

May 1997

KIDBURNGILL OPENCAST COAL SITE
NORTH EXTENSION
Cumbria

Archaeological Assessment Report

Commissioned by:

Cumberland Coal and Fireclay Co Ltd

**KIDBURNGILL OPENCAST COAL SITE
NORTH EXTENSION**

CUMBRIA

ARCHAEOLOGICAL ASSESSMENT

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EXECUTIVE SUMMARY

An archaeological assessment was undertaken in advance of an extension to the Kidburngill opencast mine in Cumbria (centred on NGR NY 3056 5220). The assessment area comprised an area of enclosed moorland pasture and rough grazing land to the north of the existing opencast coal extraction site, within the parish of Dean. The work was carried out by the Lancaster University Archaeological Unit on behalf of Cumberland Coal and Fireclay Co Ltd. The work comprised a desk-based study, compiling data from the Cumbria Sites and Monuments Record (SMR) and the Cumbria Record Office in Carlisle, followed by a rapid field inspection.

The moorland was enclosed in the early nineteenth century from common grazing land and was the property of the Earl of Egremont. There are records which show that some coal mining, on a domestic scale, had taken place there from the medieval period onwards (CRO D/Lec/29/1,6); however, it was only in the first half of the eighteenth century that mining was undertaken there as a commercial venture. Dean Moor colliery proved hard to make profitable, and it changed hands many times throughout the nineteenth century. It continued in production up until 1951, being the only colliery in Cumberland not to be privatised in 1947.

The County SMR recorded eight sites within the vicinity of the study area. The sites include a find spot of a stone hammer to the south-east (Site 01) and a field system or set of enclosures to the west (Site 02). The remaining sites are related to coal and stone extraction and comprise three quarries to the north (Sites 03-05), a set of mining earthworks at Moorside Wood (Site 08) on the site of the present opencast mine, and two mines on Dean Moor (Sites 06 and 07). The first of these mines is marked on the OS 1st edition maps (1865) and the second site is shown as earthworks on the current OS 25 inch to 1 mile map; this lies partly within the proposed extension area.

The field survey identified much evidence of mining/quarrying activity within the assessment area. Whilst the larger features appear to date from extraction on a commercial scale, since 1874, some of the smaller features may be non-intensive extractive pits/shafts and may date from earlier periods. The survey also recorded the remains of several extant field boundaries delineating earlier field systems, which have been encroached upon by the subsequent mining activities.

A detailed (Level 3) topographic survey is recommended for earthworks identified within the area of the proposed extension, which will provide a mitigative record of the surface features. It is also recommended that a programme of targeted trial trenching be undertaken to explore the potential for extant sub-surface deposits in areas between the identified shafts and pits.

1. INTRODUCTION

- 1.1 An archaeological assessment was undertaken by the Lancaster University Archaeological Unit (LUAU) on behalf of Cumberland Coal and Fireclay Co Ltd, in advance of a proposed northern extension to the Kidburngill opencast coal site, near Moorside Parks, West Cumbria (centred on NGR NY 3056 5220). The study area comprised an area of enclosed moorland on Dean Moor, in the parish of Dean, adjacent to the parish boundary with Arlecdon and Lamplugh to the south.
- 1.2 The purpose of the assessment was to provide an accurate archaeological assessment of the designated area, within its broader context. The survey was to collate existing information on the archaeology of the site and to determine the significance of the archaeological resource.
- 1.3 The desk based study consisted of a search of existing records held by the Cumbria Sites and Monuments Record (SMR), and the Cumbria County Record Office in Carlisle (CRO) as well as available secondary sources. Both published and unpublished sources were examined. Due to time constraints, the field survey was carried out in parallel with the desk based study. The desk-based study and the identification survey were undertaken between the 8th and the 9th May 1997.
- 1.4 This report sets out the results of the work as a gazetteer in conjunction with a methodology statement, a brief text description of desk-top and field results, an assessment of the archaeological potential within the study area, an evaluation of the impact that the development proposals will have upon the archaeological resource, and recommendations for any further archaeological investigation.

2. METHODOLOGY

2.1 PROJECT DESIGN

- 2.1.1 A project design (*Appendix 2*) was submitted by LUAU in response to a request from Cumberland Coal and Fireclay Co Ltd, for an archaeological assessment of the proposed northern extension to the Kidburngill opencast mine, near Moorside Parks, West Cumbria (centred on NGR NY 3056 5220). This was designed to meet the requirements of a project brief (*Appendix 1*) provided by the Cumbria County Archaeologist.
- 2.1.2 The project design provided for an initial archaeological assessment involving a desk-top study and an identification survey, the results being presented in the present written report. The work has been carried out in accordance with the project design.

2.2 DESK-TOP STUDY

- 2.2.1 Existing archaeological information was obtained from the Cumbria Sites and Monuments Record (SMR). Manuscript maps and selected other documents were studied in the Cumbria Record Office in Carlisle, along with published antiquarian sources. The availability of manuscript maps in the CRO was limited, but included an enclosure map of 1815 (CRO QRE/1/16), the tithe map of 1851 (CRO DRC/8/63) and a map of 1780 (CRO D/Ben/Stray Plans/37). The tithe map was examined but did not show any areas of relevance to the assessment. A copy of the first edition Ordnance Survey (25 inches to one mile, Sheet 52:9, 1865) map of Dean Common was taken. There are many other documents relating to the parish of Dean, contained in the Leconfield archives (D/Lec), which are kept at Cockermouth. The documents include an undated plan of the Dean Moor colliery, with the locations of pit heaps, pits and the line of the tramway (D/Lec/2/15). These are available through the CRO but a notice of one week had to be given, therefore they lay beyond the scope of this study. A list of the relevant documents is given at the end of this report.

2.3 IDENTIFICATION SURVEY

- 2.3.1 A systematic surface inspection was undertaken to ensure complete coverage of the ground, and included a visual inspection of the wider area to maintain an overview of the landscape. The study area (Fig 3) incorporated a c100m wide band beyond the extent of the development area to provide an appropriate archaeological context for those identified features within the affected area. Traverses were adjusted to take account of the level of activity. The whole of the area subjected to field walking was open pasture and was walked on 20m transects to identify earthworks. The archaeological detail was mapped by using a Global Positioning System (GPS). This system uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to Ordnance Survey national grid. The accuracy of the method is +/- 1.0m and is adequate for general location of the sites.

2.4 GAZETTEER OF SITES

2.4.1 The collated information on the site and its *immediate* environs has been presented in the form of a gazetteer in conjunction with an annotated map of the environs at 1:10,000 scale (Fig 2) showing the locations of the desk-top study sites and a detailed map of the study area at 1:2,500 scale (Fig 3). Locations are given as eight-figure National Grid References where possible. The broader areas of archaeological activity which were identified by the desk-top study are categorised within the gazetteer as sites, whereas the individual features recorded by the identification survey, that make up the larger sites, are categorised as monuments in the gazetteer. A summary description of each site is provided in conjunction with a reference to the source of the information (SMR, cartographic, documentary, and field inspection) with references as appropriate. An assessment has been given of the impact of the proposed development upon the individual sites. Other sites within and around the study area, which were considered to be of background relevance, are mentioned in the text with appropriate SMR references.

2.5 ARCHIVE

2.5.1 A full archive of the desk-top study and identification survey has been produced to a professional standard in accordance with the current English Heritage guidelines (English Heritage 1991). The archive will be deposited with the County Record Office with a copy of the report given to the CSMR. A copy of the report will be available for deposition with the National Monuments Record in Swindon.

2.6 HEALTH AND SAFETY

2.6.1 Both Lancaster University and LUAU maintain Safety Policies, the latter based on the SCAUM (Standing Conference of Unit Managers) Health and Safety Manual (1991). In keeping with current Health and Safety at Work Regulations, prior to commencing on-site work, a risk assessment for each activity was completed. Due regard was given to all Health and Safety considerations during all aspects of the project.

3. TOPOGRAPHIC AND HISTORICAL CONTEXT

3.1 LOCATION AND GEOLOGY

- 3.1.1 The study area comprises a portion of Dean Moor, an area of enclosed common. It is adjacent to the parish boundary with Arlecdon and Lamplugh and to the south of the parish boundary is the present Kidburngill opencast coal site.
- 3.1.2 The geology of the study area is Carboniferous Westphalian limestone within the West Cumberland coal field (Moseley 1978, 180-2).

3.2 HISTORICAL BACKGROUND

- 3.2.1 The study area lies entirely within the parish of Dean, derived from Old English *denu*, and means the place in the valley (Mills 1991, 103). The parish contains a number of hamlets: Dean, Branthwaite, Pardshaw, Ullock, and Deanscales. The latter settlement appears to be later, originating as a transhumant settlement at the shielings of the cattle of Dean (Whellan 1860, 354).
- 3.2.2 The medieval manor of Dean was granted by Walter de Meschines to Waltheof, earl of Northumbria, through whom it passed by convoluted descent through the Middle Ages to the Lucy and thence Percy families (Hutchinson 1794, 102; Whellan 1860, 352), and thus became a holding of the Earl of Northumberland. Henry, the 6th Earl, granted the manor to Sir Thomas Wharton, his steward (Hutchinson 1794, 102). Under the sale of the Wharton estate, it then became the property of the Duke of Somerset. By the end of the eighteenth century, it was in the hands of the Earl of Egremont.
- 3.2.3 Within the parish of Dean, the hamlet of Branthwaite may have been a separate manor (Hutchinson 1794, 103), or possibly a sub-manor of Dean. Branthwaite is the closest hamlet to Dean Moor, and its inhabitants had common rights to the moor. Branthwaite was given by Waltheof as a marriage portion with a kinswoman, whose husband took the name of Branthwaite (Whellan 1860, 353). From there it passed to the Skelton family, who held it throughout the later Middle Ages up until the end of the eighteenth century, when it passed to the Curwens of Workington. By the mid-nineteenth century it was also held by the Earl of Egremont (Whellan 1860, 353).
- 3.2.4 The hamlets of Ullock and Pardshaw were held as moieties (portions) of the manor of Dean. The former was held by the Skelton and Thompson families in the later Middle Ages (Whellan 1860, 354).

4. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

4.1 CUMBRIA SITES AND MONUMENTS RECORD

- 4.1.1 An examination of the Cumbria Sites and Monuments Record (SMR) revealed eight sites in and around the study area (stone hammer (Site 01), two mines (Sites 06 and 07), three quarries (Sites 03, 04 and 05), a field system (Site 02), and the earthworks, shafts, banks, and tracks of a mine (Site 08). These are described in the gazetteer (*Section 7*).
- 4.1.2 The stone hammer (Site 01) is an isolated find to the south-east of the study area at Gill Beck. It is evidently prehistoric, but its precise date is unknown. The field system (Site 02) lies directly to the west of the study area, on what was once open common. There is no known date for the features, but as this was an area of medieval common, it possibly pre-dates the medieval period.
- 4.1.3 The three quarries all lie to the north of the study area, off Dean Moor. The area is noted for limestone extraction by antiquarian historians, such as Hutchinson (1794, 104), and Nicholson and Burn (1777, 57), and there are quarries shown in this area on a generalised map of 1780 (CRO D/Ben/Stray Plans/37); although their depiction on this map is too vague to establish a correlation with these sites.
- 4.1.4 The earthwork features (Site 08) at Moorside Wood are evidently mine workings and lie to the south of the study area, within the present bounds of the opencast site. The northernmost mine (Site 06) lies just outside the study area, and was depicted on the Ordnance Survey 1st edition map of 1865. The third mine (Site 07) is within the study area, it is shown on the modern Ordnance Survey map as extant earthworks and the individual features were recorded by the identification survey (monuments 18, 19, 21, 22, and 26). However, it is not shown on the 1st edition map (1865) and clearly post-dates the map.

4.2 CARTOGRAPHIC AND DOCUMENTARY EVIDENCE

- 4.2.1 The earliest evidence for coal extraction on Dean Moor dates to the late medieval period (Winchester 1987, 121). There are reeve's accounts of the lord of Branthwaite which record the digging of coal for domestic purposes in 1437-8 and in 1478 (CRO D/Lec/29/1,6). This was almost certainly done through surface quarrying, and probably left little or no trace.
- 4.2.2 The first evidence for commercial mining is in 1711, when William and Henry Stockdale were given leave by the lord of the manor to search for coal on Dean Moor (Wood 1988, 76). It is not known whether they ever started their venture, but 50 years later there are records of an established coal mine in Dean which was leased to Gabriel Griffith for 21 years. The mine was unprofitable and Griffith went bankrupt. From 1766 it was taken over by John Fearn, who also found it unprofitable. A report of 1773 said that it was not economic because of remoteness from the sea (five miles) for export purposes (Wood 1988, 76-77). From 1744 it was leased by a Richard Fawcett, and he was succeeded by William Waite who lost all his money and ended up in prison. Waite's brother-in-law, John Fisher took over from 1789, but he too had

financial difficulties (Wood 1988, 77). In 1816, Dean colliery was taken over by Anthony Wild, a miner, and Henry Johnston, a grocer, for 14 years. Johnston and Wild's widow renewed the lease for another 14 years from 1834. However, the output remained low (Wood 1988, 124).

- 4.2.3 At the time of Parliamentary enclosure in 1815 (CRO QRE/1/16), the study area was part of a large field, which was bounded by a public road (Ullock Road) to the north, Workington Road to the east, Willymoor Private Road to the west, and the parish boundary to the south. The field was allocated to the Earl of Egremont but there are no details about land use, and no collieries are shown. However, as the map is specifically concerned with enclosure boundaries, then internal details would not have been relevant.
- 4.2.4 Dean Moor colliery is first mentioned in 1848, the date at which the lease on Dean colliery ran out. It may be that they were the same colliery, or alternatively Dean Moor colliery may have succeeded Dean colliery in a slightly different location. Collieries were present on Dean Moor (wrongly named as Whillemoor) in the eighteenth century, and they are marked on a map of 1780 (CRO D/Ben/Stray Plans/37). The Ordnance Survey 1st edition map of 1865 shows two working collieries in the vicinity of the study area (Sites 06 and 09), plus an old coal pit and these may be Dean colliery and Dean Moor colliery. The large colliery within the development area (Site 07) is significantly not shown on the 1st edition map.
- 4.2.5 From 1848, Dean Moor colliery was leased to John Percival for 21 years. He, followed by his widow, worked the colliery until 1868 (Wood 1988, 165). Coal was mined for local sale at a depth of 32 yards and it was still raised to the surface by a horse gin in 1860. In that year a new pit was sunk and a 13hp steam engine was installed to drain the mine and raise the coal (Wood 1988, 165). At this time the mine employed eight or nine hewers.
- 4.2.6 Mrs Percival was succeeded by George Grierson and Son, who ran the mine between 1869 and 1880. It was then taken over by William Summerson, whose family took over after his death, forming the Dean Moor Colliery Co Ltd. The mine produced little coal and was hard to manage. Coal had to be transported half a mile to Wright Green railway station at great expense, and adequate labour was hard to get as there were no miners' cottages within more than a mile (Wood 1988, 165). The lessees apparently showed little enterprise and in 1891 were said *to work from hand to mouth and to pick out the Coal where it can be worked without pumping or without their being stopped by Faults* (Wood 1988, 165).
- 4.2.7 The colliery continued to work until 1951, producing coal for local sale. It had supplied a power station with small coal until its closure in 1930. The lessees then erected a plant to convert the small coal into ovoid briquettes, which sold well (Wood 1988, 212). The mine's workforce of around a dozen men was not unionised, and therefore it was the only Cumberland colliery to keep working throughout the national strike of 1926. When the coal industry was nationalised in 1947, Dean Moor colliery remained in private hands as a licensed colliery. In 1950 it employed 56 men, but it closed a year later when Moorside Drift No. 4 ceased production (Wood 1988, 260).

4.3 IDENTIFICATION SURVEY

- 4.3.1 The identification survey revealed a total of 31 archaeological sites within the area surveyed (fig 3). Four of these (monuments 12, 16, 38, and 39) lie entirely outside the proposed extension area, but are integrally related to other sites within. There are two distinct types of features that were observed during the survey: those relating to agricultural practices, and those relating to mining activity.
- 4.3.2 **Agricultural Monuments:** Eight of the monuments relate to agricultural activity in the area, and consist of five field boundaries and three upstanding gateways. The field boundaries are all of a similar style, although there are slight variances in size. They are of stone and earth construction, with turf covering although in places they appear to have been stone revetted, for a single course, particularly at junctions and gateways. There was evidence of ditches on both sides of the field boundaries, but these are now heavily silted and survive only as very shallow depressions containing reed growths. All the field boundaries are shown on the OS first edition 6" maps (1865), but only boundaries 11, 15, 16, and 30 are shown on the current editions. The upstanding gateposts recorded (monuments 12, 16, and 18) are all of a similar type, constructed of roughly dressed stones containing four bar-holes on the internal faces. On some posts the holes were cut right through the stones, on others they were only recessed.
- 4.3.3 **Mining Landscapes:** The remainder of the identified monuments are a product of mining activity. Some of these reflect relatively recent, large-scale industrial extraction (monuments 14, 19, 20, 21, 22, 25, 27, 28, 29, and Site 34) and relate to two separate mines. The northern mine (Site 34) consists of an area of c100m diameter and comprises a large spoil heap, up to around 8m high, and also several shafts, two hollow-ways, one three-celled building which only survives to maximum height of 0.6m, and a trackway leading north to Ullock Road. The mine complex is not shown on the OS 1st edition map (1865), but is shown as an abandoned mine on current (1977) OS mapping.
- 4.3.4 The southern mining complex (monuments 14, 19, 20, 21, 22, 24, 25, and 27) corresponds with the documentary Site 07; it consists of several elements and is centred around an area of spoil heaps c55m in diameter (spoil mound 22), which reveals several phases of activity. A fine example of a mine tramway (14) leads from here towards the main road in a north-easterly direction. To the south of the spoil heaps are the remains of a two-celled building (21), of which the southernmost part is a probable wheel pit which would have provided power for winding and pumping the mine. The wheel was supplied by a canalised stream (20) which entered it from the west. To the west of the building are two large depressions which are over 5m in diameter (monuments 27 and 29), and are probably the mine shafts for the complex. There is a slightly smaller, but similar, depression further to the north (monument 25), which may also relate to this period, but could also potentially relate to earlier, less intensive mining activity. Both of these major shafts are poorly preserved and badly overgrown, especially with gorse. An ill-defined shallow bank was also observed, aligned approximately south-west/north-east, to the north of extraction pit 29 and may possibly relate to it. To the east of the building (21) is a large elongated spoil heap (c5m in height), which probably relates to this southern complex, but its relationship to the other spoil heap (monument 22) is unknown at this time.

- 4.3.5 This southern mining complex (Site 07) is not shown on the OS 1st edition map (1865), but is shown as a disused mine on current mapping, which implies that this is a late nineteenth century mining complex, which by implication was intensively worked for a relatively short period.
- 4.3.6 The remaining monuments (23, 24, 26, 31, 32, 33, and 35-41) are possibly relicts of mining activity prior to the establishment of the large Site 07 mine complex. They have a generally similar form, comprising small, sub-circular depressions of around 3-4m diameter and 1.0-1.5m in depth, and there are no significant areas of associated spoil; the exception, however, is extraction pit 41 which has an associated spoil mound that is c1m in height. The paucity of associated spoil would suggest that these are opencast extractions rather than the surface remains of shafts. Several of these extraction pits, however, differ slightly from this general description. Monument 26 comprises a group of nine small shallow depressions, which are up to 1.5m in diameter and only 0.7m in depth. These appear to be very small scale extraction pits, and are possibly the earliest in the study area. Nearby there is an extraction area (35) (c20m by 10m) which incorporates two of these depressions; the south-westernmost is typical of these smaller pits described above but the north-western pit is c10m in diameter and 1m deep. It is quite probable that this area pertains to either a working platform for the south-western pit, or is an area of drift mining which was common on Dean Moor prior to the later intensive mining practices. To the south of the canalised stream (20) and is an area of small mounds (40), which are up to 5m in diameter and appear to be spoil tips.

5. CONCLUSION

5.1 DESK-TOP STUDY

- 5.1.1 There is some evidence for prehistoric activity in the area as demonstrated by the isolated find of a stone hammer (SMR no 01047) to the south-east of the study area, and the earthwork field system or enclosures, which lies just to the west of the study area, may also be indicative of pre-medieval activity. There is no documentary evidence that there was any settlement on the moor in the medieval period, but it was used for common grazing, small-scale coal extraction and turbarry (turf cutting) (Winchester 1987, 90).
- 5.1.2 Coal mining appears to have medieval origins in Dean, though it was only undertaken for domestic consumption. The first commercial exploitation, in 1711 or soon after, comes after high rates of growth in the output and trade of coal from the mid-sixteenth century up to about 1700. At this period, the northern coalfields dominated the market because of the ease with which the coal could be distributed by sea (Buxton 1978, 11-13).
- 5.1.3 This eighteenth century mine is recorded as Dean colliery, which carried on working up until 1848. From that time, Dean Moor colliery was operating, and it seems likely that the latter succeeded the former, perhaps in a new location. From the Ordnance Survey 1st edition map of 1865, two working collieries are shown on Dean Moor (Sites 06 and 09), plus another old mine (Site 10), and these may correspond with the documented Dean colliery and Dean Moor colliery.
- 5.1.4 Dean Moor colliery continued working up until 1951, and much of this time made very little or no profit. Even so, the colliery is of historic interest as it was the only Cumberland mine to keep working throughout the national strike in 1926, and it remained independent following nationalisation in 1947.

5.2 IDENTIFICATION SURVEY

- 5.2.1 The survey revealed evidence of the field system created by the enclosure of the moorland in the early nineteenth century. Some of this is no longer shown on current mapping, and many of the field boundaries are now partly overlain by later mining features, particularly spoil heaps.
- 5.2.2 Three areas of mining were observed, two commercial, larger scale extractions (Site 07 (comprising monuments 14, 19, 20, 21, 22, 24, 25, and 27) and Site 34), and an area of much smaller, earlier extractions (monuments 23, 26, 29, 31, 32, 33, and 35-41). Of the larger, industrial areas the northernmost site (34) lies almost entirely outside the proposed extension area, although it does include a three-celled building within the area of extension.
- 5.2.3 The southernmost complex (Site 07) is in the centre of the proposed extension; it contains two large spoil heaps (19 and 22), a tramway (14), two or three shafts (24, 25, and 27), a diverted watercourse (20), and most importantly a two-celled structure (21) which appears to incorporate a wheel pit.

- 5.2.4 Small-scale mining activity in this area prior to the nineteenth century commercial exploitation is documented but previously unrecorded. The survey has revealed several localised extraction features (monuments 23, 26, 29, 31, 32, 33, and 35-41) which would appear to pre-date the main extraction complex (Site 07); they are a product of mining activities on the eastern slopes of the hill to the western side of the site, in an area of approximately 200m x 100m.

6. ARCHAEOLOGICAL IMPACT AND RECOMMENDATIONS

6.1 IMPACT

- 6.1.1 This assessment has highlighted the potential for archaeological remains within and around the study area. The remains of past mining activity are extensive and cover a large area both within and outside the study area.
- 6.1.2 The proposed opencast extension area incorporates almost all of one large mining complex (Site 07) and a part of another (Site 34); both of these mines are relatively late in date, being significantly absent from the OS 1st edition map (1865). There are also some smaller mining features (monuments 23, 26, 29, 31, 32, 33, and 35-41) which probably pre-date the two mine complexes. All of these surface mining remains are almost entirely unrecorded and would be lost as a result of the proposed opencast extraction. There is also the possibility that sub-surface features survive, which are not detectable by documentary study or surface inspection, and these would also be destroyed by the proposed opencast extension.

6.2 RECOMMENDATIONS

- 6.2.1 Current policy dictates that wherever possible identified sites of archaeological importance are preserved *in-situ* as embodied in the Institute of Field Archaeologists' Code of Conduct and the Department of Environment *Planning Policy Guidance Notes 16*. The present preliminary assessment, being restricted in its scope, was able to establish areas of archaeological potential but other sites not detectable by desk-top study or identification survey may exist. It is therefore recommended that a programme of archaeological evaluation be undertaken to investigate the archaeological resource and to establish reliably the archaeological implications of the proposed development. It is also recommended that a mitigation record is produced of the surface features.
- 6.2.2 A detailed Level 3 landscape survey should be undertaken to establish the exact nature and extent of the earthworks, both relating to the mine workings and to the field/enclosure systems to the west. This should be carried out in conjunction with a further examination of documentary sources available from the Leconfield archive in Cockermouth which could not be examined within the timescale of the present assessment. This archive contains at least one plan of the mine workings (CRO D/Lec/2/15), as well as other plans of the Moor and old coal pits (see *section 8.1*, below).
- 6.2.3 In conjunction with this, a programme of targeted trial trenching is recommended to investigate the areas of greatest potential, and also serve as an exploratory survey technique to investigate areas seemingly devoid of archaeological features. However, any trenching must be subject to health and safety requirements, and as there is a potential for collapsing shafts there will need to be a restriction in the overall trenching programme to enable a safe working practice. In particular, it is not recommended that known shafts be excavated and instead the trenching should target areas between the shafts to examine the potential for surviving sub-surface deposits.

The distribution and extent of any trenching programme, however, should be subject to the specific archaeological recommendations of the County Archaeological Officer, whose views should be sought prior to proceeding with any further work on the site.

- 6.2.4 Subject to the results of the proposed evaluation, there may be a requirement, by the County Archaeological Officer, for a further programme of detailed archaeological mitigation recording to anticipate the destruction of the archaeological resource by the open-cast extraction proposals.

7. GAZETTEER OF SITES

7.1 DESK-TOP STUDY SITES

Site number 01
Site name Kidburngill
NGR NY 0618 2151
Site type Stone hammer
Period Prehistoric
Source SMR 01047

Description

A stone hammer was found near Kidburngill in 1867.

Assessment

The site lies outside the study area.

Site number 02
Site name Dean Moor
NGR NY 0518 2206
Site type Field system, and possible enclosures
Period Unknown
Source SMR 16620

Description

An earthwork field system or enclosures to the immediate west of the study area.

Assessment

The site lies close to, and possibly impinges upon, the study area.

Site number 03
Site name Branthwaite Edge Quarry
NGR NY 0590 2290
Site type Quarry
Period Medieval/Post-medieval
Source SMR 11808; Current OS map (1972)

Description

The site of a quarry. It is marked as disused on the current OS map.

Assessment

The site lies outside the study area.

Site number 04
Site name Quarry Wood
NGR NY 0643 2285
Site type Quarry
Period Medieval/Post-medieval
Source SMR 11810; Current OS map (1972)

Description

Place-name evidence for a quarry and earthwork features are also shown on the current OS map.

Assessment

The site lies outside the study area.

Site number 05
Site name Dean Cross
NGR NY 0620 2260
Site type Quarry
Period Medieval/Post-medieval
Source SMR 16622

Description

The site of a former quarry.

Assessment

The site lies outside the study area.

Site number 06
Site name Dean Moor
NGR NY 0525 2235
Site type Mine
Period Post-medieval
Source SMR 11805; OS 1st edition (1865); Current OS 1:10,000 map (1972)

Description

This is the site of a former mine; it possibly corresponds with the documented Dean colliery or Dean Moor colliery on the OS 1st edition map. There it is shown as comprising one small building with shaft and an associated spoil heap. On the current OS map there is a works complex shown to the south-west of the mine.

Assessment

The site lies outside the study area.

Site number 07
Site name Dean Moor
NGR NY 0560 2200
Site type Mine
Period Post-medieval
Source SMR 16621; Current OS map (1977)

Description

This is the site of a former mine with surviving earthworks and building. It is not shown on the OS 1st edition map (1865) but is shown on the current OS map (1972) as disused; it comprises a series of spoil heaps with an associated trackway extending east-north-east. This site corresponds to monuments 14, 19, 20, 21, 22, 24, 25, and 27 which were recorded by the identification survey.

Assessment

The site lies within the study area and will be destroyed by the proposed extension to the opencast site.

Site Number	08
Site name	Moorside Wood
NGR	NY 0530 2170
Site type	Earthworks, shafts, banks, tracks
Period	Post-medieval
Source	SMR 16633; Current OS 1:10,000 map (1972)

Description

Earthworks of former mine workings and associated features. These lie outside Dean parish and probably do not correspond with the documented Dean Moor colliery. The site is shown as disused on the current OS maps.

Assessment

The site lies to the south of the proposed extension but is within the area of the present opencast site.

Site Number	09
Site name	Dean Moor
NGR	NY 0560 2232
Site type	Coal pit
Period	Post-medieval
Source	OS 1st edition (1865)

Description

The site of mine workings, which is shown on the OS 1st edition map as three small buildings with a spoil heap and a shaft; it is not, however, marked on the current OS 1:10,000 map (1972).

Assessment

The site lies outside the study area, but has already been destroyed by the present opencast extraction programme.

Site Number	10
Site name	Dean Moor
NGR	NY 0570 2239
Site type	Mine
Period	Post-medieval
Source	OS 1st edition (1865)

Description

It is marked as an 'old coal pit' on the OS 1st edition map, which depicts a spoil heap and shaft. It is, however, not marked on the current OS map (1972).

Assessment

The site lies outside the study area.

7.2 IDENTIFICATION SURVEY MONUMENTS

Monument Number 11

Site name	Dean Moor
NGR	NY 0558 2217 - 0582 2228

Site type	Field boundary
Period	Post-medieval
Source	OS 1st edition (1865); current OS 1:10,000 map (1972); Identification Survey

Description

A grass-covered bank 1.5m high and c0.8m wide, with a hawthorn tree growing on it. Where it is cut by a modern vehicle track, it appears to be of earth construction. There are reeds growing on either side in very shallow, silted ditches which are c0.3m wide at the top and 0.1m deep. There is evidence of stone construction visible at the junction by a gateway (12). The bank appears to be contemporary with boundary 13, but the junction between the monuments has been badly damaged. At its western end, it forms the northern boundary of a coppice. It is shown on the OS 1st edition map.

Assessment

The monument runs through the wider study area and a short section runs through the development area. It will be totally destroyed by any extension to the opencast site.

Monument Number 12

Site name	Dean Moor
NGR	NY 0575 2222
Site type	Pair of stone gate posts
Period	Post-medieval
Source	Identification Survey

Description

A pair of stone gate posts, each 1m tall, 0.3m wide, 0.2m deep, located 3m from the northern end of boundary 13. Each has four bar-holes (c0.06m diameter) on the internal faces, which are recessed into the northern gate post, and cut fully through the southern gate post.

Assessment

The monument lies within the study area, but is just outside the proposed area of the opencast extension.

Monument Number 13

Site name	Dean Moor
NGR	NY 0586 2202 - 0524 2273
Site type	Field boundary
Period	Post-medieval
Source	Identification Survey

Description

A stone and earth field boundary aligned approximately north/south, which extends from field boundary 11, and contains a pair of gate posts (12). Its construction is of much poorer quality than boundary 11, surviving to a height of only 0.3m; however, it does appear to be contemporary with boundary 11. It dog-legs to the south-east and there is a possible second entrance on the angle, where the bank disappears for c2m. It is very ill-defined where it is cut by trackway 14. The boundary is overgrown with reeds on both sides and on top for much of its length.

Assessment

The monument runs through the study area and it will be truncated by the proposed opencast extension.

Monument Number 14

Site name Dean Moor
NGR NY 0558 2200 - 0598 2215
Site type Disused tramway
Period Post-medieval
Source Current OS 1:10,000 map (1972); Identification Survey

Description

This is a former tramway on an embankment which is up to 3m high and c2.5m wide, and is aligned roughly east-north-east/west-south-west. It has a very shallow down-slope gradient from the earthworks at the west end towards the road to the east. It overlies enclosure boundaries. There are scattered bricks, some frogged 'Clifton', visible on top and on the southern slope. It is a part of the Site 07 mine complex.

Assessment

The monument runs through the study area and part of it is within the area of the proposed extension and will therefore be truncated.

Monument Number 15

Site name Dean Moor
NGR NY 0562 2207 - 0582 2201
Site type Field boundary
Period Post-medieval
Source OS 1st edition Map (1865); Identification Survey

Description

This is a field boundary similar to boundary 11. It is up to 1m high and c0.8m wide at the top. Hawthorns and one silver birch tree are growing on top; there are some stones visible around the tree bases. There are shallow reed-filled ditches on either side. It incorporates gate post 16 and runs up to field boundary 17, with which it appears to be contemporary. It is shown on the OS 1st edition map.

Assessment

The monument runs through the study area. Approximately half the field boundary lies within the proposed development area and will therefore be destroyed by the opencast extraction.

Monument Number 16

Site name Dean Moor
NGR NY 0563 2207
Site type Gate post
Period Post-medieval
Source Identification Survey

Description

This is a single gate post c1.3m tall, 0.3m wide, 0.2m deep. It is very similar to those of gate post 12, with four bar-holes, c0.06m diameter, the top one of which is cut right through. The gate post faces boundary 15 and is located at the point where boundaries 15 and 17 meet.

Assessment

The monument lies just outside the study area and will not be affected by the proposed development.

Monument Number 17

Site name Dean Moor
NGR NY 0559 2192 - 0564 2220
Site type Field boundary
Period Post-medieval
Source Current OS 1:10,000 map (1972); Identification Survey

Description

A field boundary runs south from the eastern side of a coppice. There are two gate posts lying by the west side of the junction with boundary 15 (with which it appears to be contemporary), although the gate has been destroyed. The boundary is of stone- revetted construction with an earth top and is similar to boundary 11. It continues south beyond trackway (14) and is encroached upon by a spoil heap (19). There is another gate (18) at its south end, just before the boundary is terminated by a banked channel.

Assessment

The monument runs through the study area. The southern end of the field boundary is within the development area and will be truncated by the proposed opencast extraction.

Monument Number 18

Site name Dean Moor
NGR NY 0559 2193
Site type Gateway
Period Post-medieval
Source Identification Survey

Description

This gateway is similar to gateways 12 and 16. There is one gate post standing and it has three recessed holes visible above ground.

Assessment

The monument lies within the proposed northern extraction area and will be destroyed by opencast working.

Monument Number 19

Site name Dean Moor
NGR NY 0560 2193
Site type Spoil heap
Period Post-medieval
Source Current OS 1:10,000 map (1972); Identification Survey

Description

An elongated spoil heap which is c5m high. It is part of the Site 07 mining complex. It is shown on current OS map, but not on the OS 1st edition map. It is grassed over, and there is some burnt rock visible on top.

Assessment

The monument lies within the proposed development area and will be destroyed by the opencast extraction.

Monument Number 20

Site name Dean Moor

NGR NY 0570 2191 - 0531 2185

Site type Ditch

Period Post-medieval

Source Identification Survey

Description

A canalised ditch c0.4m deep, running east/west on the north side of a dry-stone wall. It extends up to structure 21 and appears to feed a former water wheel pit, which is on the southern side of this structure. It then runs parallel to a wall c4m to the north.

Assessment

The monument is for the most part within the proposed development area and will be predominantly destroyed by the opencast extraction.

Monument Number 21

Site name Dean Moor

NGR NY 0558 2194

Site type Structure

Period Post-medieval

Source Identification Survey

Description

A sub-rectangular structure to the south of spoil mound 22. It consists of earth-covered banks up to 1m high and the northern part of the interior is boggy. A canalised ditch (20) cuts through a narrow cell at the southern end, which was possibly the former site of a water wheel. It is possible that the spoil heap (19) to the west covers the northern end of the east bank of the structure. At the eastern side is a 10m long ramp which extends up to spoil heap 22. The structure is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast site.

Monument Number 22

Site name Dean Moor

NGR NY 0554 2198

Site type Spoil heaps

Period Post-medieval

Source Identification survey

Description

A series of spoil tips which are predominantly of stone and which are up to 4m high. There is a loading ramp at the western end of the former tramway (14). The tips extend over field boundary 17. The north-western part of it is an almost flat platform, but the southern part has an undulating surface and there are two channels cut through the site from the end of structure 21. This is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 23

Site name Dean Moor

NGR NY 0550 2199
Site type Extraction pit/possible shaft
Period Post-medieval
Source Identification Survey

Description

A pit (c4m in diameter and 1.5m deep) is located to the west of spoil heaps 22. Water runs from it in a channel 0.5m deep to a metal manhole in the latter. The pit is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 24

Site name Dean Moor
NGR NY 0550 2198
Site type Extraction pit/possible shaft
Period Post-medieval
Source Identification Survey

Description

A pit c2.5m in diameter and 0.9m deep; it is smaller than pit 23 but otherwise identical, It is located c5m south of pit 23. There is also a channel 0.15m deep running west from it. The pit is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed extension to the opencast site.

Monument Number 25

Site name Dean Moor
NGR NY 0550 2197
Site type Shaft?
Period Post-medieval
Source Current OS 1:10,000 map (1972); Identification Survey

Description

A circular hollow 1.3m deep, with a diameter widening from 1.5m at the base to 4m at the top. The quarry is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed extension to the opencast site.

Monument Number 26

Site name Dean Moor
NGR NY 0551 2195
Site type Extraction pit/shaft?
Period Post-medieval
Source OS map; Identification Survey

Description

This comprises nine or ten shallow depressions which are up to 1.5m diameter and 0.7m deep. They are probably either extraction pits or even possibly relict shafts.

Assessment

The monument lies within the development area and will be destroyed by the proposed extension to the opencast site.

Monument Number 27

Site name Dean Moor
NGR NY 0553 2194
Site type Extraction pit
Period Post-medieval
Source Identification survey

Description

A gorse-filled depression which is c6m diameter and c1.5m deep. It was possibly a relict shaft or an extraction pit. The pit is a component of the Site 07 mine complex.

Assessment

The monument lies within the development area and will be destroyed by the proposed extension to the opencast workings.

Monument Number 28

Site name Dean Moor
NGR NY 0548 2193 - 0550 2195
Site type Shallow bank
Period Post-medieval
Source Identification survey

Description

A shallow bank c1m wide in very poor condition; it is only c0.3m high at the eastern end but survives up to 1m high at the western end. It is apparently cut by pit 29.

Assessment

The site lies within the development area and will be destroyed by the proposed opencast extraction.

Monument Number 29

Site name Dean Moor
NGR NY 0548 2192
Site type Extraction pit
Period Post-medieval
Source Identification survey

Description

An elongated gorse-filled depression running east/west. It is c10m long, 5m wide and 2m deep.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extraction.

Monument Number 30

Site name Dean Moor

NGR NY 0545 2190 - 0555 2218

Site type Field boundary

Period Post-medieval

Source Identification survey

Description

A field boundary of revetted stone and earth construction, similar to boundary 11. It is up to 1.3m high.

Assessment

The monument runs through the study area and it will be truncated by the proposed extension to the opencast site.

Monument Number 31

Site name Dean Moor

NGR NY 0546 2195

Site type Possible extraction pit

Period Post-medieval

Source Identification survey

Description

A sub-circular depression c5m diameter and c1.8m deep which was possibly an extraction pit.

Assessment

The site lies within the development area and will be destroyed by the extension to the opencast site.

Monument Number 32

Site name Dean Moor

NGR NY 0548 2199

Site type Extraction pit

Period Post-medieval

Source Identification survey

Description

A depression which is 2m diameter at the base, 5m wide at the top and 1.5m deep. A channel runs off to the east. This is evidently an extraction pit, but it does not have any associated spoil.

Assessment

The monument lies within the development area and will be destroyed by the proposed extension to the opencast site.

Monument Number 33

Site name Dean Moor

NGR NY 0549 2200

Site type Extraction Pit

Period Post-medieval

Source Identification survey

Description

A gorse-filled depression (5m wide and 1.8m deep), which would appear to be an extraction pit.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 34

Site name Dean Moor
NGR NY 0550 2200
Site type Mine
Period Post-medieval
Source OS 1:10,000 (1972) map; Identification Survey

Description

A large mining complex which has associated horseshoe-shaped spoil heaps that are c8m high in places. A track extends north-east from the monument to a gate in the roadside boundary. There are the remains of a stone and brick three-celled building at the south-western side of the monument; one wall survives to a height of 0.6m, the rest survive as earthworks. A hollow way runs east/west along the north side of the complex. It is not shown on the OS 1st edition map, but is on current maps.

Assessment

The monument lies within the study area, but it is only partly within the area of the proposed opencast extension. The southern part of the monument will be damaged by the development proposals.

Monument Number 35

Site name Dean Moor
NGR NY 0546 2200
Site type Mine workings
Period Post-medieval
Source OS 1:10,000 (1972) map; Identification Survey

Description

An area of mining which contains two sub-circular shafts. The eastern one is c10m diameter and 1m deep, the western one is 4m diameter and 0.8m deep with boulders below the northern face. Associated with the shafts are a series of spoil mounds. The western bank continues c15m south into a shallower depression c0.8m deep, which may be a further extraction pit. It is shown on the current OS 1:10,000 map.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 36

Site name Dean Moor
NGR NY 0540 2198
Site type Extraction pit
Period Post-medieval

Source Identification survey

Description

An elongated sub-circular feature (6m x 4m and 1.5m deep), orientated east/west; it is situated to the south of shaft 25. It has a deep drainage channel running downslope to the east; it is water-filled and is surrounded by mire.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 37

Site name Dean Moor

NGR NY 0542 2195

Site type Extraction pit

Period Post-medieval

Source Identification Survey

Description

A large pit, which is c9m diameter at the top, 5m diameter at the base and 2.5m deep. It is internally boggy, but drains towards the south-east. There is a plateau to the west which is also boggy but would appear to be artificial in origin.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

Monument Number 38

Site name Dean Moor

NGR NY 0535 2194

Site type Shafts

Period Post-medieval

Source Identification Survey

Description

A probable extraction site containing two shallow depressions c3m wide with a significant front lip and drainage slots. There is a possibility that these were shafts.

Assessment

The monuments are within the wider study area, but outside the development area. It will not be affected by the present opencast proposals.

Monument Number 39

Site name Dean Moor

NGR NY 0547 2189

Site type Extraction pit

Period Post-medieval

Source Identification survey

Description

A shallow, wet, boggy, reed-filled pit 4m in diameter and 0.6m deep to the water-level. It would appear to be an extraction pit.

Assessment

The monument lies within the wider study area, but outside the development area. It will not be affected by the opencast extraction proposals.

Monument Number 40

Site name Dean Moor
NGR NY 0547 2188
Site type Spoil heap?
Period Post-medieval
Source Identification Survey

Description

A gorse-covered mound c5m diameter and 1m high, which is located immediately to the north of channel 20. It appears to be part of a larger complex of smaller tips extending c3m beyond the fence to the south of the site.

Assessment

The monument lies within the study area, but outside the development area. It will not be affected by the present opencast proposals.

Monument Number 41

Site name Dean Moor
NGR NY 0545 2198
Site type Mine workings
Period Post-medieval
Source Identification Survey

Description

An elongated monument aligned east/west, and bounded on the east by field boundary 30 and to the west by the run-off channel from extraction pit 36. The workings consist of a spoil heap c1m high at the west side, and a very shallow depression 0.3m deep, 2m wide, immediately downslope. Below this is an extraction pit that is 5m wide and up to 1.5m deep, and upslope there is a 4m wide bank.

Assessment

The monument lies within the development area and will be destroyed by the proposed opencast extension.

8. BIBLIOGRAPHY

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Carlisle

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DRC/8/63 1851 Dean Common, east, west and south, tithe map

D/Ben/Stray Plans/37 1780 The King Against the Inhabitants of Lamplugh Quarter: General Plan, 2 inches to 1 mile

8.2 LECONFIELD ARCHIVES (HELD AT COCKERMOUTH)

D/Lec/2/15, no date Dean Moor colliery, plan of lands occupied by colliery. Marks pit heaps, pits and line of tramway. 1 inch to 2 chains

D/Lec/2/26, 1757 A sketch of the Common and tenancy grounds adjoining commonly called the Edge colliery

D/Lec/2/31, 1889 Dean boundary of Common against Branthwaite

D/Lec/29/1,6, 1437-8, 1478 Reeve's accounts of Dean manor

D/Lec/42, no date Plan of lands in Dean showing owners' names and marking old coal pits and quarry

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APPENDIX 1
PROJECT BRIEF

APPENDIX 2
PROJECT DESIGN

April 1997

Lancaster
University
Archaeological
Unit

KIDBURNGILL OPENCAST COAL SITE
NORTH EXTENSION
CUMBRIA
ARCHAEOLOGICAL ASSESSMENT

Proposals

The following project design is offered in response to a request from Cumberland Coal and Fireclay Co Ltd, for an archaeological assessment at the North Extension of the Kidburngill opencast coal site.

1. INTRODUCTION

- 1.1 The proposed north extension of the Kidburngill opencast coal site, near Moorside Parks West Cumbria, will affect an area of moorland containing known coal mining landscapes and there exists the potential for earlier remains also. The area was part of Willmore Common until 1820 when it was enclosed; prior to that date the area had been used for peat extraction. By 1874 the area was in use for coal extraction but all mining activity had ceased by 1951. There are extensive mining relict landscapes relating to this relatively brief episode.
- 1.2 A requirement of the County Structure Plan, the forthcoming Minerals and Waste Local Plan and PPG 16, is that an archaeological assessment be undertaken to inform the planning process.
- 1.3 The Lancaster University Archaeological Unit has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 15 years. Evaluations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. LUAU undertook a stratigraphic survey of Kidburngill Tarn in 1996 in advance of the opencast development. LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

2. OBJECTIVES

- 2.1 The following programme has been designed in accordance with a brief provided by Philip Holdsworth of Cumbria County Council to provide an accurate archaeological assessment of the designated area, within its broader context. The principal purpose of the assessment is to collate existing information about the archaeology of the site, to determine the significance of the identified archaeological resource and to provide recommendations for any further archaeological investigation. The required stages to achieve these ends are as follows:
- 2.2 ***Desk-top Survey***
To accrue an organised body of data to inform the field inspection.
- 2.3 ***Identification Survey***
An identification survey to record the character of the extant earthworks within the study area and provide an assessment of the archaeological significance of the earthwork remains. This would examine earthworks up to 100m beyond the extent of the proposed extension in order to provide an appropriate archaeological context for those identified features within the affected area.
- 2.3 ***Assessment Report***
A written assessment report will assess the significance of the data generated by this programme within a local and regional context. It will advise on the requirements for further evaluation or recording measures as necessary.

3. METHODS STATEMENT

- 3.1 The following work programme is submitted in line with the stages and objectives of the archaeological work summarised above.

3.2 DESK-TOP SURVEY

3.2.1 The following will be undertaken as appropriate, depending on the availability of source material. The level of such work will be dictated by the timescale of the project.

3.2.2 **Documentary and cartographic material:** This work will rapidly address the full range of potential sources of information. It will include an appraisal of the Cumbria Sites and Monuments Record, as well as appropriate sections of County histories, early maps, and such primary documentation (tithe and estate plans etc.) as may be reasonably available. Particular attention will be paid to field and place names recorded on early cartographic sources as these often provide important evidence of archaeological activity. Any photographic material lodged in either the County Sites and Monuments Record or the County Record Offices will also be studied. Published documentary sources will also be examined and assessed. This work will involve visits to the County Record Office in Carlisle. The results of the evaluation undertaken by Cumbria Environmental and Geological Services at Kidburngill and the stratigraphic survey undertaken by LUAU will be assimilated with the results of the present evaluation.

3.2.3 **Aerial photography:** A survey of the extant air photographic cover will be undertaken. This may indicate the range and survival of archaeological and structural features in the designated area, and if appropriate coverage is available, allow an assessment of the rate and progress of erosion of archaeological features. It will also facilitate the rapid recognition and plotting of archaeological features including those no longer visible at ground level. Identified features will be plotted at 1:10,000. Aerial photographic work may entail liaison with the Royal Commission on the Historical Monuments (England), although, within the timescale available, it is unlikely that prints will be forthcoming from this body for inclusion in this report.

3.2.4 **Physical environment:** A rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken. This will not only set the archaeological features in context but also serves to provide predictive data, that will increase the efficiency of the field inspection.

3.3 FIELD INSPECTION

3.3.1 **Access:** Liaison for basic site access will be undertaken through Cumberland Coal and Fireclay Co Ltd.

3.3.2 It is proposed to undertake a level 1 survey of the study area. This is a rapid survey undertaken alongside a desk-top study as part of a site assessment. It is an initial site inspection which helps the local planning authority to consider fully the archaeological implications of a development and also serves as the basis for undertaking and planning further archaeological work on the site. It represents the minimum standard of record and is appropriate to exploratory survey aimed at the discovery of previously unrecorded sites. Its aim is to record the existence, location and extent of any such site. The emphasis for the recording is on the written description which should record type and period and would not normally exceed c50 words. The extent of a site is defined for sites or features greater than 50m in size and smaller sites are shown with a cross.

3.3.3 The reconnaissance will be undertaken in a systematic fashion, walking on approximately 30m wide transects. In accordance with the verbal requirements of the County Archaeologist the study area is

defined as an area up to 100m around the extent of the proposed extension; the additional area will provide a broader topographic and archaeological context for the remains within the extent of the affected area. It is proposed to use Global Positioning System (GPS) techniques to locate and record the features. GPS instrumentation uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to Ordnance Survey National Grid. The use of GPS techniques has proved to be an essential and extremely cost effective means of locating monuments, which can achieve accuracy of better than +/- 1m.

- 3.3.3 A photographic record will be undertaken simultaneously. An early surface inspection such as this is highly recommended, as such work can frequently double the amount of archaeological information for an area. This fieldwork will result in the production of plans at a scale of 1:2,500 or any other scale required, recording the location of each of the sites listed in the gazetteer. All archaeological information collected in the course of field inspection will be recorded in standardised form, and will include accurate national grid references. This will form the basis of a gazetteer, to be submitted as part of the report.
- 3.3.4 LUAU provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1991) and risk assessments are now being implemented for all projects.

3.4 ASSESSMENT REPORT

- 3.4.1 **Archive:** The results of Stages 3.2-3.3 will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of any features and finds recovered during fieldwork. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.
- 3.4.2 This archive can be provided in the English Heritage Central Archaeology Service format, both as a printed document and on computer disks as ASCII files (as appropriate), and a synthesis (in the form of the index to the archive and the report) will be deposited with the Cumbria Sites and Monuments Record. A copy of the archive will also be available for deposition in the National Archaeological Record in London. LUAU practice is to deposit the original record archive of projects (paper, magnetic, and plastic media) with the appropriate County Record Office, and a full copy of the record archive, should any material be recovered, with the material archive (artefacts, ecofacts, and samples, at this stage from surface collections) with an appropriate museum.
- 3.4.3 **Collation of data:** The data generated by 3.2 and 3.3 (above) will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains within the designated area. It will also serve as a guide to the archaeological potential of the area to be investigated, and the basis for the formulation of any detailed field programme and associated sampling strategy, should these be required in the future.
- 3.4.4 **Assessment Report:** One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further copy submitted to the Cumbria County Archaeologist. The report will include a copy of the project brief, this project design, and indications of any agreed

departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, together with appropriate illustrations, including a map and gazetteer of known or suspected sites identified within or immediately adjacent to the study area. It will also include a complete bibliography of sources from which the data has been derived, and a list of further sources identified during the programme of work, but not examined in detail. The report will also include a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work, but not examined in detail.

3.4.5 This report will identify areas of defined archaeology, an assessment and statement of the actual and potential archaeological significance of any features within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, which can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion. The report will be in the same basic format as this project design; a copy of the report can be provided on 3.5" disk (IBM compatible format).

3.4.6 **Proposals:** The report will make a clear statement of the likely archaeological implications of the intended development. It will also make recommendations for any further evaluation of the identified archaeological potential deemed necessary or desirable for individual sites. It will seek to achieve, as a first option, the preservation *in situ* of all significant archaeological features, and possible strategies for the mitigation of the development, including design modifications, will be considered. Where conservation is neither possible, nor practical, it may be appropriate to recommend a further stage of more intensive archaeological work in order to mitigate the effects of development.

3.4.7 **Confidentiality:** The assessment report is designed as a document for the specific use of the client, for the particular purpose as defined in the project brief and this project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

3.5 PROJECT MONITORING

3.5.1 **Cumberland Coal and Fireclay Co Ltd:** LUAU will consult with the Client regarding access to land within the study area. This consultation will include, if required, the attendance of the Cumbria County Archaeologist.

3.5.2 **Cumbria County Council:** Any proposed changes to the project brief or the project design will be agreed with the County Archaeologist, Cumbria County Council, in conjunction with the client. LUAU will arrange a preliminary meeting, if required.

4. WORK TIMETABLE

The phases of work will comprise:

4.1 **Desk-top Study**

A two day period is required to collate all the available data.

4.2 **Field Inspection**

A one day period is required for the identification survey.

4.3 ***Prepare Assessment Report***

A three day period would be required to complete this element.

4.4 LUAU can execute projects at very short notice once an agreement has been signed with the client. As long as the project is awarded by 22nd April it will be possible to submit a draft report by the 16th May.

5. **OUTLINE RESOURCES**

The following resource base will be necessary to achieve the proposals detailed above.

5.1 ***Desk-top Study***

2 man-days Project Officer

5.2 ***Field Survey***

1 man-day Project Supervisor

1 man-day Project Assistant

5.3 ***Assessment Report***

3 man-days Project Officer

5.4 The project will be under the management of **Jamie Quartermaine, BA, Surv Dip, MIFA** (Unit Project Manager) to whom all correspondence should be addressed. All Unit staff are experienced, qualified archaeologists, each with several years professional expertise. Project Officers in Unit terminology are senior field archaeologists, capable of organising and running complex projects and undertaking less complex work quickly and efficiently to a high standard.

ILLUSTRATIONS

- Figure 1 Kidburngill Location Plan
- Figure 2 Desk-top Study Site Plan (1:10,000)
- Figure 3 Kidburngill Study Area Site Location Plan (1:2,500)

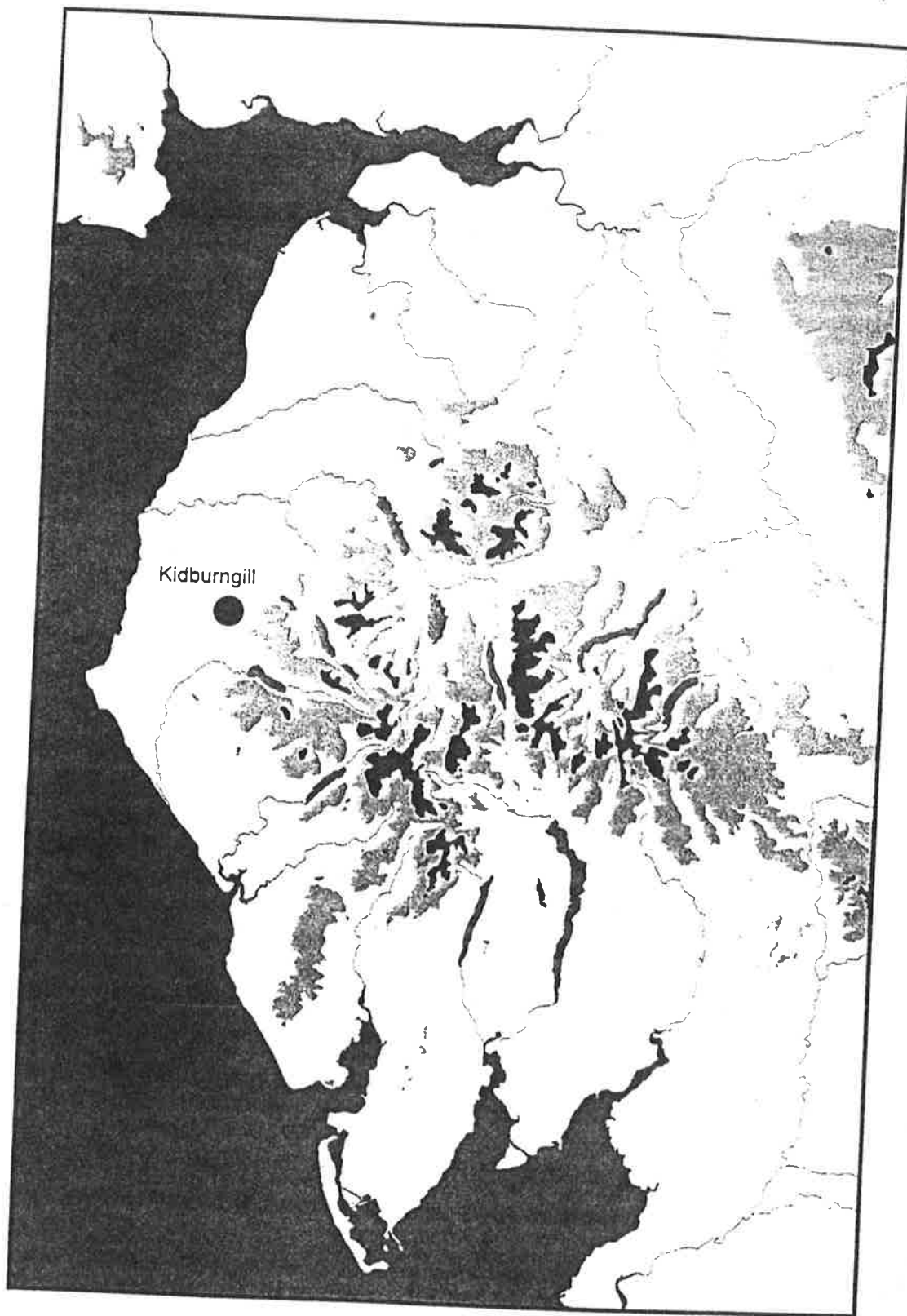
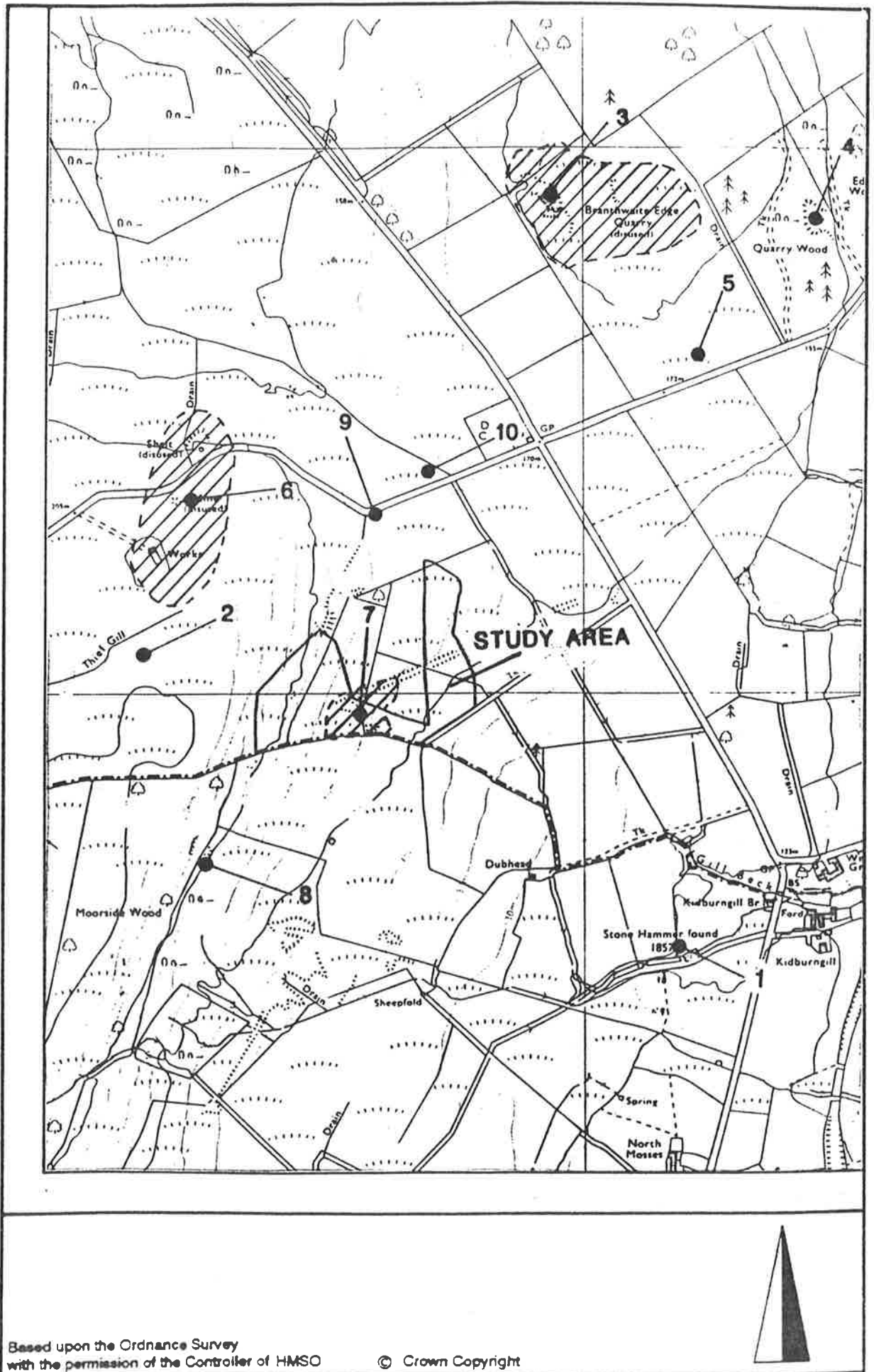


Fig 1 The location of Kidburngill open-cast site



Based upon the Ordnance Survey
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Fig 2 Desk Top Study Site Location Plan

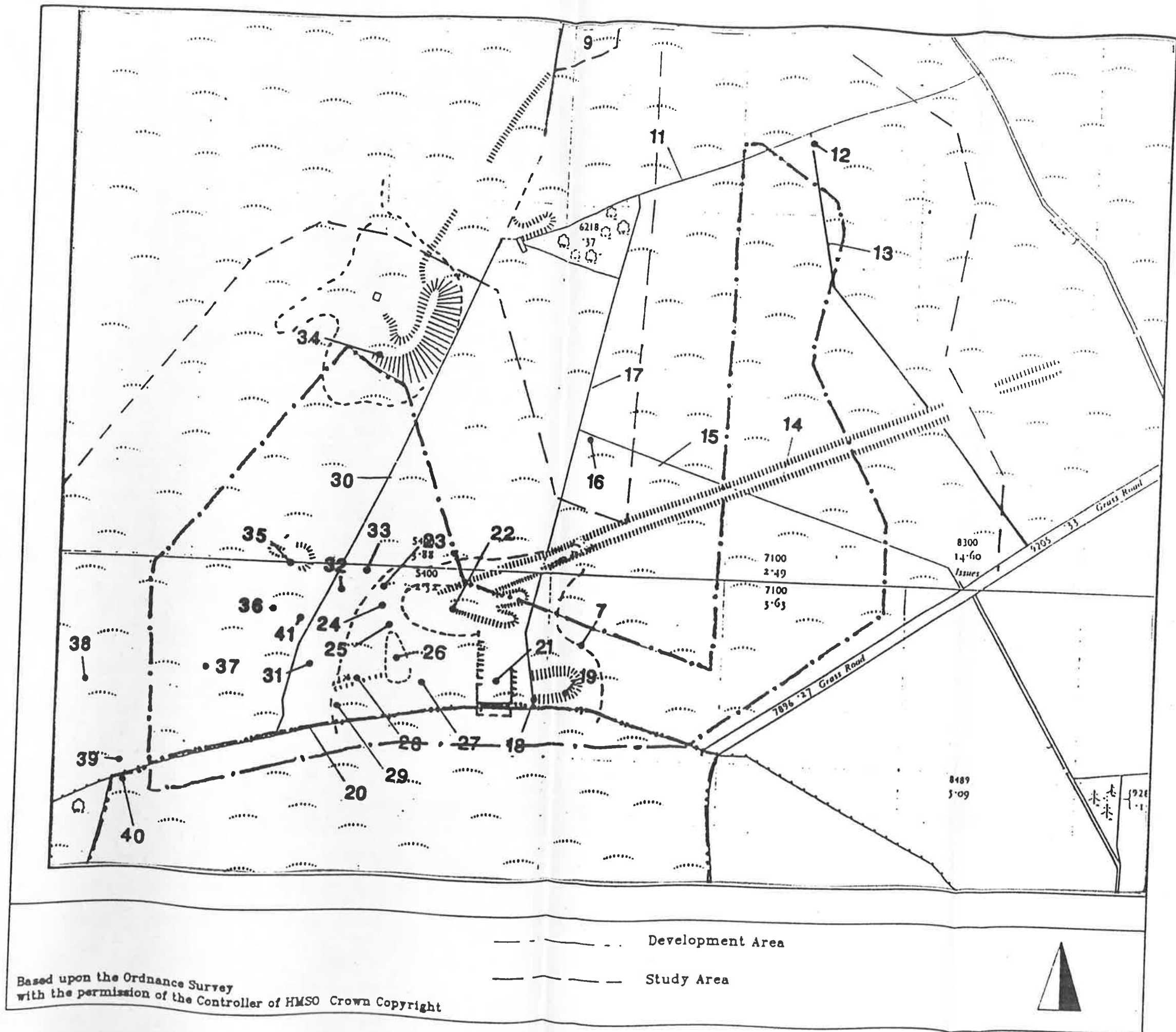


Fig 3 Kidburngill Site Location Plan