

Date: 24th April 2023

Helen Jackson
JACKSON, JACKSON & SONS LTD
Jackson House
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Rochdale
OL12 9DB

BY Email

Dear Michael,

E3P MINE SHAFT INTRUSIVE INVESTIGATION EDENFIELD ROAD, ROCHDALE

BACKGROUND & OBJECTIVES

E3P has prepared this letter to provide a summary of the mine shaft investigation completed with respect to the potential presence of a historical mine entry (Ref: 385414-017) beneath the proposed development at Land off Edenfield Road, Rochdale.

Jackson, Jackson & Sons Ltd appointed E3P as Geotechnical Engineer for the project; as an organisation, E3P provides specialist consultancy services in relation to the investigation, assessment, and consolidation of abandoned mine workings and is considered an expert in the field.

Mine entry 385414-017 is located off-site adjacent to the western boundary. As part of the development, this feature has been assessed by E3P in accordance with the Coal Authority Permission Process to ensure it is made safe by utilising approved engineering solutions.

MINE ENTRY

Shaft 385414-017 is located on the western boundary of the site (NGR E385138 N414822). There is no treatment information for the shaft.

Note: A review of the Coal Authority Interactive Viewer suggests the assumed shaft diameter would be 2.5 m. The departure zone (margin of error for the position of the shaft) is 10 m.

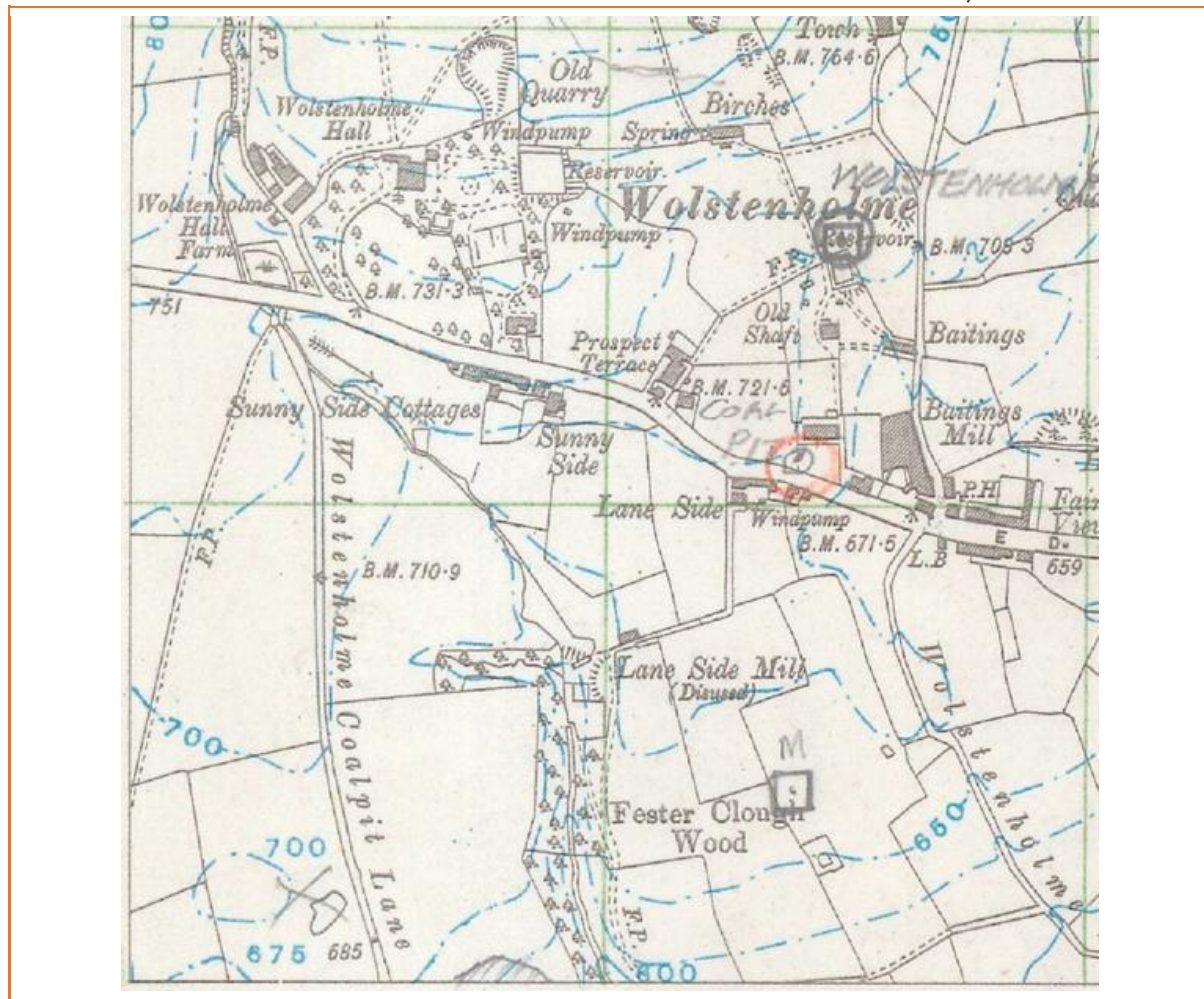


TABLE 1.1 RECORDED COAL AUTHORITY WORKINGS

FEATURE	LOCATION	REFERENCE	COMMENT
Shaft	-	385414-017	Departure Zone: 10m Shaft assumed diameter: 2.5 m <i>Shaft depth, type and condition unknown</i>

The Coal Authority has confirmed that the only reference to the shaft is a hand written annotation on the British Coal Lancashire 6 inch County Sheet, 1911 80 SE as presented in Figure 1.1.

FIGURE 1.1 ANNOTATED BRITISH COAL LANCASHIRE 6 INCH COUNTY SHEET, 1911 80 SE



SCOPE OF INTRUSIVE GROUND INVESTIGATION

Given the presence of the recorded mine entry off-site along the western boundary, a series of trial trench investigations were excavated in the area of departure zone east of the suspected mine entry.

Excavations were completed in accordance with Coal Authority Permission ref: 26377 in a controlled manner and in strict accordance with the E3P site health and safety procedure.

Trial trenching has not been completed in the area to the west of the suspected mine entry, as this area is off-site and access has not been given, therefore the trial trenching completed to date has been for the purpose of assessing if the mine shaft falls within the boundary of the subject site.

TRIAL TRENCH TO LOCATE MINE ENTRIES

E3P attended site on the 29th March 2023 to excavate the area down to the natural material to determine any evidence of the mine shaft in this area. Excavations were therefore completed across the CA recorded position (NGR) area for the mine entry 385414-017 to the west of the site.

The trial trenches were formed to facilitate the inspection of superficial drift deposits, with the specific aim of the excavation being to assess the potential presence of anthropogenic features, such as a shaft lining that would indicate the recorded mine entry in this sector. The excavations also included detailed engineering geologist assessment with respect to the angle of dip, the extent of fragmentation and possible evidence of any effects of mine working such as broken ground.

All Trial trenches were completed in an east-west orientation and 2.0 m apart due to the assumed 2.5 m diameter of the shaft.

The majority of the excavations indicated black topsoil to a maximum depth of 0.40 mbgl. Trial trenches TT101, TT104, TT105 and TT106 were underlain by a black clayey Made Ground of mixed lithologies, including wood and bricks to a maximum depth of 0.30mbgl. All trial trenches were underlain by a natural orangish brown slightly sandy CLAY across the eastern departure area.



Figure 1.2 shows a photograph of the natural excavated CLAYs, and no deeper areas of anthropogenic ground was encountered.

A detailed photolog of all trial trenches completed are presented in Appendix II.

FIGURE 1.2 PHOTOGRAPH OF THE SPOIL FROM TRIAL TRENCHES INDICATING NATURAL SOILS



No evidence of anthropogenic features, such as a shaft lining that would indicate the recorded mine entry in this sector, was identified in the excavations.

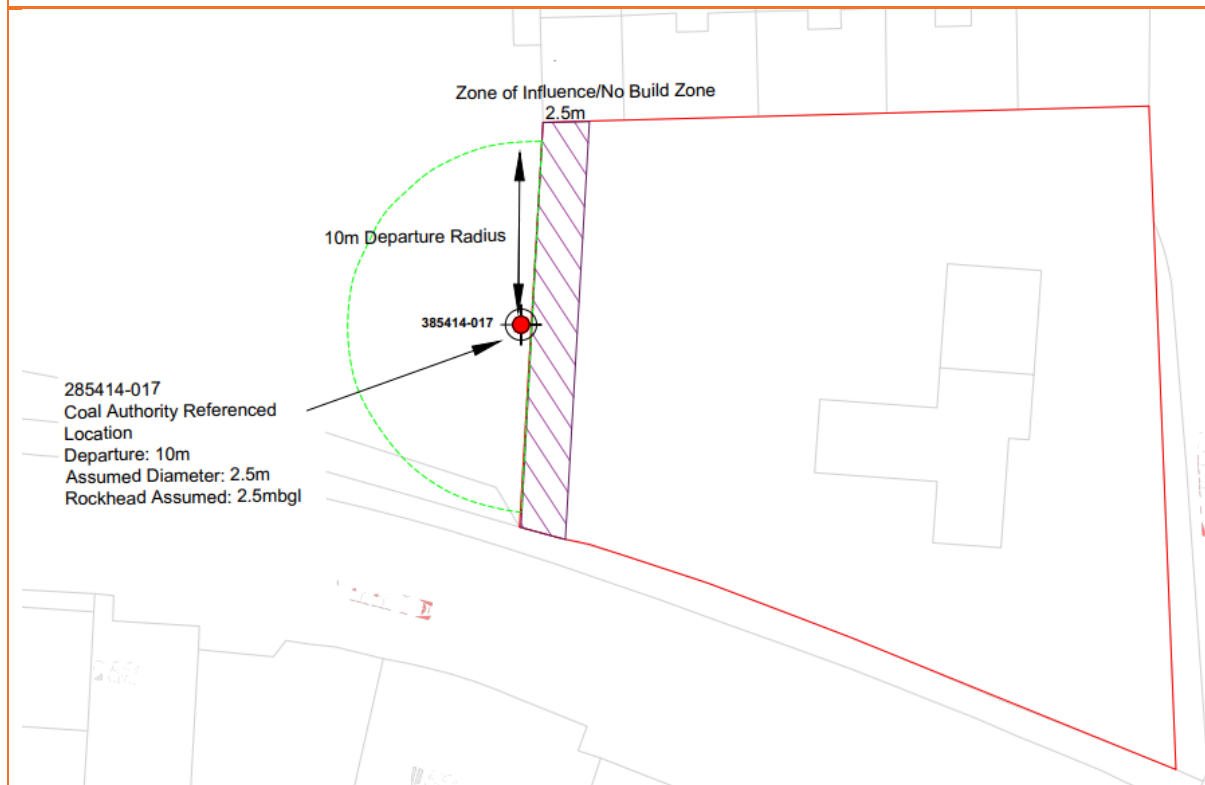
It is therefore likely that the mineshaft in question lies off site, and is not located on-site.

ZONE OF INFLUENCE

To date, there has therefore been no evidence encountered to suggest that the mine shaft is on site, therefore it must be assumed the shaft is present on the boundary. Drawing 16-702-022 details the conjectured zone of influence upon the site, a snapshot is provided within Figure 1.3.



FIGURE 1.3 SNAPSHOT OF CONJECTURED ZONE OF INFLUENCE OF MINE SHAFT 385414-017



The conjectured zone of influence has been calculated from the site boundary. The underlying material consists of Glacial Till overlying very weathered granular bedrock between 1.40 and 2.50 mbgl, and as such a conservative zone of influence will be required which will consist of an angle of repose of 45° from the the site boundary. This angle is considered conservative due to the limited site investigation completed to date.

Due to the presence of underlying cohesive drift deposits, the zone of influence will equate to 2.50 m based on bedrock encountered at 2.50 mbgl within this sector of the site. The assumed diameter of the mine shaft is 2.50 m.

Therefore a no build zone should be adopted 2.50 mbgl across the entire length of the western boundary, as due to the departure radius of 10m the mineshaft could be located anywhere along the site boundary. In this area, the potential zone of influence on-site should be supported by a SS40 geogrid.



SUMMARY

A summary of information regarding mine entry 385414-017 is provided below:

- ✿ The Coal Authority has confirmed that the only reference to the shaft is a hand written annotation on the British Coal Lancashire 6 inch County Sheet, 1911 80 SE, indicating the shaft as a coal pit.
- ✿ Based on the investigation completed, a total of six Trial trenches have been completed in the west of the site. All trial trenches were completed a maximum of 2 m apart to ensure that a shaft of diameter 2.5mbgl would be encountered, and were 10 m long to fully cover the suspected departure area.
- ✿ All trial trenches were underlain by a natural orangish brown slightly sandy CLAY across the eastern departure area.
- ✿ No evidence of anthropogenic features, such as a shaft lining that would indicate the recorded mine entry in this sector, was identified in the excavations.
- ✿ It is therefore likely that the mineshaft in question lies off site, and is not located on-site.
- ✿ Due to the presence of underlying cohesive drift deposits, the zone of influence will equate to 2.50 m based on bedrock encountered at 2.50 mbgl within this sector of the site. Therefore a no build zone should be adopted 2.50 mbgl from the site boundary. In this area, the potential zone of influence on-site should be supported by a SS40 geogrid.

I trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,
For and on behalf of E3P Ltd

Peter Winstanley
Geo-Environmental Project Manager

Enclosed:

Drawings

- 10-702-003– Historic Features
- 10-702-004– Site Features
- 10-702-005 – Exploratory Hole Location Plan
- 10-702-011 – Coal Mining Issues Plan
- 16-702-022 – Zone of Influence Plan

Photographs



APPENDIX I

DRAWINGS

Former Unidentified Structures
Circa 1888

Construction of Foundations
Pre 2013 - Present



Historical Features

- Former Unidentified Structures
- Construction of Foundations

Notes:

Client:

JACKSON, JACKSON &
SONS LIMITED

Job No:

16-702

Date:

24.04.2023

Drawing No:

003

Scale:

NTS



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Website: www.e3p.co.uk

Job Title:

Edenfield Road,
Rochdale

Drawing Title:

Historical
Features Plan

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P1	REVA	24.04.2023	OW	PW
Phase	Issue	Date	Drawn	Checked

Semi Mature Trees on Boundary

Former Foundations of Historic Development



Site Features

- Former Foundations of Historical Development
- Semi Mature Trees on boundary

Notes:

Client:

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Job No:

16-702

Date:

24.04.2023

Drawing No:

004

Scale:

NTS



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Job Title:

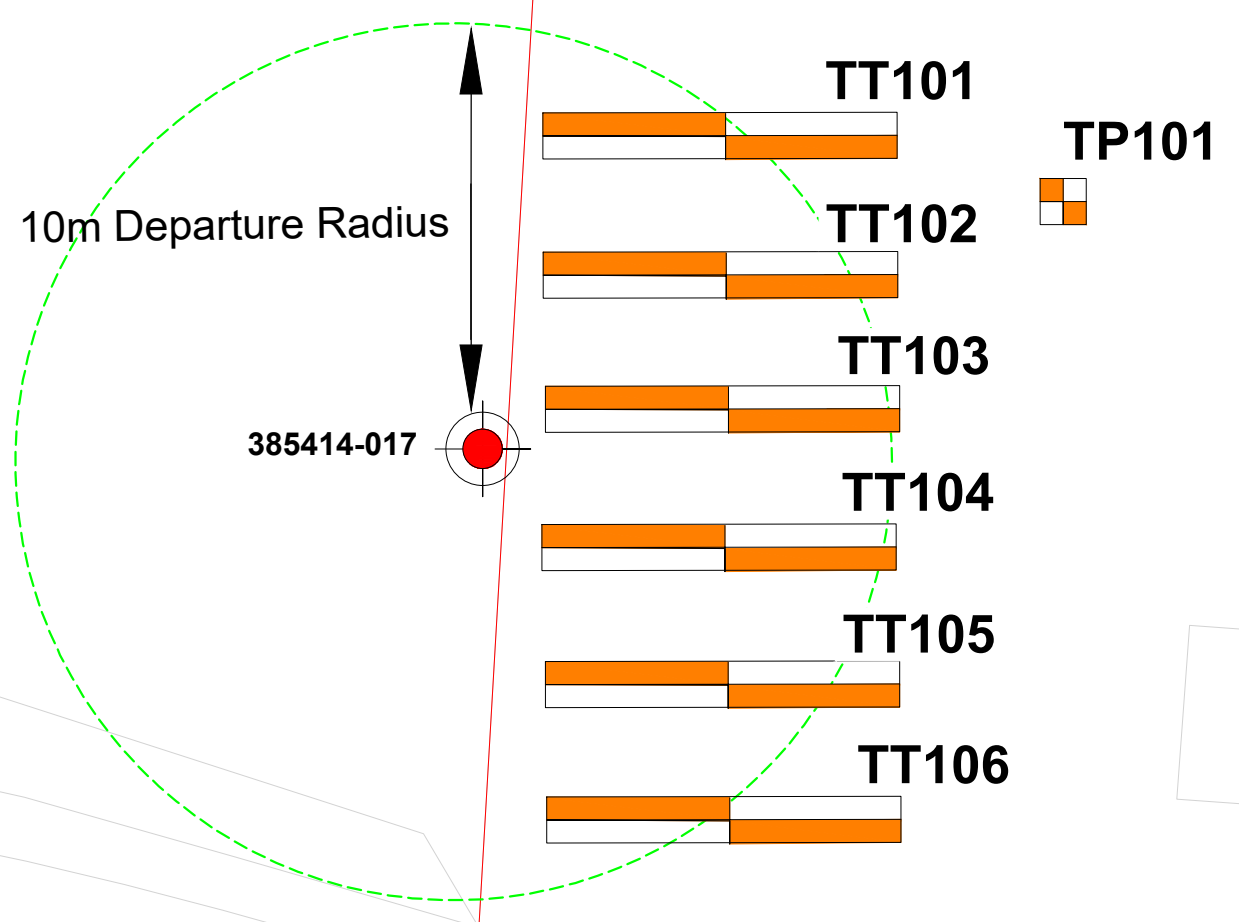
Edenfield Road,
Rochdale

Drawing Title:

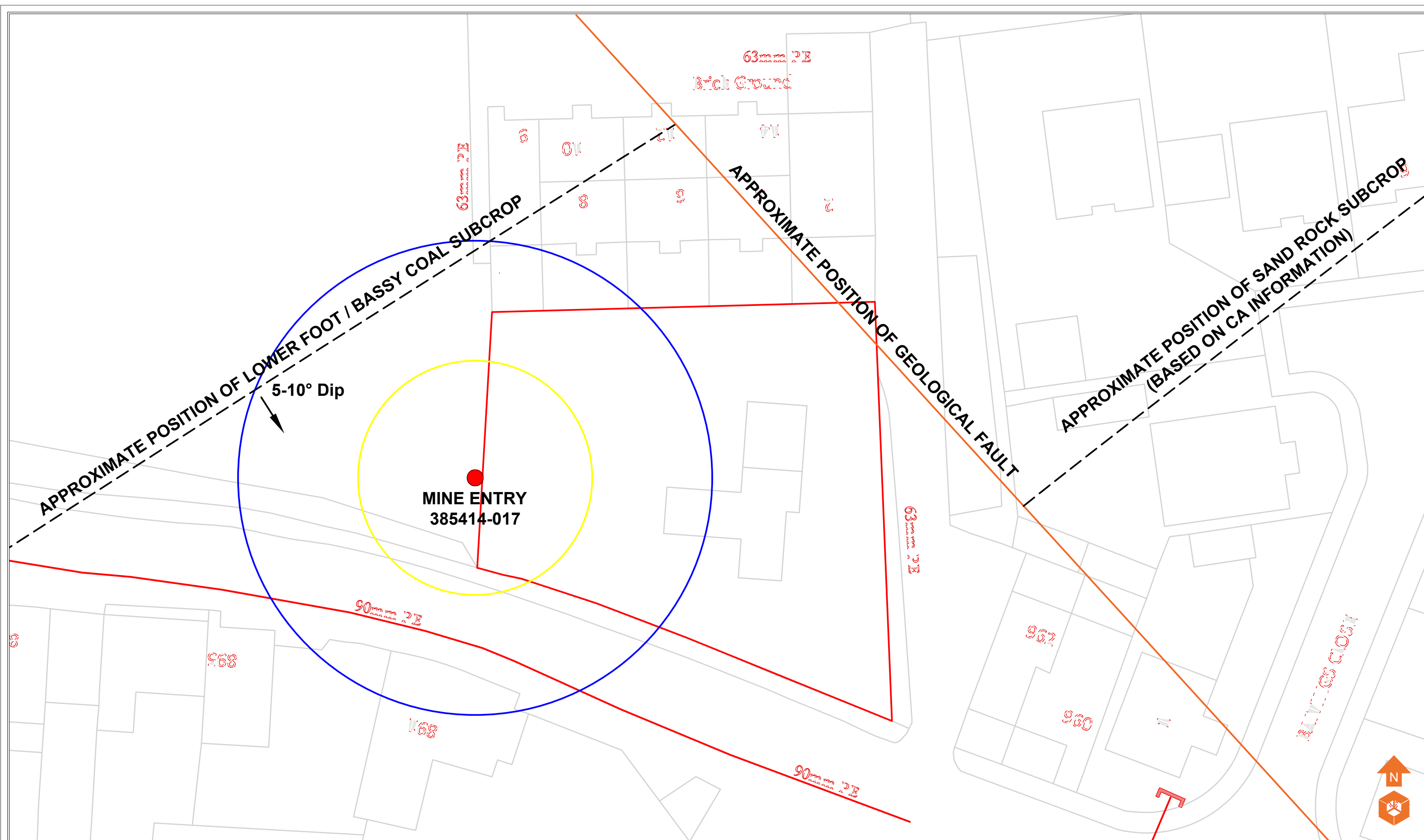
Site Features
Plan

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P1	REVA	24.04.2023	OW	PW
Phase	Issue	Date	Drawn	Checked



Borehole Locations TP101 Approximate Trial Pit Location TT101 Approximate Trial Trench Location	Notes:	Client: JACKSON, JACKSON & SONS LIMITED	Job No: 16-702	Date: 24.04.2023	Environmental Engineering Partnership Ltd Taylor Road, Trafford Park Urmston, Manchester, M41 7JQ Tel: 0161 707 9612 E-mail: info@e3p.co.uk Website: www.e3p.co.uk
P1 Phase REVA Issue 24.04.2023 Date OW Drawn PW Checked	Job Title: Edenfield Road, Rochdale	Drawing No: 005	Scale: NTS	Drawing Title: Exploratory Hole Location Plan	The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.



Location Symbols

- Approximate Mine Entry Location
- 10m Departure Zone (Search Area)
- 25m No Build Zone (Worst Case)
- Approximate Position of Geological Fault
- Lower Foot / Bassy Coal Subcrop (Geological Mapping)

Notes:

P1	REVA	27.03.2023	HM	JS
Phase	Issue	Date	Drawn	Checked

Client:

JACKSON, JACKSON & SONS LIMITED

Edenfield Road, Rochdale

Job No:	16-702	Date:	27.03.2023
Drawing No:	011	Scale:	NTS

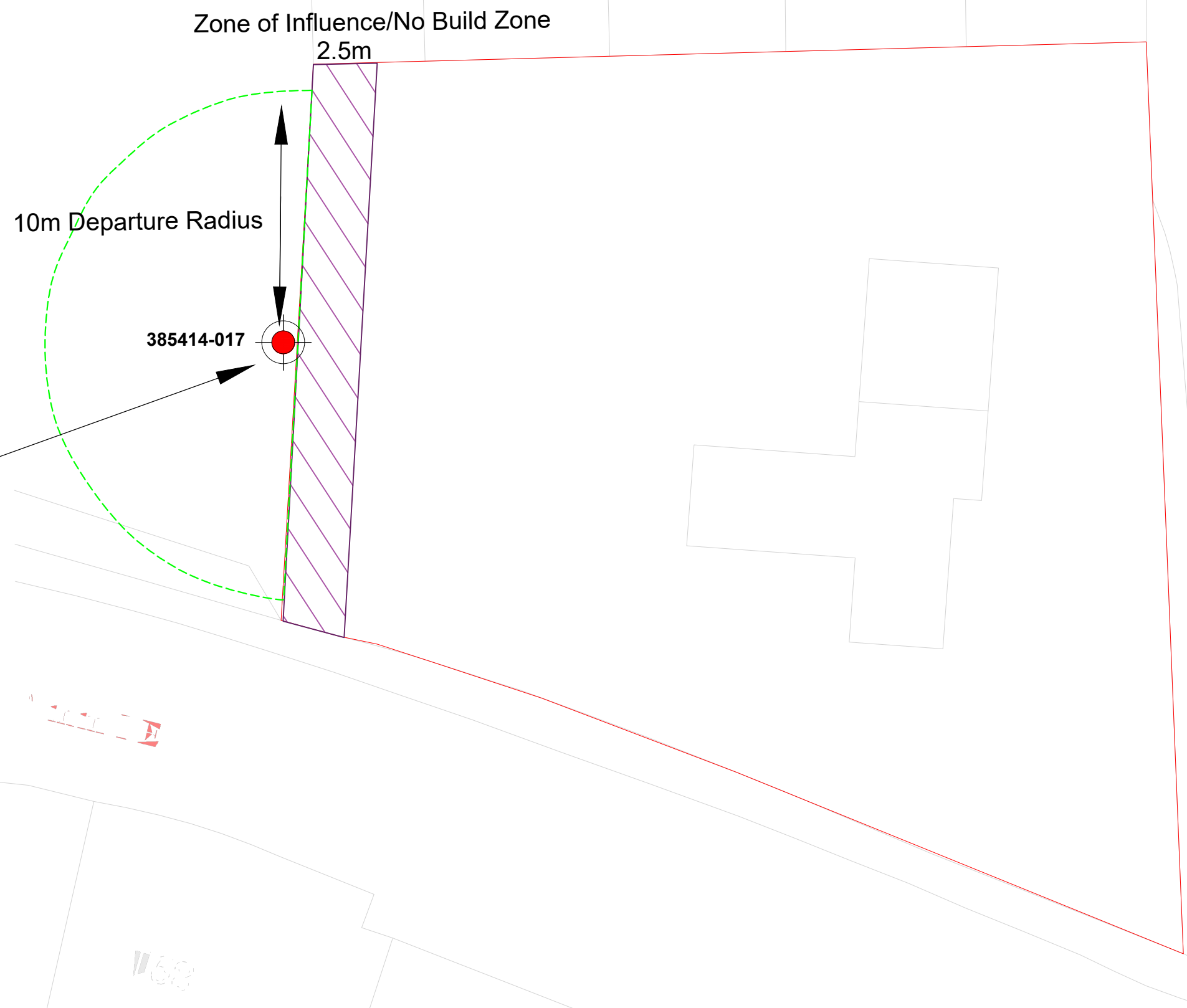
Drawing Title:

Coal Mining Issues Plan

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285414-017
Coal Authority Referenced
Location
Departure: 10m
Assumed Diameter: 2.5m
Rockhead Assumed: 2.5mbgl



Notes:				
P1	REVA	24.04.2023	OW	PW
Phase	Issue	Date	Drawn	Checked

Client:	JACKSON, JACKSON & SONS LIMITED
	Edenfield Road, Rochdale

Job No:	16-702
Drawing No:	022

Date:	24.04.2023
Scale:	NTS



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APPENDIX II

PHOTOGRAPHS

PLATE 1 TT101



PLATE 2 TT102



PLATE 3 TT103



PLATE 4 TT104



PLATE 5 TT105



PLATE 5 TT106

