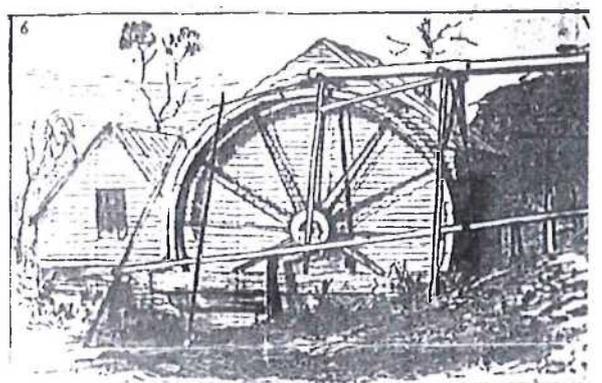
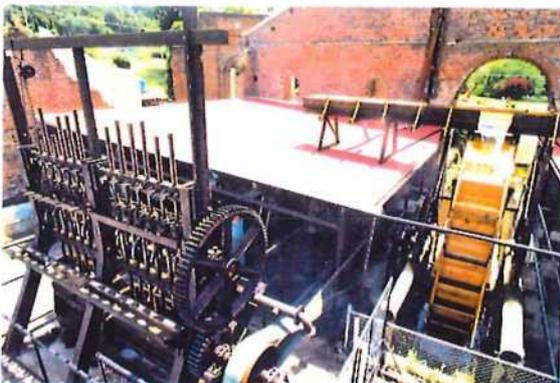
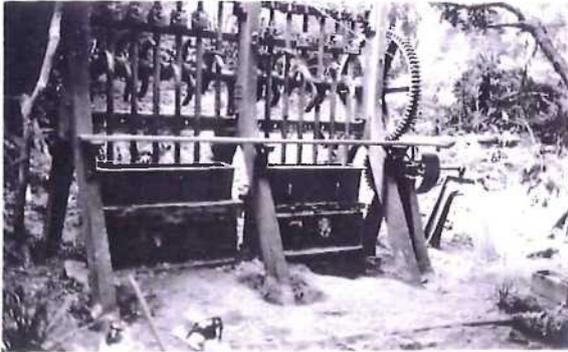


THE "CHINTOCK" PROJECT

1993

GRUBB SHAFT MUSEUM, BEACONSFIELD



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# THE CHINTOCK PROJECT - 1993

## GRUBB SHAFT MUSEUM BEACONSFIELD

An account of the salvage and reactivation of a waterwheel-powered stamp battery from an old mine site near Weldborough in north-eastern Tasmania, to the Grubb Shaft mining museum at Beaconsfield, Tasmania.

### HISTORY

Mines Department (Tasmania) records <sup>1</sup> show that in 1933-34 Chintock Tin Mines Pty Ltd operated six heads of a twelve-head stamp battery to crush ore yielding '738 tons of metallic tin valued at 166 pounds, 18 shillings". The plant built over the headwater of Kent creek on the Blue Tier was powered by a waterwheel fed by a water race from (possibly) nearby Wyniford river. There is no record of this machinery being used after 1934.

There is strong evidence to suggest that this VIVIAN stamp battery is part of one of two twenty-four head stamp batteries made at the Vivian Foundary, Castlemaine, Victoria, in 1862 <sup>2</sup> for the "New Chum" gold mine at Pleasant Creek, now Stawell, Victoria. The battery standards (or "horses"), each clearly marked with the maker's name, consist of one end standard and two intermediate standards. There is no record of Vivian making an eighteen-header, but he did make only one twelve-header. Historical references <sup>3</sup> to multiples of six-head stampers used at north-eastern Tasmania gold mines are:-

1888-95	eighteen stamps, Mt Victoria Gold Mine Co.
1900	twelve stamps, "New River" Gold Mine
1901	twelve stamps "Mara" Gold mine.

Mr W.H. Paine of Derby stated on 27/11/93 that he can remember the Chintock battery being moved by Mr Ted Terry, using a team of horses, to the Kent Creek site from nearby Cream Creek, where it was part of a twenty-four header, driven by a large waterwheel.

Detailed research is needed for an accurate history of this old machine to be recorded; it is likely to be the only survivor of its type in Australia.

The waterwheel used to drive the battery may also have been relocated from Cream Creek. There is mention of it being 9150mm in diameter at the Chintock site, but this is not accurate as the relics found were of a 6100mm diameter wheel. It was made of imported oregon timber on an iron axle and hub assembly of unknown origin, mounted on a base of large myrtle beams and logs.

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<sup>1</sup> Department of Mines, Tasmania  
Annual Report for Secretary of Mines  
K Evans, 1933

<sup>2</sup> The Kent Battery on the Blue Tier, Tasmania. P Milner Oct 1992  
Technology note no TN-92/25

<sup>3</sup> "As the River Flows"

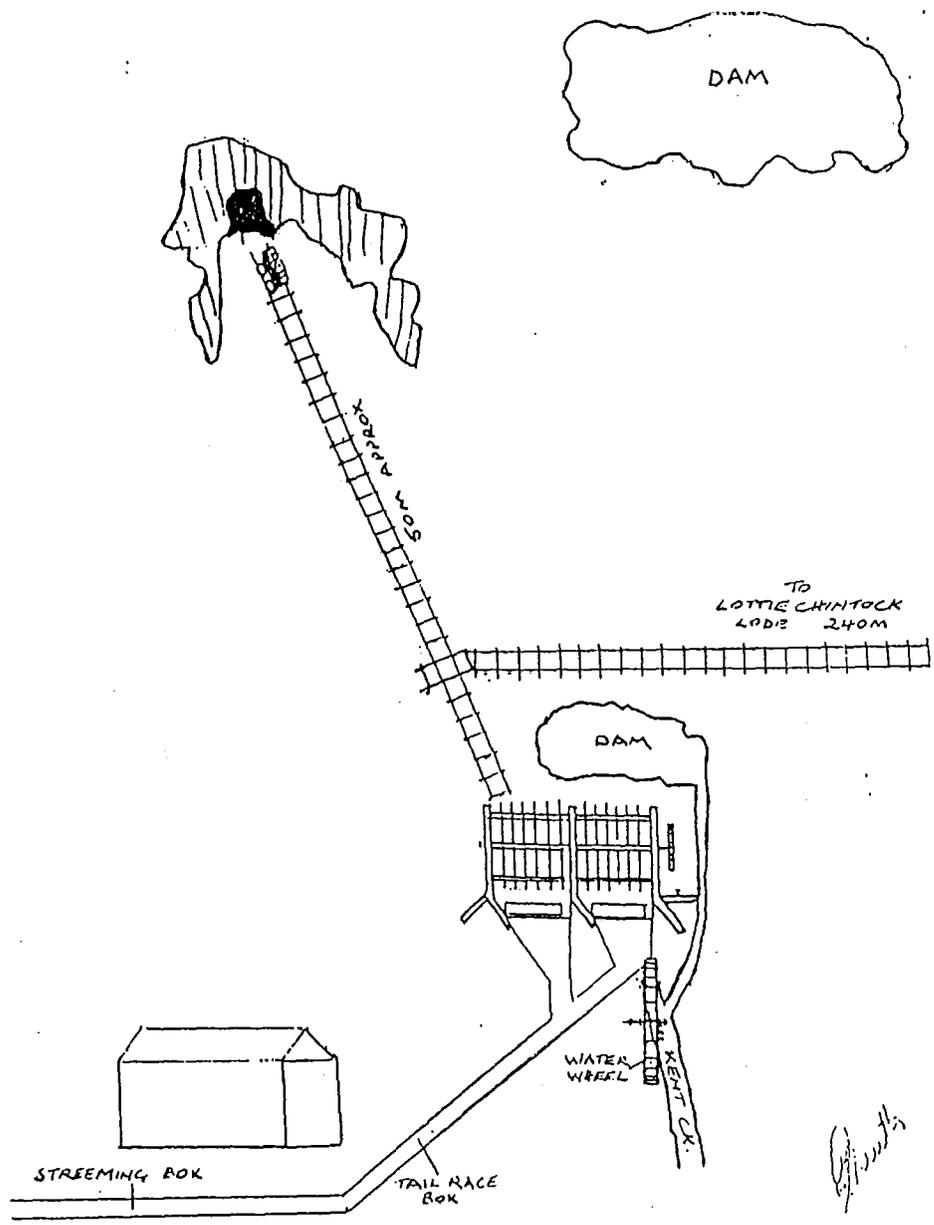
The Kent battery was not working in 1938 but could have started up again in the early 1940s. It never had a long life. The whole of the battery was covered over with split palings and split bitumen drums.

At the rear of the battery a small dam was built in Kent Creek to supply water via a water race and pipes to the hopper boxes, where as the stamps drop to crush the stone, they cause a splash that forces the water, sand and tin oxide out through the steel mesh screen on the front of the hopper boxes and is washed into the tail race box and held there by baffles and continuously loosening the tailings by forking so that the tin being the heavier will drop to the bottom of the tailings where it will be held until the clean up occurs.

Above this dam toward the top of Blue Tier a much larger dam was built to supply water, via a water race and fluming, to the water wheel to drive the machinery of the battery.

About 20m away towards Emu Flat Road a hut was erected for the accommodation of the miners. The hut was clad with split palings and roofed over with corrugated iron. There was a lean to beside the hut used as a blacksmith shop.

The tail race box from the battery ran down toward the hut and in the end section, after clean up, a baffle was put in 2 cleats on either side of the box, this then was used to stream the tin ore to remove any impurities. The water for this operation coming from the smaller dam.



Due to a faulty key fitting of one hub to the shaft, a transverse failure had almost caused this part to break into two pieces. The belt pulley was beyond repair.

Myrtle beams and logs supporting the waterwheel over the creek bed were on the point of collapse. To avoid destruction of the relics, steel cables had been recently fitted from anchors on trees to each end of the axle through the drive cog and both hubs. A further cable was attached from the waterwheel axle to the top of the middle (already weakened) standard of the battery. Hence the impending failure of the wooden base would have caused serious "chain reaction" damage to both machines.

Water to drive the overshot wheel came from a wooden fluming which side-delivered to the buckets from a water-race controlled by a drop-gate. Few relics of this wooden structure remained.

The unusual location of the assembly in a creek bed, which presented difficulties particularly in the mounting of the battery, was perhaps due to the need to obtain maximum fall below the water-race to operate the waterwheel and to be as close as possible to the ore body.

## THE SALVAGE OPERATION

After a prior request from the previous owner of the relics and approval from the Minister of Mines and Forestry, the old machinery, now owned by the West Tamar Council, was moved to Grubb Shaft Museum at Beaconsfield during January 1993.

The least difficult of the overgrown, eroded access tracks was that from the Frome dam, a distance of 7km. This was cleared and repaired by the cartage contractor using an excavator and a front-end loader.

Prior to excavator access to the site, a retaining band was bolted around the outer rim of the damaged waterwheel hub. Timber support plates were clamped to each set of battery standard legs and support chains were fitted to the fragile waterwheel base. The components were dismantled and loaded onto an ex-army ACCO truck, using the excavator as a mobile crane. It was not possible to remove the large cog wheel from the waterwheel axle assembly, necessitating a difficult lift of almost two tonnes.

Working and camping conditions were made unpleasant by an unseasonal 50mm of rain. The steep sections of the track were too slippery for descending vehicles which had to be controlled by a cable attached to the following excavator. Although more time was taken than expected (eight days and six nights), with 430 person hours of volunteer labour, the job was carried out within budget and without damage to any component castings.

Each side of the hub-spokes-shroud-assembly was laid out within a circle scribed on a level floor. As the hub castings were inaccurate, each spoke needed individual fitting. The eight assembled shroud sections and steel plates were positioned and bolted to the spokes. The second side was assembled on top of the first side. After identification all parts were disassembled and put in place on the prepared axle assembly. Prefomed water buckets were fixed between the shrouds.

A ground plan of the battery / waterwheel layout and detail of the waterwheel structure is attached.

## **THE EXHIBIT**

Protected by chain link safety fences and screens, the assembly can be visitor activated by pressing a control button. This starts a pump which elevates water from the pond to an overhead fluming which delivers water to turn the wheel. A run time of three minutes is controlled by a time switch.

The cost of this otherwise expensive project has been minimised by the unpaid input of many people; a total of 3057 person hours. Several contractors and firms gave contributions beyond normal commercial practice which, added to the individual people, gave a total participation of 73 and a final cost of one-quarter normal trade rates.

This exciting operation has been a satisfying experience for all involved in that some rare components of our mining history have been permanently preserved.

This exhibit fits well into the history of the Beaconsfield district.

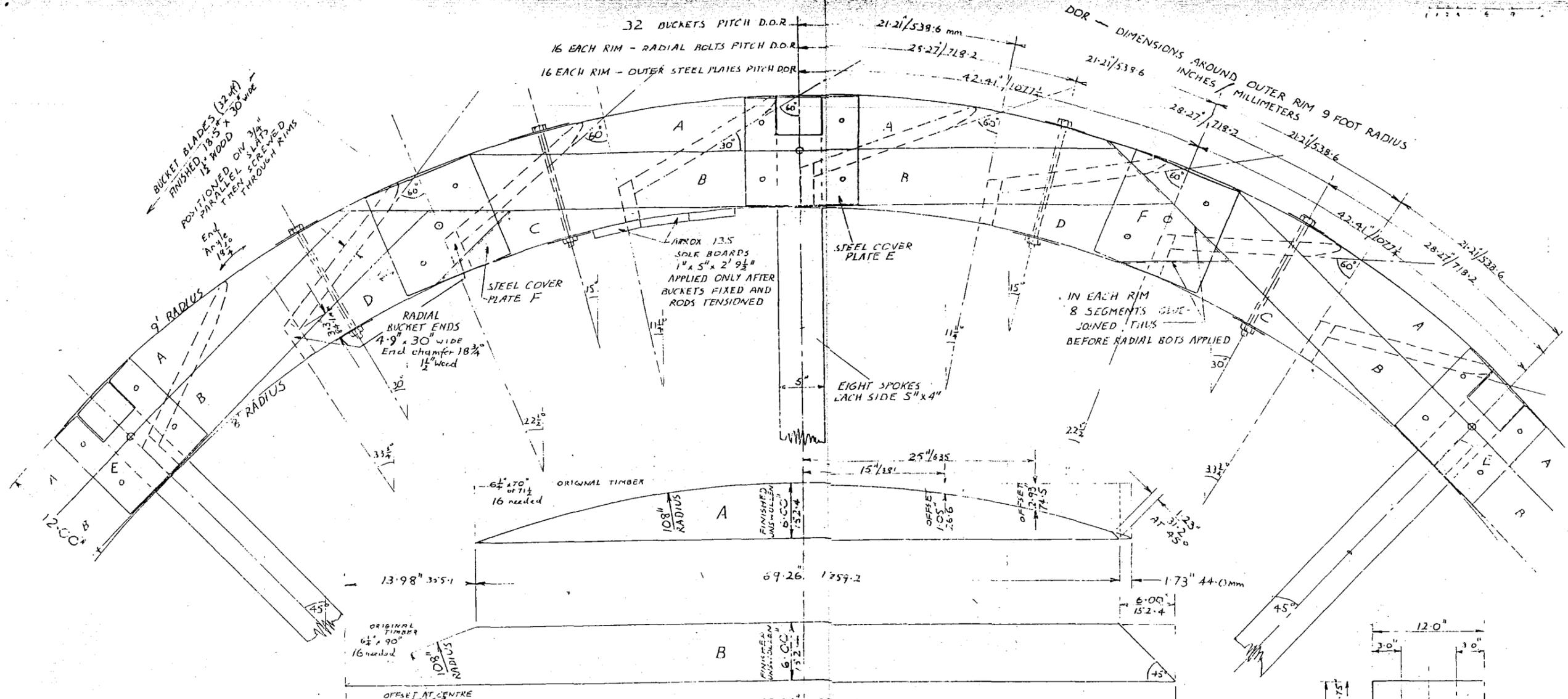
Many stamp batteries were in use during the early history of the gold field (1878 to the 1950s). The largest was the battery of the "Tasmania" mine which had one hundred and fifty stamps, in sets of five, driven by steam engines burning coal from New South Wales.

Waterwheels were also in common use. The Ilfracombe iron smelter, 1873, had a 9m diameter overshot unit driving the air blast pump for the furnace. A 1:12 scale working model of this waterwheel is exhibited in this museum. Old illustrations show several later waterwheels. An old drawing from the London "Graphic" dated 17 February 1883, shows a large "waterwheel for driving a battery" at "the mining district of Beaconsfield, near Launceston, Tasmania." The brick bearing pedestals of an unusual, and mysterious, waterwheel still remain at the site of the "Tasmania" battery complex. Of about 6m in diameter and having a single row of cast iron spokes, it was possibly powered by the copious flow of water pumped from the mine, but there is no record of what it was used for.

Further detail of the "Chintock" project - submissions, correspondence and photographs - are available on request.

**WEST TAMAR HISTORICAL COMMITTEE  
PO BOX 10  
BEACONSFIELD, TAS. 7270**

**May 1994**



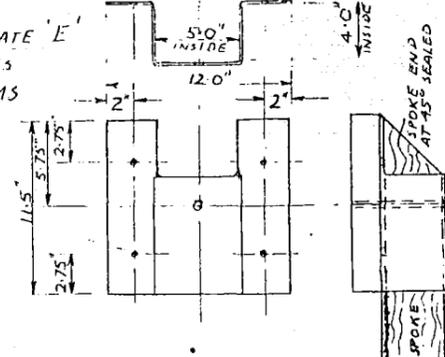
A, B, C + D ARE  
4 PRE-PREPARED AND  
GLUED PIECES - COMPRISING  
EACH WHEEL RIM SEGMENT,  
WITH 8 SEGMENTS FOR EACH  
RIM

ESTIMATES OF  
CUT TIMBER VOLUMES

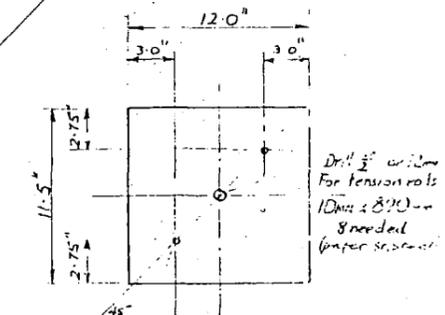
RIMS	0.70 m <sup>3</sup>
SPOKES + TIES	0.78 m <sup>3</sup>
BUCKET ENDS + ENDS	0.55 m <sup>3</sup>
SCALES	0.38 m <sup>3</sup>
	2.4 m <sup>3</sup>

STEEL COVER PLATE 'E'  
OVER SPOKES  
4" or 6mm MS  
Primed + Painted  
16 needed

Drill 3/8" to 10mm  
For steel bolts  
8mm φ x 65mm



Drill 3/8" or 12mm  
For tension rods  
10mm x 1070mm  
8 needed  
(prefer Stainless Steel)



STEEL COVER  
PLATE 'F'  
4" or 6mm MS  
Primed + Painted  
16 needed

BK1

ENGINEERING DYNAMICS PT LTD  
REDESIGNED KENT BATTERY WATERWHEEL  
FOR GRUBB SHAFT MUSEUM BEACONSFIELD HISTY SOCY

Dr J K Cannell 18 March 93

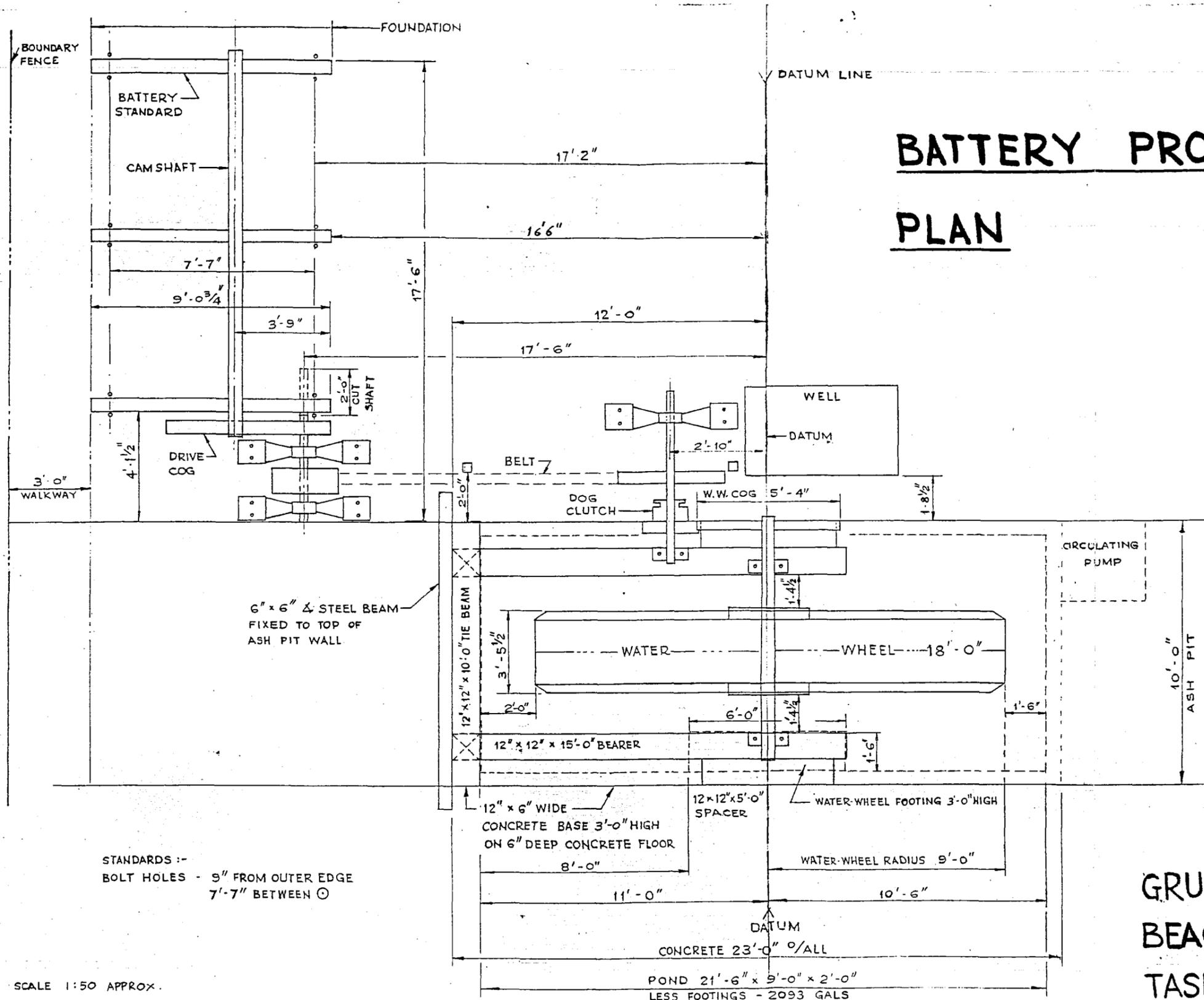
Scale

SCALE THIS COPY

1cm = 1.97 INCHES

# BATTERY PROJECT 1993.

## PLAN



STANDARDS :-  
 BOLT HOLES - 9" FROM OUTER EDGE  
 7'-7" BETWEEN ○

SCALE 1:50 APPROX.

1 2 3 4 5 6 FEET

0 1 2 3 4 METRES

GRUBB SHAFT MUSEUM  
 BEACONSFIELD  
 TASMANIA.