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HARDSHINS / PROVIDENCE MINE,

FOREST AND FRITH, CUMBRIA

STATEMENT OF SIGNIFICANCE

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HISTORICAL CONTEXT

The London Lead Company was the most important single producer of lead and silver in the North Pennines, accounting for between one quarter and one third of total output in Cumberland, rising to two thirds in 1866. In 1753, the company began to exploit the ore-bearing rocks at Newbiggin in Teesdale, from its office in Middleton-in-Teesdale. After giving up leases in Wales and Derbyshire (where they were less successful), the company began taking on equivalent leases on Alston Moor, and from the later 18th century in Weardale (Stanhope and Bollihope), and in Teesdale, as well as in the Derwent valley and estates at Hilton, Murton and Dufton. Mines and a smelt mill were leased in Egglestone from 1771 (Raistrick 1938, 17-18). The produce of the Weardale Mines was smelted in Teesdale, whilst that from the Cumbrian mines (which the study area formed a part) were smelted at Nenthead (see Plate 1).

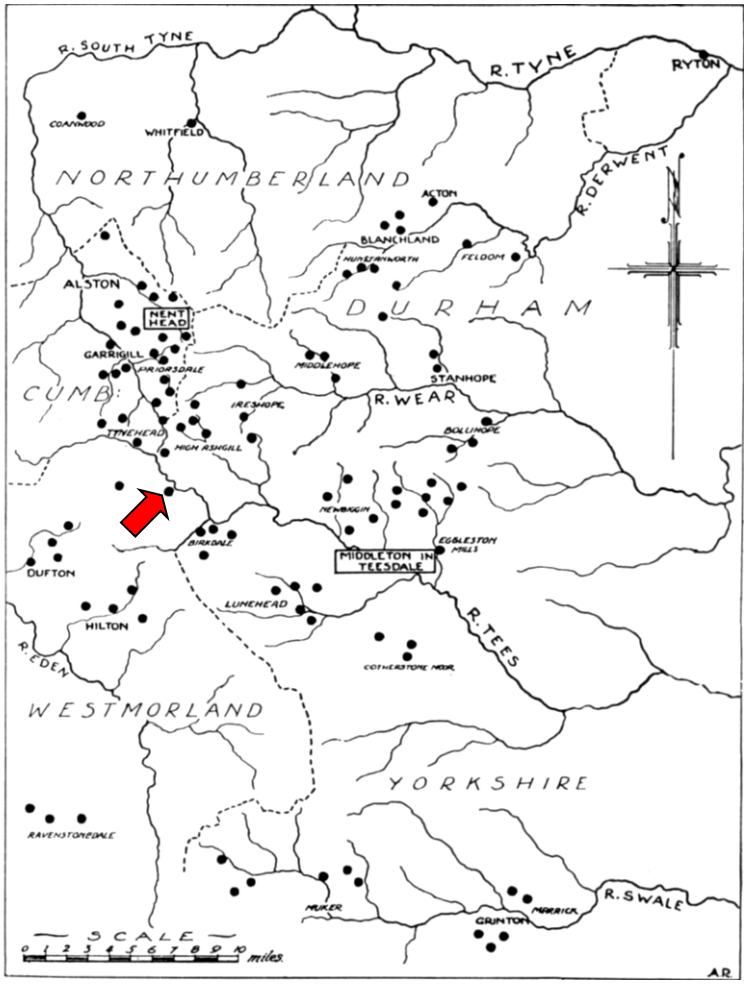

Plate 1: the principal mining leases of the London Lead Company in the north of England (after Raistrick 1938, 118) – survey area arrowed

Plans produced by the London Lead Company show a tight concentration of five veins focussing on the survey area, broadly east-west aligned. A report by John Walton of Nent Hall, c.1851, names these as Old Dow

Green, Hardshins, New Vein, Robinson's and Emersions' (Chapman 1991, 54). Hardshins vein crosses the survey area, as does one further vein, known earlier in the century as Providence North Vein (or Trout Beck vein), which must equate to one of these (Plate 2). The veins were worked by a series of shafts and levels. These are collectively discussed as the '*Teeside Mines'* (original spelling), though their origin (and naming) was actually more complex, and they were worked at different times by different concerns.

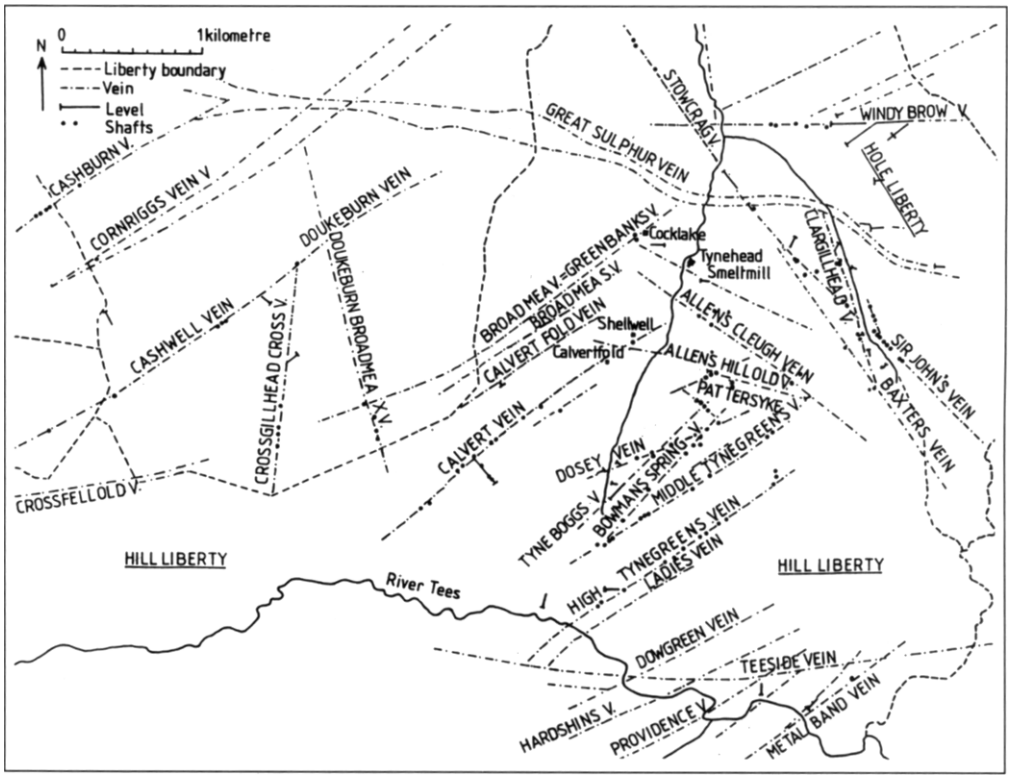

Plate 2: the principal veins (after Fairbairn 1993, 133); the survey area lies bottom right

There is no direct evidence for lead mining in the survey area before 1770. Jeffery's Map of Westmorland, surveyed in 1768 and published in 1770, shows the area but does not indicate any lead mines, despite showing these on other parts of the map, where both '*lead mines*' and '*miner's houses*' (see Plate 3). Smith and Murphy (2011, 73) indicate that the mines are depicted as a series of dots on this map, but this is not readily apparent. Nevertheless, the absence of the mines from early mapping is not definitive evidence, but it seems likely that, if the mines were present, they were not significantly developed at this time to be included. By the later 18th century, a series of levels had been driven, and shafts sunk, on Hardshins Vein and Trout Beck Foot Vein respectively, leased from the Commissioners of the Greenwich Hospital in London.

Plate 3: detail of Jeffery's map of Westmorland, 1770; note references to lead mines west of Dufton Fell and at Birkdale, but none in position of the study area.

The position of the mines is interesting, as it is now one of the most inaccessible areas in the North Pennines, but in the 18th and 19th centuries lay adjacent to a well-defined pack-horse route between Milburn and Dufton, along the edge of Trout Beck, and crossing the Tees at a ford within the survey area, before heading north to Garrigill. This was presumably the main route used for transporting ore to the smelt mill at Nenthead for processing, but earlier would have also transported ore in the other direction to the smelt mill at Dufton (see below). The packhorse route is clearly depicted on the later 19th century mapping (most of which name '*Teeside Mine*' at the crossing point, suggesting it was an important staging post on the journey). The standardised depiction suggests it may have become a formalised routeway by then (Plate 4). Its course is easy to follow on modern aerial photographs, though sections of the route have now been washed away. A significant embankment supporting the route lies between Troutbeck Level and Troutbeck Foot Level, outside the survey area.

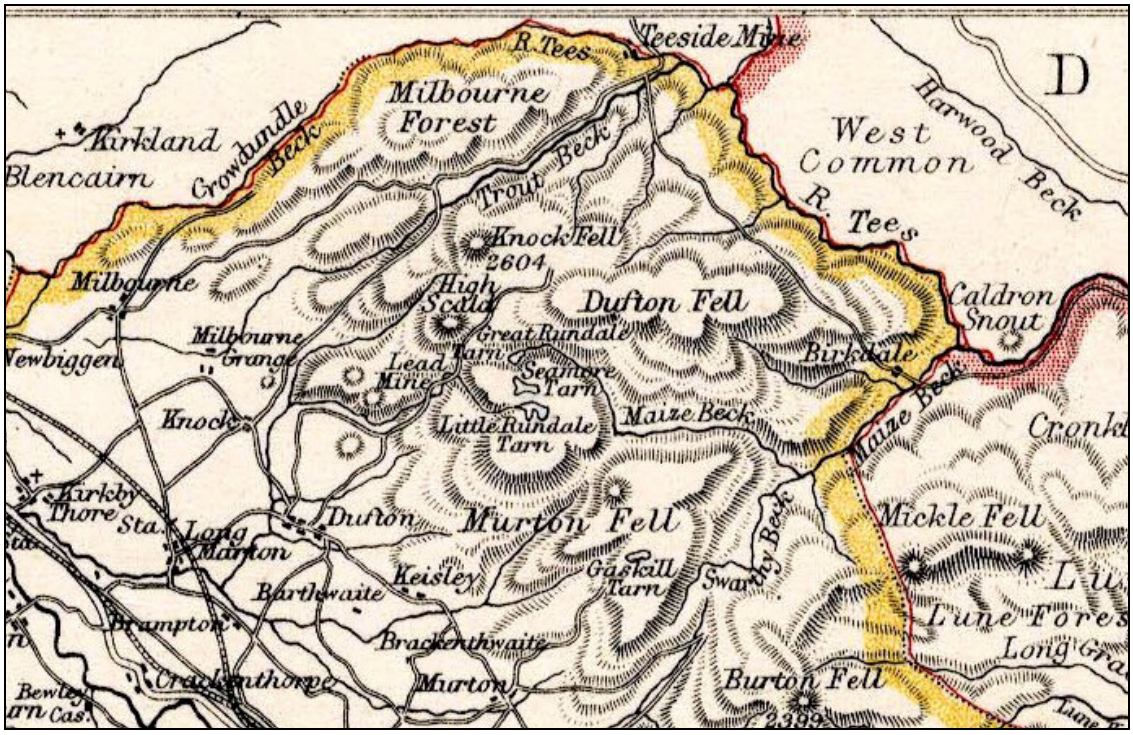

Plate 4: detail of John Bartholomew's map of Westmorland, 1875-88; note 'Teeside Mine', top centre, and roads leading along edge of Trout Beck

Hardshins Level

Immediately to the west of the survey area, a large hush is visible on aerial photographs running downslope and north to the Tees, with a clearly defined horse-shoe shaped dam at its head. This hush lies on the line of the Hardshins Vein and is undated, but must represent some of the earliest workings on the vein. Smith and Murphy (2011, 71) identify that the hush included a level at its base, with a London Lead Company plan showing a building, probably a mine shop at the left foot of the hush. The vein is mentioned as being worked on the 1st June 1801 by John Forster, Thomas Millican, and John Bradwell, and on the 7th September 1802 by John Lowry, Joseph Little, Jonathan Pattinson and Thomas Millican, who were working '*Water Engine Vein'* at the same time (see below; Smith and Murphy 2011, 74).

In 1835, the present level was cut by the London Lead Company as a '*cut and cover*' cross cut from a portal at NY 7566 3388, and was driven west 210m to join the existing level on the Hardshins Vein. The level was positioned to allow the lowest possible entrance to the vein, and brought the portal nearer to the flatter ground on the meander of the Tees (and the current survey area) presumably to allow the easier dressing and working of the ore. The level was developed and driven 840m west-south-west, intersecting the Trout Beck Level, and crossing at least four lead-bearing cross-veins. Its line is marked by seven shafts leading to the surface (Smith

and Murphy 2011, 71; Plate 7). Dunham (1990, 230) indicates that the mine dumps include galena, and sphalerite, associated with quartz, ankerite and purple fluorite.

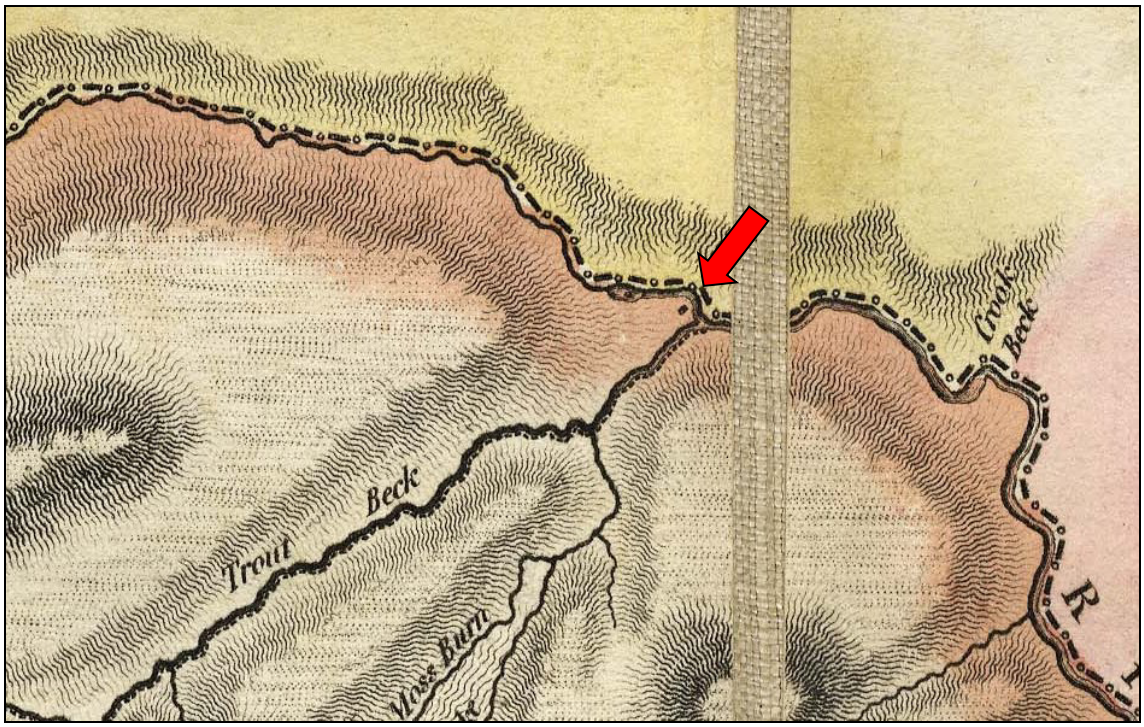

Plate 5: detail of Greenwood's map of Westmorland, 1824; note building depicted at junction between Trout Beck and Tees.

The ore from Hardshins was smelted at Dufton Smelt Mill, and is recorded in the account books 1839 to 1849; in 1845, the duty was reduced, indicating hardship at the mine. A loose note in the Dufton smelting account book, dated October 1856, states '*the Westmorland Mines still continue a heavy loss to the company and I shall feel truly relieved in finding on reaching the expected veins from progressing levels at Netherheath and Troutbeck that better results attend our operations*' (Smith and Murphy 2011, 75). A report on the Providence Mine confirmed that Hardshins was being worked by the London Lead Company around 1851 (Chapman, 1991, 54).

In October 1860, a report on Teesside Mine described Hardshins Level being worked by 6 miners, to some reasonable degree of success, and seemingly by the Teesside Mining Company (see below). Though often hampered by the weather, work at the mine was still able to continue in heavy snow and ice, as there were no drainage issues (Chapman 1991, 59).

Between 1877 and 1879, four men were employed underground at the level (Smith and Murphy 2011, 75). In 1882, Hardshins Level was described as '*standing*' and between 1883 and 1889 was operated by the Hardshins and Netherheath Mining Company Ltd, under its chief agent Joseph Fleming (1883-5) and then manager Thomas Potts (1885-9). In 1883, the workforce had increased to 11. Work at the mine probably

ceased shortly thereafter. The depiction on the 6 inch to 1 mile Second Edition Ordnance Survey provides little further detail, though does appear to depict two further buildings, in the position of the small store **3** and the larger building **4**, suggesting these had been built at that time. The level is shown as '*old*'.

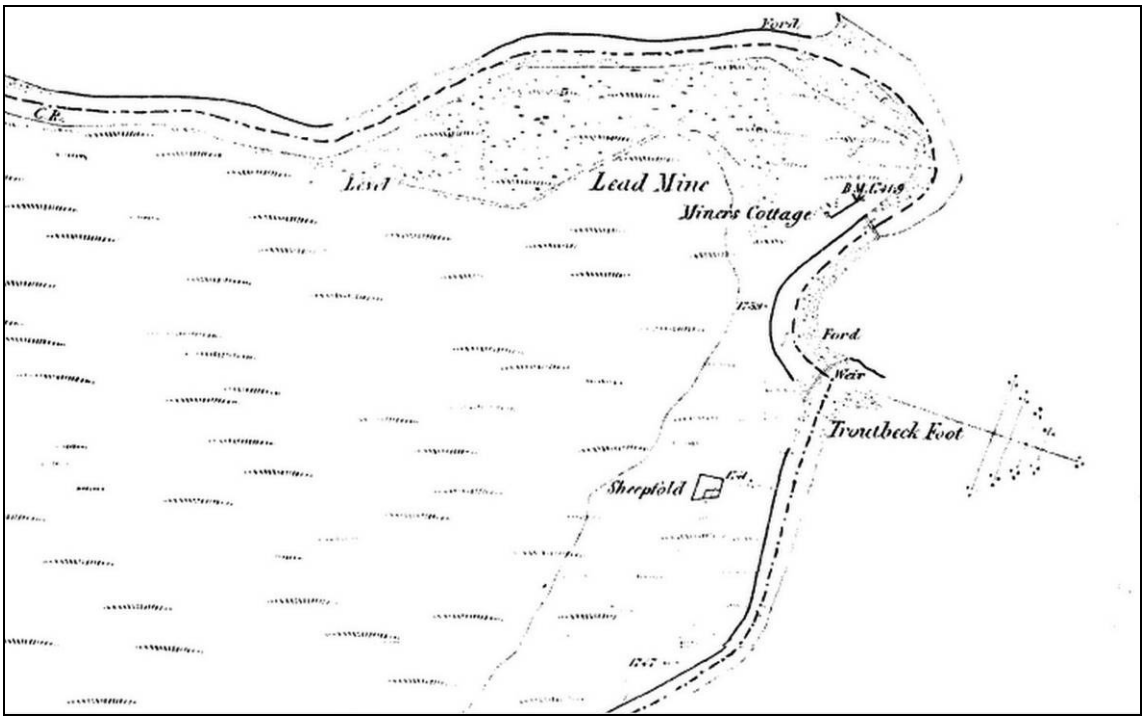

Plate 6: detail of 25 inch to 1 mile Ordnance Survey map (Westmorland), 1861; Hardshins is depicted as 'level' *and the position of the mine-shop is shown, but otherwise little detail is given.*

Trout Beck Foot (Providence) Mine

Smith and Murphy (2011, 73) indicate this to be one of the earliest mines in the area, probably 18th century in date, with most of the extraction along the vein being carried out by closely spaced shafts, very clearly visible on aerial photographs to the west of Providence Shaft, and further shafts east of the Tees. The mine is also sometimes referred to as '*Todd's Providence*'; there are references to William, Thomas and John Todd working the mine from June 1st , 1800, and, later, on May 10th 1801, William Todd and William Evitt (*ibid*).

A mine plan in Whitehaven record office, redrawn by Smith and Murphy and reproduced in Plate 8, shows a well-developed dressing floor east of the sheepfold (still extant), with a rectangular bingsteads adjacent, and served along its north side by a waggonway linking the string of shafts along the vein. The Trout Beck Foot Level lies at NY 7580 3369, west of the dressing floors, and is clearly visible on aerial photographs, its position given by large dumps of spoil at the junction between Trout Beck and the Tees, though the level is now no longer extant. The level was driven north-west as a short cross-cut, 55 fathoms in length, where it bisected the Providence North Vein (Chapman 1991, 53). The level then followed this vein before turning north (Smith and Murphy 2011, 71). The purpose for driving this may have been as much to drain the shafts above, as to work the vein.

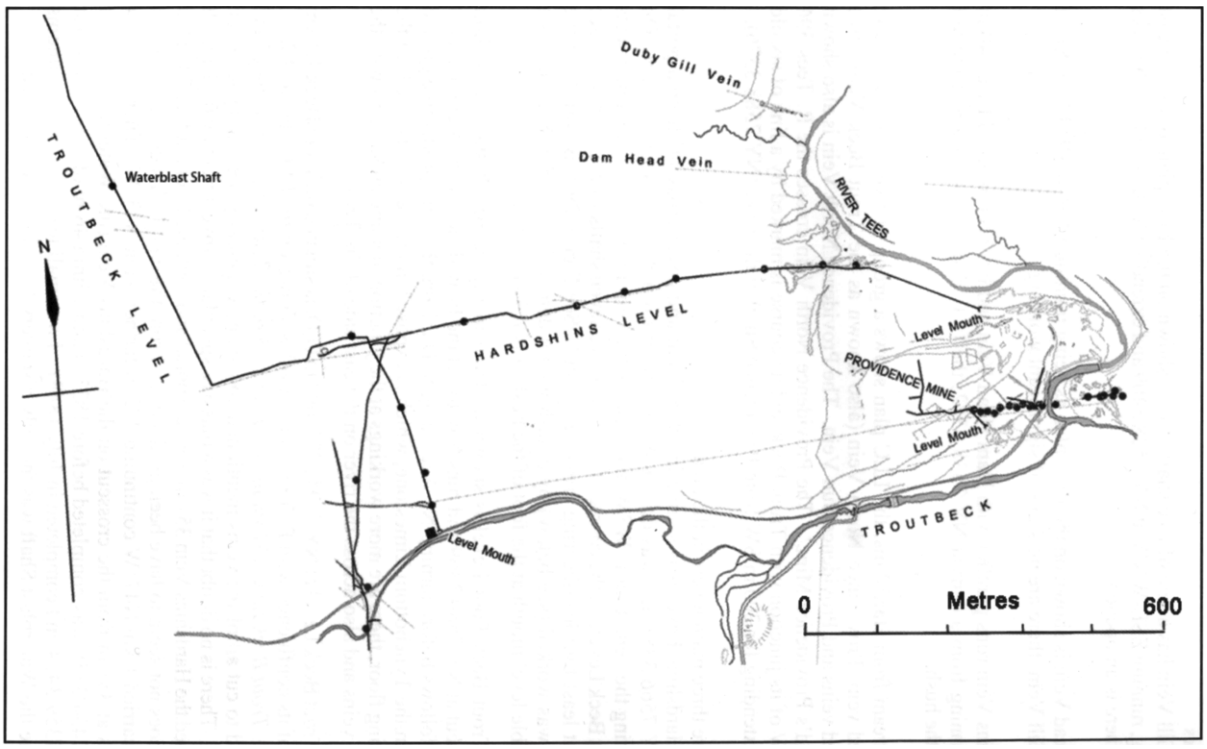

Plate 7: Hardshins and Providence Mines (after Smith and Murphy 2011, 72)

From the 19th century, the plans indicate an '*old engine'* and '*old engine shaft*' with water to drive them being supplied by a dam and leat, with a feeder leat for the dam and the wheel-pit still apparently visible; this was the main access point for the workings on the vein, and had been sunk to 24 fathoms. The shaft was stoped and produced a considerable quantity of ore (Chapman 1991, 53). On the east bank, '*Todd's Water Race*' drove a further engine; these '*engines'* were all pumps for drawing the water out of the deeper workings along the vein (Smith and Murphy 2011, 73). The date of the installation of these is unclear, but descriptions of '*Water Engine Vein'* from June 1801 seem to be describing Providence North Vein, so their establishment is likely to have been about this time. By June 1st 1801, John Forster, Thomas Millican, and John Bradwell are working '*Water Engine Vein*', and on the 7th September 1802 this is being worked by John Lowry, Joseph Little, Jonathan Pattinson and Thomas Millican. On the 12th February 1805, '*Old Water Engine Vein'* (implying perhaps the redundancy of the equipment being used to pump the mines) is being worked by Stephen Robson, William Hall, William Archer and William Walton (Smith and Murphy 2011, 74).

It is possible (but again by no means certain) that '*Water Engine Vein'* may have referred to that portion of Providence North Vein which lay east of the Tees, as an exploration agreement with the London Lead Company of mines at Milburn, Knock and Dufton, dated to 1820, describes (but does not name) Providence North Vein (west of Tees) and indicates an agreement with William Todd, a miner of Alston, for its working for 1 year. This is presumably the same William Todd mentioned in 1800, though it could be his son; nevertheless, a continuity of working of Providence North Vein (west of Tees) by the Todds is suggested.

William Todd took up a 21 year lease on the 15th June 1822, and is mentioned in receipts for cash payment up to 1823, and perhaps 1827, though a Frederick Hall is also named (Smith and Murphy 2011, 75). The mines are not named on Greenwoods map of 1824 (Plate 5), but a building (perhaps the lodging shops – see below) is clearly depicted, with further possible structures to the west, and south of the river.

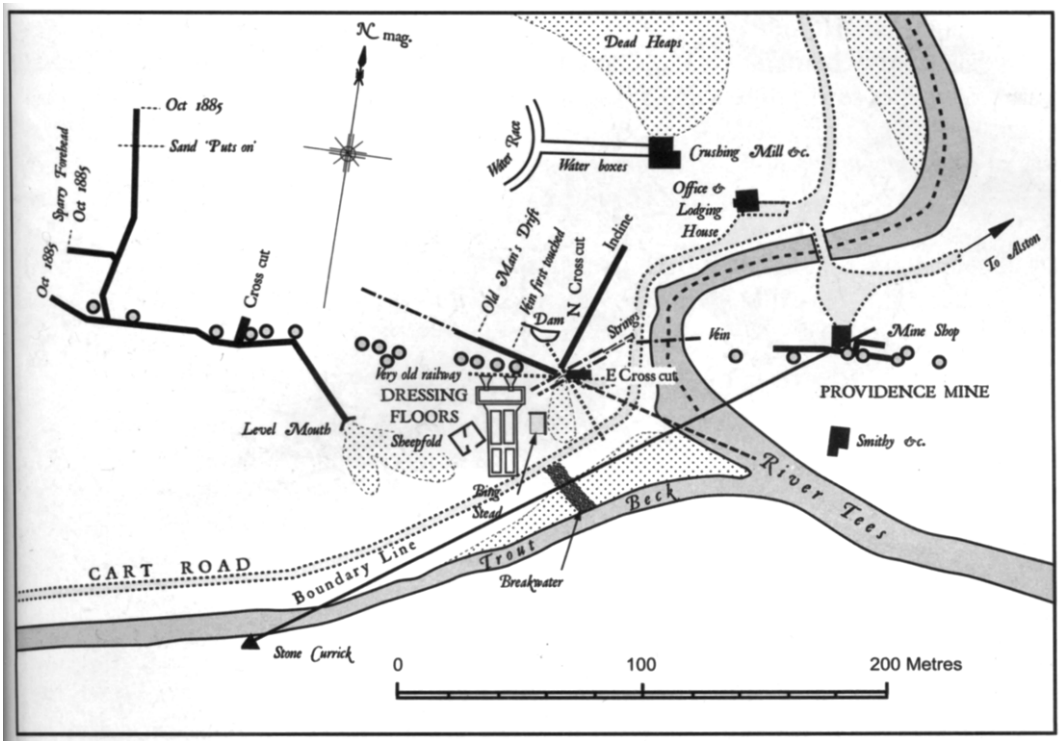

Plate 8: 'Providence Mine' (after Smith and Murphy 2011, 73)

Chapman (1991, 53) states that the poor state of the machinery, coupled with the low price of lead, forced the closure of the mine in 1829. When the renewal and updating of leases for the mines at Milburn, Knock and Dufton was undertaken in August 1838, Trout Beck Foot was not included, and may have been worked out (Smith and Murphy 2011, 75). The London Lead Company appear to have kept the Trout Beck Foot Level going, however; in 1845 in reached its final forehead and was abandoned (Smith and Murphy 2011, 75).

'Teeside Mine'

In July 1852, a new company, '*The Teesside Mining Company'*, took on leases from the Greenwich Hospital commissioners. They had commissioned Evan Hopkins, a geologist and civil engineer, to visit the mine on December 13th 1851 to produce a report on its viability of the mines. Hopkins identified a level (presumably Troutbeck Foot Level) which looked to have been abandoned, and this he recommended be driven deeper to access further veins. The mined ore should be processed in a crushing mill, which should be built on site. He also proposed the installation of pumps to drain the old workings, in order to get at the veins in the river. He proposed the installation of a water-wheel 30 to 40 feet in diameter. All immediate workings should concentrate on surface veins until the plant was installed (Chapman 1991, 54).

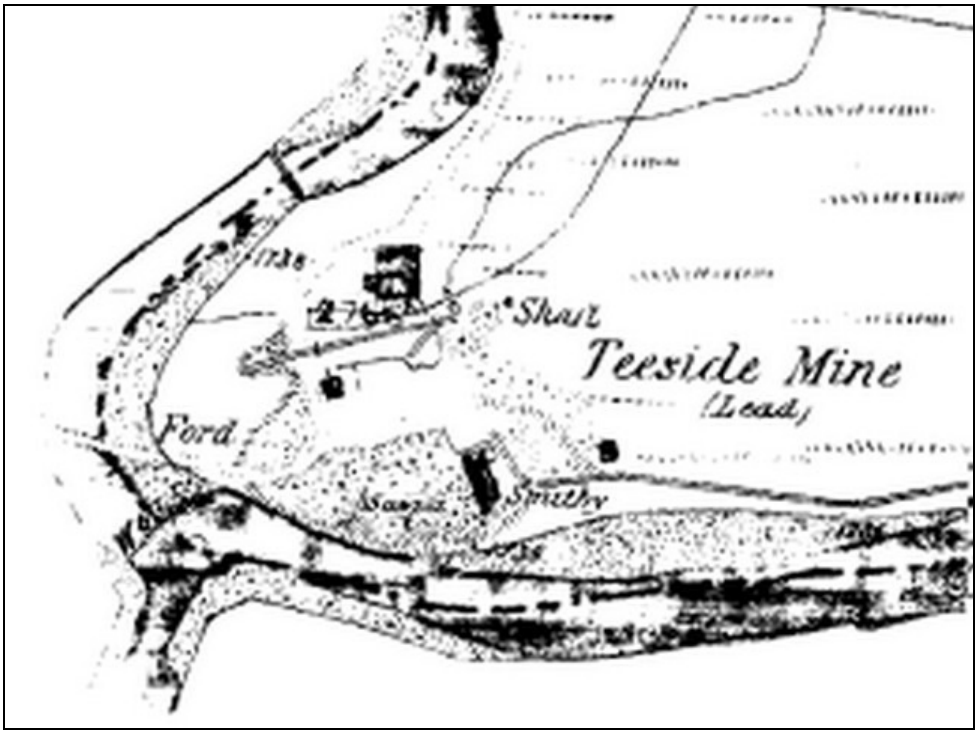

Plate 9: detail of 25 inch to 1 mile Ordnance Survey map (Cumberland), 1899, depicting 'Teeside Mine (Lead)'

Work on the mines commenced almost immediately, and reports to an AGM of the company on October 26th 1852 describe the progress made. Providence Shaft (the name presumably given to the '*old engine shaft'* named above), had been cleared of rubbish and '*each side of the shaft was said to be standing on splendid ribs of ore*' (Chapman 1991, 55). The mine workings had been drained, and a whim erected to wind from the shaft, which had raised 50 bings of ore (*ibid*).

Funds were immediately raised to construct a water-wheel at Teeside Shaft (a shaft on the east side of the river) and for the installation of a steam engine on Providence Shaft, to enable its sinking to 50 fathoms. The plant was constructed through the winter of 1853, and on May 19th 1854, the steam plant at Providence was installed and in action. The plant was so effective that '*after a few hours the water was so reduced that the miners were able to enter the higher levels of the shaft'* (Chapman 1991, 55). The boiler is reported to have been fuelled on two thirds peat to one third coal, due to the problems of transportation to the mine, with the peat cut within 100 yards of the boiler (*Ibid*). Extensive peat cuttings are still visible on the higher ground (particularly on aerial photography), immediately north-west of the shaft. The Ordnance Survey Mapping of 1899 (Plate 9) shows: the shaft with attendant waggonway; the large mine-shop with wheel-pit and head race adjacent; two further un-named buildings; and a '*smithy'* and '*saw-pit'*.

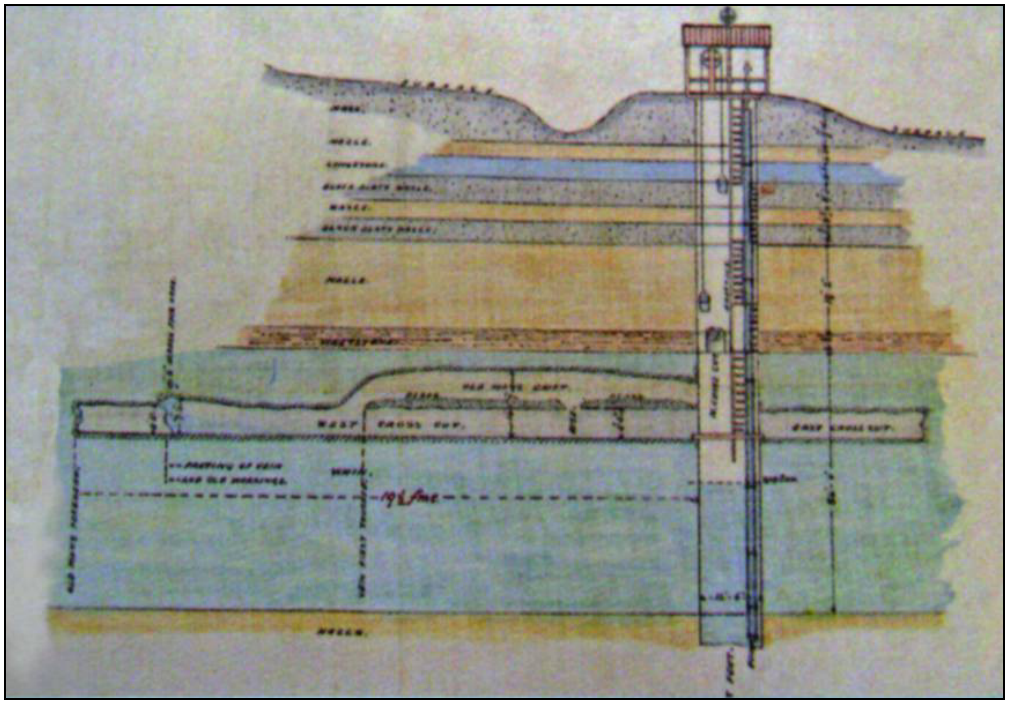

Plate 10: cross-section of Providence Shaft, showing pumping and winding arrangements (Smith and Murphy 2011)

The axle on the steam engine broke in July 1854, and the pumping spear on the water-wheel also failed, brining works to a halt. With the pumps repaired, and working a full tilt, the mines were de-watered to the 20 fathoms level, where the miners reported the rails and waggons standing, ready to be used. The vein is described as running eastwards for 35 fathoms, 12 inches wide, with a further band of mixed fluorspar and lead ore a t 2 feet 6 inches in width (Chapman 1991, 56).

A report on the mine to the directors by John Hartland of Marrick in Autumn 1854 proposed the installation of a water-wheel on Providence Shaft, with the use of the steam engine as a backup only during droughts. The water-wheel proposed would crush, wind and pump, repaying any outlay quickly. £1,000 to £1,500 was needed to install the wheel, and was certainly raised by December of that year. The water-wheel at Providence allowed the shaft to be sunk 17 feet below the 24 fathom level, with eight men working at the base. In December 1855, the winter freeze halted the working of the wheel, resulting in water rising back to 5 fathoms from the surface (Chapman 1991, 56).

Crushing plant was certainly installed at the mine, but its position is a little unclear from the description. The accounts describe the construction of a stone building for a set of stamps in 1857, but this may have been at Metal Band mine, further to the east (Chapman 1991, 57). Nevertheless, a crushing mill is clearly depicted on

the mine plan in Whitehaven record office, redrawn by Smith and Murphy and reproduced in Plate 8, and this appears linked to the workings at Providence Shaft.

By July 1860, Providence Shaft was 10 fathoms below the 24 fathom level, but was continuously hampered over the following year by snow and ice in the winter, and drought in the summer months, which hampered the pumping operations (the steam engine is not mentioned, and had perhaps been removed by this point, and sold off). It seems operations may have ceased by the end of 1861 (Chapman 1991, 60-61).

In 1863, the company was struggling to keep going, and a report in February 1863 by shareholders called for renewed investment in the mine, which, it was believed, could remain profitable and provide future riches. The purchase of a steam engine at £400 is mentioned, confirming the sale of the earlier engine (Chapman 1991, 61). However, by the summer of 1866, the mine was advertised for sale. The billet included mine-shops, workshops and stables (Chapman 1991, 61). The Inspector of Mines' reports show that Teesside Mines were then leased to J.H. Robinson during the period 1872 to 1883 (Fairbairn 1993, 140).

SUMMARY OF THE ARCHAEOLOGICAL FEATURES

The following section provides a brief summary description of the main structures identified in the survey area; a more detailed survey and gazetteer is recommended, and should form the basis for future works.

Plate 11: view west towards Hardshins Level standing on the dead heaps, with protective spoil banks on right of picture

The portal constructed by the London Lead Company as a '*cut and cover*' in 1835 survives in a semi-collapsed state (**1**) and a constant stream of water emanates from this portal along a leat which empties broadly to the north-east into the Tees. The north side of this leat appears to have been protected by a bank of mine waste

along its north side, presumably to stop any floodwater from backing up into the mine (Plate 11). The waggonway from the mine took a slightly more elevated route from the level running up and passed Structure **3**, whose function is unknown. The structure looks to have been a small store, as it does not appear to have a chimney, and appears to be mid to late 19th century in date, to judge from cartographic sources. North of **3**, a long finger dump of dumps extends north and east, encircling the dressing floor, and also protecting it from flooding. Further dumps also extend west, along the base of the hill, above the Hardshins waggonway. All the dumps look to have been exploited in the past for building stone, and trenches have been dug into them – most of the northern edge of the dumps encircling the dressing floor also appear to have been removed, with later spoil replaced instead. It is unclear if this was removal was for reprocessing for barytes or fluorspar, but it is perhaps unlikely, in view of the remoteness of the mine, and general track maintenance may be a more likely explanation.

Plate 12: panorama showing dressing floor, facing south

The waggonway continues east along the edge of the hill, and appears to have served a series of bouse teams **2**, which still survive in the south-east corner of the dressing floor. These are likely to have continued further north and east than the surviving sections now do, but their exact extent is unclear. There are no obvious bays evident along these, but some form of sub-division is likely. Further east, a retaining wall, now very dilapidated, is visible running east and abutting the north elevation of Structure **4**.

The dressing floor survives reasonably well (albeit disturbed by later activity), but has clearly been subject to episodes of dumping of dredged out river cobbles in modern times, which form discrete dumps in the south-west, centre-north and north-east areas of the dressing floor (Plate 12). Along the south-west side are a series of ponds, now mostly overgrown and disturbed, which extend eastwards to the Tees, and look to be related to the culvert at **5** (Plate 13); these are presumably wash ponds for the finer processing of lead particles. On the south side of these, partially buried in collapsing heaps of material from the bank side, are a series of probable wooden buddles. Other than these, no obvious structural evidence is visible and it is possible it has either been removed, or has been levelled out and survives as sub-surface remains.

In the south-east corner of the dressing floor, there are two buildings, **4** and **5**, which are now completely ruined, though the west and south wall of **4** survives reasonably intact and almost to full height. The function of these buildings is unclear, but they appear to relate to the position of a crushing mill depicted on the mine plans and indeed **5** is buried in a heap of fine crushed material. This mill appears to have been processing material from Providence Shaft, though it may also have served Hardshins Level. There is a boundary wall extending north from the east side of Structure **4**, and to the rear of Structure **7**. On the north side of **4** is a much damaged flagged surface, which appears to have formed a working area overlying the culvert. Further north along the track, towards the bridge, is a long, ruined, rectangular building **7**, which looks to be the remains of the Miners' Cottages depicted on the First Edition Ordnance Survey Mapping.

Plate 13: culvert with crushing mill adjacent (right of picture), facing east

On the east side of the hill is the position of Providence Shaft **6**, which is slightly elevated above the track and encircled by a fence (Plate 14). Providence Shaft is certainly at least early 19th century in date, and comprises a sub-rectangular shaft of squared and coursed rubble, now choked with stone. On the east side is the position of the concrete machine base for the steam-powered pump installed in 1853 and first worked in 1854; the iron fixings for the machinery still survive. Adjacent and set slightly lower is a further concrete setting, with similar iron fixings, which is said to be the position of the wheel-pit, which was added in 1855. The wheel-pit is choked with stone.

Further south from the shaft is a further large area of workings containing a dressing floor, causeway, spoil heaps and a level, now completely collapsed but clearly visible on aerial photography. This is the position of the workings at Troutbeck Foot Level (**9**), which was worked in the early 19th century by Todd. This area was

not examined in detail, but does not appear to contain any structures under threat. It is, nevertheless, an interesting area, and would be worthy of detailed survey.

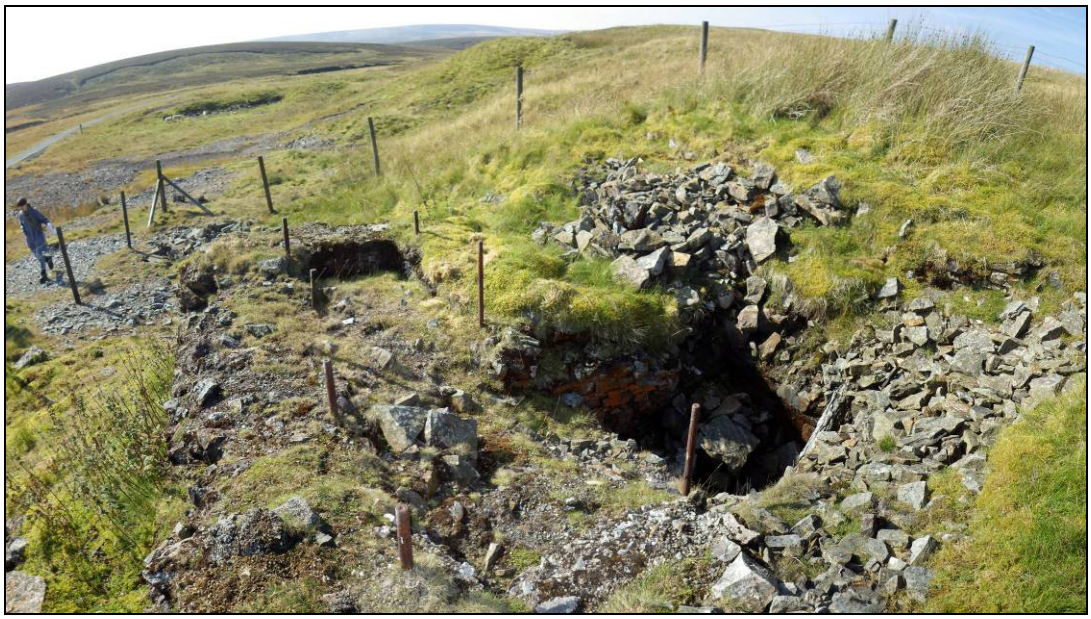

Plate 14: Providence Shaft, facing south; the dressing floor and Troutbeck Foot Level lie in the middle distance

Summary mention should also be made of the area around Teeside Shaft, known colloquially as Teeside Mine, and related to the workings around Providence. This area contains a large wheel-pit, linked to a bearing block and pumping shaft, with a further shaft adjacent. On the south side of the latter shaft is a horse-whim, and on the north side of the wheel-pit is a large mine shop. The dressing floor lies within the lower meander of the river, and includes a number of ponds, structures, and buildings (including a smithy - see above). Whilst this area is not being covered by this project, it forms part of the history of the site, and should be included in any future interpretation.

STATEMENT OF SIGNIFICANCE

Overall Significance

The '*Teeside Mine*' complex is considered to be of considerable (regional) significance as an example of a well preserved 18th – 19th century lead mine and dressing floor, forming part of the wider North Pennines mining landscape. The rapid assessment has established the considerable evidential value of the site which appears to be of an extent and quality of preservation to rival those found on more well known Scheduled sites (for example, Whitesyke and Bentyfield mine, near Garrigill). Based on the observations of archaeological remains seen on the dressing floor there is considerable potential for the survival of material relating to all aspects of the dressing processes including buddling, jigging and slimes, as well as crushing and sorting; the latter is thought to have been housed in a purpose built structure.

Of equal importance are the historic values of the site, in particular the links with the London Lead Company, the Teesside Mining Company and other smaller concerns. Further research is necessary to fully understand the historic development of the site and how it functioned, especially how the main dressing floor met the needs of both Providence and Hardshins mines – did it serve both? Were there alternate dressing floors elsewhere? Was there an earlier phase of mining associated with Troutbeck Foot Level? Was there later reprocessing for fluorspar and barytes at the mine? Further survey and excavation may answer some of these questions. Within the wider landscape, and in particular on the hillside above the dressing floor, importance evidence of peat cutting, trackways, leats and other water management systems appear to survive, and would warrant detailed examination.

The site has a considerable communal value with regards the level of interest inspired in the industrial history of the area, particularly mining. There are a number of local and regional industrial interest groups including the Cumbria Amenity Trust Mining History Society (CATHMS) and other mine exploration groups and local history societies who would be interested in the site and there is the potential to bring these elements together to advance a better understanding of the site and its surroundings. The site also lies adjacent to a popular walking route, and its interpretation would benefit passing tourists, in much the same way as has been recently undertaken at Bolts Law Engine House on the Coast to Coast cycle route above Rookhope.

Site Specific Values

The following table summarises the site specific significance of the '*Teeside Mine*' according to four high level themes as set out in Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008):

Evidential Values - the potential capacity of the dressing floors to yield primary evidence about past human activity (building design, extent of survival, etc).

Historical Values - the potential of the dressing floors to advance the historic narrative – the connection between the present and the past through association with people, events and aspects of life.

Aesthetic Values - the potential for people to derive sensory and intellectual stimulation from a place, through design, art, character and setting.

Communal Values - the potential for the dressing floors to bring people together through collective experience or memory.

Table 1: *Summary of heritage significance*

Evidential	The degree of preservation of material related to the dressing floors appears to be good, in particular wooden items like buddles, chutes and launders, were found surviving good condition; The variety of the material preserved was not considerable, but sub-surface remains could potentially include evidence of all phases of lead processing. Usually processing moves down hill, with sorting and crushing higher up and jigging and buddling lower down, but this is not clearly demonstrated here as the site is relatively flat, and may have been arranged differently; The sequence of deposits which seem to be preserved range from the 18th to late 19th centuries. Each new phase appears to have built on top of the preceding phase without levelling, which means a good sequence of material could potentially be preserved; The group value of the site in terms of the wider industrial landscape and in the more immediate context of understanding the development of the Hardshins, Providence and Teeside mines.
Historical	The association of the mine with the London Lead Company and the Teesside Mining Company; The association of the site with smaller earlier and contemporary mining concerns, and its later use either related to reprocessing or casual quarrying for track material; The wider historic significance of the site in terms of understanding the pattern of settlement and communication across the North Pennines; The historic importance of the site in terms of understanding the lives of the lead miners and how the partnerships were organised and administered.
Aesthetic	The industrial remains, set as they are within the wide expanse of the surrounding moorland, evoke a strong feeling of the passing of

	time and the transitory nature of human endeavour: a sense which echoes across some of the country's greatest and most popular archaeological sites. Many of the features are visible from the public footpath but partially hidden by the local topology. The site is intriguing and promotes a sense of discovery and exploration for those who make a detour from the path to investigate. Unfortunately, this is also one of the major management issues in terms of public health and safety. The buildings are very important to the aesthetic significance of the site. They are substantial and visually impressive structures, drawing the eye from the footpath. The standing gable is perhaps one of the most dramatic of the surviving mine structures and the most immediately accessible both physically and intellectually ie. it is instantly recognisable without the need of interpretation (to an extent). Views both from and around the site are key to the setting of the dressing floors and the mines. In particular the long view west up towards Hardshins Level and out across the moorland beyond.
Communal	There is already considerable interest in the history and archaeology of the site and the potential to bring together groups to explore both the evidential and historic elements of the mines and dressing floors to promote a greater understand and appreciation of the lead mining heritage in the dale.

FURTHER RECOMMENDATIONS

The dressing floors are likely to be very vulnerable to flooding, erosion and associated subsidence through ground saturation, which place the significance of the site at considerable risk. There are also a number of other issues which threaten not only the dressing floors but also the remains of the upstanding buildings. In order to preserve and enhance the significance of the site, a formulation of a management plan is recommended to ascertain the nature and extent of the risks to the asset and determine a workable programme of stabilisation. In the absence of such a plan, and as a short term measure, the following should be considered:

- Further documentary research with the aim of understanding more about the development and history of the site;

- Further recording of the mining landscape - both landscape survey and historic building recording;

- A regular programme of condition monitoring. Any future survey can be used as a baseline to inform this work which should be undertaken at least on an annual basis or after episodes of heavy flooding;

- Addition information should be added to the Cumbria County Council Historic Environment Record (HER) regarding details of the mines.

Many of the above elements could be undertaken by volunteers and in the first instance the Nenthead Mines Conservation Society or CATHMS might be approached to see if they would be interested in becoming actively involved in the future conservation and recording of the site. Limited excavation could be carried our as part of the North Pennines AONB *Altogether Archaeology* project.

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