

CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 11 – TSING YI WEST

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 11 - Tsing Yi 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): | Approved Tsing Yi OZP No. S/TY/28 |
| Area: | 141.8 ha |
| Maximum elevation in the SCVA: | +214 mPD |
| Minimum elevation in the SCVA: | +6 mPD |

3. District Context

Location

The SCVA is located at the western portion of Tsing Yi Island, which is situated to the west of Kwai Chung and Tsuen Wan. Geographically, it occupies the areas of Kam Chuk Kok and Shek Wan. Yau Kom Tau and Cheung Shue Tau are to the north of the SCVA, Sheung Ko Tan is to the east, Nam Wan and Sai Tso Wan are to the south, and the coastal area towards Ma Wan Channel is to the west.

The SCVA is generally hilly with a maximum elevation of about +214 mPD. Some village houses at Liu To are located at the eastern portion of the SCVA. Individual private lots at the central portion have been excised from the SCVA.

To the west of the SCVA, there is focused development of industrial undertakings including oil depots, dockyards, container related uses as well as concrete batching plant and asphalt plant along the western coast of Tsing Yi. To the east of the SCVA, it is the residential area of Tsing Yi which consists of a number of medium- to high-rise residential developments and local village settlements, including Mount Haven (at the northeastern boundary of the SCVA), Cheung Wang Estate (at the northeastern boundary of the SCVA) and Yim Tin Kok Resite Village (about 250 m to the east of the SCVA). There is a potential housing site located in the eastern portion of the SCVA near Mount Haven proposed by the Planning Department¹. A Vehicle Examination Centre (VEC) is proposed at Sai Tso Wan Road to the south of the SCVA and the portal of Cheung Tsing Tunnel². Project proponents should take these into account when formulating any cavern development proposals.

¹ For more information, please refer to the Administration's Paper on Overview of Land Supply (LC Paper No. CB(1)461/16-17(01)) submitted by Development Bureau (DevB) for the Panel on Development's meeting on 24.1.2017 (please refer to Plan 8 in Annex G of the Paper for the location of the potential housing site) : <http://www.legco.gov.hk/yr16-17/english/panels/dev/papers/dev20170124cb1-461-1-e.pdf>

² For more information, please refer to the 'Supplementary Information for Relocation of Transport Department's Vehicle Examination Centre to Tsing Yi' (Document No. 6/2015) submitted to the Traffic and Transport Committee of K&TDC by the DevB, Energizing Kowloon East Office and Transport Department in May 2015 : http://www.districtcouncils.gov.hk/kwt/doc/2012_2015/en/committee_meetings_doc/TTC/8951/TTC6_2015.pdf

In the proximity of the SCVA, there are a number of key Government, Institution and Community (GIC) facilities supporting the development of Tsing Yi including a cluster of water service reservoirs, such as Tsing Yi East Fresh Water Service Reservoir (about 80 m to the east of the SCVA), Tsing Yi East No. 2 Fresh Water Service Reservoir (about 30 m to the east of the SCVA) and Tsing Yi East Salt Water Service Reservoir (about 180 m to the east of the SCVA).

Access

The SCVA is accessed from its western, central and eastern edges via Sai Tso Wan Road, Tsing Yi Road West, Tsing Chin Street and a restricted access road off Ching Hong Road respectively. Regional connections could be routed through the nearby Cheung Tsing Highway, Tsing Long Highway, Nam Wan Tunnel and Lantau Link.

The MTR Airport Express/Tung Chung Line runs through Tsing Yi with Tsing Yi Station located at about 1.3 km to the northeast of the SCVA.

Land Use Zoning

Under the Approved Tsing Yi OZP No. S/TY/28, the majority of the SCVA falls within an area zoned “Green Belt” with a part along the western boundary designated as “Industrial” zone. The surrounding areas of the SCVA are mainly zoned “Green Belt” to the southeast and the north, “Industrial” zone to the west, some “Residential (A)”, “Residential (B)”, “Government, Institution or Community” and “Open Space” zones to the east and a zone of “Other Specified Uses” annotated “Traditional Burial Area for Tsing Yi Villager” to the southeast.

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 the railway tunnel of the Airport Express/Tung Chung Line and a private lot. The western boundary of the SCVA is defined by Sai Tso Wan Road. The eastern boundary is defined by the residential areas, namely Cheung Wang Estate, Mount Haven and Ching Wah Court, and a cluster of service reservoirs including Tsing Yi East No. 2 Fresh Water Service Reservoir. The southern boundary is defined by the Cheung Tsing Highway and Tunnel and an area zoned “Other Specified Uses” annotated “Traditional Burial Area for Tsing Yi Villager”. Individual private lots located within the SCVA have been excised from the SCVA. 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 SCVA.

4.2. Geology

The solid geology of the SCVA is primarily feldsparphyric rhyolite/rhyodacite, which belong to East Lantau Rhyolite and East Lantau Rhyodacite; coarse ash crystal tuff is noted within the northern and southern portions of the SCVA, which belongs to Yim Tin Tsai Formation. Locally, granodiorite is observed within the southwestern portion of the SCVA, which belongs to Tai Po Granodiorite; and fine-grained granite is present within the eastern portion of the SCVA, which belongs to Sha Tin Granite. The SCVA is with the rock types that are suitable for cavern development. Some geological features, such as faults and isolated dykes, are identified within the SCVA and in the surrounding areas. The excavated granodiorite and fine-grained granite will be suitable for reuse as construction aggregate. Other excavated rocks within the SCVA can be used as road base materials and for asphalt production, etc.

Further geological information of the SCVA can be found in the 1:20,000-scale Geological Map Sheet 6 (Yuen Long) and Geological Map Sheet 10 (Silver Mine Bay) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

4.3. Planning

The SCVA is sandwiched between the existing industrial area and residential area in Tsing Yi. Given the SCVA is well connected to the rest of the territory by various major highways, there is potential for the SCVA to support the development of these areas.

The western coast of Tsing Yi, which is at the west of the SCVA, has been developed as a hub of various industrial uses that require direct marine access and extensive land, including dockyards, oil depots and container related uses. A VEC is also proposed at Sai Tso Wan Road to the south of the SCVA and the portal of Cheung Tsing Tunnel. The advantageous geographical setting and extensive road network connections of Tsing Yi, which are favourable for such kinds of industrial development, including oil depots and container related uses with territorial significance, could be further utilised. The SCVA could provide new space to support the potential expansion of these industrial activities, for example, by relocating and/or expanding the existing oil depots and/or container related uses into caverns.

On the eastern side of the SCVA, there are major residential developments in Tsing Yi. These consist of various medium- to high-rise residential developments (e.g. Cheung Wang Estate and Mount Haven) and local village settlements (e.g. Yim Tin Kok Resite Village) supported by a number of GIC facilities (e.g. sports ground, sewage treatment works, service reservoirs, schools, etc.). In the eastern portion of the SCVA near Mount Haven, there is also a potential housing site. 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 to caverns (e.g. service reservoirs). 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 Tsing Yi while preserving the natural landscape in Kam Chuk Kok as a natural buffer between the industrial and residential areas. Also, the SCVA has the potential to provide vehicle parking facility given its close proximity to the existing high-rise residential developments and potential residential development nearby to cater for future need if required.

The SCVA is strategically located in the urban fringe with easy access to the rest of the territory, including Ma Wan and Lantau via the Lantau Link, Ting Kau and Northwest New Territories via Tsing Long Highway, Tsuen Wan via Tsing Tsuen Bridge, Kwai Chung and the Kowloon mainland via Cheung Tsing Bridge, Tsing Yi Bridge and Kwai Tsing Bridge (please refer to Reference Drawing of SCVA No. 13 for the location of the bridges), and Stonecutters Island and the west Kowloon area via Stonecutters Bridge (please refer to Reference Drawing of SCVA No. 12 for the location of the bridge). This distinctive advantage could be well utilized in developing land uses that require convenient transport infrastructure for serving a large catchment area, such as maintenance depot.

As stated in Section 3, the SCVA encroaches onto the “GB” zone under the Approved Tsing Yi OZP No. S/TY/28. According to its Explanatory Statement, the “GB” zone serves the purpose of protecting the existing ridgeline which provides physical barriers separating the oil depots in the south and west of Tsing Yi from residential developments in the north-east. The land above +150 mPD in the “GB” zone is designated as ‘No Borrow Area’ by the Coordinating Committee on Land-use Planning and Control relating to Potentially Hazardous Installations (CCPHI) in 1988, where borrowing and alternation of landforms are prohibited. Any alteration of the ridge below 150mPD has to be agreed with concerned departments including the Gas Standards Office of Electrical and Mechanical Services Department. Project proponents shall consult relevant departments if the proposed land uses and portals involve alternation of the ridge below 150mPD.

4.4. Environmental

Environmental sensitive receivers to cavern development in the SCVA are the nearby schools (e.g. Lok Sin Tong Leung Chik Wai Memorial School) and residential developments (e.g. Mount Haven and Ching Wah Court). The SCVA encroaches onto the Consultation Zones of two Potentially Hazardous Installations (PHI), viz. Shell Hong Kong Limited Oil Terminal and Chevron Hong Kong Limited Oil Terminal. Quantitative Risk Assessment would be required at the planning stage of the projects. The blasting assessment shall take these oil terminals in the vicinity into account. There may be potential land contamination in the areas of industrial facilities, e.g. dockyards, oil depots, etc., located close to the western boundary of the SCVA and further investigation may be required in future cavern development project in the vicinity. Also, some natural water courses and streams are located within the SCVA.

All potential environmental constraints, which may impose restrictions on the cavern development, should be identified and taken into account under the Environmental Impact Assessment Ordinance (EIAO) and other relevant ordinances. 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 western, central and eastern edges via Sai Tso Wan Road, Tsing Yi Road West, Tsing Chin Street and a restricted access road off Ching Hong Road respectively. These roads have the capacity to accommodate traffic generated by different types of land uses in the cavern development proposal, subject to the detailed assessment by the future project proponent. Regional connections could be routed through the nearby Cheung Tsing Highway, Tsing Long Highway and Lantau Link.

4.6. Other Key Issues / Constraints on Cavern Development

A railway tunnel for the Airport Express and Tung Chung Line is located at 50 m away from the northern boundary of the SCVA. A vehicle tunnel, i.e. Cheung Tsing Tunnel, is located at 50m to the southeast boundary of the SCVA. Due to horizontal separation, these tunnels would not pose any insurmountable constraints to cavern development in the SCVA.

5. Potential Land Uses

The potential land uses for the SCVA are as follows:

| Land use | Description |
|-------------------|--|
| Maintenance Depot | <p>The SCVA is located at the urban fringe connected with extensive road network, and is easily accessible via various major highways, such as Tsing Long Highway, Cheung Tsing Highway and Lantau Link. There is thus potential to develop suitable land uses that require convenient transport infrastructure for serving a large catchment area, such as maintenance depot.</p> <p>Some potential portal locations of the SCVA are away from existing residential areas, which make the SCVA compatible with such land use.</p> |
| Oil Bulk Storage | <p>Tsing Yi is a hub of various industrial uses that require direct marine access and extensive land, including the focused development of oil depots and container related uses to the west and southwest of the SCVA. There is thus potential to develop suitable land uses to support the potential expansion of these industrial activities of territorial significance, for example, by relocating and/or expanding the existing oil depots in caverns.</p> <p>Some potential portal locations of the SCVA are fronting the existing industrial areas including oil depots and are away from the existing residential areas, which make the SCVA compatible with such land use. Further technical assessments shall be required if this potential land use is taken forward in future cavern development project.</p> |

| Land use | Description |
|--|---|
| <p>Service Reservoir</p> | <p>Tsing Yi is home of various residential developments (e.g. Cheung Wang Estate, Ching Wah Court, etc.) and has the potential for further growth given it is located in an urban setting equipped with well-established infrastructural systems. There is thus opportunity to develop suitable land uses to support the potential expansion of the residential areas, by relocating some of the suitable infrastructure facilities, such as service reservoir, to caverns.</p> <p>Existing service reservoirs are found in the vicinity of the SCVA. Relocation of the facility to caverns may be considered, thereby releasing the surface land for other beneficial uses (e.g. residential developments and/or community facilities) and for integration with the potential future development if appropriate.</p> |
| <p>Storage / warehousing Container Storage</p> | <p>For the same reason as described for “Oil Bulk Storage” and considering the good connectivity of the SCVA with various major highways (e.g. Tsing Long Highway and Cheung Tsing Highway), there is potential to develop suitable land uses to support the potential expansion of industrial activities of territorial significance, for example, by relocating and/or expanding the existing container related uses in caverns.</p> <p>Some potential portal locations of the SCVA are fronting the existing industrial areas including container related uses and are away from the existing residential areas, which make the SCVA compatible with such land use.</p> |

| Land use | Description |
|-----------------|---|
| Vehicle Parking | <p>Tsing Yi is home of various residential developments (e.g. Cheung Wang Estate, Ching Wah Court, etc.) and has the potential for further growth. There is thus opportunity to develop suitable land uses to support the existing residential developments and the potential new developments. Considering the good connectivity of the SCVA with various major highways, there is potential of the SCVA to provide vehicle parking facility, to cater for future need if required.</p> <p>Some potential portal locations of the SCVA are close to the existing high-rise residential developments. The close and easy access for the local residents enhances the potential for housing such facility in the SCVA.</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 can be accessed from Sai Tso Wan Road, Tsing Yi Road West, Tsing Chin Street and a restricted access road off Ching Hong Road. Multiple portals can be formed along Sai Tso Wan Road given its lengthy extent. This extent could be able to support different land uses given the capacity of the road and possible direct connections to the portals. It is noted that road improvement works at Sai Tso Wan Road will be implemented for the proposed VEC at Sai Tso Wan Road to the south of the SCVA and the portal Cheung Tsing Tunnel. Project proponents should take this into consideration when formulating any cavern development proposals in its vicinity and consult relevant Government departments, including but not limited to Development Bureau, Energizing Kowloon East Office and Transport Department, where appropriate. The potential portal locations along the Tsing Yi Road West and Tsing Chin Street are located at the slopes alongside the existing carriageway. Depending on the land use, road upgrade and/or widening at the restricted road access road off Ching Hong Road may be required for the potential portal adjacent to the existing Tsing Yi East No. 2 Fresh Water Reservoir.

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

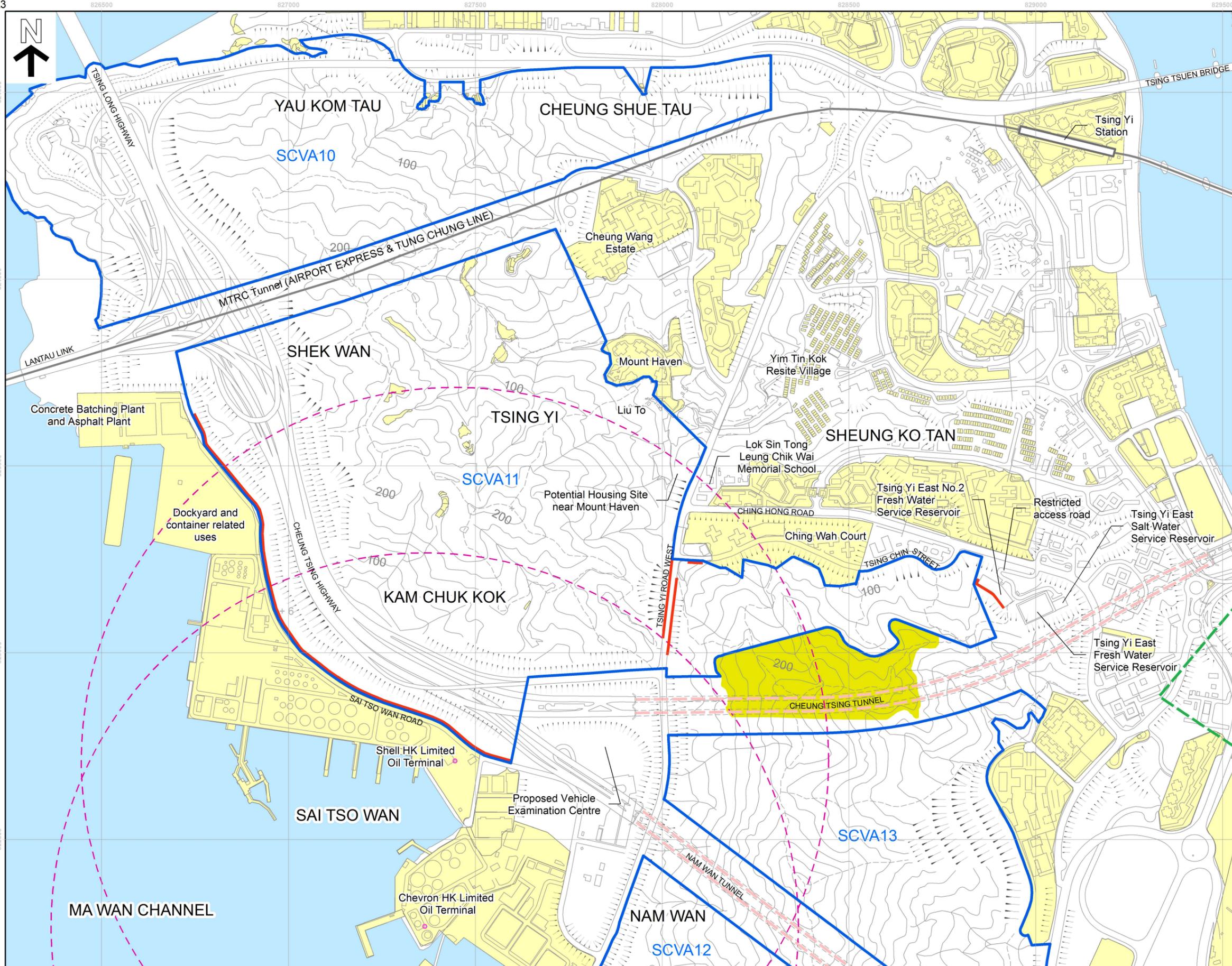
Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

7. Concluding Remarks

The SCVA presents an opportunity for locating suitable land uses in rock caverns to serve the neighbouring existing residential communities and potential new developments (e.g. by housing service reservoirs and vehicle parking). It can also facilitate the growth of the local industrial hub of territorial significance by housing its related uses (e.g. oil depots, storage/warehousing and container storage). There is also potential to locate maintenance depot which could well utilise its strategic location and comprehensive transport network. Project proponents for cavern development should take due consideration of the existing and potential residential/industrial developments, environmental sensitive receivers, accessibility for cavern development, Consultation Zones of the two PHIs and the proposed VEC, to minimise the interfacing issues and bring about greater synergy and opportunities.

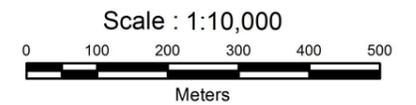
8. Notes

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
 - Vehicle Tunnel
 - Drainage Services Department Tunnel
 - Sea
 - Private Lot
 - Potentially Hazardous Installation
 - Consultation Zone of Potentially Hazardous Installation
 - "Other Specified Uses" annotated
 - "Traditional Burial Area for Tsing Yi Villager" Zone on Outline Zoning Plan

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. 11 - TSING YI WEST