

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	1.00	14.69	0.00	6.23	1.85	1.38	6.25	-
40	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
60	60	1.00	17.59	0.00	7.93	1.86	0.84	6.25	-
Total		2	32.28	0.00	14.15	3.71	2.23	12.50	



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

Soil	100.00%	14.69	m³
Rock	0.00%	0.00	m³

1) Foundation excavation

	L(m)	W(m)	H(m)	F	Nos.	Vol (m³)	No. of culverts	Total vol. (m³)
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	1.00	14.69

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.			
(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	1.00	6.23

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	1.00	1.85

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	1.00	1.38

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	1.00	6.25

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

Soil	100.00%	0.00	m³
Rock	0.00%	0.00	m³

1) Foundation excavation

	L(m)	W(m)	H(m)	F	Nos.	Vol (m³)	No. of culverts	Total vol. (m³)
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	2.96		

d) Hume pipe trenches	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	0.00	0.00

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	0.82	0.25		1	0.26		
	1.25	0.57	0.25		1	0.18		
	1.25	0.25	0.15		1	0.05		
c) Catchpit	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		

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	0.00	0.00

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	0.00	0.00

b) Stone

3.00	0.68	0.65		1	1.33		
1.25	0.24	0.12		1	0.04		
			Total		1.36	0.00	0.00

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	0.00	0.00

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

Soil	100.00%	17.59	m³
Rock	0.00%	0.00	m³

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	1		2.33
	Apron	0.21	0.04	1.25	0.50	1		0.01
		0.17	0.10	1.25	0.50	1		0.01
		0.21	0.10	1.25		1		0.03
		1.25	0.42	0.25	0.50	1		0.07
		1.25	0.38	0.25		1		0.12
	catch pit	1.50	1.94	0.52	0.50	1		0.76
		1.50	1.00	4.21		1		6.32
		1.50	1.50	1.50		1		3.38
	Hume pipe trench	5.15	0.69	1.29		1		4.58
Total								17.59

2. Dry Rubble Masonry vol.

Retaining wall	3.00	0.78	2.17		1		5.08
	3	1.05	0.26	0.50	1		0.41
Apron	1.25	0.80	0.25		1		0.25
	1.25	0.55	0.25		1		0.17
	1.25	0.25			1		0.05

	0.55	0.25	0.25	4.00	1		0.14
Catch pit	1.50	1.50	0.25		1		0.56
	1.50	1.25	0.25	2.00	1		0.94
	1.25	1.00	0.25	2.00	1		0.63
Total							8.22
Less vol occuyptied by H/pipe							
	0.77	3.14	0.27	0.27	1		0.18
	3.14	0.27	0.27	0.25	1		0.06
	0.40	0.30	0.25	2.00	1		0.06
Sub total							0.29
G Total							7.93
3. Filling							
Soil/Boulder	4.50	0.69	0.60		1		1.86
G Total							1.86
Stone filling	3.00	0.40	0.68		1		0.82
	3.00	0.13	0.07		1		0.03
Total							0.84

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	1.00	6.25



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