

**Agreement No. PLNQ 56/2012**

**Category A1 - Term Consultancy for  
Expert Evaluation and Advisory Services on  
Air Ventilation Assessment**

**Pak Shek Kok (East) Central Area,  
Tai Po**

**Expert Evaluation – Executive Summary**

February 2014

## **1 INTRODUCTION**

- 1.1 AECOM Asia Company Ltd. (the Consultant) was commissioned by the Planning Department to undertake an Expert Evaluation Study for the First Development Scheme of the Pak Shek Kok (East) Central Area, Tai Po to examine the air ventilation performance of the development building designs and layouts in the study area.

## **2 WIND ENVIRONMENT**

- 2.1 By comparing the wind data obtained from the Waglan Island Weather Station, Tai Po Kau automatic weather station and the MM5 model, the annual wind of the study area is mainly from the Northeast and East direction while the summer wind is coming from the southerly quadrants.

## **3 TOPOGRAPHY AND URBAN MORPHOLOGY**

- 3.1 The Study Area is fronting the Tolo Harbour, rises from sea level to around 5mPD. There are also hilly topographies lying to the south western directions beyond the study area.
- 3.2 The Study Area is bounded by Fo Yin Road, Chong San Road, Pok Yin Road and Fo Chun Road at the central part of the Pak Shek Kok (East) Area. The land use of the region in vicinity of the Study Area composed of Residential Developments, GIC facilities/developments, the Science Park as well as open spaces and non-building areas.

## **4 WIND CORRIDORS AND AIR PATHS**

- 4.1 Under the south eastern wind directions, the Tolo Highway and the Pak Shek Kok Promenade serves as major breezeways. Apart from these two major breezeways, Science Park East Avenue, Science Park West Avenue and Fo Chun Road aligned in parallel with Tolo Highway also serve as wind corridors under the south east prevailing wind direction.
- 4.2 Fo Yin Road, Fo Shing Road and Pok Yin Road aligned in perpendicular to Tolo Highway act as wind corridors under the north easterly wind direction. These roads are crucial in maintaining penetration of winds in the surroundings of the Study Area.

## **5 EXPERT EVALUATION ON THE FIRST DEVELOPMENT SCHEME**

- 5.1 The Study Area of 8 hectares covers the central part of Pak Shek Kok (East) area subject to a maximum plot ratio of 3.6 with maximum building height restriction of 65 mPD.
- 5.2 The splitting of Study Area into 4 sub sites, nearby non-building areas as well as the well designed road networks within the Study Area which link up the wind corridors are good features of the Development Scheme and its surrounding area.
- 5.3 Most of the proposed developments possess a podium free design which is useful in increasing wind permeability and reduce blockage to the prevailing winds. These measures will facilitate penetration of the prevailing wind and result in better air ventilation performance.
- 5.4 The wakes induced under the south easterly wind and the north easterly winds are expected to reach Fo Shing Road and Tolo Highway which are major wind corridors and unlikely to result in negative impacts on air ventilation to the surroundings. However, wind wakes induced by the summer south westerly winds will create shadow zones to part of the R(B)4 site which might give rise to minor air ventilation issue there.

## 6 RECOMMENDATION ON THE FIRST DEVELOPMENT SCHEME

- 6.1 The existing two non-building areas (NBAs) are crucial for maintaining and enhancing wind ventilation performance within and to the vicinity of the Study Area, and must be retained. It is recommended to extend the existing NBA in R(B)4 zone to create a continuous wind corridor.
- 6.2 In addition to the existing two NBAs (with one extending from R(B)4 zone), further NBAs of width 10 to 15 meters are suggested to be created between Site 1B/1C or Site 1C/1D as shown in **Figure 1** below. These proposed NBAs would ensure wind penetration and air flow within the Study Area. Therefore, at least one of the proposed NBAs within the Study Area should be considered.



**Figure 1 Further proposed NBAs within Study Area**

- 6.3 It is understood that a building of height H is generally possible to induce a wind wake of approximately H from the building. Inside the wake region, there exist weaker and more turbulent winds which are collectively referred to as a “wind shadow region” behind the building. In regard to the wind wakes as shown in **Figure 2** below that may affect R(B)4, it is suggested to have further set back (5 to 10 meters) of the frontage proposed buildings facing Tolo Harbour in order to widen Fo Chun Road to create a wider breezeway, which would weaken the wind wakes.

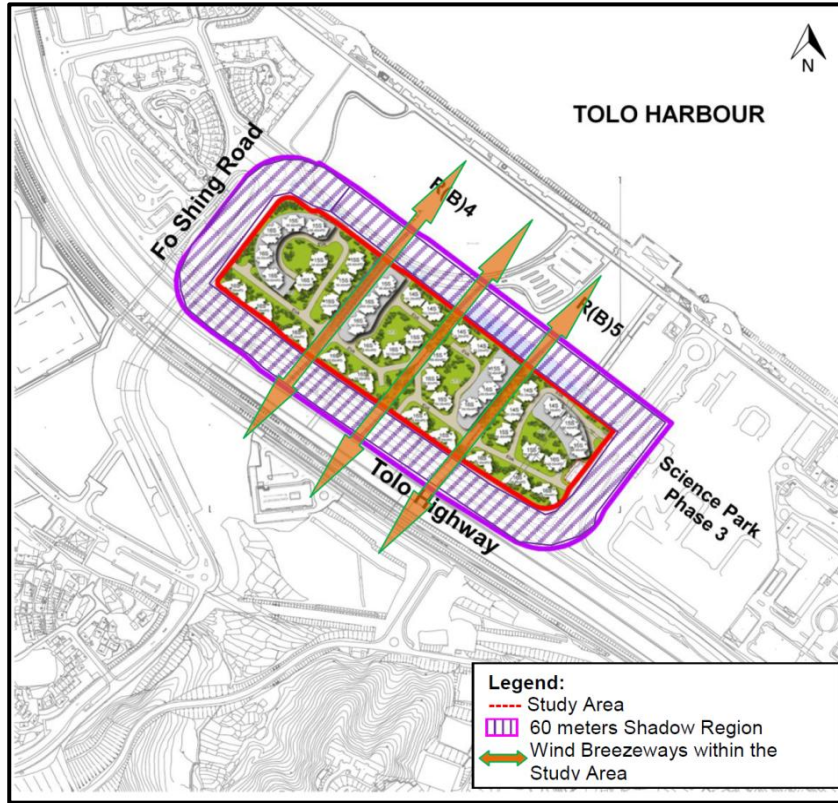


Figure 2 Possible wind wakes induced by proposed development within Study Area

## 7 SUMMARY AND CONCLUSION

- 7.1 Based on the expert evaluation results, it is expected that there is no significant air ventilation issues within the Study Area and its surroundings. Therefore, further study is considered to be not necessary.