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九龍灣段的工程

Construction at Kowloon Bay section

通告

Message

中九龍幹線九龍灣段的工程、設施重置及優化機遇的公眾論壇已於2月7日舉行，我們在今期通訊，匯報論壇的資料及介紹中九龍幹線九龍灣段的工程。

The Public Forum on specific issues "The Construction of the Central Kowloon Route section at Kowloon Bay" was held on 7 February. We report the details of the forum and the CKR construction works in Kowloon Bay in this Newsletter.

在中九龍幹線的東端，隧道途經馬頭圍道及土瓜灣道，到達九龍城渡輪碼頭附近海濱，為避免影響現有樓宇及居民，隧道會建於地底30米以下。在九龍城渡輪碼頭與啓德跑道之間的一段幹線，會建於九龍灣海床下的海底隧道。

東面出口位於九龍灣，接通九龍灣道路網和擬建的啓德發展區。我們就環境保護、對現有設施的影響、安全工作環境等方面，研究不同的建築方法以興建在九龍城渡輪碼頭與啓德跑道之間的一段長約400米的海底隧道。

At the east end of Central Kowloon Route, the tunnel runs under Ma Tau Wai Road and To Kwa Wan Road, then reaches the harbour-front at Kowloon City Ferry Pier. To avoid affecting the buildings and residents at ground level, the tunnel will be constructed more than 30 meters below ground. The section between Kowloon City Ferry Pier and Kai Tak Runway will be an underwater tunnel underneath the seabed in Kowloon Bay.

The east end of the Central Kowloon Route is in Kowloon Bay and connects with the Kowloon Bay road network and proposed Kai Tak Development.

We have studied various construction methods for the section of about 400m underwater tunnel between Kowloon City Ferry Pier and Kai Tak Runway, in terms of environmental protection, disturbance to existing facilities, safety working condition, etc.



1. 沉管式隧道 Immersed Tube Tunnel

沉管式隧道的興建方法是先在海床挖出坑道，再在坑內建造或沉放預製的隧道構件，完成後海床會回填至原來的海床水平。

The construction of immersed tube tunnel involves the construction or installation of the tunnel sections inside a trench excavated in the seabed. After construction the seabed will be backfilled to the original seabed level.

2. 鑽挖式隧道 Bored Tunnel

鑽挖式隧道會使用爆鑽法興建。簡單來說，在石層內鑽挖爆破孔洞並安裝炸藥，引爆炸藥使石層塌下，經移除碎石及加固隧道表層後，隧道便形成。

Bored tunnel is constructed by drill and blast method. In brief, a number of blastholes are drilled into the rock and then filled with explosive. Detonation of the explosive causes the rock to collapse and then a tunnel is formed by removing the rubbles and reinforcing the tunnel surface.

3. 圍堰 - 明挖回填式隧道 Cut-and-Cover - Cofferdam

沿著擬建的隧道走線，興建管樁牆式圍堰，然後泵走圍堰內的海水，進行明挖至擬定的平整水平，以在圍堰內興建海底隧道。

Pipe pile wall cofferdam will be constructed around the proposed alignment and water be pumped out to enable excavation to formation level. Underwater tunnel will then be constructed inside the cofferdam.

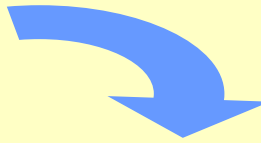
4. 垂直隔牆 - 明挖回填式隧道 Cut-and-Cover - Diaphragm wall

方法是首先在海中建造臨時工地，再建築隔牆以築成圍欄，接著挖走在隔牆內的泥土直到隧道的底部。在隧道建築完成後，在隧道上的空間將會回填至原來的海床水平。

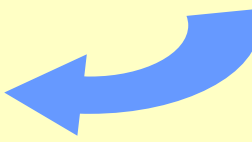
A working platform will be formed first by temporary reclamation. Diaphragm walls will then be constructed to form an enclosure. The soil inside the diaphragm walls will be excavated to the bottom level for construction of tunnel. Upon completion, the space above the tunnel will then be backfilled to the original seabed level.



第一階段工程 — 20個月
Stage 1 construction – 20 months



第二階段工程 — 20個月
Stage 2 construction – 20 months



完工 Completion

回復原貌
Reinstate to existing condition

考慮各種海底隧道的建造方法的工程可行性、技術、環境影響及對公眾的影響，明挖回填配合隔牆技術是興建中九龍幹線九龍灣段海底隧道部分合適和安全的方法。

Taking into consideration of engineering feasibility, technical, environmental impacts and disturbance to the public of various underwater construction methods, it is considered that the cut-and-cover method using the diaphragm wall the appropriate and safe method for the construction of the CKR underwater tunnel at Kowloon Bay.

