



Regione Autonoma della Sardegna

Assessorato dei Lavori Pubblici
Servizio del Genio Civile di Nuoro



Rio Sologo

**Interventi di manutenzione straordinaria
di ripristino opere di protezione spondale**

PROGETTO ESECUTIVO



Elaborato F

COMPUTO MOVIMENTI DI MATERIA

L'Ufficio Tecnico consortile
dott. ing. Sebastiano Bussalai



Collaboratori
geom. Katuscia Musu
geom. Arcangelo Pira

Settembre 2016

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
1	-	-	-	-	-
2	-	-	-	-	-
2	-	-	2,730	-	-
3	-	-	-	-	-
3	-	4,986	17,270	86,108	86,108
4	9,972	-	-	-	-
4	9,972	10,850	6,376	69,180	155,288
5	11,728	-	-	-	-
5	11,728	9,112	4,020	36,630	191,918
6	6,496	-	-	-	-
6	6,496	8,432	3,040	25,633	217,551
7	10,368	-	-	-	-
7	10,368	5,620	6,560	36,867	254,419
8	0,872	-	-	-	-
8	0,872	1,151	20,000	23,020	277,439
9	1,430	-	-	-	-
9	1,430	0,997	20,000	19,930	297,369
10	0,563	-	-	-	-
10	0,563	1,425	20,000	28,490	325,859
11	2,286	-	-	-	-
11	2,286	1,804	20,000	36,070	361,929
12	1,321	-	-	-	-
12	1,321	1,321	5,780	7,635	369,564
12a	1,321	-	-	-	-
12a	12,870	12,870	14,220	183,011	552,575
13	12,870	-	-	-	-
13	12,870	10,940	20,000	218,800	771,375
14	9,010	-	-	-	-
14	9,010	17,340	20,000	346,800	1.118,175
15	25,670	-	-	-	-
15	25,670	23,845	20,000	476,900	1.595,075
16	22,020	-	-	-	-

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
16	22,020	14,105	20,000	282,100	1.877,175
17	6,190				
17	6,190	5,072	20,000	101,440	1.978,615
18	3,954				
18	3,954	1,977	20,000	39,540	2.018,155
19	-				
19	-	-	11,140	-	2.018,155
20	-				
20	-	0,246	8,860	2,175	2.020,330
21	0,491				
21	0,491	0,246	4,520	1,110	2.021,440
22	-				
22	-	0,024	15,480	0,372	2.021,812
23	0,048				
23	0,048	0,024	10,760	0,258	2.022,070
24	-				
24	-	-	9,240	-	2.022,070
25	-				
25	-	-	14,550	-	2.022,070
26	-				
26	-	0,334	5,450	1,820	2.023,890
27	0,668				
27	0,668	0,692	20,000	13,830	2.037,720
28	0,715				
28	0,715	1,260	20,000	25,200	2.062,920
29	1,805				
29	1,805	5,323	20,000	106,460	2.169,380
30	8,841				
30	8,841	6,951	9,080	63,115	2.232,495
31	5,061				
31	5,061	5,021	2,730	13,706	2.246,201
32	4,980				

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
32	4,980	5,191	8,190	42,514	2.288,716
33	5,402	6,912	20,000	138,230	2.426,946
33	5,402	7,922	20,000	158,430	2.585,376
34	8,421	10,103	14,640	147,908	2.733,283
34	8,421	14,525	5,360	77,851	2.811,135
35	7,422	19,624	6,630	130,104	2.941,239
35	7,422	26,316	13,370	351,845	3.293,083
36	12,784	29,650	15,620	535,032	3.828,115
36	12,784	34,253	4,380	168,571	3.996,686
37	16,265	38,487	20,000	752,330	4.749,016
37	16,265	37,617	20,000	726,260	5.475,276
38	22,982	36,313	20,000	579,800	6.055,076
38	22,982	28,990	20,000	393,920	6.448,996
39	29,650	19,696	20,000	568,250	7.017,246
39	29,650	28,413	20,000	400,582	7.417,828
40	38,856	40,834	9,810	13,352	7.431,180
40	38,856	41,725	0,320		
41	38,117	41,725			
41	38,117	41,725			
42	37,116	41,725			
42	37,116	41,725			
43	37,116	41,725			
43	37,116	41,725			
44	35,510	41,725			
44	35,510	41,725			
45	35,510	41,725			
45	35,510	41,725			
46	22,470	41,725			
46	22,470	41,725			
47	22,470	41,725			
47	22,470	41,725			
48	16,922	41,725			
48	16,922	41,725			

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
48	41,684	36,948	9,870	364,672	7.795,851
49	32,211				
49	32,211	29,127	4,110	119,712	7.915,563
50	26,043				
50	26,043	24,843	2,600	64,591	7.980,154
51	23,642				
51	23,642	25,878	4,830	124,988	8.105,142
52	28,113				
52	28,113	28,113	1,940	54,539	8.159,681
52a	28,113				
52a	31,579	31,579	6,520	205,895	8.365,577
53	31,579				
53	31,579	34,068	20,000	681,350	9.046,927
54	36,556				
54	36,556	33,199	20,000	663,970	9.710,897
55	29,841				
55	29,841	34,012	20,000	680,230	10.391,127
56	38,182				
56	38,182	37,031	20,000	740,620	11.131,747
57	35,880				
57	35,880	34,099	20,000	681,980	11.813,727
58	32,318				
58	32,318	35,545	20,000	710,890	12.524,617
59	38,771				
59	38,771	48,273	20,000	965,450	13.490,067
60	57,774				
60	57,774	54,471	20,000	1.089,420	14.579,487
61	51,168				
61	51,168	53,243	20,000	1.064,860	15.644,347
62	55,318				
62	55,318	57,192	20,000	1.143,830	16.788,177
63	59,065				

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
63	59,065	64,034	20,000	1.280,680	18.068,857
64	69,003	70,963	20,000	1.419,250	19.488,107
65	72,922	74,418	7,060	525,388	20.013,494
66	75,913	68,805	7,060	485,760	20.499,254
67	61,696	64,120	5,880	377,023	20.876,276
68	66,543	66,723	20,000	1.334,450	22.210,726
69	66,902	64,730	10,130	655,715	22.866,441
70	62,558	66,828	9,870	659,587	23.526,029
71	71,097	70,078	3,480	243,870	23.769,899
72	69,058	62,719	16,520	1.036,118	24.806,016
73	56,380	54,291	4,680	254,082	25.060,098
74	52,202	45,458	9,240	420,032	25.480,130
75	38,714	40,050	6,080	243,504	25.723,634
76	41,386	39,688	9,580	380,211	26.103,845
77	37,990	35,449	10,420	369,373	26.473,219
78	32,907	31,428	20,000	628,550	27.101,769
79	29,948				

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
79	29,948	32,820	20,000	656,400	27.758,169
80	35,692				
80	35,692	31,331	20,000	626,620	28.384,789
81	26,970				
81	26,970	26,818	20,000	536,360	28.921,149
82	26,666				
82	26,666	34,307	20,000	686,140	29.607,289
83	41,948				
83	41,948	47,159	20,000	943,170	30.550,459
84	52,369				
84	52,369	46,594	20,000	931,880	31.482,339
85	40,819				
85	40,819	37,467	20,000	749,330	32.231,669
86	34,114				
86	34,114	39,796	20,000	795,920	33.027,589
87	45,478				
87	45,478	44,603	10,640	474,576	33.502,165
88	43,728				
88	43,728	46,247	9,360	432,872	33.935,036
89	48,766				
89	48,766	48,766	18,210	888,029	34.823,065
89a	48,766				
89a	48,593	48,593	1,790	86,981	34.910,047
90	48,593				
90	48,593	47,769	20,000	955,380	35.865,427
91	46,945				
91	46,945	43,753	20,000	875,060	36.740,487
92	40,561				
92	40,561	40,975	20,000	819,500	37.559,987
93	41,389				
93	41,389	40,080	20,000	801,590	38.361,577
94	38,770				

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
94	38,770	35,439	20,000	708,770	39.070,347
95	32,107	30,334	20,000	606,680	39.677,027
95	32,107	27,764	20,000	555,280	40.232,307
96	28,561	27,364	20,000	547,270	40.779,577
96	28,561	27,521	6,070	167,052	40.946,629
97	26,967	33,081	13,930	460,818	41.407,448
97	26,967	34,514	20,000	690,270	42.097,718
97	26,967	29,831	20,000	596,620	42.694,338
98	27,760	27,315	20,000	546,300	43.240,638
98	27,760	25,437	20,000	508,740	43.749,378
98	27,760	25,759	24,081	481,620	44.230,998
99	27,282	22,403	20,000	442,890	44.673,888
99	27,282	21,886	20,466	409,310	45.083,198
100	38,880	19,045	20,000	317,880	45.401,078
100	38,880	15,894	20,000	317,880	45.401,078
101	30,147	12,743	20,000	190,590	45.591,668
101	30,147	9,530	20,000	190,590	45.591,668
102	30,147	6,316	20,000	153,440	45.745,108
102	30,147	6,316	20,000	153,440	45.745,108
103	29,515	9,028			
103	29,515				
104	29,515				
105	25,115				
105	25,115				
106	25,115				
107	25,115				
108	25,115				
109	25,115				
110	25,115				

CALCOLO VOLUMI - Scavi					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
110	9,028	10,736	20,000	214,720	45.959,828
111	12,444	12,665	20,000	253,290	46.213,118
112	12,885	12,603	20,000	252,050	46.465,168
113	12,320	10,354	20,000	207,080	46.672,248
114	8,388	4,194	7,810	32,755	46.705,003
115	-				

TOTALE m	1.707,81	TOTALE mc	46.705,00
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CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
1	88,596	88,596	-	-	-
2	88,596	88,596	-	-	-
2	88,596	86,592	2,730	236,395	236,395
3	84,587	84,587	-	-	-
3	84,587	61,583	17,270	1.063,538	1.299,933
4	38,579	38,579	-	-	-
4	38,579	29,698	6,376	189,351	1.489,284
5	20,816	20,816	-	-	-
5	20,816	15,758	4,020	63,347	1.552,632
6	10,700	10,700	-	-	-
6	10,700	10,018	3,040	30,455	1.583,086
7	9,336	9,336	-	-	-
7	9,336	19,052	6,560	124,978	1.708,064
8	28,767	28,767	-	-	-
8	28,767	29,506	20,000	590,120	2.298,184
9	30,245	30,245	-	-	-
9	30,245	34,733	20,000	694,660	2.992,844
10	39,221	39,221	-	-	-
10	39,221	48,411	20,000	968,210	3.961,054
11	57,600	57,600	-	-	-
11	57,600	62,836	20,000	1.256,710	5.217,764
12	68,071	68,071	-	-	-
12	68,071	68,071	5,780	393,450	5.611,215
12a	68,071	68,071	-	-	-
12a	21,180	21,180	14,220	301,180	5.912,394
13	21,180	21,180	-	-	-
13	21,180	24,010	20,000	480,200	6.392,594
14	26,840	26,840	-	-	-
14	26,840	16,680	20,000	333,600	6.726,194
15	6,520	6,520	-	-	-
15	6,520	10,610	20,000	212,200	6.938,394
16	14,700	14,700	-	-	-

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
16	14,700	18,360	20,000	367,200	7.305,594
17	22,020	22,020	20,000	440,400	7.745,994
17	22,020	22,020	20,000	440,400	7.745,994
18	22,020	22,020	20,000	440,400	7.745,994
18	22,020	31,013	20,000	620,260	8.366,254
19	40,006	40,006	11,140	485,960	8.852,214
19	40,006	43,623	11,140	485,960	8.852,214
20	47,240	47,240	8,860	514,965	9.367,180
20	47,240	58,123	8,860	514,965	9.367,180
21	69,005	69,005	4,520	307,866	9.675,046
21	69,005	68,112	4,520	307,866	9.675,046
22	67,219	67,219	15,480	1.079,173	10.754,219
22	67,219	69,714	15,480	1.079,173	10.754,219
23	72,209	72,209	10,760	815,979	11.570,198
23	72,209	75,835	10,760	815,979	11.570,198
24	79,460	79,460	9,240	734,039	12.304,237
24	79,460	79,442	9,240	734,039	12.304,237
25	79,423	79,423	14,550	1.120,714	13.424,951
25	79,423	77,025	14,550	1.120,714	13.424,951
26	74,627	74,627	5,450	397,332	13.822,283
26	74,627	72,905	5,450	397,332	13.822,283
27	71,183	71,183	20,000	1.399,460	15.221,743
27	71,183	69,973	20,000	1.399,460	15.221,743
28	68,763	68,763	20,000	1.277,300	16.499,043
28	68,763	63,865	20,000	1.277,300	16.499,043
29	58,967	58,967	20,000	1.021,420	17.520,463
29	58,967	51,071	20,000	1.021,420	17.520,463
30	43,175	43,175	9,080	404,687	17.925,150
30	43,175	44,569	9,080	404,687	17.925,150
31	45,963	45,963	2,730	121,167	18.046,317
31	45,963	44,384	2,730	121,167	18.046,317
32	42,804	42,804			

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
32	42,804	42,694	8,190	349,660	18.395,977
33	42,583				
33	42,583	40,472	20,000	809,440	19.205,417
34	38,361				
34	38,361	36,206	20,000	724,120	19.929,537
35	34,051				
35	34,051	33,773	14,640	494,437	20.423,973
36	33,495				
36	33,495	37,052	5,360	198,599	20.622,572
37	40,609				
37	40,609	47,628	6,630	315,770	20.938,342
38	54,646				
38	54,646	70,211	13,370	938,721	21.877,063
39	85,776				
39	85,776	110,485	15,620	1.725,776	23.602,839
40	135,194				
40	135,194	139,279	4,380	610,040	24.212,879
41	143,363				
41	143,363	141,983	20,000	2.839,660	27.052,539
42	140,603				
42	140,603	135,890	20,000	2.717,800	29.770,339
43	131,177				
43	131,177	130,275	20,000	2.605,500	32.375,839
44	129,373				
44	129,373	130,945	20,000	2.618,900	34.994,739
45	132,517				
45	132,517	121,719	20,000	2.434,380	37.429,119
46	110,921				
46	110,921	112,447	9,810	1.103,100	38.532,219
47	113,972				
47	113,972	114,220	0,320	36,550	38.568,770
48	114,468				

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
48	114,468	111,768	9,870	1.103,145	39.671,915
49	109,067	106,128	4,110	436,184	40.108,099
49	109,067	106,128	4,110	436,184	40.108,099
50	103,188	105,445	2,600	274,156	40.382,254
50	103,188	105,445	2,600	274,156	40.382,254
51	107,701	104,643	4,830	505,426	40.887,680
51	107,701	104,643	4,830	505,426	40.887,680
52	101,585	101,585	1,940	197,075	41.084,755
52	101,585	101,585	1,940	197,075	41.084,755
52a	101,585	101,585	1,940	197,075	41.084,755
52a	92,933	92,933	6,520	605,923	41.690,678
53	92,933	92,933	6,520	605,923	41.690,678
53	92,933	92,520	20,000	1.850,390	43.541,068
54	92,106	92,520	20,000	1.850,390	43.541,068
54	92,106	92,033	20,000	1.840,660	45.381,728
55	91,960	92,033	20,000	1.840,660	45.381,728
55	91,960	85,122	20,000	1.702,430	47.084,158
56	78,283	85,122	20,000	1.702,430	47.084,158
56	78,283	76,028	20,000	1.520,560	48.604,718
57	73,773	76,028	20,000	1.520,560	48.604,718
57	73,773	69,792	20,000	1.395,830	50.000,548
58	65,810	69,792	20,000	1.395,830	50.000,548
58	65,810	58,682	20,000	1.173,630	51.174,178
59	51,553	58,682	20,000	1.173,630	51.174,178
59	51,553	41,034	20,000	820,670	51.994,848
60	30,514	41,034	20,000	820,670	51.994,848
60	30,514	26,543	20,000	530,850	52.525,698
61	22,571	26,543	20,000	530,850	52.525,698
61	22,571	21,543	20,000	430,850	52.956,548
62	20,514	21,543	20,000	430,850	52.956,548
62	20,514	19,771	20,000	395,420	53.351,968
63	19,028	19,771	20,000	395,420	53.351,968

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
63	19,028	26,868	20,000	537,350	53.889,318
64	34,707	49,768	20,000	995,350	54.884,668
65	64,828	71,398	7,060	504,070	55.388,738
66	77,968	82,043	7,060	579,224	55.967,962
67	86,118	83,395	5,880	490,363	56.458,324
68	80,672	78,791	20,000	1.575,820	58.034,144
69	76,910	76,762	10,130	777,599	58.811,743
70	76,614	77,180	9,870	761,767	59.573,510
71	77,746	73,991	3,480	257,489	59.830,999
72	70,236	48,111	16,520	794,785	60.625,784
73	25,985	25,365	4,680	118,706	60.744,490
74	24,744	25,901	9,240	239,325	60.983,815
75	27,058	27,863	6,080	169,404	61.153,219
76	28,667	22,962	9,580	219,971	61.373,190
77	17,256	13,546	10,420	141,149	61.514,340
78	9,836	6,216	20,000	124,310	61.638,650
79	2,595				

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
79	2,595				
		2,176	20,000	43,520	61.682,170
80	1,757				
		2,938	20,000	58,760	61.740,930
81	4,119				
		5,041	20,000	100,810	61.841,740
82	5,962				
		8,109	20,000	162,170	62.003,910
83	10,255				
		9,461	20,000	189,210	62.193,120
84	8,666				
		19,692	20,000	393,830	62.586,950
85	30,717				
		25,797	20,000	515,930	63.102,880
86	20,876				
		12,520	20,000	250,400	63.353,280
87	4,164				
		2,214	10,640	23,552	63.376,831
88	0,263				
		0,132	9,360	1,231	63.378,062
89	-				
		-	18,210	-	63.378,062
89a	-				
		-	1,790	-	63.378,062
90	-				
		-	20,000	-	63.378,062
91	-				
		-	20,000	-	63.378,062
92	-				
		-	20,000	-	63.378,062
93	-				
		-	20,000	-	63.378,062
94	-				

CALCOLO VOLUMI - Rilevati					
Sezione	Area [mq]	Area media [mq]	Dist. Parz. [m]	VOLUMI	
				Parziale	Totale
				[mc]	[mc]
94	-	0,656	20,000	13,110	63.391,172
95	1,311				
95	1,311	0,900	20,000	18,000	63.409,172
96	0,489				
96	0,489	0,684	20,000	13,670	63.422,842
97	0,878				
97	0,878	1,286	20,000	25,720	63.448,562
98	1,694				
98	1,694	1,827	6,070	11,087	63.459,649
99	1,959				
99	1,959	2,056	13,930	28,633	63.488,282
100	2,152				
100	2,152	3,344	20,000	66,870	63.555,152
101	4,535				
101	4,535	5,131	20,000	102,610	63.657,762
102	5,726				
102	5,726	21,443	20,000	428,860	64.086,622
103	37,160				
103	37,160	37,119	20,000	742,380	64.829,002
104	37,078				
104	37,078	34,705	20,000	694,090	65.523,092
105	32,331				
105	32,331	24,725	20,000	494,500	66.017,592
106	17,119				
106	17,119	14,185	20,000	283,690	66.301,282
107	11,250				
107	11,250	11,677	20,000	233,540	66.534,822
108	12,104				
108	12,104	10,220	20,000	204,400	66.739,222
109	8,336				
109	8,336	7,220	20,000	144,400	66.883,622
110	6,104				

CALCOLO VOLUMI - Rilevati					
Sezione	Area	Area media	Dist. Parz.	VOLUMI	
				Parziale	Totale
				[mq]	[mq]
110	6,104	4,717	20,000	94,330	66.977,952
111	3,329	3,687	20,000	73,740	67.051,692
111	3,329	3,687	20,000	73,740	67.051,692
112	4,045	3,593	20,000	71,860	67.123,552
112	4,045	3,593	20,000	71,860	67.123,552
113	3,141	2,220	20,000	44,400	67.167,952
113	3,141	2,220	20,000	44,400	67.167,952
114	1,299	0,650	7,810	5,073	67.173,025
114	1,299	0,650	7,810	5,073	67.173,025
115	-				

TOTALE m	1.707,81	TOTALE mc	67.173,02
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