



HIGHWAYS DEPARTMENT

5TH FLOOR, HO MAN TIN GOVERNMENT OFFICES,
88 CHUNG HAU STREET, HOMANTIN, KOWLOON, HONG KONG.
WEB SITE : <http://www.hyd.gov.hk>

路政署

香港九龍何文田忠孝街88號
何文田政府合署五樓
網址 : <http://www.hyd.gov.hk>

Your Ref. 來函檔號 : CB4/SC/13
Our Ref. 本署檔號 : () in HyD CR 9/27
Telephone 電話 : 2762 3800
Fax 圖文傳真 : 2714 5216

Urgent by fax
(2543 9197)

10 April 2015

Ms Sophie LAU
Clerk to Select Committee
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Ms Lau,

**Select Committee to Inquire into the Background of and
Reasons for the Delay of the Construction of
the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong
Express Rail Link (“Select Committee”)**

**Request for further information and
invitation to attend another public hearing**

Thank you for your letter dated 27 March 2015 on the captioned subject. Regarding the information requested, I would like to reply as follows:-

- (a) Resources (including number of staff and related annual expenditure) used by the Highways Department to oversee the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link project up to April 2014.

The Railway Development Office (“RDO”) of Highways Department (“HyD”) set up a dedicated team for the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”) Project in July 2008. The staffing arrangement of this team (from July 2008 to April 2014) is as follows.



ISO 9001 : 2008
Certificate No.: CC 1881



ISO 14001 : 2004
Certificate No.: CC 2634

Period	No. of Chief Engineer	No. of Senior Engineers	No. of Engineers/ Assistant Engineers	Total No.
Jul 2008 – Sep 2008	1	4	4	9
Sep 2008 – Dec 2008	1	4	5	10
Dec 2008 – Sep 2009	1	5	7	13
Sep 2009 – Sep 2012	1	5	9	15
Sep 2012 – Sep 2013	1	4	9	14
Sep 2013 – Apr 2014	1	4	8	13

The annual staffing expenses for this dedicated team based on notional annual mid-point salary at 2014/15 level is about \$132 Million to \$136 Million. As stated in paragraph 28 of my Written Statement submitted to the Secretariat of the Select Committee on 18 February 2015, the RDO of HyD also appointed an external consultant, Jacob China Limited, as the monitoring and verification consultant (“M&V consultant”) since August 2010 to assist in the monitoring and verification work to verify whether the obligations as stated in the Entrustment Agreements have been properly fulfilled by the MTRCL.

- (b) In respect of paragraph 21 of the Written Statement of Mr. Peter LAU Ka-keung, details of the “significant issues” which had been reported by the Director of Highways relating to the implementation of the XRL project to the Secretary of Transport and Housing up to April 2014.

As mentioned in paragraph 21 of my Written Statement mentioned above, the Transport and Housing Bureau (“THB”) and the HyD have been maintaining a close dialogue regarding the implementation of the XRL project. Firstly, THB has nominated representatives to attend monthly Project Supervision Committee (“PSC”) meetings with MTR Corporation Limited (“MTRCL”) chaired by myself. In addition, I provided a regular update on the project progress and issues of XRL in monthly regular meetings with the Secretary for Transport and Housing (“STH”) about the work of HyD. These include, inter-alia, the progress of land resumption at Choi Yuen Tsuen in Shek

Kong, the progress of construction of the tunnel section between Huanggang in Shenzhen and Mai Po in Hong Kong, the progress of meetings with relevant authorities in the Mainland, and the progress of major tunnel construction contracts, etc. Where necessary, I also reported to THB significant issues relating to the implementation of the XRL, including arrangement of meetings for direct briefings to THB on significant issues arising from the implementation of the XRL project. Specific examples are :-

- (i) In November 2012, HyD requested MTRCL to closely liaise with the Mainland authorities to submit quarterly reports to HyD. Copies of the reports were submitted to THB for reference.
 - (ii) In view of the progress slippage of the cross-boundary tunnel section, HyD arranged a direct briefing on 23 July 2013 for MTRCL to report to THB the overall progress of the Hong Kong section and cross-boundary section. THB and HyD reminded MTRCL at the briefing to make its best endeavour to deliver the project on time and within budget.
 - (iii) HyD also arranged a direct briefing on 8 November 2013 for MTRCL to report to THB on the overall progress of the Hong Kong section and cross-boundary section as well as the partial opening scenario of the West Kowloon Terminus (“WKT”) as proposed by MTRCL.
- (c) Details of the risk based sampling approach adopted by the Highways Department to verify delivery of the requirements of the project scope and authorized expenditure of the XRL project, including but not limited to the method and scope of sampling; and the number and findings of sampling inspections which had been conducted up to April 2014.

HyD appointed the M&V Consultant to identify key risks in the XRL Project to guide and prioritize the monitoring and verification work. The risk identification and assessment process was conducted with reference to the ETWB’s “Risk Management for Public Works, Risk Management User Manual”), which requirements are based on international and local practice.

Systematic Risk Assessment (“SRA”) workshops were held at six-monthly intervals by the M&V Consultant and HyD to develop the project risk register. Firstly, the XRL project risks are classified into five different strategic risk groups, which include “engineering issues”, “physical, environmental and third party impacts”, “supply chain overstretched and resources not available”, “variations and claims” and “interfaces”. Each of the strategic risks was assessed based on their likelihood and potential consequences in terms of safety, cost, programme and quality. The consequences were then combined and factored by the respective severity to arrive at a total score. An example of the project risk register for December 2013 is attached at **Enclosure 1** for reference.

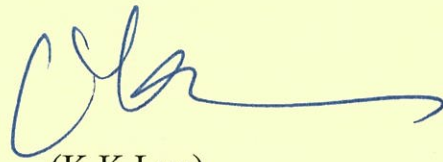
The monitoring and verification work are guided by the risk register, and priority is accorded to those issues with high scores (meaning high risk) to ensure that focus is placed on monitoring of issues with higher risk on XRL project delivery.

The M&V Consultant carries out its monitoring and verification work mainly through the following four channels: reviewing documents, conducting regular audits, carrying out site visits and attending meetings.

- (i) Review of Documents - The M&V Consultant requests MTRCL through HyD to submit documents related to high risk issues for review. In total 650 documents have been reviewed up to April 2014. A sample of request for documents in April 2014 is at **Enclosure 2**.
- (ii) Regular Audits - The M&V Consultant conducts half-yearly audits on major contracts and annual audits on other contracts. These audits cover safety, environmental, cost, progress and quality aspects of the contracts. The audits regarding cost include the review on Engineer’s Instructions and claims status. In total 780 numbers of audits have been carried out up to April 2014. A sample of an audit report on Contract 824 carried out in November 2013 is at **Enclosure 3**.

- (iii) Site Visits - The M&V Consultant carries out monthly site visits jointly with HyD staff to monitor the progress of works. Each round of site visit takes 3 to 4 days, visiting the construction sites of 12 to 19 different contracts. In total, 51 rounds of visits have been conducted up to April 2014.
- (iv) Meetings - HyD's representatives, the M&V Consultants and the site supervision staff of the MTRCL for major civil and electrical & mechanical works holds regular monthly Contract Review Meetings ("CRMs"). In total 47 numbers of CRMs have been held up to April 2014.

Yours sincerely,

A handwritten signature in blue ink, appearing to be 'K K Lau', with a long horizontal flourish extending to the right.

(K K Lau)

Director of Highways

cc Secretary for Transport and Housing
(Attn: Miss Winnie Wong)

17 December 2013

By E-mail and By Hand

MV2

Our Ref: G3232/10/1462

Highways Department
Railway Development Office
1/F, Homantin Government Offices
88 Chung Hau Street
Homantin
Kowloon

For the attention of Mr. C T Chan

Dear Sirs,

**Agreement No. CE 8/2010 (HY)
XRL - Monitoring and Verification for Construction, Testing and
Commissioning Phase - Investigation
Reviewed Systematic Risk Assessment Register for XRL Contracts**

We refer to the risk workshop held on 12 November 2013 and 16 December 2013, we are pleased to submit the updated risk assessment table for the civil and E&M contracts for your attention. Please note that we have reviewed and updated the chance of occurrence based on the current development of the Project. All the updates were highlighted in green in the risk register for your easy reference.

Should you have any queries regarding the submission, please do not hesitate to contact Ms Vicky Sy at 2738 3812 or the undersigned.

Yours faithfully
For and on behalf of Jacobs China Limited



William Ng
Project Manager

WN/VS/vs

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Sht No	JCL Contract Grouping	Contract No	Contract Name
1	WKT Foundations	803A	WKT Diaphragm Wall (Site A)
		803B	WKT Piles (Site A - North)
		803C	WKT Piles (Site A - South)
		803D	WKT Diaphragm Wall & Piles (WKCD)
2	Obstruction Removal	802	Nam Cheong Property Foundation Removal & Reprovisioning
		805	Sham Mong Road Obstruction Removal
3	TBM Tunnels - Urban	820	Mei Lai Road to Hoi Ting Road Tunnels
		821 (part)	Shek Yam to Mei Lai Road Tunnels
4	TBM Tunnels - Rural	823A	Tai Kong Po to Tse Uk Tsuen Tunnels
		825	Mai Po to Ngau Tam Mei Tunnels
		826	Huanggang to Mai Po Tunnels
5	Drill & Blast Tunnels	821	Shek Yam to Mei Lai Road Tunnels
		822	Tse Uk Tsuen to Shek Yam Tunnels
		824	Ngau Tam Mei to Tai Kong Po Tunnels
6	Cut & Cover Tunnels	811A	WKT Approach Tunnels (North)
		811B	WKT Approach Tunnels (South)
		823B	SSS and ERS
7	WKT Civil	810A	WKT Station (South)
		810B	WKT Station (North)
8	Environmental	801	Tree Transplanting
		8204	Design, Supply, Installation & Maintenance of Automatic Noise Monitoring System
		8205	Construction Dust Monitoring
9	WKT Landscape, ABWF & E&M	812	WKT Landscaping
		815	WKT ABWF
		816A	WKT Environmental Control System
		816B	WKT Building Services Control System
		816C	WKT Electrical Installation
		816D	WKT Fire Services, Plumbing & Drainage
10	Systemwide Civil	807	Kwu Tung Core Store & Associated Works
		827	Cross Passage Doors Supply & Installation
		830	Trackwork & Overhead Line System
11	Systemwide E&M	840	Rolling Stock
		841A	Signalling System -Trackside Equipment
		841B	Signalling System -Trainborne Equipment
		842	Miscellaneous Mainland E&M System
		843	Tunnel Environmental Control System
		845	Traction Power Supply System
		846	Trackside Auxilliaries
		847	Lifts
		848	Escalators & Moving Walkways
		849	Radio Communications Systems
		850	Passenger Mobile Communications System
		851	Fixed Communications System
		852	Ticketing System
		853	Main Control System
		854	Security Access Management System
		855	Building Services for Tunnel Ventilation Buildings and ERS
		856	Building Services for SSS
		860A	SSS Depot Equipment - Train Wash Plant
		860B	SSS Depot Equipment - Overhead Crane
		860C	SSS Depot Equipment - Train Sewage Suction System
		860D	SSS Depot Equipment - Wheel Monitoring System
860E	SSS Depot Equipment - Miscellaneous		
861	Engineering Vehicles		
862	Depot Equipment in Mainland		
871	Facilities for Train Service at WKT		
12	Instrumentation	C8010	Independent Geotechnical Instrumentation Monitoring - WKT
		C8011	Independent Geotechnical Instrumentation Monitoring - Tunnels

Occurrence / Risk Scoring System	
Level	Score
Very Likely	9
Likely	7
Possible	5
Unlikely	3
Rare	1

Remarks

* No risk due to completion of construction eler
9 Increasing risk score from last revision
1 Decreasing risk score from last revision

1) WKT Foundation Contracts 803A, 803B, 803C & 803D - Completed

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Building *	1	1	1	1					1	4
	Damage to Utilities / Roads / Highway Structures, etc *	1	1	1	1					1	4
	Temporary Traffic Arrangements *	1	1	1	1					1	4
	Temporary Works *	1	1	1	1					1	4
	D-wall Issues	1	1	1	1					1	4
	Construction Issues *	1	1	1	1					1	4
	Late Design Changes *	1	1	1	1					1	4
	Site Logistics *	1	1	1	1					1	4
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals) *	1	3	5	1					1	10
	Unforeseen Utilities *	1	5	5	1					1	12
	Spoil Removal *	1	3	3	1					1	8
	Contaminated Soil *	3	5	7	1					1	16
	Unforeseen Ground Conditions *	1	7	3	1					1	12
	Construction Fire *	9	1	1	1					1	12
	Noise / Dust Generation *	1	1	3	1					1	6
	Extreme Weather / Flooding *	5	1	1	1					1	8
	Ground Water Drawdown / Ingress *	1	3	5	5					1	14
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession *	1	1	1	1					1	4
	MTRCL Procedural Issues *	3	3	3	3					1	12
	Sub-standard / Unapproved Materials *	3	1	3	9					1	16
	Plant & Materials Supply *	1	1	3	3					1	8
	Availability of Skilled LabourP *	7	1	1	5					1	14
	Poor Quality Construction	1	1	3	7					1	12
	Contractors / Suppliers Bankrupt *	1	7	9	1					1	18
Variations and Claims	Design Changes *	1	5	5	1					1	12
	External Impacts *	1	5	5	1					1	12
	Unforeseen Site Conditions *	1	5	7	1					1	14
Interfaces	Contract Interfaces	1	1	3	1					1	6

2) Obstruction Removal Contracts - 802 & 805

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	3	5	3	1					1	12
	Damage to Utilities / Roads / Highway Structures etc	5	5	3	1				3		42
	Temporary Traffic Arrangements	5	3	1	1				3		30
	Temporary Works	7	1	3	1			5			60
	Construction Issues	3	7	7	1		7				126
	Site Logistics	3	3	3	1			5			50
	Late Design Changes	1	5	5	1				3		36
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	3	1				3		30
	Unforeseen Utilities	1	5	3	1				3		30
	Spoil Removal	1	1	1	1				3		12
	Contaminated Soil	1	1	1	1					1	4
	Unforeseen Ground Conditions	1	7	5	1			5			70
	Construction Fire	7	1	1	1					1	10
	Dust / Noise Generation	3	1	3	1			5			40
	Extreme Weather / Flooding	3	1	1	1					1	6
Supply Chain Overstretched & Resources Not Available	Ground Water Drawdown / Ingress	1	1	1	1				3		12
	Land Availability / Site Possession	1	1	1	1					1	4
	MTRCL Procedural Issues	3	3	3	3				3		36
	Sub-standard / Unapproved Materials	3	1	5	3					1	12
	Plant & Materials Supply	1	3	5	3			5			60
	Availability of Skilled Labour	7	3	5	3				3		54
	Poor Quality Construction	1	1	5	3			5			50
	Contractors / Suppliers Bankrupt	1	3	5	1			5			50
Variation and Claims	Design Changes	1	3	3	1		7				56
	External Impacts	1	3	5	1				3		30
	Unforeseen Site Conditions	1	9	7	1			5			90
Interfaces	Contract Interfaces	1	9	7	1				3		54

3) TBM Tunnels Contracts - 820 & 821 (part)

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	5	7	5	1			5			90
	Damage to Utilities / Roads / Highway Structures etc	5	5	5	1			5			80
	Temporary Traffic Arrangements	5	3	5	1			5			70
	Temporary Works	7	3	5	1			5			80
	Construction Issues	3	3	5	5		7				112
	D-wall Issues	1	1	1	1					1	4
	Design Robustness	3	3	5	3				3		42
	Contamination of Tunnel, eg Dust, Impacting Commissioning	3	3	5	3			5			70
	Site Logistics	3	3	5	1			5			60
	Late Design Changes	1	7	7	3				3		54
	TBM Jammed	5	7	9	1			5			110
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	5	1			5			60
	Damage to Existing Tsuen Wan Line / Lai Chi Kok Flyover / DSD Tunnel	9	7	9	1					1	26
	Unforeseen Utilities	1	5	5	1			5			60
	Fire Safety Strategy not Finalised	1	5	5	1				3		36
	Spoil Removal	1	3	5	1				3		30
	Contaminated Soil	5	5	5	1			5			80
	Unforeseen Ground Conditions and obstructions	7	7	7	1		7				154
	Construction Fire	7	5	7	5			5			120
	Noise / Dust Generation	1	1	1	1		7				28
	Extreme Weather / Flooding	7	5	5	1			5			90
	Ground Water Ingress	3	3	5	1			5			60
	Adverse Vibration	1	3	5	1		7				70
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession / Strata Resumption	1	1	1	1					1	4
	MTRCL Procedural Failure	3	3	3	3				3		36
	Sub-standard / Unapproved Materials	5	3	5	5				3		54
	Plant & Materials Supply	1	5	7	1				3		42
	Availability of Skilled Labour	7	5	7	5				3		72
	Late Delivery of TBM	1	1	1	1					1	4
	Poor Quality Construction	5	3	5	5				3		54
Contractors / Suppliers Bankrupt	1	5	9	1					1	16	
Variation and Claims	Construction Started without Design Completion	1	1	3	1				3		18
	Design Changes	1	3	5	1				3		30
	External Impacts	3	3	3	3			5			60
	Unforeseen Site Conditions	3	5	5	1		7				98
Interfaces	Contract Interfaces	1	7	5	1		7				98
	Systems Integration	1	5	5	1			5			60
	Operations Testing	3	3	5	1			5			60
	Setting-out Errors	1	5	7	1				3		42

4) TBM Tunnels Contracts - 823A, 825 & 826

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	3	5	5	1			5			70
	Damage to Utilities / Roads / Highway Structures etc	5	5	5	1				3		48
	Temporary Traffic Arrangements	3	3	3	1				3		30
	Temporary Works	7	3	5	1		7				112
	Construction Issues	3	3	5	5		7				112
	D-wall Issues	3	3	5	5				3		48
	Design Robustness	3	3	5	3				3		42
	Contamination of Tunnel, eg Dust, Impacting Commissioning	3	3	5	3			5			70
	Site Logistics	3	3	5	1			5			60
	Late Design Changes	1	7	7	3				3		54
	TBM Jammed	5	7	9	1			5			110
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	5	1		7				84
	Marble Cavities	3	7	7	1		7				126
	Unforeseen Utilities	1	5	5	1				3		36
	Fire Safety Strategy not Finalised	1	5	5	1				3		36
	Spoil Removal	1	3	3	1		7				56
	Contaminated Soil	3	5	3	1			5			60
	Unforeseen Ground Conditions and obstructions	7	7	7	1		7				154
	Construction Fire	7	5	7	5			5			120
	Noise / Dust Generation	1	1	1	1		7				28
	Extreme Weather / Flooding	7	5	5	1			5			90
	Ground Water Drawdown / Ingress	3	7	5	1			5			80
Adverse Vibration	1	3	5	1			5			50	
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	1	1	1	1					1	4
	MTRCL Procedural Failure	3	3	3	3				3		36
	Sub-standard / Unapproved Materials	5	3	5	5				3		54
	Plant & Materials Supply	1	5	7	1				3		42
	Availability of Skilled Labour	7	5	7	5			5			120
	Late Delivery of TBM	1	5	7	1				3		42
	Poor Quality Construction	5	3	5	5				3		54
Contractors / Suppliers Bankrupt	1	7	9	1					1	18	
Variation and Claims	Construction Started without Design Completion	1	1	3	1				3		18
	Design Changes	1	3	5	1				3		30
	External Impacts	3	3	3	3			5			60
	Unforeseen Site Conditions	3	5	5	1		7				98
Interfaces	Contract Interfaces	1	5	7	1		7				98
	Systems Integration	1	5	5	1					1	12
	Operations Testing	3	3	5	1			5			60
	Setting-out Errors	1	5	7	1				3		42
	Mainland China	1	7	7	1	9					144

5) Drill & Blast Tunnels Contracts - 821, 822 & 824

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	3	5	5	1			5			70
	Damage to Utilities / Roads / Highway Structures etc	5	5	5	1				3		48
	Temporary Traffic Arrangements	3	3	3	1				3		30
	Temporary Works	7	3	5	1			5			80
	Construction Issues	3	3	5	5		7				112
	Design Robustness	3	3	5	3				3		42
	Contamination of Tunnel, eg Dust, Impacting Commissioning	3	3	5	3			5			70
	Site Logistics	3	3	5	1			5			60
	Late Design Changes	1	5	5	3				3		42
	Blasting Permits	1	5	7	1				3		42
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	5	1				3		36
	Damage to WSD Water Distribution Tunnel	3	7	3	1					1	14
	Unforeseen Utilities	1	5	5	1				3		36
	Fire Safety Strategy not Finalised	1	3	3	1				3		24
	Spoil Removal	1	3	5	1			5			50
	Contaminated Soil	5	5	5	1				3		48
	Unforeseen Ground Conditions	7	7	7	1			5			110
	Construction Fire	7	5	7	5			5			120
	Noise / Dust Generation	3	1	1	1		7				42
	Extreme Weather / Flooding	7	5	7	1				3		60
	Ground Water Drawdown / Ingress	3	3	5	1		7				84
Adverse Vibration	1	3	5	1			5			50	
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	1	1	1	1					1	4
	MTRCL Procedural Failure	3	3	3	3				3		36
	Sub-standard / Unapproved Materials	5	3	5	5				3		54
	Plant & Materials Supply	1	5	7	1				3		42
	Availability of Skilled Labour	7	5	7	5			5			120
	Poor Quality Construction	5	3	5	5			5			90
Variation and Claims	Contractors / Suppliers Bankrupt	1	5	9	1					1	16
	Construction Started without Design Completion	1	1	3	1				3		18
	Design Changes	1	3	5	1				3		30
	External Impacts	3	3	3	3			5			60
Interfaces	Unforeseen Site Conditions	3	5	5	1		7				98
	Contract Interfaces	1	7	5	1		7				98
	Systems Integration	1	5	5	1					1	12
	Operations Testing	3	3	5	1				3		36
	Setting-out Errors	1	5	7	1				3		42

6) Cut & Cover Tunnels Contracts - 811A, 811B, 823A & 823B

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	7	7	5	1				3		60
	Damage to Utilities / Roads / Highway Structures etc	5	5	5	1				3		48
	Temporary Traffic Arrangements	5	3	5	1				3		42
	Temporary Works	7	3	5	1			5			80
	Construction Issues	5	7	9	1			5			110
	D-wall Issues	5	7	5	5				3		66
	Design Robustness	3	3	5	3			5			70
	Contamination of Tunnel, eg Dust, Impacting Commissioning	3	3	5	3			5			70
	Site Logistics	3	3	5	1			5			60
	Late Design Changes	1	7	7	3			5			90
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	5	1				3		36
	Damage to Existing West Rail Line Tunnels	7	7	7	1		7				154
	Unforeseen Utilities	1	5	5	1				3		36
	Fire Safety Strategy not Finalised	1	3	3	1				3		24
	Spoil Removal	1	3	5	1			5			50
	Contaminated Soil	5	5	5	1			5			80
	Unforeseen Ground Conditions	5	7	7	1			5			100
	Construction Fire	5	5	7	3			5			100
	Noise / Dust Generation	1	1	3	1			5			30
	Extreme Weather / Flooding	5	3	5	1			5			70
	Ground Water Drawdown / Ingress	3	3	5	1			5			60
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	1	1	1	1					1	4
	MTRCL Procedural Failure	3	3	3	3				3		36
	Sub-standard / Unapproved Materials	5	3	5	5				3		54
	Plant & Materials Supply	1	3	5	1				3		30
	Availability of Skilled Labour	3	1	3	3			5			50
	Poor Quality Construction	1	3	5	3			5			60
	Contractors / Suppliers Bankrupt	1	5	7	1					1	14
Variation and Claims	Construction Started without Design Completion	1	1	3	1				3		18
	Design Changes	1	3	5	1				3		30
	External Impacts	3	3	3	3			5			60
	Unforeseen Site Conditions	3	5	5	1				3		42
Interfaces	Contract Interfaces	1	3	5	1			5			50
	Systems Integration	1	3	5	1					1	10
	Operations Testing	3	3	5	1			5			60
	Setting out Errors	1	3	5	1				3		30

7) WKT Contracts - 810A & 810B

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering / Architectural Issues	Damage to Existing Buildings	3	3	3	1		7				70
	Damage to Utilities / Roads / Highway Structures etc	3	3	3	1		7				70
	Damage to Seawall	5	3	3	1		7				84
	Temporary Traffic Arrangements	3	5	7	1		7				112
	Temporary Works	7	5	7	1		7				140
	Construction Issues	5	7	7	5	9					216
	D-wall Issues	3	7	7	5		7				154
	Design Robustness	3	5	5	5		7				126
	Site Logistics	5	5	7	1	9					162
	Late Design Changes	1	5	7	3	9					144
	Roof Construction	5	7	7	3	9					198
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	7	1		7				98
	Unforeseen Utilities	1	5	7	1		7				98
	Fire Safety Strategy not Finalised	1	5	7	1			5			70
	Spoil Removal	1	5	5	1	9					108
	Contaminated Soil	3	7	5	1		7				112
	Unforeseen Ground Conditions	3	7	5	1		7				112
	Construction Fire	9	5	7	3			5			120
	Noise / Dust Generation	1	3	5	1		7				70
	Extreme Weather / Flooding	5	3	5	1		7				98
	Ground Water Drawdown / Ingress	3	3	5	1		7				84
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	1	5	5	1					1	12
	MTRCL Procedural Failure	1	5	5	5			5			80
	Sub-standard / Unapproved Materials	1	5	5	5			5			80
	Plant & Materials Supply	1	5	7	1		7				98
	Availability of Skilled Labour	7	5	7	3	9					198
	Poor Quality Construction	1	1	3	5			5			50
Variation and Claims	Contractors / Suppliers Bankrupt	1	7	7	1				3		48
	Construction Started without Design Completion	1	5	5	1	9					108
	Design Changes	1	5	5	1	9					108
	External Impacts, eg WKCD etc	1	5	5	3	9					126
Interfaces	Unforeseen Site Conditions	5	5	5	1		7				112
	Contract Interfaces	5	7	7	1	9					180
	Systems Integration	1	5	7	1	9					126
	Operations Testing	1	3	7	1		7				84
	Setting-out Errors	1	3	5	1			5			50

8) Environmental Contracts - 801, 8204 & 8205

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Damage to Existing Buildings	1	1	1	1					1	4
	Damage to Utilities / Roads / Highway Structures etc	1	1	1	1					1	4
	Temporary Traffic Arrangements	3	1	1	1				3		18
	Design Robustness	1	1	1	1					1	4
	Site Logistics	3	1	1	1				3		18
	Late Design Changes	1	1	1	1				3		12
	Maximum Allowable Levels Exceeded	1	1	3	1		7				42
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	3	5	1		7				70
	Extreme Weather / Flooding	1	1	3	1				3		18
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	1	1	3	1			5			30
	MTRCL Procedural Failure	1	1	1	1				3		12
	Availability of Skilled Labour	3	1	3	3				3		30
	Contractors / Suppliers Bankrupt	1	3	3	1					1	8
	Technical Issues	1	1	3	3					1	8
Variation and Claims	Design Changes	1	1	3	1				3		18
	External Impacts	1	1	3	1				3		18
	Unforeseen Site Conditions	1	1	3	1				3		18
Interfaces	Contract Interfaces	1	1	1	1				3		12

9) WKT BS Contracts - 816A, 816B, 816C & 816D

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	7	1	3	1				3		36
	Construction Issues	1	1	3	1			5			30
	Design Robustness	1	3	3	3			5			50
	Systems Coordination, Installation and Commissioning	5	5	7	1		7				126
	Contamination of WKT, eg by Dust, Impact Commissioning	1	1	3	1			5			30
	Site Logistics	5	3	5	1	9					126
	Late Design Changes	1	5	5	3		7				98
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	5	1	9					108
	Fire Safety Strategy not Finalised	1	5	7	1	9					126
	Construction Fire	7	5	7	3			5			110
	Extreme Weather / Flooding	3	3	5	1			5			60
	Ground Water Drawdown / Ingress	1	1	3	1				3		18
Supply Chain Overstretched & Resources Not Available	Site Possession	1	3	5	1	9					90
	MTRCL Procedural Failure	1	5	5	5			5			80
	Sub-standard / Unapproved Materials	3	1	3	1			5			40
	Plant & Materials Supply	1	1	3	1			5			30
	Availability of Skilled Labour	5	3	5	5	9					162
	Poor Quality Construction	1	3	5	5			5			70
	Contractors / Suppliers Bankrupt	1	3	5	1				3		30
	Technical Issues	1	3	5	5		7				98
Variation and Claims	Construction Started without Design Completion	1	5	5	5			5			80
	Design Changes	1	5	5	1			5			60
	External Impacts, eg WKCD etc	1	5	5	3	9					126
Interfaces	Contract Interfaces	3	5	7	3	9					162
	Systems Integration	3	5	7	3	9					162
	Operations Testing	3	3	7	1	9					126

10) Systemwide Civil Contracts - Trackwork and OHL- 827 & 830

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	3	3	3	1		7				70
	Construction Issues	5	5	5	3		7				126
	Design Robustness	1	1	3	3			5			40
	Contamination of Tunnel, eg by Dust, Impact Commissioning	1	1	5	1			5			40
	Site Logistics	5	5	5	1	9					144
	Late Design Changes	1	5	5	1			5			60
	Systems Coordination, Installation and Commissioning	5	5	7	1	9					162
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	3	3	1			5			40
	Construction Fire	3	3	5	1			5			60
	Extreme Weather / Flooding	3	1	3	1			5			40
	Ground Water Ingress	1	1	1	1				3		12
Supply Chain Overstretched & Resources Not Available	Site Access	1	5	7	1	9					126
	MTRCL Procedural Failure	1	3	3	1				3		24
	Sub-standard / Unapproved Materials	1	1	5	5				3		36
	Plant & Materials Supply	1	1	5	1			5			40
	Availability of Skilled Labour	5	5	5	5	9					180
	Contractors / Suppliers Bankrupt	1	7	7	1					1	16
	Technical Issues	3	3	5	3		7				98
Variation and Claims	Construction Started without Design Completion	1	3	3	3				3		30
	Design Changes	1	5	5	1				3		36
	External Impacts	1	5	5	1	9					108
	Unforeseen Site Conditions	1	3	3	1				3		24
Interfaces	Contract Interfaces	3	7	7	1	9					162
	Systems Integration	5	7	7	1	9					180
	Mainland Interface	5	7	7	1	9					180
	Operations Testing	5	7	7	5		7				168
	Setting-out Errors	1	3	3	1			5			40

11) Systemwide E&M Contracts (WKT) - 847, 848, 853, 854

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	5	1	5	1		7				84
	Manufacturing / Installation Issues	7	1	5	5		7				126
	Design Robustness	1	1	5	5				3		36
	Contamination of structures, eg by Dust, Impact Commissioning	1	1	5	1			5			40
	Site Logistics	5	1	5	3	9					126
	Late Design Changes	1	5	7	1				3		42
	Systems Coordination, Installation and Commissioning	5	5	7	1	9					162
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	7	1			5			70
	Fire Safety Strategy and acceptance test	1	5	7	1	9					126
	Factory / Construction Fire	5	1	5	1				3		36
	Extreme Weather / Flooding	3	1	5	1				3		30
	Ground Water Ingress	3	1	5	1				3		30
Supply Chain Overstretched & Resources Not Available	Site Possession	1	5	7	1	9					126
	MTRCL Procedural Failure	1	5	5	1			5			60
	Sub-standard / Unapproved Materials	1	1	5	7			5			70
	Plant & Materials Supply	3	1	3	5			5			60
	Availability of Skilled Labour	5	1	5	5	9					144
	Contractors / Suppliers Bankrupt	1	5	5	1				3		36
	Technical Issues	3	5	5	3			5			80
Variation and Claims	Design Changes	1	5	7	1				3		42
	External Impacts	1	5	5	1			5			60
Interfaces	Contract Interfaces and coordination	1	5	5	1	9					108
	Joint testing with Mainland	1	1	1	1					1	4
	T&C and Trial operation	1	3	5	1		7				70
	Mainland side modifications and interface	1	1	1	1					1	4

12) Systemwide E&M Contracts (Signalling etc) - 849, 851, 841A, 841B, 841C, 852

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	5	1	5	1			5			60
	Manufacturing / Installation Issues	5	1	5	5		7				112
	Design Robustness	1	1	5	5			5			60
	Contamination of structures, eg by Dust, Impact Commissioning	1	1	3	1				3		18
	Site Logistics	5	1	5	3	9					126
	Late Design Changes	1	5	7	1			5			70
	Systems Coordination, Installation and Commissioning	5	5	7	1	9					162
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	1	5	1		7				56
	Fire Safety Strategy and acceptance test	1	5	3	1				3		30
	Factory / Construction Fire	5	1	5	1				3		36
	Extreme Weather / Flooding	3	1	5	1				3		30
	Ground Water Ingress	3	1	5	1				3		30
Supply Chain Overstretched & Resources Not Available	Site Possession	1	7	7	1	9					144
	MTRCL Procedural Failure	1	5	5	1			5			60
	Sub-standard / Unapproved Materials	1	1	5	7			5			70
	Plant & Materials Supply	3	1	3	5			5			60
	Availability of Skilled Labour	5	1	5	5	9					144
	Contractors / Suppliers Bankrupt	1	5	5	1				3		36
	Technical Issues	3	5	5	3		7				112
Variation and Claims	Design Changes	1	5	7	1			5			70
	External Impacts	1	5	5	1	9					108
Interfaces	Contract Interfaces and coordination	1	7	7	7	9					198
	Joint testing with Mainland	1	7	7	7	9					198
	T&C and Trial operation	1	7	7	7	9					198
	Mainland side modifications and interface	1	7	7	7			5			110

13) Systemwide E&M Contracts (SSS, VB & Tunnel) - 855, 856, 846, 845, 843, 850

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	5	1	5	1		7				84
	Manufacturing / Installation Issues	7	1	5	5			5			90
	Design Robustness	1	1	5	5			5			60
	Contamination of structures, eg by Dust, Impact Commissioning	1	1	5	1			5			40
	Site Logistics	5	1	5	3	9					126
	Late Design Changes	1	5	7	1				3		42
	Systems Coordination, Installation and Commissioning	5	5	7	1	9					162
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	7	1		7				98
	Fire Safety Strategy and acceptance test	1	5	7	1		7				98
	Factory / Construction Fire	5	1	5	1				3		36
	Extreme Weather / Flooding	5	1	5	1				3		36
	Ground Water Ingress	3	1	5	1				3		30
Supply Chain Overstretched & Resources Not Available	Site Possession	1	5	7	1	9					126
	MTRCL Procedural Failure	1	5	5	1			5			60
	Sub-standard / Unapproved Materials	1	1	5	7			5			70
	Plant & Materials Supply	3	1	3	5				3		36
	Availability of Skilled Labour	5	1	5	5	9					144
	Contractors / Suppliers Bankrupt	1	5	5	1				3		36
	Technical Issues	3	5	5	3			5			80
Variation and Claims	Design Changes	1	5	7	1				3		42
	External Impacts	1	5	5	1	9					108
Interfaces	Contract Interfaces and coordination	1	7	7	1	9					144
	Joint testing with Mainland	1	5	7	1			5			70
	T&C and Trial operation	1	5	7	1	9					126
	Mainland side modifications and interface	1	5	7	1				3		42

14) Systemwide E&M Contracts (Rolling Stock) - 840

Strategic Risk	Working Risk	Consequences				Risk of Occurrence					Total Score
		Safety	Cost	Programme	Quality	Very Likely	Likely	Possible	Unlikely	Rare	
Engineering Issues	Temporary Works	1	1	1	1					1	4
	Manufacturing / Installation Issues	1	1	7	7				3		48
	Design Robustness	1	1	3	3				3		24
	Contamination of structures, eg by Dust, Impact Commissioning	1	1	1	1					1	4
	Site Logistics	1	1	1	1			5			20
	Late Design Changes	1	3	7	1				3		36
	Systems Coordination, Installation and Commissioning	3	3	7	1	9					126
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	1	5	7	1		7				98
	Fire Safety Strategy and acceptance test	1	3	5	1		7				70
	Factory / Construction Fire	1	1	5	1				3		24
	Extreme Weather / Flooding	1	1	5	1					1	8
	Ground Water Ingress	1	1	5	1					1	8
Supply Chain Overstretched & Resources Not Available	Site Possession	1	7	7	1	9					144
	MTRCL Procedural Failure	1	5	5	1			5			60
	Sub-standard / Unapproved Materials	1	1	5	7				3		42
	Plant & Materials Supply	1	1	3	5				3		30
	Availability of Skilled Labour	1	1	5	5				3		36
	Contractors / Suppliers Bankrupt	1	5	5	1				3		36
	Technical Issues	1	3	7	3			5			70
Variation and Claims	Design Changes	1	5	7	1				3		42
	External Impacts	1	5	5	1				3		36
Interfaces	Contract Interfaces and coordination	3	5	7	7		7				154
	Joint testing with Mainland	3	5	7	7	9					198
	T&C and Trial operation	3	5	7	7	9					198
	Mainland side modifications and interface	3	5	7	7	9					198

Summary

Strategic Risk	Working Risk	JCL Grouping													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		WKT Foundations	Obstruction Removal	TBM Tunnels - Urban	TBM Tunnels - Rural	Drill & Blast Tunnels	Cut & Cover Tunnels	WKT Civil	Environmental	WKT Landscape, ABWF & E&M	Systemwide Civil Contracts Trackwork and OHL	Systemwide E&M - WKT	Systemwide E&M - Signalling etc	Systemwide E&M - Tunnel	Systemwide E&M - Rolling Stock
Engineering Issues	Damage to Existing Buildings	4	12	90	70	70	60	70	4						
	Damage to Utilities / Roads / Highway Structures etc	4	42	80	48	48	48	70	4						
	Damage to Seawall							84							
	Temporary Traffic Arrangements	4	30	70	30	30	42	112	18						
	Temporary Works	4	60	80	112	80	80	140		36	70	84	60	84	4
	Manufacturing / Installation Issues											126	112	90	48
	Construction Issues	4	126	112	112	112	110	216		30	126				
	D-wall Issues	4		4	48		66	154							
	Design Robustness			42	42	42	70	126	4	50	40	36	60	60	24
	Systems Coordination, Installation and Commissioning									126	162	162	162	162	126
	Contamination of Tunnel, eg Dust, Impacting Commissioning			70	70	70	70			30	40	40	40	40	4
	Site Logistics	4	50	60	60	60	60	162	18	126	144	126	126	126	20
	Late Design Changes	4	36	54	54	42	90	144	12	98	60	42	70	42	36
	Roof Construction							198							
	TBM Jammed			110	110										
Blasting Permits					42										
Maximum Allowable Levels Exceeded								42							
Physical, Environmental and Third Party Impacts	Statutory Risk (other government departments approvals)	10	30	60	84	36	36	98	70	108	40	70	56	98	98
	Damage to Existing Tsuen Wan Line / Lai Chi Kok Flyover / DSD Tunnel			26											
	Damage to WSD Water Distribution Tunnel					14									
	Damage to Existing West Rail Line Tunnels						154								
	Marble Cavities				126										
	Unforeseen Utilities	12	30	60	36	36	36	98							
	Fire Safety Strategy not Finalised			36	36	24	24	70		126					
	Fire Safety Strategy and acceptance test											126	30	98	70
	Spoil Removal	8	12	30	56	50	50	108							
	Contaminated Soil	16	4	80	60	48	80	112							
	Unforeseen Ground Conditions	12	70	154	154	110	100	112							
	Construction Fire	12	10	120	120	120	100	120		110	60	36	36	36	24
	Noise / Dust Generation	6	40	28	28	42	30	70							
Extreme Weather / Flooding	8	6	90	90	60	70	98	18	60	40	30	30	36	8	
Ground Water Drawdown / Ingress	14	12	60	80	84	60	84		18	12	30	30	30	8	
Adverse Vibration			70	50	50										
Supply Chain Overstretched & Resources Not Available	Land Availability / Site Possession	4	4	4	4	4	4	12	30	90	126	126	144	126	144
	MTRCL Procedural Failure	12	36	36	36	36	36	80	12	80	24	60	60	60	60
	Sub-standard / Unapproved Materials	16	12	54	54	54	54	80		40	36	70	70	70	42
	Plant & Materials Supply	8										60	60	36	30
	Materials Supply	8	60	42	42	42	30	98		30	40				
	Availability of Skilled Labour	14	54	72	120	120	50	198	30	162	180	144	144	144	36
	Late Delivery of TBM			4	42										
	Poor Quality Construction	12	50	54	54	90	60	50		70					
	Contractors / Suppliers Bankrupt	18	50	16	18	16	14	48	8	30	16	36	36	36	36
Technical Issues								8	98	98	80	112	80	70	
Variation and Claims	Construction Started without Design Completion			18	18	18	18	108		80	30				
	Design Changes	12	56	30	30	30	30	108	18	60	36	42	70	42	42
	External Impacts	12	30	60	60	60	60	126	18	126	108	60	108	108	36
	Unforeseen Site Conditions	14	90	98	98	98	42	112	18		24				
Interfaces	Contract Interfaces	6	54	98	98	98	50	180	12	162	162	108	198	154	154
	Joint testing with Mainland										4	198	70	198	
	System Integration			60	12	12	10	126		162	180				
	Operations Testing			60	60	36	60	84		126	168				
	T&C and Trial operation											70	198	126	198
	Setting-out Errors			42	42	42	30	50			40				
	Mainland side modifications and interface Mainland China				144							4	110	42	198

29 April 2014

By e-mail and By Post

Highways Department
Railway Development Office
1/F, Homantin Government Offices
88 Chung Hau Street
Homantin
Kowloon

MV2

Our Ref: G3232/10/1532

16.3/1.1/9/9/4

For the attention of Mr. C T Chan

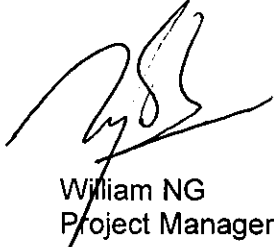
Dear Sir,

**Agreement No. CE 8/2010 (HY)
XRL - Monitoring and Verification for Construction, Testing and
Commissioning Phase - Investigation
Request for Documents (RFD No. 109)**

After reviewing the sharepoint documents up to 16 April 2014, please find attached a copy of the selected documents as listed in the RFD No. 109 for your onward transmission to MTRCL.

Should you have any queries, please feel free to contact our Ms. Vicky Sy at 2738 3812.

Yours faithfully
For and on behalf of Jacobs China Limited



William NG
Project Manager

WNVS/cyy

enc (RFD No. 109)

JAN 6

- Write "N/A" if no reply required

Job No. : 3232

Distribution: Original in file G/3232/02

JOB TITLE: XRL Monitoring and Verification for Construction

List of Information Requested by Jacobs (selected from the Sharepoint list)

Item	Subject	MTRCL Transmittal No.	Date Sent	IN/OUT	Receipt of Deliverables		Form of Request / Remarks
					Received on	Incoming file no (refer to incoming register)	
RFD No.109 - Documents at Construction Stage (visited Sharepoint upto 16 April 2014)							
109 - 1	Method Statement for Relief Jacking between XRL and WRL Structures	811A-CSF-BLJ-CS-002242	9-4-14	OUT			
109 - 2	Method Statement for West Rail Line (WRL) Barrette Cutting and Removal	811A-CSF-BLJ-CS-002243	9-4-14	OUT			
109 - 3	Method Statement for Stage 1 & 2 Grouting Between WRL Base Slab & XRL Top Slab	811A-CSF-BLJ-CS-002246	12-4-14	OUT			
109 - 4	Method Statement for NTM Cavern Tunnel Concrete Lining	824-CSF-KKO-CS-001408	4-4-14	OUT			
109 - 5	Construction Interface Report for Works that Interface with Designated Contractors 816A, 816B, 816C and 816D	810A-CSF-LGJ-ABWF-000472	7-4-14	OUT			
109 - 6	Revised Master Programme Rev. 7 & Narrative Statement	802-CSF-HCC-CS-001561A	15-4-14	OUT			
109 - 7	Supplemental Agreement Programme (SA01 Rev 0)	822-COR-LCA-CS-001951	28-3-14	OUT			
109 - 8	Contract Programme Update to Support Delay to the Substantial Completion Date	830-COR-CCQ-PLP-000024	11-4-14	OUT			
109 - 9	DRM Revision 3 Programme – second revision 10 April 2014	830-COR-CCQ-PLP-000025	14-4-14	OUT			

Agreement No CE 8/2010 (HY)
Hong Kong Section of Guangzhou – Shenzhen – Hong Kong Express Rail Link (XRL)
Monitoring and Verification for Construction, Testing & Commissioning Phase – Investigation

MV2

Dates/Time of Audit 12 November 2013 / AM **Report No** R/3232/222/687

Place of Audit Rm G01 & G02, 824 Tai Kong Po Site Office **Ref No** ---

Auditor(s) Tony King, Tony Lomas

Auditee(s) Tresca Lai (SConE-Tunnel), Edmund So (SConE-Civil), Thomas Hung (ConE I-Civil), Keith Leung (ConE I-Civil), Lawrence Lam (CSA), Daniel Mow (SPrgE), C P Wong (PrgE I), Natalie Ng (EE II), Wilson Wat (CE I)

Audit Scope Technical Compliance Audit – General, Safety and Quality
Contract 824 – Nagu Tam Mei to Tai Kong Po Tunnels

Non-Conformity Report Ref No(s). Nil

Part 1: Introduction
<p>This is the seventh Technical Compliance audit for General, Safety and Quality on Contract 824, Ngau Tam Mei to Tai Kong Po Tunnels. An audit questionnaire was sent to the MTRCL in advance in order that they could prepare for the audit.</p> <p>No formal opening and closing meetings were arranged but a short discussion on logistics was held before the audit. Furthermore, a daily debriefing was conducted in which the auditees were briefed on our summary findings from the audit.</p>
Part 2: Scope of Audit
<p>This verification audit was a Technical Compliance audit for General, Safety and Quality on Contract 824, Ngau Tam Mei to Tai Kong Po Tunnels.</p>
Part 3: Audit Details
<p>A short meeting on the objectives / purposes of this Technical Compliance audit was held at the beginning of the audit. In the course of the verification audit, it was observed that the auditees were cooperative and well prepared for the audit.</p>
<u>Verification of Contract 824</u>
General
<p>Q1. <i>Please confirm that all contract requirements related to Safety & Quality, Programme & Progress, Financial Matters and Design & Construction have been processed in accordance with MTRCL's Administrative Procedures.</i></p>
<u>Discussion</u>
<p>MTRCL confirmed that the contract was being administered in accordance with its procedures. All information in the 824 audit reports is based on MTRCL advice in audit and documents tabled.</p>

Safety and Quality

Q1 *Please confirm that the contractors Safety and Quality Plans have been updated in accordance with MTRCL procedures and describe the changes made.*

Please confirm that the contractor and MTRCL's safety and quality teams are at full strength by tabling the site safety the respective org charts.

Discussion

Contractor's Safety Plan rev. 8 dated 13 August 2013 tabled and discussed. This was approved with comments on the 18 September 2013. Major change is to the organization, including the Project Director who was replaced in May 2013 and whose successor has also left the project; he has not yet been replaced.

Quality Plan rev. 7 dated 10 October 2013 tabled and discussed. This was approved on 28 October 2013. Major change is to personnel. The MTRCL team is up to strength and there is one safety advisor vacancy in the contractor's organization.

Q2. *Please table*
- the latest weekly safety walk report;
- the latest monthly safety meeting minutes,
and evidence that all items are closed out in a timely manner

Discussion

Site safety inspection report for 08 November 2013 tabled and discussed. There is one good observation and nine low action observations, all closed within three days.

Minutes of SSEMC meeting of 04 October tabled and discussed. Construction Manager (MTRCL) and Deputy Project Director (Contractor) in attendance. Safety issues presented and discussed in detail.

Q3. *Please advise the up-to-date cumulative safety statistics for the contract, if applicable, using the SIMS data base, including;*
+ Cumulative manhours worked and RAFR
+ Fatal, Reportable, Lost Time, First Aid and Medical Treatment Accidents.
+ Incidents.
+ Near Miss and High Potential Near Miss

Discussion

Cumulative manhours worked to end October 2013 – 2,546,019; RAFR – 0.63

Fatal accidents – 1

Reportable accident – 16 (including 1 above)

Early resume accident – 1

First aid – 2

High potential near miss – 2

Incident – 5
Lost Time accident – 8
Medical treatment accident – 12
Near miss – 96

Observation. The near miss total has not changed since the previous audit. The Contractor should be encouraged to record all near misses.

Q4. *Please table a copy of the most recent reports for the DNV external audit for MTRCL including the list of actions arising and evidence of the Contractor addressing / closing out the issues raised in a timely manner.*

Please confirm that the Contractor has undergone SMRA audits in accordance with statutory requirements.

Discussion

DNV audit report, for audit carried out on 05 to 10 August 2013, tabled and discussed.

Loss control – 55.6
Physical score – 84.3
Level 7.4 achieved

'Site conditions very good and still improving'
Action plan tabled and discussed, this shows target dates for closing actions with monthly updates shown in boxed overlays. The status of the Action plan is discussed monthly at the SSEMC Meeting

Last SMRA audit carried out on 08/09 May 2013.

Q5. *Please Table the project life, monthly physical audit scores showing the trends since the project commenced.*

Discussion

Monthly physical audit scores tabled and discussed. Trend generally improving to above 80 except September which was at 76, due to fatal accident.

Q6. *Please demonstrate that the MTRCL's quality audits of the Contractor are in accordance with the MTRCL's procedures and table copies of the most recent audit report.*

Discussion

Quality audit carried out on 31 May 2013. Audit report inspected. The audit was described as 'satisfactory'.

Q7. *Please advise of the actions to close out non-conformances and other issues from the audits and table the close out documentation.*

Discussion

Observation raised on 04 June, accepted on 04 June. Action plan was prepared on 13 June and closed out on 26 June 2013.

- Q8. *Please advise the major quality control (QC) issues on this contract and describe how these are being/will be managed.*

Discussion

Quarterly quality planning schedule for Q4/2013 tabled and inspected. This sets out the major potential quality risks, control required and control assurance. The major quality issues at risk are water ingress control, water proofing and tunnel lining.

- Q9. *Please list any major QC incidents in the past 6 months and the remedial action necessary.*

Discussion

There have been no major QC issues in the past six months.

Part 4: Issues to be followed

No non-conformity was raised.

One observation was raised.

- The near miss total has not changed since the previous audit. The Contractor should be encouraged to record all near misses.

No suggestion was made.

Sign and Date

Prepared by:

.....
Tony Lomas
Auditor

.....
Date: 29 Nov 2013

Agreed by:

.....
Tony King
Lead Auditor

.....
Date: 29 Nov 2013

Endorsed by:

.....

Raymond Chan
Deputy Project Manager

.....
Date: 29 Nov 2013

Agreement No CE 8/2010 (HY)
Hong Kong Section of Guangzhou – Shenzhen – Hong Kong Express Rail Link (XRL)
Monitoring and Verification for Construction, Testing & Commissioning Phase – Investigation

MV2

Dates/Time of Audit 12 November 2013 / AM **Report No** R/3232/222/690

Place of Audit Rm G01 & G02, 824 Tai Kong Po Site Office **Ref No** ---

Auditor(s) Tony King, Tony Lomas

Auditee(s) Tresca Lai (SConE-Tunnel), Edmund So (SConE-Civil), Thomas Hung (ConE I-Civil), Keith Leung (ConE I-Civil), Lawrence Lam (CSA), Daniel Mow (SPrgE), C P Wong (PrgE I), Natalie Ng (EE II), Wilson Wat (CE I)

Audit Scope Technical Compliance Audit – Design and Construction
Contract 824 – Nagau Tam Mei to Tai Kong Po Tunnels

Non-Conformity Report Ref No(s). Nil

Part 1: Introduction
<p>This is the seventh Technical Compliance audit for Design and Construction on Contract 824, Ngau Tam Mei to Tai Kong Po Tunnels. An audit questionnaire was sent to the MTRCL in advance in order that they could prepare for the audit.</p> <p>No formal opening and closing meetings were arranged but a short discussion on logistics was held before the audit. Furthermore, a daily debriefing was conducted in which the auditees were briefed on our summary findings from the audit.</p>
Part 2: Scope of Audit
<p>This verification audit was a Technical Compliance audit for Design and Construction on Contract 824, Ngau Tam Mei to Tai Kong Po Tunnels.</p>
Part 3: Audit Details
<p>A short meeting on the objectives / purposes of this Technical Compliance audit was held at the beginning of the audit. In the course of the verification audit, it was observed that the auditees were cooperative and well prepared for the audit.</p>
<u>Verification of Contract 824</u>
Design and Construction
<p>Q1. <i>Please update on any alternative designs or VE proposals for this contract.</i></p> <p><u>Discussion</u> No alternative designs or VE proposals received.</p> <p>Q2. <i>Please table a schedule of all major temporary and permanent works designs and show how the progress of these is tracked on site.</i></p> <p><u>Discussion</u> Design submission schedule dated 06 November 2013 tabled and inspected. This is fully tracked. It shows all submissions to government departments. The tunnel lining is in the last round of comments. There is no major technical</p>

issue, just procedural and drawing notes etc. This does not delay progress.

- Q3. *Please table the most recent DSC risk register, identify the top 5 risks and details of actions to mitigate them.*

Discussion

DSC risk register dated 15 October 2013 tabled and discussed.

There are:

1xP1, 5xP2, 27xP3 and 5xP4 initial risks
0xP1, 0xP2, 15xP3 and 23xP4 residual risks

The top 10 risks are noted in the risk review workshop, ranked in order. Top 5 list tabled and inspected.

- Q4. *Please advise whether there is any major variation in predicted geotechnical conditions based on the GBR.*

Discussion

The GBR and the rock conditions found are similar but water ingress in the NTM shaft and tunnels exceeds that predicted.

- Q5. *Please advise any changes or planned changes to construction methodology.*

Discussion

There is no change to contract methodology.

- Q6. *Please confirm that the designs and works constructed to date are in compliance with the Buildings Ordinance and the Instrument of Compliance (where applicable).*

Discussion

MTRCL confirmed that all designs have been in compliance with BO & IOC.

- Q7. *Please advise any non-compliance with Building Ordinance and IOC requirements arising during the last six months together with actions taken to close the issue and to avoid any recurrence. (The auditors may require to see evidence of correspondence.)*

Discussion

There have been no cases of non-compliance within the past six months.

- Q8. *Please describe how spoil is currently or planned to be disposed of, how this differs, if at all, from the tendered intent and progress against forecast disposal.*

Discussion

Spoil disposal is to registered sites in Hong Kong e.g. WENT. There have been no issues on the local road network.

- Q9. *Please table the latest schedule of monitoring results and advise of actions taken where AAA levels were exceeded. Please identify the Top 5 exceedences.*

Discussion

Schedule of monitoring results dated week 45, tabled and discussed.

There are exceedences noted but no settlement problems reported.

- Q10. *Please advise of any new Environmental issues which have arisen in the last six months.*

Discussion

The major environmental issue is the effluent quality at NTM. This is reported to EPD every month based on the renewed license requirements. For TKP, this is reported every 2 months.

Copy of letter for October from Contractor to EPD, reporting water quality, tabled.

- Q11. *Please table details of surveys and site inspections carried out by the Independent Environmental Checker (IEC) to verify the Contractor's compliance with his EMP. Please show evidence of the contractor closing out the issues raised in a timely manner.*

Discussion

Environmental site inspection, for week 4/10/2013, tabled and inspected. This contained two reminders to maintain water discharge quality and one observation related to oil leakage from a skip which was dealt with promptly and closed.

Part 4: Issues to be followed


No non-conformity was raised.

No observation was raised.

No suggestion was made.

Agreement No CE 8/2010 (HY)
Hong Kong Section of Guangzhou – Shenzhen – Hong Kong Express Rail Link (XRL)
Monitoring and Verification for Construction, Testing & Commissioning Phase – Investigation

MV2

Sign and Date		
Prepared by:	Agreed by:	Endorsed by:
Tony Lomas Auditor	Tony King Lead Auditor	 Raymond Chan Deputy Project Manager
Date: 29 Nov 2013	Date: 29 Nov 2013	Date: 29 Nov 2013