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ACE-EIA Paper 2/2013
For advice on 27 May 2013

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
Central Kowloon Route

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the proposed Central Kowloon Route (CKR) (hereafter known as "the Project") submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-208/2013). Highways Department (HyD) (the applicant), and their consultants will present the EIA report at the meeting of EIA Subcommittee, if necessary.

ADVICE SOUGHT

2. Members' views are sought on the findings and recommendations of the EIA report. The Director of Environmental Protection (DEP) will take into account comments from the public and the Advisory Council on the Environment (ACE) in deciding whether or not to approve the EIA report under Section 8(3) of the EIAO.

BACKGROUND

3. The proposed CKR will connect the West Kowloon Highway at Yau Ma Tei Interchange with the Kai Tak Development (KTD) and road network at Kowloon Bay, where it will link up to the future Trunk Road T2 at KTD and Tseung Kwan

O – Lam Tin Tunnel (TKO-LT Tunnel). The proposed CKR, Trunk Road T2 and TKO-LT Tunnel will form a strategic highway, namely Route 6, to provide an east-west express link between West Kowloon and Tseung Kwan O (TKO). Upon completion, Route 6 will also link with the future Cross Bay Link (CBL) which extends to TKO South. The proposed CKR, Trunk Road T2, TKO-LT Tunnel and CBL are all designated projects subject to separate EIAs under the EIA Ordinance. **Figure 1** illustrates the general alignment of Route 6 and the proposed CBL.

4. The applicant has submitted the EIA report for the proposed CKR and the DEP, in conjunction with the relevant authorities, considers that the EIA report meets the requirements of the EIA Study Brief and the Technical Memorandum on EIA Process (TM). Together with the EIA report for CKR, the EIA reports for TKO-LT Tunnel and CBL will also be considered by the EIA Subcommittee of ACE at this meeting.

NEED FOR THE PROJECT

5. The applicant has advised that there is the need for additional traffic capacity on the east-west road links across Central Kowloon, particularly to cope with the future traffic demands generated from new developments at West and East Kowloon. As traffic congestion is already commonplace on the existing east-west routes, including Lung Cheung Road, Boundary Street, Prince Edward Road, Argyle Street, Waterloo Road, Chatham Road North and Gascoigne Road Flyover (GRF), CKR is therefore needed to provide an express route to relief traffic congestion in these congested roads and to reduce travel time across Central Kowloon. It is estimated that the proposed CKR will shorten the journey time between Yau Ma Tei and Kai Tak from currently around 20 minutes (or predicted 35 minutes in 2021 without CKR) to 5 minutes upon commissioning of CKR in 2021.

ENVIRONMENTAL BENEFITS

6. The relief in traffic congestion in the above mentioned key east-west routes will improve the average traffic speeds on these routes. Since vehicular emission will decrease as the average traffic speed increases, the introduction of CKR will help reduce emissions from vehicles travelling on these key east-west routes. This will benefit the large number of residential buildings along these key east-west routes, and contribute to achieving a better air quality in large parts of Central

Kowloon.

7. The CKR will also bring improvement to the noise environment of dwellings and classrooms in the vicinity of GRF. Noise sensitive receivers (NSRs) along the GRF are currently adversely affected by existing traffic noise. With the provision of the noise enclosures/barriers recommended in the CKR EIA report, there will be improvement in noise level at the NSRs of up to 10dB(A). Approximately 2,240 existing dwellings and 90 existing classrooms will be benefited from the Project.

DESCRIPTION OF THE PROJECT

8. The Project is to construct and operate a 4.7km long dual 3-lane trunk road across Central Kowloon linking the West Kowloon in the west and the proposed KTD in the east. **Figure 2** illustrates the proposed alignment of the CKR.

9. The main features of the Project include:

(i) Construct and operate a 4.7km long dual 3-lane trunk road with an underground tunnel section of about 3.9km long, in which 370m will be underwater, across Central Kowloon linking the West Kowloon in the west and the proposed KTD in the east;

(ii) Construct and operate three ventilation buildings, which will be located in Yau Ma Tei, Ho Man Tin and ex-Kai Tak airport area;

(iii) Construct and operate an administration building at ex-Kai Tak airport area;

(iv) Construct and operate slip roads in form of viaducts at both ends of the Project;

(v) Demolish and re-provide a section of GRF; and

(vi) Construct and maintain noise mitigation measures in the form of enclosure, semi-enclosure, barrier and landscape decks.

10. The Project is classified as a designated project by virtue of items A.1, A.7, A.8, A.9, C.2 and G.5 of schedule 2 of the EIA Ordinance, extracted below for easy reference:

(i) Item A.1 – "A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing roads."

(ii) Item A.7 – "A road or railway tunnel more than 800 m in length between portals."

(iii) Item A.8 – "A road or railway bridge more than 100 m in length between abutments."

(iv) Item A.9 – "A road fully enclosed by decking above and by structure on the sides for more than 100 m."

(v) Item C.2(c) – "Reclamation works (including associated dredging works) more than 1 ha in size and a boundary of which is less than 100 m from an existing residential area."

(vi) Item G.5 – "A facility for the treatment of construction waste with a designed capacity of not less than 500 tonnes per day and a boundary of which is less than 200m from an existing or planned residential area; place for worship; educational institution or health care institution."

CONSIDERATION OF ALTERNATIVE ALIGNMENTS AND OPTIONS

11. The EIA Report has considered five alignment options each at the east and west portions of the CKR. Environmental benefits and dis-benefits of these options have been evaluated. The selected alignment has taken into account environmental consideration, site constraints and comments received during consultation with the Legislative Council Panel on Transport, the Kwun Tong District Council, the Kowloon City District Council, the Yau Tsim Mong District Council and various stakeholders including local residents. The key considerations and outcomes are highlighted below.

Avoidance

12. The project proponent has advised that avoidance of environmental impacts has been one of the key considerations throughout the entire project development and design of CKR. The following approaches have been adopted to avoid environmental impacts:

(i) Optimal use of tunnel instead of viaducts

The majority of the CKR alignment will be an underground tunnel. As compared to a viaduct form, the use of an underground tunnel will help avoid the potential nuisance such as airborne noise, landscape and visual impacts etc. during the operational phase.

(ii) Avoidance of temporary closure of public open space/parks

The use of an underground tunnel will also largely avoid the need to use public open space as temporary at-grade construction sites. These include parks such as King's Park Rise Garden, King's Park Rest Garden, King's Park Recreation Ground, Ho Man Tin Park, Ho Man Tin High Level Service Reservoir Playground, Kau Pui Lung Road Playground, Ma Tau Wai Service Reservoir Playground and To Kwan Wan Recreation Ground along the alignment. Large amount of trees within these parks will not be affected.

(iii) Avoidance of physical encroachment upon Yau Ma Tei Police Station Old Wing

The CKR tunnel has avoided the old wing building of Yau Ma Tei Police Station (YMTPS) by maintaining an approximately 2.3 m clearance. The cut-and-cover tunnel of CKR will be constructed partly underneath the new wing of YMTPS. As a result, both the old and new wings of YMTPS, which is a Grade 2 Historic Building, will be retained.

Minimization

13. In addition to proper selection of alignments, the following strategies have been adopted to minimize environmental impacts:

(i) Optimal use of drill-and-blast and drill-and-break tunnelling instead of open cut method to minimize construction impacts;

(ii) Use of pipepile seawall to reduce the extent of temporary reclamation to minimize water quality impacts and quantity of dredged contaminated sediments;

(iii) Careful siting and design of ventilation buildings to minimize air quality impacts and visual impacts;

(iv) Use air purification systems in ventilation buildings to minimize air pollutants emissions;

(v) Optimal use of green roof to minimize visual impacts and promote sustainability;

(vi) Landscaped decks to minimize nuisance and enhance urban landscape;

(vii) Use of noise barriers, noise enclosures and low noise road surfacing to minimize traffic noise;

(viii) Use of full enclosure at mucking out locations to minimize construction noise and fugitive dust;

(ix) Use of top-down construction method for cut-and-cover tunnel sections to minimize construction noise and fugitive dust; and

(x) Re-provisioned Kowloon City Ferry Pier Public Transport Interchange as a landscape deck to minimize noise and visual impacts and enhance local environment.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

Air Quality Impact

14. As majority of the proposed CKR is an underground tunnel, the key air quality concern is aerial emissions from the proposed ventilation buildings, tunnel portals, and connecting open roads at the two ends of the tunnel. The CKR will alleviate traffic congestion and reduce travelling time across Central Kowloon, it will in general reduce vehicular emission impacts on the large number of residential buildings along those heavily congested roads in Central Kowloon, and contribute in achieving a better air quality in the Central Kowloon region in the longer term. Along the GRF corridor, there will be improvement in air quality as compared with the current air quality measured at the Sham Shui Po monitoring station of the Environmental Protection Department. The ranges of improvement in various parameters are: 24-hr average NO2 (14-25%); annual average NO2 (6-25%); 24-hr average RSP (27%); and annual average RSP (15-17%).

15. Cumulative impacts from the operation of existing and planned/committed projects in the vicinity of the Project have been assessed. The EIA predicted that

the air quality at all planned and existing air sensitive receivers (ASRs), including the ASRs in Yau Ma Tei, will comply with the prevailing Air Quality Objectives (AQOs). While the Government is working with a view to having the proposed new AQOs to take effect in 2014, for the purpose of assessing the air quality impacts under the EIAO, consideration of the assessment criteria would be based on the AQOs prevailing at the time of the decision.

16. During construction, fugitive dust is the major concern. The EIA predicted that with the implementation of the recommended mitigation measures including watering once every working hour at active works areas and good site practices stipulated in the Air Pollution Control (Construction Dust) Regulation, the impacts on all representative ASRs will comply with the TM criteria.

Noise Impact

17. Adverse traffic noise impact is currently affecting some residential buildings in Yau Ma Tei area due to their close proximity with existing busy roads, such as the GRF. With the CKR, some of the existing roads falling within the Project boundary, such as GRF, will have to be altered and reprovisioned. Taking the opportunity in the CKR project, the reprovisioned GRF will be provided with noise mitigation measures, including a combination of noise barriers, semi-enclosures and full enclosures, to bring down the prevailing traffic noise levels, thus improving the general noise environment by up to 10 dB(A) and with an average reduction of 3 dB(A) (i.e. from the existing range of 66-84 dB(A) to 64-80 dB(A)) in the vicinity of the reprovisioned GRF corridor. Some NSRs along the reprovisioned GRF will still remain exceeding the traffic noise criteria of 70dB(A) by up to 10dB(A), mostly due to prevailing traffic noise from other existing roads outside the Project boundary. However, the EIA predicted that the Project contributes less than 1.0dB(A) to these exceedance upon implementation of the recommended noise mitigation measures, and therefore considered insignificant and acceptable in accordance with established criteria.

18. For construction noise, the EIA predicted that even with all practicable mitigation measures in place (including good site practices, quieter plant, movable noise barrier and full enclosure at mucking out locations), the cumulative construction noise impact of the Project with other concurrent projects at representative NSRs will still exceed the TM daytime construction noise criterion by 1-7dB(A) for 1-39 months, affecting about 650 flats.

19. A vigorous review of further noise mitigation measures has been conducted, and concluded that the applicant has exhausted all practicable mitigation measures to minimize the residual impacts. TM Annex 5(c) stipulates that the noise criteria for construction of designated projects shall be met as far as practicable. The predicted exceedances are mainly due to the close proximity between the affected NSRs and the construction works. To further reduce the residual noise impact to residents, the applicant has already set up a liaison centre at Kansu Street with a hotline to facilitate communication with the affected parties with a view to better planning of future site activities, including the use of quieter plant at critical locations and periods, on-site adjustment of working methods, and re-scheduling of plant operations, etc during construction. Regular noise monitoring will be carried out during construction to ensure that the nuisance to residents would be detected and responded effectively.

Landscape and Visual Impact

20. Approximately 1,304 trees of common species will be affected by the Project, of which 163 trees will be transplanted and 1,141 trees will be felled. Felled trees will be compensated for mainly within the Project boundary including replanting on the future landscape deck near the western tunnel portal.

21. The visual intrusion arising from the above ground structures, including the viaduct structures, noise barriers and full-enclosures, ventilation buildings and administrative building will be mitigated by screen planting, green landscaped roof and 'natural terrain' design, etc. Through the above mitigation measures, the visual and landscape impacts arising from the Project are considered to have been reduced to an acceptable level.

Water Quality Impact

22. Dredging of marine sediment and temporary reclamation of about 3.8ha are required for the construction of the underwater tunnel in Ma Tau Kok. With implementation of the mitigation measures including silt curtain, the impact to water quality will comply with the TM criteria. Water quality monitoring in the Kowloon Bay and its vicinity will be carried out to ensure that the water quality is acceptable during the dredging works.

Other Environmental Impacts

23. Other impacts including waste management, land contamination and cultural heritage have also been addressed in the EIA report. With the implementation of recommended mitigation measures, the Project will comply with the relevant requirements under the TM.

ENVIRONMENTAL MONITORING AND AUDIT

24. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during the construction and operation phases of the Project. Key recommended EM&A requirements cover construction phase air-borne noise and dust monitoring; operation phase traffic noise and fixed plant noise monitoring; and construction phase water quality monitoring during dredging.

PUBLIC CONSULTATION

25. The applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 25 March 2013 to 23 April 2013. 675 public comments were received by the Environmental Protection Department before the statutory deadline. A preliminary analysis indicated that these 675 comments consist of 644 comments submitted in 4 sets of prepared templates, out of which 598 comments could be identified as submitted by residents of a single estate. The main concern being raised by the public will be summarised in a gist to be provided separately.

May 2013
Environmental Assessment Division
Environmental Protection Department

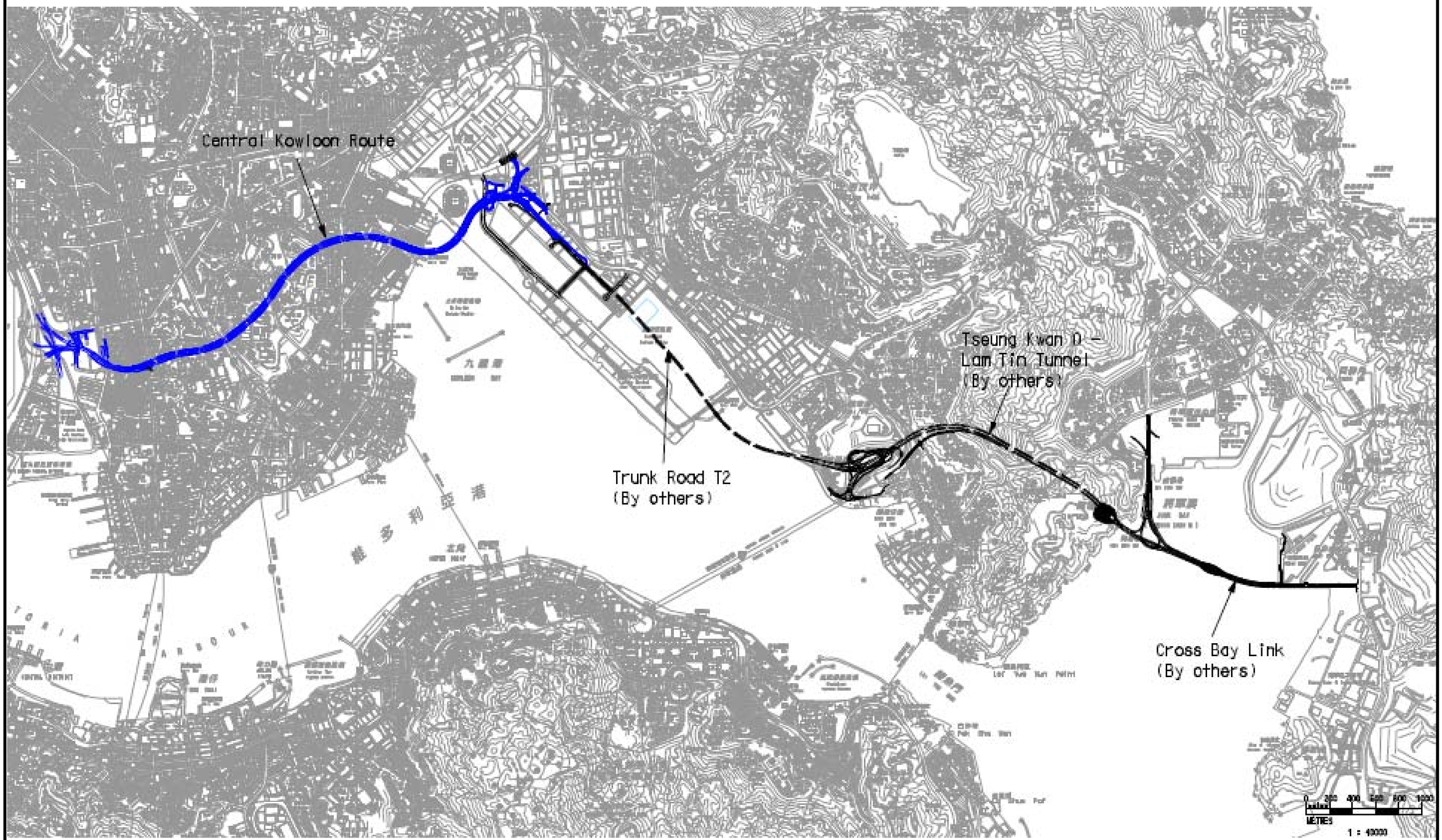

Figure 1: Overview of Route 6 and Cross Bay Link

Project Title: Central Kowloon Route

Note: This figure is extracted from the EIA Report

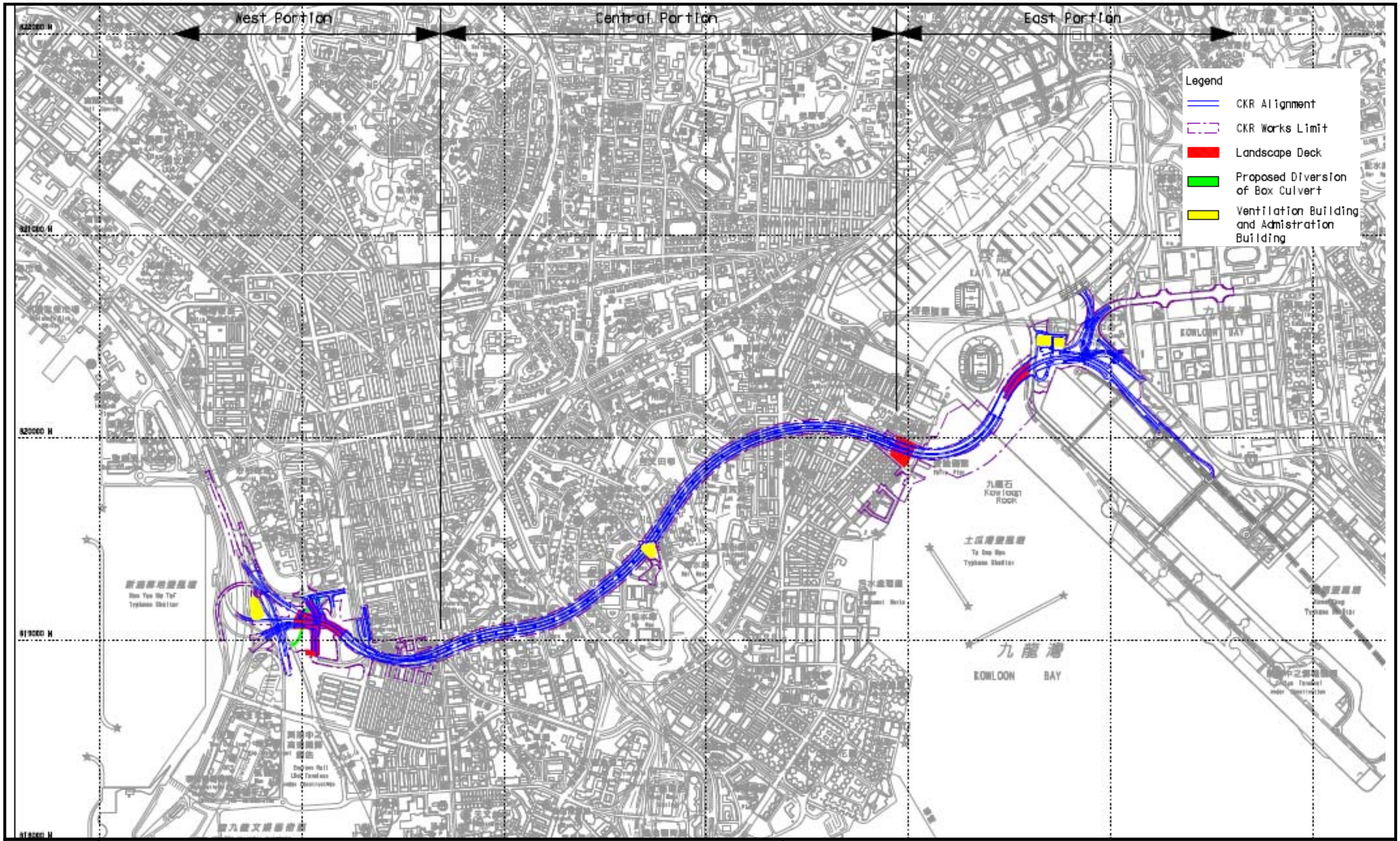

Figure 2: Proposed Alignment of Central Kowloon Route

Project Title: Central Kowloon Route

Note: This figure is extracted from the EIA Report