

編者的話 EDITOR'S WORDS

中九龍幹線跨越啟德河的建造工程極具挑戰，本期通訊會重點介紹工程團隊如何利用創新技術，建造橫跨啟德河的行車天橋，連接中九龍幹線主幹道及啟德交匯處；分享各工程項目的最新進度；以及提供工程團隊就最近2019冠狀病毒疫情爆發而採取相應防疫措施的情況。

Construction over the Kai Tak River poses huge challenges. This issue gives details on how the Central Kowloon Route (CKR) project team utilizes innovative technology in constructing vehicular bridges over the Kai Tak River, connecting the CKR main road with Kai Tak interchange; shares works progress; and provides information on the preventive measures taken in response to the recent COVID-19 pandemic.

焦點 FOCUS - 啟德東 KAI TAK EAST (KTE)

橫跨啟德河行車天橋建造工程 Construction of Vehicular Bridges across Kai Tak River

啟德東工程包括建造一組橫跨啟德河，以連接中九龍幹線主幹道及啟德交匯處的行車天橋。在建造橋樑結構前，工程團隊需要在啟德河上安裝臨時工作平台及圍堰，進行地下灌漿及改建啟德河底板。我們會於本期介紹橫跨啟德河行車天橋的前期工程及地下結構之施工方法。

KTE contract involves construction of vehicular bridges across Kai Tak River, connecting the CKR main road with the Kai Tak interchange. Before commencement of the structural works of the bridges, the project team needs to install temporary working platform and cofferdam over Kai Tak River, to carry out underground grouting works and to modify the base slab of Kai Tak River. This issue presents the preparation works and construction method for the substructure of the vehicular bridges across Kai Tak River.



橫跨啟德河的臨時工作平台概覽
Overview of temporary working platform across Kai Tak River

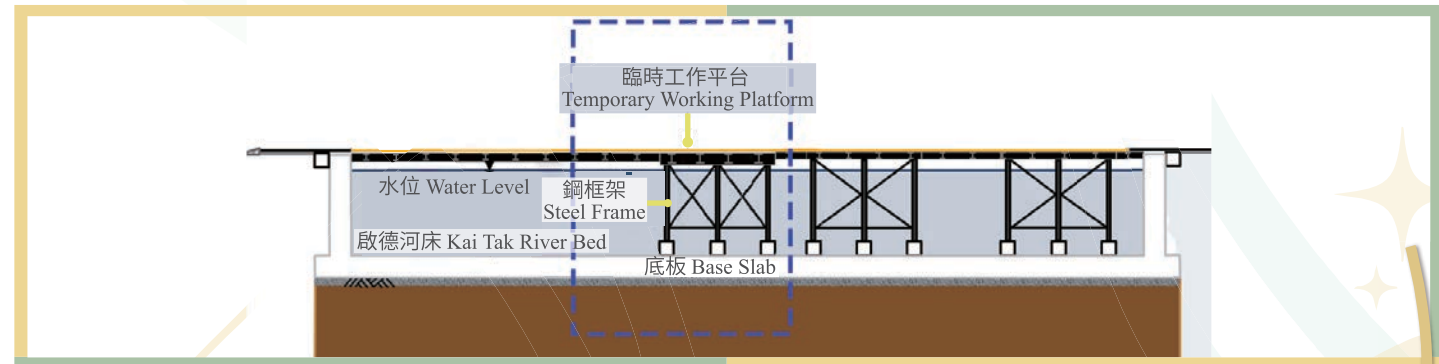
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臨時工作平台、圍堰，及其流線型特徵 Temporary Working Platform, Cofferdam and Associated Streamline Features

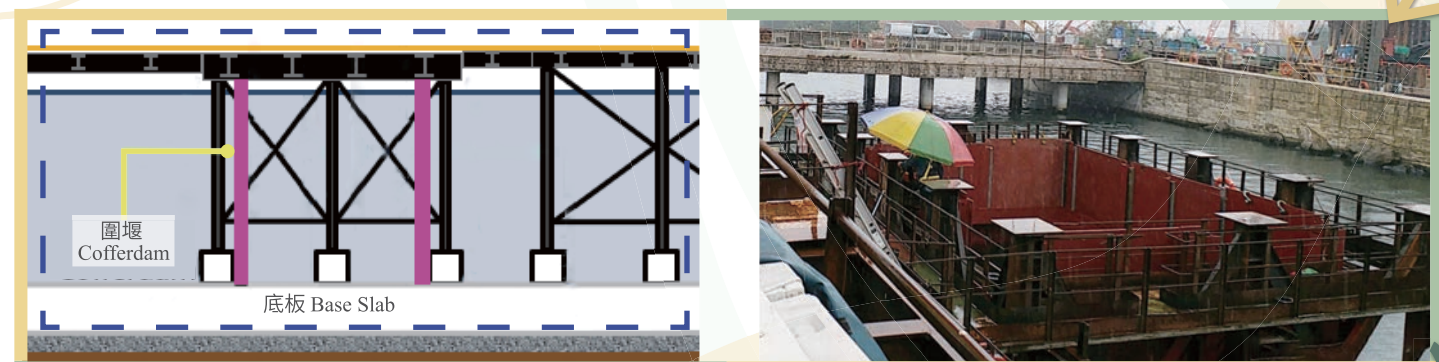
臨時工作平台和圍堰由多個鋼框架組成，並安放於啟德河底板上的混凝土磚支撐；為提高安裝的準確性，在安裝工序進行期間，工程團隊安排潛水員確認河床狀況，並協助測量工作。此外，為了減少水流的阻力，以及緩解有機會由工作平台引起的湍流，平台底部安裝了流線型組件。

The temporary working platform and cofferdam are made of steel frames which are supported by concrete blocks placed on the base slab of Kai Tak River. To ensure accuracy of installation, divers are deployed to verify the condition of river bed and to facilitate setting out during installation. Furthermore, in order to reduce water flow resistance and to mitigate the possibility of turbulence induced by the working platform, streamline features are installed at the bottom part of the erected working platform.

工序一 — 安裝臨時工作平台
Step 1 — Installation of temporary working platform



工序二 — 安裝臨時圍堰
Step 2 — Installation of temporary cofferdam

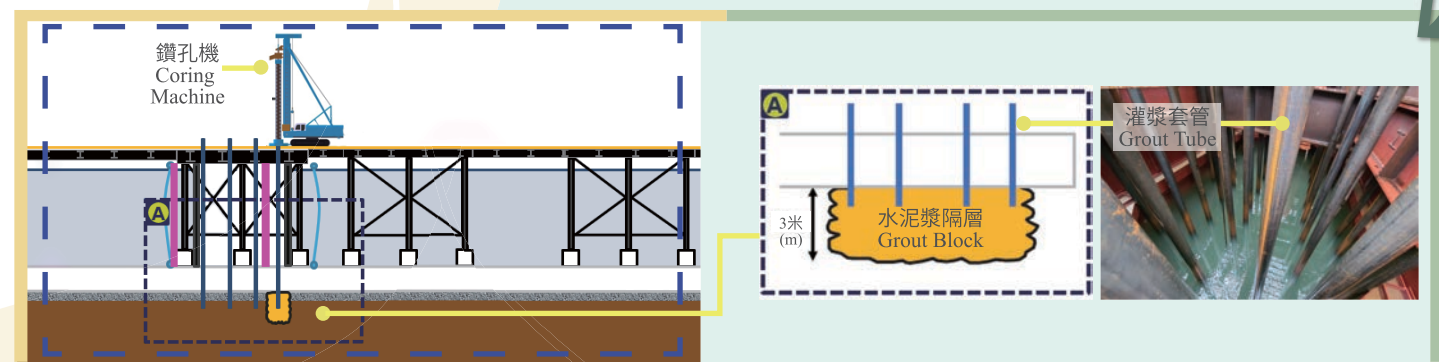


地下灌漿工程 Underground Grouting Works

臨時圍堰完成安裝後，工程團隊會進行地下灌漿工程，以提升地下土層的抗滲透性，預防地下水湧入臨時圍堰。灌漿工程在圍堰內進行，於啟德河底板下形成三米厚的水泥漿隔層。然後圍堰內的水會被抽出，為後續的地基及地下結構工程提供合適的工作環境。

After completion of the temporary cofferdam, the project team carries out underground grouting works to enhance the impermeability of the underground soil stratum in order to prevent ingress of groundwater into the temporary cofferdam. Grouting works are carried out inside the cofferdam, forming a 3m-thick grout block underneath the base slab of Kai Tak River. Water inside the cofferdam is then pumped out to provide a suitable condition for subsequent foundation and substructure works.

工序三 — 地下灌漿工程及抽出圍堰內的水
Step 3 — Underground grouting works and dewatering

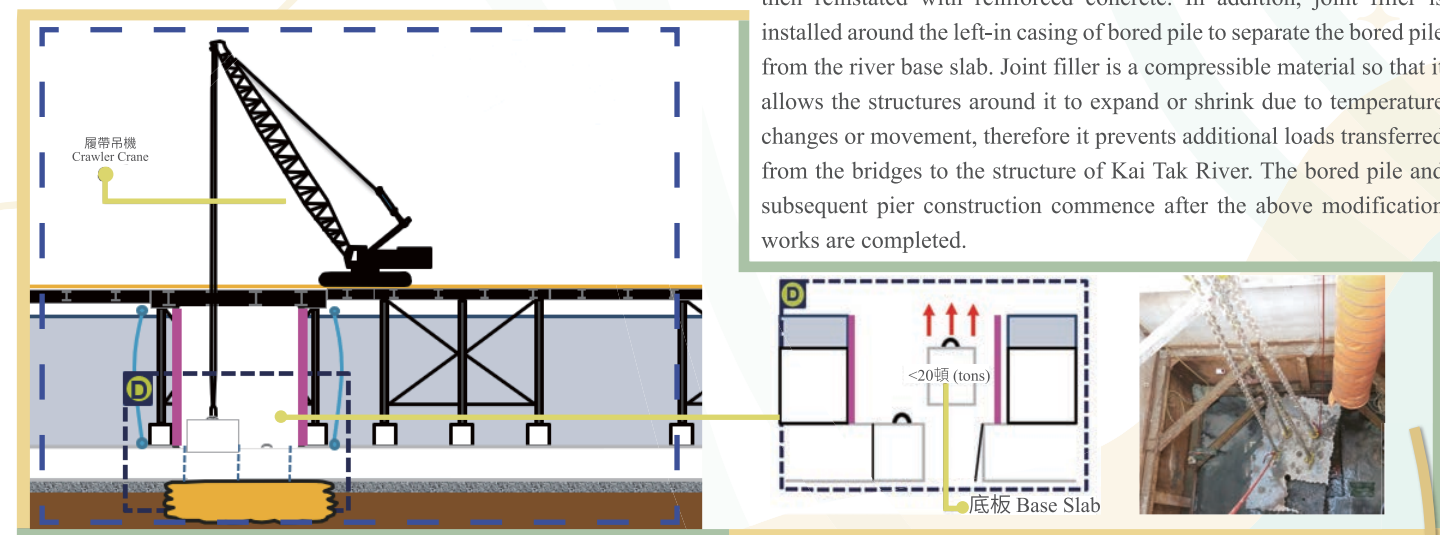


啟德河底板改建工程 Modification Works at Kai Tak River Base Slab

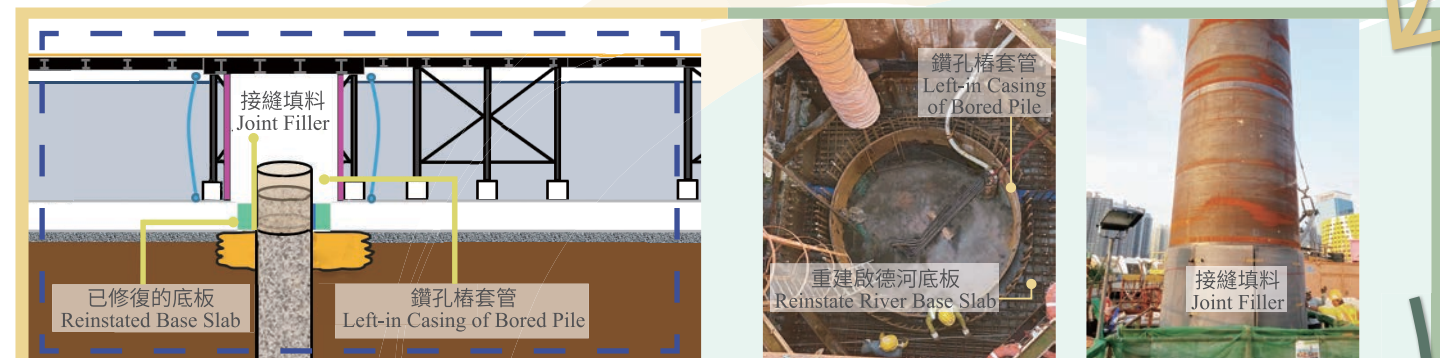
為配合位於啟德河的鑽孔樁及橋墩建造工程，啟德河底板會進行改建，並在擬建鑽孔樁位置的1.5米厚混凝土底板形成臨時開口。首先，位於圍堰內的啟德河底板會以編結法鑽孔及線鋸切割方式，被切割成細件，並由履帶吊機逐一吊走。與傳統利用破碎機破碎及拆卸混凝土的施工方法相比，上述鑽孔及切割方式產生較低噪音及塵埃，減低對周邊環境的影響；此外，線鋸切割機械容許遠端操作，能縮短工人在圍堰內工作的時間，提升施工安全。

在底板拆除後，鑽孔樁套管會安裝於水泥漿隔層上，底板與套管間的間隙會以鋼筋混凝土修復。此外，鑽孔樁套管外圍會安裝接縫填料，用作分隔鑽孔樁及啟德河底板。接縫填料是一種可壓縮物料，可容許周圍的結構由於溫度變化或移動而膨脹和收縮，因此能防止額外荷載轉移至啟德河結構。在上述改建工程完成後，鑽孔樁及橋墩工程會隨即展開。

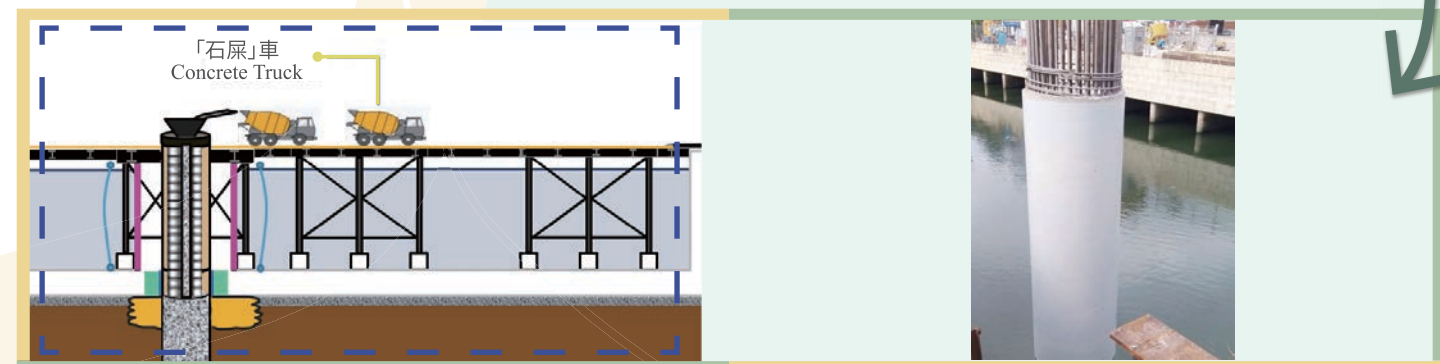
工序四 — 啟德河底板會被切割成細件，並由履帶吊機吊走
Step 4 — Base slab is split into several pieces and removed by crawler crane



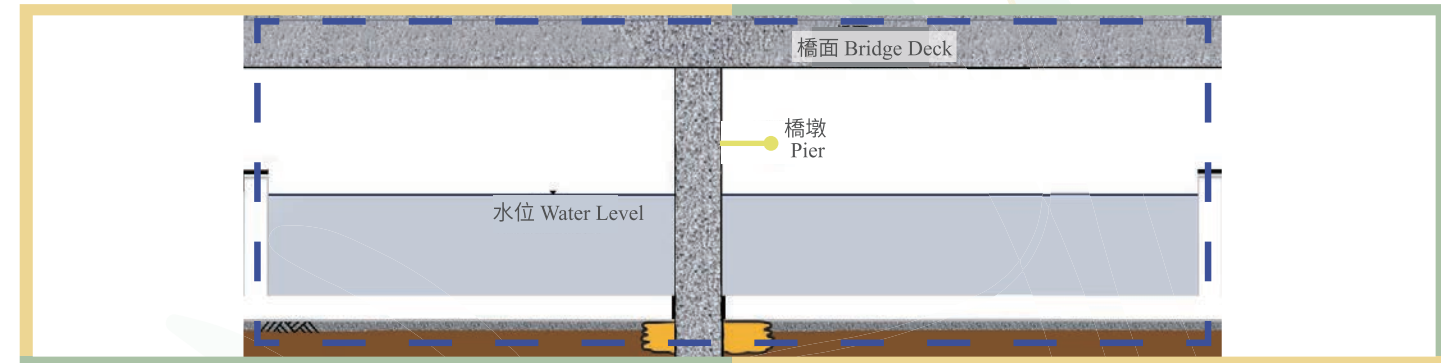
工序五 — 改建啟德河底板及建造鑽孔樁
Step 5 — Modification of Kai Tak River base slab and construction of bored pile



工序六 — 建造橋墩
Step 6 — Pier construction



工序七 — 完成橋樑工程
Step 7 — Completion of bridges construction



應用於啟德河的創新安全技術 Innovation for Safety at Kai Tak River

工程團隊為減低於啟德河臨時工作平台及圍堰施工的安全風險，現正應用「智能安全帽」技術。智能安全帽能夠感應使用者的心跳及體溫，以及偵察使用者的動態。其系統可以偵察到如意外墜下之急速動態，相反亦可探測長時間靜止，判斷使用者是否失去意識。一旦發生意外，系統會發出警報提示地盤管理人員。此外，當使用者誤進預設的限制區域，相關的機械操作員及使用者均會即時收到警報，以避免意外碰撞事故發生。

In order to reduce the safety hazards for construction works at the temporary working platform and cofferdam in Kai Tak River, smart safety helmets are deployed. The smart safety helmet can monitor the heart rate and body temperature of the users, as well as their motions. The system is able to detect any sudden movements, such as a fall. On the contrary, it can also detect a state of prolonged immobility, which can indicate a loss of consciousness. In the event of an accident, the system can send alert messages to the site management. In addition, if users enter the demarcated restricted zone, both machine operators and users will be alerted immediately to avoid potential collision accidents.



智能安全帽
Smart safety helmet

聯絡資料 CONTACT INFORMATION

如對工程有任何疑問及意見，可透過以下方法聯絡我們
Should you have any enquiries or comments on the project, please contact us via the following

路政署 - 中九龍幹線
Highways Department - Central Kowloon Route Project
電話 Telephone : 2762 3601
電郵 E-mail : enquiry@ckr-hyd.hk
網址 Website : www.ckr-hyd.hk

社區聯絡中心現因升級改善工程而暫停開放，直至另行通知。
Community Liaison Centre (CLC) is closed temporarily for renovation until further notice.

馬頭角社區聯絡中心 Ma Tau Kok CLC

地址 Address : 土瓜灣朗月街12號
(偉恆昌新邨偉景閣H座對面)
12 Long Yuet Street, To Kwa Wan
(Opposite to Wei Chien Court, Block H, Wyler Gardens)
電話 Telephone : 3793 3493
電郵 E-mail : pro@ckr-ktw.com
傳真 Fax : 3793 3490

24小時熱線電話 24-hour Hotline

油麻地西工程 5331 5330
Yau Ma Tei West
油麻地東工程 9129 2027
Yau Ma Tei East
中環隧道工程 6313 0900
Central Tunnel

啟德西工程 7100 3993
Kai Tak West
啟德東工程 6391 7037
Kai Tak East
大樓及機電工程 6012 3590
Buildings, Electrical and Mechanical

開放時間 :
Opening Hours:
星期一至五
Monday to Friday
星期六
Saturday
星期日及公眾假期
Sunday and Public Holiday
早上9時至下午6時
09:00 - 18:00
早上9時至下午1時
09:00 - 13:00
休息
Closed

為配合政府「對公共衛生有重要性的新型傳染病預備及應變計劃」及避免市民聚集，中九龍幹線轄下的社區聯絡中心現時暫停開放。此外，社區聯絡小組會議亦會暫時取消，直至另行通知。請致電任何一條24小時工程熱線查詢有關最新安排。To tie in with the government's "Preparedness and Response Plan for Novel Infectious Disease of Public Health Significance" and avoid people from gathering, the CKR CLC will be temporarily closed accordingly. In addition, the Community Liaison Group Meeting will be temporarily suspended until further notice. Please contact any one of our 24-hour hotlines for the latest arrangement.

施工中的工程合約 ONGOING CONTRACTS



何文田
Ho Man Tin



油麻地通風大樓的樁柱荷載測試
Pile load test at Yau Ma Tei Ventilation Building works site



啟德通風大樓及行政大樓的嵌岩鋼工字樁安裝工程
Pre-bored socketed H-pile installation works at Kai Tak Ventilation Building and Administration Building works site



何文田通風大樓的外觀設計
Aesthetic design of Ho Man Tin Ventilation Building

合約編號
Contract No.

HY/2019/13

大樓及機電工程
Buildings, Electrical and Mechanical Works Contract

油麻地通風大樓工地嵌岩鋼工字樁建造工程及樁柱荷載測試已完成，並將開展挖掘及橫向支撐工程。啟德通風大樓及行政大樓工地正進行嵌岩鋼工字樁建造工程。此外，工程團隊亦現正為油麻地、何文田及啟德通風大樓及啟德行政大樓進行外觀美化設計。
Construction of pre-bored socketed H-piles and pile load tests at Yau Ma Tei Ventilation Building works site have been completed. Excavation and lateral support (ELS) works will be commenced. Pre-bored socketed H-pile construction works at Kai Tak Ventilation Building and Administration Building works site are in progress. In addition, aesthetic design of Yau Ma Tei, Ho Man Tin and Kai Tak Ventilation Buildings and Kai Tak Administrative Building are in progress.



明挖回填隧道工程
Construction of cut-and-cover tunnel



重置加士居道天橋工程
Reprovisioning of Gascoigne Road Flyover



加士居道天橋隔音屏障建造工程
Construction of noise enclosures on Gascoigne Road Flyover

合約編號
Contract No.

HY/2014/08

油麻地東工程
Yau Ma Tei East Contract

明挖回填隧道工程、重置加士居道天橋工程及加士居道天橋隔音屏障建造工程繼續進行中。
Construction of cut-and-cover tunnel, reprovisioning of Gascoigne Road Flyover and noise enclosures construction of Gascoigne Road Flyover continue.



海泓道工地的園景平台鑽樁工程
Piling works for landscaped deck at Hoi Wang Road works site



麗翔道工地的通風坑道的建造工程
Construction of ventilation adit at Lai Cheung Road works site



連翔道工地的隔音屏障建造工程
Noise barriers construction at Lin Cheung Road works site

油麻地通風大樓
Yau Ma Tei Ventilation Building

京士柏
King's Park

油麻地
Yau Ma Tei

合約編號
Contract No.
啟德東工程
Kai Tak East Contract

橫跨啟德河的行車天橋鑽孔樁工程已經完成，而啟祥道的鑽孔樁工程正繼續進行。臨時工作平台搭建工程、橋樑及橋墩建造工程正進行中。地面連接路、地下行車道、通風及機電坑道及擋土牆建造工程亦繼續進行。
Bored pile works for vehicular bridges across Kai Tak River has been completed while bored pile works at Kai Cheung Road continue; installation of temporary working platform and construction of pile caps and piers are in progress. Construction of link roads, underpasses, ventilation and electrical and mechanical adit and retaining wall continues.



橫跨啟祥道的行車天橋鑽孔樁工程
Bored pile works for vehicular bridges across Kai Cheung Road



地下行車道、通風及機電坑道的結構建造工程
Construction of underpasses, ventilation and electrical and mechanical adit



橫跨啟德河行車天橋的橋墩建造工程
Pier construction works for vehicular bridges across Kai Tak River



啟德通風大樓
Kai Tak Ventilation Building

通訊
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土瓜灣
To Kwa Wan

合約編號
Contract No.

HY/2018/08

中段隧道工程
Central Tunnel Contract

中段隧道工程於何文田及馬頭角豎井通道工地繼續進行隧道鑽爆工程，而油麻地豎井通道工地現正於鐵路範圍內，並以機械式挖掘隧道。隧道鑽爆機亦已於2022年1月6日貫通長約720米的先導隧道，歷時176日，連接了何文田及馬頭角豎井通道工地。工程團隊現正於隧道內進行鑽挖機拆卸及運離工地。此外，工程團隊亦於已於2021年12月下旬完成油麻地及馬頭角豎井通道工地的臨時隔音罩，進一步減低工程對鄰近居民的影響。
Drill-and-blast works at Ho Man Tin and Ma Tau Kok access shaft works site are in progress. At the same time, mechanical drill and break works for tunnel excavation at Yau Ma Tei access shaft works site continues under MTR non-blast zone. The Tunnel Boring Machine (TBM) breakthrough of the 720m-long pilot tunnel has been completed on 6 January 2022 with a total duration of 176 days, connecting the Ho Man Tin and Ma Tau Kok access shaft. The TBM disassembly is being carried out inside the tunnel and delivering off from the site. Besides, the construction of temporary noise enclosure at Yau Ma Tei and Ma Tau Kok access shaft works sites were completed in end-December 2021, to further reduce the construction impact on the nearby residents.



於何文田豎井通道工地的隧道鑽爆工程
Drill-and-blast works at Ho Man Tin access shaft works site



隧道鑽爆機已於2022年1月6日貫通先導隧道
TBM breakthrough the pilot tunnel was completed on 6 January 2022



於馬頭角豎井通道工地興建的臨時隔音罩工程完成
Construction of temporary noise enclosure at Ma Tau Kok access shaft works site has been completed

合約編號
Contract No.

HY/2014/07

啟德西工程
Kai Tak West Contract

馬頭角 – 正繼續進行明挖回填隧道的安裝鋼管樁工序。
Ma Tau Kok – Installation of pipe pile for cut-and-cover tunnel continue.

九龍灣 – 第一期海底隧道工程的拆卸圍堰及回復海床工序已經完成；第二期海底隧道工程正繼續進行海上打樁及建造臨時海上工作平台及圍堰。
Kowloon Bay – Removal of cofferdam and reinstatement of seabed for Stage 1 Underwater Tunnel were completed; piling and construction of temporary marine platform and cofferdam for Stage 2 Underwater Tunnel continue.

啟德 – 明挖回填隧道、低於地面道路及地下行車道的結構建造工序已經完成，回填工序亦接近尾聲，正展開鋪設道路設施工序。
Kai Tak – The structure of cut-and-cover tunnel, depressed road and underpass were completed while backfilling works is nearing completion. Installation of road facilities commence.



在馬頭角的明挖回填隧道工程
Construction of cut-and-cover tunnel at Ma Tau Kok



在九龍灣的第二期海底隧道的臨時海上工作平台及圍堰建造工程
Installation of temporary marine platform and construction of cofferdam for Stage 2 Underwater Tunnel at Kowloon Bay



在啟德的明挖回填隧道、低於地面道路及地下行車道工程
Construction of cut-and-cover tunnel, depressed road and underpass at Kai Tak

油麻地西
Yau Ma Tei West

油麻地東
Yau Ma Tei East

5

大樓及機電工程
Buildings, Electrical and Mechanical Works
中段隧道
Central Tunnel

6

啟德西
Kai Tak West

啟德東
Kai Tak East

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2019冠狀病毒病防疫措施 COVID-19 PANDEMIC PREVENTIVE MEASURES

鑑於2019 冠狀病毒疫情肆虐，中九龍幹線工程團隊嚴陣以待，於工地及辦公室嚴格地實施多項防疫措施，盡可能減低工程人員及工人的感染風險。工程團隊將繼續上下一心攜手抗疫，祝願香港早日戰勝疫情！重點防疫措施包括：

01

所有進入工地及辦公室的人士必須掃描「安心出行」二維碼、量度體溫，並進行登記；
All personnel entering works sites and offices must scan the "LeaveHomeSafe" QR code and have their body temperature checked and registered;



03

廣泛採用視像會議，以盡量減少面對面的討論；
Wide use of video conferencing to minimise face-to-face discussions;

05

限制各共用空間，包括更衣室、工人休息室等的使用人數，並保持1.5米社交距離；
Restrict the number of people in common spaces, including changing rooms and workers rest area, and maintain 1.5 m social distancing;



07

實施分批午膳時間；
Implement staggered lunch hours;

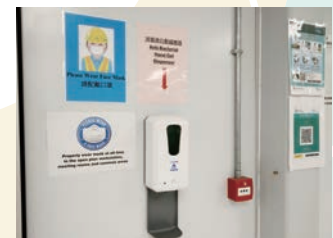
09

於工地、辦公室及分判商貨櫃設置智能消毒噴霧機及機械人；
Set up intelligent disinfection stations and robot at sites, offices and sub-contractor containers



11

工地及辦公室範圍提供足夠酒精消毒搓手液。
Provision of adequate alcohol hand sanitisers in works sites and offices.



The CKR project team braces for the raging COVID-19 pandemic by strictly implementing a number of preventive measures at works sites and offices to minimise the risk of infection to site staff and workers. The project team will continue our concerted effort to fight against the virus. Wishing Hong Kong an early victory over the pandemic! The key preventive measures include:

02

3月14日起，所有工程人員必須最少接種一劑疫苗方可進入工地；
All site personnel entering works sites must have received at least one dose of vaccine from 14 March;



04

於可行情況下，安排員工分組在家工作；
Split team and work from home arrangements for staff where practicable;

06

為工程人員及工人提供快速病毒檢測套裝；
Provision of rapid test kits for site staff and workers;



08

每天定時進行清潔及消毒；
長假期後進行額外大規模消毒；
Daily regular cleaning and disinfection; additional large-scale disinfection after a long holiday;



10

工地及辦公室範圍內必須正確佩戴外科口罩；
Surgical masks must be worn properly at all times at works sites and offices;



8