

APPENDIX 6

Geotechnical Planning Review Report

*PROPOSED CHANGE OF USE TO
"SOCIAL WELFARE FACILITIES" (RCHE)
IN "GREEN BELT" AND "VILLAGE TYPE DEVELOPMENT" ZONE
LAI CHI SHAN, TAI PO, N.T.*



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1.0 Introduction

1.1 This report is to present geotechnical assessments to support the planning application for a proposed change of use to "Social Welfare Facilities" (RCHE) in "Green Belt" and "Village Type Development" zone in Lai Chi Shan, Tai Po, N.T.

The following geotechnical aspects are covered on this appraisal report:

1. Desk study and background information search of existing structures and geotechnical features located in the vicinity of the site.
2. A review of the site conditions and findings of the geotechnical investigation.
3. Brief assessment of the geotechnical feasibility of this planning application.
4. A proposed sequence of construction and / or mitigation measures which are likely to be carried out in connection with this planning application.

2.0 The Site

- 2.1 The Application Site locates at Lot 364 S.A RP, ss.1-2, S.B RP, ss.1-5, 365, 804 RP, S.A-S.C, 805 S.A-S.C, 946 RP, 963 RP, S.B, S.D, S.E RP, ss.1, S.F, S.G and adjoining Government Lands in D.D. 22 Lai Chi Shan, Tai Po, N.T., with a site area of about 2,034.94 m².

Please refer to **Figure 1** for the Location Plan of the Application Site.

3.0 Existing & Proposed Design

- 3.1 The Site locates on a slope behind a row of Village House called the "Sunshine Garden". **Figure 2** shows the existing topography of the Site.

According to the Building Plans (**Figure 3**), the slope needs to undergo a series of Site Formation Work in order to reach the desired levels of 32.54mPd.

The RCHE Building would have a height of about 24m with Roof Level of 58.34mPd. The Building would abut the slope to the South-West at G/F and 1/F to act as a Retaining Structure.

4.0 Existing & Proposed Design

4.1 According to the information obtained from the Hong Kong Slope Safety (HKSS) website, there are four registered features of 7NW-B/C 589, 7NW-B/C 711, 7NW-B/CR 252, 7NW-B/C 717 located in the vicinity of the proposed application site.

4.2 **Feature No. 7NW-B/C 589 (*Figure 4*)**

Feature No. 7NW-B/C 589 located on the proposed site. The feature consists of a slope of Max. 11 m high, 57 m long and with an average angle of 30 deg. There are existing 251 mm surface channels located at the crest and 251 mm at the toe of the feature and on slope. The consequence-to-life category is 1, according to HKSS website of the GEO. The maintenance responsibility of the feature belongs to Lot 94.

LOT 946RP in DD22

LOT 365 in DD22

LOT 963RP in DD22

LOT 963S.E in DD22

LOT 963S.F in DD22

LOT 963S.D in DD22

LOT 804 in DD22

LOT 805 in DD22

LOT 946S.A in DD22

LOT 946S.B in DD22

LOT 946S.C in DD22

LOT 946S.D in DD22

LOT 946S.E in DD22

LOT 946S.D in DD22

LOT 946S.C in DD22

LOT 946S.B in DD22

LOT 946S.A in DD22

LOT 946S.E in DD22

LOT 946S.F in DD22

4.0 Existing & Proposed Design (Cont'd)

4.2.2 Feature No. 7NW-B/C 717 (*Figure 5*)

Feature No. 7NW-B/C 717 adjoins the proposed site to the West. The feature consists of a slope of Max. 5 m high, 13 m long and with an average angle of 30 deg. There is no drainage at the slope. The consequence-to-life category is 1, according to HKSS website of the GEO. The maintenance responsibility of the feature belongs to Lot 946 RP in DD 22 and LandsD.

4.2.3 Feature No. 7NW-B/CR 252 (*Figure 6*)

Feature No. 7NW-B/CR 252 is at the East of the site. It consists of a slope app. 3 m high, 29 m long and with a face angle of 70 deg and a wall app. 1.4 m high, 15 m long with a face angle of 80 deg. There is an existing 251 mm surface channel at the toe of the feature. The consequence-to-life category is 1, according to HKSS website of the GEO. The maintenance responsibility of the feature belongs to Lot 963 S.C. in DD 22 and LandsD.

4.2.4 Feature No. 7NW-B/C 711 (*Figure 7*)

Feature No. 7NW-B/C 711 is a slope at the East of the site. It is app. 100 m high, 130 m long and with a face angle of 20 deg. The consequence-to-life category is 3, according to HKSS website of the GEO. The maintenance responsibility of the feature belongs to LandsD.

5.0 Desk Study and Background Information Search

5.1 It is noted that suspected unauthorised site formation works, involving both excavation and filling works, were observed at the captioned site in 2016. In order to ascertain the geotechnical implications and to ensure compliance with the current geotechnical standards, further investigations and remedial works will be proposed for the detailed design stage.

Proposed Ground Investigation Study

To properly evaluate the extent and condition of the suspected unauthorised works, a detailed study comprising both desk study and ground investigation (GI) will be carried out:

Desk Study and Topographic Review: Aerial photographs and topographic surveys from before and after 2016 will be reviewed to identify the exact boundaries and estimate the volume of the unauthorised excavation and filling works.

Targeted Ground Investigation: Specific GI works, such as trial pits or boreholes, will be proposed and carried out in the detailed design stage. The GI aims to verify the depth, extent, nature, and compaction condition of the existing fill materials, as well as the geological profile of the excavated areas.

After all, Remedial Works would be prepared as appropriate.

6.0 Proposed Sequence of Construction (Figure 8 refers)

- 6.1 In order to suit the new RCHE design, part of 7NW-B/C 589 would be excavated. First, pipe pile/ sheet pile cofferdam is construct along West side of the site.

The stability of the feature 7NW-B/C 711, 7NW-B/CR252 and 7NW-B/C717 will be reviewed in the design of the proposed development. If those are found not to be up to the required standard, those can be propped by a new supplementary retaining wall inside the proposed development. The supplementary wall will be integrated with the proposed building structure so that it is strong enough to lend support to those features.

The sequence of construction (Drawing GA-1 to GA-5) involves basically the following steps:

1. Carry out ELS Works sequentially down to the final excavation level at the South-East half of the Site.
2. Construct the Pile Caps and Structure with the cofferdam.
3. Employing the completed Structure as stiff support, carry out ELS Works for the remaining part of the Site sequentially down to the final excavation level.
4. Construct the remaining Pile Cap and other related Retaining Structures.
5. Construct the Superstructure above ground floor in the usual manner.

7.0 Conclusion

7.1 A review of the site conditions and the geotechnical works likely to be carried out for the proposed planning application has been carried out and the following conclusion can be made.

1. It is envisaged that the proposed planning application is geotechnically feasible. Since the slope 7NW-B/C 589 would be modified & be buttressed by the new permanent basement structures. The stability of the feature 7NW-B/C 711, 7NW-B/CR 252 and 7NW-B/C 717 will be reviewed in the design of the proposed development. If those are found not to be up to the required standard, those can be propped by a new supplementary retaining wall inside the proposed development. The supplementary wall will be integrated with the proposed building structure so that it is strong enough to lend support to those features. No additional adverse effect will be induced on the adjacent ground and geotechnical features.
2. A detailed investigation and assessment of all existing slopes located in the vicinity to the site such as 7NW-B/C 589, 7NW-B/C 711, 7NW-B/CR 252 and 7NW-B/C 717 will be carried out to ensure that the stability of the existing geotechnical features is complying with current geotechnical standards and will not induce any adverse effect on the proposed development. If necessary, appropriate measures including recommendation and implementation of any stabilization / upgrading / preventive works in order to acquire a safe geotechnical environment will be employed in detail in future studies.