

EXPLOSIVES STORE, MEAL BANK QUARRY,
INGLETON, NORTH YORKSHIRE

ARCHAEOLOGICAL SURVEY



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1 INTRODUCTION

Reasons and Circumstances of the Project

- 1.1 In December 2012, Ed Dennison Archaeological Services Ltd (EDAS) were asked by Mr Robert White, Senior Conservation Archaeologist of the Yorkshire Dales National Park Authority (YDNPA) to undertake an archaeological survey of the remains of a structure believed to be an explosives store at the former Meal Bank Quarry, Ingleton, North Yorkshire (NGR SD 69943 73779 centred). The archaeological survey was required to inform possible consolidation works to the structure.

Site Location and Description

- 1.2 The ruined structure lies in a relatively isolated and elevated position on the north side of the former Mealbank Quarry, between it and a field wall to the north, on the west side of the River Doe to the north-east of the village of Ingleton (see figure 1). The building is not listed as being of Special Architectural or Historic Interest, but it is recorded on the YDNPA Historic Environment Record (site MYD58940).
- 1.3 There is no official public access to the site, but the base of the disused quarry is used by dog-walkers, and it is possible to walk through the quarry and climb up the north-east face to reach the structure. At the time of survey, it was in a reasonable condition, but with part of the south elevation either collapsed or demolished. It was surrounded by short grass, with no vegetation encroachment. It had been fenced off at one point, but much of the wire between the wooden fence posts is now either missing or trodden down.

2 SURVEY METHODOLOGY

- 2.1 The extent of the project was defined by discussions between Mr Robert White of the YDNPA and EDAS. The structure was visited on 4th June 2013.
- 2.2 A ground floor plan was made at a scale of 1:20, together with a representative east-west section through the structure, again at 1:20 scale. All measurements were taken using traditional hand-held recording equipment. The resulting drawings show all significant architectural detail such as openings (blocked or unblocked), inserted doorways, fittings, joist sockets etc, as well as construction details, modifications and differences in fabric, and the stones ("quoins") or dressings around openings and at corners; stone-by-stone drawings were not produced. The section was marked with a nominal datum, but this was not given a reduced height AOD. All drawings were produced according to the guidelines established by English Heritage (2006, 8-10 & 19-21). Sufficient notes were also taken in the field to prepare a detailed written description.
- 2.3 The drawn record was supplemented by a number of colour digital photographs with 10 megapixel resolution. English Heritage photographic guidelines were followed (English Heritage 2006, 10-12) and each photograph was provided with a scale where required. All photographs have been clearly numbered and labelled with the subject, orientation, date taken and photographer's name, and have been cross-referenced to digital files etc.
- 2.4 The results of the site survey work have been used to produce this EDAS archive archaeological survey report; this is illustrated by reduced versions of the survey drawings and a selection of photographic plates. A properly ordered and indexed

project archive (paper, magnetic and plastic media) was deposited with the YDNPA at the end of the project.

3 HISTORICAL BACKGROUND

- 3.1 No documentary research was required as part of the survey work, but the structure is believed to have been built as an explosive store to serve the Meal Bank Quarry (Robert White, YDNPA, *pers. comm.*). There had been limestone quarrying and burning in this area since at least the mid 19th century, although the main period of expansion began in 1868, when the existing quarry at Meal Bank was leased by the firm of Clark and Wilson (subsequently Clark, Wilson and Company and then the Craven Lime Company Ltd). They began the construction of a Hoffmann continuous kiln for burning lime, and also pioneered a new form of blasting, aimed at bringing down a greater tonnage of rock. The Hoffmann kiln was extended in 1893 and Meal Bank became one of the major employers in the district. The company prospered at the beginning of the 20th century but a massive downturn in the trade in 1908 resulted in the quarry closing in 1909. Meal Bank never re-opened and during the First World War, the works and the Hoffmann kiln were stripped of all salvageable material (Johnson 2002, 79-84).
- 3.2 The structure forming the subject of this survey does not appear on a plan of the works and quarry made in 1939 (Johnson 2002, 79), but it is shown on pre-Second World War Ordnance Survey mapping (Robert White, YDNPA, *pers. comm.*); it is not depicted by the Ordnance Survey in 1851 but is shown as an unnamed structure on the 1910 edition. The quarry complex was surveyed by Lancaster University Archaeological Unit in 1993, but the ruined explosives store was not included (Trueman & Krupa 1993).

4 ARCHITECTURAL DESCRIPTION

Introduction

- 4.1 A detailed description of the Meal Bank Quarry structure is given below, based on the records made in the field. The structure is described in a logical sequence. The setting, plan form, structure and architectural detailing are described first, followed by the external elevations and a circulation description of the interior. Reference should also be made to the survey drawing (figure 2), and the photographic record which appears as Appendix 1; photographs are referenced in the following text in italic type and square brackets, the numbers before the stroke representing the film number and the number after indicating the frame e.g. [2/32].
- 4.2 For ease of description, the long axis of the structure is considered to be aligned east/west. Where possible, specific architectural terms used in the text are as defined by Curl (1977). Finally, in the following text, 'modern' is used to denote features or phasing dating to after c.1945.

Setting

- 4.3 The structure is positioned above the north-east end of the quarry, above a steep benched face, close to a drystone field wall which forms the northern limit of the quarry area [1/724, 1/725, 1/726] (see figure 1 and plate 1). The structure has been terraced into the ground surface, which steps down from north-west to south-east in a series of broad terraces. As a result, the ground level to the immediate north of the structure is higher than to the other three sides, partly obscuring the north elevation [1/685, 1/686, 1/690]. There is a slight embankment around the

south-east corner of the structure [1/682, 1/723], at the point where the external doorway was positioned after the structure had been enlarged.

Plan Form, Structure and Architectural Detailing

- 4.4 In its original form, the structure was almost square in plan, measuring 3.08m externally along each side. However, it was subsequently extended to the east with the addition of a second, narrower cell, giving it a maximum external east-west length of c.5.20m. The structure is of a single storey, with a maximum internal floor to ceiling height of approximately 2.00m in the west cell.
- 4.5 The walls of all parts are built of roughly coursed and squared limestone rubble, laid to a watershot profile, and set with a lime mortar [1/683] (see plate 2). There are very substantial quoins to all four corners of the west cell, and the south-west corner rises from a slightly projecting footing at the very base. Both parts of the structure have separate flat reinforced concrete roofs, averaging 0.095m thick [1/689, 1/691, 1/692, 1/693]; there is a straight joint between the two [1/704] (see plate 3). The roofs project by 0.12m around all sides of the structure and there is a drip channel to the underside [1/703, 1/705] (see plate 6).

External Elevations

- 4.6 The external elevations of the newer, eastern, cell are featureless [1/694, 1/695]; the south wall has largely either collapsed or been demolished [1/698], removing all evidence for the form of the doorway here, which replaced the original entrance (see below) when the east cell was built (see plate 4).
- 4.7 The south elevation of the west cell [1/696, 1/697] has a low, drain-like opening at the base to the west of centre. This runs back from the wall face for 0.34m and then appears to turn through a right angle to the east, and was possibly once continuous with a similar feature visible internally at the base of the south wall (see below). In addition, just to the east of centre at an upper level, one course below the roof, the south elevation has another opening or vent which appears to run back 0.30m from the wall face and then turn through a right angle to the west (see plate 4). Again, this might once have been continuous with another feature visible internally (see below). The west elevation of the west cell [1/684] has a small hole to the centre, apparently cut through later from the interior. The north elevation contains a much larger hole, the result of either collapse or deliberate demolition, and is partly obscured by the higher ground surface here [1/687, 1/688].
- 4.8 As has already been noted, when the later east cell was built, access into the structure was through a doorway formerly located at the west end of the south elevation, now completely removed; a fillet of mortar left at what was once the south end of the west cell's east elevation appears to be the only surviving evidence for the former presence of the door frame [1/700] (see plate 5). The doorway in the west wall, once the original entrance to the west cell [1/701], has quined jambs, and a lintel formed from three pieces of softwood. The easternmost (outer) timber retains traces of a reddish stain or paint, and some faint scratched marks, which may be remnants of Baltic timber marks; there are four nails to the east side, all bent upwards to form crude hooks or pegs [1/702]. There is a small hole, caused by collapse, under the lintel close to the east end of the north side of the opening. The west side of the westernmost timber also has some nails projecting from it, and a small, square hole cut into it just off-centre. The north jamb of the doorway once had a timber batten set across the full width at a

lower level, but this has been removed. However, an upper batten survives, and this carries round to the east internal wall [1/717].

Circulation

- 4.9 There were formerly one or two stone steps leading down to the interior floor of the west cell [1/718, 1/719], which was floored with dirt at the time of the survey; there was a small amount of sheep dung and domestic rubbish.
- 4.10 The south internal wall of the west cell has a pair of timber battens, averaging 0.70m long, set at either end, at 0.78m-0.84m and 1.40m-1.46m above ground level respectively [1/711, 1/712, 1/714]. All once had nails projecting from them, but these have all since been hammered flat. There is a drain-like opening at the bottom of the east end of the wall, which appears to run back 0.36m from the face and then turns through a right-angle to the west; it may once have been continuous with a similar opening to the base of the south elevation, described above. At an upper level, just below the roof, towards the west end, another larger opening or vent appears to have been cut into the wall face [1/713]. At its southern end, it widens and although now choked with rubble, it might once have been continuous with the smaller opening visible to the south elevation, described above.
- 4.11 The east wall [1/710] contains no features not already described, while the west wall [1/706] has a single timber batten towards the centre, set at approximately the same height as the higher battens to the south wall [1/707] (see plate 7); one of the nails projecting from the batten has a piece of roofing slate pushed beneath it. Below the batten, a recess or void has been crudely cut through the wall thickness to the exterior. The north wall has the same pattern of battens as on the south wall [1/708, 1/709]. There is a large area of either collapse, or a crudely cut opening, to the eastern half of the wall. At the west end, at the base, there is a drain-like opening which appears to run back 0.33m from the wall face before turning through a right-angle to the east, as the similar features do to the south wall. It appears that all four internal walls of the west cell were once rendered or white-washed, and it is noticeable that there is a change in this coating to all four walls at c.0.75m above floor level [1/716] i.e. the same height as the lower battens to the north and south walls.
- 4.12 The ceiling over the west cell [1/720] is largely featureless, apart from a very slightly recessed band, running north-south, to the west of centre; this might be evidence of former shuttering into which the concrete had been poured. There is a small circular area of iron-staining to the centre of this band, but no clear evidence for the former presence of wiring or other electrical fittings.
- 4.13 The internal walls of the later east cell are featureless [1/699], as is the ceiling, although the latter might also contain evidence for former shuttering [1/721].

5 DISCUSSION

- 5.1 In its original form, the structure was of a single storey, and square in plan. It had relatively thick walls, with the only major opening apparently being the doorway in the east wall. The low level, drain-like openings to the north and south walls also appear to be original, as do the timber battens set into the internal walls. Without further documentary research, it is difficult to date the original structure precisely, but cartographic evidence suggests it was built between 1851 and 1907.

- 5.2 It may once also have formed an explosives store as suggested, as it shares some of the general characteristics with powder houses or magazines recorded at quarries and mines elsewhere in the Yorkshire Dales (for example, isolated location, thick walls, battens set into the walls to secure panelling or to hang explosives from, lack of metal components to prevent sparks). However, it also differs in several respects, principally lacking the separate entrance chamber arrangement often seen at powder houses, although it is possible that this was demolished when the east cell was built.
- 5.3 It is also difficult to reconcile the form of the roof with either powder house use or indeed a date prior to the First World War, when the quarry ceased working. It therefore seems highly likely that the structure was modified after quarrying had stopped, perhaps during the 1930s or 1940s. The possible form of the openings to the upper part of the south wall of the west cell (off-set to avoid noise and light leakage) resemble a crude version of the vents seen in some Second World War buildings (for example, see Dennison & Richardson 2012). It is therefore suggested that the structure may have been put to some kind of military use during the Second World War, with the east cell and flat concrete roof being added at this time, but the exact use is uncertain.

6 BIBLIOGRAPHY

Primary Sources

- 1851 Ordnance Survey 6" to 1 mile map sheet 96 (surveyed 1846-48)
- 1910 Ordnance Survey 6" to 1 mile map sheet 96SW (surveyed 1846-48, revised 1907)

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Curl, J 1977 *English Architecture: An Illustrated Glossary*

Dennison, E & Richardson, S 2012 *Bent Rigg Radar Station, South-East of Ravenscar, Stainton Dale, North Yorkshire: Archaeological Survey* (unpublished EDAS archive report 2011/410.R01 for Mr P Cother)

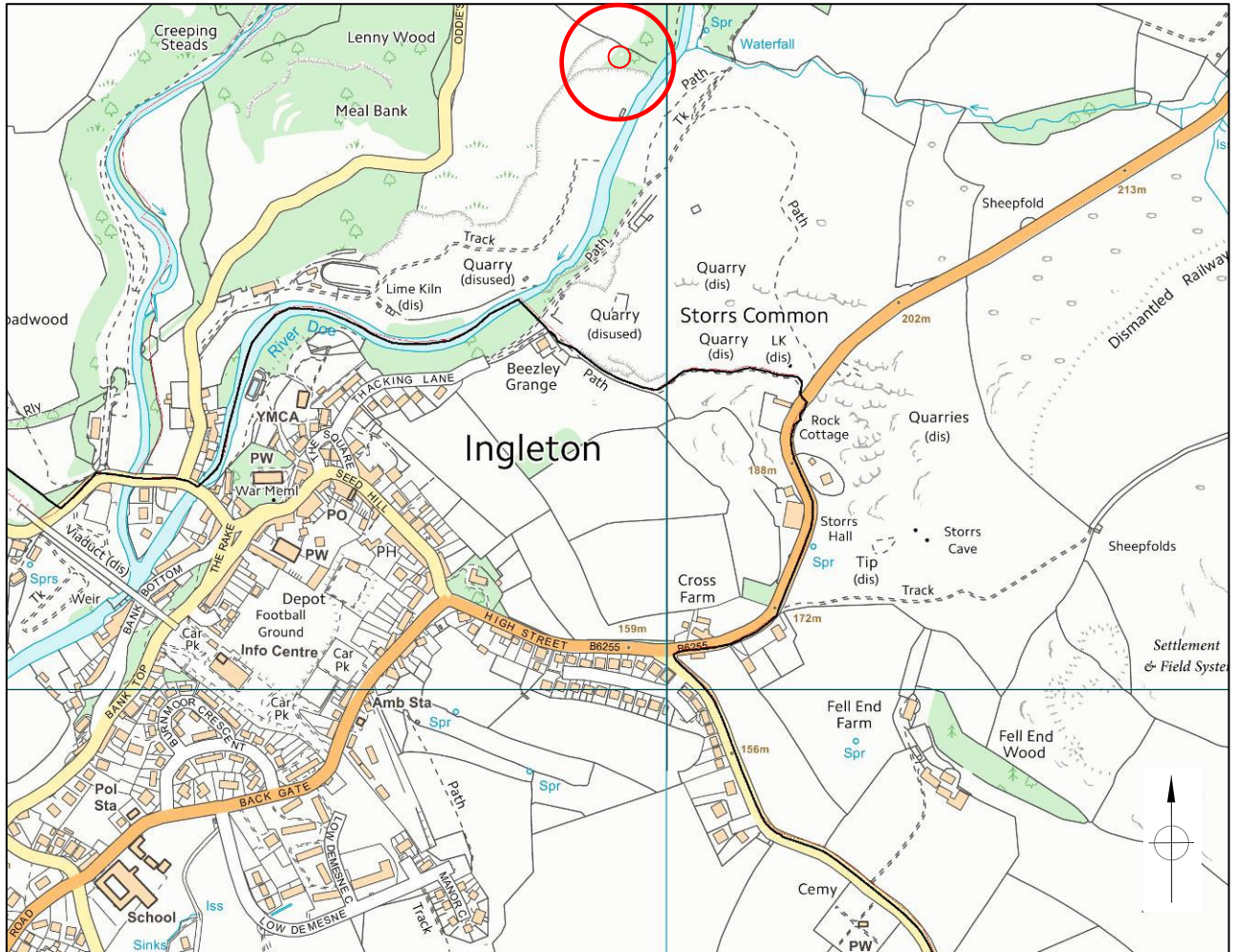
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Trueman, M R G & Krupa, M 1993 *Meal Bank Quarry and Hoffman Kiln, Ingleton, North Yorkshire* (unpublished Lancaster University Archaeological Unit report held by YDNPA)

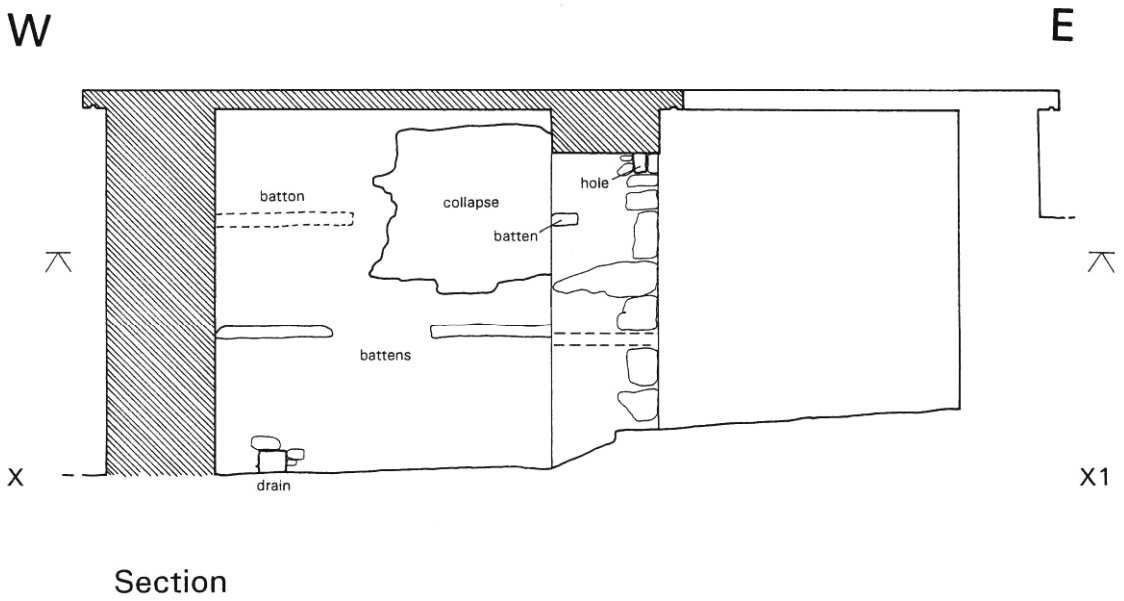
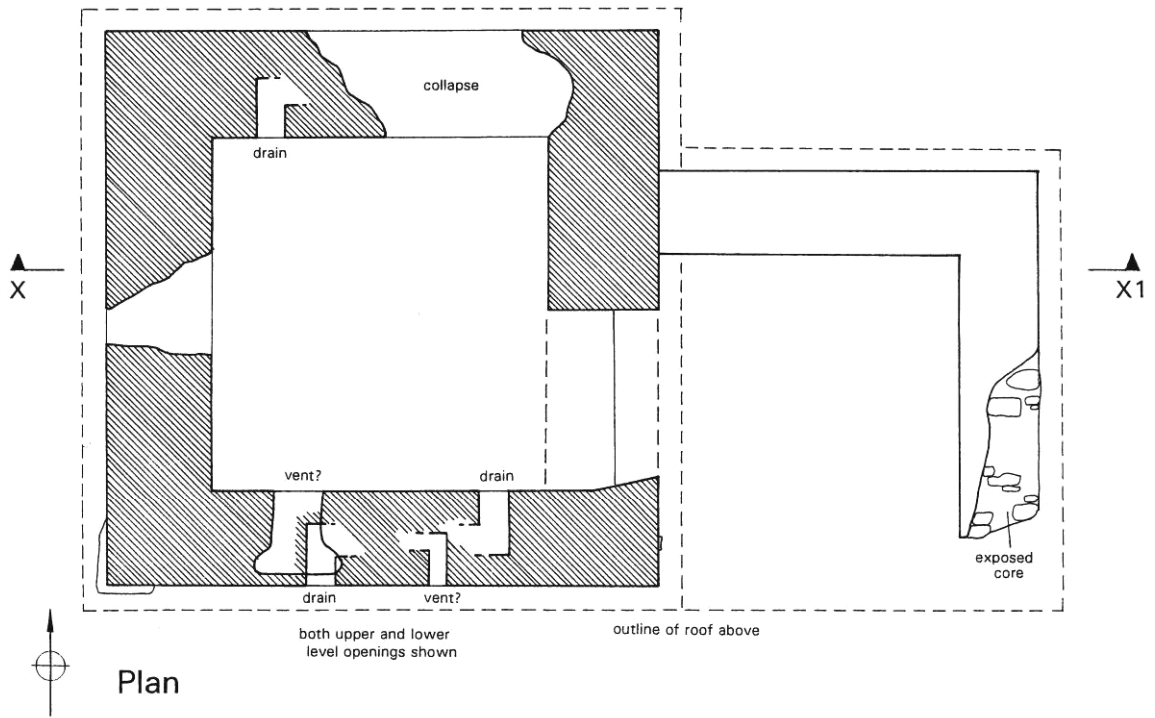
7 ACKNOWLEDGEMENTS

- 7.1 The archaeological survey was requested by Mr Robert White, Senior Conservation Archaeologist of the Yorkshire Dales National Park Authority (YDNPA), and EDAS would like to thank him for arranging access to the site. The work was funded by EDAS. The on-site survey was undertaken by Shaun Richardson, who also produced the fieldwork records. Ed Dennison produced the final report, and the responsibility for any errors or inconsistencies remains with him.



Ordnance Survey map base provided by YDNPA.

PROJECT		EXPLOSIVES STORE, INGLETON	
TITLE		GENERAL LOCATION	
SCALE	NTS	DATE	AUG 2013
EDAS		FIGURE	1



 ORIGINAL STRUCTURE

PROJECT	
EXPLOSIVES STORE, INGLETON	
TITLE	
PLAN AND SECTION	
SCALE	DATE
AS SHOWN	AUG 2013
EDAS	FIGURE
	2



Plate 1: General view of structure within quarry setting, looking NE (photo 1/724).



Plate 2: General view of structure, looking NE (photo 1/683).



Plate 3: View of roof structure, looking SW (photo 1/691).



Plate 4: South elevation, looking NW (photo 1/698).



Plate 5: Internal west wall of east cell, looking NW (photo 1/700).



Plate 6: Roof drip line, east cell roof, looking N (photo 1/704).



Plate 7: Internal west wall of west cell, showing battens, looking W (photo 1/707).

APPENDIX 1

PHOTOGRAPHIC CATALOGUE: EXPLOSIVES STORE, MEAL BANK QUARRY, INGLETON

Film 1: Colour digital photographs taken 4th June 2013

<i>Film</i>	<i>Frame</i>	<i>Subject</i>	<i>Scale</i>
1	682	General view, looking NE	1m
1	683	General view, looking NE	1m
1	684	W elevation, looking E	1m
1	685	General view, looking E	1m
1	686	N elevation, looking SE	1m
1	687	N elevation, looking S	1m
1	688	N elevation, looking S	1m
1	689	Roof view, looking SW	1m
1	690	General view, looking SW	1m
1	691	Roof view, looking SW	1m
1	692	Roof view, looking W	1m
1	693	Roof view, looking E	1m
1	694	E elevation, looking W	1m
1	695	E elevation, looking W	1m
1	696	S elevation, looking NE	1m
1	697	S elevation, looking N	1m
1	698	S elevation, looking NW	1m
1	699	E cell, internal N wall, looking N	1m
1	700	E cell, internal W wall, looking NW	1m
1	701	E cell, internal W wall, looking NW	1m
1	702	W cell, doorway, looking W	1m
1	703	Drip lines and joint of roofs, internal view, looking W	-
1	704	Roof drip line, E cell roof, looking N	-
1	705	Roof drip line, E cell roof, looking N	-
1	706	W cell, W internal wall, looking W	1m
1	707	W cell, W internal wall, looking W	1m
1	708	W cell, N internal wall, looking NW	1m
1	709	W cell, N internal wall, looking NE	1m
1	710	W cell, E internal wall, looking NE	1m
1	711	W cell, S internal wall, looking SW	1m
1	712	W cell, S internal wall, looking SE	1m
1	713	W cell, S internal wall, looking S	1m
1	714	W cell, S internal wall, looking SE	1m
1	715	W cell, W internal wall, looking W	1m
1	716	W cell, N internal wall, looking NW	1m
1	717	W cell, E internal wall, looking NE	1m
1	718	W cell, step to doorway in E wall, looking E	1m
1	719	W cell, step to doorway in E wall, looking E	1m
1	720	W cell, underside of roof, looking W	-
1	721	E cell, underside of roof, looking E	-
1	723	General view, looking NE	1m
1	724	General view in quarry setting, looking NE	-
1	725	General view in quarry setting, looking NE	-
1	726	General view in quarry setting, looking NE	-



1-682.JPG



1-683.JPG



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