

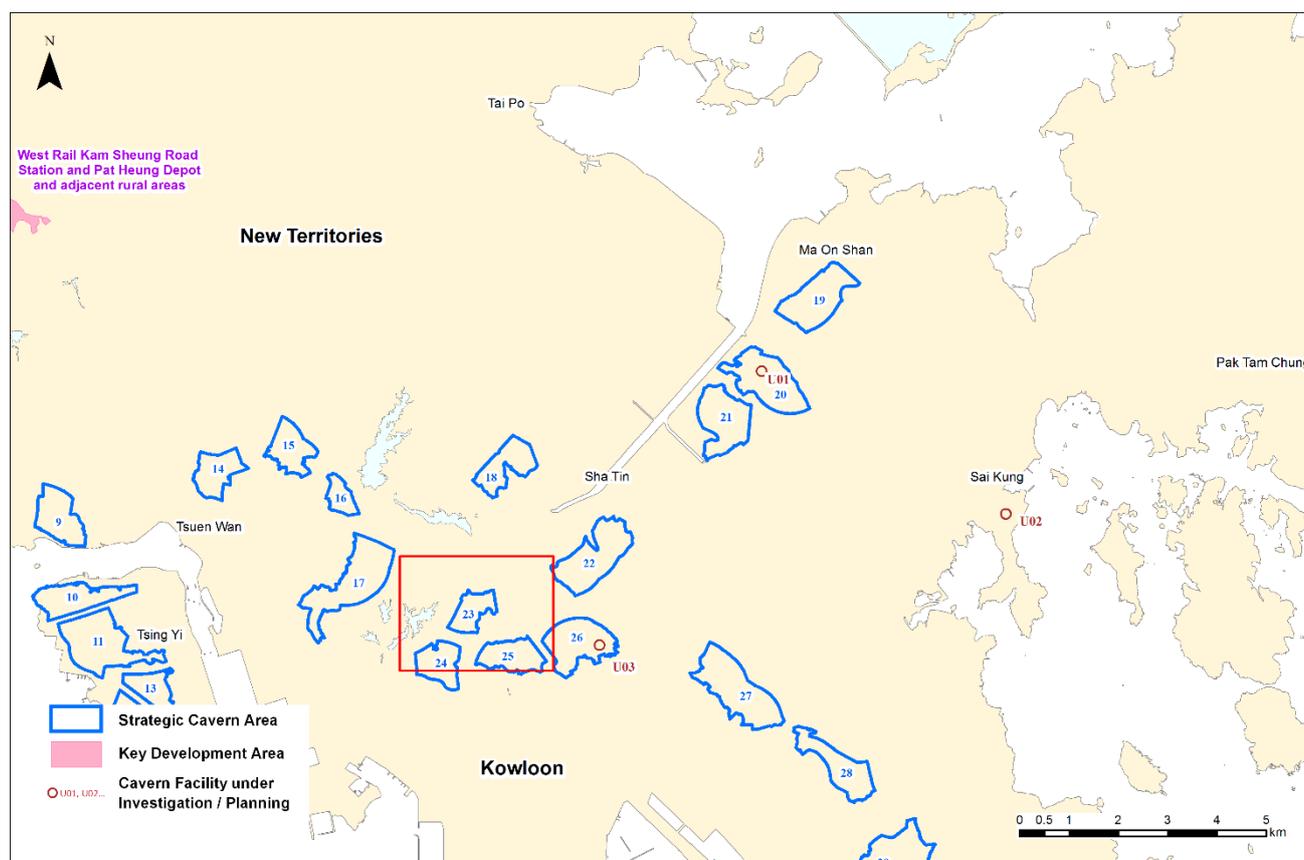
## CAVERN MASTER PLAN – INFORMATION NOTE

### STRATEGIC CAVERN AREA NO. 23 – TAI WAI WEST

*This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 23 - Tai Wai West (the SCVA). It indicates the potential land uses suitable for cavern development within the area, but would not pre-empt other possible land uses put forward by the project proponents with justifications. It also denotes the extent of potential portal locations. The spatial context of the SCVA is illustrated in the Reference Drawing appended to this Information Note.*

*Reference should be made to the Explanatory Statement of the Cavern Master Plan for its background and purposes, as well as the definition and delineation criteria of SCVAs.*

#### 1. Location Plan



## 2. Strategic Cavern Area Details

Outline Zoning Plan (OZP):	Draft Sha Tin OZP No. S/ST/33
Area:	49.7 ha
Maximum elevation in the SCVA:	+380 mPD
Minimum elevation in the SCVA:	+33 mPD

## 3. District Context

### Location

The SCVA is located in the southwestern part of Sha Tin New Town, which is to the north of Kowloon, separated by a range of hills including Lion Rock and Beacon Hill. It covers the hillside area to the southwest of Tai Wai in Sha Tin. Tai Wai is to the northeast of the SCVA, Sha Tin New Town is to the further northeast of the SCVA, Lion Rock Country Park is to the east and south and Kam Shan Country Park is to the west.

The SCVA is generally hilly with a maximum elevation of about +380 mPD. About half of the SCVA encroaches onto Lion Rock Country Park. To the northeast of the SCVA, there are Sha Tin New Town and Tai Wai areas which mainly consist of medium- to high-rise residential developments (e.g. Hin Keng Estate which is about 200 m to the northeast of the SCVA and Festival City which is about 1.1 km to the northeast of the SCVA) and a number of local villages (e.g. Kak Tin Village which is about 1.8 km to the northeast of the SCVA).

In the proximity of the SCVA, there are a number of key Government, Institution and Community (GIC) facilities supporting the development of Sha Tin New Town and Tai Wai, including Sha Tin South Fresh Water Service Reservoir (about 100 m to the east of the SCVA), Sha Tin Water Treatment Works (at the northern boundary of the SCVA) and Union Hospital (about 600 m to the northeast of the SCVA).

### Access

The SCVA is accessed from its northern edges via the restricted access roads of Sha Tin Water Treatment Works and Tsing Sha Highway Administration Building respectively. Regional connections could be routed through the nearby Tsing Sha Highway and Lion Rock Tunnel Road.

The MTR East Rail Line and Shatin to Central Link (under construction) run pass at the east of the SCVA. Only Hin Keng Station of Shatin to Central Link is located in the proximity to the SCVA, about 350 m to the northeast of the SCVA.

## Land Use Zoning

While the northern portion and an area in the western portion of the SCVA are zoned “Open Space” (“O”) under the Draft Sha Tin OZP No. S/ST/33, the remainder of the SCVA is not covered by any Statutory Plan and is part of Lion Rock Country Park. The zoning of the surrounding areas includes “O”, isolated “Government, Institution or Community” and “Other Specified Uses” annotated “Water Treatment Works” to the east, west and north, with the rest being Lion Rock Country Park.

For details of the latest land use zonings on the OZP, please refer to the Town Planning Board website (<http://www.tpb.gov.hk>).

There is currently no existing or planned cavern facility within the SCVA.

## **4. Summary of Characteristics of Strategic Cavern Area**

### **4.1. Boundary**

The northern boundary of the SCVA is defined by Sha Tin Water Treatment Works. The southern boundary of the SCVA is defined by the Beacon Hill Site of Specific Scientific Interest (SSSI) and by an extent at 800 m from the potential portal locations. The eastern boundary of the SCVA is defined by the MTR East Rail Line Beacon Hill Tunnel. The western boundary of the SCVA is defined by Eagle's Nest Tunnel and the access road near Tsing Sha Highway Administration Building.

### **4.2. Geology**

The solid geology of the SCVA is coarse-grained granite and quartz monzonite, which belong to Tei Tong Tsui Quartz Monzonite; and coarse-grained granite at the northwestern portion and fine-grained granite at the southeastern portion, both of which belong to Shui Chuen O Granite. The SCVA is with the rock types that are suitable for cavern development. A number of geological features, such as faults, photolineaments and isolated dykes, are identified within and in the areas surrounding the SCVA. The excavated quartz monzonite and fine-grained granite within the SCVA are suitable for reuse as construction aggregate. Other excavated rocks can be used as road base materials and for asphalt production, etc.

Further geological information of the SCVA can be found on the 1:20,000-scale Geological Map Sheet 7 (Sha Tin) and Geological Map Sheet 11 (Hong Kong & Kowloon) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

### **4.3. Planning**

The SCVA is located in the fringe of existing urban development in Sha Tin New Town and Tai Wai. The SCVA apparently does not have good road connectivity as it can only be accessed by restricted access roads, however, there is still potential for the SCVA to support the development of the area.

The northeastern side of the SCVA is the major residential development areas of Sha Tin New Town and Tai Wai. These areas consist of various medium- to high-rise residential developments (e.g. Hin Keng Estate and Festival City) and local villages (e.g. Kak Tin Village) supported by a number of GIC facilities (e.g. sports ground, hospital, school, service reservoir, etc.). Should there be any need for providing additional land for residential use, the SCVA may provide the solution space by, for example, relocating some of the suitable infrastructure facilities (e.g. service reservoir) to caverns. By doing so, surface land could be released for other beneficial uses (e.g. residential developments and/or community facilities), and it could also enable more effective utilisation of land resources in Sha Tin New Town and Tai Wai while preserving the natural landscape adjacent to Lion Rock Country Park and Kam Shan Country Park as the natural backdrop to the urban developments in the locality.

The SCVA could also be used to house those supporting infrastructure facilities that are required by the existing residential developments. In particular, it is considered suitable for housing 'Not-In-My-Backyard' ('NIMBY') type of facilities (e.g. sewage treatment works) to minimise the nuisance to the community.

### **4.4. Environmental**

Environmental sensitive receivers to cavern development in the SCVA are the nearby residential developments (e.g. Hin Keng Estate). The SCVA comprises wooded areas and shrubby hillsides, and encroaches onto Lion Rock Country Park and Water Gathering Grounds. Kam Shan Country Park is also in the proximity to the SCVA at its west. Beacon Hill SSSI is to the southeast of the SCVA. The SCVA also encroaches onto Consultation Zone of a Potentially Hazardous Installation (PHI), namely the Sha Tin Water Treatment Works of the Water Supplies Department. Quantitative Risk Assessment would be required in the planning stage of the project. A number of built heritages are located in the proximity of the SCVA, including So Ancestral Hall (Grade 3 historic building), Law Ancestral Hall (Grade 3 historic building), Yeung Ancestral Hall (Grade 3 historic building) and a government historic site identified by Antiquities and Monuments Office namely Ex Kowloon-Canton Railway Beacon Hill Tunnel. Several traditional burial grounds are also in the vicinity of the SCVA. There are natural or modified surface water courses within the SCVA.

All potential environmental constraints, which may impose restrictions on cavern development, should be identified and taken into account under the Environmental Impact Assessment Ordinance (EIAO) and other relevant ordinances, such as the Country Parks Ordinance. Project proponents are required to take into account the potential environmental constraints when planning each cavern development project and undertaking the environmental impact assessment under the EIAO to determine its environmental acceptability, potential environmental impacts and environmental mitigation measures required.

#### **4.5. Traffic**

The SCVA can be accessed from its northern edge via the restricted access roads of Sha Tin Water Treatment Works and Tsing Sha Highway Administration Building.

The potential portal location next to the Tsing Sha Highway Administration Building is easily accessed from the adjacent expressway. The Tsing Sha Highway is a high-capacity expressway that provides easy connection to the rest of expressway network in Hong Kong. The potential portal location adjacent to the Sha Tin Water Treatments Works is about 2 km from the nearest expressway access point via Che Kung Miu Road. Traffic impact assessment shall be carried out when planning the potential cavern development in the SCVA.

#### **4.6. Other Key Issues / Constraints on Cavern Development**

Three Water Supplies Department tunnels are located within or in the vicinity of the SCVA, i.e. the High Island Main Tunnel passing through the central portion of the SCVA in an east-west direction; a tunnel branched from the High Island Main Tunnel to Sha Tin Water Treatment Work to the north of the SCVA; the Plover Cove Draw-off Tunnel about 400 m to the north of the SCVA. Three vehicle tunnels are located in the vicinity of the SCVA, i.e. the Eagle's Nest Tunnel about 50 m to the west of the SCVA; the Sha Tin Heights Tunnel about 200 m to the north of the SCVA; the Lion Rock Tunnel about 300 m to the east of the SCVA. Two railway tunnels of the East Rail and the Shatin to Central Link are about 50 m and 200 m to the east of the SCVA respectively. The Ex Kowloon-Canton Railway Beacon Hill Tunnel, which is currently being used as a utility tunnel by The Hong Kong and China Gas Company Limited (Towngas), is about 100 m to the east of the SCVA. Owing to the difference in elevations with respect to the extent of potential portal locations, the High Island Main Tunnel and its branch tunnel would not pose any insurmountable constraint to cavern development within the SCVA. As the Plover Cove Draw-off Tunnel, the three vehicle tunnels and the two railway tunnels are distant from the SCVA, they would also not pose any insurmountable constraint to cavern development in the SCVA.

## 5. Potential Land Uses

The potential land uses for the SCVA are as follows:

Land use	Description
Service Reservoir	<p>Sha Tin New Town and Tai Wai are homes of various residential developments (e.g. Hin Keng Estate and Festival City) and have the potential for further growth given they are located in an urban setting equipped with well-established infrastructural systems. There is thus opportunity to develop suitable land use to support the potential expansion of these residential areas, by relocating some of the suitable infrastructure facilities, such as service reservoir, to caverns.</p> <p>An existing service reservoir (i.e. Sha Tin South Fresh Water Service Reservoir) is found in the vicinity of the SCVA. Relocation of the facility to caverns may be considered, thereby releasing surface land for other beneficial uses.</p>
Sewage Treatment Plant	<p>For the same reason as ‘Service Reservoir’, there is opportunity for the SCVA to support the potential expansion of these areas by providing additional supporting infrastructure facilities, such as sewage treatment plant. Moreover, housing the NIMBY type of facility in caverns can help minimise the nuisance to the existing communities in respect of land use compatibility.</p> <p>The potential portal locations of the SCVA are away from the existing residential areas, which make the SCVA compatible with such land use.</p>

Note: Zoning amendment/planning application may be required to facilitate the pursuit of the above potential land uses.

## 6. Extent of Potential Portal Locations

The extent of the potential portal locations is shown on the Reference Drawing.

The SCVA is accessed from the restricted road within the Sha Tin Water Treatment Works to the north and another restricted road adjacent to the Tsing Sha Highway Administration Building to the northwest of the SCVA.

Current access to the potential portal location adjacent to the Sha Tin Water Treatment Works will be adequate for temporary and low traffic generating activities for cavern development. However, widening and upgrading of the carriageway would be required for moderate and high traffic generating activities. The potential portal location adjacent to the Tsing Sha Highway Administration Building is not constrained by other development and therefore could support a range of traffic generating activities. The access connection to the restricted road from the portal could be provided via a run-in/outs or priority controlled junction, depending on the proposed land-use. For both potential portal locations, the project proponents shall seek relevant consents from and coordinate with the facility owners.

There are natural slopes above the extent of potential portal locations. There may be potential natural terrain hazards in the vicinity which may require further study by the project proponents.

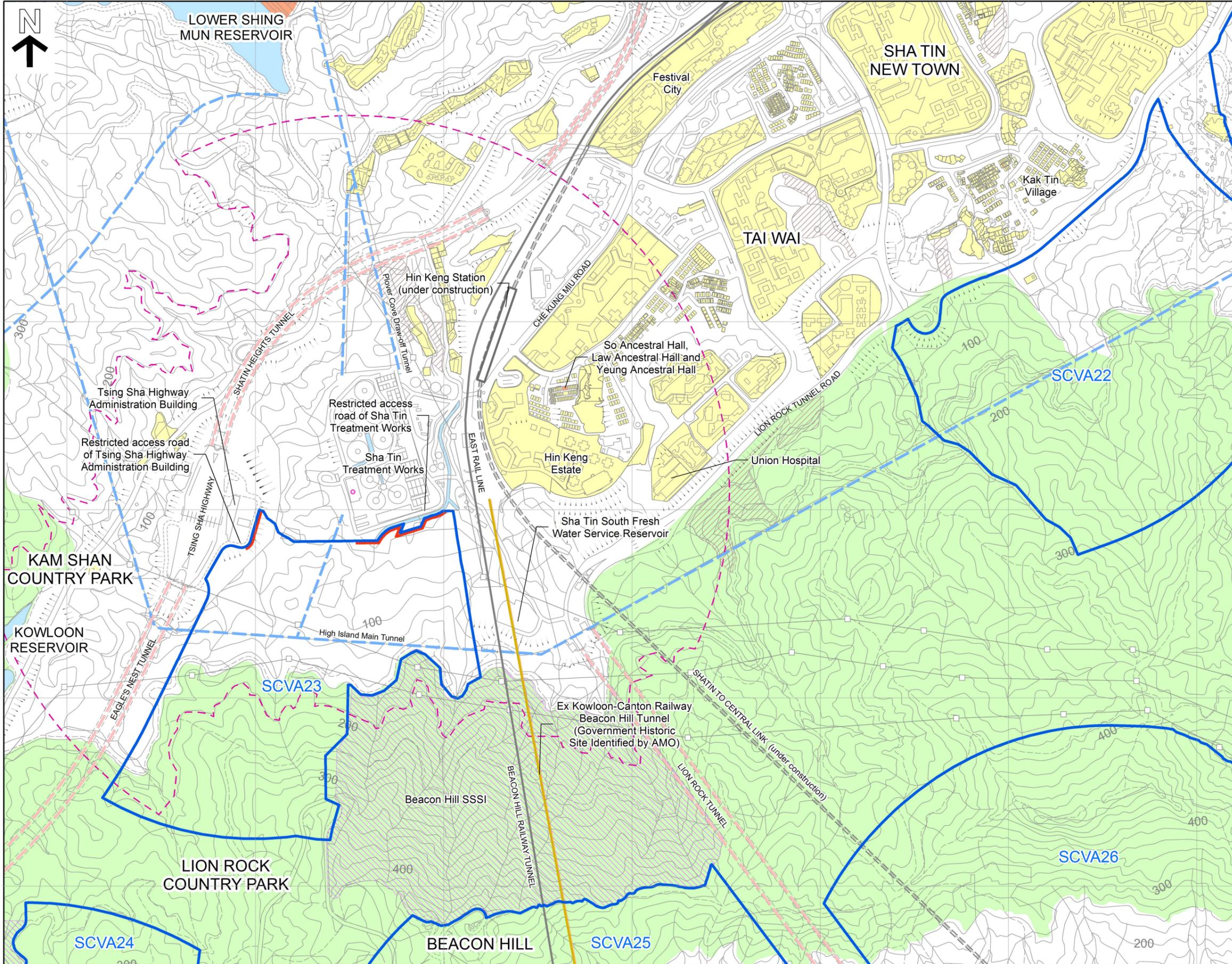
Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

## **7. Concluding Remarks**

The SCVA presents an opportunity for locating suitable land uses in rock caverns to serve the neighbouring residential communities (e.g. by housing service reservoir). It also has the potential to house ‘NIMBY’ type of facilities (e.g. sewage treatment plants) to minimise the nuisance to the community. Project proponents for cavern development should take due consideration of the existing and potential residential developments, accessibility for cavern development, environmental sensitive receivers and Consultation Zone of the PHI that are in close proximity to the SCVA to minimise the interfacing issues and bring about greater synergy and opportunities.

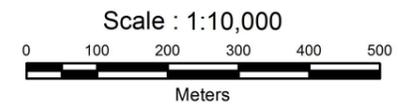
## **8. Notes**

The Cavern Master Plan and all supporting documents do not exempt project proponents for cavern development from following the relevant statutory and planning procedures. Information including the potential land uses and the extent of potential portal locations indicated in this Information Note should serve as reference materials only. In formulation of development proposals, project proponents should conduct the necessary studies and assessments relevant to each project stage. Reference should be made to the “Implementation” section of the Explanatory Statement of the Cavern Master Plan for further details.



**Legend**

- Strategic Cavern Area
- Extent of Potential Portal Locations
- Existing Railway Line
- Committed Railway Line
- Vehicle Tunnel
- Water Supplies Department Tunnel
- Abandoned Tunnel
- Reservoir / Nullah
- Graded Historic Building
- Private Lot
- Burial Ground
- Potentially Hazardous Installation
- Consultation Zone of Potentially Hazardous Installation
- Country Park
- Site of Special Scientific Interest



**REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 23 - TAI WAI WEST**

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT PLANNING DEPARTMENT	
DATE: NOVEMBER 2017 VERSION: 1	<b>SCVA 23</b>