For discussion **PWSC(2014-15)36**
on 22 October 2014

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 – HIGHWAYS
Transport – Roads
855TH – Road Improvement Works for West Kowloon Reclamation Development (Phase 1)

Members are invited to recommend to the Finance Committee the upgrading of **855TH** to Category A at an estimated cost of $845.8 million in money-of-the-day prices.

PROBLEM

We need to improve the road network in the West Kowloon Reclamation Development (WKRD) area to cope with future traffic demand.

PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to upgrade **855TH** to Category A at an estimated cost of $845.8 million in money-of-the-day (MOD) prices for implementing road improvement works of Phase 1 in the WKRD area.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The proposed scope of works under the project includes –

(a) construction of a single lane elevated carriageway connecting Hoi Po Road to West Kowloon Highway northbound; and realignment of a section of Lin Cheung Road northbound and a section of Hoi Fai Road (shown as Scheme 1 in Enclosure 1);

(b) construction of a single lane elevated carriageway connecting the elevated Nga Cheung Road to the toll plaza of Western Harbour Crossing (shown as Scheme 2 in Enclosure 1);

(c) construction of a single lane at-grade carriageway connecting West Kowloon Highway southbound to the elevated Nga Cheung Road (shown as Scheme 3 in Enclosure 1);

(d) widening of the junction of Canton Road with Austin Road and Austin Road West, junction of Canton Road with Wui Cheung Road and junction of Canton Road with Jordan Road and Ferry Street to increase the number of traffic lanes (shown as Scheme 4 in Enclosure 1); and

(e) associated civil and road works, slope and geotechnical works, public lighting facilities, drainage and water works, and landscaping works.

The layout plans, a typical section plan and photomontages showing the proposed works are at Enclosure 1.

4. Subject to the funding approval of the Finance Committee, we plan to commence construction works in January 2015 and complete the major works by mid 2018.

JUSTIFICATION

5. To cater for the traffic need generated by the progressive completion of the developments in the WKRD area (including the West Kowloon Cultural District, West Kowloon Terminus of Guangzhou-Shenzhen-Hong Kong Express Rail Link (Hong Kong Section) and its topside development, as well as the development above the Austin Station), a detailed traffic study was completed by the Transport Department in 2009. The findings of the study indicated that in 2031 the original road network of the WKRD previously planned in the late 1980s would not be adequate to meet the demand of the local traffic as well as through traffic to nearby areas (such as Tsim Sha Tsui). Some key road junctions in the study area would be overloaded or approaching the limit of their capacity. To strengthen the road network of the area, the study recommended a series of traffic improvement schemes[1], including those mentioned in paragraph 3 above.

6. Based on our latest estimate, due to the overall traffic growth in the WKRD area, with the progressive completion of the developments in the area, some of the key junctions in the area will become saturated or overloaded one after another in the coming few years. For instance, the junction of Canton Road with Austin Road and Austin Road West is expected to be overloaded by 2017, resulting in traffic queues. Moreover, as temporary traffic arrangements will have to be made during the construction period, we hope to carry out the relevant works as soon as practicable before the traffic becomes overloaded or saturated, with a view to minimising the impact caused to the public.

7. Upon completion of the improvement schemes mentioned in paragraph 3 above by mid-2018, the existing road network in the area would be enhanced. The anticipated benefits of these schemes are as follows –

(a) upon completion of Scheme 1, the traffic along the elevated Nga Cheung Road northbound could make use of the proposed elevated carriageway for connecting to West Kowloon Highway northbound, without having to route through the more busy junction of Lin Cheung Road and Jordan Road. This will reduce the detour distance by about 0.45 kilometres (km), leading to travelling time saving of about 0.7 minutes in 2018. By 2031, the travelling time saving will be about 4 minutes;

/(b) …..

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[1] The recommended traffic improvement schemes included modifying the Public Transport Interchange at the Kowloon exit of the West Harbour Crossing, an underpass for connecting Austin Road West (near Canton Road) to Lin Cheung Road (north of Jordan Road) and widening part of Austin Road West, Jordan Road and Lin Cheung Road, etc.

(b) upon completion of Scheme 2, the traffic along the elevated Nga Cheung Road northbound to Hong Kong Island West could make use of the new link road for directly accessing the toll plaza of Western Harbour Crossing (Hong Kong bound), without having to pass through the more busy junctions of Lin Cheung Road and Jordan Road, and of the elevated Nga Cheung Road and the elevated Jordan Road. This will reduce the detour distance by about 1.4 km, leading to travelling time saving of about 2.5 minutes in 2018. By 2031, the travelling time saving will be about 6 minutes;

(c) upon completion of Scheme 3, the traffic along West Kowloon Highway southbound could make use of the new link road for accessing the commercial/residential area of the Kowloon Station, without having to route through the more busy junctions of Lin Cheung Road and Jordan Road, and of the elevated Nga Cheung Road and the elevated Jordan Road. This will reduce the detour distance by about 0.4 km, leading to travelling time saving of about 2.6 minutes in 2018. By 2031, the travelling time saving will be about 3 minutes; and

(d) upon completion of Scheme 4, the junctions of Canton Road with Austin Road and Austin Road West, of Canton Road with Wui Cheung Road, and of Canton Road with Jordan Road and Ferry Street would be widened to increase the number of traffic lanes at some junctions. This will increase the junctions' capacity and relieve traffic congestion. As a result, the time saving of travelling through the junctions mentioned above along Canton Road will be about 1.2 minutes in 2018. By 2031, the travelling time saving will be about 4 minutes.

8. With the completion of the improvement schemes mentioned in paragraph 3 above and taking into account the series of traffic improvement schemes mentioned in paragraph 5 above that are anticipated to be in place by 2031, the reserve capacity[2] of various critical signal-controlled junctions within the area would be significantly improved. Details are as follows –

Signal-controlled Junctions	**Reserve Capacity**			
	Without the improvement schemes		**With the improvement schemes**	
	2031		**2031**	
	AM	**PM**	**AM**	**PM**
Elevated Nga Cheung Road / Elevated Jordan Road	-17%	-5%	15%	35%
Jordan Road / Lin Cheung Road	-4%	0%	10%	22%
Canton Road / Austin Road / Austin Road West	-9%	-16%	12%	10%

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed project to be $845.8 million in MOD prices (please see paragraph 11 below), broken down as follows –

		$ million	
(a)	Roads, drains and waterworks		56.9
	(i) construction of carriageway	27.8	
	(ii) drainage and waterworks	29.1	
(b)	Geotechnical works		68.8
	(i) retaining walls	67.6	
	(ii) slopeworks	1.2	

/(c) …..

[2] The traffic condition of a signal-controlled junction is indicated by its reserve capacity (RC). A positive RC figure indicates the junction is operating with spare capacity. A negative RC figure indicates the junction is overloaded, resulting in traffic queues and longer travel time.

			$ million	
(c)	Vehicular bridges[3]		434.0	
(d)	Public lighting facilities		15.5	
(e)	Landscaping works		11.4	
(f)	Consultants' fee for		3.0	
	(i) contract administration	1.3		
	(ii) management of resident site staff (RSS)	1.3		
	(iii) environmental monitoring and audit (EM&A) programme	0.4		
(g)	Remuneration of RSS		65.2	
(h)	Contingencies		65.7	
	Sub-total		720.5	(in September 2014 prices)
(i)	Provision for price adjustment		125.3	
	Total		845.8	(in MOD prices)

10. A breakdown of the estimated consultants' fees and RSS costs by man-months is at Enclosure 2.

/11. …..

[3] It covers construction of elevated carriageways under Schemes 1 and 2 detailed in paragraphs 3(a) and 3(b) respectively.

11. Subject to funding approval, we will phase the expenditure as follows –

Year	$ million (Sept 2014)	Price adjustment factor	$ million (MOD)
2014 – 2015	6.0	1.00000	6.0
2015 – 2016	152.1	1.06000	161.2
2016 – 2017	200.8	1.12360	225.6
2017 – 2018	169.1	1.19102	201.4
2018 – 2019	97.2	1.26248	122.7
2019 – 2020	61.3	1.32876	81.5
2020 – 2021	34.0	1.39519	47.4
	720.5		845.8

12. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period 2014 to 2021. Subject to funding approval, we will deliver the project under a standard remeasurement contract because the quantities of earthworks and foundation works of vehicular bridges involved will vary depending on actual ground conditions. The contract will provide for price adjustments.

13. We estimate the annual recurrent expenditure arising from this project to be about $1.5 million.

PUBLIC CONSULTATION

14. The Highways Department (HyD) consulted the Traffic and Transport Committee of the Yau Tsim Mong District Council (DC) on 24 May 2012. Members indicated no objection to the implementation of the project.

15. We gazetted the road scheme for the proposed works of the project under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) (the Ordinance) on 5 and 12 April 2013. During the statutory objection period, no objection was received. The Permanent Secretary for Transport and Housing (Transport) authorised the proposed works of the project under the Ordinance on 2 December 2013. The authorisation notice of the project was gazetted on 13 December 2013.

16. We have consulted the Advisory Committee on the Appearance of Bridges and Associated Structures[4] (ACABAS) on the proposed aesthetic design of the vehicular bridges and retaining walls of the project. The ACABAS accepted the proposed aesthetic design.

17. We consulted the Legislative Council Panel on Transport on our plan to submit the funding application for the project on 11 April 2014. The Panel supported the Administration to seek funding from the Public Works Sub-committee. The supplementary information requested by Panel members was submitted on 9 June 2014.

ENVIRONMENTAL IMPLICATIONS

18. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499), requiring an environmental permit for its construction and operation. The Director of Environmental Protection approved the EIA report for the project and issued an environmental permit for the construction and operation of the project in November 2013.

19. According to the EIA report, environmental impacts of the project can be controlled within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. During construction, we will implement the mitigation measures and the EM&A programme according to the proposals in the approved EIA report. These measures mainly include the use of quieter equipment and movable noise barriers to minimise construction noise impact, and regular watering of the works sites to minimise dust generation. We estimate the cost of implementing the environmental mitigation measures and the EM&A programme to be $2.3 million (in September 2014 prices). We have included this cost in the overall project estimate.

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[4] The ACABAS comprises representatives of the Hong Kong Institute of Architects, the Hong Kong Institution of Engineers, the Hong Kong Institute of Planners, an academic institution, the Architectural Services Department, the HyD, the Housing Department, and the Civil Engineering and Development Department. It is responsible for vetting the design of bridges and other structures associated with the public highway system, including noise barriers and semi-enclosures, from the aesthetic and visual impact points of view.

20. At the planning and design stages, we have considered minimising the generation of construction waste as far as possible through the design of road alignment. In addition, we will require the contractor to reuse inert construction waste on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities[5]. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork, to further minimise the generation of construction waste.

21. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures. The plan shall include appropriate mitigation measures to avoid and reduce the generation of inert construction waste, and to reuse and recycle the waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate inert construction waste from non-inert construction waste on site to facilitate their transportation to appropriate facilities for disposal. We will control the transportation of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively for disposal through a trip-ticket system.

22. We estimate that the proposed project will generate about 50 706 tonnes of construction waste in total. Of these, we will reuse about 15 066 tonnes (29.7%) of inert construction waste on site and deliver about 31 446 tonnes (62%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of the remaining 4 194 tonnes (8.3%) of non-inert construction waste at landfills. The total cost of transporting construction waste to public fill reception facilities and landfill sites for disposal for the project is estimated to be $1.38 million (based on a unit charge rate of $27 per tonne for disposal at public fill reception facilities and $125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

23. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

/LAND …..

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[5] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a license issued by the Director of Civil Engineering and Development.

LAND ACQUISITION

24. The project does not require any land acquisition.

TRAFFIC IMPLICATION

25. We have conducted traffic impact assessment for the project, covering the traffic impact during the construction period. According to the findings of the assessment, with the implementation of appropriate temporary traffic arrangement (TTA), the project would not cause significant impact to the traffic network in the concerned area.

26. We would implement TTA, involving lane closures, traffic diversions and other arrangements, to facilitate the construction works. To minimise the adverse traffic impact of the works on the existing road network in the area, we would, as far as possible, maintain the same number of traffic lanes in each direction of the existing carriageway during peak hours of the construction period.

27. We will consult the Yau Tsim Mong DC prior to the implementation of major TTA. The HyD will regularly report to the DC on the planning and operation of the TTA.

BACKGROUND

28. We upgraded the project to Category B in September 2011, and have completed investigation and detailed design works of the project at a cost of about $10.5 million funded under block allocation **Subhead 6100TX** "Highway works, studies and investigations for items in Category D of the Public Works Programme".

29. There are about 618 trees within the project boundary, of which about 236 trees will be preserved. The proposed works would require the removal of about 382 trees, including about 351 trees to be felled and about 31 trees to be transplanted within the project boundary. All trees to be removed are not important trees[6]. We will incorporate planting proposals into the proposed works, including the planting of about 476 heavy standard trees and 19 700 shrubs, covering a planting area of about 17 500 m^2.

30. We estimate that the proposed construction works will create about 275 jobs (53 for professional/technical staff and 222 for labourers) providing a total employment of about 8 320 man-months.

31. This paper supersedes PWSC(2014-15)23 which was not discussed by the PWSC during the 2013-14 legislative session. The programme, phasing of expenditure and estimated cost of the project have been updated due to the lapse of time.

Transport and Housing Bureau
October 2014

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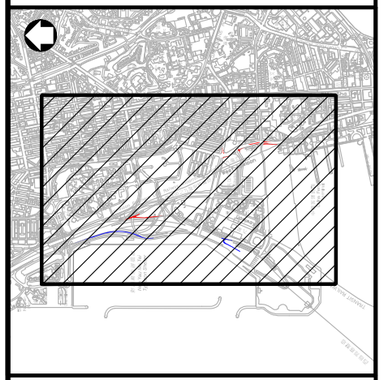
[6] An "important tree" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

油尖旺區
YAU TSIM MONG DISTRICT



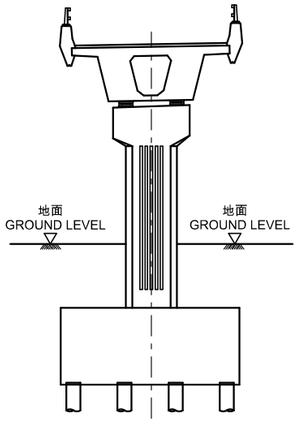
位置圖
LOCATION PLAN
比例 SCALE 1:10000

圖例 LEGEND :

施工區界限
LIMIT OF WORKS AREA

在本工程項目內的道路改善工程
(地面行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (AT-GRADE CARRIAGEWAY)

在本工程項目內的道路改善工程
(高架行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (ELEVATED CARRIAGEWAY)



典型剖面圖-高架行車道
TYPICAL SECTION FOR ELEVATED CARRIAGEWAY
SCALE N.T.S.

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 平面圖
PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - LAYOUT PLAN

圖紙名稿 DRAWING NO. CE44-K-CV-0001
此例 SCALE 1:6000 (A3)

HIGHWAYS DEPARTMENT HONG KONG 香港路政署

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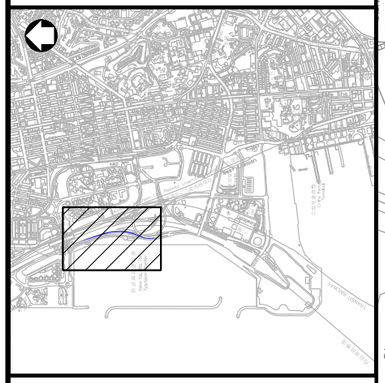
油尖旺區
YAU TSIM MONG DISTRICT



位置圖
LOCATION PLAN
比例 SCALE 1:10000

圖例 LEGEND :

在本工程項目內的道路改善工程(高架行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (ELEVATED CARRIAGEWAY)

西九龍公路 WEST KOWLOON HIGHWAY

海輝道 HOI FAI ROAD

海寶路 HOI PO ROAD

連翔道 LIN CHEUNG ROAD

連翔道北行方向與海輝道重新定線
LIN CHEUNG ROAD NORTHBOUND AND HOI FAI ROAD TO BE REALIGNED

新油麻地避風塘
NEW YAU MA TEI TYPHOON SHELTER

0 20 40 60 80 100
METRES
1 : 2000

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃1平面圖

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - SCHEME 1 LAYOUT PLAN

圖紙名稱 DRAWING NO. CE44-K-CV-0002

比例 SCALE 1:2000 (A3)

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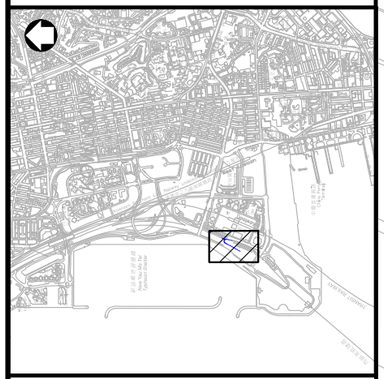
油尖旺區
YAU TSIM MONG DISTRICT



位置圖
LOCATION PLAN
比例 SCALE 1:10000

圖例 LEGEND :

在本工程項目內的道路改善工程
(高架行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (ELEVATED CARRIAGEWAY)

西九龍公路 WEST KOWLOON HIGHWAY

雅翔道 NGA CHEUNG ROAD

西區海底隧道收費廣場
WESTERN HARBOUR CROSSING TOLL PLAZA

The Cullinan II

環球貿易廣場
International Commerce Centre

0 5 10 15 20 25
METRES
1 : 1000

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃2平面圖

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - SCHEME 2 LAYOUT PLAN

圖紙名稱 DRAWING NO. CE44-K-CV-0003

此例 SCALE 1:1000 (A3)

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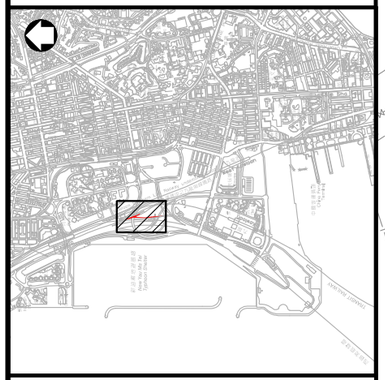
油尖旺區
YAU TSIM MONG DISTRICT



位置圖
LOCATION PLAN
比例 SCALE 1:10000

圖例 LEGEND :

在本工程項目內的道路改善工程
(地面行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (AT-GRADE CARRIAGEWAY)

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃3平面圖

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - SCHEME 3 LAYOUT PLAN

圖紙名稱 DRAWING NO. CE44-K-CV-0004
比例 SCALE 1:1000 (A3)

HIGHWAYS 路
DEPARTMENT 政
HONG KONG 署
香港

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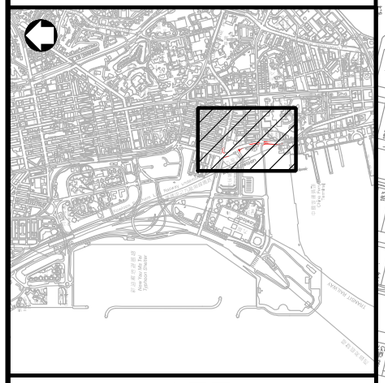
油尖旺區
YAU TSIM MONG DISTRICT



位置圖
LOCATION PLAN
比例 SCALE 1:10000

圖例 LEGEND :

在本工程項目內的道路改善工程
(地面行車道)
ROAD IMPROVEMENT WORKS TO BE IMPLEMENTED UNDER THIS PROJECT (AT-GRADE CARRIAGEWAY)

路口擴闊
WIDENING OF JUNCTION

佐敦道 JORDAN ROAD

渡船街 FERRY STREET

廣東道 CANTON ROAD

柯士甸站
AUSTIN STATION

柯士甸道西 AUSTIN ROAD WEST

柯士甸道 AUSTIN ROAD

WUI CHEUNG ROAD 匯翔道

西九龍文化中心
WEST KOWLOON CULTURAL DISTRICT

0 10 20 30 40 50
METRES
1 : 2000

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃4平面圖

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - SCHEME 4 LAYOUT PLAN

圖紙名稱 DRAWING NO.	比例 SCALE
CE44-K-CV-0005	1:2000 (A3)

HIGHWAYS DEPARTMENT HONG KONG 路政署 香港

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向南望
VIEW TOWARDS SOUTH

向北望
VIEW TOWARDS NORTH

工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃1的集成照片

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - PHOTOMONTAGE OF SCHEME 1

圖紙名稱 DRAWING NO. CE44-K-CV-0011

此例 SCALE N.T.S.

HIGHWAYS DEPARTMENT HONG KONG 路政署 香港

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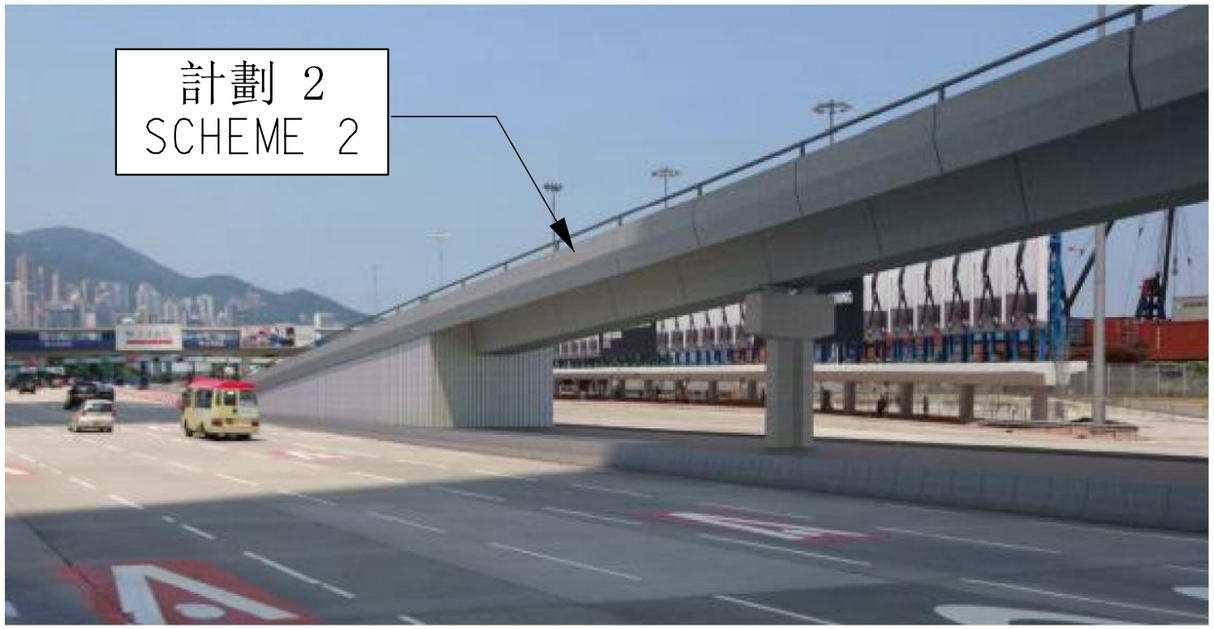
向北望
VIEW TOWARDS NORTH

從新連接路之下向南望
VIEW TOWARDS SOUTH UNDER
THE NEW SLIP ROAD



工務計劃項目第6855TH號
西九龍填海發展的道路改善工程(第一期) - 計劃2的集成照片

PWP ITEM NO. 6855TH
ROAD IMPROVEMENT WORKS FOR WEST KOWLOON RECLAMATION DEVELOPMENT (PHASE 1) - PHOTOMONTAGE OF SCHEME 2

圖紙名稱 DRAWING NO. CE44-K-CV-0012

此例 SCALE N.T.S.

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855TH – Road Improvement Works for West Kowloon Reclamation Development (Phase 1)

Breakdown of estimates for consultants' fees and resident site staff costs (in September 2014 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	-	-	-	0.6
		Technical	-	-	-	0.7
					Sub-total	1.3
(b)	Resident site staff costs (Note 3)	Professional	334	38	1.6	38.1
		Technical	727	14	1.6	28.4
					Sub-total	66.5
	Comprising –					
	(i) Consultants' fee for managing resident site staff					1.3
	(ii) Remuneration of resident site staff					65.2
(c)	Environmental monitoring and audit programme	Professional	-	-	-	0.2
		Technical	-	-	-	0.2
					Sub-total	0.4
					Total	**68.2**

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (Subject to approval of the Finance Committee, MPS salary point 38 = $71,385 per month and MPS salary point 14 = $24,380 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **855TH**. The construction phase of the assignment in respect of works will only be executed subject to Finance Committee's approval to upgrade the **855TH** to Category A.
3. The actual man-months and actual costs will be only known after completion of the construction works.