WEDC Developing knowledge and capacity in water and sanitation

POSTER 61

Boreholes for water points

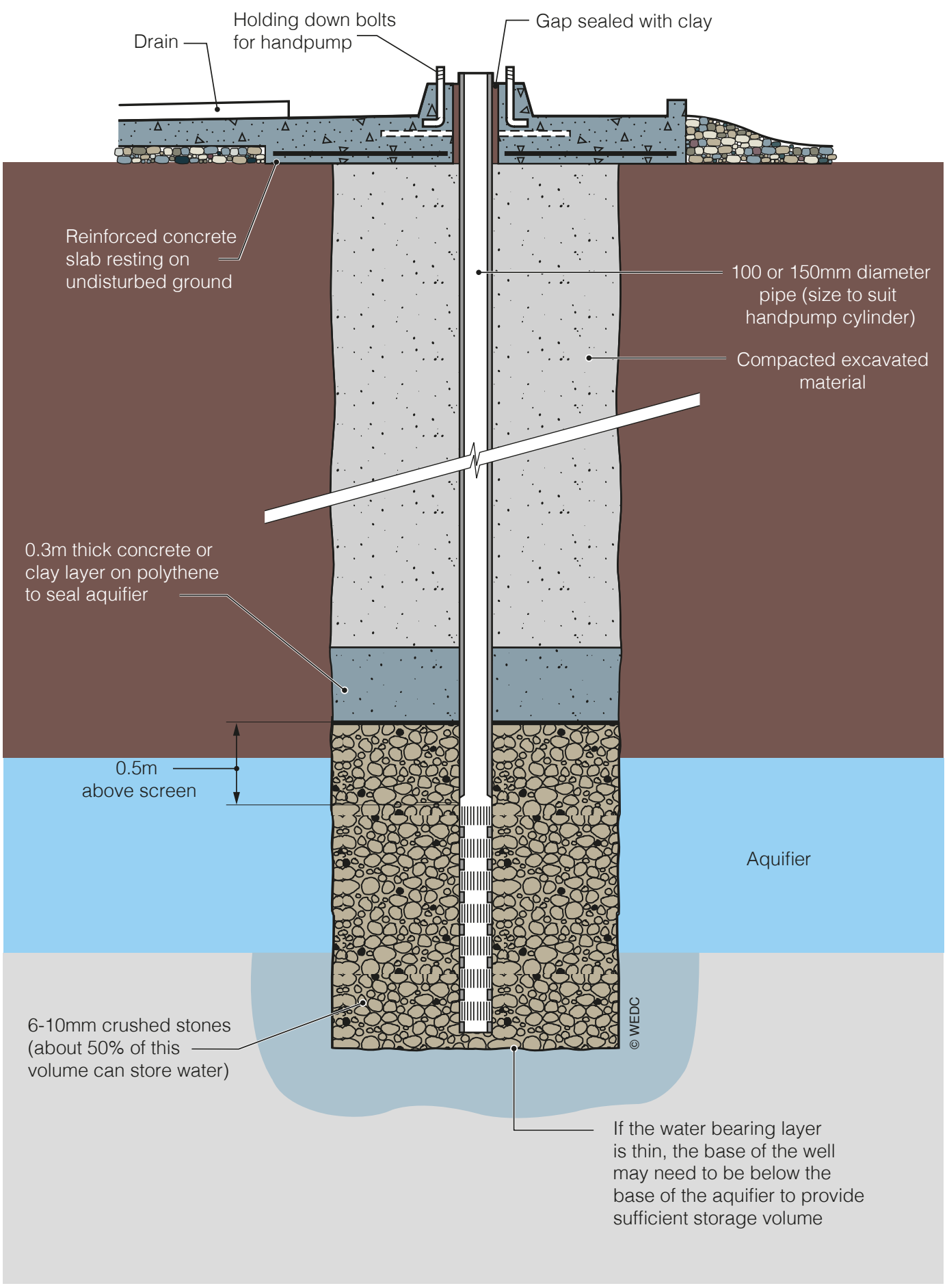
A handpump draws water from a well. This may be a large hand-dug well covered with a platform or a thin narrow well called a borehole or tubewell. The illustration shows a casing installed in a hand dug well; a drilled borehole would be narrower but the same principles apply.

The sides of a borehole normally need to be lined to prevent collapse. After drilling, a 100mm to 150mm diameter pipe is fed down the hole. This pipe is called the **casing**. The hole is then backfilled with sand. A section of the casing pipe allows water to enter the surrounding ground through horizontal slots. This part of the casing is called the **screen**.

Inside the casing, another, narrower pipe is inserted; this is the **rising main**. The mechanism that lifts the water can be located either at the top of the rising main, where it is easy to maintain, or at the bottom, where it is more effective at pumping water from deeper groundwater aquifers, but is less accessible. The rising main is measured so the end of the pipe drawing in the water is positioned near the screens.

This screen is not located at the very bottom of the hole but a little way above it. This is to allow any sand or debris that enters the casing to fall to the base of the hole and not get in the way of the pump. The area around the screen is backfilled with a special mix of stones and sand, called a gravel pack. This is carefully designed to let water through and into the casing but keep out the surrounding soil.

In some designs, a rod is inserted down the middle of this rising main to operate the pistons and pump water to the surface. See also Poster No. 5 – Sealing a borehole with a sanitary seal.



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