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Aspects when determining the cost of a borehole

Management & technology

With the current drought conditions in the country, the demand for boreholes from all quarters has increased tremendously – from farmers wanting to use the boreholes to supply water to their cattle, to cities demanding high-yielding boreholes.

The cost of a borehole can range from R50 000 for a simple, low-yielding borehole to several million for a deep, high-yielding one. The end use of the borehole must be determined beforehand in order to calculate the exact costs.

The following are some of the basic components of the average borehole (< 80m deep, 165mm in diameter and a yield of < 80 000ℓ per day). Although the Department of Water and Sanitation offers full guidelines, basic recommendations entail that each borehole has:

- Appropriate casing (PVC or steel) to prevent the borehole from caving in.
- A gravel pack between the casing and the borehole wall to filter any coarse material before it ends up in the borehole (and pump).
- A sanitary seal to prevent any surface pollutants from entering the borehole.
- A cement base or collar to protect the surface borehole casing.

First steps

The first action when sinking a borehole is appointing a geohydrologist to manage the entire project on behalf of the owner. This includes identifying the location of the borehole, setting up and outsourcing tenders to experienced drillers, and overseeing the drilling process to ensure that the borehole is sunk to the correct depth and in the right place, and that it is constructed properly.

Clients often try to hire a cheap driller themselves without doing their homework on the possible costs associated with a successful borehole – an oversight that may cost them dearly. For example, Driller 1 charges R500/m for drilling while Driller 2 charges R900/m. Consequently, Driller 1 is appointed as he is the cheapest; however, Driller 1 did not include the borehole casing or the cost of transportation, diesel or labour in his quotation. The R500/m refers to physical drilling only.

The client sinks a 100m borehole and subsequently expects a bill of R50 000, but the driller sends a bill of R100 000 because he had to install a casing inside the hole to prevent it from caving in. This leads to problems that could have been avoided.

Before a decision can be made on which driller to appoint, the client must know which items the quote should include in order to compare apples with apples. All possible expenses need to be covered when requesting quotations to ensure that the project is successful.

Plan for the unforeseen

Even if the client has made an effort to compile a complete list of items, he needs to understand that the driller will be unable to give the exact amount of casing needed, as this decision can only be made once the borehole has been drilled and evaluated. The driller may also need to install casing while the drilling is done to prevent the borehole from caving in.

If a geohydrologist is involved, he will base the decision regarding the casing on the geology and stability of the formations and rock that was drilled. Since the geohydrologist is familiar with the drilling process, he can discuss the best and most cost-effective solutions with the driller.

When the decision has been made to drill a borehole, the client must be fully informed of all aspects related to drilling



that cannot be determined beforehand, as well as the costs related to essential aspects such as the casing, which some drillers do not always include in the quote. If the casing is inadequate, it can cause considerable damage. If the hole were to cave in, not only the borehole but also the pump, pipes and power cables will be lost. ☹️

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