

*The Siabod Hone*  
*Quarry, Dolwyddelan.*



*W.T and A.M. Jones.*

*October 2014*

## TABLE OF CONTENTS

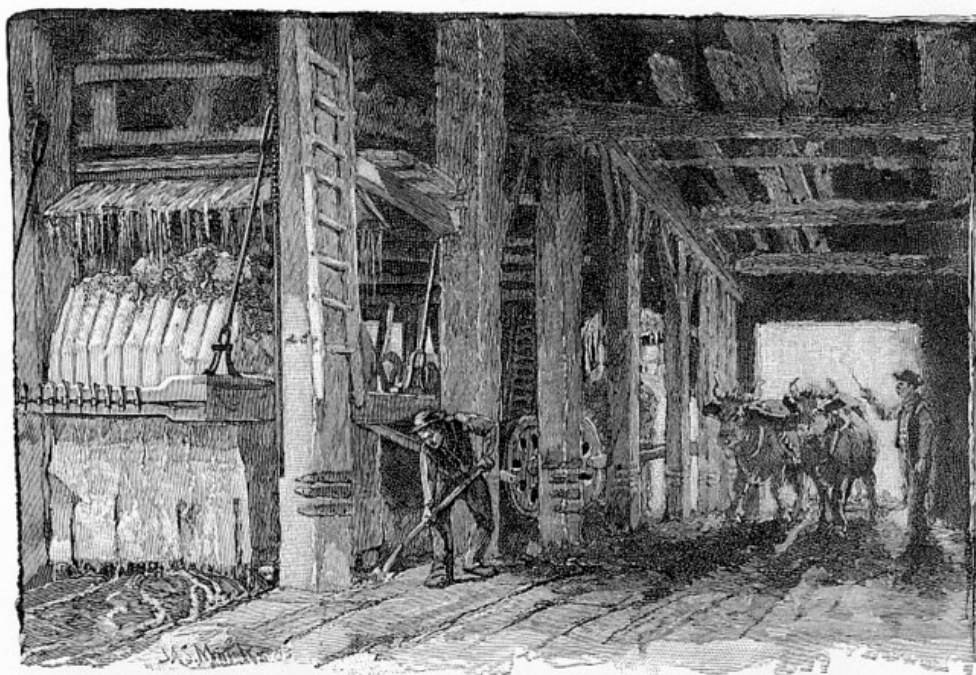
1. Introduction.
2. Summary.
3. Acknowledgements.
4. List of photographs.
5. Location maps.
6. Survey.
7. Excavation report.
8. Conclusion.
9. Drawings
10. Photographs.

### 1. INTRODUCTION

The quarry is on Penrhiw land while the mill stands on Bwlch Cynnud land. Situated 275m above sea level, on the southern slopes of Moel Siabod. The grid ref: of the quarry is (SH72255405) and the grid ref; of the mill is (SH 72455425). The Bwlch Cynnud land was planted with conifer trees in the early 1950's by the Forestry Commission. The planting of the trees has been considered to endanger the archaeology of the mill and tramway, this was true regarding the tramway, but the blanket of trees in my opinion sheltered the mill from further damage by the weather. The felling and extraction had been sympathetically carried out around the mill area, with no damage done to the structure, but now it is once again open to the elements, and this was the main reason for acquiring permission to interpret and record the site.

There were three large broad-leafed trees growing inside the mill and because of the damage caused by the roots, and the potential damage of having them felled, it was decided to work around them.

The exercise proved well worth while, in that the only known existing reciprocating sand saw was found still *in situ*. These sand saws were found in most slate quarries from very early on, and the history of stone cutting, probably going back 4500 years. Reciprocating sand saw kerf marks have been found at the pyramids in Cairo.



IN THE SAWING MILL.

This Italian advertising trade card (circa 1900) illustrates the gang saw technology well. The basic swing arm design has not changed since it was first used in the early 1800's. The sand for the saw and polishing machine was delivered by boat to Trefriw, then up to Capel Curig to the Rhos Quarry and then along a track to Siabod hone quarry (**Map 3**). This track in itself is interesting, because it was there before the hone quarry started. The best sand was flint sand which is extremely hard due to a high percentage of quartz in it.

## 2. SUMMARY.

The structural remains of the Siabod Hone Quarry consist of a mill, water-wheel pit and some annex buildings built at a later date and attached to the main mill. This report gives a brief chronological history of the Siabod Hone Quarry. An archaeological survey of what remains there and it also contains detailed drawings and photographs.

## 3. ACKNOWLEDGEMENTS.

I would like to thank Martin Gould (National Resources Wales) for inviting me to participate in the recording and interpreting this unique site, unique, in that it housed the last known slate reciprocating sand saw in existence. My sincere thanks also to the volunteers who worked in hard, sometimes hostile situations (midges), and without any remuneration.

The team were.

Bill Jones.	Site supervisor.	415hrs.
Mary Jones.	Site recorder.	284hrs.
Buddug Pauline.		186hrs.
Avis Reynolds.		156hrs.
John Jones.		150hrs.
Rhys Mwyn.		54hrs.
Andrew Noble.		25hrs.
Robin Cox.		21hrs.
Delwyn Williams.		17hrs.
Jean Cox.		14hrs.

Total man/hours = **1322hrs.** at £6.31 per hr = £8341.82

Thanks to Dr I. P. Brooks, Engineering Archaeology Services Ltd, Blaenau Ffestiniog. for his help and advice . Also Hefin Williams, Blaenau Ffestiniog. Steffan ab Owain, Blaenau Ffestiniog. Peredur Hughes National Slate Museum, Llanberis. John Lloyd, Roger Davis, and Gwyn Hughes, Inigo Jones & Co Ltd, Slate works, Groeslon. Dr M J T Lewis, Hull. Dr Dafydd Gwynn, Penygroes. Elfed P Williams, Blaenau Ffestiniog. Mel Thomas, Blaenau Ffestiniog.

## 4. LIST OF PHOTOGRAPHS.

- Fig 1.* The mill looking south after the tree felling operations.
- Fig 2.* Looking towards the north, after felling the timber.
- Fig 3.* West gable end, with smithy come barracks in the foreground.
- Fig 4.* South facing elevation of the mill.
- Fig 5.* Location of the second water wheel pit.
- Fig 6.* Fireplace of the smithy come barracks.
- Fig 7.* Looking towards the west where the quarry is located on private land.
- Fig 8.* Looking along the railway track towards the west.
- Fig 9.* Excavating outside south mill wall.
- Fig 10.* Excavating the reciprocating sand saw (Hwrdd).
- Fig 11.* Excavating the internal water wheel. (The first water wheel pit)
- Fig 12.* Reciprocating sand saw in the background with machine mounting in

the foreground.

*Fig 13.* Reciprocating sand saw.

*Fig 14.* The circular metal rim, which remains a mystery.

*Fig 15.* Excavating the internal water wheel.

*Fig 16.* Excavated area covered up.

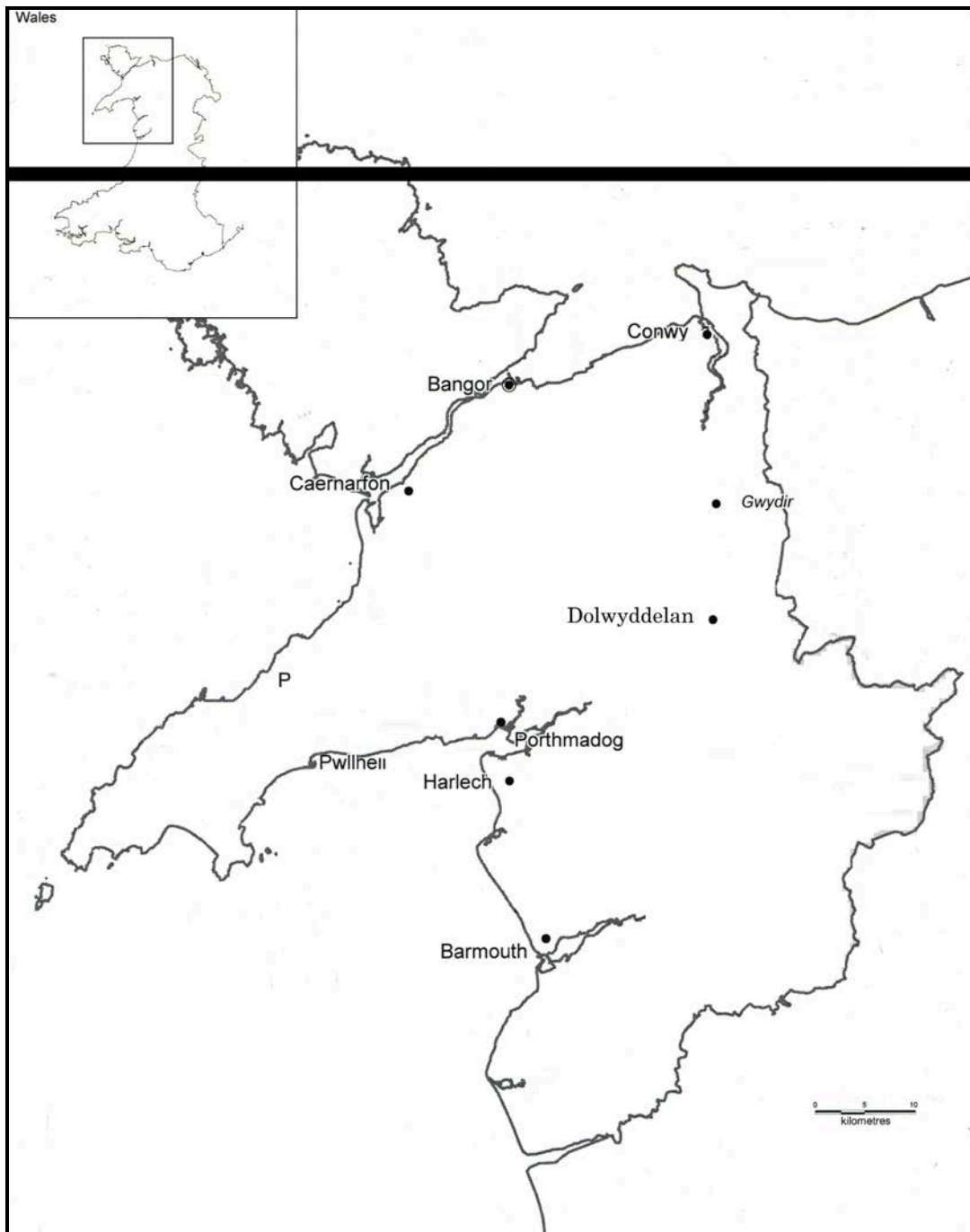
*Fig 17.* Wooden base for the reciprocating sand saw.

*Fig 18.* Sacrificial stone, to protect the wooden base.

*Fig 19.* Removing part of the clapper bridge from the river.

*Fig 20.* Sanding machine, at Inigo Jones, slateworks.

## 5. LOCATION MAPS.

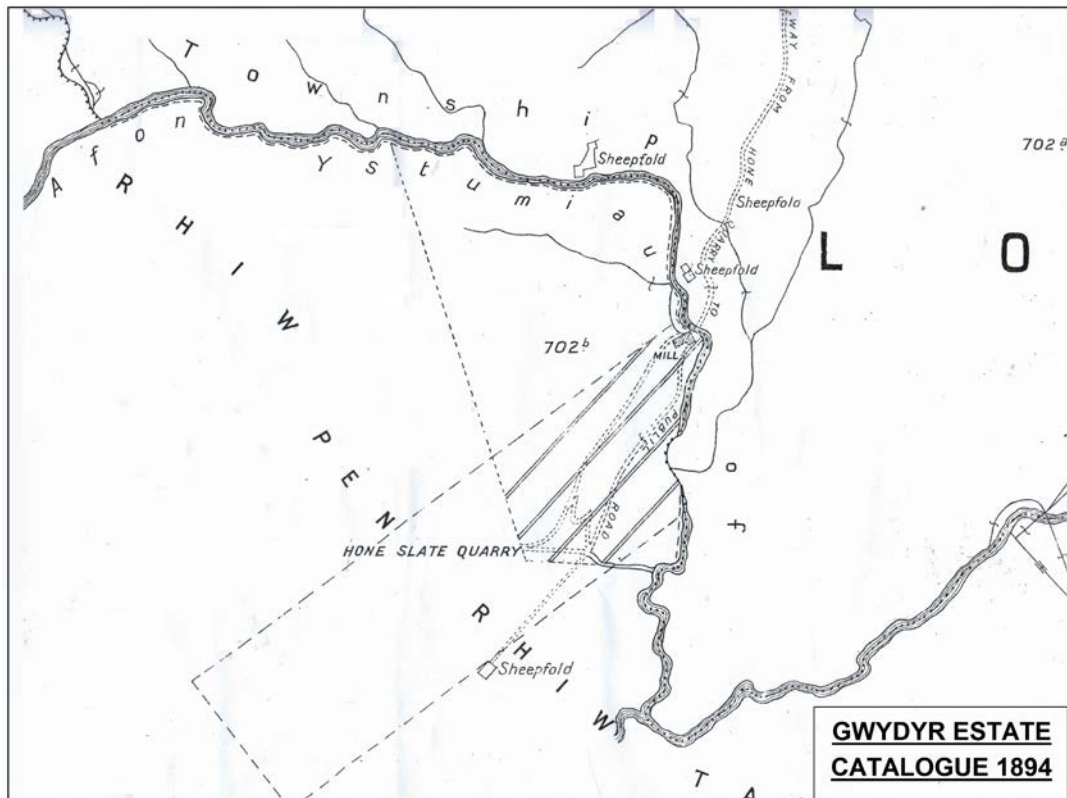


*Map 1.*





Map 2.



Map 3.

## 6. SURVEY.

The quarry was variously known as;  
CHWAREL HONES.  
HONE QUARRY  
THE HONE  
MOEL SIABOTT QUARRY.  
AFON Y FOEL QUARRY.  
LLWYN GRAIENIG HONE QUARRY.  
PENRHIW QUARRY.

The Siabod Hone Quarry opened in 1845, by a Mr Pike, who in May of that year started a new opening for hone stones. In December of that year he built an engine house (Mill), and the year after the reciprocating sand saw was installed and the first engine was erected, this was a three meter diameter internal waterwheel. Towards the end of 1846 the sawing and polishing of hone stones had started, with an average of five men employed.

The writing was on the wall for the quarry with the mass-production of Silicon carbide powder, also known as carborundum, in 1893 for use as an abrasive.

The quarry carried on sporadically until 1918 when it was abandoned.

### **The reciprocating sand saw (*Hwrdd*)**

There are no slate quarries that have a fireplace in the mill, which I know of. The conditions at Siabod hone quarry was such that a fireplace would have been essential. (**DRG. No. 2.**)

The location of the mill and the height above sea level made it a very bleak and cold place to work in, as well as the internal waterwheel, the reciprocating sand saw, and the polisher, all powered by water, this meant that a fire, especially in winter was a necessity.

The *Natural History* (Latin: *Naturalis Historia*) is an early encyclopaedia published circa AD 77–79 by Pliny the Elder, in it he gives a portrayal of a reciprocating sand saw mill. In it he states;

*‘The sawing-mill is not a cheerful place. Dampness pervades it, and under the low roof stretch the long, dim vistas, ending in gloom, between the gangs of incessantly swinging saws. The polished, shining engine is shut apart from it, and all is dull and sombre, unrelieved by any touch of colour except as a bar of sunshine slants athwart it from the wide doors, gilding a grimy post or beam, or corner of a dripping, besmirched block of marble, or paving a bit of the earthen floor with gold, or as the red shirt of a workman flashes into the light. The machinery growls and hisses as it gnaws the stone like some monstrous beast in its den over its prey, and hardly another sound is heard apart from the swish of the saws’*

Pliny’s observation of a sand saw mill, gives a good idea of conditions that would have prevailed at the Siabod hone quarry.

The reciprocating sand saw is not in fact a saw. All it is, is a metal blade held under tension with no saw teeth, and the sand and water that is fed onto the kerf, it is the sand that cuts, or erodes the stone away.

### **Slates.**

On surveying the collapsed roof in the mill, it was deduced that the slates were of random widths - lengths diminishing in size closer to the ridge. There is evidence that this was a transition period in the evolution of slates, as some of these slates were of the moss slate variety, held in place by one wooden peg, while the others were of similar shape to the moss slate but held in place by an iron nail with lime torching under the slate instead of moss. (**DRG. No. 1.**) The pegged slates were thicker than the nailed ones. The roof was topped with



Buckley ceramic ridge tiles. All the slates were from local quarries, but none were used from the Siabod quarry itself. Though there was evidence that slates were being produced at the mill, no signs were found of a dressing machine, they were most probably made by a *cyllell bach*, *trafal* a *pric mesur*, hand trimming tool, iron edge and a measuring stick. See photograph below.



The quarry was on the Gwydir estate until the big sale at the turn of the 20<sup>th</sup> century

#### Grimsthorpe Castle: Gwydir Cash Books 1817-67

##### Penrhiw

1852 Jan	Joseph Pike Hone Quarry on account rent	22.11.10
	do balance of rent to Nov 1851	27. 8. 2
1853 Jan	Joseph Pike wharfage on 25 tons of sand to 30 Nov 1848	4. 2
1852	Pike & Fourdrinier Hone Quarry 1 yr to 30 Nov	10. 0. 0
1858 Apl – 1867 J.C.Fourdrinier (P. and J.C.F. from ½ yr to Nov 1859)	rent	10. 0. 0

Gwydir Mines and Quarries Monthly Returns 1838-1978, Grimsthorpe Castle (except 1867-79, CRO XC38/357)

Hone Quarry or simply The Hone (hones always mentioned; named as Afon y Foel May-Jun 1845, Moel Shabott Jul-Aug 1845, Llwyn Graienig Sep 1845 - 1853, Penrhiw 1858 - end). No make ever given.

SPH = Sawing and polishing hones.

1845	Mr Pike	May-Dec only May, new opening for hones Nov, building engine house Dec, building sheds	2-6	4
1846	do	Mar, erecting engine Apl, erecting machinery May, erecting a machine Sep-Dec, SPH	2-6	5
1847	do	Jan-Mar, Jun-Dec only Jan-Mar, Jun-Nov, SPH	0-12	7
1848	do	Jan, Apl-Jun, Sep-Dec, SPH	5-6	6
1849	do	Jan-Apl, Aug-Dec only Feb-Apl, Aug-Nov, SPH	0-3	1
1850	do	Jan, Apl-Jun only Apl-Jun, SPH	0-3	1
1851	do	Dec only	0-6	0
1852	do	Jan-Nov only, SPH	0-17	11
1853	do	Feb only, SPH	0-2	1
1854-7	not mentioned			
1858	John Cole Fourdrinier	Oct-Dec only	0-7	7
1859	do	Jan-Sep, Nov-Dec only Jan, landslip shut the quarry May, repairing the Bankment of the lake Dec, working occasionally	0-7	5
1860	do	Jan-Nov only Jan, working occasionally May, opening for new deep Nov, very little demand on hones	0-8	5
1861	do	Jan-Mar, May-Jun, Nov-Dec only	0-7	2
1862		Sep, repairing the machinery Dec, opening for another depth	3-6	3
1863	do	Jan-Apl, Jul, opening for another depth	3	3
1864	do	Feb- J.C. & P.Fourdrinier	3	3
1865	J.C. & P.Fourdrinier		3-4	3
1866	do		3-6	4
1867	Thewith Llewelyn & Co	Jan, working occasionally	2-4	3
1868	do	Jan-Jun, Nov only Jul, standing, no water to work the machinery	0-5	2
1869	do	Apl- W.Swansborough standing all year, and to May 1875, thereafter not listed	0	0

### List of Mines

		no. employed
1897	Moel Siabod Hone Qy Ltd, O.J.Owen agent	2
1901	do	2
1902	do	2
1903-7	suspended	
1908	exors A.B.Salm	4

1909	do	4
1910	A.B.Salmen Ltd, Ebenezer Griffith agent	2
1911	do	5
1912	do	3
1913-19	not seen (never published?)	
1920-	suspended	

### **Grimsthorpe Castle: Gwydir Rentals 1817-69**

#### **Llwyngraenig/ Hone Quarry**

1845	Mr Pike	£10, new
1846-51	do	£10, none paid
1852	do	£10, £37.8.2 paid, £10 bad debt
1853	do	£10 + £10 arrears
1854	not worked	
1855-8	not mentioned	
1859	J.C. & P.Fourdrinier	£10 + £10 arrears
1860-5	do	£10, paid
1867	Fourdrinier ½ yr to Nov included in Pontcyfyng	
1868	missing	
1869	W.Swansborough	£10

### **Trefriw Wharf Daybooks 1853-63 (UCNW Bangor 7058), 1863-77 (Grimsthorpe Castle)**

#### **Sand imported**

John Cole Fourdrinier, Moel Shabot	1858	9 tons,	hone quarry only?
	1859	9 tons,	do
	1860	16 tons,	do
	1862	9 tons,	do
	1863	10 tons,	about half for Foel 4 mill?
	1864	10 tons,	do
	1865	30 tons,	for Foel Cyfyng mill
	1866	10 tons	hone quarry only?
	1867	10 tons	do
Penrhiw Hone Quarry, The with Llewelyn & Co	1867	10	

Almost all sand from Conwy or Fords (Llansantffraed), little from Red Wharf

### **Grimsthorpe Castle: Sale Catalogues of Gwydir land at Dolwyddelen by W.Dew & Son, at Llanrwst 3-5 July 1894**

Pen y Rhiw hone quarry not mentioned in particulars, but marked on map as disused.

#### **National Archives, ref ??. Moel Siabod Hone Quarry Co Ltd.**

Inc. 1895, cap. £2000. Owen Jones Owen [Newborough Mills] and N.F.Robarts [Cwmorthin Quarry] sold their lease to company.

#### **National Archives, BT31/19508/110034. A.B.Salmen Ltd.**



**Inc. 7 Jun 1910, cap. £3500 in £1, office Salmen Works, Bow; 1916 Empire Works, Stratford**

To carry on business of oilstone, whetstone, grindstone and scythe stone quarriers and importers, formerly carried on by late Albert Berl Salmen as A.B.Salmen and then as A.B.Salmen's Exors, at Salmen St, Bow, then Aldgate.

Agreement 26 Jul 1910 Simon Lazarus, Forest Gate, gent – company; SL recently acquired business of late ABS; to sell goodwill and leaseholds (Aldgate warehouse, and Moel Siabod quarry under lease 29 Sep 1908 for 21 years from date, £30 pa plus royalty, of hone stone, slate etc under parts of Penrhiw and Bwlch Cynnuad) and vendor's plant, stock, rails, sleepers, machinery, castings and materials in Moel Siabod quarry.

1910 shareholders Lazarus and **Alexander Bernstein**, Ilford, estate agent and cinema manager.

EGM 4 Dec 1922 resolved to go into voluntary liquidation; new company of same name to take over.

Wound up 14 Jun 1923.

**Note of interest.**

**Alexander Bernstein**

- One of the founding fathers of Independent Television.
- Sidney's roots could be traced back to a small Russian village from where the family escaped the oppressions and pogroms of the Tsars.
- Shortly after settling in Ilford, Alexander married a local girl, Jane Lazarus, and together they produced eight children.
- To support the family, Alexander had business interests which were as wide as they were diverse. His chosen profession was in the leather trade, but his diversifications included an interest in a slate quarry in Wales, and a habit of acquiring local properties at auction, not least of which was a run-down estate in Manor Park, just a short distance from his own Ilford home. For this, Alexander had paid a mere £270.00 - a gamble, as he hadn't even had the opportunity to view the properties before purchasing them, but one that was quite fortuitous as the site consisted of around 600 houses.

**CHWAREL HONS. HONES QUARRY, DOLWYDDELEN.**

1845 – C.1918<sup>1</sup>

BWLCH Y CYNNUD QUARRY HONE DOLWYDDELEN CAERNARFONSHIRE  
SH743528 References: Gwynedd Archives Service - Caernarfon Archive Office - Sale

Catalogues 596 Notes: see also (same location) CHWAREL Y BWLCH (SLATE)

DOLWYDDELEN HONE QUARRY HONE DOLWYDDELEN CAERNARFONSHIRE

References: Gwynedd Archives Service - Caernarfon Archive Office - XSC/0434 MOEL  
SIABOD QUARRY HONE DOLWYDDELEN CAERNARFONSHIRE SH722541 Persons,

companies and organisations: 1895 Allan, James Hugh, Landlord [Public Record Office - BT 31/6403/45212] 1895 Ayrton, William, Landlord [Public Record Office - BT 31/6403/45212]

1895 Blackburn, P, Landlord [Public Record Office - BT 31/6403/45212] 1895 Jones, J R,

Landlord [Public Record Office - BT 31/6403/45212] 1895 Owen, Owen Jones, Tenant

[Public Record Office - BT 31/6403/45212] 1895 Radcliffe, F M, Landlord [Public Record

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<sup>1</sup> Casglwyd gan Dr M.J.K.Lewis a Steffan ab Owain.

Office - BT 31/6403/45212] 1895 Robarts, Nathaniel Fran[cis?], Tenant [Public Record Office - BT 31/6403/45212] 1895 Robarts, Nathaniel Fran[cis?], Trustee [Public Record Office - BT 31/6403/45212] 1895 Roberts, W J, Landlord [Public Record Office - BT 31/6403/45212] 1895 Wright, C H, Landlord [Public Record Office - BT 31/6403/45212] 1895-1897 Moel Siabod Hone Quarry Ltd, Owner or Operator [Home Office List of Quarries 1895-1900] 1898 Owen, O J & Co, Owner or Operator [Home Office List of Quarries 1895-1900] 1899-1900 Moel Siabod Hone Quarry Ltd, Operator (Limited Company) [Home Office List of Quarries 1895-1900] 1901 Moel Siabod Hone Quarry Ltd, Owner or Operator [Home Office List of Mines 1901-1905] 1901 Owen, Owen J, Mine Agent [Home Office List of Mines 1901-1905] 1902 Salmen, A B, Owner or Operator [Home Office List of Mines 1901-1905] 1903-1905 Owen, Owen J, Owner or Operator [Home Office List of Mines 1901-1905] 1903-1905 Roberts, John, Owner or Operator [Home Office List of Quarries 1903-1905] 1908 Salmen, A B, Owner or Operator [Home Office List of Mines 1908-1909] 1908-1909 Griffith, Ebenezer, Mine Agent [Home Office List of Mines 1908-1909] 1909 Salmen, A B, Executors of, Owner or Operator [Home Office List of Mines 1908-1909] 1910 Salmen, A B Ltd, Operator (Limited Company) [Home Office List of Quarries 1910-1918] 1910-1918 Griffith, E, Agent [Home Office List of Quarries 1910-1918] 1911 Owen, O J, Owner or Operator [Home Office List of Quarries 1910-1918] 1912-1918 Salmen, A B Ltd, Operator (Limited Company) [Home Office List of Quarries 1910-1918] References: Gwynedd Archives Service - Caernarfon Archive Office - Gorddinog No. 141 Gwynedd Archives Service - Caernarfon Archive Office - XD38/No.287 Gwynedd Archives Service - Caernarfon Archive Office - XD38/No.91 Gwynedd Archives Service - Caernarfon Archive Office - XM/623/348 Home Office List of Mines 1901-1905 Home Office List of Mines 1908-1909 Home Office List of Quarries 1895-1900 Home Office List of Quarries 1903-1905 Home Office List of Quarries 1910-1918 Inspector of Mines Reports 1901 p.60 Ordnance Survey six-inch map of Caernarvonshire (2nd Rev.) Sheet No. XXIII NW Public Record Office - BT 31/6403/45212 (Moel Siabod Hone Quarry Ltd) The Mining Journal 1853 p.470\* The Mining Journal 1873 p.295 The Mining Journal 1884 p.231 Williams, M C & Lewis, M J T, *Gwydir Slate Quarries* p.9 Notes: also known as PENRHIW QUARRY also known as Llwyn Grainig <sup>2</sup>

DOLWYDDELEN HONE QUARRY HONE DOLWYDDELEN CAERNARFONSHIRE  
References: Gwynedd Archives Service - Caernarfon Archive Office - XSC/0434

Compiled by Jeremy Wilkinson.

Newspaper cutting.

Baner ac Amserau Cymru (Denbigh, Wales), Saturday, December 21, 1895;

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<sup>2</sup> The Mines and Quarries of North Wales data, downloaded files and search results done by Jeremy Wilkinson 2004.



## ***Llanrwst a'r cylchoedd.***

**Workings.** There is more work starting out in the area than usual. Mr Owen J. Owen, *Llythyrdy, Rhiw Blaenau Ffestiniog*. Has reopened the Siabod Hone Quarry. I think there was a Mr Dafydd Dafis there as a supervisor years ago, he had many connections with quarries in the area. When he departed all the machinery had to be left *in situ* as this was part of the Gwydyr lease agreement, making it easier to restart a quarry. After the closure of the quarry there were many finished hone stones left behind, and a man known as *Sion Cŵn* used to call at the quarry to collect the hones and carry them on his back to be sold. He reckoned he could get between 3p and 6p each for them. Mr Owen recently received a letter from Madrid showing interest in purchasing hundreds of tones of these hones.

## **7. EXCAVATION REPORT.**

In March 2013, a pathway had to be cleared to the site of the Siabod mill, because of thick undergrowth, also trees inside the mill had to be cut back, before any excavations could be started.

Excavation work was started on the fireplace in the western gable end of the mill, where about a 100 hone stones were found in a pile. This fireplace proved to be an enigma, in that it was an original fireplace, then converted into a doorway, (**DRG. No. 5.**) and then back again to a fireplace. (**DRG. No. 2.**)

An excavation, near the centre of the mill was started to find the sand saw. A connecting arm (**DRG. No. 26.**) was found to the south of the sand saw, while another two were found to the north, one *in situ* (**Fig: 13.**) These would have conveyed the swinging motion to the sand saw cradle. The wooden base of the sand saw was revealed, showing a row of wooden sleepers (**Fig: 17.**) and traces of a sacrificial stone to protect the wood. (**Fig: 18.**) Above the wooden sleepers a cradle holding 15 saws was discovered. (**Fig: 10.**) (**DRG. No. 30.**) A *sondage* was excavated on the North West side of the sand saw; this revealed about 0.6m of solid compacted sand. This sand is thought to be a mixture of the abrasive sand used, metal from the saws, and dust from the hone stones.

Towards the eastern gable end of the mill, an excavation was carried out, where some ironwork was protruding out of the rubble. This area also contained sand about 0.3m. It also included a 2 m diameter iron band with opposed adjuster. This enclosed two metal supports and a third centrally placed support with the shell of a bearing. It is possible that the circular metal band held a metal platform which could be rotated whilst the central bearing actually held whatever tool was in use. (**Fig: 14.**) Further investigation has revealed that these were part of a sand polishing table. (**DRG. No: 27.**) (**Fig: 20.**) But underneath the ironwork and large slabs of slate, voids started to appear. Further investigation revealed a water wheel pit, (**Fig: 15.**) which was probably the first motive power for the mill. A waterwheel probably measuring 3m in diameter by about 1m wide would have been housed there.

While excavating the outside waterwheel pit, sawn ends from a sand saw were found in the build. This waterwheel pit was approximately twice the diameter of the internal one.

Excavations were started at the main entrance to the mill to establish the floor. Near the doorway a collapsed slate roof was found on top of the sand. A flat bottomed 2 foot gauge railway with wooden sleepers was found entering the mill through the main doorway, heading in a north westerly direction. A covered water drain was found under the threshold of the doorway, draining the mill. The mill floor was covered by about 0.6m of sand. Most probably the polisher also used sand to polish the final hone stone.

The annex to the north west of the mill housed a base for a fly wheel, but due to the instability of the west gable end it was decided not to excavate any more of the area.

Excavating of the north east annex was started, and sand saw blades were found with unfinished hone stones, also the bearings for a drive shaft to power the sand saw.

Excavations on the North West corner of the smithy/ barracks, revealed a stack of slates of different sizes, with no nail holes in them. The fireplace was excavated in the smithy/barracks, and an ash pit was found containing fragments of coal, charcoal and peat ash. A retired blacksmith came on site confirming the interpretation of this building as a smithy.

A metal detector was used to find the tramway from the quarry to the mill, (**Fig: 08.**) the rail had been removed but the metal sleepers remained *in situ*. (**DRG. No. 10.**) A wagon wheel was found outside, on the south side of the mill (**DRG. No. 13.**) and this would have run on the flat bottomed rail found inside the mill (**DRG. No. 14.**)

On the east side of the mill in the river one section of the clapper bridge was found, the other part was about 20m lower down on the east side of the river. A Tirfor winch was hired to remove the stone slab from the river. (**Fig: 19.**)

## 8. CONCLUSION.

After 44 days excavating the exercise was well worth while. In that the only existing reciprocating sand saw was discovered *in situ* (**DRG. No. 17.**) Could this reciprocating sand saw be the last one, in a line extending back 4500 years?

Sand was also used in polishing the hone stones; this was vindicated by finding the remains of a sand polishing machine, probably built during the upgrading of the mill by Owen J Owens c1895, as it was powered by the outside water wheel, which was a bigger waterwheel (**Fig. 5.**) replacing the smaller internal one (**Fig. 15.**) which was built in 1846 by a Mr Pike. The water came from the *Afon Stimiau* along a water channel into a wooden launder; this was the head race to the water wheel. The outside water wheel tailrace was built to join the original tailrace from the internal water wheel, and eventually returned to the *Afon Stimiau*. The mill was built by hauling stones along a track that came from the early workings at the quarry, about 10m above the existing rail track, and then they were toppled over the side down to the mill floor. The railway was a (1 ft 11  $\frac{5}{8}$  in) gauge, with pressed steel sleepers (**DRG. No. 10.**) Although wooden sleepers were used inside the mill. The produce was carried along a right of way to Capel Curig (**Map 3.**) a clapper bridge was found collapsed into the river to the west of the mill.

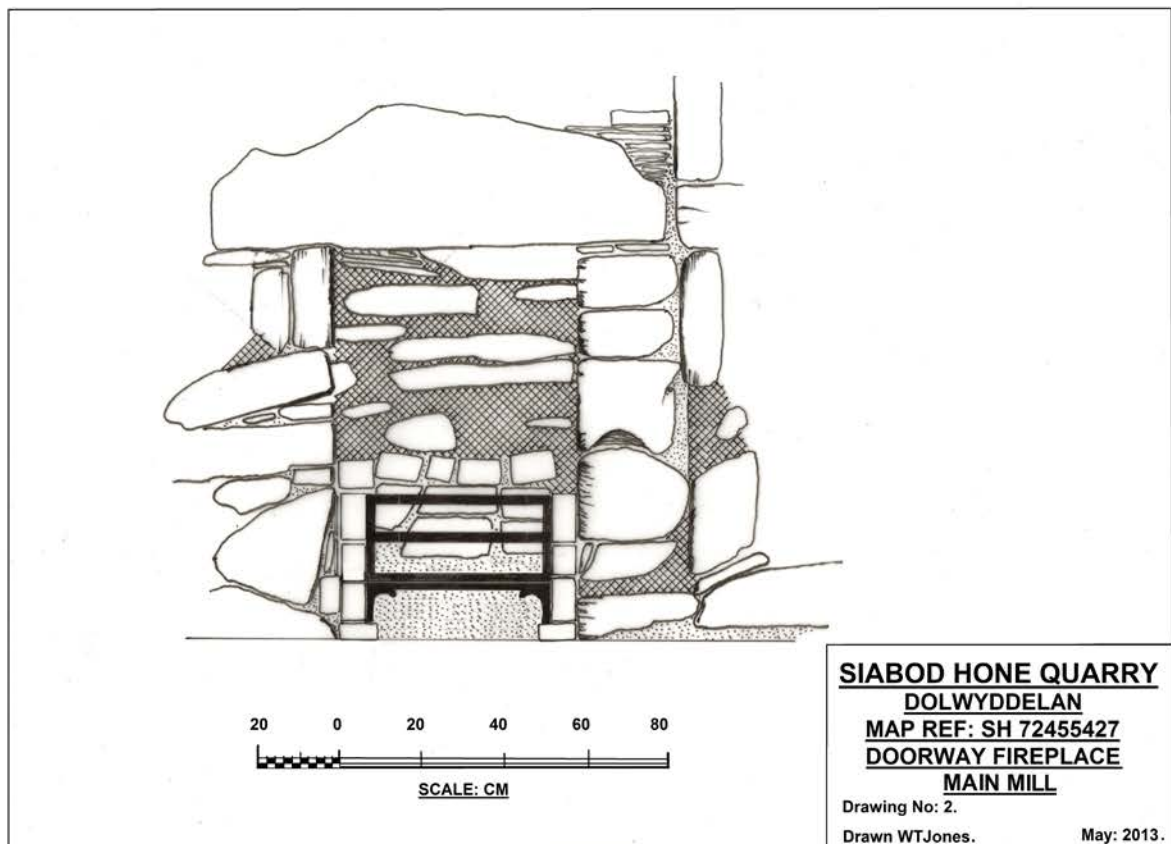
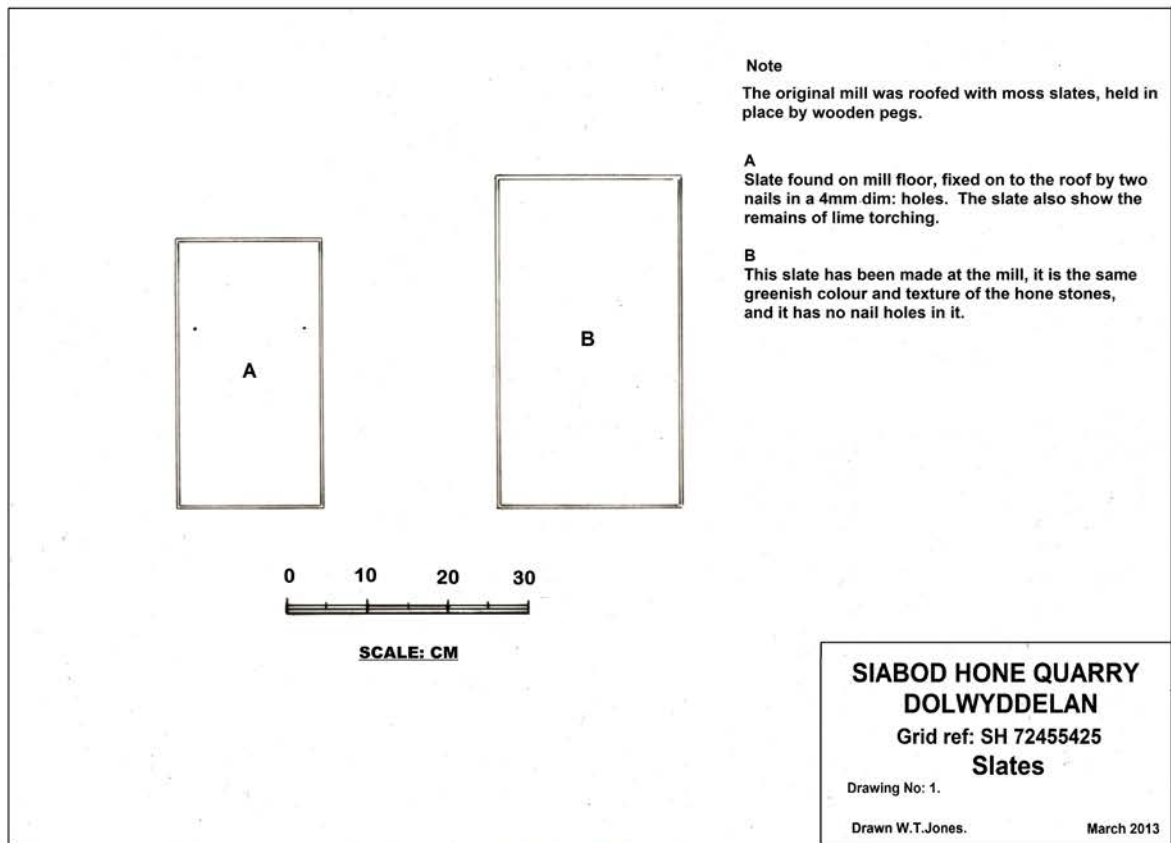
### Cautionary note.

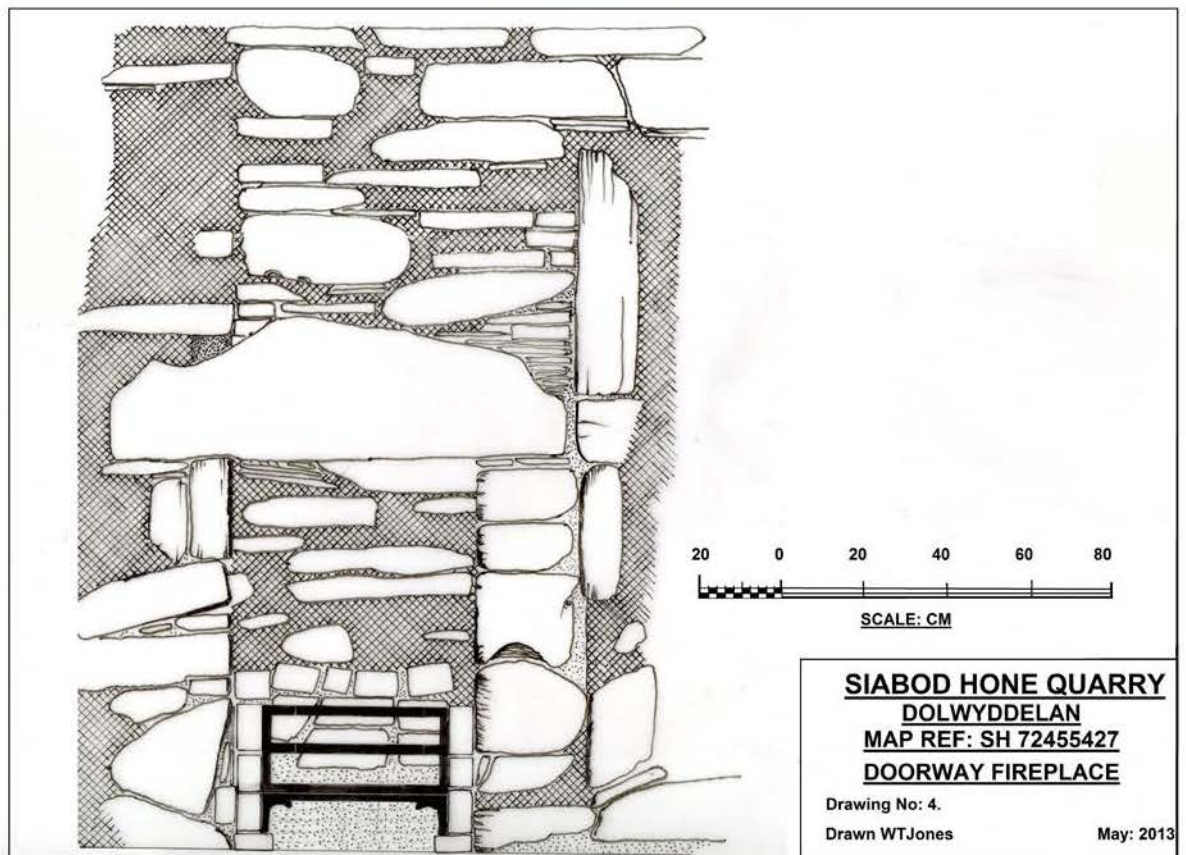
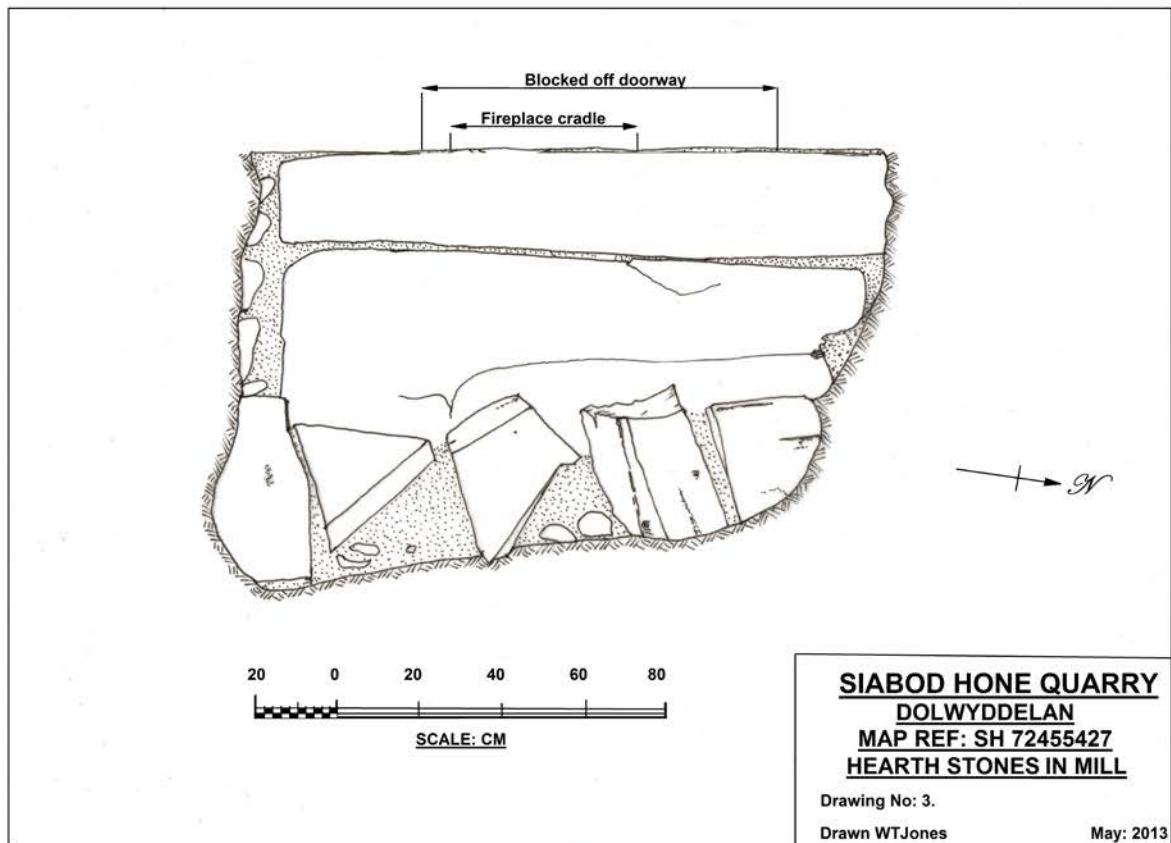
**The two gable ends are unstable, especially the west end one. The gable ends could be reduced to a safe height and then capped with lime mortar. Also the pegs holding the lintel above the smithy/barrack door are in a very poor state due to rust. They could be replaced with new ones.**

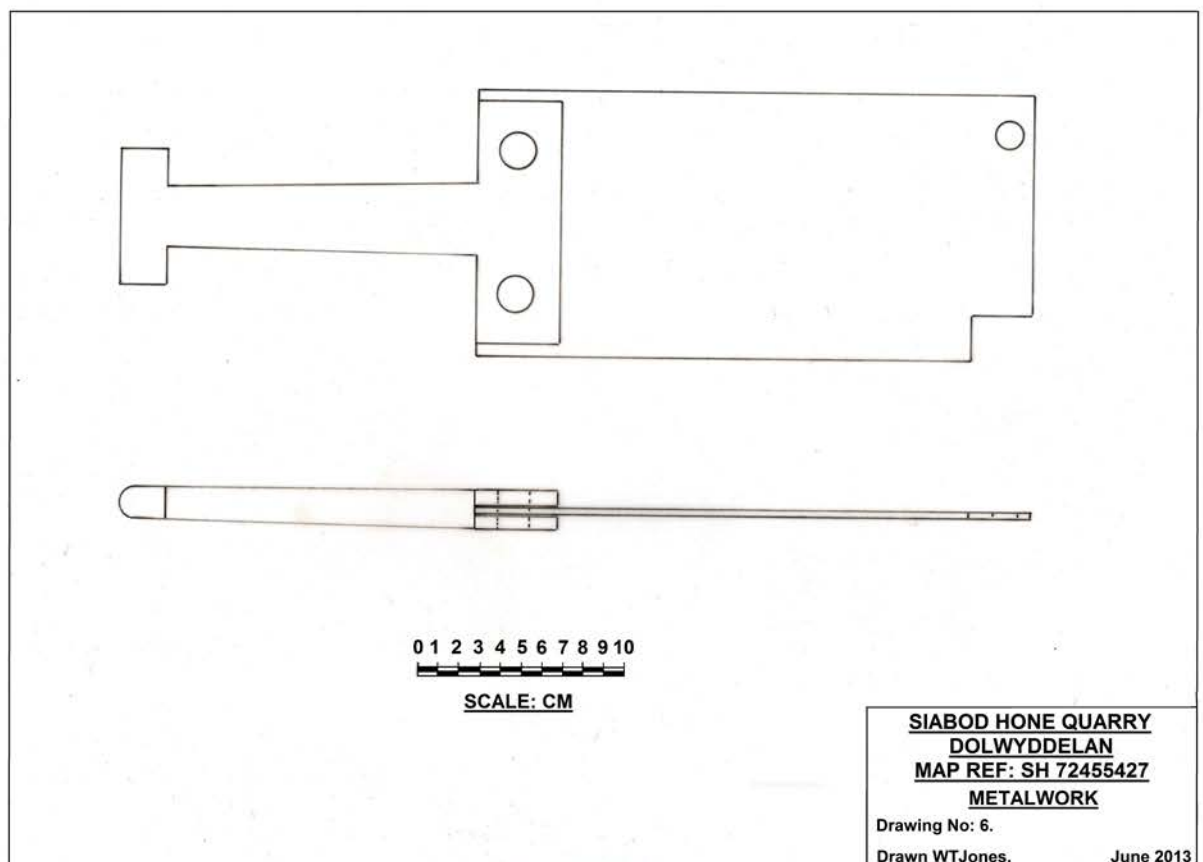
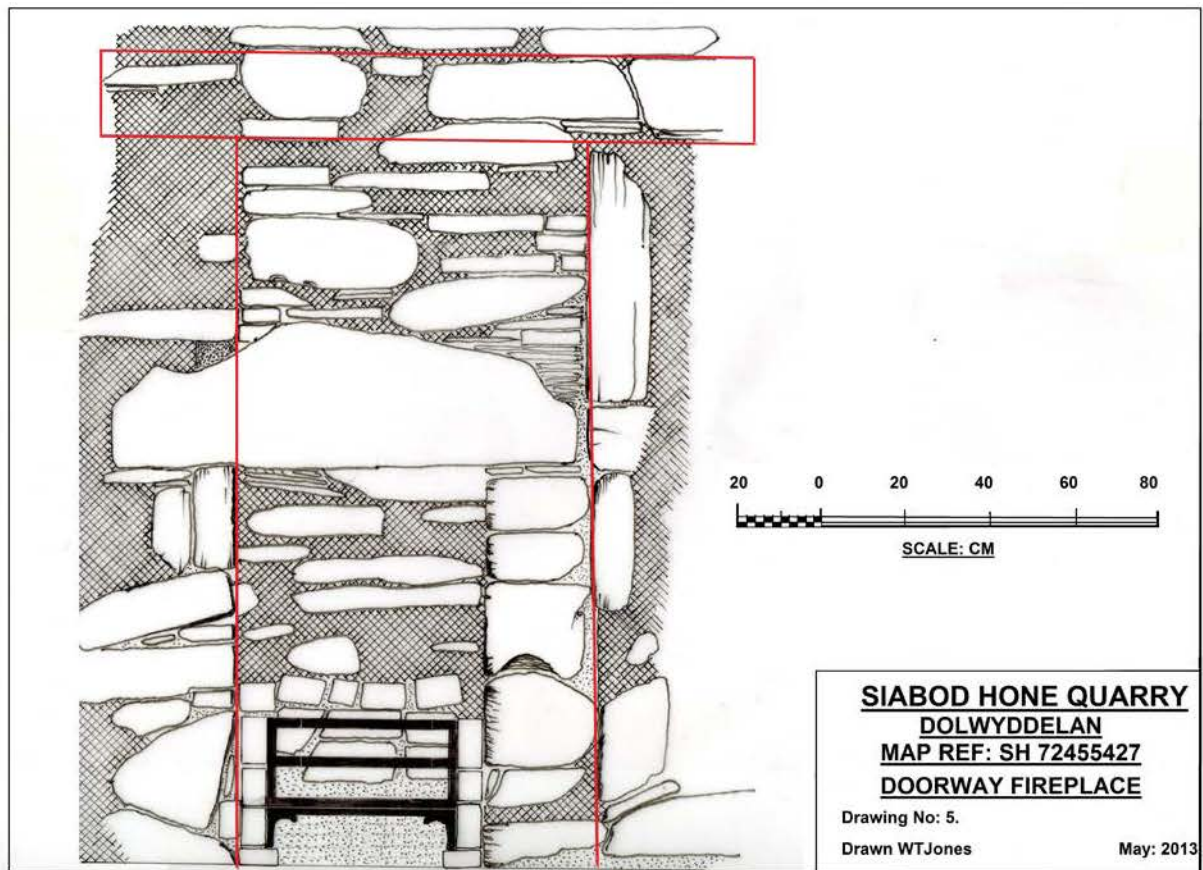


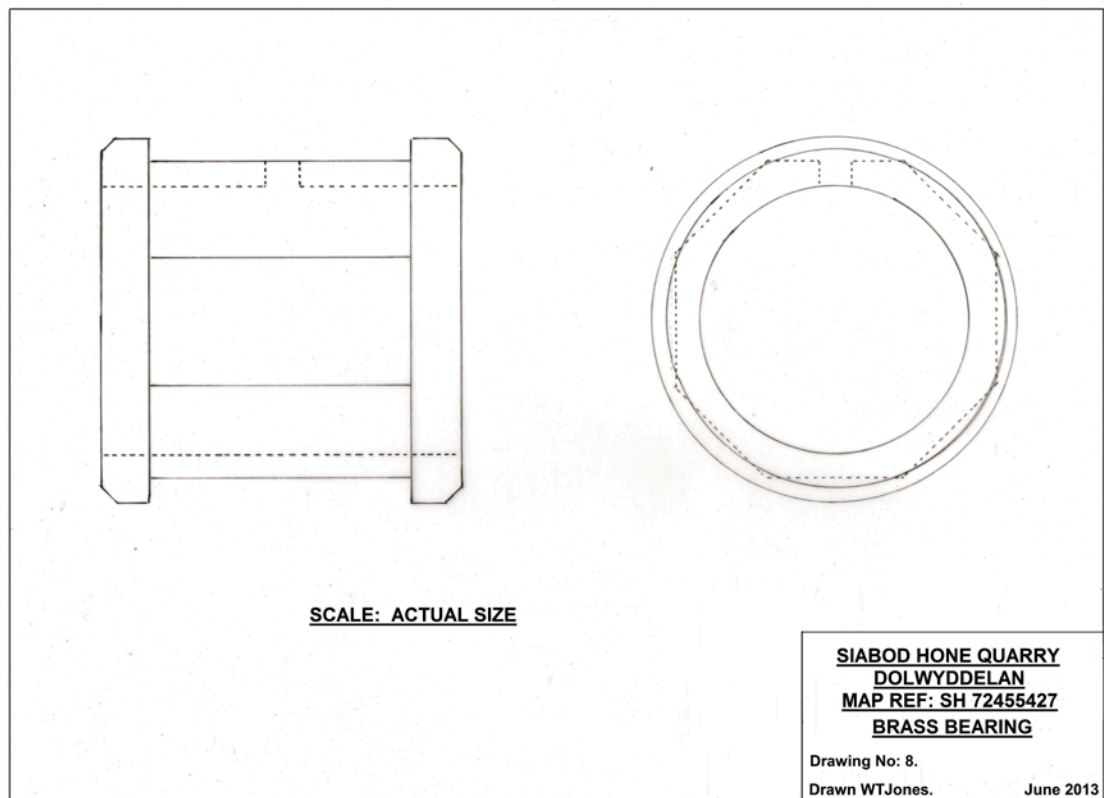
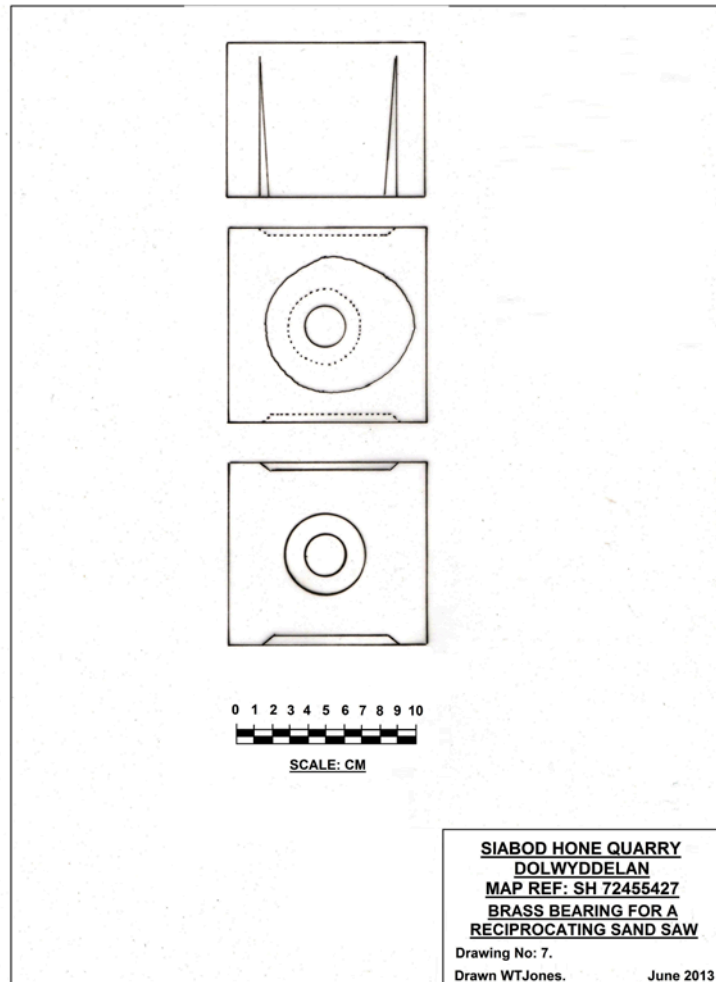
## **List of drawings**

- 1 Slates.**
- 2 Doorway fireplace.**
- 3 Hearth stone in mill.**
- 4 Doorway fireplace.**
- 5 Doorway fireplace.**
- 6 Metalwork.**
- 7 Brass bearing for a reciprocating sand saw.**
- 8 Brass bearing.**
- 9 Belt adjuster.**
- 10 Railway sleeper.**
- 11 Smithy floor plan**
- 12 Smithy fireplace**
- 13 Wagon wheel.**
- 14 Bar rail.**
- 15 Sand saw blade adjustment.**
- 16 Shaft bracket.**
- 17 Reciprocating sand saw.**
- 18 Siabod main mill east elevation.**
- 19 Siabod mill first build.**
- 20 Siabod mill second build.**
- 21 Hand wheel for hoisting reciprocating sand saw.**
- 22 Wall bracket.**
- 23 Sand saw adjuster.**
- 24 Third paved walkway.**
- 25 Threaded bolt.**
- 26 Sand saw connecting arm.**
- 27 Internal water-wheel cover.**
- 28 Original engine house plan.**
- 29 Engine house plan.**
- 30 Sand saw cradle.**

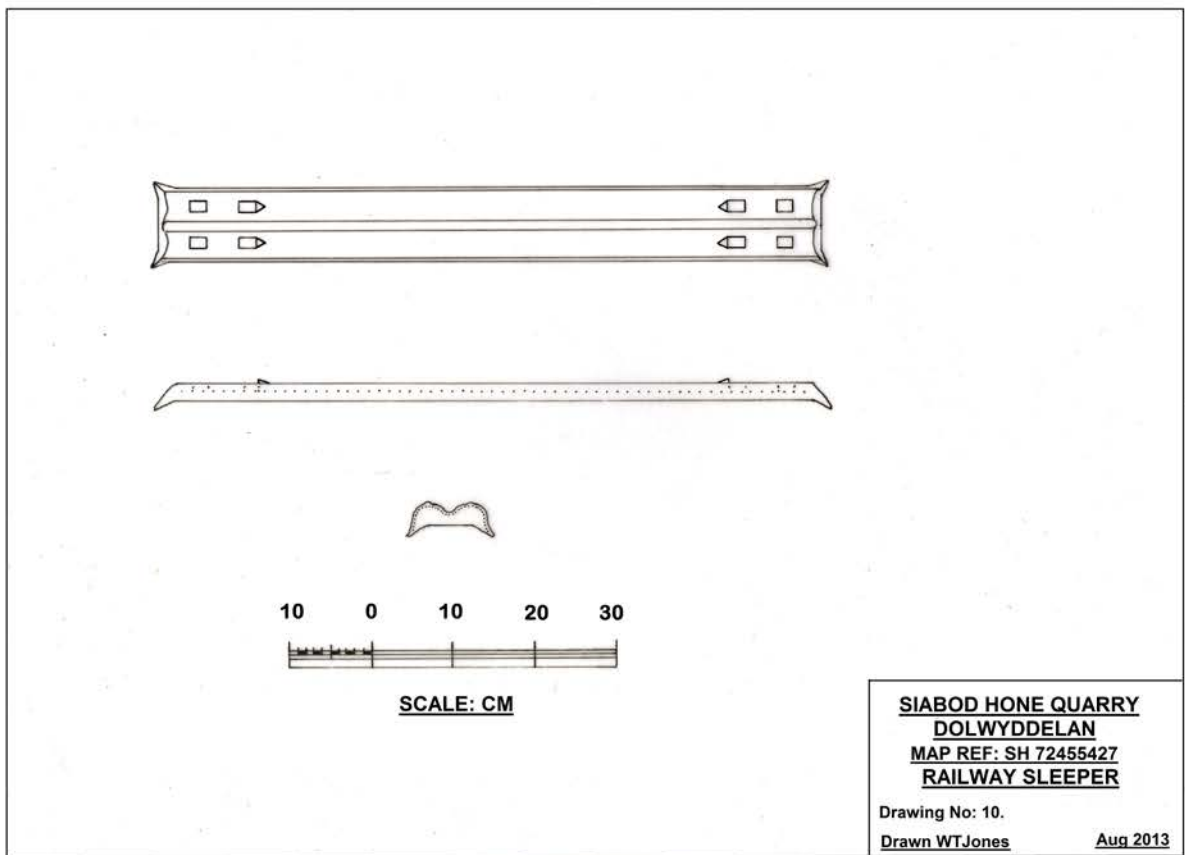
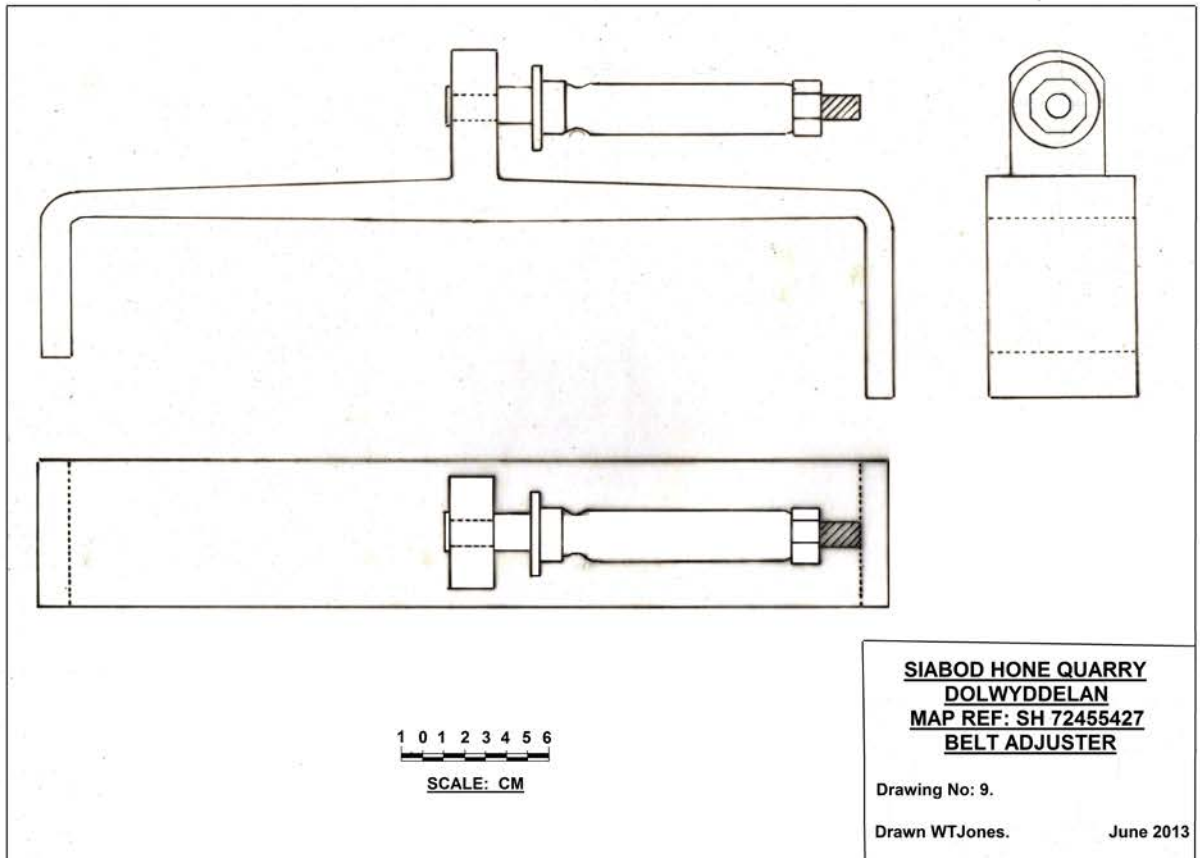


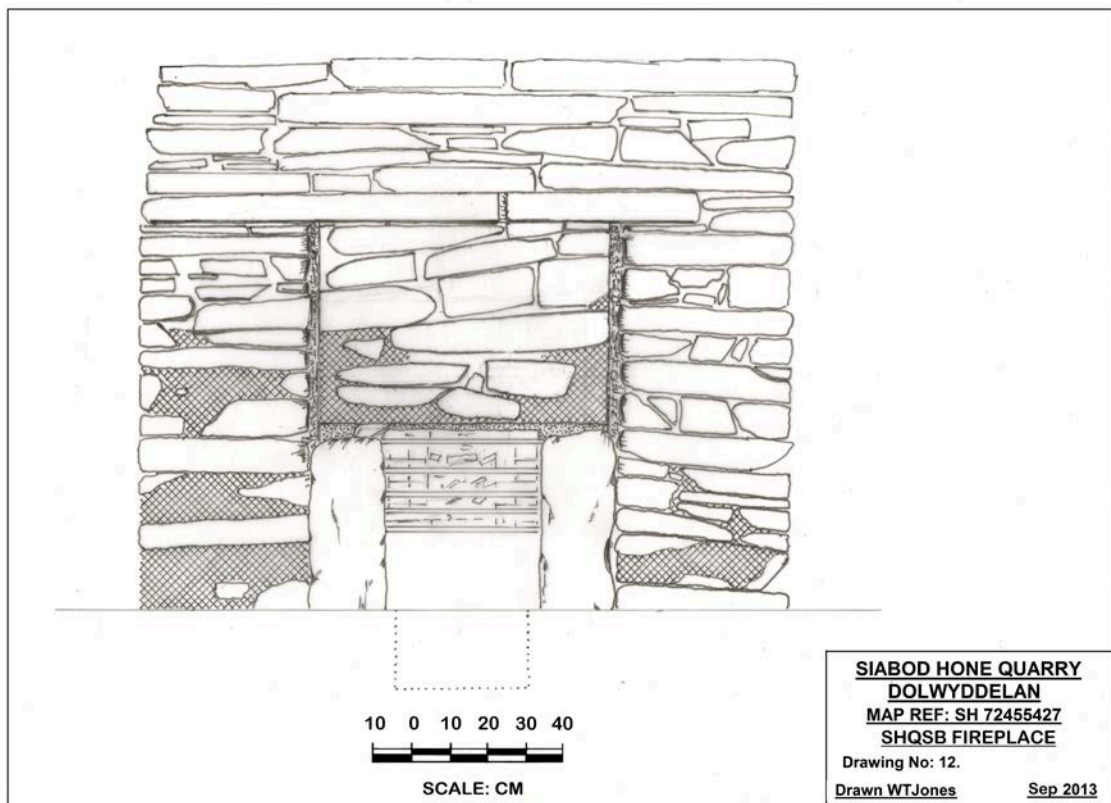
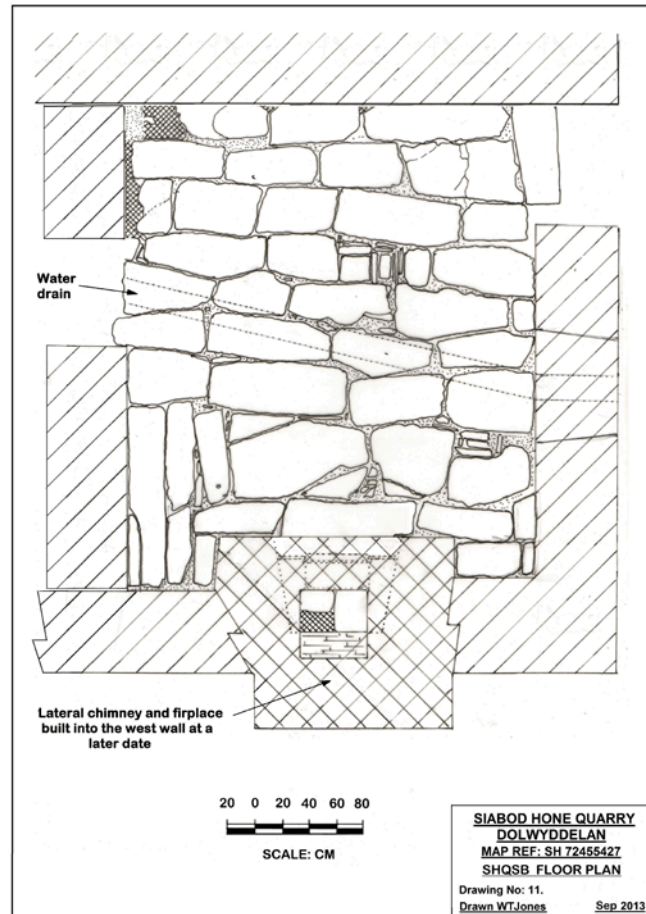


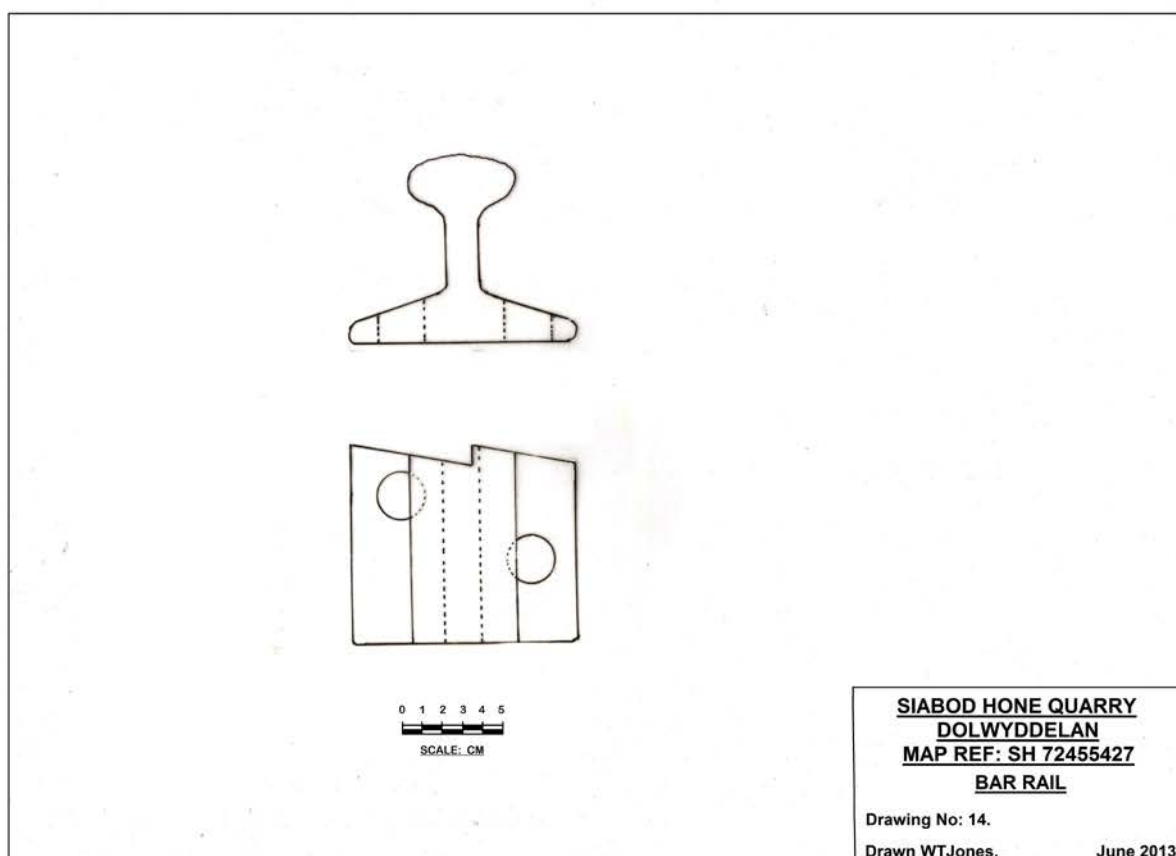
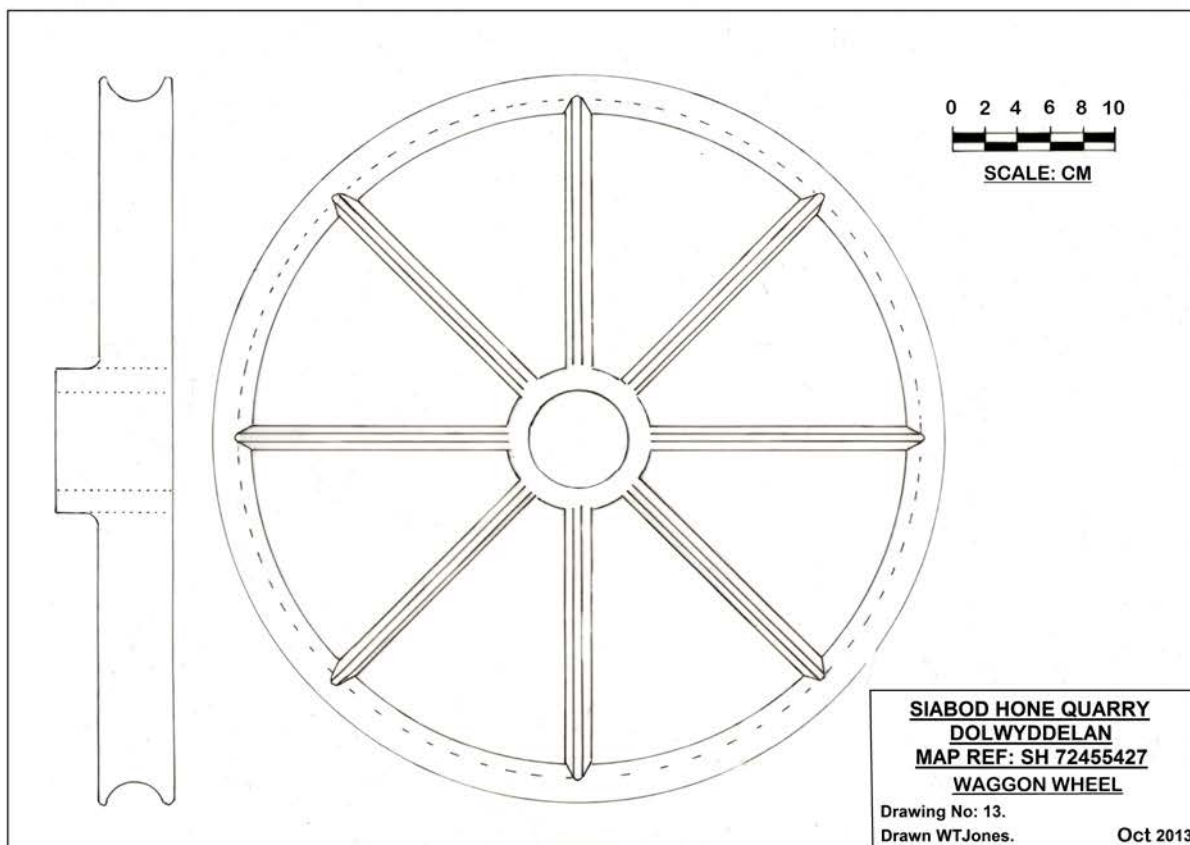




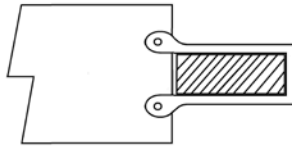






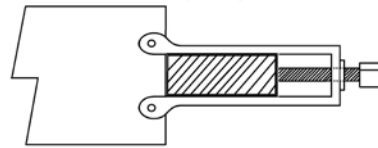


Blade attachment.

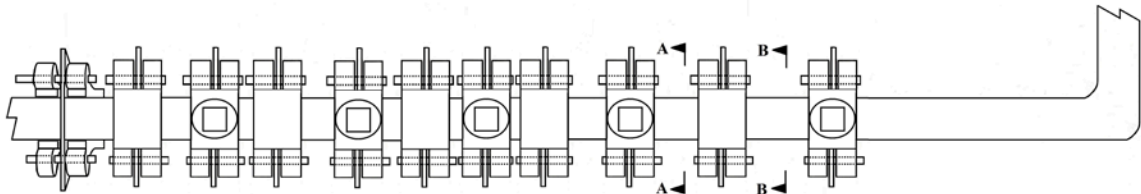


SECTION A - A

Blade adjustment.



SECTION B - B



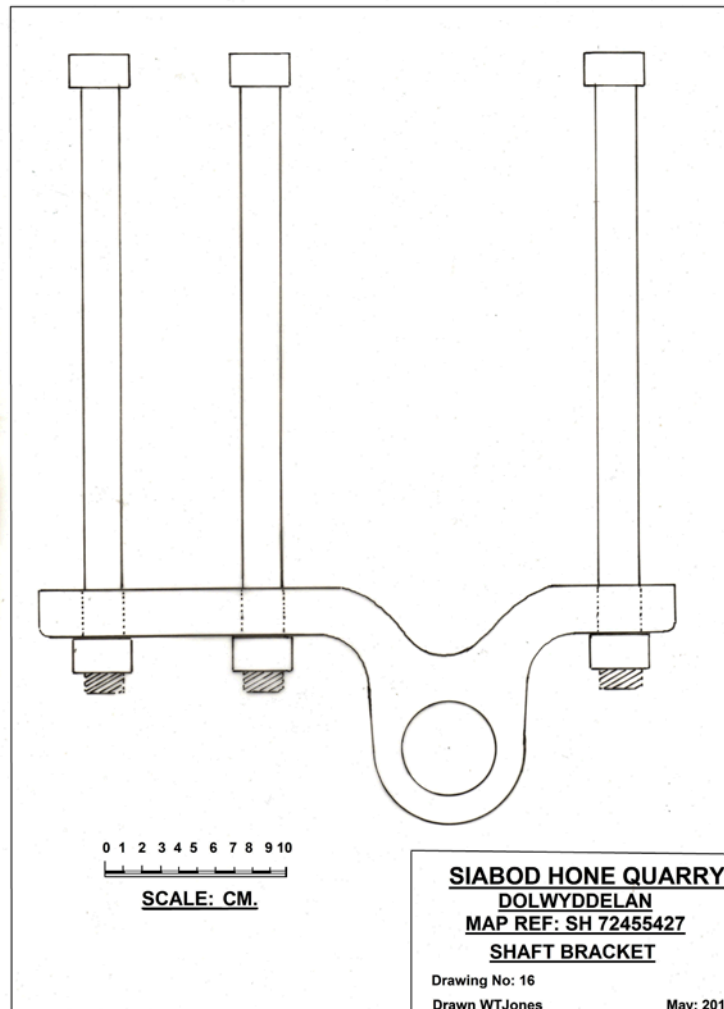
Not to scale

**SIABOD HONE QUARRY**  
**DOLWYDDELAN**  
**MAP REF: SH 72455427**  
**SAND SAW BLADE ADJUSTMENT**

Drawing No: 15.

Drawn W T Jones.

Dec 2013.



0 1 2 3 4 5 6 7 8 9 10

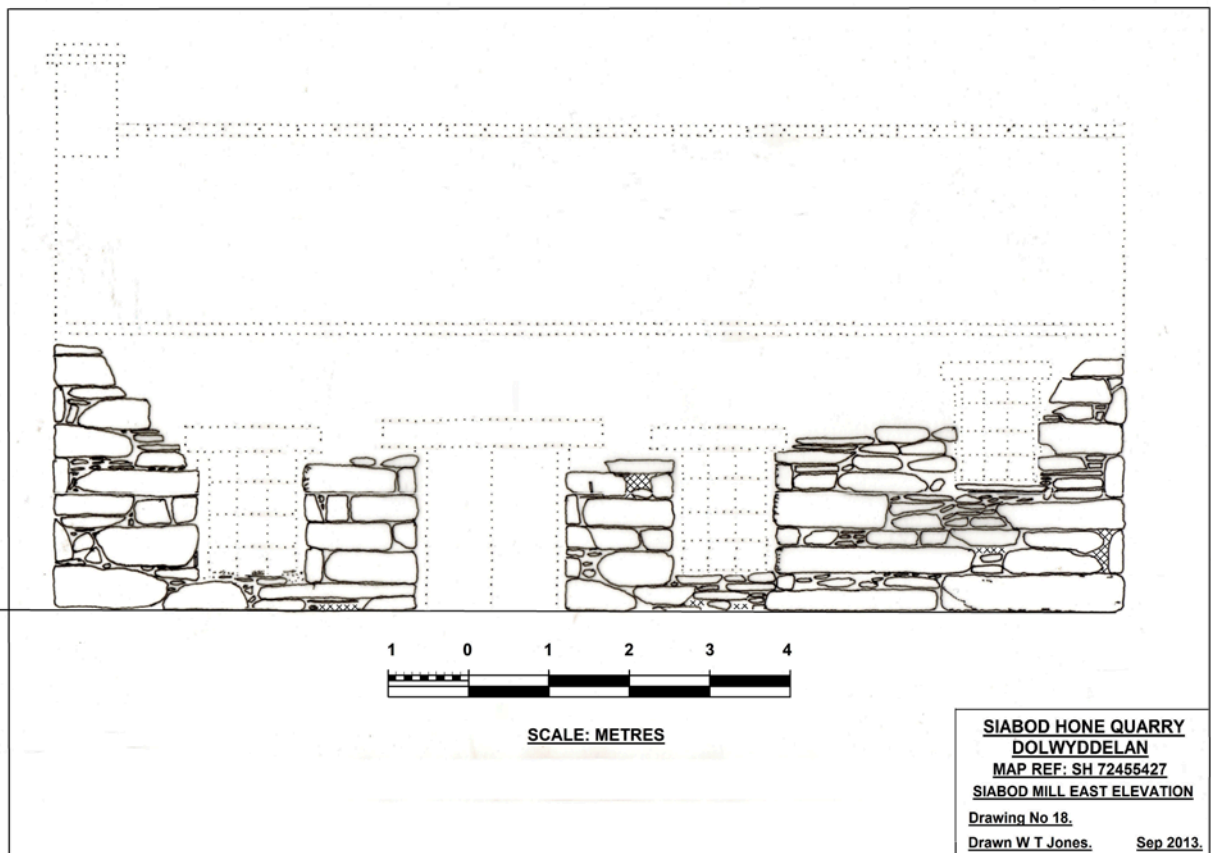
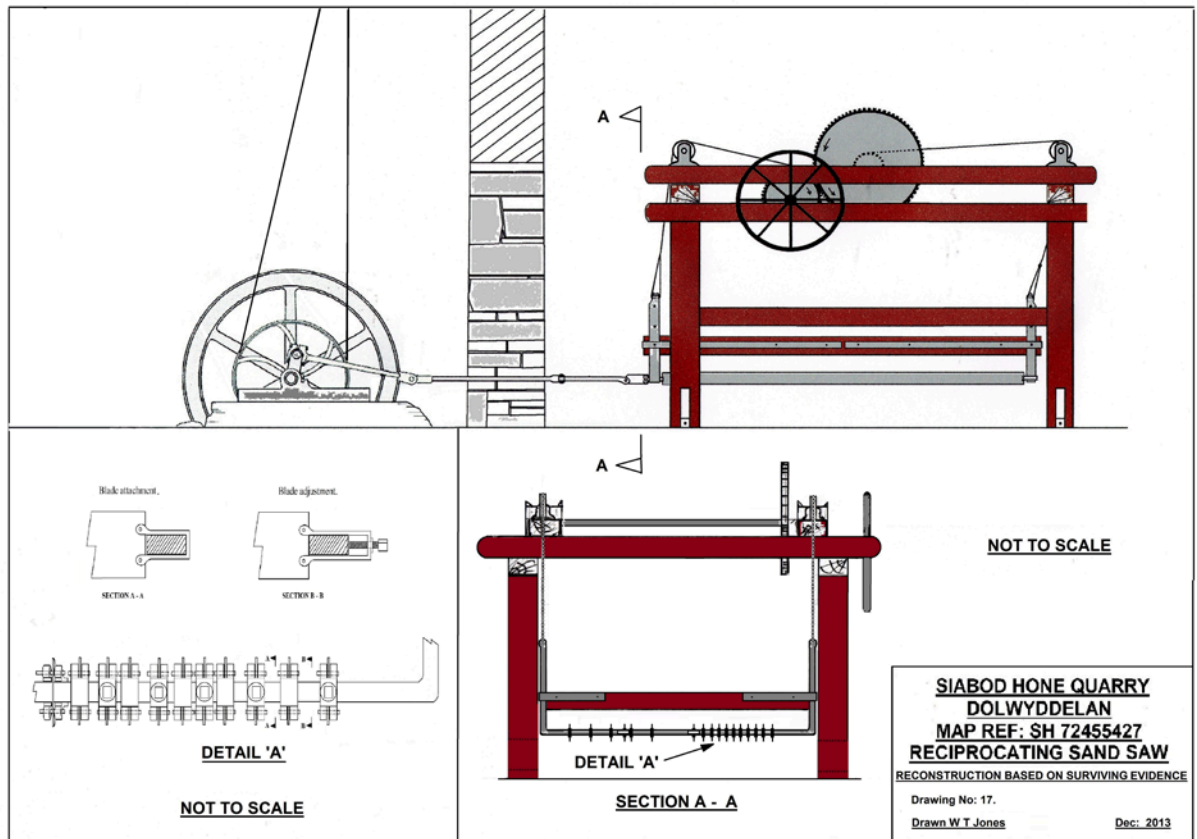
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**SIABOD HONE QUARRY**  
**DOLWYDDELAN**  
**MAP REF: SH 72455427**  
**SHAFT BRACKET**

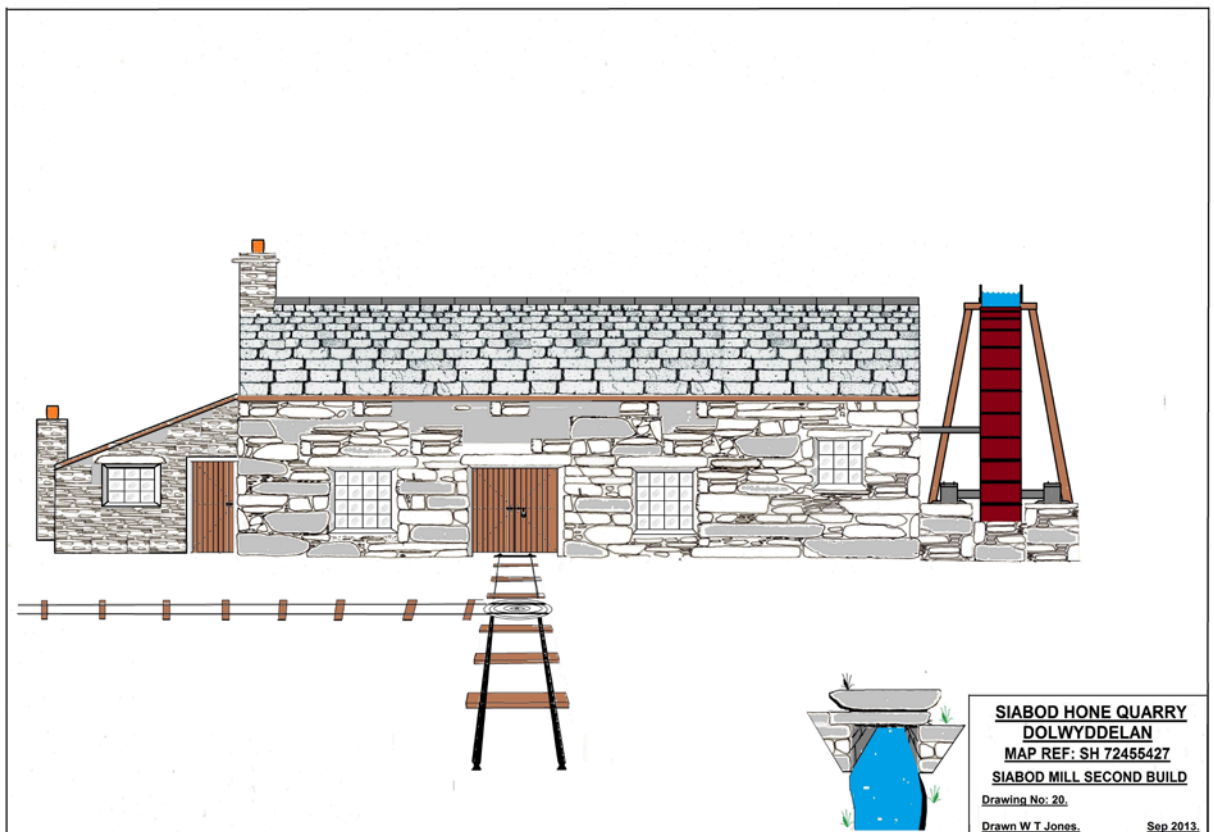
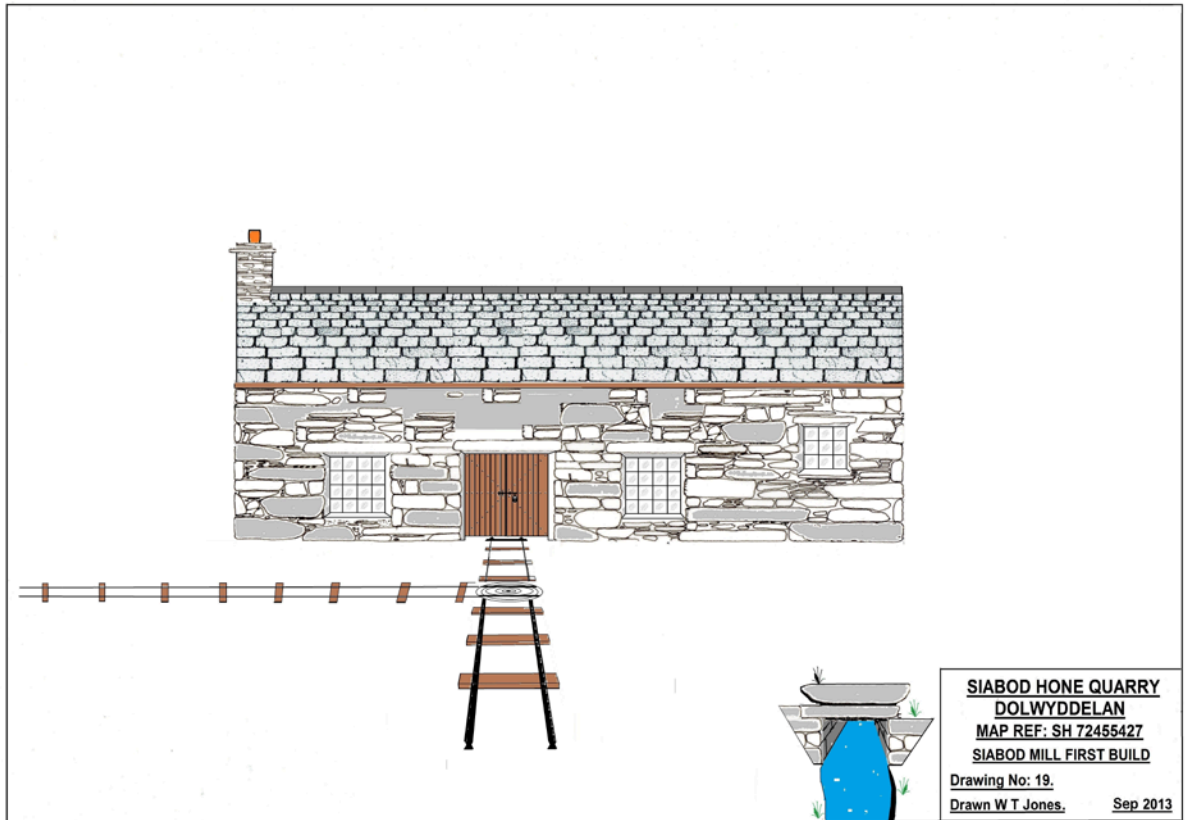
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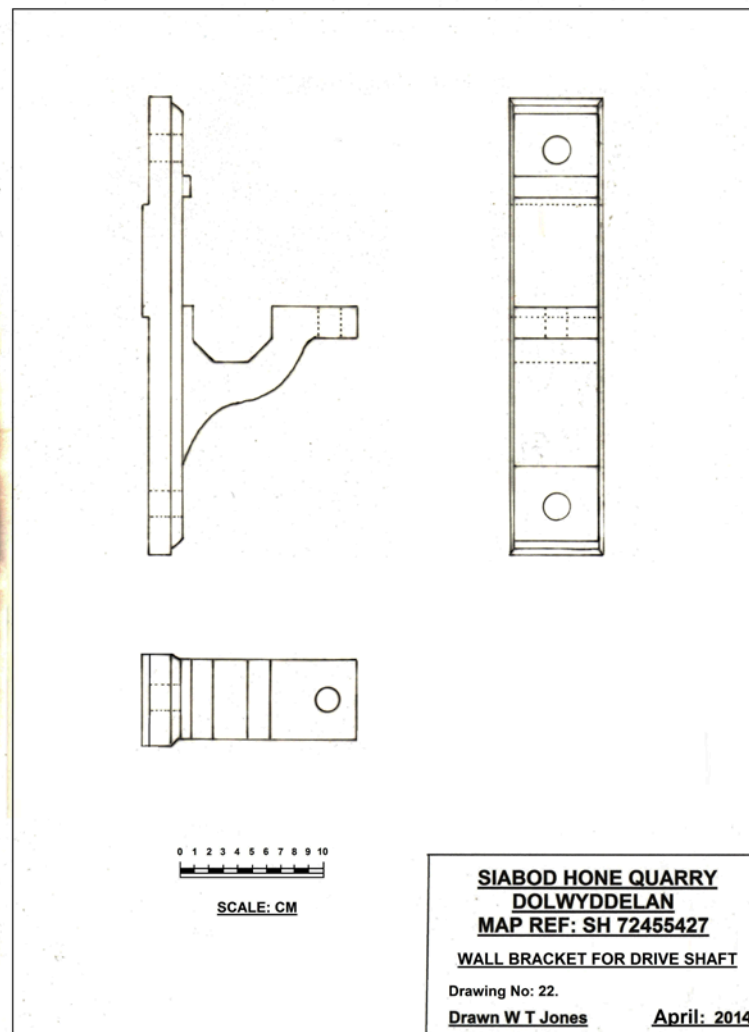
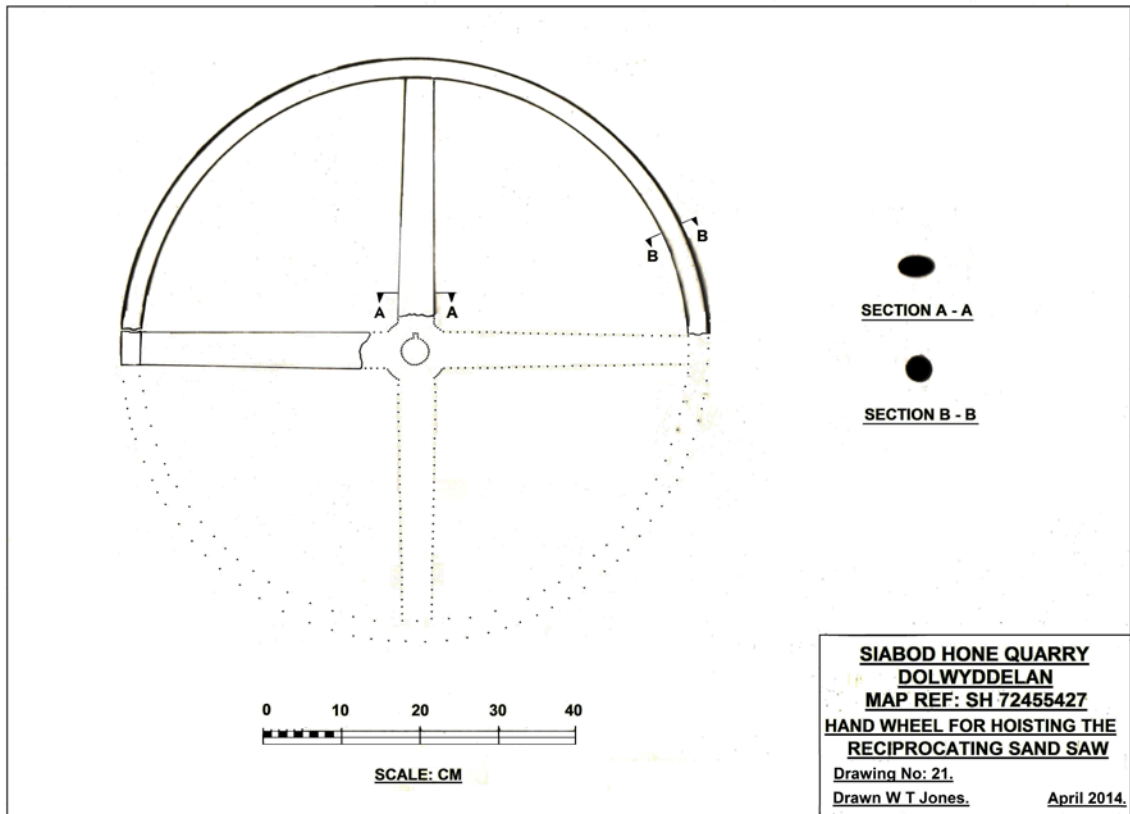
Drawn WT Jones

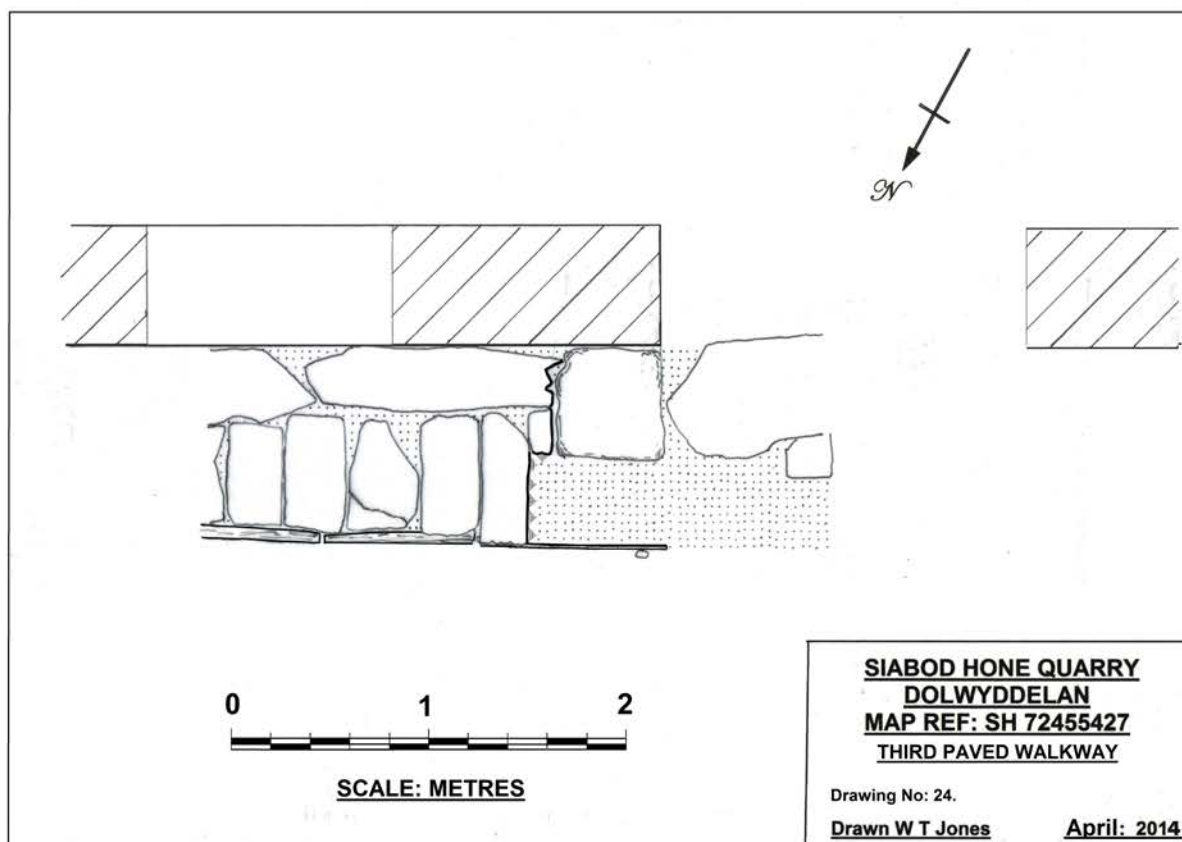
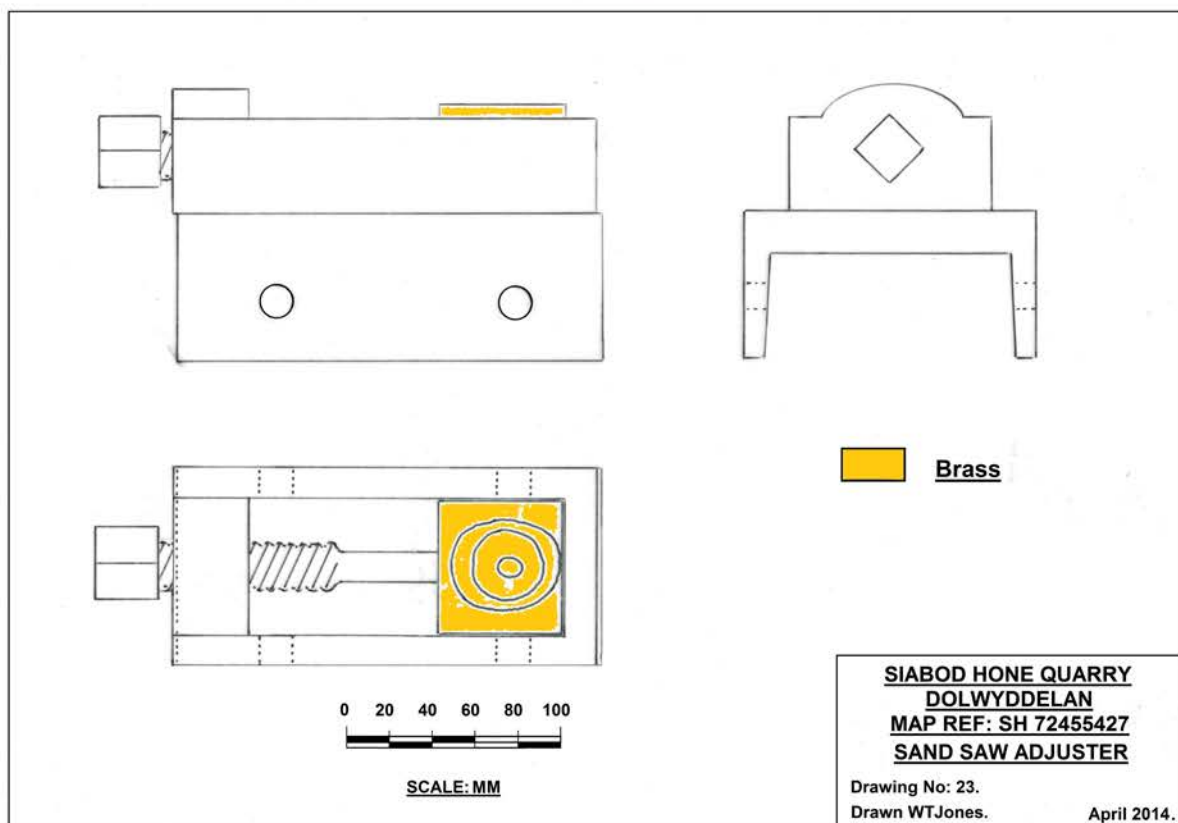
May: 2013












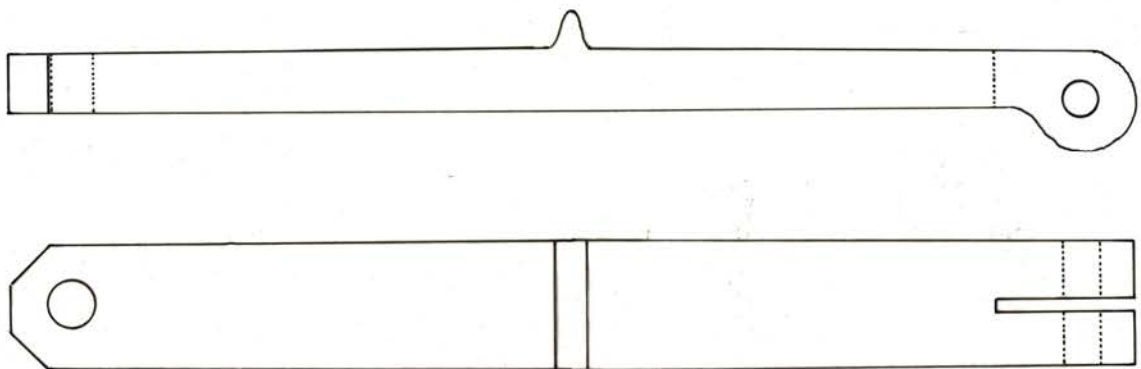



0 1 2 3 4 5  
  
 SCALE: CM

**SIABOD HONE QUARRY**  
**DOLWYDDELAN**  
**MAP REF: SH 72455427**  
**THREADED BOLT.**

Drawing No: 25.  
 Drawn WTJones

March 2014



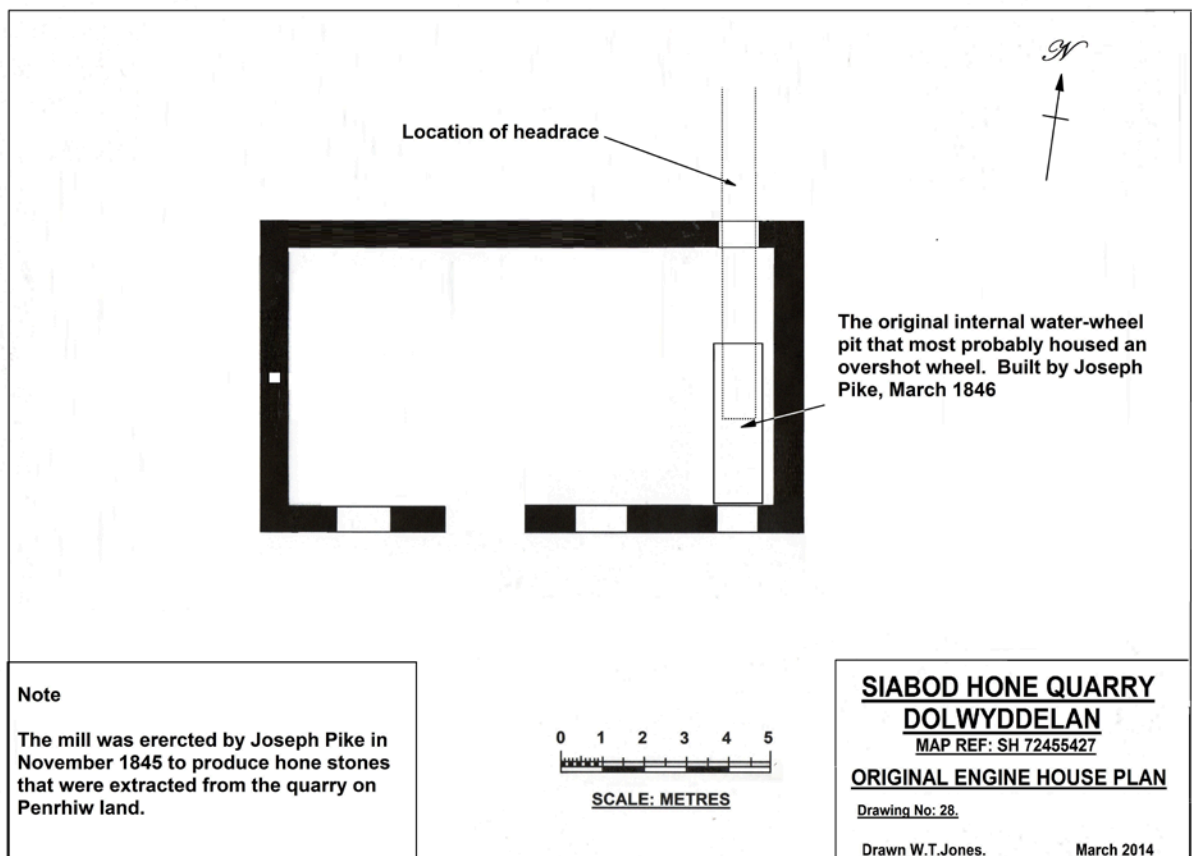
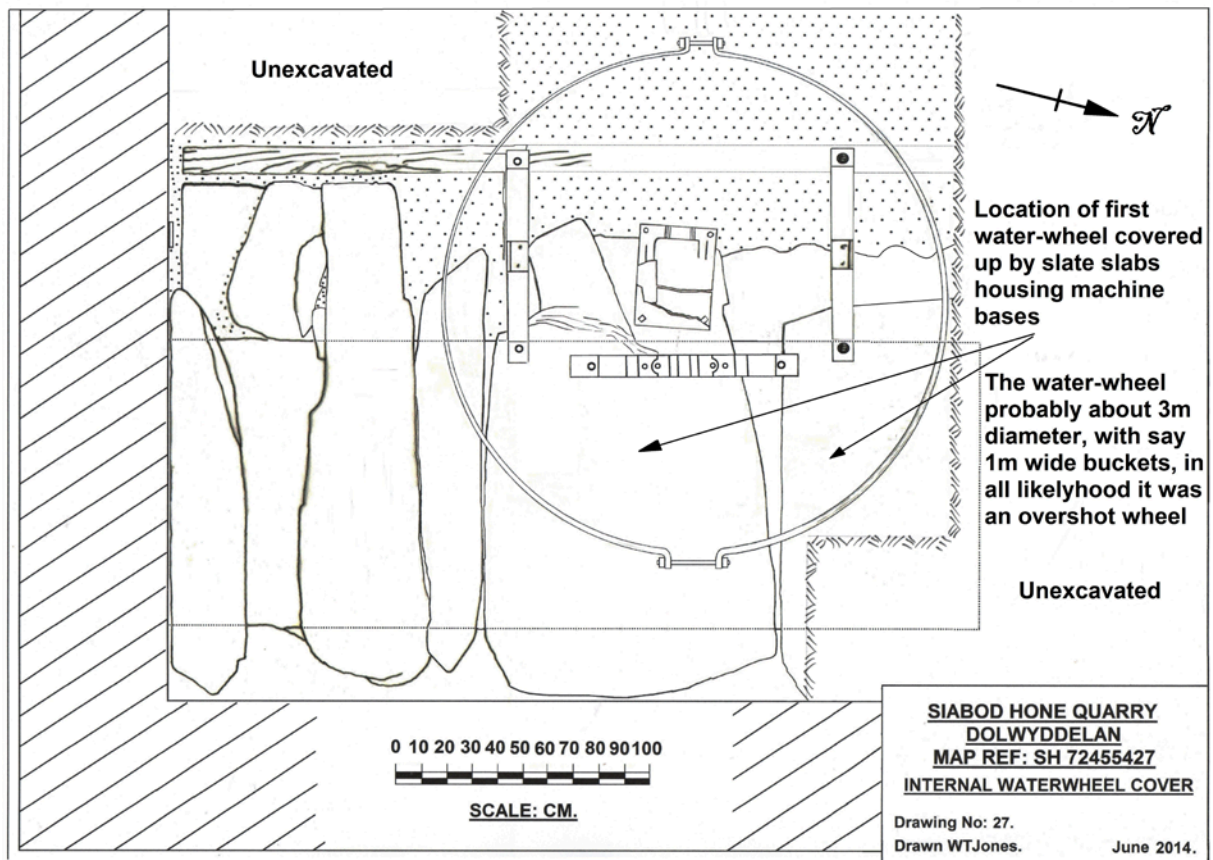
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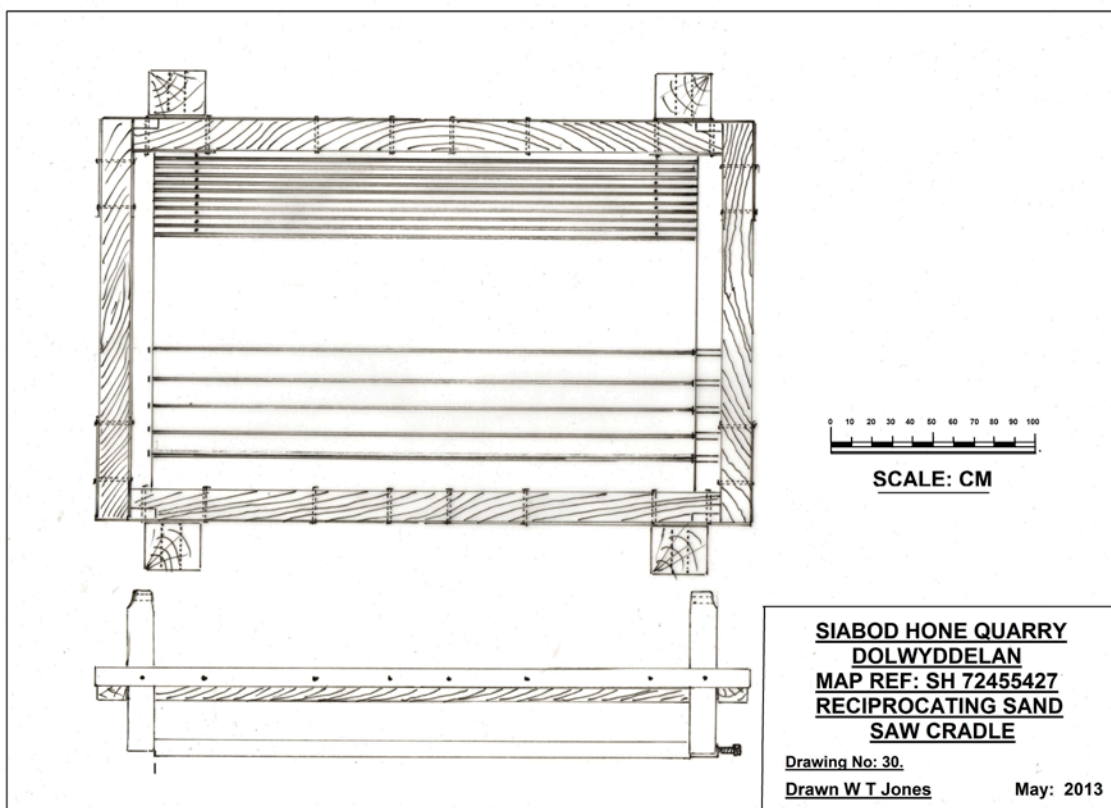
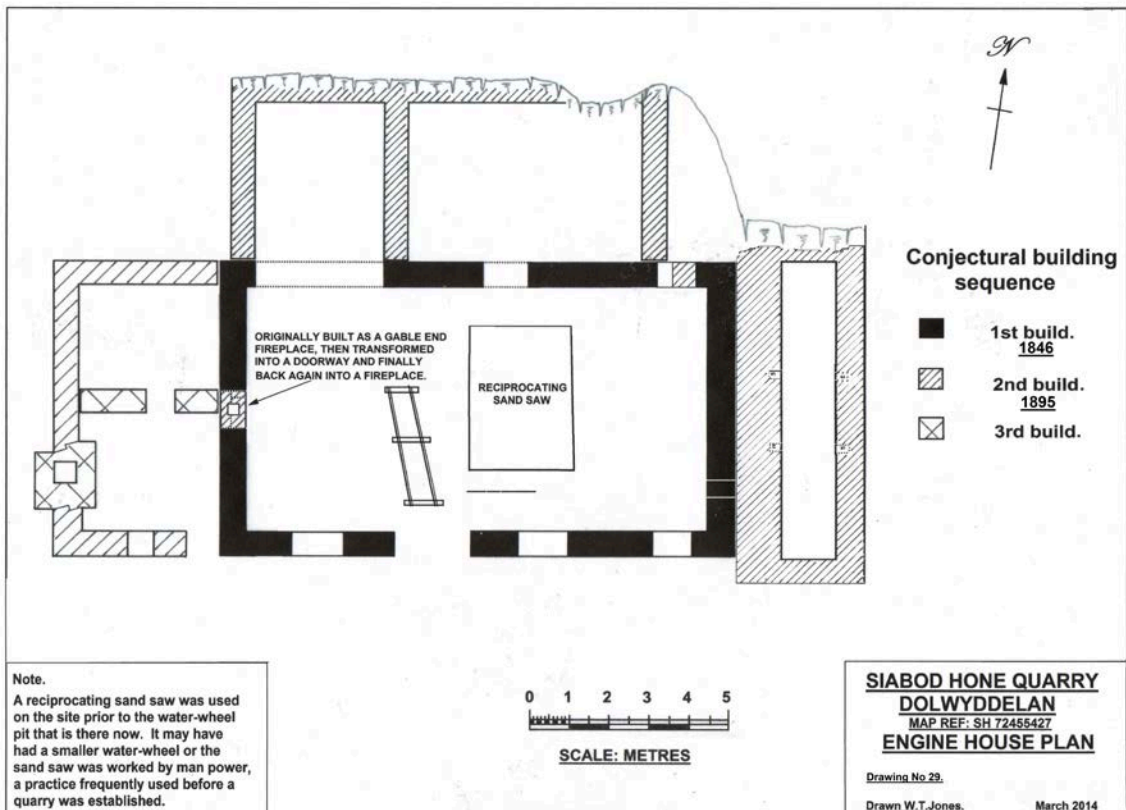
**SIABOD HONE QUARRY**  
**DOLWYDDELAN**  
**MAP REF: SH 72455427**  
**SAND SAW CONNECTING ARM**

Drawing No: 26.  
 Drawn WTJones.

May 2014.











*Fig: 01.*



*Fig: 02.*





*Fig: 03.*



*Fig: 04.*





*Fig: 05.*



*Fig: 06.*





*Fig: 07.*



*Fig: 08.*





*Fig: 09.*



*Fig: 10.*





*Fig: 11.*



*Fig: 12.*





*Fig: 13.*



*Fig: 14.*





*Fig: 15.*



*Fig: 16.*





*Fig: 17.*



*Fig: 18.*





*Fig: 19.*



*Fig: 20.*

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