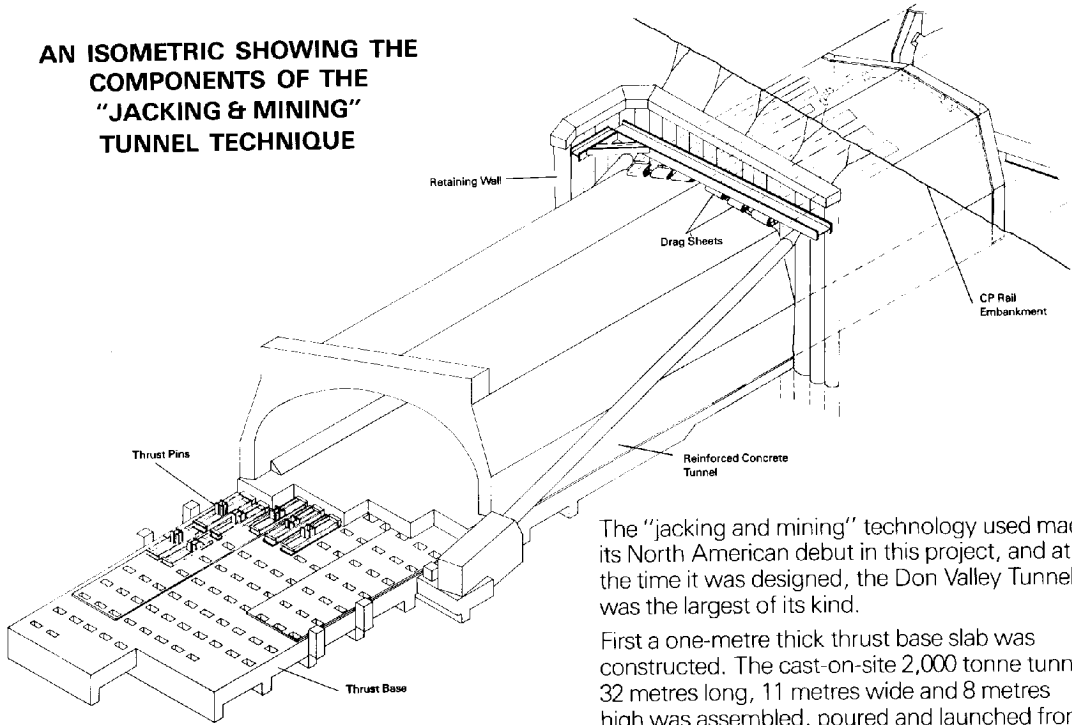
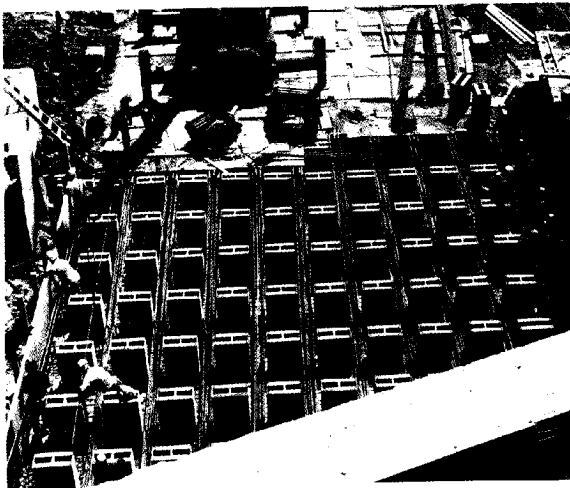


## AN ISOMETRIC SHOWING THE COMPONENTS OF THE "JACKING & MINING" TUNNEL TECHNIQUE



100 tonnes of rebar were placed in the heavily reinforced thrust base. ▼



The "jacking and mining" technology used made its North American debut in this project, and at the time it was designed, the Don Valley Tunnel was the largest of its kind.

First a one-metre thick thrust base slab was constructed. The cast-on-site 2,000 tonne tunnel, 32 metres long, 11 metres wide and 8 metres high was assembled, poured and launched from this heavily reinforced working platform. The tunnel was constructed with a 12 metre steering and cutting segment at the front and a 20 metre section which followed.

To make way for the tunnel, the railway embankment had to be made secure. This was achieved by constructing a reinforced concrete retaining wall on both sides assisted by compression struts and rock anchors.

Contributing to an already unique structure was the shape of the tunnel. In all previous projects, a rectangular configuration was used. This time, a curved arch was produced, thanks to the versatility of reinforced concrete.

The requirement of placing the reinforcing steel for the circular arch at a skewed angle across the top resulted in elliptical bending patterns which had to be specially treated. To accommodate this particular shape, special radius rebar was sent to the site and placed in the formwork. Adjustments were made by field-bending the bars, thus establishing a template which was returned to the fabricator's shop, where it was used as the standard bending pattern. Epoxy coated rebar was used on all exposed faces of the tunnel to minimize corrosion damage caused by winter deicing salts.