

Non-dredged Reclamation Method Adopted
in the Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities Reclamation Works

The Hong Kong-Zhuhai-Macao Bridge (HZMB) Hong Kong Boundary Crossing Facilities (HKBCF) reclamation works provide reclamation for an artificial island of about 150 hectares (including about 130 hectares for HKBCF, and about 20 hectares for the Tuen Mun-Chek Lap Kok Link (TM-CLKL) southern landfall) at the open waters off the northeast of the Hong Kong International Airport. The reclaimed land will house clearance and transport facilities. With the HZMB/Hong Kong Link Road and TM-CLKL, and its proximity to the Hong Kong International Airport, HKBCF will also serve as an important transportation hub.

With a view to minimizing the environmental impacts, a new fully non-dredged method consisting of non-dredged seawall and non-dredged reclamation to construct the artificial island of the HKBCF has been developed, which is the first of its kind in Hong Kong. In brief, the non-dredged seawall comprises about 3.6 kilometer long non-dredged seawall with steel cells and rubble mound and about 2.5 kilometer long non-dredged rubble mound seawall. For both types of non-dredged seawall, 1-metre diameter stone columns were installed along the footprint of seawall. For the construction of the non-dredged seawall with steel cells and rubble mound, in general, the large diameter (about 31 meter) steel cells, together with their connecting arcs, penetrate through the marine sediment and key in the alluvium layer underneath using vibratory method. All steel cells, together with the spaces formed by the connecting arcs, were then backfilled to form the seawall. For the non-dredged reclamation, the commonly used band drains and preloading method without dredging are used. With this non-dredged method consists of non-dredged seawall and non-dredged reclamation, dredging and disposal of marine mud are avoided, backfilling material can be reduced by about one half, marine traffic can be reduced by about 50% and the amount of released suspended particles at sea during reclamation can be reduced by about 70%. Hence, it is more environmentally friendly and meets the principle of sustainable development.

Together with other mitigation measures recommended under the Environmental Impact Assessment report, the reclamation works have been carried out with minimum impacts on our environment.

Under the HKBCF reclamation contract, totally, 85 large diameter steel cells (about 31 meter in diameter), about 53,000 stone columns and about 1,100,000 band drains have been installed. The quantity of backfilling material for reclamation works is about 25,000,000 cubic metres (which can fill up about 10,000 Olympic-size swimming pools), and about 60,000 tonnes steel (its weight equivalent to about 60,000 number of standard private cars) is used for the construction of the steel cells.