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Ground Investigation Report

Proposed LED Floodlit Football Turf Pitch (FTP)

Top Park, Bury

October 2023



Project Details

Site: Top Park, Bury

Document Title: Ground Investigation Report

Document no.: STV6169-R01 Rev A

Date: October 2023

Client: The Football Foundation

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Document history and status

Revision	Date	Description	Author	Checker	Reviewer
A	October 2023	First Issue	JP	DH	MH



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Non-technical Summary

Topic	Commentary
Site description	The area of the proposed FTP is currently used as a grass surfaced sports pitch. There is a car park and pavilion building located within the west of the site.
Development proposals	91 x 55m 3G Floodlit Football Turf Pitch (FTP), including a pavilion extension, car park extension and a footpath/ramp to connect the new pitch to the car park.
Site history	The site remained open land until the late 20th Century by which time extensive earthworks were recorded within the southern half of the site and a historical landfill was recorded on site. By the 21st Century the site was recorded as a playing field. The surrounding land has developed largely into residential land use with localised industrial activities recorded historically.
Ground conditions	Ground conditions comprised Topsoil over Made Ground observed beyond the maximum depth of excavation of 3.91m bgl across the proposed FTP comprising clay and gravel with waste materials. Suspected Glacial Till was observed only within the area of the proposed pavilion extension at a depth greater than 2.5m bgl.
Development constraints	Obstructions within the Made Ground across the proposed FTP and car park extension limited the overall depth of excavation achieved.
Mining and ground stability risk	The site falls within a Coal Mining Reporting Area with a Development High Risk Area recorded to the south of the proposed FTP (associated to the Brooksbottom Coal Seam outcrop). No recorded or unrecorded shallow mining has been recorded within the Consultants Coal Authority report within the area of the proposed FTP, car park extension, hardstanding and pavilion extension therefore the risk from coal mining legacy is considered low.
Floodlight/pavilion foundation solution	The Made Ground across the proposed FTP and pavilion extension is considered unsuitable for supporting concentrated floodlight foundation loads on shallow foundations (i.e. pads, or strip/trench fill). Thus, an alternative foundation solution (i.e. piles or ground improvement) is required.
CBR assessment and pitch, car park and hardstanding foundations	Based on the anticipated founding depth and DCP results, a CBR design value of 5% can be adopted for soils that are likely to be representative of those which remain at or near pitch, car park and hardstanding formation levels.
Drainage potential	Suspected Glacial Till deposits are considered to be effectively impermeable for the purposes of drainage design. Furthermore, it not recommended to site soakaways within Made Ground soils. It is possible that the FTP drainage could key into the surface water drainage system currently used by the existing pavilion building.
Chemical contamination (Topsoil)	Topsoil in-situ would be chemically suitable for reuse onsite, or offsite within a residential development.
Waste characterisation	WAC testing indicates Made Ground may be accepted at an inert landfill site. However as waste materials were identified and the site is a historic landfill site, landfill operators may classify the Made Ground as hazardous waste. The Topsoil is considered suitable for disposal as non-hazardous waste owing to likely a high organic carbon content. Natural uncontaminated soils are likely to be accepted as inert waste.
Recommendation for further works	If a piled foundation solution is adopted for the proposed floodlighting and pavilion extension, it is recommended this investigation is supplemented with further onsite deeper boreholes to assist with pile design. As part of the investigation, a gas/vapour risk assessment should be undertaken, in order to determine the gas risk to end users of the site from the deep Made Ground within close proximity to the proposed pavilion extension. If ground improvement (such as dynamic compaction, rapid impact compaction or controlled modulus columns) is utilised, potentially allowing adoption of shallow foundations, or lime/cement stabilisation is utilised below the proposed FTP and/or pavilion extension specialist input at an early stage is recommended.

Topic	Commentary
	The exact vertical and lateral extent of the landfill and suspected Glacial Till at depth beneath the area of the proposed pavilion extension is unclear. In order to understand the relationship between these deposits and whether any new foundations would influence these it will be necessary to excavate trench(es) to the southeast of the pavilion to confirm the lateral extent of the landfill, which may offer a more detailed geotechnical assessment for the pavilion to be undertaken.

1 Introduction

1.1 Scheme Outline

- 1.1.1 The proposed development is for construction of a 91 x 55m 3G Floodlit Football Turf Pitch (FTP), including a pavilion extension, car park extension and a footpath/ramp to connect the new pitch to the car park. The approximate footprint of the proposed FTP is presented in Figure 2-A below.
- 1.1.2 The report is based on the project proposals and information outlined above; should the scheme change then it will be necessary to review the conclusions and recommendations presented in this report.

1.2 Brief

- 1.2.1 This report has been prepared following instructions received from our client, The Football Foundation.
- 1.2.2 The scope of works has been completed in accordance with the 2023 framework agreement for a ground investigation utilising windowless sampling methods and hand pitting methods. The principal objectives of the ground investigation are to establish ground conditions at the site sufficient to assess the infiltration potential and provide information necessary to allow design of the artificial sports pitch and floodlight foundations. The report will also advise on abnormal ground conditions and provide recommendations for further investigation works where applicable.
- 1.2.3 In addition to the above, an electrical capacity survey was commissioned for the project, provided under separate cover.

1.3 Limitations

- 1.3.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the manpower, resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Desk Study

2.1 Sources of information

2.1.1 Reference has been made to the following sources of information:

- British Geological Survey (BGS) GeoIndex – Onshore database.
- BGS Sheet 76 (Scale 1:50 000 and 1:50 000) – Rochdale (2008).
- BGS Sheet SD71NE (Scale 1:10,000) - 2007
- Ordnance Survey OpenData
- Coal Authority Development and Specific Risk databases.
- Environment Agency open-source databases
- Google mapping services
- Interrogation of search engines for anecdotal information on the site history and other readily available online resources.

2.2 Site Location and Description

2.2.1 The proposed development lies within Ramsbottom, approximately 5.5km north of Bury town centre, at the following postal address:

Top Park
Bolton Road West
Ramsbottom
Bury
BL0 9PD

2.2.2 An aerial image showing the approximate site boundary and approximate development footprint is presented below, followed by a table summarising the key site features and a series of site photographs. A Site Plan is provided within Appendix A.



Figure 2-A: Aerial photograph of site boundary (red) and FTP footprint (blue)

Theme	Feature
Current site use	The development site currently forms part of grassed playing fields used by the Ramsbottom United Junior Football Club. The area of the proposed FTP is currently used as a grass surfaced sports pitch.
Local area land use	Adjacent sites comprise of predominately residential dwellings in all directions.
Topography	The topography of the surrounding area generally falls towards the River Irwell 400m to the northeast of the site. Levels fall by 5m from west to east across the site. The area of the proposed FTP is typically flat.
Buildings, surfacing and other permanent features	Car parking and a small pavilion building are located within the west of the site, whilst a children's play area and hardstanding basketball court are located within the western centre of the site.
Boundary features	The site boundaries are defined mature trees and vegetation to the north, south and east beyond which residential dwelling are present. The western site boundary is defined by Bolton Road West.
Vegetation	Mature trees and vegetation up to 10-15m in height align the site boundaries.
On-site / adjacent surface water features	None observed. The River Irwell is located 400m northeast of the site.
Injurious and invasive weeds	No invasive weeds were identified during the site reconnaissance.
Evidence for ground instability	None observed.

Table 2-A: Site Description

- 2.2.3 The observations provided above are made by a Geoenvironmental Engineer, who is not a specialist in asbestos surveying or invasive weed identification. Any associated comments are intended for use by this report only, and not for any other purpose.
- 2.2.4 A selection of site photographs are presented below.



Figure 2-B: Photograph within west of proposed FTP area looking northeast.



Figure 2-C: Photograph within south of proposed FTP area looking north.



Figure 2-D: Photograph showing area of proposed pavilion extension.



Figure 2-E: Photograph showing car park.

2.3 Site History

2.3.1 An attempt to trace the history of the site has been carried out by reviewing readily available ordnance survey maps. A chronological summary of the site's history is provided below.

Date	On-site	Off-site
(e.g.) Late-1800s	Open land.	Hope Works (bleaching, dyeing and finishing) with associated reservoir 70m north of site. Residential properties and a mill present along Bolton Road west to the northwest of the site.
Early 1900s	No significant changes.	Expansion of works (former Hope Works) to the north of the site. Reservoir no longer present.
Mid to late 1900s	Evidence of earthworks within the southern half of the site. Tank recorded within the centre of the site.	Further housing developments in the west and southern areas beyond the site.
Early-2000s to present day	A car park, play area and small building are present within the west of the site. Rest of site observed as a playing field with hardstanding basketball court within the centre.	Works to the north of the wider site no longer present and replaced by residential housing.

Table 2-B: Summary of site history

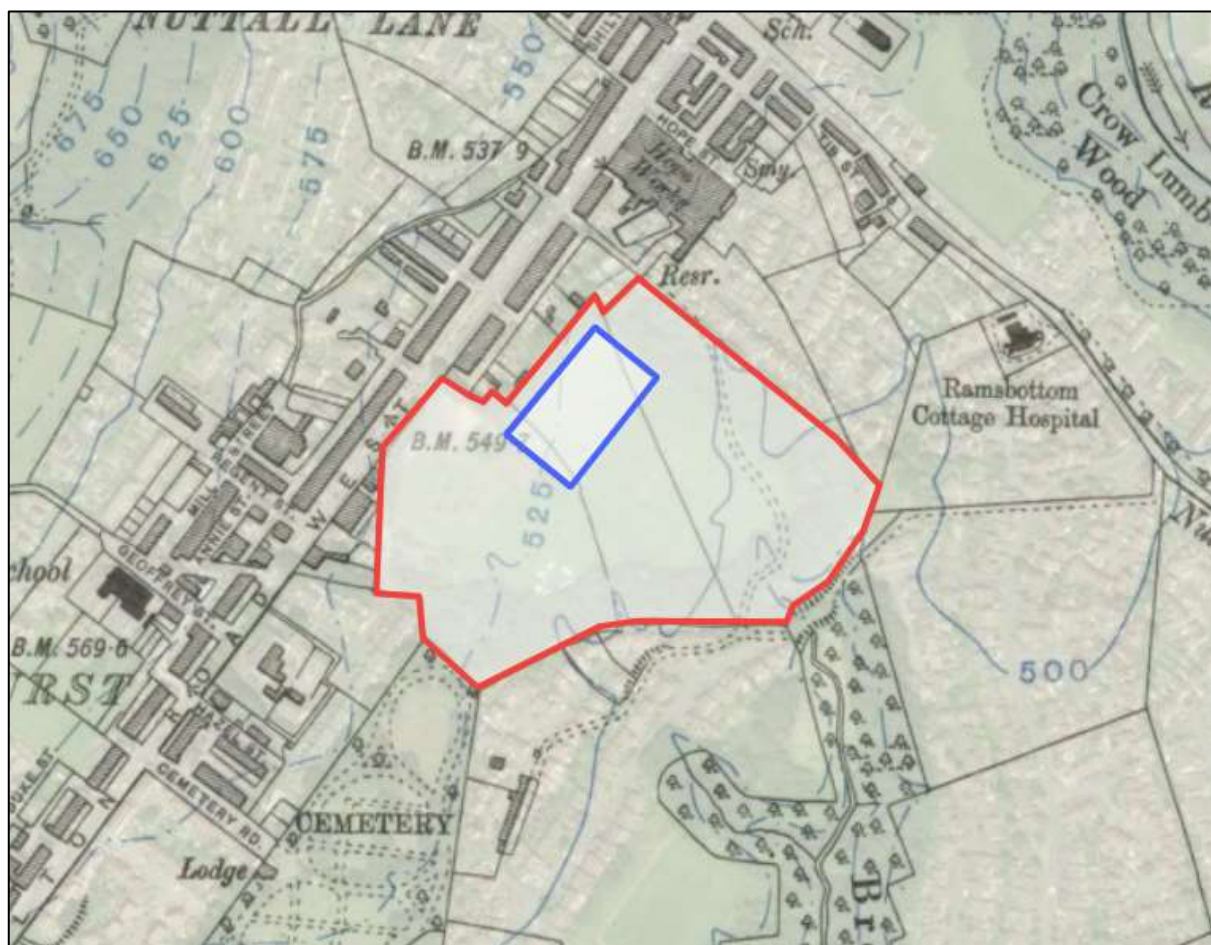


Figure 2-F: 1888-1913 Historical map extract overlay showing approximate site boundary (red line) and the proposed FTP (blue line)



Figure 2-G: 1949-1972 Historical map extract overlay showing approximate site boundary (red line) and the proposed FTP (blue line)

2.4 Anticipated Geology and Hydrogeology

- 2.4.1 Based on a review of available records, the site is anticipated to be underlain by superficial deposits of Devensian Till (refer to Figure 2-H below).
- 2.4.2 In addition, the entire site is recorded as infilled, Soiltechnics anticipate that a Made Ground is likely to be present across the entire site footprint. This could comprise of reworked natural soils.
- 2.4.3 The underlying bedrock is recorded as the Brooksbottom Grit Sandstone beneath the proposed FTP boundary (see Figure 2-I below). Beyond the northwest of the proposed FTP the geology is recorded as the Marsden Formation. The Closest BGS borehole data indicates that there is ~40m of superficial deposits clays, sands and silts beneath the site, despite this the site is not recorded to be within a BGS recorded hidden valley. Water is at varying depths from 3-9mbgl, seeming to correspond to bands of more permeable or strata.



Figure 2-H: Extract from BGS showing superficial geology and artificial ground at the site

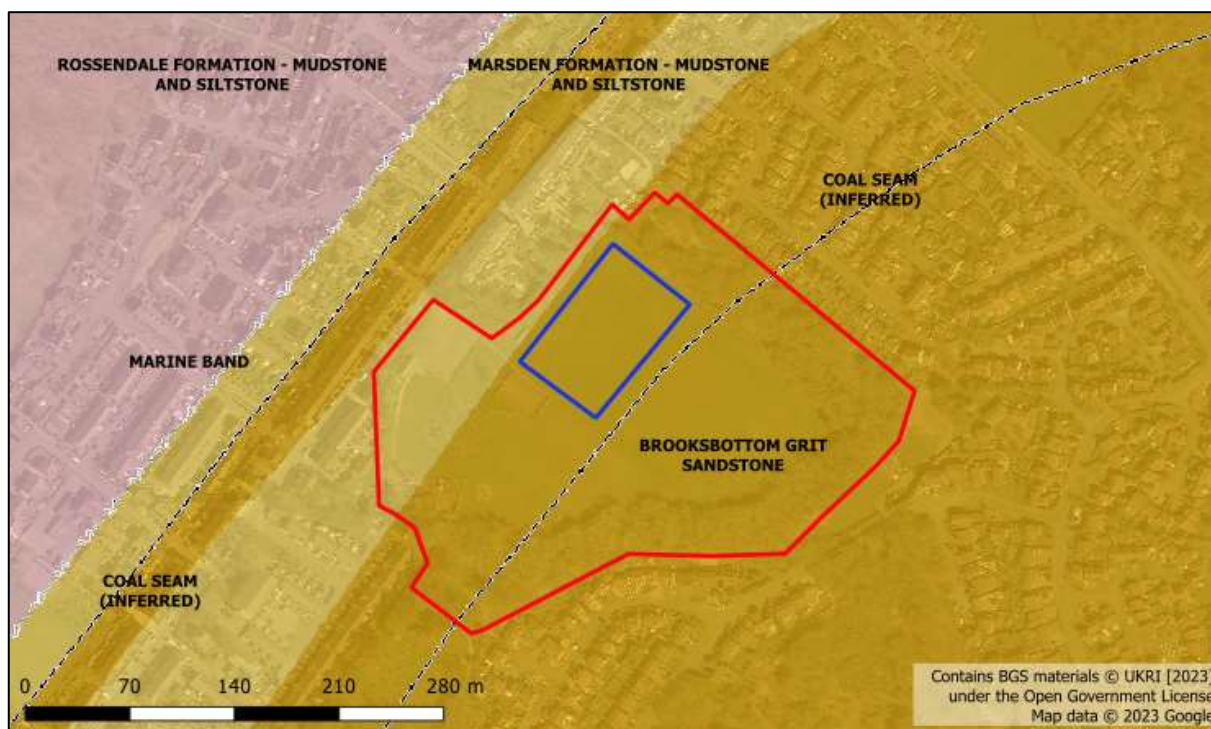


Figure 2-I: Extract from BGS showing bedrock geology at the site

2.4.4 A summary of the anticipated geology underlying the site is summarised as follows:

Stratum	Bedrock/ superficial	Approximate thickness (m)	Typical soil type	Aquifer Designation	Likely permeability
Topsoil	-	~0.3m	Organic soil	-	-
Made Ground	Superficial	Variable	Variable	-	Variable
Devensian Till	Superficial	30-40m	Clay, silt and sand	Secondary undifferentiated	Typically, low
Brooksbottom Grit Sandstone	Bedrock	Basal unit	Sandstone	Secondary A	Low to moderate
Marsden Formation – Mudstone and Siltstone	Bedrock	Basal Unit	Mudstone and siltstone	Secondary A	Low to moderate

Table 2-C: Summary of anticipated geology and hydrogeology

2.5 Flood Risk

2.5.1 The site falls within a Flood Zone 1 area. This designation indicates there is less than a 0.1% chance of flooding from rivers or the sea in any year (see Figure 2-J, below).

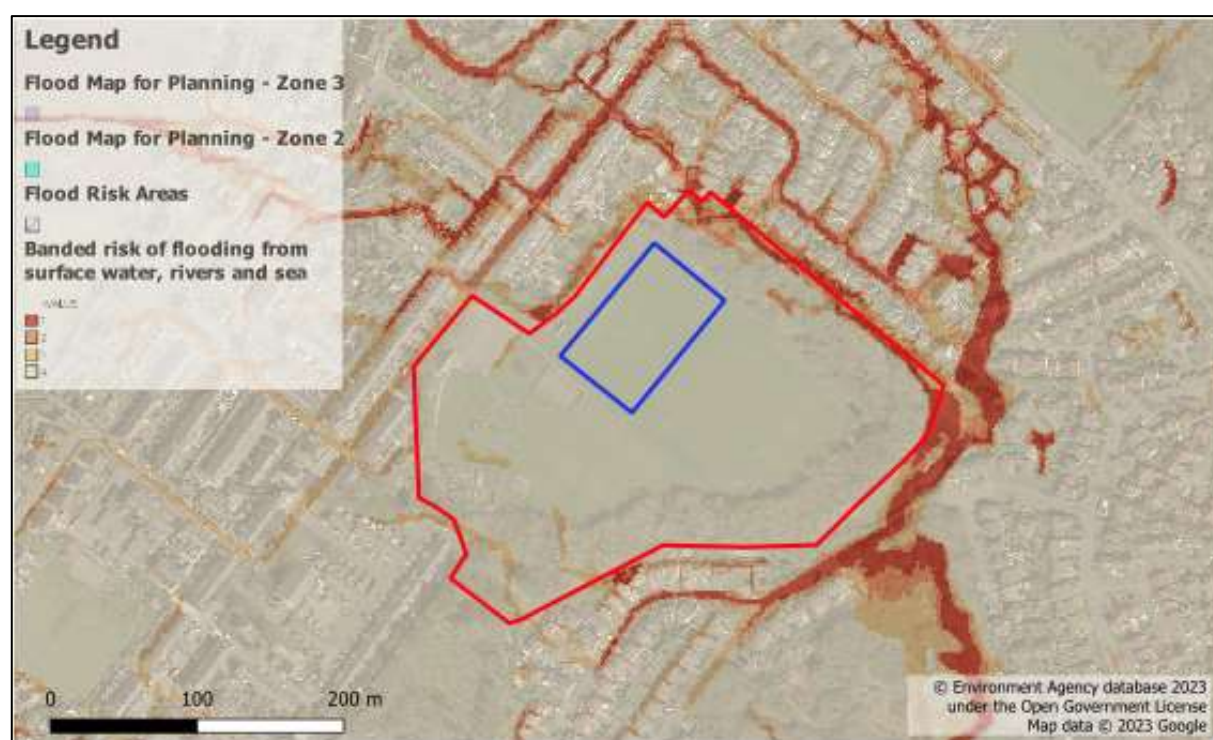


Figure 2-J: Extract of EA flood risk mapping for the site

2.5.2 There is evidence from other sources of localised areas of flooding present within the site towards the north and south, as indicated within Figure 2-J above.

2.5.3 It should be noted that this information does not constitute a site-specific Flood Risk Assessment and one may be required for the scheme.

2.6 Mining and Ground Stability

- 2.6.1 The site is located within a Coal Mining Reporting area with parts of the site recorded within a Development High Risk Area (refer to hatching in Figure 2-K) associated with the Brooksbottom Coal Seam which outcrops to the south of the proposed FTP (refer to purple marking in Figure 2-K below, and black dotted line Figure 2-L, below). On this basis a Consultants Coal Mining Report has been obtained from the Coal Authority from the proposed FTP area and a copy is presented as Appendix B.

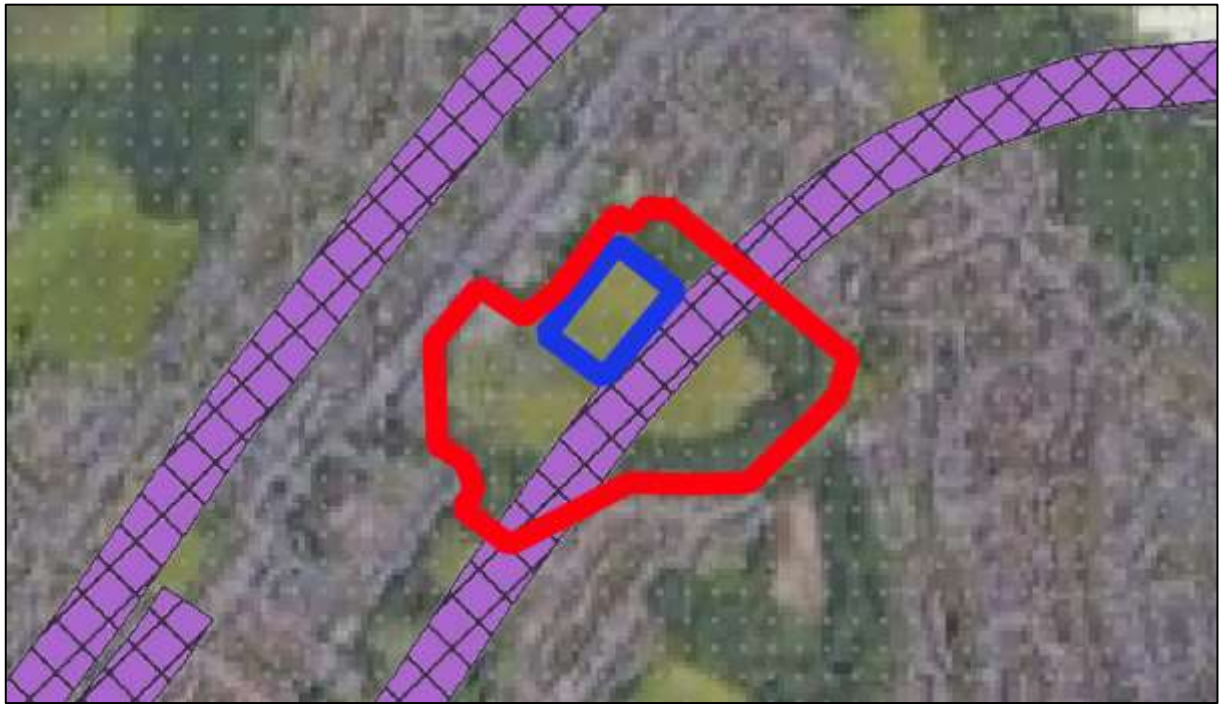


Figure 2-K: Extract showing coal mining hazards at the site.

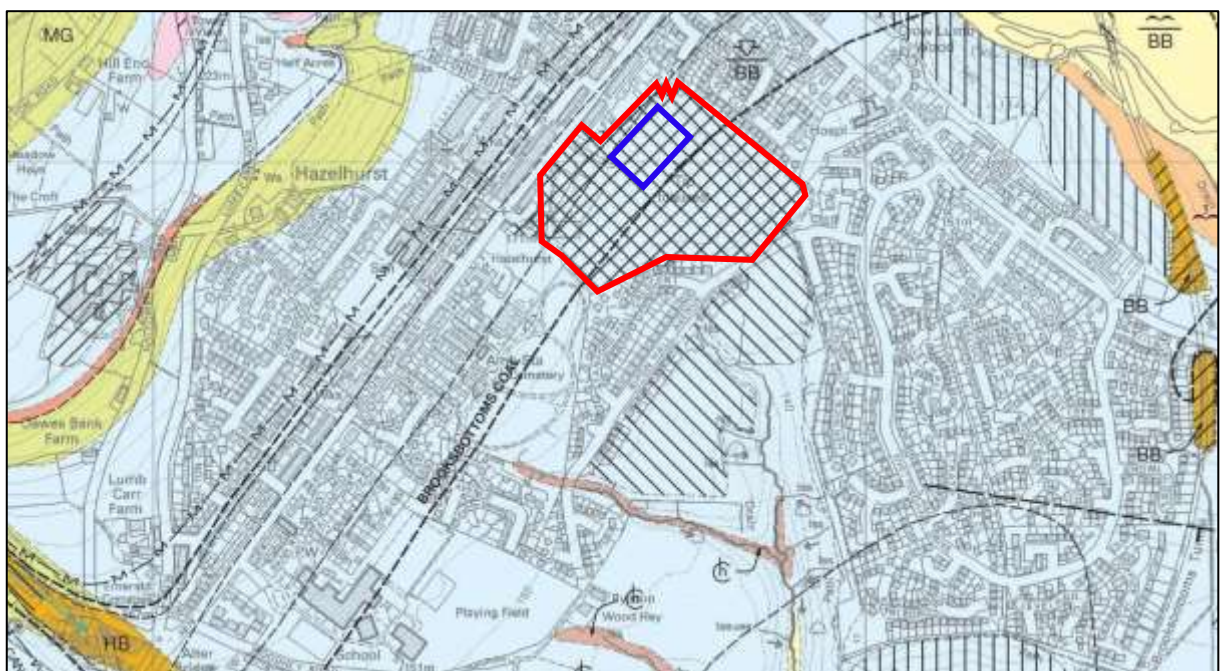


Figure 2-L: Extract from BGS map SD71NE (1:10,000).

- 2.6.2 The Consultants Coal Mining Report indicates there to be no past mining within the area of the proposed FTP, nor is there evidence of probable unrecorded shallow workings within the proposed FTP development area.
- 2.6.3 There are no recorded mine entries within 100m of the proposed FTP, nor opencast mines within 500m.
- 2.6.4 There are no records of mine gas emissions within 500m of the site.
- 2.6.5 On the above, as the coal outcrop is recorded to the southeast of the proposed FTP, and with no evidence of probable workings, the onsite risk is considered low. On the above information the risk to the proposed car park extension and pavilion are also considered to be low.

2.7 Landfill and infilled ground

- 2.7.1 Open-source Environment Agency landfill mapping data indicates the site forms part of a historic landfill as shown in Figure 2-M below. This is likely to be associated with the historic working of the site. Records of waste deposited are not known, however, its last input date is recorded as the 31st December 1975.
- 2.7.2 Whilst the proposed FTP itself is open and aerated, gases generated could feasibly migrate into enclosed spaces such as the proposed pavilion extension. It is considered, therefore, the risk of ground gases affecting the development to be moderate-high, and further investigation may be required to confirm whether gas protective measures are required for the proposed pavilion extension.



Figure 2-M: Extract from EA showing proximity of the site to landfills.

2.8 Underground Infrastructure

- 2.8.1 Copies of all utility plans obtained are presented as Appendix I. The plans are provided for information only and should not be relied upon to be accurate. In addition, it is worth noting that the public utility plans provided by the asset owners typically exclude private service runs.
- 2.8.2 A review of the information shows that there are services associated with the pavilion on site. There is an abandoned wastewater pipe to the east of the wider site and at the very eastern extent of the wider site there is an active wastewater pipe, however there is no information showing services on or near to the proposed FTP.

2.9 Unexploded Ordnance (UXO) Hazard Screen

- 2.9.1 A UXO hazard screen has been undertaken by Soiltechnics (as a non-specialist) in accordance with CIRIA C785 to determine if further specialist risk assessment is required. This has been carried out with reference to the Zetica bomb density maps, area-specific bomb strike maps (where available), and a review of historical mapping and possible military sites in the area. A summary is presented below.

Hazard	Outcome	Discussion
Question 1: Are there any indicators of former military land use on site?	No	A review of the site's history has not identified indicators of former military use on site.
Question 2: Are there any indicators of historical bombing on or near the site?	No	The site falls within a low bombing density area and no military sites or likely Luftwaffe targets have been identified in the surrounding area. A review of historical mapping records did not reveal any indicators of bombing in the area.

Table 2-D: UXO Hazard Screen

- 2.9.2 The risk review concluded that there was not a credible risk of encountering UXO during the ground investigation. It should be noted that this preliminary risk review does not consider risks to the construction phase.

3 Ground Investigation

3.1 Objectives

- 3.1.1 The ground investigation scope and location of exploratory holes was determined by Soiltechnics Ltd, based upon the overall brief outlined in Section 1.
- 3.1.2 The objectives of the fieldwork were to:
- a) Establish ground and groundwater conditions at the site.
 - b) Obtain samples for subsequent laboratory testing.

3.2 Fieldwork summary

3.2.1 Fieldwork was undertaken between 18th and 19th September 2023.

3.2.2 A summary of the works completed is set out in the table below, along with the location of the exploratory records. The exploratory hole location plan is presented within Appendix A.

Exploratory records	Method	Qty	Final Depth Range (m bgl)	Comments
Appendix C	Hand Pits	3	1.1 - 1.2	HP02, HP04 & HP05 Terminated at scheduled depth.
		2	1.0 – 1.1	HP01 & HP03 Terminated due to cobble obstruction
		1	0.6	HP06 Terminated due to exposed land drain
Appendix D	Dynamic Cone Penetrometer Tests	10	0.82 – 0.88	DCP01 to DCP09 & DCP10B Terminated at scheduled depth.
		1	0.6	DCP10A Terminated due to obstruction, repositioned and tested as DCP10B
Appendix C	Dynamic windowless sampling boreholes	4	2.9 – 3.91	WLS01 to WLS04 Terminated due to obstruction/competency of the deposits.
		2	4.45 – 5.45	WLS05 and WLS06 Terminated at scheduled depth.

Table 3-A: Summary of fieldwork undertaken

3.2.3 All soils encountered were described in accordance with BS EN ISO 14688 “Identification and Classification of soil”.

3.3 Unexploded Ordnance (UXO)

3.3.1 The review concluded that the UXO risk to the ground investigation works is low within the site boundary and therefore no special precautions were required.

3.4 Sampling

- 3.4.1 During the fieldwork, sampling of soil, rock and groundwater for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 *“Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements”*.
- 3.4.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 *“Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples”*.
- 3.4.3 Various sampling and sub-sampling methodologies have been adopted as appropriate, with the primary aim of obtaining the highest quality sample class practicable.
- 3.4.4 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of with no further notice.

3.5 In-situ Testing

- 3.5.1 The following table summarises the field testing carried out. The results are summarised on individual exploratory hole logs where appropriate and detailed within the Appendices indicated.

Tests	Qty	Applicable standard / guidance	Location of Results
Standard penetration test (SPT)	19	BS EN ISO 22476-3	Included within logs Detailed in Appendix D
Pocket penetrometer	11	Manufacturer’s instructions	Included within logs Detailed in Appendix D
Dynamic cone penetrometer (DCP) using TRL probe	11	DMRB: CS229	Detailed in Appendix D
Variable head permeability	1	BS EN ISO 22282-2	Detailed in Appendix D
Soakaway test	1	BRE 365	Detailed in Appendix D

Table 3-B: Summary of field testing undertaken

3.6 Investigation Constraints

- 3.6.1 No significant constraints were encountered which limited the design of the scope of works or the undertaking of fieldworks, however, all exploratory positions were undertaken around the perimeter of the pitch to avoid causing damage to the playing surface.

4 Laboratory testing

4.1 Overview

- 4.1.1 Samples obtained from exploratory holes were sent to independent accredited laboratories for geotechnical and chemical testing.

4.2 Geotechnical Testing

- 4.2.1 The geotechnical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the scheme proposals and ground conditions encountered.
- 4.2.2 Geotechnical laboratory test results are presented in Appendix E, and the total number of geotechnical tests undertaken is summarised below:

Geological Unit	Test	Quantity
Made Ground	Moisture content	3
	Atterberg limits	3
	BRE SD1 Suite D	4
Made Ground – Reworked Glacial Till	Moisture content	2
	Atterberg limits	2
	BRE SD1 Suite D	2

Table 4-A: Summary of geotechnical laboratory testing

4.3 Chemical Testing

- 4.3.1 The chemical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon fieldwork observations.
- 4.3.2 Chemical laboratory test results are presented in Appendix F, and the total number of chemical tests undertaken is summarised below:

Geological Unit	Testing Suite	Quantity
Topsoil	ST Basic classification suite (Metals, inorganics, PAH, banded TPH, asbestos)	1
Made Ground	ST Basic classification suite (Metals, inorganics, PAH, banded TPH, asbestos)	1
	Full WAC Suite (solid and 2-stage leachate)	1

Table 4-B: Summary of chemical laboratory testing

5 Ground Investigation Findings

5.1 Ground Model

5.1.1 Ground conditions encountered were relatively consistent across the site and were broadly in line with those anticipated from the desk study.

5.1.2 The tables below interpret the geological conditions at the site within the areas of the proposed FTP, car park extension and pavilion extension. Unless otherwise stated in subsequent interpretive report sections, these represent the adopted ground models.

Stratum	Brief description	Top depth range (m bgl)	Adopted model top depth (m bgl)	Thickness (m)	Water
Topsoil – Made Ground	Topsoil containing anthropogenic material.	G.L	G.L.	0.1 – 0.27	N/A
Made Ground	Variable clay and sands with gravels of anthropogenic materials and localised hydrocarbon odours/staining.	0.1 – 0.27	0.1	>3.81	Local seepage

Table 5-A: Ground Model within area of proposed FTP and car park extension

Stratum	Brief description	Top depth range (m bgl)	Adopted model top depth (m bgl)	Thickness (m)	Water
Topsoil – Made Ground	Topsoil containing anthropogenic material.	G.L	G.L.	0.2 – 0.35	N/A
Made Ground	Sand and gravel containing concrete and quartzite.	0.35	0.35	0.15	N/A
Made Ground – Reworked Glacial Till	Soft to firm slightly gravelly clay.	0.45 - 0.5	0.5	2.0 – 2.05	N/A
Suspected Glacial Till (cohesive)	Firm slightly gravelly clay.	2.5	2.5	1.5	N/A
Suspected Glacial Till (granular)	Medium dense slightly gravelly silty sand	2.5 – 4.0	4.0	>2.45	Seepage at 4.0m

Table 5-B: Ground Model within area of proposed FTP

5.1.3 Further detail about the ground conditions encountered is provided in the relevant sub-sections below.

5.2 Topsoil

5.2.1 Topsoil was encountered in all exploratory holes between 0.1m and 0.35m in thickness. Typically, the Topsoil was observed as a Made Ground comprising of a brown clay and sand with localised gravels of brick, concrete and quartzite. Frequent rootlets were observed throughout the Topsoil.

5.2.2 Within WLS05 (area of proposed pavilion extension) a 0.25m thick subsoil comprising a brown mottled orangish brown slightly sandy clay with rootlets was observed.

5.2.3 A typical photograph of Topsoil deposits encountered is presented below.



Figure 5-A: Topsoil encountered in HP03

5.3 Made Ground

- 5.3.1 Made Ground extended beyond all depths of excavation within the areas of the proposed FTP and car park extension (>3.91m bgl). Within the area of the proposed pavilion extension Made Ground was limited locally to a thickness of 0.15m.
- 5.3.2 The Made Ground was observed as a brown to grey mixture of clays, sands and gravels containing brick, concrete ash, wood fragments, plastic, ceramics, glass, metal and quartzite. Locally visual and olfactory evidence of hydrocarbons were also present.
- 5.3.3 Within HP05 (north of proposed FTP) the Made Ground was observed as a dark reddish brown clinker gravel between depths of 0.3m and 0.95m bgl.
- 5.3.4 A typical photograph of the Made Ground encountered is presented below.



Figure 5-B: Made Ground encountered in HP01

5.4 Made Ground – Reworked Glacial Till

- 5.4.1 Made Ground – Reworked Glacial Till was observed beneath the Topsoil and/or Made Ground local to the proposed pavilion extension (WLS05 and WLS06).
- 5.4.2 The Reworked Glacial Till was observed as a soft to firm light brown mottled orangish brown slightly gravelly clay with gravels of sandstone and siltstone present.
- 5.4.3 The Reworked Glacial Till extended to a depth of 2.5m bgl.
- 5.4.4 A photograph of the Reworked Glacial Till encountered is presented below.



Figure 5-C: Made Ground – Reworked Glacial Till encountered within WLS06 between a depth of 1-2m bgl.

5.5 Suspected Glacial Till

- 5.5.1 Beneath a depth of 2.5m bgl within the area of the proposed pavilion extension (WLS05 and WLS06) it is unclear whether deposits are of natural or reworked origin.
- 5.5.2 If of natural origin the deposits are unlikely to represent Devensian Till and as such have been referred to as a 'Glacial Till' for this reason.
- 5.5.3 The Suspected Glacial Till was observed initially as a firm brown slightly gravelly silty clay with gravels of sandstone and siltstone between a depth of 2.5m and 4.0m bgl in WLS05. Beneath the clay, the Suspected Glacial Till was observed as a medium dense becoming dense brown slightly gravelly silty fine sand with gravels of sandstone and siltstone. Within WLS06, the Suspected Glacial Till was observed as granular beneath the Made Ground (Reworked Deposits) above.
- 5.5.4 A photograph of the Suspected Glacial Till encountered is presented below.



Figure 5-D: Suspected Glacial Till encountered in WLS06.

5.6 Groundwater

- 5.6.1 Groundwater was not observed in any of the exploratory holes during the fieldworks, with the exception for a perched water seepage within HP02 (area of proposed car park extension) and WS05 (area of proposed pavilion extension) at depths of 0.65m and 4.0m bgl, respectively. The maximum depth achieved during the investigation was 5.45m bgl.

- 5.6.2 Groundwater levels are expected to vary seasonally and in response to recent weather conditions. Long term monitoring will provide a reasonable quantification of such variation.

5.7 Evidence of Possible Contamination

- 5.7.1 During the ground investigation works both visual and olfactory evidence of contamination was noted associated to the historic landfill on site. This typically comprised of the anthropogenic materials discussed within Section 5.3, but also included evidence of hydrocarbons, as detailed in Table 5-C, below.

Exploratory Location	Strata	Depth (m bgl)	Comment
WLS01	Made Ground	0.35 – 1.0	Slight hydrocarbon odour noted.
WLS02		2.0 – 2.4	Hydrocarbon staining noted.
WLS04		1.0 – 1.4	Strong hydrocarbon odour noted.

Table 5-C: Summary of hydrocarbon contamination observed.

5.8 Obstructions and Instability

- 5.8.1 The table below summarises the obstructions and instability encountered that affected the progress of the investigation works.

Strata / Area	Depth range (m bgl)	Issue	Description
Made Ground	0.6 – 3.91	Obstructions	Local ground obstructions (assumed cobbles/boulders). In HP06 obstruction due to land drain.

Table 5-D: Summary of obstructions and instability encountered during the investigation works.

6 Chemical Assessment

6.1 Topsoil suitability

- 6.1.1 A composite sample of the Topsoil was obtained and tested for the sole purpose of assessing the suitability of such soils for either reuse onsite within the existing playing fields or offsite, potentially within a residential development. As such generic screening values have been adopted based upon a 'residential with home grown produce' as a precaution.
- 6.1.2 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a 'trigger' to an assessor that soil concentrations above these limits might present an unacceptable risk. Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix G, along with the order of preference where multiple GAC sources are available.
- 6.1.3 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.
- 6.1.4 A table analysing the test data is presented in Appendix G, and the following table summarises the outcome of the analysis.

Receptor group	CLEA model	Inorganic contaminants	Organic contaminants
Residential users (child)	Residential	No exceedances	No exceedances

Table 6-A: Summary of chemical analysis

- 6.1.5 Based on the above, the testing indicates that the Topsoil in-situ would be chemically suitable for reuse onsite, or offsite within a residential development.
- 6.1.6 In addition, no asbestos was detected within the reworked Topsoil sample analysed and no suspected asbestos containing materials were observed during the site works.

6.2 Waste disposal

- 6.2.1 Sampling has been undertaken to characterise the in-situ soils encountered on site for the potential disposal to landfill. The classification of soils for disposal to landfill is undertaken in accordance with WM3 (v1.2GB), and a Waste Acceptance Criteria assessment (WAC) undertaken in accordance with the limits in Annex II of the Landfill Directive (Directive 1999/31/EC).
- 6.2.2 A single composite sample of the Made Ground was obtained using soils from each exploratory hole, referenced as WAC01.
- 6.2.3 The assessment sheets are enclosed within Appendix H, and a summary of the findings is presented in the table below.

Potential waste population	Hazardous classification (LoW code)	Landfill classification
Topsoil	Non-Hazardous	Topsoil is typically unsuitable for disposal to inert landfill sites due to high organic carbon content.
Made Ground (WAC01)	Non-Hazardous (17-05-04)	WAC testing indicates Made Ground may be accepted at an inert landfill site. However as waste materials were identified and the site is a historic landfill site, landfill operator may classify the Made Ground as hazardous waste.
Natural soils	Non-Hazardous (17-05-04)	Inert based on soils being of natural original and unaffected by artificial contamination.

Table 6-B: Summary of waste characterisation

6.3 Materials Management

- 6.3.1 In terms of the development, where reasonably practicable, landfill disposal should be minimised through the reuse of site-won materials on site, or off-site transfer of surplus soils to other development schemes or Soil Treatment Facilities. Early consideration of the site's overall material balance at the design stage is also critical in reducing the need for off-site disposal, limiting costs, and increasing the overall sustainability of the development.
- 6.3.2 Where Made Ground soils are to be reused onsite or materials transferred between sites, a Materials Management Plan (MMP) or Waste Exemption is recommended.
- 6.3.3 The process of an MMP allows soils that are suitable for reuse and have a certainty of use to not be considered a waste, and therefore not fall under the waste regulations. This scheme is self-regulated within the industry and is supported in principle by the Environment Agency.

7 Geotechnical Discussion

7.1 Scheme Overview

- 7.1.1 The following assessments are made on the investigatory data presented in the preceding sections of this report and are made with reference to the specific nature of the development. Should scheme proposals change then it is recommended that the validity of the conclusions of this report in relation to the revised scheme are checked.
- 7.1.2 The proposed development is for construction of a 91 x 55m 3G Floodlit Football Turf Pitch (FTP), including a pavilion extension, car park extension and a footpath/ramp to connect the new pitch to the car park. In view of the scheme proposals, the geotechnical elements considered in this report are outlined below:
- a) Floodlight, pavilion and pitch foundations
 - b) Drainage

7.2 Key Geotechnical Issues

- 7.2.1 In view of the ground conditions, the following list summarises the key geotechnical issues that may impact the scheme and will therefore need to be appropriately managed during the lifecycle of the project:
- Deep Made Ground
 - Soft Reworked Deposits
 - Trees and Vegetation

7.3 Deep Made Ground (Proposed FTP and Car Park)

- 7.3.1 Made Ground was recorded in all exploratory positions across the proposed FTP to depths in excess of 3.91m bgl. As such, floodlight foundations will require deepening into the underlying naturally derived deposits.
- 7.3.2 Given the thickness of the Made Ground, it is unlikely traditional 'pad' foundations can be adopted for floodlight foundation and instead an alternative foundation solution is required, such as piles or utilising ground improvement techniques.
- 7.3.3 Consideration will also need to be given to possible presence of inground obstructions within the Made Ground which may impact the progression of a piled foundation.
- 7.3.4 Furthermore, clinker like material within the Made Ground to the north of the proposed FTP (HP05) could potentially contain an element of slag. It is recommended that such deposits are sampled and tested to determine the composition and if they could potentially be volumetrically unstable.

7.4 Soft Reworked Deposits (Proposed Pavilion)

- 7.4.1 Within the area of the proposed pavilion extension the near surface Reworked Glacial Till was observed typically in a soft state and with low shear strength. In all instances, it is not recommended that foundations are sited within reworked soils unless the ground is suitably improved.
- 7.4.2 On the above, an alternative foundation solution is recommended for the proposed pavilion extension, such as piles or ground improvement.

7.5 Trees and Vegetation

- 7.5.1 There are several trees within close proximity to the north and east of the proposed FTP and to the west of the proposed pavilion extension area, which may impact upon the foundation design depth. It is recommended that a suitably qualified arboriculturist is appointed to undertake a survey such that building foundations can be designed appropriately. The survey should include the location, species, height (and mature height) and water demand of each tree and major vegetation.

7.6 Foundation Strategy

- 7.6.1 In view of the key geotechnical issues discussed above and anticipated loadings the following foundation types are considered suitable for the project;

- Spread foundations (for pavilion extension only)
- Raft (for pavilion extension only)
- Piles
- Ground improvement

7.7 Floodlight and Pavilion Foundations

- 7.7.1 Due to the depth of the Made Ground and Reworked Glacial Till present across the site, in addition to the presence of trees and vegetation a piled foundation would be necessary, or some form of ground improvement (such as dynamic compaction, rapid impact compaction or controlled modulus columns) in order to provide suitable support to both the proposed floodlighting and pavilion extension.
- 7.7.2 In the site's current condition the ground is unlikely to provide sufficient support to traditional foundation (i.e. pads for floodlighting, and strips/trench fill for the pavilion extension) without promoting excessive differential settlement or failure. Similarly, it is considered that a raft foundation (for the proposed pavilion extension only) would also differentially settle and lead to 'tilting' away from the existing pavilion building.
- 7.7.3 A driven/bored piled solution would transmit superstructural loads down through the Made Ground and into the underlying natural deposits and/or bedrock deposits at depth to obtain end bearing and shaft adhesion support.
- 7.7.4 It is recommended the type, design and installation of the piles are determined by a specialist piling contractor who has experience in pile installation in these or similar ground conditions and may be able to interpret the observed ground conditions in a different and potentially more beneficial manner. It is possible that if piled foundations are adopted, a further ground investigation comprising of deeper boreholes will be required on site to establish design parameters ahead of construction.
- 7.7.5 Alternatively, some ground improvement solutions to minimise settlement below shallow floodlight foundations could be viable for the development. The following solutions may be technically feasible for the site and are discussed in brief below: -
- Controlled Modulus Columns (CMC)
 - Rapid Impact Compaction (RIC)
 - Soil Mixing

- 7.7.6 Controlled Modulus Columns (CMC) provide a fast and economical alternative to piling. The technique installs low strength concrete columns (280mm to 500mm) in diameter, utilising a displacement tool attached to a rig. The concrete columns would enhance the bearing capacity beneath proposed floodlights, which would in turn reduce total/ differential settlement.
- 7.7.7 Rapid Impact Compaction (RIC) compacts granular/mixed soil surfaces through introduction of high frequency energy impacts. The RIC consists of a compaction foot which is placed on the ground and repeatedly struck by a 7-12 tonne hydraulic rammer, resulting in top-down compaction of the soil, thus enhancing bearing capacities, reducing settlement and allowing adoption of shallow pad foundations.
- 7.7.8 Soil mixing involves modifying the properties of weak soils to improve load carrying and permeability characteristics. The process uses a single or multi tool auger to break up the soil, which is then injected at low pressures with a specifically designed binder and mixed within the soils.
- 7.7.9 Should an alternative approach to foundation design be considered, it is recommended the advice of a specialist in the field of the above processes is sought ahead of design. It is also possible that further site investigation would be required to facilitate design of such specialist techniques.
- 7.7.10 The exact vertical and lateral extent of the landfill and suspected Glacial Till at depth beneath the area of the proposed pavilion extension is unclear. In order to understand the relationship between these deposits and whether any new foundations would influence these it will be necessary to excavate trench(es) to the southeast of the pavilion to confirm the lateral extent of the landfill, which may offer a more detailed geotechnical assessment for the pavilion to be undertaken.

7.8 Artificial Pitch, Car Park and Hardstanding Foundations

- 7.8.1 It is anticipated that the proposed FTP, car park and footpath/ramp will be located at or about existing ground levels, with the formation located Made Ground following removal of any Topsoil type material.
- 7.8.2 CBR value has been determined for the proposed FTP, car park and footpath/ramp using in-situ Dynamic Cone Penetrometer testing following the methodology defined by the National Highways Document CS229 Data for Pavement Assessment. The results are presented in Appendix D and the location of test positions are shown on Drawing 01.
- 7.8.3 Based on the anticipated founding depth and DCP results, a CBR design value of 5% can be adopted for soils that are likely to be representative of those which remain at or near formation levels for the proposed FTP, car park and footpath/ramp.
- 7.8.4 The Made Ground materials are anticipated to exhibit a degree of variability and compaction. It is, therefore, recommended that the formation level is trimmed and rolled following the requirements outlined in the Specification for Highway Works Series 600. Such a process will identify any soft/loose areas, which should either be excavated out and backfilled with a suitable well compacted material similar to those exposed in the sides of the resulting excavation, or large cobbles of a good quality stone rolled into the formation to stabilise the 'soft/loose' area.
- 7.8.5 Alternatively, consideration should be given to excavating, sorting and compacting the initial 1m depth of Made Ground to achieve consistent levels of compaction across the proposed FTP and car park extension, and minimising the potential effects of differential settlement, in addition to the use of a geosynthetic reinforcement.

- 7.8.6 In addition, increasing and homogenising the density of the Made Ground through ground improvement techniques such as rolling dynamic compaction (RDC) or permeation grouting/lime & cement stabilisation could be undertaken. These are notably expensive and would require specialist input at the feasibility stage.
- 7.8.7 The Made Ground soils are also considered frost susceptible, and this may override the CBR criteria for pavement foundation design purposes.
- 7.8.8 The silty nature of the Made Ground will also render them moisture susceptible with small increases in moisture content giving rise to a rapid loss of support to construction plant. It is therefore recommended that the sub-base is laid as soon as practicable following establishment of formation.

7.9 Drainage

- 7.9.1 Infiltration/permeability testing has been undertaken within shallow strata at the site following the principles of BRE 365: Soakaway Design (2016) in hand pits and BS EN ISO 22282 Geotechnical investigation and testing – Geohydraulic testing (2012) in boreholes to confirm permeability.
- 7.9.2 The Made Ground was generally recorded as impermeable with a permeability of 1.7×10^{-6} m/s recorded in one location (WS01) and no change in water level recorded in HP03.
- 7.9.3 Discharge of stormwater collected by the proposed development into Made Ground deposits are not considered amenable. Water freely/directly discharged into the Made Ground could cause collapse of air voids contained in these deposits, which promotes compaction of the soils around the soakaway causing depression of the general area around the soakaway as well as potentially affecting pipe runs leading to the soakaway. In addition, soakaways would promote leaching of contaminants within the Made Ground soil.
- 7.9.4 Infiltration testing was not undertaken within the suspected Glacial Till soils local to the proposed pavilion extension as it is anticipated the deposits would be largely impermeable given its cohesive nature at shallow depths and the silty nature of the deeper granular deposits. If soakaways are proposed as part of the pavilion extension, then it is recommended that further onsite infiltration testing is undertaken within the deeper granular deposits to confirm rates (if permeable).
- 7.9.5 No existing soakaway features were observed on site during ground investigation works; however, a full drainage survey was not undertaken.
- 7.9.6 As an alternative, it is possible that the FTP drainage could key into the existing surface water drainage system currently used by the existing pavilion building. If this is considered an option for the development a comprehensive drainage assessment will be required to determine the potential impact on the capacity of the existing systems, to identify the invert levels of existing features, and to confirm drainage gradients achievable across the proposed FTP area.

7.10 Aggressiveness Of The Ground To Buried Concrete

- 7.10.1 The aggressiveness of the ground with respect to buried concrete has been assessed in accordance with Building Research Establishment Special Digest 1: Concrete in Aggressive Ground Third Edition (2005).
- 7.10.2 The site is interpreted to be a brownfield site where pyrite is likely to be present.
- 7.10.3 The classification of the strata is tabulated below:

Stratum	Disturbed / Undisturbed	Design sulphate class	Aggressive chemical environment for concrete class
Made Ground	Disturbed	DS-5	AC-4s
Made Ground – Reworked	Disturbed	DS-1	AC-1s
Glacial Till	Undisturbed	DS-1	AC-1s

Table 7-A: Summary of the aggressiveness of the ground to buried concrete

- 7.10.4 It should be noted that where concrete is in contact with more than one soil type then the most onerous DS and ACEC classification should be adopted.

8 Recommendations for further works

- 8.1.1 If a piled foundation solution is adopted for the proposed floodlighting and pavilion extension, it is recommended this investigation is supplemented with further onsite deeper boreholes to assist with pile design.
- 8.1.2 As part of the investigation, a gas/vapour risk assessment should be undertaken, in order to determine the gas risk to end users of the site from the deep Made Ground within close proximity to the proposed pavilion extension.
- 8.1.3 If ground improvement (such as dynamic compaction, rapid impact compaction or controlled modulus columns) is utilised, potentially allowing adoption of shallow foundations, or lime/cement stabilisation is utilised for the FTP and/or pavilion extension specialist input at an early stage is recommended.
- 8.1.4 The exact vertical and lateral extent of the landfill and suspected Glacial Till at depth beneath the area of the proposed pavilion extension is unclear. In order to understand the relationship between these deposits and whether any new foundations would influence these it will be necessary to excavate trench(es) to the southeast of the pavilion to confirm the lateral extent of the landfill, which may offer a more detailed geotechnical assessment for the pavilion to be undertaken.

Appendix A Drawings



Key:
Exploratory Holes
[Hand Pit Symbol] Hand Pit
[Windowless Sampling Borehole Symbol] Windowless Sampling Borehole
[DCP Symbol] DCPs (CBR)
[Soakaway / Permeability Testing Symbol] Soakaway / Permeability Testing
Site Features
[Proposed Pitch Area Symbol] Proposed Pitch Area
[Site Boundary Symbol] Site Boundary
[Pavillion Extentsion Symbol] Pavillion Extentsion
[Car Park Extentsion Symbol] Car Park Extentsion

Notes
1) Base image provided by Google.
2) All drawn features are approximate.
Contains OS data © Crown copyright [and database right] [2023]
Map data © 2023 Google

A	Oct 2023	First issue
REV	DATE	COMMENT ON VARIATION

soiltechnics
environmental • geotechnical • building fabric

PROJECT
Top Park, Bury

TITLE
Exploratory Hole Location Plan

PROJECT No. STV6169	DRAWING 01	REVISION A
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Key:

Exploratory Holes

-  Hand Pit
-  Windowless Sampling Borehole
-  DCPs (CBR)
-  Soakaway / Permeability Testing

Site Features

-  Proposed Pitch Area
-  Site Boundary
-  Pavillion Extenssion
-  Car Park Extenssion

Notes

- 1) Base image provided by Google.
- 2) All drawn features are approximate.

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A	Oct 2023	First issue
REV	DATE	COMMENT ON VARIATION

soiltechnics
environmental • geotechnical • building fabric

PROJECT Top Park, Bury		
TITLE Exploratory Hole Location Plan		
PROJECT No. STV6169	DRAWING 02	REVISION A

Appendix B Consultants Coal Mining Report

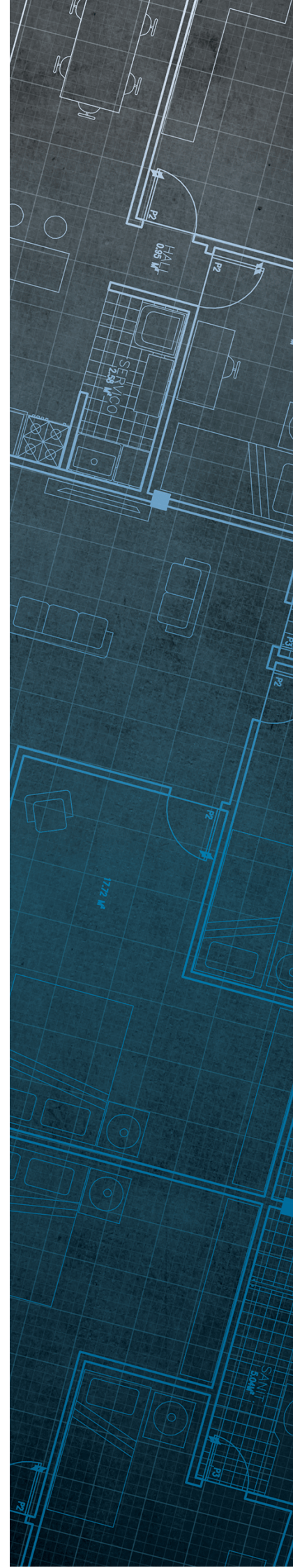


The Coal
Authority

Consultants Coal Mining Report

Top Park
Bolton Road West
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BL0 9PE

Date of enquiry:	11 September 2023
Date enquiry received:	11 September 2023
Issue date:	11 September 2023
Our reference:	51003377392001
Your reference:	STV6169



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

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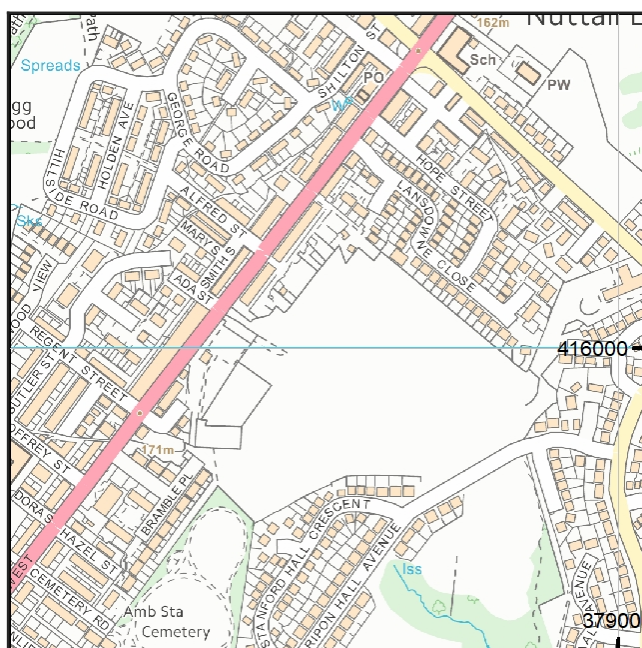
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

None available.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

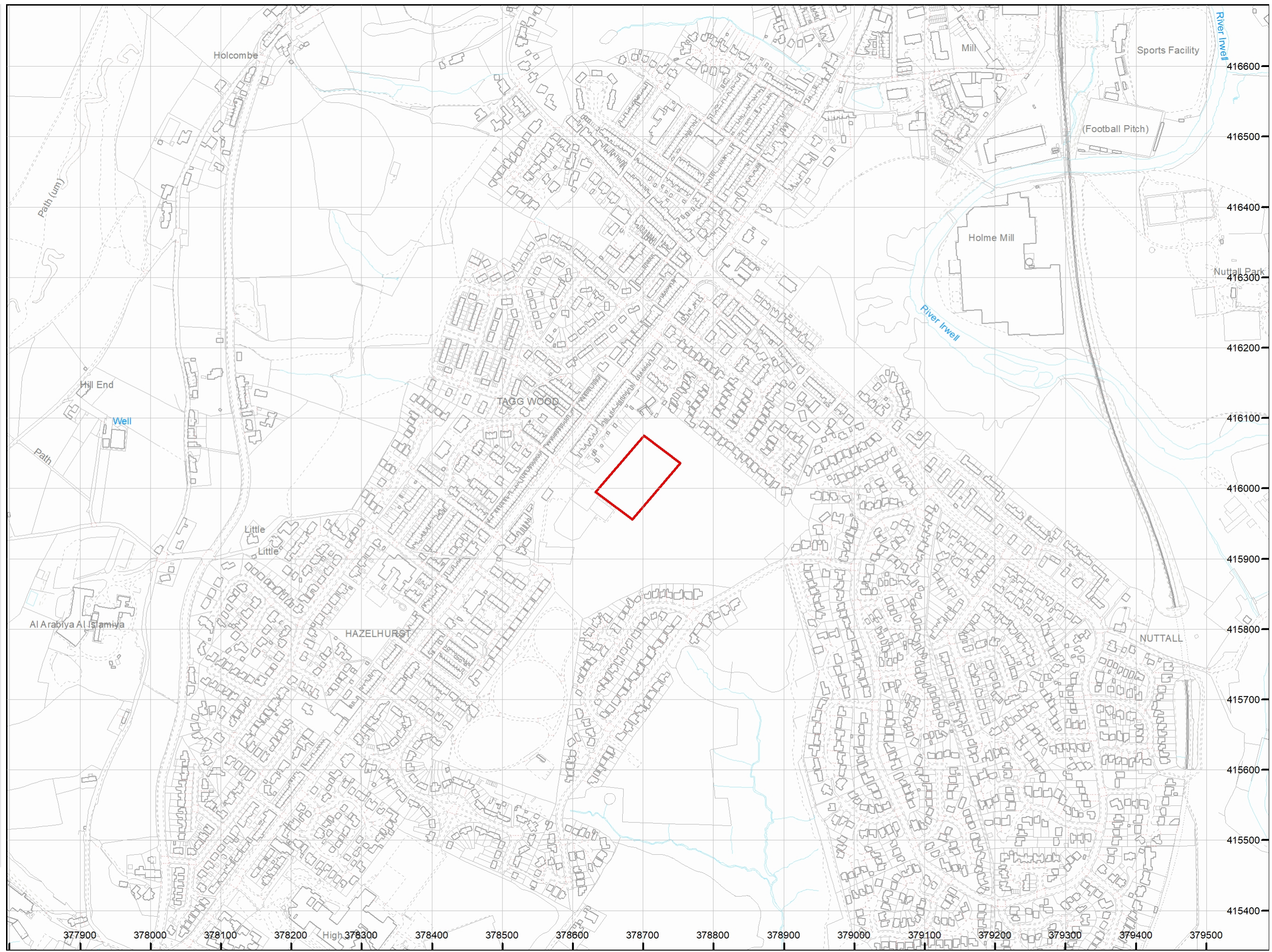
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown 

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www.groundstability.com



Appendix C Exploratory Hole Logs

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Chalk
					Concrete
					Peat

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
			B Bulk disturbed sample
			ES Environmental sample
Result	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	Type	W Water sample
			U Undisturbed thick-walled sample 100mm diameter sampler
			UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

 Water level observed after specified delay in drilling

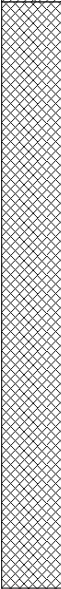
 Water strike

Density

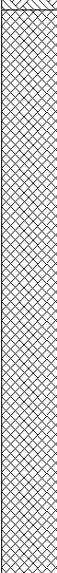
Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and plastic. (TOPSOIL - MADE GROUND)	0.27				PP 0.35	PP=29	0.30	0.40	D
Soft to firm dark brown slightly sandy slightly gravelly CLAY with low cobble content of brick. Gravel is fine to coarse angular to subangular brick, sandstone, plastic, concrete, glass and ceramics. (MADE GROUND)									
					PP 0.60	PP=25	0.50	0.60	D
...at 0.75m depth, 35mm diameter root.	1.00				PP 0.90	PP=25	0.80	0.90	D
TRIAL PIT TERMINATED AT 1.00m									

Notes Trial pit terminated due to cobble obstruction. Trial pit sides remained upright and stable upon completion. Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP01

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and plastic. (TOPSOIL - MADE GROUND)	0.17				PP 0.30	PP=21	0.40	0.50	D
Soft to firm slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, sandstone, wood fragments and glass. (MADE GROUND)									
	1.10				PP 0.60	PP=21	0.60	0.70	D
					PP 0.90	PP=17	0.90	1.00	D
TRIAL PIT TERMINATED AT 1.10m									

Notes Trial pit sides remained upright and stable upon completion. Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations Seepage observed from 0.65m depth.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP02

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft dark brown slightly sandy slightly gravelly silty CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and plastic. (TOPSOIL - MADE GROUND)	0.20				PP 0.30	PP=17			
Soft to firm slightly sandy slightly gravelly CLAY with medium cobble content of sandstone and brick. Gravel is fine to coarse angular to subrounded brick, sandstone, wood fragments and glass. (MADE GROUND)									
	1.10				PP 0.50	PP=13	0.50	0.60	D
					PP 0.70	PP=17	0.70	0.80	D
TRIAL PIT TERMINATED AT 1.10m									

Notes Trial pit terminated due to cobble obstruction. Infiltration testing performed. Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP03

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.20						0.50	0.60	D
Soft dark brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse angular to subangular sandstone, brick, plastic, wood fragments and glass. (MADE GROUND)									
TRIAL PIT TERMINATED AT 1.20m	1.20						0.80	0.90	D

Notes Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP04

Top Park, Bury
STV6169

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)									
Light brown sandy fine to medium angular to subangular GRAVEL of limestone. (MADE GROUND)	0.20								
Dark reddish brown fine to medium angular to subangular GRAVEL of clinker. (MADE GROUND)	0.30								
							0.50	0.70	B
Soft dark grey slightly gravelly CLAY. Gravel is medium to coarse angular to subangular brick, plastic and metal. (MADE GROUND)	0.95								
							1.10		D
TRIAL PIT TERMINATED AT 1.20m	1.20								

Notes Trial pit sides remained upright and stable upon completion. Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP05

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.20						0.30	0.50	B
Light brown sandy fine to medium angular to subangular GRAVEL of limestone with low cobble content of metal, plastic and brick. (MADE GROUND)									
TRIAL PIT TERMINATED AT 0.60m	0.60								

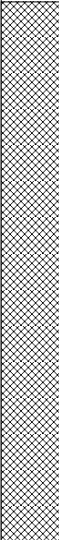
Notes Trial pit terminated due to land drain obstruction. Pit sides remained upright upon completion.	Title Trial pit record	Dimensions (w x l) 0.30m x 0.30m	Date(s) 18/09/2023
	Method Hand tools	Logged by CB	Sheet number Sheet 1 of 1
Groundwater observations No groundwater encountered.	Level (m OD) -	Compiled by JC	Revision A
	Co-ordinates -	Checked by JP	HP06

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.10										0.20		ES
	Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded glass, plastic, brick, sandstone and siltstone. (MADE GROUND)	0.35										0.50		ES
	Dark brown slightly clayey fine to coarse SAND and GRAVEL. Gravel is fine to coarse angular to subrounded glass, plastic, ceramics, concrete and ash. Slight hydrocarbon odour noted. (MADE GROUND)	1.00				S 1.00 - 1.45	(0) 3		DRY			1.25		ES
	Very loose to loose brown slightly sandy clayey fine to coarse GRAVEL. Gravel is fine to coarse angular to subangular brick, glass, plastic and concrete. (MADE GROUND)													
	BOREHOLE TERMINATED AT 3.00m	3.00				S 2.00 - 2.45	(5) 6		DRY					
						S 3.00 - 3.00	(25/0mm)		DRY					

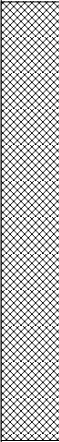
Notes Borehole terminated due to obstruction. Infiltration testing performed.	Title Dynamic Windowless Sampling record			Date(s) 19/09/2023	
	Recovery details		Method Windowless sampler	Logged by OH	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
	0.00 - 1.00 1.00 - 2.00 2.00 - 3.00	80 30 50	Level (m OD) - -	Compiled by JC	Revision A
Groundwater observations No groundwater encountered.			Co-ordinates -	Checked by JP	WLS01

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.10												
	Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular wood fragments, concrete, plastic, ceramics and ash. (MADE GROUND)	0.30										0.20		ES
	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, ash, concrete and wood fragments. (MADE GROUND)	1.00				S 1.00 - 1.45	(9) 10		DRY			0.90		ES
	Loose dark grey slightly gravelly clayey coarse SAND. Gravel is fine to coarse angular to subangular concrete, plastic and wood fragments. Hydrocarbon staining noted. (MADE GROUND)	2.00				S 2.00 - 2.45	(7) 6		DRY			2.30		ES
	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, ash, concrete and wood fragments. (MADE GROUND)	2.40												
	NO RECOVERY.	3.00				S 3.00 - 3.45	(0)		DRY			2.90		ES
	BOREHOLE TERMINATED AT 3.91m	3.91				S 3.90 - 3.91	(25/0mm) 50/10mm		DRY					

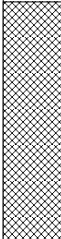
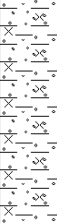
Notes Borehole terminated due to obstruction. Infiltration testing performed.	Title			Date(s)	
	Dynamic Windowless Sampling record			19/09/2023	
	Recovery details		Method	Logged by	Sheet number
	Range (m)	Recovery (%)			
Groundwater observations No groundwater encountered.	0.00 - 1.00	100	Windowless sampler	OH	Sheet 1 of 1
	1.00 - 2.00	0			
	2.00 - 3.00	80			
	3.00 - 3.91	0	Level (m OD)	Compiled by	Revision
			-	JC	A
			Co-ordinates	Checked by	WLS02
			-	JP	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.25												
	Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, ash, concrete and wood fragments. (MADE GROUND)											1.00		ES
	Greyish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular brick and plastic. (MADE GROUND)	2.00										2.10		ES
	Firm greyish brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded concrete, wood, ash, brick and glass. (MADE GROUND)	2.25										2.50		ES
	NO RECOVERY.	3.00												
	BOREHOLE TERMINATED AT 3.60m	3.60												

Notes Borehole terminated due to obstruction.	Title Dynamic Windowless Sampling record			Date(s) 19/09/2023	
	Recovery details		Method Windowless sampler	Logged by OH	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
Groundwater observations No groundwater encountered.	0.00 - 1.00	100	Level (m OD)	Compiled by JC	Revision A
	1.00 - 2.00	80			
	2.00 - 3.00	50	Co-ordinates	Checked by JP	WLS03
	3.00 - 3.60	0			

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy CLAY with frequent rootlets. (TOPSOIL - MADE GROUND)	0.15												
	Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to subangular brick, concrete and ash. (MADE GROUND)	0.50										0.30		ES
	Firm brown slightly sandy slightly gravelly CLAY with occasional cobbles of brick and occasional gravel sized pockets of dark brown coarse sand. Gravel is fine to coarse angular to subangular concrete, brick, wood fragments and ceramics. (MADE GROUND)	1.00										0.70		ES
	Medium dense black slightly clayey coarse SAND and GRAVEL. Gravel is fine to medium angular to subrounded concrete, plastic, metal, sandstone and siltstone. Strong hydrocarbon odour noted (MADE GROUND)	1.40				S 1.00 - 1.45	(18) 18		DRY			1.20		ES
	Firm brown slightly sandy slightly gravelly CLAY with occasional cobbles of brick and gravel sized pockets of dark brown coarse sand. Gravel is fine to coarse angular to subangular concrete, brick, wood fragments and ceramics. (MADE GROUND)	2.90				S 2.00 - 2.45	(10) 18		DRY			2.00		ES
	BOREHOLE TERMINATED AT 2.90m					S 2.90 - 2.90	(25/0mm) 50/0mm		DRY					

Notes Borehole terminated due to obstruction.	Title Dynamic Windowless Sampling record			Date(s) 19/09/2023	
	Recovery details		Method Windowless sampler	Logged by OH	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
	0.00 - 1.00 1.00 - 2.00 2.00 - 2.90	100 30 10	Level (m OD) - -	Compiled by JC	Revision A
Groundwater observations No groundwater encountered.			Co-ordinates -	Checked by JP	WLS04

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto slightly clayey fine SAND with frequent rootlets. (TOPSOIL - MADE GROUND)	0.20										0.10		ES
	Firm brown mottled orangish brown slightly sandy CLAY with frequent rootlets. (SUBSOIL - MADE GROUND)	0.45										0.30		D
	Firm light brown mottled orangish brown slightly gravelly CLAY. Gravel is fine to medium angular to subrounded sandstone and siltstone. (MADE GROUND - REWORKED GLACIAL TILL)					S 1.00 - 1.45	(1) 2		DRY			1.00		D
	...between 1.5m and 2.5m depth, soft.					S 2.00 - 2.45	(0) 11		DRY	PP 2.00	PP=21	2.00		D
	Firm brown slightly gravelly silty CLAY. Gravel is fine to coarse angular to subrounded sandstone and siltstone. (SUSPECTED GLACIAL TILL)	2.50				S 3.00 - 3.45	(6) 13		DRY	PP 3.00	PP=79	3.00		D
	Medium dense becoming dense brown slightly gravelly silty fine SAND. Gravel is fine to coarse angular to subrounded sandstone and siltstone. (SUSPECTED GLACIAL TILL)	4.00				S 4.00 - 4.45	(10) 24		4.00			4.50		D
						S 5.00 - 5.45	(13) 39							
	BOREHOLE TERMINATED AT 5.45m	5.45												

Notes	Title			Date(s)	
	Dynamic Windowless Sampling record			19/09/2023	
	Recovery details		Method	Logged by	Sheet number
	Range (m)	Recovery (%)		OH	Sheet 1 of 1
Groundwater observations Seepage observed at 4.0m depth.	0.00 - 1.00	100	Level (m OD)	Compiled by JC	Revision A
	1.00 - 2.00	100			
	2.00 - 3.00	100			
	3.00 - 4.00	100			
	4.00 - 5.00	50	Co-ordinates	Checked by JP	WLS05

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly clayey slightly gravelly fine to coarse SAND with frequent rootlets. Gravel is fine to coarse angular to subrounded brick, concrete, sandstone and siltstone. (TOPSOIL - MADE GROUND) <i>...at 0.3m depth, cobbles of brick fragments.</i>	0.35										0.20		ES
	Dark brown slightly clayey fine to coarse SAND and GRAVEL. Gravel is fine to coarse angular to subrounded concrete, sandstone and siltstone. (MADE GROUND)	0.50										0.45		ES
	Firm grey mottled orangish brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded sandstone and siltstone. (MADE GROUND - REWORKED GLACIAL TILL) <i>...from 0.7m depth, becoming orangish brown mottled grey.</i>					S 1.00 - 1.45	(0) 4		DRY					
						S 2.00 - 2.45	(7) 21		DRY			2.00		D
	Medium dense brown slightly gravelly silty fine SAND. Gravel is fine to coarse angular to subrounded sandstone and siltstone. (SUSPECTED GLACIAL TILL)	2.50				S 3.00 - 3.45	(5) 16		DRY			3.50		D
						S 4.00 - 4.45	(6) 25		DRY			4.00		D
	BOREHOLE TERMINATED AT 4.45m	4.45												

Notes	Title			Date(s)	
	Dynamic Windowless Sampling record			19/09/2023	
	Recovery details		Method	Logged by	Sheet number
Groundwater observations No groundwater encountered.	Range (m)	Recovery (%)	Windowless sampler	OH	Sheet 1 of 1
	0.00 - 1.00	100	Level (m OD)	Compiled by	Revision
	1.00 - 2.00	100	-	JC	A
	3.00 - 4.00	100	Co-ordinates	Checked by	WLS06
	4.00 - 4.45	100	-	JP	

Appendix D In Situ Test Results

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP01	152	1
DCP01	205	2
DCP01	221	3
DCP01	234	4
DCP01	252	5
DCP01	274	6
DCP01	308	7
DCP01	312	8
DCP01	321	9
DCP01	330	10
DCP01	340	11
DCP01	352	12
DCP01	356	13
DCP01	370	14
DCP01	379	15
DCP01	385	16
DCP01	396	17
DCP01	402	18
DCP01	418	19
DCP01	423	20
DCP01	440	21
DCP01	452	22
DCP01	463	23
DCP01	474	24
DCP01	486	25
DCP01	500	26
DCP01	510	27
DCP01	522	28
DCP01	540	29
DCP01	565	30
DCP01	596	31
DCP01	624	32
DCP01	660	33
DCP01	722	34
DCP01	774	35
DCP01	832	36
DCP01	876	37
DCP02	105	1
DCP02	128	2
DCP02	132	3
DCP02	163	4
DCP02	176	5
DCP02	190	6

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP02	200	7
DCP02	236	8
DCP02	259	9
DCP02	300	10
DCP02	359	11
DCP02	366	12
DCP02	395	13
DCP02	401	14
DCP02	411	15
DCP02	423	16
DCP02	436	17
DCP02	452	18
DCP02	486	19
DCP02	494	20
DCP02	502	21
DCP02	520	22
DCP02	530	23
DCP02	542	24
DCP02	561	25
DCP02	575	26
DCP02	585	27
DCP02	603	28
DCP02	612	29
DCP02	616	30
DCP02	652	35
DCP02	695	36
DCP02	764	37
DCP02	792	38
DCP02	834	39
DCP03	102	1
DCP03	159	2
DCP03	178	3
DCP03	197	4
DCP03	216	5
DCP03	232	6
DCP03	249	7
DCP03	267	8
DCP03	279	9
DCP03	297	10
DCP03	317	11
DCP03	341	12
DCP03	357	13
DCP03	382	14

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP03	393	15
DCP03	408	16
DCP03	427	19
DCP03	443	24
DCP03	459	25
DCP03	507	26
DCP03	522	27
DCP03	537	28
DCP03	570	29
DCP03	593	30
DCP03	629	31
DCP03	672	32
DCP03	769	33
DCP03	799	34
DCP03	827	35
DCP03	844	36
DCP04	119	1
DCP04	214	2
DCP04	251	3
DCP04	273	4
DCP04	305	5
DCP04	330	6
DCP04	339	7
DCP04	351	8
DCP04	369	11
DCP04	395	12
DCP04	423	17
DCP04	469	18
DCP04	500	21
DCP04	529	22
DCP04	565	23
DCP04	570	24
DCP04	579	25
DCP04	585	26
DCP04	599	29
DCP04	611	34
DCP04	630	35
DCP04	670	36
DCP04	704	37
DCP04	737	38
DCP04	779	39
DCP04	805	40
DCP04	843	41

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP04	865	42
DCP05	95	1
DCP05	130	2
DCP05	173	3
DCP05	188	4
DCP05	195	5
DCP05	220	6
DCP05	239	7
DCP05	250	8
DCP05	262	9
DCP05	291	10
DCP05	318	11
DCP05	335	12
DCP05	356	13
DCP05	370	16
DCP05	391	17
DCP05	418	18
DCP05	448	23
DCP05	460	24
DCP05	510	27
DCP05	572	28
DCP05	602	29
DCP05	606	30
DCP05	631	35
DCP05	650	36
DCP05	696	37
DCP05	741	38
DCP05	771	39
DCP05	776	40
DCP05	795	41
DCP05	828	42
DCP05	841	43
DCP05	850	44
DCP05	876	45
DCP06	60	1
DCP06	138	2
DCP06	186	3
DCP06	217	4
DCP06	246	5
DCP06	285	6
DCP06	312	7
DCP06	346	8
DCP06	376	9

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP06	425	10
DCP06	466	11
DCP06	521	12
DCP06	566	13
DCP06	635	14
DCP06	660	15
DCP06	681	16
DCP06	696	17
DCP06	728	18
DCP06	740	19
DCP06	752	20
DCP06	785	21
DCP06	826	22
DCP06	830	23
DCP06	835	24
DCP06	842	25
DCP06	866	26
DCP06	874	27
DCP07	106	1
DCP07	133	2
DCP07	145	3
DCP07	233	4
DCP07	300	5
DCP07	350	6
DCP07	400	7
DCP07	418	8
DCP07	430	9
DCP07	438	10
DCP07	458	13
DCP07	516	14
DCP07	540	15
DCP07	554	16
DCP07	569	17
DCP07	580	18
DCP07	604	19
DCP07	628	20
DCP07	638	21
DCP07	654	22
DCP07	657	25
DCP07	663	30
DCP07	698	31
DCP07	716	32
DCP07	728	33

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP07	750	36
DCP07	764	37
DCP07	783	38
DCP07	810	39
DCP07	838	40
DCP07	869	41
DCP08	131	1
DCP08	169	2
DCP08	263	3
DCP08	361	4
DCP08	395	5
DCP08	447	6
DCP08	451	7
DCP08	485	8
DCP08	496	9
DCP08	505	12
DCP08	517	13
DCP08	553	16
DCP08	575	17
DCP08	605	18
DCP08	660	19
DCP08	685	20
DCP08	719	21
DCP08	769	22
DCP08	786	23
DCP08	829	24
DCP08	830	25
DCP08	847	26
DCP08	881	27
DCP09	150	1
DCP09	163	2
DCP09	284	3
DCP09	420	4
DCP09	433	5
DCP09	450	6
DCP09	468	7
DCP09	482	8
DCP09	490	9
DCP09	506	10
DCP09	523	11
DCP09	530	12
DCP09	538	13
DCP09	597	14

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP09	619	17
DCP09	629	18
DCP09	638	19
DCP09	650	20
DCP09	653	21
DCP09	674	22
DCP09	683	23
DCP09	698	24
DCP09	720	25
DCP09	729	26
DCP09	742	27
DCP09	767	28
DCP09	788	29
DCP09	800	30
DCP09	813	31
DCP09	828	32
DCP09	845	33
DCP09	850	34
DCP09	860	35
DCP10A	123	1
DCP10A	161	2
DCP10A	228	3
DCP10A	250	4
DCP10A	270	5
DCP10A	294	8
DCP10A	350	9
DCP10A	388	10
DCP10A	454	11
DCP10A	526	12
DCP10A	557	13
DCP10A	574	14
DCP10A	610	17
DCP10A	623	18
DCP10A	636	24
DCP10B	103	1
DCP10B	137	2
DCP10B	192	3
DCP10B	280	4
DCP10B	354	5
DCP10B	373	6
DCP10B	414	7
DCP10B	460	8
DCP10B	520	9

Dynamic Cone Penetrometer (DCP) raw data

Location	Penetration below ground level (mm)	Cumulative blows
DCP10B	564	10
DCP10B	587	11
DCP10B	612	14
DCP10B	642	19
DCP10B	654	20
DCP10B	683	21
DCP10B	718	22
DCP10B	724	23
DCP10B	737	24
DCP10B	742	25
DCP10B	758	28
DCP10B	763	33
DCP10B	787	34
DCP10B	794	35
DCP10B	803	36
DCP10B	817	37
DCP10B	842	38

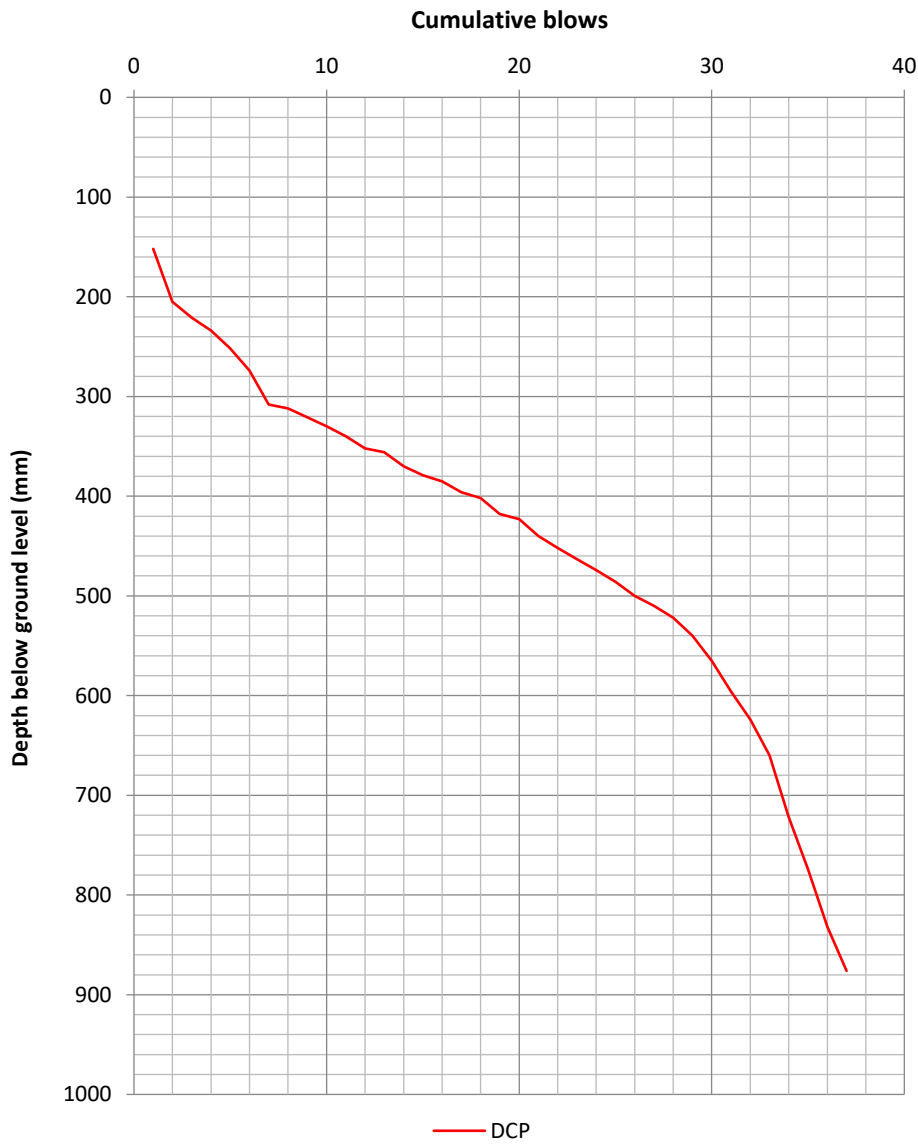
Dynamic Cone Penetrometer (DCP) summary

Location	Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
DCP01	1	11.8	170	150	320
DCP01	2	25.0	200	320	520
DCP01	3	6.3	340	520	860
DCP02	1	17.3	80	120	200
DCP02	2	8.5	200	200	400
DCP02	3	21.9	250	400	650
DCP02	4	5.7	170	650	820
DCP03	1	12.3	300	100	400
DCP03	2	49.1	50	400	450
DCP03	3	7.2	390	450	840
DCP04	1	7.4	230	120	350
DCP04	2	32.7	70	350	420
DCP04	3	12.8	150	420	570
DCP04	4	66.7	40	570	610
DCP04	5	8.0	240	610	850
DCP05	1	14.2	500	100	600
DCP05	2	15.5	250	600	850
DCP06	1	5.5	570	50	620
DCP06	2	12.8	230	620	850
DCP07	1	5.4	300	120	420
DCP07	2	15.2	230	420	650
DCP07	3	24.6	200	650	850
DCP08	1	6.1	380	120	500
DCP08	2	11.3	360	500	860
DCP09	1	2.6	270	150	420
DCP09	2	18.1	430	420	850
DCP10A	1	10.2	170	130	300
DCP10A	2	6.6	300	300	600
DCP10B	1	5.6	480	120	600
DCP10B	2	29.8	220	600	820

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP01	18/09/2023	0	60	CB

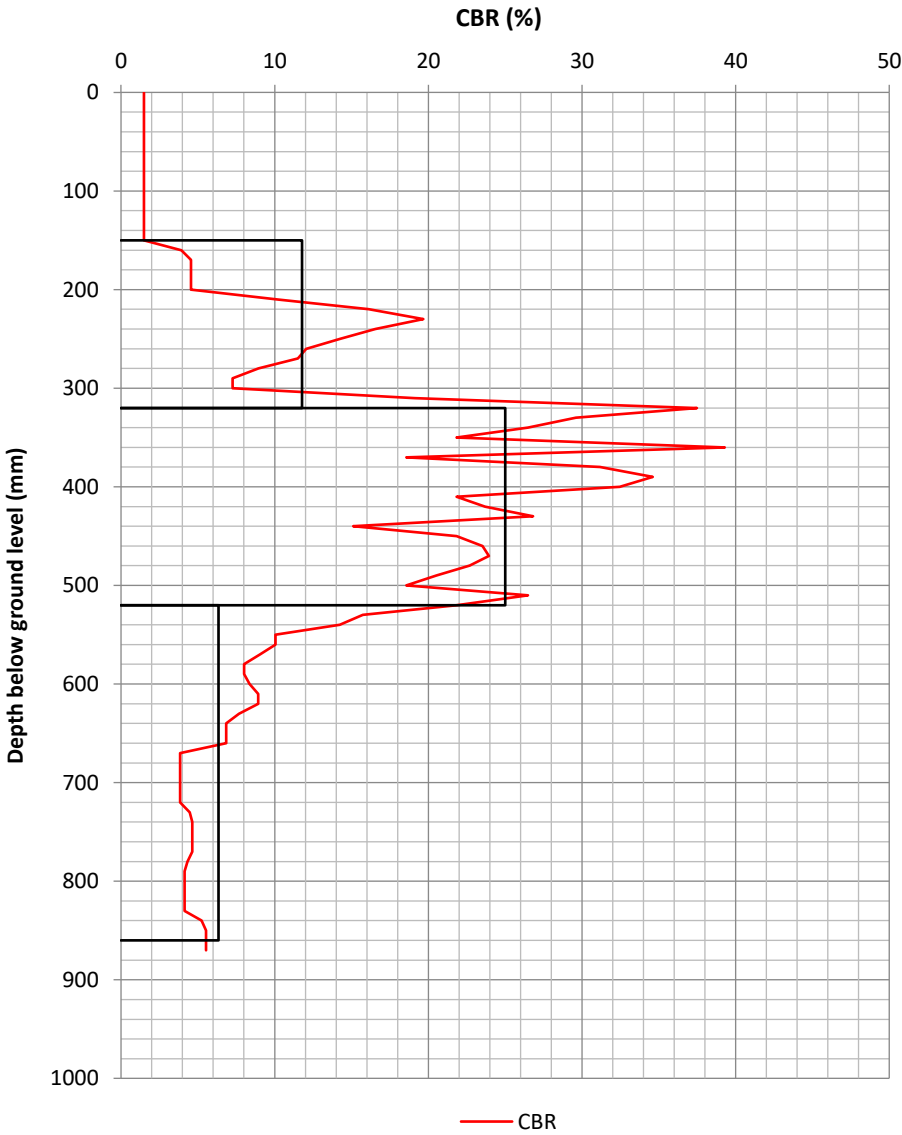
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

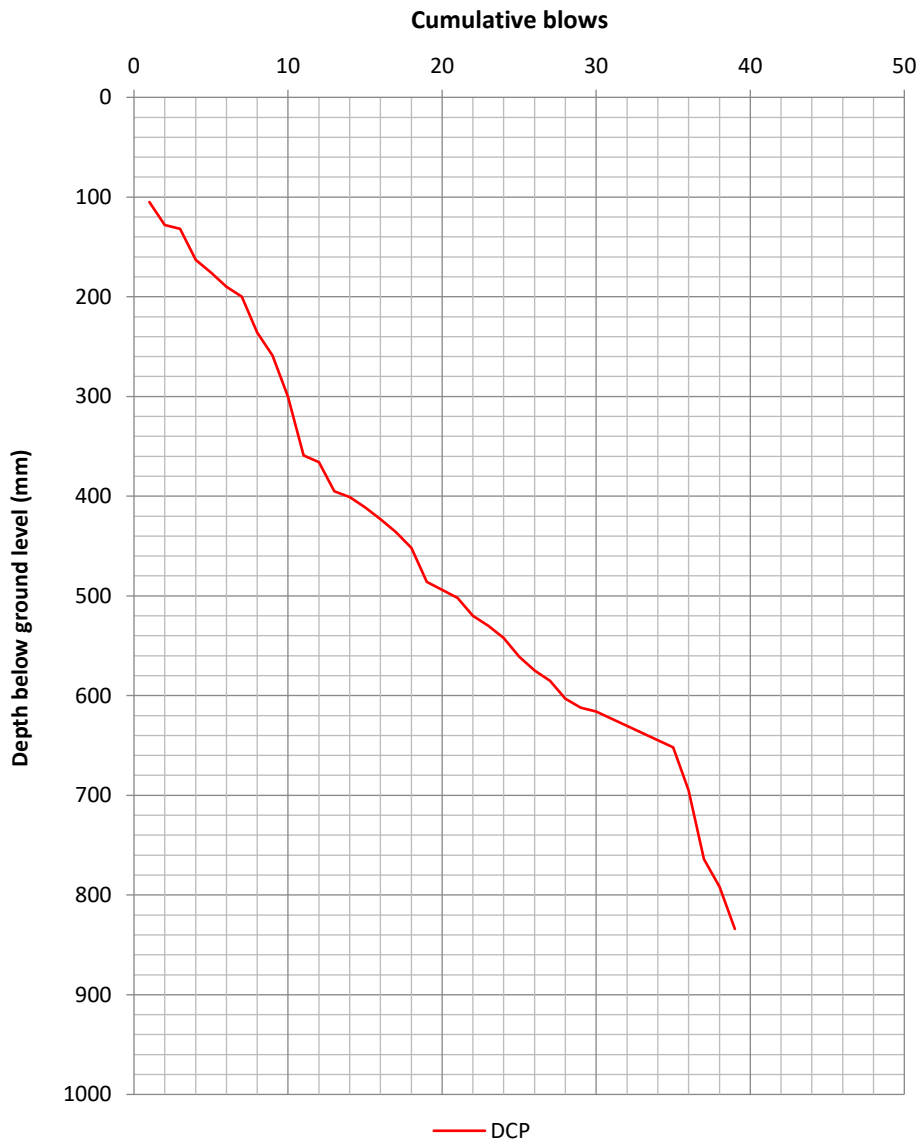
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	11.8	170	150	320
2	25.0	200	320	520
3	6.3	340	520	860

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP02	18/09/2023	0	70	CB

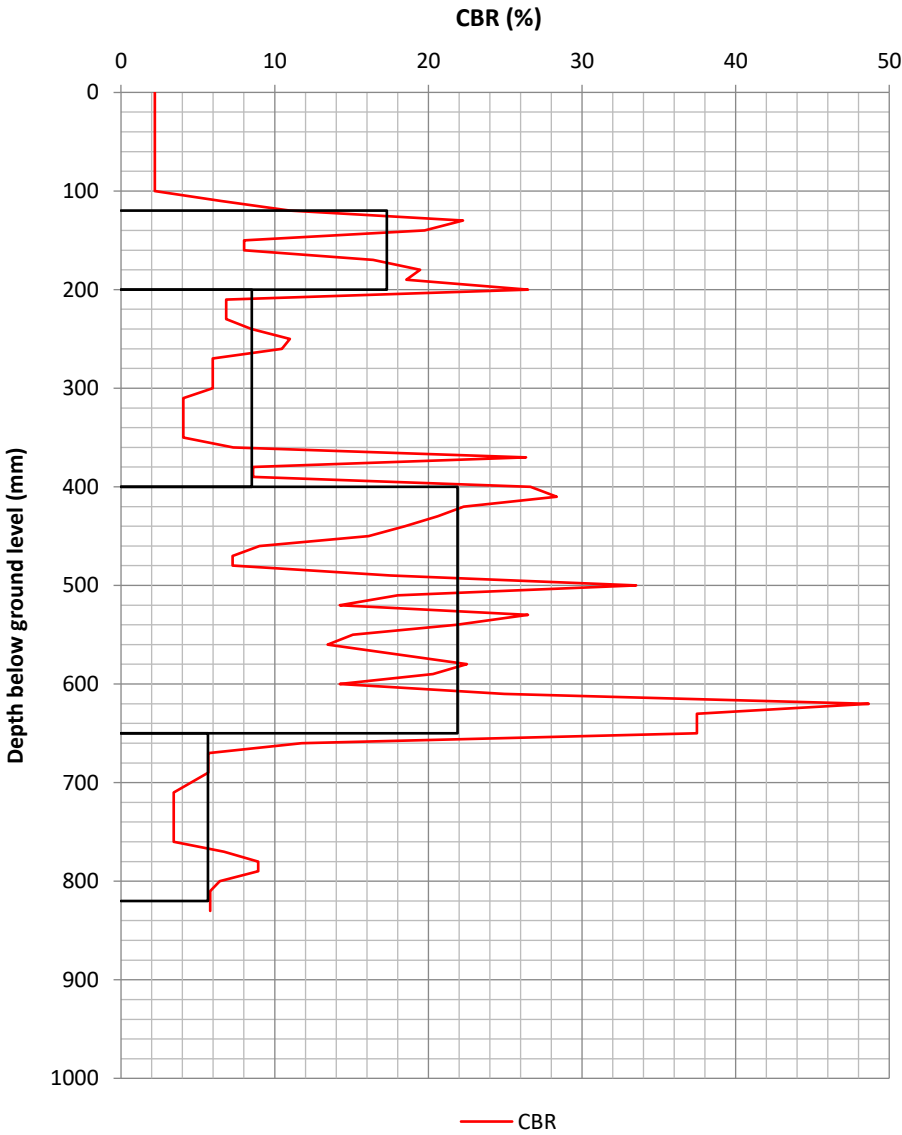
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

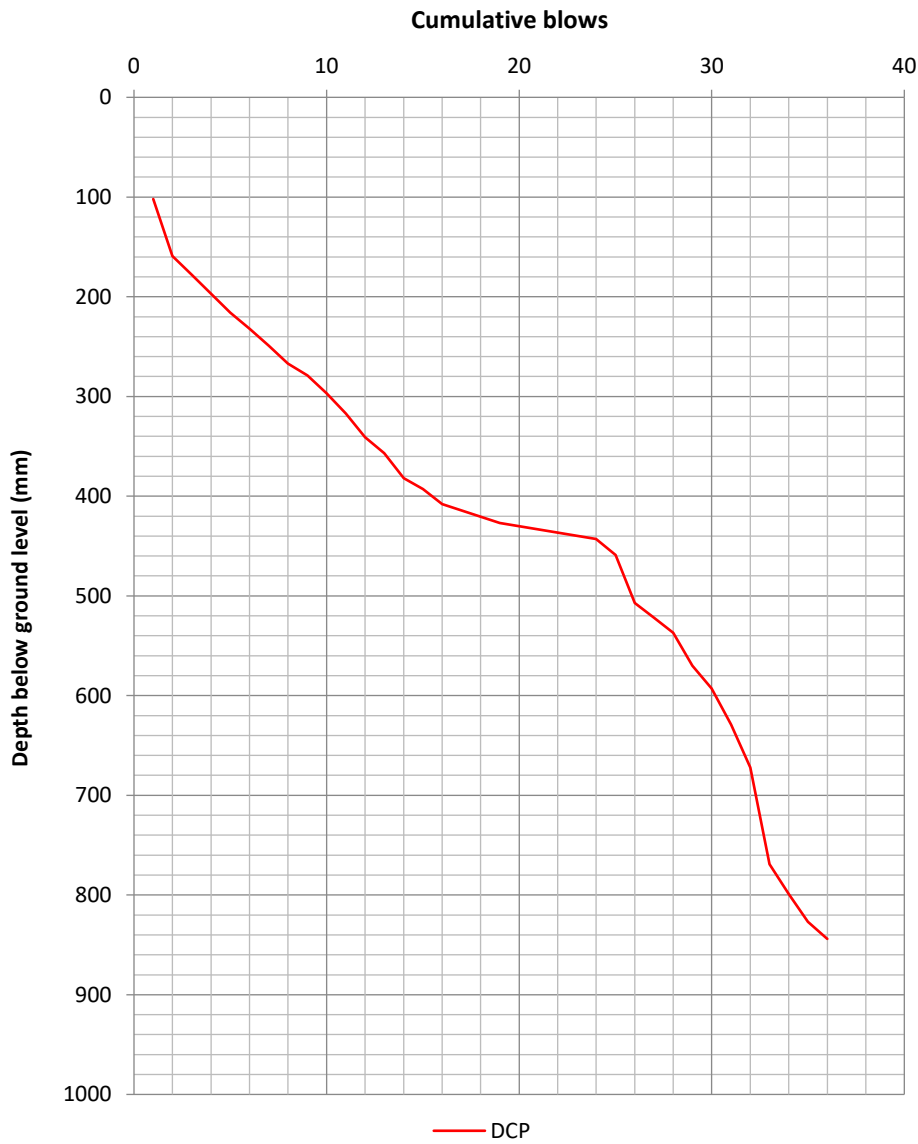
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	17.3	80	120	200
2	8.5	200	200	400
3	21.9	250	400	650
4	5.7	170	650	820

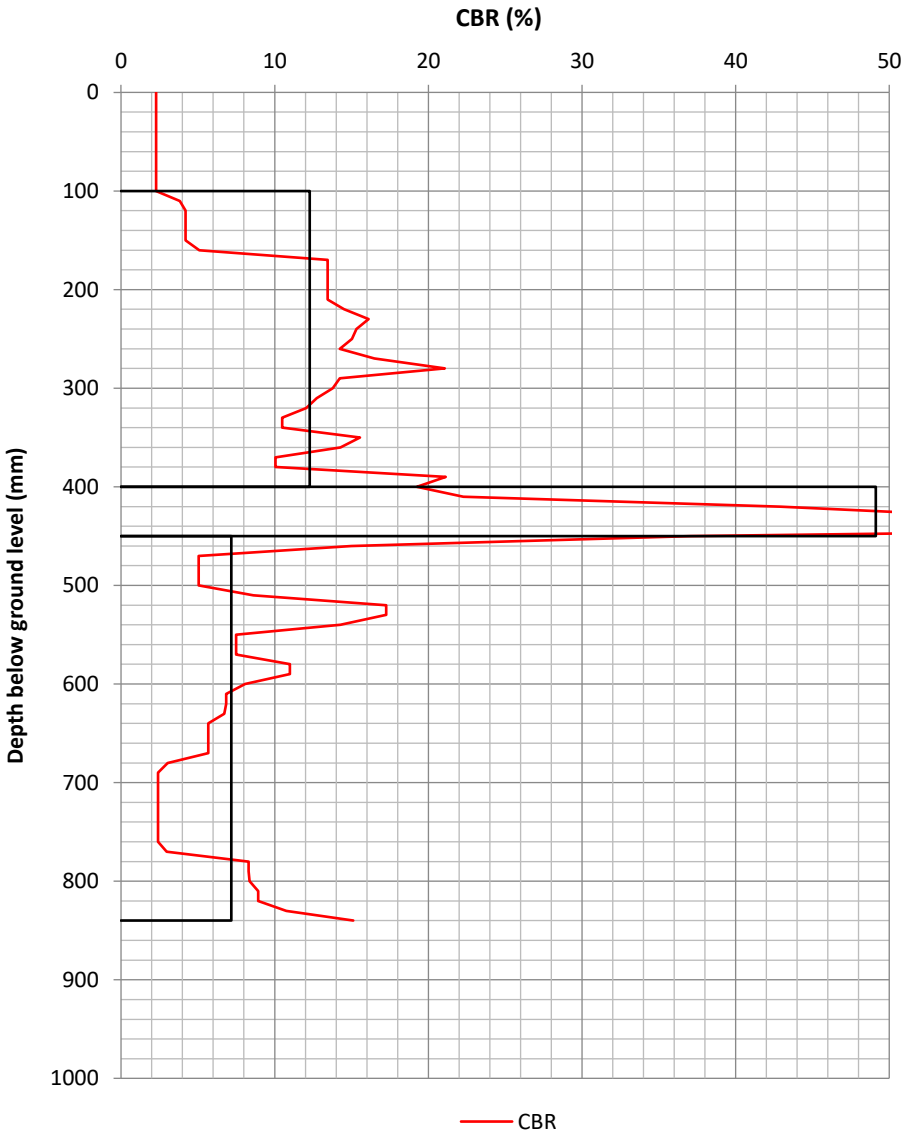
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP03	18/09/2023	0	63	CB

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	12.3	300	100	400
2	49.1	50	400	450
3	7.2	390	450	840

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

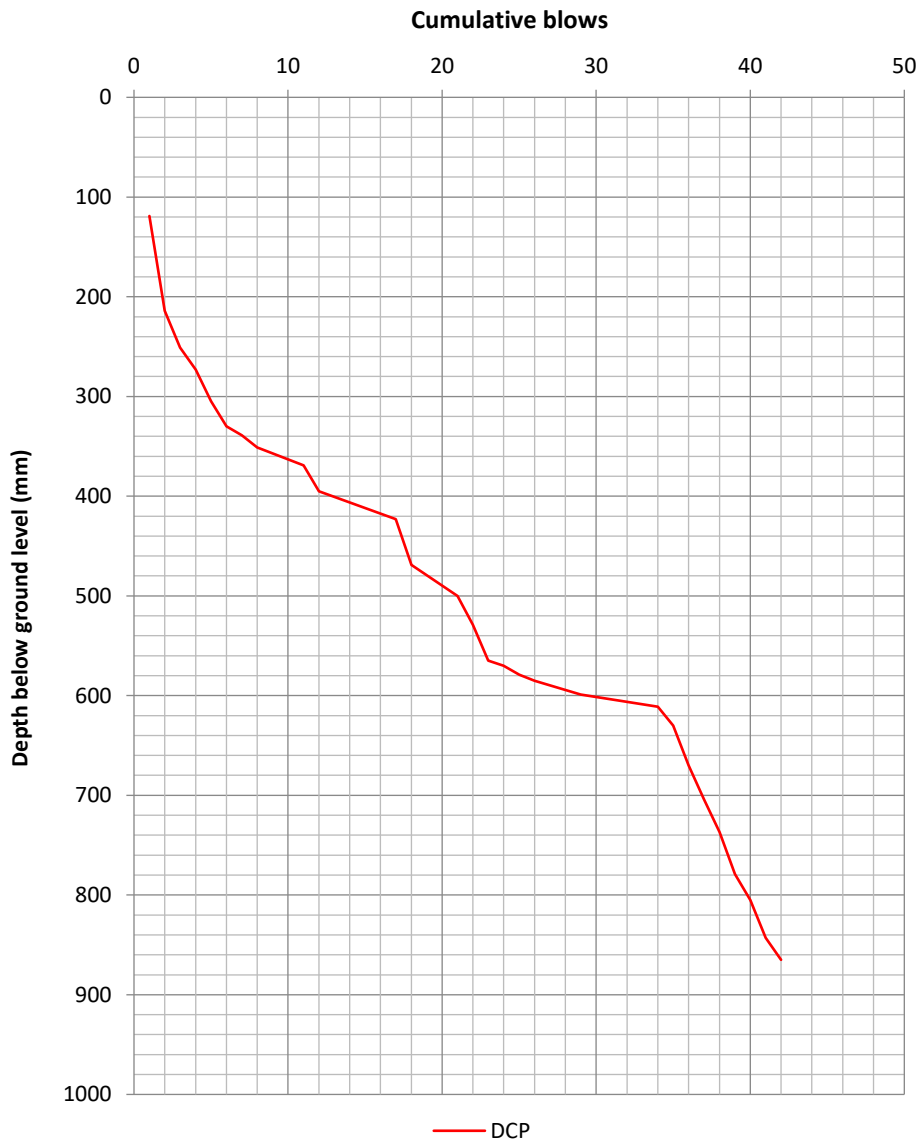
Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP04	18/09/2023	0	61	CB

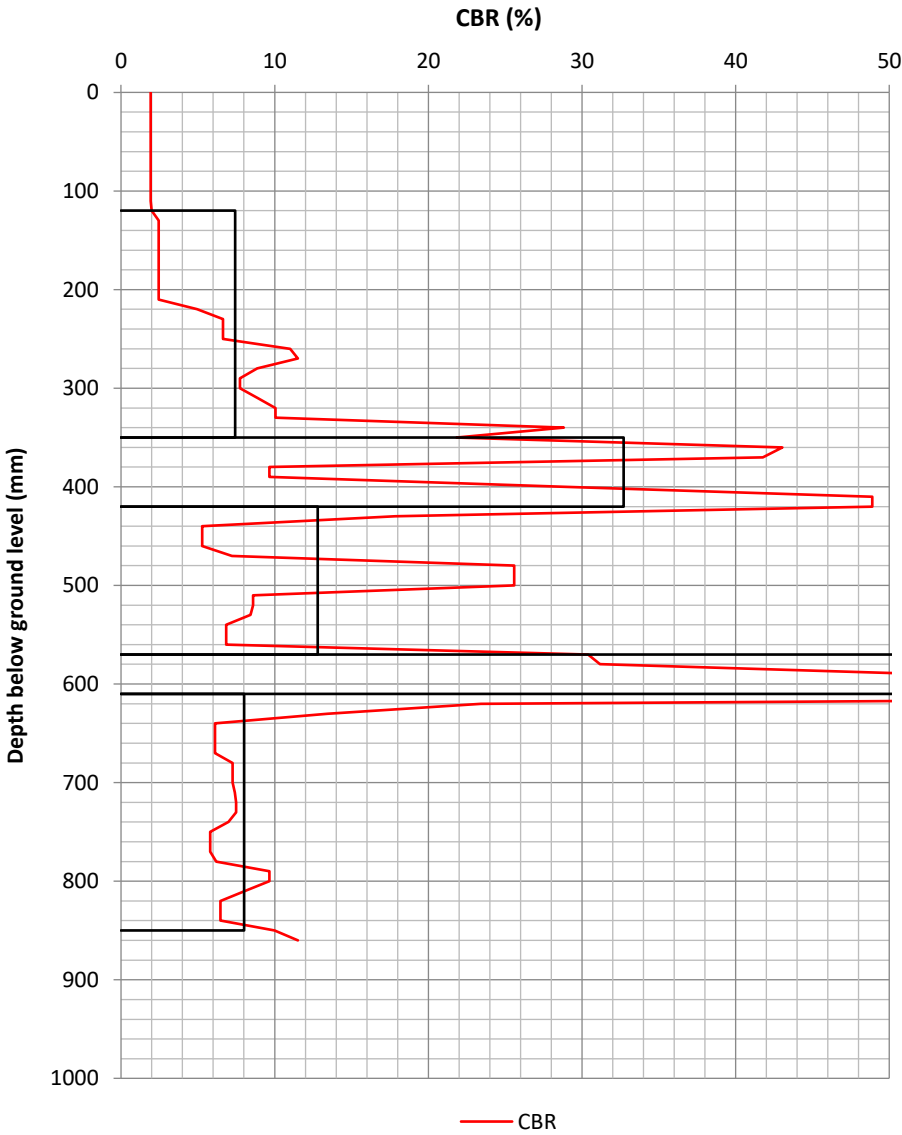
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

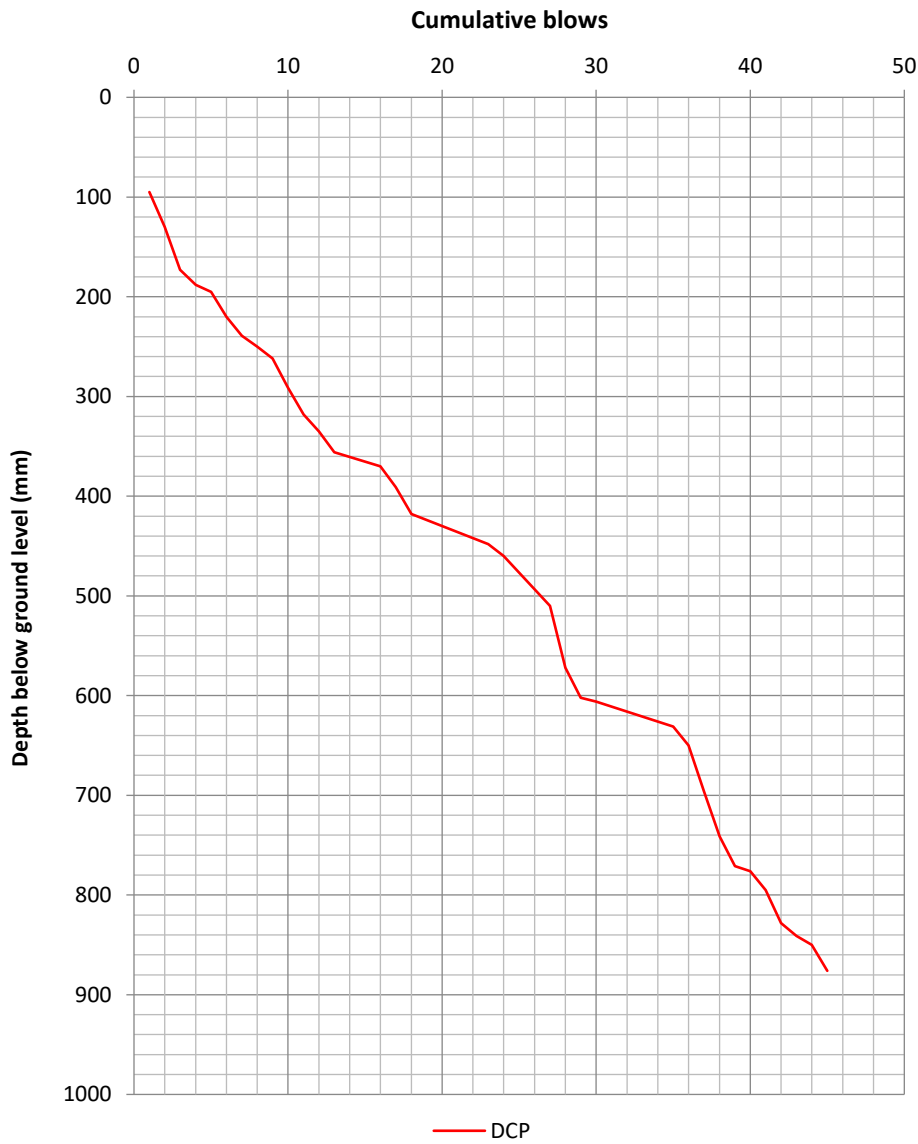
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	7.4	230	120	350
2	32.7	70	350	420
3	12.8	150	420	570
4	66.7	40	570	610
5	8.0	240	610	850

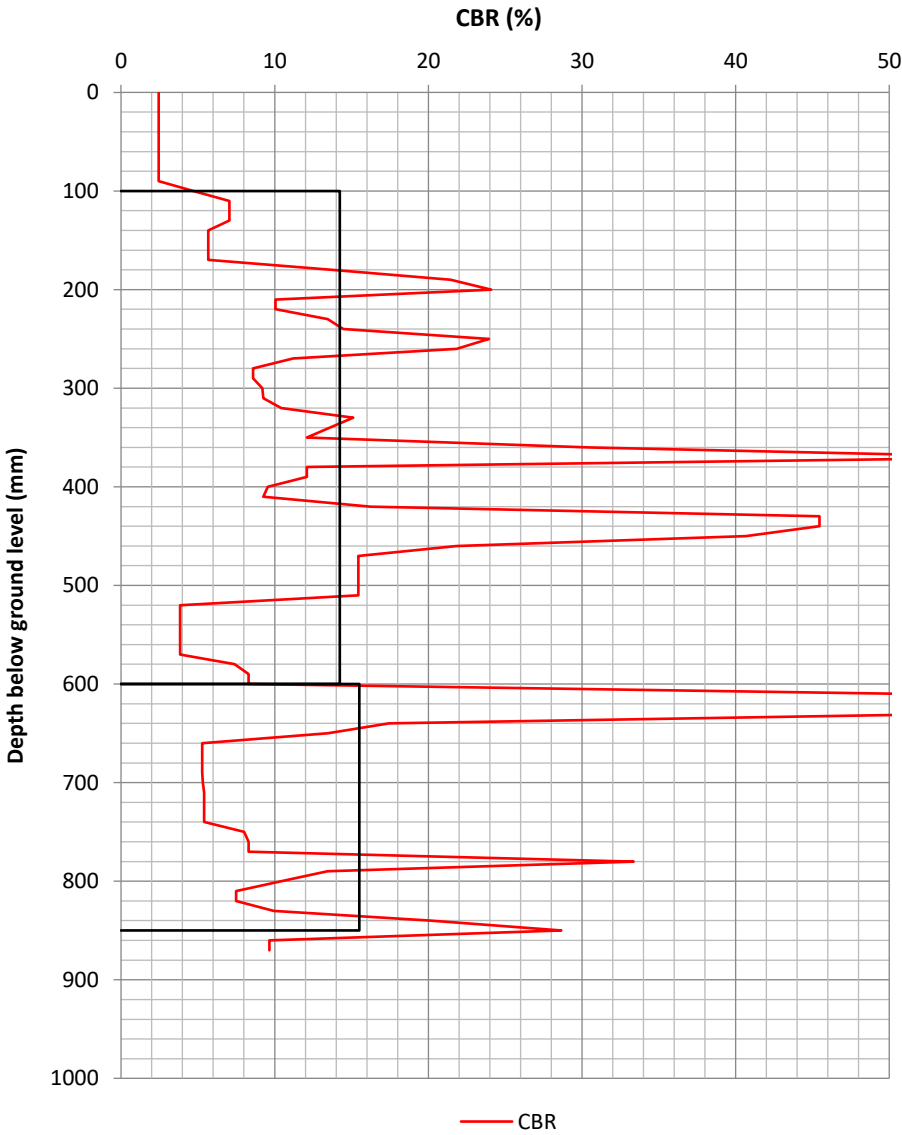
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP05	18/09/2023	0	50	CB

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	14.2	500	100	600
2	15.5	250	600	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

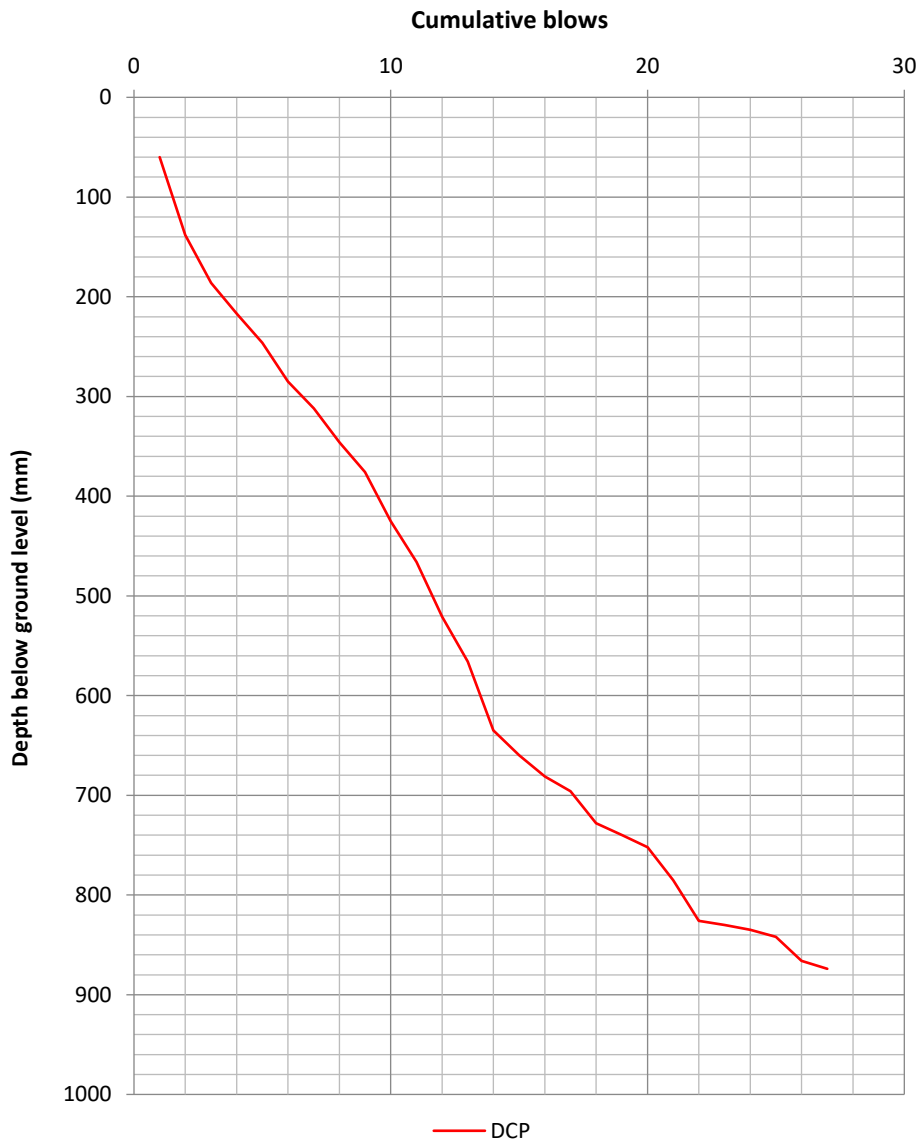
Calculations

$$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$$

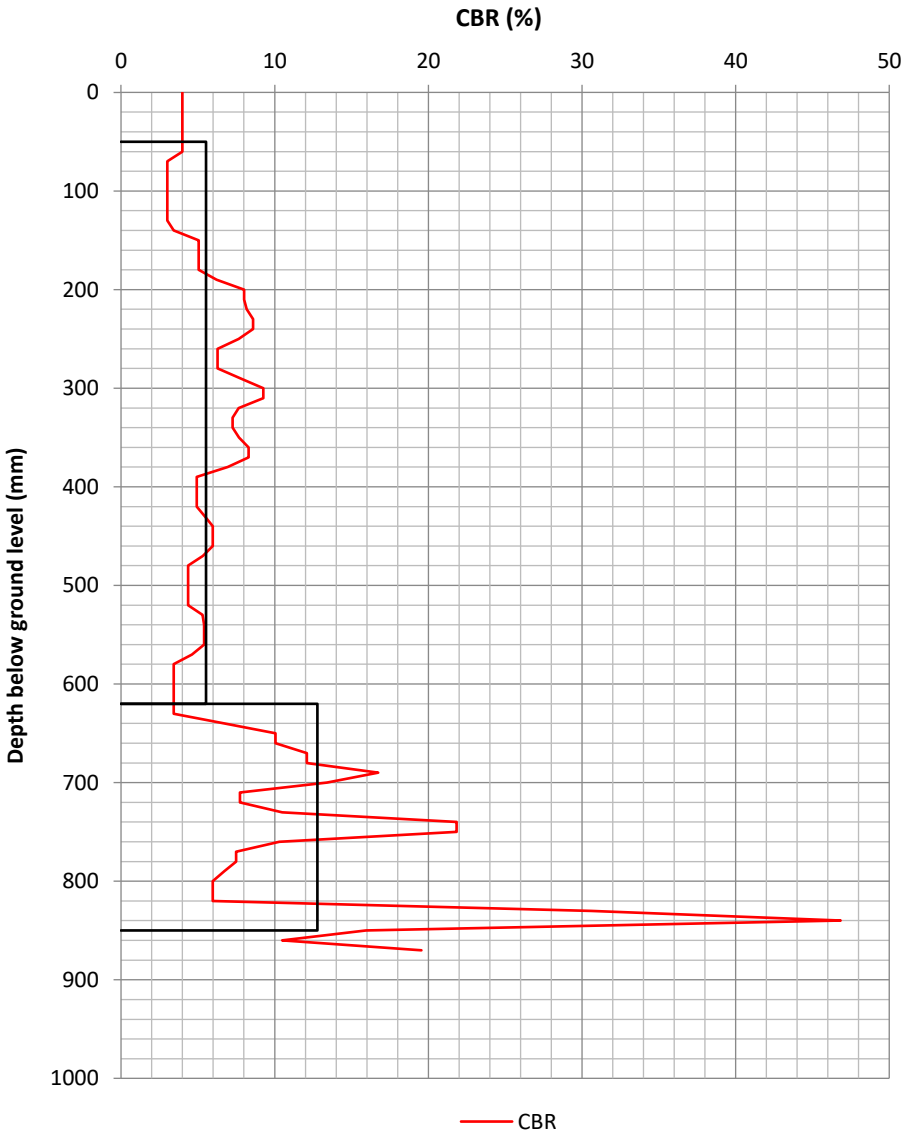
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP06	18/09/2023	0	60	CB

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	5.5	570	50	620
2	12.8	230	620	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

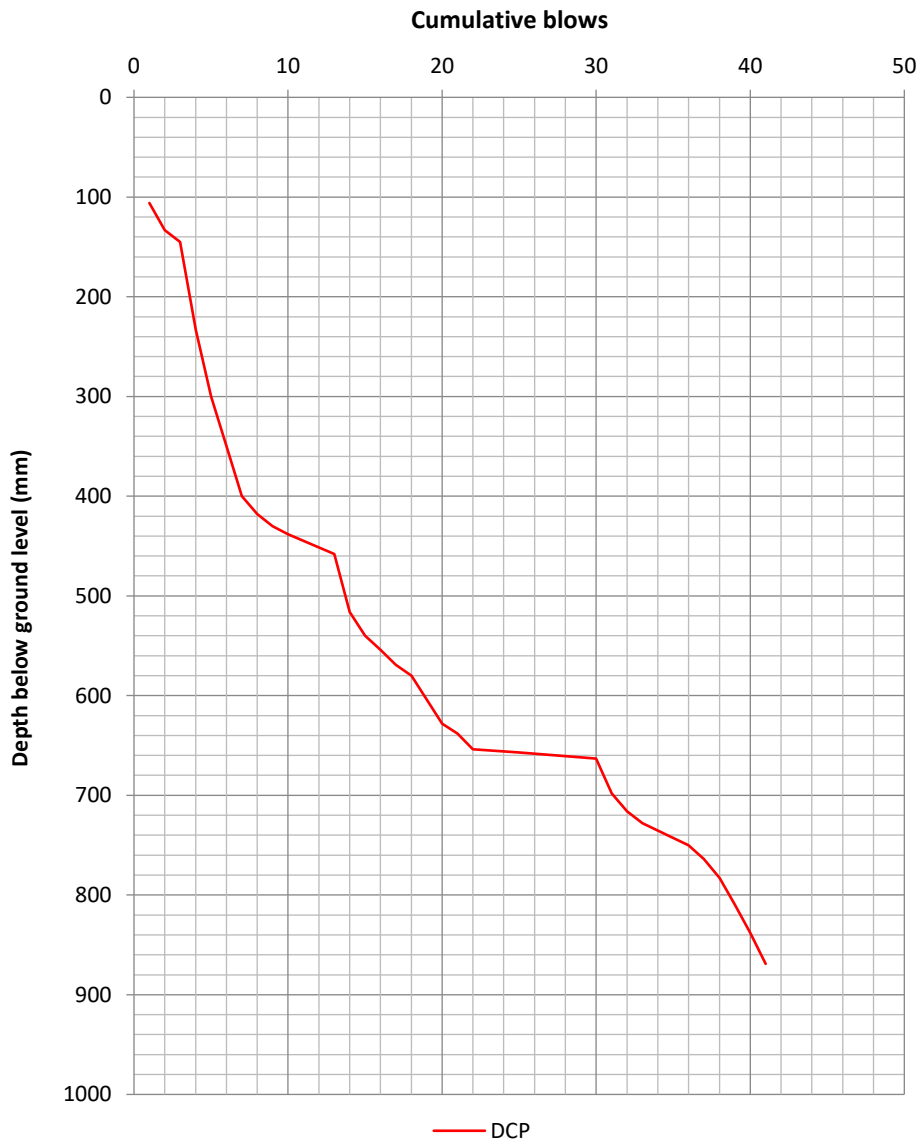
Calculations

$$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$$

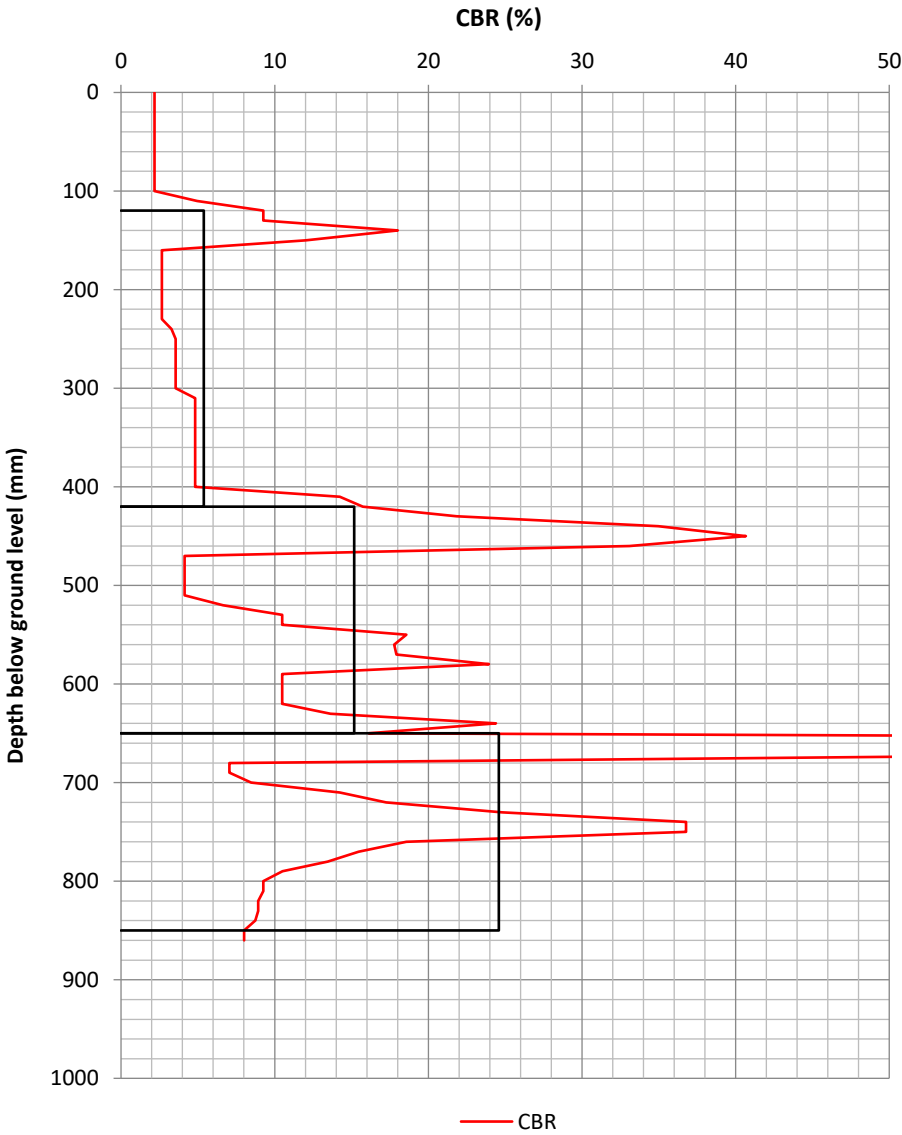
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP07	18/09/2023	0	62	CB

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	5.4	300	120	420
2	15.2	230	420	650
3	24.6	200	650	850

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

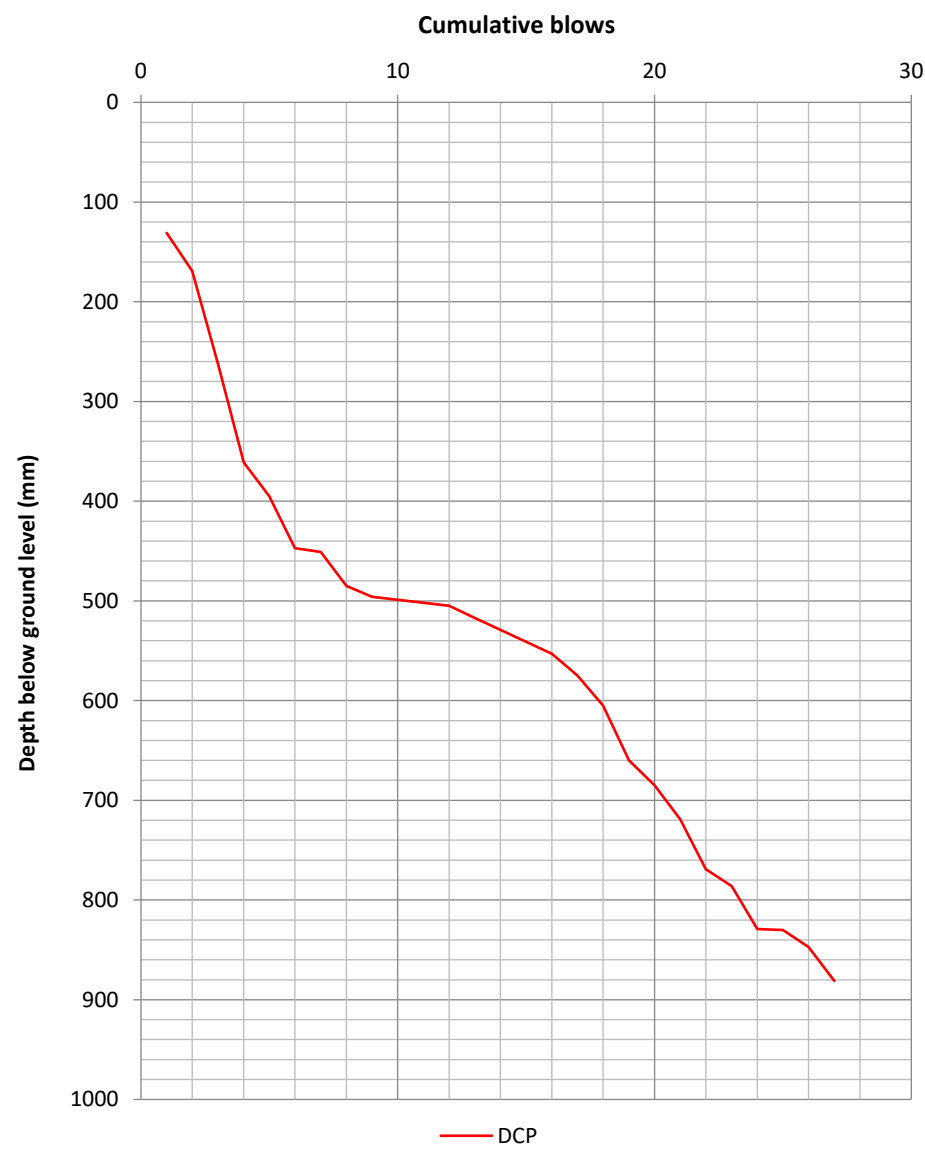
Calculations

$$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$$

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP08	18/09/2023	0	65	CB

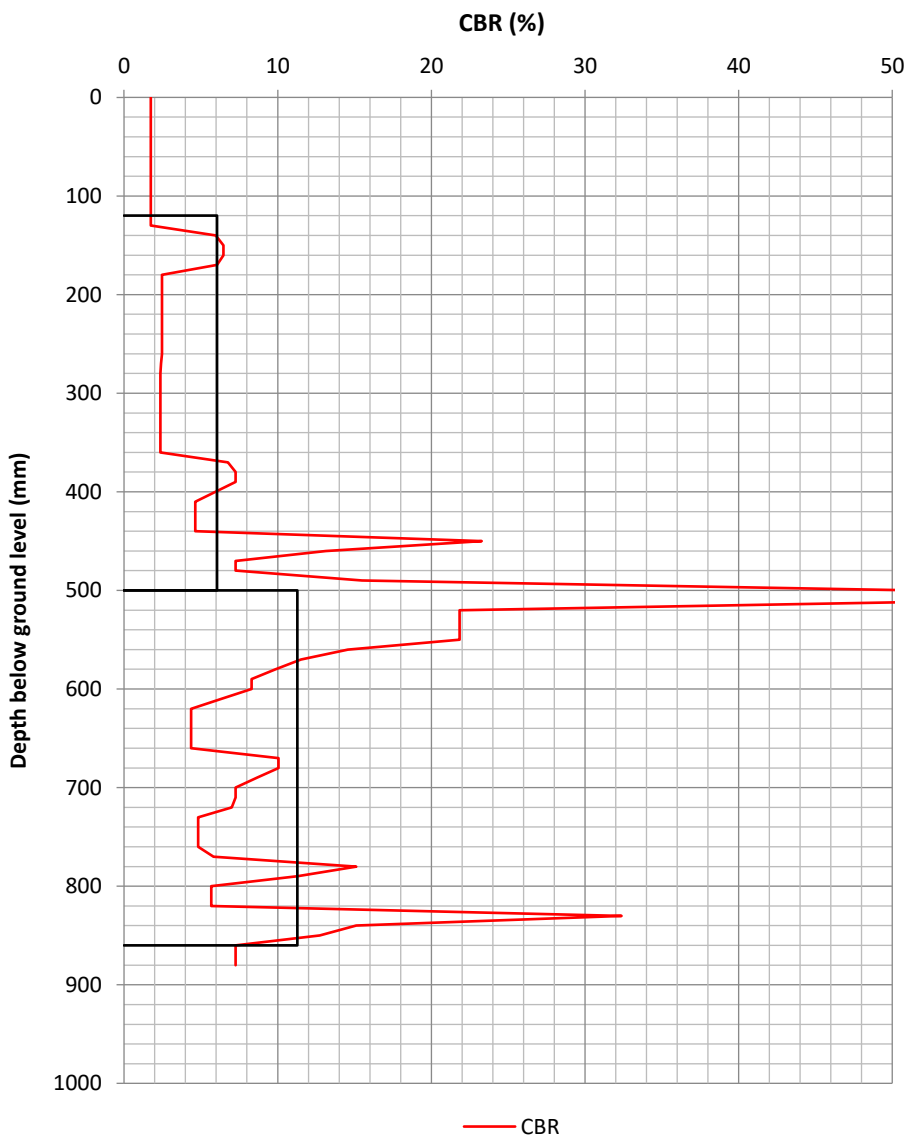
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

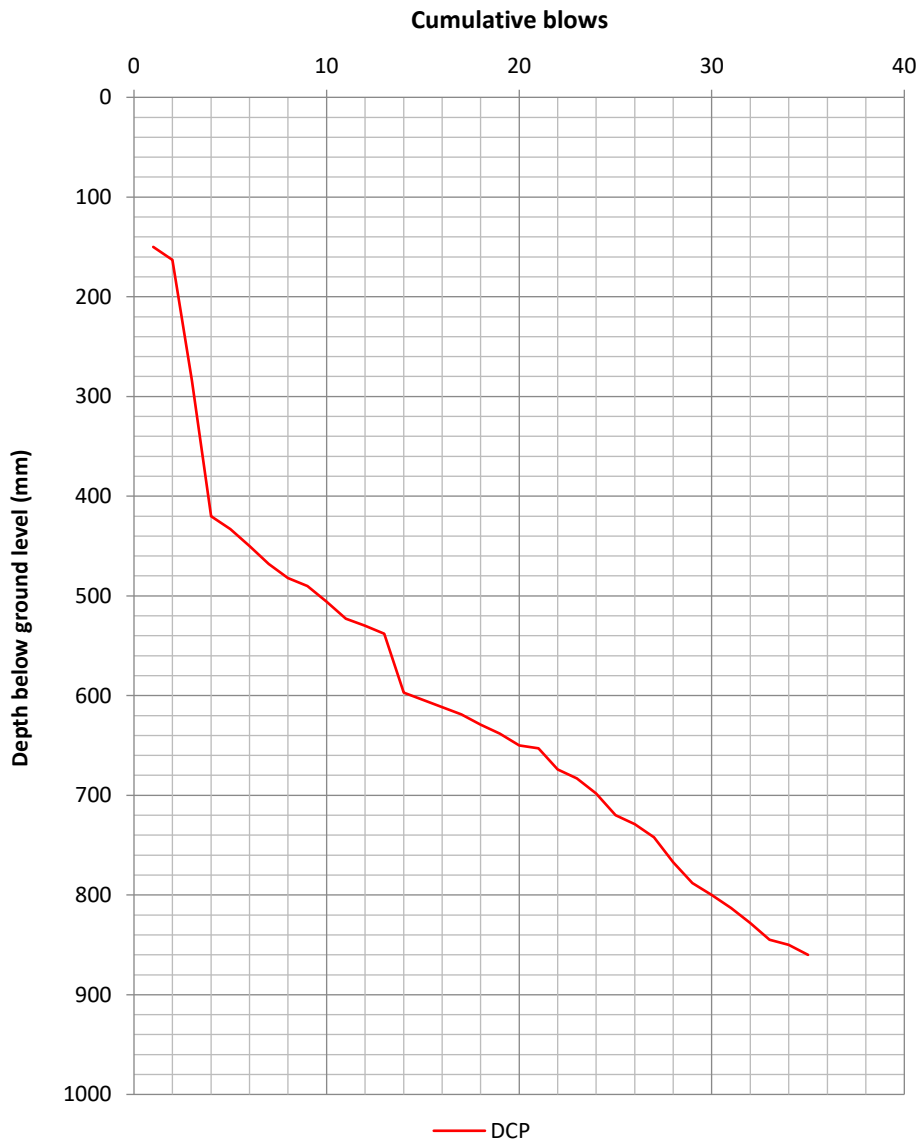
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	6.1	380	120	500
2	11.3	360	500	860

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP09	18/09/2023	0	62	CB

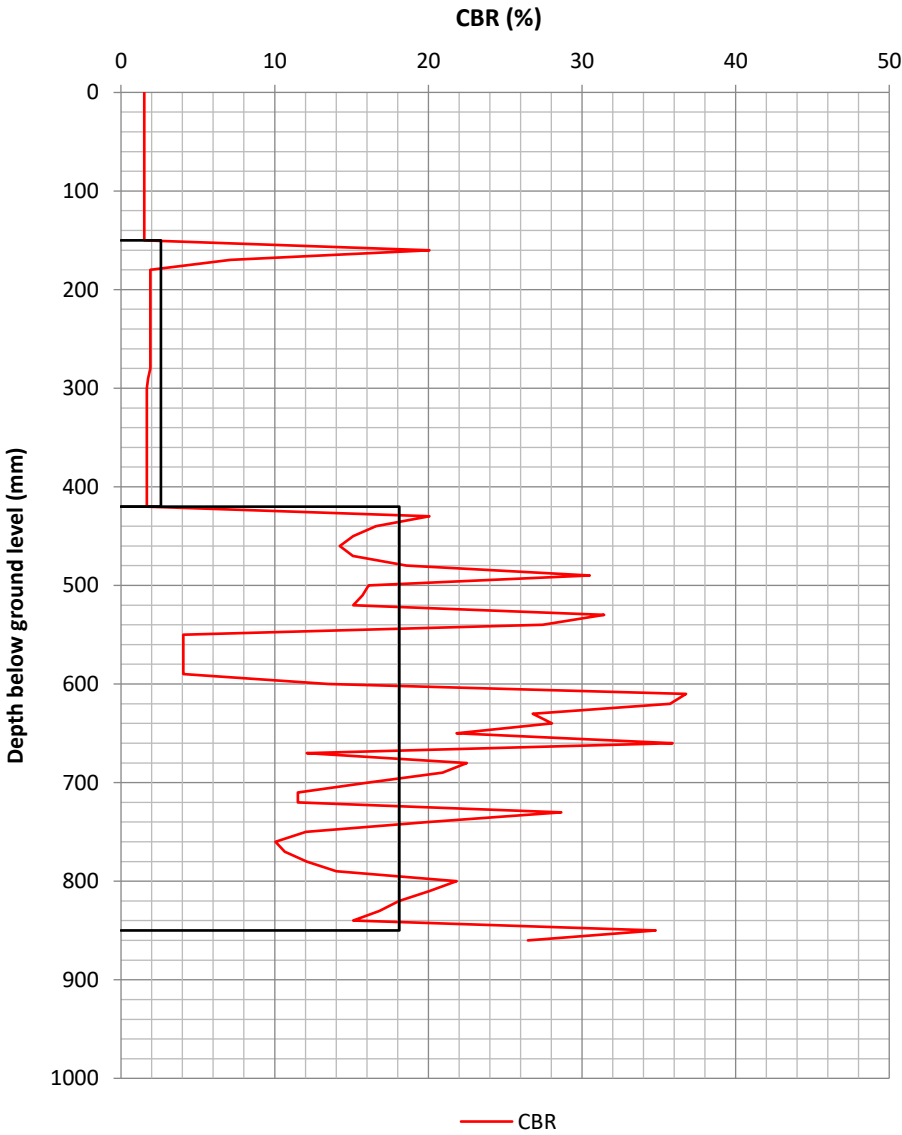
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$$

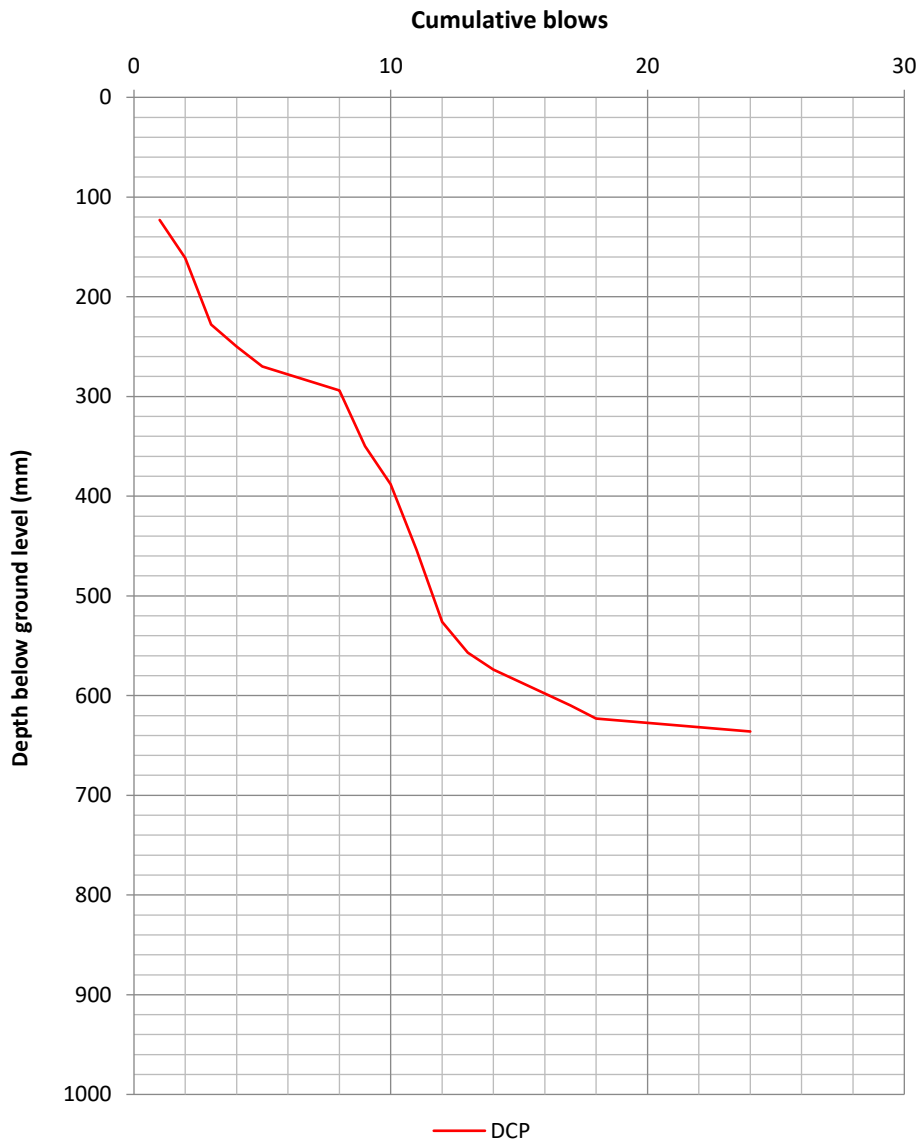
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	2.6	270	150	420
2	18.1	430	420	850

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP10A	18/09/2023	0	62	CB

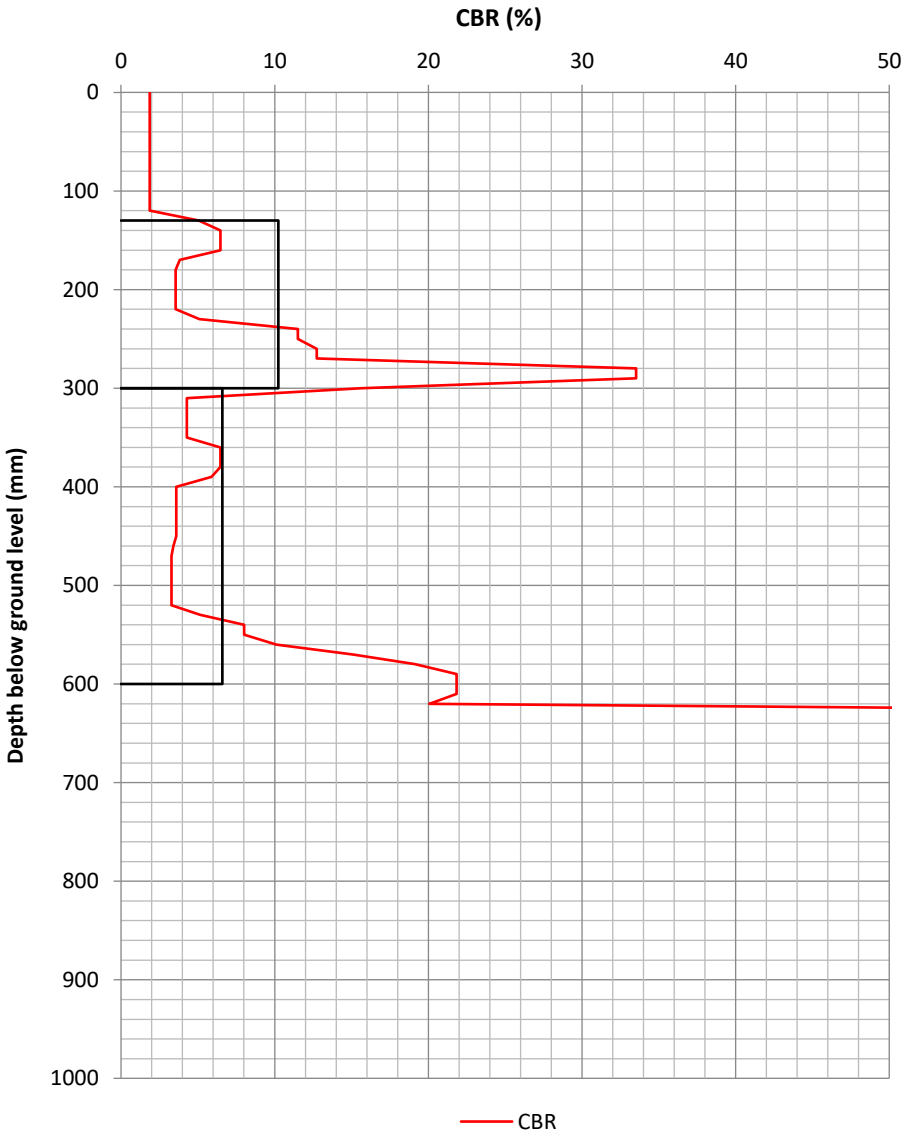
Plot showing number of blows against depth



Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Plot showing CBR (%) against depth



Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

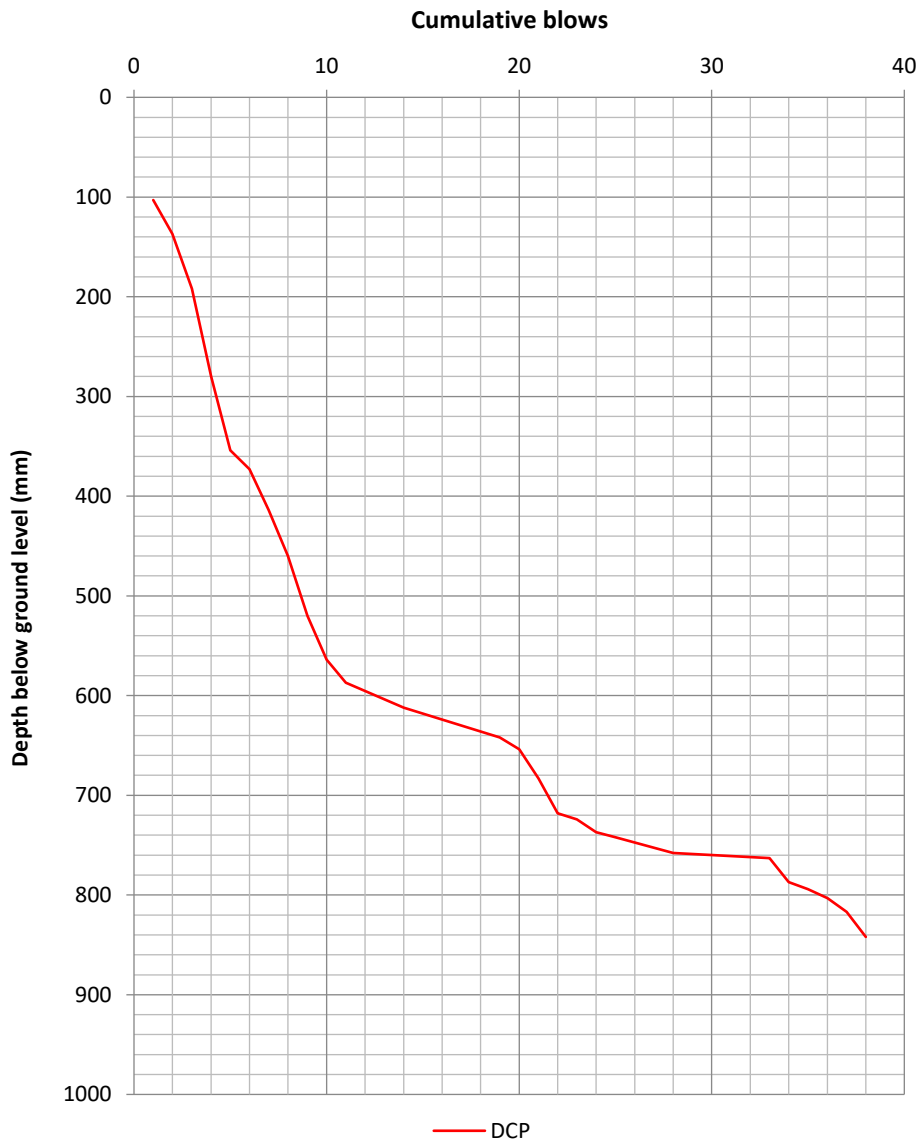
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	10.2	170	130	300
2	6.6	300	300	600

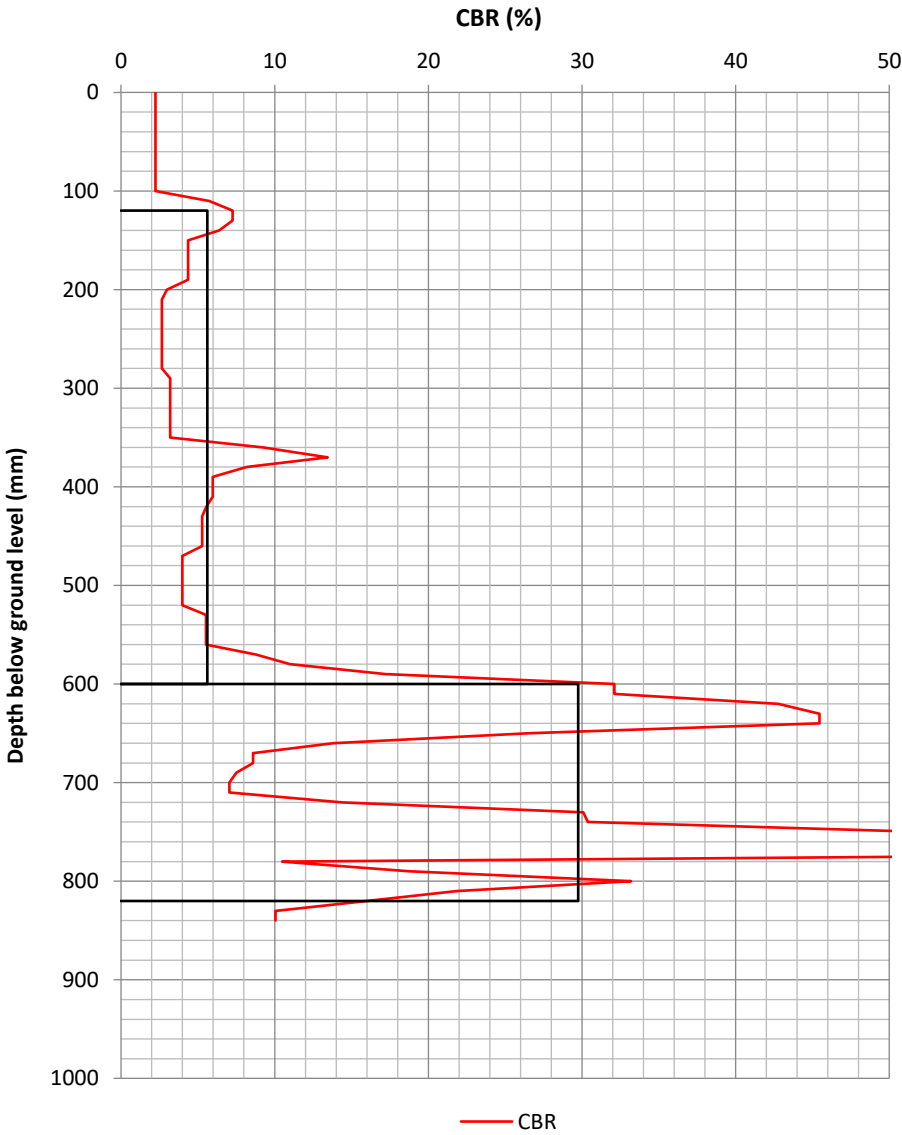
Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP10B	18/09/2023	0	58	CB

Plot showing number of blows against depth



Plot showing CBR (%) against depth



Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	5.6	480	120	600
2	29.8	220	600	820

Notes

1. Test procedure following Highways England Document CS229 Data for Pavement Assessment.

Calculations

$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$

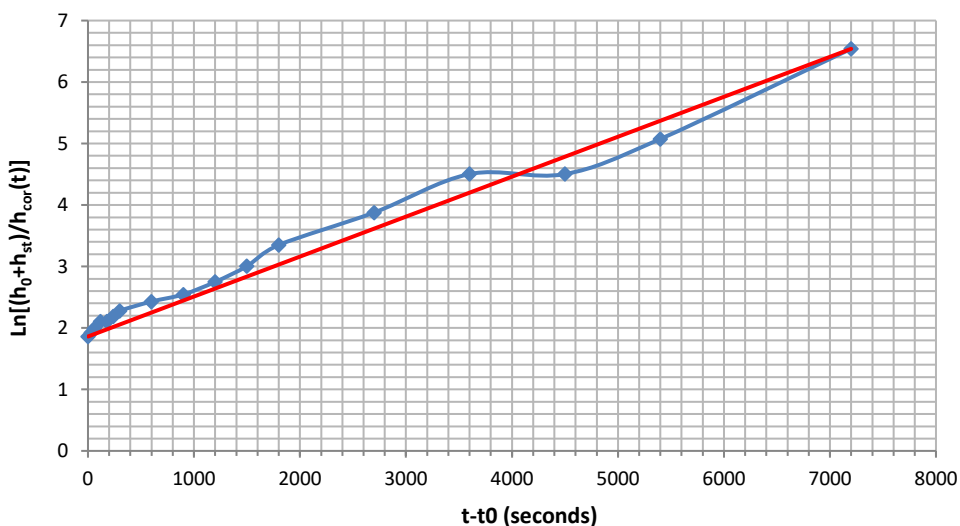
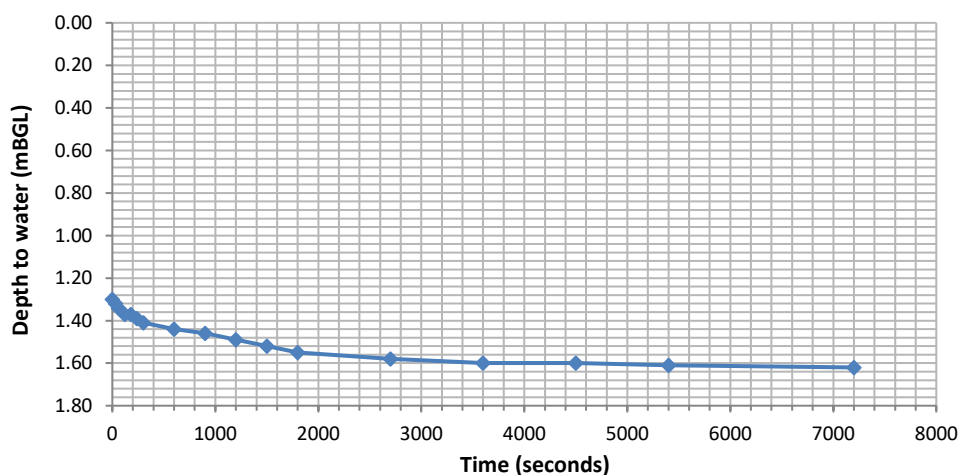
Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WLS01	1	Falling head	Open borehole	19/09/2023

Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)
1.30	2.50	1.2	0.087

Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
Dry	1.3	1.20



F	Shape factor according BS EN ISO 22282-1:2012	2.273 m
S	Cross sectional area of measurement tube	0.0059 m ²
h_{st}	Corrective term to initial static level	8.77E-01 m
α	Gradient of line alpha	6.50E-04 s ⁻¹
k	Permeability (α S / F)	1.70E-06 m/s

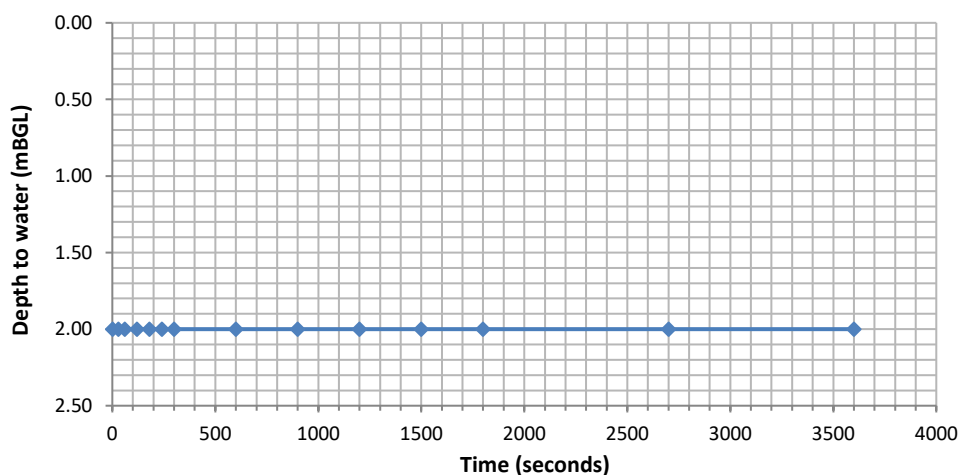
Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

Location	Test number	Test method	Test system	Test date
WLS02	1	Falling head	Open borehole	19/09/2023

Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)
2.00	3.80	1.8	0.087

Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
Dry	2	1.80



Insufficient infiltration over 60 minutes of monitoring, therefore unable to determine permeability.

Table summarising Pocket Penetrometer results

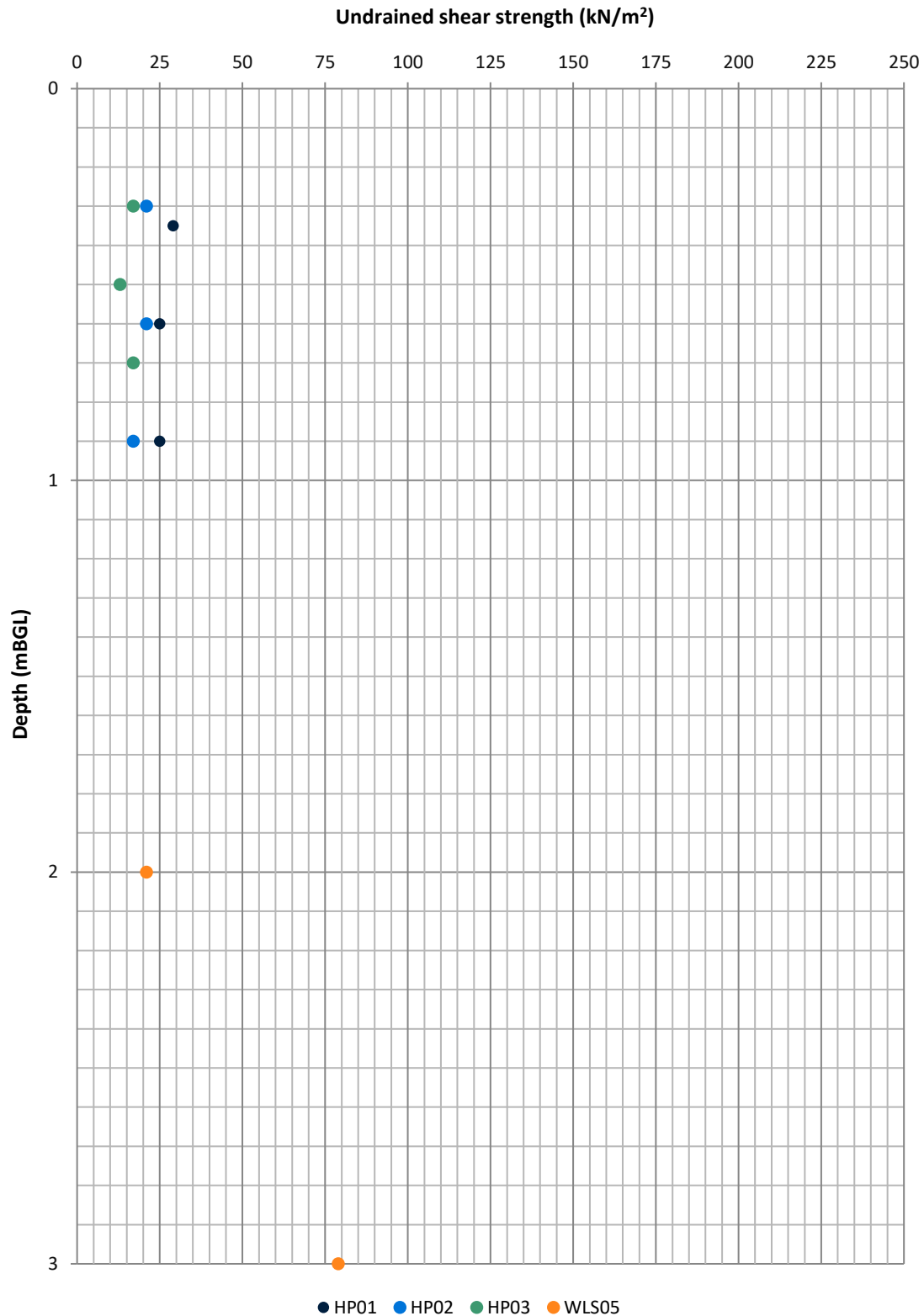
* Instrument limit reached.

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m ²)
HP01	0.35	0.5/0.75/0.5	0.58	29
HP01	0.60	0.5/0.75/0.25	0.50	25
HP01	0.90	0.5/0.5/0.5	0.50	25
HP02	0.30	0.5/0.25/0.5	0.42	21
HP02	0.60	0.25/0.5/0.5	0.42	21
HP02	0.90	0.25/0.25/0.5	0.33	17
HP03	0.30	0.25/0.25/0.5	0.33	17
HP03	0.50	0.25/0.25/0.25	0.25	13
HP03	0.70	0.5/0.25/0.25	0.33	17
WLS05	2.00	0.5/0.25/0.5	0.42	21
WLS05	3.00	1.5/1.75/1.5	1.58	79

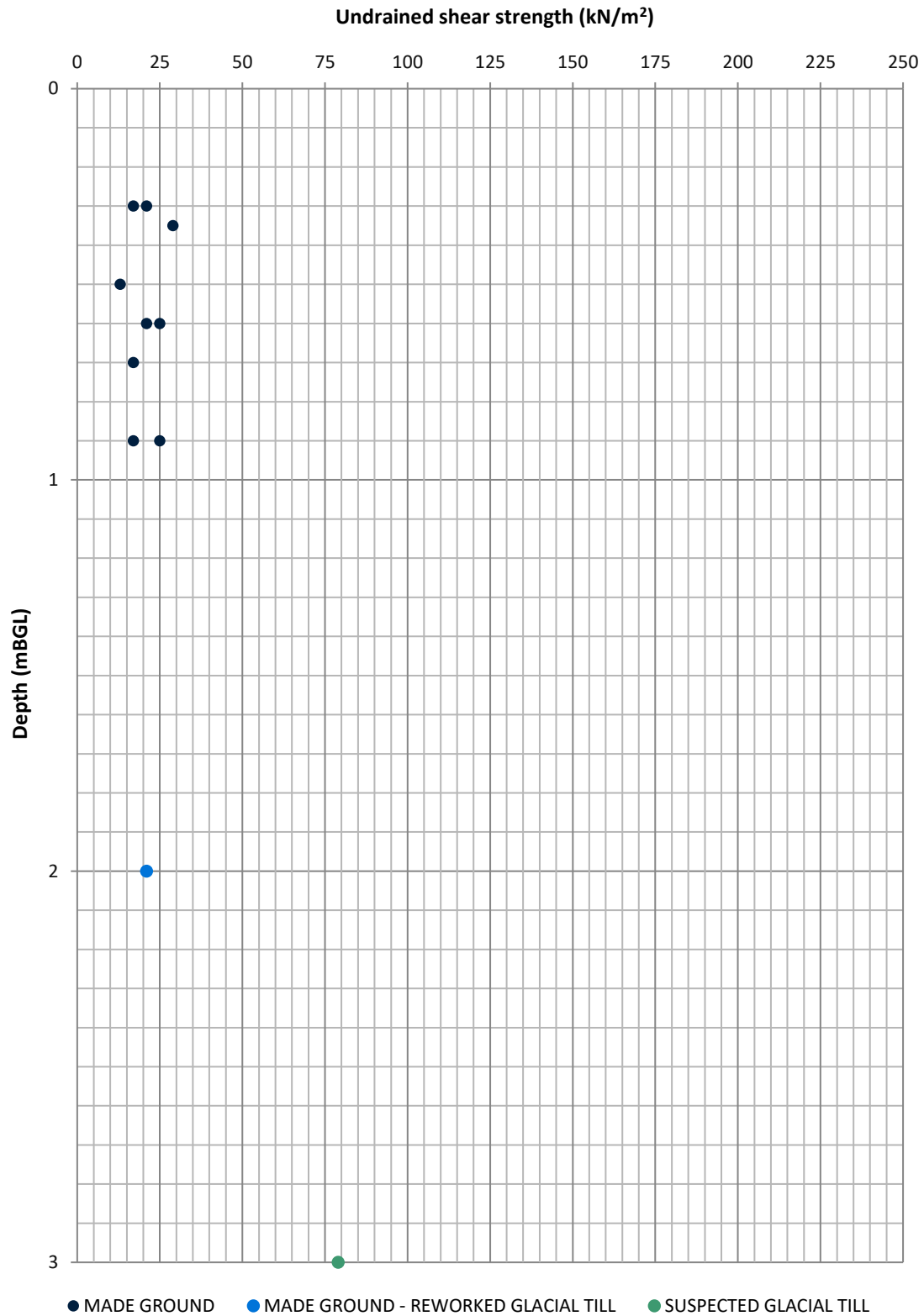
Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)	Penetration (mm)					
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WLS01	1.00	0/0	0/1/1/1	0	3	150	300
WLS01	2.00	3/2	3/1/1/1	5	6	150	300
WLS01	3.00	25		25	0	0	
WLS02	1.00	4/5	3/2/3/2	9	10	150	300
WLS02	2.00	4/3	1/1/2/2	7	6	150	300
WLS02	3.00	0/0	0/0/0/0	0	0	150	300
WLS02	3.90	25	50	25	50	0	10
WLS04	1.00	6/12	11/3/3/1	18	18	150	300
WLS04	2.00	0/10	10/6/1/1	10	18	150	300
WLS04	2.90	25	50	25	50	0	0
WLS05	1.00	0/1	1/0/0/1	1	2	150	300
WLS05	2.00	0/0	2/3/3/3	0	11	150	300
WLS05	3.00	3/3	4/3/3/3	6	13	150	300
WLS05	4.00	5/5	5/5/7/7	10	24	150	300
WLS05	5.00	6/7	10/9/10/10	13	39	150	300
WLS06	1.00	0/0	0/1/1/2	0	4	150	300
WLS06	2.00	2/5	5/5/6/5	7	21	150	300
WLS06	3.00	2/3	3/3/5/5	5	16	150	300
WLS06	4.00	3/3	4/5/7/9	6	25	150	300

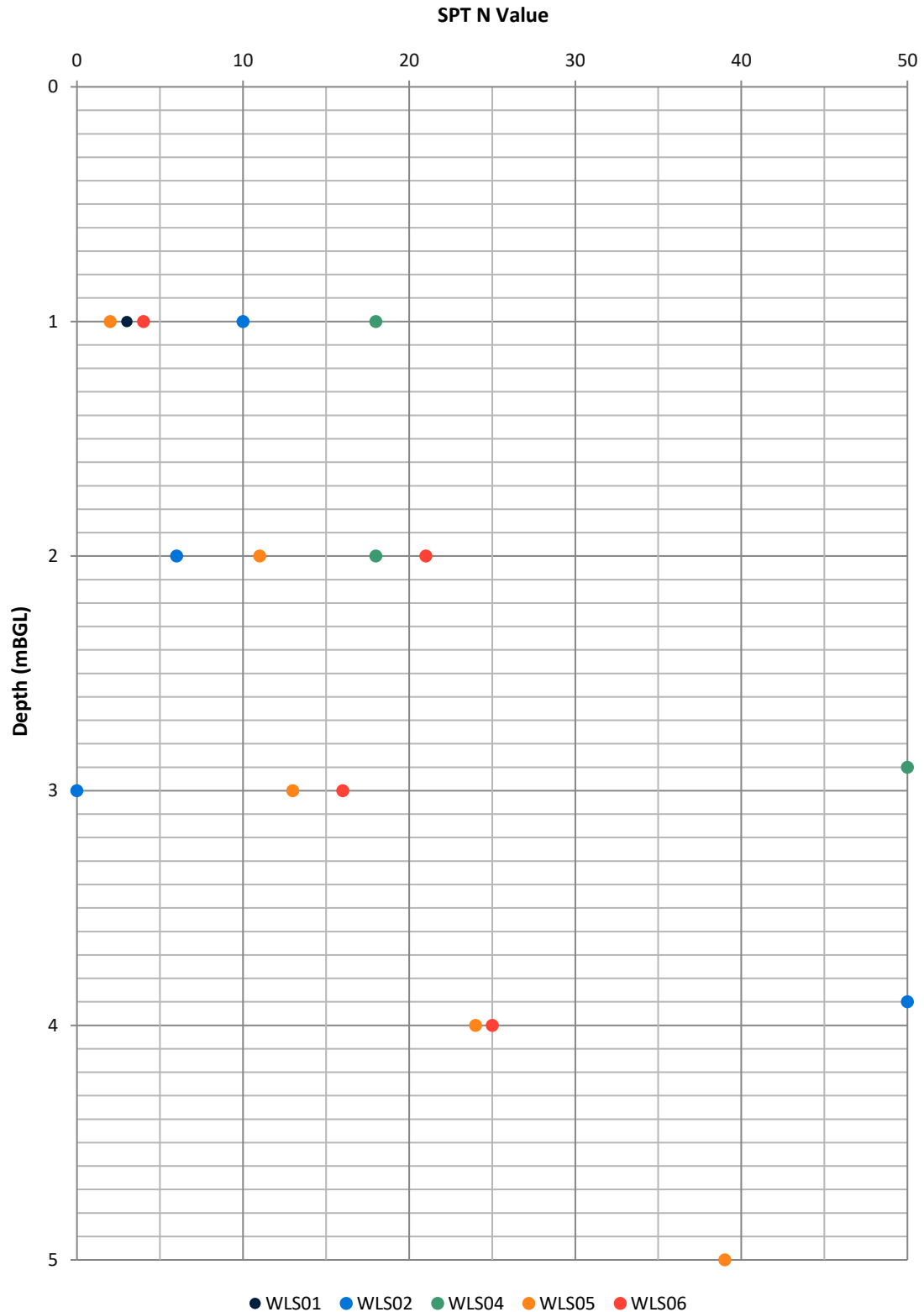
Plot summarising Pocket Penetrometer results versus depth filtered by location



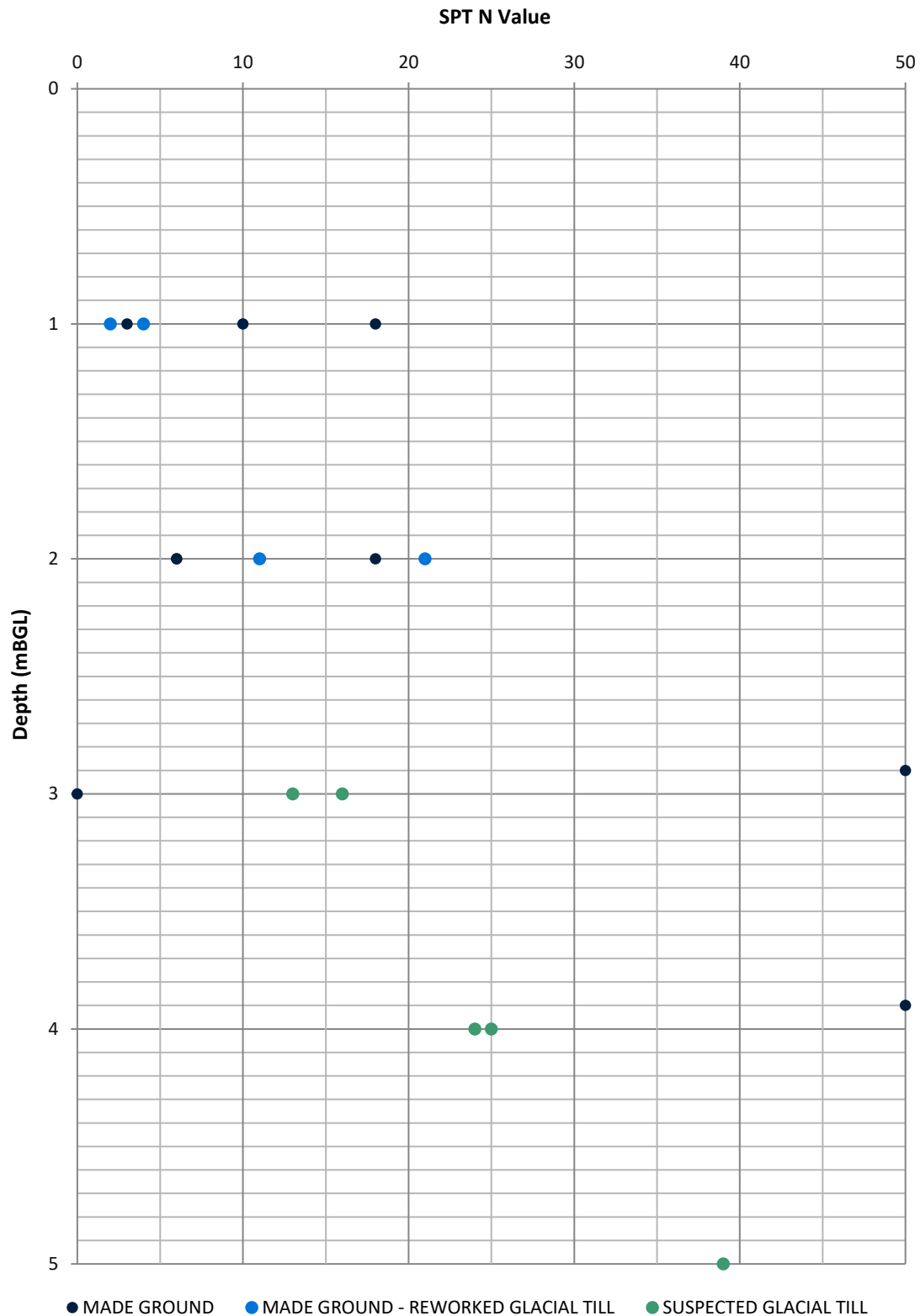
Plot summarising Pocket Penetrometer results versus depth filtered by geology



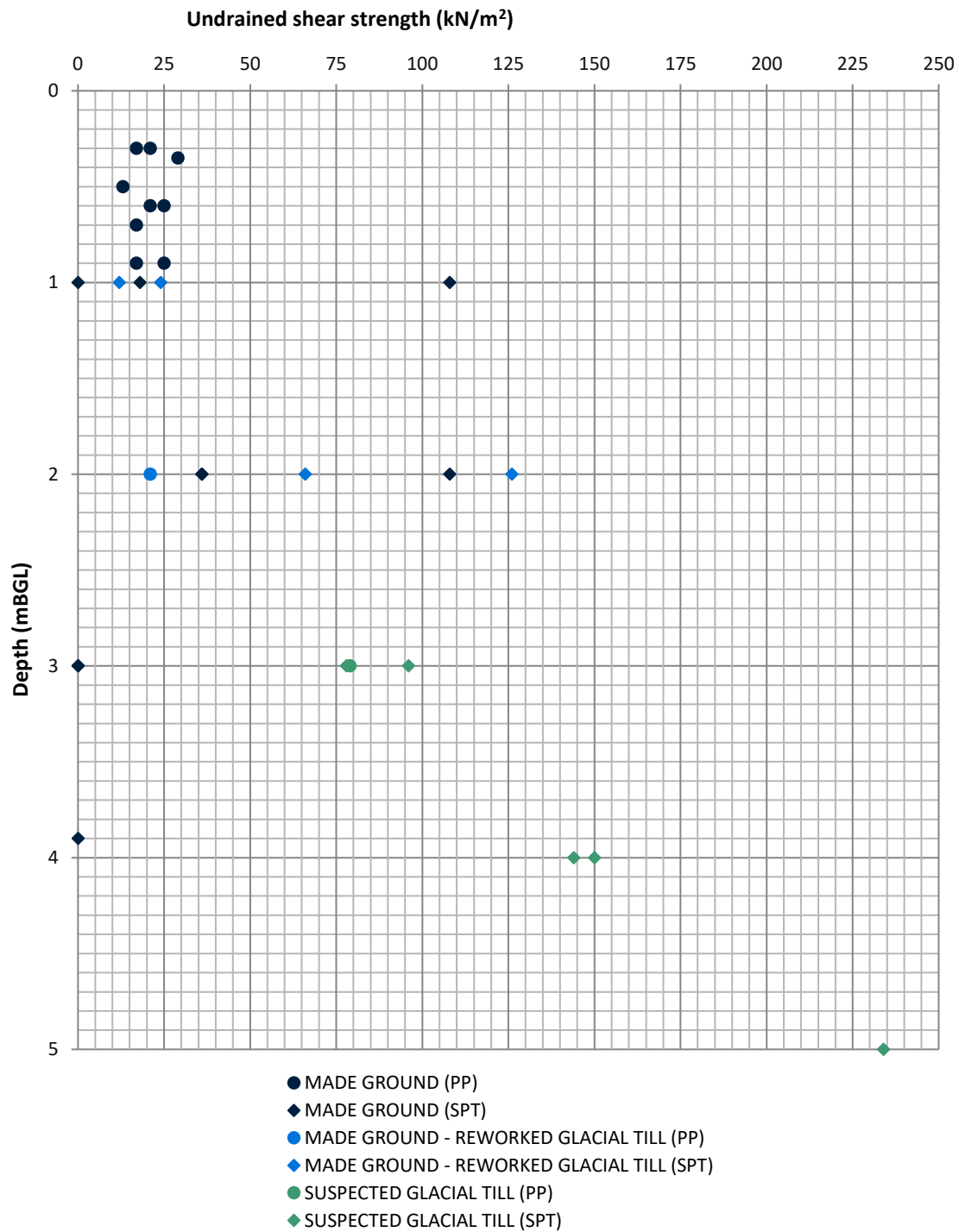
Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



Plot summarising results of combined insitu testing data by geology (mBGL)



Note

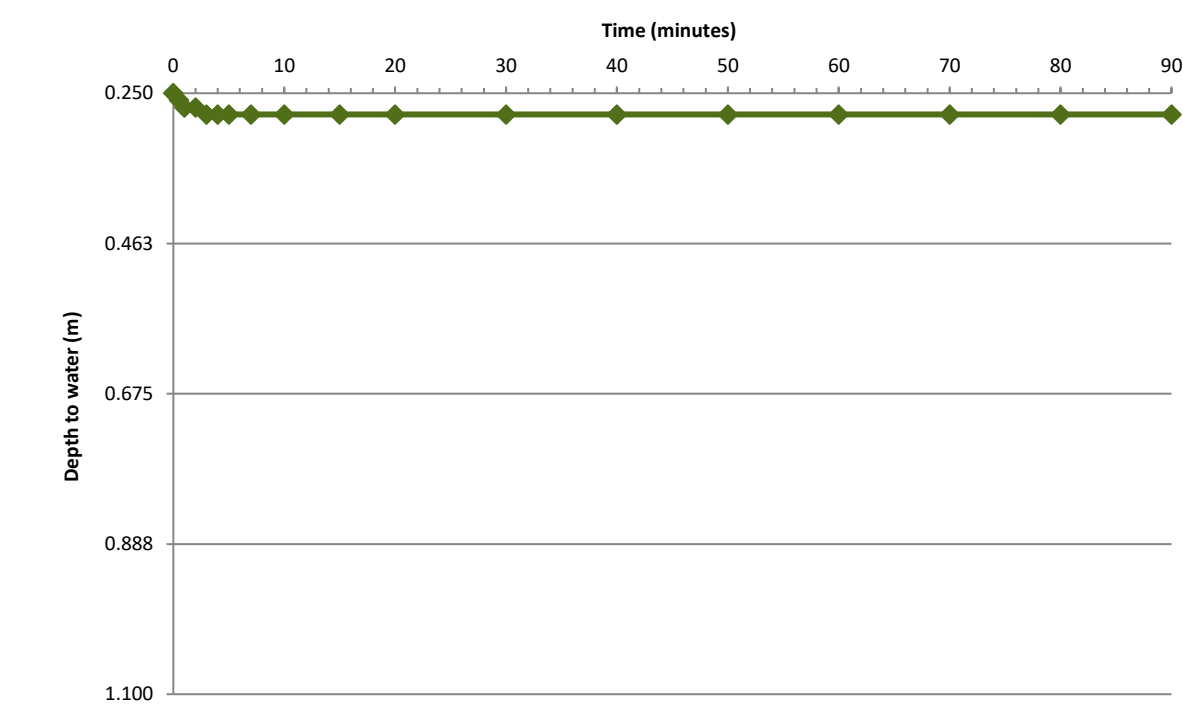
SPT (N) conversion factor of 6 applied for low plasticity clay soils ($PI < 20$) following Stroud (1974)

Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Plan dimensions (m)
HP03	1	18/09/2023	0.3 x 0.3

Groundwater observations (at time of excavation)
No groundwater encountered.

Depth of pit at start (m)	Depth of pit at end (m)
1.1	1.1



Insufficient infiltration over 90 minutes of monitoring therefore unable to calculate soil infiltration rate.

Appendix E Geotechnical Laboratory Test Results



TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin
Site Address: Top Park, Bury

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 18/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

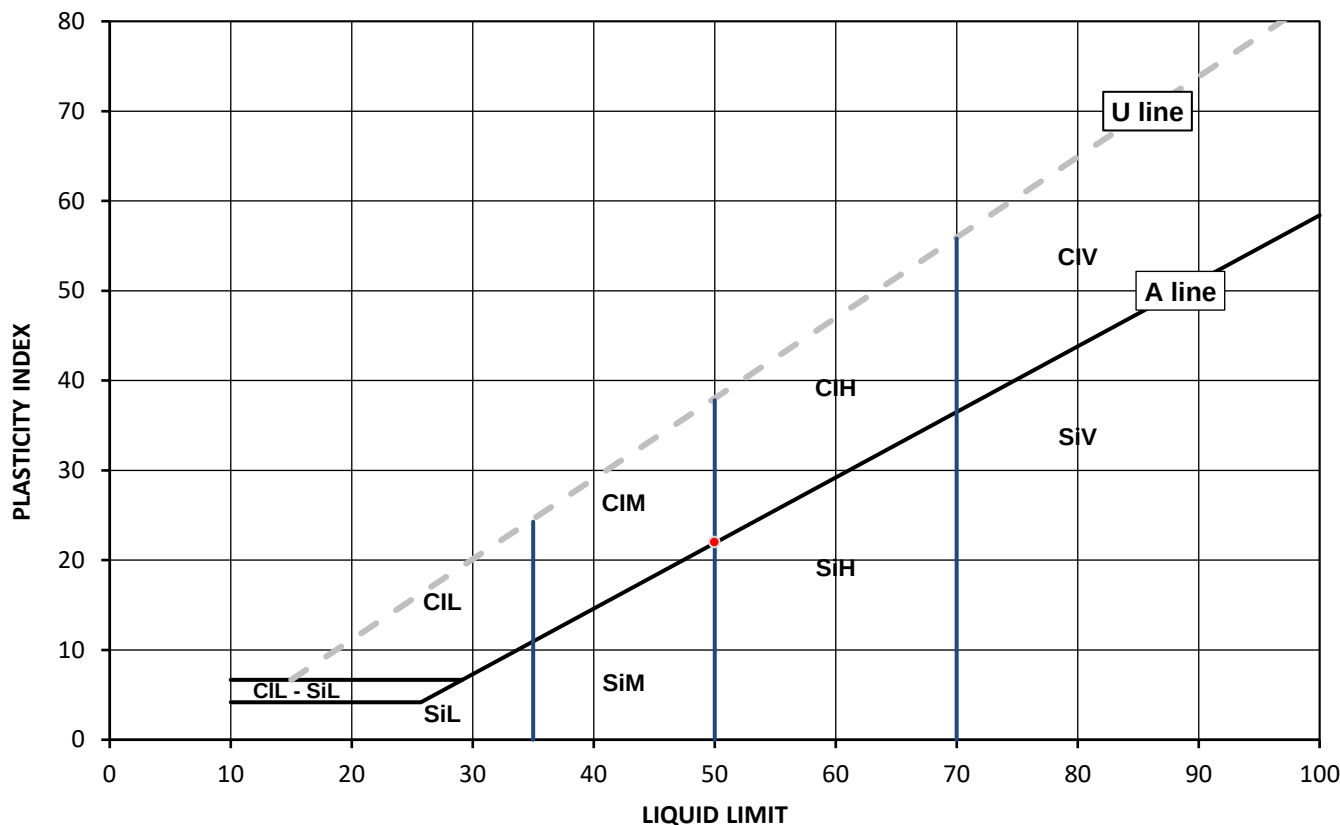
Test Results:

Laboratory Reference: 2826137
Hole No.: HP03
Sample Reference: HP030.501
Sample Description: Brownish grey gravelly slightly sandy silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: 0.60
Sample Type: D

Sample Preparation: Tested after washing to remove >425 µm

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	50	28	22	58



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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Site Address: Top Park, Bury

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

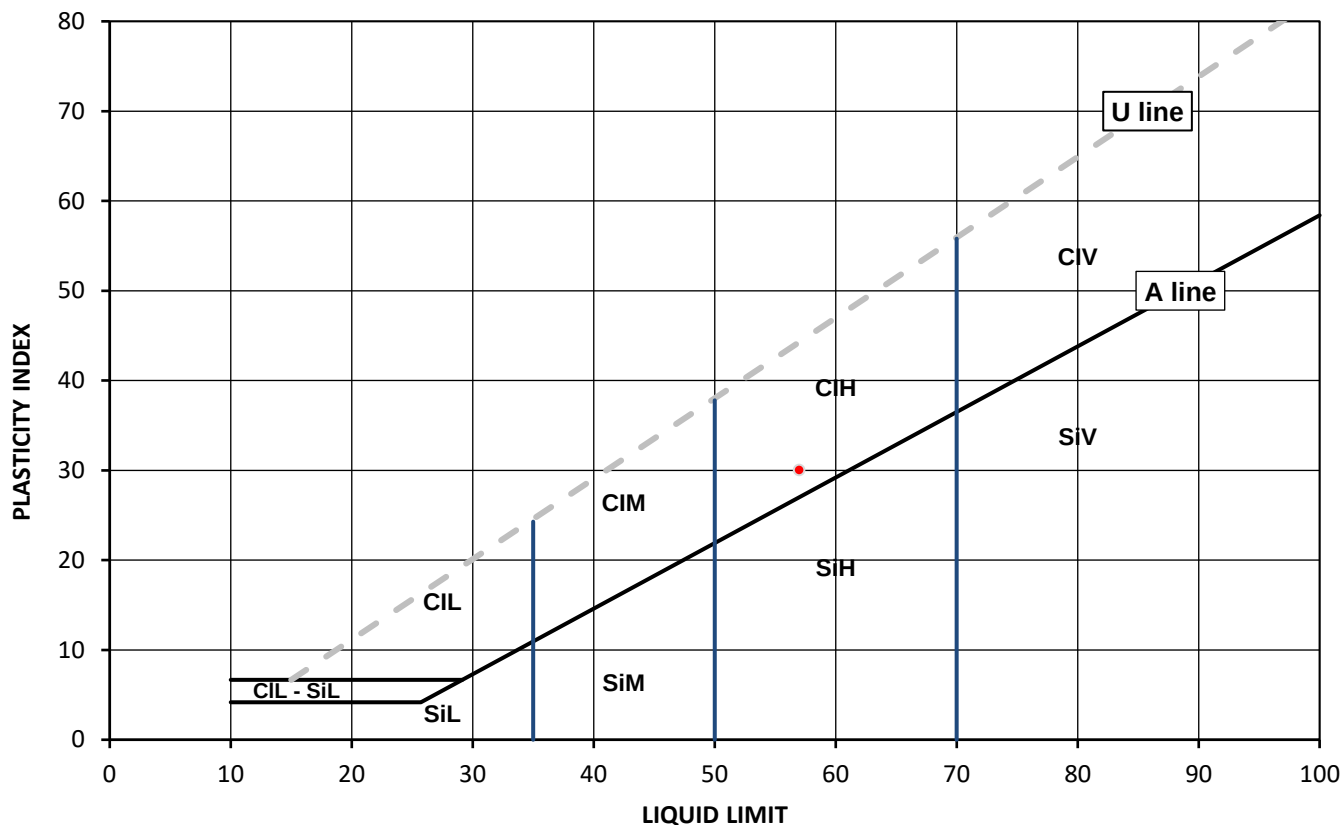
Test Results:

Laboratory Reference: 2826138
Hole No.: WLS02
Sample Reference: WLS020.902
Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.90
Depth Base [m]: Not Given
Sample Type: ES

Sample Preparation: Tested after >425 µm removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	57	27	30	78



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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i2 Analytical Ltd
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Environmental Science

4041

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Site Address: Top Park, Bury

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

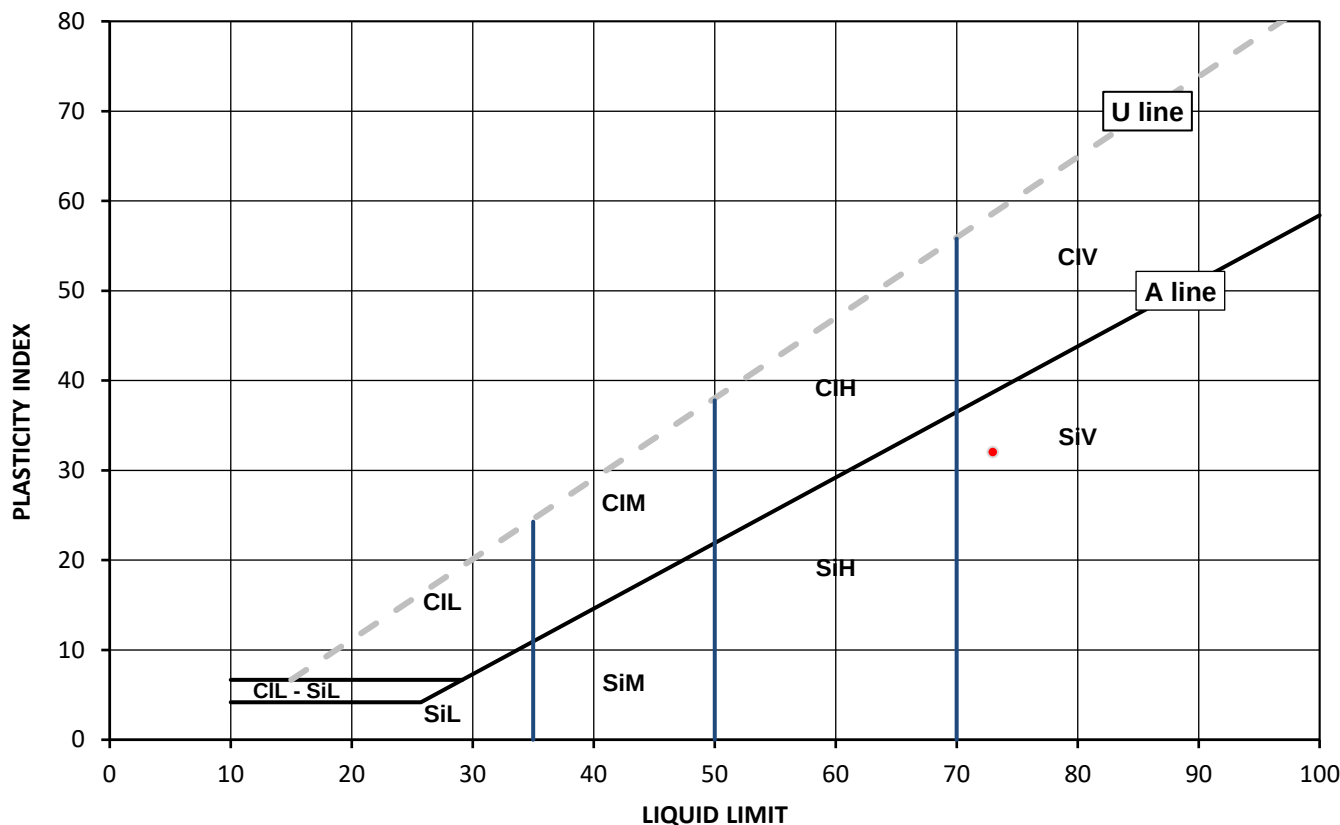
Test Results:

Laboratory Reference: 2826139
Hole No.: WLS04
Sample Reference: WLS042.004
Sample Description: Grey gravelly clayey SILT

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: ES

Sample Preparation: Tested after washing to remove >425 µm

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	73	41	32	52



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	
	V Very high	
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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Brackmills Industrial Estate
Northampton NN4 7EB

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Contact: Admin
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Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

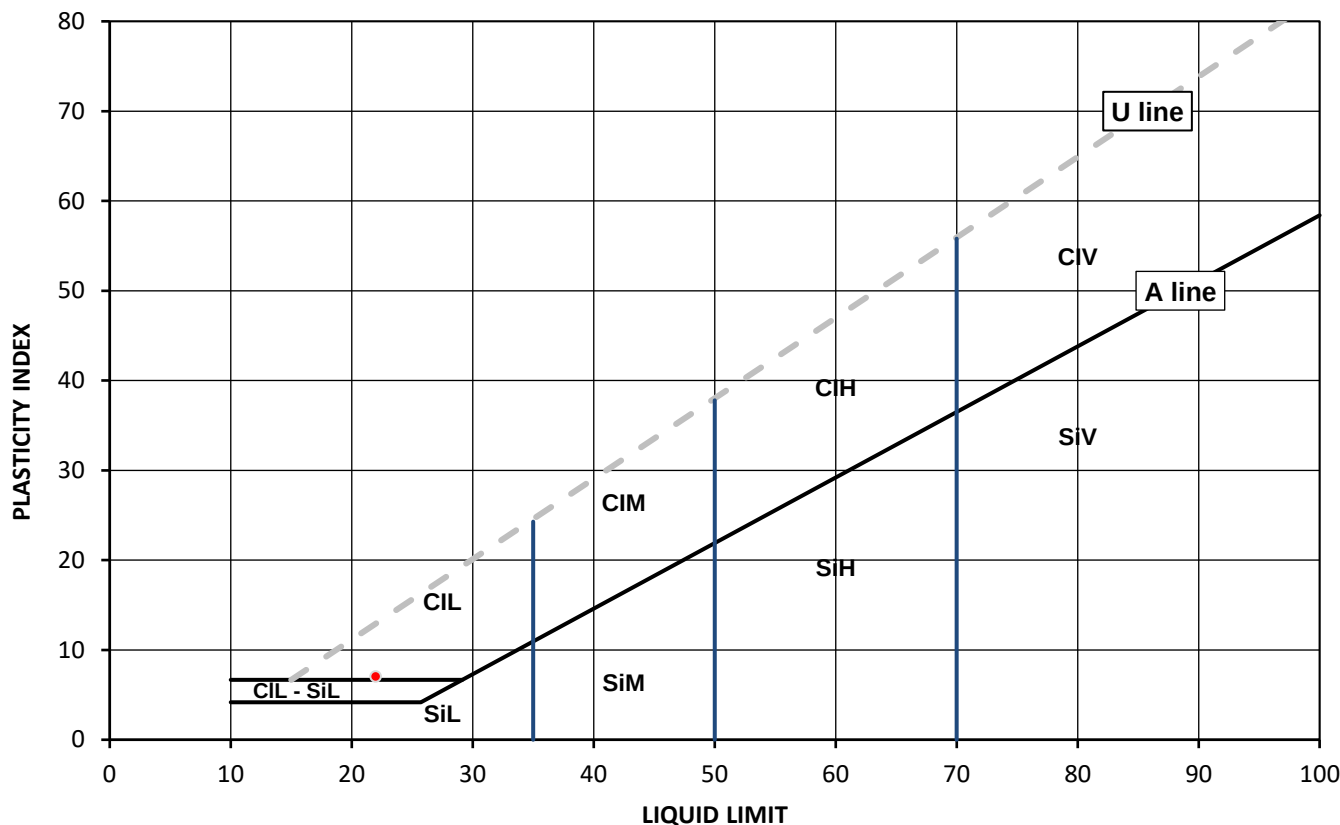
Test Results:

Laboratory Reference: 2826140
Hole No.: WLS05
Sample Reference: WLS051.003
Sample Description: Grey slightly gravelly clayey SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >425 µm removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
18	22	15	7	96



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Katarzyna Koziel

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Reporting Specialist
for and on behalf of i2 Analytical Ltd

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NN6 9PY

Contact: Admin
Site Address: Top Park, Bury

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

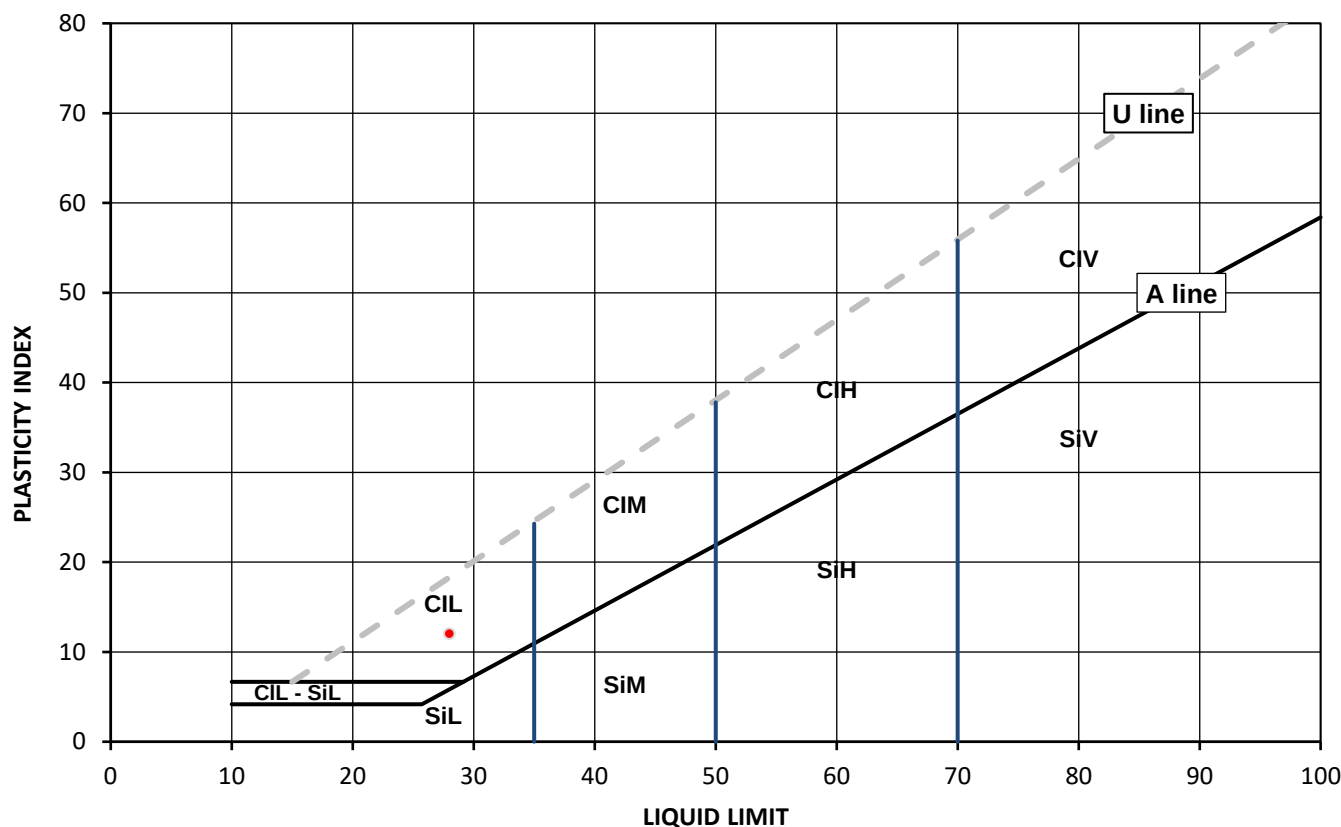
Test Results:

Laboratory Reference: 2826141
Hole No.: WLS06
Sample Reference: WLS062.003
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >425 µm removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
11	28	16	12	82



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Top Park, Bury

Water Content by BS 1377-2:1990: Clause 3.2
Atterberg by BS 1377-2: 1990:
Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 18/09 - 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-1 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m															
2826137	HP03	HP030.501	0.50	0.60	D	Brownish grey gravelly slightly sandy silty CLAY	Atterberg 1 Point	14		58	50	28	22						
2826138	WLS02	WLS020.902	0.90	Not Given	ES	Brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	14		78	57	27	30						
2826139	WLS04	WLS042.004	2.00	Not Given	ES	Grey gravelly clayey SILT	Atterberg 1 Point	23		52	73	41	32						
2826140	WLS05	WLS051.003	1.00	Not Given	D	Grey slightly gravelly clayey SAND	Atterberg 1 Point	18		96	22	15	7						
2826141	WLS06	WLS062.003	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	11		82	28	16	12						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Katarzyna Koziel

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Top Park, Bury

Client Reference: STV6169
Job Number: 23-58984-1
Date Sampled: 18/09 - 19/09/2023
Date Received: 27/09/2023
Date Tested: 03/10/2023
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2826137	HP03	HP030.501	0.50	0.60	D	Brownish grey gravelly slightly sandy silty CLAY		14	Sample was quartered, oven dried at 108.8 °C			
2826138	WLS02	WLS020.902	0.90	Not Given	ES	Brown slightly gravelly slightly sandy CLAY		14	Sample was quartered, oven dried at 108.8 °C			
2826139	WLS04	WLS042.004	2.00	Not Given	ES	Grey gravelly clayey SILT		23	Sample was quartered, oven dried at 108.8 °C			
2826140	WLS05	WLS051.003	1.00	Not Given	D	Grey slightly gravelly clayey SAND		18	Sample was quartered, oven dried at 108.8 °C			
2826141	WLS06	WLS062.003	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY		11	Sample was quartered, oven dried at 108.8 °C			

Comments:

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Signed:

Katarzyna Koziel

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Admin

Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

e: admin@soiltechnics.net

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-58987

Project / Site name:	Top Park, Bury	Samples received on:	27/09/2023
Your job number:	STV6169	Samples instructed on/ Analysis started on:	27/09/2023
Your order number:	POR016543	Analysis completed by:	09/10/2023
Report Issue Number:	1	Report issued on:	09/10/2023
Samples Analysed:	6 soil samples		



Signed:

Joanna Szwagrzak
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-58987
Project / Site name: Top Park, Bury
Your Order No: POR016543

Lab Sample Number				2826147	2826148	2826149	2826150	2826151
Sample Reference				HP03	WLS01	WLS03	WLS04	WLS05
Sample Number				HP030.501	WLS010.502	WLS032.102	WLS041.203	WLS051.003
Depth (m)				0.50-0.60	0.50	2.10	1.20	1.00
Date Sampled				18/09/2023	19/09/2023	19/09/2023	19/09/2023	19/09/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	67	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	27	14	11	17
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.5	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	7.1	8.3	8	7.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.066	0.423	0.167	0.332	0.024
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0876	1.93	0.162	1.63	0.112
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	87.6	1930	162	1630	112
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.4	16	5.5	22	4.2
Total Sulphur	%	0.005	MCERTS	0.065	0.877	0.086	0.302	0.013
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	5.9	41	18	29	< 5.0
Magnesium (leachate equivalent)	mg/l	2.5	NONE	3	20	8.8	14	< 2.5

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 23-58987
Project / Site name: Top Park, Bury
Your Order No: POR016543

Lab Sample Number				2826152
Sample Reference				WLS06
Sample Number				WLS060.452
Depth (m)				0.45
Date Sampled				19/09/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	53
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.7
Total Sulphate as SO ₄	%	0.005	MCERTS	0.076
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.044
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	44
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	49
Total Sulphur	%	0.005	MCERTS	0.062
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	13
Magnesium (leachate equivalent)	mg/l	2.5	NONE	6.2

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-58987

Project / Site name: Top Park, Bury

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2826147	HP03	HP030.501	0.50-0.60	Brown loam with gravel.
2826148	WLS01	WLS010.502	0.5	Brown loam and clay with gravel.
2826149	WLS03	WLS032.102	2.1	Brown clay with gravel and stones.
2826150	WLS04	WLS041.203	1.2	Brown gravelly sand.
2826151	WLS05	WLS051.003	1	Brown clay and sand.
2826152	WLS06	WLS060.452	0.45	Brown clay and sand with gravel and stones.

Analytical Report Number : 23-58987
Project / Site name: Top Park, Bury

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix F Geoenvironmental Laboratory Test Results



Final Report

Report No.: 23-31990-1

Initial Date of Issue: 29-Sep-2023

Re-Issue Details:

Client Soiltechnics Limited

Client Address: 1st Floor Unit 9 Westpoint Enterprise
Park
Clarence Avenue
Trafford Park
Manchester
M17 1QS

Contact(s): Admin

Project STV6169 Top Park Bury

Quotation No.: **Date Received:** 25-Sep-2023

Order No.: POR016542 **Date Instructed:** 25-Sep-2023

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 29-Sep-2023

Date Approved: 29-Sep-2023

Approved By:

Details: Stuart Henderson, Technical
Manager

Results - Soil

Project: STV6169 Top Park Bury

Client: Soiltechnics Limited	Chemtest Job No.:				23-31990	23-31990
Quotation No.:	Chemtest Sample ID.:				1706971	1706972
	Sample Location:				TS01	WAC01
	Sample Type:				SOIL	SOIL
	Date Sampled:				19-Sep-2023	19-Sep-2023
	Asbestos Lab:				DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	24	17
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Loam	Loam
pH at 20C	M	2010		4.0	7.8	7.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.1	0.84
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2455	mg/kg	0.5	12	13
Beryllium	U	2455	mg/kg	0.5	0.7	0.8
Cadmium	M	2455	mg/kg	0.10	0.43	0.37
Chromium	M	2455	mg/kg	0.5	47	28
Copper	M	2455	mg/kg	0.50	56	55
Mercury	M	2455	mg/kg	0.05	0.38	0.24
Nickel	M	2455	mg/kg	0.50	17	16
Lead	M	2455	mg/kg	0.50	130	150
Selenium	M	2455	mg/kg	0.25	0.45	0.52
Vanadium	U	2455	mg/kg	0.5	19	18
Zinc	M	2455	mg/kg	0.50	150	150
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
LOI	M	2610	%	0.10	8.9	9.1
Organic Matter	M	2625	%	0.40	6.1	4.6
TPH >C5-C6	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C6-C7	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C7-C8	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C8-C10	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C10-C12	N	2670	mg/kg	1.0	4.4	< 1.0
TPH >C12-C16	N	2670	mg/kg	1.0	14	8.6
TPH >C16-C21	N	2670	mg/kg	1.0	35	9.4
TPH >C21-C35	N	2670	mg/kg	1.0	140	75
Total TPH >C5-C35	N	2670	mg/kg	10	190	93
Naphthalene	M	2800	mg/kg	0.10	0.18	0.38
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	0.31
Fluorene	M	2800	mg/kg	0.10	< 0.10	0.24

Results - Soil

Project: STV6169 Top Park Bury

Client: Soiltechnics Limited	Chemtest Job No.:				23-31990	23-31990
Quotation No.:	Chemtest Sample ID.:				1706971	1706972
	Sample Location:				TS01	WAC01
	Sample Type:				SOIL	SOIL
	Date Sampled:				19-Sep-2023	19-Sep-2023
	Asbestos Lab:				DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD		
Phenanthrene	M	2800	mg/kg	0.10	0.99	2.1
Anthracene	M	2800	mg/kg	0.10	0.58	0.41
Fluoranthene	M	2800	mg/kg	0.10	2.2	2.8
Pyrene	M	2800	mg/kg	0.10	1.9	2.3
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.95	1.1
Chrysene	M	2800	mg/kg	0.10	1.1	1.1
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	1.4	1.5
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.43	0.49
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.1	1.2
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.78	0.86
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.14
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.66	0.82
Total Of 16 PAH's	N	2800	mg/kg	2.0	12	16
Total Phenols	M	2920	mg/kg	0.10	0.26	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.: 23-31991-1

Initial Date of Issue: 03-Oct-2023

Re-Issue Details:

Client Soiltechnics Limited

Client Address: 1st Floor Unit 9 Westpoint Enterprise
Park
Clarence Avenue
Trafford Park
Manchester
M17 1QS

Contact(s): Admin

Project STV6169 Top Park Bury

Quotation No.: **Date Received:** 25-Sep-2023

Order No.: POR016542 **Date Instructed:** 25-Sep-2023

No. of Samples: 1

Turnaround (Wkdays): 7 **Results Due:** 03-Oct-2023

Date Approved: 03-Oct-2023

Approved By:

Details: Stuart Henderson, Technical
Manager

Results - 2 Stage WAC

Project: STV6169 Top Park Bury

Chemtest Job No: 23-31991							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1706973							Limits			
Sample Ref:							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID:										
Sample Location: WAC01										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 19-Sep-2023										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				0.27	3	5	6
Loss On Ignition	2610	M	%				3.2	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				65	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				19	100	--	--
pH at 20C	2010	M					8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0060	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0019	0.0022	0.0037	0.022	0.5	2	25	
Barium	1455	U	0.098	0.042	0.19	0.46	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0019	0.0015	0.0037	0.015	0.5	10	70	
Copper	1455	U	0.0090	0.0040	0.018	0.0069	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.020	0.0049	0.039	0.060	0.5	10	30	
Nickel	1455	U	0.0013	0.0006	0.0026	0.0062	0.4	10	40	
Lead	1455	U	0.0006	0.0008	0.0012	0.0077	0.5	10	50	
Antimony	1455	U	0.0060	0.0019	0.012	0.022	0.06	0.7	5	
Selenium	1455	U	0.0017	0.0010	0.0033	0.010	0.1	0.5	7	
Zinc	1455	U	0.009	0.005	0.017	0.057	4	50	200	
Chloride	1220	U	3.9	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.50	0.35	< 1.0	3.6	10	150	500	
Sulphate	1220	U	44	5.2	86	82	1000	20000	50000	
Total Dissolved Solids	1020	N	240	85	470	960	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	13	5.6	< 50	61	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	17

Leachate Test Information	
Leachant volume 1st extract/l	0.314
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.134

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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I/S	Insufficient Sample
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<	"less than"
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The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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Sample Deviation Codes

- A - Date of sampling not supplied
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- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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All soil samples will be retained for a period of 30 days from the date of receipt

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Charges may apply to extended sample storage

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customerservices@chemtest.com

Appendix G Contamination Assessment Screening

GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Not undertaken			
Chronic human health risk - Soils	Completed	23/10/2023	JP	DH
Chronic human health risk - Groundwater vapour	Not undertaken			
Controlled waters risk - Surface water	Not undertaken			
Controlled waters risk - Drinking water	Not undertaken			
Controlled waters - Free phase indicator	Not undertaken			
Phytotoxicity	Not undertaken			
Ecotoxicity	Not undertaken			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010

Chronic human health risk (soils)

Scenario				
End user	Proposed site user			
Receptor	Residential with homegrown produce			
SOM	6.00%			
GAC Preference	C4SLs over S4ULs			
Unspeciated TPH GAC	Worst-case aliphatic/aromatic			

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	TS01
				Depth (m)	0.00
				Date	19/09/23
Inorganics - Metals					
Arsenic	C4SL	37	12		12
Beryllium	S4UL	1.7	0.7		0.7
Boron	S4UL	290	1.1		1.1
Cadmium	C4SL	22	0.43		0.43
Chromium (III)	S4UL	910	47		47
Chromium (VI)	C4SL	21	<LoD		< 0.50
Copper	S4UL	2400	56		56
Cyanide - Free	ATK	34	<LoD		< 0.50
Lead	C4SL	200	130		130
Mercury	S4UL	40	0.38		0.38
Nickel	S4UL	130	17		17
Selenium	S4UL	250	0.45		0.45
Vanadium	S4UL	410	19		19
Zinc	S4UL	3700	150		150
Inorganics - Asbestos					
Asbestos Type	N/A				-
Asbestos Screen	N/A				No Asbestos Detected
Inorganics - Soil Parameters					
Organic matter	N/A				6.1
Organics - PAH & Phenol					
Acenaphthene	S4UL	1100	<LoD		< 0.10
Acenaphthylene	S4UL	920	<LoD		< 0.10
Anthracene	S4UL	11000	0.58		0.58
Benzo(a)anthracene	S4UL	13	0.95		0.95
Benzo(a)pyrene	C4SL	5	1.1		1.1
Benzo(b)fluoranthene	S4UL	3.7	1.4		1.4
Benzo(ghi)perylene	S4UL	350	0.66		0.66
Benzo(k)fluoranthene	S4UL	100	0.43		0.43
Chrysene	S4UL	27	1.1		1.1
Dibenz(a,h)anthracene	S4UL	0.3	<LoD		< 0.10
Fluoranthene	S4UL	890	2.2		2.2
Fluorene	S4UL	860	<LoD		< 0.10
Indeno[1,2,3-cd]pyrene	S4UL	41	0.78		0.78
Naphthalene	S4UL	13	0.18		0.18
Phenanthrene	S4UL	440	0.99		0.99
Phenol	S4UL	380	0.26		0.26
Pyrene	S4UL	2000	1.9		1.9
Organics - Banded TPH (unspeciated)					
EC >5-EC6 (unspeciated)	S4UL	160	<LoD		< 1.0
EC >6-EC7 (unspeciated)	S4UL	300	<LoD		< 1.0
EC >7-EC8 (unspeciated)	S4UL	530	<LoD		< 1.0
EC >08-EC10 (unspeciated)	S4UL	150	<LoD		< 1.0
EC >10-EC12 (unspeciated)	S4UL	380	4.4		4.4
EC >12-EC16 (unspeciated)	S4UL	660	14		14
EC >16-EC21 (unspeciated)	S4UL	930	35		35
EC >21-EC35 (unspeciated)	S4UL	1700	140		140

Appendix H Waste Characterisation Assessment

Waste Classification Assessment Summary

Waste population	Brown to grey clays, sands and gravels containing anthropogenic material
Hazard assessment	Non-hazardous waste
List of waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03

Hazard property	Assessment
HP1 - Explosive	Not hazardous by HP1
HP2 - Oxidising	Not hazardous by HP2
HP3 - Flammable	Not hazardous by HP3
HP4 - Irritant	Not hazardous by HP4
HP5 - STOT & aspiration toxicity	Not hazardous by HP5
HP6 - Acute toxicity	Not hazardous by HP6
HP7 - Carcinogenic	Not hazardous by HP7
HP8 - Corrosive	Not hazardous by HP8
HP9 - Infectious	Not hazardous by HP9
HP10 - Toxic for reproduction	Not hazardous by HP10
HP11 - Mutagenic	Not hazardous by HP11
HP12 - Release of an acute toxic gas	Not hazardous by HP12
HP13 - Sensitising	Not hazardous by HP13
HP14 - Ecotoxic	Not hazardous by HP14

Waste classification

Overall assessment	
Waste population	Brown to grey clays, sands and gravels containing anthropogenic material
Hazard assessment	Non-hazardous waste
List of Waste code	17-05-04
List of waste description	Soil and stones other than those mentioned in 17-05-03
Is the statistical approach non-parametric, method B utilized?	No
Moisture content correction factor	No correction made

Asbestos assessment		
Query	Value	Assessment
Are bulk ACMs visually identifiable?	No	Non-hazardous
Have free fibres been detected?	No	Non-hazardous
What is the free fibre concentration (%)?	N/A	Non-hazardous

Flammability assessment	
Comment	Assessment
The waste is not considered flammable as it is a solid waste without a free draining liquid phase, and the TPH concentration and composition is not considered to present a likely flammable hazard.	Non-hazardous

Hydrocarbon assessment	
Query	Assessment
Is the origin of the oil contamination known?	Unknown oil
B(a)P : TPH ratio (%)	Not required
B(a)P marker assessment	Not required

pH assessment		
Query	Value	Assessment
Are all substances present in the waste known?	No	See pH assessment below
pH - Min	7.50	Non-hazardous
pH - Max	8.20	Non-hazardous

Oxidising assessment	
Comment	Assessment
Cr (VI) is the only compound with an oxidising hazard statement (H271). On review, the concentration is considered too low to present a viable oxidising hazard in a waste soil	Non-hazardous

Economic assessment			
Equation	Sum	Criteria	Assessment
WM3, Eq. 2	0.00%	25%	Non-hazardous
WM3 Eq. 3	0.00%	25%	Non-hazardous
WM3 Eq. 4	0.00%	25%	Non-hazardous

Compound hazard assessments

Hazard Property Description						Irritant			Specific Target Organ Toxicity / Aspiration Toxicity				Acute Toxicity								Carcinogenic		Corrosive	Toxic for reproduction		Mutagenic		Sensitising		Ecotoxic				Substance specific concentration limits																			
Hazard Property						HP4			HP5				HP6								HP7		HP8	HP10		HP11		HP13		HP14				STOT				Carc.	Repr.														
Hazard Statement						H314	H315 and/or H319	H318	H304	H335	H372	H373	H300	H301	H302	H310	H311	H312	H330	H330	H331	H332	H350	H351	H314	H360	H361	H340	H341	H317	H334	H400	H410	H411	H413	H335 (GHS)	H372 (GHS)	H373 (GHS)	H373 (P604)	H350 (Bsp) (DnA)	H361 (P604)												
Contaminant	Max. concentration (mg/kg)	Realistic worst case compound	Mass conversion factor	MCL applicable?	Hazard Class / Compound concentration (%)	Skin Corr.1A	Skin Irrit.2 Eye Irrit.2	Eye Dam.1	Asp.Tox.1	STOT SE.3	STOT RE.1	STOT RE.2	Acute Tox.2 (Oral)	Acute Tox.3 (Oral)	Acute Tox.4 (Oral)	Acute Tox.1 (Dermal)	Acute Tox.4 (Dermal)	Acute Tox.1 (Inhal.)	Acute Tox.3 (Inhal)	Acute Tox.3 (Inhal)	Acute Tox.4 (Inhal)	Carc.1A Carc.1B	Carc.2	Skin Corr.1A Skin Corr.1B	Repr.1A Repr.1B	Repr.2	Muta.1A Muta.1B	Muta.2	Skin Sens.1	Resp. Sens. 1	Aquatic Acute.1	Aquatic Chronic.1	Aquatic Chronic.2	Aquatic Chronic.4	STOT SE.3	STOT RE.1	STOT RE.2	STOT RE.2	Carc.1B	Repr.2													
Cyanide - Total	0.5	Salts of hydrogen cyanide, using sodium cyanide	1.88	N/A	0.000								0.000						0.000																																		
Arsenic	13.0	Nickel diarsenide	1.78	N	0.002																																																
Arsenic (secondary)	13.0	Arsenic trioxide	1.32	N	0.002								0.002																																								
Beryllium	0.8	Beryllium oxide	2.78	N	0.000																																																
Cadmium	0.4	Cadmium sulfide	1.29	N	0.000																																																
Cadmium (secondary)	0.4	Cadmium oxide	1.14	N	0.000																																																
Chromium (III)	47.0	Chromium (III) oxide	1.46	N	0.007																																																
Chromium (VI)	0.5	Chromium (VI) trioxide	1.92	N/A	0.000																																																
Copper	56.0	Copper (I) oxide	1.25	N	0.007																																																
Copper (secondary)	56.0	Copper(II) oxide	1.13	N	0.006																																																
Lead	150.0	Lead compounds, using lead sulphate	1.46	N	0.022																																																
Mercury	0.4	Mercury dichloride	1.35	N	0.000																																																
Nickel	17.0	Nickel carbonate	2.02	N	0.003																																																
Selenium	0.5	Selenium compounds, using selenium dioxide	1.41	N	0.000																																																
Zinc	150.0	Zinc sulphide	1.49	N	0.022																																																
Vanadium	19.0	Vanadium pentoxide	1.79	N	0.003																																																
Naphthalene	0.4	Naphthalene	1	N/A	0.000																																																
Acenaphthylene	0.1	Acenaphthylene	1	N/A	0.000																																																
Acenaphthene	0.3	Acenaphthene	1	N/A	0.000																																																
Fluorene	0.2	Fluorene	1	N/A	0.000																																																
Phenanthrene	2.1	Phenanthrene	1	N/A	0.000																																																
Anthracene	0.6	Anthracene	1	N/A	0.000																																																
Fluoranthene	2.8	Fluoranthene	1	N/A	0.000																																																
Pyrene	2.3	Pyrene	1	N/A	0.000																																																
Benzo(a)anthracene	1.1	Benzo(a)anthracene	1	N/A	0.000																																																
Chrysene	1.1	Chrysene	1	N/A	0.000																																																
Benzo(b)fluoranthene	1.5	Benzo(b)fluoranthene	1	N/A	0.000																																																
Benzo(k)fluoranthene	0.5	Benzo(k)fluoranthene	1	N/A	0.000																																																
Benzo(a)pyrene	1.2	Benzo(a)pyrene	1	N/A	0.000																																																
Indeno(1,2,3-cd)pyrene	0.9	Indeno(1,2,3-cd)pyrene	1	N/A	0.000																																																
Dibenz(a,h)anthracene	0.1	Dibenz(a,h)anthracene	1	N/A	0.000																																																
Benzo(ghi)perylene	0.8	Benzo(ghi)perylene	1	N/A	0.000																																																
Total TPH	190.0	Unknown oil	1	N/A	0.019																																																
Benzene		Benzene	1	N/A																																																	
Toluene		Toluene	1	N/A																																																	
Ethylbenzene		Ethylbenzene	1	N/A																																																	
Xylenes		Xylenes	1	N/A																																																	
Note:																																																					
					Cut-off value (%)	1%	1%	1%	N/A	N/A	N/A	N/A	0.1%	0.1%	1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.1%	1%	1%	N/A	N/A	N/A	N/A	N/A	N/A												
					Total (or greatest)	0.00%	0.00%	0.00%	0.02%	(0%)	(0%)	(0.02%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	(0%)	(0.02%)	0.00%	(0.02%)	(0.02%)	(0%)	(0%)	(0.02%)	(0.02%)	0.00%	0.00%	0.00%	0.00%	(0%)	(0%)	(0%)	(0.02%)	(0%)	(0.02%)											
					Hazard threshold	1%	20%	10%	10%	20%	1%	10%	0.25%	5%	25%	0.25%	15%	55%	0.1%	0.5%	3.5%	22.5%	0.1%	1%	5%	0.3%	3%	0.1%	1%	10%	10%	WM3 eq.2	WM3 eq.3 & eq.4	WM3 eq.4		1.0%	10.0%	0.1%	0.5%	0.01%	2.5%												
					Hazardous	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N												

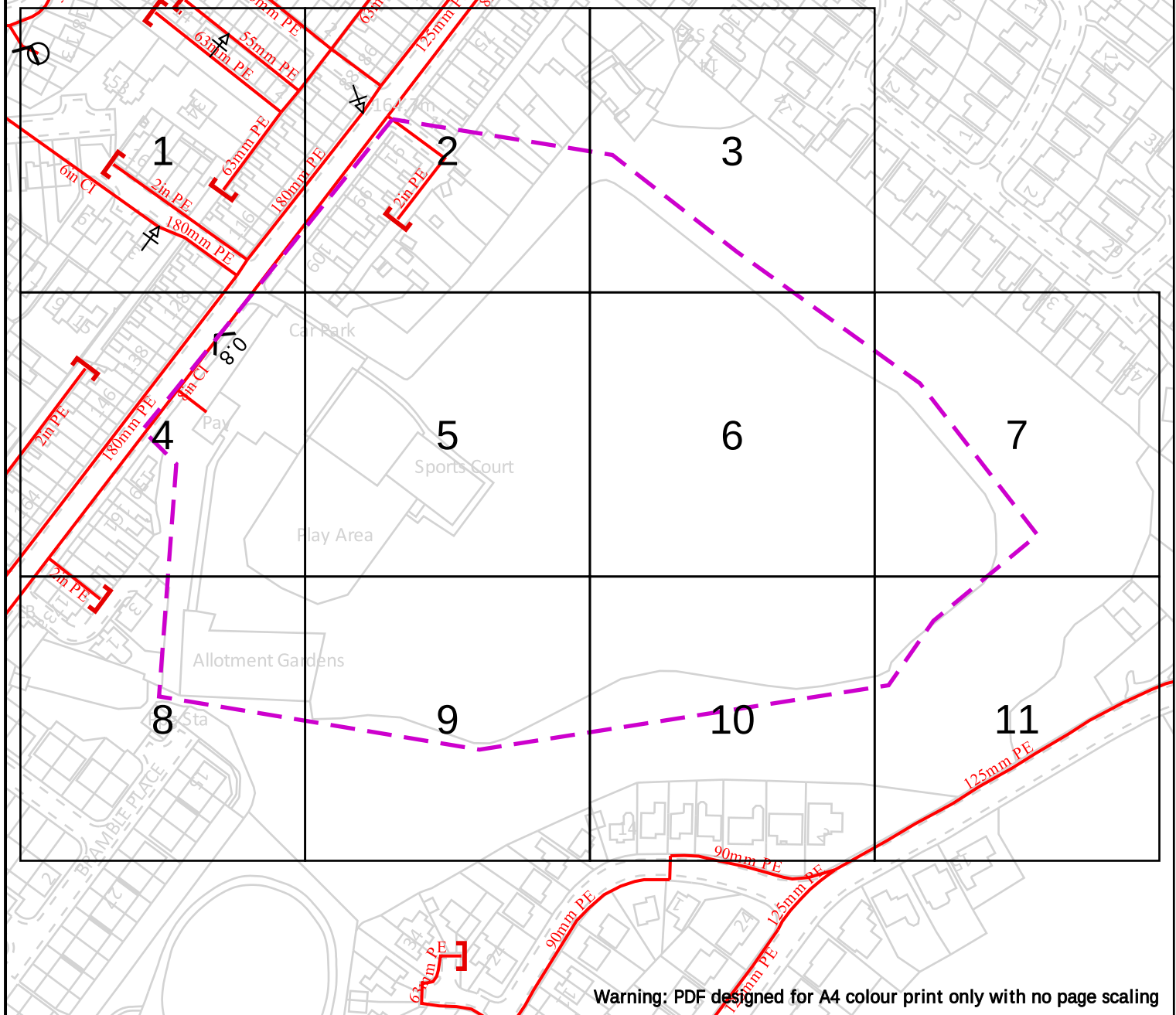
Waste acceptance

Parameter	Inert waste landfill	Stable non-reactive hazardous waste in a non-hazardous landfill cell (SNRHW)	Hazardous waste landfill	Location	WAC01
				Depth (m)	0.00
				Date	19/09/23
Parameters determined on the waste					
Total organic carbon	3	5	6		0.27
Loss on ignition			10		9.1
BTEX	6				< 0.010
PCBs (7 congeners)	1				< 0.10
Mineral oil	500				65
PAH (17 congeners)	100				19
pH		6			7.5
Acid neutralisation capacity (pH 6)		To be evaluated	To be evaluated		0.006
Acid neutralisation capacity (pH 4)		To be evaluated	To be evaluated		0.006
Limit values (mg kg ⁻¹) for compliance test using BN 12457-3 at L/S 10 l					
Arsenic	0.5	2	25		0.022
Barium	20	100	300		0.46
Cadmium	0.04	1	5		< 0.00011
Chromium (III)	0.5	10	70		0.015
Copper	2	50	100		0.0069
Mercury	0.01	0.2	2		< 0.00005
Molybdenum	0.5	10	30		0.06
Nickel	0.4	10	40		0.0062
Lead	0.5	10	50		0.0077
Antimony	0.06	0.7	5		0.022
Selenium	0.1	0.5	7		0.01
Zinc	4	50	200		0.057
Chloride	800	15,000	25,000		< 10
Fluoride	10	150	500		3.6
Sulphate	1,000	20,000	50,000		82
Total dissolved solids	4,000	60,000	100,000		960
Phenol	1				< 0.50
Dissolved organic carbon	500	800	1000		61
Classifications					
Waste classification					Non-hazardous
Landfill type					Inert

- Key Notes:**
- 1) The values for total dissolved solids (TDS) can be used alternatively to the values for sulphate and chloride.
- 2) Soils with TOC values over the limit value may still be accepted provided the DOC value falls are below it's respective limit value.
- 3) In a hazardous waste, either the TOC or LOI must be used.

Appendix I Statutory Undertakers Responses

Overview map of worksite



Dig Sites

Area:



Line:



LP Mains



MP Mains



IP Mains



LHP Mains



Valve



Depth of cover



Syphon



Diameter Change



Material Change



Out of Standard Service

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

IMPORTANT NOTICES

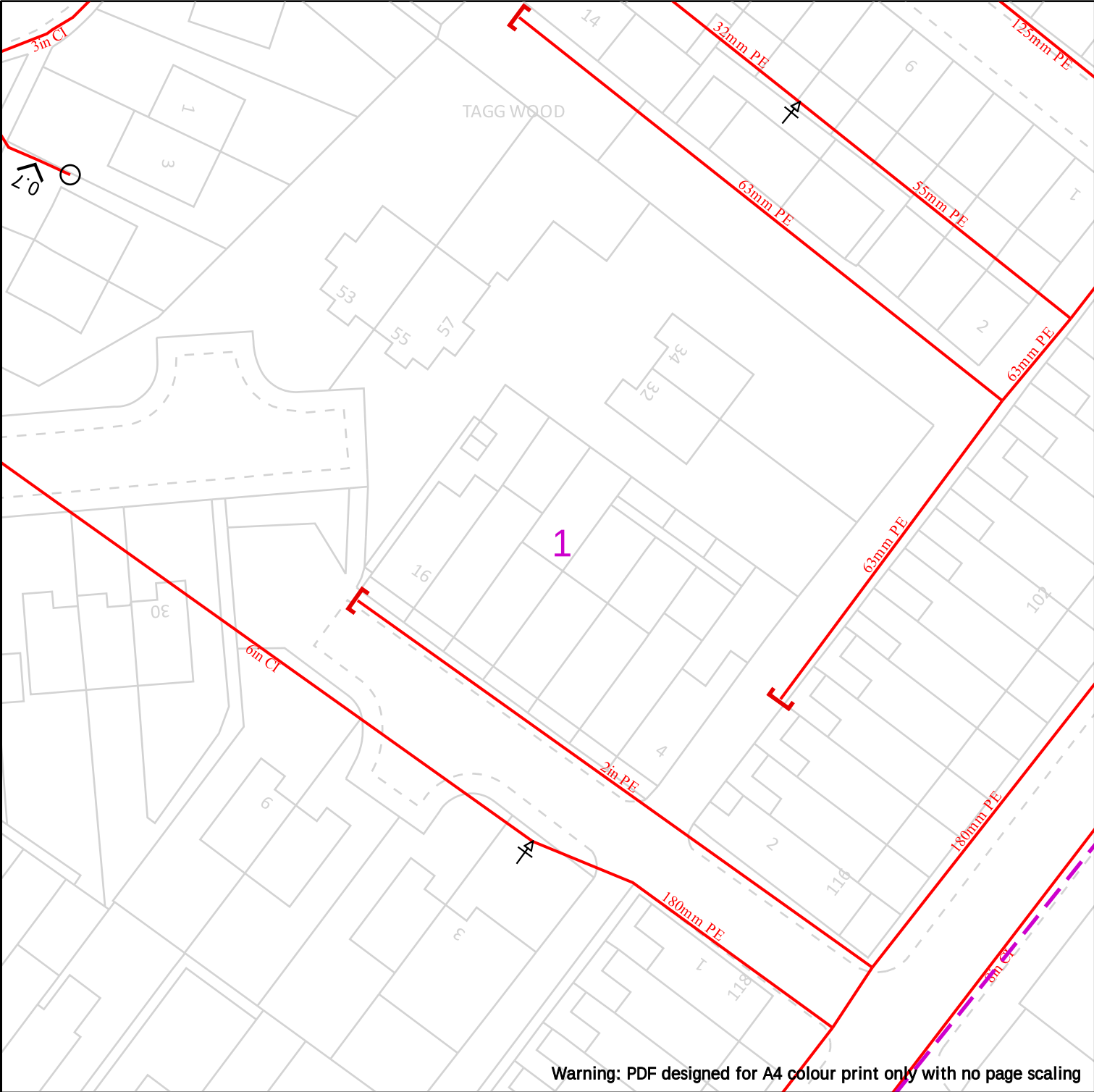
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View extent: 100m, 100m

In case of emergency call - 0800 111 999

Scale: 1:2050 (When plotted at A4)

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Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169
View extent: 100m, 100m
Scale: 1:500 (When plotted at A4)



25m

Dig Sites	Area:	Line:

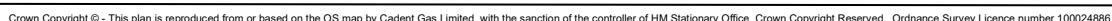
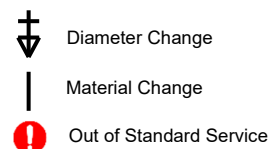
	Valve		Diameter Change
	Depth of cover		Material Change
	Syphon		Out of Standard Service

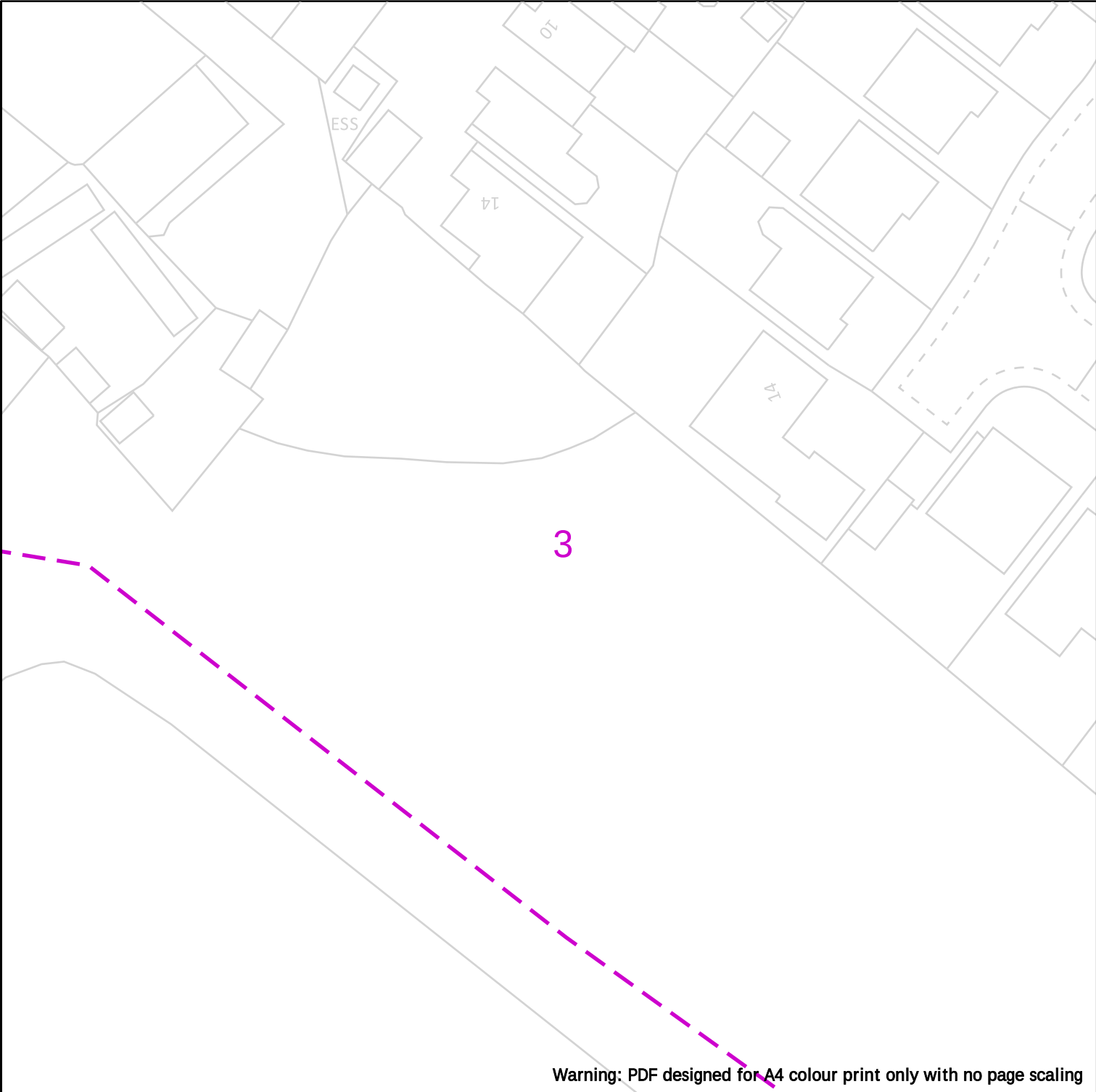
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Dig Sites

Area:

Line:

LP Mains

MP Mains

IP Mains

LHP Mains

Valve

Depth of cover

Syphon

Diameter Change

Material Change

Out of Standard Service

Date Requested: 16/08/2023

Job Reference: 30536072

Site Location: 378687 415981

Requested by: Miss Lauren Wenham

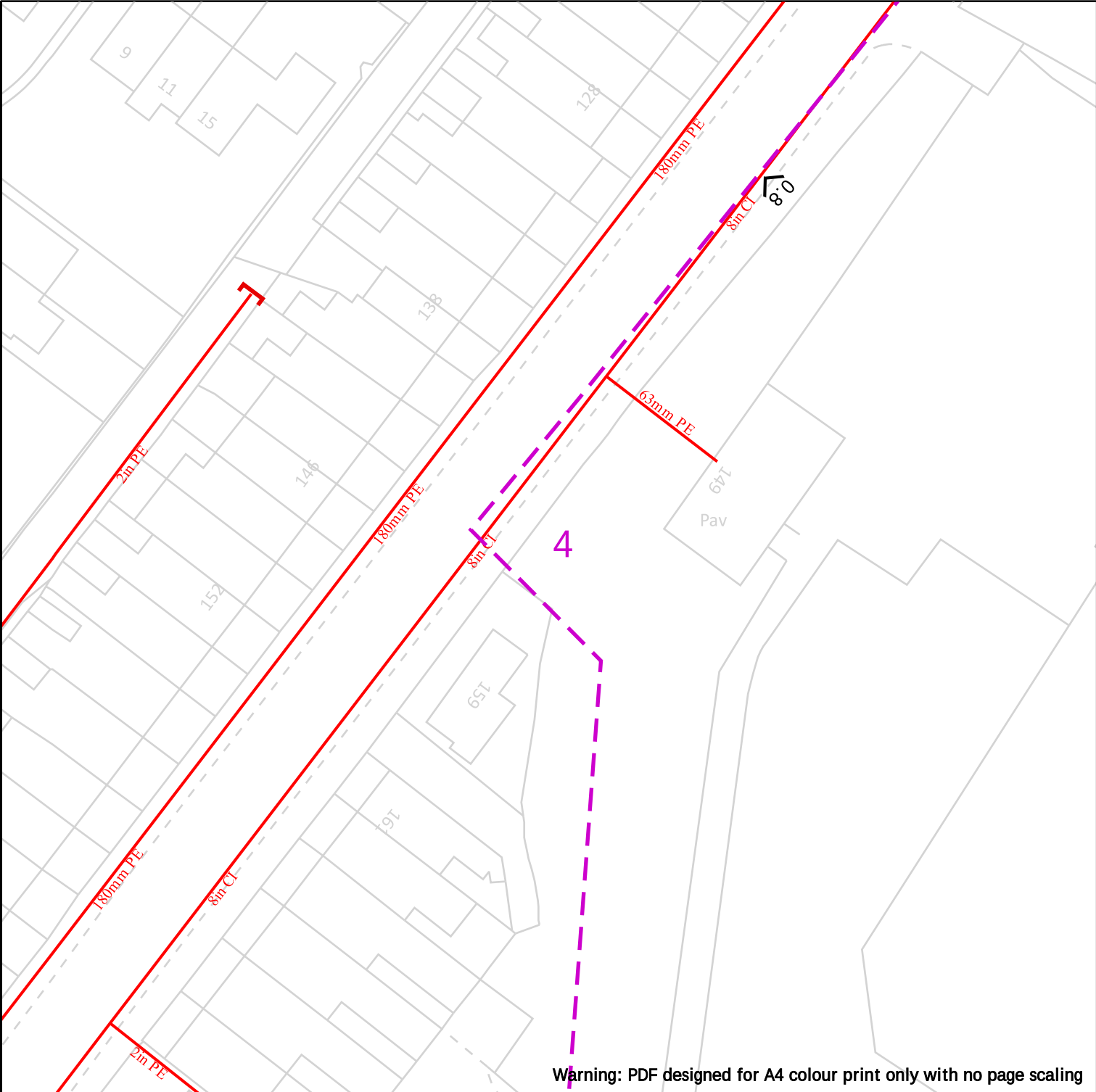
Your Scheme/Reference: STV6169

View extent: 100m, 100m

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25m

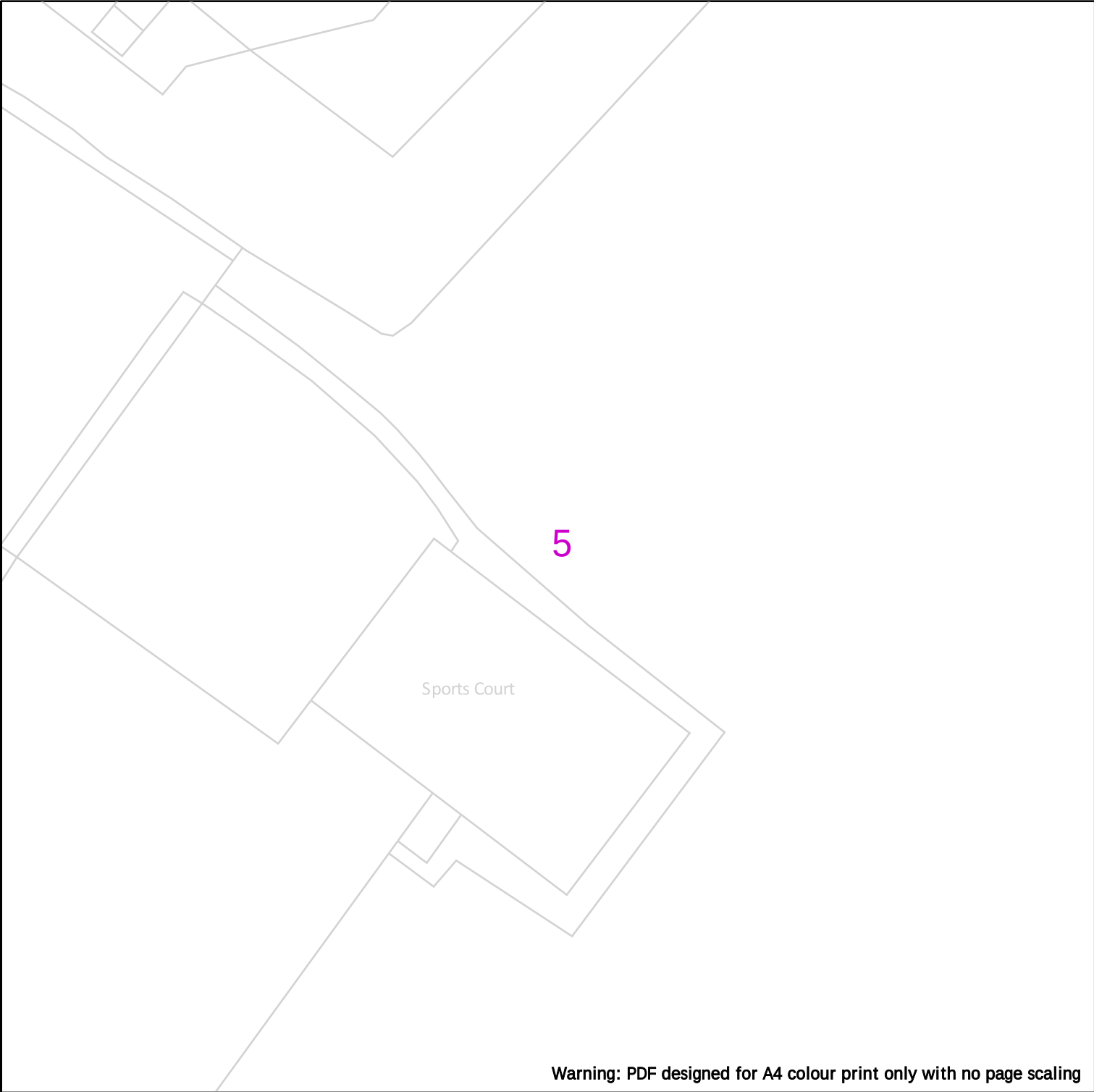
Dig Sites	Area: 	Line: 	
	LP Mains	 Valve	 Diameter Change
	MP Mains	 Depth of cover	 Material Change
	IP Mains	 Syphon	 Out of Standard Service
	LHP Mains		

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25m

Dig Sites

Area:  Line: 

 LP Mains

 MP Mains

 IP Mains

 LHP Mains

 Valve

 Depth of cover

 Syphon

 Diameter Change

 Material Change

 Out of Standard Service

Date Requested: 16/08/2023

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6

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 25m

Dig Sites

Area:



Line:



Cadent
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LP Mains



MP Mains



IP Mains



LHP Mains



Valve



Depth of cover



Syphon



Diameter Change



Material Change



Out of Standard Service

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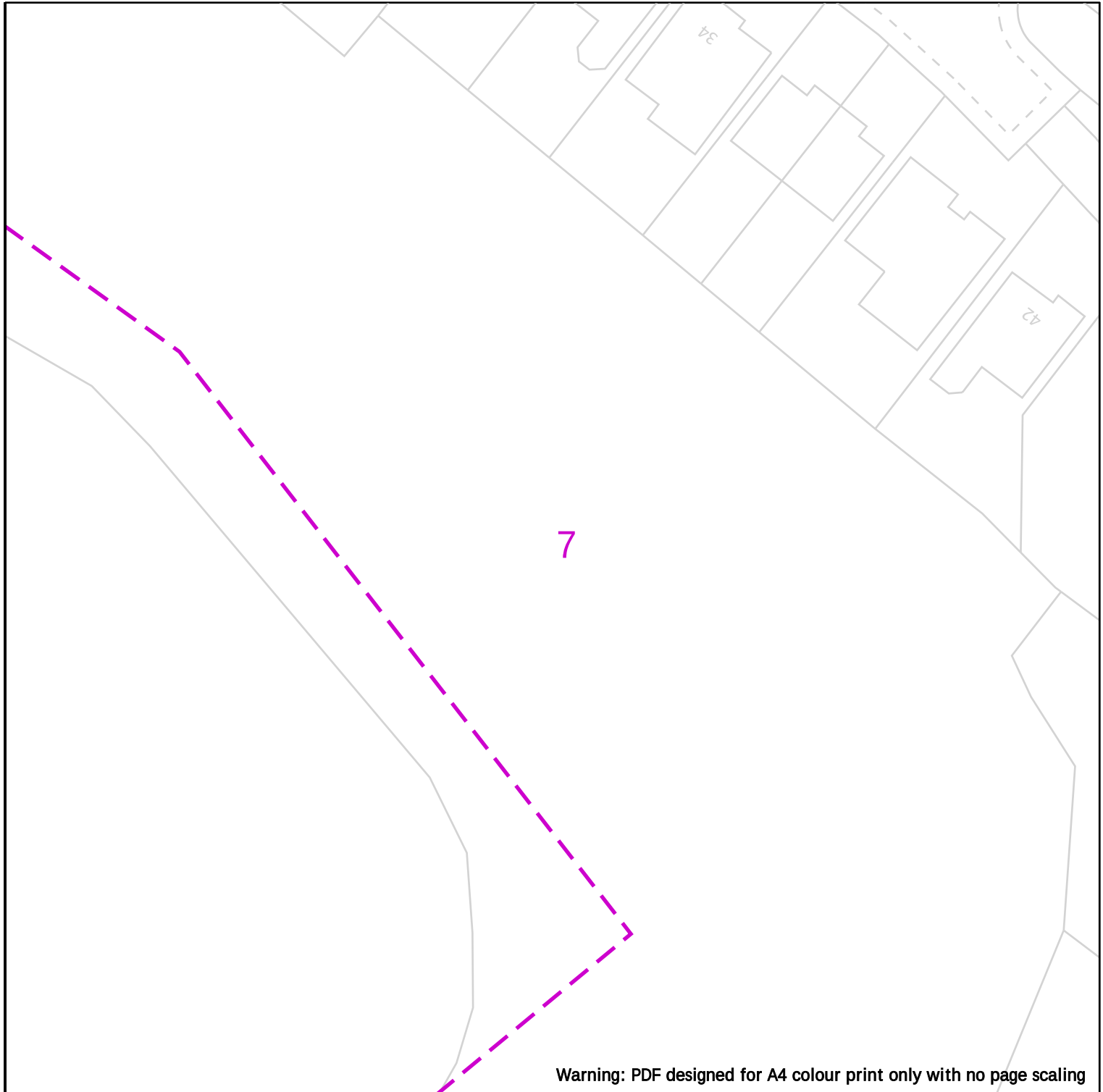
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 25m

Dig Sites

Area:



Line:



Cadent
Your Gas Network



LP Mains



MP Mains



IP Mains



LHP Mains



Valve



Depth of cover



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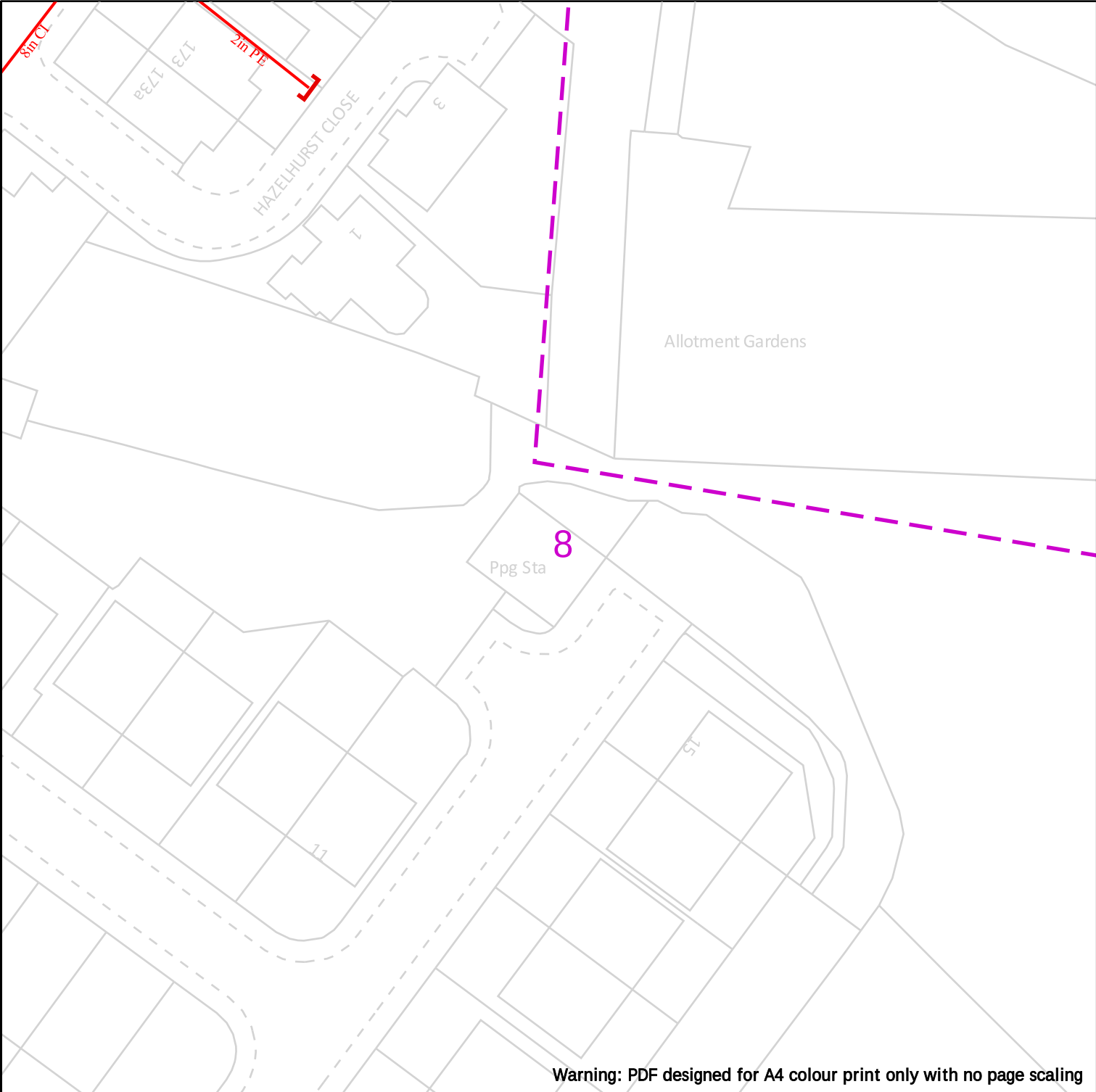
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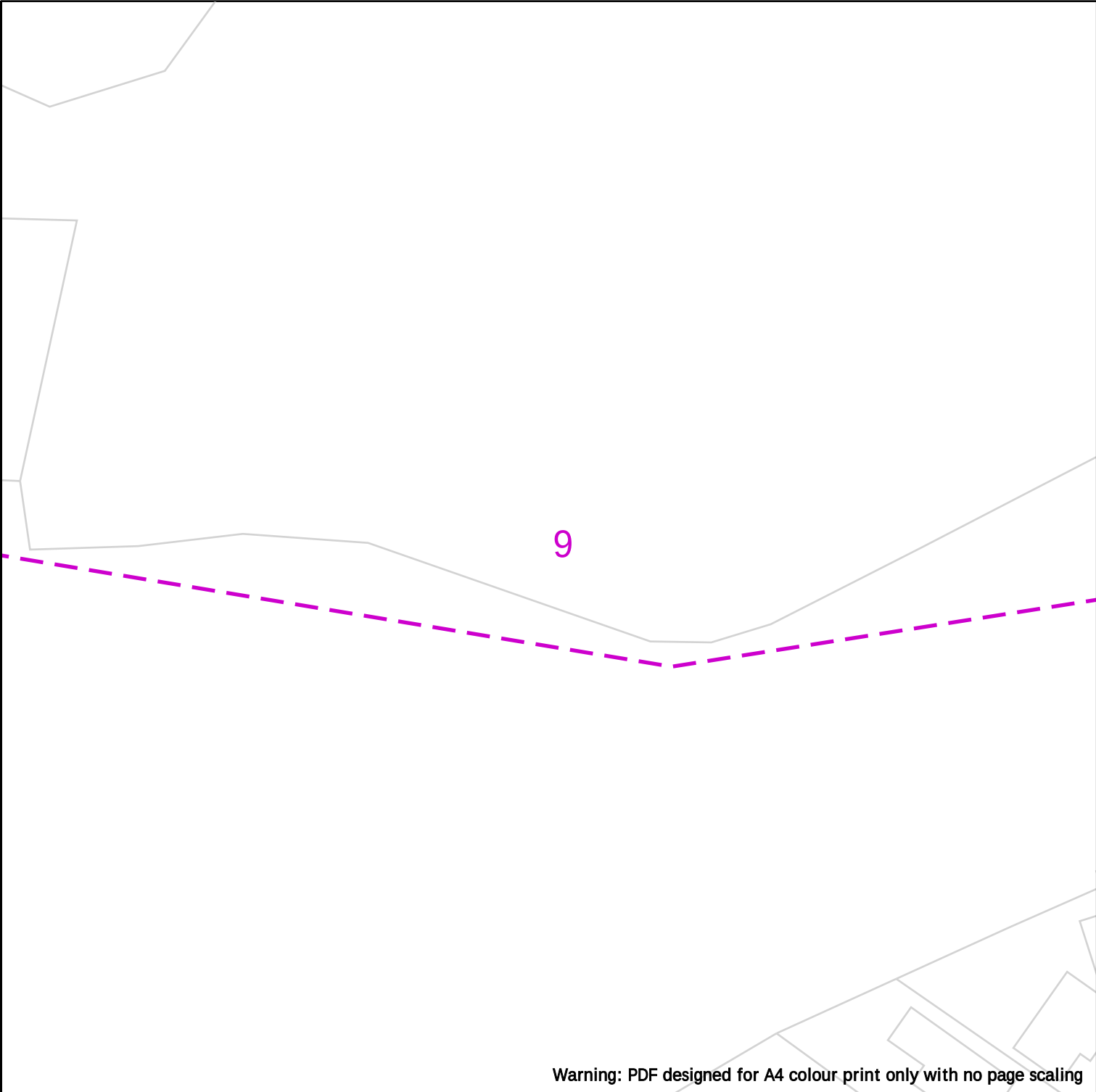
Dig Sites	Area: 	Line: 	
	LP Mains	 Valve	 Diameter Change
	MP Mains	 Depth of cover	 Material Change
	IP Mains	 Syphon	 Out of Standard Service
	LHP Mains		

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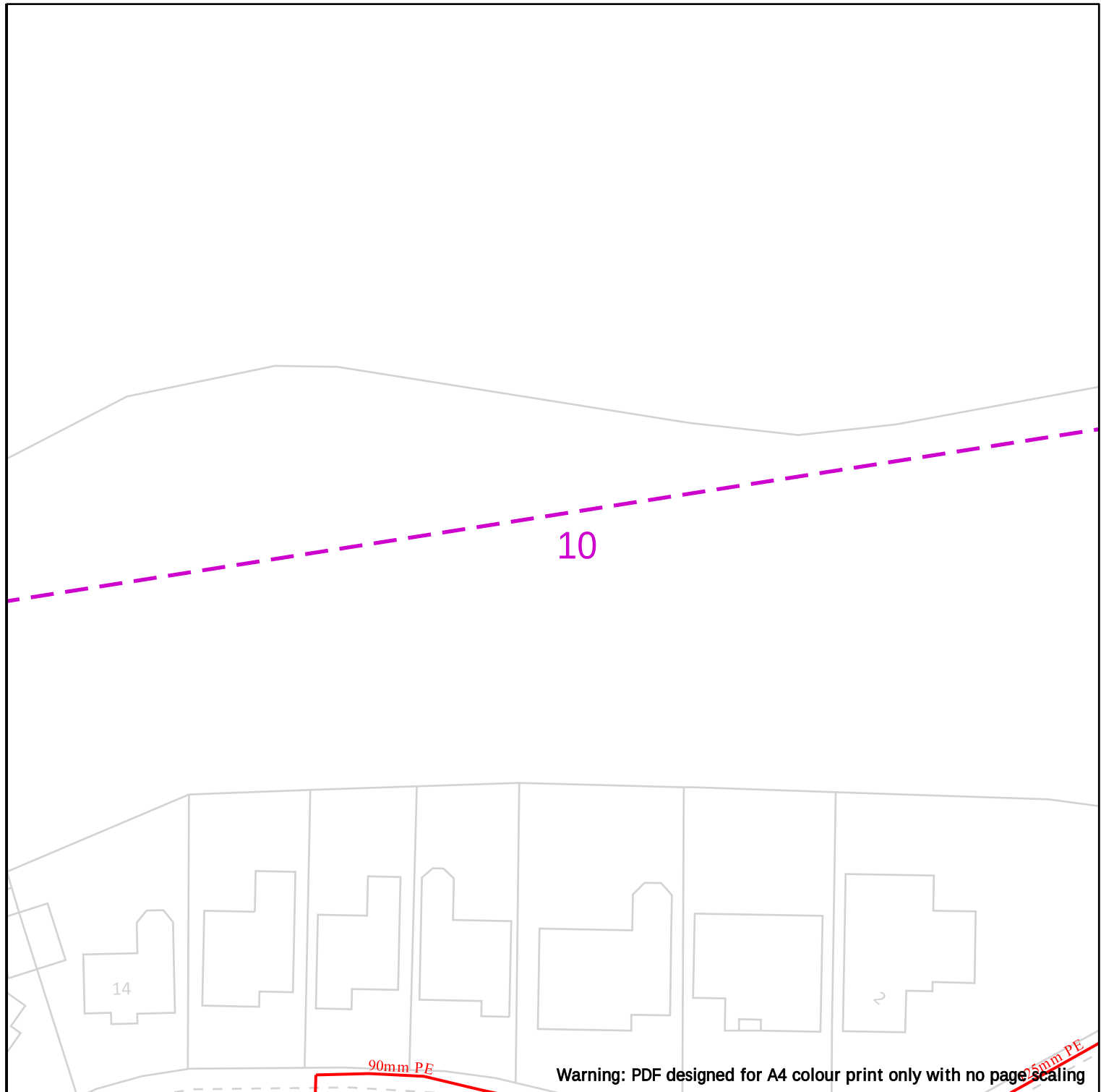
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	 25m																		
	<table><tr><td>Dig Sites</td><td>Area: </td><td>Line: </td></tr><tr><td></td><td>LP Mains</td><td> Valve</td><td> Diameter Change</td></tr><tr><td></td><td>MP Mains</td><td> Depth of cover</td><td> Material Change</td></tr><tr><td></td><td>IP Mains</td><td> Syphon</td><td> Out of Standard Service</td></tr><tr><td></td><td>LHP Mains</td><td></td><td></td></tr></table>	Dig Sites	Area: 	Line: 		LP Mains	 Valve	 Diameter Change		MP Mains	 Depth of cover	 Material Change		IP Mains	 Syphon	 Out of Standard Service		LHP Mains	
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	IP Mains	 Syphon	 Out of Standard Service																
	LHP Mains																		
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169 View extent: 100m, 100m	IMPORTANT NOTICES This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any errors or omission. 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 this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.																		
	In case of emergency call - 0800 111 999																		
Scale: 1:500 (When plotted at A4)	Crown Copyright © - This plan is reproduced from or based on the OS map by Cadent Gas Limited, with the sanction of the controller of HM Stationary Office. Crown Copyright Reserved. Ordnance Survey Licence number 100024886																		



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25m



Dig Sites

Area:



Line:



LP Mains



MP Mains



IP Mains



LHP Mains



Valve



Depth of cover



Syphon



Diameter Change



Material Change



Out of Standard Service

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

View extent: 100m, 100m

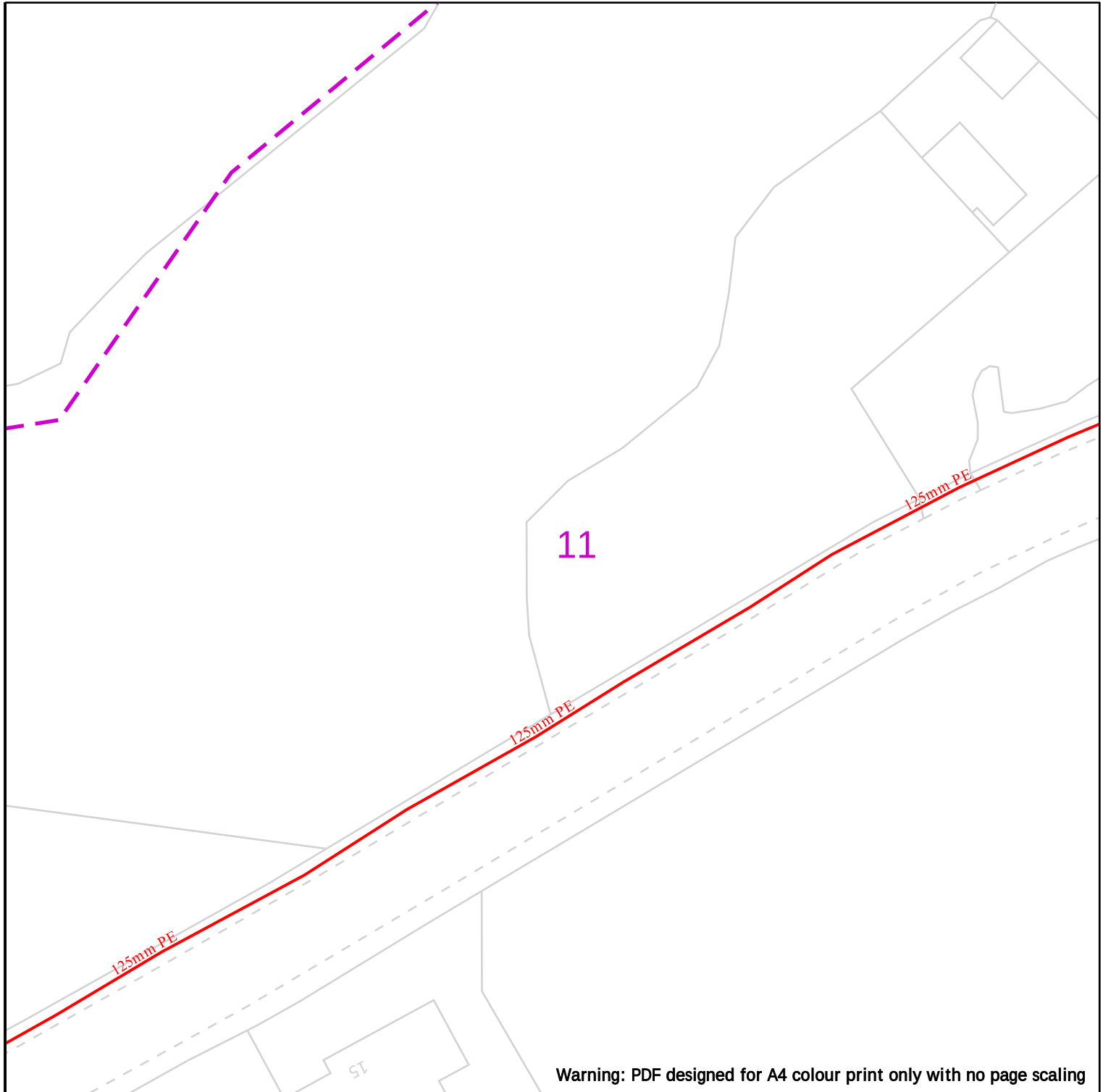
Scale: 1:500 (When plotted at A4)

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 25m

Dig Sites

Area:



Line:



Cadent
Your Gas Network



LP Mains



MP Mains



IP Mains



LHP Mains



Valve



Depth of cover



Syphon



Diameter Change



Material Change



Out of Standard Service

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

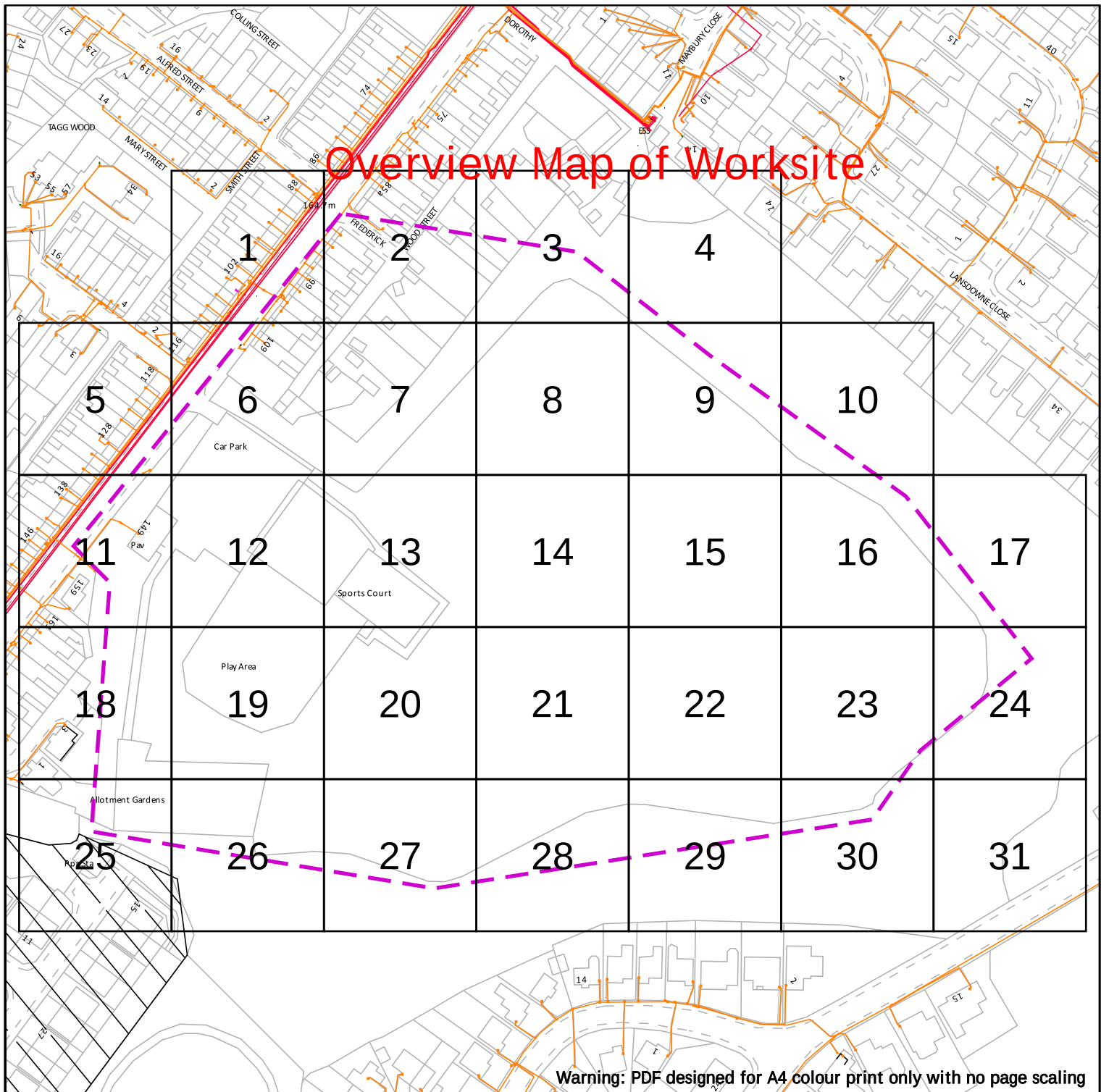
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Overview Map of Worksite



Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line:

Area:

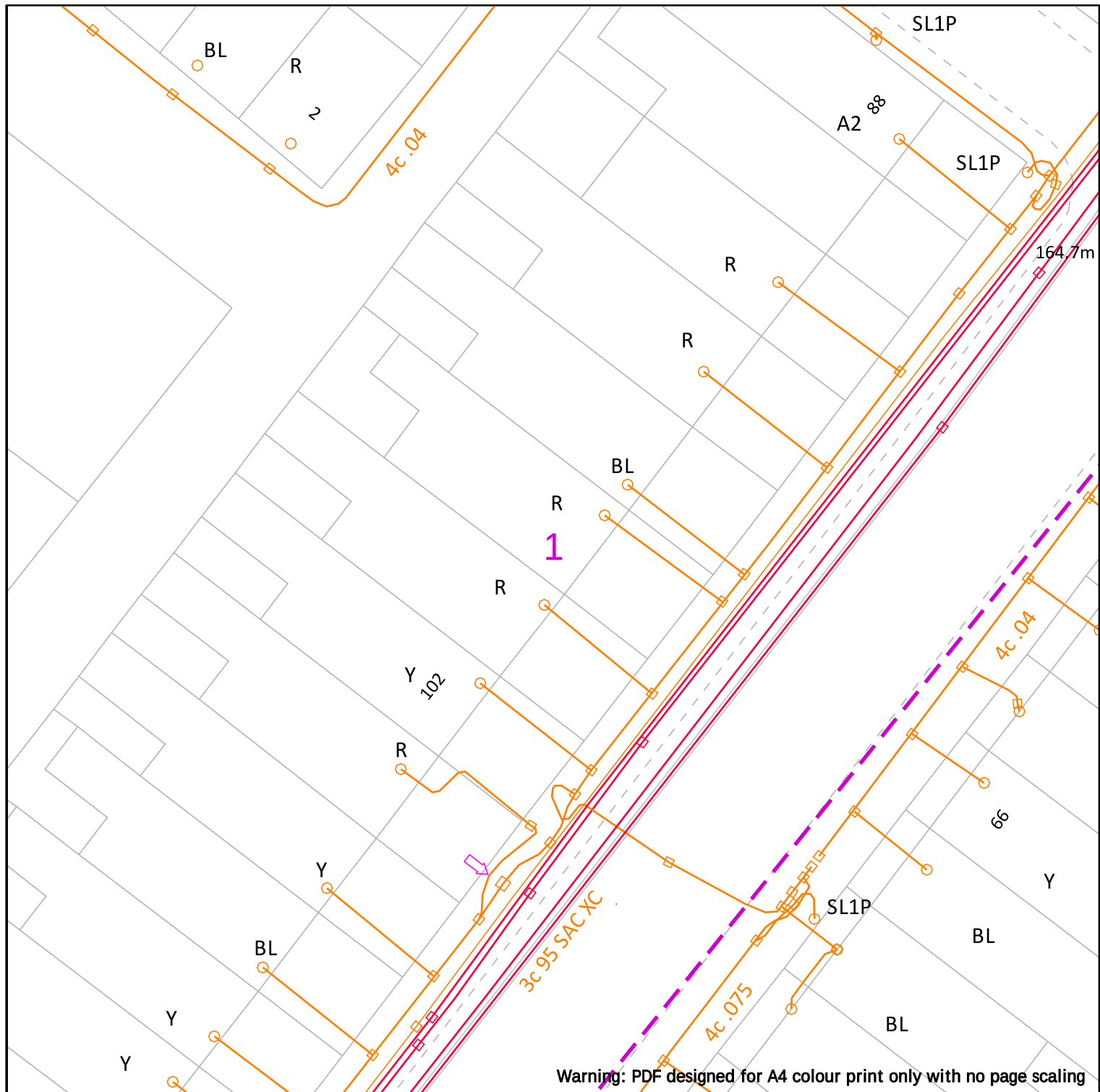
Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
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Manchester, M1 4LF
Phone: 0800 195 4141
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Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV
Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line:
Area:

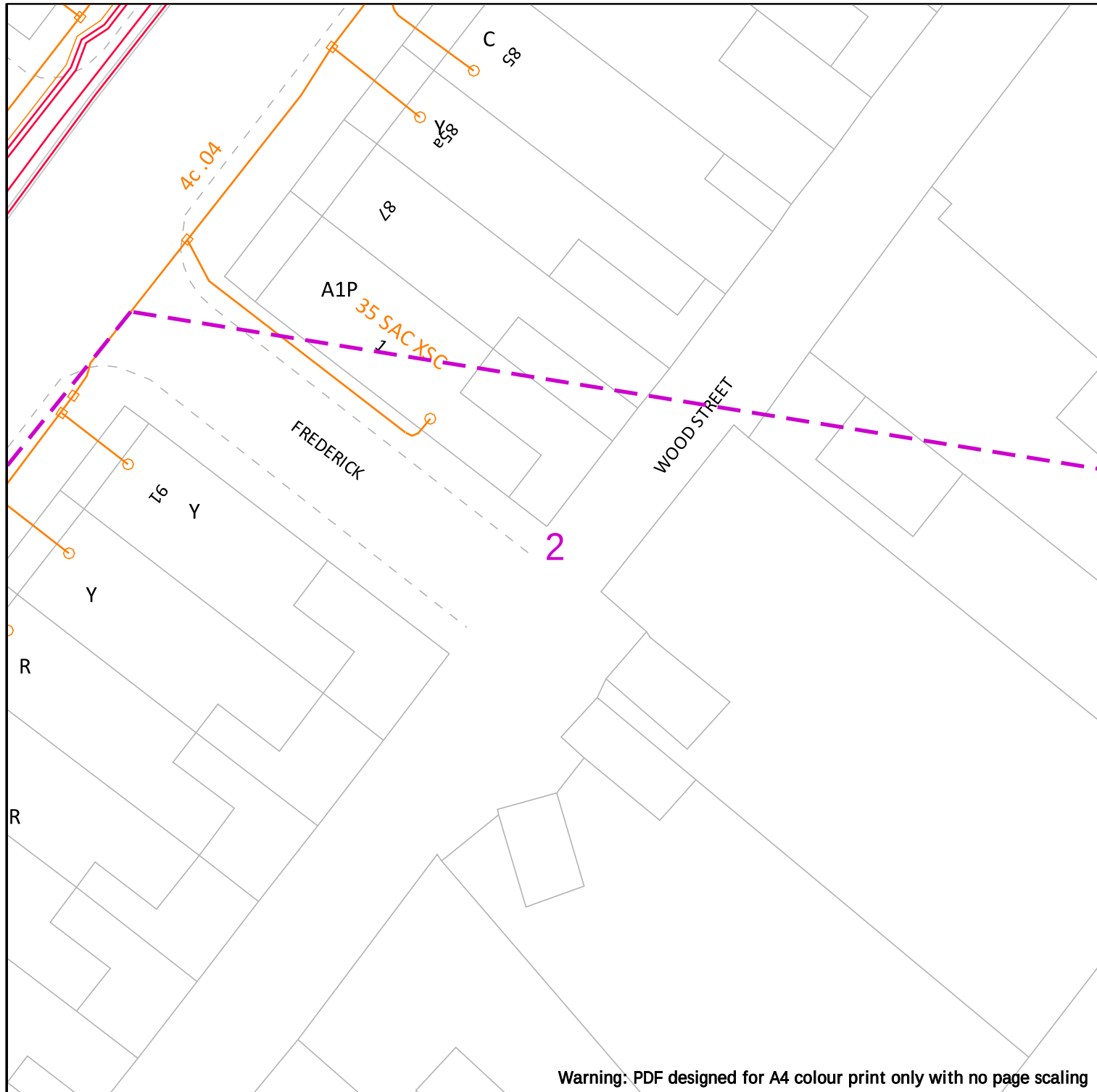
Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
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Scale: 1:250 (When plotted at A4)

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Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV
Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: ---
Area: []

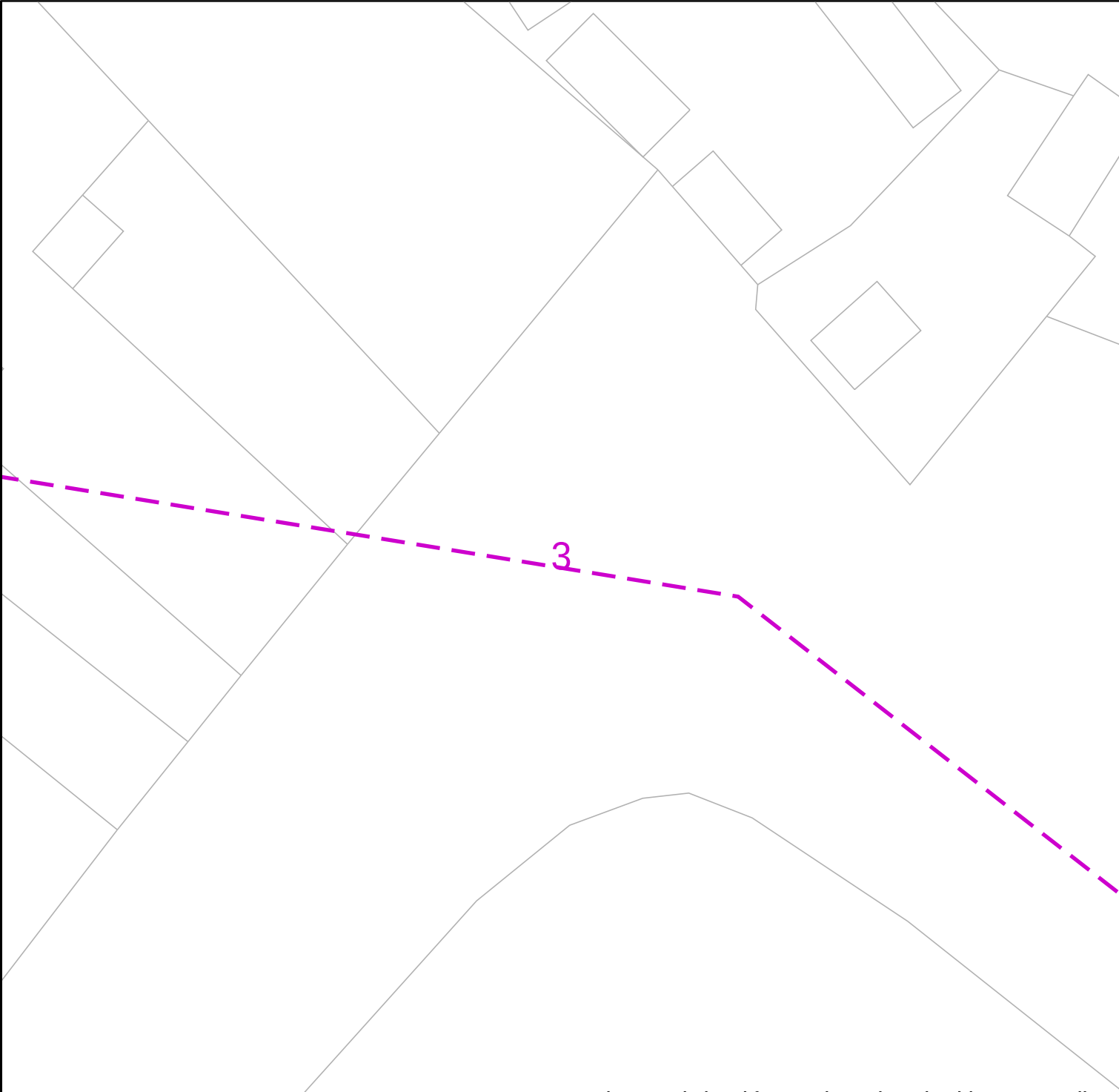
Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

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Scale: 1:250 (When plotted at A4)

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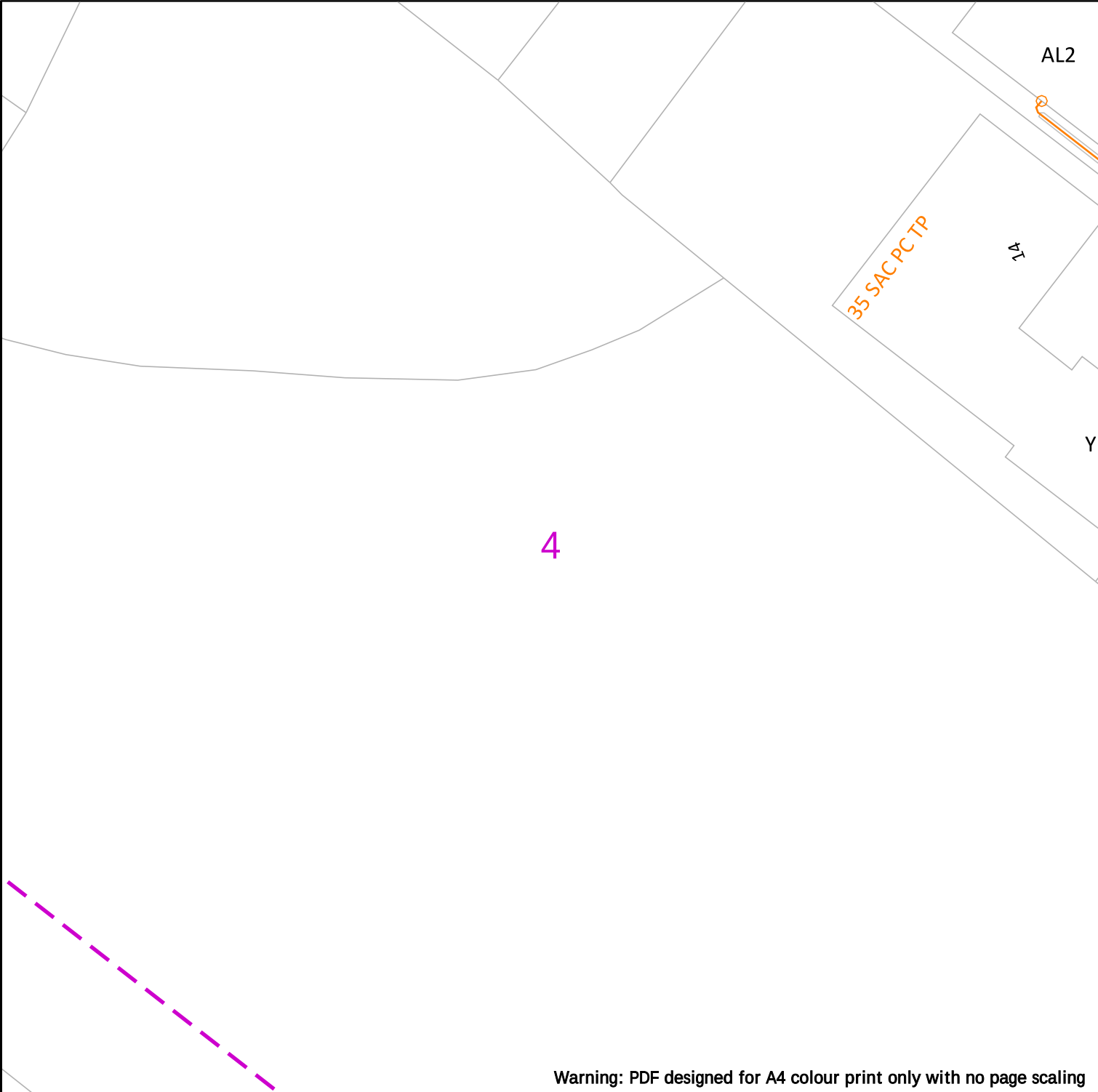


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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage 132kV 33kV 22kV-25kV 11kV 6kV-6.6kV 1kV-6kV LV Unknown Voltage	Colour Code Black Green Yellow Red Blue Violet Orange Brown	Line Colour        	In an emergency call 105, 24 hours a day	Dig Sites Line:  Area: 
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				

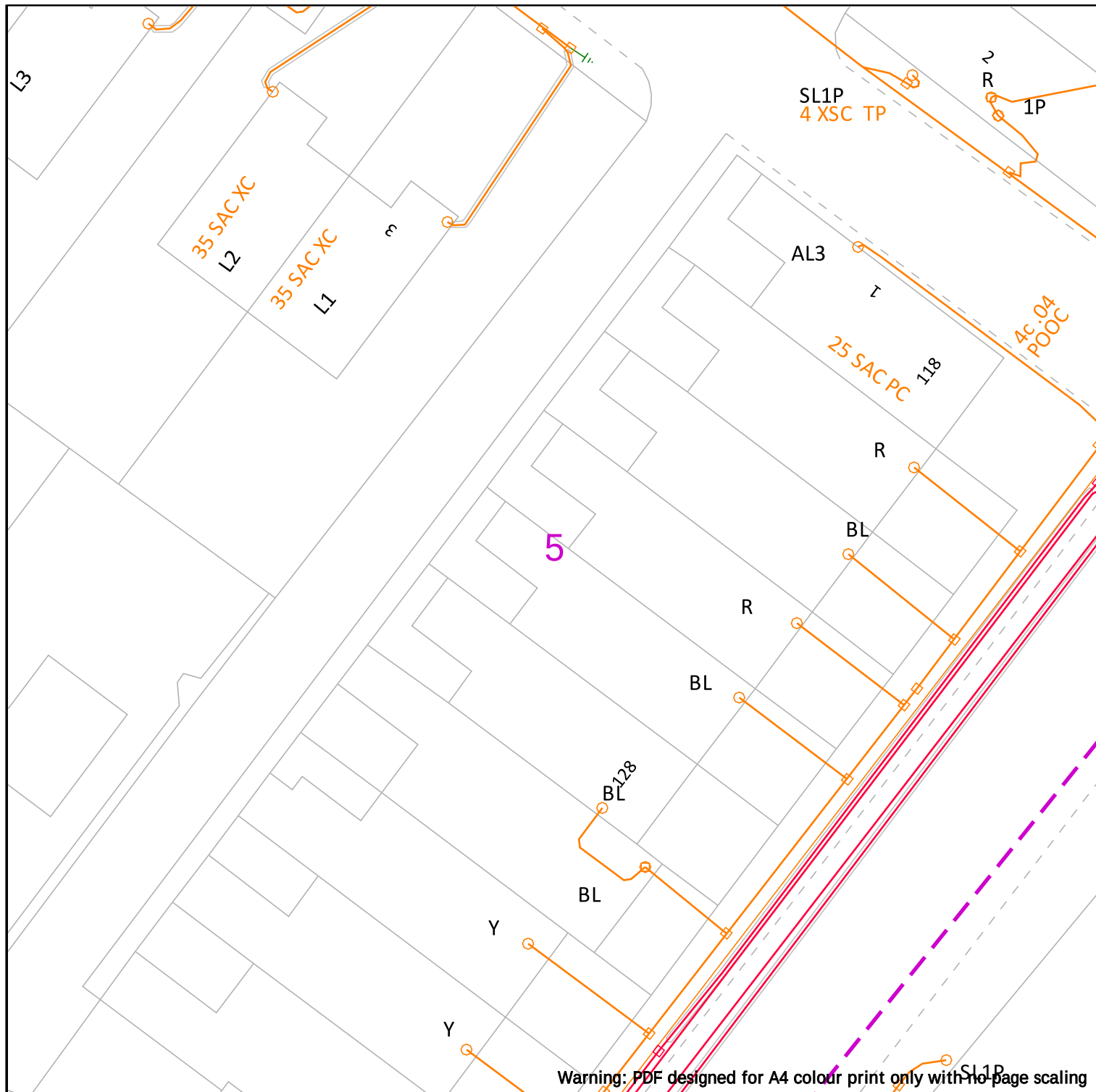
Scale: 1:250 (When plotted at A4)

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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
LV	Orange				
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169	Unknown Voltage	Brown			
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				
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Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: ---

Area: []

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

IMPORTANT INFO

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Data Management
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Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: _ _ _ _

Area: 

IMPORTANT INFO

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Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [- - -]

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Phone: 0800 195 4141
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Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
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Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Data Management
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Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

In an emergency call 105,
24 hours a day

Dig Sites
Line:
Area:

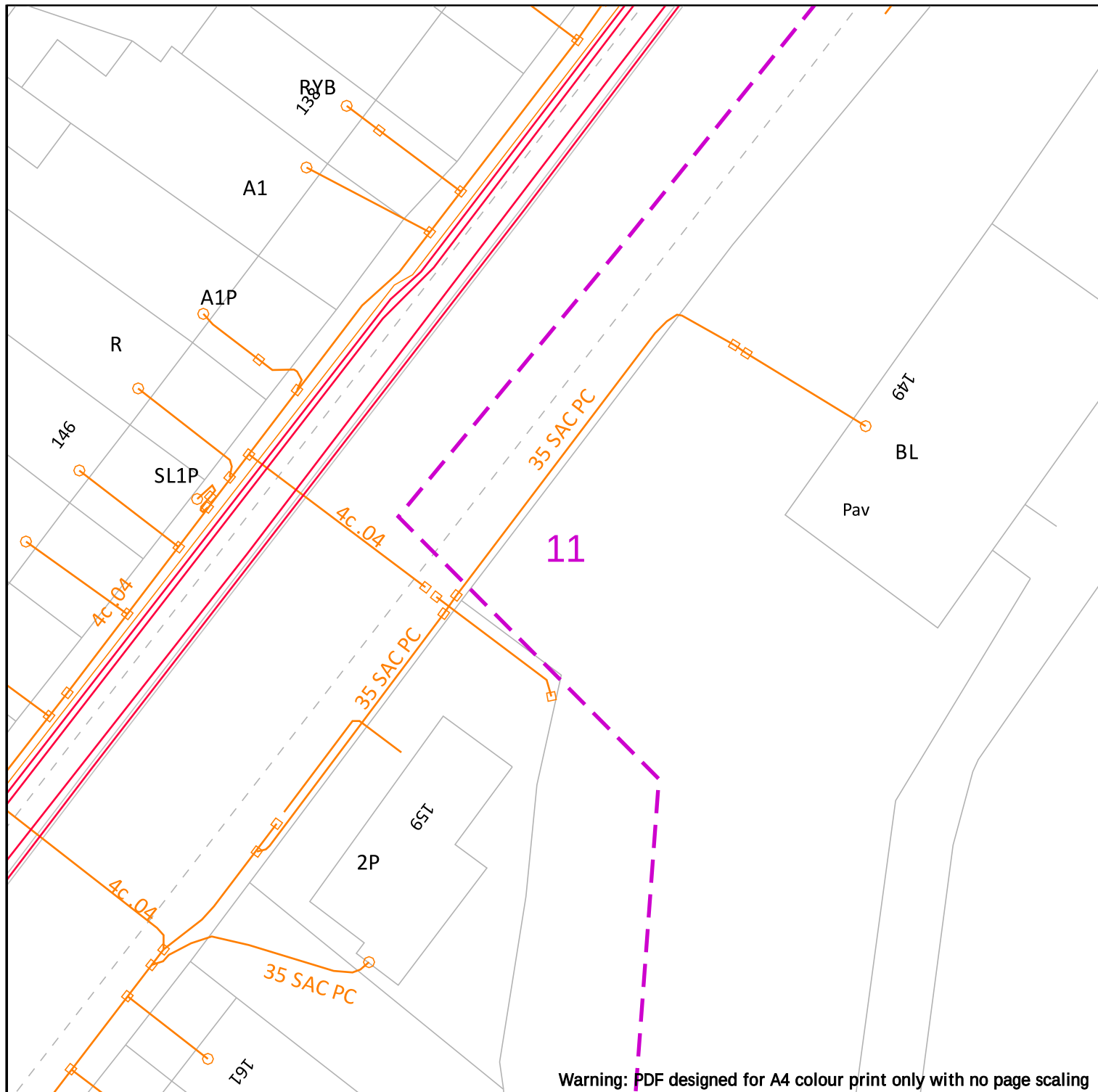
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Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - - -

Area: [] [] [] []

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

IMPORTANT INFO

Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949

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12

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Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Date Requested: 16/08/2023

Job Reference: 30536072

Site Location: 378687 415981

Requested by: Miss Lauren Wenham

Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

13

Sports Court

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Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
132kV	Black			Line:
33kV	Green			Area:
22kV-25kV	Yellow			
11kV	Red			
6kV-6.6kV	Blue			
1kV-6kV	Violet			
LV	Orange			
Unknown Voltage	Brown			

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Operating Voltage

132kV

33kV

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LV

Unknown Voltage

Colour Code

Black

Green

Yellow

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Blue

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Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Job Reference: 30536072
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Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [- - -]

IMPORTANT INFO

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132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

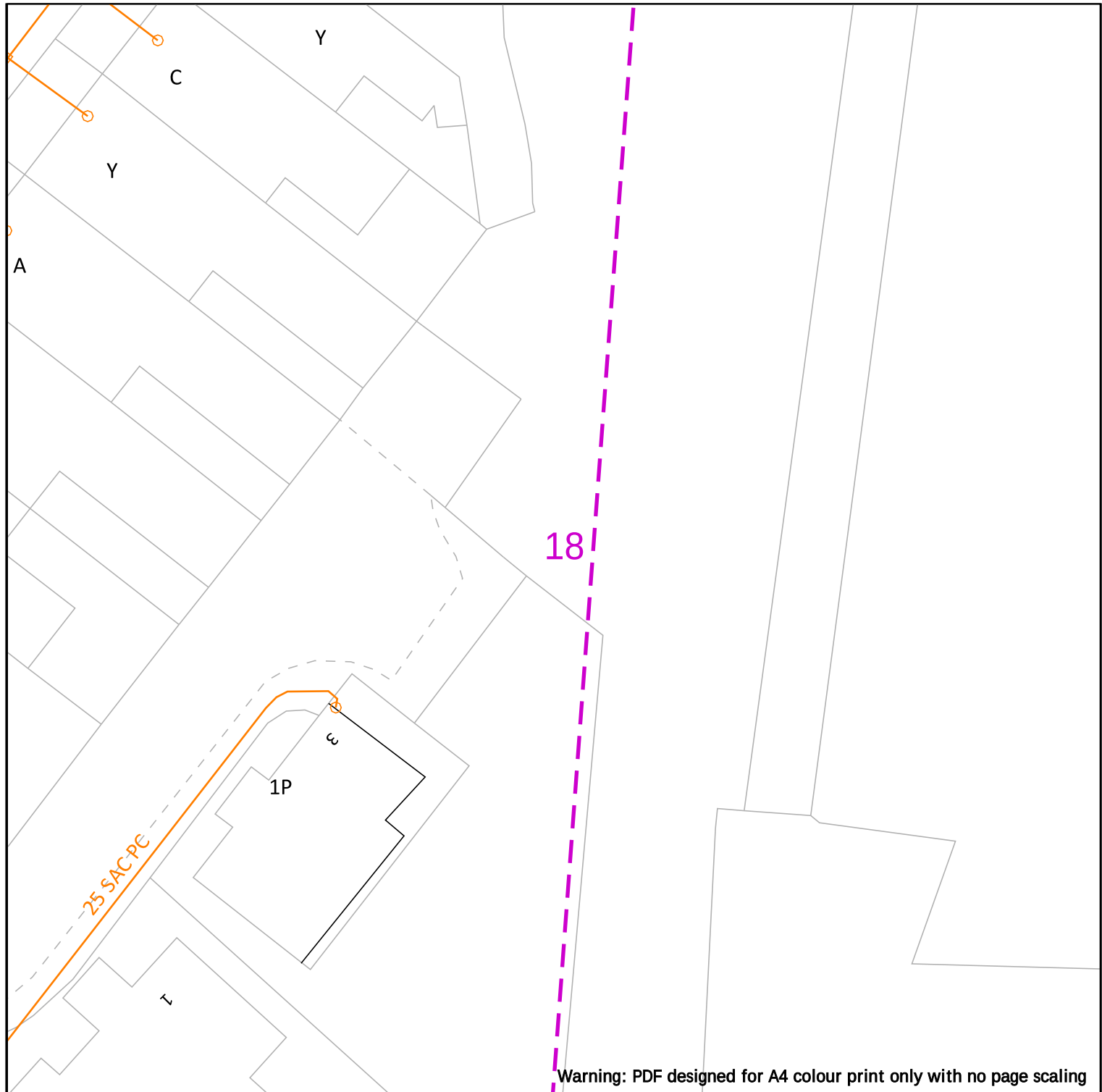
Area: [- - -]

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Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

In an emergency call 105,
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Dig Sites
Line:
Area:

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
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Play Area

19

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Data Management
Electricity North West
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Manchester, M1 4LF
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Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
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11kV	Red	
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LV	Orange	
Unknown Voltage	Brown	

In an emergency call 105,
24 hours a day

Dig Sites

Line:

Area:

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Job Reference: 30536072
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Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

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LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

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Colour Code

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Green

Yellow

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Violet

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Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [] [] [] []

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Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

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Violet

Orange

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In an emergency call 105,
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Dig Sites

Line: - - - -

Area: [] [] [] []

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Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

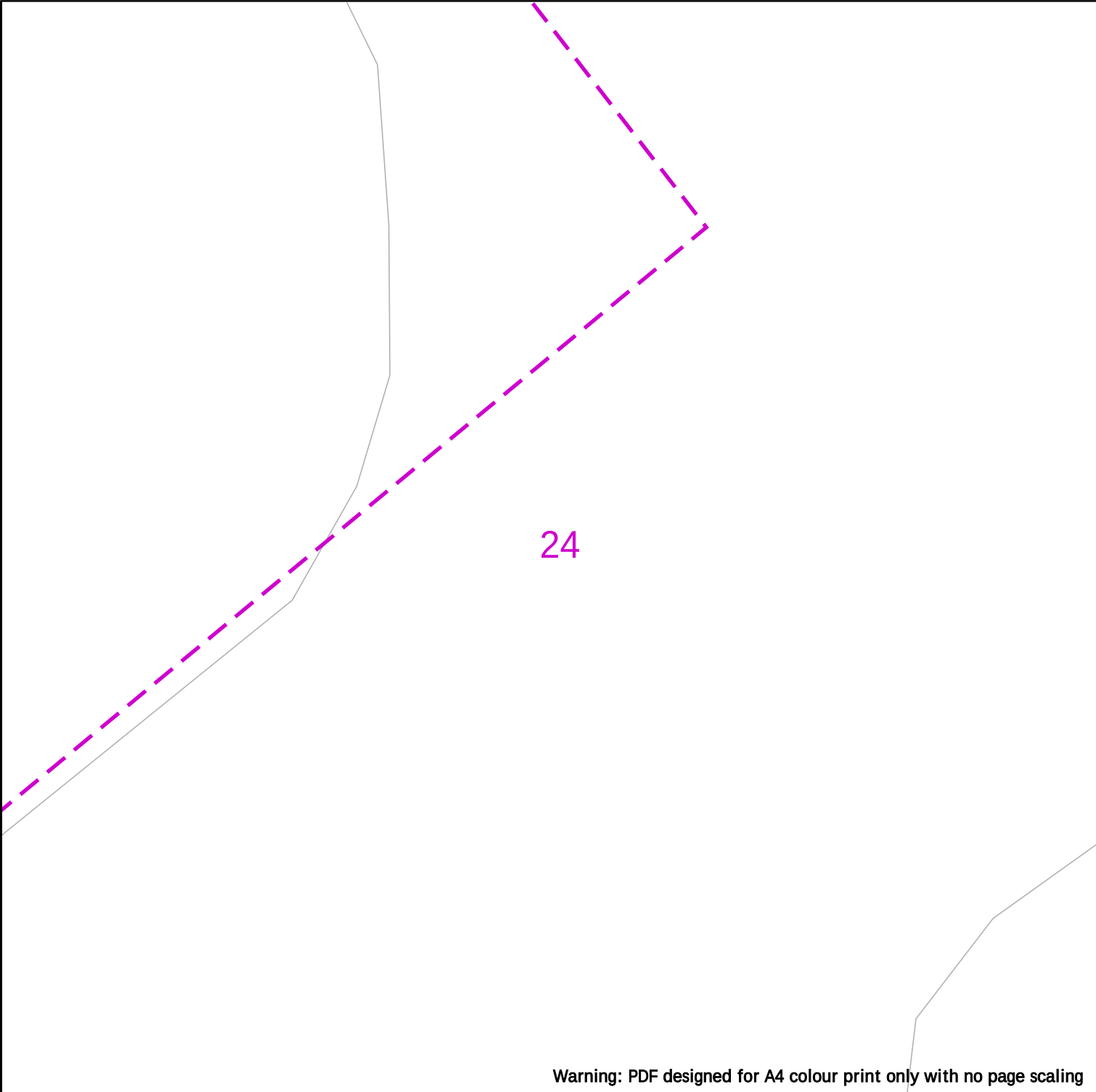
Area: [- - -]

IMPORTANT INFO

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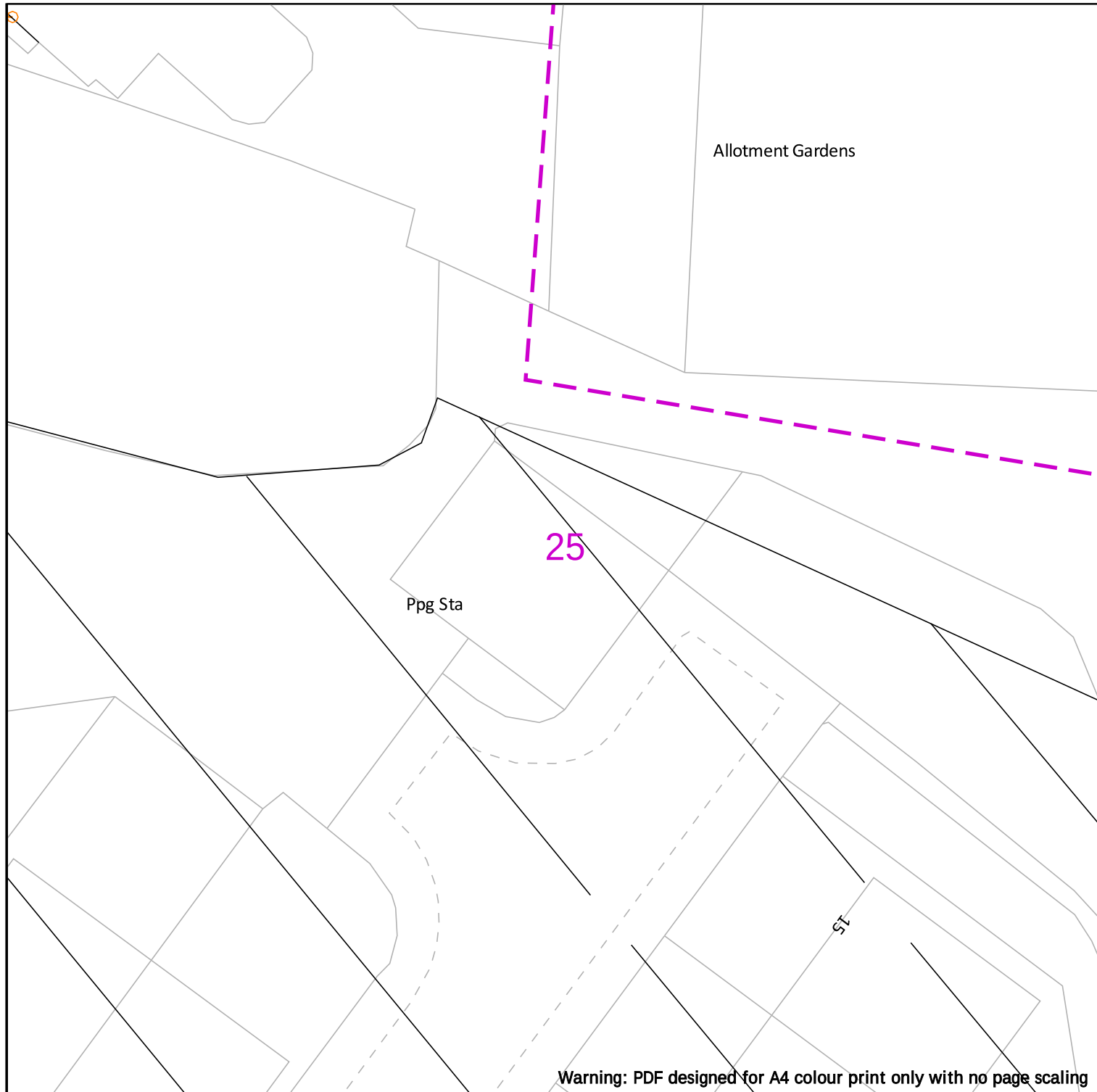
Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines".
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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169	Unknown Voltage	Brown			
Scale: 1:250 (When plotted at A4)	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				
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Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Operating Voltage

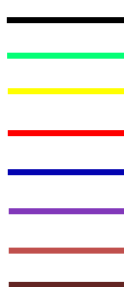
132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

Unknown Voltage

Colour Code

Black
Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line:
Area:

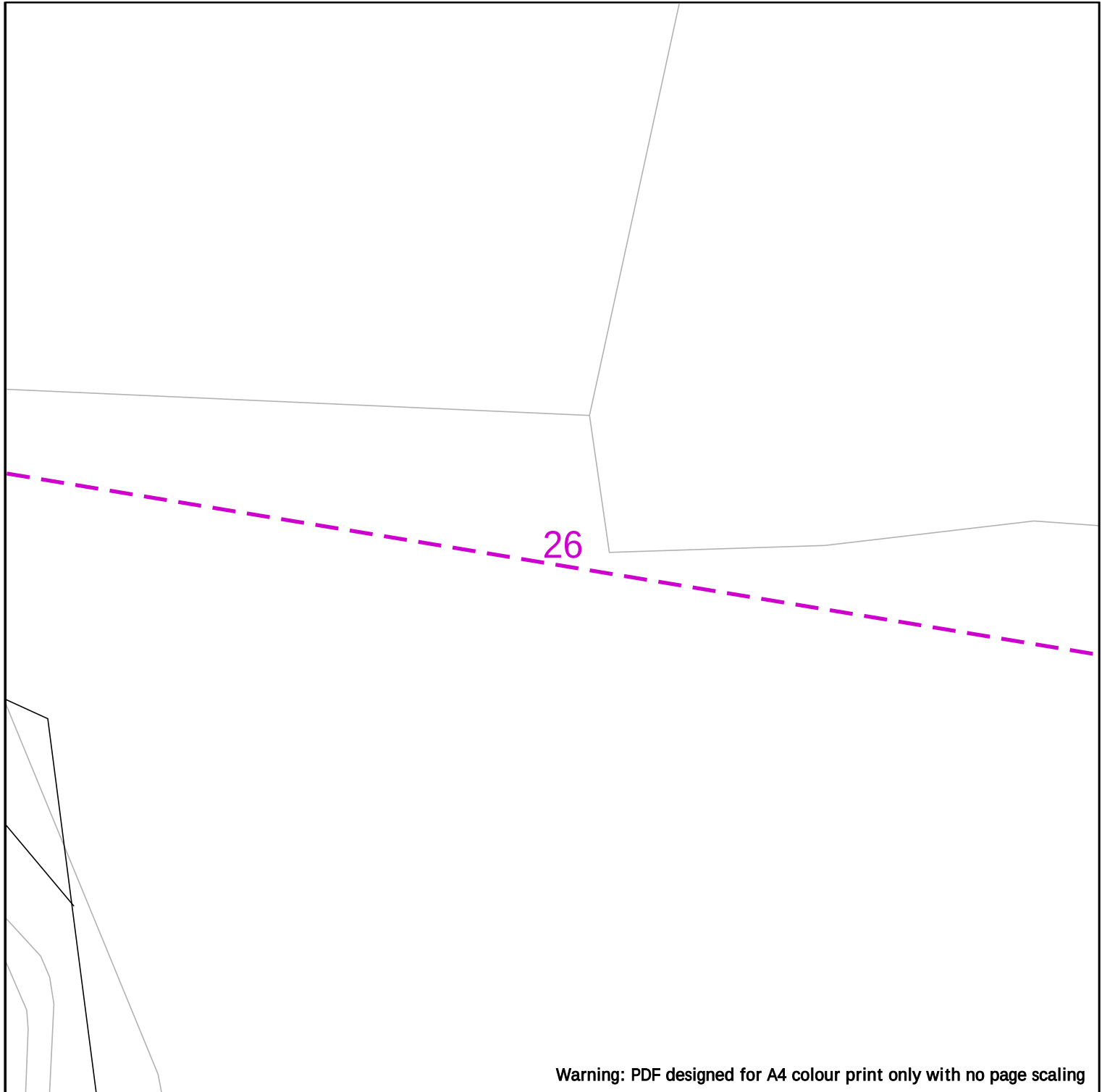
Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

IMPORTANT INFO

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Scale: 1:250 (When plotted at A4)



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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
LV	Orange				
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169	Unknown Voltage	Brown			
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				
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Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:250 (When plotted at A4)

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

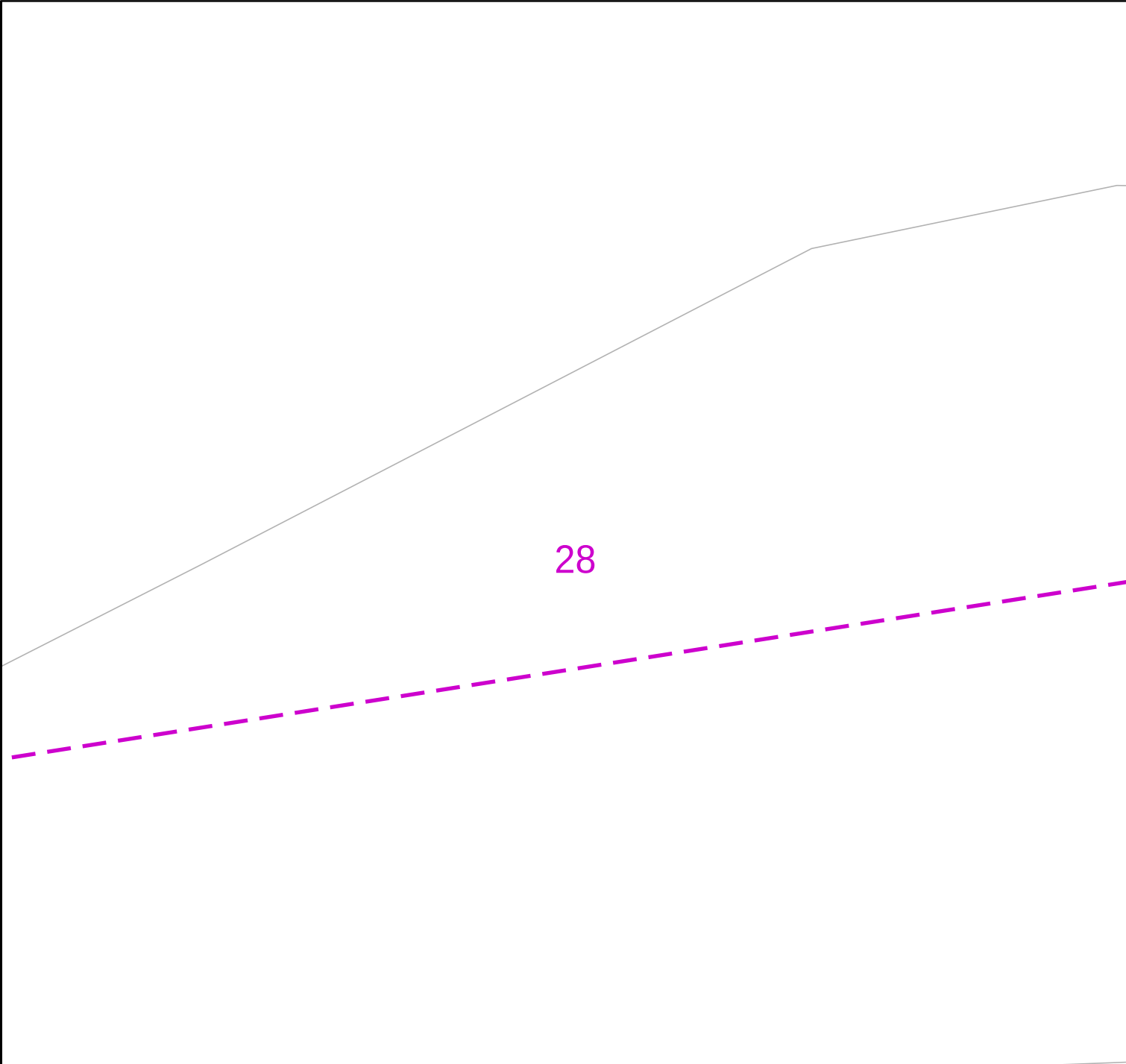
Area: [] [] [] []

IMPORTANT INFO

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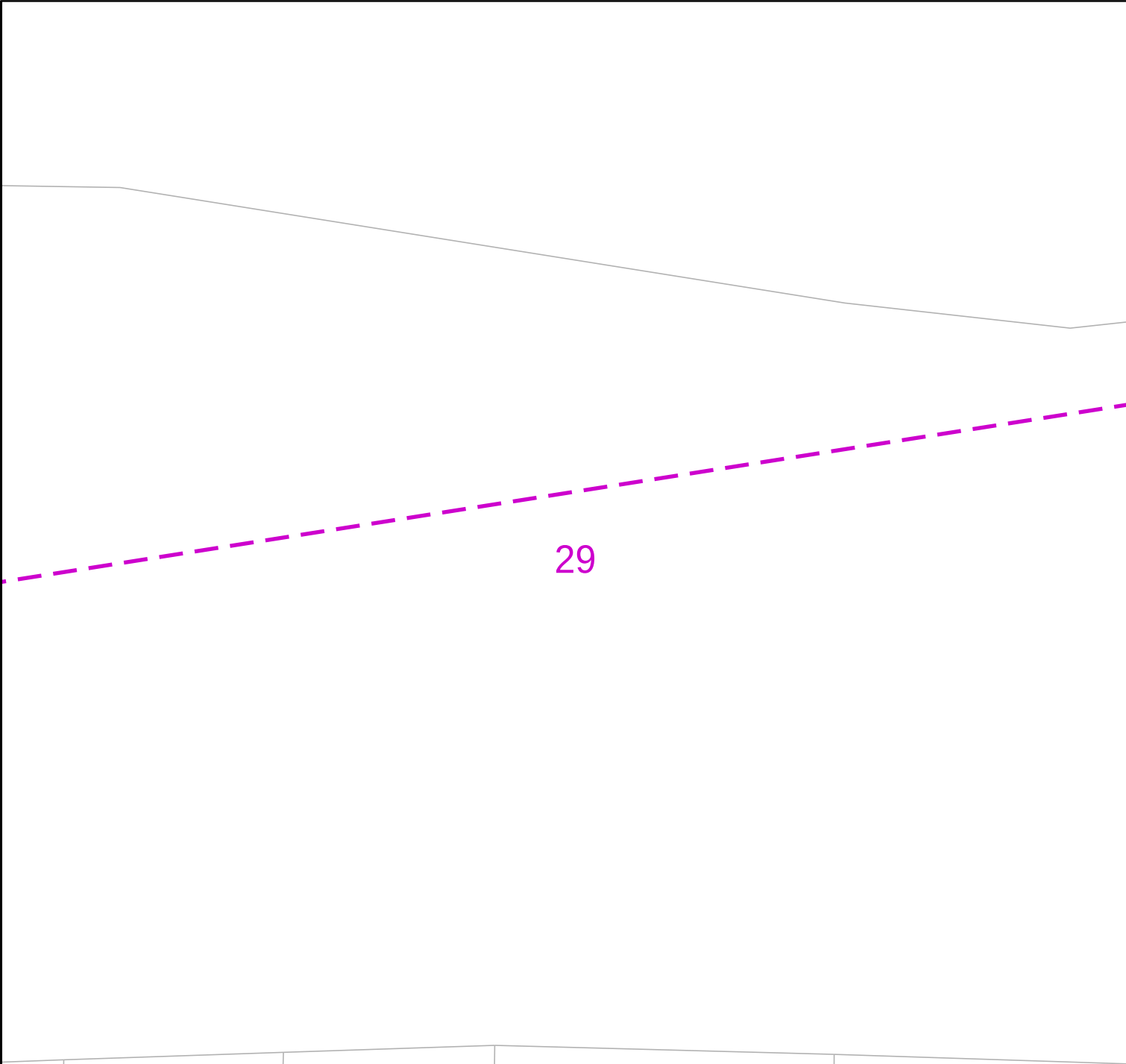


Warning: PDF designed for A4 colour print only with no page scaling

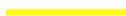
 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage 132kV 33kV 22kV-25kV 11kV 6kV-6.6kV 1kV-6kV LV Unknown Voltage	Colour Code Black Green Yellow Red Blue Violet Orange Brown	Line Colour        	In an emergency call 105, 24 hours a day	Dig Sites Line:  Area: 
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				

Scale: 1:250 (When plotted at A4)

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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169 Scale: 1:250 (When plotted at A4)	Unknown Voltage	Brown			
	IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949				
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Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Operating Voltage

132kV

33kV

22kV-25kV

11kV

6kV-6.6kV

1kV-6kV

LV

Unknown Voltage

Colour Code

Black

Green

Yellow

Red

Blue

Violet

Orange

Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: - - - -

Area: [- - -]

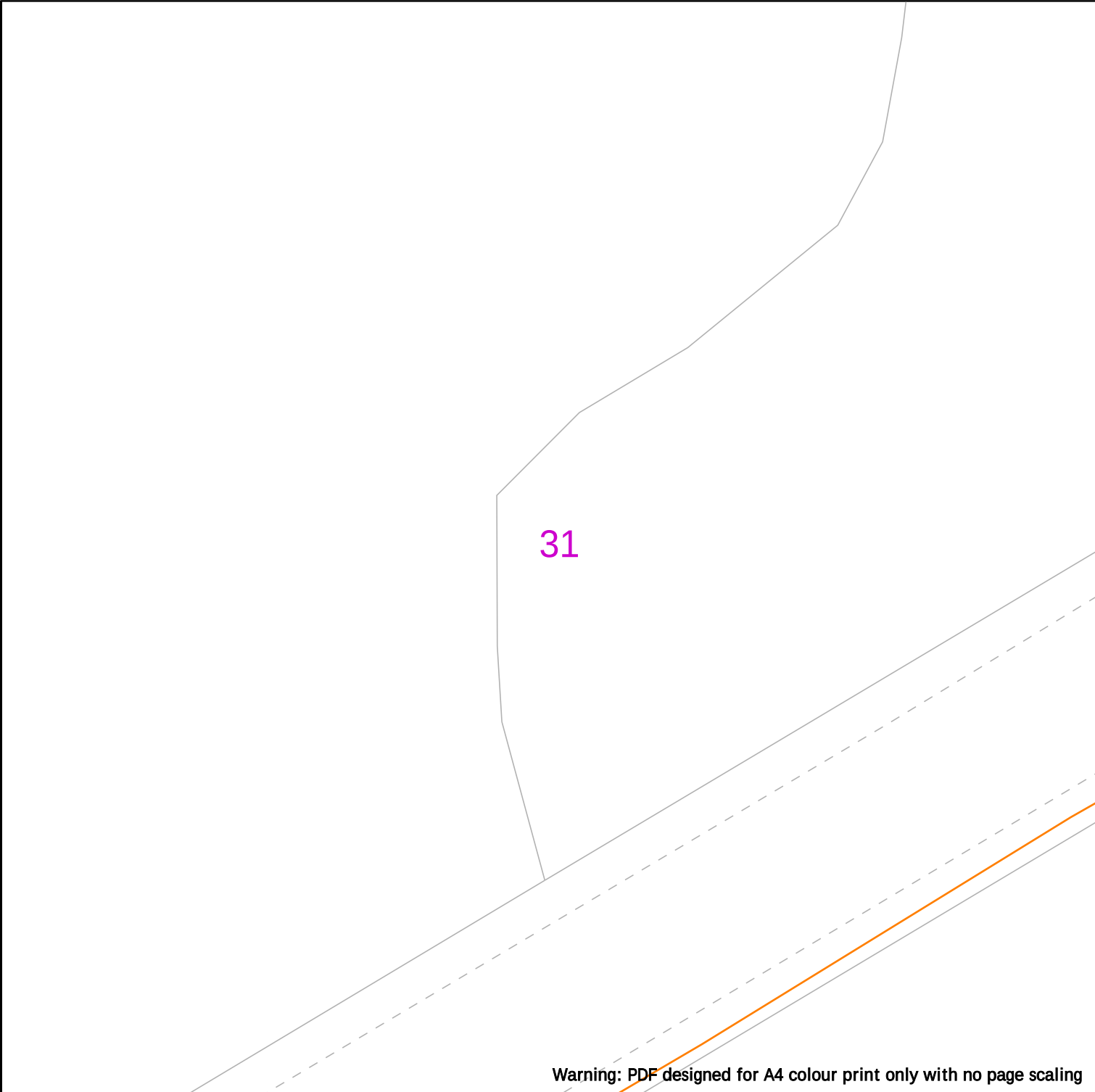
IMPORTANT INFO

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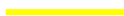
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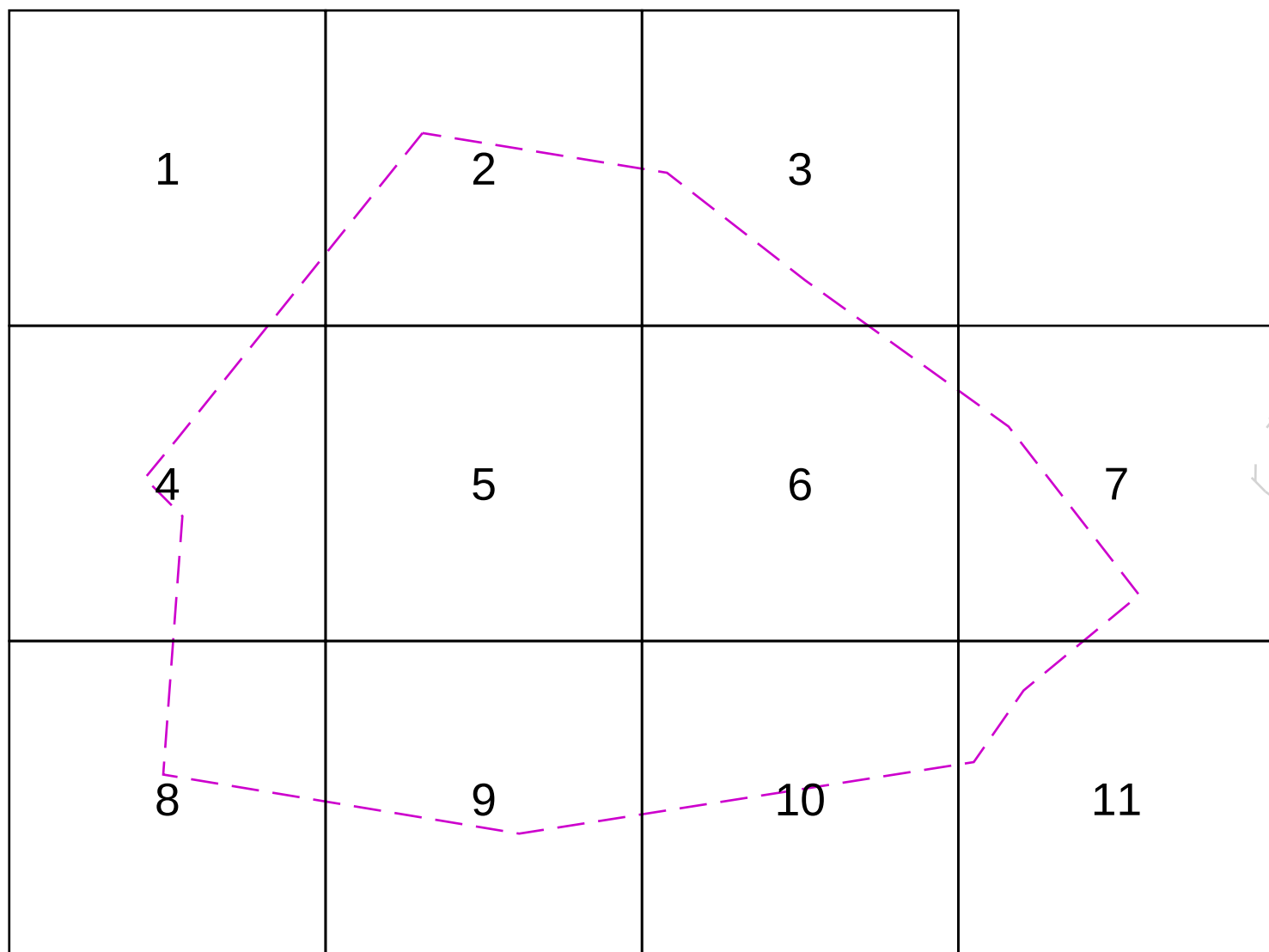
Scale: 1:250 (When plotted at A4)



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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
LV	Orange				
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169 Scale: 1:250 (When plotted at A4)	Unknown Voltage	Brown		IMPORTANT INFO Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited. Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger from Overhead Power Lines". Electricity North West Limited 304 Bridgewater Place, Birchwood Park, Warrington WA3 6XG. Registered in England and Wales. Registered No 02366949 Reproduced from or based upon Ordnance Survey's map with the permission of Her Majesty's Stationary Office. Crown Copyright Reserved. LICENCE No. 100017892.	

Overview map of worksite



Last Mile Asset Management
Limited
Fenick House, Lister Way
Hamilton International Technology
Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:2050 (When plotted at A4)

ELECTRIC KEY

PROPOSED LV SERVICE	-----	LV STRAIGHT JOINT
PROPOSED LV	-----	LV BREACH JOINT
PROPOSED HV	-----	HV STRAIGHT JOINT
PROPOSED EHV (UG)	-----	HV BREACH JOINT
EXISTING/AS LAID LV SERVICE	-----	STREET LIGHTING C.P
EXISTING/AS LAID LV (UG)	-----	MINI PILLAR
EXISTING/AS LAID HV (UG)	-----	LINK BOX
EXISTING/AS LAID EHV (UG)	-----	EARTH SPIKE
EXISTING LV OVERHEAD	-----	POT END
EXISTING HV OVERHEAD	-----	SERVICE JOINT
EXISTING EHV OVERHEAD	-----	
PROPOSING DISCONNECTED	-----	



Dig Sites

Line: -----

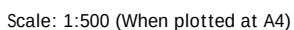
Area: -----

This plan shows cables owned by Last Mile Electricity Limited in their role as a Licensed Distributor (IDNO). Cables owned by other Distributors or privately owned cables (or, indeed, any other apparatus, equipment or infrastructure) may also be present in the area. Information regarding such cables (or any such other apparatus, equipment, or infrastructure) should be obtained from the relevant owners.

The information shown on these plans is provided for general information purposes only and should not be relied on or treated as a substitute for your own enquiries. We make no warranty, representation, or guarantee, whether express or implied, regarding the content of the plans or that the content is accurate, complete, or up to date. No liability of any kind whatsoever is accepted by Last Mile Asset Management Limited, or their agents, servants or contractors for any error, omission, or misstatement.

Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of all electrical cables and apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons on or near electrical cables or apparatus. The information included on this plan should not be referred to beyond a period of 3 months from the date of issue.

In an emergency call 105, 24 hours a day



PROPOSED LV SERVICE		LV STRAIGHT JOINT
PROPOSED LV		LV BREACH JOINT
PROPOSED HV		HV STRAIGHT JOINT
PROPOSED EHV (UG)		HV BREACH JOINT
EXISTING/AS LAID LV SERVICE		STREET LIGHTING C.P
EXISTING/AS LAID LV (UG)		MINI PILLAR
EXISTING/AS LAID HV (UG)		LINK BOX
EXISTING/AS LAID EHV (UG)		EARTH SPIKE
EXISTING LV OVERHEAD		POT END
EXISTING HV OVERHEAD		SERVICE JOINT
EXISTING EHV OVERHEAD		
PROPOSING DISCONNECTED		



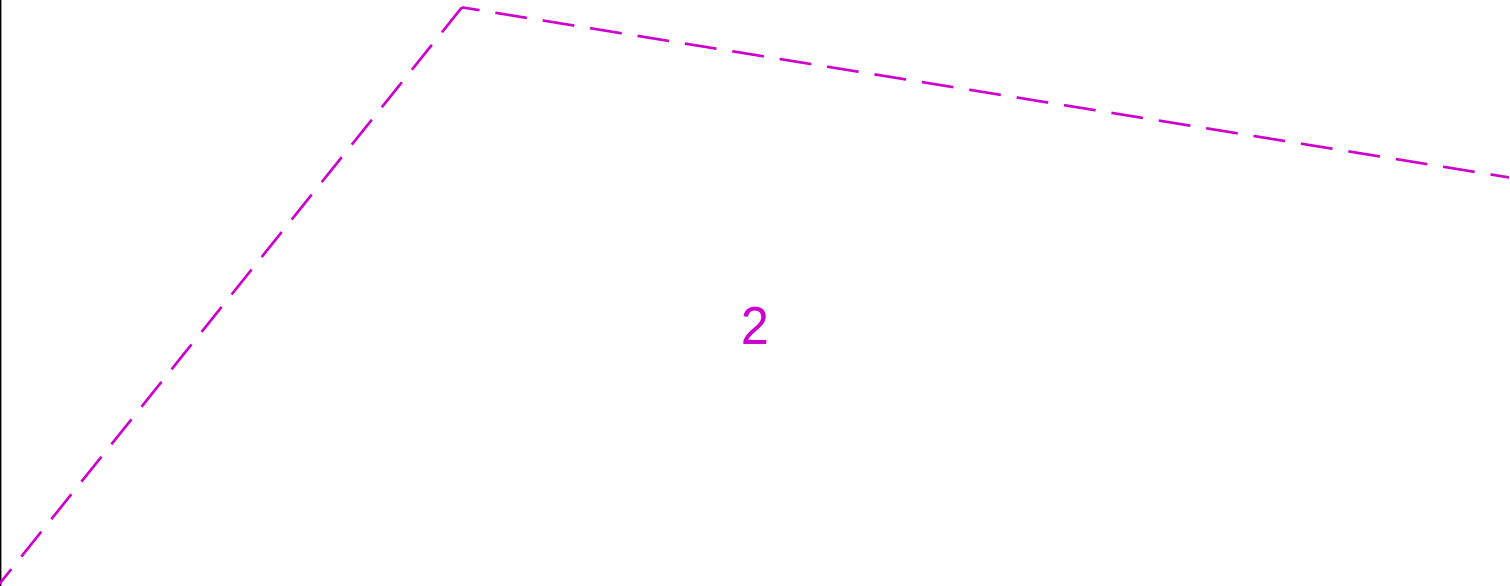
Area:

100m

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Last Mile Asset Management Limited

Fenick House, Lister Way

Hamilton International Technology Park

Glasgow G72 0FT

Telephone 03300 587 443

Date Requested: 16/08/2023

Job Reference: 30536072

Site Location: 378687 415981

Requested by: Miss Lauren Wenham

Your Scheme/Reference: STV6169

Scale: 1:500 (When plotted at A4)

PROPOSED LV SERVICE

PROPOSED LV

PROPOSED HV

PROPOSED EHV (UG)

EXISTING/AS LAID LV SERVICE

EXISTING/AS LAID LV (UG)

EXISTING/AS LAID HV (UG)

EXISTING/AS LAID EHV (UG)

EXISTING LV OVERHEAD

EXISTING HV OVERHEAD

EXISTING EHV OVERHEAD

PROPOSING DISCONNECTED

LV STRAIGHT JOINT

LV BREACH JOINT

HV STRAIGHT JOINT

HV BREACH JOINT

STREET LIGHTING C.P

MINI PILLAR

LINK BOX

EARTH SPIKE

POT END

SERVICE JOINT

Dig Sites

Line: -----

Area: -----

100m

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In an emergency call 105, 24 hours a day

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Last Mile Asset Management
Limited
Fenick House, Lister Way
Hamilton International Technology
Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:500 (When plotted at A4)

ELECTRIC KEY

PROPOSED LV SERVICE	-----	LV STRAIGHT JOINT
PROPOSED LV	-----	LV BREACH JOINT
PROPOSED HV	-----	HV STRAIGHT JOINT
PROPOSED EHV (UG)	-----	HV BREACH JOINT
EXISTING/AS LAID LV SERVICE	-----	STREET LIGHTING C.P
EXISTING/AS LAID LV (UG)	-----	MINI PILLAR
EXISTING/AS LAID HV (UG)	-----	LINK BOX
EXISTING/AS LAID EHV (UG)	-----	EARTH SPIKE
EXISTING LV OVERHEAD	-----	POT END
EXISTING HV OVERHEAD	-----	SERVICE JOINT
EXISTING EHV OVERHEAD	-----	
PROPOSING DISCONNECTED	-----	



Dig Sites

Line: -----

Area: [-----]

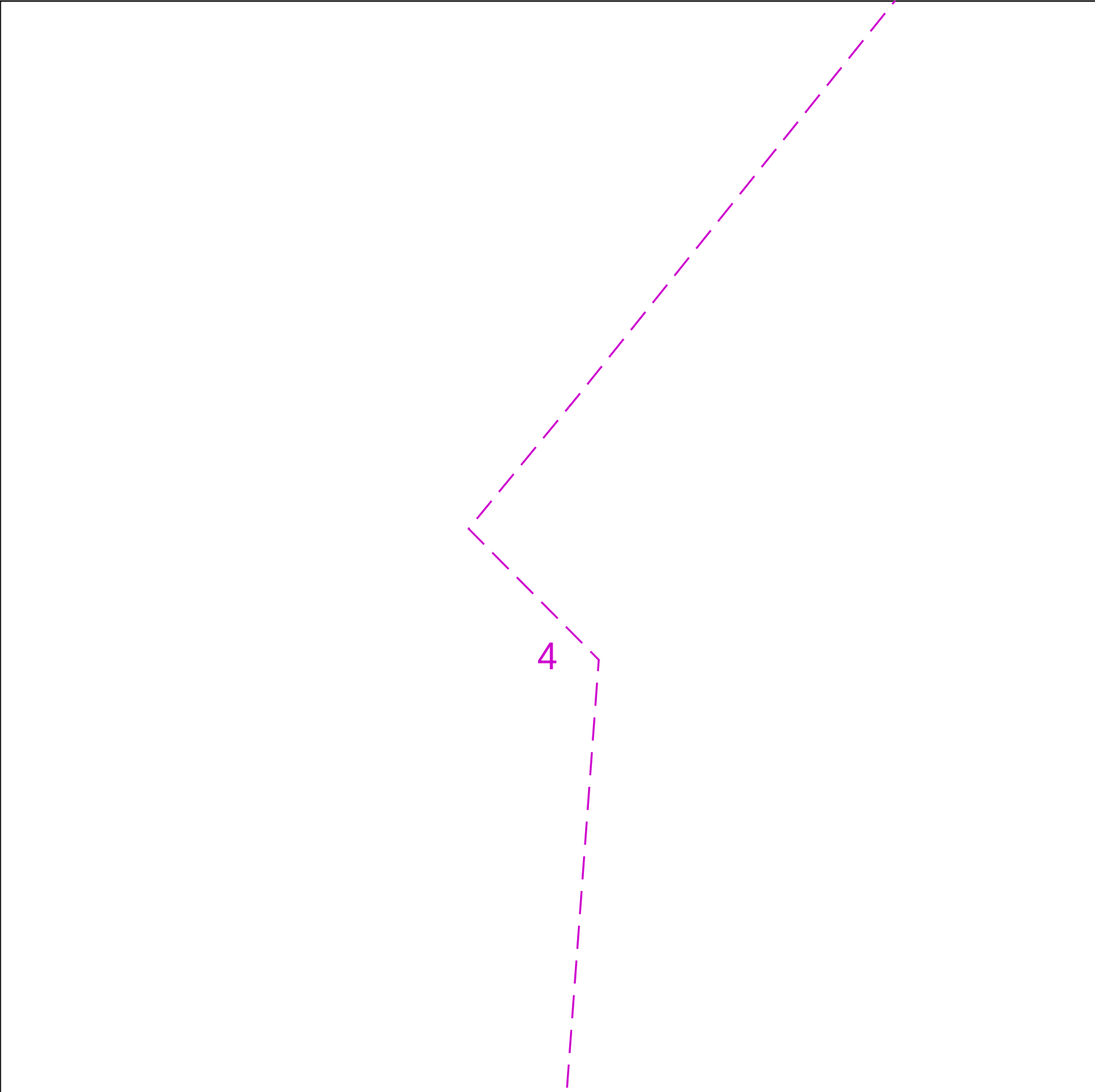
100m

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In an emergency call 105, 24 hours a day



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Last Mile Asset Management
Limited
Fenick House, Lister Way
Hamilton International Technology
Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 16/08/2023
Job Reference: 30536072
Site Location: 378687 415981
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6169

Scale: 1:500 (When plotted at A4)

ELECTRIC KEY

PROPOSED LV SERVICE	-----	LV STRAIGHT JOINT
PROPOSED LV	-----	LV BREACH JOINT
PROPOSED HV	-----	HV STRAIGHT JOINT
PROPOSED EHV (UG)	-----	HV BREACH JOINT
EXISTING/AS LAID LV SERVICE	-----	STREET LIGHTING C.P
EXISTING/AS LAID LV (UG)	-----	MINI PILLAR
EXISTING/AS LAID HV (UG)	-----	LINK BOX
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Dig Sites

Line: -----

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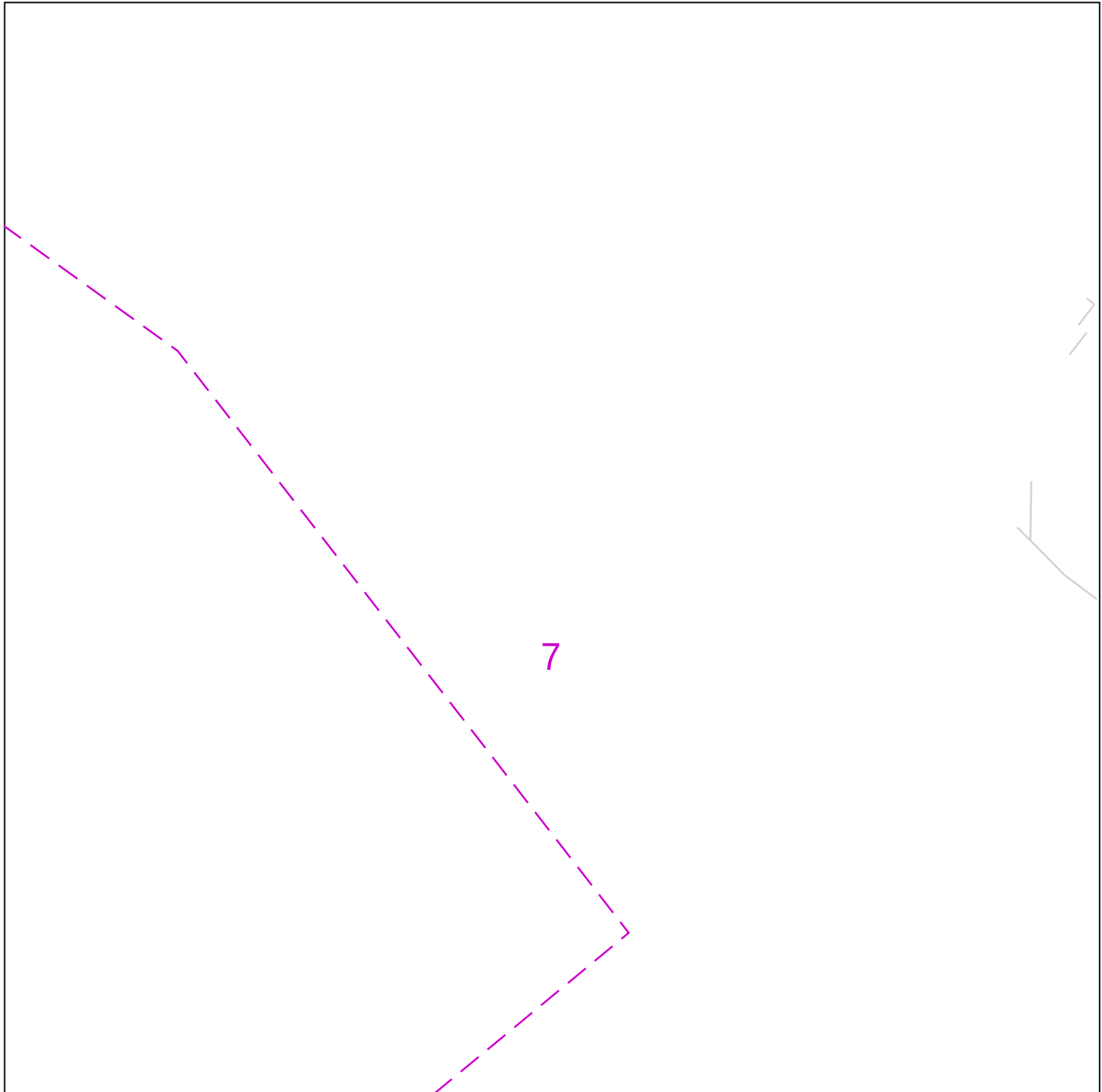
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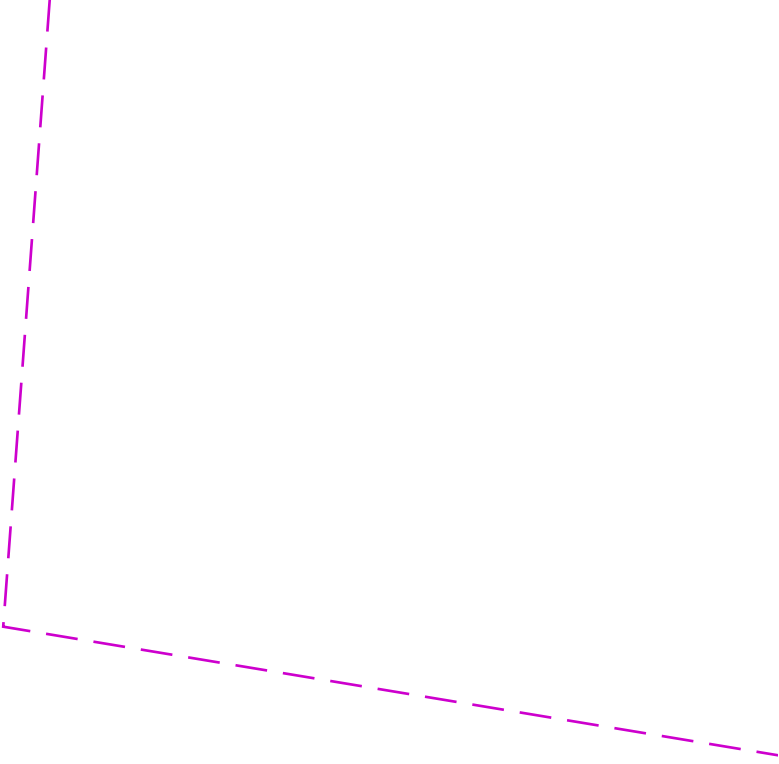
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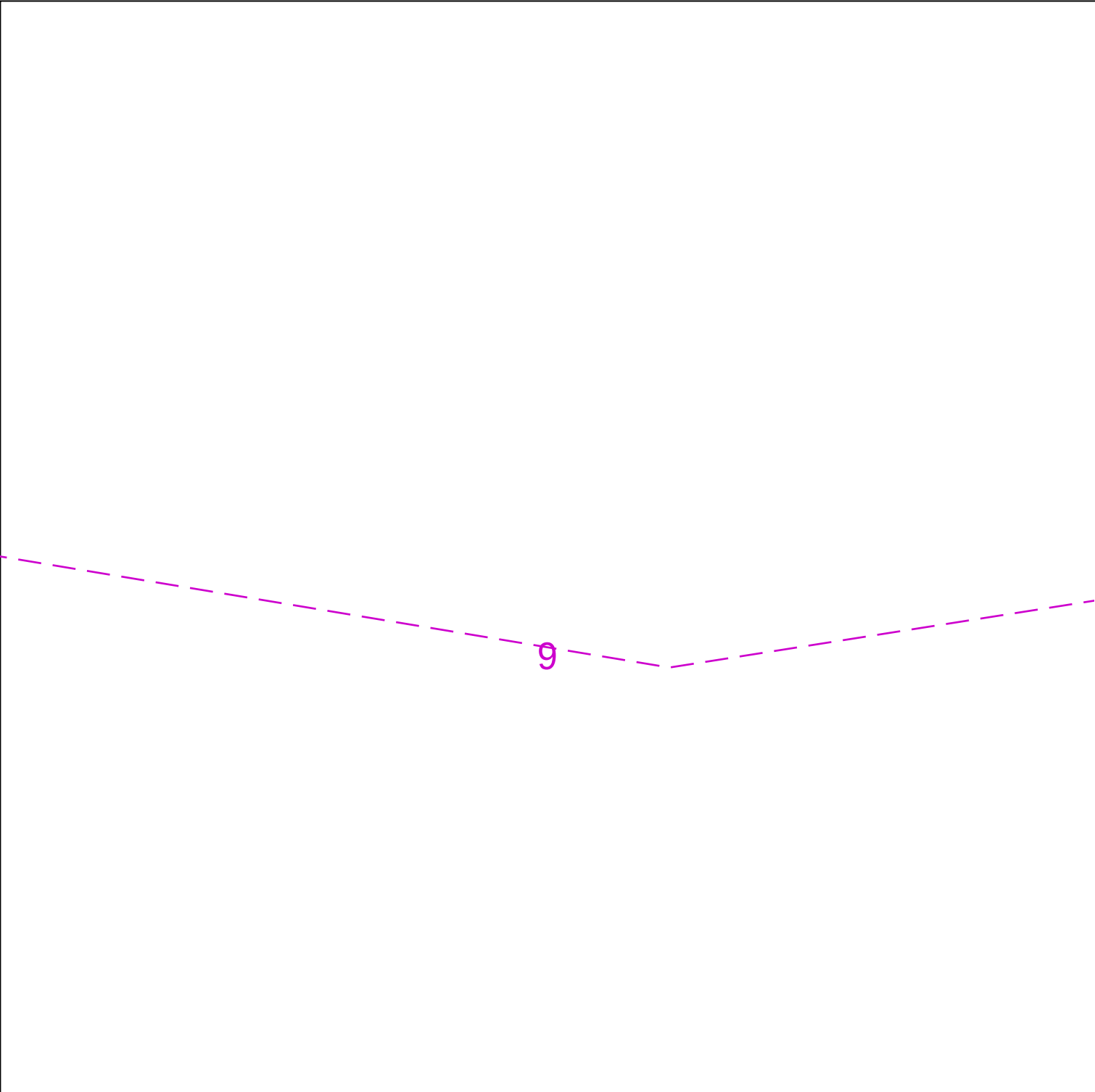
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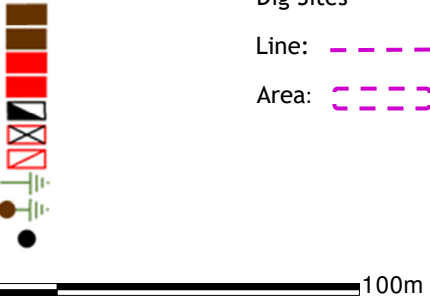


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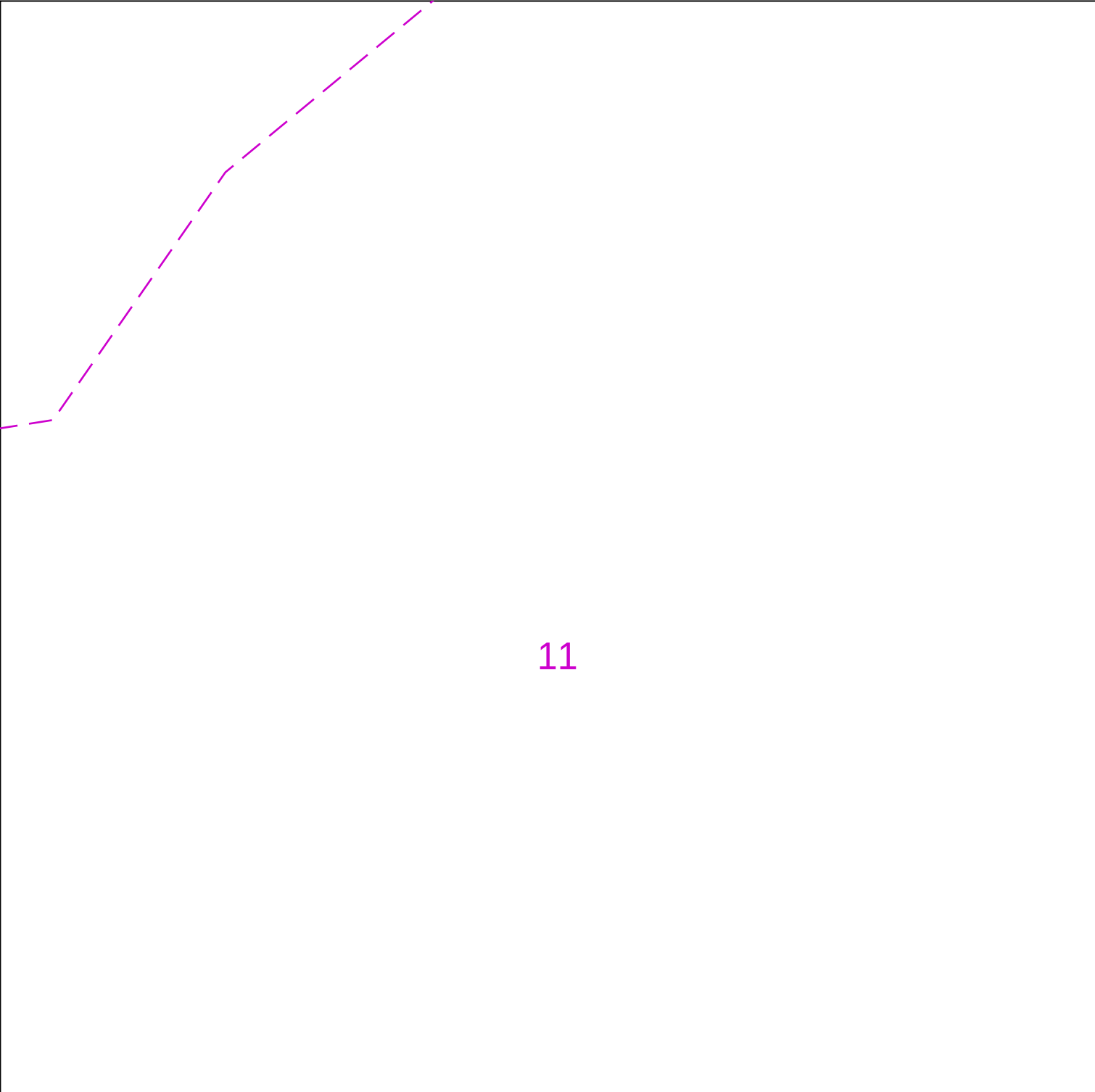


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EXISTING/AS LAID EHV (UG)	—————	EARTH SPIKE																																																				
EXISTING LV OVERHEAD	———X———	POT END																																																				
EXISTING HV OVERHEAD	———X———	SERVICE JOINT																																																				
EXISTING EHV OVERHEAD	———X———																																																					
PROPOSING DISCONNECTED	———X———																																																					
Last Mile Asset Management Limited Fenick House, Lister Way Hamilton International Technology Park Glasgow G72 0FT Telephone 03300 587 443	This plan shows cables owned by Last Mile Electricity Limited in their role as a Licensed Distributor (IDNO). Cables owned by other Distributors or privately owned cables (or, indeed, any other apparatus, equipment or infrastructure may also be present in the area. Information regarding such cables (or any such other apparatus, equipment, or infrastructure) should be obtained from the relevant owners. The information shown on these plans is provided for general information purposes only and should not be relied on or treated as a substitute for your own enquiries. We make no warranty, representation, or guarantee, whether express or implied, regarding the content of the plans or that the content is accurate, complete, or up to date. No liability of any kind whatsoever is accepted by Last Mile Asset Management Limited, or their agents, servants or contractors for any error, omission, or misstatement. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of all electrical cables and apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons on or near electrical cables or apparatus. The information included on this plan should not be referred to beyond a period of 3 month from the date of issue.																																																					
Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169 Scale: 1:500 (When plotted at A4)	In an emergency call 105, 24 hours a day Crown Copyright © - Reproduced by permission of Ordnance Survey on behalf of HMSO. And database right 2023. All rights reserved. Ordnance Survey Licence number 100061801																																																					



	PROPOSED LV SERVICE PROPOSED LV PROPOSED HV PROPOSED EHV (UG) EXISTING/AS LAID LV SERVICE EXISTING/AS LAID LV (UG) EXISTING/AS LAID HV (UG) EXISTING/AS LAID EHV (UG) EXISTING LV OVERHEAD EXISTING HV OVERHEAD EXISTING EHV OVERHEAD PROPOSING DISCONNECTED ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- LV STRAIGHT JOINT LV BREACH JOINT HV STRAIGHT JOINT HV BREACH JOINT STREET LIGHTING C.P MINI PILLAR LINK BOX EARTH SPIKE POT END SERVICE JOINT Dig Sites Line: ----- Area: -----
Last Mile Asset Management Limited Fenick House, Lister Way Hamilton International Technology Park Glasgow G72 0FT Telephone 03300 587 443 Date Requested: 16/08/2023 Job Reference: 30536072 Site Location: 378687 415981 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6169 Scale: 1:500 (When plotted at A4)	100m This plan shows cables owned by Last Mile Electricity Limited in their role as a Licensed Distributor (IDNO). Cables owned by other Distributors or privately owned cables (or, indeed, any other apparatus, equipment or infrastructure may also be present in the area. Information regarding such cables (or any such other apparatus, equipment, or infrastructure) should be obtained from the relevant owners. The information shown on these plans is provided for general information purposes only and should not be relied on or treated as a substitute for your own enquiries. We make no warranty, representation, or guarantee, whether express or implied, regarding the content of the plans or that the content is accurate, complete, or up to date. No liability of any kind whatsoever is accepted by Last Mile Asset Management Limited, or their agents, servants or contractors for any error, omission, or misstatement. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of all electrical cables and apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons on or near electrical cables or apparatus. The information included on this plan should not be referred to beyond a period of 3 month from the date of issue. In an emergency call 105, 24 hours a day Crown Copyright © - Reproduced by permission of Ordnance Survey on behalf of HMSO. And database right 2023. All rights reserved. Ordnance Survey Licence number 100061801

Overview

Date Requested: 16/08/2023

Requested by: Lauren Wenham

Job Reference: 30536072

Company: Soiltechnics Ltd

Your Scheme/Reference: STV6169

Key for Mains & Service Pipework



Existing LP mains or services operating up to 75 millibar gauge



Existing MP mains or services operating between 75 millibar and 2 bar gauge



Existing IP mains or services operating between 2 bar and 7 bar gauge

Whilst ESP Utilities Group Ltd (ESP) try to ensure the asset information we provide is accurate, the information is provided Without Prejudice and ESP accept no liability for claims arising from any inaccuracy, omissions or errors contained in this response. The actual position of underground services must be verified and established on site before any mechanical plant is used. Authorities and contractors will be held liable for the full cost of repairs to ESP apparatus and all claims made against them by Third parties as a result of any interference or damage.

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UTILITIES GROUP

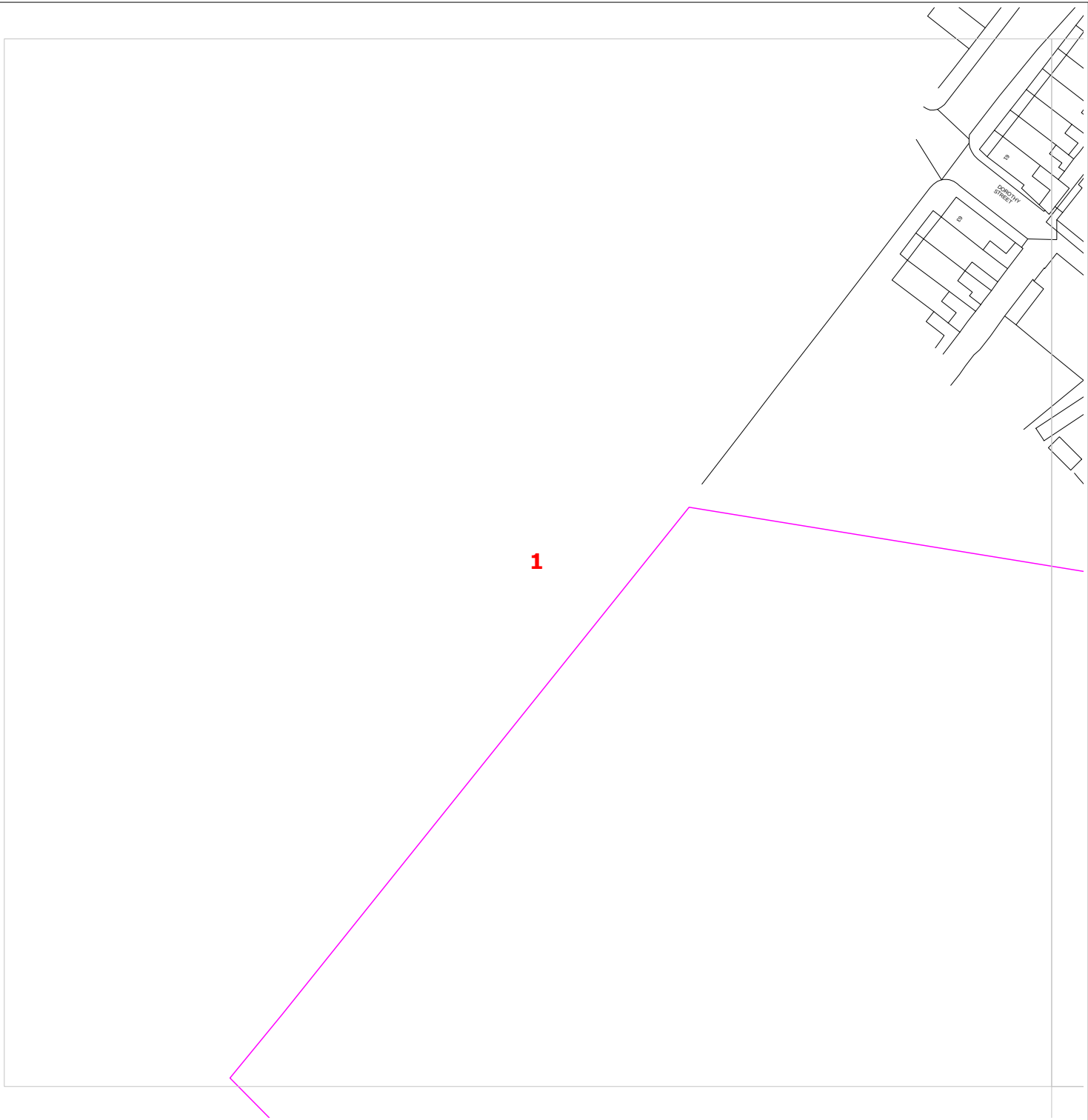
ESP Utilities Group Ltd
Bluebird House
Mole Business Park
Leatherhead
Surrey
KT22 7BA

Phone: 01372 587500
Email: PlantResponses@espug.com

Dig Sites:

Area  Line 

Approx scale on A4 paper: 1:1000
(excluding Overview map)



Date Requested: 16/08/2023

Requested by: Lauren Wenham

Job Reference: 30536072

Company: Soiltechnics Ltd

Your Scheme/Reference: STV6169

Key for Mains & Service Pipework



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Existing MP mains or services operating between 75 millibar and 2 bar gauge



Existing IP mains or services operating between 2 bar and 7 bar gauge

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UTILITIES GROUP

ESP Utilities Group Ltd

Bluebird House

Mole Business Park

Leatherhead

Surrey

KT22 7BA

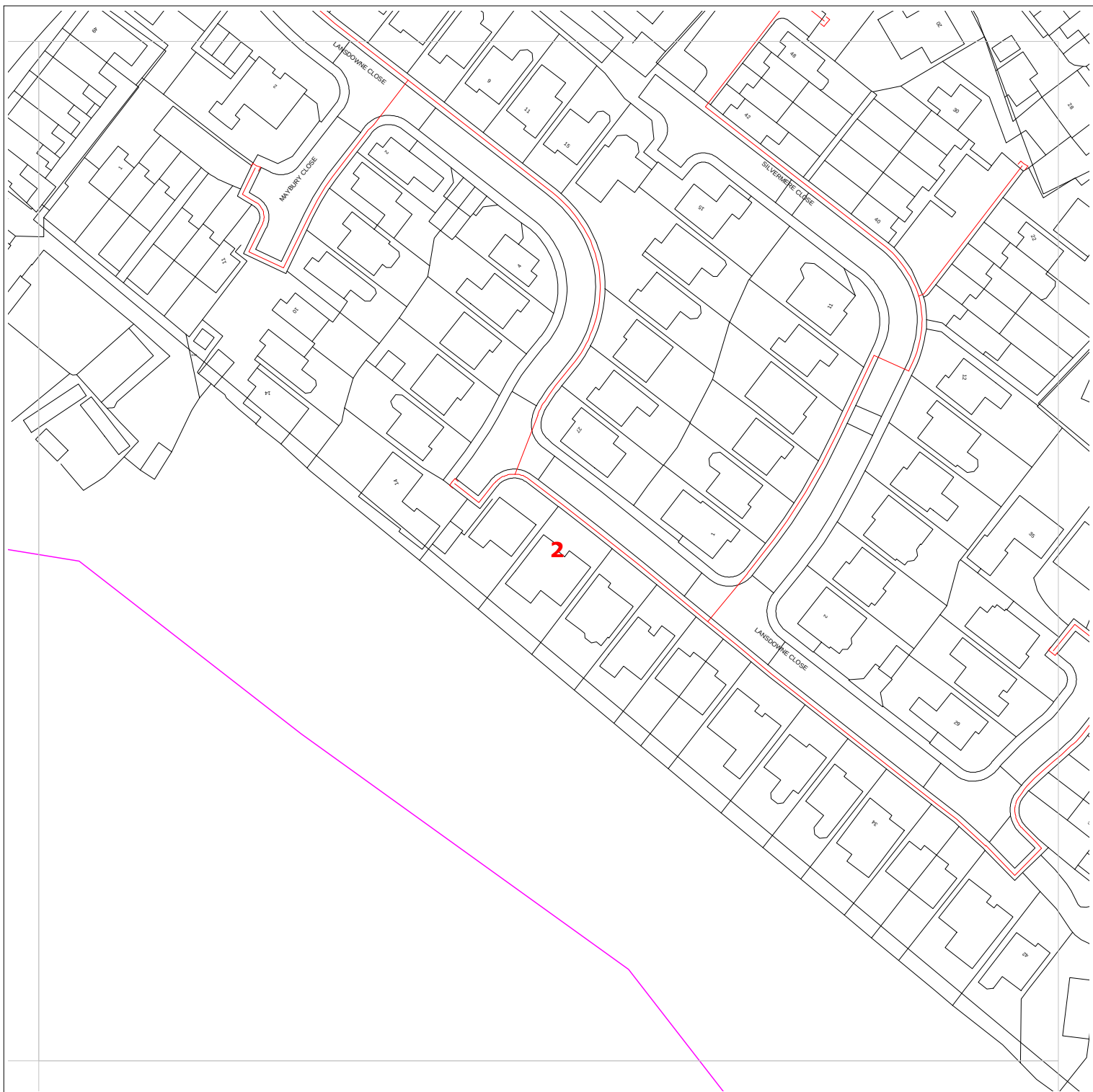
Phone: 01372 587500

Email: PlantResponses@espug.com

Dig Sites:

Area Line

Approx scale on A4 paper: 1:1000
(excluding Overview map)



Date Requested: 16/08/2023

Requested by: Lauren Wenham

Job Reference: 30536072

Company: Soiltechnics Ltd

Your Scheme/Reference: STV6169

Key for Mains & Service Pipework



Existing LP mains or services operating up to 75 millibar gauge



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Existing IP mains or services operating between 2 bar and 7 bar gauge

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UTILITIES GROUP

ESP Utilities Group Ltd

Bluebird House

Mole Business Park

Leatherhead

Surrey

KT22 7BA

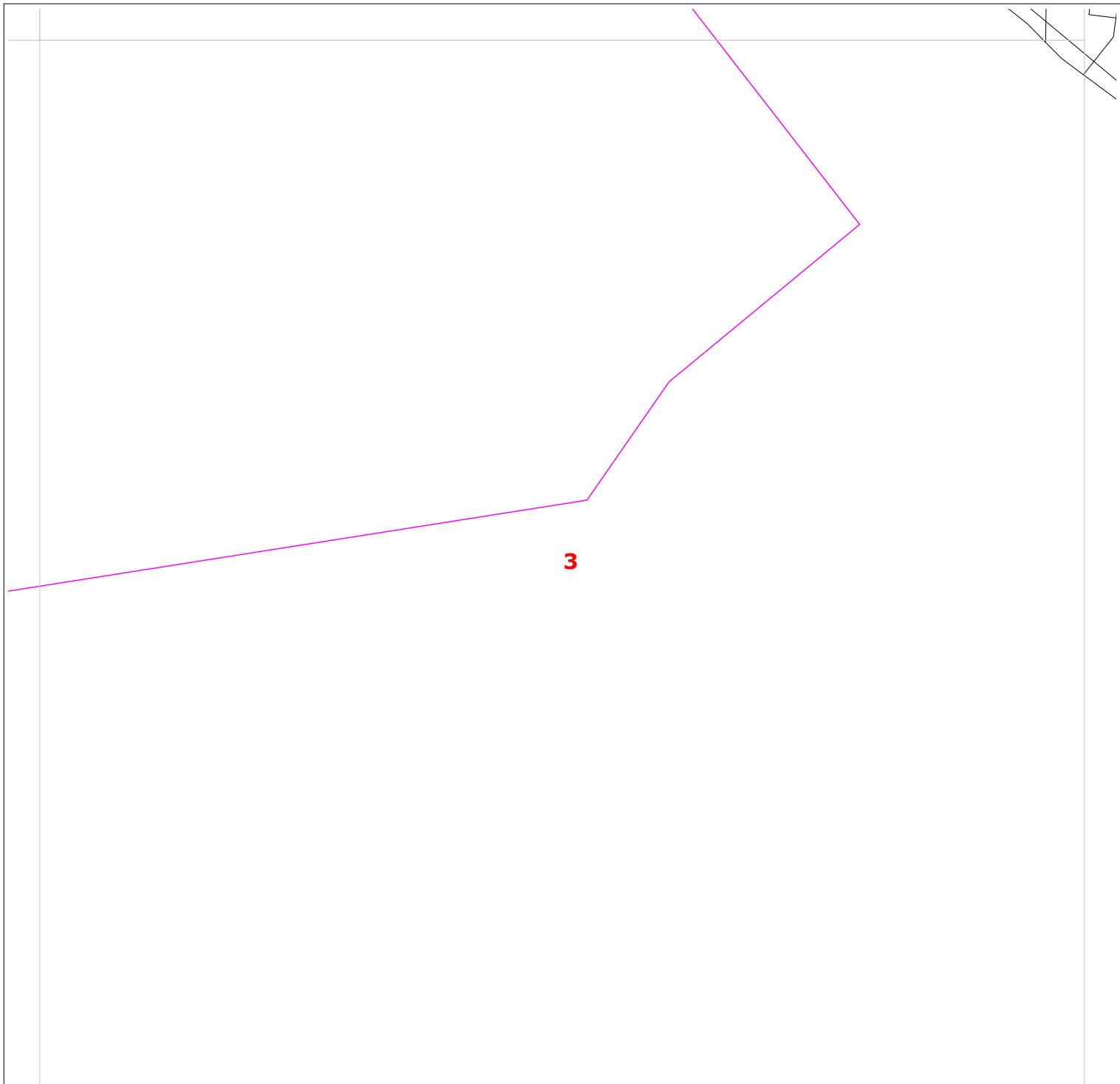
Phone: 01372 587500

Email: PlantResponses@espug.com

Dig Sites:

Area Line

Approx scale on A4 paper: 1:1000
(excluding Overview map)



Date Requested: 16/08/2023

Requested by: Lauren Wenham

Job Reference: 30536072

Company: Soiltechnics Ltd

Your Scheme/Reference: STV6169

Key for Mains & Service Pipework

	Existing LP mains or services operating up to 75 millibar gauge
	Existing MP mains or services operating between 75 millibar and 2 bar gauge
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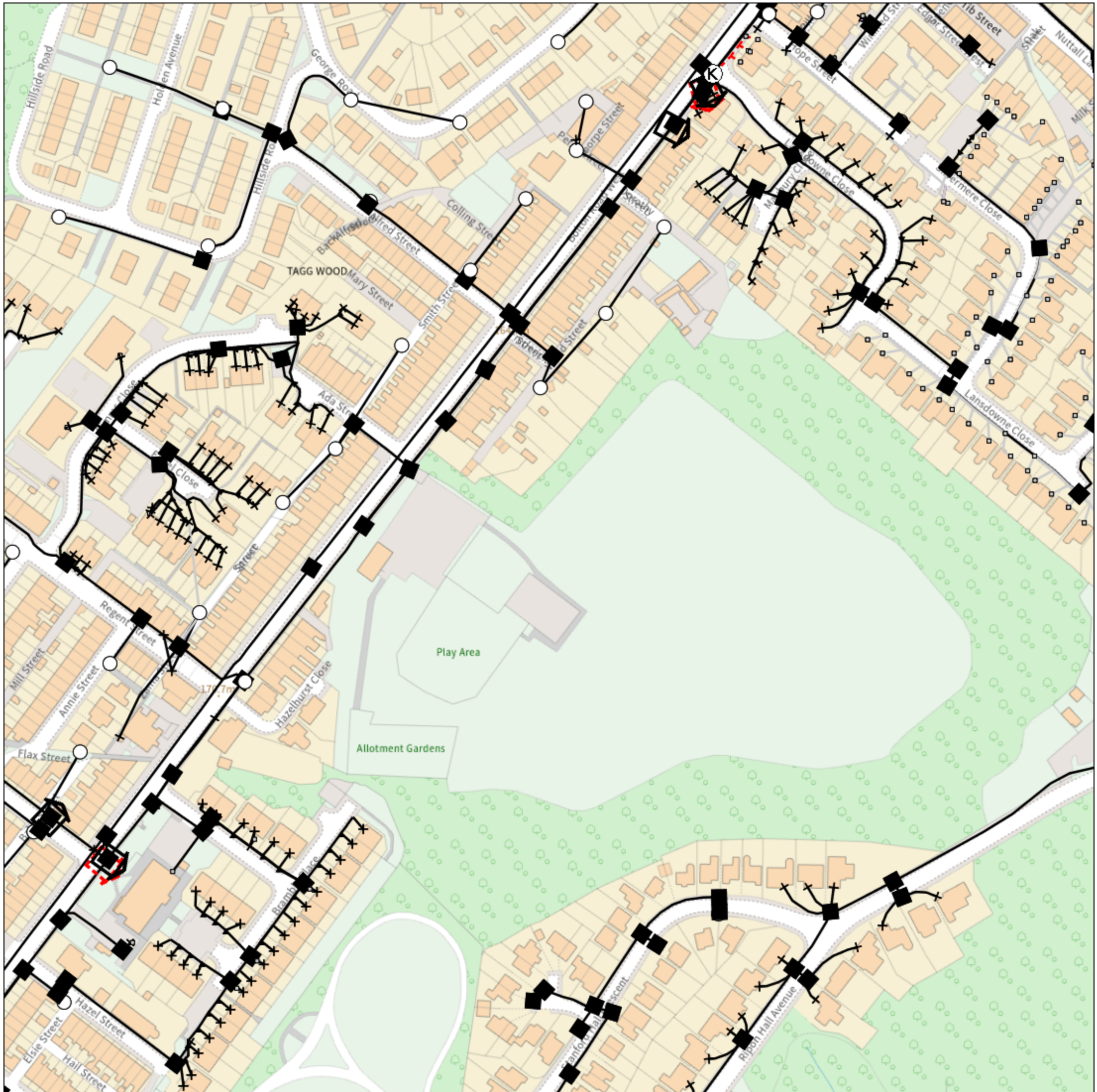
UTILITIES GROUP

ESP Utilities Group Ltd
Bluebird House
Mole Business Park
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Surrey
KT22 7BA
Phone: 01372 587500
Email: PlantResponses@espug.com

Dig Sites:

Area  Line 
Approx scale on A4 paper: 1:1000
(excluding Overview map)

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

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	X	Built	
Pole			Duct Tee	▲	Planned	
Box			Building		Inferred	
Manhole			Kiosk	K	Duct	
Cabinet			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.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : UQB03145V

Map Reference : (centre) SD7864315998

Easting/Northing : (centre) 378643,415998

Issued : 16/08/2023 15:14:51

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Controller of Her Majesty's Stationary Office
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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

Conditions and information regarding electricity mains

These general conditions and precautions apply to the electricity distribution system of Electricity North West Limited.

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. There may be other Electricity North West Limited apparatus in the vicinity, which is not indicated on the cable records. Other apparatus may also be present which a third party owns other than Electricity North West Limited
2. Before any machines are used all of Electricity North West's underground apparatus should be located by manual excavation taking the appropriate safety precautions in accordance with the **Health and Safety Executive Guidance note HS(G)47 "Avoiding danger from underground services"**. This contains advice to site personnel when working near underground services.

Underground services, particularly electricity and gas, can be dangerous. Damage to electricity cables can cause a dangerous flash, leading to severe burns or even death. Gas leaks can cause fire or explosion.

Damage can result from excavation or penetration of the ground, e.g. by a road pin.

Underground services may be found in roads, footpaths and on sites. Always assume that they are present. Treat any services found anywhere as live.

Accidents have happened because people have mistaken one service for another, e.g. black plastic covered electricity cables look like black plastic water pipes and cast iron gas and water mains look alike. Check before you act.

3. Before starting work you must:
 - Make sure you have plans of the underground services in the area. This may not always be possible for emergency or unforeseen works. **Remember that service connection cables and pipes from the main to building or streetlight may not be shown.**
 - Use a cable and pipe locator to trace electricity cables and metal pipes.
 - Look for signs of service connection cables or pipes, e.g. a gas meter or service connection entry into a house or a streetlight.
 - Hand dig trial holes (as many as necessary) to confirm the position of services in close proximity to the area of work.

4. When you start work:

- Hand dig near buried services whenever possible. Spades and shovels are safer than picks, pins or forks.
- Remember that cables may be embedded in concrete. Electricity cables embedded in concrete **must** either be made dead before the concrete is broken out or another safe way of working agreed with the cable owner.
- Watch out for signs of services as work continues.
- Report damage to a cable, pipe or pipe coating however slight.
- Do not use hand held power tools within 0.5m of the marked position of an electricity cable, unless this is impracticable and the line of the cable has been identified by plans and positively confirmed by a locator.
- Do not use hand held power tools directly over the marked line of cable unless:
 - a) You have already found the cable at that position by careful hand digging beneath the surface and it is at a safe depth (at least 300mm) below the bottom of the surface to be broken, or
 - b) Physical means have been used to prevent the tool striking it.
- If an excavator is used near an electricity cable keep everyone clear of the bucket while it is digging. Buckets should not be used near cable – hand dig.
- Do not use exposed services as a convenient step or handhold.
- Do not handle or attempt to alter the position of an exposed service.
- Do not install plant close to an existing service.
- Do not build existing services into a manhole or other structure or encase them in concrete.

Would you also ensure that all site operators have this information and if any electrical apparatus is damaged, they/you should contact Electricity North West Limited fault desk on **0800 195 4141 (option 1)**

5. Overhead lines are not necessarily shown on the Electricity North West Limited cable records but may be present. In the event of work being carried out adjacent to overhead lines (including access, storage etc.) please always ensure strict adherence to the requirements of the **Health and Safety Executive's Document GS6 "Avoidance of Danger from Overhead Electric Lines"**.

Extreme personal danger can result from contact, or near contact, with live conductors or overhead lines.

Treat all overhead lines and other electrical apparatus as live. If in doubt, get advice.

6. Electricity North West Limited must be consulted if work is to take place within 15 metres of overhead lines on steel towers or 9 metres of overhead lines on wood, concrete or steel pylons. (All distances should be measure at ground level from a position estimated by eye to be vertically under the outermost conductor at a tower or pole position) Any person involved in work in the vicinity of overhead lines should:
- Understand and follow the instructions given on safe working areas and methods of work.
 - Make sure that warning notices are in the cabs of machines working in the vicinity of an overhead line.
 - Make sure that barriers and warning notices are erected as required.
 - Not tip soil or stack material underneath overhead lines as this may reduce the clearance to an unsafe distance.
 - Make sure when handling or using platforms, scaffold, poles, piping, ladders, hand tools etc., that they are kept at a safe distance from overhead lines.
 - Not steady a suspended load, skip, hoist wire, slings etc., unless satisfied that there isn't any danger from overhead lines.
 - Remember that when mobile plant, such as a crane or excavator, is operating near overhead lines, the raising or slewing of the jib may introduce danger.
 - Always keep overhead lines in view when manoeuvring mobile plant.
 - Never operate a machine unless carefully guided by an experienced banksman.
 - Not approach or touch any broken or fallen conductors or any plant in contact with an overhead line before Electricity North West Limited confirms that conditions are safe. Warn others to keep well clear.

Machine operators should note that: if a machine comes into contact with an overhead line and cannot be disentangled by backing off, remain seated in the cab and warn others to keep clear of the machine until Electricity North West Limited confirms that conditions are safe. If it is essential to

leave the machine while it is in contact with the overhead line, for example if it catches fire, jump well clear – and **do not** attempt to climb down in the normal way nor touch any part of the machine when on the ground.

7. Electricity North West Limited provides approximate locations of its electricity mains or apparatus according to its records but these records are not necessarily accurate or complete and do not always show the position of private cables from mains to properties. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.

8. Care should be taken when excavating near cables. Known road crossings are highlighted on the enclosed plans. Should any cable, or Electricity North West Limited apparatus indicated on the attached plans, be affected by your proposals please contact us as follows:

Data Management
Linley House
Dickinson St
Manchester
M1 4LF

Telephone: **0800 195 4141 (option 2)**

Details of diversion costs, if any, will be provided on request once your firm proposals have been submitted.

9. Please note that service cables may be affected by some of the works being carried out on site.

If any services do require temporary disconnection please phone **0800 195 4141 (option 2)** for domestic and commercial disconnection, so that arrangement can be made to disconnect before work commences on site.

10. For information regarding supplies please contact us on **0800 195 4141 (option 2)**.

11. Please note that cable records supplied may not be up to date, or may be incomplete, if the area concerned is a new site.

12. For information regarding wayleave or easement agreements contact:

Manchester	08433 115157
Preston	08433 113969
Kendal	08433 115155

13. The latest cable records are always available for inspection during normal working hours and you should satisfy yourself that the information you have is up to date at the time you commence work. This service is consistent with the requirement of Regulation 36 of the Electricity Supply Regulations and paragraph 79 of the New Road and Street Works Act.

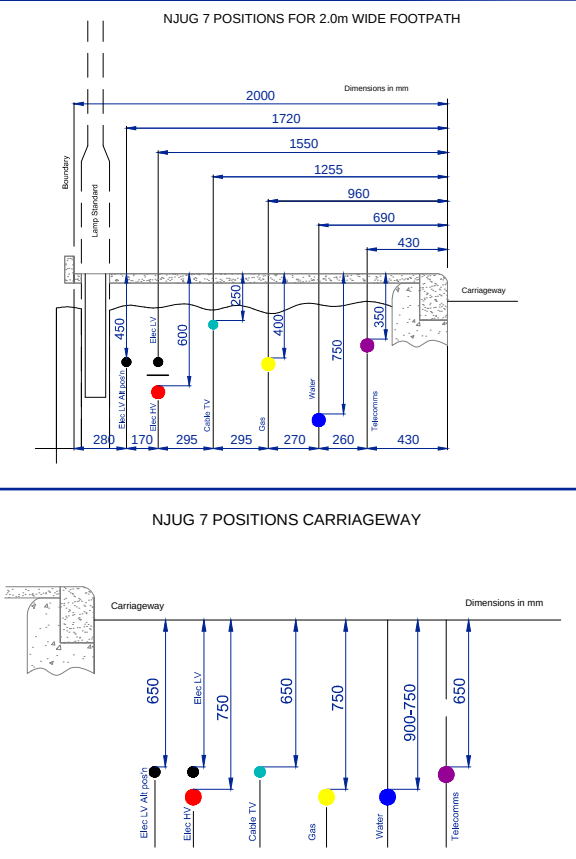
Please contact Data Management on **0800 195 4141 (option 2)** to arrange an appointment to view the records.



304 Bridgewater Place
Birchwood Park
Warrington
WA3 6XG

www.enwl.co.uk

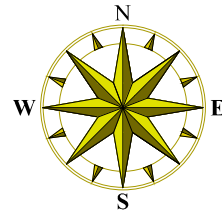
Registered in England and Wales
Registered Number 2366949



	INSTALLED CABLE QUANTITIES	PROPOSED PRINCIPLE QUANTITIES
P1 - P2 / 3c 95 SAC XC	95.1m	-
P3 - P4 / 3c 95 SAC XC	72.6m	-
P4 - P5 / 3c 95 SAC XC	37.5m	-
P2 - P6 / 3c 95 SAC XC	14.5m	-
LB - P1 / 3c 95 SAC XC	62m	-
P7 - P8 / 3c 95 SAC XC	46m	-
POC - LB / 3c 95 SAC XC	15m	-



ENW ELECTRIC KEY	
HV 6.6kV EXISTING	
HV 6.6kV PROPOSED	
HV 6.6kV MADE LIVE	
HV 11kV EXISTING	
HV 11kV PROPOSED	
HV 11kV MADE LIVE	
LV EXISTING	
LV PROPOSED	
LV MADE LIVE	
SERVICE IN 38mm DUCT	
SERVICE IN 38mm DUCT MADE LIVE	
ROAD CROSSING DUCT	
LIGHTING COLUMN	
JOINT/BOTTLE END	
EARTH ROD	



ES Pipelines
HAZELDEAN
STATION ROAD
LEATHERHEAD
SURREY
KT22 7AA
Tel: 01372 227560
FAX: 01372 377996

ESP Ref. No.
ESN000000

DEVELOPMENT
Hazelhurst Development, Hazel Street, Ramsbottom, BL0 9PT

DRAWING
AS LAID LV

Developer **Southdale Ltd, The Genesis Centre, Science Park South, Birchwood, Warrington. WA3 7BH**

Land Owner**Great Places Housing Association, Southern Gate, 729 Princess Road, Manchester. M20 2LT.**

DRAWING NUMBER	AP0368-E-LV-ASLAID	REVISION 11
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CONTRACT NUMBER	AP0368	DESIGN BY A.Ahmed DRAWN BY C.Pochwalta GRID REF X: 378467 Y: 435992	SCALE 1:500 @ A2 DATE 09/12/2014
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Rev	Description	Date	By
1.	Refer to drawing AP0368-LV-AS LAID Rev.01	16/06/2014	JAH
2.	Refer to drawing AP0368-LV-AS LAID Rev.02	12/11/2014	JAH
3.	Mains added from POC to P1, 3x ST JT and 3 x BR JT added,	09/12/2014	CP
4.	Mains Live, Plots 1-4 & 7 Serviced and 2 BE added	16/12/2014	AH
5.	Plots 5-10 & 13-18 serviced	08/01/2015	MD
6.	Mains added o/s plots 19-24	08/01/2015	CP
7.	Plots 25 - 28 Serviced	15/01/2015	AH
8.	BR JT o/s Plot 19 & B/End o/s plot 24 added, Plots 19-24 Serviced	22/01/2015	AH
9.	Plots 11,12 & 29-32 Serviced	29/01/2015	AH
10.	Column 1-4 & 6 Serviced	05/02/2015	AH
11.	Column 5 Serviced.	05/02/2015	AH



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Direct House, Lancaster Way,
Wingates Business Park,
Bolton, BL5 3XY
Tel :01204 325000

Enquirer

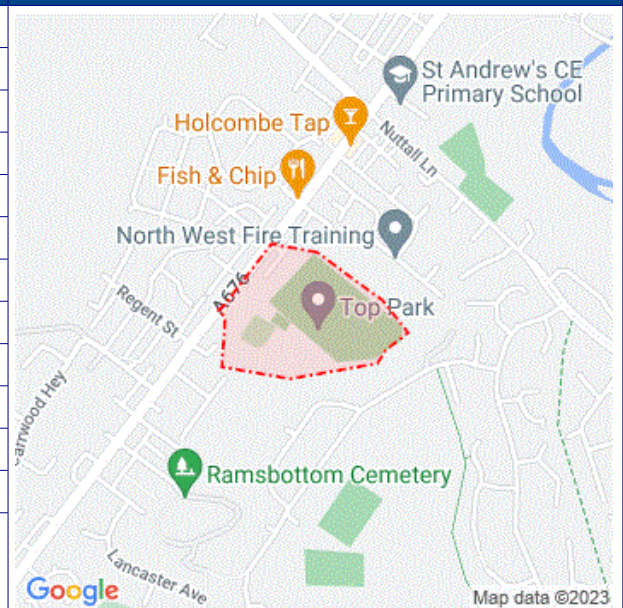
Name	Miss Lauren Wenham	Phone	01604 781877
Company	Soiltechnics Ltd	Mobile	Not Supplied
Address	Cedar Barn Cedar Barn White Lodge Walgrave Northamptonshire NN6 9PY		
Email	admin@soiltechnics.net		

Enquiry Details

Enquiry type	Planned Works
Work category	Development Projects
Work type	Piling
Work type buffer*	150 metres
Start date	17/08/2023
End date	17/08/2023
Scheme/Reference	STV6169
Search location	XY= 378643, 415998
Confirmed location	378687 415981
Site size	47179 metres square
Site Contact Name	Rosie Dean
Site Phone No.	01604781877
Description of Works	n/a

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Please note that the above map only displays the location of the proposed work site and will not display any of the Members' pipes and cables. It is imperative that this area accurately reflects the proposed work site.

Affected LSBUD members

(LSBUD Members who have assets registered on LSBUD within the vicinity of your search area.)

Asset Owner	Phone/Email	Emergency Only	Status
Cadent Gas	0800688588	0800111999	Await response
Electricity North West Limited	08001954141	08001954141	Await response
ESP Utilities Group	01372227560	01372227560	Await response
Last Mile	plantenquiries@lastmile-uk.com	0800111999	Await response

Status explanation

Await Response means that the asset owner will contact you. This is typically by sending the plan response but they may ask for further information before being able to do so, particularly if any payments or authorisations are required.

Email Additional Info means that the asset owner needs further information about your works to assess your enquiry before providing a response. Please provide any details you have available including plans, method statements etc. if available.

Important notices

It is very important that you correctly understand what the service does and the procedures in order for you to work safely. Please refer to the LSBUD Support Page (www.lsbud.co.uk/lineasearchbeforeudig-support) for further guidance.

This information includes how to provide additional information to the LSBUD Members who request it to provide a response to your enquiry.

Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date and time of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LineasearchbeforeUdig (LSBUD) accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.lsbud.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

List of not affected LSBUD members (LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area.)

Angus Energy	AWE Pipeline	B & D Energy Limited
Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)	Box Broadband
BP Exploration Operating Company Limited	BPA	Cambridgeshire County Council Climate Change and Energy Services
CATS Pipeline c/o Wood Group PSN	Cemex	Centrica Storage Ltd
CNG Services Ltd	Concept Solutions People Ltd	ConocoPhillips (UK) Teesside Operator Ltd
D.S.Smith	Diamond Transmission Corporation	DIO (MOD Abandoned Pipelines)
DIO (MOD Live Pipelines)	E.ON UK CHP Limited	EDF Energy Renewables Ltd
EirGrid	Eleclink Limited	Energy Assets Networks
ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESB CCGT Power station (Carrington Gas Pipeline)	ESSAR	Esso Petroleum Company Limited
euNetworks Fiber UK Ltd	EXA Infrastructure	Exolum Pipeline System
Fulcrum Electricity Assets Limited	Fulcrum Pipelines Limited	Gamma
Gas Networks Ireland (UK)	Gateshead Energy Company	Gigaclear Ltd
Harbour Energy	Heathrow Airport LTD	Humbly Grove Energy
IGas Energy	INEOS FPS Pipelines	INEOS Manufacturing (Scotland and TSEP)
INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Jurassic Fibre Ltd	Kensa Utilities	Mainline Pipelines Limited
Manchester Jetline Limited	Manx Cable Company	Marchwood Power Ltd (Gas Pipeline)
Melbourn Solar Limited	Moray East Offshore Windfarm	MUA Group Limited
National Gas Transmission	National Grid Electricity Distribution	National Grid Electricity Transmission
Neos Networks	Northern Gas Networks Limited	Northumbrian Water Group
NPower CHP Pipelines	NTT Global Data Centers EMEA UK Ltd	NYnet Ltd
Ogi	Oikos Storage Limited	Ørsted
Palm Paper Ltd	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Portsmouth Water	Premier Transmission Ltd (SNIP)
Redundant Pipelines - LPDA	RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)
SABIC UK Petrochemicals	SAS Utility Services Ltd	Scottish and Southern Electricity Networks
Scottish Power Generation	Seabank Power Ltd	SES Water
SGN	Shell	Shell NOP
SP Energy Networks	Spring Fibre Limited	Squire Energy Networks
SSE Generation Ltd	SSE Transmission	SSE Utility Solutions Limited

Storengy	Tata Communications (c/o JSM Construction Ltd)	Total Colnbrook Pipelines
Total Finaline Pipelines	Transmission Capital	UK Power Networks
Uniper UK Ltd	University of Cambridge Granta Backbone Network	Vattenfall
Veolia ES SELCHP Limited	Veolia ES Sheffield Ltd	Voneus Limited
VPI Power Limited	Wales and West Utilities	West of Duddon Sands Transmission Ltd
Westminster City Council	Zayo Group UK Ltd c/o JSM Group Ltd	

Non-LSBUD members (Asset owners not registered on LSBUD)

(The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding.

Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.)

Asset Owner	Preferred contact method	Phone	Status
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08000232023	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Equans	nrsua.uk@equans.com	0800 130 3600	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Lumen Technologies	plantenquiries@ocugroup.com	02087314613	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sky UK Limited	nrsua@sky.uk	02070323234	Not Notified
Sota	sota.plantenquiries@ocugroup.com		Not Notified
United Utilities	WastewaterDeveloperServices@uuplc.co.uk	08707510101	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified

Disclaimer

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The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LSBUD will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LSBUD, including but not exclusively those set out above. Therefore, LSBUD cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LSBUD and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.

Soiltechnics

**Soiltechnics
Cedar Barn,
Walgrave,
NN6 9PY**

FAO:**How to contact us:**

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101**E-mail: propertysearches@uuplc.co.uk**

**Your Ref: STV6169
Our Ref: UUPS-ORD-511225
Date: 17/08/2023**

Dear Sirs**Location: Top Park Bury**

I acknowledge with thanks your request dated 16/08/2023 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

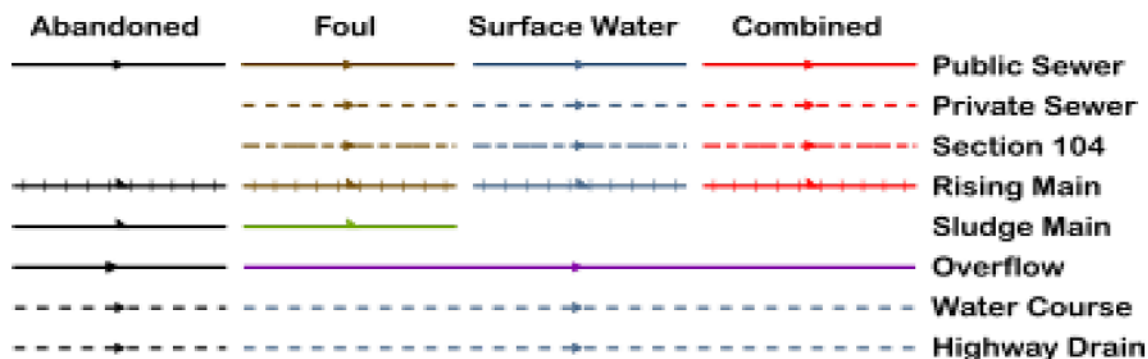
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	

Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbology for proposed assets is the same as above, but shown in **green**
 Symbology for abandoned assets is the same as above, but shown in **black**

