



Fig 1

# Rehabilitation of Outlet Structure

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The 'canal dam' (see fig 1) at Mabintwane village, Nebo district, Limpopo, was designed to operate as a balancing dam. By night a canal from the Motsephiri river would fill the reservoir so that by day the local farmers could flood-irrigate their crops.

However, over the course of time the outlet's gate valve (see figs 2 & 3) had become non-functional, and significant leaks had developed. To make matters worse the nuts/bolts holding the valve to the concrete wall had 'rusted' together, and the bolts would have snapped if an attempt to remove the nuts was made.

On the other hand the front flange of the valve was still in good order, so that the new valve could be bolted to it. It was therefore decided to leave the old valve in position, and encase it with concrete to seal the leaks.

The first step was to take off the hood of the valve and remove the gate – see arrow in figure 4. This was followed by constructing a shutter flush with the front face of the old valve's front flange (see fig 4), and stainless steel studs were bolted to the flange (see fig 5).

Finally the shutters were filled with concrete (see fig 6), thereby entombing the old valve in concrete (but not its inside cavity). It was then a simple matter to bolt on the new valve (see fig 7) to the protruding studs.

These relatively simple and cost effective actions made it possible to once again make the reservoir fully functional again (see fig 8).



Fig 2



Fig 3



Fig 4



Fig 5



Fig 6



Fig 7



Fig 8