADE GROUND: Concrete.	3.50	
End of Borehole.	3.80	

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 3.80m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Drilled by MN
Logged by DS
Checked by CM

Remarks

1. Chiselling from 3.50m to 3.80m (1 hour).
2. Borehole terminated on concrete obstruction and backfilled with arisings.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 19(1 of 1)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01 1999	
0.50-0.95 0.50-1.00	SD B	NIL	DRY	7
1.40 1.50-1.95	D U(23)	1.50	DRY	
1.95-2.10	D			
2.30 2.50-2.95 2.50-3.00	D SD B	2.50	DRY	10
2.90	D			
3.50-3.95	U(41)	3.00	DRY	
3.95-4.10	D			
4.50-4.95 4.50-5.00	SD B	3.00	DRY	21

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL.**	G.L.	79.98
Soft light brown mottled dark brown slightly sandy CLAY with occasional angular to subrounded fine to medium quartzitic gravel. Occasional rootlets.	0.30 (1.10)	79.68
Stiff light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Below 1.80m: grey mottled dark brown.	1.40 (0.90)	78.58
Firm to stiff grey slightly sandy CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Between 3.50 and 3.95m: very stiff.	2.30 (2.70)	77.68
End of Borehole.	5.00	74.98

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 5.00m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 79.98 m OD

Coordinates 476027.130 mE
254437.626 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 19A(1 of 1)

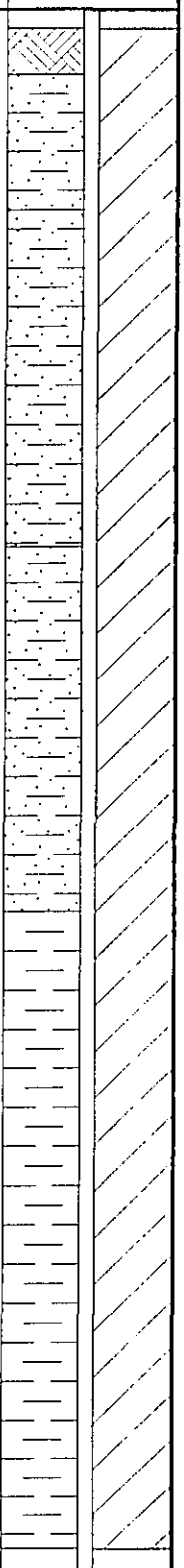
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			08/01 1999	
0.50-0.95 0.50-1.00	SD B		DRY	7
1.20	D			
1.50-1.95	U(21)	1.00	DRY	
1.95-2.10	D			
2.50-2.95 2.50-3.00	SD B	2.00	DRY	11
3.40	D			
3.50-3.95	U(27)	3.00	DRY	
3.95-4.10	D			
4.10			11/01	
4.50-4.95 4.50-5.00	SD B	3.00	DRY	13
5.50-5.95	U(37)	3.00	DRY	
5.95-6.10	D			
6.50	D			
7.00-7.45 7.00-7.50	SD B	3.00	DRY	28
8.00	D			
8.50-8.95	U(48)	3.00	DRY	
8.95-9.10	D			
9.50	D			

Strata

Description	Depth (Thickness)	Level
Brown clayey TOSPOIL.**	G.L.	82.87
Soft brown slightly sandy CLAY with occasional angular fine quartzitic gravel.	0.30 (0.90)	82.57
Firm light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.20 (2.20)	81.67
Stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and siltstone gravel.	3.40	79.47
Between 4.50 and 4.95m: firm	(2.40)	
Below 5.50m: very stiff		
Stiff to very stiff blue grey CLAY with occasional subrounded fine to medium siltstone gravel.	5.80	77.07
	(4.65)	

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 82.87 m OD
Coordinates 476110.303 mE
254382.358 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 20(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	3.00	11/01 DRY	35

Strata

Description	Depth (Thickness)	Level	Legend
End of Borehole.	10.45	72.42	

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.45m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.87 m OD

Coordinates 476110.303 mE
254382.358 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 20(2 of 2)

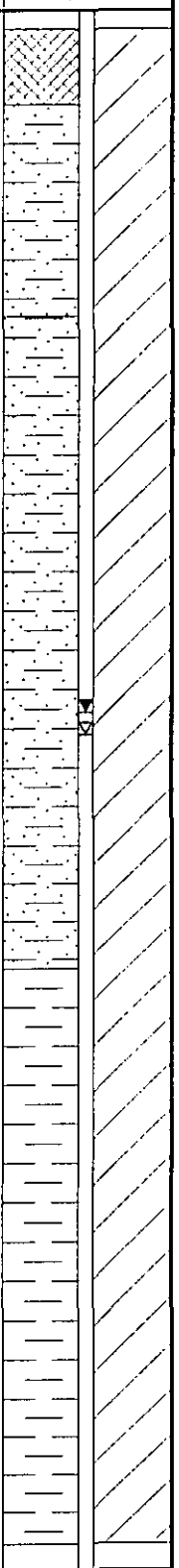
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.50	B		08/01 1999	
0.00			11/01	
0.50-1.20	B			
1.20-1.65	SD	1.20	DRY	15
1.20-1.65	B			
1.90	D			
2.20-2.65	U(46)	2.20	DRY	
2.90	D			
3.20-3.65	SD	3.20	DRY	32
3.20-3.65	B			
3.90	D			
4.20-4.65	U(86)	3.20	DRY	
4.90	D			
5.20-5.65	SD	3.20	WET	39
5.20-5.65	B			
6.20	D			
6.70-7.13	SD	3.20	WET	50/ 275
6.70-7.13	B			
7.70	D			
8.20-8.59	SD	3.20	DAMP	50/ 235
8.20-8.59	B			
9.20	D			
9.70-10.07	SD	3.20	DAMP	50/ 220
9.70-10.07	B			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Firm dark brown slightly sandy clay with occasional angular fine gravel size brick fragments.	G.L. (0.50)	82.95
Firm light brown sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	0.50 (1.40)	82.45
Firm to stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Below 3.90m: occasional silt partings.	1.90 (4.30)	81.05
Very stiff grey CLAY with occasional subrounded fine to coarse siltstone gravel.	6.20	76.75

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.010m

Casing Dia (mm): 150 to 3.20m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.65	Rose to 4.50m in 20 mins	

Ground Level: 82.95 m OD

Coordinates: 476164.533 mE, 254333.159 mN

Drilled by: BG

Logged by: DS

Checked by: CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 21(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			11/01	
10.70	D			
11.20-11.53	SD	3.20	WET	50/
11.20-11.53	B			180
12.20	D			
12.80-13.13	SD	8.20	WET	50/
12.80-13.13	B			180
14.00	D			
14.70-15.01	SD	3.20	WET	50/
14.70-15.01	B			160
15.01			12/01	

Strata

Description	Depth (Thickness)	Level
	(8.50)	
Grey SILTSTONE, with numerous fossil shell fragments, very weak.	14.70	68.25
End of Borehole.	15.01	67.94

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.010m

Casing Dia (mm): 150 to 3.20m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.95 m OD

Coordinates 476164.533 mE
254333.159 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 21(2 of 2)

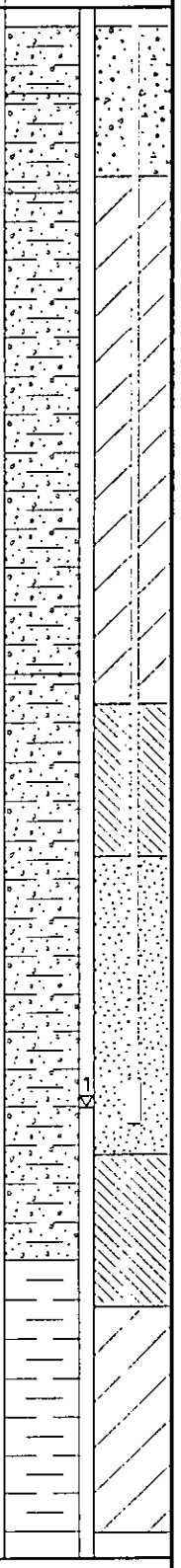
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.45	B		13/01 1999	
0.45-1.10	B			
1.10-1.55	U(19)F			
1.10-1.60	B			
1.60-2.05	U(25)	1.60	DRY	
2.30	D			
2.60-3.05	SD	2.60	DRY	17
2.60			14/01	
2.60-3.05	B			
3.30	D			
3.60-4.05	SD	3.20	DRY	32
3.60-4.05	B			
4.30	D			
4.50-4.95	U(55)	3.20	DRY	
5.50	D			
5.95-6.40	SD	3.20	DRY	38
5.95-6.40	B			
7.00	D			
7.20-7.65	SD	3.20	DAMP	36
7.20-7.65	B			
8.20	D			
8.50-8.92	SD	3.20	WET	50/ 270
8.50-8.92	B			
9.30	D			
9.70-10.10	SD	3.20	WET	50/ 250
9.70-10.10	B			

Strata

Description	Depth (Thickness)	Level
Firm dark brown slightly sandy CLAY with a little angular fine to coarse quartzitic gravel. Occasional plant remnants.	G.L. (0.45)	82.92
Firm light brown slightly sandy CLAY with occasional angular to subrounded fine quartzitic gravel.	0.45 (0.65)	82.47
Firm becoming stiff brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.10 (3.20)	81.82
Below 3.60m: very stiff		
Very stiff grey slightly sandy CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Occasional silty fine sand partings.	4.30 (3.90)	78.62
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	8.20 (1.90)	74.72

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.10m

Casing Dia (mm): 150 to 3.20m

Groundwater

No.	Struck	Behaviour	Sealed
1	7.20	Slow seepage	

Ground Level 82.92 m OD

Coordinates 476112.306 mE, 254255.195 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

1. On completion of the borehole a 19mm piezometer was installed with the tip at 7.30m and the sand response zone from 7.50 to 5.50m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 22(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			14/01	

Strata

Description	Depth (Thickness)	Level	Legend
	10.10	72.82	
End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.10m

Casing Dia (mm) 150 to 3.20m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.92 m OD

Coordinates 476112.306 mE
254255.195 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 22(2 of 2)

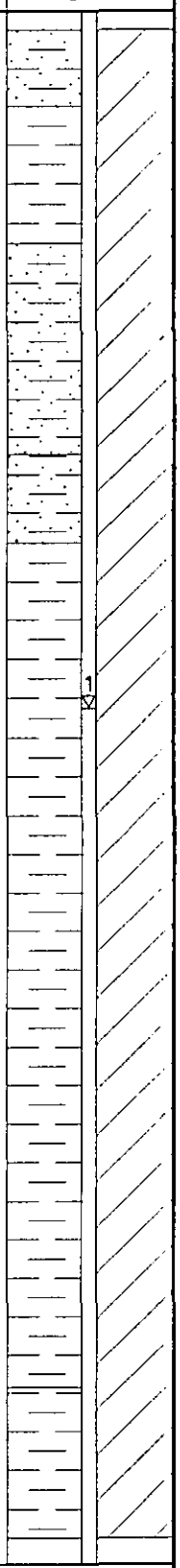
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.50	B		12/01 1999	
0.50-1.20	B			
1.20-1.65	U(24)F	1.20	DRY	
1.20-1.75	B			
1.75-2.20	S	1.70	DAMP	5
1.75-2.40	B			
2.40-2.85	SD	2.40	DAMP	20
2.40-3.00	B			
3.40	D			
3.50-3.95	U(50)	3.20	DRY	
2.30	W			
3.95			13/01	
4.25	D			
4.50-4.95	SD	4.20	WET	31
4.50-4.95	B			
5.50	D			
6.00-6.45	U(56)	4.50	WET	
7.00	D			
7.50-7.95	SD	4.50	DAMP	45
7.50-7.95	B			
8.50	D			
9.00-9.43	SD	4.50	DAMP	50/ 275
9.00-9.43	B			

Strata

Description	Depth (Thickness)	Level
Firm dark brown slightly sandy CLAY with occasional plant remnants.	G.L.	89.19
	(0.50)	
Firm light brown CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel.	0.50	88.69
	(0.90)	
Stiff light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Occasional sand partings. Between 1.75 and 2.20m: soft.	1.40	87.79
	(1.40)	
Firm brown slightly sandy CLAY with some angular to subrounded fine to medium chalk and quartzitic gravel.	2.80	86.39
	(0.60)	
Stiff becoming very stiff grey CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	3.40	85.79
	(5.60)	
Below 8.50m: fine to coarse gravel.		
Very stiff grey CLAY with a little angular to subrounded fine to coarse siltstone gravel.	9.00	80.19

Legend



Equipment: Cable persussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 4.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.50	Slight seepage	

Ground Level: 89.19 m OD

Coordinates: 476299.705 mE, 254210.801 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. A little water was added below 9.50m to assist drilling.
2. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 23(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01	
10.00	D			
10.50-10.91	SD	4.50	DRY	50/
10.50-10.91	B			260
11.50	D			
12.20-12.54	SD	4.50	DRY	50/
12.20-12.54	B			190
13.20	D			
13.70-14.03	SD	4.50	DRY	50/
13.70-14.03	B			175
14.50	D			
14.70-15.00	SD	4.50	DRY	50/
14.70-15.00	B			150

Strata

Description	Depth (Thickness)	Level
As Sheet 1.	(6.00)	
End of Borehole.	15.00	74.19

Legend

Equipment: Cable persussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 4.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 89.19 m OD

Coordinates 476299.705 mE
254210.801 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

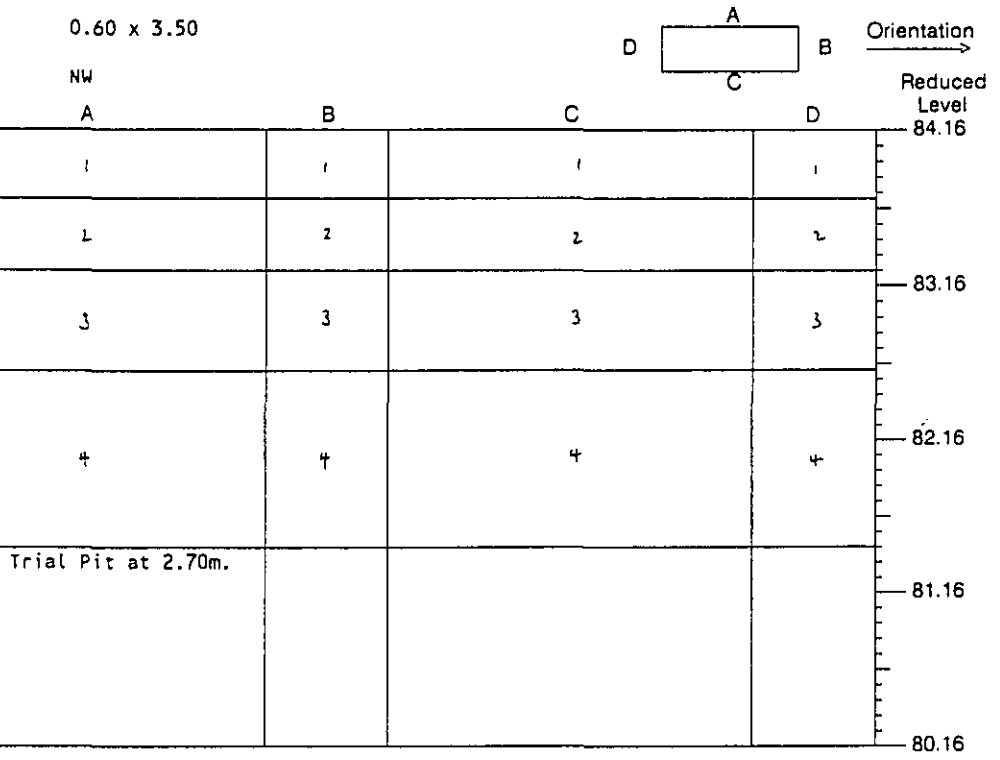
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 23(2 of 2)

Dimensions : 0.60 x 3.50

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.45	1	MADE GROUND: Cropped field over soft brown, slightly sandy, clayey topsoil with rare subangular, fine to medium gravel size brick fragments and occasional subrounded, fine to medium quartz gravel.
0.45-0.90	2	Possible MADE GROUND: Firm light brown slightly sandy clay with a little subrounded, fine to medium quartz gravel. Occasional roots and rootlets.
0.90-1.55	3	Orange brown slightly clayey, fine to medium SAND with a little subrounded, fine to medium ironstone and sandstone gravel.
1.55-2.70	4	Pale orange brown silty, fine to medium SAND with some subrounded, fine to medium ironstone, sandstone and mudstone gravel. Occasional thin bands of yellow brown sand.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.45	D	
0.60	V(H)	72,68,78 kPa
1.00	D	
1.30-1.50	BX2	
1.60	D	
1.80-2.10	BX2	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 2.10m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 84.160 m OD
Coordinates 475095.02 mE
255162.84 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

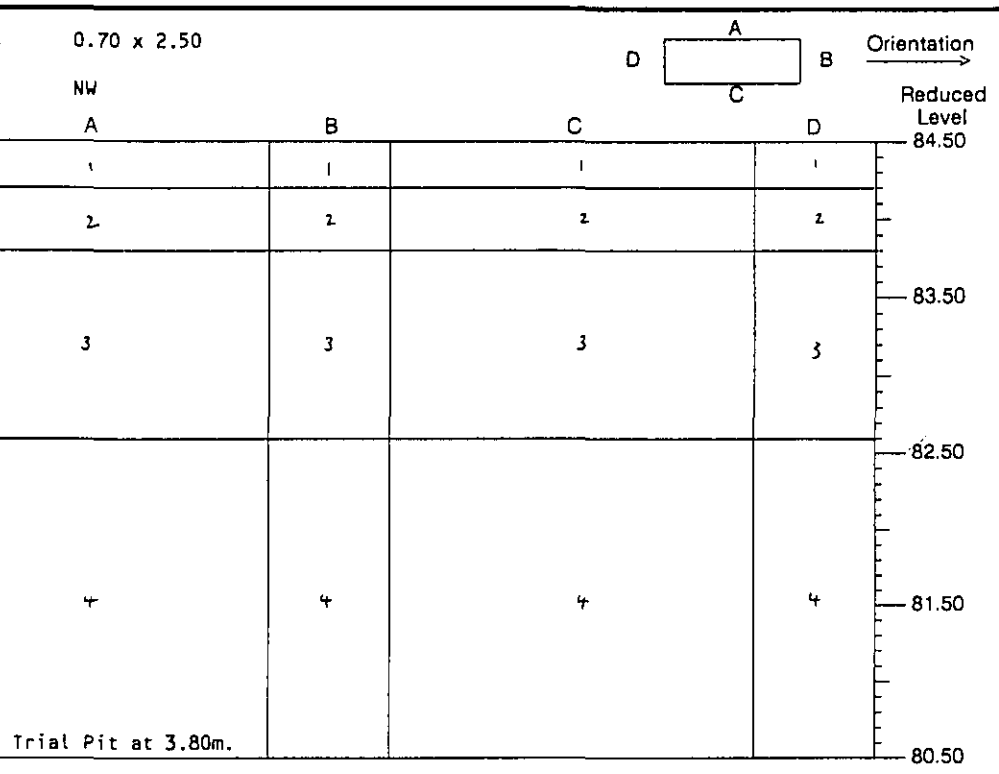
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP1

Dimensions : 0.70 x 2.50

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Grass over soft brown clayey TOPSOIL with rare subangular, fine flint gravel and some rootlets.
0.30-0.70	2	Soft to firm slightly sandy orange brown CLAY with occasional subangular, fine to medium flint gravel, occasional rootlets and occasional decaying leaf matter.
0.70-1.90	3	Firm to stiff grey brown CLAY with a little subangular, fine to coarse flint gravel, occasional orange brown clayey sand partings, and gravel to cobble size pockets. Abundant polished slip surfaces, occasional roots and decaying plant matter.
1.90-4.00	4	Orange brown fine to coarse SAND with some subrounded, fine to medium, occasionally platy ironstone and sandstone gravel. Below 3.30m: light orange very silty sand with a little gravel.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.70	BX2	
0.60	V(H)	58,72,70 kPa
0.80	D	
1.00-1.40	BX2	
2.00	D	
2.10-2.30	BX2	
2.80	D	
3.00-3.20	B	
3.40	D	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Collapsing below 3.80m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 84.499 m OD
Coordinates 475178.37 mE
255174.64 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to pit collapsing below 3.80m.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

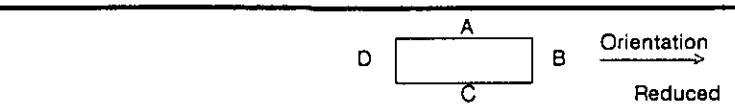
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

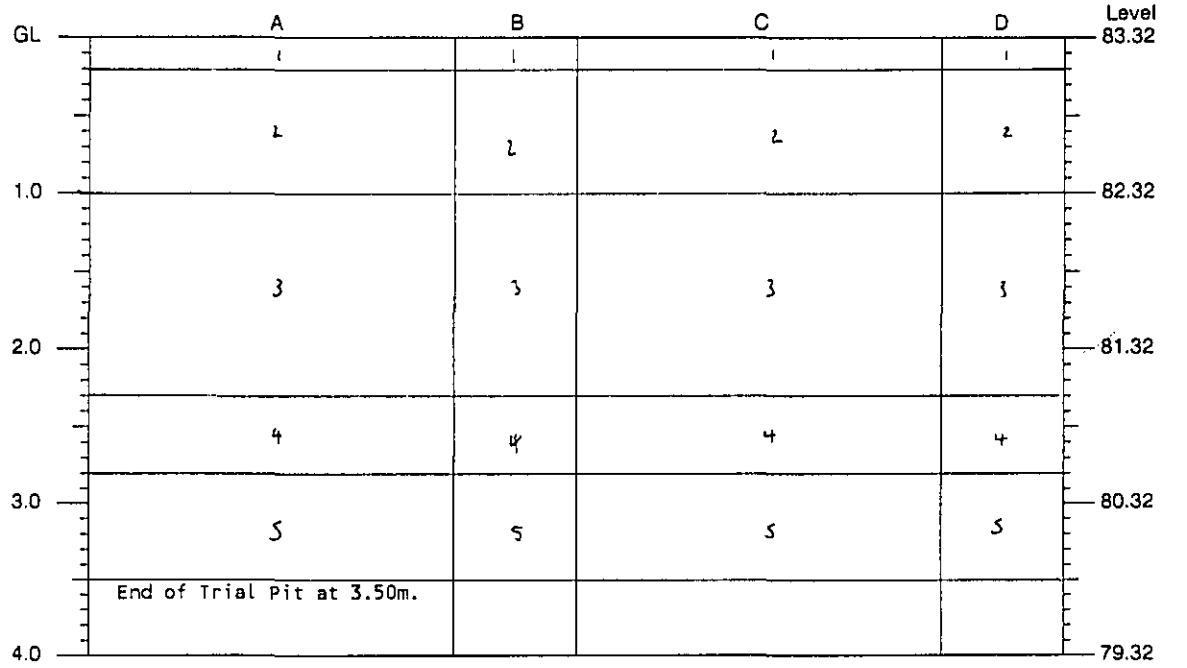
Contract 118488

Trial Pit TP3

Dimensions : 0.70 x 3.30

Orientation : NW





Strata

Depth (m)	No.	Description
0.00-0.20	1	MADE GROUND: Cropped field over soft brown slightly sandy, clayey topsoil with a little subangular to subrounded, fine to medium quartz, flint and occasional brick gravel. Some rootlets.
0.20-1.00	2	Possible MADE GROUND: Soft light brown very sandy CLAY with a little subangular to subrounded, fine to medium flint and quartz gravel. Occasional roots.
1.00-2.30	3	Orangey brown/light brown slightly clayey fine to coarse SAND with some subangular to subrounded, fine to coarse, quartz, sandstone, flint and ironstone gravel. Occasional cobbles of sandstone. Occasional roots and rootlets. Below 1.50m: with a little subrounded, fine to medium gravel of quartz, sandstone and ironstone.
2.30-2.80	4	Pale orange brown slightly clayey, fine to medium SAND, partially cemented with occasional cobble to boulder size pockets of clayey, light grey, fine to medium sand with some subangular to subrounded, fine ironstone gravel.
2.80-3.50	5	Pale brown very silty fine to medium SAND with a little subrounded, fine ironstone gravel.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.50-0.80	BX2	
1.10	D	
1.20-1.50	BX2	
1.50	D	
2.40	D	
2.40-2.60	BX2	
3.00	D	
3.10-3.30	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 2.20m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.320 m OD
Coordinates 475223.37 mE
255043.04 mN

Logged by CM
Checked by CM

Remarks

1. No obvious boundary between strata 2 and 3.
2. Pit terminated at 3.50m due to pit collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

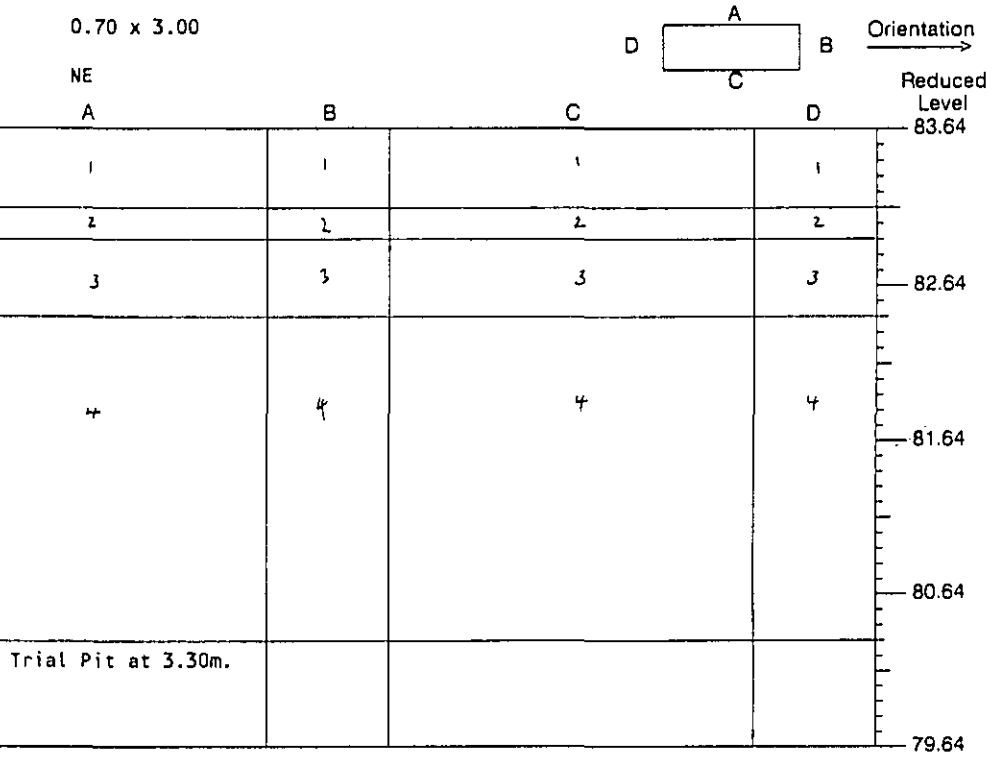
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP4

Dimensions : 0.70 x 3.00

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.50	1	MADE GROUND: Soft brown slightly sandy, clayey topsoil with a little subangular to subrounded, fine to medium chalk, flint and quartz gravel and occasional brick and pottery fragments. Some rootlets.
0.50-0.70	2	Soft orange brown very sandy CLAY with some subangular to subrounded, fine to medium flint, chalk, sandstone and quartz gravel.
0.70-1.20	3	Orange brown clayey fine to medium SAND with some subangular to subrounded, fine to medium flint, chalk, sandstone and quartz gravel.
1.20-3.30	4	Orange brown fine to coarse SAND with much gravel of chalk, flint and sandstone and occasional boulder size pockets of firm brown mottled orange brown gravelly, very silty clay and pale grey white very silty clay. Occasional cobbles of chalk. At 3.30m: gravel size pockets of grey boulder clay.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.60	D	
0.80	V(H)	Too gravelly
0.70	D	
0.70-1.00	BX2	
1.20	D	
1.80-2.20	BX2	
3.30	D	
3.00-3.20	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 1.10m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.637 m OD
Coordinates 475305.91 mE
254961.51 mN

Logged by CM
Checked by CM

Remarks

1. Slow digging below 2.90m.
2. Pit terminated at 3.30m due to collapse.
3. Last bucket contained pockets of very stiff grey boulder clay.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

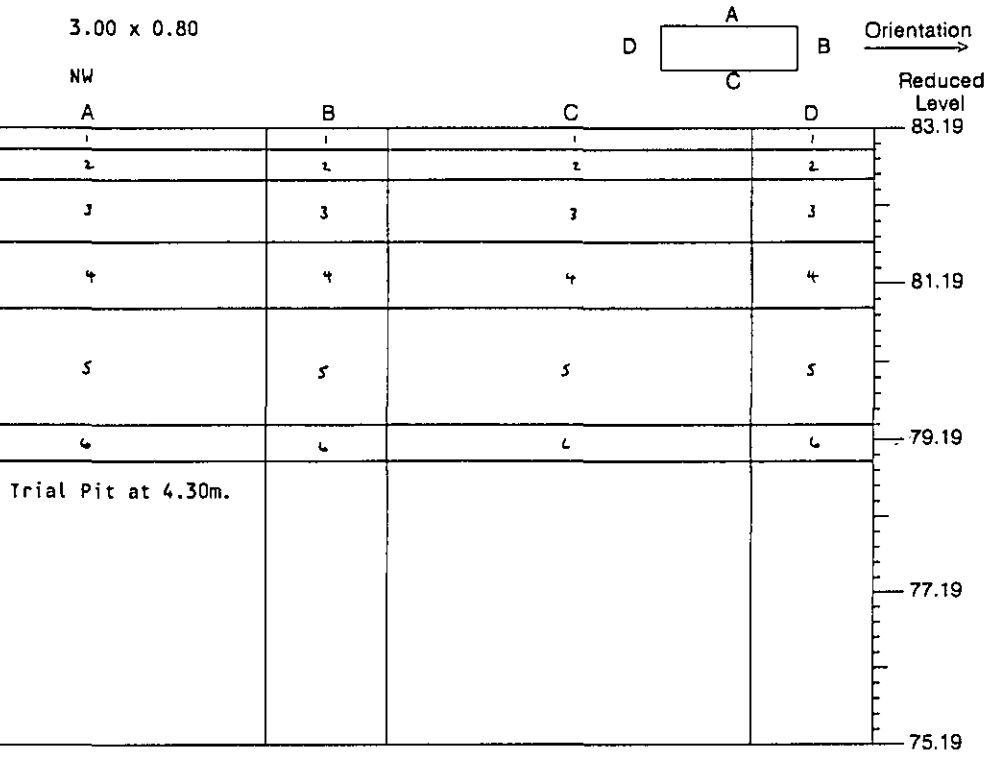
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP5

Dimensions : 3.00 x 0.80

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Turf over dark brown silty fine to coarse SAND with a little angular to subrounded fine to medium quartzitic gravel. Occasional rootlets.
0.30-0.70	2	Orange brown clayey sandy angular to subrounded fine to coarse quartzitic, and flint GRAVEL. Occasional cobbles.
0.70-1.50	3	Firm brown to light brown sandy CLAY with a little to some angular to subrounded fine to coarse flint, quartzitic, and ironstone gravel. Occasional cobbles.
1.50-2.35	4	Firm light brown slightly sandy SILT with occasional very clayey silt pockets (<200mm).
2.35-3.80	5	Light brown clayey fine to coarse SAND with some angular to subrounded fine to coarse quartzitic, flint, and ironstone gravel. Occasional cobbles. Occasional firm light brown very silty clay pockets with a little gravel (<300mm). Below 3.00m: very dense with very stiff clay pockets
3.80-4.30	6	Very stiff grey brown slightly sandy CLAY with a little angular to subrounded fine to coarse chalk and quartzitic gravel.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.40	D	
0.50	D	
0.80	D	
1.00	B	
1.00	V(H)	49,32,52 kPa
1.60	D	
2.00	B	
2.50	D	
2.80	B	
3.50	B	
3.90	D	
4.00	B	

Date of Excavation 26/01/99
Equipment JC8 360 Tracked excavator
Stability All faces stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.191 m OD
Coordinates 475363.51 mE
255020.82 mN

Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

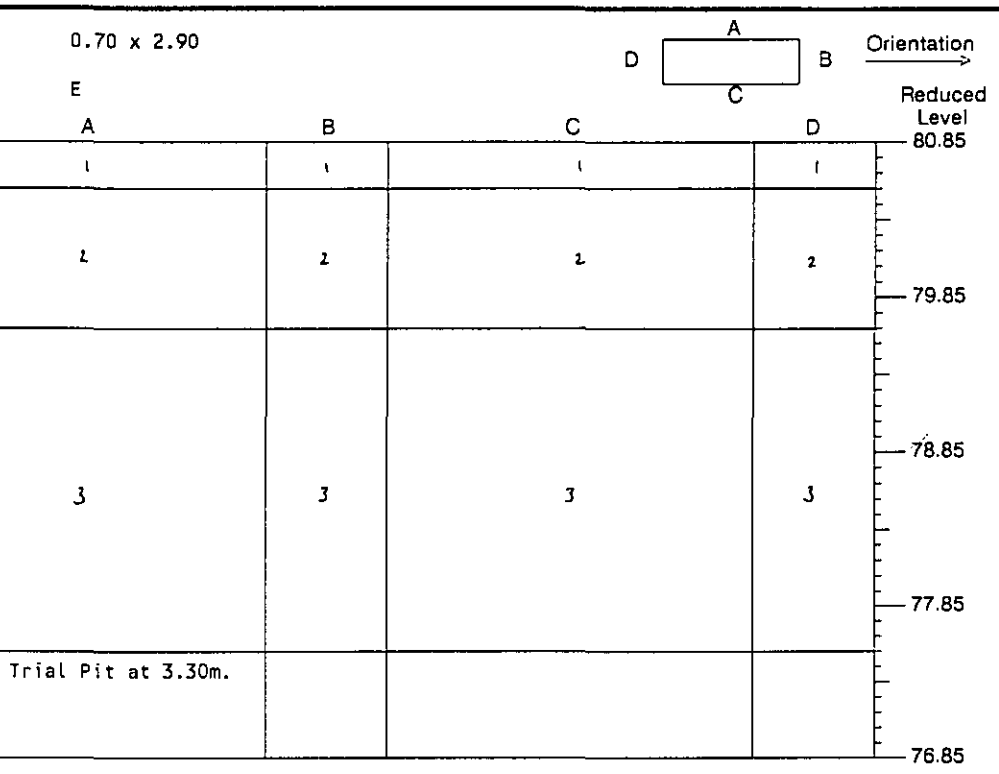
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP6

Dimensions : 0.70 x 2.90

Orientation : E



Strata

Depth (m)	No.	Description
0.00-0.30	1	Grass over light brown very silty, clayey TOPSOIL with a little fine to medium gravel of quartz and flint. Some roots and rootlets.
0.30-1.40	2	Soft orange brown slightly sandy CLAY with a little subangular to subrounded, fine to medium flint, quartz, sandstone, ironstone and chalk gravel. Some rootlets and occasional carbonised plant remains. Below 1.20m: orange brown slightly clayey, very silty, fine to medium sand with occasional light grey bands.
1.40-3.30	3	Stiff grey brown and grey CLAY with some gravel of chalk, flint, sandstone and siltstone. Occasional cobbles and boulders of chalk and siltstone. Occasional gravel to cobble size pockets of brown clayey sand. Below 2.40m: becoming very stiff and grey in colour, closely fissured with grey brown and red brown staining on fissure surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.60	V(H)	42,56,50 kPa
0.50-0.80	BX2	
1.20	D	
1.40	D	
1.60	V(H)	92,98,88 kPa
1.60-1.90	BX2	
2.50	D	
2.80-3.10	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing from 0.30 to 1.80m

Groundwater

No.	Struck	Behaviour
1	1.40	Slight seepage

Ground Level 80.848 m OD
Coordinates 475515.06 mE
254747.23 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

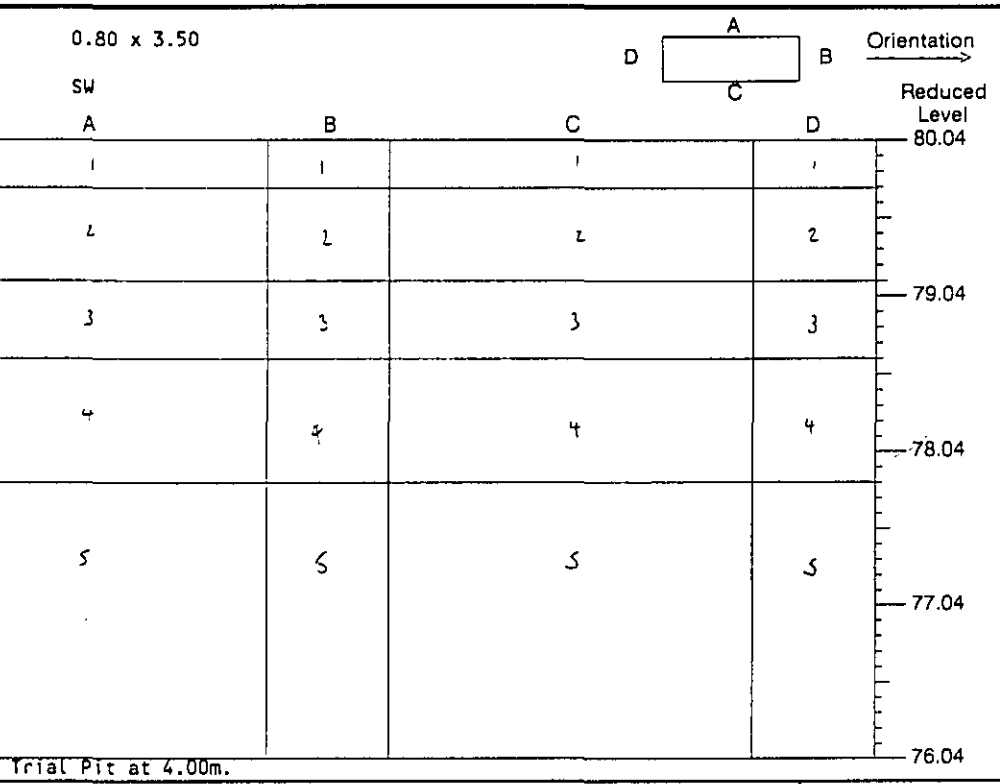
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP7

Dimensions : 0.80 x 3.50

Orientation : SW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Soft dark brown slightly sandy CLAY with occasional angular to subrounded, fine to medium quartzitic and sandstone gravel. Occasional rootlets.
0.30-0.90	2	Firm brown slightly sandy CLAY with occasional angular to subrounded, fine to coarse quartzitic and limestone gravel.
0.90-1.40	3	Brown mottled light grey clayey, very silty fine to coarse SAND with occasional angular to subrounded, fine to medium chalk and flint gravel.
1.40-2.20	4	Brown silty fine to medium SAND with occasional very stiff dessicated brown sandy clay pockets with a little angular to subrounded, fine to coarse ironstone gravel (<200mm).
2.20-4.00	5	Hard grey slightly sandy CLAY with occasional subrounded, fine to coarse chalk gravel. Occasional cobbles. Below 3.20m: with a little chalk, quartzite and sandstone gravel. Occasional silt partings.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.40	D	
0.50	B	
1.00	D	
1.30	B	
1.50	D	
2.00	B	
2.50	D	
3.00	B	
3.50	B	
4.00	D	

Date of Excavation 21/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing from 1.40 to 2.20m

Groundwater

No.	Struck	Behaviour
1	1.30	Slight seepage

Ground Level 80.042 m OD
Coordinates 475546.38 mE
254573.52 mN

Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

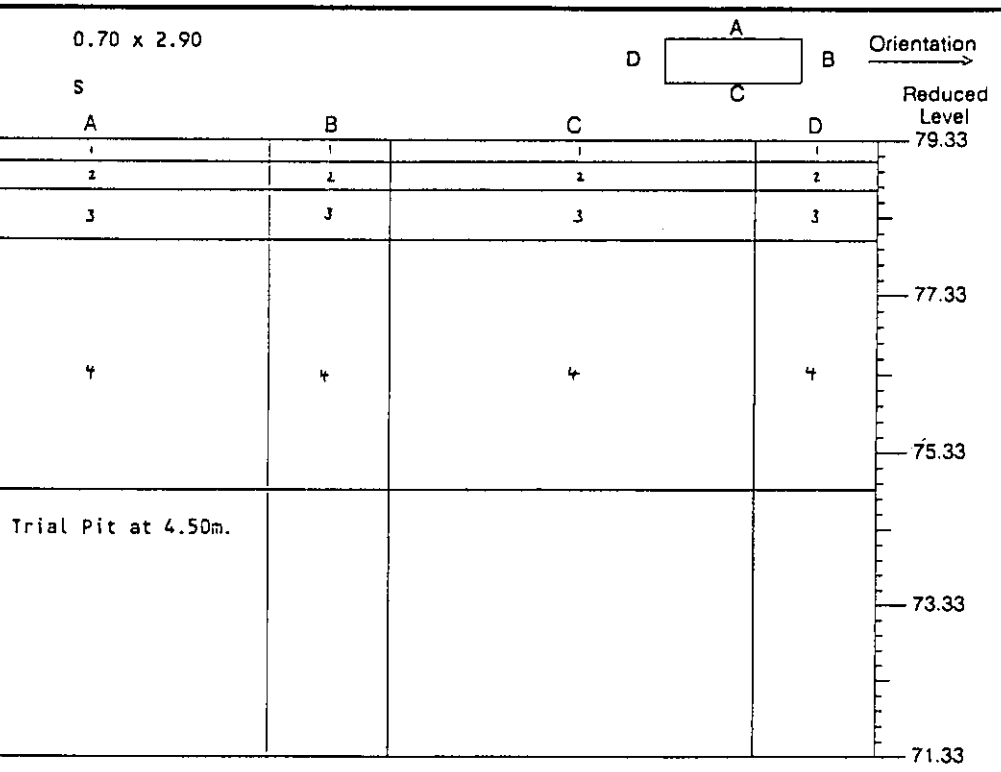
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP8

Dimensions : 0.70 x 2.90

Orientation : S



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Soft to firm grey brown occasionally very silty clay with occasional subangular, fine to medium flint gravel and occasional rootlets.
0.30-0.65	2	MADE GROUND: Soft orange brown very silty clay with occasional subangular gravel of clay pipe and flint with occasional rootlets.
0.65-1.30	3	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint. Occasional cobbles of chalk. Occasional roots and rootlets.
1.30-4.50	4	Stiff grey extremely closely fissured CLAY with some polished shear surfaces. Some silty mudstone lithorelicts and occasional gravel size ironstone nodules. Occasional orange brown ironstaining on fissure surfaces. Below 3.50m: becoming blue grey in colour.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.30-0.60	BX2	
0.70	D	
0.80	V(H)	72,78,82 kPa
0.70-0.90	BX2	
1.30	D	
1.50	V(H)	95,102,88 kPa
1.50-1.80	BX2	
3.00-3.20	B	
4.00	D	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 79.326 m OD
Coordinates 475739.92 mE
254734.60 mN

Logged by CM
Checked by CM

Remarks 1. V(h) tests below 1.20m were carried out on large excavated lumps.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

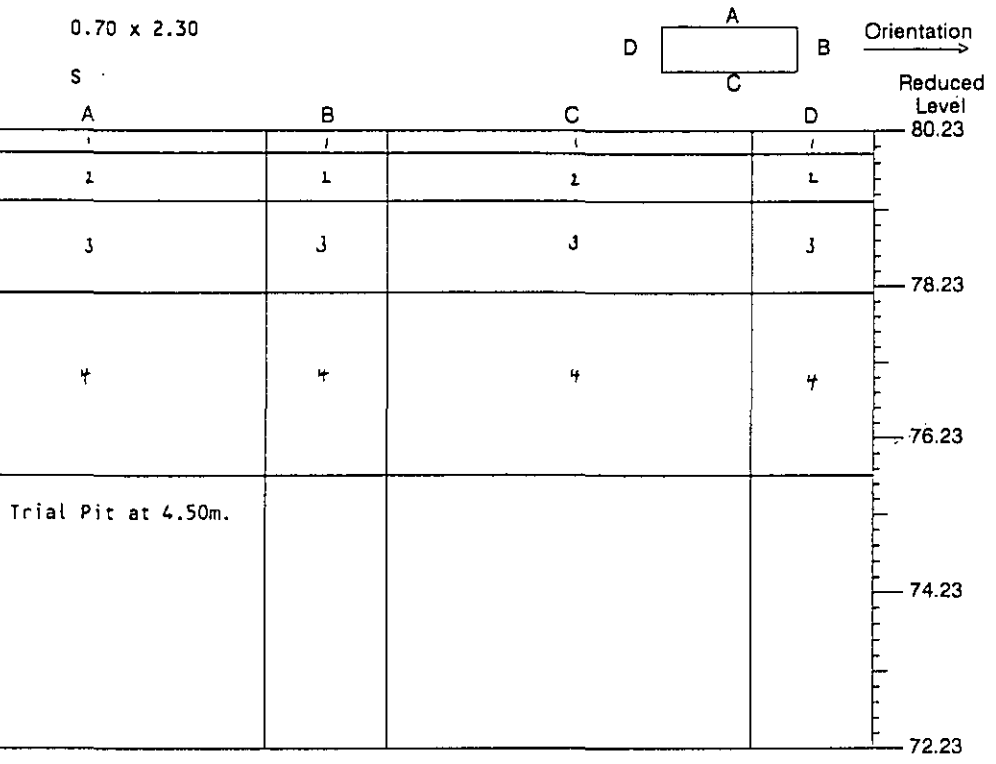
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP9

Dimensions : 0.70 x 2.30

Orientation : S



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Soft to firm grey brown occasionally very silty clay with occasional subangular, fine to medium flint gravel and occasional rootlets.
0.30-0.90	2	Possible MADE GROUND: Soft orange brown sandy CLAY with a little subangular, fine to medium flint gravel and occasional rootlets.
0.90-2.10	3	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint and occasional cobbles of chalk. Occasional roots and rootlets.
2.10-4.50	4	Stiff blue grey extremely closely fissured CLAY with abundant silty mudstone lithorelicts and occasional gravel size ironstone nodules. Some polished shear surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.70	BX2	
0.70	V(H)	68,76,72 kPa
1.00	D	
1.00	V(H)	86,92,76 kPa
1.30-1.60	BX2	
2.10	D	
2.40-2.70	BX2	
4.00-4.40	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 80.230 m OD
Coordinates 475817.14 mE
254799.45 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

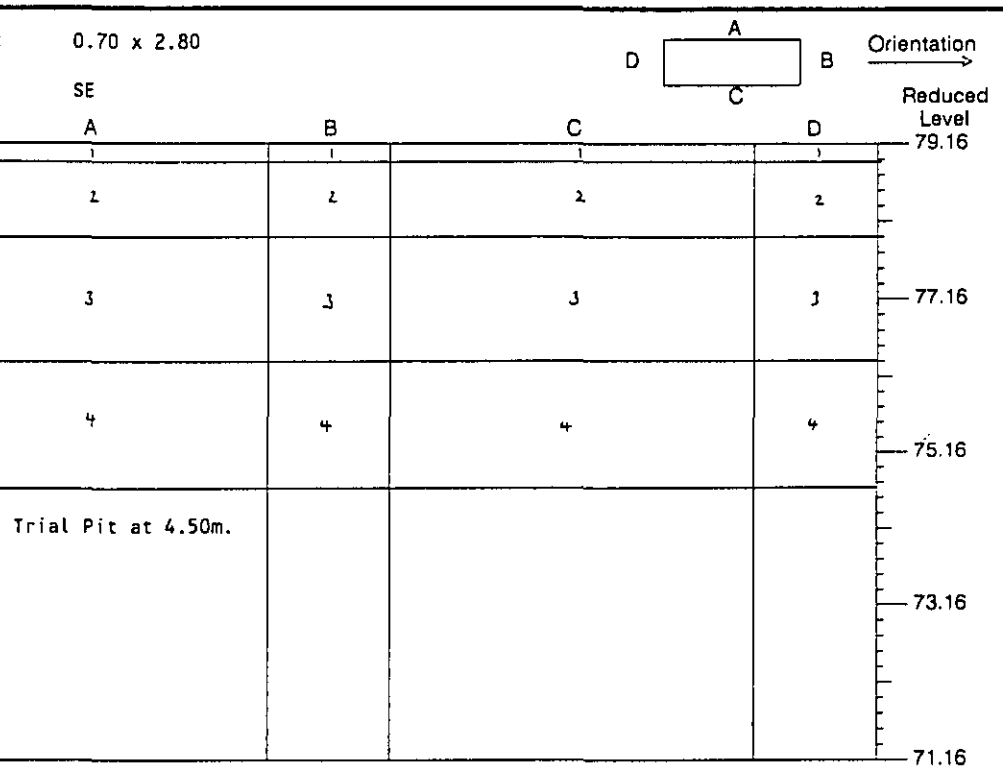
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP10

Dimensions : 0.70 x 2.80

Orientation : SE



Strata

Depth (m)	No.	Description
0.00-0.25	1	MADE GROUND: Soft very silty grey brown clayey topsoil with some roots, rootlets and decaying leaf matter.
0.25-1.20	2	MADE GROUND: Soft to firm orange brown occasionally mottled red brown slightly sandy clay with rare subrounded, fine to medium quartz, flint and chalk gravel. At 0.70m: old land drain consisting of cobble size pieces of sandstone and flint.
1.20-2.80	3	Stiff grey brown and grey slightly sandy CLAY with some gravel of flint and chalk. Occasional shelly fossils and orange brown sand partings. Becoming sandier with depth. From 2.70 to 2.80m: Pale brown slightly clayey sand with some gravel of flint and chalk.
2.80-4.50	4	Very stiff blue grey closely fissured CLAY with a little gravel of chalk and flint. Some polishing of fissure sufaces (shear surfaces). Below 3.60m: rare gravel with visible bedding structures (weathered mudstone).

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.60	V(H)	58,74,56 kPa
0.60-0.90	BX2	
1.30	D	
1.50-1.80	BX2	
2.50-2.70	B	
2.80	D	
2.90	D	
3.20-3.50	BX2	
4.00	D	
4.10-4.40	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	0.70	Land drain (Moderate inflow)
2	2.10	Moderate inflow

Ground Level 79.159 m OD
Coordinates 475812.04 mE
254505.36 mN

Logged by CM
Checked by CM

Remarks 1. Backfilling of trial pit included replacing flint and sandstone cobbles to allow the old land drain to continue operating.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

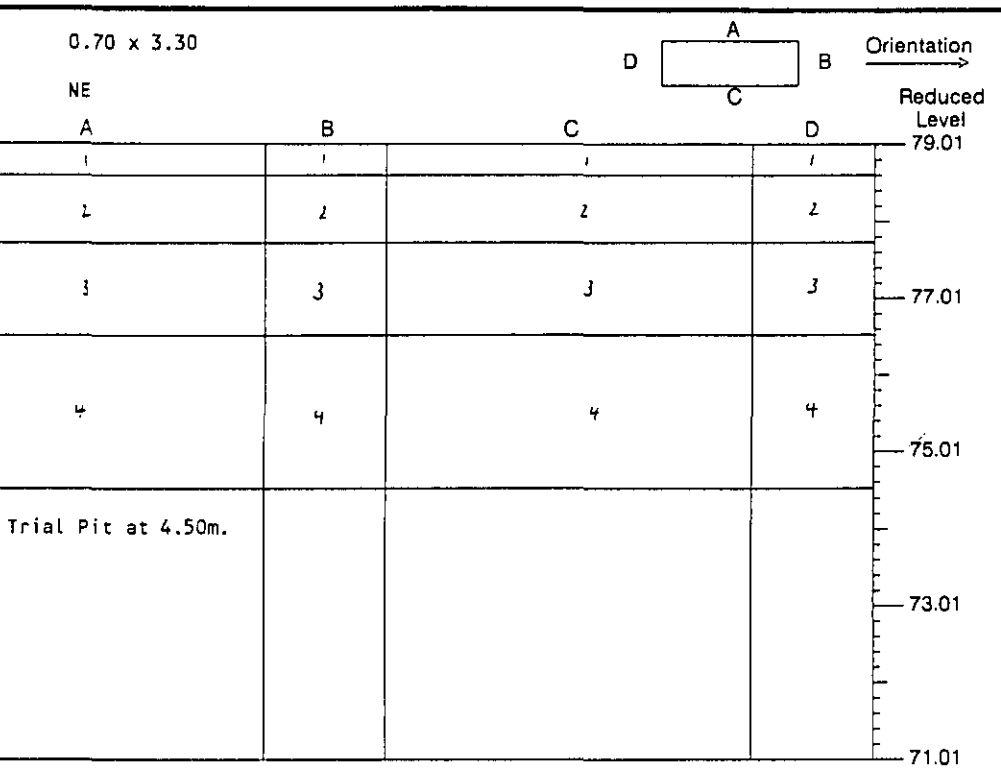
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP11

Dimensions : 0.70 x 3.30

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.40	1	MADE GROUND: Firm grey brown clay with occasional straw, rootlets and a little subangular, fine to medium flint gravel.
0.40-1.30	2	Soft orange brown slightly sandy, very silty clay with rare subangular to subrounded, fine gravel of chalk and flint. Below 0.70m: becoming firm.
1.30-2.50	3	Stiff grey and orange brown very closely fissured CLAY with some gravel of siltstone and ironstone and some clay lithorelicts. Some polished shear surfaces.
2.50-4.50	4	Stiff blue grey extremely closely fissured CLAY with abundant silty mudstone lithorelicts and occasional gravel size ironstone nodules. Some polished shear surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.80	BX2	
0.70	V(H)	72,80,66 kPa
1.30	D	
1.40-1.80	BX2	
1.80	V(H)	88,92,98 kPa
2.50	D	
2.60-2.90	BX2	
4.00-4.20	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	1.40	Slow inflow

Ground Level 79.009 m OD
Coordinates 475908.87 mE
254553.52 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

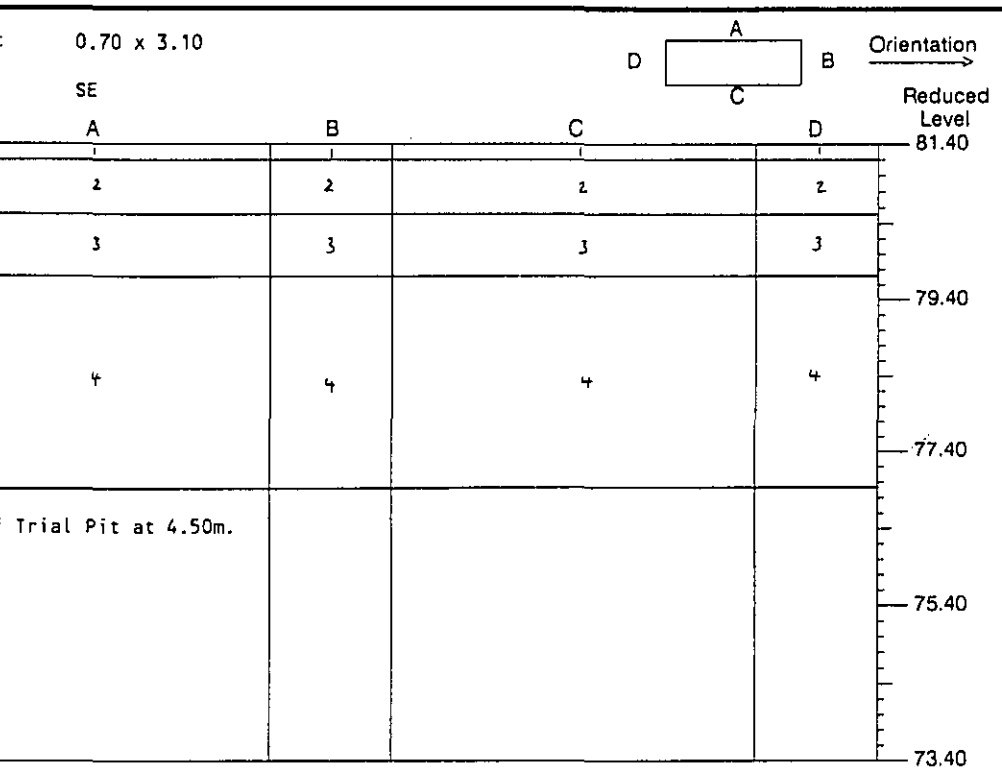
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP12

Dimensions : 0.70 x 3.10

Orientation : SE



Strata

Depth (m)	No.	Description
0.00-0.20	1	Soft brown clayey TOPSOIL with many roots and rootlets.
0.20-0.90	2	Firm light brown occasionally mottled orange brown CLAY with some roots and rootlets and rare subangular, fine to medium flint gravel.
0.90-1.70	3	Soft orange brown sandy CLAY with much gravel of chalk and flint. Occasional chalk and flint cobbles.
1.70-4.50	4	Stiff grey and grey brown mottled CLAY with some gravel of chalk and flint. Occasional chalk and flint cobbles, roots and rootlets. Below 2.50m: becoming very stiff and grey in colour.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.70	BX2	
0.80	V(H)	68,76,70 kPa
0.90	D	
1.00-1.40	BX2	
1.80	D	
1.90-2.20	BX2	
2.70-3.00	B	
4.00	D	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Collapsing 0.90 - 1.70m

Groundwater

No.	Struck	Behaviour
1	0.90	Moderate inflow

Ground Level 81.397 m OD
Coordinates 476024.78 mE
254312.59 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

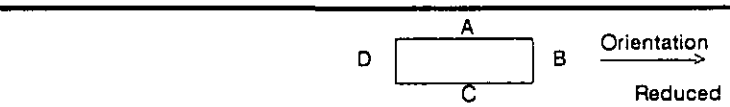
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

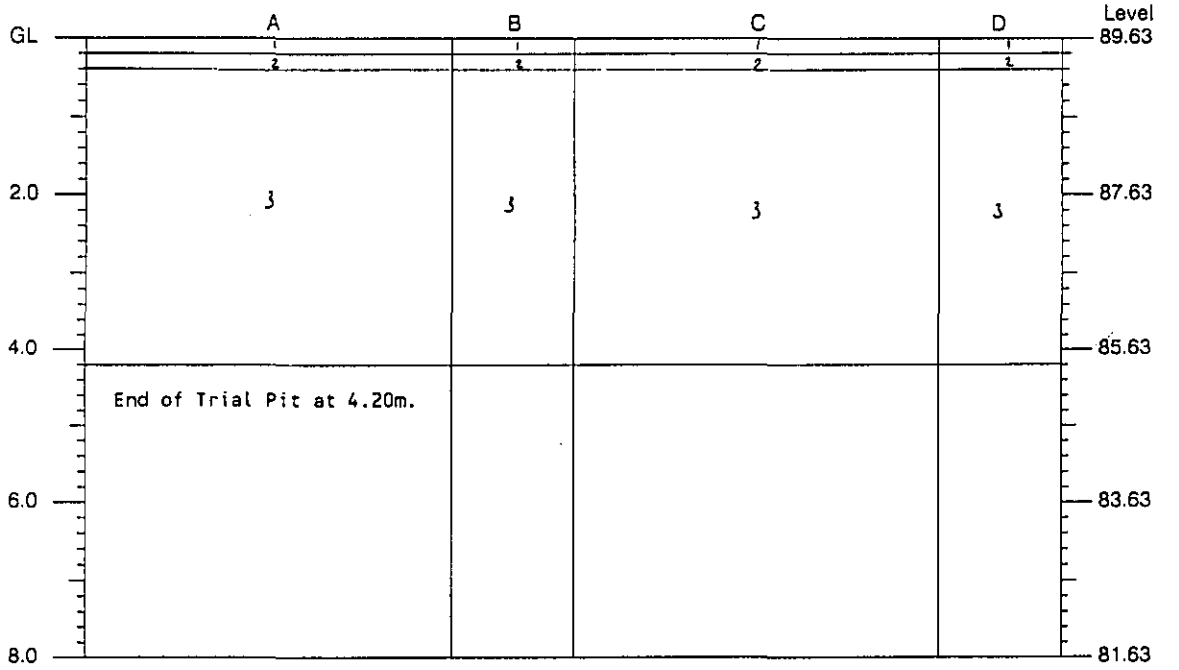
Contract 118488

Trial Pit TP13

Dimensions : 0.70 x 3.30

Orientation : SE





Strata

Depth (m)	No.	Description
0.00-0.20	1	Grass over soft clayey TOPSOIL with some roots, rootlets and decaying leaf matter.
0.20-0.40	2	Soft to firm orange brown very silty CLAY with some gravel of chalk and flint. Occasional rootlets.
0.40-4.20	3	Firm to stiff grey brown and grey very silty CLAY with a little sand and a little chalk and flint gravel. Occasional rootlets. Below 0.90m: becoming grey, very stiff and closely fissured with occasional chalk cobbles and boulders and gravel to cobble size ironstone nodules. Grey brown staining along fissure surfaces. Below 2.80m: with occasional siltstone and sandstone cobbles. Below 3.90m: grey in colour with a little grey brown staining on fissure surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.25	D	
0.60-0.90	BX2	
0.80	V(H)	Too gravelly
1.20	D	
1.80-2.00	B	
2.50	D	
3.00-3.20	BX2	
4.00-4.20	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
		Not encountered during excavation

Ground Level 89.631 m OD
Coordinates 476245.41 mE
254153.51 mN

Logged by CM
Checked by CM

Remarks

1. Hard digging due to very stiff clay.
2. Pit terminated at 4.20m due to very slow excavation.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

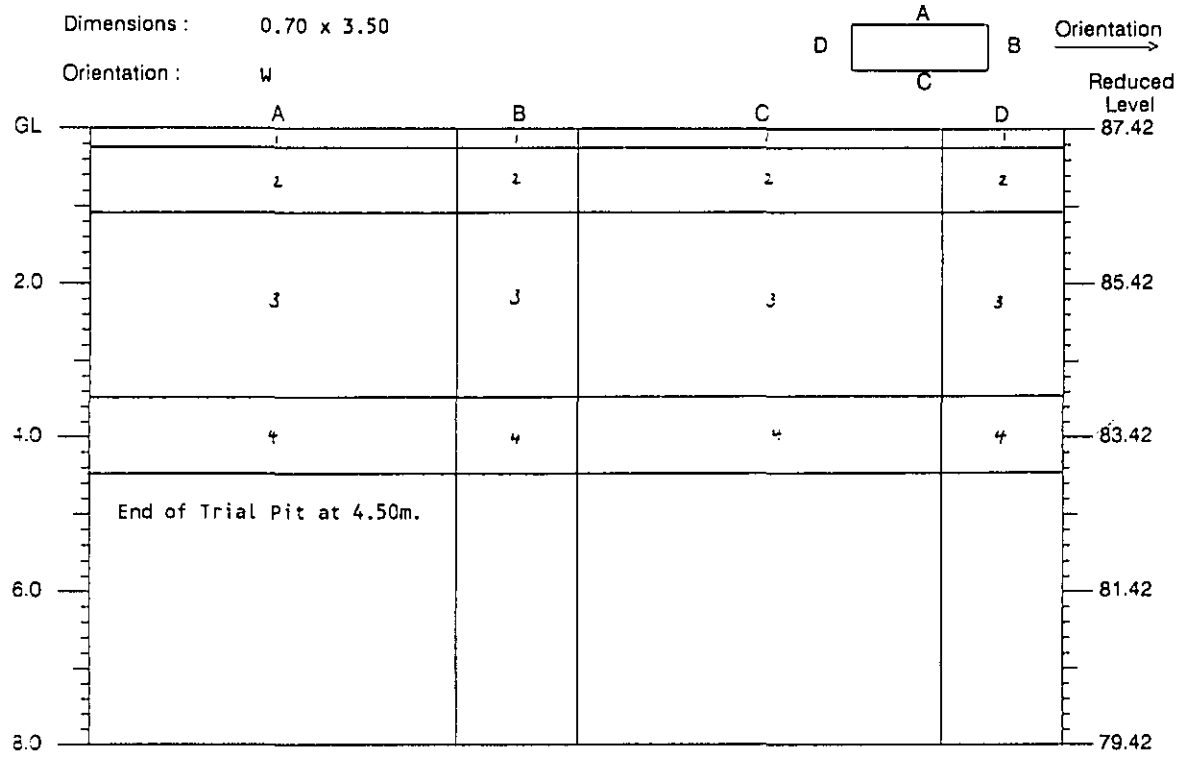
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP14

Dimensions : 0.70 x 3.50

Orientation : W



Strata

Depth (m)	No.	Description
0.00-0.25	1	Soft grey brown very silty, clayey TOPSOIL with many rootlets and roots.
0.25-1.10	2	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint. Occasional roots and rootlets and occasional cobbles of chalk. Below 0.60m: becoming mottled light grey.
1.10-3.50	3	Stiff pale brown and grey very closely fissured, occasionally very silty CLAY with some gravel of chalk, flint and ironstone. Occasional chalk and sandstone cobbles and cobble size ironstone nodules. Below 2.50m: becoming brown and grey in colour.
3.50-4.50	4	Very stiff grey occasionally slightly sandy CLAY with occasional subrounded, fine to coarse chalk and flint gravel.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.10-0.25	B	
0.40	D	
0.60	V(H)	76,76,72 kPa
0.60-0.90	BX2	
1.30	D	
1.70-2.00	BX2	
1.90	V(H)	88,94,88 kPa
3.00-3.30	B	
3.60	D	
4.00-4.50	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 87.417 m OD
Coordinates 475710.87 mE
255030.02 mN

Logged by CM
Checked by CM

Remarks 1. Hand vane test below 1.20m was carried out on large excavated lump.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

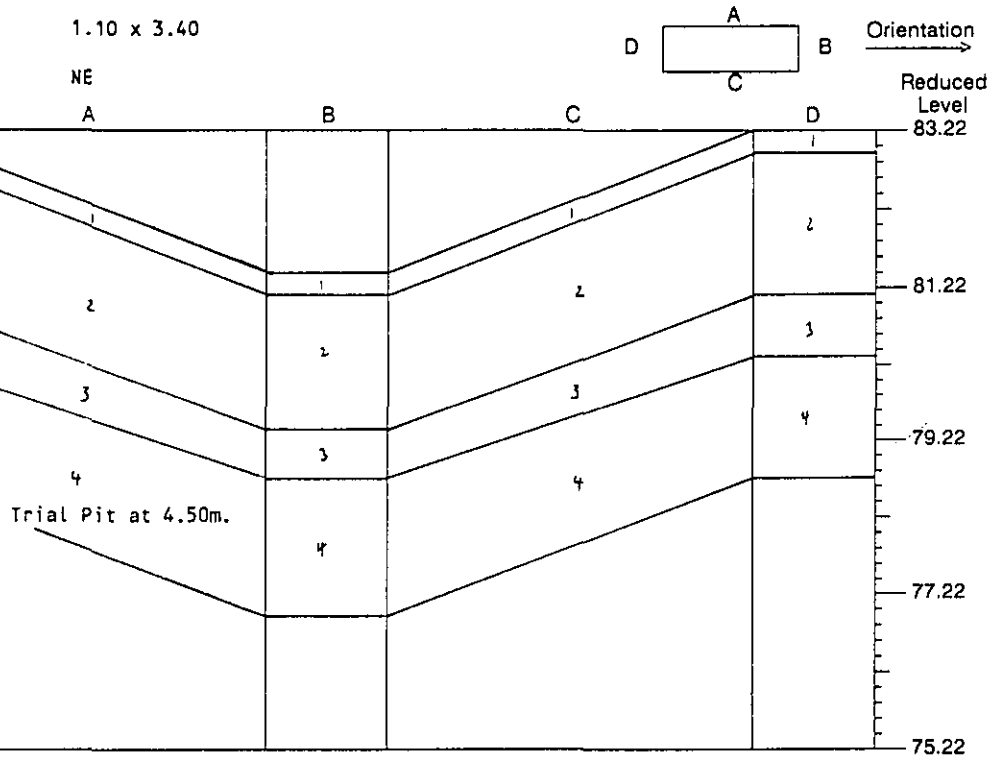
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP15

Dimensions : 1.10 x 3.40

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Grass over soft brown topsoily clay with occasional subangular, fine flint and occasional rounded, fine to coarse quartz gravel. Many rootlets.
0.30-2.10	2	MADE GROUND: Pale creamy brown silty, clayey and sandy gravel to boulder size fill comprising; silty sandstone, siltstone, chalk, flint and bricks. Some rootlets. Below 1.70m: becoming very clayey with occasional pockets of grey brown clay.
2.10-2.90	3	Firm to stiff grey very silty closely fissured organic CLAY with occasional rootlets and dark staining along fissue surfaces.
2.90-4.50	4	Firm brown, grey and grey brown, occasionally mottled orange brown, occasionally slightly sandy CLAY with a little gravel of chalk and flint.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.80	BX2	
1.80	D	
2.20	D	
2.30-2.50	BX2	
3.00	D	
3.10-3.40	BX2	
4.00-4.20	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Collapsing to 2.10

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.221 m OD
Coordinates 476025.16 mE
254426.55 mN

Logged by CM
Checked by CM

Remarks
1. Trial pit excavated into motorway embankment.
2. Original ground level appears to be approximately 2.10m (level with foot of embankment).

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

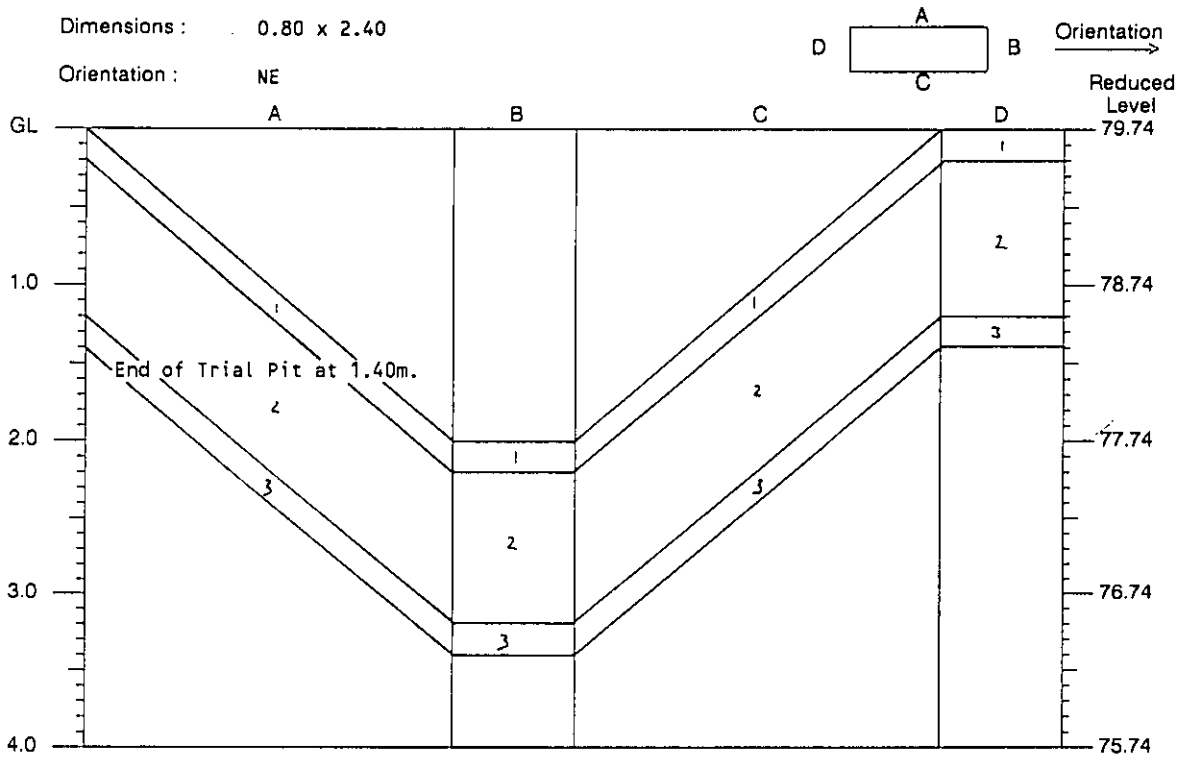
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP16

Dimensions : 0.80 x 2.40

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.20	1	MADE GROUND: Soft to firm greyish brown topsoily clay with occasional gravel of sandstone, flint and chalk with some roots and rootlets.
0.20-1.20	2	MADE GROUND: Soft to firm orange brown slightly sandy clay with a little gravel of chalk, quartz and flint. Some roots and rootlets.
1.20-1.40	3	Firm grey brown very silty, occasionally slightly sandy organic CLAY with occasional gravel size pockets of black clayey sand. Some rootlets.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.80	BX2	
1.30	D	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	1.20	Slow inflow

Ground Level 79.744 m OD
Coordinates 475847.60 mE
254586.47 mN

Logged by CM
Checked by CM

Remarks

1. Trial pit excavated into motorway embankment to determine make-up of embankment.
2. Pit terminated once natural ground was reached.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP17

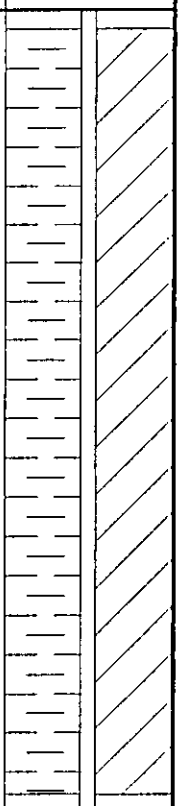
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	8.90	27/01 DRY	49
11.00	D			
11.50-11.90	SD			50/ 250
12.50	D			
13.10-13.48	SD	8.90	DRY	50/ 225
14.30	D			
14.70-15.02	SD	8.90	DRY	50/ 170

Strata

Description	Depth (Thickness)	Level
	(6.82)	
End of Borehole.	15.02	68.11

Legend



Equipment: Cable percussion

Borehole Dia (mm) 150 to 15.02m

Casing Dia (mm) 150 to 8.90m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.13 m OD

Coordinates 475580.119 mE
254862.973 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 15(2 of 2)

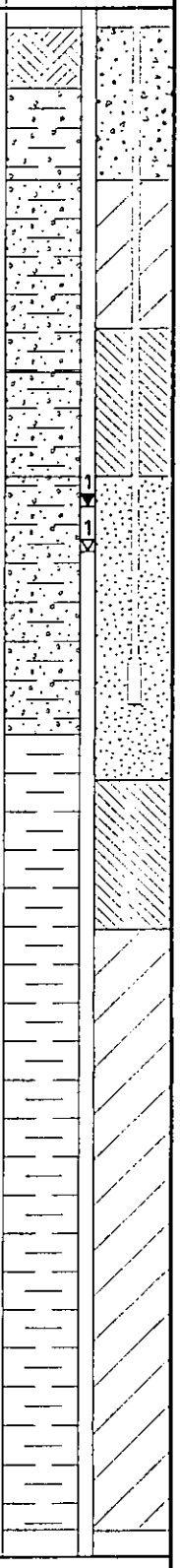
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			15/01 1999	
0.00			18/01	
0.50-0.95	SD	NIL	DRY	9
0.50-1.00	B			
1.50-1.95	U(29)	1.00	DRY	
1.95-2.10	D			
2.30	D			
2.50-2.95	SD	1.00	DRY	21
2.50-3.00	B			
3.00	D			
3.50-3.95	SD	1.50	3.50	25
3.50-4.00	B			
3.50	W			
4.50-4.95	U(37)			
4.95-5.10	D			
5.50-5.95	SD	4.00	DRY	29
5.50-6.00	B			
6.50	D			
7.00-7.45	U(52)	4.00	DRY	
7.45-7.60	D			
8.00	D			
8.50-8.95	SD	4.00	DRY	33
8.50-9.00	B			
9.40-9.85	U(65)	4.00	DRY	
9.85-10.00	D			
10.00			19/01	

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL**	G.L. (0.40)	79.50
Firm brown mottled grey CLAY with a little subrounded fine chalk and siltstone gravel. Occasional rootlets.	0.40 (0.60)	79.10
Firm brown mottled grey slightly sandy CLAY with a little subangular to subrounded fine to medium chalk and quartzitic gravel.	1.00 (1.30)	78.50
Stiff grey brown slightly sandy CLAY with some subangular to subrounded fine to medium chalk and flint gravel.	2.30 (0.70)	77.20
Stiff grey slightly sandy CLAY with a little subrounded fine chalk, siltstone, and mudstone gravel. From 3.50m to 3.60m: siltstone cobble	3.00 (1.70)	76.50
Stiff grey CLAY with occasional subrounded fine siltstone gravel.	4.70 (5.30)	74.80
At 8.50m: light grey siltstone lamination		
Below 9.40m: very stiff		
End of Borehole.	10.00	69.50

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.00m

Casing Dia (mm): 150 to 4.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	3.50	Rose to 3.20m in 20 mins 3.40/3.30/3.25 in 5/10/15 mins	

Ground Level 79.50 m OD

Coordinates 475784.470 mE 254530.069 mN

Drilled by MN

Logged by CM

Checked by CM

Remarks 1. On completion of the borehole a 19mm piezometer was installed with the tip at 4.50m and the sand response zone from 5.00 to 3.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 16(1 of 1)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.30	B		08/01 1999	
0.30-0.70	B			
0.50	W			
0.70-1.20	B			
1.20-1.65	SD	1.20	0.50	22
1.90	D			
2.20-2.65	U(41)	2.20	WET	
2.65	D			
2.90	D			
3.20-3.65	U(46)	3.00	DRY	
3.65	D			
3.90	D			
4.20-4.65	SD	3.00	DRY	36
4.90	D			
5.20-5.65	U(58)	3.00	DRY	
5.65	D			
6.10	D			
6.60-7.05	SD	3.00	DRY	43
7.60	D			
8.10-8.51	SD	3.00	DRY	50/ 255
9.10	D			
9.70-10.10	SD	3.00	DRY	50/ 235

Strata

Description	Depth (Thickness)	Level
	G.L.	79.51
Firm dark brown slightly sandy CLAY with a little angular to subrounded fine to medium quartzitic gravel. Occasional plant remnants.	0.30	79.21
	(0.40)	
Firm light brown slightly sandy CLAY with a little angular to subrounded fine to medium quartzitic gravel.	0.70	78.81
	(0.60)	
Firm to stiff light brown CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.30	78.21
Stiff grey mottled brown CLAY with occasional silt partings.	(0.90)	
Below 1.90m: a little angular fine to medium gravel size selenite crystals.	2.20	77.31
Stiff grey CLAY.	(0.70)	
Stiff becoming very stiff blue grey CLAY with occasional subrounded fine to medium siltstone gravel.	2.90	76.61
From 5.20 to 6.10m: occasional silt partings.	(7.20)	

Legend: 1

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.10m

Casing Dia (mm): 150 to 3.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	0.30	Slow seepage	

Ground Level: 79.51 m OD

Coordinates: 475943.399 mE, 254522.381 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. Service inspection pit hand excavated to 1.20m.
2. A little water was added between 2.80 and 9.70m to assist drilling.
3. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 17(1 of 2)

Sampling					Strata			
Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Legend
			08/01			10.10	69.42	
					End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.10m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 79.51 m OD

Coordinates 475943.399 mE
254522.381 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 17(2 of 2)

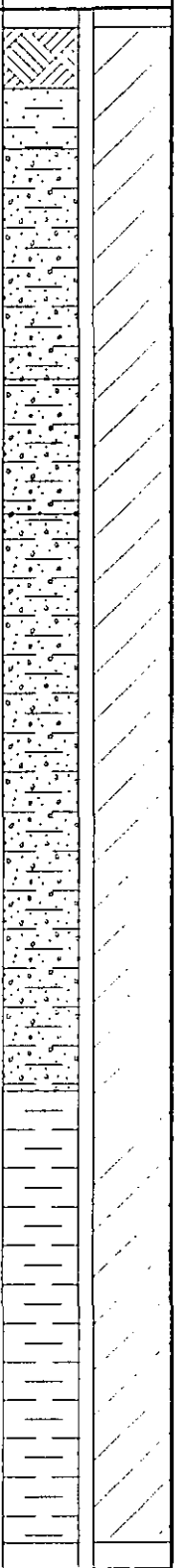
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			14/01 1999	
0.40	D			
0.50-0.95	SD		DRY	14
0.50-1.00	B			
0.80	D			
1.50-1.95	U(66)	1.50	DRY	
1.95-2.10	D			
2.30	D			
2.50-2.95	SD	1.50	DRY	37
2.50-3.00	B			
3.50-3.95	U(59)	1.50	DRY	
3.95-4.10	D			
4.50-4.95	SD	1.50	DRY	34
5.50-5.95	U(65)	1.50	DRY	
5.95-6.10	D			
6.50	D			
7.00-7.45	SD	1.50	DRY	31
7.00-7.50	B			
8.00	D			
8.50-8.95	SD	1.50	DRY	39
8.50-9.00	B			
9.50	D			

Strata

Description	Depth (Thickness)	Level
Brown TOPSOIL**	G.L.	81.49
	(0.40)	
Desiccated firm light brown slightly sandy CLAY.	0.40	81.09
	(0.40)	
Desiccated stiff to very stiff grey brown slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	0.80	80.69
Below 1.70m: brown mottled grey	(1.50)	
Very stiff grey mottled brown slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel	2.30	79.19
	(0.90)	
Very stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	3.20	78.29
Below 4.50m: occasional silty fine sand partings	(3.80)	
Stiff to very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	7.00	74.49
	(3.45)	

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 1.50m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 81.49 m OD

Coordinates 475947.328 mE
254412.435 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 18(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	1.50	14/01 DRY	36

Strata

Description	Depth (Thickness)	Level
End of Borehole.	10.45	71.04

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.45m

Casing Dia (mm) 150 to 1.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 81.49 m OD
Coordinates 475947.328 mE
254412.435 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 18(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01 1999	
0.50-0.95	SD			5
0.50-0.95	B			
1.30	D			
1.50-1.95	U(24)	1.50		
1.95-2.10	D			
2.50-2.95	SD	2.50		11
2.50-3.00	B			
3.00	D			
3.50	SD	3.00		50/ 75

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Soft brown mottled dark brown slightly sandy clay with occasional angular to subrounded fine to medium chalk gravel. Occasional rootlets.	G.L. (1.30)	
MADE GROUND: Firm grey mottled brown slightly sandy clay with occasional angular to subrounded fine to medium chalk gravel.	1.30 (1.00)	
MADE GROUND: Firm brown mottled grey clay with a little angular fine to medium chalk and quartzitic gravel.	2.30 (1.20)	
MADE GROUND: Concrete.	3.50	
End of Borehole.	3.80	

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 3.80m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Drilled by MN
Logged by DS
Checked by CM

Remarks

1. Chiselling from 3.50m to 3.80m (1 hour).
2. Borehole terminated on concrete obstruction and backfilled with arisings.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 19(1 of 1)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01 1999	
0.50-0.95 0.50-1.00	SD B	NIL	DRY	7
1.40 1.50-1.95	D U(23)	1.50	DRY	
1.95-2.10	D			
2.30 2.50-2.95 2.50-3.00	D SD B	2.50	DRY	10
2.90	D			
3.50-3.95	U(41)	3.00	DRY	
3.95-4.10	D			
4.50-4.95 4.50-5.00	SD B	3.00	DRY	21

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL.**	G.L.	79.98
Soft light brown mottled dark brown slightly sandy CLAY with occasional angular to subrounded fine to medium quartzitic gravel. Occasional rootlets.	0.30 (1.10)	79.68
Stiff light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Below 1.80m: grey mottled dark brown.	1.40 (0.90)	78.58
Firm to stiff grey slightly sandy CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Between 3.50 and 3.95m: very stiff.	2.30 (2.70)	77.68
End of Borehole.	5.00	74.98

Legend

Equipment: Cable percussion

Borehole Dia (mm) 150 to 5.00m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 79.98 m OD

Coordinates 476027.130 mE
254437.626 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 19A(1 of 1)

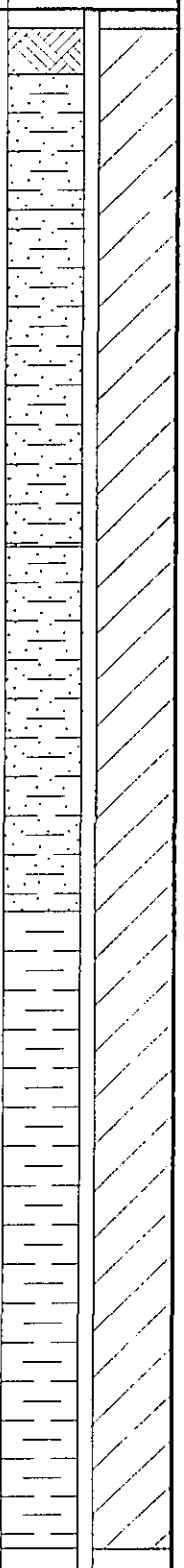
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			08/01 1999	
0.50-0.95 0.50-1.00	SD B		DRY	7
1.20	D			
1.50-1.95	U(21)	1.00	DRY	
1.95-2.10	D			
2.50-2.95 2.50-3.00	SD B	2.00	DRY	11
3.40	D			
3.50-3.95	U(27)	3.00	DRY	
3.95-4.10	D			
4.10			11/01	
4.50-4.95 4.50-5.00	SD B	3.00	DRY	13
5.50-5.95	U(37)	3.00	DRY	
5.95-6.10	D			
6.50	D			
7.00-7.45 7.00-7.50	SD B	3.00	DRY	28
8.00	D			
8.50-8.95	U(48)	3.00	DRY	
8.95-9.10	D			
9.50	D			

Strata

Description	Depth (Thickness)	Level
Brown clayey TOSPOIL.**	G.L.	82.87
Soft brown slightly sandy CLAY with occasional angular fine quartzitic gravel.	0.30 (0.90)	82.57
Firm light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.20 (2.20)	81.67
Stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and siltstone gravel.	3.40	79.47
Between 4.50 and 4.95m: firm	(2.40)	
Below 5.50m: very stiff		
Stiff to very stiff blue grey CLAY with occasional subrounded fine to medium siltstone gravel.	5.80	77.07
	(4.65)	

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Ground Level 82.87 m OD
Coordinates 476110.303 mE
254382.358 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 20(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	3.00	11/01 DRY	35

Strata

Description	Depth (Thickness)	Level	Legend
End of Borehole.	10.45	72.42	

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.45m

Casing Dia (mm) 150 to 3.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.87 m OD

Coordinates 476110.303 mE
254382.358 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 20(2 of 2)

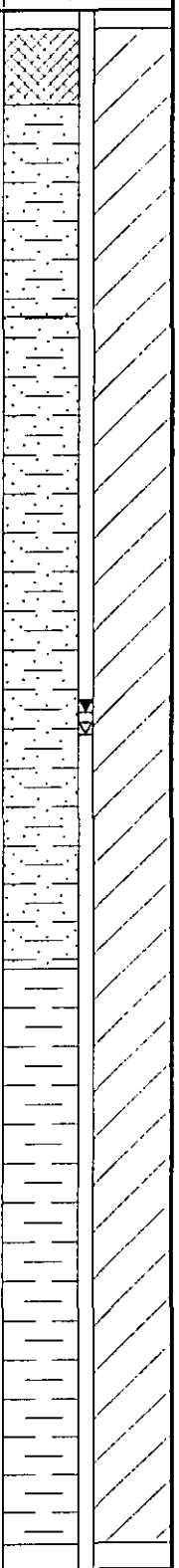
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.50	B		08/01 1999	
0.00			11/01	
0.50-1.20	B			
1.20-1.65	SD	1.20	DRY	15
1.20-1.65	B			
1.90	D			
2.20-2.65	U(46)	2.20	DRY	
2.90	D			
3.20-3.65	SD	3.20	DRY	32
3.20-3.65	B			
3.90	D			
4.20-4.65	U(86)	3.20	DRY	
4.90	D			
5.20-5.65	SD	3.20	WET	39
5.20-5.65	B			
6.20	D			
6.70-7.13	SD	3.20	WET	50/ 275
6.70-7.13	B			
7.70	D			
8.20-8.59	SD	3.20	DAMP	50/ 235
8.20-8.59	B			
9.20	D			
9.70-10.07	SD	3.20	DAMP	50/ 220
9.70-10.07	B			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Firm dark brown slightly sandy clay with occasional angular fine gravel size brick fragments.	G.L. (0.50)	82.95
Firm light brown sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	0.50 (1.40)	82.45
Firm to stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Below 3.90m: occasional silt partings.	1.90 (4.30)	81.05
Very stiff grey CLAY with occasional subrounded fine to coarse siltstone gravel.	6.20	76.75

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.010m

Casing Dia (mm): 150 to 3.20m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.65	Rose to 4.50m in 20 mins	

Ground Level: 82.95 m OD

Coordinates: 476164.533 mE, 254333.159 mN

Drilled by: BG

Logged by: DS

Checked by: CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 21(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			11/01	
10.70	D			
11.20-11.53	SD	3.20	WET	50/
11.20-11.53	B			180
12.20	D			
12.80-13.13	SD	8.20	WET	50/
12.80-13.13	B			180
14.00	D			
14.70-15.01	SD	3.20	WET	50/
14.70-15.01	B			160
15.01			12/01	

Strata

Description	Depth (Thickness)	Level
	(8.50)	
Grey SILTSTONE, with numerous fossil shell fragments, very weak.	14.70	68.25
End of Borehole.	15.01	67.94

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.010m

Casing Dia (mm): 150 to 3.20m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.95 m OD

Coordinates 476164.533 mE
254333.159 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 21(2 of 2)

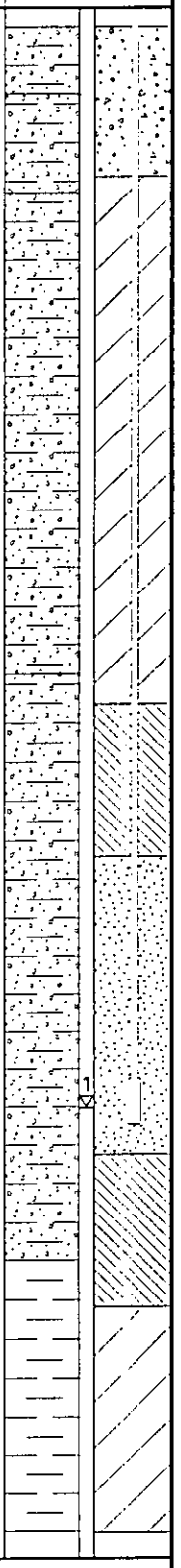
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.45	B		13/01 1999	
0.45-1.10	B			
1.10-1.55	U(19)F			
1.10-1.60	B			
1.60-2.05	U(25)	1.60	DRY	
2.30	D			
2.60-3.05	SD	2.60	DRY	17
2.60			14/01	
2.60-3.05	B			
3.30	D			
3.60-4.05	SD	3.20	DRY	32
3.60-4.05	B			
4.30	D			
4.50-4.95	U(55)	3.20	DRY	
5.50	D			
5.95-6.40	SD	3.20	DRY	38
5.95-6.40	B			
7.00	D			
7.20-7.65	SD	3.20	DAMP	36
7.20-7.65	B			
8.20	D			
8.50-8.92	SD	3.20	WET	50/ 270
8.50-8.92	B			
9.30	D			
9.70-10.10	SD	3.20	WET	50/ 250
9.70-10.10	B			

Strata

Description	Depth (Thickness)	Level
Firm dark brown slightly sandy CLAY with a little angular fine to coarse quartzitic gravel. Occasional plant remnants.	G.L. (0.45)	82.92
Firm light brown slightly sandy CLAY with occasional angular to subrounded fine quartzitic gravel.	0.45 (0.65)	82.47
Firm becoming stiff brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	1.10 (3.20)	81.82
Below 3.60m: very stiff		
Very stiff grey slightly sandy CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Occasional silty fine sand partings.	4.30 (3.90)	78.62
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	8.20 (1.90)	74.72

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.10m

Casing Dia (mm): 150 to 3.20m

Groundwater

No.	Struck	Behaviour	Sealed
1	7.20	Slow seepage	

Ground Level 82.92 m OD

Coordinates 476112.306 mE, 254255.195 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

1. On completion of the borehole a 19mm piezometer was installed with the tip at 7.30m and the sand response zone from 7.50 to 5.50m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 22(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			14/01	

Strata

Description	Depth (Thickness)	Level	Legend
	10.10	72.82	
End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.10m

Casing Dia (mm) 150 to 3.20m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.92 m OD

Coordinates 476112.306 mE
254255.195 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 22(2 of 2)

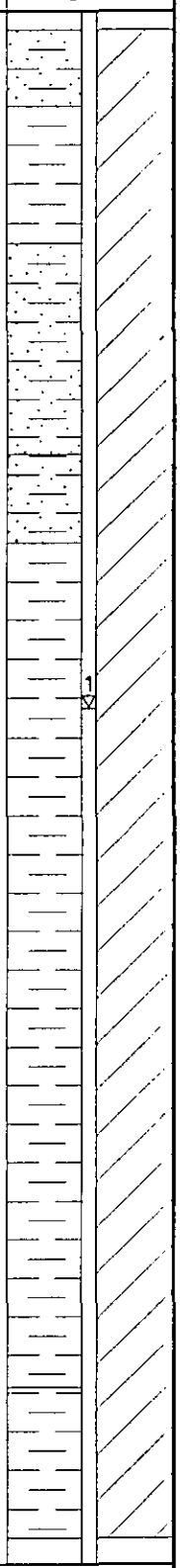
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.50	B		12/01 1999	
0.50-1.20	B			
1.20-1.65	U(24)F	1.20	DRY	
1.20-1.75	B			
1.75-2.20	S	1.70	DAMP	5
1.75-2.40	B			
2.40-2.85	SD	2.40	DAMP	20
2.40-3.00	B			
3.40	D			
3.50-3.95	U(50)	3.20	DRY	
2.30	W			
3.95			13/01	
4.25	D			
4.50-4.95	SD	4.20	WET	31
4.50-4.95	B			
5.50	D			
6.00-6.45	U(56)	4.50	WET	
7.00	D			
7.50-7.95	SD	4.50	DAMP	45
7.50-7.95	B			
8.50	D			
9.00-9.43	SD	4.50	DAMP	50/ 275
9.00-9.43	B			

Strata

Description	Depth (Thickness)	Level
Firm dark brown slightly sandy CLAY with occasional plant remnants.	G.L.	89.19
	(0.50)	
Firm light brown CLAY with occasional angular to subrounded fine to medium chalk and quartzitic gravel.	0.50	88.69
	(0.90)	
Stiff light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel. Occasional sand partings. Between 1.75 and 2.20m: soft.	1.40	87.79
	(1.40)	
Firm brown slightly sandy CLAY with some angular to subrounded fine to medium chalk and quartzitic gravel.	2.80	86.39
	(0.60)	
Stiff becoming very stiff grey CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	3.40	85.79
	(5.60)	
Below 8.50m: fine to coarse gravel.		
Very stiff grey CLAY with a little angular to subrounded fine to coarse siltstone gravel.	9.00	80.19

Legend



Equipment: Cable persussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 4.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.50	Slight seepage	

Ground Level: 89.19 m OD

Coordinates: 476299.705 mE, 254210.801 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. A little water was added below 9.50m to assist drilling.
2. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 23(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			13/01	
10.00	D			
10.50-10.91	SD	4.50	DRY	50/
10.50-10.91	B			260
11.50	D			
12.20-12.54	SD	4.50	DRY	50/
12.20-12.54	B			190
13.20	D			
13.70-14.03	SD	4.50	DRY	50/
13.70-14.03	B			175
14.50	D			
14.70-15.00	SD	4.50	DRY	50/
14.70-15.00	B			150

Strata

Description	Depth (Thickness)	Level
As Sheet 1.	(6.00)	
End of Borehole.	15.00	74.19

Legend

Equipment: Cable persussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 4.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 89.19 m OD

Coordinates 476299.705 mE
254210.801 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

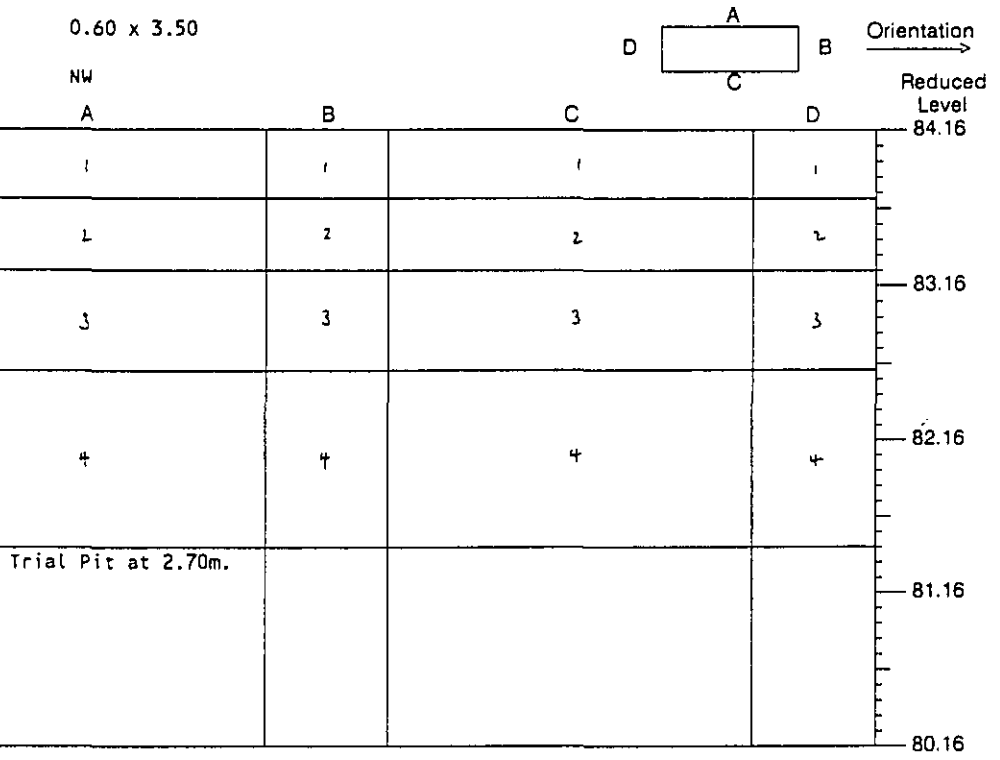
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 23(2 of 2)

Dimensions : 0.60 x 3.50

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.45	1	MADE GROUND: Cropped field over soft brown, slightly sandy, clayey topsoil with rare subangular, fine to medium gravel size brick fragments and occasional subrounded, fine to medium quartz gravel.
0.45-0.90	2	Possible MADE GROUND: Firm light brown slightly sandy clay with a little subrounded, fine to medium quartz gravel. Occasional roots and rootlets.
0.90-1.55	3	Orange brown slightly clayey, fine to medium SAND with a little subrounded, fine to medium ironstone and sandstone gravel.
1.55-2.70	4	Pale orange brown silty, fine to medium SAND with some subrounded, fine to medium ironstone, sandstone and mudstone gravel. Occasional thin bands of yellow brown sand.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.45	D	
0.60	V(H)	72,68,78 kPa
1.00	D	
1.30-1.50	BX2	
1.60	D	
1.80-2.10	BX2	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 2.10m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 84.160 m OD
Coordinates 475095.02 mE
255162.84 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

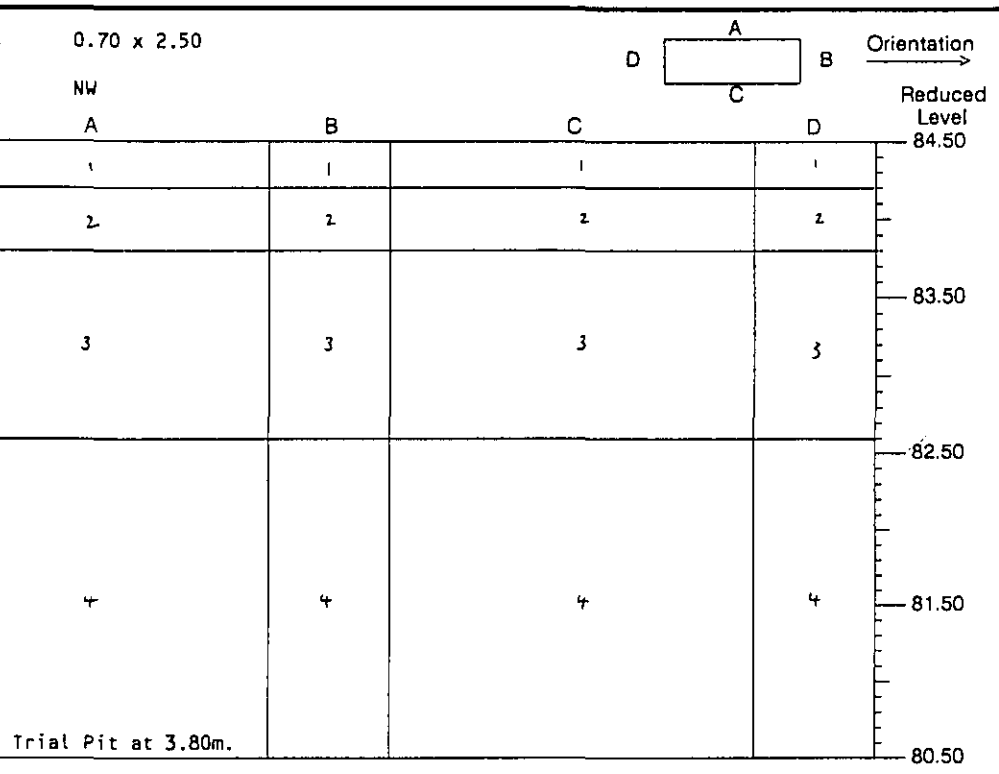
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP1

Dimensions : 0.70 x 2.50

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Grass over soft brown clayey TOPSOIL with rare subangular, fine flint gravel and some rootlets.
0.30-0.70	2	Soft to firm slightly sandy orange brown CLAY with occasional subangular, fine to medium flint gravel, occasional rootlets and occasional decaying leaf matter.
0.70-1.90	3	Firm to stiff grey brown CLAY with a little subangular, fine to coarse flint gravel, occasional orange brown clayey sand partings, and gravel to cobble size pockets. Abundant polished slip surfaces, occasional roots and decaying plant matter.
1.90-4.00	4	Orange brown fine to coarse SAND with some subrounded, fine to medium, occasionally platy ironstone and sandstone gravel. Below 3.30m: light orange very silty sand with a little gravel.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.70	BX2	
0.60	V(H)	58,72,70 kPa
0.80	D	
1.00-1.40	BX2	
2.00	D	
2.10-2.30	BX2	
2.80	D	
3.00-3.20	B	
3.40	D	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Collapsing below 3.80m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 84.499 m OD
Coordinates 475178.37 mE
255174.64 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to pit collapsing below 3.80m.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

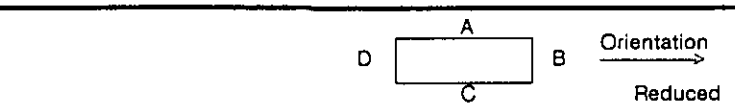
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

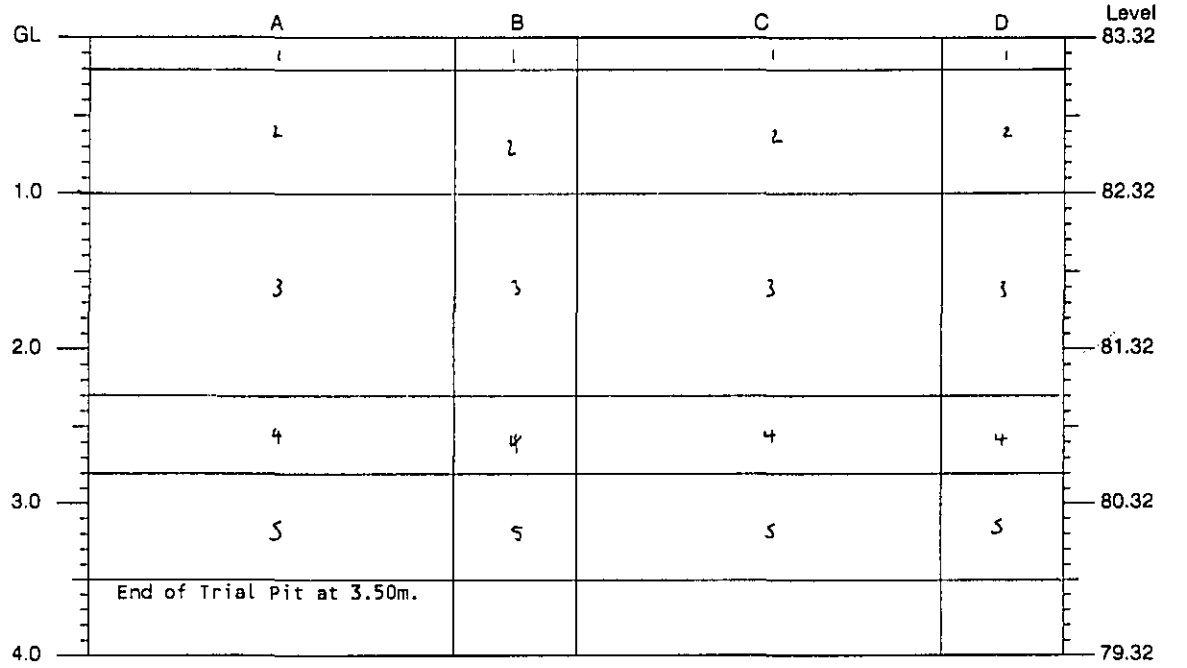
Contract 118488

Trial Pit TP3

Dimensions : 0.70 x 3.30

Orientation : NW





Strata

Depth (m)	No.	Description
0.00-0.20	1	MADE GROUND: Cropped field over soft brown slightly sandy, clayey topsoil with a little subangular to subrounded, fine to medium quartz, flint and occasional brick gravel. Some rootlets.
0.20-1.00	2	Possible MADE GROUND: Soft light brown very sandy CLAY with a little subangular to subrounded, fine to medium flint and quartz gravel. Occasional roots.
1.00-2.30	3	Orangey brown/light brown slightly clayey fine to coarse SAND with some subangular to subrounded, fine to coarse, quartz, sandstone, flint and ironstone gravel. Occasional cobbles of sandstone. Occasional roots and rootlets. Below 1.50m: with a little subrounded, fine to medium gravel of quartz, sandstone and ironstone.
2.30-2.80	4	Pale orange brown slightly clayey, fine to medium SAND, partially cemented with occasional cobble to boulder size pockets of clayey, light grey, fine to medium sand with some subangular to subrounded, fine ironstone gravel.
2.80-3.50	5	Pale brown very silty fine to medium SAND with a little subrounded, fine ironstone gravel.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.50-0.80	BX2	
1.10	D	
1.20-1.50	BX2	
1.50	D	
2.40	D	
2.40-2.60	BX2	
3.00	D	
3.10-3.30	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 2.20m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.320 m OD
Coordinates 475223.37 mE
255043.04 mN

Logged by CM
Checked by CM

Remarks

1. No obvious boundary between strata 2 and 3.
2. Pit terminated at 3.50m due to pit collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

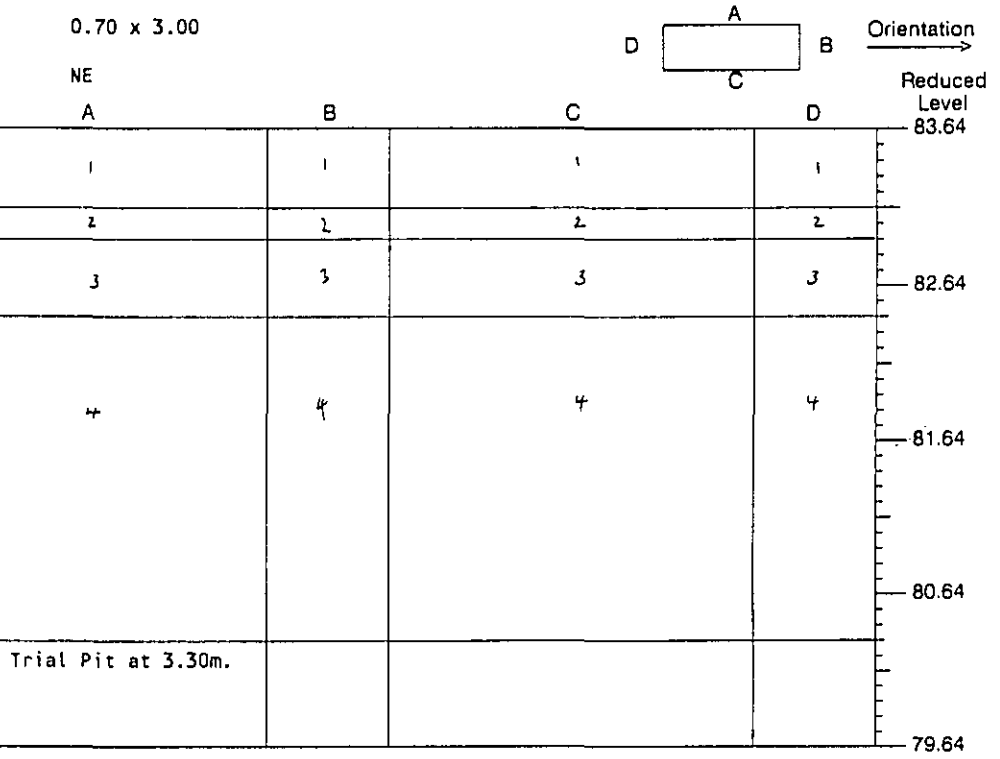
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP4

Dimensions : 0.70 x 3.00

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.50	1	MADE GROUND: Soft brown slightly sandy, clayey topsoil with a little subangular to subrounded, fine to medium chalk, flint and quartz gravel and occasional brick and pottery fragments. Some rootlets.
0.50-0.70	2	Soft orange brown very sandy CLAY with some subangular to subrounded, fine to medium flint, chalk, sandstone and quartz gravel.
0.70-1.20	3	Orange brown clayey fine to medium SAND with some subangular to subrounded, fine to medium flint, chalk, sandstone and quartz gravel.
1.20-3.30	4	Orange brown fine to coarse SAND with much gravel of chalk, flint and sandstone and occasional boulder size pockets of firm brown mottled orange brown gravelly, very silty clay and pale grey white very silty clay. Occasional cobbles of chalk. At 3.30m: gravel size pockets of grey boulder clay.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.60	D	
0.80	V(H)	Too gravelly
0.70	D	
0.70-1.00	BX2	
1.20	D	
1.80-2.20	BX2	
3.30	D	
3.00-3.20	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing below 1.10m

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.637 m OD
Coordinates 475305.91 mE
254961.51 mN

Logged by CM
Checked by CM

Remarks

1. Slow digging below 2.90m.
2. Pit terminated at 3.30m due to collapse.
3. Last bucket contained pockets of very stiff grey boulder clay.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

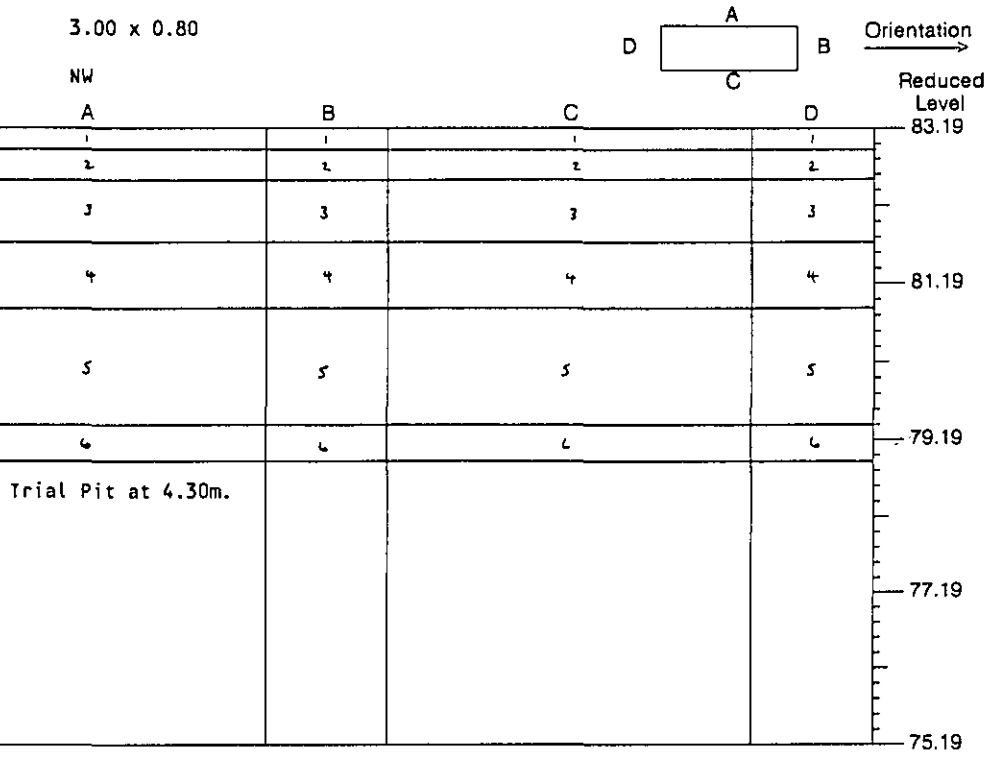
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP5

Dimensions : 3.00 x 0.80

Orientation : NW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Turf over dark brown silty fine to coarse SAND with a little angular to subrounded fine to medium quartzitic gravel. Occasional rootlets.
0.30-0.70	2	Orange brown clayey sandy angular to subrounded fine to coarse quartzitic, and flint GRAVEL. Occasional cobbles.
0.70-1.50	3	Firm brown to light brown sandy CLAY with a little to some angular to subrounded fine to coarse flint, quartzitic, and ironstone gravel. Occasional cobbles.
1.50-2.35	4	Firm light brown slightly sandy SILT with occasional very clayey silt pockets (<200mm).
2.35-3.80	5	Light brown clayey fine to coarse SAND with some angular to subrounded fine to coarse quartzitic, flint, and ironstone gravel. Occasional cobbles. Occasional firm light brown very silty clay pockets with a little gravel (<300mm). Below 3.00m: very dense with very stiff clay pockets
3.80-4.30	6	Very stiff grey brown slightly sandy CLAY with a little angular to subrounded fine to coarse chalk and quartzitic gravel.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.40	D	
0.50	D	
0.80	D	
1.00	B	
1.00	V(H)	49,32,52 kPa
1.60	D	
2.00	B	
2.50	D	
2.80	B	
3.50	B	
3.90	D	
4.00	B	

Date of Excavation 26/01/99
Equipment JC8 360 Tracked excavator
Stability All faces stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.191 m OD
Coordinates 475363.51 mE
255020.82 mN

Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

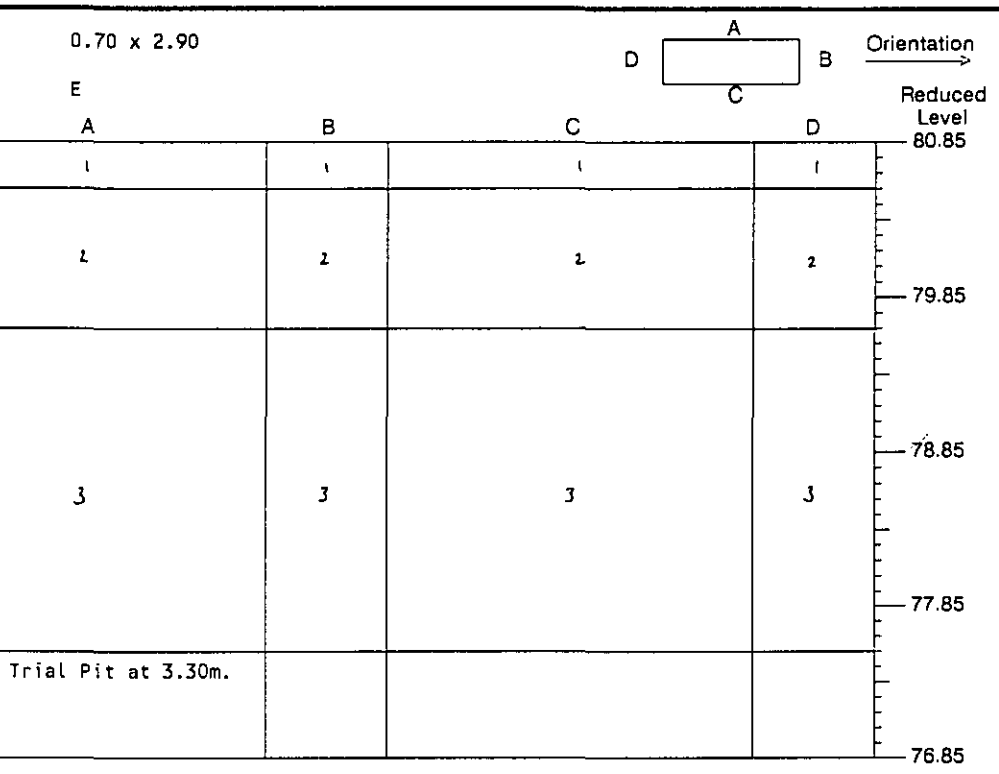
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP6

Dimensions : 0.70 x 2.90

Orientation : E



Strata

Depth (m)	No.	Description
0.00-0.30	1	Grass over light brown very silty, clayey TOPSOIL with a little fine to medium gravel of quartz and flint. Some roots and rootlets.
0.30-1.40	2	Soft orange brown slightly sandy CLAY with a little subangular to subrounded, fine to medium flint, quartz, sandstone, ironstone and chalk gravel. Some rootlets and occasional carbonised plant remains. Below 1.20m: orange brown slightly clayey, very silty, fine to medium sand with occasional light grey bands.
1.40-3.30	3	Stiff grey brown and grey CLAY with some gravel of chalk, flint, sandstone and siltstone. Occasional cobbles and boulders of chalk and siltstone. Occasional gravel to cobble size pockets of brown clayey sand. Below 2.40m: becoming very stiff and grey in colour, closely fissured with grey brown and red brown staining on fissure surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.60	V(H)	42,56,50 kPa
0.50-0.80	BX2	
1.20	D	
1.40	D	
1.60	V(H)	92,98,88 kPa
1.60-1.90	BX2	
2.50	D	
2.80-3.10	B	

Date of Excavation 22/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing from 0.30 to 1.80m

Groundwater

No.	Struck	Behaviour
1	1.40	Slight seepage

Ground Level 80.848 m OD
Coordinates 475515.06 mE
254747.23 mN

Logged by CM
Checked by CM

Remarks 1. Pit terminated due to collapse.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

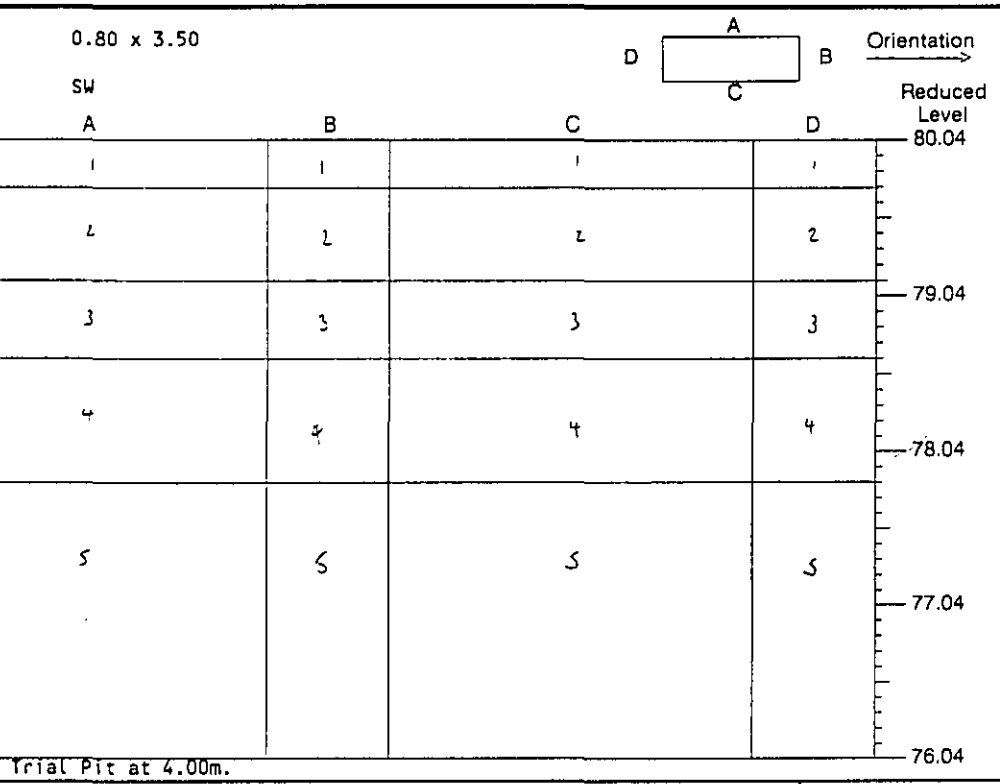
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP7

Dimensions : 0.80 x 3.50

Orientation : SW



Strata

Depth (m)	No.	Description
0.00-0.30	1	Soft dark brown slightly sandy CLAY with occasional angular to subrounded, fine to medium quartzitic and sandstone gravel. Occasional rootlets.
0.30-0.90	2	Firm brown slightly sandy CLAY with occasional angular to subrounded, fine to coarse quartzitic and limestone gravel.
0.90-1.40	3	Brown mottled light grey clayey, very silty fine to coarse SAND with occasional angular to subrounded, fine to medium chalk and flint gravel.
1.40-2.20	4	Brown silty fine to medium SAND with occasional very stiff dessicated brown sandy clay pockets with a little angular to subrounded, fine to coarse ironstone gravel (<200mm).
2.20-4.00	5	Hard grey slightly sandy CLAY with occasional subrounded, fine to coarse chalk gravel. Occasional cobbles. Below 3.20m: with a little chalk, quartzite and sandstone gravel. Occasional silt partings.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.40	D	
0.50	B	
1.00	D	
1.30	B	
1.50	D	
2.00	B	
2.50	D	
3.00	B	
3.50	B	
4.00	D	

Date of Excavation 21/01/99
Equipment JCB 360 Tracked excavator
Stability Collapsing from 1.40 to 2.20m

Groundwater

No.	Struck	Behaviour
1	1.30	Slight seepage

Ground Level 80.042 m OD
Coordinates 475546.38 mE
254573.52 mN

Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

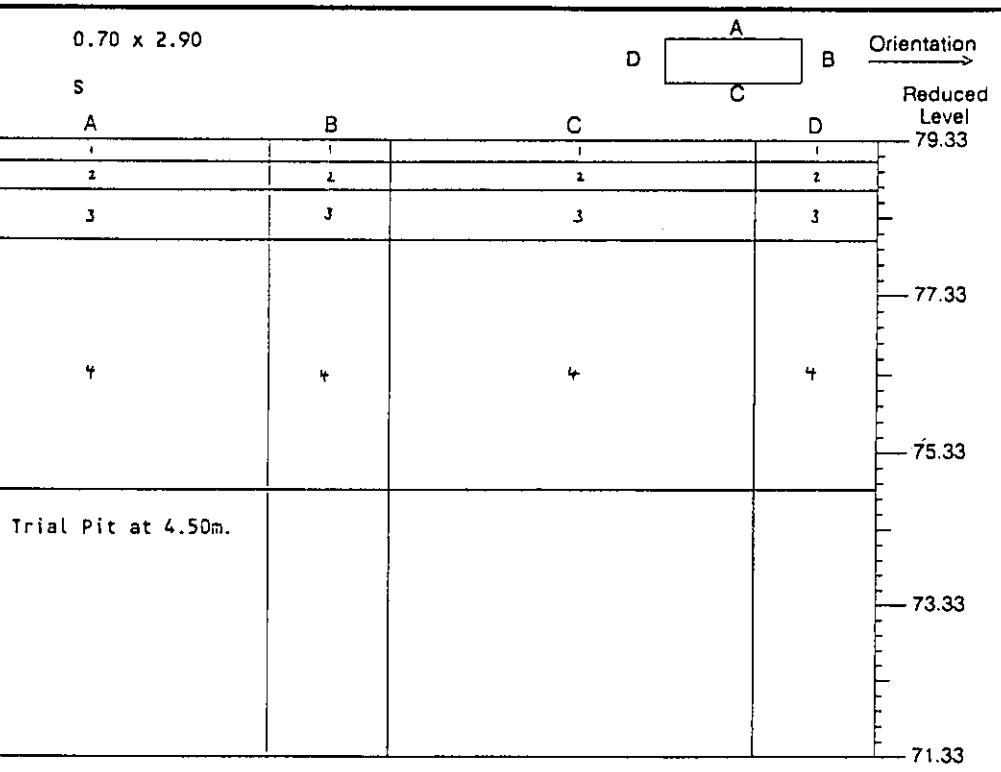
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP8

Dimensions : 0.70 x 2.90

Orientation : S



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Soft to firm grey brown occasionally very silty clay with occasional subangular, fine to medium flint gravel and occasional rootlets.
0.30-0.65	2	MADE GROUND: Soft orange brown very silty clay with occasional subangular gravel of clay pipe and flint with occasional rootlets.
0.65-1.30	3	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint. Occasional cobbles of chalk. Occasional roots and rootlets.
1.30-4.50	4	Stiff grey extremely closely fissured CLAY with some polished shear surfaces. Some silty mudstone lithorelicts and occasional gravel size ironstone nodules. Occasional orange brown ironstaining on fissure surfaces. Below 3.50m: becoming blue grey in colour.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.30-0.60	BX2	
0.70	D	
0.80	V(H)	72,78,82 kPa
0.70-0.90	BX2	
1.30	D	
1.50	V(H)	95,102,88 kPa
1.50-1.80	BX2	
3.00-3.20	B	
4.00	D	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 79.326 m OD
Coordinates 475739.92 mE
254734.60 mN

Logged by CM
Checked by CM

Remarks 1. V(h) tests below 1.20m were carried out on large excavated lumps.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

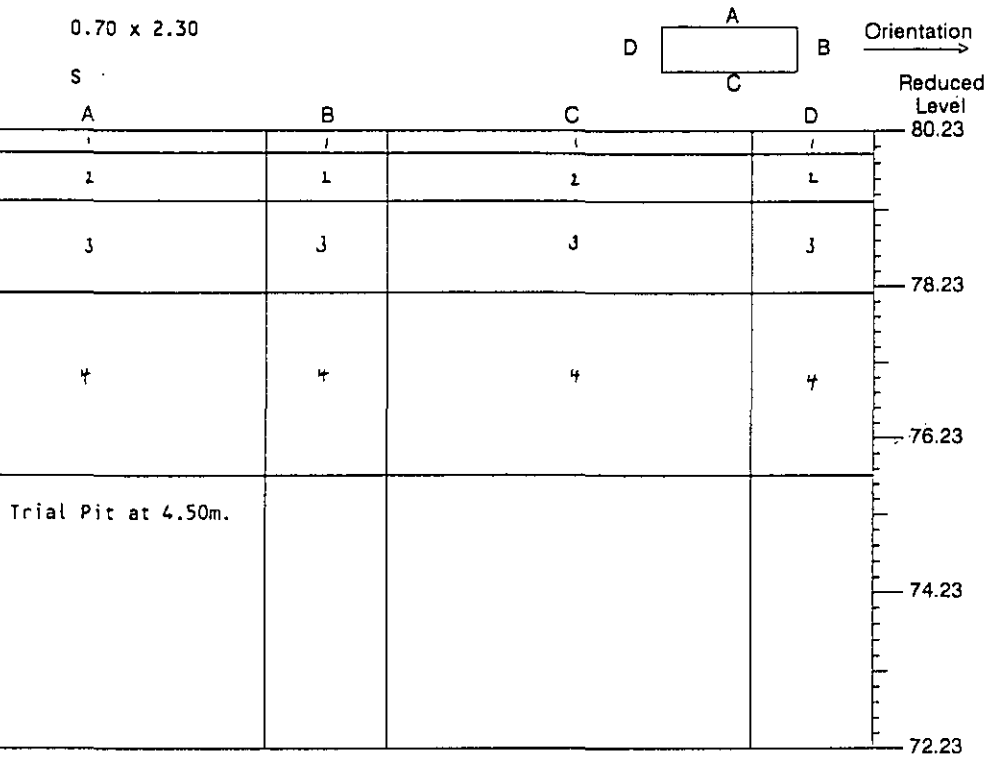
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP9

Dimensions : 0.70 x 2.30

Orientation : S



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Soft to firm grey brown occasionally very silty clay with occasional subangular, fine to medium flint gravel and occasional rootlets.
0.30-0.90	2	Possible MADE GROUND: Soft orange brown sandy CLAY with a little subangular, fine to medium flint gravel and occasional rootlets.
0.90-2.10	3	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint and occasional cobbles of chalk. Occasional roots and rootlets.
2.10-4.50	4	Stiff blue grey extremely closely fissured CLAY with abundant silty mudstone lithorelicts and occasional gravel size ironstone nodules. Some polished shear surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.70	BX2	
0.70	V(H)	68,76,72 kPa
1.00	D	
1.00	V(H)	86,92,76 kPa
1.30-1.60	BX2	
2.10	D	
2.40-2.70	BX2	
4.00-4.40	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 80.230 m OD
Coordinates 475817.14 mE
254799.45 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

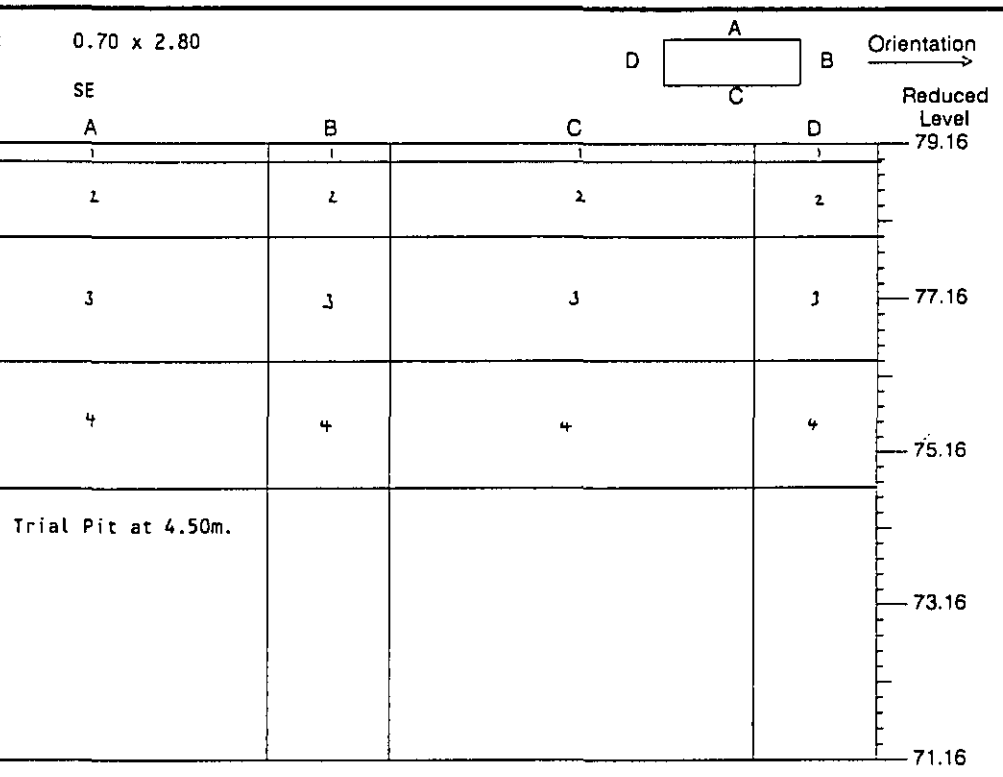
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP10

Dimensions : 0.70 x 2.80

Orientation : SE



Strata

Depth (m)	No.	Description
0.00-0.25	1	MADE GROUND: Soft very silty grey brown clayey topsoil with some roots, rootlets and decaying leaf matter.
0.25-1.20	2	MADE GROUND: Soft to firm orange brown occasionally mottled red brown slightly sandy clay with rare subrounded, fine to medium quartz, flint and chalk gravel. At 0.70m: old land drain consisting of cobble size pieces of sandstone and flint.
1.20-2.80	3	Stiff grey brown and grey slightly sandy CLAY with some gravel of flint and chalk. Occasional shelly fossils and orange brown sand partings. Becoming sandier with depth. From 2.70 to 2.80m: Pale brown slightly clayey sand with some gravel of flint and chalk.
2.80-4.50	4	Very stiff blue grey closely fissured CLAY with a little gravel of chalk and flint. Some polishing of fissure sufaces (shear surfaces). Below 3.60m: rare gravel with visible bedding structures (weathered mudstone).

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.60	V(H)	58,74,56 kPa
0.60-0.90	BX2	
1.30	D	
1.50-1.80	BX2	
2.50-2.70	B	
2.80	D	
2.90	D	
3.20-3.50	BX2	
4.00	D	
4.10-4.40	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	0.70	Land drain (Moderate inflow)
2	2.10	Moderate inflow

Ground Level 79.159 m OD
Coordinates 475812.04 mE
254505.36 mN

Logged by CM
Checked by CM

Remarks 1. Backfilling of trial pit included replacing flint and sandstone cobbles to allow the old land drain to continue operating.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

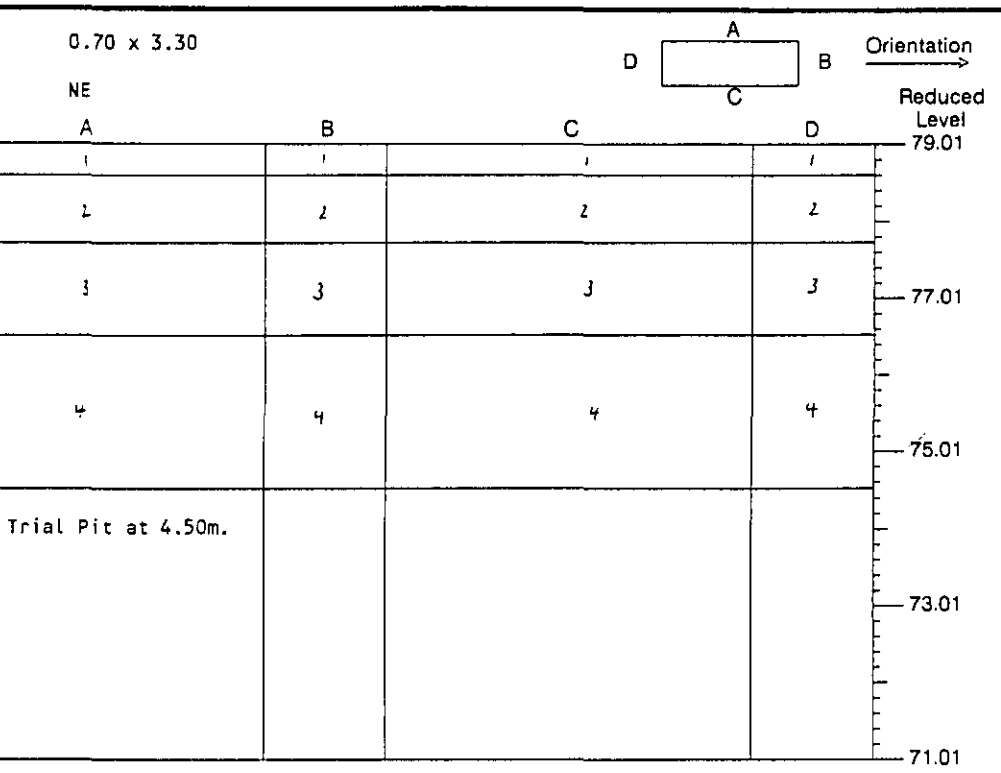
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP11

Dimensions : 0.70 x 3.30

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.40	1	MADE GROUND: Firm grey brown clay with occasional straw, rootlets and a little subangular, fine to medium flint gravel.
0.40-1.30	2	Soft orange brown slightly sandy, very silty clay with rare subangular to subrounded, fine gravel of chalk and flint. Below 0.70m: becoming firm.
1.30-2.50	3	Stiff grey and orange brown very closely fissured CLAY with some gravel of siltstone and ironstone and some clay lithorelicts. Some polished shear surfaces.
2.50-4.50	4	Stiff blue grey extremely closely fissured CLAY with abundant silty mudstone lithorelicts and occasional gravel size ironstone nodules. Some polished shear surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.80	BX2	
0.70	V(H)	72,80,66 kPa
1.30	D	
1.40-1.80	BX2	
1.80	V(H)	88,92,98 kPa
2.50	D	
2.60-2.90	BX2	
4.00-4.20	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	1.40	Slow inflow

Ground Level 79.009 m OD
Coordinates 475908.87 mE
254553.52 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

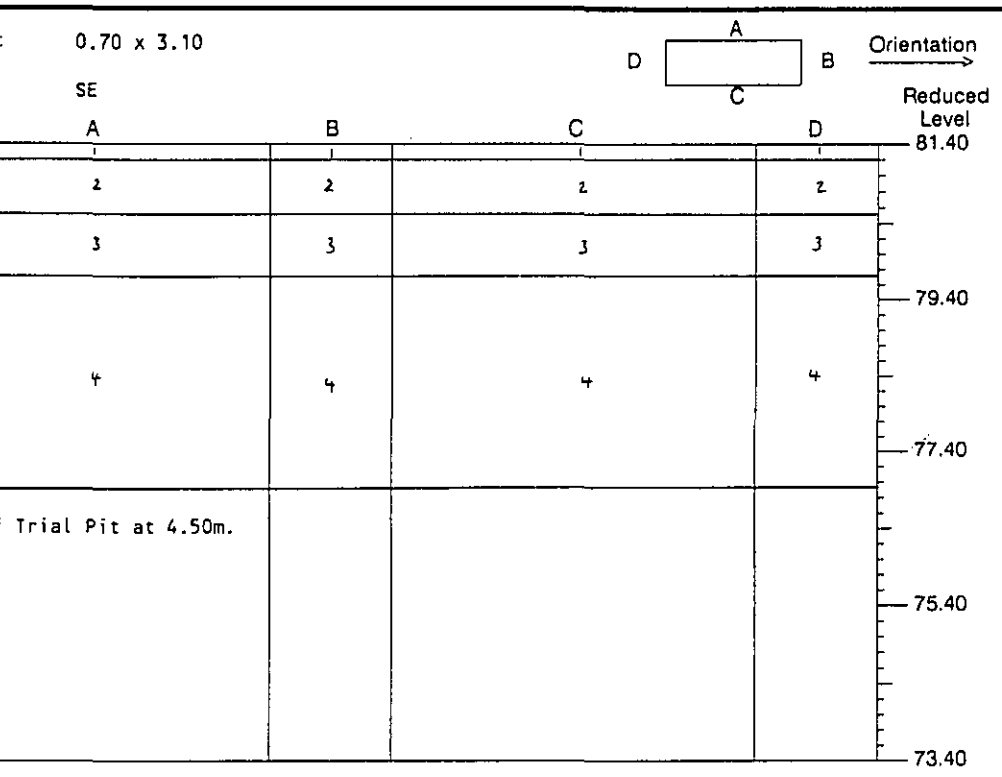
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP12

Dimensions : 0.70 x 3.10

Orientation : SE



Strata

Depth (m)	No.	Description
0.00-0.20	1	Soft brown clayey TOPSOIL with many roots and rootlets.
0.20-0.90	2	Firm light brown occasionally mottled orange brown CLAY with some roots and rootlets and rare subangular, fine to medium flint gravel.
0.90-1.70	3	Soft orange brown sandy CLAY with much gravel of chalk and flint. Occasional chalk and flint cobbles.
1.70-4.50	4	Stiff grey and grey brown mottled CLAY with some gravel of chalk and flint. Occasional chalk and flint cobbles, roots and rootlets. Below 2.50m: becoming very stiff and grey in colour.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.70	BX2	
0.80	V(H)	68,76,70 kPa
0.90	D	
1.00-1.40	BX2	
1.80	D	
1.90-2.20	BX2	
2.70-3.00	B	
4.00	D	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Collapsing 0.90 - 1.70m

Groundwater

No.	Struck	Behaviour
1	0.90	Moderate inflow

Ground Level 81.397 m OD
Coordinates 476024.78 mE
254312.59 mN

Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

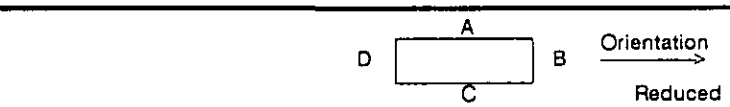
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

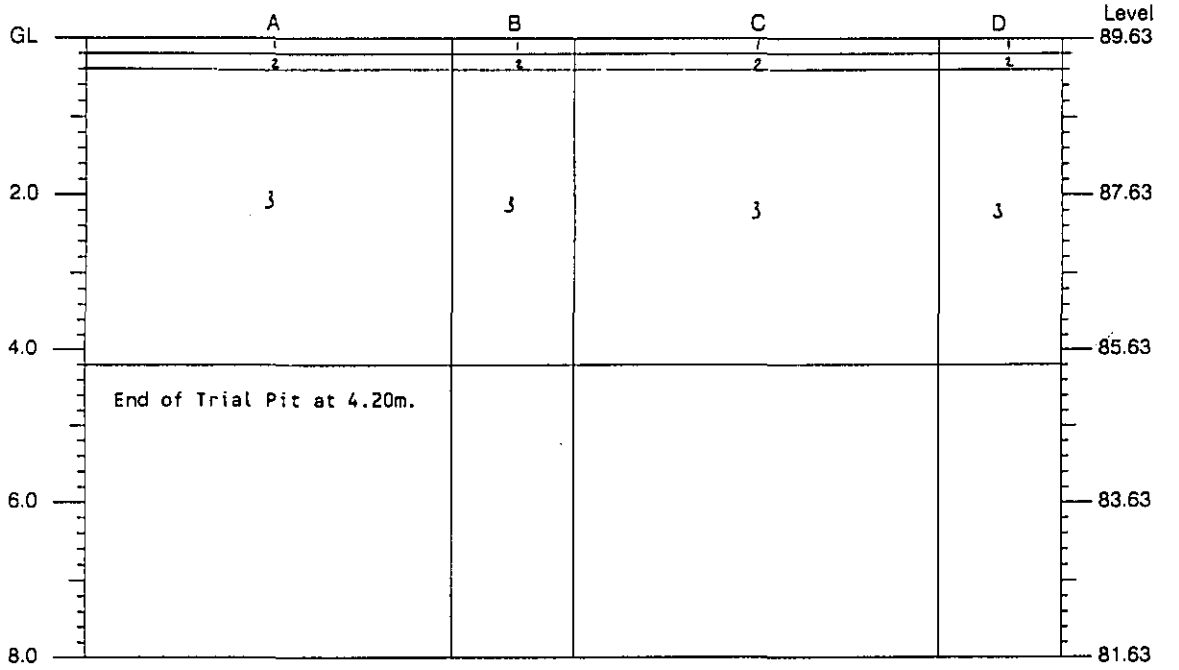
Contract 118488

Trial Pit TP13

Dimensions : 0.70 x 3.30

Orientation : SE





Strata

Depth (m)	No.	Description
0.00-0.20	1	Grass over soft clayey TOPSOIL with some roots, rootlets and decaying leaf matter.
0.20-0.40	2	Soft to firm orange brown very silty CLAY with some gravel of chalk and flint. Occasional rootlets.
0.40-4.20	3	Firm to stiff grey brown and grey very silty CLAY with a little sand and a little chalk and flint gravel. Occasional rootlets. Below 0.90m: becoming grey, very stiff and closely fissured with occasional chalk cobbles and boulders and gravel to cobble size ironstone nodules. Grey brown staining along fissure surfaces. Below 2.80m: with occasional siltstone and sandstone cobbles. Below 3.90m: grey in colour with a little grey brown staining on fissure surfaces.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.25	D	
0.60-0.90	BX2	
0.80	V(H)	Too gravelly
1.20	D	
1.80-2.00	B	
2.50	D	
3.00-3.20	BX2	
4.00-4.20	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
		Not encountered during excavation

Ground Level 89.631 m OD
Coordinates 476245.41 mE
254153.51 mN

Logged by CM
Checked by CM

Remarks

1. Hard digging due to very stiff clay.
2. Pit terminated at 4.20m due to very slow excavation.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

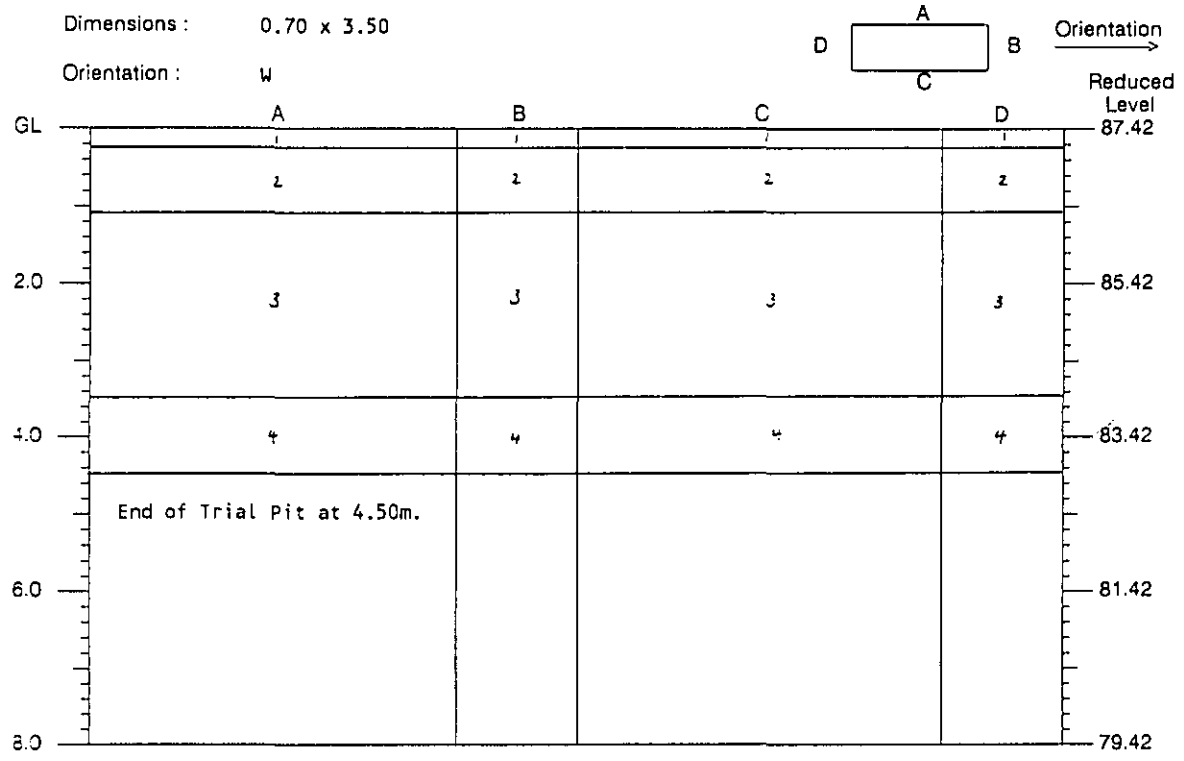
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP14

Dimensions : 0.70 x 3.50

Orientation : W



Strata

Depth (m)	No.	Description
0.00-0.25	1	Soft grey brown very silty, clayey TOPSOIL with many rootlets and roots.
0.25-1.10	2	Firm light brown occasionally slightly sandy CLAY with a little gravel of chalk and flint. Occasional roots and rootlets and occasional cobbles of chalk. Below 0.60m: becoming mottled light grey.
1.10-3.50	3	Stiff pale brown and grey very closely fissured, occasionally very silty CLAY with some gravel of chalk, flint and ironstone. Occasional chalk and sandstone cobbles and cobble size ironstone nodules. Below 2.50m: becoming brown and grey in colour.
3.50-4.50	4	Very stiff grey occasionally slightly sandy CLAY with occasional subrounded, fine to coarse chalk and flint gravel.

Samples and Tests

Depth (m)	Type	Results
0.20	D	
0.10-0.25	B	
0.40	D	
0.60	V(H)	76,76,72 kPa
0.60-0.90	BX2	
1.30	D	
1.70-2.00	BX2	
1.90	V(H)	88,94,88 kPa
3.00-3.30	B	
3.60	D	
4.00-4.50	B	

Date of Excavation 18/01/99
Equipment FERMEC 860
Stability Stable

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 87.417 m OD
Coordinates 475710.87 mE
255030.02 mN

Logged by CM
Checked by CM

Remarks 1. Hand vane test below 1.20m was carried out on large excavated lump.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

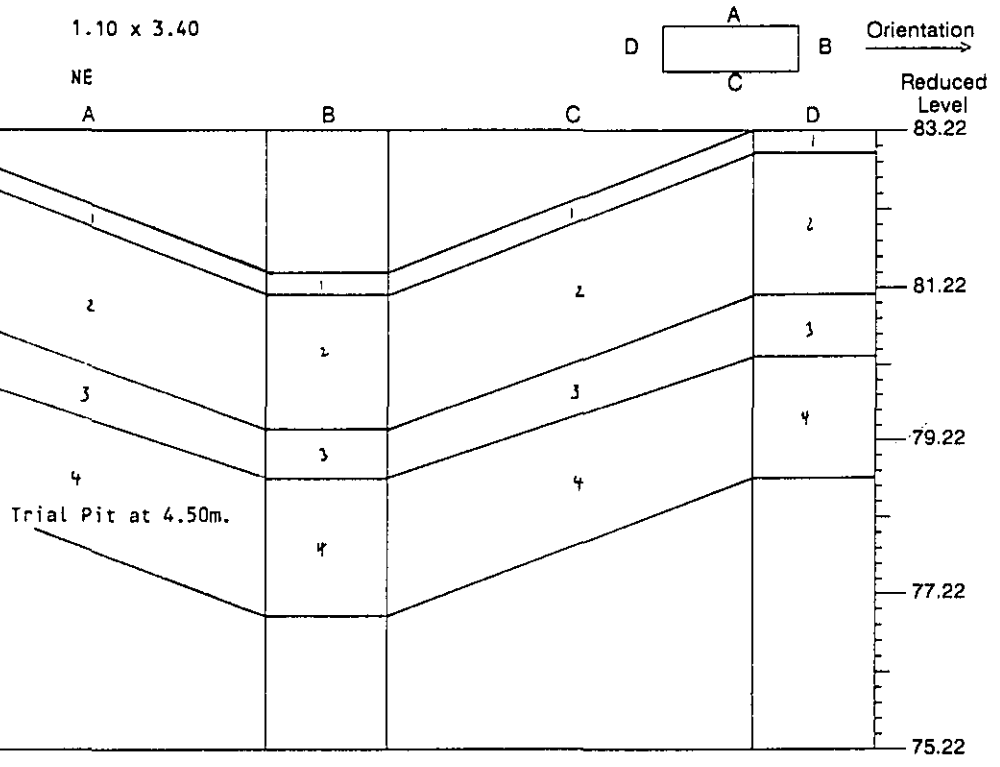
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP15

Dimensions : 1.10 x 3.40

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.30	1	MADE GROUND: Grass over soft brown topsoily clay with occasional subangular, fine flint and occasional rounded, fine to coarse quartz gravel. Many rootlets.
0.30-2.10	2	MADE GROUND: Pale creamy brown silty, clayey and sandy gravel to boulder size fill comprising; silty sandstone, siltstone, chalk, flint and bricks. Some rootlets. Below 1.70m: becoming very clayey with occasional pockets of grey brown clay.
2.10-2.90	3	Firm to stiff grey very silty closely fissured organic CLAY with occasional rootlets and dark staining along fissue surfaces.
2.90-4.50	4	Firm brown, grey and grey brown, occasionally mottled orange brown, occasionally slightly sandy CLAY with a little gravel of chalk and flint.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.40	D	
0.50-0.80	BX2	
1.80	D	
2.20	D	
2.30-2.50	BX2	
3.00	D	
3.10-3.40	BX2	
4.00-4.20	B	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Collapsing to 2.10

Groundwater
No. Struck Behaviour
Not encountered during excavation

Ground Level 83.221 m OD
Coordinates 476025.16 mE
254426.55 mN

Logged by CM
Checked by CM

Remarks
1. Trial pit excavated into motorway embankment.
2. Original ground level appears to be approximately 2.10m (level with foot of embankment).

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

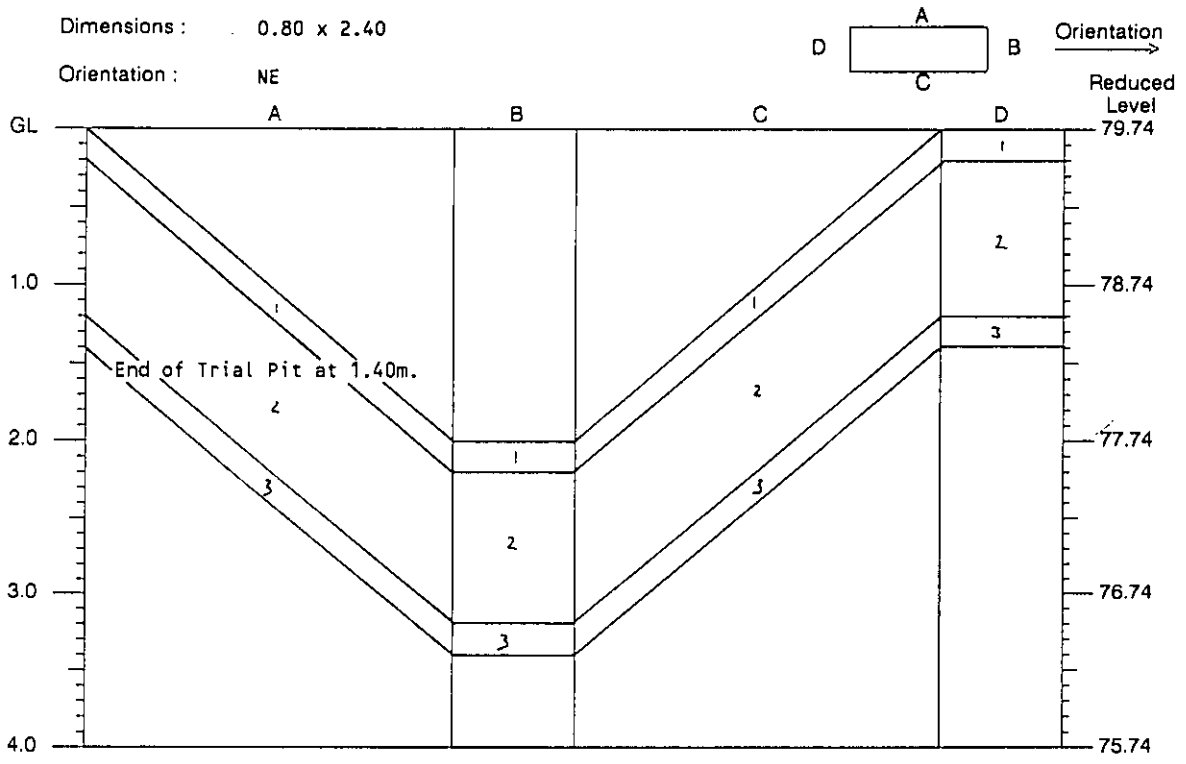
Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP16

Dimensions : 0.80 x 2.40

Orientation : NE



Strata

Depth (m)	No.	Description
0.00-0.20	1	MADE GROUND: Soft to firm greyish brown topsoily clay with occasional gravel of sandstone, flint and chalk with some roots and rootlets.
0.20-1.20	2	MADE GROUND: Soft to firm orange brown slightly sandy clay with a little gravel of chalk, quartz and flint. Some roots and rootlets.
1.20-1.40	3	Firm grey brown very silty, occasionally slightly sandy organic CLAY with occasional gravel size pockets of black clayey sand. Some rootlets.

Samples and Tests

Depth (m)	Type	Results
0.10	D	
0.30	D	
0.40-0.80	BX2	
1.30	D	

Date of Excavation 19/01/99
Equipment FERMEC 860
Stability Stable

Groundwater

No.	Struck	Behaviour
1	1.20	Slow inflow

Ground Level 79.744 m OD
Coordinates 475847.60 mE
254586.47 mN

Logged by CM
Checked by CM

Remarks

1. Trial pit excavated into motorway embankment to determine make-up of embankment.
2. Pit terminated once natural ground was reached.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Trial Pit TP17

ENCLOSURE A

	Exploratory Hole Records	Figure No.
1.	Terminology used in soil descriptions	A1/1-2
2.	Symbols used	A2/1
3.	Boreholes	1-9, 9A, 11-19, 19A, 20-23
4.	Trial Pits	TP1, TP3-TP17

TERMINOLOGY USED IN SOIL DESCRIPTIONS

The procedure and principles given in BS5930:1981, Section 8 have generally been adopted in producing the densities, consistencies and soil descriptions in this report.

Density descriptions are as given in BS5930, Clause 41.2.5 and taken from the results of the Standard Penetration Test, performed as outlined in BS1377:1990. The densities are uncorrected for overburden effects. The consistencies of clays are based on the results of undrained shear strength tests with the descriptor values as given in BS5930, Clause 41.2.5 or on a visual assessment if laboratory test results are not available. If the visual assessment is markedly different from that indicated by laboratory tests then the visual assessment is given in brackets on the Exploratory Hole Records. The term "hard" has been used for materials with an undrained shear strength greater than 300kPa.

A number of modifications detailed by Norbury et al have been used, mostly relating to composite soil types referred to in Table 6 and Clause 41.3, as summarised below:

i) Predominantly Coarse Soils (Sands, Gravels, Cobbles, Boulders)

BS5930, Section 8 recommends that the secondary constituents of coarse soils should precede the main soil type. This may become ambiguous if qualifying adjectives also form part of the description. Norbury et al overcome this by suggesting that they may be placed after the main soil type. Secondary constituents, therefore, appear either before or after the principal constituent, depending on how the material may be best described, as outlined in Table A1.

ii) Predominantly Fine Soils (Silts, Clays)

Fine soils generally consist of mixtures of silt and clay and are described in BS5930, Section 8 as either a SILT or a CLAY with classification in accordance with plasticity. Borderline cases between silt and clay materials are often difficult to distinguish, and where secondary constituent fine soils have an influence on mass behaviour the qualifying terms "very silty" and "very clayey" are used. Reference to coarse secondary constituents may be placed either before or after the main soil type, as shown in Table A2.

ii) Mixtures of Coarse and Fine Soils

BS5930, Clause 41.3.2.1 states that mixtures of coarse and fine soils with more than 35% of fine soil shall be described as a CLAY or SILT, otherwise they should be described as a SAND or GRAVEL. If this suggestion is strictly adhered to, misleading descriptions in terms of engineering behaviour may be given. Therefore this approach has not been adopted where descriptions based on the percentage rule do not properly reflect the behaviour of the material. For instance, if a soil behaves as a cohesive material though containing less than 35% of the clay fraction, then it has been described as having "CLAY" as principal constituent.

Term Before	Principal Term	Term After	Approx. % of Constituent	
			Fine	Coarse
Slightly (sandy*) (clayey*)	SAND,GRAVEL COBBLES or BOULDERS	with a little (sand*) or occasional (cobbles+)	<5	<5
(Sandy*) (Clayey*)		with some (sand*) or some (cobbles+)	5 - 15	5 - 20
Very (sandy*) (clayey*)		with much (sand*) or many (cobbles+)	15 - 35	20 - 40

* Fine or coarse soil type as appropriate, fine soil terms (clay/silt) normally only before principal soil
\+ Very coarse soil type as appropriate or as a fine soil depending on mass behaviour

TABLE A1

Scale of Secondary Constituents with Coarse Soils

Term Before	Principal Term	Term After	Approx. % of Constituent
Slightly (sandy*)	CLAY or SILT	with a little (sand*)	<35
(Sandy*)		with some (sand*)	35 - 65
Very (sandy*)+		with much (sand*)+	>65

* Coarse soil type as appropriate
\+ or described as a coarse soil depending on mass behaviour

TABLE A2

Scale of Secondary Constituents with Fine Soils

REFERENCES

1. BS 5930 (1981), Code of Practice for Site Investigations, British Standards Institute.

2. BS 1377 (1990), Methods of test of Soils for Civil Engineering Practice, British Standards Institute.

3. Norbury D.R., G.H. Child and T.W. Spink; 1984, A Critical review of Section 8 (BS 5930) Soil and Rock Description. Proc. 20th Regional Meeting of the Geological Society. Site Investigation Practice - Assessing BS 5930. Univ. of Surrey pp 353-369 (original proceedings)

KEY TO SYMBOLS ON EXPLORATORY HOLE RECORDS

All linear dimensions are in metres or millimetres

DESCRIPTIONS

**	:	Drillers Description

SAMPLES

U ( )	:	Undisturbed 102mm diameter sample, ( ) denotes number of blows to drive sampler
U ( )F, U ( )P	:	F - not recovered, P - partially recovered
U38	:	Undisturbed 38mm diameter sample
P(F),(P)	:	Piston sample, F - not recovered, P - partially recovered
B	:	Bulk sample - disturbed
D	:	Jar Sample - disturbed
W	:	Water Sample
CBR	:	California Bearing Ratio mould sample
G	:	Gas Sample and depth of hole at time of sampling

CORE RECOVERY AND ROCK QUALITY

TCR	:	Total Core Recovery %
SCR	:	Solid Core Recovery %
RQD	:	Rock Quality Designation %
FI	:	Fracture Index (discontinuities per metre) NI - not intact, NR - no recovery, NA - not applicable

GROUNDWATER

$\underline{\nabla}$	:	Groundwater strike
$\underline{\blacktriangledown}$	:	Groundwater level after standing period
Date/Water	:	Date of shift (day/month)/Depth to water at end of previous shift shown above the date and depth to water at beginning of shift given below the date.

IN SITU TESTING

S	:	Standard Penetration Test - split barrel sampler
C	:	Standard Penetration Test - solid 60° cone
V(H)(R)	:	Vane Test (Hand) (R) demonstrates remoulded strength
K(F), (C), (R), (P)	:	Permeability Test (falling, constant or rising head, packer)
PT	:	Pressuremeter Test
HP	:	Hand Penetrometer Test

MEASURED PROPERTIES

N	:	Standard Penetration Test - blows required to drive 300mm after seating drive
$^{x}/_{y}$	:	Denotes x blows for y mm within the Standard Penetration Test
$^{x'}/_{y}$	:	Denotes x blows for y mm within the seating drive
c_u	:	Undrained Shear Strength (kN/m^2)
CBR	:	California Bearing Ratio

ROTARY DRILLING SIZES

Index Letter	NOMINAL DIAMETER (mm)	
	Borehole	Core
N	75	54
H	99	76
P	120	92
S	146	113

EXPLORATORY HOLE SYMBOLS	**Project** M1 Junction 15 Grange Park, Northampton Alfred McAlpine Consulting Engineers	**Contract** 118488
Exploration Associates		**Figure** A2/1

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.35	B		18/01 1999	
0.35-1.00	B			
1.00-1.45	SD	NIL	DRY	25
1.00-1.45	B			
1.45-2.00	B			
2.00-2.45	SD	1.70	DRY	40
2.00-2.45	B			
2.45-3.00	B			
3.00-3.45	SD	2.90	DRY	41
3.00-3.45	B			
3.45-4.05	B			
4.05-4.50	SD	4.00	DRY	42
4.05-4.50	B			
4.50-5.10	B			
5.10-5.55	SD	5.10	DRY	34
5.10-5.55	B			
5.55-6.10	B			
6.10-6.55	B			
6.10			19/01	
6.55-7.00	SD	6.55	WET	35
6.55-7.00	B			
7.00-8.20	B			
8.20	D			
8.50	D			
8.60-9.05	U(78)	8.50	WET	
8.60-9.05	D			
9.60	D			

Strata

Description	Depth (Thickness)	Level
Probable MADE GROUND: Grass over soft brown sandy clayey TOPSOIL, with many rootlets.	G.L.	83.61
Firm orange brown mottled brown slightly sandy CLAY with a little subangular fine to medium flint, quartzitic and ironstone gravel. Occasional rootlets.	0.35 (0.55)	83.26
Medium dense becoming dense orange brown slightly clayey fine to medium SAND with a little subangular to subrounded fine to medium ironstone and sandstone gravel. Occasional firm brown clay pockets (<50mm).	0.90 (3.15)	82.71
Dense orange brown fine to medium SAND.	4.05	79.56
Below 5.55m: with a little subangular to subrounded fine chalk, sandstone and ironstone gravel.	(2.65)	
Dense orange brown fine to coarse SAND and subrounded fine to medium sandstone, quartzitic and ironstone GRAVEL.	6.70 (1.50)	76.91
Very stiff grey brown mottled orange brown CLAY with a little subrounded fine ironstone gravel. Below 8.50m: grey mottled grey brown clay.	8.20 (0.40)	75.41
Very stiff blue grey CLAY.	8.60	75.01

Legend: 1 ▽

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.10m
Casing Dia (mm): 150 to 8.80m

Groundwater

No.	Struck	Behaviour	Sealed
1	5.80	Very slow seepage	

Ground Level 83.61 m OD
Coordinates 475123.214 mE
255220.573 mN

Drilled by BG
Logged by CM
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 1(1 of 2)

Sampling					Strata		
Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level
10.10-10.55 10.10-10.55	SD B	8.80	19/01 WET	44	As sheet 1.		
11.10	D						
11.50-11.95 11.50-11.95	SD B	8.80		50/ 295	Below 11.50m: occasional light grey silt partings and shell fossils.	(6.50)	
12.50	D						
13.10-13.50 13.10-13.50	SD B	8.80		50/ 250			
14.10	D						
14.70-15.09 14.70-15.09 4.90	SD B W	8.80		50/ 235			
					End of Borehole.	15.10	68.51

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.10m

Casing Dia (mm): 150 to 8.80m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.61 m OD
Coordinates 475123.214 mE
255220.573 mN

Drilled by BG
Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

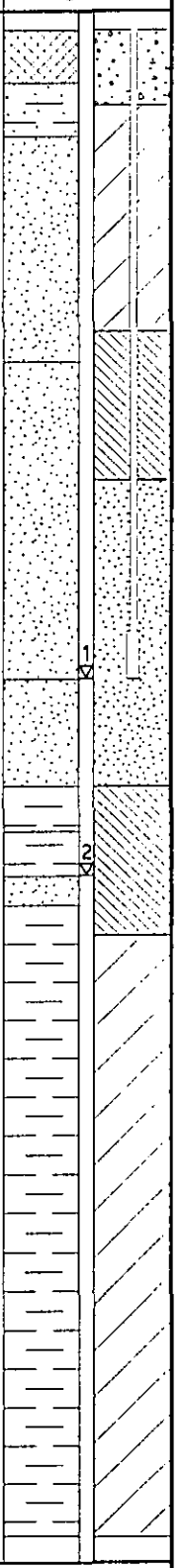
Borehole 1(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.35	B		14/01 1999	
0.35-0.70	B			
0.70-1.20	B			
1.20-1.65	SD	NIL	DRY	36
1.20-1.65	B			
1.65-2.20	B			
2.20-2.65	SD	2.10	DRY	33
2.20-2.65	B			
2.65-3.20	B			
3.20-3.65	SD	3.10	DRY	32
3.20-3.65	B			
3.65-4.30	B			
4.30-4.75	S	4.20	DAMP	17
4.30-4.75	B			
4.75-5.00	B			
5.00	D			
5.20-5.65	U(29)F	4.85	DAMP	
5.20-5.70	B			
5.70-6.25	SD	5.50	WET	32
5.70-6.25	B			
6.70	D			
7.00-7.45	U(67)	5.80	DRY	
7.00-7.45	D			
8.00	D			
8.50-8.92	SD	5.80	DRY	50/ 270
8.50-8.92	B			
9.30	D			
9.70-10.06	SD	6.00	DRY	50/ 210
9.70-10.06				

Strata

Description	Depth (Thickness)	Level
	G.L.	83.22
MADE GROUND: Soft brown slightly sandy clay with occasional subangular to subrounded fine to coarse quartzitic and flint gravel.	0.35	82.87
Firm to stiff orange brown and light grey slightly sandy CLAY with occasional clayey sand partings. Occasional rootlets.	0.70	82.52
Dense orange brown slightly clayey fine to coarse SAND with occasional subrounded fine to medium quartzitic and ironstone gravel.	(1.50)	
Dense orange brown slightly clayey fine to medium SAND.	2.20	81.02
Below 3.20m: occasional subrounded fine quartzitic gravel.	(2.10)	
Medium dense light brown slightly clayey fine to medium SAND.	4.30	78.92
	(0.70)	
Firm to stiff grey brown CLAY with occasional orange brown staining.	5.00	78.22
Firm to stiff blue grey mottled grey brown CLAY with a little angular to subrounded fine chalk gravel.	5.30	77.92
	5.60	77.62
Dense brown fine to coarse SAND.	5.80	77.42
Stiff grey CLAY with occasional subrounded fine siltstone gravel.	(4.26)	
Below 8.50m: becoming very stiff.		



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.06m

Casing Dia (mm): 150 to 6.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.30	Slow seepage	5.20
2	5.60	Slow seepage	5.80

Ground Level: 83.22 m OD

Coordinates: 475241.860 mE, 255110.193 mN

Drilled by: BG

Logged by: CM

Checked by: CM

Remarks

1. Service inspection pit hand excavated to 1.20m.
2. On completion of the borehole a 19mm piezometer was installed with the tip at 4.30m and the sand response zone from 5.00 to 3.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 2(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			14/01	

Strata

Description	Depth (Thickness)	Level	Legend
	10.06	73.16	
End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.06m

Casing Dia (mm): 150 to 6.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.22 m OD

Coordinates 475241.860 mE
255110.193 mN

Drilled by BG
Logged by CM
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 2(2 of 2)

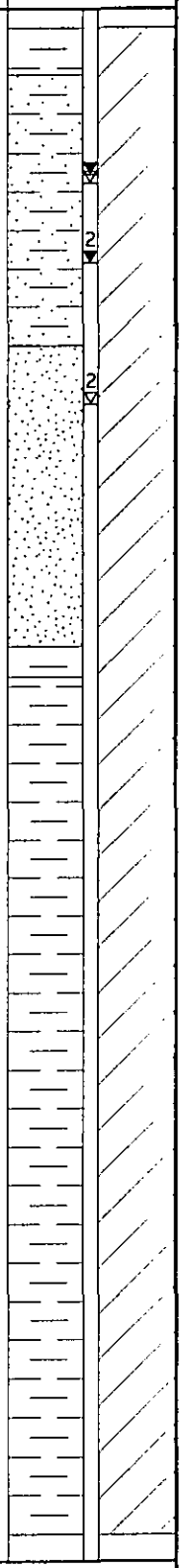
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			21/01 1999	
0.50	D			
1.00	D			
1.20	SD	1.20	DRY	8
1.20-1.70	B			
1.90	D			
2.15	D			
2.20	SD	2.20	DRY	22
2.20-2.70	B			
3.00	D			
3.20	SD	3.10	2.10	39
3.20-3.70	B			
4.00	D			
4.20	D			
4.30	D			
4.40-4.85	U(40)	4.40	4.10	
4.85	D			
5.50	D			
6.00	SD	5.50	DRY	23
6.00-6.50	B			
7.00	D			
7.50-7.95	U(60)	7.00	DRY	
7.95	D			
8.50	D			
9.00	SD	7.00	DRY	43
9.00-9.50	B			

Strata

Description	Depth (Thickness)	Level
Firm brown stoney CLAY.**	G.L.	81.45
Firm dark brown sandy CLAY with occasional angular fine quartzitic gravel. Occasional rootlets.	0.30	81.15
Below 1.90m: light brown mottled red brown.	(1.80)	
Medium dense to dense brown silty fine to medium SAND.	2.10	79.35
	(2.00)	
Stiff brown mottled grey CLAY.	4.10	77.35
Stiff grey CLAY with occasional subrounded fine to coarse siltstone gravel.	4.30	77.15
	(5.70)	
At 9.00m: occasional shelly fossil fragments. Below 9.00m: becoming very stiff.	10.00	71.45

Legend



Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.40m

Casing Dia (mm) 150 to 7.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	1.02	Rose to 0.96m in 20 mins	1.20
2	2.50	Rose to 1.55m in 20 mins	7.00

Ground Level 81.45 m OD
Coordinates 474995.484 mE
255262.699 mN

Drilled by DF
Logged by DS
Checked by CM

Remarks

1. Service inspection pit hand excavated to 1.20m.
2. Falling head permeability test carried out at 3.10m.
3. Chiselling from 10.20m to 10.40m (1 hour).
4. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 3(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00	D		21/01	
10.20	C	7.00	DRY	50/ 10

Strata

Description	Depth (Thickness)	Level	Legend
Very stiff grey sandy CLAY with occasional shelly fossil fragments.	10.20	71.25	
Grey SILTSTONE, very weak.	10.40	71.05	
End of Borehole.			

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.40m

Casing Dia (mm) 150 to 7.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 81.45 m OD

Coordinates 474995.484 mE
255262.699 mN

Drilled by DF
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 3(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			19/01 1999	
0.30	D			
0.50-0.95	U(37)	NIL	DRY	
0.95	D			
1.20	D			
1.40	D			
1.50	SD	NIL	DRY	14
1.50-2.00	B			
2.20	D			
2.50-2.95	U(40)	1.50	DRY	
2.60	W			
2.95	D			
3.00			20/01	
3.20	D			
3.50	SD	3.00	DRY	26
3.50-4.00	B			
4.20	D			
4.40	D			
4.50-4.95	U(50)	3.00	3.73	
4.50	W			
4.95	D			
5.50	D			
6.00	SD	5.80	DRY	47
6.00-6.50	B			
6.40	W			
7.00	D			
7.50-7.95	U(70)	7.00	DRY	
7.95	D			
8.50	D			
9.00	D			
9.50	SD	7.00	DRY	45
9.50-10.00	B			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Firm brown CLAY.**	G.L.	83.52
MADE GROUND: Firm light brown very sandy clay with occasional angular to subrounded fine to medium chalk gravel.	0.30	83.22
	(0.65)	
MADE GROUND: Medium dense orange brown clayey fine to coarse sand with some angular to subrounded fine to medium ironstone, and quartzitic gravel.	0.95	82.57
	(0.45)	
MADE GROUND: Medium dense brown clayey fine to coarse sand with some angular to subrounded fine to coarse chalk, quartzitic, and brick gravel.	1.40	82.12
	(0.80)	
Firm to stiff light brown sandy CLAY with some angular to subrounded fine to medium chalk, and quartzitic gravel.	2.20	81.32
	(1.20)	
Stiff grey brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk, and quartzitic gravel.	3.40	80.12
	(0.90)	
Soft light brown very clayey SILT with occasional angular to subrounded fine to medium chalk gravel (possible drill disturbance).	4.30	79.22
	(0.45)	
Very stiff grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk, and quartzitic gravel.	4.75	78.77
	(2.95)	
Very stiff becoming very stiff grey CLAY with occasional subrounded fine to coarse siltstone gravel.	7.70	75.82
	(2.30)	
End of Borehole.	10.00	73.52

Legend: 1, 2, 3

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.00m

Casing Dia (mm): 150 to 7.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	2.60	Rose to 2.33m in 20 mins 2.48/2.39/2.35 in 5/10/15 mins	
2	4.50	Rose to 3.73m in 20 mins 4.26/3.95/3.81 in 5/10/15 mins	

Ground Level: 83.52 m OD

Coordinates: 475334.207 mE, 254939.075 mN

Drilled by: DF

Logged by: DS

Checked by: CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 4(1 of 1)

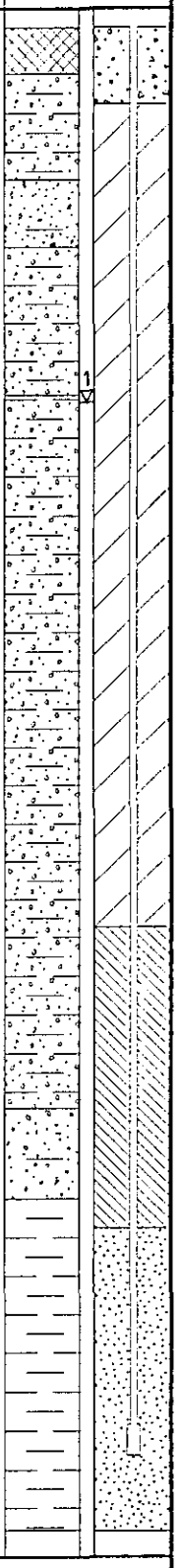
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.30	B		22/01 1999	
0.30-1.00	B			
1.00-1.45	SD	1.00	DRY	11
1.00-1.45	B			
1.45-2.00	B			
2.00-2.45	SD	1.70	DRY	16
2.00-2.45	B			
2.45-3.10	B			
3.10-3.55	SD	3.00	WET	13
3.10-3.55	B			
3.55			25/01	
3.80	D			
4.10-4.55	UF	4.00	WET	
4.10-4.65	B			
4.65-5.10	SD	4.60	WET	34
4.65-5.10	B			
5.60	D			
6.10-6.55	SD	6.00	WET	41
6.10-6.55	B			
7.10	D			
7.20-7.65	SD	7.10	WET	45
7.20-7.80	B			
7.80	D			
7.95-8.39	SD	7.65	WET	50/ 285
7.95-8.40	B			
8.90	D			
9.50-9.93	SD	9.00	WET	50/ 275
9.50-9.93	B			

Strata

Description	Depth (Thickness)	Level
	G.L.	83.80
MADE GROUND: Turf over firm dark brown sandy clay with occasional angular to subrounded fine to medium quartzitic, and brick gravel. Occasional rootlets.	0.30	83.50
Firm brown sandy CLAY with a little angular to subrounded fine to medium quartzitic, and flint gravel. Occasional rootlets.	(0.70)	
	1.00	82.80
Medium dense brown very clayey fine to coarse SAND with occasional angular to subrounded fine to medium quartzitic, chalk, and flint gravel. Occasional grey clay partings.	(0.45)	
	1.45	82.35
Stiff light brown mottled light grey very sandy CLAY with a little angular to subrounded fine to coarse chalk, quartzitic, and sandstone gravel. Numerous sand partings. Below 2.00m: occasional orange brown silty fine sand partings	(1.00)	
	2.45	81.35
Firm becoming stiff grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk, quartzitic, and sandstone gravel. Numerous sand partings.	(4.75)	
	7.20	76.60
Dense grey brown very clayey sandy angular to subrounded fine to coarse quartzitic, sandstone, and ironstone GRAVEL.	(0.60)	
	7.80	76.00
Very stiff grey CLAY with occasional subangular fine to coarse siltstone gravel.		

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 9.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	2.50	Slow seepage	

Ground Level: 83.80 m OD

Coordinates: 475461.119 mE, 254948.914 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. On completion of the borehole a 19mm piezometer was installed with the tip at 9.50m and the sand response zone between 10.00 and 8.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 5(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			25/01	
10.50	D			
11.00-11.38	SD	9.00	DRY	47/
11.00-11.38	B			155
12.00	D			
12.30-12.63	SD	9.00	DRY	50/
12.30-12.63	B			180
13.00	D			
13.40-13.72	SD	9.00	DRY	50/
13.40-13.72	B			180
14.30	D			
14.70-15.00	SD	9.00	DRY	49/ 150
15.00			26/01	

Strata

Description	Depth (Thickness)	Level
Below 11.00m: occasional shell fragments	(7.20)	
	15.00	68.80
End of Borehole.		

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.00m

Casing Dia (mm): 150 to 9.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.80 m OD

Coordinates 475461.119 mE
254948.914 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 5(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			06/01 1999	
0.50-0.95	SD	NIL	DRY	8
0.50-1.00	B			
1.30	D			
1.50-1.95	U(39)	1.50	DRY	
1.95-2.10	D			
2.50-2.95	SD	2.50		23
2.50-3.00	B			
2.60	W			
3.10	D			
3.50-3.95	SD	3.50		45
3.50-4.00	B			
4.20	D			
4.50-4.95	SD	4.50		35
4.50-5.00	B			
5.30	D			
5.50-5.95	U(43)	5.50		
5.95-6.10	D			
6.50	W	6.00	3.80	
6.50			07/01	
6.50	D			
7.00-7.45	U(65)	6.50		
7.45-7.60	D			
8.00	D			
8.50-8.95	U(52)	7.50		
8.95-9.10	D			
9.50	D			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Firm light brown mottled grey clay with a little angular to subrounded fine to medium quartzitic and chalk gravel. Occasional brick fragments.	G.L. (1.30)	83.69
Firm to stiff light brown mottled grey CLAY with occasional angular to subrounded fine to medium quartzitic and chalk gravel. Occasional silt partings.	1.30 (1.30)	82.39
Medium dense brown slightly silty fine to coarse SAND.	2.60 (0.50)	81.09
Very stiff grey CLAY with a little subrounded fine to medium quartzitic and chalk gravel.	3.10 (0.50)	80.59
Dense brown fine to medium SAND.	3.60	80.09
Very stiff becoming very stiff grey very silty CLAY with a little angular to subrounded fine to medium quartzitic and chalk gravel.	3.80 (0.90)	79.89
Very stiff grey CLAY with a little angular to subrounded fine to medium quartzitic and chalk gravel.	4.70 (1.80)	78.99
Grey clayey sandy angular to subrounded fine to medium quartzitic GRAVEL.	6.50	77.19
Very stiff grey CLAY with occasional silt partings.	6.80 (3.65)	76.89
Below 8.95m: occasional subrounded fine to medium siltstone gravel.		

Legend: 1 ▽ 1 ▽ 2 ▽ 2 ▽

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 7.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	2.60	Rose to 2.00m in 20 mins	
2	6.50	Rose to 5.30m in 20 mins	

Ground Level 83.69 m OD

Coordinates 475709.656 mE, 254905.429 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 6(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	7.50	07/01	44

Strata

Description	Depth (Thickness)	Level	Legend
End of Borehole.	10.45	73.24	

Equipment: Cable percussion

Borehole Dia (mm) 150 to 10.45m

Casing Dia (mm) 150 to 7.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 83.69 m OD

Coordinates 475709.656 mE
254905.429 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 6(2 of 2)

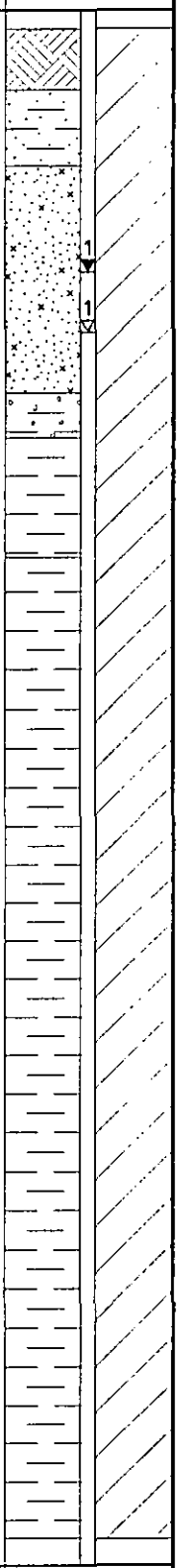
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			07/01 1999	
0.50-0.95 0.50-1.00	SD B			6
1.50-1.95 1.50-2.00	SD B	1.00		7
2.00	W			
2.50-2.95	U(36)	2.50		
2.95-3.10	D			
3.10			08/01	
3.50-3.95 3.50-4.00	SD B	3.00	DRY	19
4.50-4.95	U(33)	3.00	DRY	
4.95-5.10	D			
5.50-5.95 5.50-6.00	SD B	3.00	DRY	27
6.50	D			
7.00-7.45	U(46)	3.00	DRY	
7.45-7.60	D			
8.00	D			
8.50-8.95 8.50-9.00	SD B	3.00	DRY	40
9.50	D			

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL.**	G.L. (0.40)	81.49
Soft orange brown sandy CLAY with occasional angular to subrounded fine quartzitic gravel.	0.40 (0.50)	81.09
Loose orange brown slightly clayey fine to medium SAND with occasional angular to subrounded fine quartzitic gravel.	0.90 (1.50)	80.59
Firm grey CLAY with occasional subrounded fine to medium chalk gravel.	2.40 2.70	79.09 78.79
Stiff grey CLAY with occasional silty fine sand partings.	(0.80)	
Stiff grey CLAY with occasional subrounded fine to medium siltstone gravel, and silt partings.	3.50	77.99
From 4.95 to 6.00m: occasional shell fragments.		
From 8.50m to 9.00m: fine to coarse siltstone gravel.	(6.95)	

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 3.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	2.00	Rose to 1.60m in 20 mins	

Ground Level 81.49 m OD
Coordinates 475728.210 mE
254818.705 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks 1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 7(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	3.00	08/01 DRY	38

Strata

Description	Depth (Thickness)	Level	Legend
End of Borehole.	10.45	71.04	

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 3.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 81.49 m OD

Coordinates 475728.210 mE
254818.705 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 7(2 of 2)

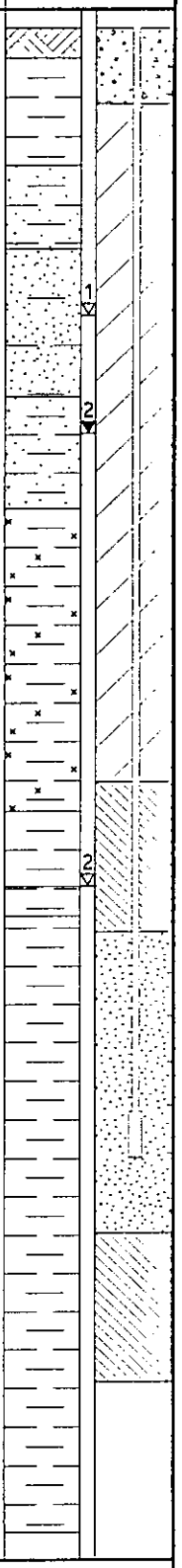
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-1.00	B		06/01 1999	
0.50	D			
1.00-1.45	U(39)	1.00	DRY	
1.45	D			
1.45-2.00	B			
2.00-2.45	SD	1.70	WET	30
2.00-2.45	B			
2.45-2.70	B			
2.70	D			
2.75-3.20	SD	2.70	2.40	39
2.75-3.20	B			
3.20	D			
3.20-3.75	B			
3.75-4.15	U(40)	3.20	WET	
4.20	D			
4.25-4.75	B			
4.75-5.20	SD	4.40	DRY	46
4.75-5.20	B			
5.20	D			
5.25-5.70	B			
5.70	D	4.70		
5.75-6.20	SD	5.75	2.70	32
2.70	W			
6.20-7.25	B			
6.75	D			
7.25-7.70	SD	6.00		42
7.25			07/01	
7.25-7.70	B			
7.70-8.75	B			
8.00	D			
8.75-9.20	SD	6.00	DRY	48
8.75-9.20	B			
9.20-10.25	B			
9.50	D			

Strata

Description	Depth (Thickness)	Level
	G.L.	82.16
Brown clayey TOPSOIL and gravel.**	0.20	81.96
Firm light brown mottled grey CLAY with a little angular to subrounded fine to medium quartzitic and chalk gravel. Occasional decomposed selenite crystals.	(0.70)	
Stiff light brown mottled orange brown slightly sandy CLAY with a little angular to subrounded fine to coarse quartzitic and chalk gravel.	0.90 (0.55)	81.26
Dense brown very clayey fine to coarse SAND with occasional firm grey clay pockets (<100mm) with a little angular to subrounded fine to medium chalk gravel.	1.45 (1.00)	80.71
Very stiff grey slightly sandy CLAY with occasional angular to subrounded fine to medium quartzitic and chalk gravel. Occasional clayey sand bands (<50mm). Below 2.75m: occasional silty sand pockets (<50mm).	2.45 (0.75)	79.71
Very stiff blue grey very silty CLAY with occasional subrounded fine chalk gravel. Occasional orange brown silt partings (<2mm).	3.20 (2.00)	78.96
Very stiff grey CLAY with a little angular to subrounded fine to medium quartzitic and chalk gravel.	5.20 (0.50)	76.96
Very stiff blue grey CLAY with occasional angular to subrounded fine to medium chalk gravel.	5.70	76.46
Very stiff grey CLAY with occasional angular to subrounded fine to medium siltstone gravel.	5.90	76.26
Below 8.75m: occasional fine to coarse siltstone gravel.		

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.20m

Casing Dia (mm): 150 to 6.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	1.90	Slow seepage	
2	5.70	Rose to 2.70m in 20 mins	

Ground Level: 82.16 m OD

Coordinates: 475681.278 mE, 254856.369 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. A little water was added between 7.50 and 15.20m to assist drilling.
2. On completion of the borehole a 19mm piezometer was installed with the tip at 7.50m and the sand response zone between 8.00 and 6.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 8(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			07/01	
10.25-10.68	SD	6.00	DRY	51/
10.25-10.65	B			265
10.65-11.80	B			
11.00	D			
11.80-12.18	SD	6.00	DRY	50/
11.80-12.20	B			218
12.20-13.40	B			
12.60	D			
13.40-13.78	SD	6.00	DRY	50/
13.40-13.80	B			215
13.80-14.90	B			
14.10	D			
14.90-15.15	SD	6.00	DRY	50/
14.90-15.20	B			100

Strata

Description	Depth (Thickness)	Level
Below 10.65m: occasional fine gravel size shell fragments.	(9.00)	
Light grey SILTSTONE, very weak.	14.90	67.26
	15.20	66.96
End of Borehole.		

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.20m

Casing Dia (mm): 150 to 6.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 82.16 m OD

Coordinates 475681.278 mE
254856.369 mN

Drilled by BG
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 8(2 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			12/01 1999	
0.30	D			
0.50-0.95	U(15)	NIL	DRY	
0.95	D			
1.20	D			
1.50-1.95	SD	NIL	DRY	15
1.50-2.00	B			
2.20	D			
2.50-2.85	U(60)	1.50	DRY	
2.85	D			
2.90	D			

Strata

Description	Depth (Thickness)	Level
	G.L.	
MADE GROUND: Firm dark brown sandy clay with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Numerous rootlets.	(0.80)	
	0.80	
MADE GROUND: Firm dark brown sandy clay with occasional angular to subrounded fine to medium chalk and quartzitic gravel. Occasional dark grey clay pockets (<25mm).	(2.05)	
	2.85	
MADE GROUND: Firm to stiff grey slightly sandy clay with a little angular to subrounded fine to medium brick, concrete and tarmac gravel.	2.90	
End of Borehole.		

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 2.90m

Casing Dia (mm): 150 to 1.50m

Groundwater

No. Struck Behaviour Sealed

No groundwater encountered

Drilled by DF
Logged by DS
Checked by CM

Remarks 1. Borehole terminated on unknown obstruction and backfilled with arisings.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 9(1 of 1)

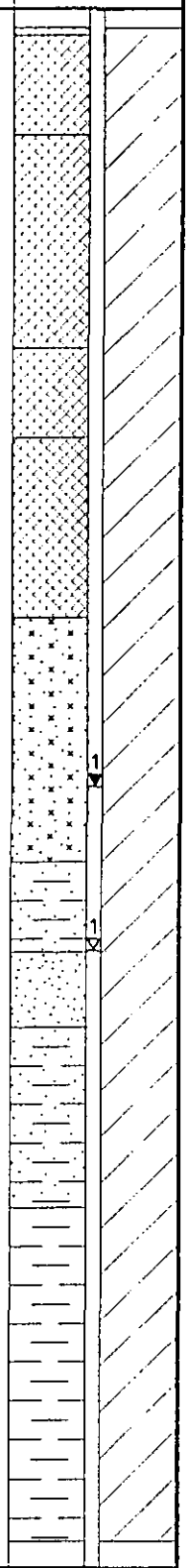
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00			13/01 1999	
0.30	D			
0.50-0.95	U(17)	NIL	DRY	
0.95	D			
1.20	D			
1.50-1.95	SD	NIL	DRY	15
1.50-2.00	B			
2.20	D			
2.50-2.95	U(50)	1.50	DRY	
2.95	D			
3.20	D			
3.50	SD	1.50	DRY	23
3.50-4.00	B			
4.30	D			
4.50-4.95	U(75)	1.50	DRY	
4.95	D			
5.70	D			
6.00	SD	1.50	DRY	49
6.00-6.50	B			
6.10	W			
6.80	D			
7.00	SD	6.80	DRY	49
7.00-7.50	B			
7.90	D			
8.00-8.45	U(70)	6.80	DRY	
8.45	D			
9.00	D			
9.50	SD	6.80	DRY	37
9.50-10.00	B			

Strata

Description	Depth (Thickness)	Level
	G.L.	84.21
MADE GROUND: Topsoil.**	0.05	84.16
MADE GROUND: Firm grey mottled brown slightly sandy clay with occasional angular fine to medium quartzitic gravel. Numerous rootlets.	(0.65)	
	0.70	83.51
MADE GROUND: Firm to stiff light brown mottled dark brown sandy clay with occasional angular to subrounded fine to medium chalk and quartziztic gravel. Occasional rootlets.	(1.40)	
	2.10	82.11
MADE GROUND: Firm grey mottled brown slightly sandy clay with a little angular to subrounded fine to medium chalk and quartzitic gravel. Occasional sand partings.	(0.60)	
	2.70	81.51
MADE GROUND: Stiff grey brown sandy clay with a little angular to subrounded fine to medium chalk and quartzitic gravel, with brick fragments. Occasional carbonised root remnants.	(1.20)	
	3.90	80.31
Very dense light brown mottled green brown slightly sandy SILT with occasional angular to subrounded fine to medium sandstone and quartzitic gravel.	(1.60)	
	5.50	78.71
Very stiff grey mottled brown slightly sandy CLAY with a little angular to subrounded fine to coarse chalk and quartzitic gravel.	(0.60)	
	6.10	78.11
Dense brown fine to medium SAND.	(0.50)	
	6.60	77.61
Very stiff becoming very stiff grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk and quartzitic gravel.	(1.20)	
	7.80	76.41
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.		

Legend



Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm) . Casing Dia (mm)
150 to 15.00m 150 to 6.80m
P to 25.00m P to 15.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	6.10	Rose to 5.01m in 20 mins	

Ground Level 84.21 m OD
Coordinates 475621.650 mE
254804.162 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

1. Chiselling from 14.80m to 15.00m (1 hour).
2. Borehole was left open to enable rotary follow on drilling from 15.00m.
3. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 9A(1 of 3)

Sampling

Depth / Drill Run	Type / TCR(SCR)	Casing (RQD)	Date/ Water	SPT N (Cu) /FI
			13/01	
10.50	D			
11.00-11.45	U(100)	6.80	DRY	
11.45	D			
12.00	D			
12.50	SD	6.80	DRY	51
12.50-13.00	B			
13.00			14/01	
13.50	D			
14.00	SD	6.80	DRY	50/
14.00-14.50	B			195
14.80	D			
14.90	C	6.80	DRY	50/ 20
15.00				
	Open Holed		19/01	
15.50		15.00		1
	80% (80%)	(80%)		
16.00				NI
				<15
	100% (26%)	(26%)		
				NI
17.00				
				5
	96% (60%)	(58%)		
				7
18.40				
				7
	93%			

Strata

Description	Depth (Thickness)	Level
Below 12.00m: occasional silt partings.	(7.00)	
Below 13.50m: occasional shell fragments.		
Light grey SILTSTONE, very weak.	14.80	69.41
	14.90	69.31
Grey medium fractured calcareous SILTSTONE, moderately weak, with occasional fossil shell fragments. Fractures are subhorizontal, irregular, and tight.	(1.10)	
	16.00	68.21
Very stiff grey CLAY with occasional shell fragments.	16.21	68.00
	16.27	67.94
Grey SILTSTONE, moderately weak, with occasional fossil shell fragments.	16.45	67.76
Grey extremely closely to very closely fractured MUDSTONE, very weak, with occasional fossil shell fragments. Fractures are subhorizontal to subvertical, irregular, and tight.	(0.55)	
	17.00	67.21
Very stiff grey CLAY.	(1.00)	
Grey medium to widely fractured MUDSTONE, very weak. Fractures are subhorizontal to subvertical, smooth, and planar. From 17.73m to 18.00m: subvertical fracture	18.00	66.21
	(0.40)	
Grey very closely to closely fractured SILTSTONE, moderately weak. Fractures are subhorizontal to subvertical, irregular, and planar.	18.40	65.81
Grey mottled light grey medium to widely fractured LIMESTONE, moderately strong. Fractures are subhorizontal to subvertical, irregular, and rough.	(1.92)	

Legend

Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm): 150 to 15.00m, P to 25.00m
Casing Dia (mm): 150 to 6.80m, P to 15.00m

Groundwater
No. Struck Behaviour Sealed

Ground Level 84.21 m OD
Coordinates 475621.650 mE
254804.162 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 9A(2 of 3)

Sampling

Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N FI
	(78%)	(64%)	19/01	
				5
21.40				NI
	93% (78%)	(64%)		2
23.70				NI
	54% (28%)	(16%)		
25.00				

Strata

Description	Depth (Thickness)	Level
Light grey very closely fractured SILTSTONE, weak. Fractures are subhorizontal to subvertical, irregular, and rough.	20.32	63.89
Very stiff grey CLAY with occasional silt partings, and fossil shell laminations (<2mm).	20.45 (2.11)	63.76
Grey mottled light grey closely to medium fractured LIMESTONE, moderately strong. Fractures are subhorizontal, irregular, and rough.	22.56 (0.65)	61.65
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	23.21 (1.79)	61.00
End of Borehole.	25.00	59.21

Legend

Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm): 150 to 15.00m, P to 25.00m
Casing Dia (mm): 150 to 6.80m, P to 15.00m

Groundwater
No. Struck Behaviour Sealed

Ground Level 84.21 m OD
Coordinates 475621.650 mE
254804.162 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 9A(3 of 3)

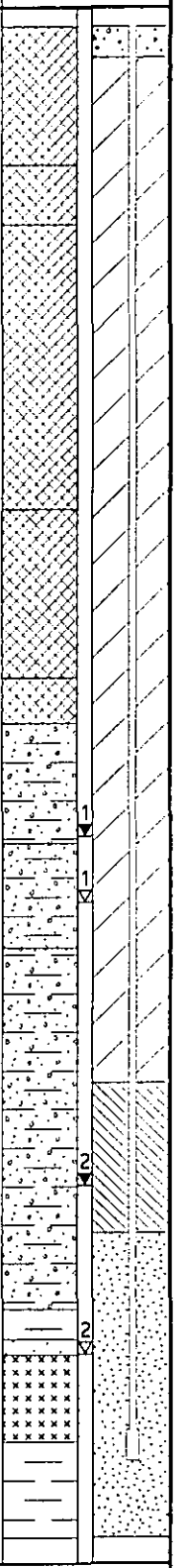
Sampling

Depth / Drill Run	Type / TCR(SCR)	Casing (RQD)	Date/ Water	SPT N (Cu)/Fl
			14/01 1999	
0.30	D			
0.50-0.95	U(10)			
0.95	D			
1.30	D			
1.50	SD	1.50	DRY	3
1.50-2.00	B			
2.20	D			
2.50-2.95	U(25)	2.50	DRY	
2.95	D			
3.30	D			
3.50	SD	3.00	DRY	11
3.50-4.00	B			
4.20	D			
4.40	D			
4.50-4.95	U(50)	3.00	DRY	
4.95	D			
5.00			15/01	
5.60	D			
5.80	W			
6.00	SD	5.50	DRY	16
6.00-6.50	B			
7.00	D			
7.50-7.95	U(90)	6.20	DRY	
7.95	D			
8.60	D			
8.70	D			
8.80	W			
8.80	SD	6.20 9.00	7.68	50/ 4
9.00			21/01	2
				NA

Strata

Description	Depth (Thickness)	Level
	G.L.	84.11
MADE GROUND: Firm brown sandy clay with occasional angular to subrounded fine to medium chalk gravel.	(0.90)	
MADE GROUND: Brown silty fine to medium sand with occasional angular fine to medium concrete fragments. Occasional firm grey clay pockets (<25mm).	0.90 (0.40) 1.30	83.21 82.81
MADE GROUND: Very soft brown slightly sandy clay with a little angular to subrounded fine to medium quartzitic gravel and brick fragments. Numerous sand partings.	(1.90)	
MADE GROUND: Firm grey brown slightly sandy clay with a little angular to subrounded fine to medium chalk gravel, brick and coal fragments.	3.20 (1.10)	80.91
MADE GROUND: Firm dark brown sandy clay with occasional angular to subrounded fine to medium brick, and charcoal fragments. Occasional rootlets.	4.30 4.60	79.81 79.51
Stiff brown mottled dark brown sandy CLAY with a little angular to rounded fine to medium quartzitic gravel with occasional rootlets.	(0.80) 5.40	78.71
Firm light brown sandy CLAY with occasional angular fine chalk, and quartzitic gravel. Occasional sand partings.	(0.70) 6.10	78.01
Stiff becoming very stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk, and quartzitic gravel.	(2.40)	
Very stiff grey CLAY with occasional subangular fine to medium siltstone gravel.	8.50 8.70	75.61 75.41
Very stiff grey sandy CLAY.	8.80 (0.57)	75.31
Grey medium to widely fractured calcareous SILTSTONE, moderately strong, with occasional fossil shell fragments. Fractures are subhorizontal, irregular, and rough.	9.37	74.74
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	(0.90)	

Legend



Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm): 150 to 9.00m, P to 25.50m
Casing Dia (mm): 150 to 6.20m, P to 9.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	5.80	Rose to 5.36m in 20 mins 5.65/5.61/5.43 in 5/10/15 mins	
2	8.80	Rose to 7.68m in 20 mins 8.47/8.09/7.84 in 5/10/15 mins	

Ground Level 84.11 m OD
Coordinates 475573.924 mE
254727.414 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

1. Chiselling from 8.80m to 9.00m (1 hour)
2. Borehole was left open to enable rotary follow on drliing from 9.00m.
3. On completion a 19mm piezometer was installed with the tip at 9.50m and the sand response zone from 10.00 to 8.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project
M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 11(1 of 3)

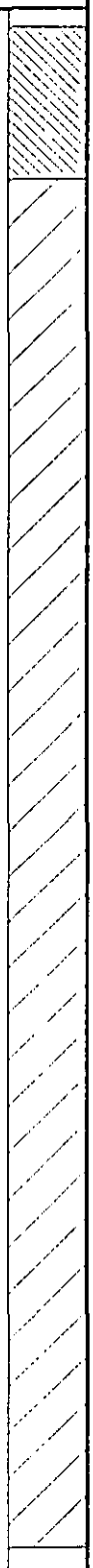
Sampling

Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N Fl
			21/01	
	98% (94%)	(82%)		4
				NI
11.70				2
				8
	97% (69%)	(48%)		6
				10
14.70				NI
	97% (93%)	(79%)		3
17.70				
	100% (75%)	(59%)		

Strata

Description	Depth (Thickness)	Level
Light grey very closely to closely fractured calcareous SILTSTONE, moderately strong. Fractures are subhorizontal to subvertical, irregular, and rough.	10.27 (0.74)	73.84
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	10.43	73.68
Grey widely fractured MUDSTONE, very weak. Fractures are subhorizontal, planar, and tight.	11.17	72.94
Light grey very closely to closely fractured calcareous SILTSTONE, weak. Fractures are subhorizontal, irregular, and rough.	11.44 (0.44)	72.67
Dark grey extremely closely to very closely fractured calcareous SILTSTONE, weak. Fractures are subhorizontal to subvertical, irregular, and open.	11.70 (0.44)	72.41
Grey mottled light grey medium to widely fractured LIMESTONE, moderately strong. Fractures are subhorizontal to subvertical, irregular, and rough. From 12.14m to 12.57m: subvertical fracture	12.14 (1.58)	71.97
Grey extremely closely to very closely fractured MUDSTONE, very weak, with numerous fossil shell partings (<5mm). Fractures are subhorizontal to subvertical, irregular, and tight.	13.72 (0.10)	70.39
Very stiff grey CLAY with occasional fossil shell fragments.	13.82 (2.41)	70.29
Grey mottled light grey closely to medium fractured LIMESTONE, moderately strong. Fractures are subhorizontal, irregular, and rough.	16.23 (0.67)	67.88
Grey MUDSTONE, very weak, with occasional fossil shell fragments.	16.90 (0.08)	67.21
Very stiff grey CLAY with occasional subrounded fine to coarse siltstone gravel. Occasional fossil shell fragments.	16.98 (0.65)	67.13
Very stiff grey CLAY with occasional fossil shell fragments, and silt partings.	17.63	66.48

Legend



Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm): 150 to 9.00m, P to 25.50m
Casing Dia (mm): 150 to 6.20m, P to 9.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 84.11 m OD
Coordinates 475573.924 mE
254727.414 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 11(2 of 3)

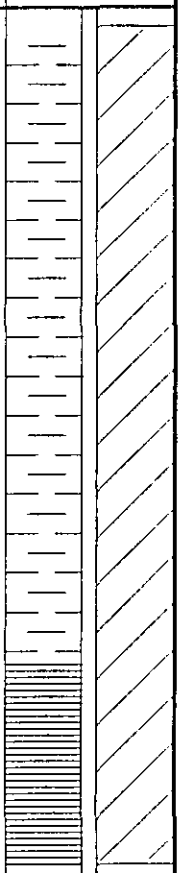
Sampling

Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N Fl
20.20			21/01	NI
	98% (93%)	(88%)		
22.50				
	100% (67%)	(54%)		8
25.50				

Strata

Description	Depth (Thickness)	Level
Below 20.67m: occasional subrounded fine to medium siltstone gravel	(6.55)	
Grey closely to medium fractured calcareous MUDSTONE, very weak, with occasional fossil shell fragments. Fractures are subhorizontal to subvertical, undulating, and tight, with local silt infilling.	24.18 (1.32)	59.93
End of Borehole.	25.50	58.61

Legend



Equipment: Cable percussion
Truck mounted rotary
(Air Mist Flush)

Borehole Dia (mm): 150 to 9.00m, P to 25.50m

Casing Dia (mm): 150 to 6.20m, P to 9.00m

Groundwater

No. Struck Behaviour Sealed

Ground Level 84.11 m OD
Coordinates 475573.924 mE
254727.414 mN

Drilled by DF BL
Logged by DS DS
Checked by CM CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 11(3 of 3)

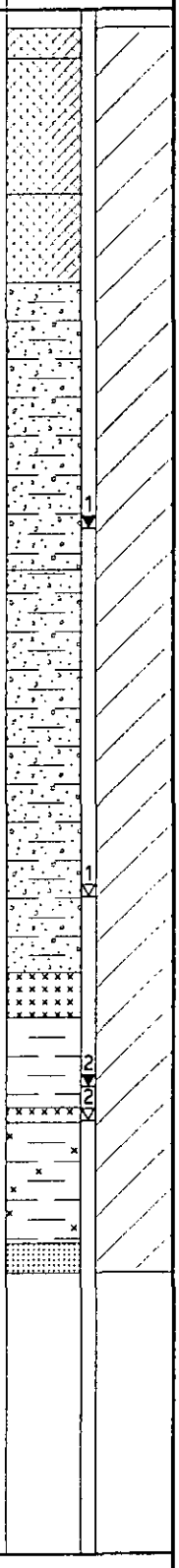
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			18/01 1999	
0.30	D			
0.50-1.00	CB	NIL	DRY	50/ 65
1.40	D			
1.50-1.95	U(30)	1.30	DRY	
1.95	D			
2.30	D			
2.50	SD	1.50	DRY	11
2.50-3.00	B			
3.30	D			
3.50-3.95	U(60)	1.50	DRY	
3.95	D			
4.20	D			
4.50	SD	1.50	DRY	36
4.50-5.00	B			
5.50	D			
6.00-6.35	U(100)	1.50	3.70	
6.35	D			
6.50	D			
6.70	D			
6.70			19/01	
6.70-7.20	B			
7.00	D			
7.20	D			
7.30	W			
7.40	D			
7.50	SD	6.00	DRY	50/ 295
7.50-8.00	B			
8.10	C	6.00	7.70	50/ 10

Strata

Description	Depth (Thickness)	Level
	G.L.	80.37
MADE GROUND: Firm brown clay with occasional stones.**	0.20	80.17
MADE GROUND: Hard brick and concrete cobbles with a little angular fine to coarse gravel size fragments.	(0.90)	
	1.10	79.27
MADE GROUND: Firm green grey mottled dark grey slightly sandy clay with a little angular fine to coarse brick gravel.	(0.60)	
	1.70	78.67
Firm brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk, and quartzitic gravel.		
At 2.50m: occasional plant remnants	(1.90)	
	3.60	76.77
Stiff to very stiff grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk, quartzitic, and siltstone gravel.		
	(2.70)	
	6.30	74.07
Grey SILTSTONE, moderately weak.	6.60	73.77
Stiff grey CLAY.	(0.60)	
	7.20	73.17
Grey SILTSTONE, very weak	7.30	73.07
Very stiff grey very silty CLAY.	(0.80)	
	8.10	72.27
Grey silty fine grained SANDSTONE, weak.	8.30	72.07
End of Borehole.		

Legend



Equipment: Cable percussion

Borehole Dia (mm) 150 to 8.30m

Casing Dia (mm) 150 to 6.00m

Groundwater

No.	Struck	Behaviour	Sealed
1	5.80	Rose to 3.34m in 20 mins 5.62/4.90/3.94 in 5/10/15 mins	
2	7.30	Rose to 7.07m in 20 mins 7.22/7.16/7.12 in 5/10/15 mins	

Ground Level 80.37 m OD
Coordinates 475521.381 mE
254670.351 mN

Drilled by DF
Logged by DS
Checked by CM

Remarks

1. Chiselling from 0.50m to 1.10m (0.75 hr), 6.30m to 6.60m (1 hr), 7.20m to 7.30m (0.25 hr), and 8.10m to 8.30m (1 hr).
2. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 12(1 of 1)

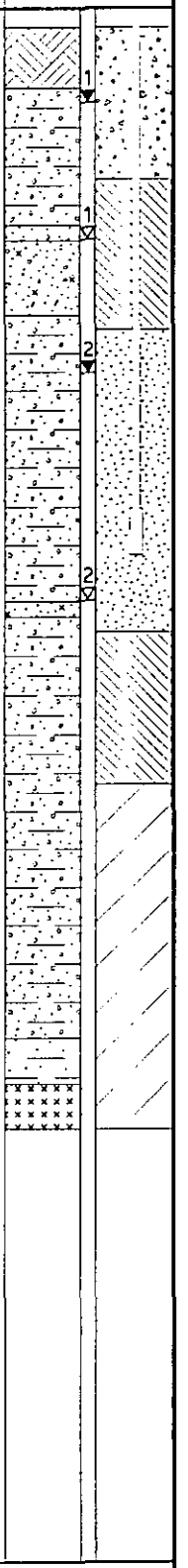
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			21/01 1999	
0.50-0.95	D			
0.50-1.00	B			
1.30	D			
1.40	W			
1.50-1.95	SD	1.00		11
1.90	D			
2.50-2.95	U(48)			
2.95-3.10	D			
3.30	D			
3.50-3.95	SD	2.00		15
3.50-4.00	B			
3.80	W			
4.50-4.95	U(55)			
4.95-5.10	D			
5.50-5.95	SD	4.50		27
5.50-6.00	B			
6.50	D			
6.70	D			
7.00-7.15	SD	4.50		50/ 75

Strata

Description	Depth (Thickness)	Level
Brown clayey TOPSOIL**	G.L. (0.40)	80.09
Soft light brown slightly sandy CLAY with occasional angular to subrounded fine quartzitic gravel.	0.40 (0.90)	79.69
Firm light brown mottled light grey slightly sandy CLAY with occasional angular to subrounded fine chalk, and quartzitic gravel.	1.30 1.40 (0.50)	78.79 78.69
Medium dense brown silty fine to coarse SAND with occasional subrounded fine quartzitic gravel.	1.90 (1.90)	78.19
Firm becoming stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk, and quartzitic gravel.		
Medium dense brown silty fine to medium SAND.	3.80 3.90	76.29 76.19
Stiff becoming very stiff grey slightly sandy CLAY with some angular to subrounded fine to coarse chalk, and quartzitic gravel.	(2.80)	
Very stiff grey slightly sandy CLAY with occasional fossil shell fragments.	6.70 7.00	73.39 73.09
Light grey SILTSTONE, very weak.	7.30	72.79
End of Borehole.		

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 7.30m

Casing Dia (mm): 150 to 4.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	1.40	Rose to 0.50m in 20 mins 1.25/.95/.70 in 5/10/15 mins	
2	3.80	Rose to 2.30m in 20 mins 3.20/2.65/2.45 in 5/10/15 mins	

Ground Level 80.09 m OD

Coordinates 475609.574 mE 254610.572 mN

Drilled by MN

Logged by DS

Checked by CM

Remarks

1. Chiselling from 7.00m to 7.30m (1 hr).
2. On completion of the borehole a 19mm piezometer was installed with the tip at 3.50m and the sand response zone from 4.00 to 2.00m.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 13(1 of 1)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
			19/01 1999	
0.50-0.95	SD	NIL	DRY	8
0.50-1.00	B			
1.10	D			
1.50-1.95	U(35)	1.00	DRY	
1.95-2.10	D			
2.30	D			
2.50-2.95	SD	1.50	DRY	17
2.50-3.00	B			
2.80	D			
3.50-3.95	U(54)	1.50	DRY	
3.95-4.10	D			
4.50-4.95	SD	4.50		24
4.50-5.00	B			
5.50-5.95	U(57)	4.50		
5.95-6.10	D			
6.50	D			
7.00-7.45	SD	4.50		26
7.00-7.50	B			
8.00	D			
8.50-8.95	U(60)	4.50		
8.95-9.10	D			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Soft to firm brown clayey topsoil**	G.L.	80.43
	(0.40)	
MADE GROUND: Firm brown occasionally mottled dark brown slightly sandy clay with occasional angular to subrounded fine to medium quartzitic and brick gravel.	0.40	80.03
	(0.70)	
Stiff light brown occasionally mottled grey slightly sandy CLAY with a little angular to subrounded fine chalk, and quartzitic gravel.	1.10	79.33
	(1.20)	
Stiff dark brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk and quartzitic gravel.	2.30	78.13
	(0.50)	
Very stiff grey sandy CLAY with some angular to subrounded fine to coarse chalk, quartzitic, and sandstone gravel.	2.80	77.63
From 4.10m to 4.15m: grey brown silty fine to medium sand pocket or band		
	(4.20)	
Very stiff grey CLAY.	7.00	73.43
	(3.45)	

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 4.50m

Groundwater

No.	Struck	Behaviour	Sealed
1	4.10	Rose to 4.00m in 20 mins Slow seepage	4.15

Ground Level: 80.43 m OD

Coordinates: 475693.788 mE, 254582.307 mN

Drilled by: MN

Logged by: DS

Checked by: CM

Remarks

1. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 14(1 of 2)

Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
10.00-10.45	SD	4.50	19/01	32

Strata

Description	Depth (Thickness)	Level
End of Borehole.	10.45	69.98

Legend

Equipment: Cable percussion

Borehole Dia (mm): 150 to 10.45m

Casing Dia (mm): 150 to 4.50m

Groundwater

No. Struck Behaviour Sealed

Ground Level 80.43 m OD

Coordinates 475693.788 mE
254582.307 mN

Drilled by MN
Logged by DS
Checked by CM

Remarks

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 14(2 of 2)

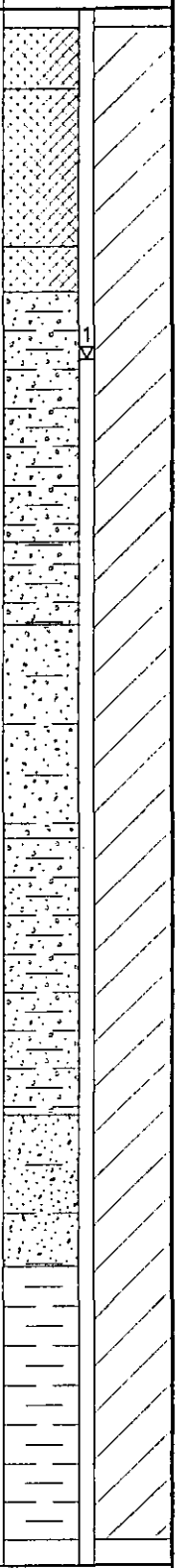
Sampling

Depth	Type	Casing Depth	Date/ Water	SPT N (Cu)
0.00-0.40	B		26/01 1999	
0.40-1.20	B			
1.20-1.65	SD	1.20	DRY	11
1.20-1.65	B			
1.65-2.20	B			
2.20-2.65	SD	2.20	DRY	13
2.20-2.65	B			
2.65-3.20	B			
3.20-3.65	SD	3.10	WET	21
3.20-3.65	B			
3.65	D			
3.75-4.20	U(88)F	3.75	DAMP	
3.75-4.40	B			
4.40-4.85	C	4.40	DAMP	13
4.40-5.35	B			
5.35	D			
5.50-5.95	SD	5.50	DAMP	22
6.50	D			
6.50			27/01	
4.05	W			
7.00-7.45	SD	7.00	6.30	31
7.00-7.45	B			
7.45-8.20	B			
8.30	D			
8.50-8.95	SD	8.40	DAMP	42
9.50	D			

Strata

Description	Depth (Thickness)	Level
MADE GROUND: Firm brown slightly sandy clay with a little angular to subrounded fine to medium quartzitic and brick gravel. Numerous rootlets.	G.L. (0.40)	83.13
MADE GROUND: Firm light brown clayey fine to coarse sand with some angular fine to coarse quartzitic, brick, and concrete gravel.	0.40 (1.05)	82.73
MADE GROUND: Firm green brown slightly sandy clay with a little angular fine to medium brick gravel.	1.45 (0.30)	81.68
Firm light brown mottled grey slightly sandy CLAY with a little angular to subrounded fine to coarse chalk and flint gravel. Numerous sand partings.	1.75 (1.65)	81.38
Stiff grey sandy CLAY with a little angular to subrounded fine to coarse chalk and quartzitic gravel. Numerous sand partings.	3.40 (0.55)	79.73
Medium dense grey brown clayey sandy angular to subrounded fine to coarse quartzitic and sandstone GRAVEL.	3.95 (1.40)	79.18
Stiff grey slightly sandy CLAY with a little angular to subrounded fine to medium chalk, and quartzitic gravel. Numerous sand partings.	5.35 (1.85)	77.78
Dense grey brown clayey fine to coarse SAND with some angular to subrounded fine to coarse quartzitic and flint gravel.	7.20 (1.00)	75.93
Very stiff grey CLAY with occasional subrounded fine to medium siltstone gravel.	8.20	74.93

Legend



Equipment: Cable percussion

Borehole Dia (mm): 150 to 15.02m

Casing Dia (mm): 150 to 8.90m

Groundwater

No.	Struck	Behaviour	Sealed
1	2.20	Very slow seepage	

Ground Level: 83.13 m OD

Coordinates: 475580.119 mE, 254862.973 mN

Drilled by: BG
Logged by: DS
Checked by: CM

Remarks

1. Service inspection pit hand excavated to 1.20m.
2. On completion the borehole was backfilled with grout.

See key sheet and appendices for explanations.

Form 1/0

Borehole Record

Exploration Associates

Project

M1 Jtn 15 Reconstruction, Grange Park, Northampton
Alfred McAlpine Civil Engineering

Contract 118488

Borehole 15(1 of 2)

APPENDIX H
RECENT SEARCH RESPONSES

Darren Bench

From: Simon Hilditch [Simon.Hilditch@bwbconsulting.com]
Sent: 28 March 2018 15:19
To: Darren Bench
Cc: ian.rigby@roxhill.co.uk
Subject: FW: Northampton Gateway - highway design for J16 and J15A - Email 1 of 3
Attachments: 7_M1_7985_443563 .pdf; 7_M1_7985_443565.pdf; DSCN0504.pdf; 7_M1_8156_418730.pdf

Darren

Trust this is all you need to complete the PSSR?

Simon

From: Boniface, Terence <Terence.Boniface@highwaysengland.co.uk>
Sent: 28 March 2018 13:35
To: Stuart Dunhill <Stuart.Dunhill@ADCinfrastructure.com>; Stewart, Emma <Emma.Stewart@highwaysengland.co.uk>
Cc: Ian Rigby <Ian.Rigby@roxhill.co.uk>; 'DBench@rsk.co.uk' <DBench@rsk.co.uk>; Seldon, Martin <Martin.Seldon@highwaysengland.co.uk>
Subject: RE: Northampton Gateway - highway design for J16 and J15A - Email 1 of 3

HA GDMS screenshots for 97/7 – 97/5 SB on slip, with the associated geotechnical defect observations highlighted and corresponding “Current Observation Details” summaries attached. Photograph DSC0504 (showing “desiccation or tension cracks” is associated with Observation 7_M1_7985_443565)

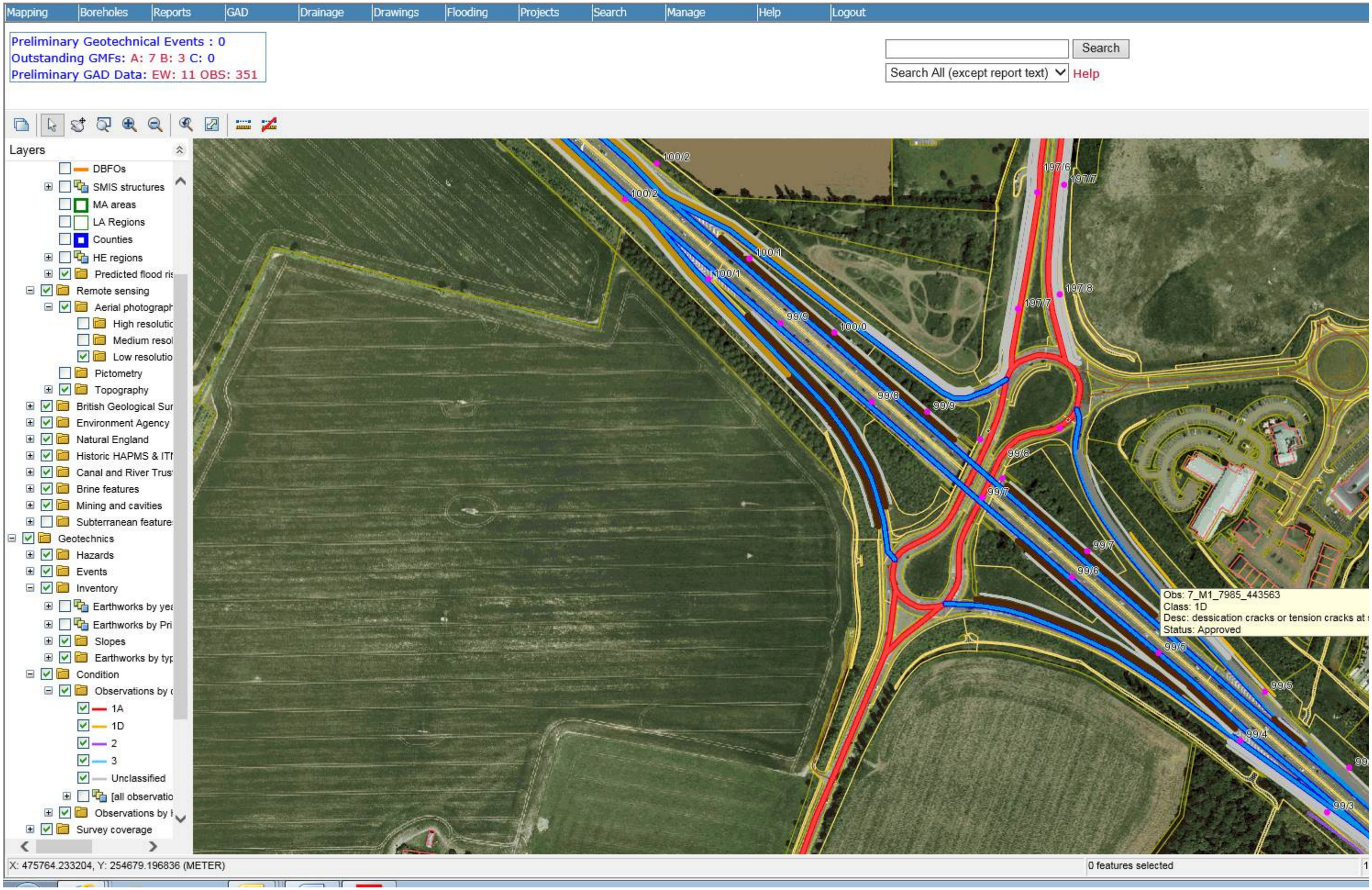
The Class 2 observation (7_M1_8156_418730) is just south of the NB off slip, and may be outwith the particular area of interest, but is generally reflective of the local geometry. This stretch of the M1 is part of the original construction (~ 60 years old), with slopes in the order of 20-25 up to 30 degr (relatively steep for the insitu geological conditions), with generally narrow verges (e.g. typically ~ 1m wide).

N.B. these observations are dated 2012/2013, based on the last round of Principal Inspections (by Aone+). The next round of inspections for these assets (M1 J15a – Courteenhall MP 97/9) is due to be carried out in mid-April 2018 (as part of 5 yearly programme); revised details / defect conditions (if any) will be advised as soon as possible.

Hope these help clarify the comments previously provided.

Kind regards,

Terry Boniface | EMAD Geotechnical Asset Manager
Highways England | Stirling House (Area 7) | Lakeside Court, Osier Drive | Sherwood Business Park | Nottingham | NG15 0DS
Tel: +44 (0) 300 470 7738 **Mobile:** +44 (0)7714 838 051
E-mail: terence.boniface@highwaysengland.co.uk
Web: http://www.highways.gov.uk
GTN: 0300 470 7738


Mapping
Boreholes
Reports
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Drainage
Drawings
Flooding
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Preliminary Geotechnical Events : 0
Outstanding GMFs: A: 7 B: 3 C: 0
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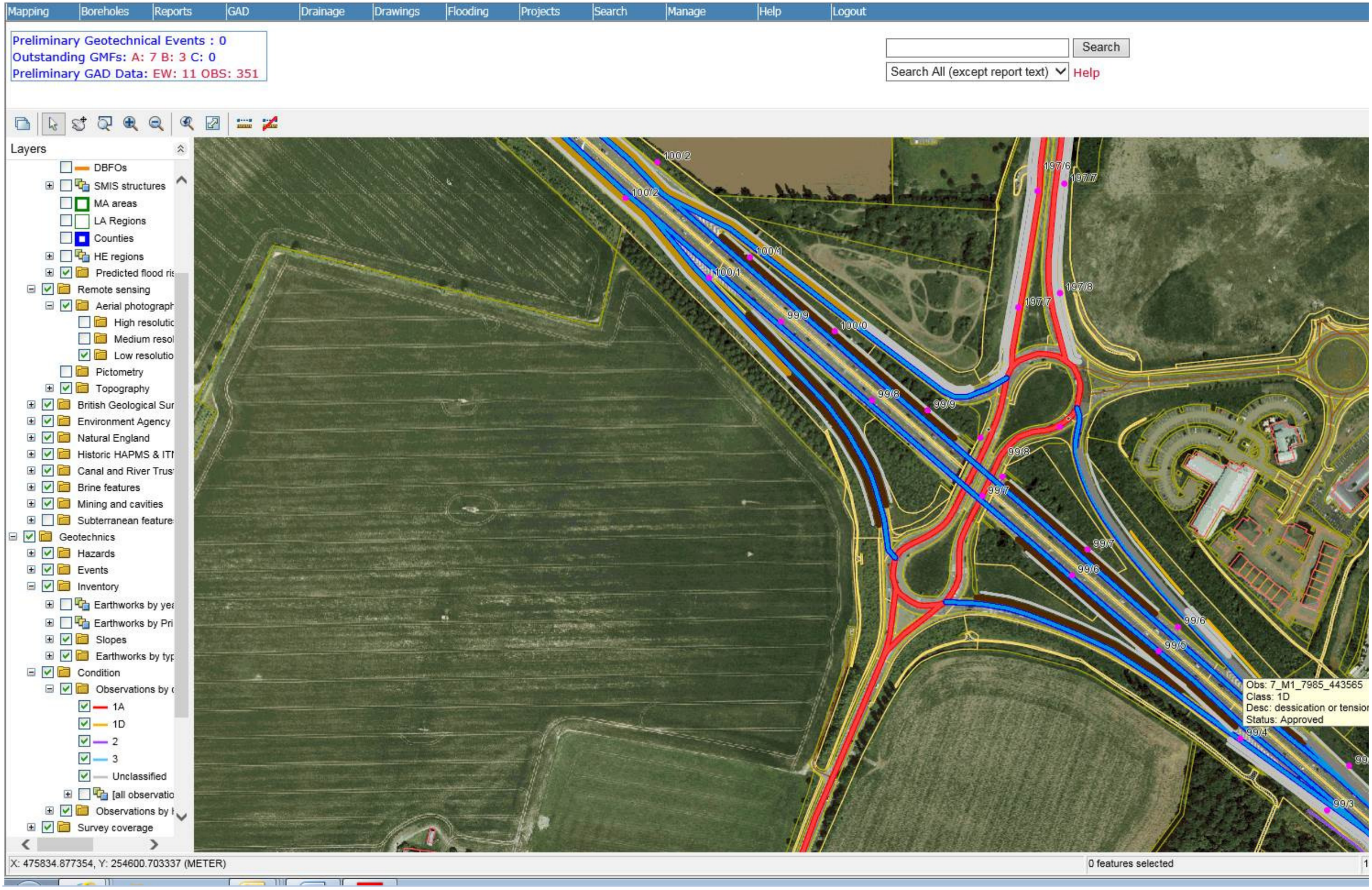
197/8
Obs: 7_M1_7985_443563
Class: 1D
Desc: dessication cracks or tension cracks at
Status: Approved
X: 475764.233204, Y: 254679.196836 (METER)
0 features selected


Mapping
Boreholes
Reports
GAD
Drainage
Drawings
Flooding
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Manage
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Logout
Preliminary Geotechnical Events : 0
Outstanding GMFs: A: 7 B: 3 C: 0
Preliminary GAD Data: EW: 11 OBS: 351
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Obs: 7_M1_7985_443565
Class: 1D
Desc: dessication or tensior
Status: Approved
X: 475834.877354, Y: 254600.703337 (METER)
0 features selected

Mapping | Boreholes | Reports | GAD | Drainage | Drawings | Flooding | Projects | Search | Manage | Help | Logout

Preliminary Geotechnical Events : 0
Outstanding GMFs: A: 7 B: 3 C: 0
Preliminary GAD Data: EW: 11 OBS: 367

Search
Search All (except report text)
Help

Layers

- Base mapping
  - Ordnance Survey
  - Highways England
    - Marker posts
    - Road sections (HA
    - HAPMS network
    - HAGDMS network
    - DBFOs
    - SMIS structures
    - HA land ownershi
    - MA areas
    - LA Regions
    - Counties
    - HE regions
    - Predicted flood ris
  - Remote sensing
    - Aerial photograph
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      - Low resolutio
    - Pictometry
    - Topography
  - British Geological Sur
  - Environment Agency
  - Natural England
  - Historic HAPMS & ITI
  - Canal and River Trust
  - Brine features
  - Mining and cavities
  - Subterranean feature
- Geotechnics
  - Hazards
  - Events
  - Inventory
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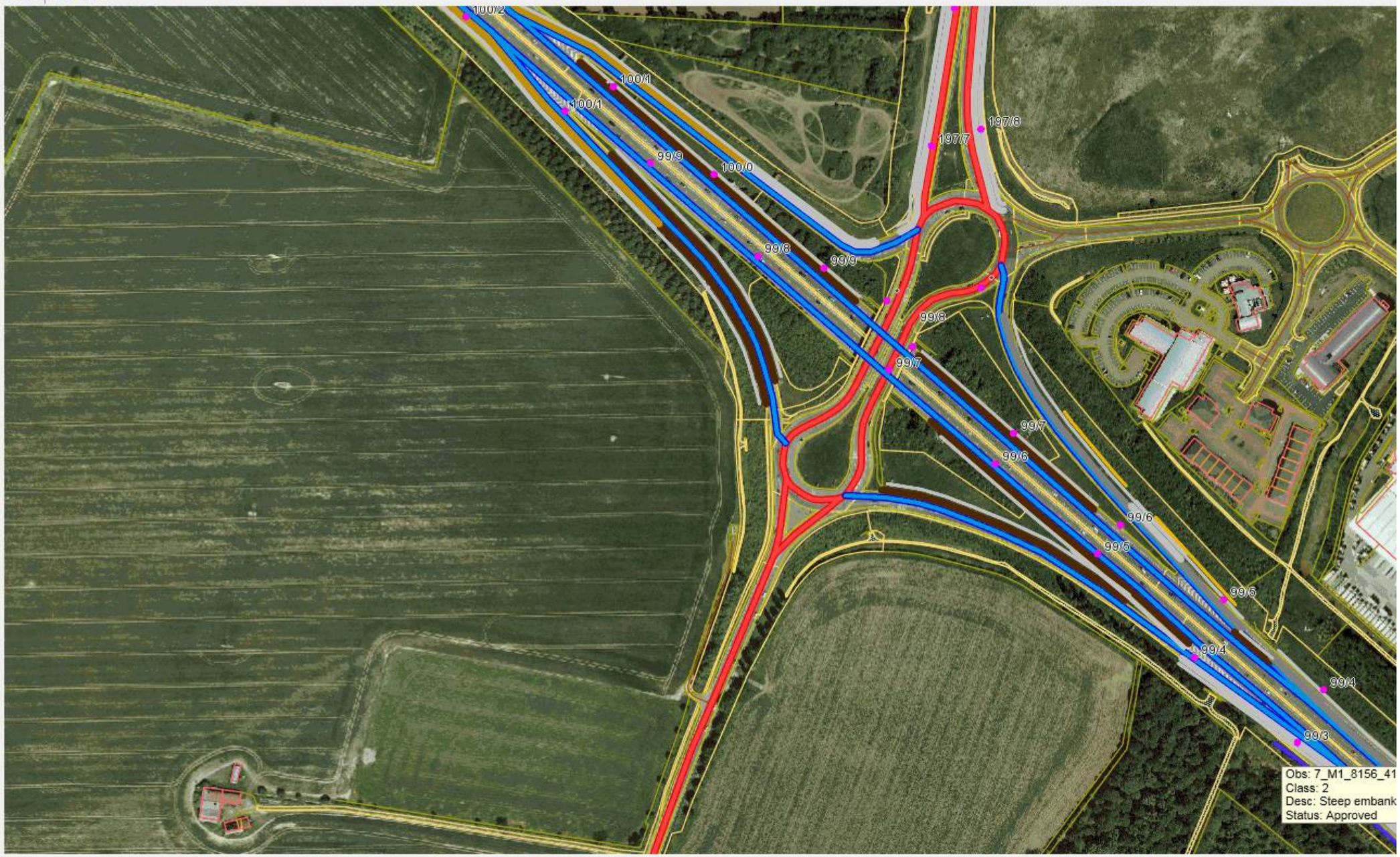
    - Observations by c



X: 475895.833666, Y: 254470.549765 (METER)

1 2 selected

Current Observation Details

Observation: 443563 Unique ref: 7_M1_7985_443563 Geotechnical Events: No Status: Approved 19/03/2012

Inspection: **10/12/2013 sl & jp Repeat PI**

Observation	Inspection	Date	Type	Action	Category	Loc. Index	Forms ABC	Events	more...
Current	**Details**	**23/03/2010**	**Repeat PI**	**Created**	**1D**	**C**			
Inspectors: ab +Rb	**Weather:** Dry	**Survey Equipment:** pda, gps, compass clino		**Accuracy:** 10 m					
as above	**Details**	**10/12/2013**	**Repeat PI**	**Confirmed**	**1D**	**C**			
Inspectors: sl & jp	**Weather:** Dry	**Survey Equipment:** trimble compass / clino camera		**Accuracy:** 5 m					

Access Constraints

Reason for non inspection	Other reason

Project

No Linked Project

Vegetation

Bare Ground	Grass	Brambles	Shrubs	Trees
None	None	None	Extensive Small	None

Direct Characteristics

- ☐ Wedge/Block Failure
- ☐ Planar Failure
- ☐ Subsidence
- ☐ Slip
- ☐ Slope Bulge
- ☐ Terracing
- ☐ Ravelling
- ☐ Toe Debris
- ☐ Leachate
- ☑ Tension Cracks
- ☑ Desiccation
- ☐ Poor Backfilled Excavation
- ☐ Unbackfilled Excavation

Indirect Characteristics

- ☐ Cracked Pavement
- ☐ Distorted Structure
- ☑ Dislocated Trees
- ☐ Disloc Fence/Barrier/Kerb
- ☐ Debris Fence
- ☐ Landfill site in Proximity
- ☐ Communications/Cable Trench
- ☐ Other
- ☐ Animal Burrowing

Water related Characteristics

- ☐ Seepage
- ☐ Marshy
- ☐ Ponding
- ☐ Erosion
- ☑ Hydro Vegetation
- ☐ High MC

Special Geotechnical Measures

- ☐ Geogrid
- ☐ Steel Mesh
- ☐ Interlock. Blocks
- ☐ GeoTextile
- ☐ Gabions
- ☐ Rock Bolts
- ☐ Defect
- ☐ Concrete Ret. Wall
- ☐ Temporary Repair
- ☐ Block Ret. Wall
- ☐ Crib Wall
- ☐ Granular Replacement
- ☐ Rock Fill
- ☐ Sheet Piles
- ☐ Soil Nails
- ☐ Regrade
- ☐ Other

Vertical Extent:

Causal Hazards and Defect Triggers

	Causal Hazards	Defect Triggers
Primary:		
Secondary:		
Tertiary:		

Non Routine Maintenance Requirements

Requirement

Details

Frequency Every

☐ To be confirmed

Description

dessication cracks or tension cracks at slope crest. moss. some dislocated shrubs

Drainage

Top:	Slope:	Base:
Defect ☐	Defect ☐	Defect ☐

Classification & Location Index

	Class	Loc. Index	Feature Grade
Now:	1D	C	3
5 years:	1D	C	2

HD41 Feature Grade: 3

Forecast Feature Grade: 3

HD 41/03 Classifications

	Class		Class
Now:	1D	5 years:	1D

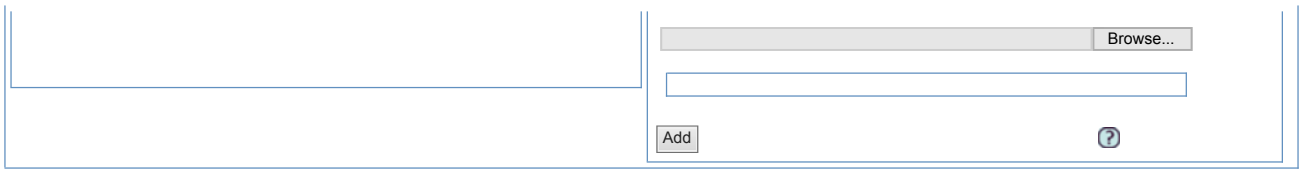
Location	GPS Easting	GPS Northing	Earthwork Chainage	C/Way Type	Angle	Length	Height	Bearing	Ref. Point	Measured Dir.	Distance	Chainage
Start	475747	254716	203	SON							0	0
End	475793	254666	133	SON							0	0

View documents

Add document

Title:

Type: 3D Lidar Data (LAS) Version: 0


Browse...
Add

Earthwork Detail GADGET Confirm Details Edit Observation Change Status Location Forms A,B & C Events Monitoring Report Help

Current Observation Details

Observation: 443565 Unique ref: 7_M1_7985_443565 Geotechnical Events: No Status: Approved 19/03/2012

Inspection: **10/12/2013 sl & jp Repeat PI**

Observation	Inspection	Date	Type	Action	Category	Loc. Index	Forms ABC	Events	more...
Current	**Details**	**23/03/2010**	**Repeat PI**	**Created**	**1D**	**C**			
as above	**Details**	**10/12/2013**	**Repeat PI**	**Confirmed**	**1D**	**C**			

Access Constraints

Reason for non inspection	Other reason

Project

No Linked Project

Vegetation

Bare Ground	Grass	Brambles	Shrubs	Trees
None	Moderate	None	Extensive Small	None

Direct Characteristics

- [ ] Wedge/Block Failure
- [ ] Planar Failure
- [ ] Subsidence
- [ ] Slip
- [x] Slope Bulge
- [ ] Terracing
- [ ] Ravelling
- [ ] Toe Debris
- [ ] Leachate
- [x] Tension Cracks
- [x] Desiccation
- [ ] Poor Backfilled Excavation
- [ ] Unbackfilled Excavation

Indirect Characteristics

- [ ] Cracked Pavement
- [ ] Distorted Structure
- [ ] Dislocated Trees
- [ ] Disloc Fence/Barrier/Kerb
- [ ] Debris Fence
- [ ] Landfill site in Proximity
- [ ] Communications/Cable Trench
- [ ] Other
- [ ] Animal Burrowing

Water related Characteristics

- [ ] Seepage
- [ ] Marshy
- [ ] Ponding
- [ ] Erosion
- [ ] Hydro Vegetation
- [ ] High MC

Special Geotechnical Measures

- [ ] Geogrid
- [ ] Steel Mesh
- [ ] Interlock. Blocks
- [ ] GeoTextile
- [ ] Gabions
- [ ] Rock Bolts
- [ ] Defect
- [ ] Concrete Ret. Wall
- [ ] Temporary Repair
- [ ] Block Ret. Wall
- [ ] Crib Wall
- [ ] Granular Replacement
- [ ] Rock Fill
- [ ] Sheet Piles
- [ ] Soil Nails
- [ ] Regrade
- [ ] Other

Vertical Extent:

Causal Hazards and Defect Triggers

	Causal Hazards	Defect Triggers
Primary:		
Secondary:		
Tertiary:		

Non Routine Maintenance Requirements

Requirement	
Details	
Frequency	Every

- [ ] To be confirmed

Description

dessication or tension cracks. mid slope bulge. dislocated trees

Drainage

Top:	Slope:	Base:
Defect [ ]	Defect [ ]	Defect [ ]

Classification & Location Index

	Class	Loc. Index	Feature Grade
Now:	1D	C	3
5 years:	1D	C	2

HD41 Feature Grade: 3

Forecast Feature Grade: 3

HD 41/03 Classifications

	Class		Class
Now:	1D	5 years:	1D

Location	GPS Easting	GPS Northing	Earthwork Chainage	C/Way Type	Angle	Length	Height	Bearing	Ref. Point	Measured Dir.	Distance	Chainage
Start	475839	254617	66	SON							0	0
End	475872	254580	16	SON							0	0

View documents

Current

Photograph504

Add document

Title:

Type: 3D Lidar Data (LAS) Version: 0


Browse...
Add

Current Observation Details

Observation: 45170 Unique ref: 7_M1_8156_418730 Geotechnical Events: No Status: Approved 20/04/2009

Inspection: **10/12/2013 sl & jp Repeat PI**

Access Constraints

Reason for non inspection	Other reason

Project

No Linked Project

Vegetation

Bare Ground	Grass	Brambles	Shrubs	Trees

Direct Characteristics

- ☐ Wedge/Block Failure
- ☐ Planar Failure
- ☐ Subsidence
- ☐ Slip
- ☐ Slope Bulge
- ☐ Terracing
- ☐ Ravelling
- ☐ Toe Debris
- ☐ Leachate
- ☐ Tension Cracks
- ☐ Desiccation
- ☐ Poor Backfilled Excavation
- ☐ Unbackfilled Excavation

Indirect Characteristics

- ☐ Cracked Pavement
- ☐ Distorted Structure
- ☐ Dislocated Trees
- ☐ Disloc Fence/Barrier/Kerb
- ☐ Debris Fence
- ☐ Landfill site in Proximity
- ☐ Communications/Cable Trench
- ☐ Other
- ☐ Animal Burrowing

Water related Characteristics

- ☐ Seepage
- ☐ Marshy
- ☐ Ponding
- ☐ Erosion
- ☐ Hydro Vegetation
- ☐ High MC

Special Geotechnical Measures

- ☐ Geogrid
- ☐ Steel Mesh
- ☐ Interlock. Blocks
- ☐ GeoTextile
- ☐ Gabions
- ☐ Rock Bolts
- ☐ Defect
- ☐ Concrete Ret. Wall
- ☐ Temporary Repair
- ☐ Block Ret. Wall
- ☐ Crib Wall
- ☐ Granular Replacement
- ☐ Rock Fill
- ☐ Sheet Piles
- ☐ Soil Nails
- ☐ Regrade
- ☐ Other

Vertical Extent:

Causal Hazards and Defect Triggers

	Causal Hazards	Defect Triggers
Primary:		
Secondary:		
Tertiary:		

Non Routine Maintenance Requirements

Requirement		
Details		
Frequency	Every	

☐ To be confirmed

Description

Steep embankment - no visible geogrid for Junction 15 works.

Drainage

Top:	Slope:	Base:
Defect ☐	Defect ☐	Defect ☐

Classification & Location Index

	Class	Loc. Index	Feature Grade
Now:	2	C	2
5 years:	2	C	1

HD41 Feature Grade: 2

Forecast Feature Grade: 2

HD 41/03 Classifications

	Class		Class
Now:	2B	5 years:	2B

Location	GPS Easting	GPS Northing	Earthwork Chainage	C/Way Type	Angle	Length	Height	Bearing	Ref. Point	Measured Dir.	Distance	Chainage
Start	476127	254279	0	SOFF	0.0	0.0	0.0	0			0	0
End	475894	254475	306	SOFF	0.0	0.0	0.0	0	99/4+10	N/B	0	0

View documents

Add document

Title:

Type: 3D Lidar Data (LAS) Version: 0

Browse...

Add

Abbey Park
Humber Road
Coventry
CV3 4AQ
UK

Telephone: +44 (0)24 7650 5600
Fax: +44 (0)24 7650 1417
www.rsk.co.uk

20th July 2016

Our reference: 313418 01 (00) CL

Vicky Ellison
Customers & Engagement Officer
Environment Agency
Lincolnshire and Northamptonshire Area

Waterside House

Waterside North

Lincoln,

LN2 5HA

vicky.ellison@environment-agency.gov.uk

313418 M1 Junction 15 – Contaminated Land

Consultation and Request For Information

Dear Vicky,

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial site located off the M1 junction 15. An original enquiry was made on 2nd October 2014 our reference 312494 02(00) CL. From our original enquiry the western and southern boundary has now been extended.

The site is located off the A508, just off the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions;

1. Is the site or any parts of the currently designated as Contaminated Land?

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:
    - The type and extent of contamination believed or proved to be present.
    - The receptors, which are deemed to be at risk.
    - Details of the pollutant linkages between the source of contamination and receptors.
    - Any details of proposed or required remedial actions.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above (Ques 2) is also requested (as per question 2).

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-
    - What the initial problem was.
    - What remedial action has taken place.
    - Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.

We understand there is no direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Yours Sincerely,

For RSK Company Limited

Darren Bench

Associate Director

Encl: Fig 1 Site Location

Darren Bench

From: Lincs & Northants, Customer Enquiries [LNenquiries@environment-agency.gov.uk]
Sent: 16 September 2016 18:02
To: Marc Dixon
Subject: FW: Junction 15 Bypass and Main site Information Request CCN/2016/22671

Dear Marc

Enquiry regarding Junction 15 Bypass and Main site Information Request CCN/2016/22671

Thank you for your enquiry which was received on 6th September 2016.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I attach answers to the two information requests you passed to us below, the responses are listed separately under each site. This data will be shared under the Open Government Licence, to read this and find out about permitted use, please click **here** .

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Nicola Stone
Customers & Engagement Officer
Lincolnshire and Northamptonshire Area
nicola.stone@environment-agency.gov.uk
Internal (jabber) 45475
External (+44) 0208 474 5475

Lincolnshire and Northamptonshire Area, Environment Agency
Waterside House, Waterside North, Lincoln. LN2 5HA

M1 JUNCTION 15 – MAIN SITE FROM GROUNDWATER & CONTAMINATED LAND LINCOLNSHIRE & NORTHAMPTONSHIRE AREA

1. Is the site or any parts of the currently designated as Contaminated Land?

This team has no record of any part of the site being determined Contaminated Land, however the lead for Part 2A is the Local Authority and we advise that the customer directs the enquiry to South Northamptonshire District Council.

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:

- The type and extent of contamination believed or proved to be present.
- The receptors, which are deemed to be at risk.
- Details of the pollutant linkages between the source of contamination and receptors.
- Any details of proposed or required remedial actions.

This team hold no records relating to the site

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

No

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above is also requested (as per question 2).
Please refer to answer 1.

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-

- What the initial problem was.
- What remedial action has taken place.
- Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

Please refer to answer 1.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.
Please refer to answer 1.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.
As per Part 2A Statutory Guidance, the Local Authorities prepare a Contaminated Land Strategy and we recommend that the Local Authority is contacted for this information.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?
We have no record of the site being recorded as a landfill. Wooton Landfill lies adjacent to part of this site at approx. grid ref SP7579455364. Installations South should be able to provide gas monitoring records. Courteenhall Grange Farm Pit, a historic landfill is located approximately 180 m to the north of the site. Blisworth Lodge Farm Landfill lies approximately 490 m to the south-west of the site at its closest point. More information on these landfills can be obtained online on What's in your backyard? http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.
Please refer to answer 1.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.
Please refer to answer 1.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.
Please refer to answer 1.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.
Please refer to answer 1.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.
GWCL team holds no records relating to the site. Any queries relating to pollution incidents should be directed to the Land and Water or Waste team.

ROADE BYPASS SITE (FROM GROUNDWATER & CONTAMINATED LAND LINCOLNSHIRE & NORTHAMPTONSHIRE AREA - *please note that only about 10% of this site is in the water management area of Lincs & Northants so also see Cambs & Beds response below.*

1. Is the site or any parts of the currently designated as Contaminated Land?

This team has no record of any part of the site (in Lincs & Northants Water Management Area) being determined Contaminated Land, however the lead for Part 2A is the Local Authority and we advise that the customer directs the enquiry to South Northamptonshire District Council.

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:

- The type and extent of contamination believed or proved to be present.
- The receptors, which are deemed to be at risk.
- Details of the pollutant linkages between the source of contamination and receptors.
- Any details of proposed or required remedial actions.

This team hold no records relating to part of the site in Lincs & Northants water management area.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

No (for our part of the site)

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above is also requested (as per question 2).
Please refer to answer 1.

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-

- What the initial problem was.
- What remedial action has taken place.
- Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

Please refer to answer 1.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.
Please refer to answer 1.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.
As per Part 2A Statutory Guidance, the Local Authority prepares a Contaminated Land Strategy and we recommend that the Local Authority is contacted for this information.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?
The Pianoforte Supplies - Old Quarry landfill lies adjacent to part of the site at approx. grid ref SP7545150939. This landfill is in Cambs & Beds area, so it would be appropriate to contact the Installations team that covers this site. Some information relating to the site is available online on What's in your backyard? http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.
Please refer to answer 1.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.
Please refer to answer 1.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.
Please refer to answer 1.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.
Please refer to answer 1.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.
GWCL team holds no records relating to the site. Any queries relating to pollution incidents should be directed to the Land and Water or Waste team.

ROADE BYPASS SITE FROM THE EAST ANGLIA (CAMBS & BEDS) GROUNDWATER & CONTAMINATED LAND TEAM.

1. Is the site or any parts of the currently designated as Contaminated Land?

This team has no record of any part of the site (in the East Anglia - Cambs & Beds Water Management Area) being determined Contaminated Land, however the lead for Part 2A is the Local Authority and we advise that the customer directs the enquiry to South Northamptonshire District Council.

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:

- The type and extent of contamination believed or proved to be present.
- The receptors, which are deemed to be at risk.
- Details of the pollutant linkages between the source of contamination and receptors.
- Any details of proposed or required remedial actions.

This team hold no records relating to part of the site in the East Anglia - Cambs & Beds Water Management Area.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.
No (for our part of the site).

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above is also requested (as per question 2).
Please refer to answer 1.

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-

- What the initial problem was.
- What remedial action has taken place.
- Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

Please refer to answer 1.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.
Please refer to answer 1.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.
As per Part 2A Statutory Guidance, the Local Authority prepares a Contaminated Land Strategy and we recommend that the Local Authority is contacted for this information.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?
The Pianoforte Supplies - Old Quarry landfill lies adjacent to part of the site at approximately National Grid Reference SP7545150939. This landfill is located in our East Anglia - Cambridgeshire & Bedfordshire Area so it would be appropriate to contact the Installations team that covers this site. Some information relating to the site is available online on the relevant What's in your backyard webpage: http://maps.environment-agency.gov.uk/wiyby/queryController?topic=waste&ep=2ndtierquery&lang=_e&layerGroups=1&x=475578.761199999995&y=251017.032749999&extraClause=ID~803&textonly=off&latestValue=&latestField=

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.
Please refer to answer 1.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.
Please refer to answer 1.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

Please refer to answer 1.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.
Please refer to answer 1.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.
Our GWCL team holds no records relating to pollution incidents at the site. Any queries relating to pollution incidents should be directed to the Brampton Land and Water or Waste team. Please note that the site is located above a principal groundwater aquifer (Blisworth Limestone Formation). The site is considered sensitive as the Blisworth Limestone has high permeability and we are aware from review of our resources that groundwater is at depths of approximately 6 metres below ground level.

From: MDixon@rsk.co.uk [mailto:MDixon@rsk.co.uk]
Sent: 06 September 2016 16:54
To: Lincs & Northants, Customer Enquiries <LNenquiries@environment-agency.gov.uk>
Subject: FW: RE: Junction 15 Bypass and Main site Information Request CCN/2016/22671

Hi,

On behalf of Darren Bench please find attached two information requests for the Junction 15 site including the main site and bypass. Please let us know if there are any fees associated with your formulating a reply.

Kind Regards

Marc Dixon
Principal Geoenvironmental Engineer

RSK
Humber Road, Abbey Park, Coventry, CV3 4AQ, UK

Switchboard: +44 (0)24 7650 5600
Fax: +44 (0)24 7650 1417
email: mdixon@rsk.co.uk

http://www.rsk.co.uk

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www.rsk.co.uk

02nd October 2014
Our reference: 312598 02 (00) CL

Trevor Dixon
Contaminated Land Officer
South Northamptonshire Council,
Springfields,
Towcester,
Northampton
NN12 6AE

tevor.dixon@southnorthants.gov.uk

312598 M1 Junction 15 – Contaminated Land

Consultation and Request For Information

Dear Trevor,

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial site located off the M1 junction 15. An original enquiry was made on 2nd October 2014 our reference 312494 02(00) CL. From our original enquiry the western and southern boundary has now been extended.

The site is located off the A508, just off the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions;

1. Is the site or any parts of the currently designated as Contaminated Land?

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:
    - The type and extent of contamination believed or proved to be present.
    - The receptors, which are deemed to be at risk.
    - Details of the pollutant linkages between the source of contamination and receptors.
    - Any details of proposed or required remedial actions.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above (Ques 2) is also requested (as per question 2).

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-
    - What the initial problem was.
    - What remedial action has taken place.
    - Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.

We understand there is no direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Yours Sincerely,

For RSK Company Limited

Darren Bench

Associate Director

Encl: Fig 1 Site Location

South Northamptonshire Council

Springfields Towcester Northants NN12 6AE
www.southnorthants.gov.uk

Darren Bench
Associate Director
RSK
Abbey Park, Humber Road,
Coventry
CV3 4AQ

Via email – DBench@rsk.co.uk

Our Ref: WK/201607126
Please Ask For: Romero Okikiade
Direct Dial: 01327 322354
Direct Fax 01327 359946
Minicom: 01327 322275
Email: romero.okikiade@southnorthants.gov.uk
Date: 16 November 2016

Dear Mr Bench,

Environmental Information Regulations
M1 Junction 15 Bypass and Main site Information Request

Please see our replies to your query below for both the Main Site and the M1 Junction 15 bypass (hereafter referred to as "the sites") -

1. Is the site or any parts of the currently designated as Contaminated Land?

South Northamptonshire Council has not designated the sites or any parts of the sites "Contaminated Land" as defined in Part 2a of the Environmental Protection Act 1990.

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:
- The type and extent of contamination believed or proved to be present.
- The receptors, which are deemed to be at risk.
- Details of the pollutant linkages between the source of contamination and receptors.
- Any details of proposed or required remedial actions.

South Northamptonshire Council does not consider any parts of the sites "Contaminated Land" as defined in the Environmental Protection Act 1990.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

South Northamptonshire Council has not passed responsibility of the sites or any parts there-of to the Environment Agency for any reason.

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above is also requested (as per question 2).

South Northamptonshire Council does not consider the sites or any parts there-of likely to be Contaminated Land as defined in Part 2a of the Environmental Protection Act 1990.

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-

- What the initial problem was.
- What remedial action has taken place.
- Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

South Northamptonshire Council has not formerly considered the sites or any parts there-of as Contaminated Land as defined in Part 2a of the Environmental Protection Act 1990.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.

The assigned Land Use Classifications for both sites are generally Agricultural Land.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.

South Northamptonshire Council's Contaminated Land Strategy can be found at the link below.
http://www.southnorthants.gov.uk/2279.htm

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?

The sites are not registered landfills and no parts of either site are registered landfills. The sites however lie with 500m of 2 registered landfill sites.

a. **The Simplex Works (Site reference S/76/001,2800/5418 – EA reference EAHLD02283) which was licenced to collect waste from the adjacent Pianoforte Supplies complex on Ashton Road in Roade.**
b. **The Old Roade Quarry (Site reference 2800/0004 – EA reference EAHLD35665) also licenced to collect waste from the nearby Pianoforte Supplies Ltd.**

There are extensive planning records including contaminated land investigations relevant to the above landfill sites and adjacent land. These records can be made available for viewing at the council offices if necessary.

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.

South Northamptonshire Council does not have any information that indicates the sites or neighbouring sites may be "Contaminated Land" as defined in Part 2a of the Environmental Protection Act 1990.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.

South Northamptonshire Council has not had any cause to inspect the sites or neighbouring sites for the purposes of determining whether they may be "Contaminated Land" as defined in Part 2a of the Environmental Protection Act 1990 or in connection with the preparation of a Remediation Notice.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

South Northamptonshire Council has not had any cause to take any action arising out of the state/ condition of the property or neighbouring land under Part 2a of the Environmental Protection Act 1990.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.

South Northamptonshire Council has not received any complaints relating to determination of the site or neighbouring property as "Contaminated Land" as defined by Part 2a of the Environmental Protection Act 1990

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.

South Northamptonshire Council is not aware of any exploratory data or spillage incidents relating to the site. The applicant is advised to contact the Environment Agency in order to find out what records are held regarding the site.

The above information is related strictly to Environmental Protection files which are subject to continuous updating. If you would like clarification on any of the information provided please feel free to contact me.

Thank you for your payment of £58.00 to cover our administrative costs.

Yours sincerely

Romero Okikiade
Environmental Protection Officer

Abbey Park
Humber Road
Coventry
CV3 4AQ
UK

Telephone: +44 (0)24 7650 5600
Fax: +44 (0)24 7650 1417
www.rsk.co.uk

02nd October 2014

Our reference: 312598 03 (00) Animal BS

AHVLA Midlands
Saffron House
Tigers Road
Wigston
Leicester
LE18 4UY

ahromidlands@ahvla.gsi.gov.uk

Dear Sirs/Madam

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial site located off the M1 junction 15. An original enquiry was made on 2nd October 2014 our reference 312494 02(00) CL. From our original enquiry the western and southern boundary has now been extended.

The site is located off the A508, just off the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration.

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions pertaining to the site and immediate area with a radius of 250m;

- Please can you confirm if there is any information that suggest that the site, parts of the site or areas surrounding the site, have ever been used for animal burials, tanneries, slaughter houses, knackers' yards and the processing of any animal by-product, etc.?

We understand there is unlikely to be a direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Your sincerely

For RSK Company Limited

Darren Bench

Associate Director

Encl

- Fig 1 Site Location Plan

Animal & Plant Health Agency

APHA Midlands Office
Saffron House
Tigers Road
Wigston
Leicestershire
LE18 4UY

Tel: 03000 200 301
Fax: 0116 2770153
Website:
www.gov.uk/apha

Marc Dixon
Principal Geoenvironmental Engineer
RSK
Humber Road
Abbey Park
Coventry
CV3 4AQ

Our ref: 21/63/0013H
Your reference:

Date: 16th September 2016

Dear Mr Dixon,

NOTIFIABLE DISEASE BURIAL SITES – M1 JUNCTION 15 - MAIN DEVELOPMENT SITE
ANIMAL HEALTH ACT 1981
ANIMALS (MISCELLANEOUS PROVISIONS) ORDER 1927

Thank you for your enquiry received 6th September 2016. We have no record of a notifiable disease burial site, tannery or knackers yard at the location mentioned. However, I regret that our records are incomplete so we cannot give absolute assurance.

If sites are disturbed, there may be implications under the Control of Pollution Act and in this respect I suggest that you contact the appropriate authorities. In the event that animal remains are discovered in the course of land excavation, work should cease immediately and you should report the occurrence or your suspicions to this office. A licence will be required under the above legislation to enable the remains to be excavated and be re-buried in a secure disposal site.

Animal & Plant Health Agency is not in a position to give any further reassurance in respect of the suitability of the land for development.

Please let me know if further assistance is required.

Yours faithfully

Emma Shipman

For the Veterinary Head of Field Delivery

Darren Bench

From: Laura Davidson [LDavidson@northamptonshire.gov.uk]
Sent: 13 September 2016 14:12
To: Darren Bench
Cc: Mark Chant
Subject: RE: 313418 M1 Junction 15 West - Revised NSIP application

Hi Darren,

Thank you for sending the information through for M1 Junction 15 West - Revised NSIP application. I can confirm we have no objections to the proposal on the basis of it being located within a Mineral Safeguarding Area.

The letter you sent on 20th April 2015 provided evidence that the application S/2014/2468/EIA satisfied Policies 32 and 34 of the MWLP. As this revised proposal has a similar boundary to that application we are also satisfied that it meets these policies.

Kind regards,

Laura Davidson

Senior Planner
Northamptonshire County Council
Tel: (01604) 367214
E-mail: ldavidson@northamptonshire.gov.uk

Northamptonshire County Council

Sent: 12 September 2016 12:29
To: Mark Chant <MChant@northamptonshire.gov.uk>; Laura Davidson <LDavidson@northamptonshire.gov.uk>
Cc: Ian.Rigby@roxhill.co.uk; Steve@oxalisplanning.co.uk
Subject: 313418 M1 Junction 15 West - Revised NSIP application

Mark/Laura

I hope you are both well.

Laura as discussed earlier;

We have recently been advised that the M1 Junction 15 site development has been rectified and the development team are preparing to submit a new scheme development plan which is more extensive than the first which was consulted upon previously (S/2014/2468/EIA).

The scheme now involves an extended main development area extending further west to the railway including a rail freight interchange, the site area also extends further south west. It also involves a proposed new bypass around the village of Roade. Due to the size of the scheme it now seems to be going down the Government Planning Inspectorate Route (PINS) and is being classed as a National Strategic Infrastructure Project (NSIP). High level discussions have been had with PINS and I understand local planners too and I understand that there is broad support for the scheme. However the project has not yet been registered officially with PINS but work is on going on that at this time and I understand that registration is imminent.

The evolving scheme plans are attached for preliminary information and consultation. Please be advise that the scheme design is still evolving at this time and the plans in the attached may not be the very latest versions, however it is only likely that minor changes would be made.

As discussed RSK as before for the original application are providing advice on ground related matters including supporting the wider design team on master planning, EIA chapters on ground conditions and providing contaminated land and geotechnical assessments and input. In doing these we are in the process of preparing and undertaking the following key elements of works:

- Preliminary Risk Assessment (Desk Study) for the extended main site
- Preliminary Risk Assessment (Desk Study) for the bypass
- ES Chapter : Geology & Soils

These documents when complete will be submitted in support of the application and EIA in due course when the application is brought forward and these become available.

To assist I have attached the following plans;

- 313418 Roade Bypass ; Site Location & extents of the likely highway (to cover several route options)/superficial and solid geology – This areas does not affect any Mineral Safegaurding areas.
- 313418 Main Site Development ; Site Location/development plan (evolving) superficial and solid geology, hazards and available BGS holes and MSA.
- 312598 Original Ground Investigation drawings (full report provided previously)

We have the benefit of and reliance upon the detailed ground investigation carried out upon the main site for the original application which we sent to you previously. This confirmed the BGS plans and showed significant depths of Glacial Till covering over localised gravel resources which were present at significant depths. This Glacial Till cover extends across the sand and gravel resources in the extended site area now proposed.

Also attached is a copy of the letter we provided in answer to some queries on the MSA issues and your email acceptance of the arguments we put forward.

It is our view at this time that the arguments posed previously remain unchanged.

We therefore presume that your position on acceptance of the original scheme will remain unchanged and we seek assurances that this would be the case.

Assuming this is the case and that the scheme is submitted formerly to PINS then the planning would proceed under the PINS process. As I understand it this requires the development team to obtain signed up **statements of common ground** from statutory consulties and we would seek to do that in due course, subsequent to finalising and providing you the revised PRA and EIA statements.

In light of the above and attached we seek your initial views on the attached scheme and would welcome your input by return so that we may address any concerns you may still have within our EIA and through formal and direct correspondence if required. If you have any remaining concerns I am sure we could arrange to meet with you.

We look forward to hearing back from you with your initial views tomorrow or Wednesday as agreed.

Many Thanks

Kind Regards

Darren Bench
Associate Director
Team Leader
Midlands & South West

RSK
Abbey Park, Humber Road, Coventry, CV3 4AQ, UK

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email: DBench@rsk.co.uk

http://www.rsk.co.uk

Global provider of environmental consultancy, health and safety, and ground engineering services

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WINNER OF *ENVIRONMENT ANALYST'S* LARGE FIRM BUSINESS EXCELLENCE AWARDS 2015

WINNER OF 2014 *ENVIRONMENTAL BUSINESS JOURNAL* SILVER AWARD FOR LARGE FIRMS

APPENDIX I
HISTORIC 2014 SEARCH RESPONSES

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Fax: +44 (0)24 7650 1417
www.rsk.co.uk

02nd October 2014

Our reference: 312598 02 (00) CL

Trevor Dixon
Contaminated Land Officer
South Northamptonshire Council,
Springfields,
Towcester,
Northampton
NN12 6AE

tevor.dixon@southnorthants.gov.uk

312598 M1 Junction 15 – Contaminated Land

Consultation and Request For Information

Dear Trevor,

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial site located off the M1 junction 15.

The site is located north of the A508, just west of the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions;

1. Is the site or any parts of the currently designated as Contaminated Land?

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:
   - The type and extent of contamination believed or proved to be present.
   - The receptors, which are deemed to be at risk.
   - Details of the pollutant linkages between the source of contamination and receptors.
   - Any details of proposed or required remedial actions.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above (Ques 2) is also requested (as per question 2).

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-
    - What the initial problem was.
    - What remedial action has taken place.
    - Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.

We understand there is no direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Yours Sincerely,

For RSK Company Limited

Darren Bench

Associate Director

Encl: Fig 1 Site Location

South Northamptonshire Council

Springfields Towcester Northants NN12 6AE
www.southnorthants.gov.uk

Darren Bench
RSK Environment Ltd,
34 Albyn Place,
Aberdeen,
Aberdeenshire,
AB10 1FW

Your Ref: 312598 02 (00) CL
Our Ref: WK/201407622
Ask For: Trevor Dixon
Direct Dial: 01327 322279
Direct Fax:
Email: Trevor.dixon@southnorthants.gov.uk

Date: 16 October 2014

Dear Darren,

312598 M1 Junction 15 – Contaminated Land

In response to your enquiry Environmental Protection has the following information on file:

1. The site or any parts are not currently designated as contaminated land.
2. As 1 above.
3. As 1 above.
4. We have no cause at the present time to inspect or take action for the purposes of declaring this site, or surrounding sites, as 'Contaminated Land' under Part IIA of the Environmental Protection Act 1990.
5. We have no record that the site or any part thereof has formerly been considered as contaminated land or that any remedial action has been taken in respect of the site or any part thereof.
6. Agricultural
7. http://www.southnorthants.gov.uk/2279.htm
8. There are no records on file that the site or any part thereof is or has been a registered landfill. A nearby site (grid reference 475838/25998) was formally a landfill and licensed for category A, B, C, D, and F wastes. The site stopped receiving waste in 1997 and was closed in 2001. A planning application was submitted for this site, including a ground investigation report, in 2007. The application was dealt with by the West Northamptonshire Development Corporation, Northamptonshire County Council and all reports are held by them.
9. We have no information on file which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995.
10. We have had no cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice.

11. We have had no cause to take any other action arising out of the state or condition of the property or neighbouring land.
12. We have not received any complaints relating to such matters.
13. We have no other relevant data on file regarding this site.

The answers to your questions are related strictly to Environmental Protection files and are subject to continuous updating. If you would like clarification on any of the information provided please feel free to contact me.

Thank you for your payment of £85.50.

Yours sincerely

Trevor Dixon
Team Leader - Environmental Protection

Abbey Park
Humber Road
Coventry
CV3 4AQ
UK

Telephone: +44 (0)24 7650 5600
Fax: +44 (0)24 7650 1417
www.rsk.co.uk

02nd October 2014

Our reference: 312598 03 (00) CL

Vicky Ellison
Customers & Engagement Officer
Environment Agency
Lincolnshire and Northamptonshire Area
Waterside House
Waterside North
Lincoln,
LN2 5HA

vicky.ellison@environment-agency.gov.uk

312598 M1 Junction 15 – Contaminated Land

Consultation and Request For Information

Dear Vicky,

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial development site located off the M1 junction 15.

The site is located north of the A508, just west of the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions;

1. Is the site or any parts of the currently designated as Contaminated Land?

2. If the site or any part thereof is considered contaminated please provide documentary evidence detailing the following:
   - The type and extent of contamination believed or proved to be present.
   - The receptors, which are deemed to be at risk.
   - Details of the pollutant linkages between the source of contamination and receptors.
   - Any details of proposed or required remedial actions.

3. Has responsibility for the site or any part thereof been passed over to the Environment Agency? If so please detail reasons and provide contact information.

4. Is the site or any part thereof likely to be considered to be contaminated land at some future date? If so please provide details and reasons. Documentary evidence as noted above (Ques 2) is also requested (as per question 2).

5. Has the site or any part thereof ever formerly been considered as contaminated land but sufficient remedial action to satisfy the enforcing authority taken place? If so please provide documentary evidence detailing the following:-
    - What the initial problem was.
    - What remedial action has taken place.
    - Implications and responsibilities this poses for the landowner in respect of site management or monitoring.

6. Please define the assigned Land Use Classification for the site or parts of the site areas based upon land use and history. If not defined please define the most appropriate classes.

7. Please provide a copy of your Contaminated Land Strategy or link to the strategy if on line.

8. Is the site or any part thereof (or has the site been) a registered landfill (open or closed) or does it lie within 500m of a known landfill? If so, are there any landfill gas monitoring records that could be made available?

9. Does the Council have any information which indicates that the site or neighbouring sites may be Contaminated Land within the meaning given by Section 57 of the Environment Act 1995? If so, please provide full details.

10. Has the council had cause to inspect the property or neighbouring property or taken any other action for the purpose of determining whether the property or neighbouring land may be Contaminated Land or in connection with the preparation of a Remediation Notice? If so, please supply full details.

11. Has the Council ever had cause to take any other action arising out of the state or condition of the property or neighbouring land? If so please provide details.

12. Has the Council ever received any complaints relating to such matters? If so, please supply full details.

13. Any other relevant data on the site regarding it's previous usage such as incidents of spillage's etc, exploratory data etc that may be relevant to our study? If so please provide details.

We understand there is no direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Yours Sincerely,

For RSK Company Limited

Darren Bench

Associate Director

Encl: Fig 1 Site Location

Darren Bench
RSK
Abbey Park
Humber Road
Coventry
CV3 4AQ

Our ref: AN/2014/120446/01-L01
Your ref: 312598

Date: 05 November 2014

Dear Darren

Preliminary Opinion - Proposed development - Contaminated Land enquiry M1 Junction 15 Northampton

Thank you for your recent enquiry regarding the above proposed development, which was received on 07 October 2014.

Having looked at your proposed scheme we consider the controlled waters at the site are of low environmental sensitivity, with the site area being underlain by unproductive strata. We are not aware of any contamination issues at the site.

Therefore your letter should be directed to the Local Authority as they are the lead regulator for most land contamination issues and are better placed to respond to the questions.

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours faithfully

Kerrie Ginns
Sustainable Places - Planning Adviser
Direct dial 01536 385159
Direct e-mail kerrie.ginns@environment-agency.gov.uk

End

Abbey Park
Humber Road
Coventry
CV3 4AQ
UK

Telephone: +44 (0)24 7650 5600
Fax: +44 (0)24 7650 1417
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02nd October 2014

Our reference: 312598 04 (00) Animal BS

AHVLA Midlands
Saffron House
Tigers Road
Wigston
Leicester
LE18 4UY

ahromidlands@ahvla.gsi.gov.uk

Dear Sirs/Madam

We have been commissioned as Consultants to carry out a Preliminary Sources Study Report for the proposed new commercial development site located off the M1 junction 15.

The site is located north of the A508, just west of the M1 Junction 15 and we understand that this lies within your regulatory district area. A site location plan and separate site boundary plan are attached to define the exact site area under consideration.

In order to help us with our assessments we would be grateful if you would be able to consult your records and provide us a formal written response to the following queries and questions pertaining to the site and immediate area with a radius of 250m;

- Please can you confirm if there is any information that suggest that the site, parts of the site or areas surrounding the site, have ever been used for animal burials, tanneries, slaughter houses, knackers' yards and the processing of any animal by-product, etc.?

We understand there is unlikely to be a direct fee charge for this information. However, please advise us of any ancillary costs that might occur in providing this information so that relevant instruction and order numbers can be arranged.

This information is required urgently and we would like to thank you in advance for your co-operation in this study.

Your sincerely

For RSK Company Limited

Darren Bench

Associate Director

Encl

- Fig 1 Site Location Plan

Animal &
Plant Health
Agency

APHA Midlands Office
Saffron House
Tigers Road
Wigston
Leicestershire
LE18 4UY

Tel: 0116 2787451
Fax: 0116 2770153
Website:
www.gov.uk/apha

RSK
Abbey Park
Humber Road
Coventry
CV3 4AQ

Our ref: 21/63/0013G
Your reference:

Date: 17th October 2014

Dear Sir/Madam

NOTIFIABLE DISEASE BURIAL SITES – M1 Junction 15 West, Northampton (Northampton Gateway)
ANIMAL HEALTH ACT 1981
ANIMALS (MISCELLANEOUS PROVISIONS) ORDER 1927

Thank you for your enquiry received 7th October 2014. We have no record of a notifiable disease burial site, tannery or knackers yard at the location mentioned. However, I regret that our records are incomplete so we cannot give absolute assurance.

If sites are disturbed, there may be implications under the Control of Pollution Act and in this respect I suggest that you contact the appropriate authorities. In the event that animal remains are discovered in the course of land excavation, work should cease immediately and you should report the occurrence or your suspicions to this office. A licence will be required under the above legislation to enable the remains to be excavated and be re-buried in a secure disposal site.

Animal Health is not in a position to give any further reassurance in respect of the suitability of the land for development.

Please let me know if further assistance is required.

Yours sincerely

Emma Shipman

For the Regional Operational Director

APPENDIX J
SITE PHOTOGRAPHS AND WALKOVER CHECKLIST

PHOTOGRAPHIC LOG		
Photo no. **1**	**Date:** 16.02.17	
Direction photo taken: Facing Northwards		
Description: Stood along the south-west boundary of the site within the agricultural field used for arable farming. Mast noted adjacent west of the A508 embankment, in proposed area of widening.		

Photo No. **2**	**Date:** 16.02.17	
Direction photo taken: Facing north-west		
Description: Stood within along the western boundary of the sire, beyond the mast noted in Photo no. 1. Photo shows the western embankment of the A508 leading up to Junction 15.		

Photo No.	Date:	
3	16.02.17	
Direction Photo Taken: Facing north		
Description: A508 approach to Junction 15 showing how the road cambers up to the junction.		

Photo No.	Date:	
4	16.02.17	
Direction Photo Taken: Facing north-west		
Description: Stood along western flank of the A508. Photo identifies an embankment and unnamed brook adjacent to the A508 as the road cambers to the junction.		

Photo No.	Date:	
5	16.02.17	
Direction Photo Taken: Facing east		
Description: Stood at the approach of the junction on the A508 facing eastwards towards the on slip road. Three lane approach to junction.		

Photo No.	Date:	
6	16.02.17	
Direction Photo Taken: North-east		
Description: Stood at the approach of the junction on the A508 facing north-east towards grange park. Showing the southern three lane roundabout at the junction.		

Photo No.	Date:	
7	16.02.17	
Direction Photo Taken: Facing north		
Description: Junction bridge over the M1 motorway. Photo shows scarring upon pavement, which is assumed to be associated with the known services across the site.		

Photo No.	Date:	
8	16.02.17	
Direction Photo Taken: Facing north-west		
Description: Stood upon junction bridge over the M1, showing the off slip road up to Junction 15. Gradually increase in gradient.		

Photo No.	Date:	
9	16.02.17	
Direction Photo Taken: Facing west		
Description: M1 motorway northbound. Photo shows the generally embankments adjacent to the cambered on/ off slip roads to the junction. On/ off slip roads at approximately 6m higher than M1 at junction.		

Photo No.	Date:	
10	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Stood upon the western limb of the junction bridge over the M1 approaching the A45 and Saxon Avenue.		

Photo No.	Date:	
11	16.02.17	
Direction Photo Taken: Facing north		
Description: Photo shows the junction approach from the A45 London Road. Triangular parcel of grass with services separating flow of traffic.		

Photo No.	Date:	
12	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Embankment and ditch along the eastern limb of the A45 at the approaching junction.		

Photo No.	Date:	
13	16.02.17	
Direction Photo Taken: Facing north		
Description: Northern approach to the A45 which leads to south Northampton.		

Photo No.	Date:	
14	16.02.17	
Direction Photo Taken: Facing south		
Description: Photo shows the off slip road from the m1 (southbound) at the corner of the A45. You can clearly see that the junction is raised approximately 1m higher than neighbouring land.		

Photo No.	Date:	
15	16.02.17	
Direction Photo Taken: Facing north		
Description: Northern approach to the A45 which leads to south Northampton. Two lane road.		

Photo No.	Date:	
16	16.02.17	
Direction Photo Taken: Facing north		
Description: Grassed land and asphalt pavement adjacent to the northern approach to the A45.		

Photo No.	Date:	
17	16.02.17	
Direction Photo Taken: Facing north		
Description: Northern approach to the A45 which leads to south Northampton. Two lane road.		

Photo No.	Date:	
18	16.02.17	
Direction Photo Taken: Facing north-west		
Description: Ditch adjacent to the Hilton Hotel which is located west of the A45. Ditch is at an elevation of approximately 2m lower than A45.		

Photo No.	Date:	
19	16.02.17	
Direction Photo Taken: Facing north		
Description: Southern approach to the junction off the A45. Three lane approach to the junction from south Northampton. Bus stop and grassed area adjacent to road.		

Photo No.	Date:	
20	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Wooton Quarry historical landfill adjacent north of Grange Park.		

Photo No.	Date:	
21	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Gas and leachate motoring/ pumping station. Several were noted across the landfill, approximately 50m apart, used to monitor gas and leachate levels within the separate cells of this historical landfill.		

Photo No.	Date:	
22	16.02.17	
Direction Photo Taken: Facing north		
Description: On-site electricity sub-station located along the eastern limb of the A45.		

Photo No.	Date:	
23	16.02.17	
Direction Photo Taken: Facing south		
Description: Approaching junction 15 from the A45. Three lane approach.		

Photo No.	Date:	
24	16.02.17	
Direction Photo Taken: Facing south-west		
Description: Photo taken on Saxon Avenue looking up to Junction 15. The photo clearly shows the road cambers up to the junction. Embankments noted adjacent to the road. Neighbouring land at an elevation of approximately 3/4m lower than road.		

Photo No.	Date:	
25	16.02.17	
Direction Photo Taken: Facing north		
Description: Agricultural field adjacent south-east of the site along the eastern limb of the A508. Photo clearly shows that at the time of the investigation the field was used for arable farming.		

Photo No.	Date:	
26	16.02.17	
Direction Photo Taken: Facing north		
Description: A508 approach to the junction, clearly showing the road cambers up to the junction. Embankments noted to be present east and west of the road. At the junction the road is at an elevation of approximately 5m higher than the neighbouring farmland.		

Photo No.	Date:	
27	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Embankment adjacent east of the A508, photo shows the elevation of the road in comparison to the neighbouring farmland and the dense vegetation which occupies the embankment.		

Photo No.	Date:	
28	16.02.17	
Direction Photo Taken: Facing east		
Description: Embankment adjacent east of the A508, photo shows the elevation of the road in comparison to the neighbouring farmland and the dense vegetation which occupies the embankment.		

Photo No.	Date:	
29	16.02.17	
Direction Photo Taken: Facing north-east		
Description: Junction 15 at the approach onto the A508. Single tracked road onto the A road.		

Photo No.	Date:	
30	16.02.17	
Direction Photo Taken: Facing south		
Description: A508 road which leads from the junction southwards towards Roade.		

WALKOVER SURVEY CHECKLIST: GEOSCIENCES

SITE NAME: Junction 15, M1 Motorway SITE REFERENCE: 313588

These inspections can provide useful information on:

- Potential geotechnical hazards
- Suitable and appropriate locations for investigation
- The groundwater and surface water environments
- Potentially sensitive receptors (targets) including issues that require further investigation, e.g. ecology surveys
- Potential sources of contaminants
- Nature of contamination
- Potential migration routes (pathways)

Mark locations of features described on a map and give them a reference number.

Describe features in as much detail as possible. Continue on the back of the checklist if necessary, using the feature letter for reference. Take photos of site and relevant features in immediate surrounding area.

The walkover survey can also provide information for the environmental consultant in planning the site investigation.

Points that should be addressed in a walkover survey are as follows:

Features	Description
a) Describe materials exposed in nearby road or railway cuttings, in pits and quarries and natural exposures of soils and rocks near to the site.	No areas of exposed soil were noted during the walkover. Slopes and cuttings associated with the original development of the M1 motorway were heavily vegetated.
b) Describe surrounding properties/land use and name occupiers. Type of boundary demarcation (if any) on each side.	South of the M1 is dominated by agricultural fields utilised for arable farming purposes, with access of the A508. The north-east of the site is bound by Grange Park industrial/ commercial development, with access of Saxon Avenue. Woolton Quarry, a historical landfill, is noted to be adjacent north of the site, beyond Grange Park. To the north-west of the site, lies rough ground with the Hilton Hotel noted beyond.
c) Describe present land use. Are there areas of hardstanding (if yes describe location, types and condition)?	The site and its current configuration are Junction 15 of the M1 motorway. The majority of the site has a cover of hardstanding associated with the infrastructure relating to the site. Areas of soft landscaping and vegetation are restricted to areas of embankment/ cutting along the peripheries of the on/ off slip roads and A45/ A508 approach roads. Scarring of the hardstanding was noted along pavements, assumed to be associated with the maintenance/ improvement of the known services, which trend north – south across the site.

Features	Description
d) Describe the site in terms of ground slopes and changes in slope. Is there any evidence of subsidence or landslip/slope erosion?	The site as a whole is gently undulating, with a gentle rise from the southern extent to the northern extent. The A508 approach road cambers to the junction and is approximately 5m higher than the neighbouring fields. Similarly the on/ off slip roads are in excess of 6m higher than the M1 motorway which is positioned within a cutting. The A45 approach to the junction is at a consistent elevation, however neighbouring land appears to be at an elevation which is 1 to 2m lower. Saxon Avenue gradually cambers up to Junction 15 from the north-east and rises approximately 4m in elevation to the surrounding Grange Park.
e) Describe the types and condition of surface vegetation.	Within the agricultural fields which bound the southern extents of the site, there are crops. Dense, relatively healthy vegetation line the embankments and areas aligning the pavements of the A45 and A508.
f) Note the number, location, height and species of trees and hedges.	Numerous deciduous and coniferous mature tree across the site, restricted typically to areas of embankment.
g) Describe any evidence of animal activity. *For example obvious animal paths or areas of excavations and burrows.*	None noted during the walkover. Previous ecological survey has previously been undertaken with regards to the wider Main site development.
h) Describe any damage to existing structures on site or adjacent to the site	No damage noted to commercial/ industrial units which bound the site in the north. No structures noted within the southern extents of the site. Some scarring noted along the pavements/ hardstanding which cover the site. This is assumed to be related to maintenance/ improvements of the known services.
i) Note the remains of structures that have been demolished. Look for evidence of remnants of any historical structures.	None noted.

Features	Description
j) Note any abrupt changes in ground level. Is there evidence of Made Ground/fill on site	Embankments and related cuttings associated with the original construction of the M1 motorway and accompanying Junction 15. The composition of the embankments is unknown. It is possible that this material is from the cuttings of the M1 motorway, or alternatively are imported fill material. Status unknown.
k) Note any surface hollows.	None noted.
l) In areas of country underlain by coal or other minerals note any hummocky ground.	None noted.
m) Note any evidence of gas from nearby landfill sites	No evidence noted during the walkover. Historical landfill adjacent north of the site, beyond Grange Park. Gas and leachate pumping/ monitoring stations present across the landfill.
n) Are there any evidence of gas protection measures (gas membrane, gravel filled trenches, venting pipes, cowls etc)	Gas and leachate pumping/ monitoring stations present across the site of the landfill, approximate 50m apart.
o) Note the location of streams, culverts, ponds, seepages and sinks and signs of previous flooding. Note direction of flow. Note where the stream is accessible for sampling. May need to take dimensions of stream.	A brook flows along the south-western embankment of the A508, which culverts under the A508 and continues along the M1 motorway. Similarly, a brook flows along the A45, towards the Junction were it is culverted under Saxon Avenue, resuming at surface in Grange Park where it continues to flow adjacent to the M1 motorway.
p) All surface waters should be examined for evidence of contamination.	No evidence of gross contamination noted at the time of the walkover.

Features	Description
q) Note site drainage. Are there any drain covers/soakaways (if yes describe locations). Are there any outfalls to surface watercourses? Are there any interceptors/lagoons/effluent treatment plants?	Observations made during the site walkover identified the presence of surface drains at the site. Where soft cover is identified within areas of embankment, surface run-off is likely to discharge directly into the underlying soils via infiltration.
r) Describe storage of fuels and chemicals. Are there any drums/containers (if yes, describe quantity, full/empty, stored on hardstanding/softstanding, bunded)?	None noted at the time of the walkover.
s) Note any discoloured ground.	None noted on either hardstanding or areas of soft landscaping at the time of the walkover.
t) Accidents: In the event of a large spillage would runoff affect any vulnerable watercourses/culverts?	Yes, there is potential for any spillages to affect two unnamed brooks which are located along the southern and northern extents of the site, are culverted under the A508, Saxon Avenue and Grange Park and both line the southern limb of the M1 motorway.
u) Waste: Are there any waste skips on site? Are waste storage facilities adequate? Is there any litter/fly-tipped material?	Minor fly-tipped material which lines the A45 and A508 approaching roads. No waste skips present within the boundaries of the site.
v) Are there any electricity substations on or adjacent to site?	One onsite sub-station was noted during the walkover on the eastern limb of the A45.
w) Identify any old structures, pipework etc. wherever possible and, if safe, inspect for evidence of stored waste.	None noted at the time of the walkover.
x) Examine surrounding areas for evidence of contamination which could migrate onto the site.	There is a landfill adjacent north of the site, beyond Grange Park. Mitigating pumping/ monitoring stations are currently used to pump any excess leachates/ gas away from the landfill for off-site disposal/ burning. Ultimately this limits the possible gases/ leachates which could migrate onto the site.
y) Note the presence of any underground structures, services, mine workings, tunnels etc	Underground services are present across the site, typically restricted to areas of pavements.

Features	Description
z) Note any anecdotal information in past uses of the site.	None noted during the walkover.

Features	Description
aa) Description of buildings on site. Is there any evidence of asbestos construction materials, e.g. roofing, insulation materials. Do any of the buildings have basements? Do any of the buildings have a boiler room? (if yes describe fuel type and storage arrangements)	The commercial units/ warehouses which line the northern portion of the site are relatively new and at the time of the walkover inspection were in relatively good condition. As such no asbestos, corrugated roofing noted at the time of the walkover. Potential for the sub-station, which is stored in a dilapidated structure, to contain asbestos. However, none noted at the time of the walkover.
bb) Identify potential access routes to the site for plant for the site investigation	Access for rigs is limited due to the current configuration and purpose of the site. Traffic management would be required if a ground investigation was required.
cc) Evidence of buried services (water, gas, electricity, telephone, cable, television, pipelines)	Markers noted during the site walkover indicate underground services located along areas of pavement across the site, associated with water mains, electricity and telecoms, which facility Grange Park and properties beyond.

Walkover survey completed

Name: Melissa Southworth

Date: 17th February 2017