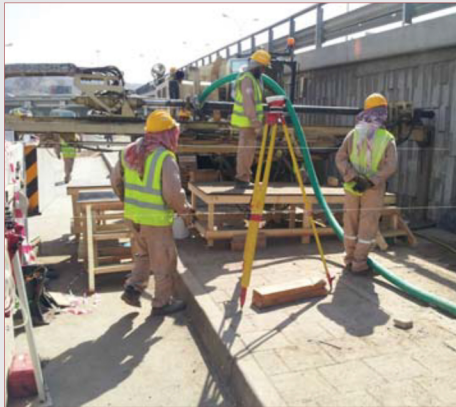




DRILLING RIG

Several alterations to the Atlas Copco drilling rig were made before it could be sent to site.

The main jib had to be shortened to reduce its footprint when drilling horizontally, in order to ensure traffic flow on slip roads along the bridges.



DRILLING

The jib must be perfectly horizontal before any drilling is carried out so that the target point is reached on the other side of the bridge approach road.

Constant monitoring was maintained and fine adjustments were made using hydraulic jacks.



BLOCKING THE SLEEVES

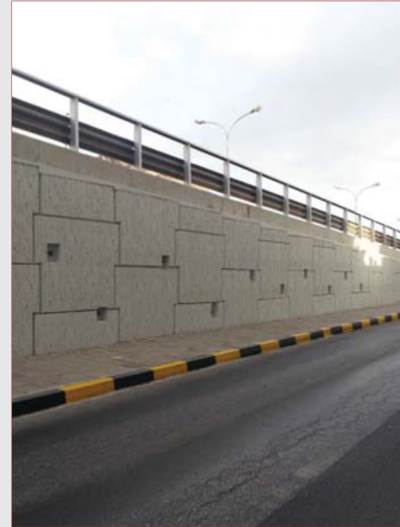
Once the sleeves were placed using the rig, their ends were temporarily covered to avoid any debris going into them.

This debris would have hindered the pulling of steel tendons through them before they were stretched, and post-tensioned.

FINISHED PRODUCT

The new retaining wall received the same finish as the original one in order to keep the same concept in harmony with all other flyovers in Muscat.

Pedestrian walkways were restored and GRC plugs covered the recesses at tendon locations.



BRIDGE REPAIR AND UPGRADING

The GCC summit which took place in 1985 gave an opportunity to build flyovers and bridges to ease a rapidly growing traffic.

These projects were executed in record times which may have caused some of their elements to age quickly.

Some of the mechanically stabilized earth (MSE) walls retaining the approach roads deteriorated and became a serious concern for safety and inconvenience.

Sarooj undertook the difficult task of improvising tools and devices to carry out the works.

Despite its modest value compared to large contracts, this project required proper engineering and satisfactory innovative solutions.

The new monolithic retaining walls on both sides of approach roads were tied together with steel tendons using pre and post tensioning techniques.

Located in the heart of the town, in a busy and congested area, most of the work on these bridges was carried out at night.

Special permit to work (PTW) was obtained from the Royal Oman Police (ROP) at every construction stage.

Sarooj takes pride in the fact that the project was delivered without LTI or RTA.

SACRIFICIAL FORMWORK

Pre-cast elements presenting the same patterns as the existing ones were used as sacrificial formwork for the monolithic retaining wall, achieving thus two goals: formwork and finish.

Steel reinforcing bars together with spacers can be seen in the retaining wall before concrete is cast.

