Victorian Forts Network
RESOURCES

Topic:	**Brickwork and Masonry**
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Content:	Drainage Gullies at Slough Fort Western Battery

1. Background

From Fort Log Thames 4

Slough Fort, although part of the Thames defences, was also intended to defend a possible landward approach to Chatham. It was constructed to prevent an enemy landing at the only accessible point for the purpose of attacking Chatham Dockyard from the north, most of the surrounding area was to be inundated in time of attack.

Between 1889 and 1891, the fort was remodelled. Two wing batteries each for 6-inch and 9.2-inch BL guns all mounted on HP disappearing carriages were also added to the left and right of the fort in new wing batteries.

After WW2 the 6-inch position in the western wing battery was buried and the 9.2-inch position was partially buried. The 9.2-inch position has now been dug out by volunteers of the Slough Fort Preservation Trust. This note details the work done to reproduce, and to put back into function, missing drainage gullies in the roadway adjacent to this position.

2. Restoration Project

As the western 9.2 inch position was uncovered, the western roadway was cleared. Comparing what was seen with the original drawings, it became clear that some sections of a drainage gully were missing and other sections were broken.

Scheduled Monument Consent (SMC) was applied for to restore the gully to its original appearance and function and this was granted.

The sections of broken gully were measured up. They were found to be 3ft long, 1ft wide and 6inches deep. The water channel in the middle was 8 inches wide and 1.5 inches deep.

The original gulley sections were made of concrete and the original drawings specified a mix of 4 parts ballast to 1 part cement for them. This was agreed with Historic England and plane put in place to cast about 30 gulley sections.

A wooden casting box was constructed with internal dimensions to match the original concrete gulley sections. The casting box was made out of plywood with the ability to unscrew the corners if need be to help extraction the gulley section once the concrete was set. A piece of sheet metal was rolled to match the shape of the water channel.

The inside of the box was coated with mould release oil. A cement setting accelerator was added to the mix as per the manufacturer's instructions. Three pieces of steel reinforcement bar were placed in the mould. These reinforcement bars were positioned to ensure a minimum concrete cover of 2 inches to protect the steel from water penetration and corrosion.

The stiff concrete mix was poured into the mould and tamped down. Use of a vibrator was not necessary, it was enough to just tamp the concrete down and tap the mould box on the firm ground.

Research suggested a demoulding time of 48 hours but during some cold weather this was extended to 96 hours. Recent castings have been demoulded successfully in 72 hours.

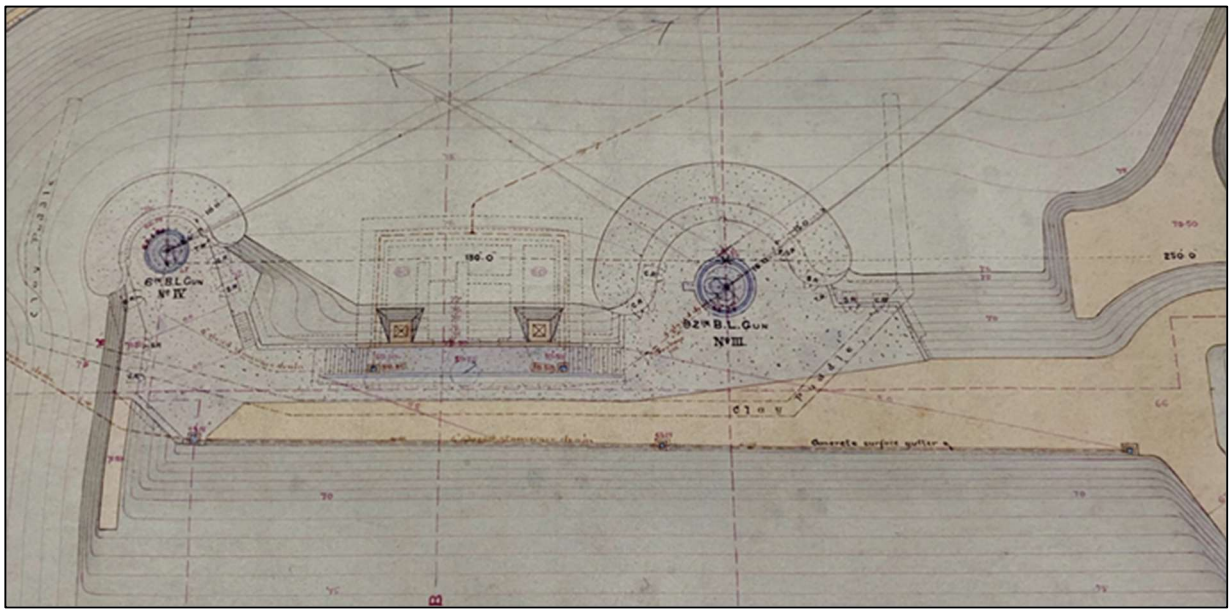
The castings came out easily after relaxing the mould box screws in one corner. After emptying the mould box, it was cleaned with a dry brush to remove any loose particles and the corner screws retightened. The interior of the mould box was then recoated with the mould release oil ready for the next casting.

The volume of each gulley section is exactly 1/18th of a cubic yard and the gully section weight is 107kg (240lb).

At the time of writing, this project is at an advanced stage. The surface colour of the first castings is becoming whiteish - very similar to the colour of the original sections that are still in place.

One stretch of the new gulley sections has been laid. The ground was dug out to a depth of 12 inches, and then back filled with crushed concrete to a depth of 4 inches. That subbase was compacted down and the gulley sections laid on it with a 2 inch thickness of stiff mortar (ratio of 5 sharp sand to 1 cement).

You can get more details on the materials and techniques used by contacting Keith at Slough Fort or via: enquiries@palmerstonfortssociety.org.uk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No IV
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9·2" B.L. Gun
No III
250·0
Concrete surface gutter


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