1. Introduction

The existing Frontier Closed Area (the Closed Area) was first established in 1951. The Security Bureau reviewed the extent of the Closed Area and announced on 7 September 2006 that the Closed Area boundary will be revised. In January 2008, the final revised Closed Area boundary was confirmed and about 2,400 hectares (ha) of land will be released from the original 2,800 ha Frontier Closed Area in phases. To examine the future use of the areas to be released from the Closed Area and put them under planning control, this Study will carefully examine the development potential and constraints of these areas.

The purpose of Working Paper (WP) No. 1 is to provide an overall appreciation of the Study Area and to form an inventory of baseline conditions to facilitate subsequent planning works in the Study. This WP, together with the SEA Baseline and Key Issues Report will identify areas of historical, ecological, landscape and conservation importance for protection as well as development opportunities for assessment on their development potential.

The environmental, ecological, cultural and archaeological issues are discussed separately in the SEA Baseline and Key Issues Report. (link to Executive Summary of the SEA Baseline and Key Issues Report)

2. Physical Setting and Topography

The Study Area is situated at a strategic location in the northern part of the New Territories, with Shenzhen to its immediate North. It spans from Starling Inlet in the east to Deep Bay in the west. There are five existing Boundary Control Points, with the sixth proposed at Liantang / Heung Yuen Wai.

The Study Area can be subdivided into three broad areas, namely the western, middle, and eastern portions. The western portion is mainly fishponds, with cultivated flat land and also some mountain ridges. The middle portion is an area with extensive areas of cultivated land on flatland in Ta Kwu Ling and Heung Yuen Wai, with hills at Sandy Ridge and uplands near Kong Nga Po. The eastern portion consists a mix of woodland, shrubland and grassland on mountain ridges and valleys in the surrounds of Robin’s Nest.

3. Planning & Land Use

In terms of Strategic Planning, there are a number of current issues that are of concern with the Study Area. They include the Guangzhou-Shenzhen Hong Kong Express Rail Link, Hong Kong-Shenzhen Joint Development of the Lok Ma Chau Loop, Proposed New Development Areas (NDAs) at Kwu Tung North, Fanling North, Ping Che and Ta Kwu Ling. In addition to these issues, documents in the HK2030 Study, such as Working Paper (WP) No. 32 on the Development Potential of Frontier Closed Area, WP No. 45 on Assessment of Housing Land Requirement and Supply, WP No. 48 on Ecoledge Development, and other reports such as the Extention of Existing Landfills and Identification of Potential New Waste Disposal Sites, Planning Study on Liantang / Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads Feasibility Study, shed light on the development possibilities within the Study Area.

In a Sub-Regional Context, studies such as the Review of Rural Land Uses in Northern New Territories, North West New Territories (NWNT) Development Strategy
Review – Recommended Development Strategy, Development of Tourism in the Northern New Territories have been reviewed and made reference to.

In terms of Local Planning Context, all of the areas covered under nearby Statutory Plans and Departmental Plans, as well as the Town Planning Board Guidelines which are based on the findings of the “Fish Pond Study” has been considered, and Site Visits to the Recognized Villages and the surrounding areas have been conducted to ascertain the local conditions of the Study Area.

4. Broad Socio-Economic Conditions

Analysis on existing and projected Population has been performed based on available data from the Census and Statistics Department. It is found that across different portions of the Study Area, there is a significant proportion of aged population and of people with education attainment below tertiary level, and that population are concentrated in villages. There are more than 20 villages within the Study Area with population of approximately 3,000.

Economic activities in the Study Area include mostly fisheries and farming in the western portion, agriculture and a little bit of open storage in the middle portion, and local retail businesses and workshops in the eastern portion mostly in the Sha Tau Kok Area.

5. Land Matters

The Study Area, with a total site area of 2,330ha, comprises both Government land and private land. About 78% is Government land and 22% is private land. The Government land is mainly concentrated in the western and eastern portion of the Study Area while the private land is mainly located in the middle portion of the Study Area.

The existing land use within the Study Area includes hilly terrain, natural landscape, Government uses, villages, agriculture land, fish ponds, open storage area, cemeteries, and burial grounds.

About 520 ha of the Study Area is covered by OZPs, namely the Approved Mai Po and Fairview Park OZP, the Approved San Tin OZP and the Approved Fu Tei Au and Sha Ling OZP.

6. Environmental & Ecological Conditions

Baseline information and key issues related to environmental and ecological issues are described in the SEA Baseline and Key Issue Report. ([link to Executive Summary of the SEA Baseline and Key Issues Report](#))

7. Site Wind Availability Conditions

The Study Area is located within the Deep Bay Airshed. Seasonal variation was observed at the western part of the Study Area: north-easterly winds dominate the fall and winter seasons, while the south-easterly winds dominate the spring and summer seasons. To the eastern part of the Study Area, southeasterly winds dominate throughout the year.
8. Cultural Heritage & Archaeological Resources

Baseline information and key issues related to cultural heritage and archaeological resources are described in the SEA Baseline and Key Issue Report. (link to Executive Summary of the SEA Baseline and Key Issues Report)

9. Urban Design

The broad land uses in the Study Area include control points, village settlements, agricultural and flat land, wetlands, and hilly terrain. These major land uses, combined with the major infrastructure such as railway lines, and the predominantly natural setting within and outside the Study Area provide urban design opportunities for implementation in the future.

Active preservation would be provided in the western portion for wetland and fishponds, and the establishment of viewpoints that offer panoramic views between the New Territories and Shenzhen. Appropriate development near the existing boundary crossings and adaptive reuse of vacant houses and disused schools could be provided in the middle portion. Due to hilly and mountainous terrain, major development is not recommended in the eastern portion, thus development of passive recreation and tourism / eco-tourism such as Country Park, hiking trails, etc. should be encouraged.

10. Landscape Resources

The methodology of providing preliminary evaluation of baseline condition of potential landscape character areas (LCAs) and landscape resources (LRs) aims to identify the key landscape zones which are NO-GO areas with no development in order to preserve their original character and value. High valued key landscape zones are classified as NO-GO areas during the initial stage of the Study.

For high sensitive LCAs and LRs, minimizing the affected areas should be recommended during the preparation of Concept Plan and Development Plan. For medium and low sensitive LCAs and LRs, if the disturbance of LCAs and LRs is inevitable, it is recommended to provide proper mitigation measures to compensate the loss of LCAs and LRs in terms of quantity and quality in order to maintain the characteristics of existing LCAs and LRs as much as possible.

11. Traffic and Transportation

Pursuant to the Frontier Closed Area Order (Cap. 245A) access to the Closed Area is controlled by the Police through the issuance of Closed Area permits based on actual need to enter the Closed Area. All roads within the Closed Area boundary designate as Closed Roads under the Road Traffic (Traffic Control) Regulations (Cap. 374G). Vehicular access is controlled through the issuance of closed road permits.

Existing Road & Rail Network:

5 out of the 7 land boundary-crossings fall within the Study Area, namely Lok Ma Chau (LMC), Man Kam To (MKT), Sha Tau Kok (STK), Lo Wu (LW), and Lok Ma Chau Spur Line (LMCSL). The former 3 are originally designed mainly for freight traffic, while LW and LMCSL have been designed for passenger-only crossing right from the beginning. With the continuous increase in cross-boundary vehicular and passenger traffic, LW, LMC, MKT, STK are approaching their design capacities.
San Tin and Fanling Highways are vital parts of Route 9 and they distribute the Closed Area traffic and the cross-boundary vehicles to/from LMC, MKT and STK to the rest of the territories.

Being the accesses to the control points at MKT and STK, traffic volume and corresponding proportion of heavy vehicles along Man Kam To and Sha Tau Kok Roads are higher as compared with other local roads within the Closed Area. Both are currently operating within capacity. Ping Che, Kwu Tung, Ma Tsao Lung, Lok Ma Chau, Lin Ma Hang, Lo Wu Station, and Wo Keng Shan Roads are local roads serving local villages with low volume of traffic. However, traffic queues were observed occasionally along these local roads during the peak hours due to manoeuvring of long vehicles.

East Rail, Sheung Shui – Lok Ma Chau Spur Line and West Rail are the railway services running within the Study Area. Journeys from Lo Wu of East Rail and from Lok Ma Chau of the Spur Line to East Tsim Sha Tsui are about 42 – 44 minutes. While, it takes only 30 minutes from Tuen Mun to Nam Cheong via the West Rail.

There are several highways and rail projects committed/planned within the Study Area, including:

1. Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling (completion by early 2013).
2. Tuen Mun Western Bypass and Tuen Mun – Chek Lap Kok Link (completion by 2016).
3. Liantang / Heung Yuen Wai BCP Connecting Road (currently under reviewed by PlanD).
4. Fanling Bypass (no fixed timetable).
5. The future Northern Line (NOL)
6. Guangzhou - Shenzhen - Hong Kong Express Railway (ERL) – Hong Kong Section (Construction expected to commence in 2009).

12. **Infrastructural & Engineering**

**Drainage, Sewerage and Water Supply**

The study area spread from Sha Tau Kok to Lo Ma Chau and stormwater runoff from these areas is conveyed to Shenzen River through number of primary and secondary drainage systems. The flooding condition within the study area has been improved considerably after the implementation of recent drainage improvements works. But, these drainage systems have not been designed to cater for flow from the proposed development in the Closed Area.

There is no existing or planned sewerage system within the study area except some local treatment works to collect, treat and dispose sewage from local villages. These local treatment works will not be able to cope with the additional flow from the proposed development in the Closed Area.

There is existing water supply network but it has only designed to cater for scattered villages within the closed area.
Public Utilities

CLP Power and telecommunications are the major utility services within the Study Area. Most of the power cables are laid along the existing road networks and supplied to the existing boundary control points and villages within the Study Area. Gas main is only found in the western portion of the Study Area.

13. Geotechnical Conditions

Western part of the study area is located in an area of relatively complex geology, including various sedimentary strata and possibly marble subcrop. This portion of the study area mainly comprises low-lying lands covered by thick superficial deposits with some hilly terrains towards the east. The thick superficial deposits in the low lying grounds are poor for foundation because of settlement and bearing capacity problems. Ground improvement works are likely to be required for any facilities constructed on grounds underlain by these deposits.

Eastern part of the study area is mainly occupied by mountainous terrain generally covered by tuffs of the Tsuen Wan Volcanic Group. Certain parts are very steep in which development is not feasible.

There are numerous registered man-made slopes / walls within the study area. Their stability needs to be assessed for any development affected or to be affected by these features. Moreover, several faults are noted to run across the study area. Locally there could be deeper rockhead close to some of the faults and within the faulted areas it is anticipated that the rock mass quality will substantially deteriorate and groundwater inflows will increase.

14. Public Comments Received

Public comments were collected subsequent to the announcement of the revised Closed Area boundary in September 2006. In addition to comments received by Planning Department via their website, public forums, workshops and meetings with relevant stakeholders such as district councils, green groups, governmental bodies/advisory groups were conducted to collect their views. Among the comments received, they could be generally categorized into the following: strengthen nature conservation, respect indigenous villagers rights, promote heritage and eco-tourism, enhance investment opportunity and cross boundary co-operation, encourage development, improve local transport linkage and infrastructural provision.

15. Land Use Review & Examination of Key Issues

15.1 Non-Development Areas

Given the sensitive resources within the Study Area, a number of Non-Development Areas have been defined so that those resources will not be disturbed or infringed upon. They include the following:

- No-Go Area: area with highly sensitive resources such as Sites of Special Scientific Interest;
- Conservation Area: area to be preserved and protected with public-private partnership approach;
- Villages: rural village environs
- Recreation Area: area with recreation and tourism potential
• Highly sensitive landscape character areas
• Areas of Major Environmental Constraints, High Ecological Values, Major Cultural Heritage Constraint, Major Archaeological Constraints that are discussed in the SEA Baseline and Key Issues Report.

15.2 Agricultural Land

Areas of inactive and active agricultural land, both dry and wet, are located to the east of Lo Wu Boundary Crossing, lying in Ta Kwu Ling and Heung Yuen Wai areas. Assessment of the agricultural and ecological value of agricultural land in the Study Area will be made in consultation with AFCD.

15.3 10-year Small House Demand in Recognized Villages

Sufficient land reserve should be provided for the forecasted expansion of these Recognized Villages. Based on information provided by Lands Department, the total 10-year demand forecast of Small Houses to 2016 is about 1,600 houses, which equals to approximately 47 hectares of land.

15.4 Relationship with Surrounding Areas

Relationship with surrounding areas includes a review of the comprehensive planning documents in Shenzhen, and also studies / proposals prepared by various research groups. For nearby surroundings on the Hong Kong side, the various Outline Zoning Plans (OZP) in adjacent areas have been studied and reviewed. Besides the rural setting within the Study Area, the Fanling / Sheung Shui New Town is to the south of the Study Area, with Pat Sin Leng Country Park to the southeast of the Study Area. The proposed New Development Areas (NDAs) of Kwu Tung North, Fanling North and Ping Che / Ta Kwu Ling are located to the immediate south of the Study Area.

15.5 Development Constraints

Various areas within the Study Area face development constraints, including the following:
• Area of High Ecological Significance including the Ramsar Site, Wetland Conservation Area, Wetland Buffer Area, Sites of Special Scientific Interest, etc.;
• Areas that are prone to adverse environmental impacts such as air sensitive uses, noise sensitive uses, water sensitive uses, areas possibly subjected to environmental impacts from LMC Loop will be incorporated for findings of LMC Loop Study, areas with waste implications, areas of possibly subjected to hazards from the nearby Sheung Shui Water Treatment Works and Landfills, etc
• Areas of high landscape value;
• Areas of high heritage and cultural value including declared monuments, graded historic building, important archaeological sites, recognized indigenous villages (Boundaries of Village Environs subject to further confirmation), Fung Shui areas;
• Traditional burial grounds (Boundaries of Permitted Burial Grounds subject to further confirmation); and
• Natural Terrains that are of development risk.
15.6 Recreational / Tourism Potential

The vast resources in the Study Area offers various recreational and tourism potential in Cultural Heritage, Ecological Resources, Scenic Landscape, Archaeological, Historical and Architectural, Hiking Trail, Village Life Experiencing. Development proposals stem from each discipline, such as proposals for Country Park, cultural and heritage trails linking graded historical buildings and heritage structures, ecological and hiking trails, etc.

15.7 Possible Sites for Development

Western and eastern portions of the Study Area are of high ecological value and areas of high cultural and heritage significance. These areas of unique value can serve as tourist spots for visitors and residents. The middle portion face constraints from many villages, burial grounds, and agricultural land. Large-scale development is again not likely to be possible. On the other hand, the Shenzhen side is highly urbanized and therefore the eco-tourism and recreational spots in this part of Hong Kong and will also serve as supporting facilities to the residents in Shenzhen. Proposed uses including Eco-lodge, Historical / Cultural Heritage Trail and Village Life Experience, Retirement Village, etc will be recommended in the whole study area.

15.8 Possible Sites for Conservation

Ecological sites required for conservation have been identified, they are Mai Po Inner Deep Bay Ramsar Site, Tam Kon Chau and Mai Po egreties, Lok Ma Chau-San Tin fishponds, Ho Sheung Heung egretery, Lin Ma Hang Stream and Lead Mines SSSI, shrubland and forest areas from Lin Ma Hang to Pak Kung Au.

Cultural heritage and archaeology site required conservation have been identified, they are:

- Sha Tau Kok Area: Shan Tsui, Sheung Tam Shui Hang, Ha Tam Shui Hang, Tsiu Hang, Muk Min Tau, San Tsuen Shueng Wai, Sha Tau Kok San Tsuen Archaeological Site, Tong To
- Tau Kwu Ling Area: Lin Ma Hang, Heung Yuen Wai, Ha Heung Yuen, Tsung Yuen Ha, Kan Tau Wai, Tong Fong, Muk Wu Nga Yiu Tsuen, Muk Wu Tsuen, San Uk Ling, Fung Wong Wu: Chow Tin Tsuen
- Lok Ma Chau Area: Liu Pok, Lok Ma Chau
- MacIntosh Forts at Ma Tso Lung, Nam Hang, Nga Yiu, Pak Fu Shan, Kong Shan and Pak Kung Au (Grade II), Ta Kwu Ling Police Station (Grade III) and Lok Ma Chau Police Station (Grade III).

15.9 Infrastructure Facilities in Support of Development Needs

To cater for the potential development in the Closed Area, sufficient and adequate infrastructure provisions are required to support the development needs.