



**PATRICK BRIODY
& SONS LTD**

WELL HEAD FINISH, WELL DISINFECTION & TAKING A WATER SAMPLE

It is recommended that borehole headworks are completed above ground level, where possible, particularly in high risk situations e.g., farm and industrial sites etc. Below ground ie at surface level manhole completion requires exceptionally high standards of headwork design, good natural drainage, good construction and on-going maintenance and protection.

Inspect the well at regular intervals. Good advice on well construction is given in Briody (1995 Manhole Construction), Ball (1995) and NASI (1992). Well construction Standards in Ireland. A borehole is one the most important features of a house which is not a governed by any regulations or standards (Wright, 1995; Ball, 2000). A modern house requires planning permission and must be built in accordance with detailed Buildings Regulations which ensure that certain minimum standards are observed. Mains services – electricity, gas, water, sewerage- are all constructed to national standards by certified installers. On-site sewage treatment systems, where required, must also conform to planning conditions and, to the guidelines of S.R.6 and Agreement Certificates, and in the future, to the EPA Manual (2000) and the Groundwater Protection Responses (DELG/EPA/GSI, 2000). However, a private well does not have to conform to any “official” standards, regulations or planning conditions. It is therefore not surprising that many rural boreholes are contaminated and that this is often due to faulty well construction. In other developed countries some or all of the following are fairly closely regulated:

- Licensing of well drillers: qualifications, experience and health of drilling personnel
- Construction of wells: notification/permission to drill a water well at a particular site
- standards of construction and specifications of materials to be used
- sealing of abandoned wells.

It is recommended that new national regulations should:

- Require well drilling contractors to be registered and set minimum standards for well drillers.
- Set minimum standards for well construction, including procedure for sealing abandoned wells.
- Require completion of well records for new water wells and submission to an appropriate authority.

Surface manhole construction guidelines;

1.Excavate an area of 1mtr square and up to 1 mtr in depth with steel casing protruding in centre

2. Using readymix or equivalent, concrete a gentle sloping floor to lower corner and allow to cure.

3. Using concrete blocks ideally on their flat construct a manhole chamber, accommodating a drainpipe on sloping floor in lower corner protruding from inside chamber to soakaway/stormdrain/surface drain outside block chamber.

Also allow cable and pipe "cut out" 150mm above concrete floor through the manhole chamber wall on side where pressure vessel/electric starter panel are being located.

4. Now cut steel liner at least 150mm above concrete floor. Remember, get your levels right before cutting steel casing. Consider secure reinforced steel cover to mount on block manhole chamber to achieve flush surface finish.

Remember;

1. Make sure run off from drainpipe is adequate and does not allow for backfilling of water back into well chamber eg poor soakage in ground around manhole.
2. Area around well head should remain clear...Do Not Build A Pump House Over the Well as it will obstruct a drill Rig returning to site and setting up over well for future well rehabilitation/deepening etc.
3. Dip the well before pump installation with a secure weight on a nylon rope to establish settlement depth in well. Set the pump as high up as possible in the well. Discuss pump setting in well with the Drilling Contractor.
4. Clamp the hydrodare pipe with two straight steel flats positioned across the top of the liner with the centre piece of both flats fabricated with semi circular fittings which are tightened around the hydrodare pipe. The flats will also serve as an anchor to tie the nylon rope securing the pump down in the well. See Diagram below

WELL DISINFECTION;

Wells can become polluted without showing any noticeable difference in taste or smell. Contaminated well water poses a major risk to the very young, the elderly and sick. Disinfecting a well is not a sustainable strategy for managing groundwater in that it is merely treating the symptom of the problem. The EU Water Framework Directive aims to reduce dependence on purification and pre-treatment of drinking water. Procedure regarding well disinfection are as follows:

1. All new wells should be disinfected after drilling.
2. Existing wells should be disinfected on a regular basis.

Disinfecting Wells Method 1 Using Bleach (sodium hypochlorite, 3-5% available chloride)

Caution; Where an existing well is being disinfected and the water is being treated, consult your supplier before following this procedure.(Heavily chlorinated water may have an adverse affect on your treatment system)

1. Obtain 5 litres of from 5 to 15% strength solution of sodium hypochlorite (e.g. Sterichlor (Dairy Cleaning Product),Parazone, Milton and mix with 20ltrs of clean water.
2. Pour half of the solution into the well, literally pour down through pipes at surface
3. Turn on the drinking water tap in kitchen(existing well) Or discharge pipe coming away from rising main from pump in well (new well).Run water until a distinct smell of chlorine is detected from the water. Turn on all other taps (existing well) for 5 mins or until chlorine smell is detected, if sooner.
4. Turn off all taps, now pour remainder of solution down well, ensure well is properly covered at well head and allow to stand for up to 24 hours.
5. Turn on all taps after time elapse for 2-3 hours, continue running water if any chlorine smell detected from the running water.

This method is only suitable as a one off shock disinfecting procedure and cannot replace a proper treatment system if your water needs continuous disinfection.

Taking a water sample;

Chemical Sample;

Unless advised differently, a sample should always be collected from a tap fed directly from the source into at least a 1 ltr sized clean container.

Fill the sample bottle and secure with tightened lid closure and mark with date and sample owner/contact details and complete with questionnaire/comment card provided by laboratory.

Microbiological Samples

Wash your hands thoroughly. Use latex gloves.
Pour boiling water over sampling point or equivalent technique to sterilise
Make sure water has been running for 1-2 hours beforehand
Open the sterile container,(place the lid down carefully)fill the container to the top and close immediately.(Sample size...at least 250ml)
Send or deliver to Water Analysis Laboratory as soon as possible, storing in fridge if there is any downtime prior to despatch.
Make sure to mark the bottle with date and sample owner/contact details.

Remember;

1. The results will only reflect the quality of the water at the time of the sample collection.
2. Discuss with the laboratory any particular element which you would like to test for. Ask for advise, describe your water quality behaviour, eg occasionally discoloured(turbidity present),rotten egg smell present (eg Sulphur gas).
3. If you are testing for a particular problem, sediment, cloudiness, the sample should only be taken when the problem is noticeable.

The more background information provided on general appearance, colour, smell etc of waterthe more relevant the assessment will be