Storm drains in Kalwa

Details of existing c/s

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
Nalla 2																		
1	370	0.65	6.22	5.25	0.97	0.30	0.44	1.99	0.22	-59	Masonry	Masonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed
2	360	1.36	6.04	5.42	0.62	0.20	0.57	2.20	0.26	41	Masonry	Masonry	Masonry	0.035	1.83	1.04	Collapsed	Collapsed
3	330	1.83	5.83	4.69	1.14	0.40	1.35	3.31	0.41	158	Masonry	Masonry	Masonry	0.035	1.26	1.70	Collapsed	Collapsed
4	300	2.08	5.74	4.50	1.24	0.40	1.75	3.76	0.46	61	Masonry	Masonry	Masonry	0.035	2.20	3.83	Collapsed	Collapsed
5	270	1.91	5.09	4.01	1.08	0.40	1.30	3.27	0.40	61	Masonry	Masonry	Masonry	0.035	1.99	2.56	Collapsed	Collapsed
6	240	2.08	4.75	3.52	1.23	0.40	1.73	3.74	0.46	61	Masonry	Masonry	Masonry	0.035	2.19	3.77	Collapsed	Collapsed
7	210	0.97	3.38	3.03	0.35	0.10	0.24	1.47	0.16	61	Masonry	Masonry	Masonry	0.035	1.11	0.27	Collapsed	Collapsed
8	180	2.18	3.78	2.54	1.24	0.40	1.83	3.86	0.47	61	Masonry	Masonry	Masonry	0.035	2.23	4.07	Collapsed	Collapsed
9	150	3.11	3.45	2.05	1.40	0.50	2.80	4.91	0.57	55	Masonry	Masonry	Masonry	0.035	2.67	7.44	Collapsed	Collapsed
10	120	2.42	3.76	1.50	2.26	0.60	4.02	5.74	0.70	429	Masonry	Masonry	Masonry	0.020	1.91	7.65	Collapsed	Collapsed
11	90	3.41	3.63	1.43	2.20	0.60	5.46	6.61	0.83	158	Masonry	Masonry	Masonry	0.035	2.00	10.92	Collapsed	Collapsed
12	60	2.95	3.37	1.24	2.13	0.60	4.51	6.01	0.75	600	Masonry	Masonry	Masonry	0.020	1.69	7.61	Collapsed	Collapsed
13	30	2.65	3.31	1.19	2.12	0.60	4.03	5.69	0.71	600	Masonry	Masonry	Masonry	0.020	1.63	6.53	Collapsed	Collapsed
14	0	2.36	3.15	1.14	2.01	0.60	3.33	5.18	0.64	#DIV/0!	Masonry	Masonry	Masonry	0.020	#DIV/0!	#DIV/0!	Collapsed	Collapsed
15					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
16					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
17					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
18					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
19					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
20					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
21					0.00	0.00	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
Nalla No. 3\																		
1	280	1.36	4.62	3.44	1.18	0.40	1.06	2.92	0.36	56	Masonry	Masonry	Masonry	0.020	3.44	3.62	Collapsed	Collapsed
2	260	1.21	4.10	3.08	1.02	0.30	0.87	2.65	0.33	400	Masonry	Masonry	Masonry	0.020	1.20	1.04	Collapsed	Collapsed
3	240	1.05	3.59	3.03	0.56	0.20	0.38	1.77	0.21	182	Masonry	Masonry	Masonry	0.035	0.76	0.29	Collapsed	Collapsed
4	220	1.07	3.77	2.92	0.85	0.30	0.59	2.17	0.27	182	Masonry	Masonry	Masonry	0.020	1.57	0.91	Collapsed	Collapsed
5	200	1.10	3.78	2.81	0.97	0.30	0.74	2.44	0.30	333	Masonry	Masonry	Masonry	0.020	1.24	0.91	Collapsed	Collapsed
6	180	0.88	3.15	2.75	0.40	0.10	0.26	1.48	0.18	105	Masonry	Masonry	Masonry	0.035	0.89	0.23	Collapsed	Collapsed
7	160	0.93	2.97	2.56	0.41	0.10	0.29	1.55	0.19	667	Masonry	Masonry	Masonry	0.035	0.36	0.10	Collapsed	Collapsed
8	140	1.04	2.79	2.53	0.26	0.10	0.17	1.36	0.12	42	Masonry	Masonry	Masonry	0.035	1.11	0.18	Collapsed	Collapsed
9	120	1.92	3.74	2.05	1.69	0.60	2.09	4.10	0.51	-95	Masonry	Masonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed
10	100	2.25	3.43	2.26	1.17	0.40	1.73	3.79	0.46	182	Masonry	Masonry	Masonry	0.035	1.26	2.18	Collapsed	Collapsed
11	80	2.04	3.50	2.15	1.35	0.50	1.73	3.74	0.46	118	Masonry	Masonry	Masonry	0.035	1.59	2.74	Collapsed	Collapsed
12	60	1.91	3.22	1.98	1.24	0.40	1.60	3.59	0.45	400	Masonry	Masonry	Masonry	0.035	0.84	1.34	Collapsed	Collapsed
13	40	2.01	3.24	1.93	1.31	0.40	1.83	3.83	0.48	61	Masonry	Masonry	Masonry	0.035	2.25	4.10	Collapsed	Collapsed
14	20	2.00	2.23	1.60	0.63	0.20	0.86	2.86	0.30	18	Masonry	Masonry	Masonry	0.035	3.02	2.57	Collapsed	Collapsed
15	0	3.87	1.85	0.51	1.34	0.40	3.64	5.75	0.63	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
Nalla No. 4																		

Details of Proposed C/S

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1 (H in (m))	Min H2 (H in (m))	H (H in (m))	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
Nalla 2		400	15																										
1	3.90	0.13	15.00	5.25	9.75	6.77	118.65	0.50	0.514	0.66	0.64	-0.02	-2.72	#NUM!	0.9	6.220	4.800		C-Type	C-Type	RCC	0.50	0.83	2.74	0.30	0.018	150	1.69	Adequate
2	4.20	0.14	15.00	5.42	9.58	6.99	117.66	0.50	0.514	0.71	0.69	-0.02	-2.72	Adequate	0.9	6.153	4.733		C-Type	C-Type	RCC	0.50	0.83	2.74	0.30	0.018	50	2.93	Adequate
3	5.10	0.17	15.00	4.69	10.31	7.52	115.38	0.50	0.517	0.85	0.82	-0.03	-3.29	Adequate	0.9	5.553	4.133		C-Type	C-Type	RCC	0.50	0.83	2.74	0.30	0.018	350	1.11	Adequate
4	6.00	0.20	15.00	4.50	10.50	8.11	113.02	0.50	0.519	0.98	0.94	-0.04	-3.66	Adequate	1.3	5.468	4.048		C-Type	C-Type	RCC	0.50	1.20	3.14	0.38	0.018	175	2.64	Adequate
5	6.90	0.23	15.00	4.01	10.99	8.67	110.96	0.50	0.519	1.10	1.06	-0.04	-3.66	Adequate	1.3	5.296	3.876		C-Type	C-Type	RCC	0.50	1.20	3.14	0.38	0.018	70	4.17	Adequate
6	7.80	0.26	15.00	3.52	11.48	9.22	109.04	0.50	0.522	1.23	1.18	-0.05	-4.21	Adequate	1.3	4.868	3.448		C-Type	C-Type	RCC	0.50	1.20	3.14	0.38	0.018	65	4.33	Adequate
7	8.70	0.29	15.00	3.03	11.97	9.76	107.25	0.50	0.522	1.35	1.30	-0.06	-4.21	Inadequate	1.3	3.380	2.986	0.35	C-Type	C-Type	RCC	0.10	0.84	2.59	0.32	0.018	25	4.38	Adequate
8	9.60	0.32	15.00	2.54	12.46	10.30	105.57	#REF!	0.525	1.48	#REF!	#REF!	#REF!	#REF!	1.3	3.780	1.436		C-Type	C-Type	RCC	0.60	2.27	4.79	0.47	0.018	37	12.58	Adequate
9	10.50	0.35	15.00	2.05	12.95	10.84	104.00	#REF!	0.525	1.59	#REF!	#REF!	#REF!	#REF!	3.5	2.770	0.625		C-Type	C-Type	RCC	0.60	5.41	6.59	0.82	0.018	100	26.32	Adequate
10	11.40	0.38	15.00	1.50	13.50	11.36	102.54	#REF!	0.531	1.72	#REF!	#REF!	#REF!	#REF!	3.5	2.540	0.325		C-Type	C-Type	RCC	0.60	5.65	6.73	0.84	0.018	150	22.82	Adequate
11	12.30	0.41	15.00	1.43	13.57	11.97	100.91	#REF!	0.531	1.83	#REF!	#REF!	#REF!	#REF!	3.5	2.840	0.125		C-Type	C-Type	RCC	0.60	7.40	7.73	0.96	0.018	650	15.67	Adequate
12	13.20	0.44	15.00	1.24	13.76	12.56	99.41	#REF!	0.538	1.96	#REF!	#REF!	#REF!	#REF!	3.0	3.370	0.079		C-Type	C-Type	Masonry	0.60	7.94	8.33	0.95	0.020	700	14.53	Adequate
13	14.10	0.47	15.00	1.19	13.81	13.18	97.90	#REF!	0.544	2.09	#REF!	#REF!	#REF!	#REF!	2.7	3.310	0.036		C-Type	C-Type	Masonry	0.60	7.09	8.00	0.89	0.020	700	12.35	Adequate
14	15.00	0.50	15.00	1.14	13.86	13.81	96.45	#REF!	0.544	2.19	#REF!	#REF!	#REF!	#DIV/0!	2.4	3.150	-0.007		C-Type	C-Type	Masonry	0.60	6.03	7.47	0.81	0.020	700	9.89	Adequate
15	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	0.0	2.500	-0.007		C-Type	C-Type	Masonry	0.60	0.00	3.81	0.00	0.020	700	0.00	Inadequate
16	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	1.8	2.500	-0.007		C-Type	C-Type	RCC	0.60	3.43	5.61	0.61	0.018	700	5.19	Adequate
17	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	1.8	2.500	-0.007		C-Type	C-Type	RCC	0.60	3.43	5.61	0.61	0.018	700	5.19	Adequate
18	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	1.8	2.500	-0.007		C-Type	C-Type	RCC	0.60	3.43	5.61	0.61	0.018	700	5.19	Adequate
19	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	2.6	2.500	-0.007		C-Type	C-Type	RCC	0.60	4.96	6.41	0.77	0.018	700	8.77	Adequate
20	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	2.8	2.500	-0.007		C-Type	C-Type	RCC	0.60	5.34	6.61	0.81	0.018	700	9.72	Adequate
21	15.00	0.50	15.00	0.00	15.00	13.53	97.09	#REF!	0.544	2.20	#REF!	#REF!	#REF!	#DIV/0!	2.8	2.500	-0.007		C-Type	C-Type	RCC	0.60	5.34	6.61	0.81	0.018	700	9.72	Adequate
Nalla No. 3\		280	10.00																										
1	4.38	0.10	10.00	3.44	6.56	6.46	120.12	0.50	0.514	0.75	0.73	-0.02	-2.72	Adequate	1.1	4.620	3.440		C-Type	C-Type	RCC	0.40	0.86	2.66	0.32	0.018	65	2.78	Adequate
2	4.83	0.12	10.00	3.08	6.92	6.86	118.23	0.50	0.514	0.82	0.79	-0.02	-2.72	Adequate	1.1	4.312	3.132		C-Type	C-Type	RCC	0.40	0.86	2.66	0.32	0.018	150	1.83	Adequate
3	5.28	0.14	10.00	3.03	6.97	7.31	116.27	0.50	0.517	0.88	0.85	-0.03	-3.29	Inadequate	1.1	3.590	2.999		C-Type	C-Type	Masonry	0.20	0.41	1.83	0.22	0.035	35	0.73	Inadequate
4	5.73	0.16	10.00	2.92	7.08	7.75	114.43	0.50	0.517	0.94	0.91	-0.03	-3.29	Adequate	1.1	3.770	2.428		C-Type	C-Type	Masonry	0.40	1.01	2.95	0.34	0.020	250	1.56	Adequate
5	6.19	0.18	10.00	2.81	7.19	8.20	112.68	0.50	0.519	1.00	0.97	-0.04	-3.66	Inadequate	1.1	3.780	2.348		C-Type	C-Type	Masonry	0.50	1.03	2.96	0.35	0.020	250	1.60	Adequate
6	6.64	0.20	10.00	2.75	7.25	8.66	110.98	0.50	0.519	1.06	1.02	-0.04	-3.66	Inadequate	1.1	3.150	2.268		C-Type	C-Type	RCC	0.30	0.64	2.26	0.28	0.018	200	1.08	Adequate
7	7.09	0.22	10.00	2.56	7.44	9.10	109.45	0.50	0.522	1.13	1.08	-0.05	-4.21	Inadequate	1.1	3.050	2.168		C-Type	C-Type	RCC	0.30	0.64	2.26	0.28	0.018	175	1.16	Adequate
8	7.54	0.24	10.00	2.53	7.47	9.57	107.86	0.50	0.522	1.18	1.13	-0.05	-4.21	Inadequate	1.1	2.936	2.053		C-Type	C-Type	RCC	0.30	0.64	2.26	0.28	0.018	150	1.25	Adequate
9	7.99	0.26	10.00	2.05	7.95	9.93	106.72	0.50	0.522	1.24	1.18	-0.05	-4.21	#NUM!	1.3	3.740	1.920		C-Type	C-Type	RCC	0.60	1.59	3.74	0.42	0.018	250	3.15	Adequate
10	8.45	0.28	10.00	2.26	7.74	10.48	105.06	0.50	0.525	1.29	1.23	-0.06	-4.76	Adequate	1.3	3.660	1.840		C-Type	C-Type	RCC	0.60	1.59	3.74	0.42	0.018	300	2.87	Adequate
11	8.90	0.30	10.00	2.15	7.85	10.93	103.73	0.50	0.525	1.35	1.28	-0.06	-4.76	Adequate	1.3	3.593	1.773		C-Type	C-Type	RCC	0.60	1.59	3.74	0.42	0.018	300	2.87	Adequate
12	9.35	0.32	10.00	1.98	8.02	11.37	102.50	0.50	0.531	1.41	1.33	-0.08	-5.84	Adequate	1.3	3.220	1.707		C-Type	C-Type	RCC	0.50	1.32	3.33	0.40	0.018	300	2.28	Adequate
13	9.80	0.34	10.00	1.93	8.07	11.85	101.22	0.50	0.531	1.46	1.38	-0.09	-5.84	Adequate	1.3	3.153	1.640		C-Type	C-Type	RCC	0.50	1.32	3.33	0.40	0.018	300	2.28	Adequate
14	10.26	0.36	10.00	1.60	8.40	12.23	100.24	0.50	0.538	1.54	1.43	-0.11	-7.06	Adequate	2.0	2.500	1.573		C-Type	C-Type	Masonry	0.30	1.25	3.25	0.39	0.035	250	1.20	Inadequate
15	10.71	0.38	10.00	0.51	9.49	12.35	99.93	0.50	0.538	1.60	1.49	-0.11	-7.06	#DIV/0!	3.9	2.500	1.493		C-Type	C-Type	Masonry	0.30	2.74	5.28	0.52	0.035	200	3.56	Adequate
Nalla No. 4		347	9.00																										

Storm drains in Kalwa

		Details of existing c/s																			H in (m)												Details of Proposed C/S														
Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
1	560	4.22	3.96	2.04	1.92	0.60	5.57	6.86	0.81	-308				FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	-13.36	-0.11	9.00	2.04	6.96	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	4.2	3.960	1.540		C-Type	C-Type	0.00	0.60	7.68	7.86	0.98	0.018	500	18.79	#NUM!
2	540	3.91	0.00	2.11	-2.11	-0.70	-5.49	1.10	-4.99	-308				FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	-10.59	-0.09	9.00	2.11	6.90	#NUM!	#NUM!	0.42	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	3.9	2.500	1.500		C-Type	C-Type	0.00	0.30	2.74	5.31	0.52	0.018	500	4.37	#NUM!
3	520	3.31	0.00	2.17	-2.17	-0.70	-4.87	0.37	-13.15	-308				FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	-7.81	-0.07	9.00	2.17	6.83	#NUM!	#NUM!	0.29	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	3.3	2.500	1.460		C-Type	C-Type	0.00	0.30	2.45	4.79	0.51	0.018	450	4.10	#NUM!
4	500	2.46	0.00	2.24	-2.24	-0.70	-3.78	-0.61	6.19	-308				FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	-5.04	-0.05	9.00	2.24	6.77	#NUM!	#NUM!	0.00	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	2.5	2.500	1.416		C-Type	C-Type	0.00	0.40	1.68	3.83	0.44	0.018	500	2.42	#NUM!
5	480	1.99	4.66	2.30	2.36	0.60	3.50	5.51	0.64	-308				FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	-2.26	-0.03	9.00	2.30	6.70	#NUM!	#NUM!	-0.97	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	2.0	4.660	1.376		C-Type	C-Type	0.00	0.60	5.34	7.36	0.73	0.018	600	9.79	#NUM!
6	460	1.95	4.73	2.37	2.37	0.60	3.44	5.48	0.63	-308	Masonry	Mansonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed	0.51	-0.01	9.00	2.37	6.64	#NUM!	#NUM!	8.63	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	2.5	4.730	1.342		C-Type	C-Type	RCC	0.60	6.97	8.08	0.86	0.018	300	20.26	#NUM!
7	440	2.14	4.74	2.43	2.31	0.60	3.66	5.56	0.66	-378	Masonry	Mansonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed	3.29	0.01	9.00	2.43	6.57	4.56	130.97	2.02	0.508	0.61	2.41	1.81	297.54	#NUM!	2.5	4.663	1.276		C-Type	C-Type	RCC	0.60	6.97	8.08	0.86	0.018	250	22.20	Adequate
8	420	2.17	4.52	2.50	2.03	0.60	3.09	5.02	0.62	-442	Masonry	Mansonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed	6.06	0.03	9.00	2.50	6.51	4.90	128.75	1.46	0.508	1.10	3.17	2.07	187.65	#NUM!	2.2	4.583	1.196		C-Type	C-Type	Masonry	0.60	6.05	7.75	0.78	0.018	250	18.03	Adequate
9	400	2.43	4.45	2.56	1.89	0.60	3.13	5.01	0.63	156	Masonry	Mansonry	Masonry	0.020	2.94	9.17	Collapsed	Collapsed	8.84	0.05	9.00	2.56	6.44	5.28	126.39	1.25	0.511	1.58	3.89	2.30	145.33	Adequate	2.4	4.450	1.116		C-Type	C-Type	Masonry	0.60	6.64	7.90	0.84	0.018	400	16.45	Adequate
10	380	2.34	4.60	2.63	1.98	0.60	3.22	5.09	0.63	145	Masonry	Mansonry	Masonry	0.020	3.07	9.85	Collapsed	Collapsed	11.61	0.07	9.00	2.63	6.38	5.70	124.02	1.15	0.511	2.04	4.58	2.54	124.11	Adequate	2.3	4.600	1.066		C-Type	C-Type	Masonry	0.60	6.87	8.21	0.84	0.018	800	11.97	Adequate
11	360	2.32	4.60	2.69	1.91	0.60	3.04	4.94	0.62	2316	Masonry	Mansonry	Masonry	0.020	0.75	2.28	Collapsed	Collapsed	14.38	0.09	9.00	2.69	6.31	6.14	121.71	1.08	0.514	2.50	5.25	2.75	109.85	Inadequate	2.3	4.600	1.041		C-Type	C-Type	Masonry	0.60	6.87	8.24	0.83	0.018	400	16.89	Adequate
12	340	3.39	4.63	2.69	1.94	0.60	4.54	6.07	0.75	3826	Masonry	Mansonry	Masonry	0.035	0.38	1.73	Collapsed	Collapsed	17.16	0.11	9.00	2.69	6.31	6.59	119.51	1.03	0.514	2.93	5.89	2.96	101.09	Inadequate	3.4	4.630	0.991		C-Type	C-Type	Masonry	0.60	10.30	9.47	1.09	0.018	550	25.82	Adequate
13	320	4.11	5.04	2.77	2.27	0.60	6.86	7.45	0.92	1796	Masonry	Mansonry	Masonry	0.035	0.64	4.38	Collapsed	Collapsed	19.93	0.13	9.00	2.77	6.23	7.06	117.34	1.00	0.517	3.36	6.50	3.14	93.63	Inadequate	5.0	5.040	0.954		C-Type	C-Type	RCC	0.60	17.43	11.97	1.46	0.018	800	43.97	Adequate
14	300	3.79	4.91	2.85	2.06	0.60	5.53	6.71	0.82	-8000	Masonry	Mansonry	Masonry	0.035	#NUM!	#NUM!	Collapsed	Collapsed	22.71	0.15	9.00	2.85	6.15	7.56	115.24	0.98	0.517	3.76	7.10	3.34	88.88	#NUM!	5.0	5.015	0.929		C-Type	C-Type	RCC	0.60	17.43	11.97	1.46	0.018	600	50.78	Adequate
15	280	2.65	4.86	2.85	2.01	0.60	3.73	5.46	0.68	-6000	Masonry	Mansonry	Masonry	0.020	#NUM!	#NUM!	Collapsed	Collapsed	25.48	0.17	9.00	2.85	6.15	8.05	113.28	0.96	0.519	4.16	7.68	3.51	84.45	#NUM!	5.0	4.860	0.636		C-Type	C-Type	RCC	0.60	18.12	12.25	1.48	0.018	700	49.41	Adequate
16	260	3.03	4.99	2.86	2.13	0.60	4.65	6.10	0.76	91	Masonry	Mansonry	Masonry	0.020	4.38	20.31	Collapsed	Collapsed	28.26	0.19	9.00	2.86	6.14	8.55	111.40	0.94	0.519	4.54	8.23	3.70	81.47	Adequate	5.0	4.831	0.607		C-Type	C-Type	RCC	0.60	18.12	12.25	1.48	0.018	700	49.41	Adequate
17	240	2.47	4.98	2.86																																											
18	220	2.60	4.94	2.62																																											
19	200	3.05	4.12	2.47																																											
20	180	2.31	3.40	2.32																																											
21	160	5.96	5.48	2.42																																											
22	140	3.61	5.28	2.52																																											
23	120	5.08	5.20	2.51																																											
24	100	5.08	5.27	2.52																																											
25	80	5.02	5.33	2.53																																											
26	60	5.13	5.27	2.52																																											
27	40	4.79	2.52	2.51																																											
28	20	5.06	5.07	2.50																																											
29	0	5.06	5.31	2.47																																											
Nalla No. 5 A																				311.00	7.00																										
1	460	1.19	4.62	4.02	1.39	0.50	2.47	4.55	0.54	133	C. C.	C. C.,	Concrete	0.035	1.65	4.05	Collapsed	Collapsed	0.12	-0.83	7.00	3.07	3.93	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.460	2.620		C-Type	C-Type	RCC	0.60	1.49	3.68	0.40	0.018	200	3.20	#NUM!
2	440	0.98	4.38	3.65	1.52	0.50	3.58	5.55	0.65	-59	C. C.	C. C.,	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed	0.25	-0.81	7.00	2.92	4.08	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.440	2.520		C-Type	C-Type	RCC	0.60	1.58	3.84	0.41	0.018	200	3.45	#NUM!
3	420	1.30	4.15	3.61	1.21	0.40	2.43	4.62	0.53	38	C. C.	C. C.,	Concrete	0.035	3.01	7.29	Collapsed	Collapsed	0.38	-0.79	7.00	3.26	3.74	#NUM!	#NUM!	0.60	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.340	2.420		C-Type	C-Type	RCC	0.60	1.58	3.84	0.41	0.018	200	3.45	#NUM!
4	400	0.68	4.38	3.58	1.79	0.60	6.38	7.74	0.82	100	C. C.	C. C.,	Concrete	0.035	2.51	16.02	Collapsed	Collapsed	0.51	-0.77	7.00	2.74	4.26	#NUM!	#NUM!	0.65	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.240	2.320		C-Type	C-Type	RCC	0.60	1.58	3.84	0.41	0.018	200	3.45	#NUM!
5	380	1.75	4.15	3.58	2.01	0.60	11.83	11.21	1.06	348	C. C.	C. C.,	Concrete	0.035	1.59	18.79	Collapsed	Collapsed	0.64	-0.75	7.00	2.54	4.46	#NUM!	#NUM!	0.68	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.550	2.220		C-Type	C-Type	RCC	0.60	2.08	4.66	0.45	0.018	200	4.76	#NUM!
6	360	1.77	4.11	3.56	1.93	0.60	11.25	11.14	1.01	348	C. C.	C. C.,	Concrete	0.035	1.54	17.35	Collapsed	Collapsed	0.77	-0.73	7.00	2.48	4.52	#NUM!	#NUM!	0.70	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.450	2.120		C-Type	C-Type	RCC	0.60	2.08	4.66	0.45	0.018	200	4.76	#NUM!
7	340	1.43	4.81	3.58	1.84	0.60	10.78	11.17	0.96	348	C. C.	C. C.,	Concrete	0.035	1.50	16.12	Collapsed	Collapsed	0.90	-0.71	7.00	2.43	4.58	#NUM!	#NUM!	0.72	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.350	2.020		C-Type	C-Type	RCC	0.60	2.08	4.66	0.45	0.018	200	4.76	#NUM!
8	320	1.52	4.70	3.56	1.76	0.60	10.68	11.56	0.92	348	C. C.	C. C.,	Concrete	0.035	1.45	15.53	Collapsed	Collapsed	1.03	-0.69	7.00	2.37	4.63	#NUM!	#NUM!	0.73	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.250	1.920		C-Type	C-Type	RCC	0.60	2.08	4.66	0.45	0.018	200	4.76	#NUM!
9	300	1.33	4.75	3.70	#REF!	#REF!	#REF!	#REF!	#REF!	#DIV/0!	C. C.	C. C.,	Concrete	#REF!	#REF!	#REF!	Collapsed	Collapsed	1.16	-0.67	7.00	2.31	4.69	#NUM!	#NUM!	0.74	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#REF!	1.2	#REF!	1.820		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	200	#REF!	#REF!
10	280	1.79	4.56	3.47	2.88	0.60	21.39	13.94	1.53	74	C. C.	C. C.,	Concrete	0.035	4.40	94.44	Collapsed	Collapsed	1.29	-0.65	7.00	2.31	4.69	#NUM!	#NUM!	0.74	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	#REF!	1.720		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	300	#REF!	#REF!
11	260	2.23	4.43	3.65	3.26	0.60	24.47	14.52	1.69	-47	C. C.	C. C.,	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed	1.42	-0.63	7.00	2.04	4.96	#NUM!	#NUM!	0.75	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	#REF!	1.653		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	300	#REF!	#REF!
12	240	1.55	4.33	3.39	2.46	0.60	15.51	12.06	1.29	67	C. C.	C. C.,	Concrete	0.035	4.13	64.20	Collapsed	Collapsed	1.55	-0.61	7.00	2.47	4.53	#NUM!	#NUM!	0.75	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	#REF!	1.587		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	300	#REF!	#REF!
13	220	1.82	4.36	3.34	2.53	0.60	14.30	11.27	1.27	#DIV/0!	C. C.	C. C.,	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	1.68	-0.59	7.00	2.17	4.83	#NUM!	#NUM!	0.76	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	1.2	#REF!	1.520		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	400	#REF!	#REF!
14	200	1.99	4.46	3.17	2.37	0.60	12.81	10.78	1.19		C. C.	C. C.,	Concrete	0.035			Collapsed	Collapsed	1.81	-0.57	7.00	2.17	4.83	#NUM!	#NUM!	0.76	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	#REF!	1.470		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	400	#REF!	#REF!
15	180	1.91	4.36	3.14	2.43	0.60	13.94	11.28	1.24		C. C.	C. C.,	Concrete	0.035			Collapsed	Collapsed	1.94	-0.55	7.00	2.24	4.76	#NUM!	#NUM!	0.76	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.670	1.420		C-Type	C-Type	RCC	0.60	3.18	6.50	0.49	0.018	400	5.48	#NUM!
16	160	2.02	4.42	3.12	3.71	0.60	24.79	14.19	1.75		C. C.	C. C.,	Concrete	0.035			Collapsed	Collapsed	2.07	-0.53	7.00	0.93	6.07	#NUM!	#NUM!	0.76	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	4.640	1.370		C-Type	C-Type	RCC	0.60	3.20	6.54	0.49	0.018	400	5.53	#NUM!
17	140	1.78	4.49	3.27	2.45	0.60	23.66	16.49	1.43		C. C.	C. C.,	Concrete	0.035			Collapsed	Collapsed	2.20	-0.51	7.00	0.90	6.10	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	1.2	3.350	1.320		C-Type	C-Type	RCC	0.60	1.72	4.06	0.42	0.018	400	2.68	#NUM!
18	120	1.73	4.49	3.49																																											
19	100	1.50	4.46	3.51																																											
20	80	1.35	4.33	3.51																																											

Storm drains in Kalwa

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
21	60	1.73	4.22	3.10														
22	40	2.10	4.31	3.14														
23	20	1.90	4.39	2.95														
24	0	1.69	3.93	2.41														
Nalla No. 5B																		
1	1240	2.77	4.46	3.07	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
2	1220	3.51	4.44	2.92	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
3	1200	3.00	4.47	3.26	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
4	1180	5.36	4.53	2.74	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
5	1160	8.39	4.55	2.54	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
6	1140	8.49	4.41	2.48	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
7	1120	8.69	4.27	2.43	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
8	1100	9.25	4.12	2.37	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
9	1080	10.01	5.12	2.31	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
10	1060	9.38	5.19	2.31	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
11	1040	9.20	5.30	2.04	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
12	1020	8.34	4.93	2.47	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
13	1000	7.41	4.70	2.17	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
14	980	7.24	4.54	2.17	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
15	960	7.62	4.67	2.24	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
16	940	7.97	4.64	0.93	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
17	920	12.79	3.35	0.90	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
18	900	14.29	3.21	1.74	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
19	880	14.55	2.97	1.85	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
20	860	15.33	3.19	1.40	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
21	840	14.64	3.18	1.53	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
22	820	14.38	3.76	1.53	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
23	800	11.71	3.83	1.52	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
24	780	9.34	4.11	1.60	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
25	760	10.23	4.00	1.58	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
26	740	9.85	3.67	1.55	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
27	720	9.57	3.40	1.77	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
28	700	9.08	3.23	1.62	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
29	680	9.21	3.16	1.62	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
30	660	9.54	3.48	1.72	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
31	640	9.61	3.58	1.69	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
32	620	8.90	3.16	1.69	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
33	600	9.58	3.13	1.79	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
34	580	9.16	3.06	1.40	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
35	560	10.03	4.15	1.38	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
36	540	10.03	4.26	1.33	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
37	520	21.79	5.16	1.29	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
38	500	23.87	5.06	1.27	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
39	480	25.13	4.64	1.24	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section
1	18	19	20	21	22	23	24	25	25	26	26			27
21														
22														
23														
24														
Nalla No. 5B		1740.00	10.00											
1	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	0.50	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
2	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	0.50	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
3	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
4	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
5	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
6	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
7	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
8	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
9	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
10	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
11	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
12	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
13	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
14	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
15	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
16	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
17	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
18	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
19	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
20	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
21	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
22	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
23	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
24	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
25	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
26	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
27	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
28	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
29	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
30	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
31	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
32	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
33	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
34	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
35	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
36	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
37	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
38	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!
39	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	

Sr. No	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
21															
22															
23															
24															
Nalla No. 5B															
1	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	450	#REF!	#REF!
2	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
3	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
4	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
5	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
6	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
7	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	600	#REF!	#REF!
8	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	400	#REF!	#REF!
9	5.0	#REF!	#REF!		C-Type	C-Type	RCC	#REF!	#REF!	#REF!	#REF!	0.018	300	#REF!	#REF!
10	8.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	300	#REF!	#REF!
11	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	300	#REF!	#REF!
12	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
13	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	350	#REF!	#REF!
14	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
15	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	350	#REF!	#REF!
16	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
17	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
18	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
19	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
20	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
21	9.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	325	#REF!	#REF!
22	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	400	#REF!	#REF!
23	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	400	#REF!	#REF!
24	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	400	#REF!	#REF!
25	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	400	#REF!	#REF!
26	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	750	#REF!	#REF!
27	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	750	#REF!	#REF!
28	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	750	#REF!	#REF!
29	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	750	#REF!	#REF!
30	10.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	750	#REF!	#REF!
31	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
32	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
33	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
34	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
35	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
36	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
37	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
38	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
39	12.0	#REF!	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!

Storm drains in Kalwa

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
					Details of existing c/s													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
40	460	21.08	4.60	1.30	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
41	430	21.08	4.46	1.35	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
42	400	18.26	4.31	1.46	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
43	370	18.26	4.28	1.51	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
44	340	19.75	4.29	1.57	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
45	310	18.71	4.26	1.41	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
46	280	20.73	4.27	1.40	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
47	250	27.39	3.94	1.36	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
48	220	24.97	3.62	1.22	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
49	190	25.45	3.74	1.22	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
50	160	26.95	3.73	1.50	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
51	130	22.44	3.76	0.92	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	Earthen	Earthen	Earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
52					0.00	0.00	0.00	0.00	#####	67	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
53					0.00	0.00	0.00	0.00	#####	68	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
54					0.00	0.00	0.00	0.00	#####	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
55					0.00	0.00	0.00	0.00	#####	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
56					0.00	0.00	0.00	0.00	#####	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
57					0.00	0.00	0.00	0.00	#####	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
58					0.00	0.00	0.00	0.00	#####	27	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
59					0.00	0.00	0.00	0.00	#####	70	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
60					0.00	0.00	0.00	0.00	#####	71	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
61					0.00	0	0.00	0.00	#####	#DIV/0!	Earthen	Earthen	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
62					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
63					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
64					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
65					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
66					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
67					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
68					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
69					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
70					0.00	0	0.00	0.00	#####	59	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
71					0.00	0	0.00	0.00	#####	64	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
72					0.00	0	0.00	0.00	#####	71	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
73					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
74					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
75					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
76					0.00	0	0.00	0.00	#####	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
77					0.00	0	0.00	0.00	#####		Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
78					0.00	0	0.00	0.00	#####		Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
79					0.00	0	0.00	0.00	#####		Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
Nalla No. 5 C																		
1	320	1.20	6.20	5.44	0.77	0.30	0.56	2.13	0.26	26	Masonry	Masonry	Masonry	0.035	2.31	1.28	Collapsed	Collapsed

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	H in (m) Min H2	H in (m) H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
															Details of Proposed C/S														
1	18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
40	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
41	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
42	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
43	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
44	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
45	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
46	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
47	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
48	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
49	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
50	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
51	#######	#REF!	10.00	####	#REF!	#REF!	#REF!	#VALUE!	#REF!	#REF!	#####	######	#VALUE!	#REF!	12.0	#REF!	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	900	#REF!	#REF!
52	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	650	26.62	#VALUE!
53	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	680	26.02	#VALUE!
54	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	700	25.65	#VALUE!
55	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	725	25.20	#VALUE!
56	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	750	24.78	#VALUE!
57	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	750	24.78	#VALUE!
58	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	825	23.63	#VALUE!
59	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	850	23.28	#VALUE!
60	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	850	23.28	#VALUE!
61	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	850	23.28	#VALUE!
62	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300		C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	850	23.28	#VALUE!
63	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.300	0.15	C-Type	C-Type	RCC	0.60	11.00	9.40	1.17	0.018	850	23.28	#VALUE!
64	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	300	42.83	#VALUE!
65	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	300	42.83	#VALUE!
66	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	300	42.83	#VALUE!
67	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
68	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
69	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
70	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
71	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
72	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
73	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
74	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
75	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
76	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
77	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
78	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
79	#######	1.84	10.00	0.00	10.00	55.63	53.06	#VALUE!	0.727	######	#####	######	#VALUE!	#DIV/0!	5.0	2.500	-0.450		C-Type	C-Type	RCC	0.60	11.75	9.70	1.21	0.018	1000	23.46	#VALUE!
Nalla No. 5 C		320.00	31.00																										
1	57.00	0.10	31.00	5.44	25.57	7.49	115.50	0.50	0.517	9.45	9.14	-0.31	-3.29	Inadequate	2.0	6.200	4.985	0.60	C-Type	C-Type	RCC	0.40	2.83	4.83	0.59	0.018	65	13.65	Adequate

Storm drains in Kalwa

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	H in (m) Min H2	H in (m) H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
2	300	1.20	5.60	4.67	0.93	0.30	0.76	2.46	0.31	27	Masonry	Masonry	Masonry	0.020	4.44	3.33	Collapsed	Collapsed	57.94	0.12	31.00	4.67	26.33	7.74	114.47	0.50	0.517	9.52	9.30	-0.22	-2.35	Inadequate	2.0	5.892	4.077	0.60	C-Type	C-Type	RCC	0.60	2.43	4.43	0.55	0.018	65	11.22	Adequate
3	280	2.00	5.00	3.92	1.08	0.40	1.36	3.36	0.40	-333	C. C.	C. C.	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed	58.88	0.14	31.00	3.92	27.08	8.00	113.46	0.51	0.517	9.59	9.46	-0.14	-1.44	#NUM!	2.0	5.000	3.170		C-Type	C-Type	Concrete	0.60	2.46	4.46	0.55	0.018	70	10.99	Adequate
4	260	1.10	5.00	3.98	1.02	0.30	0.79	2.54	0.31	69	C. C.	C. C.	Concrete	0.018	3.10	2.44	Collapsed	Collapsed	59.81	0.16	31.00	3.98	27.02	8.27	112.41	0.51	0.519	9.69	9.60	-0.09	-0.94	Inadequate	2.0	5.000	2.884		C-Type	C-Type	RCC	0.60	3.03	5.03	0.60	0.018	70	14.36	Adequate
5	240	0.80	5.00	3.69	1.31	0.40	0.73	2.62	0.28	-250	C. C.	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed	60.75	0.18	31.00	3.69	27.31	8.55	111.40	0.52	0.519	9.76	9.75	-0.01	-0.09	#NUM!	2.0	4.714	2.598		C-Type	C-Type	RCC	0.60	3.03	5.03	0.60	0.018	70	14.36	Adequate
6	220	2.00	5.00	3.77	1.23	0.40	1.66	3.66	0.45	118	C. C.	C. C.	Concrete	0.035	1.56	2.58	Collapsed	Collapsed	61.69	0.20	31.00	3.77	27.23	8.83	110.37	0.52	0.519	9.82	9.89	0.07	0.73	Inadequate	2.0	5.000	2.312	0.00	C-Type	C-Type	Concrete	0.60	4.18	6.18	0.68	0.018	70	21.36	Adequate
7	200	2.00	5.00	3.60	1.40	0.50	1.80	3.80	0.47	1000	C. C.	C. C.	Concrete	0.035	0.55	0.99	Collapsed	Collapsed	62.63	0.22	31.00	3.60	27.40	9.12	109.39	0.53	0.522	9.93	10.03	0.09	0.95	Inadequate	2.0	5.000	2.027		C-Type	C-Type	Concrete	0.60	4.75	6.75	0.70	0.018	300	12.04	Adequate
8	180	1.60	5.00	3.58	1.42	0.5	1.47	3.44	0.43	118	C. C.	C. C.	Concrete	0.018	2.93	4.28	Collapsed	Collapsed	63.56	0.24	31.00	3.58	27.42	9.41	108.41	0.53	0.522	9.99	10.16	0.17	1.72	Inadequate	2.0	5.000	1.960		C-Type	C-Type	RCC	0.60	4.88	6.88	0.71	0.018	300	12.45	Adequate
9	160	1.60	4.50	3.41	1.09	0.4	1.10	2.98	0.37	#DIV/0!	C. C.	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	64.50	0.26	31.00	3.41	27.59	9.70	107.47	0.53	0.522	10.05	10.30	0.25	2.47	#DIV/0!	2.0	4.500	1.893	0.00	C-Type	C-Type	RCC	0.60	4.01	6.01	0.67	0.018	250	10.77	Adequate
10	140	1.50	4.50	3.41	1.09	0.4	1.04	2.88	0.36	1000	C. C.	C. C.	Concrete	0.035	0.46	0.47	Collapsed	Collapsed	65.44	0.28	31.00	3.41	27.59	9.99	106.53	0.54	0.522	10.11	10.43	0.32	3.20	Inadequate	2.0	4.420	1.813		C-Type	C-Type	RCC	0.60	4.01	6.01	0.67	0.018	250	10.77	Adequate
11	120	2.83	4.50	3.39	1.11	0.4	2.01	4.25	0.47	-2000	C. C.	C. C.	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed	66.38	0.30	31.00	3.39	27.61	10.30	105.60	0.54	0.525	10.22	10.56	0.34	3.31	#NUM!	2.0	4.340	1.733		C-Type	C-Type	RCC	0.60	4.01	6.01	0.67	0.018	250	10.77	Adequate
12	100	1.70	4.50	3.40	1.10	0.4	1.19	3.10	0.38	400	C. C.	C. C.	Concrete	0.035	0.76	0.90	Collapsed	Collapsed	67.31	0.32	31.00	3.40	27.60	10.60	104.69	0.55	0.525	10.28	10.69	0.41	3.99	Inadequate	2.0	4.260	1.653		C-Type	C-Type	RCC	0.60	4.01	6.01	0.67	0.018	250	10.77	Adequate
13	80	1.50	4.50	3.35	1.15	0.4	1.13	3.00	0.38	800	C. C.	C. C.	Concrete	0.035	0.53	0.59	Collapsed	Collapsed	68.25	0.34	31.00	3.35	27.65	10.91	103.80	0.55	0.525	10.33	10.81	0.48	4.66	Inadequate	2.0	4.500	1.573		C-Type	C-Type	RCC	0.60	4.65	6.65	0.70	0.018	300	11.76	Adequate
14	40	1.50	4.50	3.30	1.20	0.4	1.20	3.10	0.39	222	C. C.	C. C.	Concrete	0.018	1.99	2.38	Collapsed	Collapsed	70.13	0.38	31.00	3.30	27.70	11.53	102.08	0.56	0.531	10.56	11.06	0.50	4.74	Inadequate	2.0	4.367	1.440		C-Type	C-Type	RCC	0.60	4.65	6.65	0.70	0.018	300	11.76	Adequate
15	20	1.50	4.00	3.21	0.79	0.3	0.74	2.48	0.30		C. C.	C. C.	Concrete	0.035			Collapsed	Collapsed	71.06	0.40	31.00	3.21	27.79	11.84	101.26	0.56	0.531	10.61	11.18	0.57	5.34	Inadequate	2.0	4.300	1.373		C-Type	C-Type	RCC	0.60	4.65	6.65	0.70	0.018	275	12.28	Adequate
16	0	2.26	4.00	3.01	1.00	0.3	1.57	3.65	0.43		C. C.	C. C.	Concrete	0.035			Collapsed	Collapsed	72.00	0.42	31.00	3.01	28.00	12.14	100.47	0.56	0.538	10.81	11.30	0.49	4.55	Inadequate	2.0	4.227	1.301		C-Type	C-Type	RCC	0.60	4.65	6.65	0.70	0.018	275	12.28	Adequate
																				1750.00	33.00																										
Nalla No. 5 D																																															
1	1700	5.44	31.09	29.80	1.29	0.4	4.84	7.22	0.67	50	Masonry	Masonry	Masonry	0.035	3.10	14.99	Collapsed	Collapsed	4.75	0.15	33.00	29.80	3.20	4.06	134.56	0.50	0.508	0.90	0.89	-0.01	-1.57	Adequate	1.0	31.090	32.000		C-Type	C-Type	RCC	-0.30	-0.61	-0.22	2.77	0.018	25	-13.38	Inadequate
2	1680	4.94	30.42	29.40	1.02	0.3	3.56	6.38	0.56	83	Masonry	Masonry	Masonry	0.035	2.13	7.54	Collapsed	Collapsed	5.38	0.17	33.00	29.40	3.60	4.49	131.47	0.54	0.508	1.00	1.05	0.05	5.43	Adequate	1.0	30.290	31.200		C-Type	C-Type	RCC	-0.30	-0.61	-0.22	2.77	0.018	25	-13.38	Inadequate
3	1660	4.05	30.42	29.16	1.26	0.4	3.48	5.77	0.60	39	C.C.	C. C.	Concrete	0.035	3.27	11.35	Collapsed	Collapsed	6.02	0.19	33.00	29.16	3.84	4.98	128.25	0.56	0.508	1.09	1.21	0.12	10.94	Adequate	1.0	30.420	30.400		C-Type	C-Type	RCC	0.00	0.02	1.04	0.02	0.018	25	0.02	Inadequate
4	1640	4.02	30.07	28.65	1.42	0.5	3.70	5.86	0.63	11	C. C	C. C.	Concrete	0.035	6.31	23.26	Collapsed	Collapsed	6.66	0.21	33.00	28.65	4.35	5.32	126.14	0.59	0.511	1.19	1.37	0.18	14.73	Adequate	1.0	30.070	29.600		C-Type	C-Type	RCC	0.20	0.27	1.54	0.18	0.018	25	0.94	Inadequate
5	1620	3.89	28.98	26.86	2.12	0.6	5.91	6.93	0.85	21	C. C	C. C.	Concrete	0.035	5.67	33.47	Collapsed	Collapsed	7.30	0.23	33.00	26.86	6.14	5.18	127.00	0.60	0.511	1.32	1.56	0.24	18.38	Adequate	1.0	29.270	28.800		C-Type	C-Type	RCC	0.20	0.27	1.54	0.18	0.018	25	0.94	Inadequate
6	1600	3.75	28.35	25.89	2.46	0.6	6.98	7.47	0.93	74	C. C	C. C.	Concrete	0.035	3.17	22.12	Collapsed	Collapsed	7.94	0.25	33.00	25.89	7.11	5.39	125.76	0.62	0.511	1.42	1.72	0.30	21.45	Adequate	1.0	28.470	28.000		C-Type	C-Type	RCC	0.20	0.27	1.54	0.18	0.018	25	0.94	Inadequate
7	1580	4.43	26.30	25.62	0.68	0.2	2.13	5.39	0.39	28	C. C	C. C.	Concrete	0.035	2.91	6.16	Collapsed	Collapsed	8.58	0.27	33.00	25.62	7.38	5.81	123.44	0.63	0.511	1.50	1.86	0.36	24.07	Adequate	1.5	26.300	27.200	0.90	C-Type	C-Type	RCC	-0.30	-0.90	0.30	-3.00	0.018	125	#NUM!	#NUM!
8	1560	4.06	26.11	24.91	1.20	0.4	3.25	5.66	0.57	23	C. C	Masonry	Masonry	0.035	4.13	13.37	Collapsed	Collapsed	9.21	0.29	33.00	24.91	8.09	6.09	121.97	0.65	0.514	1.60	2.01	0.41	25.58	Adequate	1.5	26.140	26.140	0.60	C-Type	C-Type	RCC	0.00	0.00	1.50	0.00	0.018	125	0.00	Inadequate
9	1540	3.04	25.93	24.04	1.89	0.6	3.92	5.62	0.70	18	Masonry	Masonry	Masonry	0.035	5.36	20.95	Collapsed	Collapsed	9.85	0.31	33.00	24.04	8.96	6.32	120.80	0.66	0.514	1.70	2.17	0.47	27.53	Adequate	1.5	25.980	25.380	0.60	C-Type	C-Type	RCC	0.20	0.60	2.30	0.26	0.018	150	1.11	Inadequate
10	1520	5.41	25.41	22.91	2.50	0.6	10.28	9.21	1.12	125	Masonry	Masonry	Masonry	0.035	2.75	28.26	Collapsed	Collapsed	10.49	0.33	33.00	22.91	10.09	6.49	119.97	0.66	0.514	1.80	2.32	0.53	29.24	Adequate	1.5	25.410	24.647	0.90	C-Type	C-Type	RCC	0.30	0.70	2.43	0.29	0.018	300	0.97	Inadequate
11	1500	2.76	24.96	22.75	2.21	0.6	4.44	5.98	0.74	26	Masonry	Masonry	Masonry	0.020	8.01	35.53	Collapsed	Collapsed	11.13	0.35	33.00	22.75	10.25	6.90	118.04	0.67	0.514	1.88	2.45	0.58	30.75	Adequate	1.5	24.960	23.680	0.90	C-Type	C-Type	RCC	0.40	1.32	3.26	0.40	0.018	300	2.32	Adequate
12	1480	4.01	24.15	21.99	2.16	0.6	6.26	7.13	0.88	333	C. C.	Masonry	Masonry	0.035	1.44	8.97	Collapsed	Collapsed	11.77	0.37	33.00	21.99	11.01	7.16	116.90	0.68	0.517	1.98	2.59	0.62	31.34	Adequate	1.5	24.150	22.713	0.60	C-Type	C-Type	RCC	0.50	1.41	3.37	0.42	0.018	300	2.51	Adequate
13	1460	4.94	22.94	21.93	1.01	0.3	3.51	6.36	0.55	38	C. C.	Masonry	Masonry	0.035	3.14	10.97	Collapsed	Collapsed	12.41	0.39	33.00	21.93	11.07	7.60	115.07	0.69	0.517	2.05	2.72	0.67	32.54	Adequate	1.8	22.940	22.047		C-Type	C-Type	RCC	0.30	1.07	2.99	0.36	0.018	300	1.73	Inadequate
14	1440	2.96	22.54	21.40	1.14	0.4	2.19	4.44	0.49	-111	C. C.	Masonry	Masonry	0.035	#NUM!	#NUM!	Collapsed	Collapsed	13.04	0.41	33.00	21.40	11.60	7.90	113.84	0.69	0.517	2.13	2.85	0.72	33.63	#NUM!	1.8	22.540	21.980	0.75	C-Type	C-Type	RCC	0.20	0.65	2.52	0.26	0.018	300	0.84	Inadequate
15	1420	8.41	24.55	21.58	2.97	0.6	19.93	13.15	1.52		Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	13.68	0.43	33.00	21.58	11.42	8.40	111.94	0.70	0.519	2.21	2.96	0.75	34.09	#DIV/0!	1.8	24.550	21.163	0.60	C-Type	C-Type	RCC	0.60	5.02	7.37	0.68	0.018	300	12.44	Adequate
16	1400	4.49	23.15	21.01	2.14	0.6	6.91	7.57	0.91		Masonry	C. C.	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	14.32	0.45	23.00	21.01	1.99	17.35	89.35	0.70	0.569	2.02	2.49	0.47	23.12	#DIV/0!	1.8	22.995	20.497	0.00	C-Type	C-Type	RCC	0.60	3.42	5.60	0.61	0.018	200	9.66	Adequate
17	1380	3.30	22.40	20.33	2.07	0.6	4.85	6.24	0.78		Masonry	C. C.	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	14.96	0.47	23.00	20.33	2.67	16.29	91.31	0.70	0.563	2.14	2.67	0.54	25.19	#DIV/0!	1.8	22.995	20.397	0.00	C-Type	C-Type	RCC	0.60	3.60	5.80	0.62	0.018	200	10.28	Adequate
18	1360	2.51	20.88	20.80	0.08	0	0.20	2.67	0.08		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	15.60	0.49	33.00	20.80	12.20	9.52	108.03	0.71	0.522	2.44	3.32	0.87	35.77	#DIV/0!	1.8	20.880	20.297		C-Type	C-Type	RCC	0.20	0.69	2.57	0.27	0.018	200	1.13	Inadequate
19	1340	4.70	21.70	20.23	1.47	0.5	4.56	6.64	0.69		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	16.23	0.51	33.00	20.23	12.77	9.80	107.14	0.71	0.522	2.52	3.44	0.92	36.46	#DIV/0!	2.4	21.700	20.197		C-Type	C-Type	RCC	0.50	2.41	4.41	0.55	0.018	200	6.32	Adequate
20	1320	4.88	21.61	20.17	1.44	0.5	4.59	6.76	0.68		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	16.87	0.53	33.00	20.17	12.83	10.23	105.81	0.72	0.525	2.60	3.55	0.95	36.31	#DIV/0!	2.4	21.610	20.097	0.30	C-Type	C-Type	RCC	0.50	2.43	4.43	0.55	0.018	200	6.41	Adequate
21	1300	4.35	20.86	19.94	0.92	0.3	2.70	5.59	0.48		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	17.51	0.55	33.00	19.94	13.06	10.60	104.69	0.72	0.525	2.67	3.66	0.99	36.89	#DIV/0!	2.4	20.860	19.697		C-Type	C-Type	RCC	0.40	1.83	3.93	0.47	0.018	200	4.33	Adequate
22	1280	4.39	20.99	19.70	1.29	0.4	3.91	6.17	0.63		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	18.15	0.57	33.00	19.70	13.30	10.97	103.62	0.72	0.525	2.74	3.77	1.03	37.44	#DIV/0!	2.4	20.990	19.597		C-Type	C-Type	RCC	0.50	2.14	4.19	0.51	0.018	200	5.39	Adequate
23	1260	2.94	21.22	19.30	1.92	0.6	3.88	5.58	0.70		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	18.79	0.59	33.00	19.30	13.70	11.29	102.74	0.72	0.531	2.85	3.88	1.04	36.39	#DIV/0!	2.4	21.220	19.497		C-Type	C-Type	RCC	0.60	2.70	4.65	0.58	0.018	200	7.37	Adequate
24	1240	2.72	21.62	18.77	2.85	0.6	6.12	7.22	0.85		C. C	C. C.	Concrete	0.018	#DIV/0!	#DIV/0!	Collapsed	Collapsed	19.43	0.61	33.00	18.77	14.23	11.56	101.99	0.73	0.531	2.92	4.00	1.08	36.86	#DIV/0!	2.4	21.620	19.397	0.60	C-Type	C-Type	RCC	0.60	3.90	5.65	0.69	0.018	200	11.95	Adequate
25	1220	5.21	21.48	18.71	2.77	0.6	11.31	9.55	1.18		C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	20.06	0.63	33.00	18.71	14.29	11.98	100.88	0.73	0.531	2.99	4.10	1.11	37.30	#DIV/0!	2.4	21.480	18.697	0.45	C-Type	C-Type	RCC	0.60	5.24	6.77	0.77	0.018	200	17.36	Adequate

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
										Details of existing c/s										H in (m)																			Details of Proposed C/S			
Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Length of drain (L) (km)	Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
26	1200	6.64	21.04	18.57	2.47	0.6	12.42	10.38	1.20		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		20.70	0.65	33.00	18.57	14.43	12.37	99.88	0.538	3.09	0.538	1.11	35.92	#DIV/0!	2.4	21.040	18.147	0.45	C-Type	C-Type	RCC	0.60	5.50	6.99	0.79	0.018	200	Adequate
27	1180	6.08	19.63	18.33	1.30	0.4	5.47	7.88	0.69		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		21.34	0.67	33.00	18.33	14.67	12.73	98.99	0.538	3.16	0.538	1.15	36.30	#DIV/0!	2.4	19.630	17.597		C-Type	C-Type	RCC	0.60	3.44	5.27	0.65	0.018	200	Adequate
28	1160	5.92	19.56	17.54	2.02	0.6	8.41	8.76	0.96		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		21.98	0.69	33.00	17.54	15.46	12.91	98.56	0.538	3.24	0.538	1.19	36.66	#DIV/0!	2.4	19.560	17.497		C-Type	C-Type	RCC	0.60	3.51	5.33	0.66	0.018	200	Adequate
29	1140	5.37	19.23	16.47	2.76	0.6	11.60	9.69	1.20		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		22.62	0.71	33.00	16.47	16.53	13.00	98.33	0.544	3.36	0.544	1.19	36.49	#DIV/0!	2.4	19.230	17.397	1.20	C-Type	C-Type	RCC	0.60	2.96	4.87	0.61	0.018	200	8.35
30	1120	6.69	17.80	16.47	1.33	0.4	6.22	8.55	0.73		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		23.26	0.73	33.00	16.47	16.53	13.43	97.33	0.544	3.42	0.544	1.22	35.81	#DIV/0!	2.4	17.800	16.097	1.20	C-Type	C-Type	RCC	0.60	2.65	4.61	0.57	0.018	200	7.19
31	1100	6.28	17.70	15.86	1.84	0.6	7.79	8.76	0.89		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		23.89	0.75	33.00	15.86	17.14	13.66	96.79	0.544	3.49	0.544	1.26	36.11	#DIV/0!	2.4	17.700	14.797	0.60	C-Type	C-Type	RCC	0.60	5.53	7.01	0.79	0.018	200	18.54
32	1080	5.42	16.74	14.30	2.44	0.6	9.97	9.10	1.10		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		24.53	0.77	33.00	14.30	18.70	13.62	96.89	0.544	3.59	0.544	1.31	36.39	#DIV/0!	2.6	16.740	14.097	0.45	C-Type	C-Type	RCC	0.60	5.31	6.69	0.79	0.018	200	17.90
33	1060	5.37	14.74	14.18	0.56	0.2	1.93	6.09	0.32		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		25.17	0.79	33.00	14.18	18.82	13.99	96.05	0.544	3.65	0.544	1.34	36.66	#DIV/0!	3.6	14.740	13.547	0.45	C-Type	C-Type	RCC	0.40	2.86	5.19	0.55	0.018	200	7.54
34	1040	4.55	15.40	12.98	2.42	0.6	8.28	8.19	1.01		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		25.81	0.81	33.00	12.98	20.02	14.06	96.89	0.550	3.78	0.550	1.34	36.42	#DIV/0!	3.6	15.400	12.997		C-Type	C-Type	RCC	0.60	6.31	7.11	0.89	0.018	200	22.91
35	1020	2.75	15.29	12.84	2.45	0.6	5.09	6.45	0.79		c.c	c.c		0.018	#DIV/0!	#DIV/0!	Colapsed Colapsed		26.45	0.83	33.00	12.84	20.16	14.43	95.09	0.550	3.84	0.550	1.37	35.67	#DIV/0!	3.6	15.290	12.897		C-Type	C-Type	RCC	0.60	6.28	7.09	0.89	0.018	200	22.74
36	1000	3.41	16.03	13.05	2.98	0.6	8.12	8.17	0.99		c.c	c.c		0.018	#DIV/0!	#DIV/0!	Colapsed Colapsed		27.09	0.85	33.00	13.05	19.95	14.89	94.11	0.550	3.89	0.550	1.40	35.90	#DIV/0!	3.6	16.030	12.797		C-Type	C-Type	RCC	0.60	9.22	8.77	1.05	0.018	200	37.44
37	980	3.42	14.76	13.00	1.76	0.6	3.97	5.74	0.69		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		27.72	0.87	33.00	13.00	20.00	15.28	93.31	0.557	4.00	0.557	1.38	34.41	#DIV/0!	3.6	14.760	12.697	0.45	C-Type	C-Type	RCC	0.60	5.12	6.43	0.80	0.018	200	17.29
38	960	4.43	14.51	12.38	2.13	0.6	7.78	7.49	0.90		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		28.36	0.89	33.00	12.38	20.62	15.50	92.85	0.557	4.07	0.557	1.41	34.61	#DIV/0!	3.6	14.510	12.147		C-Type	C-Type	RCC	0.60	6.17	7.03	0.88	0.018	200	22.24
39	940	3.37	14.20	13.03	1.17	0.4	2.59	4.91	0.53		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		29.00	0.91	33.00	13.03	19.97	16.10	91.67	0.563	4.16	0.563	1.39	33.38	#DIV/0!	3.6	14.200	12.047	0.30	C-Type	C-Type	RCC	0.60	5.44	6.61	0.82	0.018	200	18.75
40	920	4.13	14.29	12.64	1.65	0.5	4.75	6.43	0.74		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		29.64	0.93	33.00	12.64	20.36	16.39	91.12	0.563	4.22	0.563	1.42	33.56	#DIV/0!	3.6	14.290	11.647		C-Type	C-Type	RCC	0.60	7.15	7.59	0.94	0.018	200	27.01
41	900	4.60	14.01	12.54	1.47	0.5	4.46	6.54	0.68		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		30.28	0.95	33.00	12.54	20.46	16.77	90.41	0.563	4.28	0.563	1.44	33.74	#DIV/0!	3.6	14.010	11.547		C-Type	C-Type	RCC	0.60	6.52	7.23	0.90	0.018	200	23.92
42	880	5.00	14.04	12.63	1.41	0.5	4.55	6.82	0.67		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		30.92	0.97	33.00	12.63	20.37	17.20	89.61	0.569	4.38	0.569	1.42	32.50	#DIV/0!	3.6	14.040	11.447	0.60	C-Type	C-Type	RCC	0.60	6.98	7.49	0.93	0.018	200	26.15
43	860	8.80	12.83	11.67	1.16	0.4	6.69	10.32	0.65		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		31.55	0.99	33.00	11.67	21.33	17.30	89.43	0.569	4.46	0.569	1.46	32.67	#DIV/0!	3.6	12.830	10.747	0.60	C-Type	C-Type	RCC	0.60	5.19	6.47	0.80	0.018	200	17.62
44	840	7.39	12.71	11.58	1.13	0.4	5.39	8.85	0.61		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		32.19	1.01	33.00	11.58	21.42	17.68	88.76	0.569	4.52	0.569	1.48	32.83	#DIV/0!	3.6	12.710	10.047	0.60	C-Type	C-Type	RCC	0.60	7.22	7.63	0.95	0.018	200	27.36
45	820	7.69	12.59	11.52	1.07	0.4	5.15	9.03	0.57		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		32.83	1.03	33.00	11.52	21.48	18.07	88.09	0.575	4.62	0.575	1.46	31.59	#DIV/0!	3.6	12.590	9.947		C-Type	C-Type	RCC	0.60	7.15	7.59	0.94	0.018	200	22.05
46	800	7.95	12.15	11.37	0.78	0.3	3.82	8.91	0.43		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		33.47	1.05	33.00	11.37	21.63	18.42	87.48	0.575	4.68	0.575	1.48	31.73	#DIV/0!	3.6	12.150	9.880		C-Type	C-Type	RCC	0.60	5.85	6.84	0.85	0.018	200	16.88
47	780	8.01	11.48	10.78	0.70	0.2	4.01	9.01	0.44		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		34.11	1.07	33.00	10.78	22.22	18.63	87.12	0.575	4.75	0.575	1.51	31.87	#DIV/0!	3.6	11.480	9.813		C-Type	C-Type	RCC	0.60	3.73	5.63	0.66	0.018	200	9.10
48	760	8.01	12.02	10.62	1.40	0.5	7.21	9.81	0.73		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		34.75	1.09	33.00	10.62	22.38	18.98	86.54	0.575	4.80	0.575	1.54	32.00	#DIV/0!	3.6	12.020	9.747		C-Type	C-Type	RCC	0.60	5.86	6.85	0.86	0.018	200	16.93
49	740	6.85	11.98	10.58	1.40	0.5	6.17	8.65	0.71		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		35.38	1.11	33.00	10.58	22.42	19.37	85.91	0.582	4.91	0.582	1.50	30.54	#DIV/0!	3.6	11.980	9.680		C-Type	C-Type	RCC	0.60	5.95	6.90	0.86	0.018	200	17.29
50	720	8.63	10.85	10.20	0.65	0.2	3.88	9.53	0.41		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		36.02	1.13	33.00	10.20	22.80	19.65	85.47	0.582	4.98	0.582	1.53	30.67	#DIV/0!	3.6	10.850	9.613		C-Type	C-Type	RCC	0.40	2.93	5.17	0.57	0.018	200	6.43
51	700	6.34	10.79	9.91	0.88	0.3	3.68	7.50	0.49		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		36.66	1.15	33.00	9.91	23.09	19.96	84.99	0.582	5.04	0.582	1.55	30.78	#DIV/0!	3.6	10.790	9.547		C-Type	C-Type	RCC	0.40	3.04	5.29	0.57	0.018	200	6.73
52	680	8.90	10.83	9.43	1.40	0.5	8.01	10.70	0.75		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		37.30	1.17	33.00	9.43	23.57	20.20	84.62	0.588	5.15	0.588	1.52	29.56	#DIV/0!	3.6	10.830	9.480		C-Type	C-Type	RCC	0.50	3.06	5.30	0.58	0.018	300	6.81
53	660	11.29	11.29	9.43	1.86	0.6	14.23	13.81	1.03		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		37.94	1.19	33.00	9.43	23.57	20.60	84.01	0.588	5.21	6.75	1.54	29.67	#DIV/0!	3.6	11.290	9.413		C-Type	C-Type	RCC	0.60	4.60	6.15	0.75	0.018	300	12.14
54	640	11.30	10.82	9.48	1.34	0.4	10.62	13.18	0.81		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		38.57	1.21	33.00	9.48	23.52	21.01	83.38	0.593	5.30	6.82	1.52	28.66	#DIV/0!	3.6	10.820	9.347		C-Type	C-Type	RCC	0.50	3.50	5.55	0.63	0.018	300	8.27
55	620	9.08	10.82	9.48	1.34	0.4	8.54	10.96	0.78		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		39.21	1.23	33.00	9.48	23.52	21.41	82.79	0.593	5.35	6.89	1.54	28.78	#DIV/0!	3.6	10.820	9.280		C-Type	C-Type	RCC	0.50	3.74	5.68	0.66	0.018	300	9.10
56	600	6.50	10.41	9.36	2.05	0.6	9.43	9.40	1.00		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		39.85	1.25	33.00	9.36	24.64	21.43	82.77	0.593	5.43	7.00	1.57	28.88	#DIV/0!	3.6	10.410	9.213	0.90	C-Type	C-Type	RCC	0.40	2.87	5.19	0.55	0.018	300	6.19
57	580	7.26	9.85	8.48	1.37	0.5	6.32	9.00	0.70		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		40.49	1.27	33.00	8.48	24.52	21.87	82.14	0.593	5.48	7.07	1.59	28.98	#DIV/0!	3.6	9.850	8.247	0.60	C-Type	C-Type	RCC	0.50	3.97	5.81	0.68	0.018	300	9.89
58	560	8.25	9.23	8.48	0.75	0.3	3.71	9.15	0.41		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		41.13	1.29	33.00	8.48	24.52	22.27	81.56	0.599	5.58	7.13	1.55	27.78	#DIV/0!	3.6	9.230	7.580		C-Type	C-Type	RCC	0.60	3.78	5.70	0.66	0.018	300	9.22
59	540	7.28	9.00	8.37	0.63	0.2	3.13	8.14	0.38		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		41.77	1.31	33.00	8.37	24.63	22.63	81.08	0.599	5.63	7.20	1.57	27.87	#DIV/0!	3.6	9.000	7.513		C-Type	C-Type	RCC	0.50	3.55	5.57	0.64	0.018	300	8.44
60	520	8.21	8.84	7.88	0.96	0.3	5.42	9.53	0.57		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		42.40	1.33	33.00	7.88	25.12	22.85	80.77	0.599	5.70	7.29	1.59	27.95	#DIV/0!	3.6	8.840	7.447		C-Type	C-Type	RCC	0.50	3.22	5.39	0.60	0.018	300	7.31
61	500	6.81	8.85	8.19	0.66	0.2	3.13	7.73	0.41		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		43.04	1.35	33.00	8.19	24.81	23.36	80.06	0.604	5.78	7.34	1.56	26.97	#DIV/0!	3.6	8.850	7.380	0.30	C-Type	C-Type	RCC	0.50	3.49	5.54	0.63	0.018	300	8.23
62	480	4.96	8.10	7.53	0.57	0.2	1.84	5.70	0.32		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		43.68	1.37	33.00	7.53	25.47	23.52	79.87	0.604	5.85	7.44	1.58	27.05	#DIV/0!	4.0	8.100	7.013		C-Type	C-Type	RCC	0.40	2.75	5.37	0.51	0.018	300	5.63	Inadequate
63	460	5.25	8.15	7.49	0.66	0.2	2.42	6.17	0.39		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		44.32	1.39	33.00	7.49	25.51	23.90	79.37	0.604	5.90	7.50	1.60	27.13	#DIV/0!	4.2	8.150	6.947	0.30	C-Type	C-Type	RCC	0.40	3.37	5.81	0.58	0.018	300	7.54
64	440	3.87	7.58	7.29	0.29	0.1	0.74	4.25	0.17		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		44.96	1.41	33.00	7.29	25.71	24.23	78.95	0.610	6.01	7.58	1.56	25.96	#DIV/0!	4.8	7.560	6.580		C-Type	C-Type	RCC	0.30	3.36	6.20	0.54	0.018	300	7.16
65	420	4.51	7.69	7.32	0.37	0.1	1.22	5.05	0.24		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		45.60	1.43	33.00	7.32	25.68	24.64	78.43	0.610	6.06	7.64	1.58	26.03	#DIV/0!	4.8	7.690	6.513	0.60	C-Type	C-Type	RCC	0.40	3.73	6.35	0.59	0.018	300	8.38
66	400	7.60	7.00	6.03	0.97	0.3	5.09	8.94	0.57		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		46.23	1.45	33.00	6.03	26.97	24.57	78.52	0.610	6.15	7.76	1.61	26.10	#DIV/0!	4.8	7.000	5.847		C-Type	C-Type	RCC	0.40	3.62	6.31	0.57	0.018	300	8.00
67	380	8.09	7.00	5.85	1.15	0.4	6.07	9.59	0.63		c.c	c.c		0.035	#DIV/0!	#DIV/0!	Colapsed Colapsed		46.87	1.47	33.00	5.85	27.15	24.90	78.10	0.610	6.20	7.83	1.62	26.17	#DIV/0!	4.8	7.000	5.780	0.60	C-Type	C-Type	RCC	0.40	3.94	6.44	0.61	0.018	300	9.09

Storm drains in Kalwa

Sr. No	Chainage from creek (m)	Details of existing c/s: width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m): Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	Details of Proposed C/S: width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
68	360	7.79	6.09	5.74	0.35	0.1	1.95	8.29	0.23		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	47.51	1.49	33.00	5.74	27.26	25.25	77.66	0.77	0.615	6.30	7.89	1.59	25.21	#DIV/0!	5.0	6.090	5.113		C-Type	C-Type	RCC	0.30	3.38	6.35	0.53	0.018	300	7.13	Adequate
69	340	7.59	5.89	5.46	0.43	0.1	2.50	8.25	0.30		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	48.15	1.51	33.00	5.46	27.54	25.54	77.31	0.77	0.615	6.36	7.97	1.61	25.27	#DIV/0!	5.0	5.890	5.047	0.45	C-Type	C-Type	RCC	0.30	2.72	6.09	0.45	0.018	300	5.09	Inadequate
70	320	7.33	5.74	5.06	0.68	0.2	3.52	8.29	0.42		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	48.79	1.53	33.00	5.06	27.94	25.79	77.01	0.77	0.615	6.42	8.04	1.63	25.34	#DIV/0!	5.0	5.740	4.530		C-Type	C-Type	RCC	0.40	4.05	6.62	0.61	0.018	300	9.36	Adequate
71	300	7.19	5.87	5.01	0.86	0.3	4.03	8.31	0.48		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	49.43	1.55	33.00	5.01	27.99	26.16	76.56	0.77	0.620	6.52	8.11	1.59	24.39	#DIV/0!	5.0	5.870	4.463		C-Type	C-Type	RCC	0.50	4.53	6.81	0.67	0.018	300	11.08	Adequate
72	280	6.63	5.18	4.99	0.19	0.1	0.60	6.81	0.09		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	50.06	1.57	33.00	4.99	28.01	26.54	76.11	0.77	0.620	6.56	8.17	1.60	24.45	#DIV/0!	5.0	5.180	4.397		C-Type	C-Type	RCC	0.30	2.42	5.97	0.41	0.018	300	4.24	Inadequate
73	260	6.91	5.18	4.77	0.41	0.1	2.14	7.53	0.28		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	50.70	1.59	33.00	4.77	28.23	26.85	75.75	0.77	0.620	6.61	8.23	1.62	24.50	#DIV/0!	5.0	5.180	4.330		C-Type	C-Type	RCC	0.30	2.75	6.10	0.45	0.018	300	5.19	Inadequate
74	240	7.37	5.72	4.85	0.87	0.3	4.20	8.51	0.49		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	51.34	1.61	33.00	4.85	28.15	27.27	75.26	0.77	0.626	6.72	8.29	1.57	23.37	#DIV/0!	5.0	5.720	4.263		C-Type	C-Type	RCC	0.50	4.78	6.91	0.69	0.018	300	12.00	Adequate
75	220	8.33	5.26	4.82	0.44	0.1	2.83	9.01	0.31		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	51.98	1.63	33.00	4.82	28.18	27.65	74.83	0.77	0.626	6.76	8.35	1.58	23.42	#DIV/0!	5.0	5.260	4.197	0.30	C-Type	C-Type	RCC	0.40	3.32	6.33	0.52	0.018	300	6.92	Adequate
76	200	7.07	4.91	4.65	0.26	0.1	1.13	7.39	0.15		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	52.62	1.65	33.00	4.65	28.35	27.98	74.47	0.77	0.626	6.81	8.41	1.60	23.47	#DIV/0!	5.0	4.910	3.830		C-Type	C-Type	RCC	0.40	3.40	6.36	0.53	0.018	300	7.18	Adequate
77	180	5.75	4.81	4.48	0.33	0.1	1.32	6.21	0.21		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	53.26	1.67	33.00	4.48	28.52	28.31	74.10	0.77	0.631	6.92	8.48	1.56	22.55	#DIV/0!	5.0	4.810	3.763		C-Type	C-Type	RCC	0.30	3.73	6.49	0.57	0.018	250	9.07	Adequate
78	160	7.12	4.89	4.48	0.41	0.1	2.21	7.74	0.29		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	53.89	1.69	33.00	4.48	28.52	28.70	73.68	0.77	0.631	6.96	8.53	1.57	22.60	#DIV/0!	5.0	4.890	3.683		C-Type	C-Type	RCC	0.40	4.03	6.61	0.61	0.018	300	9.30	Adequate
79	140				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	54.53	1.71	33.00	0.00	33.00	27.50	75.00	0.77	0.626	7.11	8.79	1.68	23.62	#DIV/0!	5.0	0.000	3.617		C-Type	C-Type	RCC	-1.20	-12.08	0.17	-72.50	0.018	300	#NUM!	#NUM!
80	120				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	55.17	1.73	33.00	0.00	33.00	27.87	74.58	0.77	0.626	7.16	8.85	1.69	23.67	#DIV/0!	5.0	0.000	3.550		C-Type	C-Type	RCC	-1.20	-11.75	0.30	-39.17	0.018	300	#NUM!	#NUM!
81	100				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	55.81	1.75	33.00	0.00	33.00	28.25	74.17	0.77	0.631	7.26	8.91	1.65	22.74	#DIV/0!	5.0	0.000	3.483		C-Type	C-Type	RCC	-1.20	-11.42	0.43	-26.35	0.018	300	#NUM!	#NUM!
82	80				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	56.45	1.77	33.00	0.00	33.00	28.62	73.76	0.77	0.631	7.30	8.96	1.66	22.79	#DIV/0!	5.0	0.000	3.417		C-Type	C-Type	RCC	-1.10	-11.58	0.37	-31.59	0.018	300	#NUM!	#NUM!
83	60				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	57.09	1.79	33.00	0.00	33.00	28.99	73.36	0.78	0.631	7.34	9.02	1.68	22.83	#DIV/0!	5.0	0.000	3.350		C-Type	C-Type	RCC	-1.10	-11.25	0.50	-22.50	0.018	300	#NUM!	#NUM!
84	40				0.00	0.00	0.00	0.00	#####		C.C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	57.72	1.81	33.00	0.00	33.00	29.37	72.96	0.78	0.637	7.45	9.07	1.62	21.72	#DIV/0!	5.0	0.000	3.283		C-Type	C-Type	RCC	-1.10	-10.92	0.63	-17.24	0.018	300	#NUM!	#NUM!
85	20				0.00	0.00	0.00	0.00	#####		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	58.36	1.83	33.00	0.00	33.00	29.74	72.56	0.78	0.637	7.49	9.12	1.63	21.76	#DIV/0!	5.0	0.000	3.217		C-Type	C-Type	RCC	-1.10	-10.58	0.77	-13.80	0.018	300	#NUM!	#NUM!
86	0				0.00	0.00	0.00	0.00	#####		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	59.00	1.85	33.00	0.00	33.00	30.12	72.17	0.78	0.642	7.59	9.18	1.58	20.85	#DIV/0!	5.0	0.000	3.150		C-Type	C-Type	RCC	-1.10	-10.25	0.90	-11.39	0.018	300	#NUM!	#NUM!
87					0.00	0.00	0.00	0.00	#####		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	59.00	1.85	33.00	0.00	33.00	30.12	72.17	0.78	0.642	7.59	9.18	1.58	20.85	#DIV/0!	5.0	0.000	3.150		C-Type	C-Type	RCC	-1.10	-10.25	0.90	-11.39	0.018	300	#NUM!	#NUM!
88					0.00	0.00	0.00	0.00	#####		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	59.00	1.85	33.00	0.00	33.00	30.12	72.17	0.78	0.642	7.59	9.18	1.58	20.85	#DIV/0!	5.0	0.000	3.150		C-Type	C-Type	RCC	-1.10	-10.25	0.90	-11.39	0.018	300	#NUM!	#NUM!
Nalla 5e																				160.00	2.00																										
1	160	11.00	**3.96**	1.22	2.74	0.60	23.54	15.28	1.54	-2000	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	0.20	0.10	2.00	1.22	0.78	4.38	132.22	-6.32	0.508	0.04	-0.46	-0.50	-1343.81	#NUM!	11.0	3.960	1.220		RCC Wa	RCC Wa	RCC	0.60	23.54	15.28	1.54	0.035	1000	28.37	Adequate
2	140	11.00	**3.95**	1.23	2.72	0.60	23.32	15.24	1.53	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	0.51	0.12	2.00	1.23	0.77	5.43	125.51	-1.98	0.511	0.09	-0.35	-0.44	-486.93	#DIV/0!	11.0	3.950	1.200		RCC Wa	RCC Wa	RCC	0.60	23.65	15.30	1.55	0.035	1000	28.57	Adequate
3	120	12.00	**3.91**	1.23	2.68	0.60	24.96	16.16	1.54	-667	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	0.83	0.14	2.00	1.23	0.77	6.49	119.97	-0.93	0.514	0.14	-0.25	-0.40	-279.99	#NUM!	12.0	3.910	1.180		RCC Wa	RCC Wa	RCC	0.60	25.56	16.26	1.57	0.035	1000	31.22	Adequate
4	100	12.00	**3.89**	1.26	2.63	0.60	24.36	16.06	1.52	-1000	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	1.14	0.16	2.00	1.26	0.74	7.69	114.69	-0.45	0.517	0.19	-0.16	-0.35	-187.27	#NUM!	12.0	3.890	1.160		RCC Wa	RCC Wa	RCC	0.60	25.56	16.26	1.57	0.035	1000	31.22	Adequate
5	80	13.00	**3.89**	1.28	2.61	0.60	26.13	17.02	1.54	333	Earthen	Earthen	Earthen	0.035	2.08	54.42	Collapsed	Collapsed	1.45	0.18	2.00	1.28	0.72	8.90	110.12	-0.18	0.519	0.23	-0.08	-0.31	-134.97	Adequate	13.0	3.890	1.140		RCC Wa	RCC Wa	RCC	0.60	27.95	17.30	1.62	0.035	1000	34.77	Adequate
6	60	10.00	**4.15**	1.22	2.93	0.60	23.30	14.66	1.59	167	Earthen	Earthen	Earthen	0.035	3.00	70.23	Collapsed	Collapsed	1.76	0.20	2.00	1.22	0.78	9.75	107.29	-0.01	0.522	0.27	0.00	-0.28	-101.43	Adequate	10.0	4.150	1.120		RCC Wa	RCC Wa	RCC	0.60	24.30	14.86	1.64	0.035	1000	30.47	Adequate
7	40	10.00	**4.08**	1.10	2.98	0.60	23.80	14.76	1.61	-51	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	2.08	0.22	2.00	1.10	0.90	10.30	105.58	0.11	0.525	0.32	0.07	-0.25	-78.26	#NUM!	10.0	4.080	1.100		RCC Wa	RCC Wa	RCC	0.60	23.80	14.76	1.61	0.035	1000	29.57	Adequate
8	20	11.00	**3.88**	1.49	2.39	0.60	19.69	14.58	1.35	56	Earthen	Earthen	Earthen	0.035	4.67	92.22	Collapsed	Collapsed	2.39	0.24	2.00	1.49	0.51	14.18	95.64	0.20	0.550	0.35	0.13	-0.22	-62.92	Adequate	11.0	3.880	1.080		RCC Wa	RCC Wa	RCC	0.60	24.20	15.40	1.57	0.035	1000	29.55	Adequate
9	0	10.00	**3.85**	1.13	2.72	0.60	21.20	14.24	1.49	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	2.70	0.26	2.00	1.13	0.87	12.66	99.16	0.27	0.538	0.40	0.20	-0.20	-49.27	#DIV/0!	10.0	3.850	1.060		RCC Wa	RCC Wa	RCC	0.60	21.90	14.38	1.52	0.035	1000	26.19	Adequate
Nalla 5f																				280.00	2.00																										
1	280	15.65	3.03	0.97	2.06	0.60	22.85	18.57	1.23	63	Earthen	Earthen	Earthen	0.035	4.14	94.82	Collapsed	Collapsed	#######	0.10	2.00	0.97	1.03	3.93	135.56	#VALUE!	0.506	######	#####	######	#VALUE!	######	12.0	3.030	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
2	260	17.37	**2.89**	0.65	2.24	0.60	28.49	20.65	1.38	-38	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.12	2.00	0.65	1.35	4.38	132.24	#VALUE!	0.508	######	#####	######	#VALUE!	#NUM!	18.0	3.001	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	600	#REF!	#REF!
3	240	17.00	**3.06**	1.18	1.88	0.60	21.76	19.56	1.11	-167	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.14	2.00	1.18	0.82	6.34	120.72	#VALUE!	0.514	######	#####	######	#VALUE!	#NUM!	18.0	2.968	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
4	220	16.38	**3.00**	1.30	1.70	0.60	18.02	18.58	0.97	2000	Earthen	Earthen	Earthen	0.035	0.63	11.28	Collapsed	Collapsed	#######	0.16	2.00	1.30	0.70	7.86	114.02	#VALUE!	0.517	######	#####	######	#VALUE!	######	18.0	2.940	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
5	200	16.38	2.88	1.29	1.59	0.50	17.85	18.56	0.96	250	Earthen	Earthen	Earthen	0.035	1.76	31.44	Collapsed	Collapsed	#######	0.18	2.00	1.29	0.71	8.95	109.95	#VALUE!	0.519	######	#####	######	#VALUE!	######	18.0	2.911	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
6	180	16.47	**3.04**	1.21	1.83	0.60	20.26	18.93	1.07	61	Earthen	Earthen	Earthen	0.035	3.84	77.79	Collapsed	Collapsed	#######	0.20	2.00	1.21	0.79	9.70	107.44	#VALUE!	0.522	######	#####	######	#VALUE!	######	18.0	2.882	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
7	160	1.50	**2.64**	0.88	1.76	0.60	1.74	3.82	0.46	-2000	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.22	2.00	0.88	1.12	9.47	108.20	#VALUE!	0.522	######	#####	######	#VALUE!	#NUM!	18.0	2.854	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
8	140	15.99	**2.62**	0.89	1.73	0.60	18.07	18.25	0.99	-154	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.24	2.00	0.89	1.11	10.51	104.96	#VALUE!	0.525	######	#####	######	#VALUE!	#NUM!	18.0	2.825	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!
9	120	1.50	**2.55**	1.02	1.53	0.50	1.55	3.56	0.43	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	#######	0.26	2.00	1.02	0.98	12.09	100.59	#VALUE!	0.538	######	#####	######	#VALUE!	#DIV/0!	18.0	2.797	#REF!		RCC Wa	RCC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	700	#REF!	#REF!

Storm drains in Kalwa

Details of existing c/s (columns 3–11); H in (m) (columns 20–22)

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1	Min H2	H
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			18	19	20	21	22
10	100	1.50	**2.15**	1.02	1.13	0.40	1.10	2.96	0.37	77	Earthen	Earthen	Earthen	0.035	1.69	1.84	Collapsed	Collapsed	#######	0.28	2.00	1.02	0.98
11	80	12.96	**2.00**	0.76	1.24	0.40	10.89	14.64	0.74	-2000	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.30	2.00	0.76	1.24
12	60	1.50	**1.78**	0.77	1.01	0.30	1.07	2.92	0.36	500	Earthen	Earthen	Earthen	0.035	0.66	0.69	Collapsed	Collapsed	#######	0.32	2.00	0.77	1.23
13	40	13.78	1.94	0.73	1.21	0.40	11.16	15.40	0.72	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	#######	0.34	2.00	0.73	1.27
14	20	1.50	**1.85**	0.73	1.12	0.40	1.08	2.94	0.37	-2000	Earthen	Earthen	Earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	#######	0.36	2.00	0.73	1.27
15	0	12.51	**1.87**	0.74	1.13	0.40	9.13	13.97	0.65	#DIV/0!	Earthen	Earthen	Earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	#######	0.38	2.00	0.74	1.26
Nalla 5g																				60.00	2.00		
1	60	1.50	**1.45**	0.87	0.59	0.20	0.58	2.27	0.25		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	0.10	0.10	2.00	0.87	1.14
2	40	1.50	**1.25**	0.24	1.02	0.30	1.07	2.93	0.37		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	0.17	0.12	2.00	0.24	1.77
3	20	1.50	**1.30**	0.82	0.48	0.20	0.42	2.06	0.20		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	0.23	0.14	2.00	0.82	1.18
4	0	1.50	**1.26**	0.36	0.90	0.30	0.90	2.70	0.33		C. C.	C. C.		FALSE	#DIV/0!	#DIV/0!	Collapsed	Collapsed	0.30	0.16	2.00	0.36	1.65
Nalla 6a																				140.00	50.00		
1	160	1.71	42.12	41.30	0.82	0.30	0.89	2.75	0.32	10	earthen	earthen	earthen	0.035	4.29	3.78	Collapsed	Collapsed	2.27	0.08	50.00	41.30	8.70
2	140	1.55	41.19	39.30	1.89	0.60	2.00	4.13	0.48	17	earthen	earthen	earthen	0.035	4.35	8.66	Collapsed	Collapsed	2.38	0.10	50.00	39.30	10.70
3	120	2.28	38.37	38.09	0.28	0.10	0.41	2.64	0.16	8	earthen	earthen	earthen	0.035	3.03	1.23	Collapsed	Collapsed	2.49	0.12	50.00	38.09	11.91
4	100	1.85	36.69	35.46	1.23	0.40	1.54	3.51	0.44	31	earthen	earthen	earthen	0.035	2.98	4.56	Collapsed	Collapsed	2.61	0.14	50.00	35.46	14.54
5	80	1.55	34.95	34.81	0.14	0.00	0.22	1.83	0.12	11	earthen	earthen	earthen	0.035	2.10	0.45	Collapsed	Collapsed	2.72	0.16	50.00	34.81	15.19
6	60	1.73	33.95	33.01	0.94	0.30	1.11	3.01	0.37	16	earthen	earthen	earthen	0.035	3.68	4.04	Collapsed	Collapsed	2.83	0.18	50.00	33.01	16.99
7	40	1.30	32.30	31.77	0.53	0.20	0.43	1.96	0.22	17	earthen	earthen	earthen	0.035	2.56	1.09	Collapsed	Collapsed	2.94	0.20	50.00	31.77	18.23
8	20	0.83	31.03	30.58	0.45	0.20	0.21	1.33	0.16	1	earthen	earthen	earthen	0.035	10.37	2.12	Collapsed	Collapsed	3.06	0.22	50.00	30.58	19.42
	0	0.83	30.98	30.48	0.50	0.20	0.25	1.43	0.17													30.48	
Nalla 6b																				92.00	50.00		
1	92	1.50	36.50	35.37	1.13	0.40	1.10	2.96	0.37	3	earthen	earthen	earthen	0.035	8.07	8.78	Collapsed	Collapsed	2.23	0.10	50.00	35.37	14.63
2	80	1.50	33.00	31.81	1.19	0.40	1.19	3.08	0.38	6	earthen	earthen	earthen	0.035	6.19	7.29	Collapsed	Collapsed	2.34	0.11	50.00	31.81	18.19
3	60	1.50	29.50	28.50	1.01	0.30	1.06	2.91	0.36	25	earthen	earthen	earthen	0.035	2.94	3.09	Collapsed	Collapsed	2.53	0.13	50.00	28.50	21.51
4	40	1.50	28.70	27.69	1.01	0.30	1.07	2.92	0.36	24	earthen	earthen	earthen	0.035	3.01	3.18	Collapsed	Collapsed	2.72	0.15	50.00	27.69	22.31
5	20	1.50	27.90	26.85	1.05	0.30	1.13	3.00	0.37	21	earthen	earthen	earthen	0.035	3.24	3.62	Collapsed	Collapsed	2.91	0.17	50.00	26.85	23.15
6	0	1.50	27.00	25.91	1.09	0.40	1.04	2.88	0.36	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	3.10	0.19	50.00	25.91	24.09
Nalla 6C																				1215.00	33.00		
1	1215	1.50	27.00	25.91	1.09	0.40	1.04	2.88	0.36	190	earthen	earthen	earthen	0.035	1.05	1.08	Collapsed	Collapsed	6.26	0.10	33.00	25.91	7.09
2	1195	1.50	27.00	25.81	1.20	0.40	1.19	3.09	0.39	21	earthen	earthen	earthen	0.035	3.36	3.98	Collapsed	Collapsed	6.64	0.12	33.00	25.81	7.20
3	1175	1.50	26.00	24.84	1.17	0.40	1.15	3.03	0.38	6	earthen	earthen	earthen	0.035	6.25	7.13	Collapsed	Collapsed	7.03	0.14	33.00	24.84	8.17
4	1155	1.50	23.00	21.39	1.62	0.50	1.67	3.73	0.45	9	earthen	earthen	earthen	0.035	5.49	9.14	Collapsed	Collapsed	7.42	0.16	33.00	21.39	11.62
5	1135	1.50	20.50	19.26	1.25	0.40	1.27	3.19	0.40	-14	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	7.80	0.18	33.00	19.26	13.75
6	1115	1.50	21.70	20.64	1.07	0.40	1.00	2.83	0.35	6	earthen	earthen	earthen	0.035	5.67	5.62	Collapsed	Collapsed	8.19	0.20	33.00	20.64	12.37
7	1095	1.50	18.50	17.52	0.98	0.30	1.03	2.87	0.36	30	earthen	earthen	earthen	0.035	2.65	2.71	Collapsed	Collapsed	8.57	0.22	33.00	17.52	15.49
8	1075	1.50	18.00	16.85	1.16	0.40	1.13	3.01	0.38	12	earthen	earthen	earthen	0.035	4.25	4.78	Collapsed	Collapsed	8.96	0.24	33.00	16.85	16.16
9	1055	1.50	16.00	15.24	0.76	0.30	0.69	2.42	0.29	20	earthen	earthen	earthen	0.035	2.82	1.93	Collapsed	Collapsed	9.35	0.26	33.00	15.24	17.76
10	1035	1.50	15.00	14.22	0.78	0.30	0.72	2.46	0.29	48	earthen	earthen	earthen	0.035	1.84	1.31	Collapsed	Collapsed	9.73	0.28	33.00	14.22	18.78
11	1015	1.50	15.00	13.80	1.20	0.40	1.20	3.10	0.39	49	earthen	earthen	earthen	0.035	2.17	2.59	Collapsed	Collapsed	10.12	0.30	33.00	13.80	19.20
12	995	1.50	14.50	13.40	1.11	0.40	1.06	2.91	0.36	-63	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	10.50	0.32	33.00	13.40	19.61
13	975	1.50	14.80	13.71	1.09	0.40	1.04	2.88	0.36	32	earthen	earthen	earthen	0.035	2.56	2.63	Collapsed	Collapsed	10.89	0.34	33.00	13.71	19.29

Details of Proposed C/S (columns 28–40)

Sr. No	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
10	13.17	97.92	#VALUE!	0.544	######	#####	######	#VALUE!	######	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	850	#REF!	#REF!
11	13.03	98.26	#VALUE!	0.544	######	#####	######	#VALUE!	#NUM!	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	859	#REF!	#REF!
12	14.08	95.84	#VALUE!	0.550	######	#####	######	#VALUE!	######	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	850	#REF!	#REF!
13	14.92	94.05	#VALUE!	0.550	######	#####	######	#VALUE!	#DIV/0!	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	1000	#REF!	#REF!
14	15.94	91.99	#VALUE!	0.557	######	#####	######	#VALUE!	#NUM!	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	1000	#REF!	#REF!
15	17.02	89.95	#VALUE!	0.569	######	#####	######	#VALUE!	#DIV/0!	20.0	2.500	#REF!		RCC Wa	CC Wa	RCC	#REF!	#REF!	#REF!	#REF!	#REF!	1000	#REF!	#REF!
Nalla 5g																								
1	3.79	136.72	-13.44	0.506	0.02	-0.51	-0.53	-2755.56	#DIV/0!	1.0	1.450	0.865		C-Type	C-Type	RCC	0.20	0.39	1.77	0.22	0.018	800	0.27	Adequate
2	3.95	135.46	-7.74	0.506	0.03	-0.49	-0.52	-1630.10	#DIV/0!	1.0	1.250	0.840		C-Type	C-Type	RCC	0.10	0.31	1.62	0.19	0.018	800	0.20	Adequate
3	5.51	125.08	-5.30	0.511	0.04	-0.43	-0.47	-1137.50	#DIV/0!	1.0	1.300	0.815		C-Type	C-Type	RCC	0.20	0.29	1.57	0.18	0.018	800	0.18	Adequate
4	5.65	124.26	-3.95	0.511	0.05	-0.41	-0.46	-872.16	#DIV/0!	1.0	1.255	0.790		C-Type	C-Type	RCC	0.20	0.27	1.53	0.17	0.018	800	0.16	Adequate
Nalla 6a																								
1	1.34	169.17	0.17	0.500	0.53	0.18	-0.35	-65.60	Adequate	1.0	42.120	41.300		C-Type	C-Type	RCC	0.30	0.52	2.04	0.25	0.018	12	3.35	Adequate
2	1.60	163.62	0.20	0.500	0.54	0.22	-0.32	-59.64	Adequate	1.0	41.190	39.633		C-Type	C-Type	RCC	0.50	1.06	3.11	0.34	0.018	20	6.39	Adequate
3	1.89	158.35	0.23	0.500	0.55	0.25	-0.30	-54.22	Adequate	1.0	38.370	38.633		C-Type	C-Type	RCC	-0.10	-0.16	0.67	-0.24	0.018	10	#NUM!	#NUM!
4	2.09	155.20	0.25	0.503	0.57	0.28	-0.28	-49.58	Adequate	1.0	36.690	36.633		C-Type	C-Type	RCC	0.00	0.06	1.11	0.05	0.018	13	0.12	Inadequate
5	2.40	150.92	0.28	0.503	0.57	0.31	-0.26	-45.07	Adequate	1.0	34.950	35.095		C-Type	C-Type	RCC	0.00	-0.14	0.71	-0.20	0.018	25	#NUM!	#NUM!
6	2.64	148.02	0.30	0.503	0.59	0.35	-0.24	-40.92	Adequate	1.0	33.950	34.295	0.75	C-Type	C-Type	RCC	-0.10	-0.24	0.51	-0.48	0.018	6	#NUM!	#NUM!
7	2.90	145.08	0.32	0.503	0.60	0.38	-0.22	-37.09	Adequate	1.0	32.300	30.212		C-Type	C-Type	RCC	0.60	1.49	3.98	0.37	0.018	15	11.09	Adequate
8	3.16	142.41	0.33	0.506	0.61	0.40	-0.21	-33.93	Adequate	1.0	31.030	28.878		C-Type	C-Type	RCC	0.60	1.55	4.10	0.38	0.018	25	9.02	Adequate
Nalla 6b																								
1	1.42	167.37	0.16	0.500	0.52	0.17	-0.35	-67.69	Adequate	1.0	36.500	35.370	0.60	C-Type	C-Type	RCC	0.40	0.73	2.46	0.30	0.018	4	9.02	Adequate
2	1.48	165.91	0.19	0.500	0.54	0.21	-0.33	-61.50	Adequate	1.0	33.000	31.770		C-Type	C-Type	RCC	0.40	0.83	2.66	0.31	0.018	6	8.66	Adequate
3	1.68	162.01	0.24	0.500	0.57	0.27	-0.30	-52.43	Adequate	1.0	29.500	28.437		C-Type	C-Type	RCC	0.40	0.66	2.33	0.29	0.018	25	3.19	Adequate
4	1.95	157.37	0.28	0.500	0.59	0.33	-0.27	-44.62	Adequate	1.0	28.700	27.637		C-Type	C-Type	RCC	0.40	0.66	2.33	0.29	0.018	25	3.19	Adequate
5	2.22	153.37	0.31	0.503	0.62	0.39	-0.24	-38.19	Adequate	1.0	27.900	26.837		C-Type	C-Type	RCC	0.40	0.66	2.33	0.29	0.018	25	3.19	Adequate
6	2.48	149.89	0.34	0.503	0.65	0.44	-0.21	-32.26	#DIV/0!	1.0	27.000	26.037		C-Type	C-Type	RCC	0.30	0.66	2.33	0.29	0.018	25	3.19	Adequate
Nalla 6C																								
1	1.87	158.69	0.57	0.500	1.38	1.58	0.20	14.49	Inadequate	3.0	27.000	25.910		C-Type	C-Type	RCC	0.40	2.07	4.38	0.47	0.018	300	4.03	Adequate
2	2.30	152.31	0.59	0.503	1.41	1.65	0.23	16.44	Adequate	3.0	27.000	25.843	0.75	C-Type	C-Type	RCC	0.40	2.27	4.51	0.50	0.018	50	11.28	Adequate
3	2.62	148.28	0.60	0.503	1.46	1.73	0.27	18.78	Adequate	3.0	26.000	24.693	0.75	C-Type	C-Type	RCC	0.40	2.72	4.81	0.57	0.018	10	32.66	Adequate
4	2.66	147.70	0.61	0.503	1.53	1.85	0.32	20.88	Adequate	3.0	23.000	21.943	0.75	C-Type	C-Type	RCC	0.40	1.97	4.31	0.46	0.018	10	20.53	Adequate
5	2.86	145.48	0.62	0.503	1.59	1.95	0.36	22.77	#NUM!	3.0	20.500	19.193		C-Type	C-Type	RCC	0.40	2.72	4.81	0.57	0.018	500	4.62	Adequate
6	3.37	140.42	0.63	0.506	1.62	2.00	0.38	23.74	Adequate	3.0	21.700	19.153		C-Type	C-Type	RCC	0.60	5.84	6.89	0.85	0.018	15	75.00	Adequate
7	3.45	139.69	0.63	0.506	1.68	2.11	0.43	25.29	Adequate	3.0	18.500	17.820	0.60	C-Type	C-Type	RCC	0.20	1.44	3.96	0.36	0.018	125	3.65	Adequate
8	3.75	137.07	0.64	0.506	1.73	2.19	0.46	26.70	Adequate	3.0	18.000	17.060		C-Type	C-Type	RCC	0.30	1.92	4.28	0.45	0.018	11	18.85	Adequate
9	3.96	135.33	0.65	0.506	1.78	2.28	0.50	28.00	Inadequate	3.0	16.000	15.242		C-Type	C-Type	RCC	0.30	1.37	3.92	0.35	0.018	20	8.50	Adequate
10	4.23	133.33	0.65	0.508	1.83	2.36	0.53	28.68	Inadequate	3.0	15.000	14.242		C-Type	C-Type	RCC	0.30	1.37	3.92	0.35	0.018	50	5.37	Adequate
11	4.54	131.11	0.66	0.508	1.87	2.43	0.56	29.78	Adequate	3.0	15.000	13.842	0.30	C-Type	C-Type	RCC	0.40	2.27	4.52	0.50	0.018	300	4.62	Adequate
12	4.85	129.04	0.66	0.508	1.91	2.50	0.59	30.80	#NUM!	3.0	14.500	13.475		C-Type	C-Type	RCC	0.30	2.17	4.45	0.49	0.018	300	4.33	Adequate
13	5.23	126.67	0.67	0.511	1.96	2.56	0.61	30.97	Adequate	3.0	14.800	13.408		C-Type	C-Type	RCC	0.50	2.67	4.78	0.56	0.018	300	5.82	Adequate

Storm drains in Kalwa

Details of existing c/s

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
14	955	1.50	14.00	13.09	0.91	0.30	0.92	2.72	0.34	59	earthen	earthen	earthen	0.035	1.82	1.65	Collapsed	Collapsed
15	935	1.50	13.60	12.75	0.85	0.30	0.82	2.60	0.32	118	earthen	earthen	earthen	0.035	1.23	1.01	Collapsed	Collapsed
16	915	1.50	13.60	12.58	1.02	0.30	1.08	2.94	0.37	125	earthen	earthen	earthen	0.035	1.32	1.42	Collapsed	Collapsed
17	895	1.50	13.50	12.42	1.08	0.40	1.02	2.86	0.36	-105	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
18	875	1.50	13.60	12.61	0.99	0.30	1.04	2.88	0.36	-364	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
19	855	1.50	13.70	12.67	1.04	0.30	1.10	2.97	0.37	-103	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
20	835	1.50	14.00	12.86	1.14	0.40	1.11	2.98	0.37	-2000	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
21	815	1.50	14.00	12.87	1.13	0.40	1.10	2.96	0.37	-286	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
22	795	1.50	14.00	12.94	1.06	0.40	0.99	2.82	0.35	69	earthen	earthen	earthen	0.035	1.72	1.70	Collapsed	Collapsed
23	775	1.50	14.00	12.65	1.35	0.50	1.28	3.20	0.40	65	earthen	earthen	earthen	0.035	1.94	2.46	Collapsed	Collapsed
24	755	1.50	13.50	12.34	1.16	0.40	1.14	3.02	0.38	222	earthen	earthen	earthen	0.035	1.01	1.14	Collapsed	Collapsed
25	735	1.50	13.50	12.25	1.25	0.40	1.28	3.20	0.40	2000	earthen	earthen	earthen	0.035	0.35	0.44	Collapsed	Collapsed
26	715	1.50	13.50	**12.24**	1.26	0.40	1.29	3.22	0.40	34	earthen	earthen	earthen	0.035	2.66	3.41	Collapsed	Collapsed
27	695	1.50	13.00	**11.66**	1.34	0.40	1.41	3.38	0.42	133	earthen	earthen	earthen	0.035	1.39	1.95	Collapsed	Collapsed
28	675	1.50	13.00	11.51	1.49	0.50	1.49	3.48	0.43	-62	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
29	655	1.50	13.00	11.83	1.17	0.40	1.16	3.04	0.38	25	earthen	earthen	earthen	0.035	2.99	3.43	Collapsed	Collapsed
30	635	1.50	12.00	11.05	0.96	0.30	0.98	2.81	0.35	49	earthen	earthen	earthen	0.035	2.04	1.99	Collapsed	Collapsed
31	615	1.50	11.60	10.64	0.97	0.30	1.00	2.83	0.35	118	earthen	earthen	earthen	0.035	1.32	1.31	Collapsed	Collapsed
32	595	1.50	11.60	10.47	1.14	0.40	1.10	2.97	0.37	250	earthen	earthen	earthen	0.035	0.94	1.03	Collapsed	Collapsed
33	575	1.50	11.60	10.39	1.22	0.40	1.22	3.13	0.39	80	earthen	earthen	earthen	0.035	1.72	2.09	Collapsed	Collapsed
34	555	1.50	11.00	10.14	0.87	0.30	0.85	2.63	0.32	27	earthen	earthen	earthen	0.035	2.62	2.20	Collapsed	Collapsed
35	535	1.50	10.50	**9.39**	1.12	0.40	1.07	2.93	0.37	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
36	515	1.50	10.50	**9.39**	1.12	0.40	1.07	2.93	0.37	-400	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
37	495	1.50	10.50	9.44	1.07	0.40	1.00	2.83	0.35	52	earthen	earthen	earthen	0.035	1.98	1.96	Collapsed	Collapsed
Nalla 6d																		
1	580	2.94	50.09	49.75	0.34	0.10	0.71	3.42	0.21	10	earthen	earthen	earthen	0.035	3.27	2.28	Collapsed	Collapsed
2	560	2.60	48.10	47.65	0.45	0.20	0.65	3.10	0.21	5	earthen	earthen	earthen	0.035	4.74	3.05	Collapsed	Collapsed
3	540	2.77	44.80	43.33	1.47	0.50	2.69	4.71	0.57	12	earthen	earthen	earthen	0.035	5.75	15.40	Collapsed	Collapsed
4	520	1.77	42.41	41.63	0.78	0.30	0.85	2.73	0.31	12	earthen	earthen	earthen	0.035	3.86	3.25	Collapsed	Collapsed
5	500	1.11	40.70	39.93	0.77	0.30	0.52	2.05	0.25	11	earthen	earthen	earthen	0.035	3.52	1.82	Collapsed	Collapsed
6	480	0.93	39.98	38.08	1.90	0.60	1.21	3.53	0.34	8	earthen	earthen	earthen	0.035	5.13	6.16	Collapsed	Collapsed
7	460	3.72	36.18	35.43	0.75	0.30	1.67	4.62	0.36	24	earthen	earthen	earthen	0.035	3.01	5.01	Collapsed	Collapsed
8	440	2.36	34.58	34.58	0.00	0.00	0.00	2.36	0.00	10	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
9	420	2.43	34.40	32.58	1.82	0.60	2.96	4.87	0.61	3	earthen	earthen	earthen	0.035	11.02	32.57	Collapsed	Collapsed
10	400	0.84	28.47	26.85	1.62	0.50	0.94	3.08	0.31	6	earthen	earthen	earthen	0.035	5.46	5.10	Collapsed	Collapsed
11	380	2.09	25.16	23.35	1.81	0.60	2.53	4.51	0.56	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
12	360	3.17	25.16	23.35	1.81	0.60	3.84	5.59	0.69	5	earthen	earthen	earthen	0.035	10.40	39.81	Collapsed	Collapsed
13	340	1.58	20.45	18.99	1.46	0.50	1.52	3.50	0.43	6	earthen	earthen	earthen	0.035	6.89	10.40	Collapsed	Collapsed
14	320	2.46	17.45	15.48	1.97	0.60	3.37	5.20	0.65	71	earthen	earthen	earthen	0.035	2.54	8.53	Collapsed	Collapsed
15	300	1.14	15.34	15.20	0.14	0.00	0.16	1.42	0.11	21	earthen	earthen	earthen	0.035	1.46	0.23	Collapsed	Collapsed
16	280	1.33	15.01	14.26	0.75	0.30	0.60	2.23	0.27	17	earthen	earthen	earthen	0.035	2.88	1.71	Collapsed	Collapsed
17	260	1.71	13.84	13.11	0.73	0.20	0.91	2.77	0.33	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed

Details of Proposed C/S

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	18	19	20	21	22	23	24	25	25	26	26			27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
14	11.28	0.36	33.00	13.09	19.91	5.52	124.99	0.67	0.511	2.00	2.64	0.64	31.85	Inadequate	3.0	14.000	13.342		C-Type	C-Type	RCC	0.20	1.37	3.92	0.35	0.018	35	6.42	Adequate
15	11.66	0.38	33.00	12.75	20.25	5.84	123.25	0.68	0.511	2.04	2.71	0.67	32.67	Inadequate	3.0	13.600	12.770	0.15	C-Type	C-Type	RCC	0.30	1.59	4.06	0.39	0.018	300	2.73	Adequate
16	12.05	0.40	33.00	12.58	20.42	6.18	121.51	0.68	0.514	2.09	2.77	0.68	32.65	Inadequate	3.0	13.600	12.554		C-Type	C-Type	RCC	0.30	2.24	4.49	0.50	0.018	500	3.50	Adequate
17	12.43	0.42	33.00	12.42	20.58	6.52	119.84	0.69	0.514	2.13	2.84	0.71	33.37	#NUM!	3.0	13.500	12.514		C-Type	C-Type	RCC	0.30	2.06	4.37	0.47	0.018	500	3.10	Adequate
18	12.82	0.44	33.00	12.61	20.39	6.90	118.06	0.69	0.514	2.16	2.90	0.74	34.04	#NUM!	3.0	13.600	12.474		C-Type	C-Type	RCC	0.40	2.18	4.45	0.49	0.018	500	3.36	Adequate
19	13.21	0.46	33.00	12.67	20.34	7.27	116.43	0.69	0.517	2.21	2.96	0.75	33.89	#NUM!	3.0	13.700	12.434		C-Type	C-Type	RCC	0.40	2.60	4.73	0.55	0.018	500	4.33	Adequate
20	13.59	0.48	33.00	12.86	20.14	7.67	114.78	0.70	0.517	2.24	3.01	0.77	34.48	#NUM!	3.0	14.000	12.394		C-Type	C-Type	RCC	0.50	3.32	5.21	0.64	0.018	500	6.10	Adequate
21	13.98	0.50	33.00	12.87	20.13	8.04	113.31	0.70	0.519	2.28	3.07	0.79	34.52	#NUM!	3.0	14.000	12.354		C-Type	C-Type	RCC	0.50	3.44	5.29	0.65	0.018	500	6.41	Adequate
22	14.37	0.52	33.00	12.94	20.06	8.42	111.85	0.70	0.519	2.32	3.13	0.81	35.05	Inadequate	3.0	14.000	12.314		C-Type	C-Type	RCC	0.60	3.26	5.17	0.63	0.018	500	5.95	Adequate
23	14.75	0.54	33.00	12.65	20.35	8.75	110.67	0.70	0.519	2.35	3.19	0.84	35.55	Inadequate	3.0	14.000	12.274		C-Type	C-Type	RCC	0.60	3.38	5.25	0.64	0.018	500	6.26	Adequate
24	15.14	0.56	33.00	12.34	20.66	9.07	109.54	0.71	0.522	2.40	3.25	0.85	35.24	Inadequate	3.0	13.500	12.234		C-Type	C-Type	RCC	0.40	2.60	4.73	0.55	0.018	500	4.33	Adequate
25	15.52	0.58	33.00	12.25	20.75	9.43	108.33	0.71	0.522	2.44	3.31	0.87	35.69	Inadequate	3.0	13.500	12.194		C-Type	C-Type	RCC	0.40	2.72	4.81	0.56	0.018	500	4.62	Adequate
26	15.91	0.60	33.00	12.24	20.76	9.81	107.12	0.71	0.522	2.47	3.36	0.89	36.11	Adequate	3.0	13.500	12.154	0.30	C-Type	C-Type	RCC	0.40	2.84	4.89	0.58	0.018	500	4.91	Adequate
27	16.30	0.62	33.00	11.66	21.34	10.08	106.27	0.71	0.525	2.53	3.43	0.90	35.74	Inadequate	3.0	13.000	11.814		C-Type	C-Type	RCC	0.40	2.36	4.57	0.52	0.018	500	3.77	Adequate
28	16.68	0.64	33.00	11.51	21.49	10.43	105.21	0.71	0.525	2.56	3.48	0.92	36.13	#NUM!	3.0	13.000	11.774		C-Type	C-Type	RCC	0.40	2.48	4.65	0.53	0.018	300	5.23	Adequate
29	17.07	0.66	33.00	11.83	21.17	10.87	103.92	0.72	0.525	2.59	3.53	0.94	36.49	Inadequate	3.0	13.000	11.707	0.45	C-Type	C-Type	RCC	0.40	2.68	4.79	0.56	0.018	300	5.84	Adequate
30	17.45	0.68	33.00	11.05	21.96	11.09	103.29	0.72	0.531	2.66	3.60	0.94	35.30	Inadequate	3.0	12.000	11.190	0.30	C-Type	C-Type	RCC	0.30	1.53	4.02	0.38	0.018	100	4.46	Adequate
31	17.84	0.70	33.00	10.64	22.37	11.39	102.47	0.72	0.531	2.70	3.66	0.96	35.63	Inadequate	3.0	11.600	10.690	0.30	C-Type	C-Type	RCC	0.30	1.83	4.22	0.43	0.018	400	2.91	Adequate
32	18.23	0.72	33.00	10.47	22.54	11.73	101.54	0.72	0.531	2.73	3.71	0.98	35.95	Inadequate	3.0	11.600	10.340		C-Type	C-Type	RCC	0.40	2.58	4.72	0.55	0.018	500	4.28	Adequate
33	18.61	0.74	33.00	10.39	22.62	12.09	100.60	0.72	0.538	2.80	3.76	0.96	34.48	Inadequate	3.0	11.600	10.300	0.30	C-Type	C-Type	RCC	0.40	2.70	4.80	0.56	0.018	500	4.57	Adequate
34	19.00	0.76	33.00	10.14	22.87	12.41	99.77	0.73	0.538	2.83	3.82	0.98	34.77	Inadequate	3.0	11.000	9.960	0.45	C-Type	C-Type	RCC	0.30	2.22	4.48	0.50	0.018	500	3.45	Adequate
35	19.38	0.78	33.00	9.39	23.62	12.63	99.23	0.73	0.538	2.87	3.88	1.01	35.05	#DIV/0!	3.0	10.500	9.470		C-Type	C-Type	RCC	0.30	2.19	4.46	0.49	0.018	500	3.38	Adequate
36	19.77	0.80	33.00	9.39	23.62	13.01	98.31	0.73	0.544	2.94	3.93	0.99	33.82	#NUM!	3.0	10.500	9.430		C-Type	C-Type	RCC	0.40	2.01	4.34	0.46	0.018	500	2.99	Adequate
37	20.16	0.82	33.00	9.44	23.57	13.40	97.40	0.73	0.544	2.97	3.98	1.01	34.08	Inadequate	3.0	10.500	9.390		C-Type	C-Type	RCC	0.40	2.13	4.42	0.48	0.018	500	3.25	Adequate
Nalla 6d		575.00	50.00																										
1	3.63	0.10	50.00	49.75	0.25	6.40	120.43	0.41	0.514	0.62	0.49	-0.13	-20.72	Adequate	1.5	50.090	49.750		C-Type	C-Type	RCC	0.10	0.36	1.98	0.18	0.018	7	2.43	Adequate
2	3.92	0.12	50.00	47.65	2.35	3.37	140.42	0.44	0.506	0.77	0.67	-0.11	-13.71	Adequate	1.5	48.100	46.893		C-Type	C-Type	RCC	0.40	1.21	3.11	0.39	0.018	10	11.33	Adequate
3	4.21	0.14	50.00	43.33	6.67	2.71	147.16	0.46	0.503	0.87	0.79	-0.07	-8.20	Adequate	1.5	44.800	44.893		C-Type	C-Type	RCC	0.00	-0.14	1.31	-0.11	0.018	15	#NUM!	#NUM!
4	4.50	0.16	50.00	41.63	8.37	2.91	144.91	0.48	0.503	0.91	0.88	-0.04	-3.86	Adequate	1.5	42.410	43.560		C-Type	C-Type	RCC	-0.40	-1.12	0.00	#####	0.018	6	#NUM!	#NUM!
5	4.79	0.18	50.00	39.93	10.07	3.12	142.77	0.50	0.506	0.96	0.96	-0.01	-0.63	Adequate	1.5	40.700	40.226		C-Type	C-Type	RCC	0.20	0.41	2.05	0.20	0.018	7	2.96	Adequate
6	5.08	0.20	50.00	38.08	11.92	3.32	140.89	0.52	0.506	1.01	1.03	0.03	2.73	Adequate	1.5	39.980	37.369		C-Type	C-Type	RCC	0.60	3.02	5.52	0.55	0.018	7	42.33	Adequate
7	5.37	0.22	50.00	35.43	14.57	3.43	139.79	0.53	0.506	1.06	1.12	0.06	5.72	Adequate	1.5	36.180	34.512		C-Type	C-Type	RCC	0.60	1.60	3.64	0.44	0.018	8	18.22	Adequate
8	5.66	0.24	50.00	34.58	15.42	3.72	137.27	0.55	0.506	1.09	1.18	0.09	8.41	Inadequate	1.5	34.580	32.012		C-Type	C-Type	RCC	0.60	2.95	5.44	0.54	0.018	8	38.60	Adequate
9	5.95	0.26	50.00	32.58	17.42	3.90	135.79	0.56	0.506	1.14	1.26	0.12	10.84	Adequate	1.5	34.400	29.512		C-Type	C-Type	RCC	0.60	6.43	10.08	0.64	0.018	10	83.78	Adequate
10	6.24	0.28	50.00	26.85	23.15	3.82	136.49	0.57	0.506	1.20	1.35	0.16	13.04	Adequate	1.5	28.470	27.512		C-Type	C-Type	RCC	0.30	0.99	2.82	0.35	0.018	4	13.63	Adequate
11	6.53	0.30	50.00	23.35	26.65	3.92	135.65	0.58	0.506	1.25	1.43	0.19	15.05	#DIV/0!	1.5	25.160	22.512		C-Type	C-Type	RCC	0.60	3.07	5.60	0.55	0.018	7	43.25	Adequate
12	6.83	0.32	50.00	23.35	26.65	4.23	133.29	0.59	0.508	1.28	1.49	0.21	16.42	Adequate	1.5	25.160	19.655		C-Type	C-Type	RCC	0.60	7.36	11.31	0.65	0.018	50	43.40	Adequate
13	7.12	0.34	50.00	18.99	31.01	4.29	132.89	0.60	0.508	1.33	1.58	0.24	18.10	Adequate	1.5	20.450	19.255		C-Type	C-Type	RCC	0.40	1.19	3.09	0.39	0.018	40	5.55	Adequate
14	7.41	0.36	50.00	15.48	34.52	4.40	132.09	0.61	0.508	1.38	1.65	0.27	19.64	Adequate	1.5	17.450	18.755		C-Type	C-Type	RCC	-0.40	-1.36	-0.31	4.38	0.018	40	-31.94	Inadequate
15	7.70	0.38	50.00	15.20	34.80	4.67	130.22	0.62	0.508	1.41	1.71	0.30	21.07	Inadequate	1.5	15.340	18.255		C-Type	C-Type	RCC	-1.00	-2.87	-2.33	1.23	0.018	40	-29.01	Inadequate
16	7.99	0.40	50.00	14.26	35.74	4.91	128.67	0.62	0.508	1.45	1.78	0.32	22.40	Inadequate	1.5	15.010	17.755	0.30	C-Type	C-Type	RCC	-0.90	-2.77	-2.19	1.26	0.018	300	-10.37	Inadequate
17	8.28	0.42	50.00	13.11	36.89	5.13	127.27	0.63	0.511	1.50	1.84	0.34	22.90	#DIV/0!	1.5	13.840	17.388		C-Type	C-Type	RCC	-1.20	-3.52	-3.20	1.10	0.018	300	-12.05	Inadequate

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Details of existing C/S: Material of Construction Left	Material of Construction Right	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1	Min H2	H in (m) H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Details of Proposed C/S: Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	26	27	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
18	240	0.87	13.87	13.11	0.76	0.30	0.40	1.79	0.22	-69	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed	8.57	0.44	50.00	13.11	36.89	5.42	125.58	0.63	0.511	1.53	1.89	0.37	24.05	#NUM!	1.5	13.870	17.321		C-Type	C-Type	RCC	-3.38	-3.00	1.12	0.018	225	-13.53	Inadequate
19	220	2.39	13.40	13.40	0.00	0.00	0.00	2.39	0.00	83	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed	8.86	0.46	50.00	13.40	36.60	5.73	123.87	0.64	0.511	1.56	1.95	0.39	25.11	Inadequate	1.5	13.400	17.233	0.45	C-Type	C-Type	RCC	-3.80	-3.57	1.07	0.018	150	-17.98	Inadequate
20	200	2.03	13.16	13.16	0.00	0.00	0.00	2.03	0.00	20	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed	9.15	0.48	50.00	13.16	36.84	6.00	122.40	0.64	0.514	1.60	2.01	0.41	25.38	Inadequate	1.5	13.160	16.649		C-Type	C-Type	RCC	-3.43	-3.08	1.12	0.018	300	-11.85	Inadequate
21	180	1.88	12.77	12.16	0.61	0.20	0.77	2.70	0.29	53	earthen	earthen	0.035	1.72	1.32	Collapsed	Collapsed	9.44	0.50	50.00	12.16	37.84	6.23	121.24	0.65	0.514	1.63	2.06	0.43	26.31	Inadequate	1.5	12.770	16.583	0.45	C-Type	C-Type	RCC	-3.77	-3.53	1.07	0.018	300	-12.64	Inadequate
22	160	3.04	11.96	11.78	0.18	0.10	0.24	3.20	0.08	53	earthen	earthen	0.035	0.72	0.17	Collapsed	Collapsed	9.73	0.52	50.00	11.78	38.22	6.50	119.93	0.65	0.514	1.67	2.12	0.45	27.18	Inadequate	1.5	11.960	16.066		C-Type	C-Type	RCC	-4.06	-3.91	1.04	0.018	300	-13.34	Inadequate
23	140	3.72	11.83	11.40	0.43	0.10	1.23	4.38	0.28	667	earthen	earthen	0.035	0.48	0.58	Collapsed	Collapsed	10.02	0.54	50.00	11.40	38.60	6.77	118.68	0.66	0.514	1.70	2.17	0.48	28.01	Inadequate	1.5	11.830	15.999	0.45	C-Type	C-Type	RCC	-4.15	-4.04	1.03	0.018	300	-13.58	Inadequate
24	120	5.09	11.48	11.37	0.11	0.00	0.56	5.31	0.11	91	earthen	earthen	0.035	0.68	0.37	Collapsed	Collapsed	10.31	0.56	50.00	11.37	38.63	7.06	117.37	0.66	0.517	1.74	2.23	0.49	28.04	Inadequate	1.5	11.480	15.483		C-Type	C-Type	RCC	-4.05	-3.91	1.04	0.018	300	-13.33	Inadequate
25	100	5.43	11.39	11.15	0.24	0.10	0.76	5.71	0.13	44	earthen	earthen	0.035	1.13	0.85	Collapsed	Collapsed	10.61	0.58	50.00	11.15	38.85	7.33	116.16	0.67	0.517	1.77	2.28	0.51	28.77	Inadequate	1.5	11.390	15.416	0.30	C-Type	C-Type	RCC	-4.09	-3.95	1.03	0.018	200	-16.43	Inadequate
26	80	5.49	10.80	10.70	0.10	0.00	0.55	5.69	0.10	91	earthen	earthen	0.035	0.64	0.35	Collapsed	Collapsed	10.90	0.60	50.00	10.70	39.30	7.60	115.07	0.67	0.517	1.80	2.33	0.53	29.47	Inadequate	1.5	10.800	15.016		C-Type	C-Type	RCC	-4.22	-4.13	1.02	0.018	300	-13.75	Inadequate
27	60	5.60	10.52	10.48	0.04	0.00	0.22	5.68	0.04	100	earthen	earthen	0.035	0.34	0.07	Collapsed	Collapsed	11.19	0.62	50.00	10.48	39.52	7.87	113.95	0.67	0.517	1.83	2.38	0.55	30.12	Inadequate	1.5	10.520	14.949		C-Type	C-Type	RCC	-4.39	-4.36	1.01	0.018	200	-17.35	Inadequate
28	40	5.24	10.32	10.28	0.04	0.00	0.21	5.32	0.04	667	earthen	earthen	0.035	0.13	0.03	Collapsed	Collapsed	11.48	0.64	50.00	10.28	39.72	8.16	112.86	0.68	0.519	1.87	2.43	0.56	30.24	Inadequate	1.5	10.320	14.849	0.15	C-Type	C-Type	RCC	-4.54	-4.56	1.00	0.018	300	-14.54	Inadequate
29	20	7.36	10.25	10.25	0.00	0.00	0.00	7.36	0.00	41	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed	11.77	0.66	50.00	10.25	39.75	8.45	111.75	0.68	0.519	1.90	2.48	0.58	30.83	Inadequate	1.5	10.250	14.633		C-Type	C-Type	RCC	-4.32	-4.27	1.01	0.018	300	-14.00	Inadequate
30	0	7.22	9.96	9.76	0.20	0.10	0.72	7.42	0.10	#DIV/0!	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed	12.06	0.68	50.00	9.76	40.24	8.71	110.82	0.68	0.519	1.93	2.53	0.60	31.39	#DIV/0!	1.5	9.960	14.566		C-Type	C-Type	RCC	-4.66	-4.71	0.99	0.018	300	-14.83	Inadequate
Nalla 6f																																															
																				100.00	50.00																											
1	300	2.45	31.25	30.25	1.00	0.30	1.72	3.85	0.45	6	earthen	earthen	0.035	6.98	11.90	Collapsed	Collapsed	2.45	-0.10	50.00	30.25	19.75	#NUM!	#NUM!	0.22	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	30.250	1.0	31.250			C-Type	C-Type	RCC	0.70	2.40	0.29	0.018	7	6.46	#NUM!
2	280	1.70	27.81	26.78	1.03	0.30	1.24	3.16	0.39	10	earthen	earthen	0.035	4.88	6.01	Collapsed	Collapsed	2.56	-0.08	50.00	26.78	23.22	#NUM!	#NUM!	0.24	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	27.393	1.0	27.810			C-Type	C-Type	RCC	0.32	1.63	0.19	0.018	9	1.97	#NUM!
3	260	2.80	26.20	24.78	1.42	0.50	2.58	4.64	0.56	6	earthen	earthen	0.035	7.74	19.86	Collapsed	Collapsed	2.66	-0.06	50.00	24.78	25.22	#NUM!	#NUM!	0.27	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	25.171	1.0	26.200			C-Type	C-Type	RCC	0.73	2.46	0.30	0.018	25	3.60	#NUM!
4	240	2.50	22.78	21.59	1.19	0.40	1.98	4.08	0.48	8	earthen	earthen	0.035	6.08	11.95	Collapsed	Collapsed	2.79	-0.04	50.00	21.59	28.41	#NUM!	#NUM!	0.29	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	24.371	1.0	22.780			C-Type	C-Type	RCC	-1.09	-1.18	0.92	0.018	25	-11.49	#NUM!
5	220	1.95	21.51	19.23	2.28	0.60	3.28	5.31	0.62	11	earthen	earthen	0.035	6.14	20.05	Collapsed	Collapsed	2.91	-0.02	50.00	19.23	30.77	#NUM!	#NUM!	0.31	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	23.571	1.0	21.510			C-Type	C-Type	RCC	-1.36	-1.72	0.79	0.018	100	-6.46	#NUM!
	200	1.85	20.36	20.21																																											
	160	2.50	19.23	17.51																																											
	180	2.15	17.54	17.54																																											
	140	2.98	18.51	16.27																																											
	120	3.00	17.55	15.60																																											
	100	3.59	16.55	14.40																																											
	80	3.90	16.93	15.02																																											
	60	3.61	16.80	14.90																																											
	40	3.83	16.35	14.74																																											
	20	2.90	9.00	8.77																																											
	0	3.13	8.80	8.72																																											

Storm drains in Kalwa

Details of existing c/s

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
	20	4.25	15.65	14.74														
	0	4.85	15.90	14.44														
Nalla 6g																		
1	120	1.50	27.99	27.17	0.82	0.30	0.78	2.54	0.31	6	earthen	earthen	earthen	0.035	5.37	4.16	Collapsed	Collapsed
2	100	1.67	26.59	23.81	2.78	0.60	3.64	6.03	0.60	13	earthen	earthen	earthen	0.035	5.63	20.42	Collapsed	Collapsed
3	80	3.18	23.56	22.30	1.26	0.40	2.73	4.90	0.56	32	earthen	earthen	earthen	0.035	3.45	9.40	Collapsed	Collapsed
4	60	2.17	22.08	21.67	0.41	0.10	0.67	2.79	0.24	12	earthen	earthen	earthen	0.035	3.26	2.17	Collapsed	Collapsed
5	40	1.98	21.31	19.97	1.34	0.40	1.86	3.86	0.48	20	earthen	earthen	earthen	0.035	3.95	7.31	Collapsed	Collapsed
6	20	2.77	20.23	18.97	1.26	0.40	2.38	4.49	0.53	15	earthen	earthen	earthen	0.035	4.83	11.46	Collapsed	Collapsed
7	0	2.76	19.58	17.65	1.93	0.60	3.67	5.42	0.68	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
Nalla 6h																		
1	245	1.50	29.50	28.35	1.15	0.40	1.13	3.00	0.38	40	earthen	earthen	earthen	0.035	2.36	2.64	Collapsed	Collapsed
2	225	1.50	29.00	27.85	1.15	0.40	1.13	3.00	0.38	32	earthen	earthen	earthen	0.035	2.65	2.97	Collapsed	Collapsed
3	205	1.50	28.50	27.22	1.28	0.40	1.32	3.26	0.40	20	earthen	earthen	earthen	0.035	3.55	4.66	Collapsed	Collapsed
4	185	1.50	27.50	26.20	1.30	0.40	1.35	3.30	0.41	19	earthen	earthen	earthen	0.035	3.68	4.94	Collapsed	Collapsed
5	165	1.50	26.50	25.12	1.38	0.50	1.32	3.26	0.40	11	earthen	earthen	earthen	0.035	4.81	6.31	Collapsed	Collapsed
6	145	1.50	24.30	23.25	1.05	0.40	0.98	2.80	0.35	22	earthen	earthen	earthen	0.035	3.07	2.97	Collapsed	Collapsed
7	125	1.50	23.40	22.32	1.08	0.40	1.02	2.86	0.36	14	earthen	earthen	earthen	0.035	3.87	3.92	Collapsed	Collapsed
8	0	1.50	14.50	13.40	1.11	0.40	1.06	2.91	0.36	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
Nalla 6i																		
1	620	1.49	37.92	37.92	0.00	0.00	0.00	1.49	0.00	3	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
2	600	1.11	32.56	30.85	1.71	0.60	1.23	3.33	0.37	5	earthen	earthen	earthen	0.035	6.98	8.55	Collapsed	Collapsed
3	580	1.22	28.28	26.41	1.87	0.60	1.55	3.76	0.41	6	earthen	earthen	earthen	0.035	6.29	9.68	Collapsed	Collapsed
4	560	1.15	24.60	23.29	1.31	0.40	1.05	2.97	0.35	9	earthen	earthen	earthen	0.035	4.81	5.00	Collapsed	Collapsed
5	540	2.13	21.85	21.04	0.81	0.30	1.09	3.15	0.34	14	earthen	earthen	earthen	0.035	3.77	4.07	Collapsed	Collapsed
6	520	1.60	20.58	19.62	0.96	0.30	1.06	2.92	0.36	26	earthen	earthen	earthen	0.035	2.87	3.01	Collapsed	Collapsed
7	500	1.93	19.54	18.85	0.69	0.20	0.95	2.91	0.32	22	earthen	earthen	earthen	0.035	2.89	2.71	Collapsed	Collapsed
8	480	1.48	18.66	17.95	0.71	0.20	0.75	2.50	0.30	27	earthen	earthen	earthen	0.035	2.49	1.87	Collapsed	Collapsed
9	460	2.11	17.92	17.21	0.71	0.20	1.08	3.13	0.34	10	earthen	earthen	earthen	0.035	4.38	4.68	Collapsed	Collapsed
10	440	1.70	16.92	15.29	1.63	0.50	1.92	3.96	0.49	38	earthen	earthen	earthen	0.035	2.86	5.46	Collapsed	Collapsed
11	420	1.73	15.90	14.77	1.13	0.40	1.26	3.19	0.40	29	earthen	earthen	earthen	0.035	2.86	3.59	Collapsed	Collapsed
12	400	3.65	15.25	14.09	1.16	0.40	2.77	5.17	0.54	59	earthen	earthen	earthen	0.035	2.47	6.82	Collapsed	Collapsed
13	380	4.22	14.25	13.75	0.50	0.20	1.27	4.82	0.26	38	earthen	earthen	earthen	0.035	1.92	2.41	Collapsed	Collapsed
14	360	5.09	14.53	13.22	1.31	0.40	4.63	6.91	0.67	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
15	340	4.67	14.40	13.22	1.18	0.40	3.64	6.23	0.58	100	earthen	earthen	earthen	0.035	2.00	7.28	Collapsed	Collapsed
16	320	3.37	13.45	13.02	0.43	0.10	1.11	4.03	0.28	40	earthen	earthen	earthen	0.035	1.93	2.13	Collapsed	Collapsed
17	300	5.73	13.09	12.52	0.57	0.20	2.12	6.47	0.33	62	earthen	earthen	earthen	0.035	1.73	3.64	Collapsed	Collapsed
18	280	7.57	13.09	12.20	0.89	0.30	4.47	8.75	0.51	67	earthen	earthen	earthen	0.035	2.25	9.98	Collapsed	Collapsed
19	260	6.87	12.49	11.90	0.59	0.20	2.68	7.65	0.35	67	earthen	earthen	earthen	0.035	1.75	4.66	Collapsed	Collapsed
20	240	6.87	12.30	11.60	0.70	0.20	3.44	7.87	0.44	100	earthen	earthen	earthen	0.035	1.65	5.65	Collapsed	Collapsed
21	220	6.43	12.30	11.40	0.90	0.30	3.86	7.63	0.51	33	earthen	earthen	earthen	0.035	3.18	12.22	Collapsed	Collapsed
22	200	6..10	11.70	10.79	0.91	0.30	#VALUE!	######	#####	32	earthen	earthen	earthen	0.035	######	#VALUE!	Collapsed	Collapsed
23	180	4.52	11.10	10.17	0.93	0.30	2.85	5.78	0.49	100	earthen	earthen	earthen	0.035	1.79	5.08	Collapsed	Collapsed

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section
1	18	19	20	21	22	23	24	25	25	26	26			27
Nalla 6g		127.00	50.00											
1	3.19	0.11	50.00	27.17	22.83	1.29	170.28	0.35	0.500	0.75	0.53	-0.22	-29.36	Adequate
2	3.29	0.13	50.00	23.81	26.19	1.49	165.76	0.37	0.500	0.76	0.56	-0.20	-26.54	Adequate
3	3.39	0.15	50.00	22.30	27.70	1.73	161.17	0.38	0.500	0.76	0.58	-0.18	-23.89	Adequate
4	3.50	0.17	50.00	21.67	28.33	1.99	156.85	0.39	0.500	0.76	0.60	-0.16	-21.40	Adequate
5	3.60	0.19	50.00	19.97	30.03	2.21	153.48	0.40	0.503	0.77	0.62	-0.15	-19.53	Adequate
6	3.71	0.21	50.00	18.97	31.03	2.46	150.22	0.42	0.503	0.78	0.64	-0.13	-17.33	Adequate
7	3.81	0.23	50.00	17.65	32.35	2.69	147.40	0.43	0.503	0.78	0.67	-0.12	-15.24	#DIV/0!
Nalla 6h		245.00	50.00											
1	12.77	0.10	50.00	28.35	21.65	1.22	172.07	0.69	0.500	3.05	4.20	1.15	37.70	Inadequate
2	13.00	0.12	50.00	27.85	22.15	1.49	165.79	0.69	0.500	2.99	4.13	1.14	38.10	Inadequate
3	13.23	0.14	50.00	27.22	22.78	1.76	160.58	0.69	0.500	2.95	4.09	1.14	38.48	Adequate
4	13.47	0.16	50.00	26.20	23.80	2.02	156.30	0.69	0.503	2.94	4.06	1.12	38.03	Adequate
5	13.70	0.18	50.00	25.12	24.88	2.28	152.60	0.70	0.503	2.92	4.04	1.12	38.38	Adequate
6	13.93	0.20	50.00	23.25	26.75	2.50	149.68	0.70	0.503	2.91	4.04	1.13	38.73	Inadequate
7	14.16	0.22	50.00	22.32	27.68	2.76	146.66	0.70	0.503	2.90	4.04	1.13	39.06	Inadequate
8	15.61	0.35	50.00	13.40	36.61	4.16	133.82	0.71	0.508	2.95	4.11	1.17	39.53	#DIV/0!
Nalla 6i		500.00	24.00											
1	4.08	-0.020	24.00	37.92	-13.92	0.23	224.67	0.45	#N/A	#N/A	1.15	#N/A	#N/A	Inadequate
2	4.54	0.000	24.00	30.85	-6.85	0.00	#NUM!	0.49	#N/A	#N/A	#NUM!	#NUM!	#NUM!	#NUM!
3	4.99	0.020	24.00	26.41	-2.41	#NUM!	#NUM!	0.51	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
4	5.45	0.040	24.00	23.29	0.71	1.58	164.06	0.54	0.500	1.24	1.34	0.10	7.73	Adequate
5	5.90	0.060	24.00	21.04	2.96	1.45	166.59	0.56	0.500	1.37	1.53	0.16	11.77	Adequate
6	6.36	0.080	24.00	19.62	4.38	1.74	160.94	0.58	0.500	1.42	1.64	0.22	15.23	Adequate
7	6.82	0.100	24.00	18.85	5.15	2.12	154.85	0.59	0.503	1.47	1.73	0.26	17.52	Adequate
8	22.88	0.120	24.00	17.95	6.05	2.46	150.23	0.74	0.503	4.80	7.04	2.24	46.68	Inadequate
9	23.34	0.140	24.00	17.21	6.79	2.81	146.07	0.74	0.503	4.76	7.00	2.23	46.92	Inadequate
10	23.79	0.160	24.00	15.29	8.71	2.98	144.25	0.74	0.503	4.80	7.06	2.26	47.15	Inadequate
11	24.25	0.180	24.00	14.77	9.23	3.34	140.71	0.74	0.506	4.80	7.03	2.23	46.50	Inadequate
12	24.71	0.200	24.00	14.09	9.91	3.66	137.77	0.74	0.506	4.78	7.02	2.23	46.71	Inadequate
13	25.16	0.220	24.00	13.75	10.25	4.04	134.75	0.74	0.508	4.78	7.00	2.22	46.34	Inadequate
14	25.62	0.240	24.00	13.22	10.78	4.38	132.22	0.74	0.508	4.78	7.00	2.22	46.54	#DIV/0!
15	26.07	0.260	24.00	13.22	10.78	4.80	129.34	0.75	0.508	4.76	6.98	2.22	46.73	Adequate
16	26.53	0.280	24.00	13.02	10.98	5.20	126.90	0.75	0.511	4.78	6.98	2.20	46.05	Inadequate
17	26.99	0.300	24.00	12.52	11.48	5.53	124.95	0.75	0.511	4.79	7.00	2.21	46.23	Inadequate
18	27.44	0.320	24.00	12.20	11.80	5.90	122.96	0.75	0.511	4.79	7.01	2.22	46.40	Adequate
19	27.90	0.340	24.00	11.90	12.10	6.26	121.08	0.75	0.514	4.82	7.03	2.20	45.71	Inadequate
20	28.35	0.360	24.00	11.60	12.40	6.63	119.31	0.75	0.514	4.83	7.05	2.22	45.87	Inadequate
21	28.81	0.380	24.00	11.40	12.60	7.01	117.56	0.75	0.517	4.86	7.06	2.20	45.18	Adequate
22	29.27	0.400	24.00	10.79	13.21	7.31	116.28	0.75	0.517	4.89	7.10	2.22	45.33	######
23	29.72	0.420	24.00	10.17	13.83	7.59	115.08	0.75	0.517	4.91	7.15	2.23	45.47	Inadequate

Details of Proposed C/S

Sr. No	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
Nalla 6g															
1	1.0	27.990	27.170		C-Type	C-Type	RCC	0.30	0.52	2.04	0.25	0.018	7	4.39	Adequate
2	1.0	26.590	24.313		C-Type	C-Type	RCC	0.60	1.68	4.35	0.39	0.018	15	12.74	Adequate
3	1.0	23.560	22.980		C-Type	C-Type	RCC	0.20	0.38	1.76	0.22	0.018	7	2.88	Adequate
4	1.0	22.080	20.122		C-Type	C-Type	RCC	0.60	1.36	3.72	0.37	0.018	15	9.95	Adequate
5	1.0	21.310	18.789		C-Type	C-Type	RCC	0.60	1.92	4.84	0.40	0.018	10	18.22	Adequate
6	1.0	20.230	16.789		C-Type	C-Type	RCC	0.60	2.84	6.68	0.43	0.018	40	14.11	Adequate
7	1.0	19.580	16.289		C-Type	C-Type	RCC	0.60	2.69	6.38	0.42	0.018	300	4.85	Adequate
Nalla 6h															
1	1.2	29.500	28.350		C-Type	C-Type	RCC	0.40	0.90	2.70	0.33	0.018	40	3.80	Adequate
2	1.2	29.000	27.850		C-Type	C-Type	RCC	0.40	0.90	2.70	0.33	0.018	40	3.80	Adequate
3	1.2	28.500	27.350		C-Type	C-Type	RCC	0.40	0.90	2.70	0.33	0.018	20	5.37	Adequate
4	1.2	27.500	26.350		C-Type	C-Type	RCC	0.40	0.90	2.70	0.33	0.018	15	6.21	Adequate
5	1.2	26.500	25.017		C-Type	C-Type	RCC	0.50	1.18	3.17	0.37	0.018	12	9.80	Adequate
6	1.2	24.300	23.350		C-Type	C-Type	RCC	0.30	0.78	2.50	0.31	0.018	20	4.46	Adequate
7	1.2	23.400	22.350		C-Type	C-Type	RCC	0.30	0.90	2.70	0.33	0.018	14	6.42	Adequate
8	1.2	14.500	13.421		C-Type	C-Type	RCC	0.40	0.81	2.56	0.32	0.018	50	2.98	Adequate
Nalla 6i															
1	3.0	37.920	37.320		C-Type	C-Type	RCC	0.20	1.20	3.80	0.32	0.018	15	7.98	#N/A
2	3.0	32.560	35.987		C-Type	C-Type	RCC	-1.10	-6.98	-1.65	4.22	0.018	30	-184.93	#N/A
3	3.0	28.280	35.320	0.45	C-Type	C-Type	RCC	-2.30	-14.22	-6.48	2.19	0.018	125	-119.32	#NUM!
4	3.0	24.600	34.710	0.30	C-Type	C-Type	RCC	-3.40	-20.13	-10.42	1.93	0.018	125	-155.16	Inadequate
5	3.0	21.850	34.250		C-Type	C-Type	RCC	-4.10	-24.90	-13.60	1.83	0.018	125	-185.17	Inadequate
6	3.0	20.580	34.090	0.45	C-Type	C-Type	RCC	-4.50	-27.03	-15.02	1.80	0.018	125	-198.72	Inadequate
7	3.0	19.540	33.480	0.45	C-Type	C-Type	RCC	-4.60	-28.02	-15.68	1.79	0.018	40	-362.45	Inadequate
8	3.0	18.660	32.530		C-Type	C-Type	RCC	-4.60	-27.81	-15.54	1.79	0.018	200	-161.03	Inadequate
9	3.0	17.920	32.430		C-Type	C-Type	RCC	-4.80	-29.13	-16.42	1.77	0.018	200	-167.70	Inadequate
10	3.0	16.920	32.330		C-Type	C-Type	RCC	-5.10	-30.93	-17.62	1.76	0.018	150	-204.16	Inadequate
11	3.0	15.900	32.197	0.30	C-Type	C-Type	RCC	-5.40	-32.69	-18.79	1.74	0.018	300	-151.65	Inadequate
12	3.0	15.250	31.830	0.45	C-Type	C-Type	RCC	-5.50	-33.24	-19.16	1.73	0.018	200	-188.53	Inadequate
13	3.0	14.250	31.280		C-Type	C-Type	RCC	-5.70	-33.99	-19.66	1.73	0.018	50	-384.69	Inadequate
14	3.0	14.530	30.880		C-Type	C-Type	RCC	-5.50	-32.55	-18.70	1.74	0.018	100	-261.67	Inadequate
15	3.0	14.400	30.680	0.45	C-Type	C-Type	RCC	-5.40	-32.64	-18.76	1.74	0.018	200	-185.48	Inadequate
16	3.0	13.450	30.130	0.45	C-Type	C-Type	RCC	-5.60	-33.24	-19.16	1.73	0.018	75	-307.87	Inadequate
17	3.0	13.090	29.413		C-Type	C-Type	RCC	-5.40	-32.77	-18.85	1.74	0.018	200	-186.14	Inadequate
18	3.0	13.090	29.313		C-Type	C-Type	RCC	-5.40	-32.47	-18.65	1.74	0.018	150	-213.18	Inadequate
19	3.0	12.490	29.180		C-Type	C-Type	RCC	-5.60	-33.27	-19.18	1.73	0.018	150	-217.87	Inadequate
20	3.0	12.300	29.047	0.60	C-Type	C-Type	RCC	-5.60	-33.44	-19.29	1.73	0.018	300	-154.76	Inadequate
21	3.0	12.300	28.380		C-Type	C-Type	RCC	-5.40	-32.04	-18.36	1.75	0.018	150	-210.66	Inadequate
22	3.0	11.700	28.247	0.30	C-Type	C-Type	RCC	-5.50	-33.14	-19.09	1.74	0.018	200	-188.02	Inadequate
23	3.0	11.100	27.847		C-Type	C-Type	RCC	-5.60	-33.44	-19.29	1.73	0.018	150	-218.87	Inadequate

Storm drains in Kalwa

Details of existing c/s

Sr. No (1)	Chainage from creek (m) (2)	width (m) (3)	Top Lvl. of nalla (m) (4)	Nalla bed Lvl. (m) (5)	Total height (m) (6)	Free board in (m) (7)	Wetted C/S Area 'A' in (m2) (8)	Wetted Perimeter 'P' in (m) (9)	Hydraulic mean radius 'R' (m) (10)	Bed Slope 1 in (11)	Material of Construction Left (12)	Material of Construction Right (13)	material for 'n' value (14)	Mannings value 'n' (15)	Velocity 'V' (m/sec) (16)	Carrying capacity Qfull (M3/sec) (17)	Remarks Left	Remarks Right
24	160	3.99	10.92	9.97	0.95	0.30	2.59	5.29	0.49	59	earthen	earthen	earthen	0.035	2.33	6.01	Collapsed	Collapsed
25	140	4.19	10.52	9.63	0.89	0.30	2.47	5.37	0.46	43	earthen	earthen	earthen	0.035	2.62	6.46	Collapsed	Collapsed
26	120	4.28	10.14	9.16	0.98	0.30	2.91	5.64	0.52	#REF!	earthen	earthen	earthen	0.035	#REF!	#REF!	Collapsed	Collapsed
	100	5.64	9.75	9.08														
	80	5.04	9.70	8.86														
	60	2.79	9.06	8.75														
	40	1.74	8.53	8.48														
	20	4.19	8.17	6.84														
	0	10.11	7.97	7.04														
Nalla 6j																		
1	960		17.98	17.48	-17.48	-5.80	0.00	-23.36	0.00	-200	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
2	940		18.04	17.58	0.40	0.10	0.00	0.60	0.00	50	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
3	920		18.20	17.18	0.86	0.30	0.00	1.12	0.00	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
4	900		18.11	17.18	1.02	0.30	0.00	1.44	0.00	-125	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
5	880		17.74	17.34	0.77	0.30	0.00	0.94	0.00	286	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
6	860		17.57	17.27	0.47	0.20	0.00	0.54	0.00	9	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
7	840		15.97	14.99	2.58	0.60	0.00	3.96	0.00	43	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
8	820		15.75	14.53	1.44	0.50	0.00	1.88	0.00	49	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
9	800		15.08	14.12	1.63	0.50	0.00	2.26	0.00	-286	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
10	780		15.14	14.19	0.89	0.30	0.00	1.18	0.00	77	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
11	760		14.61	13.93	1.21	0.40	0.00	1.62	0.00	74	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
12	740		14.52	13.66	0.95	0.30	0.00	1.30	0.00	100	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
13	720		14.33	13.46	1.06	0.40	0.00	1.32	0.00	71	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
14	700		14.12	13.18	1.15	0.40	0.00	1.50	0.00	19	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
15	680		13.27	12.15	1.97	0.60	0.00	2.74	0.00	111	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
16	660		12.34	11.97	1.30	0.40	0.00	1.80	0.00	13	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
17	640		11.46	10.46	1.88	0.60	0.00	2.56	0.00	69	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
18	620		11.15	10.17	1.29	0.40	0.00	1.78	0.00	95	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed
19	600	0.96	10.94	9.96	1.19	0.40	0.76	2.54	0.30	67	earthen	earthen	earthen	0.035	1.58	1.19	Collapsed	Collapsed
20	580	1.75	10.48	9.66	1.28	0.40	1.54	3.51	0.44	65	earthen	earthen	earthen	0.035	2.07	3.16	Collapsed	Collapsed
21	560	2.92	9.69	9.35	1.13	0.40	2.13	4.38	0.49	47	earthen	earthen	earthen	0.035	2.60	5.53	Collapsed	Collapsed
22	540	3.49	9.06	8.92	0.77	0.30	1.64	4.43	0.37	80	earthen	earthen	earthen	0.035	1.66	2.70	Collapsed	Collapsed
23	520	4.92	8.76	8.67	0.39	0.10	1.43	5.50	0.26	43	earthen	earthen	earthen	0.035	1.80	2.54	Collapsed	Collapsed
24	500	5.68	8.61	8.20	0.56	0.20	2.04	6.40	0.32	-95	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
25	480	2.03	8.74	8.41	0.20	0.10	0.20	2.23	0.09	44	earthen	earthen	earthen	0.035	0.88	0.18	Collapsed	Collapsed
26	460	2.04	8.41	7.96	0.78	0.30	0.98	3.00	0.33	43	earthen	earthen	earthen	0.035	2.09	2.03	Collapsed	Collapsed
27	440	2.23	7.85	7.49	0.92	0.30	1.38	3.47	0.40	-222	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
28	420	2.27	7.92	7.58	0.27	0.10	0.39	2.61	0.15	500	earthen	earthen	earthen	0.035	0.36	0.14	Collapsed	Collapsed
29	400	2.65	7.87	7.54	0.38	0.10	0.74	3.21	0.23	38	earthen	earthen	earthen	0.035	1.75	1.29	Collapsed	Collapsed
30	380	2.81	7.61	7.02	0.85	0.30	1.55	3.91	0.40	28	earthen	earthen	earthen	0.035	2.92	4.48	Collapsed	Collapsed
31	360	2.02	8.03	6.31	1.30	0.40	1.82	3.82	0.48	54	earthen	earthen	earthen	0.035	2.38	4.31	Collapsed	Collapsed
32	340	2.17	7.87	5.94	2.09	0.60	3.23	5.15	0.63	-23	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Collapsed	Collapsed
33	320	3.83	6.92	6.80	1.07	0.40	2.57	5.17	0.50	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
34	300	6.88	6.99	6.80	0.12	0.00	0.83	7.12	0.12	15	earthen	earthen	earthen	0.035	1.79	1.46	Collapsed	Collapsed
35	280	9.13	6.92	5.45	1.54	0.50	9.50	11.21	0.85	250	earthen	earthen	earthen	0.035	1.62	15.36	Collapsed	Collapsed

Details of Proposed C/S

Sr. No (1)	Catchment area 'CA' in (Ha.) (18)	Length of drain (L) (km) (19)	H in (m) Max H1 (20)	H in (m) Min H2 (21)	H in (m) H (22)	Time of concentration 'tc' in (min.) (23)	Rainfall intensity 'I' in (mm/Hr.) (24)	Coefficient of runoff (C) (25)	New Coe of runoff C (25)	New Discharge (26)	Storm Discharge (m3/sec) Qact (26)	Diff in M3/sec	% on higher side	Adequacy of Existing Section (27)	width (m) (28)	Top Lvl. of nalla (m) (29)	Nalla bed Lvl. (m) (30)	Drop in Nalla bed (m) (31)	Material of Construction Left (32)	Material of Construction Right (33)	Material of Nalla Section (34)	Freeboard (34)	C/S A in (m2) (35)	Perimeter 'P' in (m) (36)	Hydraulic Mean Radius 'R' (m) (37)	Mannings value 'n' (38)	Bed Slope 1 in (39)	Carrying capacity Qfull_R (M3/sec) (40)	Adequacy of Proposed Section (41)
24	30.18	0.440	24.00	9.97	14.03	7.97	113.58	0.75	0.517	4.92	7.17	2.25	45.61	Inadequate	3.0	10.920	27.713		C-Type	C-Type	RCC	-5.60	-33.58	-19.39	1.73	0.018	200	-190.26	Inadequate
25	30.63	0.460	24.00	9.63	14.37	8.31	112.26	0.75	0.519	4.96	7.20	2.24	45.19	Inadequate	3.0	10.520	27.613		C-Type	C-Type	RCC	-5.70	-34.18	-19.79	1.73	0.018	225	-182.25	Inadequate
26	31.09	0.480	24.00	9.16	14.84	8.62	111.12	0.75	0.519	4.98	7.24	2.26	45.32	#REF!	3.0	10.140	27.524		C-Type	C-Type	RCC	-5.80	-34.75	-20.17	1.72	0.018	225	-185.00	Inadequate
Nalla 6j		1058.00	50.00																										
1	17.63	0.198	50.00	17.48	32.52	2.29	152.38	0.72	0.503	3.75	5.37	1.61	42.99	#NUM!	3.0	17.980	17.030		C-Type	C-Type	RCC	0.30	1.95	4.30	0.45	0.018	50	9.04	Adequate
2	18.05	0.218	50.00	17.58	32.42	2.57	148.88	0.72	0.503	3.75	5.38	1.63	43.36	Inadequate	3.0	18.040	16.630		C-Type	C-Type	RCC	0.50	2.73	4.82	0.57	0.018	150	8.48	Adequate
3	18.46	0.238	50.00	17.18	32.82	2.83	145.87	0.72	0.503	3.76	5.41	1.64	43.71	#DIV/0!	3.0	18.200	16.497		C-Type	C-Type	RCC	0.60	3.31	5.21	0.64	0.018	250	8.60	Adequate
4	18.87	0.258	50.00	17.18	32.82	3.10	142.97	0.72	0.506	3.79	5.43	1.64	43.19	#NUM!	3.0	18.110	16.417		C-Type	C-Type	RCC	0.60	3.28	5.19	0.63	0.018	250	8.49	Adequate
5	19.28	0.278	50.00	17.34	32.66	3.39	140.22	0.73	0.506	3.80	5.45	1.65	43.51	Inadequate	3.0	17.740	16.337		C-Type	C-Type	RCC	0.50	2.71	4.81	0.56	0.018	125	9.19	Adequate
6	19.70	0.298	50.00	17.27	32.73	3.67	137.75	0.73	0.506	3.81	5.48	1.67	43.82	Inadequate	3.0	17.570	16.177		C-Type	C-Type	RCC	0.50	2.68	4.79	0.56	0.018	150	8.26	Adequate
7	20.11	0.318	50.00	14.99	35.01	3.85	136.22	0.73	0.506	3.85	5.55	1.70	44.11	Inadequate	3.0	15.970	16.043		C-Type	C-Type	RCC	0.00	-0.22	2.85	-0.08	0.018	250	#NUM!	#NUM!
8	20.52	0.338	50.00	14.53	35.47	4.11	134.18	0.73	0.508	3.89	5.59	1.70	43.82	Inadequate	3.0	15.750	15.963		C-Type	C-Type	RCC	-0.10	-0.34	2.77	-0.12	0.018	100	#NUM!	#NUM!
9	20.94	0.358	50.00	14.12	35.88	4.38	132.25	0.73	0.508	3.91	5.63	1.72	44.09	#NUM!	3.0	15.080	15.763		C-Type	C-Type	RCC	-0.20	-1.45	2.03	-0.71	0.018	100	#NUM!	#NUM!
10	21.35	0.378	50.00	14.19	35.81	4.66	130.28	0.73	0.508	3.92	5.67	1.74	44.35	Inadequate	3.0	15.140	15.563	0.45	C-Type	C-Type	RCC	-0.10	-0.97	2.35	-0.41	0.018	150	#NUM!	#NUM!
11	21.76	0.398	50.00	13.93	36.07	4.93	128.51	0.73	0.508	3.95	5.71	1.76	44.60	Inadequate	3.0	14.610	14.980		C-Type	C-Type	RCC	-0.10	-0.81	2.46	-0.33	0.018	125	#NUM!	#NUM!
12	22.17	0.418	50.00	13.66	36.34	5.21	126.83	0.74	0.511	3.99	5.75	1.76	43.99	Inadequate	3.0	14.520	14.820		C-Type	C-Type	RCC	-0.10	-0.60	2.60	-0.23	0.018	20	#NUM!	#NUM!
13	22.59	0.438	50.00	13.46	36.54	5.48	125.22	0.74	0.511	4.01	5.79	1.78	44.22	Inadequate	3.0	14.330	13.820	0.60	C-Type	C-Type	RCC	0.20	0.93	3.62	0.26	0.018	200	1.48	Inadequate
14	23.00	0.458	50.00	13.18	36.82	5.76	123.70	0.74	0.511	4.04	5.83	1.79	44.44	Inadequate	3.0	14.120	13.120		C-Type	C-Type	RCC	0.30	2.10	4.40	0.48	0.018	19	16.35	Adequate
15	23.41	0.478	50.00	12.15	37.85	5.98	122.50	0.74	0.511	4.07	5.89	1.82	44.66	Inadequate	3.0	13.270	12.067		C-Type	C-Type	RCC	0.40	2.41	4.61	0.52	0.018	100	8.68	Adequate
16	23.83	0.498	50.00	11.97	38.03	6.26	121.08	0.74	0.514	4.12	5.93	1.81	44.02	Inadequate	3.0	12.340	11.867		C-Type	C-Type	RCC	0.20	0.82	3.55	0.23	0.018	100	1.71	Inadequate
17	24.24	0.518	50.00	10.46	39.54	6.46	120.13	0.74	0.514	4.16	6.00	1.84	44.21	Inadequate	3.0	11.460	11.667		C-Type	C-Type	RCC	-0.10	-0.32	2.79	-0.12	0.018	100	#NUM!	#NUM!
18	24.65	0.538	50.00	10.17	39.83	6.73	118.85	0.74	0.514	4.18	6.04	1.86	44.41	Inadequate	3.0	11.150	11.467		C-Type	C-Type	RCC	-0.10	-0.65	2.57	-0.25	0.018	100	#NUM!	#NUM!
19	25.06	0.558	50.00	9.96	40.04	7.00	117.60	0.74	0.517	4.23	6.09	1.85	43.75	Inadequate	3.0	10.940	11.267		C-Type	C-Type	RCC	-0.10	-0.68	2.55	-0.27	0.018	100	#NUM!	#NUM!
20	25.48	0.578	50.00	9.66	40.34	7.27	116.43	0.74	0.517	4.26	6.13	1.87	43.93	Inadequate	3.0	10.480	11.067	0.30	C-Type	C-Type	RCC	-0.20	-1.16	2.23	-0.52	0.018	100	#NUM!	#NUM!
21	25.89	0.598	50.00	9.35	40.65	7.54	115.30	0.75	0.517	4.29	6.18	1.89	44.10	Inadequate	3.0	9.690	10.567		C-Type	C-Type	RCC	-0.30	-1.73	1.85	-0.94	0.018	25	#NUM!	#NUM!
22	26.30	0.618	50.00	8.92	41.08	7.80	114.24	0.75	0.517	4.32	6.23	1.91	44.27	Inadequate	3.0	9.060	9.767		C-Type	C-Type	RCC	-0.20	-1.52	1.99	-0.77	0.018	8	#NUM!	#NUM!
23	26.72	0.638	50.00	8.67	41.33	8.08	113.17	0.75	0.519	4.36	6.27	1.91	43.87	Inadequate	3.0	8.760	7.267		C-Type	C-Type	RCC	0.50	2.98	4.99	0.60	0.018	50	16.59	Adequate
24	27.13	0.658	50.00	8.20	41.80	8.33	112.19	0.75	0.519	4.39	6.32	1.93	44.03	#NUM!	3.0	8.610	6.867		C-Type	C-Type	RCC	0.60	3.43	5.29	0.65	0.018	50	20.18	Adequate
25	27.54	0.678	50.00	8.41	41.59	8.64	111.05	0.75	0.519	4.41	6.36	1.95	44.18	Inadequate	3.0	8.740	6.467		C-Type	C-Type	RCC	0.60	5.02	6.35	0.79	0.018	50	33.71	Adequate
26	27.95	0.698	50.00	7.96	42.04	8.90	110.14	0.75	0.519	4.44	6.41	1.97	44.33	Inadequate	3.0	8.410	6.067		C-Type	C-Type	RCC	0.60	5.23	6.49	0.81	0.018	800	8.89	Adequate
27	28.37	0.718	50.00	7.49	42.51	9.16	109.25	0.75	0.522	4.49	6.46	1.96	43.64	#NUM!	3.0	7.850	6.042		C-Type	C-Type	RCC	0.60	3.62	5.42	0.67	0.018	800	5.44	Adequate
28	28.78	0.738	50.00	7.58	42.42	9.46	108.24	0.75	0.522	4.52	6.49	1.98	43.78	Inadequate	3.0	7.920	6.017		C-Type	C-Type	RCC	0.60	3.91	5.61	0.70	0.018	800	6.04	Adequate
29	29.19	0.758	50.00	7.54	42.46	9.75	107.29	0.75	0.522	4.54	6.54	1.99	43.91	Inadequate	3.0	7.870	5.992		C-Type	C-Type	RCC	0.60	3.83	5.56	0.69	0.018	800	5.88	Adequate
30	29.61	0.778	50.00	7.02	42.98	10.00	106.50	0.75	0.525	4.60	6.59	1.99	43.22	Inadequate	3.0	7.610	5.967		C-Type	C-Type	RCC	0.50	3.43	5.29	0.65	0.018	450	6.73	Adequate
31	30.02	0.798	50.00	6.31	43.69	10.24	105.78	0.75	0.525	4.63	6.64	2.01	43.35	Inadequate	3.0	8.030	5.923		C-Type	C-Type	RCC	0.60	4.52	6.01	0.75	0.018	400	10.38	Adequate
32	30.43	0.818	50.00	5.94	44.06	10.50	104.99	0.75	0.525	4.66	6.68	2.03	43.47	#NUM!	3.0	7.870	5.873		C-Type	C-Type	RCC	0.60	4.19	5.79	0.72	0.018	200	13.27	Adequate
33	30.84	0.838	50.00	6.80	43.20	10.88	103.89	0.75	0.525	4.67	6.71	2.04	43.59	#DIV/0!	3.0	6.920	5.773		C-Type	C-Type	RCC	0.40	2.24	4.49	0.50	0.018	300	4.52	Inadequate
34	31.26	0.858	50.00	6.80	43.20	11.18	103.04	0.75	0.531	4.75	6.75	2.00	42.08	Inadequate	3.0	6.990	5.706		C-Type	C-Type	RCC	0.40	2.65	4.77	0.56	0.018	300	5.75	Adequate
35	31.67	0.878	50.00	5.45	44.55	11.34	102.58	0.76	0.531	4.79	6.81	2.02	42.19	Adequate	3.0	6.920	5.640		C-Type	C-Type	RCC	0.40	2.64	4.76	0.55	0.018	200	7.01	Adequate

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right	Length of drain (L) (km)	Catchment area 'CA' in (Ha.)	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Nalla bed Lvl. (m)	Top Lvl. of nalla (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
											Details of existing c/s																		Details of Proposed C/S															
																						H in (m)																						
1	2360	1.32	41.32	40.80	0.52	0.20	0.42	1.96	0.22	0.035	earthen	earthen	earthen	0.035	2.32	0.97	Colapsed	Colapsed	-0.92	-0.960	32.00	40.80	-8.80	23.48	79.92	2.35	0.604	-0.12	-0.48	-0.36	288.95	Adequate	5.0	41.320	40.200	C-Type	C-Type	RCC	0.40	3.60	6.44	0.56	0.018	500	6.07	Adequate
2	2340	1.49	39.80	39.80	0.00	0.00	0.00	1.49	0.00	0.035	earthen	earthen	earthen	0.035	0.00	0.00	Colapsed	Colapsed	-0.29	-0.940	32.00	39.80	-7.80	24.01	79.23	5.68	0.610	-0.04	-0.36	-0.33	830.80	Adequate	5.0	39.800	40.160	C-Type	C-Type	RCC	-0.10	-1.30	4.48	-0.29	0.018	500	#NUM!	#NUM!
3	2320	0.98	36.48	35.57	0.91	0.30	0.60	2.20	0.27	0.035	earthen	earthen	earthen	0.035	5.21	3.09	Colapsed	Colapsed	0.34	-0.920	32.00	35.57	-3.57	31.64	70.63	-3.45	0.646	0.04	-0.23	-0.27	-633.64	Adequate	5.0	36.480	40.120	C-Type	C-Type	RCC	-1.20	-12.20	0.12	#####	0.018	500	#NUM!	#NUM!
4	2300	1.49	32.71	31.86	0.85	0.30	0.82	2.59	0.32	0.035	earthen	earthen	earthen	0.035	4.40	3.58	Colapsed	Colapsed	0.96	-0.900	32.00	31.86	0.14	#NUM!	#NUM!	-0.68	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	32.710	40.080	C-Type	C-Type	RCC	-2.50	-24.35	-4.74	5.14	0.018	500	-180.12	#NUM!
5	2280	1.47	31.06	29.69	1.37	0.50	1.28	3.21	0.40	100	earthen	earthen	earthen	0.035	1.56	1.98	Colapsed	Colapsed	1.59	-0.880	32.00	29.69	2.31	#NUM!	#NUM!	-0.10	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	31.060	40.040	C-Type	C-Type	RCC	-3.00	-29.90	-6.96	4.30	0.018	500	-196.32	#NUM!
6	2260	1.18	30.80	29.49	1.31	0.40	1.07	3.00	0.36	42	earthen	earthen	earthen	0.035	2.25	2.40	Colapsed	Colapsed	2.22	-0.860	32.00	29.49	2.51	#NUM!	#NUM!	0.16	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	30.800	40.000	C-Type	C-Type	RCC	-3.10	-30.50	-7.20	4.24	0.018	500	-198.39	#NUM!
7	2240	0.84	29.33	29.01	0.32	0.10	0.18	1.28	0.14	11	earthen	earthen	earthen	0.035	2.38	0.43	Colapsed	Colapsed	12.23	-0.840	32.00	29.01	2.99	#NUM!	#NUM!	0.68	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	29.330	39.360	C-Type	C-Type	RCC	-3.30	-33.65	-8.46	3.98	0.018	500	-209.88	#NUM!
8	2220	0.80	27.70	27.23	0.47	0.20	0.20	1.34	0.16	7	earthen	earthen	earthen	0.035	3.31	0.71	Colapsed	Colapsed	12.86	-0.820	32.00	27.23	4.77	#NUM!	#NUM!	0.69	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	27.700	39.320	0.30	C-Type	RCC	-3.90	-38.60	-10.44	3.70	0.018	500	-229.31	#NUM!
9	2200	0.84	24.99	24.25	0.74	0.20	0.45	1.92	0.24	71	earthen	earthen	earthen	0.035	1.30	0.59	Colapsed	Colapsed	13.48	-0.800	32.00	24.25	7.75	#NUM!	#NUM!	0.69	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	24.990	38.980	C-Type	C-Type	RCC	-4.70	-46.45	-13.58	3.42	0.018	500	-261.99	#NUM!
10	2180	0.90	24.83	23.97	0.86	0.30	0.50	2.02	0.25	71	earthen	earthen	earthen	0.035	1.35	0.68	Colapsed	Colapsed	14.11	-0.780	32.00	23.97	8.03	#NUM!	#NUM!	0.70	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	24.830	38.940	C-Type	C-Type	RCC	-4.70	-47.05	-13.82	3.40	0.018	500	-264.55	#NUM!
11	2160	2.17	24.47	23.69	0.78	0.30	1.04	3.13	0.33	2	earthen	earthen	earthen	0.035	9.99	10.33	Colapsed	Colapsed	14.74	-0.760	32.00	23.69	8.31	#NUM!	#NUM!	0.70	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	24.470	38.900	C-Type	C-Type	RCC	-4.80	-48.15	-14.26	3.38	0.018	500	-269.25	#NUM!
12	2140	2.14	24.18	13.24	10.94	0.60	22.13	22.82	0.97	-3	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Colapsed	Colapsed	15.37	-0.740	32.00	13.24	18.76	#NUM!	#NUM!	0.71	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	24.180	38.860	C-Type	C-Type	RCC	-4.90	-48.90	-14.56	3.36	0.018	500	-272.47	#NUM!
13	2120	2.11	22.61	21.13	1.48	0.50	2.07	4.07	0.51	9	earthen	earthen	earthen	0.035	6.07	12.50	Colapsed	Colapsed	47.08	-0.720	32.00	21.13	10.87	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	22.610	38.820	C-Type	C-Type	RCC	-5.40	-54.05	-16.62	3.25	0.018	475	-302.43	#NUM!
14	2100	2.07	20.33	18.92	1.41	0.50	1.88	3.89	0.48	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	47.71	-0.700	32.00	18.92	13.08	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!	5.0	20.330	38.778	C-Type	C-Type	RCC	-6.10	-61.74	-19.70	3.13	0.018	425	-356.36	#NUM!
15	2080	2.04	18.92	18.92	0.00	0.00	0.00	2.04	0.00	11	earthen	earthen	earthen	0.035	0.00	0.00	Colapsed	Colapsed	48.34	-0.680	32.00	18.92	13.08	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	9.400	38.731	C-Type	C-Type	RCC	-9.80	-97.65	-34.06	2.87	0.018	125	-979.29	#NUM!
16	2060	2.01	17.87	17.06	0.81	0.30	1.03	3.03	0.34	35	earthen	earthen	earthen	0.035	2.36	2.40	Colapsed	Colapsed	48.96	-0.660	32.00	17.06	14.94	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	17.870	38.571	C-Type	C-Type	RCC	-6.90	-69.00	-22.60	3.05	0.018	125	-721.61	#NUM!
17	2040	1.95	16.89	16.49	0.40	0.10	0.59	2.55	0.23	71	earthen	earthen	earthen	0.035	1.28	0.74	Colapsed	Colapsed	49.59	-0.640	32.00	16.49	15.51	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	8.700	38.411	C-Type	C-Type	RCC	-9.90	-99.05	-34.62	2.86	0.018	125	-991.96	#NUM!
18	2020	1.91	16.38	16.21	0.17	0.10	0.13	2.05	0.07	105	earthen	earthen	earthen	0.035	0.46	0.06	Colapsed	Colapsed	50.22	-0.620	32.00	16.21	15.79	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	8.400	38.251	0.60	C-Type	RCC	-10.00	-99.25	-34.70	2.86	0.018	125	-993.77	#NUM!
19	2000	1.85	15.54	16.02	0.52	0.20	0.59	2.49	0.24	286	earthen	earthen	earthen	0.035	0.65	0.38	Colapsed	Colapsed	50.85	-0.600	32.00	16.02	15.98	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	7.800	37.491	0.45	C-Type	RCC	-9.90	-98.95	-34.58	2.86	0.018	125	-991.06	#NUM!
20	1980	1.75	16.30	15.95	0.35	0.10	0.44	2.25	0.19	105	earthen	earthen	earthen	0.035	0.94	0.41	Colapsed	Colapsed	51.47	-0.580	32.00	15.95	16.05	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	7.500	36.881	C-Type	C-Type	RCC	-9.80	-97.90	-34.16	2.87	0.018	125	-981.56	#NUM!
21	1960	1.65	15.83	15.76	0.07	0.00	0.12	1.79	0.06	48	earthen	earthen	earthen	0.035	0.68	0.08	Colapsed	Colapsed	52.10	-0.560	32.00	15.76	16.24	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	5.0	7.500	36.721		C-Type	RCC	-9.70	-97.60	-34.04	2.87	0.018	200	-773.84	#NUM!
54					0.00	0.00	0.00	#####	#DIV/0!	earthen	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!
Nalla 6																																												
36	260	11.32	6.82	5.37	1.55	0.50	11.89	13.42	0.89	51	earthen	earthen	earthen	0.035	3.66	43.74	Colapsed	Colapsed	32.08	0.898	50.00	5.37	44.63	11.64	101.79	0.76	0.531	4.82	6.85	2.04	42.30	Adequate	3.0	6.820	5.640	0.60	C-Type	RCC	0.40	2.64	4.76	0.55	0.018	800	3.50	Inadequate
37	240	11.05	5.27	4.98	1.84	0.60	13.70	13.53	1.01	95	earthen	earthen	earthen	0.035	2.95	40.45	Colapsed	Colapsed	32.50	0.918	50.00	4.98	45.02	11.90	101.10	0.76	0.531	4.85	6.90	2.06	42.41	Adequate	3.0	5.270	4.915		C-Type	RCC	0.10	0.77	3.51	0.22	0.018	800	0.55	Inadequate
38	220	10.00	5.10	4.77	0.50	0.20	3.00	10.60	0.28	65	earthen	earthen	earthen	0.035	1.55	4.60	Colapsed	Colapsed	32.91	0.938	50.00	4.77	45.23	12.17	100.38	0.76	0.538	4.94	6.94	2.01	40.66	Adequate	3.0	5.100	4.890		C-Type	RCC	0.10	0.33	3.22	0.10	0.018	800	0.14	Inadequate
39	200	9.15	4.94	4.46	0.64	0.20	4.03	10.03	0.40	286	earthen	earthen	earthen	0.035	0.93	3.70	Colapsed	Colapsed	33.32	0.958	50.00	4.46	45.54	12.44	99.71	0.76	0.538	4.97	6.99	2.02	40.76	Adequate	3.0	4.940	4.865		C-Type	RCC	0.00	0.23	3.15	0.07	0.018	600	0.09	Inadequate
40	180	9.38	4.94	4.39	0.55	0.20	3.28	10.08	0.33	182	earthen	earthen	earthen	0.035	1.01	3.29	Colapsed	Colapsed	33.73	0.978	50.00	4.39	45.61	12.73	98.98	0.76	0.538	4.99	7.03	2.04	40.85	Adequate	3.0	4.940	4.831		C-Type	RCC	0.00	0.33	3.22	0.10	0.018	250	0.25	Inadequate
41	160	9.97	4.58	4.28	0.66	0.20	4.59	10.89	0.42	-667	#NUM!	#NUM!	#NUM!	0.035	34.15	0.998	50.00	4.28	45.72	13.02	98.28	0.76	0.544	5.07	7.07	2.00	39.39						3.0	4.580	4.751		C-Type	RCC	-0.10	-0.21	2.86	-0.07	0.018	14	#NUM!	#NUM!
42	140	9.32	4.66	4.31	0.27	0.10	1.58	9.66	0.16	56	earthen	earthen	earthen	0.035	1.16	1.82	Colapsed	Colapsed	34.56	1.018	50.00	4.31	45.69	13.33	97.56	0.76	0.544	5.09	7.11	2.01	39.49	Inadequate	3.0	4.660	3.323		C-Type	RCC	0.40	2.81	4.87	0.58	0.018	650	4.25	Inadequate
43	120	9.33	4.45	3.95	0.71	0.20	4.76	10.35	0.46	400	earthen	earthen	earthen	0.035	0.86	4.05	Colapsed	Colapsed	34.97	1.038	50.00	3.95	46.05	13.59	96.95	0.76	0.544	5.12	7.15	2.03	39.58	Inadequate	3.0	4.450	3.292	0.20	C-Type	RCC	0.40	2.27	4.52	0.50	0.018	400	4.00	Inadequate
44	100	8.51	4.34	3.90	0.55	0.20	2.98	9.21	0.32	-333	earthen	earthen	earthen	0.035	#NUM!	#NUM!	Colapsed	Colapsed	35.39	1.058	50.00	3.90	46.10	13.89	96.26	0.76	0.544	5.15	7.19	2.04	39.66	#NUM!	3.0	4.340	3.042		C-Type	RCC	0.40	2.69	4.80	0.56	0.018	15	26.31	Adequate
45	80	7.08	4.42	3.96	0.38	0.10	1.98	7.64	0.26	125	earthen	earthen	earthen	0.035	1.05	2.06	Colapsed	Colapsed	35.80	1.078	50.00	3.96	46.04	14.20	95.59	0.76	0.550	5.23	7.23	2.00	38.22	Inadequate	3.0	4.420	1.709		C-Type	RCC	0.60	6.33	7.22	0.88	0.018	1000	10.20	Adequate
46	60	7.00	4.35	3.80	0.62	0.20	2.94	7.84	0.38	400	earthen	earthen	earthen	0.035	0.75	2.18	Colapsed	Colapsed	36.21	1.098	50.00	3.80	46.20	14.48	94.97	0.76	0.550	5.25	7.27	2.01	38.31	Inadequate	3.0	4.350	1.689		C-Type	RCC	0.60	6.18	7.12	0.87	0.018	1000	9.89	Adequate
47	40	6.95	4.25	3.75	0.60	0.20	2.78	7.75	0.36	200	earthen	earthen	earthen	0.035	1.03	2.84	Colapsed	Colapsed	36.62	1.118	50.00	3.75	46.25	14.78	94.34	0.76	0.550	5.28	7.30	2.03	38.39	Inadequate	3.0	4.250	1.669		C-Type	RCC	0.60	5.94	6.96	0.85	0.018	1000	9.40	Adequate
48	20	6.75	4.15	3.65	0.60	0.20	2.70	7.55	0.36	200	earthen	earthen	earthen	0.035	1.02	2.75	Colapsed	Colapsed	37.04	1.138	50.00	3.65	46.35	15.08	93.72	0.76	0.557	5.37	7.34	1.97	36.73	Inadequate	3.0	4.150	1.649		C-Type	RCC	0.60	5.70	6.80	0.84	0.018	1000	8.91	Adequate
49	0	6.50	4.05	3.55	0.60	0.20	2.60	7.30	0.36	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.46	1.158	50.00	3.55	46.45	15.37	93.12	0.76	0.557	5.40	7.38	1.99	36.80	#DIV/0!	3.0	4.050	1.629		C-Type	RCC	0.60	5.46	6.64	0.82	0.018	1000	8.43	Adequate
50					4.05	0.60	0.00	6.90	0.00	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!
51					0.00	0.00	0.00	#####	#DIV/0!	earthen	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!
52					0.00	0.00	0.00	#####	#DIV/0!	earthen	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!
53					0.00	0.00	0.00	#####	#DIV/0!	earthen	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!
54					0.00	0.00	0.00	#####	#DIV/0!	earthen	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!	Colapsed	Colapsed	37.45	1.158	50.00	0.00	50.00	14.94	94.01	0.76	0.550	5.38	7.45	2.07	38.54	#DIV/0!	3.0	0.000	1.629		C-Type	RCC	-0.50	-3.39	0.74	-4.56	0.018	1000	#NUM!	#NUM!

Storm drains in Kalwa

Details of existing c/s

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
22	1940	1.55	15.79	15.34	0.45	0.20	0.39	2.05	0.19	95	earthen	earthen	earthen	0.035	0.98	0.37
23	1920	1.45	15.27	15.13	0.14	0.00	0.20	1.73	0.12	27	earthen	earthen	earthen	0.035	1.35	0.27
24	1900	1.35	14.82	14.38	0.44	0.10	0.46	2.03	0.23	80	earthen	earthen	earthen	0.035	1.20	0.54
25	1880	1.17	14.55	14.13	0.42	0.10	0.37	1.81	0.21	19	earthen	earthen	earthen	0.035	2.31	0.86
26	1860	1.37	13.53	13.08	0.45	0.20	0.34	1.87	0.18	57	earthen	earthen	earthen	0.035	1.23	0.42
27	1840	1.57	13.46	12.73	0.73	0.20	0.83	2.63	0.32	48	earthen	earthen	earthen	0.035	1.94	1.60
28	1820	1.42	12.63	12.31	0.32	0.10	0.31	1.86	0.17	43	earthen	earthen	earthen	0.035	1.35	0.42
29	1800	1.27	12.36	11.84	0.52	0.20	0.41	1.91	0.21	43	earthen	earthen	earthen	0.035	1.58	0.63
30	1780	1.84	12.06	11.37	0.69	0.20	0.90	2.82	0.32	250	earthen	earthen	earthen	0.035	0.85	0.76
31	1760	1.95	12.14	11.29	0.85	0.30	1.07	3.05	0.35	69	earthen	earthen	earthen	0.035	1.73	1.84
32	1740	2.15	11.73	11.00	0.73	0.20	1.14	3.21	0.35	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!
33	1720	4.09	11.56	11.00	0.56	0.20	1.47	4.81	0.31	69	earthen	earthen	earthen	0.035	1.58	2.30
34	1700	2.58	11.30	10.71	0.59	0.20	1.01	3.36	0.30	80	earthen	earthen	earthen	0.035	1.44	1.44
35	1680	2.61	10.80	10.46	0.34	0.10	0.63	3.09	0.20	-200	earthen	earthen	earthen	0.035	#NUM!	#NUM!
36	1660	2.43	10.74	10.56	0.18	0.10	0.19	2.59	0.08	95	earthen	earthen	earthen	0.035	0.53	0.10
37	1640	3.76	10.46	10.35	0.11	0.00	0.41	3.98	0.10	111	earthen	earthen	earthen	0.035	0.61	0.25
38	1620	3.94	10.17	10.17	0.00	0.00	0.00	3.94	0.00	51	earthen	earthen	earthen	0.035	0.00	0.00
39	1600	4.23	10.00	9.78	0.22	0.10	0.51	4.47	0.11	167	earthen	earthen	earthen	0.035	0.53	0.26
40	1580	4.70	9.83	9.66	0.17	0.10	0.33	4.84	0.07	500	earthen	earthen	earthen	0.035	0.22	0.07
41	1560	3.90	9.69	9.62	0.07	0.00	0.27	4.04	0.07	34	earthen	earthen	earthen	0.035	0.83	0.22
42	1540	3.84	9.63	9.03	0.60	0.20	1.54	4.64	0.33	-222	earthen	earthen	earthen	0.035	#NUM!	#NUM!
43	1520	4.68	9.44	9.12	0.32	0.10	1.03	5.12	0.20	95	earthen	earthen	earthen	0.035	1.02	1.03
44	1500	6.13	8.91	8.91	0.00	0.00	0.00	6.13	0.00	47	earthen	earthen	earthen	0.035	0.00	0.00
45	1480	3.99	9.07	8.48	0.59	0.20	1.56	4.77	0.33	-182	earthen	earthen	earthen	0.035	#NUM!	#NUM!
46	1460	4.88	8.85	8.59	0.26	0.10	0.78	5.20	0.15	250	earthen	earthen	earthen	0.035	0.52	0.40
47	1440	7.36	8.74	8.51	0.23	0.10	0.96	7.62	0.13	77	earthen	earthen	earthen	0.035	0.83	0.78
48	1420	4.52	8.69	8.25	0.44	0.10	1.54	5.20	0.30	167	earthen	earthen	earthen	0.035	0.99	1.51
49	1400	2.99	8.61	8.13	0.48	0.20	0.84	3.55	0.24	#DIV/0!	earthen	earthen	earthen	0.035	#DIV/0!	#DIV/0!
50	1380	2.50	8.61	8.13	0.48	0.20	0.70	3.06	0.23	143	earthen	earthen	earthen	0.035	0.90	0.63
51	1360	2.81	8.52	7.99	0.53	0.20	0.93	3.47	0.27	51	earthen	earthen	earthen	0.035	1.67	1.53
52	1340	3.14	8.11	7.60	0.51	0.20	0.97	3.76	0.26	34	earthen	earthen	earthen	0.035	2.01	1.94
53	1320	3.67	8.04	7.01	1.03	0.30	2.68	5.13	0.52	167	earthen	earthen	earthen	0.035	1.44	3.85
54	1300	3.69	8.04	6.89	1.15	0.40	2.77	5.19	0.53	-133	earthen	earthen	earthen	0.035	#NUM!	#NUM!
55	1280	6.52	7.97	7.04	0.93	0.30	4.11	7.78	0.53	-500	earthen	earthen	earthen	0.035	#NUM!	#NUM!
56	1260	3.01	7.94	7.08	0.86	0.30	1.69	4.13	0.41	250	earthen	earthen	earthen	0.035	1.00	1.68
57	1240	4.16	7.84	7.00	0.84	0.30	2.25	5.24	0.43	25	earthen	earthen	earthen	0.035	3.29	7.34
58	1220	4.61	7.55	6.19	1.36	0.50	3.96	6.33	0.63	2000	earthen	earthen	earthen	0.035	0.47	1.85
59	1200	6.97	6.86	6.18	0.68	0.20	3.35	7.93	0.42	2000	earthen	earthen	earthen	0.035	0.36	1.20
60	1180	6.95	6.17	6.17	0.00	0.00	0.00	6.95	0.00	71	earthen	earthen	earthen	0.035	0.00	0.00
61	1160	4.59	7.45	5.89	1.56	0.50	4.87	6.71	0.73	333	earthen	earthen	earthen	0.035	1.27	6.15
62	1140	5.29	6.25	5.83	0.42	0.10	1.69	5.93	0.29	1000	earthen	earthen	earthen	0.035	0.39	0.66
63	1120	5.87	6.17	5.81	0.36	0.10	1.53	6.39	0.24	667	earthen	earthen	earthen	0.035	0.43	0.65

Sr. No	Remarks Left	Remarks Right	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section
1			18	19	20	21	22	23	24	25	25	26	26			27
22	Collapsed	Collapsed	52.73	-0.540	32.00	15.34	16.66	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
23	Collapsed	Collapsed	53.35	-0.520	32.00	15.13	16.87	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
24	Collapsed	Collapsed	53.98	-0.500	32.00	14.38	17.62	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
25	Collapsed	Collapsed	54.61	-0.480	32.00	14.13	17.87	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
26	Collapsed	Collapsed	55.24	-0.460	32.00	13.08	18.92	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
27	Collapsed	Collapsed	55.86	-0.440	32.00	12.73	19.27	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
28	Collapsed	Collapsed	56.49	-0.420	32.00	12.31	19.69	#NUM!	#NUM!	0.77	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
29	Collapsed	Collapsed	57.12	-0.400	32.00	11.84	20.16	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
30	Collapsed	Collapsed	57.74	-0.380	32.00	11.37	20.63	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
31	Collapsed	Collapsed	58.37	-0.360	32.00	11.29	20.71	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
32	Collapsed	Collapsed	59.00	-0.340	32.00	11.00	21.00	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#DIV/0!
33	Collapsed	Collapsed	59.62	-0.320	32.00	11.00	21.00	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
34	Collapsed	Collapsed	60.25	-0.300	32.00	10.71	21.29	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
35	Collapsed	Collapsed	60.88	-0.280	32.00	10.46	21.54	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
36	Collapsed	Collapsed	61.51	-0.260	32.00	10.56	21.44	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
37	Collapsed	Collapsed	62.13	-0.240	32.00	10.35	21.65	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
38	Collapsed	Collapsed	62.76	-0.220	32.00	10.17	21.83	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
39	Collapsed	Collapsed	63.39	-0.200	32.00	9.78	22.22	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
40	Collapsed	Collapsed	64.01	-0.180	32.00	9.66	22.34	#NUM!	#NUM!	0.78	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
41	Collapsed	Collapsed	102.09	-0.160	32.00	9.62	22.38	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
42	Collapsed	Collapsed	102.72	-0.140	32.00	9.03	22.97	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
43	Collapsed	Collapsed	103.35	-0.120	32.00	9.12	22.88	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
44	Collapsed	Collapsed	103.97	-0.100	32.00	8.91	23.09	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
45	Collapsed	Collapsed	104.60	-0.080	32.00	8.48	23.52	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
46	Collapsed	Collapsed	105.23	-0.060	32.00	8.59	23.41	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
47	Collapsed	Collapsed	105.85	-0.040	32.00	8.51	23.49	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
48	Collapsed	Collapsed	106.48	-0.020	32.00	8.25	23.75	#NUM!	#NUM!	0.79	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
49	Collapsed	Collapsed	107.11	0.000	32.00	8.13	23.87	0.00	#NUM!	0.79	#N/A	#N/A	#NUM!	#NUM!	#NUM!	#DIV/0!
50	Collapsed	Collapsed	107.74	0.020	32.00	8.13	23.87	0.18	231.14	0.79	#N/A	#N/A	54.42	#N/A	#N/A	Inadequate
51	Collapsed	Collapsed	108.36	0.040	32.00	7.99	24.01	0.41	206.27	0.79	#N/A	#N/A	48.86	#N/A	#N/A	Inadequate
52	Collapsed	Collapsed	108.99	0.060	32.00	7.60	24.40	0.64	191.88	0.79	#N/A	#N/A	45.71	#N/A	#N/A	Inadequate
53	Collapsed	Collapsed	109.62	0.080	32.00	7.01	24.99	0.89	181.82	0.79	#N/A	#N/A	43.57	#N/A	#N/A	Inadequate
54	Collapsed	Collapsed	110.24	0.100	32.00	6.89	25.11	1.15	173.85	0.79	0.500	26.62	41.90	15.28	57.42	#NUM!
55	Collapsed	Collapsed	110.87	0.120	32.00	7.04	24.96	1.42	167.22	0.79	0.500	25.75	40.54	14.79	57.43	#NUM!
56	Collapsed	Collapsed	111.50	0.140	32.00	7.08	24.92	1.70	161.66	0.79	0.500	25.03	39.41	14.38	57.45	Inadequate
57	Collapsed	Collapsed	112.12	0.160	32.00	7.00	25.00	1.98	156.89	0.79	0.500	24.43	38.47	14.04	57.46	Inadequate
58	Collapsed	Collapsed	112.75	0.180	32.00	6.19	25.81	2.24	153.04	0.79	0.503	24.11	37.74	13.63	56.54	Inadequate
59	Collapsed	Collapsed	113.38	0.200	32.00	6.18	25.82	2.53	149.25	0.79	0.503	23.64	37.01	13.37	56.55	Inadequate
60	Collapsed	Collapsed	114.01	0.220	32.00	6.17	25.83	2.83	145.83	0.79	0.503	23.23	36.37	13.14	56.56	Inadequate
61	Collapsed	Collapsed	114.63	0.240	32.00	5.89	26.11	3.12	142.83	0.79	0.506	23.01	35.82	12.81	55.65	Inadequate
62	Collapsed	Collapsed	115.26	0.260	32.00	5.83	26.17	3.41	139.98	0.79	0.506	22.68	35.30	12.62	55.66	Inadequate
63	Collapsed	Collapsed	115.89	0.280	32.00	5.81	26.19	3.72	137.32	0.79	0.506	22.37	34.82	12.45	55.67	Inadequate

Details of Proposed C/S

Sr. No	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
22	5.0	7.300	36.621		C-Type	C-Type	RCC	-9.80	-97.60	-34.04	2.87	0.018	200	-773.84	#NUM!
23	5.0	7.000	36.521		C-Type	C-Type	RCC	-9.80	-98.60	-34.44	2.86	0.018	200	-781.00	#NUM!
24	5.0	14.820	36.421		C-Type	C-Type	RCC	-7.20	-72.00	-23.80	3.03	0.018	200	-591.66	#NUM!
25	5.0	6.400	36.321		C-Type	C-Type	RCC	-10.00	-99.60	-34.84	2.86	0.018	150	-910.08	#NUM!
26	5.0	6.200	36.188		C-Type	C-Type	RCC	-10.00	-99.94	-34.98	2.86	0.018	150	-912.83	#NUM!
27	5.0	13.460	36.054		C-Type	C-Type	RCC	-7.50	-75.47	-25.19	3.00	0.018	125	-779.42	#NUM!
28	5.0	12.630	35.894		C-Type	C-Type	RCC	-7.80	-77.32	-25.93	2.98	0.018	200	-629.30	#NUM!
29	5.0	12.360	35.794		C-Type	C-Type	RCC	-7.80	-78.17	-26.27	2.98	0.018	275	-541.81	#NUM!
30	5.0	12.060	35.721		C-Type	C-Type	RCC	-7.90	-78.81	-26.52	2.97	0.018	275	-545.66	#NUM!
31	5.0	12.140	35.649	0.30	C-Type	C-Type	RCC	-7.80	-78.54	-26.42	2.97	0.018	225	-601.49	#NUM!
32	5.0	11.730	35.260		C-Type	C-Type	RCC	-7.80	-78.65	-26.46	2.97	0.018	300	-521.52	#NUM!
33	5.0	11.560	35.193		C-Type	C-Type	RCC	-7.90	-78.67	-26.47	2.97	0.018	275	-544.81	#NUM!
34	5.0	11.300	35.120		C-Type	C-Type	RCC	-7.90	-79.60	-26.84	2.97	0.018	325	-506.36	#NUM!
35	5.0	10.800	35.059		C-Type	C-Type	RCC	-8.10	-80.79	-27.32	2.96	0.018	150	-755.13	#NUM!
36	5.0	10.740	34.926		C-Type	C-Type	RCC	-8.10	-80.43	-27.17	2.96	0.018	175	-696.33	#NUM!
37	5.0	10.460	34.811		C-Type	C-Type	RCC	-8.10	-81.26	-27.50	2.95	0.018	250	-587.86	#NUM!
38	5.0	10.170	34.731		C-Type	C-Type	RCC	-8.20	-81.81	-27.72	2.95	0.018	300	-539.83	#NUM!
39	5.0	10.000	34.665		C-Type	C-Type	RCC	-8.20	-82.32	-27.93	2.95	0.018	285	-556.93	#NUM!
40	5.0	9.830	34.594	0.15	C-Type	C-Type	RCC	-8.30	-82.32	-27.93	2.95	0.018	300	-542.82	#NUM!
41	5.0	9.690	34.378	0.15	C-Type	C-Type	RCC	-8.20	-82.44	-27.98	2.95	0.018	300	-543.50	#NUM!
42	5.0	9.630	34.161		C-Type	C-Type	RCC	-8.20	-81.66	-27.66	2.95	0.018	310	-530.19	#NUM!
43	5.0	9.440	34.097		C-Type	C-Type	RCC	-8.20	-82.28	-27.91	2.95	0.018	350	-502.35	#NUM!
44	5.0	8.910	34.039		C-Type	C-Type	RCC	-8.40	-83.65	-28.46	2.94	0.018	375	-492.40	#NUM!
45	5.0	9.070	33.986		C-Type	C-Type	RCC	-8.30	-83.08	-28.23	2.94	0.018	400	-473.91	#NUM!
46	5.0	8.850	33.936		C-Type	C-Type	RCC	-8.40	-83.43	-28.37	2.94	0.018	400	-475.68	#NUM!
47	5.0	8.740	33.886		C-Type	C-Type	RCC	-8.40	-83.73	-28.49	2.94	0.018	400	-477.18	#NUM!
48	5.0	8.690	33.836		C-Type	C-Type	RCC	-8.40	-83.73	-28.49	2.94	0.018	400	-477.18	#NUM!
49	5.0	8.610	33.786		C-Type	C-Type	RCC	-8.40	-83.88	-28.55	2.94	0.018	400	-477.94	#N/A
50	5.0	8.610	33.736		C-Type	C-Type	RCC	-8.40	-83.63	-28.45	2.94	0.018	400	-476.68	#N/A
51	5.0	8.520	33.686		C-Type	C-Type	RCC	-8.40	-83.83	-28.53	2.94	0.018	425	-463.43	#N/A
52	5.0	8.110	33.639	0.30	C-Type	C-Type	RCC	-8.50	-85.15	-29.06	2.93	0.018	425	-469.85	#N/A
53	5.0	8.040	33.292		C-Type	C-Type	RCC	-8.40	-84.26	-28.70	2.94	0.018	425	-465.52	#N/A
54	5.0	8.040	33.245	0.15	C-Type	C-Type	RCC	-8.40	-84.02	-28.61	2.94	0.018	425	-464.37	Inadequate
55	5.0	7.970	33.048		C-Type	C-Type	RCC	-8.40	-83.39	-28.36	2.94	0.018	425	-461.27	Inadequate
56	5.0	7.940	33.001		C-Type	C-Type	RCC	-8.40	-83.30	-28.32	2.94	0.018	425	-460.86	Inadequate
57	5.0	7.840	32.954		C-Type	C-Type	RCC	-8.40	-83.57	-28.43	2.94	0.018	425	-462.15	Inadequate
58	5.0	7.550	32.907	0.30	C-Type	C-Type	RCC	-8.50	-84.28	-28.71	2.94	0.018	425	-465.64	Inadequate
59	5.0	6.860	32.560		C-Type	C-Type	RCC	-8.60	-85.50	-29.20	2.93	0.018	425	-471.57	Inadequate
60	5.0	6.170	32.513	0.15	C-Type	C-Type	RCC	-8.80	-87.71	-30.09	2.92	0.018	425	-482.40	Inadequate
61	5.0	7.450	32.316		C-Type	C-Type	RCC	-8.30	-82.83	-28.13	2.94	0.018	425	-458.53	Inadequate
62	5.0	6.250	32.268		C-Type	C-Type	RCC	-8.70	-86.59	-29.64	2.92	0.018	425	-476.92	Inadequate
63	5.0	6.170	32.221		C-Type	C-Type	RCC	-8.70	-86.76	-29.70	2.92	0.018	400	-492.43	Inadequate

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction (Left)	Material of Construction (Right)	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks (Left)	Remarks (Right)	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	H in (m) Min H2	H	Time of concentraiton 'tc' in (min.)	Coefficient of runoff (C)	Rainfall intensity 'I' in (mm/Hr.)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction (Left)	Material of Construction (Right)	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	1020	0.52	24.47	24.21	0.26	0.10	0.08	0.84	0.10	4	C.C.	C.C	Concrete	0.035	3.22	0.26	Collapsed	Collapsed	0.18	-0.04	45.00	24.21	20.79	#NUMI	#NUMI	0.50	#NUMI	#NUMI	#NUMI	#NUMI	#NUMI	#NUMI	0.5	24.470	23.460	1.20	C-Type	C-Type	Concrete	0.30	0.99	4.34	0.23	0.018	5	9.23	#NUMI
2	1000	0.64	19.01	18.85	0.16	0.10	0.04	0.76	0.05	7	C.C.	C.C	Concrete	0.035	1.47	0.06	Collapsed	Collapsed	0.92	-0.02	45.00	18.85	26.15	#NUMI	#NUMI	0.50	#NUMI	#NUMI	#NUMI	#NUMI	#NUMI	#NUMI	0.6	19.010	18.260	1.00	C-Type	C-Type	Concrete	0.30	0.93	3.54	0.26	0.018	15	5.45	#NUMI
3	980	0.55	16.59	16.14	0.45	0.20	0.14	1.05	0.13	53	C.C.	C.C	Concrete	0.035	1.02	0.14	Collapsed	Collapsed	1.66	0.00	45.00	16.14	28.86	0.00	#NUMI	#VALUEI	#N/A	#N/A	#NUM!	#NUM!	#VALUEI	#VALUEI	0.9	16.590	15.927		C-Type	C-Type	RCC	0.20	0.42	1.83	0.23	0.018	20	1.93	#N/A
4	960	0.47	15.54	14.90	0.64	0.20	0.21	1.35	0.15	63	C.C.	C.C	Concrete	0.018	2.04	0.42	Collapsed	Collapsed	2.40	0.02	45.00	14.90	30.10	0.17	233.92	#VALUEI	#N/A	#N/A	#NUM!	#NUM!	#VALUEI	#VALUEI	1.2	15.540	14.927		C-Type	C-Type	RCC	0.20	0.50	2.03	0.24	0.018	40	1.70	#N/A
5	940	0.63	14.41	14.17	0.24	0.10	0.09	0.91	0.10	65	C.C.	C.C	Concrete	0.035	0.76	0.07	Collapsed	Collapsed	3.15	0.04	45.00	14.17	30.83	0.37	209.27	#VALUEI	#N/A	#N/A	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	14.410	13.927		C-Type	C-Type	RCC	0.20	0.42	2.07	0.21	0.018	20	1.84	#N/A
6	920	0.63	13.36	13.03	0.33	0.10	0.14	1.09	0.13	66	C.C.	C.C	Concrete	0.035	0.93	0.13	Collapsed	Collapsed	3.89	0.06	45.00	13.03	31.97	0.58	195.12	#VALUEI	#N/A	#N/A	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	13.360	12.927		C-Type	C-Type	RCC	0.10	0.50	2.17	0.23	0.018	16	2.61	#N/A
7	900	1.22	12.54	12.54	0.00	0.00	0.00	1.22	0.00	69	C.C.	C.C	Concrete	0.035	0.00	0.00	Collapsed	Collapsed	4.63	0.08	45.00	12.54	32.46	0.81	184.96	#VALUEI	#N/A	#N/A	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	12.540	11.677	0.75	C-Type	C-Type	RCC	0.30	0.84	2.63	0.32	0.018	120	2.01	#N/A
8	880	1.00	11.62	10.92	0.70	0.20	0.50	2.00	0.25	83	C.C.	C.C	Concrete	0.035	1.25	0.62	Collapsed	Collapsed	5.37	0.10	45.00	10.92	34.08	1.02	177.51	#VALUEI	0.500	1.32	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	11.620	10.760	0.75	C-Type	C-Type	RCC	0.30	0.84	2.62	0.32	0.018	100	2.19	Adequate
9	860	0.94	10.74	9.85	0.89	0.30	0.55	2.12	0.26	97	C.C.	C.C	Concrete	0.018	2.33	1.28	Collapsed	Collapsed	6.11	0.12	45.00	9.85	35.15	1.25	171.33	#VALUEI	0.500	1.45	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	10.740	9.810		C-Type	C-Type	RCC	0.30	0.94	2.76	0.34	0.018	100	2.57	Adequate
10	840	0.68	11.05	9.51	1.54	0.50	0.71	2.76	0.26	101	C.C.	C.C	Concrete	0.018	2.25	1.58	Collapsed	Collapsed	6.85	0.14	45.00	9.51	35.49	1.49	165.90	#VALUEI	0.500	1.58	#NUM!	#NUM!	#VALUEI	#VALUEI	1.5	11.050	9.810	0.90	C-Type	C-Type	RCC	0.50	1.41	3.38	0.42	0.018	325	2.43	Adequate
11	820	0.82	9.42	8.80	0.62	0.20	0.34	1.66	0.21	110	C.C.	C.C	Concrete	0.018	1.88	0.64	Collapsed	Collapsed	7.59	0.16	45.00	8.80	36.20	1.72	161.33	#VALUEI	0.500	1.70	#NUM!	#NUM!	#VALUEI	#VALUEI	1.8	9.420	8.648		C-Type	C-Type	RCC	0.30	0.85	2.74	0.31	0.018	74	2.51	Adequate
12	800	1.70	9.14	8.56	0.58	0.20	0.65	2.46	0.26	101	C.C.	C.C	Concrete	0.035	1.18	0.75	Collapsed	Collapsed	8.34	0.18	45.00	8.56	36.44	1.97	157.17	#VALUEI	0.500	1.82	#NUM!	#NUM!	#VALUEI	#VALUEI	1.8	9.140	8.378		C-Type	C-Type	RCC	0.30	0.83	2.72	0.31	0.018	65	2.60	Adequate
Nalla No. 7																					880.000	45.00																										
	1040	6.54	5.66	5.33																																											
66	1060	4.58	5.66	5.45	0.21	0.10	0.50	4.80	0.10	194	earthen	earthen	earthen	0.035	0.46	0.23	Collapsed	Collapsed	117.77	0.340	32.00	5.45	26.55	4.63	130.50	0.79	0.508	21.69	33.64	11.95	55.10	Inadequate	5.0	5.660	32.074		C-Type	C-Type	RCC	-8.80	-88.07	-30.23	2.91	0.018	450	-470.51	Inadequate
	920	0.53	5.72	5.34																																											
	940	0.47	5.62	3.58																																											
	960	5.13	6.32	4.65																																											
	980	3.15	6.02	4.85																																											
	1000	3.59	5.72	5.34																																											
	1020	3.93	5.87	5.33																																											
64	1100	5.33	5.78	5.78	0.00	0.00	0.00	5.33	0.00	250	earthen	earthen	earthen	0.035	0.00	0.00	Collapsed	Collapsed	116.51	0.300	32.00	5.78	26.22	4.03	134.85	0.79	0.508	22.17	34.38	12.21	55.07	Inadequate	5.0	5.760	32.171		C-Type	C-Type	RCC	-8.80	-87.96	-30.18	2.91	0.018	400	-498.47	Inadequate
65	1080	4.04	5.78	5.70	0.08	0.00	0.32	4.20	0.08	80	earthen	earthen	earthen	0.035	0.59	0.19	Collapsed	Collapsed	117.14	0.320	32.00	5.70	26.30	4.33	132.57	0.79	0.508	21.91	33.98	12.07	55.09	Inadequate	5.0	5.780	32.121		C-Type	C-Type	RCC	-8.80	-87.71	-30.08	2.92	0.018	425	-482.37	Inadequate
66	1060	4.58	5.66	5.45	0.21	0.10	0.50	4.80	0.10	194	earthen	earthen	earthen	0.035	0.46	0.23	Collapsed	Collapsed	117.77	0.340	32.00	5.45	26.55	4.63	130.50	0.79	0.508	21.69	33.64	11.95	55.10	Inadequate	5.0	5.660	32.074		C-Type	C-Type	RCC	-8.80	-88.07	-30.23	2.91	0.018	450	-470.51	Inadequate

Storm drains in Kalwa

Sr. No	Chainage from creek (m)	Details of existing c/s: width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
13	780	1.85	9.04	8.41	0.63	0.20	0.80	2.71	0.29	93	C. C.	C. C	Concrete	0.035	1.32	1.04	Collapsed	Collapsed
14	760	1.95	8.10	7.51	0.59	0.20	0.76	2.73	0.28	101	C. C.	C. C	Concrete	0.035	1.22	0.92	Collapsed	Collapsed
15	740	2.05	7.19	6.54	0.65	0.20	0.92	2.95	0.31	11	C. C.	C. C	Concrete	0.035	3.92	3.59	Collapsed	Collapsed
16	720	2.46	7.15	6.30	0.85	0.30	1.35	3.56	0.38	-5	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
17	700	2.35	6.80	5.90	0.90	0.30	1.41	3.55	0.40	-5	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
18	680	2.69	6.59	5.86	0.73	0.20	1.43	3.75	0.38	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
19	660	2.87	6.33	5.49	0.84	0.30	1.55	3.95	0.39	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
20	640	2.58	5.99	5.16	0.83	0.30	1.37	3.64	0.38	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
21	620	1.88	5.93	5.13	0.80	0.30	0.94	2.88	0.33	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
22	600	1.40	5.71	4.93	0.78	0.30	0.67	2.36	0.28	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
23	580	1.12	5.62	4.74	0.88	0.30	0.65	2.28	0.28	-6	C. C.	C. C	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
24	560	1.94	5.54	4.49	1.05	0.40	1.26	3.24	0.39	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
25	540	2.67	5.31	4.59	0.72	0.20	1.39	3.71	0.37	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
26	520	2.76	5.29	4.45	0.84	0.30	1.49	3.84	0.39	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
27	500	2.16	5.10	4.45	0.65	0.20	0.97	3.06	0.32	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
28	480	2.14	5.07	4.30	0.77	0.30	1.01	3.08	0.33	-6	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
29	460	2.10	5.08	4.22	0.86	0.30	1.18	3.22	0.37	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
30	440	2.18	5.02	4.18	0.84	0.30	1.18	3.26	0.36	-7	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
31	420	2.46	5.38	4.14	1.24	0.40	2.07	4.14	0.50	-8	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
32	400	3.05	4.82	3.87	0.95	0.30	1.98	4.35	0.46	-8	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
33	380	2.56	4.11	3.82	0.29	0.10	0.49	2.94	0.17	-8	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
34	360	1.36	4.46	3.82	0.64	0.20	0.60	2.24	0.27	-11	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
35	340	1.06	4.41	3.62	0.79	0.30	0.52	2.04	0.25	-10	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
36	320	1.21	4.30	3.50	0.80	0.30	0.61	2.21	0.27	-11	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
37	300	1.52	4.17	3.40	0.77	0.30	0.71	2.46	0.29	-32	C. C.	C. C	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
38	280	2.27	4.06	4.02	0.04	0.00	0.09	2.35	0.04	22	C. C.	C. C	Concrete	0.035	0.72	0.06	Collapsed	Collapsed
39	260	2.53	3.98	3.09	0.89	0.30	1.49	3.71	0.40	400	C. C.	C. C	Concrete	0.035	0.78	1.16	Collapsed	Collapsed
40	240	2.20	4.61	3.04	1.57	0.50	2.35	4.34	0.54	500	C. C.	C. C	Concrete	0.035	0.85	2.00	Collapsed	Collapsed
41	220	3.57	4.54	3.00	1.54	0.50	3.71	5.65	0.66	-500	C. C.	Masonry	Masonry	0.035	#NUM!	#NUM!	Collapsed	Collapsed
42	200	2.77	4.39	3.04	1.35	0.50	2.35	4.47	0.53	400	C. C.	Masonry	Masonry	0.035	0.94	2.19	Collapsed	Collapsed
43	180	2.31	3.84	2.99	0.85	0.30	1.27	3.41	0.37	95	C. C.	Masonry	Masonry	0.035	1.53	1.93	Collapsed	Collapsed
44	160	1.77	3.97	2.78	1.19	0.40	1.40	3.35	0.42	26	C. C.	Masonry	Masonry	0.035	3.15	4.38	Collapsed	Collapsed
45	140	1.77	3.60	2.01	1.59	0.50	1.93	3.95	0.49	70	C. C.	Masonry	Masonry	0.020	3.73	7.17	Collapsed	Collapsed
	120	4.54	3.48	2.06														
	100	4.69	3.08	2.46														
	80	5.44	3.04	1.23														
	60	6.42	3.46	1.72														
	40	3.63	2.28	1.79														
	20	3.12	2.39	1.25														
	0	3.08	1.01	1.01														
Nalla No. 8																		
1	1140	1.43	41.95	41.53	0.42	0.10	0.46	2.07	0.22	14	C. C.	C. C	Concrete	0.035	2.82	1.28	Collapsed	Collapsed
	1120	1.73	39.12	38.73														
	1100	1.91	34.97	34.97														
	1080	1.23	28.67	28.67														
	1060	1.05	29.43	28.79														
	1040	0.57	25.89	25.29														

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m): Max H1	Min H2	H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section
1	18	19	20	21	22	23	24	25	25	26	26			27
13	9.08	0.20	45.00	8.41	36.59	2.22	153.43	#VALUE!	0.503	1.95	#####	######	#VALUE!	######
14	9.82	0.22	45.00	7.51	37.49	2.45	150.29	#VALUE!	0.503	2.06	#####	######	#VALUE!	######
15	10.56	0.24	45.00	6.54	38.46	2.68	147.47	#VALUE!	0.503	2.18	#####	######	#VALUE!	######
16	11.30	0.26	45.00	6.30	38.70	2.94	144.67	#VALUE!	0.503	2.28	#####	######	#VALUE!	#NUM!
17	12.04	0.28	45.00	5.90	39.10	3.19	142.12	#VALUE!	0.506	2.41	#####	######	#VALUE!	#NUM!
18	12.79	0.30	45.00	5.86	39.14	3.45	139.65	#VALUE!	0.506	2.51	#####	######	#VALUE!	#NUM!
19	13.53	0.32	45.00	5.49	39.51	3.70	137.45	#VALUE!	0.506	2.61	#####	######	#VALUE!	#NUM!
20	14.27	0.34	45.00	5.16	39.84	3.96	135.36	#VALUE!	0.506	2.71	#####	######	#VALUE!	#NUM!
21	15.01	0.36	45.00	5.13	39.87	4.23	133.32	#VALUE!	0.508	2.82	#####	######	#VALUE!	#NUM!
22	15.75	0.38	45.00	4.93	40.07	4.49	131.43	#VALUE!	0.508	2.92	#####	######	#VALUE!	#NUM!
23	16.49	0.40	45.00	4.74	40.26	4.76	129.64	#VALUE!	0.508	3.02	#####	######	#VALUE!	#NUM!
24	17.24	0.42	45.00	4.49	40.51	5.02	127.96	#VALUE!	0.511	3.13	#####	######	#VALUE!	#NUM!
25	17.98	0.44	45.00	4.59	40.41	5.30	126.26	#VALUE!	0.511	3.22	#####	######	#VALUE!	#NUM!
26	18.72	0.46	45.00	4.45	40.55	5.58	124.70	#VALUE!	0.511	3.31	#####	######	#VALUE!	#NUM!
27	19.46	0.48	45.00	4.45	40.55	5.86	123.17	#VALUE!	0.511	3.40	#####	######	#VALUE!	#NUM!
28	20.20	0.50	45.00	4.30	40.70	6.13	121.75	#VALUE!	0.514	3.51	#####	######	#VALUE!	#NUM!
29	20.94	0.52	45.00	4.22	40.78	6.41	120.36	#VALUE!	0.514	3.60	#####	######	#VALUE!	#NUM!
30	21.69	0.54	45.00	4.18	40.82	6.69	119.02	#VALUE!	0.514	3.68	#####	######	#VALUE!	#NUM!
31	22.43	0.56	45.00	4.14	40.86	6.98	117.72	#VALUE!	0.514	3.77	#####	######	#VALUE!	#NUM!
32	23.17	0.58	45.00	3.87	41.13	7.25	116.54	#VALUE!	0.517	3.88	#####	######	#VALUE!	#NUM!
33	23.91	0.60	45.00	3.82	41.18	7.53	115.33	#VALUE!	0.517	3.96	#####	######	#VALUE!	#NUM!
34	24.65	0.62	45.00	3.82	41.18	7.82	114.15	#VALUE!	0.517	4.04	#####	######	#VALUE!	#NUM!
35	25.39	0.64	45.00	3.62	41.38	8.10	113.07	#VALUE!	0.519	4.14	#####	######	#VALUE!	#NUM!
36	26.13	0.66	45.00	3.50	41.50	8.38	111.99	#VALUE!	0.519	4.22	#####	######	#VALUE!	#NUM!
37	26.88	0.68	45.00	3.40	41.60	8.67	110.95	#VALUE!	0.519	4.30	#####	######	#VALUE!	#NUM!
38	27.62	0.70	45.00	4.02	40.98	9.02	109.73	#VALUE!	0.522	4.39	#####	######	#VALUE!	######
39	28.36	0.72	45.00	3.09	41.91	9.24	108.98	#VALUE!	0.522	4.48	#####	######	#VALUE!	######
40	29.10	0.74	45.00	3.04	41.96	9.53	108.01	#VALUE!	0.522	4.56	#####	######	#VALUE!	######
41	29.84	0.76	45.00	3.00	42.00	9.82	107.06	#VALUE!	0.522	4.63	#####	######	#VALUE!	#NUM!
42	30.58	0.78	45.00	3.04	41.96	10.13	106.12	#VALUE!	0.525	4.73	#####	######	#VALUE!	######
43	31.33	0.80	45.00	2.99	42.01	10.42	105.22	#VALUE!	0.525	4.81	#####	######	#VALUE!	######
44	32.07	0.82	45.00	2.78	42.22	10.70	104.39	#VALUE!	0.525	4.88	#####	######	#VALUE!	######
45	32.81	0.84	45.00	2.01	42.99	10.93	103.74	#VALUE!	0.525	4.96	#####	######	#VALUE!	######
		720.00	40.00											
Nalla No. 8														
1	#######	-0.32	40.00	41.53	-1.53	12.95	98.46	0.50	0.538	######	#####	######	#VALUE!	######

Sr. No	Details of Proposed C/S: width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
13	2.2	9.040	8.070	0.90	C-Type	C-Type	RCC	0.30	1.47	3.54	0.42	0.018	275	2.75	Adequate
14	2.0	8.100	7.098	0.75	C-Type	C-Type	Concrete	0.30	1.37	3.35	0.41	0.035	225	1.44	Inadequate
15	2.1	7.190	6.259		C-Type	C-Type	Concrete	0.30	1.29	3.31	0.39	0.035	69	2.38	Adequate
16	2.5	7.150	5.969	0.45	C-Type	C-Type	Concrete	0.40	1.92	4.02	0.48	0.035	400	1.68	Inadequate
17	2.4	6.800	5.469		C-Type	C-Type	Concrete	0.40	2.19	4.21	0.52	0.035	155	3.24	Adequate
18	2.7	6.590	5.340		C-Type	C-Type	Concrete	0.40	2.29	4.39	0.52	0.035	125	3.78	Adequate
19	2.4	6.330	5.180	0.30	C-Type	C-Type	RCC	0.40	1.80	3.90	0.46	0.018	325	3.31	Adequate
20	2.4	5.990	4.818	0.30	C-Type	C-Type	RCC	0.40	1.85	3.94	0.47	0.018	325	3.45	Adequate
21	2.4	5.930	4.457		C-Type	C-Type	RCC	0.50	2.34	4.35	0.54	0.018	400	4.29	Adequate
22	2.4	5.710	4.407		C-Type	C-Type	RCC	0.40	2.17	4.21	0.52	0.018	400	3.87	Adequate
23	2.4	5.620	4.357		C-Type	C-Type	RCC	0.40	2.07	4.13	0.50	0.018	375	3.75	Adequate
24	2.5	5.540	4.304		C-Type	C-Type	RCC	0.40	2.09	4.17	0.50	0.018	370	3.81	Adequate
25	2.5	5.310	4.250		C-Type	C-Type	RCC	0.40	1.65	3.82	0.43	0.018	180	3.91	Adequate
26	3.0	5.290	4.138		C-Type	C-Type	RCC	0.40	2.25	4.50	0.50	0.018	380	4.05	Adequate
27	3.0	5.100	4.086		C-Type	C-Type	RCC	0.30	2.14	4.43	0.48	0.018	325	4.07	Adequate
28	3.0	5.070	4.024		C-Type	C-Type	RCC	0.30	2.24	4.49	0.50	0.018	350	4.17	Adequate
29	3.0	5.080	3.967		C-Type	C-Type	RCC	0.40	2.14	4.43	0.48	0.018	300	4.22	Adequate
30	3.0	5.020	3.900		C-Type	C-Type	RCC	0.40	2.16	4.44	0.49	0.018	295	4.32	Adequate
31	3.0	5.380	3.833		C-Type	C-Type	RCC	0.50	3.14	5.09	0.62	0.018	400	6.32	Adequate
32	3.0	4.820	3.783	0.90	C-Type	C-Type	RCC	0.30	2.21	4.47	0.49	0.018	294	4.48	Adequate
33	3.0	4.110	2.815		C-Type	C-Type	RCC	0.40	2.69	4.79	0.56	0.018	475	4.66	Adequate
34	3.0	4.460	2.773		C-Type	C-Type	RCC	0.60	3.26	5.17	0.63	0.018	700	5.04	Adequate
35	3.0	4.410	2.744		C-Type	C-Type	RCC	0.60	3.20	5.13	0.62	0.018	600	5.29	Adequate
36	3.0	4.300	2.711		C-Type	C-Type	RCC	0.50	3.27	5.18	0.63	0.018	600	5.45	Adequate
37	3.0	4.170	2.677		C-Type	C-Type	RCC	0.50	2.98	4.99	0.60	0.018	500	5.25	Adequate
38	3.0	4.130	2.637		C-Type	C-Type	RCC	0.50	2.98	4.99	0.60	0.018	500	5.25	Adequate
39	3.0	4.090	2.597		C-Type	C-Type	RCC	0.50	2.98	4.99	0.60	0.018	525	5.12	Adequate
40	3.0	4.610	2.559		C-Type	C-Type	RCC	0.60	4.35	5.90	0.74	0.018	700	7.46	Adequate
41	3.6	4.581	2.531		C-Type	C-Type	Masonry	0.60	5.18	6.47	0.80	0.035	550	5.44	Adequate
42	2.8	4.390	2.494		C-Type	C-Type	Masonry	0.60	3.59	5.36	0.67	0.035	205	5.48	Adequate
43	2.5	3.840	2.397		C-Type	C-Type	RCC	0.50	2.36	4.39	0.54	0.018	110	8.26	Adequate
44	2.5	3.970	2.215		C-Type	C-Type	RCC	0.60	2.89	4.81	0.60	0.018	100	11.42	Adequate
45	2.5	3.770	2.015		C-Type	C-Type	RCC	0.60	2.89	4.81	0.60	0.018	200	8.07	Adequate
Nalla No. 8															
1	1.3	41.950	40.630		C-Type	C-Type	RCC	0.40	1.20	3.14	0.38	0.018	10	11.04	#VALUE!

Storm drains in Kalwa

Details of existing c/s

Sr. No (1)	Chainage from creek (m) (2)	width (m) (3)	Top Lvl. of nalla (m) (4)	Nalla bed Lvl. (m) (5)	Total height (m) (6)	Free board in (m) (7)	Wetted C/S Area 'A' in (m2) (8)	Wetted Perimeter 'P' in (m) (9)	Hydraulic mean radius 'R' (m) (10)	Bed Slope 1 in (11)	Material of Construction Left (12)	Material of Construction Right (13)	material for 'n' value (14)	Mannings value 'n' (15)	Velocity 'V' (m/sec) (16)	Carrying capacity Qfull (M3/sec) (17)	Remarks Left	Remarks Right
	1020	0.34	23.64	22.30														
	1000	1.34	21.48	20.93														
	980	0.85	19.07	18.17														
	960	1.01	17.92	17.89														
	940	1.03	17.37	16.54														
	920	1.01	16.79	16.47														
	900	1.38	16.60	16.11														
	880	1.64	15.87	15.22														
	860	1.61	15.94	14.82														
	840	1.60	14.65	13.90														
	820	3.03	13.91	13.17														
	800	2.60	13.28	12.95														
	780	2.69	12.99	12.48														
	760	2.92	12.47	11.85														
	740	2.57	12.47	11.85														
	720	4.64	11.26	11.06														
2	700	2.99	10.41	10.06	0.35	0.10	0.75	3.49	0.21	48	C. C.	C. C	Concrete	0.035	1.50	1.11	Collapsed	Collapsed
3	680	2.28	10.01	9.64	0.37	0.10	0.62	2.82	0.22	28	C. C.	C. C	Concrete	0.035	1.97	1.20	Collapsed	Collapsed
4	660	2.28	9.76	8.93	0.83	0.30	1.21	3.34	0.36	28	C. C.	C. C	Concrete	0.035	2.77	3.33	Collapsed	Collapsed
5	640	2.28	9.51	8.21	1.30	0.40	2.05	4.08	0.50	333	C. C.	C. C	Concrete	0.035	0.99	2.03	Collapsed	Collapsed
6	620	2.27	9.32	8.15	1.17	0.40	1.75	3.81	0.46	667	C. C.	C. C	Concrete	0.035	0.66	1.15	Collapsed	Collapsed
7	600	2.25	10.87	8.12	2.75	0.60	4.84	6.55	0.74	1000	C. C.	C. C	Concrete	0.018	1.44	6.94	Collapsed	Collapsed
8	580	2.24	9.44	8.10	1.34	0.40	2.11	4.12	0.51	400	C. C.	Masonry	Masonry	0.035	0.92	1.92	Collapsed	Collapsed
9	560	2.23	9.32	8.05	1.27	0.40	1.94	3.97	0.49	400	Masonry	Masonry	Masonry	0.035	0.89	1.72	Collapsed	Collapsed
10	540	2.22	9.32	8.00	1.32	0.40	2.04	4.06	0.50		Masonry		Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
11	520	2.22	8.04	8.04	0.00	0.00	0.00	2.22	0.00	667		Masonry	Masonry	0.035	0.00	0.00	Collapsed	Collapsed
12	500	2.22	9.47	8.01	1.46	0.50	2.13	4.14	0.51	2000	Masonry	Masonry	Masonry	0.035	0.41	0.87	Collapsed	Collapsed
13	480	2.22	9.87	8.00	1.87	0.60	2.82	4.76	0.59	51	Masonry	Masonry	Masonry	0.020	4.94	13.88	Collapsed	Collapsed
14	460	2.22	8.64	7.61	1.03	0.30	1.62	3.68	0.44	56	Masonry	Masonry	Masonry	0.035	2.23	3.60	Collapsed	Collapsed
15	440	2.35	8.20	7.25	0.95	0.30	1.53	3.65	0.42	#DIV/0!	Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
16	420	2.45	8.20	7.25	0.95	0.30	1.59	3.75	0.42	32	Masonry	C. C	Masonry	0.035	2.88	4.56	Collapsed	Collapsed
17	400	2.55	7.61	6.62	0.99	0.30	1.76	3.93	0.45	118	C. C.	C. C	Concrete	0.035	1.55	2.71	Collapsed	Collapsed
18	380	2.65	7.07	6.45	0.62	0.20	1.11	3.49	0.32	111	C. C.	C. C	Concrete	0.035	1.27	1.41	Collapsed	Collapsed
19	360	3.05	6.52	6.27	0.25	0.10	0.46	3.35	0.14	33	C. C.	C. C	Concrete	0.035	1.33	0.60	Collapsed	Collapsed
20	340	2.33	6.52	5.67	0.85	0.30	1.28	3.43	0.37	333	C. C.	C. C	Concrete	0.035	0.82	1.04	Collapsed	Collapsed
21	320	2.17	6.01	5.61	0.40	0.10	0.65	2.77	0.24		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
22	300	2.58	5.91	5.25	0.66	0.20	1.19	3.50	0.34		C. C.	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
23	280	1.77	5.95	5.22	0.73	0.20	0.94	2.83	0.33		Masonry	Masonry	Masonry	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
24	260	2.33	5.28	4.76	0.52	0.20	0.75	2.97	0.25		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
25	240	1.60	4.88	4.53	0.35	0.10	0.40	2.10	0.19		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
26	220	1.27	4.91	4.36	0.55	0.20	0.44	1.97	0.23		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
27	200	2.77	4.53	4.21	0.32	0.10	0.61	3.21	0.19		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
28	180	4.72	4.53	3.75	0.78	0.30	2.27	5.68	0.40		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
29	160	4.85	4.10	3.45	0.65	0.20	2.18	5.75	0.38		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
30	140	4.74	4.28	3.27	1.01	0.30	3.37	6.16	0.55		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
31	120	4.29	4.10	3.08	1.02	0.30	3.09	5.73	0.54		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
32	100	3.23	3.48	3.01	0.47	0.20	0.87	3.77	0.23		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
33	80	2.94	3.89	3.01	0.88	0.30	1.71	4.10	0.42		C. C.	C. C	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
34	60	2.42	3.84	2.98	0.86	0.30	1.36	3.54	0.38	#REF!	C. C.	C. C	Concrete	0.035	#REF!	#REF!	Collapsed	Collapsed
35	40	3.45	3.81	2.72	1.09	0.40	2.38	4.83	0.49	#REF!	C. C.	C. C	Concrete	0.035	#REF!	#REF!	Collapsed	Collapsed

Details of Proposed C/S

Sr. No	Catchment area 'CA' in (Ha.) (18)	Length of drain (L) (km) (19)	Max H1 (20)	Min H2 (21)	H (22)	Time of concentration 'tc' in (min.) (23)	Rainfall intensity 'I' in (mm/Hr.) (24)	Coefficient of runoff (C) (25)	New Coe of runoff C (25)	New Discharge (26)	Storm Discharge (m3/sec) Qact (26)	Diff in M3/sec	% on higher side	Adequacy of Existing Section (27)	width (m) (28)	Top Lvl. of nalla (m) (29)	Nalla bed Lvl. (m) (30)	Drop in Nalla bed (m) (31)	Material of Construction Left (32)	Material of Construction Right (33)	Material of Nalla Section (34)	Freeboard (34)	C/S A in (m2) (35)	Perimeter 'P' in (m) (36)	Hydraulic Mean Radius 'R' (m) (37)	Mannings value 'n' (38)	Bed Slope 1 in (39)	Carrying capacity Qfull_R (M3/sec) (40)	Adequacy of Proposed Section (41)
2	#######	0.12	40.00	10.06	29.94	1.33	169.40	0.50	0.500	######	#####	######	#VALUE!	######	1.3	10.410	-3.370		C-Type	C-Type	RCC	0.60	17.13	27.66	0.62	0.018	10	218.74	#VALUE!
3	#######	0.14	40.00	9.64	30.36	1.58	164.02	#VALUE!	0.500	######	#####	######	#VALUE!	######	1.3	10.010	-5.370		C-Type	C-Type	RCC	0.60	19.21	30.86	0.62	0.018	10	246.13	#VALUE!
4	#######	0.16	40.00	8.93	31.07	1.82	159.50	#VALUE!	0.500	######	#####	######	#VALUE!	######	1.3	9.760	-7.370		C-Type	C-Type	RCC	0.60	21.49	34.36	0.63	0.018	10	276.09	#VALUE!
5	#######	0.18	40.00	8.21	31.79	2.07	155.54	#VALUE!	0.503	######	#####	######	#VALUE!	######	1.3	9.510	-9.370	0.00	C-Type	C-Type	RCC	0.60	23.76	37.86	0.63	0.018	10	306.06	#VALUE!
6	#######	0.20	40.00	8.15	31.85	2.34	151.77	#VALUE!	0.503	######	#####	######	#VALUE!	######	1.3	9.320	-11.370	0.60	C-Type	C-Type	RCC	0.60	26.12	41.48	0.63	0.018	10	337.06	#VALUE!
7	#######	0.22	40.00	8.12	31.88	2.61	148.35	#VALUE!	0.503	######	#####	######	#VALUE!	######	1.3	10.870	-13.970	0.60	C-Type	C-Type	RCC	0.60	31.51	49.78	0.63	0.018	25	258.14	#VALUE!
8	#######	0.24	40.00	8.10	31.90	2.88	145.23	#VALUE!	0.503	######	#####	######	#VALUE!	######	1.3	9.440	-15.370		C-Type	C-Type	RCC	0.60	31.47	49.72	0.63	0.018	300	74.42	#VALUE!
9	#######	0.26	40.00	8.05	31.95	3.16	142.37	#VALUE!	0.506	######	#####	######	#VALUE!	######	1.3	9.373	-15.437	0.60	C-Type	C-Type	RCC	0.60	31.47	49.72	0.63	0.018	350	68.90	#VALUE!
10	#######	0.28	40.00	8.00	32.00	3.44	139.72	#VALUE!	0.506	######	#####	######	#VALUE!	#DIV/0!	1.3	9.316	-16.094	0.60	C-Type	C-Type	RCC	0.60	32.25	50.92	0.63	0.018	350	70.64	#VALUE!
11	#######	0.30	40.00	8.04	31.96	3.73	137.22	#VALUE!	0.506	######	#####	######	#VALUE!	######	1.3	8.040	-16.751	0.15	C-Type	C-Type	RCC	0.60	31.45	49.68	0.63	0.018	350	68.85	#VALUE!
12	#######	0.32	40.00	8.01	31.99	4.02	134.91	#VALUE!	0.508	######	#####	######	#VALUE!	######	1.3	9.470	-16.958	0.75	C-Type	C-Type	RCC	0.60	33.58	52.96	0.63	0.018	70	164.55	#VALUE!
13	#######	0.34	40.00	8.00	32.00	4.31	132.74	#VALUE!	0.508	######	#####	######	#VALUE!	######	1.3	9.870	-17.994		C-Type	C-Type	RCC	0.60	35.44	55.83	0.63	0.018	10	459.95	#VALUE!
14	#######	0.36	40.00	7.61	32.39	4.58	130.83	#VALUE!	0.508	######	#####	######	#VALUE!	######	1.3	8.640	-19.994	0.60	C-Type	C-Type	RCC	0.60	36.44	57.37	0.64	0.018	350	79.98	#VALUE!
15	#######	0.38	40.00	7.25	32.75	4.85	129.01	#VALUE!	0.508	######	#####	######	#VALUE!	#DIV/0!	1.3	8.200	-20.651	0.60	C-Type	C-Type	RCC	0.60	36.73	57.80	0.64	0.018	350	80.60	#VALUE!
16	#######	0.40	40.00	7.25	32.75	5.15	127.17	#VALUE!	0.511	######	#####	######	#VALUE!	######	1.3	8.143	-21.308		C-Type	C-Type	RCC	0.60	37.51	59.00	0.64	0.018	100	154.05	#VALUE!
17	#######	0.42	40.00	6.62	33.38	5.41	125.64	#VALUE!	0.511	######	#####	######	#VALUE!	######	1.3	7.610	-21.508		C-Type	C-Type	RCC	0.60	37.07	58.34	0.64	0.018	100	152.24	#VALUE!
18	#######	0.44	40.00	6.45	33.55	5.70	124.03	#VALUE!	0.511	######	#####	######	#VALUE!	######	1.3	7.070	-21.708	0.60	C-Type	C-Type	RCC	0.60	36.63	57.66	0.64	0.018	50	212.70	#VALUE!
19	#######	0.46	40.00	6.27	33.73	5.99	122.50	#VALUE!	0.511	######	#####	######	#VALUE!	######	1.3	6.670	-22.708		C-Type	C-Type	RCC	0.60	37.41	58.86	0.64	0.018	200	108.65	#VALUE!
20	#######	0.48	40.00	5.67	34.33	6.24	121.18	#VALUE!	0.514	######	#####	######	#VALUE!	######	1.3	6.570	-22.808		C-Type	C-Type	RCC	0.60	37.41	58.86	0.64	0.018	200	108.65	#VALUE!
21	#######	0.50	40.00	5.61	34.39	6.54	119.73	#VALUE!	0.514	######	#####	######	#VALUE!	#DIV/0!	1.3	6.010	-22.908		C-Type	C-Type	RCC	0.60	36.81	57.94	0.64	0.018	150	123.42	#VALUE!
22	#######	0.52	40.00	5.25	34.75	6.82	118.44	#VALUE!	0.514	######	#####	######	#VALUE!	#DIV/0!	1.3	5.877	-23.041		C-Type	C-Type	RCC	0.60	36.81	57.94	0.64	0.018	125	135.20	#VALUE!
23	#######	0.54	40.00	5.22	34.78	7.12	117.10	#VALUE!	0.517	######	#####	######	#VALUE!	#DIV/0!	1.3	5.717	-23.201	0.30	C-Type	C-Type	RCC	0.60	36.81	57.94	0.64	0.018	125	135.20	#VALUE!
24	#######	0.56	40.00	4.76	35.24	7.39	115.94	#VALUE!	0.517	######	#####	######	#VALUE!	#DIV/0!	1.3	5.557	-23.661		C-Type	C-Type	RCC	0.60	37.20	58.54	0.64	0.018	150	124.75	#VALUE!
25	#######	0.58	40.00	4.53	35.47	7.67	114.76	#VALUE!	0.517	######	#####	######	#VALUE!	#DIV/0!	1.3	4.880	-23.795		C-Type	C-Type	RCC	0.60	36.50	57.45	0.64	0.018	150	122.35	#VALUE!
26	#######	0.60	40.00	4.36	35.64	7.96	113.60	#VALUE!	0.517	######	#####	######	#VALUE!	#DIV/0!	1.3	4.747	-23.928	0.60	C-Type	C-Type	RCC	0.60	36.50	57.45	0.64	0.018	50	211.91	#VALUE!
27	#######	0.62	40.00	4.21	35.79	8.26	112.47	#VALUE!	0.519	######	#####	######	#VALUE!	#DIV/0!	1.3	4.347	-24.928		C-Type	C-Type	RCC	0.60	37.28	58.65	0.64	0.018	150	125.00	#VALUE!
28	#######	0.64	40.00	3.75	36.25	8.52	111.48	#VALUE!	0.519	######	#####	######	#VALUE!	#DIV/0!	1.3	4.530	-25.061	0.45	C-Type	C-Type	RCC	0.60	37.69	59.28	0.64	0.018	150	126.40	#VALUE!
29	#######	0.66	40.00	3.45	36.55	8.80	110.47	#VALUE!	0.519	######	#####	######	#VALUE!	#DIV/0!	1.3	4.397	-25.645		C-Type	C-Type	RCC	0.60	38.27	60.18	0.64	0.018	150	128.39	#VALUE!
30	#######	0.68	40.00	3.27	36.73	9.10	109.46	#VALUE!	0.522	######	#####	######	#VALUE!	#DIV/0!	1.3	4.263	-25.778	0.30	C-Type	C-Type	RCC	0.60	38.27	60.18	0.64	0.018	150	128.39	#VALUE!
31	#######	0.70	40.00	3.08	36.92	9.39	108.48	#VALUE!	0.522	######	#####	######	#VALUE!	#DIV/0!	1.3	4.130	-26.211	0.15	C-Type	C-Type	RCC	0.60	38.66	60.78	0.64	0.018	150	129.72	#VALUE!
32	#######	0.72	40.00	3.01	36.99	9.69	107.49	#VALUE!	0.522	######	#####	######	#VALUE!	#DIV/0!	1.3	3.480	-26.495		C-Type	C-Type	RCC	0.60	38.19	60.05	0.64	0.018	150	128.10	#VALUE!
33	#######	0.74	40.00	3.01	36.99	10.00	106.50	#VALUE!	0.525	######	#####	######	#VALUE!	#DIV/0!	1.3	3.890	-26.628	0.30	C-Type	C-Type	RCC	0.60	38.89	61.14	0.64	0.018	150	130.50	#VALUE!
34	#######	0.76	40.00	2.98	37.02	10.31	105.55	#VALUE!	0.525	######	#####	######	#VALUE!	#REF!	1.3	3.757	-27.061		C-Type	C-Type	RCC	0.60	39.28	61.74	0.64	0.018	150	131.83	#VALUE!
35	#######	0.78	40.00	2.72	37.28	10.60	104.70	#VALUE!	0.525	######	#####	######	#VALUE!	#REF!	1.3	3.623	-27.195		C-Type	C-Type	RCC	0.60	39.28	61.74	0.64	0.018	151	131.39	#VALUE!

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Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction (Left)	Material of Construction (Right)	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks (Left)	Remarks (Right)	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	Max H1	Min H2	H (m)	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section	width (m)	Nalla bed Lvl. (m)	Top Lvl. of nalla (m)	Drop in Nalla bed (m)	Material of Construction (Left)	Material of Construction (Right)	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	21	22		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
											Details of existing C/s										H in (m)														Details of Proposed C/S										
5	820	10.14	44.62	40.5	4.12	0.6	35.69	17.18	2.08	6	Masonry	Masonry	Masonry	0.035	18.20	652.65	Colapsed	Colapsed	15.77	0.76	41.00	40.50	0.50	59.37	51.04	0.44	0.737	1.65	0.97	-0.67	-40.92	Adequate	3.0	44.620	-24.222		C-Type	C-Type	RCC	0.60	204.73	139.48	1.47	0.018	250	888.58	Adequate
6	800	9.74	41.61	37.41	4.20	0.6	35.06	16.94	2.07	3	C.C.	C.C.	Concrete	0.035	28.00	986.40	Colapsed	Colapsed	15.96	0.78	41.00	37.41	3.59	31.37	70.90	0.44	0.646	2.03	1.38	-0.65	-31.95	Adequate	3.0	41.610	-24.302		C-Type	C-Type	RCC	0.60	195.94	133.62	1.47	0.018	250	888.58	Adequate
7	780	9.36	37.24	30.06	7.18	0.6	61.59	22.52	2.73	#DIV/0!	C.C.	C.C.	Concrete	0.018	#DIV/0!	#DIV/0!	Colapsed	Colapsed	16.14	0.80	41.00	30.06	10.94	22.77	80.87	0.44	0.599	2.17	1.61	-0.56	-25.93	#DIV/0!	3.0	37.240	-24.382		C-Type	C-Type	RCC	0.60	183.07	125.04	1.46	0.018	250	829.34	Adequate
8	760	7.82	31.43	30.06	1.37	0.5	6.80	9.56	0.71	10	C.C.	C.C.	Concrete	0.035	7.33	49.73	Colapsed	Colapsed	16.32	0.82	41.00	30.06	10.94	23.28	80.19	0.45	0.604	2.20	1.63	-0.57	-25.88	Adequate	3.0	31.430	-24.762		C-Type	C-Type	RCC	0.60	166.78	114.18	1.46	0.018	200	843.40	Adequate
9	740	5.51	29.95	28	1.95	0.6	7.44	8.21	0.91	8	C.C.	C.C.	Concrete	0.035	9.74	72.44	Colapsed	Colapsed	16.51	0.84	41.00	28.00	13.00	22.60	81.11	0.45	0.599	2.23	1.68	-0.55	-24.60	Adequate	3.0	29.950	-24.862	0.30	C-Type	C-Type	RCC	0.60	162.64	111.42	1.46	0.018	200	822.10	Adequate
10	720	9.25	28.04	25.35	2.69	0.6	19.33	13.43	1.44	12	Masonry	Masonry	Masonry	0.035	10.59	205.31	Colapsed	Colapsed	16.69	0.86	41.00	25.35	15.65	21.85	82.17	0.46	0.593	2.26	1.74	-0.52	-23.19	Adequate	3.0	28.040	-25.262	0.30	C-Type	C-Type	RCC	0.60	158.11	108.40	1.46	0.018	200	798.79	Adequate
11	700	8.94	25.69	23.65	2.04	0.6	12.87	11.82	1.09	5	C.C.	Masonry	Masonry	0.035	13.80	177.79	Colapsed	Colapsed	16.88	0.88	41.00	23.65	17.35	21.63	82.48	0.46	0.593	2.29	1.78	-0.52	-22.56	Adequate	3.0	25.690	-25.662		C-Type	C-Type	RCC	0.60	152.26	104.50	1.46	0.018	200	768.69	Adequate
12	680	10.41	24.87	19.48	5.39	0.6	49.86	19.99	2.49	50	Masonry	Masonry	Masonry	0.035	7.39	370.58	Colapsed	Colapsed	17.06	0.90	41.00	19.48	21.52	20.73	83.81	0.46	0.588	2.34	1.84	-0.50	-21.28	Adequate	3.0	24.870	-25.762		C-Type	C-Type	RCC	0.60	150.10	103.06	1.46	0.018	75	######	Adequate
13	660	7.69	21.09	19.08	2.01	0.6	10.84	10.51	1.03	20	Masonry	Masonry	Masonry	0.035	6.52	70.73	Colapsed	Colapsed	17.24	0.92	41.00	19.08	21.92	21.01	83.36	0.47	0.593	2.37	1.86	-0.51	-21.34	Adequate	3.0	21.090	-26.029	0.60	C-Type	C-Type	RCC	0.60	139.56	96.04	1.45	0.018	75	######	Adequate
14	640	6.83	19.54	18.08	1.46	0.5	6.56	8.75	0.75	43	C.C.	C.C.	Concrete	0.035	3.62	23.69	Colapsed	Colapsed	17.43	0.94	41.00	18.08	22.92	21.13	83.20	0.47	0.593	2.39	1.89	-0.50	-20.75	Adequate	3.0	19.540	-26.896		C-Type	C-Type	RCC	0.60	137.51	94.67	1.45	0.018	75	######	Adequate
15	620	8.61	19.13	17.61	1.52	0.5	8.78	10.65	0.82	22	C.C.	C.C.	Concrete	0.035	5.40	47.32	Colapsed	Colapsed	17.61	0.96	41.00	17.61	23.39	21.40	82.82	#REF!	0.593	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	19.130	-27.162		C-Type	C-Type	RCC	0.60	137.08	94.38	1.45	0.018	100	976.64	#REF!
16	600	9.44	19.92	16.69	3.23	0.6	24.83	14.70	1.69	250	C.C.	C.C.	Concrete	0.035	2.55	63.63	Colapsed	Colapsed	#REF!	0.98	41.00	16.69	24.31	21.54	82.61	#REF!	0.593	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	19.920	-27.362		C-Type	C-Type	RCC	0.60	140.05	96.36	1.45	0.018	100	998.25	#REF!
43	580	9.85	17.95	16.61	1.34	0.4	9.26	11.73	0.79	33	C.C.	Masonry	Masonry	0.035	4.23	39.14	Colapsed	Colapsed	#REF!	1.00	41.00	16.61	24.39	21.91	82.09	#REF!	0.593	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	17.950	-27.562		C-Type	C-Type	RCC	0.60	134.74	92.82	1.45	0.018	175	725.40	#REF!
44	560	9.05	16.92	16.01	0.91	0.3	5.52	10.27	0.54	32	C.C.	Masonry	Masonry	0.035	3.37	18.51	Colapsed	Colapsed	#REF!	1.02	41.00	16.01	24.99	22.13	81.77	#REF!	0.599	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	16.920	-27.677		C-Type	C-Type	RCC	0.60	131.99	90.99	1.45	0.018	175	710.29	#REF!
45	540	9.01	16.6	15.38	1.22	0.4	7.39	10.65	0.69	32	Masonry	Masonry	Masonry	0.035	3.98	29.36	Colapsed	Colapsed	#REF!	1.04	41.00	15.38	25.62	22.35	81.46	#REF!	0.599	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	16.600	-27.791		C-Type	C-Type	RCC	0.60	131.37	90.58	1.45	0.018	225	623.43	#REF!
46	520	7.4	16.28	14.75	1.53	0.5	7.62	9.46	0.81	57	Masonry	Masonry	Masonry	0.035	3.28	24.94	Colapsed	Colapsed	#REF!	1.06	41.00	14.75	26.25	22.57	81.16	#REF!	0.599	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	16.280	-27.880		C-Type	C-Type	RCC	0.60	130.68	90.12	1.45	0.018	225	620.06	#REF!
47	500	3.31	14.78	14.4	0.38	0.1	0.93	3.87	0.24	13	Masonry	Masonry	Masonry	0.035	3.15	2.89	Colapsed	Colapsed	#REF!	1.08	41.00	14.40	26.60	22.85	80.77	#REF!	0.599	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	14.780	-27.969		C-Type	C-Type	RCC	0.60	126.45	87.30	1.45	0.018	225	599.53	#REF!
48	480	4.27	14.53	12.8	1.73	0.6	4.83	6.53	0.74	111	Masonry	Masonry	Masonry	0.035	2.22	10.69	Colapsed	Colapsed	#REF!	1.10	41.00	12.80	28.20	22.83	80.80	#REF!	0.599	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	14.530	-28.058		C-Type	C-Type	RCC	0.60	125.96	86.98	1.45	0.018	300	517.18	#REF!
49	460	4.57	14.41	12.62	1.79	0.6	5.44	6.95	0.78	24	Masonry	Masonry	Masonry	0.035	4.92	26.72	Colapsed	Colapsed	#REF!	1.12	41.00	12.62	28.38	23.16	80.36	#REF!	0.604	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	14.410	-28.124		C-Type	C-Type	RCC	0.60	125.80	86.87	1.45	0.018	225	596.41	#REF!
50	440	3.17	14.16	11.8	2.36	0.6	5.58	6.69	0.83	40	Masonry	C.C.	Masonry	0.020	7.01	39.08	Colapsed	Colapsed	#REF!	1.14	41.00	11.80	29.20	23.33	80.13	#REF!	0.604	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	14.160	-28.213		C-Type	C-Type	RCC	0.60	125.32	86.55	1.45	0.018	300	514.48	#REF!
51	420	3.15	13.3	11.3	2.00	0.6	4.41	5.95	0.74	400	C.C.	C.C.	Concrete	0.035	1.17	5.16	Colapsed	Colapsed	#REF!	1.16	41.00	11.30	29.70	23.57	79.80	#REF!	0.604	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	13.300	-28.280		C-Type	C-Type	RCC	0.60	122.94	84.96	1.45	0.018	300	504.48	#REF!
52	400	3.72	12.85	11.25	1.60	0.5	4.09	5.92	0.69	62	Masonry	Masonry	Masonry	0.035	2.83	11.56	Colapsed	Colapsed	#REF!	1.18	41.00	11.25	29.75	23.93	79.34	#REF!	0.604	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	12.850	-28.347		C-Type	C-Type	RCC	0.60	121.79	84.19	1.45	0.018	300	499.65	#REF!
53	380	3.24	12.73	10.93	1.80	0.6	3.89	5.64	0.69	83	C.C.	C.C.	Concrete	0.035	2.45	9.50	Colapsed	Colapsed	#REF!	1.20	41.00	10.93	30.07	24.21	78.97	#REF!	0.610	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	12.730	-28.413		C-Type	C-Type	RCC	0.60	121.63	84.09	1.45	0.018	300	498.98	#REF!
54	360	3.33	12.58	10.69	1.89	0.6	4.30	5.91	0.73	29	C.C.	C.C.	Concrete	0.035	4.27	18.30	Colapsed	Colapsed	#REF!	1.22	41.00	10.69	30.31	24.52	78.58	#REF!	0.610	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	12.580	-28.480		C-Type	C-Type	RCC	0.60	121.38	83.92	1.45	0.018	300	497.93	#REF!
55	340	3.81	12.11	10.01	2.10	0.6	5.72	6.81	0.84	56	C.C.	C.C.	Concrete	0.035	3.41	19.49	Colapsed	Colapsed	#REF!	1.24	41.00	10.01	30.99	24.72	78.32	#REF!	0.610	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	12.110	-28.547	0.60	C-Type	C-Type	RCC	0.60	120.17	83.11	1.45	0.018	300	492.85	#REF!
56	320	5.73	10.82	9.65	1.17	0.4	4.41	7.27	0.61	44	C.C.	C.C.	Concrete	0.035	3.08	13.55	Colapsed	Colapsed	#REF!	1.26	41.00	9.65	31.35	24.99	77.98	#REF!	0.610	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.820	-29.213		C-Type	C-Type	RCC	0.60	118.30	81.87	1.45	0.018	300	484.99	#REF!
57	300	5.2	10.75	9.2	1.55	0.5	5.46	7.30	0.75	-111	C.C.	C.C.	Concrete	0.035	#NUM!	#NUM!	Colapsed	Colapsed	#REF!	1.28	41.00	9.20	31.80	25.24	77.67	#NUM!	0.615	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.750	-29.280	0.45	C-Type	C-Type	RCC	0.60	118.29	81.86	1.45	0.018	300	484.95	#REF!
58	280	3.51	11.36	9.38	1.98	0.6	4.84	6.27	0.77	-2000	C.C.	C.C.	Concrete	0.035	#NUM!	#NUM!	Colapsed	Colapsed	#REF!	1.30	41.00	9.38	31.62	25.65	77.17	#NUM!	0.615	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	11.360	-29.797		C-Type	C-Type	RCC	0.60	121.67	84.11	1.45	0.018	250	546.79	#REF!
59	260	3.49	10.59	9.39	1.20	0.4	2.79	5.09	0.55	105	C.C.	C.C.	Concrete	0.035	1.87	5.21	Colapsed	Colapsed	#REF!	1.32	41.00	9.39	31.61	26.01	76.73	#REF!	0.620	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.590	-29.877		C-Type	C-Type	RCC	0.60	119.60	82.73	1.45	0.018	250	537.26	#REF!
60	240	6.11	10.55	9.2	1.35	0.5	5.19	7.81	0.66	80	C.C.	C.C.	Concrete	0.035	2.44	12.64	Colapsed	Colapsed	#REF!	1.34	41.00	9.20	31.80	26.33	76.36	#REF!	0.620	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.550	-29.957		C-Type	C-Type	RCC	0.60	119.72	82.81	1.45	0.018	300	490.96	#REF!
61	220	5.74	10.16	8.95	1.21	0.4	4.65	7.36	0.63	53	C.C.	C.C.	Concrete	0.035	2.91	13.48	Colapsed	Colapsed	#REF!	1.36	41.00	8.95	32.05	26.63	76.01	#REF!	0.620	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.160	-30.023	0.45	C-Type	C-Type	RCC	0.60	118.75	82.17	1.45	0.018	300	486.88	#REF!
62	200	5.15	9.99	8.57	1.42	0.5	4.74	6.99	0.68	667	C.C.	C.C.	Concrete	0.035	0.86	4.05	Colapsed	Colapsed	#REF!	1.38	41.00	8.57	32.43	26.89	75.70	#REF!	0.620	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.990	-30.540		C-Type	C-Type	RCC	0.60	119.79	82.86	1.45	0.018	300	491.25	#REF!
63	180	5.37	9.91	8.54	1.37	0.5	4.67	7.11	0.66	125	Masonry	C.C.	Masonry	0.035	1.94	9.02	Colapsed	Colapsed	#REF!	1.40	41.00	8.54	32.46	27.25	75.29	#REF!	0.626	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.910	-30.607		C-Type	C-Type	RCC	0.60	119.75	82.83	1.45	0.018	300	491.08	#REF!
64	160	5	10.15	8.38	1.77	0.6	5.85	7.34	0.80	77		C.C.	Concrete	0.035	2.80	16.38	Colapsed	Colapsed	#REF!	1.42	41.00	8.38	32.62	27.57	74.93	#REF!	0.626	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	10.150	-30.673		C-Type	C-Type	RCC	0.60	120.67	83.45	1.45	0.018	300	494.95	#REF!
65	140	5.52	9.37	8.12	1.25	0.4	4.69	7.22	0.65	69	C.C.	C.C.	Concrete	0.035	2.59	12.11	Colapsed	Colapsed	#REF!	1.44	41.00	8.12	32.88	27.86	74.60	#REF!	0.626	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.370	-30.740		C-Type	C-Type	RCC	0.60	118.53	82.02	1.45	0.018	300	485.96	#REF!
66	120	5.64	9.51	7.83	1.68	0.6	6.09	7.80	0.78	44	C.C.	C.C.	Concrete	0.035	3.64	22.14	Colapsed	Colapsed	#REF!	1.46	41.00	7.83	33.17	28.15	74.28	#REF!	0.631	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.510	-30.807		C-Type	C-Type	RCC	0.60	119.15	82.43	1.45	0.018	300	488.56	#REF!
67	100	4.29	9.29	7.38	1.91	0.6	5.62	6.91	0.81	67	C.C.	C.C.	Concrete	0.035	3.05	17.13	Colapsed	Colapsed	#REF!	1.48	41.00	7.38	33.62	28.39	74.01	#REF!	0.631	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.290	-30.873		C-Type	C-Type	RCC	0.60	118.69	82.13	1.45	0.018	275	508.27	#REF!
68	80	8.9	9.05	7.08	1.97	0.6	12.19	11.64	1.05	74	C.C	Masonry	Masonry	0.035	3.42	41.75	Colapsed	Colapsed	#REF!	1.50	41.00	7.08	33.92	28.67	73.71	#REF!	0.631	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	9.050	-30.946	0.45	C-Type	C-Type	RCC	0.60	118.19	81.79	1.44	0.018	275	506.07	#REF!
69	60	4.2	8.73	6.81	1.92	0.6	5.54	6.84	0.81	143	Masonry	Masonry	Masonry	0.035	2.08	11.52	Colapsed	Colapsed	#REF!	1.52	41.00	6.81	34.19	28.96	73.39	#REF!	0.631	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	8.730	-31.469		C-Type	C-Type	RCC	0.60	118.80	82.20	1.45	0.018	275	508.74	#REF!
70	40	4.58	8.59	6.67	1.92	0.6	6.05	7.22	0.84	250	Masonry	Masonry	Masonry	0.035	1.61	9.71	Colapsed	Colapsed	#REF!	1.54	41.00	6.67	34.33	29.28	73.05	#REF!	0.637	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	8.590	-31.541	0.60	C-Type	C-Type	RCC	0.60	118.59	82.06	1.45	0.018	275	507.85	#REF!
71	20	3.82	8.33	6.59	1.74	0.6	4.35	6.10	0.71	200	Masonry	Masonry	Masonry	0.035	1.62	7.03	Colapsed	Colapsed	#REF!	1.56	41.00	6.59	34.41	29.62	72.69	#REF!	0.637	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	8.330	-32.214		C-Type	C-Type	RCC	0.60	119.83	82.89	1.45	0.018	200	601.88	#REF!
72	0	3.82	8.23	6.49	1.74	0.6	4.35	6.10	0.71	19	Masonry	Masonry	Masonry	0.035	5.20	22.59	Colapsed	Colapsed	#REF!	1.58	41.00	6.49	34.51	29.95	72.34	#REF!	0.637	#REF!	#REF!	#REF!	#REF!	#REF!	3.0	8.230	-32.314		C-Type	C-Type	RCC	0.60	119.83	82.89	1.45	0.018	175	643.43	#REF!

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Storm drains in Kalwa

Details of existing c/s

Sr. No	Chainage from creek (m)	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Total height (m)	Free board in (m)	Wetted C/S Area 'A' in (m2)	Wetted Perimeter 'P' in (m)	Hydraulic mean radius 'R' (m)	Bed Slope 1 in	Material of Construction Left	Material of Construction Right	material for 'n' value	Mannings value 'n'	Velocity 'V' (m/sec)	Carrying capacity Qfull (M3/sec)	Remarks Left	Remarks Right
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
50	20	2.72	7.65	6.56	1.09	0.4	1.88	4.10	0.46	200	Masonry	C. C.	Masonry	0.035	1.21	2.25	Collapsed	Collapsed
51	0	2.72	7.45	6.46	0.99	0.3	1.88	4.10	0.46	#REF!	C. C	C. C.	Concrete	0.035	#REF!	#REF!	Collapsed	Collapsed
Nalla No.1																		
1	880	2.53	4.95	4.07	0.88	0.30	1.47	3.69	0.40	250	Concrete	Concrete	Concrete	0.035	0.98	1.43	Collapsed	Collapsed
2	860	2.43	5.01	3.99	1.02	0.30	1.75	3.87	0.45	250	Concrete	Concrete	Concrete	0.035	1.07	1.86	Collapsed	Collapsed
3	840	2.28	4.82	3.91	0.91	0.30	1.39	3.50	0.40	-250	Concrete	Concrete	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
4	820	2.18	4.76	3.99	0.77	0.30	1.02	3.12	0.33	1000	Concrete	Concrete	Concrete	0.035	0.43	0.44	Collapsed	Collapsed
5	800	2.08	4.61	3.97	0.64	0.20	0.92	2.96	0.31	50	Concrete	Concrete	Concrete	0.035	1.86	1.69	Collapsed	Collapsed
6	780	1.93	4.41	3.57	0.84	0.30	1.04	3.01	0.35	-91	Concrete	Concrete	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
7	760	1.81	4.89	3.79	1.10	0.40	1.27	3.21	0.39	-29	C. C	C. C.	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
8	740	1.71	4.48	4.48	0.00	0.00	0.00	1.71	0.00	17	C. C	C. C.	Concrete	0.035	0.00	0.00	Collapsed	Collapsed
9	720	1.83	4.34	3.33	1.01	0.30	1.30	3.25	0.40	250	C. C	C. C.	Concrete	0.035	0.99	1.27	Collapsed	Collapsed
10	700	1.63	4.15	3.25	0.90	0.30	0.98	2.83	0.35	-250	C. C	C. C.	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
11	680	1.56	4.48	3.33	1.15	0.40	1.17	3.06	0.38	77	C. C	C. C.	Concrete	0.035	1.73	2.01	Collapsed	Collapsed
12	660	1.66	4.17	3.07	1.10	0.40	1.16	3.06	0.38	-1000	C. C	C. C.	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
13	640	1.73	4.45	3.09	1.36	0.50	1.49	3.45	0.43	69	C. C	C. C.	Concrete	0.035	1.97	2.92	Collapsed	Collapsed
14	620	2.06	4.02	2.8	1.22	0.40	1.69	3.70	0.46	80	C. C	C. C.	Concrete	0.035	1.90	3.20	Collapsed	Collapsed
15	600	2.39	4.32	2.55	1.77	0.60	2.80	4.73	0.59	83	C. C	C. C.	Concrete	0.035	2.21	6.16	Collapsed	Collapsed
16	580	2.46	4.24	2.31	1.93	0.60	3.27	5.12	0.64	-31	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
17	560	2.53	4.14	2.95	1.19	0.4	2.00	4.11	0.49	200	C. C	C. C.	Concrete	0.035	1.26	2.50	Collapsed	Collapsed
18	540	2.47	4.21	2.85	1.36	0.5	2.12	4.19	0.51	167	C. C	C. C.	Concrete	0.035	1.41	2.99	Collapsed	Collapsed
19	520	2.39	4.2	2.73	1.47	0.5	2.32	4.33	0.54	#DIV/0!	C. C	Masonry	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
20	500	2.32	4.16	2.73	1.43	0.5	2.16	4.18	0.52	154	C. C	Masonry	Concrete	0.035	1.49	3.20	Collapsed	Collapsed
21	480	2.24	4.16	2.6	1.56	0.5	2.37	4.36	0.54	#DIV/0!	C. C	C. C.	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
22	460	2.2	4.17	2.6	1.57	0.5	2.35	4.34	0.54	30	C. C	C. C.	Concrete	0.035	3.49	8.19	Collapsed	Collapsed
23	440	2.18	4.11	1.93	2.18	0.6	3.44	5.34	0.65	500	C. C	C. C.	Concrete	0.018	1.86	6.39	Collapsed	Collapsed
24	420	2.75	3.96	1.89	2.07	0.6	4.04	5.69	0.71	69	C. C	C. C.	Concrete	0.018	5.34	21.53	Collapsed	Collapsed
25	400	2.85	4.82	1.6	3.22	0.6	7.47	8.09	0.92	-154	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
26	380	2.95	3.41	1.73	1.68	0.6	3.19	5.11	0.62	41	C. C	C. C.	Concrete	0.035	3.27	10.40	Collapsed	Collapsed
27	360	2.79	3.43	1.24	2.19	0.6	4.44	5.97	0.74	-48	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
28	340	2.85	3.42	1.66	1.76	0.6	3.31	5.17	0.64	-2000	Masonry	Masonry	Concrete	0.035	#NUM!	#NUM!	Collapsed	Collapsed
29	320	2.81	3.43	1.67	1.76	0.6	3.26	5.13	0.64	1000	Masonry	Masonry	Concrete	0.035	0.67	2.18	Collapsed	Collapsed
30	300	2.72	3.45	1.65	1.80	0.6	3.26	5.12	0.64	#DIV/0!	Masonry	Masonry	Concrete	0.035	#DIV/0!	#DIV/0!	Collapsed	Collapsed
31	280	2.72	3.47	1.65	1.82	0.6	3.32	5.16	0.64	400	Masonry	Masonry	Concrete	0.035	1.07	3.53	Collapsed	Collapsed
32	260	3.45	3.45	1.6	1.85	0.6	4.31	5.95	0.72	143	C. C	C. C.	Concrete	0.035	1.93	8.32	Collapsed	Collapsed
33	240	3.4	3.48	1.46	2.02	0.6	4.83	6.24	0.77	118	C. C	C. C.	Concrete	0.035	2.22	10.72	Collapsed	Collapsed
34	220	3.2	4.48	1.29	3.19	0.6	8.29	8.38	0.99	-400	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
35	200	4.24	4.36	1.34	3.02	0.6	10.26	9.08	1.13	-167	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed
36	180	5.01	5.75	1.46	4.29	0.6	18.49	12.39	1.49	154	C. C	C. C.	Concrete	0.018	5.83	108.12	Collapsed	Collapsed
37	160	5.79	5.87	1.33	4.54	0.6	22.81	13.67	1.67	333	C. C	C. C.	Concrete	0.018	4.27	97.66	Collapsed	Collapsed
38	140	4.79	5.9	1.27	4.63	0.6	19.30	12.85	1.50	2000	C. C	C. C.	Concrete	0.018	1.63	31.45	Collapsed	Collapsed
39	120	4.78	5.76	1.26	4.50	0.6	18.64	12.58	1.48	-286	C. C	C. C.	Concrete	0.018	#NUM!	#NUM!	Collapsed	Collapsed

Sr. No	Catchment area 'CA' in (Ha.)	Length of drain (L) (km)	H in (m) Max H1	H in (m) Min H2	H in (m) H	Time of concentration 'tc' in (min.)	Rainfall intensity 'I' in (mm/Hr.)	Coefficient of runoff (C)	New Coe of runoff C	New Discharge	Storm Discharge (m3/sec) Qact	Diff in M3/sec	% on higher side	Adequacy of Existing Section
1	18	19	20	21	22	23	24	25	25	26	26			27
50	#REF!	1.56	41.00	6.56	34.44	29.61	72.70	#REF!	0.637	#REF!	#REF!	#REF!	#REF!	#REF!
51	#REF!	1.58	41.00	6.46	34.54	29.94	72.35	#REF!	0.637	#REF!	#REF!	#REF!	#REF!	#REF!
Nalla No.1		880.00	8.00											
1	#######	-0.78	40.00	4.07	35.93	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
2	#######	-0.76	40.00	3.99	36.01	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
3	#######	-0.74	40.00	3.91	36.09	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
4	#######	-0.72	40.00	3.99	36.01	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
5	#######	-0.70	40.00	3.97	36.03	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
6	#######	-0.68	40.00	3.57	36.43	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
7	#######	-0.66	40.00	3.79	36.21	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
8	#######	-0.64	40.00	4.48	35.52	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
9	#######	-0.62	40.00	3.33	36.67	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
10	#######	-0.60	40.00	3.25	36.75	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
11	#######	-0.58	40.00	3.33	36.67	#NUM!	#NUM!	0.50	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
12	#######	-0.56	40.00	3.07	36.93	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
13	#######	-0.54	40.00	3.09	36.91	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
14	#######	-0.52	40.00	2.80	37.20	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
15	#######	-0.50	40.00	2.55	37.45	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
16	#######	-0.48	40.00	2.31	37.69	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
17	#######	-0.46	40.00	2.95	37.05	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
18	#######	-0.44	40.00	2.85	37.15	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
19	#######	-0.42	40.00	2.73	37.27	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#DIV/0!
20	#######	-0.40	40.00	2.73	37.27	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
21	#######	-0.38	40.00	2.60	37.40	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#DIV/0!
22	#######	-0.36	40.00	2.60	37.40	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
23	#######	-0.34	40.00	1.93	38.07	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
24	#######	-0.32	40.00	1.89	38.11	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
25	#######	-0.30	40.00	1.60	38.40	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
26	#######	-0.28	40.00	1.73	38.27	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
27	#######	-0.26	40.00	1.24	38.76	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
28	#######	-0.24	40.00	1.66	38.34	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
29	#######	-0.22	40.00	1.67	38.33	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
30	#######	-0.20	40.00	1.65	38.35	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#DIV/0!
31	#######	-0.18	40.00	1.65	38.35	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
32	#######	-0.16	40.00	1.60	38.40	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
33	#######	-0.14	40.00	1.46	38.54	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
34	#######	-0.12	40.00	1.29	38.71	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
35	#######	-0.10	40.00	1.34	38.66	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
36	#######	-0.08	40.00	1.46	38.54	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
37	#######	-0.06	40.00	1.33	38.67	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
38	#######	-0.04	40.00	1.27	38.73	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!
39	#######	-0.02	40.00	1.26	38.74	#NUM!	#NUM!	#VALUE!	#NUM!	#NUM!	#####	######	#VALUE!	#NUM!

Details of Proposed C/S

Sr. No	width (m)	Top Lvl. of nalla (m)	Nalla bed Lvl. (m)	Drop in Nalla bed (m)	Material of Construction Left	Material of Construction Right	Material of Nalla Section	Freeboard	C/S A in (m2)	Perimeter 'P' in (m)	Hydraulic Mean Radius 'R' (m)	Mannings value 'n'	Bed Slope 1 in	Carrying capacity Qfull_R (M3/sec)	Adequacy of Proposed Section
1	28	29	30	31	32	33	34	34	35	36	37	38	39	40	41
50	3.0	7.650	-34.292		C-Type	C-Type	RCC	0.60	124.03	85.68	1.45	0.018	300	509.04	#REF!
51	3.0	7.450	-34.359		C-Type	C-Type	RCC	0.60	123.63	85.42	1.45	0.018	300	507.36	#REF!
Nalla No.1															
1	2.5	4.950	3.620		C-Type	C-Type	Concrete	0.40	2.35	4.39	0.54	0.035	27	8.54	#NUM!
2	2.4	5.010	2.879		C-Type	C-Type	Concrete	0.10	4.93	6.49	0.76	0.035	315	6.62	#NUM!
3	2.3	4.820	2.816		C-Type	C-Type	Concrete	0.60	3.20	5.09	0.63	0.035	320	3.75	#NUM!
4	2.2	4.760	2.753		C-Type	C-Type	Concrete	0.60	3.07	4.99	0.61	0.035	600	2.58	#NUM!
5	2.1	4.610	2.720		C-Type	C-Type	Concrete	0.10	3.72	5.66	0.66	0.035	150	6.57	#NUM!
6	1.9	4.410	2.587		C-Type	C-Type	Concrete	0.60	2.36	4.38	0.54	0.035	200	3.16	#NUM!
7	1.8	4.890	2.487		C-Type	C-Type	Concrete	0.60	3.26	5.42	0.60	0.035	300	3.84	#NUM!
8	1.7	4.480	2.420		C-Type	C-Type	Concrete	0.60	2.50	4.63	0.54	0.035	100	4.73	#NUM!
9	1.8	4.340	2.220		C-Type	C-Type	Concrete	0.60	2.78	4.87	0.57	0.035	120	4.99	#NUM!
10	1.6	4.150	2.053		C-Type	C-Type	Concrete	0.60	2.44	4.62	0.53	0.035	300	2.63	#NUM!
11	1.6	4.480	1.987		C-Type	C-Type	Concrete	0.60	2.95	5.35	0.55	0.035	200	4.02	#NUM!
12	1.7	4.170	1.887		C-Type	C-Type	Concrete	0.60	2.79	5.03	0.56	0.035	200	3.82	#NUM!
13	1.0	4.450	1.787		C-Type	C-Type	RCC	0.60	2.06	5.13	0.40	0.035	300	1.86	#NUM!
14	1.0	4.020	1.720		C-Type	C-Type	RCC	0.60	1.70	4.40	0.39	0.035	600	1.05	#NUM!
15	1.5	4.320	1.687		C-Type	C-Type	RCC	0.60	3.05	5.57	0.55	0.018	300	6.55	#NUM!
16	1.5	4.240	1.620		C-Type	C-Type	RCC	0.60	3.03	5.54	0.55	0.018	600	4.60	#NUM!
17	1.5	4.140	1.587		C-Type	C-Type	RCC	0.60	2.93	5.41	0.54	0.018	600	4.42	#NUM!
18	1.8	4.210	1.553		C-Type	C-Type	RCC	0.60	3.70	5.91	0.63	0.018	600	6.14	#NUM!
19	1.8	4.200	1.520		C-Type	C-Type	RCC	0.40	4.10	6.36	0.65	0.018	600	6.95	#NUM!
20	1.8	4.160	1.487		C-Type	C-Type	RCC	0.40	4.09	6.35	0.64	0.018	600	6.93	#NUM!
21	1.8	4.160	1.453	0.45	C-Type	C-Type	RCC	0.60	3.79	6.01	0.63	0.018	600	6.32	#NUM!
22	1.8	4.170	0.970		C-Type	C-Type	RCC	0.60	4.68	7.00	0.67	0.018	600	8.12	#NUM!
23	1.8	4.110	0.937		C-Type	C-Type	RCC	0.60	4.63	6.95	0.67	0.018	600	8.02	#NUM!
24	2.8	3.960	0.903		C-Type	C-Type	Concrete	0.60	6.76	7.66	0.88	0.018	300	19.92	#NUM!
25	2.9	4.820	0.837		C-Type	C-Type	Concrete	0.60	9.64	9.62	1.00	0.018	300	30.98	#NUM!
26	3.0	3.410	0.770		C-Type	C-Type	Concrete	0.60	6.02	7.03	0.86	0.018	600	12.31	#NUM!
27	2.8	3.430	0.737		C-Type	C-Type	Concrete	0.60	5.84	6.98	0.84	0.018	600	11.77	#NUM!
28	2.9	3.420	0.703		C-Type	C-Type	Concrete	0.60	6.03	7.08	0.85	0.018	600	12.29	#NUM!
29	2.8	3.430	0.670		C-Type	C-Type	Concrete	0.60	6.07	7.13	0.85	0.018	600	12.37	#NUM!
30	2.7	3.450	0.637		C-Type	C-Type	Concrete	0.60	6.02	7.15	0.84	0.018	600	12.18	#NUM!
31	2.7	3.470	0.603		C-Type	C-Type	Concrete	0.60	6.17	7.25	0.85	0.018	600	12.55	#NUM!
32	3.5	3.450	0.570		C-Type	C-Type	Concrete	0.60	7.87	8.01	0.98	0.018	600	17.63	#NUM!
33	3.4	3.480	0.537		C-Type	C-Type	Concrete	0.60	7.97	8.09	0.99	0.018	600	17.89	#NUM!
34	3.2	4.480	0.503		C-Type	C-Type	Concrete	0.60	10.81	9.95	1.09	0.018	600	25.89	#NUM!
35	4.2	4.360	0.470		C-Type	C-Type	Concrete	0.60	13.95	10.82	1.29	0.018	600	37.48	#NUM!
36	5.0	5.750	0.437		RCC Wa	CC Wa	Concrete	0.60	23.61	14.44	1.64	0.018	600	74.35	#NUM!
37	5.8	5.870	0.403		RCC Wa	CC Wa	Concrete	0.60	28.18	15.52	1.82	0.018	600	95.10	#NUM!
38	4.8	5.900	0.370		C-Type	C-Type	Concrete	0.60	23.62	14.65	1.61	0.018	600	73.63	#NUM!
39	4.8	5.760	0.337		C-Type	C-Type	Concrete	0.60	23.06	14.43	1.60	0.018	600	71.48	#NUM!

Storm drains in Kalwa

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