



Excavations

Reference Details:

Owner Brantford General Hospital, Brantford, Ontario, Canada +++ **General Contractor** Bondfield Construction, Concord, Ontario, Canada +++ **Consulting Engineers** Carruthers & Wallace Limited, Toronto, Ontario, Canada +++ **Contractor for Foundation** HC Matcon Inc., Ayr, Ontario, Canada +++ **Engineer for Foundation** Isherwood Associates Ltd., Mississauga, Ontario, Canada

DSI Services Supply of 12,000 m DYWI[®] Drill Soil Nails for the shotcrete wall.

**Shotcrete excavation wall secured with DYWI[®] Drill Hollow Bars****Brantford General Hospital, Brantford, Ontario, Canada**

In 2001 the Brantford General Hospital undertook a US\$ 65 million expansion program in order to secure its future as a first class medical clinic.

With these extensions another Canadian project was completed that featured an excavation secured by a nailed shotcrete wall using DYWI[®] Drill Hollow Bars.

To meet the strict requirements for the working plan, the position of the boreholes, the wall deformations and the allowable vibrations, HC Matcon, a Joint Venture of the HC Group and Matcon Excavating of Vancouver, BC, decided to stabilize the walls of the 8 storey high hospital by means of nailed shotcrete. In order to keep deformations low, the soil nails were provided with a free length of up to 5 m and were slightly tensioned.

As an alternative proposal to the conventional bored pile wall system, Isherwood Associates' design required a vertical, up to 13.11 m deep soil retention system secured with up to 7 rows of soil nails. The soil consisted of coarse sand with low density and little cohesion. Based on these demanding soil conditions, vertical drilled micropiles were installed along the wall in order to eliminate a potential landslide at the onset of the excavations. The DYWI[®] Drill Hollow Bars offered the possibility of drilling and grouting at the same time.

Thus cased holes were not required which in turn saved time and material. The tensioning of the anchors resulted in a remarkably low wall deformation of only 4 mm.

Nailed shotcrete walls accelerated the foundation construction, since excavation and stabilization of the site took place at the same time. As a result it was not necessary to build a sheet pile wall before the excavation could begin.