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Ground Investigation Report

Proposed LED Floodlit Tarmacadam PlayZone Pitch

Unity Primary School, Manchester

March 2024



Project Details

Site: Unity Primary School, Manchester

Document Title: Ground Investigation Report

Document no.: STV6309-R01 Rev A

Date: March 2024

Client: The Football Foundation

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Document history and status

Revision	Date	Description	Author	Checker	Reviewer
A	March 2024	First Issue	JT	DH	SCD



Table of Contents

Non-technical Summary	v
1 Introduction	1
1.1 Scheme Outline	1
1.2 Brief	1
1.3 Limitations	1
2 Desk Study	2
2.1 Sources of Information	2
2.2 Site Location and Description	2
2.3 Site History	5
2.4 Anticipated Geology and Hydrogeology	7
2.5 Flood Risk	9
2.6 Mining and Ground Stability	9
2.7 Landfill and Infilled Ground	10
2.8 Underground Infrastructure	10
2.9 Unexploded Ordnance (UXO) Hazard Screen	11
3 Ground Investigation	12
3.1 Objectives	12
3.2 Fieldwork Summary	12
3.3 Unexploded Ordnance (UXO)	12
3.4 Sampling	12
3.5 In-situ Testing	13
3.6 Investigation Constraints	13
4 Laboratory testing	14
4.1 Overview	14
4.2 Geotechnical Testing	14
4.3 Chemical Testing	14
5 Ground Investigation Findings	15
5.1 Ground Model	15
5.2 Topsoil	15
5.3 Made Ground	15
5.4 Devensian Till	16
5.5 Groundwater	16
5.6 Evidence of Possible Contamination	16
5.7 Obstructions and Instability	17
6 Chemical Assessment	18
6.1 Topsoil Suitability	18
6.2 Waste Disposal	18
6.3 Materials Management	19
7 Geotechnical Discussion	20
7.1 Scheme Overview	20
7.2 Key Geotechnical Issues	20
7.3 Made Ground	20
7.4 Mining Legacy	20
7.5 Foundation Strategy	21
7.6 Floodlight Foundations	21

7.7	Artificial Pitch Foundations	22
7.8	Drainage	22
7.9	Aggressiveness of the Ground to Buried Concrete	23

8 Recommendations for further works 24

Appendix A	Drawings
Appendix B	Exploratory Hole Logs
Appendix C	In Situ Test Results
Appendix D	Geotechnical Laboratory Test Results
Appendix E	Geoenvironmental Laboratory Test Results
Appendix F	Contamination Assessment Screening
Appendix G	Waste Characterisation Assessment
Appendix H	Statutory Undertakers Responses

Drawing Register

Title	Produced by	Date	Reference
Exploratory hole location plan	Soiltechnics Limited	Feb 2024	D-STV6309-01_RevA

List of Tables

Table 2-A:	Site Description	3
Table 2-B:	Summary of site history	5
Table 2-C:	Summary of anticipated geology and hydrogeology	9
Table 2-D:	UXO Hazard Screen	11
Table 3-A:	Summary of fieldwork undertaken	12
Table 3-B:	Summary of field testing undertaken	13
Table 4-A:	Summary of geotechnical laboratory testing	14
Table 4-B:	Summary of chemical laboratory testing	14
Table 5-A:	Ground Model	15
Table 5-B:	Summary of groundwater observations during the fieldworks	16
Table 5-C:	Summary of obstructions encountered during the investigation works	17
Table 6-A:	Summary of chemical analysis	18
Table 6-B:	Summary of waste characterisation	19
Table 7-A:	Summary of infiltration test results undertaken in accordance with BRE 365	23
Table 7-B:	Summary of the aggressiveness of the ground to buried concrete	23

List of Figures

Figure 2-A:	Aerial photograph of site boundary (red) and PlayZone footprint (blue)	3
Figure 2-B:	Photograph looking east from the western boundary of the site	4
Figure 2-C:	Photograph looking towards the northwest corner of the site and grass embankment	4
Figure 2-D:	Photograph looking towards the southeast from the northwest of the site	5
Figure 2-E:	1892-1914 Historical map extract overlay showing the site boundary (red) and proposed PlayZone (blue)	6
Figure 2-F:	1933 aerial image showing infilling of the former clay pit. Approximate location of PlayZone shown in area highlighted yellow (note truck on south of highlighted area tipping waste into the excavation).	6
Figure 2-G:	1949-1972 Historical map extract overlay showing the site boundary (red), proposed PlayZone (blue)	7

Figure 2-H:	Aerial imagery dated 2017 showing stockpiling of soils in the PlayZone area (blue)	7
Figure 2-I:	Extract from BGS showing superficial geology at the site	8
Figure 2-J:	Extract from BGS showing bedrock geology at the site	9
Figure 2-K:	Extract from EA showing proximity of the site to landfills.	10
Figure 2-L:	Electricity Northwest extract, dated: 24/11/23.	11
Figure 5-A:	Made Ground encountered in WS01	16
Figure 5-B:	Devensian Till encountered in WS04	16

Non-technical Summary

Topic	Commentary
Site description	The development site currently forms part of a grassed field associated with Unity Primary School.
Development proposals	The proposed development is for construction of a LED floodlit tarmacadam PlayZone pitch (measuring approximately 30m x 25m in size) for football and basketball use.
Site history	The site was part of a brick works clay pit from the late-1800s until the 1930s when backfilling of the clay pit occurred. Aerial imagery from the early 2000s shows the presence of Unity Primary School, with the current site layout observed from 2017 onwards.
Ground conditions	Ground conditions comprised Topsoil to a typical depth of 0.3m bgl. Made Ground was observed underlying Topsoil in all exploratory positions extending beyond the maximum exploratory depth of 5.45m bgl in WS01 and WS02. WS03 terminated on an obstruction within the Made Ground at 1.7m. Naturally derived Devensian Till deposits were encountered at a depth of 4.30m bgl within WS04. Some perched water was present in Made Ground.
Development constraints	No significant constraints were encountered which limited the design of the scope of works or the undertaking of fieldworks.
Mining and ground stability risk	The site falls inside of a Coal Mining Reporting Area, but outside a high development risk area. The risk from ground instability associated with coal mining legacy is considered to be low.
Floodlight foundation solution	The Made Ground deposits are considered unsuitable to support the proposed floodlight foundations - piled foundations or ground improvement of existing Made Ground are possible solutions. A concrete classification of DS-1 and AC-1/AC1s is required.
CBR assessment and pitch foundations	Based on the anticipated founding depth and DCP results, a CBR design value of 10% can be adopted for soils that are likely to be representative of those which remain at or near pitch formation levels. Conditioning of the deposits will be required to minimise levels of differential settlement across the site.
Drainage potential	Disposal of stormwater via a soakaway is not considered viable at the site. As an alternative, it is possible that the PlayZone drainage could key into the existing surface water drainage system currently used by the school to the southwest.
Chemical contamination (Topsoil)	Topsoil in-situ would be chemically suitable for reuse onsite, or offsite within a residential development.
Waste characterisation	A composite sample of Made Ground was taken from each exploratory hole, referenced as WAC01. The Made Ground is indicated to be suitable for disposal at a non-hazardous landfill (not inert due to elevated TOC, PAHs and antimony).
Recommendation for further works	If a piled foundation solution is adopted for the proposed floodlighting across the proposed development area, it is recommended this investigation is supplemented with further onsite deeper boreholes providing parameters to facilitate design and construction. 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 pitch, specialist input at an early stage is recommended.

1 Introduction

1.1 Scheme Outline

- 1.1.1 The proposed development is for construction of a LED floodlit tarmacadam PlayZone pitch (measuring approximately 30m x 25m in size) for football and basketball use. The development will be located within the northern part of the grounds to Unity Primary School, Manchester. The approximate footprint of the proposed PlayZone pitch 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 2024 PlayZone framework agreement for a ground investigation utilising windowless sampling 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 PlayZone 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, a topographical survey and electrical capacity survey have been 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 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 85 (Scale 1:50 000) – Manchester (2011).
- Ordnance Survey OpenData.
- 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.
- Phase 1 desk study report produced for the Unity Community Primary School by Integra Consulting Environmental Ltd in August 2015.

2.2 Site Location and Description

2.2.1 The proposed development lies within Manchester, approximately 2.4km north of the city centre, at the following postal address:

Unity Primary School
41 Allesley Drive
Cheetwood
Manchester
M7 4YE

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 PlayZone footprint (blue)

Theme	Feature
Current site use	The development site currently forms part of grassed playing fields associated with school. Allesley Drive provides access to the site from the west.
Local area land use	Adjacent land use comprises residential housing. The school buildings associated with Unity Primary School are located to the southwest of the proposed PlayZone.
Topography	Surface levels fall marginally from northwest to southeast across the proposed PlayZone pitch. A 1-1.5m high grassed embankment is noted along the western boundary of the proposed PlayZone, see Figure 2-C below.
Buildings, surfacing and other permanent features	The wider site comprises the school buildings, situated western central part of the stie, bound by grassed playing fields to the north, east and south.
Boundary features	There are no physical boundaries to the proposed PlayZone area. The wider site is bound by palisade fencing.
Vegetation	Significant vegetation is not present on or near the PlayZone site. Grass was noted to be thin/sparse in the north of the site where the pitch is proposed.
On-site / adjacent surface water features	None observed. The River Irwell is located approximately 1.5km to the west 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 looking east from the western boundary of the site



Figure 2-C: Photograph looking towards the northwest corner of the site and grass embankment



Figure 2-D: Photograph looking towards the southeast from the northwest of the site

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
Late-1800s	The PlayZone location is noted to have been situated on the western high wall of an old clay pit associated with a brickworks to the southwest of the site (see Figure 2-E).	Adjacent land uses are noted to have comprised residential properties to the north and west, with the brick works/pit extending off site to the south and east.
Early 1900s	Historic aerial imagery dated 1933, shows the PlayZone location in relation to the clay pit, see Figure 2-F below. The old clay pit beneath the proposed PlayZone area was infilled at this time.	Residential properties are noted to the north and west of the wider site.
Mid to late 1900s	The clay pit is no longer present beneath the proposed PlayZone and the wider site is undeveloped open land at this time (See Figure 2-G).	Further residential development is noted to the south of the wider site.
Early-2000s to present day	Aerial imagery (Google Earth) shows the Unity Primary School to be present from the early 2000s, only comprising one building at the time. The proposed PlayZone is noted as being grassed fields during this time. Construction of the school's present layout is observed circa. 2017, with possible reprofiling/stockpiling noted within the area of the proposed PlayZone (see Figure 2-H). The present layout is observed from 2019 onwards.	No significant changes.

Table 2-B: Summary of site history



Figure 2-E: 1892-1914 Historical map extract overlay showing the site boundary (red) and proposed PlayZone (blue)



Figure 2-F: 1933 aerial image showing infilling of the former clay pit. Approximate location of PlayZone shown in area highlighted yellow (note truck on south of highlighted area tipping waste into the excavation).

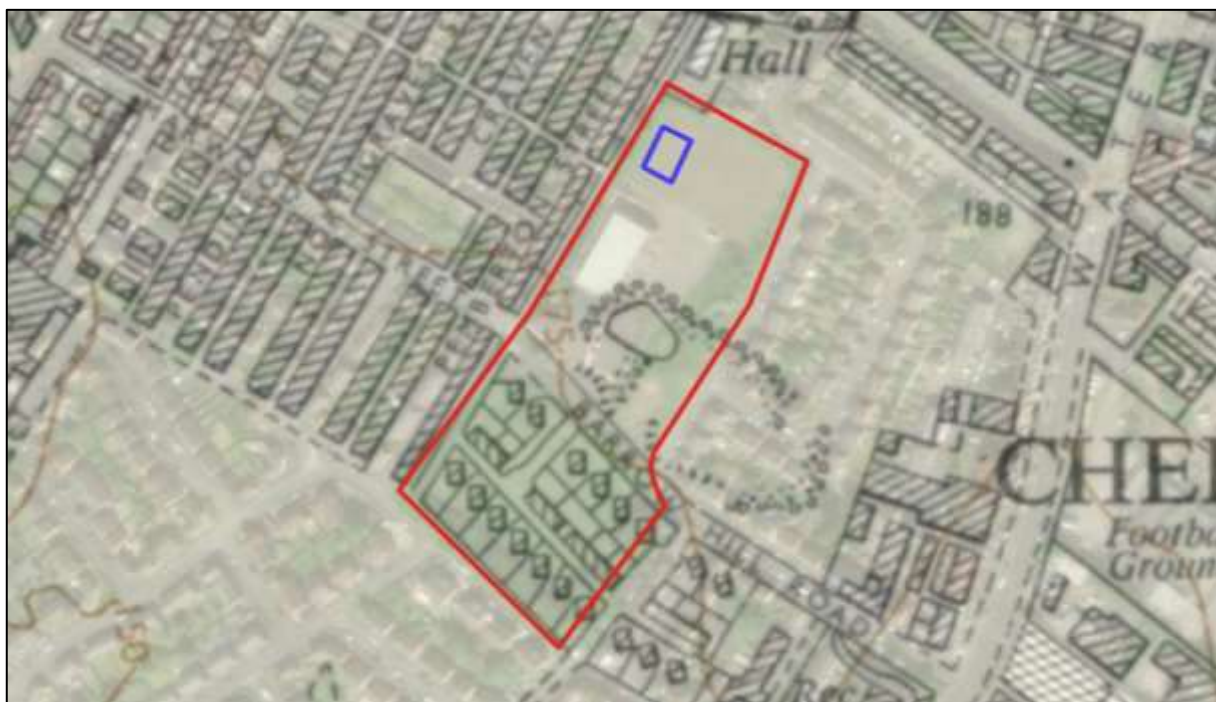


Figure 2-G: 1949-1972 Historical map extract overlay showing the site boundary (red), proposed PlayZone (blue)



Figure 2-H: Aerial imagery dated 2017 showing stockpiling of soils in the PlayZone area (blue)

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-I below). The site is observed to be within an area of superficial thickening associated with a hidden valley, extending to anticipated depths of 10m to 20m bgl.
- 2.4.2 Artificial ground is noted across the wider site footprint, likely associated with backfilling of the former clay pit.

- 2.4.3 Review of a Phase 1 desk study report produced for the Unity Community Primary School by Integra Consulting Environmental Ltd in August 2015, provides historical ground investigation data for the redline site under consideration. Borehole data indicated at least 6-10m of Made Ground, comprising dark brown firm clay with coarse and fine brick, concrete and asphalt fragments or crushed hardcore and asphalt as well as possible ash.
- 2.4.4 Testing of soils indicated the presence of quantifiable Chrysotile asbestos fibre bundles and free fibres within 6 No. of 12 No. samples tested (4 No. of 9No. 'shallow' samples).
- 2.4.5 The underlying bedrock is recorded as the Chester Formation across the entirety of the site, comprising mudstone (refer to Figure 2-J below).



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



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

2.4.6 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	6-10m	Variable but including demolition materials	-	Variable
Devensian Till	Superficial	Up to 20m	Clays	Secondary (undifferentiated)	Low
Chester Formation	Bedrock	Basal unit	Sandstone	Principal	Low to moderate

Table 2-C: Summary of anticipated geology and hydrogeology

2.5 Flood Risk

2.5.1 The site lies within a Flood Zone 1 where the risk from flooding from rivers or the sea is <0.1% in any given year. The risk from surface water flooding is considered very low.

2.5.2 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, but outside of a Development High Risk Area. No recorded or probable unrecorded workings, coal seams, mine entries or opencast sites are located within 100m of the site.

2.6.2 Review of a Coal Authority report contained in the Integra consulting Phase 1 report indicates no shallow mining risk, or presence of mine shafts and open cast sites in close proximity.

- 2.6.3 On the basis of the above, the risk from ground instability associated with coal mining legacy is considered to be very low.

2.7 Landfill and Infilled Ground

- 2.7.1 Open-source Environment Agency landfill mapping data indicates the proposed development lies within a historic landfill site, associated with the historic clay pit (refer to Figure 2-K below). The landfill is noted to comprise commercial and household waste. 6-10m of Made Ground has been recorded beneath the wider site during previous investigation, however, landfill materials were recorded as being dominantly inert demolition materials, rather than household waste.
- 2.7.2 Based on the above and anticipated ground conditions on site, whilst there is a potential for elevated ground gases beneath the site, the risk to the PlayZone is considered to be low due to the nature of the development (open air pitch and floodlighting).



Figure 2-K: 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 H. 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 an LV electrical line runs parallel to the proposed development's eastern boundary (see Figure 2-L).

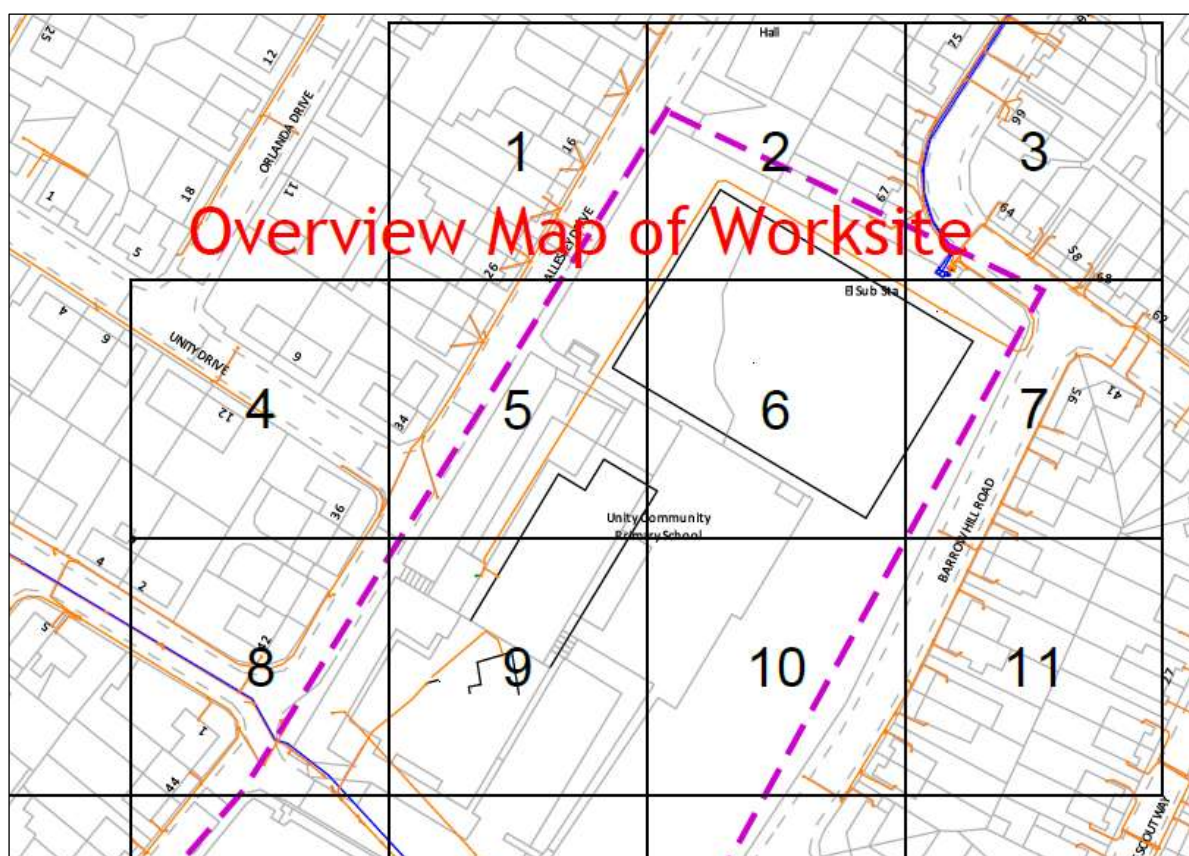


Figure 2-L: Electricity Northwest extract, dated: 24/11/23.

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?	Yes	The site falls within a moderate bombing density area, and therefore bombing may have occurred on or near the site.

Table 2-D: UXO Hazard Screen

2.9.2 A preliminary risk review has been undertaken by a UXO specialist to assess the risk of encountering UXO during ground investigation works undertaken by Soiltechnics only and to identify any precautionary measures required. It should be noted that the risk assessment has not been carried out fully in accordance with CIRIA report C785 'Unexploded Ordnance (UXO) A guide for the construction Industry'.

2.9.3 The risk review concluded that there was 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 on 1st February 2024.
- 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	Dynamic Cone Penetrometer Tests	5	0.678 - 0.839	DCP01, DCP03, DCP04 and DCP05 Terminated at scheduled depth.
			0.367	DCP02 Terminated due to obstruction.
Appendix B	Dynamic windowless sampling boreholes	3	5.45	WS01, WS02 and WS04 Boreholes terminated at scheduled depth.
		1	1.70	WS03 Borehole terminated due to obstruction.

Table 3-A: Summary of fieldwork undertaken

- 3.2.3 It should be noted that WS04 was completed on the grassed embankment some 1m above the level of the surrounding area.
- 3.2.4 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 Due to the risk identified during the initial hazard screening of the site, Soiltechnics commissioned a UXO specialist to undertake a preliminary risk review for the purpose of the ground investigation works phase only.
- 3.3.2 The review concluded that the UXO risk to the ground investigation works was moderate within the site boundary, and therefore the works were supervised by a UXO specialist. No ferrous anomalies were identified during the works.

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)	17	BS EN ISO 22476-3	Included within logs Detailed in Appendix C
Pocket penetrometer	12	Manufacturer’s instructions	Included within logs Detailed in Appendix C
Dynamic cone penetrometer (DCP) using TRL probe	5	DMRB: CS229	Detailed in Appendix C
Variable head permeability	2	BS EN ISO 22282-2	Detailed in Appendix C

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.

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 D, and the total number of geotechnical tests undertaken is summarised below:

Geological Unit	Test	Quantity
Made Ground	Atterberg limits	1
	Particle size distribution (coarse)	1
	BRE SD1 Suite D	2
Devensian Till	Atterberg limits	1
	BRE SD1 Suite D	1

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 E, 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 table below interprets the geological conditions at the site. Unless otherwise stated in subsequent interpretive report sections, this represents the adopted ground model.

Stratum	Brief description	Top depth range (m bgl)	Adopted model top depth (m bgl)	Thickness (m)	Water
Soft surfacing	Topsoil	G.L.	G.L.	0.3	-
Made Ground	Brown clayey sand and gravel including brick, ash, concrete, coal	0.20 to 0.60	0.40	0.4 - >5.2	Water strike at 3.0m
Devensian Till	Clay with gravels	3.5 to 4.30	4.30	Not proven	-

Table 5-A: Ground Model

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, comprising brown slightly gravelly silty sand and locally sandy slightly gravelly clay. Gravel comprised brick and sandstone. The base of the unit was typically 0.3m bgl and varied between 0.2m and 0.3m in thickness.

5.3 Made Ground

5.3.1 Made Ground was encountered underlying topsoil across all exploratory boreholes. The base of the unit was observed within WS04 at 4.30m bgl. The base depth of the unit was not observed in WS01 as in WS02 within the maximum exploratory depth of 5.45m. WS03 refused at 1.7m due to a suspected obstruction within the Made Ground.

5.3.2 Made Ground was observed as dominantly granular soils typically observed to be very gravelly silty sand with demolition type materials. On the western side of the site (WS03 & WS04) clay fill was present, comprising reworked natural soils, and at depth in WS02 in the northeast of the site.

5.3.3 A photograph of the Made Ground encountered is shown below in Figure 5-A.



Figure 5-A: Made Ground encountered in WS01

5.4 Devensian Till

5.4.1 Devensian Till was encountered underlying Made Ground in WS02 and WS04 comprising soft grey/brown gravelly sandy clay. The base of the unit was not encountered within 5.45m.

5.4.2 A photograph of the Devensian Till can be seen below in Figure 5-B.



Figure 5-B: Devensian Till encountered in WS04

5.5 Groundwater

5.5.1 A summary of the groundwater level data obtained during the fieldworks phase is presented below.

Exploratory hole ID	Groundwater observation
WS01	Perched groundwater encountered at 3m depth, remaining stable after 20 minutes.
WS02	Perched groundwater encountered at 3m depth, remaining stable after 20 minutes.

Table 5-B: Summary of groundwater observations during the fieldworks

5.5.2 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.

5.6 Evidence of Possible Contamination

5.6.1 During the ground investigation works, no significant visual or olfactory evidence of contamination was noted, except for the presence of anthropogenic materials contained within the Made Ground (ash, brick, concrete).

5.7 Obstructions and Instability

5.7.1 The table below summarises the obstructions = encountered that affected the progress of the investigation works.

Strata / Area	Depth range (m bgl)	Issue	Description
Made Ground	1.70	Obstruction	WS03 terminated due to suspected obstruction within the Made Ground.

Table 5-C: Summary of obstructions encountered during the investigation works

5.7.2 Significant instability of borehole sides was not experienced during the investigation.

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 F, 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 F, and the following table summarises the outcome of the analysis.

Receptor group	CLEA model	Inorganic contaminants	Organic contaminants
Residential users (child)	Residential with homegrown produce	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 G, 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)	Non-hazardous landfill site due to elevated total organic carbon, total PAHs and antimony.

Natural soils	Non-Hazardous (17-05-04)	Inert based on soils being of natural origin 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 project will comprise construction of a LED floodlit tarmacadam PlayZone pitch (measuring approximately 30m x 25m in size) for football and basketball use. In view of the scheme proposals, the geotechnical elements considered in this report are outlined below:
- a) Floodlight 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:
- Made Ground
 - Mining legacy

7.3 Made Ground

- 7.3.1 The Made Ground deposits recorded in all exploratory holes are considered unsuitable for supporting concentrated foundation loads due to their low strength/density and variable/compressible nature. Accordingly, foundations should extend, as a minimum, through such deposits.
- 7.3.2 The full thickness of Made Ground was only proven in WS04 in the south-western part of the site, with deposits of Devensian Till present at depths of 4.3m bgl. It is noted that WS03 in the north-western part of the site terminated at shallow depth, however, based on ground conditions encountered elsewhere, Made Ground is anticipated to extend to similar depths.
- 7.3.3 Due to the thickness of the Made Ground, adoption of pad foundations for the proposed floodlights is highly unlikely to be feasible, with such deposits promoting excessive amounts of total and differential settlement. Some form of ground improvement could allow adoption of such foundations, alternatively a piled foundation could be utilised.

7.4 Mining Legacy

- 7.4.1 The site is located within a Coal Mining Reporting Area, but outside of a Development High Risk Area. No recorded or probable unrecorded workings, coal seams, mine entries or opencasts are located within 100m of the site.
- 7.4.2 Review of a Coal Authority report contained in the Integra consulting Phase 1 report indicates no shallow mining risk, or presence of mine shafts and open cast sites in close proximity.

7.4.3 On the basis of the above, the risk from ground instability associated with coal mining legacy is considered to be very low.

7.5 Foundation Strategy

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

- Piles
- Ground Improvement

7.6 Floodlight Foundations

7.6.1 Due to the depth of Made Ground present across site, as discussed in in Section 5.3 above, piled foundations would be necessary, or some form of ground improvement (vibrotreatment, rapid impact compaction or controlled modulus columns) in order to provide suitable support to the proposed floodlights and allowing adoption of shallow foundations. The latter options would need specialist input.

7.6.2 A driven/bored piled solution would transmit superstructural loads down through the Made Ground and into more competent Devensian Till deposits at depth to obtain end bearing and shaft adhesion support.

7.6.3 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.

7.6.4 Due to a combination of cost, programme and site constraints, some alternative foundation or ground improvement solutions to minimise settlement below 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

7.6.5 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.

7.6.6 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.

- 7.6.7 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.
- 7.6.8 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 Artificial Pitch Foundations

- 7.7.1 It is anticipated that the proposed PlayZone will be located at or about existing ground levels, with the formation located on Made Ground following removal of any Topsoil type material. Some of the existing embankment along the west of the site may require removal/relocation to facilitate construction of the pitch.
- 7.7.2 CBR value has been determined for the proposed PlayZone using in-situ Dynamic Cone Penetrometer testing following the methodology defined by the Highways England Document CS229 Data for Pavement Assessment. The results are presented in Appendix C and the location of test positions are shown on Drawing 01.
- 7.7.3 Based on the anticipated founding depth and DCP results, a CBR design value of 10% can be adopted for soils that are likely to be representative of those which remain at or near pitch formation levels. It should be noted that values range from 7% to >100% within 0.5m depth below Topsoil.
- 7.7.4 The Made Ground materials are anticipated to exhibit a degree of variability and compaction. It is 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.
- 7.7.5 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 PlayZone and minimising the potential effects of differential settlement, in addition to the use of a geosynthetic reinforcement.
- 7.7.6 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 Drainage

- 7.8.1 In situ permeability testing has been undertaken at the site in accordance with BS EN ISO 22282 Geotechnical investigation and testing – Geohydraulic testing (2012).

7.8.2 The results are presented in Appendix C and summarised below:

Exploratory hole ID	Stratum tested	Cycle	Infiltration rate (m/s)
WS03	Made Ground	1	N/A
WS04		1	7.24×10^{-7}

Table 7-A: Summary of infiltration test results undertaken in accordance with BRE 365

7.8.3 Due to insufficient infiltration over a test period of 90 minutes, permeability could not be determined within cohesive Made Ground soils within WS03. In addition, whilst a fall in water was noted in WS04, it is likely this water is draining into the more granular Made Ground above the clay soils of the Devensian Till, the latter considered to be effectively impermeable.

7.8.4 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.

7.8.5 On this basis, disposal of stormwater via a soakaway is not considered viable.

7.8.6 No existing soakaway features were observed on site during ground investigation works; however, a full drainage survey was not undertaken.

7.8.7 As an alternative, it is possible that the PlayZone drainage could key into the existing surface water drainage system currently used by the school to the southwest. A manhole cover was present to the southwest of the PlayZone area. 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 PlayZone area.

7.9 Aggressiveness of the Ground to Buried Concrete

7.9.1 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).

7.9.2 The site is interpreted to be a brownfield site where pyrite is likely to be present.

7.9.3 The classification of the strata is tabulated below:

Stratum	Disturbed / Undisturbed	Design sulphate class	Aggressive chemical environment for concrete class
Made Ground	Disturbed	DS-1	AC-1
Devensian Till	Disturbed	DS-1	AC-1s
	Undisturbed	DS-1	AC-1s

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

7.9.4 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 across the proposed development area, it is recommended this investigation is supplemented with further onsite deeper boreholes providing parameters to facilitate design and construction.
- 8.1.2 If ground improvement (such as vibrotreatment, 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 pitch, specialist input at an early stage is recommended.

Appendix A Drawings



Key:

Site Features



Site Boundary



Pitch Boundary

Exploratory Holes



Windowless Sampling Borehole



DCPs (CBR)



Infiltration Testing

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	March 2024	First issue
REV	DATE	COMMENT ON VARIATION

soiltechnics
environmental • geotechnical • building fabric

PROJECT
Unity Primary School, Manchester
TITLE
Exploratory Hole Location Plan
DRAWING No.
STV6309-D01-A

Appendix B 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]).

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 gravelly silty fine SAND with frequent rootlets. Gravel is fine subrounded sandstone. (TOPSOIL)	0.25										0.10		D
	Greyish brown slightly sandy fine subrounded GRAVEL of sandstone. (MADE GROUND)	0.33												
	Stiff to very stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded brick, concrete, sandstone and coal. (MADE GROUND)	1.00				C 1.00 - 1.45	(19) 20			PP 0.70 PP 0.80	PP=225 PP=175	0.80 1.00	2.00	D B
	Medium dense black and brown clayey sandy fine to coarse GRAVEL of angular to subangular brick, concrete, coal, clinker, chalk and sandstone. (MADE GROUND)													
	...between 2m and 3m depth, becoming very clayey.					C 2.00 - 2.45	(5) 11							
	Loose becoming very loose dark grey very gravelly silty medium to coarse SAND. Gravel is fine to coarse angular to subangular brick, concrete, coal and sandstone. (MADE GROUND)	3.00				C 3.00 - 3.45	(5) 7					3.00	4.00	B
						C 4.00 - 4.45	(1) 2							
						C 5.00 - 5.45	(2) 1							
	BOREHOLE TERMINATED AT 5.45m	5.45												

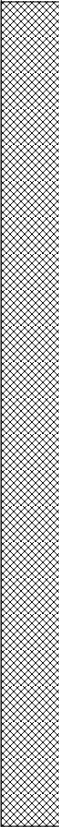
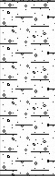
Notes	Title			Date(s)	
	Dynamic Windowless Sampling record			01/02/2024	
				Sheet number	
Groundwater observations Groundwater encountered at 3m depth. Water level remained constant after 20 minutes.	Recovery details		Method	Logged by	
	Range (m)	Recovery (%)		JT	
	1.20 - 2.00	70	Level (m OD)	Compiled by	
	2.00 - 3.00	70		KD	
	3.00 - 4.00	40	Co-ordinates	Revision	
	4.00 - 5.00	20		A	
				Checked by	WS01
				DH	

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 gravelly slightly silty fine SAND with frequent rootlets. Gravel is fine subangular brick. (TOPSOIL)	0.30										0.10		D
	Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to subangular brick and concrete. (MADE GROUND)									PP 0.80	PP=197			
	Medium dense becoming loose black mottled brown and grey very gravelly silty medium SAND. Gravel is fine to coarse subangular to angular brick, coal and sandstone. Occasional very thin bands of clay. (MADE GROUND)	1.00				C 1.00 - 1.45	(13) 18					0.90 1.00	2.00	D B
						C 2.00 - 2.45	(3) 9							
	Loose brown sandy silty fine to medium angular to subangular GRAVEL of brick and sandstone. (MADE GROUND)	3.00				C 3.00 - 3.45	(7) 8					3.00	3.50	B
	Soft grey sandy gravelly CLAY. Gravel is fine to medium subrounded to rounded sandstone and coal. (MADE GROUND)	3.50				C 4.00 - 4.45	(1) 3			PP 3.60	PP=25	3.70		D
						C 5.00 - 5.45	(1) 2			PP 4.80	PP=25			
	BOREHOLE TERMINATED AT 5.45m		5.45											

Notes Terminated at scheduled depth.	Title Dynamic Windowless Sampling record			Date(s) 01/02/2024	
	Recovery details		Method Windowless sampler	Logged by JT	
	Range (m)	Recovery (%)		Sheet number Sheet 1 of 1	
Groundwater observations Groundwater encountered at 3m depth. Water level remained constant after 20 minutes.	1.20 - 2.00	90	Level (m OD) -	Compiled by KD	
	2.00 - 3.00	20		Revision A	
	3.00 - 4.00	80	Co-ordinates -	Checked by DH	
	4.00 - 5.00	50		WS02	

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 soft brown slightly gravelly silty medium SAND with frequent rootlets. Gravel is fine to medium subangular to rounded sandstone. (TOPSOIL)	0.30										0.10		D
	Very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded brick, sandstone and coal. (MADE GROUND) <u>...between 0.3m and 0.4m depth, becoming subangular medium sandstone.</u>					C 1.00 - 1.45	(4) 37			PP 0.80	PP=225	0.80		D
		1.70				C 1.70 - 2.14	(19) 46/295mm			PP 1.50 PP 1.70	PP=117 PP=117	1.60		D
	BOREHOLE TERMINATED AT 1.70m													

Notes Terminated due to obstruction.	Title Dynamic Windowless Sampling record				Date(s) 02/02/2024	
	Recovery details		Method Windowless sampler	Logged by JT	Sheet number Sheet 1 of 1	
	Range (m)	Recovery (%)				
Groundwater observations Groundwater not encountered.	1.20 - 1.70	40	Level (m OD) -	Compiled by KD	Revision A	
			Co-ordinates -	Checked by DH	WS03	

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 soft brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine to medium angular to subangular brick and sandstone. (TOPSOIL)	0.20										0.10		D
	Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is medium to coarse angular subangular sandstone and brick. (MADE GROUND)					C 1.00 - 1.45	(4) 10			PP 1.30	PP=50	0.50		D
						C 2.00 - 2.45	(12) 27			PP 1.80	PP=58	1.50		D
						C 3.00 - 3.45	(3) 7					3.00	4.00	B
						C 4.00 - 4.45	(3) 2							
	Loose dark brown to black gravelly slightly silty fine SAND. Gravel is fine subangular brick. (MADE GROUND)	3.00												
						C 5.00 - 5.45	(2) 2			PP 4.60 PP 4.80	PP=104 PP=100	4.70		D
	Soft brown slightly sandy slightly gravelly CLAY with rootlets. Gravel is fine subangular sandstone. (DEVENSIAN TILL)	4.30												
	BOREHOLE TERMINATED AT 5.45m	5.45												

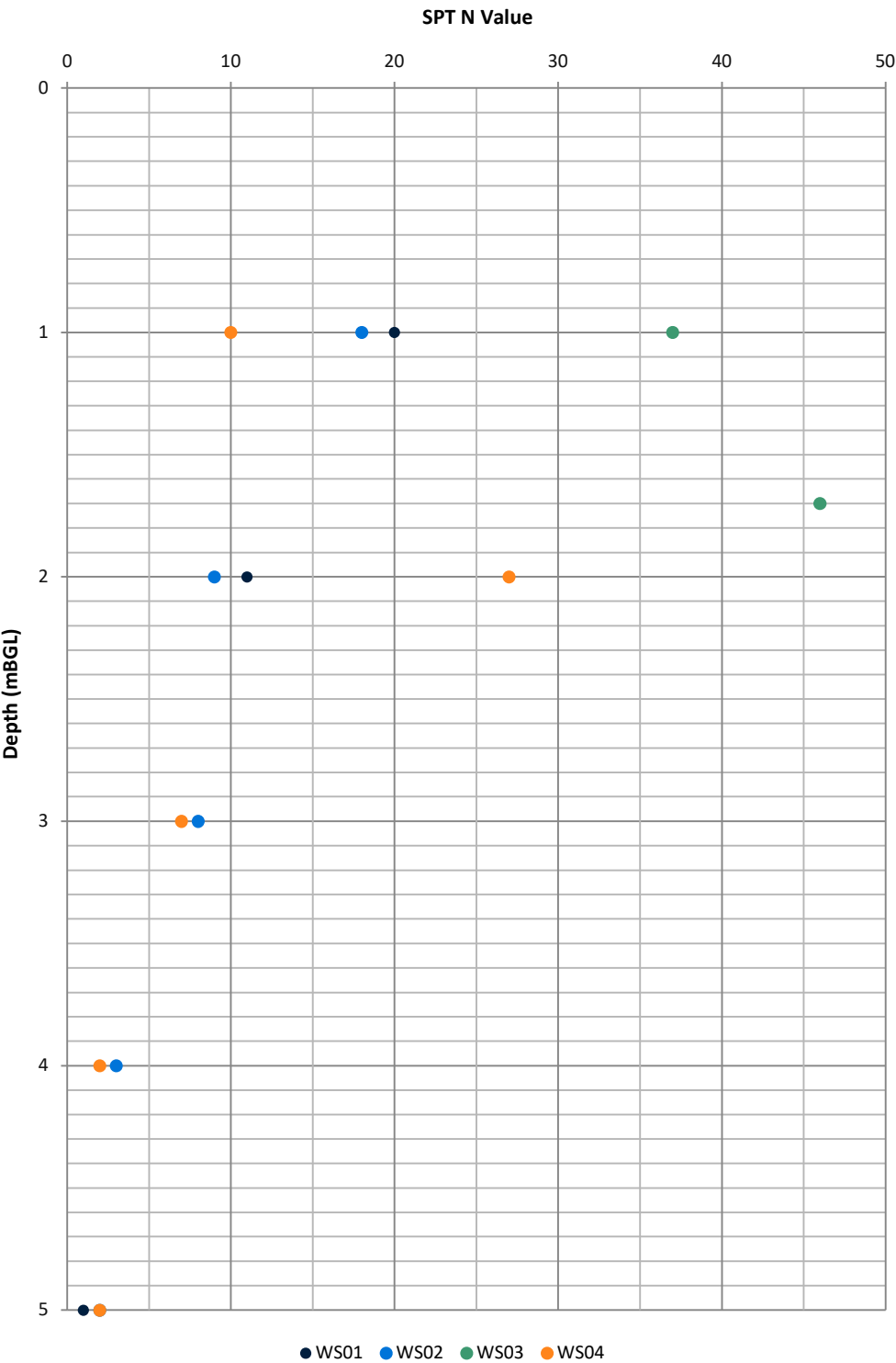
Notes Terminated at scheduled depth.	Title Dynamic Windowless Sampling record			Date(s) 01/02/2024	
	Recovery details		Method Windowless sampler	Logged by JT	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
Groundwater observations Groundwater not encountered.	1.20 - 2.00	70	Level (m OD) -	Compiled by KD	Revision A
	2.00 - 3.00	80			
	3.00 - 4.00	70	Co-ordinates -	Checked by DH	WS04
	4.00 - 5.00	80			

Appendix C In Situ Test Results

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
WS01	1.00	8/11	5/5/5/5	19	20	150	300
WS01	2.00	3/2	3/2/3/3	5	11	150	300
WS01	3.00	3/2	2/2/1/2	5	7	150	300
WS01	4.00	1/0	0/1/0/1	1	2	150	300
WS01	5.00	1/1	0/0/1/0	2	1	150	300
WS02	1.00	6/7	6/5/4/3	13	18	150	300
WS02	2.00	2/1	1/2/3/3	3	9	150	300
WS02	3.00	3/4	2/1/2/3	7	8	150	300
WS02	4.00	0/1	1/0/1/1	1	3	150	300
WS02	5.00	1/0	0/1/0/1	1	2	150	300
WS03	1.00	2/2	4/10/12/11	4	37	150	300
WS03	1.70	8/11	13/13/12/8	19	46	150	295
WS04	1.00	2/2	2/4/2/2	4	10	150	300
WS04	2.00	4/8	9/6/7/5	12	27	150	300
WS04	3.00	1/2	1/2/2/2	3	7	150	300
WS04	4.00	2/1	1/0/1/0	3	2	150	300
WS04	5.00	1/1	1/0/0/1	2	2	150	300

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



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

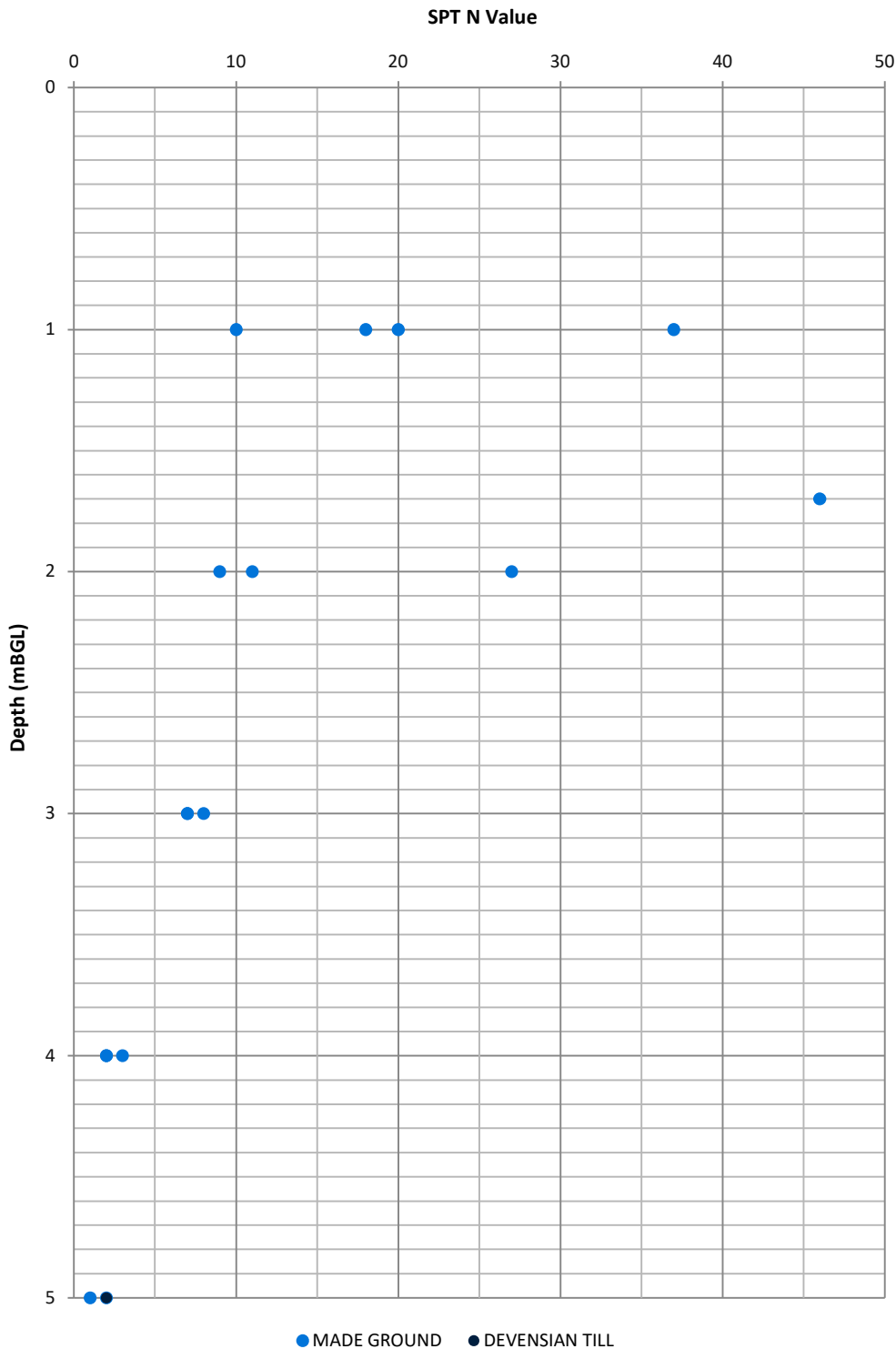
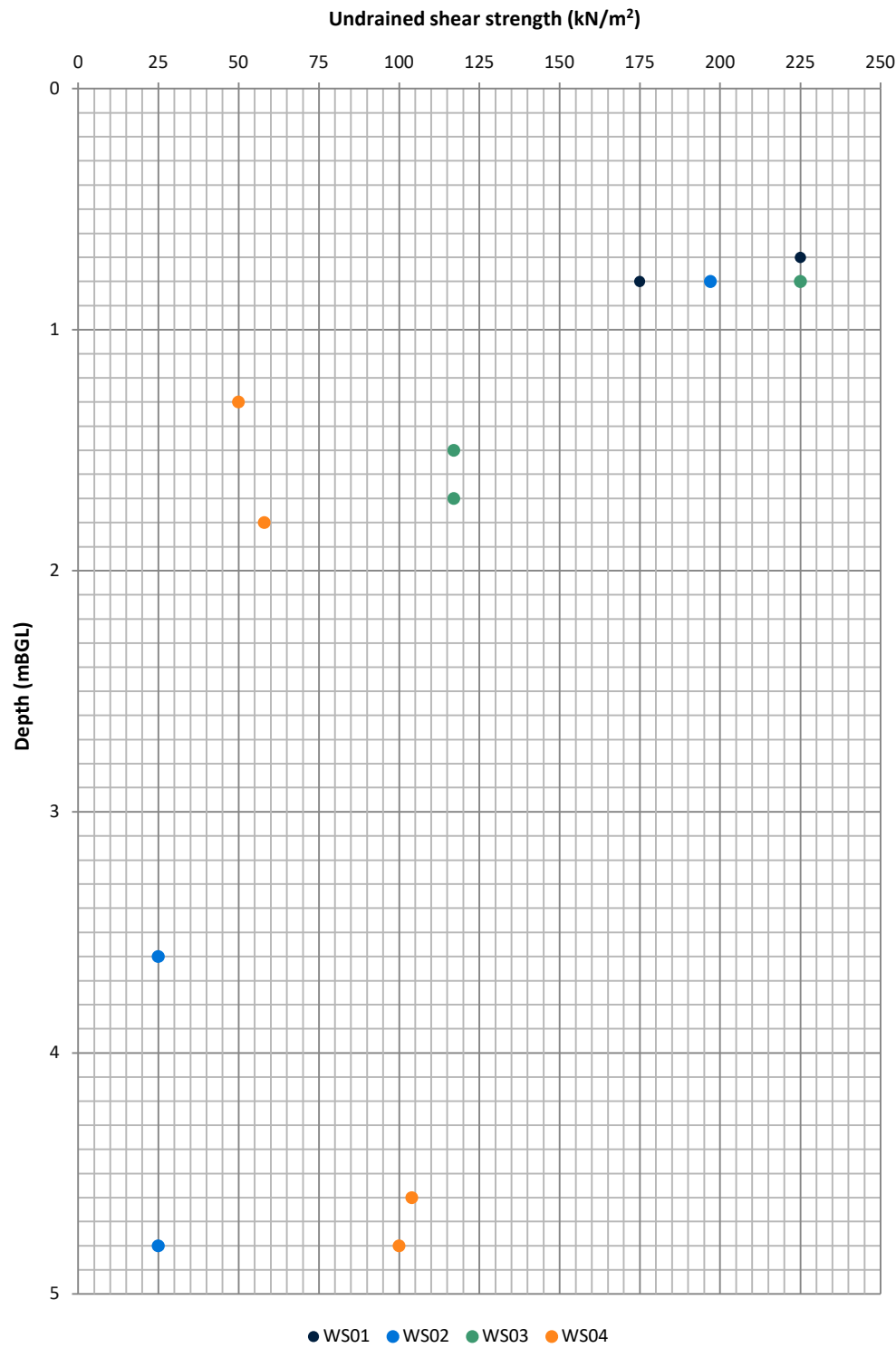


Table summarising Pocket Penetrometer results

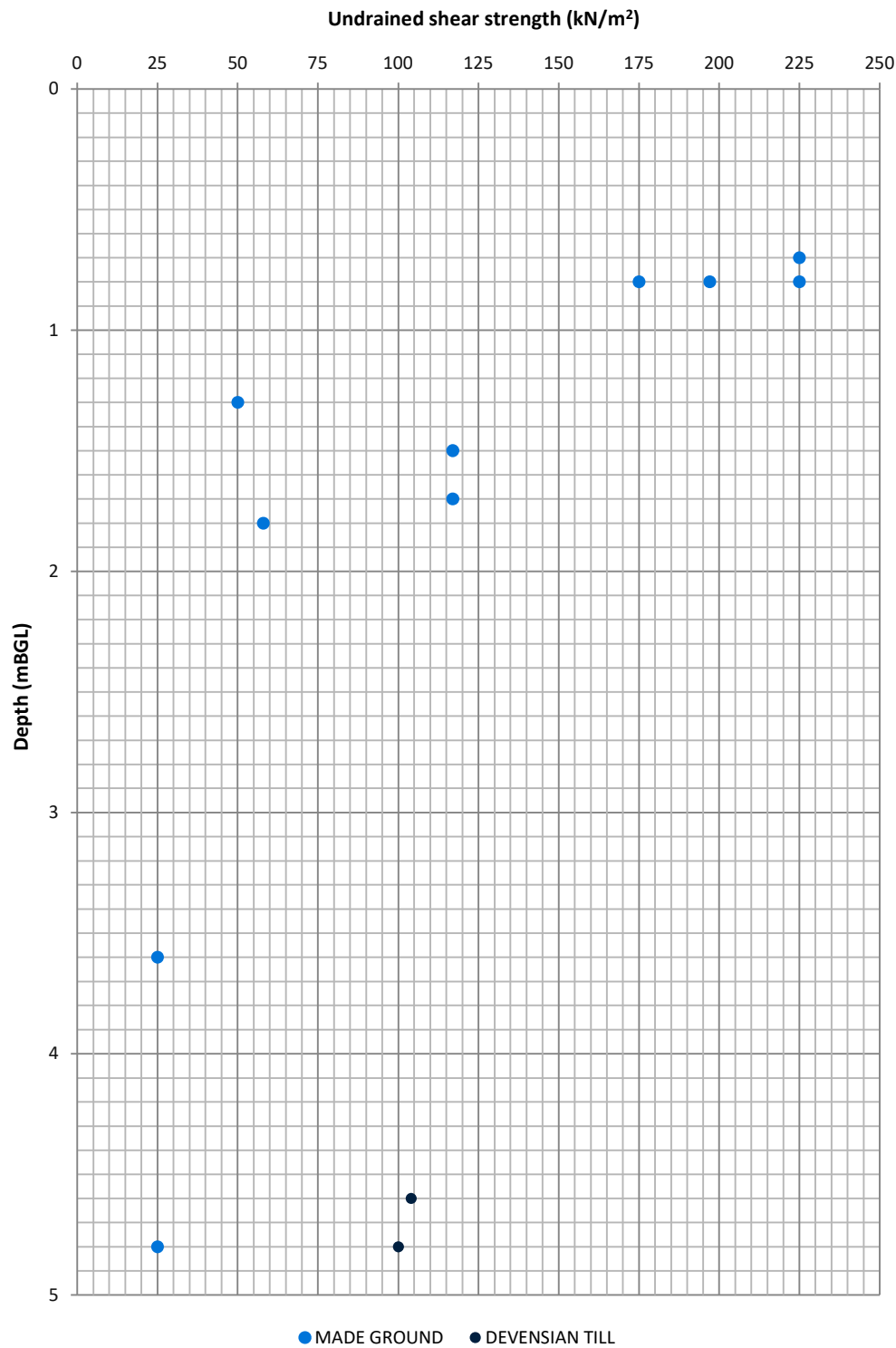
* Instrument limit reached.

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m ²)
WS01	0.70	4.5/4.5/4.5	4.50	225
WS01	0.80	3/4/3.5	3.50	175
WS02	0.80	3.5/3.5/4.8	3.93	197
WS02	3.60	0.5/0.5/0.5	0.50	25
WS02	4.80	0.5/0.5/0.5	0.50	25
WS03	0.80	4.5/4.5/4.5	4.50	225
WS03	1.50	3/2/2	2.33	117
WS03	1.70	2.5/2/2.5	2.33	117
WS04	1.30	0.5/1.5/1	1.00	50
WS04	1.80	1.5/1/1	1.17	58
WS04	4.60	2.5/2/1.75	2.08	104
WS04	4.80	2/2/2	2.00	100

Plot summarising Pocket Penetrometer results versus depth filtered by location



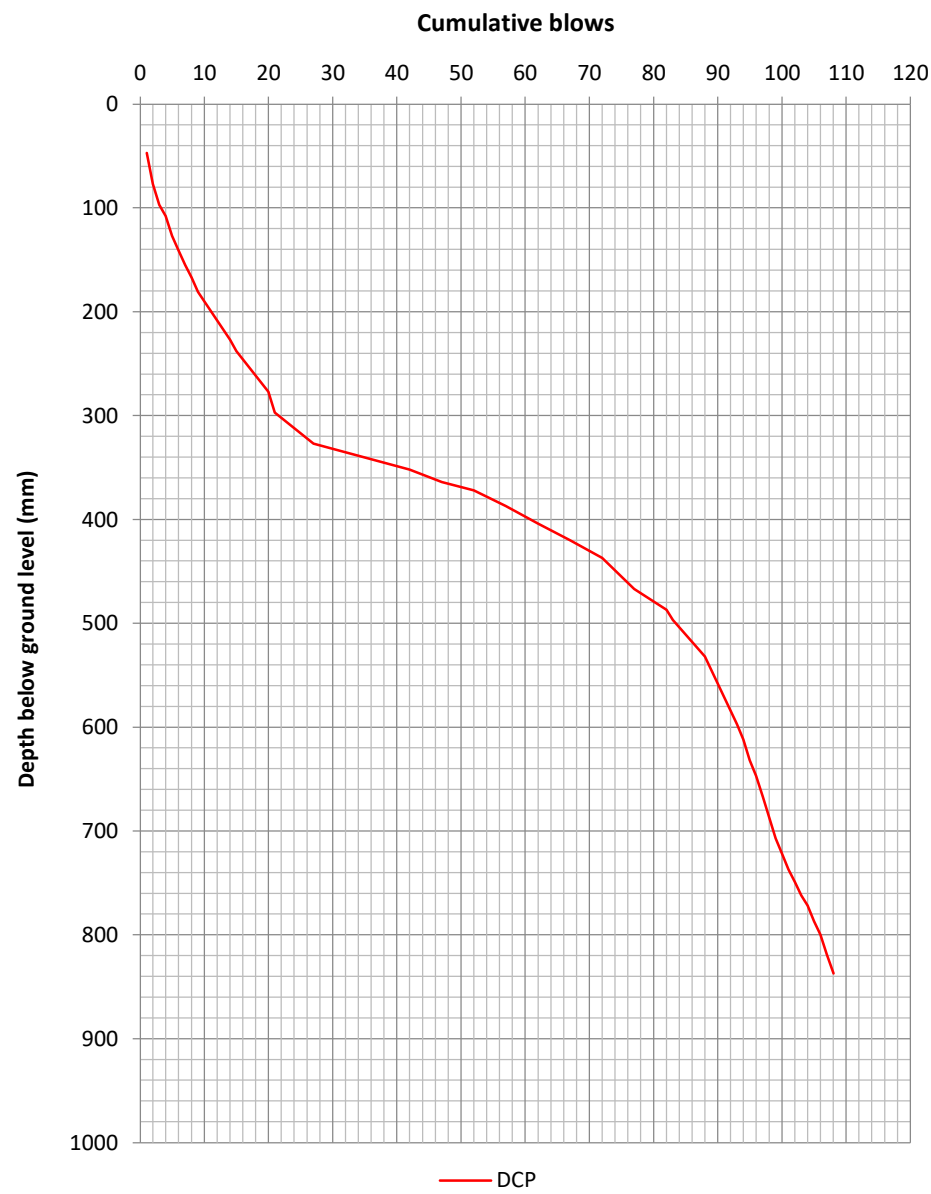
Plot summarising Pocket Penetrometer results versus depth filtered by geology



Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP01	02/02/2024	0	63	JT

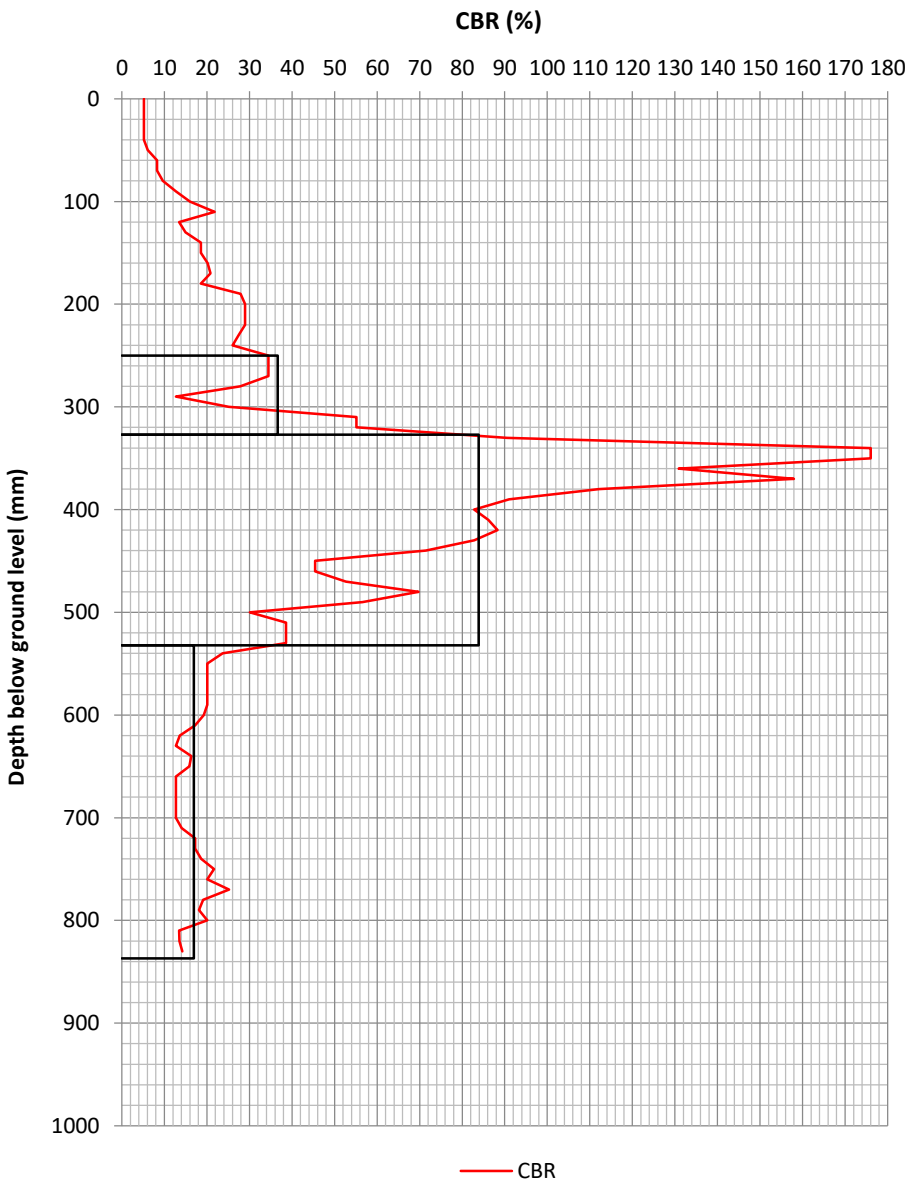
Plot showing number of blows against depth



Notes

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

Plot showing CBR (%) against depth



Calculations

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

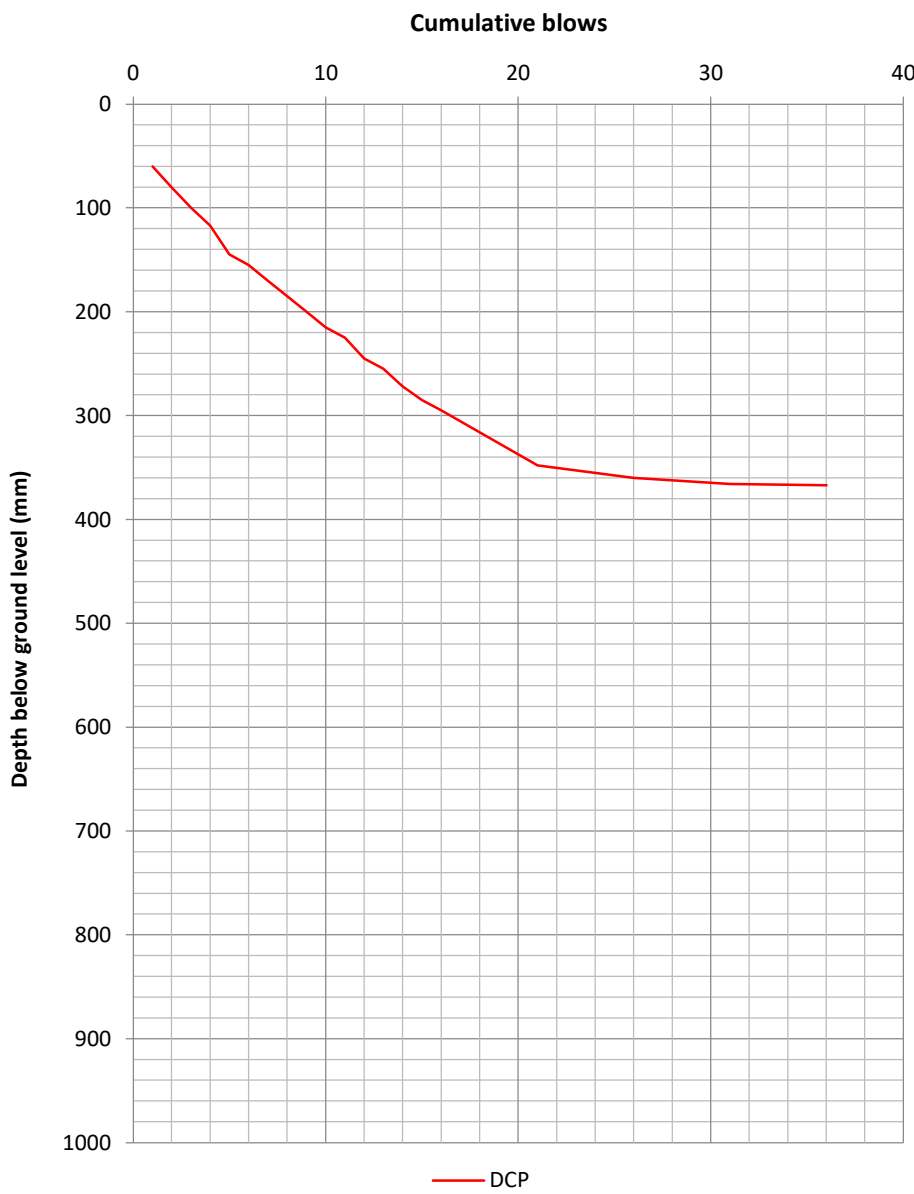
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	36.6	77	250	327
2	83.9	205	327	532
3	17.0	305	532	837

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP02	01/02/2024	0	145	JT

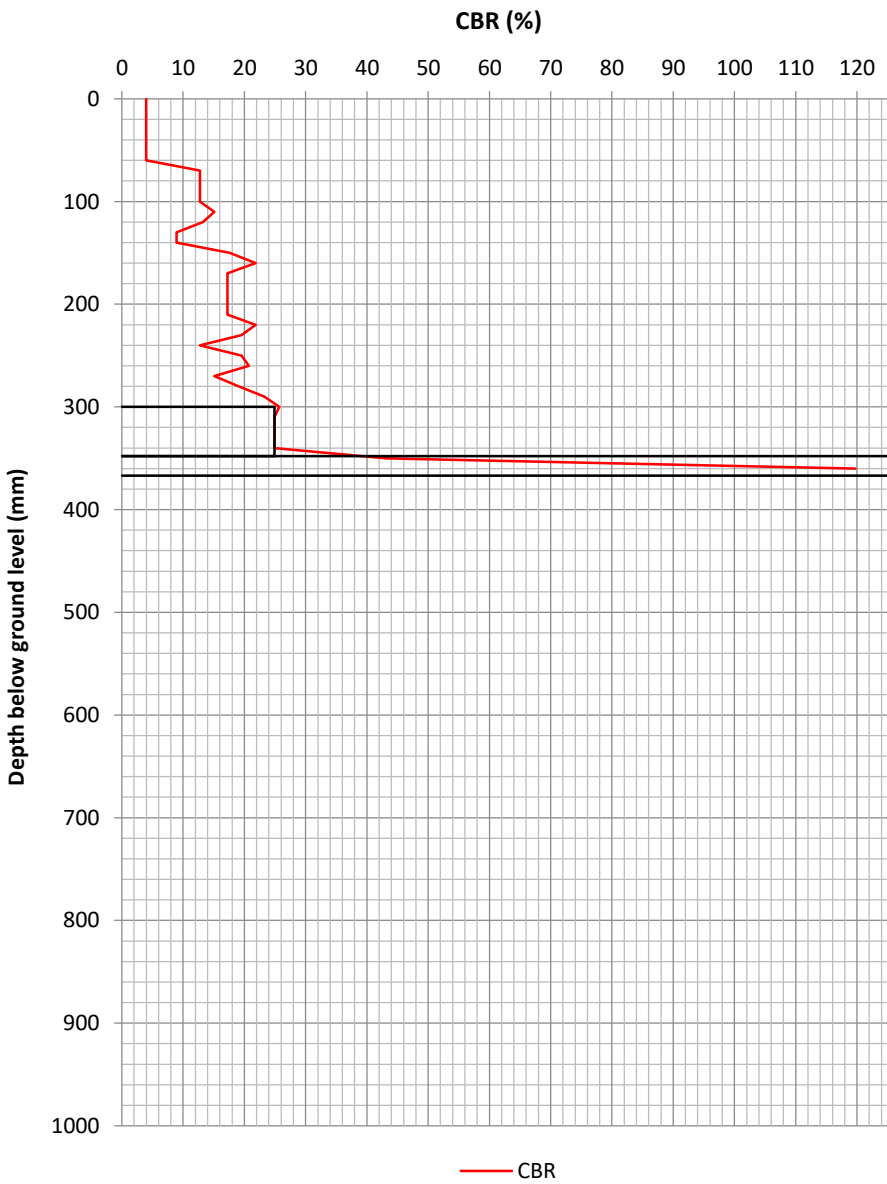
Plot showing number of blows against depth



Notes

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

Plot showing CBR (%) against depth



Calculations

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

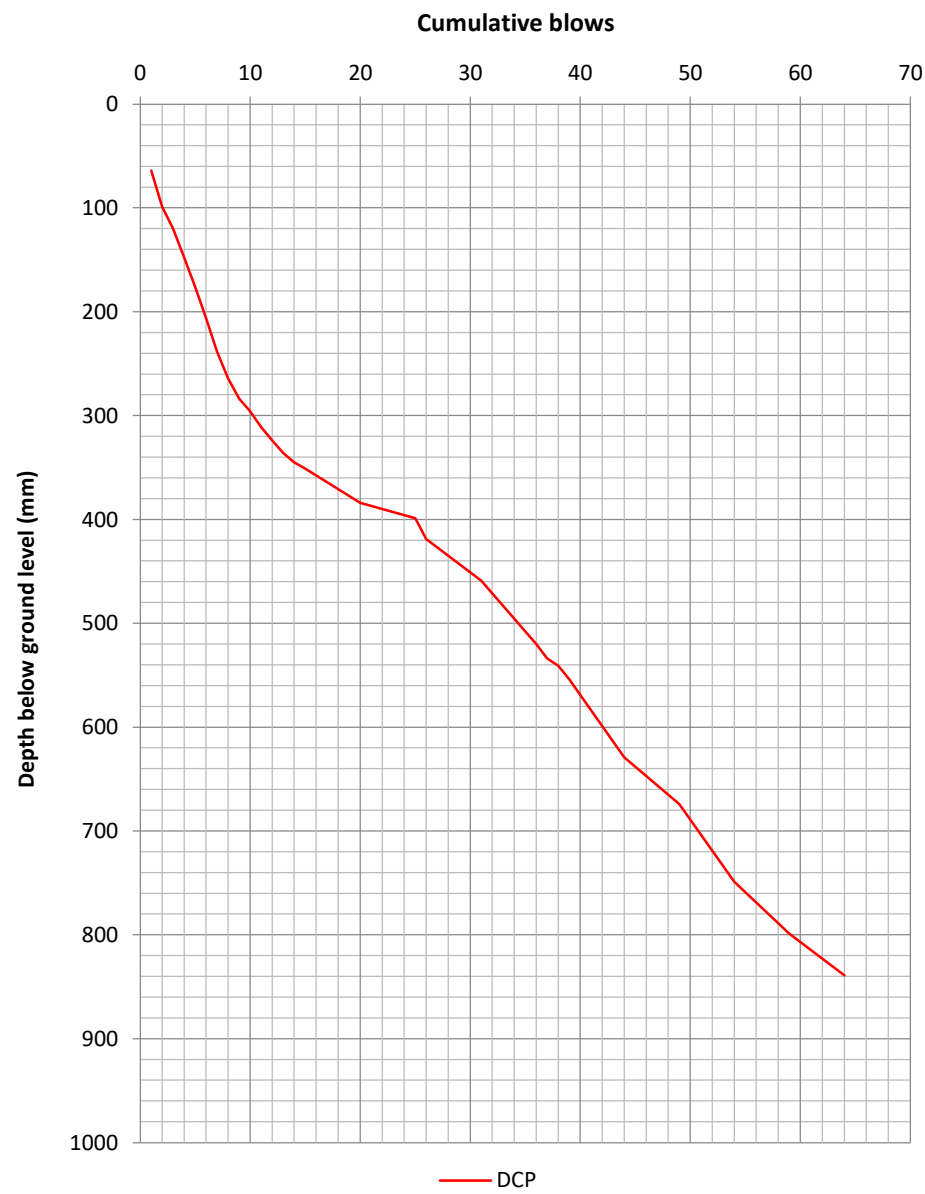
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	24.9	48	300	348
2	235.2	19	348	367

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP03	02/02/2024	0	71	JT

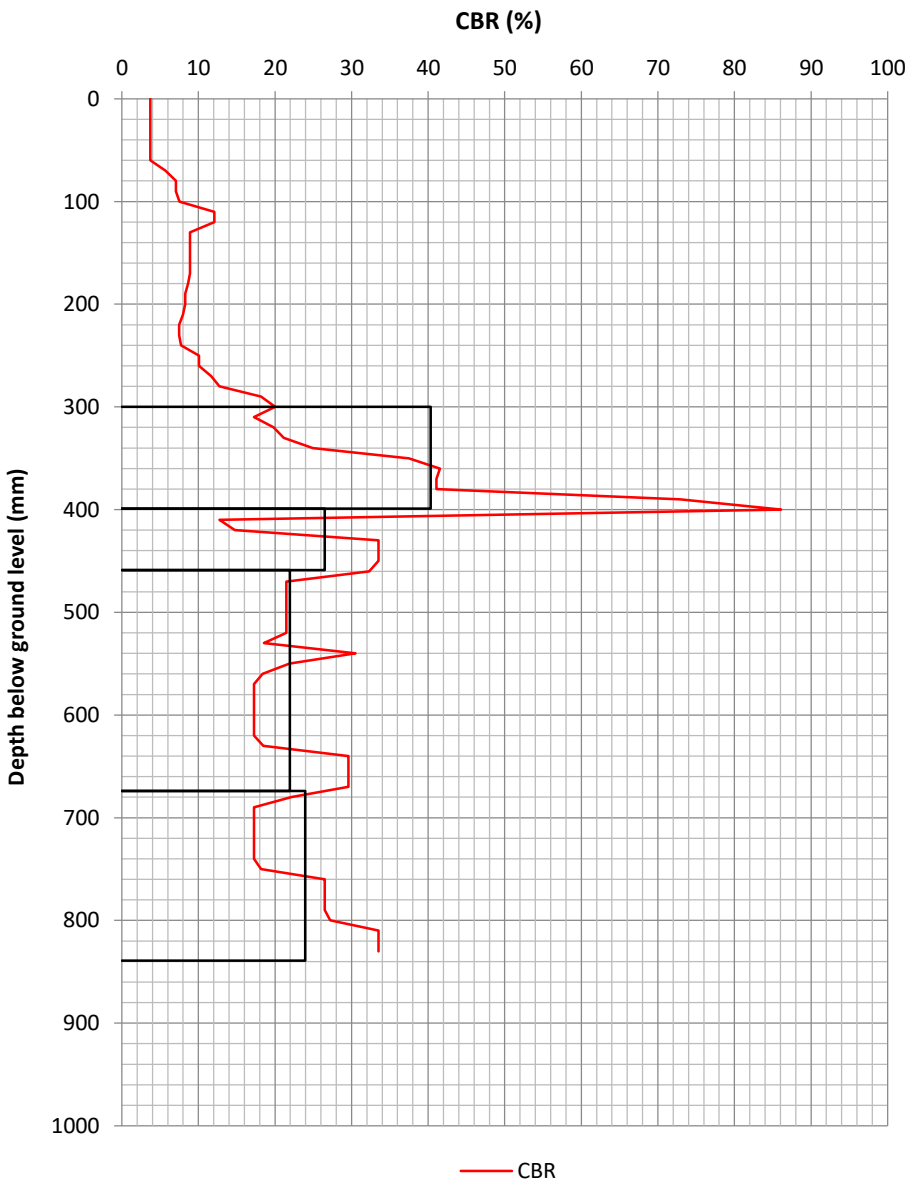
Plot showing number of blows against depth



Notes

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

Plot showing CBR (%) against depth



Calculations

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

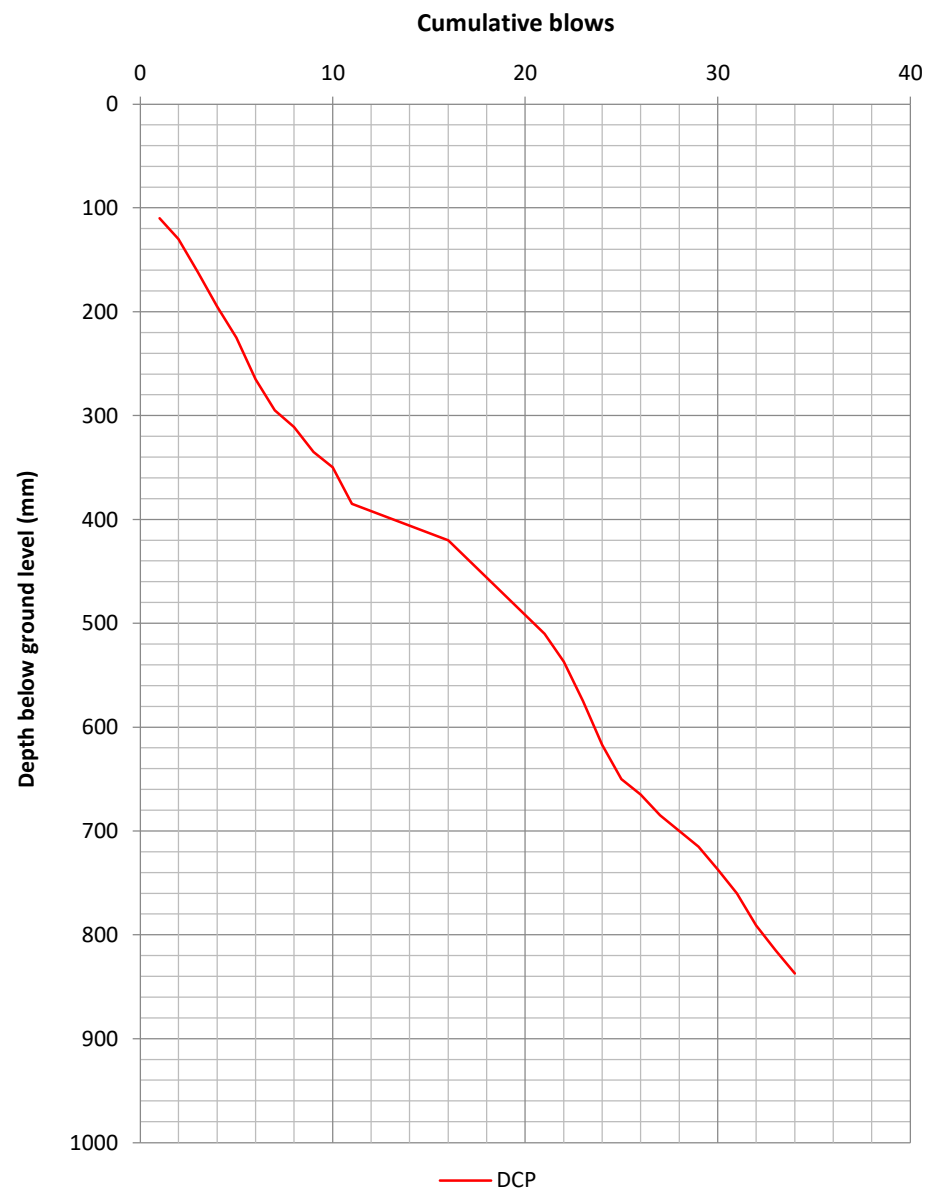
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	40.3	99	300	399
2	26.5	60	399	459
3	22.0	215	459	674
4	23.9	165	674	839

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP04	01/02/2024	0	75	JT

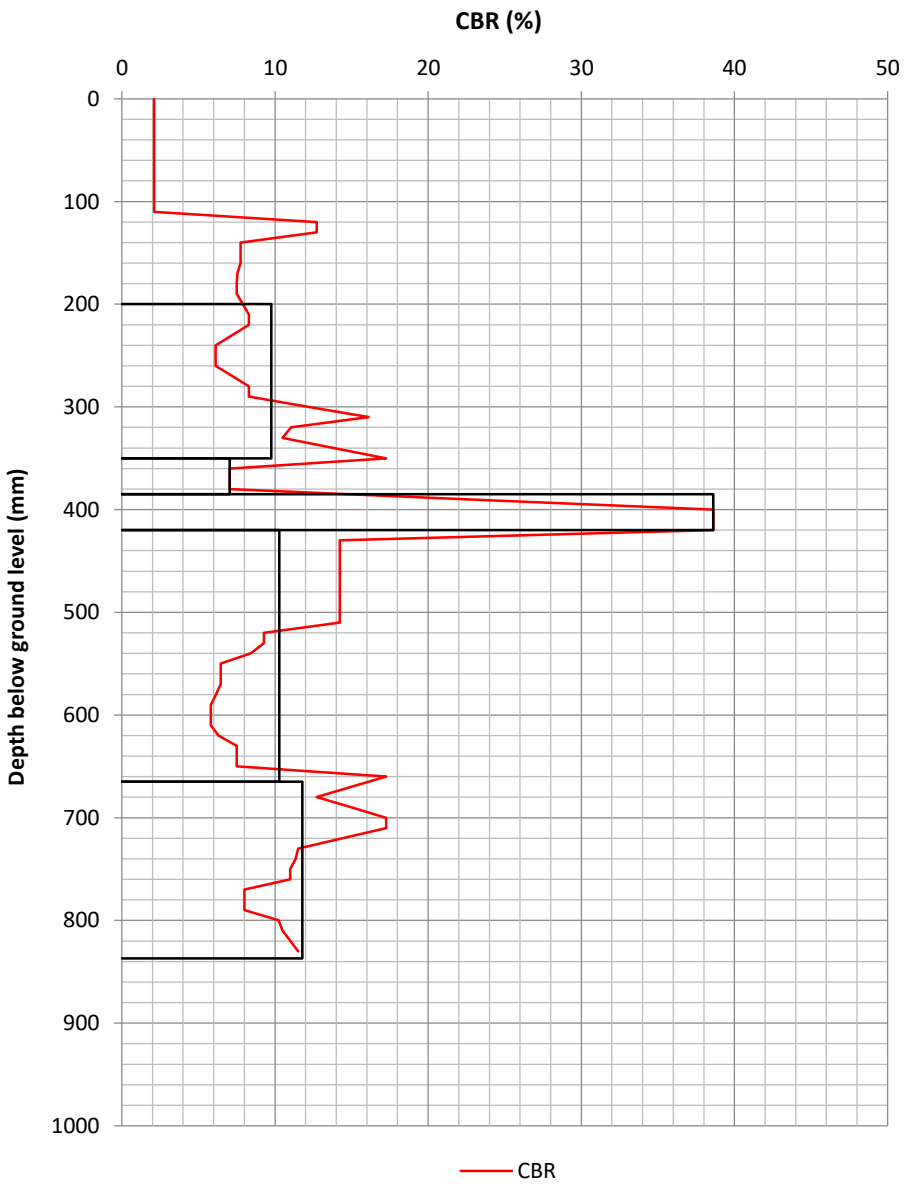
Plot showing number of blows against depth



Notes

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

Plot showing CBR (%) against depth



Calculations

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

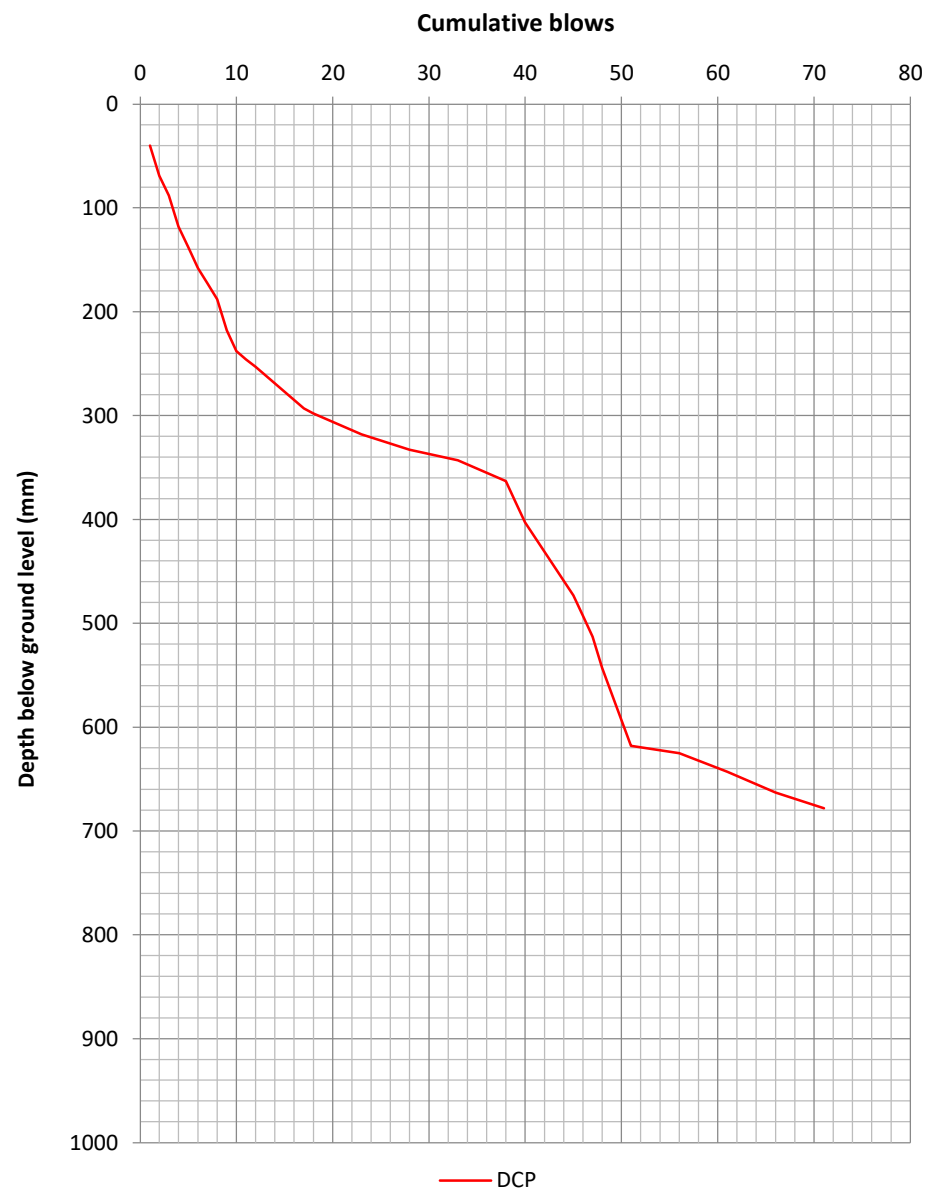
Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	9.8	150	200	350
2	7.0	35	350	385
3	38.6	35	385	420
4	10.3	245	420	665
5	11.8	172	665	837

Dynamic Cone Penetrometer (DCP) test

Location	Date of test	Start depth (mm)	Zero reading (mm)	Operator
DCP05	02/02/2024	0	87	JT

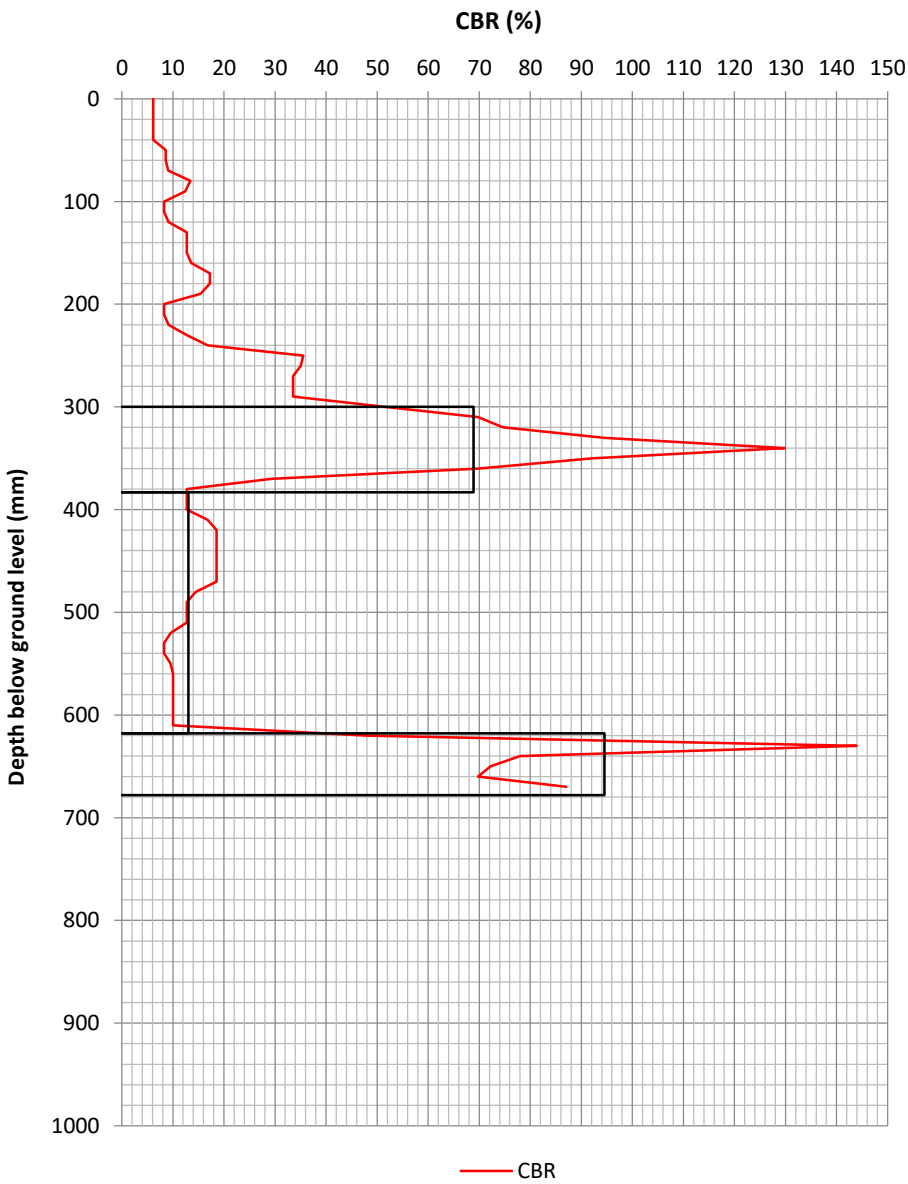
Plot showing number of blows against depth



Notes

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

Plot showing CBR (%) against depth



Calculations

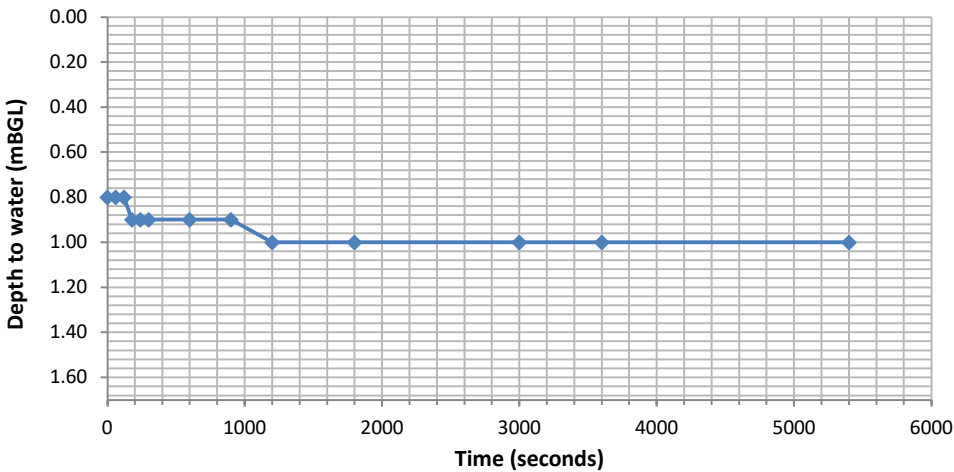
$$\text{Log10 (Uncorrected (UC) CBR)} = 2.48 - 1.057\text{Log10}(\text{mm/blow})$$

Layer properties

Layer No.	CBR (%)	Thickness (mm)	Start depth (mmBGL)	Base depth (mmBGL)
1	68.9	83	300	383
2	13.0	235	383	618
3	94.6	60	618	678

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

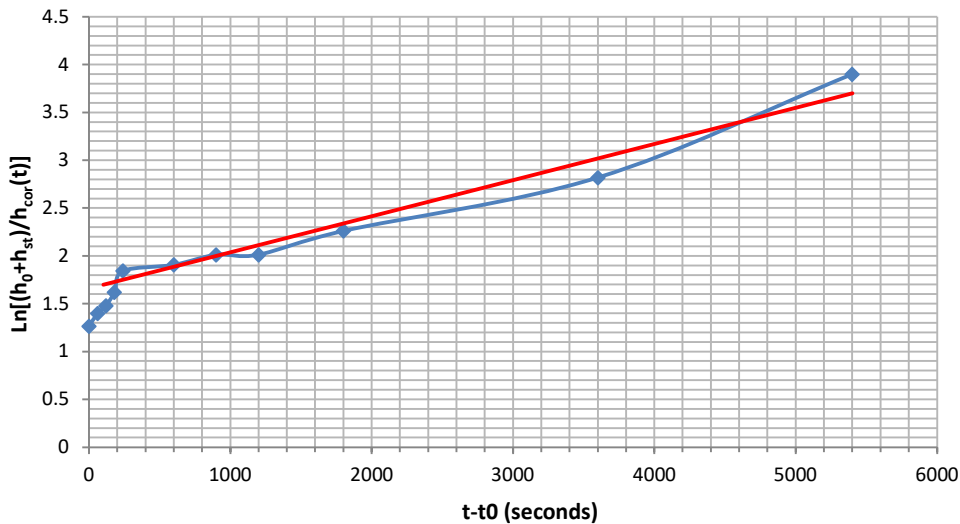
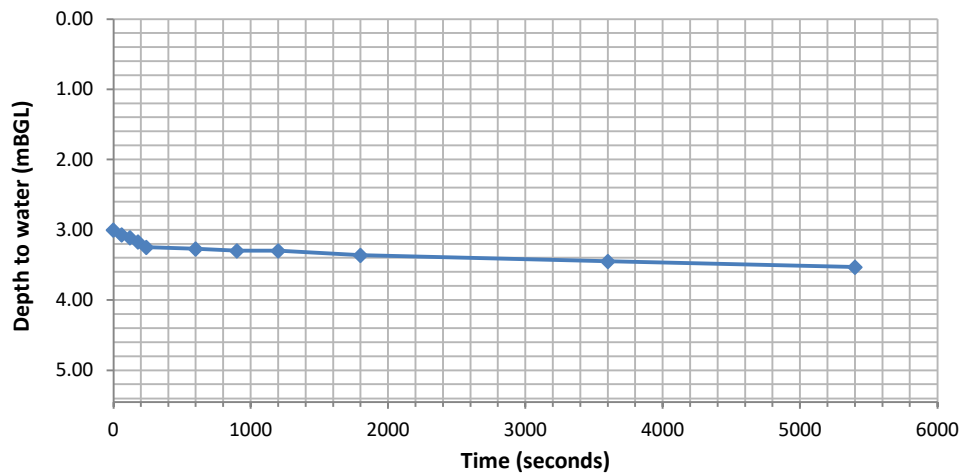
Location	Test number	Test method	Test system	Test date
WS03	1	Falling head	Open borehole	02/02/2024
Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)	
0.80	1.70	0.9	0.1	
Variables at start of test				
Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)		
No Groundwater	0.8	0.90		



Insufficient infiltration over 90 minutes of monitoring, therefore unable to determine permeability.

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

Location	Test number	Test method	Test system	Test date
WS04	1	Falling head	Open borehole	01/02/2024
Top of test section (m)	Bottom of test section (m)	Test section length (m)	Test diameter (m)	
3.00	4.30	1.3	0.075	
Variables at start of test				
Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)		
No Groundwater	3	1.30		



F	Shape factor according BS EN ISO 22282-1:2012	2.304 m
S	Cross sectional area of measurement tube	0.0044 m ²
h _{st}	Corrective term to initial static level	7.29E-01 m
α	Gradient of line alpha	3.77E-04 s ⁻¹
k	Permeability (α S / F)	7.24E-07 m/s

Appendix D 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: Unity Primary School, Manchester

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

Client Reference: STV6309
Job Number: 24-001432-1
Date Sampled: 01/02/2024
Date Received: 05/02/2024
Date Tested: 13/02/2024
Sampled By: Not Given

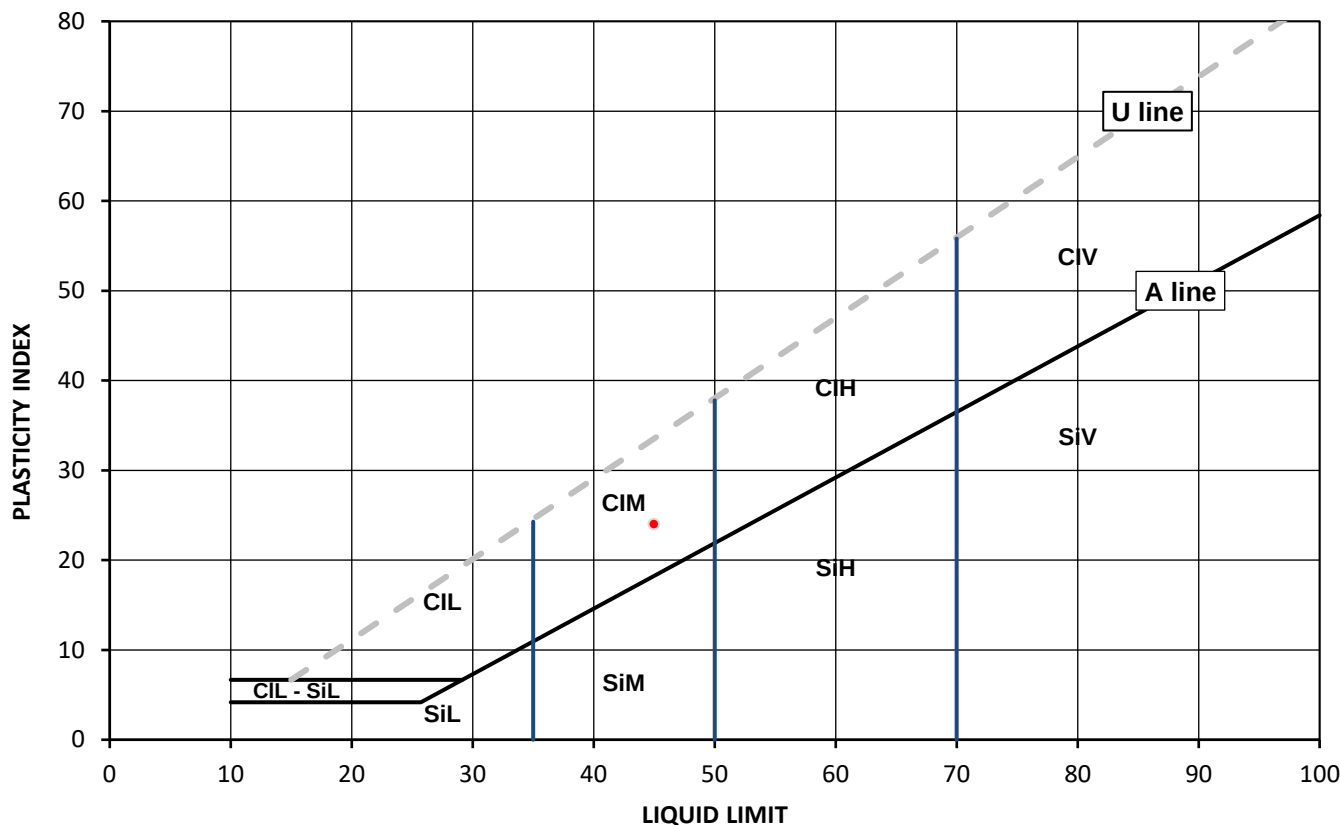
Test Results:

Laboratory Reference: 109174
Hole No.: WS02
Sample Reference: WS020.903
Sample Description: Brown slightly sandy CLAY

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

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	45	21	24	100



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 Banys

Katarzyna Banys
Junior Reporting Specialist
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.



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: Unity Primary School, Manchester

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

Client Reference: STV6309
Job Number: 24-001432-1
Date Sampled: 01/02/2024
Date Received: 05/02/2024
Date Tested: 13/02/2024
Sampled By: Not Given

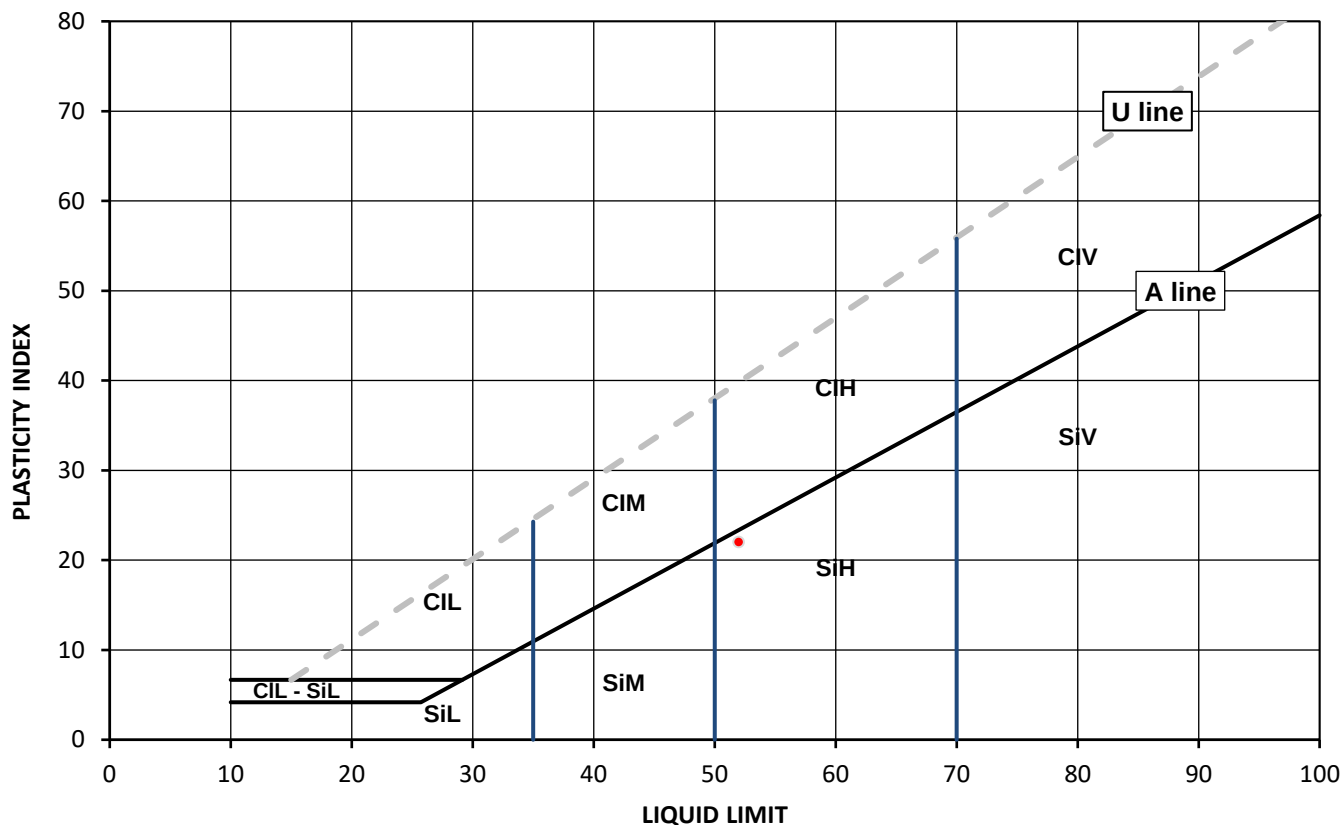
Test Results:

Laboratory Reference: 109175
Hole No.: WS04
Sample Reference: WS044.705
Sample Description: Dark brown gravelly slightly sandy silty CLAY

Depth Top [m]: 4.70
Depth Base [m]: Not Given
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
22	52	30	22	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	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 Banys

Katarzyna Banys
Junior 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: Unity Primary School, Manchester

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

Client Reference: STV6309
Job Number: 24-001432-1
Date Sampled: 01/02/2024
Date Received: 05/02/2024
Date Tested: 13/02/2024
Sampled By: Not Given

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							
109174	WS02	WS020.903	0.90	Not Given	D	Brown slightly sandy CLAY		23	Sample was quartered, oven dried at 106.5 °C			
109175	WS04	WS044.705	4.70	Not Given	D	Dark brown gravelly slightly sandy silty CLAY		22	Sample was quartered, oven dried at 106.5 °C			

Comments:

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Signed:

Katarzyna Banyś

Katarzyna Banyś
Junior Reporting Specialist
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

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



Environmental Science

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

Contact: Admin
Site Address: Unity Primary School, Manchester

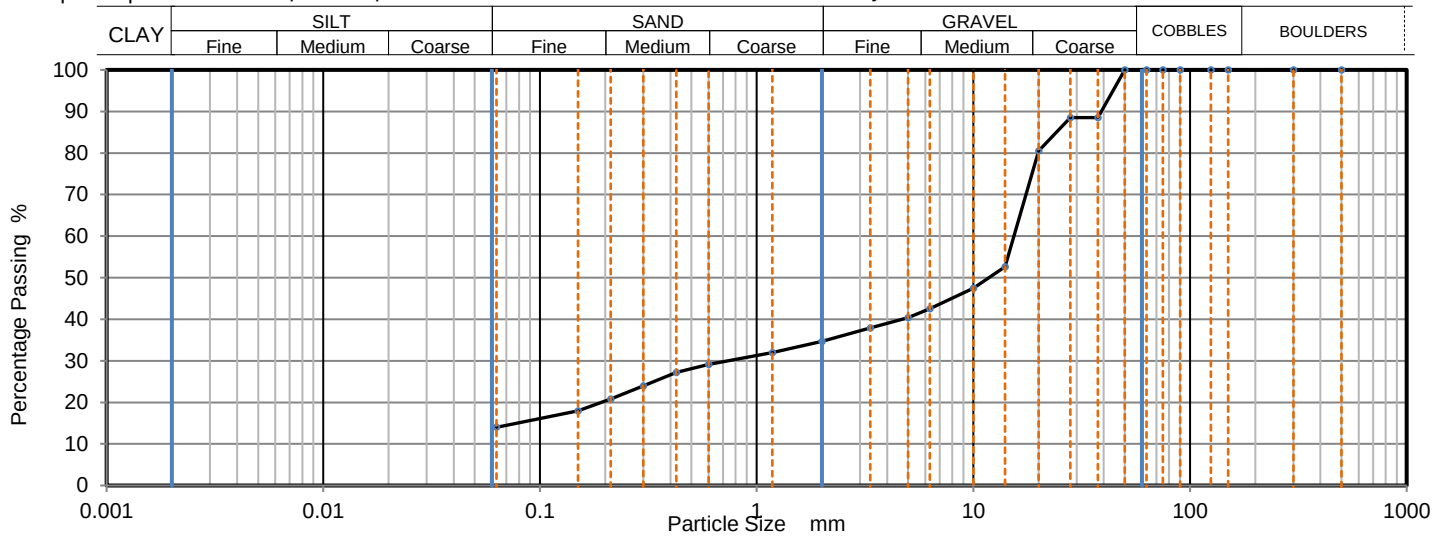
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: STV6309
Job Number: 24-001432-1
Date Sampled: 01/02/2024
Date Received: 05/02/2024
Date Tested: 13/02/2024
Sampled By: Not Given

Test Results:

Laboratory Reference: 109173
Hole No.: WS01
Sample Reference: WS011.002
Sample Description: Dark brown sandy clayey GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.3 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: 2.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	89		
20	81		
14	53		
10	48		
6.3	43		
5	40		
3.35	38		
2	35		
1.18	32		
0.6	29		
0.425	27		
0.3	24		
0.212	21		
0.15	18		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	20
Fines <0.063mm	15

Grading Analysis	
D100	mm 50
D60	mm 15.4
D30	mm 0.733
D10	mm
Uniformity Coefficient	> 240
Curvature Coefficient	

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed:

Katarzyna Banys

Katarzyna Banys
Junior Reporting Specialist
for and on behalf of i2 Analytical Ltd

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

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

e: admin@soiltechnics.net

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

Analytical Report Number : 24-001435

Project / Site name:	Unity Primary School, Manchester	Samples received on:	05/02/2024
Your job number:	STV6309	Samples instructed on/ Analysis started on:	05/02/2024
Your order number:	POR017711	Analysis completed by:	16/02/2024
Report Issue Number:	1	Report issued on:	21/02/2024
Samples Analysed:	3 soil samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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: 24-001435
 Project / Site name: Unity Primary School, Manchester
 Your Order No: POR017711

Lab Sample Number	109180	109181	109182
Sample Reference	WS01	WS04	WS04
Sample Number	WS011.002	WS041.503	WS044.705
Depth (m)	1.00-2.00	1.50	4.70
Date Sampled	01/02/2024	01/02/2024	01/02/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Stone Content	%	0.1	NONE	59	37	< 0.1
Moisture Content	%	0.01	NONE	13	10	16
Total mass of sample received	kg	0.1	NONE	2	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.4	8.2
Total Sulphate as SO4	%	0.005	MCERTS	0.083	0.063	0.028
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	100	86	160
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	52.1	43.1	81.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.6	2.9	3.8
Total Sulphur	mg/kg	50	MCERTS	390	350	180
Total Sulphur	%	0.005	MCERTS	0.039	0.035	0.018
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	2.9	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	7.2	4.2	24
Magnesium (water soluble)	mg/kg	5	NONE	14	8.4	47

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

Analytical Report Number : 24-001435

Project / Site name: Unity Primary School, Manchester

* 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 *
109180	WS01	WS011.002	1.00-2.00	Brown loam and sand with gravel and brick
109181	WS04	WS041.503	1.5	Brown clay and sand with gravel and brick
109182	WS04	WS044.705	4.7	Brown loam and clay with gravel

Analytical Report Number : 24-001435

Project / Site name: Unity Primary School, Manchester

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
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	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	L078B	D	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	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 30°C.

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 E Geoenvironmental Laboratory Test Results



Final Report

Report No.: 24-03259-1

Initial Date of Issue: 13-Feb-2024

Re-Issue Details:

Client Soiltechnics Limited

Client Address: Cedar Barn
White Lodge
Walgrave
Northamptonshire
NN6 9PY

Contact(s): Admin

Project STV6309 Unity Primary School,
Manchester

Quotation No.: **Date Received:** 05-Feb-2024

Order No.: POR017710 **Date Instructed:** 05-Feb-2024

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 09-Feb-2024

Date Approved: 13-Feb-2024

Approved By:

Details: Stuart Henderson, Technical
Manager
Nick Watson, Operations Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STV6309 Unity Primary School, Manchester

Client: Soiltechnics Limited		Chemtest Job No.:				24-03259	24-03259
Quotation No.:		Chemtest Sample ID.:				1761983	1761984
Order No.: POR017710		Client Sample Ref.:				1	1
		Client Sample ID.:				TS010.101	WAC010.501
		Sample Location:				TS01	WAC01
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.10	0.50
		Date Sampled:				01-Feb-2024	01-Feb-2024
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		U	2192		N/A	-	Fibres/Clumps
Asbestos Identification		U	2192		N/A	No Asbestos Detected	Chrysotile
Moisture		N	2030	%	0.020	17	18
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Stones and Roots	Stones
Soil Texture		N	2040		N/A	Sand	Sand
pH at 20C		M	2010		4.0	7.4	8.3
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40	0.66
Cyanide (Complex)		M	2300	mg/kg	0.50	< 0.50	8.7
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	8.7
Arsenic		M	2455	mg/kg	0.5	6.9	28
Beryllium		U	2455	mg/kg	0.5	< 0.5	1.8
Cadmium		M	2455	mg/kg	0.10	0.14	0.73
Chromium		M	2455	mg/kg	0.5	18	22
Copper		M	2455	mg/kg	0.50	20	160
Mercury		M	2455	mg/kg	0.05	0.13	0.52
Nickel		M	2455	mg/kg	0.50	9.6	34
Lead		M	2455	mg/kg	0.50	43	370
Selenium		M	2455	mg/kg	0.25	< 0.25	0.59
Vanadium		U	2455	mg/kg	0.5	16	41
Zinc		M	2455	mg/kg	0.50	51	360
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
LOI		M	2610	%	0.10	4.2	12
Organic Matter		M	2625	%	0.40	2.4	14
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	7.6
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	28
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	3.0	110
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0	40	230
Total TPH >C5-C35		N	2670	mg/kg	10	43	380
Naphthalene		M	2800	mg/kg	0.10	< 0.10	1.7

Results - Soil

Project: STV6309 Unity Primary School, Manchester

Client: Soiltechnics Limited		Chemtest Job No.:				24-03259	24-03259
Quotation No.:		Chemtest Sample ID.:				1761983	1761984
Order No.: POR017710		Client Sample Ref.:				1	1
		Client Sample ID.:				TS010.101	WAC010.501
		Sample Location:				TS01	WAC01
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.10	0.50
		Date Sampled:				01-Feb-2024	01-Feb-2024
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	0.48
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	1.6
Fluorene		M	2800	mg/kg	0.10	< 0.10	1.7
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	14
Anthracene		M	2800	mg/kg	0.10	< 0.10	3.2
Fluoranthene		M	2800	mg/kg	0.10	0.25	17
Pyrene		M	2800	mg/kg	0.10	0.28	15
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	7.4
Chrysene		M	2800	mg/kg	0.10	< 0.10	7.8
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	9.1
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	3.5
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	7.5
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	4.3
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	1.0
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	4.8
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	100
Total Phenols		M	2920	mg/kg	0.10	0.36	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
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-diphenylcarbazine.	
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.	

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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

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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

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable
- PL - Prepared Leachate
- PW - Processed Water

Report Information

RE - Recreational Water

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NC - No Clean Up

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

Report No.:	24-03259-2		
Initial Date of Issue:	13-Feb-2024	Date of Re-Issue:	14-Feb-2024
Re-Issue Details:	This report has been revised and directly supersedes 24-03259-1 in its entirety		
Client	Soiltechnics Limited		
Client Address:	Cedar Barn White Lodge Walgrave Northamptonshire NN6 9PY		
Contact(s):	Admin		
Project	STV6309 Unity Primary School, Manchester		
Quotation No.:		Date Received:	05-Feb-2024
Order No.:	POR017710	Date Instructed:	05-Feb-2024
No. of Samples:	2		
Turnaround (Wkdays):	12	Results Due:	20-Feb-2024
Date Approved:	14-Feb-2024		

Approved By:

Details: Stuart Henderson, Technical Manager

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STV6309 Unity Primary School, Manchester

Client: Soiltechnics Limited		Chemtest Job No.:				24-03259	24-03259
Quotation No.:		Chemtest Sample ID.:				1761983	1761984
Order No.: POR017710		Client Sample Ref.:				1	1
		Client Sample ID.:				TS010.101	WAC010.501
		Sample Location:				TS01	WAC01
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.10	0.50
		Date Sampled:				01-Feb-2024	01-Feb-2024
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		U	2192		N/A	-	Fibres/Clumps
Asbestos Identification		U	2192		N/A	No Asbestos Detected	Chrysotile
Asbestos by Gravimetry		U	2192	%	0.001		0.014
Total Asbestos		U	2192	%	0.001		0.014
Moisture		N	2030	%	0.020	17	18
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Stones and Roots	Stones
Soil Texture		N	2040		N/A	Sand	Sand
pH at 20C		M	2010		4.0	7.4	8.3
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40	0.66
Cyanide (Complex)		M	2300	mg/kg	0.50	< 0.50	8.7
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	8.7
Arsenic		M	2455	mg/kg	0.5	6.9	28
Beryllium		U	2455	mg/kg	0.5	< 0.5	1.8
Cadmium		M	2455	mg/kg	0.10	0.14	0.73
Chromium		M	2455	mg/kg	0.5	18	22
Copper		M	2455	mg/kg	0.50	20	160
Mercury		M	2455	mg/kg	0.05	0.13	0.52
Nickel		M	2455	mg/kg	0.50	9.6	34
Lead		M	2455	mg/kg	0.50	43	370
Selenium		M	2455	mg/kg	0.25	< 0.25	0.59
Vanadium		U	2455	mg/kg	0.5	16	41
Zinc		M	2455	mg/kg	0.50	51	360
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
LOI		M	2610	%	0.10	4.2	12
Organic Matter		M	2625	%	0.40	2.4	14
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	7.6
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	28
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	3.0	110
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0	40	230

Results - Soil

Project: STV6309 Unity Primary School, Manchester

Client: Soiltechnics Limited		Chemtest Job No.:				24-03259	24-03259
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Order No.: POR017710		Client Sample Ref.:				1	1
		Client Sample ID.:				TS010.101	WAC010.501
		Sample Location:				TS01	WAC01
		Sample Type:				SOIL	SOIL
		Top Depth (m):				0.10	0.50
		Date Sampled:				01-Feb-2024	01-Feb-2024
		Asbestos Lab:				DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Total TPH >C5-C35		N	2670	mg/kg	10	43	380
Naphthalene		M	2800	mg/kg	0.10	< 0.10	1.7
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	0.48
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	1.6
Fluorene		M	2800	mg/kg	0.10	< 0.10	1.7
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	14
Anthracene		M	2800	mg/kg	0.10	< 0.10	3.2
Fluoranthene		M	2800	mg/kg	0.10	0.25	17
Pyrene		M	2800	mg/kg	0.10	0.28	15
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	7.4
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Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	4.3
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	1.0
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Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	100
Total Phenols		M	2920	mg/kg	0.10	0.36	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
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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-diphenylcarbazine.	
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.	

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Report Information

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Final Report

Report No.: 24-03260-1

Initial Date of Issue: 13-Feb-2024

Re-Issue Details:

Client Soiltechnics Limited

Client Address: Cedar Barn
White Lodge
Walgrave
Northamptonshire
NN6 9PY

Contact(s): Admin

Project STV6309 Unity Primary School,
Manchester

Quotation No.: **Date Received:** 05-Feb-2024

Order No.: POR017710 **Date Instructed:** 05-Feb-2024

No. of Samples: 1

Turnaround (Wkdays): 7 **Results Due:** 13-Feb-2024

Date Approved: 13-Feb-2024

Approved By:

Details: Stuart Henderson, Technical
Manager

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - 2 Stage WAC

Project: STV6309 Unity Primary School, Manchester

Chemtest Job No: 24-03260							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1761985							Limits			
Sample Ref: 1							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: WAC010.501										
Sample Location: WAC01										
Top Depth(m): 0.50										
Bottom Depth(m):										
Sampling Date: 01-Feb-2024										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				7.9	3	5	6
Loss On Ignition	2610	M	%				8.7	--	--	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				240	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				120	100	--	--
pH at 20C	2010	M					8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.015	--	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	0.0028	0.0040	0.0054	0.039	0.5	2	25	
Barium	1455	U	0.048	0.023	0.093	0.25	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	< 0.0005	0.0005	< 0.0005	0.0047	0.5	10	70	
Copper	1455	U	0.0039	0.0026	0.0075	0.0027	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.051	0.0089	0.10	0.12	0.5	10	30	
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40	
Lead	1455	U	0.0014	0.0020	0.0026	0.020	0.5	10	50	
Antimony	1455	U	0.018	0.0057	0.035	0.065	0.06	0.7	5	
Selenium	1455	U	0.0015	0.0009	0.0029	0.0090	0.1	0.5	7	
Zinc	1455	U	0.015	0.019	0.030	0.19	4	50	200	
Chloride	1220	U	4.9	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.65	0.27	1.3	3.0	10	150	500	
Sulphate	1220	U	90	12	180	170	1000	20000	50000	
Total Dissolved Solids	1020	N	310	64	600	810	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	6.5	3.1	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	19

Leachate Test Information	
Leachant volume 1st extract/l	0.308
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.121

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	Water Accred.
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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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

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable
- PL - Prepared Leachate
- PW - Processed Water

Report Information

RE - Recreational Water

SA - Saline Water

SW - Surface Water

TE - Treated Effluent

TS - Treated Sewage

UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up

MC - Mathematical Clean Up

FC - Florisil Clean Up

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix F 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	05.03.24	DH	SCD
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	1.00%		
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)	0.10
				Date	01/02/24
Inorganics - Metals					
Arsenic	C4SL	37	6.9		6.9
Beryllium	S4UL	1.7	<LoD		<0.5
Boron	S4UL	290	<LoD		<0.40
Cadmium	C4SL	22	0.14		0.14
Chromium (III)	S4UL	910	18		18
Chromium (VI)	C4SL	21	<LoD		<0.50
Copper	S4UL	2400	20		20
Cyanide - Free	ATK	34	<LoD		<0.50
Lead	C4SL	200	43		43
Mercury	S4UL	40	0.13		0.13
Nickel	S4UL	130	9.6		9.6
Selenium	S4UL	250	<LoD		<0.25
Vanadium	S4UL	410	16		16
Zinc	S4UL	3700	51		51
Inorganics - Asbestos					
Asbestos Type	N/A				-
Asbestos Screen	N/A				No Asbestos Detected
Inorganics - Soil Parameters					
Organic matter	N/A				2.4
Organics - PAH & Phenol					
Acenaphthene	S4UL	210	<LoD		<0.10
Acenaphthylene	S4UL	170	<LoD		<0.10
Anthracene	S4UL	2400	<LoD		<0.10
Benzo(a)anthracene	S4UL	7.2	<LoD		<0.10
Benzo(a)pyrene	C4SL	5	<LoD		<0.10
Benzo(b)fluoranthene	S4UL	2.6	<LoD		<0.10
Benzo(ghi)perylene	S4UL	320	<LoD		<0.10
Benzo(k)fluoranthene	S4UL	77	<LoD		<0.10
Chrysene	S4UL	15	<LoD		<0.10
Dibenz(a,h)anthracene	S4UL	0.24	<LoD		<0.10
Fluoranthene	S4UL	280	0.25		0.25
Fluorene	S4UL	170	<LoD		<0.10
Indeno[1,2,3-cd]pyrene	S4UL	27	<LoD		<0.10
Naphthalene	S4UL	2.3	<LoD		<0.10
Phenanthrene	S4UL	95	<LoD		<0.10
Phenol	S4UL	120	0.36		0.36
Pyrene	S4UL	620	0.28		0.28
Organics - Banded TPH (unspeciated)					
EC >5-EC6 (unspeciated)	S4UL	42	<LoD		<1.0
EC >6-EC7 (unspeciated)	S4UL	70	<LoD		<1.0
EC >7-EC8 (unspeciated)	S4UL	100	<LoD		<1.0
EC >08-EC10 (unspeciated)	S4UL	27	<LoD		<1.0
EC >10-EC12 (unspeciated)	S4UL	74	<LoD		<1.0
EC >12-EC16 (unspeciated)	S4UL	140	<LoD		<1.0
EC >16-EC21 (unspeciated)	S4UL	260	3		3
EC >21-EC35 (unspeciated)	S4UL	1100	40		40

Appendix G Waste Characterisation Assessment

Waste Classification Assessment Summary

Waste population	Made Ground
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	Made Ground
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 8 utilised?	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?	Yes	See below
What is the free fibre concentration (%)?	0.01%	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
H(a)P - TPH ratio (%)	Not required
H(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	7.40	Non-hazardous
pH - Max	8.30	Non-hazardous

Oxidising assessment	
Comment	Assessment
Cr (VI) is the only compound with an oxidising hazard statement (H371). On review, the concentration is considered too low to present a viable oxidising hazard in a waste soil	Non-hazardous

Ecotoxic 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

																												Substance specific concentration limits																				
Hazard Property Description						Irritant			Specific Target Organ Toxicity / Aspiration Toxicity				Acute Toxicity								Carcinogenic		Corrosive	Toxic for reproduction		Mutagenic		Sensitising		Ecotoxic				STOT				Carc.	Repr.									
Hazard Property						HP4			HP5				HP6								HP7		HP8	HP10		HP11		HP13		HP14				HP5				HP7	HP10									
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	H401	H317	H334	H400	H410	H411	H413	H335 (Cr03)	H372 (Cr05)	H373 (Cr05)	H373 (P004)	H350 (BuP) (DnNA)	H361 (P004)							
Contaminant	Max. concentration (mg/kg)	Realistic worst case compound	Mass conversion factor	MC applied?	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.3 (Dermal)	Acute Tox.4 (Dermal)	Acute Tox.1 (Inhal.)	Acute Tox.2 (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	8.7	Salts of hydrogen cyanide, using sodium cyanide	1.88	N/A	0.002								0.002				0.002													0.002	0.002																	
Arsenic	28.0	Nickel diarsenide	1.78	N	0.005						0.005												0.005						0.005		0.005	0.005																
Arsenic (secondary)	28.0	Arsenic trioxide	1.32	N	0.004	0.004							0.004											0.004																								
Beryllium	1.8	Beryllium oxide	2.78	N	0.000		0.000									0.000						0.000							0.000																			
Cadmium	0.7	Cadmium sulfide	1.29	N	0.000																		0.000					0.000		0.000							0.000		0.000									
Cadmium (secondary)	0.7	Cadmium oxide	1.14	N	0.000																														0.000	0.000												
Chromium (III)	22.0	Chromium (III) oxide	1.46	N	0.003		0.003										0.003									0.003			0.003	0.003									0.003									
Chromium (VI)	0.5	Chromium (VI) trioxide	1.92	N/A	0.000	0.000					See specific assessment	0.000				0.000			0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			0.000									
Copper	160.0	Copper (I) oxide	1.25	N	0.020																										0.020	0.020																
Copper (secondary)	160.0	Copper(II) oxide	1.13	N	0.018			0.018														0.018																										
Lead	370.0	Lead compounds, using lead sulphate	1.46	N	0.054																	0.054		0.054		0.054	See specific assessment			0.054	0.054							0.054		0.054								
Mercury	0.5	Mercury dichloride	1.35	N	0.000	0.000						0.000													0.000			0.000		0.000	0.000																	
Nickel	34.0	Nickel carbonate	2.82	N	0.007		0.007															0.007	0.007		0.007		0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007				
Selenium	0.6	Selenium compounds, using selenium dioxide	1.41	N	0.000											0.000						0.000													0.000	0.000												
Zinc	360.0	Zinc sulphide	1.49	N	0.054			0.054																																								
Vanadium	41.0	Vanadium pentoxide	1.79	N	0.007						0.007	0.007										0.007					0.007		0.007																			
Naphthalene	1.7	Naphthalene	1	N/A	0.000																			0.000								0.000	0.000															
Acenaphthylene	0.5	Acenaphthylene	1	N/A	0.000		0.000																																									
Acenaphthene	1.6	Acenaphthene	1	N/A	0.000		0.000																																									
Fluorene	1.7	Fluorene	1	N/A	0.000		0.000																																									
Phenanthrene	14.0	Phenanthrene	1	N/A	0.001																																											
Anthracene	3.2	Anthracene	1	N/A	0.000		0.000																																									
Fluoranthene	17.0	Fluoranthene	1	N/A	0.002		0.002																																									
Pyrene	15.0	Pyrene	1	N/A	0.002		0.002																																									
Benzo(a)anthracene	7.4	Benzo(a)anthracene	1	N/A	0.001																			0.001																								
Chrysene	7.8	Chrysene	1	N/A	0.001																				0.001																							
Benzo(b)fluoranthene	9.1	Benzo(b)fluoranthene	1	N/A	0.001																				0.001																							
Benzo(k)fluoranthene	3.5	Benzo(k)fluoranthene	1	N/A	0.000																				0.000																							
Benzo(a)pyrene	7.5	Benzo(a)pyrene	1	N/A	0.001																			See specific assessment				0.001																				
Indeno(1,2,3-cd)pyrene	4.3	Indeno(1,2,3-cd)pyrene	1	N/A	0.000																				0.000																							
Dibenz(a,h)anthracene	1.0	Dibenz(a,h)anthracene	1	N/A	0.000																			See specific assessment																								
Benzo(ghi)perylene	4.8	Benzo(ghi)perylene	1	N/A	0.000																																											
Total TPH	380.0	Unknown oil	1	N/A	0.038				0.038			0.038											See specific assessment				0.038	See specific assessment																				
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%	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	N/A	N/A	N/A			
					Total (or greatest)																																											

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)	0.50
				Date	01/02/24
Parameters determined on the waste					
Total organic carbon	3	5	6		7.9
Loss on ignition			10		12
BTEX	6				< 0.010
PCBs (7 congeners)	1				< 0.10
Mineral oil	500				240
PAH (17 congeners)	100				120
pH		6			8.2
Acid neutralisation capacity (pH 6)		To be evaluated	To be evaluated		0.015
Limit values (mg kg ⁻¹) for compliance test using BN 12457-3 at L/S 10 l					
Arsenic	0.5	2	25		0.039
Barium	20	100	300		0.25
Cadmium	0.04	1	5		< 0.00011
Chromium (III)	0.5	10	70		0.0047
Copper	2	50	100		0.0027
Mercury	0.01	0.2	2		< 0.00005
Molybdenum	0.5	10	30		0.12
Nickel	0.4	10	40		< 0.0005
Lead	0.5	10	50		0.02
Antimony	0.06	0.7	5		0.065
Selenium	0.1	0.5	7		0.009
Zinc	4	50	200		0.19
Chloride	800	15,000	25,000		< 10
Fluoride	10	150	500		3
Sulphate	1,000	20,000	50,000		170
Total dissolved solids	4,000	60,000	100,000		810
Phenol	1				< 0.50
Dissolved organic carbon	500	800	1000		< 50
Classifications					
Waste classification					Non-hazardous
Landfill type					Non-hazardous

- 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 H Statutory Undertakers Responses

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: STV6309
Our Ref: UUPS-ORD-534496
Date: 28/11/2023**

Dear Sirs**Location: 41 ALLESLEY DRIVE, SALFORD, M7 4YE**

I acknowledge with thanks your request dated 24/11/2023 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

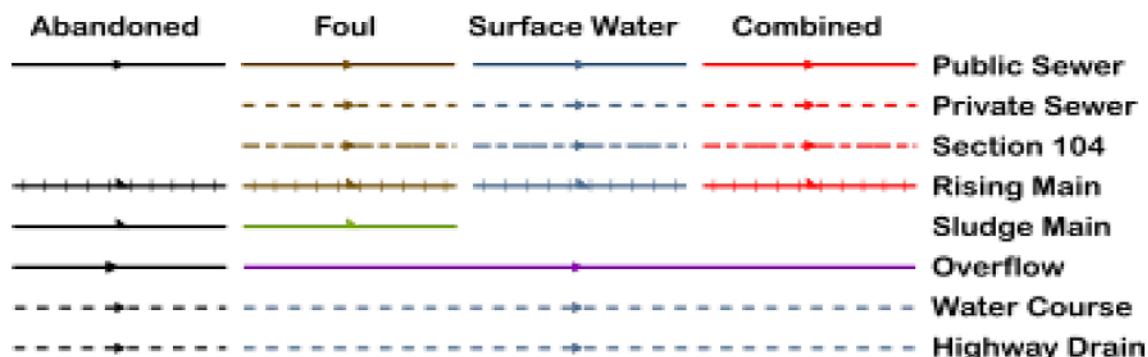
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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:

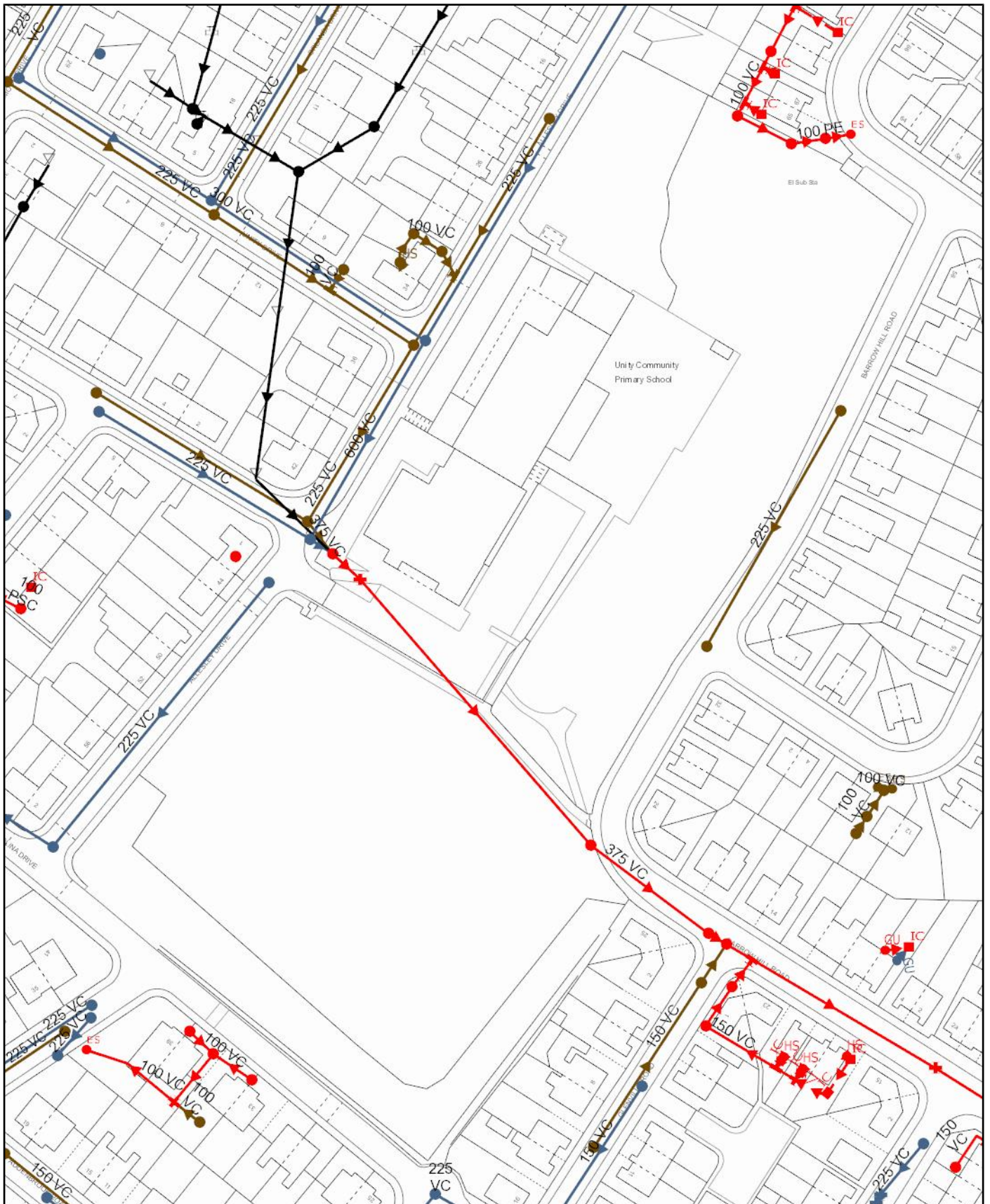
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out 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	



Scale: 1:1264
Date: 28/11/2023

SEWER RECORDS



Water for the North West

Address or Site Reference: 41 ALLESLEY DRIVE, SALFORD, M7 4YE

Printed by: Property Searches

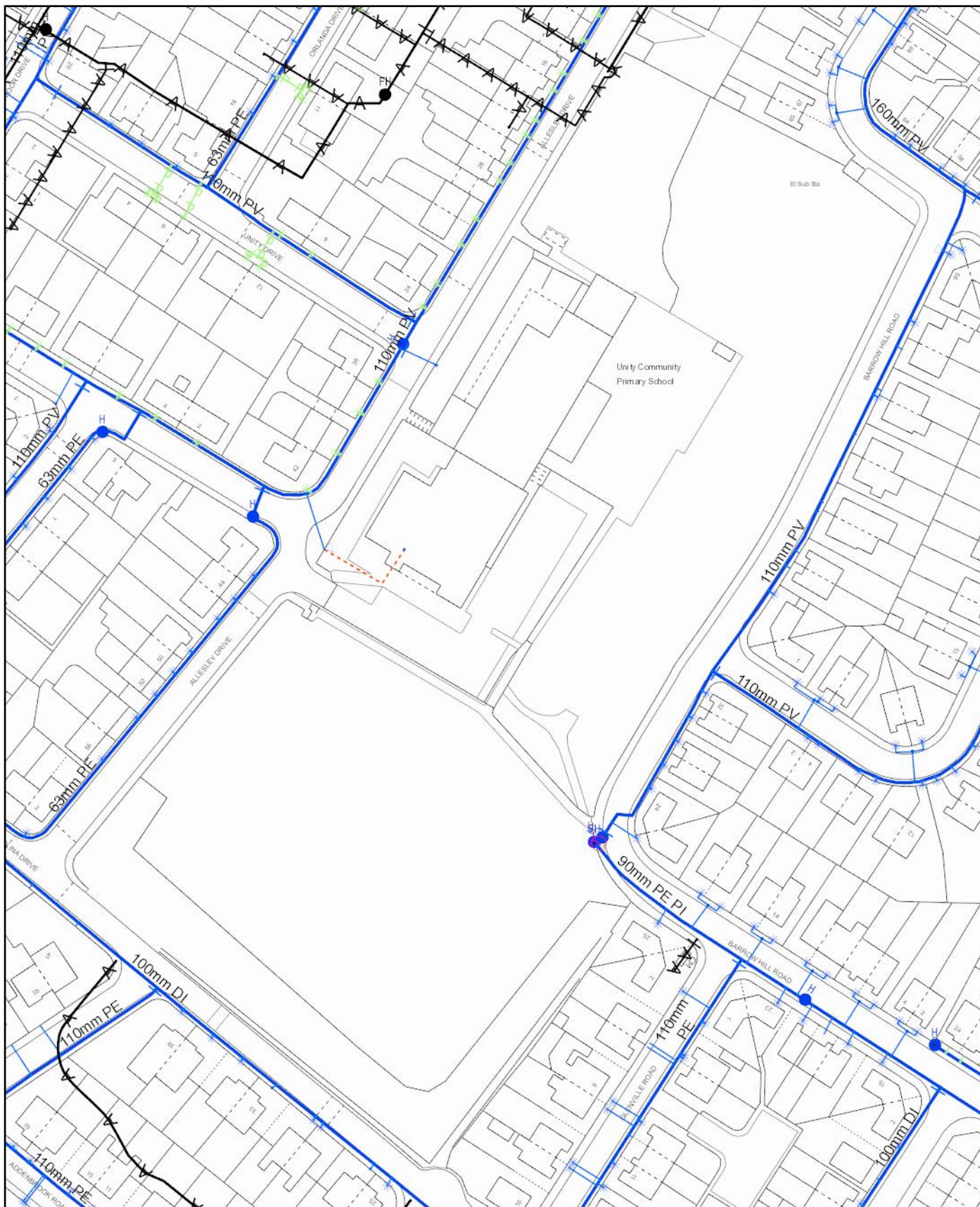
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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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**



Scale: 1:1264
Date: 28/11/2023

WATER MAINS RECORDS

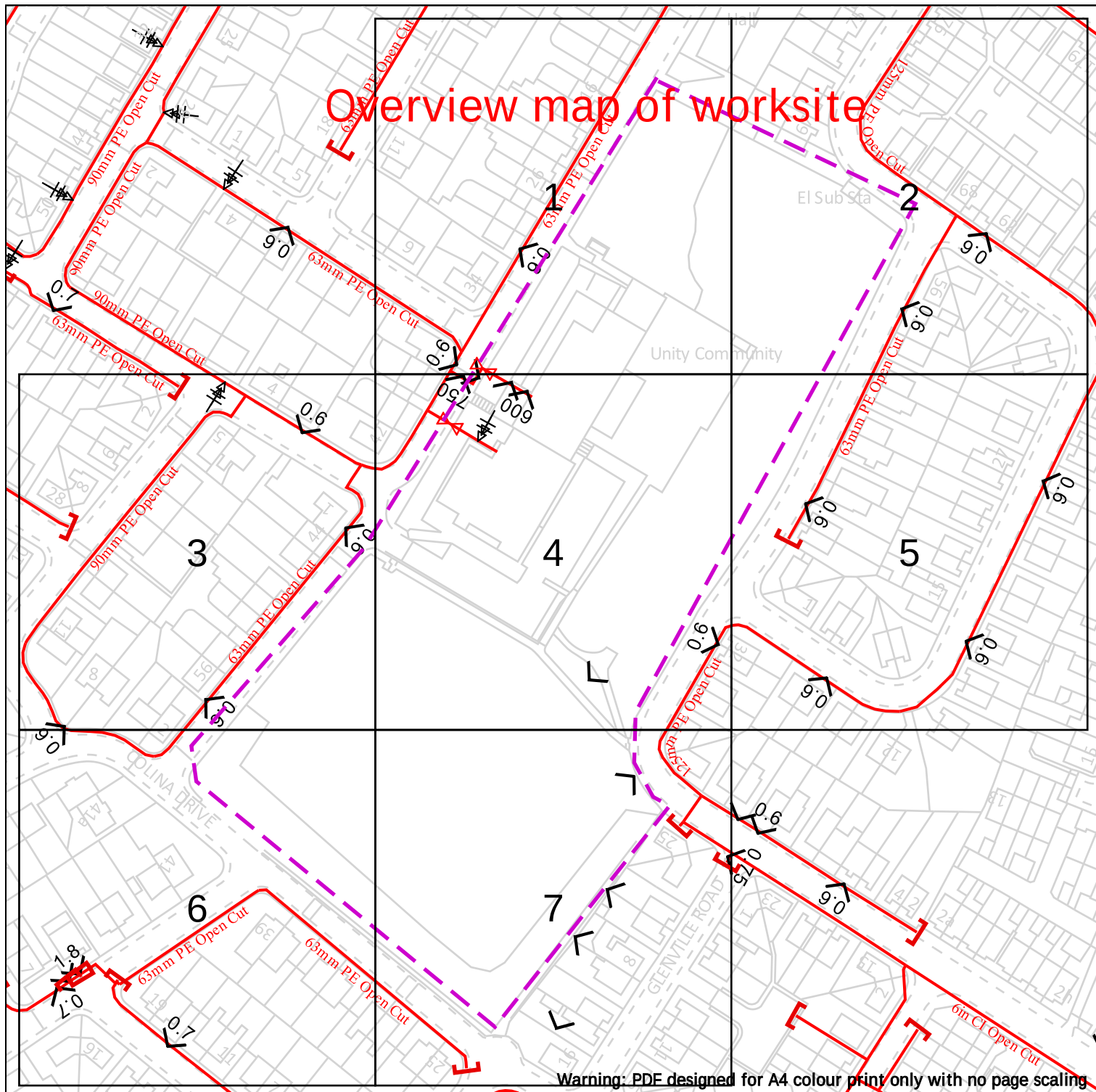
Address or Site Reference: 41 ALLESLEY DRIVE, SALFORD, M7 4YE
Printed by: Property Searches

 **United
Utilities**
Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Overview map of worksite



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

Cadent
Your Gas Network

Dig Sites



Area: - - - -

LP Mains
MP Mains
IP Mains
LHP Mains

Line: - - - -



Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.

Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
 - Identification of dual services
 - Recording of non-perpendicular services
- A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

IMPORTANT NOTICES

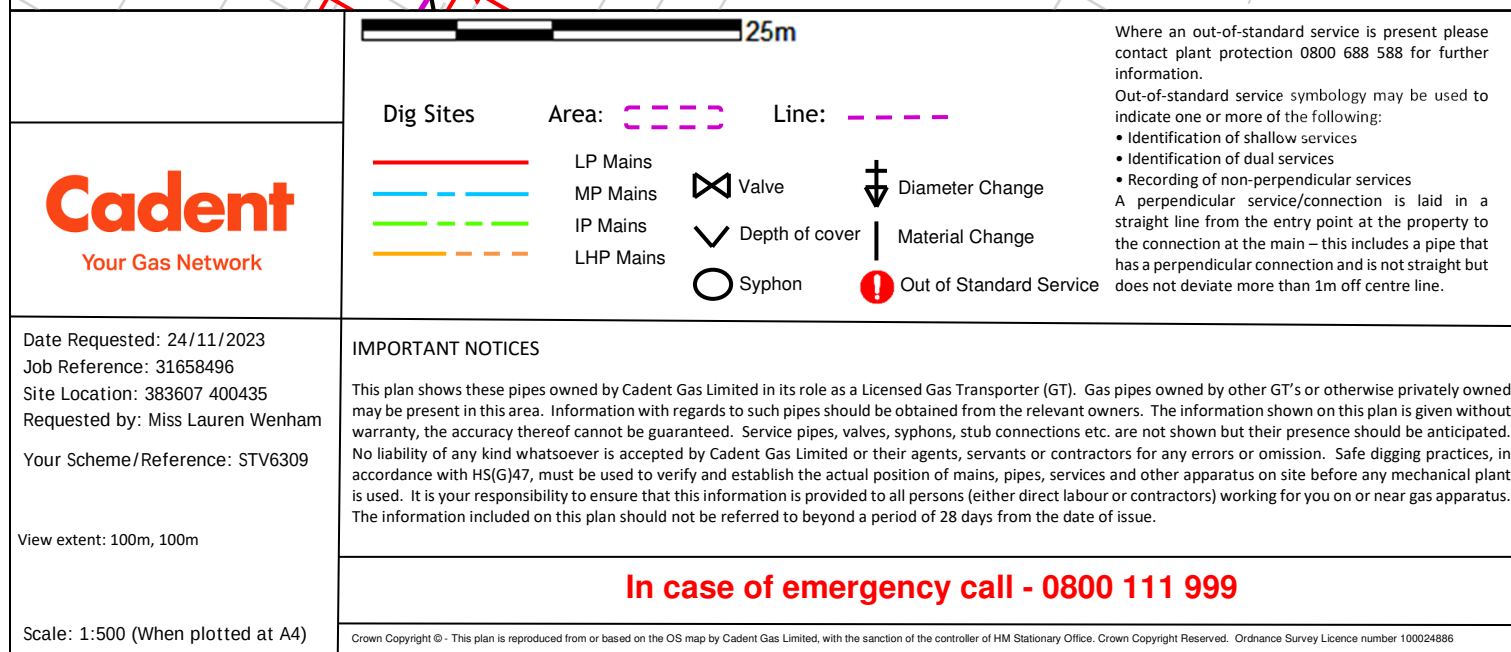
This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on 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.

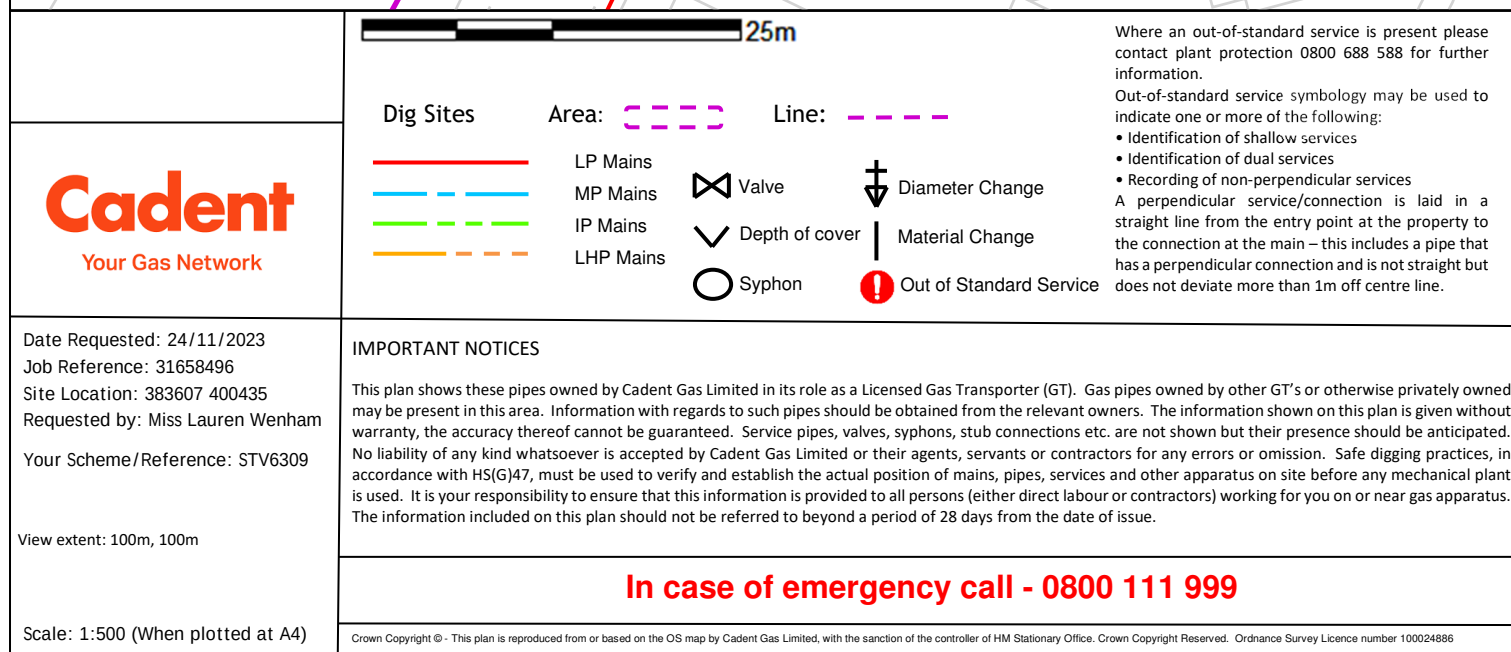
View extent: 100m, 100m

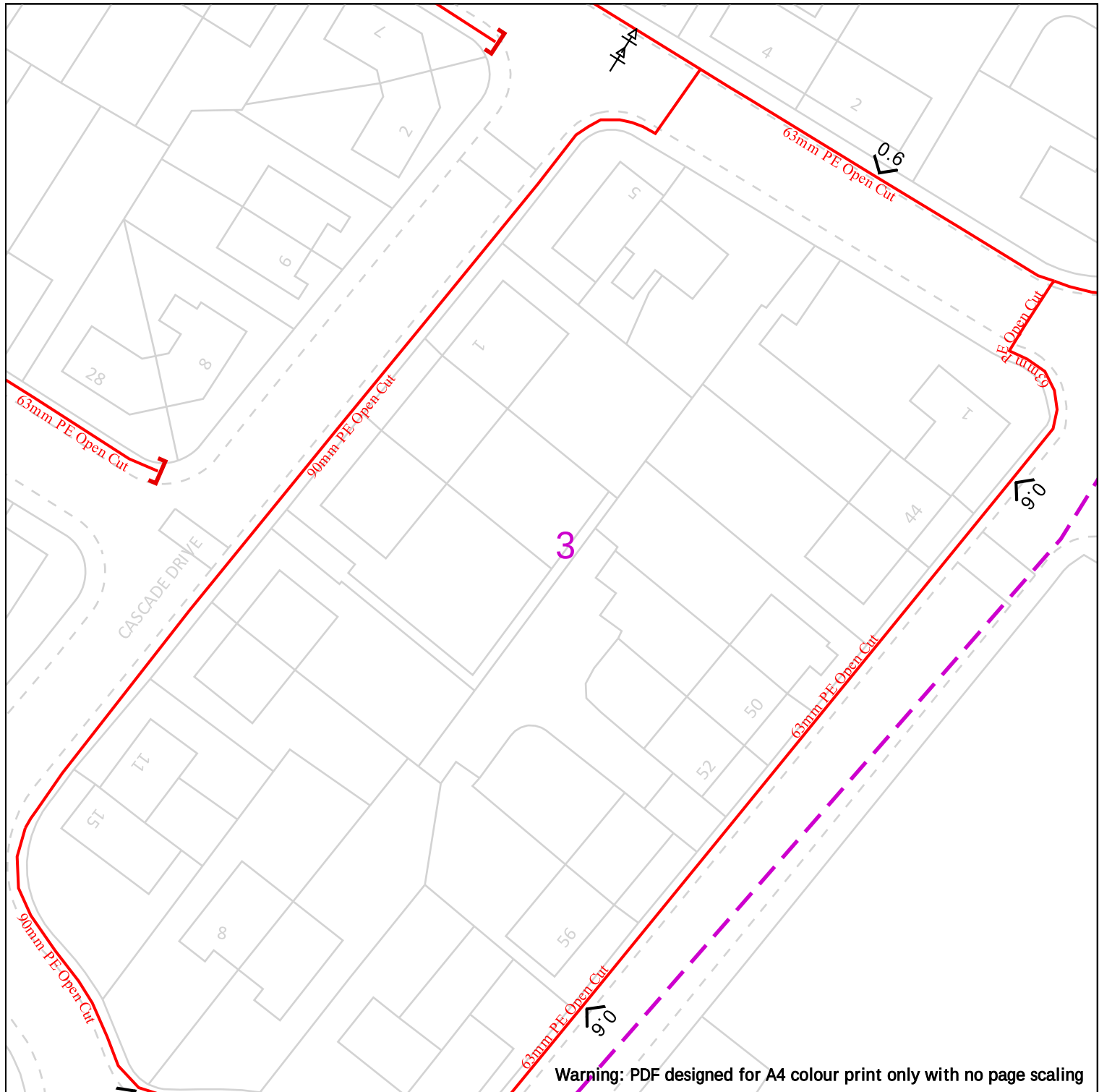
Scale: 1:1538 (When plotted at A4)

In case of emergency call - 0800 111 999

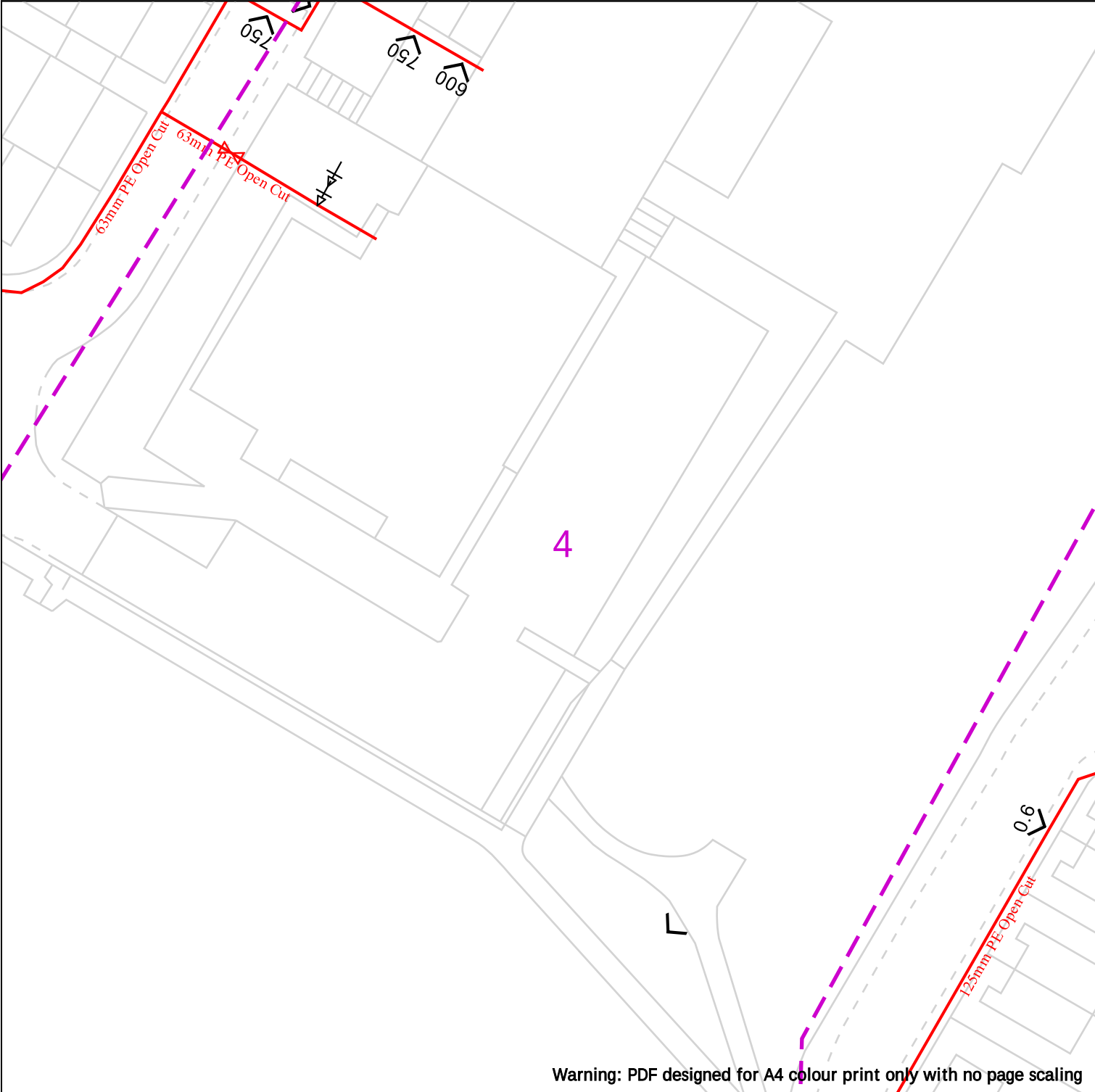
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 Cadent Your Gas Network	 25m <table border="0"> <tr> <td>Dig Sites</td> <td>Area: </td> <td>Line: </td> </tr> <tr> <td> LP Mains</td> <td> Valve</td> <td> Diameter Change</td> </tr> <tr> <td> MP Mains</td> <td> Depth of cover</td> <td> Material Change</td> </tr> <tr> <td> IP Mains</td> <td> Syphon</td> <td> Out of Standard Service</td> </tr> <tr> <td> LHP Mains</td> <td></td> <td></td> </tr> </table> Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information. Out-of-standard service symbology may be used to indicate one or more of the following: • Identification of shallow services • Identification of dual services • Recording of non-perpendicular services A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.	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		
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																
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309 View extent: 100m, 100m Scale: 1:500 (When plotted at A4)	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 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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Cadent
Your Gas Network

Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)



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		

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.

Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

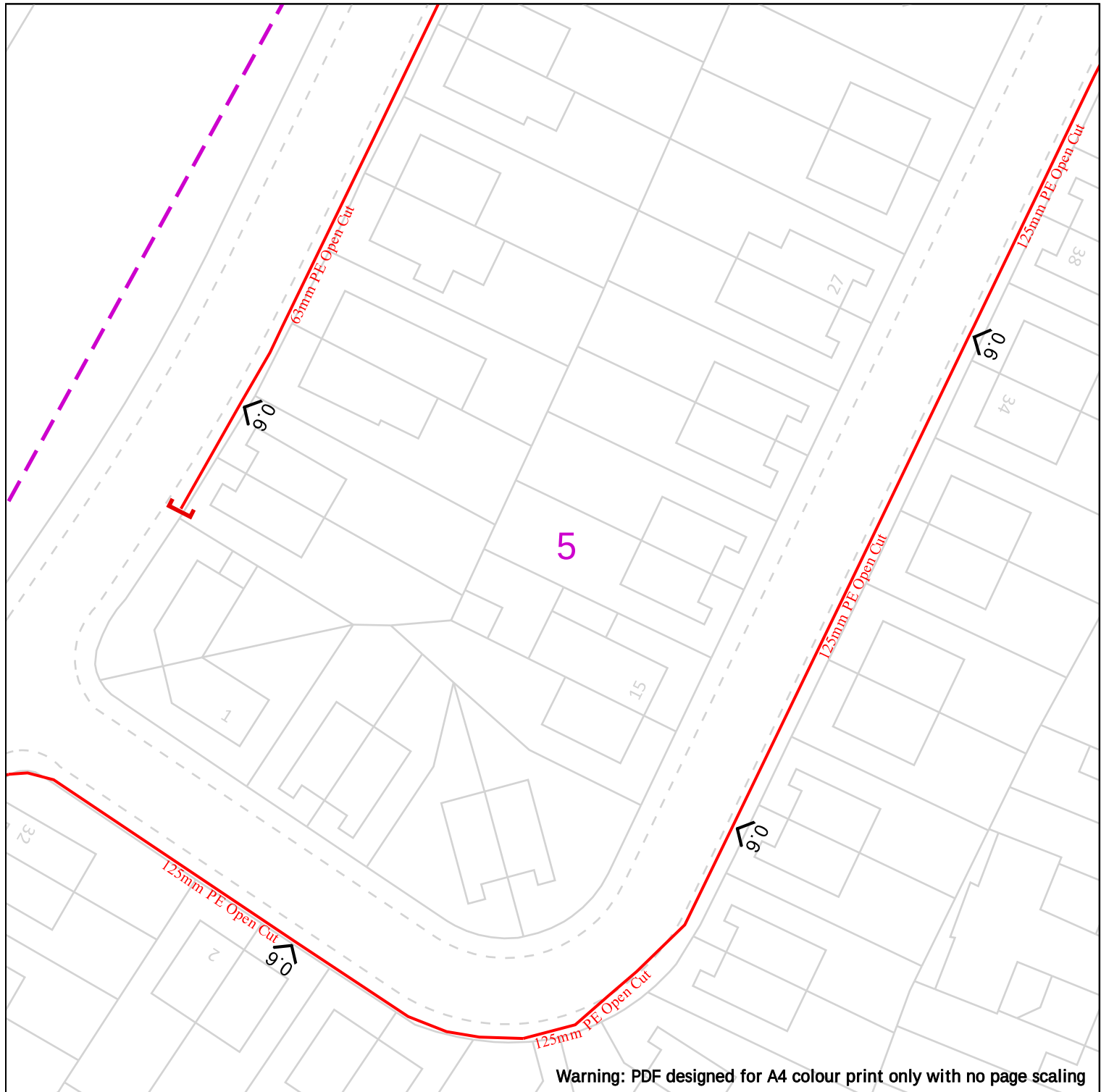
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IMPORTANT NOTICES

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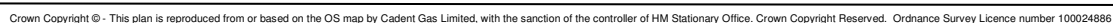
In case of emergency call - 0800 111 999

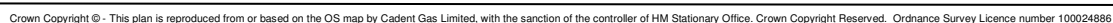
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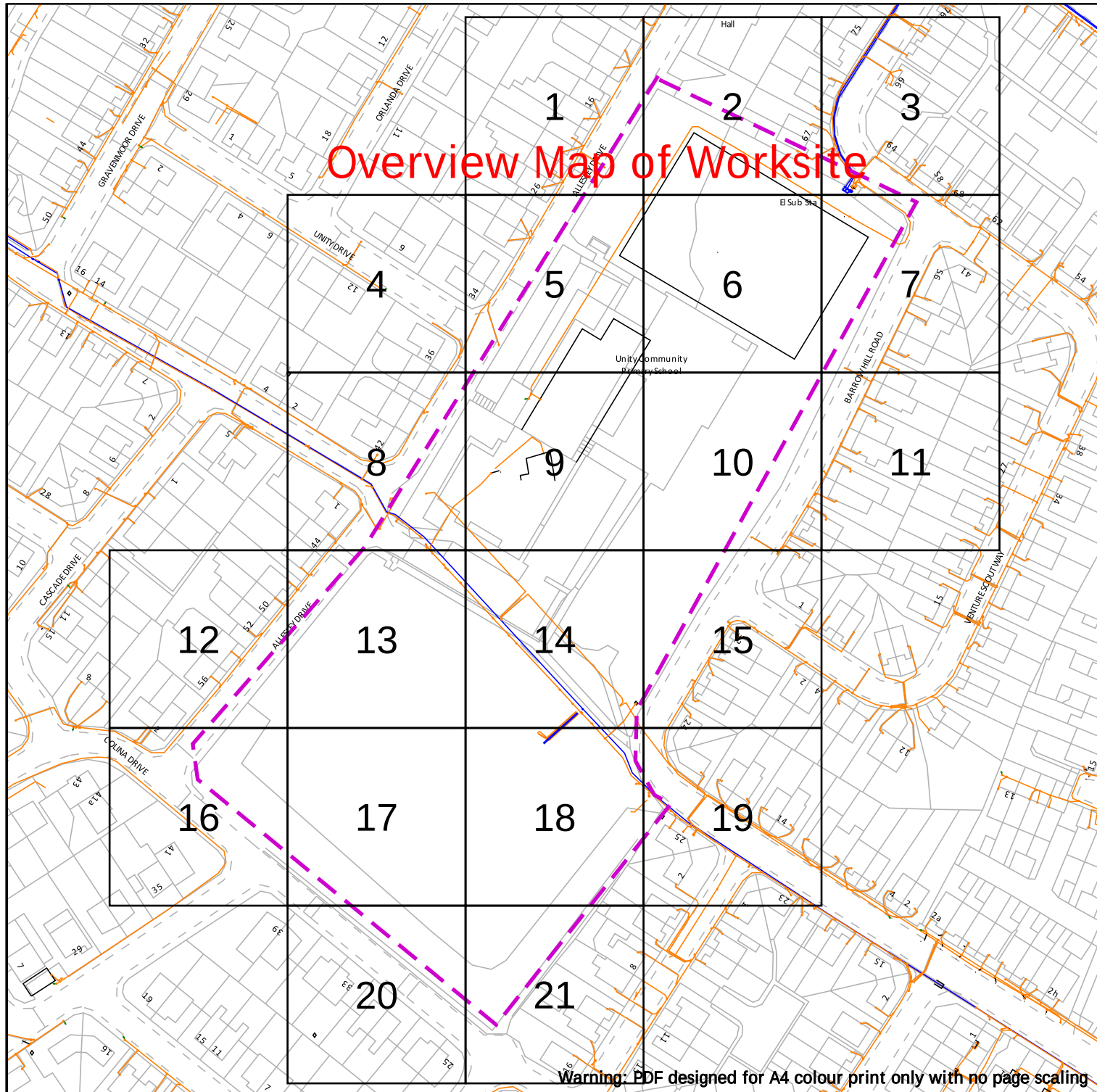
	 25m Dig Sites Area:  Line:   LP Mains  MP Mains  IP Mains  LHP Mains  Valve  Depth of cover  Syphon  Diameter Change  Material Change  Out of Standard Service Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information. Out-of-standard service symbology may be used to indicate one or more of the following: • Identification of shallow services • Identification of dual services • Recording of non-perpendicular services A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309 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 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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Overview Map of Worksite



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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: []

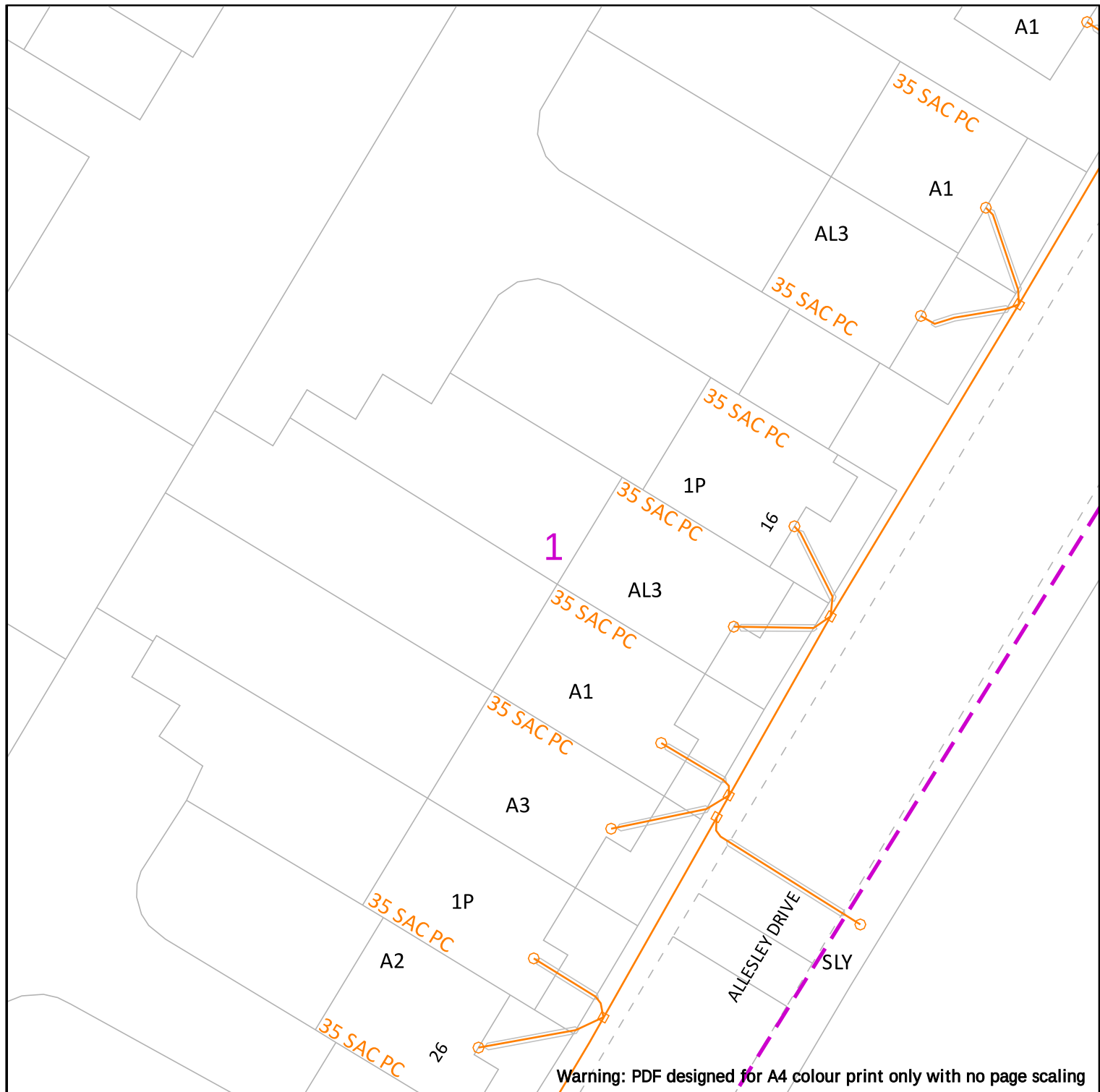
Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

IMPORTANT INFO

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Scale: 1:1537 (When plotted at A4)

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Data Management
Electricity North West
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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: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

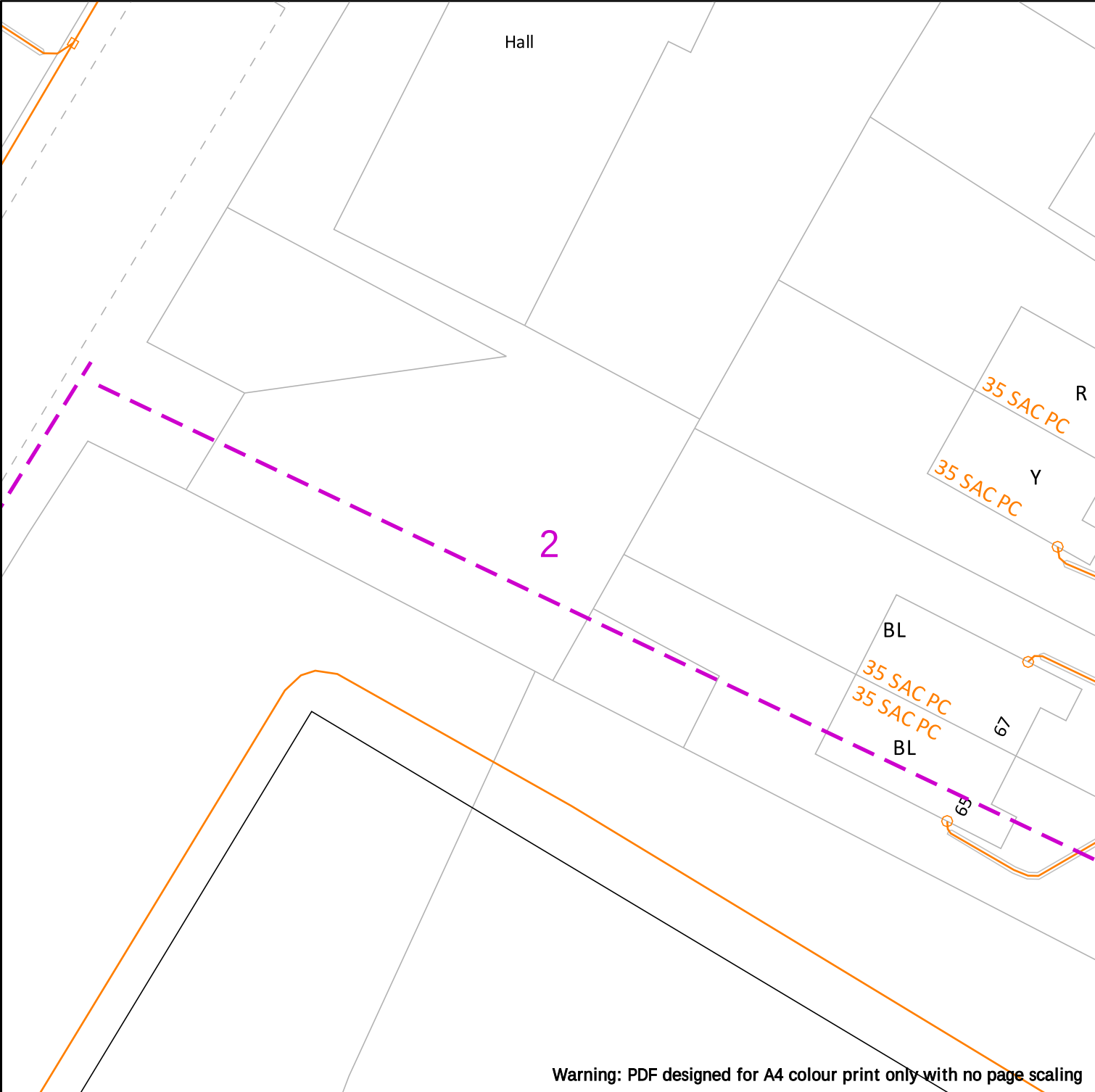
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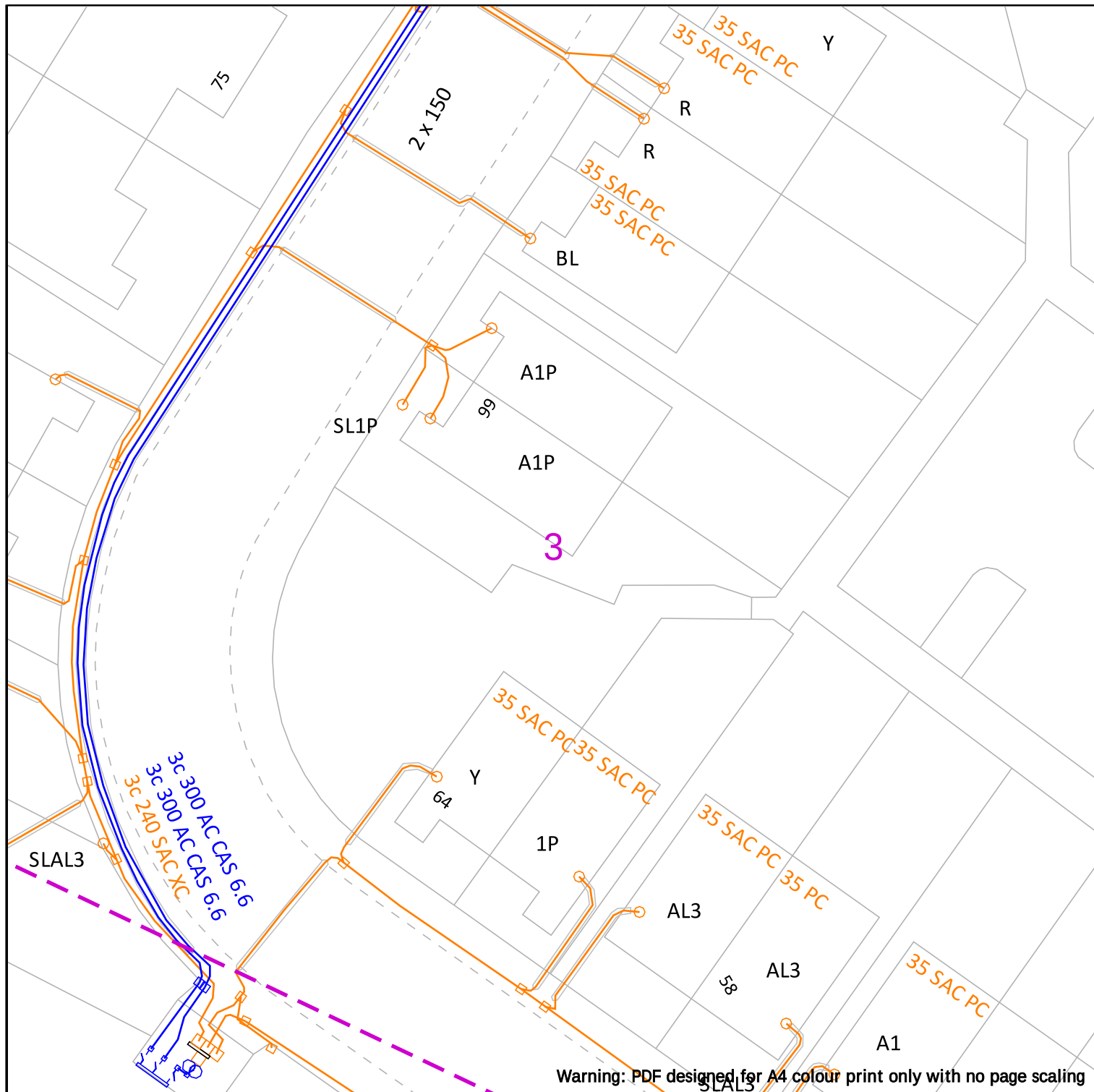
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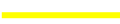
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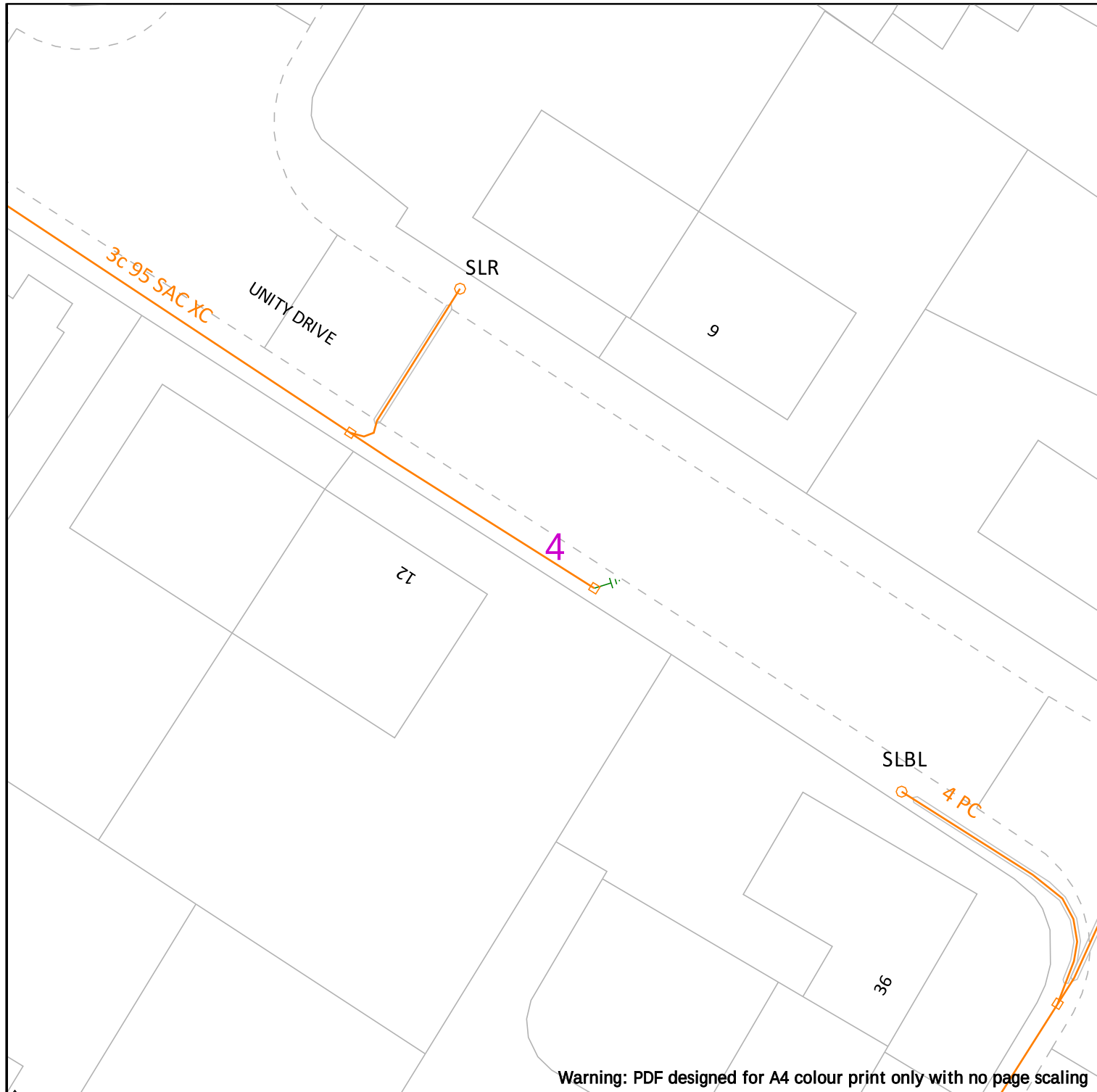


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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
	Unknown Voltage	Brown			
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309	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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	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: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309 Scale: 1:250 (When plotted at A4)	Reproduced from or based upon Ordnance Survey's map with the permission of Her Majesty's Stationary Office. Crown Copyright Reserved. LICENCE No. 100017892.				



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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: 
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El Sub Sta

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

Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

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: - - - -

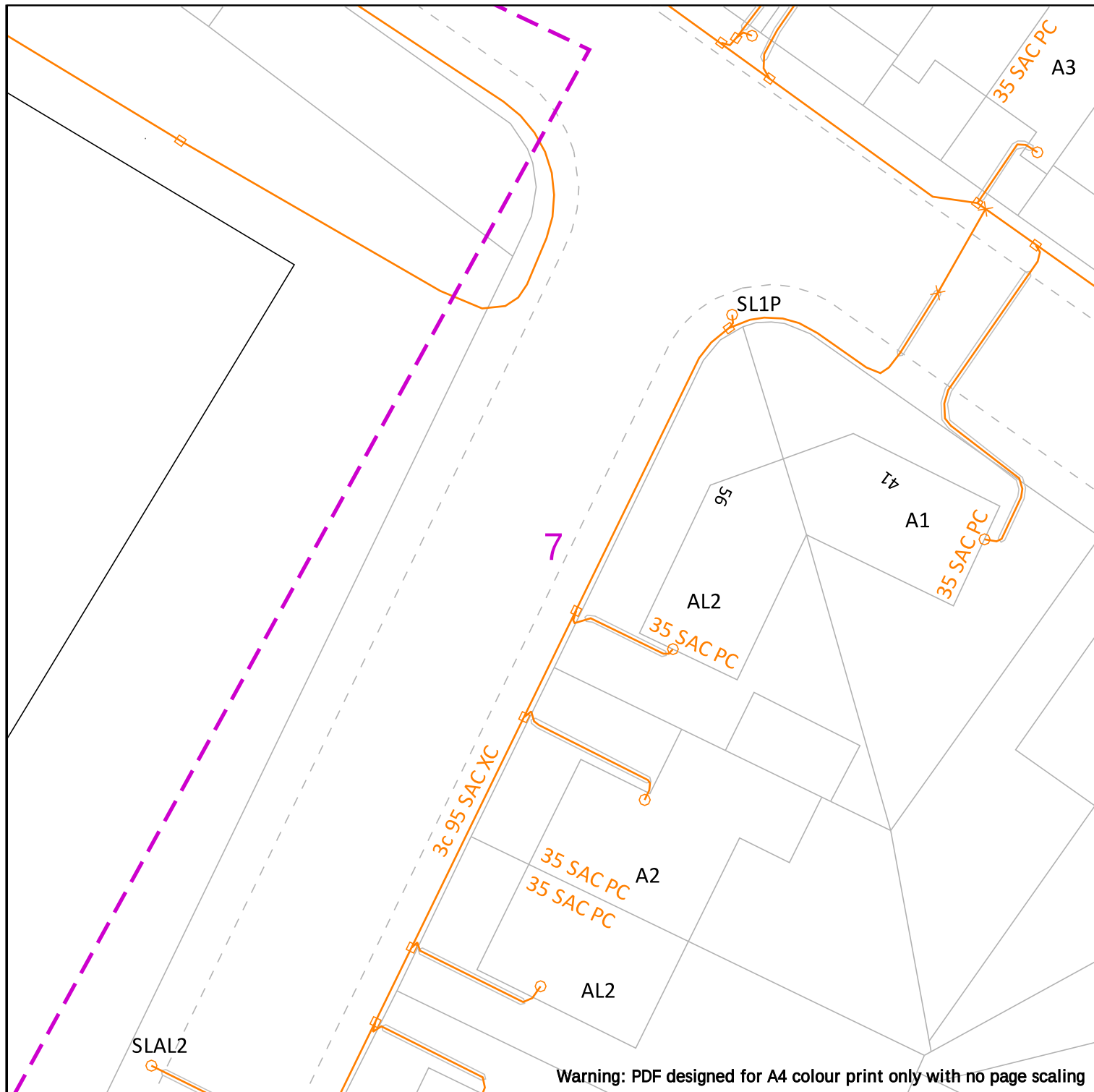
Area: [] [] [] []

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Operating Voltage

132kV
33kV
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In an emergency call 105,
24 hours a day

Dig Sites

Line:
Area:

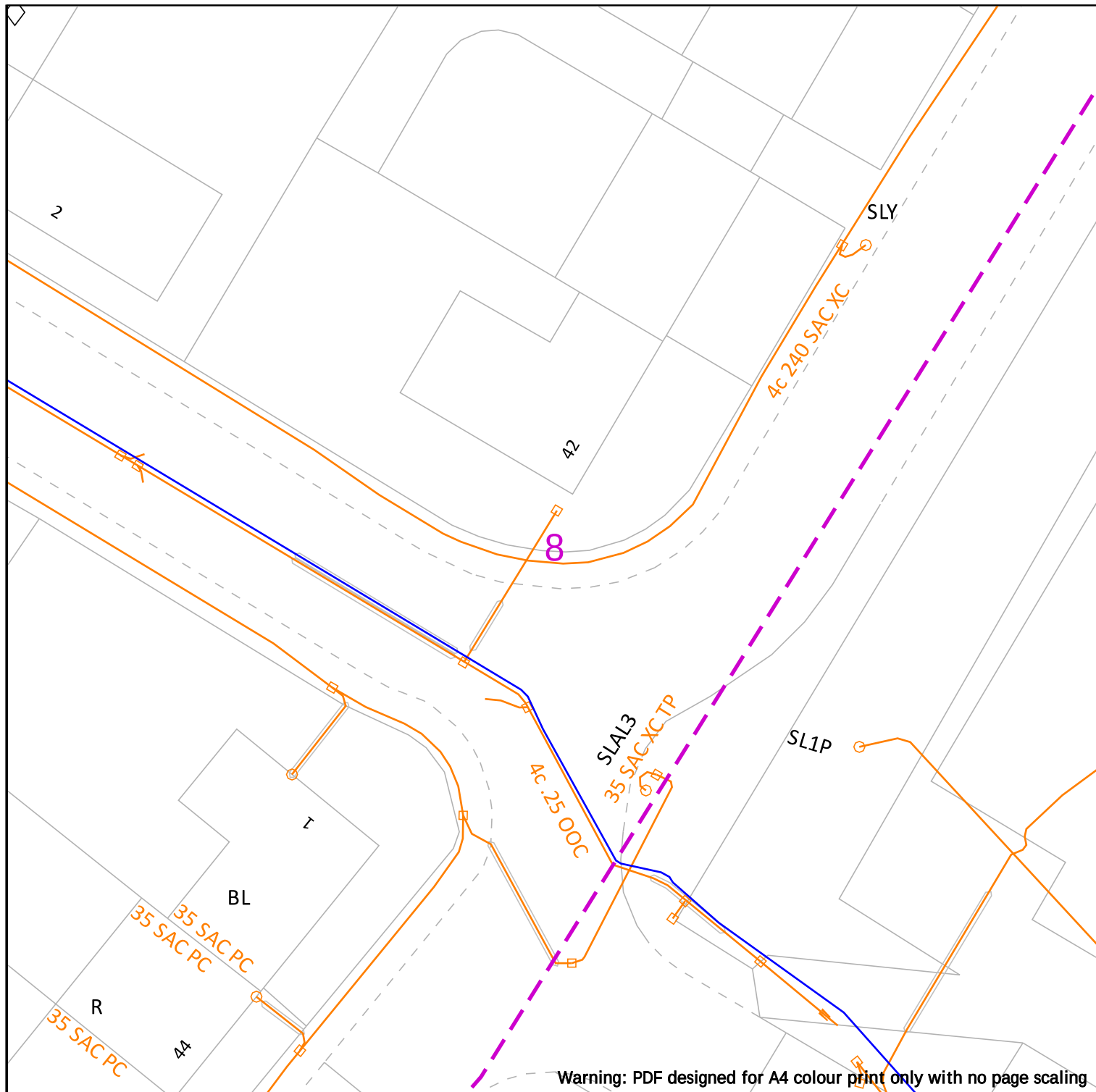
Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

IMPORTANT INFO

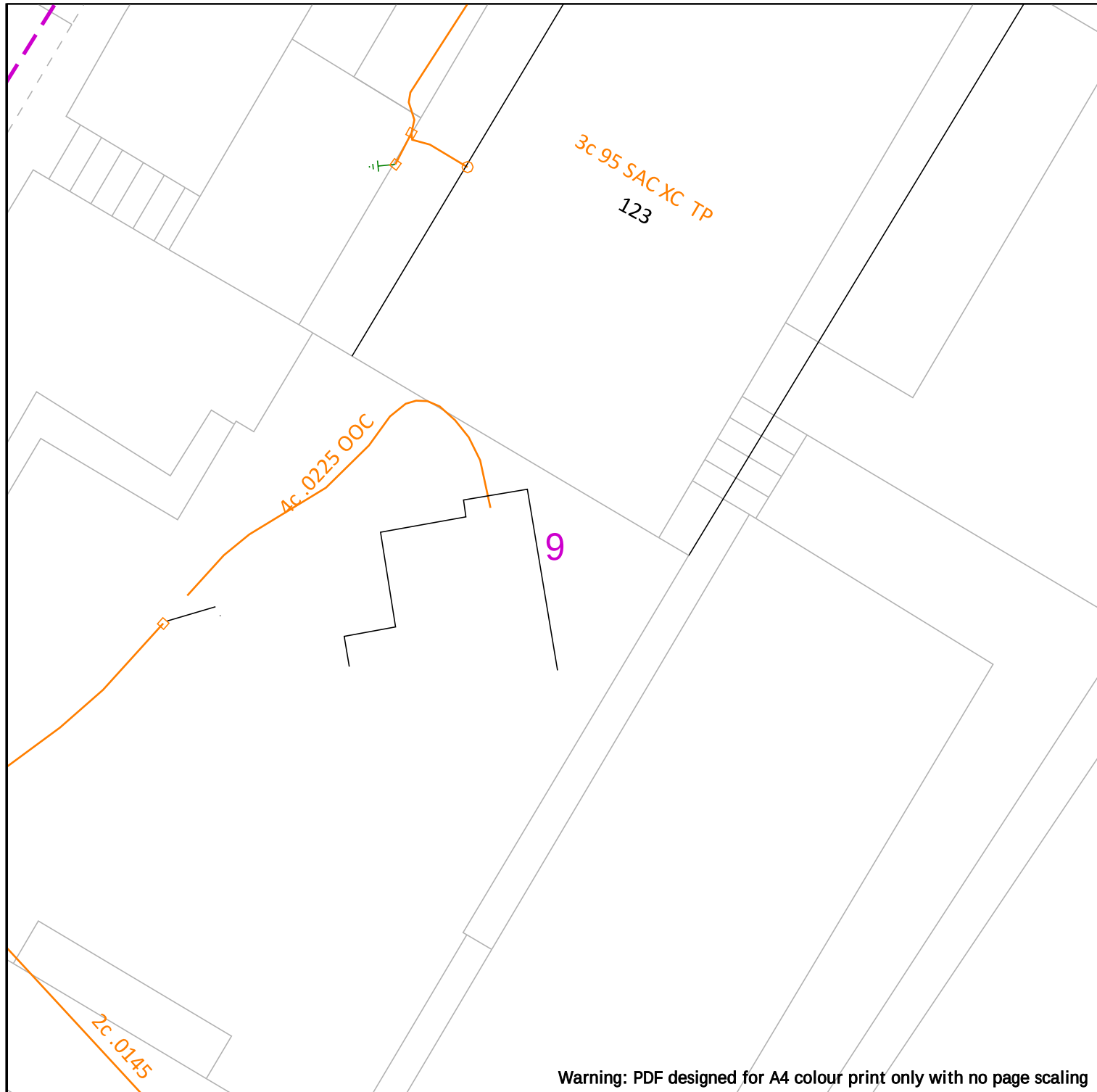
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Scale: 1:250 (When plotted at A4)

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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: 
Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	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				
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309 Scale: 1:250 (When plotted at A4)	Reproduced from or based upon Ordnance Survey's map with the permission of Her Majesty's Stationary Office. Crown Copyright Reserved. LICENCE No. 100017892.				



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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: [] [] [] []

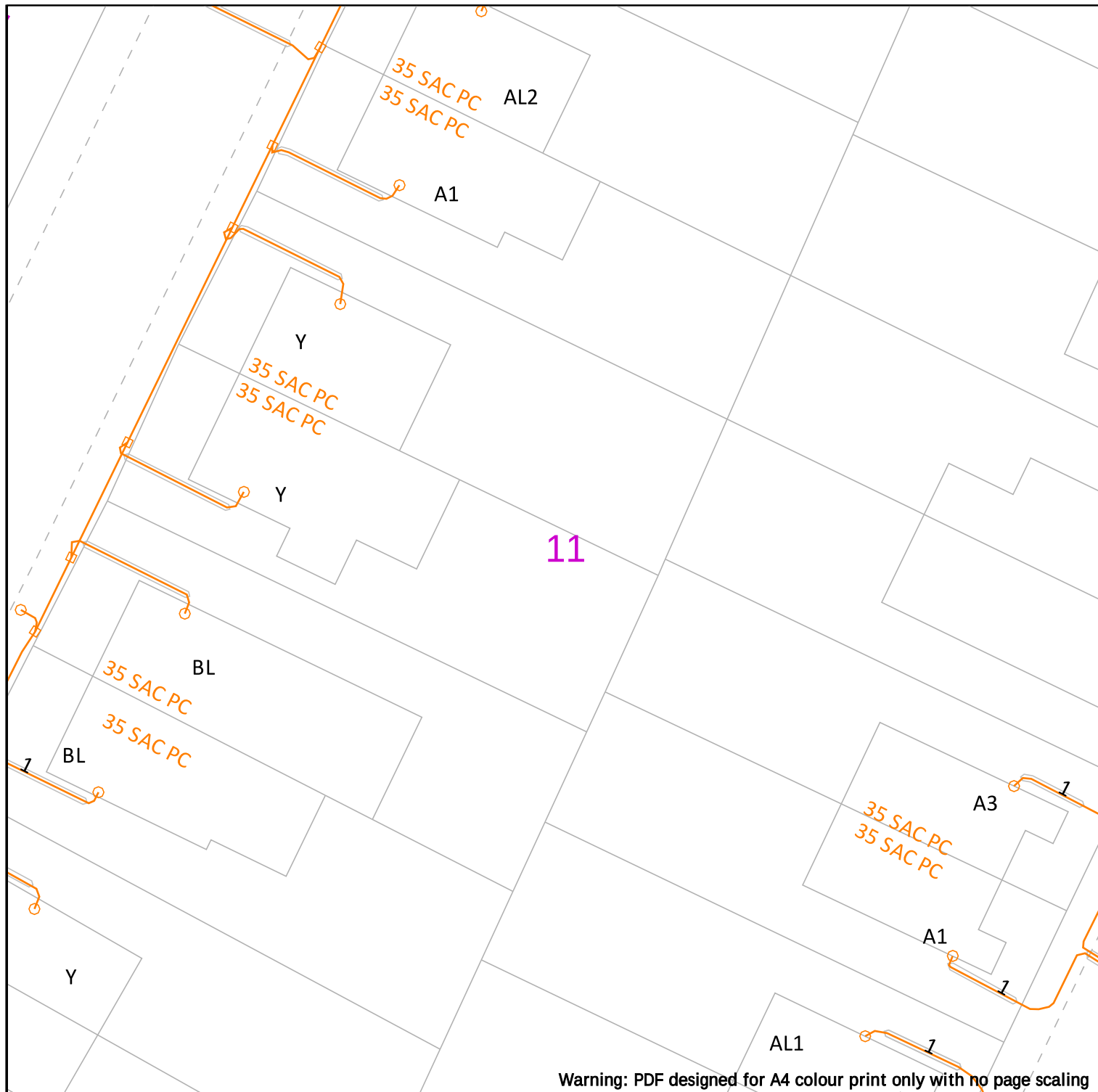
Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

IMPORTANT INFO

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

Operating Voltage

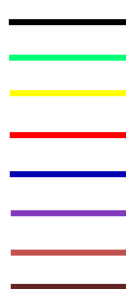
132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

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: []

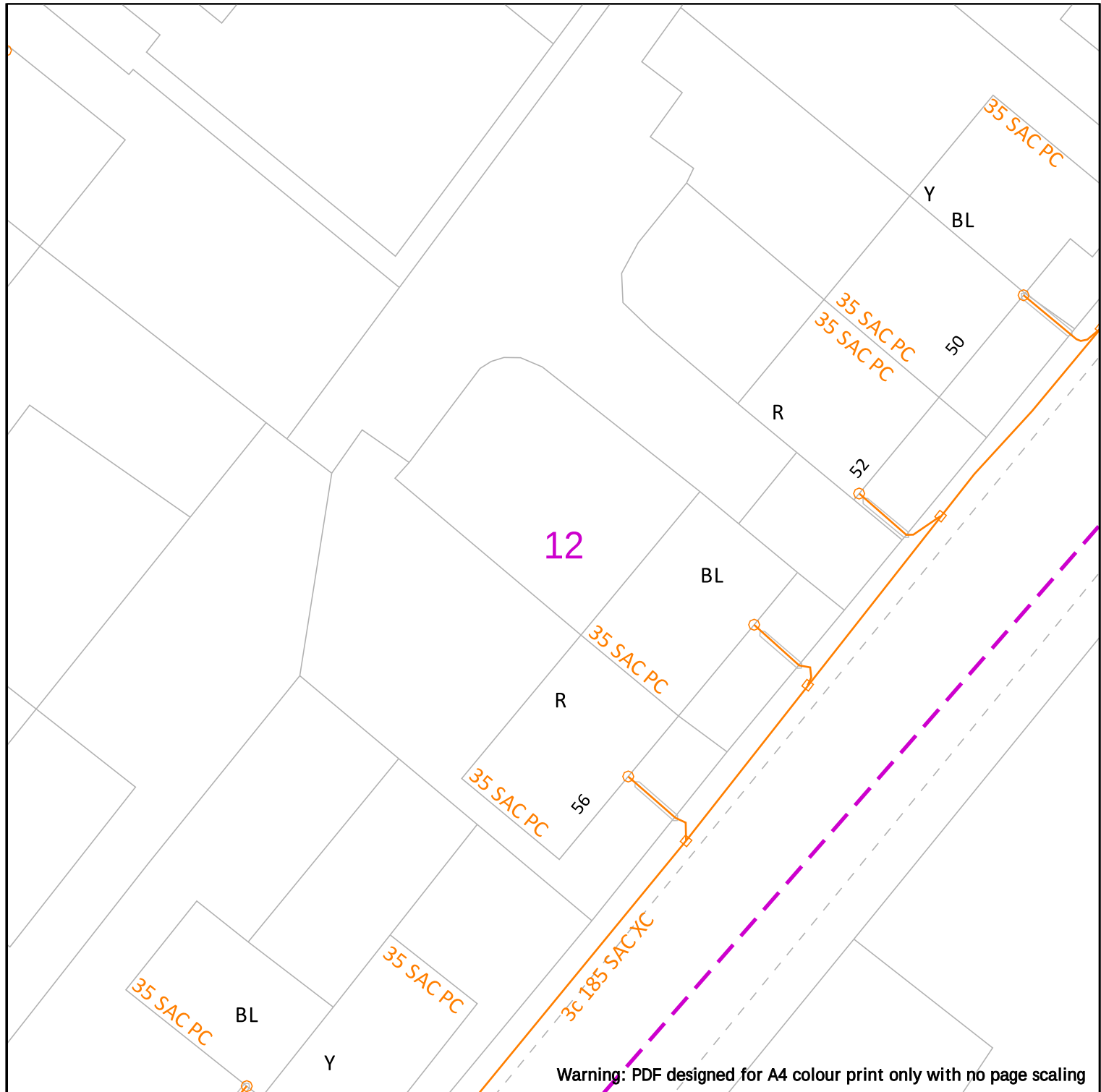
Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
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IMPORTANT INFO

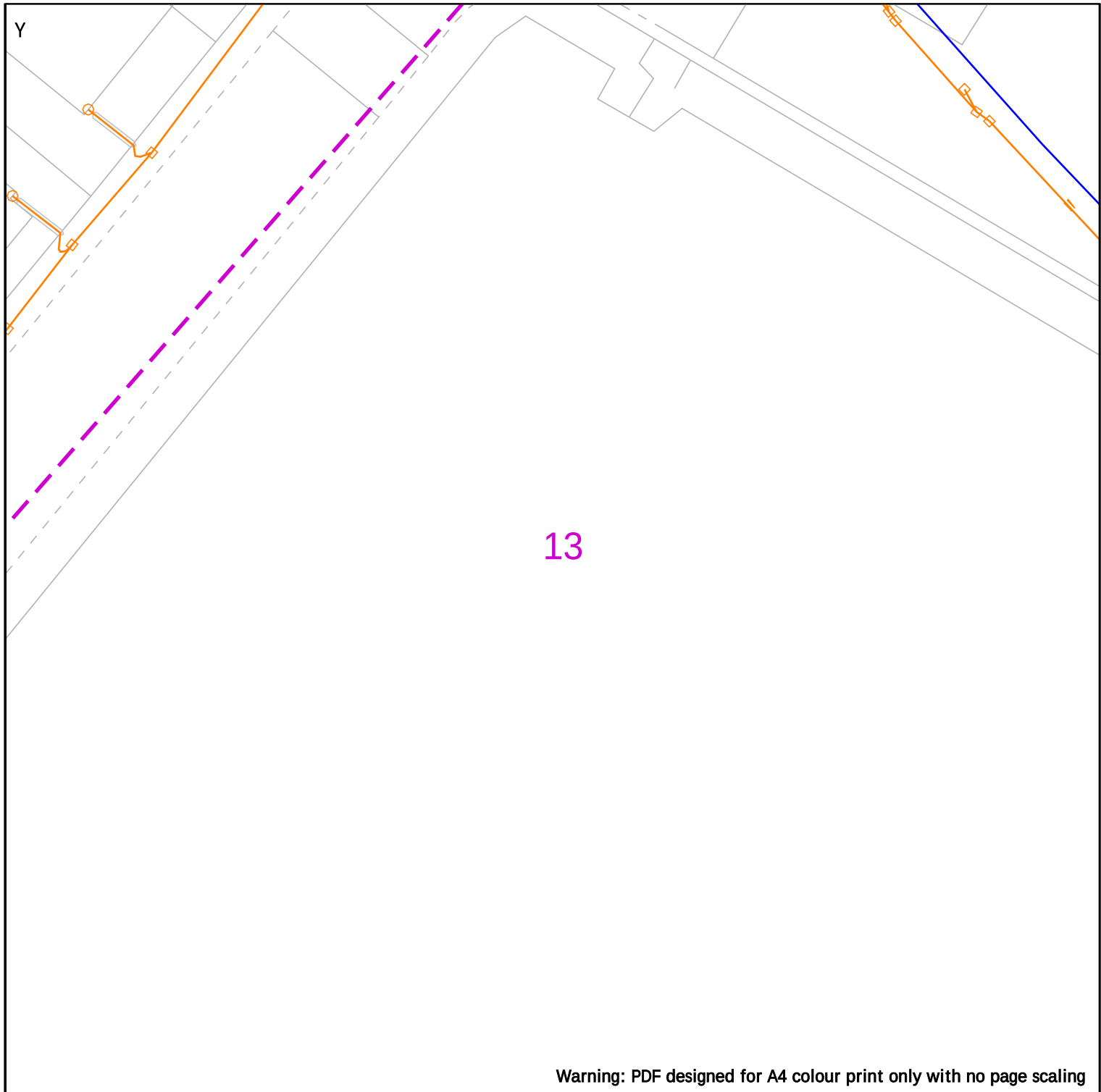
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Scale: 1:250 (When plotted at A4)



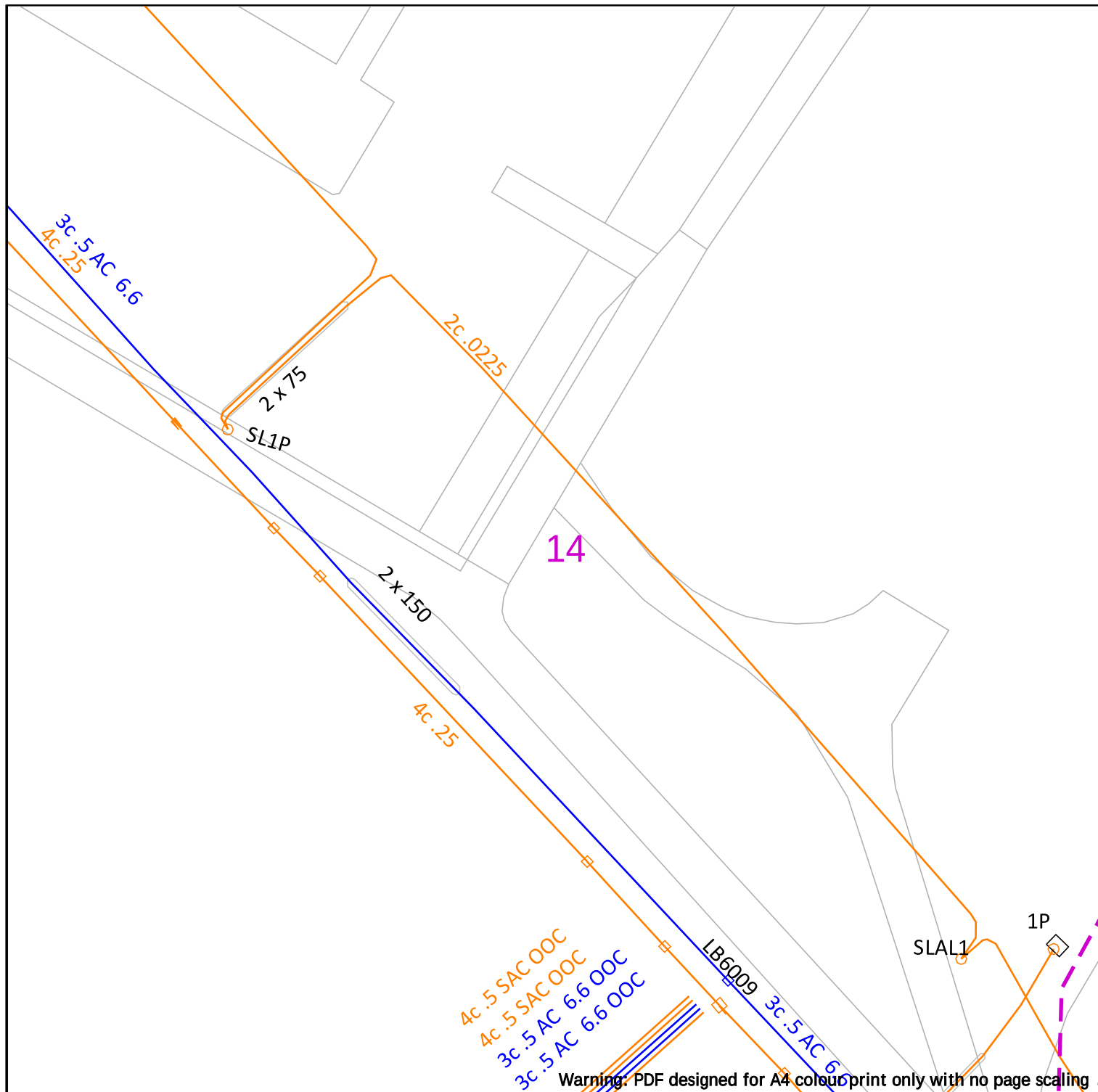
 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309	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				
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: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309	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
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Operating Voltage

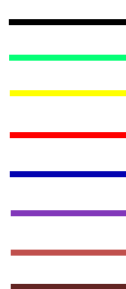
132kV
33kV
22kV-25kV
11kV
6kV-6.6kV
1kV-6kV
LV

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: []

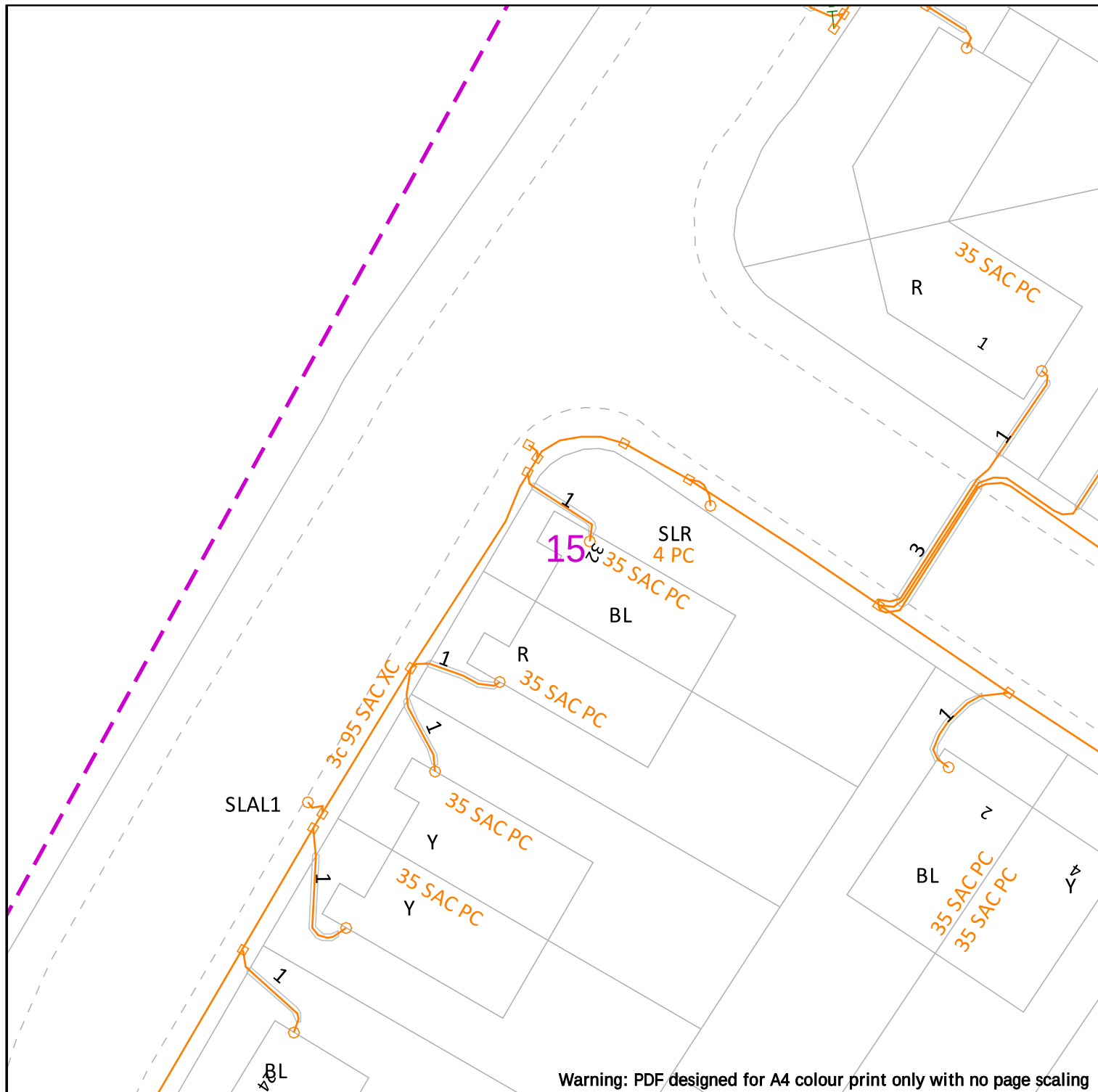
Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
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IMPORTANT INFO

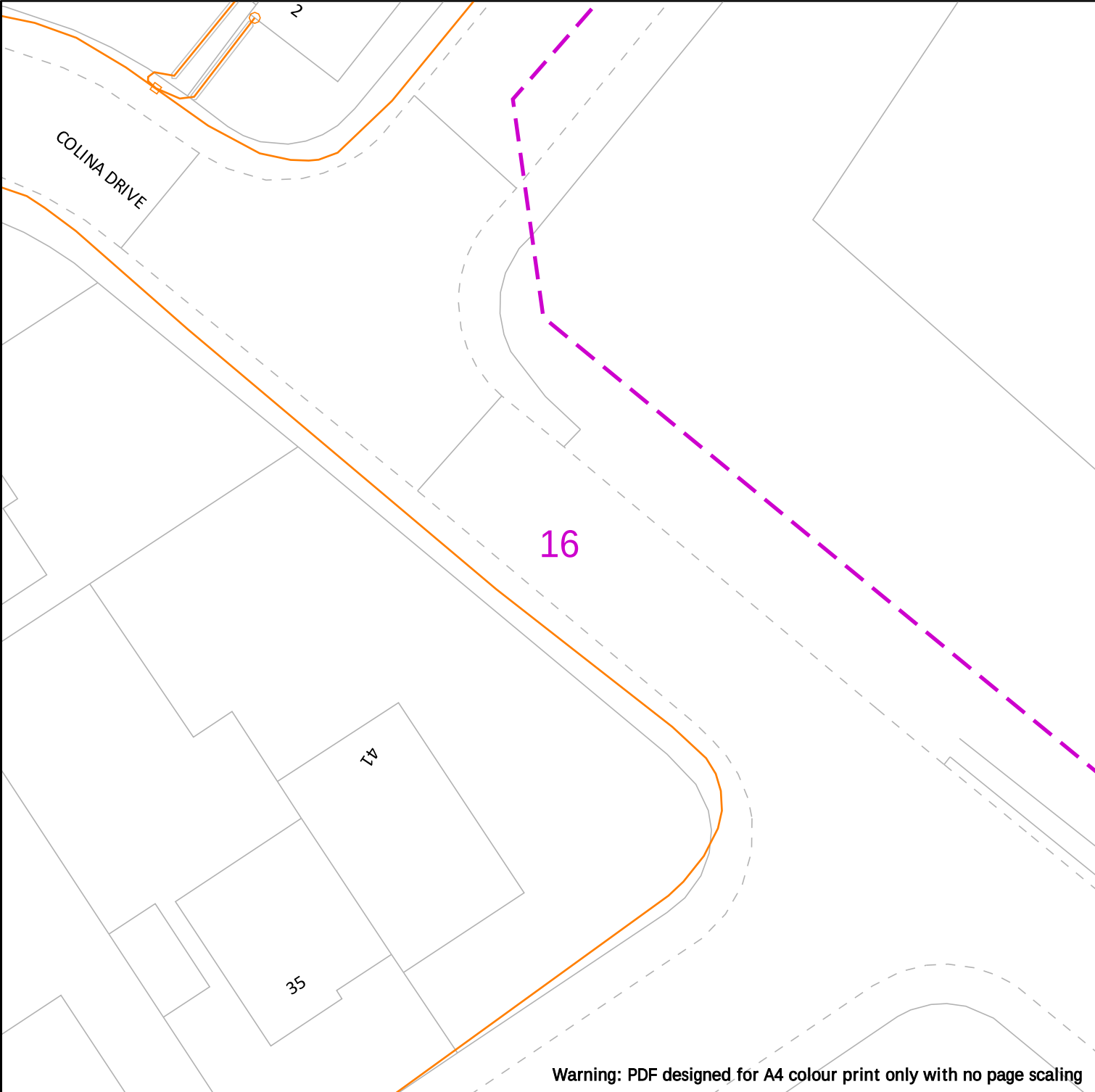
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	Operating Voltage	Colour Code	Line Colour	In an emergency call 105, 24 hours a day	Dig Sites
Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	132kV	Black			Line: 
	33kV	Green			Area: 
	22kV-25kV	Yellow			
	11kV	Red			
	6kV-6.6kV	Blue			
	1kV-6kV	Violet			
	LV	Orange			
	Unknown Voltage	Brown			
Date Requested: 24/11/2023 Job Reference: 31658496 Site Location: 383607 400435 Requested by: Miss Lauren Wenham Your Scheme/Reference: STV6309	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
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Phone: 0800 195 4141
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Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

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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Data Management
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Manchester, M1 4LF
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Email: planrequest@enwl.co.uk

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Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

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: - - - -

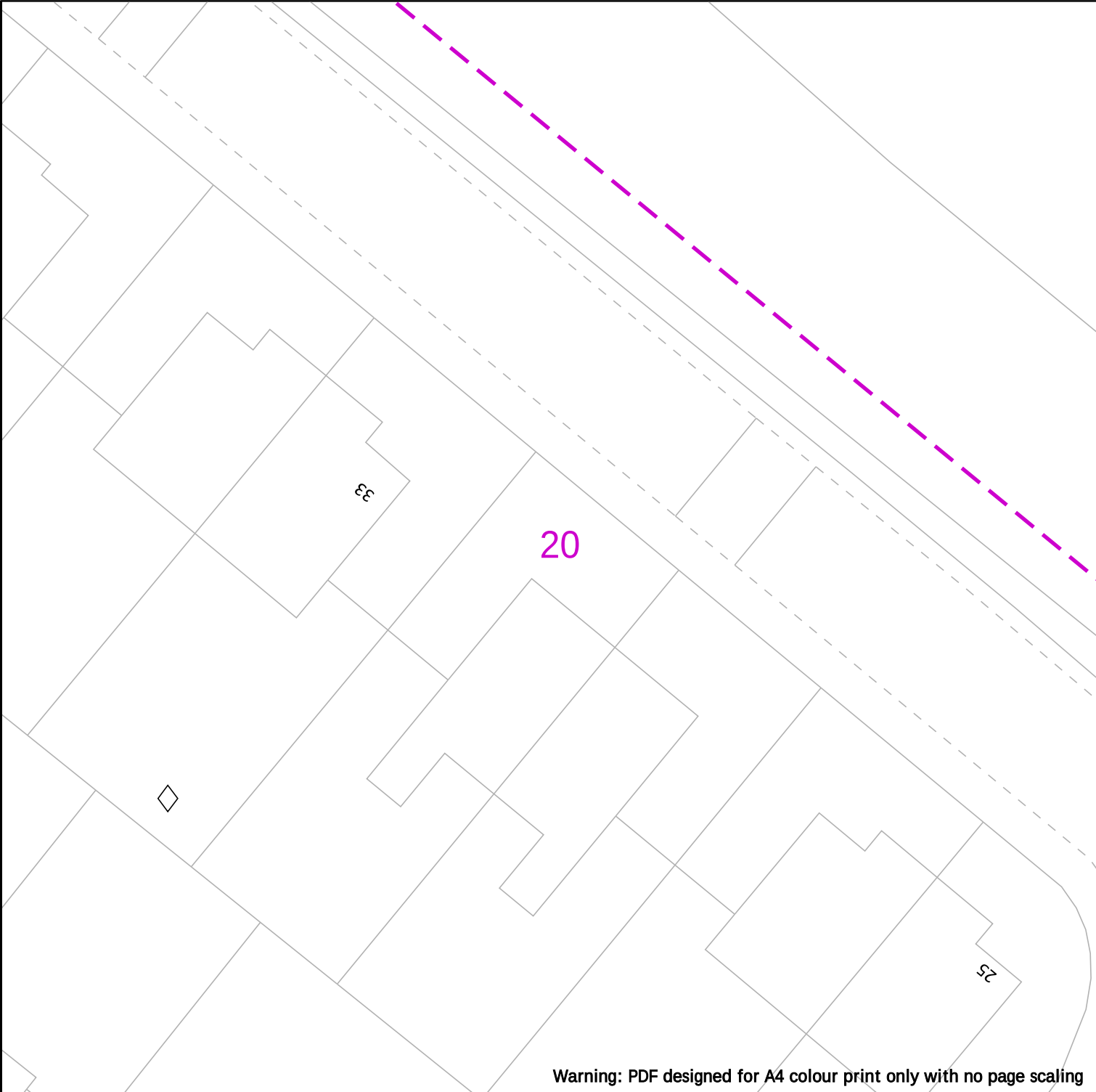
Area: [] [] [] []

IMPORTANT INFO

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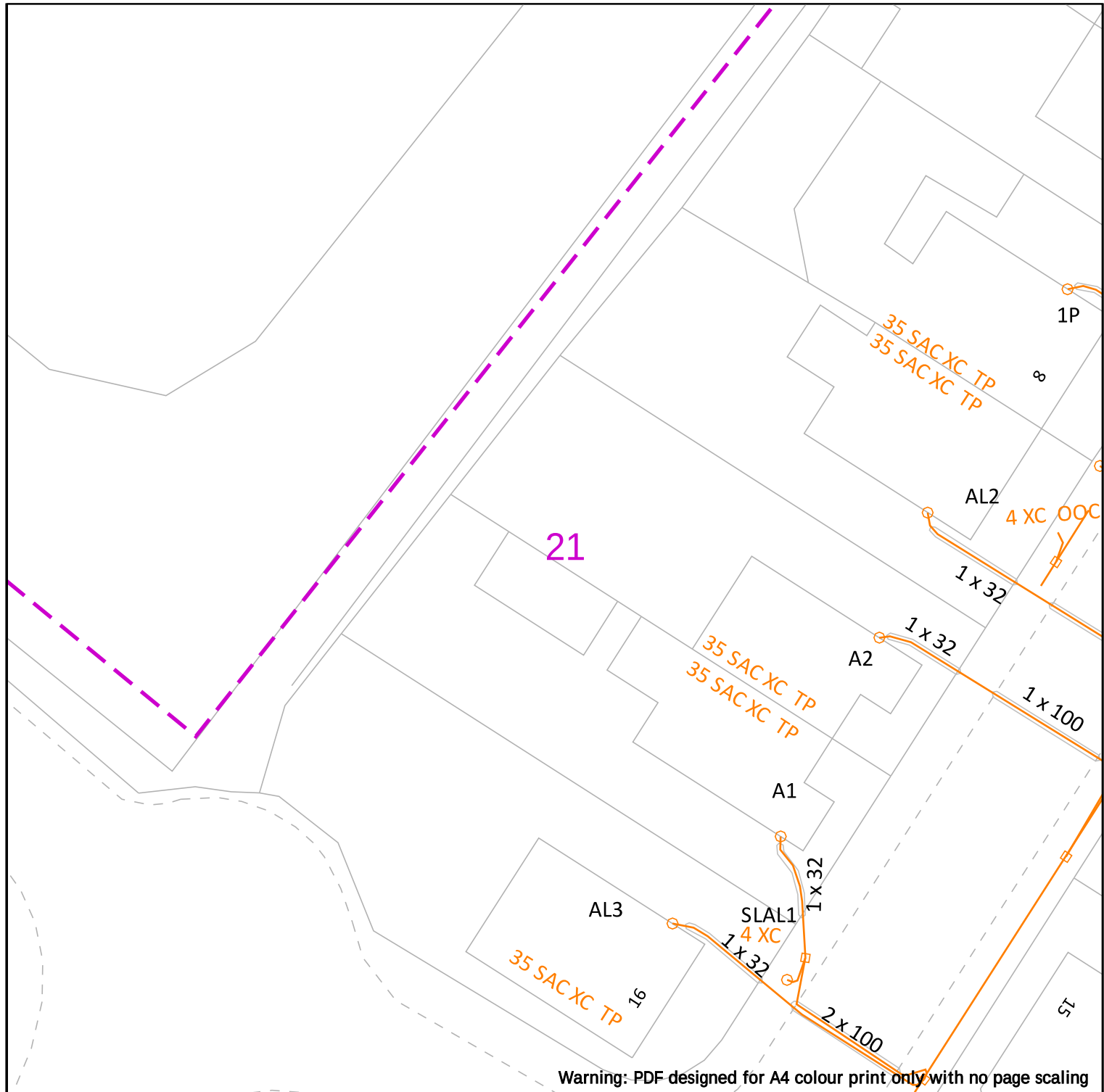


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 Data Management Electricity North West Linley House Dickinson Street Manchester, M1 4LF Phone: 0800 195 4141 Email: planrequest@enwl.co.uk	Operating Voltage 132kV 33kV 22kV-25kV 11kV 6kV-6.6kV 1kV-6kV LV Unknown Voltage	Colour Code Black Green Yellow 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				

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Operating Voltage

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

Colour Code

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Green
Yellow
Red
Blue
Violet
Orange
Brown

Line Colour



In an emergency call 105,
24 hours a day

Dig Sites

Line: ---
Area: []

Date Requested: 24/11/2023
Job Reference: 31658496
Site Location: 383607 400435
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STV6309

IMPORTANT INFO

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Enquirer

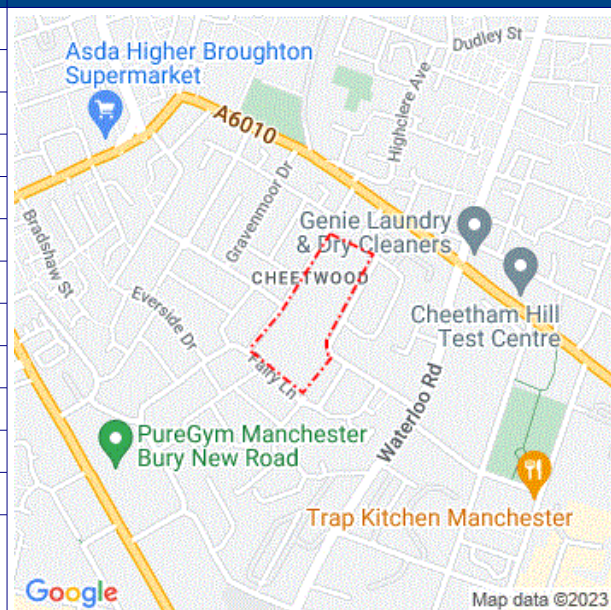
Name	Miss Lauren Wenham	Phone	01604 781877
Company	Soiltechnics Ltd	Mobile	Not Supplied
Address	Cedar Barn Cedar Barn White Lodge Walgrave Northamptonshire NN6 9PY		
Email	admin@soiltechnics.net		

Enquiry Details

Enquiry type	Planned Works
Work category	Development Projects
Work type	Commercial/industrial
Work type buffer*	75 metres
Start date	25/11/2023
End date	25/11/2023
Scheme/Reference	STV6309
Search location	M7 4ye
Confirmed location	383607 400435
Site size	0 metres square
Site Contact Name	Admin Soiltechnics
Site Phone No.	01604781877
Description of Works	NA

* 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

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)	ESP Utilities Group	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)	INOBYN ChlorVinyls Limited	INOBYN Enterprises Limited
Intergen (Coryton Energy or Spalding Energy)	Jurassic Fibre Ltd	Kensa Utilities
Last Mile	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	National Grid Ventures
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)	TfL – London Underground HV Cables (Road Side Cables)
Total Colnbrook Pipelines	Total Finaline Pipelines	Transmission Capital
Trojan Energy Limited	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.)

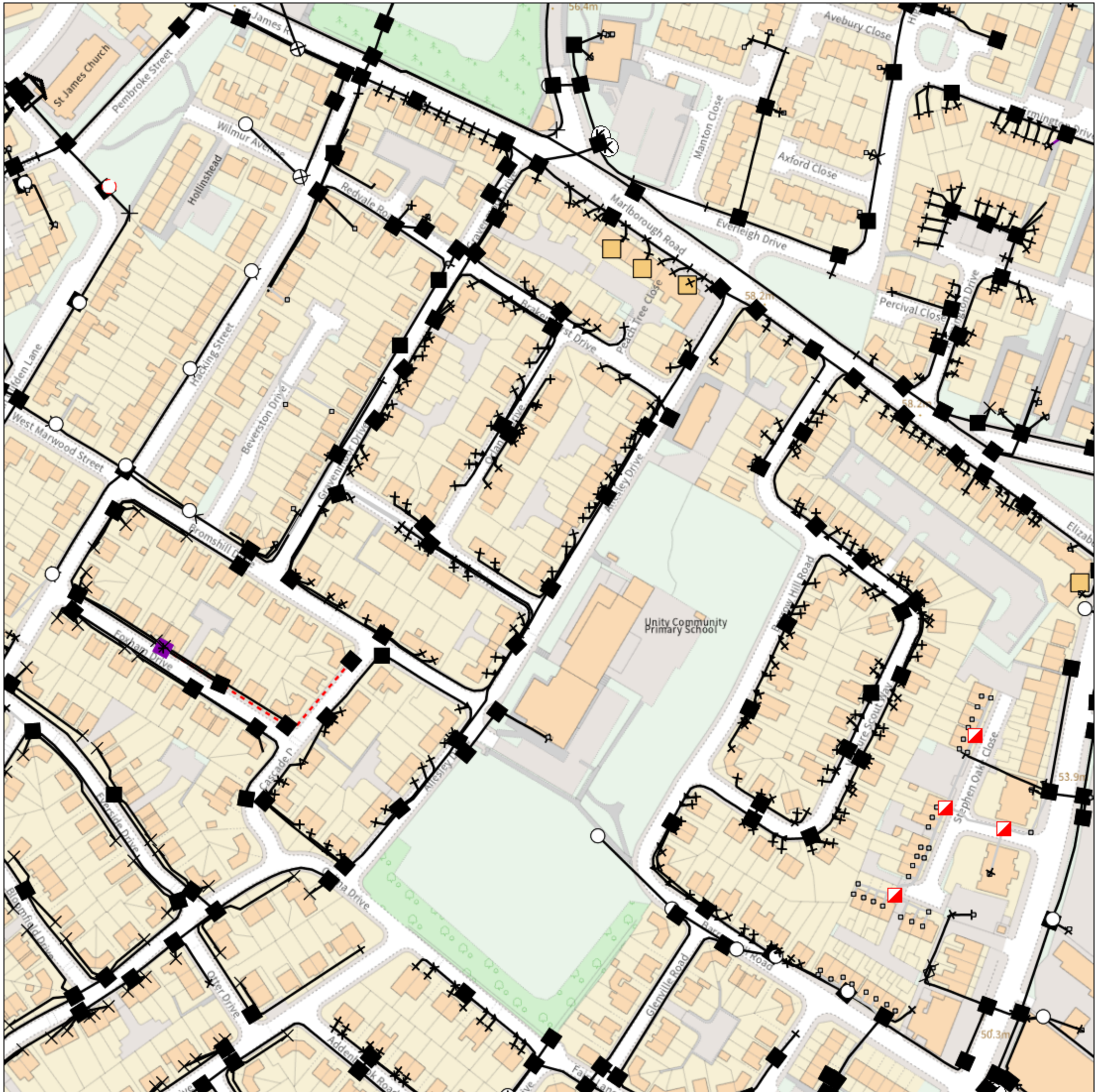
Asset Owner	Preferred contact method	Phone	Status
Arelion UK Ltd	check-network@arelion.com		Not Notified
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08000232023	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
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
Manchester City Council	https://www.manchester.gov.uk		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

Please refer to LSBUD's Terms of Use for full terms of use available at www.lsbud.co.uk

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.

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.



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email cbyd@openreach.co.uk

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(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 : MWZ02519Y

Map Reference : (centre) SD8356600569

Easting/Northing : (centre) 383566,400569

Issued : 24/11/2023 14:52:17

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