Siwawut Songsutthid 2009: Slope Stability Analysis of Landslide Risk Area and Landslide Risk Area Improvement Using Vegetation. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Associate Professor Kobkiat Pongput, Ph.D. 74 pages.

The results of landslide potential area at Chiangklang District, Nan Province, by weighted factor index method and slope stability analysis provided 2 types of potential area, maintenance and upgrading required areas. High potential of landslide area where factor of safety lower than 1.25 is the maintenance required area. This area need improvement of stability by geotechnical technology such as geosynthetics reinforcement, concrete retaining wall, and slope adjustment. For medium potential which is upgrading required area, the easilier and cheaper method such as root reinforcement are suitable. This results shows the pattern of vegetation for slope improvement at upgrading required area. Two pattern of vegetation; single and mixing patterns were used to calculate slope stability. Root growth data were simulated on KU-SLOPE 2.0 program to estimate for 5 years factor of safety. Root growth rate can predict increase cohesion and factor of safety of each vegetation pattern. This results can be used as a guideline for vegetation planning to protect landslide hazard.

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