

ABSTRACT OF VOLUME FOR CONSTRUCTION OF HUME PIPE CULVERT

Side slope (%)	Hume pipe dia.	No. of culvert	Foundation excavation (m ³)		DRM vol. (m ³)	Fill volume		H/pipe Length	Remarks
			Soil	Rock		Soil	Stone		
30	60	5.00	73.46	0.00	31.15	9.24	6.92	31.25	-
40	60	3.00	41.77	0.00	19.67	5.54	4.09	18.75	-
60	60	5.00	52.25	34.83	39.63	9.32	4.22	31.25	-
Total		13	167.48	34.83	90.44	24.09	15.22	81.25	



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VOLUME CALCULATION FOR 60CM DIA. HUMEPIPE CULVERT AT 30% SIDE SLOPE

Soil	100.00%	73.46	m ³
Rock	0.00%	0.00	m ³

1) Foundation excavation

	L(m)	W(m)	H(m)	F	Nos.	Vol (m ³)	No. of culverts	Total vol. (m ³)
a) DRM wall	3.00	2.22	1.23	0.50	1	4.10		
b) Apron	1.25	1.25	0.17	0.50	1	0.13		
	1.25	0.40	0.30		1	0.15		
c) Catchpit	1.50	1.31	0.29	0.50	1	0.28		
	1.50	1.00	1.38		1	2.07		
	1.50	1.50	1.50		1	3.38		
d) Hume pipe trenches	5.15	0.69	(1.38 + 1.20)	0.50	1	4.58		
	Total					14.69	5.00	73.46

2) Dry Rubble Masonry

a) Retaining wall

	3.00	(0.95+ 0.50)	1.80	0.50	1	3.92		
	3.00	0.95	0.24	0.50	1	0.34		
b) Apron	1.25	0.68	0.25		1	0.21		
	0.68	0.25	0.25		2	0.09		
c) Catchpit	1.50	1.50	0.25		1	0.56		
	1.50	1.25	0.25		2	0.94		
	1.25	1.00	0.25		2	0.63		
	Sub-total (i)					6.68		

d) (-) Vol. occupied by H/pipe

	L(m)	R(m)	H(m)	F	Nos.	Vol (m ³)		
	(0.85 + 0.68)/2	(0.35 x 0.35)		3.14	1	0.29		
	0.25	(0.35 x 0.35)		3.14	1	0.10		
	0.40	0.25	0.30		2	0.06		
	Sub-total (ii)					0.45		
	Total = Sub-total {(i) - (ii)}					6.23	5.00	31.15

3) Filling

a) Soil/boulder

	L(m)	W(m)	H(m)	F	Nos.	Vol (m ³)		
	4.50	0.69	(0.68 + 0.51)	0.50	1	1.85	5.00	9.24

b) Stone filling

	3.00	0.65	0.68		1	1.33		
	1.25	0.62	0.15	0.50	1	0.06		
	Total					1.38	5.00	6.92

4) Nos. of Hume pipe per culvert (Length of 1 pipe = 2.50m)

L (m)	No. of pipe	No. of culverts	Total L (m)
2.50	2.50	5.00	31.25

VOLUME CALCULATION FOR 60CM DIA. HUMEPIPE CULVERT AT 40% SIDE SLOPE

Soil	100.00%	41.77	m ³
Rock	0.00%	0.00	m ³

1) Foundation excavation

	L(m)	W(m)	H(m)	F	Nos.	Vol (m ³)	No. of culverts	Total vol. (m ³)
a) DRM wall	3.00	1.51	0.98	0.50	1	2.22		
b) Apron	1.25	0.55	0.09	0.50	1	0.03		
	1.25	0.27	0.11	0.50	1	0.02		
	1.25	0.55	0.11		1	0.08		
	1.25	0.82	0.25		1	0.26		
c) Catchpit	1.50	1.47	0.37	0.50	1	0.41		

1.50	1.00	1.97		1	2.96		
1.50	1.50	1.50		1	3.38		
5.15	0.69	(1.38 + 1.20)	0.50	1	4.58		
Total					13.92	3.00	41.77

d) Hume pipe trenches

2) Dry Rubble Masonry

a) Retaining wall

3.00	(0.95+ 0.50)	1.80	0.50	1	3.92		
3.00	0.95	0.24	0.50	1	0.34		
1.25	0.82	0.25		1	0.26		
1.25	0.57	0.25		1	0.18		
1.25	0.25	0.15		1	0.05		
0.57	0.25	0.25		4	0.14		
1.50	1.50	0.25		1	0.56		
1.50	1.25	0.25		2	0.94		
1.25	1.00	0.25		2	0.63		
Sub-total (i)					7.01		

b) Apron

c) Catchpit

d) (-) Vol. occupied by H/pipe

L(m)	R(m)	H(m)	F	Nos.			
(0.85 + 0.68)/2	(0.35 x 0.35)		3.14	1	0.29		
0.25	(0.35 x 0.35)		3.14	1	0.10		
0.40	0.25	0.30		2	0.06		
Sub-total (ii)					0.45		
Total = Sub-total {(i) - (ii)}					6.56	3.00	19.67

3) Filling

a) Soil/boulder

L(m)	W(m)	H(m)	F	Nos.			
4.50	0.69	(0.68 + 0.51)	0.50	1	1.85	3.00	5.54

b) Stone

3.00	0.68	0.65		1	1.33		
1.25	0.24	0.12		1	0.04		
Total					1.36	3.00	4.09

4) Nos. of Hume pipe per culvert (Length of 1 pipe = 2.50m)

L(m)	No. of pipe	No. of culverts	Total L (m)
2.50	2.50	3.00	18.75

VOLUME CALCULATION FOR 60CM DIA. HUMEPIPE CULVERT AT 60% SIDE SLOPE

Soil	60.00%	52.25	m ³
Rock	40.00%	34.83	m ³

Sl.No	Particular	L (m)	B (m)	H (m)	Factor/Sides	Nos of culvt	Quantity	
							m	m3
1. Foundation Excavation								
	DRM wall	1.35	1.15	3.00	0.50	5		11.64
	Apron	0.21	0.04	1.25	0.50	5		0.03
		0.17	0.10	1.25	0.50	5		0.05
		0.21	0.10	1.25		5		0.03
		1.25	0.42	0.25	0.50	5		0.07
		1.25	0.38	0.25		5		0.12
	catch pit	1.50	1.94	0.52	0.50	5		3.78
		1.50	1.00	4.21		5		31.58
		1.50	1.50	1.50		5		16.88
	Hume pipe trench	5.15	0.69	1.29		5		22.92
Total								87.09

2. Dry Rubble Masonry vol.

Retaining wall	3.00	0.78	2.17		5		25.39
	3	1.05	0.26	0.50	5		2.05
Apron	1.25	0.80	0.25		5		1.25

	1.25	0.55	0.25		5		0.86
	1.25	0.25	0.15		5		0.23
	0.55	0.25	0.25	4.00	5		0.69
Catch pit	1.50	1.50	0.25		5		2.81
	1.50	1.25	0.25	2.00	5		4.69
	1.25	1.00	0.25	2.00	5		3.13
Total							41.09
Less vol occupied by H/pipe							
	0.77	3.14	0.27	0.27	5		0.88
	3.14	0.27	0.27	0.25	5		0.29
	0.40	0.30	0.25	2.00	5		0.30
Sub total							1.47
G Total							39.63
3. Filling							
Soil/Boulder	4.50	0.69	0.60		5		9.32
G Total							9.32
Stone filling	3.00	0.40	0.68		5		4.08
	3.00	0.13	0.07		5		0.14
Total							4.22

4) Nos. of Hume pipe per culvert (Length of 1 pipe = 2.50m)

L(m)	No. of pipe	No. of culverts	Tota L (m)
2.50	2.50	5.00	31.25



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