TABLE IV.4 – 1

HYDRAULIC CALCULATION SHEET FOR DESERT - PAT FEEDER AND PAT FEEDER CANAL

(CASES 1 & 3)

1-1

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
Guddu Barrage Pocket Bay								255.50	-	255.50	19.50	226.00	-	-	-
			17,500	Desert Pat Head Regulator			0.63								
0+000	(Desert Pat Feeder)		17,500					254.87	0.22	254.65	15.5	233.15	3.77	285.0	
		37,000			MA-1	1/15,000	2.47								
37+000 (0+000)	(Pat Feeder)		17,500 11,000					252.40	0.22	252.18	15.5	236.68	3.77	285.0	
		346		Pat Feeder Head Regulator			0.57								
0+346			11,000					251.83	0.18	251.65	13.0	238.65	3.41	235.0	
		108,654			MA-2	1/14,000	7.76								
109+000			8,200					244.07	0.18	243.89	13.0	230.89	3.41	235.0	Lift channel Q = 2,000
		158		X-Regulator			0.32								
109+158			8,200					243.75	0.16	243.59	12.0	231.59	3.16	193.0	
		75,842			MB-1	1/13,700	5.53								
185+000			8,200					238.22	0.16	238.06	12.0	226.06	3.16	193.0	
		50		Transition		0.2Δhv 1/14,300	0.01 0.01								
185+050			8,200					238.20	0.23	237.97	12.0	225.97	3.83	155.0	
		4,900			LB-1	1/15,000	0.33								
189+950			8,200					237,87	0.23	237.64	12.0	225.64	3.83	155.0	
		50		Transition		0.3Δhv 1/14,300	0.02 0.01								
190+000			8,200					237,84	0.16	237.68	12.0	215.68	3.16	193.0	
		34,000			MB-1	1/13,700	2.48								
224+000			8,200					235.36	0.16	235.20	12.0	232.20	3.16	193.0	
		50		Transition		0.2Δhv 1/14,300	0.01 0.01								
224+050			8.200					235.34	0.23	235.11	12.0	223.11	3.83	155.0	
		10,900			LB-1	1/15,000	0.73								
234+950			8,200					234,61	0.23	234.38	12.0	222.38	3.83	155.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
		50	8,200	Transition		0.3Δhv 1/14,300	0.02 0.01								
235+000								234.58	0.16	234.42	12.0	222.42	3.16	193.0	
		3,000			MB-1	1/13,700	0.22								
238+000			8,006					234.36	0.16	234.20	12.0	222.20	3.16	193.0	Bitti Disty Q = 164
		120		X-Regulator			0.28								
238+120			8,006					234.08	0.15	233.93	12.0	221.93	3.15	188.0	
		53,880			MB-2	1/13,700	3.93								
292+000			8,006					230.15	0.15	230.00	12.0	218.00	3.15	188.0	
		50		Transition		0.2Δhv 1/14,300	0.02 0.01								
292+050			8,006					230.12	0.23	229.89	12.0	217.89	3.82	151.0	
		25,900			LB-2	1/15,000	1.73								
317+950			8,006					228.39	0.23	228.16	12.0	216.16	3.82	151.0	
		50		Transition		0.3Δhv 1/14,300	0.02 0.01								
318+000			8,006					228.36	0.15	228.21	12.0	216.21	3.15	188.0	
		24,000			MB-2	1/13,700	1.75								
342+000			7,312					226.61	0.15	226.46	12.0	214.46	3.15	188.0	Khallan Disty Q = 590
		140		X-Regulator			0.40								
342+140			7,312					226.21	0.15	226.06	11.5	214.56	3.12	182.0	
		75,860			MB-3	1/13,200	5.75								
418+000			5,823					220.46	0.15	220.31	11.5	208.81	3.12	182.0	~~Nasirabad Disty~~ Q = 360 ~~Jhudher Disty~~ Q = 906
		143		X-Regulator			0.45								
418+143			5,823					220.01	0.15	219.86	10.5	209.36	3.07	170.0	
		70,857			MA-3	1/12,400	5.71								
489+000			5,823					214.30	0.15	214.15	10.5	203.65	3.07	170.0	
		30		Railway Bridge			0.05							146.0	

STATION RD (%. Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
489+030			5,823					214.25	0.15	214.10	10.5	203.60	3.07	170.0	-
		970			MA-3	1/12,400	0.08								
490+000			5,823					214.17	0.15	214.02	10.5	203.52	3.07	170.0	
		40		National-Highway Bridge			0.05								
490+040			5,823					214.12	0.15	213.97	10.5	203.47	3.07	170.0	
		14,960			MA-3	1/12,400	1.21								
505+000			3,405					212.91	0.15	212.76	10.5	202.26	3.07	170.0	~~Jhatpat Disty~~ Q = 971 Bari Disty Q = 1,085
		88		X-Regulator			0.32								
505+088			3,405					212.59	0.13	212.46	9.0	203.46	2.93	120.0	
		52,912			MA-4	1/10,500	5.04								
558+000			1,960					207.55	0.13	207.42	9.0	198.42	2.93	120.0	~~Umrani Disty~~ Q = 964 ~~Mungsi Disty~~ Q = 264
		106		X-Regulator			0.30								
558+106			1,960					207.25	0.13	207.12	8.0	199.12	2.87	85.0	
		65,894			MA-5	1/8,800	7.49								
624+000			1,960					199.76	0.13	199.63	8.0	191.63	2.87	85.0	~~Qabula Disty~~ Q = 702 ~~Murad Disty~~ Q = 964

HYDRAULIC CALCULATION SHEET FOR BITTI DISTRIBUTARY

1-4

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			164.32		B-9			233.70	0.04	233.66	2.8	230.86	1.62	31.0	
		900				1/5,500	0.16								
0+900	1L		157.24	6.37	B-9			233.54	0.04	233.50	2.8	230.70	1.62	31.0	
		7,300				1/5,500	1.33								
8+200	2L		151.03	5.59	B-8			232.21	0.04	232.17	2.8	229.37	1.62	28.0	
		5,800				1/5,500	1.06								
14+000	3L		132.09	17.05	B-8			231.15	0.04	231.11	2.8	228.31	1.62	28.0	
		5,700				1/5,500	1.04								
19+700	4L		117.71	12.94	B-7			230.11	0.04	230.07	2.6	227.47	1.52	26.0	
		5,300				1/5,500	0.96								
25+000	5L		103.51	12.78	B-7			229.15	0.04	229.11	2.6	226.51	1.52	26.0	
		5,400				1/5,500	0.98								
30+400	6L		89.38	12.72	B-6			228.17	0.04	228.13	2.6	225.53	1.54	20.0	
		5,800				1/5,000	1.16								
36+200	7L		74.91	13.02	B-5			227.01	0.03	226.98	2.4	224.58	1.48	18.0	
		5,200				1/5,000	1.04								
41+400	8L		62.12	11.51	B-4			225.97	0.03	225.94	2.4	223.54	1.38	15.0	
		5,320				1/5,000	1.06								
46+700	9L			12.75											
46+720			47.95		B-4			224.91	0.03	224.88	2.4	222.48		15.0	
		40			Fall Regulator		3.00								
46+760			47.95		B-3			221.91	0.03	221.88	2.0	219.88	1.33	15.0	
		3,740				1/4,500	0.83								
50+500			47.95		B-3			221.08	0.03	221.05	2.0	219.05	1.33	15.0	
		40			Plain Fall		4.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V.(ft/sec)	BED WIDTH W. (Feet)	REMARKS
50+540			47.95		B-3			217.08	0.03	217.05	2.0	215.05	1.33	15.0	
		2,960				1/4,500	0.66								
53+480	10L			6.64											
53+500			40.57		B-3			216.42	0.03	216.42	2.0	214.39	1.33	15.0	
		40			Fall Regulation		3.00								
53+540			40.57		B-3			213.42	0.03	213.39	2.0	211.39	1.33	15.0	
		9,460				1/4,500	2.10								
63+000	11L		33.57	6.46	B-2			211.32	0.02	211.30	2.0	209.30	1.26	10.0	
		10,500				1/4,500	2.33								
73+500	12L		26.40	6.29	B-2			208.99	0.02	208.97	2.0	206.97	1.26	10.0	
		7,000				1/4,500	1.56								
80+500	13L		19.31	6.38	B-1			207.43	0.02	207.41	2.0	205.41	1.14	5.0	
		3,200				1/4,500	0.71								
83+700	14L		12.07	6.52	B-1			206.72	0.02	206.70	2.0	204.70	1.14	5.0	
		300				1/4,500	0.07								
84+000	15T		12.07	10.87	B-1			206.65	0.02	206.63	2.0	204.63	1.14	5.0	
Total				147.89											

HYDRAULIC CALCULATION SHEET FOR KHALLAN DISTRIBUTARY

I-6

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			590.21		B-12			223.50	0.07	223.43	5.3	218.13	2.13	42.0	
		900				1/7,500	0.12								
0+900	1L		578.40	10.63	B-12			223.38	0.07	223.31	5.3	218.01	2.13	42.0	
		10,600				1/7,500	1.41								
11+500	2L		572.64	5.18	B-12			221.97	0.07	221.90	5.3	216.60	2.13	42.0	
		6,500				1/7,500	0.87								
18+000	3L		560.90	10.57	B-11			221.10	0.07	221.07	5.3	205.77	2.12	40.0	
		8,900				1/7,500	1.19								
26+900			125.81		B-11			219.91	0.07	219.84	5.3	214.54		40.0	Lower Uch Distry
		100			x-Regulator		2.00								Q= 435.09
27+000			125.81		B-7			217.91	0.04	217.87	2.6	215.27	1.52	26.0	
		1,000				1/5,500	0.18								
28+000	4L		101.68	21.72	B-6			217.73	0.04	217.69	2.6	215.09	1.54	20.0	
		6,400				1/5,000	1.28								
34+400	5L		83.58	16.29	B-5			216.45	0.03	216.42	2.4	214.02	1.48	18.0	
40+180	6L	5,800		20.89		1/5,000	1.16								
40+200			60.37		B-5			215.29	0.03	215.26	2.4	212.86	1.48	18.0	
		40			Fall Regulator		4.00								
40+240			60.37		B-4			211.29	0.03	211.26	2.4	208.86	1.38	15.0	
		2,060				1/5,000	0.41								
42+300	7L		36.10	21.84	B-3			210.88	0.02	210.86	2.0	208.86	1.26	10.0	
		2,800				1/4,500	0.62								
45+100	8L		17.78	16.49	B-1			210.26	0.02	210.24	2.0	208.24	1.14	5.0	
		3,000				1/4,500	0.67								
48+100	9T		17.78	16.00	B-1			209.59	0.02	209.57	2.0	207.57	1.14	5.0	
Total				139.61											

HYDRAULIC CALCULATION SHEET FOR LOWER UCH DISTRIBUTARY

1-7

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			435.09		A-19			215.20	0.06	215.14	4.5	210.64	2.04	45.0	
		2,000				1/7,300	0.28								
2+000			435.09		A-19			214.92	0.06	214.86	4.5	210.36	2.04	45.0	
		80			Plain Fall		7.00								
2+080			435.09		A-19			207.92	0.06	207.86	4.5	203.36	2.04	45.0	
		1,920				1/7,300	0.27								
4+000			435.09		A-19			207.65	0.06	207.59	4.5	203.09	2.04	45.0	
		80			Plain Fall		7.00								
4+080			435.09		A-19			200.65	0.06	200.59	4.5	196.09	2.04	45.0	
7+950	1L	3,920		6.38		1/7,300	0.54								
8+000			428.00		A-19			200.11	0.06	200.05	4.5	195.55	2.04	45.0	
		80			Fall Regulator		7.00								
8+080			428.00		A-19			193.11	0.06	193.05	4.5	188.55	2.04	45.0	
11+350	2L	4,680		20.68		1/7,300	0.64								
11+760	3L			15.38											
12+760	4L		372.24	14.12	A-16			192.47	0.06	192.41	4.2	188.21	1.93	42.0	
13+650	5L	2,520		43.46		1/7,300	0.35								
13+770	6L			24.07											
15+280			297.21		A-16			192.12	0.06	192.06	4.2	187.86		42.0	
		20			Road Bridge		0.10								
15+300			297.21		A-13			192.02	0.05	191.97	3.6	188.37	1.84	43.0	
17+120	7L			8.56											
26+250	8L	12,560		3.53		1/6,600	1.90								
27+860	9L		258.22	23.00	A-11			190.12	0.05	190.07	3.4	186.67	1.80	39.0	
28+440	10L	2,700		16.72		1/6,300	0.43								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
35+560	11L		215.78	21.48	A-10			189.69	0.05	189.64	3.4	184.24	1.78	35.0	
35+700	12L			17.78											
35+720	13L	840		16.21		1/6,300	0.13								
36+200	14L			14.34											
36+400			162.08		A-10			189.56	0.05	189.51	3.4	186.11		35.0	
		20			Road Bridge		0.10								
36+420			162.08		A-8			189.46	0.05	189.41	3.2	186.21	1.72	29.0	
36+620	15L	240		10.32		1/6,000	0.04								
36+660	16L		124.31	23.67	A-6			189.42	0.04	189.38	2.8	186.58	1.63	26.0	
43+610	17L	15,620		12.11		1/5,500	2.84								
52+250	18R			5.69											
52+280	19L		82.54	19.79	A-5			186.58	0.04	186.54	2.4	184.14	1.54	26.0	
52+680	20L	720		20.76		1/5,000	0.14								
52+880	21L			26.74											
53+000	22T		82.54	26.79	A-5			186.44	0.04	186.40	2.4	184.00		26.0	
Total				391.58											

HYDRAULIC CALCULATION SHEET FOR NASIRABAD DISTRIBUTARY

1-9

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			359.84		A-16			217.00	0.06	216.94	4.2	212.74	1.93	42.0	
0+900	1R	900		17.43		1/7,300	0.13								
0+900	2L		320.31	18.15	A-14			216.87	0.06	216.81	4.0	212.81	1.91	40.0	
5+000	3L			6.67											
7+580	4R	6,700		18.97		1/7,000	0.96								
7+600			291.82		A-14			215.91	0.06	215.85	4.0	211.85		40.0	
		80			Fall Regulator		3.50								
7+680			291.82		A-13			212.41	0.05	212.36	3.6	208.76	1.84	43.0	
10+000	5R			12.44											
10+880	6L	3,220		19.94		1/6,600	0.49								
10+900			255.84		A-13			211.91	0.05	211.86	3.6	208.26		43.0	
		80			Fall Regulator		4.50								
10+980			255.84		A-11			207.42	0.05	207.37	3.4	203.97	1.80	39.0	
15+980	7R	5,020		20.90		1/6,300	0.80								
15+980	8L			20.20											
16+000			210.17		A-11			206.62	0.05	206.57	3.4	203.17		39.0	
		60			Fall Regulator		3.00								
16+060			210.17		A-10			203.62	0.05	203.57	3.4	200.17	1.78	35.0	
20+800	9L			19.76											
21+980	10R	5,940		18.79		1/6,300	0.94								
22+000			167.34		A-10			202.68	0.05	202.63	3.4	199.23		35.0	
		60			Fall Regulator		4.00								
22+060			167.34		A-8			198.68	0.05	198.63	3.2	195.43	1.72	29.0	
25+400	11L	5,540		19.65		1/6,000	0.92								
27+600	12L		125.44	18.06	A-6			197.76	0.04	197.72	2.8	194.92	1.63	26.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
28+200	13R			19.23											
30+380	14L	2,800		6.04		1/5,500	0.51								
30+400			97.36		A-6			197.25	0.04	197.21	2.8	194.41		26.0	
		40			Fall Regulator		3.00								
30+440			97.36		A-5			194.25	0.04	194.21	2.4	191.81	1.54	26.0	
		2,560				1/5,000	0.51								
33+000	15R		76.49	18.78	A-4			193.74	0.03	193.71	2.4	191.31	1.50	20.0	
		4,000				1/5,000	0.80								
37+000			76.49		A-4			192.94	0.03	192.91	2.4	190.51	1.50	20.0	
		20			Road Bridge		0.10								
37+020			76.49		A-4			192.84	0.03	192.81	2.4	190.41	1.50	20.0	
		5,980				1/5,000	1.20								
43+000	16L		55.21	19.15	A-4			191.64	0.03	191.61	2.4	189.21	1.50	20.0	
49+600	17R	7,000		17.66		1/5,000	1.40								
50+000			35.59		A-4			190.24	0.03	190.21	2.4	187.81		20.0	
		20			Road Bridge		0.10								
50+020			35.59		A-3			190.14	0.03	190.11	2.0	188.11	1.39	17.0	
58+700	18L	8,680		12.35		1/4,500	1.93								
58+700	19T		35.59	19.69	A-3			188.21	0.03	188.18	2.0	186.18	1.39	17.0	
Total				323.86											

HYDRAULIC CALCULATION SHEET FOR JHUDHER DISTRIBUTARY

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STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			905.77		A-32			219.43	0.09	219.34	5.8	213.54	2.37	62.0	
		23,000				1/8,000	2.88								
23+000			530.17		A-32			216.55	0.09	216.46	5.8	210.66		62.0	Temple Disty Q = 375.60
		100			X-Regulator		2.00								
23+100			530.17		A-22			214.55	0.08	214.47	5.3	209.17	2.20	41.0	
23+630	1L	530		14.69		1/7,500	0.07								
23+630	2R		492.68	19.05	A-21			214.48	0.07	214.41	4.7	209.71	2.07	47.0	
29+920	3R	5,740		20.21		1/7,500	0.77								
29+350	4L			15.49											
29+370			453.01		A-21			213.71	0.07	213.64	4.7	208.94		47.0	
		80			Fall Regulator		3.00								
29+450			453.01		A-19			210.71	0.06	210.65	4.5	206.15	2.04	45.0	
31+590	5R			10.21											
34+380	6L	4,950		15.41		1/7,300	0.68								
34+380	7R			20.12											
34+400			402.19		A-19			210.03	0.06	209.97	4.5	205.47		45.0	
		80			Fall Regulator		3.00								
34+480			402.19		A-17			207.03	0.06	206.97	4.2	202.77	1.95	45.0	
40+340	8R	7,180		19.71		1/7,300	0.98								
41+660	9L		363.68	14.95	A-16			206.05	0.06	205.99	4.2	201.79	1.95	42.0	
46+660	10R	6,780		19.29		1/7,300	0.93								
48+440	11L		331.06	10.07	A-14			205.12	0.06	205.06	4.0	201.06	1.91	40.0	
52+910	12R	4,490		23.71		1/7,000	0.64								
52+910	13L			14.33											
52+930			288.78		A-14			204.48	0.06	204.42	4.0	202.42		40.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
		80			Fall Regulator		3.00								
53+010			288.78		A-13			201.48	0.05	201.43	3.6	197.83	1.84	43.0	
58+080	14L			9.93											
60+890	15R	7,900		19.07		1/6,600	1.20								
60+890	16L			14.99											
60+910			239.90		A-13			200.28	0.05	200.23	3.6	196.63	1.84	43.0	
		60			Fall Regulator		2.00								
60+970			239.90		A-11			198.28	0.05	198.23	3.4	194.83	1.80	39.0	
66+100	17L			10.06											
69+910	18R	8,960		19.78		1/6,300	1.42								
69+910	19L			14.95											
69+930			190.13		A-11			196.86	0.05	196.81	3.4	193.41		39.0	
		60			Fall Regulator		4.00								
69+990			190.13		A-9			192.86	0.05	192.81	3.2	189.61	1.74	33.0	
74+840	20L			9.82											
78+650	21R	8,680		18.89		1/6,000	1.45								
78+650	22L			14.39											
78+670			142.24		A-9			191.41	0.05	191.36	3.2	188.16		33.0	
		40			Fall Regulator		4.00								
78+710			142.24		A-7			187.41	0.04	187.37	2.8	184.57	1.66	30.0	
84+360	23L			14.52											
89+640	24L	10,950		19.09		1/5,500	1.99								
89+640	25R			19.17											
89+660			83.60		A-7			185.42	0.04	185,38	2.8	182.58		30.0	
		40			Fall Regulator		3.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
89+700			83.60		A-5			182.42	0.04	182.38	2.4	179.98	1.54	26.0	
91+000	26L	1,470		18.46		1/5,000	0.29								
91+170	27R		43.03	18.05	A-3			182.13	0.03	182.10	2.0	180.10	1.39	17.0	
95+820	28L	5,830		13.92		1/4,500	1.30								
97+000			27.56		A-3			180.83	0.03	180.80	2.0	178.80	1.39	17.0	
		40			Road Bridge		0.20								
97+040			27.56		A-3			180.63	0.03	180.60	2.0	178.60	1.39	17.0	
99+120	29R	2,160		9.97		1/4,500	0.48								
99+200	30T		27.56	14.85	A-3			180.15	0.03	180.12	2.0	178.12	1.39	17.0	
Total			477.15												

HYDRAULIC CALCULATION SHEET FOR TEMPLE DISTRIBUTARY

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STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr(Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			375.60		A-16			216.25	0.06	216.19	4.2	211.99	1.93	42.0	
12+900	1R			5.89											
23+980	2R	23,990		17.17		1/7,300	3.29								
23+990			349.98		A-16			212.96	0.06	212.90	4.2	208.70		42.0	
		20			Road Bridge		0.10								
24+010			349.98		A-15			212.86	0.06	212.80	4.0	208.80	1.92	42.0	
		1,300				1/7,000	0.19								
25+310	3L		324.06	23.33	A-14			212.67	0.06	212.61	4.0	208.61	1.91	40.0	
31+560	4R			17.12											
33+500	5L	8,210		18.20		1/7,000	1.17								
33+500	6R			23.61											
33+520			258.58		A-14			211.50	0.06	211.44	4.0	207.44		40.0	
		60			Fall Regulator		3.00								
33+580			258.58		A-11			208.50	0.05	208.45	3.4	205.05	1.80	39.0	
39+620	7R	7,770		23.75		1/6,300	1.23								
41+350	8L		218.47	12.35	A-10			207.27	0.05	207.22	3.4	203.82	1.78	35.0	
45+480	9R			23.10											
45+480	10L	4,150		23.34		1/6,300	0.66								
45+500			166.87		A-10			206.61	0.05	206.56	3.4	203.16		35.0	
		60			Fall Regulator		4.00								
45+560			166.87		A-8			202.61	0.05	202.56	3.2	199.36	1.72	29.0	
52+430	11R	9,370		17.83		1/6,000	1.56								
54+930	12L		126.65	18.37	A-6			201.05	0.04	201.01	2.8	198.21	1.63	26.0	
58+050	13R	7,130		18.63		1/5,500	1.30								
62+060	14L		92.49	12.11	A-5			199.75	0.04	199.71	2.4	197.31	1.54	26.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
67+720	15R			11.47											
67+720	16L	5,680		16.56		1/5,000	1.14								
67+740			61.35		A-5			198.61	0.04	198.57	2.4	196.17		26.0	
		40			Fall Regulator		4.50								
67+780			61.35		A-4			194.11	0.03	194.08	2.4	191.68	1.50	20.0	
75+060	17R			11.21											
76+150	18L	8,390	29.17	17.75	A-4	1/5,000	1.68	192.43	0.03	192.40	2.4	190.00		20.0	
		40			Fall Regulator		2.00								
76+210			29.17		A-3			190.43	0.03	190.40	2.0	189.40	1.39	17.0	
84+800	19R	8,590		6.26		1/4,500	1.91								
84+800	20T		29.17	20.00	A-3			188.52	0.03	188.49	2.0	186.49	1.39	17.0	
Total				338.04											

HYDRAULIC CALCULATION SHEET FOR JHATPAT DISTRIBUTARY

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STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			970.50		A-33			210.90	0.09	210.81	5.8	205.01	2.38	64.0	
0+300	1L	300		22.38		1/8,000	0.04								
0+300	2R		937.51	7.31	A-32			210.86	0.09	210.77	5.8	204.97	2.37	62.0	
		4,600				1/8,000	0.58								
4+900	3L		920.33	15.46	A-32			210.28	0.09	210.19	5.8	204.39	2.37	62.0	
9+600	4L			22.63											
9+880	5R	5,000		11.54		1/8,000	0.63								
9+900			882.37		A-32			209.65	0.09	209.59	5.8	203.79		62.0	
		80			Fall Regulator		2.50								
9+980			882.37		A-31			207.15	0.09	207.06	5.8	201.26	2.37	60.0	
16+500	6L	8,220		23.38		1/7,900	1.04								
18+200			461.18		A-31			206.11	0.09	206.02	5.8	200.22		60.0	Mohabat pur Disty
		100			X-Regulator		3.50								Q = 395.21
18+300			461.18		A-20			202.61	0.07	202.54	4.7	197.84	2.06	45.0	
19+300	7L			23.52											
27+080	8R	8,800		6.82		1/7,500	1.17								
27+100			427.47		A-20			201.44	0.07	201.37	4.7	196.67		45.0	
		60			Fall Regulator		3.00								
27+160			427.47		A-19			198.44	0.06	198.38	4.5	193.88	2.04	45.0	
28+000	9L	9,640		22.65		1/7,300	1.32								
36+800	10L		379.91	20.15	A-17			197.12	0.06	197.06	4.2	192.86	1.95	45.0	
39+980	11R	3,200		26.80		1/7,300	0.44								
40+000			350.13		A-17			196.68	0.06	196.62	4.2	192.22		45.0	
		60			Fall Regulator		2.50								
40+060			350.13		A-15			194.18	0.06	194.12	4.0	190.12	1.92	42.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
46+200	12L	6,140		24.00		1/7,000	0.88								
46+200	13R		296.89	23.92	A-13			193.30	0.05	193.25	3.6	189.85	1.84	43.0	
51+800	14R	5,640		22.68		1/6,600	0.85								
51+840			271.69		A-13			192.45	0.05	192.40	3.6	188.80		43.0	
		60			Fall Regulator		1.50								
51+900			271.69		A-12			190.95	0.05	190.90	3.6	187.30	1.82	38.0	
56+100	15L	5,200		16.37		1/6,600	0.79								
57+100	16R		228.11	22.85	A-10			190.16	0.05	190.11	3.4	186.71	1.78	35.0	
61+480	17R	4,400		21.33		1/6,300	0.70								
61+500			204.41		A-10			189.46	0.05	189.41	3.4	186.01		35.0	
		60			Fall Regulator		2.00								
61+560			204.41		A-9			187.46	0.05	187.41	3.2	184.21	1.74	33.0	
63+900	18L	3,840		22.60		1/6,000	0.64								
65+400	19R		154.77	22.08	A-7			186.82	0.04	186.78	2.8	183.98	1.66	30.0	
68+400	20R	4,500		23.83		1/5,500	0.82								
69+880	21L			22.84											
69+900			102.91		A-7			186.00	0.04	185.96	2.8	183.16		30.0	
		60			Fall Regulator		3.50								
69+960			102.91		A-5			182.50	0.04	182.46	2.4	180.06	1.54	26.0	
75+300	22R	6,640		9.38		1/5,000	1.33								
75+300	23L			7.71											
76+600			83.92		A-5			181.17	0.04	181.13	2.4	178.73		26.0	
		40			Road Bridge		0.20								
76+640			83.92		A-4			179.97	0.03	179.94	2.4	197.54	1.50	20.0	
77+900	24R	1,260		15.00		1/5,000	0.25								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
77+900	25L		42.13	22.61	A-3			180.72	0.03	180.69	2.0	178.69	1.39	17.0	
82+600	26R	8,200		11.22		1/4,500	1.82								
86+100	27L		13.17	14.84	A-1			178.90	0.02	178.88	2.0	176.88	1.16	5.0	
		1,400				1/4,500	0.31								
87+500	28T		13.17	11.86	A-1			178.59	0102	178.57	2.0	176.57	1.16	5.0	
Total				517.76											

HYDRAULIC CALCULATION SHEET FOR MOHABAT PUR DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q (Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			395.21		A-17			201.10	0.06	201.04	4.2	196.84	1.95	45.0	
0+200	1R	1,100		11.15		1/7,300	0.15								
1+100	2L		370.59	11.01	A-16			200.95	0.06	200.89	4.2	196.69	1.93	42.0	
3+880	3R	2,800		15.03		1/7,300	0.38								
3+900			353.89		A-16			200.57	0.06	200.51	4.2	196.31		42.0	
		80			Fall Regulator		2.00								
3+980			353.89		A-15			198.57	0.06	198.51	4.0	194.51	1.92	42.0	
12+900	4R			11.12											
19+280	5R	15,320		23.34		1/7,000	2.19								
19+280	6L			14.43											
19+300			299.57		A-15			196.38	0.06	196.32	4.0	192.32		42.0	
		80			Fall Regulator		3.00								
19+380			299.57		A-13			193.38	0.05	193.33	3.6	189.73	1.84	43.0	
25+800	7L			14.27											
30+880	8R	11,520		19.20		1/6,600	1.75								
30+880	9L			21.49											
30+900			238.50		A-13			191.63	0.05	191.58	3.6	187.98		43.0	
		80			Fall Regulator		2.00								
30+980			238.50		A-11			189.63	0.05	189.58	3.4	186.18	1.80	39.0	
38+400	10L	7,400		21.14		1/6,300	1.17								
38+400	11R		199.76	13.73	A-9			188.46	0.05	188.41	3.2	185.21	1.74	33.0	
43+580	12L			21.79											
43+580	13R	5,200		14.32		1/6,000	0.87								
43+600			159.64		A-9			187.59	0.05	187.54	3.2	184.34		33.0	
		60			Fall Regulator		2.00								

HYDRAULIC CALCULATION SHEET FOR MOHABAT DISTRIBUTARY

1-20

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
43+660			159.64		A-8			187.59	0.05	185..54	3.2	182.34	1.72	29.0	
48+000	14L	4,340		14.13		1/6,000	0.72								
48+000	15R		129.30	13.18	A-6			184.87	0.04	184.83	2.8	182.03	1.63	26.0	
51+400	16L			14.04											
54+480	17R	6,500		14.86		1/5,500	1.18								
54+480	18L			22.47											
54+500			72.22		A-6			183.69	0.04	183.65	2.8	180.85		26.0	
		40			Fall Regulator		2.00								
54+540			72.22		A-4			181.69	0.03	181.66	2.4	179.26	1.50	20.0	
61+300	19L			11.30											
66+380	20R	12,460		17.80		1/5,000	2.49								
66+380	21L			15.59											
67+000			22.56		A-4			179.20	0.03	179.17	2.4	176.77		20.0	
		40			Fall Regulator		2.00								
67+040			22.56		A-2			177.20	0.02	177.18	2.0	175.18	1.25	8.0	
		8,260				1/4,500	1.84								
75+300	22T		22.56	20.30	A-2			175.36	0.02	175.34	2.0	173.34	1.25	8.0	
Total				355.69											

HYDRAULIC CALCULATION SHEET FOR BARI DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			1,085.24		A-34			210.50	0.09	210.41	5.8	204.61	2.47	72.0	
		20,000				1/8,000	2.50								
20+000			530.10		A-34			208.00	0.09	207.91	5.8	202.11		72.0	Ballan Disty Q = 555.14
		100			X-Regulator		2.50								
20+100			530.10		A-22			205.50	0.08	205.42	5.3	200.12	2.20	41.0	
28+620	1L	13,960		19.09		1/7,500	1.86								
34+060	2R		487.94	18.85	A-21			203.64	0.07	203.57	4.7	198.77	2.07	47.0	
37+230	3L	5,940		17.74		1/7,500	0.79								
40+000			468.23		A-21			202.85	0.07	202.78	4.7	198.08		47.0	
		80			Fall Regulator		2.50								
40+080			468.23		A-20			200.35	0.07	200.28	4.7	195.58	2.06	45.0	
45+810	4R	7,850		19.70		1/7,500	1.05								
47+930	5L		424.75	19.43	A-18			199.30	0.06	199.24	4.5	194.74	2.02	42.0	
54+620	6L	11,070		19.33		1/7,300	1.52								
56+860	7R			19.48											
59+000			381.63		A-18			197.78	0.06	197.72	4.5	193.23		42.0	
		80			Fall Regulator		3.00								
59+080			381.63		A-17			194.78	0.06	194.72	4.2	190.52	1.95	45.0	
61+620	8L	6,210		18.46		1/7,300	0.85								
65+290	9R		339.85	19.14	A-15			193.93	0.06	193.87	4.0	189.87	1.92	42.0	
67+660	10L	4,710		24.71		1/7,000	0.67								
70+000			312.39		A-15			193.26	0.06	193.20	4.0	189.20		42.0	
		80			Fall Regulator		4.00								
70+080			312.39		A-13			189.26	0.05	189.21	3.6	185.61	1.84	43.0	
73+070	11R			19.60											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
78+980	12L	9,920		24.23		1/6,600	1.50								
79+780	13R			18.41											
80+000			243.23		A-13			187.76	0.05	187.71	3.6	184.11		43.0	
		80			Fall Regulator		3.00								
80+060			243.23		A-11			184.76	0.05	184.71	3.4	181.31	1.80	39.0	
87+820	14L			18.81											
87+820	15R	9,940		19.22		1/6,300	1.58								
90+000			200.97		A-11			183.18	0.05	183.13	3.4	179.73		39.0	
		60			Fall Regulator		2.00								
90+060			200.97		A-9			181.18	0.05	181.13	3.2	177.93	1.74	33.0	
93+960	16R	8,350		13.20		1/6,000	1.39								
96+070	17L			19.12											
98+410	18R		150.19	13.38	A-7			179.79	0.04	179.75	2.8	176.95	1.66	30.0	
102+750	19L	6,590		19.56		1/5,500	1.20								
102+750	20R			19.87											
105+000			106.38		A-7			178.59	0.04	178.55	2.8	175.75		30.0	
		40			Fall Regulator		3.00								
105+040			106.38		A-5			175.59	0.04	175.55	2.4	173.15	1.54	26.0	
109+650	21R	8,090		18.51		1/5,000	1.62								
109+970	22L			18.80											
113+130	23R		43.84	18.98	A-3			173.97	0.03	173.94	2.0	171.94	1.39	17.0	
115+110	24L	4,760		13.42		1/4,500	1.06								
117+890	25R		14.90	12.63	A-1			172.91	0.02	172,89	2.0	170.89	1.16	5.0	
		1,610				1/4,500	0.36								
119+500	26T		14.90	13.42	A-1			172.55	0.02	172.53	2.0	170.53	1.16	5.0	
Total				477.09											

HYDRAULIC CALCULATION SHEET FOR BALLAN DISTRIBUTARY

1-23

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			555.14		A-23			206.93	0.08	206.85	5.3	201.55	2.21	43.0	
0+100	1L	4,700		20.89		1/7,500	0.62								
4+700	2R		506.87	22.55	A-22			206.31	0.08	206.23	5.3	200.93	2.20	41.0	
7+120	3L	6,300		11.52		1/7,500	0.84								
10+980	4L			22.03											
11+000			469.59		A-22			205.47	0.08	205.39	5.3	200.09		41.0	
		80			Fall Regulator		2.00								
11+080			469.59		A-20			203.47	0.07	203.40	4.7	198.70	2.06	45.0	
18+900	5R	7,820		11.55		1/7,300	1.07								
18+900	6L		436.61	18.13	A-19			202.40	0.06	202.34	4.5	197.84	2.04	45.0	
23+980	7R	5,100		23.33		1/7,300	0.70								
23+980	8L			23.07											
24+000			385.05		A-19			201.70	0.06	201.64	4.5	197.14		45.0	
		80			Fall Regulator		3.50								
24+080			385.05		A-17			198.20	0.06	198.14	4.2	193.94	1.95	45.0	
36+000	9L	12,920		21.30		1/7,300	1.77								
36+980	10R			23.03											
37+000			335.79		A-17			196.43	0.06	196.37	4.2	192.17		45.0	
		80			Fall Regulator		3.00								
37+080			335.79		A-14			193.43	0.06	193.37	4.0	189.37	1.91	40.0	
42+000	11L	8,420		16.82		1/7,000	1.20								
45+500	12R		291.67	22.89	A-13			192.23	0.05	192.18	3.6	188.58	1.84	43.0	
47+500	13L	3,500		15.75		1/6,600	0.53								
49+000			274.17		A-13			191.70	0.05	191.65	3.6	188.05		43.0	
		60			Fall Regulator		4.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
49+060			274.17		A-12			187.70	0.05	187.65	3.6	184.05	1.82	38.0	
54+100	14L			11.39											
56+800	15R	7,940		22.76		1/6,600	1.20								
56+800	16L			21.53											
57+000			212.27		A-12			186.50	0.05	186.45	3.6	182.75		38.0	
		60			Fall Regulator		3.50								
57+060			212.27		A-10			183.00	0.05	182.95	3.4	179.55	1.78	35.0	
63+100	17R			16.19											
66+480	18L	9,440		23.39		1/6,300	1.50								
66+480	19R			22.32											
66+500			143.49		A-10			181.50	0.05	181.45	3.4	178.05		35.0	
		40			Fall Regulator		1.50								
66+540			143.49		A-7			180.00	0.05	179.95	2.8	177.15	1.66	30.0	
74+100	20L	9,260		21.74		1/5,500	1.68								
75+800	21R		103.15	14.57	A-5			178.32	0.04	178.28	2.4	175.88	1.54	26.0	
80+180	22L			18.35											
80+180	23R	4,400		19.50		1/5,000	0.88								
80+200			61.09		A-5			177.44	0.04	177.40	2.4	175.00		26.0	
		40			Fall Regulator		1.00								
80+240			61.09		A-4			176.44	0.03	176.41	2.4	174.01	1.50	20.0	
85+300	24L	6,760		13.07		1/5,000	1.35								
87+000			46.57		A-4			175.09	0.03	175.06	2.4	172.66		20.0	
		40			Road Bridge		0.20								
87+040			46.57		A-3			174.89	0.03	174.86	2.0	172.86	1.39	17.0	
87+400	25R	1,760		12.12		1/4,500	0.39								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
88+800	26L		20.84	11.05	A-2			174.50	0.02	174.48	2.0	172.48	1.25	18.0	
		3,700				1/4,500	0.82								
92+500	27T		20.84	18.79	A-2			173.68	0.02	173.66	2.0	171.66	1.25	18.0	
Total				499.63											

HYDRAULIC CALCULATION SHEET FOR UMRANI DISTRIBUTARY

1-26

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			963.60		A-33			207.10	0.09	207.01	5.8	201.21	2.38	64.0	
0+020	1R	4,260		12.81		1/8,000	0.53								
4+260	2L		934.61	13.28	A-32			206.57	0.09	206.48	5.8	200.68	2.37	62.0	
9+660	3L	5,420		19.26		1/8,000	0.68								
9+660	4R			13.15											
9+680			898.60		A-32			205.89	0.09	205.80	5.8	200.00		62.0	
		80			Fall Regulator		3.40								
9+760			898.60		A-31			202.49	0.09	202.40	5.8	196.60	2.37	60.0	
12+510	5L	3,670		20.21		1/7,900	0.46								
13+430	6R		853.70	20.20	A-30			202.03	0.09	201.94	5.8	196.14	2.37	60.0	
17+520	7L	5,810		20.00		1/7,900	0.74								
19+240			444.11		A-31			201.29	0.09	201.20	5.8	195.40	2.37	60.0	Rupa Disty Q = 387.37
		100			X-Regulator		1.00								
19+340			444.11		A-19			200.29	0.06	200.23	4.5	195.73	2.04	45.0	
		2,520				1/7,300	0.35								
21+860	8R		423.41	18.63	A-18			199.94	0.06	199.88	4.5	195.38	2.02	42.0	
29+220	9L	9,610		13.00		1/7,300	1.32								
31+450	10R			19.94											
31+470			386.81		A-18			198.62	0.06	198.56	4.5	194.06		42.0	
		80			Fall Regulator		1.00								
31+550			386.81		A-17			197.62	0.06	197.56	4.2	193.36	1.95	45.0	
		6,510				1/7,300	0.89								
38+060	11R		360.18	23.97	A-16			196.73	0.06	196.67	4.2	192.47	1.93	42.0	
40+790	12L	7,110		17.92		1/7,300	0.97								
45+150	13R			19.15											

STATION RD (%. Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
45+170			318.99		A-16			195.76	0.06	195.70	4.2	191.50		42.0	
		80			Fall Regulator		2.00								
45+250			318.99		A-14			193.76	0.06	193.70	4.0	189.70	1.91	40.0	
51+250	14R	9,100		18.94		1/7,000	1.30								
51+250	15L			19.40											
54+350	16R		261.75	13.18	A-12			192.46	0.05	192.41	3.6	188.81	1.82	38.0	
56+370	17R			19.43											
58+820	18R	4,650		19.13		1/6,600	0.70								
58+820	19L			19.02											
59+000			197.77		A-12			191.76	0.05	191.71	3.6	188.11		38.0	
		80			Fall Regulator		5.00								
59+080			197.77		A-9			186.76	0.05	186.71	3.2	183.51	1.74	33.0	
63+640	20R	4,560		12.72		1/6,000	0.76								
63+640	21L		161.58	19.85	A-8			186.00	0.05	185.95	3.2	182.75	1.72	29.0	
69+220	22R	5,620		19.83		1/6,000	0.94								
69+220	23L			20.42											
69+240			116.86		A-8			185.06	0.05	185.01	3.2	181.81		29.0	
		60			Fall Regulator		5.00								
69+300			116.86		A-6			180.06	0.04	180.02	2.8	177.22	1.63	26.0	
73+820	24R	4,520		19.07		1/5,500	0.82								
73+820	25L		73.83	19.66	A-4			179.24	0.04	179.20	2.4	176.80	1.50	20.0	
76+330	26R	5,540		19.39		1/5,000	1.11								
76+330	27L			18.65											
79+360			31.56		A-4			178.13	0.04	178.09	2.4	175.69		20.0	
		40			Fall Regulator		5.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
79+400			31.56		A-3			173.13	0.03	173.10	2.0	171.10	1.39	17.0	
84+070	28R	6,600		6.91		1/4,500	1.47								
86+000	29T		31.56	21.49	A-3			171.66	0.03	171.63	2.0	169.63	1.39	17.0	
Total				518.61											

HYDRAULIC CALCULATION SHEET FOR RUPA DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			387.37		A-17			197.96	0.06	197.90	4.2	193.70	1.95	45.0	
8+100	1L			19.42											
8+100	2R	9,400		19.54		1/7,300	1.29								
9+400			344.08		A-17			196.67	0.06	196.61	4.2	192.41		45.0	
		80			Fall Regulator		3.00								
9+480			344.08		A-15			193.67	0.06	193.61	4.0	189.61	1.92	42.0	
13+900	3L	4,420		12.83		1/7,000	0.63								
13+900	4R		307.97	19.67	A-13			193.04	0.05	192.99	3.6	189.39	1.84	43.0	
17+280	5L	3,400		19.56		1/6,600	0.52								
17+300			286.24		A-13			192.52	0.05	192.47	3.6	188.87		43.0	
		80			Fall Regulator		4.00								
17+380			286.24		A-13			188.52	0.05	188.47	3.6	184.87	1.84	43.0	
20+300	6R	5,020		18.81		1/6,600	0.76								
22+400	7L		250.73	13.15	A-11			187.76	0.05	187.71	3.4	184.31	1.80	39.0	
25+900	8L	4,600		19.57		1/6,300	0.73								
27+000			228.99		A-11			187.03	0.05	186.98	3.4	183.58		39.0	
		60			Fall Regulator		4.00								
27+060			228.99		A-10			183.03	0.05	182.98	3.4	179.58	1.78	35.0	
30+200	9L	10,540		18.24		1/6,300	1.67								
34+100	10R			12.72											
37+600	11L		180.40	12.77	A-8			181.36	0.05	181.31	3.2	178.11	1.72	29.0	
41+780	12R	4,200		19.91		1/6,000	0.70								
41+780	13L			20.18											
41+800			135.86		A-8			180.66	0.05	180.61	3.2	177.41		29.0	
		60			Fall Regulator		2.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
41+860			135.86		A-7			178.66	0.04	178.62	2.8	175.82	1.66	30.0	
48+100	14R	6,240		19.49		1/5,500	1.13								
48+100	15L		92.37	19.65	A-5			177.53	0.04	177.49	2.4	175.09	1.54	26.0	
54+400	16R	6,300		19.25		1/5,000	1.26								
54+400	17L		49.57	19.27	A-3			176.27	0.03	176.24	2.0	174.24	1.39	17.0	
		6,200				1/4,500	1.38								
60+600	18L		27.83	19.57	A-3			174.86	0.03	174.86	2.0	172.86	1.39	17.0	
		3,400				1/4,500	0.76								
64+000	19T		27.83	25.03	A-3			174.13	0.03	174.10	2.0	172.10	1.39	17.0	
Total				348.63											

HYDRAULIC CALCULATION SHEET FOR MANGSI DISTRIBUTARY

1-31

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q (Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			264.03		A-12			207.00	0.05	206.95	3.6	203.35	1.82	38.0	
33+300	1R	33,300		11.26		1/6,600	5.05								
33+300	2L		232.59	17.04	A-10			201.95	0.05	201.90	3.4	198.50	1.78	35.0	
		3,200				1/6,300	0.51								
36+500	3L		212.59	18.00	A-10			201.44	0.05	201.39	3.4	197.99	1.78	35.0	
39+600	4R	3,500		17.99		1/6,300	0.56								
39+600	5L			18.87											
40+000			171.63		A-10			200.88	0.05	200.83	3.4	197.43		35.0	
		60			Fall Regulator		2.00								
40+060			171.63		A-8			198.88	0.05	198.83	3.2	195.63	1.72	29.0	
42+700	6L	5,240		24.24		1/6,000	0.87								
45+300	7R		131.27	12.08	A-6			198.01	0.04	197.97	2.8	195.17	1.63	26.0	
49+800	8L	4,700		17.71		1/5,500	0.85								
49+800	9R			23.19											
50+000			85.83		A-6			197.16	0.04	197.12	2.8	194.32		26.0	
		40			Fall Regulator		3.00								
50+040			185.83		A-5			194.16	0.04	194.12	2.4	191.72	1.54	26.0	
57+900	10L	7,860		17.44		1/5,000	1.57								
57+900	11R		46.96	17.54	A-3			192.59	0.03	192.56	2.0	190.56	1.39	17.0	
		5,400				1/4,500	1.20								
63+300	12R		26.34	18.56	A-2			191.39	0.02	191.37	2.0	189.37	1.25	8.0	
		5,400				1/4,500	1.20								
68+700	13T		26.34	23.71	A-2			190.19	0.02	190.17	2.0	188.17	1.25	8.0	
Total				237.63											

HYDRAULIC CALCULATION SHEET FOR QABULA DISTRIBUTARY

1-32

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			702.19		A-27			199.25	0.08	199.17	5.6	193.57	2.32	49.0	
1+000	1L	1,000		24.25		1/7,500	0.13								
1+000	2R		649.07	23.56	A-26			199.12	0.08	199.04	5.6	193.44	2.30	45.0	
9+000	3L	8,000		17.72		1/7,500	1.07								
9+000	4R		605.01	21.93	A-24			198.05	0.08	197.97	5.5	192.47	2.27	43.0	
19+000	5L	10,020		15.23		1/7,500	1.34								
19+000	6R			24.39											
19+020			560.99		A-24			196.71	0.08	196.63	5.5	191.13		43.0	
		80			Fall Regulator		2.00								
19+100			560.99		A-23			194.71	0.08	194,63	5.3	189.33	2.21	43.0	
		4,400				1/7,500	0.59								
23+500	7L		542.77	16.40	A-23			194.12	0.08	194.04	5.3	188.74	2.21	43.0	
28+000	8L	4,520		21.29		1/7,500	0.60								
28+000	9R			24.40											
28+020			492.00		A-23			193.52	0.08	193.44	5.3	188.14		43.0	
		80			Fall Regulator		2.00								
28+100			492.00		A-21			191.52	0.07	191.45	4.7	186.75	2.07	47.0	
		4,900				1/7,500	0.65								
33+000	10L		470.13	19.68	A-20			190.87	0.07	190.80	4.7	186.10	2.06	45.0	
38+000	11L	5,020		20.23		1/7,500	0.67								
38+000	12R			17.08											
38+020			428.67		A-20			190.20	0.07	190.13	4.7	185.43		45.0	
		80			Fall Regulator		2.00								
38+100			428.67		A-19			188.20	0.06	188.14	4.5	183.64	2.04	45.0	
42+000	13L			14.93											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
44+000	14R	6,900		9.77		1/7,300	0.95								
45+000	15L		377.94	20.96	A-17			187.25	0.06	187.19	4.2	182.99	1.95	45.0	
49+000	16L	4,020		21.02		1/7.300	0.55								
49+000	17R			9.76											
49+020			343.74		A-17			186.70	0.06	186.64	4.2	182.44		45.0	
		80			Fall Regulator		3.00								
49+100			343.74		A-15			183.70	0.06	183.64	4.0	179.64	1.92	42.0	
53+000	18L	6,900		15.25		1/7,000	0.99								
54+000	19R			14.64											
56+000	20L		289.75	18.70	A-13			182.71	0.05	182.66	3.6	179.06	1.84	43.0	
59+000	21L	3,020		22.80		1/6,600	0.46								
59+000	22R			16.24											
59+020			246.37		A-13			182.25	0.05	182.20	3.6	178.60		43.0	
		60			Fall Regulator		3.50								
59+080			246.37		A-11			178.75	0.05	178.70	3.4	175.30	1.80	39.0	
63+900	23L	7,920		21.66		1/6,300	1.14								
67+000	24R		210.53	10.60	A-10			177.61	0.05	177.56	3.4	174.16	1.78	35.0	
68+700	25L			12.63											
71+000	26L	4,020		23.62		1/6,300	0.64								
71+000	27R			19.52											
71+020			148.56		A-10			176.97	0.05	176.92	3.4	173.52		35.0	
		40			Fall Regulator		3.50								
71+060			148.56		A-7			173.47	0.04	173.43	2.8	170.63	1.66	30.0	
77+500	28L	7,540		18.01		1/5,500	1.37								
78+600	29R		109.57	17.08	A-6			172.10	0.04	172.06	2.8	169.26	1.63	26.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
81+800	30L			20.66											
86+000	31L	7,420		16.69		1/5,500	1.35								
86+000	32R			21.93											
86+020			43.70		A-6			170.75	0.04	170.71	2.8	167.91	1.63	26.0	
		40			Fall Regulator		2.00								
86+060			43.70		A-3			168.75	0.03	168.72	2.0	166.72	1.39	17.0	
		5,440				1/4,500	1.22								
91+500	33L		25.39	16.48	A-2			167.53	0.02	167.51	2.0	165.51	1.25	8.0	
		3,500				1/4,500	0.76								
95+000	34T		25.39	22.86	A-2			166.77	0.02	166.75	2.0	164.75	1.25	8.0	
Total				631.97											

HYDRAULIC CALCULATION SHEET FOR MURAD DISTRIBUTARY

1-35

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0			963.97		A-33			199.20	0.09	199.11	5.8	193.31	2.38	64.0	
		16.000				1/8,000	2.00								
16+000	1L		936.28	24.92	A-32			197.20	0.09	197.11	5.8	191.31	2.37	62.0	
18+000	2L			13.32											
20+000	3L	4,020		13.30		1/8,000	0.50								
20+000	4R			12.78											
20+020			892.50		A-32			196.70	0.09	196.61	5.8	190.81		62.0	
		80			Fall Regulator		2.00								
20+100			892.50		A-31			194.70	0.09	194.61	5.8	188.81	2.37	60.0	
26+700	5L	6,600		11.82		1/7,900	0.84								
26+700	6R		865.21	12.74	A-31			193.86	0.09	193.77	5.8	187.97	2.37	60.0	
33+400	7L	6,700		7.55		1/7,900	0.85								
33+400	8R		844.73	10.88	A-31			193.01	0.09	192.92	5.8	187.12	2.37	58.0	
40+000	9L	6,620		14.46		1/7,900	0.84								
40+000	10R			14.89											
40+020			812.12		A-31			192.17	0.09	192.08	5.8	186.28		58.0	
		80			Fall Regulator		3.00								
40+100			812.12		A-29			189.17	0.09	189.08	5.7	183.38	2.38	55.0	
43+300	11L	6,600		14.45		1/7,500	0.88								
45+000	12R			22.78											
46+700	13L		752.69	16.26	A-28			188.29	0.09	188.20	5.6	182.60	2.34	52.0	
50+000	14L	8,300		13.14		1/7,500	1.11								
53+300	15L			13.14											
55+000	16R		710.92	11.31	A-27			187.18	0.08	187.10	5.6	181.50	2.32	49.0	
56+700	17L			14.78											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
60+000	18L	5,020		14.46		1/7,500	0.66								
60+000	19R			18.01											
60+020			658.42		A-27			186.52	0.08	186.44	5.6	180.84		49.0	
		80			Fall Regulator		2.00								
60+100			658.42		A-26			184.52	0.08	184.44	5.6	178.84	2.30	45.0	
63+300	20L	6,600		14.46		1/7,500	0.88								
66+700	21L			16.26											
66+700	22R		611.54	11.47	A-25			183.64	0.08	183.56	5.5	178.06	2.28	45.0	
71+000	23L			14.46											
74+300	24L	7,600		14.46		1/7,500	1.01								
74+300	25R		567.62	10.61	A-23			182.63	0.08	182.55	5.3	177.05	2.21	43.0	
77+600	26L			16.26											
80+000	27L	5,720		13.14		1/7,500	0.76								
80+000	28R			19.20											
80+020			513.62		A-23			181.87	0.08	181.79	5.5	176.29		43.0	
		80			Fall Regulator		2.50								
80+100			513.62		A-22			179.37	0.08	179.29	5.3	173.99	2.20	41.0	
83+300	29L	6,600		13.14		1/7,500	0.88								
86+700	30L		482.60	14.78	A-20			178.49	0.07	178.42	4.7	173.72	2.06	45.0	
90+000	31L	6,600		13.14		1/7,500	0.88								
90+000	32R			23.71											
93+300	33L		427.06	13.14	A-18			177.61	0.06	177.55	4.5	173.05	2.02	42.0	
96+700	34L			14.78											
100+000	35L	6,720		20.77		1/7,300	0.92								
100+000	36R			16.46											

STATION RD. (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
100+020			369.27		A-18			176.69	0.06	176.63	4.5	172.13		42.0	
		80			Fall Regulator		2.50								
100+100			369.27		A-16			174.19	0.06	174.13	4.2	169.93	1.93	42.0	
		4,900				1/7,300	0.67								
105+000	37L		345.93	21.01	A-15			173.52	0.06	173.46	4.0	169.46	1.92	42.0	
107+500	38R	5,000		15.56		1/7,000	0.71								
110+000	39L		307.00	19.48	A-13			172.81	0.05	172.76	3.6	169.16	1.84	43.0	
115+000	40L	5,020		25.09		1/6,600	0.76								
115+000	41R			14.27											
115+020			263.27		A-13			172.05	0.05	172.00	3.6	168.40		43.0	
		80			Fall Regulator		2.50								
115+100			263.27		A-12			169.55	0.05	169.50	3.6	165.90	1.82	38.0	
118+500	42R	4,900		23.64		1/6,600	0.74								
120+000	43L			14.94											
120+000	44R		204.41	14.39	A-9			168.81	0.05	168.76	3.2	165.56	1.74	33.0	
122+000	45L	2,000		21.52		1/6,000	0.33								
122+000	46R		161.88	16.76	A-8			168.48	0.05	168.43	3.2	165.23	1.72	29.0	
124+000	47R			21.10											
127+500	48L	5,520		24.67		1/6,000	0.92								
127+500	49R			13.22											
127+520			96.34		A-8			167.56	0.05	167.51	3.2	164.31		29.0	
		40			Fall Regulator		2.00								
127+560			96.34		A-5			165.56	0.04	165.52	2.4	163.12	1.54	26.0	
129+200	50R	2,940		12.80		1/5,000	0.59								
130+500	51R		67.90	12.80	A-4			164.97	0.03	164.94	2.4	162.54	1.50	20.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
132+500	52L	2,000		13.79		1/5,000	0.40								
132+500	53R		38.53	12.64	A-3			164.57	0.03	164.54	2.0	162.54	1.39	17.0	
133+780	54L	2,500		16.58		1/4,500	0.56								
135+000	55T		38.53	18.08	A-3			164.01	0.03	163.98	2.0	161.98	1.39	17.0	
Total				867.57											

TABLE IV.4 – 2

HYDRAULIC CALCULATION SHEET FOR DESERT-PAT FEEDER AND PAT FEEDER CANAL (CASES 2 & 4)

2-I

STATION RD (%+ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
Guddu Barrage Pocket Bay								255.50	-	255.50	19.5	226.00	-	-	-
			16,000	Desert Pat Head Regulator			0.58								
0+000	(Desert Pat Feeder)		16,000					254.92	0.22	254.70	15.5	239.20	3.74	260.0	
		37,000			MA-1	1/15,000	2.47								
37+000 (0+000)	(Pat Feeder)		9,500					252.45	0.22	252.23	15.5	236.73	3.74	260.0	
		346		Pat Feeder Head Regulator			0.82								
0+346			9,500					251.63	0.18	251.45	13.0	238.45	3.36	205.0	
		108,654			MA-2	1/14,200	7.65								
109+000			6,700					243.98	0.18	243.80	13.0	230.80	3.36	205.0	Lift channel Q = 2,000
		158		X-Regulator			0.46								
+158			6,700					243.52	0.15	243.37	12.0	231.37	3.07	158.0	
		75,842			MB-1	1/14,000	5.42								
185+000			6,700					238.10	0.15	237.95	12.0	215.95	3.07	158.0	
		50		Transition		0.2Δhv 1/14,700	0.01 0.01								
+050			6,700					238.08	0.21	237.87	12.0	225.87	3.70	127.0	
		4,900			LB-1	1/15,500	0.32								
189+950			6,700					237.76	0.21	237.55	12.0	225.55	3.70	127.0	
		50		Transition		0.3Δhv 1/14,700	0.02 0.01								
190+000			6,700					237.73	0.15	237.58	12.0	225.58	3.07	158.0	
		34,000			MB-1	1/14,000	2.43								
224+000			6,700					235.30	0.15	235.15	12.0	223.15	3.07	158.0	
		50		Transition		0.2Δhv 1/14,700	0.01 0.01								
+050			6,700					235.28	0.21	235.07	12.0	223.07	3.70	127.0	
		10,900			LB-1	1/15,500	0.70								
234+950			6,700					234.58	0.21	234.37	12.0	222.37	3.70	127.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
		50		Transition		0.3Δhv 1/14,700	0.02 0.01								
235+000			6,700					234.55	0.15	234.40	12.0	222.40	3.07	158.0	
		3,000			MB-1	1/14,000	0.21								
238+000			6,542					234.34	0.15	234.19	12.0	222.19	3.07	158.0	Bitti Disty Q = 134
		120		X-Regulator			0.40								
238+120			6,542					233.94	0.15	233.79	12.0	221.79	3.07	154.0	
		53,880			MB-2	1/14,000	3.85								
292+000			6,542					230.09	0.15	229.94	12.0	217.94	3.07	154.0	
		50		Transition		0.2Δhv 1/14,700	0.01 0.01								
292+050			6,542					230.07	0.21	229.86	12.0	217.86	3.69	124.0	
		25,900			LB-2	1/15,500	1.67								
317+950			6,542					228.40	0.21	228.19	12.0	216.19	3.69	124.0	
		50		Transition		0.3Δhv 1/14,700	0.02 0.01								
318+000			6,542					228.37	0.15	282.22	12.0	216.22	3.07	154.0	
		24,000			MB-2	1/14,000	1.71								
342+000			5,975					226.66	0.15	226.51	12.0	214.51	3.07	154.0	Khallan Disty Q = 482
		140		X-Regulator			0.30								
342+140			5,975					226.26	0.15	226.11	11.5	214.61	3.08	145.0	
		75,860			MB-3	1/13,000	5.84								
418+000			4,758					220.42	0.15	220.27	11.5	208.77	3.08	145.0	Nasirabad Disty Q = 294 Jhudher Disty Q = 740
		143		X-Regulator			0.45								
418+143			4,758					219.97	0.15	279.82	10.5	209.32	3.00	140.0	
		70,857			MA-3	1/12,600	5.62								
489+000			4,758					214.35	0.15	214.20	10.5	203.70	3.00	140.0	
		30		Railway Bridge			0.05								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
489+030			4,758					214.30	0.15	214.15	10.5	203.65	3.00	140.0	
		970			MA-3	1/12,600	0.08								
490+000			4,758					214.22	0.15	214.07	10.5	203.57	3.00	140.0	
		40		National Highway Bridge			0.05								
490+040			4,758					214.17	0.15	214.02	10.5	203.52	3.00	140.0	
		14,960			MA-3	1/12,600	1.19								
505+000			2,786					212.98	0.15	212.83	10.5	202.33	3.00	140.0	Jhatpat Disty Q = 793 Bari Disty Q = 887
		88		X-Regulator			0.35								
505+088			2,786					212.63	0.13	212.50	9.0	202.50	2.88	100.0	
		52,912			MA-4	1/10,500	5.04								
558+000			1,602					207.59	0.13	207.46	9.0	198.46	2.88	100.0	Umrani Disty Q = 787 Mungsi Disty Q = 216
		106		M-Regulator			0.42								
558+106			1,602					207.17	0.12	207.05	8.0	199.05	2.79	65.0	
		65,894			MA-5	1/8,800	7.49								
624+000			1,602					199.68	0.12	199.56	8.0	191.56	2.79	65.0	Qabula Disty Q = 574 Murad Disty Q = 787

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HYDRAULIC CALCULATION SHEET FOR BITTI DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(R/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			134.27		B-8			233.70	0.04	233.66	2.8	230.86	1.61	28.0	
		900				1/5,500	0.16								
0+900	1L		128.49	5.20	B-8			233.54	0.04	233.50	2.8	230.70	1.61	28.0	
		7,300				1/5,500	1.33								
8+200	2L		123.40	4.58	B-7			232.21	0.04	232.17	2.6	229.57	1.52	26.0	
		5,800				1/5,500	1.05								
14+000	3L		107.92	13.93	B-7			231.16	0.04	231.12	2.6	228.52	1.52	26.0	
		5,700				1/5,500	1.14								
19+700	4L		96.18	10.57	B-6			230.02	0.04	229.98	2.6	227.38	1.54	20.0	
		5,300				1/5,000	1.06								
25+000	5L		84.58	10.44	B-5			228.96	0.03	228.93	2.4	226.53	1.48	18.0	
		5,400				1/5,000	1.08								
30+400	6L		73.04	10.39	B-5			227.88	0.03	227.85	2.4	225.45	1.48	18.0	
		5,800				1/5,000	1.16								
36+200	7L		61.22	10.64	B-4			226.72	0.03	226.69	2.4	224.29	1.38	15.0	
		5,200				1/5,000	1.04								
41+400	8L		50.78	9.40	B-3			225.68	0.03	225.65	2.0	223.65	1.33	15.0	
		5,320				1/4,500	1.18								
46+700	9L			10.42											
46+720			39.20		B-3			224.50	0.03	224.47	2.0	222.47	1.33	15.0	
		40			Fall Regulator		3.00								
46+760			39.20		B-3			221.50	0.03	221.47	2.0	219.47	1.33	15.0	
		3,740				1/4,500	0.83								
50+500			39.20		B-3			220.67	0.03	220.64	2.0	218.64	1.33	15.0	
		40			Plain Fall		3.50								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
50+540			39.20		B-3			217.17	0.03	217.14	2.0	215.14	1.33	15.0	
		2,960				1/4,500	0.66								
53+480	10L			5.42											
53+500			33.18		B-3			216.51	0.03	216.48	2.0	214.48		15.0	
		40			Fall Regulator		3.00								
53+540			33.18		B-2			213.51	0.02	213.49	2.0	211.49	1.26	10.0	
		9,460				1/4,500	2.10								
63+000	11L		27.31	5.28	B-2			211.41	0.02	211.39	2.0	209.39	1.26	10.0	
		10,500				1/4,500	2.33								
73+500	12L		21.59	5.15	B-1			209.08	0.02	209.06	2.0	207.06	1.14	5.0	
		7,000				1/4,500	1.56								
80+500	13L		15.80	5.21	B-1			207.52	0.02	207.50	2.0	205.20	1.14	5.0	
		3,200				1/4,500	0.71								
83+700	14L		9.88	5.33	B-1			206.81	0.02	206.79	2.0	204.79	1.14	5.0	
		300				1/4,500	0.02								
84+000	15L		9.88	8.88	B-1			206.79	0.02	206.77	2.0	204.77	1.14	5.0	
Total				120.84											

HYDRAULIC CALCULATION SHEET FOR KHALLAN DISTRIBUTARY

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STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr.(Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			482.27		B-10			223.50	0.06	223.44	4.7	218.74	1.99	43.0	
		900				1/7,500	0.12								
0+900	1L		472.64	8.67	B-10			223.38	0.06	223.32	4.7	218.62	1.99	43.0	
		10,600				1/7,500	1.41								
11+500	2L		467.93	4.24	B-10			221.97	0.06	221.91	4.7	217.21	1.99	43.0	
		6,500				1/7,500	0.87								
18+000	3L		458.32	8.65	B-10			221.10	0.06	221.04	4.7	216.34	1.99	43.0	
		8,900				1/7,500	1.19								
26+900			102.80		B-10			219.91	0.06	219.85	4.7	215.15		43.0	Lower Uch Disty
		100			X-Regulator		2.00								Q = 355.52
27+000			102.80		B-6			217.91	0.04	217.87	2.6	215.27	1.54	20.0	
		1,000				1/5,000	0.20								
28+000	4L		83.08	17.75	B-5			217.71	0.03	217.68	2.6	215.08	1.54	20.0	
		6,400				1/5,000	1.28								
34+400	5L		68.29	13.31	B-4			216.43	0.03	216.40	2.4	214.00	1.38	15.0	
40+180	6L	5,800		17.07		1/5,000	1.16								
40+200			49.32		B-4			215.27	0.03	215.24	2.4	212.84		15.0	
		40			Fall Regulator		4.00								
40+240			49.32		B-3			211.27	0.03	211.24	2.0	209.24	1.33	15.0	
		2,060				1/4,500	0.46								
42+300	7L		29.49	17.85	B-2			210.81	0.02	210.79	2.0	208.79	1.26	10.0	
		2,800				1/4,500	0.62								
45+100	8L		14.52	13.47	B-1			210.19	0.02	210.17	2.0	208.17	1.14	5.0	
		3,000				1/4,500	0.67								
48+100	9T		14.52	13.07	B-1			209.52	0.02	209.50	2.0	207.50	1.14	5.0	

HYDRAULIC CALCULATION SHEET FOR LOWER UCH DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			355.52		A-15			215.30	0.06	215.24	4.0	210.24	1.92	42.0	
		2,000				1/7,000	0.29								
2+000			355.52		A-15			215.01	0.06	213.95	4.0	210.95	1.92	42.0	
		80			Plain Fall		7.00								
2+080			355.52		A-15			208.01	0.06	207.95	4.0	203.95	1.92	42.0	
		1,920				1/7,000	0.28								
4+000			355.52		A-15			207.73	0.06	207.67	4.0	203.67	1.92	42.0	
		80			Plain Fall		7.00								
4+080			355.52		A-15			200.73	0.06	200.67	4.0	196.67	1.92	42.0	
7+950	1L	3,920		5.22		1/7,000	0.56								
8+000			349.72		A-15			200.17	0.06	200.11	4.0	196.11	1.92	42.0	
		80			Fall Regulator		7.00								
8+080			349.72		A-15			193.17	0.06	193.11	4.0	189.11	1.92	42.0	
11+350	2L	4,680		16.90		1/7,000	0.67								
11+760	3L			12.57											
12+760	4L		304.15	11.54	A-13			192.50	0.05	192.45	3.6	188.85	1.84	43.0	
13+650	5L	2,520		35.51		1/7,000	0.36								
13+770	6L			19.67											
15+280			242.84		A-13			192.14	0.05	192.09	3.6	188.49		43.0	
		20			Road Bridge		0.10								
15+300			242.84		A-11			192.04	0.05	191.99	3.4	188.59	1.80	39.0	
17+120	7L			6.99											
26+250	8L	12,560		2.88		1/6,300	1.99								
27+860	9L		211.00	18.79	A-10			190.05	0.05	190.00	3.4	186.60	1.78	35.0	
28+440	10L	2,700		13.66		1/6,300	0.43								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
35+560	11L		176.32	17.55	A-8			189.62	0.05	189.57	3.2	186.37	1.72	29.0	
35+700	12L			14.53											
35+720	13L	840		13.25		1/6,000	0.14								
36+200	14L			11.72											
36+400			132.43		A-8			189.48	0.05	189.43	3.2	186.23		29.0	
		20			Road Bridge		0.10								
36+420			132.43		A-6			189.38	0.04	189.34	2.8	186.54	1.63	26.0	
36+620	15L	240		8.43		1/5,500	0.04								
36+660	16L		101.57	19.34	A-5			189.34	0.04	189.30	2.4	186.90	1.54	26.0	
43+610	17L	15,620		9.90		1/5,000	3.12								
52+250	18R			4.65											
52+280	19L		67.44	16.17	A-4			186.22	0.03	186.19	2.4	183.79	1.50	20.0	
52+680	20L	720		16.96		1/5,000	0.14								
52+880	21L			21.85											
53+000	22T		67.44	21.89	A-4			186.08	0.03	186.05	2.4	183.65		20.0	
Total				319.97											

HYDRAULIC CALCULATION SHEET FOR NASIRABAD DISTRIBUTARY

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STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			294.04		A-13			217.00	0.05	216.95	3.6	213.35	1.84	43.0	
0+900	1R	900		14.24		1/6,600	0.14								
0+900	2L		261.74	14.83	A-12			216.86	0.05	216.81	3.6	213.21	1.82	38.0	
5+000	3L			5.45											
7+580	4R	6,700		15.50		1/6,600	1.02								
7+600			238.46		A-12			215.84	0.05	215.79	3.6	212.19		38.0	
		80			Fall Regulator		3.50								
7+680			238.46		A-11			212.34	0.05	212.29	3.4	208.89	1.80	39.0	
10+000	5R			10.17											
10+880	6L	3,220		16.29		1/6,300	0.51								
10+900			209.06		A-11			211.83	0.05	211.78	3.4	208.38		39.0	
		80			Fall Regulator		4.50								
10+980			209.06		A-10			207.33	0.05	207.28	3.4	203.88	1.78	35.0	
15+980	7R			17.08											
15+980	8L	5,020		16.50		1/6,300	0.80								
16+000			171.75		A-10			206.53	0.05	206.48	3.4	203.08		35.0	
		60			Fall Regulator		3.00								
16+060			171.75		A-8			203.53	0.05	203.48	3.2	200.28	1.72	29.0	
20+800	9L			16.15											
21+980	10R	5,940		15.35		1/6,000	0.99								
22+000			136.75		A-8			202.54	0.05	202.49	3.2	199.29		29.0	
		60			Fall Regulator		3.60								
22+060			136.75		A-7			198.94	0.04	198.90	2.8	196.10	1.66	30.0	
25+400	11L	5,540		16.06		1/5,500	1.01								
27+600	12L		102.51	1.476	A-5			197.93	0.04	197.89	2.4	195.49	1.54	26.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
28+200	13R			15.71											
30+380	14L	2,800		4.94		1/5,000	0.56								
30+400			79.57		A-5			197.37	0.04	197.33	2.4	194.93		26.0	
		40			Fall Regulator		3.00								
30+440			79.57		A-4			194.37	0.03	194.34	2.4	191.94	1.50	20.0	
		2,560				1/5,000	0.51								
33+000	15R		62.51	15.35	A-4			193.86	0.03	193.83	2.4	191.43	1.50	20.0	
		4,000				1/5,000	0.80								
37+000			62.51		A-4			193.06	0.03	193.03	2.4	190.63	1.50	20.0	
		20			Road Bridge		0.10								
37+020			62.51		A-4			192.96	0.03	192.93	2.4	190.53	1.50	20.0	
		5,980				1/5,000	1.20								
43+000	16L		45.12	15.65	A-3			191.76	0.03	191.73	2.0	189.73	1.39	17.0	
49+600	17R	7,000		14.43		1/4,500	1.56								
50+000			29.09		A-3			190.20	0.03	190.17	2.0	188.17	1.39	17.0	
		20			Road Bridge		0.10								
50+020			29.09		A-3			190.10	0.03	190.07	2.0	188.07	1.39	17.0	
58+700	18L	8,680		10.09		1/4,500	1.93								
58+700	19T		29.09	16.09	A-3			188.17	0.03	188.14	2.0	186.14	1.39	17.0	
Total				264.64											

HYDRAULIC CALCULATION SHEET FOR JHUDHER DISTRIBUTARY

2-11

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W. (Feet)	REMARKS
0+000			740.12		A-28			219.73	0.09	219.64	5.6	214.04	2.34	52.0	
		23,000				1/7,500	3.07								
23+000			433.21		A-28			216.66	0.09	216.57	5.6	210.97	2.34	52.0	Temple Disty Q=306.91
		100			X-Regulator		2.00								
23+100			433.21		A-19			214.66	0.07	214.59	4.5	210.09	2.04	45.0	
23+630	1L	530		12.00		1/7,300	0.07								
23+630	2R		402.58	15.57	A-17			214.59	0.06	214.53	4.2	210.33	1.95	45.0	
26+920	3R	5,740		16.51		1/7,300	0.79								
29+350	4L			12.66											
29+370			370.17		A-17			213.80	0.06	213.74	4.2	209.54		45.0	
		80			Fall Regulator		3.00								
29+450			370.17		A-16			210.80	0.06	210.74	4.2	206.54	1.93	42.0	
31+590	5R			8.34											
34+380	6L	4,950		12.59		1/7,300	0.68								
34+380	7R			16.44											
34+400			328.65		A-16			210.12	0.06	210.06	4.2	205.86		42.0	
		80			Fall Regulator		3.00								
34+480			328.65		A-14			207.12	0.06	207.06	4.0	203.06	1.91	40.0	
40+340	8R	7,180		16.11		1/7,000	1.03								
41+660	9L		297.17	12.22	A-13			206.09	0.05	206.04	3.6	202.44	1.84	43.0	
46+600	10R	6,780		15.76		1/6.600	1.03								
48+440	11L		270.51	8.23	A-12			205,06	0.05	205.01	3.6	201.41	1.82	38.0	
52+910	12R	4,490		19.37		1/6,600	0.68								
52+910	13L			11.71											
52+930			235.98		A-12			204.38	0.05	204.33	3.6	200.73		38.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
		80			Fall Regulator		3.00								
53+010			235.98		A-10			201.38	0.05	201.33	3.4	187.93	1.78	35.0	
58+080	14L			8.11											
60+890	15R	7,900		15.58		1/6,300	1.25								
60+890	16L			12.25											
60+910			196.05		A-10			200.13	0.05	200.08	3.4	196.68		35.0	
		60			Fall Regulator		2.00								
60+970			196.05		A-9			198.13	0.05	198.08	3.2	194.88	1.74	33.0	
66+100	17L			8.22											
69+910	18R	8,960		16.16		1/6,000	1.49								
69+910	19L			12.22											
69+930			155.38		A-9			196.64	0.05	196.59	3.2	193.39		33.0	
		60			Fall Regulayor		3.60								
69+990			155.38		A-7			193.04	0.04	193.00	2.8	190.20	1.66	30.0	
74+840	20L			8.04											
78+650	21R	8,680		15.44		1/5,500	1.58								
78+650	22L			11.76											
78+670			116.22		A-7			191.46	0.04	191.42	2.8	188.62		30.0	
		40			Fall Regulator		4.00								
78+710			116.22		A-6			187.46	0.04	187.42	2.8	184.62	1.63	26.0	
84+360	23L			11.86											
89+640	24L	10,950		15.60		1/5,500	1.99								
89+640	25R			15.66											
89+660			68.31		A-6			185.47	0.04	185.43	2.8	182.63		26.0	
		40			Fall Regulator		3.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
89+700			68.31		A-4			182.47	0.03	182.44	2.4	180.04	1.50	20.0	
91+000	26L	1,470		15.08		1/5,000	0.29								
91+170	27R		35.17	14.75	A-3			182.18	0.03	182.15	2.0	180.15	1.39	17.0	
95+820	28L	5,830		11.37		1/4,500	1.30								
97+000			22.54		A-3			180.88	0.03	180.85	2.0	178.85	1.39	17.0	
		40			Road Bridge		0.20								
97+020			22.54		A-2			180.68	0.02	180.66	2.0	178.66	1.25	8.0	
99+120	29R	2,160		8.15		1/4,500	0.48								
99+200	30T		22.54	12.13	A-2			180.20	0.02	180.18	2.0	178.18	1.25	8.0	
Total				389.89											

HYDRAULIC CALCULATION SHEET FOR TEMPLE DISTRIBUTARY

2-14

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			306.91		A-13			216.25	0.05	216.20	3.6	212.60	1.84	43.0	
12+904	1R			4.81											
23+980	2R	23,990		14.03		1/6,600	3.63								
23+990			285.98		A-13			212.62	0.05	212.57	3.6	208.97		43.0	
		20			Road Bridge		0.10								
24+010			285.98		A-13			212.52	0.05	212.47	3.6	208.87	1.84	43.0	
		1,300				1/6,600	0.20								
25+310	3L		264.80	19.06	A-12			212.32	0.05	212.27	3.6	208.67	1.82	38.0	
31+560	4R			13.99											
33+500	5L	8,210		14.87		1/6,600	1.24								
33+500	6R			19.29											
33+520			211.30		A-12			211.08	0.05	211.03	3.6	207.43		38.0	
		60			Fall Regulator		2.50								
33+580			211.30		A-10			208.58	0.05	208.53	3.4	205.13	1.78	35.0	
39+620	7R	7,770		19.41		1/6,300	1.23								
41+350	8L		178.52	10.09	A-8			207.35	0.05	207.30	3.2	204.10	1.72	29.0	
45+480	9R			18.88											
45+480	10L	4,150		19.07		1/6,000	0.69								
45+500			136.35		A-8			206.66	0.05	206.61	3.2	203.41		29.0	
		60			Fall Regulator		4.00								
45+560			136.35		A-7			202.66	0.04	202.62	2.8	199.82	1.66	30.0	
52+430	11R	9,370		14.57		1/5,500	1.70								
54+930	12L		103.48	15.01	A-5			200.96	0.04	200.92	2.4	198.52	1.54	26.0	
58+050	13R	7,130		15.22		1/5,000	1.43								
62+060	14L		75.57	9.90	A-4			199.53	0.03	199.50	2.4	197.10	1.50	20.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
67+720	15R			9.37											
67+720	16L	5,680		13.53		1/5,000	1.14								
67+740			50.13		A-4			198.39	0.03	198.36	2.4	195.96	1.50	20.0	
		40			Fall Regulator		4.10								
67+780			50.13		A-3			194.29	0.03	194.26	2.0	192.26	1.39	17.0	
75+060	17R	8,390		9.16		1/4,500	1.86								
76+150	18L			14.50											
76+170			23.84		A-3	1/4,500		192.43	0.03	192.40	2.0	190.40		17.0	
		40			Fall Regulator		2.00								
76+210			23.84		A-2			190.43	0.02	190.41	2.0	188.41	1.25	8.0	
84+800	19R	8,570		5.12		1/4,500	1.91								
84+800	20T		23.84	16.34	A-2			188.52	0.02	188.50	2.0	186.50	1.25	8.0	
Total				276.22											

HYDRAULIC CALCULATION SHEET FOR JHATPAT DISTRIBUTARY

2-16

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			793.01		A-29			210.90	0.09	210.81	5.7	205.11	2.38	55.0	
0+300	1L	300		18.29		1/7,500	0.04								
0+300	2R		766.05	5.97	A-29			210.86	0.09	210.77	5.7	205.07	2.38	55.0	
		4,600				1/7,500	0.61								
4+900	3L		752.02	12.63	A-28	1/7,500		210.25	0.09	210.16	5.6	204.56	2.34	52.0	
9+600	4L			18.49											
9+890	5R	5,000		9.43		1/7,500	0.67								
9+900			720.99		A-28			209.58	0.09	209.49	5.6	203.89		52.0	
		80			Fall Regulator		2.50								
9+980			720.99		A-28			207.08	0.09	206.99	5.6	201.39	2.34	52.0	
16+500	6L	8,220		19.10		1/7,500	1.10								
18+200			376.84		A-28			205.98	0.09	205.89	5.6	200.29		52.0	Mohabatpur Disty Q=322.93
		100			X-Regulator		3.50								
18+400			376.84		A-16			202.48	0.06	202.42	4.2	198.22	1.93	42.0	
19+300	7L	8,700		19.22		1/7,300	1.19								
27+090	8R			5.57											
27+100			349.30		A-16			201.29	0.06	201.23	4.2	197.03		42.0	
		60			Fall Regulator		2.70								
27+160			349.30		A-15			198.59	0.06	198.53	4.0	194.53	1.92	42.0	
28+000	9L	9,640		18.51		1/7,000	1.38								
36+800	10L		310.44	16.46	A-13			197.21	0.05	197.16	3.6	193.56	1.84	43.0	
39+980	11R	3,200		21.90		1/7,000	0.46								
40+000			286.11		A-13			196.75	0.05	196.70	3.6	193.10		43.0	
		60			Fall Regulator		2.50								
40+060			286.11		A-13			194.25	0.05	194.20	3.6	190.60	1.84	43.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
46+200	12L	6,140		19.61		1/6,600	0.93								
46+200	13R		242.60	19.55	A-11			193.32	0.05	193.27	3.4	189.87	1.80	39.0	
51+800	14R	5,640		18.53		1/6,300	0.90								
51+840			222.01		A-11			192.42	0.05	192.37	3.4	188.97		39.0	
		60			Fall Regulator		1.50								
51+900			222.01		A-10			190.92	0.05	190.87	3.4	187.47	1.78	35.0	
56+100	15L	5,200		13.38		1/6,300	0.83								
57+100	16R		186.40	18.67	A-9			190.09	0.05	190.04	3.2	186.84	1.74	33.0	
61+480	17R	4,400		17.43		1/6,000	0.73								
61+500			167.03		A-9			189.36	0.05	189.31	3.2	186.11		33.0	
		60			Fall Regulator		2.00								
61+560			167.03		A-8			187.36	0.05	187.31	3.2	184.11	1.72	29.0	
63+900	18L	3,840		18.47		1/6,000	0.64								
65+400	19R		126.46	18.04	A-6			186.72	0.04	186.68	2.8	183.88	1.63	26.0	
68+400	20R	4,500		19.47		1/5,500	0.82								
69+880	21L			18.66											
69+900			84.09		A-6			185.90	0.04	185.86	2.8	183.06		26.0	
		60			Fall Regulator		3.50								
69+960			84.09		A-5			182.40	0.04	182.36	2.4	179.96	1.54	26.0	
75+300	22R	6,640		7.66		1/5,000	1.33								
75+300	23L			6.30											
76+600			68.58		A-5			181.07	0.04	181.03	2.4	178.63		26.0	
		40			Road Bridge		0.20								
76+640			68.58		A-4			180.87	0.03	180.84	2.4	178.44	1.50	20.0	
77+900	24R	1,260		12.26		1/5,000	0.25								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
77+900	25L		34.42	18.48	A-3			180.62	0.03	180.59	2.0	178.59	1.39	17.0	
82+600	26R	8,200		9.17		1/4,500	1.82								
86+100	27L		10.75	12.13	A-1			178.80	0.02	178.78	2.0	176.78	1.16	5.0	
		1,400				1/4,500	0.31								
87+500	28T		10.75	9.69	A-1			178.49	0.02	178.47	2.0	176.47	1.16	5.0	
Total				423.07											

HYDRAULIC CALCULATION SHEET FOR MOHABAT PUR DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			322.93		A-14			201.10	0.06	201.04	4.0	197.04	1.91	40.0	
0+200	1R	1,100		9.11		1/7,000	0.16								
1+100	2L		302.81	9.00	A-13			200.94	0.05	200.89	3.6	197.29	1.84	43.0	
3+880	3R	2,800		12.28		1/6,600	0.42								
3+900			289.17		A-13			200.52	0.05	200.47	3.6	196.87		43.0	
		80			Fall Regulator		2.00								
3+980			289.17		A-13			198.52	0.05	198.47	3.6	194.87	1.84	43.0	
12+900	4R			9.09											
19+280	5R	15,320		19.07		1/6,600	2.32								
19+280	6L			11.79											
19+300			244.78		A-13			196.20	0.05	196.15	3.6	192.55		43.0	
		80			Fall Regulator		2.50								
19+380			244.78		A-11			193.70	0.05	193.65	3.4	190.25	1.80	39.0	
25+800	7L			11.66											
30+880	8R	11,520		15.69		1/6,300	1.83								
30+880	9L			17.56											
30+900			194.88		A-11			191.87	0.05	191.82	3.4	188.52		39.0	
		80			Fall Regulator		2.00								
30+980			194.88		A-9			189.87	0.05	189.82	3.2	186.62	1.74	33.0	
38+400	10L	7,420		17.27		1/6,000	1.24								
38+400	11R		163.22	11.22	A-8			188.63	0.05	188.58	3.2	185.38	1.72	29.0	
43+580	12L			17.81											
43+580	13R	5,200		11.70		1/6,000	0.87								
43+600			130.43		A-8			187.76	0.05	187.71	3.2	184.51		29.0	
		60			Fall Regulator		2.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hv(Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
43+660			134.43		A-6			185.76	0.04	185.72	2.8	182.92	1.65	26.0	
48+000	14L	4,340		11.55		1/5,500	0.79								
48+000	15R		105.63	10.77	A-5			184.97	0.04	184.93	2.4	182.53	1.54	26.0	
51+400	16L			11.47											
54+480	17R	6,500		12.14		1/5,000	1.30								
54+480	18L			18.36											
54+500			59.00		A-5			183.67	0.04	183.63	2.4	181.23		26.0	
		40			Fall Regulator		2.00								
54+540			59.00		A-4			181.67	0.03	181.64	2.4	179.24	1.50	20.0	
61+300	19L			9.23											
66+380	20R	12,460		41.54		1/5,000	2.49								
66+380	21L			12.74											
67+000			18.43		A-4			179.18	0.03	179.15	2.4	176.75		20.0	
		40			Fall Regulator		2.00								
67+040			18.43		A-2			177.18	0.02	176.16	2.0	174.16	1.25	8.0	
		8,260				1/4,500	1.84								
75+300	22T		18.43	16.59	A-2			175.34	0.02	175.32	2.0	173.32	1.25	8.0	
Total				290.64											

HYDRAULIC CALCULATION SHEET FOR BARI DISTRIBUTARY

2-21

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			886.77		A-31			210.50	0.09	210.41	5.8	204.61	2.37	60.0	
		20,000				1/8,000	2.50								
20+000			433.16		A-31			208.00	0.09	207.91	5.8	202.11		60.0	Ballan Disty Q=453.61
		100			X-Regulator		2.50								
20+100			433.16		A-19			205.50	0.06	205.44	4.5	200.94	2.04	45.0	
28+620	1L	13,960		15.60		1/7,300	1.91								
34+060	2R		398.72	15.40	A-17			203.59	0.06	203.53	4.2	199.33	1.95	45.0	
37+230	3L	5,940		14.50		1/7,300	0.81								
40+000			382.61		A-17			202.78	0.06	202.72	4.2	198.52		45.0	
		80			Fall Regulator		2.50								
40+080			382.61		A-17			200.28	0.06	200.22	4.2	196.02	1.95	45.0	
45+810	4R	7,850		16.10		1/7,300	1.08								
47+930	5L		347.08	15.88	A-15			199.20	0.06	199.14	4.0	195.14	1.92	42.0	
54+620	6L	11.070		15.79		1/7,000	1.58								
56+860	7R			15.92											
59+000			311.85		A-15			197.62	0.06	197.56	4.0	193.56		42.0	
		80			Fall Regulator		3.00								
59+080			311.85		A-13			194.62	0.05	194.57	3.6	190.97	1.84	43.0	
61+620	8L	6,210		15.08		1/6,600	0.94								
65+290	9R		277.72	15.64	A-12			193.68	0.05	193.63	3.6	190.03	1.82	38.0	
67+660	10L	4,710		20.18		1/6,600	0.71								
70+000			255.30		A-12			192.97	0.05	192.92	3.6	189.32		38.0	
		80			Fall Regulator		3.50								
70+080			255.30		A-11			189.47	0.05	189.42	3.4	186.12	1.80	39.0	
73+070	11R			16.02											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
78+980	12L	9,920		19.80		1/6,300	1.57								
79+780	13R			15.04											
80+000			198.79		A-11			187.90	0.05	187.85	3.4	184.45		39.0	
		60			Fall Regulator		3.00								
80+060			198.79		A-9			184.90	0.05	184.85	3.2	181.65	1.74	33.0	
87+820	14L			15.37											
87+820	15R	9,940		15.71		1/6,000	1.66								
90+000			164.26		A-9			183.24	0.05	183.19	3.2	179.99		33.0	
		60			Fall Regulator		2.00								
90+060			164.26		A-8			181.24	0.05	181.19	3.2	177.99	1.72	29.0	
93+960	16R	8,350		10.79		1/6,000	1.39								
96+070	17L			15.62											
98+410	18R		122.77	10.93	A-6			179.85	0.04	197.81	2.8	177.01	1.63	26.0	
102+750	19L	6,590		15.98		1/5,500	1.20								
102+750	20R			16.24											
105+000			86.97		A-6			178.65	0.04	178.61	2.8	175.81		26.0	
		40			Fall Regulator		3.00								
105+040			86.97		A-5			175.65	0.04	175.61	2.4	173.21	1.54	26.0	
109+650	21R	8,090		15.12		1/5,000	1.62								
109+970	22L			15.36											
113+130	23R		35.87	15.51	A-3			174.03	0.03	174.00	2.0	172.00	1.39	17.0	
115+110	24L	4,760		10.97		1/4,500	1.06								
117+890	25R		12.21	10.32	A-1			172.97	0.02	172.95	2.0	170.95	1.16	5.0	
		1,610		10.97			0.36								
119+500	26T		12.21		A-1			172.61	0.02	172.59	2.0	170.59	1.16	5.0	
Total				389.84											

HYDRAULIC CALCULATION SHEET FOR BALLAN DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			453.61		A-19			206.93	0.06	206.87	4.6	202.37	2.04	45.0	
0+100	1L	4,700		17.07		1/7,300	0.64								
4+700	2R		414.17	18.43	A-18			206.29	0.06	206.23	4.5	201.73	2.02	42.0	
7+120	3L			9.42											
10+980	4L	6,300		18.00		1/7,300	0.86								
11+000			383.70		A-18			205.43	0.06	205.37	4.5	200.87		42.0	
		80			Fall Regulator		2.00								
11+080			383.70		A-17			203.43	0.06	203.37	4.2	199.17	1.95	45.0	
18+900	5R	7,820		9.44		1/7,300	1.07								
18+900	6L		356.76	14.81	A-16			202.36	0.06	202.30	4.2	198.10	1.93	42.0	
23+980	7R			19.06											
23+980	8L	5,100		18.85		1/7,300	0.70								
24+000			314.64		A-16			201.66	0.06	201.60	4.2	197.40		42.0	
		80			Fall Regulator		3.50								
24+080			314.64		A-14			198.16	0.06	198.10	4.0	194.10	1.91	40.0	
36+000	9L			17.40											
36+980	10R	12,920		18.82		1/7,000	1.85								
37+000			274.40		A-14			196.31	0.06	196.25	4.0	192.25		40.0	
		80			Fall Regulator		3.00								
37+080			274.40		A-12			193.31	0.05	193.25	3.6	189.65	1.82	38.0	
42+000	11L	8,420		13.74		1/6,600	1.28								
45+500	12R		238.36	18.70	A-11			192.03	0.05	191.98	3.4	188.58	1.80	39.0	
47+500	13L	3,500		12.87		1/6,300	0.56								
49+000			224.06		A-11			191.47	0.05	191.42	3.4	188.02		39.0	
		60			Fall Regulator		4.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
49+060			224.06		A-10			187.47	0.05	187.42	3.4	184.02	1.78	35.0	
54+100	14L			9.32											
56+800	15R	7,940		18.60		1/6,300	1.26								
56+800	16L			17.59											
57+000			173.49		A-10			186.21	0.05	186.16	3.4	182.76		35.0	
		60			Fall Regulator		3.00								
57+060			173.49		A-8			183.21	0.05	183.16	3.2	179.96	1.72	29.0	
63+100	17R			13.23											
66+480	18L	9,440		19.11		1/6,000	1.57								
66+480	19R			18.24											
66+500			117.29		A-8			181.64	0.05	181.59	3.2	178.39		29.0	
		40			Fall Regulator		1.50								
66+540			117.29		A-6			180.14	0.04	180.10	2.8	177.30	1.63	26.0	
74+100	20L	9,260		17.76		1/5,500	1.68								
75+800	21R		84.32	11.91	A-5			178.46	0.04	178.42	2.4	176.02	1.54	26.0	
80+180	22L			14.99											
80+180	23R	4,400		15.93		1/5,000	0.88								
80+200			49.96		A-5			177.58	0.04	177.54	2.4	175.14		26.0	
		40			Fall Regulator		1.00								
80+240			49.96		A-3			176.58	0.03	176.55	2.0	174.55	1.39	17.0	
85+300	24L	6,760		10.68		1/4,500	1.50								
87+000			38.09		A-3			175.08	0.03	175.05	2.0	173.05		17.0	
		40			Road Bridge		0.20								
87+040			38.09		A-3			174.88	0.03	174.85	2.0	172.85	1.39	17.0	
87+400	25R	1,760		9.90		1/4,500	0.39								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
88+800	26L		17.06	9.03	A-2			174.49	0.02	174.47	2.0	172.47	1.16	5.0	
		3,700				1/4,500	0.82								
92+500	27T		17.06	15.35	A-2			173.67	0.02	173.65	2.0	171.65	1.16	5.0	
Total				408.25											

HYDRAULIC CALCULATION SHEET FOR UMRANI DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			787.38		A-29			207.10	0.09	207.11	5.7	201.41	2.38	55.0	
0+020	1R	4,260		10.47		1/7,500	0.57								
4+260	2L		763.69	10.85	A-29			206.53	0.09	206.44	5.7	200.74	2.38	55.0	
9+660	3L			15.74											
9+660	4R	5,420		10.75		1/7,500	0.72								
9+680			734.26		A-29			205.81	0.09	205.72	5.7	200.02		55.0	
		80			Fall Regulator		3.40								
9+760			734.26		A-28			202.41	0.09	202.32	5.6	196.72	2.34	52.0	
12+510	5L	3,670		16.51		1/7,500	0.49								
13+430	6R		697.57	16.51	A-27			201.92	0.09	201.83	5.6	196.23	2.32	49.0	
17+520	7L	5,810		16.34		1/7,500	0.77								
19+240			362.88		A-27			201.15	0.09	201.06	5.6	195.46		49.0	Rupa Disty Q=316.53
		100			X-Regulator		1.00								
19+340			362.88		A-16			200.15	0.06	200.09	4.2	195.89	1.93	42.0	
		2,520				1/7,300	0.35								
21+860	8R		345.97	15.22	A-15			199.80	0.06	199.74	4.0	195.74	1.92	42.0	
29+220	9L	9,610		10.62		1/7,000	1.37								
31+450	10R			16.29											
31+470			316.07		A-15			198.43	0.06	198.37	4.0	194.37		42.0	
		80			Fall Regulator		1.00								
31+550			316.07		A-14			197.43	0.06	197.37	4.0	193.37	1.91	40.0	
		6,510				1/7,000	0.93								
38+060	11R		294.30	19.59	A-13			196.50	0.05	196.45	3.6	192.85	1.84	43.0	
40+790	12L	7,110		14.64		1/6,600	1.08								
45+150	13R			15.65											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q (Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L (Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W. (Feet)	REMARKS
45+170			260.64		A-13			195.42	0.05	195.37	3.6	191.77		43.0	
		80			Fall Regulator		2.00								
45+250			260.64		A-11			193.42	0.05	193.37	3.4	189.97	1.80	39.0	
51+248	14R	9,100		15.48		1/6,300	1.44								
51+248	15L			15.85											
54+350	16R		213.86	10.77	A-10			191.98	0.05	191.93	3.4	188.53	1.78	35.0	
56+370	17R			15.88											
58+816	18R	4,650		15.63		1/6,300	0.74								
58+816	19L			15.54											
59+000			161.58		A-10			191.24	0.05	191.19	3.4	187.79		35.0	
		80			Fall Regulator		4.50								
59+080			161.58		A-8			186.74	0.05	186.69	3.2	183.49	1.72	29.0	
63+640	20R	4,560		10.39		1/6,000	0.76								
63+640	21L		132.01	16.22	A-6			185.98	0.04	185.94	2.8	183.14	1.63	26.0	
69+240	22R			16.20											
69+240	23L	5,620		16.69		1/5,500	1.02								
69+260			95.47		A-6			184.96	0.04	184.92	2.8	182.12		26.0	
		40			Fall Regulator		5.00								
69+300			95.47		A-5			179.96	0.04	179.92	2.4	177.52	1.54	26.0	
73+820	24R	4,520		15.58		1/5,000	0.90								
73+820	25L		60.31	16.06	A-4			179.06	0.03	179.03	2.4	176.63	1.50	20.0	
76+330	26R			15.84											
76+330	27L	5,540		15.24		1/5,000	1.10								
79+360			25.78		A-4			177.96	0.03	177.93	2.4	175.53		20.0	
		40			Fall Regulator		5.00								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
79+400			25.78		A-2			172.96	0.03	172.93	2.0	170.93	1.25	8.0	
84+070	28R	6,600		5.65		1/4,500	1.47								
86+000	29T		25.78	17.56	A-2			171.49	0.03	171.46	2.0	169.46	1.25	8.0	
Total				423.77											

HYDRAULIC CALCULATION SHEET FOR RUPA DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			316.53		A-14			197.96	0.06	197.90	4.0	193.90	1.91	40.0	
8+100	1L			15.87											
8+100	2R	9,400		15.97		1/7,000	1.34								
9+400			281.15		A-14			196.62	0.06	196.56	4.0	192.56		40.0	
		80			Fall Regulator		3.00								
9+480			281.15		A-13			193.62	0.05	193.57	3.6	189.97	1.84	43.0	
13+900	3L			10.48											
13+900	4R	7,820		16.07		1/6,600	1.18								
17+280	5L			15.98											
17+300			233.89		A-13			192.44	0.05	192.39	3.6	188.79		43.0	
		80			Fall Regulator		4.00								
17+380			233.89		A-10			188.44	0.05	188.39	3.4	184.99	1.78	35.0	
20+300	6R	5,020		15.37		1/6,300	0.80								
22+400	7L		204.87	10.75	A-10			187.64	0.05	187.59	3.4	184.19	1.78	35.0	
25+900	8L	4,600		15.99		1/6,300	0.73								
27+000			187.10		A-10			186.91	0.05	186.86	3.4	183.46		35.0	
		60			Fall Regulator		4.00								
27+060			187.10		A-9			182.91	0.05	182.86	3.2	179.66	1.74	33.0	
30+200	9L	10,540		14.90		1/6,000	1.76								
34+100	10R			10.39											
37+600	11L		147.40	10.44	A-7			181.15	0.05	181.10	2.8	178.30	1.66	30.0	
41+780	12R			16.27											
	13L	4,200		16.49		1/5,500	0.76								
41+800			111.00		A-7			180.39	0.05	180.34	2.8	177.54		30.0	
		60			Fall Regulator		1.80								

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
41+860			111.00		A-6			178.59	0.04	178.55	2.8	175.75	1.63	26.0	
48+100	14R	6,240		15.93		1/5,500	1.13								
48+100	15L		75.46	16.06	A-4			177.46	0.03	177.43	2.4	175.23	1.50	20.0	
54+400	16R	6,300		15.73		1/5,000	1.26								
54+400	17L		40.48	15.75	A-3			176.20	0.03	176.17	2.0	174.17	1.39	17.0	
		6,200				1/4,500	1.38								
60+600	18L		22.71	15.99	A-2			174.82	0.02	174.80	2.0	172.80	1.25	8.0	
		3,400				1/4,500	0.76								
64+000	19T		22.71	20.45	A-2			174.06	0.02	174.04	2.0	172.04	1.25	8.0	
Total				284.88											

HYDRAULIC CALCULATION SHEET FOR MANGSI DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			215.75		A-10			207.00	0.05	206.95	3.4	203.55	1.78	35.0	
33+300	1R	33,300		9.21		1/6,300	5.29								
33+300	2L		190.05	13.92	A-9			201.71	0.05	201.66	3.2	198.46	1.74	33.0	
		3,200				1/6,000	0.53								
36+500	3L		173.71	14.71	A-8			201.18	0.05	201.13	3.2	197.93	1.72	29.0	
39+600	4R	3,500		14.70		1/6,000	0.58								
39+600	5L			15.42											
40+000			140.24		A-8			200.60	0.05	200.55	3.2	197.35		29.0	
		60			Fall Regulator		1.70								
40+060			140.24		A-7			198.90	0.04	198.86	2.8	196.06	1.66	30.0	
42+700	6L	5,240		19.81		1/5,500	0.95								
45+300	7R		107.26	9.87	A-6			197.95	0.04	197.91	2.8	195.11	1.63	26.0	
49+800	8L			14.47											
49+800	9R	4,700		18.95		1/5,500	0.85								
50+000			70.13		A-6			197.10	0.04	197.06	2.8	194.26		26.0	
		40			Fall Regulator		3.00								
50+040			70.13		A-4			194.10	0.03	194.07	2.4	191.67	1.50	20.0	
57+900	10L	7,860		14.25		1/5,000	1.57								
57+900	11R		38.37	14.33	A-3			192.53	0.03	192.50	2.0	190.50	1.39	17.0	
		5,400				1/4,500	1.20								
63+300	12R		21.51	15.17	A-2			191.33	0.02	191.31	2.0	189.31	1.25	8.0	
		5,400				1/4,500	1.20								
68+700	13T		21.51	19.37	A-2			190.13	0.02	190.11	2.0	188.11	1.25	8.0	
Total				194.18											

HYDRAULIC CALCULATION SHEET FOR QABULA DISTRIBUTARY

2-32

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr.(Pt)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			573.78		A-28			199.25	0.08	199.17	5.5	193.67	2.27	43.0	
1+000	1L	1,000		19.81		1/7,500	0.13								
1+000	2R		530.38	19.25	A-22			199.12	0.08	199.04	5.3	193.74	2.20	41.0	
9+000	3L	8,000		14.48		1/7,500	1.07								
9+000	4R		494.38	17.92	A-21			198.05	0.08	197.97	4.7	193.27	2.07	47.0	
19+000	5L	10,020		12.44		1/7,500	1.34								
19+000	6R			19.93											
19+020			458.41		A-21			196.71	0.08	196.63	4.7	191.93		47.0	
		80			Fall Regulator		2.00								
19+100			458.41		A-20			194.71	0.07	194.74	4.7	190.04	2.06	45.0	
		4,400				1/7,500	0.59								
23+500	7L		443.52	13.40	A-19			194.12	0.07	194.05	4.5	189.35	2.04	45.0	
28+000	8L			17.40											
28+000	9R	4,520		19.91		1/7,300	0.62								
28+020			402.06		A-19			193.50	0.07	193.43	4.5	188.93		45.0	
		80			Fall Regulator		2.00								
28+100			402.06		A-17			191.50	0.06	191.44	4.2	187.24	1.95	45.0	
		4,900				1/7,300	0.67								
33+000	10L		384.19	16.08	A-17			190.83	0.06	190.77	4.2	186.57	1.95	45.0	
38+000	11L			16.53											
38+000	12R	5,020		13.96		1/7,300	0.69								
38+020			350.31		A-17			190.14	0.06	190.08	4.2	185.88		45.0	
		80			Fall Regulator		2.00								
38+100			350.31		A-15			188.14	0.05	188.09	4.0	184.09	1.92	42.0	
42+000	13L			12.20											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr(Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
44+000	14R	6,900		7.98		1/7,000	0.99								
45+000	15L		308.85	17.13	A-13			187.15	0.05	187.10	3.6	183.50	1.84	43.0	
49+000	16L	4,020		17.18		1/6,600	0.61								
49+000	17R			7.98											
49+020			280.89		A-13			186.54	0.05	186.49	3.6	182.89		43.0	
		80			Fall Regulator		3.00								
49+100			280.89		A-13			183.54	0.05	183.49	3.6	179.89	1.84	43.0	
53+000	18L	6,900		12.46		1/6,600	1.05								
54+000	19R			11.96											
56+000	20L		236.78	15.28	A-11			182.49	0.05	182.44	3.4	179.04	1.80	39.0	
59+000	21L	3,020		18.63		1/6,300	0.48								
59+000	22R			13.27											
59+020			201.34		A-11			182.01	0.05	181.96	3.4	178.56		39.0	
		60			Fall Regulator		3.00								
59+080			201.34		A-9			179.01	0.05	178.96	3.2	175.76	1.74	33.0	
63+900	23L	7,920		17.70		1/6,000	1.32								
67+000	24R		172.05	8.66	A-8			177.69	0.05	177.64	3.2	174.44	1.72	29.0	
68+700	25L			10.32											
71+000	26L	4,020		19.30		1/6,000	0.67								
71+000	27R			15.95											
71+020			121.42		A-8			177.02	0.05	176.97	3.2	173.77	29.0		
		40			Fall Regulator		3.50								
71+060			121.42		A-6			173.52	0.04	173.48	2.8	170.68	1.63	26.0	
77+600	28L	7,540		14.72		1/5,500	1.37								
78+600	29R		89.55	13.96	A-5			172.15	0.04	172.11	2.4	169.71	1.54	26.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
81+800	30L			16.88											
86+000	31L	7,420		13.64		1/5,000	1.48								
86+000	32R			17.92											
86+020			35.73		A-5			170.67	0.04	170.63	2.4	168.23		26.0	
		40			Fall Regulator		2.00								
86+060			35.73		A-3			168.67	0.03	168.64	2.0	166.64	1.39	17.0	
		5,480				1/4,500	1.22								
91+500	33L		20.76	13.47	A-2			167.45	0.02	167.43	2.0	165.43	1.25	8.0	
		3,400				1/4,500	0.76								
95+000	34T		20.76	18.68	A-2			166.69	0.02	166.67	2.0	164.67	1.25	8.0	
Total				516.40											

HYDRAULIC CALCULATION SHEET FOR MURAD DISTRIBUTARY

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
0+000			787.46		A-29			199.20	0.09	199.11	5.7	193.41	2.38	55.0	
		16,000				1/7,500	2.13								
16+000	1L		764.84	20.36	A-29			197.07	0.09	196.98	5.7	191.28	2.38	55.0	
18+000	2L			10.88											
20+000	3L	4,020		10.86		1/7,500	0.54								
20+000	4R			10.44											
20+020			729.08		A-29			196.53	0.09	196.44	5.7	190.74		55.0	
		80			Fall Regulator		2.00								
20+100			729.08		A-28			194.53	0.09	194.44	5.6	188.84	2.34	52.0	
26+700	5L	6,600		9.66		1/7,500	0.88								
26+700	6R		706.78	10.41	A-27			193.65	0.09	193.56	5.6	187.96	2.32	49.0	
33+400	7L	6,700		6.19		1/7,500	0.89								
33+400	8R		690.02	8.89	A-27			192.76	0.09	192.67	5.6	187.07	2.32	49.0	
40+000	9L			11.81											
40+000	10R	6,620		12.16		1/7,500	0.88								
40+020			663.39		A-27			191.88	0.09	191.79	5.6	186.19		49.0	
		80			Fall Regulator		2.50								
40+100			663.39		A-27			189.38	0.08	189.30	5.6	183.70	2.32	49.0	
43+300	11L	6,600		11.81		1/7,500	0.88								
45+000	12R			18.61											
46+700	13L		614.83	13.28	A-25			188.50	0.08	188.42	5.5	182.92	2.28	45.0	
50+000	14L	8,300		10.73		1/7,500	1.11								
53+300	15L			10.73											
55+000	16R		580.72	9.24	A-24			187.39	0.08	187.31	5.5	181.81	2.27	43.0	
56+700	17L			12.07											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr.(Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V.(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
60+000	18L			11.81											
60+000	19R	5,020		14.71		1/7,500	0.67								
60+020			537.84		A-24			186.72	0.08	186.64	5.5	181.14		43.0	
		80			Fall Regulator		2.00								
60+100			537.84		A-22			184.72	0.08	184.64	5.3	179.34	2.20	41.0	
63+300	20L	6,600		11.81		1/7,500	0.88								
66+700	21L			13.28											
66+700	22R		499.55	9.37	A-21			183.84	0.07	183.77	4.7	179.07	2.07	47.0	
71+000	23L	7,600		11.81		1/7,500	1.01								
74+300	24L			11.81											
74+300	25R		463.67	8.67	A-20			182.83	0.07	182.76	4.7	178.06	2.07	45.0	
77+600	26L			13.28											
80+000	27L	5,720		10.73		1/7,500	0.76								
80+000	28R			15.68											
80+020			419.57		A-20			182.07	0.07	182.00	4.7	177.30		47.0	
		80			Fall Regulator		2.50								
80+100			419.57		A-18			179.57	0.06	179.51	4.5	175.01	2.02	42.0	
83+300	29L	6,600		10.73		1/7,300	0.90								
86+700	30L		394.24	12.07	A-17			178.67	0.06	178.61	4.2	174.41	1.95	45.0	
90+000	31L	6,600		10.73		1/7,300	0.90								
90+000	32R			19.37											
93+300	33L		348.87	10.73	A-15			177.77	0.06	177.71	4.0	173.71	1.92	42.0	
96+700	34L			12.07											
100+000	35L	6,720		16.97		1/7,000	0.96								
100+000	36R			13.45											

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L.	WATER DEPTH D(Feet)	BED LEVEL B.L.(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
100+020			301.66		A-15			176.81	0.06	176.75	4.0	172.75		42.0	
		80			Fall Regulator		2.50								
100+100			301.66		A-13			174.31	0.05	174.26	3.6	170.66	1.84	43.0	
		4,900				1/6,600	0.74								
105+000	37L		282.59	17.16	A-13			173.57	0.05	173.52	3.6	169.92	1.84	43.0	
107+500	38R	5,000		12.71		1/6,600	0.76								
110+000	39L		250.79	15.91	A-11			172.81	0.05	172.76	3.4	169.36	1.80	39.0	
115+000	40L	5,020		20.50		1/6,300	0.80								
115+000	41R			11.66											
115+020			215.06		A-11			172.01	0.05	171.96	3.4	168.56		39.0	
		60			Fall Regulator		2.50								
115+080			215.06		A-10			169.51	0.05	169.46	3.4	166.06	1.78	35.0	
118+500	42R	4,920		19.31		1/6,300	0.78								
120+000	43L			12.20											
120+000	44R		166.99	11.75	A-8			168.73	0.05	168.68	3.2	165.48	1.72	29.0	
122+000	45L	2,000		17.58		1/6,000	0.33								
122+000	46R		132.25	13.69	A-6			168.40	0.04	168.36	2.8	165.56	1.63	26.0	
124+000	47R			17.24											
127+500	48L	5,520		20.15		1/5,500	1.00								
127+500	49R			10.80											
127+520			78.71		A-6			167.40	0.04	167.36	2.8	164.56		26.0	
		60			Fall Regulator		2.00								
127+580			78.71		A-4			165.40	0.03	165.37	2.4	162.97	1.50	20.0	
129+200	50R	2,920		10.47		1/5,000	0.58								
130+500	51R		55.44	10.47	A-4			164.82	0.03	164.79	2.4	162.39	1.50	20.0	

STATION RD (‰ Feet)	MINOR CANAL	LENGTH OF SECTION (Feet)	DISCHARGE OF CANAL Q(Cusecs)	DISCHARGE OF MINOR CANAL (Cusecs)	TYPE OF CANAL	HYDRAULIC GRADIENT S	ENERGY LOSS (Feet)	ENERGY LEVEL En.L.(Ft)	VELOCITY HEAD Hr (Ft)	FULL SUPPLY LEVEL F.S.L	WATER DEPTH D(Feet)	BED LEVEL B.L(Feet)	MEAN VELOCITY V(Ft/sec)	BED WIDTH W.(Feet)	REMARKS
132+500	51L	2,000		11.26		1/5,000	0.40								
132+500	52R		31.45	10.33	A-3			164.42	0.03	164.39	2.0	162.39	1.39	17.0	
133+780	53L	1,300		13.54		1/4,500	0.29								
133+800	54T		31.45	14.77	A-3			164.13	0.03	164.10	2.0	162.10		17.0	
Total				708.71											