

Date: 09/03/2010
Our Ref: 46688
Your Ref: Troopers Hill Park

Dear Sirs

Re: - Land at Troopers Hill Park Bristol -

Thank you for your enquiry which we received on 09/03/2010

We have searched our reco

Past Mining Activity

The specified site is in an area that was worked for coal in the 18th, coal and fire clay in the 19th and fireclay alone in the 20th centuries. Elsewhere on Troopers Hill, stone was also worked and the debris from these three activities is visible still today.

Good records exist from the late 19th and early 20th centuries, the periods in which the Bristol Fireclay Company developed the fireclay reserves beneath Troopers Hill. These deposits were discovered when the area was worked previously for coal; the fireclay lying beneath the coal seams in this district.

Those records indicate that the fireclay was accessed by levels – tunnels driven into the hillside with a gentle grade that intersected the coal seams and the clay which lay beneath. The strata in this district generally dips rather more steeply than is common elsewhere in Bristol and from the quarry can be seen to be about 1 in 2 in this part of the Crews Hole Valley.

The geological sheets show that the coal seams outcrop to the north and south of your site. According to this source, the Upper and Lower Millgrit Veins outcrop to the south and dip in that direction away from the part of Troopers Hill with which you are concerned. To the north, two seams, the Buff and the Parrot, both valuable coals are believed to outcrop to the north of the park and a third, on the boundary of the present open space a little to the north of the upper chimney. All three of these coals dip toward and beneath your site and the indications are that these will be present at depths of around 80-100 feet, 250 feet and 350 feet respectively.

Closer to Hanham, the identities of the seams are known to be questionable and it is by no means certain that the crops shown at Troopers Hill on the ST 67 SW sheet are as they have been attributed by the Geological Survey. For example the Rag Vein would be expected to lie at a depth of 300 feet at the base of the hill, but John Anstie, reporting in 1871 states that the

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seam was struck by the shaft of the Crews Hole Colliery, the chimney of which still stands, at the corner of Crews Hill Road with Troopers Hill Road, at a depth of 60 yards, or 180 feet.



Remains of the chimney of Troopers Hill Colliery, now a listed structure.

One possible explanation could be that the Rag Vein in fact outcrops further to the south and that the seam thought to be the Rag, at the boundary of the park is in fact the Devils Vein, a seam only worked to any real extent in this part of Bristol and omitted from the geological sheets. If this theory is correct, the outcrop of the Rag would be much further to the south, indeed south of the upper chimney and your site. Placing the Rag Vein closer to the Millgrit Veins in this way is more consistent with the relationship between these seams to the east at Hanham and to the west at Pylemarsh, where the surface distance is around 100 feet. At Troopers Hill, the geological sheets have them 600 feet apart.

If the Rag Vein does outcrop on the southern slope of the hill beneath the chimney, this would explain the presence of pitdirt and small coal in tumps part way up the hill, exposed in recent years by erosion from motorcycles. These appear to have disturbed waste material, possibly

deposited by crop workings, bell pits or shallow shafts, some 200 feet down the hill from the upper chimney and a similar distance north of the recorded outcrop of the Lower Millgrit, which is known to have been worked.

This concurs with the shaft section referred to previously. Anstie records that the Millgrit Vein was present in that sinking at 40 yards or 120 feet, which is entirely consistent with a distance between outcrop and shaft of 250 feet. In consequence it would seem likely that if this seam is, as the geological sheet suggests, the Lower Millgrit, the Upper Millgrit to which Anstie refers must lie at a depth of around 40-50 feet in the shaft.

No plans survive from this period of mining, which we believe is likely to have been from around 1810 until 1840 or thereabouts. Certainly no colliery is shown on the 1803 map of St George, but it does appear on the Tythe Map of 1840. The pit worked 150 feet below the level of the river and for that purpose was equipped with a steam engine; one of at least two in the Crews Hole Valley. By 1845 the pit had shut and this was probably the end of mining in the valley.

Leases exist, which show that mining preceded the sinking of the Crews Hole Pit by at least a century and there are contemporary sketches also, which are helpful. We feel it probable, given the relatively short life of the Crews Hole Pit, that the coal works beneath the higher part of Troopers Hill and more specifically those beneath your specified site are 18th century rather than the 19th century workings of the Crews Hole Pit. Perhaps that shaft was sunk where it was, at the base of the hill because the Buff Vein was already worked out to the rise, that is toward the upper chimney. If so, perhaps this pit was sunk to work just the Millgrit and the Rag, which were known to be largely intact with the prospect of going much deeper to the downdip deposits in the Buff Vein.

If this is the case and we consider it to be the most probable possibility then the adit or level beneath the hill, which worked first the coal then, much later the fireclay will be essentially earlier than and separate from the Crews Hole venture. Generally the theory has been that these deposits were worked from the level itself, the coal being brought to bank by the river and transported into Bristol, along the river to the Lead Works, or to the Copper Works at Conham

Whilst this remains entirely possible, normal practice was to sink a shaft at the top of a hill and drive an adit into the side of the hill to drain the workings. If this was the case here, a shaft must exist on Troopers Hill itself, from which the coal was subsequently wound.

John Cornwell has suggested that Crews Hole Colliery worked with two shafts, each with an engine house. One was at the base of the hill, the position of which is well known, the other, he placed 550 feet to the north east. This second house, and therefore shaft had, he indicated a horse gin for winding. There is a sketch of 1914, by Loxton in the BRO, a copy of which appears on the Friends of Troopers Hill website of an engine house on Troopers Hill. The perspective of the sketch rules out the possibility that it was the engine house at the base of the hill, remains of which exist still, so it must either be an engine house further up Troopers Hill Road as John Cornwell suggested or another elsewhere in Crews Hole. If it is a second engine house of Crews Hole Colliery it would have existed half way up the hill on the western side of the road. No records of a shaft here however exist

As we have said, there are a number of leases and deeds relating to coal working east of Strawberry Lane and John Cornwell was of the opinion that hitherto unrecorded shafts must exist, which would have worked this coal. The Crews Hole Valley was, in the 18th century, a very active area industrially, the Copper Works at Conham dating from 1676 and the Lead Works at Crews Hole from around 1710. The demand for coal was therefore strong and these pits were ideally placed to meet that market.

John Anstie, to whom we have referred previously, wrote of the seams here that

'as they reach Troopers Hill,the shallow workings and all of them are clearly traceable'

Angerstein, more than 100 years previously in 1754, made a sketch of the valley looking east toward Conham. He shows two windlasses high up on the hill and behind a steam pumping engine, which John Cornwell locates as *'opposite the Beehive Inn'*. This engine is among the earliest of the Newcomen Engines in Bristol and indicates the value of the coal in this district to the adventurers. Angerstein's sketch is annotated with a depth of 168 feet for the shafts, with a windlass, meaning that they were working down to, or almost to river level.

While it is probable that these workings are perhaps a little to the west, probably around Strawberry Lane, it is inconceivable that Trooper Hill seams were not worked in a similar way at the same time. Consequently the Buff Vein and the Devils Seam - and this is the only part of Bristol where the latter seam was worked to any appreciable extent - may well have been substantially worked out by 1790 and prior to the sinking of the Crews Hole Pit.

After coal working had ceased, the Brain family, who owned this area, began to exploit the old coal workings for fireclay. There is some evidence to suggest that the earliest workings date from 1850 and were undertaken by the Brain family themselves. A lease was drawn up for the benefit of the Bristol Fireclay Company in 1886. This by the then owner, Elizabeth Somers. The lease has been helpfully transcribed by and is available to view on the website of, the Friends of Troopers Hill. This lease required that the excavations did not descend further than the river level and were concentrated in the Buff Clay and Dibbs Seam, which we believe may have been clay associated with the Devils Seam as the two names were synonymous with each other at Oldland and elsewhere.

This may not have been the earliest workings of this concern, as there are references to Mr Burge as manager of the mine and the name of the venture changes over the period. Burge set out to clear debris from the former coal workings to access the clay, a process which continued up until closure in 1908. At this time, it is interesting to note that efforts were concentrated on a level and an adjacent heading, the course of which is somewhat erratic. The position of both are directly beneath your specified site.

One potential conclusion might be that the purpose of these clearances was to locate the bottom of an existing shaft, which had been filled and abandoned once the 18th century coal works had ceased. If this is correct, and we stress our thesis is speculation only, then slumping of the fill within the shaft would certainly cause the subsidence, which is visible within the confines of the site at the present time.

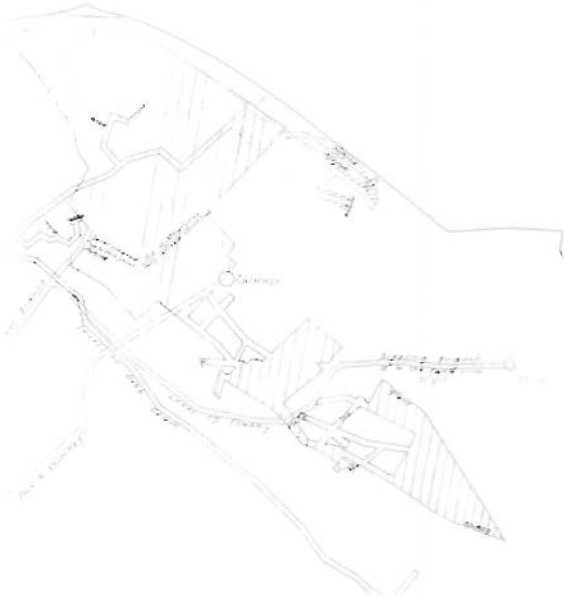
Further research, particularly site investigations and close scrutiny of the surviving documentary record would no doubt provide further evidence with which to piece together the puzzle of Troopers Hill.

Shafts

None are known to exist inside the boundary of the specified site or within 100 feet, although as we have indicated, unrecorded shafts are entirely possible.

Having inspected the site, the circular area, essentially flat with a rim of made ground around the centre is typical of abandoned shafts throughout the coalfield. Spoil deposited in front of the feature also indicates the possibility of a shaft.

Additionally, we now know that, from the old mine plans, there was perhaps the greatest concentration of tunnels and headings beneath the specified site of any part of the hill, and that clearance work was being undertaken at the end of the mine's life, 100 years ago, given this, the possibility that this was an 18th century shaft, the location of which has hitherto remained unrecorded rises appreciably.



Only site investigations will determine whether this is so or whether the particular site is much more recent – perhaps for example a gun emplacement from World War 2. Clearly however there is a void beneath this site, which requires some physical investigation and stabilisation for public safety.

Any shaft, which might to exist, would be expected to be rectangular with rounded edges and stone lined, possibly five or six feet across and up to 150 feet deep.

Returning to the lease, and the research done by the Friends of Troopers Hill, a shaft is shown as an addendum to the 1880 lease but this appears to plot much closer to, or beneath the chimney. The diagram is,

however somewhat primitive and may be inaccurate. At face value this plan, a copy of which we attach would suggest that the shaft lies beneath the upper chimney, which points to that feature having possibly have been used, at some stage at least, as a ventilation furnace for the coal works, to draw stale air out of the workings

Alternatively, if the diagram is that of representation only, then it is entirely possible that the author was referring to a shaft within your specified site, the exact position of which was no longer known for certain. Either way however, the diagram demonstrates that a shaft exists on Troopers Hill, which does not appear on the geological record, or in subsequent studies such as that conducted by the Consulting Engineers Howard Humphries for the then Department of Environment in the mid 1980s. Indeed there may be two.

The only other recorded shaft is that of the known Crews Hole Pit around 850 feet to the south although there is a contention that there might be a shaft further up Troopers Hill Road.



Water Levels

We believe that the Fireclay Level, a plan of which we enclose may have been driven at first as a water level to drain the original coal workings, which are to the north of the Crews Hole Pit and beneath Troopers Hill. Generally this level is at a depth of about 160-180 feet, rising toward the boundary of the park, by about 80 feet.

Subsidence

There is evidence of subsidence within the site. On our visit we removed some loose material, including masonry, which revealed a void beneath, the extent of which is unknown.

Geology

The site stands on coal measure sandstones and seams of the Upper Coal Measures, Pennant Series.

Disclaimer

Whilst we believe that our archive is truly comprehensive we nevertheless acknowledge that there may be documentary sources unknown to us. Consequently this report is limited to the information in our possession.

Because the information in the report is obtained from records and documents prepared by others, it follows that the company cannot accept responsibility for any inaccuracies in those records or omissions from them.

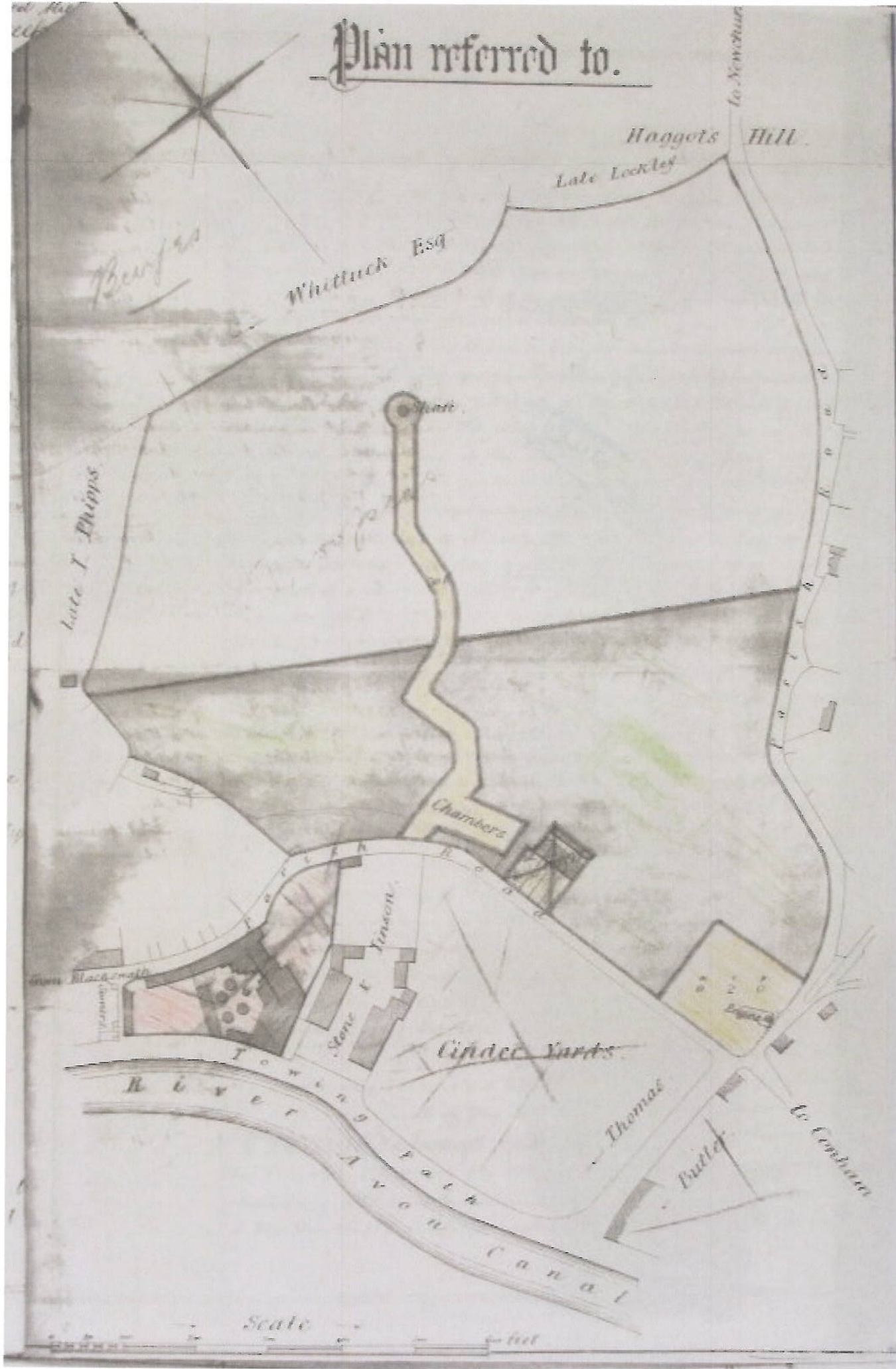
If we express an opinion as to whether any mine workings revealed by this report would affect the property, we do so on the basis of a theoretical relationship between the depth of the workings and the size of the seam. Any risk of subsidence also diminishes with the age of the workings. However, recent experience makes it plain that if there are workings under or adjacent to the property, there may be some degree of risk.

Yours faithfully

Bristol Coalmining Archives Limited

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Plan referred to.



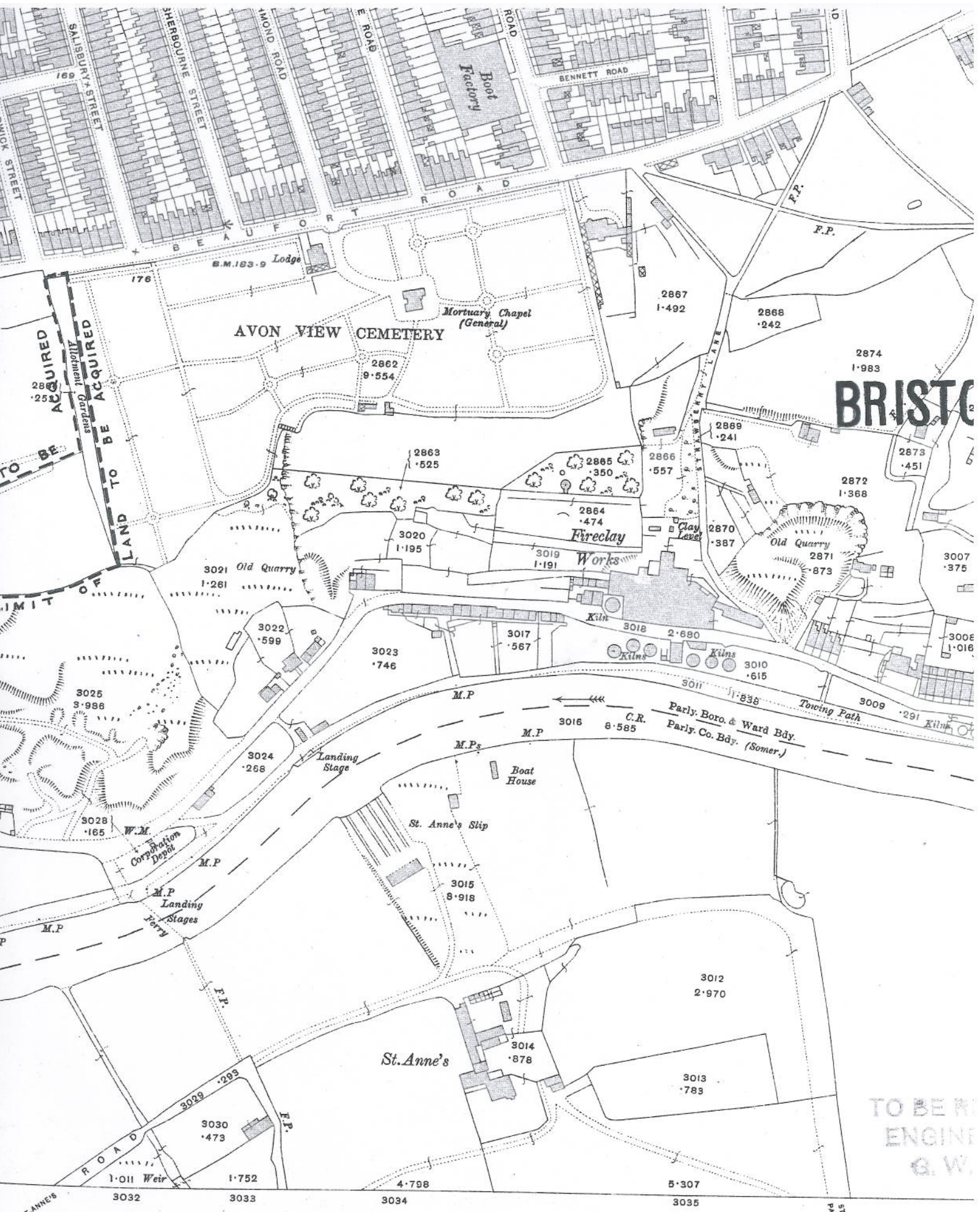
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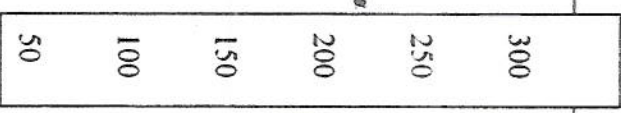
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LEGEND AND SYMBOLS FOR BOUNDARIES, &c.

W	Change of Boundary, indicating the point at which the character of a Boundary changes		Every parcel is numbered thus	27
D	Antiquities (Site of)		Its area is given underneath in Acres, thus	4.370
P	Trigonometrical Station		Braces indicating that the spaces so connected are included in the same reference number and area	
R	Poor Law Unions			



Where we believe the **Buff Vein** would prove

Parrot Vein Outcrop
(Conjectural) From
Geol. sheet ST67SW

Relative position of Chimney
but to the east of this section

Level reached a point 97 feet above OD to the east of the chimney in workings in what we believe was the **Buff Vein**

Likely position and depth of possible shaft, 140 feet to the **Buff Vein**

The line above represents OD (Sea level)

Troopers Hill

Crews Hole, Bristol

A plan showing the probable sequence and position of coal seams by a section through the specified site on Troopers Hill to the Crews Hole Colliery

Plotted by Ian Greenfield for **Bristol Coalmining Archives**,
March 2010

Distances in feet Approx. horizontal linear scale 1:2500

Where the geological sheet shows the **Rag Vein** to outcrop, which we believe, from Ansties report of the Crews Hole Colliery sinking is more likely to be the **Devil's (Dibb's or Black Vein) Seam**

Proven, worked outcrop of the **Lower Millgrit Vein**

Upper Millgrit outcrop

Crews Hole Pit

Known depths from the surface (John Ansties section)

Upper Millgrit @ 80ft

Lower Millgrit @ 120ft

Rag vein @ 180 ft (pit bottom)

