

**MILFORD HAVEN TO ABERDULAIS AND
FELINDRE TO BRECON NATURAL GAS
PIPELINE**

Final Report

Assessment Report for Stone

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SUMMARY

A small collection of stone was recovered. Much of this material was collected as being potentially burnt, from both hand collection and sieving. Only a small number of pieces show undisputable evidence for burning however. Similarly, a few fragments are of metamorphic slate which was most likely used for roofing. The finds come from the counties of Swansea, Pembrokeshire and Carmarthenshire (Table 1).

Table 1

category	Swansea	Pembrokeshire	Carmarthenshire	Grand Total
MODIFIED			3	3
MODIFIED?			34	34
PLASTER			1	1
UNMODIFIED AND UNWORKED	4	1	60	65
WORKED	1	2	6	9
Grand Total	5	3	104	112

1 INTRODUCTION

This report deals with stone finds from various sites on the Milford Haven to Aberdulais (Site Code: MHA 06) and Felindre to Brecon Natural Gas Pipeline (Site Code: FB07). A total of 115 objects were submitted. Table 2 shows the quantities in each group identified as worked, modified, possibly modified or neither.

Table 2

category	Form	Total
MODIFIED	BURNT STONE	3
MODIFIED?	GEO/BURNT	34
PLASTER	PLASTER	1
UNMODIFIED AND UNWORKED	GEO	68
WORKED	HAMMERSTONE	2
	HAMMERSTONE?	2
	HONE/TALLY STICK	1
	LINEN SMOOTHER?	1
	ROOFER	1
	SPINDLEWHORL	1
	WORKED STONE	1
Grand Total		115

2 **METHODOLOGY**

Each recovered item was examined visually by the authors, looking at the type of stone, traces of use or modification and any evidence for post-burial alteration. A catalogue was produced using the standard Access-based table adopted for all AVAC finds projects.

Visual examination was supplemented by examination using a x20 magnification stereo-microscope to examine rock type and wear traces.

The principal questions asked of the material were:

- a) has the material been modified by deliberate human activity and, if so, can we identify the object?
- b) is the material the by-product of a human activity?

If the answer to both questions is negative then it is assumed that the material is an unmodified stone which was either present in the subsoil before any human activity took place or was brought to the site by human agency but was unchanged by this action. Neither author visited the site during the excavation. Therefore, we cannot say whether the stones are of types naturally present on the site or not.

3 ASSESSMENT OF ASSEMBLAGE

3.1 Quantity

The submitted stones vary considerably in weight, from large rocks to small scraps recovered in sieved samples. Table 3 quantifies the material by count, the number of objects represented (i.e. old and new breaks are ignored) and weight in grams.

Table 3

Category	Fragments	Objects	Weight
MODIFIED	3	3	101
MODIFIED?	34	34	479
PLASTER	1	1	1
UNMODIFIED AND UNWORKED	68	33	5433
WORKED	9	9	4714
Grand Total	115	80	10728

3.2 Provenance

Those stones which might be worked or modified are listed in Table 4 by Site.

Table 4

Trench	Fragments	Objects	Weight
Not known	20	20	70
rdx 1.22	1	1	973
rdx 13.1	1	1	72
rdx 13.3	13	13	2050
rdx 20.8	1	1	1495
rdx 26.5	5	5	344
rdx 28.8	6	6	291
Grand Total	47	47	5295

With very few exceptions, stone artefacts can only be broadly dated unless they occur in a sealed, stratified deposit associated with datable artefacts belonging to a single period.

3.3 Range & Variety of Material

3.3.1 Stone type

Much of the collection consists of fine-grained rocks present as small fragments where macro-features such as bedding are either absent or cannot be distinguished from jointing or metamorphic foliation. Details of the mineral content in these fine-grained rocks cannot be determined by eye. Nevertheless, at least six different rock types are present:

- Conglomerate: this is probably of Old Red Sandstone age and outcrops locally in the Skrinkle Sandstones (1970, 54). Only a few fragments are present, including some well-rounded quartzite pebbles to which hard silicious cement still adheres.

- Sandstone and siltstone: This is the most common group and consists of brown to red fine-grained rocks with some bedding visible and rare fossils present mainly as voids.
- Shale: Fragments of shale with prominent bedding and plant fossils are present. Shales outcrop within the Old Red Sandstone as lenses in sandstone deposits but are more common in the Carboniferous coal measures, the nearest outcrop of which is to the north of Milford Haven.
- Altered volcanic rock. A single fragment of a fine-grained purple rock is traversed by irregular circular pipes, partially filled with white crystalline minerals. This, it is suggested, is a fragment of an altered volcanic rock. Since there is no evidence that the rock was modified or utilised no further attempt to identify it has been made.
- Chalk. Two fragments of chalk, both elongated pebbles of soft chalk with parallel veins of sparry calcite running across the rock, were present. These are presumably erratics of Northern Irish origin and originated in a Quaternary deposit, such as boulder clay, morainic gravel or a raised beach deposit (where they could have been present as drop stones, carried by icebergs).
- Carboniferous limestone. A single eroded fragment of grey limestone with several large coral fossils present is almost certainly Carboniferous limestone. This rock outcrops on the Gower Peninsular to the south and west of Milford Haven (1970, 58-72) and could have been present in a raised beach deposit or even modern beach deposit.
- Slate: A few fragments of blue slate roofing tiles were recovered. Slates formed by the compression and shearing of various Palaeozoic shales occur in various parts of Wales and the South-west peninsula. They have been worked in Cardiganshire and Pembrokeshire (Ordovician and Silurian); Llanberis and Bethesda (Cambrian) and Blaenau Ffestiniog (Ordovician). However, these examples could as easily be from North Devon.

3.3.2 Unused stone

The majority of the stone finds show no conclusive evidence for human modification nor for their use as “found objects”. Several objects show some possible evidence for burning, but in many cases this consists of alteration of the natural reduced grey colour of shales and siltstones. Neither of these materials, however, would make very suitable pot boilers or steam generators, because of the softness and fine texture of the rock. Heating a rock of this sort and plunging it into water is likely to cause total disintegration of the rock rather than its cracking into the sort of fragments recovered from these sites. It is therefore our opinion that most of the stone which we label “burnt?” is in fact not.

3.3.3 Burnt stone

Only three definite fragments of burnt stone were recovered from this pipeline, from sites RDX 13.3 and RDX 26.5. The remaining 37 fragments which show possible or tentative signs must therefore be treated with caution, although in the case of the pieces from sites RDX 13.3 and RDX 26.5 they are from the same sites as definite examples whilst those from site RDX 28.8 are not.

Table 5

trench	category	Sum of Nosh	Sum of NoV	Sum of Weight
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Not known	MODIFIED?	18	18	33
rdx 13.3	MODIFIED	2	2	26
	MODIFIED?	7	7	66
rdx 26.5	MODIFIED	1	1	75
	MODIFIED?	3	3	89
rdx 28.8	MODIFIED?	6	6	291
Grand Total		37	37	580

3.3.4 Roof Slate

A single fragment of metamorphic blue/grey slate, probably used for roofing were recovered from site RDX 13.1. The fragment has one grozed edge, confirming its identification.

3.3.5 Hammerstones

Four fragments of possible or definite hammerstones were recovered (Table 6). All were formed from ovoid pebbles with a natural polish. Three have evidence for use around the widest diameter and the fourth has broken after use.

Table 6

Form	trench	Fragments	Objects	Weight
HAMMERSTONE	rdx 1.22	1	1	973
	rdx 26.5	1	1	180
HAMMERSTONE Total	2	2	1153	
HAMMERSTONE?	rdx 13.3	2	2	1861
HAMMERSTONE? Total	2	2	1861	
Grand Total		4	4	3014

3.3.6 Tally stick or hone

A single object from site RDX 166.1 (context 508067) has what must be deliberate notching on one site of what is otherwise a naturally rounded siltstone pebble. The notches have a very similar appearance to wooden tally sticks and it is possible that the object had a similar function.

3.3.7 Linen smoother?

A single rounded pebble from site RDX 20.8 (context 208110) has a single polished surface. It is similar in size to early medieval and later linen smoothers and may have had a similar function.

3.3.8 Roofing slate

A single fragment of blue-grey metamorphic roofing slate was recovered from site RDX 13.1 (context 131087). It has a single grozed edge confirming that it was part of a roofing slate, probably of late medieval or later date.

3.3.9 Spindle whorl

A single spindle whorl was recovered from site RDX 166.1 (context 508106). It was made from shale and is 35mm in diameter and between 5 and 6mm thick. It has a central cylindrical hole 4mm in diameter.

3.3.10 Worked stone

A soft siltstone rounded pebble shows signs of two conical drill marks approximately central on both flat surfaces. These appear to have been an abortive attempt to pierce the stone. The condition of the marks suggests that they might be recent.

3.3.11 Rotary Quern

The top stone of a rotary quern was recovered from Site RDX 166.1 (context 508230). The stone is made from Millstone Grit and is 500mm in diameter, 130mm high, with a central conical hopper narrowing from 130mm at the top to 90mm at the bottom.

3.3.12 Door jamb

A rectangular block, 550mm by 380mm by 275mm, with a circular socket at one end is probably a door jamb. It comes from site ??? (unstratified).

3.4 Condition of Material

Most of the stone consists of quartz-rich siltstones, sandstones and conglomerates which are unaffected by most burial conditions. A few fragments of limestone (chalk and a grey limestone containing fossil corral) show signs of chemical erosion, sufficient to remove any traces of wear or other use but not sufficient to suggest that material of this type has been selectively removed from the site. All of the stone is capable of being stored in perpetuity without further decay.

3.5 Statement of Potential

3.5.1 Burnt stones

The possible burnt stone may have been associated with burnt stone mounds, sites located near running water and usually on the edge of, or at some distance from, more permanent settlement. These mounds have been suggested to have been used in food preparation, or bathing or perhaps ritual cleansing (in the manner of a modern sauna). Alternatively, they may have been used as pot boilers to heat water without subjecting the container to flames.

3.5.2 Roofing slate

The single roofing slate has no measurable dimensions, other than its thickness, and has limited potential for further study except characterisation of the slate..

3.5.3 Other artefacts

The hammerstones, tally stick? Linen smoother? Spindle whorl, worked stone, quern and door jamb all illustrate daily life along the pipeline. None, however, appear to address specific research questions.

3.6 New Research Questions and Potential of Data

The stone finds raise no research questions.

3.7 Recommendations

The various artefacts (hammerstones, tally stick? Linen smoother? Spindle whorl, worked stone, quern and door jamb) should all be illustrated or recorded by photography.

3.8 Bibliography

Neville George, T. (1970) *British Regional Geology: South Wales*, HMSO, London

3.9 Appendix - Catalogue of Finds

Context	Site	SF No	Sitecode	category	cname	Form	subfabric	Description	Part	Nosh	NoV	Weight
118083	rdx 1.18	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO	SANDSTONE		BS	1	1	470
122003	rdx 1.22	-	FB07	na					BS	1	1	0
122003	rdx 1.22	-	FB07	na	GLASS	GLASS WASTE		VERY DARK	BS	3	3	17
122003	rdx 1.22	122/3011	FB07	WORKED	STONE	HAMMERSTONE		FAIRLY SMOOTH TOP/BOTTOM WITH MULTIPLE SCARING ALL ROUND SIDES	BS	1	1	973
122009	rdx 1.22	-	FB07	na					BS	5	1	0
122009	rdx 1.22	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO	QUARTZ		BS	1	1	1
131075	rdx 13.1	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO	ALTERED VOLCANIC	DARK RED	BS	5	1	555
131087	rdx 13.1	-	FB07	WORKED	STONE	ROOFER	SLATE	ONE GROZED EDGE	BS	1	1	72
133006	rdx 13.3	-	FB07	PLASTER	PLASTER	PLASTER		ANGULAR FLINT SUGGESTS MODERN USE	BS	1	1	1
133006	rdx 13.3		fb07	MODIFIED	STONE	BURNT STONE	SHALE		BS	1	1	6
133006	rdx 13.3		fb07	MODIFIED?	GEO/STONE	GEO/STONE		POSSIBLY BURNT - RED/ORANGE/BROWN	BS	7	7	66
133006	rdx 13.3	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO			BS	13	13	241
133006	rdx 13.3		fb07	MODIFIED	STONE	BURNT STONE	SANDSTONE	SUBJECTED TO SUCH HIGH TEMPERATURES THAN STONE EXTERIOR HAS MELTED	BS	1	1	20

Context	Site	SF No	Sitecode	category	cname	Form	subfabric	Description	Part	Nosh	NoV	Weight
133006	rdx 13.3		FB07	UNMODIFIED AND UNWORKED	GEO	GEO	SILTSTONE		BS	1	1	32
133006	rdx 13.3	-	FB07	WORKED	STONE	WORKED STONE	SILTSTONE	DRILL MARKS FRONT AND BACK - NEVER TO MEET, POSSIBLY RECENT	BS	1	1	96
133006	rdx 13.3	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO		PEBBLES	BS	2	2	720
133006	rdx 13.3		fb07	WORKED	STONE	HAMMERSTONE?		PEBBLE WITH SCARS ROUND SIDES	BS	1	1	669
133006	rdx 13.3		fb07	WORKED	STONE	HAMMERSTONE?		PEBBLE WITH SCARS ROUND SIDES	BS	1	1	1192
151029	rdx 15.1	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO			BS	1	1	1841
208110	rdx 20.8	-	FB07	WORKED	STONE	LINEN SMOOTHER?		PEBBLE; MOSTLY FAIRLY ROUGH WITH A PATCH WHICH IS SMOOTH	BS	1	1	1495
208136	rdx 20.8		FB07	UNMODIFIED AND UNWORKED	GEO	GEO		PEBBLE	BS	1	1	29
212036			FB07	MODIFIED?	GEO/STONE	GEO/BURNT	SHALE	GREY/ORANGE/BROWN	BS	18	18	33
212036	rdx 21.2	2122014	FB07	UNMODIFIED AND UNWORKED	GEO	GEO	SHALE	GREY/BROWN/DARK BROWN	BS	32	1	86
213005		-	FB07	na				NOT IN BOX; REID?	BS	1	1	0
229101			fb07	UNMODIFIED AND UNWORKED	GEO	GEO	FELSPAR		BS	1	1	34
229287			fb07	UNMODIFIED AND UNWORKED	GEO	GEO		BROKEN PEBBLE	BS	1	1	433
258002	rdx 25.8	2583000	FB07	UNMODIFIED AND UNWORKED	GEO	GEO		PEBBLE	BS	1	1	220

Context	Site	SF No	Sitecode	category	cname	Form	subfabric	Description	Part	Nosh	NoV	Weight
265073	rdx 26.5	2652001	FB07	MODIFIED	STONE	BURNT STONE		FIRE CRACKED PEBBLE	BS	1	1	75
265640	rdx 26.5	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO		PEBBLE	BS	1	1	180
265740	rdx 26.5	2653625	fb07	MODIFIED?	GEO/STONE	GEO/STONE		CRACKED PEBBLES - FIRE? WITH ASHY DEPOSIT	BS	3	3	89
265740	rdx 26.5	2653625	FB07	WORKED	STONE	HAMMERSTONE		HAMMERSTONE, THEN CRACKED	BS	1	1	180
508067			MHA 06	WORKED	STONE	HONE/TALLY STICK	SILTSTONE	BROKEN BOTH ENDS - 58 REMAINING LENGTH; 21 WIDE AND UP TO 11 THICK; FLATTISH ONE SIDE AND DOMED ON OTHER; GROOVES CUT ACROSS ONE EDGE, 6 LONG - 4 APART WHERE WORN AND 2 AND 3 APART WHERE MORE CLEAR	BS	1	1	23
508106			MHA 06	WORKED	STONE	SPINDLEWHORL	SHALE	35 DIA; HOLE 4 DIA; THICKNESS VARIES BEETWEEN 5 AND 6	BS	1	1	14
508115		508042	MHA 06	UNMODIFIED AND UNWORKED	GEO	GEO	MICACEOUS SANDSTONE		BS	1	1	183
508230			MHA 06	na				NOT IN BOX; REID?	BS	1	1	0
2018002	rdx 20.18	-	FB07	UNMODIFIED AND UNWORKED	GEO	GEO		BROKEN PEBBLE	BS	1	1	126
2808001	rdx 28.8	-	FB07	MODIFIED?	GEO/STONE	GEO/STONE	SILTSTONE	BURNT? PINK/ORANGE/GREY/BROWN	BS	2	2	23
2808001	rdx 28.8	-	FB07	MODIFIED?	GEO/STONE	GEO/STONE	MICACEOUS SAND STONE	BURNT? PINK/ORANGE/GREY	BS	3	3	154
2808001	rdx 28.8		fb07	MODIFIED?	GEO/STONE	GEO/STONE	SANDSTONE	CRACKED STONE; FIRE?	BS	1	1	114
			fb07	UNMODIFIED AND UNWORKED	GEO	GEO		PEBBLE	BS	1	1	25

Context	Site	SF No	Sitecode	category	cname	Form	subfabric	Description	Part	Nosh	NoV	Weight
-	rdx 26.5	2652002	FB07	na				NOT IN BOX; REID?	BS	1	1	0
-	rdx 1.22	3005	FB07	UNMODIFIED AND UNWORKED	GEO	GEO	SHALE		BS	2	2	2
COBBLED AREA			fb07	na					BS	1	1	0
U/S			fb07	UNMODIFIED AND UNWORKED	GEO	GEO	FELSPAR		BS	1	1	2
U/S			fb07	UNMODIFIED AND UNWORKED	GEO	GEO		BROKEN PEBBLE	BS	1	1	253