

# PORTHAIN QUARRY

## ARCHAEOLOGICAL STANDING BUILDING RECORDING AND WATCHING BRIEF

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**PORTHGAIN QUARRY  
ARCHAEOLOGICAL STANDING BUILDING RECORDING AND WATCHING BRIEF**

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**PORTHGAIN QUARRY**  
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<b>CONTENTS</b>	<b>PAGE</b>
Summary	1
Background and location	1
Standing building recording	1
Watching Brief	1
Discussion and recommendations	3
Archive deposition	3
Acknowledgements	3
Bibliography	3
Photo. 1: Later rear of Hopper 6	4
Photo. 2: Test Pit in front of crushing plant M	4
Photo. 3: Original rear of Hopper 6	5
Photo. 4: Rear of Hopper 6	5
Photo. 5: Rear of Hopper 6	6
Photo. 6: Detail of crossbeam	6
Figure 1: Location	
Figure 2: Survey plan of hoppers and associated structures	
Figure 3: NE elevation of hoppers 1 and 2	
Figure 4: NE elevation of hoppers 3 and 4	
Figure 5: NE elevation of hoppers 5 – 11	
Figure 6: East elevation of hoppers 12 - 14	
Figure 7: Structure F NE elevation (upper 5m)	
Figure 8: Structure F SE elevation	
Figure 9: Structure J NE elevation of tower in complex	
Figure 10: Structure J NE elevation of wall in complex	
Figure 11: Structure M NE elevation of east corner	
Figure 12: Structure M SE elevation of south corner	
Figure 13: Structure M SE elevation of east corner	
Figure 14: Structure L NE elevation of southeast corner	
Figure 15: Structure L NE elevation of northwest corner	
Figure 16: Structure G NE elevation of southeast corner	
Figure 17: Structure G NE elevation of northwest corner	
Figure 18: Structure K East facing elevation	
Figure 19: Structure K South facing elevation	
Figure 20: Structure K North facing elevation	

*Cover photo: Hoppers and associated structures from across harbour. View SW*



## **SUMMARY**

*Standing building recording was undertaken on elevations being cleared of vegetation on some of the buildings associated with Porthgain Slate Quarry, Pembrokeshire. A short watching brief was also undertaken on a test pit and later clearance at the rear of one of the hoppers.*

## **BACKGROUND AND LOCATION**

A full historical background to this project has been covered in *Porthgain Slate Quarry archaeological desk-based assessment* (Page 2005).

Pembrokeshire Coast National Park Authority (PCNPA) undertook a programme of consolidation and repair on some of the remaining structures of the Porthgain Slate Quarry, Porthgain, Pembrokeshire (SM81363255). The work was required because of concerns over their condition and stability.

The main surviving structures, the crushed stone hoppers, are part of a Scheduled Ancient Monument (Pe 382), which also includes part of the west side of the harbour, the tunnel that led from Porthgain Quarry to the harbour and Ty Mawr, the only surviving structure of a former brickworks. A comprehensive archaeological programme was therefore required to accompany the consolidation works. The programme consisted of the desk-based assessment (Page 2005) followed by the building recording carried out during the consolidation works.

## **STANDING BUILDING RECORDING**

Rapid standing building recording (PRN 55972) was undertaken on 26<sup>th</sup>, 27<sup>th</sup> and 30<sup>th</sup> January 2006 on some of the structures being cleared of vegetation and prior to consolidation.

It was not possible to record all elevations owing to the problem of restricted sight lines. Many elevations were recorded from the opposite side of the harbour, although low winter sun made recording impossible at some times of the day. A total station theodolite (TST) was used to record stick-on targets placed on the elevations by **Ascend (Cymru) Ltd**, who were undertaking the clearing and consolidation work, but there were some problems in making targets adhere to the damp masonry. Due to the insufficient number and location of these targets there were not enough to produce a meaningful record: therefore the outline of the elevations was also recorded with the TST using both prism and non-prism modes.

Digital photographs were taken as squarely positioned as possible to the elevations. Site data from the TST was downloaded and elevation drawings produced using Geosite software. Digital photographs were rectified using the drawings as a control using Airphoto software. In general a good match was achieved. The results of these are reproduced at the end of the report and also on the included CD.

## **WATCHING BRIEF**

A watching brief (PRN 62316) took place on a test pit and later clearance during February 2006 in front of crushing plant M and the rear of hopper 6 (Fig. 2). Ascend (Cymru) Ltd also undertook the groundworks.

**Test Pit** - The rear of Hopper 6 was constructed of timber shuttering held back by iron beams and was in poor condition (Photo. 1). Therefore a test pit was dug in front of part of crushing plant M, behind the rear of hopper 6, to establish the state and extent of the footings below ground level, and to determine if the rear of the hopper could be safely dismantled. It was dug to a depth of 2.1m down from the top of the brick wall on its north side (Photo. 2) and 2.5m down from the topsoil against the crushing plant wall. The lower fill was all quarry dust. At 0.5m down there were several iron plates, between 3mm to 5mm thick, laid horizontally. Later excavation indicated that these plates had no mechanical function, and were possible just an easy surface to keep clean. Above the plates there was a deposit of quarry chippings and some large stones, which was covered with rough grass and ivy. It was established that the crushing plant wall continued to beyond the depth of the test pit and dismantling of rear of Hopper 6 could commence.

**Excavation at the rear of Hopper 6** - The earliest feature would appear to be that of the crushing plant wall of concrete construction, or at least cladding. Butting this there was a long brick wall forming the north east side of the hopper (Photo. 3). The line of the crushing plant wall was extended to the southeast again by a butted brick wall that then turned a right angle to form the other long side of the hopper. Whether this long wall was contemporary with the adjoining brick wall could not be ascertained, but if later and butted, it appeared to have been keyed in, at least in parts.

The next phase appears to have been to reduce the length of the hopper by placing timber shuttering behind iron cross beams c. 3m in from its rear wall. These timber uprights were of similar cross dimensions to railway sleepers, but appeared to be longer and with no visible holes indicative of such former use. These timbers were, however, in too poor a condition to ascertain if they had been reused. The iron beams are likely to have been small rails from a narrow wagon way. It is probable that the area behind this shuttering was quickly filled in with quarry waste, having a uniform fill.

An alternative interpretation of this phase was that two iron crossbeams were placed on top of the long walls at the rear of the hopper (Photos. 3, 4 and 5). There were pairs of lugs with bolts (Photo 6) that possibly held sleepers rails above. There were level iron plates, as found in the test pit, below the level of the crossbeams and filling in the area between the beams and the crushing plant wall. Additional smaller near-vertical iron plates were placed on the horizontal plates and lent against the rear-most iron beam. Further iron plates filled in the gaps between the iron crossbeams. There was no evidence of any of the iron plates being fixed in place.

Above the iron plates there was a continuation of the upper deposit as found in the test pit.

*Other works –*

A few photographs were taken of consolidation work taking place around hopper 13 where brickwork was being made good; these are recorded in the archive and on the disk included. It is understood that elsewhere on the site iron tie beams were being replaced. However, no information was passed on as to which, or when these tie were being replaced.

## **DISCUSSION AND RECOMMENDATIONS**

The method of standing building recording was efficient and successful, but timing of the work, with low winter sun, caused problems. Greater liaison is needed so survey targets are appropriately placed, and so that records can be made before removal or replacement of structural elements.

The evidence of the watching brief suggests that Hopper 6 was shortened to facilitate a wagon track being laid above. It could not be ascertained as to whether the iron cross beams, possibly supporting wagon rails, or the shortening of Hopper 6 took place first: the probability is that they occurred at very near the same time. The brick and concrete structures appear to be well planned and constructed, whereas the later shortening of Hopper 6, infilling and rails above appeared more improvised. The date for the construction of Hopper 6 was between 1904-10. However, no datable evidence was found for the shortening of this hopper, but they were out of use by 1940.

## **ARCHIVE DEPOSITION**

The full archive will initially be held by Cambria HER a digital copy will be send to National Monument Record, Aberystwyth

## **ACKNOWLEDGEMENTS**

Thanks to **Ascend (Cymru) Ltd** for their help and co-operation, especially to their director Andy Cox. Hubert Wilson undertook the TST survey and elevation illustrations.

## **BIBLIOGRAPHY**

Page N 2005 *Porthgain Slate Quarry archaeological desk-based assessment*.  
Un-published report for PCNPA. Copy held by Cambria HER



Photo. 1: Later rear of Hopper 6. View S



Photo. 2 Test Pit in front of crushing plant M. View W. Scale 1m





Photo. 3: Original rear of Hopper 6. View SW. Scale 0.5m



Photo. 4: Rear of Hopper 6. View E





Photo. 5: Rear of Hopper 6. View NW



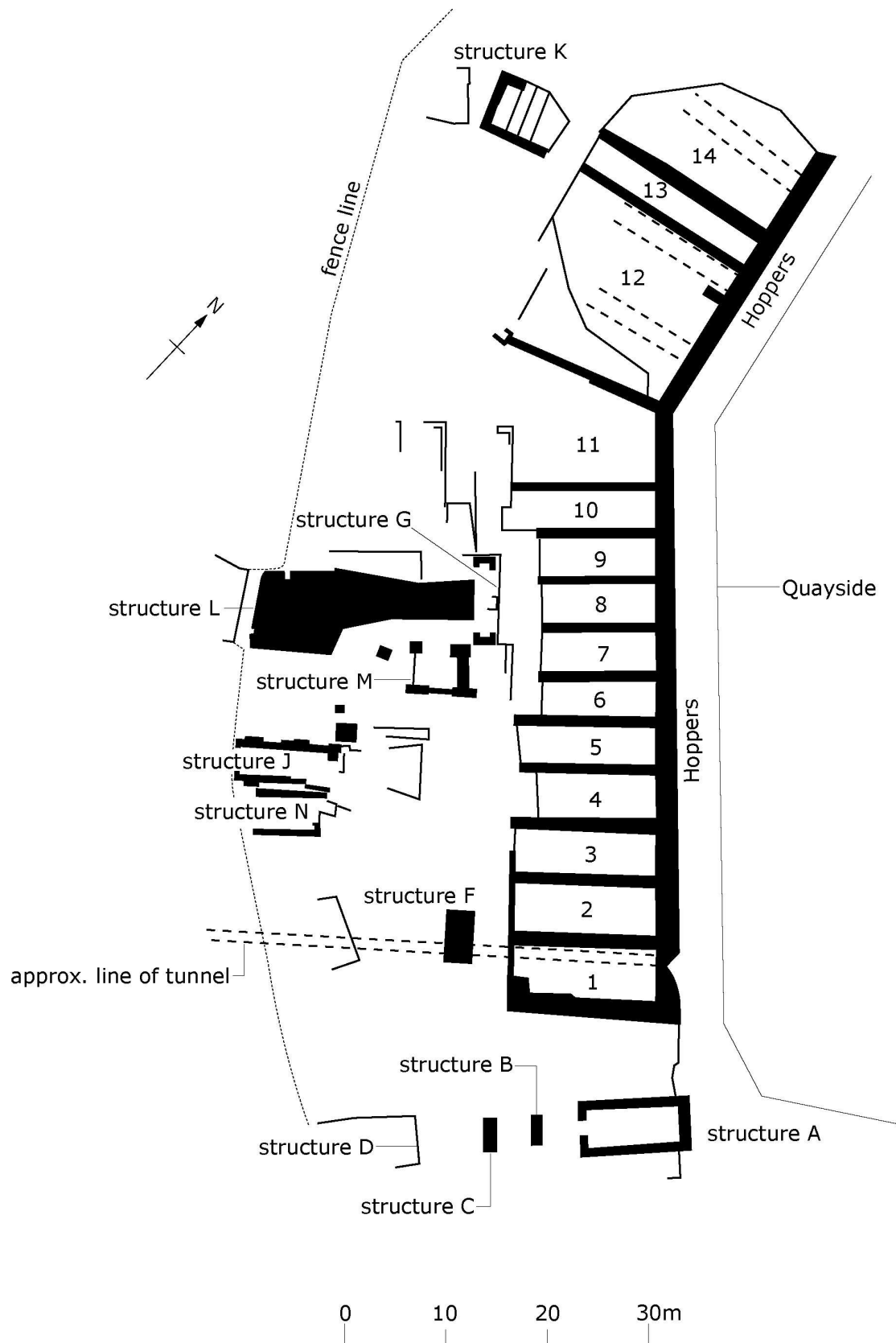
Photo. 6: Detail of east end of inner iron crossbeam. View S. Scale 0.5





**Figure 1.** Location map, based on the Ordnance Survey

Reproduced from the 1995 Ordnance Survey 1:50,000 scale Landranger Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Cambria Archaeology, The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No AL51842A



**Figure 2:** Plan of hopper and associated structures based on survey by Ascend Cymru Ltd 1984



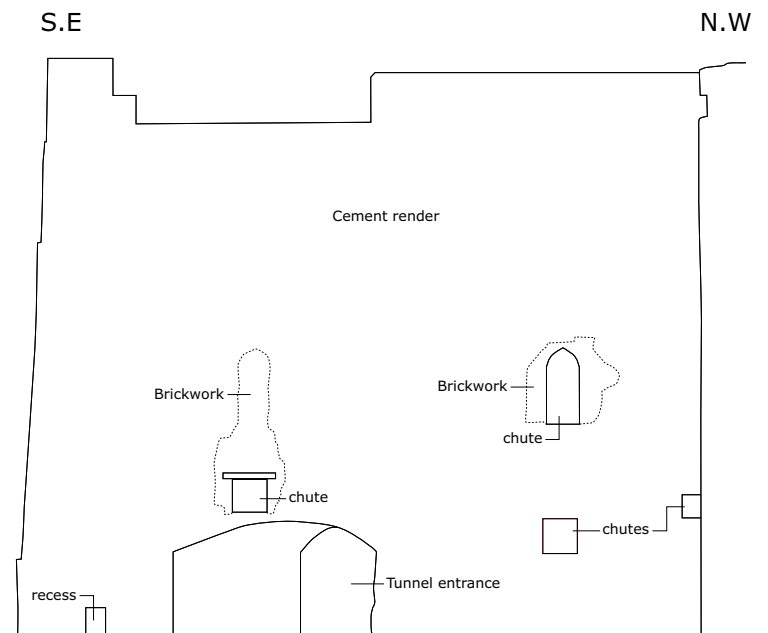
# Porthgain Quarry

## N.E elevation of hoppers 1 and 2

Scale 1:100



**FIGURE 3.**



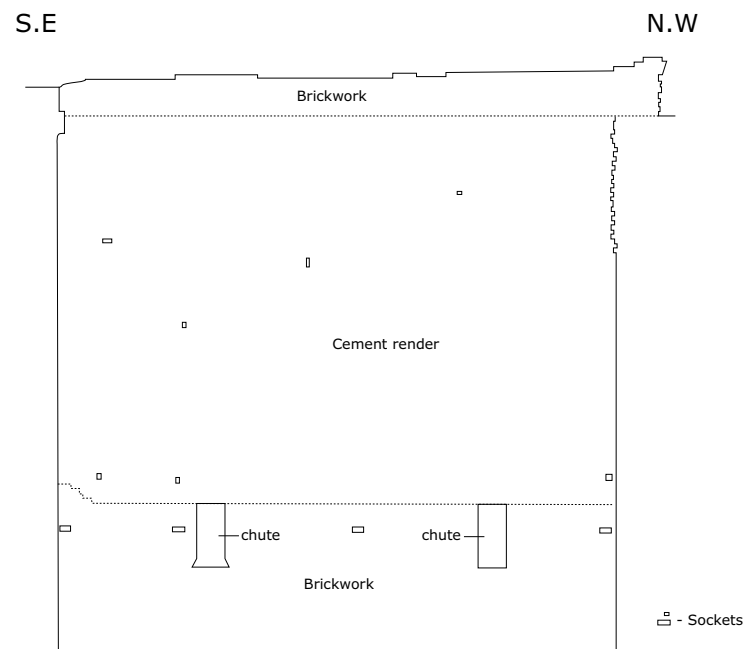
# Porthgain Quarry

## N.E elevation of hoppers 3 and 4

Scale 1:100



**FIGURE 4.**



Porthgain Quarry  
N.E elevation of hoppers 5-11

Scale 1:100

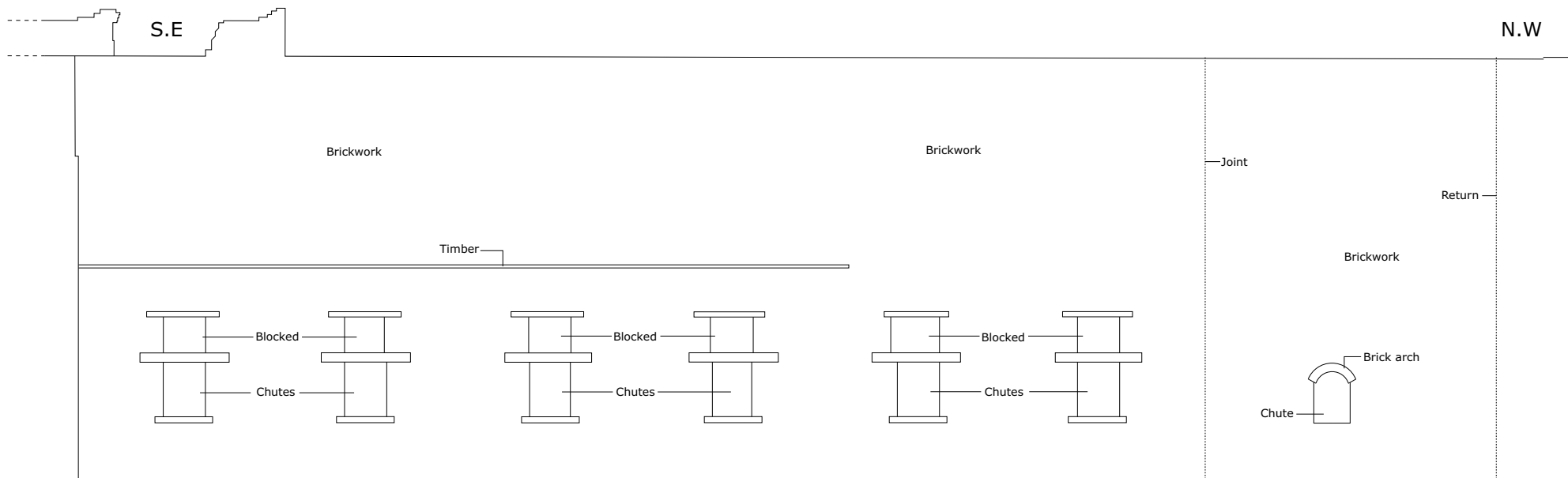


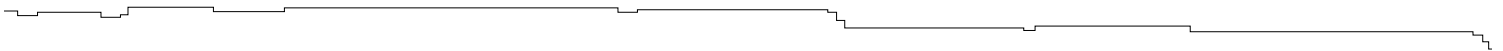
FIGURE 5.



# Porthgain Quarry

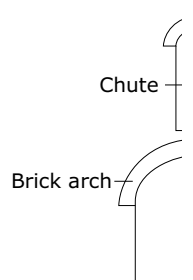
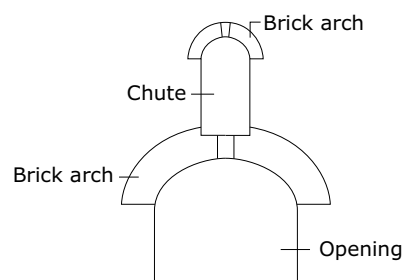
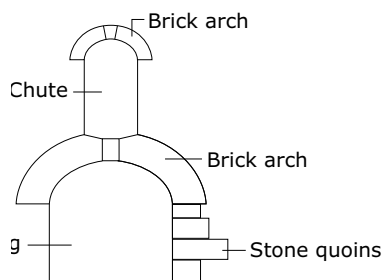
East elevation of hoppers 12 - 14

Scale 1:100



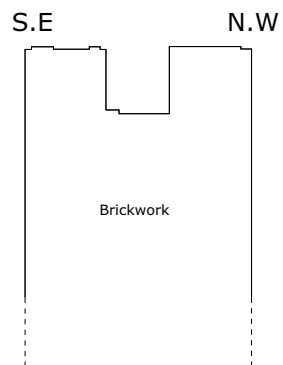
Brickwork

Brickwork



Porthgain Quarry  
Structure F  
N.E elevation (upper 5m)

Scale 1:100



**FIGURE 7.**

# Porthgain Quarry

## Structure F

### S.E elevation

Scale 1:25

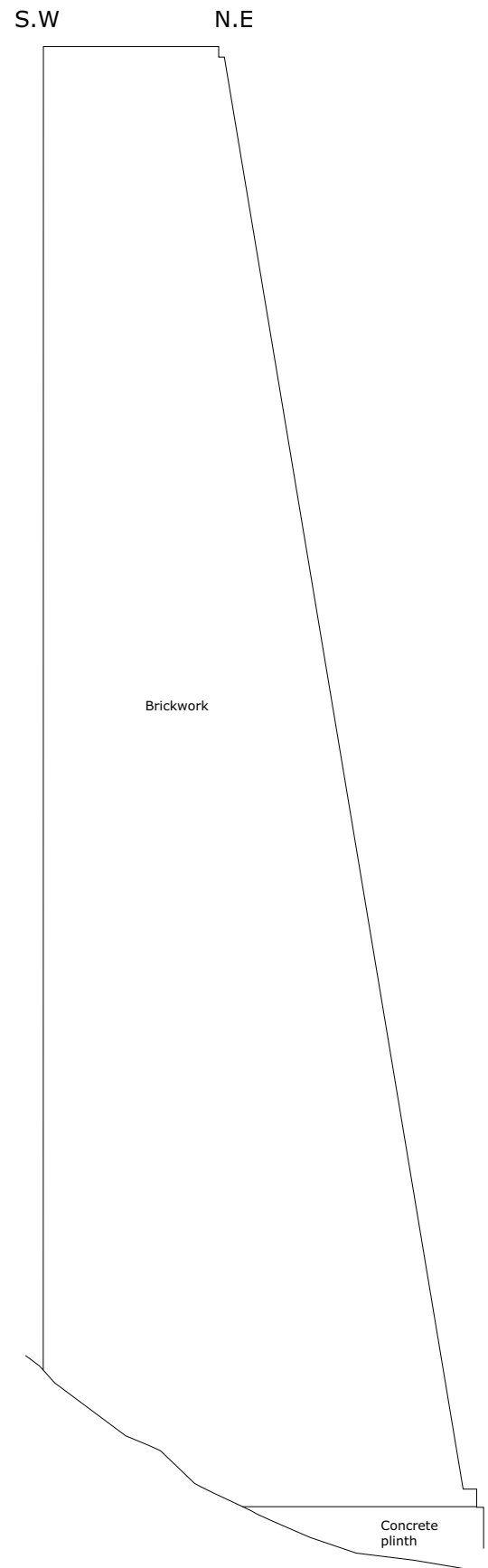
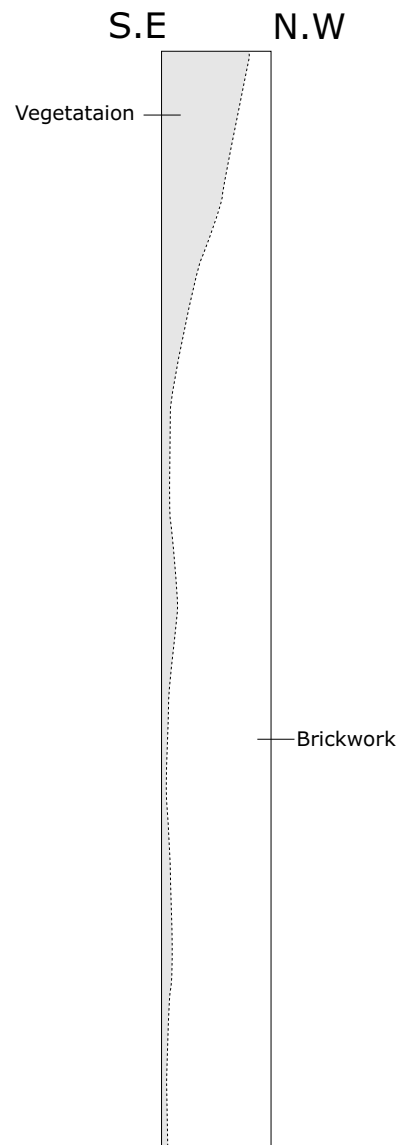
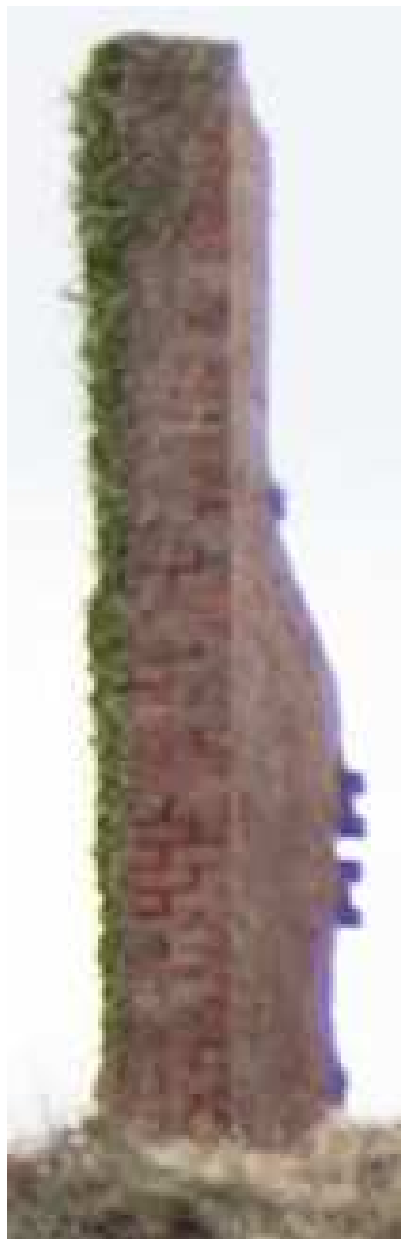


FIGURE 8.

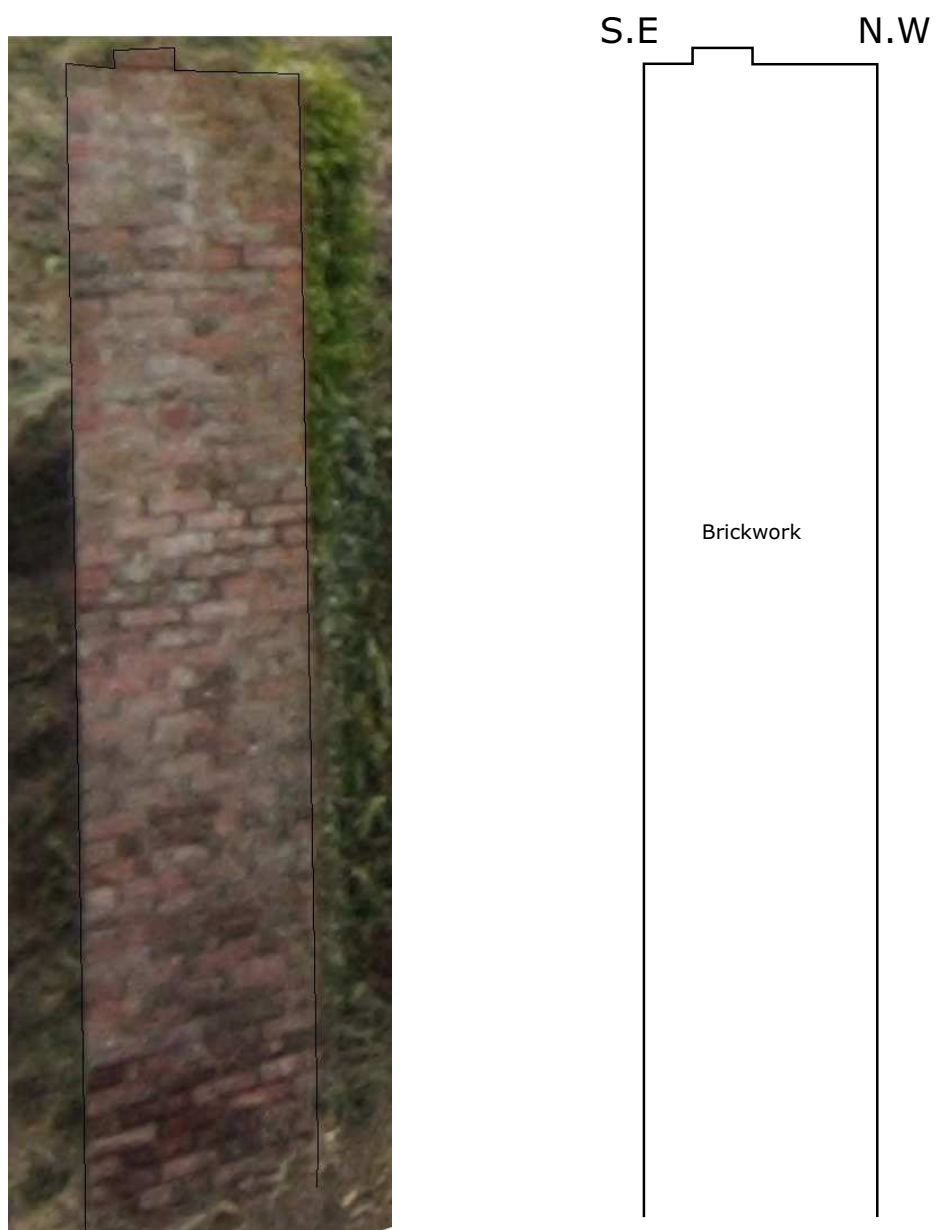
Porthgain Quarry  
Structure J  
N.E elevation of tower in complex  
Scale 1:25



**FIGURE 9.**



Porthgain Quarry  
Structure J  
N.E elevation of wall in complex  
Scale 1:25



**FIGURE 10.**

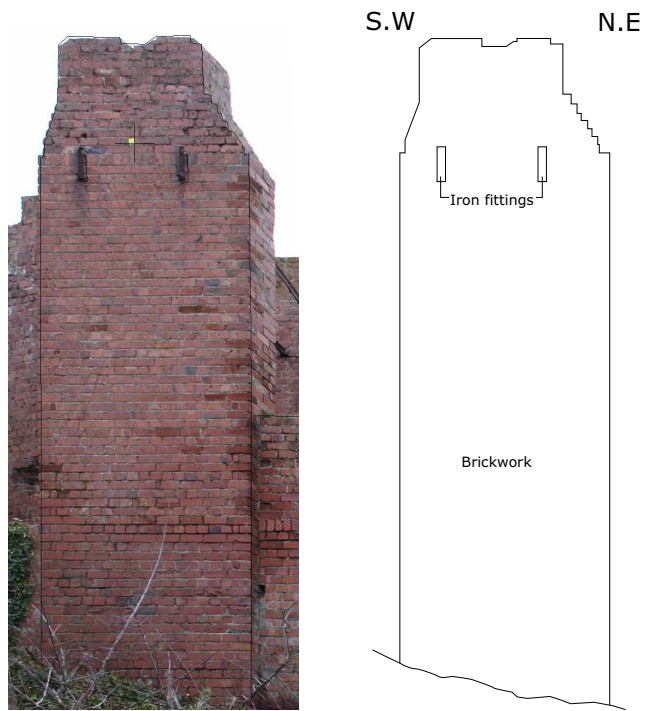


Porthgain Quarry  
Structure M  
N.E elevation of east corner  
Scale 1:25



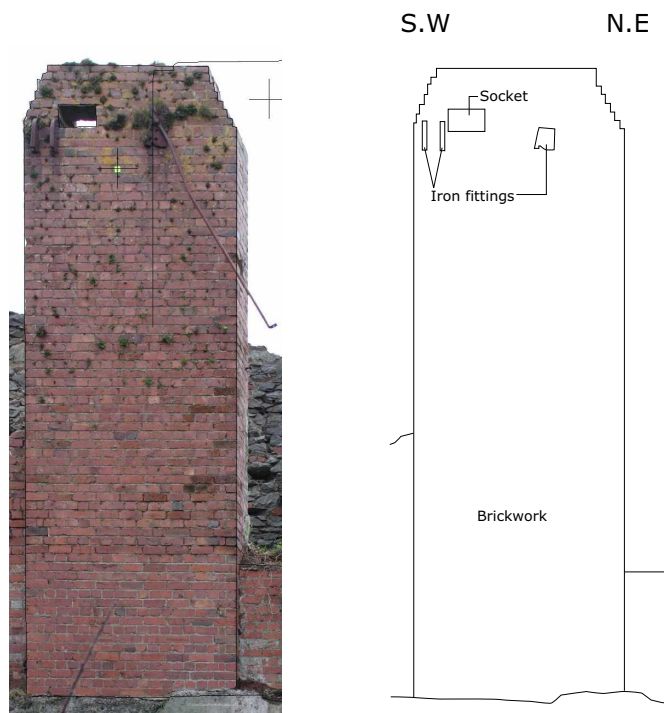
**FIGURE 11.**

Porthgain Quarry  
Structure M  
S.E elevation of south corner  
Scale 1:50



**FIGURE 12.**

Porthgain Quarry  
Structure M  
S.E elevation of east corner  
Scale 1:50



**FIGURE 13.**

Porthgain Quarry  
Structure L  
N.E elevation of southeast corner  
Scale 1:25

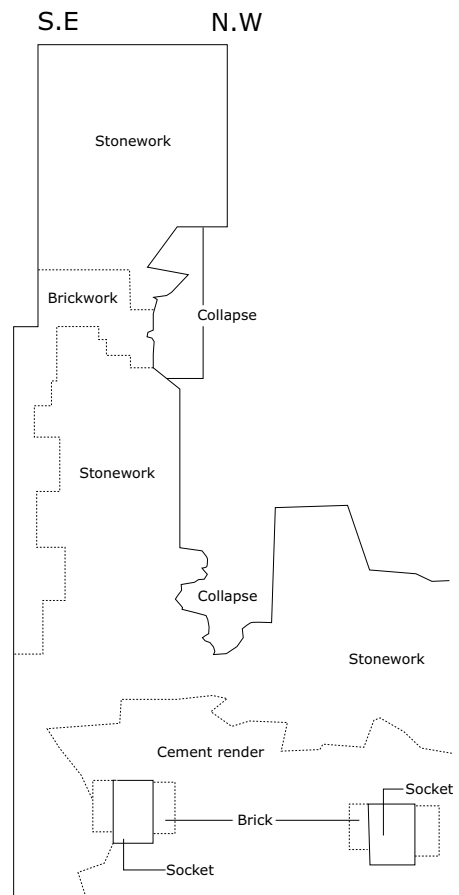


FIGURE 14.

# Porthgain Quarry

## Structure L

N.E elevation of northwest corner

Scale 1:25



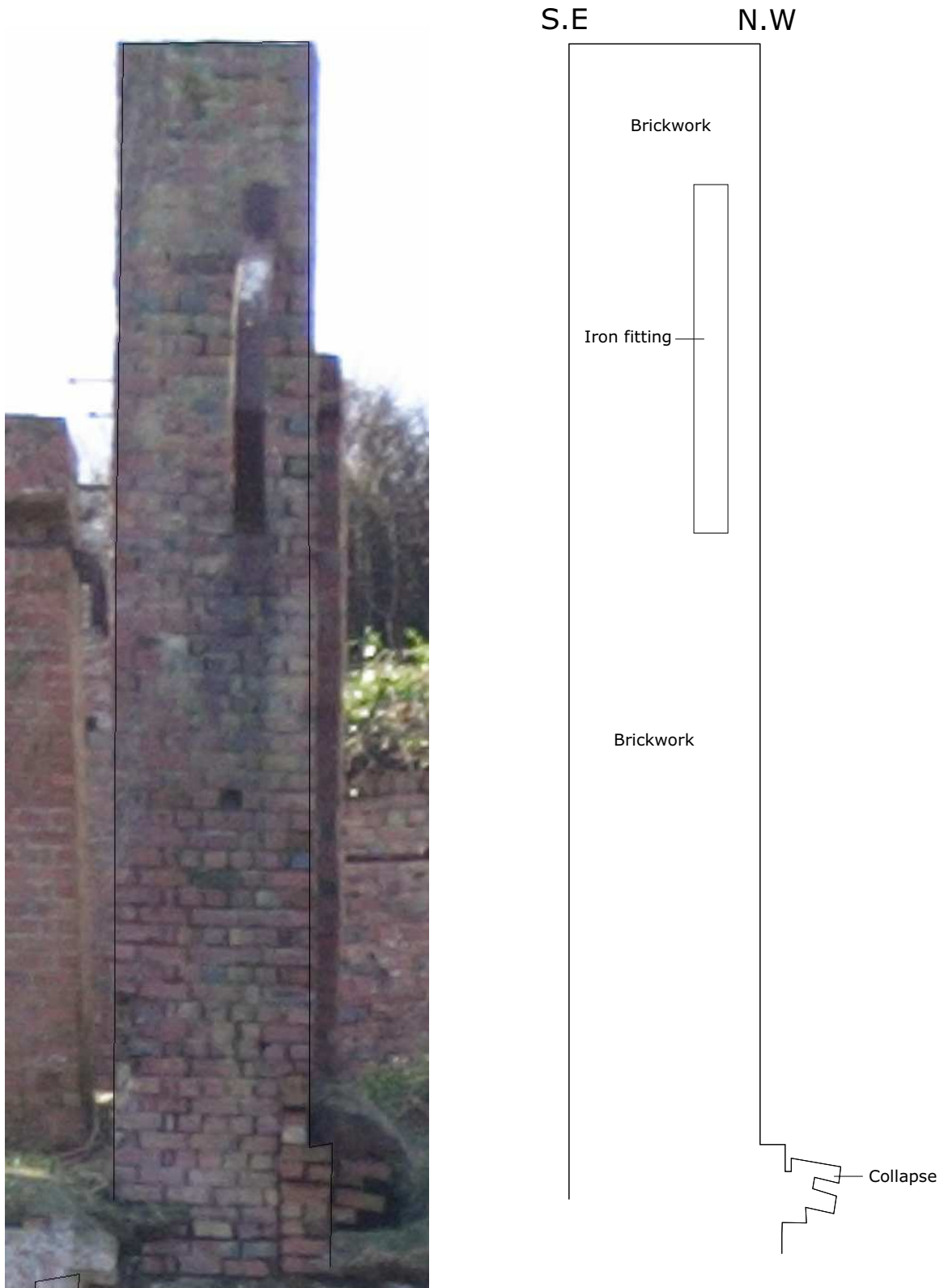
**FIGURE 15.**

# Porthgain Quarry

## Structure G

N.E. elevation of southeast corner

Scale 1:25



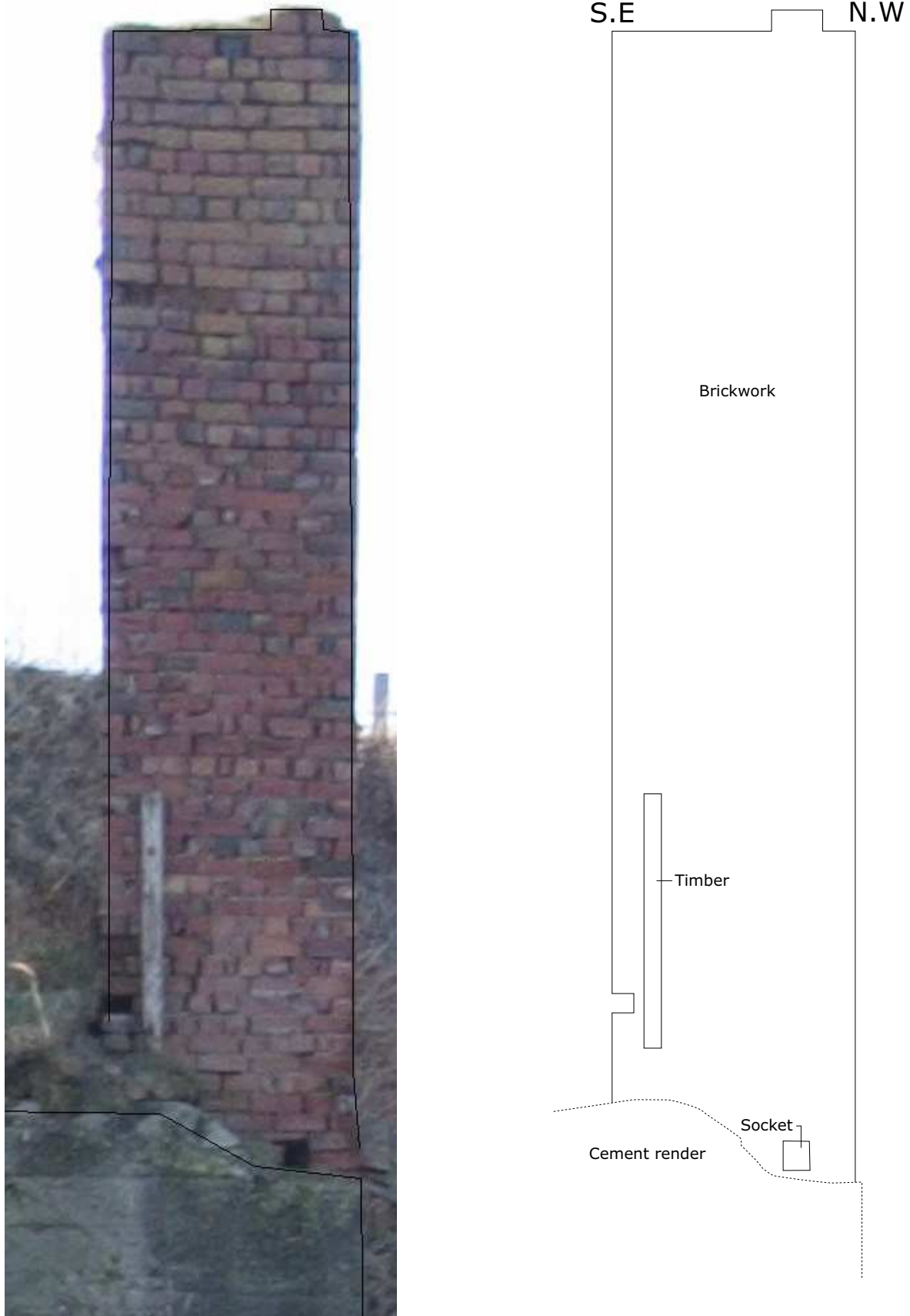
**FIGURE 16.**

# Porthgain Quarry

## Structure G

### N.E elevation of northwest corner

Scale 1:25



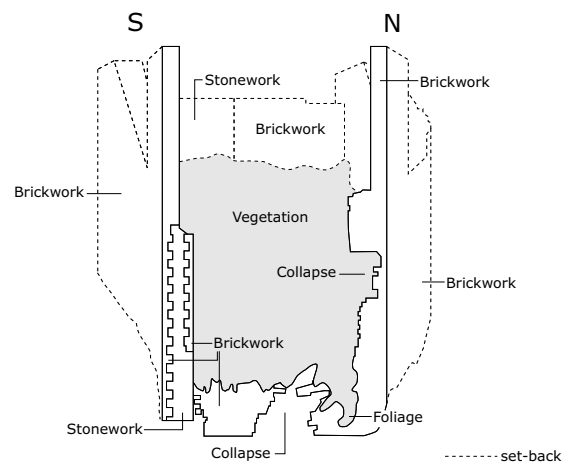
**FIGURE 17.**

Porthgain Quarry  
Structure K  
East facing elevation

Scale 1:100



**FIGURE 18.**

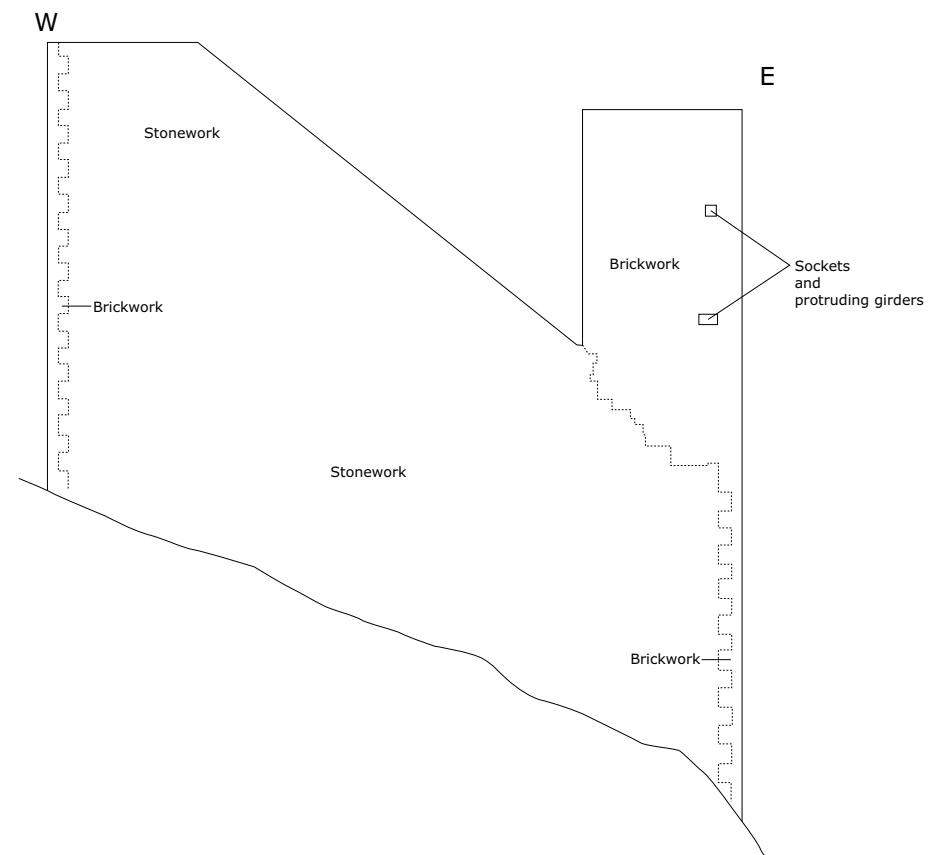




Porthgain Quarry  
Structure K  
South facing elevation  
Scale 1:50



FIGURE 19.



Porthgain Quarry  
Structure K  
North facing elevation  
Scale 1:50



FIGURE 20.



**PORTHGAIN QUARRY  
ARCHAEOLOGICAL STANDING BUILDING RECORDING AND WATCHING BRIEF**

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**December 2006**

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This report has been checked and approved by Ken Murphy on behalf of Cambria  
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