

STABILITY ANALYSIS AND IMPROVEMENT EVALUATION ON  
RESIDUAL SOIL SLOPE WITH REINFORCEMENT LOAD:  
BUILDING CRACKED & SLOPE FAILURE

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## **SUPERVISORS'S DECLARATION**

We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor of Engineering Technology in Infrastructure Management.

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## **STUDENT'S DECLARATION**

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree.

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## TABLE OF CONTENTS

|  |             |
|--|-------------|
| <b>SUPERVISOR'S DECLARATION</b>                            |             |
| <b>STUDENT'S DECLARATION</b>                               |             |
| <b>TITLE PAGE</b>  |             |
| <b>ACKNOWLEDGEMENTS</b>                                    | <b>ii</b>   |
| <b>ABSTRAK</b>   | <b>iii</b>  |
| <b>ABSTRACT</b>  | <b>iv</b>   |
| <b>TABLE OF CONTENTS</b>                                   | <b>v</b>    |
| <b>LIST OF TABLES</b>                                      | <b>x</b>    |
| <b>LIST OF FIGURES</b>                                     | <b>xi</b>   |
| <b>LIST OF SYMBOLS</b>                                     | <b>xiii</b> |
| <b>LIST OF ABBREVIATIONS</b>                               | <b>xiv</b>  |
| <br>   |             |
| <b>CHAPTER 1            INTRODUCTION</b>                   | <b>1</b>    |
| 1.1    Background  | 1           |
| 1.2    Problem Statement                                   | 3           |
| 1.3    Objective of Study                                  | 4           |
| 1.4    Scope of Study                                      | 4           |
| 1.5    Significance of Study                               | 5           |
| <br>   |             |
| <b>CHAPTER 2            LITERATURE REVIEW</b>              |             |
| 2.1    Introduction  | <b>7</b>    |
| 2.2    Geology and Slope                                   | 8           |
| 2.2.1    Geology Landform Slope                            | 8           |
| 2.2.2    Types of Slope                                    | 9           |
| 2.3    Slope Failure Mechanism                             | 10          |
| 2.3.1    Types of Rock Slope Failure                       | <b>10</b>   |
| 2.3.2    Types of Soil Slope Failure                       | 11          |
| 2.3.3    Factors Affecting Slope Failure                   | 11          |
| 2.3.4    Preventing and Monitoring Slope Failure           | 12          |
| 2.4    Geotechnical Slope Stability Analysis               | 14          |
| 2.4.1    Main Aim and Scope of Geotechnical Slope Analysis | 15          |

|         |   |    |
|---------|---|----|
| 2.4.2   | Deterministic Slope Stability Analysis              | 16 |
| 2.4.3   | Types of Slope Stability Analysis                   | 16 |
| 2.4.3.1 | Ordinary Method of Slices (Fellenius Method)        | 16 |
| 2.4.3.2 | Bishop Simplified Method                            | 17 |
| 2.4.3.3 | Janbu Generalized Method                            | 18 |
| 2.4.3.4 | Spencer Method                                      | 18 |
| 2.4.3.5 | Sarma Method  | 18 |
| 2.4.3.6 | Morgenstern Price Method                            | 18 |
| 2.4.4   | Comparison Between Different Slope Stability Method | 19 |
| 2.5     | Slope Reinforcement Stabilization                   | 19 |
| 2.5.1   | Design Consideration of Reinforced Slope            | 20 |
| 2.5.2   | Advantages of Reinforced Soil Structure             | 20 |
| 2.5.3   | Types of Reinforced Soil Slope                      | 22 |
| 2.5.3.1 | Soil Nailing  | 22 |
| 2.5.3.2 | Ground Anchor                                       | 23 |
| 2.5.3.3 | Driven Piles  | 24 |
| 2.5.3.4 | Geosynthetic – Fabric                               | 25 |

### **CHAPTER 3 RESEARCH METHODOLOGY**

|         |  |           |
|---------|--|-----------|
| 3.1     | Introduction                               | <b>26</b> |
| 3.2     | Research Design                            | 27        |
| 3.3     | Research Methodology                       | 29        |
| 3.3.1   | Literature Review                          | 29        |
| 3.3.2   | Site Reconnaissance                        | 29        |
| 3.3.3   | Site Investigation & Field Works           | 33        |
| 3.3.4   | Geotechnical Soil Laboratory Testing Works | 34        |
| 3.3.4.1 | Standard Proctor Test                      | 34        |
| 3.3.4.2 | Particle Size Analysis                     | 35        |
| 3.3.4.3 | Atterberg Limits                           | 36        |
| 3.3.4.4 | Triaxial Compression Test                  | 37        |
| 3.3.4.5 | Laser Distometer Measurement               | 38        |
| 3.3.4.6 | Geo-STUDIO Software (SLOPE/W)              | 39        |
| 3.4     | Project Study Process                      | 40        |

## **CHAPTER 4            RESULT AND ANALYSIS**

|         |   |           |
|---------|---|-----------|
| 4.1     | Introduction  | <b>41</b> |
| 4.2     | Geotechnical Exploration  | 42        |
| 4.3     | Geotechnical Laboratory Testing                                     | 45        |
| 4.3.1   | Standard Proctor Test   | 45        |
| 4.3.2   | Particle Size Analysis  | 47        |
| 4.3.3   | Atterberg Limit Test  | 50        |
| 4.3.4   | Unified Soil Classification System (USCS)                           | 52        |
| 4.3.5   | Consolidated Undrained Triaxial Test (CIU)                          | 53        |
| 4.3.6   | Consolidated Drained Triaxial Test (CD)                             | 54        |
| 4.4     | Slope Stability Analysis  | 55        |
| 4.4.1   | Geotechnical Slope Design Parameters                                | 55        |
| 4.4.2   | Sub-Surface Soil Profiles   | 56        |
| 4.4.3   | Slope Geometry + Piezometric Line + Building Surcharged<br>Load     | 57        |
| 4.4.4   | Slope Stability Analysis with FOS (Slope Failure)                   | 58        |
| 4.5     | Slope Reinforced Stability Improvement                              | 59        |
| 4.5.1   | Reinforced Slope with Single Reinforcement Load                     | 59        |
| 4.5.1.1 | Reinforcement Load of Ground Anchor                                 | 60        |
| 4.5.1.2 | Reinforcement Load of Soil Nailing                                  | 62        |
| 4.5.1.3 | Reinforcement Load of Geo-Fabric                                    | 64        |
| 4.5.1.4 | Reinforcement Load of Driven Pile                                   | 66        |
| 4.5.1.5 | Summary of Single Reinforcement Slope Stabilization                 | 68        |
| 4.5.2   | Reinforced Slope with Combination Reinforcement Load                | 69        |
| 4.5.2.1 | Ground Anchor + Geo-Fabric  | 70        |
| 4.5.2.2 | Ground Anchor + Driven Pile   | 71        |
| 4.5.2.3 | Geo-Fabric + Driven Pile  | 72        |
| 4.5.2.4 | Ground Anchor + Geo-Fabric + Driven Pile                            | 73        |
| 4.5.2.5 | Summary of Combination Reinforcement Slope<br>Stabilization         | 74        |
| 4.5.3   | Stability Comparison of Single & Combination Reinforcement<br>Slope | 76        |



|                   |  |            |
|-------------------|--|------------|
| <b>CHAPTER 5</b>  | <b>CONCLUSION AND RECOMMENDATION</b>                           |            |
| 5.1               | Introduction   | 78         |
| 5.2               | Analysis on Slope Stability Against Failure                    | 79         |
| 5.3               | Improvement Evaluation with Reinforcement Load                 | 79         |
| 5.4               | Recommendation / Future Research                               | 80         |
| <b>REFERENCES</b> |  | <b>81</b>  |
| <b>APPENDICES</b> |  |            |
| <b>A</b>          | <b>PARTICLE SIZE ANALYSIS FOR BOREHOLE 1</b>                   | <b>84</b>  |
| <b>B</b>          | <b>PARTICLE SIZE ANALYSIS FOR BOREHOLE 2</b>                   | <b>85</b>  |
| <b>C</b>          | <b>PARTICLE SIZE ANALYSIS FOR BOREHOLE 3D</b>                  | <b>86</b>  |
| <b>D</b>          | <b>PARTICLE SIZE ANALYSIS FOR BOREHOLE 2 &amp; 3</b>           | <b>87</b>  |
| <b>E</b>          | <b>CONSOLIDATED UNDRAINED TRIAXIAL TEST (CIU)</b>              | <b>88</b>  |
| <b>F</b>          | <b>UNCONSOLIDATED UNDRAINED TRIAXIAL TEST (UU)</b>             | <b>89</b>  |
| <b>G</b>          | <b>UNCONSOLIDATED UNDRAINED TRIAXIAL TEST (UU)</b>             | <b>90</b>  |
| <b>H</b>          | <b>CONSOLIDATED DRAINED TRIAXIAL TEST (CD) FOR TRIAL PIT-1</b> | <b>91</b>  |
| <b>I</b>          | <b>CONSOLIDATED DRAINED TRIAXIAL TEST (CD) FOR TRIAL PIT-2</b> | <b>92</b>  |
| <b>J</b>          | <b>CD TEST GRAPH ANALYSIS FOR TRIAL PIT-1</b>                  | <b>93</b>  |
| <b>K</b>          | <b>CD TEST GRAPH ANALYSIS FOR TRIAL PIT-2</b>                  | <b>94</b>  |
| <b>L</b>          | <b>CD TEST STRESS GRAPH ANALYSIS FOR TRIAL PIT-1 &amp; 2</b>   | <b>95</b>  |
| <b>M</b>          | <b>CRITICAL FOS OF REINFORCED SLOPE (GROUND ANCHORS)</b>       | <b>96</b>  |
| <b>N</b>          | <b>CRITICAL FOS OF REINFORCED SLOPE (SOIL NAILING)</b>         | <b>99</b>  |
| <b>O</b>          | <b>CRITICAL FOS OF REINFORCED SLOPE (GEO-FABRIC)</b>           | <b>102</b> |

|          |  |            |
|----------|--|------------|
| <b>P</b> | <b>CRITICAL FOS OF REINFORCED SLOPE (DRIVEN PILE)</b>                | <b>105</b> |
| <b>Q</b> | <b>CRITICAL FOS OF REINFORCED SLOPE (ANCHOR +<br/>FABRIC)</b>        | <b>108</b> |
| <b>R</b> | <b>CRITICAL FOS OF REINFORCED SLOPE (ANCHOR + PILE)</b>              | <b>110</b> |
| <b>S</b> | <b>CRITICAL FOS OF REINFORCED SLOPE (FABRIC + PILE)</b>              | <b>112</b> |
| <b>T</b> | <b>CRITICAL FOS OF REINFORCED SLOPE (ANCHOR +<br/>FABRIC + PILE)</b> | <b>114</b> |

## LIST OF TABLES

|            |   |    |
|------------|---|----|
| Table 2.1  | The important factors properties that affecting the landslide             | 12 |
| Table 2.2  | The comparison between different slope stability analysis methods         | 19 |
| Table 2.3  | The advantages descriptions of reinforced slope                           | 21 |
| Table 4.1  | Soil conditions of trial pit 1  | 44 |
| Table 4.2  | Soil conditions of trial pit 2  | 44 |
| Table 4.3  | Compaction test of soil (TP-1)  | 45 |
| Table 4.4  | Compaction test of soil (TP-2)  | 46 |
| Table 4.5  | Cumulative percent passing by Sieve Analysis for Borehole 1, 2 & 3        | 48 |
| Table 4.6  | Results of soil plasticity index for Borehole 1, 2 & 3                    | 50 |
| Table 4.7  | Unified Soil Classification System (USCS) for Borehole 1                  | 52 |
| Table 4.8  | Mode of failure sketch for sample specimen                                | 53 |
| Table 4.9  | Summarized results of CD test for trial pit 1 & 2                         | 54 |
| Table 4.10 | Soil properties of slope design materials                                 | 55 |
| Table 4.11 | Slope design descriptions for stability analysis                          | 57 |
| Table 4.12 | Design parameters description for reinforcement load                      | 59 |
| Table 4.13 | Critical FOS of reinforced slope (Typical Slope + Ground Anchors)         | 60 |
| Table 4.14 | Critical FOS of reinforced slope (Typical Slope + Soil Nailing)           | 62 |
| Table 4.15 | Critical FOS of reinforced slope (Typical Slope + Geo-Fabric)             | 64 |
| Table 4.16 | Critical FOS of reinforced slope (Typical Slope + Driven Pile)            | 66 |
| Table 4.17 | Critical FOS of reinforced slope (Typical Slope + Anchor + Fabric)        | 70 |
| Table 4.18 | Critical FOS of reinforced slope (Typical Slope + Anchor + Pile)          | 71 |
| Table 4.19 | Critical FOS of reinforced slope (Typical Slope + Fabric + Pile)          | 72 |
| Table 4.20 | Critical FOS of reinforced slope (Typical Slope + Anchor + Fabric + Pile) | 73 |

## LIST OF FIGURES

|             |   |    |
|-------------|---|----|
| Figure 1.1  | Location of research study area                                     | 2  |
| Figure 1.2  | Crack formed on the building structural                             | 3  |
| Figure 1.3  | Crack formed on the roadway along the slope                         | 4  |
| Figure 2.1  | The nature relief of different slopes                               | 9  |
| Figure 2.2  | Different types of rock slope failure                               | 10 |
| Figure 2.3  | Different types of load slide or mass wasting process               | 11 |
| Figure 2.4  | The method of slices  | 17 |
| Figure 2.5  | Typical soil nail wall arrangement                                  | 22 |
| Figure 2.6  | Components of ground anchor system                                  | 23 |
| Figure 2.7  | Slope reinforced with piles method                                  | 24 |
| Figure 2.8  | Geosynthetic slope stabilization                                    | 25 |
| Figure 3.1  | Flow chart of Research Design                                       | 28 |
| Figure 3.2  | The site location of building and slope (rear left elevation)       | 30 |
| Figure 3.3  | The site location of building and slope (rear right elevation)      | 30 |
| Figure 3.4  | Topographic & 3D surface landform of slope failure area             | 31 |
| Figure 3.5  | Geological information of slope failure location                    | 32 |
| Figure 3.6  | SPT boreholes drilling location plan                                | 33 |
| Figure 3.7  | Standard compaction proctor test apparatus                          | 34 |
| Figure 3.8  | Electromagnetic vibrator sieve shaker machine                       | 35 |
| Figure 3.9  | Cone penetrometer machine   | 36 |
| Figure 3.10 | Automated triaxial test computerized system                         | 37 |
| Figure 3.11 | Leica DISTO – D810 Touch  | 38 |
| Figure 3.12 | GEO-SLOPE GeoStudio 2007 v7.10.4143                                 | 39 |
| Figure 4.1  | Trial pits excavation location plan                                 | 43 |
| Figure 4.2  | Curve graph of soil compaction                                      | 46 |
| Figure 4.3  | Summarized for sieve analysis % passing of BH 1, 2 & 3              | 48 |
| Figure 4.4  | Subsurface soil condition properties for each borehole              | 56 |
| Figure 4.5  | Slope model of initial condition                                    | 57 |
| Figure 4.6  | Typical slope stability situation (without building structural)     | 58 |
| Figure 4.7  | Back analysis results of critical FOS with building surcharged load | 58 |
| Figure 4.8  | Design analysis results of critical FOS for Ground Anchors          | 61 |

|             |   |    |
|-------------|---|----|
| Figure 4.9  | Design analysis results of critical FOS for Soil Nailing  | 63 |
| Figure 4.10 | Design analysis results of critical FOS for Geo-Fabric  | 65 |
| Figure 4.11 | Design analysis results of critical FOS for Driven Piles  | 67 |
| Figure 4.12 | Design analysis results of critical FOS for Single Reinforcement Slope                          | 68 |
| Figure 4.13 | Design analysis results of critical FOS for Combination Reinforcement Slope                     | 74 |
| Figure 4.14 | Comparison design analysis results of critical FOS for Single & Combination Reinforcement Slope | 76 |

## LIST OF SYMBOLS

|          |                                       |
|----------|---------------------------------------|
| $C'$     | Cohesion of Soil                      |
| $\phi'$  | Effective Stress Friction Angle (phi) |
| $E'$     | Young Modulus                         |
| $b$      | Slice Width                           |
| $x$      | Base Length                           |
| $\alpha$ | Base Angle                            |
| $l$      | Base Shear Stress                     |
| $N$      | Base Normal Force                     |
| $W$      | Weight (include vertical seismic)     |
| $E_1$    | Right Side Normal Force               |
| $E_2$    | Left Side Normal Force                |
| $X_1$    | Right Side Shear Force                |
| $X_2$    | Left Side Shear Force                 |
| $P$      | Surface Pressure Load                 |
| $L$      | Length of Reinforcement Load          |
| $Mg$     | Milligram                             |
| $\%$     | Percentage                            |
| $D$      | Sample Code                           |
| $SC$     | Clayey Sand                           |
| $SM$     | Silty Sand                            |
| $SP$     | Poorly Graded Sand                    |
| $ML$     | Silt                                  |
| $MH$     | Silt of High Plasticity, Elastic Silt |
| $CH$     | Clay of High Plasticity, Fat Clay     |
| $MPa$    | Mega Pascal                           |
| $kPa$    | Kilo Pascal                           |

## LIST OF ABBREVIATIONS

|        |  |
|--------|--|
| IIUM   | International Islamic University Malaysia        |
| FOS    | Factor of Safety                                 |
| WWW    | World Web Wide                                   |
| Et al. | and others (Latin words)                         |
| US     | United States                                    |
| BWE    | Ballast Water Exchange                           |
| 2D     | Two - Dimensional                                |
| 3D     | Three - Dimensional                              |
| OMS    | Ordinary Method of Slices                        |
| ASTM   | American Society for Testing and Materials       |
| N. D   | No Date  |
| FYP    | Final Year Project                               |
| UMP    | Universiti Malaysia Pahang                       |
| FTEK   | Faculty of Engineering Technology                |
| v.     | Version  |
| SPT    | Standard Penetration Test                        |
| m      | Metre  |
| BS     | British Standard                                 |
| UU     | Unconsolidated Undrained Triaxial Test           |
| CIU    | Consolidated Undrained Triaxial Test             |
| CD     | Consolidated Drained Triaxial Test               |
| TP     | Trial Pit  |
| PL     | Plastic Limit                                    |
| LL     | Liquid Limit                                     |
| PI     | Plasticity Index                                 |
| ETIM   | Engineering Technology Infrastructure Management |
| IUKL   | Infrastructure University Kuala Lumpur           |
| USCS   | Unified Soil Classification System               |
| BH     | Borehole   |
| JKR    | Department of Malaysia Public Works              |