

14. CONCLUSION

Introduction

- 14.1 This EIA Report has provided an assessment of the potential environmental impacts associated with the construction and operation of the Project, based on the detailed engineering design information available.
- 14.2 The assessment has been conducted, in accordance with the EIA Study Brief (No. ESB-192/2008) under the Environmental Impact Assessment Ordinance (EIAO) for the Project, covering the following environmental issues:
- Landscape and Visual Impact;
 - Air Quality Impact;
 - Airborne Noise Impact;
 - Groundborne Noise Impact;
 - Water Quality Impact;
 - Waste Management Implication;
 - Land Contamination; and
 - Environmental Monitoring and Audit
- 14.3 As required by the EIA Study Brief, the documentation of Key Assessment assumptions, limitation of assessment methodologies and related prior agreement(s) with the Director of Environmental Protection have been prepared and are included in [Appendix 14.1](#).
- 14.4 The findings of this EIA study have determined the likely nature and extent of environmental impacts predicted to arise from the construction and operation of the Project. Environmental control measures have been identified and recommended for the planning and design of the Project, to achieve compliance with environmental legislation and standards. The Implementation Schedule listing the recommended mitigation measures are presented in Chapter 13. Details of individual environmental aspects are summarised below.

Landscape and Visual Impacts

- 14.5 The Project will inevitably result in some landscape and visual impacts during construction and operation phases. These impacts have been minimized through careful consideration of alternatives, minimization of works areas, incorporation of aesthetic external designs and landscape treatments of proposed structures which include Cooling Tower, North and South Side Ventilation Shafts, Realignment of Cheong Wan Road and Noise Mitigation Measures at Portal 1A.
- 14.6 The Project is located within the existing railway transport corridor network. Elements proposed under the Project will not conflict with the planned landuse of the area nor alter the planned continuous waterfront promenade proposed under the Hung Hom District Study. It is considered that the Project would fit in well with the current and future planning settings and would not conflict with statutory town plans of the areas.
- 14.7 Approximately 640 existing trees will be affected by the proposed works, of which approximately 30 trees will be transplanted and approximately 610 trees will be felled. Many of the affected trees are of heavy standard to mature size but none of these are Registered Old and Valuable Trees. There are also no rare or endangered species but only common species. Under the proposed scheme for the Project, compensation for felled trees in accordance with Environment, Transport and Works Bureau (ETWB) Technical Circular (Works) (TC(W)) No. 3/2006 - Tree Preservation will be planted in the reinstated landscape areas. There will be no permanent alienation of landscape areas. All landscape areas which will be temporarily alienated will be reinstated on a like to like basis after completion of temporary works.
- 14.8 The road works proposed for the Project, located in an area with character dominant by railway development, is compatible with the existing landscape settings. There will be moderate impact on

LCA06 – Hung Hom Transportation Corridor LCA due to the significant change in the character of the areas by the erection of large Noise Mitigation Measures during construction phase. With the aesthetic chromatic design to blend in the structures with the adjacent landscape character, there will still be slight residual impact in Day 1 and Year 10 during operation.

- 14.9 Changes in the visual context of the areas in the vicinity of the Project are anticipated. There will be slight adverse residual visual impact on the adjacent VSRs at high level during the construction phase. With the implementation of proposed mitigation measures for the proposed Noise Mitigation Structures at Portal 1A, Cooling Tower, North and South Sides Ventilation Shafts and realignment of Cheong Wan Road, the residual impact on adjacent VSRs would be slight in Day 1 and Year 10 of Operation Phase.
- 14.10 Cumulative landscape and visual impacts during the construction and operation phases from other concurrent projects which include the Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH-ADM)], Shatin to Central Link – Tai Wai to Hung Hom Section [SCL (TAW-HUH)], Kwun Tong Line Extension (KTE) were assessed. These concurrent projects would not cause any insurmountable cumulative landscape and visual impacts.
- 14.11 As a whole, it is considered that the residual landscape and visual impacts of the proposed Project is considered acceptable with mitigation measures.

Air Quality Impact

Construction Phase

- 14.12 Potential air quality impacts from the construction phase has been assessed and the potential sources would mainly be related to construction dust from excavation, spoil removal and wind erosion as well as materials handling at barging point. A total of 14 representative air sensitive receivers (ASRs) have been identified within 500m from the Project alignment and boundaries of all associated areas under the Project.
- 14.13 Under the unmitigated scenario, the predicted cumulative maximum hourly, daily and annual average Total Suspended Particulate (TSP) concentration at most of the representative ASRs would exceed the criteria stipulated in Technical Memorandum on Environmental Impact Assessment Ordinance (EIAO-TM) and Air Quality Objectives (AQO). Proper dust mitigation measures including watering on active construction areas/haul roads; enclosing the unloading process at barging point and the implementation of good site practices, were thus proposed.
- 14.14 With the implementation of the recommended dust mitigation measures, the predicted cumulative TSP concentration at all ASRs would comply with the EIAO-TM hourly TSP criterion ($500 \mu\text{g}/\text{m}^3$) as well as AQO daily and annual TSP criteria ($260 \mu\text{g}/\text{m}^3$ and $80 \mu\text{g}/\text{m}^3$).

Operation Phase

- 14.15 As the train will be electrically operated, air quality impact is therefore not anticipated during operational phase. Besides, no adverse air quality impact is expected from the operation of realigned Cheong Wan Road Viaduct and reduction in the number of diesel locomotives (for freight/maintenance trains/intercity) along the existing East Rail Line (EAL). Exhausts for general ventilation and smoke extraction facilities will also be carefully positioned to avoid nuisance to the surrounding environment.

Air-borne Noise Impact

Construction Phase

- 14.16 Potential sources of noise from the construction of the Project would mainly due to the use of powered mechanical equipment (PME) for various construction activities such as construction of Cut-and-Cover tunnel section and other supporting facilities for the Project. A total of 9 representative noise sensitive receivers (NSRs) have been identified within 300m from the Project works area for construction noise impact assessment.
- 14.17 Noise arising from the construction activities of the Project would potentially have unavoidable impacts on the Noise Sensitive Receivers (NSRs) located in the vicinity of the works areas. Without

implementation of any mitigation measures, the predicted construction noise levels at the most representative NSRs would exceed the EIAO-TM.

- 14.18 Noise mitigation measures, including good site practices, adoption of quieter plant, use of movable noise barriers and noise insulating fabric, were therefore recommended to alleviate the noise impacts at the representative NSRs due to nearby construction works. With the recommended mitigation measures in place, the predicted construction noise levels due to the Project itself at all representative NSRs would comply with the EIAO-TM daytime construction noise criterion at all NSRs.
- 14.19 Several concurrent projects would be conducted in the vicinity of the Project, including SCL (HUH-ADM), SCL (TAW-HUH) and KTE. Mitigated cumulative construction noise levels at the representative NSRs are predicted and non-persistent 5 months exceedances of 1-4dB(A) and non-persistent 8 months exceedances of 1-3dB(A) would be found at Carmel Secondary School and Wing Fung Building respectively
- 14.20 All practical direct mitigation measures have been exhaustively investigated and the construction noise criteria have been met as far as practicable. The residual impacts have been minimised and are only temporary, reversible and unlikely to induce public health concern and as such, are considered to be minor and acceptable.

Operation Phase

- 14.21 The potential operational noise sources identified in the Project would be from the operation of trains in the sections between the Portal 1A and the Chatham Road South, exhaust / intakes of ventilation shafts and cooling facilities at the proposed HUH. A total of 9 representative NSRs have been identified within 300m from the Project works area for operational noise impact assessment.
- 14.22 Rail noise exceedance is anticipated from the Project at the Shun Man House North and South Blocks during Night-time. A 150m long natural ventilated noise enclosure at Portal 1A has therefore been proposed in order to minimise the exposure of NSRs to airborne noise. With this enclosure, no adverse residual impact from the Project is anticipated.
- 14.23 Maximum allowable sound power level emitted from louvers of fixed plants were predicted. With the proper selection of plant and adoption of acoustic treatment to meet the maximum allowable sound power level, noise levels arising from the fixed plant of the Project at NSRs would comply with the EIAO-TM criteria.

Ground-borne Noise Impact

- 14.24 Construction ground-borne noise impacts would mainly arise from the use of PME for excavation works and rock chiselling works for diaphragm wall construction; while the transmitted noise from train operation through the ground and structures in close proximity to tunnels may have potential impact on NSRs. A total of 4 representative NSRs were identified for ground-borne noise assessment.
- 14.25 During construction phase, predictions of ground-borne noise at the representative NSR have been performed using the methodology recommended by the US Department of Transportation. It was found that the predicted construction ground-borne noise at representative NSR (Metropolis Residence) would comply with the noise criteria stipulated in the EIAO.
- 14.26 During operation phase, predictions of ground-borne noise at the representative NSR have been performed using the methodology recommended by the US Department of Transportation. No exceedance of the ground-borne noise criteria is anticipated at the NSRs due to a large setback distance of 90m. Thus, adverse impact from the Project is not anticipated.

Water Quality Impact

Construction Phase

- 14.27 The key water quality issue to arise during the construction phase is the potential release of sediment-laden water from surface works areas and open cut excavation. Minimisation of water quality deterioration from land-based construction activities could be achieved through implementing adequate mitigation measures. The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable to minimise surface run-off and the chance of

erosion. With proper implementation of the recommended mitigation measures, adverse water quality impact is not anticipated.

Operation Phase

- 14.28 During operation phase, potential impacts to water quality are anticipated to involve tunnel/station run-off and effluent discharges from the HUH and general maintenance activities. With proper implementation of the recommended mitigation measures, adverse water quality impact is not anticipated.

Waste Management Implications

Construction Phase

- 14.29 The types of waste generated during construction phase of the Project would include Construction and Demolition (C&D) materials from demolition, excavation and site formation works, sediment, general refuse from workforce, and chemical waste from the maintenance of construction plant and equipment. Implementation of the proposed waste minimization, reuse, control and mitigation measures are anticipated to minimise potential water quality, dust, odour, and noise impacts associated with handling, transportation and disposal of the identified wastes arising from the construction phase of the Project.
- 14.30 During construction, it is estimated that approximately 386,000m³ of inert C&D materials would be generated which is proposed to be reused offsite by other projects (e.g. Hong Kong – Zhuhai – Macau Bridge / Tuen Mun – Chek Lap Kok Link) as far as possible, with disposal at public fill reception facilities or Taishan as the last resort. About 8,000m³ of non-inert C&D materials would be generated and disposed at landfill.
- 14.31 The total volume of dredged/ excavated sediment generated from the Project is estimated to be approximately 99,200m³. Based on the results of the chemical and biological screening, approximately 62,200m³ of sediment is suitable for Type 1 – Open Sea Disposal and 37,000m³ of sediment requires Type 2 – Confined Marine Disposal in accordance with *Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002 - Management of Dredged/Excavated Sediment* (ETWB TC(W) No. 34/2002).
- 14.32 With the implementation of the mitigation measures recommended in accordance with the requirements of the ETWB TC(W) No. 34/2002, no adverse environmental impacts would thus arise.

Operation Phase

- 14.33 The main waste types generated during the operation of the Project would be general refuse (from the passengers, staff and any commercial operators), chemical and industrial wastes (from the maintenance activities in stations, ventilation shafts and railways). The handling, collection, transportation and disposal practices of the identified waste generated should follow the current practices at other operating railway lines. Adverse impacts are not anticipated with the implementation of good waste management practices.

Land Contamination

- 14.34 An assessment of land contamination at the site has identified construction workers to be the sensitive receivers during the construction stage. A total of 231 soil and 20 groundwater samples had been collected at 34 locations identified as potentially contaminated sites and analyzed per the Contamination Assessment Plan (CAP) and Supplementary CAP, which were submitted and endorsed by the Environmental Protection Department. Based on the analytical results, no exceedances of the adopted Risk Based Remediation Goals (RBRG) have been identified and therefore, remediation for soil and groundwater is not required for investigation locations assessed.

Environmental Monitoring and Audit

- 14.35 An environmental monitoring and audit (EM&A) programme will be implemented during the construction and operation of the Project to check the effectiveness of the recommended mitigation measures and compliance with relevant statutory criteria.

Overall

- 14.36 The EIA has been conducted based on the best and latest available information during the course of the EIA study. The findings of this EIA have provided information on the nature and extent of environmental impacts arising from construction and operation of the Project. The EIA has, where appropriate, identified mitigation measures to ensure compliance with environmental legislation and standards.
- 14.37 Overall, this EIA has demonstrated general compliance with the environmental standards and legislation with the implementation of the proposed mitigation measures during the construction and operation phases. This EIA has also demonstrated general acceptability of the residual impacts and thus the population and environmentally sensitive resources in the vicinity of the site would be sufficiently protected. Environmental monitoring and audit mechanisms have been recommended for the construction and operation of the Project, where necessary, to verify the effectiveness of the recommended mitigation measures. A summary of the environmental impacts associated with the Project is presented in [Table 14.1](#).

Table 14.1 Summary of Environmental Impacts Associated with the Project

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Landscape and Visual Impacts					
Landscape Resources, Landscape Character Areas, Visual Sensitive Receivers	<ul style="list-style-type: none"> Based on a very broad brush estimate, approximately 640 existing trees will be removed by the Project. There will be moderate impact on LCA06 – Hung Hom Transportation Corridor LCA due to the significant change in the character of the areas by the erection of Noise Mitigation Measures during operation phase. 	<ul style="list-style-type: none"> EIAO (Cap. 499). EIAO-TM Annex 10 and Annex 18 ETWB TC(W) No. 2/2004 ETWB TC(W) No. 3/2006 	Not applicable	<p>Construction Phase</p> <ul style="list-style-type: none"> Transplanting affected trees in accordance with ETWB TC(W) No. 3/2006; Compensatory planting for the affected trees and shrubs; Control of night-time lighting glare; Decoration of Hoarding; Control of height and disposition/ arrangement of all temporary facilities in works areas; and Reinstatement of temporarily disturbed hard and soft landscape areas. Among the approximately 640 existing trees to be affected by the project, approximately 	<ul style="list-style-type: none"> There would be slight residual impact on LCA06 – Hung Hom Transportation Corridor LCA. There would be slight residual impact on the adjacent VSRs who can see the proposed Noise Mitigation Structures at Portal 1A, Cooling Tower, North and South Ventilation Shafts and Realignment of Cheong Wan Road. Overall, it is considered that the residual landscape and visual impact due to the Project is considered to be

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<p>30 trees will be transplanted and approximately 610 trees will be felled. Felled trees will be compensated in accordance with ET WB TC(W) No. 3/2006 – Tree Preservation.</p> <p>Operation Phase</p> <ul style="list-style-type: none"> • Design aesthetics for above ground structures; • Climbers to soften the proposed structures; • Tree and Shrub Planting to enhance the landscape and visual amenity value of the area; • Bamboo planting to screen views to the Cooling Tower from future Hung Hom Promenade; and • Roof Greening to Cooling Tower. 	<p>acceptable with mitigation measures.</p>
Air Quality Impact					
Construction Phase					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
<p>Existing commercial, residential, recreational and government/institution/community developments in Ho Man Tin and Hung Hom area 14 assessment points (refer to Figure No. NEX2213/C/361/ENS/M60/501)</p>	<p>1-hour Average TSP Conc.: 252 - 2515 $\mu\text{g}/\text{m}^3$ 24-hour Average TSP Conc.: 118 - 754 $\mu\text{g}/\text{m}^3$ Annual Average TSP Conc.: 76.0 - 97.8 $\mu\text{g}/\text{m}^3$</p>	<p>EIAO-TM and AQO 1-hour Average TSP Conc.: 500 $\mu\text{g}/\text{m}^3$ 24-hour Average TSP Conc.: 260 $\mu\text{g}/\text{m}^3$ Annual Average TSP Conc.: 80 $\mu\text{g}/\text{m}^3$</p>	<p>Exceed EIAO-TM (hourly) criterion by up to 2015 $\mu\text{g}/\text{m}^3$ Exceed AQO (daily) by up to 494 $\mu\text{g}/\text{m}^3$ Exceed AQO (annual) by up to 17.8 $\mu\text{g}/\text{m}^3$</p>	<p>General works area:</p> <ul style="list-style-type: none"> • Watering on active construction areas. <p>Barging facilities:</p> <ul style="list-style-type: none"> • All road surfaces within the barging facilities would be paved and watering along the haul road would be provided; • The unloading process would be enclosed; • Vehicle wheel washing facilities provided at site exit. <p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices would be carried out to further minimize construction dust impact.</p>	<p>No adverse residual hourly and daily dust impacts would be anticipated.</p>
<p>Operation Phase</p>					
<p>As the train will be electrically operated, air quality impact is therefore not anticipated during operation phase. Besides, no adverse air quality impact is expected from the operation of realigned Cheong Wan Road Viaduct and the diesel locomotive (for freight/maintenance/intercity trains) along the existing EAL. Exhausts for general ventilation and smoke extraction facilities will also be carefully positioned to avoid nuisance to the surrounding environment.</p>					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Airborne Noise Impact					
Construction Phase					
Existing residential blocks in Ho Man Tin and Hung Hom, areas. 9 assessment points (refer to Figure Nos. NEX2213/C/361/ENS/M52/501)	<p><u>Non-restricted hours</u> Predicted noise levels would be in the range of 48 to 83 dB(A)</p> <p><u>Restricted hours</u> Predicted noise levels would be in the range of 63 to 75 dB(A)</p>	<p><u>Non-restricted hours</u> Domestic premises: 75dB(A)</p> <p>Educational institutions: 70 dB(A) during normal teaching periods & 65dB(A) during examinations</p> <p><u>Restricted hours</u> Domestic premises: Area Sensitive Rating B Evening: 65 dB(A) Night-time: 50dB(A)</p>	<p><u>Non-restricted hours</u> Exceed the EIAO-TM noise criterion by up to 8 dB(A)</p> <p><u>Restricted hours</u> Exceed the construction noise criterion by up to 20 dB(A)</p>	<ul style="list-style-type: none"> Implementation of good site practices, use of quiet equipment, movable/temporary noise barriers and noise insulating fabric to minimise construction noise impact 	<p><u>Non-restricted hours</u> Residual impact of 1-4 dB(A) exceedances for non-persistent 5 months at Carmel Secondary School (OM4a) during examination periods due to the cumulative impacts of the Project and KTE.</p> <p>Residual impact of 1-3 dB(A) exceedances for non-persistent 8 months at Wing Fung Building (HH2) due to cumulative impacts of the Project, SCL (TAW-HUH) and KTE. The construction noise criteria are</p>

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		Area Sensitive Rating C Evening: 70 dB(A) Night-time: 55dB(A)			met as far as practicable. All practical direct mitigation measures have been exhaustively investigated and residual impact is minimised. <u>Restricted hours</u> The predicted noise levels at all NSRs would comply with the construction noise criterion.
Operational Phase (Railway Noise)					
Existing residential blocks in Ho Man Tin and Hung Hom, areas. 6 assessment points (refer to Figure Nos. NEX2213/C/361/ENS/M52/601)	<u>Daytime & Evening</u> Predicted noise levels would be in the range of 36 to 65 dB(A) <u>Night-time</u> Predicted noise levels would be in the range of 35 to 64 dB(A)	Area Sensitive Rating C Daytime & Evening: 70 dB(A) Night time: 60dB(A)	<u>Daytime & Evening</u> All predicted Noise levels are within Noise Control Ordinance (NCO) criteria. <u>Night time</u> Exceed the noise criteria by up to 4 dB(A)	<ul style="list-style-type: none"> 150m long natural ventilated noise enclosure extending from Portal 1A 	No adverse residual impacts would be anticipated.
Operational Phase (Fixed Plant Noise)					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Existing residential blocks in Ho Man Tin and Hung Hom, areas. 3 assessment points (refer to Figure Nos. NEX2213/C/361/ENS/M52/601)	Maximum sound power level was predicted to meet the relevant noise criteria.	ANL-5 dB(A)	No exceedance was predicted.	<ul style="list-style-type: none"> The exhaust of the ventilation system and any opening of the building should be located facing away from any NSRs; and Proper selection of plant and adoption of acoustic treatment. 	No adverse residual impacts would be anticipated.
Ground-borne Noise Impact					
Construction Phase					
Existing residential block in Hung Hom area. 1 assessment point (refer to Figure Nos. NEX2213/C/361/ENS/M52/501)	<u>Daytime</u> Predicted noise levels would be in the range of 48 to 50 dB(A)	Domestic premises, hotels and service apartments: 65 dB(A) for Daytime (0700 – 1900 hrs)(except General Holidays & Sunday)	No exceedance was predicted.	No mitigation would be required.	No adverse residual impacts would be anticipated.
Operational Phase					
Existing residential blocks in Ho Man Tin and Hung Hom, areas. 4 assessment points (refer to Figure Nos. NEX2213/C/361/ENS/M52/601)	Predicted ground-borne noise levels were <20 dB(A)	Domestic premises, hotels and service apartments: 55 dB(A) [for day and evening time]	No exceedance was predicted.	The predicted operation ground-borne noise at all identified representative NSRs would comply with the noise criteria. No mitigation measure is	No adverse residual impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		(0700 – 2300 hrs) and 45dB (A) for Night-time]		therefore deemed necessary.	
Water Quality Impact					
Construction Phase					
Cooling water intakes within 300m area from the Project boundary	Deterioration in water quality would be caused.	<ul style="list-style-type: none"> • EIAO-TM; • Water Pollution Control Ordinance (WPCO); • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS); • Waste Disposal Ordinance (WDO); and • Practice Note for Professional 	No exceedance was predicted.	<p><u>Construction Site Run-off and General Construction Activities</u> The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable.</p> <p><u>Accidental Spillage</u> The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p> <p><u>Sewage Effluent from Construction Workforce</u> All the sewage generated from the workforce should be</p>	No unacceptable water quality impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		Persons (ProPECC) PN 1/94		<p>discharged into the public foul sewers. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site.</p> <p><u>Excavation Activities</u> The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. Good site practices should be implemented.</p> <p><u>Diaphragm Wall</u> The mitigation measures as outlined in the ProPECC PN 1/94 should be implemented.</p> <p><u>Groundwater Seepages</u> A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works</p>	

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<p>areas. Groundwater pumped out from the works areas or from dewatering process should be discharged into the storm system via silt removal facilities.</p> <p><u>Change of Hydrology and Groundwater Level</u></p> <p>Toe grouting should be applied beneath the toe level of the temporary/permanent cofferdam walls as necessary to lengthen the effective flow path of groundwater from outside and thus control the amount of water inflow to the excavation.</p> <p>Recharge wells should be installed as necessary outside the excavation areas.</p> <p>Water pumped from the excavation areas should be recharge back into the ground.</p> <p>Suitable water control strategies should initially adopt as far as practicable while</p>	

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				undertaking the excavation works. In the event of excessive drawdown being observed within the ground water table, post-grouting should be applied as far as practicable. <u>Barging Point</u> <ul style="list-style-type: none"> • Good site practices should be applied. 	
Water Quality Impact					
Operation Phase					
Cooling water intakes within 300m area from the Project boundary	Deterioration in water quality would be caused.	Relevant standards / criteria stipulated under the EIAO-TM, WPCO, TM-DDS and ProPECC 5/93	No exceedance was predicted.	<u>Tunnel Run-off and Drainage</u> The discharge quality should satisfy the standards listed in the TM-DSS. Standard designed silt trap or grease trap and oil interceptor should be provided. <u>Sewage Effluents</u> Connection of domestic sewage generated from the Project should be diverted to the foul sewer. The practices	No unacceptable water quality impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				outlined in ProPECC PN 5/93 should be adopted where applicable.	
Waste Management Implications					
Construction Phase					
Water quality, air, and noise sensitive receivers at or near the Project site, the waste transportation routes and the waste disposal site.	<ul style="list-style-type: none"> • Inert C&D Materials from demolition and excavation works with a total volume of approximately 386,000m³ • 8,000 m³ of non-inert C&D material • General refuse from workforce • Asbestos waste from building demolition • Chemical waste from plant and equipment maintenance • Dredged marine sediment with a total volume of approximately to be 99,200 m³. 	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 354) • Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) • Code of Practice on Packaging, Labelling and Storage of Chemical Waste • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Public Health 	Not applicable	<ul style="list-style-type: none"> • C&D wastes would be reused as far as practicable before off-site disposal. • Contaminated sediment (Category M) would require Type 2 - Confined Marine Disposal at contaminated mud pit allocated by Marine Fill Committee. • Category L sediment is suitable for Type 1 - Open Sea Disposal at gazetted marine disposal ground allocated by MFC • Other waste reduction measures and good site practices to achieve avoidance and minimization of waste generation 	No adverse residual impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation <ul style="list-style-type: none"> • Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) • Dumping at Sea Ordinance (Cap. 466) 		from the Project are discussed in detail in Section 9.70 – 9.103.	
Operation Phase					
Water quality, air, and noise sensitive receivers at or near the Project site, the waste transportation routes and the waste disposal site.	<ul style="list-style-type: none"> • Chemical waste from maintenance activities • General refuse from staff and passengers and any commercial operators • Industrial waste from maintenance activities 	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 354) • Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) 	Not applicable	<ul style="list-style-type: none"> • Waste reduction measures and good site practices to achieve avoidance and minimization of waste generation from the Project are discussed in detail in Section 9.104 – 9.120. 	No adverse residual impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		<ul style="list-style-type: none"> Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation 			
Land Contamination					
Potentially contaminated sites identified within the assessment area	No soil or groundwater contamination was identified and therefore, no remediation is required.	<ul style="list-style-type: none"> EIAO TM; Guidance Note for Contaminated Land Assessment Remediation Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshop 	No exceedances of the adopted Risk Based Remediation Goals (RBRG) have been identified at all sampling locations.	<ul style="list-style-type: none"> Visual inspection should be performed during demolition and excavation for signs of soil and groundwater contamination. If contamination is suspected, further sampling and testing, and remediation (if contamination found) should be carried out. 	No adverse residual impacts would be anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Relevant Standards / Criteria	Extents of Exceedances (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		<ul style="list-style-type: none"> Guidance Manual for Use of Risk-based Remediation Goals for Contamination Management 			
Construction workers during the construction and decommissioning stages	No soil or groundwater contamination was identified.	Occupation Safety and Health Ordinance and its subsidiary Regulations	No exceedances of the adopted Risk Based Remediation Goals (RBRG) have been identified at all sampling locations.	Workers should employ personal protective equipment correctly / appropriate to the task being performed and adopt institutional controls when carrying out the excavation / demolition works as recommended. Adequate washing and cleaning facilities should be provided on site.	No adverse residual impacts would be anticipated.