

11 LAND USE IMPACT

11.1 INTRODUCTION

As specified in the *EIA-Inception Report*, the land use impact assessment will involve:

- identification and assessment of the short-term and long-term implications on land uses in the vicinity of the Project, with reference to the temporary land use proposal during construction, Master Development Plan (MDP) and Master Landscape Plan (MLP); and
- recommendation of appropriate cost-effective mitigation measures to minimise the adverse effects associated with the Project, such as the operational road traffic noise around the new road systems, and restraints on the development potential of the areas near the Site.

Mitigation measures to alleviate adverse environmental impacts will be suggested and any residual impacts resulted will be identified.

11.2 PLANS AND GUIDELINES

11.2.1 Statutory Plan

The proposed reclamation area of the Project is adjacent to the Sham Tseng township that is covered by the draft *Tsuen Wan West Outline Zoning Plan (OZP) No. S/TWW/11 (Figure 11.2a)*. As shown in the OZP, the existing land use of Sham Tseng are predominately residential and village type development, with a concentration of "G/IC" and commercial use located in the town centre. In the vicinity of the town centre are three "Comprehensive Development Area" ("CDA") sites accommodating residential developments and industrial premises of the Garden Bakery. The areas are zoned "CDA" in the light of urban expansion and the changing character of Sham Tseng Township. The ultimate planning intentions of these "CDA" sites are to phase out the industrial activities, remove the industrial / residential interface problems in the area and encourage comprehensive redevelopment of the existing lots for commercial and residential purposes. A scattering number of open spaces can be found near the town centre.

11.2.2 Non-statutory Plans

Under the *Tsuen Wan West Outline Development Plan (ODP) No. D/TWW/2* approved in 1987, a reclamation of 6.2 ha in area abutting Lido Garden was proposed. Most of this proposed reclamation is used for Residential Zone 1 (R1) and District Open Space. Other uses include commercial and bus terminus.

In addition, the *Sham Tseng Further Reclamation Layout Plan (LP) No. L/TWW/50/B* was prepared in 1995. Though not yet adopted, this LP provides information on the latest planning intention with consideration on the proposed reclamation in the Sham Tseng Area. The proposed reclamation on the LP has a different configuration but the size is about the same as the one shown on the ODP.

11.2.3 *Non-statutory Guidelines*

The *Hong Kong Planning Standards and Guidelines (HKPSG)* provides the non-statutory guidelines with regard to the provision of open space, recreational facilities, schools, housing development, etc.

The 1997 *PHI Register* for the existing and proposed potentially hazardous installations (PHIs) issued by the Planning, Environment and Lands Bureau recommends a 400 m Consultation Zone Radius for the Sham Tseng Water Treatment Works which is located north-east from the proposed Sham Tseng Development. Development falling within the Consultation Zone Radius should require risk assessment.

11.3 DESCRIPTION OF THE ENVIRONMENT

11.3.1 *Existing Land Uses*

The Sham Tseng neighbourhood is predominately residential in character with some residual industrial activities. The town centre of Sham Tseng is occupied by G/IC facilities such as a market, emergency services and schools, and by commercial uses of which the roasted goose restaurants are the most famous.

Existing developments in the Sham Tseng area are shown in *Figure 11.2a*.

Residential

The predominant existing land use in the vicinity of the proposed reclamation is residential. Major residential developments along the Castle Peak Road (CPR) include Sea Crest Villa, Lido Garden, Rhine Garden, Rhine Terrace, Ocean Pointe and the ex-San Miguel Brewery Redevelopment currently under construction. These residential sites are zoned "Residential (Group A)" ("R(A)"), "Residential (Group B)" ("R(B)") and "Comprehensive Development Area" ("CDA"). There are also some traditional villages situated to the north, west and east of the Sham Tseng Area, including Sham Tseng San Tsuen, Sham Tseng Kau Tsuen, Sham Tseng Tsuen, Pai Min Kok Village and Sham Tseng Tung Tsuen. These villages are zoned "Village Type Development" ("V").

Commercial

The small sub-district commercial centre located in the Sham Tseng town centre is low density in nature and is characterised by the cluster of roasted goose restaurants which have attracted customers from the territory.

Government, Institution and Community

A range of G/IC facilities including a market, a fire station cum ambulance depot, a neighbourhood police centre, a primary school and public utility installations are located in the Sham Tseng town centre.

Industrial

There were previously three major industrial sites in Sham Tseng, namely the San Miguel Brewery, the Union Carbide Chemical Storage Depot and the Garden Bakery. Both San Miguel and Union Carbide have stopped their operations. The only residual industrial use in the area is the Garden Bakery that is zoned "CDA". The long term planning intention of this site is for commercial / residential purposes. There are also a number of small workshops located near Pai Min Kok Village.

Open Space

There are three sites zoned "Open Space" in the vicinity of the proposed reclamation. Two are located near the Sham Tseng San Tsuen and Sham Tseng Kau Tsuen. The third one is the Anglers' Beach which is a gazetted beach.

Pier

There is a pier near the Anglers' Beach, providing kaito services between Sham Tseng and Ma Wan.

Drainage Channels

There are two open nullahs in the area, one lies between the former San Miguel Brewery and the former Union Carbide Chemical Storage Depot, the other lies between the San Miguel Brewery and Lido Garden.

Water Treatment Works

The Water Supplies Department (WSD) Sham Tseng Water Treatment Works (WTW) is located more than 400 m north-west from the proposed Sham Tseng Development.

11.3.2 Committed Developments

Besides the existing developments, there are a number of committed development projects which will be undertaken in the vicinity of the proposed reclamation in the near future. These major developments are shown in *Figure 11.3a* and are described as follows:

Residential

Residential developments have been approved by the Town Planning Board at the CDA sites which were previously occupied by the San Miguel Brewery and the Union Carbide Chemical Storage Depot respectively. The residential development at the former San Miguel Brewery site will accommodate some 3354 private flats of an average size of about 75 m² and a primary school as required by the OZP. The residential development at the former Union Carbide site will accommodate 560 flats of an average size of about 80 m².

Sections of nullahs adjacent to both sides of the former San Miguel Brewery will be decked by the developers of the former San Miguel Brewery and / or former Union Carbide sites. The decked nullahs will be opened for public use. These decked nullahs will be further extended through the STD. Upon the completion of STD, the waterfront promenade at the residential development at the former San Miguel Brewery and Union Carbide will become a sitting out area/open space/amenity area, etc.

Sewage Treatment Works

The Ting Kau and Sham Tseng Sewage Treatment Works (TKSTSTW) has been proposed in the *Tsuen Wan, Kwai Chung and Tsing Yi Sewerage Master Plan Study* to serve the Sham Tseng Area which is currently not served by any public sewer. The TKSTSTW has been proposed to be located on the southern portion of the newly formed reclamation (TKSTSTW reclamation) to the south-east of the Garden Bakery.

Electricity Sub-station

A new electricity sub-station (ESS) will be located at the G/IC zone on the STW Reclamation. This sub-station will serve the Sham Tseng Area including the proposed STW and the proposed reclamation.

Open Space

According to the Leisure and Cultural Services Department (LCSD), a basketball court with sitting out area is planned for the Open Space zone on the STW Reclamation. The open space will not only address the shortfall of open space in the district, but will also serve as a buffer between the future residential developments on the CDAs and the STW.

Castle Peak Road Widening

Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan - Design and Construction Consultancy has been commissioned by the Highways Department. The section of CPR running through the Sham Tseng area will be widened. The construction work is expected to commence in 2000 and will be completed in early 2005.

11.4

ASSESSMENT METHODOLOGY

Based on the proposed MDP and MLP presented in the Planning - Final Report, land use impacts during the reclamation works, construction of the proposed new developments and during operation of the proposed new developments were assessed. The assessment considered the existing land use near the construction site, the potential environmental impacts upon the existing sensitive receivers, the land use compatibility, and views from the residential developments.

11.5

POTENTIAL LAND USE IMPACTS UPON IMPLEMENTATION OF THE PROPOSED RECLAMATION AND PROPOSED NEW DEVELOPMENTS

11.5.1

Proposed Land Use Impacts during Reclamation Work

The proposed development in the Sham Tseng Area covers an area of approximately 15.2 ha and will be conducted in four phases (*Figure 2.7a*). The reclaimed area in Phase 1 extends from the shore just off the Sea Crest Villa Phase 3 to the Anglers' Beach. The reclamation work is tentatively scheduled to commence in November 2004 and will be completed in March 2006. Phase 2 reclamation covers the area in front of the Lido Garden. Reclamation work will be carried out almost in conjunction with Phase 1, from November 2005 to January 2008. Phase 3 reclamation, which will begin in March 2006 and finish in October 2007, extends from the seafront of the former San Miguel Brewery site to the edges of the STW reclamation. Phase 4 reclamation extends from the Anglers' Beach to the western end of Lido Garden. Work will commence in May 2006 and will be completed in December 2008.

Under Phase 1 reclamation, the most immediate land use impact envisaged is the de-gazetting and removal of Anglers' Beach and its neighbouring natural coastal landform. Anglers' Beach is currently a gazetted beach and reprovisioning of the beach may therefore be required. Details of the compensation of the beach is further discussed in *Section 11.6*. While most of the Anglers' Beach will be taken up during the Castle Peak Road widening works, the remaining part of the beach will be incorporated as the Open Space at Area 1 after the reclamation. In conjunction with the reclamation work, the reprovisioned kaito pier will be constructed within the proposed marine basin at the western edge of the reclamation, of which no significant adverse impact is envisaged.

Under Phase 2 reclamation, the most affected area will be Lido Garden. The residents will not only lose their close proximity to the seafront, but also be disturbed by the noise and dust generated from the reclamation work and the subsequent construction works on the reclaimed land. Mitigation measures are therefore required. Committed residential development of 3354 private flats will be built on the former San Miguel Brewery site.

Under Phase 3 reclamation, it is envisaged that no significant adverse impact will be created by the reclamation work and it has been confirmed that the ESS and the STW on the STW reclamation will not be affected by the proposed Sham Tseng Development. Similar to the situation of Phase 2 reclamation, private residential development is committed to be built on the former Union Carbide Chemical Storage site. This project will be completed and in occupancy before the commencement of Phase 3 reclamation. Thus, noise and dust generated from the construction works will become nuisance to the residents.

Under Phase 4 reclamation, the existing katio pier which provides berthing space for kaitos running between Sham Tseng and Ma Wan will be demolished. A new katio pier will be reprovisioned within the Marine Basin at the western end of the reclamation. Since the construction of the new pier will be completed before the start of Phase 4 reclamation, it is envisaged that the katio operation will not be affected. Details of the reprovisioning of katio pier will be discussed in *Section 11.6*.

Besides the reclamation works, extensive infrastructure improvement works will also be undertaken along the CPR in the Sham Tseng area. *Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan - Design and Construction Consultancy (CPRID&C)* has been commissioned by the Highways Department. The construction work will commence in 2000 and will be completed in early 2005. If there is no delay, the reclamation work can start after the completion of CPR widening to minimise construction traffic and undesirable environmental impacts. Good co-ordination between CPR widening and the reclamation work should therefore be ensured.

11.5.2 *Potential Land Use Impacts during Construction of the Proposed New Developments*

As illustrated in the MDP, the proposed new developments on the reclamation site are intended mainly for residential and educational use. No significant adverse land use impact is expected during the construction phase, other than the noise and air pollution produced to neighbouring residential areas and the increasing burden on the CPR due to rising construction traffic. Mitigation measures such as noise/dust barrier should be considered to alleviate the undesirable noise and air quality impacts, especially to residents of Lido Garden who are mostly affected. Construction schedules of the various proposed developments have not been determined yet. Good co-ordination among the construction of different developments should be ensured to minimise the impacts of one to another.

The CPR improvement works associated with the western junction of the Sham Tseng Bypass / CPR will take up the remaining green belt area near Dragon Beach after the CPR widening works. The CPR improvement works associated with the eastern junction of the Sham Tseng Bypass / CPR will also require landtake of some of the open space near Gemini Beach.

11.5.3 *Potential Land Use Impacts during Operation of the Proposed New Developments*

Land Use Compatibility

The proposed reclamation is intended mainly for residential development, which will be in general compatible with the present land use of the surrounding area. Potential interface problems may occur in several places, such as between the residential developments on the proposed reclamation and the Garden Bakery as well as the proposed STW, between the future Leisure Centre (LC) with swimming pool facilities / Social Welfare Facility and the Refuse Collection Point / STW, and between the western coastal park and the proposed Salt Water Pumping Station (SWPS). Buffer distance, landscaping and suitable design or orientation of building structures will be considered to mitigate the adverse impacts. The LC and social welfare facilities within the Government Complex being air-conditioned will be

protected from the potential noise and odour impacts of the STW area and the Garden Bakery. The Government Complex will also act as a noise buffer between the residential developments and the STW operations. A local access road serving Areas 5, 6 and 7 will be located adjacent to the waterfront promenade to be provided under the committed residential development at the former Union Carbide and San Miguel Brewery sites. This waterfront promenade, upon completion of STD, will become a sitting out area/open space/ amenity area, etc..

Potential Hazardous Installation (PHI) - Water Treatment Works

A risk assessment study has been undertaken to evaluate the potential hazard of chlorine leakage from the Sham Tseng Water Treatment Works. The risk assessment study recommended that a 400 m Consultation Zone Radius (with centre at the on-site chlorine store), which corresponds to the distance to a probability of fatality of 3% for a person outdoors in the event of rupture of a 50 kg cylinder. Since the proposed reclamation falls outside the 400 m Consultation Zone Radius, no further risk analysis is required for the residential development of the Project.

Obstruction of Views

The proposed reclamation will likely block the panoramic sea view of the existing and committed developments. Careful consideration and design have been taken in the layout and orientation of the proposed new residential blocks to preserve the key view corridors.

Traffic Impacts

Traffic volume and the resulting noise and air pollution are expected to increase due to the additional residential population of the area. Buffer distance and noise barrier therefore need to be introduced between the CPR and the residential blocks / schools to alleviate any potential adverse impact. Local access roads, distributors and a public transport terminus are proposed to serve mainly the reclamation. Traffic volume is expected to be low and will not cause any unacceptable impacts on the surrounding developments.

The traffic forecasts indicate that the through traffic volume along the CPR in the vicinity of Sham Tseng township will grow beyond its capacity. The proposed reclamation offers an opportunity to provide a Bypass along the waterfront to cater for the through traffic. Being trapped between the CPR and the waterfront Bypass, the reclamation site may suffer from an unacceptable level of noise and air pollution. The potential noise and air quality impacts arising from the Bypass traffic have been assessed in details in *Sections 4 and 5*. No insurmountable impact has been identified. In addition, a waterfront promenade with landscaping will be proposed on the upper deck of the Bypass to alleviate the noise, air quality and visual impacts.

Connectivity

There will be increasing pedestrian flow to and from the reprovisioned katio pier, the proposed commercial complex, the LC and the podium open space for public use. A good pedestrian network should be considered to improve connectivity within the proposed reclamation area, and between the reclamation area and the surrounding existing / committed developments.

The existing nullahs will be extended across the reclaimed land and decked over with tree planting as pedestrian walkways in order to connect to the landscaped waterfront promenade. Open spaces within the reclamation area will be linked with elevators, escalators, stairs, ramps and covered footpaths / footbridges. Footbridges will also be proposed to provide better linkage between the katio pier and the residential developments to the northern side of CPR.

Connection between Area 7 and other parts of the reclaimed area will be provided through the local access road that will take up some of the open space at the existing reclaimed land for the planned STW. The land reserved for the planned STW and the electricity sub-station will not be affected.

Potential Impact on Flooding

The hydraulic assessment from the Engineering Study indicates that the low lying areas around Sham Tseng West Nullah between Sham Tseng San Tsuen and Sham Tseng Kau Tsuen is presently susceptible to flooding of 700mm and the additional rise in flood level caused by the reclamation project will be slightly less than 100mm under a 200-year return period rainstorm with 10-year return period tide level. The extension of the Sham Tseng West Nullah is concluded to have small impact on the existing flooding problem. In order to mitigate the flooding impact, it is recommended to provide a proper channel with sufficient capacity to collect storm water collected from the upstream and the surface runoff of Sham Tseng San Tsuen and Sham Tseng Kau Tsuen, such that no water inside the channel will overflow onto the surrounding areas. This can be achieved by clearance of squatter structures built on the channel bed, reconstruction of the damaged sections of channel walls and raising of original channel walls at the locations susceptible to flooding. A 3m width drainage reserve is required along the new channel walls and this requirement can be achieved in the area. New surface channels/pipes with non-return valves will be provided at the low-lying area. Non-return valves will be installed at existing drainage outlets. Proper maintenance of drains and channels is essential and a programme should be set up to carry out regular preventive maintenance and desilting of the channel. According to the hydraulic modelling results, the flood risk at the low-lying area caused by the reclamation will be fully mitigated after the implementation of the mitigation measures. There will also be an improvement to the existing flooding problem as the model results indicate that the mitigation measures will reduce the flood depth at certain locations by up to 300mm in 200-year return period storm events with 10-year tide level. Hydraulic assessment has also been carried out for 10-year return period storm event with 2-year return period tide level and it is noted that nearly the entire low-lying area will no longer be susceptible to flooding.

11.6 **MITIGATION MEASURES**

11.6.1 ***Compensation of Anglers' Beach***

Despite the fact that Anglers' Beach is a gazetted beach, the water quality is not suitable for swimming and, hence, the beach functions as a sitting out area in a natural waterfront setting. It is also agreed in the Stage 1 assessment that the reprovisioning of beach, either natural or artificial, is not viable. To compensate for the loss of Anglers' Beach as a sitting-out area, the coastal area

to the immediate west of the reclamation (western end of Bypass) will be left intact, with landscaping works to enhance the natural waterfront environment for the area. Footpaths will be designed to provide easy access from the residential developments to this coastal area. In addition, the provision of an indoor public swimming pool within the LC at Area 6 can be considered.

11.6.2 *Reprovisioning of Katio Pier*

The proposed reclamation will extend very close to the edge of the Ma Wan Fairway and thus it may not be possible to reprovision the katio pier as a finger pier extending beyond the edge of the reclamation. The pier may need to be reprovisioned within a basin or alternatively reprovisioned as landing steps at the edge of the reclamation. It was determined in a review held in 20 July 1999 that a marine basin with two berthing spaces and sufficient headroom under the western portion of the Bypass is the preferred option to accommodate the reprovisioned katio pier. In this case, however, the allowable area of reclamation cannot be maximised as part of the reclaimed land is given up for the construction of the Marine Basin.

11.6.3 *Noise / Air / Visual Buffer*

During the reclamation and construction phase, existing residential developments at the proximity of the proposed reclamation site will be affected by the noise and dust generated from construction works. Details of noise and air quality impact mitigation measures are provided in *Sections 4.7* and *5.7*, respectively.

During the operational phase, major sources of pollution generally come from interface problems and the increased traffic volume. Noise, air and visual buffer can be incorporated in the planning layout. Buffers can take the form of landscaping, open space for public use, no building area (NBA) and promenades. In order to maintain the key visual corridors of the different residential developments, layout of building blocks can be carefully designed and oriented.

11.6.4 *Careful Urban Design*

About 15% of the proposed reclaimed land will be zoned for district open space. Some of the DO is at grade level (for examples, western coastal park and landscaped nullah deck) and some is located at podium level (for examples, podium garden and waterfront promenade). To avoid a vertical segregation of the open spaces and to provide better linkage among activity nodes, a well-connected pedestrian network, using elevators, escalators, stairs, ramps, footpaths and footbridges should be considered.

11.6.5 *Well Co-ordinated Construction Programme*

The proposed reclamation and the subsequent construction works, together with the CPR widening, undertaken in the Sham Tseng area are quite extensive and will, thus, affect the existing neighbouring developments for about 5 to 10 years. Construction programme of different projects should be well co-ordinated to avoid any insurmountable problems or conflicts.

11.7 *RESIDUAL IMPACTS*

11.7.1 *Development Pressure on Garden Bakery*

Garden Bakery is the only residual industry at Sham Tseng. With respect to the government's intention to gradually phase out areas of industrial use in Sham Tseng, the Garden Bakery site has great potential to be upgraded for residential / commercial developments to intensify the existing land use, though there is no plan to re-locate the Garden Bakery out of Sham Tseng.

11.7.2 *Traffic Impact at the Bypass - CPR Junctions*

Although the proposed Bypass will soothe the increasing traffic burden on the CPR, the designs of the eastern and western junctions of the Bypass - CPR should be appropriate to ensure smooth and safe traffic flow.

11.8 *CONCLUSION*

The potential land use impact during the reclamation, construction and operational phases of the Sham Tseng Development has been assessed in this section. In spite of concerns on noise and air pollution caused by the construction works and the traffic, no insurmountable land use impact is identified after appropriate mitigation during the various phases of the Project.