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21 October 2022

By Registered Post & Fax

Water Supplies Department

**Environmental Impact Assessment (EIA) Ordinance, Cap.499
Application for EIA Study Brief**

**Project Title: Relocation of Yau Tong Group Fresh Water and Salt Water Service
Reservoirs to Caverns**
(Application No. ESB-358/2022)

I refer to your above application received on 15 September 2022 for an EIA Study Brief under Section 5(1)(a) of the EIA Ordinance.

In accordance with Section 5(7)(a) of the EIA Ordinance and after public inspection of the project profile, I issue the attached EIA Study Brief (No. ESB-358/2022) for your preparation of an EIA report.

Under Section 15 of the EIA Ordinance, the EIA Study Brief will be placed on the EIA Ordinance Register. It will also be placed on the EIA Ordinance website (<http://www.epd.gov.hk/eia/>).

You may submit an application for approval of the EIA report in accordance with Section 6(2) of the EIA Ordinance after its completion. Upon receipt of your application, this department will decide under Section 6(3) of the EIA Ordinance whether the EIA report meets the requirements of the EIA Study Brief and Technical Memorandum on EIA Process, and accordingly advise you under Section 6(4) of the EIA Ordinance whether a submission to the Advisory Council on the Environment (ACE) or its subcommittee is required. In this connection, you are required to provide sufficient copies of the Executive Summary of the EIA report to the Secretariat of the EIA Subcommittee of the Council for selection for submission when you submit the EIA report to this department for approval. Please liaise with Ms. Sally SHEK (Tel: 2594 6324) regarding the details in due course.

If the EIA report is selected by ACE for submission and presentation, you are expected to provide ACE with an account of the environmental issues arising from the project, major conclusions and recommendations of the EIA study. In particular, the main environmental concerns of the general public and interest groups who may be affected by the Project should be identified and addressed in the EIA study. As such, you are strongly advised to engage the public and interest groups during the course of the EIA study. Please find attached a copy of the "*Modus Operandi of the EIA Subcommittee of the Advisory Council on the Environment*" for your reference.

Please note that if you are aggrieved by any of the content of this EIA Study Brief, you may appeal under Section 17 of the EIA Ordinance within 30 days of receipt of this EIA Study Brief.

Should you have any queries on the above application, please contact my colleague Mr. Matthew TANG at 2835 1151.

Yours sincerely,



(Sunny C.W. CHEUNG)

Principal Environmental Protection Officer
for Director of Environmental Protection

Encl.

c.c. (w/o encl.)

ACE EIA Subcommittee Secretariat (Attn. : Ms. Sally SHEK)

**MODUS OPERANDI OF THE
ENVIRONMENTAL IMPACT ASSESSMENT SUBCOMMITTEE OF
THE ADVISORY COUNCIL ON THE ENVIRONMENT**

Purpose

This paper sets out the *modus operandi* of the Environmental Impact Assessment (EIA) Subcommittee of the Advisory Council on the Environment (ACE) so as to facilitate smooth proceedings of subcommittee meetings. The current *modus operandi* was last updated and endorsed by ACE in July 2009.

Background

2. ACE is the Government's principal advisory body on matters relating to environmental protection and nature conservation. The terms of reference of ACE are –

- (a) to keep under review the state of the environment in Hong Kong; and
- (b) to advise the Government, through the Secretary for the Environment, on appropriate measures which might be taken to combat pollution of all kinds, and to protect and sustain the environment.

3. The EIA Subcommittee is set up under ACE to study EIA reports of major development projects. It also comments on strategic environmental assessment reports of major planning projects. The terms of reference of the EIA Subcommittee are –

- (a) to receive and study EIA reports of major development projects; and
- (b) to report on its deliberations and findings and make recommendations to ACE.

EIA Process

4. ACE and the EIA Subcommittee are involved in three main stages of the EIA process, namely commenting on the project profiles for designated projects, selection of EIA reports for submission to ACE and commenting on selected EIA reports. In accordance with ETWB Technical Circular (Works) No. 13/2003, the statutory gazetting of a project under the relevant ordinances can be done in parallel with the EIA process. Separately, consultation with District Councils and other relevant parties may proceed in advance of or in parallel with the submission of EIA reports to the EIA Subcommittee.

Project Profiles

5. Under section 5 of the EIA Ordinance, ACE and members of the public may comment on the project profile of a designated project within 14 days of it being advertised. It is hence not necessary for the EIA Subcommittee to present to the Director of Environmental Protection (DEP) the collective view of the EIA Subcommittee on project profiles. To ensure that comments on project profiles, if any, are given to DEP within the statutory time limit, individual ACE Members would write to DEP directly. Where necessary, the ACE Member may copy his/her comments to the Chairman and Members for information.

Selection of EIA Reports

6. Project proponents of designated projects will have to present their EIA reports to ACE if they are required to submit the reports to the Council. Members of the EIA Subcommittee will be asked to select those projects which they consider should require a presentation to the EIA Subcommittee by the project proponent. The selection outcome is for internal planning of the schedule of the EIA Subcommittee and will not be divulged to the project proponent. Only those projects selected by half or more of EIA Subcommittee Members will be selected. The project proponent concerned will be notified of the selection outcome only after DEP has decided that the EIA report is ready for public inspection and submission to ACE for advice.

7. During the project selection process, if individual EIA Subcommittee Member has special concerns/comments on a certain project, he/she could draw the EIA Subcommittee Chairman's attention to his/her concerns/comments and the Chairman would consider the need to review the decision on selection of the EIA report for submission to ACE.

8. For projects not selected, the project proponent will be required to send the Executive Summary of the EIA report to the EIA Subcommittee. Members would pass their comments, if any, to DEP directly within the prescribed public inspection period and if necessary, copy his/her comments to the Chairman and Members of the EIA Subcommittee for information. At the ACE meeting immediately following the issue of the Executive Summaries of the EIA reports, the EIA Subcommittee Chairman will report to ACE about the submission of these Executive Summaries for information of Members and record as projects not selected for discussion.

Meeting Arrangements

9. The EIA Subcommittee will basically meet on a monthly basis. Meetings will be held when there is submission of EIA report(s) or issue(s) to be discussed.

10. To facilitate focused discussion, the EIA Subcommittee will generally consider no more than two EIA reports in each meeting. EPD will prepare a paper on each EIA report to be submitted to the EIA Subcommittee highlighting the key environmental issues and major findings of the EIA study. Upon expiry of the report inspection period by the general public, EPD will summarize all public comments received during the period for consideration of the EIA Subcommittee. The project proponent, where applicable, will provide the EIA Subcommittee with a report on the site selection process of the project, setting out the alternative sites that have been considered and the reasons of the selection of the particular site when such information is not provided in the EIA report. The paper, the EIA report and the site report, if any, will normally be issued to EIA Subcommittee Members two weeks before the scheduled meeting. The summary of public comments will also be given to Members before the meeting. Members will be asked to indicate whether it is necessary for the project proponent to attend the meeting or the report could be considered by circulation. Project proponents will be informed accordingly before the scheduled meeting.

11. Summary of the public comments will also be provided to non-EIA Subcommittee Members for reference to facilitate their discussion of the EIA Subcommittee's recommendations at the next ACE meeting before the Council tenders its comments to DEP on the EIA report as provided for under the EIA Ordinance.

12. Members of the EIA Subcommittee may raise questions in writing on an EIA report before the scheduled meeting and the project proponent should provide written response to the Secretariat at least three working days before

the meeting.

13. Each discussion item on an EIA report would include a Presentation Session by the project proponent, a Question-and-Answer Session and Internal Discussion Sessions. The Presentation Session and the Question-and-Answer Session are open up for broadcasting and members of the public can view the sessions real time in the public viewing room. The EIA Subcommittee would allocate as much time to the Question-and-Answer Session as possible.

14. The presentation by the project proponent should cover, inter alia, the major conclusions and recommendations of the EIA study. In addition, the project proponent should provide a concise and objective account of the main concerns of the general public and interest groups made known during the EIA study and the public inspection stages, and explain how these concerns are addressed in the EIA study.

Criteria for Assessing EIA Reports

15. EIA reports will be assessed by the EIA Subcommittee according to the requirements of the Technical Memorandum on the EIA Process and the study brief of the individual projects issued by DEP.

Recommendations to the Full Council

16. The EIA Subcommittee can make one of the following recommendations to the full Council –

- (i) endorse the EIA report without condition; or
- (ii) endorse the EIA report with condition(s); or
- (iii) reject the EIA report and inform the proponent the right to go to the full Council.

17. If the EIA Subcommittee cannot reach a consensus (i.e. if two or more Members do not agree with the conclusion of the EIA Subcommittee) during the meeting, it may –

- (i) ask for a second submission to the EIA Subcommittee; or
- (ii) defer the decision to the full Council and highlight issues or reasons for not reaching a consensus for the full Council's deliberation.

18. Other than the scenario in paragraph 17 above or the EIA

Subcommittee Chairman considers it appropriate, the recommendations of the EIA Subcommittee will not be discussed in detail in the full Council.

Other Rules that apply to EIA Subcommittee Meetings

19. Apart from the procedures mentioned above, the following rules also apply to EIA Subcommittee meetings –

- (i) the quorum for EIA Subcommittee meetings should be half of the number of EIA Subcommittee Members, including the Chairman;
- (ii) ACE Members who are not EIA Subcommittee Members may attend EIA Subcommittee meetings and participate in the discussion of the meetings but they shall not vote when votes are taken;
- (iii) Council Members and EIA Subcommittee Members should declare direct and indirect interest before deliberating on agenda items so that the EIA Subcommittee Chairman could decide whether they should take part in the discussion or in the case of EIA Subcommittee Members to vote;
- (iv) the confirmed minutes of the EIA Subcommittee (with Members' names deleted) are uploaded on the ACE's website for public inspection;
- (v) the Presentation Session and Question-and-Answer Session of a discussion item on an EIA report at the EIA Subcommittee meeting requiring the attendance of the project proponent team will be opened to the public. The opening up of these sessions is an administrative arrangement only. The open meeting arrangements are not applicable to internal discussion sessions of a discussion item on an EIA report and all other sessions of the meetings of the EIA Subcommittee;
- (vi) special meetings may be called to consider urgent items. The EIA Subcommittee will consider each case individually should there be requests for direct submissions to the full Council;
- (vii) there will not be a limit on the number of professionals/experts to be invited to each EIA Subcommittee meeting for items requiring their assistance. In these cases and where votes are

taken, these professionals/experts shall not vote; and

- (viii) to facilitate effective deliberation at meetings of the EIA Subcommittee, the EIA Subcommittee may appoint Members to advise the EIA Subcommittee on specific subject areas of EIA reports. The appointed Members would consider the assigned subjects of an EIA report, and seek advice from the relevant authorities designated under the EIAO as necessary before EIA Subcommittee meetings.

20. The revised *modus operandi* of the EIA Subcommittee has taken effect in April 2013 upon endorsement of ACE.

EIA Subcommittee Secretariat
April 2013

Environmental Impact Assessment Ordinance (Cap. 499), Section 5 (7)

Environmental Impact Assessment Study Brief No. ESB-358/2022

**Project Title: Relocation of Yau Tong Group Fresh Water and
Salt Water Service Reservoirs to Caverns
(hereinafter known as the “Project”)**

**Name of Applicant: Water Supplies Department
(hereinafter known as the “Applicant”)**

1. BACKGROUND

- 1.1 An application (No. ESB-358/2022) for an Environmental Impact Assessment (EIA) study brief under section 5(1)(a) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by the captioned Applicant on 15 September 2022 with a project profile (No. PP-650/2022) (the Project Profile).
- 1.2 The existing Yau Tong Group Fresh Water and Salt Water Service Reservoirs (YTFW&SWSRs), including Yau Tong Fresh Water Service Reservoir, Yau Tong No. 2 Fresh Water Service Reservoir and Yau Tong Salt Water Service Reservoir, are proposed to be relocated into caverns at hillsides south of O King Road in Yau Tong. Based on the preliminary design, the relocated YTFW&SWSRs will be constructed in a series of caverns linked by access tunnels and adits. The proposed storage capacities of the relocated YTFW&SWSRs in caverns are approximately 73,000 m³ and 3,000 m³ respectively. The scope of the Project will also include a vehicular access tunnel, an emergency man access tunnel and some ancillary facilities such as transformer room, switch room, emergency generator room, administration building, control room and ventilation building. The design of the Project will be further reviewed during option evaluation in the investigation and design phases and hence is subject to revision. After commissioning of the relocated YTFW&SWSRs, the operation of the existing YTFW&SWSRs will be terminated under the Project. The subsequent demolition works of the terminated YTFW&SWSRs will be carried out by other government departments/project proponents. The preliminary location of the Project is shown in **Appendix A**.
- 1.3 The Project is a designated project by virtue of Item Q.2, Part I, Schedule 2 of the EIAO, which specifies “*underground rock caverns*”.
- 1.4 Pursuant to section 5(7)(a) of the EIAO, the Director of Environmental Protection (the Director) issues this EIA study brief to the Applicant to carry out an EIA study.
- 1.5 The purpose of the EIA study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and associated works that will take place concurrently. This information will contribute to decisions by the Director on:
- (i) the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project;
 - (ii) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
 - (iii) the acceptability of residual impacts after the proposed mitigation measures are implemented.

2. OBJECTIVES OF THE EIA STUDY

2.1 The objectives of the EIA study are as follows:

- (i) to describe the Project and associated works together with the requirements and environmental benefits for carrying out the Project;
- (ii) to identify and describe the elements of the community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including both the natural and man-made environment and the associated environmental constraints;
- (iii) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;
- (iv) to identify and quantify any potential losses or damage to flora, fauna and natural habitats;
- (v) to identify any negative impacts on sites of cultural heritage and to propose measures to mitigate these impacts;
- (vi) to identify and quantify waste management requirements and to propose measures to mitigate these impacts;
- (vii) to identify any potential landscape and visual impacts and to propose measures to mitigate these impacts;
- (viii) to identify any potential hazard to life impacts and to propose mitigation measures to mitigate these impacts;
- (ix) to propose the provision of infrastructure or mitigation measures so as to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;
- (x) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;
- (xi) to identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;
- (xii) to identify, assesses and specify methods, measures and standards, to be included in the detailed design, construction and operation phases of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
- (xiii) to design and specify the environmental monitoring and audit requirements;
- (xiv) to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as the provision of any necessary modification; and
- (xv) to identify any additional studies necessary to implement the mitigation measures of monitoring and proposals recommended in the EIA report.

3. DETAILED REQUIREMENTS OF THE EIA STUDY

3.1 The Purpose

3.1.1 The purpose of this EIA study brief is to set out the purposes and objectives of the EIA study, the scope of environmental issues which shall be addressed, the requirements that the EIA study shall need to fulfil, and the necessary procedural and reporting requirements. The Applicant shall demonstrate in the EIA report whether the criteria in the relevant sections of the Technical Memorandum on the Environmental Impact Assessment Process of the Environmental Impact Assessment Ordinance (hereinafter referred to as “the TM”), are fully complied with.

3.2 The Scope

3.2.1 The scope of the EIA study shall cover the Project and associated works mentioned in section 1.2 of this EIA study brief. The EIA study shall address key issues described below, together with any other key issues identified during the course of the EIA study:

- (i) potential air quality impacts on air sensitive receivers (ASRs) due to the construction and operation of the Project;
- (ii) potential noise impacts on noise sensitive receivers (NSRs) due to the construction and operation of the Project;
- (iii) potential water quality impacts on water sensitive receivers (WSRs) and relevant water system(s) in the vicinity due to construction and operation of the Project;
- (iv) potential waste management implications arising from the construction and operation of the Project;
- (v) potential land contamination implications arising from the construction and operation of the Project;
- (vii) potential terrestrial ecological impacts arising from the construction and operation of the Project;
- (vi) potential landscape and visual impacts due to the construction and operation of the Project;
- (vii) potential hazard to life impact during the construction and operation of the Project;
- (viii) potential cultural heritage impacts due to the construction and operation of the Project; and
- (xi) potential cumulative environmental impacts of the Project, through interaction or in combination with other existing, committed and planned projects that may have a bearing on the environmental acceptability of the Project.

3.3 Description of the Project

3.3.1 Purpose(s) and Objectives of the Project

The Applicant shall provide information on the purposes and objectives of the Project, and describe the environmental benefits of the Project and scenarios with and without the Project.

3.3.2 Details of the Project

The Applicant shall indicate the nature and status of Project decision(s) for which the EIA study is undertaken. The Applicant shall describe the proposed siting, scale/size, layout design, construction methods, sequence of construction works, access arrangements and other major

activities involved in the construction and operation of the Project, using diagrams, plans and/or maps as necessary. The estimated duration of the construction phase and operation phase of the Project together with the programme within these phases shall be given. The land taken by the Project sites, construction sites and any associated access arrangements, ancillary facilities and landscaping areas shall be shown on a scaled map. The land uses of the Project shall be described and the different land use areas shall be demarcated as appropriate.

3.3.3 Background and History of the Project

The Applicant shall provide information on the site location and site history of the Project, interactions with other projects, and the consideration of different development options, taking into account the principles of avoidance, minimising and control of adverse environmental impacts. The options might include siting, alignment of the proposed vehicular access and emergency exit, location of the proposed ventilation shaft(s), scale/size, layout design, construction methods and sequence of construction works for the Project. The key reasons for selecting the preferred development option(s) and the part environmental factors played in the selection shall be described. The main environmental impacts of the different development option(s) shall be compared with those of the Project and with the likely future environmental conditions in the absence of the Project.

3.4 **Technical Requirements**

3.4.1 The Applicant shall conduct the EIA study to address all environmental aspects of the activities as described in the scope as set out above. The assessment shall be based on the best and latest information available during the course of the EIA study.

3.4.2 The Applicant shall include in the EIA report details of the construction programme and methodologies for the Project. The Applicant shall clearly state in the EIA report the time frame, and work programmes of the Project, associated works and other concurrent projects, and assess the cumulative environmental impacts from the Project and the interacting projects as identified in the EIA study.

3.4.3 The EIA study shall follow the technical requirements specified below and in the Appendices of this EIA study brief.

3.4.3 **Air Quality Impact**

3.4.3.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing air quality impact as stated in Section 1 of Annex 4 and Annex 12 of the TM respectively.

3.4.3.2 The assessment area for air quality impact assessment shall be defined by a distance of 500 metres from the boundary of the Project site and any associated works of the Project as identified in the EIA, which shall be extended to include major existing, committed and planned air pollutant emission sources identified to have a bearing on the environmental acceptability of the Project. The assessment shall include the existing, committed and planned ASRs (such as Ko Chun Court, Ko Yee Estate, Ko Cheung Court, planned public housing developments at Pik Wan Road etc.) within the assessment area as well as areas where air quality may be potentially affected by the Project. The assessment shall be based on the best available information at the time of the assessment. The assessment shall also take into account the impacts of emission sources from nearby concurrent projects, if any.

3.4.3.3 The assessment of air quality impact arising from the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix B** of this EIA study brief.

3.4.4 **Noise Impact**

3.4.4.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing noise impact as stated in Annexes 5 and 13 of the TM respectively.

3.4.4.2 The assessment area for the noise impact assessment shall generally include areas within 300 metres from the boundary of the Project and any associated works of the Project as identified in the EIA study. The assessment area shall be expanded to include NSRs at distances over 300 metres from the Project, which may be affected by the construction and operation of the Project. Subject to the agreement of the Director, the assessment area could be reduced accordingly if the first layer of NSRs, closer than 300 metres from the outer Project limit, provides acoustic shielding to those receivers at distances further away from the Project. The assessment shall cover the potential noise impacts due to the construction and operation of the Project, including the noise generated from construction equipment during construction and fixed plant noise arising from ventilation system and some ancillary facilities of the Project on the existing, committed and planned noise sensitive receivers (NSRs) earmarked on the relevant Outline Zoning Plans, Development Permissible Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans, including plans and drawings published by Lands Department and any land use and development applications approved by the Town Planning Board, in the vicinity of the Project (such as Ko Chun Court, Ko Yee Estate, Ko Cheung Court, planned public housing developments Pik Wan Road, etc.).

3.4.4.3 The noise impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix C** of this EIA study brief.

3.4.5 Water Quality Impact

3.4.5.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing water pollution as stated in Annexes 6 and 14 of the TM respectively.

3.4.5.2 The assessment area for water quality impact assessment shall include areas within 500 metres from the boundary of the Project and shall cover Victoria Harbour (Phase One) Water Control Zone, Junk Bay Water Control Zone and other affected Water Control Zones as designated under the Water Pollution Control Ordinance (Cap. 358) and WSRs and water systems including stream courses, existing and new drainage systems and other water system(s) in the vicinity of the Project. The assessment area shall be extended to include other areas if they are found also being affected by the Project during the course of the EIA study and have a bearing on the environmental acceptability of the Project.

3.4.5.3 The water quality impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix D** of this EIA study brief.

3.4.6 Waste Management Implications

3.4.6.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing waste management implications as stated in Annexes 7 and 15 of the TM respectively.

3.4.6.2 The assessment of waste management implications arising from construction and operation of the Project shall follow the detailed technical requirements given in **Appendix E** of this EIA study brief.

3.4.7 Land Contamination

3.4.7.1 The Applicant shall follow the guidelines for evaluating and assessing potential land contamination issues as stated in Sections 3.1 and 3.2 of Annex 19 of the TM.

3.4.7.2 The assessment of the potential land contamination issues shall follow the detailed technical requirements given in **Appendix F** of this EIA study brief.

3.4.8 Ecological Impact (Terrestrial)

3.4.8.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing ecological impact as stated in Annexes 8 and 16 of the TM respectively.

3.4.8.2 The assessment area for the purpose of terrestrial ecological impact assessment shall include areas within 500 metres distance from the boundary of the Project and any associated works as well as any other area likely to be impacted by the Project.

3.4.8.3 The ecological impact assessment for construction and operation of the Project shall follow the detailed technical requirements given in **Appendix G** of this EIA study brief.

3.4.9 Landscape and Visual Impact

3.4.9.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing landscape and visual impact as stated in Annexes 10 and 18 of the TM respectively, and the EIAO Guidance Notes No. 8/2010 “Preparation of Landscape and Visual Impact Assessment under the EIAO”.

3.4.9.2 The assessment area for the landscape impact assessment shall include areas within 500 metres distance from the boundary of the Project and any associated works of the Project as identified in the EIA study, while the assessment area for visual impact assessment shall be defined by the visual envelop of the Project. The extent of the defined visual envelope shall be shown on a plan and documented in the EIA report.

3.4.9.3 The landscape and visual impact assessment for construction and operation of the Project shall follow the detailed technical requirements given in **Appendix H** of this EIA study brief.

3.4.10 Hazard to Life

3.4.10.1 The Applicant shall follow the criteria for evaluating hazard to life as stated in Section 2 of Annex 4 of the TM.

3.4.10.2 The Applicant shall conduct a review of the risks from the use, transport and overnight storage of explosives (if any) during construction and operation of the Project, and assess if risk to life is a key issue with respect to Risk Guidelines given in Annex 4 of the TM. Hazard assessment including a Quantitative Risk Assessment (QRA) for the use, transport and overnight storage of explosives for the Project shall be conducted if, and only if, risk to life is a key issue with respect to Risk Guidelines following the requirements in Section 12.1 of TM. If a QRA for the use, transport and overnight storage of explosives for the Project is required, the detailed technical requirements shall follow **Appendix I** of this EIA Study Brief.

3.4.11 Impact on Cultural Heritage

3.4.11.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the cultural heritage impact as stated in Section 2 of Annex 10 and Section 2 of Annex 19 of the TM respectively.

3.4.11.2 The assessment area for the cultural heritage impact assessment (CHIA) shall be defined by a distance of 300 metres from the boundary of the Project site. The CHIA shall include a Built Heritage Impact Assessment (BHIA) and an Archaeological Impact Assessment (AIA) for construction and operation of the Project.

3.4.11.3 The CHIA for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix J** of this EIA study brief.

3.5 Environmental Monitoring and Audit (EM&A) Requirements

3.5.1 The Applicant shall identify and justify in the EIA study whether there is any need for EM&A activities during the construction and operation phases of the Project and, if affirmative, to define the scope of the EM&A requirements for the Project in the EIA study.

3.5.2 Subject to the confirmation of the EIA study findings, the Applicant shall comply with the requirements as stipulated in Annex 21 of the TM.

- 3.5.3 The Applicant shall prepare a project implementation schedule (in the form of a checklist as shown in **Appendix K**) containing all the EIA study recommendations and mitigation measures with reference to the implementation programme.

3.6 Presentation of Summary Information

3.6.1 Summary of Environmental Outcomes

The EIA report shall contain a summary of key environmental outcomes arising from the EIA study, including estimated population protected from various environmental impacts, environmentally sensitive areas protected, environmentally friendly options considered and incorporated in the preferred option, environmental designs recommended, key environmental problems avoided, compensation areas included and the environmental benefits of environmental protection measures recommended.

3.6.2 Summary of Environmental Impacts

To facilitate effective retrieval of pertinent key information, the EIA report shall contain a summary table of environmental impacts showing the assessment points, results of impact predictions, relevant standards or criteria, extents of exceedances predicted, impact avoidance measures considered, mitigation measures proposed and residual impacts (after mitigation). This summary shall cover each individual impact and shall also form an essential part of the executive summary of the EIA report.

3.6.3 Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and related Prior Agreement(s) with the Director

The EIA report shall contain a summary including the assessment methodologies and key assessment assumptions adopted in the EIA study, the limitations of these assessment(s) methodologies/assumptions, if any, plus relevant prior agreement(s) with the Director or other Authorities on individual environmental media assessment components. The proposed use of any alternative assessment tool(s) or assumption(s) have to be justified by the Applicant, with supporting documents based on cogent, scientific and objectively derived reason(s) before seeking the Director's agreement. The supporting documents shall be provided in the EIA report.

3.6.4 Summary of Alternative Options and Mitigation Measures

The EIA report shall contain a summary of alternative development options and measures considered during the course of EIA study, including location, design layout, scale/size, access arrangement, construction methods and sequences of works for the Project, with a view to avoiding, minimising and mitigating adverse environmental impacts. A comparison of the environmental benefits and dis-benefits of applying different mitigation measures shall be made. This summary shall cover the key impacts and shall also form an essential part of the executive summary of the EIA report.

3.6.5 Documentation of Public Concerns

The EIA report shall contain a summary of the main concerns of the general public, special interest groups and the relevant statutory or advisory bodies received and identified by the Applicant during the course of the EIA study, and describe how the relevant concerns have been taken into account.

4. DURATION OF VALIDITY

- 4.1 The Applicant shall notify the Director of the commencement of the EIA study. If the EIA study does not commence within 36 months after the date of issue of this EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief before commencement of the EIA study.

5. REPORTING REQUIREMENTS

- 5.1 In preparing the EIA report, the Applicant shall refer to Annex 11 of the TM for the contents of an EIA report. The Applicant shall also refer to Annex 20 of the TM, which stipulates the guidelines for the review of an EIA report. When submitting the EIA report to the Director, the Applicant shall provide a summary, pointing out where in the EIA report the respective requirements of this EIA study brief and the TM (in particular Annexes 11 and 20) have been addressed and fulfilled.
- 5.2 The Applicant shall supply the Director with hard and electronic copies of the EIA report and the executive summary in accordance with the requirements given in **Appendix L** of this EIA study brief. The Applicant shall, upon request, make additional copies of the above documents available to the public, subject to payment by the interested parties of full costs of printing.

6. OTHER PROCEDURAL REQUIREMENTS

- 6.1 If there is any change in the name of the Applicant for this EIA study brief during the course of EIA study, the Applicant must notify the Director immediately.
- 6.2 If there is any key change in the scope of the Project mentioned in Section 1.2 of this EIA study brief and in Project Profile (No. PP-650/2022), the Applicant must seek confirmation from the Director in writing on whether or not the scope of issues covered by this EIA study brief can still cover the key changes, and the additional issues, if any, that the EIA study must also address. If the changes to the Project fundamentally alter the key scope of this EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief.

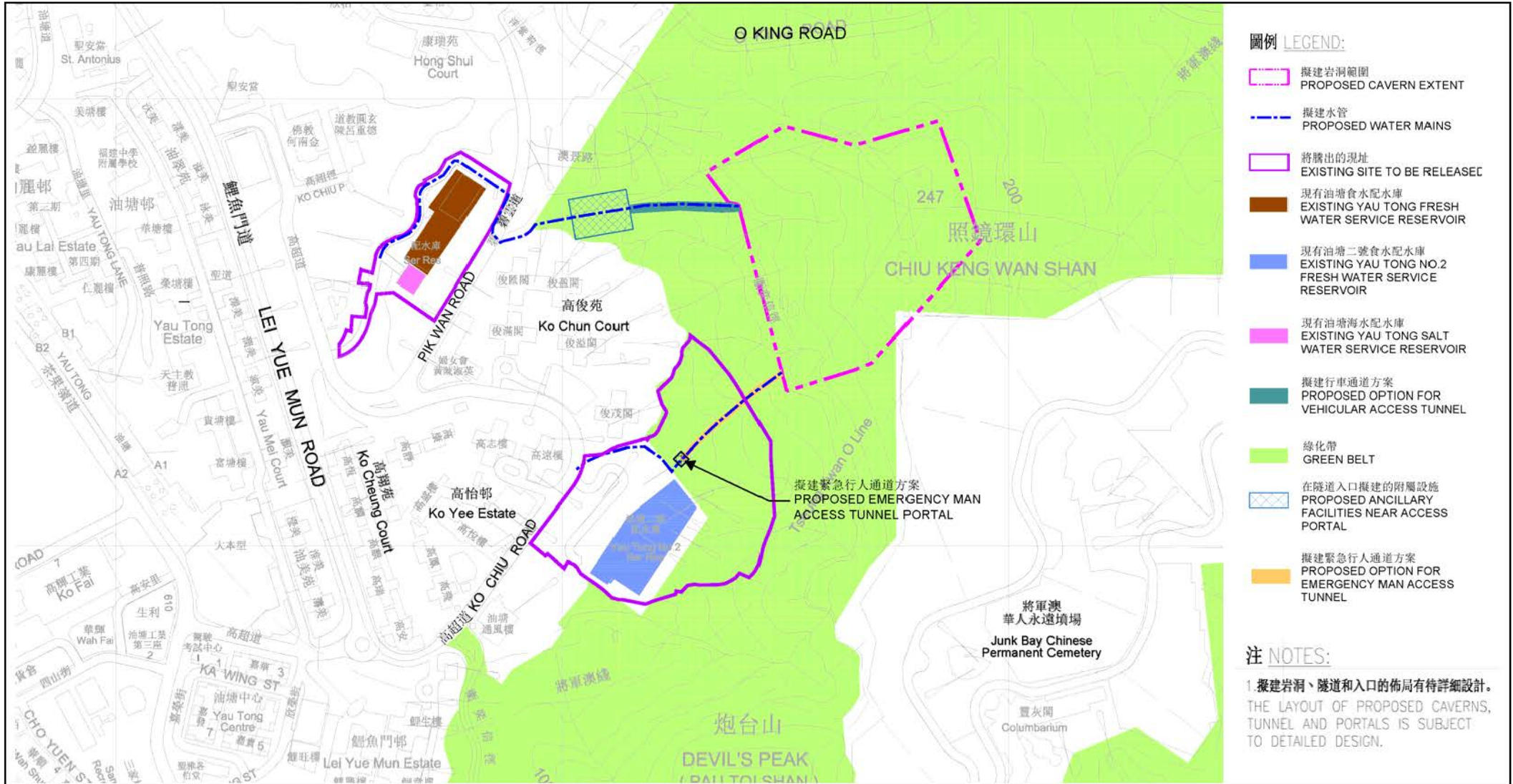
7. LIST OF APPENDICES

- 7.1 This EIA study brief includes the following appendices:

Appendix A – Location Plan of the Project
Appendix B – Requirements for Air Quality Impact Assessment
Appendix C – Requirements for Noise Impact Assessment
Appendix D – Requirements for Water Quality Impact Assessment
Appendix E – Requirements for Assessment of Waste Management Implications
Appendix F – Requirements for Land Contamination Assessment
Appendix G – Requirements for Ecological Impact Assessment
Appendix H – Requirements for Landscape and Visual Impact Assessment
Appendix I – Requirements for Hazard to Life Assessment
Appendix J – Requirements for Cultural Heritage Impact Assessment
Appendix K – Implementation Schedule of Recommended Mitigation Measures
Appendix L – Requirements for EIA Report Documents

-- END of EIA STUDY BRIEF --

October 2022
Environmental Assessment Division
Environmental Protection Department



Project Title - Relocation of Yau Tong Group Fresh Water and Salt Water Service Reservoirs to Caverns

工程項目名稱 - 搬遷油塘食水及海水配水庫群往岩洞

(This figure is prepared based on Figure 1 of Project Profile No.: PP-650/2022)

(本圖是根據工程項目簡介編號 PP-650/2022 圖1編製)

EIA Study Brief No.:

環評研究概要編號:

ESB-358/2022

Appendix A - Location Plan of the Project

附錄A - 工程項目位置圖



Appendix B

Requirements for Air Quality Impact Assessment

The air quality impact assessment shall include the following:

1. Background and Analysis of Activities

- (i) Provision of background information relating to air quality issues relevant to the Project, e.g. description of the types of activities of the Project that may affect air quality during both construction and operation stages.
- (ii) Provision of an account, where appropriate, of the considerations/measures that have been taken into consideration in the planning of the Project to avoid and minimise the air pollution impact. The Applicant shall consider alternative construction methods, means of transportation for construction materials, phasing programmes and alternative modes of operation to minimise the air quality impact during construction and operation stages of the Project.
- (iii) Projection of future year background air quality can be extracted from “Pollutants in the Atmosphere and their Transport over Hong Kong” (PATH) model released by the Director. If a modification to the emission sources is to be adopted in the PATH model to update the projection of future year background air quality, details of the emission sources adopted in the modification should be clearly presented.

2. Identification of Air Sensitive Receivers (ASRs) and Examination of Emission / Dispersion Characteristics

- (i) Identification and description of existing, committed and planned ASRs that would likely be affected by the Project, including those earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans and other relevant published land use plans, including plans and drawings published by the Lands Department and any land use and development applications approved by the Town Planning Board. The Applicant shall select the assessment points of the identified ASRs that represent the worst impact point of these ASRs. A map clearly showing the location and description such as name of buildings, their uses and height of the selected assessment points shall be given. The separation distances of these ASRs from the nearest emission sources shall also be given.
- (ii) Provision of a list of air pollution emission sources, including any nearby emission sources which are likely to have impact related to the Project based on the analysis of the construction and operation activities in section 1 above. Examples of construction stage emission sources include tunnel construction, cavern formation and excavation, etc. Confirmation regarding the validity of assumptions adopted and the magnitude of the activities (e.g. volume of construction material to be handled, etc.) shall be obtained from the relevant government departments / authorities, where applicable, and documented in the EIA report. Validity of the traffic flow and traffic speed prediction shall be confirmed with Transport Department and documented in the EIA report.
- (iii) Identification of chimneys and obtainment of relevant chimney emission data in the assessment area, where appropriate, by carrying out a survey for assessing the cumulative air quality impact of air pollutants through chimneys. The Applicant shall ensure and confirm the validity of the emission data used in their assessment. Any errors found in their chimney emission data used may render the submission invalid.
- (iv) The emissions from any concurrent projects identified as relevant during the course of the EIA study shall be taken into account as contributing towards the overall cumulative air quality impact. The impact as affecting the existing, committed and planned ASRs within the

assessment area shall be assessed, based on the best information available at the time of assessment.

3. Construction Phase Air Quality Impact

- (i) The Applicant shall follow the requirements stipulated under the Air Pollution Control (Construction Dust) Regulation to ensure that construction dust impacts are controlled within the relevant standards as stipulated in Section 1 of Annex 4 of the TM.
- (ii) If the Applicant anticipates that the Project will give rise to significant construction dust impacts likely to exceed recommended limits in the TM at the ASRs despite the incorporation of the dust control measures proposed, a quantitative assessment shall be carried out to evaluate the construction dust impact at the identified ASRs. The Applicant shall follow the methodology set out in section 5 below when carrying out the quantitative assessment.
- (iii) Where necessary, the Applicant shall consider and evaluate direct mitigation measures, including but not limited to water-spraying, re-scheduling construction programme to minimise concurrent dust impact arising from different construction sites, for fugitive dust control. The Applicant shall also consider connecting construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable to minimise air quality impact arising from the equipment. The Applicant shall describe the means of transportation and their routings involved, with a view to addressing potential dust nuisance caused by transportation activities. Any mitigation measures recommended for fugitive dust control should be well documented in the EIA report.
- (iv) A monitoring and audit programme for the construction phase of the Project shall be devised to verify the effectiveness of the proposed control measures so as to ensure proper control of fugitive dust emission.

4. Operational Phase Air Quality Impact

- (i) The Applicant shall assess the expected air pollutant impacts at the identified ASRs based on an assumed reasonably worst-case scenario under normal operating conditions. If the assessment indicates likely exceedances of the recommended limits in the TM at the development and the nearby ASRs, a quantitative assessment should be carried out to evaluate the operational phase air quality impacts at the identified ASRs. The Applicant shall follow the methodology set out in section 5 below when carrying out the quantitative assessment.
- (ii) If necessary, a monitoring and audit programme for the operational phase of the Project shall be devised to verify the effectiveness of these measures so as to ensure proper control of operational air quality impacts.

5. Quantitative Assessment Methodology

- (i) The Applicant shall conduct the quantitative assessment by applying the general principles enunciated in the modelling guidelines in **Appendix B-1** while making allowance for the specific characteristic of the Project. This specific methodology must be documented in such level of details, preferably associated with tables and diagrams, to allow the readers of the EIA report to grasp how the model has been set up to simulate the situation under study without referring to the model input files. In case of doubt, prior agreement between the Applicant and the Director on specific modelling details should be sought.
- (ii) For the purpose of assessing the compliance with the criteria as stated in section 1 of Annex 4 of the TM, the Applicant shall identify the key / representative air pollution parameters (types of pollutants and averaging time concentrations) to be evaluated and provide explanation for selecting such parameters for assessing the impact of the Project.

- (iii) Calculation of the relevant pollutant emission rates for input to the model and map(s) showing road links and emission sources shall be presented in the EIA report. A summary table of the emission rates shall be presented in the EIA report. The Applicant shall ensure consistency between the text description and the model files at every stage of submission for review.
- (iv) For construction phase air quality impact assessment, the Applicant shall demonstrate the use of the emission data of the future road traffic represents the highest emission scenario within the construction phase concerned. The Applicant may use EMFAC-HK model released by the Director to determine the Fleet Average Emission Factors, taking into account vehicle fleet mix and other necessary data on each road section. For operational phase air quality impact assessment, the air pollution impacts of future road traffic shall be calculated based on the highest emission strength from the road vehicles in the assessment area within the next 15 years upon commissioning of operation of the Project. Vehicle emissions, including running, start/idling emission, at parking sites that would contribute significantly to the overall cumulative air quality impact at nearby ASRs shall be taken into account in the assessment. Unless otherwise agreed by the Director, the latest version of the EMFAC-HK model shall be used. Use of any alternatives to the EMFAC-HK model shall be agreed with the Director. The traffic forecast data and assumptions, such as the hourly traffic volume, average speed, vehicle composition, number of trips and soaking time data, the exhaust technology fractions, vehicle age/population distribution, etc. that are used in the assessment shall be presented.
- (v) Emissions from road traffic, marine traffic, other industrial sources and nearby concurrent projects within the assessment area, which contribute to the cumulative air quality impact of the identified ASRs, should be taken into account and be included in the dispersion models accepted by the Director.
- (vi) For projection of future background air quality, the Applicant may use the PATH model released by the Director, taking into consideration the major air pollutant emission sources projected for Hong Kong and nearby regions. Unless otherwise agreed by the Director, the latest version of the PATH model shall be used. If any modification is made to the emission sources in PATH model or an alternative model is used, details of the emission sources adopted should be clearly presented. In general, major point sources (referred in Section 2.3 of EPD's "Guidelines on Assessing the 'TOTAL' Air Quality Impacts") located within 4 kilometres from the identified ASRs shall be reviewed if they have direct contributions of air quality impacts to the ASRs on the concerned pollutants of the assessment. In such case, these point sources shall be simulated by dispersion model to account for their induced sub-grid scale spatial variations in background air quality. The exact approach shall be determined according to the case specific situation and subject to the agreement by the Director.
- (vii) The Applicant shall calculate the cumulative air quality impact at the identified ASRs and compare these results against the criteria set out in Section 1 of Annex 4 in the TM. The predicted air quality impacts (both unmitigated and mitigated) shall be presented in the form of summary table(s) and pollution contours to cover the whole assessment area, to be evaluated against the relevant air quality standards and on any effect they may have on the land use implications. Plans of a suitable scale should be used to present pollution contours to allow buffer distance requirements to be determined properly.
- (viii) If vehicle tunnels and/or full enclosures are proposed in the Project, it is the responsibility of Applicant to ensure that the air quality inside these proposed structures shall comply with EPD's "Practice Note on Control of Air Pollution in Vehicle Tunnels". When assessing air quality impact due to emissions from tunnels/full enclosures, the Applicant shall ensure prior agreement with the relevant ventilation design engineer over the amount and the types/kinds of pollutants emitted from these full enclosures; and such assumptions shall be clearly and properly documented in the EIA report.

- (ix) If there are any direct technical noise remedies recommended in the study, the air quality implication due to these technical remedies shall be assessed. The Applicant shall highlight clearly the locations and types of agreed noise mitigating measures (where applicable), be they noise barriers, road enclosures and their portals, and affected ASRs, on contour maps for reference.

6. Mitigation Measures for Air Quality Impact

Consideration for Mitigation Measures

- (i) When the predicted air quality impact exceeds the criteria set in Section 1 of Annex 4 in the TM, the Applicant shall consider mitigation measures including but not limited to pollution control technology measures (e.g. installation of ventilation system, installation of air purification system at tunnel ventilation shaft, etc.) to reduce the air quality impact on the identified ASRs. The feasibility, practicality, programming and effectiveness of the recommended mitigation measures shall be assessed and documented in the EIA report. Specific reasons for not adopting certain workable mitigation measures to reduce the air quality to a level meeting the criteria of the TM or to maximise the protection of the ASRs as far as possible should be clearly substantiated and documented in the EIA report.

Evaluation of Residual Air Quality Impact

- (ii) Upon consideration of mitigation measures, if the mitigated air quality impact still exceeds the relevant criteria in Annex 4 of the TM, the Applicant shall identify, predict, and evaluate the residual air quality impact in accordance with Section 4.4.3 and Section 4.5.1(d) of the TM.

7. Submission of Emission Calculation Details and Model Files

Input and output file(s) of model run(s) including those files for generating the pollution contours and emission calculation worksheets shall be submitted to the Director in electronic format together with the submission of the EIA report.

Appendix B-1

Air Quality Modelling Guidelines

[The information contained in this Appendix is meant to assist the Applicant in performing the air quality assessment. The Applicant must exercise professional judgment in applying this general information.]

Air quality modelling guidelines shall refer to the guidelines as published on the website of the Environmental Protection Department:

http://www.epd.gov.hk/epd/english/environmentinhk/air/guide_ref/guide_aqa_model.html

Appendix C

Requirements for Noise Impact Assessment

The noise impact assessment shall include the following:

1. Description of the Noise Environment

- 1.1 The Applicant shall describe the prevailing noise environment in the EIA report.
- 1.2 The Applicant shall conduct prevailing background noise surveys to determine the standards for evaluating noise impact from fixed noise sources. The respective noise environment shall be documented in the EIA report.

2. Construction Noise Impact Assessment

2.1 Construction Noise Impact Assessment Methodology

- 2.1.1 The Applicant shall carry out construction noise impact assessment (excluding percussive piling) of the Project during daytime, i.e. 7am to 7pm, on weekdays other than general holidays in accordance with methodology in sections 5.3 and 5.4 of Annex 13 of the TM.
- 2.1.2 The Applicant shall conduct a qualitative assessment in the EIA to demonstrate no adverse construction noise impact would be associated with the project by adopting quieter construction method and equipment during the construction stages. The Applicant shall firstly identify the major noise sources/activities, then propose the corresponding quiet construction methods and noise mitigation measures, and commit to submitting a Construction Noise Management Plan (CNMP) to the Director.

2.2 Identification of Construction Noise Impact

2.2.1 *Identification of Assessment Area and Noise Sensitive Receivers (NSRs)*

- (a) The Applicant shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for the demolition and construction noise impact assessment shall generally include areas within 300 metres from the boundary of the Project and the works of the Project.
- (b) The Applicant shall identify existing, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out construction noise impact assessment.
- (c) The assessment points shall be confirmed with the Director before commencing the assessment and may be varied subject to the best and latest information available during the course of the EIA study.
- (d) A map showing the location and description such as name of building, use, and floor of each and every selected assessment point shall be given. Photographs of existing NSRs shall be appended to the EIA report.

2.2.2 *Inventory of Noise Sources*

The Applicant shall identify an inventory of noise sources for representative construction equipment for the purpose of construction noise impact assessment. Validity of the inventory shall be confirmed with the relevant government departments, authorities or the Applicant's construction professionals and documented in the EIA report.

2.3 Mitigation of Construction Noise Impact

The Applicant shall consider and evaluate the application of direct mitigation measures including but not limited to, quieter construction method and equipment, barrier, enclosures, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be qualitatively assessed. Any direct mitigation measures recommended shall be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to maximise the protection for the NSRs as far as possible shall be clearly substantiated and documented in the EIA report.

2.4 Construction Noise Management Plan

The Applicant shall propose to submit a CNMP to the Director. The CNMP shall contain the quantitative construction noise impact assessment, the adopted quieter construction method and equipment, noise mitigation measures and the construction noise impact monitoring and audit programme, with reference to the updated and identified noise mitigation measures once available and in any case before the tender invitation if there is any change to the construction noise mitigation measures recommended in the EIA report and before the commencement of construction of the project. Any technical constraint that would hinder the use of the quieter construction method and equipment shall be evaluated and clearly recorded in the assessment.

The CNMP shall include an implementation schedule clearly listing out the mitigation measures, the implementation party, location and timing of implementation. Mitigation measures recommended and requirements specified in the CNMP shall be fully implemented.

3. Fixed Noise Sources Impact Assessment

3.1 Fixed Noise Source Impact Assessment Methodology

3.1.1 The Applicant shall carry out fixed noise sources impact assessment from the Project in accordance with the methodology in section 5.2 of Annex 13 of the TM.

3.1.2 The Applicant shall conduct a qualitative assessment to demonstrate no adverse fixed noise sources impact would be associated with the project by committing to adopt appropriate noise mitigation measures during the operation periods. The Applicant shall identify the major noise sources/activities, and commit to submitting a Fixed Noise Source Management Plan (FNMP) to the Director.

3.2 Identification of Fixed Noise Sources Impact

3.2.1 *Identification of Assessment Area and Noise Sensitive Receivers (NSRs)*

- (a) The Applicant shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for the fixed noise sources impact shall generally include areas within 300 metres from the boundary of the Project and the works of the Project.
- (b) The Applicant shall identify the existing, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out the fixed noise sources impact assessment.
- (c) The assessment points shall be confirmed with the Director prior to the commencement of the fixed noise sources impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.

- (d) A map showing the location and description such as name of building, use, and floor of each and every selected assessment point shall be given. Photographs of existing NSRs shall be appended to the EIA report.
- (e) For planned noise sensitive land uses without committed site layouts, the Applicant shall use the relevant land use and planning parameters and conditions to work out representative site layouts for fixed noise sources impact assessment purpose. However, such parameters and conditions together with the representative site layouts and any constraints identified shall be confirmed with the relevant responsible parties including Planning Department and Lands Department.

3.2.2 *Inventory of Noise Sources*

- (a) The Applicant shall identify an inventory of noise sources for fixed noise sources impact assessment. The inventory of noise sources shall include noise associated with any permanent or temporary industrial noise sources.
- (b) The Applicant shall provide document or certificate, where applicable, with a methodology accepted by recognised national/international organisation, for the sound power level of each type of fixed noise sources.
- (c) Validity of the inventory shall be confirmed with the relevant government departments/authorities where applicable and documented in the EIA report.

3.3 Mitigation of Fixed Noise Sources Impact

The Applicant shall consider and evaluate the application of direct mitigation measures, including but not limited to, quieter equipment, silencer, barrier, enclosures, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be qualitatively assessed. Any direct mitigation measures recommended shall be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to maximise the protection for the NSRs as far as possible shall be clearly substantiated and documented in the EIA report.

3.4 Fixed Noise Source Management Plan

The Applicant shall propose to submit a FNMP to the Director. The FNMP shall contain the quantitative fixed noise source impact assessment, noise mitigation measures and the fixed noise source impact monitoring and audit programme, with reference to the updated and identified inventories once available and in any case before the commencement of construction of the project.

The FNMP shall include an implementation schedule clearly listing out the mitigation measures, the implementation party, location and timing of implementation. Mitigation measures recommended and requirements specified in the FNMP shall be fully implemented.

Appendix D

Requirements for Water Quality Impact Assessment

1. The Applicant shall identify and analyse physical, chemical and biological disruptions of the water system(s) arising from the construction and operation of the Project.
2. The Applicant shall predict and assess any water quality impacts arising from the construction and operation of the Project.
3. The assessment shall include, but not limited to the following:
 - (i) the water quality impacts of the site run-off generated during the construction stage such as the effluents generated from dewatering associated with piling activities, grouting and concrete washing and those specified in the Professional Persons Environmental Consultative Committee Practice Note 1/94 on “Construction Site Drainage”;
 - (ii) the water quality impacts of the road runoff containing oil/grease and suspended solids during the operational stage; and
 - (iii) the water quality impacts on typhoon shelter, seawater intake points, watercourses, drainages and other water sensitive receivers which may be affected by the Project.
4. The Applicant shall address water quality impacts due to the construction phase and operation phase of the Project. Essentially, the assessment shall address the following during construction and operation stages of the Project:
 - (i) collect and review background information on affected existing and planned water systems, their respective catchments and sensitive receivers which might be affected by the Project;
 - (ii) characterise water quality of the water systems and sensitive receivers, which might be affected by the Project based on existing best available information and through appropriate site survey and tests when existing data are insufficient;
 - (iii) identify and analyse relevant existing and planned future activities, beneficial uses and water sensitive receivers related to the affected water system(s). The Applicant shall refer to, *inter alia*, those developments and uses earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans, and any other relevant published land use plans;
 - (iv) identify pertinent water quality objectives and establish other appropriate water quality criteria or standards for the water system(s) and the sensitive receivers identified in (i), (ii) & (iii) above;
 - (v) review the specific construction methods and configurations, and operation of the Project to identify and predict the likely water quality impacts arising from the Project;
 - (vi) identify any alteration of any watercourses, natural streams, ponds, wetlands, change of water holding/flow regimes of water bodies, change of catchment types or areas, erosion or sedimentation due to the Project and any other hydrological changes in the assessment area;
 - (vii) identify and quantify existing and likely future water pollution sources, including point discharges and non-point sources to surface water runoff, sewage from workforce and wastewater generated from the construction and operation of the Project;

- (viii) provide an emission inventory on the quantities and characteristics of those existing and future pollution sources in the assessment area. Field investigation and laboratory test, shall be conducted as appropriate to fill relevant information gaps;
- (ix) predict and quantify the impacts on the water system(s) and its/their sensitive receivers due to those alterations and changes identified in (vi) above, and the pollution sources identified in (vii) above. The prediction shall take into account and include possible different construction and operation stages of the Project;
- (x) assess the cumulative impacts due to other related concurrent and planned projects, activities or pollution sources within the assessment area that may have a bearing on the environmental acceptability of the Project;
- (xi) analyse the provision and adequacy of existing and planned future facilities to reduce pollution arising from the point and non-point sources identified in (vii) above;
- (xii) develop effective infrastructure upgrading or provision, contingency plan, water pollution prevention and mitigation measures to be implemented during construction and operation stages so as to reduce the water quality impacts to within standards. Requirements to be incorporated in the Project contract document shall also be proposed;
- (xiii) investigate and develop best management practices to reduce storm water and non-point source pollution as appropriate; and
- (xiv) evaluate and quantify residual impacts on water system(s) and the sensitive receivers with regard to the appropriate water quality objectives, criteria, standards or guidelines. If the mitigated water quality impact still exceeds the relevant criteria in Annex 6 of the TM, the Applicant shall identify, predict and evaluate the residual water quality impact in accordance with Section 4.4.3 of the TM and estimate the significance of the residual impact to the water system(s) and the water sensitive receivers.

Appendix E

Requirements for Assessment of Waste Management Implications

The assessment of waste management implications shall cover the following:

1. **Analysis of Activities and Waste Generation**

- (i) The Applicant shall identify the quantity, quality and timing of the waste arising as a result of the construction and operation activities of the Project, based on the sequence and duration of these activities, e.g. construction and demolition (C&D) materials and other wastes which would be generated during construction and operational stages.
- (ii) The Applicant shall adopt appropriate design, general layout, construction methods and programme to minimise the generation of public fill/inert C&D materials and maximise the use of public fill/inert C&D materials for other construction works.

2. **Proposal for Waste Management**

- (i) Prior to considering the disposal options for various types of wastes, opportunities for reducing waste generation, on-site or off-site re-use and recycling shall be fully evaluated. Measures that can be taken in the planning and design stages e.g. by modifying the design approach and in the construction stage for maximizing waste reduction shall be separately considered;
- (ii) After considering the opportunities for reducing waste generation and maximizing re-use, the types and quantities of the wastes required to be disposed of as a consequence shall be estimated and the disposal methods/options for each type of waste shall be described in detail. The disposal methods/options recommended for each type of wastes shall take into account the result of the assessment in (iv) below;
- (iii) The EIA report shall also state clearly the transportation routings and the frequency of the trucks/vessels involved, any barging point or conveyor system to be used, the stockpiling areas and the disposal outlets for the waste identified; and
- (iv) The impact caused by handling (including stockpiling, labelling, packaging and storage), collection, transportation and re-use/disposal of wastes shall be addressed in detail and appropriate mitigation measures shall be proposed. This assessment shall cover the following areas :
 - potential hazard;
 - air and odour emissions;
 - noise;
 - wastewater discharge; and
 - public transport.
- (v) Practicable means of avoiding illegal dumping and landfilling shall be identified.

Appendix F

Requirements for Land Contamination Assessment

1. The Applicant shall identify the potential land contamination site(s) within the scope of the Project site and, if any, within the boundaries of associated areas (e.g. work areas) of the Project.
2. The Applicant shall provide a clear and detailed account of the present land use (including description of the activities, chemicals and hazardous substances handled, with clear indication of their storage and location, by reference to a site layout plan) and a complete past land uses history, in chronological order, in relation to possible land contamination (including accident records and change of land use(s) and the like).
3. If any contaminated land uses as stated in Sections 3.1 and 3.2 of Annex 19 in the TM are identified with the scope of the Project, the Applicant shall carry out the land contamination assessment as detailed from sub-sections (i) to (iii) below and propose measure(s) to avoid disposal:
 - (i) During the course of the EIA study, the Applicant shall submit a Contamination Assessment Plan (CAP) to the Director for endorsement prior to conducting an actual contamination impact assessment of the land or site(s). The CAP shall include proposal with details on representative sampling and analysis required to determine the nature and the extent of the contamination of the land or site(s). Alternatively, the Applicant may refer to other previously agreed and still relevant and valid CAP(s) for the concerned site(s).
 - (ii) Based on the endorsed CAP, the Applicant shall conduct a land contamination impact assessment and submit a Contamination Assessment Report (CAR) to the Director for endorsement. If land contamination is confirmed, a Remediation Action Plan (RAP) to formulate viable remedial measures with supporting documents, such as agreement by the relevant facilities management authorities, shall be submitted to the Director for approval. The Applicant shall then clean up the contaminated land or site(s) according to the approved RAP, and a Remediation Report (RR) to demonstrate adequate clean-up should be prepared and submitted to the Director for endorsement prior to the commencement of any development or redevelopment works within the Study Area. The CAP, CAR and RAP shall be documented in the EIA report.
 - (iii) If there are potential contaminated sites which are inaccessible for conducting sampling and analysis during the course of the EIA study, e.g. due to site access problem, the Applicant's CAP shall include:
 - (a) a review of the available and relevant information;
 - (b) an initial contamination evaluation of these sites and possible remediation methods;
 - (c) a confirmation of whether the contamination problem at these sites would be surmountable;
 - (d) a sampling and analysis proposal which shall aim at determining the nature and the extent of the contamination of these sites; and
 - (e) where appropriate, a schedule of submission of revised or supplementary CAP, CAR, RAP and RR as soon as these sites become accessible.

Appendix G

Requirements for Ecological Impact Assessment

The ecological impact assessment shall include the following:

1. The Applicant shall examine the flora, fauna and other components of the ecological habitats within the assessment area. The aim shall be to protect, maintain or rehabilitate the natural environment. In particular, the Project shall avoid and/or minimise impacts on recognised sites of conservation importance and other ecological sensitive areas. The assessment shall identify and quantify as far as possible the potential ecological impacts to the natural environment and the associated wildlife groups and habitats/species arising from the Project including its construction and operation phases.
2. The assessment shall include the following major tasks:
 - (i) review of the findings of relevant studies/surveys and collate the available information regarding the ecological characters of the assessment area;
 - (ii) evaluation of information collected and identification of any information gap relating to the assessment of potential ecological impacts;
 - (iii) carry out necessary ecological field surveys with a duration of at least 4 months covering wet season, and investigation to verify the information collected, fill the information gaps as identified in (ii) above, if any, and to fulfil the objectives of the EIA study. The field surveys shall cover flora, fauna and any other habitats/species of conservation importance;
 - (iv) establishment of the general ecological profile of the assessment area based on information collected in the tasks mentioned in (i) to (iii) above, and describe the characteristics of each habitat found, the data set should be comprehensive and representative, and is up to date and valid for the purpose of this assessment. Major information to be provided shall include:
 - (a) description of the physical environment, including all recognised sites of conservation importance and other ecological sensitive areas, and assessment of whether these sites/areas will be affected by the Project or not;
 - (b) habitat maps of suitable scale (1:1000 to 1:5000) showing the types and locations of habitats and species of conservation interest in the assessment area;
 - (c) ecological characteristics of each habitat type such as size, vegetation type, species present, dominant species found, species richness and abundance of major taxa groups, community structure, seasonal patterns, ecological value and inter-dependence of the habitats and species, and presence of any features of ecological importance;
 - (d) representative colour photos of each habitat type and any important ecological features identified; and
 - (e) species found that are rare, endangered and/or listed under local legislation, international conventions for conservation of wildlife/ habitats or Red Data Books.
 - (v) investigation and description of the existing wildlife uses of the various habitats with special attention to those wildlife groups and habitats with conservation interests, including but not limited to the following:
 - (a) woodlands;

- (b) natural streams and associated riparian habitats;
 - (c) vertebrates (e.g. avifauna, mammals, fish, herpetofauna);
 - (d) macroinvertebrates (e.g. butterflies and dragonflies); and
 - (e) any other habitats / species identified as having special conservation interest by the EIA study.
- (vi) describe recognised site of conservation importance in the assessment area and assess whether these sites will be affected by the Project or not;
- (vii) using suitable methodology and considering also any other works activities from other projects reasonably likely to occur at the same time, identify and quantify as far as possible any direct, indirect, on-site, off-site, primary, secondary and cumulative ecological impacts, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, in particular the followings:
- (a) loss of habitats as mentioned in (v) above;
 - (b) disturbance to animals and plants, especially those as mentioned in (v) above;
 - (c) indirect impacts to recognised site of conservation importance mentioned in (vi) above; and
 - (d) impacts due to potential changes in the water quality, hydrodynamics properties and hydrology on streams and alterations to riparian habitats during the construction and operation stages of the Project.
- (viii) evaluate ecological impact based on the best and latest information available during the course of the EIA study, using quantitative approach as far as practicable and covering construction and operational phases of the Project as well as the subsequent management and maintenance requirement of the Project;
- (ix) recommend possible alternatives, such as modification of layout, design and/or construction methods, and practicable mitigation measures to avoid, minimise and/or compensate for the adverse ecological impacts identified during construction and operation of the Project;
- (x) evaluate feasibility and effectiveness of the recommended mitigation measures and define the scope, type, location, implementation arrangement, resources requirement, subsequent management and maintenance of such measures;
- (xi) determine and quantify as far as possible the residual ecological impacts after implementation of the proposed mitigation measures;
- (xii) evaluate the significance and acceptability of the residual ecological impacts using well-defined criteria in Annex 8 of the TM and determine if off-site mitigation measures are necessary to mitigate the residual impacts and if affirmative, guidelines and requirements laid down in Annex 16 of the TM should be followed; and
- (xiii) review the need for and recommend any ecological monitoring programme required.

Appendix H

Requirements for Landscape and Visual Impact Assessment

1. The Applicant shall review relevant outline zoning plan(s), outline development plan(s), layout plan(s), other published land use plan(s), planning brief(s) and/or studies which may identify areas of high landscape value e.g. country park, conservation area, woodland areas. Any guidelines on landscape and urban design strategies and frameworks that may affect the appreciation of the Project shall also be reviewed. The aim is to gain an insight to the future outlook of the area affected so as to assess whether the Project can fit into the surrounding setting based on a comparison of the scenarios with and without the Project. Any conflict with the statutory town plan(s) and any published land use plan(s) shall be highlighted and appropriate follow-up action shall be recommended. A system shall be derived for judging the landscape and visual impact significance as required under Annexes 10 and 18 of the TM and the EIAO Guidance Note No. 8/2010 on "Preparation of Landscape and Visual Impact Assessment under the EIAO". Cumulative landscape and visual impacts of the Project with other existing, committed and planned developments in the assessment area shall be assessed.
2. The Applicant shall assess the landscape impact of the Project. The Applicant shall describe, appraise, analyse and evaluate the existing and planned landscape resources and characters of the assessment area. Annotated oblique aerial photographs and plans of suitable scale showing the baseline landscape resources and landscape character areas and mapping of impact assessment shall be extensively used to present the findings of impact assessment. Descriptive text shall provide a concise and reasoned judgment from a landscape point of view. The assessment shall be particularly focused on the sensitivity of the landscape framework and its ability to accommodate change. The Applicant shall identify the degree of compatibility of the Project with the existing and planned landscape setting and scenic spot. The landscape impact assessment shall quantify and qualify potential landscape impact as far as possible, so as to illustrate the significance of such impact arising from the Project. Clear mapping of the landscape impact is required. Broad brush tree and vegetation survey shall be carried out and the impacts on existing trees and vegetation shall be addressed.
3. The Applicant shall assess the visual impact of the Project. Clear illustrations including mapping of visual impact is required. Descriptive text shall provide a concise and reasoned judgment from a visual point of view. Cumulative visual impact of the Project with other existing, committed and planned developments in the assessment area shall be assessed. The assessment shall include the following:
 - (i) identification and plotting of visual envelope of the Project;
 - (ii) appraisal of existing visual resources and characters as well as future outlook of the visual system of the assessment area;
 - (iii) identification and justification of the key groups of existing and planned sensitive receivers within the visual envelope and their views at both ground level and elevated vantage points;
 - (iv) description of the visual compatibility of the Project with the existing and planned visual context, and its obstruction and interference with the key views within the visual envelope;
 - (v) identification and description of the severity of visual impact in terms of nature, distance and number of sensitive receivers. The visual impact of the Project with and without mitigation measures shall be included and illustrated so as to demonstrate the effectiveness of the proposed mitigation measures across time; and
 - (vi) evaluations and explanations with supportive arguments of factors considered in arriving the significance thresholds of visual impact. The visual impacts should include presentation of an

evaluation matrix derived for judging impact significance.

4. The Applicant shall evaluate the merits of preservation in totality, in parts or total destruction of existing landscape and the establishment of a new landscape character area. In addition, alternative development options, alignment, design and construction methods that would avoid or reduce the identified landscape and visual impacts shall be considered and evaluated for comparison before adopting other mitigation or compensatory measures to alleviate the impacts. The applicant shall recommend mitigation measures which shall not only focus on damage reduction but also potential enhancement of existing landscape and visual quality of the area. The recommendations shall also be illustrated in landscape design and landscape/visual impact mitigation measure plan.
5. The mitigation measures shall include preservation of vegetation and natural landscape resources, e.g. maintaining buffer along natural streams, transplanting of mature trees, provision of screen planting, re-vegetation of disturbed land, compensatory planting using native trees, provisioning/reprovisioning of amenity areas and open spaces, design and layout of structures, provision of finishes to structures, colour scheme and texture of materials used and any measures to mitigate the impact on existing and planned land uses and sensitive receivers. Parties shall be identified for the ongoing management and maintenance of the proposed mitigation works to ensure their effectiveness throughout the construction phase and operational phase of the Project. Agreement from relevant authorities responsible for funding, implementation, management and maintenance of the proposed mitigation measures have to be obtained before including into the landscape and visual impact assessment. A practical programme for the implementation of the recommended measures shall be provided.
6. Annotated illustrations such as coloured perspective drawings, plans and section/elevation diagrams, oblique aerial photographs, photographs taken at vantage points, and computer-generated photomontage shall be adopted to fully illustrate the landscape and visual impacts of the Project. The landscape and visual impacts of the Project with and without mitigation measures from representative viewpoints, particularly from views of the most severely affected visually sensitive receivers (i.e. worst-case scenario), shall be properly illustrated in existing and planned setting at four stages (existing condition, Day 1 with no mitigation measure, Day 1 with mitigation measures and Year 10 with mitigation measures) by computer-generated photomontage so as to demonstrate the comparison of scenarios with and without the Project and the effectiveness of the proposed mitigation measures across time. Computer graphics shall be compatible with Microstation DGN file format. The Applicant shall record the technical details in preparing the illustrations, which may need to be submitted for verification of the accuracy of the illustrations.

Appendix I

Requirements for Hazard to Life Assessment

1. The Applicant shall investigate alternative method to avoid/minimise the use of explosives. The Applicant shall carry out hazard assessment as follows:
 - (i) Identify hazardous scenarios associated with the use, transport and overnight storage of the explosives during construction and operation of the Project with a view to determining a set of relevant scenarios to be included in a Quantitative Risk Assessment (QRA);
 - (ii) Execute a QRA of the set of hazardous scenarios determined in 1(i), expressing population risks in both individual and societal terms;
 - (iii) Compare individual and societal risks with the criteria for evaluating hazard to life stipulated in Annex 4 of the TM; and
 - (iv) Identify and assess practicable and cost-effective risk mitigation measures to demonstrate the compliance with the Risk Guidelines.
2. The hazard assessment shall also include a cumulative risk assessment of the Project, through interaction or in combination with other existing, committed and planned developments involving hazardous facilities in the vicinity of the Project
3. The methodology to be used in the hazard assessment should be consistent with previous studies having similar issues.

Appendix J

Requirements for Cultural Heritage Impact Assessment

1. **Built Heritage Impact Assessment (BHIA)**

The Applicant shall conduct a built heritage impact assessment (BHIA), taking the results of the previous studies and other background of the site into account, to identify and study the cultural heritage resources and historic buildings / structures with potential heritage value within the assessment area that may be affected by the Project and its associated works and to assess the possible direct and indirect impacts on the identified heritage items. The impacts include visual impact, impacts on the fung shui/visual corridor of the historic buildings and structures through change of water-table, vibration caused by the Project. Assessment of impacts on cultural heritage shall also take full account of, and allow where appropriate, the Guidelines for Landscape and Visual Impact Assessment of Annex 18 of the TM. The Applicant shall demonstrate that all reasonable efforts have been made to avoid or keep the adverse impacts of built heritage items to the minimum through modification of design of the Project, or use of latest construction/engineering techniques. For those built heritage items that may still be directly and indirectly affected by the Project, the Applicant shall recommend appropriate protective/monitoring/mitigation measures in accordance with the assessment results and agreed by the Antiquities and Monuments Office (AMO). A checklist including all the affected sites of cultural heritage, impacts identified, recommended mitigation measures as well as the implementation agent and period shall also be included in the EIA report.

2. **Archaeological Impact Assessment (AIA)**

The Applicant shall engage qualified archaeologist(s) to conduct an archaeological impact assessment (AIA), taking the results of previous studies and other background of the site into account, to evaluate the archaeological impact imposed by the Project and its associated works. The scope of the AIA shall be submitted to AMO and the Director prior to the commencement of the assessment for consideration. In case the existing information is inadequate or where the assessment area has not been adequately studied before, the archaeologists shall conduct archaeological investigations to assemble data. The archaeologists shall obtain licences from the Antiquities Authority prior to the commencement of archaeological investigations. Based on existing and collected data, the Applicant shall evaluate whether the proposed developments and works associated with the Project are acceptable from archaeological preservation point of view. In case adverse impact on archaeological heritage cannot be avoided, appropriate mitigation ensures should be designed and recommended in the EIA report.

If archaeological investigation is required, it shall follow detailed technical requirement to be given by AMO and the Director on archaeological survey, archaeological report and handling of archaeological finds and archives. The Applicant shall draw necessary reference to relevant sections of the “Guidelines for Cultural Heritage Impact Assessment” issued by the AMO for detailed requirement.

Appendix K

Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Measures & Main Concerns to Address	Who to Implement the Measure?	Location of the Measure	When to Implement the Measure?	What Standards or Requirements for the Measure to Achieve?

Appendix L

Requirements for EIA Report Documents

1. The Applicant shall supply the Director with the following number of copies of the EIA report and the executive summary:
 - (i) 30 copies of the EIA report and 30 copies of the executive summary (each bilingual in both English and Chinese) as required under section 6(2) of the EIAO to be supplied at the time of application for approval of the EIA report.
 - (ii) When necessary, addendum to the EIA report and the executive summary submitted in item (i) above as required under section 7(1) of the EIAO, to be supplied upon advice by the Director for public inspection.
 - (iii) 20 copies of the EIA report and 20 copies of the executive summary (each bilingual in both English and Chinese) with or without Addendum as required under section 7(5) of the EIAO, to be supplied upon advice by the Director for consultation with the Advisory Council on the Environment.
2. In addition, to facilitate public inspection of EIA report via EIAO Internet Website, the Applicant shall provide electronic copies of both the EIA report and executive summary prepared in Hyper Text Markup Language (HTML) and in Portable Document Format (PDF), unless otherwise agreed by the Director. For both of the HTML and PDF versions, a content page capable of providing hyperlink to each section and sub-section of the EIA report and executive summary shall be included in the beginning of the document. Hyperlinks to figures, drawings and tables in the EIA report and executive summary shall be provided in the main text from where respective references are made. The EIA report, including drawings, tables, figures and appendices shall be viewable by common web browsers including the latest version of Microsoft Edge, Mozilla Firefox, Safari, Google Chrome or any web browsers as agreed by the Director, and support languages including Traditional Chinese, Simplified Chinese and English.
3. The electronic copies of the EIA report and the executive summary shall be submitted to the Director at the time of application for approval of the EIA report.
4. When the EIA report and the executive summary are made available for public inspection under section 7(1) of the EIAO, the content of the electronic copies of the EIA report and the executive summary must be the same as the hard copies and the Director shall be provided with the most updated electronic copies.
5. To promote environmentally friendly and efficient dissemination of information, both hardcopies and electronic copies of future EM&A reports recommended by the EIA study shall be required and their format shall be agreed by the Director.