WATER DUTY AT MAJOR LATERAL CANA

DRY SEASON PADDY

IRRIGATION SYSTEM	OCTOBER						NOVEMBER									DECEMBER									JANUARY							
	MIDDLE			LATE			FIRST			MIDDLE			LATE			FIRST			MIDDLE			LATE			FIRST			MIDDLE			LA	
	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	W
1.BALIGATAN DIVERSION DAM (12,680 HA.)										377	0.847	2.60	1,963	3.023	1.78	6,038	7.223	1.38	9,057	9.310	1.19	12,028	12.514	1.10	12,680	10.128	0.92	12,680	10460	0.95	12,680	12.
SOUTH HIGH CANAL (9,580 HA.)										285	0.640	2.60	1,483	2.284	1.78	4,562	5.457	1.38	6,843	7.034	1.19	9,092	9.455	1.10	9,580	7.652	0.92	9,580	7903	0.95	9,580	9.
OSCARIZ MAIN CANAL (3,100 HA.)										92	0.207	2.60	480	0.739	1.78	1,476	1.766	1.38	2,214	2.276	1.19	2,936	3.059	1.10	3,100	2.476	0.92	3,100	2557	0.95	3,100	2.
2.MARIS DIVERSION DAM (73,603 HA.)	1,533	3.894	2.92	12,901	28.968	2.36	26,947	28.871	1.24	40,392	36.376	1.04	48,191	37.151	0.89	53,553	50.187	1.08	59,918	59.526	1.15	66,492	74.033	1.17	71,537	79.793	1.29	73,587	78539	1.24	73,603	85
LATERAL A (7,547 HA.)	337	1.089	3.74	2,830	8.592	3.19	5,660	7.945	1.62	7,493	9.501	1.47	7,547	8.747	1.34	7,547	13.701	2.10	7,547	14.197	2.18	7,547	15.912	2.22	7,547	16.233	2.49	7,547	16312	2.50	7,547	18
LATERAL B (1,713 HA.)	76	0.266	4.05	642	2.092	3.43	1,285	1.869	1.68	1,701	1.990	1.35	1,713	1.740	1.18	1,713	3.007	2.03	1,713	3.123	2.11	1,713	3.468	2.13	1,713	3.545	2.40	1,713	3561	2.41	1,713	3
SOUTH LOW CANAL (7,920 HA.)	236	0.556	2.73	1,960	4.035	2.14	3,960	3.821	1.12	5,847	4.735	0.94	7,580	5.609	0.86	7,920	5.101	0.75	7,920	5.354	0.78	7,920	6.322	0.84	7,920	7.218	1.05	7,920	7.288	1.06	7,920	8.
LATERAL C (7,149 HA.)	255	0.694	3.15	2,145	5.033	2.47	4,289	4.549	1.23	6,321	5.014	0.92	7,149	4.010	0.65	7,149	4.884	0.79	7,149	5.355	0.87	7,149	6.204	0.91	7,149	6.941	1.12	7,149	7.017	1.14	7,149	7.
LATERAL D (17,681 HA.)	631	1.269	2.33	5,304	9.216	1.83	10.609	8.593	0.94	15,635	10.595	0.78	17,681	10.350	0.68	17,681	10.465	0.69	17,681	11.210	0.73	17,681	13.202	0.79	17,681	14.864	0.97	17,681	15.019	0.98	17,681	16.
CAUAYAN EAST EXTENSION (5,473 HA.)										163	0.366	2.60	847	1.305	1.78	2,606	3.118	1.38	3,909	4.018	1.19	5,183	5.401	1.10	5,473	4.372	0.92	5,473	4515	0.95	5,473	5.
LATERAL E (2,662 HA.)							475	0.846	2.06	1,426	1.685	1.37	2,358	2.175	1.07	2,662	1.676	0.73	2,662	1.651	0.72	2,662	2.025	0.80	2,662	2.254	0.98	2,662	2261	0.98	2,662	2.
LATERAL F,G,H,I,J (3,744 HA.)							669	1.248	2.16	2,006	2.490	1.44	3,316	3.215	1.12	3,744	2.467	0.76	3,744	2,435	0.75	3,744	2.991	0.84	3,744	3.336	1.03	3,744	3344	1.03	3,744	3.
NORTH DIVERSION CANAL (7,074 HA.)																842	1.835	2.52	2,526	3.813	1.75	4,295	5.757	1.41	6,063	7.364	1.41	7,066	6876	1.13	7,074	6.
SIFFU EAST EXTENSION (6,600 HA.)																786	1.712	2.52	2,357	3,557	1.75	4,007	5.371	1.41	5,657	6.870	1.41	6,592	6415	1.13	6,600	6.
MACANAO EAST MAIN CANAL RMC (4,902 HA.)																700	1.568	2.59	2,100	3.247	1.79	3,571	4.830	1.42	4,790	4.587	1.11	4,902	3735	0.88	4,902	4.
MACANAO WEST MAIN CANAL LADECO (1,138 HA.)																203	0.653	3.72	610	1.566	2.97	1,020	2.550	2.63	1,138	2.209	2.25	1,138	2201	2.24	1,138	2.
3.SIFFURIS DIVERSION DAM (11,119 HA.)							532	1.036	2.25	1,692	2.278	1.56	3,560	4.242	1.38	5,590	6.004	1.24	8,290	8.748	1.22	10,582	11.227	1.12	11,119	9.354	0.97	11,119	9563	1.00	11,119	11.
SIFFU NORTH MAIN CANAL (2,959 HA.)							528	1.032	2.26	1,585	2.056	1.50	2,621	2.653	1.17	2,959	2.045	0.80	2,959	2.018	0.79	2,959	2.478	0.88	2,959	2.748	1.07	2,959	2756	1.08	2,959	3.
SIFFU SOUTH MAIN CANAL (8,160 HA.)							4	0.004	1.16	107	0.222	2.40	939	1.589	1.96	2,631	3.959	1.74	5,331	6.730	1.46	7,623	8.749	1.21	8,160	6.606	0.94	8,160	6807	0.97	8,160	8.

WET SEASON PADDY

IRRIGATION SYSTEM	APRIL						MAY									JUNE									JULY							
	MIDDLE			LATE			FIRST			MIDDLE			LATE			FIRST			MIDDLE			LATE			FIRST			MIDDLE			LA	
	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	W
1.BALIGATAN DIVERSION DAM (12,680 HA.)										377	1.533	4.71	3,170	10.726	3.56	6,340	11.047	2.02	9,359	13.869	1.72	12,136	16.386	1.56	12,680	11.973	1.09	12,680	12536	1.14	12,680	14
SOUTH HIGH CANAL (9,580 HA.)										285	1.158	4.70	2,395	8.104	3.56	4,790	8.346	2.02	7,071	10.478	1.72	9,169	12.380	1.56	9,580	9.046	1.09	9,580	9471	1.14	9,580	11
OSCARIZ MAIN CANAL (3,100 HA.)										92	0.375	4.72	775	2.622	3.56	1,550	2.701	2.02	2,288	3.391	1.72	2,967	4.005	1.56	3,100	2.927	1.09	3,100	3065	1.14	3,100	3.
2.MARIS DIVERSION DAM (73,603 HA.)	1,535	7.951	6.00	12,337	45.917	4.31	26,369	61.772	2.71	41,664	80.757	2.24	52,551	95.487	1.91	58,510	54,977	1.09	64,230	64.164	1.16	68,069	68.817	1.17	71,324	93.287	1.51	73,572	95878	1.51	73,603	109
LATERAL A (7,547 HA.)	337	2.293	7.88	2,695	15.432	6.63	5,391	17.444	3.74	7,426	20.974	3.27	7,547	20.254	2.82	7,547	11.727	1.80	7,547	12.429	1.91	7,547	12.804	1.96	7,547	18.890	2.90	7,547	19113	2.93	7,547	21.
LATERAL B (1,713 HA.)	76	0.560	8.53	612	3.552	6.72	1,224	4.224	3.99	1,685	4.646	3.19	1,713	4.127	2.53	1,713	2.573	1.74	1,713	2.740	1.85	1,713	2.782	1.88	1,713	4.136	2.79	1,713	4188	2.83	1,713	4.
SOUTH LOW CANAL (7,920 HA.)	236	1.122	5.50	1,226	3.713	3.51	3,771	7.519	2.31	5,657	4.425	1.93	7,500	12.319	1.73	7,920	4.625	0.68	7,920	4.956	0.72	7,920	5.494	0.80	7,920	8.555	1.25	7,920	8736	1.28	7,920	9.
LATERAL C (7,149 HA.)	255	1.408	7.24	2,247	9.302	4.79	4,085	9.118	2.58	6,128	10.494	1.98	7,149	9.335	1.37	7,149	3.786	0.61	7,149	4.452	0.72	7,149	4.852	0.79	7,149	8.318	1.35	7,149	8520	1.38	7,149	9.
LATERAL D (17,681 HA.)	631	2.568	4.71	5,557	13.918	2.90	10,103	17.002	1.95	15,155	21.271	1.62	17,681	23.346	1.39	17,681	8.974	0.59	17,681	10.000	0.65	17,681	11.094	0.73	17,681	17.742	1.16	17,681	18120	1.19	17,681	20
CAUAYAN EAST EXTENSION (5,473 HA.)							652	2.420	4.30	1,955	4.833	2.86	3,323	7.072	2.24	4,691	5.565	1.37	5,466	5.231	1.11	5,473	4.610	0.97	5,473	5.502	1.16	5,473	5853	1.24	5,473	6
LATERAL E (2,662 HA.)							475	1.633	3.98	1,426	3.238	2.63	2,385	4.552	2.01	2,662	1.734	0.75	2,662	1.796	0.78	2,662	2.050	0.89	2,662	2.675	1.16	2,662	2686	1.17	2,662	3
LATERAL F,G,H,I,J, (3,744 HA.)							668	2.412	4.18	2,006	4.781	2.76	3,355	6.722	2.11	3,744	2.553	0.79	3,744	2.645	0.82	3,744	3.027	0.94	3,744	3.937	1.22	3,744	3956	1.22	3,744	4.
NORTH DIVERSION CANAL (7,074 HA.)																842	2.935	4.03	2,526	5.940	2.72	4,211	7.890	2.17	5,895	8.488	1.67	7,074	8818	1.44	7,074	8.
SIFFU EAST EXTENSION (6,600 HA.)																786	2.738	4.03	2,357	5.542	2.72	3,929	7362	2.17	5,500	7.919	1.67	6,569	8227	1.45	6,600	8.
MACANAO EAST MAIN CANAL RMC (4,902 HA.)										175	0.774	5.11	1,471	5.415	3.87	2,941	5.365	2.11	4,335	6.016	1.61	4,902	4.895	1.16	4,902	4.578	1.08	4,902	5005	1.18	4,902	5.
MACANAO WEST MAIN CANAL LADECO (1,138 HA.)										51	0.321	7.28	427	2.345	5.78	834	2.402	3.33	1,130	2.417	2.48	1,138	1.957	1.99	1,138	2.547	2.59	1,138	2656	2.70	1,138	2.
3.SIFFURIS DIVERSION DAM (11,119 HA.)							528	1.991	4.36	1,585	3.949	2.88	2,652	5.552	2.20	4,310	6.736	1.81	7,010	11.472	1.89	9,675	14.613	1.75	11,012	12.225	1.29	11,119	11436	1.19	11,119	13.
SIFFU NORTH MAIN CANAL (2,959 HA.)							528	1.991	4.36	1,585	3.949	2.88	2,652	5.552	2.20	2,959	2.113	0.83	2,959	2.188	0.86	2,959	2.500	0.98	2,959	3.262	1.29	2,959	3276	1.28	2,959	3.
SIFFU SOUTH MAIN CANAL (8,160 HA.)																1,351	4.623	3.96	4,051	9.284	2.65	6,716	12.113	2.09	8,053	8.963	1.29	8,160	8160	1.16	8,160	9.

NOTE:

1. A: IRRIGATION AREA (HA), WR: WATER REQUIREMENT AT LATERAL BASE (MCM), WD: WATER DUTY (L/SEC/HA)
2. EFFECTIVE RAINFALL IS COUNTED IN WATER REQUIREMENT, BUT OPERATION LOSSES (15 PERCENT) ARE NOT INCLUDED.
3. FIGURES WITH ASTERISK INDICATES MAXIMUM WATER DUTY AT LATERAL BASIS IN CROPPING SEASON.

RAL CANALS ON PROPOSED IRRIGATION SCHEDULE

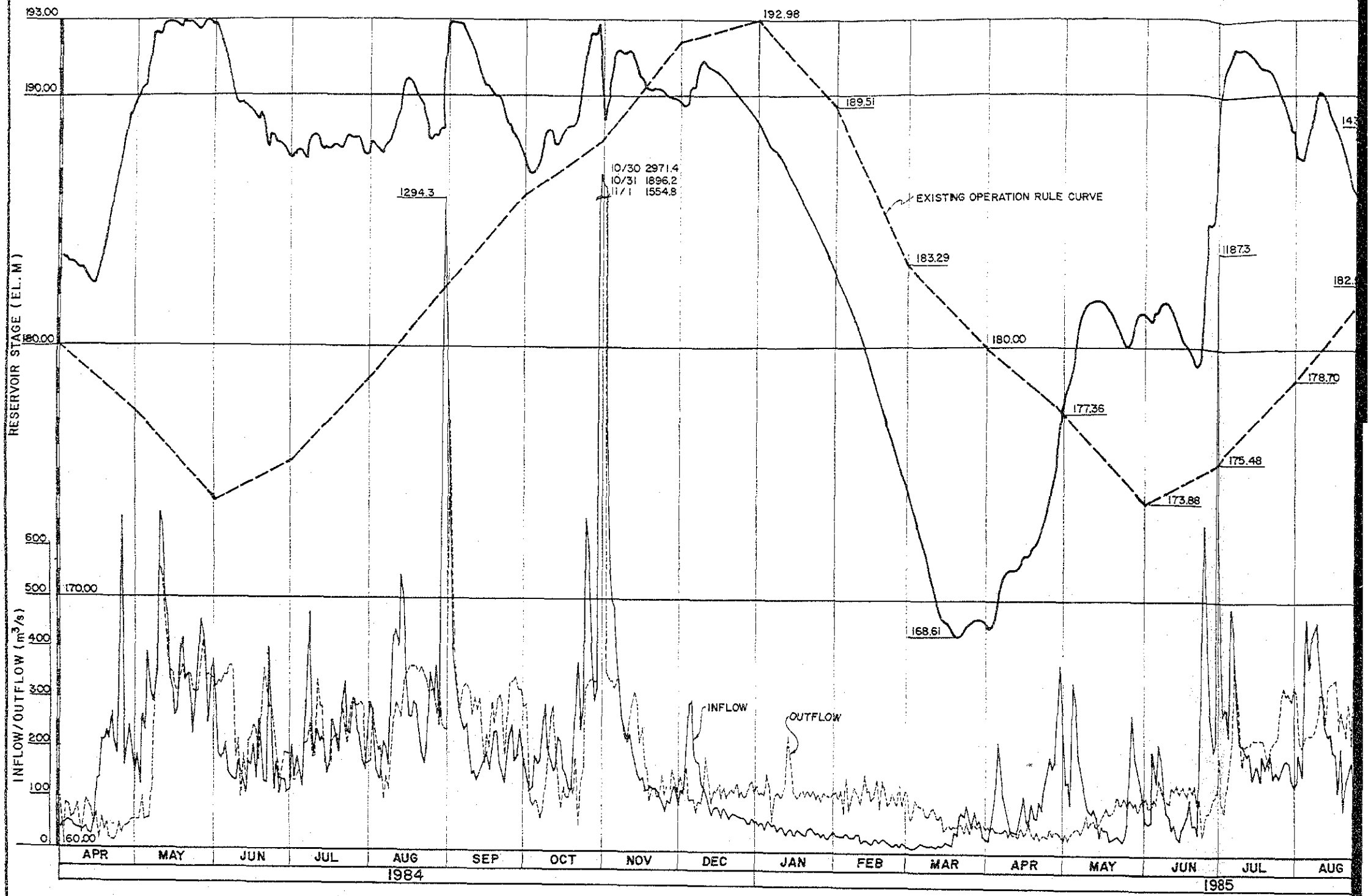
JANUARY								FEBRUARY								MARCH								APRIL								MAY		
FIRST		MIDDLE			LATE			FIRST			MIDDLE			LATE		FIRST			MIDDLE			LATE		FIRST			MIDDLE			LATE			FIRST		
WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD
10.128	0.92	12,680	10.460	0.95	12,680	12.259	1.02	12,680	13.567	1.24	12,680	13.749	1.26	12,680	11.131	1.27	12,680	15.940	1.45	12,136	15.400	1.47	9,208	12.864	1.47	6,038	8.921	1.71	3,021	4.461	1.71	377	0.557	1.71			
7.652	0.92	9,580	7.903	0.95	9,580	9.262	1.02	9,580	10.250	1.24	9,580	10.388	1.26	9,580	8.410	1.27	9,580	12.043	*1.45	9,169	11.635	1.47	6,957	9.719	1.47	4,562	6.740	1.71	2,281	3.370	1.71	285	0.421	1.71			
2.476	0.92	3,100	2.557	0.95	3,100	2.997	1.02	3,100	3.317	1.24	3,100	3.361	1.26	3,100	2.721	1.27	3,100	3.897	*1.45	2,967	3.765	1.47	2,251	3.145	1.47	1,476	2.181	1.71	738	1.091	1.71	92	0.136	1.71			
79.793	1.29	73,587	78.539	1.24	73,603	85.795	1.23	73,603	92.688	1.46	68,625	87.052	1.47	57,617	57.929	1.45	46,383	63.501	1.58	32,547	44.241	1.57	24,866	32.184	1.36	18,777	29.145	1.80	12,411	18.928	1.77	6,239	9.115	1.69	1,691	2.527	1.73
16.233	2.49	7,547	16.312	2.50	7,547	18.032	2.51	7,547	17.938	2.43	6,455	15.626	2.80	4,043	8.403	3.01	2,803	5.814	2.40	690	0.969	1.62															
3.545	2.40	1,713	3.561	2.41	1,713	3.934	2.42	1,713	3.922	2.65	1,465	3.355	2.65	918	1.681	2.65	367	0.910	2.87	3	0.008	3.09															
7.218	1.05	7,920	7.288	1.06	7,920	8.086	1.07	7,920	8.886	1.30	7,156	8.120	1.31	5,469	4.952	1.31	3,771	4.986	1.53	1,886	2.493	1.53	236	0.343	1.53													
6.941	1.12	7,149	7.017	1.14	7,149	7.805	1.15	7,149	8.583	1.39	6,321	7.510	1.38	4,494	4.097	1.32	2,655	3.192	1.39	654	0.607	1.07															
14.864	0.97	17,681	15.019	0.98	17,681	16.699	0.99	17,681	18.374	1.20	15,635	16.507	1.22	11,114	9.705	1.26	6,567	9.086	1.60	1,616	3.442	2.47	526	0.326	0.65													
4.372	0.92	5,473	4.515	0.95	5,473	5.291	1.02	5,473	5.856	1.24	5,473	5.934	1.25	5,473	4.804	1.27	5,473	6.880	1.45	5,238	6.647	1.47	3,974	5.553	1.47	2,606	3.850	1.71	1,303	1.925	1.71	163	0.241	1.71			
2.254	0.98	2,662	2.261	0.98	2,662	2.518	1.00	2,662	2.772	1.21	2,662	2.815	1.22	2,656	2.249	1.23	2,092	2.574	1.42	1,141	1.404	1.42	212	0.287	1.42													
3.336	1.03	3,744	3.344	1.03	3,744	3.717	1.04	3,744	4.084	1.26	3,744	4.141	1.28	3,736	3.310	1.28	2,941	3.797	1.49	1,605	2.071	1.49	298	0.423	1.49													
7.364	1.41	7,066	6.876	1.13	7,074	6.577	0.98	7,074	7.553	1.24	7,074	7.911	1.29	7,074	6.440	1.32	7,074	9.072	1.48	7,074	9.188	*1.50	7,043	10.195	1.52	5,895	9.015	1.77	4,211	6.439	1.77	2,526	3.864	1.77	842	1.273	1.75
6.870	1.41	6,592	6.415	1.13	6,600	6.136	0.98	6,600	7.047	1.24	6,600	7.381	1.29	6,600	6.009	1.32	6,600	8.464	1.48	6,600	8.573	*1.50	6,571	9.512	1.52	5,500	8.411	1.77	3,929	6.008	1.77	2,357	3.605	1.77	786	1.188	1.75
4.587	1.11	4,902	3.735	0.88	4,902	4.478	0.96	4,902	5.147	1.22	4,902	5.222	1.23	4,902	4.240	1.25	4,902	6.009	1.42	4,902	6.099	*1.44	4,875	2.547	0.55	3,922	5.620	1.66	2,521	3.378	1.55	1,120	1.212	1.25	63	0.066	1.21
2.209	2.25	1,138	2.201	2.24	1,138	2.522	2.33	1,138	2.526	2.57	1,138	2.530	2.57	1,138	2.039	2.59	1,138	2.717	2.76	1,138	2.740	2.79	1,131	2.998	2.79	854	2.249	3.05	447	1.178	3.05	73	0.193	3.06			
9.354	0.97	11,119	9.563	1.00	11,119	11.229	1.06	11,119	12.461	1.30	11,119	12.571	1.31	11,119	10.163	1.32	10,485	13.726	1.52	9,274	12.251	1.53	7,380	10.830	1.54	4,989	7.877	1.83	2,305	3.700	1.86	333	0.544	1.89			
2.748	1.07	2,959	2.756	1.08	2,959	3.065	1.09	2,959	3.371	1.32	2,959	3.419	1.34	2,952	2.731	1.34	2,325	3.140	1.56	1,268	1.715	1.56	235	0.350	1.57													
6.606	0.94	8,160	6.807	0.97	8,160	8.164	1.05	8,160	9.090	1.29	8,160	9.152	1.30	8,160	7.432	1.32	8,160	10.586	*1.50	8,006	10.538	1.52	7,145	10.480	1.54	4,989	7.877	1.83	2,305	3.700	1.86	333	0.544	1.89			

JULY								AUGUST								SEPTEMBER								OCTOBER								NOVEMBER		
IRST		MIDDLE			LATE			FIRST			MIDDLE			LATE		FIRST			MIDDLE			LATE		FIRST			MIDDLE			LATE			FIRST		
WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD	A	WR	WD
1.973	1.09	12,680	12.536	1.14	12,680	14.784	1.23	12,680	6.239	0.57	12,680	6.448	0.59	12,680	7.334	0.61	12,680	7.434	0.68	11,487	6.847	0.69	8,454	5.039	0.69	5,435	6.621	1.41	2,415	2.942	1.41	136	0.181	1.40			
9.046	1.09	9,580	9.471	1.14	9,580	11.170	1.23	9,580	4.714	0.57	9,580	4.872	0.59	9,580	5.541	0.61	9,580	5.617	0.68	8,679	5.173	0.69	6,387	3.807	0.69	4,106	5.002	1.41	1,825	2.223	1.41	103	0.137	1.40			
2.927	1.09	3,100	3.065	1.14	3,100	3.614	1.23	3,100	1.525	0.57	3,100	1.576	0.59	3,100	1.793	0.61	3,100	1.817	0.68	2,808	1.674	0.69	2,067	1.232	0.69	1,329	1.619	1.41	590	0.719	1.41	33	0.044	1.40			
83.287	1.51	73,572	95.876	1.51	73,603	105.363	1.51	73,603	55.713	0.88	69,670	53.519	0.89	56,392	46.036	0.86	40,959	39.702	1.12	27,211	21.510	0.91	19,188	12.606	0.76	13,191	12.356	1.08	8,065	7.031	1.01	4,395	4.219	1.01	1,041	1.395	1.55
18.890	2.90	7,547	19.113	2.93	7,547	21.282	*2.97	7,547	14.835	2.28	6,684	13.329	2.31	3,774	9.154	2.55	1,092	4.785	5.07	388	0.554	1.65															
4.136	2.79	1,713	4.188	2.83	1,713	4.667	*2.87	1,713	3.271	2.21	1,517	2.897	2.21	857	1.799	2.21	248	0.657	3.07																			
8.555	1.25	7,920	8.736	1.28	7,920	9.817	*1.30	7,920	5.030	0.74	7,317	4.738	0.75	5,374	3.831	0.75	3,394	3.988	1.36	1,509	1.773	1.36	85	0.100	1.36													
9.318	1.35	7,149	8.520	1.38	7,149	9.605	*1.41	7,149	5.147	0.83	6,495	4.646	0.83	4,391	3.253	0.78	2,247	2.498	1.29	368	0.324	1.02															
17.742	1.16	17,681	18.120	1.19	17,681	20.368	*1.21	17,681	10.599	0.69	16,064	9.809	0.71	10,681	7.587	0.75	5,557	7.299	1.52	909	2.257	2.87	189	0.095	0.58													
5.502	1.16	5,473	5.853	1.24	5,473	6.620	*1.27	5,473	2.828	0.60	5,473	2.918	0.62	5,378	3.249	0.63	4,300	3.753	1.01	2,997	2.615	1.01	1,694	1.478	1.01	417	0.591	1.64										
2.675	1.16	2,662	2.686	1.17	2,662	3.028	*1.20	2,662	1.296	0.56	2,662	1.345	0.58	2,586	1.441	0.59	1,806	1.772	1.14	856	0.839	1.13	76	0.075	1.14													
6.937	1.22	3,744	3.956	1.22	3,744	4.462	*1.25	3,744	1.912	0.59	3,744	1.985	0.61	3,637	2.124	0.61	2,541	2.619	1.19	1,203	1.241	1.19	107	0.110	1.19													
8.488	1.67	7,074	8.818	1.44	7,074	8.678	1.29	7,074	3.351	0.55	7,074	3.829	0.63	7,074	4.424	0.66	7,074	3.746	0.61	7,074	3.877	0.63	6,998	3.959	0.65	5,727	4.997	1.01	4,042	3.527	1.01	2,274	2.183	1.01	539	0.722	1.55
7.919	1.67	6,569	8.227	1.45	6,600	8.097	1.29	6,600	3.127	0.55	6,600	3.573	0.63	6,600	4.128	0.66	6,600	3.495	0.61	6,600	3.617	0.63	6,529	3.693	0.65	5,342	4.662	1.01	3,771	3.291	1.01	2,121	2.036	1.01	503	0.673	1.55
4.578	1.08	4,902	5.005	1.18	4,902	5.786	1.24	4,902	2.425	0.57	4,902	2.530	0.60	4,902	2.903	0.62	4,962	3.006	0.70	4,334	2.630	0.70	2,941	1.694	0.67	1,541	1.658	1.25	252	0.213	0.98						
2.547	2.59	1,138	2.656	2.70	1,138	2.953	*2.73	1,138	1.892	1.92	1,138	1.920	1.95	1,138	2.143	1.98	1,138	2.084	2.12	973	1.783	2.12	569	1.402	2.85	164	0.448	3.16									
12.225	1.29	11,119	11.436	1.19	11,119	13.569	1.28	11,119	5.677	0.59	11,119	5.856	0.61	11,034	6.578	0.63	10,168	6.420	0.73	9,111	5.449	0.69	8,124	4.485	0.64	5,999	6.310	1.22	3,298	3.416	1.20	786	0.828	1.11			
3.262	1.29	2,959	3.276	1.28	2,959	3.690	*1.31	2,959	1.580	0.62	2,959	1.640	0.64	2,874	1.757	0.64	2,008	2.155	1.24	951	1.021	1.24	85	0.091	1.24													
8.963	1.29	8,160	8.160	1.16	8,160	9.879	1.27	8,160	4.097	0.58	8,160	4.216	0.60	8,160	4.821	0.62	8,160	4.265	0.61	8,160	4.428	0.63	8,039	4.394	0.63	5,999	6.310	1.22	3,298	3.416	1.20	786	0.828	1.11			

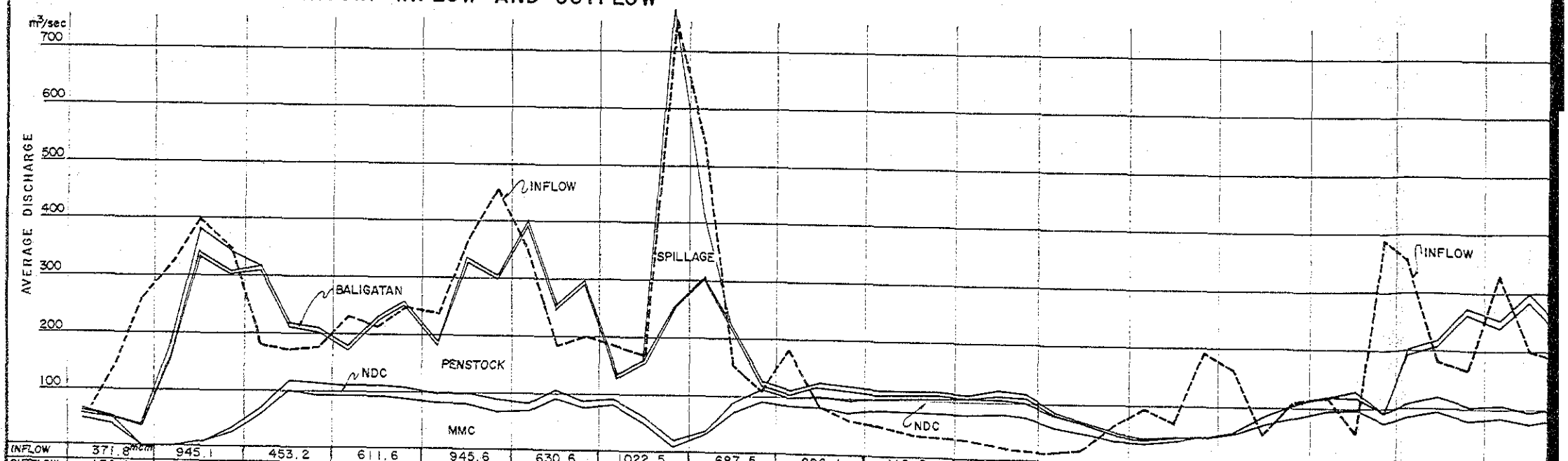
)

DED.

PRESENT MAGAT RESERVOIR OPERATION AND WATER A

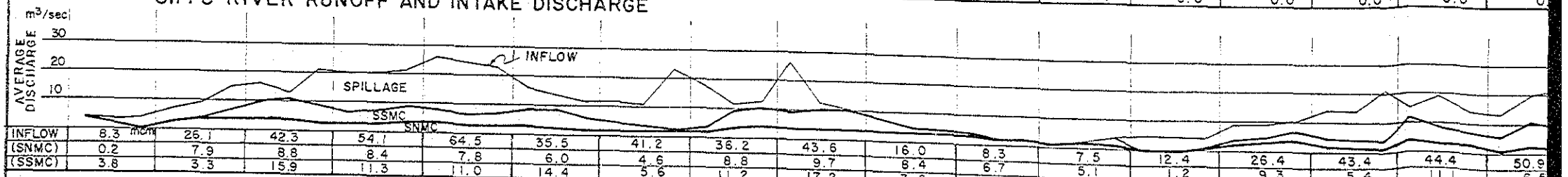


MAGAT RESERVOIR INFLOW AND OUTFLOW



INFLOW	371.8 mcm	945.1	453.2	611.6	945.6	630.6	1022.5	687.5	296.1	119.0	62.8	94.6	312.4	298.5	497.3	628.4	640.
OUTFLOW	136.2	810.1	639.3	594.5	742.4	823.3	495.8	656.7	325.4	310.9	280.7	185.2	112.3	208.1	291.3	624.8	705
PENSTOCK	128.9	734.4	624.0	577.9	723.7	806.4	483.2	549.8	303.6	291.2	261.3	167.7	107.0	202.8	274.0	596.0	668.
(MMC)	77.8	30.5	219.0	247.0	210.2	209.7	129.0	172.7	223.8	219.4	195.0	134.0	106.3	192.7	237.7	238.7	227
(NDC)	15.0	6.4	41.8	47.2	44.5	31.1	29.3	36.2	45.1	61.4	59.0	46.5	11.1	35.1	55.8	64.5	51
BALIGATAN	7.3	10.4	15.3	16.6	18.7	16.9	12.6	15.4	21.8	19.7	19.4	17.5	5.3	5.3	17.3	28.8	37
SPILLAGE	0.0	65.3	0.0	0.0	0.0	0.0	487.5	91.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

SIFFU RIVER RUNOFF AND INTAKE DISCHARGE

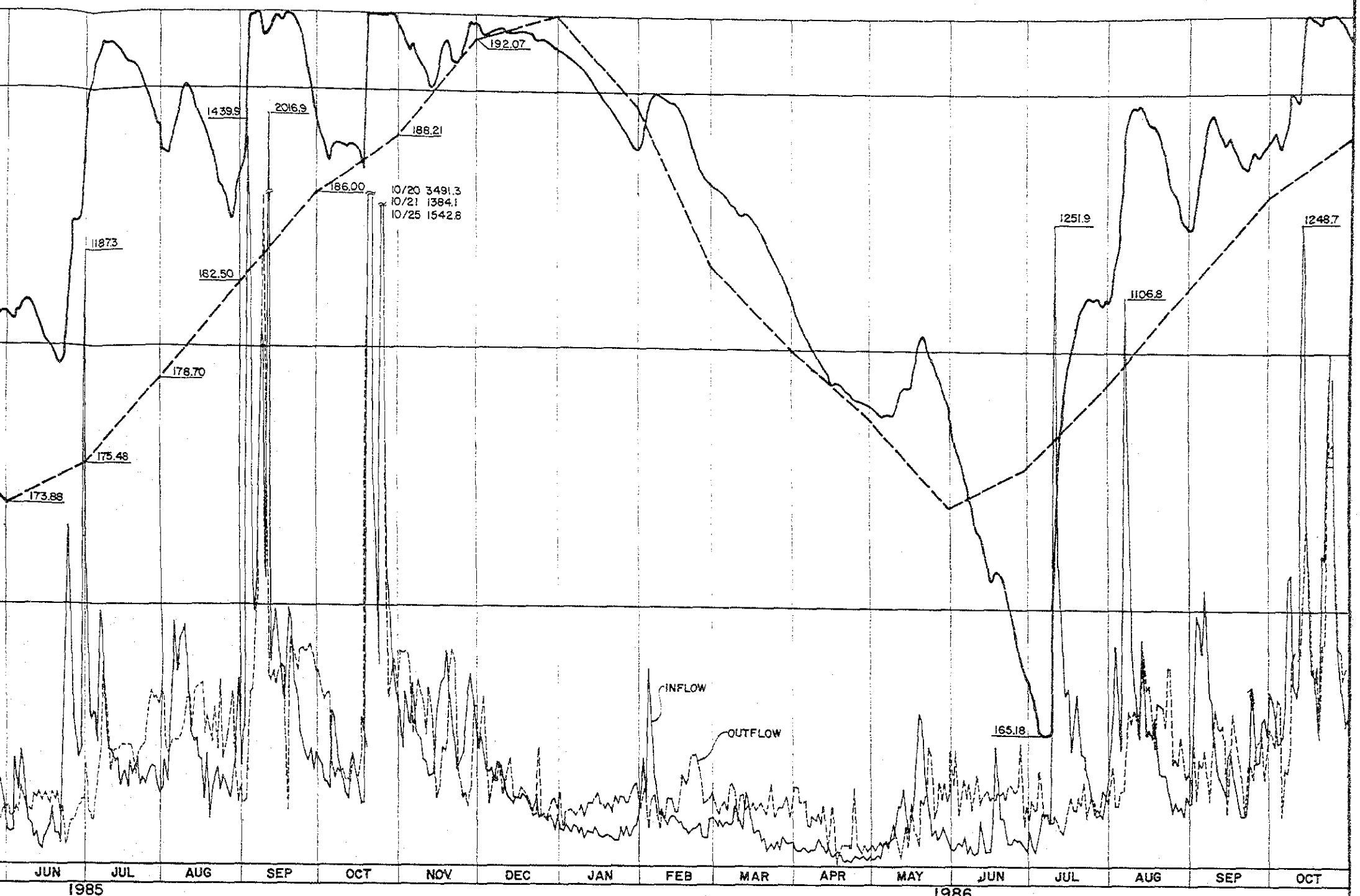


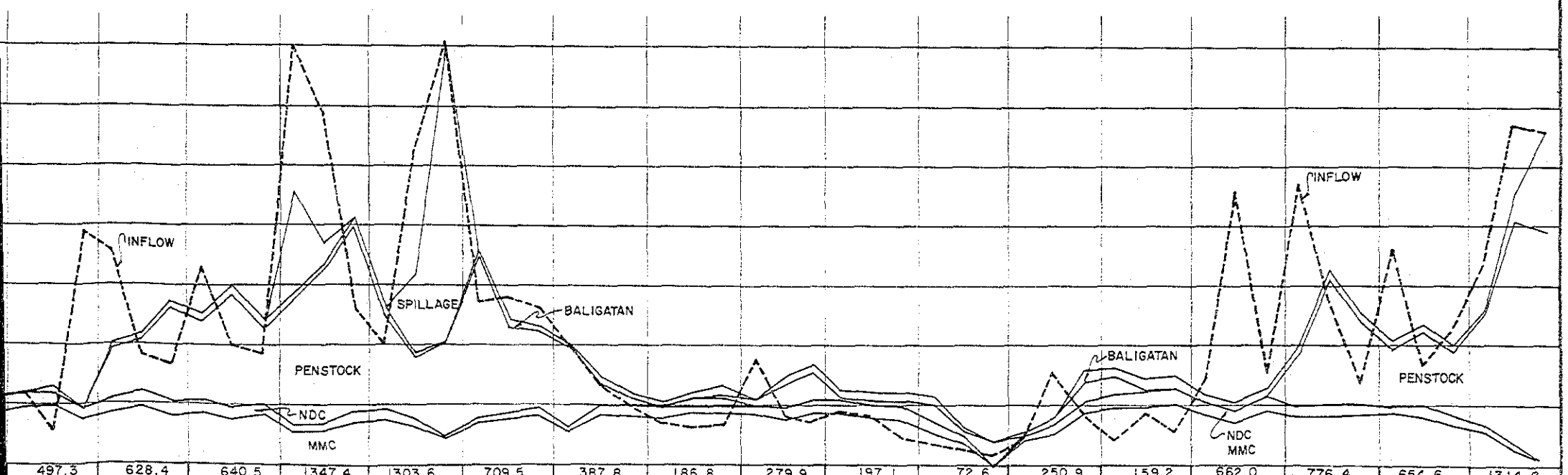
INFLOW	8.3 mcm	26.1	42.3	54.1	64.5	35.5	41.2	36.2	43.6	16.0	8.3	7.5	12.4	26.4	43.4	44.4	50.9
(SNMC)	0.2	7.9	8.8	8.4	7.8	6.0	4.6	8.8	9.7	8.4	6.7	5.1	1.2	9.3	5.4	11.1	6.5
(SSMC)	3.8	3.3	15.9	11.3	11.0	14.4	5.6	11.2	17.2	7.6	1.6	2.4	0.0	5.5	7.3	15.0	18.2

MAGAT POWER PLANT POWER GENERATED

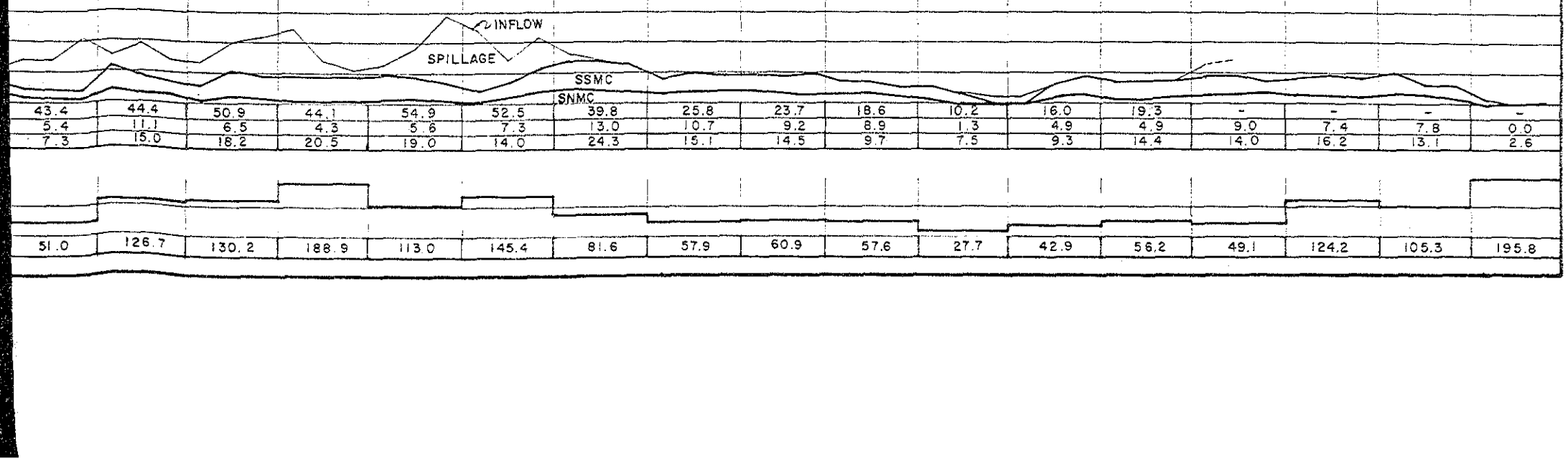
POWER	25.9 gwh	128.6	155.3	110.2	147.0	143.3	104.4	116.2	83.2	56.7	45.4	29.2	18.0	40.6	51.0	126.7	130.

AND WATER AMOUNT USED FOR IRRIGATION AND POWER





497.3	628.4	640.5	1347.4	1303.6	709.5	387.8	186.8	279.9	197.1	72.6	250.9	159.2	662.0	776.4	654.6	1314.8
291.3	624.8	705.9	1074.2	1163.8	723.5	416.8	327.5	340.8	331.2	190.9	267.5	392.8	318.0	695.5	552.2	1140.5
274.0	596.0	668.2	863.9	561.8	700.8	394.3	289.8	307.0	293.8	173.3	232.0	346.5	274.6	654.8	519.0	939.8
237.7	238.7	227.2	166.5	170.3	203.8	204.7	231.0	205.6	220.8	80.7	165.5	256.8	223.4	221.8	203.3	81.6
55.8	64.5	51.3	36.4	29.5	27.0	34.5	60.7	44.2	57.9	26.2	35.5	64.1	58.3	50.4	40.6	17.8
17.3	28.8	37.7	31.7	20.9	22.7	22.5	37.7	33.8	37.4	17.6	35.5	46.3	43.4	40.7	33.2	5.8
0.0	0.0	0.0	178.6	581.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	194.9

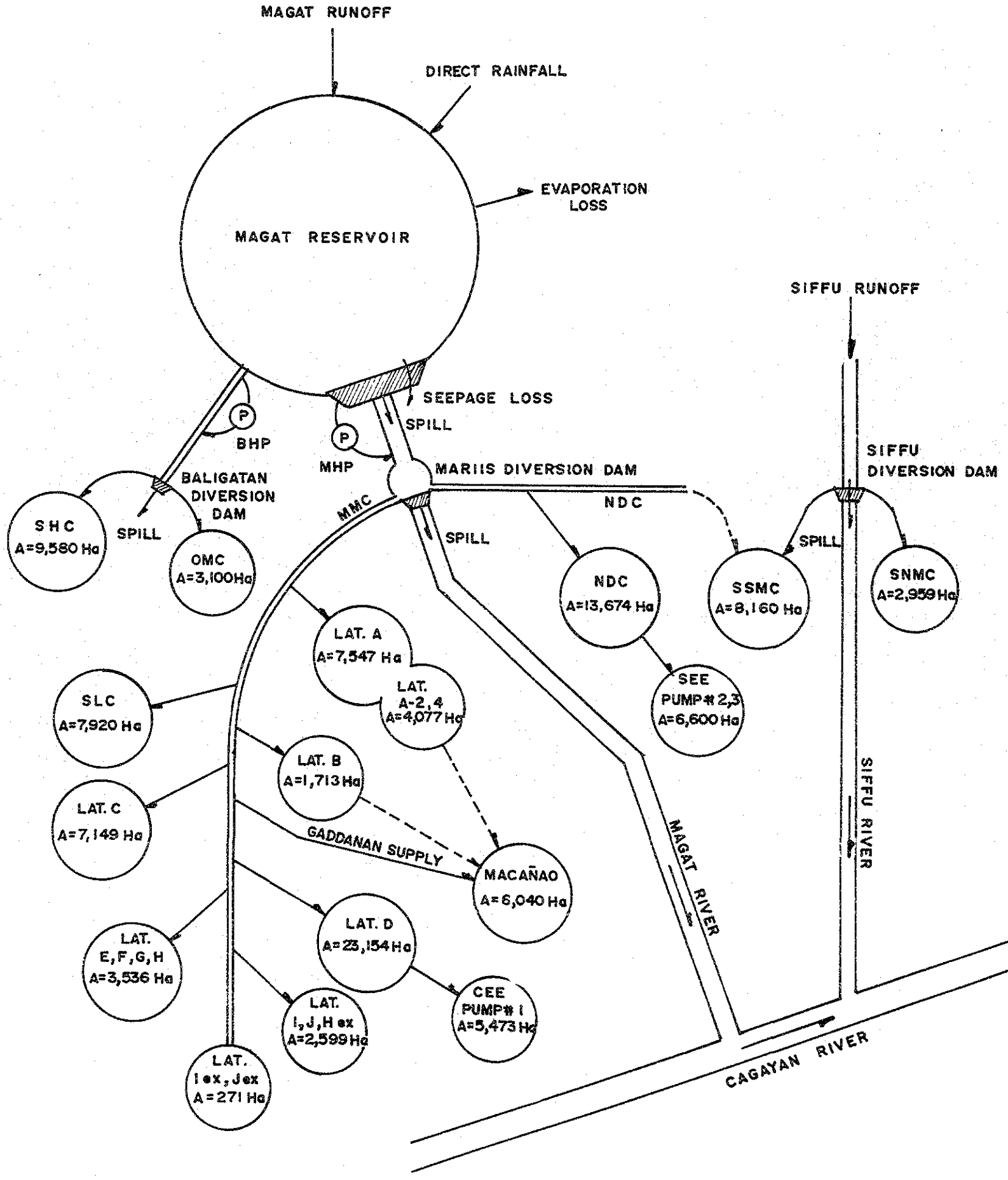


43.4	44.4	50.9	44.1	54.9	52.5	39.8	25.8	23.7	18.6	10.2	16.0	19.3	-	-	-	-
5.4	11.1	6.5	4.3	5.6	7.3	13.0	10.7	9.2	8.9	1.3	4.9	4.9	9.0	7.4	7.8	0.0
7.3	15.0	18.2	20.5	19.0	14.0	24.3	15.1	14.5	9.7	7.5	9.3	14.4	14.0	16.2	13.1	2.6

51.0	126.7	130.2	188.9	113.0	145.4	81.6	57.9	60.9	57.6	27.7	42.9	56.2	49.1	124.2	105.3	195.8

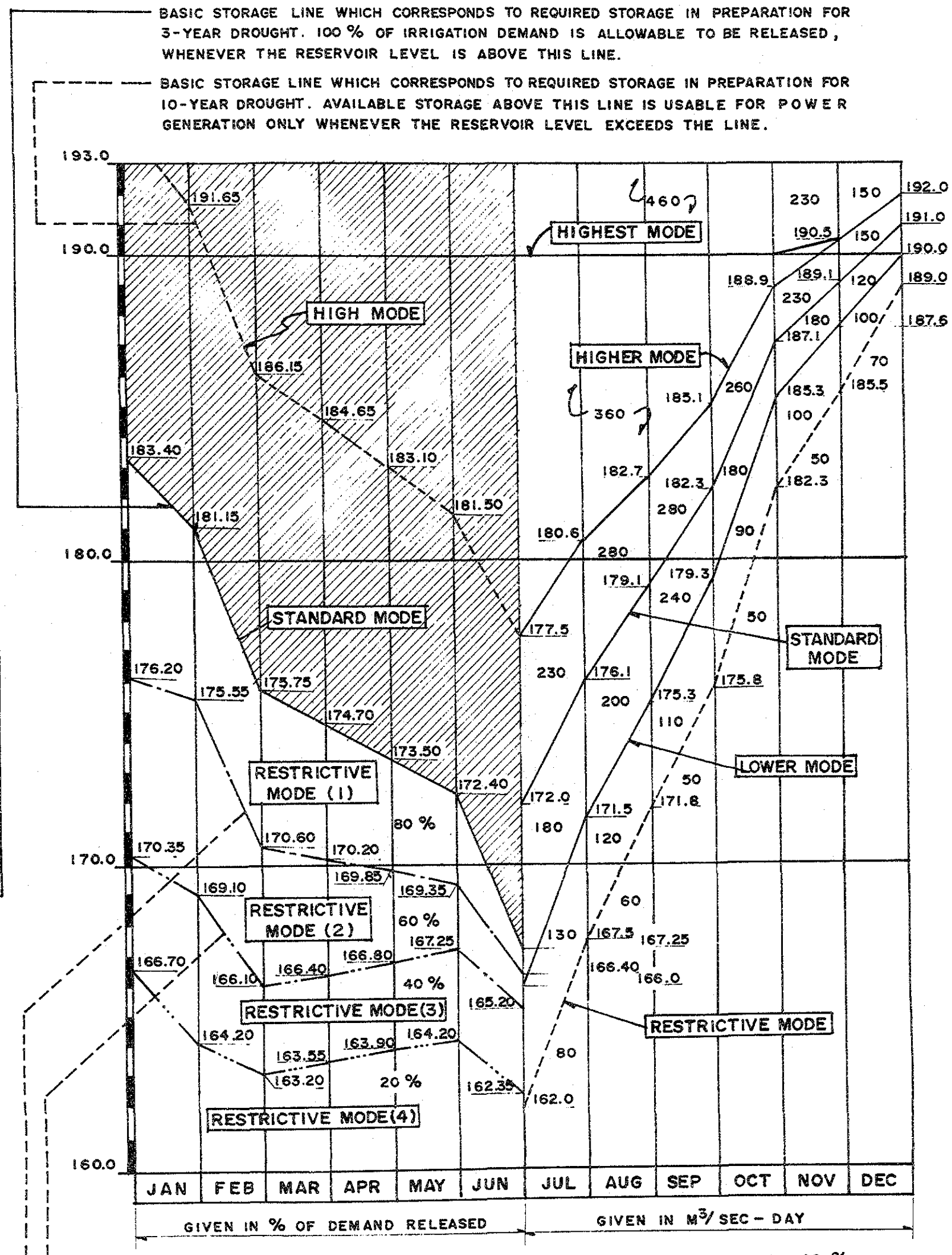
PROPOSED OPERATION RULE CURVE

DIAGRAM FOR MAGAT RESERVOIR SIMULATION



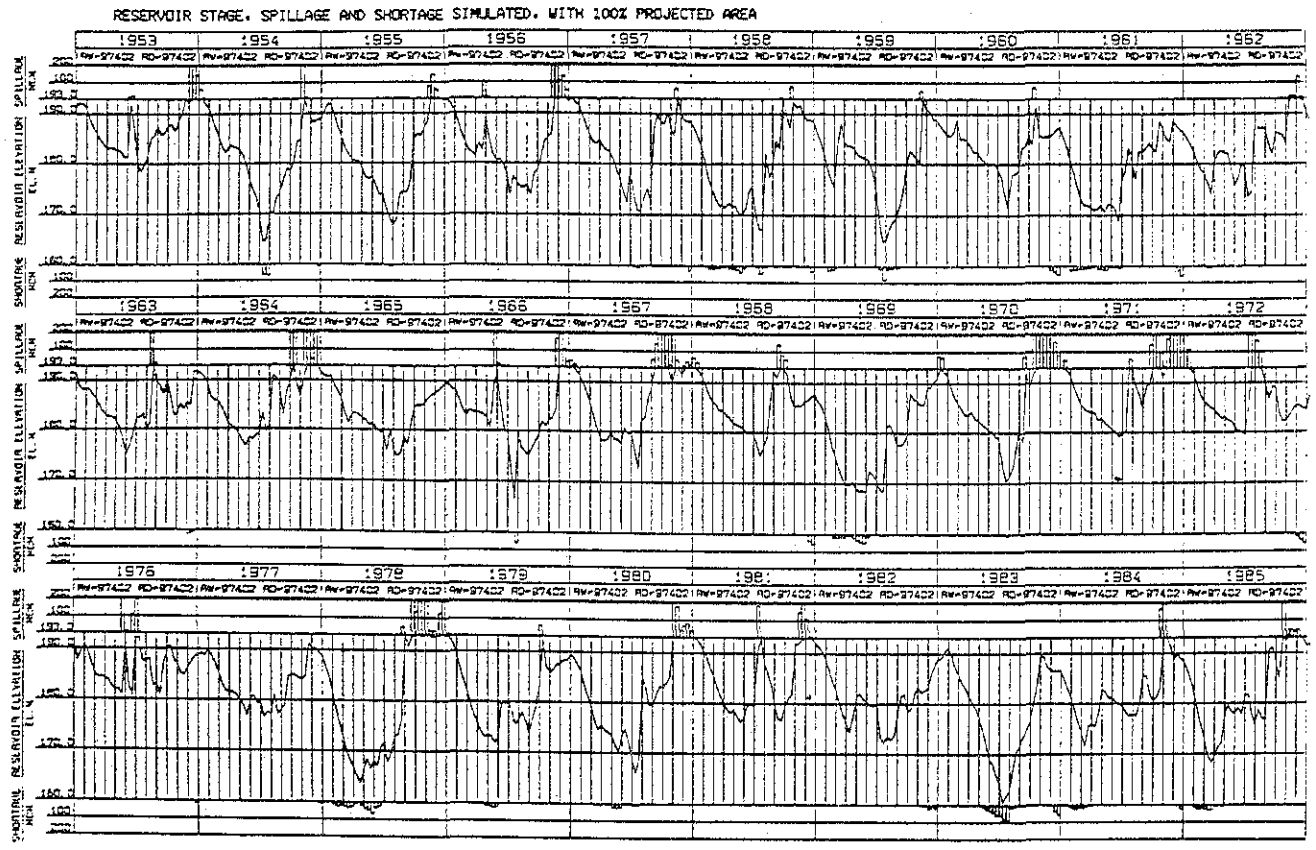
RESERVOIR EL EVATION (EL. M.)

E CURVE FOR MAGAT RESERVOIR

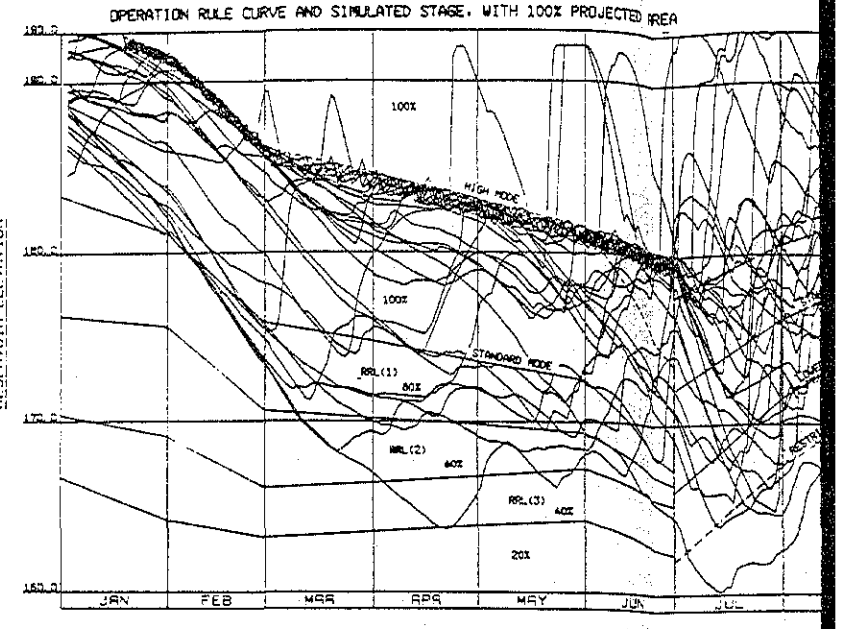


MAGAT RESERVOIR BEHAVIOUR

RESERVOIR STAGE, SPILLAGE AND SHORTAGE SIMULATED, WITH 100% PROJECTED AREA

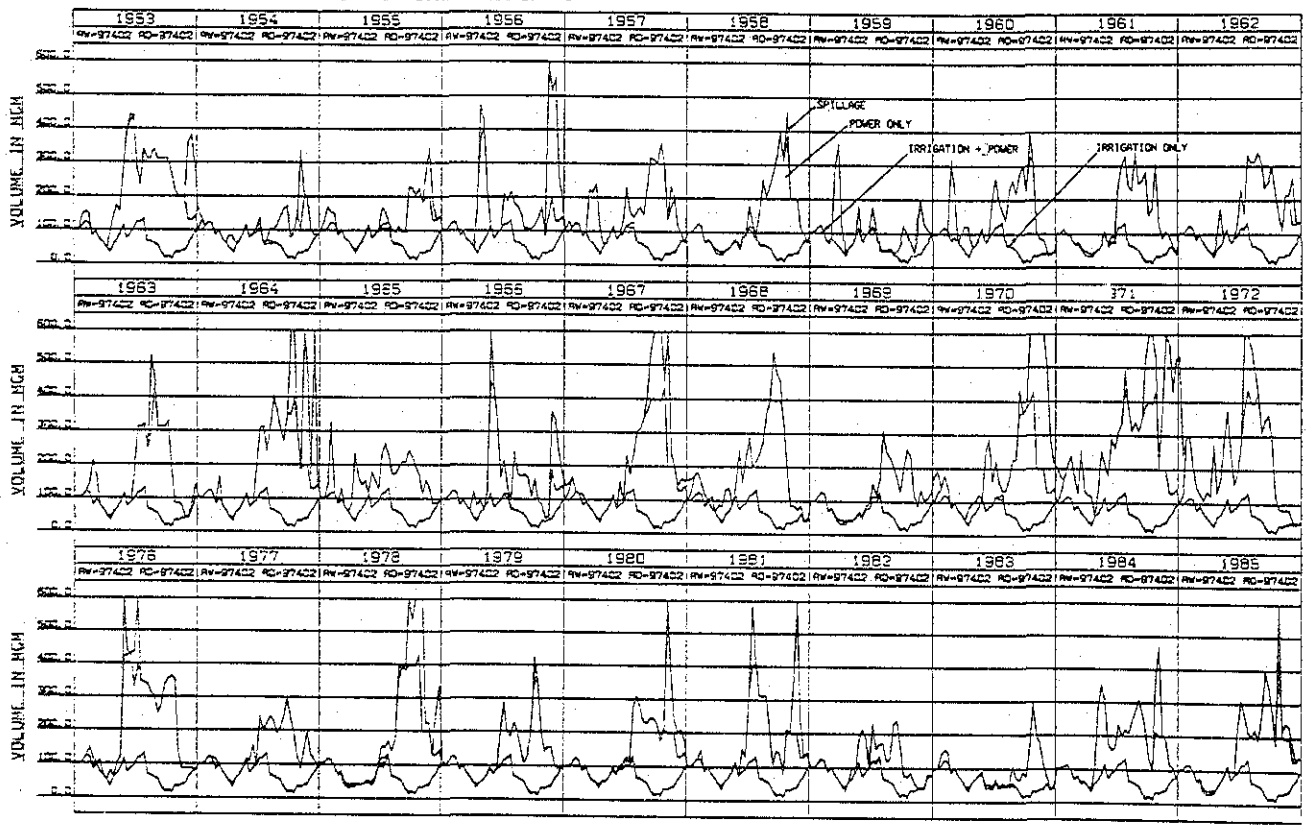


OPERATION RULE CURVE AND SIMULATED STAGE, WITH 100% PROJECTED AREA

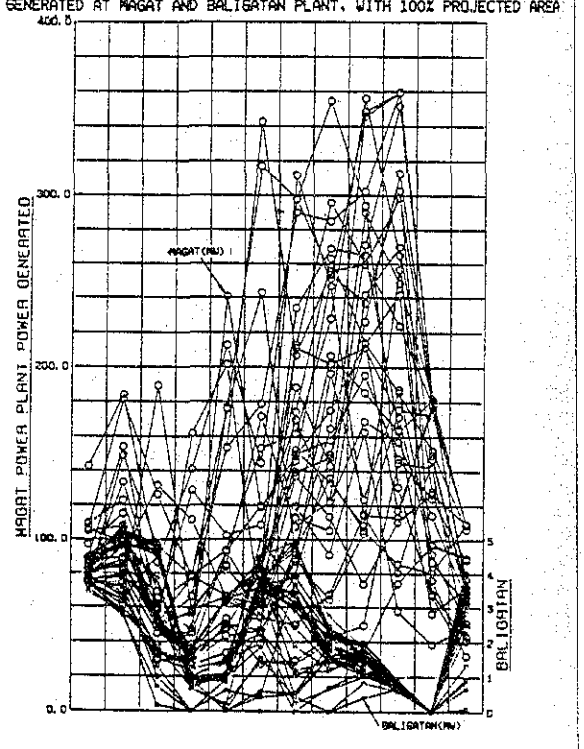


RESERVOIR OPERATION WITH 100%

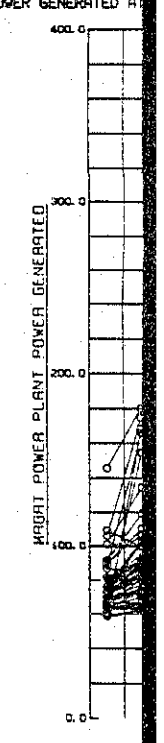
WATER ALLOCATION SIMULATED, WITH 100% PROJECTED AREA



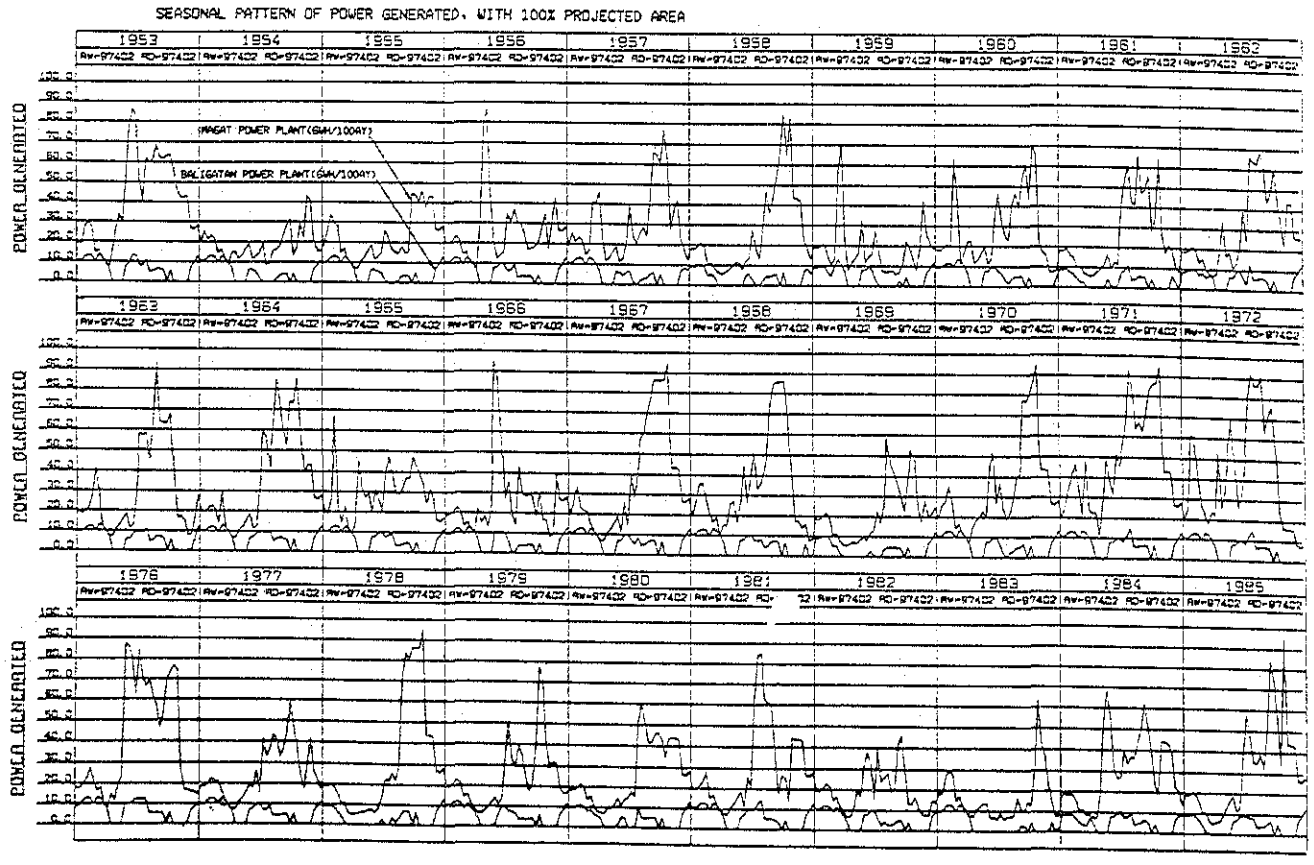
POWER GENERATED AT MAGAT AND BALIGATAN PLANT, WITH 100% PROJECTED AREA



POWER GENERATED AT

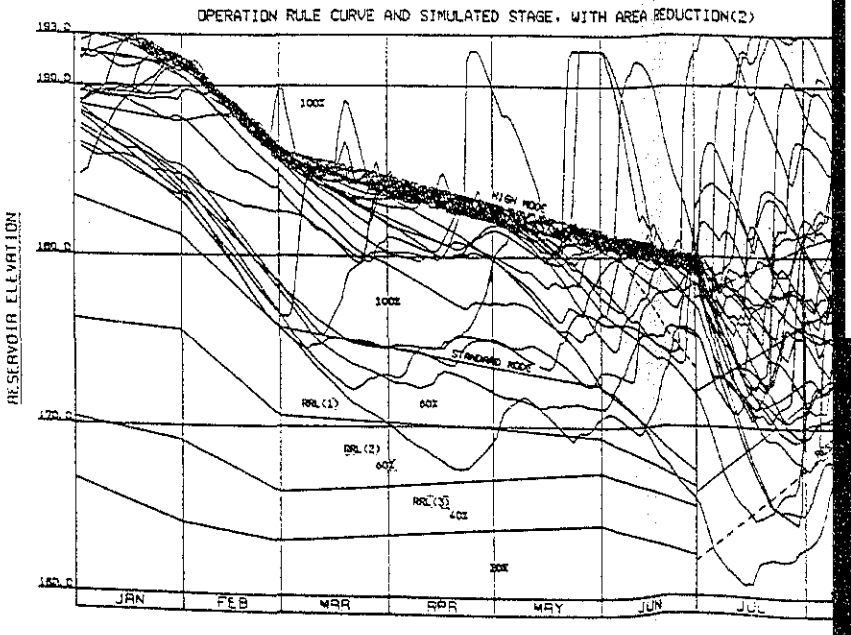


SEASONAL PATTERN OF POWER GENERATED, WITH 100% PROJECTED AREA



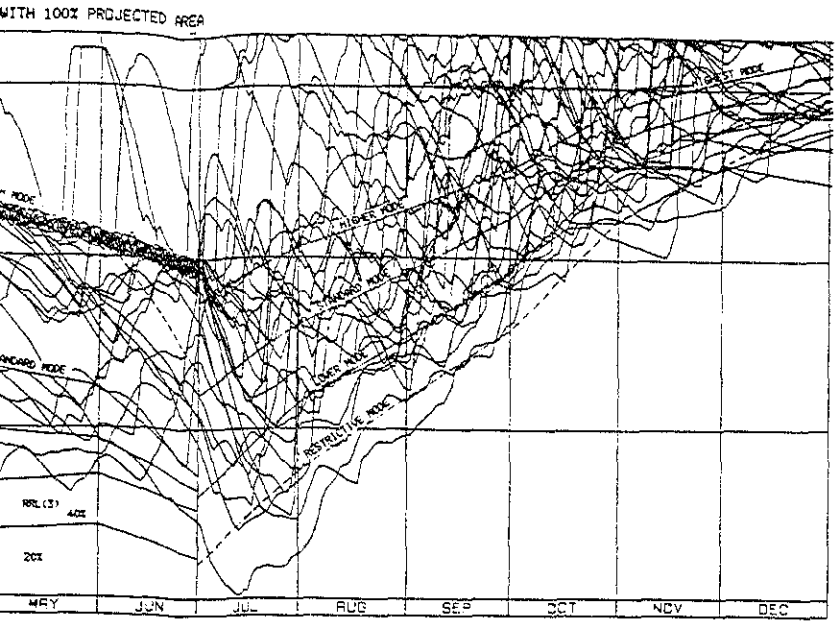
RESERVOIR OPERATION WITH AREA

OPERATION RULE CURVE AND SIMULATED STAGE, WITH AREA REDUCTION(2)



...OIR BEHAVIOUR SIMULATED

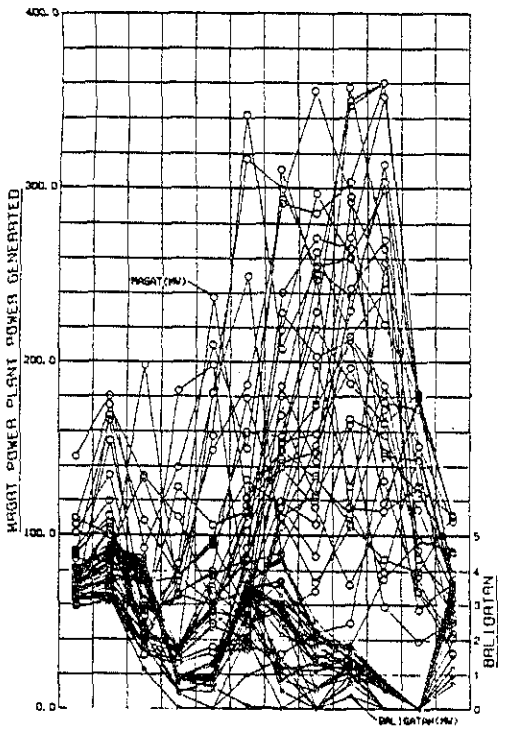
...WITH 100% PROJECTED AREA



...TION WITH 100% PROJECTED AREA

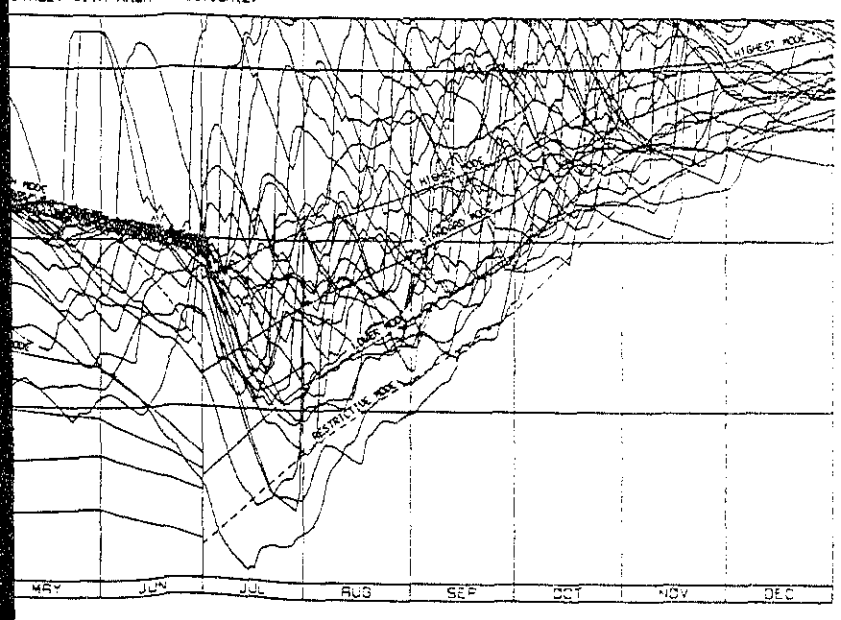
...00% PROJECTED AREA

POWER GENERATED AT MAGAT AND BALIGATAN PLANT, WITH AREA REDUCTION(2)

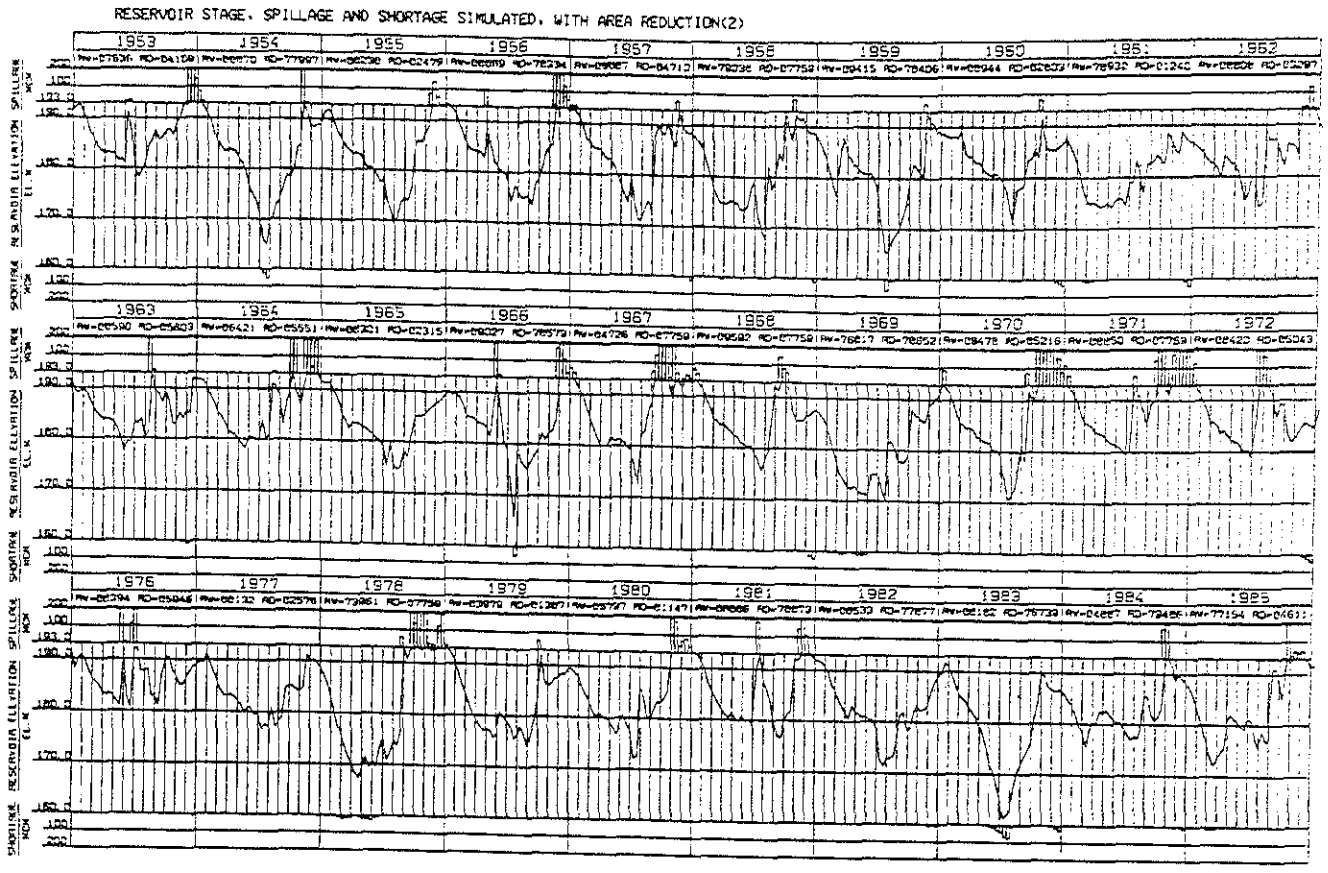


...TION WITH AREA REDUCTION (2)

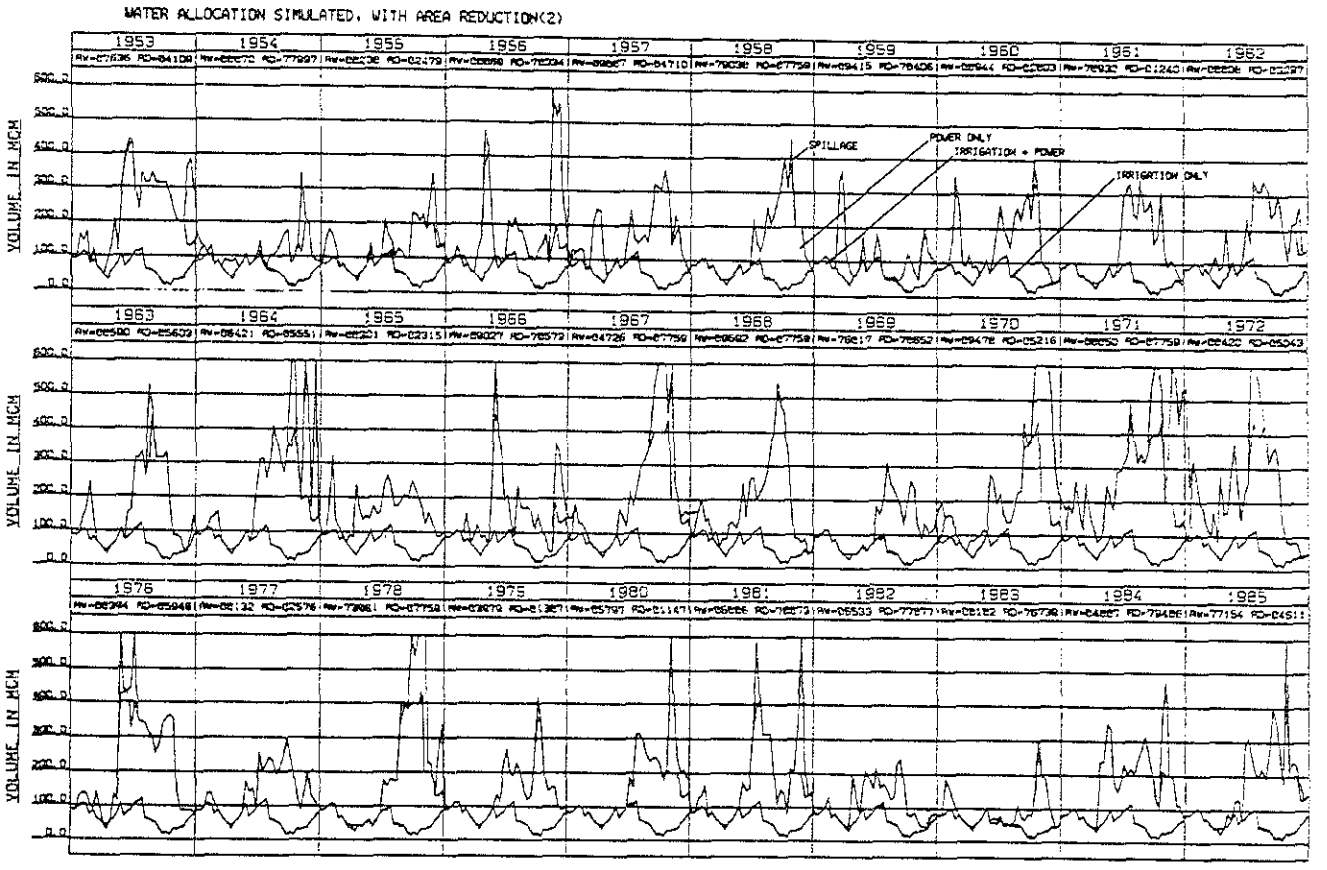
...STAGE, WITH AREA REDUCTION(2)



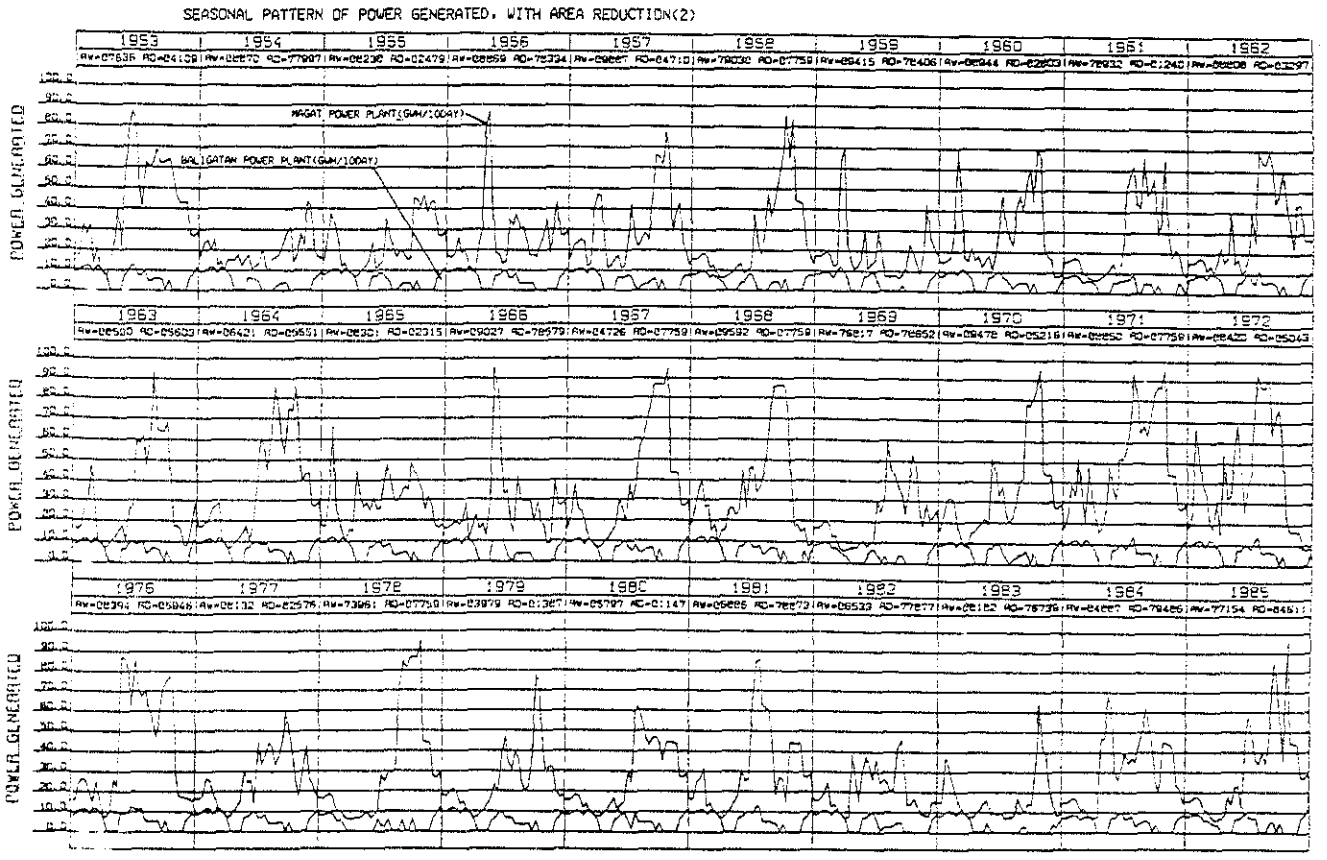
RESERVOIR STAGE, SPILLAGE AND SHORTAGE SIMULATED, WITH AREA REDUCTION(2)

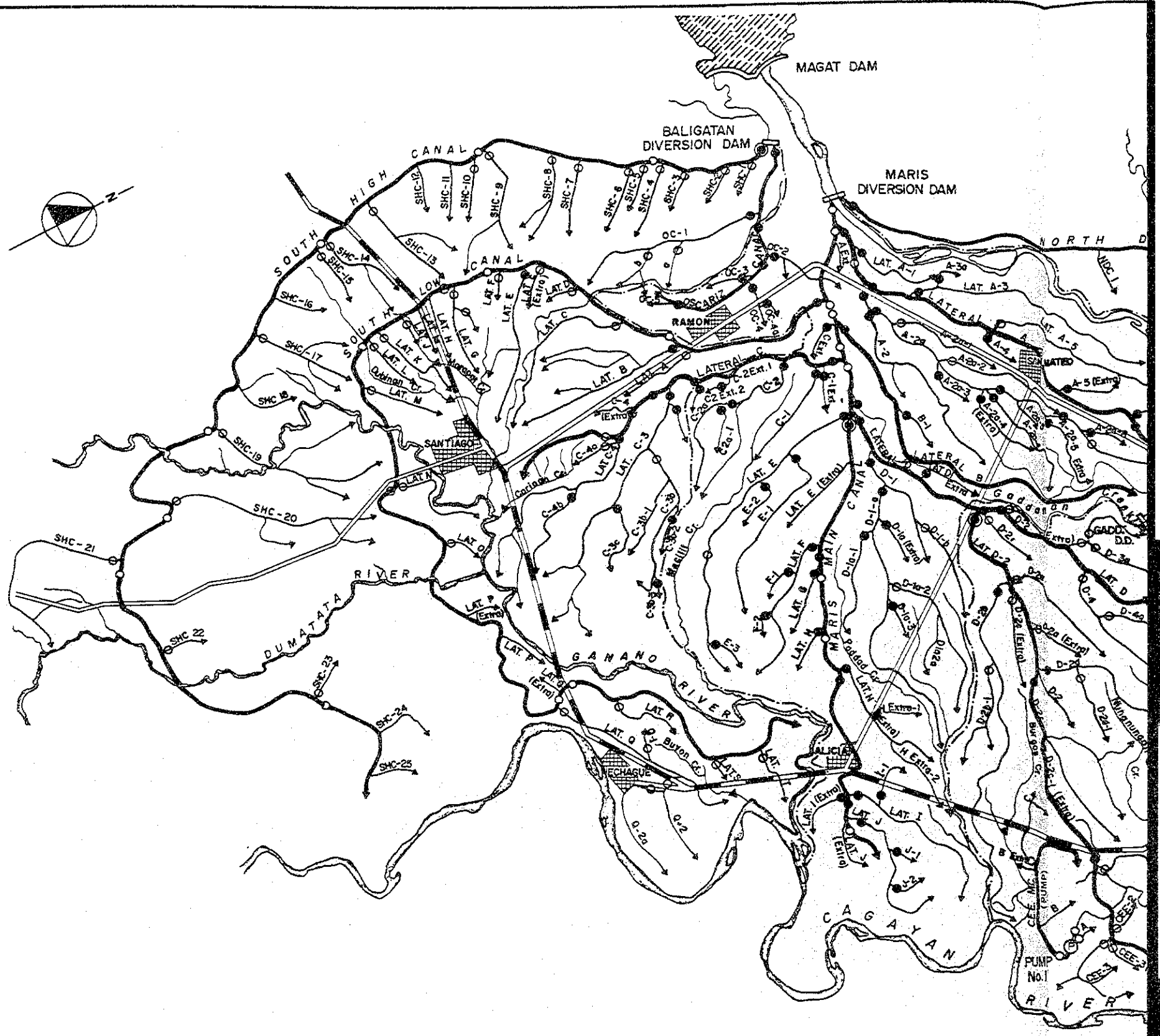


WATER ALLOCATION SIMULATED, WITH AREA REDUCTION(2)



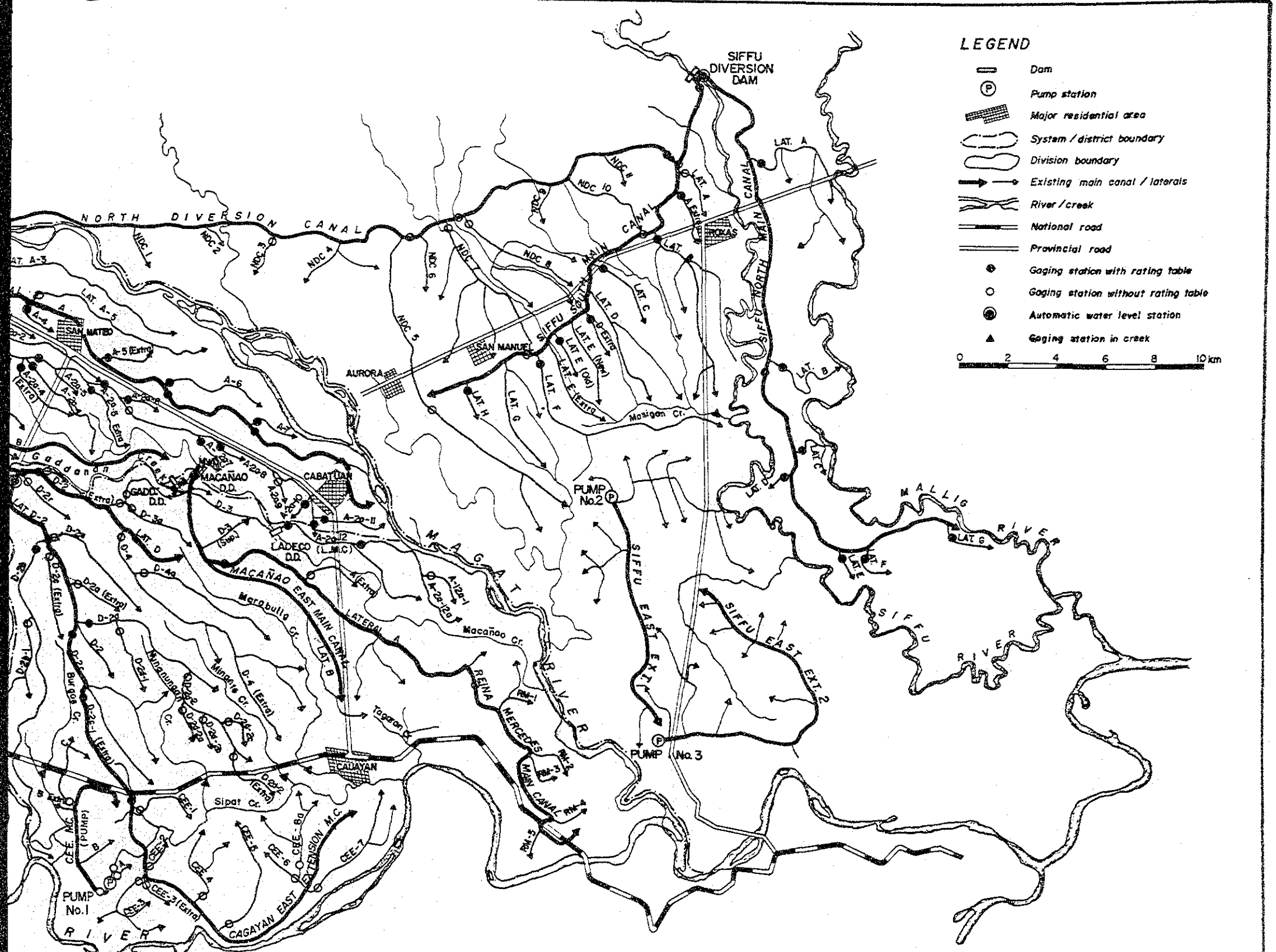
SEASONAL PATTERN OF POWER GENERATED, WITH AREA REDUCTION(2)





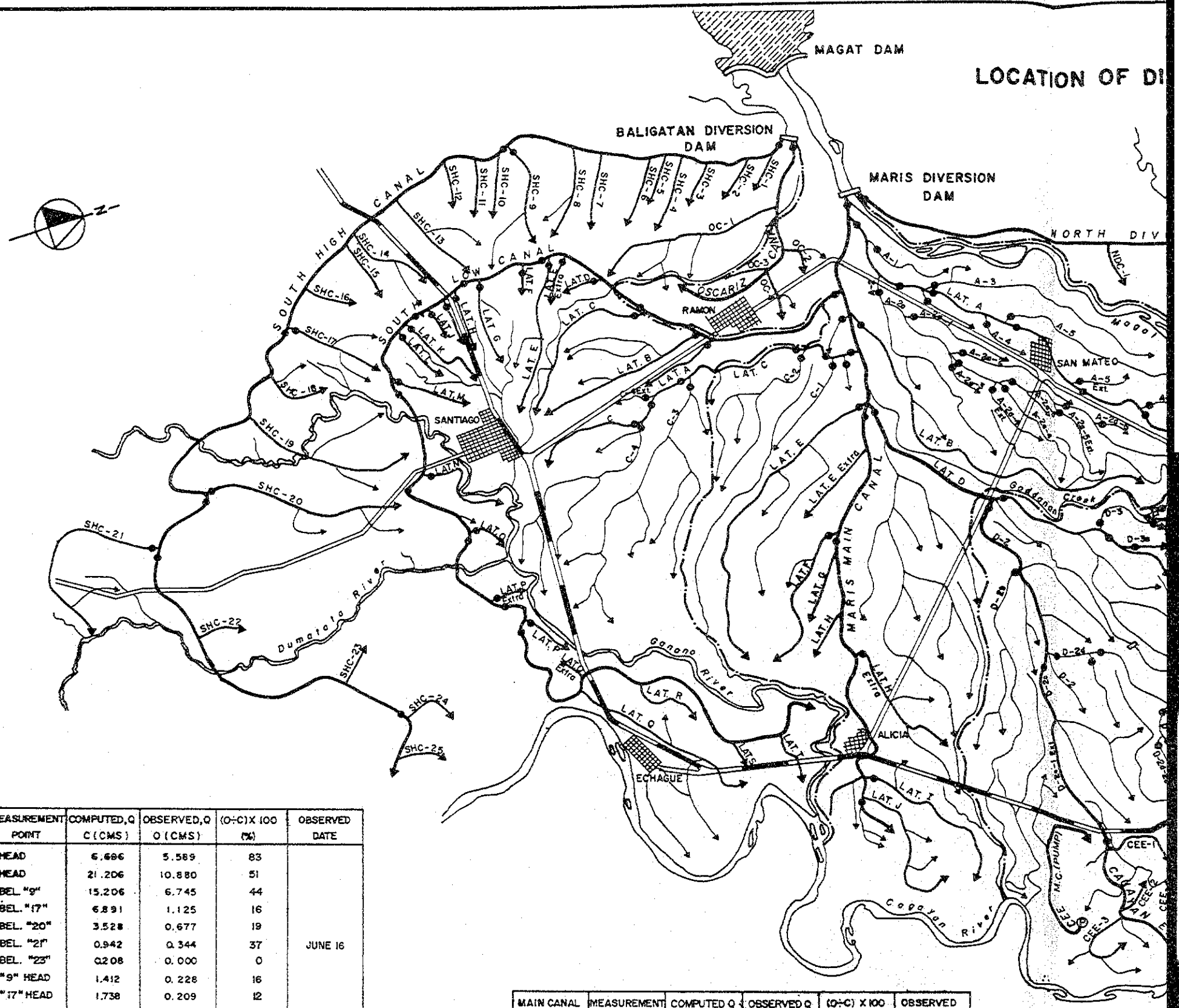
NAME OF CANAL	CODE OF CANAL	NO. OF LATERAL & SUB LATERAL	NO. OF EXISTING STAFF GAGE								NO. OF PROPOSE STAFF GA
			MAIN CANAL		LATERAL / SUB LAT		SUB TOTAL		TOTAL	PAINTED STAFF GAGE	
			W/ R.T.	W/O R.T.	W/ R.T.	W/O R.T.	W/ R.T.	W/O R.T.			
1. MARIS SYSTEM											
MARIS	MMC	15	5	7	—	—	5	7	12	4	30
LAT. A & A EXT.		30	4	—	22	5	26	5	31	12	93
LAT. B		2	1	—	1	—	2	—	2	—	5
LAT. C & C EXT.		27	4	2	14	3	18	5	23	16	53
LAT. D		39	7	—	11	13	18	13	31	15	103
LAT. E - J EXT.		25	—	—	16	2	16	2	18	11	28
2. OSCARIZ	OMC	12	4	—	5	2	9	2	11	1	45
3. SOUTH HIGH	SHC	42	1	9	—	18	1	27	28	—	137
4. SOUTH LOW	SLC	33	1	7	2	18	3	25	28	24	101
5. NORTH DIVERSION	NDC	27	2	1	—	4	2	5	7	—	66
6. SIEFU SOUTH	SSMC	17	1	3	7	1	8	4	12	—	48
7. SIFFU NORTH	SNMC	12	2	—	6	—	8	—	8	—	29
8. MACAÑAO EAST	MEMC	6	1	—	1	1	2	1	3	—	25
9. LADECO	LMC	3	2	—	—	1	2	1	3	—	10
10. REINA MERCEDES	RMMC	6	—	1	—	—	—	1	1	—	15
11. CAUAYAN EAST EXT.	CEE MC	18	1	—	—	9	1	9	10	—	46
12. CAUAYAN EAST EXT. (PUMP)	CEE MC (PUMP)	5	—	1	—	2	—	3	3	—	12
13. SIFFU EAST EXT. 1	SEE MC No.1	16	—	—	—	—	—	—	0	—	31
14. SIFFU EAST EXT. 2	SEE MC No.2	12	—	—	—	—	—	—	0	—	43
15. MACAÑAO WEST	MWMC	—	—	—	—	—	—	—	0	—	3
16. CREEK		—	—	—	—	—	11	—	11	—	23
T O T A L		332	36	31	85	79	132	110	242	83	94

(NOTE) R.T : Rating Table



	PAINTED STAFF GAGE	NO. OF PROPOSED STAFF GAGE
	4	30
	12	93
	—	5
	16	53
	15	103
	11	28
	1	45
	—	137
	24	101
	—	66
	—	48
	—	29
	—	25
	—	10
	—	15
	—	46
	—	12
	—	31
	—	43
	—	3
	—	23
	83	946

LOCATION OF EXISTING STAFF GAGE IN CANAL SYSTEM AND NUMBER OF PROPOSED STAFF GAGE

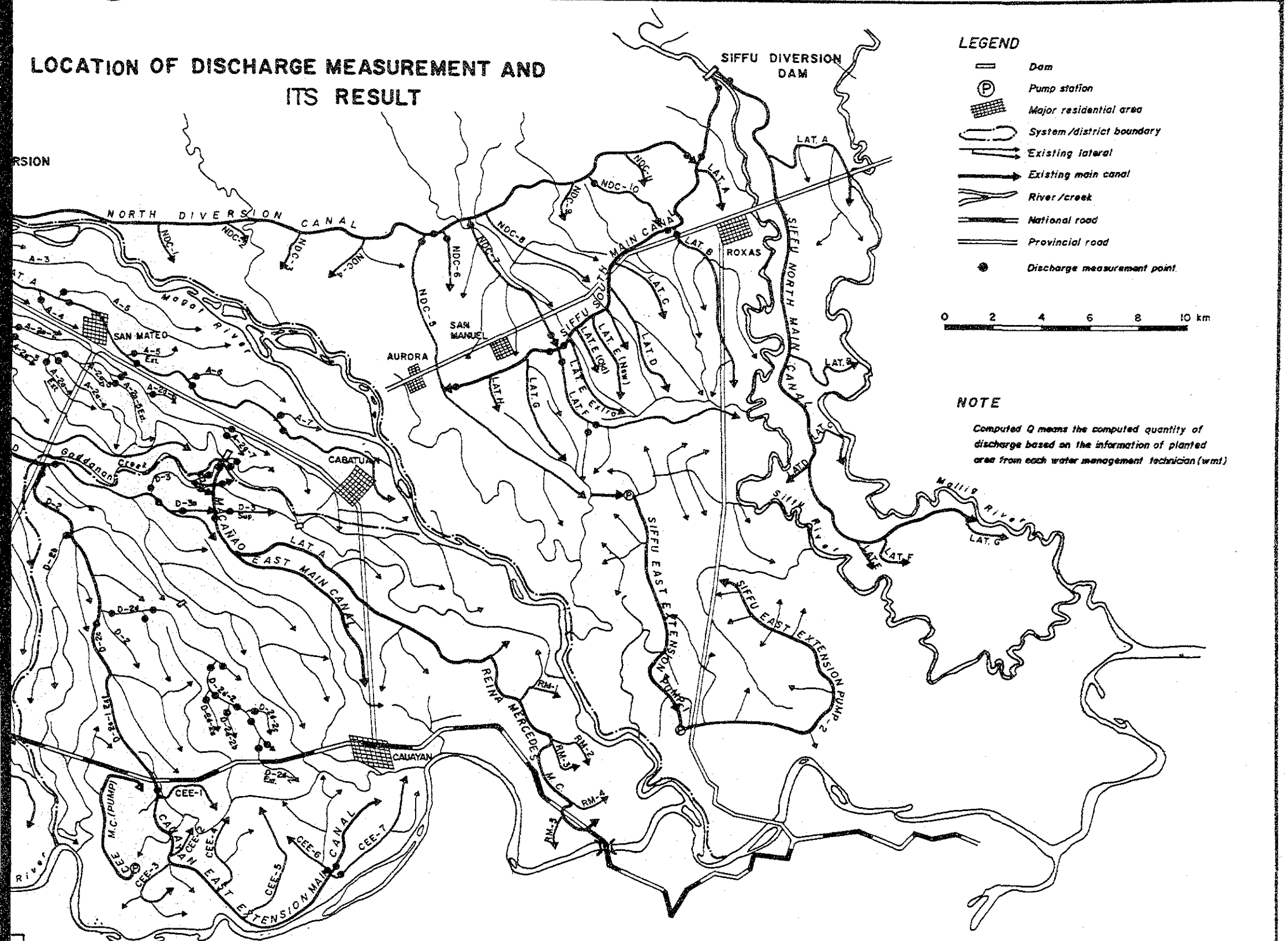


MAIN CANAL /LATERAL	MEASUREMENT POINT	COMPUTED,Q C (CMS)	OBSERVED,Q O (CMS)	(O÷C) X 100 (%)	OBSERVED DATE
OMC	HEAD	6.686	5.589	83	
SHC	HEAD	21.206	10.880	51	
	BEL. "9"	15.206	6.745	44	
	BEL. "17"	6.891	1.125	16	
	BEL. "20"	3.528	0.677	19	
	BEL. "21"	0.942	0.344	37	JUNE 16
	BEL. "23"	0.208	0.000	0	
	"9" HEAD	1.412	0.228	16	
	"17" HEAD	1.738	0.209	12	
	"20" HEAD	0.632	0.392	62	
	"21" HEAD	2.318	0.110	5	
SLC	HEAD	13.379	14.934	107	
	BEL. "B"	11.581	8.802	76	
	BEL. "C"	11.179	7.468	67	JUNE 18
	BEL. "E"	9.455	5.120	54	
	BEL. "G"	8.125	3.492	43	
	BEL. "J"	7.137	2.653	37	
	BEL. "J"	7.137	3.643	51	
	BEL. "M"	6.176	2.542	41	
	BEL. "N"	5.644	1.527	27	JUNE 19
	BEL. "O"	5.263	0.828	16	
	BEL. "P Ext"	4.922	0.388	8	
	BEL. "P"	4.826	0.000	0	
	"A" HEAD	0.343	0.471	137	
	"B" HEAD	1.751	2.901	166	
	"C" HEAD	0.402	1.132	282	
	"D" HEAD	0.139	0.339	244	JUNE 18
	"E" HEAD	1.200	0.304	25	
	"F" HEAD	0.157	0.050	32	
	"G" HEAD	0.669	0.223	33	
	"I" HEAD	0.335	0.038	11	
	"J" HEAD	0.048	0.049	102	
	"K" HEAD	0.343	0.327	95	
	"L" HEAD	0.275	0.108	39	
	"M" HEAD	0.062	0.117	189	
	"N" HEAD	0.532	0.227	43	JUNE 19
	"O" HEAD	0.211	0.384	182	
	"P Ext" HEAD	0.000	0.045	-	
	"P" HEAD	0.096	0.076	79	
LAT. C-MMC	HEAD	14.052	5.473	39	
	BEL. "C-1"	12.917	4.054	31	
	BEL. "C-2"	12.413	3.186	26	
	BEL. "C-3"	4.876	0.747	15	
	BEL. "C-4"	1.089	0.267	25	JUNE 20
	"C-1 Ext" HEAD	0.000	0.270	-	
	"C-1" HEAD	1.135	1.176	104	
	"C-2" HEAD	0.504	0.518	103	
	"C-3" HEAD	6.473	1.893	29	
	"C-4 Ext" HEAD	0.204	0.000	0	
	"C-4" HEAD	3.123	1.182	38	

MAIN CANAL /LATERAL	MEASUREMENT POINT	COMPUTED Q C (CMS)	OBSERVED Q O (CMS)	(O÷C) X 100 (%)	OBSERVED DATE
MMC	HEAD	123.233	83.486	68	JUNE 9
	BEL. "D"	10.844	4.005	37	
	BEL. "D"	10.844	9.195	85	
	BEL. "F"	7.495	7.314	98	
	BEL. "H Ext."	4.719	3.855	82	JUNE 11
	BEL. "I"	2.186	1.067	49	
	BEL. "J"	0.145	0.000	0	
	"A" HEAD	29.997	30.896	103	
	"SLC" HEAD	15.369	13.446	87	
	"B" HEAD	8.651	3.885	45	
	"C Ext." HEAD	0.332	0.199	60	JUNE 9
	"C" HEAD	16.350	7.722	47	
	"GAD" HEAD	—	—	-	
	"D" HEAD	36.987	29.582	80	
	"E" HEAD	3.668	2.010	55	
	"F" HEAD	1.772	1.431	81	
	"H Ext." HEAD	1.375	1.956	142	JUNE 11
	"I" HEAD	1.998	0.978	49	
	"J" HEAD	1.332	0.719	54	
LAT. D-MMC	HEAD	46.704	24.718	53	
	BEL. "D-2"	12.144	5.388	44	
LAT. D-2-MMC	HEAD	25.461	14.743	58	
	"D-2b" HEAD	5.019	2.178	43	JUNE 23
	"D-2d" HEAD	5.228	1.434	27	
LAT. D-2c-MMC	HEAD	10.479	8.794	84	
CEE MC-MMC	HEAD	6.914	7.221	104	
	BEL. "CEE-7"	0.627	0.395	63	
	"CEE-6" HEAD	0.884	0.150	17	
	"CEE-7" HEAD	0.080	0.000	0	
LAT. D-2d	HEAD	5.228	2.954	57	
	BEL. "D-2d-1"	4.162	2.303	55	
	"D-2d-1" HEAD	0.918	0.129	14	
LAT. D-2d-2	BEL. "D-2d-2a"	1.962	0.827	42	
	BEL. "D-2d-2-b"	1.663	0.449	27	JUNE 30
	BEL. "D-2d-2-c"	4.432	0.298	21	
	BEL. "D-2d-2 Ext"	0.733	0.161	22	
	"D-2d-2-a" HEAD	0.188	0.042	22	
	"D-2d-2-b" HEAD	0.299	0.182	61	
	"D-2d-2-c" HEAD	0.231	0.029	13	
	"D-2d-2 Ext" HEAD	0.699	0.161	23	

MAIN CA /LATER
LAT. A
LAT. A-

LOCATION OF DISCHARGE MEASUREMENT AND ITS RESULT



MAIN CANAL /LATERAL	MEASUREMENT POINT	COMPUTED Q C (CMS)	OBSERVED Q O (CMS)	(O÷C) X 100 (%)	OBSERVED DATE
LAT. A	HEAD	25.087	28.301	113	
	BEL. "A-2"	9.637	15.375	160	
	BEL. "A-3"	5.979	9.718	163	
	BEL. "A-5"	3.858	5.724	148	
	BEL. "A-5 Ext"	2.497	3.163	127	
	BEL. "A-6"	0.979	1.819	186	JULY 2
	BEL. "A-7"	0.000	1.829	-	
	"A-1" HEAD	0.850	2.395	279	
	"A-2" HEAD	13.952	15.054	108	
	"A-3" HEAD	3.013	3.540	117	
	"A-4" HEAD	0.212	0.589	278	
	"A-5" HEAD	1.528	2.068	135	
	"A-5 Ext." HEAD	0.528	0.829	157	
	"A-6" HEAD	0.685	0.737	106	
	"A-7" HEAD	0.100	0.503	503	
LAT. A-2a	HEAD	11.140	10.236	92	
	BEL. "A-2a-3"	8.012	8.441	105	
	BEL. "A-2a-4"	6.159	7.018	114	
	BEL. "A-2a-5"	5.880	5.978	102	
	BEL. "A-2a-5Ext"	5.117	3.689	72	
	BEL. "A-2a-7"	2.680	1.063	40	JULY 3
	"A-2a-1" HEAD	0.836	0.234	28	
	"A-2a-2" HEAD	1.263	0.284	22	
	"A-2a-3" HEAD	0.220	0.068	31	
	"A-2a-4 Ext" HEAD	1.033	0.617	60	
	"A-2a-4" HEAD	0.384	0.442	115	
	"A-2a-5" HEAD	0.105	0.371	353	
	"A-2a-5 Ext" HEAD	0.589	1.374	233	
	"A-2a-6" HEAD	0.434	0.393	91	
	"A-2a-7" HEAD	0.169	0.444	263	

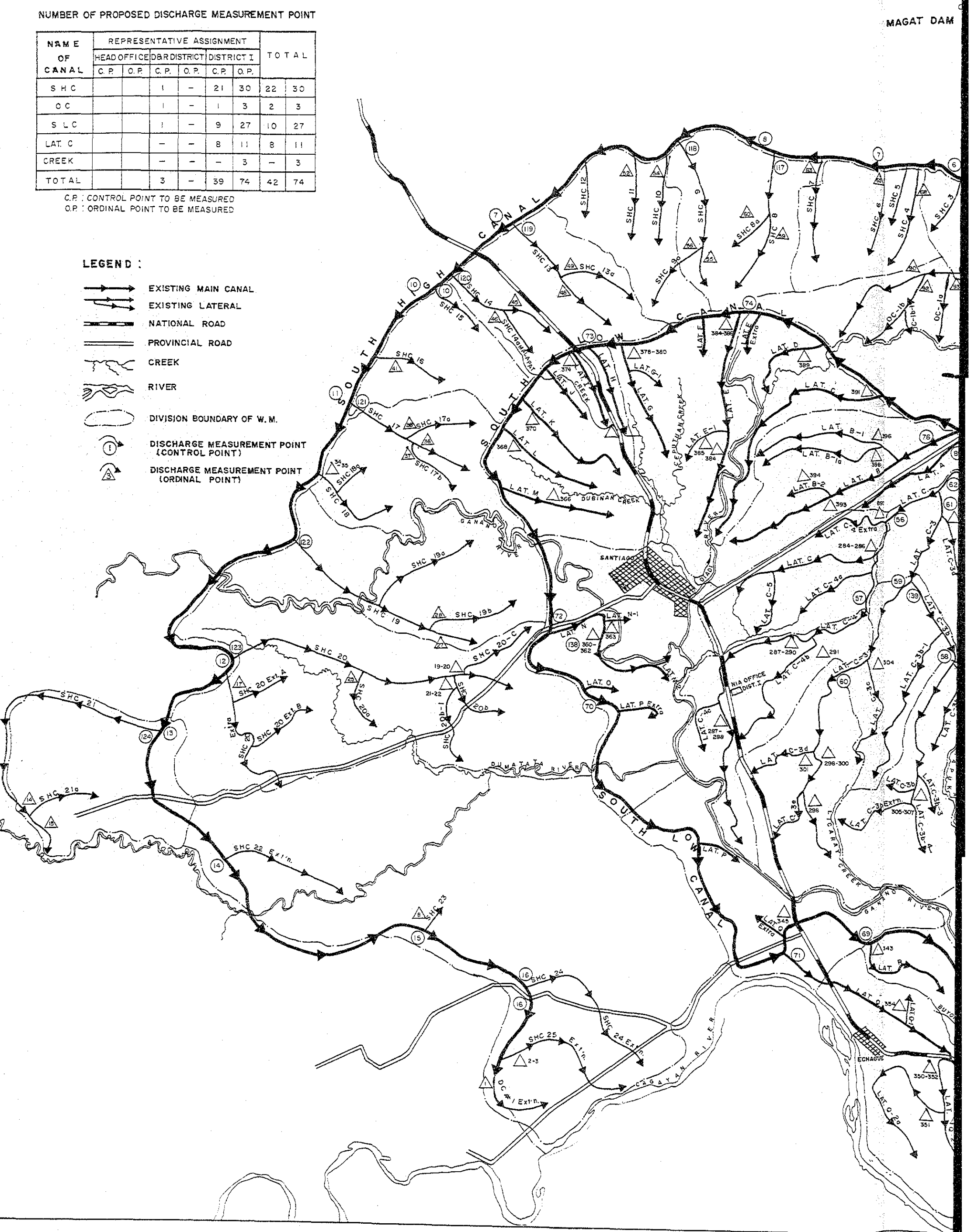
MAIN CANAL /LATERAL	MEASUREMENT POINT	COMPUTED Q C (CMS)	OBSERVED Q O (CMS)	(O÷C) X 100 (%)	OBSERVED DATE
NDC	HEAD	21.999	24.772	113	
	BEL. "1"	21.600	24.267	112	
	BEL. "2"	16.668	11.885	71	
	BEL. "7"	4.631	8.917	193	
	BEL. "9"	1.752	5.134	293	JUNE 25
	END	0.000	2.464	-	
	"5" HEAD	2.507	1.701	68	
	"6" HEAD	0.692	0.774	112	
	"7" HEAD	11.318	6.030	53	
SSMC	BEL. NDC END	18.848	6.857	36	
SSMC	HEAD	19.031	5.746	30	
	BEL. "B"	14.681	1.737	12	
	BEL. "Ext."	0.852	0.000	0	
	BEL. "F"	10.852	0.955	9	JUNE 26
	BEL. "H"	0.000	0.908	-	
	"B" HEAD	3.211	2.252	70	
LAT. F/SSMC	HEAD	8.776	6.540	75	
	BEL. "F-1"	1.461	0.332	23	
	"F-1" HEAD	6.984	6.199	89	
MEMC	HEAD	6.365	(4.104) 4.983	78	
INAMNAMA SUP.	HEAD		(0.879)		
GADDANAN SUP.	HEAD	3.000	2.016	67	
GADDANAN CR.	BEL. DIVERSION	—	4.167	-	
MEMC	BEL. "D-3 SUP."	9.262	7.866	85	JUNE 27
LAT. D-3	BEL. "D-3a"	2.765	0.811	29	
LAT. D-3a	HEAD	0.739	0.301	41	
LAT. "D-3 SUP"	HEAD	0.373	0.748	201	
LAT. "D-3a1"	HEAD	0.000	0.000	-	
NWMC	HEAD	0.836	2.257	270	

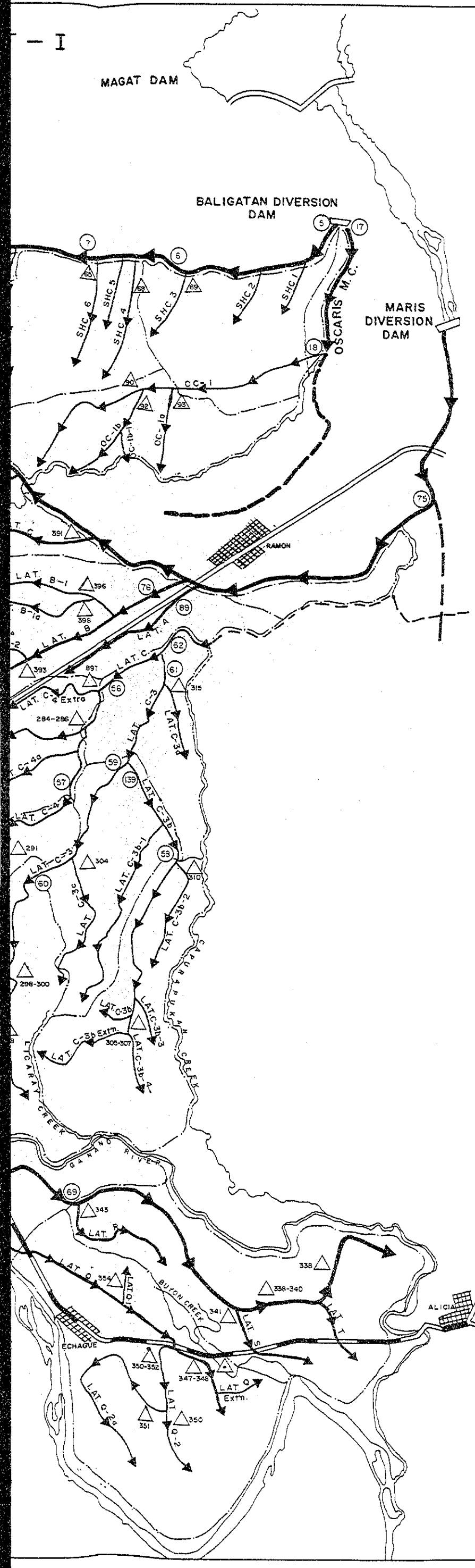
BOUNDRY OF WM DIVISION AND CHECK POINT OF WATER ALLOCATION IN DISTRICT – I

NUMBER OF PROPOSED DISCHARGE MEASUREMENT POINT

NAME OF CANAL	REPRESENTATIVE ASSIGNMENT						TOTAL	
	HEAD OFFICE		D&R DISTRICT		DISTRICT I			
	C.P.	O.P.	C.P.	O.P.	C.P.	O.P.		
S H C			1	–	21	30	22	30
O C			1	–	1	3	2	3
S L C			1	–	9	27	10	27
LAT. C			–	–	8	11	8	11
CREEK			–	–	–	3	–	3
TOTAL			3	–	39	74	42	74

C.P. : CONTROL POINT TO BE MEASURED
O.P. : ORDINAL POINT TO BE MEASURED





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SCALE 1:50,000

REPUBLIC OF THE PHILIPPINES

NATIONAL IRRIGATION ADMINISTRATION

MAGAT RIVER INTEGRATED IRRIGATION SYSTEM

IMPROVEMENT PROJECT OF OPERATION AND MAINTENANCE

BOUNDARY OF W.M.T (D-I) & CHECK-POINT OF WATER ALLOCATION

DWG. NO.		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY

BOUNDRY OF WM DIVISION AND CHECK POINT OF WATER

BALIGATAN DIVERSION DAM

MARIS DIVERSION DAM

OSCARIZ MAIN CANAL

MARIS MAIN CANAL

MAGAT RIVER

MACAÑAO CREEK

BALABAO CREEK

DIAMONTINA CREEK

MALASIN CREEK

FORBIDA CREEK

GARRANAN CREEK

SOMLACIO CREEK

BANTUG CREEK

SALVACION CREEK

LINGLINGA CREEK

PADDAO CREEK

CAPURAPUKAN CREEK

MABABAKLAN CREEK

RAMON

ALICIA

ECHAGUE

CAGAYAN RIVER

NIA DIST. II OFFICE

NUMBER
NAME OF CANAL
M M C
LAT. A
LAT. B
LAT. C
LAT. D
LAT. E
LAT. F–
GAD. SU
MWMC
O C
TOTA

LEGEND :

- EXISTING MAIN CANAL
- EXISTING LATERAL
- NATIONAL ROAD
- PROVINCIAL ROAD
- CREEK
- RIVER
- DIVISION BOUNDARY OF W.M
- DISCHARGE MEASUREMENT POINT (CONTROL POINT)
- DISCHARGE MEASUREMENT POINT (ORDINAL POINT)

0 1 2

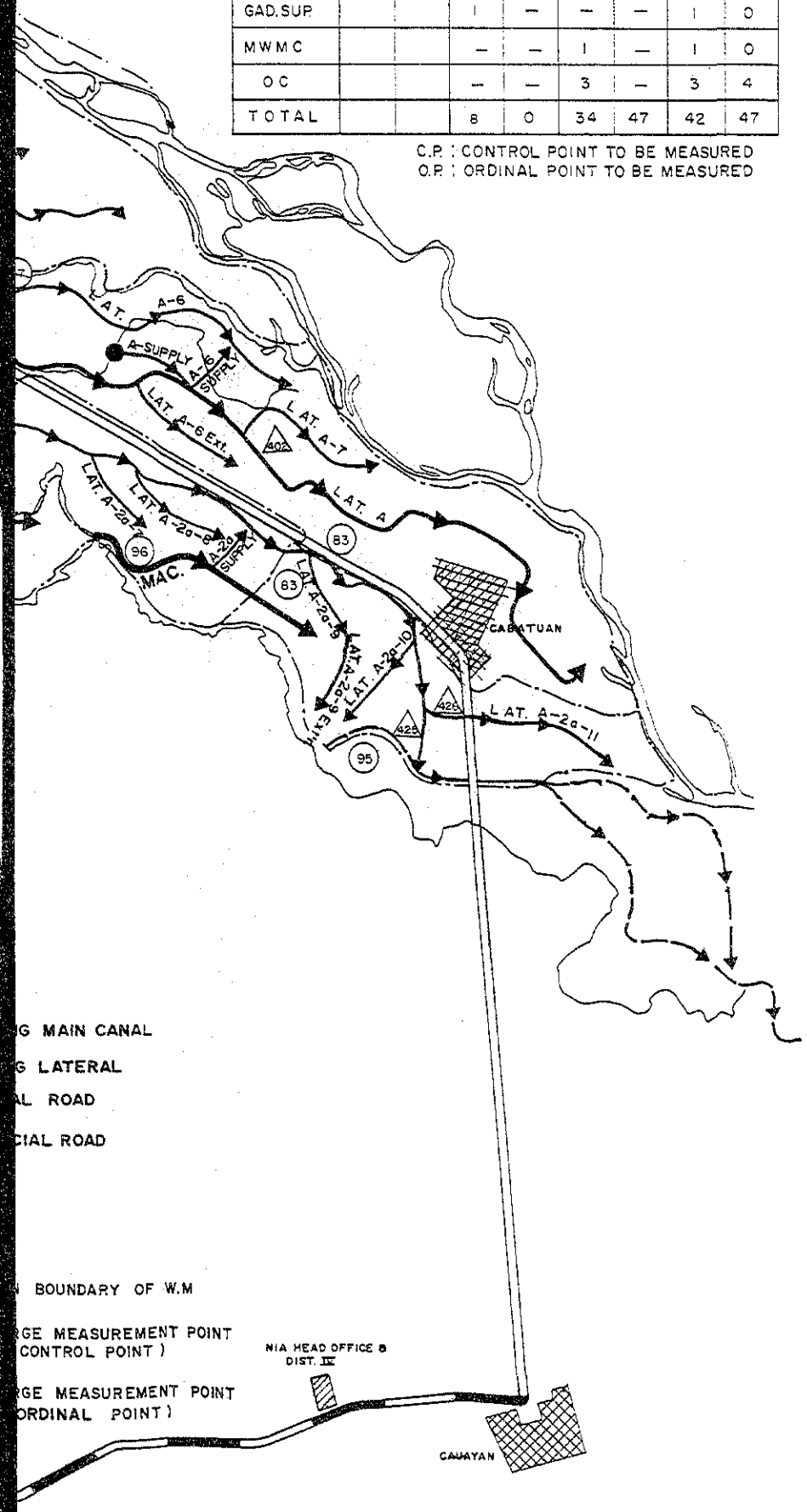
SCALE

)INT OF WATER ALLOCATION IN DISTRICT — II

NUMBER OF PROPOSED DISCHARGE MEASUREMENT POINT

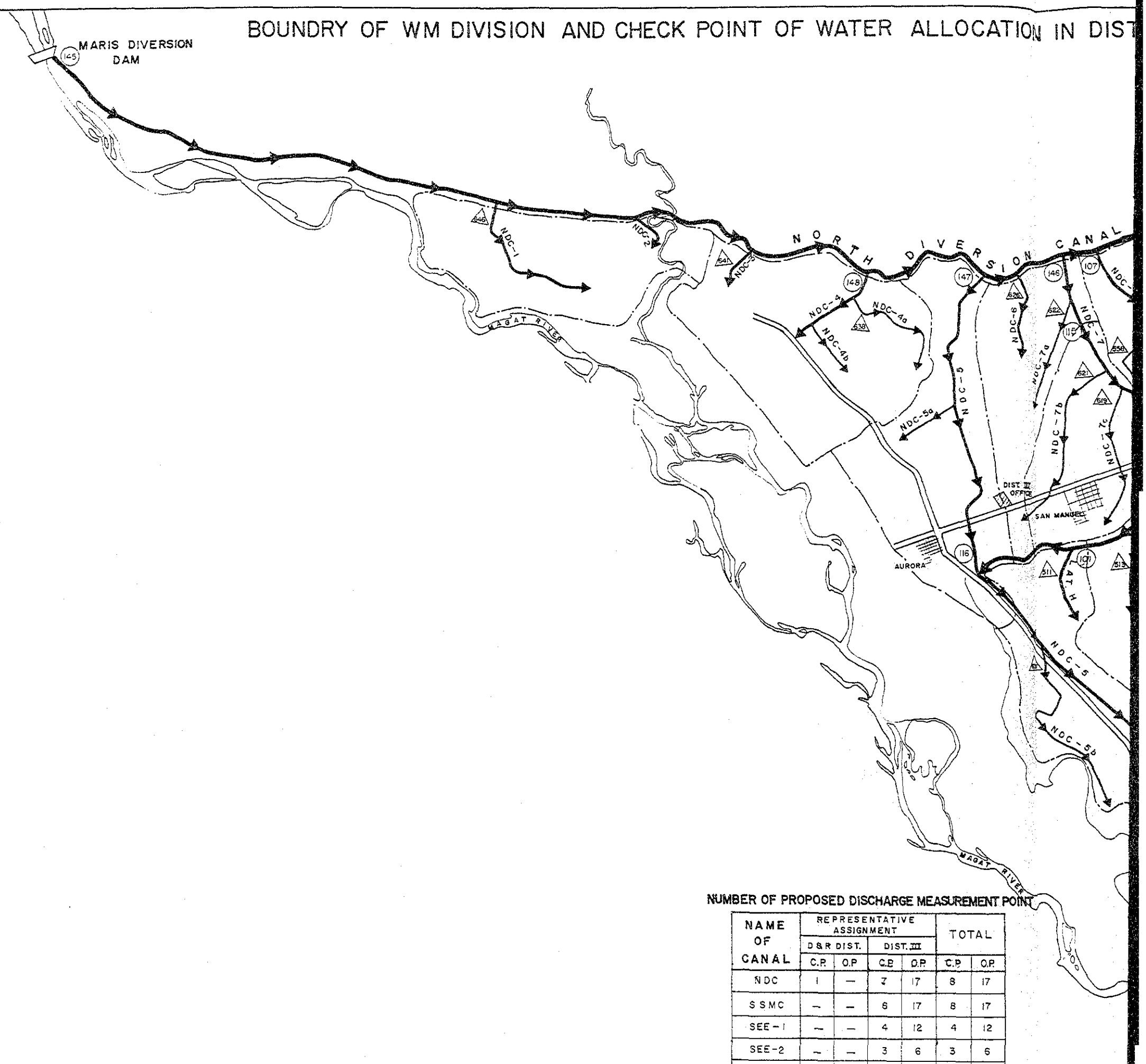
NAME OF CANAL	REPRESENTATIVE ASSIGNMENT						TOTAL	
	HEAD OFFICE		D&R DISTRICT		DISTRICT III			
	C.P.	O.P.	C.P.	O.P.	C.P.	O.P.	C.P.	O.P.
M M C			2	—	1	—	3	—
LAT. A			1	—	13	15	14	15
LAT. B			1	—	1	1	2	1
LAT. C			1	—	2	5	3	5
LAT. D			1	—	7	7	8	7
LAT. E			1	—	2	4	3	4
LAT. F-J			—	—	4	11	4	11
GAD. SUP.			1	—	—	—	1	0
MWMC			—	—	1	—	1	0
OC			—	—	3	—	3	4
TOTAL			8	0	34	47	42	47

C.P. : CONTROL POINT TO BE MEASURED
O.P. : ORDINAL POINT TO BE MEASURED



REPUBLIC OF THE PHILIPPINES NATIONAL IRRIGATION ADMINISTRATION			
MAGAT RIVER INTEGRATED IRRIGATION SYSTEM IMPROVEMENT PROJECT OF OPERATION AND MAINTENANCE			
BOUNDARY OF W.M.T (D-II) & CHECK-POINT OF WATER ALLOCATION			
DWG. NO.		DATE	
JAPAN INTERNATIONAL COOPERATION AGENCY			

BOUNDRY OF WM DIVISION AND CHECK POINT OF WATER ALLOCATION IN DIST



NUMBER OF PROPOSED DISCHARGE MEASUREMENT POINT

NAME OF CANAL	REPRESENTATIVE ASSIGNMENT				TOTAL	
	D&R DIST.		DIST. III			
	C.P.	O.P.	C.P.	O.P.	C.P.	O.P.
NDC	1	—	7	17	8	17
S SMC	—	—	6	17	8	17
SEE-1	—	—	4	12	4	12
SEE-2	—	—	3	6	3	6
S NMC	—	—	4	10	4	10
CREEK	—	—	—	2	—	2
TOTAL	1	0	26	64	27	64

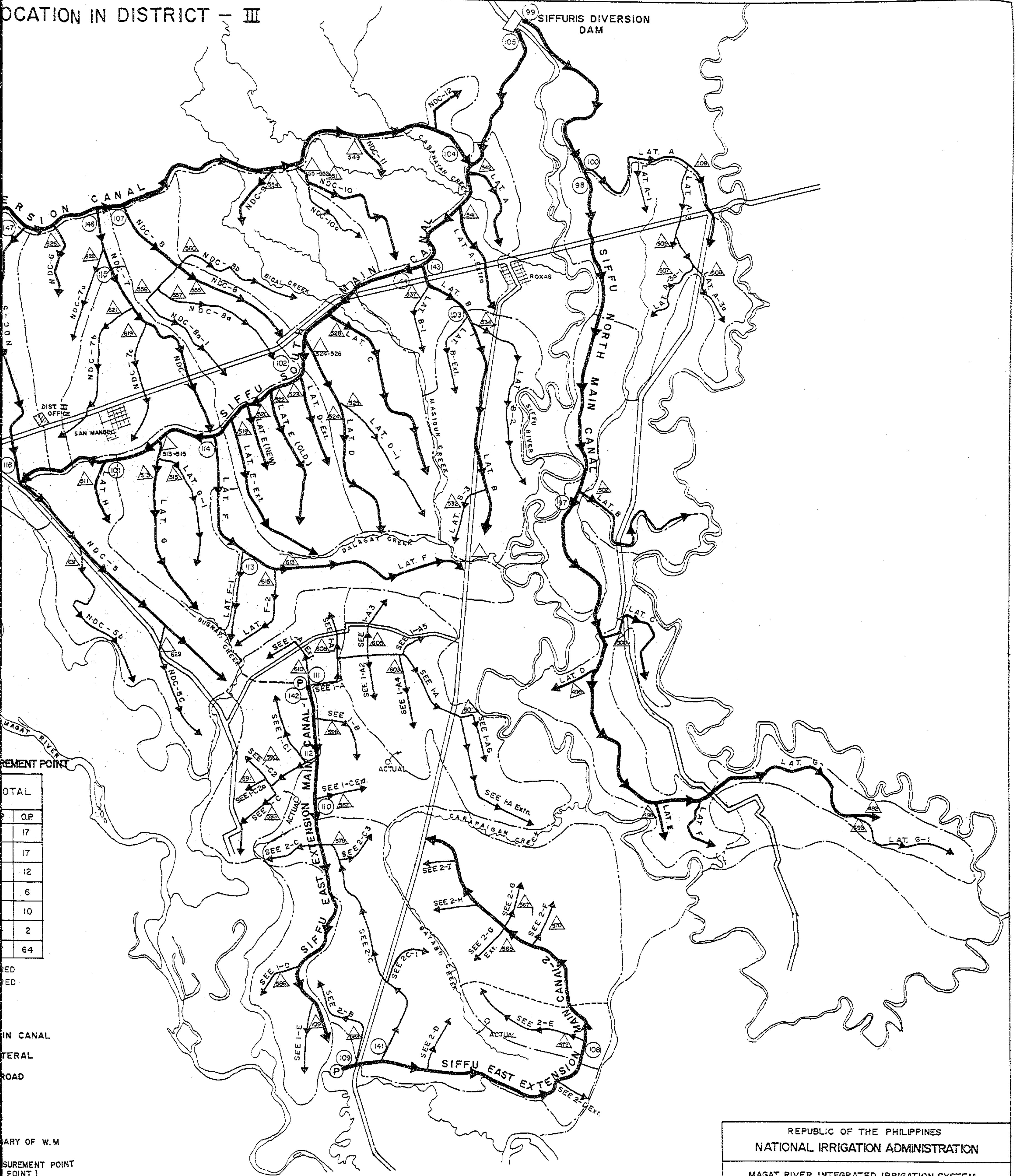
C.P. : CONTROL POINT TO BE MEASURED
O.P. : ORDINAL POINT TO BE MEASURED

LEGEND :

- EXISTING MAIN CANAL
- EXISTING LATERAL
- PROVINCIAL ROAD
- CREEK
- RIVER
- DIVISION BOUNDARY OF W.M
- 98 — DISCHARGE MEASUREMENT POINT (CONTROL POINT)
- 21 — DISCHARGE MEASUREMENT POINT (ORDINAL POINT)

0 1 2
SCALE

...OCATION IN DISTRICT – III



REPUBLIC OF THE PHILIPPINES

NATIONAL IRRIGATION ADMINISTRATION

MAGAT RIVER INTEGRATED IRRIGATION SYSTEM

IMPROVEMENT PROJECT OF OPERATION AND MAINTENANCE

BOUNDARY OF W.M.T (D-III) & CHECK-POINT OF WATER ALLOCATION

DWG. NO.		DATE	

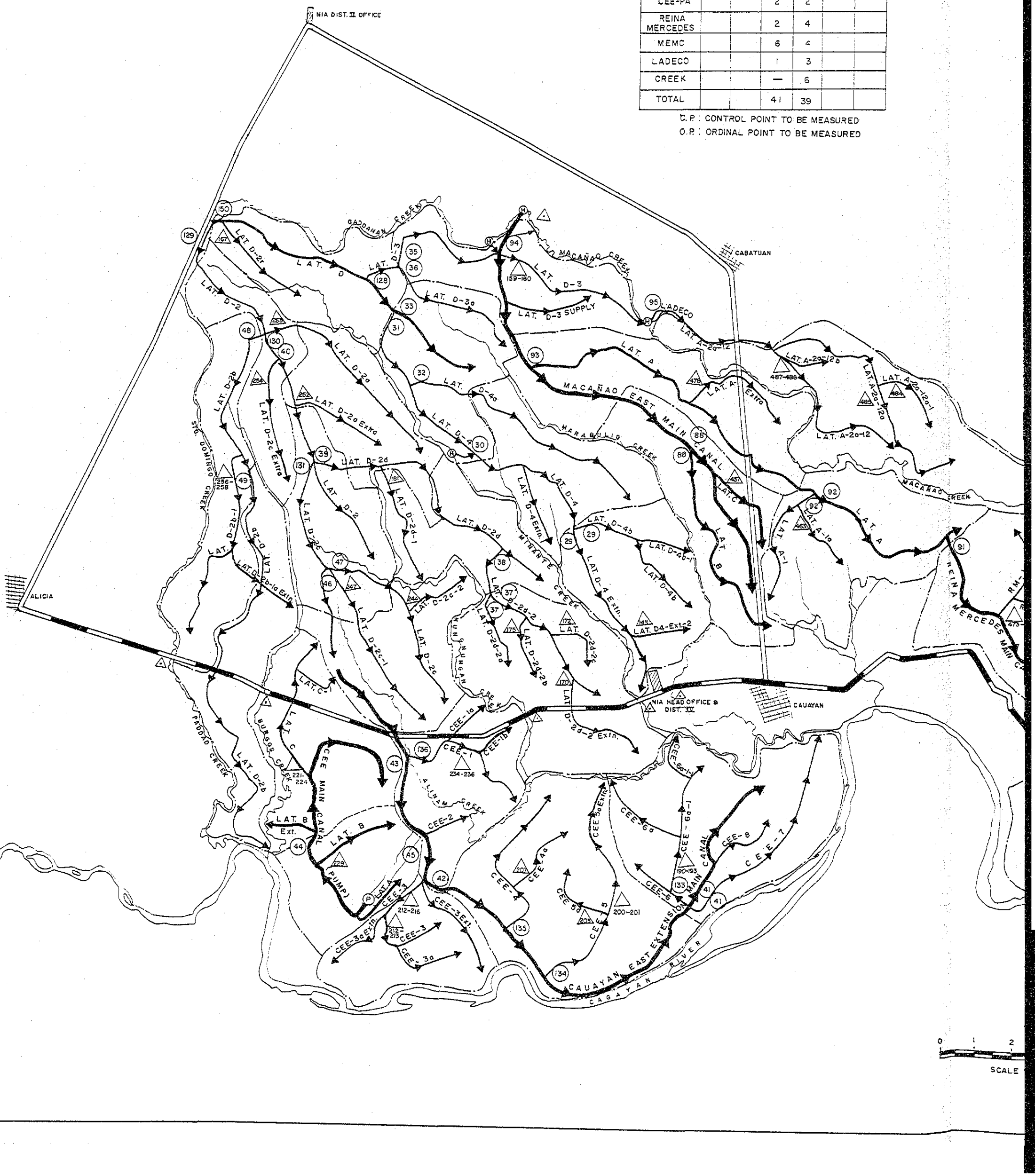
JAPAN INTERNATIONAL COOPERATION AGENCY

BOUNDRY OF WM DIVISION AND CHECK POINT OF WATER ALLOCATION IN DIS

NUMBER OF PROPOSED DISCHARGE MEASUREMENT POINT

NAME OF CANAL	REPRESENTATIVE ASSIGNMENT				TOTAL	
	HEAD OFFICE		DIST. IV			
	C.P.	O.P.	C.P.	O.P.	C.P.	O.P.
LAT. D			22	13		
CEE			8	7		
CEE-PA			2	2		
REINA MERCEDES			2	4		
MEMC			6	4		
LADECO			1	3		
CREEK			—	6		
TOTAL			41	39		

C.P. : CONTROL POINT TO BE MEASURED
O.P. : ORDINAL POINT TO BE MEASURED



CATION IN DISTRICT – Ⅳ

NT POINT

LEGEND :

- EXISTING MAIN CANAL
- EXISTING LATERAL
- NATIONAL ROAD
- PROVINCIAL ROAD
- CREEK
- RIVER
- DIVISION BOUNDARY OF W.M
- DISCHARGE MEASUREMENT POINT ('CONTROL POINT)
- DISCHARGE MEASUREMENT POINT (ORDINAL POINT)

0 1 2 3 4 5 Km.

SCALE 1:50,000

REPUBLIC OF THE PHILIPPINES

NATIONAL IRRIGATION ADMINISTRATION

MAGAT RIVER INTEGRATED IRRIGATION SYSTEM

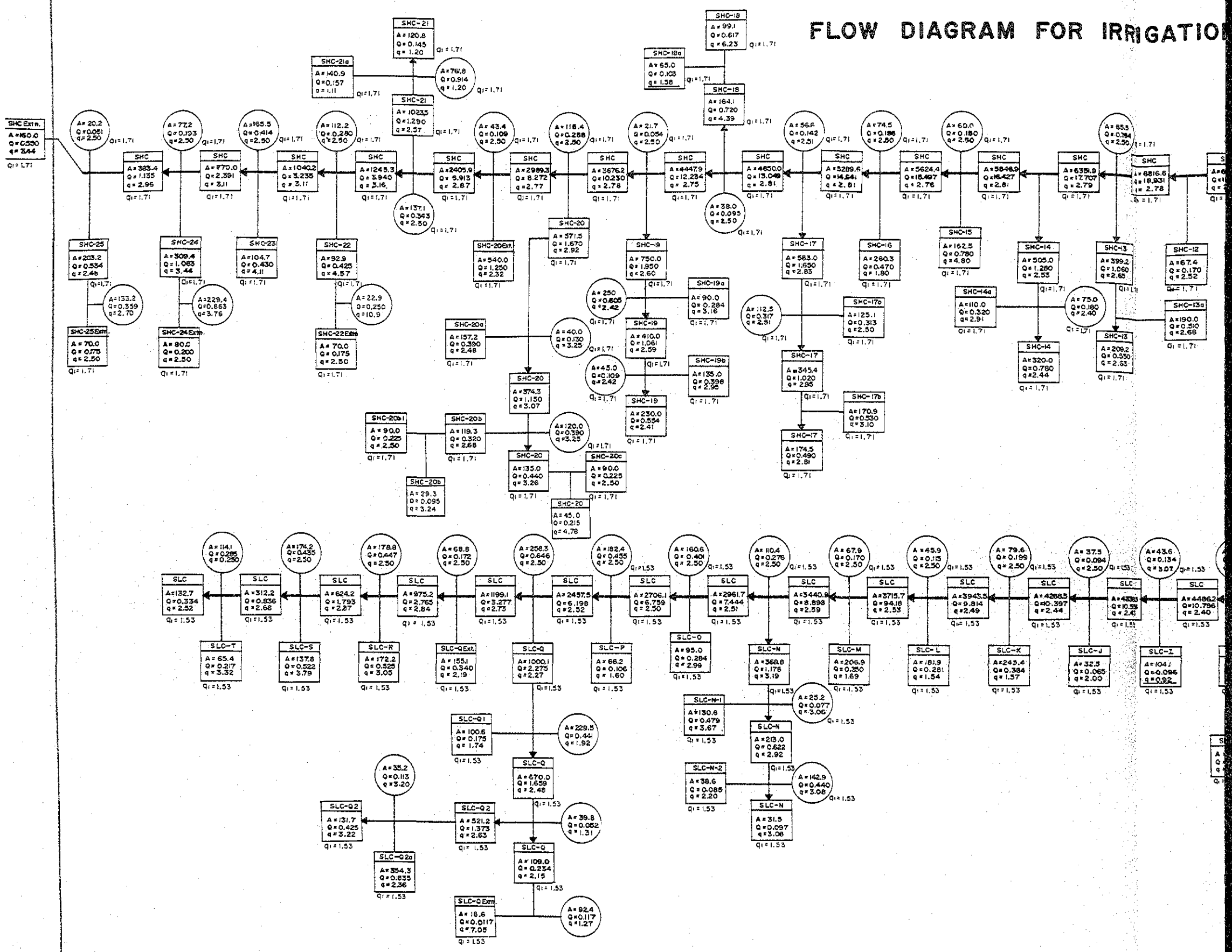
IMPROVEMENT PROJECT OF OPERATION AND MAINTENANCE

BOUNDARY OF W.M.T (D-Ⅳ) & CHECK-POINT OF WATER ALLOCATION

DWG. NO.		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY

FLOW DIAGRAM FOR IRRIGATIO

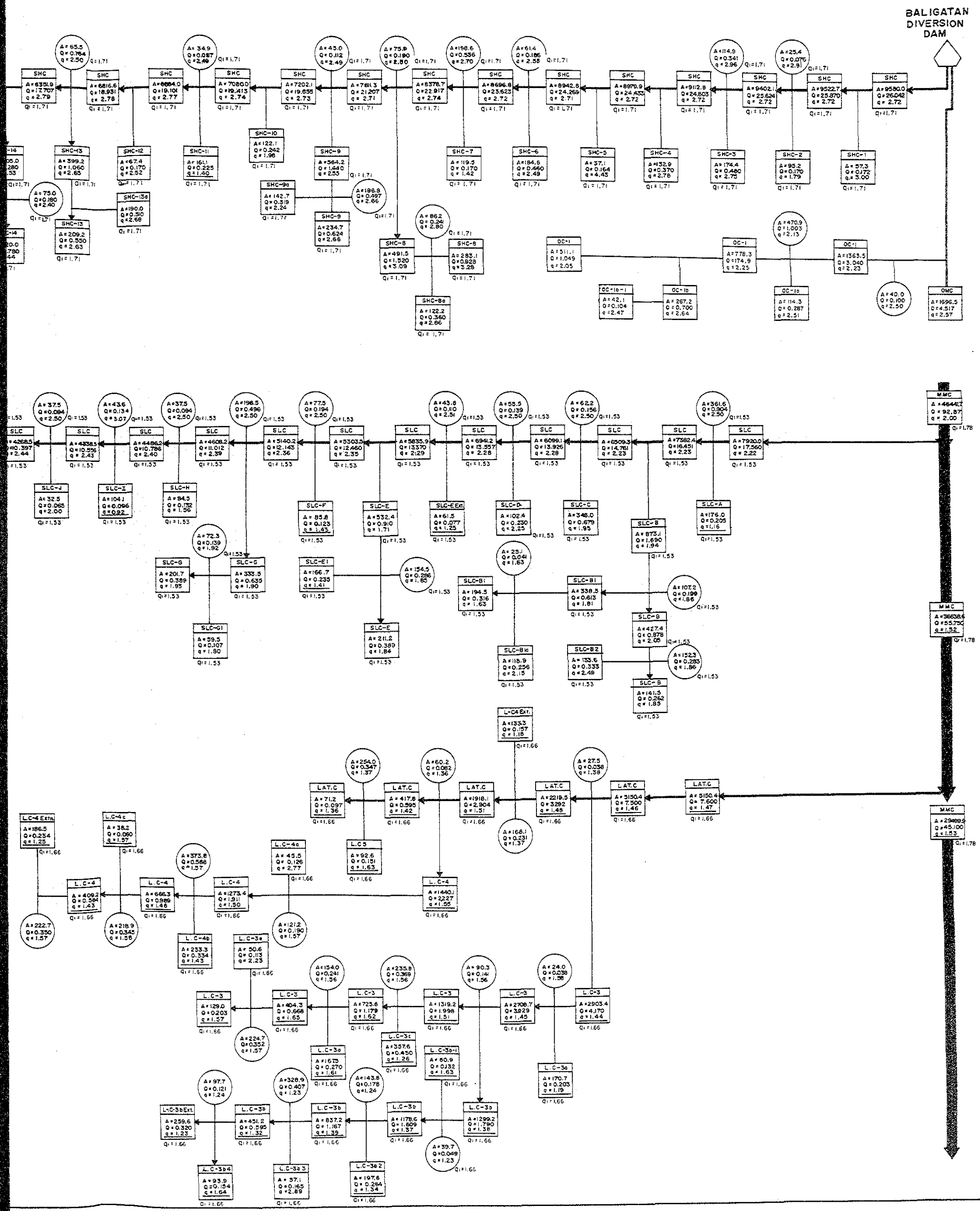


IRRIGATION SYSTEM	SERVICE AREA
OSCARIZ	1,403.5
SOUTH HIGH CANAL (SHC)	9,580.0
SOUTH LOW CANAL (SLC)	7,920.0
LATERAL C	5,150.4
TOTAL	24,053.9

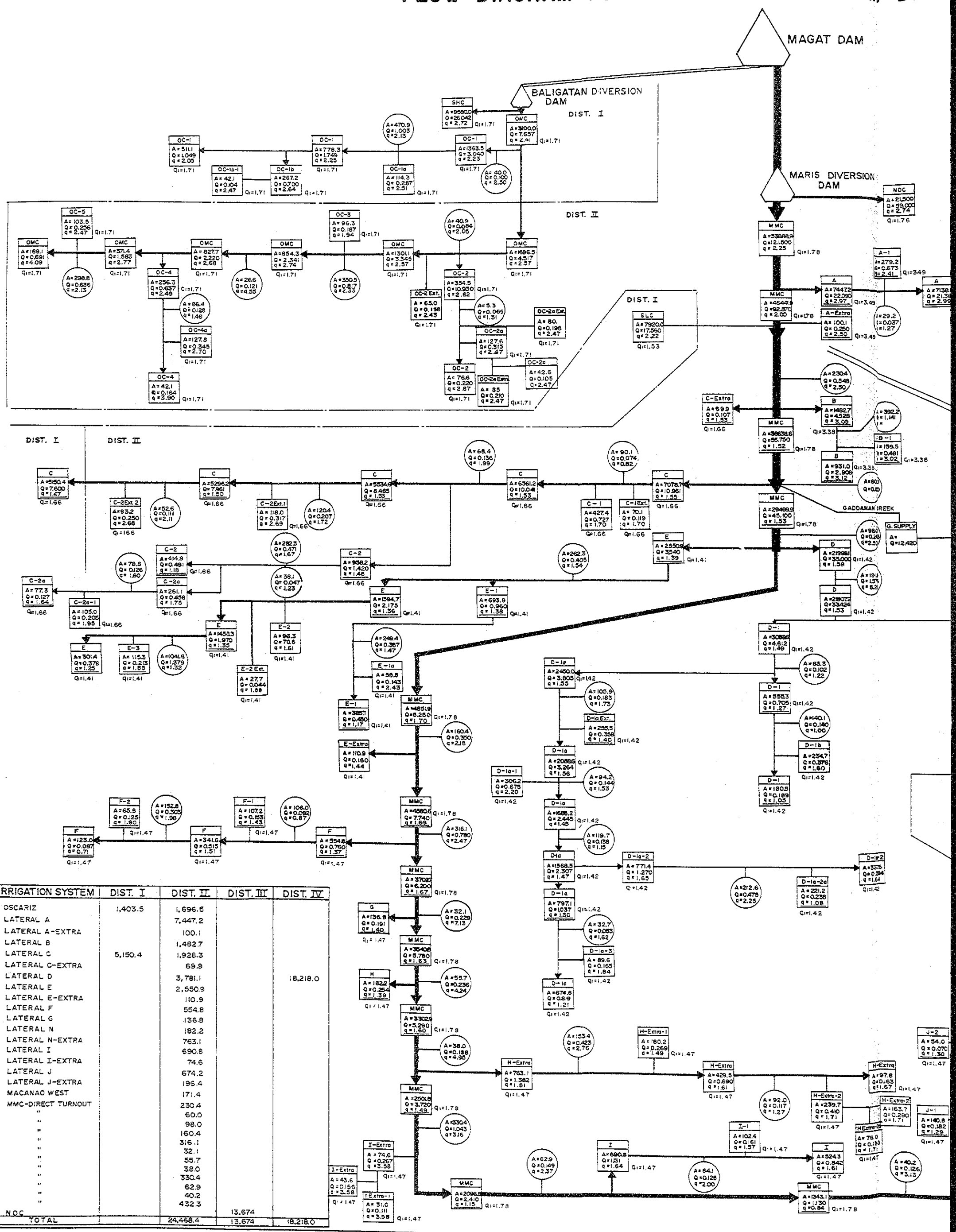
LEGEND :

NOTE : UNDERLINED FIGURES OF DESIGNED WATER DUTY SHOW THE DEFICIT OF CROSS SECTION AREA OF CANAL CAMPARED WITH THE PROPOSED WATER DUTY.

FOR IRRIGATION BLOCK IN DISTRICT - I



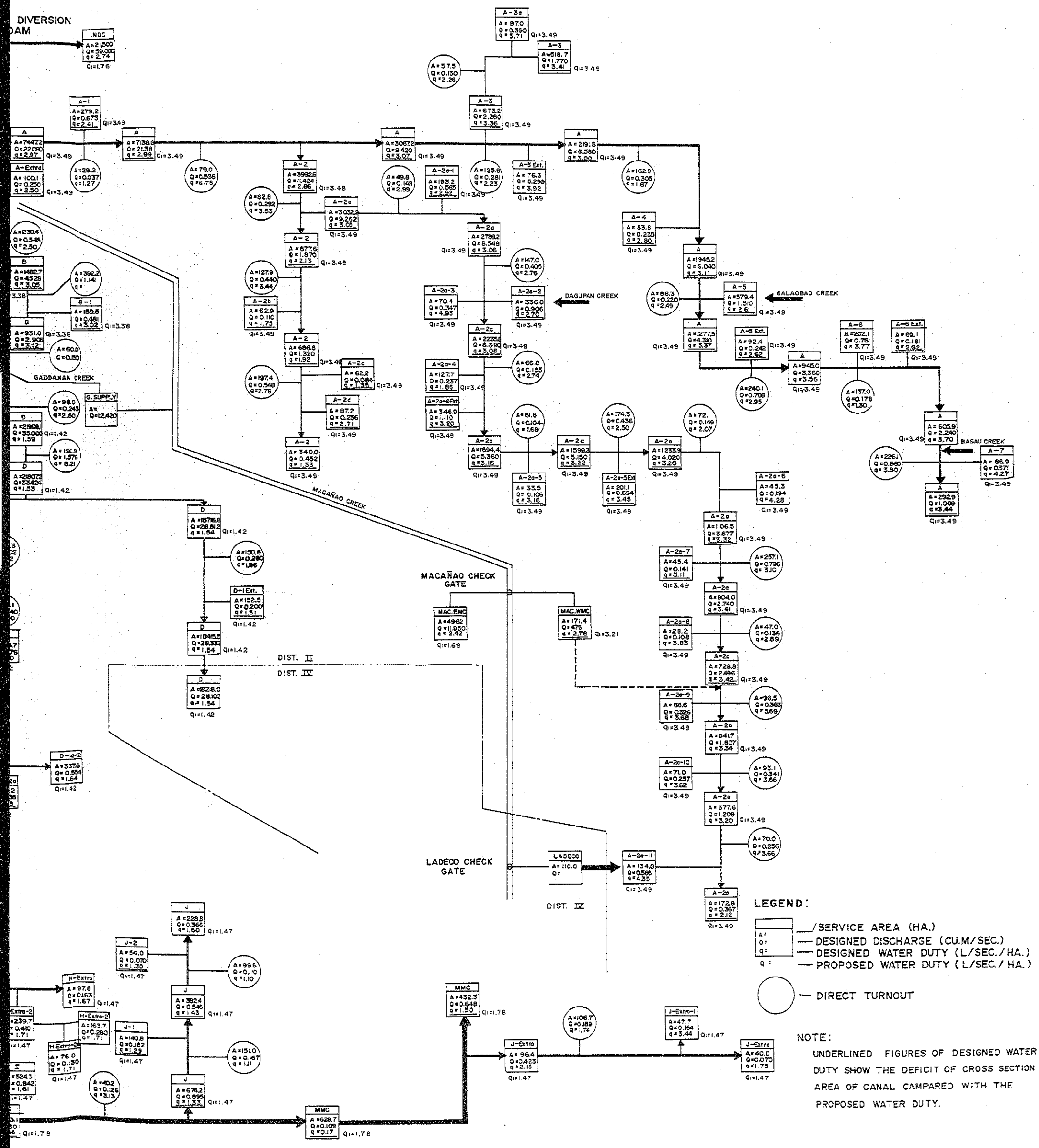
FLOW DIAGRAM FOR IRRIGATION BLOCK IN DIST



IRRIGATION SYSTEM	DIST. I	DIST. II	DIST. III	DIST. IV
OSCARIZ	1,403.5	1,696.5		
LATERAL A		7,447.2		
LATERAL A-EXTRA		100.1		
LATERAL B		1,482.7		
LATERAL C	5,150.4	1,928.3		
LATERAL C-EXTRA		69.9		
LATERAL D		3,781.1		18,218.0
LATERAL E		2,550.9		
LATERAL E-EXTRA		110.9		
LATERAL F		554.8		
LATERAL G		136.8		
LATERAL N		182.2		
LATERAL N-EXTRA		763.1		
LATERAL I		690.8		
LATERAL I-EXTRA		74.6		
LATERAL J		674.2		
LATERAL J-EXTRA		196.4		
MACANAO WEST		171.4		
MMC-DIRECT TURNOUT		230.4		
"		60.0		
"		98.0		
"		160.4		
"		316.1		
"		32.1		
"		55.7		
"		38.0		
"		330.4		
"		62.9		
"		40.2		
"		432.3		
NDC			13,674	
TOTAL		24,468.4	13,674	18,218.0

OCK IN DISTRICT - II

AT DAM



FLOW DIAGRAM FOR IRRIGATION BLOCK IN DISTRIC

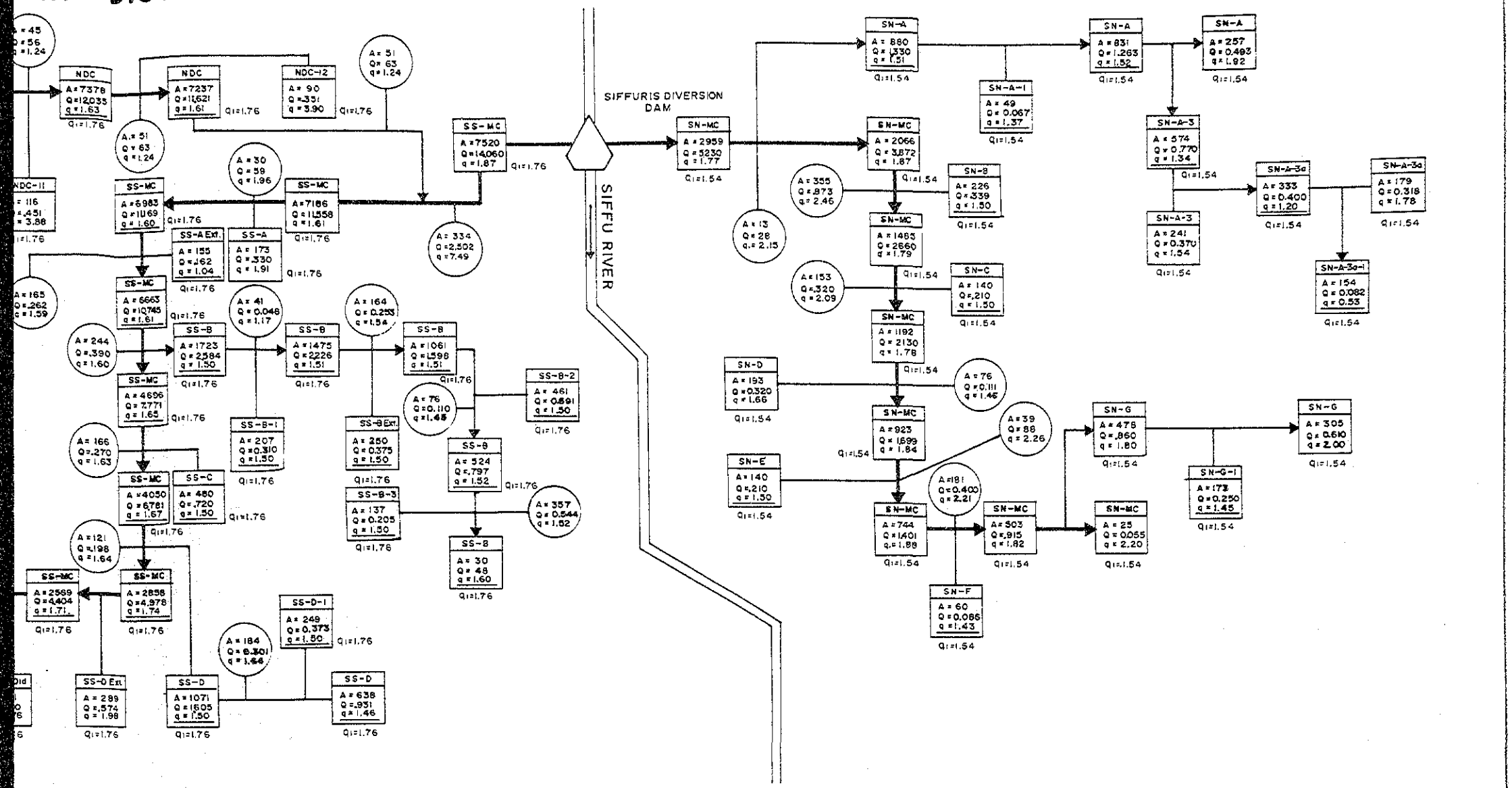
BUGNAY CREEK

BUGNAY CHECK GATE

APPROACH CHANNEL (SUPPLY CANAL)

RESERVOIR

IN DISTRICT - III

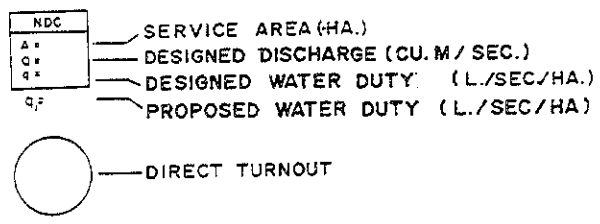


IRRIGATION SYSTEM	SERVICE AREA
NORTH DIVERSION CANAL	14,314 Has.
SIFFU SOUTH MAIN CANAL	7,520 Has.
SIFFU NORTH MAIN CANAL	2,959 Has.
TOTAL	24,793 Has.

NOTE: 1/ AREA OF 7,186 HA. IS COUNTED IN THE SERVICE AREA OF 21,500 HA. COVERED BY NORTH DIVERSION CANAL, CONSIDERING THE WATER SHORTAGE OF SIFFU RIVER.

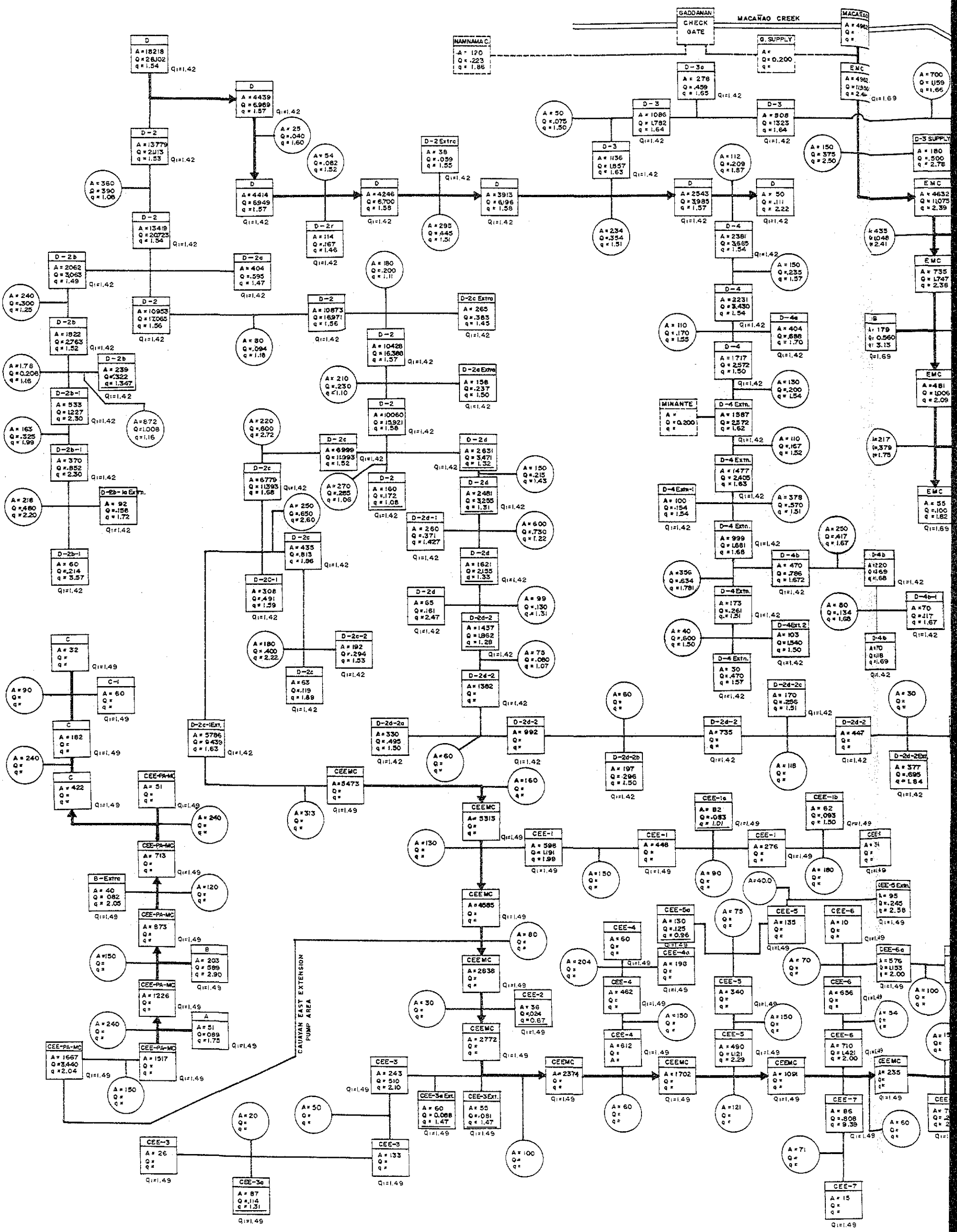
2/ WATER BALANCE STUDY OF SIFFU SOUTH WAS MADE FOR THE AREA OF 8160 HA. (7,520 + 640 HA.)

LEGEND :

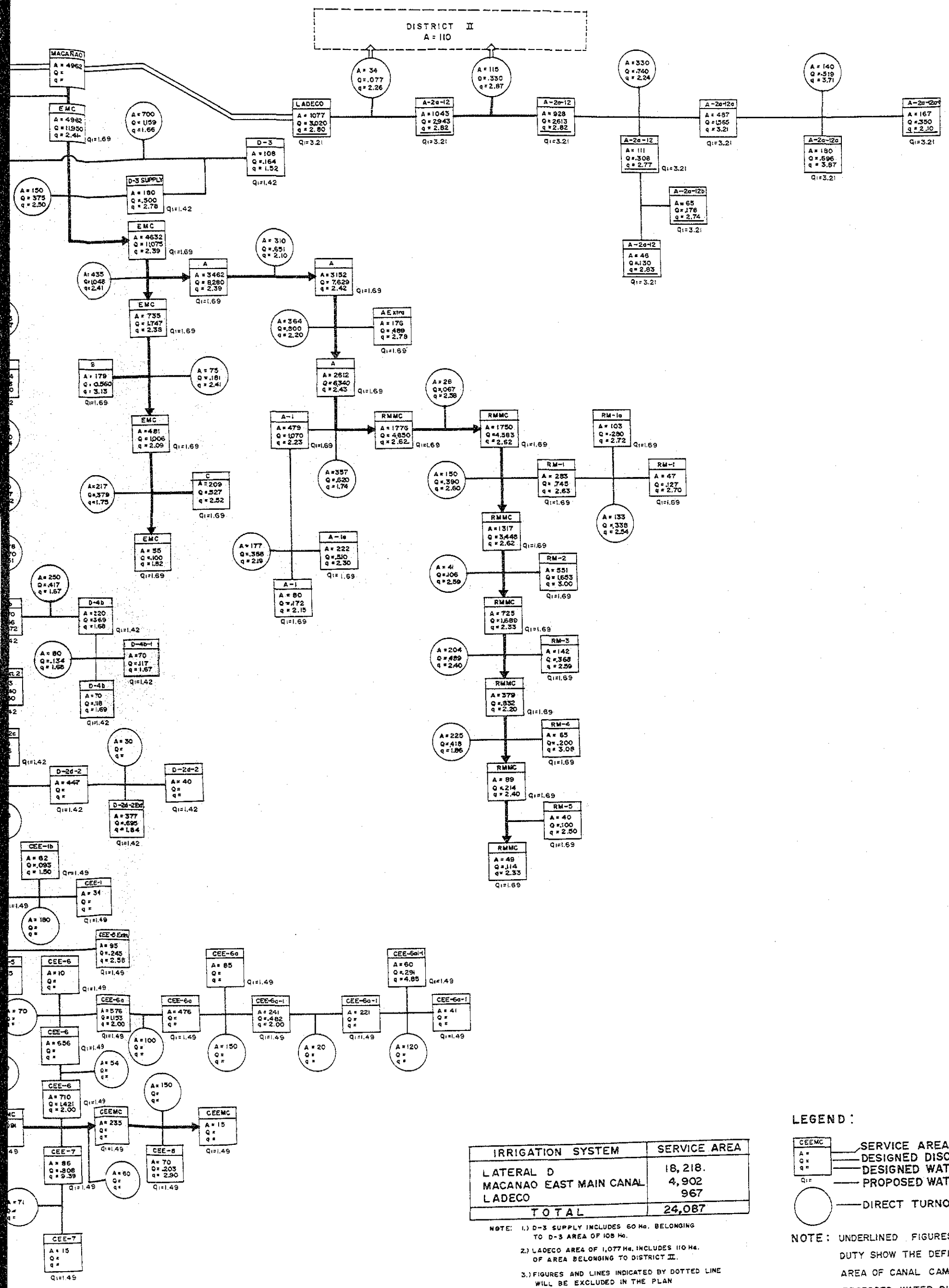


NOTE: UNDERLINED FIGURES OF DESIGNED WATER DUTY SHOW THE DEFICIT OF CROSS SECTION AREA OF CANAL CAMPARED WITH THE PROPOSED WATER DUTY.

FLOW DIAGRAM FOR IRRIGATION B



IRRIGATION BLOCK IN DISTRICT - IV



IRRIGATION SYSTEM	SERVICE AREA
LATERAL D	18,218.
MACANAO EAST MAIN CANAL	4,902
LADECO	967
TOTAL	24,087

NOTE: 1.) D-3 SUPPLY INCLUDES 60 Ha. BELONGING TO D-3 AREA OF 108 Ha.

2.) LADECO AREA OF 1,077 Ha. INCLUDES 110 Ha. OF AREA BELONGING TO DISTRICT III.

3.) FIGURES AND LINES INDICATED BY DOTTED LINE WILL BE EXCLUDED IN THE PLAN

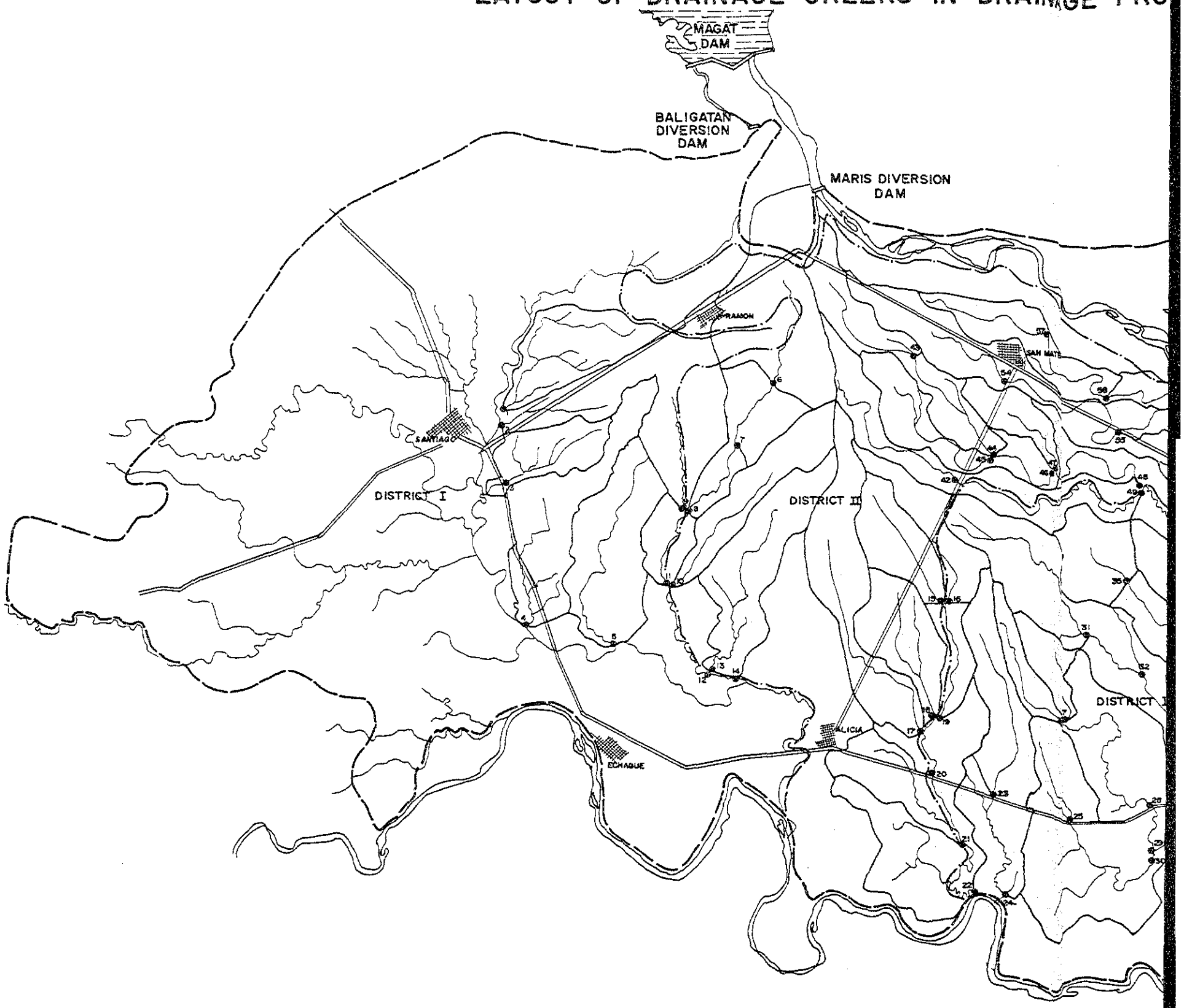
LEGEND :

CEEMC
A =
Q =
q =
Qt=

- SERVICE AREA (HA.)
- DESIGNED DISCHARGE (CU.M/SEC.)
- DESIGNED WATER DUTY (L/SEC/HA.)
- PROPOSED WATER DUTY (L/SEC/HA.)
- DIRECT TURNOUT

NOTE: UNDERLINED FIGURES OF DESIGNED WATER DUTY SHOW THE DEFICIT OF CROSS SECTION AREA OF CANAL CAMPARED WITH THE PROPOSED WATER DUTY.

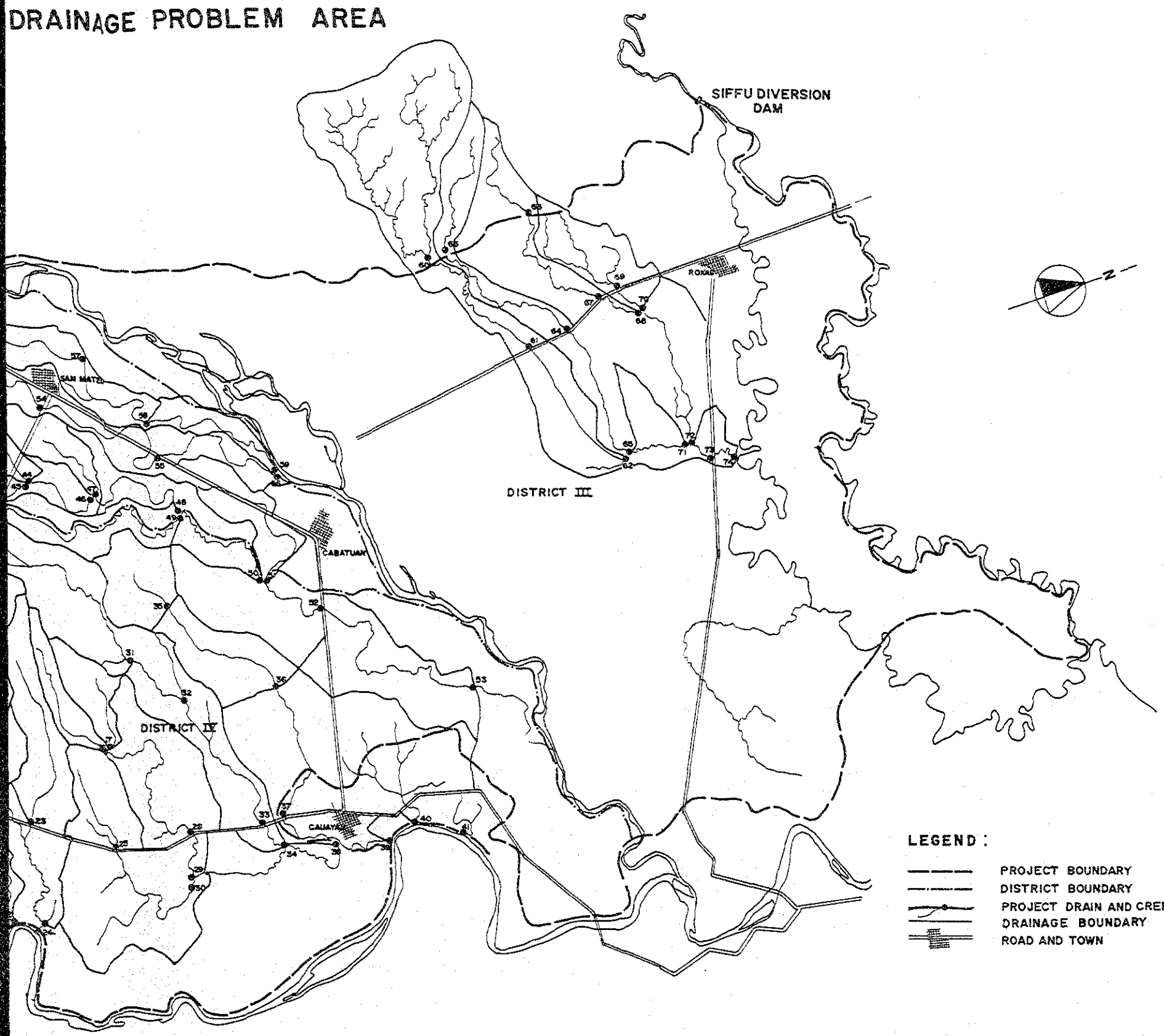
LAYOUT OF DRAINAGE CREEKS IN DRAINAGE PRO



STA.	CREEK AND PROJECT DRAIN	CHARACTERISTIC OF DRAINAGE AREA							FLOOD DISCHARGE						
		DRAINAGE AREA (A)		SLOPE OF CREEK			Tc (HR)	Rc (MM/HR)	C	Rc (INCH/HR)	$(H/L)^{1/5}$ (FEET)	$A^{4/5}$ (ACRE)	DISCHARGE, Q		
		ISOLATED AREA(Km²)	ACCUM. AREA(Km²)	H (M)	L (M)	H/L							(F^3/Sec)	(M^3/Sec/Km²)	AVERAGE (M^3/Sec/Km²)
1	GUMOT C.	13.7	13.7	14	7,150	1/511	4.19	20.0	0.66	0.79	1.14	665.9	395.8	0.82	0.82
2	RIZAL C.	8.4	8.4	10	6,460	1/646	4.36	19.5	0.66	0.77	1.09	480.2	255.9	0.86	0.86
3	CARIAGA C.	8.7	8.7	5	4,950	1/990	4.31	19.6	0.66	0.77	1.00	463.0	255.3	0.77	0.77
4	DIVISORIA C.	14.8	14.8	2	7,430	1/3,715	14.31	8.8	0.66	0.35	0.77	708.3	126.0	0.24	0.24
5	LICARAY C.	11.7	11.7	3	5,190	1/1,730	6.32	16.2	0.66	0.80	0.90	586.9	209.2	0.51	0.51
6	NAGBACALAN C.	25.0	25.0	22	6,050	1/275	2.44	28.7	0.66	1.15	1.29	1,077.4	1,036.5	1.17	
7	-do-	7.7	32.7	30	9,350	1/311	4.07	20.4	0.66	0.80	1.26	1,335.5	686.5	0.77	
8	-do-	3.3	36.0	33	13,480	1/408	6.90	14.3	0.66	0.56	1.20	1,442.3	639.7	0.50	
9	CATURATURAN C.	17.3	17.3	6	8,800	1/1,100	8.17	12.8	0.66	0.50	0.98	802.5	259.5	0.43	
10	BONIFACIO C.	11.9	11.9	7	7,980	1/1,140	7.56	13.5	0.66	0.53	0.97	594.9	201.9	0.46	0.51
11	NAGBACALAN C.	5.6	58.9	35	17,610	1/503	10.22	11.0	0.66	0.43	1.16	2,138.5	697.9	0.34	
12	-do-	6.8	77.6	38	23,520	1/619	15.46	8.4	0.66	0.33	1.10	2,656.5	638.8	0.23	
13	BANTUG NAGBUKEL C.	17.5	17.5	8	9,490	1/1,186	9.21	11.6	0.66	0.46	0.97	809.9	238.5	0.39	
14	MASIRIT C.	—	95.1	46	24,760	1/538	14.96	8.6	0.66	0.34	1.13	3,137.3	795.5	0.24	
15	PADDAD C.	8.2	8.2	10	5,500	1/550	3.37	23.1	0.66	0.91	1.13	441.6	299.7	1.03	
16	-do-	9.5	9.5	11	4,950	1/450	2.69	26.9	0.66	1.06	1.17	496.8	406.6	1.21	
17	SALVACION C.	4.8	19.3	9	10,450	1/1,161	10.02	11.2	0.66	0.44	0.97	675.9	246.7	0.36	
18	PADDAD C.	11.0	11.0	6	7,010	1/1,168	6.74	14.5	0.66	0.57	0.97	556.6	203.8	0.53	
19	STO DOMINGO C.	5.0	22.7	13	11,280	1/867	9.08	11.9	0.66	0.47	1.03	997.3	318.6	0.40	0.46
20	PADDAD C.	7.5	60.5	18	14,440	1/802	11.09	10.5	0.66	0.41	1.05	2,184.9	620.8	0.29	
21	LINGLINGAY C.	10.3	70.8	18	17,740	1/985	15.41	8.4	0.66	0.33	1.00	2,477.7	539.6	0.22	
22	-do-	15.7	86.5	22	23,370	1/1,062	21.24	6.8	0.66	0.27	0.99	2,908.2	513.1	0.17	
23	BURGOS C.	13.1	13.1	7	9,210	1/1,315	9.62	11.6	0.66	0.46	0.95	642.4	185.3	0.40	
24	-do-	9.0	22.1	10	15,840	1/1,584	18.29	7.5	0.66	0.30	0.91	976.2	175.9	0.23	
25	ALINAM C.	9.1	9.1	7	4,400	1/629	2.92	25.6	0.66	1.00	1.10	480.0	348.5	1.08	
26	KUNONUNGAN C.	4.6	4.6	5	6,330	1/1,266	6.39	15.1	0.66	0.58	0.95	276.1	102.9	0.63	

STA	CREEK AND PROJECT DRAIN	CHARACTERISTIC OF DRAINAGE AREA							
		DRAINAGE AREA (A)		SLOPE OF CREEK			Tc (HR)	Rc (MM/HR)	C
		ISOLATED AREA(Km²)	ACCUM. AREA(Km²)	H (M)	L (M)	H/L			
27	KUNONUNGAN C.	4.2	4.2	3	3,300	1/1,100	3.04	24.7	0.66
28	—do—	17.1	23.9	11	15,960	1/1,450	17.48	7.7	0.66
29	—do—	2.1	28.0	14	18,440	1/1,317	19.01	7.3	0.66
30	ALINAM C.	21.7	30.8	12	14,580	1/1,213	14.34	8.8	0.66
31	MINANTE C.	18.7	18.7	9	12,650	1/1,400	13.80	9.1	0.66
32	—do—	6.0	24.7	14	15,810	1/1,129	14.99	8.6	0.66
33	—do—	9.7	34.4	19	23,100	1/1,215	22.78	6.5	0.66
34	—do—	1.0	35.4	28	24,480	1/874	19.78	7.1	0.66
35	MARABULIG C.	9.4	9.4	4	2,890	1/722	2.08	31.9	0.66
36	—do—	9.3	18.7	8	9,080	1/1,135	8.59	12.4	0.66
37	—do—	20.5	39.2	13	15,680	1/1,206	15.33	8.4	0.66
38	—do—	3.1	42.3	19	19,120	1/1,006	16.82	7.9	0.66
39	MINANTE C.	37.8	174.3	20	22,700	1/1,135	21.48	6.7	0.66
40	TAGARAN C.	22.0	22.0	5	6,320	1/790	4.81	18.2	0.66
41	NAPACCU C.	3.1	3.1	9	2,750	1/306	1.18	45.6	0.66
42	GADDANAN C.	8.4	8.4	9	8,800	1/978	7.61	13.4	0.66
43	MACAÑAO C.	12.9	12.9	22	10,312	1/464	5.74	16.2	0.66
44	MACAÑAO C.	0.9	13.8	23	11,960	1/520	7.08	14.1	0.66
45	FORBIDA C.	8.7	8.7	5	7,420	1/1,236	7.39	13.7	0.66
46	MACAÑAO C.	3.3	17.1	31	15,810	1/510	9.25	11.8	0.66
47	MALASIN C.	6.1	6.1	11	5,230	1/475	12.37	9.7	0.66
48	MACAÑAO C.	6.0	29.2	17	22,690	1/1,334	23.64	6.3	0.66
49	GADDANAN C.	10.6	19.0	26	21,310	1/820	15.37	8.0	0.66
50	—do—	6.0	54.2	45	28,880	1/641	18.40	7.2	0.66
51	USOG C.	9.2	9.2	11	6,950	1/787	6.57	14.8	0.66
52	MACAÑAO C.	16.6	80.0	48	32,390	1/678	22.84	6.5	0.66

DRAINAGE PROBLEM AREA



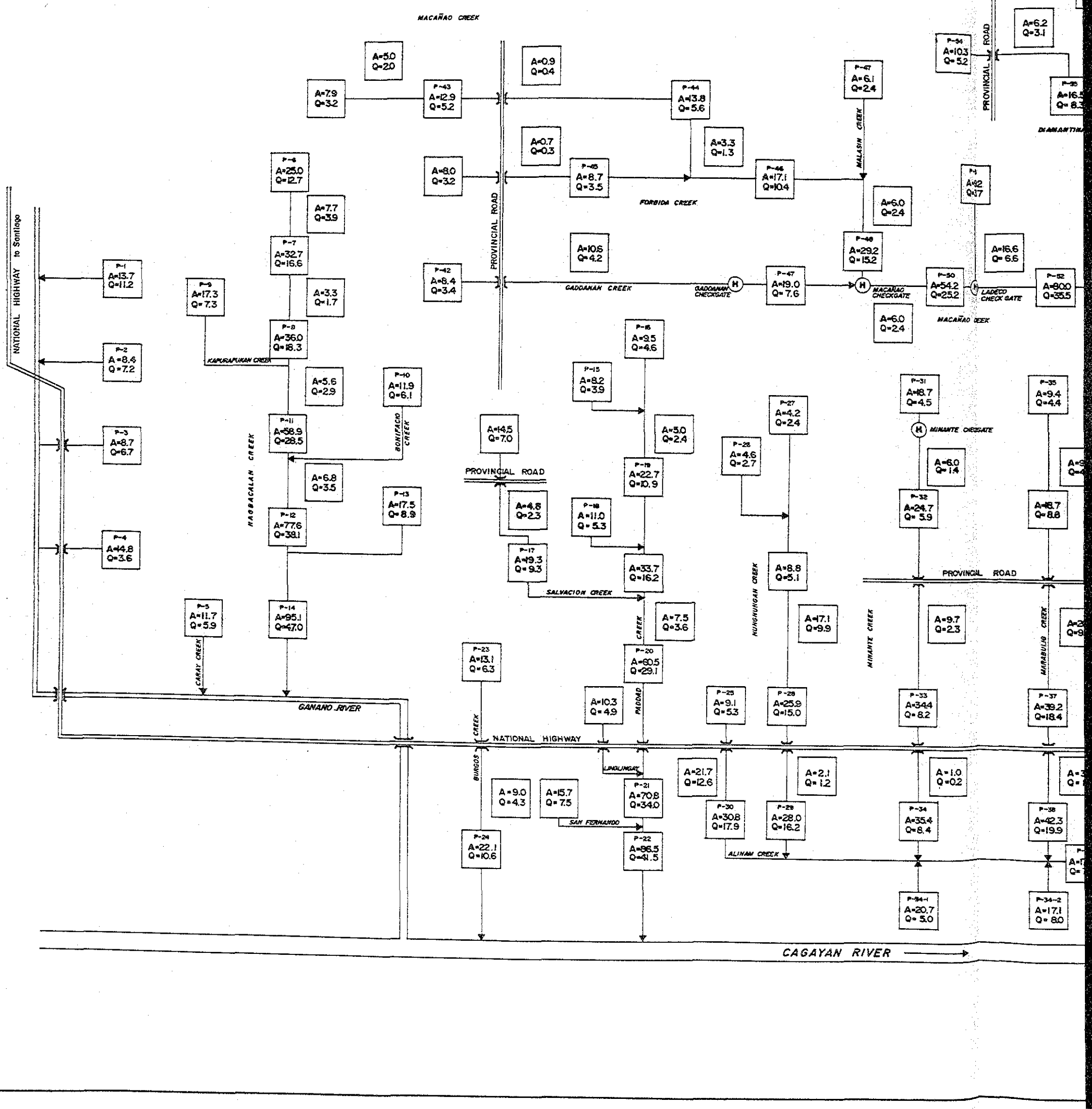
CHARACTERISTIC OF DRAINAGE AREA						FLOOD DISCHARGE								
OF CREEK		Tc (HR)	Rc (MM/HR)	C	Rc (INCH/HR)	$(H/L)^{1/5}$ (FEET)	$A^{4/5}$ (ACRE)	DISCHARGE Q		
	H/L							(F^3/Sec)	(M^3/Sec/Km^2)	AVERAGE (M^3/Sec/Km^2)
00	1/1,100	3.06	24.7	0.66	0.97	0.98	258.6	162.2	1.09	— 0.58
50	1/1,450	17.49	7.7	0.66	0.30	0.93	1,108.3	204.1	0.22	
40	1/1,317	19.06	7.3	0.66	0.29	0.95	1,179.6	214.5	0.22	
80	1/1,215	14.36	8.8	0.66	0.35	0.96	1,273.1	282.3	0.26	
50	1/1,405	13.60	9.1	0.66	0.36	0.93	854.1	183.5	0.28	
10	1/1,129	14.90	8.6	0.66	0.34	0.96	1,067.0	254.6	0.27	-0.24
00	1/1,215	22.76	6.5	0.66	0.25	0.96	1,390.8	229.1	0.19	
80	1/874	19.79	7.1	0.66	0.28	1.03	1,423.1	270.9	0.22	
90	1/722	2.09	31.9	0.66	1.26	1.07	492.6	436.3	1.32	
00	1/1,135	8.59	12.4	0.66	0.49	0.97	854.1	267.9	0.41	
50	1/1,205	15.38	8.4	0.66	0.33	0.96	1,543.9	322.8	0.23	-0.47
20	1/1,006	16.82	7.9	0.66	0.31	1.00	1,640.9	335.7	0.23	
00	1/1,135	21.46	6.7	0.66	0.26	0.97	5,093.9	847.9	0.14	
20	1/790	4.81	18.2	0.66	0.72	1.05	972.6	485.3	0.62	0.62
50	1/305	1.18	45.6	0.66	1.79	1.27	202.8	304.3	2.78	2.78
00	1/978	7.61	13.4	0.66	0.53	1.00	450.2	157.4	0.53	
12	1/464	5.74	15.2	0.66	0.54	1.17	634.6	313.6	0.68	
60	1/320	7.08	14.1	0.66	0.56	1.14	669.8	282.2	0.58	
20	1/1,236	7.39	13.7	0.66	0.54	0.96	463.0	156.4	0.52	
10	1/510	9.25	11.8	0.66	0.46	1.14	795.1	275.2	0.46	
30	1/475	12.37	9.7	0.66	0.38	1.16	348.6	101.4	0.47	
90	1/1,334	23.64	6.3	0.66	0.25	0.94	1,219.9	189.2	0.16	-0.40
10	1/620	16.57	8.0	0.66	0.31	1.04	665.0	184.1	0.28	
80	1/641	18.40	7.2	0.66	0.29	1.09	2,000.9	403.1	0.21	
60	1/787	6.57	14.8	0.66	0.58	1.05	484.2	194.6	0.60	
90	1/676	22.64	6.5	0.66	0.26	1.08	2,732.1	506.3	0.18	

STA.	CREEK AND PROJECT DRAIN	CHARACTERISTIC OF DRAINAGE AREA						FLOOD DISCHARGE								
		DRAINAGE AREA A		SLOPE OF CREEK			Tc (HR)	Rc (MM/HR)	C	Rc (INCH/HR)	$(H/L)^{1/5}$ (FEET)	$A^{4/5}$ (ACRE)	DISCHARGE Q		
		ISOLATED AREA (Km²)	ACCUM. AREA (Km²)	H (M)	L (M)	H/L							(F^3/Sec)	(M^3/Sec/Km^2)	AVERAGE (M^3/Sec/Km^2)
53	MACANAO C.	16.2	96.2	49	44,000	1/898	38.15	4.8	0.66	0.19	1.02	5,166.3	405.0	0.12	
54	DIAMANTINA C.	10.3	103	8	4,950	1/619	3.25	23.7	0.66	0.93	1.10	530.0	357.8	0.96	
55	—do—	8.2	16.5	16	12,100	1/756	8.97	12.0	0.66	0.47	1.06	366.7	120.5	0.21	-0.50
56	—do—	5.5	22.0	25	19,110	1/764	14.25	8.6	0.66	0.35	1.06	972.8	238.2	0.31	
57	BALACBAC C.	6.3	6.3	8	5,750	1/722	4.17	20.1	0.66	0.79	1.07	357.7	119.6	0.89	
58	—do—	5.6	11.9	16	12,380	1/774	9.50	11.7	0.66	0.46	1.05	584.9	189.6	0.45	-0.55
59	—do—	3.1	15.0	20	17,610	1/880	14.30	8.8	0.66	0.35	1.03	715.9	170.3	0.32	
60	MAPAPI C.	32.3	32.3	208	10,730	1/52	1.58	38.5	0.55	1.52	1.81	1,322.8	2,001.2	1.75	
61	NDC PD #5	5.4	37.7	254	19,260	1/82	3.77	21.6	0.66	0.85	1.65	1,496.8	1385.2	1.04	
62	PD #7	10.3	48.0	251	25,580	1/102	5.69	16.3	0.66	0.64	1.58	1,815.6	1211.7	0.71	
63	VILLANUEVA C.	3.8	3.8	50	5,780	1/36	1.24	45.1	0.55	1.78	1.60	238.7	373.9	2.78	
64	PD #5	3.9	7.7	94	13,620	1/145	3.75	21.5	0.66	0.85	1.47	419.9	293.8	4.08	
65	—do—	6.3	14.0	111	19,400	1/175	5.97	15.6	0.66	0.62	1.41	677.5	390.9	0.79	
66	BICAL C.	3.3	3.3	109	4,810	1/44	6.48	15.0	0.55	0.59	1.87	213.2	129.3	1.31	-0.98
67	NDC PD #9	14.2	17.5	141	11,410	1/81	2.21	30.6	0.66	1.20	1.65	809.9	1058.4	1.71	
68	—do—	0.8	18.3	146	13,340	1/91	2.78	26.3	0.66	1.04	1.62	839.4	933.4	1.44	
69	NDC PD-# 10	9.0	9.0	27	5,780	1/214	2.01	32.7	0.66	1.29	1.36	475.8	550.9	1.73	
70	—do—	1.6	10.6	29	7,430	1/256	2.67	25.7	0.66	1.01	1.31	542.3	473.6	1.26	
71	PD # 7	5.1	66.1	252	29,020	1/115	6.95	14.3	0.66	0.56	1.54	2,401.8	1367.1	0.57	
72	PD # 3	17.0	45.9	154	20,220	1/131	5.24	17.2	0.66	0.68	1.50	1,751.7	1179.2	0.73	
73	MASIGUN C.	0.8	114.8	154	30,530	1/198	10.13	11.1	0.66	0.44	1.38	3,647.3	1461.7	0.36	
74	—do—	0.7	115.5	154	32,180	1/209	11.02	10.5	0.66	0.41	1.37	3,666.1	1358.7	0.33	

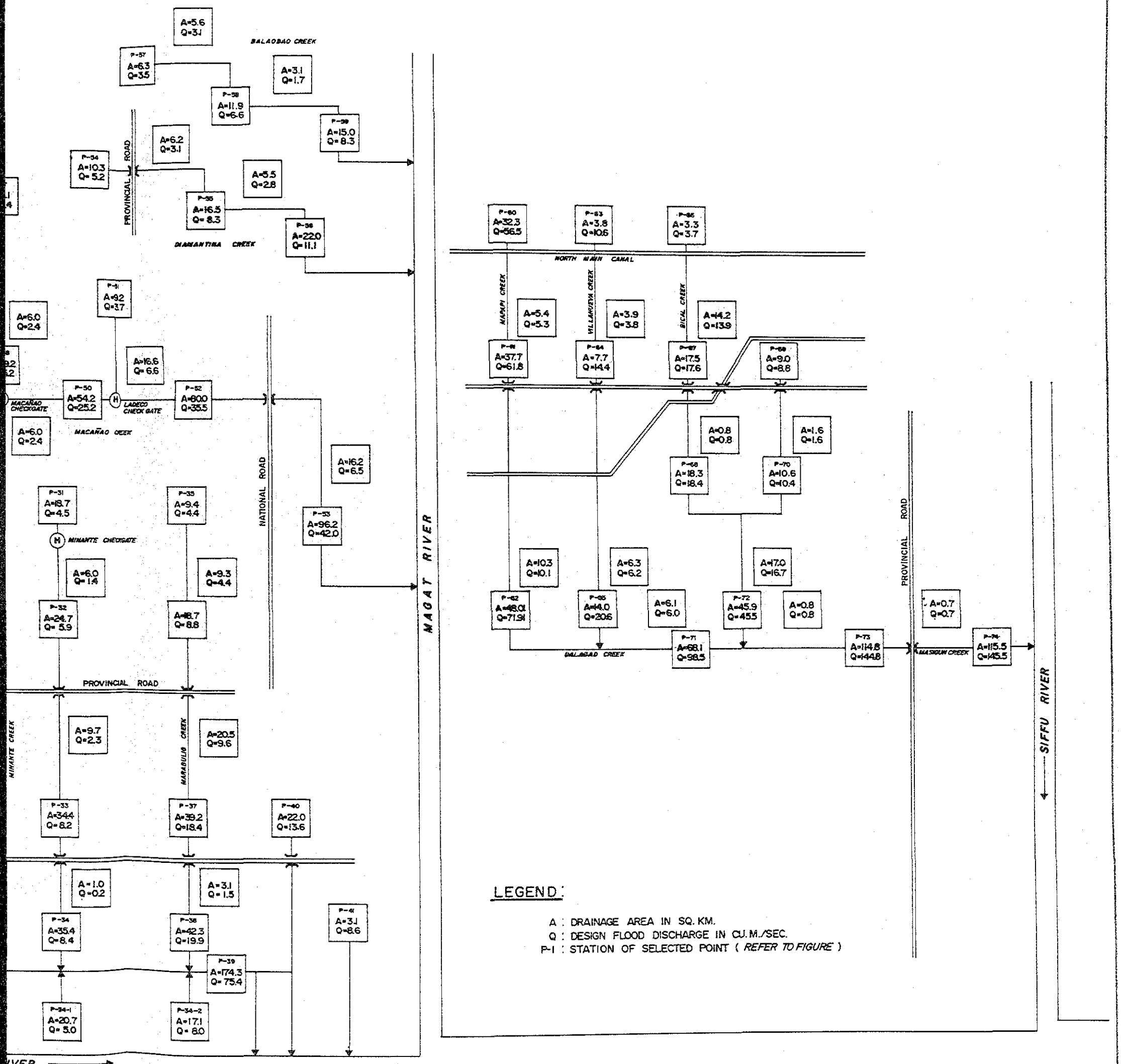
NOTE:

A — DRAINAGE AREA
H — FALL OF MAIN DRAINAGE CREEKS
L — LENGTH OF MAIN DRAINAGE CREEKS
Tc — TIME OF CONCENTRATION
Rc — RAINFALL INTENSITY FOR THE TIME OF CONCENTRATION AND FREQUENCY
C — COEFFICIENT REPRESENTING THE BASIN CHARACTERISTICS
Q — FLOOD DISCHARGE
1/ — NO INCLUSIVE OF RUN-OFF DISCHARGE FROM MOUNTENEOUS AREA (NO. 60,63, AND 66)

DRAINAGE FLOW DIAGRAM IN DR



FLOW DIAGRAM IN DRAINAGE PROBLEM AREA



LEGEND :

A : DRAINAGE AREA IN SQ. KM.
Q : DESIGN FLOOD DISCHARGE IN CU. M./SEC.
P-1 : STATION OF SELECTED POINT (*REFER TO FIGURE*)