

Appendix 18.1 Key Assessment Assumptions and Methodologies

Assessment Methodologies	Assessment Assumptions	Limitation of Assessment Methodologies / Assumptions	Prior Agreements with EPD/Other Authorities	
			EIA Study Brief Clause Reference	Relevant Documentation
Cultural Heritage				
Evaluation and assessment of potential impacts to cultural heritage resources was conducted in accordance with the Study Brief No. ESP-193/2008. The study adhered to the requirements as listed in Annexes 10 and 19 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) and also the relevant guidelines for Cultural Heritage Impact Assessment issued by the AMO for Terrestrial Archaeological Impact Assessment, Marine Archaeological Impact Assessment and Built Heritage Impact Assessment.	The assessment was based on the existing information available from previous investigations in the study area and supplemented through built heritage surveys.	Based on the findings of previous surveys, the archaeological potential of the study area was determined and have been adequately examined in previous investigations.	Not required	Not applicable
Ecological Impacts				
Evaluation and assessment of potential impact on ecological resources was conducted in accordance with the criteria and guidelines specified in Annex 8 and Annex 16 of the EIAO-TM, respectively.	The assessment and evaluation of ecological impact on marine habitats was undertaken based on the results of literature review, marine ecological field surveys and water quality impact assessment results.	Limitations and uncertainties of water quality impact assessment is stated in Section 11 – Water Quality Impact. Results of marine ecological field surveys (e.g. benthos sampling, intertidal survey, spot-check dive and REA) conducted for this Project were based on sampling /survey at several representative locations / transects in and within the vicinity of the Project area.	Not required	Not applicable
Fisheries Impacts				
Evaluation and assessment of potential impact on fisheries was conducted in accordance with the criteria and guidelines specified in Annex 9 and Annex 16 of the EIAO-TM, respectively.	The assessment and evaluation of fisheries impact was undertaken based on the results of literature review and water quality impact assessment results.	Limitations and uncertainties of water quality impact assessment is stated in Section 11 – Water Quality Impact.	Not required	Not applicable

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Landscape and Visual Impacts				
<p>Evaluation and assessment of potential impact on landscape resources, landscape character areas, visual sensitive receivers was conducted in accordance with the criteria and guidelines specified in Annex 10 and Annex 18 of the EIAO-TM, respectively.</p>	<p>The landscape and visual impact assessment has been based on EIAO Guidance Note No.8/2010.</p>	<p>Assessment of sensitivity of receivers and the magnitude of changes of project works are inherently subjective. No detailed data exists for future planned projects or for the concurrent projects other than described in the Report. Changes to these may affect the evaluated impacts of the Project.</p>	<p>Not required</p>	<p>Not applicable</p>
Air Quality Impacts				
<p>Quantitative assessment was conducted following Annex 4 and Annex 12 of EIAO-TM for determination of construction dust impact due to the Project. Fugitive Dust Model (FDM) (1993 version) was adopted for the Project. The 1-hour, 24-hour and annual average TSP concentrations at representative discrete ASRs were predicted either at 1.5m or the lowest height where the air sensitive use of the representative ASR is located and also 5m, 10m, 15m and 20m above ground.</p> <p>The emission rates for different construction activities considered in the model were based on the USEPA Compilation of Air Pollutant Emission Factors (AP-42), 5th edition.</p> <p>The concurrent works with SCL (TAW-HUH), SCL (MKK-HUH), KTE, WDII and CWB projects were taken into account in assessing the dust impact.</p>	<p>Dusty construction activities and programme were based on information provided by the Engineer. The major potential sources of construction dust impact associated with the Project would include excavation, spoil removal, wind erosion and materials handling during cut-and-cover tunnel construction.</p> <p>As a conservative assessment approach, heavy construction emission rate was adopted for construction activities undertaken by cut & cover method and truck haulage in the assessment.</p> <p>Due to the constrained size of the works sites and the tight construction programme, it will be necessary for active construction activities to be undertaken at multiple work faces spread across each site. A hypothetical Tier 1 screening test assuming 100% active area of construction site of the Project with mitigation measures in place has been undertaken.</p>	<p>It is difficult to obtain the detailed information for estimation of emission rates for different dusty construction activities. Heavy construction emission rate which is the highest emission rate was therefore adopted in the model run as a conservative approach. The predicted dust concentrations at the ASRs may be higher than the actual situation.</p> <p>FDM does not allow emissions to be placed more than 20m above ground, but can output concentration accurately at all heights for emission placed within 20m above ground.</p> <p>Tier 1 screening test is a hypothetical one which is very conservative and does not occur in reality.</p> <p>Tier 2 assessment is also a very conservative approach as it assumed % daily maximum active</p>	<p>3.4.10.2 (iii) Assessment methodology for construction dust impact</p>	<p>Not Applicable - The assessment was conducted in accordance with Appendices D-1 to D-3 of the EIA Study Brief (ESB-193/2008)</p>

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	<p>Focused Tier 2 assessment was undertaken at the specific hot spot locations where TSP non-compliance is predicted under the Tier 1 screening test.</p> <p>The working period at the construction site would be 12 hours (07:00 – 19:00).</p> <p>The below dust suppression measures were considered in the assessment:</p> <ul style="list-style-type: none"> watering once every working hour on active construction areas to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m² for Kowloon side and 1.0 L/m² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m² for Kowloon side and 1.0 L/m² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. 	<p>works areas of the Project would be located closest to the potentially worst affected ASRs at any one time throughout the construction period which is unlikely to occur in reality. The predicted TSP levels may be higher than the actual situation.</p>		

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	<ul style="list-style-type: none"> • enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission by 50%. <p>The above reduction of dust emissions were assumed in the model with the implementation of this dust suppression measure in accordance with USEPA guideline.</p> <p>For Hong Kong Island side, worst case meteorological condition was adopted to predict the maximum hourly and daily average TSP concentrations:</p> <ul style="list-style-type: none"> • Wind speed: 1 m/s • Wind direction: 360 wind directions • Wind direction resolution: 1° • Stability class: D (daytime, 8:00-18:00) & F (night time, 18:00-8:00) • Surface roughness: 1m • Mixing height: 500 m <p>Hourly meteorological data from Hong Kong Observatory for year 2008 were adopted to predict annual TSP concentration on Hong Kong Island side.</p> <p>Hourly meteorological data from Hong Kong Observatory for year 2008 were adopted to predict the hourly, daily and annual TSP concentration on Kowloon side and Shek O off-site.</p> <p>Background TSP concentration for Kowloon side, based on recent 5-year average monitoring data for urban development was adopted as an indication of the future TSP background concentration.</p>			

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	<p>Background TSP concentration for Hong Kong side, based on latest EM&A data recorded at the Chinese People's Liberation Army Force Hong Kong Building under the Central Reclamation Phase III project, was adopted as an indication of the future TSP background concentration.</p> <p>Background TSP concentration for Shek O off-site, based on recent 5-year average monitoring data for rural area was adopted as an indication of the future TSP background concentration.</p>			
Air-borne Noise Impacts				
<i>Construction Phase</i>				
<p>The noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM.</p> <p>To assess the potential noise impacts due to the Project, the noise sources were identified and the impacts were quantified. The assessment methodology follows Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM).</p>	<p>Construction noise impact assessment was carried out on a monthly basis and assessed on existing NSRs from the commencement of the Project. Cumulative noise impact was considered within 300m of the NSRs from the construction tasks of the Project taking place concurrently. Noise sources from the areas greater than this 300m distance were excluded from this assessment.</p> <p>In accordance with the EIAO, the methodology outlined in the GW-TM has been used for this construction noise assessment (excluding percussive piling). Sound power level (SWL) of the equipment was taken from Table 3 of GW-TM and BS5228 was referenced for those without information provided.</p> <p>It was assumed that all PME items</p>	<p>The prediction of construction noise impact was based on the methodology described in the GW-TM under the NCO. There are limitations of the methodology such as the accuracy of the predictive base data for future (e.g. plant inventory for proposed construction works). Quantitative uncertainties in this assessment of impacts should be considered when drawing conclusions from the assessment.</p> <p>In carrying out the assessment, realistic worst case assumptions have been made in order to provide a conservative assessment of noise impacts. The construction noise impact was assessed based on conservative estimates for the types and quantities of plant and</p>	<p>3.4.2.3 (i) – Assessment Area</p> <p>3.4.2.3 (iii)(b) – Assessment Points</p>	<p>See Annex A</p>

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	<p>required for a particular construction activity would be located at the notional or probable source position of the segment where such activity is to be performed. The assessment was based on the cumulative SWL of PME likely to be used for each location, taking into account the construction period in the vicinity of the receiver location. To predict the noise level, PME was divided into groups required for each discrete construction task. The objective was to identify the worst case scenario representing those items of PME that would be in use concurrently at any given time. The sound pressure level of each construction task was calculated, depending on the number of plant and distance from receivers. The noise levels at NSRs were then predicted by adding up the SWLs of all concurrent construction tasks.</p> <p>A positive 3 dB(A) façade correction was added to the predicted noise levels in order to account for the façade effect at each NSR.</p>	<p>construction methods. The predicted noise levels may be higher than the actual situation.</p>		
<i>Operation Phase – Fixed Noise Sources</i>				
<p>The noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM.</p>	<p>The fixed plant noise assessment has been carried out by determining the maximum permissible noise emission levels for future detailed design of the fixed plant in the absence of any detailed information and noise specification of the proposed fixed plant at the time of this EIA study.</p>	<p>For determining the distance correction factors, the horizontal distances between the noise source positions and the NSRs were used for representing the worst level of the representative NSRs. The distance between NSRs and the noise sources (slant distance) could be larger and the maximum permissible noise emission levels could be higher than the predicted levels.</p>	<p>Not required</p>	<p>Not applicable</p>

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Ground-borne Noise Impacts				
<i>Construction Phase</i>				
<p>The predictions of ground-borne noise impacts were based on the methodologies described in the FTA Guidance Manual. The methodology which had previously been applied in other EIA studies is generally accepted for use in assessing ground-borne noise impacts against EIAO-TM and IND-TM noise criteria.</p>	<p>In carrying out the assessment, realistic worst case assumptions have been made in order to provide a conservative assessment of noise impacts. The construction ground-borne noise impact was assessed based on conservative estimates for the types of plant and methods of working.</p>	<p>There would be some limitations such as the accuracy of the predictive base data for future conditions e.g. plant inventory for the proposed construction works and uncertainty in the soil mobility for future operation. Uncertainties in the assessment of impacts have been considered when drawing conclusions from the assessment.</p>	<p>3.4.2.3 (i) – Assessment Area</p> <p>3.4.2.3 (iii)(b) – Assessment Points</p> <p>3.4.2.3 (v)(c) – Criteria and assessment methodology for construction ground-borne noise impact from tunnel boring machine</p> <p>3.4.2.3 (v)(e) – Methodology/model for ground-borne noise impact from powered mechanical equipment</p>	<p>See Annex A</p>
<i>Operation Phase</i>				
<p>The assessment methodology is based on Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06 (the FTA manual).</p>	<p>The operation ground-borne noise levels from the Project were calculated based on direct fixation track and 9-car SP1900 or equivalent as well as the assumed train frequencies of 30 per hour per direction during daytime and 24 per hour per direction during nighttime.</p> <p>The Line Source Response is based on previous borehole impact test data adopted from other EIA studies, based on the similar rockhead level and borehole depth.</p> <p>The Force Density Level is based on</p>	<p>With reference to previous borehole impact test data, there are uncertainties in the ground conditions. The following approaches have been taken to account for the uncertainties:</p> <ul style="list-style-type: none"> - 10dB safety factor has been incorporated in the prediction - Provisions have been allowed in the design of the tunnel for installation of necessary contingency mitigation measures. 	<p>3.4.2.3 (i) – Assessment Area</p> <p>3.4.2.3 (iii)(b) – Assessment Points</p> <p>3.4.2.3 (vi)(a)</p> <p>3.4.2.3 (vi)(b) – Criteria and assessment methodology for operational ground-borne noise impact</p>	<p>See Annex A</p>

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	measurement on SP1900 train at Pat Heung Depot in 2003. And the level adopted is based on the wheel and rail being properly maintained such that they are free from wheel flat and rail corrugation.			
Water Quality Impact				
<p>The assessment of potential water quality impacts for the Project follows those presented in Annex 6 and Annex 14 of the EIAO-TM.</p> <p>To assess the potential water quality impacts due to the Project, the sources and natures of water pollution to be generated have been identified and their impacts have been quantified using mathematical model.</p> <p>Appropriate mitigation measures have been recommended to minimize any adverse water quality impacts.</p> <p>Hydrodynamic Model: Delft3D-FLOW model</p> <p>Sediment Plume Model: Delft3D-PART model</p> <p>Dilution Tracer for Computation of Contaminant Release: Delft3D-WAQ model</p> <p>Parameters for Sediment Plume Model: <u>Horizontal Dispersion Coefficient D_H (m^2/s)</u> $a = 0.003$ $b = 0.4$ Reference: $D_H = a t^b$, Where t is the age of particle from the instant of discharge in seconds</p>	<p>Concurrent Marine Works: Scenario 1 assumed that the following marine works would take place concurrently:</p> <ul style="list-style-type: none"> • Dredging Works for Proposed Cruise Terminal at Kai Tak (CT Dredging) Stage 2 • Dredging for Tunnel Construction within the CBTS under the CWB Project • Dredging for CKR; and • Sand filling for Road T2. <p>Scenario 2 assumed no concurrent marine works would be carried out.</p> <p>The assumed dredging rates for these Project works are summarized in Table 11.9 and Figure No. NEX2213/C/331/ENS/M59/006.</p> <p>Assumptions made for Conservative Assessment:</p> <ul style="list-style-type: none"> • The adopted sediment loss rate (20 kg/m^3) for the SCL IMT dredging adopted is the upper limit stated in relevant literature. • The sediment source points in the modelling are located close to the WSRs. • The sediment removal efficiency of the silt screen (60% reduction) is based on approved EIAs, while the sediment removal efficiency of the 	<p>Key model uncertainties and limitations are:</p> <ul style="list-style-type: none"> • All the predictions made in this EIA were based on the latest available construction information and assumptions. If there are any major changes to the key assumptions during the actual implementation of the Project in the future, the prediction and assessment findings presented in this EIA report may be affected. <p>The following approach was adopted to enhance the model performance:</p> <ul style="list-style-type: none"> • The computational grid of the detailed Victoria Harbour (VH) Model was refined along the coastline of Victoria Harbour to represent the coastal features under the assessment scenario; • The performance of the detailed VH Model was checked against the results of a fully calibrated model adopted under the approved WDII & CWB EIA to ensure that reliable predictions of hydrodynamics are provided for the Study area; • The simulation comprises a 	<p>Appendix A – Hydrodynamic and Water Quality Modelling Requirements</p> <p>3.4.1.3 – Assessment requirement</p> <p>3.4.1.3 – Assessment area</p> <p>3.4.1.6 – Assessment methodology</p> <p>3.4.1.6. – Impact prediction</p>	<p>See Annex B</p> <p>See Appendix 12.3</p>

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<p>Vertical Dispersion Coefficient D_v (m^2/s) 5×10^{-3} Dry Season 1×10^{-5} Wet Season</p> <p>Particle Settling Velocity 0.0001 m/s (Constant) Grain size diameter of 10 μm</p> <p>Critical Shear Stress 0.05 Pa Sedimentation 0.15 Pa Erosion</p> <p>Simulation Periods: 15-day full spring-neap cycles (excluding spin-up period) for dry and wet seasons</p> <p>Bathymetry: Based on latest marine charts from Marine Department</p> <p>Coastline Configuration: <u>Included the following key planned reclamation projects:</u> WDII & CWB Reclamation; Sunny Bay Reclamation; Tuen Mun - Chek Lap Kok Link; Hong Kong Boundary Crossing Facilities; Further Development of Tseung Kwan O.</p>	<p>silt curtain is not considered for conservative reason.</p> <p>Assumptions for other Marine Works under this Project:</p> <ul style="list-style-type: none"> • Temporary reclamation would be required at Hung Hom landfall. Cofferdam would be constructed prior to excavation and tunnel construction works would be undertaken within the cofferdam. • The tip of Hung Hom Freight Pier would need to be removed for construction of the IMT. No dredging work would be required. • The reinstatement of the tip of Hung Hom Freight Pier after the completion of the IMT construction of the SCL tunnel would involve marine piling and no dredging would be required. • Minor piling works would be required for the platform adjacent to the cofferdam and reinstatement of fender piles at Hung Hom Landfall as well as construction of the temporary jetty within the CBTS. • The provisional underwater blasting works would have mitigation measures to avoid loss of fines and release of contaminants into the marine waters from the bottom sediments around the blasting areas. • Construction of the Shek O Casting Basin would involve installation of gates at the gate frames of the existing quarry. 	<p>sufficient spin up period so that the initial conditions do not affect the results.</p>		

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	<ul style="list-style-type: none"> After completion of all the IMT fabrication and construction works, the Shek O site would be reinstated to the layout originally planned under the Rehabilitation of Shek O Quarry project. No marine works would be involved. 			
Waste Management Implications				
<p>The method for assessing potential waste management impacts for the Project follow those presented in Annex 7 and Annex 15 of the EIAO-TM.</p> <p>A marine site investigation (SI) was completed to determine the level of contamination in the sediments within the proposed dredging area. The sediment sampling proposal for the marine SI and laboratory testing was prepared in accordance with ETWB TC(W) No. 34/2002- Management of Dredged/Excavated Sediment.</p> <p>Appropriate mitigation measures have been recommended to minimize any adverse waste impacts.</p>	<p>The waste quantities to be generated from the Project were estimated based on the engineering assessment and the information provided in the Construction and Demolition Material Management Plan (C&DMMP) prepared for the Project.</p>	<p>The waste quantities estimated under this EIA are subject to further detailed site survey. However, further refinement of the estimated waste quantities would not affect the assessment conclusion provided that all the recommended mitigation measures are implemented properly.</p>	<p>3.4.4.2 (iii)(a) – Sediment sampling and testing proposal</p>	<p>See Appendix 12.3</p>
Land Contamination				
<p>The approach for land contamination assessment for the Project follows those presented in Guidance Note for Contaminated Land Assessment and Remediation and Annex 19 of the EIAO-TM.</p>	<p>The strategy for sampling and laboratory testing, selection of the contaminants of concern (COCs) would be representative to the site specific characteristics for the past, present and future land uses.</p>	<p>Localised contamination hotspots may not have been identified and investigated due to site constraints.</p>	<p>3.4.5.4 – Contamination Assessment Plan (CAP) (approved by the EPD under this EIA study)</p>	<p>See Appendix 13.1</p>
Hazard to Life				
<p>The assessment for hazard to life for the Project follows the EIA Study Brief requirements.</p>	<p>No overnight storage of explosives would be required. Quantitative Risk Assessment (QRA) of the storage and transport of explosives was not required as per Section 3.4.9.2 of the EIA Study Brief No. ESB-193/2008 (EIA SB).</p>	<p>The assessment for hazard to life was based on current best available information provided by the relevant parties and government departments.</p>	<p>Not required</p>	<p>Not applicable</p>

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	<p>Underwater blasting works may be required when bedrock or large boulders are encountered during the IMT tunnel construction. Explosives under the Dangerous Goods Ordinance (Cap. 295) were described and guidelines and/or advice obtained from relevant departments/ authorities were documented including the Code of Practice under the Gas Safety Ordinance (Cap. 51) and the requirements of Hong Kong and China Gas Company Limited (HKCG),</p>			

Annex A

本署編號
OUR REF: (2) in An(4) to EP2/G/A/124 Pt.2
來函編號
YOUR REF: C/HSD/SCL-NSL2/E1005/06/#0910426
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27 November 2009

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GPO Box 9916, Hong Kong
(Attn: Mr. Richard KWAN, Manager - Environmental)

Sustainability Development Department	
SP#	
Rec'd On:	30 NOV 2009 Encl ✓
Copy To:	
Cir To:	
File Ref:	

Dear Mr. Kwan,

Environmental Impact Assessment (EIA) Ordinance (Cap. 499)
Project Title: Shatin to Central Link – Cross Harbour Section
(Phase II - Hung Hom to Admiralty)
EIA Study Brief No. ESB-193/2008

Noise Assessment Methodology Report (Version B)

I refer to your letter under reference dated 16 October 2009 submitting the captioned revised Noise Assessment Methodology Report (NAMR) and a set of Responses-to-Comments, for our agreement under a number of requirements under Section 3.4.2.3 of the EIA Study Brief No. ESB-193/2008.

Please be informed that after taking into the advice from our noise assessment team on the submission with respect to the noise assessment methodology, agreements are hereby given under the following requirements of the captioned EIA Study Brief:

Reference in the Study Brief Stipulating the Requirements	Key Description
Section 3.4.2.3(i)	The assessment area shall include all areas within a distance of 300m from the Project alignment and from any works sites, including works sites away from the Project alignment, proposed under the Project. The assessment area may be reduced accordingly if the first layer of noise sensitive receivers (NSRs), closer than 300m from the outer Project limit, provides acoustic shielding to those receivers located further away. In this case, the assessment area shall be agreed with the Director. Subject to the agreement of the Director, the assessment area shall be expanded to include NSRs at greater distance which would be affected by the construction and operation of the Project.
Section 3.4.2.3(iii)(b)	The Applicant shall select assessment points to represent all identified NSRs for carrying out quantitative noise assessment as described below. The assessment points shall be agreed with the Director prior to the quantitative noise assessment and may be varied subject to the best and latest information available during the course of the EIA study. A

	map shall be given showing the location and description such as name of building, use, and floors of each and every selected assessment points. For planned noise sensitive land uses without committed site layouts, the Applicant should use the relevant planning parameters to work out representative site layouts for operational noise assessment purpose.
Section 3.4.2.3(v)(c)	If tunneling by a mechanized tunnel boring machine is used, the criteria and assessment methodology for construction ground-borne noise impacts shall be agreed with the Director (with reference to Section 4.4.2(c) of the TM). Site measurements at appropriate locations may be required in order to obtain the empirical input parameters required in the ground-borne noise model.
Section 3.4.2.3(v)(e)	For tunnelling, noise impact associated with the operation of powered mechanical equipment or equivalent shall be assessed. If the equipment, such as a tunnel boring machine and associated facilities, is used, the methodology/model for assessing ground-borne noise impact from these equipments/facilities shall be agreed with the Director prior to obtaining the empirical parameters required in the ground-borne noise model. Cumulative impacts with other projects shall be covered if appropriate.
Section 3.4.2.3(vi)(a)	The Applicant shall assess the noise impacts during the operational phase of the Project, including worst case scenario, normal, abnormal, transient and emergency operations, if applicable, with respect to the acceptable levels contained in Table 1A in Annex 5 in the TM. The assessment methodology including the railway/train design noise level shall be agreed with the Director prior to the commencement of the assessment.
Section 3.4.2.3(vi)(b)	For operation ground-borne noise impact, the criteria and assessment methodology shall be agreed with the Director with special reference to Section 4.4.2(c) of the TM. The assessment shall also cover the cumulative ground-borne noise impact due to the Project and the railways in the vicinity, including the existing East Rail, East Rail Extension – Hung Hom to Tsim Sha Tsui, Island Line and Tsuen Wan Line near Admiralty Station, and the committed, planned or known potential developments in the vicinity of the Project, such as the SCL (Tai Wai to Hung Hom Section), the SCL (Cross Harbour Section Phase I – Mong Kok East to Hung Hom), the South Island Line and the North Island Line. Site measurements at appropriate locations on a “like-to-like” basis (e.g. under similar situations) may be required in order to obtain the empirical input parameters required in the ground-borne noise model.

Nevertheless, your company and the consultant should note that according to Section 3.4 of the Technical Memorandum of the EIA Ordinance, the assessment shall be based on the best available information at the time of the assessment. The above agreements are only for the concerned requirements under the EIA Study Brief to facilitate the EIA study. It shall not prejudice the Director of Environmental Protection's future decisions on any application for approval of the EIA report under the EIA Ordinance. If there is any significant change in circumstances, project design/details or assessment methodology/ assumptions, etc.,

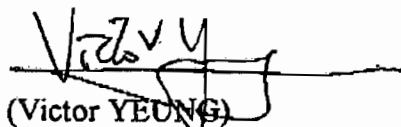
- 3 -

your company and the consultant should review the situations; carry out necessary updating/revisions; and seek our advice whether further agreements under the EIA Study Brief are necessary.

You are also reminded that the requirements on documentations of key assessment assumptions, limitations of assessment methodologies and related prior agreement(s) with the Director of Environmental Protection as stipulated under Section 3.4.11 of the EIA Study Brief shall be followed.

Having said the above, please note our attached non-assessment methodology related technical comments/advice for your attention and follow up.

Yours sincerely,



(Victor YEUNG)

Senior Environmental Protection Officer
for Director of Environmental Protection

c.c.:

AECOM

(Attn: Mr. Freeman CHEUNG)

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- 4 -

Annex**Environmental Impact Assessment (EIA) Ordinance (Cap. 499)****Project Title: Shatin to Central Link – Cross Harbour Section****(Phase II - Hung Hom to Admiralty)****EIA Study Brief No. ESB-193/2008****Noise Assessment Methodology Report (NAMR) (Version B)****Technical Comments/Advice**

Please note that:

- (i) The NAMR has included some information that is related to the actual “assessment” rather than “methodology”. We would provide our advisory comments on the “assessment” related information to you separately.
- (ii) There is a typo in 3rd bullet of Para. 1.6 of the NAMR, the Study Brief reference should be Section 3.4.2.3(v)(c) (instead of Section 3.4.2.3(iv)(c)).
- (iii) Section 3.4.2.3(v)(d) of the Study Brief stipulates that “*a mechanism should be recommended in the EIA Report such that the blasting schedule should be submitted to the concerned authority for approval prior to its implementation.*” The concerned authority mentioned is not the Director of Environmental Protection. Hence, this requirement is not relevant to the agreements given in this letter. Please contact the Mines Division of the Civil and Engineering Development Department or any relevant authority on this requirement.

- END -

Annex B

本署編號
 OUR REF: (4) in An(4) to EP2/G/A/124 II
 來函編號
 YOUR REF: C/HSD/SCL-NSL2/E1005/04/#0912430
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By Post & Fax : 27988822

6 January 2010

MTR Corporation Limited
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 GPO Box 9916, Hong Kong
 (Attn: Mr. Richard KWAN, Manager - Environmental)

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g/p #40007

Dear Mr. Kwan,

Environmental Impact Assessment (EIA) Ordinance (Cap. 499)
Project Title: Shatin to Central Link – Cross Harbour Section
(Phase II - Hung Hom to Admiralty)
EIA Study Brief No. ESB-193/2008
Water Quality Assessment Methodology Paper (Version D)

I refer to your letter under reference dated 10 December 2009 submitting the captioned revised Water Quality Assessment Methodology Paper (Revision D) (WQAMP) and a set of Responses-to-Comments, for our agreement under Section 3.4.1.5, Section 3.4.1.6(h) and Appendix A of the EIA Study Brief No. ESB-193/2008.

Please be informed that after taking into the advice from our water assessment team, the submitted WQAMP is considered as acceptable. As such, agreement is hereby given under the following requirements of the captioned EIA Study Brief in Table 1 subject to the conditions in Table 2:

Table 1: EIA Study Brief Requirements

Reference in the Study Brief Stipulating the Requirements	Key Description
Section 3.4.1.5	The Applicant shall predict, quantify and assess any water quality impacts arising from the Project on the water system(s) and the sensitive receivers by appropriate mathematical modelling and/or other techniques proposed by the Applicant and agreed with the Director. If mathematical modelling is necessary, such as to assess impact due to marine works, the mathematical modelling requirements are set out in Appendix A to this study brief. Possible impacts shall include but not limited to changes in hydrology, flow regime, sediment erosion and deposition pattern, water and sediment quality due to any dredging of marine sediment, backfilling activities, spent cooling water discharge and the proposed construction method(s), and the consequential effects on aquatic organisms due to such changes in affected water bodies including the Victoria Harbour WCZ, the Eastern Buffer WCZ and the Western Buffer WCZ.
Section 3.4.1.6(h)	Review of the designs and construction methods and operation of the dry dock casting yard and concrete batching plant if any. Details including but are not

	limited to location of dredging and backfilling and their working rates, volumes and characteristics of marine sediment and fill materials to be dredged and backfilled respectively, equipment to be used should also be provided. The Applicant shall devise assessment methodology for agreement with the Director. Water quality modelling assessment shall be required if major marine work is involved;
Appendix A	<p><u>Model details – Calibration & Validation</u></p> <p>1. The models shall be properly calibrated and validated against applicable existing and/or newly collected field data before their use in this study in the Hong Kong waters, the Pearl Estuary and the Dangan (Lema) Channel. The field data set for calibration and validation shall be agreed with EPD.</p> <p>5. The consultants shall be responsible for acquiring/developing and calibration of the models for use in this study themselves. They might make reference to the models developed under the Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool (Agreement No. CE 42/97). They might also propose to use other models subject to agreement with EPD.</p> <p><u>Model details – Simulation</u></p> <p>2. The sediment transport module for assessing impacts of sediment loss due to marine works shall include the processes of settling, deposition and re-erosion. The values of the modelling parameters shall be agreed with EPD. Contaminants release and DO depletion during dredging and dumping shall be simulated by the model.</p> <p>4. The models shall at least cover the Hong Kong waters, the Pearl Estuary and the Dangan Channel to incorporate all major influences on hydrodynamic and water quality. A fine grid model may be used for detailed assessment of this study. It shall either be linked to a far field model or form part of a larger model by gradual grid refinement. The coverage of the fine grid model shall be properly designed such that it is remote enough so that the boundary conditions would not be affected by the project. The model coverage area shall be agreed with EPD.</p> <p>5. In general, grid size at the area affected by the project shall be less than 400 m in open waters and less than 75 m around sensitive receivers. The grid shall also be able to reasonably represent coastal features existing and proposed in the project. The grid schematization shall be agreed with EPD.</p> <p><u>Modelling assessment</u></p> <p>5. Cumulative impacts due to other projects, activities or pollution sources within a boundary to the agreement of EPD shall also be predicted and quantified.</p>

Table 2: Conditions of Agreements under EIA Study Brief Requirements as mentioned in Table 1 above

No.	Conditions
1	It is noted from your Responses-to-Comments that dredging for North Point Reclamation under the Wan Chai Development Phase II and Central-Wan Chai Bypass (WDII & CWB) project will be added under Scenario 1 for cumulative

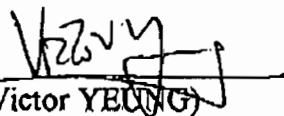
- 3 -

	assessment, while the IMT dredging work will be removed from Scenario 1 to provide a more realistic assessment. Hence, Table 6.1 under Section 6.22 of the WQAMP should be updated regarding this.
2	<u>Typo:</u> The 4 th row of last column of Table 8.1 under Section 8.3 of the WQAMP should read "Grain size diameter of 10 μ m."

Nevertheless, your company and the consultant should note that according to Section 3.4 of the Technical Memorandum of the EIA Ordinance, the assessment shall be based on the best available information at the time of the assessment. The above agreement is only for the concerned requirements under the EIA Study Brief to facilitate the EIA study. It shall not prejudice the Director of Environmental Protection's future decisions on any application for approval of the EIA report under the EIA Ordinance. If there is any significant change in circumstances, project design/details or assessment methodology/ assumptions, etc., your company and the consultant should review the situations; carry out necessary updating/revisions; and seek our advice whether further agreements under the EIA Study Brief are necessary.

You are also reminded that the requirements on documentations of key assessment assumptions, limitations of assessment methodologies and related prior agreement(s) with the Director of Environmental Protection as stipulated under Section 3.4.11 of the EIA Study Brief shall be followed.

Yours sincerely,



(Victor YEUNG)

Senior Environmental Protection Officer
for Director of Environmental Protection

c.c.:

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c.c. internal: S(MA)5, S(MA)2, E(MA)31