





Phase 1 Desk Study Report
Renton Road, Greenock
Issue No 01 November 2023

A black and white photograph showing several cylindrical soil samples (cores) and some irregular rock fragments, stacked together. A red horizontal bar is overlaid on the right side of the image, containing the text "Geotechnical Consultants & Ground Investigation Contractors".

Geotechnical Consultants & Ground Investigation Contractors

CONTROL SHEET**CLIENT:** Clydeway Contracts**PROJECT TITLE:** Renton Road Greenock**PROJECT REFERENCE:** AP2837**STATUS:** Issue 1

Issue & Approval Schedule			
Issue 1	Name	Signature	Date
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EXECUTIVE SUMMARY

Executive Summary	
Planning Reference No.	-
Site Address	Renton Road, Greenock, PA15 3EJ
Site Description	<p>The site is located on Renton Road, Greenock (Grid Reference: NS 29160 74287). The site comprises an irregular shape with an approximate site area of 2.26 hectares.</p> <p>The site can be accessed from Renton Road and Luss Avenue. The site is noted to increase in elevation from north to south and is generally comprised of turf with overgrown grass, shrubs, and trees.</p> <p>The site is bounded on the north, east and west by residential properties and to the south by mature woodland and open terrain.</p>
Site History	
On-site	The site is mostly undeveloped with a small staircase running from Renton Road to the houses located along the southeastern boundary. It was noted that in 1966-1987 small sections of residential enter the site boundary on the northeast and northwest sides.
Off-site	The surrounding area is used for residential development.
Proposed End Use	It is understood that the intended land use is for a 37 new residential developments, with road access, parking, and soft landscaping and one commercial development.
Environmental Setting	
Landfill & Waste	There are no recorded waste related facilities located within 500m of the site. Two historical refuse tips were recorded within 246m NE of the site on 1965 mapping.
Contemporary trades	1 No. contemporary trades were recorded within 500m of the site.
Geology	<p>Made ground is conjectured beneath the site and considered to be associated with the construction and demolition of the historical buildings that were noted extending into the site boundary on the OS maps. Made ground is also associated with the unknown heap recorded on site in 1978.</p> <p>Underlying the made ground is Till, Devensian; comprising of clay, silt and sand and gravel lenses. Underlying the superficial deposits is bedrock of the Strathgryfe lava member – Mugearite. Historical BGS boreholes located on site have recorded superficial deposits of SAND to a maximum depth of 0.50mbgl before encountering bedrock between 0.70 and 1.00mbgl. Type of bedrock was not proven in the historical logs.</p>
Hydrology	<p>The nearest surface water features are located on site and are unnamed. SEPA have not classified these water features, as such we consider them to be the most sensitive receptor. The closest classified surface water feature is the Clyde Estuary – Outer (ID: 200320) which SEPA have classified as moderate in 2020.</p> <p>The deeper lying aquifer underlying the site is the Spango groundwater body (ID: 150473). In 2020 SEPA classified the overall status of this ground water body as good.</p>
Flooding	There is a negligible risk from surface, river, coastal and groundwater flooding on site.
Radon Gas	The site is within an area of low radon potential (<1%). We therefore do not consider there to be a risk to the proposed development and radon protection measures will not be required.
Preliminary Mining Assessment	The site is not located within a coal mining reporting area. We therefore do not consider there to be a risk to the proposed development from mine workings.
Preliminary Contamination Assessment	Contamination could potentially be present relating to the previous historical land uses within the site and surrounding area. It is conjectured that made ground is present beneath the site. The previous buildings and unknown heap may contain asbestos containing materials; therefore, all workers should remain vigilant until testing is carried out.
Potential Sources of Ground Gas	Made ground is envisaged to underlie the site. As made ground is a potential source of ground gas, a ground gas risk assessment is recommended to determine if gas preclusion measures are required.

Phase 2 Recommendations	<p>Note that a non- targeted Phase 2 Ground Investigation is recommended . The following works should be carried out:</p> <ul style="list-style-type: none">Trial pittingBoreholes with gas and groundwater installationsSoil sampling for potential sources of contaminationWater sampling and testing or leachate testing. <p>We will undertake the investigations in line with BS:10175(2011) +A2(2017).</p>
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1 INTRODUCTION AND PURPOSE

This report presents the findings of the Phase 1 Desk Study Report carried out for a site at Renton Road, Greenock. Ardmore Point Ltd were commissioned by Clydeaway Contracts to prepare this assessment. It is understood that the intended land use is for 37 new residential developments with road access, parking, and soft landscaping and one commercial development (refer to Appendix B for design layout).

This desk study has been prepared in accordance with current legislative practices from British Standards BS 5930:2015 and BS 10175:2011+A2:2017, and all normative references, including Land Contamination Risk Management guidance, Model Procedures for the Management of Land Contamination, adopted by SEPA and local authorities as good practice in Scotland.

The desk study presents and discusses the available data obtained for the site and surrounding area's environmental and geological profile, which have been obtained from a site-specific Landmark Report. This desk study report identifies the potential environmental issues at the site and develops a preliminary conceptual site model (CSM) or geological environmental considerations.

A Phase 1 Desk Study Report is considered required prior to the development of the site to support the planning application. The report is therefore designed to address the requirements for the planning application to discharge any requirements for possible contamination risk.

In summary the report will:

- Assess the likelihood of finding contamination, its nature and extent through historical research
- Evaluate the environmental setting of the site and identify sensitive receptors.
- Identify potential pollutant linkages i.e., source/pathway/receptor through the development of a conceptual site model (CSM).
- Use the CSM to undertake a preliminary generic risk assessment.
- Consider the requirements for an intrusive site investigation and define key elements.

1.1 Limitations

This report has been prepared for Clydeaway Contracts and their appointed professional advisors and may not be relied upon by a third party for any purpose without the written consent of this practice.

This report has been prepared in accordance with current recommended practice and existing regulations. It is written in the context of a sensitive end-use. Should there be any alternative end-use it would be required to consult Ardmore Point to ensure that recommendations provided are still appropriate for the change in end-use.

1.2 Scope of Work

The scope of works for the Phase 1 Desk Study is as follows:

Documentary Research

- Review the location & surroundings.
- Review the current site use including adjacent areas.
- Review commercial database information and Groundsure report.
- Review relevant investigative reports conducted on the site.

Third Party Information

In completing this assessment, Ardmore Point Ltd has utilised the following information:

- Proposed Site Plan
- British Geological Society (BGS) Geology Maps.
- Envirocheck Report provided by Groundsure.
- Historical Mapping
- SEPA Flood Maps and SEPA Water Classification Hub
- Relevant data provided by CLO for Inverclyde Council

2 SITE INFORMATION

2.1 Site Location and Details

The site is located on Renton Road, Greenock PA15 3AF (Grid Reference: NS 29160 74287). A site location plan is included in Appendix A. The site is noted to increase in elevation from north to south. The site is generally comprised of turf with overgrown grass, shrubs, and tress.

The site comprises an irregular shape of approximately 2.26 hectares. The site is bounded on the north, east and west by residential buildings and to the south by mature woodland and open terrain.

A site walkover was conducted by an Ardmore Point representative in November 2023. The site is un-occupied, disused land. A number of utilities were recorded on site entering from the west and east boundaries (refer to the end of Appendix C for utilities). The site can be accessed from Renton Road or Luss Avenue, it was noted that access was easier from Luss Avenue. There was no indication of obvious olfactory or visual contamination on site apart from the standard littering of cans, bottles, and wrappers (i.e., crisps, newspapers etc). The two water features recorded on site were noted to be flowing from the south to the north of the site downhill and exiting through sinks. The surface cover was noted as turf and areas of made ground overgrown with grass/weeds, shrubs, and trees. There was no visual sign of distress to fauna.

A Site Walkover Survey is included in Appendix C.

2.2 Invasive Plant Survey

An invasive plant survey was not carried out as part of the Phase 1 Desk Study. An invasive species plant survey of the site by an ecologist is recommended prior to commencement of any works at the site.

3 HISTORY OF LAND USE

An investigation of the past usage of the site can often provide an indication of the presence of potentially contaminated soils arising from processes associated with former land uses. This research can help to identify any potential constraints to developments upon which physical investigations can then concentrate. Past copies of Ordnance Survey Maps were examined, and the summary of the historical land uses identified on and adjacent to the site are described below.

It should be noted that there is considerable periods of time missing between successive Ordnance Survey Map editions and the possibility that further land uses may have occurred in the intervening years cannot be discounted. Although we have tried to ascertain the complete site historic record, the possibility that other significant land uses occurred, while considered unlikely cannot be disregarded.

Table 1: Historical Land Uses

Ordnance Survey Edition (Appendix E)	On Site	Surrounding Area (within 500m)
1857 (1:10,560 Groundsure)	Undeveloped Land	Woodhead Quarries located 500m to the northeast. Auchmountain recorded approx. 500m to the northwest with what appears to be assumed residential developments. Gravel pit was recorded within 500m to the south of Auchmountain.
1860 (1:10,560 Groundsure)	Incomplete Mapping	Incomplete Mapping
1896 (1:10,560 Groundsure)	No change from 1857	Old quarry recorded to the east of the site approx. 500m from site. Woodhead Quarry now recorded as disused. Greenock branch of the G.&S.W.R railway recorded to the north approx. 500m from the site. Maukinhill with assumed residential recorded to the northwest within 500m. Gravel pit now recorded as old gravel pit to the west approx. 500m from site.
1897 (1:2,500 Groundsure)	No significant changes	No significant changes
1899 (1:10,560 Groundsure)	Incomplete Mapping	Incomplete Mapping. Mineral railway noted to the north greater than 500m from the site.
1914 (1:2,500 Groundsure)	Spring recorded on site	No significant changes to 1897

1919 (1:10,560 Groundsure)	No significant changes	Tank recorded within 500m from the sites southwest boundary. Troughs recorded to the north within approx. 200-250m.
1923 (1:10,560 Groundsure)	No significant change	No significant change
1938 (1:10,560 Groundsure) 1938 (1:2,500 Groundsure)	Electricity pylon recorded on the north of the site.	Electricity pylons running from northwest to southeast.
1958 (1:10,560 Groundsure)	Terraced assumed residential developments recorded on the site.	Assumed terraced residential developments to the north of the site expanding to the railway. Maukinhill developments no longer recorded.
1965 (1:1,250 Groundsure)	No significant change	No significant change
1966 (1:2,500 Groundsure)	Development recorded within site boundary.	Residential developments to the north. Small development situated on the southwester corner of the site.
1975 (1:1,250 Groundsure)	Incomplete Mapping	Incomplete Mapping
1981 (1:10,000 Groundsure)	No significant change	Tank to southwest no longer recorded. Roman Fortlet recorded to the southeast of the site. Previous railway line has been dismantled. Increased residential developments to the north with two schools. Small development situated on the southwest corner of the site.
1987 (1:1,250 Groundsure)	Incomplete Mapping	Incomplete Mapping
1990 (1:1,250 Groundsure)	No developments on site	No significant change
1991 (1:1,250 Groundsure)	No significant change	No significant change
1994 (1:1,250 Groundsure)	No significant change	Residential developments on west boundary.
2001 (1:10,000 Groundsure)	No developments on site. Electricity pylon not recorded on maps	No significant changes.
2010 (1:10,000 Groundsure)	No significant change	Cemetery recorded to the south of the former Woodhead quarry site.
2023 (1:10,000 Groundsure)	No significant change	School on the east demolished and school on the west redeveloped.

In consideration of the above we anticipate made ground deposits on the site and conjecture it to be associated with the construction and subsequent demolition of the buildings, the electricity pylon and made ground associated with the surrounding residential development may be present.

There are periods of time unaccounted for and while considered unlikely contamination associated with any other land-uses cannot be disregarded. We therefore consider a ground investigation should be undertaken to confirm the ground conditions of the site.

Information regarding the small development on the southwestern corner of the site was noted as being a tank (covered). Inverclyde Council was consulted on the type of tank and the year of installation. On the 27th November 2023 Inverclyde Councils CLO confirmed by phone call and a follow up email that the tank is for water storage and is most likely associated with Scottish Water. The tank was first recorded on OS maps in 1947 however was not recorded in the 1938 editions, as such it was assumed to be installed in the early 1940s. Utility maps indicate that Scottish Water pipes do connect to this tank.

4 GEOLOGICAL ASSESSMENT

4.1 General Geology

The British Geological Survey Online Viewer and Geo-Index were utilised to gather information on the geological conditions of the site. The following is a summary of the indicated conditions as interpreted from the above information (refer to Appendix D for BGS Geological Maps).

Table 2: Geological Conditions

Made Ground	Made ground deposits are conjectured to be present on the site likely to be associated with the construction and subsequent demolition of the buildings, the electricity pylon and made ground associated with the surrounding residential developments.
Natural Superficial Deposits	BGS has indicated the site is underlain by Till, Devensian; comprising of clay, silt, sand, and lenses of gravel. Historical BGS boreholes located on site describe the soils as 'compact, brown, silty, medium to fine SAND with traces of gravel and occasional rootlets'.
Rock Strata	The solid geology underlying the superficial deposit are indicated by BGS to belong to the Strathgryfe Lava Member - Mugearite. BGS boreholes located on site indicate bedrock to be shallow at depths of between 0.70mbgl and 1.00mbgl.

4.2 Hydrology

Made ground is conjectured to be present, associated with the previous historical developments, tank (covered), electrical pylons, unknown heap, and nearby developments. Made ground has a variable permeability which can allow the lateral and vertical movement of water and potentially mobile contaminants. Underlying the made ground is Till, Devensian which have a low to moderate permeability. SEPA do not indicate a superficial groundwater table to underlie the site.

The site is underlain by the Spango groundwater body (ID: 150473). In 2020 SEPA classified the overall status of this groundwater body as good. This bedrock is indicated to be a moderately productive aquifer, virtually all flow is through fractures and discontinuities (Refer to Appendix H). As the site may be underlain by clay which has a low permeability, we consider there to be a low to moderate risk as this will act as a barrier for potential leaching of the soil into the groundwater table (Environmental Agency – Project Summary SC040016).

The closest surface water features are the two unnamed burns located on site. SEPA has not classified these. The closest surface water feature with a classification is the Clyde Estuary – Outer (ID: 200320), located approximately 1.73km northeast of the site boundary. In 2020 SEPA classified this water receptor as having an ecological status of moderate. As such, we consider the unnamed burns to be the sites most sensitive receptor.

4.3 Ground Gas

Made ground can be a potential source of ground gas. Infilled ground onsite or off site can allow the migration of ground gas. We conjecture the site to be underlain by made ground associated with the previous buildings, tank covered, unknown heap, electrical pylons and surrounding residential developments.

We consider there to be a potential risk to the proposed development due to ground gas and further investigations will be required to determine if gas preclusion measures are required.

The site is within an area of low radon potential (<1%). We therefore do not consider there to be a risk to the proposed development from radon and radon protection measures will not be required.

5 PRELIMINARY SITE-SPECIFIC RISK ASSESSMENT

A preliminary site conceptual model (CSM) is formed by presenting all sources, pathways and receptors identified and/or suspected during the desk study review. Guidance from the science Report SC050021/SR3 and CIRA C552 was used to help develop a robust site-specific Conceptual Site Model (CSM). The CSM forms a crucial foundation of contaminated land risk assessment using detailed site-specific information and the potential interpretations on the behaviours and characteristics of contaminants, pathways, and receptors.

5.1 Source Characterisation

Potential on-site and off-site sources of contamination have been identified through the historical review and Groundsure Report.

On-Site

Unrecorded made ground associated with the construction and subsequent demolition of the buildings located within the site.

Given the age of the buildings that occupied the site, it is considered that any made ground deposits associated with the structures are considered to present a source of asbestos.

Potential contamination and unrecorded made ground associated with the electrical pylons and unknown heap.

Unrecorded made ground and contamination associated with fly tipping.

Off-Site

Unrecorded deposition of contaminated fill materials associated with the nearby rapid residential and commercial developments.

Unrecorded made ground associated with the tank (covered).

Unrecorded made ground and potential contamination associated with the tank located to the southwest of the site.

The contaminants of concern and potential pathways have been summarised within Table 3 overleaf (Table 3a is a key for table 3).



Table 3: Contaminants of Concern for Sources Identified

Industrial Activity/ Site Use	CONTAMINANTS OF CONCERN								
	Metals (As, Mg, Cd, Cr, Ni, Zn, Cu, Hg Pb)	TPH	PAHs	PCBs	Asbestos	Ground Gas (CO ₂ & CH ₄)	VOCs and SVOCs	Phenols	Potential Pathways
ON SITE (Current and previous)									Deposition of waste materials (Unrecorded made ground)
<p>Unrecorded made ground associated with the construction and subsequent demolition of the buildings located within the site.</p> <p>Given the age of the buildings that occupied the site, it is considered that any made ground deposits associated with the structures are considered a to present a source of asbestos.</p> <p>Potential contamination and unrecorded made ground associated with the electrical</p>	Y	Y	Y	N	Y	Y	N	N	Generation and accumulation of ground gases (made ground) Migration of ground gases (on/off site) Leaching of contaminants to groundwater via permeable sand deposits. Leaching of contaminants to unnamed burns on site.



pylons and unknown heap. Unrecorded made ground and contamination associated with fly tipping.									
LEACHABLE CONTAMINANTS									
OFF SITE (Current and previous)	Metals Semi metals and non-metals	TPH	PAH	PCBs	Asbestos	Ground Gas (CO ₂ & CH ₄)	VOCs and SVOCs	Phenols	Potential Pathways
Unrecorded deposition of contaminated fill materials associated with the nearby rapid residential and commercial developments. Unrecorded made ground associated with the tank (covered). Unrecorded made ground and potential contamination associated with the tank recorded SW.	Y	Y	Y	Y	Y	Y	Y	Y	Deposition of waste materials (Unrecorded made ground) Generation and accumulation of ground gases (made ground) Migration of ground gases (on/off site) Leakage or spillages of materials from the tank to the SW. Leaching of contaminants to groundwater via permeable sand deposits.



Table 3a: Abbreviations and Key for Table 3.

List of Abbreviations	KEY
PAH – Polycyclic Aromatic Hydrocarbons	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; background-color: #fce4d6; padding: 5px; margin-right: 10px;">Y</div> Further Investigation Required. </div>
VOC – Volatile Organic Compounds	
SVOC – Semi-Volatile Organic Compounds	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; background-color: #d4edda; padding: 5px; margin-right: 10px;">N</div> No Further Investigation Required. </div>
PCBs – Poly-Chlorinated Biphenyl	
TPH – Total Petroleum Hydrocarbons	

5.2 Receptor Characterisation

Potential receptors at the site are related to the proposed development which includes residential end-use and the ground and groundwater conditions below the site. The desk study has identified the following potential receptors:

Part IIA Receptors

Human Health:	Site end users (indoors)
Human Health:	Site end users (outdoors)
Property:	Buildings and services
The Water Environment:	Surface Water Bedrock aquifer
Vegetation:	Plants in soft landscaped areas.

Non-Part IIA Receptors

Human Health:	Construction and maintenance workers (outdoors)
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5.3 Pathway Characterisation (Pollutant Linkages)

The potential pathways by which receptors might be exposed to contaminants (sources) at the site can vary depending on the proposed land use scenario and the receptor themselves.

Human Health

For humans, the four possible routes of exposure to contaminants are:

Site end-users and construction workers outdoors

Inhalation of dusts and vapours;

Ingestion of dusts or soil by hand-to-mouth activity or by consumption of vegetables grown in contaminated soils;

Dermal (skin) contact with contaminated soils and waters and absorption of contaminants through the skin into the body;

Ingestion of contaminated pipe supplied water

Site end-users (indoors)

Inhalation of ground any ground gas migrating into the building

Inhalation of soil derived dust

Buildings, Property and Services

The main pathways by which buildings can be affected are through:

Contact with aggressive or acidic soils will affect the concrete design of foundations.

Service trenches acting as preferential migration pathways for contamination.

Potential soil gas generated in the ground migrating within the structure

Services

- Direct contact with contaminated groundwater or soil
- Permeation of plastic water supply pipes.
- Leaching of contaminants through the soil.

Vegetation (Plants in soft landscaped areas)

Direct contact with contaminated soils and groundwater

Uptake of contaminants from the soil or groundwater into the plant

The Water Environment

The primary routes by which the Water Environment can be affected are:

Leaching of contaminants from the soil migrating vertically and/or laterally to superficial groundwater and bedrock aquifer beneath the site;

Movement of dissolved contaminants in soil pore water; and

Movement of contaminants via groundwater to surface water bodies.

5.4 Pollutant Linkages

This section discusses the effectiveness of the potential pollutant linkages for each receptor identified above.

Part IIA Receptors

Human Health – Site End Users

Site end users could come into contact with contaminated soil through dermal contact and ingestion pathways in any proposed areas of communal soft landscaping. There is a potential for the soil underlying the site to be contaminated from both on-site and off-site sources, including the residential development

Potential build-up of soil gas and vapours within confined spaces could pose a health risk to site end users via explosion or inhalation and asphyxiation; and

Chemical attack of water supply pipes may also indirectly lead to harm to human health from subsequent contamination of the water supply. The various water pipe materials are differentially affected by various organic and corrosive contaminants and this risk should be assessed in detail. Pipes may be affected by contaminants in any ground containing any chemical residues remaining from past land uses on-site and off-site which may remain in the soil.

Property

The integrity of hardstanding and buried concrete may be at risk from direct contact with aggressive contaminants where these are present beneath the site. Aggressive contaminants include sulphates and sulphides, and acidic conditions. These cause cementitious bonds to break down effectively causing the concrete to disintegrate. Aggressive levels of pH and SO_4 may be present in Made Ground on-site but can also be present in natural soils; and

The potential build-up of soil gas in confined spaces could pose an explosive risk to buildings.

The Water Environment

Bedrock Aquifer - The site is underlain by the Spango groundwater body (ID: 150473). In 2020 SEPA classified the overall status of this groundwater body as good. This bedrock is indicated to be a moderately productive aquifer, virtually all flow is through fractures and discontinuities (Refer to Appendix H). As the site may be underlain by clay which has a low permeability, we consider there to be a low to moderate risk as this will act as a barrier for potential leaching of the soil into the groundwater table (Environmental Agency – Project Summary SC040016).

Surface Water – The closest surface water features are the two unnamed burns located on site. SEPA has not classified these. The closest surface water feature with a classification is the Clyde Estuary – Outer (ID: 200320), located approximately 1.73km northeast of the site boundary. In 2020 SEPA classified this water receptor as having an ecological status of moderate. As such, we consider the unnamed burns to be the sites most sensitive receptor (refer to appendix G).

Non-Part IIA Receptors

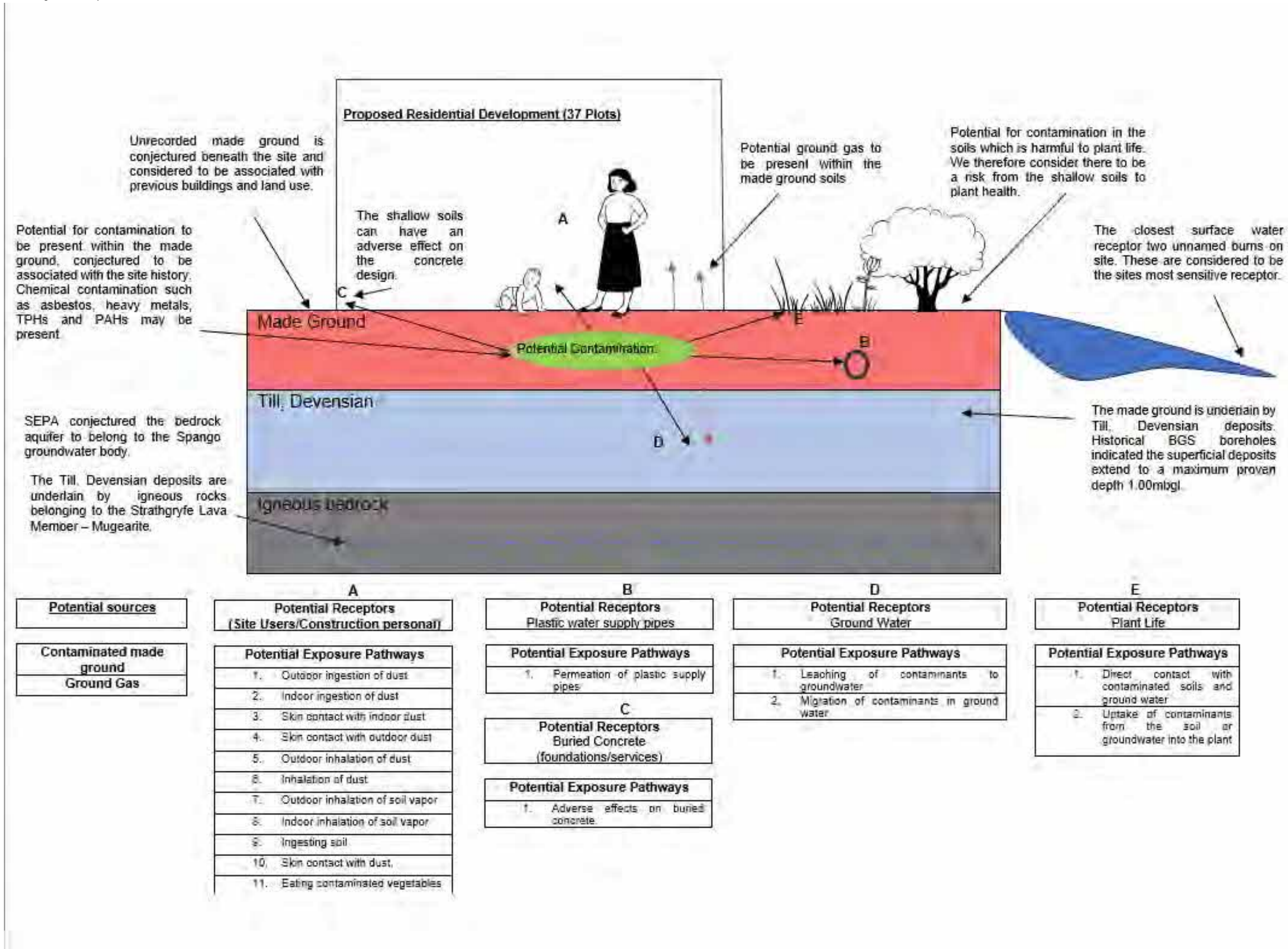
Construction and Maintenance Workers

During construction work, there is a risk that workers may come into direct contact with potentially contaminated soils in areas of made ground or gross contamination. The ingestion and inhalation pathways will also be viable in these areas of the site;

During construction and maintenance work there is the potential for the build-up of ground gas within confined spaces including excavations and service trenches, which could present an asphyxiation or explosive risk; and

There is a risk that workers may also come into contact with superficial groundwater contaminated by on-site and off-site sources.

Illustrated Preliminary Conceptual Site Model



5.5 Qualitative Preliminary Environmental Risk Assessment

Potential source-receptor-pathway linkages identified during desk study research for the site are displayed in the Conceptual Site Model on page 19 and in table 4. The CSM was a crucial part of helping identify the risks for a generic preliminary risk assessment based on assumptions from information retrieved during the desk study research. We therefore require a site investigation to confirm or otherwise identify the existence of such linkages in addition to providing further geological conditions and geotechnical data. An approach based on CIRIA report C552 has been adopted. For each of the pollutant linkages, an estimate is made of the potential 'Severity of Risk' and the 'Probability of Risk Occurring'. These are then used for an overall qualitative evaluation of the level of risk, as defined below in tables taken from CIRIA report C552 (refer to Appendix J).

The risk assessment has been undertaken by assessing the severity of the potential consequence, considering both the potential severity of the hazard and the sensitivity of the target, based on the categories given below.



Table 4: Preliminary Qualitative Risk Assessment

Source	Contaminants of concern associated with the source	Pathway/Pollutant Linkage	Pathway	Receptor	Assessment	Likely Hood of occurrence	Severity of Consequence	Risk Rating
<p>Onsite: Unrecorded made ground associated with the construction and subsequent demolition of the buildings located within the site.</p> <p>Given the age of the buildings that occupied the site, it is considered that any made ground deposits associated with the structures are considered a to present a source of asbestos.</p> <p>Potential contamination and unrecorded made ground associated with the electrical pylons and unknown heap.</p> <p>Unrecorded made ground and contamination associated with fly tipping. (Refer to section 5.1 for details)</p> <p>Off site: Unrecorded deposition of contaminated fill materials associated with the nearby rapid residential and commercial developments.</p> <p>Unrecorded made ground associated with the tank (covered).</p> <p>Unrecorded made ground and potential contamination associated with the tank recorded SW. (Refer to section 5.1 for details)</p>	<p>Metals (As, Mg, Cd, Cr, Ni, Zn, Cu, Hg, Pb)</p> <p>PAH, VOCs, SVOCs, Phenols,</p> <p>Asbestos</p> <p>Ground Gas (CO₂, CH₄)</p>	Dust Ingestion (indoors) Ingestion (outdoors) Dermal (indoor) Dermal (outdoors)	Rising vapours and gases from potentially unrecorded made ground soils from on and/or off-site sources – (indoors)	Humans – Site end-users	<p>Potential spillages/leakages of contaminants impacting shallow soils</p> <p>Contaminated materials may have been buried or deposited within the site. Contaminants have the potential to compromise the integrity of any water supply pipes and subsequently lead to consumption of contaminated water supply. Ground gas and vapours have the potential to build up in confined spaces and pose an explosion or asphyxiation risk to site end users. Excessive exposure may occur under some manual activities. The potential for asbestos containing material within the shallow soils is considered to increase the risk rating to this receptor.</p> <p>Construction and maintenance workers have the potential to come into contact with contaminated ground. Excessive exposure may occur under some manual activities. The potential for asbestos containing material within the shallow soils is considered to increase the risk rating to this receptor</p>	Likely	High	High
		Soil Vapour & Gases Inhalation (indoors) Inhalation (outdoors)	Rising vapours and gases from potentially unrecorded made ground soils from on and/or off-site sources – (outdoors)	Humans -Construction and maintenance workers				
		Soil Dermal contact with soil Ingesting soil Eating vegetables grown in contaminated soil	Tracking back of contaminated soil/dust from soft landscaped areas into home/commercial property	Plant Life – areas of soft landscaping				
			Wind generated dust and/or dust generated from groundworks.					
		Soil Direct contact with the soil Uptake of contaminants from the soil	Leaching of contaminants from made ground soils on/offsite to the permeable natural (raised tidal flat soils).	Plant Life – areas of soft landscaping	<p>Direct contact or uptake of contamination from the soil or groundwater could adversely affect any plants grown.</p> <p>Migrating of ground gases from unrecorded shallow made ground deposits that adversely affect plant growth.</p>	Likely	High	High
		Groundwater Direct contact with the groundwater – Uptake of chemicals from the groundwater	Migrating of contaminated groundwater via the permeable superficial deposits into site adversely affecting plant growth.					
		Gases Migration of potential gases from made ground deposits into the site	Migrating of ground gases (from potential made ground) into site adversely affecting plant growth					
		Water Leaching of contaminants to groundwater Migration of contaminants in groundwater via the conjectured groundwater body.	Leaching of contaminants from the made ground soils via the permeable sand a gravel deposits and through more granular layers of the glacial till.	Groundwater – Bedrock Aquifer	<p>Contaminants could impact the groundwater and migrate offsite.</p> <p>Mobile contaminants from onsite sources (made ground) have the potential to leach into the bedrock aquifer, which may then migrate laterally to offsite receptors, causing potential pollution of the wider water environment</p>	Unlikely	Low	Low
Water Leaching of contaminants to the surface water Migration of contaminants in groundwater and discharged into the surface water receptor	Direct entry of contaminants into surface water via accidental spillage/leakage or from discharge pipework. Outfall of contaminated surface	Surface Water Receptor – River	<p>Contaminants could migrate in the groundwater and act as base flow for surface water recharge.</p>	Likely	High	High		



			water into the River Almond, via cracks in water drainage system.					
		Water Permeation of plastic supply pipes Soil Permeation of plastic supply pipes	Leaching of contaminants to groundwater via the permeable superficial sand deposits Migration of contaminants in groundwater	Services - Plastic Water supply Pipes	Contaminants could affect the drinking supply and water supply for residential houses. Presence of contaminants in soil that may permeate water supply pipes.			
		Soil Migration of contaminants in soil Migration of ground gases within the shallow soils	Aggressive chemical environments within the unrecorded made ground or superficial deposits affecting the built environment	Built environment - Buried concrete/Houses	Potential for aggressive chemical environments for concrete due to sulphate and acidic conditions. Direct contact with this contamination in both soil and superficial groundwater can result in damage to the concrete fabric and services in a similar fashion to that described above for water supply pipes in service trenches.			

KEY 1 (Classification of Consequence)	
	Minor
	Mild
	Medium
	Severe

KEY 2 (Classification of probability)	
	Unlikely
	Low likelihood
	Likely
	High Likely Hood

KEY 3 (Risk Rating)	
	Very low risk
	Low Risk
	Moderate Risk
	High Risk
	Very High Risk

5.6 Preliminary Risk Assessment Summary

The desk study review identified potential sources both on-site and off-site. It is therefore considered that there is potential for pollutant linkages to exist within the site. Contamination associated with the previous historical usage within the site is considered likely. We therefore consider there to be a risk to human health, plant life and the water environment from the shallow soils and a ground investigation will be required. Once a ground investigation is carried out which will confirm or otherwise the presence of these pollutant linkages, and updated CSM and a risk assessment will be carried out using the findings .

The proposed development comprises of new residential developments with associated road access, parking, and soft landscaping along with one commercial development (refer to appendix B for proposed development layout). The areas where there is hardstanding (building footprint, access roads and car parking areas) would break a moderate amount of the potential linkages to human health end users; however potential linkages would not be broken within the areas of soft landscaping.

Risks to property, water supply pipes, buried concrete and the water environment also require further assessment given the nature of the site. In order to confirm and assess the presence of the possible sources of contamination present on-site; an intrusive investigation was considered to be required.

6 CONCLUSIONS

6.1 Made Ground

We anticipate made ground to underlie the site associated with the historic land use for example the buildings previously located within the site, the unknown heap, electrical pylons, surrounding development, and the tank (covered).

We conjecture that made ground from the commercial and residential development nearby could potentially be within the site boundary.

Further ground investigations will be required.

6.2 Contamination

Unrecorded made ground deposition can be a potential source of contamination which poses a risk to human health and plant life. The following contamination on site may be present:

- Asbestos associated with the previous buildings on site.

- PAHs

- Heavy metals

- TPHs

Potential contamination could migrate into the groundwater and surface water features located on site, potentially posing a risk to the water environment.

We therefore consider there to be a potential risk to human health, plant life and the water environment from the shallow soils and further investigations will be required to confirm or otherwise prove the existence of linkages and in addition providing further confirmation of the geological and geotechnical conditions.

6.3 Ground Gas

Made ground can be a potential sources of ground gas which can be harmful to human health. Further Investigation is required to determine if gas preclusion measures are required.

The site is within an area of the lowest radon potential (<1%). We therefore do not consider there to be a risk to the proposed development and radon protection measures will not be required.

6.4 Water Environment

Superficial Groundwater

Made ground is conjectured to be present, associated with the previous historical development. Made ground has a variable permeability which can allow the lateral and vertical movement of water and potentially mobile contaminants. Underlying the made ground is Till, Devensian deposits which have a low to moderate permeability. SEPA does not indicate a superficial groundwater table to underlie the site.

Bedrock Aquifer

The site is underlain by the Spango groundwater body (ID: 150473). In 2020 SEPA classified the overall status of this groundwater body as good. This bedrock is indicated to be a moderately productive aquifer, virtually all flow is through fractures and discontinuities (Refer to Appendix H). As the site may be underlain by clay which has a low permeability, we consider there to be a low to moderate risk as this will act as a barrier for potential leaching of the soil into the groundwater table (Environmental Agency – Project Summary SC040016).

Surface Water

The closest surface water features are the two unnamed burns located on site. SEPA has not classified these. The closest surface water feature with a classification is the Clyde Estuary – Outer (ID: 200320), located approximately 1.73km northeast of the site boundary. In 2020 SEPA classified this water receptor as having an ecological status of moderate. As such, we consider the unnamed burns to be the sites most sensitive receptor (refer to appendix G).

6.5 Conclusion

We therefore consider there to be a potential constraint to the proposed development and further investigations will be required to confirm or otherwise prove the existence of a source and a pollutant linkage with a receptor by the means of a pathway and in addition providing further confirmation of the geological and geotechnical conditions.

Once we have the above information, we will be able to prove the existence of a source and a pollutant linkage with a receptor by the means of a pathway and in addition providing further confirmation of the geological and geotechnical conditions. We will also be able to revise our conceptual site model.

7 RECOMMENDATIONS

7.1 Investigation proposals

We recommend further investigations are undertaken in accordance with BS:10175(2011) +A2(2017) non targeted strategy to provide full coverage of the area.

- Trial pitting
- Boreholes with gas and ground water installations
- Contamination sampling
- Water or Leachate sampling.

We believe that this will meet with your current requirements, however, should you require further information, please do not hesitate to contact us.



Ross Gill
Geotechnical Engineer

8 REFERENCES

CLR 3, 'Documentary Research on Industrial Sites', Report by RPS Consultants Ltd, DoE 1994

Geology of Britain viewer | British Geological Survey (BGS)

'Land Contamination Risk Management guidance', Report by Gov.UK April 2021

SEPA Water Quality Classification. <https://www.sepa.org.uk/data-visualisation/water-classification-hub/>

BGS Geology of Britain Viewer. www.bgs.ac.uk. British Geological Survey.

BGS Geology of Britain Viewer, Borehole Scans:

BS 5930:2015: Code of practice for ground investigations. British Standards Institution.

BS 10175:2011+A2:2017: Investigation of Potentially Contaminated Sites – Code of Practice. British Standards Institution.

CIRIA: 2004: Contaminated Land Risk Assessment. A Guide to Good Practice. C552. Construction Industry Research and Information Association.

EA: 2004: Model Procedures for the Management of Land Contamination. Environment Agency. Bristol. 2004.

Environmental Protection Act 1990 - Part IIA Contaminated Land: statutory guidance edition 2 May 2006

Environmental Agency: Using Science to Create a Better Place – Updated Technical background to the CLEA Model. Science Report: SC050021/SR3

Appendix A: Site Location Plan

Site Location: The site is located at Renton Road, Greenock, PA15 3AF. The site is situated at National Grid Reference NS 29250 74319.



Appendix B: Proposed Development Plan



228952


574300

228952

229502

67430

229502

 272 Bath Street Glasgow, G2 4JR Tel: 0141 354 1776 plindsay@modascotland.com www.modascotland.co.uk	project Renton Road Greenock	subject Site Plan 37 Plots
	drawn PL scale 1:500@A0	date Nov 23 drg.no.

Appendix C: Site Walkover Survey & Utilities

Walkover Survey

Project name & number:	AP2837 Renton Road Greenock
Address:	Renton Road, Greenock PA15 3EJ
Date of walkover survey:	November 2023
Survey by:	RG
Weather:	Overcast

Site Access

Access road/ location:	Renton Road	
Access restrictions:	Width	N/A
	Tree clearance	N/A
	Head room	N/A
	Ground conditions	Dry
Site office/ induction:	N/A	
Other:		

Site Description

Current land use:	Undeveloped
Site Topography:	Sloping downwards from south to north at a steep angle along Renton Road.
Is the site a greenfield or brownfield site?	Brownfield
Surface Cover:	Turf with areas of made ground deposits. Noted as brown reddish fine gravelly sand.
Ground conditions:	Dry
Waterlogged areas on site?	None recorded during visit.
Site boundary (fence/wall etc)?	Fenced on the southern boundary.
Does site topography require filling or platforming?	Requires platforming
Any signs of subsidence?	None
Other:	



Site Boundary Description

Site Bounded by:	North	Renton Road and Residential Developments
	East	Residential Developments
	South	Mature Woodland and Open Terrain
	West	Residential Developments
Significant features:		Scottish Water Tank (Covered) located on the southwest corner of the site
Potential off-site receptors:		Receptor of the unnamed water features on site.
Other:		

Existing Buildings

Are there buildings on site?	No
What proportion of the site covered by build(s)?	N/A
Do the building(s) show any evidence of distress?	N/A
What is the use of the building(s) on site?	N/A
Indicate the nature & location of materials in storage?	N/A
What processes are evident in the facility?	N/A
Other:	

Public Utilities

Have service drawings been obtained for the site?	Yes
Are there any overhead cables?	None recorded
Are there any substations on site?	None recorded
Are there any manholes on site?	None recorded
Are there any other indications of services on site?	Yes
Other:	



Hazards & Contamination on-site

Are any visible public health hazards present?	No
Is there evidence of contaminated soils/ materials?	No
Is there evidence of distress to vegetation or agriculture?	No
Is there evidence of fly tipping?	Occasional bottles, cans, and food wrappers
Is there surface evidence of asbestos?	No
Are there any notable noxious smells on site?	No
Other:	

Tanks & Waste Storage

Are there any fuel or chemical storage tanks (surface & underground)? For each tank record whether it is above/underground, nature of contents, whether full or empty, banded/ unbanded/ leaking bund, presence of staining. (Mark locations on plan)	No
Is there any evidence of waste storage or disposal?	No
Are there any chemical drums or other containers?	No
Are there any discharges to surface water?	No
Other:	

Hydrology

Are there any hydrological features on site?	Yes
Describe groundwater sources	None visible
Record location of water features on site plan.	Highlighted by a dashed green line on the utilities maps at the end of this walkover survey.
Other:	

Geology

Surface soil description:	Turf
Are there any visible outcrops of rock?	Yes, the area running along Renton Road was noted to have outcrops of rock.
Other:	

Mining & Quarrying

Are there any signs of mineral extraction in the area, such as old mine buildings, derelict or hummocky land, surface depressions, evidence of infilling or spoil heaps.	No
Is there evidence of any quarrying?	No

Slope Stability

Are there any risks of slope instability?	No
Is there evidence of previous land slipping?	No

Invasive Plants

Are there any obvious invasive plants? Note: type, height & approximate area of growth	No invasive plant survey carried out, recommended that an ecologist undertake a survey before work commences on site.
---	---

Other

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Utilities Search Report



!

91 Market Street Hoylake Wirral CH47 5AA
Tel. 0151 632 5142
enquiries@cornerstoneprojects.co.uk
www.cornerstoneprojects.co.uk
VAT Reg. No. 851 4941 19
Company No. 5132353

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9# ;+5/ + < =	\$ 6	>;0+?.+. @&'	0
	8	. *+&'	0
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C:	D E' R@	+ @.l. &	0
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2/K52	D E' FL#	M &'	0
1NBM+@ @&	OP,l67. 7&		0
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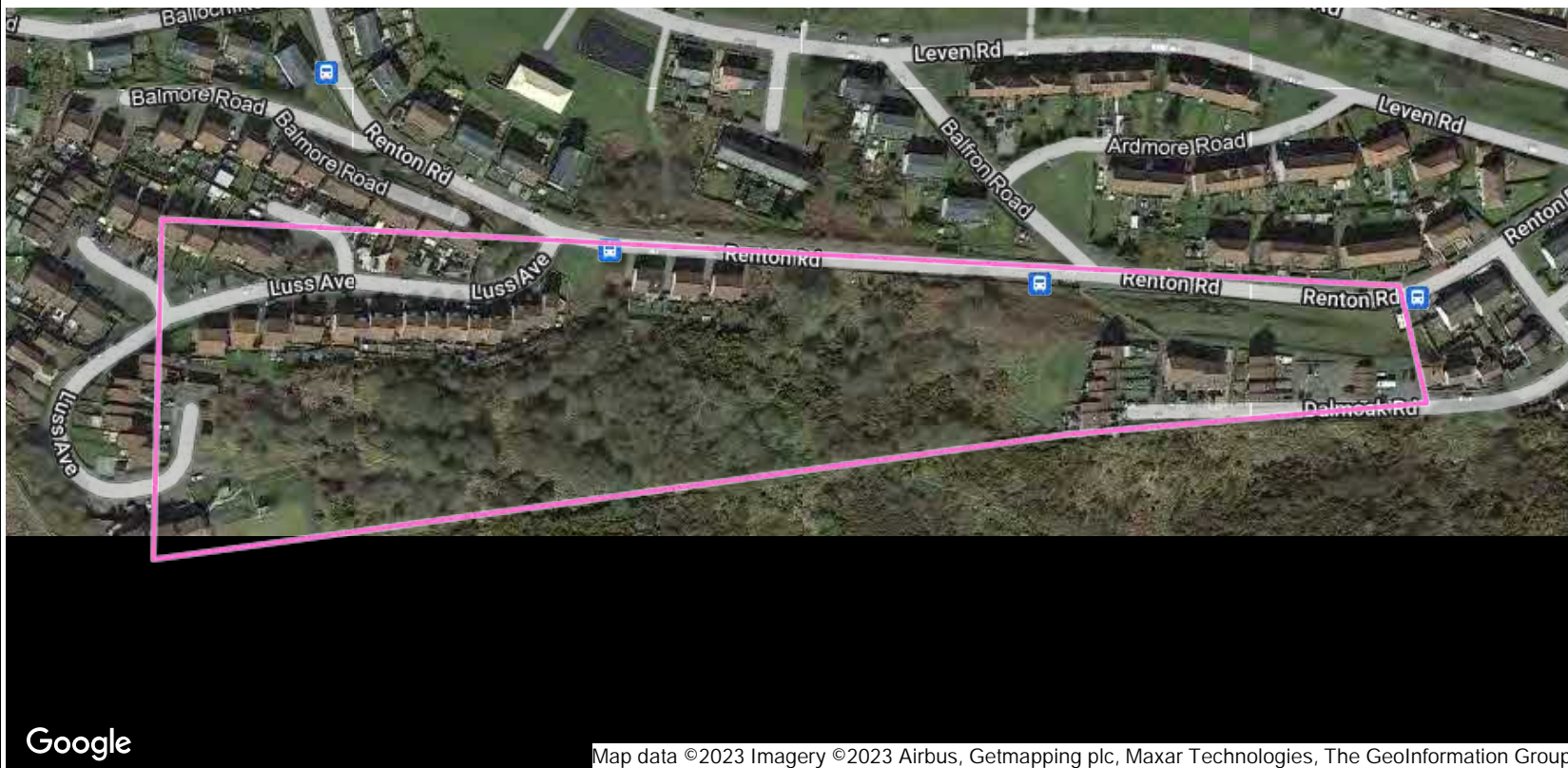
91 Market Street Hoylake Wirral CH47 5AA
 Tel. 0151 632 5142
 enquiries@cornerstoneprojects.co.uk
 www.cornerstoneprojects.co.uk
 VAT Reg. No. 851 4941 19
 Company No. 5132353

Order Summary

Summary of your utility search details:

Site Name	renton road greenock	
Site Ref	AP2837	
Address	RENTON ROAD, GREENOCK, PA15 3AF	
Postcode	PA15 3AF	
Grid Ref	E 229228	N 674289

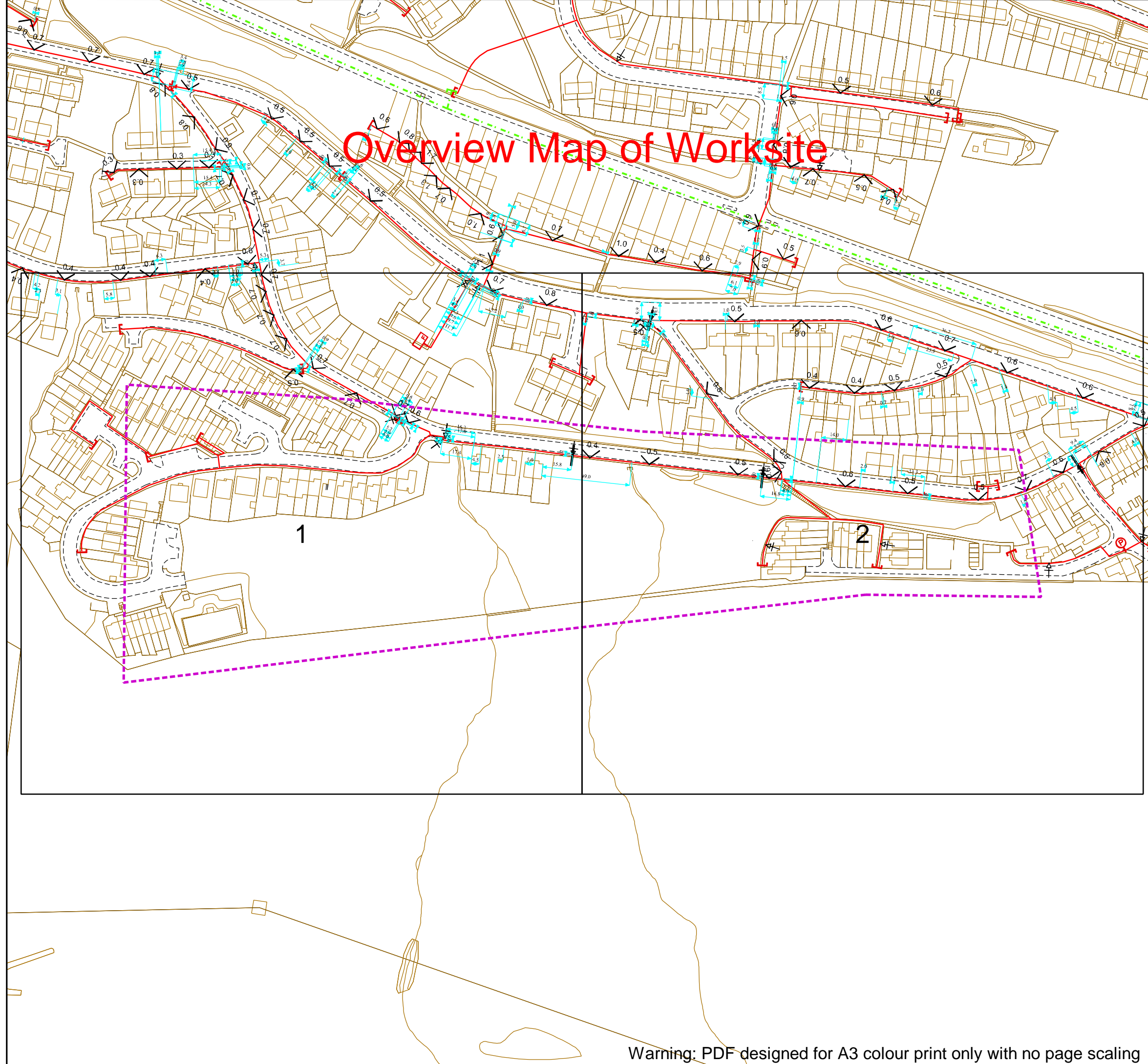
Area Covered



Map data ©2023 Imagery ©2023 Airbus, Getmapping plc, Maxar Technologies, The GeoInformation Group

Options Selected		Options Selected	
Gas	✓	Independent utilities search - inc non-chargeable searches	X
Water	✓	Harlaxton	X
Sewer	✓	UK Power Distribution	X
Electric	✓		
BT	✓	Coal Authority search	X
3rd Party searches	✓		
		Other Options	
Cable / Fibre searches inc non-chargeable searches	✓	CAD Pack	X
Virgin Media	✓	CAD OS mapping	X
Vodafone	✓	Smart pdf	X
		Instant Access Plans	X

GAS



Overview Map of Worksite



Contact Us
SGN Safety Admin Team:
0800 912 1722
Email:
plantlocation@sgn.co.uk

Date Requested: 20/11/2023
Job Reference: 31601046
Site Location: 229226 674309
Requested by: Mr Duncan Phillips
Your Scheme/Reference: AP2837

Scale: 1:2050 (When plotted at A3)

This plan shows the location of those pipes owned by Scotia Gas Networks (SGN) by virtue of being a licensed Gas Transporter (GT). Gas pipes owned by other GTs or third parties may also be present in this area but are not shown on this plan. Information with regard to such pipes should be obtained from the relevant owners. No warranties are given with regard to the accuracy of the information shown on this plan. Service pipes, valves, siphons, sub-connections etc. are not shown but their presence should be anticipated. You should be aware that a small percentage of our pipes/assets may be undergoing review and will temporarily be highlighted in yellow. If your proposed works are close to one of these pipes, you should contact the SGN Safety Admin Team on 0800 912 1722 for advice. No liability of any kind whatsoever is accepted by SGN or its agents, servants or sub-contractors for any error or omission contained herein. Safe digging practices, in accordance with HS (G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that plant location information is provided to all persons (whether direct labour or sub-contractors) working for you on or near gas apparatus. Information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA
0800 111 999

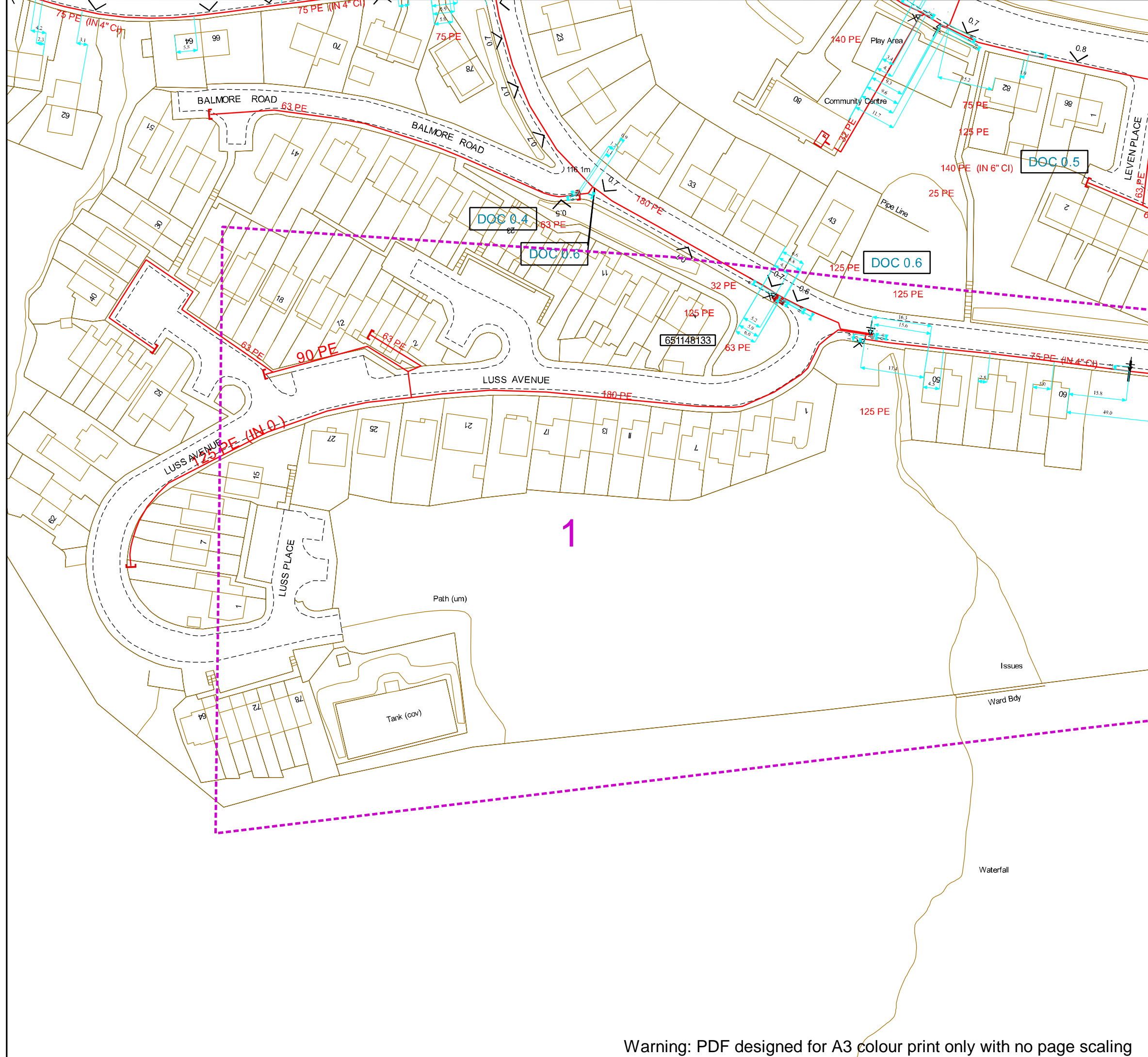
Low Pressure Mains	
Medium Pressure Mains	
Intermediate Pressure Mains	
High Pressure Mains	
LAs	
GTs	

Some Examples Of Plant Items
Valve 5 Syphon Depth of Cover \$ Diameter Change = Material Change "

Digsite: Line: Area:



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 plantlocation@sgn.co.uk

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 0800 111 999

Low Pressure Mains

Medium Pressure Mains

Intermediate Pressure Mains

High Pressure Mains

LAs

GTs

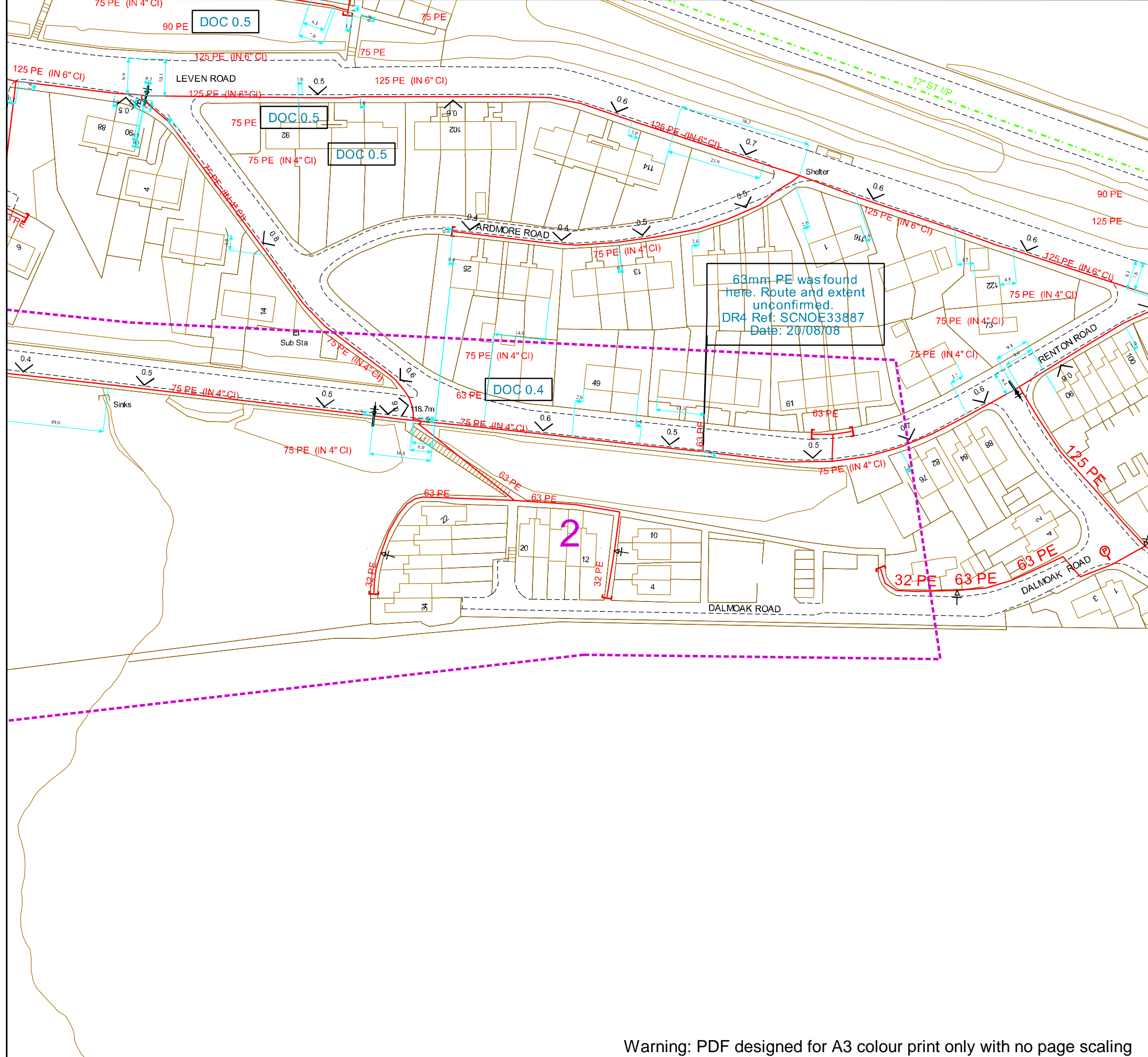
SSSIs

Some Examples Of Plant Items
 Valve 5 Syphon Depth of Cover \$ Diameter Change = Material Change "

Digsite: Line: Area:



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 0800 111 999

Low Pressure Mains ———
 Medium Pressure Mains - - - - -
 Intermediate Pressure Mains - · - · -
 High Pressure Mains - · - · -
 LAs
 GTs SSSIs

































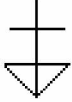





Some Examples Of Plant Items
 Valve 5 Syphon Depth of Cover \$ Diameter Change = Material Change "

Digsite: Line: - - - - - Area:



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Map Symbols

							
VALVE OPEN	VALVE CLOSED	GOVERNOR	END CLOSURE	SYPHON	REDUCER	TEE	
							
TEST POINT	CATHODIC PROTECTION	GENERAL REFERENCE	FLOW MEASURE	DIP POINT	MONO ETHYLENE GLYCOL	OILING POINT	
							
FLOW STOP	PRESSURE MEASUREMENT	STAND PIPE	OFFICIAL MINISTRY RECORD	PURGE POINT	GAS CONDITIONER	DRAIN POINT	
					LP MAINS		
SKETCH BUBBLE	DEPTH OF COVER	METER	MATERIAL CHANGE		MP MAINS		
					IP MAINS		
					LHP MAINS		
					HISTORY DATA		
					SSSI		GTs
PIG TRAP	CROSSOVER CONNECTION	CHANGE OF DIAMETER	PIPE JOINT		CONTACT ZONE		LTS

WATER & SEWER

91 Market Street Hoylake Wirral CH47 5AA
Tel. 0151 632 5142
enquiries@cornerstoneprojects.co.uk
www.cornerstoneprojects.co.uk
VAT Reg. No. 851 4941 19
Company No. 5132353

Scottish Water Asset Data

Water Network

Fittings

Valve

- Valve - Abandoned
- Valve

Pressure Management Valve

- Abandoned
- Adopted
- Isolated
- Pressure Reducing
- Pressure Relief
- Pressure Sustaining
- Proposed
- Removed
- Unknown

Hydrant

- Abandoned
- Adopted
- Ball
- Fire
- Isolated
- Proposed
- Removed
- Shipping
- Unknown
- Washout

Stop Cock

- Abandoned
- Adopted
- In Use
- Isolated
- Proposed
- Removed
- Unknown

Boundary Box



End Cap

- Abandoned
- Adopted
- In Use
- Isolated
- Proposed
- Removed
- Unknown

Air Shaft

- Abandoned
- Adopted
- Isolated
- Pipe
- Proposed
- Removed
- Shaft
- Unknown

Air Valve

- AV
- Abandoned
- Adopted
- Air Cock
- DAV



HAV

Adopted, Public



Isolated

Bypass, Public



Proposed

Distribution, Public



Removed

Drain, Public



SAV

Fire, Public



TAV

Isolated, Public



Unknown

Overflow, Public



Blank Tee

Proposed, Public



Abandoned

Removed, Public



Adopted

Sludge, Public



Flanged Plate

Trunk, Public



Isolated

Washout, Public



Other

Main - Water Distribution



Other_

Main - Water Distribution Private



Proposed

Abandoned, Private



Removed

Abandoned, Private (Operated by Scottish Water)



Unknown

Adopted, Private



Chamber Box

Bypass, Private



Abandoned

Distribution, Private



Access Chamber

Distribution, Private (Operated by Scottish Water)



Adopted

Drain, Private



Danelaw Box

Fire, Private



General

Fire, Private (Operated by Scottish Water)



Isolated

Isolated, Private



Lucy Box

Overflow, Private



Other

Overflow, Private (Operated by Scottish Water)



Proposed

Proposed, Private



Removed

Proposed, Private (Operated by Scottish Water)



Swabbing

Removed, Private



Unknown

Sludge, Private



Collecting Chamber

Sludge, Private (Operated by Scottish Water)



Discharge Point

Trunk, Private



Buchan Trap

Washout, Private



Isolated

Washout, Private (Operated by Scottish Water)



New Subtype

Service Pipe



Other

Abandoned



Proposed

Communication



Proudfoot Box

Communication - Fire Connection



Removed

Isolated



Undefined Scour Point

Proposed



Unknown

Removed



Unknown End

Service



Pressure Monitoring Point

Supply - Common



Swab Chamber

Supply - Fire Main



Abandoned

Supply - Single



Adopted

Service Pipe General



Hatch Box

Main - Raw Water



Isolated

Abandoned



Joint

Isolated



Proposed

Overflow



Removed

Proposed



Unknown

Raw Supply



T and Blank Plate

Removed



Wet Chamber

Syphon



Pipes

Washout



Main - Water Distribution Public

Main - Raw Water General



Abandoned, Public

Aqueduct



Abandoned

Abandoned



Aqueduct

Isolated



Tunnel - Aqueduct

Proposed



Viaduct

Raw Supply



Aqueduct General

Removed



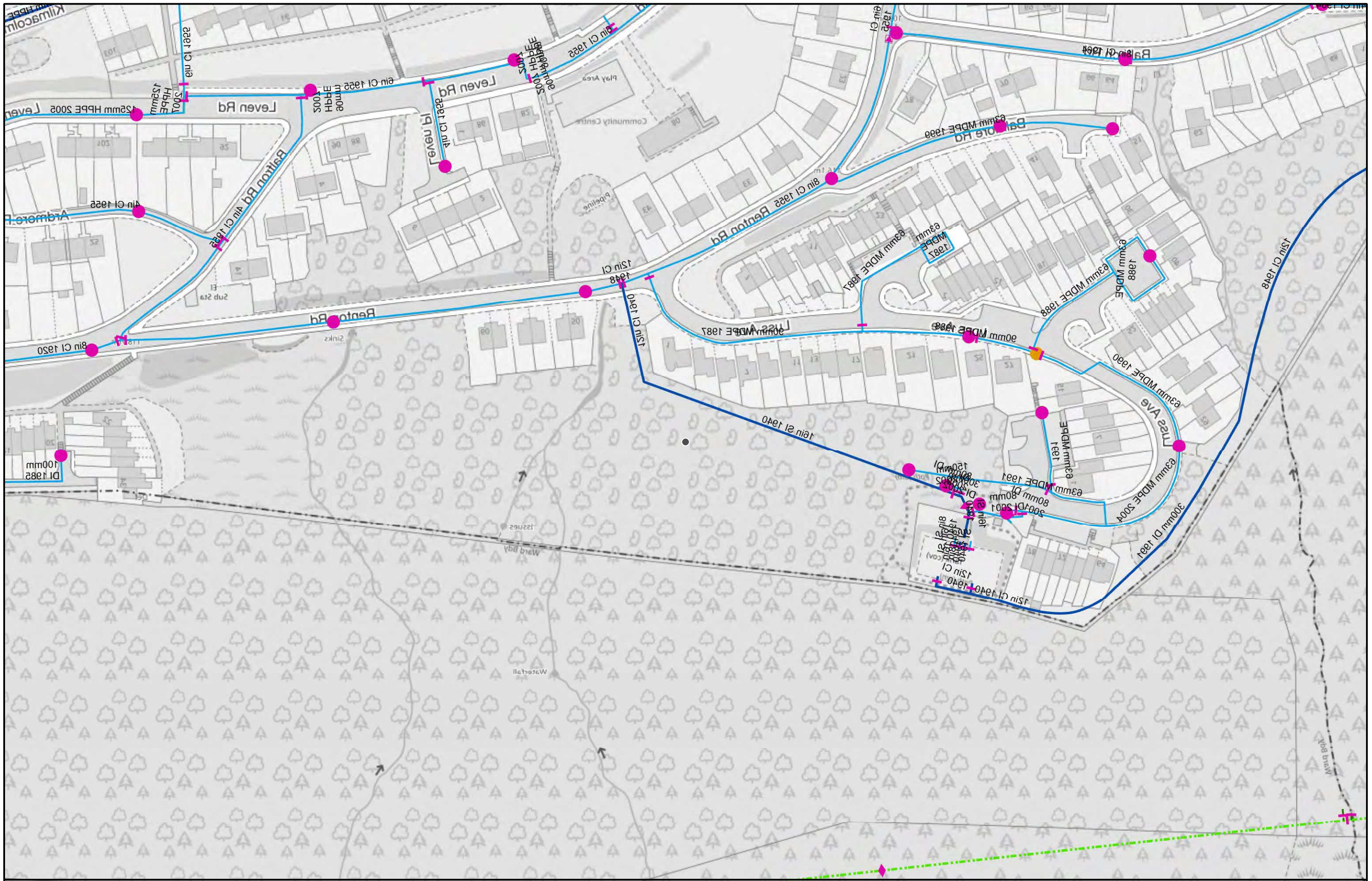
Abandoned

Syphon



Abandoned

Washout



Warning! Damaging a large diameter trunk main (12"/300mm and above) can result in loss of life and major water supply and water quality problems. If you're planning any extension work in the vicinity of any large diameter mains shown on our maps, you must contact Scottish Water to arrange a site visit 08000 778 778 WELL IN ADVANCE OF THE WORKS

Plotted By: duncan@cornerstoneprojects.co.uk

The representation of physical assets and the boundaries of areas in which Scottish Water and others have an interest does not necessarily imply their true positions. For further details contact the appropriate District office.

Date: 21/11/2023

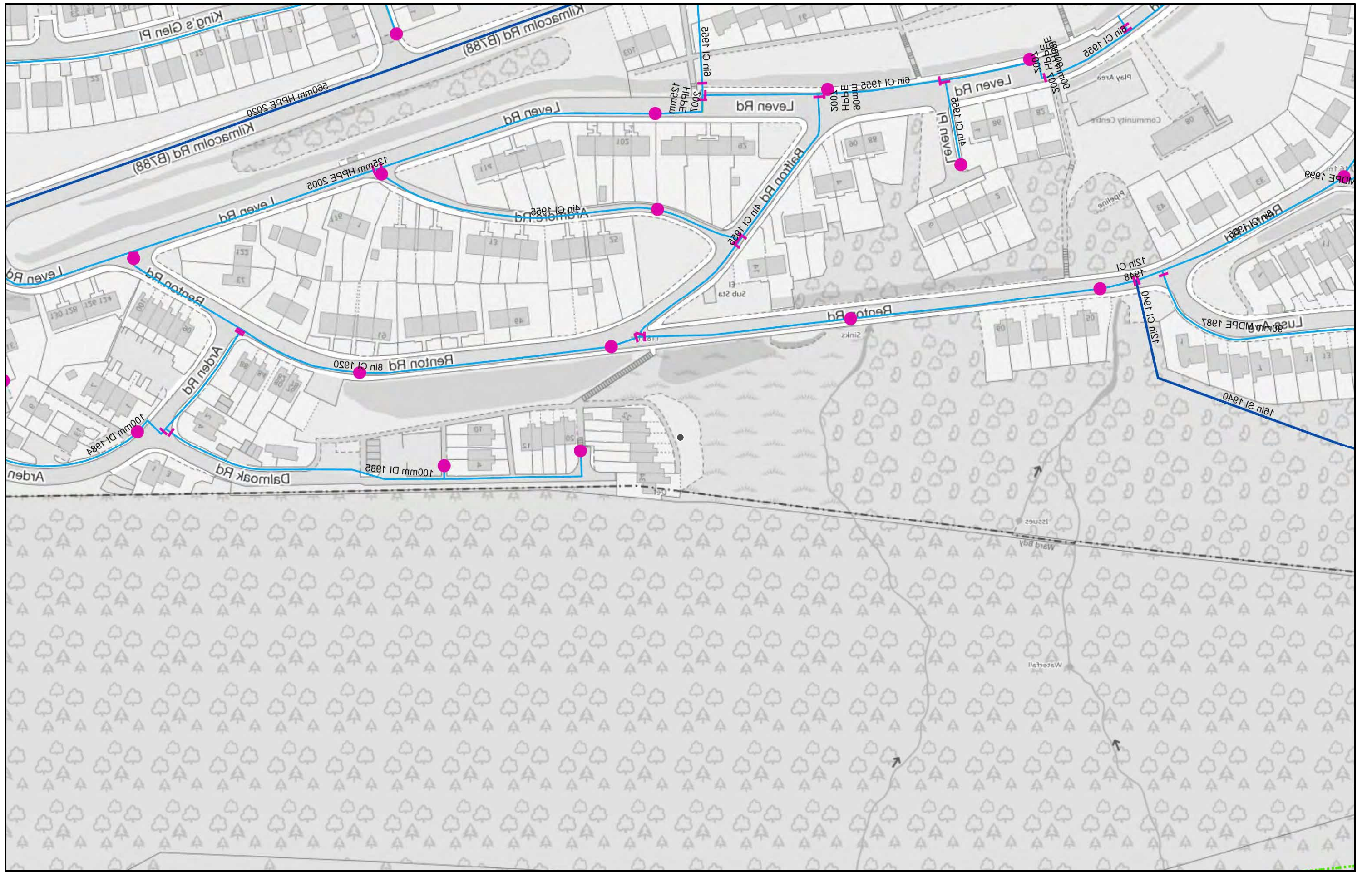
AP2837 1 WATER

SCALE: 1:1,323

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The Bridge
6 Buchanan Gate
Stepps
Glasgow
G33 6FB

Tel No: 08000 778 778



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Plotted By: duncan@cornerstoneprojects.co.uk

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Date: 21/11/2023

AP2837 2 WATER

0 5 10 20 Meters

SCALE: 1:1,323

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Scottish Water Asset Waste Water Network

Fittings

- Access (Lateral)**
- Abandoned
 - Combined (C)
 - Foul (F)
 - Proposed
 - Surface Water (S)

- Chamber**
- Abandoned
 - CSO
 - Combined
 - Foul
 - Dual Manhole - Foul
 - Dual Manhole - Surface
 - Isolated
 - Natural Water
 - Not Applicable
 - Other
 - Planned
 - Proposed
 - Surface Water
 - Trade Effluent
 - Treated Effluent
 - Unknown
 - Unknown_

- Combined Sewer Overflow**
- CSO-COMB SEW O/FL

- Balancing Pond**
-

- Basin**
-

- Bifurcation Chamber**
- Abandoned
 - Combined (C)
 - Foul (F)
 - Isolated
 - Planned
 - Proposed
 - Surface Water (S)
 - Unknown

- Sewerage Air Valve**
- Combined (C)
 - Isolated
 - Abandoned
 - CSO (O)
 - Foul (F)
 - Other
 - Proposed
 - Surface Water (S)
 - Trade Effluent (T)
 - Treated Effluent (E)
 - Unknown

- Buchan Trap**
- Abandoned
 - CSO (O)
 - Combined (C)
 - Foul (F)
 - Isolated
 - Natural Water (W)
 - Other
 - Proposed
 - Surface Water (S)
 - Treated Effluent (E)
 - Unknown(Z)

Capped End

- Abandoned
- Accepted
- Adopted
- In Use
- Isolated
- Not Applicable
- Planned
- Proposed
- Removed
- Unknown

Hatchbox

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Isolated
- Natural Water (W)
- Other
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Unknown

Hydraulic Control Chamber

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Planned
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Unknown

Inlet

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Other
- Proposed
- Surface Water (S)
- Treated Effluent (E)
- Unknown

Rodding Eye

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Isolated
- Natural Water (W)
- Other
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Unknown
- Unknown(Z)

Non-return Valve

- Abandoned
- CSO (O)

Combined (C)

- Foul (F)
- Natural Water (W)
- Proposed
- Surface Water (S)
- Treated Effluent (E)

Lamphole

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Proposed
- Surface Water (S)
- Treated Effluent (E)
- Unknown

Outfall

- Planned
- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Isolated
- Natural Water (W)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Unknown
- Unknown_

Pond

-

Trench

-

Sluice Valve

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Isolated
- Natural Water (W)
- Other
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)

Unknown End

- Abandoned
- Unknown End

Washout

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Other
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Unknown

Wetland

-

Vent Column

-

Pipes

Gravity Pipe

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Gravity Pipe General

Gravity Pipe

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Gravity Pipe General

Connection (Lateral)

- Abandoned
- Combined (C)
- Foul (F)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Connection (Lateral) General

Rising Main

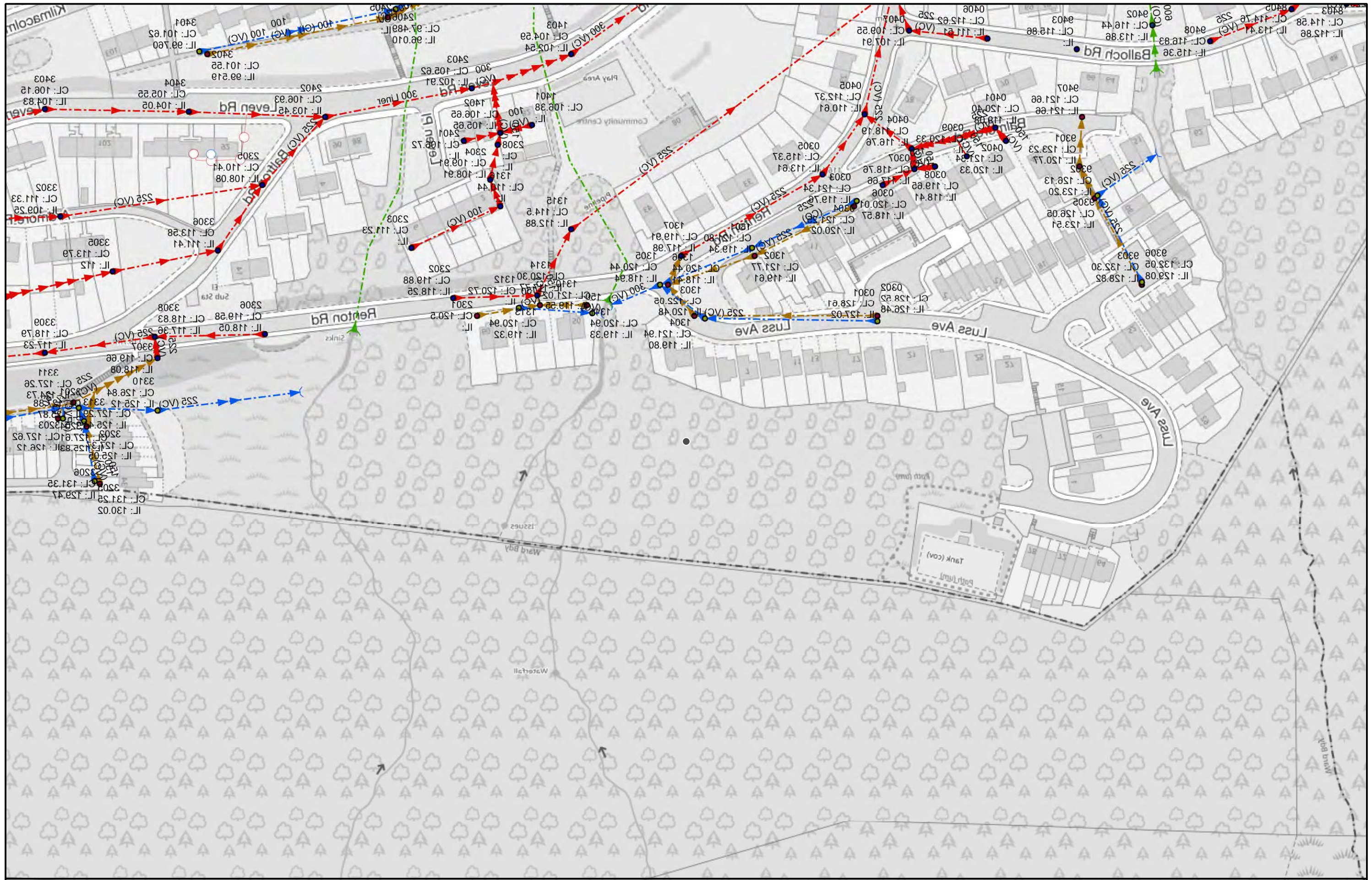
- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Rising Main General

Rising Main

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Proposed
- Surface Water (S)
- Trade Effluent (T)
- Treated Effluent (E)
- Rising Main General

Syphon

- Abandoned
- CSO (O)
- Combined (C)
- Foul (F)
- Natural Water (W)
- Surface Water (S)
- Treated Effluent (E)



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Plotted By: duncan@cornerstoneprojects.co.uk

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Date: 21/11/2023

AP2837 1 SEWER

0 5 10 20 Meters

SCALE: 1:1,323

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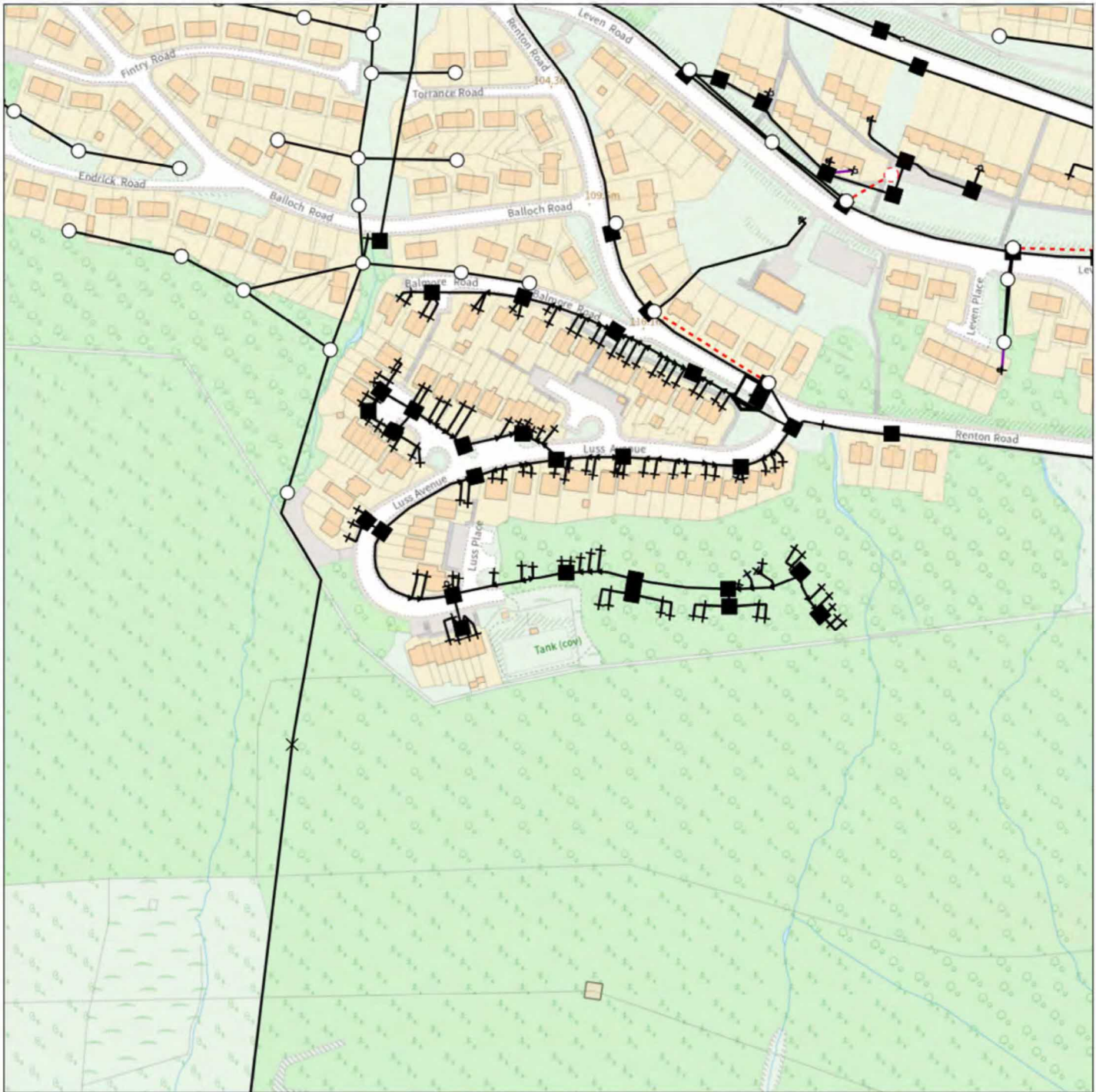
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BT

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

KEY TO BT SYMBOLS		Change Of State	+	Hatchings		
	<i>Planned</i>	<i>Live</i>	Split Coupling	×	Built	
PCP			Duct Tee	+	Planned	
Pole			Building		Inferred	
Box			Kiosk		Duct	
Manhole			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
Cabinet						
	<i>Pending Add</i>	<i>In Place</i>	<i>Pending Remove</i>	<i>Not In Use</i>		
Power Cable						
Power Duct				N/A		

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BT Ref : WDZ10022Z

Map Reference : (centre) NS2902874289

Easting/Northing : (centre) 229028,674289

Issued : 21/11/2023 10:02:40

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

Maps by email Plant Information Reply



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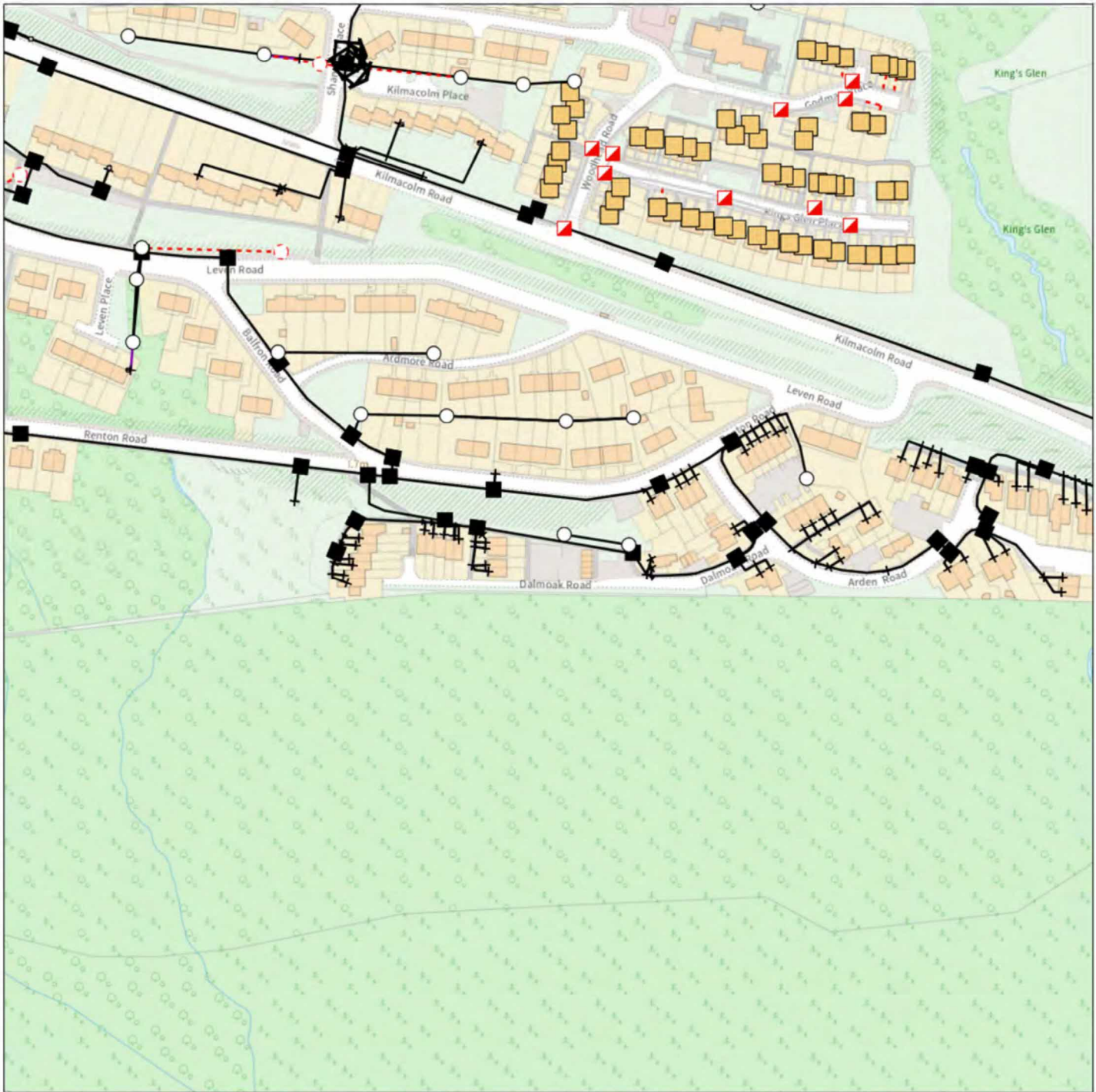
KEY TO BT SYMBOLS		Change Of State	+	Hatchings	
	<i>Planned</i>	<i>Live</i>	×	Built	
PCP			▲	Planned	
Pole			■	Inferred	
Box			Ⓚ	Duct	
Manhole			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.		
Cabinet					
	<i>Pending Add</i>	<i>In Place</i>	<i>Pending Remove</i>	<i>Not In Use</i>	
Power Cable					
Power Duct				N/A	

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BT Ref : HML09055M
Map Reference : (centre) NS2922874289
Easting/Northing : (centre) 229228,674289
Issued : 21/11/2023 09:06:09

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PCP			Duct Tee	+	Planned	
Pole			Building		Inferred	
Box			Kiosk		Duct	
Manhole			Other proposed plant is shown using dashed lines. BT Symbols not listed above may be disregarded. Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.			
Cabinet						
	<i>Pending Add</i>	<i>In Place</i>	<i>Pending Remove</i>	<i>Not In Use</i>		
Power Cable						
Power Duct				N/A		

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BT Ref : KJG10023E

Map Reference : (centre) NS2942874289

Easting/Northing : (centre) 229428,674289

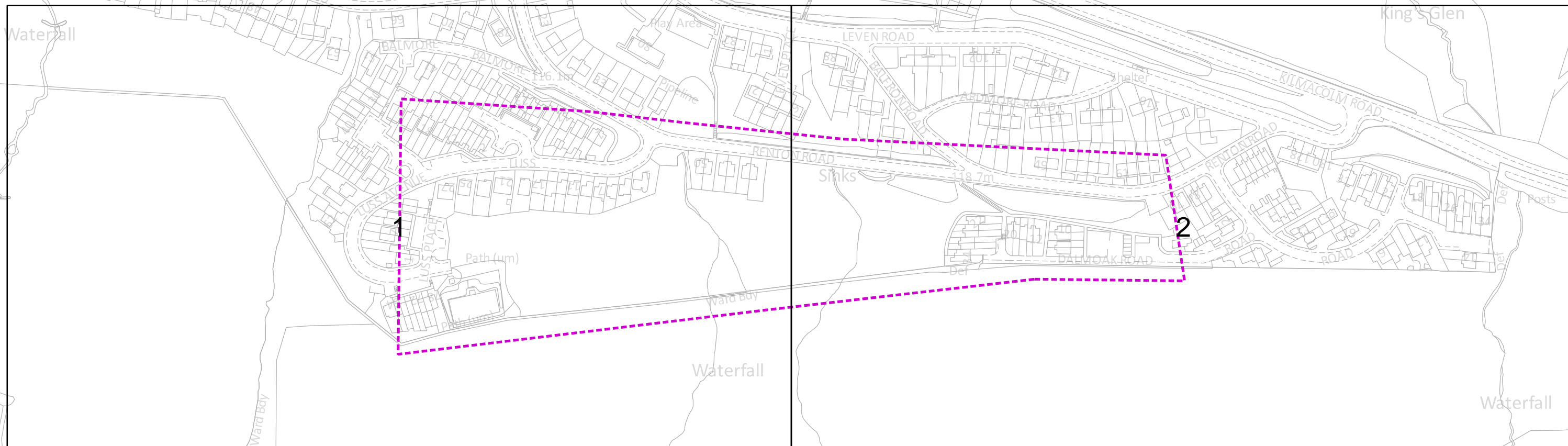
Issued : 21/11/2023 10:03:11

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ELECTRIC

91 Market Street Hoylake Wirral CH47 5AA
Tel. 0151 632 5142
enquiries@cornerstoneprojects.co.uk
www.cornerstoneprojects.co.uk
VAT Reg. No. 851 4941 19
Company No. 5132353

Overview Map of Worksite - No Assets Displayed



Warning: PDF designed for A3 colour print only with no page scaling

IMPORTANT NOTICES

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Date Requested: 20/11/2023
 Job Reference: 31601046
 Site Location: 229226 674309
 Requested by:
 Mr Duncan Phillips
 Your Scheme/Reference:
 AP2837

Scale: 1:2562 (When plotted at A3)

Underground Cables

- In Use
- Out of Use
- Assumed Route
- Warning - Shallow Cables

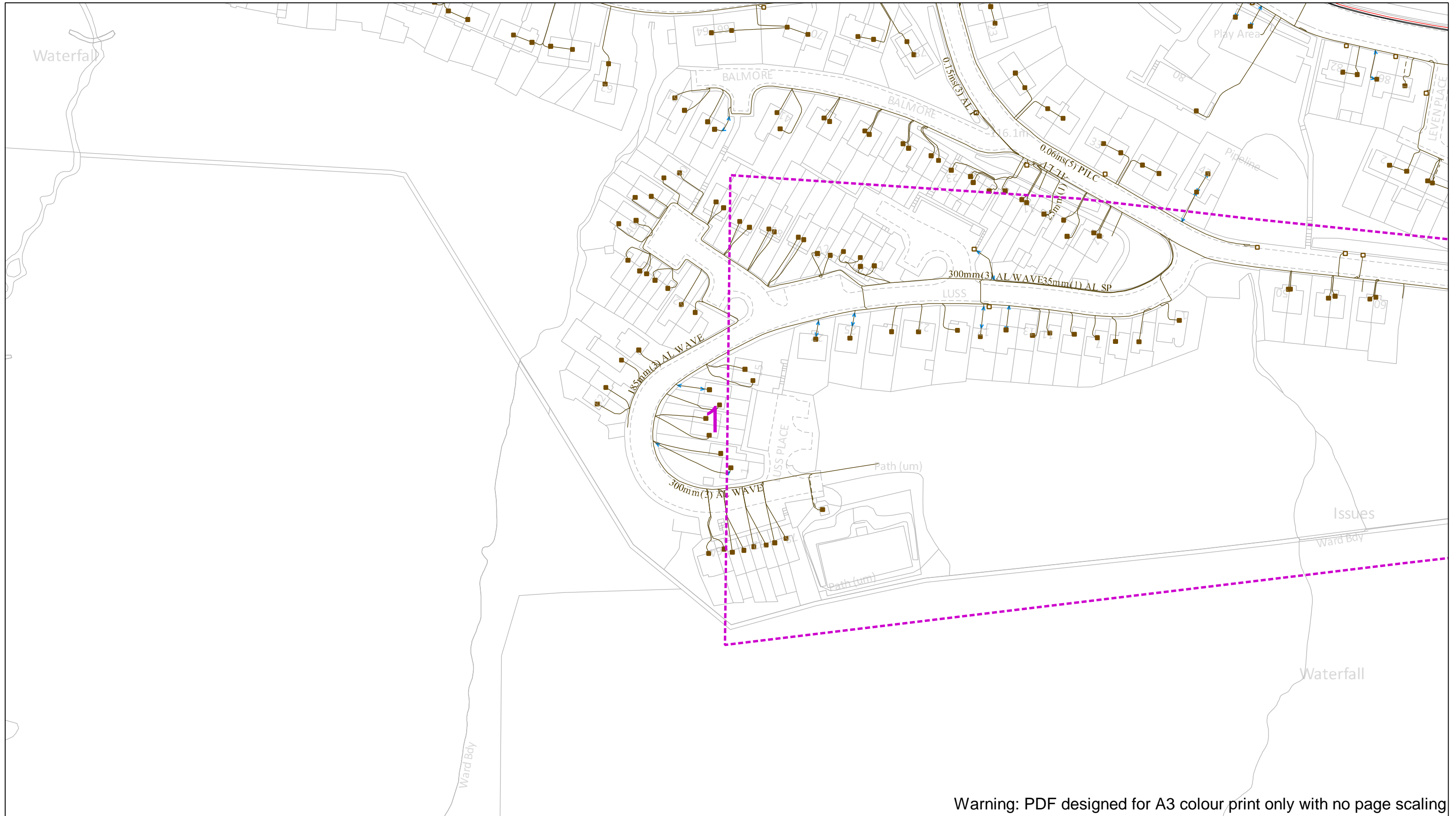
Dig Sites

- Area:
- Line:

Overhead Line

- Overhead Line
- LV
- HV (6kV/6.6kV)
- HV (22kV/11kV)
- EHV (33kV)
- Trans (132kV/275kV/400kV)
- Non Power Cable
- Duct



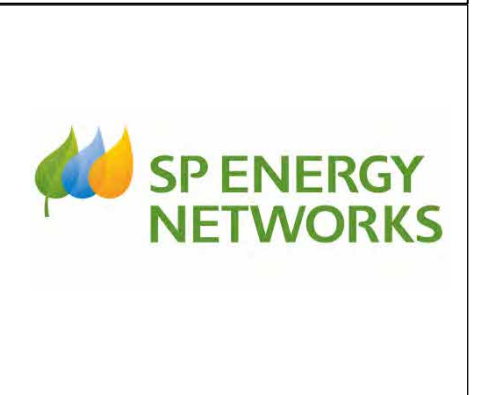
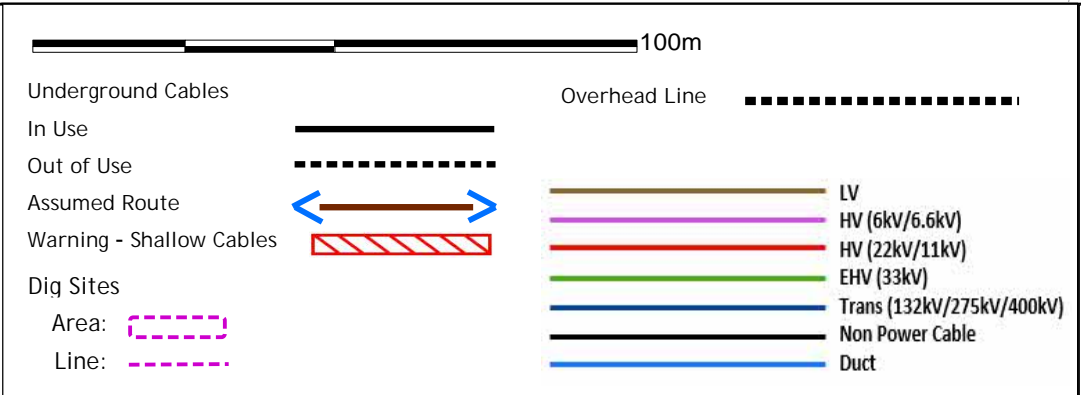


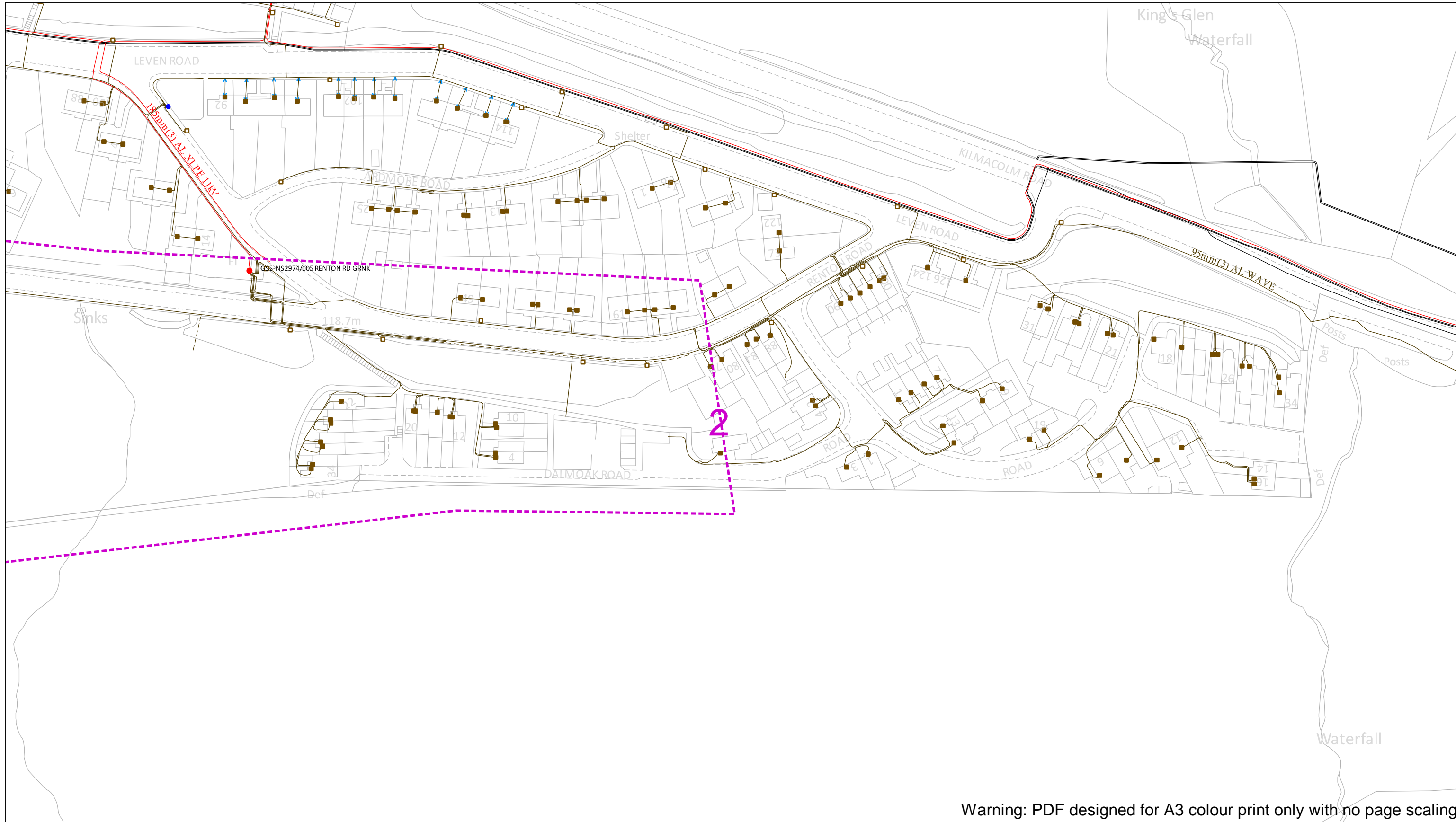
Warning: PDF designed for A3 colour print only with no page scaling

Date Requested: 20/11/2023
 Job Reference: 31601046
 Site Location: 229226 674309
 Requested by:
 Mr Duncan Phillips
 Your Scheme/Reference:
 AP2837
 Scale: 1:1250 (When plotted at A3)

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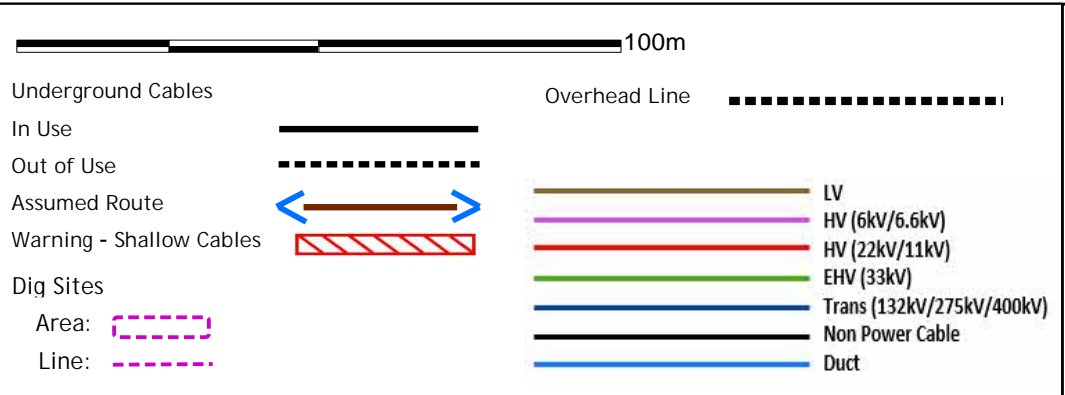


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Date Requested: 20/11/2023
 Job Reference: 31601046
 Site Location: 229226 674309
 Requested by:
 Mr Duncan Phillips
 Your Scheme/Reference:
 AP2837
 Scale: 1:1250 (When plotted at A3)

IMPORTANT NOTICES




















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UMV- Scales and Symbols

SYMBOL	NAME	LOCATION	VISIBILITY BETWEEN SCALES
GIS			
	SOP	Substation Locations – SOP	250-25,000
	Trans/Grid Substation	Substation Locations – Ground Mounted Sub	<51,000
	Primary Substation	Substation Locations – Ground Mounted Sub	<50,000
	Secondary Substation	Substation Locations – Ground Mounted Sub	40-7,505
	LV Only Substation	Substation Locations – Ground Mounted Sub	40-5,005
	Externally Deleted Substation	Substation Locations – Ground Mounted Sub	same as their voltages above
	Building/Site/Switchgear Only	Substation Locations – Ground Mounted Sub	same as their voltages above
	Pole Mounted Secondary Substation	Substation Locations- Pole Mounted Sub	>25,000
	Pole Mounted Secondary Substation (externally deleted)	Substation Locations- Pole Mounted Sub	>25,000
	Remote Equipment Location	Substation Locations- Pole Mounted Sub	>25,000
	Distribution Transformer(unknown)	Substation Locations – Distribution Transformer	>40
	Pole Mounted/Ground Mounted Secondary Transformer	Substation Locations – Distribution Transformer	>40
	Pole Mounted/ Ground Mounted Secondary Transformer Out Of Use	Substation Locations – Distribution Transformer	>40
	LV Fuse	Substation Locations- LV Fuse	>40
	Circuit Breaker	Substation Locations – Dynamic Protective Devices	>40
	Sectionalizer	Substation Locations – Dynamic Protective Devices	>40
	PM Auto Recloser	Substation Locations – Dynamic Protective Devices	>40














UMV- Scales and Symbols

	Single Pole	Overhead Assets – under each voltage	>7,5005
	H Pole	Overhead Assets – under each voltage	>7,505
	Tower	Overhead Assets – Trans – Tower	>40,005
	Cable Joint	Ground Assets – under each voltage	>2,505
	Pillar	Ground Assets –LV- LV Switch Point	>2,505
	Link Box	Ground Assets –LV- LV Switch Point	>2,505
	LV Metered Service Point	Ground Assets –LV-LV Metered Service Point	>2,000
	Unmetered Service Point	Ground Assets –LV- Unmetered Service Point	>2,000
	Medically Sensitive Customer	Ground Assets –LV- Medically Sensitive Customer	>5,005
	Commercially Sensitive Customer	Ground Assets –LV- Commercially Sensitive Customer	>25,000
	Fault Symbol	Ground Assets –LV- Fault Symbol	None
	Working In Progress	Ground Assets –LV- Working in Progress	>5,005
	System Abnormal	Ground Assets –LV- System Abnormal	>7,505
	11Kv Surge Divertor	General- General Info	>2,000
	LVFM	General- General Info	>2,000
	Generator	General- General Info	>2,000
	IDNO	General- General Info	>2,000
	Lateral Mains	General- General Info	>2,000
	HVCI	General- General Info	>2,000
	Point Of Connection	General- General Info	>2,000



















UMV- Scales and Symbols

	Sensitive Building	General- General Info	>2,000
	33Kv Surge Divertor	General- General Info	>2,000
	Approximation	General- General Info	>2,000
	Assumed Position	General- General Info	>2,000
	Clarity Point	General- General Info	>2,000
	Earth Point	General- General Info	>2,000
	Edge Connector	General- General Info	>2,000
	Fault Indicator	General- General Info	>2,000
	Note	General- General Info	>2,000
	Pseudo Joint	General- General Info	>2,000
	Quality	General- General Info	>2,000
	Second corner	General- General Info	>2,000
	Danger	General- General Info	>2,000
	Voltage Regulator	General- General Info	>2,000
	Proposed Development	General – Proposed Development	>7,500
GND			
	Normally Open	GND- LV Diagram – Dress symbology- LV Link	None
	Temporary Open	GND- LV Diagram – Dress symbology- LV Link	None
	Temporary Closed	GND- LV Diagram – Dress symbology- LV Link	None
	Surveyed Open	GND- LV Diagram- Dress Symbology- Surveyed State	None

UMV- Scales and Symbols

	Surveyed Closed	GND- LV Diagram- Dress Symbology- Surveyed State	None
	Fuse	GND- LV Diagram- Dress Symbology- LV Link	None
	Urban Automation	GND- LV Diagram- Dress Symbology- LV Link	None
	LV Transition Joint	GND- LV Diagram	>2,505
	Pillar	GND- LV Diagram	None
	Link Box	GND- LV Diagram	None
	Presumed Open point	GND – LV Diagram- Dress Symbology – LV Link	None
	Out of phase	GND- General	>5,500
	Commercially Sensitive Customer	GND- General	none
	Proposed Development	GND- General-	none
	Fault Symbol	GND- General	>7,505
	System Abnormal	GND- General	none
	Work In Progress	GND- General	>5,005

UMV- Scales and Symbols

LV Cable	
LV Cable Disconnected	
LV Overhead Line	
HV (11kV) Cable	
HV (11kV) Cable Disconnected	
HV Overhead Line	
HV (6.6kV) Cable	
HV (6.6kV) Cable Disconnected	
EHV Cable	
EHV Cable Disconnected	
EHV Overhead Line	
132kV and above cables	
132kV and above Overhead lines	
Pilot/Tele/Auxilliary Cable	
Pilot/Tele/Auxilliary Cable	
Disconnected	
Cable Duct	
Third Party Pipeline	

CABLE

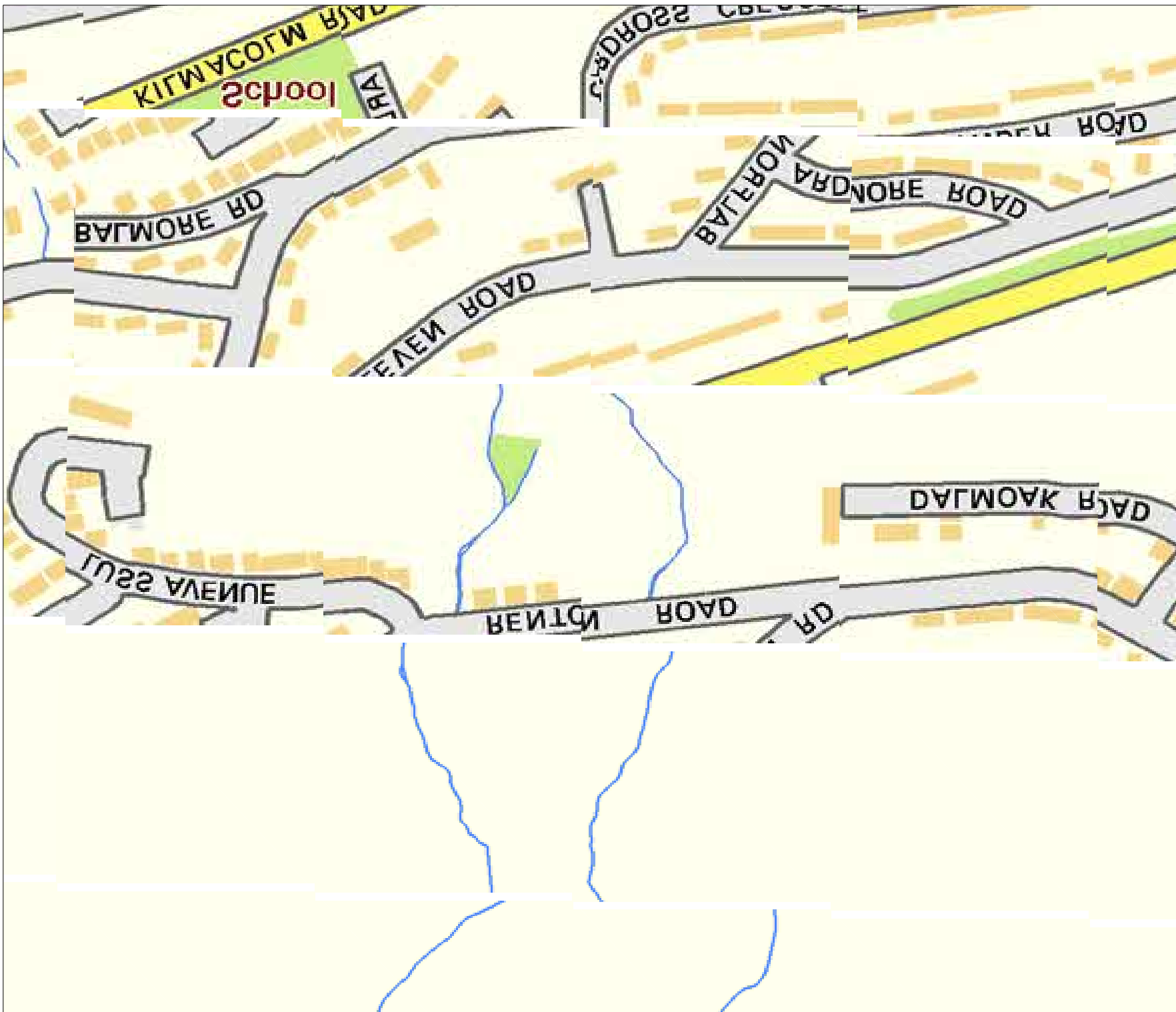


(c) Crown copyright and database rights 2023 Ordnance Survey 100019209 Date: 20/11/23 Scale: 1:1250 Map Centre: 229228,674289 Data updated: 02/10/23 Our Ref: 1325678 - 1 Telecoms Plan A2

Important information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf" which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2023 Ordnance Survey 100019209.

Duct, Trench 	Chamber / Pole 	Cabinet
melanie@cornerstoneprojects.co.uk		
AP2837		





bitmap_layout select_raster

LEGEND

- EXISTING PLANT
- EXISTING PLANT

bitmap_layout select_raster

<p>Head Office CityFibre Holdings Ltd 15 Bedford Street, London, WC2E 9HE</p> <p>Tel: 0845 293 0774 Web: www.cityfibre.com</p>	<p>Asset Office CityFibre Holdings Ltd, Rutherford House, Birchwood, Warrington, WA3 6ZH</p> <p>Email: asset.team@cityfibre.com</p>
--	---

Disclaimer:

Information shown on this plan is for general guidance only. No warranty is made as to its accuracy. This plan must not be solely relied upon in the event of excavation or other works being carried out in the vicinity of Cityfibre plant. No liability of any kind is accepted by Cityfibre, its agents or servants for any error, omission, discrepancy or deviation. This information is valid for the date printed.

Project
Plant Enquiry

Drawing
Existing Plant

Drawn by:
smallworld Date: 21/11/2023

Drawing No. CFH_EP_000001	Revision 001
------------------------------	-----------------

Scale: 1:2500 A4

Appendix D: BGS Geological Maps

Extractions from Geological Maps

Superficial Geology



 Till, Devensian - Diamicton

Extractions from Geological Maps

Bedrock Geology



 Strathgryfe Lava Member - Mugearite

Appendix E: Historical Borehole Records

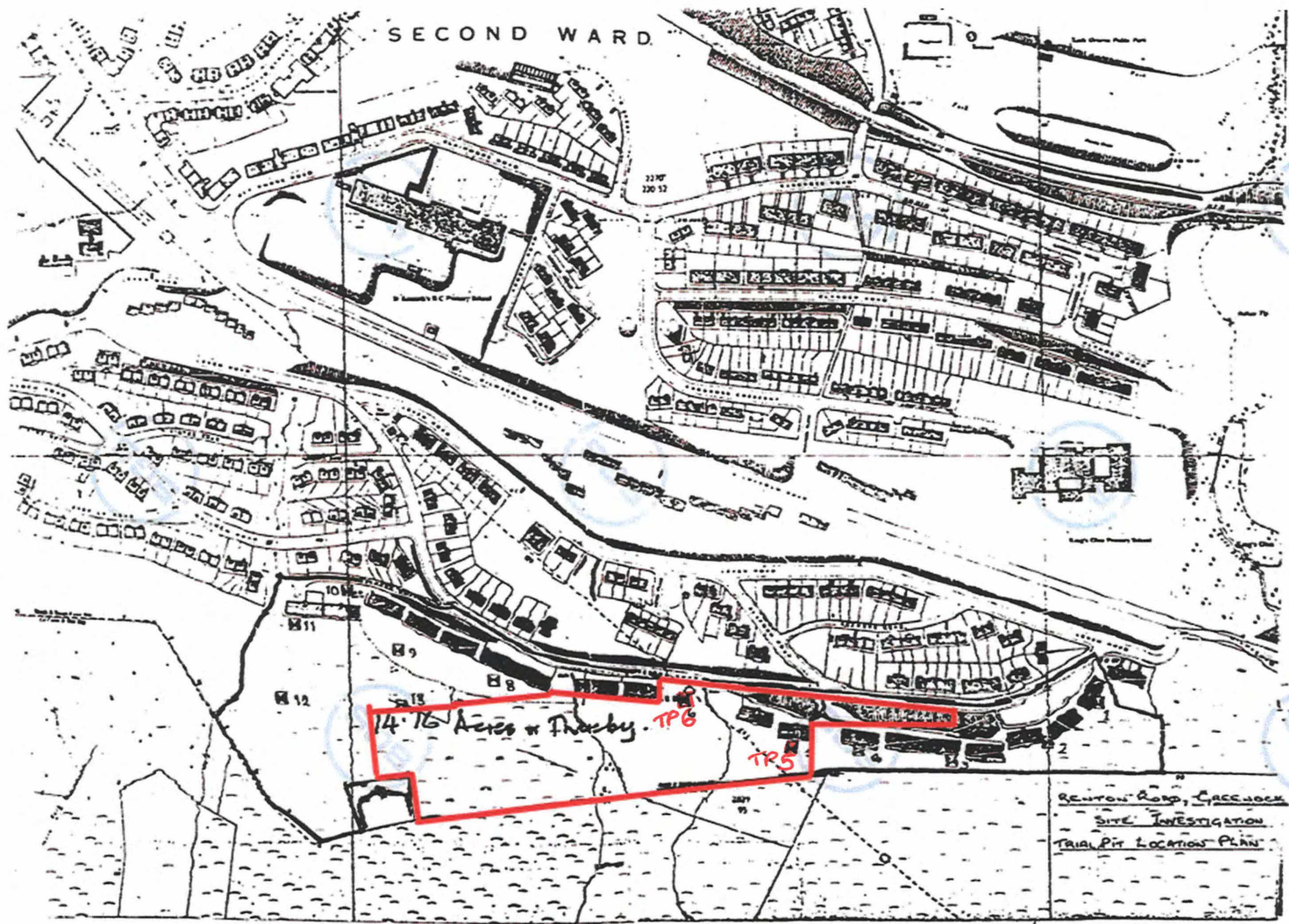
CONTRACT: 273/AS

DATE: JULY 1979

TRIAL PIT RECORDS

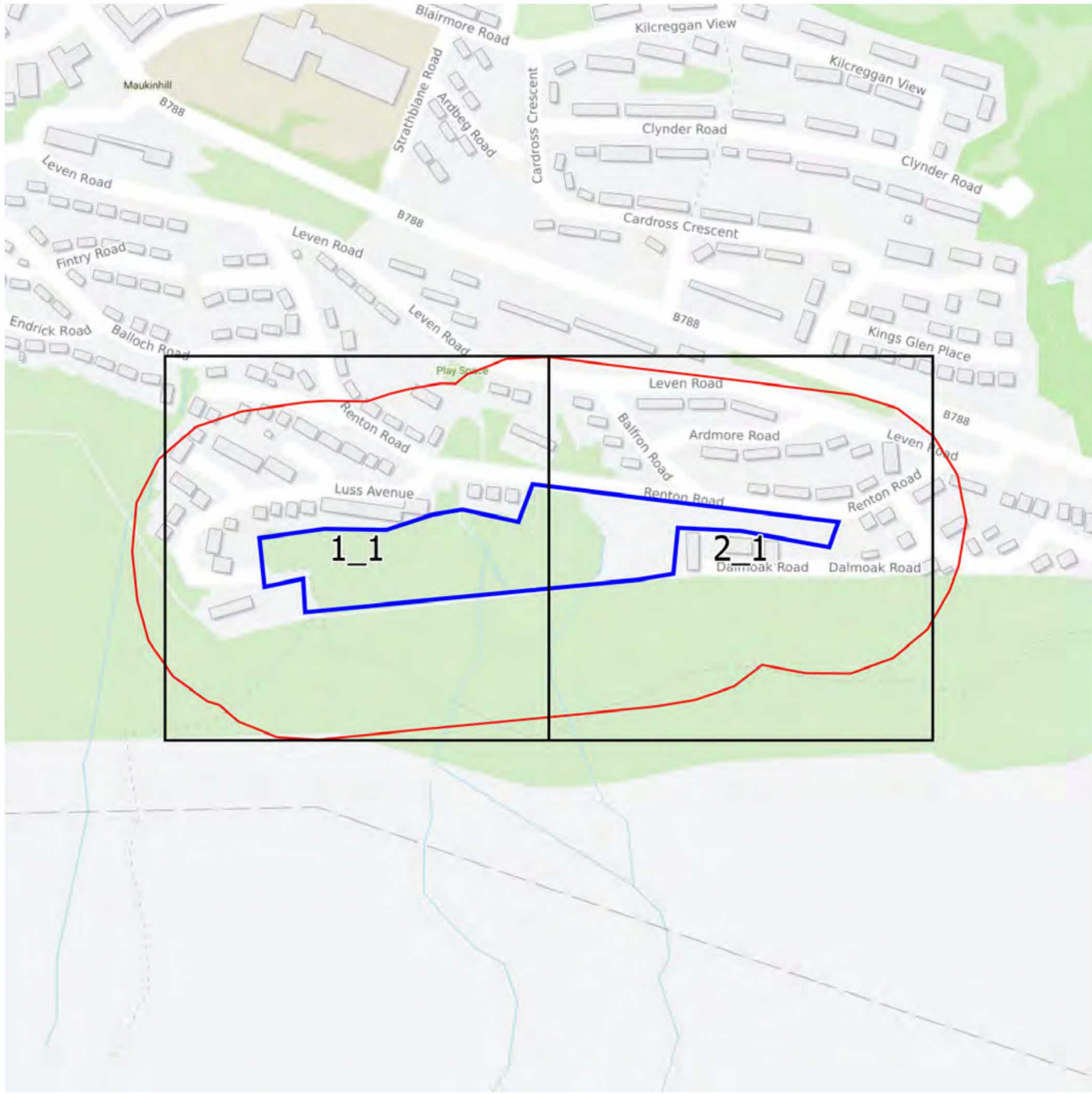
Trial Pit No	STRATA DESCRIPTION	Thickness (m)	Depth (m)
1	MADE GROUND - ASH and DEMOLITION RUBBLE	0.60	0.60
	Firm, brown, very sandy, slightly clayey SILT	0.40	1.00
	Soft, purplish brown, very sandy and silty CLAY with coarse to fine gravel and occasional cobbles	0.80	1.80
	Broken BEDROCK	0.20	2.00
2	MADE GROUND - ASH, SAND and DEMOLITION RUBBLE	0.60	0.60
	TOPSOIL	0.10	0.70
	Brown, silty, coarse to fine SAND with coarse to fine gravel becoming purplish brown at depth with numerous broken rock fragments	0.80	1.50
	Broken BEDROCK	0.50	2.00
REMARKS: Old foundations in rock at one side of pit			
3	MADE GROUND - TOPSOIL and DEMOLITION RUBBLE	0.15	0.15
	Very compact, brown, coarse to fine SAND with coarse to fine gravel	0.55	0.70
	Broken BEDROCK	0.20	0.90
REMARKS: Small stream running into pit from high ground			
4	MADE GROUND a) Sandy CLAY, TOPSOIL and DEMOLITION RUBBLE	0.10	0.10
	b) OLD FOUNDATIONS	0.70	0.80
	BEDROCK	0.10	0.90
5	MADE GROUND - TOPSOIL with occasional bricks	0.15	0.15
	Compact, brown, silty, medium to fine SAND with traces of gravel and occasional rootlets	0.75	0.90
	Broken BEDROCK	1.00	1.90
	BEDROCK	0.20	1.70
6	TURF and TOPSOIL	0.30	0.30
	Broken BEDROCK with topsoil and sand	0.40	0.70
	BEDROCK	0.10	0.80
7	MADE GROUND - a) TOPSOIL	0.25	0.25
	b) DEMOLITION RUBBLE and OLD FOUNDATIONS	0.45	0.70
	Compact, brown, silty, coarse to fine SAND with some coarse to fine gravel	0.50	1.20
	Broken BEDROCK	0.30	1.80

SECOND WARD.

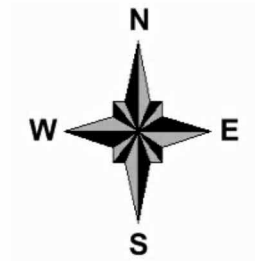


RENTON ROAD, CLEEVE
SITE INVESTIGATION
TRIAL PIT LOCATION PLAN

Appendix F: Groundsure Sitecheck Historical Maps



Landline Scale Grid Index



Site Details:

50, RENTON ROAD, GREENOCK,
PA15 3AF

Client Ref: AP2837
Report Ref: GS-7BQ-A8X-66A-15P
Grid Ref: 229230, 674288

Map Name: County Series

Map date: 1857

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1857
Revised 1857
Edition N/A
Copyright N/A
Levelled N/A

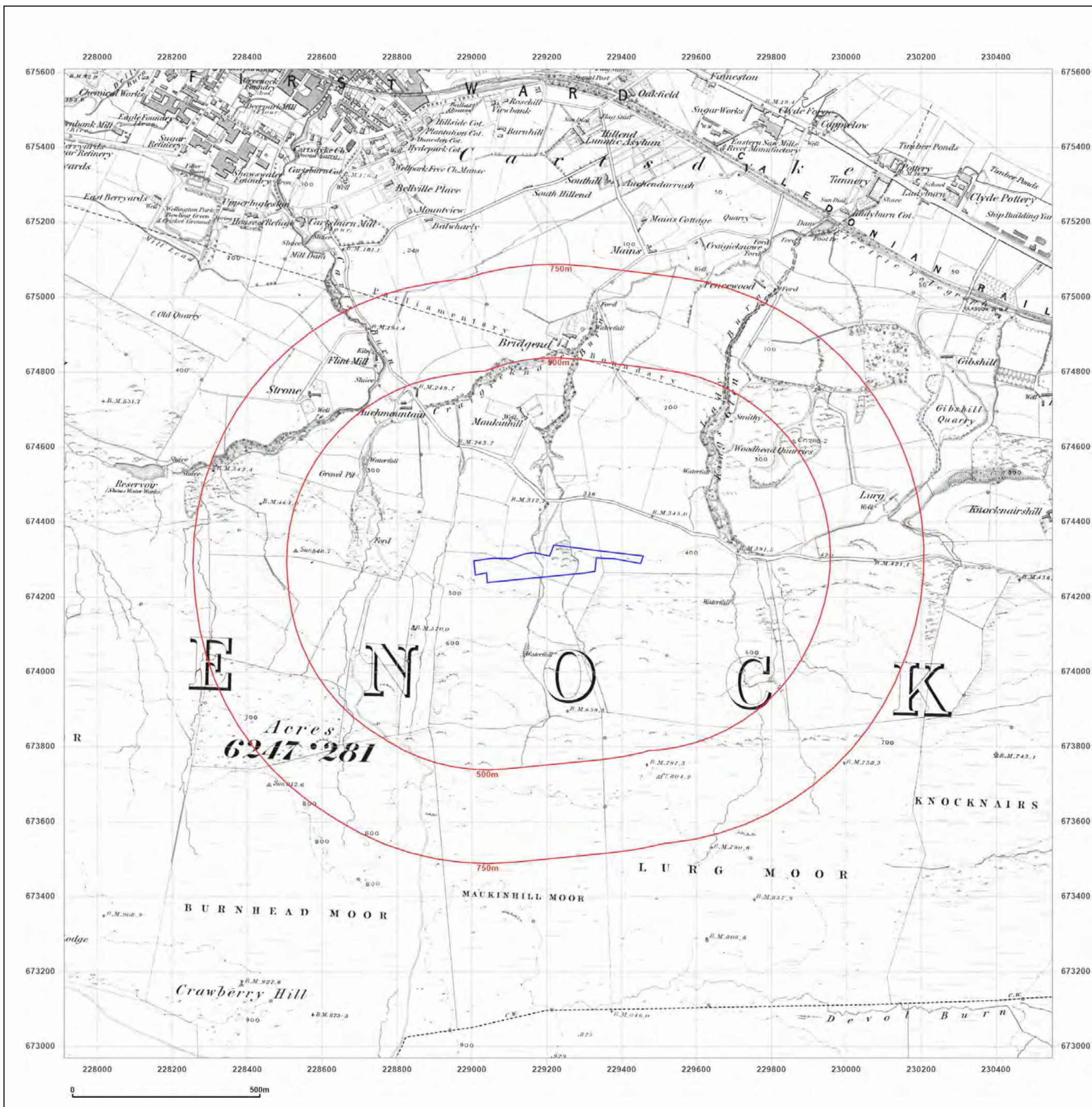


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Production date: 20 November 2023

Map legend available at:
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Site Details:

50, RENTON ROAD, GREENOCK,
PA15 3AF

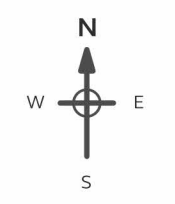
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Map Name: County Series

Map date: 1896

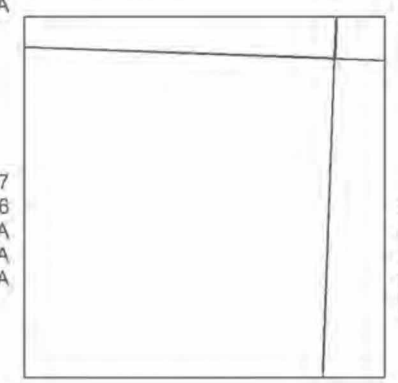
Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1857
Revised 1896
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1857
Revised 1896
Edition N/A
Copyright N/A
Levelled N/A

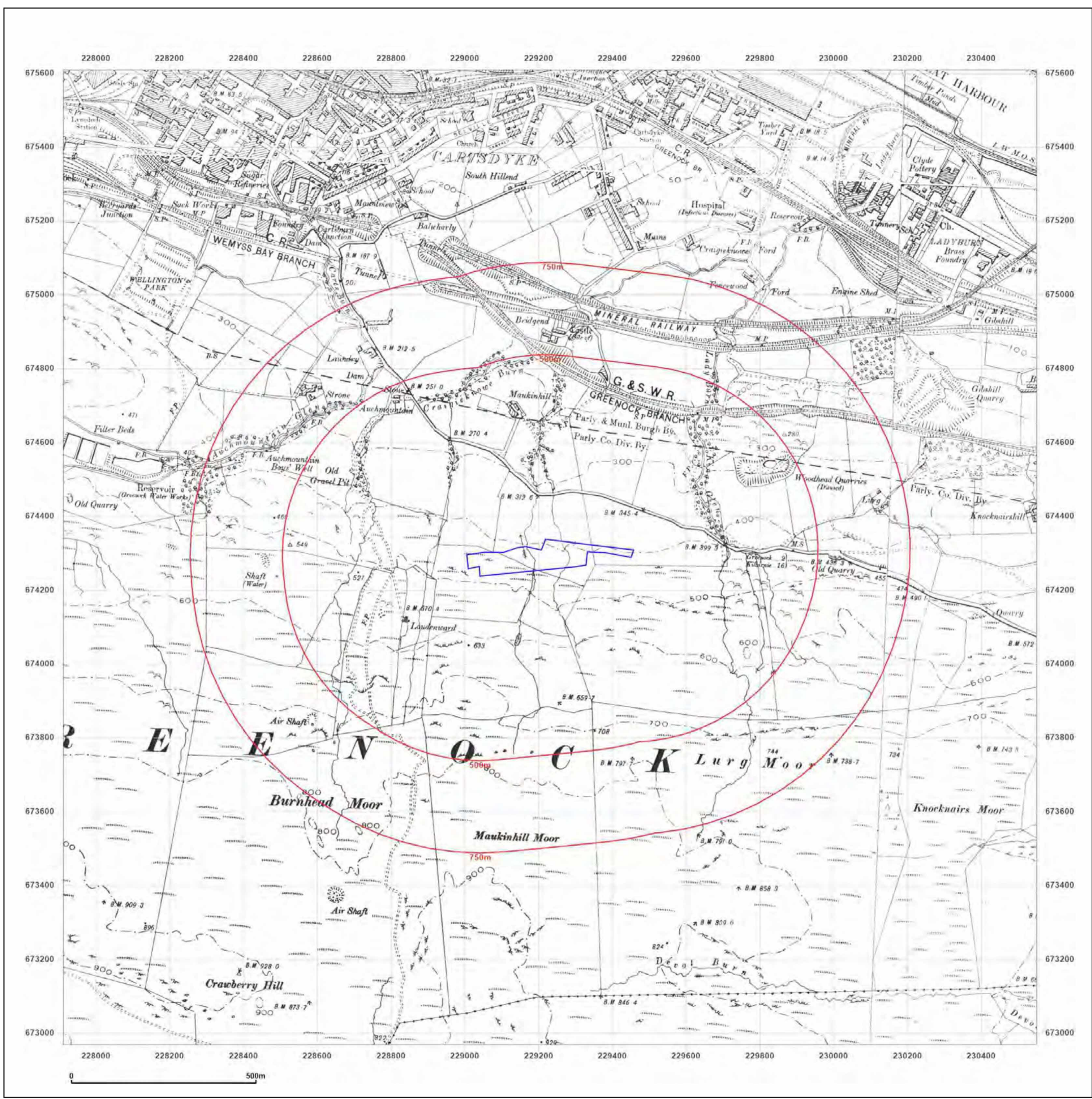


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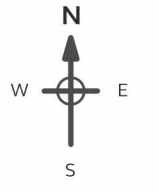
Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:
 50, RENTON ROAD, GREENOCK,
 PA15 3AF

Client Ref: AP2837
Report Ref: GS-7BQ-A8X-66A-15P
Grid Ref: 229230, 674288

Map Name: County Series
Map date: 1915-1919
Scale: 1:10,560
Printed at: 1:10,560



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<p>Surveyed 1857 Revised 1915 Edition 1915 Copyright N/A Levelled N/A</p>	<p>Surveyed 1857 Revised 1915 Edition 1915 Copyright N/A Levelled N/A</p>

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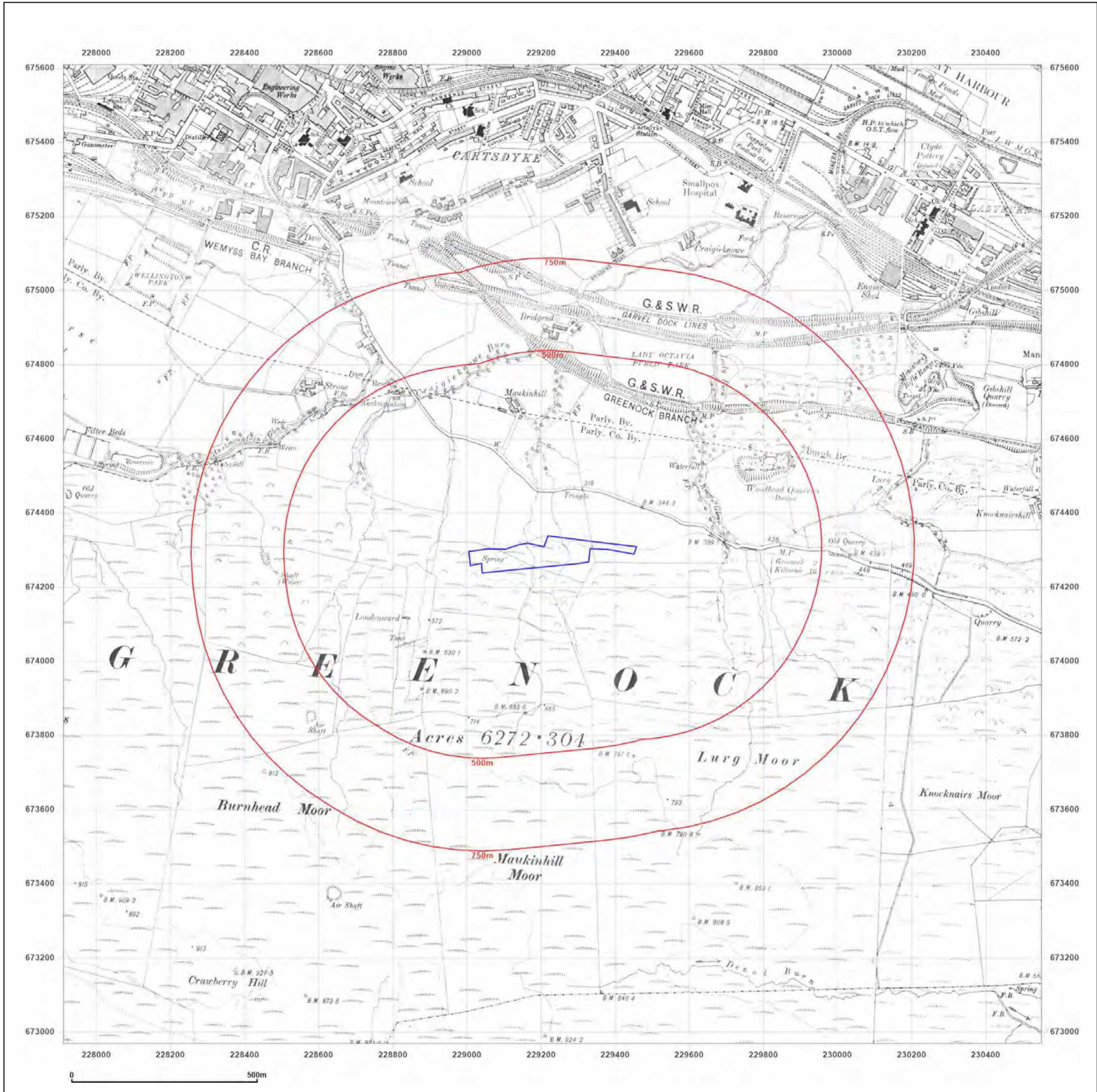


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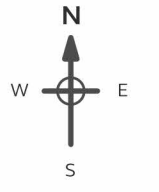
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Site Details:
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 PA15 3AF

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Report Ref: GS-7BQ-A8X-66A-15P
Grid Ref: 229230, 674288

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Scale: 1:10,560
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Surveyed 1860
 Revised 1923
 Edition N/A
 Copyright N/A
 Levelled N/A

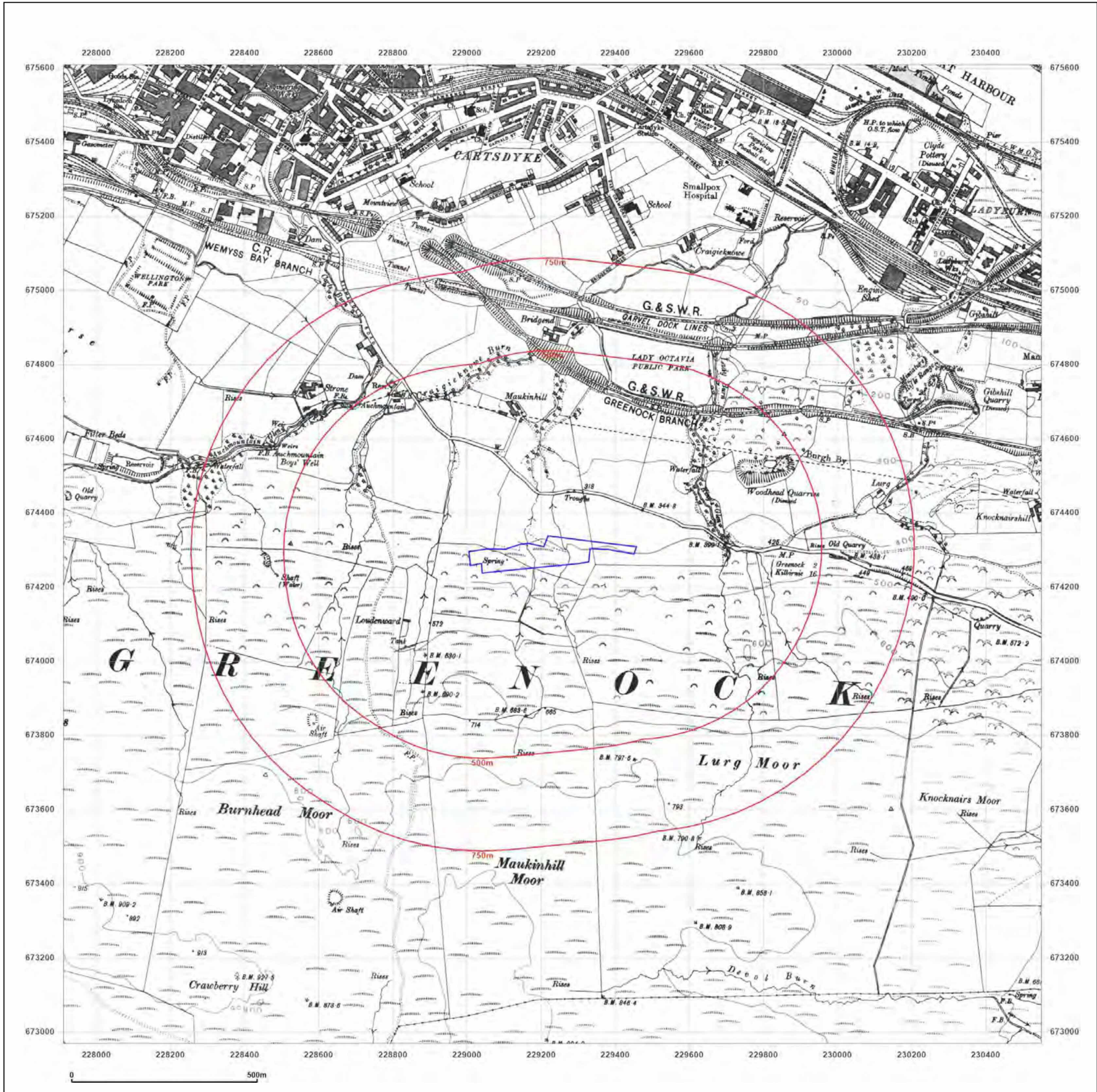
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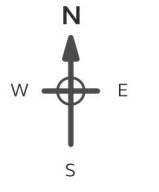
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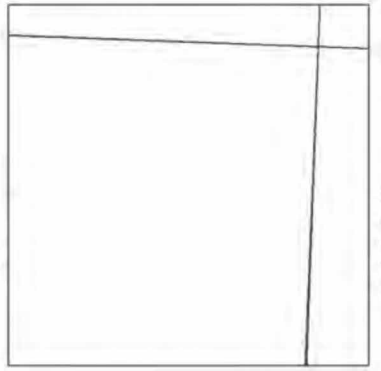
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 PA15 3AF

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Report Ref: GS-7BQ-A8X-66A-15P
Grid Ref: 229230, 674288

Map Name: County Series
Map date: 1938
Scale: 1:10,560
Printed at: 1:10,560



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 Revised 1938
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1857
 Revised 1938
 Edition N/A
 Copyright N/A
 Levelled N/A

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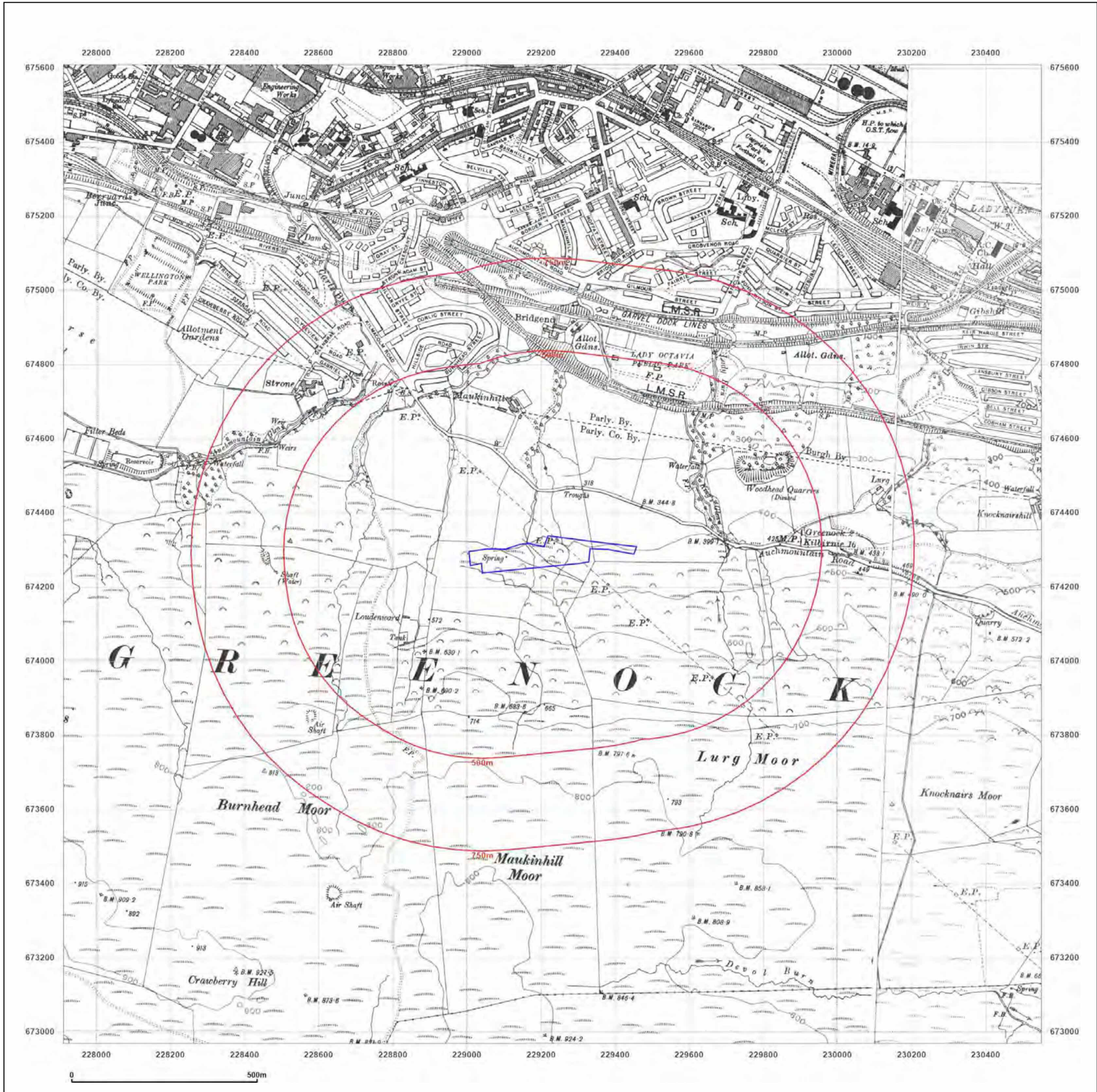


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PA15 3AF

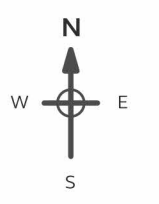
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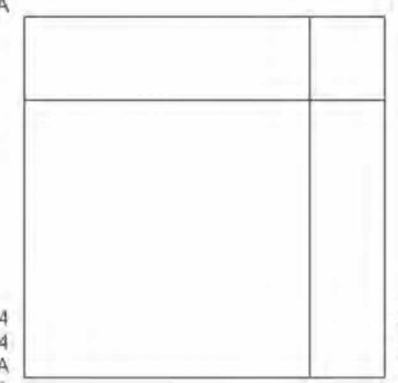
Map date: 1954-1958

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1954	Surveyed N/A
Revised 1954	Revised 1957
Edition N/A	Edition 1958
Copyright N/A	Copyright N/A
Levelled N/A	Levelled N/A



Surveyed 1954	Surveyed 1955
Revised 1954	Revised 1955
Edition N/A	Edition N/A
Copyright N/A	Copyright N/A
Levelled N/A	Levelled N/A

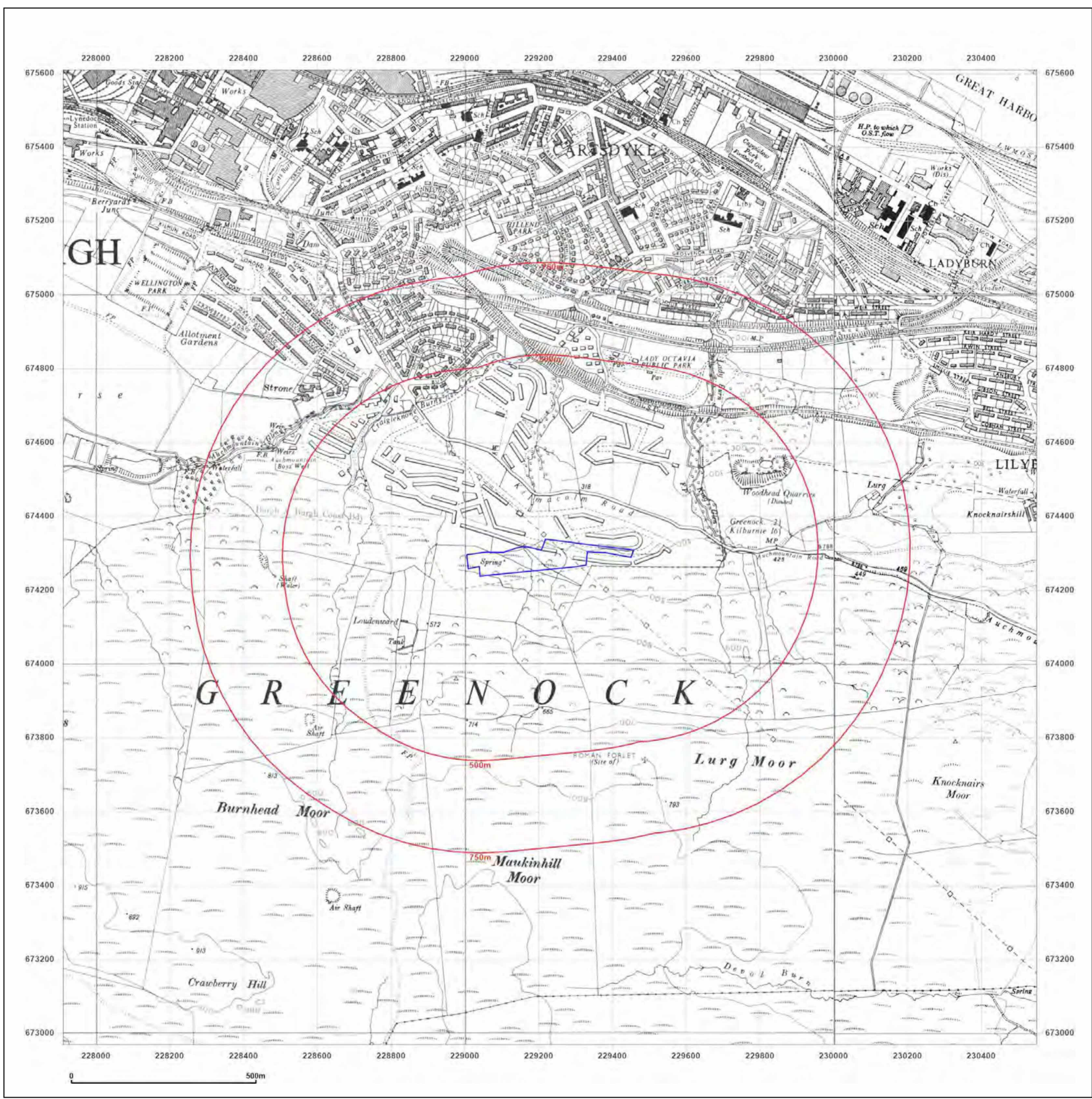


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PA15 3AF

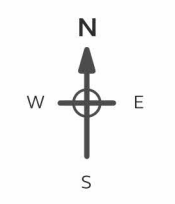
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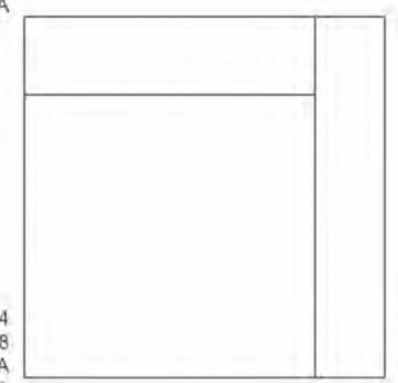
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Printed at: 1:10,000



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Edition N/A
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Levelled N/A



Surveyed 1974
Revised 1978
Edition N/A
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Levelled N/A

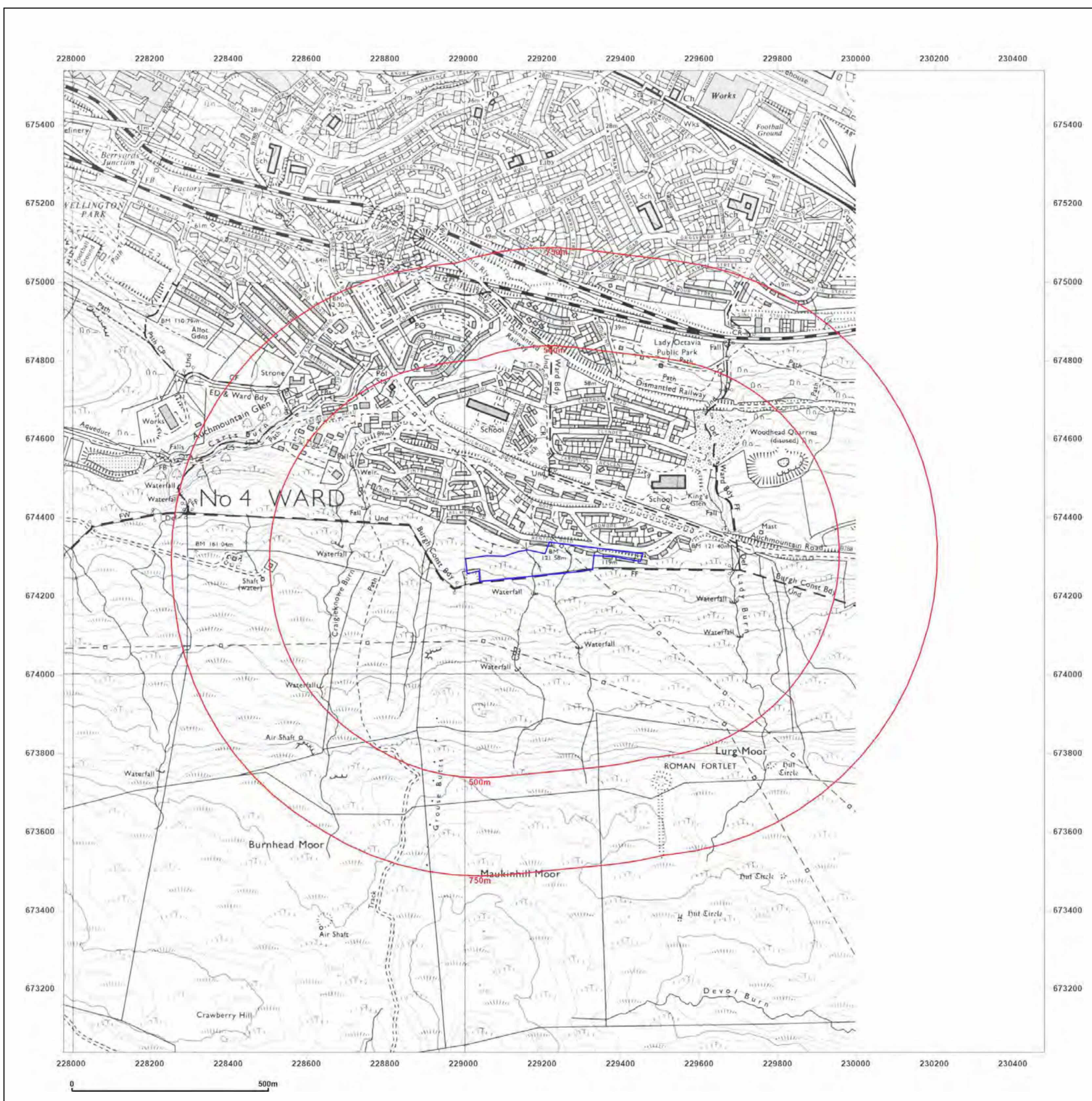


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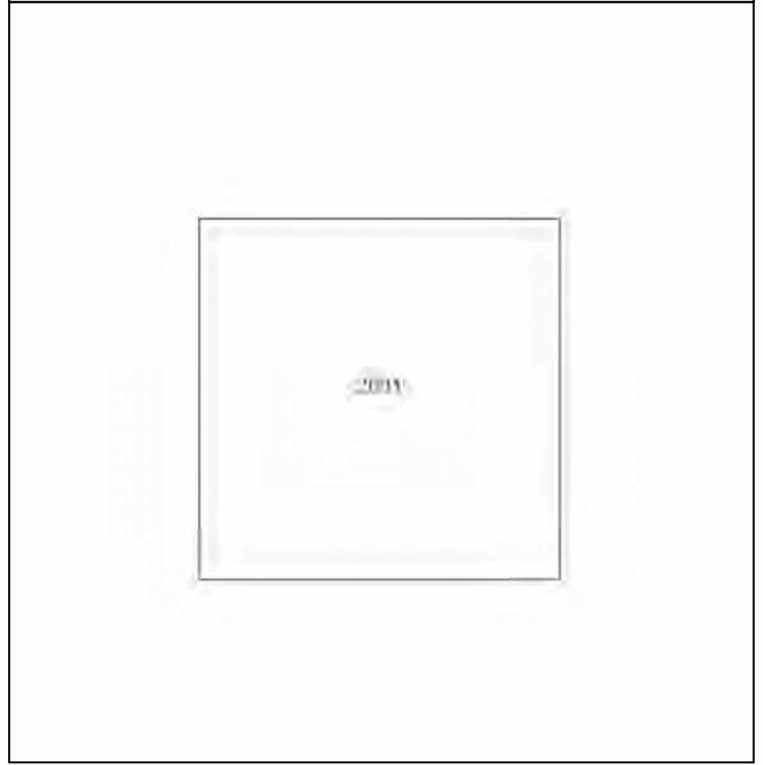
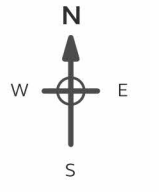
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Site Details:
 50, RENTON ROAD, GREENOCK,
 PA15 3AF

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Report Ref: GS-7BQ-A8X-66A-15P
Grid Ref: 229230, 674288

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000



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