

Efficiency in construction demands efficient wellpointing



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Without efficient ground-water control, even the best run excavation sites using the latest technology can run into considerable difficulties.

A water logged site not only causes delays, which can incur expensive penalties, it can also be unnecessarily uncomfortable and even hazardous for those working on the site.

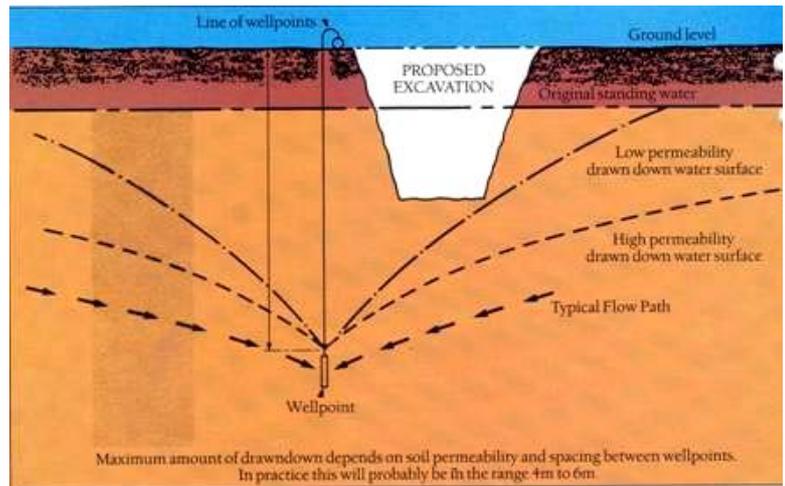
Groundwater pressure can collapse working without warning. Efficient ground water control is an absolute necessity where the depth of proposed excavations likely to reach below the standing water table for the excavation area.

Well-pointing is an economical and flexible method of controlling the sub-surface water. It insures the stability of the water bearing aquifer during excavation, so extra support systems may not be required to keep the sides and bottom of the workings safe and workable.



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Types of well-pointing
Jetting In
range of fittings

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Each well-point is connected to a special well-pointing pump via a common header pipe running on the surface.

Well-pointing pump is a specially designed and developed set. It can run dry if necessary for long periods, handling large volumes of air. Then it automatically re-primers on demand from the well-point, discharging the collected ground water away from the workings.

The principles behind well-point ground water control are very straightforward. However, that straightforward end result depends very much on proper investigation of the sub-soil conditions and some complex calculations. Plus, of course, lots of good, old fashioned experiences – something of which Oasis Sykes have a great deal, having designed and operated well-point systems for over 25 years.

Lowering a water table involves two operations – collecting the sub-surface water, and then carrying it away from the area of excavation. The collection of underground water is carried out by well-points – tubes 40-60mm- diameter, each protected by a filter screen.

The screen together with carefully placed filter media when required performs the vital function of preventing the surrounding soil – even extremely fine particles – from entering the well-point. Removal of 'fines' from the sub-soil could lead to surface settlement.

Well-points are placed in the sub-soil to a pre-determined depth, generally 4 to 6 meters and placed 1 to 2 meters apart. The precise location of each well-point is determined by the site investigation, the calculations and Oasis Sykes experience of the prevailing sub-soil conditions.



Types of well-pointing

Well-point installations fall into two main categories:

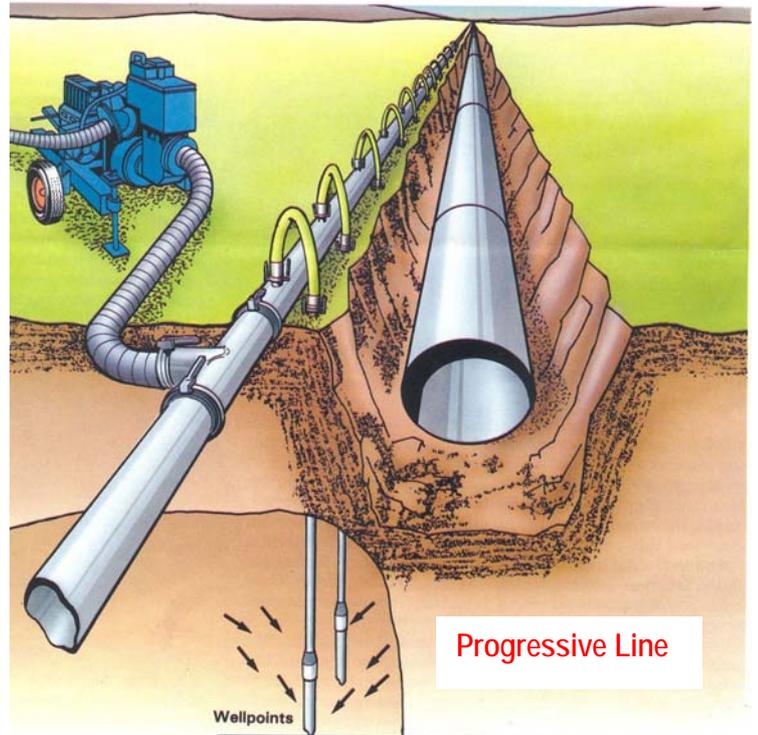
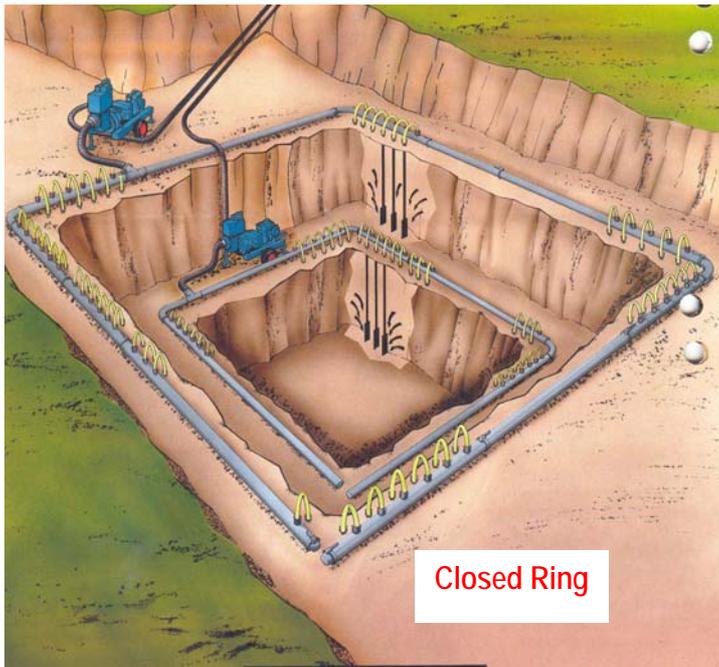
Closed ring installation

- ✓ The closed ring installation for bulk excavation is to be carried out, with the surface header pipe forming a closed ring around the excavation.

The well points are spaced around the header pipe and the pump set draws from the header to discharge the ground water away from the excavation site.

In areas where the table has to be lowered further than average 6 meters drainable by one closed ring system, several stages may be installed.

The primary excavation is made to the new water table level achieved by the first well-point system, then the second ring system drops the table further to allow the excavation work to continue.

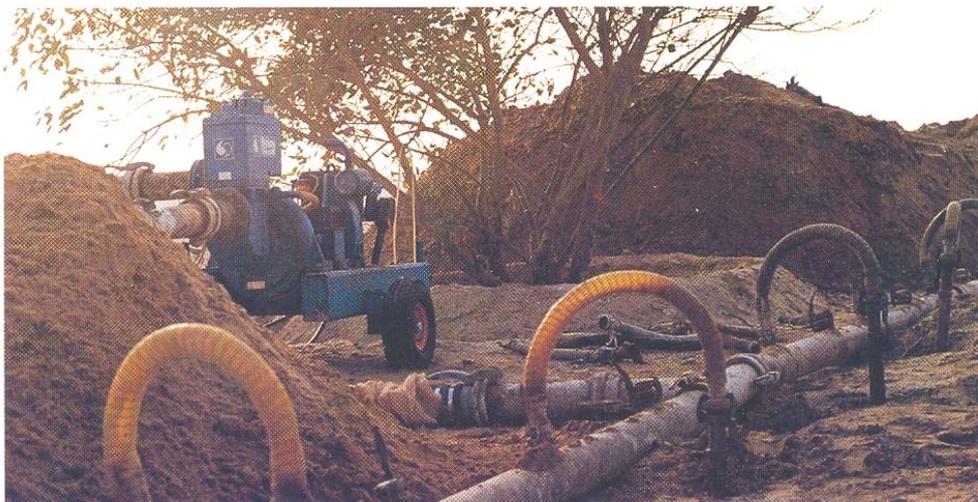


Progressive line installation

- ✓ For trenching work, the progressive line installation is used. Depending on the composition of the ground, one row of well-points along one side of the trench is usually enough to obtain the correct drawdown the whole excavation area. Should the ground water consist of impervious strata at or about the invert, it may be necessary to install well-points along both sides of the trench.

The installation is carried out on a progressive basis. As each section of the trench work is completed and backfilled, so the well-points can be withdrawn and replaced ahead of the workings to allow the ground to be prepared for the next section of the trench.

The pump sets and surface run header pipes are also designed for quick and smooth transfer of operations.



Jetting In

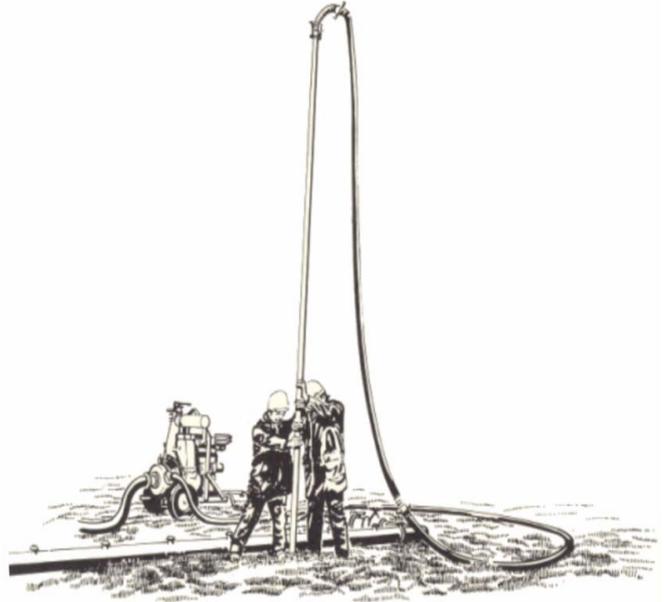
With the exception of the tube well – where the hole is bored – well-points are generally placed in the soil by using a high pressure water jet.

The high pressure water is supplied from a special **Oasis Sykes** pump jetting pump and fed through either a self jetting well-point or a special jetting tube if disposable well-point units are being used.

Works guided by skilled operators, high pressure jetting places the well-points quickly and accurately in the right place and at the right depth.

Where subsoil conditions don't allow well-points to be jetted into place, the bore is drilled, and then the well-point placed in.

Installing the well-point



**Oasis Sykes™
3H High Pressure
Jetting Pump**



Fixing jetting bend

