

LAMPIRAN A

DISCONTINUITY DATA

1. Lereng A

Scanline 1

Koordinat X : 697446 Y : 9223857 Z : 437

| No | Parameter | | Range of value | | | | | | |
|-----------|----------------------------------|-------------------------------|----------------|-------------|----------------|-----------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | | 15 | 12 | 7 | 4 | 2 | 1 | 0 |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| Infilling | | none | hard filling | | soft filling | | | | |

| | | | | | | | |
|---|--------------|-------------------------------|---------------|-------------|---------------|------------------|------------------|
| | | | | < 5 mm | > 5 mm | < 5 mm | > 5 mm |
| | | Rating | 6 | 4 | 2 | 2 | 0 |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed |
| | | Rating | 6 | 5 | 3 | 1 | 0 |
| | | Inflow per 10 m tunnel length | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min |
| | | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | | Rating | 15 | 10 | 7 | 4 | 0 |
| | | Bobot | | | | | |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|--------------|---------------|-----------|
| 1 | N 141° E/72° | 231 | Limestone |
| 2 | N 81° E/63° | 171 | Limestone |
| 3 | N 114° E/84° | 204 | Limestone |
| 4 | N 113° E/66° | 203 | Limestone |
| 5 | N 109° E/50° | 199 | Limestone |
| 6 | N 67° E/66° | 157 | Limestone |
| 7 | N 96° E/68° | 186 | Limestone |
| 8 | N 75° E/85° | 165 | Limestone |
| 9 | N 141° E/72° | 231 | Limestone |
| 10 | N 64° E/42° | 154 | Limestone |
| 11 | N 67° E/48° | 157 | Limestone |

Scanline 2

Koordinat X : 697445 Y: 9223855 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | | 15 | 12 | 7 | 4 | 2 | 1 | 0 |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | | none | | | | | | |

| | | | | | | |
|-------|-------------------------------|---------------|------------|---------------|------------------|------------------|
| | Inflow per 10 m tunnel length | | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min |
| | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 66 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N121° E/85° | 211 | Limestone |
| 2 | N117° E/82° | 207 | Limestone |
| 3 | N124° E/85° | 214 | Limestone |
| 4 | N112° E/82° | 202 | Limestone |
| 5 | N64° E/75° | 154 | Limestone |
| 6 | N100° E/66° | 190 | Limestone |
| 7 | N63° E/54° | 153 | Limestone |
| 8 | N155° E/86° | 245 | Limestone |
| 9 | N45° E/52° | 135 | Limestone |
| 10 | N53° E/46° | 143 | Limestone |
| 11 | N115° E/82° | 205 | Limestone |
| 12 | N71° E/62° | 161 | Limestone |
| 13 | N70° E/41° | 160 | Limestone |
| 14 | N74° E/45° | 164 | Limestone |

Scanline 3

Koordinat X : 697449 Y: 9223850 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | 15 | 12 | 7 | 4 | 2 | 1 | 0 | |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Inflow per 10 m | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 | > 125 Litres/min | | |

| | | | | | | |
|-------|--------------------|---------------|---------|----------|-----------|---------|
| | tunnel length | | | | L/min | |
| | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 57 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N106° E/52° | 196 | Limestone |
| 2 | N103° E/76° | 193 | Limestone |
| 3 | N120° E/55° | 210 | Limestone |
| 4 | N124° E/83° | 214 | Limestone |
| 5 | N110° E/65° | 200 | Limestone |
| 6 | N125° E/85° | 215 | Limestone |
| 7 | N101° E/65° | 191 | Limestone |
| 8 | N80° E/58° | 170 | Limestone |
| 9 | N154° E/70° | 244 | Limestone |
| 10 | N164° E/53° | 254 | Limestone |
| 11 | N162° E/60° | 252 | Limestone |
| 12 | N170° E/55° | 260 | Limestone |
| 13 | N160° E/50° | 250 | Limestone |

2. Lereng B

Scanline 1

Koordinat X : 697412 Y: 9223787 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | 15 | 12 | 7 | 4 | 2 | 1 | 0 | |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |

| | | | | | | |
|-------|-------------------------------|---------------|------------|---------------|------------------|------------------|
| | Inflow per 10 m tunnel length | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min |
| | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 59 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N105° E/25° | 195 | Limestone |
| 2 | N107° E/30° | 197 | Limestone |
| 3 | N106° E/30° | 196 | Limestone |
| 4 | N185° E/76° | 275 | Limestone |
| 5 | N150° E/68° | 240 | Limestone |
| 6 | N153° E/70° | 243 | Limestone |
| 7 | N185° E/53° | 275 | Limestone |
| 8 | N140° E/30° | 230 | Limestone |
| 9 | N155° E/73° | 245 | Limestone |
| 10 | N130° E/73° | 220 | Limestone |

Scanline 2

Koordinat X : 697407 Y: 9223787 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | 15 | 12 | 7 | 4 | 2 | 1 | 0 | |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Inflow per 10 m | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 | > 125 Litres/min | | |

| | | | | | | |
|-------|--------------------|---------------|---------|-----------|-----------|---------|
| | tunnel length | | | | L/min | |
| | Tekanan air | 0 | 0 - 0.1 | 0.1 - 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 59 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N179° E/75° | 269 | Limestone |
| 2 | N115° E/34° | 205 | Limestone |
| 3 | N140° E/45° | 230 | Limestone |
| 4 | N155° E/64° | 245 | Limestone |
| 5 | N111° E/20° | 201 | Limestone |
| 6 | N219° E/75° | 309 | Limestone |
| 7 | N96° E/33° | 186 | Limestone |
| 8 | N98° E/35° | 188 | Limestone |
| 9 | N200° E/63° | 290 | Limestone |
| 10 | N90° E/60° | 180 | Limestone |

Scanline 3

| No | Parameter | | Range of value | | | | | | |
|----|----------------------------------|-------------------------------|----------------|--------------|----------------|------------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | 15 | 12 | 7 | 4 | 2 | 1 | 0 | |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | Rating | 6 | < 5 mm | > 5 mm | < 5 mm | > 5 mm | 0 | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Inflow per 10 m tunnel length | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min | | |

| | | | | | | | |
|-------|--|--------------------|---------------|---------|----------|-----------|---------|
| | | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | | 68 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N175° E/75° | 265 | Limestone |
| 2 | N115° E/34° | 205 | Limestone |
| 3 | N138° E/45° | 228 | Limestone |
| 4 | N155° E/64° | 245 | Limestone |
| 5 | N105° E/20° | 195 | Limestone |
| 6 | N219° E/75° | 309 | Limestone |
| 7 | N96° E/33° | 186 | Limestone |
| 8 | N98° E/35° | 188 | Limestone |
| 9 | N190° E/63° | 280 | Limestone |
| 10 | N87° E/60° | 177 | Limestone |

3. Lereng C

Scanline 1

Koordinat X : 697485 Y: 9223890 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | | 15 | 12 | 7 | 4 | 2 | 1 | 0 |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |

| | | | | | | |
|-------|-------------------------------|---------------|------------|---------------|------------------|------------------|
| | Inflow per 10 m tunnel length | none | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min |
| | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 67 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N203° E/74° | 293 | Limestone |
| 2 | N195° E/64° | 285 | Limestone |
| 3 | N200° E/75° | 290 | Limestone |
| 4 | N201° E/69° | 291 | Limestone |
| 5 | N167° E/76° | 257 | Limestone |
| 6 | N165° E/85° | 255 | Limestone |
| 7 | N172° E/85° | 262 | Limestone |
| 8 | N213° E/60° | 303 | Limestone |
| 9 | N170° E/80° | 260 | Limestone |
| 10 | N190° E/60° | 280 | Limestone |

Scanline 2

Koordinat X : 697474 Y: 9223887 Z : 437

| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--|---------|--------|
| 1 | Strength of intact rock material | Point-load strength index | > 10 Mpa | 4-10 Mpa | 2-4 Mpa | 1-2 Mpa | For this low range uniaxial compr. strength is preferred | | |
| | | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | Rating | | 15 | 12 | 7 | 4 | 2 | 1 | 0 |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | | | |
| Rating | 6 | 4 | 2 | 2 | 0 | | | | |
| 5 | Ground water | Weathering | unweathered | slightly w. | moderately w. | highly w. | decomposed | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | | none | | | | | | |

| | | | | | | |
|-------|-------------------------------|---------------|------------|---------------|------------------|------------------|
| | Inflow per 10 m tunnel length | | < 10 L/min | 10 - 15 L/min | > 25 - 125 L/min | > 125 Litres/min |
| | Tekanan air | 0 | 0 - 0.1 | 0.1- 0.2 | 0.2 - 0.5 | > 0.5 |
| | General conditions | Completed dry | damp | wet | dripping | Flowing |
| | Rating | 15 | 10 | 7 | 4 | 0 |
| Bobot | | | | | | 69 |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N205° E/77° | 295 | Limestone |
| 2 | N200° E/63° | 290 | Limestone |
| 3 | N198° E/65° | 288 | Limestone |
| 4 | N206° E/70° | 296 | Limestone |
| 5 | N160° E/71° | 250 | Limestone |
| 6 | N164° E/68° | 254 | Limestone |
| 7 | N180° E/69° | 270 | Limestone |
| 8 | N208° E/71° | 298 | Limestone |
| 9 | N168° E/69° | 258 | Limestone |
| 10 | N195° E/71° | 285 | Limestone |
| 11 | N204° E/64° | 294 | Limestone |

Scanline 3

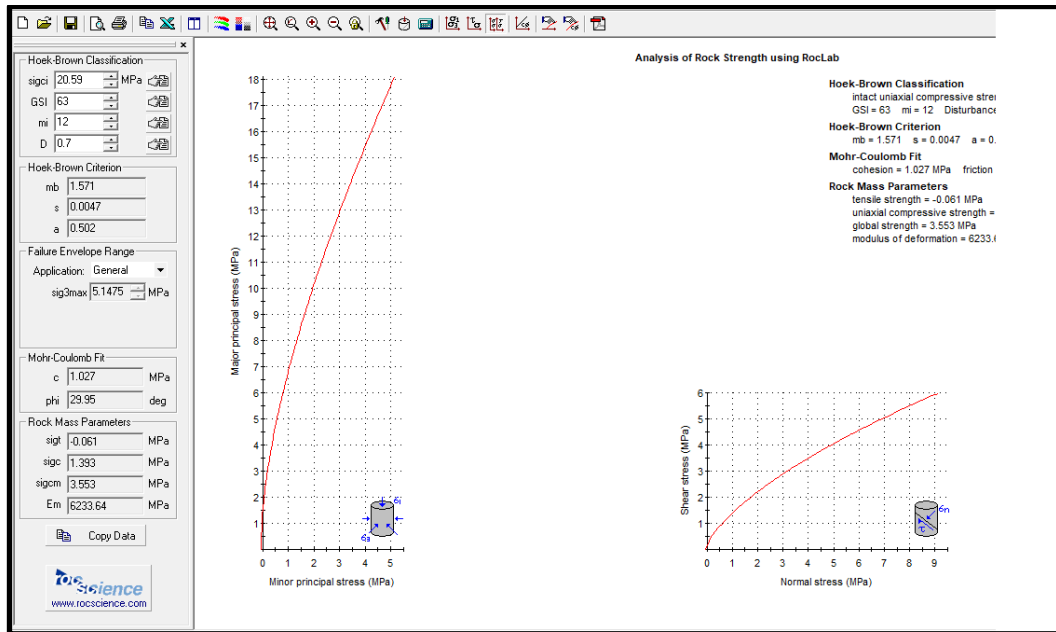
| No | Parameter | | Range of value | | | | | | |
|---------------|----------------------------------|-------------------------------|----------------|--------------|----------------|--------------|--------------|---------|--------|
| | | | | | | | | | |
| 1 | Strength of intact rock material | Uniaxial compressive strength | >250 Mpa | 100-250 Mpa | 50-100 Mpa | 25-50 Mpa | 5-25 Mpa | 1-5 Mpa | <1 Mpa |
| | | | Rating | 15 | 12 | 7 | 4 | 2 | 1 |
| 2 | Drill core quality (RQD) | | 90 - 100% | 75 - 90% | 50 - 75% | 25 - 50% | < 25% | | |
| | Rating | | 20 | 17 | 13 | 8 | 5 | | |
| 3 | Spacing of discontinuities | | > 2m | 0.6 - 2m | 200 - 600mm | 60 - 200m | < 60mm | | |
| | Rating | | 20 | 15 | 10 | 8 | 5 | | |
| 4 | Condition of discontinuities | Length, persistence | < 1m | 1 - 3m | 3 - 10m | 10 - 20m | > 20m | | |
| | | Rating | 6 | 4 | 2 | 1 | 0 | | |
| | | Separation | none | < 0.1m | 0.1 - 1mm | 1 - 5mm | > 5mm | | |
| | | Rating | 6 | 5 | 4 | 1 | 0 | | |
| | | Roughness | very rough | rough | slightly rough | smooth | slickensided | | |
| | | Rating | 6 | 5 | 3 | 1 | 0 | | |
| | | Infilling | none | hard filling | | soft filling | | | |
| | | | | < 5 mm | > 5 mm | < 5 mm | > 5 mm | | |
| | | Rating | 6 | 4 | 2 | 2 | 0 | | |
| | | Weathering | unweathered | slightly W | moderately W | Highly W | decomposed | | |
| Rating | 6 | 5 | 3 | 1 | 0 | | | | |
| 5 | Ground water | General conditions | Completed dry | damp | wet | dripping | Flowing | | |
| | | Rating | 15 | 10 | 7 | 4 | 0 | | |
| Bobot | | | | | | | 73 | | |

| No | Strike/Dip | Dip Direction | Rock Type |
|----|-------------|---------------|-----------|
| 1 | N205° E/77° | 295 | Limestone |
| 2 | N200° E/63° | 290 | Limestone |
| 3 | N198° E/65° | 288 | Limestone |
| 4 | N206° E/70° | 296 | Limestone |
| 5 | N160° E/71° | 250 | Limestone |
| 6 | N164° E/68° | 254 | Limestone |
| 7 | N180° E/69° | 270 | Limestone |
| 8 | N208° E/71° | 298 | Limestone |
| 9 | N168° E/69° | 258 | Limestone |
| 10 | N195° E/71° | 285 | Limestone |
| 11 | N204° E/64° | 294 | Limestone |

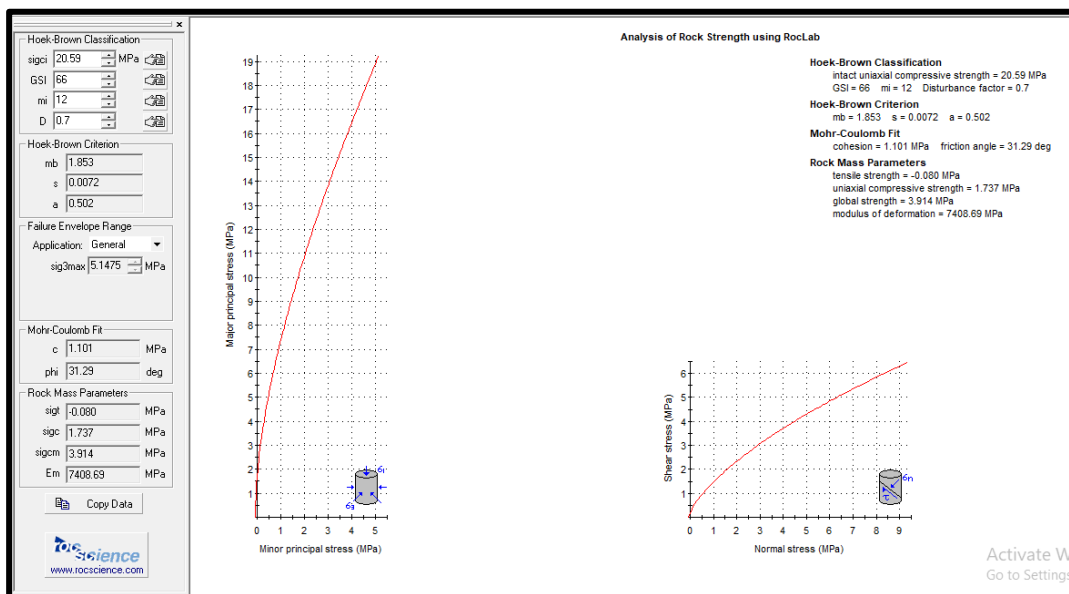
LAMPIRAN B

ANALYSIS OF STRENGTH USING *ROCLAB*

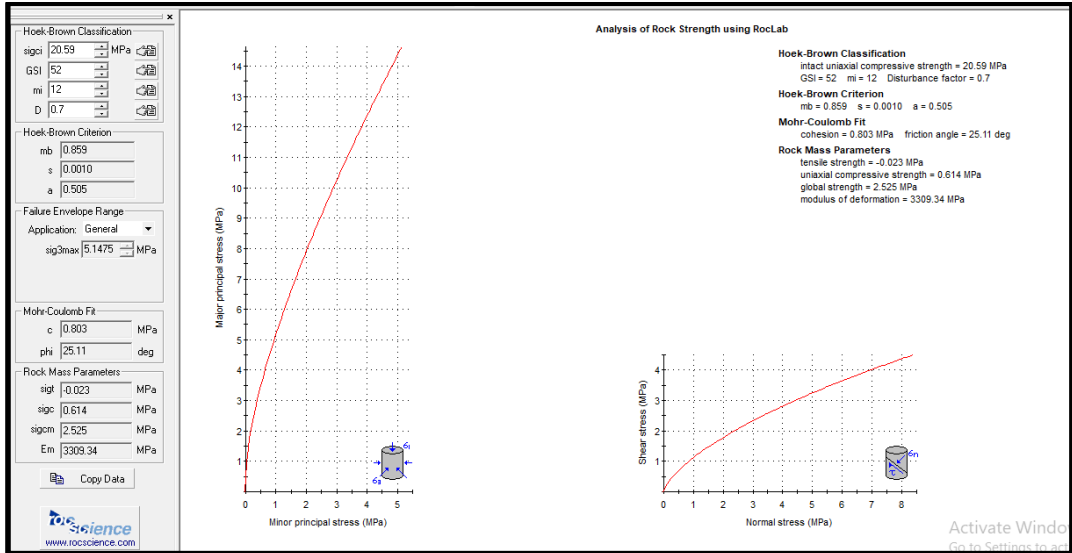
Lereng A Scanline 1



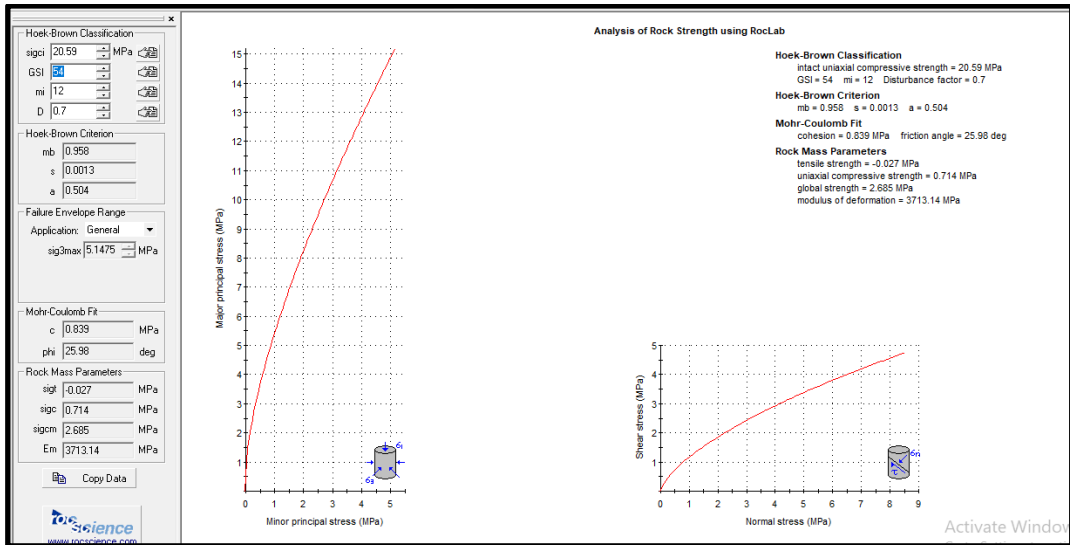
Lereng A Scanline 2



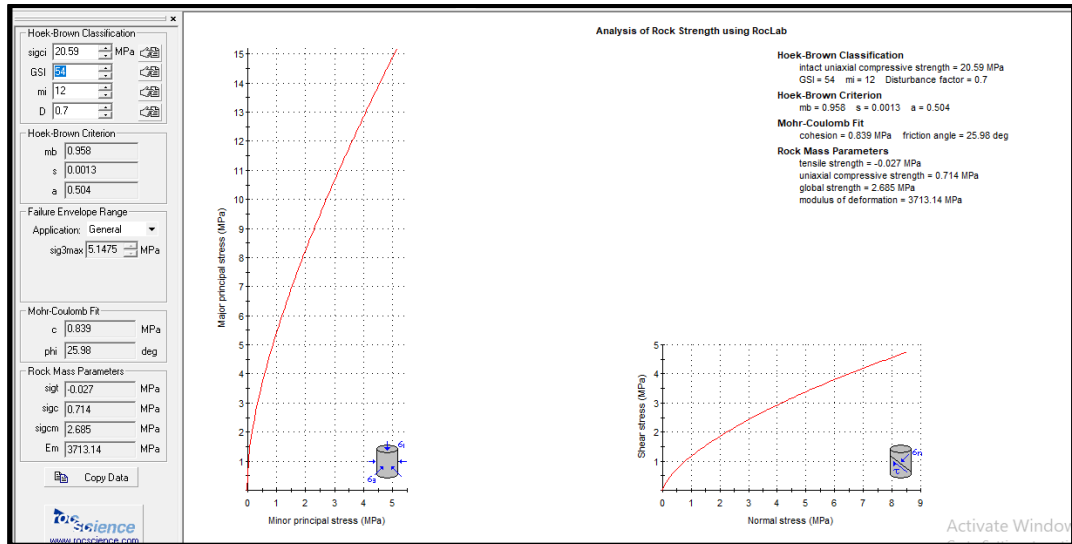
Lereng A Scanline 3



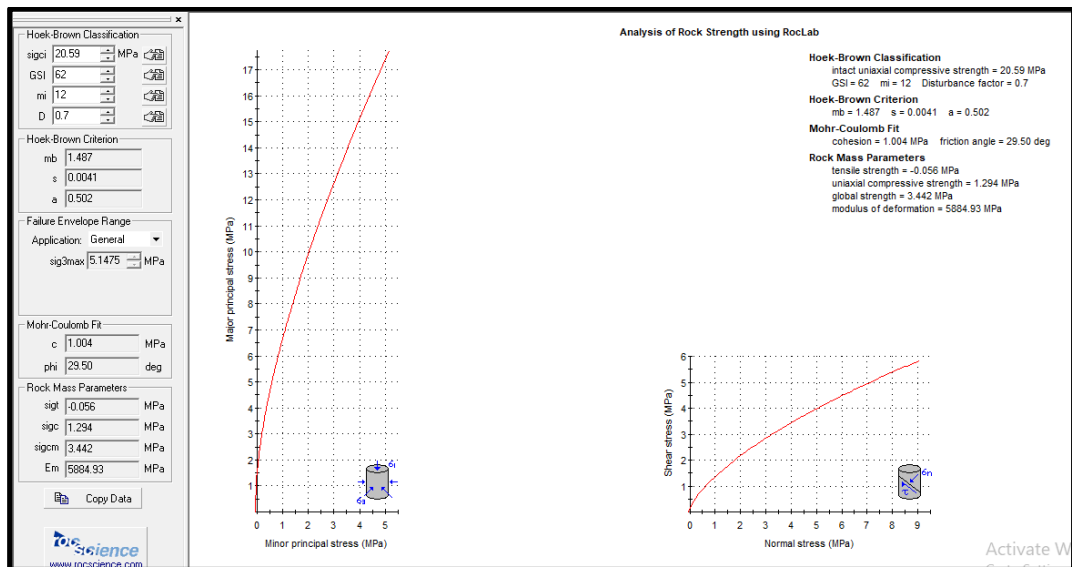
Lereng B Scanline 1



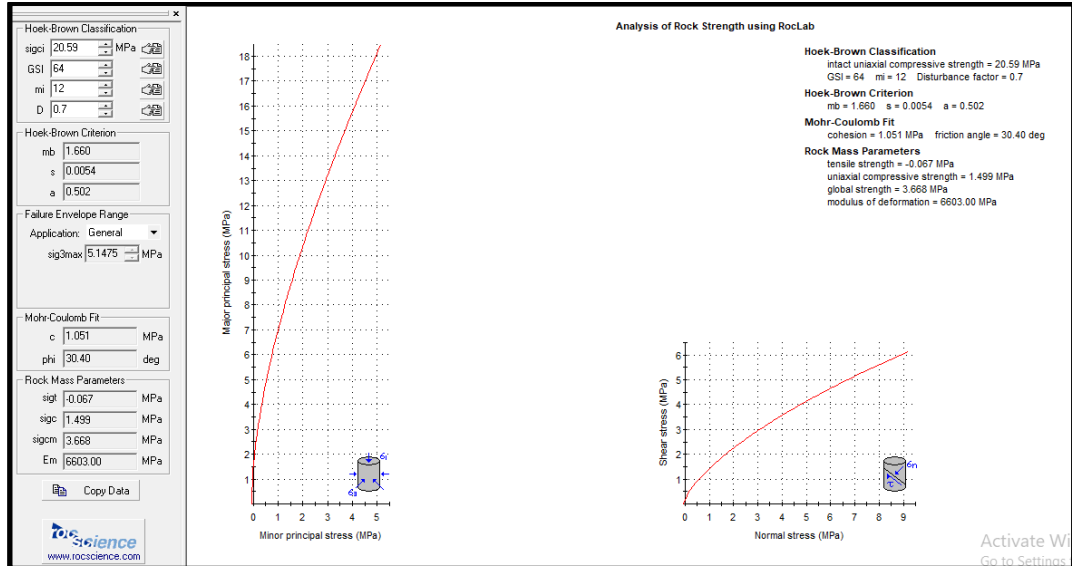
Lereng B Scanline 2



Lereng C Scanline 1



Lereng C Scanline 2



LAMPIRAN C

Slide Analysis Information

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program

Failure Direction: Left to Right

Units of Measurement: SI Units

Pore Fluid Unit Weight: 9.81 kN/m³

Groundwater Method: Water Surfaces

Data Output: Standard

Calculate Excess Pore Pressure: Off

Allow Ru with Water Surfaces or Grids: Off

Random Numbers: Pseudo-random Seed

Random Number Seed: 10116

Random Number Generation Method: Park and Miller v.3

Analysis Methods

spencer

Number of slices: 25

Tolerance: 0.005

Maximum number of iterations: 50

Surface Options

Surface Type: Circular

Radius increment: 10

Reverse Curvature: Create Tension Crack

Search Method: Grid Search

Loading

Add seismic load : 0,02

Material Properties

Strength Type: Mohr-Coulomb

Unit Weight: 1. Natural density = 24,304 kN/m³

2. Dry density = 23,716 kN/m³

3. Saturated density = 24,794 kN/m³

Cohesion: 1,027 kPa

Friction Angle: 63.88 degrees

Water Surface: None

Ru Value: 0

Minimum Surfaces

Show minimum surfaces at slip center grid points