

Big jobs need bigger machines

By Correspondent Tonya Jurbin

As most contractors know, soil stabilization by vertical wick drains is a technology that is applied in areas having compressible and water-saturated or silty clay soils. When a load from a road embankment, bridge approach, or a dyke is placed on these soils, significant consolidation settlements will occur... settlements that can and often create problems that are serious and expensive to repair.

One solution to helping solve these problems is to reduce the water content of the soil, something that can be done by inserting regularly spaced vertical wick drains into the ground and through the saturated soils. This technique pressurizes pore water so that it flows to the nearest drain and escapes to the surface.

One firm that is particularly familiar with this procedure is Nilex Corporation of Edmonton.. a company that has been manufacturing, supplying and to some extent installing geosynthetics since 1978.

Nilex works with products ranging from filter fabric, reinforcing geogrids, erosion protection mats, and wick drains. Most of the installa-

Specialty equipment like this wick stitcher is often owned by the contractor, but renting is not out of the question.



tions are done using their own equipment, but as Nilex President James Cramer says: "Nilex has a lot of specialty equipment, wick stitchers, auguring equipment, wedge welders for main seams and extrusion welders for detailed work on membrane liners. Much of our equipment moves with the project. We own most of it, but on jobs that are under

\$50,000, we will rent locally."

Typically, says Cramer, his crews will rent loaders and excavators.

On a recent job, Nilex was hired by BC Gas to install wick drains on a site in the Burns Bog area south of Vancouver. The job entailed preloading an area of about 35 m by 400 m beside a large drainage ditch to improve the performance of the soft

subsurface material.

There were two major transmission pipelines being relocated within the right-of-way and two high-voltage transmission lines. The preload was designed to improve the soil by squeezing water out of it causing predictable rates of settlement.

To speed up the settlement process, 10-m long wick drains were installed at 1.5 m centres on a trian-

gular grid.

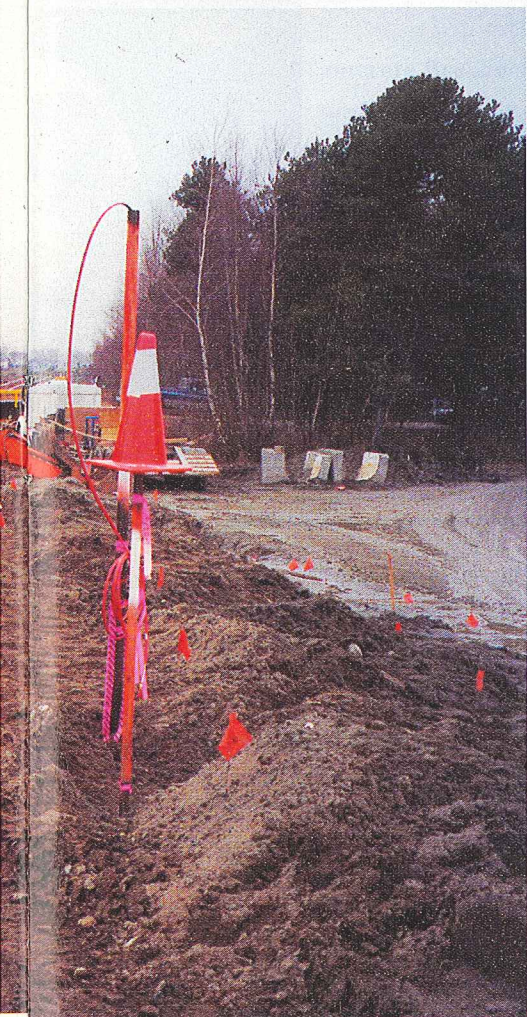
A wick drain has a corrugated polypropylene core surrounded by a highly permeable non-woven geotextile. It works by allowing water to enter through the fabric and run down the grooves of the core. This provides many more drainage paths for the water to leave the layer of subsurface material that needs draining when compared to preloading alone.

Because the value of the contract was under \$50,000, Nilex used an owner/operator in Vancouver that is experienced in Nilex installations. Had deeper drains been required, Cramer says they would have used their own operator, but rented a bigger machine.

Because their work is somewhat specialized, Nilex prefers to use their own operators to ensure consistent and successful installations and in most major centres they either have or will send operators and rent the

equipment that they need. In addition to wick stitchers, if the wick drains are installed in a dense or stiff material or if they must pass through a discrete stiff layer, the hole may be pre-augured. Occasionally if the dense material is coarse grained, the wick drain may be vibrated in.

In all cases, wick stitchers, augers and vibrators have been designed to fit the most popular brands of construction equipment... equipment that is often rented to ensure they get the job done. ♦



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Hydraulic excavators are sometimes rented to handle large attachments.

