

33 The Crescent, Brimington, S43 1AZ

Elemental Structural Report



CHESTERFIELD
BOROUGH COUNCIL



This Elemental Structural report is presented to Chesterfield Borough Council in respect of the reported defect made regarding to the condition of *33 The Crescent, Brimington, Chesterfield*, and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this Elemental Report.

Notwithstanding anything to the contrary contained in the Elemental Report, Kier Limited is obliged to exercise reasonable skill, care and diligence in the performance of the services required by Chesterfield Borough Council and Kier Limited shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this Elemental Report shall be read and construed accordingly.

This Elemental Report has been prepared by Kier Limited and no individual is personally liable in connection with the preparation of this Elemental Report. By receiving this Elemental Report and acting on it, the client or any other person accepts that no individual is personally liable whether in contract, tort, for breach of statutory duty or otherwise Kier Limited has used reasonable endeavours to provide information that is correct and accurate and the Elemental Report sets out reasonable conclusions that have been reached on the basis of the information available.

This document has been prepared for the internal purposes of Chesterfield Borough Council and the other members of its group only and should be treated as private and confidential. This document may not be shared with any person other than the intended recipients and any persons within the Kier Group who have prior authorisation to receive this document. This document is the property of the Kier Ltd and any unauthorised recipient should return this document to the Kier Ltd immediately. Kier Ltd is under no obligation to update this document and shall have no liability to any third party in relation to this document.

This document details a visual Structural Inspection of the identified defects and does not include an inspection of the whole property or identify other defects to the building some of which may have an adverse effect on the value of the property. Areas that were covered or inaccessible were not inspected during the site visit. Recommendations for opening up works are identified in the recommendations section of this report where required to investigate the identified defects to ascertain the exact cause.

Document Control

Contract Title	33 The Crescent, Brimington, Chesterfield
Report Title	Elemental Structural Report on Cracking
Revision	Rev.C
Status	Revised
Control Date	05 th October 2018

Record of Issue

Issue	Status	Author	Date	Check	Date	Authorised	Date
1	Initial	Robert Moss	05/10/18				
2	Final	Robert Moss	28/11/19				
3	Rev.B	Robert Moss	06/03/20				
4	Rev.C	Robert Moss	27/07/21				

Distribution

Organisation	Contact	Copies
Chesterfield Borough Council	J Kissane/A Wood/D Poole/P Stepto	1-Electronic

**This page has been left blank for the
purpose of double sided printing**

Contents

1. Brief	1
2.0 LIMITATIONS	2
3.0 INTRODUCTION	3
2. Observations.....	5
3. Discussion	19
4. Conclusion	23
5. Recommendations.....	24
6. APPENDIX A – Surface Water Drainage	25
7. APPENDIX B – Tree Assessment	39
8. APPENDIX C – Trial Pit.....	41

**This page has been left blank for the
purpose of double sided printing**

1. Brief

- 1.1 A request was made by Jim Kissane, Senior Technical Officer, Chesterfield Borough Council for a structural inspection to be carried out with regards to reported structural cracking to the internal and external walls of the gable end of the building from the rear to towards the rear elevation and the bathroom wall and window area.
- 1.2 A site inspection was carried out on 20th September 2018 by Robert Moss, Senior Structural Engineer, Kier. The tenant, Mrs Webb was present during the visit.
- 1.3 Subsequent to the initial visit a CCTV was requested to be carried out of the drains. The shallow surface water drainage system was undertaken and the results incorporated in this report. The foul water service system could not be surveyed due to the depth. This was then referred to Yorkshire Water who are responsible for this drainage system.
- 1.4 Subsequent to the request to Yorkshire Water, they have been out to survey the main sewer that was initially identified as running under the property. The results of this survey have been incorporated in this amended report.
- 1.5 Subsequent to the results of the drain inspection by Yorkshire Water, a trial pit was arranged on the rear northeast corner of the property. This was undertaken on the 5th February 2020, but was only taken to a depth of 225mm. The trial hole was increased in depth to 675mm on the 11th February where it terminated due to difficulty in hand digging. The trial pit was extended to a depth of 1100mm by a hand auger on the 12th February during inspection. Results of this investigation have been incorporated in this revised report including recommendations for remedial works.
- 1.6 Following issue of this report, a site investigation was carried out by drilling a window sampler to a depth of 6.45m. Results of the investigation have been included in this updated report.

2.0 LIMITATIONS

- 2.1 At the time of the inspection, the property was furnished and occupied. Where parts of the property were covered, unexposed or inaccessible and close inspection was not possible; I was unable to comment on the condition of such elements. It may be possible, therefore, that damage arising from woodworm infestation, wood rot and decay or vermin infestation etc. may be present without my knowledge that becomes apparent subsequent to this report.
- 2.2 I have not carried out any specialist tests to determine whether any high alumina cement (HAC), calcium chloride, woodwool slabs for permanent shuttering or lining, calcium silicate bricks or fibrous asbestos materials were used in the original construction or any subsequent additions to the building, and as such, I am unable to report that the building is free from any hazard or hazards caused by these materials.
- 2.3 I have not tested services or installations such as the drains, sewerage, water, electricity and gas or any heating, ventilation or firefighting systems and I am unable to express an opinion as to their suitability, condition, or installation without the benefit of specialists' advice.
- 2.4 The premises were inspected so far as fittings, furnishings, floor coverings and stored materials or stock allowed and no provision was made for the temporary removal of these items.
- 2.5 I have not made any enquiries with any statutory authority, but would point out that Building Regulations and other legislation often have a material effect on the way in which the building is used and upon the cost of consequential works.
- 2.6 Except in connection with the brief under which this report was commissioned, neither the whole nor any part of this report, nor any reference thereto may be included in any document, statement or circular nor published in any way without our prior written approval as to the form and context in which it will appear.
- 2.7 The report shall not be regarded as a form of specification and further investigation and measurement will be required prior to the preparation of a specification and description of works.

3.0 INTRODUCTION

The Writer

3.1 This report has been prepared by Robert Moss BEng, CEng, FStructE, MICE, Chartered Structural Engineer

Description of the Property

3.2 The property is a two-bedroom, semi-detached property.

3.3 It is arranged on two floors, the 1st floor being timber joists supporting timber floorboards.

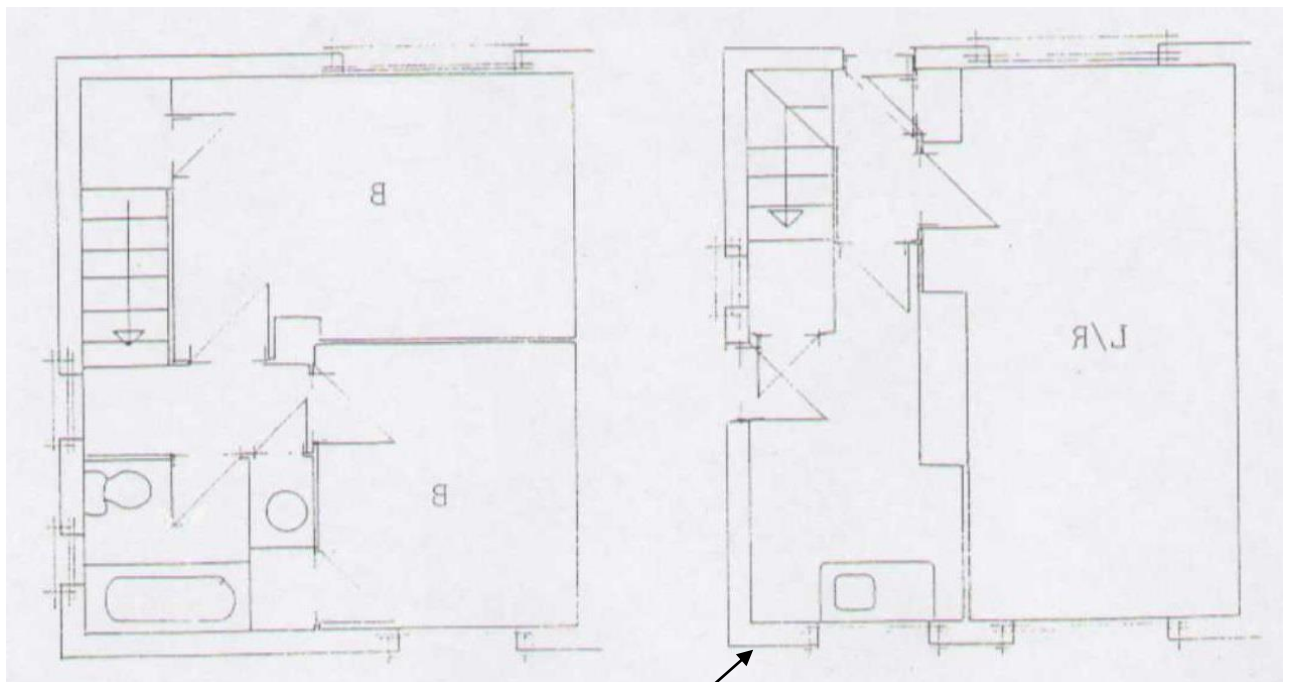
3.9 The building is constructed in a familiar domestic type construction, with load bearing masonry external walls. External brick masonry is partially rendered in a single panel to the front 1st floor bedroom area.

3.10 The roof construction was not inspected at the time of the site visit. From an external inspection the roof comprises of a gable ended roof with a covering of concrete tiles. The roof appears to have been recovered recently, including replacement of the eaves, fascia and guttering.

3.11 Internal accommodation comprises of

Ground Floor: Kitchen, Lounge, Store and Reception Lobby.

First Floor: Two Bedrooms, Bathroom, Airing Cupboard and Landing area.



TRIAL PIT LOCATION

Directions

- 3.12 When describing the structure or the location of rooms, references to the north, south east & west are as the property stands, with northwest to the rear of the property and the front elevation is facing southeast. References to individual components such as doors or windows are described left or right when facing that particular item from the outside or inside as indicated in the report. Bedrooms are described in terms of size with the larger bedroom to the front and smaller to the rear.

2. Observations

- 2.1 There are three lines of cracking in the ceiling to the kitchen. These were measured at 0.9mm wide.



CRACKS IN KITCHEN CEILING

- 2.2 There is a 4mm wide crack in the wall to the top left of the rear door in the kitchen and a 0.4mm wide crack in the wall over the internal hatch to the lounge.



CRACKS OVER REAR KITCHEN DOOR



CRACKING OVER KITCHEN SERVING HATCH

2.3 There are 3 lines of cracks across the lounge ceiling travelling southwest to northeast.



CRACKS IN LOUNGE CEILING

- 2.4 The external northeast wall of the bathroom has horizontal cracks measured at 2.5mm that continues into the adjacent northwest wall. There is a diagonal crack under the bathroom window, which was measured as 7mm at the window sill reducing to 2.5mm towards the bottom of the crack. There is a horizontal crack of 4mm to the wall top left of the window. The window is distorted and does not operate correctly.



HORIZONTAL CRACK IN BATHROOM WALL



VERTICAL SECTION OF CRACK UNDER BATHROOM WINDOW



DIAGONAL CRACK BELOW BATHROOM WINDOW BEHIND WC

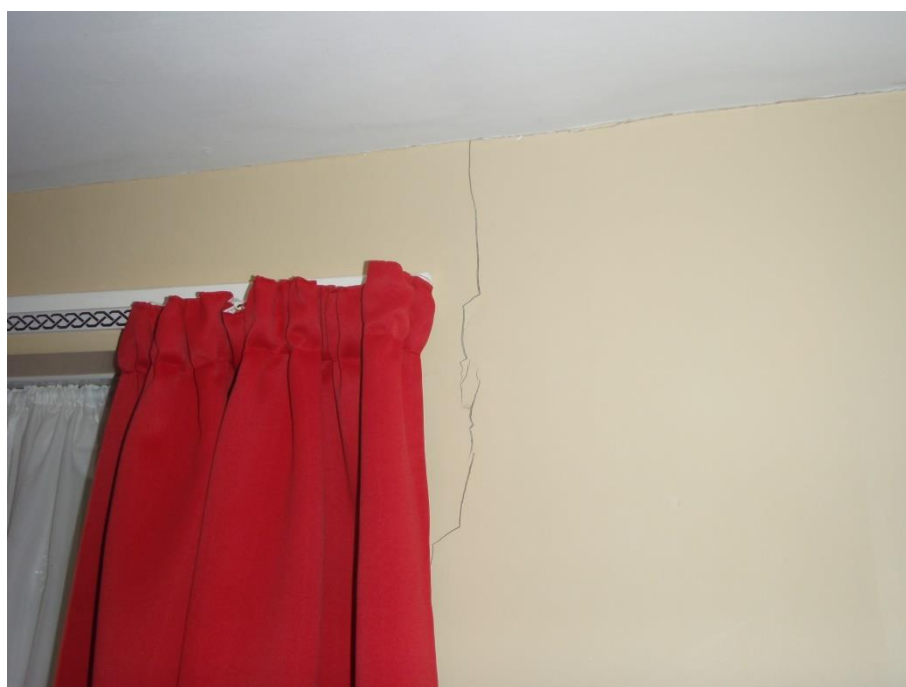


CRACK IN EXTERNAL BATHROOM WALL AT TOP OF WINDOW

- 2.5 There are a number of vertical and horizontal cracks to the rear wall of the rear bedroom with widths ranging from 0.1mm to 3mm.



HORIZONTAL AND DIAGONAL CRACKS TO REAR WALL SMALL BEDROOM



CRACKS TO REAR BEDROOM

- 2.6 The building appears to be on a reinforced concrete raft foundation, the top of which was visible at ground level, although trial pits would be required to confirm this. This is likely to be due to the property being built in an area known to be affected by mining. The exposed section of raft foundation on the northeast corner is spalling and the reinforcement is exposed and corroding.



EXPOSED CORRODING REINFORCEMENT IN RAFT FOUNDATION

- 2.7 The rear elevation has diagonal cracking above and below the kitchen window. This was measured at 0.85mm below the window and estimated to be 1.0mm above the window. Cracks were travelling from top left to bottom right. However a second visit on 25/06/19 the cracks had closed up.



- 2.8 On the end northeast wall there is a diagonal crack corresponding to the crack in the bathroom travelling from the kitchen door to the bathroom window. This crack was estimated to be 5mm wide suggesting that the northeast corner of the property is settling.



- 2.7 The drainage system was inspected as there are a number of drains in the vicinity of the movement on the property. The report of the CCTV survey of the drains is provided in appendix A. This indicated that there are a number of defects that were found.



- 2.8 There are trees to the rear of the property, approximately 10m from the house, and a small conifer hedge between this property and the adjacent No.35. Analysis of the anticipated effects of the Ash and Sycamore trees are provided in appendix B. Height of the tree was estimated at 10m and the ground conditions assumed to be of 'Medium' shrinkability. Soils testing would be required to confirm the assumptions made in the analysis.

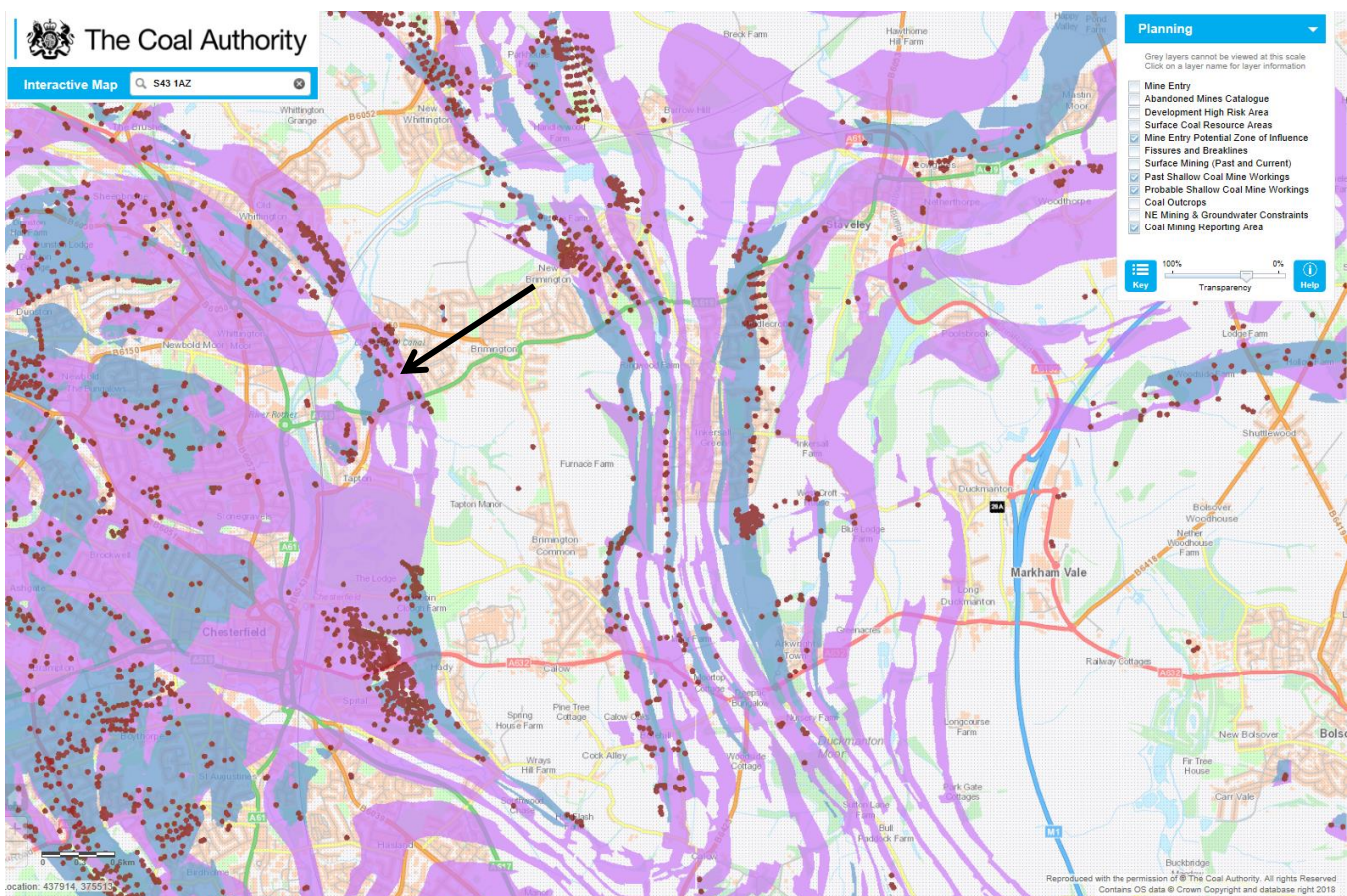


TREES CLOSE TO REAR OF PROPERTY

- 2.9 A trial pit was excavated to the rear northeast corner of the property and the log presented in Appendix C. This indicates that the corner of the house has been constructed on clay fill material over a weak friable mudstone. There were tree roots in the trial pit and a 75mm thick layer of red shale that appears to be imported to level the site to for the flat slab reinforced concrete foundation.
- 2.10 A borehole was placed adjacent the rear corner of the building to establish the ground conditions to establish other potential causes of the movement and to advise the most suitable form of underpinning. The borehole confirmed the trial pit results and Made Ground was found to a depth of 1.60m. From 1.6m to 2.4m slightly gravelly, sandy silty Clays were found that were also considered to possibly be Made Ground, going from Firm to becoming Soft below 2m. Weathered Mudstone bedrock was found from 2.4m and the borehole terminated at 6.45m depth.
- 2.11 The report identifies that the shallow soils have a Medium susceptibility to shrinkage and therefore the mature trees to the rear of the property would have an influence on the foundations being at such a shallow depth of less than 0.75m.
- 2.12 Laboratory analysis of the soils on the site were tested and found to not contain harmful levels of contaminants within them.
- 2.13 The report identifies that the site is in an area of potential shallow mine workings, but these had not been investigated as part of the report and desk study and remain a possible cause of the movement.

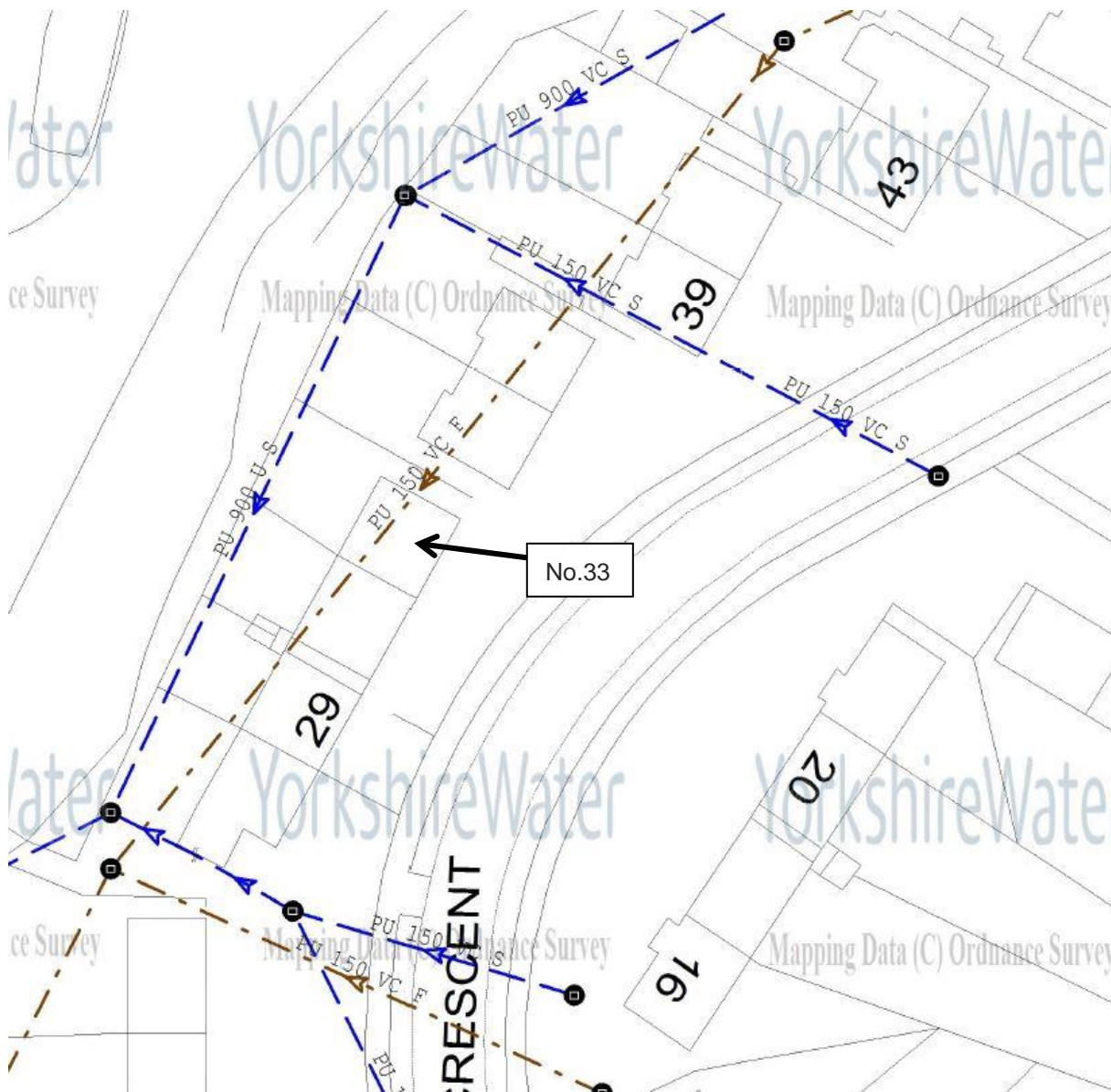
3. Discussion

- 3.1 The site lies over Sandstones of the Lower Coal Measures from the Carboniferous Period. There are a number of coal seams conjectured as outcropping both east and west of the property, dipping under the site. Below the site there are four coal seams at shallow depth, the Cockleshell, Low Tupton, Threequarters and Silkstone coal seams. The estimated depth of the Coal seams is conjectured on the Geological Map, but could be from the surface. The Coal Authority interactive map indicates the site as lying within an area that has probable coal workings below it, although it is not clear which seams may have been worked under this site. Shallow workings are a potential cause of the observed movement. There are several known shafts within the vicinity of the site as well as several adits.



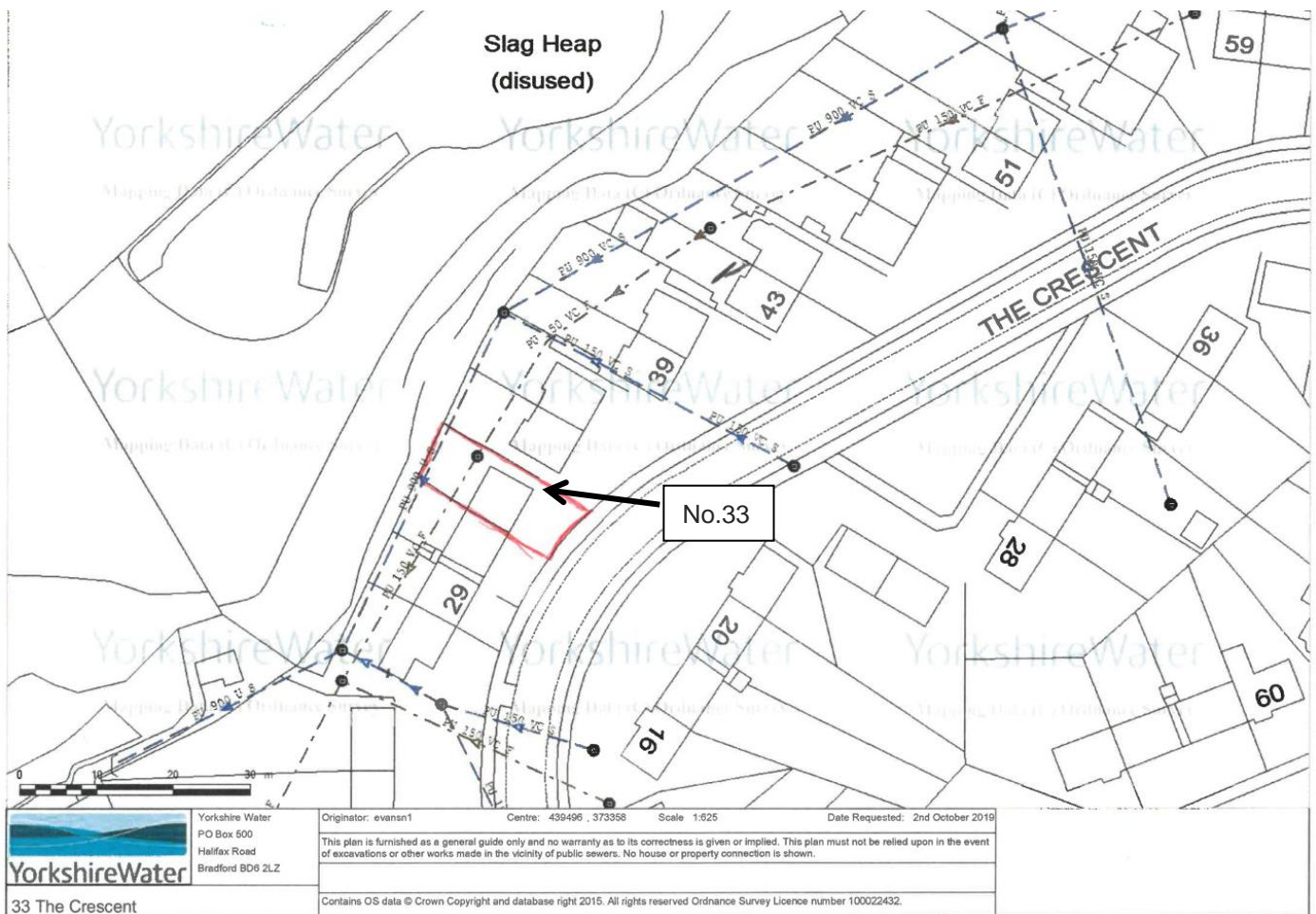
COAL MAP FOR SITE INDICATING POSSIBLE WORKINGS (Magenta)

- 3.2 Analysis of the required foundation depth to offset the effects of trees indicates a depth of 0.45m would be required for a raft foundation. It is anticipated that the foundations are at or are very close to surface level. Therefore, the foundations would be considered to be within influencing distance of the trees, which is calculated at 17.25m.
- 3.3 Underground services have been considered. Plans from Yorkshire Water indicate that the property lies over the route of a foul drain that coincides with the corner of the property that is exhibiting signs of settlement. It is therefore considered likely that the property has been constructed over the line of the trench to this service.



ORIGINAL ROUTE OF DRAIN SHOWN RUNNING UNDER PROPERTY

- 3.4 A request was placed with Yorkshire Water to inspect the condition of the drain to confirm whether this is a likely cause of the movement. Yorkshire Water had had difficulty locating access to the drain and due to the depth. A survey was eventually carried out and this found no evidence of any defects in the main sewer, although fat deposits had built up, and these were removed. During the survey the line of the sewer was considered to be different than YWS initially indicated.



REVISED ROUTE OF DRAIN SHOWN RUNNING TO THE REAR OF PROPERTY

- 3.5 The revised line of the sewer shows that it does not run under the property, but across the rear garden.
- 3.6 The trial pit confirms that the ground under the foundation, at least in the corner of the building is settling, has been constructed on clay fill and there is evidence that roots from the adjacent tree have reached the foundations.
- 3.7 The borehole in the rear garden has confirmed Made Ground to a depth of 2.4m. The made ground is considered to be inadequate to support the foundations to the property due to variability of the fill material.
- 3.8 The site is in an area of potential shallow mine workings. A detailed mining appraisal is difficult as the coal outcrops in this area, which are used to determine seam succession and estimate depths are close together and are only conjectured in their position. If the seams are where they are shown to be, then the shallowest coal seam would be the Cockleshell, which is recorded at less than 400mm thick locally. The next seam is the Low Tupton coal seam recorded at 0.685m thick estimated at 30m depth. The two seams from adjacent Collieries indicate that there is a separation of 21m between the two seams. Therefore, in

making an assessment of the likely depths to the seams it is important to establish and identify the top seam. The Cockleshell seam at 0.4m thick is unlikely to have been work by any method other than open cast as the tunnel required to enable people to work it out would be disproportionate to the thickness of coal that would be recovered. Therefore, as the seam wasn't found within the 6.45m probed, it is possible that the seam was near the surface and the made ground found was the backfill to the seam being opencast. The other alternative is that the seam is at least 6.45m deep and was not found. If the seam is deeper than 6.45m and the depth of the next seam, Low Tupton is $6.45\text{m} + 21\text{m}$ i.e. 27.45m the shallowest work able seam is at least 27m. If the Cockleshell was opencast from the surface, then the Low Tupton will be at 21m. Taking the worst conjectured case, the Low Tupton is 0.685m thick. Generally, a ratio of 1 to 10 x Seam thickness is considered to be the depth at which voids will not migrate to the surface if overlaid by bedrock. The Low Tupton seam would therefore need to be in excess of $10 \times 0.685 + 2.4\text{m}$ (surface to bedrock) = 9.4m. At an estimated minimum depth of 21m there is a factor of error of 11.6m. All subject to the conjectured outcrops being where there are indicated on the OS Geological Map. TO be 100% certain it would be necessary to drill the site to a depth of 30m.

- 3.8 It is therefore difficult to positively attribute the cause of the cracking to any one cause. Most likely the cause will be the consolidation of the excessive depth of made ground under the property, likely compounded by leaking drains. It is also possible that the trees to the rear of the property are at least in part contributing to the settlement of the identified rear corner. Movement due to migrating voids from shallow mine workings cannot be dismissed, although the risk is considered to be medium for the reasons set out in 3.7, and the fact that the movement is localised to one corner, although the presence of other mining features such as the presence of a shaft cannot be wholly dismissed, although there was no evidence of this from the borehole or trial pit, and settlement of both the ground as well as the property would have been expected if this was the case.

4. Conclusion

- 4.1 There are a number of potential causes of the movement to the property. Defects have been found with the close surface drainage and defects with the reinforced concrete foundation.
- 4.2 The site is within an area where coal is believed to have been worked and coal seams are known to outcrop at the surface. This provides another potential cause of settlement.
- 4.3 The building is within the influencing distance of two trees in the back garden. Root action on the underlying clays is a potential cause of settlement. Tree roots were found in the trial pit undertaken on the rear corner.
- 4.4 The corner of the property has been constructed on fill material that can compress over time. Fill is also susceptible to the effects of trees and can be easily washed out in the event of water ingress such as from leaking drains. This was confirmed in the ground investigation with made ground to a depth of 2.4m. There is also a thin band of red shale that is conjectured to have been imported to use as a fill material to level the original site. This can expand when wet if it contains high levels of sulphates, however, given that the band is only 75mm thick, even if this is the case, it is unlikely to be the sole cause of the observed movement.

5. Recommendations

- 5.1 It is understood that CBC have re-lined the leaking shallow surface water drainage that is within their area of responsibility.
- 5.2 It is recommended that the rear Ash and Sycamore trees are reduced in height to a maximum 5.0m and a tree management plan is instigated to keep them at this height. Alternatively, if there is no TPO on the trees, it is recommended that they are removed.
- 5.3 The spalling concrete and exposed reinforcement to the raft foundation should be repaired in accordance with the attached concrete repair specification.
- 5.4 The cracking on the end, north-east wall should be repaired in accordance with Helifix Crack Stitch repair detail CS01 as attached.
- 5.6 Internal cracks to the walls and ceilings should be V-cut out and filled with a non-shrink remedial plaster filler
- 5.7 It is recommended that the corner of the property is also underpinned to prevent further subsidence occurring and to provide additional protection from the effects of trees. In this instance it is recommended that a polymer injection system is adopted rather than traditional piles. This is so as not to provide a 'hard-spot' on the corner of the property and to off-set the risk that the Yorkshire Water sewer may be closer than expected and could be damaged by the installation of piles. The proposed system should also slightly lift the corner of the building and close the cracks. The company that can undertake this work is Geobear (https://www.geobear.co.uk/?msclkid=5cf303d1cff21189e04b5d9cada412d1&utm_source=bing&utm_medium=cpc&utm_campaign=Brand%20Terms&utm_term=GEOBEAR%20uk&utm_content=Geobear%20Exact%20Match). Please advise if you require me to progress to obtain a quotation?
- 5.8 If following the underpinning movement continues, then the coal mining situation will have to be investigated further. Underpinning will be required regardless of any further works due to the depth of Made Ground found on the site.

Report produced by

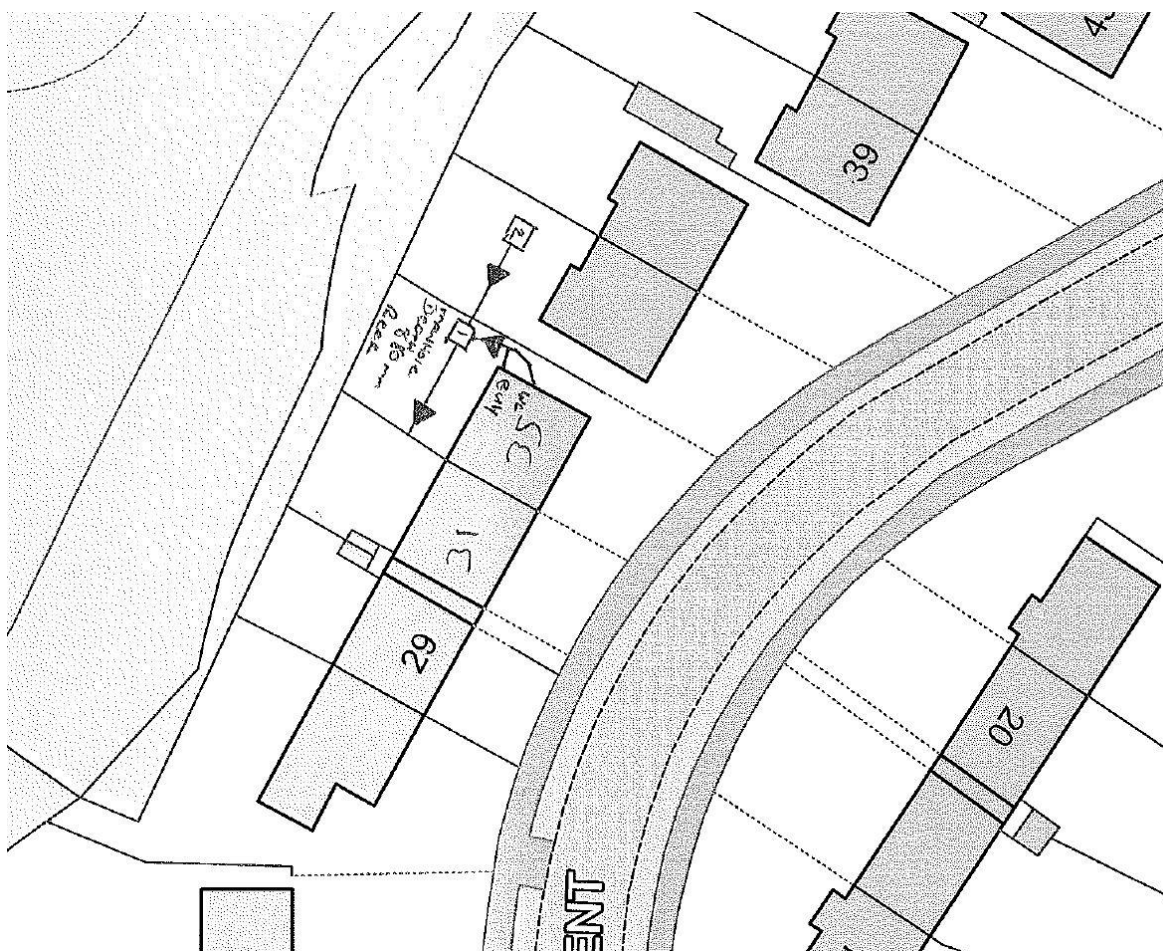
Robert Moss BEng CEng FStructE MICE

Senior Structural Engineer

Direct Tel: 01246 345347 M: 07964 112217

KIER Design & Business Services, 3rd Floor Town
Hall, Chesterfield, Derbyshire, S40 1LP

6. APPENDIX A – Surface Water Drainage



We have recently received the CCTV Survey for 33 The Crescent, Brimington. Please see attached plan for your information.

Manhole Start: MH1 (rear)
Manhole End: WC
Pipe: Clay – 100mm – Foul – Upstream – CBC



0. 0.27m Displaced joint between 9 and 3 o'clock also a fracture between 9 and 5 o'clock



2. 0.33m 100mm gully inlet at 2 o'clock



3. 1.24m Displaced joint between 9 and 5 o'clock



4. 1.48m Displaced joint between 7 and 3 o'clock



5. 1.85m Fracture between 2 and 10 o'clock



6. 2.98m End of survey at bottom of stack.

RECOMMENDATION: Several displaced joints and fractures – CBC to dig up and replace defective pipework as soon as possible.

Manhole Start: MH1 (rear)
Manhole End: MH2 (rear of 35)
Pipe: Clay – 100mm – Foul – Upstream – **YW**



0. 0.06m Displaced joint between 10 and 2 o'clock,
also a fracture between 12 and 4 o'clock



2. 0.81m 50% Holding Water



3. 1.48m Fracture between 7 and 3 o'clock



4. 2.13m Fracture between 9 and 4 o'clock



5. 2.75m Displaced joint between 9 and 4 o'clock



6. 3.42m Fracture between 9 and 5 o'clock



o. 3.99m Displaced joint between 10 and 2 o'clock



o. 4.66m Displaced joint between 9 and 4 o'clock also a fracture between 6 and 9 o'clock



9. 5.36m Displaced joint between 8 and 3 o'clock



10. 6.66m End of survey at MH2

RECOMMENDATION: Several Fractures and displaced joints and holding 50% water – would recommend dig up or reline the defective pipework
C. Lowe to pass to Yorkshire Water for their information and action

Manhole Start: MH1 (rear)
Manhole End: 6m downstream
Pipe: Clay – 100mm – Foul – Downstream – **YW**



0. 0.00m Fracture between 4 and 9 o'clock



2. 0.22m Circumferential fractures



3. 0.33m 100mm inlet at 9 o'clock



4. 0.81m Displaced joint between 3 and 9 o'clock also fractures between 3 and 9 o'clock



5. 2.80m Displaced joint between 4 and 9 o'clock



6. 4.11m Fracture between 5 and 9 o'clock



- o. 4.86m Displaced joint between 3 and 9 o'clock also circumferential fractures



- o. 5.41m Circumferential fractures



9. 6.07m End of Survey at 6m

RECOMMENDATION – Several fractures and displaced joints – C. Lowe to pass to YW for their information and action

Regards
Caroline

Caroline L. Lowe
Senior Engineering Technician

Kier Property | Design and Business Services | 3rd Floor, Town Hall, Rose Hill, Chesterfield,
S40 1LP
Tel: 01246 345386 E: caroline.lowe@chesterfield.gov.uk | www.kier.co.uk

Working in partnership with Chesterfield Borough Council

Connect with us | follow us on [LinkedIn](#) | like us on [Facebook](#) | follow us on [Twitter](#) | follow us on [Google+](#) | follow us on [Instagram](#)
Our values are enthusiastic, collaborative and forward-thinking

Kier Facilities Services Limited | Registered in England No. 2624887
Registered Office: Southern Cross, Basing View, Basingstoke, Hampshire, RG21 4HG

7. APPENDIX B – Tree Assessment

FOUNDATIONS NEAR TREES (NHBC)

FOUNDATIONS NEAR TREES

In accordance with Appendix B of NHBC Part 4: Foundations - Chapter 4.2

Tedds calculation version 2.0.02

Site Details

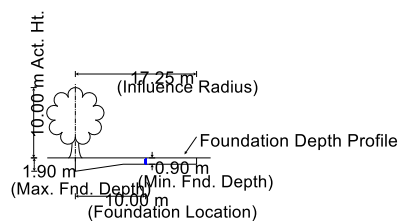
Site location Derby
Reduction depth due to climate variations - Fig. 13 $Z_c = 0.10$ m

Soil Details

Plasticity index from lab tests $I_p = 39$ %
Percentage of particles < 425 μm $p_{425} = 100$ %
Modified plasticity index - cl. D5(b) $I'_p = I_p \times p_{425} / 100$ % = 39 %
Volume change potential - Table 1 Medium

Details for Tree - 1

Species of tree Broad leaf - Ash
The tree is to be removed from the site, and H_{act} is less than 50% of H_m , with no further planting allowed.
Water demand of tree - Table 12 Moderate
Mature height of tree - Table 12 $H_{m1} = 23.00$ m
Influence radius - Table 2 $r_{inf1} = 0.75 \times H_{m1} = 17.25$ m
Measured height of tree $H_{act1} = 10.00$ m
Distance from centre of tree to face of foundations $D_1 = 10.00$ m
Effective height of tree - Fig. 1 $H_{eff1} = 10.00$ m



Minimum foundation depth - Table 5

$Z_{min} = 0.90$ m

Look up value for foundation depth - Chart 2 Soils with MEDIUM volume change potential

$$Z_{\text{LookUp1}} = \mathbf{0.90 \text{ m}}$$

$$Z_{\text{LookUp1}} - Z_c < Z_{\text{min}}$$

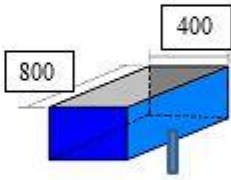

Required foundation depth

$$Z_{\text{req1}} = Z_{\text{min}} = \mathbf{0.90 \text{ m}}$$

Summary Table

Tree	Name	Distance (m)	Measured Height (m)	Effective Height (m)	Tree to be removed	Required Foundation Depth (m)
1	Ash	10.0	10.0	10.0	Yes	0.90

8. APPENDIX C – Trial Pit

Trial Pit No: 1 Job No. 22711 JOB NAME: 33 The Crescent, Brimington											
Logged: from ground level: by Robert Moss on: 12th February 2020											
<p>Ground Level: N/A</p> <p>Date Excavated: 05/02/20 then extended on 11/02/20</p> <p>Weather: Cold and dry</p> <p>Excavator Type: Hand Dig</p> <p>Bucket Width: N/A</p> <p>Pit Support System: None</p> <p>Pit Stability: Remained stable</p> <p>Groundwater Observations: No Water</p>	<p>Sketch of trial pit: (Dimensions in metres)</p> 										
<p>Trial Pit Log:</p> <table border="0"> <thead> <tr> <th>Depth (m)</th> <th>Soil description and sample depths</th> </tr> </thead> <tbody> <tr> <td>0.00 ⇒ 0.07</td> <td>Concrete Path</td> </tr> <tr> <td>0.07 ⇒ 0.15</td> <td>Red Shale Fill with small tree roots</td> </tr> <tr> <td>0.15 ⇒ 0.85</td> <td>Mottled Grey/Orange Clay Fill with fragments of Black Shale and 20mm diameter tree roots</td> </tr> <tr> <td>0.85 ⇒ 1.10</td> <td>Soft Weathered Friable Mudstone</td> </tr> </tbody> </table>	Depth (m)	Soil description and sample depths	0.00 ⇒ 0.07	Concrete Path	0.07 ⇒ 0.15	Red Shale Fill with small tree roots	0.15 ⇒ 0.85	Mottled Grey/Orange Clay Fill with fragments of Black Shale and 20mm diameter tree roots	0.85 ⇒ 1.10	Soft Weathered Friable Mudstone	
Depth (m)	Soil description and sample depths										
0.00 ⇒ 0.07	Concrete Path										
0.07 ⇒ 0.15	Red Shale Fill with small tree roots										
0.15 ⇒ 0.85	Mottled Grey/Orange Clay Fill with fragments of Black Shale and 20mm diameter tree roots										
0.85 ⇒ 1.10	Soft Weathered Friable Mudstone										