

Frequently Asked Questions

Assessment of Ranking Score under the New Priority Ranking Systems

(Last update in November 2016)

1. Should the ranking score (RS) be assessed at the cross-sections corresponding to the most severe consequence and maximum height of the feature?
 - Should assess RS at a sufficient number of cross-sections with due account given to, among other things, consequence of failure, feature height, feature type, level of geotechnical engineering input, etc. at different portions of the slope (e.g. at both government and private portions of mixed responsibility features). See examples in Figures 1 & 2 below.
 - Should provide RS for the two most critical cross-sections and submit a file containing these sections and their location plan. File name should be in form of *Slope Number* and “_cs.pdf” (e.g. 7SWBCR23_cs.pdf, etc).

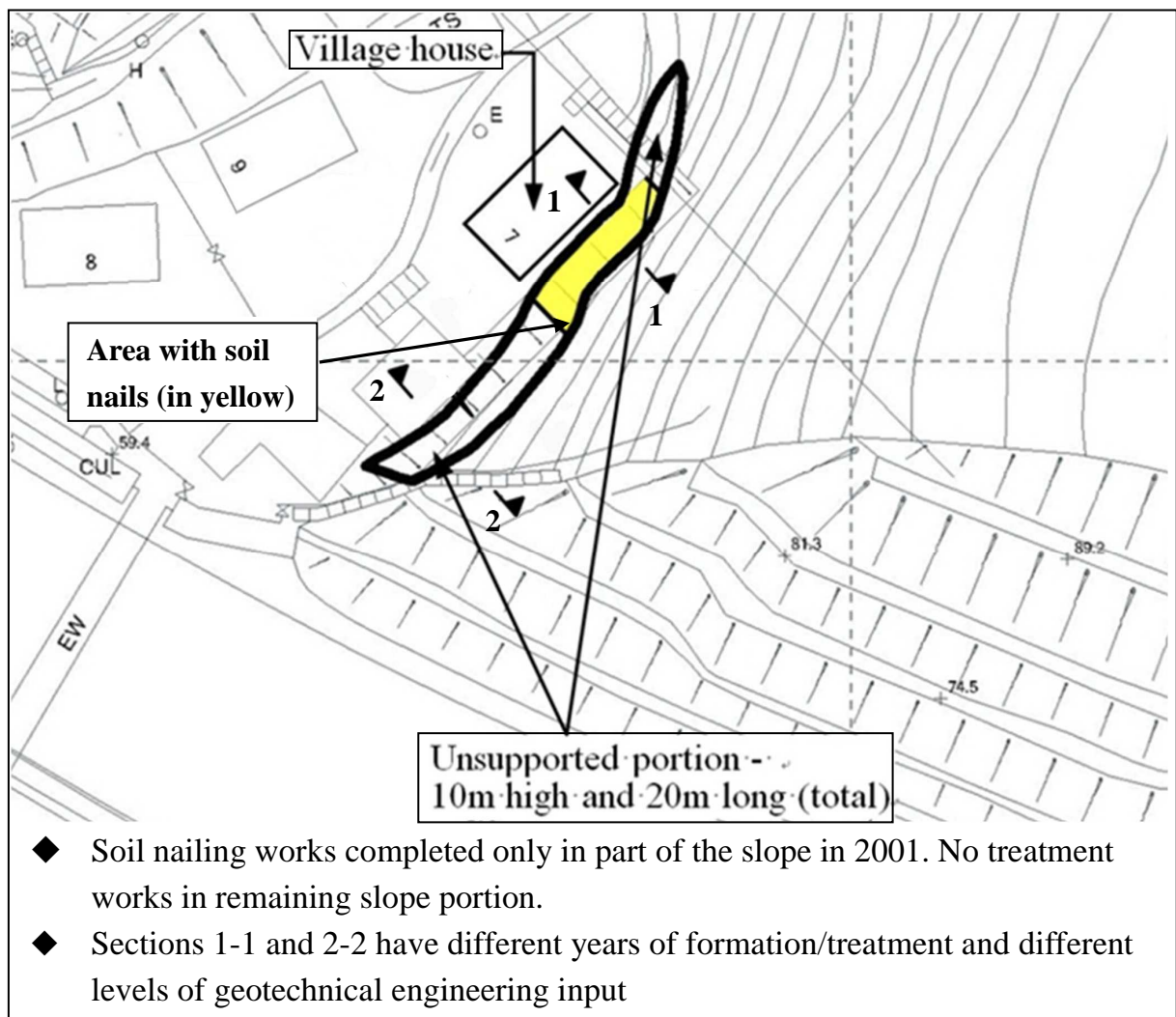


Figure 1 – Soil Cut Feature Having Different Levels of Geotechnical Engineering Input

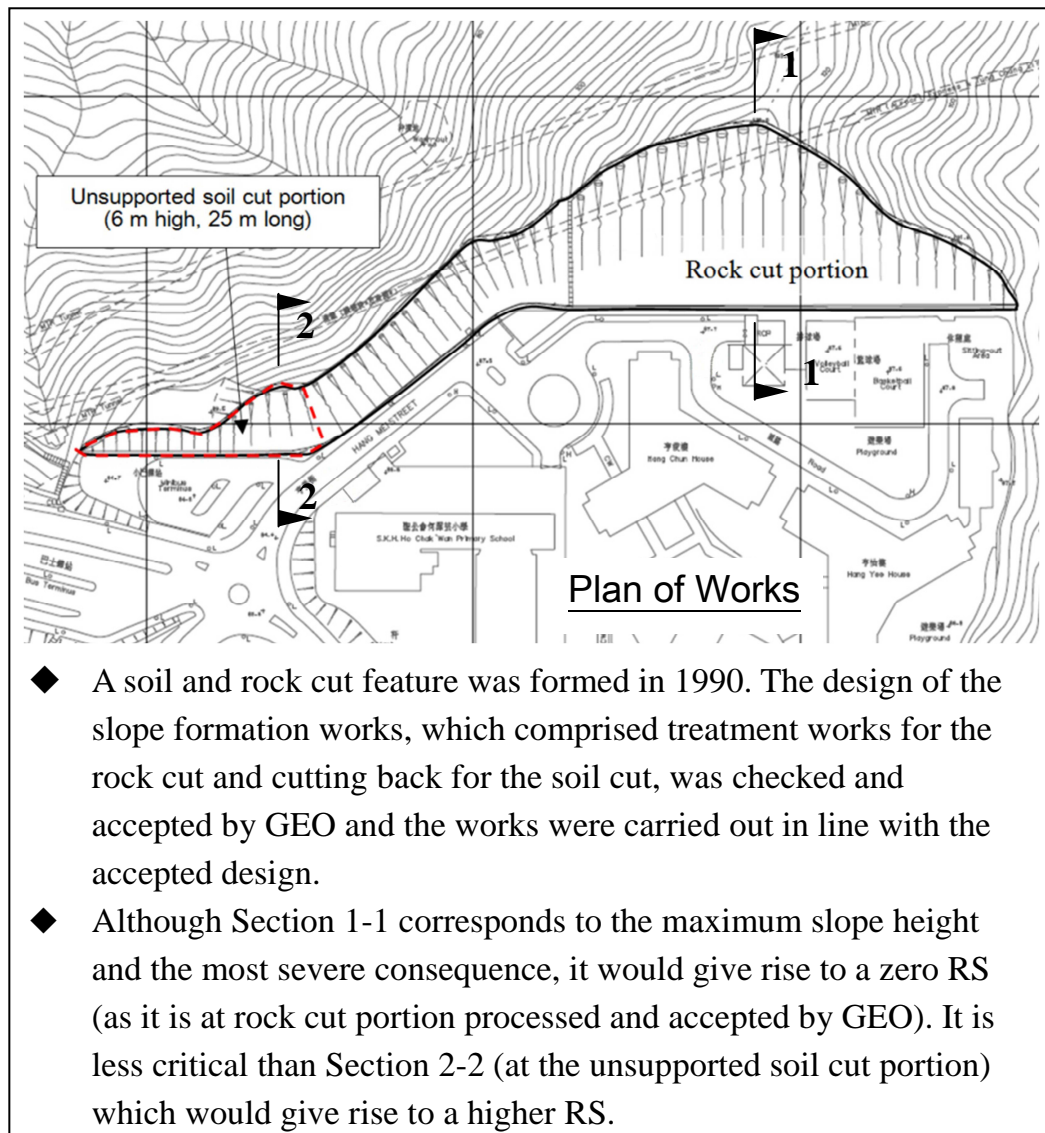


Figure 2 – Soil/Rock Cut Feature Comprising an Unsupported Soil Cut Portion

2. Which types of slopes need to be ranked using NPRS?

According to GEO Report No. 284, the following types of slopes are **not** ranked for action under LPMitP:

- Soil cut slopes formed/treated in or after year 2000 or treated with robust technology (e.g. installed with structural support, e.g. soil nails), and processed and accepted by GEO.
- Rock cut slopes, fill slopes and retaining walls processed and accepted by GEO.

In other words, the following slopes should be ranked (i.e. $RS \neq 0$):

- All old (pre-1978) slopes as well as any post-1978 slopes that are not processed and accepted by GEO.
- Any unsupported soil cut slopes that were processed and accepted by GEO but formed/treated before year 2000.

3. If only a few soil nails have been installed at a soil cut slope, can this slope be considered as 'treated with robust measures' in the assessment of Factor A1?
- A soil cut is deemed to be 'treated with robust measures' in the assessment of Factor A1 if a substantial portion of the slope has been stabilized using robust measures. Soil cut with limited coverage of soil nails is not considered to be treated with robust technology in the assessment of Factor A1. See example in Figure 3 below. Please also refer to Question 12 for details of how the geometric parameters of soil cut slopes partially treated with soil nails can be assessed.

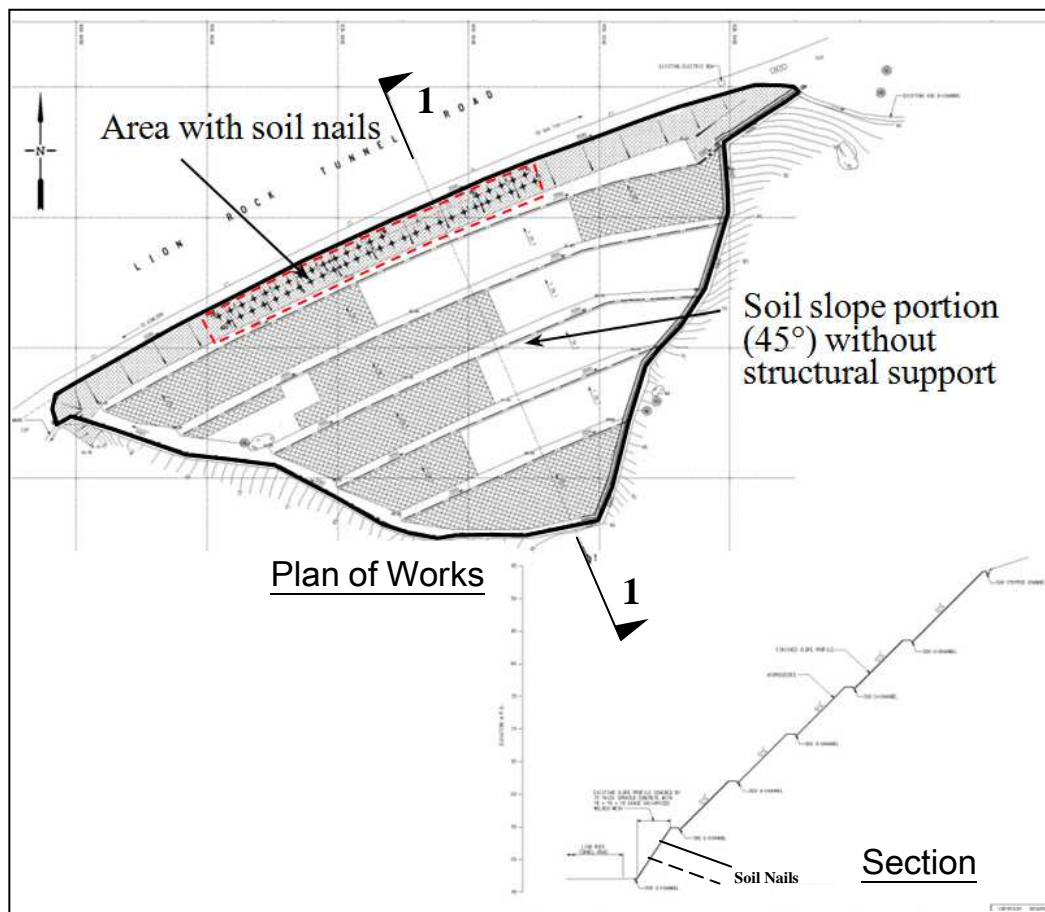


Figure 3 – Soil Cut Feature with Limited Coverage of Soil Nails

4. Under what circumstances can a slope feature be considered 'processed and accepted' by GEO in the assessment of Factor A1?

A slope is deemed to be processed and accepted by GEO if the slope treatment/formation works are completed in accordance with design which has been checked and accepted by GEO. Slopes issued with GEO checking Certificates is an example of slopes that are considered to be processed and accepted by GEO.

If there is evidence of GEO checking records only but:

- Checking certificates were not issued (post-2001 projects), or
- Completed works deviated from design drawings, or
- No works were implemented after GEO checking of the design, or
- No design drawings.

These slopes are not considered to be processed and accepted by GEO.

5. For slopes with a mixed maintenance responsibility, if a Stage 2 study on private portion has been processed and accepted by GEO, could the slope be considered to be 'processed and accepted' by GEO in the assessment of Factor A1?

- Stage 2 Study, which is generally conducted without ground investigation, is to ascertain the need to serve DHO or not.
- While the study may be processed and accepted by GEO, it does not imply the slope has been 'processed and accepted' by GEO in the context of NPRS assessment as discussed in Question 4.

6. If a feature was 'processed and accepted' by GEO, does it necessarily mean that the factor pertaining to the 'Level of Geotechnical Engineering Input' would always stay the same?

No. If there are changes in the settings/conditions (including feature boundary, feature type, affected facilities, maintenance responsibility, occurrence of landslide after treatment etc.) since it was last processed/accepted by GEO, re-assessment of RS is warranted. See example below in Figure 4.

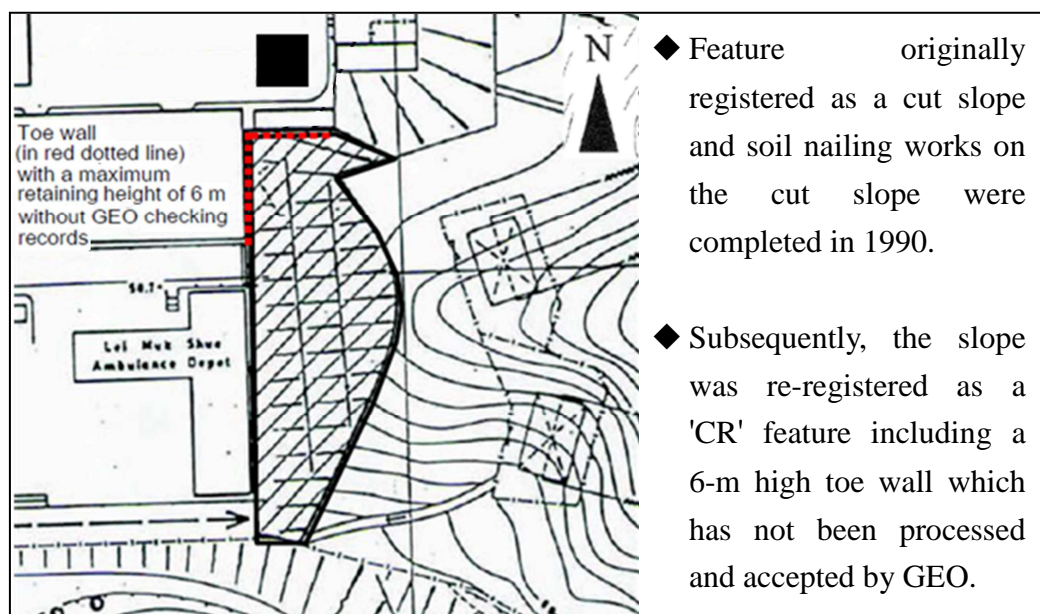


Figure 4 – Cut Slope Re-registered as a 'CR' Feature Including a Toe Wall

7. For features installed with Type III prescriptive measures or equivalent but without GEO Checking Certificate, could the RS be taken as zero?

If there is no GEO Checking Certificate issued nor evidence of GEO checking records, RS should not be taken as zero, and Factor A1 should be assessed based on the year of the slope treatment works and Factor A2 should be assessed as 'some geotechnical engineering input'. Otherwise, Factor A2 should be assessed as “substantial geotechnical engineering input” if there is evidence of GEO checking records or GEO checking requirement has been waived.

8. Under what circumstances can a slope feature be considered as 'checked and accepted' in the assessment of the factor pertaining to the 'Level of Geotechnical Engineering Input'?

The following can generally be considered as 'checked and accepted':

- GEO Checking Certificate issued (post-2001 projects), or
- Slopes checked by GEO without outstanding comments and works carried out in line with checked/accepted design (pre-2001 projects), or
- Slopes designed by GEO and works carried out in line with checked/accepted design (pre-2001 projects), or
- Slopes checked by BD without outstanding comments.

9. How to assess the presence of adverse geological features (in Factor A5 for soil cut slopes) if the feature is covered with shotcrete?

The input relating to the presence of adverse geological features (in Factor A5 for soil cut slopes) shall be based on observable or recorded evidence.

10. How to rate Factors A2 and B1 for retaining walls with unknown base width?

- The base width of retaining walls should be assessed based on records or weephole probing.
- Otherwise, the wall slenderness ratio, H_e/B_w , should be assumed to be 5 in the assessment of Factor A2.
- Factor B1 should be assessed assuming $H_e/B_w = 5$.

11. How to rate Factor A3 for rock cut slopes when more than one failure modes are considered relevant?

Where more than one failure modes are considered relevant at a particular cross-section

where RS is being assessed, the most critical failure mode that gives rise to the highest RS should be selected.

12. How to assess the input geometric parameters for soil cut features partially treated with soil nails?

For soil cut with limited coverage of soil nails, consideration given to the likelihood of the potential slip surface daylighting within the soil nailed area in determining H_o and H_e . If the potential slip surface is judged not daylighting within the soil nailed area, then H_o should not extend to include the soil-nailed area as shown in Figure 5 below.

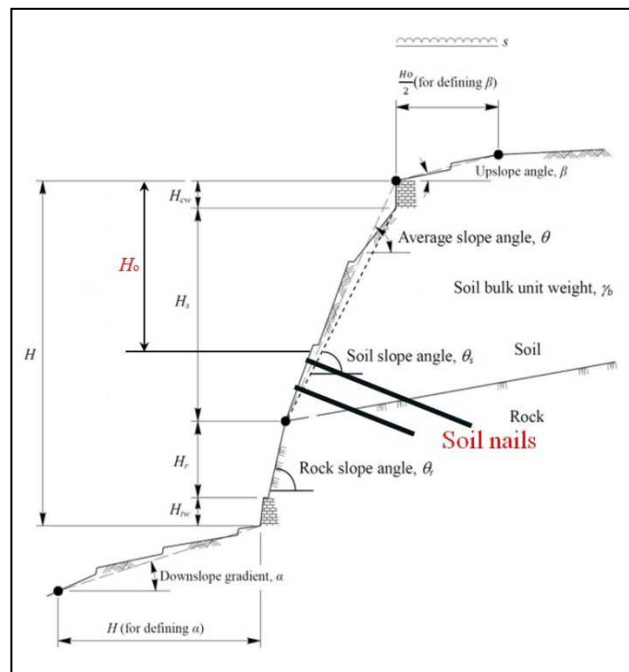


Figure 5 – Soil and Rock Cut Partially Installed with Soil Nails

13. Under what circumstances can a facility be classified as a ‘vacant public use facility’ in the assessment of Factors C1 and D1?

For a public facility which has been confirmed by respective authorities (e.g. LandsD) that it is not in use, then the facility can be classified as a ‘vacant public use facility’.

14. How to rate Factors C1 and C2 when more than one facilities are considered relevant?

Where more than one facilities are considered relevant, either at the same cross-section or at different sections across a feature, the potential consequence of failure in relation to each facility should be assessed to determine which facility and section would give rise to the highest RS.

15. How to rate Factors C1 and D1 when facilities are not listed in Table 1 of GEO TGN No. 15?

Examples of facilities given in GEO TGN No. 15 are not exhaustive. Benchmarking the likely consequence of those not listed with those on the list is warranted.

16. Could the old RS be taken for features that are inaccessible?

- Should not simply use the old RS.
- Should try other means to access the features, e.g. via different routes, contact District Officer, drop off letters containing contact information to tenants/owners for future visit.
- Should explore other means to obtain slope information.

Practitioners are encouraged to provide any feedback on GEO Report No. 284 and this Note to the Chief Geotechnical Engineer/Standards & Testing or Chief Geotechnical Engineer/Landslip Preventive Measures 1 of the GEO.