HIBERNIA ROW PUMPING STATION, HOLYHEAD

ARCHAEOLOGICAL FIELD EVALUATION

GAT Project No. G1750

Report No. 520

Hibernia Row: Trench 1. The stone railway sleepers and track bed revetment

Prepared for Galliford Try

By George Smith

March 2004

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
☎ 01248 352535 ✉ 01248 370925 email : gat@heneb.co.uk

HIBERNIA ROW PUMPING STATION, HOLYHEAD

ARCHAEOLOGICAL FIELD EVALUATION,

MARCH 2004

GAT Project No. G1750

Report No. 520

Prepared for Galliford Try

By George Smith

March 2004

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

HIBERNIA ROW PUMPING STATION, HOLYHEAD

ARCHAEOLOGICAL FIELD EVALUATION, MARCH 2004

GAT Project No. G1750

Prepared for Galliford Try

By George Smith

March 2004

CONTENTS

ILLUSTRATIONS

1. **INTRODUCTION**

Gwynedd Archaeological Trust was asked by Galliford to carry out a field evaluation by sample excavation in advance of construction of a new waste water pumping station north of Hibernia Row, Holyhead. The area of the development lies on the line of a former quarry railway of the mid 19th century, part of a network of railways that transported stone from the Breakwater Quarry to be used in the construction of the harbour but chiefly for the main breakwater.

2. HISTORICAL BACKGROUND

The harbour at Holyhead was improved to extend its capacity to serve the expected demands of the new London to Holyhead rail link, which was opened in 1849 with the completion of the Britannia Bridge across the Menai Straits. Work began in 1848 on a new breakwater to provide a large outer harbour. A track using the 7 foot 'broad gauge' was laid from the quarry to Soldier's Point for the main breakwater and an extension was built to Salt Island for construction of an eastern breakwater, although this was never built. However, the track was no doubt used to transport stone for other construction works there before being dismantled some time after 1853 (Neale 1997, 18). It was this extension that ran past the end of Hibernia Row. Its embankment and track bed route were still visible on the Ordnance Survey first edition 25 inch to the mile map of 1891 (Fig. 1). Transposition of this line onto the modern map showed that it lay across the area of the proposed development (Fig. 2).

The railway is of interest for its part in local history but particularly as part of the history of Holyhead Port, which is of national value. It ran along the sea front to the west of the coastguard station then across a wooden bridge over the bay east of Hibernia Row to join the main dock pier onto Salt Island. Broad gauge railways were eventually replaced by Narrow gauge but were still used in quarrying and construction because of the greater stability for mobile cranes and for wagon capacity. The Broad gauge railway at Holyhead quarry continued in use until about 1913 when the last Broad gauge steam locomotive was scrapped (*ibid* 23). The width of the wagons also allowed design of a self-tipping type that emptied the stone between the rails, and as well as carrying larger quantities could tip much larger stones than an equivalent design for Narrow gauge wagon (Fig. 9). The wagons, designed by George Dobson, site engineer on the Holyhead Breakwater project, proved to be very successful for breakwater construction and the same type of wagons were subsequently used in other major breakwater projects at Portland, Dorset, and on the Isle of Man, in South Africa and the Azores (Manning 1998, 18). Each wagon carried 8-10 tons and it is estimated that the 250 wagons built for Holyhead carried in total some 7 million tons of stone (*ibid*, 17). The railway track was laid on stone sleepers, which are believed to have been bought second-hand, possibly when the Birmingham to London Broad gauge railway was dismantled. Some of these sleeper stones have survived and pulled out of place in recent times and can be seen along the sea front west of the coastguard station and on the beach north of Hibernia Row. Hughes and Williams (1981, 94-5) say – 'Until quite recently, examination of the grass verge near the top promenade revealed occasional blocks of trimmed granite with holes in their upper surfaces, these once bore one of the railway lines which ran the length of the beach to Salt Island….The path of the line provided the basis for Beach Road and the upper road to the breakwater'.

3. EVALUATION EXCAVATION

Two trenches were excavated across the expected line of the railway in the general area of the proposed development (Figs 2 and 3). The location of the trenches was determined mainly by the small amount of ground available between the boats stored there and by the need to avoid a pre-existing manhole and sewage pipe and a bore-hole drilled as part of the present development. The trenches were excavated by machine and completed by hand. After excavation and recording the trenches were backfilled, consolidated and re-turfed by machine.

Each trench was 5m long. Trench 1 at the west was about 1.5m wide and close to the pre-existing man-hole. This produced results that were at first uncertain so Trench 2, 1m wide was excavated further to the east. This exposed a well-preserved piece of railway track bed and proved that the remains found in Trench 1 were also track bed, which was confirmed by further excavation.

TRENCH 1 (Fig. 4)

Immediately below the topsoil at the south-west end of this trench at only 0.10m below the modern surface was encountered a wide area of packed small stone and grit with some larger stones showing through. At the north-east end of the trench was a deep layer of sandy loam in which were occasional scattered charcoal fragments. This overlay orange-brown sandy subsoil at about 0.65m below the present ground surface. The stony area was edged or revetted at the north by a linear arrangement of vertically-set large angular slabs and resting on the subsoil (Fig. 5). These had been placed within a cut in the sandy loam. The cut had been backfilled with smaller broken stone after construction of the stone revetment. The stony area was taken to be the remains of the railway track bed, which was therefore built in a foundation trench cut only as far as the subsoil surface, the resulting track bed here therefore being 0.5 to 0.6m deep. Excavation of trench 2 proved this and showed that sleeper stones should still survive. The stony area in Trench 1 was then excavated further to reveal two sleeper stones, set about 1m in from the stone revetment edge (Fig. 6). The sleeper stones were set 0.92m (3ft) apart. They were irregular sized and shaped blocks of probably Midlands oolitic limestone, each with an approximately flat upper surface into which had been chiselled the setting for an iron chair 260mm by 150mm (10in by 6in) and with two drilled fixing holes each about 25mm (1inch) diameter (Fig. 8).

TRENCH 2 (Fig. 4)

This exposed a similar area of vertically-set stones to those in Trench 1 edging another stony area in which were exposed three sleeper stones, two at the north-east and one at the south-west (Fig. 7). These provided a full cross plan of the track. The rail-chairs were set at centres 2.2m (7 ft 4in) apart, which, allowing for the rail width gives the gauge of 2.14m (7ft). The south edge of the track bed was not visible because of an area of modern disturbance which came close to the modern ground surface and was presumed to be a modern service trench, probably a sewer. In this trench the sleeper stones were lower than the top of the track bed revetment but this may have been due to subsidence because the sleeper stones in Trench 1were approximately level with the top of the revetment.

4. CONCLUSIONS

The two trenches showed that the railway track bed survives apparently intact across this whole area, together with its sleeper stones, although without the iron chairs, fixing pins and rails. Similar stones, showing the rail and chair design can be seen in a contemporary drawing of a Dobson wagon (Fig. 9).

The deep soil into which the foundation trench for the track bed had been cut was evenly mixed sandy loam with scattered charcoal fragments. This soil has probably been mixed by cultivation, the charcoal possibly added as a soil improver. Long clay-pipe stems and fragments of brown stoneware pottery as well as cream tableware suggest this cultivation took place in the 18th century and perhaps until the railway was laid down in about 1849. This area would all have been farm land before the construction of Holyhead Port began, after which settlement would have expanded rapidly.

5. RECOMMENDATIONS

The track bed is well preserved and probably complete across this area, except for intrusion by the pipe for the sewer outfall, which must cross it. The survival of a length of Broad gauge track bed with its sleeper stones *in situ* is rare. It has special interest because of the importance of the breakwater construction in the development of Holyhead and, more widely, because Holyhead had the last working Broad gauge locomotive in Britain. It therefore deserves proper recording before any construction works. This should be done by clearing the track, planning and photographing its surface, and by cutting and recording a sample section across the track bed and by lifting of the affected sleeper stones.

The Holyhead Maritime Museum is keen to put the sleeper stones on display as a re-laid Broad gauge track bed. This provides a good opportunity for publicity, of local and regional interest.

6. REFERENCES

Lloyd Hughes, D. and Williams, D.M. 1981. Holyhead: *The Story of a Port*, Denbigh.
Manning, I. 1998. Broad Gauge Rolling Stock at Holyhead Breakwater, *Industrial Gwynedd*, 3, 17-22.
Neale, A. 1997. Broad Gauge at Holyhead, *Industrial Gwynedd*, 2, 18-25.

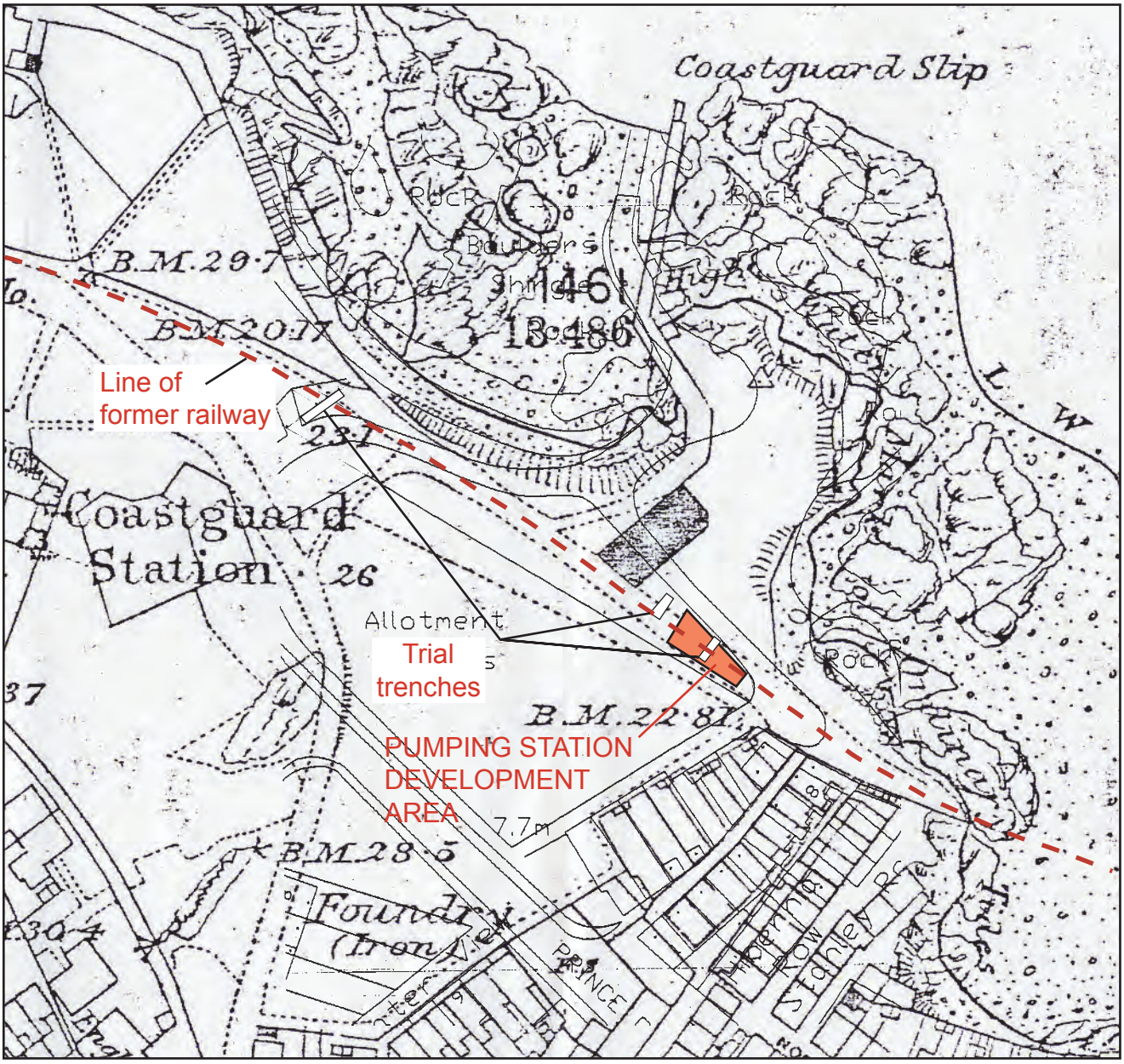


Fig. 1 Hibernia Row Pumping Station: Excerpt from the Ordnance Survey first edition 25 inch map 1891, showing the line of the former railway and with the area of the current development and trial trenches indicated.

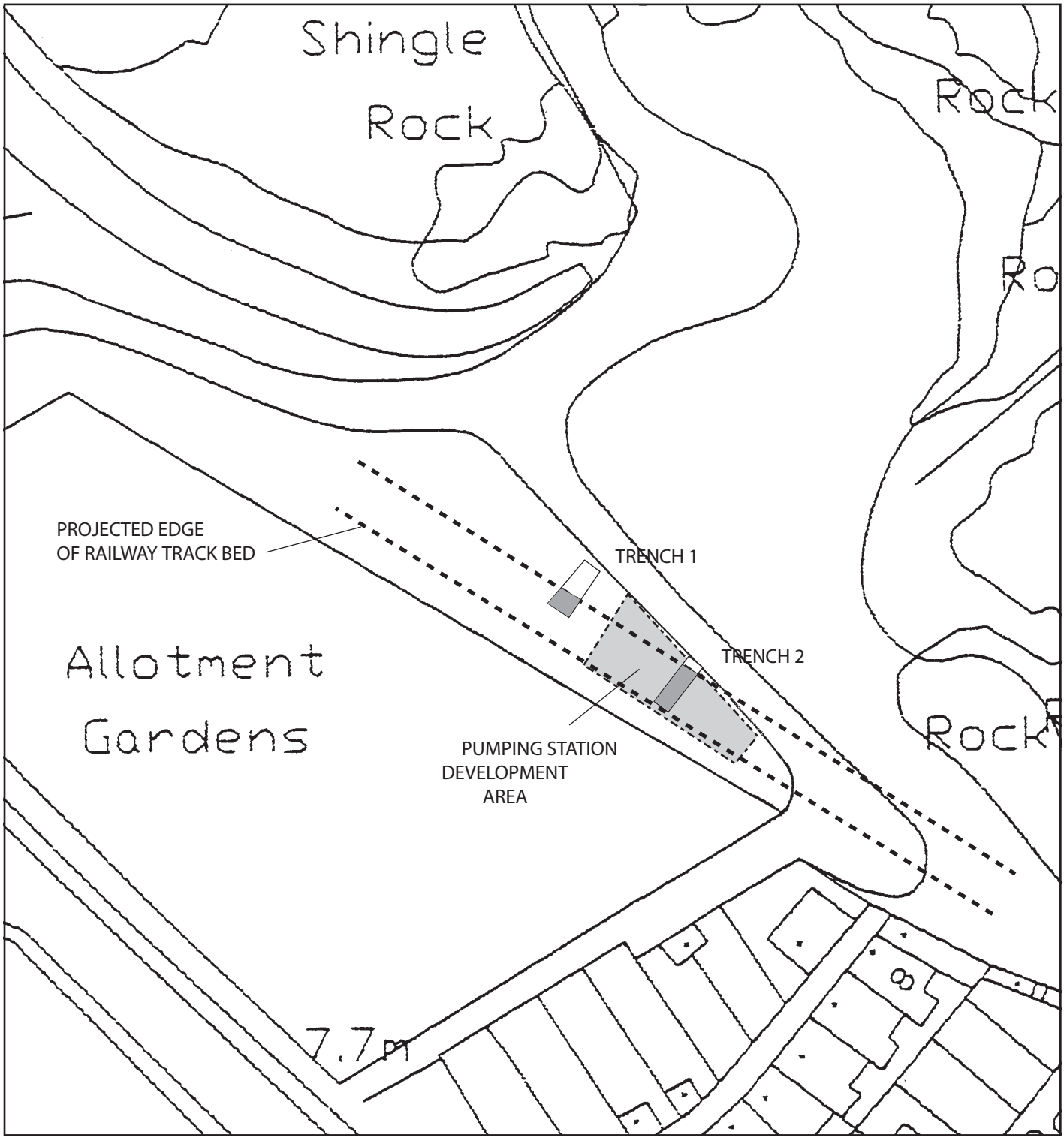


Fig. 2 Hibernia Row, Holyhead: Location of the development area, excavation trenches and the projected line of the railway track bed. Scale 1:500

Fig. 3 Hibernia Row Pumping Station: Plan showing the proposed development design in relation to the location of the excavated trenches

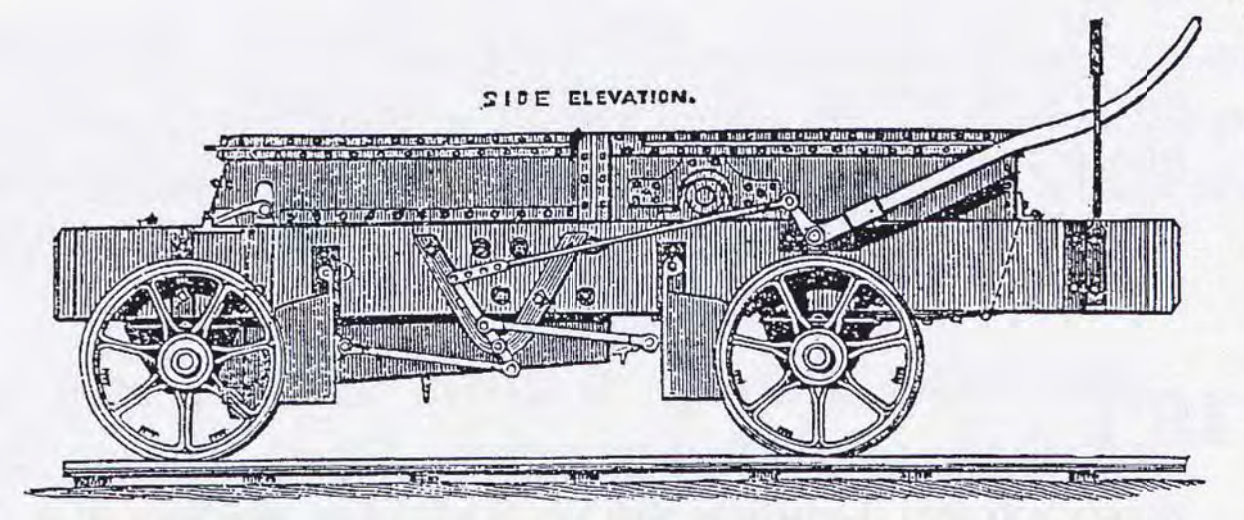
Fig. 4 Hibernia Row Pumping Station: Archaeological trench plans and sections. Scale 1:40

Fig. 5 Hibernia Row Pumping Station
Trench 1. General view of the track bed revetment, from the north-east. 1m scale

Fig. 6 Hibernia Row Pumping Station
Trench 1. The stone sleepers and track bed revetment, from the south-east. 1m scale

Fig. 7 Hibernia Row Pumping Station
Trench 2. General view of the track bed and stone sleepers, from the south-west. 1m scale

Fig. 8 Hibernia Row Pumping Station
Trench 2. Detail of a stone sleeper showing the setting for the iron rail-chair. 1m scale



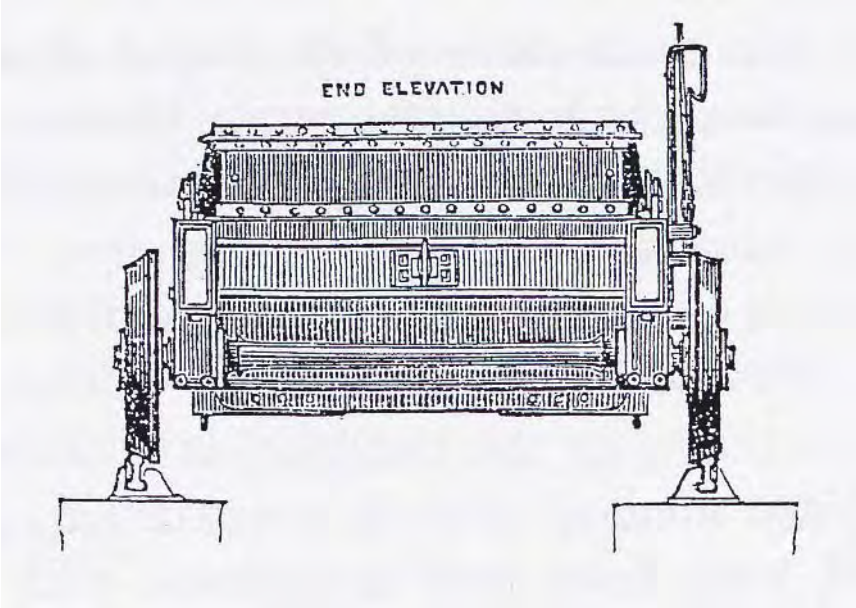


Fig. 9 Hibernia Row Pumping Station
Scale drawings of a Dobson Broad gauge self-tipping quarry wagon showing the stone sleeper design
(From *The Engineer* 1867)

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT Ffon/Tel 01248 352535 Ffacs/Fax 01248 370925
e-mail: gat@heneb.co.uk web site: www.heneb.co.uk