



Preliminary Geo-Environmental Risk Assessment

Scotland Hall Road Recreation Ground, Manchester, M40 2RF

Presented to Manchester City F.C. City in the Community Foundation

Issued: November 2019

Delta-Simons Project No. 18-1673.04



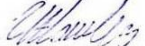
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Report Details

Client	Manchester City F.C. City in the Community Foundation
Report Title	Preliminary Geo-Environmental Risk Assessment
Site Address	Scotland Hall Road Recreation Ground, Manchester, M40 2RF
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Executive Summary

Brief	Delta-Simons was instructed by Manchester City F.C. City in the Community Foundation (The Client) to produce a Preliminary Geo-Environmental Risk Assessment for the Site located at Scotland Hall Recreation Ground, Manchester, M40 2RF for the re-development of the existing park facilities, comprising a Multi-Use Games Area and footpath within the current park.
Site Use & Surrounding Area	The Site currently comprises an irregularly shaped area, in current use as a park, with limited areas of asphalt hardstanding utilised as a sports pitch, grassed play areas, footpaths, and well-maintained grass areas. Mature trees and bushes were also present in the south east of the Site. The Site is located within a predominantly residential area. A railway is present adjacent to the southern boundary of the Site.
Environmental Setting	The Site is anticipated to be underlain by Made Ground as the Site is underlain by infilled ground across the Site (historical landfill and infilled ground). Possible superficial deposits may be present dependent on depth of Made Ground, comprising Devensian Till and Glaciofluvial Deposits (classed as Secondary A Aquifers), and bedrock of the Collyhurst Sandstone Formation (a Principal Aquifer). The nearest major surface water feature is considered to be the River Medlock, approximately 90 m to the south of the Site.
Contamination Potential Sources	Potential sources of contamination have been identified, comprising underlying historical landfill deposits of unknown composition, the adjacent railway and associated sidings, and off-Site sources including former landfill, print and dye works within approximately 150m to the south.
Contaminated Land Risk Associated with Ownership	There is considered to be a Low risk of enforcement action by the regulatory authorities under Part 2A of the Environmental Protection Act, the Water Resources Act or the Environmental Damage Regulations. The potential for legal action by surrounding landowners / Third Parties based on the potential for contamination to migrate off-Site (ongoing or historically) is considered to be Low.
Development Considerations	It is not known whether suitable, clean cover soils were imported to restore the Site that has historically been subject to landfilling, prior to development as a public park in the 1980s. If this is the case, the risk of remediation being required will be low, however, it is possible that if suitable soils are not present, further restoration / remediation may be recommended. If contamination and / or ACMs are identified, then this may have an impact on waste disposal costs. Significant potential groundwater impacts have not been identified. As buildings are not part of the current proposed development plan, a ground gas risk is not considered to be present at the Site given the absence of enclosed spaces on the re-developed Site.
Recommendations	It is recommended that a limited intrusive Site investigation is undertaken to assess the potential for contamination to impact on the proposed development. Although there is a potential risk for contamination to impact the Site, the nature of the proposed development mitigates the geotechnical risks to the Site, as no buildings are proposed to be developed on the Site. However, a limited investigation will be able to refine the Site-specific ground model with respect to human health.

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1.0 Introduction

1.1 Appointment

Delta-Simons Environmental Consultants Limited (“Delta-Simons”) was instructed by Manchester City F.C. City in the Community Foundation (the “Client”) to prepare a Preliminary (Geo-Environmental) Risk Assessment for Scotland Hall Recreation Ground, Manchester, M40 2RF (the “Site”).

1.2 Context & Purpose

The aim of this report is to identify likely environmental and geotechnical issues associated with soil and groundwater conditions that may affect the proposed development of the Site. This report is designed in accordance with ‘the Model Procedures for the Management of Land Contamination (CLR 11)’, the relevant requirements of the National Planning Policy Framework 2019 (NPPF) (paragraphs 170 & 178-180)¹ and the Planning Practice Guidance (Land Affected by Contamination)².

The proposed development of the Site comprises the construction of a new Multi Use Games Area (MUGA) and associated footpaths in the west of the Site within the existing park area.

A plan of the development proposal is presented in Appendix C.

The proposed development will only impact a small area in the west of the Site (current MUGA).

1.3 Scope of Works

- ▲ Review of the environmental setting of the Site, including the current use / status of the Site and surrounding area, and review of the geology, hydrogeology and hydrology;
- ▲ Review of the historical activities of the Site and surrounding area;
- ▲ Review of regulatory information relating to the Site;
- ▲ Review of the online planning records for the Site;
- ▲ Consult and review information from the Local Authority in relation to Part 2A of the 1990 Environmental Protection Act;
- ▲ Complete a Site reconnaissance by undertaking a visual inspection of readily accessible areas of the Site;
- ▲ Develop an outline Conceptual Site Model and undertake a Preliminary Risk Assessment with respect to potential contamination focussed on the proposed land use;
- ▲ Identify potential contamination risks and / or liabilities associated with the proposed acquisition of the Site;
- ▲ Provide commentary on potential land contamination and geotechnical constraints in the context of the proposed development; and,
- ▲ Summarise readily available data on the flood risk associated with the Site.

In completing this Assessment, Delta-Simons has utilised the following data sources and third party information:

- ▲ Current and Historical Ordnance Survey (OS) maps;
- ▲ British Geological Survey (BGS) data;
- ▲ Environment Agency (EA) online data;
- ▲ Coal Authority (CA) online data;
- ▲ A Landmark Envirocheck Report for the Site (Ref. 221303416_1_1), dated January 2017;
- ▲ Historical Maps included as part of the Envirocheck Report; and
- ▲ Information provided by Manchester City Council.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

² <https://www.gov.uk/guidance/land-affected-by-contamination>

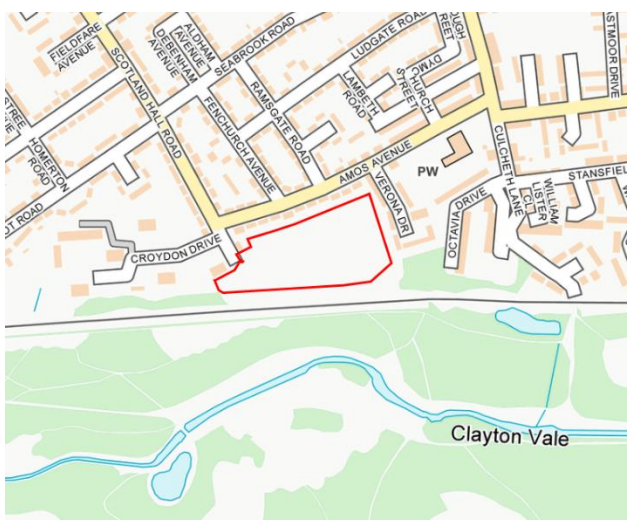
1.4 Limitations

The standard limitations associated with this assessment are presented in Appendix A. In addition, there are the following specific limitations that apply to this assessment:

- ▲ The Consultant undertaking the Site inspection will observe for evidence of invasive species, particularly Japanese Knotweed. It should be noted however that the Consultant is not a trained ecologist and a separate survey undertaken by an experienced Ecologist should be completed to provide a robust assessment; and
- ▲ The report includes a preliminary assessment for the potential for radon gas hazards. A detailed radon assessment falls outside of the scope of this report, and the requirement for radon mitigation measures in the proposed development should be identified separately to the satisfaction of Manchester City Council Building Control.

2.0 Site Context & Data Review

2.1 Site information

 Envirocheck® Figure 1: Contains OS data ©, Crown Copyright and Database Right (2019) Contains Data from, © 2019 Landmark Information Group Ltd © OpenStreetMap contributors		 Envirocheck® Figure 2: Contains OS data ©, Crown Copyright and Database Right (2019)	
Site Location		Site Layout	
Co-ordinates	Centred approximately at National Grid Reference 388250, 399650.	Elevation	80.0 m AOD
		Area	1.84 Ha
Site Location	The Site is located off the southern end of Scotland Hall Road, with the northern boundary flush to Amos Avenue.		
Current Site Use	The Site is currently in use as recreational grounds, comprising areas of well maintained grass, limited areas of asphalt hardstanding in use as sports pitches, grassed play areas/equipment and footpaths. Additionally, a wooded area of large mature trees and bushes occupies the south east of the Site.		
Proposed Development Description	The proposed development of the Site comprises the construction of a new Multi Use Games Area (MUGA) and associated footpaths in the west of the Site within the existing park area. Sketches of the development proposals are presented in Appendix C. The proposed development will only impact a small area in the west of the Site (current MUGA).		
Site Reconnaissance	Delta-Simons conducted a Site visit on 5th November 2019. Pertinent information that was observed or reported on-Site is summarised as follows: ▲ The Site is predominately covered by grass, with football pitches in the centre; ▲ The Site is bounded by trees in the south and the majority of the east and west;		

	▲ In the north western area of the Site there is a hardstanding area that appears to be used as a basketball court; ▲ In the south-western area of the Site is additional hardstanding areas comprising of children's play equipment; ▲ To the south-east of the Site there is a wooded area; ▲ In the western area of the Site there is a seating area with benches surrounding some flower beds; and ▲ There is a public footpath running through the Site from the west until the central southern area of the Site.	
	No significant potential contamination sources have been identified associated with the current land use.	
Current Surrounding Area	North	Predominantly residential buildings with limited commercial buildings beyond.
	East	Predominantly residential buildings.
	South	Railway adjacent to the Site boundary, Clayton Vale Park and the River Medlock.
	West	Predominantly residential buildings with commercial buildings beyond.
	The railway adjacent to the southern boundary is considered to represent a potential off-Site source of contamination. Additionally, Clayton Vale Park is understood to have former industrial uses, including print and dye works.	

2.2 Environmental Setting

Published Geology	From published British Geological Survey mapping (1:50,000 Sheet Number 85, Manchester), the Site is indicated as being underlain by superficial deposits of the Devensian Till and Glaciofluvial Deposits, comprising sand and gravel, and underlying bedrock of the Collyhurst Sandstone Formation comprising sandstone. However, deposits of Made Ground are anticipated to be present as a historical landfill is present across the Site (see Section 2.3).
Specific Ground Conditions	A shallow borehole, dated 1988, located approximately 150 m to the north east of the Site (ref. SJ89NE959) encountered Made Ground deposits to approximately 0.40 m, underlain by grey clay with occasional coal fragments to a maximum depth of 5.30 m bgl. Underlain by brown sand with occasional gravel and lenses of clay, to a maximum depth of 8 m bgl.
Hydrogeology	The EA classify the superficial deposits (Devensian Till and Glaciofluvial Deposits) as a Secondary A Aquifer underlain by bedrock (Collyhurst Sandstone Formation) classed as a Principal Aquifer. The EA data also indicates that the Site is not in a designated groundwater Source Protection Zone. According to the Envirocheck Report, there is one groundwater abstraction point approximately 745 m east of the Site, for use at the Manchester Abattoir. The available BGS borehole information did not indicate the presence of any groundwater, however, perched groundwater may be present within the superficial deposits and/or the overlying waste deposits. The main groundwater table is likely to reside within the Collyhurst Sandstone at depth.

Hydrology	The nearest surface water feature is the River Medlock located approximately 90 m south of the Site. According to the Envirocheck Report, there are no licensed abstraction records from surface water located within 500 m of the Site.
Coal Mining	Reference to the Coal Authority on-line viewer indicates that the Site is within a Coal Mining Reporting Area but is not within a Development High Risk Area. Consequently, a Coal Mining Risk Assessment (CMRA) is unlikely to be required under the planning regime.
Radon Gas	The Site is in a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). As such it is considered that no radon protective measures would be necessary in the construction of new dwellings or extensions.
Ecological Receptors	It is understood from information provided within the Envirocheck® Report that the following ecological receptors are located within 500 m of the Site; one area of adopted green belt approximately 30 m to the south and one local nature reserve (Clayton Vale) approximately 40 m to the south of the Site.
Heritage Interest	According to sketchmap.co.uk, the closest area of heritage interest is located approximately 900 m to the south of the Site associated with a Grade II Listed Building.
Environmental Sensitivity	The Site is considered to be of a moderate environmental sensitivity given the adjacent housing, nearby River Medlock and presence of underlying aquifers.

2.3 Historical Use of the Site & Surrounding Area

Approach	The historical development of the Site and surrounding area has been assessed through a review of available historical OS maps and Google Earth historical satellite imagery. A summary of the key historical Site uses and developments in the surrounding area is presented below. Copies of pertinent historical maps are included as Appendix D.
Historical Features On-Site	From the earliest map edition (1848) the Site appears to have been in agricultural use, until the 1893 mapping where evidence of a pit (possibly resulting from sand and gravel extraction, although of unknown designation) is present. By the 1951 mapping the former pit is labelled as a refuse heap, suggesting restoration of the former void to have taken place through deposit of waste materials. By the 1981 map edition the Site is subsequently labelled as a playground. By the 1987 mapping the Site is labelled as a Recreational Ground. Within the historical aerial photography (dated 2000) the Site is noted to comprise predominantly grassed areas in the east of the Site, with large trees and an area of asphalt, with associated children's play equipment. In the south west corner of the Site, a building with associated hardstanding and vehicles is present. This is no longer present in the current mapping.
Potentially Contaminative Historical Features Off-Site	Potential sources of contamination within 250 m of the Site include: ▲ Industrial works including Culcheth Bleach Works, Clayton Vale Print and Dye works approximately 200 m to 250 m to the east and south east of the Site shown from the earliest map edition (1848) to the 1984 mapping; ▲ The London Midland and Scottish Railway trending west to east, adjacent to the southern Site boundary with associated sidings present from the earliest mapping (1848) to the current mapping; and ▲ To the south of the Site excavated and infilled areas likely associated with Clayton Vale Historical Landfill and Recorded Landfill areas present between approximately

	50 m to 150 m which shown from the 1932 map edition and were no longer shown circa the 1992 mapping.
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2.4 Environmental Database Review

Approach	The Landmark Envirocheck® Report provides a database of environmental information held by various statutory bodies including the EA, Local Authority (LA), Health & Safety Executive (HSE) and HPA amongst others. A full copy of the Envirocheck® Report is provided in Appendix E and the most relevant information is summarised below.
Features On-Site	The Landmark Envirocheck® Report lists the Site as entirely within an area recorded as a historical landfill and areas within potentially infilled land (non-water). This is thought likely to be associated with the pit, and refuse heap indicated on the historical mapping between 1884 and 1951. Deposited waste within the landfill is understood to have included inert and industrial waste, registered as Clayton Vale Power Station active between 1901 and 1980. Additionally, Recreational and Environmental points of interest list the Site as a Playground.
Potentially Contaminative Features Off-Site	Pertinent entries included within the Landmark Envirocheck® Report located within 250 m from the Site include the following: ▲ Three Discharge Consents regarding the discharge of storm water to the River Medlock approximately 200 m south east of the Site; ▲ Six pollution incidents to controlled waters regarding sewage discharge to the River Medlock between approximately 200 m and 225 m south east of the Site; ▲ One BGS Recorded Landfill Site listed as the Clayton Vale Landfill approximately 35 m south; ▲ Two Historical Landfill Sites listed as Clayton Vale Power Station and Stuart Street Power Station active from 1901, depositing industrial and inert waste; ▲ Two areas of potentially infilled Land (non-water) and sixteen areas of potentially infilled land (water) regarding unknown filled ground; ▲ One Registered Landfill Site listed as Clayton Vale Power Station, Bank Bridge Road, accepting an amount equal to or greater than 75,000 and less than 250,000 tonnes, where the licence dated 1979 is now lapsed; ▲ Two Contemporary Trade Directory Entries regarding a blind fitters and commercial cleaning services, between approximately 175 m and 200 m east of the Site; ▲ One Manufacturing and Production Point of Interest regarding an unspecified works 220 m to the east; ▲ Four Public Infrastructure Points of Interest regarding three weirs and waste storage, processing and disposal infrastructure between approximately 120 m and 200 m south east of the Site. Within the wider area, pertinent entries include a BGS recorded mineral site (Cheetham Fold Clay Pit) recorded approximately 260 m north, regarding the opencast quarry of clay and shale.
Implications for Land Contamination Risk	The historical landfill at the Site is considered to be a potential on-Site source of contamination identified at the Site from the regulatory information. Potential off-Site sources of contamination have been identified that will be considered in the preliminary risk assessment.

2.5 Planning Review / Regulatory Enquiries

On-line Planning Portal	Manchester City Council	Date Accessed	28/10/2019
Findings	No potentially contaminative activities or other information pertinent to this assessment were identified from the historical planning records.		
Part 2A of the Environmental Protection Act (EPA) 1990	Although the Site is located on a former landfill, the Contaminated Land Officer (CLO) confirmed that it is not on their list for inspection, nor have they assigned the Site a risk rating under the Environmental Protection Act 1990, Part 2A. There are no proposals to investigate the Site or surrounding area. The CLO was able to confirm the following: The Site sits on a known landfill site known as Scotland Hall Road, and sits within 250 m of the Clayton Vale Landfill to the south of the Site. No information was held regarding the Scotland Hall Landfill Site as the infilling works took place prior to the Control of Pollution Act 1974 (which required that the disposal of all controlled wastes onto land be licensed); as such, the nature of the fill materials is not known. Copies of the pertinent information is appended as Appendix F.		

3.0 Conceptual Site Model

3.1 Introduction

A Conceptual Site Model (CSM) represents the relationships between contaminant sources, pathways and receptors, to support the identification and assessment of Possible Pollutant Linkages (PPL).

3.2 Potential Contamination Sources

Identified potential contamination sources are presented in the following table:

Reference	Source	Location	Dates Present	Potential Associated Contaminants of Concern
S1	Made Ground present on-Site, from a former building and from historical on-Site Landfill (Clayton Vale Power Station)	Site-wide	1901 to 1980 and post 2000	Asbestos, heavy metals, PAHs, hazardous ground gases
S2	Railway and sidings	50m South	Pre 1848 to present	Petroleum hydrocarbons, heavy metals
S3	Clayton Vale Landfill	30 m South	1901 to 1980	Hazardous ground gases

* Based on UK Department of the Environment Industry Profiles

3.3 Potential Receptors

Relevant potential receptors are considered to include:

- ▲ R1 - Construction workers.
- ▲ R2 - Third parties during construction (adjacent Site users and adjacent residents).
- ▲ R3 - Future Site users and maintenance workers.
- ▲ R4 - The River Medlock watercourse.
- ▲ R5 - The underlying superficial Secondary A and underlying Principal aquifer within the bedrock Collyhurst Sandstone Formation.

3.4 Potential Pathways

The potential pathways are considered to be as follows:

- ▲ P1 - Direct contact, ingestion or inhalation of soil bound contaminants / dust during or following redevelopment.
- ▲ P2 - Inhalation of organic vapours associated with contamination.
- ▲ P3 - Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or discharge to surface waters.
- ▲ P4 - Direct contact between aggressive ground conditions and new infrastructure.

Pollutant Linkage Assessment					
Source(s)	Pathway(s)	Receptor(s)	Risk Rating	Justification & Mitigation (if required)	Requires Investigation
S1 Potential on-Site Made Ground Deposits, from a former building and from from historical on Site Landfill (Clayton Vale Power Station)	P1, P2, P3, P4	R1, R2, R3, R4, R5	Low to Moderate Risk	Given the former use of the Site as a landfill, and more recent demolition of on-Site buildings (formerly in the south west) and proximity to the railway line and likely sidings, it is likely that there are Made Ground deposits on-Site. The risk posed to construction workers and off-Site human receptors during the redevelopment of the Site is considered low, as safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of personal protective equipment (PPE) provided and utilised to reduce the potential risks. There is a potential risk to future site users as Made Ground is likely to be present on Site. It is recommended that a site investigation is undertaken to assess the risk within shallow soils. The risk posed by hazardous ground gases is considered negligible due to the proposed development not comprising enclosed indoor areas where gases could pose an explosion or asphyxiant risk. There is considered to be a plausible pollutant linkage between any present Made Ground and the underlying aquifers and the adjacent watercourses. However, it is considered unlikely that potential contamination would migrate to these receptors due to the underlying Glacial Till. Localised remedial measures, a hotspot protocol for example, may be required in areas of identified Made Ground. The presence and matrix of the Made Ground can be confirmed through a site investigation.	Y
S2 Adjacent railway and sidings	P1, P2, P3, P4	R1, R2, R3	Low Risk	It is considered that the adjacent railway line may represent a source of contaminants associated with railway processes, such as coal, fuels, oils and waste products. However, the potential migration of contaminants is likely limited due to the distance and the presence of underlying Devensian Till (clay) deposits.	N
S3	P1, P2, P3	R1, R2, R3	Low Risk	It is considered that the Clayton Vale Landfill and further off-Site historical sources may represent a source of contaminants associated with Made Ground deposits	N

Pollutant Linkage Assessment					
Source(s)	Pathway(s)	Receptor(s)	Risk Rating	Justification & Mitigation (if required)	Requires Investigation
Clayton Vale Landfill and further off-Site sources				and former nearby works. However, the ground conditions across the Site and surrounding area are anticipated to be similar, given the widespread historical landfills present in the area. It is considered unlikely that significant migration of potential contaminants from off-Site sources would occur, and given that the proposed development does not include any buildings, the risk to future Site users from off-Site sources is considered to be low.	

4.0 Development Considerations

4.1 Potential Remediation Requirements & Solutions

Soils	The Site has been historically subject to landfilling. It is not known whether suitable clean cover soils were imported to restore the Site prior to development as a public park in the 1980s. If this is the case, the risk of remediation being required to mitigate risks to the identified environmental receptors will be low, however, it is possible that if suitable soils are not present, further restoration / remediation may be recommended. If contamination and / or ACMs are identified, then this may have an impact on waste disposal costs.
Groundwater	Significant widespread groundwater contamination is not anticipated.
Ground Gas	As buildings are not proposed within the current proposed development plan, a ground gas risk is not considered to be present at the Site.

5.0 Conclusions & Recommendations

5.1 Land Contamination

Contamination Risks Associated with Ownership (Current Use)	There is considered to be a Low risk of enforcement action by the regulatory authorities under Part 2A of the Environmental Protection Act, the Water Resources Act or the Environmental Damage Regulations, whilst the Site remains in its current use. The potential for legal action by surrounding landowners / Third Parties based on the potential for contamination to migrate off-Site (ongoing or historically) is considered to be Low .
Potential Contaminated Land Development Risks	The Site has been subjected to uncontrolled landfilling during the mid 20 th Century (and possibly earlier). It is not known whether the landfill materials were covered / restored prior to development as a public park. If this is the case, further remediation is unlikely to be required. However, if landfill materials are still present close to the surface, further restoration including importation of suitable topsoil / subsoil may be recommended. If contamination and / or ACMs are identified, then this may have an impact on waste disposal costs.
Plausible Geotechnical Development Risks	There are limited geotechnical development risks on the Site as buildings are not proposed within the current proposed development plan.
Recommendations	A limited intrusive investigation is recommended in order to identify shallow soil conditions and specifically, presence and quality of any clean soil cover above the historical landfill material. The investigation will also need to identify potential contamination sources and presence of substances of concern in shallow soils, with respect to human health.

Appendix A – Limitations

Limitations

The recommendations contained in this Report represent Delta-Simons professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Delta-Simons obtained, reviewed and evaluated information in preparing this Report from the Client and others. Delta-Simons conclusions, opinions and recommendations has been determined using this information. Delta-Simons does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Appendix B – Risk Definitions

Contaminated Land Risk Definitions

The following methodology is based on the methodology presented in CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice 2001. It requires the classification of the:

- ▲ Magnitude of the potential consequence (severity) of the Risk occurring: and
- ▲ Magnitude of the Probability (likelihood) of the Risk occurring.

The classifications are then compared to indicate the risk presented by each pollutant linkage.

Consequence to Receptor Definition Matrix

	Human Health	Controlled Waters	Buildings/Services
Severe Consequence	Acute or chronic permanent impact on human health.	Sensitive controlled water pollution ongoing, or just about to occur.	Catastrophic collapse
Medium Consequence	Chronic permanent impact on human health	Gradual pollution of sensitive controlled water	Degradation of materials
Mild Consequence	Chronic temporary impact on human health	Gradual pollution of non-sensitive controlled water	Damage to building rendering it unsafe to occupy (eg foundation damage resulting in instability).
Minor Consequence	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc).	Slight discoloration of water	Easily repairable effects of damage to buildings, structures and services, i.e discoloration of concrete

Probability Definitions

Probability	Definition in Context
Higher	There is a pollution linkage and an event that either 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. Positive evidence of source, pathway and receptor.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term. Suspect source, pathway, and receptor
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term No evidence of hazard, pathway, and receptor

Standard Risk Matrix

		Consequence/Magnitude of impact			
		Severe	Medium	Mild	Minor
Probability	High	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

Classified risks and likely action

Significance Level	Definition/Comments
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required. Demonstrable contaminated land situation, highest threat & liability level, urgent action recommended.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term. Likely contaminated land situation, risk assessment and action recommended.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, if it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term. Plausible contaminated land situation, risk assessment and possible action recommended.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Unlikely contaminated land situation, possible risk assessment and possible action.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe. Negligible risk, no action recommended except vigilance for changes in conditions.

Geotechnical Risk Classification

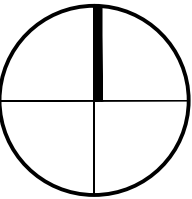
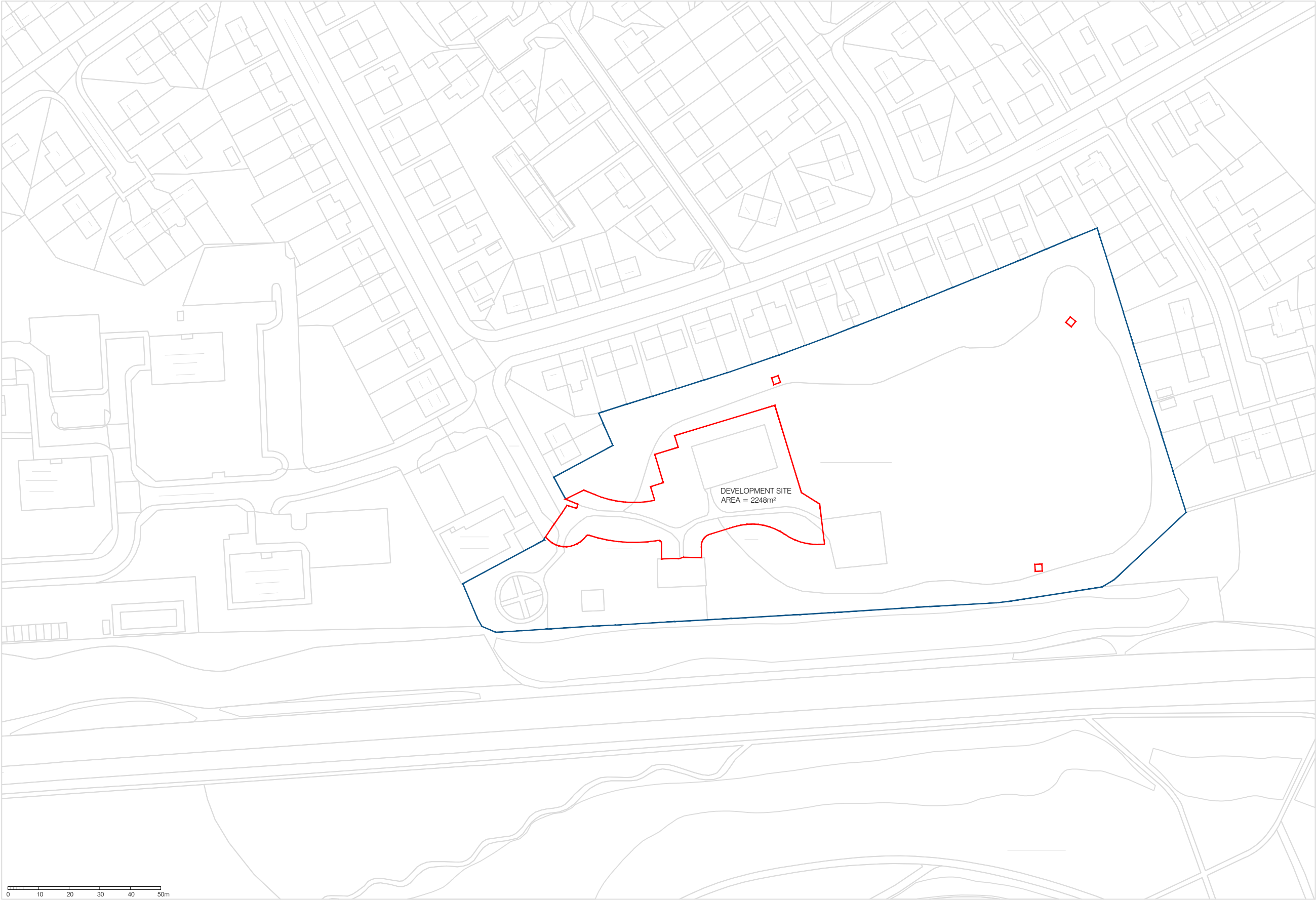
The geohazards listed in the report within Section 4 follow guidance presented in Clayton, C.R.I. (2001) *Managing Geotechnical Risk*, Thomas Telford and the Highways Agency document HD22/08 '*Managing Geotechnical Risk*' (2008) which aims to identify and manage the geotechnical risks associated with a scheme throughout its lifespan, from planning to construction to maintenance.

For each geohazard the probability of the hazard occurring (P) has been considered together with the impact it would have (I) if it were to happen to calculate the risk rating between 1 and 25.

Risks that fall within Moderate, Significant and Severe categories below are considered to be **substantial** and are therefore listed within the report.

Probability	(P)		Impact	(I)		(R)	Risk
Very Likely (VLk)	5	X	Very High (VH)	5	=	20 – 25	Severe
Likely (Lk)	4		High (H)	4		15 – 19	Substantial
Plausible (P)	3		Medium (M)	3		10 – 14	Moderate
Unlikely (U)	2		Low (L)	2		5 – 9	Minor
Very Unlikely (VU)	1		Very Low (VL)	1		1 – 4	Negligible

Appendix C – Proposed Development Plans



□ LONDON

□ LEEDS

□ CARDIFF

□ GLASGOW

□ ABERYSTWYTH

□ MANCHESTER

□ LOUGHBOROUGH

P1	09/10/19	ISSUED FOR TENDER	TL	TL
REV	DATE	DESCRIPTION	DR	CH

TENDER

darntonB3
ARCHITECTURE

LEEDS

The Coach House, Monk Fryston Hall, Monk Fryston, Leeds, LS25 5DU.
T: 01977 681 001 www.darntonb3.com

CLIENT
CITY IN THE COMMUNITY

PROJECT
PLAY ZONE PILOTS
SCOTLAND HALL ROAD

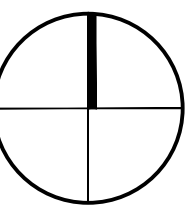
DRAWING
EXISTING
LOCATION PLAN

SCALE @ A3	DRAWN	CHECKED
1:1250	TL	TL

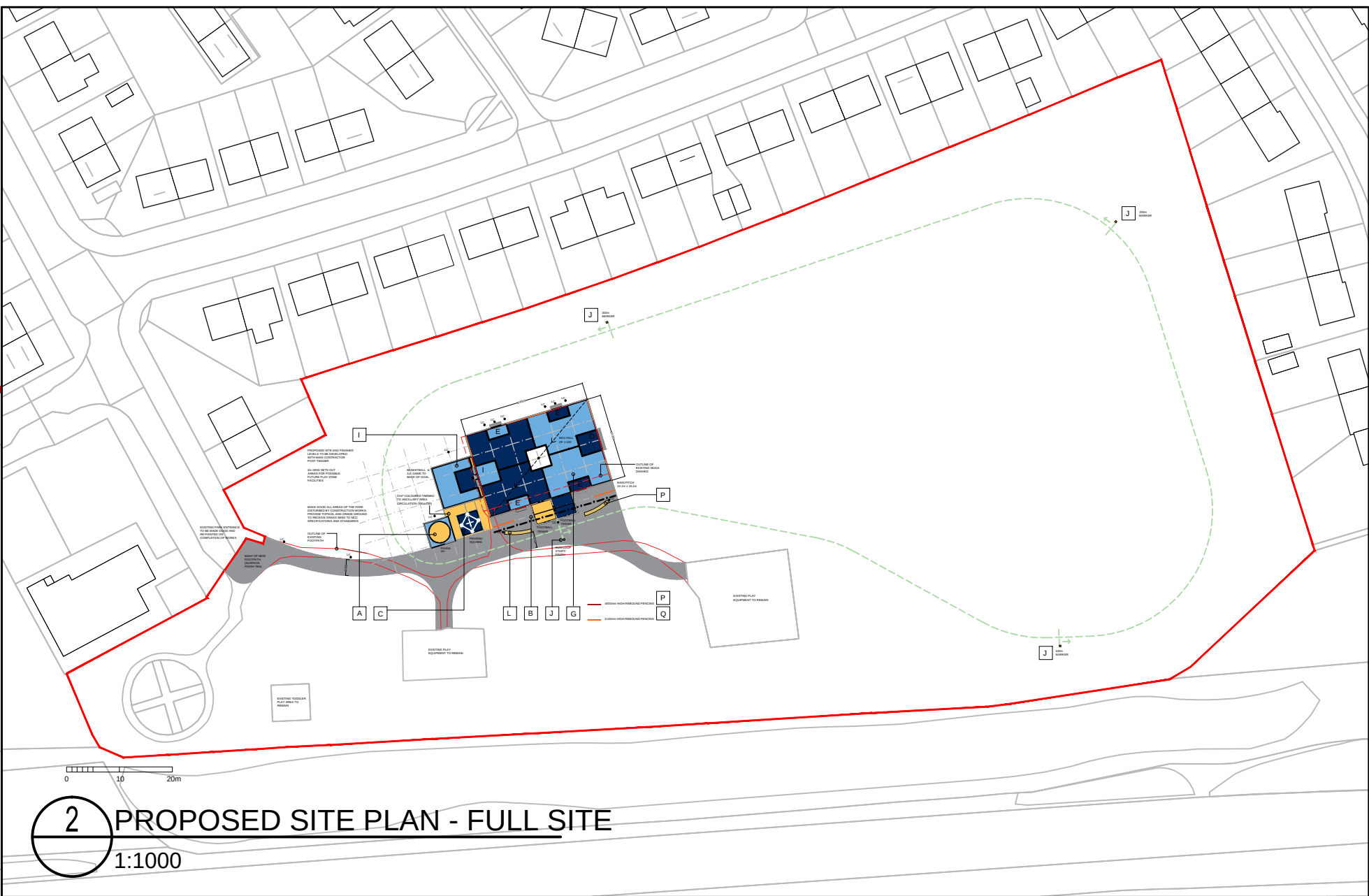
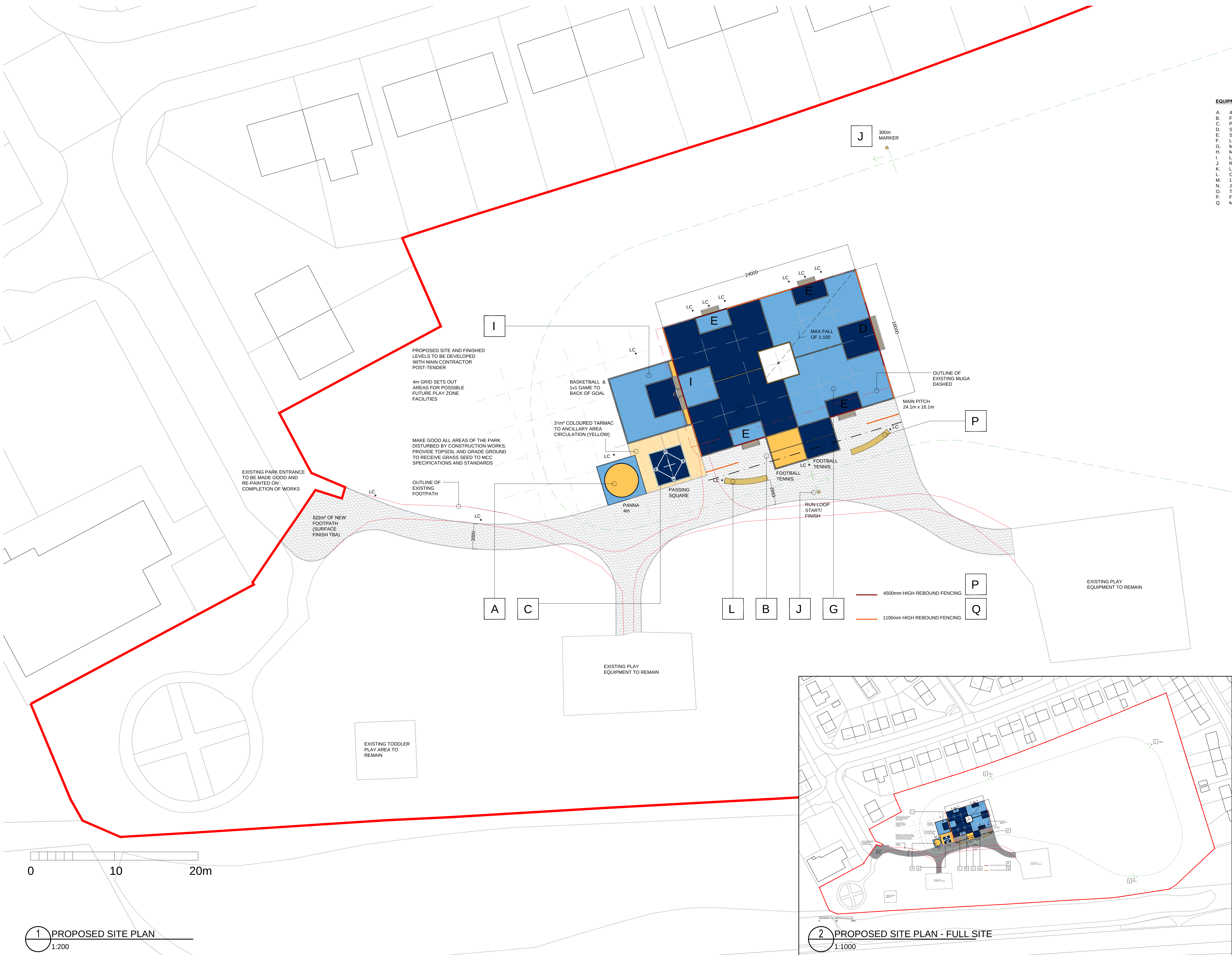
CREATION DATE	REVISION
09/10/19	P1

DARNTONB3 DRAWING NO.
13034 - DB3 - B01 - XX - DR - A - 90001
PROJECT NO -COMPANY- ZONE - LEVEL - TYPE - ROLE -NUMBER

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ANY DISCREPANCIES MUST BE REPORTED TO DARNTONB3 IMMEDIATELY.
DARNTONB3 LTD WORK TO A MANAGEMENT SYSTEM WHICH IS APPROVED TO ISO-9001 BY LRQA - CERTIFICATE NUMBER LRQA-0847162



EQUIPMENT KEY		(DRAWING REFERENCE)
A.	4m PANNA	(13034-DB3-B0X-XX-DR-A-90201)
B.	FOOTBALL TENNIS	(13034-DB3-B0X-XX-DR-A-90202)
C.	PASSING SQUARE	(13034-DB3-B0X-XX-DR-A-90203)
D.	STD LARGE GOAL	(13034-DB3-B0X-XX-DR-A-90204)
E.	STD CROSS-PLAY GOAL	(13034-DB3-B0X-XX-DR-A-90205)
F.	LARGE GOAL + 1v1	(13034-DB3-B0X-XX-DR-A-90206)
G.	MAIN PITCH S/O (B01)	(13034-DB3-B01-XX-DR-A-90207)
H.	MAIN PITCH S/O (B02)	(13034-DB3-B02-XX-DR-A-90208)
I.	LARGE GOAL + 1v1 + BASKETBALL	(13034-DB3-B0X-XX-DR-A-90214)
J.	RUN-LOOP MARKERS	(13034-DB3-B0X-XX-DR-A-90209)
K.	LINEAR BENCH	(13034-DB3-B0X-XX-DR-A-90210)
L.	CURVED BENCH	(13034-DB3-B0X-XX-DR-A-90211)
M.	1v1 + BASKETBALL	(13034-DB3-B0X-XX-DR-A-90212)
N.	J-SHAPED BENCH	(13034-DB3-B0X-XX-DR-A-90213)
O.	TYPICAL DETAILS SHEET	(13034-DB3-B0X-XX-DR-A-90217)
P.	FULL HEIGHT FENCE DETAIL	(13034-DB3-B0X-XX-DR-A-90215)
Q.	MINI FENCE DETAIL	(13034-DB3-B0X-XX-DR-A-90216)



P2	27/09/19	AMENDED LAYOUT TO SUIT CLIENT COMMENTS	TL	TL
P1	20/09/19	AMENDED PROPOSED SITE LAYOUT IN LINE WITH RECENT COMMUNICATIONS	TL	TL
REV	DATE	DESCRIPTION	DR	CH

APPROVAL

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ARCHITECTURE
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CLIENT
CITY IN THE COMMUNITY

PROJECT
PLAYZONE PILOTS
SCOTLAND HALL ROAD

TITLE
PROPOSED
SITE PLAN

CREATION DATE	SCALE @ A1	DRN	CHK	STATUS
20/09/19	1:200	TL	TL	S4

SHEET NO.	REVISION
13034-DB3-B01-XX-DR-A-90103	P2

PROJECT NO:030819/ATOR3/ZONE1/EVLE1/TYP3/DR/EN/NUMBER
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Appendix D – Historical Maps

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		Minor Roads		
	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				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	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
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		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
	Civil Parish		
	BP, BS Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		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
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

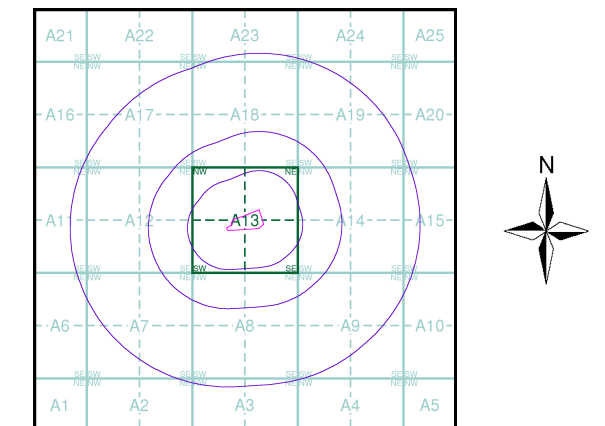
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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848	3
Cheshire	1:10,560	1882	4
Lancashire And Furness	1:10,560	1894 - 1895	5
Cheshire	1:10,560	1899	6
Lancashire And Furness	1:10,560	1909 - 1910	7
Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1922 - 1923	9
Lancashire And Furness	1:10,560	1932 - 1933	10
Cheshire	1:10,560	1938	11
Lancashire And Furness	1:10,560	1938	12
Lancashire And Furness	1:10,560	1938	13
Ordnance Survey Plan	1:10,000	1956	14
Ordnance Survey Plan	1:10,000	1966 - 1968	15
Manchester	1:25,000	1975	16
Ordnance Survey Plan	1:10,000	1978	17
Ordnance Survey Plan	1:10,000	1981 - 1982	18
Ordnance Survey Plan	1:10,000	1987	19
Ordnance Survey Plan	1:10,000	1990 - 1993	20
10K Raster Mapping	1:10,000	1999	21
10K Raster Mapping	1:10,000	2006	22
VectorMap Local	1:10,000	2019	23

Historical Map - Slice A



Order Details

Order Number: 221303416_1_1
Customer Ref: 18-1673.04
National Grid Reference: 388250, 399650
Slice: A
Site Area (Ha): 1.84
Search Buffer (m): 1000

Site Details

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Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

Government and Administrative Buildings Military and Industrial Buildings

Military and Communication Areas Subway Entrance

Fireproof Building Prominent Fireproof Building

Non-fireproof Building Non-fireproof Building (non-dwelling)

Factory, mill, and flour mill, with chimneys Factory, mill, and flour mill, without chimneys

Power Station, drawn to scale Hydroelectric Power Station

Radio Station, drawn to scale Telephone Station, drawn to scale

Abandoned Open-pit Mine or Quarry Open-pit Salt Mine

Pit Oil Deposit or Well Oil Seepage

Tailings Pile Fuel Storage Tanks Natural Gas Tank

Bench Mark Drill Hole Burial Mound Triangulation Point on Burial Mound

Single-track Railroad Double-track Railroad and Station Building

Coniferous Forest Deciduous Forest Mixed Forest

Lawns Citrus Orchard Wet Ground Scattered Vegetation

243.8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0.2 Velocity of the current, width of river bed, depth of river

180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A) З з (Z) П п (P) Ч ч (CH)

Б б (B) И и (I) Р р (R) Ш ш (SH)

В в (V) Й й (Y) С с (S) Щ щ (SHCH)

Г г (G) К к (K) Т т (T) Ъ ъ (-)

Д д (D) Л л (L) У у (U) Ы ы (Y)

Е е (E) М м (M) Ф ф (F) Ь ь (')

Ё ё (YO) Н н (N) Х х (KH) Э э (E)

Ж ж (ZH) О о (O) Ц ц (TS) Ю ю (YU or IU)

Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

Government and Administrative Buildings Military and Industrial Buildings

Military and Communication Areas Subway Entrance

Partly Demolished Buildings Demolished Buildings

Built-Up Area with Fireproof Buildings Predominant Built-Up Area with Non-Fireproof Buildings Predominant

Individual Fireproof Building Prominent Industrial Building

Individual Dwelling, Fireproof Ruins of an Individual Dwelling

Factory or Mill Chimney Factory or Mill with Chimney Factory or Mill without Chimney Mine or Open Pit Mine

Operating Shaft or Mine Non-Operating Shaft or Mine Salt Mine Tailings Pile

Pit Stone Quarry Gas Pump or Service Station Fuel Storage or Natural Gas Tank

Oil or Natural Gas Derrick Small Hydroelectric Power Station Power Station Transformer Station

Cemetery Burial Mound (height in metres) Triangulation Point on Burial Mound Triangulation Point

Bench Mark Bench Mark (monumented) Telegraph Office Telephone Station

Radio Station Radio Tower Airfield or Seaplane Base Landing Strip

Telegraph/Telephone Lines Main Highway Highway under Construction Improved Dirt Road (former truck road)

Double-track Railroad with First Class Station Dismantled Railroad Railroad Under Construction

Shore Embankment River or Ditch with Embankment Direction and velocity of current Water Gauge Water Level Mark

Well Water Reservoir or Rain Water Pit Spring Isobath with value

Heavy (Index) Contour Line Contour Line and Value Half Contour Line Spot Elevation Value

Coniferous Deciduous Mixed Scrub

Key to Numbers on Mapping

SJ89_Manchester

No.	Description
83	Factory (Machinery)

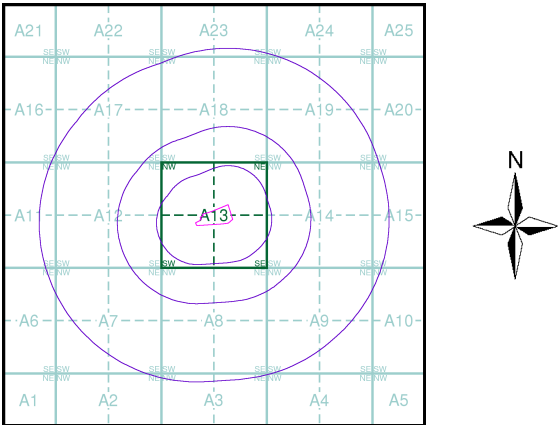
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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
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Cheshire	1:10,560	1882	4
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Cheshire	1:10,560	1899	6
Lancashire And Furness	1:10,560	1909 - 1910	7
Cheshire	1:10,560	1911	8
Lancashire And Furness	1:10,560	1922 - 1923	9
Lancashire And Furness	1:10,560	1932 - 1933	10
Cheshire	1:10,560	1938	11
Lancashire And Furness	1:10,560	1938	12
Lancashire And Furness	1:10,560	1938	13
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Ordnance Survey Plan	1:10,000	1966 - 1968	15
Manchester	1:25,000	1975	16
Ordnance Survey Plan	1:10,000	1978	17
Ordnance Survey Plan	1:10,000	1981 - 1982	18
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Ordnance Survey Plan	1:10,000	1990 - 1993	20
10K Raster Mapping	1:10,000	1999	21
10K Raster Mapping	1:10,000	2006	22
VectorMap Local	1:10,000	2019	23

Russian Map - Slice A



Order Details

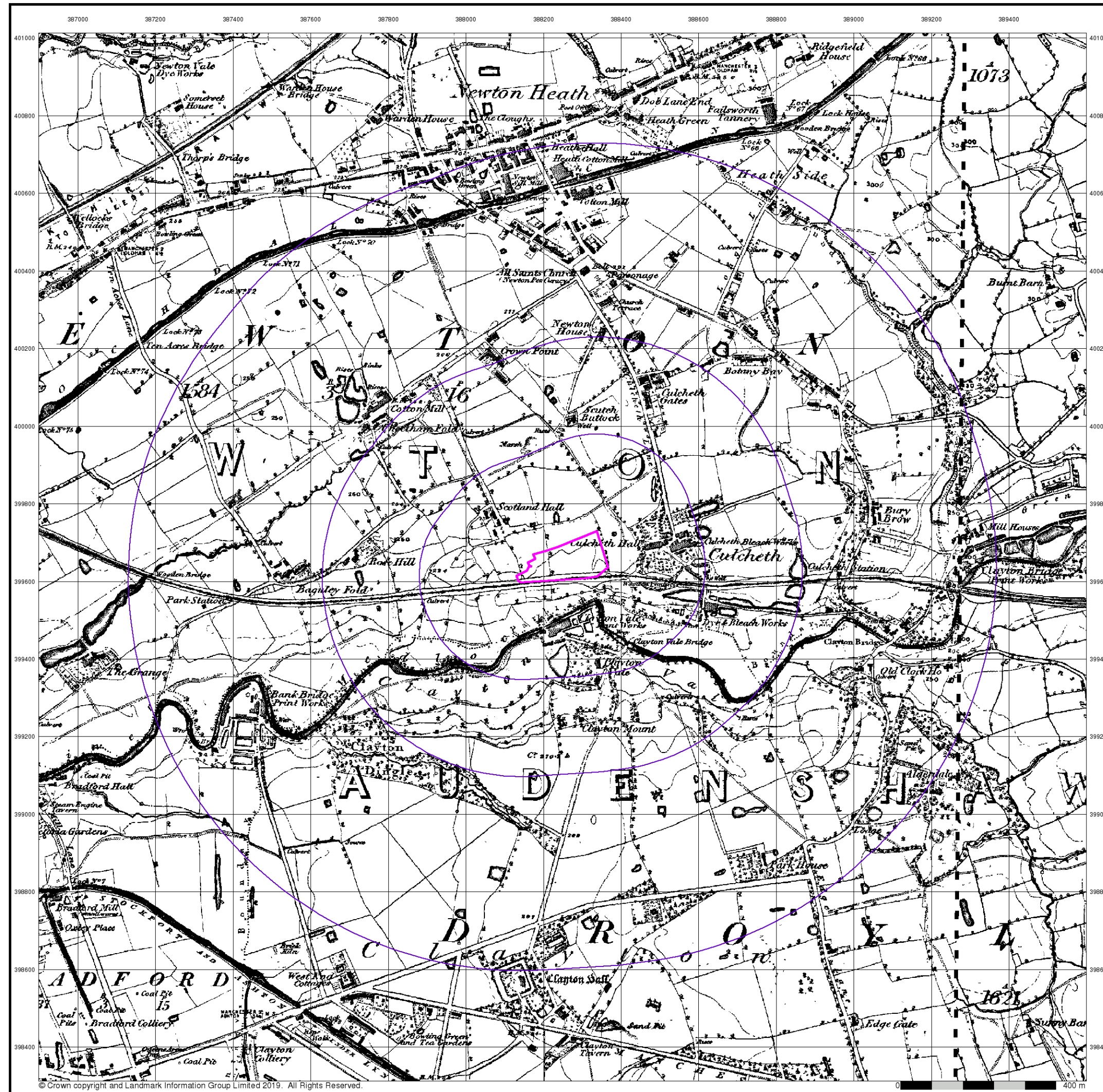
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Search Buffer (m): 1000

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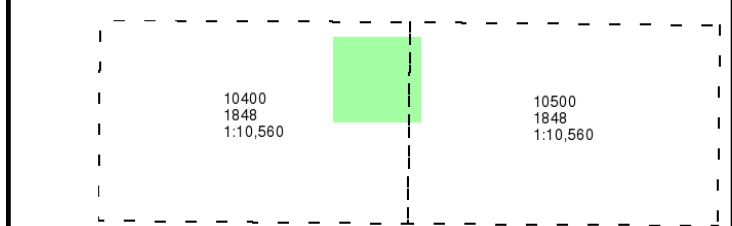
Lancashire And Furness

Published 1848

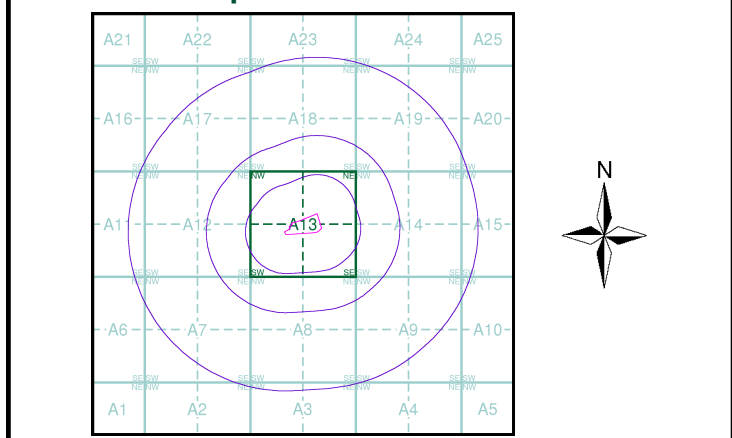
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps.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

Map Name(s) and Date(s)



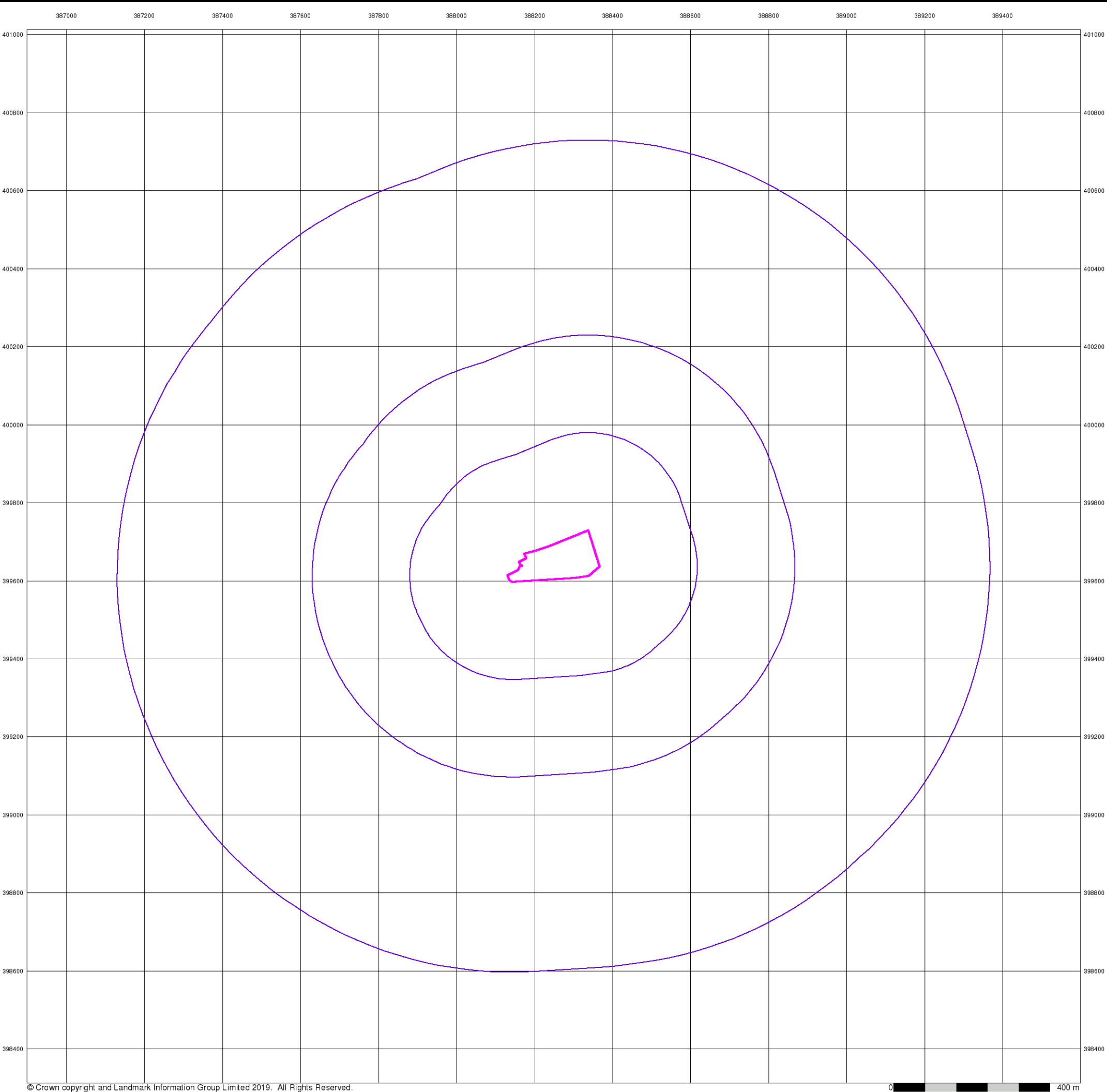
Historical Map - Slice A



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National Grid Reference: 388250, 399650
Slice: A
Site Area (Ha): 1.84
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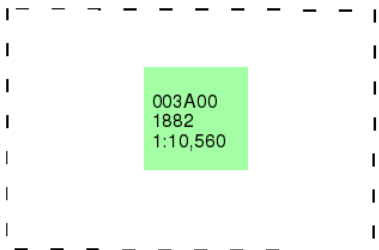
Cheshire

Published 1882

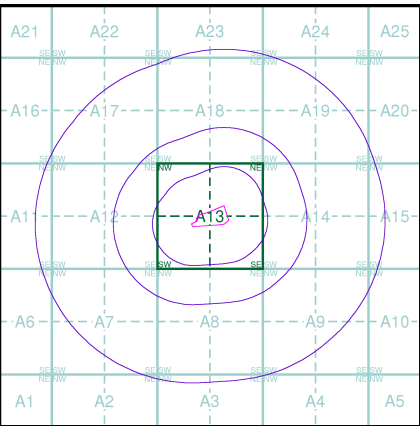
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps.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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

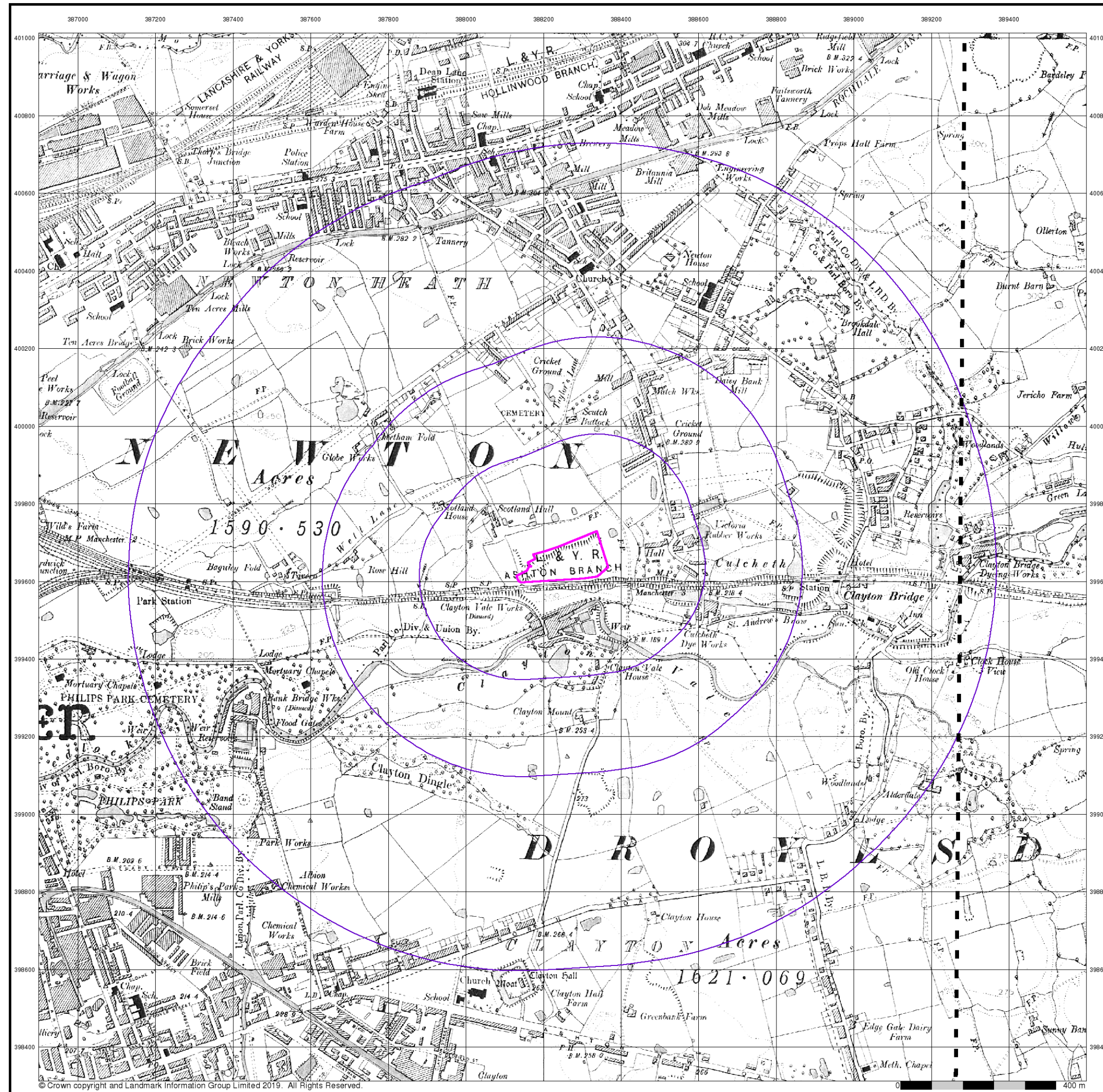
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Slice: A
Site Area (Ha): 1.84
Search Buffer (m): 1000

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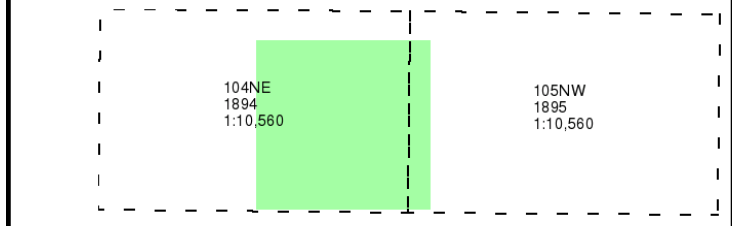
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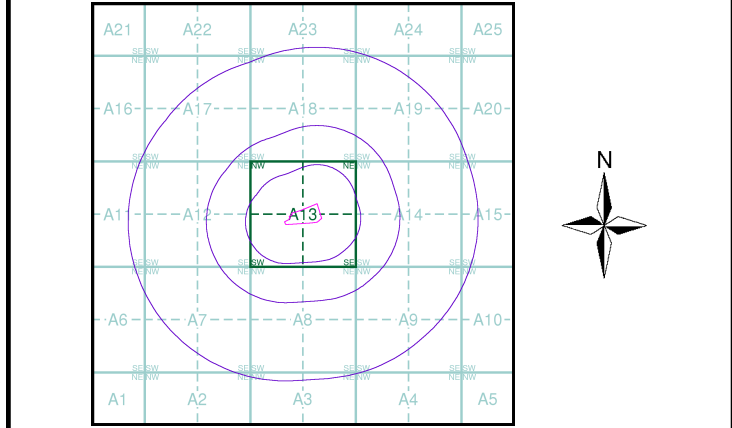
Lancashire And Furness Published 1894 - 1895 Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



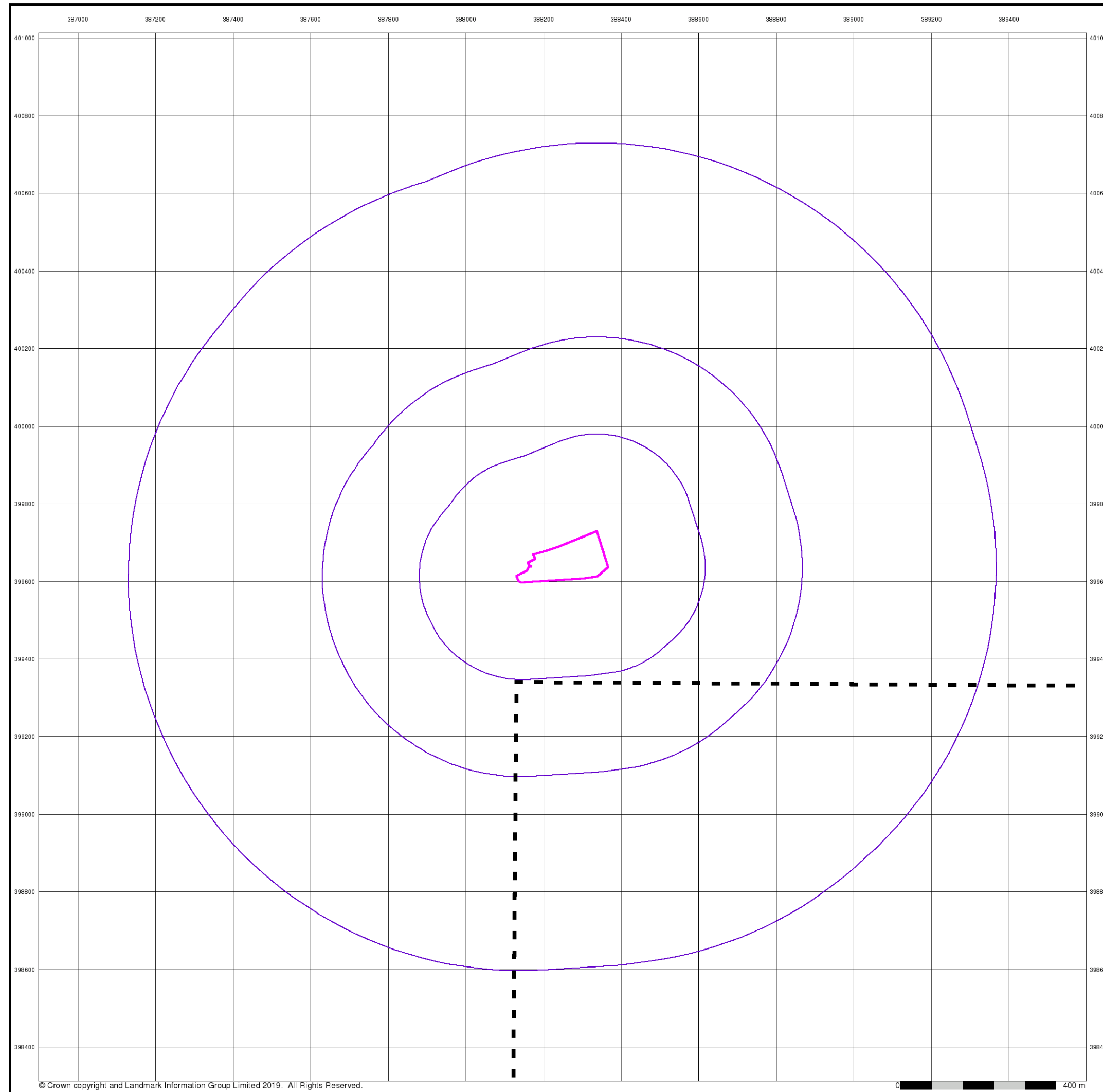
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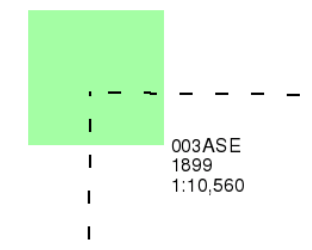
Cheshire

Published 1899

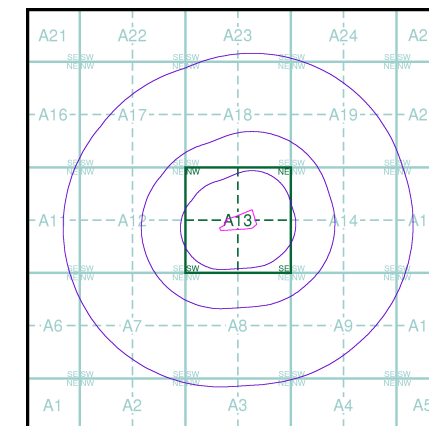
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 221303416_1_1
Customer Ref: 18-1673.04
National Grid Reference: 388250, 399650
Slice: A
Site Area (Ha): 1.84
Search Buffer (m): 1000

Site Details

Scotland Hall Road, MANCHESTER, M40 2RE

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INFORMATION GROUP

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



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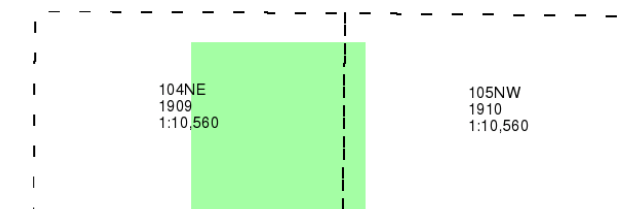
Lancashire And Furness

Published 1909 - 1910

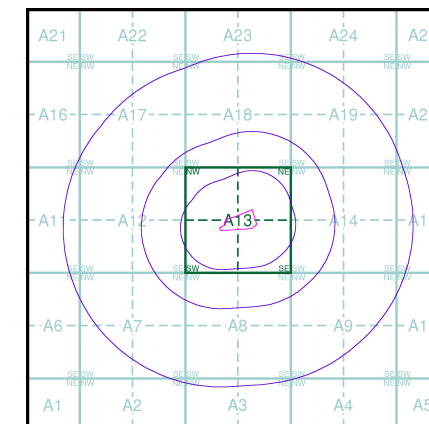
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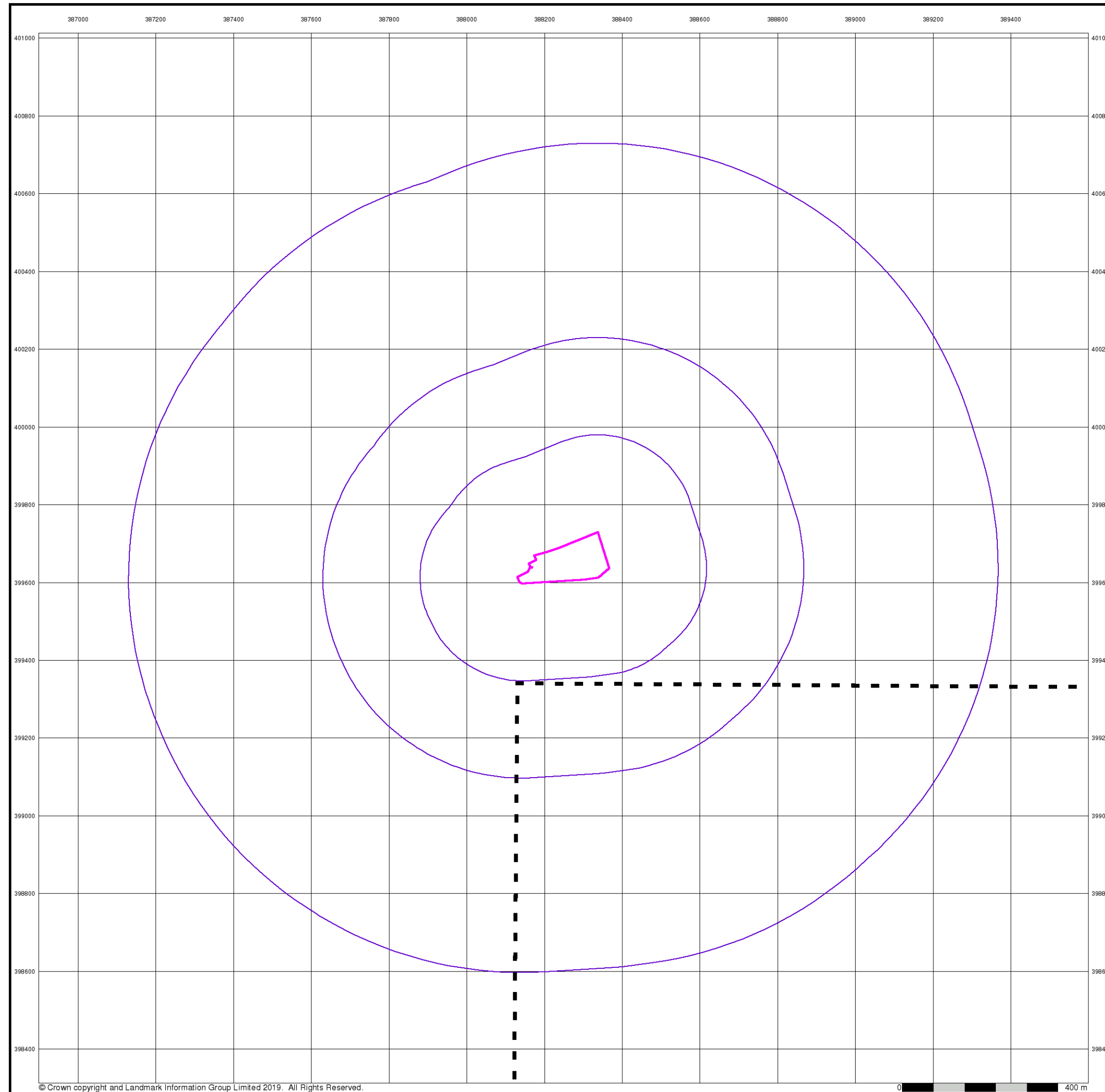
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Customer Ref: 18-1673.04
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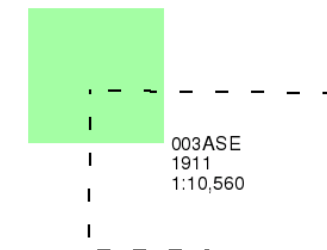
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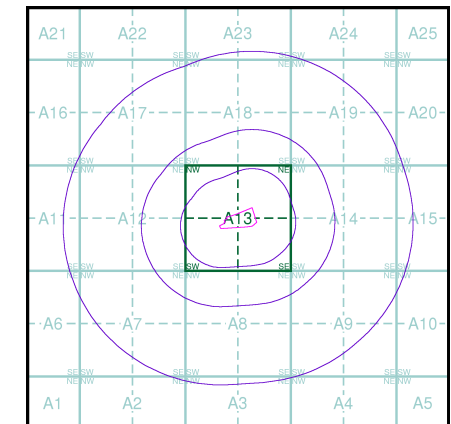
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