ARUP

Civil Engineering and Development Department

Developments at Lau Fau Shan, Tsim Bei Tsui and Pak Nai Areas

Project Profile

Job number 304204

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1. Basic Information

1.1 Project Title

1.1.1 Developments at Lau Fau Shan, Tsim Bei Tsui and Pak Nai Areas (hereinafter referred to as "the Project").

1.2 Purpose and Nature of Project

1.2.1 As set out in the Northern Metropolis (NM) Action Agenda promulgated in October 2023, the Lau Fau Shan, Tsim Bei Tsui (TBT) and Pak Nai (PN) areas (collectively referred to as Lau Fau Shan or LFS) will be an extension of the Hung Shui Kiu/Ha Tsuen New Development Area (HSK/HT NDA). Being the major source of new economic and housing land in the westernmost area of the NM, the extended HSK/HT NDA has an important role in driving the development of the High-end Professional Services and Logistics Hub[1].

1.2.2 As part of the extended HSK/HT NDA, the area of LFS is planned with the economic positioning for HSK/HT and the natural beauty of the LFS area in mind. With a development area of about 410 ha (partly overlapping with the Remaining Phase (RP) development of HSK/HT NDA), LFS can grow into a digital technology hub to complement the HSK/HT development, and develop into an eco-tourism destination for locals and tourists. The interface issues with HSK/HT NDA will be carefully reviewed in the Project.

1.3 Name of Project Proponent

1.3.1 The project proponent is West Development Office, Civil Engineering and Development Department (CEDD).

1.4 Location and Scale of Project and History of Site

1.4.1 The Project comprises the area of LFS and part of the RP development of HSK/HT NDA. As the Hong Kong-Shenzhen Western Rail Link (HSWRL) (with a separate EIA to be carried out by the respective project proponent) would run through the Project, and the depots for the Smart and Green Mass Transit System (SGMTS) (a separate study would be conducted by the respective project proponent) and green transport corridor (GTC) will be located within the Project, the Project would assign the necessary land use zoning for the alignment, stations, ventilation buildings, depot, etc as needed. The Project would include road network and developments such as public and private residential housing, business and technology parks, eco-tourism uses, retail, dining and entertainment uses, a revamped seafood market, government institutions (e.g. electricity substation, sewage treatment works, sewage pumping stations, etc.), and education institutions. The Project also comprises part of the Coastal Protection Park (CPP) of which a separate study would be conducted by the respective project proponent. While the extent and detailed design of the CPP would be subject to further study, it is envisioned that the CPP would comprise

[1] Including HSK/HT NDA, Yuen Long South NDA and existing new towns of Tin Shui Wai and Yuen Long as announced in the Northern Metropolis Development Strategy along with the 2021 Policy Address.

both seaside and landside portions and aims to preserve important ecological and landscape resources, including the natural coastline, nearshore habitats and the associated coastal ecosystem and biodiversity at Tsim Bei Tsui and Pak Nai. If any proposed design and works within the CPP constitute any Designated Project (DP) element, a separate EIA will be conducted by the respective project proponent.

1.4.2 The Project Site is of approximately 1,160 hectares (ha) including part of the CPP and is surrounded by the Deep Bay (Shenzhen Bay) to its north and west. The eastern boundary of the Project is adjacent to Hong Kong Wetland Park (HKWP) and Tin Shui Wai New Town. Location of the Project is shown in **Figure 1**.

1.4.3 The Project Site was mainly occupied by agriculture lands, rural residential villages and natural vegetation in 1960s to 1980s. Since 1990s, more infrastructures (e.g. roads including Tin Ying Road and Tin Yuet Road) and brownfield land uses have been observed around the area.

1.4.4 Based on the available information, including aerial photos, survey base maps, desktop research and site survey, the broad existing land use survey of the Project has been undertaken. The broad existing land uses have been classified into the following six categories: (i) residential development; (ii) open space, government and community facilities; (iii) brownfield and economic uses; (iv) columbarium and burial ground; (v) military related facilities; (vi) upland/ green land. The six categories will exclude vacant land/ work-in-progress and other land uses such as road, drainage channels and water bodies.

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

1.5.1 As mentioned in **Section 1.4**, the Project Site is of approximately 1,160 ha with a total development area of about 410 ha. It is estimated that a total planned population of about 141,000 - 146,000 and an employment of about 45,000 will be accommodated in LFS upon full development. Therefore, the Project is considered as a DP by virtue of the following item in Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO):

- Item 1: An urban development or redevelopment project covering an area of more than 50 ha.

1.5.2 In addition, the Project may constitute the following DP elements in Part I, Schedule 2 of the EIAO, subject to more detailed design and planning at later stage.

- A.1 A carriageway for motor vehicles that is an expressway, trunk road, primary distributor road or district distributor road.
- A.2 A railway and its associated stations (a separate EIA will be conducted for HSWRL).
- A.4 A railway siding, depot, maintenance workshop, marshalling yard or goods yard (a separate EIA will be conducted for HSWRL).
- A.6 A transport depot located less than 100 m from the nearest boundary of an existing or planned
  - (a) residential area;
  - (b) place of worship;

(c) educational institution; or

(d) health care institution.

- A.7 A road tunnel or railway tunnel more than 800m in length between portals (a separate EIA will be conducted for HSWRL).
- F.1 Sewage treatment works with an installed capacity of more than 15,000 m^3 per day.
- F.2 Sewage treatment works—

  (a) with an installed capacity of more than 5 000 m^3 per day; and

  (b) a boundary of which is less than 200 m from the nearest boundary of an existing or planned—

    (i) residential area;

    (ii) place of worship;

    (iii) educational institution;

    (iv) health care institution;

    (v) site of special scientific interest;

    (vi) site of cultural heritage;

    (vii) bathing beach;

    (viii) marine park;

    (ix) marine reserve; or

    (x) fish culture zone.

- H.1 A 400 kV electricity substation and transmission line.
- I.1 A drainage channel or river training and diversion works.

  (a) with a channel width of more than 100 m; or

  (b) which is less than 300 m from the nearest boundary of an existing or planned

    (i) site of special scientific interest;

    (ii) site of cultural heritage;

    (iii) marine park;

    (iiia) marine reserve;

    (iv) fish culture zone;

    (v) wild animal protection area;

    (vi) coastal protection area; or

    (vii) conservation area.

- P.1 A residential or recreational development, other than New Territories exempted houses, within Deep Bay Buffer Zone 1 or 2.

1.5.3 Within the Project Site, Hang Hau Tsuen Channel at Lau Fau Shan and RP development of HSK/HT NDA were studied under separate approved Environmental Impact Assessment (EIA) studies (i.e. AEIAR-134/2009 and AEIAR-203/2016 respectively) and some of the DP elements are covered within the Project Site. Any proposed works of this Project that may affect the DPs under current Environmental Permits (EPs) may require the Applications for Variation of Environmental Permits (VEPs). Current EPs within the Project Site which potentially require application of VEPs are listed as follows:

Table 1.1 Summary of Current EPs within the Project Site

EP No.	Title of Designated Project	Location of the Project
EP-163/2003/H	Deep Bay Link and Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange (Lam Tei to Tan Kwai Tsuen Section)	https://www.epd.gov.hk/eia/files/applications/en/pp_25/vep_4362/progress/action_7774/vep5182016.pdf
FEP-01/343/2009	Hang Hau Tsuen Channel at Lau Fau Shan	https://www.epd.gov.hk/eia/files/applications/en/pp_167/fep_4936/progress/action_6481/fep1752016.pdf
EP-528/2017	Eight New District Distributor Roads (Road D1 to D8) in Hung Shui Kiu New Development Area	https://www.epd.gov.hk/eia/files/applications/en/pp_291/aep_3096/progress/action_5837/ep5282017.pdf
EP-530/2017	Partly Depressed and Partly Decked-over Roads Located at Roads D2, D4 and D6 in Hung Shui Kiu New Development Area	https://www.epd.gov.hk/eia/files/applications/en/pp_291/aep_3100/progress/action_5831/ep5302017.pdf

1.6 Name and Telephone Number of Contact Person

1.6.1 All queries regarding the Project can be addressed to:

Mr. CHUNG Lok-chin (Chief Engineer/West 3)

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New Territories

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2. Outline of Planning and Implementation Programme

2.1 Project Implementation

2.1.1 Preliminary planning, engineering and environmental studies have been conducted to formulate development and infrastructure proposal for the Project, and a draft Recommended Outline Development Plan (RODP) has been developed based on the findings. An EIA will be carried out for the revised RODP, CPP and any subsequent design developments.

2.1.2 Specialist environmental consultants will be employed by Project Proponent for undertaking the EIA study according to the Study Brief to be issued by the Director of Environmental Protection and to respond on behalf of the Project Proponent on issues related to the EIA.

2.1.3 The Project Proponent or other parties will be responsible for implementing the proposed works, together with all the environmental mitigation measures, the environmental monitoring and audit requirements as recommended in the EIA study of this Project.

2.1.4 Subject to the findings of the EIA study, the construction works of the proposed development and infrastructure for the Project may be carried out in phases by contractors to be appointed by the Government under various works contracts or future relevant operators.

2.2 Project Time Table

2.2.1 Government-initiated works will commence in around 2030, taking into account the priorities accorded to earlier phases of the extended HSK/HT NDA (subject to further refinement of the construction programme in the later stage).

2.3 Interface with Other Projects

2.3.1 Given the interface of the Project with other ongoing projects, a review on the interface issues and opportunities will be explored. It includes but not limited to:

- HSK/HT NDA;
- SGMTS in HSK/HT NDA and adjacent areas;
- Hong Kong Section of the HSWRL (Hung Shui Kiu - Qianhai);
- Feasibility Study on the Development of CPP at Tsim Bei Tsui/ Lau Fau Shan/ Pak Nai conducting by Agriculture, Fisheries and Conservation Department (AFCD);
- Further study to be led by the Tourism Commission on the LFS seafood market;
- Proposed Nim Wan Road;
- Concurrent and approved Section 16 and Section 12A Planning Applications within the Project Site;

- Effluent Polishing Plant (EPP), Transfer Station and District Cooling System (DCS) in HSK/HT NDA;
- Committed public housing site at Tin Wah Road;
- Traffic and Transport Strategy Study (TTSS);
- Air Quality Laboratory and Meteorological Monitoring Supersite at TBT;
- Northern Metropolis Highway – Tin Shui Wai Section; and
- The proposed HKWP Expansion Area under the Development of Wetland Conservation Parks System.

3. Possible Impacts on Environment

3.1 General

3.1.1 Construction methodology, work site area, excavation scale and detailed implementation programme of the Project are not available at this stage. They will be established during the subsequent EIA and detailed design stage.

3.1.2 With reference to the elements of the Project as discussed in **Section 1.4**, the works for the Project will include site clearance, site formation, excavation works, building works, demolition works, river enhancement and revitalisation works, and the associated infrastructure works, such as the necessary slope works, road works, sewerage works, drainage works, landscaping, decontamination, utility works, etc. No marine works including reclamation and dredging works would be anticipated except for some minor modification, maintenance or demolition works at the intertidal areas in view of public safety, navigation, local enhancement etc. It is anticipated that the surrounding sensitive receivers may be affected during the construction and operational stages of the Project.

3.1.3 Potential environmental impacts associated with the construction and operation of the Project have been identified and are described below. The environmental protection measures have been discussed in **Section 5**.

3.2 Air Quality

Construction Phase

3.2.1 Construction works include site clearance, site formation, building works and infrastructure works as well as operation of concrete batching plant, etc. During construction, dust is the potential air quality impact which would be generated from construction activities such as excavation works, backfilling, wind erosion of exposed area, temporary storage of spoil on site, transportation and handling of spoil on site etc., as well as Particulate Matter (PM) and gaseous emissions from construction plants and trucks are expected to be the sources of impact during construction phase.

3.2.2 Sediments generated from river enhancement and revitalisation works and ponds could be a potential source of odour impact. Odour emission from livestock farms and brownfield operations is not anticipated during the construction phase as they will be relocated/demolished before construction commences.

3.2.3 Cumulative air quality impact associated with the proposed project and any concurrent projects within the 500m Assessment Area (i.e. an area within 500m measuring from the Project Site boundary) during the construction phase will be addressed in the EIA study.

Operational Phase

3.2.4 The major air pollution sources will include the vehicular emissions from existing and proposed roads, planned container backup area with parking site of container vehicles and planned logistic facilities in HSK/HT NDA and industrial emissions from existing and planned chimneys. The major odour sources will include an existing livestock farm located around 200m from the Project Site, existing sewage pumping stations (SPS) at Tin Shui Wai and Ha Tsuen, existing San Wai sewage treatment works (STW), planned on-site SPS and EPP of the Project as well as planned transfer station and EPP of HSK/HT NDA. No odour emission along the coastline of Deep Bay was identified. The marine emission from fishing vessels operated in oyster farms to the east of the Project Site is considered very limited, given the small size and number of the fishing vessels, subject to further study in subsequent EIA stage. Cumulative air quality impact during the operation phase will be addressed in the EIA study.

3.3 Noise

Construction Phase

3.3.1 Potential noise impacts will be arising from the use of Powered Mechanical Equipment (PME) during construction works. The major construction works which would create noise impact will be site clearance, site formation, excavation, backfilling, material handling, construction of superstructure of residential, Government, Institution or Community (G/IC), commercial uses, etc., construction of internal roads, construction of SPS and potential EPP, construction of utilities, and construction of associated infrastructure. Potential noise impacts associated with these pollution sources during construction phase would be addressed in the EIA study.

Operational Phase

3.3.2 The major operational noise sources will be the traffic on existing roads (e.g. Deep Bay Road, Kong Sham Western Highway, Ping Ha Road, Lau Fau Shan Road, Tin Ying Road, etc) and the proposed roads including SGMTS (in the form of Autonomous Rail Rapid Transit (ART) and/ or Bus Rapid Transit (BRT)) and GTC (in the form of electric bus or hydrogen bus) with majority on sharing roads with public roads and minority on dedicated roads. Existing fixed noise sources (e.g. Tsing Shan Firing Range, rural industries and logistic buildings scattered along the Project), planned fixed noise sources (e.g. SPS, EPP, electricity substations, railway ventilation building (VB), railway depot, SGMTS depot (potentially a separate EIA to be carried out by the respective project proponent), government depot, fire station cum ambulance depot, the revamped seafood market, Public Transport Interchange (PTI)), as well as railway noise (i.e. HSWRL) within and in the vicinity of the Project. Potential noise impacts associated with these pollution sources during operational phase would be addressed in the EIA study.

3.4 Water Quality

Construction Phase

3.4.1 The Project will involve various construction activities undertaken at various times and durations. Based on the latest design, there would be mainly land-based works. The activities which may have an impact on water quality include site formation, construction

of buildings, construction of road network, construction works at or near watercourses as well as sewage effluent from the workforce, etc. No marine works including reclamation and dredging works would be anticipated except for some minor modification, maintenance or demolition works at the intertidal areas in view of public safety, navigation, local enhancement etc.

3.4.2 Water quality impacts during construction phase may include construction site runoff, sewage from workforce, accidental spillage of chemicals, contaminated groundwater and wastewater as well as runoff from removal and filling of ponds. Potential water quality impacts associated with these pollution sources during construction phase would be addressed in the EIA study.

Operational Phase

3.4.3 Water quality impacts during operational phase will result in increased surface runoff, domestic and non-domestic (e.g. commercial, retail, dining and entertainment, G/IC, toilets in open space) sewage and potential emergency discharge from on-site SPS and EPP. Potential water quality impacts associated with these pollution sources during operational phase would be addressed in the EIA study.

3.5 Waste Management Implications

Construction Phase

3.5.1 During the construction phase, the main activities which would potentially result in the generation of waste include but not limited to site clearance, site formation, excavation works, construction of buildings and associated infrastructures, etc. The typical waste types associated with these activities include construction & demolition (C&D) materials, general refuse, chemical waste (e.g. asbestos-containing materials (ACM)), floating refuse and fishpond sediment/mud. The quantities of wastes to be generated during construction phase will largely depend on the extent of the proposed new developments and infrastructures of the Project. The waste management implication during construction phase would be addressed in the EIA study.

Operational Phase

3.5.2 Wastes which may arise from the Project during operational phase include municipal solid waste from households, commercial and industrial sources, chemical waste from maintenance activities on the road networks (e.g. paints, lubricants and used batteries), the proposed educational institution (i.e. the laboratories of these educational institutions), operations of SPS and the proposed EPP. Screening, grits and dewatered sludge are expected from EPP and SPS. The storage, handling and disposal of the waste, if not carried out properly, may have the potential to cause adverse environmental impact. The waste management implication during operational phase would be addressed in the EIA study.

3.6 Land Contamination

3.6.1 There is potential for the presence of residues from brownfield land uses such as open storage, warehouse, vehicle maintenance, workshop, and recycling facilities etc., to create an adverse impact that will need to be cleaned up during the site formation phase.

3.6.2 The contaminated land impacts are likely to be related to the following: health risks to site workers, disposal of contaminated soils, where encountered, and potential health risks to future users of the sites. The land contamination issue and its impact within the Project Site would be identified and assessed in the EIA study.

3.7 Landfill Gas Hazard

3.7.1 There is neither existing nor closed landfill located close to the Project, and the Project Site is beyond the 250m Consultation Zone (CZ) of West New Territories (WENT) Landfill. Hence, there is no potential Landfill Gas (LFG) hazard. LFG hazard assessment and mitigation measure are not required for the Project.

3.8 Hazard to Life

Construction Phase

3.8.1 No explosive will be used in the Project. According to the project profile of Hong Kong Section of the Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai)[2], no explosive will be used for the rail link as well. Hence, hazard-to-life impact assessment for construction phase is not required for the Project.

Operational Phase

3.8.2 Hazard-to-life impact during operational phase may arise from the Liquefied Petroleum Gas (LPG) cum Petrol Filling Station at Ping Ha Road, proposed green fuel station [3], and planned town gas offtake and pigging station (O/P Station) at Hung Shui Kiu Area 56. A hazard-to-life impact assessment would be required in the EIA study for the operational phase.

3.8.3 In addition, hazard-to-life impact may arise from the storage and usage of dangerous goods at the proposed EPP. Those hazard-to-life impact would also be assessed in the EIA study if necessary.

3.9 Ecology

3.9.1 Based on the environmental review carried out, recognised sites of conservation importance within and in the vicinity of the 500m Assessment Area include:

- Mai Po Inner Deep Bay Ramsar Site;
- Deep Bay Wetland Outside Ramsar Site Priority Site for Enhanced Conservation;
- PN Site of Special Scientific Interest (SSSI);
- Inner Deep Bay SSSI;
- TBT Egretry SSSI;
- TBT SSSI;

[2] https://www.epd.gov.hk/eia/files/applications/en/pp_985/esb_6118/profile/HSWRL-Project%20Profile_eng_compiled_r1.pdf

[3] It is proposed to provide petrol filling at this stage. To provide flexibility to cope with potential future demand, the proposed green fuel station can be transited to provide LPG filling facilities.

- HKWP Special Area;
- The Proposed HKWP Expansion Area;
- Wetland Conservation Area (WCA);
- Wetland Buffer Area (WBA);
- Coastal Protection Area (CPA);
- Conservation Area (CA);
- Inner Deep Bay and Shenzhen River Catchment Area Important Bird Area (IBA);
- Active Egretries;
- Active ardeid night roosts; and
- Sites with Records of Horseshoe Crab.

3.9.2 Desktop literature review and rapid site visits conducted in the environmental review have identified a number of habitats within the 500m Assessment Area; these include Sea, Stream, Channelised Watercourse, Pond, Mitigation Pond proposed by Deep Bay Link project, Mangrove, Intertidal Mudflat, Seagrass Bed, Marsh, Grassland, Grassland/Shrubland, Shrubland, Fung Shui Woodland, Secondary Woodland, Plantation, Orchard, Developed Area, and Waste Ground.

3.9.3 Based on the environmental review, species of conservation importance recorded within the 500m Assessment Area include:

- Flora (e.g. *Aquilaria sinensis, Halophila* spp. etc.) ;
- Mammals (e.g. Short-nosed Fruit Bat, Leopard Cat, Eurasian Otter, etc.) ;
- Avifauna (e.g. Northern Shoveler, Chinese Grosbeak, etc.) ;
- Amphibians (e.g. Chinese Bullfrog) ;
- Reptiles (e.g. Reeves' Turtle, Burmese Python, etc.) ;
- Butterflies (e.g. Brown Awl, Chocolate Albatross, etc.) ;
- Odonates (e.g. Four-spot Midget, Emerald Cascader, etc.) ;
- Fireflies (e.g. *Pteroptyx maipo*) ;
- Fishes (e.g. Mangrove Goby, Chinese Glass Goby, etc.) ; and
- Aquatic invertebrates (e.g. *Caridina typus*, Horseshoe Crabs, etc).

3.9.4 The potential direct ecological impact arising from the Project would be the loss of habitats. Nevertheless, the Project including draft RODP and CPP has already preserved the habitats evaluated as of higher ecological value among other types of habitats identified (e.g. SSSIs, the Mai Po Inner Deep Bay Ramsar Site, the HKWP Special Area etc.) through appropriate design and zonings. The potential ecological impacts arising from the Project include:

<u>Construction Phase</u>

(i) Potential direct impacts to fauna and flora species of conservation importance;

(ii) Indirect disturbance impacts to habitats and wildlife due to artificial light, construction noise, vibration, dust, and other forms of human disturbances etc. Attention should be paid to the potential disturbance to the egretries and ardeid night

roost present, as well as to the potential disturbances to the recognised sites of conservation importance in the wider area; and

(iii) Impacts to water quality, hydrology and/or aquatic fauna from proposed EPP, surface run-off with dust from exposed earth or accidental spillage of chemicals, lubricants and pollutants from the construction site.

Operational Phase

(i) Indirect disturbance to habitats and wildlife due to the increased level of traffic and human disturbance, primarily in the forms of additional noise and artificial light, etc. Attention should be paid to the potential disturbance to the egretries and ardeid night roost present, as well as to the potential disturbances to the recognised sites of conservation importance in the wider area;

(ii) Potential water pollution from proposed EPP, storm water runoff due to reduction of area of permeable surfaces, accidental spillage of chemicals, domestic sewage and wastewater from high-technological industries;

(iii) Fragmentation impacts; and

(iv) Potential obstruction of avifauna flight paths by proposed developments.

3.9.5 Cumulative impacts for the Project during both the construction and operational phases will be assessed in the EIA study.

3.10 Fisheries

3.10.1 The design of the Project has been duly considered to minimise the loss of fisheries resources. In particular, the majority of existing fish ponds along the coastal area within the Project Site will be retained by appropriate zonings such as CPP. The potential impacts on pond fish production and operation arising from the Project include:

Construction Phase

(i) Temporary or permanent loss of fish ponds or areas for fisheries operation;

(ii) Temporary or permanent loss of fisheries resources;

(iii) Impacts on pond bund stability and hydrology (e.g. water seepage, impact on water supply);

(iv) Deterioration of water quality in nearby water bodies;

(v) Degradation of the environmental conditions of fish ponds; and

(vi) Temporary blockage of access to fish ponds.

Operational Phase

(i) Blockage of access to fish ponds; and

(ii) Degradation/deterioration of environmental conditions of fish ponds due to induced-water quality impacts from sewage and runoff from the Project.

3.10.2 Since no marine works are required based on the latest design except for some minor modification, maintenance or demolition works at the intertidal areas in view of public safety, navigation, local enhancement etc., there is no direct impact on marine fishing ground, capture fisheries production and oyster production. However, potential indirect impacts on marine habitat arising from the Project include:

Construction Phase

(i) Impacts on hydrology (e.g. water seepage);

(ii) Deterioration of water quality in nearby water bodies due to site runoff, dust, silt and chemical waste;

(iii) Impacts on fishing grounds and oyster farming activities in Deep Bay (locations and extents to be agreed with Environmental Protection Department (EPD) and AFCD); and

(iv) Degradation of the environmental conditions of marine habitat.

Operational Phase

(i) Degradation/deterioration of environmental conditions of marine habitat due to induced-water quality impacts from sewage and runoff from the Project.

3.11 Cultural Heritage

Construction Phase

3.11.1 Since no marine works including reclamation and dredging works are required based on the latest design except for some minor modification, maintenance or demolition works at the intertidal areas in view of public safety, navigation, local enhancement etc., potential impacts on the marine archaeological resources arising from the Project are not anticipated. Direct and indirect impacts to the built heritage and terrestrial archaeological resources arising from the various construction activities are anticipated.

Operational Phase

3.11.2 No potential operational impacts are anticipated, subject to further review and findings under the EIA Study.

3.12 Landscape and Visual

Construction Phase

3.12.1 The landscape impacts of the Project during construction would include:

(i) Potential loss of plantation along existing road in Deep Bay Road and Lau Fau Shan Road due to the road improvement works;

(ii) Potential loss of existing trees within orchard areas (near Deep Bay Road and Tin Yuet Road) due to the proposed development of residential sites and other specified uses;

(iii) Potential loss of a few “trees of particular interest” located along Lau Fau Shan Road and Deep Bay Road due to the proposed road improvements works;

(iv) Potential loss of secondary woodlands near Former Lau Fau Shan Police Station and Mong Tseng Tsuen due to the proposed roads and open space;

(v) Potential loss of existing marsh due to the proposed road works;

(vi) Potential loss of the vegetated slopes along Deep Bay Road due to the road improvement works;

(vii) Potential loss of natural terrain across Sha Kong Tsuen and near the junction of Tin Yuet Road and Deep Bay Road due to the proposed development of business and technology park and road improvement works; and

(viii) Potential loss of streams near Mong Tseng Tsuen due to the proposed development of residential uses and road improvement works.

Operational Phase

3.12.2 The landscape and visual impacts of the Project in operational phase would include:

Landscape Impacts

(i) Residual impacts from loss of natural terrain and vegetation covers;

(ii) Residual impacts from loss of existing trees;

(iii) Residual impacts from loss of streams/marsh;

(iv) Irreversible change of existing landscape character from rural coastal plain landscape to urbanised development landscape; and

Visual Impacts

(v) Operation of the proposed development including new building structures, infrastructure and noise barriers would generate negative visual impacts mainly due to the potential changes of visual composition and loss of/ obstruction to visual resources. The visual impact will be assessed in the EIA study.

4. Major Elements of the Surrounding Environment

4.1 Surrounding Environment including Existing and Planned Sensitive Receivers

4.1.1 The Project is mainly rural area bounded by the coastline of Deep Bay (Shenzhen Bay) to its north and west. The eastern boundary of the tentative Project Site is adjacent to HKWP and Tin Shui Wai New Town.

4.1.2 Existing sensitive receivers and sensitive parts of the surrounding environment which might be affected by the Project include the following:

- Villages (e.g. Sha Kiu Tsuen, Mong Tseng Wai, Fung Kong Tsuen etc.);
- Residential developments (e.g. Tin Heng Estate, Tin Chak Estate, Deep Bay Grove etc.);
- Educational institutions (e.g. S.T.F.A. Wu Mien Tuen Primary School, W F Joseph Lee Primary School etc.);
- Recreational parks (e.g. HKWP etc.);
- Places of worship (e.g. Wan Fau Sin Koon, Che Wan Seen Yuen etc.);
- Watercourses (e.g. Tin Shui Wai River, Hang Hau Tsuen Nullah etc.);
- Fishponds for fish culture and leisure fisheries purposes and other ponds;
- Oyster production area in Deep Bay;
- Site of Special Scientific Interest (e.g. PN SSSI, Inner Deep Bay SSSI etc.);
- Areas of conservation value (e.g. Mai Po Inner Deep Bay Ramsar Site, HKWP Special Area, the proposed HKWP Expansion Area, PN SSSI, Inner Deep Bay SSSI, Wetland Conservation Area, Coastal Protection Area, Conservation Area, egretries and ardeid night roost, intertidal mudflats and mangroves etc.);
- Places of visual value (e.g. ridgeline of Yuen Tau Shan, ridgeline of Tin Shui Wai Shan etc.); and
- Sites of archaeological interest (SAI) (e.g. Ngau Hom Sha SAI, Fu Tei Au SAI etc.), Declared Monuments (e.g. Yeung Hau Temple and Tang Ancestral Hall etc, which are beyond the Project Site), graded historic buildings (e.g. Yuen Kwan Tai Temple and Entrance Gate in Mong Tseng Wai, Former Lau Fau Shan Police Station etc.), historical village clusters (e.g. Mong Tseng, Sha Kong Wai etc.) and preliminarily identified areas of archaeological potential.

4.1.3 According to the planned land uses in draft RODP, planned sensitive receivers include private and public housing development, school, sport centres, general clinic, Residential Care Homes for the Elderly (RCHE) etc.

4.1.4 Existing and future sensitive receivers and sensitive parts of the natural environment would be identified under the EIA study.

4.2 Air Quality

4.2.1 The Kong Sham Western Highway is located to the southwest of the Project Site, while Tin Ying Road runs along the eastern side of the Project. Vehicular emissions from these existing and proposed roads are one of the air pollution sources. In addition, emissions from existing and planned Public Transport Interchanges (PTIs), Bus Termini and Public Parking within the Project would also contribute to the cumulative air quality impacts.

4.2.2 Industrial emissions from existing chimneys including Tin Shui Wai Hospital, Wan Fau Sin Koon and planned Port Backup and Logistic Facilities are also potential air pollution sources. The chimneys from joss paper burners identified in Wan Fau Sin Koon are equipped with new environmental-friendly technology provided by REC Green Technologies Co., Ltd which is recognised by EPD in the List of Local Suppliers of Cremation Equipment and/or Air Pollution Control Equipment for Paper Offerings Burning. No joss paper burners and large-scale altars are identified in Che Wan Seen Yuen, Tin Hau Temple (Ha Tsuen), Yuen Kwan Tai Temple and Hung Shing Temple. The potential air quality impact from burning activities in all the temples and monasteries within the 500m Assessment Area will be addressed during the EIA study stage.

4.2.3 The existing livestock farms, the revamped seafood market, planned and existing SPS such as Tin Shui Wai Tin Wah Road SPS and Ha Tsuen SPS, and the proposed EPP may also lead to odour impact.

4.2.4 Existing Air Sensitive Receivers (ASRs) include villages (e.g. Sha Kiu Tsuen, Mong Tseng Wai, Fung Kong Tsuen etc.), residential developments (e.g. Tin Heng Estate, Tin Chak Estate, Deep Bay Grove etc.), educational institutions (e.g. S.T.F.A. Wu Mien Tuen Primary School, W F Joseph Lee Primary School etc.), recreational parks (e.g. Tin Shui Road Park etc.) and place of public worship (e.g. Wan Fau Sin Koon, Che Wan Seen Yuen etc.), etc. Planned ASRs include private and public housing developments, schools, general clinic, RCHE, etc. The EIA study would assess the air quality impact on the ASRs.

4.3 Noise

4.3.1 The noise climate is dominated by the road traffic along Deep Bay Road, Nim Wan Road, Lau Fau Shan Road, Tin Ying Road and Kong Sham Western Highway. Besides, a fixed noise source, Tsing Shan Fire Range is also in proximity to the Project. Irregular firing practice would be conducted on weekdays and Saturdays at the Fire Range. Rural industries and logistic buildings are scattered along the Project.

4.3.2 Existing Noise Sensitive Receivers (NSRs) include villages (e.g. Sha Kiu Tsuen, Mong Tseng Wai, Fung Kong Tsuen etc.), residential developments (e.g. Tin Heng Estate, Tin Chak Estate, Deep Bay Grove etc.), educational institutions (e.g. S.T.F.A. Wu Mien Tuen Primary School, W F Joseph Lee Primary School etc.) and places of public worship (e.g. Wan Fau Sin Koon, Che Wan Seen Yuen etc.). Planned NSRs include proposed private and public housing developments, schools, general clinic, and RCHE etc. The EIA study would assess the noise impact on the NSRs.

4.4 Water Quality

4.4.1 The Project is located at the inshore areas of Deep Bay. Existing pollution sources include treated sewage effluent (TSE) from Yuen Long STW, and surface runoff at the vicinity collected by the channelised nullahs such as Tin Shui Wai River, Shan Pui River, Kam Tin River, and Shenzhen River etc. Planned sources may include TSE from the planned EPP inside the Project Site.

4.4.2 The existing potential Water Sensitive Receivers (WSRs) mainly includes the vicinity of ecological important areas including Conservation Areas, SSSIs, Coastal Protection Areas, Mai Po Inner Deep Bay Ramsar Site, Tin Shui Wai River and oyster production area in Deep Bay (locations and extents to be agreed with EPD and AFCD), etc. In addition, nearby waterbodies including streams and rivers identified above, fishponds, lotus ponds, duck ponds and other commercial waterbodies are also identified as potential WSRs.

4.5 Waste Management Implications

4.5.1 The existing solid wastes arising from the area within the Project include domestic waste from village houses, commercial/industrial waste generated from open storage and informal industrial uses, and chemical waste from vehicle maintenance and workshop.

4.5.2 During construction phase, apart from the inert construction and demolition (C&D) materials (e.g. soil and rock etc.), non-inert C&D materials (e.g. timber), general refuse, chemical waste (e.g. ACM) and floating refuse, land-based sediment (e.g. pond deposit) might be encountered from the existing fishponds. Disposal of sediment shall only be considered as the last resort and an assessment of sediment quality would be required to classify sediment based on their contaminant levels in order to identify the disposal arrangement for the classified sediment.

4.5.3 The EIA study would assess the waste management implication.

4.6 Land Contamination

4.6.1 The existing environment in the Project includes rural land uses such as agriculture and villages as well as brownfield land uses such as open storage, warehouse, vehicle maintenance, workshop, and recycling facilities etc. The main expected contaminants from the land uses in the Project are from by-products from the brownfield land uses, which include the use and/or storage of chemicals and metals. Land contamination assessment will be carried out under the EIA study to formulate appropriate contamination assessment plans and remediation action plans, if necessary.

4.7 Landfill Gas Hazard

4.7.1 The only landfill near the Project Site is WENT Landfill located in Nim Wan, Tuen Mun, which occupies an area of about 110 ha and has been operating since 1993. The nearest distance between the boundary of 250m CZ of WENT Landfill and the Project is more than 2km. As the Project is beyond the 250m CZ, there is no constraint of the WENT Landfill on the Project and hence LFG hazard assessment is not required.

4.8 Hazard to Life

4.8.1 The LPG cum Petrol Filling Station at Ping Ha Road and planned town gas O/P Station are located to the south and southeast of the Project respectively. The potential hazard to life implications would be subject to further review and findings under this Project.

4.9 Ecology

Mai Po Inner Deep Bay Ramsar Site, Deep Bay Wetland Outside Ramsar Site Priority Site for Enhanced Conservation and Inner Deep Bay SSSI

4.9.1 About 1,500 ha of wetland in the Mai Po and Inner Deep Bay region has been listed as a Ramsar Site under the Ramsar Convention since 4th September 1995. The site has a shallow bay with extensive intertidal mudflats backed by mangroves, tidal shrimp ponds (gei-wai), commercial fishponds and reedbeds. The Ramsar Site was further identified as a Priority Site for Enhanced Conservation under New Nature Conservation Policy (NNCP) in Hong Kong.

4.9.2 The site serves as an important over-wintering and re-fuelling station site for the waterbirds along the East Asian-Australasian Flyway. About 400 species, representing around 70% of the Hong Kong birds, have been recorded there. The site regularly supports some 46,000-66,000 waterbirds in winter, including a number of globally threatened species, such as Black-faced Spoonbill, Saunders's Gull and Nordmann's Greenshank etc.

4.9.3 The Inner Deep Bay area was also designated as a SSSI in 1986, covering an area of approximately 1,036 ha in size.

4.9.4 The Inner Deep Bay area, the associated SSSI and the Deep Bay Wetland Outside Ramsar Site Priority Site for Enhanced Conservation partly fall into the north-eastern part of the 500m Assessment Area.

Hong Kong Wetland Park Special Area

4.9.5 The northern part of HKWP Special Area is included in the 500m Assessment Area. The 61-hectare HKWP Special Area serves the functions of being an ecological mitigation area to compensate the wetland loss due to Tin Shui Wai New Town development, and also providing an education and eco-tourism venue for the local residents and overseas visitors. It is located at the northern part of Tin Shui Wai, connecting the core area of Inner Deep Bay wetlands. The Park supports a high diversity of wildlife, with species including but not limited to birds, dragonflies, amphibians, reptiles, and butterflies.

The Proposed Hong Kong Wetland Park Expansion Area

4.9.6 The proposed HKWP Expansion Area is part of the proposed Wetland Conservation Parks System under the Northern Metropolis Development Strategy. It generally covers fishponds and wetlands in Fung Lok Wai, Tsim Bei Tsui and Mong Tseng areas, with a maximum area of 224 ha. The northern portion of the proposed HKWP Expansion Area falls within the 500m Assessment Area. The existing framework of fishponds would largely be maintained in the proposed HKWP Expansion Area. Apart from enhancing ecological capacity and promoting modernised aquaculture practice, the Park will focus on providing eco-education experience for the public through leveraging wetland habitats

as an immersive educational tool and devising innovative education activities/ programmes.

Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA)

4.9.7 To conserve the ecological value of the Ramsar site, the Town Planning Board adopts a two-pronged approach to land use planning control through the designation of Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA).

4.9.8 The Project Site has avoided the WCA and only a small area of the WCA was included in the 500m Assessment Area. The WBA overlaps with the northern part of the Project Site and the 500m Assessment Area.

Egretries and Ardeid Night Roost

4.9.9 A total of four active egretries, Ngau Hom Shek, near Shenzhen Bay Bridge, Sha Kiu Village and near Tin Shui Wai Hospital, were identified in the Assessment Area.

4.9.10 In addition to the active egretries, the abandoned TBT Egretry was present within the Project Site. It was listed as SSSI since 1989 given being an important egretry for several hundred pairs of ardeids, including Great Egret, Little Egret, Eastern Cattle Egret, Black-crowned Night Heron and Chinese Pond Heron. The site comprises two small patches of woodland located at south of TBT with an area of 4.8 ha in total. It was believed that the colony from this abandoned egretry had possibly shifted to some of the existing egretries nearby which were discovered in recent years.

4.9.11 Ardeid night roosts were known to occur in the mangrove area near Shenzhen Bay Bridge and near Tin Shui Wai Hospital.

PN SSSI

4.9.12 Apart from the abovementioned SSSIs, the third SSSI present within the Assessment Area is located in the coastal area near PN. The sandpit at this location is used as a high tide roost for gulls and terns in the Deep Bay area.

TBT SSSI

4.9.13 TBT SSSI partially overlaps with the Project Site. It covers an area of about 2.1 ha of mature mangrove that provides the only known habitat in Hong Kong for the large mangrove pulmonated snail, *Ellobium polita*. *Bruguiera conjugata*, a mangrove species that is becoming rare in Hong Kong, can also be found in this SSSI.

Coastal Protection Area

4.9.14 A number of areas under the zoning of Coastal Protection Area (CPA) on relevant Outline Zoning Plans (OZPs) are situated along the coastal line outside the Project Site. This zoning is intended to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment, including attractive geological features, physical landform or area of high landscape, scenic or ecological value, with a minimum of built development. It may also cover areas which serve as natural protection areas sheltering nearby developments against the effects of coastal erosion.

Conservation Area

4.9.15 Two areas under the zoning of Conservation Area (CA) on relevant OZPs fall into the Assessment Area. This zoning is intended to protect and retain the existing natural landscape, ecological or topographical features of the area for conservation, educational and research purposes. The eastern one located next to HKWP consists of a number of fishponds. Another CA covers an extensive area of shrubland west of Kong Sham Western Highway.

Inner Deep Bay and Shenzhen River Catchment Area Important Bird Area (IBA)

4.9.16 Inner Deep Bay and Shenzhen River Catchment Area was identified as an IBA in 2004. It consists of 31.5 km^2 of both terrestrial and marine environments, supporting 29 qualifying avifauna species (i.e. holding significant numbers of a globally threatened species and/or holding congregations of at least 1% of the global population of one or more species on a regular or predictable basis). The identification of IBA is to conserve and protect viable populations of bird species, as well as the biodiversity.

Intertidal Mudflat, Mangrove and Seagrass Beds

4.9.17 Mudflats, mangroves and seagrass beds along the coastal area near the Project Site, especially near PN, are known to provide important nursery and feeding ground for juvenile horseshoe crabs and a wide variety of intertidal organisms and are therefore considered to be of high ecological value. An extensive intertidal mosaic of mudflat and mangrove lies along the seaward side of the Assessment Area, which forms part of the Deep Bay wetland ecosystem and provides food, shelter, and nursery to a large number of wetland (especially intertidal) fauna.

4.9.18 Seagrass beds of *Halophila* spp. occur on mudflats near the Assessment Area. This widely distributed seagrass species was reported to have an extending range along the southern fringe of Deep Bay, with the largest bed recorded at Ha PN. The intertidal area spanning across Sheung PN, PN and Ha PN has also been identified as important habitat for horseshoe crabs in Hong Kong, especially as nursery ground for juveniles.

Sites with Records of Horseshoe Crab

4.9.19 Nursery grounds of two horseshoe crab species are present on the mudflats along the Project Site. Chinese Horseshoe Crab *Tachypleui tridentatus* was recorded at Sheung PN, PN and TBT. Among them, PN was considered as important nursery grounds of *Tachypleui tridentatus* in Hong Kong due to the high abundance of juveniles found. Mangrove Horseshoe Crab *Carcinoscorpius rotundicauda* was recorded at PN, Sha Kong Tsuen and TBT.

4.10 Fisheries

4.10.1 Within the Assessment Area, most fishponds are located along the coastal regions near Sheung Pak Nai, Ngau Hom Sha, and Ngau Hom Shek. According to records from the AFCD, some fish farms are registered under the Voluntary Registration Scheme (VRS) for local pond fish farms and practice polyculture. The majority of these farms operate on a small to medium scale, with some also offering leisure fisheries activities[4]. Some of the fishponds located in Pak Nai and Mong Tseng fall within the scope of the Hong Kong Fishpond Conservation Scheme for the period 2025–2027.

4.10.2 Culture of oyster has been practiced for more than 200 years in Hong Kong along the intertidal mud flat of Deep Bay, which has remained the only site of oyster culture in Hong Kong. Deep Bay is shallow and protected from wave action as a sheltered waterbody. It also receives fluvial discharges from various major river channels including Shenzhen River Kam Tin River, Sheung Yue River and Tin Shui Wai River etc. The nutrient-rich brackish water in Deep Bay also provides an ideal environment for oyster. As such, the unique conditions of Deep Bay are particularly favourable for oyster culture. There are over 5,000 oyster rafts covering an area larger than 25km^2 within Deep Bay. The majority of these are outside of Assessment Area. Some oyster farmers are still practising the traditional bottom culture method on mudflats near Lau Fau Shan. Oyster production areas in Deep Bay (locations and extents to be agreed with EPD and AFCD) are considered as potential fisheries sensitive receivers.

4.10.3 Within Deep Bay Water Control Zone (WCZ), there were mostly between 0 and 100 vessels (mostly sampans) operating along the coastal waters at Deep Bay, although number of vessels is higher (100 to 200) towards the western end of the Deep Bay WCZ near Urmston Road. The annual production yield in these waters was mostly below 50kg per hectare. Within the Deep Bay WCZ, overall annual catch value per hectare was low (less than HK$1,000).

4.10.4 No important fish spawning ground or nursery area was identified within the Deep Bay WCZ. No marine fish culture zone is present within or near the Assessment Area.

4.11 Cultural Heritage

4.11.1 The Project Site includes nine SAIs, including Mong Tseng SAI, Lau Fau Shan SAI, Hang Hau Tsuen SAI, Sha Kong Miu (North) SAI, Sha Kong Miu (South) SAI, Ngau Hom Shek SAI, Fu Tei Au SAI, Ngau Hom Sha SAI, Sheung Pak Nai SAI.

4.11.2 In addition to the nine SAIs, two areas of previous findings outside the SAI boundaries are known at Hang Hau Tsuen and the area between Ngau Hom Shek and Fu Tei Au SAIs. Furthermore, six areas of archaeological potential which require verification were identified.

4.11.3 There are furthermore declared monuments and graded historic buildings located in the vicinity of the Project. These are situated within the historical villages within the Project Site which includes Sha Kong Tsuen, Lau Fau Shan and Mong Tseng Wai/Mong Tseng

[4] The AFCD has launched the "Fish enJoy" Scheme in September 2025 to allow fish farms involved in aquaculture to run related leisure fishing activities. This helps enhance the public and tourist fishing experience, promote local fish products, and boost fish farmers' income.

Tsuen.

4.12 Landscape and Visual

4.12.1 The 100m Assessment Area is from Sheung PN in the west to TBT in the east, and from Deep Bay in the north to Shek Po Tsuen in the south, major road access to the area is Deep Bay Road and Lau Fau Shan Road. The field survey focused on surveying landscape resources (LRs) of conservation significance, such as secondary woodland, agricultural land, ponds, Fung Shui woodland, watercourses and tree species with conservation importance in areas of landscape concern.

4.12.2 Several sites of recognised conservation importance have been identified within or near the Assessment Area, including the following:

- TBT SSSI;
- Inner Deep Bay SSSI;
- PN SSSI;
- Egretry at Ngau Hom Shek;
- Egretry at Shenzhen Bay Bridge (SZBB) ;
- Egretry at Sha Kiu Village;
- Tin Shui Wai Hospital Egretry and ardeid night roost near Tin Shui Wai Hospital;
- CA at Yuen Tau Shan;
- CA at TBT;
- CPA at TBT;
- CPA at Lau Fau Shan;
- CPA at SZBB (North) ;
- CPA at SZBB (South) ;
- Country Park (CP)[5] at HKWP Special Area;
- Mangrove along waterfront of Lau Fau Shan area;
- Fung Shui Woodland at Ngau Hom Tsuen; and
- Ecological significant intertidal mudflat.

4.12.3 Neither registered Old and Valuable Trees (OVTs) nor Potentially Registrable OVTs (POVTs) were identified within the assessment area. Nevertheless, Trees of Particular Interest were identified within the assessment area.

4.12.4 The composition of existing Landscape Character Areas (LCAs) within the Assessment Area consists of 'Settled Valley Landscape', 'Upland and Hillside Landscape', 'Inter-tidal Coast Landscape', 'Strait Landscape', 'Rural Coastal Plain Landscape', 'Miscellaneous Urban Fringe Landscape', 'Miscellaneous Rural Fringe Landscape' and 'Residential Urban Landscape'.

[5] According to the approved Tin Shui Wai OZP Plan No. S/TSW/18, Country Park (CP) means a country park or special area as designated under the Country Park Ordinance (Cap. 208).

4.12.5 For visual, the major visual resources enjoyed by the public within the Project mainly comprise the open sea water of Deep Bay, the ridgelines from Yuen Tau Shan, Kai Pak Ling and Tin Shui Wai Shan and the natural wetland at TBT. Relevant visual resources and public viewing points (VPs)/ viewers will be identified as the Project proceeds with more details in the EIA study. Key public VPs that may be affected by the Project include:

(i) Lau Fau Shan Rest Garden;

(ii) Mong Tseng Wai Basketball Court;

(iii) TBT Lookout Pavilion;

(iv) Tin Shui Wai Shan - Northwest;

(v) Tin Shui Wai Shan - Southwest;

(vi) Tin Shui Wai Shan – Northeast;

(vii) Tin Shui Wai Shan – Southeast;

(viii) Kai Pak Ling;

(ix) Yuen Tau Shan;

(x) Deep Bay Road;

(xi) Sik Kong Tsuen Playground;

(xii) Ping Ha Road;

(xiii) Fung Kong Tsuen Road;

(xiv) Tin Shui Path;

(xv) HKWP;

(xvi) Lau Fau Shan Seafood Fishing Village;

(xvii) Shenzhen Bay Bridge;

(xviii) Existing open storage to be developed as future open space in HSK Planning Area 51;

(xix) Sha Chau Lei Sitting-out Area; and

(xx) Tin Sau Road Park; and

(xxi) Existing open storage to be developed as future open space in HSK Planning Area 57b.

4.12.6 The landscape and visual impacts of the Project will be addressed in the EIA study.

5. Environmental Protection Measures to be Incorporated in the Design and Any Future Environmental Implications

5.1 General

5.1.1 The EIA study will investigate those environmental impacts and propose the appropriate mitigation measures with the intention that all proposals would be environmentally acceptable and cost effective. The residual impacts, if any, would be confined within the allowable limits. Environmental monitoring and auditing of potential impacts that may arise from the works of the Project would be provided for the construction and operational phases. Subject to the findings of the EIA study, the following mitigation measures will be incorporated in the design and construction of the Project, where appropriate.

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 and gaseous emissions from the Project. Mitigation measures, including but not limited to the following, will be put in place:

- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;
- Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;
- A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones;
- The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
- For unpaved construction site, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
- When there are open excavation and reinstatement works next to a road, street, service lane or other areas accessible to the public, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;
- The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;

- Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;
- Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;
- Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first-floor level up to the highest level of the scaffolding;
- Any skip hoist for material transport should be totally enclosed by impervious sheeting;
- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;
- Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high-level alarm which is interlocked with the material filling line and no overfilling is allowed;
- Construction plant and equipment should be connected to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable;
- Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;
- Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.
- Avoid using exempted Non-Road Mobile Machinery (NRMMs) where practicable; and
- Implement phasing of the construction works.

5.2.2 The following good site practices shall also be implemented to minimise the potential odour impact from excavated sediment, if any.

- Cover the stockpiles of the excavated sediment with tarpaulin;
- Restrict stockpile of excavated sediment on site overnight;
- Transport away the excavated sediment on a daily basis; and
- Locate the excavated sediment as far as possible from ASRs.

<u>Operational Phase</u>

5.2.3 In order to mitigate adverse air quality and odour impacts, the following general mitigation measures will be put in place where appropriate:

(i) Vehicle Emissions from Existing and Planned Open Roads

- Provide adequate buffer distance in accordance with Hong Kong Planning Standards and Guidelines requirements, tree planting and dense shrub plantation, where appropriate, to separate the pedestrians and heavily trafficked roads.

(ii) Vehicle Emissions from Existing and Planned PTIs, Bus Termini and Public Parking

- Design of planned PTIs should be in accordance with the PN1/22 Practice Note for Control of Air Pollution in Semi-Confined Public Transport Interchanges;
- Adequate ventilation and dilution of vehicle exhaust should be provided; and
- Exhaust air outlets, if any, should be located away from ASRs.

(iii) Industrial Emissions from Existing and Planned Chimneys

- Provide adequate buffer distance between chimneys and ASRs.

(iv) Odour Impact from Existing Livestock Farms

- Use of active carbon filter at fresh air intake and locate the fresh air intake at a higher level, e.g. rooftop; and
- Remove farms if necessary.

(v) Odour Impact from Revamped Seafood Market

- Use of active carbon filter at fresh air intake and locate the fresh air intake at a higher level, e.g. rooftop;
- Designing the revamped seafood market to be fully enclosed and mechanically ventilated. The air inside the market would be expelled to the ambient environment through ventilation exhausts equipped with deodorizing units;
- Maximising the separation distances between exhaust outlets and the nearby ASRs;
- Conducting activities such as loading and unloading of products inside the revamped seafood market to contain potential odours;
- Storing organic waste in refuse bins with tight-fitting lids. All refuse should be frequently collected and disposed of by waste collectors; and
- Conduct frequent cleaning of floors and equipment, such as containers, in the market using water spraying.

(vi) Odour Impact from Existing and Planned SPS and Planned EPP

- Design should be in accordance with DSD's Standard Design on SPS, with all pumps located underground and enclosed within a structure/building, where appropriate;
- Locate the SPS/EPP as far as possible from ASRs; and
- Deodorization system should be installed and good housekeeping practice should be adopted.

5.3 Noise

Construction Phase

5.3.1 In order to mitigate adverse construction noise impacts, the following general mitigation measures will be put in place where appropriate:

- Implementation of good site practices to limit noise emissions at source;
- Use of Quality Powered Mechanical Equipment (QPME);
- Use of quiet construction method;
- Use of movable noise barrier and full enclosure for relatively fixed plant; and
- Scheduling of construction works outside school examination periods in critical area.

5.3.2 Good site practice and noise management techniques could considerably reduce the noise impact from construction site activities on nearby NSRs. The following measures should be practised during each phase of construction:

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;
- Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;
- Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;
- Mobile plant should be sited as far away from NSRs as possible and practicable; and
- Material stockpiles, site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.

Operational Phase

5.3.3 In order to mitigate adverse operational noise impacts, the following general mitigation measures will be put in place where appropriate:

(i) Road Traffic Noise and Transit Noise

- Adequate buffer zones with the NSRs;
- Optimise building design in the proposed building scheme, including the use of central air conditioning system as possible to avoid open window ventilation for proposed mixed use;
- Adopt alternative building orientation for some proposed schools;
- Install barrier or enclosure along proposed roads or boundary wall along residential building boundary could be considered to provide effective screening to the affected units;

- Adopt special building design (e.g. architectural fin, building orientation, noise tolerant building, podium, etc.) and other at-receiver mitigation measures (e.g. acoustic window, acoustic balcony, etc.) could be considered for some residential premises; and
- Use Low Noise Road Surface (LNRS) on proposed roads when the material is suitable for the specific road condition.

(ii) Fixed Noise

- Enclose all the pumps and noisy plants inside a building structure, including SPS, potential EPP, depots, the revamped seafood market, etc.;
- Proper selection of quiet plants aiming to reduce the tonality at NSRs; and
- Install silencers/ acoustic enclosure/ acoustic louvres at the intakes/exhausts to further minimise the noise impact.

(iii) Railway Noise

- The potential noise impacts from the planned HSWRL will need to be investigated in a separate EIA study by its project proponent and mitigation measures will be provided to ensure meeting the relevant criteria, as necessary.

5.3.4 The hierarchy for adopting the above noise mitigation measures should be agreed with the relevant authorities.

5.4 Water Quality

Construction Phase

5.4.1 In order to mitigate adverse construction water quality impacts, the following mitigation measures will be put in place where appropriate:

(i) General

- Removal of waterbodies such as watercourse and ponds should be avoided as far as practicable. If work is unavoidable, adequate impact assessment with appropriate mitigation measures following ETWB TCW No. 5/2005, especially for watercourses and ponds with moderate ecological value, should be conducted.

(ii) General Construction Activities and Construction Site Runoff

- Appropriate precautionary measures and guidelines specified in ProPECC PN 2/24 Construction Site Drainage should be followed to prevent site runoff from the nearby WSRs, watercourses, and Deep Bay. Effluent discharged from construction sites should comply with Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (DSS-TM).

(iii) Construction Works in Close Proximity of Inland Water

- Appropriate practices outlined in ETWB TCW No. 5/2005 should be adopted where applicable to minimise water quality impacts on nearby inland water including watercourses and ponds.

(iv) Sewage from Workforce

- Sewage discharge to drainage systems, watercourses, and marine waters are prohibited. Adequate portable chemical toilets should be provided to ensure all sewage is properly collected.

(v) Accidental Spillage of Chemicals

- Best practices of chemical storage practices such as storage under covered area, provision of secondary containment and material safety data sheets should be applied. Spill kits should be provided to handle spillage and the staff should be trained for handling spillage.

(vi) Contaminated Groundwater and Wastewater

- If excavations take place below the groundwater table, there may be a need to dewater the pits for safety and construction purposes; and
- All the contaminated water should be collected, treated and disposed in a manner in compliance with DSS-TM and other relevant guidelines.

(vii) Diversion of Watercourses

- Good site practices as described in ETWB TC(Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" and ProPECC PN2/24 "Construction Site Drainage" should be implemented to prevent adverse water quality impact to the surrounding environment and downstream areas.

(viii) Runoff from Removal/Filling Ponds

- Water in existing ponds shall be sampled and pre-treated if required before discharge. Proper management of the drained water and sediment shall be implemented to prevent release to existing watercourses.

Operational Phase

5.4.2 In order to mitigate adverse operational water quality impacts, the following general mitigation measures will be put in place where appropriate:

(i) Stormwater Runoff

- Proper drainage systems with gullies, silt traps and manholes installed will be provided for the proposed development sites and roads, so that runoff will be intercepted and common site debris, refuse and fallen leaves etc. can be captured before allowing the runoff to drain into the nearby watercourses.

(ii) Sewage from the Development (on-site EPP will be provided);

- The wastewater from the development should be pre-treated in the proposed EPP to comply with EIAO-TM requirements.
- A discharge license in accordance with the Water Pollution Control Ordinance (WPCO) should be applied by the operator before its operation. The effluent discharge should be assessed with methods agreed with EPD and comply with revised EIAO-TM wastewater treatment standards under Deep Bay WCZ and/or other relevant WCZ, and it will be sited away from natural water courses.

(iii) Emergency Discharge from Planned On-site EPP

- Given the sensitive nature of Deep Bay and nearby WSRs, contingency measures such as backup power supply, by-pass mechanism, and formulation

of an Emergency Response Plan prior to the plant's commission should be implemented to minimise water quality impacts in case of emergency discharge.

5.5 Waste Management Implications

Construction Phase

5.5.1 Recommended good site practices, waste reduction measures as well as the waste transportation, storage and collection are described in the following:

(i) Good Site Practice

- Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;
- Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- Provision of sufficient waste disposal points and regular collection for disposal;
- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;
- All dump trucks engaged in the Project should be equipped with Global Positioning System (GPS) or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of waste; and
- A Waste Management Plan (WMP) should be prepared by the contractor in accordance with ETWB TCW No. 19/2005 and submitted to the Engineer for approval.

(ii) C&D Materials

- Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;
- Carry out on-site sorting;
- Surplus artificial hard materials should be delivered to Tuen Mun Area 38 EcoPark where applicable for recycling into subsequent useful products;
- Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;
- Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials is properly documented and verified; and
- Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.

(iii) General Refuse

- A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.

(iv) Floating Refuse

- Proper waste management and training such as avoiding placing waste collection bins close to any water channels and covering construction materials well to prevent occurrence of wind-blown light materials.

(v) Chemical Waste

- The chemical waste should be collected by licensed chemical waste collectors for subsequent disposal at licensed chemical waste disposal facilities, for example the Chemical Waste Treatment Centre (CWTC) in Tsing Yi;
- Proper storage, collection, handling, transport and disposal of chemical waste will be managed in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste; and
- A Registered Asbestos Consultant shall be employed and be responsible for the asbestos investigation in case any buildings/structures containing ACM needed to be demolished for the Project.

(vi) Fishpond Sediment/Mud

- Standard good site practices should be implemented during the construction phase to minimise any potential exposure of contaminants from fishpond sediment/ mud to the workers and the associated potential impacts to the environment;
- On-site cement stabilisation/solidification of the fishpond sediment/mud and on-site reuse would be prioritised; and
- Disposal of sediment shall only be considered as the last resort.

Operational Phase

5.5.2 The following measures should be implemented to minimise the amount of waste to be disposed of at landfill:

(i) Municipal Solid Waste

- General refuse from residential and commercial buildings should be collected with lidded bins and delivered to a central collection point and stored in enclosed containers to prevent windblown, vermin, water pollution and visual impact. At least daily collection should be arranged by the waste collector.

(ii) Chemical Waste

- Localised chemical waste storage areas should be located close to the source of waste generation for temporary storage. Drum-type containers with proper labelling should be used to collect chemical wastes for storage at the designated areas;
- Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. All chemical wastes generated from laboratories should be dealt with according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes under the provisions of the Waste Disposal (Chemical Waste) (General) Regulation; and

- Chemical wastes should be disposed at an appropriate waste disposal facility, such as the CWTC in Tsing Yi.

(iii) Screenings, Grits and Dewatered Sludge

- The screenings, grits and dewatered sludge shall be delivered by land transport in watertight containers or skips to avoid odour emission during transportation. The solid waste unloading process shall be operated in the enclosed designated room inside the EPP and served by negative pressure by extracting odorous gas to deodorising unit. The dewatered sludge is suggested to be disposed of at T·PARK in Tuen Mun on a regular basis.

5.6 Land Contamination

5.6.1 Subject to the identification of any contaminated land, mitigation measures will be determined with reference to EPD's documents such as "Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management", "Guidance Note for Contaminated Land Assessment and Remediation", and "Practice Guide for Investigation and Remediation of Contaminated Land" during the EIA study.

5.7 Landfill Gas Hazard

5.7.1 There is neither existing nor closed landfill located close to the Project, and the Project is beyond the 250m CZ of WENT Landfill. Hence, there is no potential LFG hazard. LFG hazard assessment and mitigation measure are not required for the Project.

5.8 Hazard to Life

5.8.1 General measures listed below are proposed to minimize the risk:

- Provision of emergency plan to construction workforce for efficient evacuation; and
- Optimization of routing for construction trucks to avoid pass though the LPG cum Petrol Filling Station at Ping Ha Road and planned Town Gas Station as far as practicable.

5.9 Ecology

5.9.1 Ecological impact assessment shall be carried out under the EIA study. Avoidance and minimisation of any direct impacts/disturbance to habitats and associated wildlife would be taken into account in the ecological impact assessment before the proposal of any mitigation / compensation measures.

5.9.2 The Project including draft RODP and CPP has avoided direct impact on recognised sites of conservation importance including TBT and PN SSSIs, the Mai Po Inner Deep Bay Ramsar Site, the HKWP Special Area, the proposed HKWP Expansion Area, Deep Bay Wetland Outside Ramsar Site Priority Site for Enhanced Conservation under NNCP, WCA and the mitigation wetland created under the Deep Bay Link Project through appropriate design and zonings. Development within WBA and CA would be minimised as far as practicable. The EIA study will further assess the ecological impacts of the development within WBA and CA.

5.9.3 The important intertidal wetland ecosystem within the CPP comprised of fishponds, mangroves, seagrass beds and coastal mudflats is also avoided. The future land uses would review the interface with CPP and ensure a buffer is suitably incorporated in the CPP.

5.9.4 The ardeid night roost and egretry near Shenzhen Bay Bridge would be protected under the CPP and land uses as needed. The Sha Kiu Village Egretry is situated in an area that would be under the zoning of eco-tourism uses, as such no direct impacts to the breeding colony is anticipated. Likewise, the Fung Shui woodland at Ngau Hom Tsuen would also be preserved. Egretry and ardeid night roost near Tin Shui Wai Hospital are located outside the Project Site and hence would be preserved.

5.9.5 Protection from hill fire and erosion, as well as enrichment planting on remaining grassland and shrubland within the Project or Assessment Area should be implemented to increase the ecological value.

5.9.6 In order to avoid impacts of run-off causing pollution or sedimentation in the habitats adjacent to the Project Site, it will be necessary to implement standard construction site practices in these sites that limit run-off into adjacent water bodies. Generally, indirect water impact to any aquatic fauna during the construction phase should be avoided by implementing water control measures (ETWB TCW No. 5/2005) to avoid direct or indirect impacts on any watercourses and good site practices.

5.9.7 Although local examples have demonstrated that breeding and roosting ardeids can tolerate certain levels of existing human disturbance, it is impossible to precisely predict their potential response to additional disturbance impacts. As such, for prudence's sake, all direct and indirect impacts to these colonies should be avoided, even though these colonies only support a low number of birds in general.

5.9.8 Specific flightline surveys will need to be carried out to establish the existing baseline condition regarding avifauna movement in the Assessment Area. Any proposed development will need to address the implications to avifauna flightline and provide appropriate mitigation measures where necessary.

5.10 Fisheries

5.10.1 Most of the fishponds within the Assessment Area would be preserved and zoned within the CPP. The anticipated fishpond loss would be kept to a minimum.

5.10.2 The existing Seafood Market would be revamped to strengthen and enhance the area as a local hotspot for residents and as a tourist attraction for experiencing the seafood culture in Hong Kong. It is believed that the attraction would create synergistic effects with the local fisheries industry (especially oyster culture), boosting sales and production.

5.10.3 Within the Project, there is great potential for sustainable fisheries development. Potential initiatives include setting up of an oyster hatchery base and plants to enhance the safety and quality of local oysters; restoration of traditional oyster culture method on intertidal mudflat to create oyster reef; developing leisure fisheries at inland fish farms; investigating fish hatching and larval rearing techniques in brackish water ponds, etc.

5.10.4 In general, strict construction procedure and good site practice as specified in the ProPECC PN 2/24 should be followed to prevent potential indirect impacts on the pond area.

5.10.5 As for surface run-off, implementation of the recommended mitigation measures for water quality impacts would prevent the adverse water quality impacts to the nearby environment.

5.10.6 Construction should be conducted in phases to reduce impacts to traffic flow. Temporary traffic arrangements should be instigated to maintain or provide alternative access to ponds during construction phase (should it be required). The detailed arrangement can be discussed with the contractor before the construction period. The access to the fish ponds will not be blocked in the operational phase.

5.10.7 Standard mitigation measures to control site runoff and other pollutants caused by construction activities and good site practices will be implemented during the construction phase of the Project. Excavated material and other inert construction wastes produced will be transferred to proper recipients.

5.11 Cultural Heritage

5.11.1 Cultural Heritage Impact Assessments (CHIA) including Archaeological Impact Assessments (AIA) and Built Heritage Impact Assessments (BHIA) will be undertaken under the EIA as needed. CHIA will assess the potential direct and indirect impacts on cultural heritage and the impacts on cultural heritage will be avoided as far as practicable. If unavoidable, mitigation measures for the direct and indirect impacts on cultural heritage will be proposed and implemented with prior agreement with the Antiquities and Monuments Office (AMO).

5.12 Landscape and Visual

5.12.1 Possible key measures to reduce potential landscape and visual impacts include:

Landscape Mitigation Measures During Construction Phase

- Optimise construction activities, e.g. minimising extent of temporary works area, installing site hoardings and minimising illumination on non-target areas;
- Tree preservation proposal;
- Transplanting of existing affected trees; and
- Prevention and restoration of watercourses and man-made channels.

Mitigation Measures During Operational Phase

(i) Landscape and Visual Mitigation Measures

- Provision of blue-green corridors/infrastructures;
- Provision of greening and aesthetic architectural design of aboveground structures and infrastructure to enhance landscape and visual aesthetic of the area in proximity;
- Proposal of buffer planting;

- Re-instatement of excavated area;
- Compensatory tree planting for the proposed felled trees; and
- Landscape re-instatement and establishment of new vegetation along the man-made slope areas.

(ii) Additional Visual Mitigation Measures

- Reinstatement of streetscape elements;
- Implement aesthetic design on noise barrier to reduce visual bulkiness and incorporate aesthetically pleasing surface treatments to promote visual amenity; and
- Chromatic design in colour tone and treatments of building façade and engineering structures should be visually unobtrusive and compatible with surrounding context.

6. Use of Previously Approved EIA Reports

6.1.1 Reference may be made to the following previously approved EIA reports listed in **Table 6.1**. The environmental aspects addressed in those approved EIA reports included air quality, noise, water quality, waste management, land contamination, ecological, fisheries, cultural heritage and landscape and visual impacts. The environmental impacts and measures recommended are referenced with nature, scale, location and surroundings of similar major sources and sensitive receivers.

Table 6.1 Reference of the previously approved EIA

Register No.	Title	Date of approval
AEIAR-064/2002	Deep Bay Link	13 Sep 2002
AEIAR-134/2009	Hang Hau Tsuen Channel at Lau Fau Shan	1 Apr 2009
AEIAR-203/2016	Hung Shui Kiu New Development Area	15 Dec 2016

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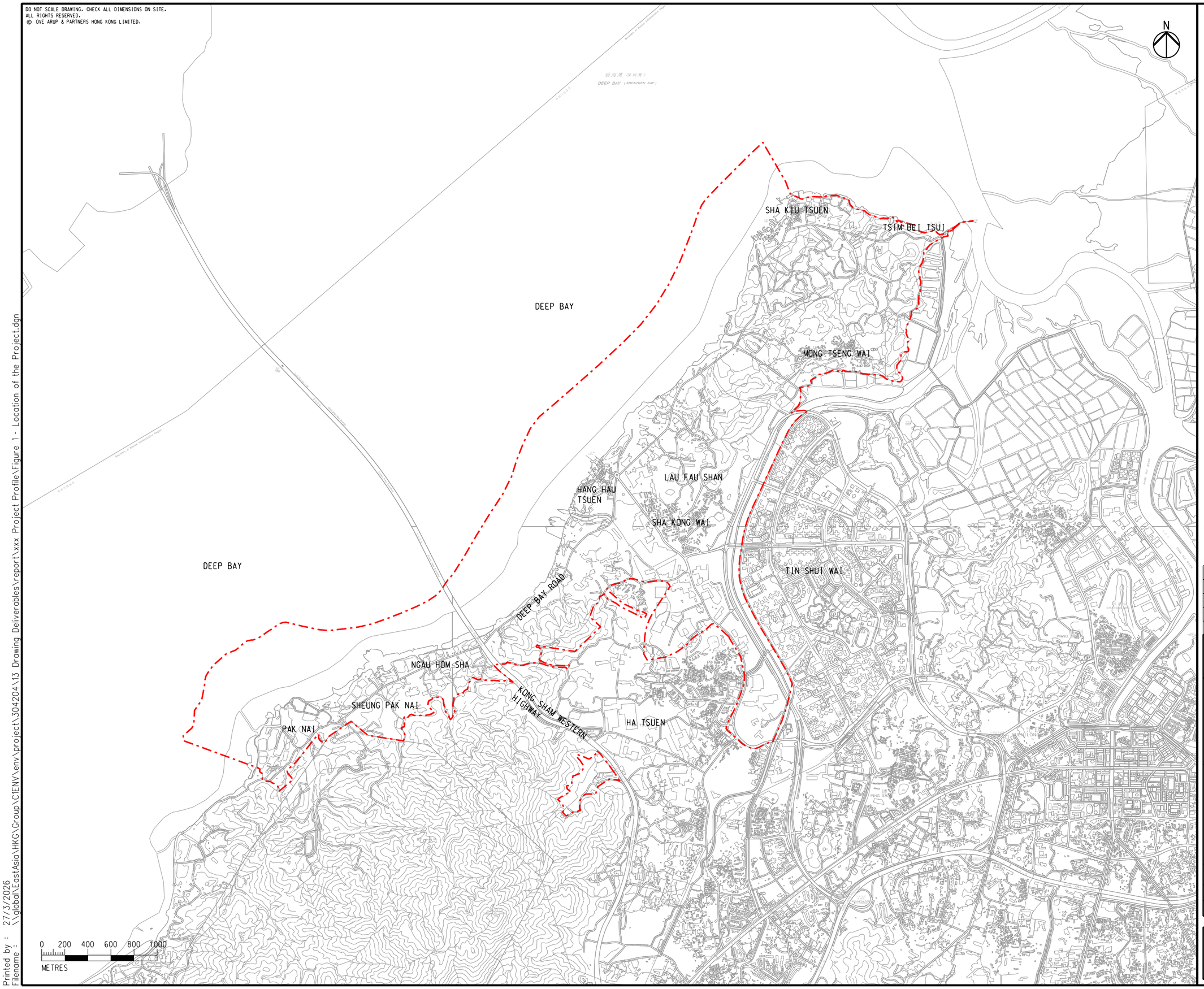
Figure



LEGEND

THE PROJECT

NOTE:
SITE BOUNDARY IS INDICATIVE ONLY, SUBJECT TO REVIEW AND UPDATING UNDER THE STUDY

Rev	Description	By	Date
D	FOURTH ISSUE	GL	03/26
C	THIRD ISSUE	GL	12/25
B	SECOND ISSUE	GL	11/25
A	FIRST ISSUE	GL	09/25

Consultant
ARUP AtkinsRéalis
Arup - AtkinsRéalis Joint Venture

Project Title
Development at Lau Fau Shan, Tsim Bei Tsui and Pak Nai Areas

Drawing title
LOCATION OF THE PROJECT

Drawing no.			Rev.
FIGURE 1			D
Drawn	Date	Checked	Approved
GL	03/26	RC	FC
Scale		Status	
1:30000 @ A3		PRELIMINARY	

CEDD 土木工程拓展署 Civil Engineering and Development Department
規劃署 Planning Department

Printed by : 27/3/2026
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\304204\13 Drawing Deliverables\report\xxx Project Profile\Figure 1 - Location of the Project.dgn