# LISTATO DI CALCOLO – FASE 1 – SEZ A – COESIONE INTERCETTA

**ANALISI SUPERFICIE GENERICHE 1 – 2 – 3**

**SUPERFICIE 1 – Linea separatrice SUBSTRATO ROCCIOSO e CAPPELLACCIO DI ALTERAZIONE**

**SUPERFICIE 2 – Linea separatrice CAPPELLACCIO DI ALTERAZIONE e COLTRE NATURALE**

**SUPERFICIE 3 – Linea separatrice COLTRE NATURALE e MATERIALE OGGETTO DI DEPOSITO**

**Analisi di stabilità dei pendii con: JANBU (1956)**

==========

| | |
|---|---|
| Lat./Long. | 44.416126/9.128522 |
| Normativa | NTC 2008 |
| Numero di strati | 4.0 |
| Numero dei conci | 25.0 |
| Grado di sicurezza ritenuto accettabile | 1.1 |
| Coefficiente parziale resistenza | 1.1 |
| Analisi | Condizione drenata |
| Superficie di forma generica | |

==========

**Coefficienti sismici [N.T.C.]**

==========

**Dati generali**

| | |
|---|---|
| Tipo opera: | 2 - Opere ordinarie |
| Classe d'uso: | Classe I |
| Vita nominale: | 50.0 [anni] |
| Vita di riferimento: | 35.0 [anni] |

**Parametri sismici su sito di riferimento**

| | |
|---|---|
| Categoria sottosuolo: | C |
| Categoria topografica: | T3 |

| S.L.<br>Stato limite | TR<br>Tempo ritorno<br>[anni] | ag<br>[m/s²] | F0<br>[-] | TC*<br>[sec] |
|---|---|---|---|---|
| S.L.O. | 30.0 | 0.27 | 2.5 | 0.2 |
| S.L.D. | 35.0 | 0.29 | 2.52 | 0.2 |
| S.L.V. | 332.0 | 0.73 | 2.53 | 0.28 |
| S.L.C. | 682.0 | 0.96 | 2.5 | 0.29 |

**Coefficienti sismici orizzontali e verticali**

Opera: Stabilità dei pendii e Fondazioni

| S.L.<br>Stato limite | amax<br>[m/s²] | beta<br>[-] | kh<br>[-] | kv<br>[sec] |
|---|---|---|---|---|
| S.L.O. | 0.486 | 0.2 | 0.0099 | 0.005 |
| S.L.D. | 0.522 | 0.2 | 0.0106 | 0.0053 |
| S.L.V. | 1.314 | 0.2 | 0.0268 | 0.0134 |
| S.L.C. | 1.728 | 0.2 | 0.0352 | 0.0176 |

Coefficiente azione sismica orizzontale 0.027
Coefficiente azione sismica verticale 0.01 3

**Vertici profilo**

| N | X<br>m | y<br>m |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 14.91 | 9.39 |
| 3 | 18.53 | 9.46 |
| 4 | 22.31 | 10.13 |
| 5 | 26.31 | 10.13 |

| | | |
|---|---|---|
| 6 | 26.31 | 16.13 |
| 7 | 42.96 | 22.35 |
| 8 | 46.96 | 22.35 |
| 9 | 46.96 | 26.35 |
| 10 | 51.52 | 28.76 |
| 11 | 56.71 | 28.88 |
| 12 | 60.71 | 28.88 |
| 13 | 60.71 | 32.88 |
| 14 | 65.3 | 35.56 |
| 15 | 69.13 | 35.61 |
| 16 | 73.13 | 35.61 |
| 17 | 73.13 | 39.61 |
| 18 | 76.91 | 41.16 |
| 19 | 85.57 | 41.16 |
| 20 | 85.57 | 45.16 |
| 21 | 111.57 | 46.6 |
| 22 | 115.57 | 46.6 |
| 23 | 115.57 | 50.6 |
| 24 | 124.37 | 54.15 |
| 25 | 133.59 | 54.15 |
| 26 | 133.59 | 58.15 |
| 27 | 138.36 | 58.95 |
| 28 | 153.03 | 60.55 |
| 29 | 168.39 | 68.51 |
| 30 | 176.62 | 68.51 |
| 31 | 182.78 | 66.56 |
| 32 | 188.48 | 66.56 |
| 33 | 212.37 | 81.66 |
| 34 | 226.96 | 82.96 |
| 35 | 236.72 | 89.46 |
| 36 | 240.67 | 89.46 |
| 37 | 263.15 | 96.46 |
| 38 | 273.42 | 100.44 |
| 39 | 280.12 | 105.5 |
| 40 | 285.97 | 108.75 |
| 41 | 314.53 | 109.46 |
| 42 | 345.68 | 127.06 |
| 43 | 369.79 | 128.56 |
| 44 | 374.64 | 128.86 |
| 45 | 376.89 | 131.32 |
| 46 | 381.6 | 131.3 2 |

**Falda**

| Nr. | X (m) | y (m) |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 12.68 | 6.54 |
| 3 | 27.32 | 11.59 |
| 4 | 55.03 | 19.4 |
| 5 | 107.84 | 25.78 |
| 6 | 120.46 | 28.96 |
| 7 | 197.17 | 51.07 |
| 8 | 255.23 | 72.26 |
| 9 | 278.34 | 79.38 |
| 10 | 311.47 | 93.01 |
| 11 | 351.25 | 110.35 |
| 12 | 381.6 | 119.7 2 |

**Vertici strato .....1**

| N | X (m) | y (m) |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 14.91 | 9.39 |

| | | |
|---|---|---|
| 3 | 18.53 | 9.46 |
| 4 | 22.31 | 10.13 |
| 5 | 34.37 | 15.93 |
| 6 | 97.33 | 24.82 |
| 7 | 110.76 | 29.46 |
| 8 | 130.52 | 34.17 |
| 9 | 169.89 | 44.43 |
| 10 | 183.15 | 49.79 |
| 11 | 201.59 | 54.46 |
| 12 | 228.83 | 64.46 |
| 13 | 237.24 | 69.43 |
| 14 | 255.33 | 73.91 |
| 15 | 269.89 | 78.9 |
| 16 | 279.51 | 84.46 |
| 17 | 298.87 | 89.46 |
| 18 | 308.62 | 94.46 |
| 19 | 324.98 | 99.46 |
| 20 | 333.93 | 105.41 |
| 21 | 361.01 | 118.7 |
| 22 | 369.79 | 128.56 |
| 23 | 374.64 | 128.86 |
| 24 | 376.89 | 131.32 |
| 25 | 381.6 | 131.3 2 |

**Vertici strato .....2**

| N | X (m) | y (m) |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 6.9 | 2.46 |
| 3 | 15.6 | 8.0 |
| 4 | 23.76 | 9.42 |
| 5 | 27.65 | 11.18 |
| 6 | 33.18 | 11.69 |
| 7 | 39.02 | 11.72 |
| 8 | 50.92 | 12.66 |
| 9 | 58.1 | 13.7 |
| 10 | 71.07 | 14.75 |
| 11 | 92.03 | 17.17 |
| 12 | 107.65 | 20.89 |
| 13 | 118.09 | 26.27 |
| 14 | 125.92 | 29.1 |
| 15 | 158.29 | 37.47 |
| 16 | 179.29 | 43.61 |
| 17 | 209.42 | 54.53 |
| 18 | 230.79 | 62.79 |
| 19 | 238.05 | 67.16 |
| 20 | 253.12 | 71.57 |
| 21 | 260.11 | 72.74 |
| 22 | 269.37 | 75.87 |
| 23 | 279.47 | 80.74 |
| 24 | 298.03 | 86.46 |
| 25 | 311.35 | 93.18 |
| 26 | 325.27 | 96.98 |
| 27 | 337.19 | 102.04 |
| 28 | 351.13 | 110.34 |
| 29 | 365.18 | 115.61 |
| 30 | 381.6 | 119.3 4 |

**Vertici strato .....3**

| N | X (m) | y (m) |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 9.27 | -1.54 |
| 3 | 26.4 | 0.47 |

| | | |
|---|---|---|
| 4 | 62.34 | 2.82 |
| 5 | 99.05 | 10.49 |
| 6 | 121.2 | 17.56 |
| 7 | 144.83 | 24.43 |
| 8 | 186.11 | 37.58 |
| 9 | 211.95 | 48.2 |
| 10 | 254.34 | 63.98 |
| 11 | 277.9 | 72.61 |
| 12 | 297.23 | 80.02 |
| 13 | 315.84 | 87.27 |
| 14 | 345.13 | 97.9 |
| 15 | 361.96 | 104.6 |
| 16 | 381.6 | 109.8 9 |

**Vertici superficie Nr...1**

| N | X<br>m | y<br>m |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 14.91 | 9.39 |
| 3 | 18.53 | 9.46 |
| 4 | 22.31 | 10.13 |
| 5 | 34.37 | 15.93 |
| 6 | 97.33 | 24.82 |
| 7 | 110.76 | 29.46 |
| 8 | 130.52 | 34.17 |
| 9 | 169.89 | 44.43 |
| 10 | 183.15 | 49.79 |
| 11 | 201.59 | 54.46 |
| 12 | 228.83 | 64.46 |
| 13 | 237.24 | 69.43 |
| 14 | 255.33 | 73.91 |
| 15 | 269.89 | 78.9 |
| 16 | 279.51 | 84.46 |
| 17 | 298.87 | 89.46 |
| 18 | 308.62 | 94.46 |
| 19 | 324.98 | 99.46 |
| 20 | 333.93 | 105.41 |
| 21 | 361.01 | 118.7 |
| 22 | 369.79 | 128.56 |
| 23 | 374.64 | 128.86 |
| 24 | 376.89 | 131.32 |
| 25 | 381.6 | 131.32 |

**Vertici superficie Nr...2**

| N | X<br>m | y<br>m |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 6.9 | 2.46 |
| 3 | 15.6 | 8.0 |
| 4 | 23.76 | 9.42 |
| 5 | 27.65 | 11.18 |
| 6 | 33.18 | 11.69 |
| 7 | 39.02 | 11.72 |
| 8 | 50.92 | 12.66 |
| 9 | 58.1 | 13.7 |
| 10 | 71.07 | 14.75 |
| 11 | 92.03 | 17.17 |
| 12 | 107.65 | 20.89 |
| 13 | 118.09 | 26.27 |
| 14 | 125.92 | 29.1 |
| 15 | 158.29 | 37.47 |

| | | |
|---|---|---|
| 16 | 179.29 | 43.61 |
| 17 | 209.42 | 54.53 |
| 18 | 230.79 | 62.79 |
| 19 | 238.05 | 67.16 |
| 20 | 253.12 | 71.57 |
| 21 | 260.11 | 72.74 |
| 22 | 269.37 | 75.87 |
| 23 | 279.47 | 80.74 |
| 24 | 298.03 | 86.46 |
| 25 | 311.35 | 93.18 |
| 26 | 325.27 | 96.98 |
| 27 | 337.19 | 102.04 |
| 28 | 351.13 | 110.34 |
| 29 | 365.18 | 115.61 |
| 30 | 381.6 | 131.32 |

**Vertici superficie Nr...3**

| N | X<br>m | y<br>m |
|---|---|---|
| 1 | 0.0 | 0.0 |
| 2 | 9.27 | -1.54 |
| 3 | 26.4 | 0.47 |
| 4 | 62.34 | 2.82 |
| 5 | 99.05 | 10.49 |
| 6 | 121.2 | 17.56 |
| 7 | 144.83 | 24.43 |
| 8 | 186.11 | 37.58 |
| 9 | 211.95 | 48.0 |
| 10 | 254.34 | 63.98 |
| 11 | 277.9 | 72.61 |
| 12 | 297.23 | 80.02 |
| 13 | 315.84 | 87.27 |
| 14 | 345.13 | 97.9 |
| 15 | 361.96 | 104.6 |
| 16 | 381.6 | 131.32 |

**Coefficienti parziali per i parametri geotecnici del terreno**

==========

| | |
|---|---|
| Tangente angolo di resistenza al taglio | 1.25 |
| Coesione efficace | 1.25 |
| Coesione non drenata | 1.4 |
| Riduzione parametri geotecnici terreno | Si |

========== =

**Stratigrafia**

c: coesione; cu: coesione non drenata; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

| Strato | c<br>(kg/cm²) | cu<br>(kg/cm²) | Fi<br>(°) | G<br>(Kg/m³) | Gs<br>(Kg/m³) | K<br>(Kg/cm³) | Litologia | |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.0383 | | 29.60 | 1837 | 2063 | 0.00 | | |
| 2 | 0 | | 26.51 | 1695 | 1905 | 0.00 | | |
| 3 | 0.3305 | | 30.52 | 2402 | 2698 | 0.00 | | |
| 4 | 0.4352 | | 33.31 | 2402 | 2698 | 0.00 | | |

**Muri di sostegno - Caratteristiche geometriche**

| N° | x<br>(m) | y<br>(m) | Base mensola a valle<br>(m) | Base mensola a monte<br>(m) | Altezza muro<br>(m) | Spessore testa<br>(m) | Spessore base<br>(m) | Peso specifico<br>(Kg/m³) |
|---|---|---|---|---|---|---|---|---|
| 1 | 26.31 | 10.13 | 0 | 0.1 | 6 | 2 | 4 | 2800 |
| 2 | 46.96 | 22.35 | 0 | 0.1 | 4 | 3 | 4 | 2800 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3 | 60.71 | 28.88 | 0 | 0.1 | 4 | 3 | 4 | 2800 |
| 4 | 73.13 | 35.61 | 0 | 0.1 | 4 | 3 | 4 | 2800 |
| 5 | 85.57 | 41.16 | 0 | 0.1 | 4 | 3 | 4 | 2800 |
| 6 | 115.57 | 46.6 | 0 | 0.1 | 4 | 3 | 4 | 2800 |
| 7 | 133.59 | 54.15 | 0 | 0.1 | 4 | 3 | 4 | 280 0 |

**Pali...**

| N° | x (m) | y (m) | Diametro (m) | Lunghezza (m) | Inclinazione (°) | Interasse (m) |
|---|---|---|---|---|---|---|
| 1 | 23.31 | 10.13 | 0.2 | 6 | 90 | 3.6 |
| 2 | 25.31 | 10.13 | 0.2 | 6 | 90 | 3.6 |

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

Superficie Nr...1 Fattore di sicurezza=239612.70

| Nr. | B m | Alfa (°) | Li m | Wi (Kg) | Kh•Wi (Kg) | Kv•Wi (Kg) | c (kg/cm²) | Fi (°) | Ui (Kg) | N'i (Kg) | Ti (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -0.6 | 32.2 | -0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 21.8 | 0.0 | 0.0 | 0.0 |
| 2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 14 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 15 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 16 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 18 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 19 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 21 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 22 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 23 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 24 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 25 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Superficie Nr...2 Fattore di sicurezza=1.38

| Nr. | B m | Alfa (°) | Li m | Wi (Kg) | Kh•Wi (Kg) | Kv•Wi (Kg) | c (kg/cm²) | Fi (°) | Ui (Kg) | N'i (Kg) | Ti (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15.26 | 27.0 | 17.14 | 23772.21 | 641.85 | 309.04 | 0.0 | 21.8 | 43.4 | 22355.5 | 7895.9 |
| 2 | 15.26 | 13.5 | 15.7 | 81751.34 | 2207.29 | 1062.77 | 0.0 | 21.8 | 448.2 | 71629.3 | 23175.2 |
| 3 | 15.26 | 3.0 | 15.29 | 299359.8 | 8082.72 | 3891.68 | 0.0 | 21.8 | 2795.1 | 252838.1 | 79661.6 |
| 4 | 15.26 | 6.3 | 15.36 | 503701.8 | 13599.95 | 6548.12 | 0.0 | 21.8 | 5850.2 | 402929.9 | 127542.4 |
| 5 | 15.26 | 5.3 | 15.33 | 651346.3 | 17586.35 | 8467.5 | 0.0 | 21.8 | 6402.3 | 540224.4 | 170700.2 |
| 6 | 15.26 | 6.6 | 15.37 | 762080.3 | 20576.17 | 9907.04 | 0.0 | 21.8 | 6656.8 | 641554.0 | 203191.6 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 15.26 | 13.2 | 15.68 | 761700.0 | 20565.9 | 9902.1 | 0.0 | 21.8 | 5829.4 | 643489.1 | 207954.9 |
| 8 | 15.26 | 24.7 | 16.8 | 683691.2 | 18459.66 | 8887.99 | 0.26 | 25.2 | 3241.8 | 582365.8 | 276943.8 |
| 9 | 15.26 | 15.9 | 15.87 | 735675.1 | 19863.23 | 9563.78 | 0.26 | 25.2 | 1743.0 | 658188.8 | 288832.3 |
| 10 | 15.26 | 14.5 | 15.77 | 716864.1 | 19355.33 | 9319.23 | 0.0 | 21.8 | 1999.8 | 655578.3 | 213046.9 |
| 11 | 15.26 | 15.6 | 15.85 | 732620.1 | 19780.74 | 9524.06 | 0.0 | 21.8 | 2289.9 | 665843.9 | 217542.6 |
| 12 | 15.26 | 17.2 | 15.98 | 723362.1 | 19530.78 | 9403.71 | 0.0 | 21.8 | 2186.2 | 658188.5 | 216817.4 |
| 13 | 15.26 | 19.9 | 16.24 | 563767.7 | 15221.73 | 7328.98 | 0.0 | 21.8 | 1452.4 | 517105.9 | 173051.7 |
| 14 | 15.26 | 20.3 | 16.27 | 678739.2 | 18325.96 | 8823.61 | 0.0 | 21.8 | 950.8 | 634361.6 | 212754.6 |
| 15 | 15.26 | 21.1 | 16.36 | 650884.7 | 17573.89 | 8461.5 | 0.0 | 21.8 | 754.2 | 611150.1 | 206148.6 |
| 16 | 15.26 | 24.3 | 16.74 | 669297.5 | 18071.03 | 8700.87 | 0.26 | 25.2 | 0.0 | 615287.8 | 289279.0 |
| 17 | 15.26 | 13.5 | 15.7 | 621315.1 | 16775.51 | 8077.1 | 0.26 | 25.2 | 227.3 | 576085.0 | 253977.8 |
| 18 | 15.26 | 20.9 | 16.34 | 625434.6 | 16886.73 | 8130.65 | 0.0 | 21.8 | 372.7 | 592240.3 | 199460.7 |
| 19 | 15.26 | 19.9 | 16.23 | 711679.2 | 19215.34 | 9251.83 | 0.26 | 25.2 | 0.0 | 656283.7 | 295523.0 |
| 20 | 15.26 | 21.9 | 16.45 | 612830.3 | 16546.42 | 7966.79 | 0.0 | 21.8 | 269.6 | 582375.9 | 197444.2 |
| 21 | 15.26 | 20.1 | 16.25 | 467751.7 | 12629.3 | 6080.77 | 0.26 | 25.2 | 734.8 | 417028.9 | 201142.6 |
| 22 | 15.26 | 20.7 | 16.32 | 520485.7 | 14053.11 | 6766.31 | 0.0 | 21.8 | 1720.5 | 472186.4 | 158800.6 |
| 23 | 15.26 | 30.1 | 17.65 | 552734.4 | 14923.83 | 7185.55 | 0.0 | 21.8 | 1066.2 | 524451.4 | 190747.2 |
| 24 | 15.26 | 22.8 | 16.56 | 393844.0 | 10633.79 | 5119.97 | 0.0 | 21.8 | 0.0 | 377311.1 | 128757.1 |
| 25 | 15.26 | 43.7 | 21.12 | 124197.3 | 3353.33 | 1614.56 | 0.0 | 21.8 | 0.0 | 132115.8 | 57527.9 |

Superficie Nr...3 Fattore di sicurezza=1.46

| Nr. | B<br>m | Alfa<br>(°) | Li<br>m | Wi<br>(Kg) | Kh•Wi<br>(Kg) | Kv•Wi<br>(Kg) | c<br>(kg/cm²) | Fi<br>(°) | Ui<br>(Kg) | N'i<br>(Kg) | Ti<br>(Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15.26 | -3.1 | 15.29 | 189620.1 | 5119.74 | 2465.06 | 0.26 | 25.2 | 4354.7 | 127455.7 | 75297.6 |
| 2 | 15.26 | 5.9 | 15.35 | 475333.7 | 12834.01 | 6179.34 | 0.35 | 27.7 | 0.0 | 455247.8 | 220111.8 |
| 3 | 15.26 | 3.7 | 15.3 | 734725.1 | 19837.58 | 9551.43 | 0.0 | 0.0 | 0.0 | 736294.1 | 0.0 |
| 4 | 15.26 | 3.7 | 15.3 | 950044.8 | 25651.2 | 12350.58 | 0.35 | 27.7 | 0.0 | 925671.9 | 404639.4 |
| 5 | 15.26 | 11.1 | 15.56 | 1078927.0 | 29131.03 | 14026.05 | 0.26 | 25.2 | 16811.6 | 778019.3 | 311040.9 |
| 6 | 15.26 | 11.8 | 15.59 | 1128678.0 | 30474.3 | 14672.81 | 0.26 | 25.2 | 15558.6 | 841946.1 | 334882.6 |
| 7 | 15.26 | 14.9 | 15.79 | 1088941.0 | 29401.4 | 14156.23 | 0.26 | 25.2 | 13783.6 | 823591.3 | 332848.4 |
| 8 | 15.26 | 17.6 | 16.01 | 1046476.0 | 28254.86 | 13604.19 | 0.35 | 27.7 | 0.0 | 964337.3 | 441550.7 |
| 9 | 15.26 | 16.2 | 15.9 | 1141276.0 | 30814.46 | 14836.59 | 0.35 | 27.7 | 0.0 | 1055811.0 | 475406.5 |
| 10 | 15.26 | 17.0 | 15.96 | 1105840.0 | 29857.69 | 14375.92 | 0.26 | 25.2 | 11445.0 | 870247.7 | 353898.9 |
| 11 | 15.26 | 17.7 | 16.02 | 1093698.0 | 29529.84 | 14218.07 | 0.0 | 0.0 | 0.0 | 1147850.0 | 0.0 |
| 12 | 15.26 | 17.7 | 16.02 | 1069158.0 | 28867.27 | 13899.06 | 0.26 | 25.2 | 10622.9 | 846693.6 | 346676.7 |
| 13 | 15.26 | 21.2 | 16.37 | 900874.6 | 24323.62 | 11711.37 | 0.26 | 25.2 | 9638.1 | 700139.7 | 299495.0 |
| 14 | 15.26 | 21.8 | 16.44 | 997758.8 | 26939.49 | 12970.87 | 0.35 | 27.7 | 0.0 | 913778.8 | 433091.8 |
| 15 | 15.26 | 20.7 | 16.31 | 963764.6 | 26021.65 | 12528.94 | 0.35 | 27.7 | 0.0 | 883073.5 | 416443.2 |
| 16 | 15.26 | 20.7 | 16.31 | 1008142.0 | 27219.83 | 13105.84 | 0.35 | 27.7 | 0.0 | 924377.3 | 433798.3 |
| 17 | 15.26 | 20.5 | 16.29 | 941926.9 | 25432.03 | 12245.05 | 0.35 | 27.7 | 0.0 | 862924.1 | 407440.3 |
| 18 | 15.26 | 20.1 | 16.26 | 903808.4 | 24402.83 | 11749.51 | 0.26 | 25.2 | 7261.9 | 737435.5 | 311240.4 |
| 19 | 15.26 | 20.8 | 16.33 | 993848.6 | 26833.91 | 12920.03 | 0.26 | 25.2 | 6688.0 | 830408.5 | 347853.8 |
| 20 | 15.26 | 21.1 | 16.37 | 886256.7 | 23928.93 | 11521.34 | 0.26 | 25.2 | 7118.2 | 722641.7 | 307971.0 |
| 21 | 15.26 | 20.9 | 16.34 | 749320.2 | 20231.65 | 9741.16 | 0.35 | 27.7 | 0.0 | 683286.3 | 333046.6 |
| 22 | 15.26 | 19.9 | 16.24 | 797204.4 | 21524.52 | 10363.66 | 0.26 | 25.2 | 8545.1 | 618498.8 | 266236.9 |
| 23 | 15.26 | 20.6 | 16.31 | 900870.0 | 24323.49 | 11711.31 | 0.26 | 25.2 | 9554.5 | 701472.4 | 298851.6 |
| 24 | 15.26 | 34.0 | 18.41 | 720027.6 | 19440.74 | 9360.36 | 0.26 | 25.2 | 7241.7 | 574012.0 | 288055.1 |
| 25 | 15.26 | 53.7 | 25.77 | 203916.3 | 5505.74 | 2650.91 | 0.0 | 21.8 | 0.0 | 244878.7 | 123395.5 |

**CARICO LIMITE PALI**

**Superficie Nr...1 Fattore di sicurezza=239612.70**

pali alla base x=23.31 Y=10.13 Plim=0.0 Kg  Sbalzo del palo 0.00 m
pali alla base x=25.31 Y=10.13 Plim=0.0 Kg  Sbalzo del palo 0.00 m

**CARICO LIMITE PALI**

**Superficie Nr...2 Fattore di sicurezza=1.38**

pali alla base x=23.31 Y=10.13 Plim=5056.0 Kg  Sbalzo del palo 0.51 m
pali alla base x=25.31 Y=10.13 Plim=5056.0 Kg  Sbalzo del palo 0.51 m

**CARICO LIMITE PALI**

**Superficie Nr...3 Fattore di sicurezza=1.46**

pali alla base x=23.31 Y=10.13 Plim=0.0 Kg  Sbalzo del palo 0.00 m
pali alla base x=25.31 Y=10.13 Plim=0.0 Kg  Sbalzo del palo 0.00 m