T J BOOTH ASSOCIATES

CONSULTING CIVIL & GEOTECHNICAL ENGINEERS

COAL MINING RISK ASSESSMENT.
Land to the rear of 150 Belfield Road, Rochdale. OL16 2XN

Client:	Mr Masood Ur Rehman.
Date:	December 2018.
Version:	rev 1.
Reference:	rep-tjba-MA-150 belfield rd-CMRA-291116.docx

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1. INTRODUCTION.

T. J. Booth Associates have been appointed by Mr Masood Ur Rehman (Site owner) to undertake a Coal Mining Risk Assessment to the above Site. This report will support a planning application to address Town & Country Planning requirements for development.

A planning application for the Site was submitted to the LPA in November 2016 (ref No. 16/01353/FUL). A subsequent letter was received from the LPA indicating the requirement for a Coal Mining Risk Assessment before the application could be processed. Subsequent permissions have been sought/withdrawn.

The Site currently comprises a vacant parcel of private open land. The proposed development is for the construction of a block of apartments with associated car parking to the rear.

NOTE: A Site Investigation Report has been produced in addendum to this report and must be read in conjunction with it, ref: rep-tjba-MR-150 belfield rd-SI rep-rev0.

2. DATA SEARCH.

2.1. Historic Maps

Historic mapping data (digital, online & paper format) was reviewed at nominally 1:1250, 1:2500 and 1:10000 scales of the Site and the surrounding area; and is tabulated below.

DATE	ON-SITE	OFF-SITE/SURROUNDING AREA
c1844	2 coal shafts noted approximately to the E corner of the Site (within approx 5-10m of the site boundary).	Site partly within the curtilage of a historic colliery. The local area has a significantly different layout than present day.
c1890s	Shafts no longer noted. Site is within public open space between Belfield Old Road & Samson Street as in present day.	Road/area layout much as in present day.
c1910s-c1980	No change.	Only major change is the development of building structures including between the site and Belfield Road (E of site).

2.2. BGS Geological Map Review.

The local geology was accessed via the BGS digital online mapping data service, and paper copies of Rochdale Sheet 125, 1:50000 Series (solid & superficial).

GEOLOGY DATA SUMMARY	
Bedrock Geology:	Westphalian Carboniferous Pennine Lower Coal Measures – generally undifferentiated sandstone, mudstone and coal seams. Strata dips ~12deg SSE.
Superficial Geology:	Site is underlain by boulder clay.
Coal Seams/Faults.	Closest outcrop is the Arley Mine Coal Seam approx 180m NE of the site; estimated depth 50m not accounting for drift.

2.3. BGS Borehole Records.

No deep relevant boreholes were found within close proximity to the Site.

Shallow BHs revealed:

SD91SW147, 75m SE of site, drift deposits (clay/sandy clay) to 14m depth;

SD91SW127 & SD91SW128, 75m W of site, drift deposits (sandy clay/silty sand) to 10m depth.

2.4. Coal Authority.

A Coal Mining Consultants Report & Coal Mining Shaft Data Report were obtained in November 2016. The Coal Authority interactive digital online mapping data was accessed in November 2016, refer to appendix for reports & map; data tabulated below.

COAL AUTHORITY DATA SUMMARY	
Mine Shafts, Pits, Adits/Entries:	2 shafts noted nominally 2m (ref: 391413-011) & 6m (ref: 391413-010) outside the E corner site boundary. CA data indicates the zone of influence (ZOI) for the shafts is in excess of 20m. Diameter of shafts unknown.
Past/Present Underground Mining.	The only recorded coal mining was at depth (54m) within the Arley Mine Coal Seam.
Past Underground Shallow Workings:	No shallow workings.
Probable/Potential Shallow Underground Workings & Outcrops:	No probable shallow workings.
Past/Present Surface Mining:	None noted locally.
Development Referral Area:	Within a development referral area/zone.
Spine Roadways:	None noted.
Mining Geology and Subsidence:	No issues noted locally.
Hazards and Mine Gas:	No issues noted.

2.5. Coal Authority Abandonment Plan Data.

Abandonment data not required. Known worked seams are at substantial depth.

3. IDENTIFICATION & ASSESSMENT OF SITE SPECIFIC RISKS.

RISK SUMMARY	
Recorded Workings.	NO RISK – coal seams too deep to affect the development.
Potential Shallow Workings	NO RISK – no shallow seams below the Site.
Coal Pits/Shafts/Adits.	RISK - 2 coal shafts noted within close proximity to the E side of the Site. The closest being within 2 m of the Site boundary.
Mine Gas.	RISK - Minor risk of gas if workings are identified.

4. MITIGATION STRATEGY PROPOSED.

The main risk to the Site is from 2 shafts noted to the E corner of the site boundary.

In order for mitigation techniques to be employed, further information will required in order to quantify the risks involved.

The current zone of influence from the shafts is estimated in excess of 20m which comes well within the Site boundary (nominally 18m). The Coal Authority ZOI calculation relies on algorithms which utilise non-site specific data. Thus in order to quantify the specific risk involved to the development, site investigations will need to be undertaken to the E corner of the site so a site specific ZOI calculation can be performed.

Initially Site investigations should comprise trial holes to ascertain whether or not either of the shafts encroach on to the Site, to identify the makeup of the shaft lining, and to assess the depth of superficial cover. Depending on the depth of cover (estimated at 10-15m in the wider area), it may be necessary to undertake a BH to encounter the depth to bedrock should trial holes prove to have insufficient depth range.

If the shaft is within the highway as indicated, then the only realistic way to mitigate the risk to the development would be to move the property outside the ZOI, or ensure that building structure/foundations etc within the ZOI will not be affected should the worst case scenario of a shaft collapse occur.

5. CONCLUSIONS & RECOMMENDATIONS.

Before the development is safe for the proposed end use, further work including site investigations should be undertaken as above.

Site investigations should initially comprise machine excavated trial holes (nominally 5t back acting excavator). Site investigations should confirm if either of the shafts are within the site boundary.

Should a shaft be located within the boundary of the Site, a permit for *permission to enter or disturb Coal Authority mining interests* will be required.

If no shaft is located, and bedrock depth is not revealed from trial holes; the depth will have to be identified with boreholes.

Further to this the CMRA can be updated indicating further recommendations to the Coal Authority for development.

Signed…….

D.S. Slattery BSc (Hons).

T J Booth Associates.

Authorised…….

T J Booth BSc (Hons), C. Eng. C. Env. MICE.

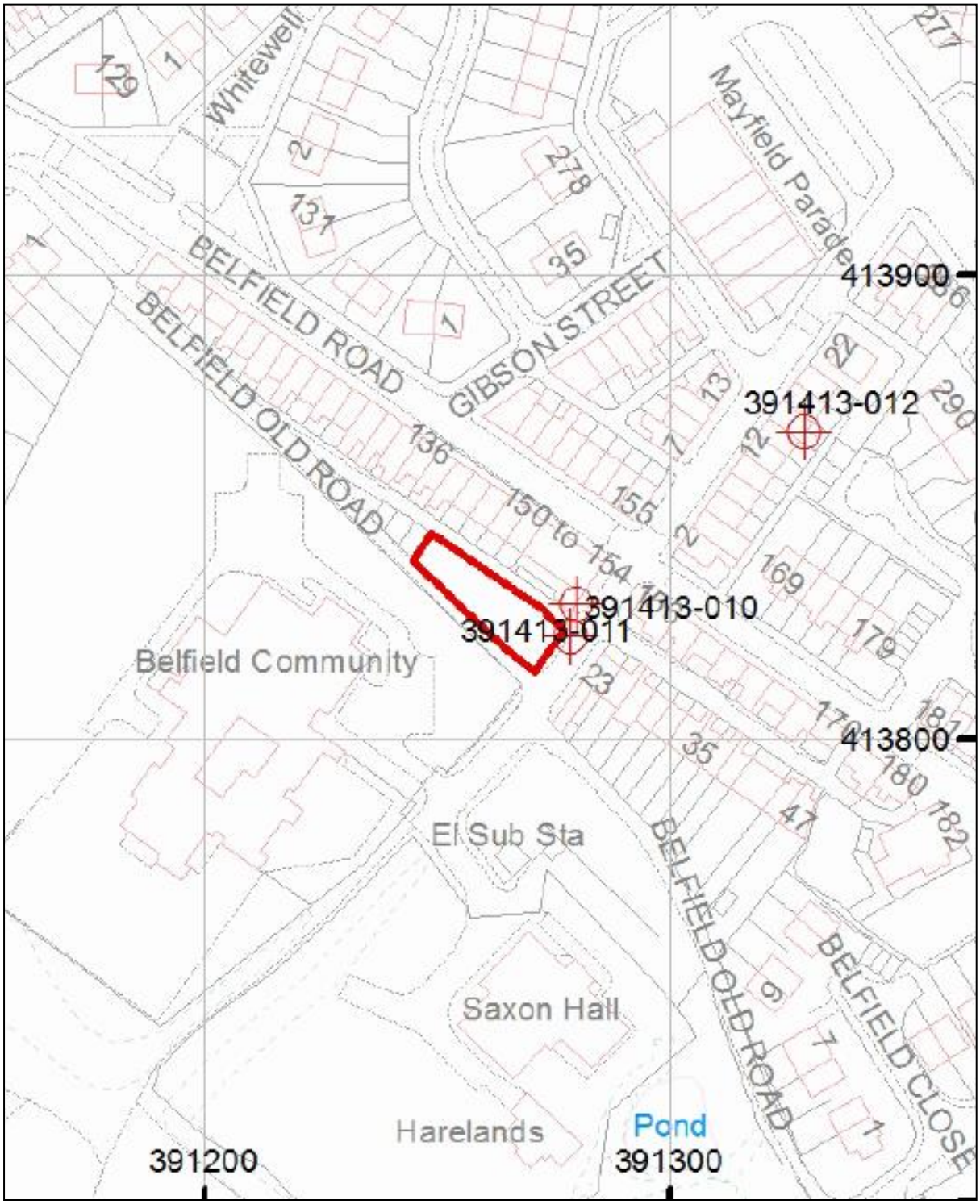
T J Booth Associates.

6. REFERENCES.

- Coal Authority.
- (CIRIA) Special Publication 32 "Construction over Abandoned Mine Workings".
- British Geological Survey.
- BSI. 2013. BS 10175:2011+A1:2013. Investigation of Potentially Contaminated Sites – Code of Practice.
- Environment Agency. 2005. Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination. R&D Technical Report P5-066/TR
- CL:AIRE. 2012. Research Bulletin-RB17-A Pragmatic Approach to Ground Gas Risk Assessment.
- CIRIA. Report C665.
- NHBC. 2007. Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present.
- CIRIA. Report 130.
- BRE 414. 2001. Protective Measures for Housing on Gas Contaminated Land.

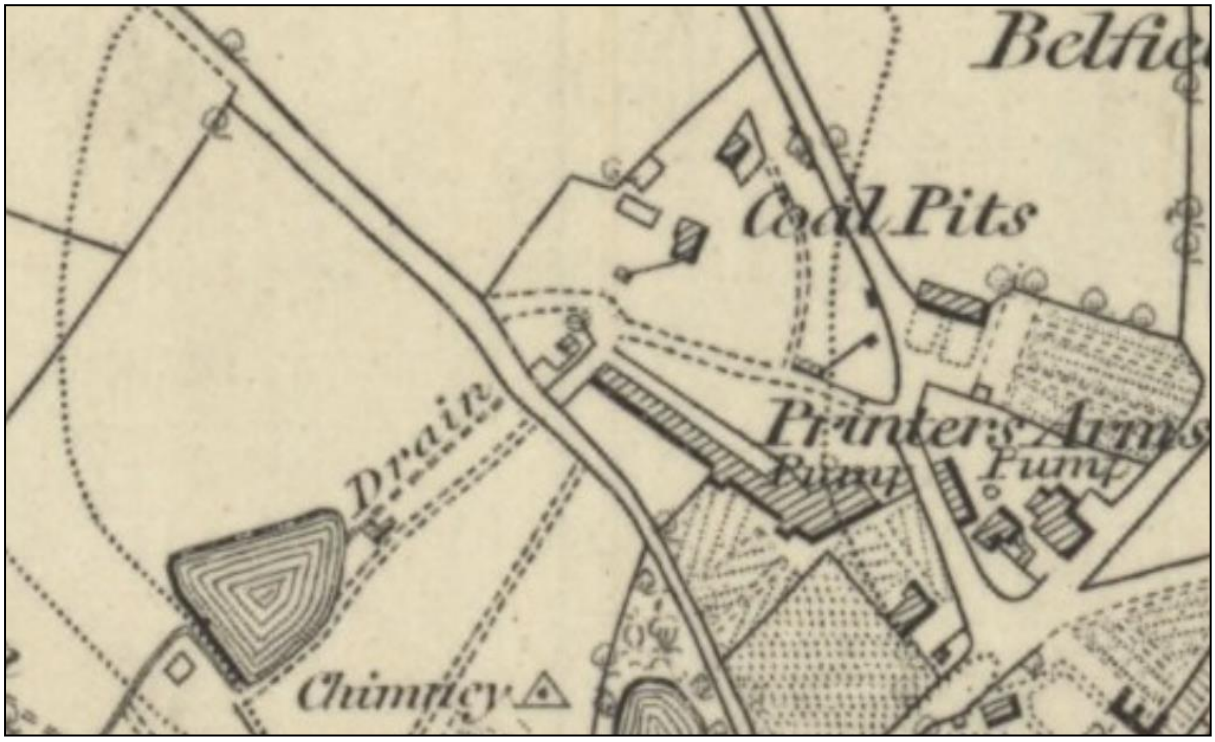
7. APPENDIX.

7.1. Location Plan



7.2. Historic Maps.

7.2.1.Ordnance Survey c1844.



7.3. BGS Geological Maps

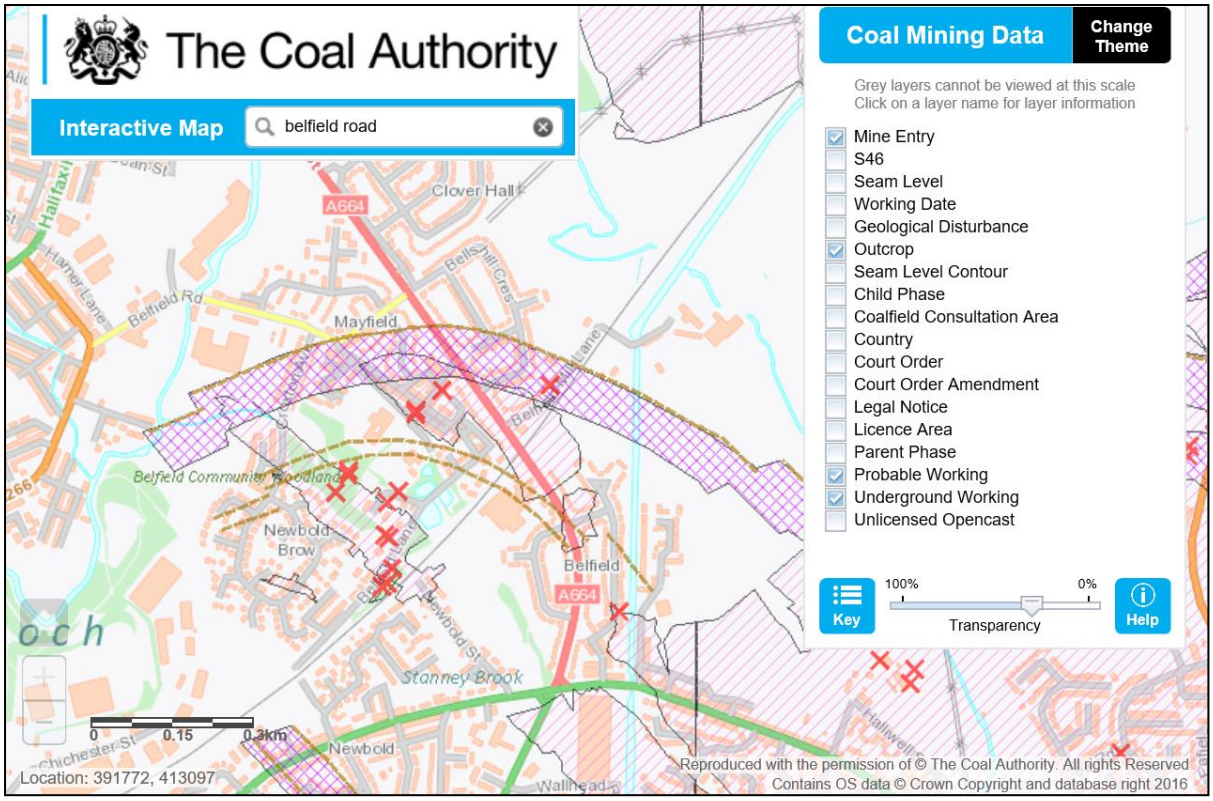
7.3.1.Solid Geology



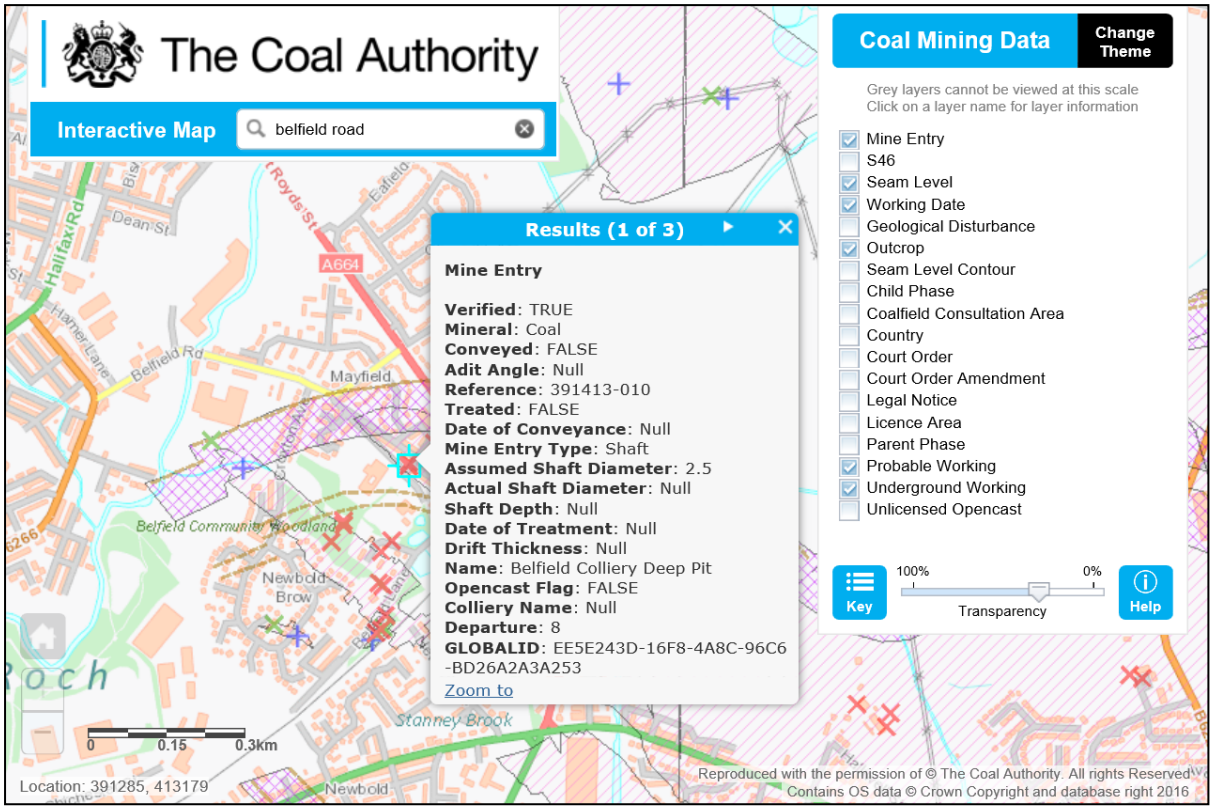
7.3.2.Superficial Geology

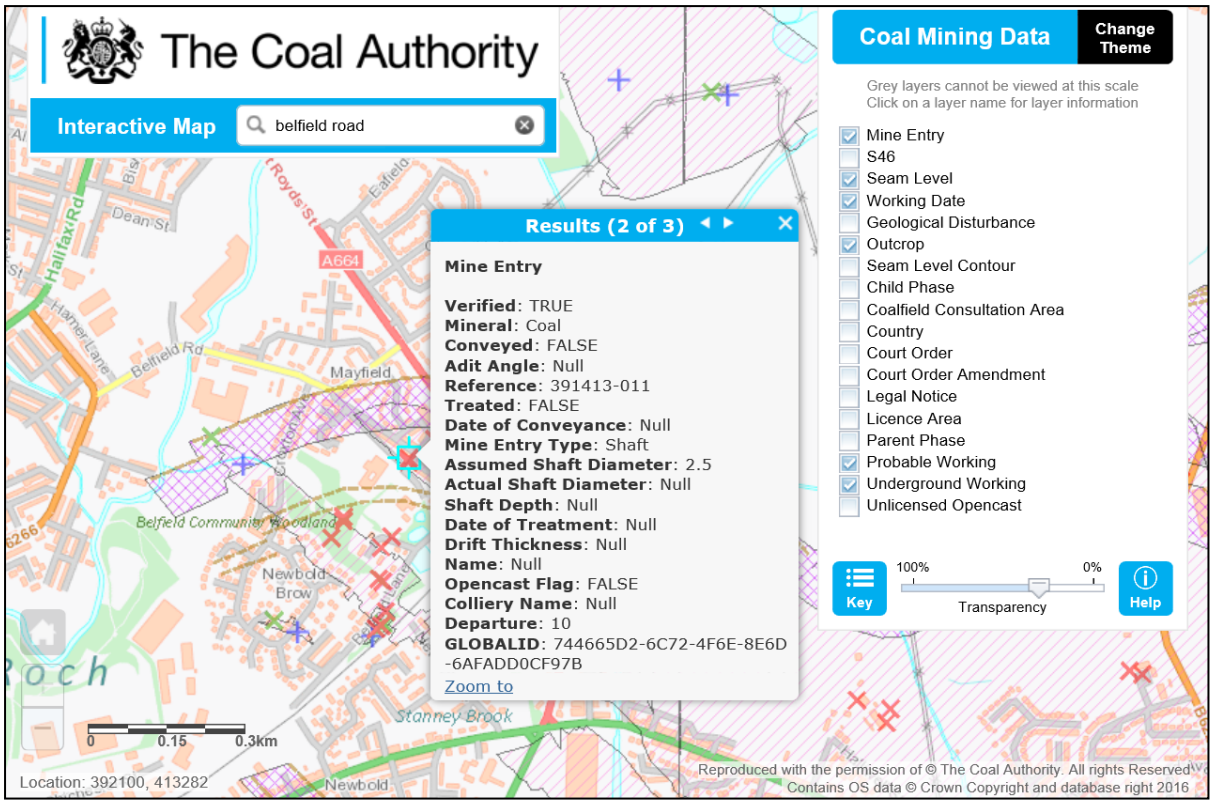


7.4. Coal Authority Interactive Map



7.5. Coal Authority Interactive Map – Shaft Details





7.6. Coal Authority Consultants Report

The Coal Authority

Resolving the impacts of mining

Non-Residential Coal Mining Consultants Report



LAND REAR OF 150 BELFIELD ROAD, BELFIELD, ROCHDALE, LANCASHIRE, OL16 2XN

Date of enquiry:	29 November 2016
Date enquiry received:	29 November 2016
Issue date:	29 November 2016
Our reference:	51001303401001
Your reference:	TJBA-291116-01

7.7. Coal Authority Mine Shaft Report

The Coal Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

T J BOOTH ASSOCIATES
20A
EAST GATE STREET
ROCHDALE
LANCASHIRE
OL16 1DH

Our reference:	**51001303401002**
Your reference:	**TJBA-291116-02**
Date of your enquiry:	**29 November 2016**
Date we received your enquiry:	**29 November 2016**
Date of issue:	**01 December 2016**

This report is for the property described in the address below and the attached plan.

Shaft Plan and Data Sheets

LAND REAR OF 150 BELFIELD ROAD, BELFIELD, ROCHDALE, LANCASHIRE, OL16 2XN

I refer to the enquiry dated 29 November 2016, received 29 November 2016, in connection with the above.

As requested I enclose the mine entry data sheet(s) held for the mine entry/entries referred to.

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