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By Email and Fax

Council Business Division
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn: Ms. Sophie LAU)

Fax No. : 2978 7569

Dear Ms. LAU,

Panel on Transport
Subcommittee on Matters Relating to Railways
Meeting on 24 November 2014

**Progress update of the construction of the Hong Kong section of the
Guangzhou-Shenzhen-Hong Kong Express Rail Link, West Island Line,
South Island Line (East), Kwun Tong Line Extension
and Shatin to Central Link (SCL)**

Supplementary Information of the SCL

At the meeting of the Subcommittee on Matters Relating to Railways of the Panel on Transport on 24 November 2014, some members requested the Administration/MTR Corporation to provide the details of the additional cost arising from the expanded archaeological work and discoveries at To Kwa Wan Station of the SCL. The relevant supplementary information is attached at the **Enclosure**.

Yours sincerely,

A handwritten signature in blue ink, appearing to be 'Ralph LI', with a small mark above the 'i'.

(Ralph LI)

for Secretary for Transport and Housing

c.c.

Railway Development Office, HyD
MTR Corporation Limited

(Attn: Mr. K. S. YEUNG)

(Attn: Ms. Prudence CHAN)

**An Estimate by the MTR Corporation of the
Additional Cost Arising from the
Archaeological Work and Discoveries at
To Kwa Wan Station of the Shatin to Central Link**

On 28 November 2014, the MTR Corporation Limited (MTRCL) provided detailed information (see the Annex) on the project delay and additional cost caused by the expanded archaeological work and discoveries at To Kwa Wan (TKW) Station of the Shatin to Central Link (SCL).

Mode of Project Implementation

2. The entire SCL project is implemented under the “concession approach” and funded by the Government with an estimated total construction cost of about \$79.8 billion (in money-of-the-day prices). After obtaining funding approval for the project from the Legislative Council, the Government and MTRCL entered into an agreement in May 2012 for entrusting the construction, testing and commissioning of the SCL to the latter. The MTRCL has been entrusted to provide management and monitoring services for the SCL project. The main construction works commenced in July 2012. According to the agreement, the target commissioning dates are December 2018 for the “Tai Wai to Hung Hom section” and December 2020 for the “Hung Hom to Admiralty section” of the SCL respectively.

3. The MTRCL is responsible for the overall management of the SCL project whereas the Highways Department (HyD) closely monitors the work of the MTRCL and has engaged a “Monitoring & Verification” (M&V) consultant to assist in the monitoring work and performing regular audits.

Additional Cost of \$3.1 billion for the Expanded Archaeological Work between December 2013 and end-September 2014

4. At the request of the Antiquities and Monuments Office (AMO), the independent archaeological team engaged by the contractor of the SCL project conducted an expanded archaeological work between December 2013 and end-September 2014. A number of remnants of the Song-Yuan period were discovered in the course of the archaeological work. To facilitate the archaeological work and minimise the impact on the construction works, the MTRCL inevitably had to adjust the works, thereby leading to additional cost. Adjustments directly related to the archaeological work include an extension of the archaeological area, and an increase in the manpower involved with a view to expediting the expanded archaeological excavation work. Given the site constraints and to avoid any impact on the relics unearthed, the additional archaeological excavation work took about 10 months to complete. Besides, it is necessary to build temporary protection walls and modify the design of the temporary supporting struts and the construction sequence for the launching shaft of the tunnel boring machine (TBM) to protect the unearthed features in T1 Area. The MTRCL has estimated that the archaeological work and discoveries have caused a delay of at least 11 months to the construction of the “Tai Wai to Hung Hom section” and TKW Station of the SCL as at the end of November 2014.

5. To minimise the impact on the expanded archaeological work, certain excavation works for the TBM launching shaft and construction works for the TKW Station have been suspended. As a result, the contractor has had part of its manpower, machinery and equipment left idle. The extended construction period will also lead to rises in both the construction cost and the daily operation cost. It is anticipated that the delay will lead to claims from the contractor of the TKW Station of the Kowloon City section (Contract No. 1109) of the SCL. Moreover, contractors of other relevant contracts that have been awarded may also submit subsequent claims for the idling of their manpower and machinery and additional operation cost caused by the delay of the works for the section. The MTRCL has estimated that the additional cost is about \$3.1 billion as at the end of November 2014 (the breakdown at the

Annex).

Additional Cost of \$1.0 billion for the Proposed Arrangement for Preserving Most of the Remnants in-situ (Excluding Well J2 and the Water Channel, and the Stone Structure at the Southern End of Adit C)

6. The proposed conservation plan requires adjustments to the works. Such adjustments mainly include design revision and relocation of the ventilation facilities and plant rooms in T1 Area and its vicinity so as to preserve the remnants in T1 Area in-situ. Additional foundation work is required because the station extent has to be enlarged to accommodate the relocated plant rooms and the cabinets at the station concourse to display part of the relics unearthed. The MTRCL proposes to construct pipe pile wall to protect the relics discovered north of the station so that they would not be affected by the construction works for the station. The MTRCL estimates that this will require another \$1.0 billion. The related adjustments to and modifications of the project will only affect the works for TKW Station and will not cause additional delay to the SCL project.

Additional Cost and Delay Arising from the Four Conservation Options of Well J2 and the Water Channel

7. Regarding the conservation of Well J2 and the connected water channel located at the centre of TKW Station, the MTRCL has proposed four conservation options in response to the request of the AMO. The options will incur additional cost ranging from \$10 million to \$1.3 billion, depending on the option to be chosen.

8. Regarding the impact on the construction progress of the SCL project, the conservation method of Option 1 is relatively simple with shorter construction period and lower construction cost. For Options 2 to 4, a giant “steel structure” would need to be constructed to protect the feature. The construction of the “steel structure” involves piling works. If complex geological conditions are encountered, it will require

additional construction time and cost. In respect of the station design, Options 1 and 2 would not require further changes to the station design. For Options 3 and 4, a giant “steel structure” together with a concrete cover would need to be constructed. The “steel structure” of Option 3 is even bigger than that of Option 4. This would result in a large column sitting in the main passageway of the station concourse. The station design would need to be modified and the station concourse enlarged so as to allow passenger flow. This will make the construction of the station more difficult and bring about additional cost. Details of the construction procedures and associated additional cost for each option are provided by the MTRCL at the Annex.

Additional Cost and Delay Arising from the Conservation Options of the Stone Structure at the Southern End of Adit C

9. The MTRCL has now proposed two conservation options for the stone structure at the southern end of Adit C. Either option will necessitate the preparation of alternative route for part or the whole of the Adit C. Since the area around the adit is designated as a temporary site to tie in with the construction of the station and the train tunnel, suitable alternative routing cannot be explored until the respective works are completed in the second half of 2017 when the area can be made available for further investigation. Hence, the adjustment to the works and the additional cost could not be ascertained at this stage. The MTRCL thus has not provided the information about the impact on works progress and cost arising from the conservation. The conservation arrangement will only affect the construction of Adit C and not the completion date of the TKW Station.

Verification of the Additional Cost

10. Regarding the preliminary estimate by the MTRCL at this stage, the HyD together with its M&V consultant are examining the information provided by the MTRCL and have requested the MTRCL to furnish supplementary information with a view to ensuring the related costs genuinely arising from the expanded archaeological work at the SCL

project.

11. Regarding expenditures arising from contractual claims, contractors have obligation to complete the works concerned as required under the contracts within the specified period of time. Where there are situations not expected in the tenders, the contractors are entitled to submit claims to the MTRCL in accordance with the relevant contract terms. Depending on the complexity of individual cases, the time required for resolving the claims may vary.

12. The MTRCL has to negotiate with contractors on the full justifications of their cases in accordance with established principles for handling claims. During the negotiation process, the contractors have to provide sufficient justifications with relevant supporting documents. The MTRCL has obligation to examine every claim to ensure strict compliance with the contract terms and established procedures, and assess whether the amount of the additional cost is acceptable. The M&V consultant engaged by the HyD will also assist in auditing the MTRCL's handling of contractual claims.

13. The contractual claims submitted by the MTRCL for the time being are based on preliminary estimation. When the Antiquities Authority has made a decision on the overall conservation arrangement, the MTRCL will modify the relevant designs and construction methods accordingly, and will submit a detailed estimate of the additional cost incurred with the relevant information to the HyD for assessment and verification.

**Transport and Housing Bureau
Highways Department
December 2014**

Annex

Preliminary Estimation by MTR Corporation on the Additional Cost Arising from the Expanded Archaeological Work and Discoveries at To Kwa Wan (TKW) Station of the Shatin to Central Link (SCL) (Up to the end of November 2014)

A. Additional Cost of \$3.1 billion for the Expanded Archaeological Work and Discoveries

Items	\$ millions
1. Additional cost related to the expanded archaeological work	
• Additional cost arising from the expanded archaeological work	108
– Archaeological field excavation (both by machine and by hand)	
– Involving archaeologists in field survey	
– Handling, study and analysis of the unearthed features	
– Presentation and compilation of reports	
– Storage of the unearthed features, including scattered ceramic shreds and potteries	
• Additional construction cost for TKW Station and the associated tunnelling works	645
– Construction of a temporary protection wall at T1 Area	
– Alteration of temporary support structure for the launching shaft	
– Re-sequencing of the TBM assembly works due to the reduction in size of the launching shaft caused by the archaeological remains at T1 Area	
– Alteration of the advance preparation for the tunnelling works	
– Inflation on construction cost due to delay to the works	
2. Estimate of claims from the contract of TKW Station of Kowloon City Section (Contract No. 1109) of the SCL and other SCL civil and E&M contracts ¹ related to the works of TKW Station as a result of the delay to the works	1,696
• Idling cost of labour and machinery deployed by the Contractors due to works suspension	
• Additional cost for the normal operation of works as a result of the delay of 11 months	
3. Insurance	10
4. Project management and supervision	355
5. Contingency	246
Total	3,060 (\$3.1 billion)

Remark 1: Other civil engineering works include the contracts for the construction of associated tunnel and track works between stations. Other E&M contracts include the contracts for signalling, communications, operations control system, rolling stocks, electricity supply, platform screen doors and building services, etc.

Most of the SCL contracts have been awarded with works period agreed with the Contractors. If contractors are not able to commence or complete the works in the agreed works period, as a result of delay caused by the archaeological work, they are entitled to claim on the additional expenditure and cost.

B. Additional Cost of \$1 billion Arising from Adopting Proposal of Preserving Most of the Remnants In-situ

Items	\$ million
1. Alteration of station design and construction methods <ul style="list-style-type: none"> • Design revision of plant rooms and ventilation facility due to preservation of the remnants in T1 Area in-situ • Extension of station area to accommodate the plant rooms originally located in T1 Area, and the addition of display cabinets <ul style="list-style-type: none"> – Additional temporary support for extension of station area – Additional foundation for the extension of station area • To catch up with the delay, additional works are required for the station construction in stages, (e.g. steel pipe pile wall) 	676
2. Due to the in-situ preservation of the archaeological features discovered north of the station, open-cut excavation would have to change with additional temporary support to separate and protect the features <ul style="list-style-type: none"> • Pipe pile wall • Additional strutting/ shoring support • Ground strengthening treatment 	149
3. Insurance	15
4. Project management and supervision	120
5. Contingency	84
Total	1,044 (\$1 billion)

C. Additional Cost Arising from Four Conservation Options of Well J2 and the Water Channel

Option 1 : \$10 million	
Item	\$ million
1. 3-D Record of the components and structures of Well J2 and the associated Water Channel (including 3-D scanning)	1
2. Removal of Well J2 and the Water Channel by hand, and its placing at an appropriate location	6
3. Conservation of the components of Well J2 and Water Channel	3
Total	10 (\$10 million)

Option 2 : \$0.8 billion	
Item	\$ million
1. Removal of Water Channel by hand and storage of their components	3
2. Formation of a giant protection structure by installing sheet piles and pipe piles around and below Well J2, and the construction of supports and piles underneath the structure to facilitate the station construction below and in its proximity	77
3. Relocation of the protection structure containing Well J2 (approximately 300 to 400 tonnes) and its placing at a suitable location	18
4. Estimate of claims from the contract of TKW Station of Kowloon City Section (Contract No. 1109) of the SCL and other SCL civil and E&M contracts related to the works of TKW Station as a result of the delay to the works and modification of construction methods	502
5. Insurance	3
6. Project management and supervision	87
7. Contingency	60
Total	750 (\$0.8 billion)

Option 3 : \$1.3 billion	
Item	\$ million
1. Formation of a giant protection structure by installing sheet piles and pipe piles around and below Well J2 and the water channel (approximately 800 to 1000 tonnes), and the construction of supports and piles underneath the structure to facilitate the station construction below and in its proximity	146
2. Extension of station area for the permanent preservation of Well J2 and Water Channel in-situ	125
3. Estimate of claims from the contract of TKW Station of Kowloon City Section (Contract No. 1109) of the SCL and other SCL civil and E&M contracts related to the works of TKW Station as a result of the delay to the works and modification of construction methods	727
4. Insurance	5
5. Project management and supervision	144
6. Contingency	100
Total	1,247 (\$1.3 Billion)

Option 4 : \$1.2 billion	
Item	\$ million
1. Formation of a giant protection structure by installing sheet piles and pipe piles around and below the Well J2 (approximately 300 to 400 tonnes), and construction of supports and piles underneath the structure to facilitate the station construction below and in its proximity	73
2. Extension of station area for the permanent preservation of Well J2 and Water Channel in-situ	125
3. Estimate of claims from the contract of TKW Station of Kowloon City Section (Contract No. 1109) of the SCL and other SCL civil and E&M contracts related to the works of TKW Station as a result of the delay to the works and modification of construction methods	727
4. Insurance	4
5. Project management and supervision	134
6. Contingency	93
Total	1,156 (\$1.2 billion)