STRUCTURAL/EARTHWORK COMPLEX, WEST OF NEW MILL, ARKENGARTHDALE, NORTH YORKSHIRE

ARCHAEOLOGICAL SURVEY

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EXECUTIVE SUMMARY

In May 2015, Ed Dennison Archaeological Services Ltd (EDAS) undertook an archaeological survey of a small complex of structures and earthworks around a former powder magazine just west of the remains of the C. B. or New Mill at Langthwaite, Arkengarthdale, North Yorkshire (NGR NY 9942 0343 centred). The survey covered an area measuring some 165m long by 50m wide, and the work was wholly funded by EDAS.

The survey identified a core group of features, represented by a number of small enclosures, structures, platforms and perhaps also buildings, crudely built of stone rubble banks usually less than 0.7m high and with a few surviving traces of walling that had been coursed or faced. Some of the enclosures had narrow entrances or gateways, and they were linked by open or partly enclosed trackways; the complex appears to have been approached from the south via a trackway. Some of the features had been cut by, or disturbed by, a contour leat thought to have been built in the early 1800's as part of a new phase of mining activity undertaken by Easterby Hall and Company. A possible separate group of similar features lay to the west.

In the absence of any other dating or documentary evidence, a number of suggestions can be made regarding the date and function of this complex. Overall, it appears to have an agricultural function, and so it may be associated with stock management on the surrounding common land or perhaps form part of the post-medieval droving activity that was prevalent in this area. Alternatively, it could represent the remains of a small farmstead or holding, perhaps similar to the shielings recorded elsewhere in the Dales and north-west England; shielings are generally associated with the seasonal migration of stock from a winter settlement to summer pasture, and they usually date from the medieval period to the 17th century. However, the number of structures within the complex is more suggestive of one or more farmsteads, rather than an isolated shieling. It might therefore represent a small nucleated settlement which was contemporary and interdependent with the lead mining, being occupied by lead miners who mixed mining as a source of income with subsistence pastoral farming. A similar example thought to pre-date the 18th century has been recorded in Scordale in Cumbria, and so it is possible that the Arkengarthdale site dates to the 17th century. Further research into the manorial history and development of the dale would undoubtedly provide additional information.

Another small group of structures was recorded further to the east, adjacent to the New Mill's smelting flue. These overlie the early 1800's contour leat, which was diverted further to the south to supply the New Mill when it was built in the 1820s. It is therefore suggested that this small complex is associated with the construction of the smelting flue, perhaps providing covered working areas and even temporary accommodation.

1 INTRODUCTION

Reasons and Circumstances of the Project

1.1 In May 2015, Ed Dennison Archaeological Services Ltd (EDAS) undertook a Level 3 archaeological survey of a small complex of structures and earthworks around a former powder magazine just west of the remains of the C. B. or New Mill at Langthwaite, Arkengarthdale, North Yorkshire (NGR NY 9942 0343 centred). The project was wholly funded by EDAS.

1.2 The survey area covered some 165m in length by 50m in width. The area is not specifically protected, although it is located immediately adjacent to a Scheduled Monument (National Heritage List for England 1015854), and it is possible that the features that were recorded were once continuous with those within the Scheduled area.

Site Location and Summary Description

1.3 The survey area was located on the southern slope of Arkengarthdale, to the west of the New Mill smelt mill complex at Langthwaite, Arkengarthdale, North Yorkshire (see figure 1). It is set to the south-west side of the unclassified road running through Arkengarthdale between Reeth and Tan Hill, at an elevation of c.340m AOD; within the survey area, the ground surface slopes relatively steeply from south to north, although it is more even from west to east (see figure 2). The majority of the survey area was formed by unenclosed rough grazing, characterised by grass and other species rather than heather. There are spreads of rubble across almost all of the survey area, some well grassed but others bare. The survey area is CROW access land, within a large grouse moor, parts of which are also used for sheep grazing, but there are no designated footpaths or unmetalled tracks used for estate management nearby.

1.4 The survey area has no clear boundaries, although as stated above, the features within may once have been continuous with a smaller group to the south-east, beyond a post-and-wire fence and within the area formed by the junction of the New Mill and the Octagon Mill lead smelting flues. This smaller group of features had previously been recorded as part of earlier survey work on the New Mill (Richardson & Dennison 2016a), but they were revisited as part of the current survey. As far as EDAS are aware, the larger group of structures and earthworks have not been the subject of any previous detailed research, although the standing former powder magazine building dating to the second half of the 19th century was added to the earlier New Mill survey project.

Survey Methodologies

1.5 A total of three separate elements were required to be undertaken as part of this project, namely documentary research and collation, topographical and photographic survey, and reporting. In many cases, there were cross references and links between the various project elements, with some elements informing and determining the scope and scale of subsequent work. The project corresponds to a Level 3 enhanced and integrated survey as defined by English Heritage (2007, 23-24; Bowden 1999, 78-80 & 189-193); English Heritage is now known as Historic England.

Phase 1: Collation of Documentary Material

1.6 No new documentary work was undertaken as part of the project, although a large amount of cartographic and documentary material had already been gathered as part of other EDAS surveys in Arkengarthdale (e.g. Richardson & Dennison, forthcoming a; Richardson & Dennison 2016a; Richardson & Dennison 2016b; Dennison & Richardson 2016). This was collated in order to inform the current survey. Liaison was also undertaken with the YDNPA.

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

Phase 2: Archaeological Topographic Survey

1.8 The survey covered an area some 165m long by 50m wide. During a previous piece of survey work in the immediate vicinity, undertaken in October-November 2014 (Richardson & Dennison 2016a), sufficient points were taken at a scale of 1:500 using EDM total station equipment to record the position and form of all major features within the core area considered to be of archaeological and/or historic interest. This was added to the EDM data obtained during the previous New Mill survey (Richardson & Dennison 2016b), and the combined total station field data was plotted at a scale of 1:250. At a later date, in May 2015, more detail was added using traditional tape and offset methods. Sufficient information was gathered to allow the survey area to be readily located through the use of surviving structures, fences, walls, water courses, trackways and other topographical features. The survey recorded the position at ground level of all structures, wall remnants and revetments, earthworks, water courses, leats, paths, stone and rubble scatters, ironwork, fences, walls and other boundary features, and any other features considered to be of archaeological or historic interest. The survey also recorded any differences in the exposed surface detritus, such as sorted stone and/or rubble scatters, as well as differences in coarse vegetation; these features may aid the functional differentiation and interpretation of the site.

1.9 The resulting site survey was produced at a scale of 1:250 and presented as an interpretative hand-drawn wet ink hachure plan(s) using conventions analogous to those used by English Heritage (1999; 2002; 2007, 31-35). Larger scale plans have been used to put the survey area into context. Within the survey area, each individual site or component identified by the topographical survey was given a unique identifier number, and a detailed written description produced, based on notes taken in the field. In addition, a number of photographs were taken to illustrate specific well-preserved components, and to show the landscape context of the area. The colour photographs were produced using a digital camera with 12 mega-pixel resolution. English Heritage photographic guidelines were followed (English Heritage 2007, 14). All photographs were clearly numbered and labelled with the subject, orientation, date taken and photographer's name, and were cross-referenced to digital files etc.

Phase 3: Survey Report and Archive

a) Archaeological Survey Report

1.10 An EDAS archive archaeological survey report has been produced, based on the results of the documentary collation, the information obtained during the field work, and the structured gazetteer of identified numbered components. This report assembles and summarises the available evidence for the survey area in an

ordered form, synthesises the data, comments on the quality and reliability of the evidence, and how it might need to be supplemented by further field work or desk-based research. The report is also illustrated by reduced versions of the survey drawings, historic maps and plans as appropriate, and a selection of photographic plates. The report also contains the photographic register and catalogue as Appendix 1. An electronic version of the final survey report (in pdf format) was also prepared, and this has been made available to the YDNPA HER and other interested parties. An additional copy has been uploaded with other relevant project information to Historic England's OASIS (Online Access to Index of Archaeological Investigations) project.

b) Archaeological Survey Archive

1.11 An archive of material, comprising paper, magnetic and plastic media, relating to the archaeological elements of the project has been ordered and indexed according to the standards set by Historic England. This was combined with the New Mill survey archive and deposited with the YDNPA HER at the end of the project (EDAS NMA 12).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Introduction

2.1 Arkengarthdale has a long history of settlement and habitation which is reflected in surviving field and place names, earthworks and standing buildings, although to date it has been less thoroughly investigated than for example Wensleydale or Swaledale. Extensive prehistoric co-axial field systems have been recorded in upper Swaledale, including to the immediate south of Calver and Cringley Hills (Fleming 1998, 118-132; Laurie 2011), but their presence or absence within Arkengarthdale has not, as yet, been documented. Early medieval Norse settlement appears to have been concentrated on the south-facing north slopes of the dale, with the southern slopes around the survey area remaining unenclosed into the 19th century.

2.2 During the medieval period, much of Arkengarthdale fell within the 'New Forest' of Arkengarthdale. The term 'forest' should be taken to denote an administrative unit, rather than an actual continuous belt of woodland, and, although partly formed by a hunting reserve, it also contained coal mines from at least the end of the 13th century. There is also evidence for the presence of early wood pasture at Eskeleth, close to the survey area (Wright 1985, 127; Fleming 1998, 82-91). Some distance to the south-east of the survey area, Arkengarthdale corn mill was let in 1285, and was valued at 10s in 1436/37 when it was 'in the hands of the lord through want of tenants' (notes supplied by Joceyln Campbell). Without further detailed research and survey, one cannot be certain that the medieval manorial mill was on exactly the same site as that which survives today, but it is possible, if not indeed probable; the siting of a mill was obviously dictated in part by an adequate water supply, and mills placed at a distance from those who were obliged to use them would require routes to them (Moorhouse 2003, 323 & 327). It is noticeable that, within the manor as it is defined in 1718 (NYCRO ZQX 5/1), the settlement centres of Langthwaite, Booze, Eskeleth and Whaw fall within its central and southern parts, with the corn mill located broadly equidistantly between Whaw (to the north-west) and Booze (to the south-east). It could therefore have served the main manorial settlement centres, although it would be interesting to know why it was not located closer to the Arkle Beck, which would presumably have provided a

more reliable and easily accessible source of water (Dennison & Richardson 2016, 8-9).

2.3 By the early 17th century, much of the land on the lower valley flanks to either side of the Arkle Beck had been enclosed (NYCRO ZQX 5/1). During the late 17th and early 19th centuries, the route across The Stang formed an important part of the droving network used for moving vast numbers of cattle between Scotland and England (Raistrick 1967, 132-133), and locals testified to the continuing movement of sheep and cattle even as late as the 1890s (Wright 1985, 143). The drove road came in from the north-west, crossing the Arkle Beck at Eskeleth, close to the EDAS survey area. On the opposite side of the beck, Plantation House on the east side of the road was in the late 18th and early 19th centuries a drovers' inn know as 'Lilly Jocks'. Overnight halts, usually 6-12 miles apart and with pasture available for grazing, were an important part of the droving network. The drove road then swung to the south-west to follow the line of the existing road down Arkengarthdale (Wright 1985, 143 & 151). There were also important local collieries at Tan Hill, worked from at least the late 14th century until the 19th century (Wright 1985, 128 & 130-133), and as Wright (1985) has demonstrated, many of the routes in the area, whether they were used for moving cattle, or were associated with industry, or for linking large estates, are likely to be medieval in origin. According to Hartley and Ingilby (1956, 276) the Reeth to Tan Hill road through Arkengarthdale was turnpiked in 1741, but Wright (1985, 133) gives the date as 1770, when one of the principal justifications was to be able to exploit the Tan Hill coal reserves more easily.

2.4 A 1718 map of the Manor of Arkengarthdale (NYCRO ZQX 5/1) marks the part of the manor in which the survey area is located as being unenclosed common or waste, named 'Crag Rig Rnd'. The land still remained unenclosed in 1799 when it was named as 'Crags' (NYCRO ZQX 5/5) (see figure 3 top). In December 1801, Easterby Hall and Company obtained the lease on the lead mines and underground deposits in Arkengarthdale (Tyson 1995, 52), and very soon after appear to have a dug a contour leat at least 5km long to supply a dressing floor at Moulds Low Level, bringing it through the northern edge of the survey area; in the 1820s, this leat was diverted to supply the New Mill (Dennison & Richardson 2016). With the exception of the aforementioned explosives magazine/store and the water supply leat, nothing is shown within the survey area on any of the 19th century maps consulted for this report. The Ordnance Survey 1857 6" map shows a general area of stone outcrop in this area, while the 1893 25" map shows a semi-circular area of rough scree and rocks around the 'magazine' (see figure 3 bottom).

3 DESCRIPTION OF THE SURVEY AREA

Introduction

3.1 The features identified within the survey area are described below in a logical sequence, broadly from west to east. For the purposed of description, each discrete feature has been assigned a unique identifier site number. Reference should also be made to the survey plan and illustrative plates, and the photographic record which appears as Appendix 1; 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. [*1/32*]. Finally, in the following text, 'modern' is taken to mean dating to after c.1945.

Identified Features (see figure 4)

3.2 The majority of the features within the survey area lie to the south of a prominent and well-defined contour leat. As has already been noted above, possibly in the very early 1800s, Easterby Hall and Company may have a dug this leat, originating in Tongue End where the Little Punchard and Great Punchard Gills meet, and travelling over 5km to the south-east to supply a dressing floor at Moulds Low Level; in the 1820s, this leat was diverted to supply the New Mill (Dennison & Richardson 2016). Within the current survey area, the leat comprises a steep-sided linear depression, almost 3.0m across and 0.4m deep, with a substantial bank to the downslope (north) side, up to 4.5m wide and 1.2m in height [*1/995*]. This was the largest cross-section of any leat recorded by a survey of the watercourses across the south-west side of Arkengarthdale, although the dimensions were atypical (Dennison & Richardson 2016, 53).

3.3 To the immediate south of the leat, at the western end of survey area, there are a pair of possible sub-rectangular terraces (**Site 1**); they, like virtually all other features recorded within the survey area, are set out on a shallow north-west/south-east alignment along the contour here. Each possible terrace measures c.12m long by c.10m wide, and they are separated by a low linear spread of rubble. The western terrace has a rubble strewn interior, with what appears to be a shallow platform to the southern half. The eastern example is bounded on the east side by what may be a trackway, formed by a linear raised flat-topped bank, 2.0m wide and 0.5m high. This may be visible to the north of the contour leat for a further 13m as an east-facing scarp on the same alignment; it is noticeable that the leat's downslope bank increases in width where it crosses the possible trackway, suggesting that the earthwork was incorporated into it when the leat was built.

3.4 To the south-east of these features, the area is characterised by spreads or rubble, rubble banks (some of which have short sections of wall facing), collapsed structures and possible collapsed wall lines. The westernmost group (**Site 2**) may be a small sub-rectangular enclosure, measuring c.10.0m long by c.6.0m wide, and defined by linear spreads of rubble standing up to 0.5m in height. The spread defining the north side turns inward at its east end, possibly defining a gateway or entrance gap some 2.0m wide. On the north-east side of this gap, there is a small enclosure or structure (**Site 3**), sub-rectangular in plan, and measuring c.6.0m by 4.0m overall [*1/981*]. The rubble bank defining the north side stands up to 0.75m high, but the south side is much lower, generally less than 0.5m and in some places visible in plan only. The interior is open, but there is no obvious access, even in the sections where the bank is very low; the north-west internal side has placed or built rubble standing up to 0.6m in height [*1/982*] (see plate 1). To the north, an isolated but substantial linear rubble spread, aligned north-east/south-west, has a later sub-square structure (**Site 4**) built against the south end of the east side, where a section of crude wall facing survives [*1/990*] (see plate 2). The structure measures c.1.6m along each side and the interior is open but again with no obvious evidence for any access.

3.5 On the east side of Site 3, there is a c.1.8m wide gap, and then a similar, smaller feature, sub-oval in plan, measuring c.4.0m by c.3.0m overall (**Site 5**). It is attached to a substantial rubble bank, measuring 2.0m wide and up to 0.8m high. This bank runs south-east for 7.0m and then returns through an approximate right-angle to continue north-east as far as the contour leat [*1/984*]; there may be a small platform to the interior of the right-angle.

3.6 This rubble bank defines one side of a trackway (**Site 6**), which follows its line, climbing as it moves south away from the contour leat [*1/983*] (see plate 3). Both the bank and the trackway are almost certainly visible to the north of the contour leat; the bank for a short distance only [*1/994*], although the trackway could continue north-east for a further 30m down the natural slope here as a shallow linear depression. There may be further linear earthworks, perhaps shallow terracing, running between the trackway and a scarp some 28m to the north-west (see Site 1). To the south of the contour leat, the other side of the trackway (Site 6) is defined by a narrower rubble bank, 1.0m wide and up to 0.6m in height. Immediately adjacent to the leat, between the two rubble banks, the trackway has a width of over 4.0m but it narrows to less than 2.0m where it angles to the south-west, before opening out again.

3.7 The rubble bank forming the east side of the trackway also defines one end of an extensive, sub-angular, stone rubble spread (**Site 7**), measuring a maximum of 30.0m east-west by 20.0m north-south [*1/987*]. Within this spread, there may be poorly defined north-west/south-east aligned terracing, broadly following the contour. The south edge of the rubble spread is marked by a substantial rubble bank (**Site 8**), up to 1.2m wide.

3.8 South-west of the rubble spread, there is the best defined enclosure (**Site 9**) within the survey area. It is sub-rectangular in plan, 14.0m long (north-west/south-west) and 10.0m wide; the sides are defined by rubble banks, standing up to 0.6m high, and between 0.8m-1.2m wide. There is a break or gap towards the south end of the east side, but this does not appear to be original. The original entrance is almost certainly in the south-west side, where the rubble banks turn inwards slightly into a gap; the west side of the gap is marked by a single large stone, whilst the bulbous east side retains crudely laid or built stones to the base [*1/989*]. There is a small square structure, 2.0m across and visible in plan only, set at the external south-east corner of the enclosure. To the south-east of the enclosure, there are further substantial rubble banks (**Site 10**), up to 2.0m wide and 0.6m high. These do not form any clear pattern in plan, although there may be one incomplete sub-rectangular enclosure (**Site 11**) and perhaps another trackway (**Site 12**) defined by rubble banks standing up to 0.7m high [*1/988*]; the former has two upright stones, set 0.8m apart, within the general rubble spread, but it is not certain if these mark a former access point or have just come to resemble one [*1/986*]. There are also two small structures (**Site 13**), one a shallow, eye-brow shaped earthwork scoop, and the second a sub-rectangular rubble feature, visible in plan only.

3.9 To the immediate south-west of the larger enclosure (Site 9), there is a cleared area, 2.0m wide, possibly forming another trackway. On the opposite side of this cleared area, a semi-circular rubble bank and shallow earthwork scarps define a sub-oval shaped enclosure (**Site 14**), 10.0m long by 4.0m wide [*1/985*] (see plate 4). The rubble bank stands up to 0.5m high and is set on an earthwork scarp. The enclosure appears to have an entrance or gate in the north-east side, c.1.0m wide; the south side is defined by a large upstanding stone 0.6m high. There is a small structure attached to the north-west end, and possibly a further, detached, small structure to the south-west.

3.10 At the south-west end of the survey area, there are further earthworks and structures, apparently forming a discrete group separate from those described above. They are set to the south of an explosive store or magazine, built in the second half of the 19th century. This is not shown on the 1857 Ordnance Survey 6" map, but does appear in 1893, when it is marked as 'Magazine' (see figure 3 bottom). A slightly sinuous pathway runs south-west from the Reeth to Tan Hill

Road to the building, and this may, in part, be represented by Site 6. The building is similarly depicted in 1912, but by then was named 'Old Magazine'. The cartographic evidence therefore suggests that it was built between 1857 and 1893, but was out of use by 1912. It is assumed to have been built by one of the leasees of the Arkengarthdale mines and the New Mill during the second half of the 19th century, to store the explosives used in the mines; it was subject to a detailed survey as part of the larger New Mill smelt mill survey (Richardson & Dennison 2016a). The former magazine also lies on a slightly terraced trackway, up to 6.0m wide and defined by shallow north-facing banks (**Site 23**).

3.11 The features to the south of the magazine are set on a series of broad terraces, rising from north to south. At the lowest level, and broadly the same as that on which the magazine stands (**Site 23**), two spread earthwork banks define a shallow sub-rectangular narrow depression, 5.0m long by 2.0m wide (**Site 15**), which terminates at a much steeper north-facing scarp. To the west, there may be a large rectangular platform (**Site 16**), measuring c.12.0m (east-west) by 5.0m, with smaller sub-divisions at either end. To the east, there is another possible platform (**Site 17**), cut back slightly into the natural slope [*1/980*]. The edges may be defined by rubble spreads, although it is difficult to be certain if they were ever structural or represent clearance of the ground surface to create the platform itself. The terracing curves around sharply to the south-east here and there may be further platforms running beyond, but they are very denuded and also disturbed by some surface quarrying, including at least one prominent quarry pit (not recorded).

3.12 The upper (southern) terrace again supports a number of rubble banks of varying form and width (**Site 18**). Two broadly parallel linear banks, set between 1.0m-3.0m apart, may define a trackway leading up onto the higher terrace [*1/979*]. Like much of the rest of the survey area, the surface of the higher terrace is scattered thinly with rubble, within which there are other features, some only slightly more prominent than the rubble itself. For example, there appear to be two broadly right-angled banks of stone [*1/977*], one revetting a shallow north-facing scarp but the other free standing. This, the larger of the two, measures 4.0m along each arm and stands up to 0.5m high [*1/978*] (see plate 5). There is some evidence at the base of the east arm that stones have been deliberately placed or laid to resemble a wall, but otherwise the structure is built purely of rubble. There are almost certainly further earthworks to the south and west, but again, these are very denuded.

3.13 That part of the survey area subject to an earlier survey (Richardson & Dennison 2016b), and revisited as part of this current project, lies to the east of a modern post and wire fence. Close to the point where the aforementioned contour leat crosses the line of the former Octagon Mill flue, there is a rectangular scarp (**Site 19**), 16.0m long (almost east-west) by 8.0m wide, cut into the hillside and open to the north-east, resembling a small quarry, but with two raised areas within the base which may actually be small platforms. To the immediate north of the contour leat in the same area, there is a small, slightly raised platform with evidence for stone edging.

3.14 Within the triangular area of land between the former flues of the Octagon Mill and the New Mill (and described from west to east), there appears to be a sub-rectangular structure (**Site 20**), aligned broadly east-west, measuring at least 8.0m long by 6.0m wide and partly defined by low rubble banks [*1/997, 1/998*]. A rubble spread to the east appears to have been flattened to form a rough artificial surface. On the north side of this flattened area of rubble, there are several sub-oval mounds of stone, and towards their east end, what appears to be a slightly raised

platform (**Site 21**), perhaps retaining some stone edging, sub-square in plan and measuring c.4.0m across. It may have a narrow trackway curving around its south-west side [*1/996*] (see plate 6). Further to the east, there is a second possible sub-rectangular structure (**Site 22**), measuring 14.0m east-west by 6.0m north-south, and appearing to comprise two or three cells, with the largest cell at the east end. The north side of this structure overlies a continuation of the former contour leat seen to the west of the Octagon Mill flue; as noted above, this leat was almost certainly constructed in the very early 1800s by Easterby Hall and Company to supply a dressing floor at Moulds Low Level, and this particular section was abandoned in the 1820s when the leat was diverted to supply the New Mill (Dennison & Richardson 2016). A short stretch of possible terraced trackway, defined by a linear rubble spread on the downslope side, may run towards the structure from the north-west.

4 DISCUSSION AND CONCLUSIONS

The Form of the Complex (see figure 5)

4.1 Within the terms of the caveat that the complex is likely to have developed and changed over time, the field evidence suggests the following interpretation of the features recorded by the detailed earthwork survey.

4.2 The main part of the complex (Sites 1 to 14) appears to have extended for up to 100m in length, broadly following the 340m AOD contour, with the core maintaining a width of some 40m. Although, as has already been stated, it is probable that there are further earthworks beyond the area that was surveyed, they are not considered to extend extensively in any direction, and so the surveyed area represents the majority of the features that are present.

4.3 There appears to have been one approach to the complex from the north via a trackway (Site 6), climbing the relatively steep natural slope here, and entering the complex between stone rubble banks; this trackway has clearly been cut by the early 1800's leat. It is possible that another earthwork to the north-west (Site 1) may also be a trackway, but it is more characteristic of a boundary.

4.4 The complex seems to comprise a series of small enclosures, structures, platforms and perhaps also buildings, the remains of which are characterised by crudely built stone rubble banks, usually less than 0.7m high and with a few surviving traces of walling that has been coursed or faced. At the point where the trackway (Site 6) widens, there are two small structures (Sites 3 and 5) flanking a gateway or access point on its north side, possibly opening into a larger enclosure to the north that contained at least one further structure (Site 4); this enclosure has been disturbed by the early 1800's leat running through it. The trackway (Site 6) may also have given access to a sub-rectangular structure (Site 2) at its south-west end, with a second larger enclosure (Site 9) to the south-east; the latter had an access point in its south-west side. To the south-east of the larger enclosure, more rubble banks (Sites 10, 11 and 12) may define further enclosures and perhaps an enclosed trackway, whilst to the south-west, a smaller enclosure (Site 14) may have had an access point in its north-eastern side. This access was partly defined by an upright stone, although none of the access points preserved any evidence for stoops or hung gates; they could perhaps have been closed using wooden hurdles, for example.

4.5 It is possible that these features were distinct or physically separate from the group to the south of the later 19th century magazine (Sites 15 to 18), and may indeed

have been separated from them by a flattened linear strip acting as a more significant or major trackway through the complex (Site 23). The group of features to the south of the magazine appear to have been laid out across a number of shallow terraces, which curve around to the south-east at their east end. These features include platforms, a possible enclosed trackway and several angled stone structures of unknown function.

4.6 Purely on the basis of their form, it seems likely that some, if not all, of the structures recorded previously within the New Mill survey area to the south-east of the core area (Sites 19 to 22) are contemporary with those within the main area of the complex. However, this may be due to the fact that they are of the same type of construction, and it is suggested below that are actually later in date as they appear to overlie the early 1800's leat.

The Date and Function of the Complex

4.7 In terms of the date of the complex of features recorded by this survey, there is very little firm evidence. It is highly likely that several different phases of activity are represented; some stone structures appear to butt others (Site 4), whilst others might re-use or enhance earlier earthworks (Site 14). It should also be remembered that the features do not necessarily represent permanent occupation; for example, they may have been used seasonally and perhaps only repaired or maintained immediately prior to their period of usage. Alternatively, they may have been occupied only for a short period of time, and then fallen out of use permanently. All of these possibilities could explain why they do not appear on 18th or 19th century mapping.

4.8 The only major stratigraphic relationships that can be physically demonstrated within the survey are those associated with the recorded features and the contour leat. As previously noted, it is clear that the trackway (Site 6) approaching the main complex and an associated rubble bank have been cut by the leat, which is itself suggested to have been built in the very early 1800s by Easterby Hall and Company, at around the time they took the mining lease of the area. Conversely, the features to the east of the Octagon Mill flue (Sites 21 and 22) appear to overlie the original line of the contour leat before it was diverted to the New Mill after the 1820s.

4.9 Taking the form, layout and siting of the recorded features as a whole, a number of possible origins and functions can be advanced. Some of the features close to the New Mill smelting flue (Sites 20 to 22) appear to be much more recent than the rest, and two appear to overlie or disturb the former alignment of the early 1800's contour leat which flows through the area. It is therefore possible that these structures and other features may be associated with the construction of the New Mill smelting flue in the 1820s, perhaps sheds providing covered working areas or even temporary accommodation. Similarly, it is possible that the trackway on which the former powder magazine stands (Site 23) is also associated with the construction and/or operation of this building, although it is equally possible that this is an earlier feature which was subsequently re-used.

4.10 However, the overall layout of the main body of the features, comprising small structures and enclosures, some with apparent entrances, linked by open or partly enclosed trackways, is suggestive of an agricultural function. The fact that some are disturbed or cut by the early 1800's leat implies they pre-date it. Are they therefore perhaps associated with stock management, such as the gathering and marking of sheep, on the common land, or could there be a connection with post-

medieval droving activity? A third, and perhaps most likely, suggestion is that the complex forms the remains of a small farmstead or holding, perhaps something similar to the shielings or farmsteads recorded in north-west England (Ramm, McDowall & Mercer 1970; Hunt & Ainsworth 2010; Oakley, Radford & Knight 2012). Shielings are generally associated with transhumance, defined as the seasonal migration of people with their herds from a winter settlement to a summer pasture. This practice was widespread across Northern England throughout the medieval period, but it is generally suggested to have come to an end in the early 17th century, with a transition to a more prolonged or year round occupation from this period onwards; it involved a variety of animals, including cattle, sheep and goats (Young 2011, 2; Hunt & Ainsworth 2010, 33). One excavated example at Crosedale in Howgill (Cumbria) was dated to between the later 12th and mid 14th centuries (Hair & Newman 1999). Shielings often occur in groups (one perhaps having preceded another), the buildings having drystone walls, a generally rectangular plan form, and most commonly measuring between 6.0m-10.5m long by 3.0m-5.5m wide. There is usually only one entrance, placed in a long wall and usually no more than a gap, with a door that was probably always very light (Ramm, McDowall & Mercer 1970, 7-9). Some of the features recorded within the survey area, particularly Site 14, and possibly also Sites 2 and 11, are very similar. However, the associated enclosures and trackways are not characteristic of shielings, and in addition, although the structures lie within land unenclosed in the early 18th century, they are perhaps not situated far enough away from the earlier enclosed parts of the valley for the purposes of transhumance. It is of course quite possible that they are earlier structures which were incorporated into a larger farmstead.

4.11 Therefore, on current evidence, it is considered most probable that the structures within the survey area form part of one or more farmsteads; again, they share many characteristics with buildings on steadings recorded in upland unenclosed areas of Cumbria, some of which have crudely placed, uncoursed, angular rubble drystone walls, generally no more than 0.4m high. These may have originally been provided with turf roofs and there is not always an obvious entrance (Hunt & Ainsworth 2010, 34-37). Often they cannot be closely dated, but given that the surveyed example is not shown on the 1718 map of the manor, it may have already fallen out of use by that date. The fact that the rubble structures are not particularly well preserved also suggests a relatively early date, and of course some of the stone may have been robbed to build the adjacent smelt mill flues.

4.12 A final intriguing possibility is offered by survey work undertaken in Scordale (Cumbria), another valley heavily affected by lead mining. Here, a group of conjoined buildings and yards were recorded, resembling more a small nucleated settlement than a farmstead. It was suggested that, rather than having an agricultural focus, it was contemporary and interdependent with the lead mining, being occupied by lead miners who mixed mining as a source of income with subsistence pastoral farming. The settlement was though to probable pre-date the late 18th century (Hunt & Ainsworth 2010, 41-44). The combination of lead working and small-scale farming has been seen in many lead mining areas, such as Gunnerside (North Yorkshire) and Alston Moor (North Pennines), but usually this is dated to the 19th century and later (Bagenal 1999; Oakey, Radford & Knight 2012). However, given the long history of mineral extraction in these areas, it would make sense for this tradition to have started much earlier. It is therefore possible that the structures recorded within the EDAS survey area once formed the same kind of settlement, perhaps dating to the 18th century? If so, this would be a significant discovery. One of the problems with much of the fieldwork in lead mining areas in the Yorkshire Dales is that it has tended to focus purely on the lead

mining history, rather than considering the lead mining as one part of a multi-period landscape. Where lead mining landscapes have been subject to measured survey and/or detailed inspection (for example, at Grassington; Dennison & Richardson forthcoming), areas of conjoined sub-rectangular structures and platforms, scarps and other earthworks similar to those recorded in Arkengarthdale have been noted, and these are often very difficult to date closely. In addition, although the prehistoric and post-17th century industrial development of Arkengarthdale has attracted much attention, the medieval and early post-medieval development of the valley is far less well understood. It is likely that further documentary research and field investigation would uncover other examples similar to that recorded within the survey area.

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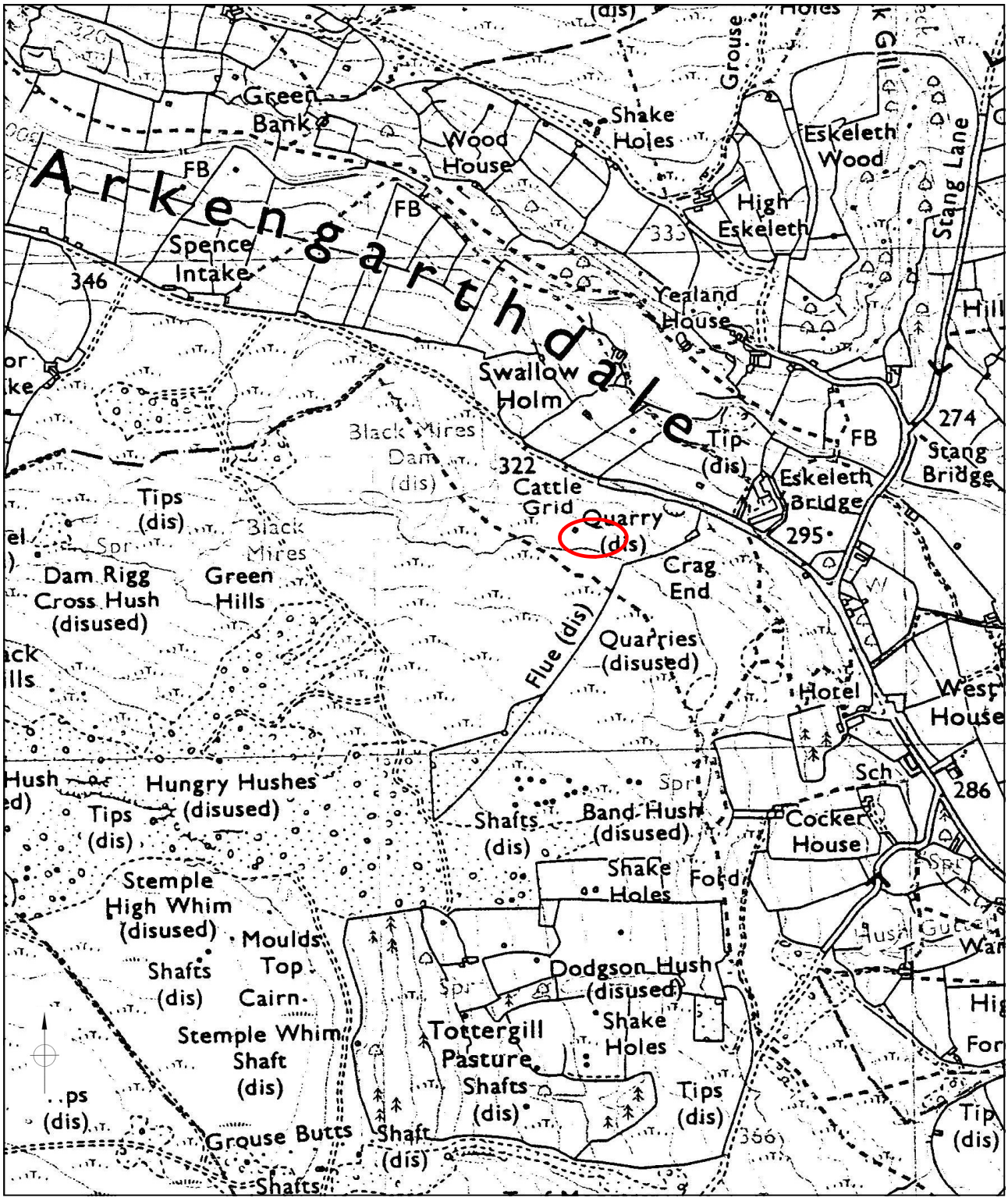
6 ACKNOWLEDGEMENTS

6.1 The project was funded by EDAS, and was undertaken by Shaun Richardson; the previous EDM survey work was undertaken by Shaun Richardson and Benchmark Surveys of Leeds. The final report was produced by Ed Dennison, with whom the responsibility for any errors remains.



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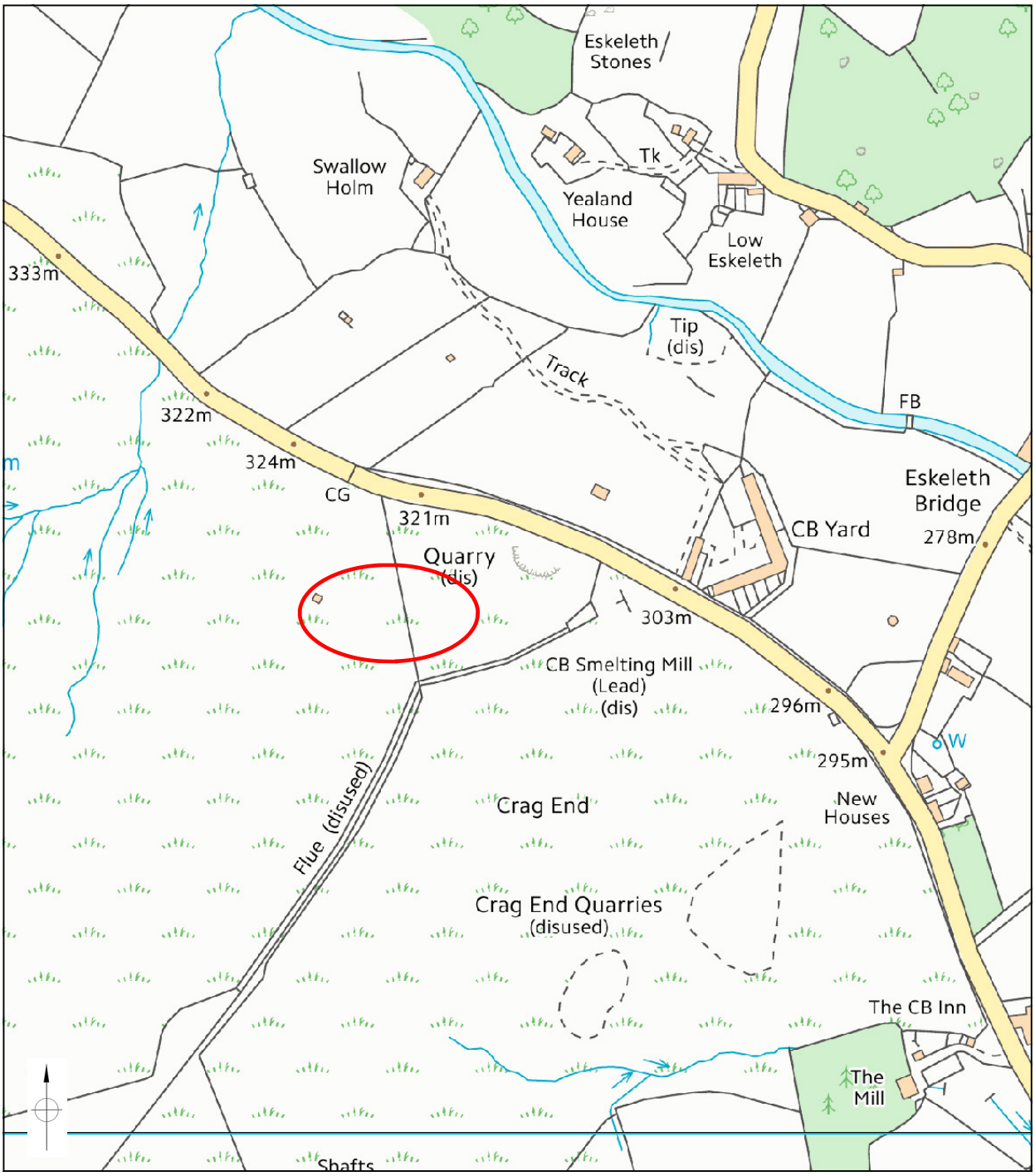
EDAS	FIGURE: 1



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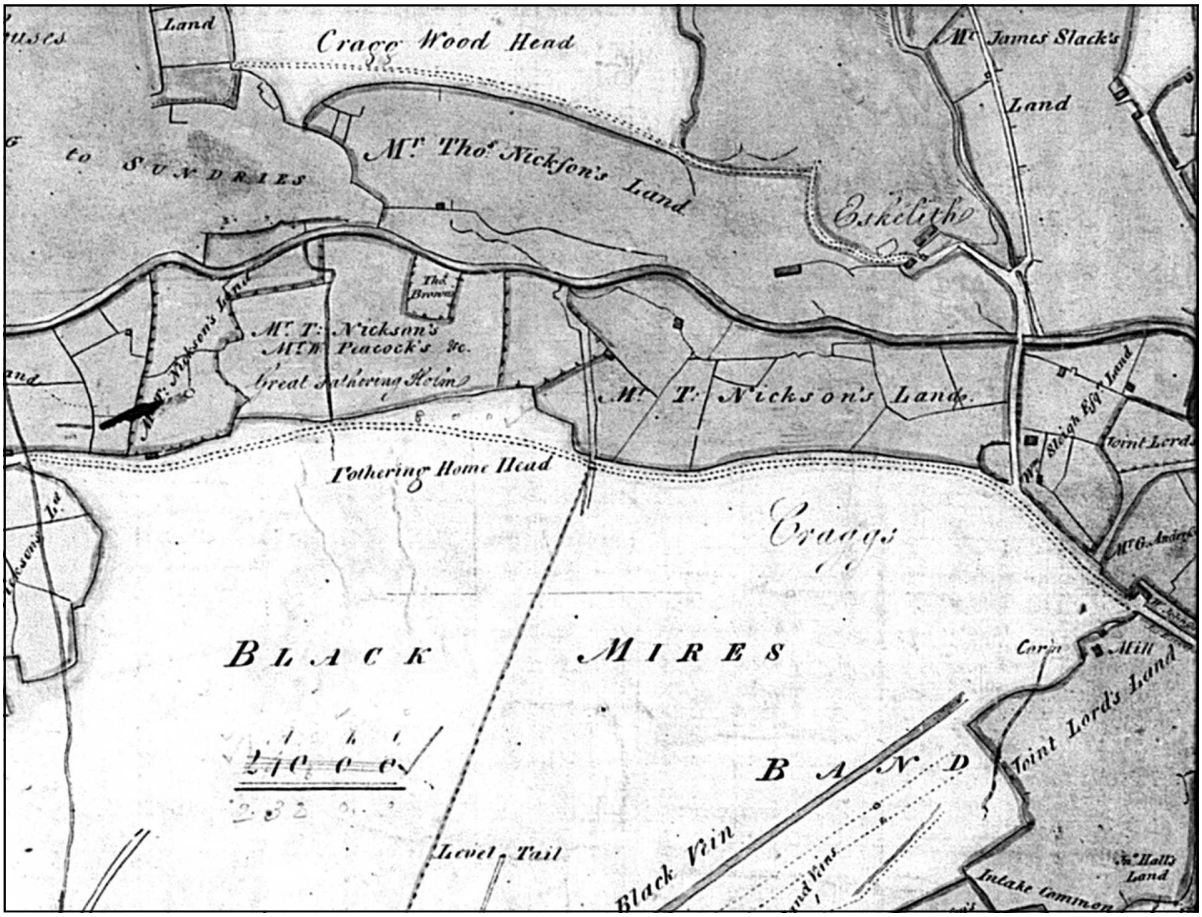
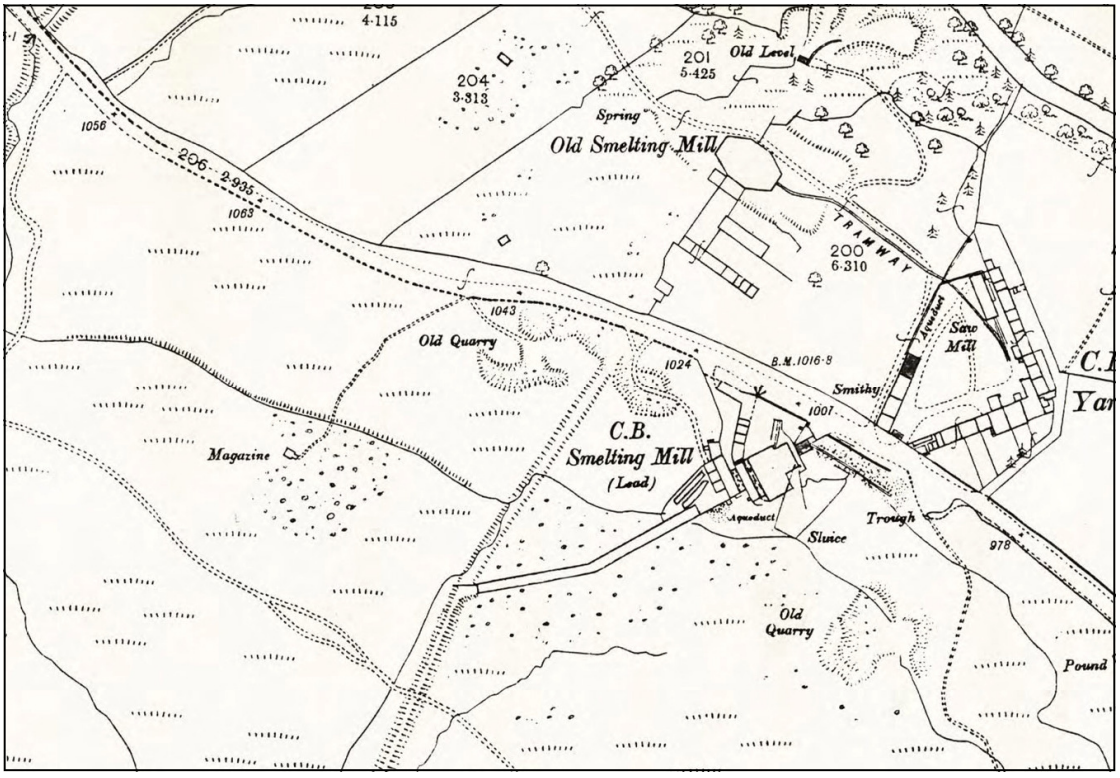
NTS	AUG 2016
EDAS	FIGURE 2





Top: 1799 - a plan of the Manor of Arkengarthdale … (source: NYCRO ZQX 5/5).

Bottom: 1893 Ordnance Survey 25" to 1 mile map Yorkshire (North Riding) sheet 37/5 (surveyed 1891).

PROJECT: WEST OF NEW MILL	
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SCALE: NTS	DATE: AUG 2016
EDAS	FIGURE: 3

PROJECT	WEST OF NEW MILL
TITLE	SURVEY RESULTS
SCALE: AS SHOWN	DATE: AUG 2016
EDAS	FIGURE: 4

leat

further earthworks

1

4

Magazine

2

3

5

6

7

15

16

9

further earthworks

18

17

14

10

8

23

further earthworks?

13

11

quarry pit

12

earthworks to south

platforms / terraces?

leat

19

leat

former leat

21

22

Octagon Mill flue

20

New Mill flue

18 SITE IDENTIFIERS

RUBBLE BANKS

RUBBLE CONCENTRATIONS

0 30m

PROJECT	WEST OF NEW MILL
TITLE	SURVEY INTERPRETATION
SCALE: AS SHOWN	DATE: AUG 2016
EDAS	FIGURE: 5

leat

further earthworks

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further earthworks

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12

further earthworks?

quarry pit

earthworks to south

platforms / terraces?

leat

leat

19

former leat

21

22

Octagon Mill flue

20

New Mill flue

18 SITE IDENTIFIERS

RUBBLE BANKS

RUBBLE CONCENTRATIONS

PLATFORM

STRUCTURES

TRACKWAY

ACCESS INTO ENCLOSURES

0 30m

Plate 1: Site 3 structure/enclosure, looking SW (photo 1/982).

Plate 2: Site 4 structure, looking NE (photo 1/990).

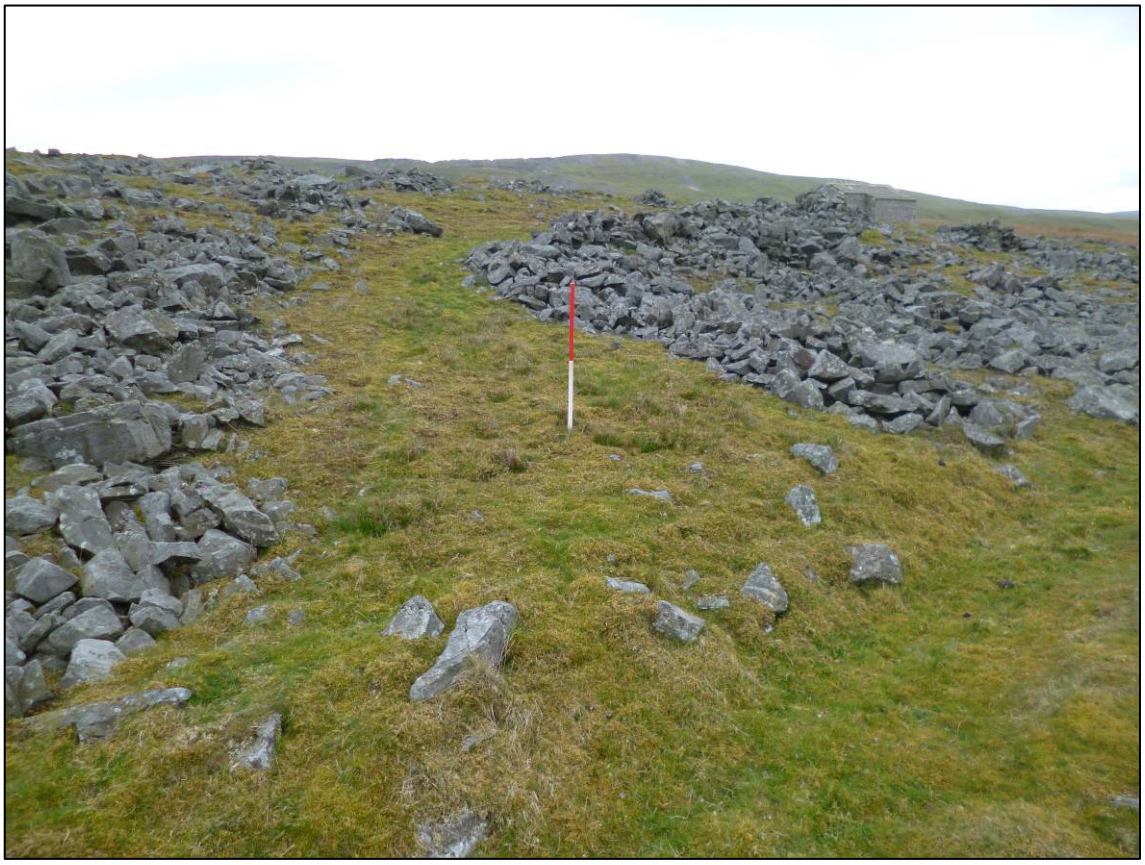


Plate 3: Site 6 trackway, south of contour leat, looking SW (photo 1/983).

Plate 4: Site 14 enclosure, entrance to north-east side, looking NW (photo 1/985).

Plate 5: Site 18 L-shaped structure, looking NW (photo 1/978).

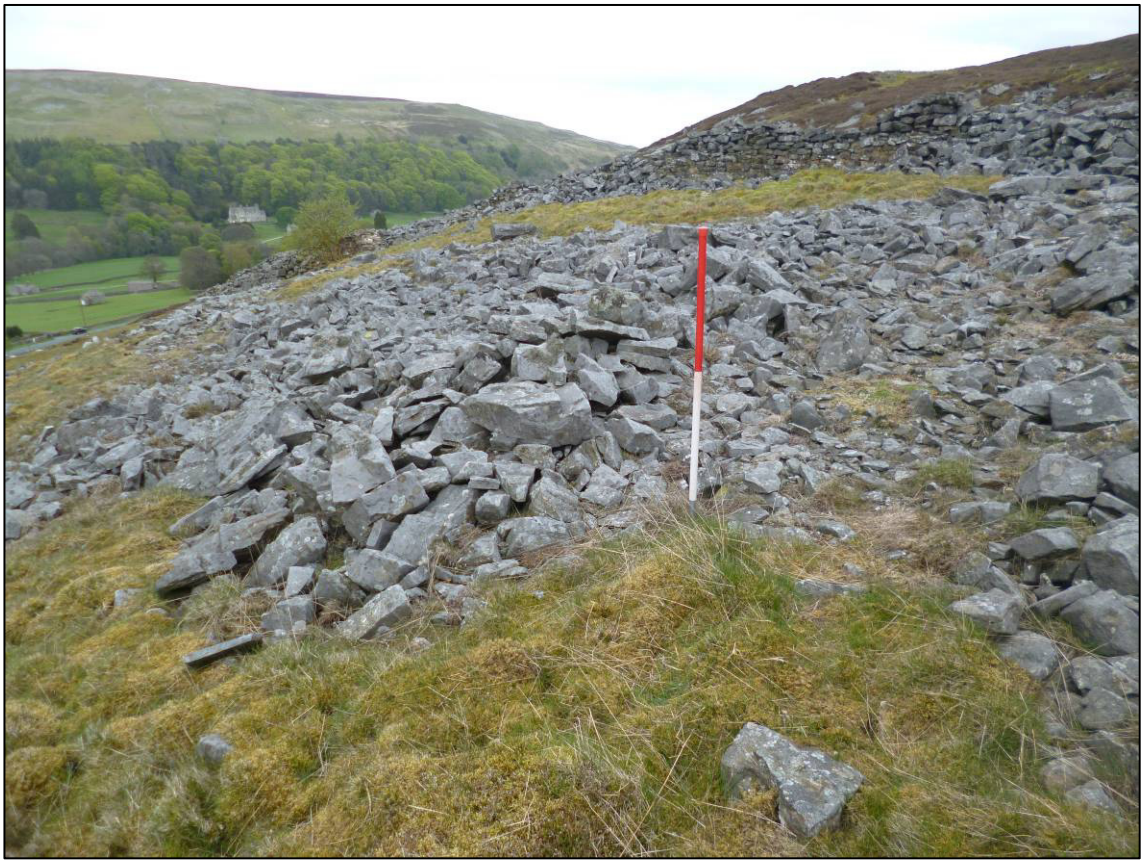


Plate 6: Site 21 structure and possible trackway, looking E (photo 1/996).

APPENDIX 1
PHOTOGRAPHIC CATALOGUE

ARKENGARTHDALE STRUCTURAL/EARTHWORK COMPLEX: PHOTOGRAPHIC CATALOGUE

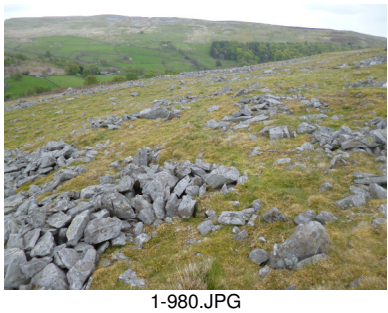
Film 1: Colour digital photographs taken 21st May 2015

Film	*Frame*	*Subject*	*Scale*
1	977	Site 18: L-shaped structures, looking NW	1m
1	978	Site 18: L-shaped structure, looking NW	1m
1	979	Site 18: possible trackway defined by rubble banks, looking N	-
1	980	Site 17: possible platform, looking NE	-
1	981	Site 3: structure/enclosure, looking NE	1m
1	982	Site 3: structure/enclosure, looking SW	1m
1	983	Site 6: trackway, S of contour leat, looking SW	1m
1	984	Site 6: trackway, NE end at junction with contour leat, looking NW	-
1	985	Site 14: enclosure, entrance to NE side, looking NW	1m
1	986	Site 11: rubble banks, upright? stones within spread, looking S	1m
1	987	Site 7: rubble spread, looking NW	-
1	988	Site 12: possible trackway, looking NW	1m
1	989	Site 9: enclosure, entrance to SW side, looking NE	1m
1	990	Site 4: structure, looking NE	1m
1	994	Site 6: rubble bank to trackway to N of contour leat, looking N	1m
1	995	Contour leat across N edge of survey area, looking SE	1m
1	996	Site 21: structure and possible trackway, looking E	1m
1	997	Site 20: structure and possible surface, looking W	1m
1	998	Site 20: structure and possible surface, looking W	-


1-977.JPG


1-978.JPG


1-979.JPG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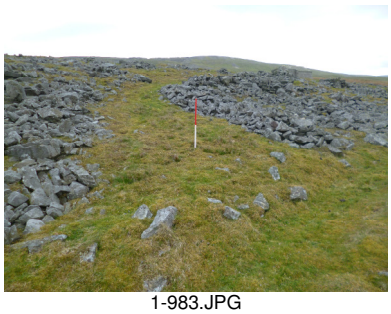
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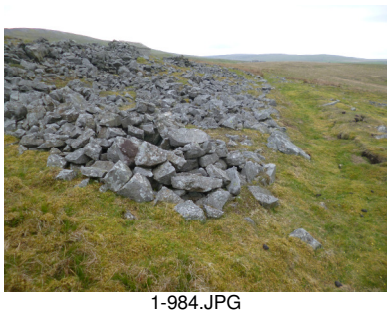
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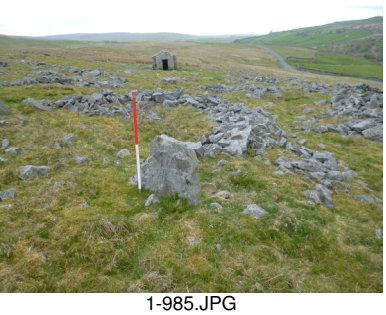
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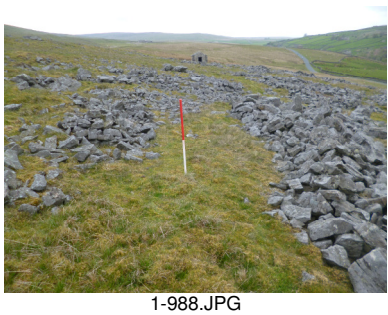
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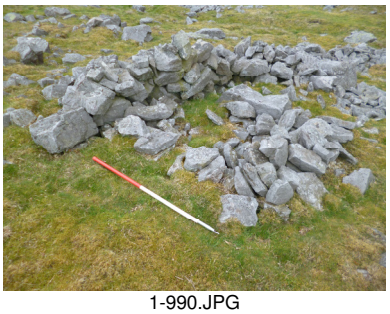
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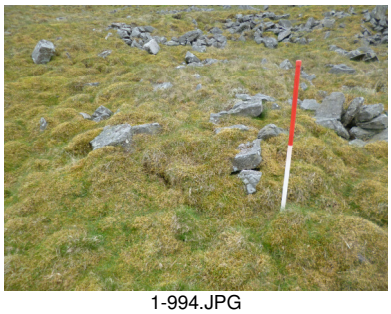
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