

### 3 Summary of Major Comments and Responses

During the Stage 1 PE, a focus group meeting, three community group meetings and reporting to HEC of STDC were held and various channels were established to collect the comments and opinions from the public and stakeholders on the relocation proposal. A questionnaire survey was also conducted to collect opinions from the public on the relocation proposal during the roving exhibitions. The major comments on the relocation proposal received from various channels and parties during the Stage 1 PE are categorized, summarized and responded as follows:

#### 3.1 Major Comments on Relocation Proposal

##### 3.1.1 Innovative Approach to Benefit the Community, Improve the Environment and Support the Sustainable Development of Hong Kong

3.1.1.1 According to the questionnaire survey results conducted during the roving exhibitions in the Stage 1 PE, there was broad consensus that relocating the STSTW to caverns could benefit the community and enhance the environment in Sha Tin, especially in the aspects of odour and visual impact. This relocation proposal was considered as an innovative approach to supply land to support the sustainable development of Hong Kong.

3.1.1.2 The residents living near the proposed relocation site (Nui Po Shan of A Kung Kok) raised concerns on the potential impacts of the relocation project during the construction and operation stages.

##### 3.1.2 Previous Examples of Constructing Sewage Treatment Works in Caverns in Hong Kong and Other Countries

3.1.2.1 There were queries about any previous examples of constructing sewage treatment works in caverns in Hong Kong and other countries.

##### 3.1.3 Proposed Relocation Site at Nui Po Shan of A Kung Kok

3.1.3.1 The residents living near the proposed relocation site raised queries why this site was selected and what other alternative sites had been reviewed.

3.1.4 Odour Impact and Management during Operation of Relocated STSTW

3.1.4.1 There were concerns on the odour impact to the local community near the proposed relocation site during the operation of the relocated STSTW.

3.1.5 Blasting Vibration Level of Nearby Buildings / Structures during Cavern Construction

3.1.5.1 There were concerns on the blasting vibration of the buildings/structures near the proposed relocation site if drill and blast method would likely be adopted for the cavern construction.

3.1.6 Traffic Impact to Nearby Road Network during Construction and Operation Stages

3.1.6.1 There were concerns on the traffic impacts of the relocation project to the nearby road network, in particular A Kung Kok Street, during the construction and operation stages.

3.1.7 Environmental Impacts of Relocation Project

3.1.7.1 There were concerns on the environmental impacts of the relocation project to the neighbourhood during the construction and operation stages.

3.1.8 Preventive Measure for Cavern Construction Activities and Sewage in Sewage Treatment Works from Affecting Ground Water

3.1.8.1 There were queries about whether the sewage inside the relocated STSTW would have direct contact with the rock in the caverns and cause groundwater pollution.

3.1.9 Management of Construction and Demolition Materials of Relocation Project

3.1.9.1 There were queries on the use of the excavated rock produced from the cavern formation.

3.1.10 Design Capacity and Sewerage Catchment of Relocated STSTW

3.1.10.1 There were queries about whether the design capacity of the relocated STSTW would be sufficient to cater for the future population in Sha Tin and there would be any change in the sewerage catchment of the STSTW after relocation.

### 3.1.11 Effluent Standard and Effluent Export Route of Relocated STSTW

3.1.11.1 There were queries about whether there would be any change in the effluent standard and effluent export route of the STSTW after relocation.

### 3.1.12 Future Land Use of Existing STSTW Site after Relocation

3.1.12.1 There were queries on the future land use of the existing STSTW site after the completion of the relocation project.

### 3.1.13 Independency from Ma Liu Shui Reclamation Proposal

3.1.13.1 There were queries on the relationship between the proposal for relocation of STSTW to caverns managed by DSD and the Ma Liu Shui reclamation proposal managed by the Civil Engineering and Development Department (CEDD).

### 3.1.14 Other Community Aspirations

3.1.14.1 Some community aspirations requested to be carried out in conjunction with the relocation project, such as improvement of community facilities for the local community near the proposed relocation site and enhancement of infrastructure at the adjacent villages, were voiced out by the public and stakeholders during the Stage 1 PE.

## **3.2 Responses to Major Comments on Relocation Proposal**

### 3.2.1 Innovative Approach to Benefit the Community, Improve the Environment and Support the Sustainable Development of Hong Kong

3.2.1.1 The objectives of the relocation project will aim to “benefit the community, improve the environment and support the sustainable development of Hong Kong”.

3.2.1.2 DSD will consider the concerns of the residents living near the proposed relocation site during the feasibility study and the future stages for the relocation project. DSD will introduce suitable measures to address the residents’ concerns and further improve the relocation proposal. The study findings and recommendations will be presented in the Stage 2 PE activities or the project website at a later stage.

### 3.2.2 Previous Examples of Constructing Sewage Treatment Works in Caverns in Hong Kong and Other Countries

3.2.2.1 Stanley Sewage Treatment Works is the first sewage treatment works built in caverns in Hong Kong. It is not easily visible by the public and integrates with the surrounding environment and community very well. DSD has operated it for over 18 years. DSD will learn from the successful experience in operation of this plant during the planning of the relocation project.

3.2.2.2 Examples of cavern sewage treatment works in the Nordic Countries were also illustrated during the Stage 1 PE. The design capacity of some examples, such as Henriksdal Wastewater Treatment Plant in Sweden, are larger than the existing STSTW. All these examples can integrate with the surrounding environment and community successfully without causing any adverse impact on the neighbourhood. DSD will not only learn from the successful experience of these examples, but also introduce other enhanced and innovative elements with respect to the site situation and residents' concerns, in order to further improve the overall planning of the relocation project.

### 3.2.3 Proposed Relocation Site at Nui Po Shan of A Kung Kok

3.2.3.1 According to the study on "Enhanced Use of Underground Space in Hong Kong" completed by CEDD in March 2011, the preliminarily proposed site for relocation of STSTW to caverns was Nui Po Shan of A Kung Kok.

3.2.3.2 Under the feasibility study, a re-confirmation review of the proposed relocation site, namely Nui Po Shan of A Kung Kok, was conducted. When conducting the review, the Consultant identified and compared five areas adjacent to the existing STSTW, including Nui Po Shan of A Kung Kok, Shek Mun, Ma On Shan, Kau To Shan South and Kau To Shan North.

3.2.3.3 After the review, the Consultant confirmed Nui Po Shan of A Kung Kok as the best site for the relocation of the STSTW. The methodology and result of the reconfirmation review have been examined by an independent expert panel composed of three professors from the Hong Kong University of Science and Technology. To sum up, Nui Po Shan of A Kung Kok site has the following favourable conditions:

- (i) The geology of this area, belonging to hard granite with no obvious weak zones and faults, suits for construction of large caverns most;

- (ii) In the proximity of the existing STSTW and effluent export tunnel (which transports the treated effluent from the STSTW to Kai Tak River in Wong Tai Sin for discharge), relocating the STSTW to this area will minimize the impact on the upstream sewerage system and the downstream disposal system, thereby minimizing the disturbance to the whole Sha Tin District, reducing the construction and operation costs and shortening the construction period;
- (iii) As majority of the area belongs to government land, the relocation project will not require to resume large amount of private lots;
- (iv) The community and environment will be enhanced wholly after the relocation of the STSTW; and
- (v) With appropriate measures, the traffic impact due to the relocation of the STSTW to the area near the proposed relocation site would be well mitigated.

#### 3.2.4 Odour Impact and Management during Operation of Relocated STSTW

- 3.2.4.1 To obtain more reliable wind data for odour impact assessment , DSD engaged the City University of Hong Kong to conduct a wind tunnel test for analysing the wind speed and wind direction at the proposed relocation site (Nui Po Shan of A Kung Kok) and develop the wind rose for the site.
- 3.2.4.2 Based on the wind tunnel test data, the Consultant substantially completed the odour impact simulation and determined the most appropriate location for the ventilation shaft before the Stage 2 PE. The Consultant predicted that, through implementing appropriate odour control measures and siting the ventilation shaft at remote location on the hill, the air quality at the nearby estates / villages (e.g. Chevalier Garden, Kam Tai Court, A Kung Kok Fishermen Village, Tai Shui Hang Village, Mui Tsz Lam Village, etc.) will be far below the requirement of 5 odour units (OU) as stipulated in the Environmental Impact Assessment Ordinance.
- 3.2.4.3 The Consultant recommended the preliminary odour control measures to mitigate the odour impact to the acceptable level as follows:
  - (i) Caverns as natural barriers for more effective odour control;
  - (ii) Covering up of odour sources;
  - (iii) Installation of deodourising units to clean up the collected foul air;

- (iv) Discharging exhaust air at height to further enhance the dilution effect; and
- (v) Adopting sludge carrying vehicles with enclosed containers.

### 3.2.5 Blasting Vibration Level of Nearby Buildings / Structures during Cavern Construction

- 3.2.5.1 The Consultant substantially completed the preliminary assessment on blasting vibration of nearby buildings / structures before the Stage 2 PE since drill and blast method will likely be adopted for the cavern construction.
- 3.2.5.2 Nowadays, the allowable vibration limits for general buildings / structures and sensitive buildings / structures are 25mm/s and 13mm/s respectively accordingly to GEOGUIDE 4 of the Geotechnical Engineering Office. Based on the evaluation results, the predicted vibrations of nearby estates / villages (e.g. Chevalier Garden, Kam Tai Court, A Kung Kok Fishermen Village, Tai Shui Hang Village, Mui Tsz Lam Village, etc.) will be much lower than 25mm/s or 13mm/s. The consultant anticipated that the current advanced blasting technology and control measures can effectively mitigate the vibration of nearby buildings / structures to an acceptable level.
- 3.2.5.3 The Consultant recommended the preliminary mitigation and control measures as follows:
  - (i) Pre-construction survey will be conducted on the nearby buildings and structures and monitoring points will be set up;
  - (ii) Hoardings will be erected outside the construction site. Noise barriers and other blasting containment will be installed to reduce noise level and withstand blast pressure;
  - (iii) The duration of blasting operations will be short and infrequent. The blasting operations will be controlled and closely monitored to ensure that the vibration limits are not exceeded; and
  - (iv) Liaison office will be set-up near the cavern site to facilitate enquiry from the nearby residents. Liaison office will also regularly send the updated schedule of blasting operations to the nearby estates / villages.

### 3.2.6 Traffic Impact to Nearby Road Network during Construction and Operation Stages

3.2.6.1 The Consultant substantially completed the preliminary assessment on traffic impact of the relocation project to the nearby road network, in particular A Kung Kok Street, before the Stage 2 PE. Since A Kung Kok Street is a main route for many buses and mini-buses to/from Ma On Shan area, the Consultant recommended the following mitigation measures to minimise the additional loading on this road due to construction traffic:

- (i) Two temporary traffic management schemes should be further studied in the design stage, including construction of temporary roads to enable the construction vehicles to enter/exit the cavern site directly from/to the high speed road (Ma On Shan Road) so as to minimise the use of A Kung Kok Street; and
- (ii) Restricting construction vehicles passing through A Kung Kok Street during morning peak hours through site management.

3.2.6.2 Based on the traffic modelling results, the consultant anticipated that the traffic impact of the additional construction vehicles to the nearby area will be very minimal if the recommended measures are implemented.

3.2.6.3 At present, there are about 20 vehicles per day taking sludge away from the existing STSTW. Although the incoming sewage will increase progressively in future, DSD will adopt advanced treatment technology to maintain the sludge production and hence the traffic volume of sludge carrying vehicles at a similar level. Therefore, the operation of the relocated STSTW will not cause any adverse traffic impact to the nearby road network.

### 3.2.7 Environmental Impacts of Relocation Project

3.2.7.1 The Consultant substantially completed the preliminary assessment on the environmental impacts due to the relocation project during the construction and operation stages, including air quality (odour), noise, water quality, ecology, waste management and visual impact, and propose suitable mitigation measures, to ensure the compliance with the requirement of relevant standards.

3.2.8 Preventive Measures for Cavern Construction Activities and Sewage in Sewage Treatment Works from Affecting Ground Water

3.2.8.1 The groundwater level near the caverns will be monitored during the construction stage to ensure that the surrounding groundwater level will not be affected due to the cavern construction activities and presence of the caverns.

3.2.8.2 Sewage in the sewage treatment works will be contained in sewage treatment tanks composed of reinforced concrete structures with seepage preventive measures. Therefore, the sewage will not have any direct contact with the rock in the caverns nor cause any groundwater pollution.

3.2.9 Management of Construction and Demolition Materials of Relocation Project

3.2.9.1 The Consultant initially worked out the preliminary management plan for the construction and demolition materials, including making use of the excavated rocks for the construction materials (e.g. aggregates for concrete production or pavement materials), and how to make good use of demolition materials.

3.2.10 Design Capacity and Sewerage Catchment of Relocated STSTW

3.2.10.1 The design capacity of the relocated STSTW will take into account the projected population in Sha Tin in future. Nevertheless, if there is any unforeseen substantial increase in sewage treatment demand in future, the relocated STSTW could be expanded by using the underground space to increase the sewage treatment capacity. Compared with the traditional open plan sewage treatment works, the sewage treatment works in caverns could make use of underground space more easily for expansion of the facilities.

3.2.10.2 The relocation project would not change the sewerage catchment of the STSTW.

3.2.11 Effluent Standard and Effluent Export Route of Relocated STSTW

3.2.11.1 The existing STSTW is being operated such that the effluent quality will meet the requirements set down in the Discharge Licence issued by the Environmental Protection Department (EPD).

3.2.11.2 Under the current arrangement, the treated effluent from the existing STSTW is pumped to the effluent export tunnel starting at Nui Po Shan of A Kung Kok and be conveyed to Kai Tak River in Wong Tai Sin for discharge. This arrangement can make use of the flushing effect by the treated, clean effluent from the STSTW,

and hence improve the water quality and environment of Kai Tak River. This arrangement will be maintained after relocating the STSTW to caverns.

3.2.11.3 According to the current planning of the relocation project, the STSTW will maintain the same effluent quality after relocation. Nevertheless, DSD will keep close liaison with EPD and the relevant parties to ensure that the effluent quality of the relocated STSTW will meet the intended beneficial use of the receiving water body.

### 3.2.12 Future Land Use of Existing STSTW Site after Relocation

3.2.12.1 The Government will aim at balanced development at the existing STSTW site taking into consideration the society needs. The preliminary idea at present is that the site would be used for housing and other beneficial uses to improve the community and environment and support the sustainable development of Hong Kong. Community facilities as well as recreation areas such as waterfront promenade would also be considered as appropriate.

3.2.12.2 If the relocation proposal is confirmed to proceed, the whole relocation project is expected to be completed by around 2027. The Government would undertake the detailed planning of the site and consult the public in an appropriate time after completion of this study. The public opinions on the future land use of this site collected from the PE activities of the feasibility study will also be taken into account when undertaking the detailed planning in future.

### 3.2.13 Independency from Ma Liu Shui Reclamation Proposal

3.2.13.1 The Ma Liu Shui reclamation proposal by CEDD and the proposal for relocation of STSTW to caverns by DSD, covering different engineering scopes, are two separate and independent projects.

### 3.2.14 Other Community Aspirations

3.2.14.1 DSD would relay these suggestions to the relevant bureau and departments for further consideration and keep liaison with them as appropriate.

### 3.2.15 Chinese Version of Responses to Major Comments

3.2.15.1 The Chinese version of the responses to major comments is shown in **Appendix T**.