Civil Engineering and Development Department

Tung Chung New Town Extension

Project Profile

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1 Basic Information

1.1 Project Title

1.1.1 Tung Chung New Town Extension

1.2 Purpose and Nature of Project

1.2.1 The study in North Lantau including Tung Chung area started since the Port and Airport Development Strategy in 1989 for the study on the construction of replacement international airport at Chek Lap Kok. Since then, various studies had been conducted including North Lantau Development Study in 1990, Territorial Development Strategic Review in 1996 and Remaining Development in Tung Chung and Tai Ho – Comprehensive Feasibility Study (CFS) in 1997. The CFS in 1997 showed that it was feasible for Tung Chung and Tai Ho areas to accommodate a population target of about 334,000 in anticipation of the projected territory-wide demand by 2011 estimated at that time.

1.2.2 Phases 1, 2 and 3A of Tung Chung New Town were completed in 2003.

1.2.3 According to the Revised Concept Plan for Lantau promulgated in 2007, Tung Chung would be a comprehensively planned new town with a capacity to accommodate a total population of about 220,000.

1.2.4 With the changes in planning circumstances and population target outlined in the above paragraphs, the Tung Chung New Town Extension Study will focus on the remaining development of Tung Chung covering possible development areas (PDAs) at Tung Chung East (TCE) and Tung Chung West (TCW) to meet the territorial long-term housing, social, economic and environmental needs with existing and committed developments in existing Tung Chung New Town being taken as the given constraints in general. This study is also required to review and establish the feasibility of the remaining development of Tung Chung as well as to prepare documents to meet the relevant statutory requirements.

1.3 Name of Project Proponent

1.3.1 The Project Proponent is Hong Kong Island and Islands Development Office, Civil Engineering and Development Department (CEDD) of the Government of the Hong Kong Special Administrative Region.

1.4 Location and Scale of Project and History of the Site

1.4.1 The tentative locations of PDAs at TCE and TCW are shown in **Figure 1.1**.

1.4.2 The existing edges of the Tung Chung New Town are fronting sea at the east and the estuary of Tung Chung Stream at the west. At its southern and western sides, the New Town is surrounded by the Lantau North (Extension) Country Park. The total area of the PDAs at TCE and TCW is about 240 ha. (i.e. both areas of PDAs at TCE and TCW are about 120 ha). The fallow land interspersed with existing villages at Tung Chung West is also included as part of the study site for the tentative possible new town extension areas.

1.4.3 A previous Project Profile (No. PP-470/2012) for the Tung Chung New Town Development Extension was submitted on 16 July 2012 and an EIA Study Brief (EIS SB No. ESB-251/2012) was subsequently issued on 28 August 2012. Since then, the Project Proponent has been proactively conducting a series of public engagement exercises (including forums and workshops) to collate views and opinions from stakeholders, green groups and local communities etc. In parallel to the public engagement process, the planning and engineering designs of the Project have also been progressing and evolving to address various constraints and development needs as well as the comments collated in public engagement exercises. As such, the original PDA boundaries as presented in the previous EIA Study Brief (EIA SB No.: ESB-251/2012) are refined and a number of associated infrastructures are also required to support the new town development. Details of these infrastructures are listed below and their respective locations are illustrated in **Figure 1.1**.

- Reclamation of about 9ha area for the Road P1 extension from Tung Chung to Tai Ho to support further development in Tung Chung. The Road P1 extension would neither encroach onto the Lantau North (Extension) Country Parks nor the committed Brothers Marine Park. Moreover, the existing shoreline along which the road extension would be constructed is artificial seawall formed with armours and thus no natural shoreline would be affected;
- Proposed district distributor roads and sewage pumping stations with capacity more than 2000 m^3 per day within PDAs (locations to be confirmed);
- Upgrading of the existing Chung Mun Road sewage pumping stations (SPS) from existing capacity of about 3,500m^3/day to a capacity over 4,500m^3/day and a few sections of existing rising mains/ sewers near PDA at TCW;

- A marina with about 95 berths located at the northern part of PDA at TCE;
- One outdoor sporting facility with a capacity to accommodate more than 10,000 persons;
- One petrol filling station to the south of North Lantau Highway with area about 800m^2;
- Two services reservoirs, including one for fresh water and the other for flushing water with capacities of 55,000m^3 and 11,000m^3 respectively;
- An approximate 4km twin rising mains at TCE connecting the proposed SPS within PDA at TCE to connect with the existing Siu Ho Wan Sewage Treatment Works (SHW STW) directly to minimize the sewage loading on the operation of the existing Tung Chung SPS. The proposed rising mains will be constructed underneath the planned Road P1 and access road adjacent to the Siu Ho Wan Depot, then crossing underneath the North Lantau Highway (NLH) and joining the access road to SHW STW. The upgrading works at the existing SHW STW will not be undertaken in this Project;
- Possible waterfront promenade at the coastal area of proposed Town Park;
- De-channelisation works along the channelized section of Tung Chung Stream for environmental enhancement and amenity uses as a river park; and
- Possible environmental enhancement works and amenity uses as a river park; in the land adjacent to the section of Tung Chung Stream from the immediate upstream of the channelized section up to Shek Mun Kap.

1.4.4 During the public inspection period of the Project Profile (PP-519/2014), comments from the public were received and had been considered and incorporated as appropriate in the EIA Study Brief (ESB-283/2014) issued on 28 January 2015. Nevertheless, the Project Proponent has also pro-actively reviewed those comments and is studying to make provisions for the following possible elements which could further enhance the development plan from environmental perspective:

- A comprehensive network of cycle track (about 12km long in total length) along the proposed distributor roads, waterfront promenade, walkways and along future Road P1 (Tung Chung – Tai Ho Section);
- A possible cycle park with an area of approximately 1.4ha surrounded by the slip roads connecting the future Tai Ho Interchange to integrate with the cycle tracks in TCE for forming a better cycle track network;
- Sustainable urban drainage system within TCW which might comprises polders and dual-purpose flood attenuation and

stormwater treatment ponds (location and extent to be confirmed);

- Village sewerage system for the unsewered villages within TCW (location and extent of the sewerage to be confirmed);
- Space provisions of facilities for possible green initiatives such as regional energy efficiency system and environmentally friendly transport systems (e.g. electric buses, electric cars and bicycle sharing system), etc. to promote environmental performance.

1.4.5 As promulgated in the Policy Address 2015, the Administration has embarked on a new initiative to promote water-friendly culture and activities involving the concept of revitalization of water bodies in large-scale drainage improvement works and planning drainage networks for new development areas so as to build a better environment for the public. Opportunities for developing the land adjacent to Tung Chung Stream, including the existing channelized section, as a river park for environmental enhancement, eco-education and public recreational uses are identified. In the river park design, landscape enhancement, viewing decks, boardwalks and footbridge or other forms of river crossing to improve accessibility to the river would be considered. The proposed river park will be incorporated into the development plan.

1.4.6 In response to the public aspiration, a comprehensive network of cycle track of about 12 km long in total length along the proposed distributor roads, waterfront promenade, walkways and along future Road P1 connecting most of the leisure facilities (e.g. future Town Park), cultural heritage, natural destinations, existing villages in Tung Chung is proposed to allow safe and joyful cycling, and to enhance the connectivity within Tung Chung. Cycle track along Road P1 (Tung Chung – Tai Ho Section) is also proposed to allow flexibility for future extension towards Siu Ho Wan. Subject to future design the proposed cycle park near Tai Ho could provide training grounds for beginners to practice or experienced cyclists to advance their skills. It could be equipped with various types of facilities such as kiosks, public convenience, maintenance shops and cycle parking areas to support the need of the cyclists.

1.4.7 The Tung Chung Stream within the study area is well-known for its biodiversity and high ecological value. In this regard, measures are considered to help safeguard the ecologically sensitive Tung Chung Stream. Apart from proposing a buffer zone up to about 30m along the two sides of Tung Chung Stream at suitable locations, a purposely designed sustainable urban drainage system will be considered within TCW. Subject to design, surface runoff will be collected to dual-purpose flood attenuation and stormwater treatment ponds for treatment which would help to filter the stormwater before discharging to the Tung Chung Stream. Furthermore, new village sewerage system is proposed to be built for the unsewered villages

within TCW to collect and convey the sewage to treatment facilities for proper treatment.

1.4.8 The Tung Chung SPS (TCSPS) is intended to receive all sewage flow from existing and planned population in Tung Chung New Town as well as other developments in the region, such as the Hong Kong International Airport. The sewage flow collected is being conveyed to SHW STW by the existing DN1200 rising mains along Cheung Tung Road. In the previous proposed sewerage arrangement at the early stage of the Study, all sewage discharge arising from TCE and TCE developments would be conveyed to SHW STW through the TCSPS in the long run. With the aim to enhancing the operation reliability of and minimising the impact to the current sewerage system, separate twin rising mains of about 4km long are now proposed to be laid along the future Road P1 for a more direct connection with the SHW STW. This alternative arrangement will not only reserve more spare capacity of TCSPS to cater for future population growth and other development needs but also provide a shorter and more direct routing of the sewage rising mains which could improve energy efficiency in the operational phase.

1.4.9 The Tung Chung New Town Extension Study comprises about 124 ha reclamation area (115 ha for TCE and 9 ha for the Road P1 (Tung Chung – Tai Ho Section)) and 125 ha existing land (5 ha for TCE and 120 ha for TCW). While the originally proposed reclamation in TCW would not be pursued in view of public concerns, there are strong public aspirations for extending the existing waterfront promenade to Ma Wan Chung along the coastline of the proposed Town Park. Minor marine works may be required subject to the detailed design of the waterfront promenade. It should be emphasised that the scale of reclamation is indicative only and subject to further refinement.

1.4.10 As the inclusion of necessary elements to support the new town development might consider as key change which might alter the previous key scope, this Project Profile is thus prepared for application to the Director for a new EIA Study Brief according to Clause 6.2 of EIA SB No.: ESB-283/2014.

1.5 Number and Types of Designated Projects to be Covered by the Project Profile

1.5.1 According to the draft Recommended Outline Development Plans, about 48,000 flats will be provided in Tung Chung New Town Extension which would accommodate a proposed population of about 140,000. In terms of both the indicative reclamation scale as stated in paragraph 1.4.2 above and the population size aforementioned, the Project falls within the definition of the Item 1 of Schedule 3 under Environmental Impact Assessment Ordinance (EIAO), i.e. a Schedule 3 Designated Project, as an engineering feasibility study of urban development projects with a study area covering more than 20

hectares or involving a total population of more than 100,000, requiring an Environmental Impact Assessment (EIA) report.

1.5.2 The Project may also consist of various Schedule 2 Designated Projects under the EIAO that may be identified in the course of the Study. The following elements of the Project, which are not exhaustive and are identified as Schedule 2 Designated Projects, are also included in this Project Profile:-

(i) Construction of primary distributor roads and district distributor roads [under Schedule 2, Part I, A.l];

(ii) Construction of a road more than 100m in length between abutments [under Schedule 2, Part I, A.8];

(iii) Reclamation works (including associated dredging works) more than 5 ha in size [under Schedule 2, Part I, C.l];

(iv) Possible dredging operation exceeding 500,000m^3 [under Schedule 2, Part I, C.12];

(v) Construction of sewage pumping stations with installed capacity of more than 2,000m^3/d located at less than 150m from existing/ planned receivers [under Schedule 2, Part I, F.3(b)]

(vi) Construction of a marina designed to provide moorings or dry storage for not less than 30 vessels used primarily for pleasure or recreation [under Schedule 2, Part I, O.2]; and

(vii) Construction of an outdoor sporting facility with a capacity to accommodate more than 10,000 persons [under Schedule 2, Part I, O.7]

1.6 Name and Telephone Number of Contact Person

All queries regarding the Project can be addressed to:

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2 Outline Of Planning And Implementation Programme

2.1 Project Implementation

2.1.1 It is proposed to implement the Project by employing consultants to undertake the planning and engineering feasibility study, preliminary design, detailed design, tender and supervision of construction phase of the Project.

2.1.2 The construction works of the proposed reclamation/land formation and infrastructure works to serve the Project will be carried out in phases by contractors to be appointed under various works contracts.

2.2 Project Time-Table

2.2.1 The Study has commenced in January 2012 for completion and targeted to be completed by late 2015. The outline implementation programme of the possible developments and infrastructure will be determined in the Study. Detailed design of the Tung Chung New Town Extension will follow.

2.3 Interactions with Other Projects

2.3.1 Potential projects that would have interface with the Project have been identified and are listed below. Implementation of some of these projects has yet to be approved. This list should be revisited during the subject EIA study to ensure all the latest projects available from the respective stakeholders are incorporated. Any cumulative impacts from these concurrent projects during both construction and operational phases of the Project, including but not limited to the following, would need to be identified and addressed as appropriate.

1. Construction of additional sewage rising mains and rehabilitation of the existing sewage rising main between Tung Chung and Siu Ho Wan
2. Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF, being constructed)
3. Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road (HZMB HKLR, being constructed)
4. Tuen Mun - Chek Lap Kok Link (TM-CLKL, being constructed)
5. Proposed New Contaminated Mud Marine Disposal Facility at Airport East / East Sha Chau Area
6. Siu Ho Wan Water Treatment Works Extension
7. Organic Waste Treatment Facilities Phase 1 (OWTF)
8. Possible Lantau Logistics Park (LLP) Development

9. Expansion of Hong Kong International Airport into a Three-Runway System (3RS)
10. Further Landscape Enhancement to North Lantau Highway (NLH)
11. Planned developments in the existing Tung Chung New Town such as residential developments at Tung Chung Area 27, Area 39, Area 54, Area 55 and Area 56 and hotel development at Area 53
12. Feasibility Study on Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement
13. Greening Master Plans for New Territories South West – Investigation, Design and Construction
14. Review and Update of the Second Railway Development Study (RDS-2U)
15. North Commercial District (NCD) of Hong Kong International Airport
16. Dredging, Management and Capping of Contaminated Sediment Disposal Facility to the South of The Brothers
17. Committed Brothers Marine Park
18. Topside Development at Hong Kong Boundary Crossing Facilities Island of HZMB
19. Cumulative Environmental Impact Assessment Study for the Three Potential Nearshore Reclamation Sites in the Western Waters of Hong Kong
20. Proposed MTR stations located to the south of PDA at TCE and to the west of Yat Tung Estate within PDA at TCW

3 Possible Impacts On The Environment

3.1 General

3.1.1 All the prevailing legislative requirements would be considered in the EIA to assess the possible environment impacts.

3.2 Air Quality

Construction Impacts

3.2.1 Dust generated from the construction activities including reclamation, excavation works, backfilling, wind erosion of exposed area, temporary storage of spoil on site, transportation and handling of spoil etc. is expected to be the major source of impact during the construction phase.

Operational Impacts

3.2.2 The major permanent sources of air pollutants are the vehicular emissions from traffic on new distributor roads, i.e. Road P1 (Tung Chung – Tai Ho Section). Cumulative air quality impact should also take into account neighbouring roads / portals / ventilation building and other sources (e.g. HZMB HKBCF, HZMB HKLR, TM-CLKL, NLH, 3RS and Cumulative Environmental Impact Assessment Study for the Three Potential Nearshore Reclamation Sites in the Western Waters of Hong Kong etc.) Other emission sources such as marine emissions from the new marina, odour from sources such as sewage pumping stations would need to be considered.

3.3 Noise

Construction Impacts

3.3.1 Potential noise impacts on noise sensitive receivers (NSRs) will be associated with construction activities and powered mechanical equipment. The key construction activities which would create noise impacts are reclamation, excavation, concreting and piling etc.

Operational Impacts

3.3.2 The future noise sources arising from the Project include traffic on new distributor roads, i.e. Road P1 (Tung Chung – Tai Ho Section), and fixed noise sources such as proposed sewage pumping stations and marina etc. Cumulative noise impacts including neighbouring roads (e.g, HZMB HKBCF, HZMB HKLR, TM-CLKL, NLH, 3RS and Cumulative Environmental Impact Assessment Study for the Three Potential Nearshore Reclamation Sites in the Western Waters of Hong Kong etc.), aircraft noise impact due to 3RS, marine traffic noise impact, and impacts from other fixed noise sources (such as railway stations, SPS operations, ventilation systems etc.) for day-time

and night-time periods as appropriate on both existing and possible developments would need to be considered where appropriate.

3.4 Water Quality

Construction Impacts

3.4.1 Potential major sources of water quality impacts may arise from dredging works, reclamation and construction of seawall, construction site runoff and wastewater generated from construction activities. The cumulative water quality impact on the existing and planned water sensitive receivers (i.e. the committed Brothers Marine Park, Tung Chung Stream, its estuary at TCW, Wong Lung Hang Stream and its tributaries, and Tai Ho Wan, etc.) and the surface runoff due to the construction works may need to be addressed.

Operational Impacts

3.4.2 Local flow pattern would be changed in the vicinity of reclamation area which may have effect on water quality. Other potential water pollution sources would include the surface runoff from the reclaimed land and accidental chemical spillage. Cumulative water quality impact on the existing and planned water sensitive receivers (i.e. the committed Brothers Marine Park, Tung Chung Stream, its estuary at TCW, Wong Lung Hang Stream and its tributaries, and Tai Ho Wan, etc.) due to other projects in the vicinity will be taken into account.

3.4.3 The implications of increased nutrient loading from storm discharges, and increased domestic loading on the sewage treatment works and the capacity of the submarine outfall at Siu Ho Wan will also be considered. The capacity of the sewerage network (including local sewers and pumping stations) and the sewage treatment plant should be assessed.

3.4.4 The potential hydraulic impact and change of hydrodynamics due to reclamation would also be addressed.

3.5 Waste

Construction Phase

3.5.1 The construction work including site formation, construction of roads and drainage, construction of possible developments and associated infrastructures will generate a large amount of construction and demolition (C&D) materials. Other than C&D materials, solid waste such as C&D waste, chemical waste, general refuse etc would also be generated. Sediments, either dredged or excavated, would also be generated. The quantities of wastes to be generated during construction of the possible developments and infrastructure will largely depend on the future land use options and the construction methods. Proper solid waste management would be maintained and considerations would also need to be given to the disposal of spoil and any contaminated materials, if any.

Operational Phase

3.5.2 The amount of municipal solid waste that will be generated during operation of the Project will depend on the size of population of the future land use options. The storage and handling of this waste may have the potential to cause environment impact.

3.6 Ecology

3.6.1 The potential terrestrial and marine ecological impacts on existing and planned ecological sensitive receivers (i.e. the committed Brothers Marine Park, Tung Chung Stream, its estuary at TCW, Wong Lung Hang Stream and its tributaries, coastal waters and Tai Ho Wan, etc.) arising from the Project will be associated with:

Construction Phase

(i) Direct habitat loss and habitat fragmentation;

(ii) Disturbance to wildlife and vegetation due to possible air pollution, water pollution, noise and glare, reclamation activities/related vessel traffic;

(iii) Disturbance to sensitive species (e.g. *Ayu Plecoglossus altivelis*, *Acrossocheilus beijiangensis*, *Alligator Pipefish*, *Horseshoe Crab*, *Romer's Tree Frog*, *Golden Birdwing and Chinese White Dolphins*, etc.);

(iv) Disturbance and ecological impacts to the committed Brothers Marine Park and its functionality as the major dolphin protected area;

(v) Increased sediment load;

(vi) Toxic pollutants from construction and operation;

(vii) Temporary habitat loss and habitat degradation; and

(viii) Soil compaction.

Operational Phase

(i) Ecological barrier;

(ii) Potential impacts arising from change of water flow due to reclamation, and diversion of natural river and stream courses (if any);

(iii) Habitat loss/ disturbance (e.g. Chinese White Dolphins) due to reclamation/site formation and increased vessel traffic due to the proposed marina;

(iv) Disturbance and ecological impacts to the committed Brothers Marine Park and its functionality as the major dolphin protected area;

(v) Change of hydrodynamic regime, erosion and sedimentation patterns;

(vi) Disturbance to wildlife due to increased human activities; and

(vii) Disturbance to wildlife and vegetation due to possible air pollution, water pollution, noise and glare.

3.7 Fisheries

Construction Phase

3.7.1 During construction phase, reclamation may lead to potential temporary and permanent loss of fishing ground, spawning ground and nursery ground for commercial species. The associated dredging work may also cause impacts (e.g. increase in suspended solids) to water and hence fisheries. It may also lead to potential disturbance on fishing operation. The marine works and any subsequent water quality deterioration will potentially affect the fisheries resources as well as spawning and nursery grounds nearby the Project Site. There may also be a potential risk of accidental chemical spillage to the surrounding water during offshore and coastal construction, which may affect fishing resources nearby the Project Site.

Operational Phase

3.7.2 During operational phase, the reclamation may change the local hydrodynamic regime and affect spawning and nursery ground. The fisheries resources as well as spawning and nursery grounds nearby the Project Site may also be affected.

3.8 Cultural Heritage

Construction Phase

3.8.1 The sites of archaeological interest, area of archaeological potential and potential offshore marine archaeological remains, which have not been investigated and/or adequately studied previously, may be affected. Construction works may result in damage to or loss of buried archaeological sites by:

(i) Disturbance through excavation at or near a site of archaeological interest, topsoil stripping and the passage of heavy machinery on exposed and buried deposits;

(ii) Change in the watertable due to construction and development activities;

(iii) Burial of areas resulting in limitation on accessibility for future archaeological investigations (including surface survey and remote sensing technique) and obscuring visible surface evidence;

(iv) Ground compaction due to construction activities may cause damage or distortion to buried archaeological remains;

(v) Impacts caused by reclamation on any remains of cultural significance buried in the seabed; and

(vi) Indirect impacts such as visual and vibration intrusion on the setting and amenity of archaeological resources.

3.8.2 The construction works may also have some direct and indirect impacts on graded historic buildings within and in the vicinity of the boundary of the PDAs. Direct impacts would be avoided as much as practical but may include physical damage, direct disturbance etc and indirect impacts include dust, visual etc.

Operational Phase

3.8.3 Historic buildings, temples, shrines, woodland, field systems are mostly retained in their original state. The need for salvage of artefacts or preservation of heritage resource in-situ (including those for terrestrial archaeology and built heritage) and preservation of Fung Shui elements will be considered.

3.8.4 Direct and indirect cultural heritage impacts during the operation phase are not expected.

3.9 Landscape and Visual

3.9.1 The expected sources of landscape and visual impacts arising from the Project would include, but not limited to, the following:

Construction Phase

(i) Loss of landscape elements, e.g. woodland, marshland/ wetland, trees, small ponds and natural topography;

(ii) Loss of visual amenity through removal of landscape elements e.g. trees;

(iii) Visual appearance of any temporary use prior to the new development;

(iv) Construction activities on the existing available land;

(v) Obstruction of or intrusion into views by the new development; and

(vi) Land reclamation works and associated activities at sea.

Operational Phase

(i) Visual intrusion and obstruction created by the new development;

(ii) Visual quality of the new development;

(iii) Landscape impact arising from road works and related infrastructure facilities;

(iv) Permanent loss of landscape and visual amenity of the sea and natural environment due to the new development; and

(v) Narrowing the sea between BCF and North Lantau due to reclamation.

3.10 Land Contamination

3.10.1 Since the PDA at TCE and Road P1 (Tung Chung – Tai Ho Section), would be formed by reclamation, it is unlikely to have land contamination impact for the pre-construction phase. The possibility

of land contamination for PDA at TCW, proposed infrastructures located outside the PDAs such as Tung Chung East and West Stations, existing/ proposed rising mains/ sewers, service reservoirs and existing Chung Mun Road sewage pumping station, etc. would need to be examined further.

3.11 Potential Hazard

3.11.1 It is not intended to have any Potential Hazardous Installation (PHI) or dangerous goods (DG) stores within the PDAs at TCE and TCW as well as the footprint of other additional infrastructures. Should there be a need for DG store or PHI identified during the Study, the potential hazard should be assessed to fulfil the legislative requirements in the TM-EIAO.

3.11.2 It is observed that part of the alignment of the proposed rising main may fall into the 1km Consultation Zone of SHW WTW. However, according to the hazard assessment for OWTF EIA, a population of 112 people in possible LLP development was assumed to present within 1km Consultation Zone of SHW WTW during its operational phase. Given the possible LLP development is yet to be implemented (the planned population does not exist at this stage) and it is anticipated the number of construction workers for the section of rising main within the 1km Consultation Zone under this Study would not be more than 20 people, the temporary workforce for construction is considered minimal and thus adverse hazard impact is not anticipated.

4 Major Elements Of The Surrounding Environment

4.1 General

4.1.1 The existing Tung Chung New Town was reclaimed in the 90's and is situated on the northern side of Lantau Island to the south of the Hong Kong International Airport. Lantau North (Extension) Country Park and Countryside Conservation Areas bound the existing New Town to the south and to the west. These areas are generally of steep gradient and are well vegetated. On the plain to the west of Tung Chung where the Tung Chung streams flow across, there are a number of existing rural settlements interspersed with some patches of fallow land. The upper reaches of the Tung Chung streams are classified as Ecologically Important Streams. The estuary of the Tung Chung Stream has a mudflat next to the existing built environment.

4.1.2 The engineering infrastructure works for the Phases 1, 2 and 3A of Tung Chung New Town Extension have been completed to support a population capacity of about 108,000 (at present, the population of Tung Chung New Town is about 78,400). The built environment in these locations comprises residential, open spaces, associated commercial and supporting institutional developments around the current terminus of the MTR Tung Chung Line and the bus terminus.

4.1.3 The existing environment of the site and its surroundings have been reviewed. The existing and planned sensitive receivers are discussed below. Any other sensitive receivers to be identified during the EIA study will also be considered.

4.2 Air Quality

4.2.1 Tung Chung is one of the airshed identified. Existing fugitive dust sources include the stockpiling areas in TCE. This would have contribution on the cumulative fugitive dust impacts.

4.2.2 The air quality impacts due to vehicular emissions from 3RS, roads (including those new roads for the new town extension and existing/ new roads being implemented) would need to be addressed in the EIA study.

4.2.3 Subject to updating by the EIA study, the representative air sensitive receivers (ASRs) in vicinity of the possible developments may include domestic premises, hotels, hospitals, clinics, schools, offices, shopping centre, places of public worship, as stipulated in Annex 12 of TM-EIAO. Existing ASRs include the residential developments and schools etc in Tung Chung areas. Planned ASRs including but not limited to those in Area 27, Area 39, Area 54, Area 55 and Area 56 etc. would be considered.

4.3 Noise

4.3.1 The planned and committed construction work to be conducted in Tung Chung Area would be one of the possible construction noise sources to be considered.

4.3.2 The existing noise environment is dominated by the traffic noise from the distribution road network within Tung Chung and NLH, the railway noise from the Tung Chung Line (TCL) and Airport Express Line (AEL), and aircraft noise from the operation at the Hong Kong International Airport. The HZMB HKBCF, HZMB HKLR, TM-CLKL, 3RS and Cumulative Environmental Impact Assessment Study for the Three Potential Nearshore Reclamation Sites in the Western Waters of Hong Kong will also influence the noise environment of the possible developments.

4.3.3 The helicopter noise from the helicopter holding areas in the vicinity of Tung Chung, flight paths along the north coast of Lantau and the helicopter landing points may also cause noise impacts. Marine traffic noise generated from marine vessels using the marina should also be considered.

4.3.4 Subject to updating by the EIA study, the representative NSRs in vicinity of the possible developments include domestic premises, hotels, hospitals, clinics, schools, places of public worship. Existing NSRs include the residential developments and schools etc in Tung Chung areas. Planned NSRs including but not limited to those in Area 27, Area 39, Area 54, Area 55 and Area 56 would be considered.

4.4 Water Quality

4.4.1 The marine zone of the possible development site is located within the North Western Water Control Zone (WCZ) in a water body where oceanic and estuarine waters interchange. Consequently, the major factors influencing the water quality in the North Western WCZ are the discharges from the Pearl River estuaries and the local effluent discharges mainly contributed from the 3 sewage outfalls at Siu Ho Wan, Pillar Point and Northwest New Territories.

4.4.2 The possible cumulative impacts on local hydrodynamic regime from HZMB HKBCF, HZMB HKLR, TM-CLKL, 3RS and Cumulative Environmental Impact Assessment Study for the Three Potential Nearshore Reclamation Sites in the Western Waters of Hong Kong need to be addressed.

4.4.3 Potential water sensitive receivers would be:

(i) Mangroves, seagrass, horseshoe crabs nursery sites within the Airport Channel and Tung Chung Bay and estuary;

(ii) Ma Wan Fish Culture Zone;

(iii) Planned Marina within TCE;

(iv) Tung Chung Stream and its tributaries;

(v) Wong Lung Hang Stream and its tributaries,

(vi) San Tau Beach Site of Special Scientific Interest (SSSI) and Tai Ho Stream SSSI;

(vii) Chinese White Dolphin habitat;

(viii) Existing or planned seawater/cooling water intakes in Tung Chung, HZMB HKBCF island, Lantau Logistics Park and Hong Kong International Airport; and

(ix) Committed Brothers Marine Park.

4.4.4 The PDA at TCE is situated in front of urbanised area and hence has no issue for groundwater resources. For the PDA at TCW, groundwater resources would be considered if large underground facilities are confirmed to be implemented during the Study.

4.5 Ecology

4.5.1 The PDAs encompass coastal and lowland zones on North Lantau with built up area in Tung Chung Central. The possible development sites are bounded by the two bays of Tung Chung and Tai Ho and adjacent floodplains and coastal zones. At TCW, there are natural and rural habitats ranging from coastal mudflats and mangroves to upland streams and woodlands. Part of the existing coastline in Tung Chung West are formed artificially by reclamation with rock armoured seawall and vertical concrete blockwork seawall.

4.5.2 The possible developments should avoid infringement onto areas of high ecological importance as far as possible.

4.5.3 Potential ecological sensitive receivers would include but not limited to the following:

Marine

- Mangrove, mudflat, corals and seagrass habitats, horseshoe crabs nursery sites within the Airport Channel, and Tung Chung Bay;
- Mangrove and seagrass habitat at Tai Ho Wan, Tung Chung Bay and San Tau Beach SSSI;
- Tung Chung Stream and its tributaries;
- Wong Lung Hang Stream and its tributaries;
- San Tau Beach SSSI and Tai Ho Stream SSSI;
- Chinese White Dolphin habitat; and
- Committed Brothers Marine Park.

Terrestrial

- Lantau North Country Park and Lantau North (Extension) Country Park;
- Pok To Yan and Por Kai Shan SSSI;

- Fung shui woods near the villages of Sheung Ling Pei, Ha Ling Pei, Nim Yuen, San Tau, Ngau Au, Mok Ka, Pak Mong and Shek Mun Kap;
- Butterfly habitats from San Tau to San Shek Wan;
- Bat roost in Tai Ho Wan;
- Romer's tree frogs on Airport Island, Tai Ho and Tung Chung West;
- Woodlands above Wong Lung Hang and above San Tau; and
- Species of conservation interest in the region, such as fish; vertebrates: mammals including bats; marco-invertebrates: butterflies; inter-tidal benthic communities; avi fauna etc.

4.6 Fisheries

4.6.1 The possible reclamation at TCE is located in the western estuarine zone of Hong Kong waters, to the west of the transitional central and oceanic eastern waters. The seabed off north Lantau is shallow, usually less than -20m CD. Lying on the east side of the Pearl River Estuary, north Lantau waters are also heavily influenced by the Pearl River and have a predominantly sandy substrate. There are no Fish Culture Zones (FCZs) within the possible reclamation area for the Project. Ma Wan FCZ is the nearest FCZ to the Project area and is located some 10 km to the east.

4.6.2 Fishing areas in the vicinity of the possible developments would be:

- Fishing grounds in North Lantau waters; and
- Spawning grounds of commercial fisheries species in North Lantau waters

4.6.3 The artificial reefs deployed within the Chek Lap Kok Marine Exclusion Zone 3 and the committed Brothers Marine Park might be affected by the possible developments.

4.7 Cultural Heritage

4.7.1 The traditional villages at both Tung Chung and Tai Ho have evolved over time in response to the natural landscape, cultural beliefs and community needs. Historic buildings, temples, shrines, bridges and woodland are found outside Tung Chung Centre Area.

4.7.2 Cultural heritage resources within and nearby the Project Site include:

(i) Tung Chung Battery - Declared Monument;
(ii) Tung Chung Fort - Declared Monument;
(iii) Tung Chung Game Board Carving – Site of Archaeological Interest;
(iv) Hau Wong Temple (Tung Chung) – Grade 2;
(v) Tin Hau Temple (Tung Chung) – Grade 2;
(vi) Watchtower, Pak Mong Tsuen – Grade 2;

(vii) Entrance Gate, Pak Mong – Grade 3;
(viii) Entrance Gate, Shek Mun Kap – Grade 3;
(ix) Ma Wan Chung Site of Archaeological Interest;
(x) Sha Tsui Tau Site of Archaeological Interest;
(xi) Pak Mong Site of Archaeological Interest;
(xii) Tai Ho Site of Archaeological Interest;
(xiii) Fu Tei Wan Kiln (Relocated to Tung Chung); and
(xiv) San Tau Site of Archaeological Interest.

4.8 Landscape and Visual

4.8.1 There is a distinct visual envelope framed by natural topographical hill range to its southwest (Nei Lak Shan), south (Lantau Peak/Pak Kung Au), southeast (Wo Liu Tun/Shek Sze Shan/Pok To Yan/Por Kai Shan) and east (Lo Fu Tau). Yet, on other direction, it is framed by open seawater body. To the north of the study area across Tung Chung Bay is the extensive area of reclaimed land forming the platform of HKIA which, together with the transport route containing the NLH, AEL and TCL. Other key landscape character areas include the villages and agricultural land within the floor of Tung Chung Valley.

4.8.2 There are an extensive number of elevated viewpoints within the visual envelope given the mountainous terrain which adds to the areas high visual quality. Potential landscape and visual sensitive receivers would include, but not limited to, the following:

Landscape Sensitive Receivers

- Hillside landscape;
- Urban landscape;
- Rural landscape and special landscape features;
- Significant landscape elements;
- Bay landscape including marshland and wetland;
- Coastal landscape (artificial and natural);
- Inshore water landscape in the vicinity; and
- Island landscape at Tai Mo To.

Visual Sensitive Receivers

- Residents of nearby residential buildings and dwellings in Tung Chung and Tai Ho;
- Travellers along NLH, MTR TCL and AEL, the proposed infrastructure connecting the HZMB;
- Visitors on Ngong Ping Cable Car;
- Visitors to monuments and historical building such as Lo Hon Monastery, Hau Wong Temple, Tung Chung Battery and Tung Chung Fort;

- Workers and visitors on Chek Lap Kok Airport Island and the HZMB Hong Kong Boundary Crossing Facilities;
- Hikers of the Lantau Trail and other major country trails;
- Recreational users of major parks, open spaces and waterfront promenades;
- Hillside landscape at Pok To Yan etc.

4.9 Potential Hazard

4.9.1 There are 5 dangerous goods stores including 1) the Siu Ho Wan Water Treatment Works (SHW WTW), 2) the aviation fuel tank farm on the airport island, 3) an existing LPG / diesel / petrol filling station at Hei Tung Street, 4) an LPG / diesel / petrol filling station and 5) a diesel bus filling station located at Chung Wai Street in the vicinity of the Study.

4.9.2 The SHW WTW is identified as a PHI with a consultation zone of 1km. Both the PDAs and Road P1 extension are located at more than 2km and 1km away and thus they will not encroach onto this consultation zone. The aviation fuel tank farm on the airport is not a PHI. In addition, the separation distance from the fuel tank farm to the PDAs at TCE and TCW will be more than 1km and 800m respectively. Hence, it is anticipated that these 2 facilities will not cause issues on hazard-to-life for the proposed development.

4.9.3 In addition, an LPG / diesel / petrol filling station and a diesel bus filling station are located on Chung Wai Street approximately 500m outside the proposed development area. An existing LPG / diesel / petrol filling station is also found located on Hei Tung Street approximately 170m outside the PDA. Hence it is anticipated that these 3 facilities will not cause hazard for the proposed development.

4.9.4 Moreover, though part of the alignment of the proposed rising main may fall into the 1km Consultation Zone of SHW WTW, given the anticipated number of construction workers for that particular section of proposed rising main would be kept minimum, the induced population is considered minimal and thus adverse hazard impact is not anticipated.

5 Environmental Protection Measures To Be Incorporated In The Design And Any Further Environmental Implications

5.1 General

5.1.1 The EIA study will investigate those environmental impacts (both cumulative impacts and those arising from the Project) and propose the appropriate mitigation measures with the intention that all development and infrastructure proposals recommended by the Project would be environmentally acceptable and cost effective. Reference would be made to the relevant legislation and other requirements including but not limited to the EIAO, Hong Kong Planning Standards and Guidelines (HKPSG) etc. The residual impacts, if any, would be confined within the allowable limits. Environmental monitoring and auditing of potential impacts that may arise from implementation of the works proposed by the Project will be provided for the construction and operational phases. Subject to the findings of the EIA study, the following mitigation measures would be incorporated in the design and construction of the Project.

5.2 Air Quality

Construction Phase

5.2.1 In order to prevent adverse impacts on air quality, the control measures stipulated in the Air Pollution Control (Construction Dust) Regulations should be implemented wherever applicable, to limit the dust emissions from the site. Subject to investigation, the following mitigation measures will be considered during construction period to minimize impacts on air quality on nearby ASRs.

(i) Stockpiles of dusty material will not extend beyond site boundaries.

(ii) In the process of material handling, any material which has the potential to create dust will be treated with water or sprayed with a wetting agent where practicable.

(iii) Any vehicles/marine vessels with an open load compartment used for transferring dusty materials off-site will be properly fitted with side and tail boards and cover.

(iv) Stockpiles of sand and aggregate will be enclosed on three sides and water sprays will be used to dampen stored materials and when receiving raw material

(v) The site will be frequently cleaned and watered to minimise fugitive dust emissions.

(vi) Motorised vehicles on the site will be restricted to a maximum speed of 15 km/hr and shall be confined to

designated haul routes which will be paved or surfaced with hardcore.

(vii) Use of appropriate dust suppression measures.

Operational Phase

5.2.2 Subject to investigation, the proposed mitigation measures to improve the air quality within the possible developments and infrastructure are to be considered as follows :

(i) Adequate buffer distance is recommended to separate the ASRs and roads.

(ii) Odour Impact from possible SPS

Proposed SPS for the possible developments:-

- design will be in accordance with Drainage Services Department's Standard Design on Sewage Pumping Station, with all pumps located underground and enclosed within a structure/building;
- deodorization system would be installed and good housekeeping practice will be adopted; and
- identification of appropriate mitigation measures for prevention of septicity of sewage due to the operation of any proposed sewage pumping station and the associated rising mains and avoidance of septic sewage discharged from the possible developments into public sewerage system which might cause odour nuisance to the public.

5.3 Noise

Construction Noise

5.3.1 Subject to investigation, the following measures will be considered during construction period to minimize construction noise impacts on nearby NSRs.

(i) Quiet plant will be used to reduce noise generated. Silencers or mufflers on construction equipment will be utilized and will be properly maintained during the works.

(ii) Movable and temporary barriers will be provided to screen NSRs from particular items of plant or noisy operations.

(iii) Noise screening structures or purpose-built noise barriers will be provided along the site boundary to provide additional protection to NSRs nearby.

(iv) Good site practices will be implemented as effective noise mitigation measures. These will include, but not limited to, locating noisy equipment and activities as far from NSRs as practical, scheduling noisy activities to minimise exposure of nearby NSRs to high levels of construction noise, proper maintenance of construction plant and devising methods of

working to minimise noise impacts on the surrounding environment.

(v) Travelling route of the construction vehicles on public roads should be planned as far as practicable in a way to minimize the noise impacts to NSRs.

Operational Phase

5.3.2 For the potential impacts arising from highways, existing rail noise sources, other fixed noise sources including utilities services in the vicinity, and aircraft noise, the following mitigation measures and appropriate building design should be considered.

(i) For the NSRs, proper arrangement of landuses and the use of direct noise mitigation measures such as noise barriers along roads as appropriate, and the use of special building design including noise insulation as appropriate.

(ii) The possibility of implementing noise barriers / enclosures on existing / planned highway infrastructures, and railway lines.

(iii) For fixed noise sources, careful sitting of noisy machinery within the site; by enclosing the noisy machinery within building structures; by use of acoustic louver, silencer for ventilating fan, acoustic door and absorptive wall lining; and any opening of the building to be located facing away from any NSRs.

5.4 Water Quality

Construction Phase

5.4.1 In order to prevent adverse impacts on water quality, the following general mitigation measures would be put in place.

(i) Good site practice in accordance with the ProPECC PN 1/94 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD, and the procedures in the Environment, Transport and Works Bureau (ETWB) Technical Circular (Works) TC(W) No. 5/2005 "Protection of Natural Stream/Rivers from adverse impact arising from construction works";

(ii) All runoffs arising from the construction site should be properly collected and treated to ensure the effluent comply with Water Pollution Control Ordinance. Silt trap and oil interceptor will be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors will be cleaned and maintained regularly;

(iii) During dredging (if necessary) and filling works, appropriate construction methods will be selected to control the generation of sediment plumes;

(iv) Proper construction techniques will be employed to prevent sediment release during construction. Stringent site sediment control and mitigation measures will be implemented to prevent elevation of suspended solid.

(v) Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms.

(vi) Silt curtains or sand bag barriers will be used to confine the disturbed area during sediment removal activities.

(vii) Where possible, works entailing soil excavation will be minimised during the rainy season.

(viii) To minimize the impacts of concrete washings, infiltration/sedimentation pits will be used to settle out the washings before treatment/re-use/discharge. If necessary, treatment units with pH adjustment will be adopted.

(ix) Oil interceptors will be provided and properly maintained for collecting spillage or leakages from site workshops. The waste oil removed will be collected by licensed collectors.

(x) Mobile toilets or other appropriate means will be provided to store sewage before disposal through licensed collection agent or discharging to main sewerage system.

(xi) For bore piling operations, the resulting suspension will be settled in sedimentation/infiltration pit until supernatant is clear and the bentonite solids will be disposed appropriately.

Operational Phase

5.4.2 The following general mitigation measures are to be considered:

(i) Provision of sand/silt and oil/grease traps, porous pavements and detention ponds at suitable locations to prevent ingress of pollutants to the stormwater system, which will serve to reduce the loading from the storm drains to the inland waters of the North Western Water Control Zone.

(ii) Construction of drainage works to prevent increased risk of flooding.

(iii) Adopting proper sewerage system to treat sewage flows from the possible developments.

(iv) Connection of the proposed sewerage system for the possible developments with the sewerage network in the region.

(v) Provision of suitable measures to minimise the risk of emergency discharges of untreated sewage and to ensure timely repair.

(vi) Connection of the possible development's stormwater drainage system to the natural river and stream course to be avoided as far' as practicable to prevent possible polluted surface runoff from affecting natural habitats.

5.5 Waste

5.5.1 The construction work including site formation, construction of roads and drainage, construction of possible developments and associated infrastructures will generate a large amount of C&D materials. Other than C&D materials, Solid waste such as C&D waste, chemical waste, general refuse etc would also be generated.

5.5.2 As the possible developments and infrastructure would require the import of fill material, the inert C&D materials would be considered for reuse.

5.5.3 The following measures will be considered to reduce the quantities of C&D materials for disposal off site:

- All C&D materials will be sorted and re-used wherever possible.
- Waste haulier should obtain the necessary registration and licences under the Waste Disposal Ordinance and the Waste Disposal (Chemical Waste) (General) Regulation from the Environmental Protection Department.
- Nomination of an approved person to be responsible for good site practice, arrangements for collection and effective disposal to an appropriate facility, of all waste generated at the site.
- Separation of chemical wastes for special handling and appropriate treatment at a licensed facility.
- A recording system for the amount of wastes generated recycled and disposed of (including the disposal sites).
- In order to monitor the management of C&D materials and disposal solid wastes at public filling facilities and landfills, and control fly-tipping, a trip-ticket system shall be implemented by the Contractor, in accordance with the contract and the requirements of DEVB TC(W) No. 6/2010 "Trip Ticket System for Disposal of Construction & Demolition Materials".
- A Waste Management Plan (WMP) shall be prepared and this WMP shall be submitted to the Engineer for approval. The WMP will be in accordance with ETWB TC(W) No. 19/2005 "Environmental Management on Construction Sites".
- Segregation and storage of different types of waste in different containers, skips or stockpiles
- To enhance reuse of recycling of materials and their proper disposal.

- Any unused chemicals or those with remaining functional capacity shall be recycled.
- Use of reusable non-timber formwork to reduce the amount of C&D materials.
- Proper storage and site practices to minimize the potential for damage or contamination of construction materials.

5.5.4 For handling of dredged/ excavated sediment, ETWB TCW No. 34/2002 will be followed.

5.6 Ecology

5.6.1 The mitigation measures that are to be implemented to minimize the impacts on air quality, noise and water quality will also help to minimize any impacts on ecological resources.

5.6.2 As regards ecological impact, the best mitigation is avoidance and will be used wherever possible. For impact which is considered unavoidable, mitigation measures will be adopted to minimize such impact, e.g. translocation of important species, confining works in specific area/season, minimizing reclamation size, alternative design/construction methods, good site practices etc. Compensation will be provided for the loss of important species or habitats, if any.

5.6.3 Any residential development proposal should be compatible with the surrounding land uses and rural setting. Mitigation measures should also be devised in the operational phase when necessary.

5.7 Fisheries

5.7.1 Subject to investigation, the following mitigation measures during construction phase will be considered to minimize the impact.

- The water quality impact mitigation measures proposed in **Section 5.4.1**.

5.7.2 The following mitigation measures will be considered to minimize the impact during operational phase.

- The water quality impact mitigation measures proposed in **Section 5.4.2**.

5.8 Cultural Heritage

5.8.1 A cultural heritage impact assessment (includes built heritage impact assessment, archaeological impact assessment and marine archaeological investigation) will be carried out under the EIA study. Impacts on cultural heritage sites will be avoided as far as practicable. If unavoidable, mitigation measures to the direct and indirect impacts on built heritage and archaeological resources will be implemented.

5.8.2 Archaeological Impact Assessment (AIA) and Marine Archaeological Investigation (MAI) will be conducted by qualified

archaeologists/marine archaeologists to identify the impacts on any known and unknown site(s) of archaeological interest nearby the Project site. For AIA, investigation will include field walking, augering and test trenching. For MAI, investigation where necessary will include geophysical survey and diver inspection. Preservation in-situ should be considered to avoid the impact on archaeological deposits as far as practicable. If unavoidable, appropriate mitigation measures will be designed and implemented.

5.9 Land Contamination

5.9.1 Subject to EIA findings, the following mitigation measures will be considered during the construction phase to minimise any potential exposure to contaminated soils or groundwater:

- Site workers should wear gloves, masks and other protective clothing where exposure to vapour or contaminated soil may be encountered.
- Contaminated materials should be removed with bulk earth movers to prevent human contact.
- Adequate washing facilities should be provided and smoking/eating should be prohibited in the area.
- Any contaminated sediments that may need stockpiling or need to be transported should be covered with tarpaulin.
- Leakage of pollutants or leaching from excavated soil should be prevented by storing on an impermeable surface.
- Only licensed waste hauliers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of wastes does not occur.
- The necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354), as required.

5.10 Landscape and Visual

5.10.1 The following measures are to be considered during the design stage to minimize the landscape and visual impacts, including, but not limited to:

- the urban design principles such as the density of the development and focusing the development around certain functions;
- controlling building height profiles and providing stepped building heights;
- responsive building massing;

- preserving and establishing visual and open space links, including provision of view and breeze corridors; and
- landscape design principles such as avoid or minimize disturbance to significant landscape resources.

5.10.2 The following general mitigation measures will be considered to alleviate the impacts for the construction phase, including, but not limited to:

- erosion control measures should be implemented for protection of construction works and the landscape if heavy rains occur;
- measures should be taken to store and use construction equipment and building materials where they are not visually intrusive, or easily washed away or where they produce less dust;
- tree transplanting and compensatory planting will be considered to mitigate the impact on the existing tree/woodland.

5.10.3 The following general mitigation measures are to be considered for the operational phase, including, but not limited to:

- roadside planting is proposed alongside all roads within the possible developments. It will enhance local identity, if theme planting is used, and reduce visual impact through screening;
- amenity strips will be provided to local roads, wherever practicable, to mitigate their visual appearance;
- road structures, such as pedestrian bridges, will be designed to improve the visual appearance of the road corridor;
- the visual impact of any noise mitigation measures will be mitigated by appropriate detailed design, including use of transparent panels, provision of at-grade planting of trees, shrubs and/or climbers camouflage to the barriers, appropriate colour selection of panels and supporting structure as well as design of supporting structures to incorporate a high level of quality and aesthetics. Sufficient space shall be allocated for greening provision in planning and designing of noise barriers. Relevant technical documents WBTC No. 25192 - Allocation of Space for Urban Street Trees, WBTC No. 7/2002 - Tree Planting in Public Works, and Guidelines on Design of Noise Barriers by HyD and EPD in 2003 shall be observed;
- the landscape treatment of road embankments and soil slopes will be provided to enhance their visual appearance. Relevant technical document GEO Publication No. 1/2011 Technical Guidelines on Landscape Treatment for Slopes by CEDD in 2011 shall be observed;
- landscape treatment will be provided to any sewage pumping stations, refuse collection points, where practicable, to enhance their visual appearance. Relevant technical document Technical Circular (Works) No. 3/2012 Site Coverage of

Greenery for Government Building Projects by Development Bureau in 2011 shall be observed;

- landscape treatment on the open drainage channel, if applicable, will be provided; and
- the provision of the identified urban design measures as identified in the design stage.

5.11 Potential Hazard

5.11.1 Mitigation measures will not be required for the SHW STW and the aviation fuel tank farm on the airport island, LPG / diesel / petrol filling station and diesel bus filling station. In case any PHI or DG store is required within the proposed development area, the need for mitigation measures would need to be considered.

5.11.2 Since the induced population during the construction of that particular section of the proposed rising main which falls into the 1km Consultation Zone of SHW WTW is considered minimal and adverse hazard impact is not anticipated, mitigation measures are considered not required.

5.12 Severity, Distribution and Duration of Environmental Effects and Further Implications

5.12.1 Subject to the findings of assessments, effective control and mitigation measures will be identified to ensure the impacts to acceptable level. The possible severity, distribution and duration of environmental effects such as beneficial and adverse effects; short and long term effects; secondary and induced effects; cumulative effects and transboundary effects will be considered and addressed in the EIA, where applicable. The key results from public consultation etc should also be documented in the EIA.

6 Use Of Previously Approved EIA Reports

6.1.1 There is no EIA report already approved under the EIA Ordinance for this Project. However, the following reports are relevant and will be referred to in the EIA study. Where necessary, other relevant information identified during the Study would also be considered and documented in the EIA.

EIAO Application No.	Title	Date of Approval	Relevant to this Project
EIA-223-2014	Expansion of Hong Kong International Airport into a Three-Runway System	7 November 2014	Various aircraft emissions and fixed noise sources from the three runway system would need to be considered in the EIA.
EIA-186/2010	Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works	13 Jan 2011	Information relating to the size of the consultation zone of the Siu Ho Wan Water Treatment Work would be considered.
EIA-176/2009	Organic Waste Treatment Facilities, Phase I	24 Feb 2010	The air emission for OWTF would need to be considered in the EIA.
EIA-174/2009	Tuen Mun - Chek Lap Kok Link	23 Oct 2009	The alignment and construction methodology would need to be considered in the EIA.
EIA-173/2009	Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities	23 Oct 2009	The configuration and construction methodology would need to be considered in the EIA.
EIA- 172/2009	Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road	23 Oct 2009	The alignment and construction methodology would need to be considered in the EIA.
EIA-106/2005	New Contaminated Mud Marine Disposal Facility at Airport East/East Sha Chau Area	1 Sep 2005	The locations and construction methodology would need to be considered in the EIA.
EIA-100/2004	Siu Ho Wan Water Treatment Works Extension	15 Dec 2004	Information relating to the size of the consultation zone of the Siu Ho Wan Water Treatment Work would be considered.
EIA- 90/2003	Tung Chung - Ngong Ping Cable Car Project	9 Jun 2003	The baseline information would be considered as appropriate.
EIA- 006/BC	New Airport Master Plan (NAMP) - Environmental Impact Assessment - Final Report (12/91) & Supplement (10/92)	Accepted before 1 April 1998	The baseline information would be considered as appropriate.

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3RS
(BY OTHERS)

HONG KONG
INTERNATIONAL AIRPORT

HK LINK ROAD OF HZMB
(BY OTHERS)

HK BOUNDARY CROSSING
FACILITIES OF HZMB
(BY OTHERS)

TM-CLK LINK
(BY OTHERS)

TENTATIVE LOCATION
OF MARINA

TENTATIVE LOCATION
OF CYCLE PARK

POSSIBLE LANTAU LOGISTICS
PARK DEVELOPMENT
(BY OTHERS)
(REF. REVISED CONCEPT PLAN
FOR LANTAU)

TENTATIVE LOCATION OF
OUTDOOR SPORTING FACILITY

TUNG CHUNG
EAST STATION
(BY OTHERS)

PETROL FILLING
STATION

POSSIBLE WATERFRONT
PROMENADE AT THE COASTAL
AREA OF PROPOSED TOWN PARK

TENTATIVE POSSIBLE DEVELOPMENT AREA
(ABOUT 120HA)
(BOUNDARY IS INDICATIVE ONLY)

TUNG CHUNG

TUNG CHUNG WEST STATION
(BY OTHERS)

CABLE CAR

CHUNG MUN ROAD
SEWAGE PUMPING
STATION

TENTATIVE POSSIBLE DEVELOPMENT AREA
(ABOUT 120HA)
(BOUNDARY IS INDICATIVE ONLY)

NOTE:
LOCATIONS OF PROPOSED DISTRICT DISTRIBUTOR ROADS, SEWAGE PUMPING STATIONS, ATTENUATION PONDS, POLDERS AND RISING MAINS/ SEWERS ARE TO BE CONFIRMED.

0 500 1000m

LEGEND

PROJECT COMPONENT

- TENTATIVE POSSIBLE DEVELOPMENT AREA (BOUNDARY IS INDICATIVE ONLY)
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- WORKS AREA FOR SERVICE RESERVOIR
- WORKS AREA FOR OTHERS FACILITIES
- EXISTING RISING MAINS/SEWERS REQUIRE UPGRADING / PROPOSED RISING MAIN
- DE-CHANNELISATION WORKS ALONG CHANNELIZED SECTION OF TUNG CHUNG STREAM FOR AMENITY USES AND ENVIRONMENTAL ENHANCEMENT (RIVER PARK)
- POSSIBLE AMENITY USES AND ENVIRONMENTAL ENHANCEMENT (E.G. RIVER PARK) IN THE LAND ADJACENT TO THE SECTION OF TUNG CHUNG STREAM FROM THE IMMEDIATE UPSTREAM OF THE CHANNELIZED SECTION UP TO SHEK MUN KAP
- TENTATIVE CYCLE TRACK NETWORK (ABOUT 12KM LONG IN TOTAL LENGTH)

OTHERS

- COUNTRY PARK
- TUNG CHUNG TOWN CENTRE AREA (OUTLINE ZONING PLAN NO. S/I-TCTC/18)

Rev	Description	By	Date
A	FIRST ISSUE	GL	03/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Location of Project

Drawing no. Figure 1.1 Rev. A

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