

Table A.1: EIA Study Brief Compliance Checklist

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
1.	1.1	An application (No. ESB-250/2012) for an Environmental Impact Assessment (EIA) study brief under section 5(1)(a) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by the Applicant on 28 May 2012 with a project profile (No. PP-469/2012) (the Project Profile). On 8 June 2012, the Applicant was requested to give further information concerning the Project Profile under section 5(4) of the EIAO. On 29 June 2012, the Applicant submitted the further information and advertised the availability of the additional information.	The process of study brief application is described in Section 1.1.2 of the report.
2.	1.2	The Applicant proposes to develop a third runway and associated Airport infrastructure and facilities. The Project mainly comprises (i) land formation of about 650 ha to the north of the existing Airport island including a portion over the contaminated mud pits; (ii) construction of a third runway, related taxiway systems and navigation aids, and airfield facilities; (iii) construction of the third runway aprons and passenger concourses; (iv) expansion of part of the midfield freighter apron on the existing Airport island; (v) expansion of the existing passenger Terminal 2 on the existing Airport island; (vi) extension of the automated people mover from the existing Airport island to the passenger concourses of the third runway; (vii) extension of the baggage handling system from the existing Airport island to the aprons of the third runway; (viii) improvement of the road network in the passenger and cargo areas and new landside transportation facilities including new car parks on the existing Airport island; (ix) a greywater recycling system at the proposed Airport expansion area; (x) necessary modifications to existing marine facilities including the underwater aviation fuel pipelines and 11kV submarine cable between Hong Kong International Airport and the off-airport fuel receiving facilities, sea rescue facilities and aids to navigation; and (xi) any other modification, reconfiguration, and/or improvement of the existing facilities on the existing Airport island as a result of the third runway. The location of the Project is shown in Figure 1 of the this EIA study brief.	Project components are described in Section 4.
3.	1.3	All Designated Projects included in the Project shall be identified.	Included in Ch.1.
4.	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.	The process of study brief application is described in Section 1.1.2 of the report. The EIA has been carried out in accordance with the study brief and compliance is demonstrated below.
5.	1.5	The purpose of this EIA study is to provide information on the environmental impacts arising from the construction and operation of the Project and associated activities 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 and associated works, and their staged implementation; (ii) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences; and (iii) the acceptability of residual impacts, if any, after the proposed mitigation measures are implemented.	Noted.
6.	2.1	The objectives of the EIA 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 potentially 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 propose the provision of infrastructure or mitigation measures to minimize pollution, environmental disturbance and nuisance during construction and operation of the Project; (vii) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures; (viii) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts 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; (ix) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels; (x) to design and specify the environmental monitoring and audit requirements; and (xi) to identify any additional studies necessary to implement the mitigation measures or monitoring and proposals recommended in the EIA report.	Noted.

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7.	3.1	The EIA report shall demonstrate 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 complied with.	<p>This EIA report has covered the items required under Section 4.1 to 4.3 and Annex 11 of the EIAO-TM. This Appendix 1.1 serves as a compliance check with the EIA Study Brief and EIAO-TM as required in Section 4.4.1 of the EIAO-TM.</p> <p>Annex 3 of EIAO-TM has been followed in considering / identifying adverse environmental impacts. The EIA report has also been reviewed in accordance with Annex 20 of the EIAO-TM.</p> <p>For air quality, Annex 12 has been followed, and Chapter 5 describes that with implementation of the proposed mitigation measures, criteria described in Annex 4 of EIAO-TM are expected to be complied with.</p> <p>For hazard to human life, Chapter 6 describes that individual risks are within <math>1 \times 10^{-5}</math> /year as per Annex 4 of EIAO-TM. Societal risks are in ALARP region as per Annex 4 of EIAO-TM and ALARP assessment has been performed.</p> <p>For noise, Annex 13 of EIAO-TM has been followed, and Chapter 7 describes that the criteria described in Annex 5 of EIAO-TM are expected to be complied with upon implementation of the proposed noise mitigation measures. No residual impact for construction noise impact and operational non-aircraft noise impact. For aircraft noise impact, Chapter 7 describes that criteria described in Annex 5 of EIAO-TM are expected to be complied with upon the implementation of the proposed indirect noise mitigation measures.</p> <p>For water quality, Annex 14 of EIAO-TM has been followed, and Chapter 8 describes that with implementation of the proposed mitigation measures, criteria described in Annex 6 of EIAO-TM are expected to be complied with.</p> <p>For waste management implications, Annex 15 of EIAO-TM has been followed, and the criteria described in Annex 7 of EIAO-TM are complied with in Chapter 10.</p> <p>For land contamination, Annex 19 of EIAO-TM has been followed in Chapter 11.</p> <p>For terrestrial and marine ecology, Annex 16 of EIAO-TM and the criteria described in Annex 8 of EIAO-TM has been followed in Chapters 12 and 13.</p> <p>For fisheries, Annex 17 of EIAO-TM and the criteria described in Annex 9 of EIAO-TM has been followed in Chapter 14.</p> <p>For landscape and visual, Annexes 10 and 18 of EIAO-TM have been followed in Chapter 15.</p> <p>For cultural heritage, Annexes 10 and 19 of EIAO-TM have been followed in Chapter 16.</p> <p>Annex 21 of EIAO-TM has been followed for preparation of the EM&amp;A programme specified in the EM&amp;A Manual.</p>
8.	3.2.1	The scope of this EIA study shall cover the Project and associated works mentioned in sub-section 1.2 above. For the purpose of assessing whether the environmental impacts shall comply with the criteria of the TM, the EIA study shall address the key issues described in 3.2.1(i) to 3.2.1 (xiii), together with any other key issues identified during the course of the EIA study	All described in Ch. 1.
9.	3.3.1	Information on the need of the Project, including the purpose and objectives of the Project shall be provided and the scenarios with and without the Project described.	<p>Purpose of the project described in Section 1.1.3.</p> <p>Objectives of the project described in Section 3.2.</p> <p>Scenarios with and without the project described in Sections 2.4 and 2.5 respectively.</p>
10.	3.3.2	Alternative development options including siting and alignment for the Project in conjunction with the existing airport shall be considered, providing justifications regarding how the proposed development option is arrived at. The environmental factors considered in the option selection shall be described, with a comparison of the environmental benefits and dis-benefits of alternative development options with a view to recommending the preferred option to avoid adverse environmental effects.	<p>All described in Ch. 3:</p> <p>Sections 3.3 and 3.4 describe the consideration of alternatives for the third runway alignment and consideration of alternatives for airport layout under a three-runway system respectively.</p> <p>Sections 3.4 and 3.5, Table 3.9 to Table 3.12 describe the environmental evaluation of the alternative options.</p>
11.	3.3.3	The EIA study shall explore alternative construction methods for the Project (if any), taking into consideration the combined effect with respect to the severity and duration of the construction impacts to the affected sensitive receivers. A comparison of the environmental benefits and dis-benefits of applying different construction methods shall be made.	<p>All described in Ch. 3:</p> <p>Section 3.6 describes the alternative construction methods for the project, and comparison of environmental benefits and dis-benefits of applying different construction methods.</p> <p>Section 3.7 describes the consideration of alternative construction methods for marine infrastructure facilities and the associated environmental benefits and dis-benefits.</p>

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12.	3.3.4	The EIA shall, taking into consideration of the findings in sections 3.3.2 and 3.3.3 above, recommend and justify the adoption of the preferred scenario and describe the part that environmental factors played in arriving at the final selection.	All described in Ch. 3:  The findings in Sections 3.3.2 and 3.3.3 above has been addressed in Sections 3.3 to 3.7, and relevant recommendation and justification have been made in the abovementioned sections.
13.	3.4.1	The assessment shall be based on the best and latest information available during the course of the EIA study. The EIA report shall include the construction and operational programme as well as approaches and methodologies for assessing environmental impacts of the Project. The EIA report shall provide the time frame, staged implementation programme, and works programme of the Project and other concurrent projects, for assessing the cumulative environmental impacts from the Project and the interacting projects identified in the EIA study.	All described in Ch. 4: The assessment was based on the best and latest information available.  Sections 4.3 describes the project programme and construction sequence.  Sections 4.4 and 4.5 summarise the construction activities conducted in the designated project and the concurrent project respectively.  Approaches and methodologies for assessing environmental impacts and cumulative environmental impacts from the project and other concurrent projects have been described and presented in Ch.4.
14.	3.4.2	The EIA study shall follow the technical requirements specified below and in the Appendices of this EIA study Brief	See compliance check in this checklist.
15.	3.4.3.1	The Applicant shall follow the criteria and guidelines as stated in section 1 of Annex 4 and Annex 12 of the TM, respectively, for evaluating and assessing air quality impact.	Annexes 4 and 12 of the TM followed.
16.	3.4.3.2	The study area for the air quality impact assessment shall generally be defined by a distance of 500 metres from the boundary of the Project site, yet it shall be extended to include major existing and planned/committed air pollutant emission sources identified to have a bearing on the environmental acceptability of the Project. The assessment shall include the existing and planned/committed air sensitive receivers within the study area as well as areas where the air quality may be significantly affected by the project. The assessment shall be based on the best available information at the time of the assessment.	Section 5.2.2.1 describes 500m Study Area for construction phase assessment. The assessment area is proposed as 500 m from the combined boundary of the existing airport island and the proposed land formation area (i.e., the expanded airport island) as well as from the small Sha Chau Island where the preferred submarine fuel pipeline will be daylighted.  Sections 5.2.2.2, 5.2.2.3 and Table 5.2.1 and drawing MCL/P132/EIA/5-2-001 describe ASRs for construction phase assessment. The representative ASRs (existing/planned) that could be affected by the project within the 500 m assessment area have been identified based on the latest and relevant Outline Zoning Plans (e.g. Chek Lap Kok OZP No. S/I-CLK/12 and Tung Chung Town Centre Area OZP No. S/I-TCTC/18), Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans.  Section 5.2.3.1 onwards describes the assessed construction sources and assessment basis. The key activities that would potentially result in dust emissions during construction phase of the project have been identified as follows: <ul style="list-style-type: none"> <li>Land formation works</li> <li>Construction works on the newly formed land</li> <li>Construction works on the existing airport island as part of the project</li> <li>Concrete batching plants, asphalt batching plants and barging points</li> <li>Rock crushing plants</li> <li>Diversion of submarine fuel pipeline</li> <li>Diversion of submarine 11kV cable</li> <li>Modifications to existing outfall</li> </ul> Section 5.3.2.1 describes 5 km Study Area for operation phase assessment. Section 5.3.2.30 onwards and Table 5.3.1 describe ASRs for operation phase assessment.
17.	3.4.3.3	The assessment of the air quality impact arising from the construction and operation of the Project shall follow the detailed technical requirements given in section I of Appendix A of this EIA Study Brief.	See compliance check for Appendix A items below.
18.	3.4.3.4	The Applicant shall assess the air pollutant concentrations with reference to the relevant sections of the "Guidelines for Local-Scale Air Quality Assessment Using Models" in Appendices A-1 to A-3 attached to this EIA Study Brief, or other methodology as agreed by the Director.	See compliance check for Appendix A items below.
19.	3.4.4.1	The Applicant shall follow the criteria for evaluating hazard to human life as stated in section 2 of Annex 4 of the TM.	Annex 4 of the TM followed.
20.	3.4.4.2	The assessment shall include the hazard to human life due to construction activities affecting the existing aviation fuel pipelines and modification works of the underwater aviation fuel pipelines, the use of new aviation fuel pipelines and new fuel hydrant systems for aircraft refuelling at the new aircraft stands and the operation of diesel, gasoline and LPG storage facilities in the Airport expansion area.	Assessed in Sections 6.11, 6.12, and 6.13. Results are shown in Section 6.14.
21.	3.4.4.3	The hazard to human life assessment shall follow the detailed technical requirements given in Appendix B.	See compliance check for Appendix B items below.

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22.	3.4.5.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing noise impact as stated in Annexes 5 and 13 of the TM.	Annexes 5 and 13 of the TM are followed for evaluating and assessing noise impact due to project.
23.	3.4.5.2	Assessment shall include aircraft noise, fixed noise including ground noise, construction noise, road traffic noise and marine traffic noise impact assessment of the existing, committed and planned NSRs earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans, 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, in the vicinity of the project. <i>Aircraft noise associated with the operation of the Hong Kong International Airport (HKIA) shall include noise sources from aircraft in flight while departing from and arriving at the HKIA, noise sources of the take-off ground roll and use of reverse thrust after landing.</i> <i>Ground noise shall include sources of aircraft noise-generating activities on Hong Kong International Airport such as taxiing, engine testing, maintenance activities and use of auxiliary power-units etc and non-aircraft sources within the airport boundary.</i>	See compliance check for Appendix C items below.
24.	3.4.5.3	The noise impact assessment of the Project shall follow the detailed technical requirements given in section I of Appendix C.	See compliance check for Appendix C items below.
25.	3.4.6.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing water quality impact as stated in Annexes 6 and 14 of the TM	Annexes 6 and 14 of the TM are followed for evaluating and assessing water quality impact due to project.
26.	3.4.6.2	The study area for the water quality impact assessment shall include the North Western Water Control Zone, North Western Supplementary Water Control Zone, Deep Bay Water Control Zone, Western Buffer Water Control Zone, as designated under the Water Pollution Control Ordinance (Cap. 358) and the water sensitive receivers in the vicinity of the Project. The study area can be extended to include other areas such as stream courses, existing and new drainage system, and the associated water system(s) in the vicinity if they are found also being affected by the Project during the EIA study and have a bearing on the environmental acceptability of the Project.	Section 8.3.1.1 and drawing no. MCL/P132/EIA/8-001 describes the Study Area for WQ Assessment, which includes North Western Water Control Zone, North Western Supplementary Water Control Zone, Deep Bay Water Control Zone, Western Buffer Water Control Zone. Water sensitive receivers identified with the above WCZs are described in Section 8.3.2 and Table 8.7, with their indicative locations shown in drawing no. MCL/P132/EIA/8-002.
27.	3.4.6.3	The water quality impact assessment shall follow the detailed technical requirements given in Appendix D1	See compliance check for Appendix D1 items below.
28.	3.4.7.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing impacts on the public sewerage, sewage treatment and disposal facilities as stated in section 6.5 in Annex 14 of the TM.	Section 6.5 in Annex 14 of the TM followed for evaluating and assessing impacts on the public sewerage, sewage treatment and disposal facilities due to project.
29.	3.4.7.2	The assessment shall include the public sewerage systems (public sewerage, sewage treatment and disposal facilities) at North Lantau.	See items on Appendix D2 below. The assessment has included public sewerage system in the North Lantau and the SHWSTW.
30.	3.4.7.3	The assessment of the sewerage and sewage treatment implication shall follow the detailed technical requirements given in Appendix D2.	Included in Section 9
31.	3.4.8.1	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.	Annexes 7 and 15 of the TM followed.
32.	3.4.8.2	The assessment of the waste management implication shall follow the detailed technical requirements given in Appendix E1.	See compliance check for Appendix E1 items below.
33.	3.4.9.1	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.	Sections 3.1 and 3.2 of Annex 19 of the TM followed.
34.	3.4.9.2	The assessment of the potential land contamination issues shall follow the detailed requirements given in Appendix E2.	See compliance check for Appendix E2 items below.
35.	3.4.10.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing ecological impact as stated in Annexes 8 and 16 of the TM.	Annexes 8 and 16 of the TM followed.
36.	3.4.10.2	The study area for the purpose of terrestrial ecological impact assessment shall include the Tai Ho Stream Site of Special Scientific Interest (SSSI), San Tau Beach SSSI, Lung Kwu Chau, Tree Island and Sha Chau SSSI and any other areas likely to be impacted by the Project. For marine ecology, the study area shall be the same as the water quality impact assessment as stipulated in Section 3.4.6.2 or the area likely to be impacted by the Project.	The three SSSIs are included in study area, Tai Ho Stream SSSI, San Tau Beach SSSI and Lung Kwu Chau, Tree Island and Sha Chau SSSI addressed in Ch.12. San Tau Beach SSSI also addressed in Ch.13. Study Area for Marine Ecology is the same as that of Water Quality (13.4.3).
37.	3.4.10.3	The ecological impact assessment shall follow the detailed technical requirements given in Appendix F.	See compliance check for Appendix F items below.
38.	3.4.11.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing fisheries impact as stated in Annexes 9 and 17 of the TM.	Annexes 9 and 17 of the TM followed.
39.	3.4.11.2	The study area shall be the same as the water quality impact assessment as stipulated in Section 3.4.6.2. The study area shall be extended to include other areas if they are also found likely to be impacted by the construction or operation of the Project during the course of the EIA study. Special attention shall be given to potential loss or disturbance of fishing grounds, fisheries habitats, spawning or nursery grounds; aquaculture sites, or artificial reefs.	See items on Appendix G below.
40.	3.4.11.3	The fisheries impact assessment shall follow the detailed technical requirements given in Appendix G.	See compliance check for Appendix G items below.
41.	3.4.12.1	The Applicant shall follow the criteria and guidelines as stated in Annexes 10 and 18 of the TM, the EIAO Guidance Note No. 8/2010 on "Preparation of Landscape and Visual Impact Assessment under the Environmental Impact Assessment Ordinance" and the report of "Landscape Value Mapping of Hong Kong" for evaluating and assessing the landscape and visual impacts.	Said criteria and guidelines followed.



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42.	3.4.12.2	The study area for the landscape impact assessment shall include areas within 500 metres distance from the boundary of the potential land formation footprint for the proposed airport expansion and the existing Airport island. The cumulative impacts on landscape resources and characters from other projects should be included in this assessment. The study area for the visual impact assessment shall be defined by the visual envelope of the Project.	Section 15.3.4 describes the landscape and visual study areas. Cumulative impacts from concurrent projects addressed in 15.4.6 15.8, 15.8.2 and 15.8.3.
43.	3.4.12.3	The landscape and visual impact assessments shall follow the detailed technical requirements given in Appendix H.	See compliance check for Appendix H items below.
44.	3.4.13.1	The Applicant shall follow the criteria and guidelines for evaluating and assessing the cultural heritage impact as stated in Annexes 10 and 19 of the TM.	Annexes 10 and 19 of the TM followed.
45.	3.4.13.2	A marine archaeological investigation (MAI) shall be conducted. It shall include area to be affected by the marine works of the Project.	An MAI was conducted. Areas to be affected by the marine works of the project are included. It was decided that navigation channel for future maintenance dredging are excluded from this EIA.  Section 16.3.1 describes the MAI assessment area. Section 16.4.2 describes the marine archaeological review for the project. Section 16.5.1 describes the MAI assessment, Section 16.5.2 establishes the marine archaeological potential and Section 16.5.3 describes the study and result of the underwater inspection (visual diver survey).
46.	3.4.13.3	The marine archaeological investigation shall follow the detailed technical requirements given in Appendix I.	See compliance check for Appendix I items below.
47.	3.4.14.1	The health impact assessment shall be conducted to assess the potential health impact on human in relation to: (3) toxic air pollutants (TAP) from the aircraft emissions and associated activities arising from the operation of the Project in accordance with the technical requirements given in section II of Appendix A; and (ii) aircraft noise arising from the operation of the Project in accordance with the technical requirements given in section II of Appendix C.	See items on Appendices A and C below.
48.	3.4.14.2	The health impact assessment shall be based on established practices in countries around the world. A literature search shall be carried out to determine the best approach and methodology for the health impact assessment, including any codes of practices, guidelines, etc. applied locally in Hong Kong and elsewhere in the world. The approach and methodology to be adopted shall be agreed by the Director prior to the commencement of assessment.	The HIA is based on selected established practices in countries around the world. Literature review has been carried out. Approach and methodology was discussed with the DEP.
49.	3.4.15.1	The EIA study shall identify and justify 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 EM&A requirements for the Project in the EIA study.	EM&A programmes have been set and described in Ch. 18. It has been identified that the following sections and relevant monitoring would be required due to impacts identified in the EIA: Air – Construction and operation air quality monitoring Hazard to human life – compliance check through site audits Noise – Construction noise impact monitoring, commissioning test, aircraft noise impact monitoring Water – Construction and operation phase water quality monitoring Waste Management – Construction and operation phase weekly site audit Land Contamination – Regular site audit during construction phase Terrestrial Ecology – Pre-construction survey to determine and decide on detail EM&A monitoring Marine Ecology – Pre-construction coral dive survey, CWD baseline (pre-construction), construction, post-construction and operation phase surveys Fisheries – Compliance check on design, implementation and maintenance of water quality mitigation measures Landscape and Visual – Compliance check on design, implementation and maintenance of mitigation measures
50.	3.4.15.2	Subject to the confirmation of the EIA study findings, the Applicant shall comply with the requirements as stipulated in Annex 21 of the TM	Requirements described in Annex 21 of the EIAO-TM are described in the EM&A Manual. EM&A programmes have been set and described in the EM&A manual. It has been identified that the following sections and relevant monitoring would be required due to impacts identified in the EIA: Air – Construction and operation air quality monitoring Hazard to human life – compliance check through site audits Noise – Construction noise impact monitoring, commissioning test, aircraft noise impact monitoring Water – Construction and operation phase water quality monitoring Waste Management – Construction and operation phase weekly site audit Land Contamination – Regular site audit during construction phase Terrestrial Ecology – Pre-construction survey to determine and decide on detail EM&A monitoring Marine Ecology – Pre-construction coral dive survey, CWD baseline (pre-construction), construction, post-construction and operation phase surveys Fisheries – Compliance check on design, implementation and maintenance of water quality mitigation measures Landscape and Visual – Compliance check on design, implementation and maintenance of mitigation measures
51.	3.4.15.3	The EIA study shall include a Project Implementation Schedule containing the EIA study recommendations and mitigation measures with reference to the implementation programme.	Implementation schedule with the EIA study recommendations and mitigation measures with reference to the implementation programme is provided in Ch.20 and appendix C of the EM&A manual.

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52.	3.5.1	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.	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 is provided in Chapter 19.
53.	3.5.2	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.	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) is provided in Table 19.2.
54.	3.5.3	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 all 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.	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 all 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 in Table 19.1.
55.	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 the EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief before commencement of the EIA study.	Noted.
56.	5.1	In preparing the EIA report, reference should be made to Annex 11 of the TM for the contents of an EIA report. The EIA report shall be accompanied with a summary, pointing out where in the EIA report the respective requirements of this EIA Study Brief have been addressed and fulfilled.	This document (Appendix 1.1) is the summary, pointing out where in the EIA report the respective requirements of this EIA Study Brief have been addressed and fulfilled. Reference to Annex 11 and 20 of the EIAO-TM are provided in Table A.2 and Table A.3 of this Appendix 1.1.
57.	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 K 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.	Both hard and electronic copies of the EIA report and the executive summary have been provided in accordance with the requirements in Appendix K of the EIA Study Brief.
58.	6.1	If there is any change in the name of Applicant for this EIA study brief during the course of the EIA study, the Applicant must notify the Director immediately.	Noted.
59.	6.2	If there is any key change in the scope of the Project mentioned in sub-section 1.2 of this EIA study brief and in Project Profile (No. PP-469/2012), 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 the EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief.	Noted.
60.	7.1	This EIA study brief includes the following figure and appendices: Figure 1 – Project Location Plan Appendix A – Requirements for Air Quality Impact Assessment, and Health Impact Assessment of Toxic Air Pollutants Appendix B – Requirements for Hazard to Human Life Assessment Appendix C – Requirements for Noise Impact Assessment, and Health Impact Assessment of Aircraft Noise Appendix D1 – Requirements for Water Quality Impact assessment Appendix D2 – Requirements for Assessment of Sewerage and Sewage Treatment Implication Appendix E1 – Requirements for Assessment for Waste Management Implication Appendix E2 – Requirements for Land Contamination Assessment Appendix F – Requirements for Ecological Impact Assessment Appendix G – Requirements for Fisheries Impact Assessment Appendix H – Requirements for Landscape and Visual Impact Assessment Appendix I – Requirements for Marine Archaeological Investigation Appendix J – Implementation Schedule Appendix K – Requirements for EIA Report Documents	Noted.

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61.	Appendix A I 1. (i)	The EIA report shall provide 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 operational stages of the Project.	<p>Presented in Sections 5.2.3 and 5.3.3</p> <p>The key activities that would potentially result in dust emissions during construction phase of the project have been identified as follows:</p> <ul style="list-style-type: none"><li>▪ Land formation works</li><li>▪ Construction works on the newly formed land</li><li>▪ Construction works on the existing airport island as part of the project</li><li>▪ Concrete batching plants, asphalt batching plants and barging points</li><li>▪ Rock crushing plants</li><li>▪ Diversion of submarine fuel pipeline</li><li>▪ Diversion of submarine 11kV cable</li><li>▪ Modifications to existing outfall</li></ul> <p>Presented in Section 5.3.7</p> <p>Measures aimed at reducing air emissions from airport activities and operations include:</p> <ul style="list-style-type: none"><li>▪ Banned all idling vehicle engines on the airside since 2008, except for certain vehicles that are exempted (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li><li>▪ Banning the use of APU for all aircraft at frontal stands by end 2014 (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li><li>▪ Requiring all saloon vehicles as electric vehicles by end 2017 (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li><li>▪ Increasing charging stations for EVs and electric GSE to a total of 290 by end 2018</li><li>▪ Conducting review on existing GSE emission performance and explore measures to further control air emissions</li><li>▪ Exploring with franchisees feasibility of expediting replacement of old airside vehicles and GSE with cleaner ones during tender or renewal of contracts</li><li>▪ Requiring all new airside vehicles to be fuel-efficient and making it a prerequisite for the licensing process;</li><li>▪ Providing the cleanest diesel and gasoline at the airfield;</li><li>▪ Requiring all of the AAHK's diesel vehicles to use biodiesel (B5);</li><li>▪ Promoting increased use of electric vehicles and electric ground service equipment at HKIA by provision of charging infrastructure; and</li><li>▪ Providing a liquefied petroleum gas (LPG) fuelling point for airside vehicles and ground service equipment.</li><li>▪ Different future technologies which will improve emission generation have been considered in the emission inventory in Section 5.3.4.</li></ul>

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
62.	Appendix A I 1. (ii)	The EIA report shall provide an account, where appropriate, of the consideration/measures that have been taken into consideration in the planning of the Project to abate the air pollution impact. The EIA shall consider alternative construction methods/phasing programmes, and alternative operation modes to minimise the air quality impact during the construction and operation stages of the Project.	<p>Presented in Sections 5.2.6:</p> <p>To ensure compliance with the TSP, RSP and FSP criteria during the construction phase, the relevant requirements stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, EPD's <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) BPM 11/1 (95)</i> as well as the good practices for dust control should be implemented to reduce the dust impact.</p> <p>Presented in Section 5.3.7:</p> <p>Measures aimed at reducing air emissions from airport activities and operations include:</p> <ul style="list-style-type: none"> <li>Provide a liquefied petroleum gas (LPG) fueling point for airside vehicles and ground service equipment;</li> <li>Require all new airside vehicles to be fuel-efficient and making it a prerequisite for the licensing process;</li> <li>Provide the cleanest diesel and gasoline at the airfield;</li> <li>Require all of the AAHK's diesel vehicles to use biodiesel (B5); and</li> <li>Promote increased use of electric vehicles and electric ground service equipment at HKIA by provision of charging infrastructure.</li> </ul> <p>Different future technologies which will improve emission generation has been considered in the emission inventory in Section 5.3.6.</p>
63.	Appendix A I 1. (iii)	<p>The EIA report shall present the background air quality levels in the study area for the purpose of evaluating cumulative air quality impacts during construction and operational stages of the Project.</p> <p>The EIA report may establish the existing air quality conditions based on properly collected ambient air quality monitoring data, and in case necessary, augmented with air quality modelling tools. The PATH model may be used to estimate the future background air quality.</p>	<p>Presented in Sections 5.2.4.21 – 5.2.4.26</p> <p>It is proposed to use the PATH model to predict far-field contributions to the background RSP levels on an hour-by-hour basis within the 500m assessment area during the construction phase of the project. The hourly RSP levels as predicted by PATH are then multiplied by a factor of 0.75 to conservatively estimate the corresponding FSP levels according to EPD's <i>Guidelines on the Estimation of PM2.5 for Air Quality Assessment in Hong Kong</i>. CALINE4 and AERMOD are used to estimate the near-field contributions to the background RSP and FSP levels due to vehicular emission at local scale (i.e. the road networks within the assessment area) and emissions from the airport operation (two-runway system) respectively.</p> <p>Presented in Section 5.1.3</p> <p>Existing air quality conditions are presented using collected ambient air quality monitoring data. The PATH model is used to establish future background air quality for both construction and operation phase assessments.</p>
64.	Appendix A I 2. (i)	<p>The EIA report shall identify and describe existing, planned and committed ASRs that would likely be affected by the Project.</p> <p>The EIA shall select the assessment points of the identified ASRs that represent the reasonable worst impact location of these ASRs.</p> <p>A map clearly showing the location and table with 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.</p>	<p>Section 5.2.2.1 describes 500m Study Area for construction phase assessment.</p> <p>The assessment area is proposed as 500 m from the combined boundary of the existing airport island and the proposed land formation area (i.e., the expanded airport island) as well as from the small Sha Chau Island where the preferred submarine fuel pipeline will be daylighted.</p> <p>Section 5.2.2.3, Section 5.2.2.4 and Table 5.2.1 and drawing MCL/P132/EIA/5-2-001 describe ASRs for construction phase assessment.</p> <p>The representative ASRs (existing/planned) that could be affected by the project within the 500 m assessment area have been identified based on the latest and relevant Outline Zoning Plans (e.g. Chek Lap Kok OZP No. S/I-CLK/12 and Tung Chung Town Centre Area OZP No. S/I-TCTC/18), Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans.</p> <p>Section 5.2.2.3 and Table 5.2.1 and drawing MCL/P132/EIA/5-2-001 describe ASRs for construction phase assessment.</p> <p>Section 5.3.2.1 describes 5 km Study Area for operation phase assessment.</p> <p>The study area involved is shown in Drawing No. MCL/P132/EIA/5-3-001. The study areas of interest include Tung Chung and Tuen Mun.</p> <p>Section 5.3.2.1 onwards and Table 5.3.1 describe ASRs for operation phase assessment.</p> <p>Figures provided.</p> <p>Assessment points of the identified ASRs selected.</p> <p>Name of buildings, their uses, height of the selected assessment points and separation distances provided.</p>



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
65.	Appendix A I 2. (ii)	<p>The EIA report shall provide a list of air pollutant emission sources, which are related to the Project based on the analysis of the construction and operational activities.</p> <p>The EIA report shall consider relevant information such as the aircraft fleet mix (including aircraft type, size, engine type, number and age), landing take-off (LTO) cycles (approach, taxi/idle-in, taxi/idle-out, takeoff and climbout) and time-in-mode for the aircraft emissions.</p> <p>Similar information shall also be considered for other mobile sources such as GSE, APU's and on-airport vehicles.</p> <p>The EIA may refer to assessment guidelines issued by national or international organizations such as the US Federal Aviation Administration (FAA) for emission assessment methodologies. Confirmation regarding the validity of assumptions adopted and the magnitude of the activities (e.g. volume of construction material handled, number of aircraft LTOs, etc.) shall be obtained from the relevant government departments/authorities and documented.</p>	<p>Presented in Sections 5.2.3, 5.3.3 and 5.3.4</p> <p>The key activities that would potentially result in dust emissions during construction phase of the project have been identified as follows:</p> <ul style="list-style-type: none"><li>▪ Land formation works</li><li>▪ Construction works on the newly formed land</li><li>▪ Construction works on the existing airport island as part of the project</li><li>▪ Concrete batching plants, asphalt batching plants and barging points</li><li>▪ Rock crushing plants</li><li>▪ Diversion of submarine fuel pipeline</li><li>▪ Diversion of submarine 11kV cable</li><li>▪ Modifications to existing outfall</li></ul> <p>The worst year for aircraft emission and emission inventory are presented in Sections 5.3.5 and 5.3.6 respectively.</p> <p>The worst year for aircraft emission and emission inventory are presented in Sections 5.3.4.</p> <p>Presented in Sections 5.3.4.2, 5.3.4.3, 5.3.4.4, 5.3.4.13, Table 5.3.11, 5.3.4.17, 5.3.4.35, 5.3.4.15, etc. – IATA involvement was mentioned. 5.3.4.13 – CAD's involvement was mentioned. Chapter 5 notes that the forecasts are based on information from AAHK, CAD, ICAO, IATA and airline surveys.</p> <p>Confirmation obtained from the relevant government departments/authorities regarding the validity of assumptions adopted and the magnitude of the activities needs to be documented in the EIA.</p>
66.	Appendix A I 2. (iii)	<p>The EIA report shall identify and obtain relevant chimney emission data in the study area by carrying out a properly designed survey for assessing the cumulative air quality impact of air pollutants through the chimneys.</p> <p>The EIA shall ensure the validity of the emission data used in the assessment. Any errors found in the emission data used, may render the submission invalidated.</p>	<p>Presented in Sections 5.3.4.91 – 5.3.4.92 – other industrial emission sources are identified. The emission data was extracted from the relevant approved EIAs, SP licences and estimated from EDMS. No designed survey was carried out.</p>

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
67.	Appendix A I 2. (iv)	The EIA shall identify other sources of the emissions which are likely to have an impact related to the Project, such as chimneys, marine and road traffic, as well as any concurrent projects identified as relevant during the course of the EIA study for incorporation into the assessment of the overall cumulative air quality impact. The impact as affecting the existing, planned/committed ASRs within the study area shall be assessed, based on the best information available at the time of assessment.	<p>Section 5.2.4.21 onwards describe the background sources.</p> <p>It is proposed to use the PATH model to predict far-field contributions to the background RSP levels on an hour-by-hour basis within the 500m assessment area during the construction phase of the project. The hourly RSP levels as predicted by PATH are then multiplied by a factor of 0.75 to conservatively estimate the corresponding FSP levels according to EPD's <i>Guidelines on the Estimation of PM<sub>2.5</sub> for Air Quality Assessment in Hong Kong</i>. CALINE4 and AERMOD are used to estimate the near-field contributions to the background RSP and FSP levels due to vehicular emission at local scale (i.e. the road networks within the assessment area) and emissions from the airport operation (two-runway system) respectively.</p> <p>Other concurrent construction projects included and are described in Section 5.2.3.25</p> <p>The following concurrent projects within or in the vicinity of the 500m assessment area have been identified for potential cumulative impact assessment. These include the following:</p> <ul style="list-style-type: none"> <li>▪ HZMB Hong Kong Link Road (Construction Period: 2011 - 2015);</li> <li>▪ HZMB Hong Kong Boundary Crossing Facilities (HKBCF) (Construction Period: 3rd quarter of 2010 - end 2016);</li> <li>▪ New Contaminated Mud Marine Disposal Facility at HKIA East/ East Sha Chau Area (Construction Period: 2007 - 2015);</li> <li>▪ North Commercial District (Construction period: 2015 - 2018);</li> <li>▪ Intermodal Transfer Terminus (Construction period: 2014 – 2018);</li> <li>▪ Other airport facilities related works (Construction period: 2016 – 2019); and</li> <li>▪ Tung Chung New Town Extension Study (Proposed commencement of construction in 2018 for first population intake in 2021/22).</li> </ul> <p>No other current sources of RSP emissions in the vicinity included in the RSP impact assessment during construction phase.</p> <p>Marine vessel emissions, proximity infrastructure emissions including vehicular emissions from HKBCF, HKLR, TMCLKL, NLK and roads in Tung Chung, Tung Chung Remaining Development; OWTF; vehicular emissions from TMWB; vehicular emission in Tuen Mun; chimney emissions from Shiu Wing Steel Mill, GIC, CLPP, Eco Park, PAFF, Butterfly Beach laundry, flare at PPVL and river trade terminal. PRDEZ emission and HKSAR emissions included.</p> <p>The dust impact during construction for the project and the operational AQ impact were also conducted.</p>
68.	Appendix A I 3. (i)	Construction dust impacts should be controlled within the relevant standards as stipulated in section 1 of Annex 4 of the TM, following the requirements stipulated under the Air Pollution Control (Construction Dust) Regulation.	<p>Section 5.2.5, it has been assessed that the hourly TSP criterion would be complied with at all ASRs, and compliance with the AQOs for daily RSP, daily FSP, annual RSP and annual FSP would be achieved at all ASRs. The relevant requirements stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, EPD's <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) BPM 11/1 (95)</i> as well as the good practices for dust control were incorporated into the assessment.</p>
69.	Appendix A I 3. (ii)	If it is anticipated that the Project will give rise to significant construction dust impacts likely to exceed recommended limits in the TM at ASRs within 500m from the project boundary 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.	<p>Section 5.2.3.1, quantitative assessment was carried out taking into account the dust mitigation measures. The relevant requirements stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, EPD's <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) BPM 11/1 (95)</i> as well as the good practices for dust control were incorporated into the assessment.</p>
70.	Appendix A I 3. (iii)	A monitoring and audit programme for the construction phase of the Project shall be devised to verify the effectiveness of the control measures proposed so as to ensure proper construction dust control.	<p>Presented in Section 5.4.1</p> <p>Regular dust monitoring is considered necessary during the construction phase of the project and regular site audits are also required to ensure the dust control measures are properly implemented. Details of the environmental monitoring and audit (EM&amp;A) programme are presented in the stand-alone EM&amp;A Manual.</p> <p>Monitoring activities during construction listed in Table 2.1 of EM&amp;A manual with action limits provided in Table 2.2 and 2.3.</p>

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
71.	Appendix A I 4. (i)	The EIA shall quantify the expected air pollutant concentrations at the identified ASRs within 5 km from the project boundary based on the highest aircraft emission scenario under normal operating conditions with the Project. The evaluation shall be based on the strength of the emission sources identified in section 2 above. The EIA shall follow the methodology set out in section 5 below when carrying out the quantitative assessment.	<p>Section 5.3.2.1 describes 5 km study area for operation phase assessment.</p> <p>The study area involved is also shown in Drawing No. MCL/P132/EIA/5-3-001. The study areas of interest include Tung Chung and Tuen Mun.</p> <p>Section 5.3.4 worst assessment year for aircraft emission were defined.</p> <p>The dominant criteria pollutant emitted from aircraft is NO<sub>2</sub>. Hence, the year with the highest NO<sub>2</sub> emission is selected as the worst assessment year. Based on Chart 5-1, the highest LTO emission of NO<sub>2</sub> occurs at Year 2031.</p> <p>Section 5.3.4 emission inventory for both airport related and other emission sources were determined.</p> <p>Section 5.3.5 operational assessment methodology was provided.</p> <p>For the air sensitive receivers at the airport and in Lantau area, AERMOD model version 12345 has been used as the air quality impact model for major airport related activities, except for roads on the airport island which have been modelled by the CALINE4 model.</p> <p>For the air sensitive receivers in Tuen Mun, given the chemical reaction in long distance transportation, the airport related emission has been modelled by the PATH model.</p> <p>Section 5.3.6 the expected air pollutant concentrations were quantified and evaluated.</p> <p>Detailed results at each ASR and air assessment point level under 3RS scenario are presented in Appendix 5.3.16-1 to Appendix 5.3.16-5. Table 5.3.95 to Table 5.3.113 summarise the 3RS results for operation phase.</p>
72.	Appendix A I 5. (i)	The Applicant shall apply the general principles enunciated in the modelling guidelines in <u>Appendix A-1 to A-3</u> while making allowance for the specific characteristics of the Project.	Noted.
73.	Appendix A I 5. (ii)	The EIA shall identify the key/representative air pollution parameters (types of pollutants and the averaging time concentrations) to be evaluated and provide explanation for selecting these parameters for assessing the impact of the Project.	<p>Sections 5.2.3.1 and 5.3.3</p> <p>It is considered that the air pollutants of concerns during the construction phase of the project are TSP and RSP from dust emitting activities. However, as FSP is a newly added criteria pollutant under the to-be-effective AQOs, FSP is also assessed as part of the construction dust impact assessment for the project.</p> <p>For the operational phase, pollutants including NO<sub>2</sub>, RSP, FSP, SO<sub>2</sub> and CO has been assessed.</p>
74.	Appendix A I 5. (iii)	Calculation of the relevant pollutant emission rates for input to the model and a map showing the emission sources shall be presented in the EIA report. A summary table of the emission rates shall be presented in the EIA report. The EIA shall ensure consistency between the text description and the model files at every stage of submissions for review.	<p>Calculation of the dust emissions are described in Section 5.2.4.9 onwards</p> <p>Prediction of dust emissions is based on emissions factors from the <i>Compilation of Air Pollution Emission Factors (AP-42), 5th Edition</i> published by the US Environmental Protection Agency (USEPA).</p> <p>According to the EIA Study Brief, Appendix A-1, Clause 3.6, suitable dust size categories relevant to the dust sources concerned with reasonable breakdown in TSP and RSP compositions should be used in evaluating the impacts of dust-emitting activities. Dust size categories are calculated with reference to the USEPA document <i>Estimating Particulate Matter Emissions from Construction Operations, 1999</i>.</p> <p>FSP emission from heavy construction activities and wind erosion is based on the USEPA's <i>Examination of the Multiplier Used to Estimate PM<sub>2.5</sub> Fugitive Dust Emissions from PM<sub>10</sub></i>, April 2005</p> <p>TSP, RSP and FSP emissions rates for paved haul roads as well as for loading and unloading of dusty materials for stockpiles, barging points and various facilities are estimated by the relevant formulae based on respectively Section 13.2.1 and Section 13.2.4.3 of the USEPA AP-42</p> <p>TSP emissions from the concrete batching plants, asphalt batching plants and crushing plant are estimated based on the relevant air pollutant concentration limits as specified respectively in the Guidance Notes BPM 3/2(93), BPM 15(94) and BPM 11/1 (95)</p> <p><i>Particulate matter and Elemental Emission from a Cement Kiln</i>, published by Fuel Processing Technology in 2012, is used to estimate RSP and FSP emissions from concrete batching plants</p> <p>Further details are found in Appendices 5.2.6 to 5.2.9, 5.2.15 and Appendices 5.3.1 to 5.3.15</p> <p>Table 5.2.4. Drawing No. MCL/P132/EIA/5-2-003 to Drawing No. MCL/P132/EIA/5-2-044</p> <p>Drawing No. MCL/P132/EIA/5-3-007 and Drawing No. MCL/P132/EIA/5-3-008.</p> <p>The calculation of emission rates for operation air quality impact is shown in S5.3.4. The spatial distribution of the emission sources is shown in Appendix 5.3.15.</p>
75.	Appendix A I 5. (iv)	<p>The air pollution impacts of the future air traffic shall be calculated based on the highest aircraft emissions, due specifically to aircraft LTO cycles, within the period when the project commences operation to the year the project reaches and operates at full capacity.</p> <p>The EIA shall demonstrate that the selected year of assessment represents the highest aircraft emission scenario, taking into consideration the number of landing take-off cycles and the corresponding aircraft engine emission factors for the selected year.</p>	<p>Section 5.3.4 - determination of worst year based on aircraft emissions.</p> <p>The dominant criteria pollutant emitted from aircraft is NO<sub>2</sub>. Hence, the year with the highest NO<sub>2</sub> emission is selected as the worst assessment year. Based on Figure 5-3-1, the highest LTO emission of NO<sub>2</sub> occurs at Year 2031.</p>

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76.	Appendix A I 5. (v)	The EIA may use established modelling tools specifically designed to model airport emission sources, such as the latest version of the US FAA required EDMS model, or other models as agreed by the Director.	EDMS 5.1.4.1 latest version updated in 2013 used.
77.	Appendix A I 5. (vi)	For on-road vehicle emissions, the EIA may use the EMFAC-HK model to determine the Fleet Average Emission Factors, taking into account vehicle fleet mix and traffic speed, or other models as agreed by the Director.	EMFAC-HK v2.6 used.
78.	Appendix A I 5. (vii)	For estimating the future background air quality, the EIA may use EPD's PATH model or results, taking into consideration the major air pollutant emission sources projected for Hong Kong and nearby regions, or other models as agreed by the Director. Details of the adopted emission sources should be presented.	PATH model emission inventory projected to year 2031 and agreed with EPD to estimate the future background air quality  Section 5.3.5 Major emission sources were included in the PATH Model
79.	Appendix A I 5. (viii)	Ozone Limiting Method (OLM) or Discrete Parcel Method (DPM) or other appropriate method shall be used to estimate the conversion ratio of NO <sub>x</sub> to NO <sub>2</sub> if NO <sub>2</sub> has been identified as a key/representative air pollutant.	Section 5.3.5.23, OLM used. OLM has been applied to major sources (including airport operation emissions as a whole, and proximity infrastructural development), for NO <sub>2</sub> calculation.
80.	Appendix A I 5. (ix)	The EIA shall calculate the cumulative air quality impact at the ASRs identified under section 2 above 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 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 shall be used to present pollution contours to allow buffer distance requirements to be determined properly.	Section 5.2.3.25 Other concurrent construction projects included. The following concurrent projects within or in the vicinity of the 500m assessment area have been identified for potential cumulative impact assessment. These include the following: <ul style="list-style-type: none"> <li>▪ HZMB Hong Kong Link Road (Construction Period: 2011 - 2015);</li> <li>▪ HZMB Hong Kong Boundary Crossing Facilities (HKBCF) (Construction Period: 3rd quarter of 2010 - end 2016);</li> <li>▪ New Contaminated Mud Marine Disposal Facility at HKIA East/ East Sha Chau Area (Construction Period: 2007 - 2015);</li> <li>▪ North Commercial District (Construction period: 2015 - 2018);</li> <li>▪ Intermodal Transfer Terminus (Construction period: 2014 – 2018);and</li> <li>▪ Tung Chung New Town Extension Study (Proposed commencement of construction in 2018 for first population intake in 2021/22).</li> </ul> It is proposed to use the PATH model to predict far-field contributions to the background RSP levels on an hour-by-hour basis within the 500m assessment area during the construction phase of the project. The hourly RSP levels as predicted by PATH are then multiplied by a factor of 0.75 to conservatively estimate the corresponding FSP levels according to EPD's <i>Guidelines on the Estimation of PM<sub>2.5</sub> for Air Quality Assessment in Hong Kong</i> . CALINE4 and AERMOD are used to estimate the near-field contributions to the background RSP and FSP levels due to vehicular emission at local scale (i.e. the road networks within the assessment area) and emissions from the airport operation (two-runway system) respectively.  Section 5.3.4.75 onwards Marine vessel emissions, proximity infrastructure emissions including vehicular emissions from HKBCF, HKLR, TMCLKL, NLK and roads in Tung Chung, Tung Chung Remaining Development; OWTF; vehicular emissions from TMWB; vehicular emission in Tuen Mun; chimney emissions from Shiu Wing Steel Mill, GIC, CLPP, Eco Park, PAFF, Butterfly Beach laundry, flare at PPVL and river trade terminal. PRDEZ emission and HKSAR emissions included.  Summary of the predicted air quality impacts are presented in Table 5.2.6 to Table 5.2.11 and Appendices 5.2.18 – 5.2.22. Contour plot for construction phase provided in Drawing No. MCL/P132/EIA/5-2-047 to Drawing No. MCL/P132/EIA/5-2-070. Operation phase assessment needs to evaluate potential effect on land use implications.
81.	Appendix A I 5. (x)	The EIA shall identify the key non-criteria toxic air pollutant(s) emitted by the Project for a health impact assessment with reference to relevant local and/or overseas studies/guidelines in the aviation sector.	Non-criteria TAP has been assessed , in Chapter 17.
82.	Appendix A I 5. (xi)	If there are any direct technical noise remedies recommended in the study, the air quality implication due to these technical remedies shall be assessed. For instance, if barriers that may affect dispersion of air pollutants are proposed, then the implications of such remedies on air quality impact shall be assessed. If noise enclosure is proposed, then portal emissions of the enclosed road section and air quality inside the enclosed road section shall also be addressed. The EIA 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 ASR's, on contour maps for reference.	Section 5.3.5.16 and Appendix 5.3.15-4: portal and ventilation building included. The effect of portal emission has been considered for tunnels (e.g. section of TMCLKL, airside tunnel).



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
83.	Appendix A I 6. (i)	Where the predicted air quality impact exceeds the criteria set in section 1 of Annex 4 in the TM, the EIA shall consider mitigation measures to reduce the air quality impact on the identified ASRs. The feasibility, practicability, 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 in the TM or to maximise the protection of the ASRs as far as possible should be clearly substantiated and documented in the EIA report.	<p>Section 5.2.6 mitigation measure's discussed and included in the assessment</p> <p>To ensure compliance with the TSP, RSP and FSP criteria during the construction phase, the relevant requirements stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, EPD's <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94)</i>, EPD's <i>Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) BPM 11/1 (95)</i> as well as the good practices for dust control should be implemented to reduce the dust impact.</p> <p>Section 5.2.7.1 No residual TSP or RSP impacts are anticipated during the construction phase of the project. With the recommended mitigation measures in place no residual TSP, RSP or FSP impacts are anticipated at all ASRs during the construction phase of the project.</p> <p>Based on the assessment, no mitigation measures for operational air quality is required. Section 5.3.7 summarized the enhancement measures included in the operational air quality assessment to further reduce the air quality impact.</p> <p>Measures aimed at reducing air emissions from airport activities and operations include:</p> <ul style="list-style-type: none"> <li>Banned all idling vehicle engines on the airside since 2008, except for certain vehicles that are exempted (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li> <li>Banning the use of APU for all aircraft at frontal stands by end 2014 (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li> <li>Requiring all saloon vehicles as electric vehicles by end 2017 (This measure has already been incorporated in the model for 2031 3RS scenario simulation)</li> <li>Increasing charging stations for EVs and electric GSE to a total of 290 by end 2018</li> <li>Conducting review on existing GSE emission performance and explore measures to further control air emissions</li> <li>Exploring with franchisees feasibility of expediting replacement of old airside vehicles and GSE with cleaner ones during tender or renewal of contracts</li> <li>Requiring all new airside vehicles to be fuel-efficient and making it a prerequisite for the licensing process;</li> <li>Providing the cleanest diesel and gasoline at the airfield;</li> <li>Requiring all of the AAHK's diesel vehicles to use biodiesel (B5);</li> <li>Promoting increased use of electric vehicles and electric ground service equipment at HKIA by provision of charging infrastructure; and</li> <li>Providing a liquefied petroleum gas (LPG) fuelling point for airside vehicles and ground service equipment.</li> </ul> <p>Section 5.3.8 no adverse residual impacts are anticipated during operational phase of project.</p>
84.	Appendix A I 6. (ii)	Upon consideration of mitigation measures, if the mitigated air quality impact still exceeds the relevant criteria in Annex 4 of TM, the EIA shall identify, predict, evaluate the residual air quality impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings, classrooms and other air sensitive elements that will be exposed to residual air quality impacts exceeding the criteria set in Annex 4 in the TM.	<p>5.2.7.1 No residual TSP or RSP impacts are anticipated during the construction phase of the project. With the recommended mitigation measures in place no residual TSP, RSP or FSP impacts are anticipated at all ASRs during the construction phase of the project.</p> <p>Section 5.3.8 no adverse residual impacts are anticipated during operational phase of project.</p>
85.	Appendix A I 7. (i)	Input and output file(s) of model run(s) including those files for generating the pollution contours shall be submitted to the Director in electronic format together with the submission of the EIA report.	Appendices provide assumptions and data inputs, summary results tables included. Model files are supplied to EPD
86.	Appendix A II 1. (i)	The health impact assessment shall include an identification of key components of Toxic Air Pollutants (TAP) from the aircraft emissions and associated activities during the operation of the Project.	The key components of TAP that are related to emissions from aircraft and associated activities arising from the operation of the project have been identified and present in Table 17.4 and Appendix 17.2 .2.
87.	Appendix A II 1. (ii)	The health impact assessment shall include an assessment of the likelihood and consequences of exposure to the identified key components of TAP emissions.	The likelihood and consequences of exposure have been addressed in 17.2.4.11 – 17.2.4.22 and Table 17.13 of Chapter 17 respectively.
88.	Appendix A II 1. (iii)	The health impact assessment shall include an identification of means by which the health impact could be further reduced.	Not required as the health impact is acceptable



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check								
89.	Appendix A II 1. (iv)	The health impact assessment shall include recommendation of reasonably practicable measures, if any, to reduce the health impact during the operation of the Project.	Not required as the health impact is acceptable								
90.	Appendix A II 2.	The environmental health impact assessment on TAP shall include pathways by which the TAP may enter the human body, including inhalation, direct dermal contact as well as consumption of food and water which may be contaminated by the TAP emitted from aircraft and relevant existing, committed and planned sources.	The pathways were listed and discussed in Paragraphs 17.2.5.4 to 17.2.5.15.								
91.	Appendix A-1 1.1	To expedite the review process by the Authority and to assist project proponents or environmental consultants with the conduct of air quality modelling exercises which are frequently called for as part of environmental impact assessment studies, this paper describes the usage and requirements of a few commonly used air quality models.	Noted.								
92.	Appendix A-1 2.1	<p>The models which have been most commonly used in air quality impact assessments, due partly to their ease of use and partly to the quick turn-around time for results, are of Gaussian type and designed for use in simple terrain under uniform wind flow. There are circumstances when these models are not suitable for ambient concentration estimates and other types of modes such as physical, numerical or mesoscale models will have to be used. In situations where topographic, terrain or obstruction effects are minimal between source and receptor, the following Gaussian models can be used to estimate the near-field impacts of a number of source types including dust, traffic and industrial emissions.</p> <table><tr><th>Model</th><th>Applications</th></tr><tr><td>FDM</td><td>for evaluating fugitive and open dust source impacts (point, line and area sources)</td></tr><tr><td>CALINE 4</td><td>for evaluating mobile traffic emission impacts (line sources)</td></tr><tr><td>ISCST3</td><td>for evaluating industrial chimney releases as well as area and volumetric sources (point, area and volume sources); line sources can be approximated by a number of volume sources.</td></tr></table> <p>These frequently used models are also referred to as <u>Schedule 1</u> models (see attached list).</p>	Model	Applications	FDM	for evaluating fugitive and open dust source impacts (point, line and area sources)	CALINE 4	for evaluating mobile traffic emission impacts (line sources)	ISCST3	for evaluating industrial chimney releases as well as area and volumetric sources (point, area and volume sources); line sources can be approximated by a number of volume sources.	Noted.
Model	Applications										
FDM	for evaluating fugitive and open dust source impacts (point, line and area sources)										
CALINE 4	for evaluating mobile traffic emission impacts (line sources)										
ISCST3	for evaluating industrial chimney releases as well as area and volumetric sources (point, area and volume sources); line sources can be approximated by a number of volume sources.										
93.	Appendix A-1 2.2	Note that both FDM and CALINE4 have a height limit on elevated sources (20 m and 10m, respectively). Source of elevation above these limits will have to be modelled using the ISCST3 model or suitable alternative models. In using the latter, reference should be made to the 'Guidelines on the Use of Alternative Computer Models in Air Quality Assessment'.	Noted.								
94.	Appendix A-1 2.3	The models can be used to estimate both short-term (hourly and daily average) and long-term (annual average) ambient concentrations of air pollutants. The model results, obtained using appropriate model parameters (refer to Section 3) and assumptions, allow direct comparison with the relevant air quality standards such as the Air Quality Objectives (AQOs) for the relevant pollutant and time averaging period.	Noted.								
95.	Appendix A-1 3.1.1	A least 1 year of recent meteorological data (including wind speed, wind direction, stability class, ambient temperature and mixing height) from a weather station either closest to or having similar characteristics as the study site should be used to determine the highest short-term (hourly, daily) and long-term (annual) impacts at identified air sensitive receivers in that period. The amount of valid data for the period should be no less than 90 percent.	<p>Noted. Grid specific PATH meteorological data was used for construction phase modelling.</p> <p>Noted. Grid specific PATH meteorological data was used for operational phase modelling.</p>								
96.	Appendix A-1 3.1.2	<p>Alternatively, the meteorological conditions as listed below can be used to examine the worst case short-term impacts:</p> <p>Day time: stability class D; wind speed 1 m/s (at 10m height); worst-case wind angle; mixing height 500m</p> <p>Night time : stability class F; wind speed 1 m/s (at 10m height); worst case wind angle; mixing height 500m</p> <p>This is common practice with using the CALINE4 model due to its inability to handle lengthy data set.</p>	<p>Noted, Not applicable to this assessment.</p> <p>Noted. Grid specific PATH meteorological data was used for operational phase modelling.</p>								
97.	Appendix A-1 3.1.3	<p>For situations where, for example, (i) the model (such as CALINE4) does not allow easy handling of one full year of meteorological data; or (ii) model run time is a concern, the followings can be adopted in order to determine the daily and annual average impacts:</p> <p>(i) perform a frequency occurrence analysis of one year of meteorological data to determine the actual wind speed (to the nearest unit of m/s), wind direction (to the nearest 10°) and stability (classes A to F) combinations and their frequency of occurrence;</p> <p>(ii) determine the short term hourly impact under all of the identified wind speed, wind direction and stability combinations; and</p> <p>(iii) apply the frequency data with the short term results to determine the long term (daily / annual) impacts.</p> <p>Apart from the above, any alternative approach that will capture the worst possible impact values (both short term and long term) may also be considered.</p>	<p>Noted. Not applicable to this assessment.</p> <p>Noted. Grid specific PATH meteorological data was used for operational phase modelling.</p>								
98.	Appendix A-1 3.1.4	Note that the anemometer height (relative to a datum same for the sources and receptors) at which wind speed measurements were taken at a selected station should be correctly entered in the model. These measuring positions can vary greatly from station to station under vertical wind profile employed in the model can be grossly distorted from the real case if incorrect anemometer height is used. This will lead to unreliable concentration estimates.	Noted. MM5 data is modelled with an anemometer height of 10m.								
99.	Appendix A-1 3.1.5	<p>An additional parameter, namely, the standard deviation of wind direction, <math>\sigma_\theta</math>, needs to be provided as input to the CALINE4 model. Typical values of <math>\sigma_\theta</math> range from 12° for rural areas to 24° for highly urbanised areas under 'D' class stability. For semi-rural such as new development areas, 18° is more appropriate under the same stability condition. The following reference can be consulted for typical ranges of standard deviation of wind direction under different stability categories and surface roughness conditions.</p> <p><i>Ref.(1): Guideline On Air Quality Models (Revised), EPA-450/2-78/027R, United States Environmental Protection Agency, July 1986.</i></p>	The standard derivation of wind direction is based on Guideline On Air Quality Models (Revised), EPA-450/2-78/027R, United States Environmental Protection Agency, July 1986.								

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check								
100.	Appendix A-1 3.2	<p>Emission Sources</p> <p>All the identified sources relevant to a process plant or a study site should be entered in the model and the emission estimated based on emission factors compiled in the AP-42 (Ref. 2) or other suitable references. The relevant sections of AP-42 and any parameters or assumptions used in deriving the emission rates (in units g/s, g/s/m, or g/s/m<sup>2</sup>) as required by the model should be clearly stated for verification. The physical dimensions, location, release height and any other emission characteristics such as efflux conditions and emission pattern of the sources input to the model should also correspond to site data. If the emission of a source varies with wind speed, the wind speed-dependent factor should be entered.</p> <p><i>Ref. (2): Compilation of Air Pollutant Emission Factors, AP-42, 5<sup>th</sup> Edition, United States Environmental Protection Agency, January 1995.</i></p>	<p>Appendices 5.2. 7, 5.2.9 and 5.2.15 give the emissions and source information entered in the model.</p> <p>Appendix 5.3.15 gives the emissions and source information entered in the model.</p>								
101.	Appendix A-1 3.3	<p>Urban/Rural Classification</p> <p>Emission sources may be located in a variety of settings. For modelling purposes these are classed as either rural or urban so as to reflect the enhanced mixing that occurs over urban areas due to the presence of buildings and urban heat effects. The selection of either rural or urban dispersion coefficients in a specific application should follow a land use classification procedure. If the land use types including industrial, commercial and residential uses account for 50% or more of an area within 3km radius from the source, the site is classified as urban; otherwise, it is classed as rural.</p>	<p>Operational AQA: Urban / Rural classification were based on population in the 12 sectors around the airport</p>								
102.	Appendix A-1 3.4	<p>Surface Roughness Height</p> <p>This parameter is closely related to land use characteristics of a study area and associated with the roughness element height. As a first approximation, the surface roughness can be estimated as 3 to 10 percent of the average height of physical structures. Typical values used for urban and new development areas are 370 cm and 100 cm, respectively.</p>	<p>Surface roughness was calculated on a year-by-year basis according to the 3km surrounding the project site. Details are in Appendix 5.2.4.</p> <p>For operation phase, surface roughness was determined from Aermet according to landuse.</p>								
103.	Appendix A-1 3.5	<p>Receptors</p> <p>These include discrete receptors representing all the identified air sensitive receivers at their appropriate locations and elevations and any other discrete or grid receptors for supplementary information. A receptor grid, whether Cartesian or Polar, may be used to generate results for contour outputs.</p>	<p>Discrete receptors are found in Table 5.3.1. Contours are modelled at 1.5m above ground.</p>								
104.	Appendix A-1 3.6	<p>Particle Size Classes</p> <p>In evaluating the impacts of dust-emitting activities, suitable dust size categories relevant to dust sources concerned with reasonable breakdown in TSP (&lt;30µgm) and RSP (&lt;10µgm) compositions should be used.</p>	<p>Particle size classes are defined by activity type. Details are found in Appendix 5.2.3.</p>								
105.	Appendix A-1 3.7	<p>NO<sub>2</sub> to NO<sub>x</sub> Ratio</p> <p>The conversion of NO<sub>x</sub> to NO<sub>2</sub> is a result of a series of complex photochemical reactions and has implications on prediction of near field impacts of traffic emissions. Until further data are available, three approaches currently acceptable in the determination of NO<sub>2</sub>:</p> <p>(a) Ambient Ratio Method (ARM) – assuming 20% of NO<sub>x</sub> to be NO<sub>2</sub>; or</p> <p>(b) Discrete Parcel Method (DPM, available in the CALINE4 model); or</p> <p>(c) Ozone Limiting Method (OLM) – assuming the tailpipe NO<sub>2</sub> emission to be 7.5% of NO<sub>x</sub> and the background ozone concentration to be in the range 57 to 68 µg/m<sup>3</sup> depending on the land use type (see also EPD reference paper ‘Guidelines on Assessing the ‘TOTAL’ Air Quality Impacts’).</p>	<p>OLM was adopted for conversion of NO<sub>x</sub> to NO<sub>2</sub></p>								
106.	Appendix A-1 3.8	<p>Odour Impact</p> <p>In assessing odour impacts, a much shorter time-averaging period of 5 seconds is required due to the shorter exposure period tolerable by human receptors. Conversion of model computed hourly average results to 5-second values is therefore necessary to enable comparison against recommended standard. The hourly concentration is first converted to 3-minute average value according to a power law relationship which is stability dependent (<i>Ref. 3</i>) and a result of the statistical nature of atmospheric turbulence. Another conversion factor (10 for unstable conditions and 5 for neutral to stable conditions) is then applied to convert the 3-minute average to 5-second average (<i>Ref. 4</i>). In summary, to convert the hourly results to 5-second averages, the following factors can be applied:</p> <table><tr><th><u>Stability Category</u></th><th><u>1-hour to 5-sec Conversion Factor</u></th></tr><tr><td>A&amp;B</td><td>45</td></tr><tr><td>C</td><td>27</td></tr><tr><td>D</td><td>9</td></tr></table> <p>Under ‘D’ class stability, the 5-second concentration is approximately 10 times the hourly average result. Note, however, that the combined use of such conversion factors together with the ISCST results may not be suitable for assessing the extreme close-up impacts of odour sources.</p> <p><i>Ref.(3): Richard A. Duffee, Martha A. O'Brien and Ned Ostojic, ‘Odor Modeling – Why and How’, Recent Developments and Current Practices in Odor Regulations, Controls and Technology, Air &amp; Waste Management Association, 1991.</i></p> <p><i>Ref.(4): A.W.C. Keddie, ‘Dispersion of Odours’, Odour Control – A Concise Guide, Warren Spring Laboratory, 1980.</i></p>	<u>Stability Category</u>	<u>1-hour to 5-sec Conversion Factor</u>	A&B	45	C	27	D	9	<p>N/A</p>
<u>Stability Category</u>	<u>1-hour to 5-sec Conversion Factor</u>										
A&B	45										
C	27										
D	9										

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107.	Appendix A-1 3.9	<p>Plume Rise Options</p> <p>The ISCST3 model provides by default list of the U.S. regulatory options for concentration calculations. These are all applicable to the Hong Kong situations except for the 'Final Plume Rise' option. As the distance between sources and receptors are generally fairly close, the non-regulatory option of 'Gradual Plume Rise' should be used instead to give more accurate estimate of near-field impacts due to plume emission. However, the 'Final Plume Rise' option may still be used for assessing the impacts of distant sources.</p>	<p>N/A</p> <p>Aermod model was adopted in the assessment</p>
108.	Appendix A-1 3.10	<p>Portal Emissions</p> <p>These include traffic emissions from tunnel portals and any other similar openings and are generally modelled as volume sources according to the PIARC 91 (or more up-to-date version) recommendations (<i>Ref. 5</i>, section III.2). For emissions arising from underpasses or any horizontal openings of the like, these are treated as area or point sources depending on the source physical dimensions. In all these situations, the ISCST3 model or more sophisticated models will have to be used instead of the CALINE4 mode. In the case of portal emissions with significant horizontal exit velocity which cannot be handled by the ISCST3 mode, the impacts may be estimated by the TOP model (<i>Ref. 6</i>) or any other suitable models subject to prior agreement with EPD. The EPD's '<i>Guidelines on the Use of Alternative Computer Models in Air Quality Assessment</i>' should also be referred to.</p> <p><i>Ref.(5): XIXth World Road Congress Report, Permanent International Association of Road Congress (PIARC), 1991.</i>  <i>Ref.(6): N.Ukegunchi, H. Okamoto and Y. Ide "Prediction of vehicular emission pollution around a tunnel mouth", Proceedings 4th International Clean Air Congress, pp. 205-207, Tokyo, 1977</i></p>	<p>N/A</p> <p>Operational AQA: Portal Emission has followed the PIARC91 and AERMOD was adopted for Modelling</p>
109.	Appendix A-1 3.11	<p>Background Concentrations</p> <p>Background concentrations are required to account for far-field sources which cannot be estimated by the model. These values, to be used in conjunction with model results for assessing the total impacts, should be based on long term average of monitoring data at location representative of the study site. Refer to EPD reference paper 'Guidelines on Assessing the 'TOTAL' Air Quality Impacts' for further information.</p>	<p>Construction AQA: PATH model was adopted for background concentration modelling</p> <p>Operational AQA: PATH model was adopted for background concentration modelling</p>
110.	Appendix A-1 3.12	<p>Output</p> <p>The highest short-term and long-term averages of pollutant concentrations at prescribed receptor locations are output by the model and to be compared against the relevant air quality standards specified for the relevant pollutant. Contours of pollutant concentration are also required for indicating the general impacts of emissions over a study area.</p>	<p>Construction dust results are found in Appendices 5.2.18 to 5.2.22.</p> <p>Operational AQA: Results are presented in Section 5.3.6.</p>
111.	Appendix A-1 Schedule 1	<p>Air Quality Models Generally Accepted by Hong Kong Environmental Protection Department For Regulatory Applications as at 1 July 1998*</p> <p>Industrial Source Complex Dispersion Model - Short Term Version 3 (ISCST3) or the latest version developed by U.S. Environmental Protection Agency (USEPA)</p> <p>California Line Source Dispersion Model Version 4 (CALINE4) or the latest version developed by Department of Transportation, State of California, U.S.A.</p> <p>Fugitive Dust Model (FDM) or the latest version developed by USEPA.</p>	<p>Noted, FDM used for construction dust modelling.</p> <p>Operational AQA: Caline4 model and AERMOD model were used for operational air quality modelling</p>

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
112.	Appendix A-2 1.1	<p>In evaluating the air quality impacts of a proposed project upon air sensitive receivers, contributions from three classes of emission sources depending on their distance from the site should be considered. These are:</p> <p>Primary contributions: project induced</p> <p>Secondary contributions: pollutant-emitting activities in the immediate neighbourhood</p> <p>Other contributions: pollution not accounted for by the previous two (Background contributions)</p>	<p>Primary contributions: Project</p> <p>Secondary contributions: Concurrent Projects</p> <ul style="list-style-type: none"> <li>Hong Kong – Zhuhai – Macao Bridge (HZMB) Hong Kong Link Road (Construction Period: 2011 - 2015);</li> <li>HZMB Hong Kong Boundary Crossing Facilities (HKBCF) (Construction Period: 3rd quarter of 2010 - end 2016);</li> <li>New Contaminated Mud Marine Disposal Facility at HKIA East/ East Sha Chau Area (Construction Period: 2007 - 2015);</li> <li>North Commercial District (Construction period: 2015 - 2019);</li> <li>Intermodal Transfer Terminus (Construction period: 2014 – 2017);</li> <li>Other airport facilities related works consisting of the modification of existing airport facilities and the development of additional airport car parks, coach station, vehicular staging and Terminal 1 (T1) check-in facilities (Construction period: 2016 – 2019); and</li> <li>Tung Chung New Town Extension Study (Proposed commencement of construction in 2018 for first population intake in 2023/24).</li> </ul> <p>Other: Background from PATH, aircraft and traffic</p> <p>Operational Air Quality Assessment: Project contribution: airport related activities (S5.3.4.2 – 5.3.4.83) Secondary Contributions: Proximity Infrastructure Emission (S5.3.4.84 – 5.3.4.98) Other: Ambient (5.3.6.99 – 5.3.6.106)</p>
113.	Appendix A-2 2.1	<p>Primary contributions</p> <p>In most cases, the project-induced emissions are fairly well defined and quite often (but not necessarily) the major contributor to local air quality impacts. Examples include those due to traffic network, building or road construction projects.</p>	Refer to point 112.
114.	Appendix A-2 2.2	<p>Secondary contributions</p> <p>Within the immediate neighbourhood of the project site, there are usually pollutant emitting activities contributing further to local air quality impacts. For most local scale projects, any emission sources in an area within 500m radius of the project site with notable impacts should be identified and included in an air quality assessment to cover the short-range contributions. In the exceptional cases where there is one or more significant sources nearby, the study area may have to be extended or alternative estimation approach employed to ensure these impacts are reasonably accounted for.</p>	Refer to point 112.
115.	Appendix A-2 2.3	<p>Background contributions</p> <p>The above two types of emission contributions should account for, to a great extent, the air quality impacts upon local air sensitive receivers, which are often amenable to estimation by the 'Gaussian Dispersion' type of models. However, a background air quality level should be prescribed to indicate the baseline air quality in the region of the project site, which would account for any pollution not covered by the two preceding contributions. The emission sources contributing to the background air quality would be located further afield and not easy to identify. In addition, the transport mechanism by which pollutants are carried over long distances (ranging from 1km up to tens or hundreds of kms) is rather complex and cannot be adequately estimated by the 'Gaussian' type of models.</p>	Refer to point 112.
116.	Appendix A-2 3.1	<p>The approach</p> <p>In view of the difficulties in estimating background air quality using the air quality models currently available, an alternative approach based on monitored data is suggested. The essence of this approach is to adopt the long-term (5-year) averages of the most recent monitored air quality data obtained by EPD. These background data would be reviewed yearly or biennially depending on the availability of the monitored data. The approach is a first attempt to provide a reasonable estimate of the background air quality level for use in conjunction with EIA air quality assessment to address the cumulative impacts upon a locality. This approach may be replaced or supplemented by superior modelling efforts such as that entailed in PATH (Pollutants in the Atmosphere and their Transport over Hong Kong), a comprehensive territory-wide air quality modelling system currently being developed for Hong Kong. Notwithstanding this, the present approach is based on measured data and their long term regional averages; the background values so derived should therefore be indicative of the present background air quality. In the absence of any other meaningful way to estimate a background air quality for the future, this present background estimate should also be applied to future projects as a first attempt at a comprehensive estimate until a better approach is formulated.</p>	N/A PATH model was adopted for background concentration

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117.	Appendix A-2 3.2	<p>Categorisation</p> <p>The monitored air quality data, by 'district-averaging' are further divided into three categories, viz, Urban, Industrial and Rural/New Development. The background pollutant concentrations to be adopted for a project site would depend on the geographical constituency to which the site belongs. The categorisation of these constituencies is given in Section 3.4. The monitoring stations suggested for the 'district-averaging' (arithmetic means) to derive averages for the three background air quality categories are listed as follows:</p> <p>Urban: Kwun Tong, Sham Shui Po, Tsim Sha Tsui and Central/Western Industrial: Kwun Tong, Tsuen Wan and Kwai Chung Rural/New Development: Sha Tin, Tai Po, Junk Bay, Hong Kong South and Yuen Long</p> <p>The averaging would make use of data from the above stations wherever available. The majority of the monitoring stations are located some 20m above ground.</p>	Air quality monitoring data from various monitoring stations have been analysed in Section 5.1.3																				
118.	Appendix A-2 3.3	<p>Background pollutant values</p> <p>Based on the above approach, background values for the 3 categories have been obtained for a few major air pollutants as follows:</p> <table><tr><td>POLLUTANT</td><td>URBAN</td><td>INDUSTRIAL</td><td>RURAL/NEW DEVELOPMENT</td></tr><tr><td>NO<sub>2</sub></td><td>59</td><td>57</td><td>39</td></tr><tr><td>SO<sub>2</sub></td><td>21</td><td>26</td><td>13</td></tr><tr><td>O<sub>3</sub></td><td>62</td><td>68</td><td>57</td></tr><tr><td>TSP</td><td>98</td><td>96</td><td>87</td></tr></table> <p>All units are in micrograms per cubic metre. The above values are derived from 1992 to 1996 annual averages with the exception of ozone which represent annual average of daily hourly maximum values for year 1996.</p> <p>In cases where suitable air quality monitoring data representative of the study site such as those obtained from a nearby monitoring station or on-site sampling are not available for the prescription of background air pollution levels, the above tabulated values can be adopted instead. Strictly speaking, the suggested values are only appropriate for long term assessment. However, as an interim measure and until a better approach is formulated, the same values can also be used for short term assessment. This implies that the short term background values will be somewhat under-estimated, which compensates for the fact that some of the monitoring data are inherently influenced by secondary sources because of the monitoring station location.</p> <p>Indeed, if good quality on-site sampling data which over at least one year period are available, these can be used to derive both the long term (annual) and short term (daily / hourly) background values, the latter are usually applied on an hour to hour, day to day basis.</p>	POLLUTANT	URBAN	INDUSTRIAL	RURAL/NEW DEVELOPMENT	NO <sub>2</sub>	59	57	39	SO <sub>2</sub>	21	26	13	O <sub>3</sub>	62	68	57	TSP	98	96	87	Air quality monitoring data from various monitoring stations have been analysed in Section 5.1.3
POLLUTANT	URBAN	INDUSTRIAL	RURAL/NEW DEVELOPMENT																				
NO <sub>2</sub>	59	57	39																				
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TSP	98	96	87																				



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check																																								
119.	Appendix A-2 3.4	<p>Site categories</p> <p>The categories to which the 19 geographical constituencies belong are listed as follows:</p> <table><tr><th>DISTRICT</th><th>AIR QUALITY CATEGORY</th></tr><tr><td>Islands</td><td>Rural/New Development</td></tr><tr><td>Southern</td><td>Rural/New Development</td></tr><tr><td>Eastern</td><td>Urban</td></tr><tr><td>Wan Chai</td><td>Urban</td></tr><tr><td>Central &amp; Western</td><td>Urban</td></tr><tr><td>Sai Kung</td><td>Rural/New Development</td></tr><tr><td>Kwun Tong</td><td>Industrial</td></tr><tr><td>Wong Tai Sin</td><td>Urban</td></tr><tr><td>Kwoloong City</td><td>Urban</td></tr><tr><td>Yau Tsim</td><td>Urban</td></tr><tr><td>Mong Kok</td><td>Urban</td></tr><tr><td>Sham Shui Po</td><td>Urban</td></tr><tr><td>Kwai Tsing</td><td>Industrial</td></tr><tr><td>Sha Tin</td><td>Rural/New Development</td></tr><tr><td>Tsuen Wan</td><td>Industrial</td></tr><tr><td>Tuen Mun</td><td>Rural/New Development</td></tr><tr><td>Tai Po</td><td>Rural/New Development</td></tr><tr><td>Yuen Long</td><td>Rural/New Development</td></tr><tr><td>Northern</td><td>Rural/New Development</td></tr></table>	DISTRICT	AIR QUALITY CATEGORY	Islands	Rural/New Development	Southern	Rural/New Development	Eastern	Urban	Wan Chai	Urban	Central & Western	Urban	Sai Kung	Rural/New Development	Kwun Tong	Industrial	Wong Tai Sin	Urban	Kwoloong City	Urban	Yau Tsim	Urban	Mong Kok	Urban	Sham Shui Po	Urban	Kwai Tsing	Industrial	Sha Tin	Rural/New Development	Tsuen Wan	Industrial	Tuen Mun	Rural/New Development	Tai Po	Rural/New Development	Yuen Long	Rural/New Development	Northern	Rural/New Development	N/A. PATH model was adopted for background concentration
DISTRICT	AIR QUALITY CATEGORY																																										
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Northern	Rural/New Development																																										
120.	Appendix A-2 3.5	<p>Provisions for “double-counting”</p> <p>The current approach is, by no means, a rigorous treatment of background air quality but aims to provide an as-realistic-as possible approximation based on limited field data. ‘Double-counting’ of ‘secondary contributions’ may be apparent through the use of such ‘monitoring-based’ background data as some of the monitoring stations are of closely proximity to existing emission sources. ‘Primary contributions’ due to a proposed project (which is yet to be realised) will not be double-counted by such an approach. In order to avoid over-estimation of background pollutant concentrations, an adjustment to the values given in section 3.3 is possible and optional by multiplying the following factor:</p> <p><math>(1.0 - E_{\text{secondary contributions}}/E_{\text{Territory}})</math> where E stands for emission.</p> <p>The significance of this factor is to eliminate the fractional contribution to background pollutant level of emissions due to ‘secondary contributions’ out of those from the entire territory. In most cases, this factional contribution to background pollutant levels by the secondary contributions is minimal.</p>	N/A. PATH model was adopted for background concentration. Secondary contribution has been taken out to avoid double counting																																								
121.	Appendix A-2 4.1	<p>The above described approach to estimating the total air quality impacts of a proposed project, in particular the background pollutant concentrations for air quality assessment, should be adopted with immediate effect. Use of short term monitoring data to prescribe the background concentrations is no longer acceptable.</p>	N/A. PATH model was adopted for background concentration.																																								
122.	Appendix A-3 1.1	<p>In Hong Kong, a number of Gaussian plume models are commonly employed in regulatory applications such as application for specified process licences and environmental impact assessments (EIAs). These frequently used models (as listed in <u>Schedule 1</u> attached; hereafter referred to as Schedule 1 models) have no regulatory status but form the basic set of tools for local-scale air quality assessment in Hong Kong.</p>	N/A. Schedule 1 models (except AERMOD) have been use. For AERMOD, it was agreed with EPD that it can be used instead of ISCST3.																																								
123.	Appendix A-3 1.2	<p>However, no single model is sufficient to cover all situations encountered in regulatory applications. In order to ensure that the best model available is used for each regulatory application and that a model is not arbitrarily applied, the project proponent (and/or its environmental consultants) should assess the capabilities of various models available and adopt one that is most suitable for the project concerned.</p>	AERMOD was adopted for airport related emission.Caline4 model was adopted for vehicular emission																																								
124.	Appendix A-3 1.3	<p>Examples of situations where the use of an alternative model is warranted include:</p> <p>(i) complexity of situation to be modelled far exceeds capability of Schedule 1 models; and</p> <p>(ii) performance of an alternative model is comparable or better than the Schedule 1 models.</p>	AERMOD model was agreed with EPD to replace the ISCST3 model																																								
125.	Appendix A-3 1.4	<p>This paper outlines the demonstration / submission required in order to support the use of an alternative air quality model for regulatory applications for Hong Kong.</p>	AERMOD model was agreed with EPD to replace the ISCST3 model																																								

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
126.	Appendix A-3 2.1	Any model that is proposed for air quality applications and not listed amongst the Schedule 1 models will be considered by EPD on a case-by-case basis. In such cases, the proponent will have to provide the followings for EPD's review: (i) Technical details of the proposed model; and (ii) Performance evaluation of the proposed model Based on the above information, EPD will determine the acceptability of the proposed model for a specific or general applications. The onus of providing adequate supporting materials rest entirely with the proponent.	AERMOD model was agreed with EPD to replace the ISCST3 model
127.	Appendix A-3 2.2	To provide technical details of the proposed model, the proponent should submit documents containing at least the following information: (i) mathematical formulation and data requirements of the model; (ii) any previous performance evaluation of the model; and (iii) a complete set of model input and output file(s) in commonly used electronic format.	AERMOD model has been well validated by USEPA. It was agreed with EPD to replace the ISCST3 model
128.	Appendix A-3 2.3	On performance evaluation, the required approach and extent of demonstration varies depending on whether a Schedule 1 model is already available and suitable in simulating the situation under consideration. In cases where no Schedule 1 model is found applicable, the proponent must demonstrate that the proposed model passes the screening test as set out in USEPA Document "Protocol for Determining the Best Performing Model"	AERMOD model has been well validated by USEPA. It was agreed with EPD to replace the ISCST3 model
129.	Appendix A-3 2.4	For cases where a Schedule 1 model is applicable to the project under consideration but an alternative model is proposed for use instead, the proponent must demonstrate either that (i) the highest and second highest concentration predicted by the proposed model are within 2 percent of the estimates obtained from an applicable Schedule 1 model (with appropriate options chosen ) for all receptors for the project under consideration; or (ii) the proposed model has superior performance against an applicable Schedule 1 model based on the evaluation procedure set out in USEPA Document "Protocol for Determining the Best Performing Model"	AERMOD model has been well validated by USEPA. It was agreed with EPD to replace the ISCST3 model
130.	Appendix A-3 2.5	Should EPD find the information on technical details alone sufficient to indicate the acceptability of the proposed model, information on further performance evaluation as specified in Sections 2.3 and 2.4 above would not be necessary.	AERMOD model has been well validated by USEPA. It was agreed with EPD to replace the ISCST3 model
131.	Appendix A-3 2.6	If the proposed model is an older version of one of the Schedule 1 models or was previously included in Schedule 1, the technical documents mentioned in Section 2.2. are normally not required. However, a performance demonstration of equivalence as stated in Section 2.4 (i) would become necessary.	N/A
132.	Appendix A-3 2.7	If EPD is already in possession of some of the documents that describe the technical details of the proposed model, submission of the same by the proponent is not necessary. The proponent may check with EPD to avoid sending in duplicate information.	AERMOD model has been well validated by USEPA. It was agreed with EPD to replace the ISCST3 model
133.	Appendix A-3 Schedule 1	Air Quality Models Generally Accepted by Hong Kong Environmental Protection Department For Regulatory Applications as at 1 July 1998* Industrial Source Complex Dispersion Model - Short Term Version 3 (ISCST3) or the latest version developed by U.S. Environmental Protection Agency (USEPA) California Line Source Dispersion Model Version 4 (CALINE4) or the latest version developed by Department of Transportation, State of California, U.S.A. Fugitive Dust Model (FDM) or the latest version developed by USEPA.	
134.	Appendix B 1. (i)	The EIA shall carry out hazard assessment to evaluate the risk due to construction works near the existing aviation fuel pipelines and storage facilities. The hazard assessment shall identify hazardous scenarios associated with construction work damage to aviation fuel pipelines and storage facilities and then determine a set of relevant scenarios to be included in a Quantitative Risk Assessment (QRA). The methodology to be used in the hazard assessment shall be consistent with previous studies having similar issues (e.g. Permanent Aviation Fuel Facility for Hong Kong International Airport; Integration of Siu Ho Wan and Silvermine Bay Water Treatment Works)	Hazardous scenarios related to relevant pipelines and facilities have been identified via historical review and systematic hazard identification workshop, see Section 6.9 for details.  The methodology used in the hazard assessment has been consistent with previous studies conducted in HK having similar issues. For example, the EIA Study of Permanent Aviation Fuel Facility (PAFF) has been made reference for studying the risk associated with submarine aviation fuel pipeline. Please refer to Section 6.11.
135.	Appendix B 1. (ii)	The EIA shall execute a QRA of the set of hazardous scenarios determined in item 1(i), expressing population risks in both individual and societal terms.	Frequency analysis and consequence modelling have been conducted to generate both individual risk and societal risk for the construction works near the existing aviation fuel pipeline and storage facilities. Details have been shown in Section 6.11.
136.	Appendix B 1. (iii)	The EIA shall compare individual and societal risks with the criteria for evaluating hazard to human life stipulated in Annex 4 of the TM	Individual risk is below 1E-05 which is complied with the Hong Kong Risk Guideline. The societal risk is in Acceptable Region of the FN curve and mitigation measures are not required. Results were shown in Section 6.14 comparing against individual and societal risks criteria stipulated in Annex 4 of the TM.
137.	Appendix B 1. (iv)	The EIA shall identify and assess practicable and cost-effective risk mitigation measures.	Risk level regarding item 1(i) at construction stage is in acceptable region. Recommendations / Potential Mitigation Measures have been identified during the hazard identification workshop and they have been shown in Section 6.16.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
138.	Appendix B 2. (i)	The EIA shall carry out hazard assessment to evaluate the risk due to the operation of new aviation fuel pipelines (submarine and underground) and new fuel hydrant systems for aircraft refuelling operation at the new aircraft stands in the Airport expansion area. The hazard assessment shall identify hazardous scenarios associated with the operation of new aviation fuel pipelines and hydrant systems for aircraft refuelling and then determine a set of relevant scenarios to be included in a QRA. The methodology to be used in the hazard assessment shall be consistent with previous studies having similar issues (e.g. Permanent Aviation Fuel Facility for Hong Kong International Airport).	Hazardous scenarios related to relevant pipelines and facilities have been identified through historical accident record review and hazard identification workshop, see Section 6.9 for details.  The methodology used in the hazard assessment has been consistent with previous studies conducted in HK having similar issues. For example, the EIA Study of Permanent Aviation Fuel Facility (PAFF) has been made reference for studying the risk associated with submarine aviation fuel pipeline. Please refer to Section 6.12.
139.	Appendix B 2. (ii)	The EIA shall execute a QRA of the set of hazardous scenarios determined in item 2(i), expressing population risks in both individual and societal terms.	Frequency analysis and consequence modelling have been conducted to generate both individual risk and societal risk due to the operation of the new aviation fuel pipeline and storage facilities. Details have been shown in Section 6.12.
140.	Appendix B 2. (iii)	The EIA shall compare individual and societal risks with the criteria for evaluating hazard to human life stipulated in Annex 4 of the TM	Individual risk is below 1E-05 which is complied with the Hong Kong Risk Guideline. The societal risk is in ALARP Region of the FN curve and it is dominated by aircraft refuelling operation. Results were shown in Section 6.14 comparing against individual and societal risks criteria stipulated in Annex 4 of the TM.
141.	Appendix B 2. (iv)	The EIA shall identify and assess practicable and cost-effective risk mitigation measures.	Risk level regarding item 2(i) at operation stage is in ALARP region, dominated by the aircraft refuelling operation. Mitigation measures have been identified in both hazard identification workshop and ALARP workshop. Recommendations / Potential Mitigation Measures were shown in Section 6.16.
142.	Appendix B 3. (i)	The EIA shall also carry out hazard assessment to evaluate the risk due to <u>new facilities for storage of dangerous goods</u> (DG) (i.e. Fuel for airside vehicles / ground services equipment). Stored fuels may include diesel, gasoline and LPG in the Airport expansion area. The hazard assessment shall identify hazardous scenarios associated with the above DG facilities and then determine a set of relevant scenarios to be included in a QRA. The methodology to be used in the hazard assessment shall be consistent with previous studies having similar issues (e.g. Kai Tak Development)	Hazardous scenarios related to relevant pipelines and facilities have been identified through historical accident record review and hazard identification workshop, see Section 6.9 for details The methodology used in the hazard assessment has been consistent with previous studies conducted in HK having similar issues. For example, the EIA Study of the Kai Tak Development (KTD) has been made reference for the airside petrol filling station assessment. Details have been shown in Section 6.13.
143.	Appendix B 3. (ii)	The EIA shall execute a QRA of the set of hazardous scenarios determined in item 3(i), expressing population risks in both individual and societal terms.	Frequency analysis and consequence modelling have been conducted to generate both individual risk and societal risk due to the operation of the new Airside Petrol Filling Station. Risk results in both individual and societal terms were shown in Section 6.14.
144.	Appendix B 3. (iii)	The EIA shall compare individual and societal risks with the criteria for evaluating hazard to human life stipulated in Annex 4 of the TM	Individual risk is below 1E-05 which is complied with the Hong Kong Risk Guideline. The societal risk is in Acceptable Region of the FN curve. Results were shown in Section 6.14 comparing against individual and societal risks criteria stipulated in Annex 4 of the TM.
145.	Appendix B 3. (iv)	The EIA shall identify and assess practicable and cost-effective risk mitigation measures.	Risk level regarding item 3(i) new airside petrol filling station at operation stage is in Acceptable region with mitigation measure not necessary.
146.	Appendix C I 1.1	The EIA shall describe the prevailing aircraft noise environment in the EIA report by providing the Noise Exposure Forecast (NEF) contours based on the prevailing aviation operations data of the Hong Kong International Airport (HKIA), aircraft noise mitigation measures currently adopted and relevant references to previous studies including but not limited to (i) New Airport Master Plan Environmental Impact Assessment (NAMP-EIA) (12/91) and Supplement to NAMP-EIA (10/92) and (ii) New Airport Master Plan – Environmental Impact Assessment Update (1998).	The prevailing aircraft noise environment was described in Sections 7.3.2.1 to 7.3.2.6 with reference to 1991 New Airport Master Plan – EIA, 1998 NAMP-EIA Update, and contour in year 2011 was presented in Drawing MCL/P132/EIA/7-8-003.
147.	Appendix C I 1.2	The EIA shall conduct prevailing background noise surveys to determine the standards for evaluating noise impact from fixed noise source and marine traffic noise sources. The respective noise environment should be documented in the EIA report.	Prevailing background noise surveys were conducted during May, June and July of 2013. Results of prevailing background noise surveys were included in Section 7.4.2.
148.	Appendix C I 2.1.1	The EIA shall carry out aircraft noise impact assessment in accordance with the guidelines set out by International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA) of United States Department of Transportation or other methodology as confirmed with the Director. In conducting aircraft noise impact assessment, the Applicant shall propose a computational model for agreement of the Director, prior to the commencement of the assessment.	The methodology was described in Section 7.3.3, following guidelines set out by ICAO and the FAA.  EPD agreed the use of computational model of INM in December 2012. Version 7.0c was the latest version at that moment, We have re-submitted the methodology paper indicating the latest version of 7.0d service update 1 in December 2013 to EPD.
149.	Appendix C I 2.1.2	The EIA shall demonstrate that the adopted methodology and computational model are suitable for use in Hong Kong.	This is described in Sections 7.3.3.1, 7.3.3.2 and 7.3.3.6 that the methodology follows international guidelines set out by ICAO and the FAA, and the INM has been used for the development of NEF contours associated with the operations of HKIA since 1991, and the followed reviews, updates and master plans.
150.	Appendix C I 2.1.3	The EIA shall explicitly state assumptions made for deriving the input data or other relevant data for the computational model, including but not limited to: (a) airport operational data including the number of aircraft, aircraft fleet mix, runway utilization, flight tracks, type of aircraft which utilize each flight track on an annual average daily-basis; (b) aircraft approaching operational data including glide slopes, glide slope intercept altitudes, and other relevant information needed to establish approach profiles along with the engine power levels needed to fly that approach profile; (c) aircraft departure operational data including the flight profile which is term of altitude to distance from start-of-roll along with the engine power levels needed to fly that takeoff profile and the takeoff weight of the aircraft or some proxy for weight such as stage length, etc.	This information was included in Section 7.3.3, starting from 7.3.3.10, and Appendix 7.3.4, in particular as the following: <ul style="list-style-type: none"><li>7.3.3.2</li><li>7.3.3.17 to 7.3.3.25, and Attachments 1 to 4 of Appendix 7.3.4</li><li>7.3.3.26 to 7.3.3.27</li><li>Attachment 5 of Appendix 7.3.4</li></ul>
151.	Appendix C I 2.1.4	Validity of the above data shall be confirmed with Civil Aviation Department and documented in the EIA report.	Validity of the assumptions and input data have been confirming with CAD as described in Sections 7.3.3.12 and 7.3.3.30.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
152.	Appendix C I 2.1.5	The EIA shall provide a summary and input data sets of computational model adopted in the assessment for each scenario together with the EIA report.	This was presented in Appendix 7.3.4.
153.	Appendix C I 2.2.1	The EIA shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for aircraft noise impact shall include area of existing, committed and planned NSRs under or near to the flight tracks/or in vicinity of the Hong Kong International Airport (HKIA), such as Ma Wan, Tuen Mun, Tsing Lung Tau, Shatin, Ma On Shan, Tsuen Wan, Sham Tseng, Tsing Yi, Tung Chung, Tai Kok Tsui, Siu Lam, Yuen Long, Kwai Chung and Sha Lo Wan etc., in association with the proposed Project.	The proposed assessment area covers the entire territory of Hong Kong. This was described in Section 7.3.1.2 and agreed with EPD in December 2012.
154.	Appendix C I 2.2.2	For planned noise sensitive land uses without committed site layouts, the EIA should use the relevant landuse and planning parameters and conditions to work out representative site layouts for aircraft noise assessment purpose. However, such parameters and conditions together with any constraints identified shall be confirmed with the relevant responsible parties including Planning Department and Lands Department.	As per Section 7.3.4.8, landuse site constraints have been identified at Lok On Pai area, where planned NSR are present.
155.	Appendix C I 2.2.3	The EIA shall identify and quantify an inventory of noise sources for aircraft noise impact assessment. The inventory of noise sources shall include, but not limited to, aircraft noise characteristics (such as data representing noise emission and performance etc) for all potential aircraft operating at the HKIA in accordance with the operational procedural steps in the HKIA. The information of the aircraft noise characteristics shall be referred to the Aircraft Noise and Performance database of the ICAO or a database as confirmed with the Director.	This was described in Section 7.3.3.2 following the ANP database in accordance with ICAO 9911 recommendations. For those aircrafts not adopting standard aircraft substitution database, they were described and justified in Appendix 7.3.2.
156.	Appendix C I 2.2.4	Validity of the above data shall be confirmed with Civil Aviation Department and documented in the EIA report.	Item 97 (Section I 2.1.4 in Appendix C of EIA Study Brief) above refers.
157.	Appendix C I 2.3.1	The EIA shall quantitatively assess the aircraft noise impact, with respect to the criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at assessment years of various operation modes including, but not limited to, (a) the worst operation mode which represents the maximum noise emission in connection of combination of number of aircraft, type of aircraft which utilize each flight track in time periods for both approaches and departures for the selected year; (b) the interim phase operation modes which represent the operation of the 3rd runway with closure of either or both of two existing runways of the HKIA; and (c) full operation of the three runway system which represents the operation of proposed 3 <sup>rd</sup> runway together with two existing runways at design capacity; and (d) any other operation modes as confirmed with the Director.	This was described in Section 7.3.4 and as the following: <ul style="list-style-type: none"> <li>Year 2030</li> <li>Year 2021</li> <li>Year 2032</li> </ul> The associated identification process was described in Sections 7.3.3.7 to 7.3.3.9 by Sequential INM Analysis.
158.	Appendix C I 2.3.2	Validity of the above operation modes shall be confirmed with Civil Aviation Department and documented in the EIA report.	Item 97 (Section I 2.1.4 in Appendix C of EIA Study Brief) above refers. Validity of the operation modes has be confirmed with Civil Aviation Department and documented in Section 7.3.3.30.
159.	Appendix C I 2.3.3	The EIA shall present the predicted aircraft noise impact in Noise Exposure Forecast (NEF) contours, with reference to Annex 5 of the TM, including contours for each scenario assessed under various operation modes, on plans of suitable scale and documented in the EIA report.	Noise contours were presented on Drawings MCL/P132/EIA/7-3-007 to 009.
160.	Appendix C I 2.3.4	The assessment shall cover the cumulative aircraft noise impact associated with the operation of the proposed project and HKIA on existing, committed and planned NSRs under or near to the flight tracks; or in vicinity of the HKIA.	This was included Sections 7.3.4.7 to 7.3.4.15 and Drawings MCL/P132/EIA/7-3-007 to 009. Cumulative aircraft noise impact included all relevant operations by these 3 runways. NSRs were identified in Table 7.8.1 and impacts to these receivers were shown graphically on Drawings MCL/P132/EIA/7-3-007 to 009.
161.	Appendix C I 2.3.5	To determine the extent of the impact, the EIA shall provide maps at an adequately detailed scale (not less than 1:5000) to show the NEF contours, the HKIA and its environs indicating runway length, alignments, airport boundary, flight tracks and the relevant NSRs under or near to the flight tracks.	This was presented in Drawings MCL/P132/EIA/7-3-002, 004 to 009. A separate hardcopy set (scale 1:5000 map) is provided
162.	Appendix C I 2.3.6	Where the predicted aircraft noise impact exceeds the criteria set in Annex 5 in the TM, the EIA shall quantify the aircraft noise impact under different scenarios and operation modes by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the criteria and shall made an evaluation of the anticipated changes and effects of aircraft noise impact in accordance with Section 4.3.1 (c) of TM.	The number of village houses affected is shown in Table 7.3.20.
163.	Appendix C I 2.4.1	Where the predicted aircraft noise impact exceeds the criteria set in Table 1A of Annex 5, TM, the EIA shall consider and evaluate direct mitigation measures. In identification of applicable measures, the Applicant shall consider the feasibility and appropriateness of, including but not limited to, control of night flight movement over residential area, restriction of aircraft type in nighttime period, use of Required Navigation Performance (RNP) system, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report and suitably translated into workable clauses for subsequent implementation with confirmation of the validity from the Civil Aviation Department. Specific reasons for not adopting certain direct mitigation measures in the design to reduce the noise to a level meeting the criteria in the TM or to maximize the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.	This was described in Section 7.3.5 and Sections 7.4.3.9 to 7.3.4.15. Relevant at-source reduction measures have already been incorporated into the design of the primary operating mode for the future operation of the 3RS. Landuse constraint was proposed to the CDA site in Lok On Pai, when developing the Master Layout Plan.
164.	Appendix C I 2.4.2	Upon exhaust of direct mitigation measures, where the predicted aircraft noise impact still exceeds the criteria set in Table 1A of Annex 5 of the TM, the EIA shall consider indirect mitigation measures in the form of window insulation and air-conditioning and evaluate in accordance with Section 6.2 in Annex 13 of the TM.	This was described in Sections 7.3.5.3 and 7.3.5.4. All practicable direct mitigation measures are exhausted, however, it is unavoidable that village houses in and around Sha Lo Wan and certain village houses along North Lantau shorelines would still be situated within the NEF25 contours. Indirect mitigation measures in the form of window insulation and air-conditioning was proposed to those were not protected under the prevailing two-runway scenario.
165.	Appendix C I 2.4.3	The EIA shall identify and estimate the total number of existing dwellings, classrooms and other noise sensitive elements which may qualify for indirect mitigation measures, the associated costs and any implications for such implementation.	Section I 2.3.6 in Appendix C of the EIA Study Brief above refers.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
166.	Appendix C I 2.5.1	Upon exhaust of direct and indirect mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of TM, the EIA shall identify, predict and evaluate the residual aircraft noise impact in accordance with Section 4.4.3 of the TM.	No residual impact as per Section 7.3.6
167.	Appendix C I 3.1.1	The EIA shall carry out fixed noise sources impact assessment including ground noise impact from the Project in accordance with methodology in paragraph 5.2 of Annex 13 of the TM.	<p>1) Aircraft taxiing / ERUF – using INM as per Section 7.4.7.3. By inputting the physical and operational characteristics / data of HKIA three-runway system, the INM model will calculate the noise levels (in terms of equivalent continuous A-weighted sound pressure level (<math>L_{Aeq,30\text{ mins}}</math>)) at the NSRs due to the aircraft engine run-up tests / aircraft taxiing in HKIA three-runway system based on the Noise-Power-Distance (NPD) curves for different engine operating thrust levels, engine run-up facility mix / aircraft taxiing routes, operation schedule and terrain of the airport. The prediction procedures are briefly described in Appendix 7.4.3.</p> <p>2) APU – based on ISO-9613 Part 2 as per Section 7.4.7.6. Unlike other noise sources such as road traffic or aircraft take-offs and landings, there is no standard or agreed methodology for the assessment of ground noise associated with the operation of APUs. Moreover, INM model does not include noise database for APUs which is not capable of assessing noise from APU operation. Therefore, it has been necessary to develop a specific methodology for assessing APU noise. The methodology adopted in present study is based on the prediction method set out in ISO-9613 “Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation” which takes into account the sound power level (SWL) of each operating APU, and then applies appropriate corrections for the effects of geometrical divergence, air absorption, ground absorption and intervening obstructions / ground &amp; façade reflections. The complete computation model is based on geographical location of the stands, aprons and taxiways where APUs are operating in relation to the NSRs. During APU operating, the aircraft taxiway is divided into a series of short segments (6 seconds running time per each segment, following TAAM simulation results definition). The noise levels at NSRs generated by APU operation through each taxiway segment in turn are calculated sequentially by assuming that the aircraft sits on the centre of each taxiway segment. The overall noise levels at NSRs associated with all segments within 30 mins. are calculated accordingly. This achieves exactly the same results as assuming aircraft continuous progression through each segment. The prediction procedures are briefly described in Appendix 7.4.3.</p> <p>3) Fixed plant items (project &amp; existing) – methodology including formula presented in Section 7.4.7.13. For the assessment of noise from the fixed plant, the maximum allowable sound power levels (Max SWLs) of the identified fixed noise sources were determined by adopting standard acoustics principles. The following formula is used for calculating the Max SWLs of the fixed plant:</p> $SPL = \text{Max SWL} - DC + FC$
168.	Appendix C I 3.2.1	The EIA shall propose the assessment area for agreement of the Director before commencing the assessment.	Please refer to Section 7.4.3.1. As per the requirement sets out in Section 3.2.1 of Part I in Appendix C of the EIA Study Brief, the fixed noise source impact assessment area shall be proposed for agreement of the Director before commencing the assessment. Accordingly, the fixed noise source impact assessment area boundary has been proposed based on an evaluation against the criteria of 70 dB(A) (for day & evening time period) and 60 dB(A) (for night time period) by adopting some conservative assumptions (such as assuming the use of the noisiest aircraft type of Boeing 747-400, adopting the worst noise source location within the aircraft taxiing area for 07L-25R (North) / 07C-25C (Central) / 07R-25L (South) and assuming maximum number of concurrent aircraft taxiing events in a 30-minute period). Details for determination of the assessment area boundary are presented in Appendix 7.4.1.
169.	Appendix C I 3.2.2	The EIA shall identify all existing, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out fixed noise sources impact assessment described below.	Please refer to Section 7.4.4.1. Among the various clusters of identified NSRs in Section 7.4.1, representative NSRs (i.e. the first layer of NSRs) with the shortest distances from the project site boundary and largest angles of view to the fixed noise sources have been identified and selected as the assessment points for predicting the worst-case noise impact levels. Table 7.4.3 summarises details of these representative NSRs. Under the worst assumptions adopted for the fixed noise source impact assessment, the proposed assessment area (i.e. for night time period) covers some 2,700 m from the aircraft taxiing area boundary for 07L-25R (North) and 07C-25C (Central) as shown in Drawing No. MCL/P132/EIA/7-4-006. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002.
170.	Appendix C I 3.2.3	The assessment points shall be confirmed with the Director prior to the commencement of the quantitative fixed noise sources impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.	The assessment points stated in Sections 3.1.2 and 3.3.2 of the Final Methodology Paper for Non-Aircraft Noise Impact Assessment (Rev. H) have been confirmed by the Director prior to the commencement of the quantitative fixed noise sources impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.
171.	Appendix C I 3.2.4	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.	Maps presented in Drawings MCL/P132/EIA/7-4-006. Photographs presented in Drawing No. MCL/P132/EIA/7-5-002.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
172.	Appendix C I 3.2.5	For planned noise sensitive land uses without committed site layouts, the EIA should use the relevant landuse and planning parameters and conditions to work out representative site layouts for fixed noise sources assessment purpose. However, such parameters and conditions together with any constraints identified shall be confirmed with the relevant responsible parties including Planning Department and Lands Department.	For the representative planned NSRs TC-5 and TC-6, they are mainly low- and high-density residential developments with domestic plot ratios ranging from 3 to 5 as per the Annex 2 (i.e. The latest layout plan showing the proposed land uses and the planning parameters based on the initial land use options as shown in Appendix 7.4.2) of CEDD's Letter Ref.: HKIS 2/13/60IM dated 2 September, 2013. Details can be referred to the Appendix 7.4.2.  For the representative planned NSR TC-7 and TC-11, they are mainly low- and high-density residential developments with domestic plot ratios ranging from 3 to 5 / 3 to 6 as per the Annex 2 (i.e. The latest layout plan showing the proposed land uses and the planning parameters based on the initial land use options as shown in Appendix 7.4.2) of CEDD's Letter Ref.: HKIS 2/13/60IM dated 2 September, 2013. Details can be referred to the Appendix 7.4.2.
173.	Appendix C I 3.2.6	The EIA shall identify and quantify an inventory of noise sources for fixed noise sources impact assessment. The inventory of noise sources shall include, but not limited to, noise associated with ground running of aircraft; aircraft operations and maintenance testing such as operations of Auxiliary Power Units and engine run test; automated people mover; baggage handling system; grey water recycle system, vehicles within airport boundary; and any permanent and temporary industrial noise sources including ventilation system(s) of building(s) and/or tunnel(s), ventilation shafts of railway, sewage pumping station(s), seawater pumping station(s) and electricity substation(s), etc.	Inventory of noise sources: <ul style="list-style-type: none"> <li>Aircraft taxiing – Sections 7.4.8.6 to 7.4.8.7, 7.4.8.12 to 7.4.8.13 and 7.4.8.17 to 7.4.8.18</li> <li>ERUF – Sections 7.4.8.1 to 7.4.8.2</li> <li>APUs – Section 7.4.7.8</li> <li>Fixed plant items (project &amp; existing) – Sections 7.4.8.27 to 7.4.8.31</li> </ul>
174.	Appendix C I 3.2.7	The EIA shall provide document or certificate, accepted by recognized national/international organization, for the sound power level of each type of fixed noise sources.	Details of the noise measurements and calculation of sound power levels for existing fixed noise sources has been shown in Appendix 7.4.10.  Based on the methodology mentioned in Section 7.4.7, the maximum allowable SWLs of the project fixed plants during daytime and night-time are predicted as summarised in Table 7.4.18.  Details can be referred to the Sections 7.4.8.27 to 7.4.8.31.
175.	Appendix C I 3.2.8	Validity of the inventory shall be confirmed with the relevant government departments/authorities and documented in the EIA report.	Regarding the ground noise assessment scenarios for aircraft taxiing and operation of aircraft engine run-up facilities by adopting FAA's INM Version 7.0d calculation algorithm / operation of APUs, all the data and assumptions were reviewed, and processed as necessary for developing noise exposure levels. The operational modes have been confirmed by CAD and documented in this EIA report. Details please refer to the Section 7.4.7.11 of the EIA report.
176.	Appendix C I 3.3.1	The EIA shall quantitatively assess the fixed noise sources impact, with respect to the criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at assessment years of various operation modes including, but not limited to, (a) the worst operation mode which represents the maximum noise emission in connection of operating identified noise sources of the Project; (b) the interim phase operation modes which represent the operation of the 3rd runway with closure of either or both of two existing runways of the HKIA; and (c) full operation of the three runway system which represents the operation of proposed 3 <sup>rd</sup> runway together with two existing runways at design capacity; and (d) any other operation modes as confirmed with the Director.	1) Aircraft taxiing – The worst operation mode is shown in Sections 7.4.8.5 – 7.4.8.10 The interim phase operation mods is shown in Sections 7.4.8.11 - 7.4.8.15 Full operation of the three runway system is shown in Sections 7.4.8.16 - 7.4.8.20  2) ERUF – assessment assumptions and results are the same for the three operation modes.  3) APUs The worst operation mode is shown in Sections 7.4.8.21 - 7.4.8.22 The interim phase operation mode is shown in Sections 7.4.8.23 - 7.4.8.24 Full operation of the three runway system is shown in Sections 7.4.8.25 - 7.4.8.26  4) Fixed plant items – assessment assumptions and results are the same for the three operation modes.  The impact noise levels (unmitigated / mitigated) at all representative NSRs from planned / cumulative fixed noise sources including ground noise sources associated with the aircraft taxiing as well as the operations of aircraft engine run-up facilities and APUs in three operation modes (i.e. Year 2030, Year 2021 and Year 2032) have been evaluated for the fixed plant noise impact assessment (under the worst-case scenario). Details please refer to the Sections 7.4.8 and 7.4.9 of the EIA report.
177.	Appendix C I 3.3.2	Validity of the above operational modes shall be confirmed with Civil Aviation Department and documented in the EIA report.	Regarding the ground noise assessment scenarios for aircraft taxiing and operation of aircraft engine run-up facilities by adopting FAA's INM Version 7.0d calculation algorithm / operation of APUs, all the data and assumptions were reviewed, and processed as necessary for developing noise exposure levels. The operational modes have been confirmed by CAD and documented in this EIA report. Details please refer to the Section 7.4.7.11 of the EIA report.
178.	Appendix C I 3.3.3	The EIA shall present the predicted noise levels in Leq (30 min) at the selected assessment points at various representative floor levels (in m P.D.) on tables and plans of suitable scale.	Small houses are found in Sha Lo Wan and San Tau. Floor levels are neglected. In Tung Chung area, vertical distance between source and receiver can be insignificant since the horizontal distance is comparatively large (more than 300m). As a result, source height has been assumed same as receiver height for conservative approach. The summary of unmitigated / mitigated fixed noise impacts are presented in Table 7.4.19 / Table 7.4.22, respectively.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
179.	Appendix C I 3.3.4	The assessment shall cover the cumulative fixed noise sources impact associated with the operation of the proposed project and HKIA on existing, committed and planned NSRs within the assessment area.	The unmitigated planned / cumulative noise impact at NSRs from fixed noise sources including ground noise sources associated with the aircraft taxiing as well as the operations of aircraft engine run-up facilities and APUs are summarised in Table 7.4.19. The mitigated planned / cumulative noise impact at NSRs from fixed noise sources including ground noise sources associated with the aircraft taxiing as well as the operations of aircraft engine run-up facilities and APUs are summarised in Table 7.4.22. Details can be referred to the Sections 7.4.8.32 & 7.4.9.5 and Appendix 7.4.12.
180.	Appendix C I 3.3.5	The potential fixed noise sources impact under different scenarios and operation modes shall be quantified by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the criteria set in Annex 5 in the TM.	Since no mitigated fixed noise impact exceeding the noise criteria as shown in Section 7.4.9.5, estimation for the total number of dwellings, classrooms and other noise sensitive receivers exposed to excessive noise impact is deemed to be not necessary.
181.	Appendix C I 3.4.1	Where the predicted fixed noise sources impact exceeds the criteria set in Table 1A of Annex 5, TM, the EIA shall consider and evaluate direct mitigation measures such as noise barrier/enclosure, screening by noise tolerant buildings, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the criteria in the TM or to maximize the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.	The feasibility, practicability, programming and effectiveness of the recommended mitigation measure (i.e. noise enclosure for ERUFs with noise reduction of at least 15 dBA) have been basically affirmed by the Engineering Design Consultant. Details of the recommended direct mitigation measure will be further updated in the Section 7.4.9 of the final EIA report.
182.	Appendix C I 3.5.1	Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of TM, the Applicant shall identify, predict, evaluate the residual fixed noise sources impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings, classrooms and other noise sensitive elements that will be exposed to residual noise impact exceeding the criteria set in Annex 5 in the TM.	Not applicable
183.	Appendix C I 4.1.1	The EIA 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 paragraphs 5.3 and 5.4 of Annex 13 of the TM.	Please refer to the Section 7.5.4.
184.	Appendix C I 4.1.2	For ground-borne construction noise impact, the EIA shall propose assessment methodology and computational model which shall be confirmed with the Director, with reference to Section 4.4.2 of the TM, prior to the commencement of the assessment. Site measurements at appropriate locations may be required in order to obtain the empirical input parameters required in the computational model.	Please refer to the Sections 7.5.3.30 – 7.5.3.32. No ground-borne construction noise impact is anticipated.
185.	Appendix C I 4.2.1	The EIA shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for the construction noise impact assessment shall generally include areas within 300 metres from the boundary of the Project and the works of the Project.	Section 4.2.1 in Appendix C of the EIA Study Brief (ESB-250/2012) specifies that the assessment area for the construction noise impact assessment shall generally include areas within 300 metres from the boundary of the project and the works of the project. This has been identified accordingly and is shown in Drawing No. MCL/P132/EIA/7-5-001. Details can be referred to the Section 7.5.1.
186.	Appendix C I 4.2.2	The EIA shall identify all existing NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out quantitative construction noise impact assessment described below.	The first layer of noise sensitive premises (i.e., those that are nearest the noise sources in various directions) which would be most affected by each type of noise impact has been selected as representative NSRs. Descriptions for the (existing/planned) representative NSRs selected are tabulated in Table 7.5.1. The representative NSRs (as well as cluster of NSRs) are shown in Drawing No. MCL/P132/EIA/7-5-001. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002. As other NSRs including country parks fall outside assessment area, adverse noise impact is not anticipated. Details can be referred to the Section 7.5.2.
187.	Appendix C I 4.2.3	The assessment points shall be confirmed with the Director prior to the commencement of the quantitative construction noise impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.	The first layer of noise sensitive premises (i.e., those that are nearest the noise sources in various directions) which would be most affected by each type of noise impact has been selected as representative NSRs. Descriptions for the (existing/planned) representative NSRs selected are tabulated in Table 7.5.1. The representative NSRs (as well as cluster of NSRs) are shown in Drawing No. MCL/P132/EIA/7-5-001. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002. As other NSRs including country parks fall outside assessment area, adverse noise impact is not anticipated. Details can be referred to the Section 7.5.2.
188.	Appendix C I 4.2.4	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.	The representative NSRs are shown in Drawing No. MCL/P132/EIA/7-5-001. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002.
189.	Appendix C I 4.2.5	The EIA shall identify and quantify an inventory of noise sources for representative construction equipment (including construction phase marine vessels) to construction noise impact assessment.	Please refer to the Appendix 7.5.1.
190.	Appendix C I 4.3.1	The EIA shall identify representative phases of construction that would have noticeable varying construction noise emissions at existing NSRs at the assessment area for agreement of the Director before commencing the construction noise impact assessment.	The whole construction phase is covered.
191.	Appendix C I 4.3.2	The EIA shall quantitatively assess the construction noise impact during different agreed phases of construction, with respect to criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at difference phases of construction of the Project.	Please refer to the Section 7.5.5.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
192.	Appendix C I 4.3.3	The EIA shall present the predicted noise levels in Leq (30 min) dB(A) at the selected assessment points at various representative floor levels (in m P.D.) on tables and plans of suitable scale.	Vertical distance between source and receiver can be neglected since the horizontal distance is comparatively large (more than 300m). As a result, source height has been assumed same as receiver height for conservative approach. The summary of unmitigated / mitigated construction noise impacts are presented in Table 7.5.2 / Table 7.5.5, respectively.
193.	Appendix C I 4.3.4	The assessment shall cover the cumulative construction noise impact resulting from the construction works of the Project and other concurrent projects identified during the course of the EIA study on existing NSRs within the assessment area.	Please refer to the Section 7.5.5.
194.	Appendix C I 4.3.5	The potential construction noise impact under different phases of construction shall be quantified by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the criteria set in Annex 5 in the TM.	Since no mitigated construction noise impact exceeding the noise criteria, estimation for the total number of dwellings, classrooms and other noise sensitive receivers exposed to excessive noise impact is deemed to be not necessary.
195.	Appendix C I 4.3.6	The EIA shall, as far as practicable, formulate a reasonable construction programme so that no work will be required in restricted hours as defined under the Noise Control Ordinance (NCO). In case the Applicant needs to evaluate whether construction works in restricted hours as defined under the NCO are feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the NCO. Regardless of the results of construction noise impact assessment for restricted hours, the Noise Control Authority will process Construction Noise Permit (CNP) application, if necessary, based on the NCO, the relevant technical memoranda issued under the NCO, and the contemporary conditions/situations. This aspect should be explicitly stated in the noise chapter and the conclusions and recommendations chapter in EIA report.	Please refer to the Appendix 7.5.2 (Construction program).  Please refer to the Sections 7.2.3.6 & 7.5.6.15 to 7.5.6.18. Quantitative assessment has been carried out as a demonstration of construction work feasible scheme during restricted hour in Appendices 7.5.6 to 7.5.10.
196.	Appendix C I 4.4.1	Where the predicted construction noise impact exceeds the criteria set in Table 1B of Annex 5, TM, the EIA shall consider and evaluate direct mitigation measures including but not limited to, movable barriers, enclosures, quieter alternative methods, re-scheduling, restricting hours of operation of noisy tasks, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the criteria in the TM or to maximize the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.	Please refer to the Section 7.5.6.
197.	Appendix C I 4.5.1	Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of TM, the EIA shall identify, predict, evaluate the residual construction noise impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings, classrooms and other noise sensitive elements that will be exposed to residual noise impact exceeding the criteria set in Annex 5 in the TM.	Not applicable
198.	Appendix C I 5.1.1	The EIA shall carry out road traffic noise assessment in respect of each road section (within the meaning of Items A.1, A.7 and A.8 under Part I, Schedule 2 of the EIAO and other road sections) and the noise levels from combined road sections of the Project at the NSRs in accordance with methodology in paragraphs 5.1 of Annex 13 of the TM.	As the nearby NSRs were all found to be located beyond the 300 m assessment area as stated in Section 7.6.3.1, quantitative road traffic noise assessment was not carried out.
199.	Appendix C I 5.1.2	The EIA shall provide the input data set of the road traffic noise computational model adopted in the assessment for various scenarios. The data shall be in electronic text file (ASCII format) containing road segments, barriers and noise sensitive receivers information. CD-ROM(s) containing the above data shall be submitted together with the EIA report.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
200.	Appendix C I 5.2.1	The EIA shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for the road traffic noise impact shall generally include areas within 300 metres from the boundary of the Project and the works of the Project.	Section 5.2.1 in Appendix C of the EIA Study Brief (ESB-250/2012) specifies that the assessment area for the road traffic noise impact assessment shall generally include areas within 300 m from the boundary of the project and the works of the project. The assessment area of the road works of the project is shown in Drawing No. MCL/P132/EIA/7-6-001 Details can be referred to the Section 7.6.1.
201.	Appendix C I 5.2.2	The EIA shall identify all existing, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out quantitative road traffic noise impact assessment described below.	The first layer of noise sensitive receivers which are most likely affected by road noise impact has been selected as representative NSRs. Descriptions for the selected representative NSRs (existing/ planned) are tabulated in Table 7.6.1. The representative NSRs (as well as cluster of NSRs) are shown in Drawing No. MCL/P132/EIA/7-6-001. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002. As other NSRs including country parks fall outside assessment area, adverse noise impact is not anticipated Details can be referred to the Section 7.6.2.
202.	Appendix C I 5.2.3	The assessment points shall be confirmed with the Director prior to the commencement of the quantitative road traffic noise impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.	The first layer of noise sensitive receivers which are most likely affected by road noise impact has been selected as representative NSRs. Descriptions for the selected representative NSRs (existing/ planned) are tabulated in Table 7.6.1. The representative NSRs (as well as cluster of NSRs) are shown in Drawing No. MCL/P132/EIA/7-6-001. Photos of existing representative noise sensitive receivers are shown in Drawing No. MCL/P132/EIA/7-5-002. As other NSRs including country parks fall outside assessment area, adverse noise impact is not anticipated Details can be referred to the Section 7.6.2.
203.	Appendix C I 5.2.4	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.	Please refer to the Table 7.6.1 and Drawing No. MCL/P132/EIA/7-6-001. Please refer to the photos as shown in Drawing No. MCL/P132/EIA/7-5-002.
204.	Appendix C I 5.2.5	For planned noise sensitive land uses without committed site layouts, the EIA should use the relevant land use and planning parameters and conditions to work out representative site layouts for road traffic noise impact assessment purpose. However, such parameters and conditions together with any constraints identified, such as setback of building, building orientation, extended podium, shall be confirmed with the relevant responsible parties including Planning Department and Lands Department in accordance with section 6.3 of Annex 13 of the TM.	Please refer to the information given in Appendix 7.4.2 – Annex 2.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
205.	Appendix C I 5.2.6	The EIA shall analyse the scope of the proposed road alignment(s) to identify road sections for the purpose of road traffic noise impact assessment. Road sections to be included in road traffic noise impact assessment shall be confirmed with the Director prior to the commencement of the assessment.	Please refer to the Section 7.6.3 and Drawing No. MCL/P132/EIA/7-6-002.
206.	Appendix C I 5.2.7	Validity of the traffic flow prediction of road sections for the purpose of road traffic noise impact assessment shall be confirmed with Transport Department and documented in the EIA report.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out. Hence, traffic data had not been included / presented.
207.	Appendix C I 5.3.1	The EIA shall quantitatively assess the road traffic noise impact of the Project, with respect to the criteria set in Table 1A of Annex 5, TM, of unmitigated scenario and mitigated scenario at assessment year. The assessment year shall be made reference to Section 5.1 in Annex 13 of the TM.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
208.	Appendix C I 5.3.2	The EIA shall present the predicted noise levels in L10 (1 hour) dB(A) at the selected assessment points at various representative floor levels (in m P.D.) on tables and plans of suitable scale.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
209.	Appendix C I 5.3.3	The assessment shall cover the cumulative road traffic noise impact resulting from the road traffic noise due to the Project and existing road network on existing, committed and planned NSRs within the assessment area.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
210.	Appendix C I 5.3.4	The potential road traffic noise impact under different scenarios shall be quantified by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the criteria set in Annex 5 in the TM.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
211.	Appendix C I 5.4.1	Where the predicted road traffic noise impact exceeds the criteria set in Table 1A of Annex 5, TM, the EIA shall consider and evaluate direct mitigation measures. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the criteria in the TM or to maximize the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
212.	Appendix C I 5.4.2	For planned noise sensitive uses which will still be affected even with practicable direct mitigation measures in place, the EIA shall propose, evaluate and confirm the practicability of additional direct mitigation measures within the planned noise sensitive uses and shall make recommendations on how these noise sensitive uses will be designed for the information of relevant parties.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
213.	Appendix C I 5.4.3	The EIA shall take into account agreed environmental requirements /constraints identified in the EIA study to assess the development potential of concerned sites which shall be made known to the relevant parties.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
214.	Appendix C I 5.4.4	Upon exhaust of direct mitigation measures, where the predicted road traffic noise impact still exceeds the criteria set in Table 1A of Annex 5, TM, the EIA shall consider indirect mitigation measures in the form of window insulation and air-conditioning and evaluate in accordance with Section 6.2 in Annex 13 of TM.	As the nearby NSRs were all found to be located beyond the 300 m assessment area, quantitative road traffic noise assessment was not carried out.
215.	Appendix C I 5.4.5	The EIA shall identify and estimate the total number of existing dwellings, classrooms and other noise sensitive elements which may qualify for indirect mitigation measures, the associated costs and any implications for such implementation.	Not applicable
216.	Appendix C I 5.4.6	For the purpose of determining eligibility of the affected premises for indirect mitigation measures, reference shall be made to methodology accepted by the recognized national/international organization or methodologies adopted for Hong Kong projects having similar issues on proposing an assessment methodology for determining eligibility of the indirect mitigation measures which shall be confirmed with the Director with reference to Section 4.4.2 of the TM, prior to the commencement of the assessment.	Not applicable
217.	Appendix C I 5.5.1	Upon exhaust of direct and indirect mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of TM, the EIA shall identify, predict and evaluate the residual road traffic noise impact in accordance with Section 4.4.3 of the TM and Section 6.2 in Annex 13 of the TM.	Not applicable
218.	Appendix C I 6.1.1	The EIA shall propose methodology and computational model for agreement of the Director, with reference to Section 4.4.2 of the TM, prior to the commencement of the assessment.	During the operation phase, there will be an increased number of marine vessels using the existing SkyPier. The anticipated route of SkyPier including fast ferry services will be north and west bound of the airport (e.g. towards Macao). As the nearest NSR TC-9 is more than 1,700 m from the manoeuvring route (beyond the 1,350 m assessment area), adverse marine traffic noise impact is not anticipated and hence not included in the marine traffic noise assessment. Details can be referred to the Section 7.7.3.
219.	Appendix C I 6.2.1	The EIA shall propose the assessment area for agreement of the Director before commencing of assessment.	According to Section 6.2.1 under Part I of Appendix C of the EIA Study Brief, the marine traffic noise impact assessment area shall be proposed for agreement of the Director before commencing the assessment. As described in <i>BS-4142:1997</i> , if the rating noise level of the new source is more than 10 dB(A) below the measured background noise level then it is a positive indication that no adverse noise impact is anticipated. As such, it is proposed to establish the marine traffic noise impact assessment area which the predicted marine traffic noise at the boundary of area is below 10 dB(A) of prevailing background noise level at the nearest NSR Details can be referred to the Section 7.7.1.
220.	Appendix C I 6.2.2	The EIA shall identify all existing, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out marine traffic noise impact assessment described below.	Please refer to the Section 7.7.2.
221.	Appendix C I 6.2.3	The assessment points shall be confirmed with the Director prior to the commencement of the quantitative marine traffic noise impact assessment and may be varied subject to the best and latest information available during the course of the EIA study.	Please refer to the Section 7.7.2.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
222.	Appendix C I 6.2.4	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.	Please refer to the Table 7.7.1 and Drawing No. MCL/P132/EIA/7-7-001. Please refer to the photos as shown in Drawing No. MCL/P132/EIA/7-5-002.
223.	Appendix C I 6.2.5	For planned noise sensitive land uses without committed site layouts, the EIA should use the relevant landuse and planning parameters and conditions to work out representative site layouts for marine traffic noise assessment purpose. However, such parameters and conditions together with any constraints identified shall be confirmed with the relevant responsible parties including Planning Department and Lands Department.	Please refer to the information given in Appendix 7.4.2 – Annex 2.
224.	Appendix C I 6.2.6	The EIA shall identify and quantify any marine traffic noise sources including but not limited to noise from operation activities on the moored vessels; manoeuvring of vessels using existing pier including fast ferry services, etc.	The marine traffic impact assessment area from the manoeuvring of vessels was determined based on the guideline in British Standard 4142:1997 and information from the Engineering Feasibility and Environmental Study for Airport Master Plan 2030 – Marine Traffic Impact Assessment. As the nearest NSR TC-9 is more than 1,700 m from the manoeuvring route (beyond the 1,350 m assessment area), adverse marine traffic noise impact is not anticipated and hence not included in the marine traffic noise assessment. Details please refer to the Section 7.7.
225.	Appendix C I 6.3.1	The EIA shall quantitatively assess the marine traffic noise impact, with respect to proposed criteria which the applicant shall submit for agreement with the Director (with reference to section 4.4.2(c) of the TM), of unmitigated scenario and mitigated scenario at assessment years of various operation modes including, but not limited to, the worst operation mode which represents the maximum noise emission in connection with the maximum number of vessels operating within the assessment area.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area, quantitative marine traffic noise assessment was not carried out.
226.	Appendix C I 6.3.2	The EIA shall present the predicted noise levels at the selected assessment points at various representative floor levels (in m P.D.) on tables and plans of suitable scale.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area as stated in Section 7.7.3.1, quantitative marine traffic noise assessment was not carried out.
227.	Appendix C I 6.3.3	The assessment shall cover the cumulative marine traffic noise impact associated with the operation of the proposed project and HKIA on existing, committed and planned NSRs within the assessment area.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area, quantitative marine traffic noise assessment was not carried out.
228.	Appendix C I 6.3.4	The potential marine traffic noise impact under different scenarios and operation modes shall be quantified by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the adopted criteria.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area, quantitative marine traffic noise assessment was not carried out.
229.	Appendix C I 6.4.1	Where the predicted marine traffic noise impact exceeds the proposed criteria, the Applicant shall consider and evaluate direct mitigation measures. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the proposed criteria should be clearly substantiated and documented in the EIA report.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area, quantitative marine traffic noise assessment was not carried out.
230.	Appendix C I 6.5.1	Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the adopted criteria, the EIA shall identify, predict, evaluate the residual marine traffic noise impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings, classrooms and other noise sensitive elements that will be exposed to residual noise impact exceeding the adopted criteria.	As the nearby NSRs were all found to be located beyond the identified 1,350 m assessment area, quantitative marine traffic noise assessment was not carried out.
231.	Appendix C I 7.1	The EIA shall, with reference to Section 8 and Annex 21 of the TM, design and recommend an aircraft noise monitoring and audit plan for verification of predictions on the effectiveness of measures to mitigate noise impact of the project.	Scope and details of the proposed EM&A requirements are provided in the standalone EM&A Manual
232.	Appendix C I 7.2	The plan shall formulate audit requirements, including any necessary compliance and post-project audit program, in order to review the aircraft noise monitoring data and identify any remedial works required to redress unacceptable or unanticipated aircraft noise impact.	Scope and details of the proposed EM&A requirements are provided in the standalone EM&A Manual
233.	Appendix C I 7.3	The plan shall, with reference to practices accepted by the recognized national/international organization, provide tools, procedures and supplementary information, including noise descriptor and flight tracks, which are useful and relevant for communicating the aircraft noise of the proposed project to the public.	Scope and details of the proposed EM&A requirements are provided in the standalone EM&A Manual
234.	Appendix C II 1. (i)	The health impact assessment on aircraft noise on human arising from the operation of the Project shall include an identification of the health impact from aircraft noise during the operation of the Project.	Potential health impacts due to exposure to aircraft noise are discussed in Sections 17.3.2.11 to 17.3.2.19. The key potential health impacts relating to non-auditory effects caused by aircraft noise are annoyance and sleep disturbance. The other potential health effects associated with exposure to aircraft noise including cardiovascular effects, cognitive effects, hearing impairment, speech interference, effect on task performance and mental health.
235.	Appendix C II 1. (ii)	The health impact assessment on aircraft noise on human arising from the operation of the Project shall include an assessment of the likelihood and consequences of exposure to the aircraft noise.	The consequence of exposure to aircraft noise has been quantified in Chapter 17 in terms of some health outcomes. The likelihood was considered as the strength / probability of aircraft noise leading to health end point. This was discussed in Sections 17.3.2.11 to 17.3.2.19 from the results of literature review showing positive association for annoyance and sleep disturbance, some studies showing effects on schoolchildren and inconclusive for cardiovascular effect.
236.	Appendix C II 1. (iii)	The health impact assessment on aircraft noise on human arising from the operation of the Project shall include an identification of means by which the health impact could be further reduced.	The aircraft noise reduction measures as described in Section 7.3.3.11 could minimise the extent health impact associated with aircraft noise as discussed in Section 17.3.4.10.
237.	Appendix C II 1. (iv)	The health impact assessment on aircraft noise on human arising from the operation of the Project shall include recommendations of reasonably practicable measures, if any, to reduce the health impact during the operation of the Project.	The EIA Study Brief requires recommendations of reasonably practicable measures, if any. It was considered not necessary for additional measures to reduce health impact, as significant health impact associated to aircraft noise was not expected.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
238.	Appendix D1 1.	The EIA shall identify and analyse physical, chemical and biological disruptions of the water system(s) arising from the construction and operation of the Project.	Section 8.5 describes sources of impacts. Section 8.6 describes assessment methodology. Section 8.7 evaluates and assesses the impact from the project. For the construction phase, the major source of impact would be sediment loss during land formation and contaminant release during DCM. For the operation phase, the major sources of impact would be chlorine and biocide from spent cooling discharge, and sewage and pollution loads from operation of project. The major source of impact from concurrent projects during construction phase is sediment loss from various construction activities; for operation phase, sewage and pollution loads from operation of project are the major sources of concern.
239.	Appendix D1 2.	The EIA shall predict, quantify and assess any water quality impacts arising from the construction and operation of the Project by appropriate mathematical modelling and/or other techniques proposed by the Applicant and approved by the Director. The mathematical modelling requirements are set out in Appendix D1-1. Possible impacts due to the dredging, fill extraction, backfilling, transportation and disposal of dredged materials, non-dredging ground treatment methods and other marine works activities, effluent discharge, thermal/cooling water and biocide discharge, overflow of sewage pumping stations and site runoff shall include changes in hydrology, flow regime, sediment erosion and deposition patterns, morphological change of seabed profile, shoreline change, water and sediment quality, marine and freshwater organisms/community. The prediction shall include possible different construction stages or sequences of the Project. Affected sensitive receivers shall be identified by the assessment tool with indications of degree of severity.	Water Quality Methodology Paper detailing models used, modelling assumptions, model grid and validations was approved by EPD on 30 September 2013. Section 8.5 describes sources of impacts. Section 8.6 describes assessment methodology. Delft-FLOW was used to quantify the hydrodynamic changes due to land formation of project during construction and operation phases. Delft-PART was used to quantify the impacts to WSRs due to sediment loss and contaminant release from construction phase. Delft-PART was used to quantify the impacts to WSRs due to chlorine and biocide release from spent cooling water during operation phase. Delft-WAQ was used to quantify the impacts to WSRs due to the differences in pollution loads during the operation phase. Model results of the various parameters of concerns (i.e. SS, DO, NH <sub>3</sub> etc.) were extracted from the WSRs and observation points in Tables 8.7 and 8.8 for assessment by comparison to the criteria stated in Section 8.4.
240.	Appendix D1 3. (i)	The assessment shall include 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 ProPECC Practice Note 1/94.	Section 8.2.5 describes ProPECC Note PN 1/94. Section 8.5.1 identifies pollution sources from construction site run-off and drainage. Section 8.7.1 assesses and evaluates potential water quality impacts arise from site run-off.
241.	Appendix D1 3. (ii)	The assessment shall include the water quality impacts of the road runoff containing oil/grease and suspended solids during the operational stage.	Section 8.5.2.5 identifies potential sources of impact from road runoff. Section 8.7.2 assesses and evaluates potential water quality impacts arise from road runoff.
242.	Appendix D1 3. (iii)	The assessment shall include the water quality impacts on beaches, seawater intake points, river courses, drainages and other water sensitive receivers around the work sites.	Section 8.3.2 and Table 8.7 describe WSRs identified within the study area for assessment, the indicative locations are shown in drawing no. MCL/P132/EIA/8-002.
243.	Appendix D1 4. (i)	The assessment shall 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	Section 8.3 collects and reviews background information on affected existing and planned water systems, their respective catchments and sensitive receivers which might be affected by the project.
244.	Appendix D1 4. (ii)	The assessment shall characterize water quality of the water systems and sensitive receivers, which might be affected by the Project based on existing best available information or through appropriate site survey and tests	Section 8.3.3 describes the existing baseline conditions within the study area, which was based on the latest water quality and sediment monitoring data from EPD website.
245.	Appendix D1 4. (iii)	The assessment shall identify and analyse relevant existing and planned future activities, beneficial uses and water sensitive receivers related to the affected water system(s). The Applicant should 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 landuse plans	Section 8.3.2 and Table 8.7 describe WSR within the study area and the indicative locations are shown in drawing no. MCL/P132/EIA/8-002. Existing and planned seawater intakes were included as WSRs.
246.	Appendix D1 4. (iv)	The assessment shall 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;	Section 8.4 presents relevant local WQOs and local and international assessment criteria/standards.
247.	Appendix D1 4. (v)	The assessment shall 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;	Section 8.6.3 and Appendix 8.4 reviews the specific construction methods and configurations to identify likely water quality impacts during construction phase, while Section 8.6.6 and Appendix 8.7 identifies the sources and likely water quality impacts during operation phase.
248.	Appendix D1 4. (vi)	The assessment shall identify any alteration of any water courses, natural streams, ponds, change of water holding/flow regimes, change of catchment types or areas and any other hydrological changes in the study area;	Section 8.5.2 describes the potential hydrodynamic changes that may arise due to the project. Shoreline changes from project and concurrent projects were included in the assessment.
249.	Appendix D1 4. (vii)	The assessment shall 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 polluted discharge generated from the Project;	Section 8.5, identifies water pollution sources. Section 8.6 and Appendices 8.4 to 8.7 quantifies the water pollution sources
250.	Appendix D1 4. (viii)	The assessment shall provide an emission inventory on the quantities and characteristics of those existing and future pollution sources in the study area. Field investigation and laboratory test, shall be conducted as appropriate to fill relevant information gaps;	Appendix 8.7 includes the methodology for the pollution loading inventory, which was used for the quantifying impacts due to operation of project. No field investigation and laboratory test was necessary.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
251.	Appendix D1 4. (ix)	The assessment shall assess the adequacy of the existing sewerage and sewage treatment facilities for the handling, treatment and disposal of wastewater arising from the Project as required in section 3.4.7. The water quality impacts should be assessed if any upgrading or expansion of the existing system is found necessary;	Section 8.7.2 assesses and evaluates the impact to the existing sewerage treatment facility due to additional sewage loads. According to Ch. 9, a new gravity sewer will be constructed to connect and transport the sewage generated on site to the SHWSTW for treatment. The existing SHWSTW has sufficient capacity to handle the predicted loads due to project in 2038. Design loads were used for the SHWSTW in the pollution loading inventory for a worst case assessment.
252.	Appendix D1 4. (x)	The assessment shall identify and quantify the water quality impacts based on the findings and recommendations from the Sewerage and Sewage Treatment Implications Assessment under section 3.4.7. The water quality concerns shall include, but not limited to, possible sewage overflow or emergency discharge due to capacity constraints of the sewerage system, and emergencies arising from the Project;	Section 8.7.2 assesses and evaluates the impact to the existing sewerage treatment facility due to additional sewage loads, there will be no emergency sewage overflow system for the proposed new sewage pumping station. No impact is anticipated to arise due to the additional loads from operation of project.
253.	Appendix D1 4. (xi)	The assessment shall predict and quantify the impacts on the water system(s) and their sensitive receivers due to the alterations, changes, and pollution sources identified above. Possible impacts include change in hydrology, flow regime, and release of contaminants during dredging and other marine works, etc. Water quality impacts due to periodical maintenance dredging of navigation channels in the vicinity of the Project should also be assessed. The prediction shall take into account and include possible different construction and operation stages of the Project;	Section 8.6 presents the assessment methods and Section 8.7 evaluates and assesses the water quality impacts due to the project. It has been identified that no maintenance dredging would be necessary. Different construction stages representing the worst case periods were taken into account in the construction phase assessment. Operation phase predictions were based on the worst case operation year (taken as 2026).
254.	Appendix D1 4. (xii)	The assessment shall assess the cumulative impacts due to other related concurrent and planned projects, activities or pollution sources within the study area that may have a bearing on the environmental acceptability of the Project;	Section 8.5.3 identifies the cumulative impacts from potential concurrent projects. Section 8.7.1 and 8.7.2 quantify the cumulative impacts from potential concurrent projects during construction and operation phase.
255.	Appendix D1 4. (xiii)	The assessment shall 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;	Section 8.8 describes the recommended mitigation measures to be considered and their effectiveness in reducing pollution identified in Section 8.5. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase.
256.	Appendix D1 4. (xiv)	The assessment shall develop effective infrastructure upgrading or provision, contingency plan, water pollution prevention and mitigation measures to be implemented during construction and operation stages, including emergency sewage discharge, so as to reduce the water quality impacts to within standards. Requirements to be incorporated in the project contract document shall also be proposed;	Section 8.8 describes the recommended mitigation measures to be considered and their effectiveness in reducing pollution identified in Section 8.5. The mitigation measures include requirements to be incorporated in the project design / operation phase.
257.	Appendix D1 4. (xv)	The assessment shall investigate and develop best management practices to reduce storm water and non-point source pollution as appropriate;	Section 8.8 describes the recommended mitigation measures to be implemented, including best management practices, and their effectiveness in reducing pollution identified in Section 8.5. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase. Section 8.10 describes environmental monitoring and audit to verify the mitigation measures.
258.	Appendix D1 4. (xvi)	The assessment shall 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 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.	Section 8.9 describes residual impacts. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase.
259.	Appendix D1 5. (i)	The EIA shall address and assess water quality impacts arising from the following concerns : Proposal for upgrading or providing any effective infrastructure, water pollution prevention and mitigation measures to be implemented during the construction and operation stages so as to handle any wastewater generated and to reduce the water and sediment quality impacts to within standards. Requirements to be incorporated in the Project contract document shall also be proposed;	Section 8.8 describes pollution mitigation measures to reduce pollution arising from the point and non-point sources identified in 8.5. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase. The mitigation measures include requirements to be incorporated in the project design / operation phase.
260.	(ii)	Investigation of and proposal for, as appropriate, best management practices to reduce storm water and non-point source pollution	Section 8.8 describes the recommended mitigation measures to be implemented, including best management practices, and their effectiveness in reducing pollution identified in Section 8.5. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase. Section 8.10 describes environmental monitoring and audit to verify the mitigation measures.
261.	(iii)	Evaluation and quantification of residual impacts on the water systems(s) and the sensitive receivers with regard to appropriate water and sediment quality objectives, criteria, standards or guidelines. If the mitigated water quality impact still exceeds the relevant criteria in Annex 6 of 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.	Section 8.9 describes residual impacts. The mitigation measures are considered appropriate as no significant adverse residual impact was predicted for the construction and operation phase.
262.	(i)	Assessment of the risk to environmental sensitive receivers due to significant accidental fuel spillage. The assessment shall include the followings : a) Identification of fuel spillage scenarios associated with the operation of the Project, in particular the accidental spillage associated with storage, transfer and trans-shipment of fuel during the operation of the Project and the impact on environmental sensitive receivers by taking reference to results of the mathematical models as set out in Appendix D1-1;	Section 8.5.2 describes the potential for accidental fuel spillage during operation phase. Section 8.7.2 addresses impacts on water systems from incidences of aviation fuel spillage during operation of the project. The risk of jet fuel spillage into the marine environment is considered minimal with the implementation of spillage control measures.
263.		b) Prediction and quantification of the impacts on the sensitive receivers due to fuel spillage scenarios identified in (a). The prediction shall take into account and include different likely operation stages	Section 8.7.2 evaluates the potential impact due to fuel spillage. Based on the proposed construction method for the submarine aviation fuel pipelines and the Water Quality methodology paper agreed with EPD, quantitative fuel spillage modeling is not required, hence fuel spillage was qualitatively assessed.
264.		c) Derivation of emergency contingency plan for the operation phase of the Project with an aim to avoid and contain the spread and to remove accidental spillage in short notice and to prevent and/or to minimise the quantities of contaminants from reaching the environmental sensitive receivers in a shortest practical time.	Section 8.7.2 and 8.8.2 describes precautionary measures for fuel management and spill response plans.

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265.	Appendix D1-1 Modelling Software General	<p>1. The modelling software shall be fully 3-dimensional capable of accurately simulating the stratified condition, salinity transport, and effects of wind and tide on the water body within the model area.</p> <p>2. The modelling software shall consist of hydrodynamic, water quality, sediment transport, thermal and particle dispersion modules. All modules shall have been proven with successful applications locally and overseas.</p> <p>3. The hydrodynamic, water quality, sediment transport and thermal modules shall be strictly mass conserved at all levels.</p> <p>4. As initial dilution model shall be used to characterize the initial mixing of the effluent discharge, and to feed the terminal level and size of the plume into the far field water quality modules where necessary. The initial dilution model shall have been proven with successful applications locally and overseas.</p>	<p>Section 8.6.1 describes the modelling software, Delft-3D used to simulate the different scenarios in construction and operation phase.</p> <ul style="list-style-type: none"><li>▪ Hydrodynamic – Delft-FLOW</li><li>▪ Construction phase – sediment plume and contaminant release – Delft-PART</li><li>▪ Operation phase - Chlorine and biocide, spent cooling discharge – Delft-PART</li><li>▪ Operation phase - water temperature, salinity, DO, BOD, SS, DIN, NH3, E.coli and sedimentation – Delft-WAQ</li></ul> <p>The hydrodynamic, water quality, sediment transport and thermal modules are mass conserved at all levels.</p> <p>Delft-3D water quality modelling software has been used locally and internationally for water quality simulations. Some local examples include the EIA of HKBCF, HATS 2A, WKCD, Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel, Kai Tak Development, SCL Protection works at CBTS, WDII and CWB etc.</p>														
266.	Appendix D1-1 Model Details – Calibration and Validation	<p>1. The models shall be properly calibrated and validated against applicable existing and/or newly collected field data before their use in this study in the Hong Kong waters, the Pearly Estuary and the Dangan (Lema) Channel. The field data set for calibration and validation shall be agreed with EPD.</p> <p>2. Tidal data shall be calibrated and validated in both frequency and time domain manner.</p> <p>3. For the purpose of calibration and validation, the model shall run for not less than 15 days of real sequence of tide (excluding model spin up) in both dry and wet seasons with due consideration of the time required to establish initial conditions.</p> <p>4. In general the hydrodynamic models shall be calibrated to the following criteria</p> <table><thead><tr><th>Criteria</th><th>Level of fitness with field data</th></tr></thead><tbody><tr><td>• Tidal elevation (@)</td><td>&lt;8%</td></tr><tr><td>• maximum phase error at high water and low water</td><td>&lt; 20 minutes</td></tr><tr><td>• maximum current speed deviation</td><td>&lt; 30%</td></tr><tr><td>• maximum phase error at peak speed</td><td>&lt; 20 minutes</td></tr><tr><td>• maximum direction error at peak speed</td><td>&lt; 15 degrees</td></tr><tr><td>• maximum salinity deviation</td><td>&lt; 2.5ppt</td></tr></tbody></table> <p>@ Root mean square of the error including the mean and fluctuating components shall meet the criteria at no less than 80% of the monitoring stations in the model domain</p> <p>5. The consultants shall be responsible for acquiring/developing and calibration of the models for use in this study themselves. They may make reference to the models developed under the Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool (Agreement No. CE 42/97). They may also propose to use other models subject to agreement with EPD.</p>	Criteria	Level of fitness with field data	• Tidal elevation (@)	<8%	• maximum phase error at high water and low water	< 20 minutes	• maximum current speed deviation	< 30%	• maximum phase error at peak speed	< 20 minutes	• maximum direction error at peak speed	< 15 degrees	• maximum salinity deviation	< 2.5ppt	<p>The model adopted is based on the existing, validated 3D Western Harbour Model (WHM) derived from the Update Model by Deltares in 2000 – 2001. This model has been set up, calibrated and validated under previous agreements with the Government of Hong Kong.</p> <p>Model grid refinement was made to obtain the desired resolution for the project. Section 8.6.1 and Appendix 8.3 provides the details of the validation of the refined model. The validation shows that the refined model is consistent with the original WHM model.</p>
Criteria	Level of fitness with field data																
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267.	Appendix D1-1 Model Details – Simulation	<p>1. The water quality modelling results shall be qualitatively explainable, and any identifiable trend and variations in water quality shall be reproduced by the model. The water quality model shall be able to simulate and take account of the interaction of dissolved oxygen, phytoplankton, organic and inorganic nitrogen, phosphorus, silicate, BOD, temperature, suspended solids, contaminants release of dredged and disposed material, air-water exchange, <i>E. coli</i> and benthic processes. It shall also simulate salinity. Salinity results simulated by hydrodynamic models and water quality models shall be demonstrated to be consistent.</p> <p>2. The sediment transport module for assessing impacts of sediment loss due to marine works shall include the processes of settling, deposition and re-erosion. The values of the modelling parameters shall be agreed with EPD. Contaminants release and DO depletion during dredging and dumping shall be simulated by the model.</p> <p>3. The thermal model shall be used based on the flow field produced by the hydrodynamic model. It shall incorporate the physical processes of thermal / cooled water discharge and abstraction flow, buoyancy effect of the thermal plume, and surface heat exchange. Dispersion of biocides in the discharge shall also be simulated with appropriate decay rates.</p> <p>4. The models shall at least cover the Hong Kong waters, the Pearl Estuary and the Dangan Channel to incorporate all major influences on hydrodynamic and water quality. A fine grid model may be used for detailed assessment of this study. It shall either be linked to a far field model or form part of a larger model by gradual grid refinement. The coverage of the fine grid model shall be properly designed such that it is remote enough so that the boundary conditions will not be affected by the project. The model coverage area shall be agreed with EPD.</p> <p>5. In general, grid size at the area affected by the project shall be less than 400 m in open water and less than 75 m around sensitive receivers. The grid shall also be able to reasonably represent coastal features existing and proposed in the project. The grid schematization shall be agreed with EPD.</p>	<p>Section 8.7.1 to 8.7.2 and Appendix 8.8, 8.10 to 8.12 and 8.14 to 8.16 describes and assess the water quality modelling results.</p> <p>Section 8.6.1 to 8.6.10 and Appendix 8.3 to 8.7 describes the model assumptions, parameters and model coverage.</p> <p>Processes for settling, deposition and re-erosion are included in the sediment transport model. A conservative tracer dilution method was used to model contaminant release and DO depletion.</p> <p>The thermal model is based on the hydrodynamic model and includes temperature components. Residual chlorine and biocide discharges are simulated.</p> <p>The model covers the study area for this project (i.e. the Northwestern WCZ, Northwestern Supplementary WCZ, Western Buffer WCZ, and Deep Bay WCZ), including the Pearl Estuary and the Dangan (Lema) Channel.</p> <p>Model grid refinement was undertaken around the project area. Model coverage area was agreed with EPD. Grid schematization was agreed with EPD in the approved Water Quality Methodology Paper. Due to the large coverage area and limitations on model stability constraints, the grid cell resolution at WSRs ranges mainly between 30 to 150m, resulting with the WSRs located furthest away from project not having the grid cell size of 75m x 75m.</p>														



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268.	Appendix D1-1 Modelling Assessment	<p>1. The assessment shall include the construction and operational phase of the project. Where appropriate, the assessment shall also include maintenance dredging. Scenarios to be assessed shall cover the baseline condition and scenarios with various different options proposed by the Applicant in order to quantify the environmental impacts and improvements that will be brought about by these options. Corresponding pollution load, bathymetry and coastline shall be adopted in the model set up.</p> <p>2. The assessment shall cover accidental fuel spillage associated with the operation of the Project. Potential locations, quantities and rates of spill shall be identified and quantified. The spill modelling shall cover combinations of different tides, wind and season conditions. The methodology for modelling spill and scenarios to be covered should be agreed with EPD.</p> <p>3. Hydrodynamic, sediment transport, fuel spillage and thermal modules, where appropriate, shall be run for (with proper model spin up) at least a real sequence of 15 days spring-neap tidal cycle in both the dry season and the wet season.</p> <p>4. Water quality module shall run for (with proper model spin up) a complete year incorporating monthly variations in Pearl River discharges, solar radiation, water temperature and wind velocity in the operational stage. Construction stage impacts, cooling water discharge and floating refuse and debris entrapment may be assessed by simulating typical spring-neap cycles in the dry and wet seasons.</p> <p>5. For assessing temporary discharges via the emergency outfall, the Applicant shall estimate discharge loading, pattern and duration. The worst case scenario shall include discharge near slack water or neap tide. A period of at least 15 days spring-neap cycle in wet season, but long enough for recovery of the receiving water, shall be stimulated. Detailed methodology shall be agreed with EPD.</p> <p>6. The results shall be assessed for compliance of Water Quality Objectives. Any changes hydrodynamic regime shall be accessed. Daily erosion / sedimentation rate shall be computed and its ecological impact shall be assessed.</p> <p>7. The impact on all sensitive receivers shall be assessed.</p> <p>8. Cumulative impacts due to other projects, activities or pollution sources within a boundary to the agreement of EPD shall also be predicted and quantified.</p>	<p>Section 8.6.2 to 8.6.9 and Appendix 8.5 to 8.7 describes the model assumptions and scenarios for construction and operation phase modelling. Corresponding pollution load, bathymetry and coastline have been incorporated.</p> <p>As agreed with EPD and documented in the approved Water Quality methodology paper, quantitative fuel spillage modeling is not required, hence fuel spillage was qualitatively assessed.</p> <p>Hydrodynamic, sediment transport and thermal modules were run for at least 15 days spring neap cycle in both dry and wet season.</p> <p>Water quality module was run for a complete year incorporating monthly variations.</p> <p>No emergency outfall is proposed by the project, hence no assessment of temporary discharge via emergency outfall is necessary.</p> <p>Assessment of modelling results at all WSRs was performed to check the compliance with WQOs and international criteria. Changes in hydrodynamic regime and the impact of erosion / sedimentation on ecological receivers was assessed in Section 8.7.2.</p> <p>Section 8.7 describes and assesses the impacts on sensitive receivers.</p> <p>Cumulative impacts due to other projects was incorporated and assessed in Section 8.7.</p>
269.	Appendix D2 1.	The EIA shall investigate and determine the need and the feasibility of having central pre-treatment facilities and/or a separate sewage treatment plant within the study area. Taking into consideration any programme gap between provision of public sewerage and the occupation of the development, the EIA shall also investigate and determine the need and feasibility of providing interim sewage treatment facilities.	According to Section 9, need of central pre-treatment facilities and/or a separate sewage treatment plant, or interim sewage treatment facilities was investigated and determined as nil considering there is no programme gap.
270.	Appendix D2 2. (i)	<p>The EIA shall study and assess the need and impacts of discharging sewage to the existing/planning public sewerage systems in North Lantau. The assessment shall include the following:</p> <p>Review to establish whether there is adequate capacity in the existing and committed sewerage systems and sewage treatment works in North Lantau for the Project, taking into account the sewage arising from the existing sources, and committed and planned developments within the sewage catchment. The Applicant shall quantitatively address the impacts of the Maximum Development Flows on the sewerage system under different development phases. The appropriate treatment level of interim discharge, if required, shall be assessed. The water quality impacts arising from the interim and ultimate effluent discharge, if any, shall be assessed;</p>	<p>According to Section 9.6, the assessment concluded that existing capacities in the gravity sewers from airport discharge manhole to TCSPS, TCSPS and SHWSTW are not adequate. The mitigation measures have been discussed. All mitigation measures will be timely implemented.</p> <p>Sewage arising from the existing sources, and committed and planned developments within the sewage catchment have been estimated based on available information; existing (2012) sewage flow data discharged from the airport to the public sewerage system in Tung Chung are used instead of projected data for the selected scenarios.</p> <p>Maximum sewage flow rates ("Maximum Development Flows") have been considered quantitatively under three development phases (Baseline &amp; Ultimate).</p>
271.	Appendix D2 2. (ii)	employ the latest version of the computer model "InfoWorks" or equivalent computer models to assess impacts of future development under different phases on the existing and planned sewerage network in North Lantau sewage catchment;	InfoWorks is used to assess impacts of future development under different phases on the existing and planned sewerage network in North Lantau sewage catchment. Please refer to Section 9.6.
272.	Appendix D2 2. (iii)	propose and undertake all required measures to mitigate any forecast shortfalls in the sewerage system as a result of the Project under different development phases and demonstrate the proposed measures would be adequate for the Maximum Development Flows under different development phases. Any proposed sewerage system and/or on-site sewage treatment facility should be designed to meet the current government standards and requirements and agreed by DSD and EPD	<p>Measures to mitigate forecasted shortfalls have been proposed.</p> <p>Measures are understood to be undertaken by other responsible parties.</p> <p>Proper design is covered in Section 9.3.2 and Section 9.6.2.12.</p>
273.	Appendix D2 2. (iv)	identify and quantify the water quality and ecological impacts due to the emergency discharge from on-site sewage treatment plant/pumping stations, if any, and sewer bursting discharge, and to propose measures to mitigate these impacts	<p>Section 9.3.2.2 described that no emergency discharge from on-site pumping station is expected, hence no water quality and ecological impacts are identified.</p> <p>Water quality and ecological impacts due to sewer bursting discharge were identified and assessed in Section 9.3.2.3</p>
274.	Appendix D2 2. (v)	identify the appropriate alignment and layouts of the new sewerage to connect to the existing/planned/future sewerage systems in North Lantau and investigate and assess the technical feasibility of connection (eg. technical feasibility and details for connection to public sewer and sewage pumping station)	The new sewerage was identified to connect ultimately to the existing public sewerage manhole no. FMH7042035 for discharge via the existing sewerage system in the airport (Section 9.3.2.1). Technical feasibility is confirmed by saying that upgrading, if needed, would be undertaken to ensure proper conveyance to the existing public sewerage
275.	Appendix D2 2. (vi)	set out the design, operation and maintenance requirements and undertake or obtain agreement to undertake the construction and maintenance of any proposed sewerage and sewage treatment facilities identified by the Project, such as pumping station(s) and sewage treatment plant, including electrical and mechanical components to eliminate the problem of septicity incurred in long rising main(s) during low flows and to facilitate maintenance. The above shall be agreed by DSD and EPD (Twin rising mains for each pumping station should be provided to make sure that the proposed sewage rising mains are maintainable without shutting down and discharging untreated sewage into the natural stream/drainage channel directly)	<p>Operation and maintenance requirements are described in Section 9.3.2.</p> <p>Agreement to undertake proposed upgrade at TCSPS and SHWSTW by other parties is being obtained.</p>



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276.	Appendix E1 1. (i)	The EIA 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. dredged/excavated sediment/mud, construction and demolition materials (C&DM), floating refuse and other wastes which will be generated during construction and operational stages.	Quantity, quality and timing of waste generation from construction phase (inert C&DM, non-inert C&DM, excavated marine sediment, chemical waste, general refuse and floating refuse) are summarised in Table 10.15. Section 10.4.2 covers timing of waste generation from operation phase (chemical waste, general refuse, floating refuse and sludge).
277.	Appendix E1 1. (ii)	The EIA shall adopt appropriate design, general layout, construction methods and programme to minimize the generation of public fill/inert C&DM and maximize the use of public fill/inert C&DM for other construction works.	Fill balance is included in Tables 10.1, 10.4, 10.5 and Appendix 10.1. Sections 10.4.1.8 and 10.5.1.1 described efforts to be made in minimising off-site disposal of C&D materials and maximise reuse within the project. <ul style="list-style-type: none"> <li>Maximise the earthworks balance and minimise the volumes of fill that would be required to be imparted to and exported from the site</li> <li>Minimise the extent of excavation and to ensure that as much as the inert C&amp;D material generated by the project will be reused on-site as practicable.</li> <li>Relevant construction activities and construction programme have been carefully planned and developed.</li> </ul>
278.	Appendix E1 2. (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 which can be taken in planning and design stages e.g. by modifying the design approach and in the construction stage for maximizing waste reduction shall be separately considered.	The opportunities for reducing waste generation, on-site or off-site re-use and recycling are fully evaluated and discussed in Sections 10.4 and 10.5. Measures which can be taken in planning and design stages are summarised in Table 10.16.
279.	Appendix E1 2. (ii)	The EIA shall consider alternative project designs/measures to avoid/minimize floating refuse accumulation/entrapment and measures/proposals for the potential floating refuse problem, e.g. streamlining the shoreline design; measures to improve the tidal flushing capacity; alternative seawall design to facilitate floating refuse collection; and regular collection of the floating refuse along the shoreline. Regarding the potential trapping of floating refuse along the shoreline of the Project, the Applicant shall estimate as far as practicable the amount of floating refuse to be found/trapped along the shoreline of the Project in construction stage and after the completion of the Project. The Applicant shall develop an effective plan/design to avoid/minimize the trapping of floating refuse. If floating refuse is identified and needs to be dealt with, the Applicant shall propose appropriate measures to deal with this floating refuse in a proper and acceptable manner e.g. to collect, recycle, reuse, store, transport and dispose of.	The future artificial seawall of the proposed airport expansion area has been properly designed to achieve a shoreline that does not have any sharp turns or abrupt indentation in order to avoid or minimise any trapped or accumulated refuse. Regular check will be undertaken and any refused trapped or accumulated along the newly constructed seawall will be cleaned. Details are discussed in Sections 10.4.1.65 – 10.4.1.66 (construction phase) and Sections 10.4.2.8 – 10.4.2.10 (operation phase).
280.	Appendix E1 2. (iii)	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 wastes shall be described in detail. The disposal methods/options recommended for each type of wastes shall take into account of the result of the assessment in (v) below.	The types and quantities of wastes required to be disposed of are estimated and the disposal methods are summarised in Table 10.15 and Section 10.4.2 for construction phase and operation phase respectively.
281.	Appendix E1 2. (iv)	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.	For construction phase: Inert C&DM: Transportation routings for barges and frequency of vessels involved included in Section 10.4.1.14. Section 10.4.1.14 and Drawing MCL/P132/EIA10-001 indicated anticipated numbers of barging points and stockpiling areas. Non-inert C&DM: Transportation routings and frequency for dump trucks included in Section 10.4.1.22. Excavated marine sediment: Disposal outlet for marine sediment included in Section 10.4.1.31 and relevant correspondences on the provisional allocation of space for disposal of marine sediment with MFC are provided in Appendix 10.6. Treatment for reuse of sediment included in Section 10.4.1.36. Chemical waste: Section 10.4.1.61. General refuse (and floating refuse): Transportation routings and frequency of trucks involved included in Sections 10.4.1.63 and 10.4.1.66.  For operation phase: General refuse (and floating refuse): Transportation routings and frequency of trucks involved included in Section 10.4.2.2. Chemical waste: Transportation routings included in Section 10.4.2.5. Floating refuse: Transportation routings included in Section 10.4.2.9. Sludge: Transportation routings included in Section 10.4.2.12  Disposal outlets described in Table 10.15 and Section 10.4.2.

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282.	Appendix E1 2. (v)	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; - ecology; and - public transport.	The impacts caused by handling, collection, transportation and re-use/disposal of wastes assessed throughout Sections 10.4.1 and 10.4.2: Construction Phase: Sections 10.4.1.8 and 10.4.1.18 - assess the impact caused by storage, handling, transport and disposal of inert C&D waste Section 10.4.1.14 - assess the impact caused by handling waste at barging points Section 10.4.1.22 - assess the impact caused by storage, handling, transport and disposal of non-inert C&D waste Section 10.4.1.60 - assess the impact caused by storage, handling, transport and disposal of chemical waste Section 10.4.1.62 - assess the impact caused by storage, handling, transport and disposal of general refuse Section 10.4.1.66 - assess the impact caused by handling and disposal of floating refuse Operation Phase: Section 10.4.2.4 – assess the impact caused by storage, handling, transport and disposal of general refuse Section 10.4.2.7– assess the impact caused by storage, handling and disposal of chemical waste Section 10.4.2.12 – assess the impact caused by handling, transport and disposal of sludge Section 10.4.2.10 – assess the impact caused by handling and disposal of floating refuse  Section 10.5 described mitigation measures against impacts associated with waste management include: ▪ Good site practice ▪ Implement Waste Management Plan ▪ Employment of licensed collector to transport and disposal of wastes ▪ Carefully handle/store waste in enclosed bins.
283.	Appendix E1 3. (i)	Identification and quantification as far as practicable of all dredging/excavation, fill extraction, filling, reclamation, sediment/mud transportation and disposal activities and requirements shall be conducted. Potential fill source and dumping ground to be involved shall also be identified. Field investigation, sampling and chemical and biological laboratory tests to characterize the sediment/mud concerned shall be conducted as appropriate. The ranges of parameters to be analyzed; the number, type and methods of sampling; sample preservation; chemical and biological laboratory test methods to be used shall be agreed with the Director (with reference to Section 4.4.2(c) of the TM) prior to the commencement of the tests and documented in the EIA report for consideration. The categories of sediment/mud which are to be disposed of in accordance with a permit granted under the Dumping at Sea Ordinance (DASO) shall be identified by both chemical and biological tests and their quantities shall be estimated. If the presence of any serious contamination of sediment/mud which requires special treatment/disposal is confirmed, the Applicant shall identify the most appropriate treatment and / or disposal arrangement and demonstrate its feasibility. The Applicant shall provide supporting document, such as agreement by the relevant facilities management authorities, to demonstrate the viability of any treatment/disposal plan.	Dredging/ excavation, fill extraction, filling, reclamation, sediment/mud transportation and disposal activities and requirements identified and quantified under Sections 10.4.1.3 to 10.4.1.61. Potential fill source and dumping ground identified in Table 10.3 and Section 10.4.1.31. Sections 10.4.1.23 to 10.4.1.31 and Appendix 10.5a described marine sediment sampling and testing at field joint area. Agreement of SSTEP with DEP provided in Appendix 10.4. Table 10.7 estimated dredge quantity for each sediment category at field joint area.  Sections 10.4.1.32 to 10.4.1.58 described marine sediment sampling and testing and estimated dredge quantity for each sediment category for other marine sediment excavation works. Treatment and disposal arrangement for contaminated sediments described in 10.5.1.7 to 10.5.1.19; feasibility is considered through review of previous local projects.
284.	Appendix E1 3. (ii)	Identification and evaluation of the best practicable dredging/excavation methods, treatment methods, reuse/recycling options and construction programme to minimize dredging/excavation and dumping requirements and demand for fill sources based on the criterion that existing sediment/mud shall be left in place and not to be disturbed as far as possible.	Sections 10.5.1.7 to 10.5.1.17 – description of treatment/recycling methods of excavated marine sediments. Section 10.4.1.23 – land formation will be carried out by non-dredged methods Section 10.4.1.24 – fuel pipelines to be constructed by HDD Section 10.4.1.26 – cables to be installed by jetting Table 10.16 – summary of waste avoidance / reduction
285.	Appendix E2	If any contaminated land uses as stated in Sections 3.1 and 3.2 of Annex 19 in the TM is identified, the Applicant shall carry out the land contamination assessment as detailed from item (i) to (vi) below and propose measures to avoid disposal.	Potential contaminated land uses were identified on the areas where construction activities will be carried out on part of the existing airport island and the Sha Chau Island, there land contamination assessment and proposed measures are provided in Ch.11.
286.	(i)	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.	Sections 3.1 and 3.2 of Annex 19 of the TM followed. CAP is included in the Ch.11 and upon availability of areas for SI, CAR and RAP, if needed, will be prepared as mentioned in Sections 11.4.1.5 and 11.6.
287.	(ii)	The Applicant shall identify the potential land contamination site(s) within the study boundary and, if any, the boundaries of all associated areas (e.g. work areas) of the Project.	Potential land contamination site(s) identified in Section 11.3. Boundaries of all associated areas (e.g. work areas) of the project are provided in Drawings MCL/P132/EIA/11-001 to 11-013.
288.	(iii)	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 relation to possible land contamination (including accident records and change of land use(s) and the like).	Present land use (including description of the activities, chemicals and hazardous substances handled, storage and location, by reference to a site layout plan) described in Section 11.5. Site reconnaissance surveys and desktop studies were undertaken to identify the present land use. Detail are discussed in the CAP (attached as Appendix 11.1) Past land uses history in relation to possible land contamination (including accident records and change of land use(s) from aerial photos) described in Section 11.5. Records received from relevant government departments, historical aerial photographs are taken into account.
289.	(iv)	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).	CAP is submitted to DEP for endorsement. Details on representative sampling and analysis required to determine the nature and the extent of the contamination of the potential contaminated areas are included in CAP as shown in Appendix 11.1.

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290.	(v)	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 works within the site. The CAP, CAR and RAP shall be documented in the EIA report.	As some of the potential contaminated sites are inaccessible and some of the sites are still in operation, SI works cannot be undertaken at this stage. Further site reconnaissance will be conducted for the inaccessible areas. Subject to the reconnaissance findings, a supplementary CAP (if necessary) may be prepared and submitted to EPD for endorsement. After completion of SI, CAR and RAP will be prepared and submitted to EPD as mentioned in Sections 11.4.1.5 and 11.6. CAP is included in EIA; CAR and RAP will not be included in the EIA.
291.	(vi)	If there is/are potential contaminated site(s) is inaccessible for preparing 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 information; (b) an initial contamination evaluation of this/these site(s) and possible remediation methods; (c) a confirmation of whether the contamination problem at this/these site(s) would be surmountable; (d) a sampling and analysis proposal which shall aim at determining the nature and the extent of the contamination of this/these site(s); and (e) a schedule of submission of revised CAP (if necessary), CAR, RAP and RR upon this/these site(s) is/are accessible.	It is determined that potential contaminated sites are inaccessible for preparing sampling and analysis during the course of the EIA study. The information has been reviewed, possible remediation methods, confirmation of whether the contamination problem would be surmountable and sampling and analysis proposal are included in CAP as shown in Appendix 11.1. Subject to the reconnaissance findings, a supplementary CAP for additional SI (if necessary) may be prepared and submitted to EPD for endorsement. After completion of SI, CAR and RAP will be prepared and submitted to EPD as mentioned in Sections 11.4.1.5 and 11.6.
292.	Appendix F 1.	In the ecological impact assessment, the Applicant shall examine the flora, fauna and other components of the ecological habitats within the study area. The aim shall be to protect, maintain or rehabilitate the natural environment. In particular, the Project shall avoid as far as possible impacts on recognized sites of conservation importance (including but not limited to Tai Ho Stream SSSI, San Tau Beach SSSI, Lung Kwu Chau, Tree Island and Sha Chau SSSI, Sha Chau and Lung Kwu Chau Marine Park, and the potential Marine Park at the Brothers Islands) wildlife groups or habitats/species with conservation interests [including but not limited to intertidal, subtidal and benthic marine habitats, marine mammal habitats, natural streams (in particular the estuaries), and avifauna (in particular migratory waterbirds, landbirds that may occur around the proposed runway and the egret at Sha Chau)]. The assessment shall identify and quantify as far as possible the potential ecological impacts associated with the Project, both directly by physical disturbance and indirectly by changes of water quality and hydrodynamic regime to the natural environment and the associated wildlife groups and habitats/species including its construction as well as subsequent operation, management and maintenance phase.	Flora, fauna (including avifauna, herpetofauna, macroinvertebrate and stream fauna), habitats (including secondary woodland, plantation woodland, tall shrubland, seasonally wet grassland, cultivated land and stream and riparian) and recognised sites of conservation importance (including Tai Ho Stream SSSI, San Tau Beach SSSI, Lung Kwu Chau, Tree Island and Sha Chau SSSI) described in Ch.12 and associated appendices.  Potential ecological impacts on terrestrial ecology from construction and operation phases identified in Section 12.6. The potential terrestrial ecological impacts include habitat loss, impact to Sha Chau Egret, impact to flight movement and behaviour of birds, habitat disturbance and disturbance to species of conservation interest.  Flora, fauna, habitats (coastal waters and habitats, artificial seashores, rocky shores, sandy shores, mangroves and intertidal mudflats, marine waters) and recognised sites of conservation importance (Sites of Special Scientific Interest (SSSI), SCLKCM, BMP, proposed SWLMP).described in Ch.13 and appendices.  Potential ecological impacts on marine ecology from construction and operation phases identified in Section 13.7.
293.	Appendix F 2. (i)	The assessment shall include the following major tasks: Review the findings of relevant studies/surveys and collate the available information regarding the ecological characters of the study area and bird strike information in relation to airport operation;	Available information and findings of terrestrial ecology from relevant previous studies/ surveys provided in Appendix 12.1. Relevant previous studies, surveys and literatures reviewed include Hong Kong – Zhuhai – Macao Bridge: Hong Kong Boundary Crossing Facilities and Hong Kong Link Road 9 Months Ecological Baseline Survey, HZMB: HKLR Verification Survey of Ecological Baseline Final Report, Tuen Mun – Chek Lap Kok Link – Investigation Final EIA Report, HZMB: HKBCF and HKLR – Investigation Final EIA Report, Construction of Lung Kwu Chau Jetty Final EIA Report, EIA Study for Tung Chung New Town Development Extension, Lantau Logistics Park Development – Feasibility Study Final Report, Hong Kong International Airport Approved Plant Species List, Hong Kong Biodiversity Newsletters, AFCD Unpublished Biodiversity Database, Hong Kong Butterfly Inventory, A Field Guide to the Terrestrial Mammals of Hong Kong, A Field Guide to the Amphibians of Hong Kong, Field Guide to the Dragonflies of Hong Kong, The Dragonflies of Hong Kong, Field Guide to the Freshwater Fish of Hong Kong, Ecology of Birds of Hong Kong, The Avifauna of Hong Kong, Hong Kong Bird Reports and Freshwater Fish in Hong Kong.  Bird strike information in relation to airport operation of the past five years was collected from AAHK as reported by the pilots, included in Appendix 12.1.  Available information for marine ecology and findings of relevant previous studies/ surveys provided in Section 13.4.4 and Appendix 13.1.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
294.	Appendix F 2. (ii)	<p>Evaluate the information collected, identify any information gap relating to the assessment of potential ecological impacts to the natural environment, and determine the ecological field surveys and investigations that are needed for a comprehensive assessment as required under the following sections:</p> <p>(a) carry out necessary ecological field surveys and investigations to verify the information collected, fill the information gaps as identified under sub-section (ii) above, and to fulfil the objectives of the EIA study. The field surveys shall cover but not be limited to flora, fauna and any other habitats/species of conservation importance, and shall include subtidal and intertidal survey, benthic community survey, and underwater dive survey for coral communities. The avifauna survey in particular shall cover at least 12 months including both the wet and dry seasons; and</p> <p>(b) the ecological field surveys and investigations shall include the Hong Kong International Airport Approach Area (HKIAAA), in particular Area 3 which will be directly affected by the reclamation, to assess the status of the intertidal, subtidal soft- and hard-substrate benthic communities. If necessary, reference sites in western Hong Kong waters with similar ecological attributes should be selected and included in the survey design in order to accurately evaluate the ecological values of the various habitat types within the HKIAAA.</p>	<p>Information obtained from literature review evaluated and information gaps identified in Section 12.4.1.2. The major information gap identified from literature is the use of the proposed land formation area by birds. Therefore, a comprehensive bird survey was undertaken to investigate this aspect.</p> <p>Ecological field surveys covering flora, fauna, habitats/ species of conservation interest completed and methodology and results presented in Appendix 12.2 and 12.3 respectively. Avifauna surveys covered 12 months including wet and dry seasons.</p> <p>Information evaluated in Section 13.4.4 and gaps identified in Sections 13.4.4.25 to 13.4.4.27.</p> <p>Ecological field surveys covering flora, fauna, habitats/ species of conservation interest, including subtidal and intertidal survey, benthic community survey, and underwater dive survey for coral communities, are completed to fill the data gap and methodology and results presented in Appendices 13.3, 13.5 and Section 13.4.6.</p> <p>Ecological field surveys included the HKIAAA and reference sites in western Hong Kong waters with similar ecological attributes, details please refer to Section 13.4.5.</p>
295.	Appendix F 2. (iii)	<p>Establish the general ecological profile of the study area based on information collected in the tasks mentioned in sub-section (i) to (ii) above, and describe the characteristics of each habitat found; the data set should be comprehensive and representative covering the variations of the wet and dry seasons, and is up to date and valid for the purpose of this assessment. Major information to be provided shall include :</p> <p>(a) description of the physical environment, including all recognized sites of conservation importance and assessment of whether these sites will be affected by the Project or not;</p> <p>(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 study area;</p> <p>(c) ecological characteristics of each habitat type such as size, vegetation and/or substrate type, species present, dominant species found, species richness and abundance of major taxa groups, seasonal patterns, inter-dependence of the habitats and species, and presence of any features of ecological importance;</p> <p>(d) representative colour photos of each habitat type and any important ecological features identified; and</p> <p>(e) species found that are rare, endangered and/or listed under local legislation, international conventions for conservation of wildlife/ habitats or red data books.</p>	<p>General ecological profile of terrestrial ecology of the study area is covered in Ch. 12.</p> <p>Characteristics of each habitat found described in Appendices 12.1 and 12.3.</p> <p>Description of recognised sites of conservation importance (i.e. Tai Ho Stream SSSI, San Tau Beach SSSI and Lung Kwu Chau, Tree Island and Sha Chau SSSI) provided in Section 12.3.2.</p> <p>Habitat maps showing the types and locations of habitats provided in drawings MCL-P132-EIA-12-001 to 007 and the approximate locations of species of conservation interest in the study area provided in drawings MCL-P132-EIA-12-017 to 034.</p> <p>Ecological characteristics such as floral community and floral species of conservation interest of each habitat type provided in Appendix 12.3 (Section 2) and Appendix 13.5.</p> <p>Representative colour photos of each habitat type provided in Appendix 12.3 Annex A and Appendix 13.5.</p> <p>Both floral and faunal species of conservation interest summarised in Appendix 12.4 with details of reported/recorded locations, protection status/conservation status, distribution and rarity.</p> <p>General ecological profile of the study area is covered in Section 13.4.3. The study area for marine ecology includes the North Western Water Control Zone (WCZ), North Western Supplementary WCZ, Deep Bay WCZ, Western Buffer WCZ as designated under the Water Pollution Control Ordinance (WPCO) and the water sensitive receivers in the vicinity of the project.</p> <p>Characteristics of each habitat found described in Appendices 13.1 and 13.5, and Sections 13.4.3, 13.4.4 and 13.4.6. Species present, dominant, species richness and abundance of major taxa groups covering both wet and dry season or peak season for the particular taxa are detailed in Appendix 13.5.</p> <p>Description of recognised sites of conservation importance provided in Sections 13.4.3.13 to 13.4.3.20, which included Sites of Special Scientific Interest (SSSI), Sha Chau and Lung Kwu Chau Marine Park and Proposed Southwest Lantau Marine Park (SWLMP).</p> <p>Assessment of whether these sites will be affected by the project or not presented in Section 13.7, Table 13-22 and Section 13.8.</p> <p>Habitat maps showing the types and locations of habitats and species of conservation interest in the study area provided in drawings MCL-P132-EIA-13-001-007, MCL-P132-EIA-13-014-020 and MCL-P132-EIA-13-026-027.</p> <p>Ecological characteristics of each habitat type provided in Appendices 13.1 and 13.5, and Sections 13.4.3, 13.4.4 and 13.4.6.</p> <p>Representative colour photos of each habitat type provided in Appendix 12.3 Annex A and Appendix 13.5.</p> <p>Species of conservation importance relevant to this study were summarised in Section 13.5.2. The species that are rare, endangered and/or listed under local legislation, international conventions for conservation of wildlife or red data books were evaluated.</p>



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296.	Appendix F 2. (iv)	<p>Investigate and describe the existing wildlife uses of various habitats with special attention to those wildlife groups and habitats with conservation interest, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>(a) coastal/marine waters;</li> <li>(b) subtidal shores/coral communities;</li> <li>(c) benthic communities;</li> <li>(d) sandy shores/rocky shores;</li> <li>(e) mangroves/inter-tidal mudflats;</li> <li>(f) seagrass beds at San Tau Beach SSSI;</li> <li>(g) horseshoe crab breeding and nursery sites;</li> <li>(h) marine mammals especially Chinese White Dolphins;</li> <li>(i) aquatic fauna (e.g. crustaceans and marine fish);</li> <li>(j) stream/estuarine fauna, in particular fish species of conservation interest at Tai Ho Stream SSSI, Tung Chung Bay and other nearby estuaries (e.g. <i>Plecoglossus altivelis</i>, <i>Acrossocheilus beijiangensis</i>, <i>Syngnathoides biaculeatus</i> and <i>S. schlegeli</i>, etc.);</li> <li>(k) avifauna, including (i) migratory waterbirds which overwinter, stopover or breed in Hong Kong, (ii) landbirds which occur around the proposed runway and (iii) the egret at Sha Chau which represents one of the largest egretries in Hong Kong;</li> <li>(l) herpetofauna;</li> <li>(m) macroinvertebrates (including butterflies and odonates); and</li> <li>(n) any other habitats / species identified as having special conservation interest by this EIA study.</li> </ul>	<p>Stream habitats, avifauna, herpetofauna, macroinvertebrates, stream fish included in Sections 12.5.1-12.5.4 and Appendix 12.3 (Section 3 &amp; 4).</p> <p>Investigation and description of the existing wildlife uses of various habitats with special attention to Coastal/marine waters, subtidal shores/coral communities, benthic communities, sandy shores/rocky shores, mangroves/inter-tidal mudflats, seagrass beds at San Tau Beach SSSI, horseshoe crab breeding and nursery sites, marine mammals especially Chinese White Dolphins, aquatic fauna (e.g. crustaceans and marine fish) and estuarine fauna included in Section 13.4.6, Appendices 13.5 to 13.12.</p>
297.	Appendix F 2. (v)	<p>Using suitable methodologies (including but not limited to those adopted in other relevant EIA studies in Hong Kong), and considering also any works activities from other projects reasonably likely to occur at the time, identify and quantify as far as possible any direct (e.g. loss of habitats due to various elements such as reclamation and other associated works of the Project), indirect (e.g. water qualities, hydrodynamics properties, hydrology, noise and other disturbance generated by the construction and operational activities, etc), on-site, off-site, primary, secondary and cumulative ecological impacts on the wildlife groups and habitats identified such as destruction of habitats, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, in particular the following:</p> <ul style="list-style-type: none"> <li>(a) habitat loss and disturbance to the intertidal, subtidal and benthic communities especially within the HKIAA due to reclamation;</li> <li>(b) impacts to the fish communities and intertidal organisms during construction and operation stage due to potential changes in water quality, hydrology and hydrodynamics properties and the consequential impacts to other habitats/species such as mangrove, seagrass bed, horseshoe crabs and corals;</li> <li>(c) impacts to avifauna during construction and/or operation stage due to interference by increased aircraft operation and the associated impacts;</li> <li>(d) cumulative impacts due to other planned and committed concurrent development projects at or near the Project area.</li> </ul>	<p>Assessment of direct and indirect impacts including destruction of habitats, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, and impacts to avifauna due to interference by increased aircraft operation provided in Section 12.6. Assessment of cumulative impacts provided in Section 12.8. Planned development on existing airport island and six concurrent projects were taken into account for the assessment of cumulative impacts. These six projects include HZMB: HKLR, HZMB: HKBCF, Tuen Mun – Chek Lap Kok Link, Tung Chung New Town Extension, Potential Residential Development at Tung Chung Area 54 and Public Housing Development at Tung Chung West Area 39.</p> <p>Identification of direct and indirect impacts including destruction of habitats, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, habitat loss and disturbance, and impacts due to potential changes in water quality, hydrology and hydrodynamics properties in both construction and operation phase provided in Section 13.7.</p> <p>Assessment of cumulative impacts provided in Section 13.15 Concurrent projects included Hong Kong – Zhuhai – Macao Bridge: Hong Kong Link Road (HKLR), Hong Kong – Zhuhai – Macao Bridge: Hong Kong Boundary Crossing Facilities (HKBCF), Tuen Mun – Chek Lap Kok Link (TMCLKL), Tung Chung New Town Development Extension (TCNTDE), Lantau Logistics Park (LLP), New Contaminated Mud Marine Disposal Facility at Hong Kong International Airport (HKIA) East / East of Sha Chau, Development of the Integrated Waste Management Facilities Phase 1 (IWMF), Providing Sufficient Water Depth at Kwai Tsing Container Basin and its Approach Channel, Container Terminal 10 Development at Southwest Tsing Yi (CT10), Harbour Area Treatment Scheme – Stage 2A, Leisure and Entertainment Node at Sunny Bay, Outlying Islands Sewerage Stage 2 and Sludge Treatment Facilities considered in cumulative impact assessment for Marine Ecology.</p>
298.	Appendix F 2. (vi)	<p>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</p>	<p>Evaluation of construction and operation phase impacts of Marine Ecology using quantitative approach as far as practicable based on EIA survey and literature review data were presented in Sections 13.8 &amp; 13.10.</p> <p>Evaluation of construction and operation phase impacts of Terrestrial Ecology using quantitative approach as far as practicable based on EIA survey and literature review data were presented in Section 12.6 &amp; Appendix 12.4. All terrestrial ecological surveys were recorded quantitatively for supporting habitat evaluation and impact assessment. Grid mapping and transect methods were used for the investigation of avifauna community.</p>

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299.	Appendix F 2. (vii)	Recommend possible and practicable mitigation measures such as alternative design and alignment of the Project and modification/change of construction methods to avoid, minimize and/or compensate for the adverse ecological impacts identified during construction and operation of the Project	<p>Mitigation measures provided in Section 12.7. Mitigation measures proposed for minimising impact to Sha Chau Egret and included preservation of nesting vegetation and trees, avoiding construction activities during the egret's breeding season (i.e. April to July), prohibition of night-time works and adjusting the daylighting location away from the egret.</p> <p>Mitigation measures for Marine Ecology in construction and operation phase provided in Section 13.11. Minimisation of Land Formation Area have been considered in the footprint design. the Deep Cement Mixing (DCM) method instead of conventional seabed dredging for creation of the 3RS land platform will significantly reduce the risk of negative impacts to marine ecology. For the diversion of submarine 11kV cables, water jetting method will be used for direct bury of cable from airport to outside of the SCLKCMP boundary. No trench excavation is required and the seabed will be reinstated to original level upon construction completion. Water Quality Mitigation Measures, Consideration of Alternative Alignment for Pipeline Diversion with Minimal Risk/Disturbance, Consideration of Alternative Treatment to Existing Pipelines after Diversion, Strict Enforcement of No-Dumping Policy and Good Construction Site Practices have been recommended to avoid deterioration in water quality. Pre-construction coral dive survey is also proposed to review the feasibility of coral translocation. Establishment of marine park to connect with the existing and proposed marine parks is also proposed as compensation measures for the loss of seabed and marine waters and loss of 5.9 km of artificial seawall.</p>
300.	Appendix F 2. (viii)	Evaluate feasibility and effectiveness of the recommended mitigation measures and definition of the scope, type, location, implementation arrangement, resources requirement, subsequent management and maintenance of such measures	<p>The significance of the impact after adoption of mitigation measures was discussed in Section 12.7.</p> <p>Effectiveness of mitigation measures for Marine Ecology discussed in Section 13.11. Those mitigation measures are effective to reduce impact on marine ecology. Details please refer to Sections 13.11.3 to 13.11.5.</p>
301.	Appendix F 2. (ix)	Determine and quantify as far as possible of the residual ecological impacts after implementation of the proposed mitigation measures	<p>Residual impacts assessed in Section 12.9. The identified impacts to terrestrial ecology would all be low or negligible except the construction phase impact to Sha Chau Egret. With the implementation of the recommended mitigation measures, no adverse residual impacts on terrestrial ecology are anticipated during both construction and operation phases.</p> <p>Residual impacts assessed in Section 13.14. The residual impacts refer to the net impacts after mitigation, taking into account the background environmental conditions and the impacts from existing, committed and planned projects. Residual impacts associated with the construction and operation phases have been assessed.</p>
302.	Appendix F 2. (x)	Evaluate the severity 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	<p>Severity of ecological impacts assessed accordingly to Annex 8 of EIAO-TM.</p> <p>Severity of residual ecological impacts assessed in Section 13.14. No specific mitigation measures are required for other marine ecological resources, as the proposed establishment of Marine Park will also benefit to the conservation of marine ecology. There will be no significant residual impacts associated with marine ecology.</p>
303.	Appendix F 2. (xi)	Review the need for and recommend any ecological monitoring programme required.	<p>Ecological monitoring programme provide in Section 12.10. A pre-construction survey for Sha Chau Egret is recommended to update the latest boundary of the egret during the breeding season and before the commencement of the construction work and implementation of the recommended mitigation measures for Sha Chau Egret will be checked and confirmed as part of the EM&amp;A programme during the construction phase.</p> <p>Ecological monitoring programme (for non-dolphin) in Marine Ecology is not deemed needed except for the proposed pre-construction coral dive survey for review the feasibility of coral translocation.</p>
304.	Appendix F 3. (i)	The assessment of impacts on marine mammals especially Chinese White Dolphins shall include the following tasks: Review and incorporate the findings of relevant studies including scientific and EIA studies and collate latest available information on the occurrence, distribution, abundance, fine-scale habitat use, social structure and geographic clustering, individual movement and range use, and residency pattern of Chinese White Dolphins in Hong Kong, in particular the detected declining trends in dolphin abundance in the past decade	Review presented in Appendix 13.2. Information on the occurrence, distribution, abundance, fine-scale habitat use, social structure and geographic clustering, individual movement and range use, residency pattern of Chinese White Dolphins in Hong Kong, and the detected declining trends in dolphin abundance in the past decade have been included in the CWD Literature Review in Appendix 13.2 and summarised in Section 13.4.4.20 – 13.4.4.24.
305.	Appendix F 3. (ii)	Evaluate the information collected and identify any information gap relating to the assessment of potential impacts on Chinese White Dolphins	Information gaps identified in Appendix 13.2 and Sections 13.4.4.25 to 13.4.4.27. The literature and data review for the CWDs in Appendix 13.2 has indicated that there is a data gap concerning the CWD use in the immediate area of the airport including within the HKIAAA and a need to obtain more specific data within the footprint of the proposed airport expansion project. As such, CWD field surveys have been proposed to cover these data gaps.

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306.	Appendix F 3. (iii)	<p>Carry out necessary field surveys/investigations to verify the information collected, fill the information gaps identified, and to fulfil the objectives of the EIA study. The surveys/investigations shall include, but not be limited to, the following</p> <p>(a) marine mammal survey (shipboard or land-based survey) to investigate the dolphin usage, especially in the HKIAAA;</p> <p>(b) investigation on the movement patterns of Chinese White Dolphins during different times of the years and different times of each day at or near the Project area, and identification of the travelling corridors of Chinese White Dolphins between their core areas of activities (i.e. Lung Kwu Chau, the Brothers Islands and West Lantau), employing suitable methods such as shore-based theodolite tracking, focal follow, passive acoustic monitoring system, and analysis of individual range use, in North and West Lantau waters, and especially within the HKIAAA;</p> <p>(c) investigation on the existing marine traffic pattern and volume, and project with suitable methodology the future marine traffic in North Lantau or other areas, especially the traffic associated with the SkyPier facility, to facilitate the assessment of impact to Chinese White Dolphins due to changes in marine traffic as specified in Section (v) (e) below; and</p> <p>(d) underwater acoustic study to collect data on anthropogenic noises generated by vessel traffic (e.g. examination of the noise characteristics of vessels departing from and arriving at the SkyPier), and acoustic behaviour of dolphins (e.g. in the presence and absence of vessel noise) for detailed assessment of acoustic disturbance to Chinese White Dolphins specified in Section (v) (f) below.</p>	<p>Marine mammal surveys included land based and vessel based survey and underwater acoustic study including the HKIAAA completed; methodology of each survey presented in Appendix 13.4.</p> <p>Investigation on the movement patterns of Chinese White Dolphins during different times of the years and different times of each day at or near the project area, and identification of the travelling corridors of Chinese White Dolphins between their core areas of activities completed, details please refer to Sections 13.4.6.49 to 13.4.6.114. Theodolite tracking, focal follow and passive acoustic monitoring system have been described in Section 13.4.6.49 onwards.</p> <p>Existing marine traffic pattern and volume, and projection of future marine traffic provided in Appendix 13.13 and Sections 13.9.4.24. to 13.9.4.37.</p>
307.	Appendix F 3. (iv)	Compile and present survey/investigation findings including previous relevant studies and surveys/investigations carried out under this study;	Present survey/investigation findings including previous relevant studies and surveys/investigations included. Results presented in Section 13.4.6.49 onwards and Appendices 13.2, 13.6 to 13.12.
308.	Appendix F 3. (v)	<p>Assess the direct and indirect impacts to marine mammals during the construction and operational phases of the Project, in particular the following:</p> <p>(a) potential changes in dolphin distribution and abundance, usage pattern, interaction between the different social clusters of dolphins, and connectivity between their core areas of activities in Hong Kong;</p> <p>(b) impacts to Chinese White Dolphins due to reclamation, in particular the direct and permanent loss of dolphin habitat, habitat fragmentation, and reduction in ecological carrying capacity for dolphins;</p> <p>(c) extent of overlap of the reclamation footprint with the travelling corridors of Chinese White Dolphins and the impact of such narrowing of travelling corridors on their movement between core areas of activities, e.g. between NW and NE Lantau waters;</p> <p>(d) impacts to Chinese White Dolphins (and also Indo-Pacific Finless Porpoises depending on the locations of fill source and disposal sites) associated with dredging, fill extraction, filling, transportation and disposal of dredged sediments within Hong Kong;</p> <p>(e) impacts to Chinese White Dolphins, in particular changes in movement pattern between their core areas of activities and increased risk of vessel collision, associated with projected changes in marine traffic, especially vessel traffic to and from the SkyPier, during both construction and operation phases, including possible increase in marine traffic volume or density (especially high-speed ferries), changes in vessel traffic due to new/re-aligned routes, and narrowing of navigation channels;</p>	<p>All discussed in Sections 13.7, 13.9 and 13.10.</p> <p>The potential changes in dolphin distribution and abundance, usage pattern, interaction between the different social clusters of dolphins, and connectivity between their core areas of activities discussed in Sections 13.9.2.18 to 13.9.2.19, Sections 13.9.4.6 to 13.9.4.11.</p> <p>The impacts to Chinese White Dolphins due to reclamation, in particular the direct and permanent loss of dolphin habitat, habitat fragmentation, and reduction in ecological carrying capacity for dolphins discussed in Sections 13.9.1.1 to 13.9.1.29 and Sections 13.9.3.1 to 13.9.3.15.</p> <p>The extent of overlap of the reclamation footprint with the travelling corridors of Chinese White Dolphins and the impact of such narrowing of travelling corridors on their movement between core areas of activities, e.g. between NW and NE Lantau waters discussed in Section 13.9.</p> <p>The impacts to Chinese White Dolphins (and also Indo-Pacific Finless Porpoises depending on the locations of fill source and disposal sites) associated with dredging, fill extraction, filling, transportation and disposal of dredged sediments within Hong Kong discussed in Sections 13.9.2.70 to 13.9.2.75.</p> <p>The impacts to Chinese White Dolphins, in particular changes in movement pattern between their core areas of activities and increased risk of vessel collision, associated with projected changes in marine traffic, especially vessel traffic to and from the SkyPier, during both construction and operation phases, including possible increase in marine traffic volume or density (especially high-speed ferries), changes in vessel traffic due to new/re-aligned routes, and narrowing of navigation channels discussed in Section 13.9.4.34 to 13.9.4.37.</p>
309.		<p>(f) disturbance to Chinese White Dolphins associated with underwater noise, including pilling, noise generated from additional work barges and vessels during the construction phase, and long term increase in underwater noise disturbance caused by the predicted changes in marine traffic during the operation phase;</p> <p>(g) impacts to Chinese White Dolphins due to the proposed Deep Cement Mixing (DCM) method for reclamation over the contaminated mud pits;</p> <p>(h) impacts to Chinese White Dolphins due to other associated works of the Project (e.g. re-alignment of the existing aviation fuel sub-sea pipeline part of which is within the Sha Chau and Lung Kwu Chau Marine Park);</p> <p>(i) impacts to the prey resources of Chinese White Dolphins due to the loss of benthic habitat at the proposed reclamation area;</p> <p>(j) impacts of changes in water quality/hydrodynamics properties to Chinese White Dolphins and their prey resources;</p>	<p>The disturbance to Chinese White Dolphins associated with underwater noise during the construction phase discussed in Sections 13.9.2.76 to 13.9.2.102, and long term increase in underwater noise disturbance caused by the predicted changes in marine traffic during the operation phase discussed in Sections 13.9.4.24 to 13.9.4.28.</p> <p>Impacts to Chinese White Dolphins due to the proposed Deep Cement Mixing (DCM) method for reclamation over the contaminated mud pits discussed in Sections 13.9.2.63 to 13.9.2.69.</p> <p>Impacts to Chinese White Dolphins due to other associated works of the project (e.g. re-alignment of the existing aviation fuel sub-sea pipeline part of which is within the Sha Chau and Lung Kwu Chau Marine Park) discussed in Sections 13.9.2.76 to 13.9.2.90.</p> <p>Impacts to the prey resources of Chinese White Dolphins due to the loss of benthic habitat at the proposed reclamation area discussed in Sections 13.9.4.1 to 13.9.4.5.</p> <p>Impacts of changes in water quality/hydrodynamics properties to Chinese White Dolphins and their prey resources discussed in Sections 13.9.4.12 to 13.9.4.15.</p>



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310.		<p>(k) risks of bioaccumulation of toxic contaminants released from the disturbed or dredged sediment in particular the contaminated mud pits, oil and chemical spillage from vessel/vehicle accidents, and aircraft accidents to Chinese White Dolphins;</p> <p>(l) impacts to the existing Sha Chau and Lung Kwu Chau Marine Park especially the likely increase in marine traffic volume/density and changes in overall hydrology and sedimentation as a result of the narrowing of passage between the southern boundary of the marine park and the HKIAAA boundary which will be extended northward during the operation phase of this Project;</p> <p>(m) impacts to the potential Marine Park at Brothers Islands which is regarded as a core area for Chinese White Dolphins in Hong Kong, and to dolphin movement from Northwest and West Lantau to this potential Marine Park; and</p> <p>(n) impacts of additional high-speed ferry traffic, reclamation and changes in water quality/hydrodynamics properties resulted from the Project on the functionality of the existing Sha Chau and Lung Kwu Chau Marine Park and potential Marine Park at Brothers Islands as the major dolphin protected areas.</p>	<p>The risks of bioaccumulation of toxic contaminants released from the disturbed or dredged sediment in particular the contaminated mud pits, oil and chemical spillage from vessel/vehicle accidents, and aircraft accidents to Chinese White Dolphins discussed in Sections 13.9.2.40 to 13.9.2.69.</p> <p>Impacts to the existing Sha Chau and Lung Kwu Chau Marine Park especially the likely increase in marine traffic volume/density and changes in overall hydrology and sedimentation as a result of the narrowing of passage between the southern boundary of the marine park and the HKIAAA boundary which will be extended northward during the operation phase of this project discussed in Sections 13.9.2.114 to 13.9.2.122, and Sections 13.9.4.38 to 13.9.4.45.</p> <p>Impacts to the potential Marine Park at Brothers Islands which is regarded as a core area for Chinese White Dolphins in Hong Kong, and to dolphin movement from Northwest and West Lantau to this potential Marine Park discussed in Sections 13.9.2.123 to 13.9.2.125 and Sections 13.9.4.46 to 13.9.4.52.</p> <p>Impacts of additional high-speed ferry traffic, reclamation and changes in water quality/hydrodynamics properties resulted from the project on the functionality of the existing Sha Chau and Lung Kwu Chau Marine Park and potential Marine Park at Brothers Islands as the major dolphin protected areas discussed in Sections 13.9.2.114 to 13.9.2.125 and Sections 13.9.4.38 to 13.9.4.52.</p>
311.	Appendix F 3. (vi)	Assess the overall cumulative ecological impacts on the Chinese White Dolphins due to this Project and any planned and on-going development projects (e.g. the SkyPier, Hong Kong-Zhuhai-Macau Bridge - Hong Kong Boundary Crossing Facilities & Hong Kong Link Road, Tuen Mun – Chek Lap Kok Link, Remaining Development in Tung Chung, Sediment Disposal Facility in South of Brothers, Lantau Logistic Park, Integrated Waste Management Facilities);	Cumulative impacts assessed in Section 13.15. The predicted impacts from this study are associated with the construction phase and of temporary duration, with marine works anticipated to take about 7 years. Concurrent projects included Container Terminal 10 Development at Southwest Tsing Yi, HKBCF, HKLR and TM-CLKL, Lantau Logistics Park, Leisure and Entertainment Node at Sunny Bay, New Contaminated Mud Disposal Facility at HKIA East/East Sha Chau, Kwai Tsing Container Basin Dredging and Tung Chung New Town Extension were considered.
312.	Appendix F 3. (vii)	<p>Identify and recommend practicable mitigation measures to avoid, minimize and/or compensate for the adverse ecological impacts identified during construction and operation of the Project to the Chinese White Dolphins. In identification of applicable measures, the Applicant shall consider the feasibility and appropriateness of, including but not limited to, the following:</p> <p>(a) measures aim at increasing the overall capacity for Chinese White Dolphins to survive in Hong Kong waters, including enhancement of the ecological connectivity between their core areas of activities or between the identified social clusters;</p> <p>(b) alternative construction methods to avoid/minimize the size of reclamation as far as possible;</p> <p>(c) adopting construction methods with less disturbance to Chinese White Dolphins;</p> <p>(d) programming of construction activities to minimize impacts to Chinese White Dolphins (e.g. avoid overlapping with other projects in the vicinity such as Hong Kong-Zhuhai-Macau Bridge-Hong Kong Boundary Crossing Facilities &amp; Hong Kong Link Road);</p> <p>(e) reducing the volume of marine traffic, especially those to and from the SkyPier, imposing speed limits, realignment of marine traffic routes (e.g. move the high-speed ferry route south of Lantau Island further south);</p> <p>(f) setting up additional marine park, extend or connect together existing, planned or potential marine parks, but subject to the requirements in Section (viii)(b) below; and</p> <p>(g) enhancing the quality of degraded dolphin habitats to increase the overall amount of available habitat for Chinese White Dolphins (e.g. reducing or diverting high-speed ferry traffic away from the Urmston Road or South Lantau Vessel Fairway where dolphin usage could be affected by heavy marine traffic).</p>	<p>All discussed in Section 13.11.</p> <p>For CWD, mitigation / precautionary measures in construction phase included the SkyPier High Speed Ferries' Speed Restrictions and Route Diversions, Dolphin Exclusion Zones, Acoustic Decoupling of Construction Equipment, Spill Response Plan and Construction Vessel Speed Limits and Skipper Training.</p> <p>Mitigation / precautionary measures in operation phase included Establishment of New Marine Protected Areas/Linking of Existing Marine Parks, SkyPier High Speed Ferries' Speed Restrictions and Route Diversions, Operational Spill Response Plan.</p>
313.	Appendix F 3. (viii)	<p>Evaluate and demonstrate feasibility and effectiveness of the recommended mitigation measures, assess possible secondary impacts arising from the implementation of the recommended mitigation measures, and specify the scope, type, location, implementation arrangement, resources requirement, subsequent management and maintenance of such measures, special attention should be paid to the following:</p> <p>(a) if artificial reef deployment is proposed as a mitigation measure for enhancing prey resources for Chinese White Dolphins, supporting information should be provided to demonstrate that existing artificial reefs in western waters are effective in enhancing fisheries resources;</p> <p>(b) if marine park establishment or extension is proposed as a mitigation measure for impacts on Chinese White Dolphins, full justifications should be provided on how such measure could offset the identified impacts (e.g. extensive permanent habitat loss, blockage, narrowing or disruption of travelling corridors, and reduced connectivity between their core areas of activities or between different social clusters); and</p> <p>(c) if night time work is required (e.g. for the DCM), mitigation measures that are effective to implement during day time may become impractical or impossible (e.g. monitored exclusion zone by visual observation), suitable mitigation measures specifically designed for night time work shall then be developed.</p>	<p>Mitigation measures are discussed and evaluated in Section 13.11. Spill Response Plan, SkyPier Speed Restrictions and Route Diversion, Dolphin Exclusion Zone, Acoustic Decoupling of Construction Equipment are all effective mitigation measures to reduce impact in marine ecology.</p> <p>Secondary impacts discussed in Section 13.12. The allocation of the new marine park in addition to the proposed BMP and the exiting SCLKC MP would provide a total of about 5,179 ha of habitat in which the CWDs would be protected as marine park would effectively restrict high speed vessel to a maximum of 10 knots and commercial fisheries activities would be under control or managed in accordance with the Marine Parks Ordinance.</p> <p>Mitigation measures for nighttime work is discussed in Section 13.11.5.15, which include adopting Dolphin Exclusion Zone with alternative methods such as Passive Acoustic Monitoring (PAM) and /or the use of night-vision scopes / goggles.</p>
314.	Appendix F 3. (ix)	Evaluate the severity and acceptability of the overall residual ecological impact on Chinese White Dolphins, after implementation of the mitigation measures as identified above.	Severity of overall residual ecological impacts assessed according to Section 4.4.3 of EIAO-TM is included in Section 13.14. Through the implementation of the proposed mitigation measures, the potential impacts of the 3RS construction and operation are expected to be reduced to levels that are not expected to cause significant population-level impacts on the PRE CWD population or the Hong Kong sub-population. For the permanent loss of up to 650 ha of open waters habitat for the CWDs, the residual impacts associated with the CWD habitat loss for the 3RS project would be considered to meet the requirements of Section 4.4.3 of the TM-EIAO.
315.	Appendix F 3. (x)	Review the need for and recommend any dolphin monitoring programme	Dolphin monitoring is deemed needed and programme proposed. CWD pre-construction, construction, post-construction and operational phase surveys were recommended. Details please refer to the EM&A manual.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
316.	Appendix G 1.	Existing information regarding the study area shall be reviewed. Based on the review results, the assessment shall identify data gap and determine if there is any need for field surveys to collect adequate baseline information. If field surveys are considered necessary, the assessment shall recommend appropriate methodology, duration and timing for such surveys.	Literature review provided in Appendix 14.1 and summarized in Section 14.4. Literature, including published scientific studies and approved EIAs for projects in the vicinity of the study area, have been reviewed.  Data gap identified in Section 14.3.5. Fisheries resources data within the proposed land formation footprint and the HKIAAA were found to be lacking. Updated fisheries data, information on the fish fry of commercial species, especially during the peak spawning season for majority of commercial fisheries between May and August, that may be found in the study area was also considered to be required. Fisheries data around the ARs deployed in SCLKCMP was also identified as an information gap under this EIA.  Need for field surveys included fish trawl surveys, purse-seine surveys, gill net surveys, hand lining surveys, underwater visual counts around the ARs deployed at SCLKCMP, ichthyoplankton and fish post-larvae survey and fishermen and aquaculture interview surveys. The survey methodology described in Section 14.3.6 and detailed in Appendix 14.2.
317.	Appendix G 2.	The fisheries impact assessment shall cover any potential short-term and long-term impacts on capture and culture fisheries during the construction and operation phases of the Project.	Potential impacts in both construction phase and operation phase were identified in Section 14.6 and assessed in Section 14.7, according to EIAO-TM Annex 9 criteria.
318.	Appendix G 3.	The fisheries impact assessment shall provide the following information:- (i) description of the physical environmental background;	Description of the physical environmental background included the marine water and sediment quality in study area, capture fisheries in relevant WCZ and Marine Parks, the artificial reefs deployment, the north western WCZ, the nursery and spawning grounds for commercial fisheries in north western WCZ, and sites of fisheries importance. Please refer to Section 14.4 for details.
319.		(ii) description and quantification of the existing fisheries activities;	Description and quantification of the existing fisheries activities is provided in Section 14.4, details for literature review and survey findings are presented in Appendices 14.1 and 14.3.
320.		(iii) description and quantification of the existing fisheries resources;	Description and quantification of the existing fisheries resources is provided in Section 14.4, details for literature review and survey findings are presented in Appendices 14.1 and 14.3.
321.		(iv) identification of parameters (e.g. water quality parameters) and areas of fisheries importance;	Parameters (water quality parameters) which may affect fisheries are described in Sections 14.7.1.18 to 14.7.1.44 for construction phase and 14.7.2.14 to 14.7.2.26 for operation phase.  Areas of fisheries importance included the spawning area of commercial fisheries resources in north Lantau waters, SCLKCMP, ARs at SCLKCMP and proposed ARs at BMP, Ma Wan Fish Culture Zone, the area of high production of capture fisheries off Tai O, planned Brothers Marine Park and the oyster production area at Deep Bay mudflat described in Section 14.4.7.
322.		(v) prediction and evaluation of any direct/indirect, onsite/offsite impacts on fisheries (such as potential loss or disturbance of fishing grounds, fisheries habitats, spawning or nursery grounds; aquaculture sites, or artificial reefs) caused by the project (including the impacts of any measures during the construction and operation phases which may restrict fisheries activities e.g. Marine Exclusion Zone designation, artificial reef deployment, marine park designation, etc.);	Prediction and evaluation of impacts on fisheries are included in Section 14.7. Impacts in construction phase included direct loss of fishing grounds, direct loss of fisheries habitats and resources, direction loss of spawning and nursery grounds, indirect disturbance of fisheries habitats due to deterioration of water quality, indirect impact on aquaculture sites, the indirect impact on artificial reefs, disturbance of fishing activities, disturbance to fisheries resources associated with underwater sound have been evaluated in Section 14.7.1 and summarised in Table 14-5.  Impacts in operation phase included direct loss of fishing grounds, the direct loss of fisheries habitats and resources, direct loss of spawning or nursery ground, change in hydrodynamics and tidal influence, disturbance of fishing activities, indirect disturbance of fisheries habitats due to deterioration of water quality, impingement and entrainment due to seawater intakes, indirect disturbance of marine fishes due to aircraft noise and potential beneficial impact of fisheries "No-take-zone" /enhancement area have been evaluated in Section 14.7.2 and summarised in Table 14-6.
323.		(vi) evaluation of cumulative impacts on fisheries;	Cumulative impacts evaluated in Section 14.8. Concurrent projects included Hong Kong – Zhuhai – Macao Bridge: Hong Kong Link Road (HKLR), Hong Kong – Zhuhai – Macao Bridge: Hong Kong Boundary Crossing Facilities (HKBCF), Tuen Mun – Chek Lap Kok Link (TMCLKL), Tung Chung New Town Development Extension, Lantau Logistics Park (LLP), New Contaminated Mud Marine Disposal Facility at Hong Kong International Airport (HKIA) East / East of Sha Chau, Development of the Integrated Waste Management Facilities Phase 1 (IWMF), Providing Sufficient Water Depth at Kwai Tsing Container Basin and its Approach Channel, Container Terminal 10 Development at Southwest Tsing Yi (CT10), Harbour Area Treatment Scheme – Stage 2A, Leisure and Entertainment Node at Sunny Bay, Outlying Islands Sewerage Stage 2 and Sludge Treatment Facilities considered in cumulative fisheries impact assessment.
324.		(vii) proposals of feasible, practical and effective alternatives and / or mitigation measures with details on justification, description of and programme feasibility as well as staff and financial implications including those related to subsequent management and maintenance requirements of the measures, special attention shall be paid to the potential secondary impacts of the proposed measures on fisheries; and	Mitigation measures included avoidance/ minimisation approach by reducing land formation footprint area and using alternative construction Method (DCM), consideration of alternative alignment for pipeline diversion with minimal risk/disturbance, consideration of alternative treatment to existing pipelines after diversion, strict enforcement of no-dumping policy, good construction site practices, mitigation for indirect disturbance due to deterioration of water quality, compensation for the loss of fisheries habitats with proposed established of new marine protected areas in Section 14.9.  Establishment of marine park to compensate permanent loss of fishing ground and fisheries habitat. Managed fishing through a permit system will be allowed in the proposed Marine Park, hence no adverse secondary impact on loss of fishing ground will be anticipated. The potential fisheries resources recovery due to the enhanced protection measures apply for Marine Park and the synergic effect of the connected marine protected areas will benefit adjacent fishing grounds. Details please refer to Sections 14.9.1.19 to 14.9.1.30.
325.		(viii) review for the need of monitoring during the construction and operation phases of the Project and, if necessary, proposal for a monitoring and audit programme.	EM&A programme is reviewed and considered not required for fisheries.

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
326.	Appendix H 1.	The Applicant shall review relevant outline development plan(s), outline zoning plan(s), layout plan(s) or planning briefs and studies which may identify areas of high landscape value, e.g. green belt and woodland areas with sensitive landscape designations and visually sensitive areas/receivers. Any guidelines on landscape strategy, landscape framework, urban design concept, building height profiles, designated view corridors, open space network and landscape link 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. Any conflict with statutory town plan(s) shall be highlighted and appropriate follow-up action shall be recommended.	<p>All relevant ODP's, OZP's, available layout plans and planning briefs/ studies, and other relevant studies, guidelines and manuals have been reviewed and discussed in Section 15.5.3 of the EIA.</p> <p>A brief discussion to 'assess whether the project can fit into the surrounding setting' is provided on how land uses will be affected according to the OZP in Section 15.5.3.8. Nil conflict with statutory town plan(s) was concluded.</p>
327.	Appendix H 2.	The Applicant shall describe, appraise, analyze and evaluate the existing and planned landscape resources and character of the study area. e.g. vegetation, woodland, streams and topography, etc. A system shall be derived for judging landscape impact significance as required under the TM and EIAO Guidance Note No. 8/2010. 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 and visual point of view. The assessment shall be particularly focused on the sensitivity and magnitude of change 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 settings. The landscape impact assessment shall quantify potential landscape impact during the construction phase and operation phase 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. A broad brush tree survey to identify dominant tree species, maturity, rarity and any plant species of conservation interest, etc. should be conducted within the study area to provide baseline information on the landscape resources and landscape character areas and the impacts on existing trees shall be summarized. Cumulative landscape and visual impacts of the Project with other existing, committed and planned developments in the study area shall be assessed.	<p>All existing and planned landscape resources (LRs) and landscape character areas (LCAs) have been identified, analysed and discussed as part of the baseline conditions (Sections 15.5.4 and 15.5.5) for Ch. 15 - LVIA of the EIA report.</p> <p>A system to assess landscape impact significance as required under the TM and EIAO Guidance Note No. 8/2010 has been derived and is provided in Section 15.4.2.</p> <p>Descriptive text (Sections 15.5.4 and 15.5.5) and annotated aerial photographs of the project site and plans, maps and photographs of the various landscape resources and landscape character areas have been provided. Please refer to Drawings MCL/P132/EIA/15-001.2 to MCL/P132/EIA/15-009. Plans illustrating the landscape impact significance have also been provided. Please refer to Drawings MCL/P132/EIA/15-012.1 to MCL/P132/EIA/15-015.</p> <p>The Landscape impact assessment is based on:</p> <ol style="list-style-type: none"><li>sensitivity of the receiver - This is influenced by a number of factors including whether the resource/character is common or rare, whether it is considered to be of local, regional, national or global importance, whether there are any statutory or regulatory limitations / requirements relating to the resource, the quality of the resource / character, the maturity of the resource, and the ability of the resource/character to accommodate change.</li><li>magnitude of change - The magnitude of the change depends on a number of factors including the physical extent of the change, the landscape and visual context of the change – i.e. a set circumstance/facts surrounding the change, the compatibility of the project with the surrounding landscape; and the time-scale of the change - i.e. whether it is temporary (short, medium or long term), permanent but potentially reversible, or permanent and irreversible</li></ol> <p>By synthesising the magnitude of the various changes and the sensitivity of the various landscape resources it is possible to categorise impacts in a logical, well-reasoned and consistent fashion. The landscape impact significance for all LRs and LCAs are stated in Table 15.8. Quantification of impacts is provided as far as practicable.</p> <p>A broad tree survey was undertaken within the project site boundary of the 3RS. The survey includes tree group survey data and tree group plans recording approximate numbers of trees as stated in Section 15.5.6. A summary of these impacts is described in Section 15.5.7. Drawings MCL/P132/EIA/15-027.1 to MCL/P132/EIA/15-027.6 identify the tree groups surveyed and illustrate the tree impacts.</p> <p>Cumulative landscape and visual impacts of the project with other existing, committed and planned developments within the study area have been identified and assessed in Sections 15.4.6 and 15.8.2 and 15.8.3.</p>

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
328.	Appendix H 3.	<p>The Applicant shall assess the visual impacts of the proposed Project. Clear illustration including mapping of visual impact is required. The assessment shall adopt a systematic methodology and include the following:</p> <p>(i) identification and plotting of visual envelope of the Project;</p> <p>(ii) identification 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. Among other receivers, sensitive receivers shall include, but not limited to, nearby residents and villagers. Both long distance view and short distance view shall be covered in the assessment;</p> <p>(iii) assessment for evaluating visual impacts, by taking into account the factors affecting the sensitivity of receivers (including value and quality of existing views, availability and amenity alternative views, type and estimated number of receiver population, duration or frequency of view and degree of visibility) and the magnitude of change of view (including compatibility of the project with the surrounding landscape and planned setting, duration of impacts under construction and operation phases, scale of development, reversibility of change, viewing distance and potential blockage of view). The visual impacts of the Project with and without mitigation measures shall also be included so as to demonstrate the effectiveness of the proposed mitigation measures; and</p> <p>(iv) clear evaluations and explanation with supportive arguments of all relevant factors considered in arriving the significance thresholds of visual impacts.</p>	<p>The visual impacts of the proposed project have been assessed in Section 15.7 and clear mapping of the visual impacts are also provided in drawings MCL/P132/EIA/15-012.1 to MCL/P132/EIA/15-016.</p> <p>Identification and plotting of visual envelope of the project is provided in drawing MCL/P132/EIA/15-010. Key existing and planned VSRs including residential, recreational, transient and occupational VSRs have been identified and assessed in Sections 15.5.9 and 15.7. Vantage points at ground and elevated levels and short and long distances have been discussed and identified in Section 15.7.4 of the EIA.</p> <p>The visual impact assessment is based on:</p> <ol style="list-style-type: none"> <li>sensitivity of the receiver - The type of VSRs, classified according to whether the person is at home, at work, at play, or travelling. Those who view the impact from their homes are considered to be highly sensitive as the attractiveness or otherwise of the outlook from their home will have a substantial effect on their perception of the quality and acceptability of their home environment and their general quality of life. Those who view the impact from their workplace are considered to be only moderately sensitive as the attractiveness or otherwise of the outlook will have a less important, although still material, effect on their perception of their quality of life. The degree to which this applies depends on whether the workplace is industrial, retail or commercial. Those who view the impact while taking part in an outdoor leisure activity may display varying sensitivity depending on the type of leisure activity. Those who view the impact while travelling on a public thoroughfare will also display varying sensitivity depending on the speed of travel. Other factors which are considered (as required by EIAO GN 8/2010) include the value and quality of existing views and views from planned developments, the availability and amenity of alternative views, the duration or frequency of view, and the degree of visibility.</li> <li>magnitude of change - Factors considered include: Duration and Frequency of the impact; Reversibility of the impact; Compatibility of the project with the Visual Backdrop, Distance of the source of impact from the viewer, Degree of visibility of Source(s) of Visual Impact, Scale of the development and Potential Blockage of Existing Views.</li> </ol> <p>By synthesising the magnitude of the various visual changes and the sensitivity of the VSR, and the number of individuals in the VSR that are affected, it is possible to categorise the degree of significance of the impacts in a logical, well-reasoned and consistent fashion. The visual impact of the project with and without mitigation measures has been assessed in Sections 15.7.6 to 15.7.8 of the EIA.</p> <p>Clear evaluations and explanation with supportive arguments of all relevant factors considered in arriving at the significance thresholds of visual impacts have been discussed in Sections 15.7.5 to 15.7.8.</p>
329.	Appendix H 4.	<p>The Applicant shall evaluate the merit and demerit of preservation in totality, in parts or total destruction of existing landscape and the establishment of a new landscape character area. Alternative location, site layout, development options, design and construction method that would avoid or reduce the identified landscape and visuals impacts shall first be considered and be evaluated for comparison before adopting other mitigation or compensatory measures to alleviate the impacts. The mitigation measures proposed shall not only be concerned with damage reduction but shall also include consideration of potential enhancement of the existing landscape and visual quality. The Applicant shall recommend mitigation measures to minimize the adverse effects identified above, including provision of a master landscape design.</p>	<p>The Merit and demerit of preservation in totality, in parts or total destruction of existing landscape and the establishment of a new landscape character area are understood to be considered as part of Ch. 15 – LVIA of the EIA.</p> <p>Consideration of alternative location, site layout, development options, design and construction methods that would avoid or reduce landscape and visuals impacts is cross-referenced to Section 3.4.4.</p> <p>Mitigation measure to minimise adverse effects of the proposed project have been proposed in Section 15.6.4 of the EIA report. Proposed planning principles/ architectural design for the project which is considered to address the need to 'include consideration of potential enhancement of the existing landscape and visual quality' are provided in Section 15.8.1. Mitigation measures OM6 - <i>Greening measures, including vertical greening, green roofs, road verge planting and peripheral screen planting shall be implemented where practical</i>, OM8 - <i>Streetscape (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the existing and planned urban context, and minimises potential adverse landscape and visual impacts</i>, OM9 - <i>All streetscape areas and hard and soft landscape areas disturbed during construction shall be reinstated to equal or better quality (due to implementation of screen planting, road verge planting etc.), to the satisfaction of the relevant Government departments and OM10 - Aesthetic improvement planting of viaduct structure through greening of structure where feasible and appropriate to mitigate visual impact of viaduct form</i>, are proposed to enhance the existing landscape and visual quality.</p> <p>A master landscape design showing the mitigation arrangement has been provided in drawings MCL/P132/EIA/15-028.1 to MCL/P132/EIA/15-028.6.</p>
330.	Appendix H 5.	<p>The mitigation measures shall also include the preservation of vegetation, transplanting of trees of good amenity value, provision of screen planting, re-vegetation of disturbed lands, compensatory planting, re-provisioning of amenity areas and open spaces, design of structure, provision of finishes to structure, colour scheme and texture of material used and any measures to mitigate the disturbance of the existing land use. Parties shall be identified for the on-going management and maintenance of the proposed mitigation works to ensure their effectiveness throughout the operation phase of the Project. A practical programme and funding proposal for the implementation of the recommended measures shall be provided.</p>	<p>Mitigation measures CM8 and CM9 relate to preservation of vegetation, tree transplanting, etc. 're-vegetation of disturbed lands' is not specifically mentioned in the mitigation measures in Tables 15.6 and 15.7 although OM6 is <i>'Greening measures, including vertical greening, green roofs, and peripheral screen planting, shall be implemented where practical'</i>.</p> <p>Design of structure, provision of finishes to structure, colour scheme and texture of material are reflected in mitigation measures OM1, OM2, OM3.</p> <p>The management and maintenance parties for the proposed mitigation measures have been identified in Tables 15.6 and 15.7. The funding and implementation agencies have been identified in Tables 15.6 and 15.7.</p>



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
331.	Appendix H 6.	Annotated illustration such as coloured perspective drawings, plans and section/elevation diagrams, oblique aerial photographs, photographs taken at vantage points and computer-generated photomontage, particularly from but not limited to the most severely affected vantage points shall be adopted to illustrate the significance of the landscape and visual impacts of the Project in four stages i.e. existing conditions, unmitigated impacts at Day 1, mitigated impacts at Day 1 and residual impact at Year 10. Options of design schemes should be illustrated with photomontages to show the visual impact on the surrounding areas. True colour samples may be requested if found necessary and appropriate. Technical details in preparing the illustration, which may need to be submitted for verification of accuracy of the illustration shall be recorded. Computer graphics shall be compatible with Microstation DGN file format.	Annotated illustrations such as aerial photographs (refer to drawing MCL/P132/EIA/15-001.2), photographs taken at vantage points (refer to MCL/P132/EIA/15-017.1, MCL/P132/EIA/15-018.1, MCL/P132/EIA/15-019.1, MCL/P132/EIA/15-020.1, MCL/P132/EIA/15-021.1, MCL/P132/EIA/15-022.1, MCL/P132/EIA/15-023.1, MCL/P132/EIA/15-024.1, MCL/P132/EIA/15-025.1, MCL/P132/EIA/15-026.1, MCL/P132/EIA/15-030.1, MCL/P132/EIA/15-030.2, MCL/P132/EIA/15-030.3 and MCL/P132/EIA/15-030.4) and computer-generated photomontages (refer to drawings MCL/P132/EIA/15-017.1, to MCL/P132/EIA/15-026.2) have been provided to illustrate the significance of the landscape and visual impacts of the project. The computer generated photomontages illustrate the visual impacts of the preferred options on the surrounding VSRs and show the impacts of the projects in four stages i.e. existing conditions, unmitigated impacts at Day 1, mitigated impacts at Day 1 and residual impact at Year 10.
332.	Appendix I 1.	The Applicant shall demonstrate that the disturbances to those sites of cultural heritage are avoided to the maximum practicable extent by modification of the design of the Project. For those identified sites of cultural heritage that may still be directly and indirectly affected by the Project, the Applicant shall recommend practicable mitigation measures and monitoring to avoid or minimise the adverse impacts on the sites of cultural heritage. A checklist including the affected sites of cultural heritage, identified impacts, recommended mitigation measures as well as the implementation agent and period shall be given in the EIA report.	Nil impact was identified in Ch.16 and nil mitigation measures were required. Nil residual impact was expected.  As no sites of cultural heritage are affects, the checklist is not applicable.
333.	Appendix I 2.	The Applicant shall draw necessary reference to relevant sections of the “Guidelines for Marine Archaeological Investigation” at Appendix I-1 for detailed requirement.	Section 16.2.6 makes reference to the guideline for Marine Archaeological Investigation issued by the Antiquities and Monuments Office (AMO).  Section 16.3.2 describes and explains the detail requirement from the guideline for Marine Archaeological Investigation. The requirement includes conducting baseline review and geophysical survey, establishing archaeological potential, and conducting underwater inspection (remote operated vehicle (ROV)/ Visual Diver Survey/ Watching Brief).  Section 16.3.2.3 describes the baseline review that covers the known sources of archive data as described in Clause I.(1) 1.2 of Appendix I-1 of the EIA Study Brief.
334.	Appendix I 3.	Marine Archaeological Investigation (MAI) (i) The assessment area shall include all areas affected by the marine and dredging works of the Project. (ii) The Applicant shall engage a qualified marine archaeologist to conduct a marine archaeological review based on the best available information to identify whether there is any potential existence of sites or objects of cultural heritage within the seabed that will be affected by the marine works of the Project, whether the identified issues can be mitigated and whether there is a need for more detail investigation. The review shall take into account the scope and nature of proposed marine works, the results of previous marine archaeological investigations, the dredging history and other diving records, etc. (iii) If marine archaeological potential is identified and the need for further investigation is confirmed, a MAI shall be carried out to ascertain the archaeological value of the affected seabed area. The guidelines for MAI are set out in Appendix I-1. (iv) The Applicant shall propose a programme of investigation, including the scope of works, methodology and time schedule, etc. for agreement with the Director. The MAI shall be carried out by a qualified marine archaeologist who shall obtain a licence from the Antiquities Authority under the provision of the Antiquities and Monuments Ordinance, Cap. 53. If significant archaeological remains are discovered, mitigation measures shall be designed and implemented in consultation with the Antiquities and Monuments Office.	Section 16.3.1 and Drawing No. MCL/P132/EIA/16-001 describes the MAI assessment area. The MAI assessment area covers the seabed areas that will be impacted during the construction and operation phases. This includes the proposed airport expansion footprint, the tentative alignment of the submarine 11kV cable as well as the proposed new HKIAAA beacons to the north of the proposed airport expansion area.  Section 16.3.2.2 indicated the MAI is conducted by a qualified marine archaeologist.  MAI methodology was agreed with AMO prior to commencement of the MAI works.  A visual dive survey was completed by a qualified marine archaeologist as mentioned in Section 16.5.3  The survey indicates that no marine archaeological remains were positively identified during the seabed survey. No further or mitigation is required based on the findings.
335.	Appendix I-1 I.	The standard practice for MAI should consist of four separate tasks, i.e. (1) Baseline Review, (2) Geophysical Survey, (3) Establishing Archaeological Potential and (4) Remote Operated Vehicle (ROV)/ Visual Diver Survey/Watching Brief. Marine archaeologists should make reference to the standard and guidance of the Institute for Archaeologists and English Heritage to carry out MAI.	The baseline review is presented in Section 16.4.2. Geophysical survey is presented in Section 16.5.1. The marine archaeological potential is described in Section 16.5.2. Further investigation via visual diver survey is presented in Section 16.5.3.
336.	Appendix I-1 1.1	A baseline review should be conducted to collate the existing information in order to identify the potential for archaeological resources and, if identified, their likely character, extent, quality and value.	The baseline review is presented in Section 16.4.2.
337.	Appendix I-1 1.2	The baseline review will focus on known sources of archive data. It will include: a. Geotechnical Engineering Office (GEO) – the Department holds extensive seabed survey data collected from previous geological research b. Marine Department, Hydrographic Office – the Department holds a substantial archive of hydrographic data and charts. c. The Royal Naval Hydrographic Department in the UK – the Department maintains an archive of all survey data collected by naval hydrographers. d. Relevant government departments should be consulted in order to obtain the information of dredging history (if any) on the proposed project area. Area for sand dredging, mud disposal and allocated marine borrow area within Hong Kong should also be considered during the review.	These data sources have been reviewed and the findings are presented in Section 16.4.2.
338.	Appendix I-1 1.3	The above data sources will provide historical records and more detailed geological analysis of submarine features which may have been subsequently masked by more recent sediment deposits and accumulated debris.	The findings from the data sources are presented in Section 16.4.2.



Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check																														
339.	Appendix I-1 2.1	Extensive geophysical survey of the study area should deploy high resolution boomer, side scan sonar, an echo sounder and high resolution multi beam sonar. The multi beam data must be presented as processed digital terrain models to facilitate the archaeological analysis. The data received from the survey would be analysed in detail to provide: a. Exact definition of the areas of greatest archaeological potential. b. Assessment of the depth and nature of the seabed sediments to define which areas consist of suitable material to bury and preserve archaeological material. c. Detailed examination of the boomer and side scan sonar records to map anomalies in and on the seabed which may be archaeological material. d. Detailed examination of the multi beam sonar data to assess the archaeological potential of the sonar contacts.	The geophysical survey comprised of seismic profiler, side scan sonar, echo sounder, swath (multi-beam) echo sounding, magnetometer and GPS. Analysis of the survey data is presented in Section 16.5.1.																														
340.	Appendix I-1 3.1	The data examined during Task 1 and 2 will be analysed to provide an indication of the likely character and extent of archaeological resources within the study area. This would facilitate formulation of a strategy for investigation.	Analysis of the survey data is presented in Section 16.5.1.																														
341.	Appendix I-1 3.2	The results would be presented as a written report and charts. If there is no indication of archaeological material there would be no need for further work.	A MAI report was submitted to AMO. The findings indicated no archaeological material.																														
342.	Appendix I-1 3.3	Charts should be presented at the most appropriate scale and show each survey contact. Its dimensions and exact location should also be shown.	Charts are presented in Appendix 16.1 to 16.5.																														
343.	Appendix I-1 4.1	Subject to the outcome of Task 1, 2 and 3, accepted marine archaeological practice would be to plan a field evaluation programme to acquire more detailed data on areas identified as having archaeological potential. The areas of archaeological interest can be inspected by ROV or divers. ROV or a team of divers with both still and video carmeras would be used to record all seabed features of archaeological interest.	Field evaluation was conducted via visual diver survey (presented in Section 16.5.3).																														
344.	Appendix I-1 4.2	Owing to the heavy marine traffic in Hong Kong, the ROV/visual diver survey may not be feasible to achieve the target. If that is the case, an archaeological watching brief is the most appropriate way to monitor the dredging operations in areas of identified high potential to obtain physical archaeological information.	Field evaluation was completed via visual diver survey (presented in Section 16.5.3). Relevant items identified during the geophysical survey was further investigated and no items of archaeological potential was found. Archaeological watching brief during construction phase is not required.																														
345.	Appendix I-1 4.3	A sampling strategy for an archaeological watching brief would be prepared based on the results of Task 1, 2 and 3 to focus work on the areas of greatest archaeological potential. Careful lmonitoring of the dredging operations would enable immediate identification and salvage of archaeological material. If archaeological material is found, the AMO should be contacted immediately to seek guidance on its significance and appropriate mitigation measures would be prepared.	Results of field evaluation showed no items of archaeological interest, hence no archaeological watching brief during construction phase is required.																														
346.	Appendix I-1 4.4	If Task 4 is undertaken, the results would be presented in a written report with charts.	The results of the MAI was presented in the MAI report which was submitted to AMO.																														
347.	Appendix I-1 II, 1	Five copies of the final report should be submitted to the AMO for record.	Hardcopies of the final MAI report was submitted to AMO for record.																														
348.	Appendix J	<div>Implementation Schedule</div> <table><tr><th>EIA Ref. *</th><th>EM&amp;A  Log Ref.</th><th>Environme ntal Protection Measures*</th><th>Location / Duration of measures /  Timing of completion of measures</th><th>Implementation Agent</th><th colspan="4">Implementation Stage **</th><th>Relevant Legislation &amp; Guidelines</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td>Des</td><td>C</td><td>O</td><td>Dec</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <div>* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project. ** Des = Design; C – Construction; O = Operation; Dec – Decommissioning</div>	EIA Ref. *	EM&A  Log Ref.	Environme ntal Protection Measures*	Location / Duration of measures /  Timing of completion of measures	Implementation Agent	Implementation Stage **				Relevant Legislation & Guidelines						Des	C	O	Dec												Noted.
EIA Ref. *	EM&A  Log Ref.	Environme ntal Protection Measures*	Location / Duration of measures /  Timing of completion of measures	Implementation Agent	Implementation Stage **				Relevant Legislation & Guidelines																								
					Des	C	O	Dec																									
349.	Appendix K 1	The Applicant shall supply the Director with the following number of copies of the EIA report and the executive summary: (i) 50 copies of the EIA report and 80 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 50 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.	Noted.																														
350.	Appendix K 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 HyperText Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 1.3 or later), unless otherwise agreed by the Director. For the HTML version, 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. Graphics in the report shall be in interlaced GIF format unless otherwise agreed by the Director.	Noted.																														

Ref	Sections of the EIA Study Brief	Specific Requirements	Compliance Check
351.	Appendix K 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.	Noted.
352.	Appendix K 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.	Noted.
353.	Appendix K 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.	Noted.

Table A.2: EIAO-TM Annex 11 Compliance Checklist

Contents of an EIA Report	Status		Remarks
	Yes	No	
EXECUTIVE SUMMARY IN ENGLISH AND CHINESE	✓		
- Summary of main issues, findings, conclusions and recommendations			The Executive Summary contains a summary of each technical aspect including the findings, conclusions and recommendations from each environmental assessment.
INTRODUCTION	✓		
- Background of the project			Project background is presented in Section 1.1.
- Purpose of the EIA study			The purpose of the EIA Study is described in Section 1.2.
- The approach			The approach of the study follows that of the EIAO-TM and EIA Study Brief requirements, which are summarised in Section 1.2.
DESCRIPTION OF THE PROJECT	✓		
- Key project requirements			The project requires mainly construction and operation of a third runway and associated ancillary facilities. These are described in Chapter 4.
- Site location and site history			The site is located mainly to the north of the existing airport island and includes part of the existing airport island. The history of the site is described in Section 2.2.
- Nature, scope and benefits of the project			This is an airport infrastructure project which includes land formation of up to 650 ha to the north of the existing airport island. These are described in Section 4.2. The benefits of the project include improved airport services and facilities, increased air connectivity, economic benefits and environmental improvements. These are described in Section 2.4.
- Size or scale, shape and design of the project			The recommended size, shape and design of the key components of the project are described in Section 4.2.
- Project timetable and phasing of the project			The construction programme for the project is presented in Appendix 4.2.
- Means by which the project will be implemented			The project is programmed to commence operation in different phases. These are described in Section 4.3.
- Any related projects			Other projects that may have interface with this project are described in Section 4.5.
- Type, scope, scale, frequency and duration of the construction, operational or decommissioning (if relevant) activities			Details of the various construction and operational activities are summarised in Chapter 4.
- Background and history of the project, including considerations given to different options, and the project's different siting or alignment			The background and history of the project is presented in Section 1.1 and 2.2. The options for the project have been thoroughly evaluated in Chapter 3, leading to the selection of the preferred development scenarios for each of the major project components. The recommended options of the key components of the project are described in Section 4.2.
- Description of scenarios with or without the project			Scenarios with and without the project have been evaluated in Sections 2.4 and 2.5.
ENVIRONMENTAL LEGISLATION, POLICIES, PLANS, STANDARDS AND CRITERIA	✓		
- Applicable environmental ordinances and regulations			Air Quality – Section 5.1.2 lists the applicable legislations, standards and guidelines adopted for construction phase while Section 5.3.1 lists those that are applicable for operation phase.
- Applicable government environmental policies and plans			Hazard to Human Life – the Risk Guidelines stipulated in Annex 4 of the EIAO-TM have been applied.
- Applicable environmental standards and criteria			Noise – Section 7.2 lists the applicable legislations, standards and guidelines adopted for assessment of aircraft noise, fixed noise, construction noise, road traffic noise and marine traffic noise.
- Other references			Water Quality – applicable legislations, standards and guidelines adopted for water quality impact assessment are listed and described in Section 8.2. The assessment criteria are presented in Section 8.4. Overseas criteria have been adopted where there is no local criteria available. Sewage – sewage assessment is carried out according to design standard guidelines. These are presented in Section 9.2.3. Waste – ordinances, regulations and standards relevant to waste management include the Waste Disposal Ordinance and subsidiary regulations, Buildings Ordinance, Land (Miscellaneous Provisions Ordinance, Dumping at Sea Ordinance and Public Cleansing and Prevention of Nuisances Regulation are listed and described in Section 10.2. Land Contamination – land contamination assessment is carried out in accordance with the Guidance Note for Contaminated Land Assessment and Remediation and Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management, in addition to Annex 19 of EIAO-TM. Reference is also made to the Practice Guide for Investigation and Remediation of Contaminated Land issued by EPD. Terrestrial Ecology – a number of international conventions, local legislation, and guidelines provide the framework for the protection of species and habitats of ecological importance. These are listed and described in Section 12.2. Marine Ecology – a number of international conventions, local legislation, and guidelines provide the framework for the protection of species and habitats of marine ecological importance. These are listed and described in Section 13.2.

Contents of an EIA Report	Status		Remarks
	Yes	No	
			<p>Fisheries – the legislation, standards and guidelines relevant to fisheries impact assessment include the Fisheries Protection Ordinance, Marine Fish Culture Ordinance, Marine Parks Ordinance, EIAO, and Water Pollution Control Ordinance. These are described in Section 14.2.</p> <p>Landscape &amp; Visual – a large number of legislation, standards and guidelines are relevant to landscape and visual impact assessment. These are listed and described in Section 15.2. Relevant planning and development control framework was also reviewed in Section 15.2.2.</p> <p>Cultural Heritage – the applicable ordinances, guidelines and references for cultural heritage impact assessment are listed and described in Section 16.2.</p> <p>Health – the technical requirements for the health impact assessment is described in Section 17.2.1 and 17.3.1. A literature review of the methods is presented in Section 17.2.2 and 17.3.2.</p>
DESCRIPTION OF THE ENVIRONMENT	✓		
- Baseline environmental conditions			Air Quality – baseline conditions are presented in Section 5.1.3 for construction phase and operation phase. Emission trends are evaluated in Section 5.3.5 to determine the worst case aircraft emission year.
- Environmental trends			Hazard to Human Life – the existing aviation supply and distribution system is described in Section 6.3.
			Noise – prevailing background noise condition for fixed plant noise assessment is described in Section 7.4.2. Background noise was also taken into account in the marine traffic noise assessment in Section 7.7.
			Water Quality – baseline water quality within the study area is presented in Section 8.3. Long term monitoring data from EPD's monitoring stations (1986 to 2012) have been presented as well as monitoring undertaken by other projects such as operation of the contaminated mud pits at Airport East / East Sha Chau.
			Sewage – description of the existing sewerage condition including the existing sewerage network of the airport, the existing sewerage network of Tung Chung and the existing sewage treatment works in North Lantau are presented in Section 9.3.
			Waste – description of existing waste management practices, where applicable, have been incorporated as part of the analysis of waste related impacts in Section 10.4
			Land Contamination – the existing land use and land contamination potential of the project area was reviewed as part of the review of baseline conditions. The findings of the data reviews / site investigations are described in Section 11.5.
			Terrestrial Ecology – an ecological baseline study was undertaken to establish the baseline conditions of the study area. The key findings of the baseline surveys are described in Section 12.5.
			Marine Ecology – the marine ecological baseline has been determined via a combination of literature review and ecological surveys to cover any data gaps and provided more recent and project specific data on the existing ecological conditions in the study area on which form the basis of the ecological impact assessment. Details are presented in Section 13.4, Appendix 13.1, 13.2, 13.5 to 13.12.
			Fisheries – the baseline condition is based on literature review and the fisheries surveys of this study. Details of the physical environment and the various fisheries resources and sites of fisheries importance are described in Section 14.4.
			Landscape & Visual – the baseline conditions in terms of landscape and visual study area, committed and approved projects under construction, current land uses, landscape resources, landscape character areas, a broad brush tree survey, the zone of visual influence and visually sensitive receivers were identified and reviewed in Section 15.5.
			Cultural Heritage – a review of the baseline cultural heritage conditions in the study area has been presented in Section 16.4.
			Health – baseline air quality and noise are referred from Chapter 5 and 7 respectively.
DESCRIPTION OF ASSESSMENT METHODOLOGIES	✓		
- Assessment methodologies, assumptions and criteria, including sample calculations and input and output files of a typical model run for all mathematical modelling			Air Quality – The methodology for construction phase air quality assessment including assumptions are presented in Section 5.2.4. Construction phase model input files and results are presented in Appendices 5.2.10 to 5.2.14 and 5.2.16 to 5.2.22. The methodology for operation phase air quality assessment is presented in Section 5.3.7. Details of model inputs, assumptions and results are presented in Appendices 5.3.1 to 5.3.20.
			Hazard to Human Life – the key components of the quantitative risk assessment included hazard identification, frequency assessment, consequence modelling, risk summation and identification of mitigation measures. Details are described in Section 6.2.
			Noise – the methodology for aircraft noise assessment is described in Section 7.3.3 and details of the computational INM model including data and assumptions are presented in Appendix 7.3.2 and 7.3.5. The fixed noise sources assessment follows the methodology described in Section 7.4.7 and details of the ground noise source model are presented in Appendix 7.4.3. Construction noise assessment is based on the methodology described in Section 7.5.4 and calculation inputs are presented in Appendix 7.5.1 to 7.5.10.
			Water Quality – the methodologies for individual water quality impact assessments are presented in Section 8.6. Additional calculations and model setup and input information are presented in Appendix 8.4 to 8.7.
			Sewage – the assumptions and parameters adopted for assessment of sewerage scenarios, including calculations are presented in Section 9.4 & Section 9.6.
			Waste – the assessment method for waste related activities associated with the project include analysis of construction / operation phase activities and waste generation, estimation of waste quantities and development of proposals for waste management. These are described in Section 10.3.
			Land Contamination – the assessment method comprises desktop appraisal and site reconnaissance, followed by sampling and testing where necessary. This is described in Section 11.4.
			Terrestrial Ecology – field surveys were conducted to provide the data for assessment of ecological impacts. The methodology for the field surveys are detailed in Appendix 12.2.
			Marine Ecology – field surveys were conducted to provide the data for assessment of marine ecological impacts. The methodology for the field surveys are detailed in Section 13.4.5, Appendices 13.3, and 13.4. The impact assessment methodology follows the EIAO-TM and is detailed in Section 13.6.
			Fisheries – the fisheries impact assessment methodology comprises literature review and fishermen interview surveys. These are described in Section 14.5. Details of the fisheries survey methodology is presented in Appendix 14.2.

Contents of an EIA Report	Status		Remarks
	Yes	No	
			<p>Landscape &amp; Visual – the landscape and visual impact assessment methodology including the method for identifying the magnitude and significance of impacts are described in Section 15.4.</p> <p>Cultural Heritage – the assessment methodology including methodology for undertaking marine archaeological investigation is described in Section 16.3.</p> <p>Health – A literature review of the methods is presented in Section 17.2.2 and 17.3.2. The methodology for health impact assessment due to aircraft noise is presented in Section 17.3.3.</p>
IDENTIFICATION OF ENVIRONMENTAL IMPACTS	✓		
<ul style="list-style-type: none"> <li>- Potential environmental impacts including the types, characteristics and estimated quantities of emissions, discharges, wastes, potential risks, disturbances or displacement associated with the activities relating to the project during construction, operation and decommissioning phases</li> <li>- Description of resources or receivers which are vulnerable to change or environmental impacts</li> </ul>			<p>Air Quality – air sensitive receivers are shown in Drawings No MCL/P132/EIA/5-2-001 and 5-3-002 to 5-3-005. The potential sources of construction phase air quality impacts are identified in Section 5.2.3. Sources of operation phase air quality impacts are identified in Sections 5.3.3 and 5.3.4.</p> <p>Hazard to Human Life – the potential hazards that may arise due to construction and operation of the project are identified and described in Section 6.9. The population that might be at risk has been identified in Section 6.10.</p> <p>Noise – representative aircraft noise sensitive receivers are shown in Drawing No MCL/P132/EIA/7-3-002. Other noise sensitive receivers are shown in Drawing No MCL/P132/EIA/7-4-001 to 7-4-004. For aircraft noise, the noise sources that may general noise impacts are described in Section 7.3.2. Fixed plant noise sources are identified in Section 7.4.6, while construction noise sources are identified in Section 7.5.3. Road traffic and marine traffic noise sources are identified in Section 7.6.3 and 7.7.3 respectively. (See Study Brief Compliance Checklist (Table A1) above: Aircraft noise Appendix C Section 2.2. Fixed noise sources Appendix C, Section 3.2, Construction Noise Appendix C, Section 4.2, Road Traffic Noise Appendix C, Section 5.2, Marine Traffic Noise Appendix C, Section 6.2, Identification of Impacts are Conducted.)</p> <p>Water Quality – potential water quality impacts associated with the project during construction and operation phase are described in Section 8.5. Water sensitive receivers are identified and listed in Section 8.3.2 and shown in Drawing No MC./P132/EIA/8-002.</p> <p>Sewage – the sewerage resources and potential sewerage impacts due to the project are identified in Section 9.6.1.</p> <p>Waste – both construction phase and operation phase waste activities and impacts have been identified in Section 10.4. Construction phase impacts considered include waste from C&amp;D materials, excavated marine sediment, chemical waste, general refuse and floating refuse. Operation phase impacts identified include general refuse, chemical waste, floating refuse and sludge from the proposed greywater treatment plant.</p> <p>Land Contamination – identification of potential impacts is mainly through a review of information on the existing land uses of the project area, including review of information from government departments, aerial photographs, and previous site investigations. Additional site reconnaissance surveys were conducted to supplement the information where necessary. Details are provided in Section 11.5.</p> <p>Terrestrial Ecology – the key ecological sensitive receivers identified include Tai Ho Stream Site of Special Scientific Interest (SSSI), San Tau Beach SSSI, and Lung Kwu Chau, Tree Island and Sha Chau SSSI. These are described in Section 12.3.2. Potential impacts are identified in Section 12.6.1.</p> <p>Marine Ecology – the marine habitats and species of conservation importance within the study area was identified as part of the literature review and surveys conducted. The findings are presented in Section 13.5. Potential impacts to marine ecology are identified in Section 13.7.</p> <p>Fisheries – direct and indirect impacts to fisheries resources due to the project activities have been identified and are presented in Section 14.6. Fisheries resources and sites of fisheries importance are presented in Section 14.4.</p> <p>Landscape &amp; Visual – the potential sources of impact due to the project are identified and presented in Section 15.6.1. The potentially affected landscape resources, landscape character areas and visually sensitive receivers are identified and described in Section 15.5.4, 15.5.5 and 15.5.9 respectively.</p> <p>Cultural Heritage – the cultural resources that may be affected by the project have been identified in Section 16.5 and are shown in Drawings No MC./P132/EIA/16-002 to 16-004.</p> <p>Health – hazard identification for health impact due to air emissions are presented in Section 17.2.3. Health effects caused by noise are described in Section 17.3.2.</p>
PREDICTION AND EVALUATION OF ENVIRONMENTAL IMPACTS	✓		
<ul style="list-style-type: none"> <li>- Prediction of environmental impacts (including beneficial or adverse; direct or indirect; short term or long term; reversible or irreversible; transboundary; cumulative)</li> <li>- Evaluation of predicted environmental impacts against applicable environmental legislation, policies, plans, standards and criteria</li> </ul>			<p>Air Quality – the predicted construction phase air quality impacts are evaluated against the applicable criteria in Section 5.2.5. The predicted operation phase air quality impacts are evaluated in Section 5.3.9 and 5.3.10.</p> <p>Hazard to Human Life – Section 6.11 to 6.14 predicts and evaluates the individual and societal risks associated with construction of the submarine aviation fuel pipelines and operation of the fuel hydrant system and new airside petrol filling station. The risk results are evaluated against the criteria stipulated in the Hong Kong Risk Guidelines.</p> <p>Noise – aircraft noise impacts based on each of the assessment scenarios are described and evaluated in Section 7.3.4. Noise exposure forecast (NEF) contours were generated to predict the aircraft noise impact. The fixed plant noise impacts associated with the ground noise sources (engine run-up facility, aircraft taxiing noise and use of auxiliary power units) as well as other fixed plant noise sources such as ventilation openings are assessed and evaluated in Section 7.4.8. Construction noise impacts are evaluated in Section 7.5.5. For road traffic and marine traffic noise, no representative noise sensitive receivers are located in the assessment area, hence no impacts are anticipated. (See Study Brief Compliance Checklist (Table A1) above: Aircraft noise Appendix C, Section 2.3. Fixed noise sources Appendix C, Section 3.3, Construction Noise Appendix C, Section 4.3, Road Traffic Noise Appendix C, Section 5.3, Marine Traffic Noise Appendix C, Section 6.3, Impacts are Evaluated.)</p> <p>Water Quality – the predicted water quality impacts for both construction and operation phase are presented and evaluated against their relevant criteria in Section 8.7. Results are presented in Appendix 8.8, 8.10 to 8.12 and 8.14 to 8.16.</p> <p>Sewage – the impacts on the existing gravity sewers between the airport discharge manhole and Tung Chung Sewage Pumping Station (TCSPS), between the TCSPS and the associated rising main, and at Siu Ho Wan Sewage Treatment Plant, have been predicted and assessed in Section 9.6.</p> <p>Waste – based on the identified waste types and waste generating activities, the quantities and potential impacts associated with each type of waste has been assessed and described in Section 10.4. Reference is made to applicable standards and requirements.</p> <p>Land Contamination – potential impacts due to land contamination has been evaluated based on the findings obtained from review of historical records and aerial photographs as well as from the site reconnaissance survey. The evaluation is presented in Section 11.5.6. Further site investigation was proposed for the area of the existing golf course and Terminal 2 expansion area.</p>



Contents of an EIA Report	Status		Remarks
	Yes	No	
			<p>Terrestrial Ecology – the impacts to terrestrial ecology due to habitat loss, disturbance to Sha Chau egret, impact to flight movement and behaviour of birds, habitat disturbance, disturbance to species of conservation interest, and impact on freshwater fish community was evaluated and the findings are presented in Section 12.6.2 to 12.6.7.</p> <p>Marine Ecology – impacts to marine ecology (including Chinese White Dolphins) due to habitat loss, changes in species distribution, abundance and patterns of habitat use, as well as consequential impacts due to changes in water quality are evaluated in Section 13.8 and 13.9. Cumulative impacts are identified and evaluated in Section 13.15.</p> <p>Fisheries – predicted impacts to fisheries include direct loss of fishing ground and fishing habitat, loss of spawning or nursery ground, and direct loss of the fisheries resources, as well as indirect loss to fisheries habitats due to water quality, impacts on aquaculture sites / artificial reefs and disturbance to fishing activities and fisheries resources. Details are presented in Section 14.7. Cumulative impacts are presented in Section 14.8.</p> <p>Landscape &amp; Visual – landscape impacts both before and after mitigation during construction and operation phases have been predicted and evaluated in Section 15.6. Visual impacts are evaluated and presented in Section 15.7. The evaluation follows the methodology described in Section 15.4.</p> <p>Cultural Heritage – evaluation of the impacts to cultural heritage resources in the study area is presented in Section 16.5.</p> <p>Health – the evaluation of exposure assessment and dose-response assessment for air emissions are presented in Section 17.2.4 and 17.2.5. The health risk is characterised in Section 17.2.6. Potential health impacts due to noise are evaluated in Section 17.3.4.</p>
MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS	✓		
- Measures to eliminate, reduce or remedy adverse environmental impacts			<p>Air Quality – recommended mitigation measures to be implemented during construction phase are described in Section 5.2.6. Operation phase mitigation measures are described in Section 5.3.11.</p> <p>Hazard to Human Life – mitigation has been considered. An ALARP assessment workshop has been conducted with the AAHK to identify all potential mitigation measures with their practicalities being discussed. A cost benefit analysis has also been conducted. Please refer to Section 6.15.</p> <p>Noise – mitigation measures for aircraft noise impacts are described in Section 7.3.5. Fixed plant noise mitigation measures are described in Section 7.4.9. Mitigation measures to be implemented during construction phase are described in Section 7.5.6. For road and marine traffic noise, no mitigation measures are required. (See Study Brief Compliance Checklist (Table A1) above: Aircraft noise Appendix C, Section 2.4. Fixed noise sources Appendix C, Section 3.4, Construction Noise Appendix C, Section 4.4, Road Traffic Noise Appendix C, Section 5.4, Marine Traffic Noise Appendix C, Section 6.4. Mitigation for Aircraft Noise, Fixed Noise and Construction are Proposed.)</p> <p>Water Quality – mitigation measures recommended for minimisation of water quality impacts are presented in Section 8.8.</p> <p>Sewage – measures to mitigate the potential sewerage impacts associated with the project are presented in Section 9.7. The potential secondary impacts associated with proposed upgrading works for the gravity sewer have also been addressed.</p> <p>Waste – measures have been recommended to reduce and remedy potential waste related impacts due to the project. These include opportunities for reuse / recycling, good site practices and waste reduction / management measures. Details are provided in Section 10.5.</p> <p>Land Contamination – depending on the findings of the further site investigation to be conducted after land acquisition, and in the event of contaminated areas, possible remediation measures have been proposed. These are described in Section 11.7. Mitigation measures are also recommended in Section 11.8 for handling of contaminated materials (if any).</p> <p>Terrestrial Ecology – mitigation measures were recommended for the impacts to the Sha Chau egret including avoidance and minimisation measures. These are detailed in Section 12.7.</p> <p>Marine Ecology – mitigation measures have been proposed in the priority order of avoidance, minimisation, and compensate. The proposed mitigation measures are presented in Section 13.11. Secondary impacts are evaluated in Section 13.12. In addition, enhancement measures are also proposed. These are described in Section 13.13.</p> <p>Fisheries – mitigation measures including avoidance / minimisation, mitigation for indirect disturbance due to water quality deterioration, and compensation for loss of fisheries habitat have been proposed. These are detailed in Section 14.9.</p> <p>Landscape &amp; Visual – various design, landscaping, and aesthetic improvement measures have been recommended to mitigate landscape and visual impacts. Proposed mitigation measures to be implemented during construction and operation phase for both landscape and visual impacts are presented in Tables 15.6 and 15.7.</p> <p>Cultural Heritage – no mitigation measures are required as no impacts to cultural heritage resources are anticipated.</p> <p>Health – means to reduce health impact associated with air emissions make reference to emission reduction measures by AAHK, which are described in Section 17.2.7. Health impact reduction measures for noise are presented in Section 17.3.5.</p>
IDEFINITION AND EVALUATION OF RESIDUAL ENVIRONMENTAL IMPACTS	✓		
- Definition and evaluation of net environmental impacts with mitigation measures in place			<p>Air Quality – as evaluated in Section 5.2.7 and 5.3.12, with the recommended mitigation measures in place, there would be no non-compliance of the criteria, and no adverse residual impacts are anticipated during both construction and operation phases.</p> <p>Hazard to Human Life – the residual risk level has been evaluated, which is shown in Figure 6-38, to be not exceeding the Hong Kong Risk Guideline.</p> <p>Noise – for all noise assessments, the evaluation shows that there will be no residual impacts with the mitigation measures (where applicable) in place.</p> <p>Water Quality – the findings of the water quality impact assessment has shown that with the mitigation measures in place, there would be no adverse residual impact due to the project. (See checklist of SB: Aircraft noise SB2.5. Fixed noise sources SB3.5, Construction Noise SB 4.5, Road Traffic Noise SB5.5, Marine Traffic Noise SB6.5.)</p> <p>Sewage – there would be no residual impacts with the implementation of recommended mitigation measures.</p> <p>Waste – with the implementation of the recommended mitigation measures, no adverse residual impacts are anticipated during construction and operation phase.</p> <p>Land Contamination – in the event of any contaminated areas identified, remediation measures will be implemented to clean up the area to levels that comply with the relevant guidelines. As such, no residual impact due to land contamination is anticipated.</p>

Contents of an EIA Report	Status		Remarks
	Yes	No	
			Terrestrial Ecology – the assessment identified that with recommended mitigation measures in place, the impact to Sha Chau egretty will be minimised to low levels. As result, no adverse residual impacts are anticipated during both construction and operation phases. Marine Ecology – the residual impact due to permanent loss of habitat for Chinese White Dolphins has been assessed and the findings are presented in Section 13.14. Fisheries – with the implementation of the recommended water quality mitigation measures during construction and operation phases as well as the proposed establishment of new Marine Park and Fisheries Enhancement Strategy to provide assistant to fishermen on sustainable fisheries industry, no unacceptable adverse residual impacts are anticipated. Landscape & Visual – residual impacts after mitigation has been assessed. Those landscape resources, landscape character areas and visually sensitive receivers that would experience residual landscape or visual impacts are described in Section 15.6.5, 15.7.7 and 15.7.8. Cultural Heritage – not applicable as there are no impacts to cultural heritage resources anticipated, and hence no mitigation measures are required and there will be no residual impacts. Health – for both air emissions and noise, the short and long term health risks were assessed to be acceptable, and hence no residual impacts are anticipated.
ENVIRONMENTAL MONITORING AND AUDIT	✓		
- Need for and scope of monitoring and audit			The need for environmental monitoring and audit, where applicable, is presented in Chapter 18. The details relating to the environmental monitoring and audit requirements, methods and programme are presented in the Environmental Monitoring and Audit Manual.
- Environmental monitoring and audit requirements, if found to be necessary, and the related environmental monitoring and audit programme			
CONCLUSIONS AND RECOMMENDATIONS	✓		A summary of the conclusions and recommendations arising from each environmental assessment is summarised in Chapter 19.
SCHEDULE OF RECOMMENDED MITIGATION MEASURES	✓		
- A schedule of all mitigation measures recommended in the EIA report, listing out what the mitigation measures are, by whom, when, where and to what requirements, and including the key environmental monitoring and audit requirements			A schedule of all mitigation measures recommended in the EIA report, including by whom, when, where and to what requirements are tabulated for each technical aspect in Chapter 20.
APPENDIX	✓		
- Responses to comments received			Response to comments received from government departments have been provided to the relevant parties separately.

Table A.3: EIAO-TM Annex 20 Compliance Checklist

TM Issues	Status		Remarks
	Yes	No	
<b>1. General Approach</b>			
Organisation of the Information			
1.1 Is information logically arranged in sections ?	✓		The EIA has been divided into 20 chapters following the order that is presented in the EIA Study Brief. All chapters also contain sub sections following a logical order.
1.2 Is the location of information identified in an index or table of contents ?	✓		A table of contents is provided at the beginning of the EIA report.
1.3 When information from external sources has been introduced, has a full reference to the source been included ?	✓		References to external sources adopted by individual chapters are listed within or at the end of each individual chapter.
Presentation of Information			
1.4 Has information and analysis been offered to support all conclusions drawn ?	✓		Air Quality – background information, methodology, approach and results analysis have been given in Chapter 5 and illustrated with figures. Detailed results are provided in the appendices. Conclusions are drawn with the support of the above mentioned items. Hazard to Human Life – conclusion is drawn after the evaluation of both individual risk and societal risk level through conducting in depth analysis using hazard identification workshop, frequency assessment, consequence assessment and risk summation (from Section 6.3 to 6.14). Throughout the analysis, hydrant system designer has been approached and technical reference materials have been referenced to substantiate applied assumption and parameters. Noise – conclusion is drawn from the findings of noise impact assessment, where quantitative analysis were carried out based on methodologies as listed out in Section 7.3.3 (Aircraft Noise), 7.4.7 (Fixed Noise Sources), 7.5.4 (Construction Noise), 7.6.3 (Road Traffic Noise), and 7.7.3 (Marine Traffic Noise). Water Quality – the conclusion is drawn from the findings of the water quality impact assessment. Quantitative results support the findings from the quantitative analysis, while information based on past project references and proposed / committed methods and practices have been provided to support the conclusions of the qualitative analysis. Sewage – conclusion is drawn from the findings of the sewerage and sewage impact assessment. Quantitative analysis has been carried out, while information based on the technical paper published by EPD and the planning information from Planning Department. The analysis has been conducted in Section 9.6. Waste – Quantity, quality and timing of waste generation from construction phase (inert C&DM, non-inert C&DM, excavated marine sediment, chemical waste, general refuse and floating refuse) are summarised in Table 10.15. Section 10.4.2 covers timing of waste generation from operation phase (chemical waste, general refuse, floating refuse and sludge).

TM Issues	Status		Remarks
	Yes	No	
			<p>Land Contamination – Potential contaminated land uses were identified on the areas where construction activities will be carried out on part of the existing airport island and the Sha Chau Island, there land contamination assessment and proposed measures are provided in Chapter 11.</p> <p>Terrestrial Ecology – the conclusion is drawn from the analysis of information gathered from literature review of approved EIAs and EM&amp;A reports, published and unpublished scientific studies, and updated ecological field surveys for 3RS project. The impact evaluation for terrestrial ecology was conducted in Sections 12.6.</p> <p>Marine Ecology – the conclusion is drawn from the analysis of information gathered from literature review of approved EIAs and EM&amp;A reports, published and unpublished scientific studies, and updated ecological field surveys for 3RS project, marine traffic impact assessment and water quality modelling results. The impact evaluation for marine ecology was conducted in Sections 13.8 and 13.9.</p> <p>Fisheries – the conclusion is drawn from the analysis of information gathered from literature review of approved EIAs and EM&amp;A reports, AFCD Port Survey 2006, published and unpublished scientific studies, and updated fisheries field surveys for 3RS project and water quality modelling results. The impact evaluation for fisheries was conducted in Section 14.7.</p> <p>Landscape &amp; Visual – The most current and most relevant information available has been researched and analysed to produce and support all findings and conclusions drawn in the assessment.</p> <p>Cultural Heritage – information on the cultural heritage within the study area has been presented in Section 16.4 and analysis has been conducted in Section 16.5. The conclusions presented in Section 19.14 have been based on this information and analysis.</p> <p>Health – Background information, methodology, approach and results analysis have been given in Chapter 17 and illustrated with figures. Detailed results are provided in the appendices. Conclusions are drawn with the support of the above mentioned items.</p>
1.5 Has information and analysis been presented so as to be comprehensive to the non-specialist using maps, tables and graphical material as appropriate ?	✓		<p>Air Quality – Care has been taken to explain technical findings and keep superfluous information to a minimum. Detailed descriptions/ information are given in the appendices. Predicted air pollutant concentrations at discrete air sensitive receivers are presented in relevant summary tables in Chapter 5. Contours of pollutant concentrations have also been used to illustrate the compliance level.</p> <p>Hazard to Human Life – the information and analysis have been presented comprehensively and Chapter 6 has been extensively reviewed and commented by various parties to ensure it is easy for non-specialist to understand.</p> <p>Noise – assessment results have been summarised in tables, against relevant noise criteria for easy comparison throughout Section 7. Drawings have been used to illustrate locations of construction activities, flight tracks alignment and findings of aircraft noise assessment in the form of contour maps that are easy for non-specialist to understand.</p> <p>Water Quality – results from both construction and operation phase quantitative assessments have been presented in the form of contour maps that are easy for non-specialist readers to understand. Drawings have been used to illustrate construction / operation phase activities and mitigation measures where appropriate.</p> <p>Sewage – the information and analysis have been presented in the comprehensive quantitative assessments in the form of tables. The mitigation measures are presented in drawings in plan view.</p> <p>Waste – Tables are provided in chapter 10 to present the information and analysis.</p> <p>Land Contamination – Potential land contamination site(s) identified in Section 11.3. Review of aerial photographs was discussed in Section 11.5.2 and shown in Appendix 11.1.</p> <p>Terrestrial Ecology – Baseline information was presented in form of summary tables in Appendices. Key findings were presented in form of distribution maps and habitat maps in suitable scale with locations of species of conservation importance recorded were also provided.</p> <p>Marine Ecology – Baseline information was presented in form of summary tables, graphs, distribution maps in Appendices. Key findings were presented in habitat maps in suitable scale with locations of species of conservation importance identified.</p> <p>Fisheries – Baseline information was presented in form of summary tables and graphs in Appendices. Key findings were presented in maps with locations of sites of fisheries importance identified.</p> <p>Landscape &amp; Visual – The information and analysis presented within the report has been clearly and logically defined in a simple and straightforward approach. Information and analysis has been illustrated and tabulated within the document (Tables 15.1 to 15.10) with supporting drawings MCL/P132/EIA/15-001.1 to MCL/P132/EIA/15-030.4.</p> <p>Cultural Heritage – the information and analysis has been presented with maps and tables where appropriate. Maps and photos have also been presented as part of the results.</p> <p>Health – Concentrations of pollutants at discrete health sensitive receivers are presented in tables in Chapter 17. For noise, tables are used in Section 17.3, in particular Section 17.3.4 and Appendix 17.6, for ease of reading.</p>
1.6 Are all the important data and results discussed in an integrated fashion within the information ?	✓		<p>Air Quality – Important data and results are summarised in the form of tables in Chapter 5, which are clearly referred to and discussed in the Chapter.</p> <p>Hazard to Human Life – Chapter 6 has been arranged in a style consistent with other approved hazard to human life assessments.</p> <p>Noise – results have been presented in tables together with information integrated into detailed discussion.</p> <p>Water Quality – discussion of the results is integrated with the presentation of the data results to enable a logical discussion.</p> <p>Sewage – discussion of the results is integrated with the presentation of the data results to enable a logical discussion</p> <p>Waste – The types and quantities of wastes required to be disposed of are estimated and the disposal methods are summarised in Table 10.15 and Section 10.4.2 for construction phase and operation phase respectively.</p> <p>Land Contamination – Present land use (including description of the activities, chemicals and hazardous substances handled, storage and location, by reference to a site layout plan) described in Section 11.4. Site reconnaissance surveys and desktop studies were undertaken to identify the present land use. Detail are discussed in the CAP (attached as Appendix 11.1). Past land uses history in relation to possible land contamination (including accident records and change of land use(s) from aerial photos) described in Section 11.4. Records received from relevant government departments, historical aerial</p>

TM Issues	Status		Remarks
	Yes	No	
			<p>photographs are taken into account.</p> <p>Terrestrial Ecology – The evaluation of ecological importance of the key habitats/sites of conservation importance in Section 12.5 were conducted base on the integration of baseline information collected from literature review and updated field survey findings for the 3RS as presented in Section 12.5. The impact evaluation was carried out based on the ecological evaluation and other criteria as listed under the EIAO-TM Annex 8.</p> <p>Marine Ecology – The evaluation of ecological importance of the key habitats/sites of conservation importance in Section 13.5 were conducted base on the integration of baseline information collected from literature review and updated field survey findings for the 3RS as presented in Section 13.4.6. The impact evaluation was carried out based on the ecological evaluation and other criteria as listed under the EIAO-TM Annex 8.</p> <p>Fisheries – The identification of sites of fisheries importance was based on the consolidate review of baseline information collected from literature review and updated field survey findings for the 3RS. The summary of baseline conditions was presented in Section 14.4. The impact prediction and evaluation in Section 14.7 was carried out based on the baseline conditions and criteria as listed under the EIAO-TM Annex 9.</p> <p>Landscape &amp; Visual – All important data and findings are discussed clearly and logically within the report with the use of drawings, tables and clearly articulated text.</p> <p>Cultural Heritage – discussion of data and results have been presented with the information integrated into the discussion.</p> <p>Health – important data and results on pollutants are present in the form of tables listed in Section 17.2 and in the appendices. Noise effects on annoyance, sleep disturbance and cognitive effect are tabulated and discussed in Section 17.3.4.</p>
1.7 Has superfluous information (i.e. information not needed for the decision) been avoided ?	✓		<p>Air Quality – superfluous information has been avoided and is not included in the air quality impact assessment.</p> <p>Hazard to Human Life – superfluous information has been avoided in Chapter 6.</p> <p>Noise – Superfluous information has been to avoided in Cection 7.</p> <p>Water Quality – unnecessary information has been removed from the chapter.</p> <p>Sewage – only the necessary information has been presented in the chapter</p> <p>Waste – Information not needed for the decision has not been discussed.</p> <p>Land Contamination – Information not needed for the decision has not been discussed.</p> <p>Terrestrial Ecology – The technical information and details of the literature review and field survey findings were provided in Appendices where appropriate. Key findings were summarised in the main text to avoid superfluous information.</p> <p>Marine Ecology – The technical information and details of the literature review and field survey findings were provided in Appendices where appropriate. Key findings were summarised in the main text to avoid superfluous information.</p> <p>Fisheries – The technical information and details of the literature review and field survey findings were provided in Appendices where appropriate. Key findings were summarised in the main text to avoid superfluous information.</p> <p>Landscape &amp; Visual – The Landscape and Visual Impact assessment does not include any unnecessary information.</p> <p>Cultural Heritage – the information presented in the assessment are considered to be required as per EIA Study Brief requirements, and unnecessary information have been avoided.</p> <p>Health – superfluous information been avoided and is not included in the health impact assessment.</p>
1.8 Has the information been presented in a concise form with a consistent terminology and are there logical links between different sections ?	✓		<p>Air Quality – The information been presented in a concise form with consistent terminology and logical links among different sections.</p> <p>Hazard to Human Life – the information has been presented in a concise form with a consistent terminology. Logical links between different sections have been maintained.</p> <p>Noise – Information has been presented in a concise form and uses the same terminology throughout the chapter. Relevant links have been provided to refer between different sections.</p> <p>Water Quality – the structure of the chapter follows the standard structure of the EIA report and uses the same terminology. The chapter is presented in a logical order and where applicable, relevant links are provided to refer between sections.</p> <p>Sewage – the structure of the chapter follows the standard structure of the EIA report and uses the same terminology. The chapter is presented in a logical order and where applicable, relevant links are provided to refer between sections.</p> <p>Waste – The chapter is discussed in accordance to Annex 7 and 15 of the TM</p> <p>Land Contamination – The chapter is discussed in accordance to Sections 3.1 and 3.2 of Annex 19 of the TM. CAP is included in the Chapter 11 and upon availability of areas for SI, CAR and RAP, if needed, will be prepared as mentioned in Sections 11.4.1.5 and 11.6.</p> <p>Terrestrial Ecology – the structure of the chapter follows the standard structure of the EIA report and uses the same terminology. The chapter is presented in a logical order and where applicable, relevant links are provided to refer between sections and chapters.</p> <p>Marine Ecology – the structure of the chapter follows the standard structure of the EIA report and uses the same terminology. The chapter is presented in a logical order and where applicable, relevant links are provided to refer between sections and chapters.</p> <p>Fisheries – the structure of the chapter follows the standard structure of the EIA report and uses the same terminology. The chapter is presented in a logical order and where applicable, relevant links are provided to refer between sections and chapters.</p> <p>Landscape &amp; Visual –The report has been rationally formatted in order to present a concise and reasoned assessment. Consistent terminology is used throughout the chapter and references to other sections of the report have been provided.</p> <p>Cultural Heritage – the information has been presented in a consistent form and are kept concise where possible. References have been provided to link between different sections where necessary.</p> <p>Health – the information been presented in a concise form with a consistent terminology with logical links between different sections.</p>
1.9 Have prominence and emphasis been given to severe adverse impacts, to	✓		<p>Air Quality – No severe adverse impacts are anticipated during both construction and operation phases. AAHK's various initiatives to reduce air pollutant emissions from airport activities and operations, which can help alleviate the air quality impacts, have been appropriately discussed in Chapter 5. The</p>



TM Issues		Status		Remarks
		Yes	No	
substantial environmental benefits, and to controversial issues ?				<p>potential controversial issues would be about compliance with the new AQOs, which has been fully addressed in the air quality impact assessment.</p> <p>Hazard to Human Life – the fire hazard of the flammable dangerous goods has been extensively assessed in full compliance with the requirement specified in the EIA Study Brief.</p> <p>Noise – With implementation of noise mitigation measures recommended in the EIA report, no adverse impacts, substantial environmental benefits, and controversial issues for fixed noise sources and construction noise are anticipated. Regarding potential aircraft noise impacts, particular effort was paid to explain the proposal of noise reduction measures, exhaust of direct mitigation measures and need for indirect measures.</p> <p>Water Quality – analysis of the results have given prominence to the more severely affected water sensitive receivers in determining recommended mitigation measures. The substantial environmental benefit of using deep cement mixing in the CMP area instead of standard ground improvement methods has also been emphasised.</p> <p>Sewage – the existing / planned sewerage sewerage system has been assessed in full compliance with the requirement specified in the EIA Study Brief</p> <p>Waste – No adverse impact is anticipated as discussed in Section 10.6.</p> <p>Land Contamination – No adverse impact is anticipated as discussed in Section 11.9.</p> <p>Terrestrial Ecology – analysis of the results have given prominence to the more severely affected ecological sensitive receivers including the Sha Chau Egret. Mitigation measures including avoidance of construction works during Ardeid's breeding season and pre-construction phase egret monitoring to confirm the egret status for avoid the potential disturbance impact have been emphasised.</p> <p>Marine Ecology – Prominence and emphasis have been given to potential high impacts that may result from the land formation and associated works due to the project, especially for those controversial issues of habitat loss for Chinese White Dolphins (CWDs) and impact on travelling areas for CWDs. Mitigation measures have been considered including avoidance of CWDs hotspots during options selection process and avoid of dredging for ground improvement works. Other mitigation measures were recommended for compensate and minimise the marine ecological impacts to no unacceptable adverse impacts.</p> <p>Fisheries – analysis of the results have given prominence to the more affected fisheries impacts in determining recommended mitigation measures. The substantial environmental benefit of using deep cement mixing in the CMP area instead of standard ground improvement methods and the future extension of HKIAAA as fisheries no-take zone have also been emphasised.</p> <p>Landscape &amp; Visual – Severe adverse impacts on the landscape and visually sensitive receivers have been discussed thoroughly within the chapter in sections 15.6.5, 15.7.6, 15.7.7, 15.7.8 and 15.10.</p> <p>Cultural Heritage – prominence and emphasis has been given to the marine archaeological investigation, as the project primarily involves land formation.</p> <p>Health – prominence and emphasis have been given to criteria air pollutants and toxic air pollutants (TAP) for air emissions, and annoyance and sleep disturbance for noise, to determine possible mitigation measures.</p>
1.10	Is the information objective ?	✓		<p>Air Quality – All information adopted for the relevant air quality modelling and impact assessment is based on best available data, references and assumptions, which have been scrutinized/ endorsed by relevant authorities. Conclusions are drawn with the support of assessment results.</p> <p>Hazard to Human Life – all the provided information are either verified by AAHK / system designer / system operator or substantiated by technical reference materials in order to ensure they are objective.</p> <p>Noise – Information adopted for fixed noise sources and construction noise assessments such as inventory and operational modes of fixed noise sources and construction noise sections have been reviewed by relevant government department / authorities. International guidelines and practices were followed in carrying aircraft noise assessment.</p> <p>Water Quality – both quantitative and qualitative assessments are based on data from the project engineers which have been verified and agreed by AAHK. Data from other projects are taken from published sources or are based on information provided by the project proponent.</p> <p>Sewage – both quantitative and qualitative assessments are based on data from the TPEDM published by the Planning Department and the guideline published by the EPD. Data from other projects are taken from published sources or are based on information provided by the project proponent.</p> <p>Waste – Information is based on best available data and is objective.</p> <p>Land Contamination – Information is based on best available data and is objective.</p> <p>Terrestrial Ecology – both quantitative and qualitative assessments are based on data from approved EIAs, EM&amp;A reports and updated field surveys conducted for the 3RS project. Data from other projects are taken from published sources or are based on information provided by the project proponent.</p> <p>Marine Ecology – both quantitative and qualitative assessments are based on data from approved EIAs, EM&amp;A reports and updated field surveys conducted for the 3RS project. Data from other projects are taken from published sources or are based on information provided by the project proponent.</p> <p>Fisheries – both quantitative and qualitative assessments are based on data from approved EIAs, EM&amp;A reports and updated field surveys conducted for the 3RS project. Data from other projects are taken from published sources or are based on information provided by the project proponent. The use of fisheries interview survey data as supplementary information for impact assessment has been validated by field survey findings and based on professional judgement.</p> <p>Landscape &amp; Visual – Information provided in the assessment is quantified (where possible), qualitative, and factual. The assessment findings have been carefully considered with conclusions reflecting an objective assessment.</p> <p>Cultural Heritage – the assessment has taken into account the findings of the geophysical surveys and diver surveys to determine the archaeological potential of the study area and is considered to be objective.</p> <p>Health – information is based on fact and is endorsed by relevant authorities. Assessment is carried out considering the results from literature review of international practice for health impact assessment. Conclusions are drawn with the support of assessment results.</p>
Public Concerns				
1.11	Does the information identify and address the main concerns of the general public and special interest groups (clubs, societies etc) who may be affected by the project.	✓		<p>Air Quality – Public and special interest groups' concerns relating to air pollution and representative air sensitive receivers within the assessment areas have been taken into consideration. Impacts on the sensitive receivers due to the key pollutants including NO<sub>2</sub>, SO<sub>2</sub>, FSP, RSP and CO have been assessed against the relevant legal requirements.</p> <p>Hazard to Human Life – An EIA Public Forum was held on 1 August 2013 and there was no concern being raised for Chapter 6.</p>

TM Issues	Status		Remarks
	Yes	No	
1.12 Does the information take account of the main concerns of the relevant statutory or advisory bodies.	✓		Noise – Public and special interest groups' concerns and views from public forum relating to aircraft noise and representative noise sensitive receivers within the assessment areas have been taken into consideration. Potential noise impacts from aircraft, fixed noise sources, construction, road traffic and marine traffic on the identified NSRs have been assessed against relevant criteria.
			Water Quality – the main water quality concerns identified by public and special interest groups (e.g. land formation and use of deep cement mixing method at the CMPs) have been captured and addressed in the water quality impact assessment.
			Sewage – no major concerns from the general public and special interest groups were raised sewage
			Waste – The information identifies and addresses the main concerns of the general public who may be affected by the project.
			Land Contamination – The information identifies and addresses the main concerns of the general public who may be affected by the project.
			Terrestrial Ecology – the main public concerns of the potential impact on the Sha Chau Egretty and flight paths for birds due to the construction and operation of the 3RS project have been identified and addressed. Project specific surveys including egretty survey and flight paths for birds by vessel and land-based surveys were conducted to collect baseline information for the support of impact assessment.
			Marine Ecology – the main public concerns of the CWDs and other marine ecological baseline conditions within the project footprint especially the Hong Kong International Approach Areas (HKIAAA) that are restricted for vessels entry have been presented based on the updated field surveys for the 3RS project. The potential impacts on the loss of CWDs habitats, habitat fragmentation and block of travelling corridors/areas between CWDs hotspots were also assessed with the support of baseline data and scientific studies.
			Fisheries – the main public concerns of the loss of fisheries habitats and resources within the project footprint especially the HKIAAA that may provide protection to the fisheries resources have been reviewed based on the fisheries survey specifically design for the 3RS project. The potential impacts have been identified and assessed, mitigation measures were proposed to minimise the impacts to no unacceptable adverse impacts.
			Landscape & Visual – The assessment addresses the main concerns of the general public affected by the project. The general public are included as visually sensitive receivers and their level of impact has been assessed accordingly.
			Cultural Heritage – no major concerns from the general public and special interest groups were raised regarding cultural heritage.
			Health – public concerns relating to acute, chronic, non- carcinogenic and carcinogenic risk for air emissions and annoyance and sleep disturbance for noise have been assessed.
			Air Quality – the methodology of the assessment followed the EIAO-TM and the EIA Study Brief requirements and has been agreed by the relevant statutory and advisory bodies.
			Hazard to Human Life – the assessment is conducted by strictly following the requirement specified in the EIA Study Brief.
			Noise – Assessments on fixed noise sources and construction noise impact have strictly followed the EIA Study Brief requirement and EIAO-TM. Advisory comments from EPD, CAD and other relevant statutory bodies have been taken into consideration in all noise impact assessments.
			Water Quality – the main concerns of the statutory and advisory bodies relate to the use of deep cement mixing at the CMPs and disturbances to Sha Chau and Lung Kwu Chau Marine Park. These have been accounted for in the water quality impact assessment.
			Sewage – the assessment is conducted by strictly following the requirement specified in the EIA Study Brief

2. Description of the Project

Features of the Project		
2.1	Are the purpose(s) and objectives of the project explained ?	✓
2.2	Are the nature and status of project decision(s), for which the EIA study is undertaken, clearly indicated ?	✓
2.3	Is the estimated duration of the construction phase, operational phase and, where appropriate, decommissioning phase given, together with the programme within these phases ?	✓

TM Issues	Status		Remarks
	Yes	No	
2.4 Is the design and size of the project described, using diagrams, plans and/or maps as necessary ?	✓		The design and size of the project is presented in Chapter 3 and 4. Figures and drawings have been used in Chapter 3 and 4 to illustrate this.
2.5 Are the methods of construction described ?	✓		Construction methods are described in Chapter 3 and 4. Section 3.5 describes the design and construction for the third runway concourse building, Terminal 2 and associated road network. Section 3.6 describes the construction methods for land formation. Section 3.7 describes the construction methods for marine infrastructure facilities. Section 4.2 describes the key project components and preferred construction methods. Section 4.3 describes the construction sequence and phasing.
2.6 Are the nature and methods of production or other types of activity involved in operation of the project described ?	✓		The nature of operation of the project is described in Section 4.3.
2.7 Has the land taken up by the project site(s), construction sites, and any associated access arrangements, auxiliary facilities and landscaping areas, been clearly shown on a scaled map?	✓		The project boundary and main components are clearly shown in Drawings No. MCL/P132/EIA/4-001 to 4-007. Further details of individual construction areas are presented in map form in individual technical sections wherever applicable.
2.8 For a linear project, has the land corridor, vertical and horizontal alignment and need for tunnelling, and earthworks been described ?	✓		The land area and alignments of the project are described in Section 4.2.
2.9 Have the uses to which the project will be put been described and the different land use areas demarcated ?	✓		The uses of the project and different land areas are described in Section 4.2 and presented in Drawings No. MCL/P132/EIA/4-001 to 4-007.
<b>Residues and Emissions</b>			
2.10 Have the types and quantities of waste matter, energy (noise, vibration, light, heat, radiation etc) and residual materials generated during construction and operation of the project, and the rate at which these will be produced, been estimated ?	✓		<p>Air Quality – the key activities that would potentially result in dust emissions during construction phase of the project have been identified and the associated dust emission rates are estimated based on best available information. Similarly, emissions of criteria pollutants and toxic air pollutants for airport operation, proximity infrastructure and regional sources during operation phase have also been quantified.</p> <p>Noise – noise impacts generated throughout the construction period have been estimated quantitatively based on the type and quantity of powered mechanical equipment expected to be used for scheduled construction activities. Potential noise impacts on identified NSRs during operation phase from fixed noise sources, road traffic and marine traffic were also assessed quantitatively where applicable. Aircraft noise under different operation scenario were also assessed and presented in the form of contours on drawings.</p> <p>Water Quality – types and quantities of wastewater from submarine pipeline diversion activities have been estimated and evaluated. Wastewater from the greywater treatment plant and sewage generated during operation phase have also been estimated and assessed.</p> <p>Sewage – Sewage arising from the project during operation phase have also been estimated and assessed.</p> <p>Waste – Quantity, quality and timing of waste generation from construction phase (inert C&amp;DM, non-inert C&amp;DM, excavated marine sediment, chemical waste, general refuse and floating refuse) are summarised in Table 10.15. Section 10.4.2 covers timing of waste generation from operation phase (chemical waste, general refuse, floating refuse and sludge).</p> <p>Land Contamination – Potentially contamination assessment areas are discussed in Section 11.3.</p> <p>All other technical chapters – not applicable</p>
2.11 Have the ways in which it is proposed to handle and/or treat these wastes and residual materials prior to release/disposal been indicated, together with the routes by which they will eventually be disposed of to the environment ?	✓		<p>Air Quality – Not relevant</p> <p>Noise – Measures to reduce aircraft noise impact are proposed and discussed in Section 7.3.5. Airport / airspace operational procedures adopted in aircraft noise assessments were also included.</p> <p>Water Quality – the proposed handling / treatment method of the wastewater generated during construction and operation phase has been identified and the eventual disposal location has been indicated as part of the assessment.</p> <p>Sewage – the proposed handling of the sewage generated during construction and operation phase has been identified as part of the assessment.</p> <p>Waste – For construction phase: Inert C&amp;DM: Transportation routings for barges and frequency of vessels involved included in Section 10.4.1.14. Section 10.4.1.14 and Drawing MCL/P132/EIA10-001 indicated anticipated numbers of barging points and stockpiling areas. Non-inert C&amp;DM: Transportation routings and frequency for dump trucks included in Section 10.4.1.22. Excavated marine sediment: Disposal outlet for marine sediment included in Section 10.4.1.31 and treatment for reuse of sediment included in Section 10.4.1.36. Chemical waste: Section 10.4.1.61. General refuse (and floating refuse): Transportation routings and frequency of trucks involved included in Sections 10.4.1.63 and 10.4.1.66. For operation phase: General refuse (and floating refuse): Transportation routings and frequency of trucks involved included in Section 10.4.2.2. Chemical waste: Transportation routings included in Section 10.4.2.5. Floating refuse: Transportation routings included in Section 10.4.2.9. Sludge: Transportation routings included in Section 10.4.2.12. Disposal outlets described in Table 10.15 and Section 10.4.2.</p> <p>Land Contamination – Possible remediation measures was discussed in Section 11.7.</p> <p>All other technical chapters – not applicable</p>
2.12 Have any special or hazardous wastes which will be produced been identified as such and the methods for their disposal been described, as regards their likely main environmental impacts?	✓		<p>Waste – Chemical waste to be generated from construction and operation phase and disposal method are discussed in Sections 10.4.1.59 to 61 and 10.4.2.5 to 10.4.2.7.</p> <p>All other technical chapters – not applicable</p>
2.13 Have the means by which the quantities of residuals and wastes were estimated been indicated and has uncertainty been acknowledged and ranges provided where appropriate ?	✓		<p>Air Quality – Not relevant</p> <p>Water Quality – for construction phase wastewater generated from submarine pipeline diversion activities, the basis for the calculated quantity of wastewater (which adopts a more conservative approach) has been stated.</p> <p>Sewage – not applicable</p> <p>Waste – The assessment methodology of the quantity of waste generation associated with construction and operation phases is described in Section 10.3.</p> <p>Land Contamination – The assessment methodology of land contamination issues associated with construction and operation phases is described in Section 11.4.</p>

TM Issues	Status		Remarks
	Yes	No	
All other technical chapters – not applicable			
3. Background and History of the Project			
3.1	Where appropriate does the information include reference to the consideration of the project's siting or alignment by the project proponent ?	✓	Consideration of alternative siting and alignment of the project is presented in Chapter 3. Consideration of options / alternatives for the third runway alignment is presented in Section 3.3. Consideration of options / alternatives for airport layout is presented in Section 3.4. Consideration of options / alternatives for design of the third runway concourse building, Terminal 2 and associated road networks are presented in Section 3.5.
3.2	Are the reasons for selecting the proposed project or its siting and alignment, and the part environmental factors played in the selection, adequately described ?	✓	The reasons for selecting the preferred option and the environmental benefits / dis-benefits of different options are presented as part of the overall options evaluation in Chapter 3.
3.3	Have the main environmental impacts of different siting or alignment options been compared clearly and objectively with those of the proposed project and with the likely future environmental conditions in the absence of the project ?	✓	The main environmental impacts of different siting / alignment options have been clearly compared as part of the overall options evaluation in Chapter 3. The likely future environmental conditions in the absence of the project is considered as part of the Need of the Project in Section 2.5.4.
4. Description of the Environment			
Description of the Area Occupied by and Surrounding the Project			
4.1	Have the areas expected to be significantly affected by the various aspects of the project been indicated with the aid of suitable maps ?	✓	<p>Air Quality – Locations of representative air sensitive receivers within the assessment areas are shown in Drawings MCL/P132/EIA/5-2-001, 5-3-002 to 5-3-005.</p> <p>Hazard to Human Life – Figure 6-29 shows the risk to onboard passenger during aircraft refuelling operation; Figure 6-33 and Figure 6-34 shows the risk along hydrant system during construction and operation phase; and Figure 6-35 shows the risk near the airside petrol filling station.</p> <p>Noise – Potential affected areas and locations of noise sensitive receivers identified for fixed noise sources and construction noise assessments (including fixed noise, construction, road traffic and marine traffic) are shown in Drawing No. MCL/P132/EIA/4-006, Drawing No. MCL/P132/EIA/5-001, Drawing No. MCL/P132/EIA/6-001 and Drawing No. MCL/P132/EIA/7-001 respectively. Aircraft noise assessment area is illustrated in Drawing No. MCL/P132/EIA/7-3-002 and the noise contours for different operation scenario and year are shown in Drawing No. MCL/P132/EIA/7-3-004 to 009. Locations of villages affected by aircraft noise are shown in Drawing No. MCL/P132/EIA/7-3-010.</p> <p>Water Quality – the study area for the water quality impact assessment and the potentially affected water sensitive receivers are shown in Drawing No. MCL/P132/EIA/8-001 and 8-002.</p> <p>Sewage – the study area for the sewage impact assessment is shown in Drawing No. MCL/P132/EIA/9-002.</p> <p>Waste – The suitable drawings MCL/P132/EIA/10-001 to MCL/P132/EIA/10-005 are indicated in chapter 10 for information</p> <p>Land Contamination – Aerial photographs are used for review of past land uses and are discussed in Section 11.5.2 as well as shown in Appendix 11.1. Boundaries of all associated areas (e.g. work areas) of the project are provided in Drawings MCL/P132/EIA/11-001 to 11-013.</p> <p>Terrestrial Ecology – the locations of species of conservation interest recorded were indicated in habitat maps Drawings No. MCL/P132/EIA/12-017 – 12-034 and key findings for the bird flight path and distribution were summarised in Drawings No. Drawings MCL/P132/EIA/12-016a1 – 12-016e2. The locations of Sha Chau Egretry were presented in Drawings MCL/P132/EIA/12-035a and 12-035b.</p> <p>Marine Ecology – the locations of species of conservation importance recorded within the study area were presented in Drawings MCL/P132/EIA/13-001 to 13-007 and 13-014 to 13-020, 13-026 to 13-027. The key findings for CWDs were presented in Drawings MCL/P132/EIA/13-021 to 13-023. The potential concurrent projects that may cause cumulative loss of marine habitats are shown in Drawings MCL/P132/EIA/13-025.</p> <p>Fisheries – the sites of fisheries importance was shown in Drawings MCL/P132/EIA/14-001. The key findings of Port Survey 2006 from literature review were presented in Drawings MCL/P132/EIA/14-003 to 14-006.</p> <p>Landscape &amp; Visual – The areas to be affected by the project have been clearly illustrated at appropriate scales on drawings MCL/P132/EIA/15-002, MCL/P132/EIA/15-003.1 - 4, MCL/P132/EIA/15-004, MCL/P132/EIA/15-007, MCL/P132/EIA/15-008, MCL/P132/EIA/15-010, MCL/P132/EIA/15-012.1 - 4, MCL/P132/EIA/15-013, MCL/P132/EIA/15-014, MCL/P132/EIA/15-015 &amp; MCL/P132/EIA/15-016.</p> <p>Cultural Heritage – the study area for marine archaeology and terrestrial cultural heritage have been indicated in Drawing No. MCL/P132/EIA/16-001 and 16-002.</p> <p>Health – locations of health sensitive receivers are shown in Drawings MCL/P132/EIA/17-3-002 to 17-3-006.</p>
4.2	Have the land uses on the site(s) and in the surrounding areas been described ?	✓	<p>Air Quality – Land uses on the sites and in the surrounding areas have been described in Sections 5.2.2 and 5.3.2 as well as summarized in Tables 5.2.1 and 5.3.7.</p> <p>Hazard to Human Life – the land uses and population data have been presented in Section 6.9.2.</p> <p>Noise – The land uses on the site and in the surrounding areas been described in Drawing No. MCL/P132/EIA/4-001 to 004, and described in Table 7.3.1.</p> <p>Water Quality – the potential sources of wastewater / stormwater generated by the future land uses have been described in Section 8.5.2.</p> <p>Sewage – the population data have been presented in Section 9.5</p> <p>Waste – The each type of waste to be generated on-site due to the future land use is identified in Section 10.5.</p> <p>Land Contamination – Present land use (including description of the activities, chemicals and hazardous substances handled, storage and location, by reference to a site layout plan) described in Section 11.4. Site reconnaissance surveys and desktop studies were undertaken to identify the present land use. Detail are discussed in the CAP (attached as Appendix 11.1). Past land uses history in relation to possible land contamination (including accident records and change of land use(s) from aerial photos) described in Section 11.4. Records received from relevant government departments, historical aerial photographs are taken into account.</p> <p>Terrestrial Ecology – the key terrestrial ecological baseline conditions and sensitive habitats were described in Sections 12.3 and 12.5. Details of baseline conditions from literature review and field survey findings were presented in Appendices 12.1 and 12.3.</p>



TM Issues	Status		Remarks
	Yes	No	
4.3 Has the affected environment been defined broadly enough to include any potentially significant effects occurring away from the immediate areas of construction and operation ?	✓		<p>Marine Ecology – the key marine ecological baseline conditions and sensitive habitats were described in Section 13.4. Details of baseline conditions from literature review and field survey findings were presented in Appendices 13.1, 13.2 and 13.5 to 13.12.</p> <p>Fisheries – the key marine environment and sites of fisheries importance were described in Section 14.4. Details of baseline conditions from literature review and field survey findings were presented in Appendices 14.1, 14.3, 14.4 and 14.5.</p> <p>Landscape &amp; Visual – The land uses on the site have been described in Section 15.5.3 and clearly illustrated at an appropriate scale in drawing MCL/P132/EIA/15-002.</p> <p>Cultural Heritage – the baseline conditions of the site and surrounding areas including land use have been reviewed and presented in Section 16.4.</p> <p>Health – reference is made to the air and noise sensitive receivers presented in Chapter 5 and 7 respectively.</p> <p>Air Quality – According to the EIA Study Brief, the construction phase air quality impacts are assessed within the 500 m assessment area from the project boundary while the operation phase impacts are assessed within the 5 km assessment area from the project boundary and the area identified in Tuen Mun. Such assessment areas are adequate to cover potentially significant effects occurring away from the immediate areas of construction and operation.</p> <p>Hazard to Human Life – well-validated consequence modelling software such as PoolFire 6 and PHAST have been applied to estimate the hazard distance of each identified hazardous scenario.</p> <p>Noise – The assessment areas for fixed noise sources and construction noise was defined in accordance with the EIA Study Brief or proposed and was agreed by EPD. Aircraft noise assessment has covered the entire territory of Hong Kong and included all named locations in the EIA Study Brief.</p> <p>Water Quality – the study area of the water quality impact assessment follows the requirements of the EIA Study Brief which defines the study area to cover the North Western, North Western Supplementary, Western Buffer and Deep Bay water control zones.</p> <p>Sewage – the study area of the sewage impact assessment follows the requirements of the EIA Study Brief which defines the study area to cover the North Lantau.</p> <p>Waste – The affected environment been defined broadly enough to include any potentially significant effects occurring away from the immediate areas of construction and operation.</p> <p>Land Contamination – The affected environment been defined broadly enough to include any potentially significant effects occurring away from the immediate areas of construction and operation.</p> <p>Terrestrial Ecology – the study area of the terrestrial ecological impact assessment follows the requirements of the EIA Study Brief which defines the Tai Ho Stream SSSI, San Tau Beach SSSI, Lung Kwu Chau, Tree Island and Sha Chau SSSI and any other areas likely to be impacted by the Project. The assessment has also covered the open sea to the north of the existing airport island, all land areas on the airport island, all land areas within 500 m from the coastline of North Lantau from Sham Wat Wan to Tai Ho Wan and all land areas within the boundary of Sha Chau and Lung Kwu Chau Marine Park.</p> <p>Marine Ecology – the study area of the marine ecological impact assessment follows the requirements of the EIA Study Brief which defines the study area to cover the North Western, North Western Supplementary, Western Buffer and Deep Bay water control zones or the area likely to be impacted by the Project. Sensitive areas including coral sites and Chinese White Dolphin habitats in the above zones, intertidal habitats for horseshoe crabs and seagrass beds, intertidal habitats at Tai Ho Wan and San Tau Beach SSSI, SCLKCMP, the proposed Brothers Marine Park, the proposed Southwest Lantau Marine Park and artificial reefs deployed in the SCLKCMP.</p> <p>Fisheries – the study area of the fisheries impact assessment follows the requirements of the EIA Study Brief which defines the study area to cover the North Western, North Western Supplementary, Western Buffer and Deep Bay water control zones. Special attention has been given to potential loss or disturbance to fishing grounds, fisheries habitats, spawning or nursery grounds, aquaculture sites and artificial reefs associated with both the construction and operation of the project.</p> <p>Landscape &amp; Visual – The limit of the landscape impact study is 500 m beyond the boundary of the works (as stated in the EIA study brief), which is shown in Drawing MCL/P132/EIA/15-001). The limit of the visual impact study is the Zone of Visual Influence (ZVI) of the works during the construction and operation phases (as stated in the EIA study brief, which is illustrated in Drawing MCL/P132/EIA/15-010).</p> <p>Cultural Heritage – the study area for the cultural heritage assessment has been defined to cover areas outside the immediate project boundary.</p> <p>Health – potentially significant air quality effects occurring away from the immediate areas of operation have been assessed within the 5 km assessment area from the project boundary and the area identified in Tuen Mun. For noise, the populated areas adjacent to NEF25 taking into the findings of aircraft noise impact assessment account, are discussed in Section 17.3.3.10.</p>
Baseline Conditions			
4.4 Have the components of the environment potentially affected by the project been identified and described sufficiently for the prediction of impacts ?	✓		<p>Air Quality – Baseline concentrations of relevant air pollutants in the project area in past five years have been reviewed in Sections 5.2.2 and 5.3.2. Descriptions of the surrounding areas and meteorological data are also presented in the mentioned sections.</p> <p>Hazard to Human Life – the existing fuel pipelines and fuel hydrant system are identified and described in Section 6.3.</p> <p>Noise – The potential noise sources of the project have been identified and described Sections 7.3.3.1 to 7.3.3.2 (aircraft noise), 7.4.6 (fixed noise source), 7.5.3 (construction noise), 7.6.3 (road traffic noise) and 7.7.3 (marine traffic noise). The prevailing aircraft noise environment is described in Section 7.3.2.</p> <p>Water Quality – the potential sources of water quality impact due to the project have been identified and described in Section 8.5.</p> <p>Sewage – no potential sources of sewage impact due to the project has been identified.</p> <p>Waste – The components of the environment potentially affected by the project have been identified and described sufficiently for the prediction of impacts</p> <p>Land Contamination – The components of the environment potentially affected by the project have been identified and described sufficiently for the prediction of impacts</p> <p>Terrestrial Ecology – Baseline conditions were summarised in Section 12.5 with details presented in Appendices 12.1 and 12.3.</p> <p>Marine Ecology – Baseline conditions were summarised in Section 13.4 with details presented in Appendices 13.1, 13.2 and 13.5 to 13.12.</p> <p>Fisheries – Baseline conditions were summarised in Section 14.4 with details presented in Appendices 14.1, 14.3, 14.4 and 14.5.</p> <p>Landscape &amp; Visual – Landscape Resources and Landscape Character Areas have been identified, quantified (where possible), and described in detail in</p>

TM Issues	Status		Remarks
	Yes	No	
4.5	Were the methods used to investigate the affected environment appropriate to the size and complexity of the assessment task ?	✓	<p>Sections 15.5.4 and 15.5.5 and illustrated on drawings MCL/P132/EIA/15-003.1 to MCL/P132/EIA/15-009. Visually Sensitive Receivers have been identified and described in Section 15.5.9 and illustrated on drawings MCL/P132/EIA/15-010.</p> <p>Cultural Heritage – cultural heritage resources that may be affected by the project have been identified in Section 16.4 and have been described in sufficient detail to enable prediction of impacts.</p> <p>Health – the baseline toxic air pollutant concentration has been included. The baseline populated areas for noise are discussed in Section 17.3.3.10 with justifications.</p> <p>Air Quality – The methods used to assess air quality impacts are appropriate to the size and complexity of the assessment task, and have been developed in accordance with the EIA Study Brief requirements. The assessment methods have been agreed by EPD.</p> <p>Hazard to Human Life – the methods adopted follows the EIA Study Brief requirements and are appropriate for the project.</p> <p>Noise – the methods used to investigate fixed noise sources and construction noise impacts follow the EIA Study Brief requirements. Method used for aircraft noise assessment is internationally adopted, in accordance with EIA Study Brief requirements, and agreed with EPD.</p> <p>Water Quality – quantitative assessment using a 3-dimensional model was adopted for both construction and operation phase assessments, which follows the EIA Study Brief requirements. Where qualitative assessment is adopted, prior acceptance by EPD has been obtained.</p> <p>Sewage – the methods adopted follows the EIA Study Brief requirements and are appropriate for the project.</p> <p>Waste – The assessment methodology of the waste management issues associated with construction and operation phases is described in Section 10.3.</p> <p>Land Contamination – The assessment methodology of land contamination issues associated with construction and operation phases is described in Section 11.4.</p> <p>Terrestrial Ecology – The impact evaluation was in accordance to EIAO-TM Annexes 8 and 16.</p> <p>Marine Ecology – The impact evaluation was in accordance to EIAO-TM Annexes 8 and 16, where appropriate, water quality modelling results were made reference for the marine ecological impact assessment.</p> <p>Fisheries – The impact evaluation was in accordance to EIAO-TM Annexes 9 and 17, where appropriate, water quality modelling results were made reference for the marine ecological impact assessment.</p> <p>Landscape &amp; Visual – The LVIA chapter presents an assessment of the potential landscape and visual impacts associated with the three-runway system (3RS) in accordance with the Environmental Impact Assessment Ordinance (EIAO), the Technical Memorandum on EIA Process (TM-EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012). The methods used to investigate the affected landscape and visual environment were appropriate to the size and complexity of the project. The methods included site visits and desk-top studies of topographical maps, information databases, approved EIAs of the committed projects and aerial photographs. Reference is also made to the 'Landscape Value Mapping of Hong Kong' study. This is described in Section 15.4.2, 15.4.3 &amp; 15.4.4.</p> <p>Cultural Heritage – the methods used to investigate marine archaeological impact follow the guidelines for marine archaeological investigation and cover a large number of surveys to provide a comprehensive analysis of the archaeological potential of the study area. For terrestrial cultural heritage, investigation was mainly based on desktop and walkover surveys as terrestrial cultural heritage resources are not a major concern for the project.</p> <p>Health – the methods used to investigate the affected environment follows international literatures, guidelines and studies that have been agreed with the relevant statutory authorities and are appropriate to the size and complexity of the assessment task.</p>
4.6	Has a prediction of the likely future environmental conditions in the absence of the project been developed ?	✓	<p>Air Quality – A two-runway scenario has been carried out at the worst case year to predict the likely future environmental conditions in the absence of the project.</p> <p>Hazard to Human Life – not applicable.</p> <p>Noise – Not applicable</p> <p>Water Quality – a 'without project' scenario has been developed and assessed as part of the operation phase quantitative assessment.</p> <p>Sewage – not applicable</p> <p>Waste – Not applicable</p> <p>Land Contamination – Not applicable</p> <p>Terrestrial Ecology – not applicable</p> <p>Marine Ecology – for marine ecological impact associated with water quality, a 'without project' scenario has been developed and assessed as part of the operation phase quantitative assessment.</p> <p>Fisheries – for fisheries impact associated with water quality, a 'without project' scenario has been developed and assessed as part of the operation phase quantitative assessment.</p> <p>Landscape &amp; Visual – This is not applicable</p> <p>Cultural Heritage – prediction of future cultural heritage condition in the absence of the project is not necessary for cultural heritage impact assessment.</p> <p>Health – reference is made to the air pollutant and noise emissions predicted in Chapter 5 and 7 respectively.</p>
4.7	Have existing technical data sources, including local records and studies carried out for environmental agencies and/or interest groups been searched ?	✓	<p>Air Quality – Historical air pollutant data from relevant EPD's air quality monitoring stations and AAHK's monitoring stations have been identified for reference. Existing technical data sources, including local survey data and studies, have been searched and adopted in the assessment where appropriate.</p> <p>Hazard to Human Life – worldwide historical aviation fuel spillage incidents from 1982 to 2012 have been searched and reviewed as part of the assessment.</p> <p>Noise – Existing technical data such as meteorological data, physical and operational characteristics / data of HKIA three-runway system have been adopted in the fixed noise sources and construction noise section.</p> <p>Water Quality – existing data sources have been reviewed as part of baseline conditions presented in Section 8.3 and in compiling the pollution loading inventory for operation phase water quality impact assessment (presented in Appendix 8.7).</p>

TM Issues	Status		Remarks
	Yes	No	
			<p>Sewage – not applicable</p> <p>Waste – The existing technical data sources have been searched.</p> <p>Land Contamination – The existing technical data sources have been searched and included in Section 11.5.</p> <p>Terrestrial Ecology – the literature review has covered both approved EIAs, EM&amp;A, published and non-published scientific studies, records from non-government organisations and AFCD biodiversity survey.</p> <p>Marine Ecology – the literature review has covered both approved EIAs, EM&amp;A, published and non-published scientific studies, information from other concurrent project proponents, records from non-government organisations, AFCD biodiversity survey, AFCD long-term marine mammals monitoring, unpublished stranding information of marine mammals in Hong Kong, etc. Details were presented in Appendices 13.1 and 13.2.</p> <p>Fisheries – the literature review has covered both approved EIAs, EM&amp;A, published and non-published scientific studies, information from other concurrent project proponents, records from non-government organisations and AFCD artificial reefs monitoring. Details were presented in Appendix 14.1.</p> <p>Landscape &amp; Visual – Existing technical data sources, including local records and studies have been researched and considered in the landscape and visual impact assessment and described in Sections 15.2 &amp; 15.5.</p> <p>Cultural Heritage – existing data sources from various published records have been reviewed as part of the baseline review described in Section 16.4.</p> <p>Health – the toxic criteria from the World Health Organisation, US Environmental Protection Agency, Office of Environmental Health Hazard Assessment, and the Agency for Toxic Substances and Disease Registry have been reviewed. For noise, the literature review includes a number of international literatures, guidelines and studies (eg. WHO, EEA, EU, Miedemia's studies) as detailed in Section 17.3.2.</p>
4.8 Have local, regional and national plans and policies been reviewed and other data collected as necessary to predict future environmental conditions ?	✓		<p>Air Quality – Local, regional and national plans and policies (e.g. the Master Plan 2030 and the China's 12th Five Year Plan) been reviewed to predict future environmental conditions.</p> <p>Hazard to Human Life – not applicable.</p> <p>Noise – Local, regional and national plans and policies have been reviewed and other data has been collected to predict future environmental condition which has been included in different scenarios including worst operation mode (Year 2030), interim phase operation mode (Year 2021) and full operation mode (Year 2032 / 2038). Air traffic forecast from IATA and TAAM simulation are adopted for future scenarios under aircraft noise assessment and are detailed in Section 7.3.2.10</p> <p>Water Quality – relevant data have been reviewed in compiling the pollution loading inventory for operation phase water quality impact assessment (presented in Appendix 8.7).</p> <p>Sewage – not applicable</p> <p>Waste – The local, regional and national plans and policies have been reviewed and mentioned in Section 10.2.</p> <p>Land Contamination – The local, regional and national plans and policies have been reviewed and mentioned in Section 11.2.</p> <p>Terrestrial Ecology – the local, regional and national plans and polices been reviewed, but the future environmental conditions could only be reviewed based on the best available information collected by the time of this study.</p> <p>Marine Ecology – the potential change in water quality and hydrodynamics were predicted based on the water quality modelling results as presented in Chapter 8.</p> <p>Fisheries – acknowledgement of the trawl ban since 31 December 2012 has been made, but the effect could not be realised by the time of this study. Fisheries modelling was not applied to this study for predict future environmental conditions as there is no specific model that has been developed in Hong Kong and due to limitations as reviewed in this study.</p> <p>Landscape &amp; Visual – Local, regional and national plans and polices have been researched and collected to predict the future environmental conditions in the overall approach to the landscape and visual impact assessment and described in Sections 15.2, 15.4.6 and 15.5.3.</p> <p>Cultural Heritage – prediction of future cultural heritage conditions is not necessary for cultural heritage impact assessment.</p> <p>Health – literature review has been carried out. For air quality, local, regional and national plans and policies (e.g. Master Plan 2030 and 12th Five Year Plan) been reviewed to predict future environmental conditions. For noise, a number of international literatures, guidelines and studies (eg. WHO, EEA, EU, Miedemia's studies), are presented in Section 17.3.2 to review and predict potential health impacts.</p>
4.9 Have relevant departments and agencies holding information on baseline environmental conditions been approached ?	✓		<p>Air Quality – EPD has been approached to collect the relevant historical air pollutant monitoring data of the project area.</p> <p>Hazard to Human Life – information on the existing aviation fuel systems and historical records of incidents at HKIA were obtained from AAHK as part of the assessment.</p> <p>Noise – Relevant departments such as CAD was approached to obtain radar data in Year 2011 and to cross check the physical and operational characteristics / data of HKIA three-runway system and operational modes</p> <p>Water Quality – information from EPD's monitoring stations are publically available and have been obtained for determining baseline conditions. Relevant departments and agencies have also been approached to obtain information on concurrent projects for adoption in the cumulative impact assessment.</p> <p>Sewage – existing sewage flow arising from the airport was obtained from AAHK as part of the of the assessment.</p> <p>Waste – not applicable.</p> <p>Land Contamination – The relevant departments holding information have been contacted and discussed in Section 11.5.</p> <p>Terrestrial Ecology – AFCD, other potential concurrent project proponents, scientific studies from non-government organisation have been approached in seeking for baseline information.</p> <p>Marine Ecology – AFCD, other potential concurrent project proponents, scientific studies from non-government organisation have been approached in seeking for baseline information, including but not limited to the biodiversity survey data, artificial reefs monitoring data, AFCD long-term marine mammals monitoring data, marine mammals stranding records in Hong Kong from AFCD, fisheries monitoring data of contaminated mud pit project from CEDD, etc.</p> <p>Fisheries – AFCD, other potential concurrent project proponents, scientific studies from non-government organisation have been approached in seeking for</p>

TM Issues	Status		Remarks
	Yes	No	
			<p>baseline information, including but not limited to the artificial reefs monitoring data, fisheries monitoring at SCLKCMP and Port Survey 2006 from AFCD, fisheries monitoring data of contaminated mud pit project from CEDD, etc.</p> <p>Landscape &amp; Visual – Relevant departments and agencies have been approached to receive applicable information regarding the baseline conditions and concurrent projects for the landscape and visual impact assessment outlined in Section 15.4.6 and 15.5.</p> <p>Cultural Heritage – information from AMO's libraries and databases as well as overseas records have been searched and reviewed as part of the baseline review presented in Section 16.4.</p> <p>Health – for air quality, EPD has been approached to collect the relevant historical air pollutant monitoring data of the project area. For noise, information has been obtained from published sources from Hospital Authority and Department of Health.</p>
<b>5. Description of Impacts</b>			
5.1 Have the direct and indirect/secondary effects of constructing, operating and, where relevant, after use or decommissioning of the project been considered (including both positive and negative effects) ?	✓		<p>Air Quality – Both the direct and indirect/secondary effects of constructing and operating the project have been considered (including both positive and negative effects).</p> <p>Hazard to Human Life – the effect of construction and operation of the aviation fuel supply system and airside petrol filling station have been considered from Section 6.10 to 6.13.</p> <p>Noise –direct fixed noise and construction noise impacts of the project have been considered in Sections 7.4.9.5 and 7.5.6.13. Direct aircraft noise impact has been considered and discussed in Section 7.3.4.</p> <p>Water Quality – direct effects of constructing and operating the project have been identified in Section 8.5 and assessed in Section 8.7. Indirect effects are considered as part of the water quality parameter interactions inherent in the operation phase model for assessing operation phase water quality impacts.</p> <p>Sewage – not applicable.</p> <p>Waste – The impact of waste generation from construction and operation phase(inert C&amp;DM, non-inert C&amp;DM, excavated marine sediment, chemical waste, general refuse and floating refuse) are discussed in Section 10.4.</p> <p>Land Contamination – The impact of land contamination from construction and operation phase are discussed in Section 11.5.</p> <p>Terrestrial Ecology – Direct and indirect impacts of constructing and operating of the project have been identified in Section 12.6.</p> <p>Marine Ecology – Direct and indirect/secondary impacts of constructing and operating of the project have been identified in Section 13.7.</p> <p>Fisheries – Direct and indirect impacts of constructing and operating of the project have been identified in Section 14.6.</p> <p>Landscape &amp; Visual – The direct and indirect impact of the construction and operating phases of the project have been considered in the assessment in Section 15.6 and 15.7 and Table 15.5, 15.8 to 15.10.</p> <p>Cultural Heritage – both direct and indirect impacts on cultural heritage resources have been considered as part of the impact assessment in Section 16.5.</p> <p>Health – The hazard and exposure due to air pollutants are discussed in Section 17.2.3 and 17.2.4. Direct health impact associated with aircraft noise (key as annoyance, sleep disturbance and cognitive effect) is discussed in Section17.3.4.</p>
5.2 Does the information include consideration of whether effects will arise as a result of "consequential" development i.e. whether additional development, which it would be difficult to resist, will be included in the area, leading to further environmental effects ? For a project with multiple stages, are the impacts caused by overlapping of different stages considered and determined ?	✓		<p>Air Quality – Air quality impacts during the entire construction period (2015 – 2023) have been assessed. During operation phase, the air quality impacts have been assessed for the worst case year, which is determined based on the air pollution emission trend from 2012 to 2038 covering different stages of the project.</p> <p>Hazard to Human Life – the ongoing midfield development is considered as additional development and it has been included in the cumulative individual risk estimation.</p> <p>Noise – Consequential developments have been considered and associated cumulative impacts assessed.</p> <p>Water Quality – consequential developments as a result of the project have already been incorporated as part of the project. Water quality assessments are based on worst case scenarios for construction phase and ultimate completion scenario for operation phase, when potential water quality impacts are greatest.</p> <p>Sewage – sewage impact assessments are based on worst case scenarios for the project.</p> <p>Waste – Relevant construction activities and construction programme have been carefully planned and developed.</p> <p>Sections 10.4.1.8 and 10.5.1.1 described efforts to be made in minimising off-site disposal of C&amp;D materials and maximise reuse within the project.</p> <p>Land Contamination – not applicable</p> <p>Terrestrial Ecology – consequential developments as a result of the project have been considered.</p> <p>Marine Ecology – consequential developments as a result of the project have been considered, especially for the potential construction phase impact due to the advance submarine cable diversion and pipeline diversion, phasing of land formation works and seawall construction works.</p> <p>Fisheries – consequential developments as a result of the project have been considered, especially for the potential construction phase impact due to the advance submarine cable diversion and pipeline diversion, phasing of land formation works and seawall construction works.</p> <p>Landscape &amp; Visual – There is no "consequential" development due to the 3RS. All project components associated with the 3RS are assessed as one project. As the landscape and visual assessment is based on worst case scenario consideration of overlapping of different stages is not applicable.</p> <p>Cultural Heritage – consideration of consequential development due to other projects is outside the scope of the cultural heritage impact assessment.</p> <p>Health – Not applicable.</p>
5.3 Have the above types of impacts been investigated in so far as they affect the following: - air and climate; - water and soils;	✓		<p>Air Quality – Air quality impacts due to the project have been assessed in Chapter 5.</p> <p>Hazard to Human Life – impacts on people and communities has been studied and the corresponding individual risk level and societal risk level have been evaluated.</p> <p>Noise – noise impacts have been investigated in Chapter 7.</p>



TM Issues	Status		Remarks
	Yes	No	
<ul style="list-style-type: none"> <li>- noise;</li> <li>- landscape;</li> <li>- ecology;</li> <li>- historic and cultural heritage;</li> <li>- land use;</li> <li>- impacts on people and communities;</li> <li>- impacts on agriculture and fisheries activities.</li> </ul>			<p>Water Quality – impacts to water quality have been investigated and addressed in Chapter 8.</p> <p>Sewage – impacts to existing public sewerage system water quality have been investigated and addressed in Chapter 9.</p> <p>Waste – Impact assessment of the waste generation of has been carried out and discussed in Section 10.4.1.18, 10.4.1.22, 10.4.1.60 and 10.4.1.62.</p> <p>Land Contamination – The impact of land contamination from construction and operation phase are discussed in Section 11.5.</p> <p>Terrestrial Ecology – impacts to terrestrial ecology have been investigated and addressed in Chapter 12.</p> <p>Marine Ecology – impacts to marine ecology have been investigated and addressed in Chapter 13.</p> <p>Fisheries – impacts to capture and culture fisheries activities have been investigated and addressed in Chapter 14.</p> <p>Landscape &amp; Visual – The impacts on the landscape have been investigated in Chapter 15 of the report.</p> <p>Cultural Heritage – impacts to cultural heritage have been investigated in Chapter 16.</p> <p>Health – Health impact to human due to air pollutants and noise has been assessed in Chapter 17.</p>
5.4 If any of the above are not of concern in relation to the specific project and its location is this clearly stated in the information ?	✓		All of the above are of potential concern in relation to the project and have been evaluated accordingly.
5.5 Is the investigation of each type of impact appropriate to its importance for the decision, avoiding unnecessary information and concentrating on the key issues ?	✓		<p>Air Quality – The investigation of air quality impact has been carried according to the EIA Study Brief requirements and is therefore appropriate to its importance for the decision. Chapter 5 has been prepared to focus on the key air quality issues and to avoid unnecessary information.</p> <p>Hazard to Human Life – the potential impact caused by both jet fuel and petrol is the fire hazard to the public and workers and it has been carefully studied from Section 6.10 to 6.13.</p> <p>Noise – the significance and importance of each type of noise impact has been considered to determine the level of investigation and hereby focusing on the key issues and avoiding presentation of unnecessary.</p> <p>Water Quality – the level of investigation of each type of impact has taken into account the significance of that impact, hence some impacts are quantitatively assessed while others are qualitatively assessed. Assessments focus on the key compliance requirement and unnecessary information / results have been avoided.</p> <p>Sewage – the level of investigation has focused on the impact to the public sewerage systems including Siu Ho Wan Sewage Treatment Works, Tung Chung Sewage Pumping Station and gravity sewers from airport discharge manhole to Tung Chung Sewage Pumping Station due to the project.</p> <p>Waste – The investigation of each type of impact is appropriate to its importance for the decision, avoiding unnecessary information and concentrating on the key issues.</p> <p>Land Contamination – The investigation of each type of impact is appropriate to its importance for the decision, avoiding unnecessary information and concentrating on the key issues.</p> <p>Terrestrial Ecology – the investigation of each type of impact was focused on the key ecological sensitive receivers and habitats.</p> <p>Marine Ecology – the investigation of each type of impact was focused on the key ecological sensitive receivers and habitats. Habitats that further away from the project area that considered indirect impact is unlikely were not specifically assessed.</p> <p>Fisheries – the investigation of each type of impact was focused on the key sites of fisheries importance including the spawning area of commercial fisheries resources in north Lantau waters, SCLKC Marine Park, ARs at SCLKCMP and relocation of ARs proposed at BMP, Ma Wan Fish Culture Zone, the area of high production of capture fisheries off Tai O, planned Brothers Marine Park and the oyster production area at Deep Bay mudflat.</p> <p>Landscape &amp; Visual – The investigation for each impact is appropriate outlined in Section 15.4.</p> <p>Cultural Heritage – the investigation has focused on marine archaeology as this is the main concern due to land formation. For terrestrial cultural heritage, a more basic investigation was adopted as there is limited potential for impacts to terrestrial cultural heritage due to the project.</p> <p>Health – the investigation for air quality has focused on criteria pollutants and TAPs, and the investigation for noise has focused on the annoyance and sleep disturbance arising due to operation of project.</p>
5.6 Are impacts which may not be themselves significant, but which may contribute incrementally to a significant effect considered ?	✓		<p>Air Quality – During the construction phase, the cumulative air quality impacts due to construction works of the 3RS project and the concurrent projects as well as from the background emissions have been quantified and assessed. During the operation phase, the cumulative air quality impacts from airport related activities, proximity infrastructure and ambient emissions have been predicted and assessed.</p> <p>Hazard to Human Life – event tree analysis has been adopted in the current study to systematically examine a chronological series of subsequent events or consequence should a hazardous scenario happen.</p> <p>Noise – Cumulative fixed noise sources and construction noise impacts have been considered.</p> <p>Water Quality – cumulative impacts have been considered and incorporated into relevant assessments.</p> <p>Sewage – impacts to public sewerage system due to the project are the only area to be considered.</p> <p>Waste – All the impacts related to waste management are considered in Chapter 10.</p> <p>Land Contamination – All the impacts related to land contamination are considered in Chapter 11.</p> <p>Terrestrial Ecology – the potential impact of habitat enhancement that may attract land birds was assessed.</p> <p>Marine Ecology – secondary impacts due to the proposed mitigation measures and cumulative impacts were also assessed.</p> <p>Fisheries – secondary impacts due to the operation of the future HKIAAA and cumulative impacts were also assessed.</p> <p>Landscape &amp; Visual – All landscape and visual impacts have been considered and reflected in the findings of the assessment.</p> <p>Cultural Heritage – impacts to cultural heritage due to the project are considered as a whole (i.e. the full operation phase of the project).</p> <p>Health – the effect on health due to air pollutants and noise are based on full operation of the project. For air quality, this has taken into account airport related activities, proximity infrastructure and ambient emission.</p>

TM Issues	Status		Remarks
	Yes	No	
5.7 Does the information include a description of the methods/approaches used to identify impacts and the rationale for using them ?	✓		<p>Air Quality – Details of the methods and approaches used to identify and assess air quality impacts and the rationale for using them are described in Sections 5.2.3 to 5.2.4, and 5.3.3 to 5.3.7.</p> <p>Hazard to Human Life – the hazards associated with the new aviation fuel hydrant system and the petrol filling station are identified through a desktop review of historical worldwide and local accident database and through a hazard identification workshop using Structured-What-If Technique (SWIFT). Detailed information is provided in Section 6.8.</p> <p>Noise – the methods / approaches used to identify impacts and the rationale for using them are described in Section 7.3.3, 7.4.7, 7.5.4, 7.6.3 and 7.7.3.</p> <p>Water Quality – the methods / approaches used to assess impacts are described in Section 8.6.</p> <p>Sewage – the methods / approaches used to assess impacts are described in Section 9.2.</p> <p>Waste – The assessment methodology of the waste management issues associated with construction and operation phases is described in Section 10.3.</p> <p>Land Contamination – The assessment methodology of land contamination issues associated with construction and operation phases is described in Section 11.4.</p> <p>Terrestrial Ecology – the methodology for ecological impact assessment following the guideline as stipulated in EIAO-TM Annexes 8 and 16 and was described in Section 12.6.1.</p> <p>Marine Ecology – the methodology for ecological impact assessment following the guideline as stipulated in EIAO-TM Annexes 8 and 16 and was described in Section 13.6.</p> <p>Fisheries – the methodology for fisheries impact assessment following the guideline as stipulated in EIAO-TM Annexes 9 and 17 and was described in Section 14.5.</p> <p>Landscape &amp; Visual – The landscape and visual impact assessment includes clear methodology and rational in Section 15.1, 15.3 and 15.4 which is in accordance with the Environmental Impact Assessment Ordinance (EIAO), the Technical Memorandum on EIA Process (TM-EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012),</p> <p>Cultural Heritage – the methods and approaches used to identify cultural heritage resources are described in Section 16.3 and are in accordance with the EIA Study Brief requirements.</p> <p>Health – A description of the methods and approaches used to identify impacts and the rationale for using them is described in Chapter 17 of the report.</p>
5.8 If the nature of the project is such that accidents are possible which might cause severe damage within the surrounding environment, has an assessment of the probability and likely consequences of such events been carried out and the main findings reported ?	✓		<p>Hazard to Human Life – frequency analysis and consequence analysis have been carried out for the hazardous scenarios and the main findings haven been reported. Please refer Section 6.8 to 6.13.</p> <p>Water Quality – the likelihood of accidental fuel spillage from the submarine aviation fuel pipeline leading to pollution of the marine environment has been reviewed and identified as extremely low. The findings are reported in Section 8.7.2.</p> <p>Waste – Assessment of the probability and likely consequences of has been carried out and discussed in Section 10.4.1.18, 10.4.1.22, 10.4.1.60 and 10.4.1.62.</p> <p>All other technical chapters – not applicable</p>
Magnitude of Impacts			
5.9 Are impacts described in terms of the nature and magnitude of the change occurring and the nature (location, number, value, sensitivity) of the affected receiver ?	✓		<p>Air Quality – During both construction and operation phases of the project, the predicted cumulative air quality impacts at the identified air sensitive receivers have been quantified and assessed against the relevant criteria and standards. Details of the assessment findings are presented in Sections 5.2.5 and 5.3.9.</p> <p>Hazard to Human Life – hazardous impacts of jet fuel and petrol to the surrounding population have been described and quantified. Details can be referred to Section 6.8 to 6.13.</p> <p>Noise – predicted fixed noise sources and construction noise impacts have been described in terms of dB(A) at all representative noise sensitive receivers. Aircraft noise impacts have been presented in the form of contours in a map.</p> <p>Water Quality – the predicted maximum /average concentration of each assessment parameter and the frequency of exceedance of the relevant criteria are presented and described for the affected receiver as part of the construction and operation phase quantitative assessments. Operation phase results are also compared with historical background levels to assess the significance of the change.</p> <p>Sewage – not applicable</p> <p>Waste – Quantity, quality and timing of waste generation from construction phase (inert C&amp;DM, non-inert C&amp;DM, excavated marine sediment, chemical waste, general refuse and floating refuse) are summarised in Table 10.15. Section 10.4.2 covers timing of waste generation from operation phase (chemical waste, general refuse, floating refuse and sludge).</p> <p>Land Contamination – Potential contaminated land uses were identified on the areas where construction activities will be carried out on part of the existing airport island and the Sha Chau Island, there land contamination assessment and proposed measures are provided in Chapter 11.</p> <p>Terrestrial Ecology – The degree of impact was described according to EIAO-TM Annex 8 with consideration of the habitat quality, importance of the species to be affected, size of the habitat/abundance of the species to be affected, duration of the impact, reversibility of the impacts and magnitude of the environmental changes. Summary of impact evaluation are provided in Table 12.4 to Table 12.11.</p> <p>Marine Ecology – The impact severity was described according to EIAO-TM Annex 8 with consideration of the habitat quality, importance of the species to be affected, size of the habitat/abundance of the species to be affected, duration of the impact, reversibility of the impacts and magnitude of the environmental changes. Summary of impact evaluation are provided in Table 13.28 to Table 13.29.</p> <p>Fisheries – The impact severity was described according to EIAO-TM Annex 9 with consideration of the nature of impact, size of affected area, loss of fisheries resources/production, destruction and disturbance of nursery and spawning grounds, impact on fishing activity and impact on aquaculture activity. Summary of impact evaluation are provided in Tables 14.5 and 14.6.</p> <p>Landscape &amp; Visual – Impacts are described in terms of nature and magnitude of change in conformance to the methodology described in Section 15.4. The landscape and visual impact assessment describes these in Sections 15.6, 15.7, 15.8 and 15.10.</p> <p>Cultural Heritage – the findings of the geophysical survey (including location, number and interpretation of the potential marine archaeological find) are</p>

TM Issues	Status		Remarks
	Yes	No	
			presented in Section 16.5. Health – the health impact due to air pollutants is evaluated and presented as risk factors and percentage of population affected. The health impact due to noise is evaluated as the change resulted by the project comparing the case in the absence of the project. Results including the areas affected are presented as NEF contours.
5.10 Has the timescale over which the effects will occur been predicted such that it is clear whether impacts are short, medium or long term, temporary or permanent, reversible or irreversible?	✓		Air Quality – Depending on the air pollutants, the relevant short-term (e.g., 10-minute average SO <sub>2</sub> , hourly NO <sub>2</sub> ), medium-term (e.g., daily RSP, daily FSP) and long-term (e.g., annual RSP, annual FSP, annual NO <sub>2</sub> ) air quality impacts due to the project have been assessed. Hazard to Human Life – the fire hazard due to jet fuel and petrol is short and temporary. The impact to human life can be fatal. The analysis has been given from Section 6.8 to 6.13. Noise – Construction noise impacts at the NSRs have been predicted for the entire construction programme. Fixed noise sources noise impacts during day time, evening time and night time under different airport operation modes (including interim and worst case) have been assessed. Impacts in interim phase, worst case scenario and design capacity scenario are predicted. Water Quality – for construction phase, the frequency of exceedances are presented to indicate the duration of impact. For operation phase, water quality parameters are modelled over a one year period to determine the long term changes due to the project. Sewage – not applicable Waste – The impact will occur during the waste generation during construction and operation phase. Land Contamination – the impact will occur during excavation of soil during construction phase only. Terrestrial Ecology – the duration and reversibility of the impact have been considered in evaluating the impact significance. Marine Ecology – the duration and reversibility of the impact have been considered in evaluating the impact significance. Fisheries – the nature of impacts including permanent or temporary, reversibility and duration have been considered in evaluating the impact significance. Landscape & Visual – The timescale over which the effects will occur has been described in Sections 15.6 & 15.7 & Tables 15.5, 15.815.9, 15.10. Cultural Heritage – impacts to cultural heritage due to the project are considered as a whole (i.e. the full operation phase of the project). Health – the impact assessment is based on full operation phase of the project. Noise impacts are specified in health metrics as Lden, Lnight and Leq,16hr.
5.11 Where possible, have predictions of impacts been expressed in quantitative terms ? Otherwise, have qualitative descriptions been defined ?	✓		Air Quality – During both construction and operation phases of the project, the predicted cumulative air quality impacts at the identified air sensitive receivers have been quantified and assessed against the relevant criteria and standards. Details of the assessment findings are presented in Sections 5.2.5 and 5.3.9. Hazard to Human Life – consequence modelling has been conducted to assess the hazard distance and the corresponding fatality rate for each hazardous scenario. Please refer Section 6.8 to 6.13. Noise – Fixed noise sources noise and construction noise impacts have been predicted in quantitative terms. Qualitative descriptions for road traffic noise and marine traffic noise have been defined. Aircraft noise impacts have been predicted in terms of NEF contours. Water Quality – both quantitative and qualitative assessments have been adopted. For qualitative assessments, reference is made to quantitative information to support the analysis where applicable. Sewage – the sewage impact assessment is based on the quantitative analysis in accordance with the guidance of EPD. Waste – The quantities of waste to be generated in construction and operation phase are identified in Table 10.15 and Section 10.4.2. Land Contamination – As some of the potential contaminated sites are inaccessible and some of the sites are still in operation, SI works cannot be undertaken at this stage. Further site reconnaissance will be conducted for the inaccessible areas to determine the amount of contaminated soil (if any). Subject to the reconnaissance findings, a supplementary CAP (if necessary) may be prepared and submitted to EPD for endorsement. Terrestrial Ecology – Quantitative impacts have been predicted where possible based on the field survey findings. Qualitative descriptions have also been provided where quantification is not feasible. Marine Ecology – Quantitative impacts have been predicted where possible based on the field survey findings. Qualitative descriptions have also been provided where quantification is not feasible. Fisheries – Quantitative impacts have been predicted where possible based on the field survey findings. Qualitative descriptions have also been provided where quantification is not feasible. Landscape & Visual –The methodology for the predictions is in accordance with the Environmental Impact Assessment Ordinance (EIAO), the Technical Memorandum on EIA Process (TM-EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012). The predictions of landscape impacts have been expressed in quantitative terms (where possible) in the landscape assessment in Sections 15.5.4, 15.5.5, 15.6.2, 15.6.3 & Tables 15.2, 15.3, 15.5. Qualitative descriptions of impacts have been described in the landscape and visual assessments in Sections 15.6.5, 15.7.2, 15.7.5, 15.7.6, 15.7.8 & Tables 15.4, 15.9, 15.10 Cultural Heritage – the number of potentially affected cultural heritage features are quantified. Direct impacts are quantitative (i.e. number of features directly affected) while indirect impacts are qualitatively assessed. Health – predictions of impacts have been expressed as risk factor and percentage of population affected.
5.12 Where quantitative predictions have been provided, is the level of uncertainty attached to the results described ?	✓		Air Quality – The construction phase air quality modelling limitations and assumptions are documented in Section 5.2.4. The level of uncertainty associated with operation phase air quality modelling has been addressed through model validation, as detailed in Section 5.3.8 and Appendix 5.3.19-1. Hazard to Human Life – uncertainty analysis is provided and the potential uncertainty has been minimized by adopting conservative assumption/parameters and this gives confidence that the risk level will not exceed Hong Kong Risk Guidelines. Noise – Noise impacts in interim phase, worst case scenario and design capacity scenario are predicted in order to address possible future circumstances of HKIA operations. Water Quality – quantitative assessments are based on worst case scenarios and assumptions that are described in Section 8.6. The level of uncertainty is considered as part of the analysis of results in Section 8.7.

TM Issues	Status		Remarks
	Yes	No	
			<p>Sewage – quantitative assessments are based on worst case scenarios and assumptions that are described in Section 9.6.</p> <p>Waste – estimates of waste quantities due to the project are based on scheme design estimates, which are based on the best available information at the time.</p> <p>Land Contamination – not applicable.</p> <p>Terrestrial Ecology – quantitative assessments are based on worst case scenarios, a certain level of assumptions have been made in some occasions with support of literature.</p> <p>Marine Ecology – quantitative assessments are based on worst case scenarios, a certain level of assumptions have been made in some occasions with support of literature.</p> <p>Fisheries – quantitative assessments are based on worst case and conservative scenarios, a certain level of assumptions have been made in some occasions with support of literature.</p> <p>Landscape &amp; Visual – Quantitative predictions are based on worst case scenario therefore this is not applicable.</p> <p>Cultural Heritage – the level of uncertainty associated with the marine archaeological investigation in terms of the archaeological potential of identified sonar and magnetic contacts are described in Section 16.5.</p> <p>Health – uncertainty, including on traffic forecast, assumptions made, etc, is discussed in Section 17.2.8 and 17.3.7.</p>
Data and Methods			
5.13 Have the methods used to predict the nature, size and scale of impacts been described and are they appropriate to the importance of each projected impact ?	✓		<p>Air Quality – The methods used to predict the nature, size and scale of air quality impacts are developed according to the EIA Study Brief requirements and have been agreed by EPD. Details of the assessment methods are described in in Sections 5.2.4, and 5.3.5 to 5.3.7.</p> <p>Hazard to Human Life – the methods used to predict the nature, size and scale of impacts have been presented from Section 6.10 to 6.13.</p> <p>Noise – the methods / approaches used to identify impacts and the rationale for using them are described in Section 7.3.3, 7.4.7, 7.5.4, 7.6.3 and 7.7.3, and are in accordance with the EIA Study Brief requirements and/or agreed with relevant statutory bodies.</p> <p>Water Quality – the methods adopted to predict the water quality impacts are described in Section 8.6 and follows the requirements of the EIA Study Brief. For assessment of accidental spillage from the submarine aviation fuel pipeline, this has been qualitatively assessed after consideration of the design and construction method which would substantially reduce the likelihood and risk of water quality impacts.</p> <p>Sewage – the methods adopted to predict the sewage impacts are described in Section 8.5 and follows the requirements of the EIA Study Brief.</p> <p>Waste – The assessment methodology of the waste management issues associated with construction and operation phases is described in Section 10.3.</p> <p>Land Contamination – The assessment methodology of land contamination issues associated with construction and operation phases is described in Section 11.4.</p> <p>Terrestrial Ecology – The methods used to predict the nature, size and scale of impacts been described in Section12.6.1 and in accordance to EIAO-TM Annex 8.</p> <p>Marine Ecology – The methods used to predict the nature, size and scale of impacts been described in Section13.6 and in accordance to EIAO-TM Annex 8.</p> <p>Fisheries – The methods used to predict the nature, size and scale of impacts been described in Section14.5 and in accordance to EIAO-TM Annex 9.</p> <p>Landscape &amp; Visual – The methodology for the predictions is in accordance with the Environmental Impact Assessment Ordinance (EIAO), the Technical Memorandum on EIA Process (TM-EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012). The methodology for the landscape and visual assessment in Section 15.4 reflects in quantitative and qualitative terms, the nature, size and scale of the impacts.</p> <p>Cultural Heritage – methods used for cultural heritage impact assessment are presented and described in Section 16.3. The methodology follows the requirements specified in the EIA Study Brief.</p> <p>Health – The methodology is detailed in Section 17.2.1 and 17.3.3, with reference to the findings of literature review.</p>
5.14 Are the data used to estimate the size and scale of the main impacts sufficient for the task, are they clearly described and have their sources been clearly identified ?	✓		<p>Air Quality – Details of the air quality assessment methods and the data used to predict the impacts are clearly documented and referenced, where appropriate, in Sections 5.2.4, and 5.3.5 to 5.3.7.</p> <p>Hazard to Human Life – all the data are either provided by AAHK, system designer or obtained from relevant study reports. The sources of information have been clearly specified throughout Chapter 6. Well-validated consequence modelling software such as PoolFire6 and PHAST have been used to estimate the size and scale of the impacts.</p> <p>Noise – The data used to estimate the aircraft noise and fixed noise sources and construction noise impacts are sufficient, described clearly and their sources been clearly identified.</p> <p>Water Quality – data used for the water quality assessment has been appropriately sourced and references to past approved EIA reports or other studies have been quoted where applicable.</p> <p>Sewage – data used for the sewage impact assessment has been appropriately sourced from the planning information from Planning Department or other studies have been quoted where applicable.</p> <p>Waste – The data used to estimate the size and scale of the main impacts are sufficient for the task, they are clearly described and have their sources been clearly identified in the chapter.</p> <p>Land Contamination – As some of the potential contaminated sites are inaccessible and some of the sites are still in operation, SI works cannot be undertaken at this stage. Further site reconnaissance will be conducted for the inaccessible areas to determine the amount of contaminated soil (if any). Subject to the reconnaissance findings, a supplementary CAP (if necessary) may be prepared and submitted to EPD for endorsement.</p> <p>Terrestrial Ecology – The size and scale of the main impacts were quantified as far as feasible and the scale of impacts was determined based on baseline conditions and clearly described in Sections 12.6.2 to 12.6.7.</p> <p>Marine Ecology – The size and scale of the main impacts were quantified as far as feasible and the scale of impacts was determined based on baseline conditions and clearly described in Sections 13.8 to 13.10.</p>



TM Issues	Status		Remarks
	Yes	No	
			<p>Fisheries – The size and scale of the main impacts were quantified as far as feasible and the scale of impacts was determined based on baseline conditions and clearly described in Section 14.7.</p> <p>Landscape &amp; Visual – This is not applicable</p> <p>Cultural Heritage – size and scale of cultural heritage impacts are based on project information (e.g. project area and construction activities). Sufficient information on the project activities have been obtained from AAHK and the scheme design consultants to describe and assess the potential cultural heritage impacts.</p> <p>Health – Data used to estimate the size and scale of the main impacts are referenced from Chapter 5 and 7. Uncertainty analysis has also been performed and presented in Section 17.2.8 and 17.3.7.</p>
<b>6. Mitigation</b>			
Description of Mitigating Measures			
6.1 Has the mitigation of significant negative impacts been considered and, where feasible, have specific measures been proposed to address each impact ?	✓		<p>Air Quality – Specific and practicable mitigation measures during the construction phase have been recommended, as detailed in Section 5.2.6. During operation phase, AAHK's initiatives to reduce air pollutant emissions from airport operation and activities are detailed in Section 5.3.11.</p> <p>Hazard to Human Life – mitigation has been considered. An ALARP assessment workshop has been conducted with the AAHK to identify all potential mitigation measures with their practicalities being discussed. A cost benefit analysis has also been conducted. Please refer to Section 6.15.</p> <p>Noise – Mitigation measures have been considered and proposed to alleviate predicted noise impacts, and are discussed in Section 7.3.5 (aircraft noise), 7.4.9 (fixed noise sources) and 7.5.6 (construction noise).</p> <p>Water Quality – specific mitigation measures have been recommended to address relevant impacts. These are listed in Section 8.8.</p> <p>Sewage – adequate mitigation measures have been recommended to the sewage impacts due to the project.</p> <p>Waste – Mitigation measures for both construction phase and operation phase for each type of waste to be generated are identified in Section 10.5.</p> <p>Land Contamination – Mitigation measures are proposed for handling the contaminated materials (if any) are identified in Section 11.8.</p> <p>Terrestrial Ecology – Mitigation measures for specific impacts and general avoidance and minimisation measures were presented in Section 12.7.</p> <p>Marine Ecology – Mitigation measures for specific impacts and general avoidance and minimisation measures were presented in Section 13.11.</p> <p>Fisheries – Mitigation measures for specific impacts and general avoidance and minimisation measures were presented in Section 14.9.</p> <p>Landscape &amp; Visual – Mitigation measures for adverse impacts has been proposed and included in the report. Mitigation measures for both landscape and visual impacts are described in Section 15.6.4 &amp; Tables 15.6 &amp; 15.7.</p> <p>Cultural Heritage – as presented in Section 16.6, the cultural heritage assessment identified no impacts to cultural heritage resources due to the project, hence no mitigation measures are required.</p> <p>Health – Section 17.2.7 and 17.3.3 presents the recommended mitigation measures, and references have been made to the recommended mitigation measures in Chapter 5 and 7.</p>
6.2 Have the reasons for choosing the particular type of mitigation, and the other options available, been described ?	✓		<p>Air Quality – The construction phase mitigation measures are recommended based on the impact assessment findings and the mitigated air quality impacts have been assessed, as detailed in Section 5.2.5.</p> <p>Hazard to Human Life – the reasons have been described as shown in Section 6.15.</p> <p>Noise – proposed noise mitigation measures are standard measures that have been proposed in past EIAs and are well established and accepted. Rationales for aircraft noise reduction measures have been described in Section 7.3.5.</p> <p>Water Quality – for construction phase impacts due to suspended solids release, consideration of the appropriate mitigation measures have been presented in Appendix 8.9. For other impacts, the mitigation measures proposed are generally standard measures that are well established and accepted.</p> <p>Sewage – not applicable</p> <p>Waste – The reasons for choosing mitigation measures for each type of waste to be generated from the project are identified in each sub-section under Section 10.5.</p> <p>Land Contamination – Possible remediation measures are identified in Section 11.7.</p> <p>Terrestrial Ecology – Specific measure for avoid and minimise the Sha Chau Egret were described, alternative options were also described in Section 12.7.2.</p> <p>Marine Ecology – Specific measures for mitigating the CWDs and other marine ecology were described. Alternative land formation layout and construction methods were also described in Section 13.11.</p> <p>Fisheries – The reasons for proposing the establishment of marine park as mitigation for loss of fisheries habitats, resources and fishing ground were described in Section 14.9. Alternative land formation layout and construction methods were also described in Section 14.9.</p> <p>Landscape &amp; Visual – The reasons for choosing mitigation measures are described in Section 15.6.4 &amp; Tables 15.6 &amp; 15.7.</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – Section 17.2.7 and 17.3.3 presents the reasons for the mitigation measures.</p>
6.3 Where mitigating measures are proposed, has the significance of any impact remaining after mitigation been described ?	✓		<p>Air Quality – The mitigated air quality impacts during construction phase have been assessed, as detailed in Sections 5.2.5 and 5.2.7.</p> <p>Hazard to Human Life – the risk reduction for each practicable and cost effective measure has been evaluated as shown in Table 6-44. Residual societal risk level has been estimated and shown in Figure 6-38.</p> <p>Noise – The significance of any impact after mitigation has been assessed and described where applicable in Sections 7.3.6.1, 7.4.10.1 and 7.5.7.1.</p> <p>Water Quality – the significance of any impacts after mitigation has been assessed as part of the evaluation of water quality impacts in Section 8.7.</p>

TM Issues	Status		Remarks
	Yes	No	
			<p>Sewage – the significance of any impacts after mitigation has been assessed in Section 9.7</p> <p>Waste – With the implementation of the recommended mitigation measures for the handling, transportation and disposal of the identified waste arising, the evaluation of adverse impact is described in Section 10.6.</p> <p>Land Contamination – The evaluation of adverse impact is described in Section 11.9.</p> <p>Terrestrial Ecology – Section 12.9 described, with the recommended mitigation measures in place, the impact to Sha Chau egretty will be minimised to low levels and no adverse residual impacts are anticipated during both construction and operation phases.</p> <p>Marine Ecology – Section 13.14 described the residual impacts with the implementation of proposed mitigation measures and concluded that with further compensation measure, the residual impacts could be reduced to acceptable levels.</p> <p>Fisheries – Section 14.10 described the proposed establishment of new Marine Park to compensate for the permanent loss of fisheries habitats, no adverse residual impact on loss of fisheries habitats is anticipated. There will be a positive impact on the conservation of fisheries resources with the connection of existing and planned Marine Parks in place.</p> <p>Landscape &amp; Visual – The significance of impacts after the implementation of mitigation measures is described and assessed in the report in Sections 15.6.5, 15.7.7 15.7.8 &amp; 15.10 &amp; Tables 15.8, 15.10</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – No residual impact was predicted.</p>
6.4 Where appropriate, do mitigation methods considered include modification of project design, construction and operation, the replacement of facilities/resources, and the creation of new resources, as well as "end-of-pipe" technologies for pollution control ?	✓		<p>Air Quality – Construction phase mitigation measures including good site management and practices, dust control measures and best practices for relevant Specified Processes, have been recommended, as detailed in Section 5.2.6. During operation phase, AAHK's initiatives to reduce air pollutant emissions from airport operation and activities are detailed in Section 5.3.11.</p> <p>Hazard to Human Life – considering the risk level is low and complied with the Hong Kong Risk Guideline, those mitigation methods are not required.</p> <p>Noise – modification of runway operation has been considered as a form of mitigation measures to alleviate potential aircraft noise impact as described in Section 7.3.3.11.</p> <p>Water Quality – mitigation measures have included recommendations for design, construction and operation of the relevant project components / facilities where applicable.</p> <p>Sewage – mitigation measures have included recommendations for design and construction of the affected sewerage infrastructures.</p> <p>Waste – Sections 10.5.1.7 to 10.5.1.17 – description of treatment/recycling methods of excavated marine sediments. Section 10.4.1.23 – land formation will be carried out by non-dredged methods. Section 10.4.1.24 – fuel pipelines to be constructed by HDD. Section 10.4.1.26 – cables to be installed by jetting. Table 10.16 – summary of waste avoidance / reduction.</p> <p>Land Contamination – not applicable</p> <p>Terrestrial Ecology – Alternative layout design and construction methods were described.</p> <p>Marine Ecology – Alternative layout design and construction methods were described.</p> <p>Fisheries – Alternative layout design and construction methods were described.</p> <p>Landscape &amp; Visual – Mitigation measures described in the report do involve the modification of project design, construction and operation and the replacement of facilities/resources and pollution control. The mitigation measures are listed in tables 15.6 &amp; 15.7 of the report.</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – mitigation measures have included recommendations for operating procedures where applicable.</p>
6.5 Is it clear to what extent the mitigation methods will be effective ?	✓		<p>Air Quality –The mitigated air quality impacts during construction phase have been assessed, as detailed in Sections 5.2.5 and 5.2.7.</p> <p>Hazard to Human Life – the risk reduction for all practicable and cost effective mitigation measures have been evaluated as shown in Table 6-44.</p> <p>Noise – the noise impacts after implementation of mitigation measures have been assessed quantitatively, allowing comparison with predicted unmitigated noise impacts. The effectiveness of aircraft noise mitigation measures have been assessed and demonstrated through the extent and shape of contours in prevailing condition, interim operation mode, worst operation mode and design capacity mode.</p> <p>Water Quality – the effectiveness of silt curtains are uncertain and would be subject to silt curtain efficiency testing as part of the environmental monitoring and audit programme. Other mitigation measures are generally standard measures that are well established and demonstrated to be effective.</p> <p>Sewage – the mitigation measures are generally standard measures that are common practice to be effective.</p> <p>Waste – The mitigation methods will be effective when waste is generated as described in section 10.5.</p> <p>Land Contamination – The mitigation methods will be effective when contaminated materials is found as described in section 11.8.</p> <p>Terrestrial Ecology – Effectiveness of proposed avoidance and minimisation of disturbance to Sha Chau Egretty is subject to the confirmation of Egretty boundary prior to the commencement of HDD construction.</p> <p>Marine Ecology – The effectiveness of the proposed mitigation methods is subject to an EM&amp;A programme with adaptive management.</p> <p>Fisheries – The effectiveness of the mitigation measures proposed is subject to the adaptive management to be implemented for the proposed marine park.</p> <p>Landscape &amp; Visual – Specific mitigation measures are identified for each individual Landscape Resource, Landscape Character Area and Visually Sensitive Receiver in Tables 15.8 and 15.10. These proposed mitigation measures are also illustrated on drawings MCL/P132/EIA/15-028.1 to MCL/P132/EIA/15-028.6. Tables 15.6 and 15.7 describe each of the proposed mitigation measures.</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – Section 17.2.7 and 17.3.4 discuss the effectiveness of the mitigation measures.</p>
6.6 Where the effectiveness is uncertain or depends on assumptions about operating procedures, climatic conditions, etc, or where there is a risk that mitigation will not work, is	✓		<p>Air Quality – All the recommended mitigation measures have been assessed to be effective in achieving compliance with the relevant criteria, as detailed in Sections 5.2.5 and 5.2.7, and all these measures are feasible and practicable.</p>

TM Issues	Status		Remarks
	Yes	No	
this made clear and has data been introduced to justify the acceptance of the assumptions ?			<p>Hazard to Human Life – when the effectiveness of the mitigation measure cannot be justified due to lack of relevant historical data, conservative assumption will be taken to estimate the risk reduction. For example, since the effectiveness of the mitigation measure no. 5 in Table 6-44 is uncertain, its risk reduction is assumed to be zero.</p> <p>Noise – Worst case scenario and conservative approach has been adopted in noise impact assessment. Monitoring of the effectiveness of mitigation measures have been proposed in the EM&amp;A Manual. Section 7.3.3.12 has made clear that exact runway modes of the HKIA could be subject to the need of tactical situation and under contingency situations.</p> <p>Water Quality – the uncertainty surrounding the effectiveness of silt curtains have been clearly described and the justifications presented in Appendix 8.9.</p> <p>Sewage – conservative assumption has been taken for the implementation of mitigation measures.</p> <p>Waste – not applicable</p> <p>Land Contamination – not applicable</p> <p>Terrestrial Ecology – With the proposed pre-construction of HDD Egrettry monitoring to confirm the boundary of egrettry, it is considered the proposed mitigation measure will be effective in avoid and minimise the disturbance impact.</p> <p>Marine Ecology – The effectiveness of the proposed mitigation measures were justified with overseas and local experience. In addition, it is proposed to conduct CWDs monitoring during the pre-construction, construction, post-construction and operation phases to review the distribution and abundance trends for the CWDs. Adaptive management will be proposed with regular meetings with the Authorities in discussing the need for remediation actions.</p> <p>Fisheries – The effectiveness of the proposed mitigation measures were justified with overseas and local experience.</p> <p>Landscape &amp; Visual – This is not applicable.</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – Section 17.2.8 and 17.3.7 discuss the uncertainties assumed.</p>
Implementation of Mitigation Measures			
6.7 Have details of how the mitigation measures will be implemented and function over the time span for which they are necessary been presented ? Does the report list out clearly what mitigation measures would be implemented, by whom, when, where and to what requirements ? Is the responsibility for implementing the recommended mitigation measures clearly defined ?	✓		Implementation of mitigation measures including by whom, when, where and to what requirements are clearly listed out in Chapter 20 – Implementation Schedule.
Environmental Effects of Mitigation			
6.8 Have any adverse environmental effects of mitigation measures been investigated and described ?	✓		<p>Air Quality – The recommended mitigation measures will not give rise to adverse environmental effects.</p> <p>Hazard to Human Life – the proposed mitigation measures do not have any adverse environmental effects.</p> <p>Noise – No adverse environmental effects of mitigation measures are anticipated.</p> <p>Water Quality – no adverse effects of the proposed mitigation measures are anticipated.</p> <p>Sewage – Secondary environmental impacts associated with the construction works of the recommended gravity sewer upgrading works have been identified and properly addressed in Section 9.7.1.</p> <p>Waste – Adverse environmental effects of mitigation measures been investigated and described in Section 10.6.</p> <p>Land Contamination – Adverse environmental effects of mitigation measures been investigated and described in Section 11.9.</p> <p>Terrestrial Ecology – no adverse effects of the proposed mitigation measures are anticipated.</p> <p>Marine Ecology – The secondary impacts of the proposed high speed ferries route and speed diversion to the north of SCLCKMP has been investigated and described.</p> <p>Fisheries – There will not be secondary impacts on fishing ground loss as a result of the proposed marine park establishment, as the bona fide fishermen could still apply for a fishing permit from the Authorities to continue fishing within the marine park.</p> <p>Landscape &amp; Visual – There are no adverse environmental effects due to the landscape and visual mitigation measures, therefore this is not applicable</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – no adverse effects of the proposed mitigation measures are anticipated.</p>
6.9 Has the potential for conflict between the benefits of mitigating measures and their adverse impacts been considered ?	✓		<p>Air Quality – The recommended mitigation measures will not give rise to adverse environmental effects, and hence no potential conflict issues.</p> <p>Hazard to Human Life – the proposed mitigation measures do not have any adverse environmental effects.</p> <p>Noise – No adverse environmental effects of mitigation measures are anticipated.</p> <p>Water Quality – no adverse impacts to water quality resulting from implementation of the mitigation measures is anticipated.</p> <p>Sewage – Secondary environmental impacts associated with the construction works of the recommended gravity sewer upgrading works have been identified and properly addressed in Section 9.7.1., and no potential conflict issues are anticipated.</p> <p>Waste – Adverse environmental effects of mitigation measures been investigated and described in Section 10.6.</p> <p>Land Contamination – Adverse environmental effects of mitigation measures been investigated and described in Section 11.9.</p> <p>Terrestrial Ecology – no adverse effects of the proposed mitigation measures are anticipated.</p> <p>Marine Ecology – The benefits and conflict of the secondary impacts of the proposed high speed ferries route and speed diversion to the north of SCLCKMP has been considered.</p> <p>Fisheries – There will not be secondary impacts on fishing ground loss as a result of the proposed marine park establishment, as the bona fide fishermen could still apply for a fishing permit from the Authorities to continue fishing within the marine park.</p>

TM Issues	Status		Remarks
	Yes	No	
			<p>Landscape &amp; Visual – There are no adverse environmental effects due to the landscape and visual mitigation measures, therefore this is not applicable</p> <p>Cultural Heritage – not applicable as no mitigation measures are required.</p> <p>Health – no adverse impacts to health impact resulting from implementation of the mitigation measure is anticipated.</p>
<b>7. Evaluation of Residual Impacts</b>			
7.1 Have the available standards, assumptions and criteria which can be used to evaluate the impacts been discussed ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – the EIA Study Brief stipulates the use of the HK Risk Guideline as the risk criteria for the Chapter 6 and ALARP principle has to be complied if the risk level is within ALARP region.</p> <p>Noise – Standards and criteria available to be used for evaluating impacts have been discussed in Section 7.2. Assumptions used in assessing noise impacts have been described in Section 19.16.</p> <p>Water Quality – available standards and criteria used to evaluate water quality impacts are presented in Section 8.4.</p> <p>Sewage – Not applicable.</p> <p>Waste – The available standard and criteria is identified in Section 10.2.</p> <p>Land Contamination – The available standard and criteria is identified in Section 11.2.</p> <p>Terrestrial Ecology – the potential residual impact was evaluated according to EIAO-TM.</p> <p>Marine Ecology – the potential residual impact was evaluated according to EIAO-TM.</p> <p>Fisheries – the potential residual impact was evaluated according to EIAO-TM.</p> <p>Landscape &amp; Visual – The landscape and visual impact assessment has been determined in accordance with the Environmental Impact Assessment Ordinance (EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012) and other such legislation, standards and guidelines outlined in Section 15.2. Section 15.4.5 outlines the assumptions and limitations of the Landscape and Visual Impact Assessment.</p> <p>Cultural Heritage – the cultural heritage standards are presented in Section 16.2. Those relating to residual impacts are not applicable as no residual impacts are identified.</p> <p>Health – Section 17.2.2 and 17.3.2 discusses the standards and guidelines used. Those relating to residual impacts are not applicable as no residual impacts are identified.</p>
7.2 Have the predicted impacts been compared to the available standards and criteria ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – the predicted risk levels have been compared with the HK Risk Guidelines and ALARP assessment has been conduct since the risk level is within ALARP region.</p> <p>Noise – Predicted impacts have been compared against available standards and criteria.</p> <p>Water Quality – predicted impacts have been compared against the criteria to determine any adverse impacts due to the project.</p> <p>Sewage – not applicable as no residual impacts are identified.</p> <p>Waste – The available standard and criteria is identified in Section 10.2.</p> <p>Land Contamination – The available standard and criteria is identified in Section 11.2.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – the predicted impacts for marine ecology associated with water quality have been compared against the criteria adopted in Hong Kong and other international guidelines to determine any adverse impacts due to the project.</p> <p>Fisheries – the predicted impacts for fisheries associated with water quality have been compared against the criteria adopted in Hong Kong and other international guidelines to determine any adverse impacts due to the project.</p> <p>Landscape &amp; Visual – The predicted landscape and visual impacts have been compared to the available standards and criteria as described in Section 15.2.</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p>
7.3 Have the residual impacts, which are the net impacts with the mitigation measures in place, been described and evaluated against the available Government policies, standards and criteria ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – the residual risk level has been evaluated, which is shown in Figure 6-38, to be not exceeding the Hong Kong Risk Guideline.</p> <p>Noise – with the implementation of mitigation measures, no residual noise impacts have been predicted.</p> <p>Water Quality – based on the assessment findings, with the implementation of the recommended mitigation measures, there would be no significant or adverse residual water quality impact.</p> <p>Sewage – not applicable as no residual impacts are identified.</p> <p>Waste – No residual impact is anticipated as discussed in Section 10.6.</p> <p>Land Contamination – No residual impact is anticipated as discussed in Section 11.9.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – the predicted impacts for marine ecology associated with water quality have been compared against the criteria adopted in Hong Kong and other international guidelines to determine any adverse impacts due to the project. Residual impact assessment was conducted according to EIAO-TM.</p>



TM Issues	Status		Remarks
	Yes	No	
7.4 Have the residual impacts been discussed and evaluated in terms of the impact on the health and welfare of the local community and on the protection of environmental resources ?	✓		<p>Fisheries – the predicted impacts for fisheries associated with water quality have been compared against the criteria adopted in Hong Kong and other international guidelines to determine any adverse impacts due to the project. Residual impact assessment was conducted according to EIAO-TM.</p> <p>Landscape &amp; Visual – The residual impacts with and without mitigation measures have been described and evaluated the available government policies, standards and criteria and described in Sections 15.6.5, 15.7.7, 15.7.8, 15.8 &amp; 15.10 &amp; Tables 15.8 &amp; 15.10 of the report.</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p> <p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – not applicable.</p> <p>Noise – with the implementation of mitigation measures, no residual noise impacts have been predicted.</p> <p>Water Quality – not applicable (no significant / adverse residual impacts predicted).</p> <p>Sewage – not applicable as no residual impacts are identified.</p> <p>Waste – Not applicable.</p> <p>Land Contamination – Not applicable.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – the residual impact assessment for loss of CWD habitat was conducted according to EIAO-TM and detailed in Table 13-32.</p> <p>Fisheries – Section 14.10 described the proposed establishment of new Marine Park to compensate for the permanent loss of fisheries habitats, no adverse residual impact on loss of fisheries habitats is anticipated. There will be a positive impact on the conservation of fisheries resources with the connection of existing and planned Marine Parks in place.</p> <p>Landscape &amp; Visual – The welfare of the local community and protection of landscape and visual resources has been considered in the overall assessment of the residual impacts in Sections 15.6.5, 15.7.7, 15.7.8, 15.8 &amp; 15.10 &amp; Tables 15.8 &amp; 15.10 of the report.</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p>
7.5 Have the magnitude, location and duration of the residual impacts been discussed in conjunction with the value, sensitivity and rarity of the resource ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – the residual risk level of each hazardous facility has been given in Figure 6-37.</p> <p>Noise – Not applicable, no residual noise impacts have been predicted.</p> <p>Water Quality – not applicable (no significant / adverse residual impacts predicted).</p> <p>Sewage – not applicable as no residual impacts are identified.</p> <p>Waste – Not applicable.</p> <p>Land Contamination – Not applicable.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – the residual impact assessment for loss of CWD habitat was conducted according to EIAO-TM and detailed in Table 13-32.</p> <p>Fisheries – not applicable as no unacceptable residual impacts are identified.</p> <p>Landscape &amp; Visual – The sensitivity and rarity of the resources has been considered in the overall assessment of the residual impacts as described in Sections 15.6.5, 15.7.7, 15.7.8, 15.8 &amp; 15.10 &amp; Tables 15.8 &amp; 15.10 of the report.</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p>
7.6 Where there are no generally accepted standards or criteria for the evaluation of residual impacts, have alternative approaches been discussed and, if so, is a clear distinction made between fact, assumption and professional judgement ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – Hong Kong Risk Guidelines have been adopted as the risk criteria for Chapter 6.</p> <p>Noise – Not applicable, no residual noise impacts have been predicted.</p> <p>Water Quality – not applicable (no significant / adverse residual impacts predicted).</p> <p>Sewage – not applicable</p> <p>Waste – Not applicable.</p> <p>Land Contamination – Not applicable.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – the residual impact assessment for loss of CWD habitat was conducted according to EIAO-TM and detailed in Table 13-32.</p> <p>Fisheries – not applicable as no unacceptable residual impacts are identified.</p> <p>Landscape &amp; Visual – The evaluation of residual impacts follows the Environmental Impact Assessment Ordinance (EIAO), the Technical Memorandum on EIA Process (TM-EIAO) and the requirements of the EIA Study Brief (No. ESB-250/2012). Therefore this is not applicable.</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p>

TM Issues	Status		Remarks
	Yes	No	
7.7 Have the residual impacts, if any, arising from the implementation of the proposed mitigation measures, been considered ?	✓		<p>Air Quality – No adverse residual air quality impacts are anticipated as detailed in Sections 5.2.7 and 5.3.12, hence evaluation of residual impacts is not required.</p> <p>Hazard to Human Life – the proposed mitigation measures themselves do not cause any residual impact.</p> <p>Noise – Not applicable, no residual noise impacts have been predicted.</p> <p>Water Quality – not applicable (no significant / adverse residual impacts predicted).</p> <p>Sewage – not applicable</p> <p>Waste – Not applicable.</p> <p>Land Contamination – Not applicable.</p> <p>Terrestrial Ecology – not applicable as no residual impacts are identified.</p> <p>Marine Ecology – there will be no unacceptable residual impacts upon the establishment of proposed marine park for compensating the loss of marine habitats for CWDs.</p> <p>Fisheries – there will be no unacceptable residual impacts upon the establishment of proposed marine park for compensating the loss of fisheries habitats.</p> <p>Landscape &amp; Visual – There are no adverse environmental effects due to the mitigation measures, therefore this is not applicable</p> <p>Cultural Heritage – not applicable as no residual impacts are identified.</p> <p>Health – not applicable as no residual impact is predicted.</p>
<b>8. Environmental Monitoring and Audit Proposals</b>			
8.1 If impacts are uncertain, have monitoring arrangements been proposed to check the environmental impacts resulting from the implementation of the project and their conformity with the predictions made ?	✓		<p>Air Quality – As detailed in Section 5.4, regular construction dust monitoring has been recommended as part of the EM&amp;A programme whereas no additional operation phase air quality monitoring is considered necessary.</p> <p>Hazard to Human Life – implementation of the recommended mitigation measures are recommended to be checked as part of the environmental monitoring and audit procedures during the construction and operation phase.</p> <p>Noise – monitoring has been proposed to check construction noise impacts and aircraft noise impacts.</p> <p>Water Quality – for construction phase impacts due to suspended solids release, monitoring has been proposed as part of the environmental monitoring and audit programme to check the water quality during construction phase.</p> <p>Sewage – Monitoring of sewage flow build-up has been recommended as part of the EM&amp;A programme, as detailed in Section 9.8.</p> <p>Waste – A Waste Management Plan (WMP) should be prepared and implemented by the Contractor during construction phase and weekly inspection should be carried out along the artificial seawall during operation phase are identified in Section 10.7.</p> <p>Land Contamination –EM&amp;A is to be carried out in the form of regular site inspection during construction phase is discussed in Section 11.10.</p> <p>Terrestrial Ecology – pre-construction phase egretry monitoring at Sha Chau is proposed for confirming the boundary of the egretry for the determination of the need of shifting the daylighting location at Sha Chau.</p> <p>Marine Ecology – pre-construction coral dive survey is proposed for review the feasibility in translocation of coral communities. Pre-construction, construction, post-construction and operational phases monitoring for CWDs were also proposed for reviewing the distribution and abundance trend for CWDs. Adaptive management and marine park management plan will also be developed based on the EM&amp;A monitoring data.</p> <p>Fisheries – No specific fisheries monitoring is required for the proposed mitigation measures. However, as part of the Fisheries Enhancement Strategy, fisheries monitoring is proposed during the implementation of the proposed marine park, details will be determined during the detailed design of the marine park establishment.</p> <p>Landscape &amp; Visual – The uncertainty of the impact prediction is low, therefore there is no need for a monitoring programme therefore this is not applicable.</p> <p>Cultural Heritage – as no impacts are anticipated, no monitoring is required.</p> <p>Health – environmental monitoring is not required.</p>
8.2 Does the scale of any proposed monitoring arrangements correspond to the potential scale and significance of deviations from expected impacts ?	✓		<p>Air Quality – The scale and locations of recommended air quality monitoring work is based on the impact assessment findings as detailed in Section 5.4. Two construction air monitoring stations were proposed as a representative location for different construction area.</p> <p>Hazard to Human Life – no specific environmental monitoring arrangement is required.</p> <p>Noise – proposed monitoring arrangements have been determined based on findings from associated noise impact assessment and relevant criteria. Six construction noise monitoring locations were proposed, comprising of both residential and educational sensitive uses, and locations are spread across Tung Chung, Tin Sum and Sha Lo Wan as described in Section 4.12 of the EM&amp;A Manual.</p> <p>Water Quality – the scale of water quality monitoring has taken into account the scale of the project in determining the appropriate number and locations of monitoring stations. A total of 25 monitoring locations comprising 14 impact stations, eight sensitive receiver stations and three control stations) have been proposed for the construction and post-construction phases, while up to 12 additional monitoring stations will be adopted for the intensive DCM monitoring.</p> <p>Sewage – The recommended sewage flow build-up monitoring is based on the impact assessment findings as detailed in Section 9.6.</p> <p>Waste – not applicable.</p> <p>Land Contamination – not applicable.</p> <p>Terrestrial Ecology – The scale of the proposed monitoring arrangements correspond to the potential scale for daylighting works at Sha Chau.</p> <p>Marine Ecology – The scale of the pre-construction coral dive survey will cover the locations where direct impact along the northern seawall, adjacent northeastern seawall and proposed daylighting location. The scale of the CWDs vessel based transect monitoring will cover a larger extent of the project area to cover the northern Lantau, western Lantau and southwestern Lantau waters with the same transect routes as the AFCD long-term monitoring for marine</p>

TM Issues	Status		Remarks
	Yes	No	
			mammals. Fisheries – no specific fisheries monitoring is required. Landscape & Visual – Deviations of predicted impacts is low therefore this is not applicable Cultural Heritage – not applicable as no monitoring is required. Health – environmental monitoring is not required.
8.3 Is the need for and the scope of the monitoring and audit requirements defined in the report ?	✓		Air Quality – The need for and scope of air quality monitoring and audit work is detailed in Section 5.4. Hazard to Human Life – no specific environmental monitoring and audit is required, other than general checking of implementation of recommended mitigation measures. Noise – The need for monitoring and audit requirements have been defined in Section 7.8 and detailed in the EM&A Manual. Water Quality – the need for monitoring is specified in Section 8.10.1 and described in detail in the environmental monitoring and audit manual. Sewage – The need for and scope of sewage flow build-up monitoring is detailed in Section 9.8. Waste – The need for and the scope of the monitoring and audit requirements defined in Section 10.7. Land Contamination – The need for and the scope of the monitoring and audit requirements defined in Section 11.10. Terrestrial Ecology – the need for monitoring is specified in Section 12.10 and described in detail in the environmental monitoring and audit manual. Marine Ecology – the need for monitoring is specified in Section 13.16 and described in detail in the environmental monitoring and audit manual. Fisheries – no specific fisheries monitoring is required. Landscape & Visual – The need and broad scope for monitoring is defined in Section 15.9. Details please refer to section 12 of the EM&A manual. Cultural Heritage – not applicable as no monitoring is required. Health – environmental monitoring is not required.
8.4 Does the report contain an Environmental Monitoring and Audit programme, as prescribed in Annex 21, if it is found to be needed ?	✓		An environmental monitoring and audit programme is specified in the EM&A Manual for this project.
<b>9. Difficulties Compiling the Information</b>			
9.1 Have any gaps in the required data been indicated and the means used to deal with them in the assessment been explained ?	✓		Air Quality – All the data and assumptions adopted for the air quality assessment are clearly documented and referenced, where appropriate, in Sections 5.2.4, and 5.3.5 to 5.3.7. Hazard to Human Life – gaps in the required data and the means used to deal with them have been explained clearly from Section 6.10 to 6.13. Noise – No significant gaps in the data required for noise impact assessment. Water Quality – no significant gaps in the data required for the water quality impact assessment have been identified. Sewage – no significant gaps in the data required for the sewage impact assessment have been identified. Waste – not applicable. Land Contamination – As some of the potential contaminated sites are inaccessible and some of the sites are still in operation, SI works cannot be undertaken at this stage. Further site reconnaissance will be conducted for the inaccessible areas. Subject to the reconnaissance findings, a supplementary CAP (if necessary) may be prepared and submitted to EPD for endorsement. After completion of SI, CAR and RAP will be prepared and submitted to EPD as mentioned in Sections 11.4.1.5 and 11.6. Terrestrial Ecology – the assessment has been conducted based on both literature review and desktop studies and where there are gaps in the information, site surveys have been conducted to fill in the missing information. Marine Ecology – the assessment has been conducted based on both literature review and desktop studies and where there are gaps in the information (especially the baseline information within the HKIAAA), site surveys have been conducted to fill in the missing information. Fisheries – the assessment has been conducted based on both literature review and desktop studies and where there are gaps in the information (especially the baseline information within the HKIAAA), site surveys have been conducted to fill in the missing information. Landscape & Visual – This is not applicable. Cultural Heritage – the assessment has been conducted based on both literature review and desktop studies and where there are gaps in the information, site surveys have been conducted to fill in the missing information. Health – the assessment has been conducted based on both literature review and desktop studies, no significant gaps in the data required for the health impact assessment have been identified.
9.2 Have any difficulties in assembling or analysing the data needed to predict impacts been acknowledged and explained ?	✓		Air Quality – All the data and assumptions adopted for the air quality assessment are clearly documented and referenced, where appropriate, in Sections 5.2.4, and 5.3.5 to 5.3.7. Hazard to Human Life – necessary data are either provided by system designer, AAHK or other relevant studies. Noise – no significant difficulties in assembling or analysing data to predict impacts. Water Quality – no significant difficulties arose in assembling or analysing the data needed to predict water quality impacts for this project. Sewage – no significant difficulties arose in assembling or analysing the data needed to predict sewage impacts for this project Waste – not applicable. Land Contamination – It is determined that potential contaminated sites are inaccessible for preparing sampling and analysis during the course of the EIA study. The information has been reviewed, possible remediation methods, confirmation of whether the contamination problem would be surmountable and

TM Issues		Status		Remarks
		Yes	No	
				sampling and analysis proposal are included in CAP as shown in Appendix 11.1. Subject to the reconnaissance findings, a supplementary CAP for additional SI (if necessary) may be prepared and submitted to EPD for endorsement. After completion of SI, CAR and RAP will be prepared and submitted to EPD as mentioned in Sections 11.4.1.5 and 11.6. Terrestrial Ecology – no significant difficulties arose in assembling or analysing the data needed to predict terrestrial ecological impacts for this project. Marine Ecology – no significant difficulties arose in assembling or analysing the data needed to predict marine ecological impacts for this project. Fisheries – no significant difficulties arose in assembling or analysing the data needed to predict fisheries impacts for this project. Landscape & Visual – This is not applicable. Cultural Heritage – difficulties associated with the diver survey and analysis of the findings have been described in Section 16.5.3. Health – no significant difficulties arose in assembling or analysing the data needed to predict health impacts for this project.
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<b>10. Executive Summary</b>				
10.1	Does the executive summary contain at least a brief description of the project and the environment, an account of the main mitigation measures to be implemented by the developer, and a description of any remaining or residual impacts ?	✓		A brief description of the project is given in Chapter 1 to 4 of the Executive Summary. A description of mitigation measures to be implemented and any residual impacts is presented in Chapter 5 of the Executive Summary.
10.2	Have technical jargons been avoided as far as possible in the executive summary ?	✓		Unnecessary technical jargon has been avoided.
10.3	Does the executive summary present the main findings of the assessment and cover	✓		The main findings of the assessment are presented in Chapter 5 of the Executive Summary.
10.4	Does the executive summary include a brief explanation of the overall approach to the assessment ?	✓		The overall approach of individual assessments are presented in Chapter 5 of the Executive Summary.
10.5	Does the executive summary provide an indication of the confidence which can be placed in the results ?	✓		The description of the approach and findings of the assessment presented in Chapter 5 of the Executive Summary gives an indication of the confidence of the results.
10.6	Is the executive summary presented in both English and Chinese ?	✓		The executive summary is presented in both English and Chinese