

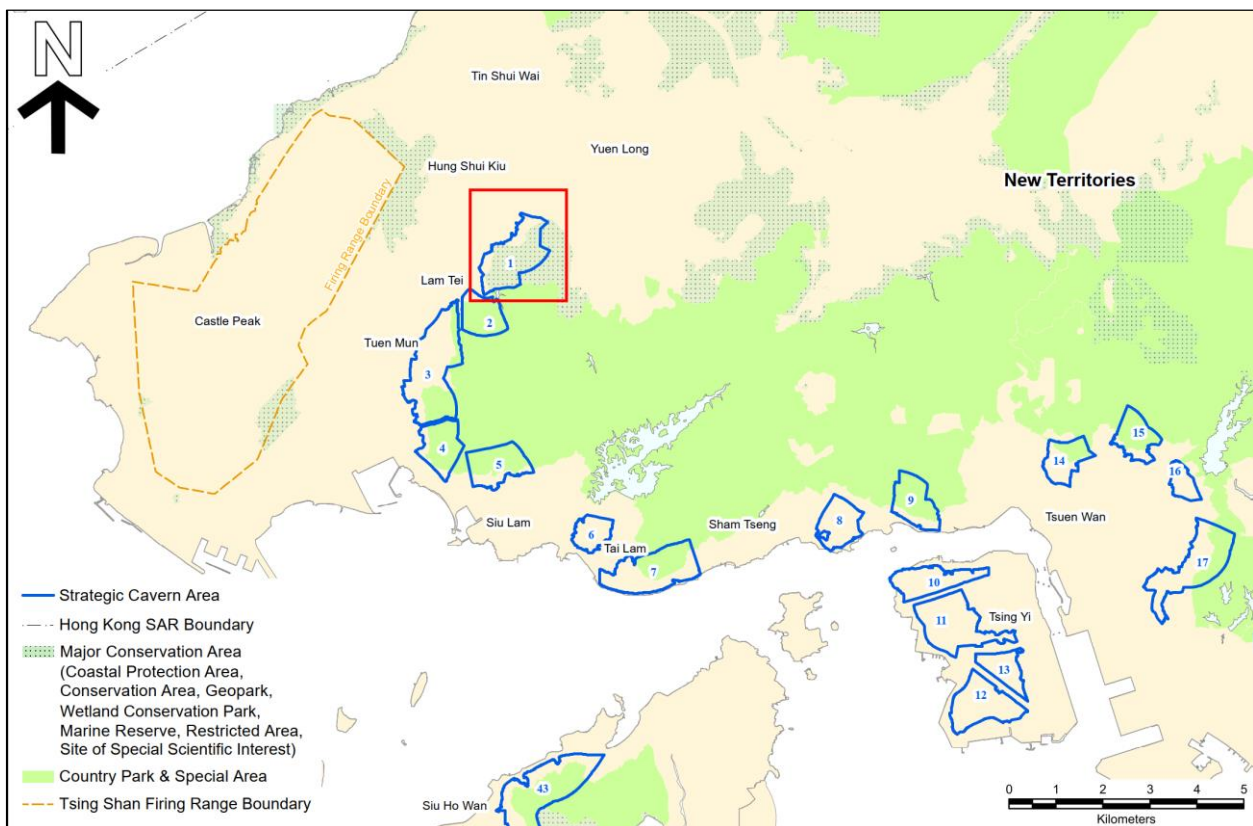
## **CAVERN MASTER PLAN – INFORMATION NOTE**

### **STRATEGIC CAVERN AREA NO. 01 – HUNG SHUI HANG**

*This Information Note describes the characteristics and development constraints of Strategic Cavern Area No. 01 - Hung Shui Hang (the SCVA). 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 Plans (OZPs) <sup>1</sup> :	Lam Tei and Yick Yuen OZP Tong Yan San Tsuen OZP
Area:	133.9 ha
Maximum elevation in SCVA:	+297 mPD
Minimum elevation in SCVA:	+16 mPD

## 3. District Context

### Location

The SCVA is located in the western part of the New Territories. Hung Shui Kiu/ Ha Tsuen New Development Area (HSK/HT NDA) is to the northwest of the SCVA, Yuen Long South Development Area (YLS DA) is to the northeast, Tuen Mun New Town is to the southwest and Tai Lam Country Park is to the south.

The SCVA is generally hilly with a maximum elevation of about +297 mPD. It partially overlaps with Lam Tei Quarry in the southwestern side, which is under operation but will cease operation in future. In the southwestern portion of the SCVA there are two Government, Institution or Community (GIC) facilities, namely Yuen Long Fresh Water Service Reservoir and Yuen Long Water Treatment Works. To the northwest of the SCVA across Yuen Long Highway, near the MTR Light Rail Transit (LRT) Nai Wai and Chung Uk Tsuen Stations, there are some local villages and low-rise residential developments, including Tan Kwai Tsuen (about 600 m to the west of the SCVA) and Tsoi Yuen Tsuen (about 400 m to the west of the SCVA). This area is near the HSK/HT NDA and Lau Fau Shan vicinity which will work with the Qianhai Cooperation Zone and Nanshan District in such areas as finance, professional services and logistics services, promoting and deepening high-end economic cooperation<sup>2</sup>. To the northeast of the SCVA is the YLS DA which is a proposed extension of the Yuen Long New Town. To the northwest of the SCVA is the planned public housing development near Tan Kwai Tsuen<sup>3</sup>. To the southwest of the SCVA, Tuen Mun New Town is a local hub of high-density residential developments supported by various GIC facilities (e.g. hospitals, water treatment works, service reservoirs, schools, etc.).

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<sup>1</sup> For details of the latest land use zonings on the OZPs, please refer to the Town Planning Board website (<https://www.ozp.tpb.gov.hk>)

<sup>2</sup> Source: Explanatory Statement, Hung Shui Kiu and Ha Tsuen Outline Development Plan No. D/HSK/2, Planning Department, August 2024.

<sup>3</sup> Source: RNTPC Paper No. A/YL-TYST/1201, Planning Department, July 2023

In the proximity of the SCVA, there are a number of key GIC facilities supporting the developments in the vicinity of the SCVA and the North West New Territories, including Tan Kwai Tsuen North Fresh Water Service Reservoir (about 20 m to the northwest of the SCVA), Tan Kwai Tsuen South Fresh Water Service Reservoir (about 150 m to the northwest of the SCVA), Tan Kwai Tsuen Salt Water Service Reservoir (about 30 m to the northwest of the SCVA), North West New Territories Refuse Transfer Station (about 30 m to the northwest of the SCVA). In addition, the planned Tan Kwai Tsuen East Fresh Water Service Reservoir and Tan Kwai Tsuen East Reclaimed Water Service Reservoir partly encroach onto the SCVA.

#### Access

The SCVA is accessible from its northwestern, western and southwestern edges via Shui Fu Road, Shun Tat Street, Fuk Hang Tsuen Path and Fuk Hang Tsuen Road/Tung Fuk Road respectively. Regional connections could be routed through the nearby Yuen Long Highway, Tuen Mun Road, Castle Peak Road and Kong Sham Western Highway.

The MTR LRT serves the northwestern New Territories and the stations in the locality of the SCVA include Nai Wai Station and Chung Uk Tsuen Station, which are at about 1.4 km and 1.1 km to the west of the SCVA respectively. Siu Hong Station of the MTR Tuen Ma Line is located about 1.7 km to the southwest of the SCVA, which provides mass transportation for travelers to and from Tuen Mun, Kowloon and Ma On Shan. An additional MTR Station, Hung Shui Kiu Station, is planned at the HSK/HT NDA, which is about 1.5 km to the northwest of the SCVA boundary.

#### Existing / Planned Facility in SCVA

There is 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 some private lots and existing government facilities, including the Tan Kwai Tsuen North & South Fresh Water Reservoirs and the Tan Kwai Tsuen Salt Water Reservoir. The northeastern boundary of the SCVA is defined by burial grounds. The western boundary of the SCVA is defined by rock slopes at Lam Tei Quarry, permitted burial grounds, the valley topography and the North West New Territories Refuse Transfer Station. The southern boundary of the SCVA is defined by Tai Lam Country Park.

## **4.2. Geology**

The solid geology of the SCVA is primarily fine-grained and fine- to medium-grained granite with medium-grained granite locally within the northern portion, which belong to Tai Lam Granite. The SCVA is with the rock types that are suitable for the uses of rock caverns. A number of geological features, such as inferred faults and isolated dykes, are identified within and in the areas surrounding the SCVA. The excavated fine-grained granite, fine- to medium-grained granite and medium-grained granite within the SCVA are suitable for reuse as construction aggregate.

Further geological information of the SCVA can be found in the 1:20,000-scale Geological Map Sheet 6 (Yuen Long) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

## **4.3. Planning**

The SCVA is close to two new development areas (i.e. HSK/HT NDA and YLS DA), proposed public housing development near Tan Kwai Tsuen, Lam Tei Quarry and some low density residential and village type developments (e.g. Tan Kwai Tsuen).

The area to the east of Castle Peak Road near the LRT Chung Uk Tsuen Station is a local hub of residential developments supported by various GIC facilities (e.g. refuse transfer facility, service reservoirs, schools, etc.).

This SCVA is the study site of Agreement No. CE 39/2018 (WS) “Strategic Cavern Areas to Accommodate Existing and Proposed Service Reservoirs in Lam Tei and Adjoining Areas - Feasibility Study” completed in 2024. Project proponents should take due consideration of the study results.

A small portion of the SCVA is within Lam Tei Quarry, which is under operation but will cease operation in future. Project proponents should take into account the findings of the further land use study in future and the study on the Underground Quarrying at Lam Tei, Tuen Mun.



#### **4.4. Environmental**

Environmental sensitive receivers to the potential caverns in the SCVA include the nearby existing schools (e.g. Yuen Long Po Kok Primary School) and residential areas (e.g. Tan Kwai Tsuen, Tsoi Yuen Tsuen, and planned public housing development near Tan Kwai Tsuen). There are burial grounds, as well as water courses passing through (i.e. Hung Shui Hang Irrigation Reservoir) and in the close proximity (i.e. Lam Tei Irrigation Reservoir). There are also some isolated graves outside the designated burial grounds. Additionally, Fu Tei Ha Site of Archaeological Interest is located to the southwest of the SCVA. Also, patches of pitcher plants can be found at the upper section of a water course linking to the Hung Shui Hang Irrigation Reservoir. Preservation and protection of the associated watercourses and pitcher plants shall be considered by the project proponents. As the major stream course of Hung Shui Hang Irrigation Reservoir passes through the SCVA, the impact associated with ground water flow and hence the potential short- to long-term drainage impact of the potential caverns should be considered by project proponents. A significant portion of the SCVA is within Conservation Area, while the Tai Lam Country Park is located immediately to the south of the SCVA.

All potential environmental constraints, which may impose restrictions on the potential caverns, 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 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 northwestern, western and southwestern edges via Shui Fu Road, Shun Tat Street, Fuk Hang Tsuen Path and Fuk Hang Tsuen Road/Tung Fuk Road respectively. Existing Shui Fu Road is a hilly road with low traffic flow. New access roads are proposed under the Tan Kwai Tsuen Public Housing Development project. The future development of Lam Tei Quarry may provide new access roads reaching or close to the SCVA under the further land use study. In this regard, the potential uses of the SCVA could possibly be integrated with that of the Lam Tei Quarry to minimise the interfacing issues and bring about greater synergy. The project proponents shall assess the combined traffic impact due to the development of Lam Tei Quarry and the potential uses of the SCVA. Further advice on the scope of the Traffic Impact Assessment shall be sought by the project proponents.

The SCVA can also be connected to Yuen Long Highway, Tuen Mun Road, Castle Peak Road and Kong Sham Western Highway through local road networks, as well as connection to Lantau via the Tuen Mun - Chek Lap Kok Link, which allows for easy connections to different parts of Hong Kong as well as to Shenzhen.

Agreement No. CE 13/2021 (HY) “Route 11 (Section between Yuen Long and North Lantau) – Investigation” commenced in September 2021 and is in progress. Furthermore, the Tuen Mun Bypass (TMB) under Agreement No. CE 65/2021 (HY) “Tuen Mun Bypass – Investigation” which commenced in March 2022. The proposed alignments and works area for both infrastructure projects had been gazetted in September 2023, the project proponents should take note on the possible interfacing issues with the road works.

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

A Water Supplies Department’s tunnel and the Tan Kwai Tsuen Water Tunnel are located at approximately 100m to the north of the SCVA. The proposed Tan Kwai Tsuen High Level Fresh Water Service Reservoir and Tan Kwai Tsuen High Level Salt Water Service Reservoir are within the boundary of the SCVA. The proposed Tan Kwai Tsuen East Fresh Water Service Reservoir and Tan Kwai Tsuen East Reclaimed Water Service Reservoir are very close to the SCVA so that the said service reservoirs as well as the ancillary trunk main/distribution main within/near the SCVA should be duly considered. Project proponents should take into account the existing and proposed underground infrastructure when considering cavern options. Due to its location and the difference in elevations, this tunnel will unlikely pose any insurmountable constraint to the potential uses of rock caverns within the SCVA.

The existing rock slopes at Lam Tei Quarry are suitable to be a good potential portal location. However, its access from this locality may be constrained by an existing stream, Hung Shui Hang. Project proponents shall consider the level of access and its impact on the existing stream.

There would be interfacing issues with the planned public housing development near Tan Kwai Tsuen and potential public housing development near Tan Kwai Tsuen (North). Project proponents should take into account the interfacing issues with the potential public housing sites.

### **5. Extent of Potential Portal Locations**

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

The SCVA is accessible from potential portals located off Shui Fu Road, Shun Tat Street, Fuk Hang Tsuen Path and Fuk Hang Tsuen Road/Tung Fuk Road. The current accesses to the potential portal locations could only accommodate low traffic flow. As such, the accesses would likely require to be widened and/or upgraded, or establishment of new access roads would be required for supporting the increase of traffic demand associated with the potential uses of rock caverns.

Should any upgrading or widening of road be required within or adjacent to Tai Lam Country Park and Conservation Area to meet traffic needs associated with the potential uses of rock caverns, project proponents shall minimise the proposed works within Tai Lam Country Park and Conservation Area as much as practicable. Alternative access outside the country park and Conservation Area shall be explored.

The future development of Lam Tei Quarry site may provide new access roads reaching the SCVA. The project proponents shall consider the latest design and capacity of the traffic network at the time of implementation and assess whether road upgrading would be required to support the traffic induced by the activities associated with the potential uses of rock caverns.

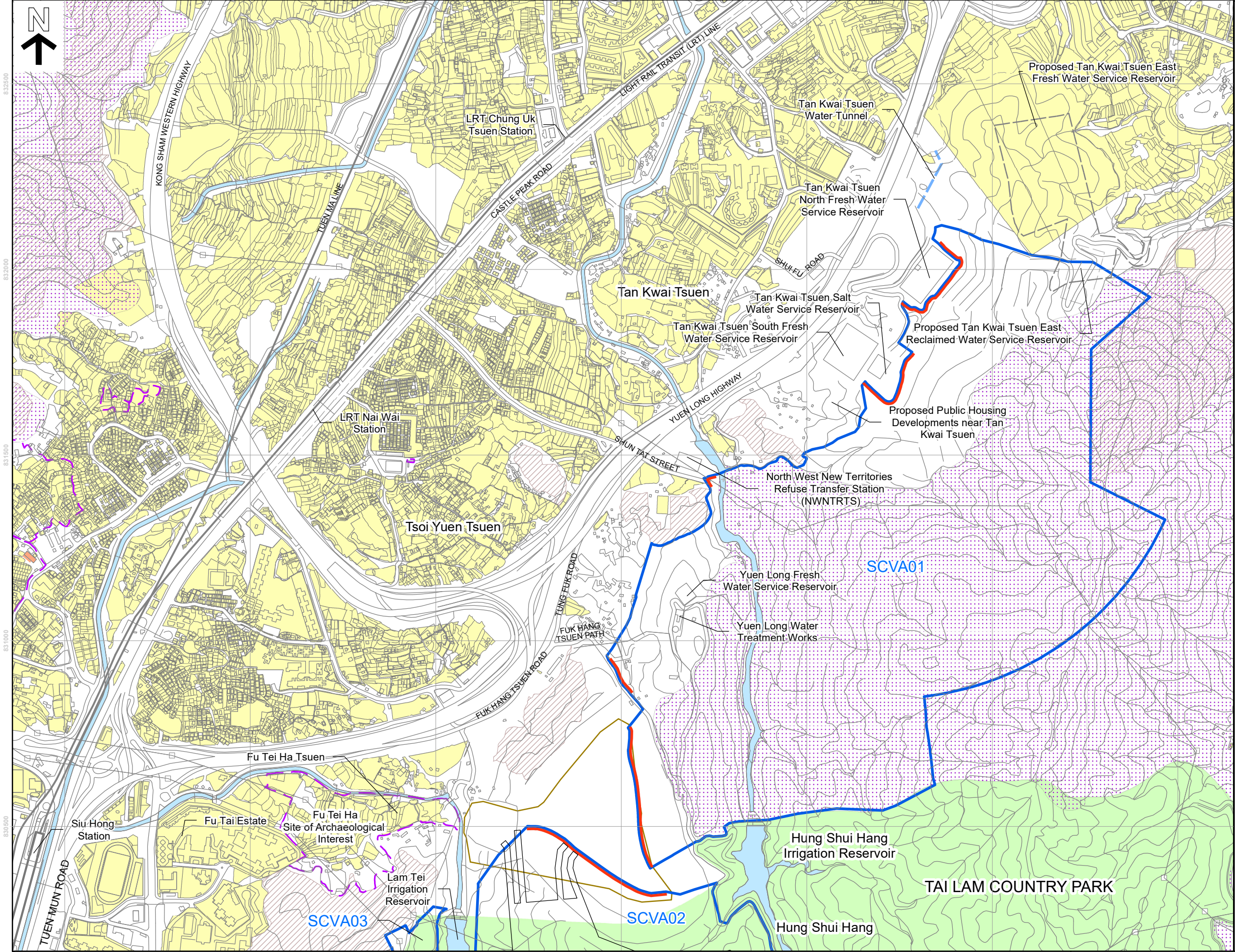
The extent of potential portal locations at the northwestern and western portions of the SCVA are located along with existing cut slopes, or potential new cut slopes are required to be formed for the portals. The extent of potential portal at Lam Tei Quarry at the southwestern portion of the SCVA is located along with an existing rock cut face the quarry. There may be potential natural terrain hazards in the vicinity of the potential portal locations which require further study by project proponents.

Project proponents should carry out further studies on identifying specific locations of portals for projects considering cavern options.

## **6. Remarks to Information Note**

The Cavern Master Plan and all supporting documents do not exempt project proponents for cavern projects from following the relevant statutory procedures. Information including 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.

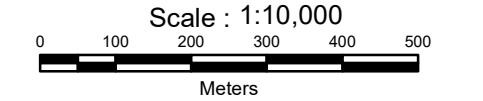




**Legend**

- Strategic Cavern Area
- Extent of Potential Portal Locations
- Quarry
- Existing Railway Line / Light Rail / Tram
- Water Supplies Department Tunnel
- Reservoir / River / Nullah
- Site of Archaeological Interest
- Graded Historic Building
- Private Lot
- Burial Ground
- Conservation Area
- Country Park

Note: All private lots located inside the boundary of the Strategic Cavern Area have been excised. Project proponents shall check the latest land status with the Lands Department. Reference should be made to the Explanatory Statement of the Cavern Master Plan for the delineation criteria of Strategic Cavern Area.



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 01 - HUNG SHUI HANG

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT  
PLANNING DEPARTMENT



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