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**Irrigation, Stock
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A Guide To What Is Involved To Have A Water Bore Drilled



Disclaimer

The information contained in this brochure is designed to provide a general overview of bore construction, development and testing, and outline guidelines for those considering installing a bore.

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SITING A WATER SUPPLY BORE

The siting of a bore usually involves the consideration of a range of factors in the course of providing a cost-effective and reliable supply of water of acceptable quality.

OBTAINING INFORMATION

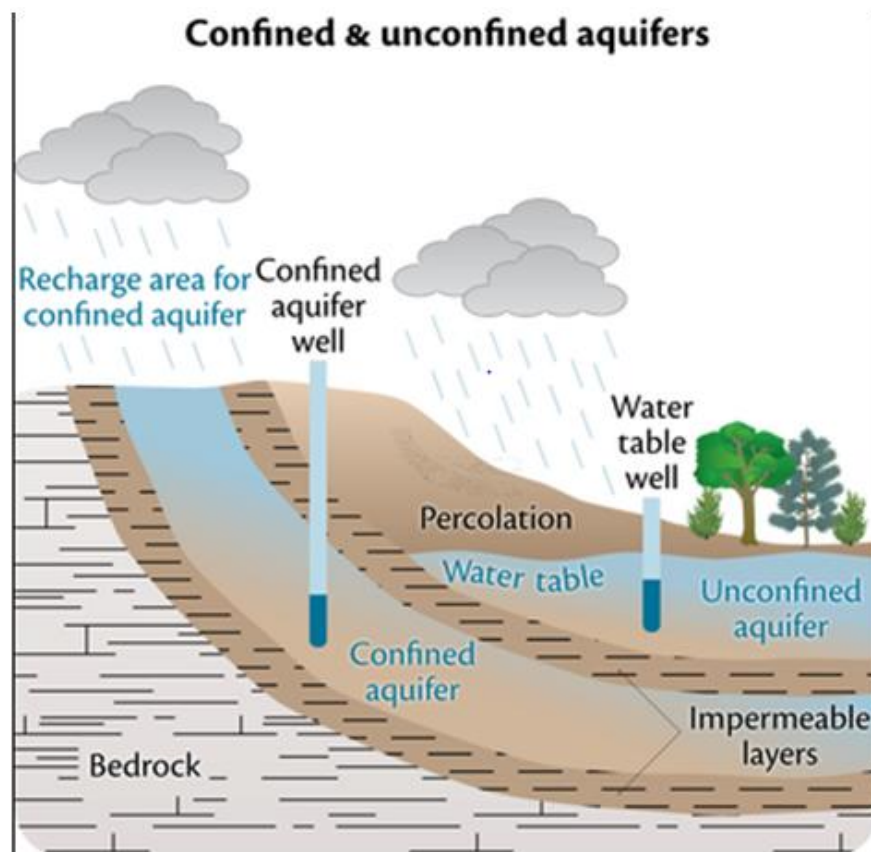
The initial location selection and investigation are very important in the overall construction and performance of a bore. The depth, cost and relative importance of a production bore will usually dictate the amount of investigation required.

Information from the data base and neighboring landholders helps with the location, depth to water, amount of water pumped, type of water bed or formation, and water quality.

The production bore site should allow ready access for heavy machinery for drilling and subsequent servicing of the bore and pumping equipment.

Sometimes licensing authorities may have a bore licence or permit condition that requires that a bore should be located not less than a specified distance from the property boundary and /or from a bore on a neighboring property, channel, stream, or source of pollution such as a septic tank

This requirement is to minimize the possibility of interfering with the flow and water levels in nearby bores.



ROTARY AIR DRILLING

This method is used to drill holes in consolidated or semi-hard formations such as sandstone or shales which are self supporting. The principle common to all rotary techniques is that a drill bit is attached to the end of a hollow drill pipe and rotated against the bottom of the hole, thereby imparting either a fracturing, digging or scraping action, depending on the bit type and the nature of the formation. Pressure is applied to the bit by the weight of the drill pipe and additional weight (feed) is also applied from the drill plant. The cuttings produced by this process are cleared by circulating air, which is derived from a compressor and fed down the drill pipe to emerge through a bit.



CASING

Bores must be lined with an adequate length of appropriate casing to prevent the collapse of strata penetrated. The casing also acts as a safe housing for any pump installed in the hole.

The selected diameter of the bore casing complies with the minimum requirements of the licensing authority and is adequate to accommodate the size of pump to meet supply requirements.

The only PVC piping suitable for use as bore casing is pressure rated pipe manufactured to AS 1477 standards. The piping is swell-jointed and solvent-welded. The only solvent and primer used in Type 'P' conforming to AS 3879.

The wall thickness or class of the bore casing selected is in accordance with good design practice.



BORE DEVELOPMENT

Bore development consists of the application of appropriate techniques which are designed to bring a bore to its maximum production capacity by optimizing the bore efficiency, specific capacity, stabilization of aquifer material, and control of suspended solids.

The development involves the use of mechanical agitation method.

Mechanical methods applicable to a rotary drilling rig include the use of compressed air or an air-water mix to jet the screen and carry water from the bore.

The aim is to remove from the annulus, between screen and hole wall, clays or compacted material resulting from the drilling operations as well as the fine material from the water bed itself. This results in a rearrangement of the remaining water-bearing material to form a coarser but stable filter which retains the aquifer.

As well as increasing the production capacity of a bore, development also stabilizes the formation which acts as a filter to prevent the pumping of sand which would otherwise result in serious damage to pumps and fittings.

Where the aquifer material is very fine, a compromise may have to be reached in achieving an acceptable flow rate and a relatively sand-free supply.





Bore Siting



*Commence
drilling*



Collect Sample



Casing of the bore



*Developing of
bore*