

ALLEGATO 2
VERIFICHE DI STABILITÀ INTERFERENZA 08
SEZIONE A-A' - RELAZIONI DI CALCOLO

VERIFICA DI STABILITÀ PRE-OPERAM IN ASSENZA DI FALDA ACQUIFERA

Analisi di stabilità dei pendii con BISHOP

| | |
|--------------------------------------|------|
| Numero di strati | 3.0 |
| Numero dei conci | 50.0 |
| Coefficiente di sicurezza [R2] | 1.1 |
| Superficie di forma circolare | |

Maglia dei Centri

| | |
|--|----------|
| Ascissa vertice sinistro inferiore xi | 63.11 m |
| Ordinata vertice sinistro inferiore yi | 268.54 m |
| Ascissa vertice destro superiore xs | 184.7 m |
| Ordinata vertice destro superiore ys | 369.02 m |
| Passo di ricerca | 10.0 |
| Numero di celle lungo x | 10.0 |
| Numero di celle lungo y | 10.0 |

Coefficienti sismici [N.T.C.] 2018

Dati generali

| | |
|----------------------|---------------------|
| Descrizione: | |
| Latitudine: | 41.93 |
| Longitudine: | 14.8 |
| Tipo di costruzione: | 2 - Opere ordinarie |
| Classe d'uso: | Classe IV |
| Vita nominale: | 50.0 [anni] |
| Vita di riferimento: | 100.0 [anni] |

Parametri sismici su sito di riferimento

| | |
|------------------------|----|
| Categoria sottosuolo: | C |
| Categoria topografica: | T1 |

| S.L. Stato limite | TR Tempo ritorno [anni] | ag [m/s ²] | F0 [-] | TC* [sec] |
|----------------------|-------------------------------|---------------------------|-----------|--------------|
| S.L.O. | 60.0 | 0.56 | 2.51 | 0.34 |
| S.L.D. | 101.0 | 0.7 | 2.52 | 0.35 |
| S.L.V. | 949.0 | 1.53 | 2.61 | 0.43 |
| S.L.C. | 1950.0 | 1.91 | 2.61 | 0.45 |

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii

| S.L. Stato limite | amax [m/s ²] | beta [-] | kh [-] | kv [sec] |
|----------------------|-----------------------------|-------------|-----------|-------------|
| S.L.O. | 0.84 | 0.2 | 0.0171 | 0.0086 |
| S.L.D. | 1.05 | 0.2 | 0.0214 | 0.0107 |
| S.L.V. | 2.2272 | 0.24 | 0.0545 | 0.0273 |
| S.L.C. | 2.6644 | 0.24 | 0.0652 | 0.0326 |

Coefficiente azione sismica orizzontale 0.0545
 Coefficiente azione sismica verticale 0.0273

Vertici profilo

| N | X m | y m |
|----|--------|--------|
| 1 | 0.0 | 175.0 |
| 2 | 34.31 | 176.0 |
| 3 | 61.87 | 177.0 |
| 4 | 86.86 | 178.0 |
| 5 | 102.25 | 179.0 |
| 6 | 115.39 | 180.0 |
| 7 | 140.87 | 185.0 |
| 8 | 181.08 | 190.0 |
| 9 | 202.07 | 195.0 |
| 10 | 212.16 | 200.0 |
| 11 | 248.22 | 205.0 |

Vertici strato1

| N | X m | y m |
|----|--------|--------|
| 1 | 0.0 | 174.0 |
| 2 | 34.74 | 174.04 |
| 3 | 61.99 | 174.49 |
| 4 | 87.13 | 175.4 |
| 5 | 102.25 | 176.0 |
| 6 | 116.64 | 177.28 |
| 7 | 143.45 | 180.66 |
| 8 | 181.45 | 187.34 |
| 9 | 202.07 | 193.0 |
| 10 | 213.5 | 197.6 |
| 11 | 220.82 | 201.2 |
| 12 | 248.22 | 205.0 |

Vertici strato2

| N | X m | y m |
|----|--------|--------|
| 1 | 0.0 | 171.0 |
| 2 | 33.84 | 172.17 |
| 3 | 61.99 | 173.0 |
| 4 | 86.8 | 173.88 |
| 5 | 104.14 | 175.03 |
| 6 | 110.52 | 175.86 |
| 7 | 116.83 | 177.08 |
| 8 | 143.45 | 180.66 |
| 9 | 181.45 | 187.34 |
| 10 | 202.07 | 193.0 |
| 11 | 213.5 | 197.6 |
| 12 | 220.82 | 201.2 |
| 13 | 248.22 | 205.0 |

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo

| Strato | c (kg/cm ²) | Fi (°) | G (Kg/m ³) | Gs (Kg/m ³) | Litologia |
|--------|----------------------------|-----------|---------------------------|----------------------------|-----------|
| 1 | 0.04 | 15 | 1968 | 1988 | |
| 2 | 0 | 32 | 1850 | 1950 | |
| 3 | 0.22 | 21.2 | 2039 | 2090 | |

Risultati analisi pendio [A2+M2+R2]

| | |
|----------------------------|----------|
| Fs minimo individuato | 0.98 |
| Ascissa centro superficie | 184.7 m |
| Ordinata centro superficie | 268.54 m |
| Raggio superficie | 75.3 m |

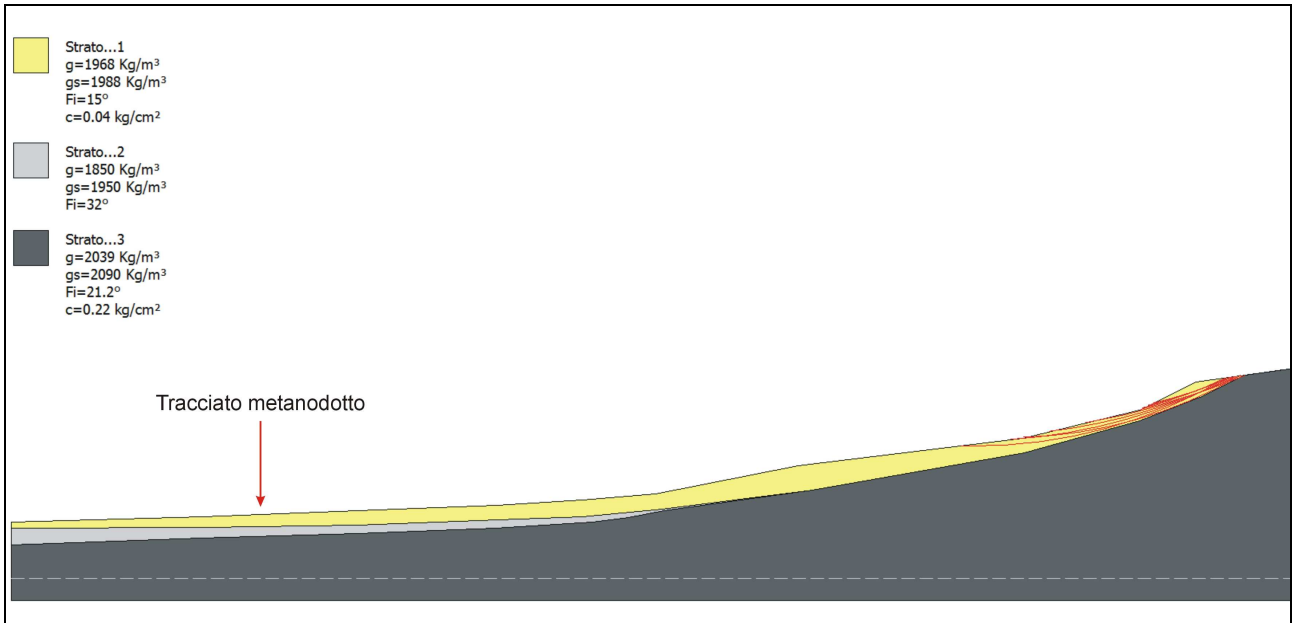
Numero di superfici esaminate....(221)

| N° | Xo | Yo | Ro | Fs |
|----|-------|-------|-------|------|
| 1 | 63.1 | 268.5 | 92.9 | 4.03 |
| 2 | 69.2 | 273.6 | 98.9 | 4.04 |
| 3 | 75.3 | 268.5 | 93.4 | 3.10 |
| 4 | 81.4 | 273.6 | 97.9 | 3.01 |
| 5 | 87.4 | 268.5 | 92.4 | 2.88 |
| 6 | 93.5 | 273.6 | 96.9 | 2.60 |
| 7 | 99.6 | 268.5 | 91.4 | 2.06 |
| 8 | 105.7 | 273.6 | 95.9 | 1.57 |
| 9 | 111.7 | 268.5 | 90.4 | 1.37 |
| 10 | 117.8 | 273.6 | 94.9 | 1.28 |
| 11 | 123.9 | 268.5 | 89.4 | 1.26 |
| 12 | 130.0 | 273.6 | 91.5 | 1.58 |
| 13 | 136.1 | 268.5 | 85.9 | 1.61 |
| 14 | 142.1 | 273.6 | 90.3 | 1.65 |
| 15 | 148.2 | 268.5 | 84.7 | 1.68 |
| 16 | 154.3 | 273.6 | 89.1 | 1.60 |
| 17 | 160.4 | 268.5 | 83.6 | 1.43 |
| 18 | 166.5 | 273.6 | 87.4 | 1.61 |
| 19 | 172.5 | 268.5 | 81.0 | 1.42 |
| 20 | 178.6 | 273.6 | 83.5 | 1.09 |
| 21 | 184.7 | 268.5 | 75.3 | 0.98 |
| 22 | 63.1 | 278.6 | 102.9 | 4.09 |
| 23 | 69.2 | 283.6 | 108.9 | 3.89 |
| 24 | 75.3 | 278.6 | 103.4 | 3.10 |
| 25 | 81.4 | 283.6 | 107.9 | 3.00 |
| 26 | 87.4 | 278.6 | 102.4 | 2.88 |
| 27 | 93.5 | 283.6 | 106.9 | 2.47 |
| 28 | 99.6 | 278.6 | 101.4 | 1.95 |
| 29 | 105.7 | 283.6 | 105.9 | 1.53 |
| 30 | 111.7 | 278.6 | 100.4 | 1.36 |
| 31 | 117.8 | 283.6 | 104.9 | 1.29 |
| 32 | 123.9 | 278.6 | 99.4 | 1.27 |
| 33 | 130.0 | 283.6 | 101.5 | 1.59 |
| 34 | 136.1 | 278.6 | 95.9 | 1.62 |
| 35 | 142.1 | 283.6 | 100.3 | 1.65 |
| 36 | 148.2 | 278.6 | 94.7 | 1.68 |
| 37 | 154.3 | 283.6 | 99.1 | 1.54 |
| 38 | 160.4 | 278.6 | 93.5 | 1.52 |
| 39 | 166.5 | 283.6 | 96.4 | 1.16 |
| 40 | 172.5 | 278.6 | 90.0 | 0.98 |
| 41 | 178.6 | 283.6 | 92.7 | 1.18 |
| 42 | 184.7 | 278.6 | 84.7 | 1.06 |
| 43 | 63.1 | 288.6 | 112.9 | 4.16 |
| 44 | 69.2 | 293.7 | 118.9 | 3.68 |
| 45 | 75.3 | 288.6 | 113.4 | 3.09 |
| 46 | 81.4 | 293.7 | 117.9 | 2.99 |

| | | | | |
|-----|-------|-------|-------|------|
| 47 | 87.4 | 288.6 | 112.4 | 2.90 |
| 48 | 93.5 | 293.7 | 116.9 | 2.34 |
| 49 | 99.6 | 288.6 | 111.4 | 1.84 |
| 50 | 105.7 | 293.7 | 115.9 | 1.49 |
| 51 | 111.7 | 288.6 | 110.4 | 1.35 |
| 52 | 117.8 | 293.7 | 114.9 | 1.29 |
| 53 | 123.9 | 288.6 | 109.4 | 1.28 |
| 54 | 130.0 | 293.7 | 111.4 | 1.60 |
| 55 | 136.1 | 288.6 | 105.9 | 1.62 |
| 56 | 142.1 | 293.7 | 110.3 | 1.65 |
| 57 | 148.2 | 288.6 | 104.7 | 1.66 |
| 58 | 154.3 | 293.7 | 109.1 | 1.47 |
| 59 | 160.4 | 288.6 | 102.8 | 1.39 |
| 60 | 166.5 | 293.7 | 105.5 | 1.21 |
| 61 | 172.5 | 288.6 | 99.1 | 0.98 |
| 62 | 178.6 | 293.7 | 100.4 | 1.33 |
| 63 | 184.7 | 288.6 | 94.3 | 1.16 |
| 64 | 63.1 | 298.7 | 122.9 | 4.24 |
| 65 | 69.2 | 303.7 | 128.9 | 3.54 |
| 66 | 75.3 | 298.7 | 123.4 | 3.08 |
| 67 | 81.4 | 303.7 | 127.9 | 2.99 |
| 68 | 87.4 | 298.7 | 122.4 | 2.86 |
| 69 | 93.5 | 303.7 | 126.9 | 2.21 |
| 70 | 99.6 | 298.7 | 121.4 | 1.75 |
| 71 | 105.7 | 303.7 | 125.9 | 1.47 |
| 72 | 111.7 | 298.7 | 120.4 | 1.35 |
| 73 | 117.8 | 303.7 | 124.9 | 1.30 |
| 74 | 123.9 | 298.7 | 119.4 | 1.29 |
| 75 | 130.0 | 303.7 | 121.4 | 1.61 |
| 76 | 136.1 | 298.7 | 115.8 | 1.63 |
| 77 | 142.1 | 303.7 | 120.3 | 1.66 |
| 78 | 148.2 | 298.7 | 114.7 | 1.62 |
| 79 | 154.3 | 303.7 | 118.3 | 1.57 |
| 80 | 160.4 | 298.7 | 111.9 | 1.50 |
| 81 | 166.5 | 303.7 | 114.8 | 1.26 |
| 82 | 172.5 | 298.7 | 108.4 | 1.03 |
| 83 | 178.6 | 303.7 | 110.0 | 1.38 |
| 84 | 184.7 | 298.7 | 110.7 | 1.60 |
| 85 | 63.1 | 308.7 | 134.4 | 4.26 |
| 86 | 69.2 | 313.8 | 138.9 | 3.14 |
| 87 | 75.3 | 308.7 | 133.4 | 3.08 |
| 88 | 81.4 | 313.8 | 137.9 | 2.99 |
| 89 | 87.4 | 308.7 | 132.4 | 2.77 |
| 90 | 93.5 | 313.8 | 136.9 | 2.09 |
| 91 | 99.6 | 308.7 | 131.4 | 1.68 |
| 92 | 105.7 | 313.8 | 135.9 | 1.45 |
| 93 | 111.7 | 308.7 | 130.4 | 1.35 |
| 94 | 117.8 | 313.8 | 134.9 | 1.30 |
| 95 | 123.9 | 308.7 | 129.4 | 1.29 |
| 96 | 130.0 | 313.8 | 131.4 | 1.62 |
| 97 | 136.1 | 308.7 | 125.8 | 1.64 |
| 98 | 142.1 | 313.8 | 130.2 | 1.66 |
| 99 | 148.2 | 308.7 | 124.7 | 1.57 |
| 100 | 154.3 | 313.8 | 139.1 | 1.66 |
| 101 | 160.4 | 308.7 | 131.7 | 1.66 |
| 102 | 166.5 | 313.8 | 124.1 | 1.29 |
| 103 | 172.5 | 308.7 | 117.7 | 1.06 |
| 104 | 178.6 | 313.8 | 120.5 | 1.53 |
| 105 | 184.7 | 308.7 | 113.2 | 1.56 |

| | | | | |
|-----|-------|-------|-------|------|
| 106 | 63.1 | 318.8 | 144.4 | 4.19 |
| 107 | 69.2 | 323.8 | 148.9 | 3.14 |
| 108 | 75.3 | 318.8 | 143.4 | 3.08 |
| 109 | 81.4 | 323.8 | 147.9 | 3.01 |
| 110 | 87.4 | 318.8 | 142.4 | 2.66 |
| 111 | 93.5 | 323.8 | 146.9 | 1.98 |
| 112 | 99.6 | 318.8 | 141.4 | 1.63 |
| 113 | 105.7 | 323.8 | 145.9 | 1.44 |
| 114 | 111.7 | 318.8 | 140.4 | 1.35 |
| 115 | 117.8 | 323.8 | 144.9 | 1.31 |
| 116 | 123.9 | 318.8 | 139.4 | 1.30 |
| 117 | 130.0 | 323.8 | 141.4 | 1.62 |
| 118 | 136.1 | 318.8 | 135.8 | 1.64 |
| 119 | 142.1 | 323.8 | 140.2 | 1.64 |
| 120 | 148.2 | 318.8 | 146.5 | 1.68 |
| 121 | 154.3 | 323.8 | 138.9 | 1.40 |
| 122 | 160.4 | 318.8 | 132.4 | 1.60 |
| 123 | 166.5 | 323.8 | 133.5 | 1.01 |
| 124 | 172.5 | 318.8 | 127.2 | 1.04 |
| 125 | 178.6 | 323.8 | 129.4 | 1.47 |
| 126 | 184.7 | 318.8 | 129.1 | 1.71 |
| 127 | 63.1 | 328.8 | 154.4 | 4.05 |
| 128 | 69.2 | 333.9 | 158.9 | 3.14 |
| 129 | 75.3 | 328.8 | 153.4 | 3.08 |
| 130 | 81.4 | 333.9 | 157.9 | 3.01 |
| 131 | 87.4 | 328.8 | 152.4 | 2.53 |
| 132 | 93.5 | 333.9 | 156.9 | 1.89 |
| 133 | 99.6 | 328.8 | 151.4 | 1.60 |
| 134 | 105.7 | 333.9 | 155.9 | 1.43 |
| 135 | 111.7 | 328.8 | 150.4 | 1.35 |
| 136 | 117.8 | 333.9 | 154.9 | 1.31 |
| 137 | 123.9 | 328.8 | 149.4 | 1.54 |
| 138 | 130.0 | 333.9 | 151.4 | 1.63 |
| 139 | 136.1 | 328.8 | 145.8 | 1.64 |
| 140 | 142.1 | 333.9 | 162.0 | 1.70 |
| 141 | 148.2 | 328.8 | 156.9 | 1.66 |
| 142 | 154.3 | 333.9 | 148.1 | 1.14 |
| 143 | 160.4 | 328.8 | 141.6 | 1.32 |
| 144 | 166.5 | 333.9 | 143.0 | 1.06 |
| 145 | 172.5 | 328.8 | 136.7 | 1.33 |
| 146 | 178.6 | 333.9 | 145.3 | 1.68 |
| 147 | 184.7 | 328.8 | 136.9 | 1.89 |
| 148 | 63.1 | 338.9 | 164.4 | 3.85 |
| 149 | 69.2 | 343.9 | 168.9 | 3.14 |
| 150 | 75.3 | 338.9 | 163.4 | 3.08 |
| 151 | 81.4 | 343.9 | 167.9 | 2.95 |
| 152 | 87.4 | 338.9 | 162.4 | 2.40 |
| 153 | 93.5 | 343.9 | 166.9 | 1.82 |
| 154 | 99.6 | 338.9 | 161.4 | 1.57 |
| 155 | 105.7 | 343.9 | 165.9 | 1.42 |
| 156 | 111.7 | 338.9 | 160.4 | 1.35 |
| 157 | 117.8 | 343.9 | 164.9 | 1.32 |
| 158 | 123.9 | 338.9 | 156.9 | 1.63 |
| 159 | 130.0 | 343.9 | 161.3 | 1.64 |
| 160 | 136.1 | 338.9 | 155.8 | 1.66 |
| 161 | 142.1 | 343.9 | 161.2 | 1.67 |
| 162 | 148.2 | 338.9 | 154.6 | 1.22 |
| 163 | 154.3 | 343.9 | 157.4 | 1.17 |
| 164 | 160.4 | 338.9 | 149.3 | 1.20 |

| | | | | |
|-----|-------|-------|-------|------|
| 165 | 166.5 | 343.9 | 152.5 | 1.12 |
| 166 | 172.5 | 338.9 | 145.6 | 1.41 |
| 167 | 178.6 | 343.9 | 154.2 | 1.77 |
| 168 | 184.7 | 338.9 | 145.9 | 2.07 |
| 169 | 63.1 | 348.9 | 174.4 | 3.71 |
| 170 | 69.2 | 354.0 | 178.9 | 3.14 |
| 171 | 75.3 | 348.9 | 173.4 | 3.08 |
| 172 | 81.4 | 354.0 | 177.9 | 2.86 |
| 173 | 87.4 | 348.9 | 172.4 | 2.27 |
| 174 | 93.5 | 354.0 | 176.9 | 1.76 |
| 175 | 99.6 | 348.9 | 171.4 | 1.54 |
| 176 | 105.7 | 354.0 | 175.9 | 1.41 |
| 177 | 111.7 | 348.9 | 170.4 | 1.35 |
| 178 | 117.8 | 354.0 | 174.8 | 1.32 |
| 179 | 123.9 | 348.9 | 166.9 | 1.64 |
| 180 | 130.0 | 354.0 | 171.3 | 1.64 |
| 181 | 136.1 | 348.9 | 180.0 | 1.73 |
| 182 | 142.1 | 354.0 | 170.4 | 1.32 |
| 183 | 148.2 | 348.9 | 163.9 | 1.26 |
| 184 | 154.3 | 354.0 | 166.7 | 1.32 |
| 185 | 160.4 | 348.9 | 158.8 | 1.23 |
| 186 | 166.5 | 354.0 | 161.7 | 1.37 |
| 187 | 172.5 | 348.9 | 161.5 | 1.69 |
| 188 | 178.6 | 354.0 | 162.1 | 1.98 |
| 189 | 184.7 | 348.9 | 155.0 | 2.28 |
| 190 | 63.1 | 359.0 | 184.4 | 3.51 |
| 191 | 69.2 | 364.0 | 188.8 | 3.14 |
| 192 | 75.3 | 359.0 | 183.4 | 3.08 |
| 193 | 81.4 | 364.0 | 187.8 | 2.74 |
| 194 | 87.4 | 359.0 | 182.3 | 2.15 |
| 195 | 93.5 | 364.0 | 186.8 | 1.72 |
| 196 | 99.6 | 359.0 | 181.3 | 1.52 |
| 197 | 105.7 | 364.0 | 185.8 | 1.41 |
| 198 | 111.7 | 359.0 | 180.3 | 1.35 |
| 199 | 117.8 | 364.0 | 184.8 | 1.33 |
| 200 | 123.9 | 359.0 | 176.9 | 1.64 |
| 201 | 130.0 | 364.0 | 181.1 | 1.72 |
| 202 | 136.1 | 359.0 | 176.9 | 1.57 |
| 203 | 142.1 | 364.0 | 179.7 | 1.40 |
| 204 | 148.2 | 359.0 | 173.2 | 1.32 |
| 205 | 154.3 | 364.0 | 176.1 | 1.43 |
| 206 | 160.4 | 359.0 | 168.4 | 1.26 |
| 207 | 166.5 | 364.0 | 171.9 | 1.61 |
| 208 | 172.5 | 359.0 | 170.4 | 1.74 |
| 209 | 178.6 | 364.0 | 172.4 | 1.94 |
| 210 | 184.7 | 359.0 | 164.2 | 2.60 |
| 211 | 63.1 | 369.0 | 194.3 | 3.17 |
| 212 | 75.3 | 369.0 | 202.2 | 3.05 |
| 213 | 87.4 | 369.0 | 192.3 | 2.05 |
| 214 | 99.6 | 369.0 | 191.3 | 1.51 |
| 215 | 111.7 | 369.0 | 190.3 | 1.35 |
| 216 | 123.9 | 369.0 | 186.9 | 1.65 |
| 217 | 136.1 | 369.0 | 186.2 | 1.42 |
| 218 | 148.2 | 369.0 | 182.6 | 1.41 |
| 219 | 160.4 | 369.0 | 177.9 | 1.34 |
| 220 | 172.5 | 369.0 | 179.5 | 1.82 |
| 221 | 184.7 | 369.0 | 174.7 | 2.46 |



Sezione A-A' - In rosso le superfici di scorrimento con $F_s < 1.1$

VERIFICA DI STABILITÀ PRE-OPERAM IN CONDIZIONI DI SATURAZIONE

Analisi di stabilità dei pendii con BISHOP

| | |
|--------------------------------|------|
| Numero di strati | 3.0 |
| Numero dei conci | 50.0 |
| Coefficiente di sicurezza [R2] | 1.1 |

Superficie di forma circolare

Maglia dei Centri

| | |
|--|----------|
| Ascissa vertice sinistro inferiore xi | 63.11 m |
| Ordinata vertice sinistro inferiore yi | 268.54 m |
| Ascissa vertice destro superiore xs | 184.7 m |
| Ordinata vertice destro superiore ys | 369.02 m |
| Passo di ricerca | 10.0 |
| Numero di celle lungo x | 10.0 |
| Numero di celle lungo y | 10.0 |

Coefficienti sismici [N.T.C.] 2018

Dati generali

| | |
|----------------------|---------------------|
| Descrizione: | |
| Latitudine: | 41.93 |
| Longitudine: | 14.8 |
| Tipo di costruzione: | 2 - Opere ordinarie |
| Classe d'uso: | Classe IV |
| Vita nominale: | 50.0 [anni] |
| Vita di riferimento: | 100.0 [anni] |

Parametri sismici su sito di riferimento

| | |
|------------------------|----|
| Categoria sottosuolo: | C |
| Categoria topografica: | T1 |

| S.L. Stato limite | TR Tempo ritorno [anni] | ag [m/s ²] | F0 [-] | TC* [sec] |
|----------------------|-------------------------------|---------------------------|-----------|--------------|
| S.L.O. | 60.0 | 0.56 | 2.51 | 0.34 |
| S.L.D. | 101.0 | 0.7 | 2.52 | 0.35 |
| S.L.V. | 949.0 | 1.53 | 2.61 | 0.43 |
| S.L.C. | 1950.0 | 1.91 | 2.61 | 0.45 |

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii

| S.L. Stato limite | amax [m/s ²] | beta [-] | kh [-] | kv [sec] |
|----------------------|-----------------------------|-------------|-----------|-------------|
| S.L.O. | 0.84 | 0.2 | 0.0171 | 0.0086 |
| S.L.D. | 1.05 | 0.2 | 0.0214 | 0.0107 |
| S.L.V. | 2.2272 | 0.24 | 0.0545 | 0.0273 |
| S.L.C. | 2.6644 | 0.24 | 0.0652 | 0.0326 |

| | |
|---|--------|
| Coefficiente azione sismica orizzontale | 0.0545 |
| Coefficiente azione sismica verticale | 0.0273 |

Vertici profilo

| N | X m | y m |
|----|--------|--------|
| 1 | 0.0 | 175.0 |
| 2 | 34.31 | 176.0 |
| 3 | 61.87 | 177.0 |
| 4 | 86.86 | 178.0 |
| 5 | 102.25 | 179.0 |
| 6 | 115.39 | 180.0 |
| 7 | 140.87 | 185.0 |
| 8 | 181.08 | 190.0 |
| 9 | 202.07 | 195.0 |
| 10 | 212.16 | 200.0 |
| 11 | 248.22 | 205.0 |

Falda

| Nr. | X m | y m |
|-----|--------|--------|
| 1 | 0.0 | 175.0 |
| 2 | 34.31 | 176.0 |
| 3 | 61.87 | 177.0 |
| 4 | 86.86 | 178.0 |
| 5 | 102.25 | 179.0 |
| 6 | 115.39 | 180.0 |
| 7 | 140.87 | 185.0 |
| 8 | 181.08 | 190.0 |
| 9 | 202.07 | 195.0 |
| 10 | 212.16 | 200.0 |
| 11 | 248.22 | 205.0 |

Vertici strato1

| N | X m | y m |
|----|--------|--------|
| 1 | 0.0 | 174.0 |
| 2 | 34.74 | 174.04 |
| 3 | 61.99 | 174.49 |
| 4 | 87.13 | 175.4 |
| 5 | 102.25 | 176.0 |
| 6 | 116.64 | 177.28 |
| 7 | 143.45 | 180.66 |
| 8 | 181.45 | 187.34 |
| 9 | 202.07 | 193.0 |
| 10 | 213.5 | 197.6 |
| 11 | 220.82 | 201.2 |
| 12 | 248.22 | 205.0 |

Vertici strato2

| N | X m | y m |
|---|--------|--------|
| 1 | 0.0 | 171.0 |
| 2 | 33.84 | 172.17 |
| 3 | 61.99 | 173.0 |
| 4 | 86.8 | 173.88 |
| 5 | 104.14 | 175.03 |
| 6 | 110.52 | 175.86 |
| 7 | 116.83 | 177.08 |
| 8 | 143.45 | 180.66 |
| 9 | 181.45 | 187.34 |

| | | |
|----|--------|-------|
| 10 | 202.07 | 193.0 |
| 11 | 213.5 | 197.6 |
| 12 | 220.82 | 201.2 |
| 13 | 248.22 | 205.0 |

Stratigrafia

c: coesione; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo

| Strato | c (kg/cm ²) | Fi (°) | G (Kg/m ³) | Gs (Kg/m ³) | Litologia |
|--------|----------------------------|-----------|---------------------------|----------------------------|-----------|
| 1 | 0.04 | 15 | 1968 | 1988 | |
| 2 | 0 | 32 | 1850 | 1950 | |
| 3 | 0.22 | 21.2 | 2039 | 2090 | |

Risultati analisi pendio [A2+M2+R2]

| | |
|----------------------------|----------|
| Fs minimo individuato | 0.65 |
| Ascissa centro superficie | 172.54 m |
| Ordinata centro superficie | 278.59 m |
| Raggio superficie | 89.96 m |

Numero di superfici esaminate....(221)

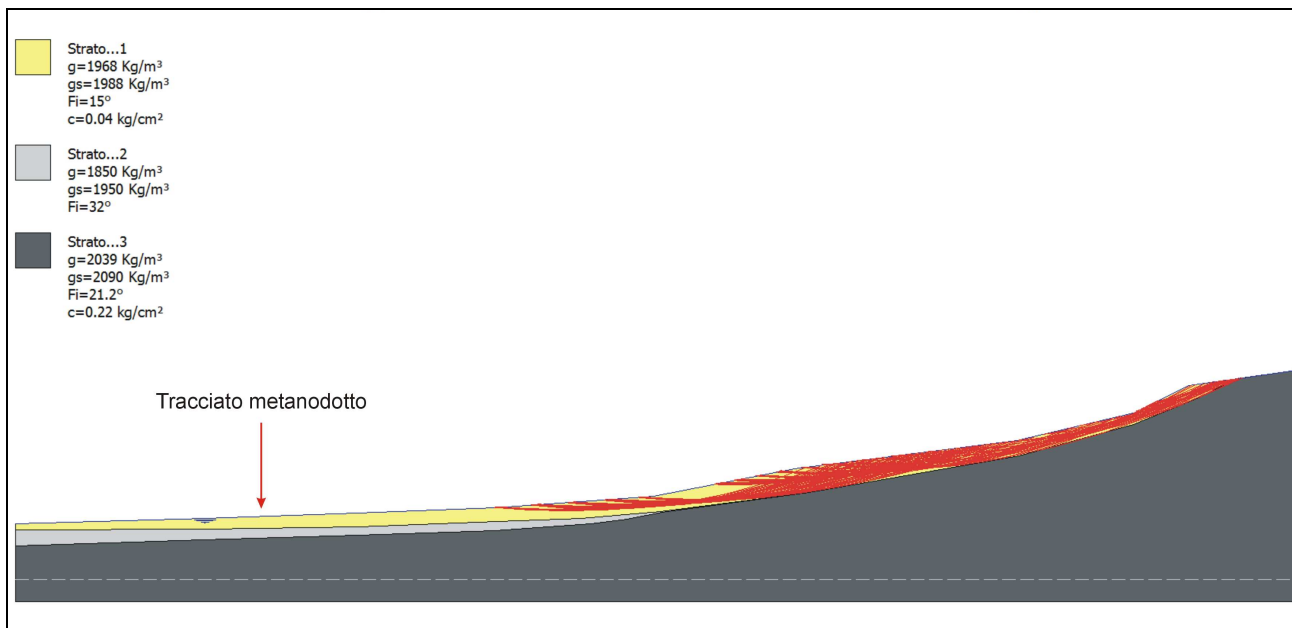
| N° | Xo | Yo | Ro | Fs |
|----|-------|-------|-------|------|
| 1 | 63.1 | 268.5 | 92.9 | 2.86 |
| 2 | 69.2 | 273.6 | 98.9 | 3.33 |
| 3 | 75.3 | 268.5 | 93.4 | 2.02 |
| 4 | 81.4 | 273.6 | 97.9 | 2.08 |
| 5 | 87.4 | 268.5 | 92.4 | 1.98 |
| 6 | 93.5 | 273.6 | 96.9 | 1.80 |
| 7 | 99.6 | 268.5 | 91.4 | 1.39 |
| 8 | 105.7 | 273.6 | 95.9 | 1.03 |
| 9 | 111.7 | 268.5 | 90.4 | 0.86 |
| 10 | 117.8 | 273.6 | 94.9 | 0.79 |
| 11 | 123.9 | 268.5 | 89.4 | 0.76 |
| 12 | 130.0 | 273.6 | 91.5 | 1.09 |
| 13 | 136.1 | 268.5 | 85.9 | 1.07 |
| 14 | 142.1 | 273.6 | 90.3 | 1.07 |
| 15 | 148.2 | 268.5 | 84.7 | 1.11 |
| 16 | 154.3 | 273.6 | 89.1 | 1.01 |
| 17 | 160.4 | 268.5 | 83.6 | 0.94 |
| 18 | 166.5 | 273.6 | 87.4 | 1.33 |
| 19 | 172.5 | 268.5 | 81.0 | 1.17 |
| 20 | 178.6 | 273.6 | 83.5 | 0.84 |
| 21 | 184.7 | 268.5 | 75.3 | 0.71 |
| 22 | 63.1 | 278.6 | 102.9 | 2.92 |
| 23 | 69.2 | 283.6 | 108.9 | 3.17 |
| 24 | 75.3 | 278.6 | 103.4 | 2.23 |
| 25 | 81.4 | 283.6 | 107.9 | 2.13 |
| 26 | 87.4 | 278.6 | 102.4 | 1.93 |
| 27 | 93.5 | 283.6 | 106.9 | 1.72 |
| 28 | 99.6 | 278.6 | 101.4 | 1.31 |
| 29 | 105.7 | 283.6 | 105.9 | 0.99 |
| 30 | 111.7 | 278.6 | 100.4 | 0.85 |
| 31 | 117.8 | 283.6 | 104.9 | 0.80 |
| 32 | 123.9 | 278.6 | 99.4 | 0.80 |
| 33 | 130.0 | 283.6 | 101.5 | 1.07 |
| 34 | 136.1 | 278.6 | 95.9 | 1.06 |

| | | | | |
|----|-------|-------|-------|------|
| 35 | 142.1 | 283.6 | 100.3 | 1.08 |
| 36 | 148.2 | 278.6 | 94.7 | 1.07 |
| 37 | 154.3 | 283.6 | 99.1 | 1.03 |
| 38 | 160.4 | 278.6 | 93.5 | 1.05 |
| 39 | 166.5 | 283.6 | 96.4 | 0.77 |
| 40 | 172.5 | 278.6 | 90.0 | 0.65 |
| 41 | 178.6 | 283.6 | 92.7 | 0.93 |
| 42 | 184.7 | 278.6 | 84.7 | 0.81 |
| 43 | 63.1 | 288.6 | 112.9 | 2.99 |
| 44 | 69.2 | 293.7 | 118.9 | 3.44 |
| 45 | 75.3 | 288.6 | 113.4 | 2.12 |
| 46 | 81.4 | 293.7 | 117.9 | 2.07 |
| 47 | 87.4 | 288.6 | 112.4 | 2.06 |
| 48 | 93.5 | 293.7 | 116.9 | 1.65 |
| 49 | 99.6 | 288.6 | 111.4 | 1.23 |
| 50 | 105.7 | 293.7 | 115.9 | 0.96 |
| 51 | 111.7 | 288.6 | 110.4 | 0.84 |
| 52 | 117.8 | 293.7 | 114.9 | 0.80 |
| 53 | 123.9 | 288.6 | 109.4 | 0.77 |
| 54 | 130.0 | 293.7 | 111.4 | 1.07 |
| 55 | 136.1 | 288.6 | 105.9 | 1.09 |
| 56 | 142.1 | 293.7 | 110.3 | 1.08 |
| 57 | 148.2 | 288.6 | 104.7 | 1.10 |
| 58 | 154.3 | 293.7 | 109.1 | 0.92 |
| 59 | 160.4 | 288.6 | 102.8 | 0.92 |
| 60 | 166.5 | 293.7 | 105.5 | 0.85 |
| 61 | 172.5 | 288.6 | 99.1 | 0.69 |
| 62 | 178.6 | 293.7 | 100.4 | 1.11 |
| 63 | 184.7 | 288.6 | 94.3 | 0.93 |
| 64 | 63.1 | 298.7 | 122.9 | 3.20 |
| 65 | 69.2 | 303.7 | 128.9 | 2.77 |
| 66 | 75.3 | 298.7 | 123.4 | 2.11 |
| 67 | 81.4 | 303.7 | 127.9 | 1.99 |
| 68 | 87.4 | 298.7 | 122.4 | 2.00 |
| 69 | 93.5 | 303.7 | 126.9 | 1.52 |
| 70 | 99.6 | 298.7 | 121.4 | 1.16 |
| 71 | 105.7 | 303.7 | 125.9 | 0.94 |
| 72 | 111.7 | 298.7 | 120.4 | 0.86 |
| 73 | 117.8 | 303.7 | 124.9 | 0.80 |
| 74 | 123.9 | 298.7 | 119.4 | 0.79 |
| 75 | 130.0 | 303.7 | 121.4 | 1.09 |
| 76 | 136.1 | 298.7 | 115.8 | 1.10 |
| 77 | 142.1 | 303.7 | 120.3 | 1.08 |
| 78 | 148.2 | 298.7 | 114.7 | 1.07 |
| 79 | 154.3 | 303.7 | 118.3 | 1.04 |
| 80 | 160.4 | 298.7 | 111.9 | 1.08 |
| 81 | 166.5 | 303.7 | 114.8 | 0.95 |
| 82 | 172.5 | 298.7 | 108.4 | 0.80 |
| 83 | 178.6 | 303.7 | 110.0 | 1.27 |
| 84 | 184.7 | 298.7 | 104.4 | 1.50 |
| 85 | 63.1 | 308.7 | 132.8 | 3.20 |
| 86 | 69.2 | 313.8 | 138.9 | 2.12 |
| 87 | 75.3 | 308.7 | 133.4 | 2.13 |
| 88 | 81.4 | 313.8 | 137.9 | 2.13 |
| 89 | 87.4 | 308.7 | 132.4 | 1.95 |
| 90 | 93.5 | 313.8 | 136.9 | 1.44 |
| 91 | 99.6 | 308.7 | 131.4 | 1.11 |
| 92 | 105.7 | 313.8 | 135.9 | 0.94 |
| 93 | 111.7 | 308.7 | 130.4 | 0.83 |

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|-----|-------|-------|-------|------|
| 94 | 117.8 | 313.8 | 134.9 | 0.80 |
| 95 | 123.9 | 308.7 | 129.4 | 0.79 |
| 96 | 130.0 | 313.8 | 131.4 | 1.10 |
| 97 | 136.1 | 308.7 | 125.8 | 1.09 |
| 98 | 142.1 | 313.8 | 130.2 | 1.10 |
| 99 | 148.2 | 308.7 | 124.7 | 1.02 |
| 100 | 154.3 | 313.8 | 127.5 | 1.33 |
| 101 | 160.4 | 308.7 | 121.1 | 1.34 |
| 102 | 166.5 | 313.8 | 124.1 | 1.04 |
| 103 | 172.5 | 308.7 | 117.7 | 0.83 |
| 104 | 178.6 | 313.8 | 120.5 | 1.35 |
| 105 | 184.7 | 308.7 | 113.2 | 1.30 |
| 106 | 63.1 | 318.8 | 142.8 | 3.28 |
| 107 | 69.2 | 323.8 | 148.9 | 2.04 |
| 108 | 75.3 | 318.8 | 143.4 | 2.04 |
| 109 | 81.4 | 323.8 | 147.9 | 2.07 |
| 110 | 87.4 | 318.8 | 142.4 | 1.84 |
| 111 | 93.5 | 323.8 | 146.9 | 1.35 |
| 112 | 99.6 | 318.8 | 141.4 | 1.09 |
| 113 | 105.7 | 323.8 | 145.9 | 0.95 |
| 114 | 111.7 | 318.8 | 140.4 | 0.83 |
| 115 | 117.8 | 323.8 | 144.9 | 0.80 |
| 116 | 123.9 | 318.8 | 139.4 | 0.78 |
| 117 | 130.0 | 323.8 | 141.4 | 1.09 |
| 118 | 136.1 | 318.8 | 135.8 | 1.16 |
| 119 | 142.1 | 323.8 | 140.2 | 1.05 |
| 120 | 148.2 | 318.8 | 133.9 | 1.19 |
| 121 | 154.3 | 323.8 | 138.9 | 1.08 |
| 122 | 160.4 | 318.8 | 132.4 | 1.36 |
| 123 | 166.5 | 323.8 | 133.5 | 0.71 |
| 124 | 172.5 | 318.8 | 127.2 | 0.82 |
| 125 | 178.6 | 323.8 | 129.4 | 1.22 |
| 126 | 184.7 | 318.8 | 129.1 | 1.73 |
| 127 | 63.1 | 328.8 | 154.4 | 3.37 |
| 128 | 69.2 | 333.9 | 158.9 | 2.32 |
| 129 | 75.3 | 328.8 | 153.4 | 2.06 |
| 130 | 81.4 | 333.9 | 157.9 | 2.15 |
| 131 | 87.4 | 328.8 | 152.4 | 1.76 |
| 132 | 93.5 | 333.9 | 156.9 | 1.27 |
| 133 | 99.6 | 328.8 | 151.4 | 1.04 |
| 134 | 105.7 | 333.9 | 155.9 | 0.90 |
| 135 | 111.7 | 328.8 | 150.4 | 0.85 |
| 136 | 117.8 | 333.9 | 154.9 | 0.81 |
| 137 | 123.9 | 328.8 | 147.0 | 1.11 |
| 138 | 130.0 | 333.9 | 151.4 | 1.08 |
| 139 | 136.1 | 328.8 | 145.8 | 1.09 |
| 140 | 142.1 | 333.9 | 149.6 | 1.26 |
| 141 | 148.2 | 328.8 | 143.2 | 1.58 |
| 142 | 154.3 | 333.9 | 148.1 | 0.76 |
| 143 | 160.4 | 328.8 | 141.6 | 1.00 |
| 144 | 166.5 | 333.9 | 143.0 | 0.80 |
| 145 | 172.5 | 328.8 | 136.7 | 1.07 |
| 146 | 178.6 | 333.9 | 139.5 | 1.72 |
| 147 | 184.7 | 328.8 | 136.9 | 1.91 |
| 148 | 63.1 | 338.9 | 164.4 | 3.21 |
| 149 | 69.2 | 343.9 | 168.9 | 2.10 |
| 150 | 75.3 | 338.9 | 163.4 | 2.08 |
| 151 | 81.4 | 343.9 | 167.9 | 2.02 |
| 152 | 87.4 | 338.9 | 162.4 | 1.67 |

| | | | | |
|-----|-------|-------|-------|------|
| 153 | 93.5 | 343.9 | 166.9 | 1.22 |
| 154 | 99.6 | 338.9 | 161.4 | 1.02 |
| 155 | 105.7 | 343.9 | 165.9 | 0.89 |
| 156 | 111.7 | 338.9 | 160.4 | 0.84 |
| 157 | 117.8 | 343.9 | 164.9 | 0.82 |
| 158 | 123.9 | 338.9 | 156.9 | 1.12 |
| 159 | 130.0 | 343.9 | 161.3 | 1.09 |
| 160 | 136.1 | 338.9 | 155.8 | 1.09 |
| 161 | 142.1 | 343.9 | 161.2 | 1.33 |
| 162 | 148.2 | 338.9 | 154.6 | 0.80 |
| 163 | 154.3 | 343.9 | 157.4 | 0.79 |
| 164 | 160.4 | 338.9 | 149.3 | 0.96 |
| 165 | 166.5 | 343.9 | 152.5 | 0.87 |
| 166 | 172.5 | 338.9 | 145.6 | 1.14 |
| 167 | 178.6 | 343.9 | 154.2 | 1.82 |
| 168 | 184.7 | 338.9 | 145.9 | 2.26 |
| 169 | 63.1 | 348.9 | 174.4 | 3.08 |
| 170 | 69.2 | 354.0 | 178.9 | 2.11 |
| 171 | 75.3 | 348.9 | 173.4 | 2.26 |
| 172 | 81.4 | 354.0 | 177.9 | 1.98 |
| 173 | 87.4 | 348.9 | 172.4 | 1.56 |
| 174 | 93.5 | 354.0 | 176.9 | 1.19 |
| 175 | 99.6 | 348.9 | 171.4 | 1.01 |
| 176 | 105.7 | 354.0 | 175.9 | 0.91 |
| 177 | 111.7 | 348.9 | 170.4 | 0.85 |
| 178 | 117.8 | 354.0 | 174.8 | 0.81 |
| 179 | 123.9 | 348.9 | 166.9 | 1.12 |
| 180 | 130.0 | 354.0 | 171.3 | 1.11 |
| 181 | 136.1 | 348.9 | 165.3 | 1.19 |
| 182 | 142.1 | 354.0 | 170.4 | 0.85 |
| 183 | 148.2 | 348.9 | 163.9 | 0.89 |
| 184 | 154.3 | 354.0 | 166.7 | 0.99 |
| 185 | 160.4 | 348.9 | 158.8 | 0.97 |
| 186 | 166.5 | 354.0 | 161.7 | 1.12 |
| 187 | 172.5 | 348.9 | 155.7 | 1.54 |
| 188 | 178.6 | 354.0 | 162.1 | 1.92 |
| 189 | 184.7 | 348.9 | 155.0 | 2.36 |
| 190 | 63.1 | 359.0 | 184.4 | 2.63 |
| 191 | 69.2 | 364.0 | 188.8 | 2.20 |
| 192 | 75.3 | 359.0 | 183.4 | 2.06 |
| 193 | 81.4 | 364.0 | 187.8 | 1.92 |
| 194 | 87.4 | 359.0 | 182.3 | 1.49 |
| 195 | 93.5 | 364.0 | 186.8 | 1.14 |
| 196 | 99.6 | 359.0 | 181.3 | 0.99 |
| 197 | 105.7 | 364.0 | 185.8 | 0.90 |
| 198 | 111.7 | 359.0 | 180.3 | 0.84 |
| 199 | 117.8 | 364.0 | 184.8 | 0.82 |
| 200 | 123.9 | 359.0 | 176.9 | 1.14 |
| 201 | 130.0 | 364.0 | 181.1 | 1.20 |
| 202 | 136.1 | 359.0 | 176.9 | 1.13 |
| 203 | 142.1 | 364.0 | 179.7 | 0.95 |
| 204 | 148.2 | 359.0 | 173.2 | 0.92 |
| 205 | 154.3 | 364.0 | 176.1 | 1.18 |
| 206 | 160.4 | 359.0 | 168.4 | 1.00 |
| 207 | 166.5 | 364.0 | 171.9 | 1.37 |
| 208 | 172.5 | 359.0 | 164.7 | 1.59 |
| 209 | 178.6 | 364.0 | 172.4 | 1.98 |
| 210 | 184.7 | 359.0 | 164.2 | 2.67 |
| 211 | 63.1 | 369.0 | 194.3 | 2.11 |

| | | | | |
|-----|-------|-------|-------|------|
| 212 | 75.3 | 369.0 | 193.3 | 2.20 |
| 213 | 87.4 | 369.0 | 192.3 | 1.41 |
| 214 | 99.6 | 369.0 | 191.3 | 0.97 |
| 215 | 111.7 | 369.0 | 190.3 | 0.82 |
| 216 | 123.9 | 369.0 | 186.9 | 1.13 |
| 217 | 136.1 | 369.0 | 186.2 | 0.91 |
| 218 | 148.2 | 369.0 | 182.6 | 1.08 |
| 219 | 160.4 | 369.0 | 177.9 | 1.08 |
| 220 | 172.5 | 369.0 | 179.5 | 1.82 |
| 221 | 184.7 | 369.0 | 174.7 | 2.47 |



Sezione A-A' - In rosso le superfici di scorrimento con $F_s < 1.1$