WILLIAM GILL COLLIERY, ARKENGARTHDALE, NORTH YORKSHIRE

ARCHAEOLOGICAL SURVEYS

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EXECUTIVE SUMMARY

In January 2019, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Mr Miles Johnson, Senior Historic Environment Officer of the Yorkshire Dales National Park Authority (YDNPA) to undertake a walk-over survey and targeted detailed measured archaeological survey of William Gill Colliery, Arkengarthdale, North Yorkshire (NGR NY 9185 0568 centred). The survey was intended to build upon survey work undertaken previously by EDAS on the nearby Tan Hill and King's Pit collieries. The project involved a combination of documentary research, walkover survey and detailed measured survey, and incorporated some of the extensive documentary research previously completed by the mining historian, the late Mr Les Tyson. The project was funded by the YDNPA, and the majority of the field survey work took place between February and March 2019.

Documentary evidence indicates that the colliery was active from at least 1731 until the mid 1890s. It is possible that mining had started earlier in the 18th century or even the late 17th century, as by the latter period both Tan Hill and King's Pit collieries to the north-west were already successful enterprises, perhaps encouraging others to seek new sources of coal in the vicinity. The scale of working increased in the late 18th century, with improved provision made for both access and the accommodation of colliers on site. The combined documentary and field evidence suggests that the workable coal was contained within an area measuring approximately 700m north-west/south-east by 950m north-east/south-west. Generally, the northern extent of the seam outcropped within the upper part of William Gill, dipping towards the south-west. The average thickness of the coal seam was around two feet, and the coal was said to burn with an intense heat but to not coke well.

Within the walkover survey area, at least 24 shaft mounds were identified, some of which had not been recorded by previous surveys, together with a single level. By the end of the 18th century, the colliery was well established; indeed, it must of been of some local importance to merit the construction of a 3.50km long 'Coal Road' from the head of Great Punchard Gill along Annaside Edge before 1779. By 1799, shafts were also present on both sides of William Gill, with a system of causeways developing on the western side and also a single house, built in 1787, probably serving both as accommodation and offices. During the first half of the 19th century, the surface network of shaft mounds and linking causeways serving the underground bord and pillar workings expanded further to the south-west on both sides of the gill. In many ways, the pattern of development at William Gill in the first half of the 19th century is very similar to what has been recorded at Tan Hill and King's Pit collieries, and documentary evidence makes it clear that the owners of King's Pit colliery were concerned about coal from the William Gill colliery impacting upon their markets from the late 1820s onwards.

There appears to have been a re-organisation of the colliery in the mid-19th century which required a temporary stoppage. This included the driving of a new level and the construction of a new complex at the head of the gill, meaning that by c.1850 many of the earlier shafts and the causeways serving them had become disused. The earlier Coal Road may also have become less important locally, with another trackway (again present by 1779) extended further up the gill to the new complex. The latter was equipped with a horse whim, an associated building and a coke or cinder oven, despite the coal apparently having a poor reputation for coking. There was another coke oven present to the north-east in 1856-57, although neither have extensive structural remains and so may have been short-lived. There were problems with flooding at the colliery in the later 19th century and mining appears to have ceased by 1895. However, at some point between c.1850 and 1895, there appears to have been a short-lived attempt to work coal in Lad Gill, to the north of William Gill. Although the main surviving structure there now has the appearance of an agricultural enclosure rather than a building, structural evidence suggests that it might once have been an example of a long but relatively narrow single storey building, perhaps used for the storage and weighing of coal, which appears to be characteristic of isolated collieries in the area that were opened in the second half of the 19th century.

1 INTRODUCTION TO THE PROJECT

Reasons and Circumstances of the Project

1.1 In January 2019, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Mr Miles Johnson, Senior Historic Environment Officer of the Yorkshire Dales National Park Authority (YDNPA) to undertake a walkover inspection and targeted detailed measured archaeological survey of the William Gill Colliery, Arkengarthdale, North Yorkshire (NGR NY 91850 05680 centred) (see figures 1 and 2).

1.2 The work was intended to build upon previous survey work undertaken by EDAS on the nearby Tan Hill and King's Pit collieries (Richardson & Dennison 2018a; Richardson & Dennison 2018b); the walkover survey equates to Level 1 archaeological survey, while the more detailed work corresponds to a Level 3 survey as defined by Historic England (English Heritage 2007, 23-24). The project involved a combination of documentary research, walkover survey and detailed measured survey, the results of which were used to prepare this report. The extent of the work was defined by an EDAS project design (see Appendix 2), and it was funded by the YDNPA.

1.3 It should be noted that, in the following text, William Gill Colliery is taken to refer to the whole of the area that was formerly exploited for coal (centred on NGR NY 9185 0568), rather than just the small complex at the head of the gill (NGR NY 91557 05283 centred) which assumed that name in the mid-19th century.

General Site Location and Summary Description

1.4 William Gill Colliery (centred at NGR NY 91850 05680) lies at the head of William Gill, some 2.30km south-east of the Tan Hill Inn, on Stonesdale Moor, Arkengarthdale, North Yorkshire, at an elevation of c.580m AOD. The area is currently formed by unenclosed heather moorland, some of which is used for grouse shooting. A public footpath runs up the gill, with others running across it from Mirk Fell Edge to the north-west and Great Punchard Gill to the east; the unenclosed moorland is all an Area of Open Public Access.

1.5 The survey area lies wholly within the Yorkshire Dales National Park. A small area around the mining complex at the head of the gill is a Scheduled Monument (National Heritage List for England entry 1018368; SM 29548), first designated on 29th April 1998; the Scheduled Monument description notes that William Gill Colliery is an important and scarce surviving example of a small upland colliery in the Yorkshire Dales. However, the majority of the surface mining remains lie outside the Scheduled area. The colliery is also listed on the YDNPA Historic Environment Record (HER sites MYD21153 and MYD44161) and Historic England's National Record of the Historic Environment (NRHE - Pastscape) (monument 576060; NMR NY 90 NW 2).

1.6 The walkover survey area was located in the central and upper (south-west) parts of William Gill, covering both the eastern and western sides; it had total dimensions of c.750m north-south by 650m east-west. The survey area included the Scheduled Monument at the head of the gill, and also Lad Gill, a small tributary valley of William Gill to the north. The boundaries of the survey area were largely defined by the extent of the surface mining remains. The surface vegetation of the survey area is characterised in general terms by a mixture of heather and rough

grass. Away from the established mining tracks, there are numerous substantial peat goughs and areas of wet, boggy ground.

Previous Research and Archaeological Investigations

1.7 A brief history of the colliery is given by Gill (2008, 90-91), with the geological background being provided by Dakyns *et al* (1891). However, the most detailed research undertaken to date had been carried out by the mining historian, the late Les Tyson. At the time of writing, this research remains unpublished, although Mr Tyson generously allowed EDAS access to it during the course of this project. The majority of the early plans and maps relating to the colliery are held in the North Yorkshire County Record Office (NYCRO) in Northallerton. The William Gill complex is also mentioned in other books about mining in the general area, such as Hardy (1998).

1.8 In terms of previous archaeological investigations, Archaeological Services University of Durham undertook monitoring and recording work on the capping of six open shafts in 2003, including four within the EDAS William Gill survey area (ASUD 2003). As part of these works, detailed topographical surveys were carried out of the four shafts using an EDM total station; these were presented as contour surveys, with the earthworks shown in outline only. A visual (photographic) record of a number of the shaft mounds on the south-east side of the gill was made by Tim Laurie in 2012 and is included on the Swaledale and Arkengarthdale Archaeology Group's (SWAAG) website (*https://swaag.org/DB_VIEW_in_Pages_KeyWord2.php; SWAAG ID 478*). In the same year, Northern Archaeological Associates undertook a rapid archaeological survey and assessment in West Arkengarthdale relating to peat restoration (NAA 2012) and this included the EDAS survey area. This assessment drew together existing HER information and related this to what was visible in the field, as well as identifying and mapping a number of new sites or features.

1.9 Finally, in 2017 Shaun Richardson and Richard Lamb undertook a detailed measured earthwork survey of the best preserved horse whim circle at the head of William Gill; this has been incorporated into the survey work undertaken for this report. Also of relevance to the William Gill project were two other EDAS reports relating to the wider Tan Hill and King's Pit collieries, one of which also included surveys of other mining remains (Richardson & Dennison 2018a & b).

Aims and Objectives

1.10 The aims and objectives of the EDAS project were:

- to ascertain the form, position and extent of the surface remains associated with the former William Gill Colliery;
- to produce detailed measured archaeological surveys of a number of the most important or representative features within the colliery area.

Fieldwork Methodologies

1.11 In accordance with the EDAS project design (Appendix 2), a number of separate pieces of work were undertaken, as follows.

Collation of Documentary Material and Previous Research

1.12 Prior to his death in January 2019, liaison was undertaken with the late Les Tyson (mining historian) - he had been researching the history of Tan Hill and King's Pit collieries for over ten years, and had amassed a very large body of information on their operation from the later medieval period through to the mid 20th century. This unpublished research, including material relating to the William Gill Colliery, was very generously made available to the authors before the walkover survey took place. The NYCRO in Northallerton was also visited, primarily to view cartographic material and mining plans.

1.13 As part of their rapid assessment work in 2012, NAA had obtained information from the YDNPA HER. This information comprised lists of identified archaeological sites and monuments, records/reports of any previous historic research and archaeological activity, current and historic aerial photographs, past management and land ownership records, and historic maps and plans; the relevant details had been tabulated and the identified sites were located on Ordnance Survey (OS) maps. This information was made available to EDAS, and has been used in the following report.

1.14 A full list of primary and secondary sources consulted are given in the Bibliography (Chapter 5) below.

Walkover Survey

1.15 The information from the documentary research and previous surveys was collated and marked on a modern OS 1:5000 scale map base supplied by the YDNPA. Modern vertical colour aerial photography was also consulted. This was then used to locate the features depicted on the historic plans and maps, and by previous surveys, and also to help identify the location of 'blank' areas, where a walkover was necessary to determine if previously unrecorded surface remains were present. In the event, many of the blank areas on the OS maps were found to comprise broken or boggy ground, crossed by gullies caused by natural water erosion or the sinking of surface peat deposits.

1.16 Sufficient information was gathered to allow the identified remains to be readily to located through the use of surviving structures, fences, walls, water courses, trackways and other topographical features; use was also made of a hand-held GPS system to provide National Grid References (+/- 5m degree of accuracy). For Health and Safety reasons, no inspection of underground remains was attempted. On completion of the walkover survey, the field data was plotted on to a clean set of OS base maps, which are reproduced as part of this report. Although not every identified feature was photographed, a number of photographs were taken to illustrate specific well-preserved or representative features, as well as other features considered to be relevant to the report. More general photographs were also taken showing the landscape context of the survey area; for example, some of the causeways only become clearly visible in photographs when viewed from the opposite side of the gill. The colour photographs were produced using an SLR digital camera with 12 mega-pixel resolution, and all shots were numbered and labelled with the subject, orientation, date taken and photographer's name, and were cross-referenced to digital files etc.

1.17 It is thought that a high degree of recognition was achieved by the walkover survey, although it is surprising to what degree even features like large shaft mounds can remain very difficult to see from ground level within such a landscape.

Similarly, features such as denuded causeways or smaller shaft mounds are almost invisible on modern vertical colour aerial photography.

Detailed Measured Survey

1.18 As noted above, in 2003, Archaeological Services University of Durham undertook monitoring and recording work on the capping of six open shafts, including four within the William Gill survey area. As part of these works, detailed topographical surveys were produced of the four shafts using EDM total station equipment; the results were presented as contour surveys, with the earthworks shown in outline only, at scales of between 1:100 and 1:300. EDAS enlarged or reduced copies of these surveys to a consistent scale (either 1:100 or 1:200), and took them out into the field to use as the base for detailed measured hachure plans of three of the shafts.

1.19 In addition, two other new surveys were compiled of ruined structures using traditional hand-held measuring techniques, at a scale of 1:50 or 1:100. The surveys were not integrated into the Ordnance Survey national grid, although gird co-ordinates were obtained through the use of the hand-held GPS (+/- 5m degree of accuracy). The resulting site surveys were produced at scales of 1:50, 1:100 or 1:200, and presented as interpretative hand-drawn wet ink hachure plans using conventions analogous to those used by English Heritage (1999; 2002, 14; 2007, 31-35), now Historic England.

1.20 Sufficient notes were also taken in the field to provide a detailed written description of all identified and surveyed features. The majority of the field survey work took place between February and March 2019.

Survey Products

Archaeological Survey Report

1.21 This EDAS archive survey report has been produced from the results of the documentary collation and the information obtained through the detailed field survey work. The report is illustrated with reduced versions of the inked field drawings, copies of historic maps, and a selection of photographic plates, as appropriate. Comments on a draft of the report were also kindly provided by Ian Spensley and Mike Gill, both acknowledged and knowledgeable local mining historians. The final survey report was then provided as hard copy and in electronic pdf format to the YDNPA.

Archaeological Survey Archive

1.22 A fully indexed and ordered project archive has been prepared, following the guidelines produced by the Chartered Institute for Archaeologists (CIfA 2014). The archive comprises primary written documents, plans, sections and photographs, and an index to the archive (EDAS site code WGC 19). The site archive was deposited with the YDNPA at the end of the project.

1.23 An appropriate entry was also submitted to the OASIS (On-line Access to the Index of Archaeological Investigations) project, including the deposition of a digital copy of the report with the Archaeology Data Service, via the OASIS form, upon completion of the project.

2 BACKGROUND INFORMATION

Geology

2.1 William Gill Colliery was working the same seam of coal as the Tan Hill and King's Pit collieries. The seam lies on the coalfield's eastern edge, outcropping in the northern side of the gill, which runs broadly north-east/south-west (Gill 2008, 90). As with any discussion of an extractive industry, an understanding and appreciation of the below-ground geology is important, as this will govern the scale, extent and complexity of any mines and other workings. The most detailed account of the geology of the collieries and surrounding area was provided in the late 19th century (Daykns *et al* 1891). More recently, an outline of the geology of the eastern parts of the Great Dales Coalfield, which includes the area around William Gill, has been published by Gill (2008, 69-71 & 88). The following text is therefore primarily taken from these sources.

2.2 The Carboniferous strata of the Yorkshire Dales are laid on highly folded rocks of Ordovician and Silurian age, with a small granite intrusive batholith at a depth of 495m near Semer Water. Together, these deposits form the 'Askrigg Block', which is bounded to the south, west and north by the Middle, Craven, Dent and Stainmore faults respectively. During parts of the Carboniferous period, there was a long, almost unbroken, period of limestone formation in warm shallow seas, followed by a stage where rivers formed deltas and dropped muds and sands into the seas. Rhythmic successions (cyclothems) saw the deposition of limestone, shale and sandstone deposits sometimes overlain by thin coal seams; the thin coal seams developed on sand and mud substrates where the water had become shallow enough for swamps to form. Periodic incursions of sediment-rich water into the lagoons from the river channels or the sea mean that the Dales' coals have a generally high ash content, probably leading to the areas of 'poor coal' which are marked on most mining plans of the area. A total of eleven cyclothems, from the Hawes Limestone up to the Crow Limestone, formed what are known collectively as Yoredale type rocks (Gill 2008, 69-71 & 88).

2.3 With regard to the Tan Hill area, it was noted at the end of the 19th century that many of the nearby gills exposed good sections of local geology. For example, the Crow Limestone was visible resting on top of the Ten Fathom Grit at the foot of William Gill, whilst within Lad Gill (to the south of Tan Hill) and Dry Gill (to the north of Tan Hill), a section of the local limestones, gritstones, shales, flagstones and cherts was also exposed. Within Mirk Fell Gill (to the east), seams of both gannister (a hard fine-grained sandstone used in the manufacture of silica brick typically used to line furnaces) up to 18 inches thick and coal up to 6 inches thick were visible (Daykns *et al* 1891, 122-23 & 126).

2.4 An account of the Tan Hill coal, given in 1891 (Daykns *et al* 1891, 153-155) is worth reproducing in some detail:

"Lying close above and sometimes directly on the pebbly or basal grit is usually a seam of coal, known as the Tanhill Coal. About Tanhill its outcrop is clearly shown by the numerous levels and pits driven into it. About Mirk Fell Head it comes into sight in numerous small sikes, its outcrop being repeated in one place by a small fault. On the face and flanks of Mirk Fell several trials and two small shafts show that the seam has degenerated to little more than a smut. A very sharp roll over of the beds, to the north of the high road, brings on the coal again in Mirk Fell Gill, on both banks of which it appears some 200 yards below the Bridge. It has never

been tried in this area, indeed its rapid northerly dip renders the working of it impossible without much pumping, even supposing the seam to be of good quality.

Returning to the east side of Mirk Fell some pits put down recently showed only a smut of coal. Some distance to the south in a small branch of William Gill, a level driven on the outcrop of the coal, proves it to range from 1½ feet to sometimes as much as 4 feet, but the average is about 2 feet. In William Gill and on the east side frequent sections in little runners show that the coal rapidly deteriorates in a northerly direction. A shaft between Great and Little Scolit reached it at a depth of 68 feet, but it was too thin to work, and at Annaside Head a level was driven into the outcrop, but the seam proved to be of no value. All along the face of the scarp looking into Arkendale, sections of the seam are frequent, and as we approach Punchard Head we find the seam splitting into three parts, the section at Roe Beck being as below:-

		Ft.	Ins.
	Coal	2	0
	Shale	6	0
Tanhill Coal -	Coal	0	2
	Shale	5	0
	Coal smut	0	3

The coal seems to be impure here, but a little further south from a considerable number of old pits some good coal was obtained. The level at Punchard Head also shows the seam in three parts, each of which may be seen in the stream. A little south of this a large fault throws up the seam and there is no trace of it for some distance. Three borings were put down towards the higher part of Great Punchard Head, but in none of them does the coal seem to be of any value.

Proceeding in a southerly direction from Tanhill into Stonesdale, where the coal has been extensively worked, we find the seam resting on a thin bed of pebbly gannister, which has a clear outcrop between Tan Gill and Mould Gill (north of Lad Gill). Further south, the gannister is often replaced by a soft underclay, and the exact position is not so clear. As we approach Lad Gill, the seam appears to thin away, for a small level driven in the bank just above the stream, showed it to be much split up, and quite useless.

Further south at Mould Gill Head we see 8 inches of coal but not the top. About a quarter of a mile south-south-east of here it is about 2 feet thick but much mixed with shale. On the west side of East Gill it crops out in two places. A section in the long sike south-east of Hind Hole Beck shows 14 inches of coal, mixed with shale, resting on fireclay; but the top is not seen.

At Gunnerside Beck Head it was formerly worked, to a small extent, by shafts and levels on both sides of the Blakethwaite vein; but its thickness does not seem to be now known.

It may be inferred from the above facts that the workable coal is restricted to a small area bounded to the north by a line drawn through Tan Hill through William Gill Level. A parallel line drawn from Lad Gill in Stonesdale to the head of Gunnerside Beck seems to indicate roughly its southern limit. To the east about Punchard Head it is very uncertain, parts being fairly good and then turning worthless within a few yards. Doubtless there would be some poor coal within the area here indicated, but there seems to be none of any value outside it. The William Gill Level could proceed no further owing to water, so that there must still be a large area of probably good coal in the neighbourhood of Water Crag which

may be some day reached by a rise from the great Gunnerside Level, that is if it should ever be thought worth the expense. The small patch of coal in Bowes Royalty, known as the King's Pit, has been practically worked out, but there is a deal of coal to be won yet from the great level in Stonesdale.

The coal itself varies much in quality, but it always contains a considerable amount of ash. That won from William Gill pit burns with an intense white heat, indeed few coals give out so much, but as it is very 'small', and will not coke, it requires care in burning. About Tan Hill some of the coal easily cokes and is then a fairly good fuel, but not so hot as that of William Gill".

2.5 Tan Hill coal occurs in the shales, often in conjunction with gannister, which overlie the Upper Howgate Edge Grit, a coarse grained sandstone varying greatly in thickness found near the tops of the highest fells in the north-western part of the region. The Tan Hill Coalfield included mines in the townships of Kaber, Muker, Bowes and Arkengarthdale. The seam outcrops on the coalfield's northern edge around Summerhouse Hill, to the immediate north of the Tan Hill Inn, and then dips gently southwards into Coal and Mirk Fell Gills, running north-east onto Sleightholme Moor where it terminates against a fault. On the western margin of the coalfield, the coal outcrops in West Stonesdale and runs south to just north of Lad Gill, where it is again cut off by faulting. There is a small outlier of Tan Hill coal at Coalpit Hill, on Black Moor, on the south side of the Blakethwaite Vein (Gill 2008, 69-71 & 88). In 1891, it was noted that the same seam occurred as a 'smut' only in Swarth Gill and Rackenthwaite Gill, some 17km south-west of Tan Hill, but further south it had been worked by the Baugh Fell coal pits. There were also stated to be extensive workings of the seam at Kettlepot Colliery on Ravenseat Moor, again to the south-west of Tan Hill; according to one old miner, it formed a seam 18 inches thick here (Daykns *et al* 1891, 136 & 150). However, later sources (Hudson 1941) doubted that the seam correlated with that formerly mined at Tan Hill.

2.6 The Tan Hill coal seam was one of the most productive of the seams in the Yorkshire Dales, and it was typically 30 inches (0.75m) thick. It was composed of four basic layers namely, from bottom to top, the Bottom Coal (16 inches thick), the Bible Coal (6 inches), the Dirt Band (1¾ inches) and the Top Coal (8 inches). It was described as being a compact bright coal containing very few visible impurities. It was also a 'mature' coal, of relatively high rank, and was strongly coking, producing a highly swollen coke on carbonisation. Its ash content was low (2.7%) compared to other seams, and this ash also had a low percentage of iron, as well as a high silica and very high alumina content, which meant that the ash was similar to an aluminous fireclay. This meant that it was highly prized for metal working, and was a valuable source of coke (see below) (Wandless & Slater 1938; Gill 2008, 69-71 & 88).

2.7 Although not strictly geological, it is important to note that many parts of the EDAS survey area are covered with thick surface deposits of peat. This peat will have been cut extensively in the past for use as fuel, and its widespread presence had a bearing on the surface organisation of the coal mining, with causeways having to be 'floated' across the peat in order to link individual shafts and pits. Subsequent collapse and erosion of the peat deposits has affected the surface mining remains in several areas, sometimes quite dramatically; in December 1882, a great flood in Seavy Sike, to the south of Tan Hill, tore up a huge mass of peat to expose the limestones below (Daykns *et al* 1891, 123-24).

Historical and Archaeological Background

The 18th Century

2.8 The earliest known reference to coal mining at William Gill comes in the Day Book of Thomas Smales (1694/95 - 1745) of Park Hall, Swaledale. Smales acted as agent for the Trustees of the Wharton Estate and their mines in Swaledale, and also for Charles Bathurst's mines in Arkengarthdale (Les Tyson, *pers. comm.*). On the 3rd July 1731, Smales noted that he was 'At Molds and viewing William Gill Colliery' (NYCRO ZQH 7/42/34). William Gill colliery lay within the manor or lordship of Arkengarthdale, whereas Tan Hill colliery formed part of the manor of Muker and King's Pit was located within Bowes lordship.

2.9 There is then a gap in the documentary record until 1763, when a plea was made to 'turn off' some of the men currently working at King's Pit so that those working at William Gill could be taken on, as they comprised the 'best hands' that had previously been working at Tan Hill (WYAS SpSt/5/2/46). In 1779, Edmund Knowles and Co leased half the colliery for 12 years at £25 per annum. The lease stipulated that they find their own tools and keep what was described as the 'High Coal road' in repair. The Mineral Lords were to keep the 'Low Coal road' in repair, and be supplied with coal at the accustomed price (NYCRO ZQX 2/2/1 - Mine Laws Book). William Gill House, providing accommodation for the colliers, was built in 1787 (Les Tyson, *pers. comm.*). In 1788, a borehole was put down and a shaft sunk, and in 1789 it was reported that a South Level was being driven towards the main shaft. In 1791, Joseph Harker was opening out the old coal workings and drawing deads from the Old West Level. In 1789, William Gill Colliery was leased to Thomas Butson and Christopher Holliday at £26 per annum, but they relinquished it in the following year to Messrs Knowles and Peacock, at a reduced rent of £23 1s per annum (NYCRO ZQX 2/2/1 - Mine Laws).

2.10 The earliest map depiction of the colliery uncovered during the research undertaken for this report is the 1799 plan of the Manor of Arkengarthdale (NYCRO ZQX 5/5 - MIC 2023/348-362) (see figures 3 and 4). The colliery was accessible from two different directions; from the north-east, along the west side of William Gill, and from the east, from the head of Great Punchard Gill along Annaside Edge; it is assumed that the former is the Low Coal road mentioned in the 1779 lease, whilst the latter was the High Coal road. The north-eastern route left the turnpike road running up Arkengarthdale and followed the west side of William Gill, crossing it several times over fords, running as far as a building named as 'House', built in 1787. The eastern route originated within Great Punchard Head, and followed a curvilinear route west along Annaside Edge before dropping into William Gill. It is named as 'Coal Road' on the plan, and its depiction suggests that it was then the main access route to the colliery. Wright (1985, 133) described the 'Coal Road' as a packhorse track, and suggests that its ultimate eastern destination is the Reeth to Tan Hill turnpike road near Whaw Gill Bridge, thus avoiding the toll-house at Punchard some distance to the south-west. The point at which the two routes meet is the building named as 'House'. The plan also marks four (or possibly five) shafts. On the east side of the gill, and to the south of the Coal Road, there are two shafts, one marked 'St. worked 1799'. The Coal Road crosses over the gill and then continues south-west to a shaft, before angling sharply to the north-west to head towards a second shaft, possibly as a causeway; the second shaft is marked 'St. worked in 1799'. There may be a third shaft marked to the north, not linked to any track or causeway.

The 19th Century

2.11 In 1804, it was noted that the coal seam at William Gill was 15 inches high, with the coal apparently sold at 3.5d per corf or tub 'to the carts' (NEIMME Wat3/58/page 2).

2.12 When the lease of King's Pit colliery was being reviewed in 1810, it was stated that:

"*There is a Colliery called William Gill and Tanhill adjoins this Pit, and has holed through into the Pit several times, and as William Gill lies lower than Tanhill the water from Tanhill finds its way into William Gill, which is a fortunate circumstance as the original Water Drift appears to be in Total Ruin"* (NEIMME Wat3/58/4).

2.13 In 1816, the colliery was leased to Messrs Longstaff, Bell and Simpson for 14 years at a rent of £550 per annum, from which the lessees were allowed to work 5,000 dozen or scores of tubs, each score or dozen containing 21 tubs and each tub six Newcastle Pecks; a further rent of 2s 6d per score or dozen was put in place for overworking (NEIMME Wat/3/58/2). In 1828, William Gill Colliery was being worked by the firm of Messrs McCullah and Whitelock (NEIMME Wat3/58/28), and in 1829 it was reported that the sale of coal at King's Pit was much injured by production from William Gill and Taylor Rigg (also known as Low Pit) (NEIMME Wat3/58/30). There was again concern about competition from William Gill in 1848, when it was noted that:

"*I understand that William Gill Colliery (Mr Gilpin in Arkindale) is to become a sale Colliery on the completion of the New Level and should the coal be good it will much injure King's Pit"* (NYCRO ZAW/113).

2.14 The 1841 Census records two families living at William Gill, in two properties, and there was also one uninhabited building; these are all likely to have been at William Gill Houses (Les Tyson, *pers. comm.*). The Caygill family comprised William Caygill (aged 25 and a coal miner), his young wife Mary and three year old child Joseph, and they also housed a 14 year old lodger named George Alderson who was a lead miner. The head of the Preston family, William, was also 25 years old and a coal miner, and he has a 30 year old wife Mary and five children under ten (*www.dalesgenealogy.com/census/ark_41.html*).

2.15 In March 1849, there was a temporary cessation of work at William Gill Colliery, but it was to re-open in June of the same year (NYCRO ZAW/113); this was presumably partly associated with the completion of the new level noted in 1848.

2.16 By 1851, there were five separate families living at William Gill Houses. The Caygills (William Caygill, now aged 37 and still a coal miner, with his wife Mary and now two children), were still there, as were the Preston family (William Preston, aged 38, his wife and five children). William Preston and his eldest son Thomas, aged 15, are both listed as coal miners; the youngest son (William, eight months) was born at William Gill, was Ian Spensley's great-great-grandfather, and he worked at Faggergill and Punchard Pit (Ian Spensley, *pers. comm.*). There were also three other families. The Dunn family comprised William Dunn (aged 36), his wife Mary and young son, and also a 14 year old nephew Thomas Hird, and both William and Thomas Hird were coal miners. The Maynell family comprised Thomas Maynell (a widower aged 72 from Larington and a labourer), his two sons aged 26 and 24 (both born in Brough and both coal miners), and a 14 year old daughter. The fifth family were also Caygills, headed by Joseph, a 23 year old coal

miner, and his wife and young son (*www.dalesgenealogy.com/census/ark_51.html*); Joseph was presumably a relation of William Caygill, although his age suggests he was not the son listed in 1841.

2.17 The colliery is depicted in some detail on mid 19th century Ordnance Survey 6" mapping, spread across two adjoining sheets both surveyed in 1854 (sheet 22, published in 1856 and sheet 36 published in 1857) (see figure 5). By this date, the main access to the colliery appears to have been the trackway along the west side of the gill from the Reeth to Tan Hill turnpike road to the north-east. The track leaves the road at William Gill Foot and follows a route close to the beck in the bottom of the gill, crossing it several times possibly on bridges but more likely fords (although 'fords' are shown on other routes). After crossing over to the north-west side of the gill, the track rises towards a long rectangular building named as 'William Gill Houses'. This has two small structures to the immediate south-east, built into the steep bank forming the east side of the track. To the immediate north of the houses, another track runs north-west to Lad Gill, where 'Old Coal Pits' are shown, and then eventually on to King's Pit colliery via Mirk Fell Edge. To the south of the 'William Gill Houses', a 'Smithy' is marked on the west side of the beck, with a 'Level (Coal)' opposite on the east side. Moving south-west from William Gill Houses, several 'Old Coal Pits' are shown on the west side of the gill, linked by a network of causeways; at least part of this network was present in 1799, but these shafts had become disused by the mid-19th century. Similarly, on the east side of the gill, there are further 'Old Coal Pits', some in similar positions to those depicted in 1799, linked by a track of a less regular appearance than those on the west side of the gill, originating from the line of the 1799 'Coal Road', which remains but is not named. An 'Old Cinder Oven' is also indicated on this side of the gill. Returning to the main track along the gill, this is carried significantly further to the south-west than in 1799, as far as the head of the gill, where it crossed the beck on a bridge to reach the isolated 'William Gill Colliery'. This was clearly the surface focus of the mining operation by the mid-19th century. A single rectangular building, aligned north-east/south west, is shown at the colliery, with two small conjoined enclosures to the north side and a detached 'Cinder Oven' to the north-east; a 'Gin Wheel' is also marked next to the building.

2.18 It is useful to contrast the information on the mid-19th century Ordnance Survey maps with a slightly later plan of the colliery made in c.1859, at which point it was owned by George Gilpin (NYCRO ZQX 5/9) (see figure 6). Although the map is somewhat schematic in its depiction of surface features, it is the only known depiction of the below-ground workings, and is therefore extremely valuable in relating the two. The plan commences at William Gill Houses, named as 'Colliery Cottages'. The smithy ('Smiths Shop') is again shown on the west side of the beck, with the adjacent level marked as 'Delivery Drift End'. A faint curving line denotes 'Line of Outcrop of Coal to the East'. On the east side of the gill, three old pits are marked, increasing in depth from 6 fathoms to 36 fathoms from north to south. The trackway from William Gill Houses runs south-west to the William Gill Colliery as depicted by the Ordnance Survey. A shaft and building is shown at the colliery, the shaft being 27 fathoms in depth. The 'Extent of Old Workings to the West' is indicated by a dashed line, with the extent of the bord and pillar workings accessed from the shaft being shown in detail. These include information as to rises and dips, and at the eastern extent a 'Forehead' is marked, dated 17th October 1859; this term indicates the extent of a mine or level. The overall form of the workings depicted suggests that the haulage gates or access routes ran broadly south to north, following the strike so as to keep them broadly level, with the coal seam dipping generally between the west and west-south-west; it can be

broadly calculated that the seam dipped westward at a gradient of c.1 in 100 (Mike Gill, *pers. comm.*).

2.19 The 1861 Census records three families living at William Gill Houses. William Preston was still head of his family, but was now recorded as a 'Coalpit Banksman', while Joseph Caygill was still head of his family and was now a 'Coal Mine Agent'. The third family were the Airys, headed by James, a 24 coal miner from Brough, and his wife and young son (*www.dalesgenealogy.com/census/ark_61.html*). There is no specific mention of William Gill Houses in the 1871 census; William Preston is now recorded as living in Whaw and is still a coal miner, and Joseph Caygill is at Punchard Bar, and is now a coal merchant (*www.dalesgenealogy.com/census/ark_71.html).* There is no further mention of William Gill Houses in the later census returns.

2.20 The competition from William Gill Colliery continued to cause consternation to the owners of King's Pit, and subsequently Tan Hill, right through to the early 1870s. It was thought that they had lost trade to the east and the south, as William Gill was a closer source of coal for these areas (NYCRO ZAW/119) and in 1870 it was stated that another level had been re-opened at William Gill (NYCRO ZAW 113). It is not certain when William Gill Colliery ceased production, but there were some problems with flooding by the end of the 19th century:

"Some distance to the south in a small branch of William Gill, a level driven on the outcrop of the coal, proves it to range from 1½ feet to sometimes as much as 4 feet, but the average is about 2 feet. In William Gill and on the east side frequent sections in little runners show that the coal rapidly deteriorates in a northerly direction ..... The William Gill Level could proceed no further owing to water, so that there must still be a large area of probably good coal in the neighbourhood of Water Crag which may be some day reached by a rise from the great Gunnerside Level, that is if it should ever be thought worth the expense .... The coal itself varies much in quality, but it always contains a considerable amount of ash. That won from William Gill pit burns with an intense white heat, indeed few coals give out so much, but as it is very 'small', and will not coke, it requires care in burning. About Tan Hill some of the coal easily cokes and is then a fairly good fuel, but not so hot as that of William Gill." (Daykns *et al* 1891, 153-155)

2.21 Given the remark about the coal from William Gill being not suitable for coking, it seems curious that a cinder or coke oven was present at the colliery in the mid 19th century; perhaps the practice was not successful and was discontinued, or in fact coal from some areas of the workings could actually be coked (Mike Gill, *pers. comm.*). By the later 19th century, ownership and management of the colliery had passed to the Caygill family; William Caygill in 1881, and Joseph Caygill between 1887 and 1893 (YDNPA HER MYD44161 - information taken from NMRS records). As noted above, Joseph Caygill lived at William Gill Houses in 1851 and 1861, Punchard Bar in 1871 and at Whaw in 1881, and progressed from a coal miner to agent, merchant and then owner; the latter census notes that he was a 'coal owner' and farmer of 23 acres *www.dalesgenealogy.com/census/ark_81.html*).

2.22 All mining appears to have ceased at the colliery by the mid 1890s. The main colliery complex at the head of the gill is named as 'William Gill Colliery (Disused)' on the 1895 Ordnance Survey 6" map (sheet 26NW), with no additional detail to that shown in 1857 (see figure 7). It is possible that the central part of William Gill Houses had been demolished by the same date (sheet 22SW). To the north of the houses, a track had appeared since the mid-19th century leaving William Gill to run north-west towards Lad Gill, where two un-named and unroofed structures are

shown, together with a linear spoil heap. It is possible that these also related to coal mining.

3 DESCRIPTION OF THE SURVEY AREA

Introduction

3.1 A description of the surface remains within the EDAS survey area is given below, based on the notes and photographs taken in the field during the walkover survey, and the detailed measured earthwork surveys. Reference should also be made to the survey plans and plates, and the photographic record which appears as Appendix 1; digital photographs are referenced in the following text in italics and square brackets, the numbers before the stroke representing the film number and the number after indicating the frame e.g. [2*/032*].

3.2 The identified sites within the survey area (see figure 8) have been divided into a number of features, parts or areas, each one of which has been given a unique identifier number; in some cases, they have also been broken down into sub-components. This has been done purely for the purposes of description, and does not infer any phasing or chronological relationship; the phasing and development of the colliery is set out in the Discussion and Conclusions chapter below. The unique site identifiers are indicated in the text in brackets and bold type e.g. (**Site 1**); site identifiers which are only indirectly mentioned are not highlighted in bold. Where relevant, the YDNPA HER number is also included. It should also be noted that the quoted national grid references relate to the study area, and may not represent an individual site's full extent. Finally, in the following text, 'modern' is taken to mean dating to after c.1945.

3.3 In general terms, and certainly by the 18th century based on the field evidence, in their original form many of the shafts would have been stone-lined, sub-oval in plan and c.1.2m across. However, subsequent collapse and slumping has caused many to increase greatly in size, and they are now sub-circular depressions up to 6.0m across and several metres deep; slumping is very common for disused shafts, and it may relate to the use of timber supports at the interface between the rock-head and softer materials (Miles Johnson, YDNPA, *pers. comm.*). This collapse has often destroyed or affected adjacent earthwork features, particularly those associated with the winding mechanisms.

Site 1: Trackway up William Gill from the Reeth to Tan Hill turnpike road (NGRs NY 92140 05960 - NY 91550 05290 linear) (part of HER MYD21153)

3.4 This trackway is probably that referred to as the 'Low Coal road' in a lease of 1779, its repair being the responsibility of the Mineral Lords. The trackway is shown in 1799, but at that date it only ran south-west as far as William Gill Houses (NGR NY 9201605797 - see Site 8), a distance of some 2.21km. At this date, it is possible that the main access to the colliery workings was actually from the east, following the 'Coal Road' (see Site 23) leading from the head of Great Punchard Gill. By 1856-57, the trackway had been extended south-westwards for a further 710m to the head of the gill, to reach what was then the main complex within the colliery (Site 14). In c.1859, it is marked as a 'Cart Road'.

3.5 As in 1799, the trackway leaves the southern side of the former Reeth to Tan Hill turnpike road and then runs south-west; the section as far as the site of William Gill Houses (Site 8) is still used as an estate track, and is generally metalled and well-maintained. It mostly follows a line close to the beck in the base of the gill,

switching from the eastern to western sides across fords with concrete surfaces. The trackway is on average 2.0m-3.0m wide and, as it ascends the gill, it is sometimes carried on an earth embankment up to 2.0m in height, retaining traces of a crude revetment wall. Where the trackway reaches the site of William Gill Houses it has been widened to provide a turning point for estate vehicles. To the south-west of this point, the track is generally not metalled, although it is evidently still used by 4 x 4 vehicles for a short distance. It then continues to ascend the western slope of the gill as a flattened linear strip up to 3.0m wide, but has been lost in several places due to land slips [*2/160*]. The trackway narrows and then curves gently around to the south. In 1856-57, it appears to have been carried over the beck on a bridge, although no clear trace of this structure now remains. It then entered the colliery complex (Site 14) at the head of the gill.

Site 2: Possible colliery complex in Lad Gill (HER MYD55048) (NGR NY 91900 05998 centred)

3.6 Nothing is shown at this location in 1799, but at this date the natural gully is named as 'Glad Gill William Gill', rather than 'Lad Gill' as on later maps. It is also not marked here in 1856-57 (see figure 5). By 1895, a trackway had been made, leaving the main trackway (Site 1) up the gill and then running north-west towards Lad Gill, where two un-named structures are shown, together with a linear spoil heap (see figure 7). It is possible that Daykns (1891, 153) was referring to the workings here when he stated that "*Some distance to the south in a small branch of William Gill, a level driven on the outcrop of the coal, proves it to range from 1½ feet to sometimes as much as 4 feet, but the average is about 2 feet*", but this is not certain. The documentary material researched by Tyson includes numerous late 19th and early 20th century references to the possibility of driving a level from Lad Gill to access coal, but these all appear to relate to the much larger Lad Gill in West Stones Dale rather than that of William Gill.

3.7 The trackway (**Site 2/1**) to the Lad Gill workings leaves the main William Gill trackway at NGR NY 92122 05946; at this point, it has a stone rubble revetment wall to the southern side up to 0.90m high [*1/024, 1/025*] (see plate 1). It runs initially on a gentle north-east/south-west alignment, and then angles to the west, all the time climbing the hillside fairly steeply, as a slightly raised causeway with a flattened top, averaging 4.0m in width; in places, the surface has been metalled with colliery waste [*1/026, 1/030*] (see plate 2). It then turns sharply to the north-west again, running just to the east of the Lad Gill workings.

3.8 The main structure at the workings (**Site 2/2**) (at NGR NY 91891 05983) is rectangular in plan, aligned north-west/south-east, measuring c.14.5m long by c.4.5m wide externally [*1/031-1/033*] (see figure 9A and plate 4). It has walls built of roughly coursed and squared gritstone, standing up to 1.6m in height, with an intermittent course of shallowly projecting throughstones set approximately half way up its height, and also slant coping in places; the southern wall has two courses of throughstones. The walls are in various states of collapse, but are on average 0.6m wide, with little or no batter, and preserve little evidence for mortar, although there is some colliery waste in between the gaps to the wall's rubble core [*1/035*]. The northern end wall has largely collapsed, but may have once had an opening at the east end; there could also perhaps once have been a doorway at the very south end of the east wall. The structure now has the appearance of an agricultural enclosure, rather than a former building. However, to the north of centre of the east wall, there appears to be a blocked opening (possibly a former window) with a shallowly projecting lintel [*1/034*]. Furthermore, when viewed from

a distance, the structure appears to be sitting atop a large sub-circular mound of spoil [*1/036*].

3.9 To the north-east of the structure, there is a prominent linear spoil tip, tipped from south-west to north-east, c.30m long and standing up to 4.0m high to the Lad Gill side. The top of the spoil heap is flat but relatively narrow and, where the sides have slipped, it can be seen to comprise shale, some smaller stone rubble and coal. It is possible that the spoil was tipped from the direction of the rectangular structure described above, although when viewed from the north, there is a level strip running back from the heap that might denote the position of a former level [*1/039, 1/040*] (see plate 3). On the opposite side of Lad Gill to the main spoil heap, there may be another much smaller, curvilinear heap, although this apparently contains a much higher proportion of stone rubble and is more vegetated.

3.10 On the south side of the gill, some 25m to the north-east of the rectangular structure, there is a second structure (**Site 2/3**), much smaller than the first and visible in plan only (at NGR NY 91865 05980). It is sub-square in plan, measuring c.4.0m by 3.5m, with walls 0.6m-0.8m wide, with an apparent doorway at the east end of the north wall [*1/037, 1/038*] (see figure 9B and plate 5). It might represent a small shelter.

Site 3: Shaft mounds on north side of Lad Gill (NGRs NY 91791 05980 & NY 91806 05972)

3.11 Nothing is shown at this location on any of the historic maps consulted for this report. In the previous NAA survey, this formed Site NAA2 and was described as "*Small circular mound around a slight depression. Approximately 4m across and up to 0.4m high. Possible outlying shaft associated with William Gill Colliery*" (NAA 2012, 8).

3.12 There are at least two shaft mounds here, located in close proximity to one another. The first, at NGR NY 91791 05980, is represented by a circular depression c.4.0m wide and 1.5m deep, with a spoil collar most prominent to the southern side. The second, a short distance to the north at NGR NY 91806 05972, is a circular depression c.3.0m wide by 1.0m deep, again with spoil to the south side. There may once have been a third shaft between the two, but if so it has been infilled to provide a level platform for a board-type grouse butt [*1/041*].

Site 4: Shaft mound on south side of Lad Gill (NGR NY 91783 05893)

3.13 Nothing is shown here on any of the historic maps consulted for this report, although the 1856 Ordnance Survey map marks 'Old Coal Pits' in this general location (see figure 5). In the previous NAA survey, this formed Site NAA4, and was described as "*Possible disused mine shaft clearly visible on modern aerial photographs but no remains seen during field survey*" (NAA 2012, 8).

3.14 The shaft mound is represented by a sub-circular depression, 4.5m across and 2.5m deep, surrounded by a collar of spoil. In the base of the depression, there is a circular collapse c.1.5m in diameter which may represent the remains of a stone-lined shaft [*3/224, 3/225*] (see plate 6).

Site 5: Shaft mound on north side of Lad Gill (NGR NY 91685 05889)

3.15 In 1856, 'Old Coal Pits' are marked in this general location, close to a point where a trackway running from the immediate north of William Gill Houses (Site 8) fords Lad Gill, and a shaft is marked but not named (see figure 5). An unnamed shaft is also marked here in 1895 (see figure 7). In the previous NAA survey, this formed Site NAA6, and was described as "*Possible disused mine shaft clearly visible on modern aerial photographs but no remains seen during field survey*" (NAA 2012, 8).

3.16 The shaft mound is formed by a sub-circular depression, c.4.0m across and 1.0m deep, surrounded by a collar of spoil which is highest to the southern side [*1/058*] (see plate 7). In the previous NAA survey, another possibly disused mine shaft (forming Site NAA5) was noted c.200m to the north-east at NGR NY 91696 05962 (NAA 2012, 8) but this could not be located on the ground by either the previous or the current survey.

Site 6: Possible shaft mound on north side of Lad Gill (NGR NY 91609 05901)

3.17 The Ordnance Survey 1856 map marks 'Old Coal Pits' in this general location, close to a point where a trackway running from the immediate north of William Gill Houses (Site 8) fords Lad Gill. In the previous NAA survey, this formed Site NAA1, and was described as "*Depression surrounded by a ring of grassed over spoil. Approximately 9m in diameter. Probably an outlying shaft associated with William Gill Colliery*" (NAA 2012, 7-8). The shaft mound is represented by a water-filled depression, c.4.0m in diameter, with very little surrounding spoil [*1/057*] (see plate 8).

Site 7: Possible stone quarrying or outcrop working, north-west of William Gill Houses (NGR NY 91927 05811 centred)

3.18 In both 1856 and 1895, a trackway is shown running across this general area, leading towards a ford across Lad Gill to the north-west (see figures 5 and 7). In c.1859, the 'Line of Outcrop of Coal to East' is shown passing through or very close to this area. In the previous NAA survey, this formed Site NAA3, and was described as "*Disused shaft and grassed over upcast heap (9192405814). Earthwork remains visible to the east including a possible grassed over structure (91949505808). A large stone with a metal rod inserted into it may represent some form of structural remains*" (NAA 2012, 8).

3.19 A footpath or narrow trackway, 1.5m wide, branches off the causeway running to the possible colliery complex at Lad Gill (Site 2/1) and then runs south-west for c.100m, gently curving to enter what appears to be an area of stone quarrying (centred on NGR NY 91927 05811). On the southern side, there appears to be a sub-rectangular area, measuring c.10.0m by 8.0m, terraced into the natural slope, with associated spoil and with a possible exit/entrance at the north-east corner [*1/042*] (see plate 9). Nevertheless, given its apparent close relationship to the outcrop marked in c.1859, it may relate to coal working rather than quarrying. Further downslope (south-east) from this, there are some large pieces of stone up to 1.0m square, one of which has a jumper (the metal rod referred to in 2012) still wedged into it [*1/043*]. It is possible that this stone quarrying supplied at least part of the stone to build the nearby William Gill Houses (Site 8). To the south-west of the main area, there is a series of shallow linear depressions driven into the valley slope, up to c.10.0m long by 1.0m deep, but with little evidence for any kind of associated spoil [*1/044*]. Again, these are close to the outcrop line marked in

c.1859 and are perhaps more likely to be related to shallow coal workings or explorations than the main earthworks within this area.

Site 8: Site of William Gill Houses (HER MYD21187 & part of HER MYD21153) (NGR NY 92010 05801 centred)

3.20 William Gill House or Houses was apparently built in 1787 (Les Tyson, *pers. comm.*). In 1799, a rectangular building here is named as 'House', situated at the point where the trackway running up William Gill (Site 1) meets the former line of the Coal Road (Site 23) from Great Punchard Gill (see figure 4). In 1856, it appears as 'William Gill Houses', and is depicted as a long relatively thin structure aligned north-east/south-west, and there are two much smaller structures to the immediate south-east on the opposite side of the trackway (see figure 5). In c.1859, the structure is named 'Colliery Cottages' and again is depicted as a long rectangular structure (see figure 6). As noted in Chapter 2 above, the building was occupied by several families working at the colliery, although it appears to have become uninhabited between 1861 and 1871. By 1895, the rectangular building is shown as two square structures with a gap between, suggesting that centre part of the range had been demolished, although it is still named as 'William Gill Houses'; the other smaller structures on the opposite side of the trackway are not shown (see figure 7). In 1920, it appears as a structure of three cells, again named 'William Gill Houses'. Hardy notes that there was a coal store near the houses (Hardy 1998, 134), and this may be represented by the smaller structures shown in 1856. The houses and other structures were subsequently completely demolished. The previous NAA survey recorded the site as "*Site derived from OS 1st edition map. Nothing visible at coords given except for an area of hard standing. Building possibly demolished. A scoop with high proportion of stone to the west at NY 9201405801 may be the remains of the structure*" (NAA 2012, 7).

3.21 The site of the houses now comprises a spread of rubble set within an area terraced into the slope to the north-west of the track, measuring c.14.0m long by 5.0m wide [*1/045*]. There has been some modern disturbance here, including the use of the area as a turning circle for vehicles and also some minor tipping of stone and spoil, mostly metalling material for the track [*1/046, 1/047*] (see plate 10). However, downslope (south-east) of the track, where the two small structures are shown in 1856, there is an area of heavily rabbit-burrowed black silty soil, which contains frequent visible fragments of clay pipe, blue and white transfer printed pottery and other domestic waste, probably forming a tip from William Gill Houses when it was still occupied.

Site 9: Site of Smithy, south of William Gill Houses (HER MYD21188 & part of HER MYD21153) (NGR NY 91975 05735)

3.22 In 1856, a 'Smithy' is named to the south of William Gill Houses (Site 8), on the south side of the gill, and depicted as a small square structure with a U-shaped feature on its north side (see figure 5). In c.1859, it is named as 'Smiths Shop' and depicted as a larger rectangular structure, but it no longer appears in 1895 (see figures 6 and 7). There is some discrepancy between the 1856 and c.1859 maps regarding the position of the smithy, the 1856 map showing it slightly further to the south-west; this discrepancy may be due to a cartographical error rather than any actual positioning. This building may also represent the site mentioned by Hardy as being a coal storage house (Hardy 1998, 134). The previous NAA survey recorded the site as "*Site derived from OS 1st edition map. No visible sign of this structure found*" (NAA 2012, 7). The HER reports that the site is no longer extant and no traces can be seen on the most recent digital aerial photography.

3.23 The approximate area where the smithy is shown in both 1856 and c.1859 has a dense covering of reeds and grass, making it difficult to see any extant remains. However, this part of the lower slope of the gill has been subject to numerous landslips, meaning that all parts of the smithy may now have been destroyed.

Site 10: William Gill Level, south of William Gill Houses (HER MYD 44162 & part of HER MYD21153) (NGR NY 92010 05730)

3.24 In 1856, a 'Level (Coal)' is marked on the immediate south side of the beck in the base of William Gill, and depicted as a small circular feature (see figure 5). In c.1859 it is named as 'Delivery Drift End' (see figure 6). It is possible that this is the level referred to in mid-19th century documentation concerning William Gill colliery. The level is shown as an unnamed circular feature in 1895 (see figure 7). The site appears to be marked on the maps accompanying NAA's report, but is otherwise not specifically identified (NAA 2012, figure 2). The HER notes the site as William Gill Level, but with no record of any survival, although the stated grid reference is NY 9193 0565. Hardy notes that the level was used to drain the William Gill mine, although some coal was also mined from its sides (Hardy 1998, 134).

3.25 The level is visible as a shallow linear depression, c.13m long, positioned at the base of the eastern slope of the gill, close to the beck. There is no obvious spoil associated with the level, and its low lying location confirms that it was almost certainly used for drainage rather than access. Iron stained water runs out of the level into the beck, although the entrance is no longer clearly visible [*1/048*] (see plate 11).

Site 11: Causeway and shaft mounds, western slope of William Gill (part of HER MYD21153) (NGR NY 91830 05700 centred)

3.26 In 1856, a causeway is shown leaving a central point on the west side of the main trackway (Site 1) within the gill, before dividing into two. One branch runs north for some distance before angling sharply through a right angle to the west to continue to a shaft; all the shafts in this area are marked as 'Old Coal Pits' (see figure 5). It was one of three such features present on this slope of the gill in 1856 (see Sites 12 and 13). It is similarly depicted in 1895 (see figure 7). The previous NAA survey recorded the site as "*Remains of the colliery extend beyond the scheduled area to the north and north-east*" (NAA 2012, 7).

3.27 It is no longer precisely clear where the central point leading up from the main trackway started; there is a slight linear depression with a bare, rubble-filled base in approximately the right position, but the slope on which it is set appears far to steep to be negotiated by either horses or carts. There are also at least two linear depressions here terraced into the slope, close to the 'Line of outcrop of Coal to East' shown in 1859. The visible section of the causeway starts at NGR NY 91830 05631 (**Site 11/1**). It is initially very faint where it rises up the western slope of the gill but becomes clearer at this grid reference; it can also be seen more clearly from the opposite side of the gill [*2/167*]. The causeway is represented by a flattened strip, 3.0m-4.0m wide, but is better defined where it turns to the north-west. Here it is 3.0m wide, with a slightly concave surface, and a drain enlarged by erosion along one side [*1/050*] (see plate 12).

3.28 At the point where the causeway turns to the north-west, a short continuation on the original line to the north-east leads to a denuded shaft mound (at NGR NY

91832 05703) (**Site 11/2**). This shaft mound is formed by a sub-circular depression, 3.5m in diameter and 0.6m deep, with a low, spread collar of spoil largely to the eastern side [*1/052*] (see plate 13). Returning to the main causeway, this continues to the north-west with an average width of 2.5m, rising quite steeply and terminating at another shaft mound (at NGR NY 91778 05714) (**Site 11/3**); this is the shaft mound shown in 1856 and 1895. It comprises a circular boggy depression, c.4.0m in diameter and 0.5m deep to the centre, with a surrounding collar of spoil 2.0m wide and 0.5m high [*1/053*]. There is no clear evidence that the causeway ever continued beyond this shaft.

Site 12: Causeways and shaft mounds, western slope of William Gill (part of HER MYD21153) (NGR NY 91750 05640 centred)

3.29 A shaft appears to be marked in this area in 1799 (see figure 4). In 1856, a causeway is shown leaving a central point on the west side of the main trackway (Site 1) within the gill, before dividing into two. The western branch runs north-west for some distance to terminate at a shaft; all the shafts in this area are marked as 'Old Coal Pits' (see figure 5). It was one of three such features present on this slope of the gill in 1856 (see Sites 11 and 13). It is similarly depicted in 1895 (see figure 7). The previous NAA survey recorded the site as "*Remains of the colliery extend beyond the scheduled area to the north and north-east*" (NAA 2012, 7).

3.30 It is no longer precisely clear where the central point leading up from the main trackway started; there is a slight linear depression with a bare, rubble-filled base in approximately the right position, but the slope on which it is set appears far to steep to be negotiated by either horses or carts. The visible section of the causeway starts at NGR NY 91850 05620, to form the central of the three main causeways shown here in 1856. The causeway runs north-west and is c.4.0m wide, but rather faint (**Site 12/1**). It passes close to a shaft mound (**Site 12/2**) on its southern side (at NGR NY 91721 05646), which is not depicted on the historic maps, although an adjacent 'Pit (dis)' is shown on the modern maps. This shaft is formed by a water-filled depression, c.4.0m in diameter, with very little surrounding spoil [*1/054*] (see plate 14).

3.31 The causeway (**Site 12/1**) continues to the north-west on a straight line, widening to meet a second shaft mound, although it remains rather poorly defined. This shaft mound (**Site 12/3**) (at NGR NY 91652 05684) is represented by a prominent and impressive sub-circular depression, c.5.0m across and up to 3.5m deep, with a surrounding collar of spoil standing up to 1.5m high to the northern side [*1/056*] (see plate 15). It is probably this shaft which is shown in 1799 and 1856. A poorly defined footpath continues north from this shaft mound, crossing Lad Gill and then continuing to Mirk Fell Edge.

Site 13: Causeways and shaft mounds, western slope of William Gill (part of HER MYD21153) (NGR NY 91650 05550 centred)

3.32 In 1799, a causeway crossed the beck in William Gill and then ran south-west up the western slope of the gill , following a sinuous course to a shaft. It then angled sharply to the north-west to run as a straight line to another shaft, marked as 'St. worked in 1799' (see figure 4). In 1856, the causeway is shown leaving a central point leading up from the main trackway (Site 1) within the gill, and then running south-west for some distance to meet a shaft; all the shafts in this area are marked as 'Old Coal Pits' (see figure 5). Just to the east of the shaft, a branch of the causeway ran north-west past another shaft, and then terminated at a third shaft

close to a tributary of Lad Gill, as shown in 1799. The site is similarly depicted in 1895 (see figure 7). The previous NAA survey recorded the site as "*Remains of the colliery extend beyond the scheduled area to the north and north-east*" (NAA 2012, 7).

3.33 It is no longer precisely clear where the central point leading up from the main trackway started; there is a slight linear depression with a bare, rubble-filled base in approximately the right position, but the slope on which it is set appears far to steep to be negotiated by either horses or carts. The causeway itself becomes visible a short distance to the south-west of this point (at NGR NY 91820 05590), and can be traced to the south-west for some 170m as a well-defined earthwork, slightly raised, c.4.0m wide, possibly with a metalled surface and flanked by shallow drains [*1/064*] (**Site 13/1**) (see plate 16); it is also visible from the opposite valley slope as a grass-covered track amongst the heather [*2/165, 2/166*] (see plate 16). It is likely that at least part of the causeway follows the line shown in 1799.

3.34 The causeway continues to NGR NY 91648 05477, where it widens to meet a shaft mound, again possibly shown in 1799. This shaft (**Site 13/2**) is formed by a water-filled, sub-circular depression c.5.0m in diameter and 0.5m deep, with a collar of spoil around the southern side standing up to 1m high [*1/062*]. A short distance to the east of the shaft mound, at NGR NY 91681 05492, there is the junction with the other causeway branch as depicted in 1856. This branch, running north-west, is also well defined, c.3.0m wide and slightly raised; it appears to have a metalled surface in places and a drain along the western side [*1/061*] (see plate 17). It runs past the shaft mound shown in 1856. This shaft (**Site 13/3**), at NGR NY 91630 05565, is formed by a sub-circular, water-filled depression c.2.0m across and with a very slight spoil collar [*1/060*] (see plate 18). Beyond this point, the causeway becomes poorly defined, and is only c.2.0m wide. It terminates at a third shaft mound, at NGR NY 91534 05661 (**Site 13/4**). This shaft is represented by a sub-circular depression, c.3.0m across and 0.5m deep, with a surrounding collar of spoil, 0.5m high to the north side and 1.3m high to the south side [*1/059*]. It is probable that this is the shaft indicated as being worked on the 1799 plan.

Site 14: William Gill Colliery, head of William Gill (HER MYD44161 & part of HER MYD21153; SM 29548) (NGR NY 91550 05265 centred) (see figure 10)

3.35 In 1857, the site was named as 'William Gill Colliery' and was clearly the surface focus of the mining activity by the mid-19th century (see figure 5). It was reached by the main trackway (Site 1) running up the western side of the gill, which crossed the beck on a bridge to reach the colliery. A single rectangular building, aligned north-east/south west, is shown at the colliery, with two small conjoined enclosures attached to its north side and a semi-circle labelled as a 'Gin Wheel' attached to the south side. There is also a detached 'Cinder Oven' to the north-east depicted as a small square structure, and some areas of spoil to the west of this. In c.1859, a shaft and building is shown at the colliery, the shaft being 27 fathoms in depth, with the extent of the bord and pillar workings accessed from the shaft being shown in detail (see figure 6). By 1895, the colliery was marked as 'Disused', with the same structures shown although not the two conjoined enclosures or the gin wheel (see figure 7).

3.36 The site was surveyed by ASUD in 2003 when it was capped, and formed their Shaft 4. It was described as follows:

"*This is the most complex of the sites examined in this project. The large shaft lies in a complex of spoil heaps and structural remains. The most prominent of these is the horse-gin circle, which lies immediately south-east of the shaft. This consists of a level area around which the horses walked, flanked by stone piers that supported a cross beam for the gin axle. From the top of this structure, geared shafts would have driven the pump and winder for the shaft. Other stone walls indicate the presence of a long narrow coal store building on the north-east side of the shaft, and another smaller store to the south-west. On the north slope of this there is another wall, the remains of a coking oven. From the north side of the shaft, a steadily sloping path leads around the coal store to the end of a large spoil heap, which is made of waste from both the mine and coke oven. A section of iron rail of the sort used in the workings has been set on end by the store here, and makes a prominent landmark.*

The shaft here is over 2.8m in diameter, and is known to be open to a considerable depth. When the site was first visited, only a small aperture was visible between large slabs of stone. In the course of clearance for the installation of the grille, it became apparent that the original opening had been deliberately reduced in size by the installation of two sections of shallow rubblestone vault. The stones used to cap the shaft are similar to those of the lining; they were found to cover the whole of the northern half of the opening, and a section of the south side as well. The gap between these vaulted areas was less than 0.7m wide, and had been bridged with the big slabs seen on the surface. The masonry here was in a dangerous condition, and only photographic recording could be carried out for fear of collapse. The masonry of the shaft lining is in good condition; with a torch, it was possible to see the point on the northern side where the lining gave way to the solid stone. There was no evidence of sockets or any other fixing for the wooden centring that would have been needed to build the vaulted cap; it must be assumed that the timbers were simply wedged in position against the wall of the shaft. It is debatable whether or not the vaulting ever formed a solid cap over the whole shaft" (ASUD 2003, 5-6).

3.37 The previous NAA survey recorded the site as "*Mine shaft, standing ruins, trackways, spoil heaps and buried remains of the 19th century colliery*" (NAA 2012, 6). It was also photographed by Laurie in 2012 (SWAAG ID 478 - images 2412 to 2418), and surveyed by EDAS as part of the current project (see figure 10).

3.38 The trackway (Site 1) was carried over the beck into the complex on a bridge, although of what form is now uncertain. After crossing the beck, the trackway continues for c.45m into a relatively level area, used for loading carts and allowing them to turn round before the horses began their descent back down the gill, flanked by spoil heaps [*2/161, 2/163*] (see plate 19). To the north, there are two lower, linear spoil heaps, between 12m to 18m long and up to 1.0m high, containing a high proportion of coke and pieces of small coal. They are situated opposite the likely position of the coke oven shown in 1857. The position of the oven may be marked by an oval scarp, standing up to 1.5m in height, with a much shallower, spread bank around the north side, defining an area measuring c.8.0m long by 4.0m wide [*2/162*] (see plate 20). If correct, it would suggest that the stone forming the coke oven has been robbed out at a later date. On the south-west side of the scarp, there is a concentration of rubble, which contains a length of wall face c.1.5m long. The wall returns to the south-west and can be traced intermittently south-west for a further c.14m. However, Hardy notes that the miners entered the shaft through a small level that tapped into its side, and then were carried in buckets down to the working levels; this small level was also apparently used to take coal out of the shaft (Hardy 1998, 134; see figure 11). It is therefore possible

that this exposed rubble and short wall lines represent the access level, which was presumably used once the coke oven (if this is where it was located) went out of use.

3.39 The two largest spoil heaps both contain a high proportion of shale, soil and stone rubble, as well as some small pieces of coal, suggesting that the spoil is a mixture of developmental waste and mining waste. The western heap is flat-topped, c.36m long by c.12m wide, with steeply-scarped sides up to 2.5m in height, curving round to the north-east. The eastern heap is also flat-topped, c.50m long, c.20m wide and standing up to 3.5m in height, again with steeply-scarped sides and extending north-east. The plan form of this heap suggests that it is made up of two or possibly even three separate lobes, all tipped from south-west to north-east.

3.40 The rectangular building shown in 1857 was positioned at the point where the flat tops of both spoil heaps meet. The building measures 23.8m long by 3.4m wide internally, and is at least partly built of drystone rubble walls, traces of which survive at the outer ends up to 0.75m high [*2/156-2/159*] (see plate 21). Hardy suggests that remains actually represent two separate structures, either side of the shaft (Hardy 1998, 134), but this is not what is shown on the historic maps. A length of rail projects vertically from the rubble at the former north-east end of the structure. It appears to be of wrought-iron, and manufactured to John Birkinshaw's patent of 1820, which was designed to eliminate joints with lengths of up to 18 feet. Quite how this particular design of rail ended up at such a remote colliery is uncertain, although it is possible that they were able to buy some redundant stock to use in the mine or on the surface; the 1820s and 1830s saw considerable development in rails, designed to take ever increasing loads so there must have been large quantities of redundant stock passing from main lines to branch to sidings and tramways (Richard Lamb, *pers. comm.*).

3.41 The shaft is now capped by a steel cage, but is visible through the bars; it is slightly oval in plan, measuring a maximum of 2.5m across, and is stone lined. The shaft lies within the rectangular structure, and the whim circle lies to the immediate south; the distance between the centre of the shaft and the centre of the circle is c.7m [*2/154, 2/155*] (see plate 22). There must have been an opening in the southern wall of the structure to allow the ropes through from the whim circle to the shaft, and probably also timbers supporting the pulleys over which the ropes ran; it is possible that the whim circle itself was also partly within the rectangular structure (as suggested by the 1857 map), although there is no clear evidence that the whole circle was covered or roofed in any way.

3.42 The whim circle is sub-circular in plan, slightly flattened to the northern and southern sides, with an average interior width of c.8.5m north-south, increasing to 10.0m east-west. There is a small, oval, raised area to the north of centre of the circle, possibly defining one side of the pit or socket that once housed the bearing for the vertical wooden shaft supporting the drum. The southern side of the circle is surrounded by a flat topped earth bank, standing up to 0.75m in height to the steeply-sloping interior scarp. This bank has an average width of 5.0m, and appears to be in two parts. The inner part is wider and of earth, but appears to have a narrower outer part either revetted with stone or forming the remains of a collapsed drystone wall. The bank is again present to the immediate north of the west pier, but is largely absent from the northern side of the circle, presumably because this was set against the structure [*2/150-2/153*] (see plate 23). The drystone piers formerly supporting the span beam survive to the east and west outer sides of the circle. The east pier is set on a slight north-west/south-east angle, measuring 2.80m long by 1.10m wide, and stands up to 2.60m high. It is

built of roughly coursed and squared drystone rubble, with slightly battered wall faces to all four sides [*2/148, 2/149*] (see plate 24). The west pier is placed directly opposite the east pier, but not exactly parallel to it. It has partly collapsed, and the surviving part measures a maximum of 2.35m long by 1.10m wide, and stands to a maximum height of 2.25m; it is again built of roughly coursed and squared drystone rubble, with slightly battered wall faces.

Site 15: Shaft mound, east slope of William Gill (NGR NY 91859 05339)

3.43 It is possible that this shaft is shown in 1799 and marked as 'St. Worked 1799', although this is not certain (see figure 4). The shaft is shown in 1857, but is unnamed, and has two causeways converging on it from the north-east (see figure 5). It may be the 'Old Pit' marked in this area in c.1859, with a depth given as 36 fathoms (see figure 6). It is marked as 'Old Shaft' in 1895 with the converging causeways still shown (see figure 7).

3.44 The site was surveyed by ASUD in 2003 when it was capped, and formed their Shaft 3. It was described as follows:

"*This shaft lies on the south-west slope of a shallow valley. Its spoil heap forms a rough circle, with a segment missing at its northern side; it measures 23.5 by 22m, with the longer axis running north-west - south-east. The mound is up to 1.5m high on the west side, and generally lower elsewhere. The shaft lies to the east of centre of the spoil heap; it is 1.9m in diameter and stone lined in the same way as those described above. Excavation here exposed the same sequence of thin topsoil and shaly upcast that had been seen elsewhere; a short length of iron strip was found protruding from the ground near the south-east side of the shaft. This might have been set as anchorage for a safety rope, or have been part of a fence around the head of the shaft. Other than this, no features were seen*" (ASUD 2003, 5).

3.45 The shaft (at NGR NY 91859 05339) is now capped with a steel cage, but is visible through the bars; it is slightly oval in plan, measuring a maximum of 2.0m across, and stone lined [*1/065*] (see figure 12 and plate 25). The shaft is located towards the east side of the flattened top of a sub-rectangular spread of spoil, measuring c.22m east-west by c.20m north-south, and standing up to 1.5m in height; it is possible that the north-eastern part has been cut back or cut into in the past. To the west of the shaft, there is a slightly lowered, sub-rectangular area measuring 10.0m east-west by 4.0m north-south. There is an indentation in the south-east corner of the mound, perhaps providing an access onto the platform. There is probably room for a horse whim on the surface of the spoil to the west, although there is no clear evidence for one. There is also no clear surviving evidence for the trackways or causeways shown leading to the shaft in 1857.

Site 16: Causeways and shaft mounds, east slope of William Gill (part of HER MYD21153) (NGR NY 91970 05585 centred)

3.46 Two shafts are shown on this side of the Gill in 1799, but no causeways link them to the 'Coal Road' to the north (see figure 4). In 1856-57, a causeway leaves the south side of the former Coal Road adjacent to a shaft, and then runs south-west into an area marked 'Old Coal Pits'. It splits into two branches, a south-east branch running past a shaft and then to an 'Old Cinder Oven', depicted as a small square structure, before continuing south-west to converge with the other more southerly branch near another shaft (Site 15) to the south (see figure 5). Two 'Old Pits' are marked in this general area in c.1859, one being given as 25 fathoms

deep and the other as six fathoms (see figure 6). The shafts and the cinder or coke oven are shown in 1895, the latter is not named but is shown as a small square structure (see figure 7). The previous NAA survey recorded three sites in this area; the site of the cinder or coke oven (NAA8) is described as "*Building listed as 'Old Cinders Oven' on First Edition 6 inch OS map. No evidence found during field survey*" (NAA 2012, 9), and two shaft mounds (NAA7) described as "*Two 'old coal pits' shown on 6 inch First Edition OS map but not seen during the field survey*" (NAA 2012, 9).

3.47 Where the causeway (**Site 16/1**) leaves the line of the Coal Road (Site 23) (at NGR NY 91970 05585), it rises south-westwards up the slope as a slightly raised earthwork, c.3.0m wide [*2/175*]. It passes to the immediate east of the shaft mound (**Site 16/2**) at NGR NY 91948 05569). This shaft is represented by a sub-circular depression, c.4.0m across and 1.2m deep, with a spread spoil collar [*2/171*] (see plate 26); it may be this shaft which is marked at the junction of the causeway and former Coal Road in 1856-57. The causeway (**Site 16/1**) continues south-west, passing another shaft mound (**Site 16/3**) at NGR NY 91947 05500). This shaft is formed by a sub-circular depression, 4.0m wide and 1.5m deep, with a spoil collar most prominent to the north-east.

3.48 The causeway then divides into two branches, as shown in 1856-57. The western branch continues to the south-west. Its course is interrupted by a natural watercourse, but it then recommences to the south-west side again for a short distance, before fading out. The eastern branch runs south-east for a short distance towards a third shaft mound (**Site 16/4**) at NGR NY 91932 05465. This shaft is represented by a sub-circular depression, c.5.0m wide and 1.5m deep, with spoil mostly to the north and north-east. There is possibly room for a horse whim to the north or north-east of the shaft on the flattened surface of the spoil, but there is no clear indication of such. The shaft is shown in 1856-57, and was photographed by Laurie in 2012 (SWAAG ID 478 - image 2409). At this shaft, the causeway (**Site 16/1**) turns sharply south-west to run up the relatively steep slope here, fading as it passes to the west of a fourth shaft mound (**Site 16/5**) at NGR NY 91943 05403) [*2/168*].

3.49 This shaft is now capped with a steel cage, but is visible through the bars; it is slightly oval in plan, measuring a maximum of 2.0m across, and is stone lined. The site was surveyed by ASUD in 2003 when it was capped, and formed their Shaft 2. It was described as follows:

"*This shaft lies a short distance to the south-west of shaft 1. The grassy spoil heap around the opening is considerably larger than that at shaft 1, and is of an irregular lobed shape. Its overall length is 34m from south-west to north-east, and its width varies between 8.5 and 14.5m. The highest part of the mound is at the north-east end, downhill from the shaft; here it stands to 2.2m, while at the south end it is only 0.8m high. There are two marked hollows in its north-west side; the northern of these is larger, and here some loose pieces of roughly dressed stone and traces of lime mortar were found. This suggests the presence of a small structure or building, of unknown purpose. The upcast material of the spoilheap was exposed in rabbit-scrapes at a number of places; the bulk is the same rather shaly stone seen at the other shafts, but a quantity of well-burnt material and coke was also seen. This material might be associated with the putative structure here; though no other evidence for this has been seen, it is conceivable that there was a small furnace for ventilation by convection at the shaft head.*

The shaft is 1.8m in diameter, and like the others is lined with coursed rubblestone. The shallow excavation carried out around the head of the shaft revealed the upcast material very similar to that already described, overlain with a thin layer of poor brown topsoil; once again there was very little trace of coal in the spoil. A few loose stones of the shaft lining were removed to make a flat surface for the installation of the steel frame. No other features were seen" (ASUD 2003, 4-5).

3.50 The shaft is located towards the south side of the flattened surface of an area of spoil extending up to 20m to the north, apparently in the form of three broad lobes with steeply scarped sides standing up to 2.2m high (see figure 9C). There is possibly room for a horse whim to the north-east of the shaft, but no clear evidence for such survives if one was ever present. The shaft appears to be in the same approximate position as that occupied by the 'Old Cinder Oven' shown in 1856-57, but there are no clear traces of this in the field. However, the observations made by ASUD in 2003 above are interesting, and it is likely that these relate to the former presence of the coke oven in this vicinity. It is also possible that the shaft represents the old pit with a depth of 25 fathoms marked in c.1859, but this is not certain. It was photographed by Laurie in 2012 (SWAAG ID 478 - images 2410 to 2411).

Site 17: Shaft mounds, east slope of William Gill (NGRs NY 92012 05468 & NY 92059 05469)

3.51 A single shaft is shown in this location in 1856, within an area marked as 'Old Coal Pits' (see figure 5). it is similarly depicted, but not named, in 1895 (see figure 7). There are two shaft mounds in this area. Both are represented by sub-circular depressions, c.4.0m across and 1.2m deep, with a spoil collar mainly to the north.

Site 18: Shaft mound, east slope of William Gill (NGR NY 92088 05546)

3.52 An unnamed shaft is shown in this approximate location in 1856, within an area marked as 'Old Coal Pits' (see figure 5). It is possible that the same shaft appears as 'Old Pit' with a depth of six fathoms in c.1859, although this is not certain (see figure 6). It is also marked but not named in 1895 (see figure 7). The shaft mound is represented by a sub-circular depression, c.3.0m in diameter, water-filled, with a spoil heap extending some 6.0m to the north-east.

Site 19: Shaft mound, east slope of William Gill (NGR NY 92122 05544)

3.53 An unnamed shaft and a 'Shake Hole' are shown in this approximate location in 1856, within an area marked as 'Old Coal Pits'; the shaft is also marked in 1895 but the shake hole is not (see figures 5 and 7). The site was surveyed by ASUD in 2003 when it was capped, and formed their Shaft 1. It was described as follows:

"*This shaft lies near the footpath between William's* [sic] *Gill and Punchard Gill. It is 1.28m in diameter, at the edge of a steep-sided peaty gill. The site is surrounded by a mixture of heather and rough grass; running down-slope to the north of the shaft is a grassy spoil heap. This measures 14m from north to south, and is up to 11.5m wide; the maximum height of the mound is 1.3m at the north end. There is a small hollow on the west side of the heap's north end; the level top of the mound measures about 10m north-south by about 7.5m east-west.*

Excavation did not entail the removal of any of the shaft lining, but exposed the upper course, which is composed of rough rubblestone. The soil around the shaft was a mixture of thin mid-brown topsoil and mixed upcast material, mainly

consisting of shaly stone. No coal was seen in this material. The average depth of excavation here was 0.2m below the general level of the ground around the shaft; other than the shaft lining, no features were found" (ASUD 2003, 4).

3.54 The shaft mound survives, and is as described by ASUD above.

Site 20: Shaft mounds, east slope of William Gill (NGRs NY 92137 05565 & NY 92143 05582)

3.55 A single shaft is marked in this approximate location in 1895, on the immediate south side of the Coal Road (Site 23); it is not shown on the 1856 edition (see figures 5 and 7). There are two shaft mounds, both located towards the base of the east slope of a natural watercourse. They are c.2.5m wide and 1.0m deep, with spoil collars to the western sides.

Site 21: Shaft mound, east slope of William Gill (part of HER MYD21153) (NGR NY 91983 05655)

3.56 A large 'Shake Hole' is shown in this approximate location in 1856 (see figure 5). The shaft is marked, but is not named, in 1895 (see figure 7). It was photographed by Laurie in 2012 (SWAAG ID 478 - images 2406 to 2408). The shaft mound is represented by a sub-circular depression c.6.0m wide and c.2.0m deep, with a prominent spoil collar to the north and north-east sides [*2/172, 2/174*] (see plate 27). It is definitely a mining feature, rather than a shake hole as suggested by the Ordnance Survey mapping. It lies close to the 'Line of Outcrop of Coal to East' shown in c.1859 (see figure 6), and so may have been an exploratory shaft.

Site 22: Possible spoil heap, east side of William Gill (NGR NY 92077 05670)

3.57 A short linear north-south mound is shown in this location in 1895, but nothing is indicated on the earlier edition (see figures 5 and 7). Located just to the south of where two natural watercourses meet, there is a linear mound with a flattened top, c.22m long and 11m wide, with steeply-scarped sides standing up to 3.0m high. The appearance of the feature may be explained by its topographical location between two small valleys or gullies, although there appears to be shale/mining waste exposed in the sides, and it lies close to the 'Line of Outcrop of Coal to East' shown in c.1859. Towards the south-west end of the flattened top, there may be a sub-circular feature 4.0m to 5.0m across, delineated by rubble footings, but this is not certain.

Site 23: Coal Road between William Gill and Great Punchard Gill (part of HER MYD21153) (NGRs NY 91870 05565 - NY 92280 05500 linear)

3.58 This trackway is probably that referred to as the 'High Coal road' in a lease of 1779, its repair being the responsibility of the lessees. In 1799, a trackway named a 'Coal Road' originated within Great Punchard Head, then following a curvilinear route west along Annaside Edge and dropping into William Gill; its depiction suggests that it was then the main access route to the colliery (see figures 3 and 4). The Coal Road is shown entering the gill close to a 'House' (Site 8). By 1856, the route of the western end of the road appears to have changed. Rather than angling to the north-west towards William Gill Houses, it ran more or less east-west into the gill, crossing the beck on a bridge and then climbing for a short distance up the west side to meet the main trackway running up the gill (Site 1).

3.59 The route of the Coal Road where it crosses the gill in 1799, running north-west towards William Gill Houses (Site 8), is now used as an estate track leading to a row of grouse butts; the lower part on the east side of the gill has been much altered and improved. The western part of the route shown in 1856 is clearly visible from the opposite side of the gill [*3/226, 3/227*].

3.60 The point where the coal road leaves the main track up the gill (Site 1) (at NGR NY 91870 05565) is well preserved, terraced into the steep slope here and c.3.0m wide [*3/228*] (see plate 28). It runs down towards the beck in the base of the gill, where a bridge is shown in 1856. There is a concentration of large stones in the base of this part of the beck, but no clear traces of any bridge structure [*3/229*]. The road then climbs the steeper base of the east slope of the gill and crosses the more gently sloping ground between two natural watercourses. Here, it is partly in the form of a causeway, 4.0m wide and 0.5m high to the north side, although it is sometimes lost amongst boggy ground. As the ground begins to slope more steeply upwards again, the road takes the form of a hollow way [*3/230*]. It passes the point where it is joined by the route shown in 1779 to the north-west, and then continues east on the 1779 alignment. From here, it remains clearly visible as a raised earthwork, c.4.0m-5.0m wide and with a ditch to either side [*3/231, 3/232*] (see plate 29).

3.61 The road leaves the EDAS survey area (at NGR NY 92280 05500) and continues east, passing another capped shaft [*3/233*]; this was surveyed by ASUD in 2003 and formed their Shaft 5 (ASUD 2003, 6). The road then traverses Great Scollit Hill before running along Annaside Edge [*1/051*] (see plate 30). In many places, it remains clearly visible and is well preserved, comprising a raised earthwork 4.0m-5.0m wide, defined by a scarp to the north side up to 0.75m high and a ditch to the south side. Where it is lightly vegetated or has been eroded, the surface of the earthwork contains a high proportion of small pieces of stone rubble and has been artificially metalled [*3/235, 3/237*]. From the point where it crosses the beck in William Gill, the road can be followed intermittently for a total distance of 3.5km to where it enters the head of Great Punchard Gill.

Mining Remains in Great Punchard Gill

3.62 There are a number of shaft mounds just above the head of Great Punchard Gill, named as 'Old Collieries' in 1799, and within the gill itself, the remains of Punchard Colliery. The colliery complex was not present in 1857, but is shown in 1895, when it is named as 'Punchard Coal Level'. The beck appears to be culverted beneath the complex, the principal structure of which is a long rectangular east-west aligned building on the south side. A tramway runs parallel to the front of the building, with another shorter railway entering it from what it assumed to be the position of the level to the north; there is a smaller building to the immediate west of the level entrance. The complex remained in use in 1914, when three levels are marked in the immediate area around it, with other coal pits to the north-west. It is believed to have ceased working in 1927, and to have been abandoned in 1929 (Les Tyson, *pers. comm.*).

3.63 A photographic postcard of Punchard Colliery dating to c.1914 (Taylor 2006, 23) provides a very valuable view of the surface arrangements. The larger rectangular building is shown to be of a single storey, with a pitched roof covered with stone slates. There was a doorway situated towards the west end of the north wall and a short chimney stack at the very west end of the ridge. A horse stands on a tramway to the front of the building, with four tubs behind. The building to the west of the level entrance is also of a single storey, with a pitched roof covered with

stone slates; there are short stacks at either end of the ridge. The visible elevation has a pair of doorways to the centre, each with a flanking window; this arrangement suggests that the building might have formed a pair of small cottages.

3.64 In addition, the Swaledale Museum in Reeth holds several photographs of the larger rectangular structure in their collection. One undated photograph (IMG 698) shows the building complete and the beck still culverted over; it is named as 'Old Weigh House top of Great Punchard Gill'. As well as the doorway noted above on the c.1914 postcard, there was a second doorway situated towards the centre of the north wall, with a window to the west, fitted with an eight-pane wooden-framed window. A second photograph, taken in c.1969 (IMG 92), shows that by that date the culverted area had partly collapsed, and the building was also a ruin, with the roof completely removed.

3.65 The site has continued to erode since c.1969, with only traces of the levels, buildings and other features shown in 1895 still remaining. The long rectangular building has now decayed to the extent that the walls are generally no more than 0.5m high, and the north side hangs rather precariously over the beck, as the culverted area has been completely washed away. The building has maximum internal dimensions of 22.0m long by 4.6m wide; the walls are on average 0.6m in width. As well as the doorways shown to the north elevation on the historic images, there may have been a second doorway positioned at the east end of the south elevation. The eastern c.6m of the interior may have been partitioned off internally as a separate cell, and appears to retain the remains of a cobbled floor [*3/239-3/242*].

4 DISCUSSION AND CONCLUSIONS

4.1 Documentary evidence indicates that the William Gill Colliery was active from at least 1731 until the mid 1890s. It is possible that working had started earlier in the 18th century or even the late 17th century, as by the latter period both Tan Hill and King's Pit collieries to the north-west were already successful enterprises (Richardson & Dennison 2018a 12), perhaps causing others to seek new sources of coal in the vicinity. The scale of working increased in the late 18th century, with improved provision made for both access and the accommodation of colliers on site.

4.2 The combined documentary and field evidence suggests that the workable coal was contained within an approximate area measuring 700m north-west/south-east by 950m north-east/south-west, with drainage provided by a level (**Site 10**) near William Gill Houses (**Site 8**). The northern limit was represented by a line drawn approximately from the possible workings in Lad Gill (**Site 2**) and then to a number of shaft mounds (for example **Site 20**) on the eastern slope of William Gill. The southern limit ran approximately to the boundary between Muker and Arkengarthdale parishes, south of the area known as Reynoldson Currack. Generally, the northern extent of the seam outcropped within the upper part of William Gill, but it was thought to deteriorate rapidly in a northerly direction (Daykns *et al* 1891, 153-155). The seam dipped towards the south-west; the three old pits shown on the eastern side of the gill in c.1859 increased in depth from six fathoms (36 feet or 10.97m) to 36 fathoms (216 feet or 65.84m) from north-east to south-west (see figure 6). It may have risen again towards the southern limit of the working area, as in c.1859 the depth of the shaft within the complex at the head of the gill (**Site 14**) was 27 fathoms (162 feet or 49.38m). The average thickness of the coal seam was around 2 feet (although Hardy suggests it was 3ft 9ins), and the

coal was said to burn with an intense heat but to not coke well (Daykns *et al* 1891, 153-155; Hardy 1998, 134).

4.3 Within the EDAS survey area, at least 24 shaft mounds were identified, some of which had not been recorded by previous surveys, together with a single level. Not all of these would have been active shafts, some probably being exploratory excavations to test the presence of productive ground. By the end of the 18th century, the colliery was well established; indeed, it must of been of some local importance to merit constructing the 3.5km long 'Coal Road' (**Site 23**) from the head of Great Punchard Gill to the east. Documentary evidence indicates that the road was built before 1779. Where it survives, the road is well constructed, wide and metalled, especially in the sections along Annaside Edge, and was designed for use by carts. The 1st edition Ordnance Survey maps show that the numerous watercourses were crossed by fords, although a 'Sod Bridge' is also shown, as well as several gravel pits nearer the Punchard Gill end, presumably from where the metalling was sourced. The use of carts supports previous suggestions that, from about 1790, small carts were slowly being introduced into the Tan Hill coalfield to replace the earlier packhorses (Wright 1985, 128). This may have formed part of a wider pattern across collieries throughout the Dales; contemporary documentation for the isolated Fountains Fell Colliery near Stainforth makes frequent references to the use of horses and carts for transportation in the very early 19th century (Evans & Quartermaine 2017, 15). Nevertheless, some of the surviving causeways on both side of the gill (see below) are sufficiently steep to suggest that sledges might have been used in bad weather for initial overground haulage for a short distance before better ground was reached. By 1799, shafts were also present on both sides of the gill, with a system of causeways developing on the western side (**Sites 11, 12 and 13**). There was also a single rectangular structure built in 1787 (**Site 8**), named as 'William Gill Houses' probably serving both as accommodation and offices; this was occupied by five separate families in 1851 but seemingly became uninhabited between 1861 and 1871. There was also a smithy (**Site 9**) adjacent to the building and possibly a smaller structure used for coal storage. A similar situation existed at Tan Hill and King's Pit, where each colliery was served by a single 'house' (King's Pit House later becoming the existing Tan Hill Inn).

4.4 During the first half of the 19th century, the surface network of shaft mounds and linking causeways serving the underground bord and pillar workings expanded further to the south-west on both sides of the gill; the c.1859 plan indicates that the underground workings extended some distance to the south-west of the surface remains (see figure 6). In many ways, the pattern of development at William Gill in the first half of the 19th century is very similar to what has been previously recorded at Tan Hill and King's Pit collieries (Richardson & Dennison 2018a; Richardson & Dennison 2018b), and documentary evidence makes it clear that the owners of King's Pit were concerned that coal from William Gill would impact upon their markets. The causeways linking the shaft mounds are not built on the same scale as those seen at King's Pit, for example, where one surviving causeway dating to between 1822 and 1856 is c.85m long, typically 5m-6m wide across the base and up to 2m high. This causeway is constructed from compacted peat, topped by compacted angular rubble, with stone-built culverts allow water to pass through or under the earthwork, as well as alongside, to prevent any water build up and potential damage or erosion (Richardson & Dennison 2018b, 29). Nevertheless, the causeways at William Gill have survived as earthworks, and in some places (such as **Site 13/1**) are well-defined, being up to c.170m long and c.4m wide, and flanked by shallow drains and with possible evidence for a metalled surface.

4.5 However, excepting one definite example at the main colliery complex (**Site 14** - see below), there is less evidence for the presence of horse whims in the EDAS survey area than there is at Tan Hill and King's Pit (Richardson & Dennison 2018b, 6-12 & 21-28), nor is there anything that might be convincingly interpreted as a horse gin. The SWAAG visual record made in 2012 notes of the shaft mounds on the east side of the gill that 'Several of these lower shaft mounds show the remains of horse whim bases' (*https://swaag.org/DB_VIEW_in_Pages_KeyWord2.php*; SWAAG ID 478). The current EDAS survey has found little evidence to support this statement, apart from possibly in the case of the south-westernmost shaft mound (**Site 15**) on the east side of the gill. Here, the plan form and extent of the earthwork surrounding the shaft suggest that there was room for a horse whim circle to the west (see figure 12) - could the slightly lowered, sub-rectangular area measuring 10m east-west by 4m north-south to the west of the shaft be a remnant of such? If the shaft does represent the old pit marked in c.1859 with a depth of 36 fathoms (216 feet or 65.84m), then it is probable that a horse whim was present. At Tan Hill and King's Pit collieries, most shafts with a depth of 22 fathoms (132 feet or 40.23m) or more were provided with horse whims, although at King's Pit, a jack-roll (a hand-operated winding mechanism) remained in use as late as 1836 on shafts with depths of up to 14 fathoms (84 feet or 25.60m) (Richardson & Dennison 2018b, 21-23). The distribution of the different winding mechanisms would also have been dependent on the volume of coal being brought up the shaft as well as the shaft depth. Comparison with Tan Hill and King's Pit suggests that many of the shaft mounds at William Gill probably relied on hand rather than horse power to wind or draw the coal. This was probably not an uncommon practice; for example, the recent survey of the extensive aforementioned Fountains Fell colliery, worked mostly between the late 18th and the mid 19th centuries, apparently revealed no evidence for horse-powered winding equipment. This may, in part, be due to the relatively shallow average depth of the shafts, estimated at around 10m (5.5 fathoms or 30 feet) (Evans & Quartermaine 2017, 28). It seems likely that there would never have been more than one horse whim in use at any one time at the William Gill colliery, being moved forward when the distance from the face of the coal workings to the base of the shaft became inconvenient or uneconomical. The fact that there is clear evidence for only one whim position, as well as one possible whim position, within the survey area may further support the suggestion that the majority of coal was raised by hand winding, although it is of course possible that some whim positions have since been destroyed or obscured.

4.6 There appears to have been a re-organisation of the colliery in the mid-19th century which required a temporary stoppage. This included the driving of a new level and the construction of a new complex at the head of the gill, meaning that by c.1850 many of the earlier shafts and the causeways serving them had become redundant. The earlier Coal Road (**Site 23**) may also have become less important locally, with an existing trackway (**Site 1**) (also present before 1779) being extended further up the gill to the new complex. If the level referred to in the documentation is the surviving example (**Site 10**), then its position low down in the gill close to the beck suggests that it may have been driven to drain the workings as they deepened to the south-west, rather than being used for haulage, given that the new mine complex (**Site 14**; see figure 10) at the head of the gill was equipped with a horse whim. This new complex also had an associated building (or buildings) and a coke or cinder oven; despite the coal apparently having a poor reputation for coking, it may be that some did actually coke well (Mike Gill, *pers. comm.*). There was another coke oven shown to the north-east in 1856 (**Site 16**/**5**), although neither have preserved extensive structural remains, and it may be that both went out of use fairly early on. The horse whim circle at the new complex is well preserved, and bears comparison with some of the early to mid 19th century

examples at Tan Hill and King's Pit, both in terms of the size of the whim circle, the use of stone piers rather than wooden supports for the span beam, and the placing of the shaft to the north-west of the whim circle (Richardson & Dennison 2018b, 24-26). However, the location of the shaft wholly within the building to the north-west is unusual for a Dales colliery, although it is possible that a similar arrangement was in place at Tan Hill High Gin (Richardson & Dennison 2018b, 13-15); Hardy (1998, 134) suggests that there were actually two separate structures either side of the shaft, but only one longer building is shown on the historic maps. If Hardy's suggestion that there was an entrance level set just below the top of the shaft is correct, then there would have been little need for the shaft itself to have been covered (Mike Gill, *pers. comm.*). It is also possible that the long building or buildings contained stabling for the whim horse; in Swaledale, many levels had horse houses at their entrance, whereas at Grassington in Wharfedale, the whim horses used at the lead mines were brought out onto the moor every day (Mike Gill, *pers. comm.*).

4.7 There were problems with flooding at the colliery in the later 19th century. Dakyns, writing at the end of the 19th century, noted that "*The William Gill Level could proceed no further owing to water, so that there must still be a large area of probably good coal in the neighbourhood of Water Crag ...*" (Daykns *et al* 1891, 153-155). It is possible that the 'level' he referred to was the feature labelled as 'Forehead' and shown at the south-western extent of the underground workings in c.1859 (see figure 6). This was being driven in a south-easterly direction, towards Water Crag.

4.8 Mining appears to have ceased within the colliery by 1895. However, at some point between c.1850 and 1895, there seems to have been a short-lived attempt to work coal in Lad Gill, to the north of William Gill (**Site 2**). Although the main surviving structure (**Site 2/2**; see figure 9A) now has the appearance of an agricultural enclosure rather than a building, the possible former window to the eastern wall, together with possible door openings in the northern and eastern walls, suggest that it could once have formed a single storey building similar to that shown in the historic photograph of Punchard Coal Level. At c.14.50m in length by c.4.50m in width, the building is somewhat shorter than the 22m length of the structure at Punchard Coal Level (itself close to the 23.8m of the building enclosing the shaft at William Gill colliery (**Site 14**). Nevertheless, it may represent an example of a long but relatively narrow single storey building, perhaps used for the storage and weighing of coal, that appears to be characteristic of isolated collieries in the area that were opened in the second half of the 19th century.

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WYAS = West Yorkshire Archives Service, Bradford (Spencer Stanhope mss)

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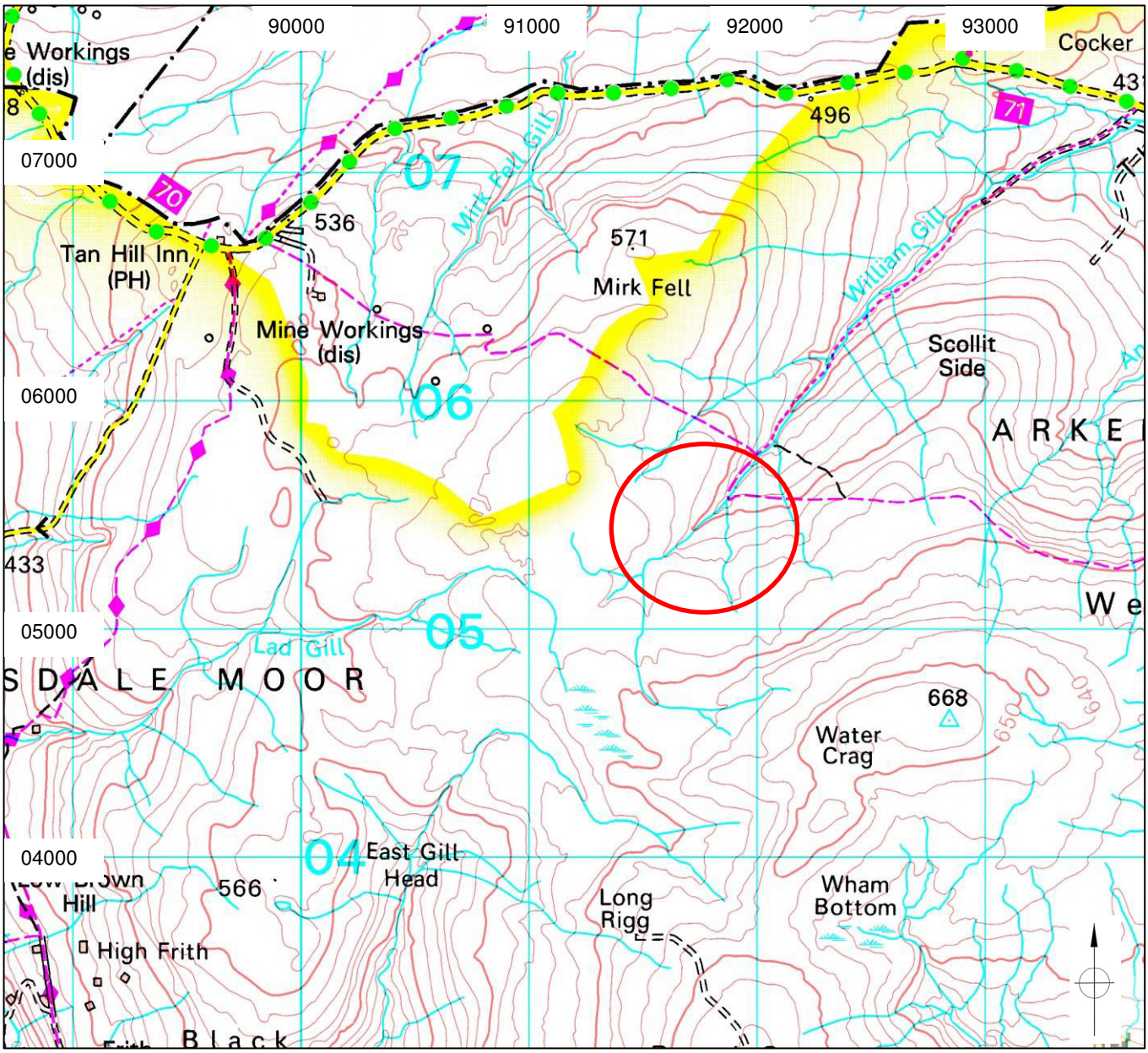


PROJECT	WILLIAM GILL COLLIERY
TITLE	GENERAL LOCATION
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 1

060000

Grouse Butts

Ford

524m

FB

Ford

Track

holdson
rrack

Path

Pit
(dis)

Ford

Ford

EDAS walkover
area (yellow)

Area covered by
YDNPA HER MYD
21153 (William Gill
Colliery) (green)

Fords

Gr

Grouse Butts

591m

Area of Scheduled
Monument
(SM29548) (red)

Pit
(dis)

William Gill Colliery
(disused)

0

250m

Croo

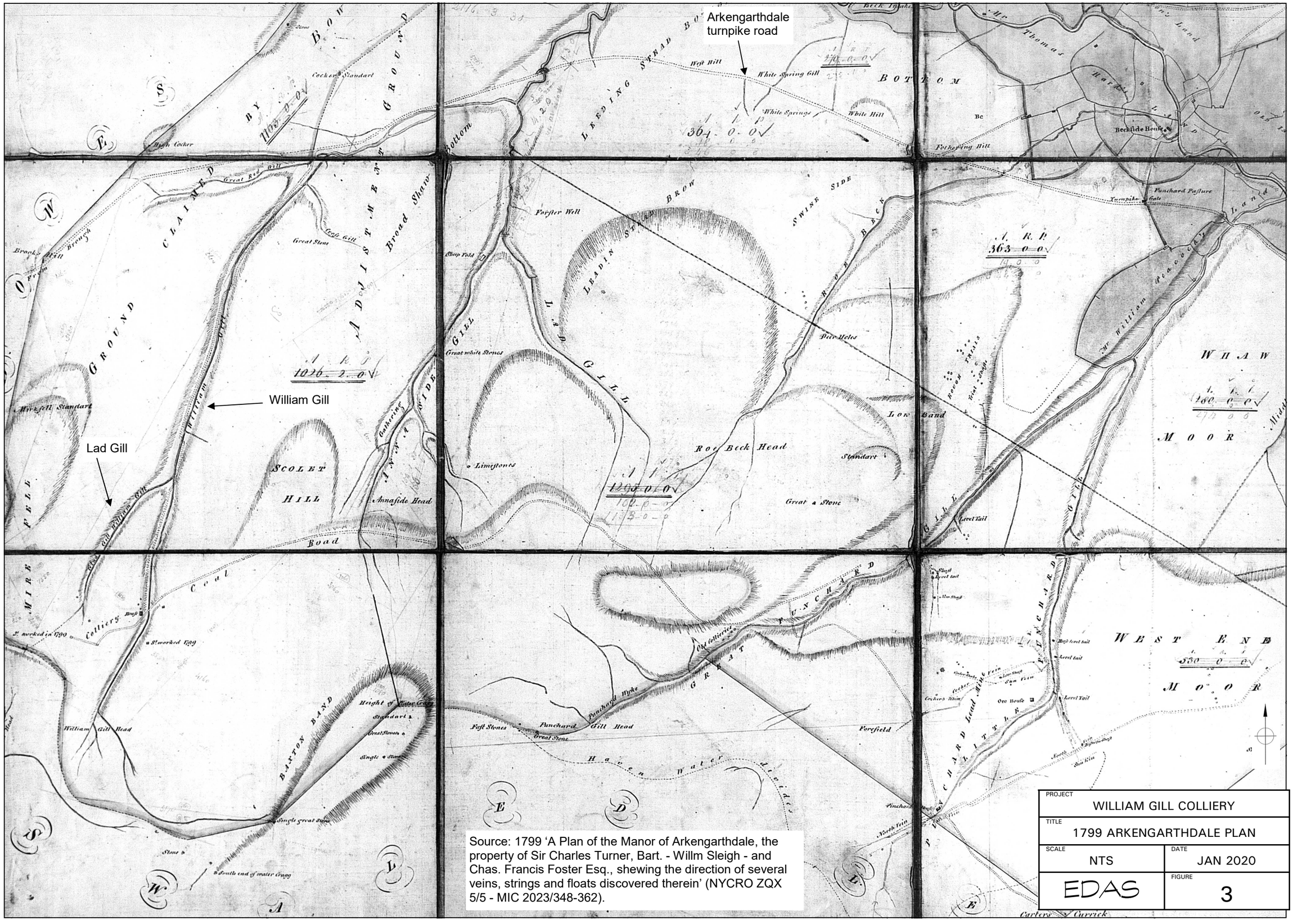
920000

PROJECT	WILLIAM GILL COLLIERY
TITLE	AREA OF WALKOVER SURVEY
SCALE: AS SHOWN	DATE: JAN 2020
EDAS	FIGURE: 2

Arkengarthdale turnpike road

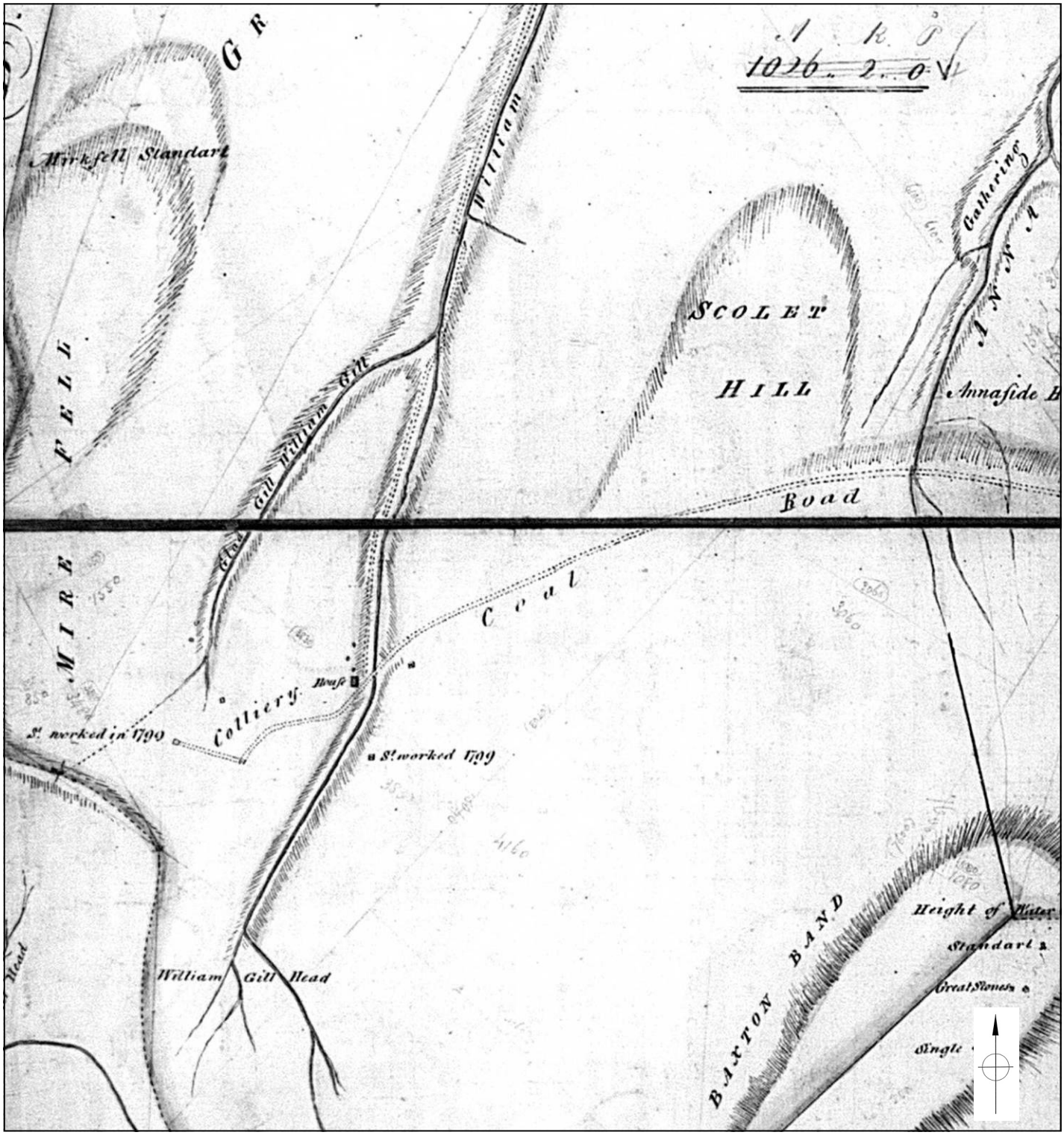
William Gill

Lad Gill



Source: 1799 ‘A Plan of the Manor of Arkengarthdale, the property of Sir Charles Turner, Bart. - Willm Sleigh - and Chas. Francis Foster Esq., shewing the direction of several veins, strings and floats discovered therein’ (NYCRO ZQX 5/5 - MIC 2023/348-362).

PROJECT	WILLIAM GILL COLLIERY
TITLE	1799 ARKENGARTHDALE PLAN
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 3



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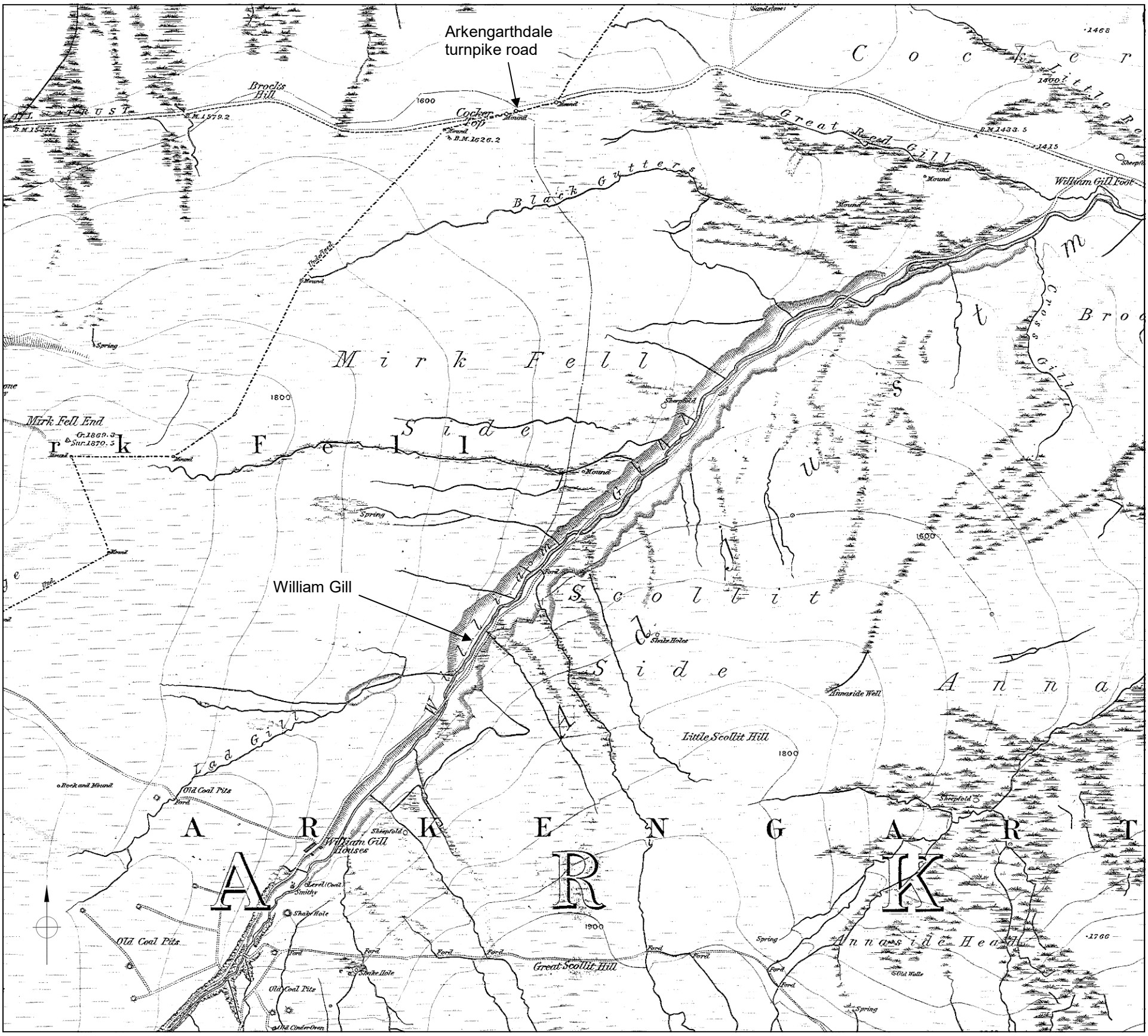
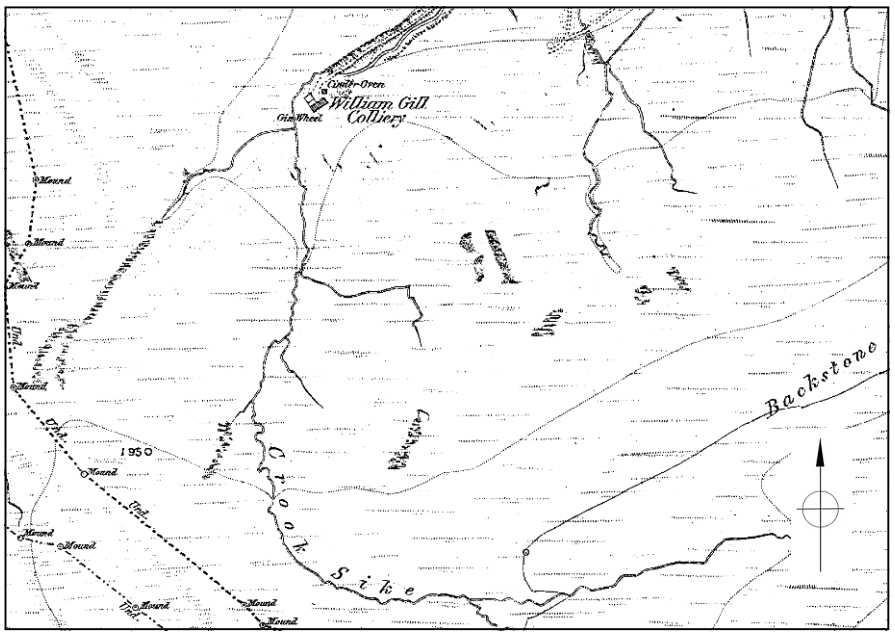
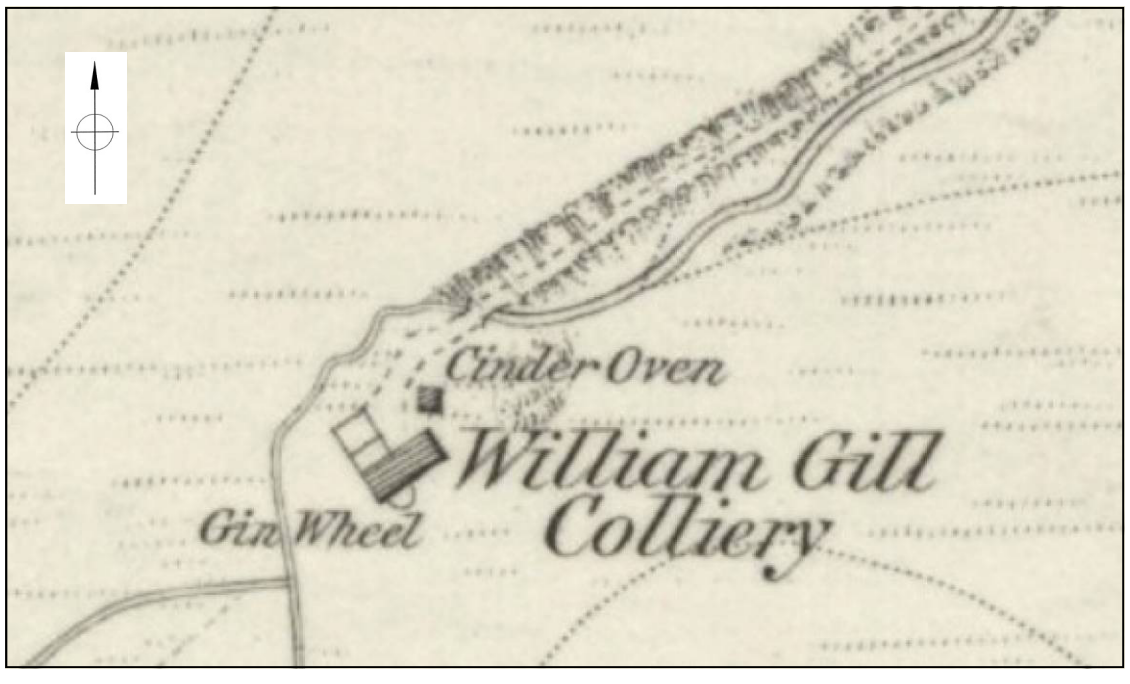
PROJECT: WILLIAM GILL COLLIERY	
TITLE: 1799 ARKENGARTHDALE PLAN	
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 4



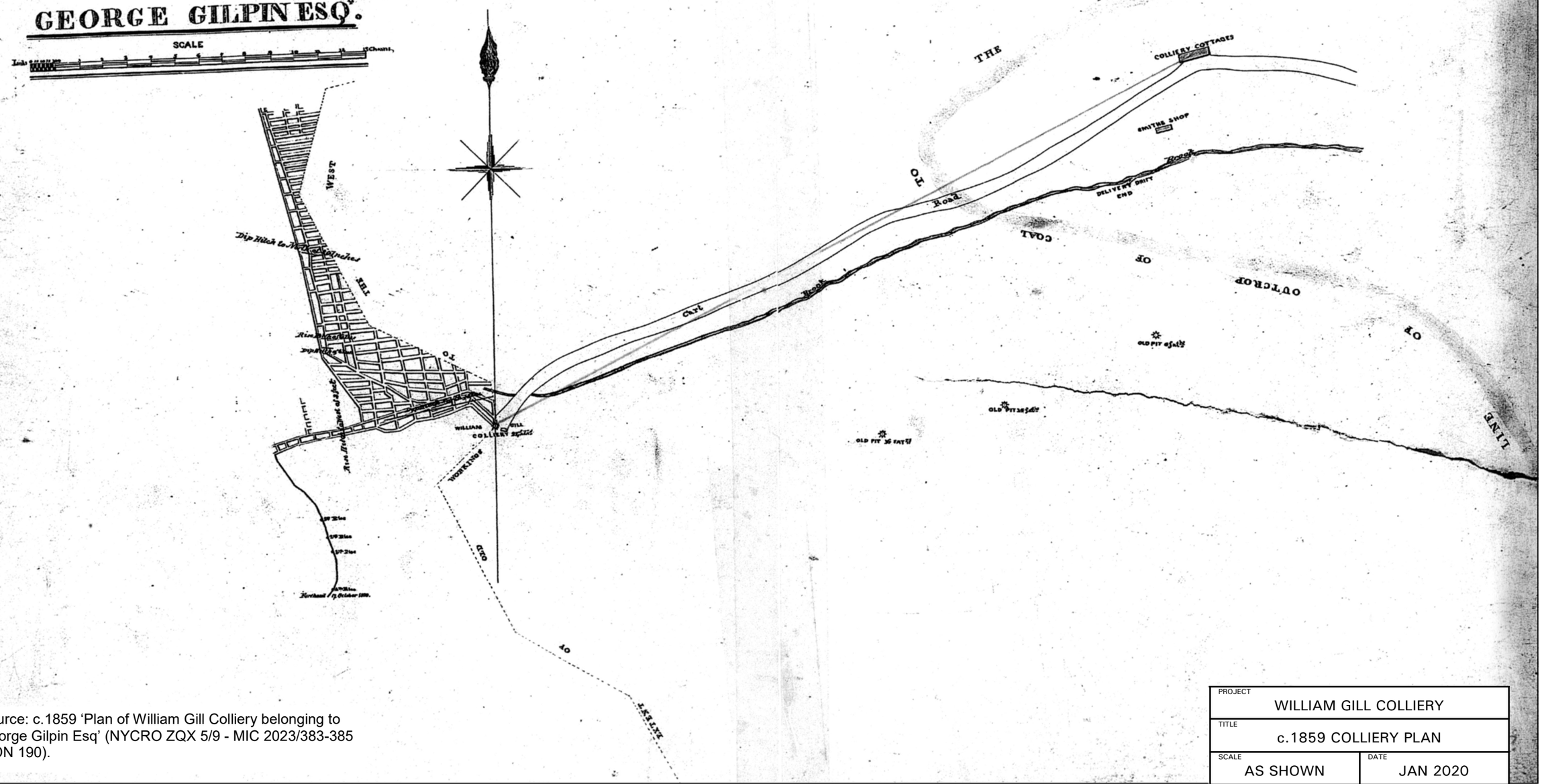




Sources:
Top - 1856 Ordnance Survey 6" to 1 mile map sheet 22 (surveyed 1854).
Bottom - 1857 Ordnance Survey 6" to 1 mile map sheet 36 (surveyed 1854).

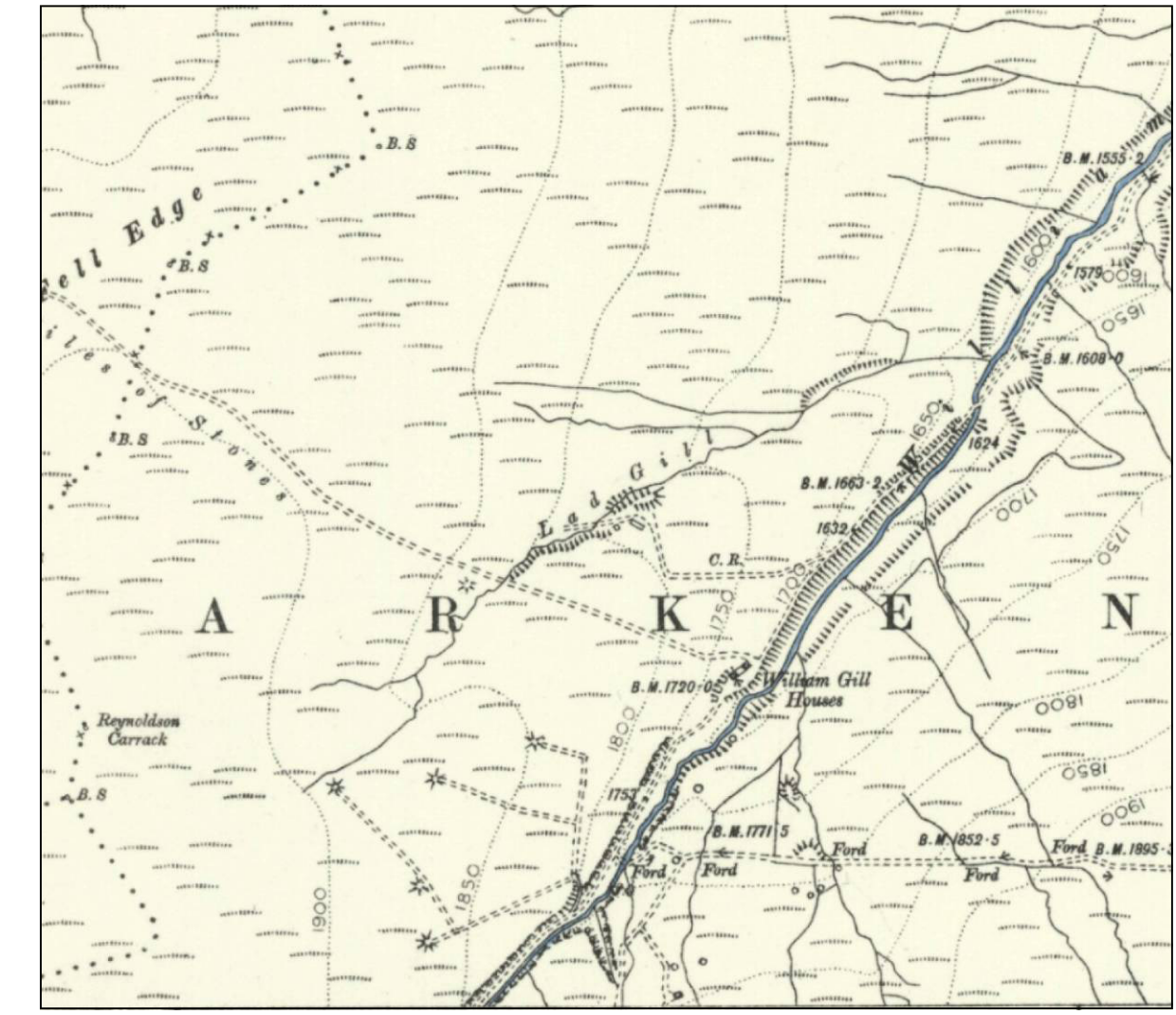
PROJECT: WILLIAM GILL COLLIERY	
TITLE: ORDNANCE SURVEY 1856-57 MAPS	
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 5

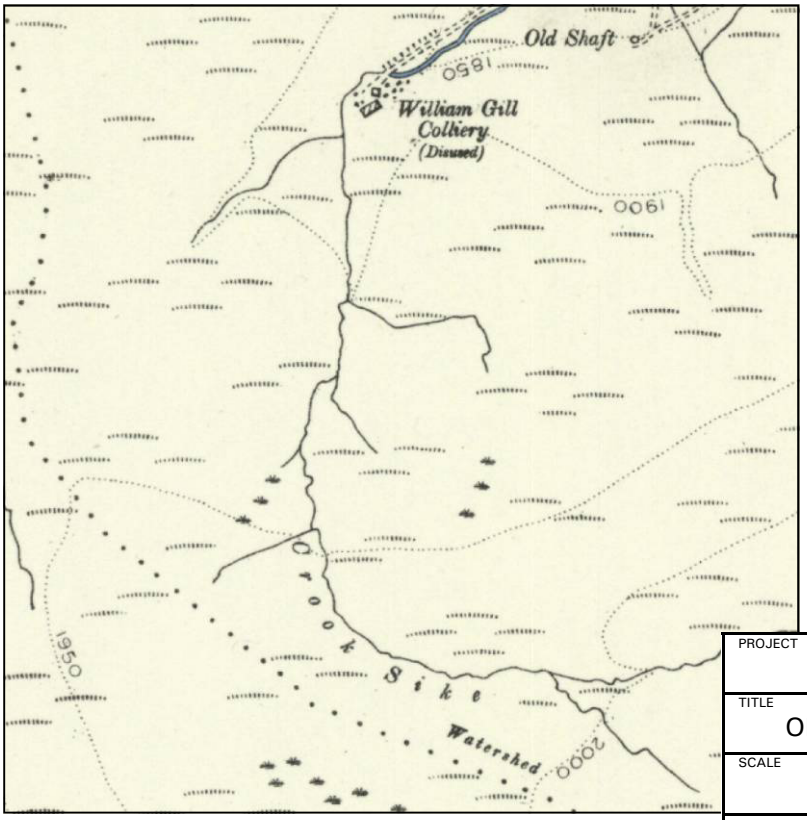
PLAN
OF
WILLIAM GILL COLLIERY
BELONGING TO
GEORGE GILPIN ESQ.^R



Source: c.1859 ‘Plan of William Gill Colliery belonging to George Gilpin Esq’ (NYCRO ZQX 5/9 - MIC 2023/383-385 & DN 190).

PROJECT: WILLIAM GILL COLLIERY	
TITLE: c.1859 COLLIERY PLAN	
SCALE: AS SHOWN	DATE: JAN 2020
EDAS	FIGURE: 6





Sources:
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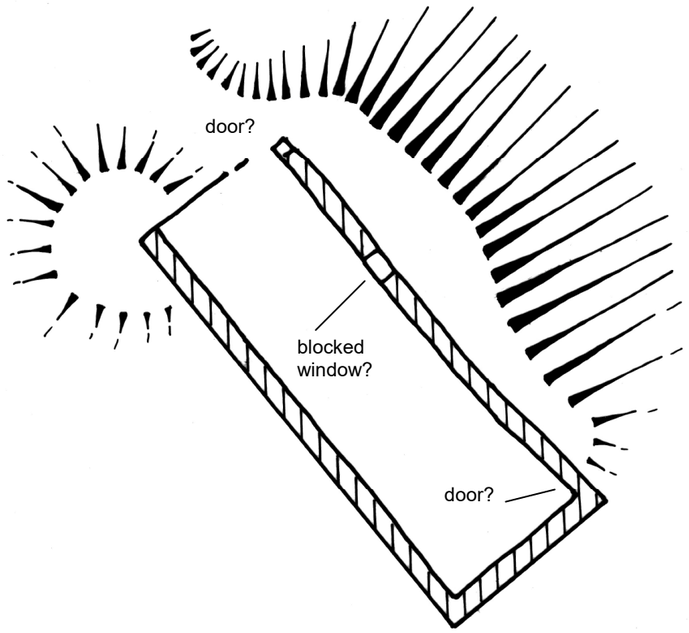
Bottom - 1895 Ordnance Survey 6" to 1 mile map sheet 26NW (surveyed 1891).

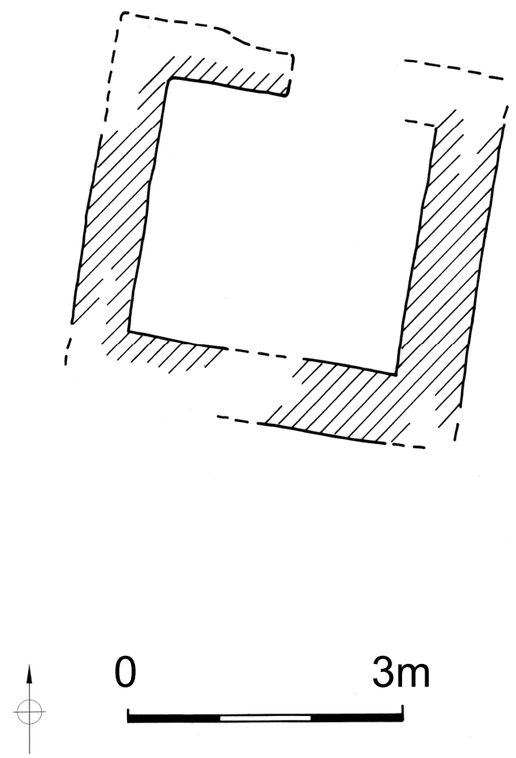
PROJECT: WILLIAM GILL COLLIERY	
TITLE: ORDNANCE SURVEY 1895 MAPS	
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 7

Site	Name
1	Trackway up William Gill
2	Possible colliery complex
3	Shaft mounds
4	Shaft mound
5	Shaft mound
6	Possible shaft mound
7	Possible stone quarrying or outcrop working
8	Site of William Gill Houses
9	Site of Smithy
10	William Gill Level
11	Causeway and shaft mounds
12	Causeways and shaft mounds
13	Causeways and shaft mounds
14	William Gill Colliery
15	Shaft mound
16	Causeways and shaft mounds
17	Shaft mounds
18	Shaft mound
19	Shaft mound
20	Shaft mounds
21	Shaft mound
22	Possible spoil heap
23	Coal Road

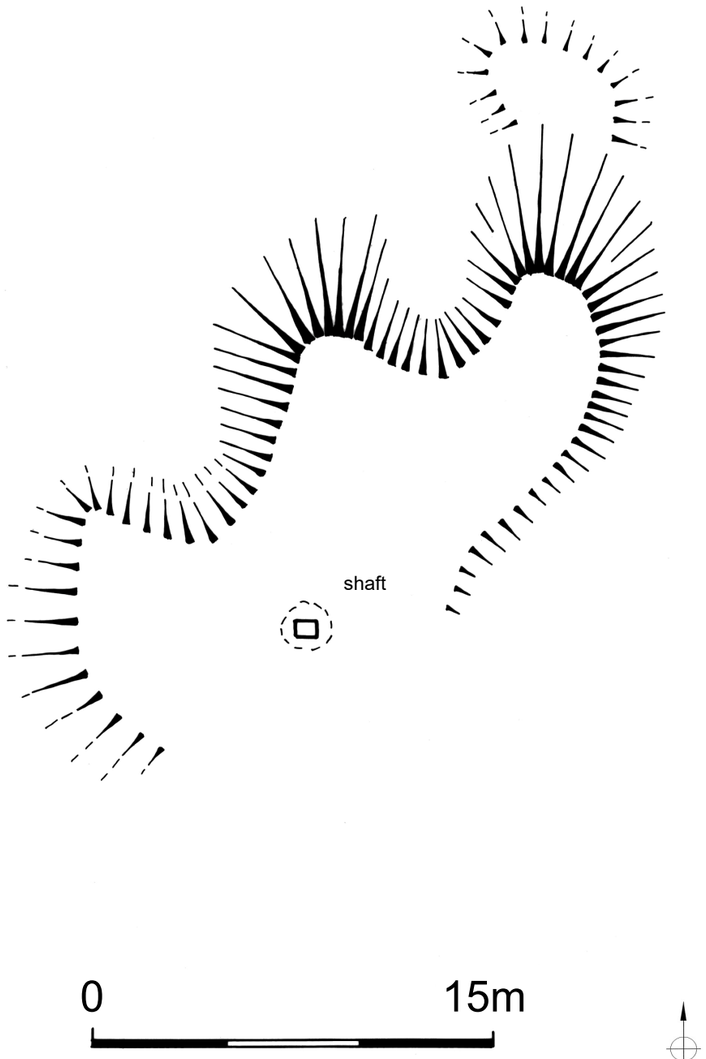
PROJECT	WILLIAM GILL COLLIERY
TITLE	IDENTIFIED SITES
SCALE: AS SHOWN	DATE: JAN 2020
EDAS	FIGURE: 8



A: Possible mining structure, Lad Gill (Site 2/2)

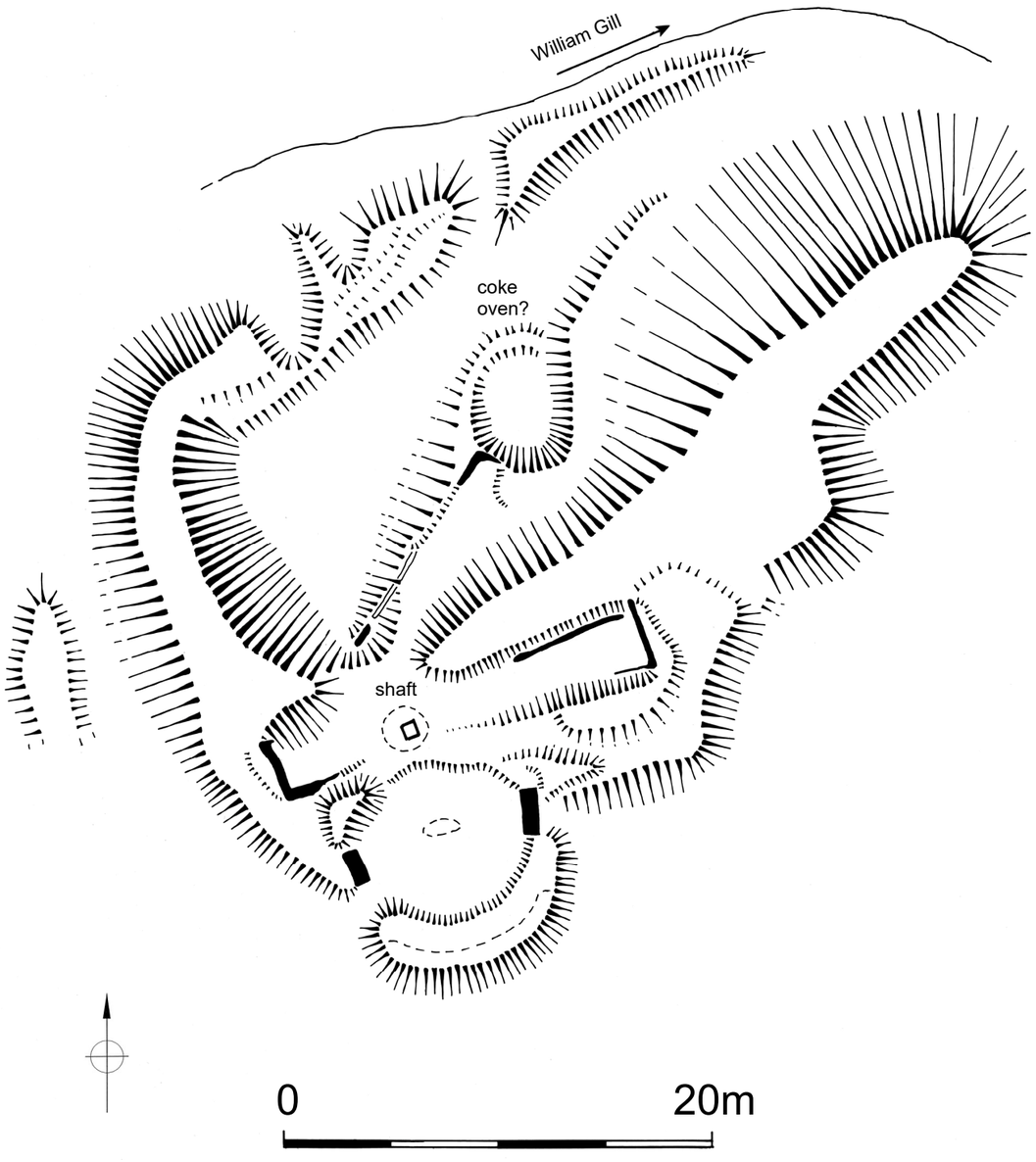


B: Possible mining shelter, Lad Gill (Site 2/3)

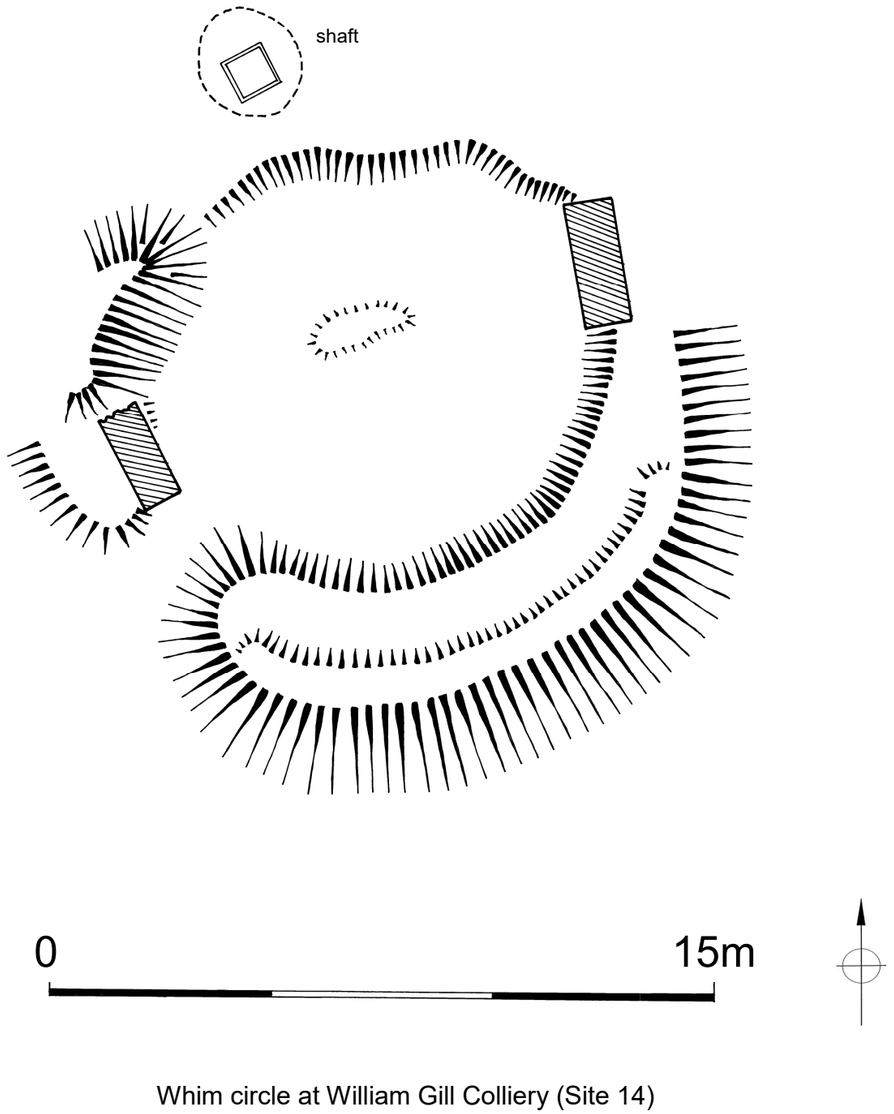


C: Shaft and spoil heap, east slope of William Gill (Site 16/5)

PROJECT: WILLIAM GILL COLLIERY	
TITLE: SURVEYED SITES	
SCALE: AS SHOWN	DATE: JAN 2020
EDAS	FIGURE: 9

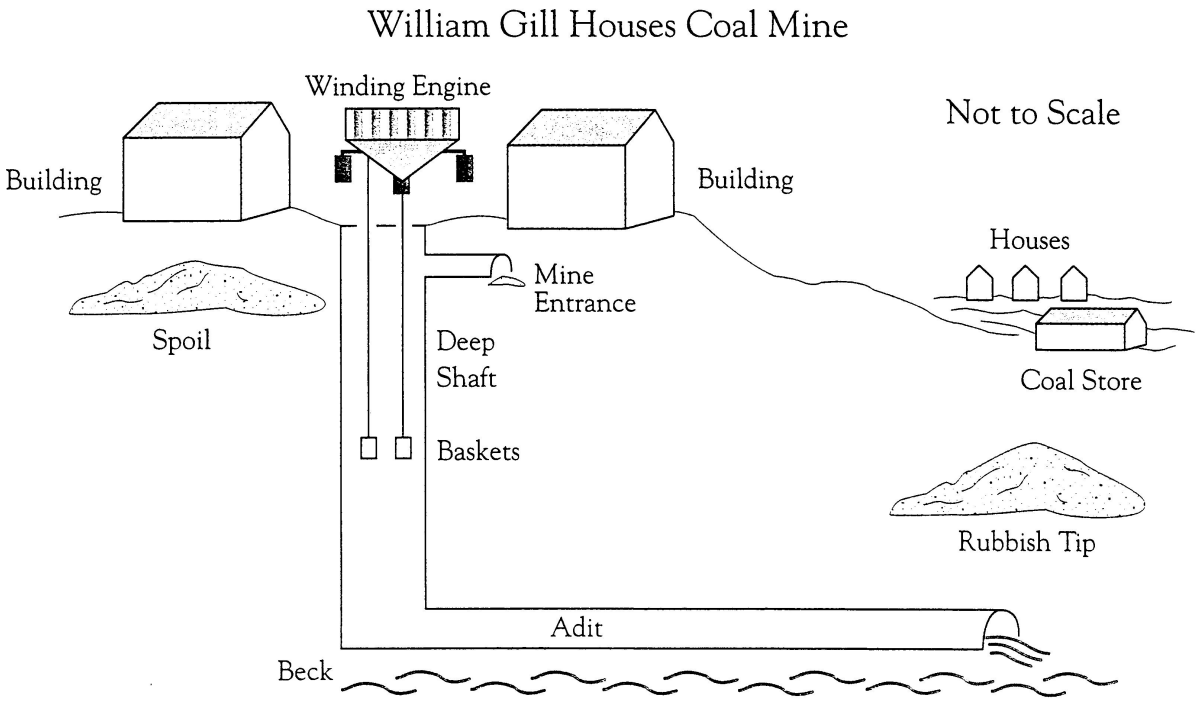


William Gill Colliery complex (Site 14)



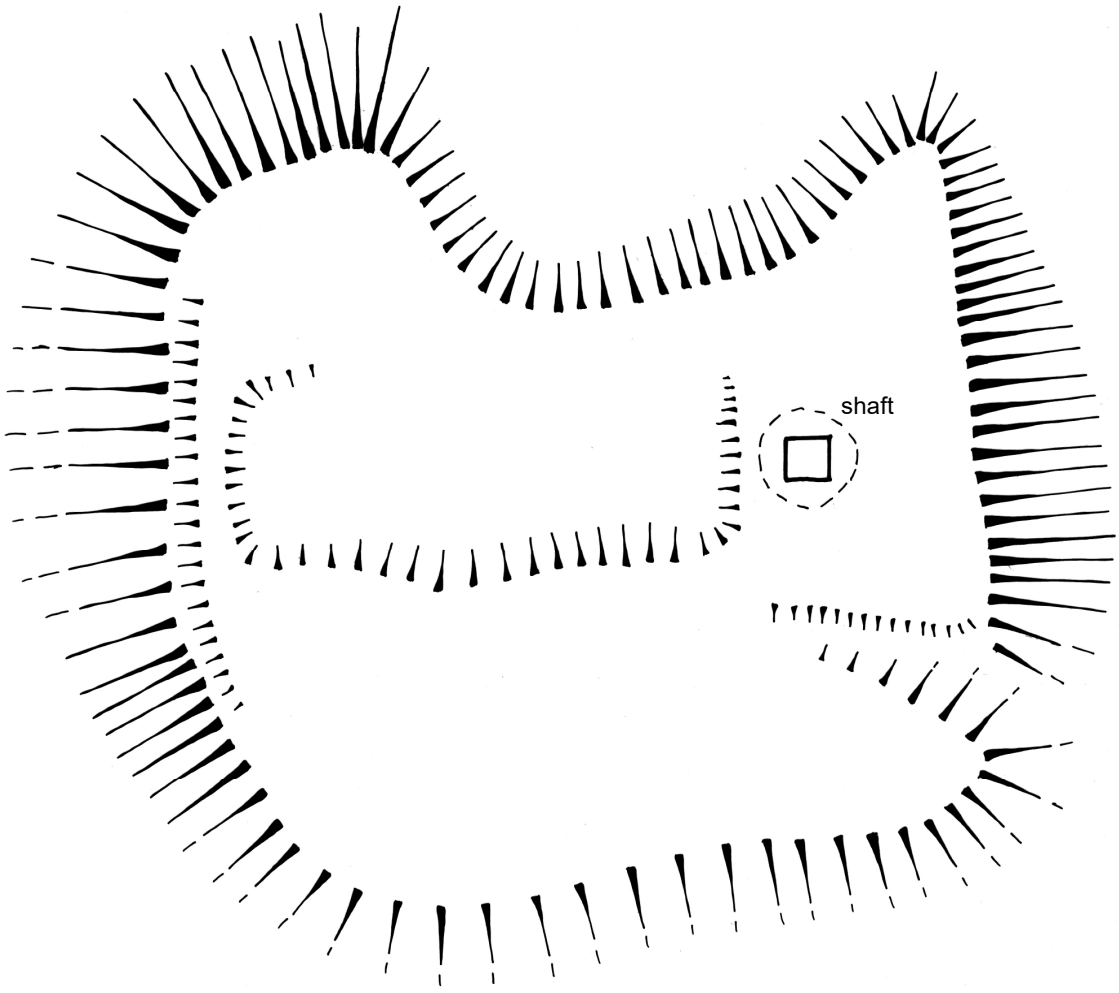
Whim circle at William Gill Colliery (Site 14)

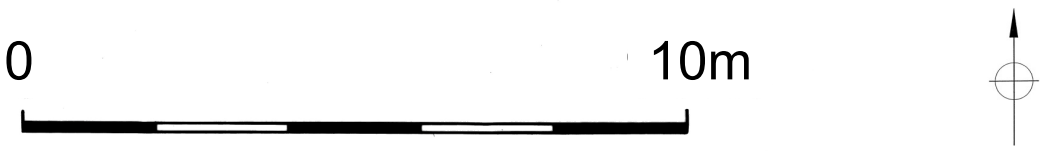
PROJECT: WILLIAM GILL COLLIERY	
TITLE: SURVEYED SITES	
SCALE: AS SHOWN	DATE: JAN 2020
EDAS	FIGURE: 10



Source: Hardy, J 1998 *Swaledale: Portrait of a North Yorkshire Mining Community,* Appendix 3, p134.

PROJECT: WILLIAM GILL COLLIERY	
TITLE: HARDY'S SKETCH	
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 11





Shaft mound, east slope of William Gill (Site 15)

PROJECT: WILLIAM GILL COLLIERY	
TITLE: SURVEYED SITES	
SCALE: NTS	DATE: JAN 2020
EDAS	FIGURE: 12

Plate 1: Causeway to Lad Gill (Site 2/1), revetment wall to south side, looking W (photo 1/024).

Plate 2: Causeway to Lad Gill (Site 2/1), looking E (photo 1/030).

Plate 3: General view of Lad Gill complex (Site 2), looking NE (photo 1/040).

Plate 4: Structure in Lad Gill complex (Site 2/2), looking SE (photo 1/032).

Plate 5: Structure in Lad Gill complex (Site 2/3), looking E (photo 1/037).

Plate 6: Shaft mound, south side of Lad Gill (Site 4), looking E (photo 3/224).

Plate 7: Shaft mound on north side of Lad Gill (Site 5), looking SE (photo 1/058).

Plate 8: Shaft mound on north side of Lad Gill (Site 6), looking SE (photo 1/057).

Plate 9: Possible quarry (Site 7), looking NW (photo 1/042).

Plate 10: Trackway (Site 1) and site of William Gill Houses (Site 8),
looking SW (photo 1/046).

Plate 11: View to William Gill Level (Site 10), looking SE (photo 1/048).

Plate 12: Causeway, west slope of William Gill (Site 11/1), looking NE (photo 1/050).

Plate 13: Shaft mound, west slope of William Gill (Site 11/2), looking NE (photo 1/052).

Plate 14: Shaft mound, west slope of William Gill (Site 12/2), looking SW (photo 1/054).

Plate 15: Shaft mound, west slope of William Gill (Site 12/3), looking N (photo 1/056).

Plate 16: General view of causeways and shaft mounds on west side of William Gill (Site 13), looking N (photo 2/166).

Plate 17: Causeway, west side of William Gill (Site 13/1), looking SE (photo 1/061).

Plate 18: Shaft mound, west slope of William Gill (Site 13/3), looking SW (photo 1/060).

Plate 19: William Gill colliery (Site 14), spoil heaps, looking NW (photo 2/161).

Plate 20: William Gill colliery (Site 14), site of coke oven or level entrance?, looking SW (photo 2/162).

Plate 21: William Gill colliery (Site 14), east end of building and shaft, looking SE (photo 2/156).

Plate 22: William Gill colliery (Site 14), whim circle, west end of building and shaft, looking SE (photo 2/154).

Plate 23: William Gill colliery (Site 14), whim circle, looking S (photo 2/152).

Plate 24: William Gill colliery (Site 14), east pier of whim circle, looking E (photo 2/148).

Plate 25: Shaft mound, east slope of William Gill (Site 15), looking NE (photo 1/065).

Plate 26: Shaft mound, east slope of William Gill (Site 16/2), looking N (photo 2/171).

Plate 27: Shaft mound, east slope of William Gill (Site 21), looking N (photo 2/174).

Plate 28: Coal Road (Site 23), east side of William Gill near junction with trackway (Site 1), looking NE (photo 3/228).

Plate 29: Coal Road (Site 23), towards Great Scolitt Hill, looking W (photo 3/232).

Plate 30: Coal Road (Site 23), east slope of William Gill, looking E towards Annaside Edge (photo 1/051).

APPENDIX 1
EDAS PHOTOGRAPHIC CATALOGUE

WILLIAM GILL PHOTOGRAPHIC CATALOGUE

Film 1: Colour digital photographs taken 14th February 2019
Film 2: Colour digital photographs taken 22nd February 2019
Film 3: Colour digital photographs taken 1st March 2019

Film	*Frame*	*Subject*	*Scale*
1	024	Causeway to Lad Gill (Site 2/1), revetment wall to south side, looking W	1m
1	025	Causeway to Lad Gill (Site 2/1), looking NW	1m
1	026	Causeway to Lad Gill (Site 2/1), looking E	1m
1	030	Causeway to Lad Gill (Site 2/1), looking E	1m
1	031	Structure in Lad Gill complex (Site 2/2), looking SE	1m
1	032	Structure in Lad Gill complex (Site 2/2), looking SE	1m
1	033	Structure in Lad Gill complex (Site 2/2), looking E	1m
1	034	Structure in Lad Gill complex (Site 2/2), possible blocked window, looking SW	1m
1	035	Structure in Lad Gill complex (Site 2/2), looking NE	1m
1	036	Structure on mound in Lad Gill complex (Site 2/2), looking SW	-
1	037	Structure in Lad Gill complex (Site 2/3), looking E	1m
1	038	Structure in Lad Gill complex (Site 2/3), looking SE	1m
1	039	General view of Lad Gill complex (Site 2), looking NE	-
1	040	General view of Lad Gill complex (Site 2), looking NE	-
1	041	Shaft mounds on north side of Lad Gill (Site 3), looking SW	-
1	042	Possible quarry (Site 7), looking NW	1m
1	043	Possible quarry (Site 7), stone with jumper, looking SE	1m
1	044	Possible coal outcrop working (Site 7), looking NW	1m
1	045	William Gill Houses (Site 8), looking SW	1m
1	046	Trackway (Site 1) & William Gill Houses (Site 8), looking SW	1m
1	047	Trackway (Site 1) & William Gill Houses (Site 8), looking NE	1m
1	048	View to William Gill Level (Site 10), looking SE	-
1	050	Causeway, west slope of William Gill (Site 11/1), looking NE	1m
1	051	Coal Road (Site 23), east slope of William Gill, looking E towards Annaside Edge	-
1	052	Shaft mound, west slope of William Gill (Site 11/2), looking NE	1m
1	053	Shaft mound, west slope of William Gill (Site 11/3), looking SE	1m
1	054	Shaft mound, west slope of William Gill (Site 12/2), looking SW	1m
1	056	Shaft mound, west slope of William Gill (Site 12/3), looking N	1m
1	057	Shaft mound on north side of Lad Gill (Site 6), looking SE	1m
1	058	Shaft mound on north side of Lad Gill (Site 5), looking SE	-
1	059	Shaft mound, west slope of William Gill (Site 13/4), looking NE	1m
1	060	Shaft mound, west slope of William Gill (Site 13/3), looking SW	1m
1	061	Causeway, west side of William Gill (Site 13/1), looking SE	1m
1	062	Shaft mound, west side of William Gill (Site 13/2), looking SW	1m
1	064	Causeway, west side of William Gill (Site 13/1), looking NE	1m
1	065	Shaft mound, east slope of William Gill (Site 15), looking NE	1m
2	148	William Gill colliery (Site 14), E pier of whim circle, looking E	1m
2	149	William Gill colliery (Site 14), E pier of whim circle, looking E	1m
2	150	William Gill colliery (Site 14), whim circle, looking N	1m
2	151	William Gill colliery (Site 14), whim circle, looking S	1m
2	152	William Gill colliery (Site 14), whim circle, looking S	1m
2	153	William Gill colliery (Site 14), whim circle, looking S	1m
2	154	William Gill colliery (Site 14), whim circle, west end of building and shaft, looking SE	1m
2	155	William Gill colliery (Site 14), whim circle and building, looking SE	1m
2	156	William Gill colliery (Site 14), east end of building and shaft, looking SE	1m
2	157	William Gill colliery (Site 14), building, looking NE	1m
2	158	William Gill colliery (Site 14), east end of building, shaft and east pier looking NE	1m
2	159	William Gill colliery (Site 14), east end of building and shaft, looking NE	1m
2	160	Trackway (Site 1), south-west of William Gill Houses (Site 8), looking N	-
2	161	William Gill colliery (Site 14), spoil heaps, looking NW	-
2	162	William Gill colliery (Site 14), site of coke oven or level entrance?, looking SW	-
2	163	William Gill colliery (Site 14), spoil heaps, looking NE	-
2	165	General view of causeways and shaft mounds on west side of William Gill (Site 13), looking N	-

2	166	General view of causeways and shaft mounds on west side of William Gill (Site 13), looking N	-
2	167	General view of causeways and shaft mounds on west side of William Gill (Sites 11 & 12), looking NE	-
2	168	Causeway and shaft mound, east slope of William Gill (Sites 16/1 & 16/5), looking SW	-
2	171	Shaft mound, east slope of William Gill (Site 16/2), looking N	1m
2	172	Shaft mound, east slope of William Gill (Site 21), looking N	1m
2	174	Shaft mound, east slope of William Gill (Site 21), looking N	1m
2	175	Causeway and shaft mound, east slope of William Gill (Sites 16/1 & 16/2), looking NE	1m
3	224	Shaft mound, south side of Lad Gill (Site 4), looking E	-
3	225	Shaft mound, south side of Lad Gill (Site 4), shaft in base, looking E	-
3	226	Coal Road, western section (Site 23), looking SE	-
3	227	Coal Road (Site 23), western section, looking SE	-
3	228	Coal Road (site 23), east side of William Gill near junction with trackway (Site 1), looking NE	1m
3	229	Coal Road (Site 23), bridge site in William Gill, looking NE	-
3	230	Coal Road (Site 23), holloway section, east side of William Gill, looking NE	-
3	231	Coal Road (Site 23), towards Great Scollit Hill, looking E	-
3	232	Coal Road (Site 23), towards Great Scolitt Hill, looking W	-
3	233	Shaft mounds (ASUD Shaft 5), Great Scollit Hill, looking W	1m
3	235	Coal Road (Site 23), typical section on Annaside Edge, looking E	2 x 1m
3	237	Coal Road (Site 23), view from Annaside Edge, looking N	-
3	239	Punchard Coal Level, looking E	-
3	240	Punchard Coal Level, building, looking S	-
3	241	Punchard Coal Level, building, looking E	1m
3	242	Punchard Coal Level, building, looking W	1m

APPENDIX 2
EDAS PROJECT DESIGN

WILLIAM GILL COLLIERY, WILLIAM GILL, STONESDALE MOOR, ARKENGARTHDALE, NORTH YORKSHIRE: PROJECT DESIGN

INTRODUCTION

This project design sets out the work Ed Dennison Archaeological Services (EDAS) Ltd consider necessary to undertake in order to enhance the Yorkshire Dales National Park's Historic Environment Record (YDNPA HER) for William Gill collliery, William Gill, Arkengarthdale, North Yorkshire. The results from the survey may also be used by other interested parties to more accurately define the area of the Scheduled Monument (see below).

Location and History

William Gill colliery (NGR NY 91557 05283 centred) lies at the head of William Gill, some 2.30km south-east of the Tan Hill Inn, Stonesdale Moor, Arkengarthdale, North Yorkshire, at an elevation of approximately 580m AOD. It is currently formed by an area of unenclosed heather moorland, some of which is used for grouse shooting. A public footpath runs up the Gill, with another running across it from Lad Gill to the north-west. The unenclosed moorland is all an Area of Open Public Access.

The colliery was working the same seam of coal as the more extensive Tan Hill and King's Pit collieries to the north-west, the seam outcropping in the northern side of the Gill, which runs broadly north-east/south-west. This coal was being worked from at least 1763, and the colliery continued to provide local competition to the larger, neighbouring concerns into the 1870s. It is not known when coal mining ceased at William Gill, but there appear to have been problems with flooding in the late 19th century.

The colliery is depicted in some detail on mid 19th century Ordnance Survey 6" to 1 mile mapping, spread across two adjoining sheets (sheet 22 (published 1856) and sheet 36 (published 1857)). The main access to the colliery was from the Long Causeway, a trackway leaving the south side at William Gill Foot and following the north side of the Gill. At the point where the trackway met another track or pathway leading across Lad Gill to the north-west from King's Pit colliery, a rectangular building is shown, named 'William Gill Houses', with a 'Smithy' and coal level close by to the south. To the south-west of the building, 'Old Coal Pits' are marked to the east and west of the Gill. Continuing onto the map sheet to the south, the trackway finally crossed over a bridge to the south side of the beck at the very head of the Gill to reach the isolated William Gill colliery. A single rectangular building, aligned north-east/south west, is shown at the colliery, with two small conjoined enclosures to the north side and a detached 'Cinder Oven' to the north-east. 'Gin Wheel' is marked next to the building, and shown as a semi-circle apparently half covered by the building itself. A plan of the colliery dating to c.1859 shows that by that date, pillar and stall workings extending to the north of the Gill were being worked from the shaft shown with the building and whim on the Ordnance Survey 6" map (hereafter referred to as the main shaft, for the purposes of description).

The area around the main shaft is a Scheduled Ancient Monument (National Heritage List for England 1018368). The Scheduled entry describes William Gill as an important and scarce surviving example of a small upland colliery in the Yorkshire Dales. The majority of the surviving earthworks lie outside of the Scheduled area. A visual (photographic) record of the main pit and four other shaft mounds was made by Swaledale and Arkengarthdale Archaeology Group (SWAAG) in 2012. The brief text accompanying the photographs states that there are at least eight isolated shaft mounds on the southern side of William Gill, at a lower elevation than the main pit, and that several of these lower shafts preserve evidence for horse whims. The horse whim at the main pit, which preserves uncommon stone piers

supporting the span beam, was subject to detailed measured earthwork survey at a scale of 1:50 in 2017 by Shaun Richardson. A brief history of the colliery is given by Gill (2008), with the geological background being provided by Dakyns *et al* (1891). The most detailed research undertaken to date on the collieries in the area is by mining historian Les Tyson, who has accumulated over 200 pages of documentary archive material. The vast majority of this remains unpublished. However, the research has kindly been made available to Shaun Richardson of EDAS Ltd, and a small part has been included in a recent Statement of Significance prepared for Tan Hill and King's Pit collieries (Richardson & Dennison 2017). The unpublished archive research includes material relevant to William Gill colliery.

Reasons for the Work

The proposed work will enhance the YDNPA HER records for William Gill colliery, by placing the Scheduled Area within its wider context of the whole colliery landscape as it developed over time. This will allow comparison to the adjacent collieries of Tan Hill and King's Pit to the north-west, and also to other smaller collieries throughout the Yorkshire Dales. The detailed recording of a representative selection of features such as whim circles will help understand the use and application of technology at collieries throughout the Dales.

FIELDWORK METHODOLOGY

It is proposed that the fieldwork should consist of three stages, each stage informing that which comes after.

Collation of Documentary Material

As noted above, Les Tyson has very kindly made available significant unpublished research relating to William Gill colliery, to which EDAS can add a small amount of additional material arising from their own private research. Contact will also be made with Ian Spensley, whose relatives worked at the colliery and he might even have been born in the colliery cottages. Prior to the walk-over survey (see below), this material will be collated and marked onto a map base, in order to inform subsequent recording in the field.

General Walkover Survey

A general walkover survey will be undertaken of the whole colliery area, using the extent of the surface workings shown on the mid-19th century Ordnance Survey 6" to 1 mile map coverage as a guide; including the Gill itself, and the areas to the north and south, the walk-over survey area would cover an area measuring approximately 700m by 500m, and would include a ruined building at nearby Lad Gill which also appears to be colliery related. This walkover survey would therefore cover some 35 hectares, although it is envisaged that features will be localised to a number of specific areas, rather than widely dispersed, as was the case with the Tan Hill survey work.

Within the walk-over survey area, each identified feature would be located using a hand-held GPS. Sufficient notes would be taken in the field to give a brief description of each feature, with digital photographs also taken if merited; site descriptions would be included within the body of the survey report, a separate gazetteer using pro-forma sheets would not be produced.

Detailed Measured Survey

The results of the walk-over survey would be used to identify a number of features which merited further, detailed measured archaeological survey. Decisions for survey would be based on those features which are either typical, well-preserved, unusual and/or complex.

Typically, these features would include well-preserved horse whims, shafts, ruined buildings, or raised causeways linking shafts. Measured surveys would be made of these features at a scale of 1:50 or 1:100, using traditional hand-held recording techniques.

In addition to the above, the plan of the whim circle at the main shaft made previously by Shaun Richardson and Richard Lamb as private research would be enhanced so that it includes the ruined building within which the circle was partly located. Comparison with recording previously undertaken at the other collieries in the area suggests that this was an unusual arrangement.

REPORTING

The information gathered in the field will be used to produce an archaeological archive survey report, illustrated by wet ink plots based on the field drawings and a selection of photographs. A fully indexed and ordered field archive will be prepared, and deposited with the YDNPA at the end of the project.

REFERENCES

1856 Ordnance Survey 6" to 1 mile map sheet 22 (surveyed 1854)
1857 Ordnance Survey 6" to 1 mile map sheet 36 (surveyed 1854)
1859 Plan of William Gill colliery (NYCRO ZQX 5/9 MIC 2023/383-385)

Dakyns, J et al 1891 *Memoirs of the Geological Survey: England and Wales. The Geology of the Country Around Mallerstang, with Parts of Wensleydale, Swaledale, and Arkendale*

Gill, M 2008 'The Great Dales Coalfield, Eastern Areas'. *British Mining no 86*, 69-108

Richardson, S & Dennison, E 2017 *Tan Hill and King's Pit Collieries, Muker and Bowes, North Yorkshire and County Durham: Statement of Significance* (Unpublished EDAS archive report no. 2016/530.R01 for the Yorkshire Dales National Park Authority)