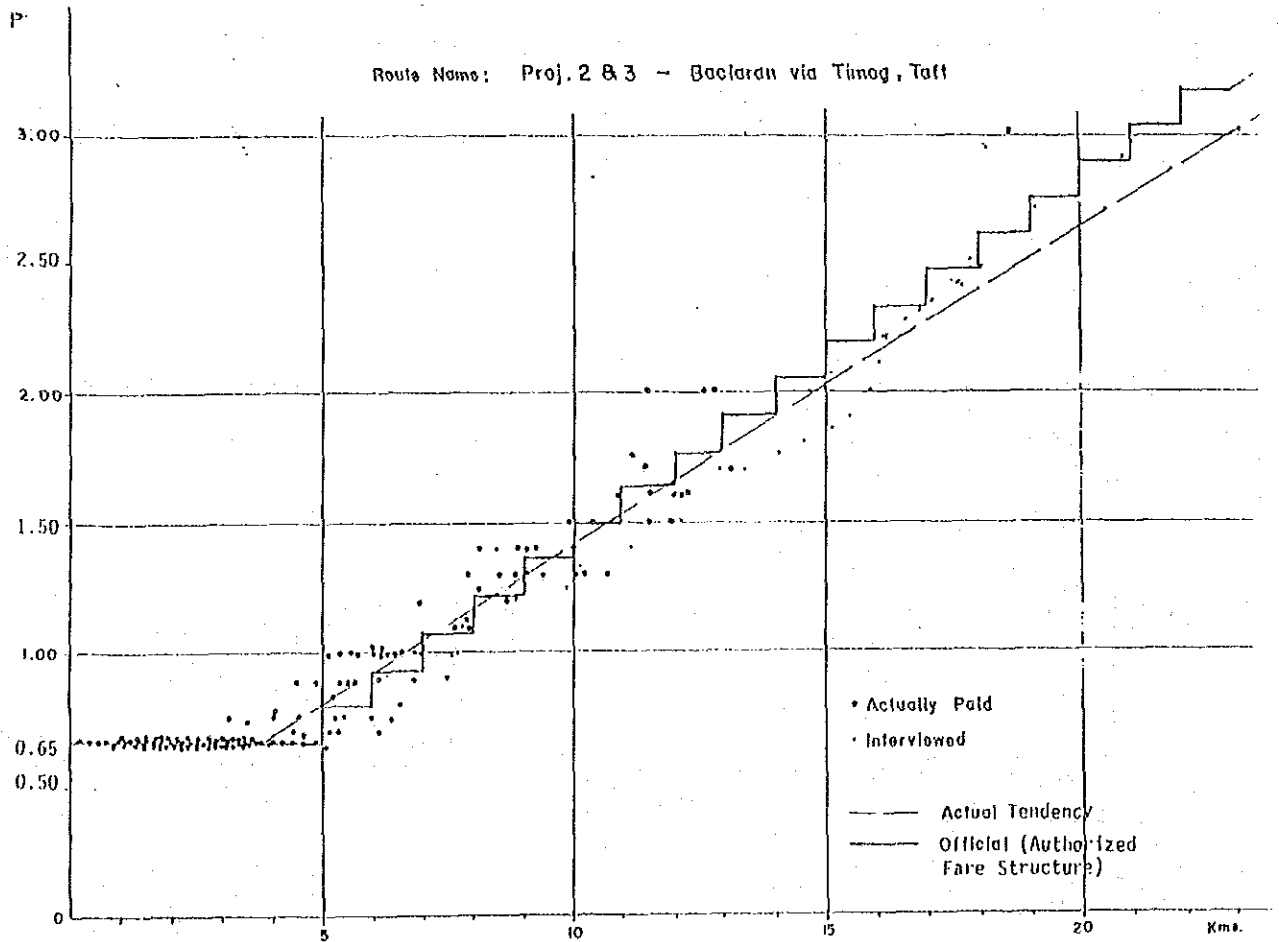
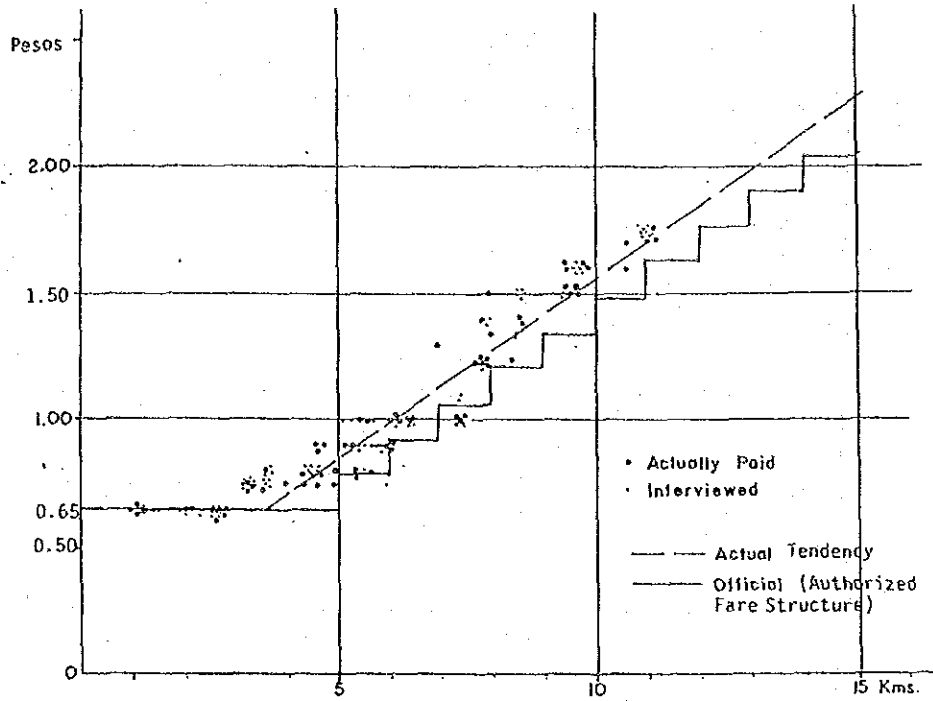


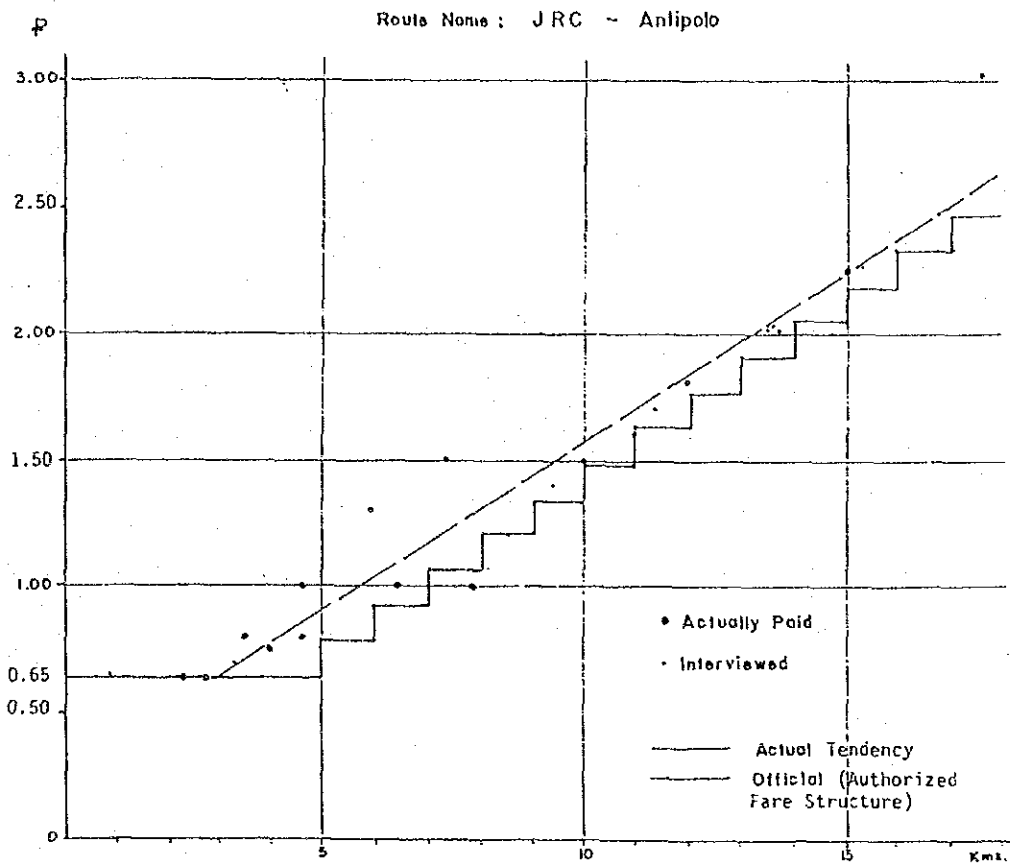
C. PUBLIC TRANSPORT ANCILLARY SURVEY RESULTS

C.1 Jeepney Fare Survey (as of April 1983)

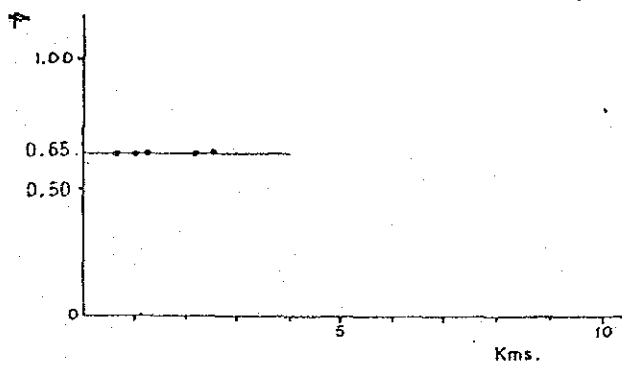
- Comparison of Actual Payment
and Authorized Structure of
Jeepney Fare -

Route Name : Blumenritt - Baclaran via Sta. Cruz / Mabini

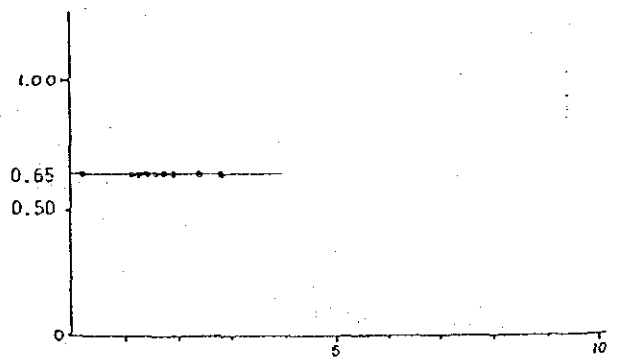




Route Name : Blumenfriff - Recto

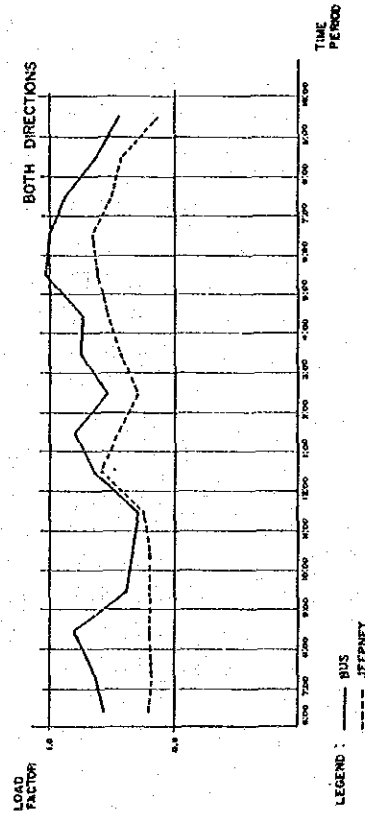
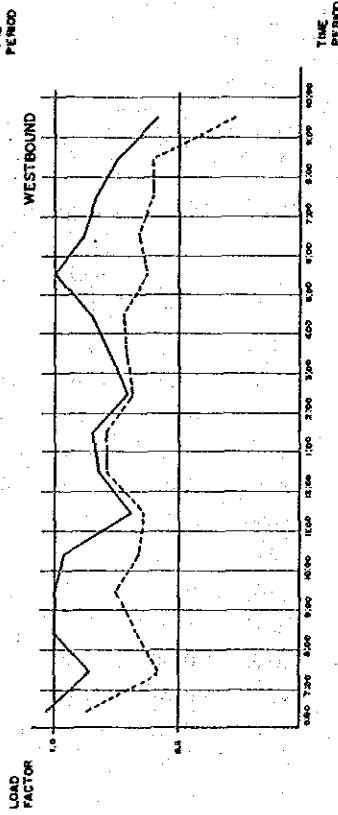
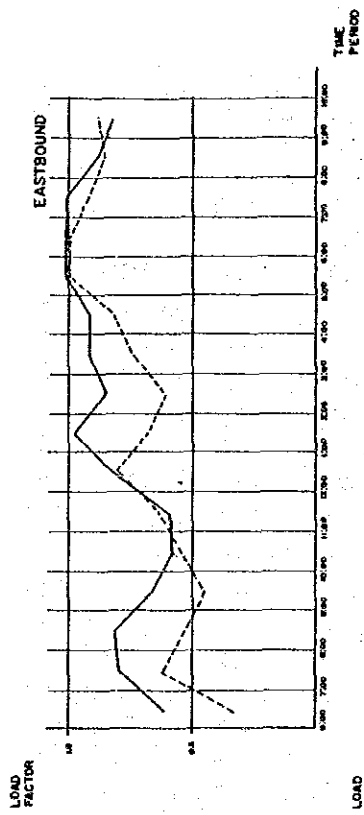


Route Name : Bai - Air - Washington

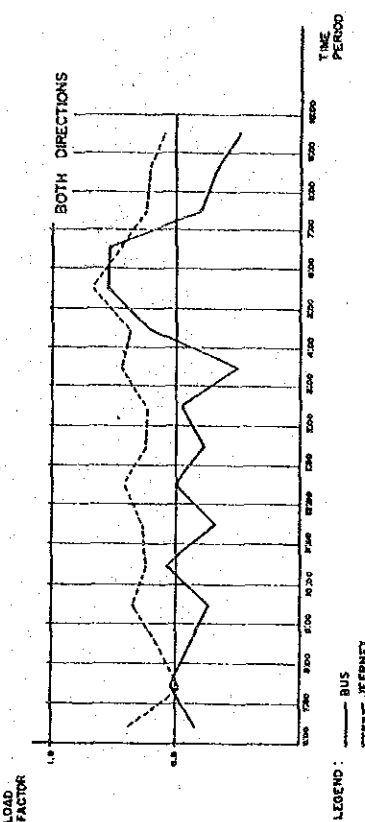
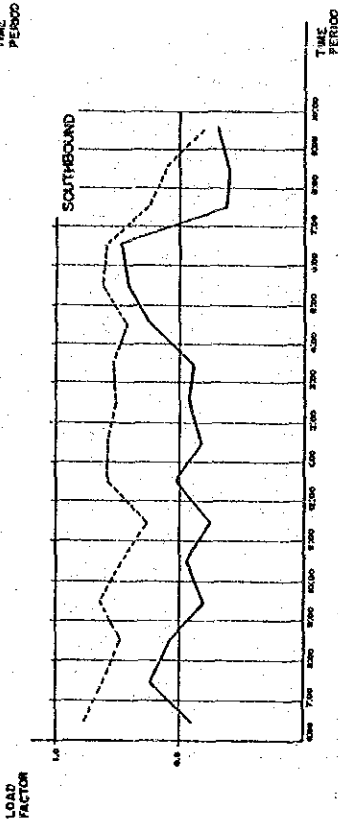
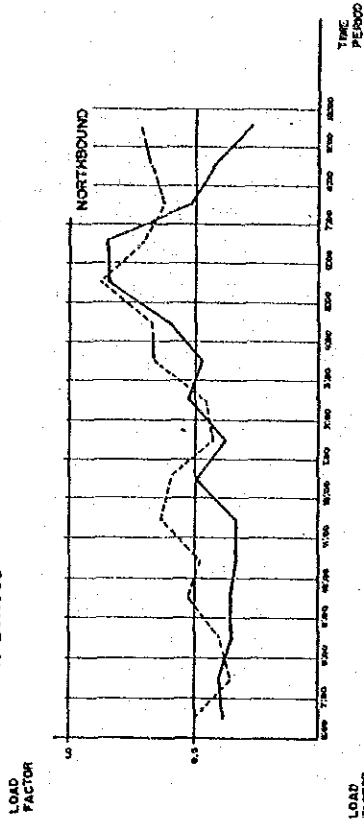


C.2 Jeepney/Bus Occupancy Survey
(As of June 1983)

R. MAGSAYSAY



P. BURGOS



LEGEND:
 — BUS
 - - - JEEPNEY

STATION NAME : R. Magsaysay Blvd.
 DATE : June 10, 23 and 27
 DIRECTION : Both Directions (Eastbound and Westbound)

Time Period	BUS 1569 Samples			JEEPNEY 3795 Samples			TOTAL 5364 Samples		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	3901	5000	0.79	2287	3720	0.61	6188	8720	0.71
7:00- 7:59	4329	5235	0.83	1991	3314	0.60	6320	8549	0.74
8:00- 8:59	5362	5850	0.92	2304	3782	0.61	7666	9632	0.80
9:00- 9:59	3665	5255	0.70	2331	3820	0.61	5996	9075	0.66
10:00-10:59	4552	6680	0.68	2270	3721	0.61	6822	10401	0.66
11:00-11:59	4584	7045	0.65	2323	3634	0.64	6907	10679	0.65
12:00-12:59	5885	7115	0.83	2911	3622	0.80	8796	10737	0.82
1:00- 1:59	6462	7090	0.91	2711	3680	0.74	9173	10770	0.85
2:00- 2:59	4919	6280	0.78	2412	3682	0.66	7331	9962	0.74
3:00- 3:59	4824	5775	0.89	2748	3742	0.73	7572	9517	0.80
4:00- 4:59	6395	7265	0.88	2898	3724	0.78	9293	10989	0.85
5:00- 5:59	7251	6580	1.10	3075	3775	0.82	10326	10335	1.00
6:00- 6:59	6782	6635	1.02	3135	3745	0.84	9917	10380	0.96
7:00- 7:59	4815	5085	0.95	2872	3750	0.77	7684	8835	0.87
8:00- 8:59	3506	4235	0.83	2722	3724	0.73	6228	7959	0.78
9:00-10:00	2794	3760	0.74	2173	3770	0.58	4967	7530	0.65
GRAND TOTAL	80026	94885	.84	41160	59185	0.70	121186	154070	0.79

STATION NAME : R. Magsaysay (infront of NCSO)
 DATE : June 23, 1983
 DIRECTION : Westbound

Time Period	BUS 753 Samples			JEEPNEY 1921 Samples			TOTAL 2674		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	1456	1055	1.38	1677	1900	.88	3133	2955	1.06
7:00- 7:59	1927	2220	0.87	1147	1938	.59	3074	4158	0.74
8:00- 8:59	2996	2450	1.06	1305	1916	.68	3901	4366	0.89
9:00- 9:59	1531	1490	1.03	1458	1920	.76	2989	3410	0.88
10:00-10:59	1654	1705	0.97	1240	1856	.67	2894	3561	0.81
11:00-11:59	2753	3990	0.69	1164	1786	.65	3917	5776	0.68
12:00-12:59	2815	3385	0.83	1402	1764	.80	4217	5149	0.82
1:00- 1:59	3104	3665	0.85	1428	1796	.80	4532	5461	0.83
2:00- 2:59	2066	2890	0.71	1286	1846	.70	3352	4736	0.71
3:00- 3:59	2557	3330	0.77	1342	1862	.72	3899	5192	0.75
4:00- 4:59	3570	4205	0.85	1378	1886	.73	4948	6091	0.81
5:00- 5:59	3676	3635	1.01	1168	1865	.63	4844	5500	0.88
6:00- 6:59	3253	3700	0.88	1233	1861	.66	4486	5561	0.81
7:00- 7:59	1941	2315	0.84	1139	1886	.60	3080	4201	0.73
8:00- 8:59	1235	1680	0.74	1139	1886	.60	2374	3566	1.67
9:00-10:00	744	1280	0.58	505	1878	.27	1249	3158	0.40
GRAND TOTAL	36878	42995	0.86	20011	29846	0.67	56889	72841	0.78

STATION NAME : R, Magsaysay
 DATE : June 10, 23 & 27, 1983
 DIRECTION : East Bound

Time Period	BUS : 906 Samples			JEEPNEY : 1,874 Samples			TOTAL		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	2445	3945	0.61	610	1802	0.33	3055	5765	0.53
7:00- 7:59	2402	3015	0.79	844	1376	0.61	3246	4291	0.74
8:00- 8:59	2766	3400	0.81	999	1866	0.54	3765	5266	0.71
9:00- 9:59	2134	3765	0.56	873	1900	0.46	2007	5665	0.53
10:00-10:59	2898	4975	0.58	1030	1865	0.55	3928	6840	0.57
11:00-11:59	1831	3055	0.59	1159	1848	0.63	2990	4903	0.61
12:00-12:59	3070	3730	0.82	1509	1858	0.81	4579	5588	0.82
1:00- 1:59	3358	3425	0.98	1283	1884	0.68	4641	5309	0.87
2:00- 2:59	2853	3390	0.84	1126	1836	0.61	3979	5226	0.76
3:00- 3:59	2267	3445	0.92	1406	1880	0.74	3673	4325	0.85
4:00- 4:59	2825	3060	0.92	1520	1838	0.82	4345	4898	0.89
5:00- 5:59	5575	2945	1.21	1907	1890	1.01	5482	4835	1.13
6:00- 6:59	3529	2935	1.20	1902	1884	1.01	5431	4819	1.13
7:00- 7:59	2874	2770	1.04	1733	1864	0.93	4607	4634	0.99
8:00- 8:59	2271	2555	0.88	1583	1838	0.86	3854	4393	0.88
9:00-10:00	2050	2480	0.82	1668	1892	0.88	3718	4372	0.85
GRAND TOTAL	43148	51890	0.83	21152	29339	0.72	64300	81229	0.79

STATION NAME : P. Burgos
 DATE : June 21, 1983
 DIRECTION : Southbound & North bound (BOTH DIRECTIONS)

Time Period	BUS 2812 Samples			JEEPNEY 3683 Samples			TOTAL		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	4780	11100	0.43	2480	3549	.70	7260	14549	0.50
7:00- 7:59	5562	10795	0.51	2085	3639	.48	7647	14434	0.51
8:00- 8:59	5512	12125	0.45	2125	3676	.58	7637	15801	0.48
9:00- 9:59	5022	13170	0.38	2708	4007	.68	7730	17177	0.45
10:00-10:59	4850	9115	0.53	2204	3552	.62	7054	12667	0.56
11:00-11:59	4281	11955	0.35	2151	3401	.63	6432	15356	0.42
12:00-12:59	6059	11890	0.50	2434	3440	.71	8493	15330	0.55
1:00- 1:59	5009	12455	0.40	2196	3480	.63	7205	15935	0.45
2:00- 2:59	5695	11425	0.49	2251	3588	.63	7946	15013	0.53
3:00- 3:59	3492	12485	0.27	2723	3701	.74	6215	16186	0.38
4:00- 4:59	7288	11635	0.62	2459	3497	.70	9747	15132	0.64
5:00- 5:59	9746	12225	0.79	3090	3582	.86	12836	15807	0.81
6:00- 6:59	10273	12880	0.79	2677	3513	.76	12950	16393	0.79
7:00- 7:59	4731	11380	0.41	2238	3494	.64	6969	14874	0.47
8:00- 8:59	2223	5915	0.37	2132	3407	.63	4355	9322	0.47
9:00-10:00	1313	4740	0.27	1913	3432	.56	3226	8172	0.39
GRAND TOTAL	85836	175190	0.48	37866	56958	0.66	123702	232148	0.53

STATION NAME : P. Burgos cor. Concepcion
 DATE : June 9, 21, 22, 1983
 DIRECTION : Northbound

Time Period	BUS 1472 Samples			JEEPNEY 1747 samples			TOTAL 3219		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	1836	4625	0.39	862	1723	0.50	2698	6348	0.42
7:00- 7:59	1527	3800	0.40	675	1892	0.36	2202	5692	0.38
8:00- 8:59	2157	5935	0.36	744	1842	0.40	2901	7777	0.37
9:00- 9:59	2301	6380	0.36	989	1906	0.52	3290	8286	0.39
10:00-10:59	2139	6300	0.33	843	1728	0.48	2982	8028	0.37
11:00-11:59	1606	6016	0.33	1017	1597	0.63	2673	6612	0.40
12:00-12:59	2632	5225	0.52	961	1588	0.60	3593	6813	0.52
1:00- 1:59	2173	5575	0.38	694	1598	0.43	2867	7173	0.39
2:00- 2:59	2483	4690	0.52	816	1726	0.47	3299	6216	0.51
3:00- 3:59	2697	5535	0.48	1247	1836	0.67	3944	7371	0.53
4:00- 4:59	3230	5205	0.62	1141	1669	0.68	4371	6874	0.63
5:00- 5:59	5386	6095	0.86	1577	1758	0.89	6863	7853	0.87
6:00- 6:59	4963	5750	0.86	1164	1647	0.71	6127	7387	0.82
7:00- 7:59	2629	5045	0.52	1104	1718	0.64	3733	6763	0.55
8:00- 8:59	1374	3155	0.43	1100	1589	0.69	2474	4744	0.52
9:00-10:00	734	2500	0.29	1152	1590	0.72	1886	4090	0.46
TOTAL	39817	80830	0.49	16086	27397	0.58	55903	108227	0.51

STATION NAME : P. Burgos (infront of City Hall)
 DATE : June 21, 1983
 DIRECTION : Southbound

Time Period	BUS 1340 Samples			JEEPNEY 1936 Samples			TOTAL		
	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor	Total No. of Pass.	Total No. of Seats	Load Factor
6:00- 6:59	2944	6475	.46	1618	1826	0.89	4562	8301	0.55
7:00- 7:59	4035	6995	.61	1410	1747	0.81	5445	8742	0.62
8:00- 8:59	3355	6190	.54	1381	1834	0.75	4736	8024	0.59
9:00- 9:59	2721	6790	.40	1719	2101	0.82	4440	8891	0.50
10:00-10:59	2711	2815	.47	1361	1824	0.75	4072	4639	0.88
11:00-11:59	2625	6940	.38	1134	1804	0.63	3759	8744	0.43
12:00-12:59	3427	6665	.51	1473	1852	0.80	4900	8517	0.58
1:00- 1:59	2836	6880	.41	1502	1882	0.80	4338	8762	0.50
2:00- 2:59	3212	6735	.48	1435	1862	0.77	4647	8597	0.54
3:00- 3:59	795	6950	.46	1476	1865	0.79	2271	8815	0.26
4:00- 4:59	4058	6430	.63	1318	1828	0.72	5376	8258	0.65
5:00- 5:59	4460	6130	.73	1513	1824	0.83	5973	7954	0.75
6:00- 6:59	5310	7130	.75	1513	1876	0.81	6823	9006	0.76
7:00- 7:59	2102	6335	.33	1134	1776	0.64	3236	8111	0.40
8:00- 8:59	849	2760	.31	1032	1818	0.57	1881	4578	0.41
9:00-10:00	579	2240	.36	761	1842	0.41	1340	4082	0.33
TOTAL	46019	94460	.49	21780	29561	0.74	67799	124021	0.55

C.3 Jeepney Units Utilization Survey
(As of September 1983)

Sample Survey on Jeepney Utilization (Operator A)

Sampled Jeepney Units	Operating Record (Time Period)							Number of Day's Operated	Hours Operated		No. of Drivers Assigned
	June 6(Mon)	7(Tue)	8(Wen)	9(Thu)	10(Fri)	11(Sat)	12(Sun)		Week	Ave. Daily	
	6-20-14	6-20-14	6-20-14	6-20-14	6-20-14	6-20-14	6-20-14	7	99	14.1	1
	not operated	not operated	6-20-14	6-20-14	6-20-14	6-20-14	not operated	4	56	8.0	1
	6-20-14	6-20-14	6-20-14	6-20-14	not operated	not operated	not operated	4	56	8.0	1
	6-20-14	6-20-14	6-20-14	6-20-14	6-20-14	not operated	not operated	5	70	10.0	1
	6-20-14	6-20-14	6-20-14	6-20-14	6-20-14	not operated	not operated	5	70	10.0	1
	12-20-14	6-20-14	6-20-14	6-20-14	6-20-14	not operated	not operated	5	63	9.0	1
	6-20-14	6-20-14	6-20-14	6-20-14	6-12-14	not operated	not operated	5	62	8.9	1
	not operated	not operated	not operated	6-20-14	6-20-14	6-20-14	not operated	3	42	6.0	1
	6-20-14	6-20-14	not operated	not operated	not operated	6-20-14	6-20-14	4	56	8.0	1
	not operated	not operated	not operated	6-21-15	6-21-15	6-21-15	6-21-15	4	60	8.6	1
	6-21-15	not operated	not operated	not operated	not operated	not operated	6-21-15	2	30	4.3	1

Not Known
General Repair
Overhauling

Sample Survey on Jeepney Utilization (Operator B)

Sampled Jeepney Units	Operating Record (Time Period)							Number of Day's Operated	Hours Operated		No. of Drivers Assigned
	June 6(Mon)	7(Tue)	8(Wen)	9(Thu)	10(Fri)	11(Sat)	12(Sun)		Week	Ave. Daily	
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	not operated	6	90	12.9	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2
	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	5-20-15	7	105	15.0	2

Under Major Repair

Sample Survey on Drivers Working Shift and Hour (Operator B)

Jeepney Unit	Name of Driver	Working Hours							Total No. of Working Days
		June 6 (Mon)	7 (Tue)	8 (Wed)	9 (Thu)	10 (Fri)	11 (Sat)	12 (Sun)	
1.		5-20 15	5-20 15	5-20 15	5-20 15	not operated	not operated	5-20 15	5
		not worked	not worked	worked for NVS 400	5-20 15	5-20 15	5-20 15	not worked	2
2.		5-20 15	5-20 15	5-20 15	5-20 15	not worked	not worked	not worked	4
		worked for NVS 800	not worked	not worked	not worked	5-20 15	5-20 15	worked for NVS 800	2
3.		5-20 15	not worked	5-20 15	not worked	5-20 15	not worked	5-20 15	4
		not worked	5-20 15	not worked	5-20 15	not worked	5-20 15	not worked	3
4.		5-20 15	5-20 15	5-20 15	5-20 15	5-20 15	5-20 15	7	
5.		not worked	not worked	5-20 15	5-20 15	5-20 15	5-20 15	not worked	4
6.		5-20 15	5-20 15	not worked	not worked	not worked	not worked	5-20 15	3
		5-20 15	5-20 15	not worked	not worked	5-20 15	5-20 15	5-20 15	5
7.		not worked	not worked	5-20 15	5-20 15	5-20 15	5-20 15	not worked	
		not worked	not worked	5-20 15	5-20 15	5-20 15	5-20 15	not worked	
8.		5-20 15	not worked	not worked	not worked	worked for HWK699	5-20 15	2	

under major repair

C.4 Jeepney Passenger Walking Distance Survey
(As of June 1983)

Walking Distance Distribution
by Station

Walking Distance (m)	Monumento	T.M. Kalaw	Baclaran	Total
0-49	10 (3.2)	1 (0.3)	11 (3.6)	22 (2.4)
50-99	62 (19.7)	9 (3.0)	24 (7.8)	95 (10.3)
100-149	76 (24.2)	26 (8.7)	40 (13.0)	142 (15.5)
150-199	48 (15.3)	25 (8.4)	50 (16.3)	123 (13.4)
200-249	49 (15.6)	49 (16.4)	48 (15.6)	146 (15.9)
250-299	11 (3.5)	44 (14.8)	47 (15.3)	102 (11.1)
300-349	15 (4.8)	44 (14.8)	30 (9.8)	89 (9.7)
350-399	20 (6.4)	32 (10.7)	13 (4.2)	65 (7.1)
400-449	11 (3.5)	23 (7.7)	12 (3.9)	46 (5.0)
450-499	2 (0.6)	9 (3.0)	6 (2.0)	17 (1.8)
500-599	7 (2.2)	26 (8.7)	15 (4.9)	48 (5.2)
600-699	2 (0.6)	8 (2.7)	1 (0.3)	11 (1.2)
700-799	0 (-)	2 (0.7)	2 (0.7)	4 (0.4)
800-899	0 (-)	0 (-)	5 (1.6)	5 (0.5)
900-999	0 (-)	0 (-)	3 (1.0)	3 (0.3)
1000-	1 (0.3)	0 (-)	0 (-)	1 (0.1)
Total	314 (100.0)	298 (100.0)	307 (100.0)	919 (100.0)
Average	193	310	256	252

C.5 Jeepney Drivers Interview Survey
(As of June 1983)

RESULT OF JEEPNEY DRIVERS/INTERVIEW SURVEY

Route Category/ Length (kms)	No. of Routes	No. of Samples	No. of Round Trips/Day	Average Kms. Running/Day	Working Hours/Day	Working Days/Week	No. of Drivers/Week	Vehicle Operating Days/Week	Average Fare Revenue/Day (P)	Average Bound-ary	Average Fuel/Oil	Misc.	Total	Average Income/Day (P)
INTRA CITY														
- 2.5	11	80	11	90	16	5	2	6	193	85	45	26	154	57
- 5.0	24	184	11	87	12	4	2	7	210	89	50	24	164	57
- 7.5	12	74	10	125	13	4	2	7	246	87	64	28	177	58
- 10.0	13	81	11	87	12	4	2	7	235	93	66	27	186	67
- 15.0	48	297	10	90	13	4	2	7	261	99	74	24	197	69
- 20.0	28	157	10	142	12	4	2	7	272	98	75	31	204	76
- 25.0	1	5	10	143	13	4	2	6	276	102	81	20	203	69
- 30.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 35.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 40.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Above	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*Total	137	878	10	109	13	4	2	7	243	94	65	26	185	66
INTER CITY														
- 2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 15.0	1	5	6	158	16	3	2	7	266	98	72	19	189	52
- 20.0	1	5	10	328	16	4	2	7	246	73	62	23	198	56
- 25.0	2	15	10	330	16	4	2	7	287	112	85	24	221	65
- 30.0	2	15	2	108	15	4	2	7	261	114	107	21	242	59
- 35.0	3	20	9	329	14	4	2	6	242	95	88	26	200	50
- 40.0	1	5	2	150	13	5	2	6	249	97	52	17	166	60
Above	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*Total	10	65	9	301	15	4	2	7	260	102	86	23	208	57
** TOTAL														
- 2.5	11	80	11	90	16	5	2	6	193	85	45	26	154	57
- 5.0	24	184	11	87	12	4	2	7	210	89	50	24	164	57
- 7.5	12	74	10	125	13	4	2	7	246	87	64	28	177	58
- 10.0	13	81	11	87	12	4	2	7	235	93	66	27	186	67
- 15.0	49	302	10	93	13	4	2	7	261	99	74	24	196	68
- 20.0	29	162	10	172	12	4	2	7	271	98	74	31	203	76
- 25.0	3	20	10	181	15	4	2	7	284	110	84	23	217	66
- 30.0	2	15	2	108	15	4	2	7	261	114	107	21	242	59
- 35.0	3	20	9	329	14	4	2	6	242	95	88	26	200	50
- 40.0	1	5	2	150	13	5	2	6	249	97	52	17	166	60
Above	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*Total	147	943	10	130	13	4	2	7	244	94	66	25	186	65

1/ As interviewed (not calculated)

C.6 Vehicle Operating Cost Survey
(As of June 1983)

LIST OF TABLES AND FIGURES

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Table 11	Annual License Fees
Table 12	Vehicle Operating Cost (P/km) on Level, Straight, and Paved Road
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ESTIMATE OF VEHICLE OPERATING COST

1. INTRODUCTION

- This paper presents the methodology and the best current estimated vehicle operating cost of different vehicle types.

2. METHODOLOGY

2.1 Basic Assumptions

- Vehicle Operating Cost Component: Vehicle operating cost is composed of:
 - (1) Fuel consumption
 - (2) Engine oil consumption
 - (3) Tire wear
 - (4) Depreciation
 - (5) Interest on capital
 - (6) Crew cost
 - (7) Insurance
 - (8) License and registration fees
 - (9) Overhead/Administrative Cost
- Vehicle Type Selected: are :
 - (1) Passenger Car : Toyota CORONA 4-door 1600cc
 - (2) Jeepney : ISUZU KC 20 2,700 kgGVW
 - (3) Big Bus : HINO RS 820 14,200 kgGVW
- Prices/Basic Cost Inputs: are shown in Table 1. The prices given are as of June 1983, except fuel and oil (as of September, 1983).
- Basic Operating Characteristics of Representative Vehicle: are as shown in Table 2 below.

Table 2
Basic Operating Characteristics
of Representative Vehicles

Vehicle Type	Average years of Service	Average Annual Kilometrage	Average Lifetime Kilometrage
Passenger Car	10	18,000	180,000
Jeepney	7	40,500	283,500
Big Bus	8	60,000	480,000

TABLE I
Prices of Cost Items of
Representative Vehicles

ITEM	Passenger Car	Jeepney	Big Bus
1. Vehicle Price ^{1/}	Toyota Corona	Isuzu KC 20	HINO RS 820
1) Representative Model	4-door 1600cc	2,700 kgGVW	14,200 kgGVW
2) With Tax (P)	73,500	67,000	305,500
3) W/o Tax (P)	59,535	58,290	260,687
2. Tire Price (One Set)			
1) Type	5.6 - 13.4 PRT	6.0-16.6 PRT	10.0-20.1 PRT
2) With Tax (P)	1,053	1,949	12,918
3) W/o Tax (P)	948	1,754	11,627
3. Fuel Price ^{2/}			
1) Type	Premium Gas	Diesel	Diesel
2) With Tax (P/liter)	5.47	3.43	3.43
3) W/o Tax (P/liter)	3.77	2.98	2.98
4. Engine Oil Price ^{2/}			
1) Type	Caltex CX The Fuel Saver OIL SAE 15W-40	Supreme Five Star	RPM Delo 100 SAE 30
2) With Tax (P/liter)	18.50	14.50	13.50
3) W/o Tax (P/liter)	16.05	11.70	12.70
5. Insurance Cost			
1) Type	comprehensive		
2) With Tax (P/year)	3,200	2,110	15,000
6. License Fees (With Tax)			
1) Driver's License	6	6	6
2) Registration Fee	300	375	1,680
3) Emery Tax	250	-	-
4) Common Carrier Tax	-	1,400	4,400
5) Total (P/year)	556	1,781	6,086
7. Crew Cost			
1) Type	-	Driver	Driver + Conductor
2) With Tax (P/month)	-	1,100	3,193
3) W/o Tax (P/month)	-	1,073	2,996
8. Maintenance Cost			
8.1 Spare Parts			
1) Assumptions	2.5% of depre- ciable value of vehicle	10% of depre- ciable value of vehicle	8% of depre- ciable value of vehicle
2) With Tax (P/year)	1,838	6,700	24,440
3) W/o Tax (P/year)	1,488	5,829	20,855
8.2 Labor			
1) Assumptions	70 hr/year	200 hr/year	300 hr/year
2) With Tax (P/year)	928	2,650	3,975
3) W/o Tax (P/year)	900	2,570	3,856
8.3 Total Annual Maintenance Cost			
1) With Tax (P/year)	2,766	9,350	28,415
2) W/o Tax (P/year)	2,388	8,399	24,711
9. Overhead/Administrative Cost			
1) Assumptions	-	10% of all other cost	20% of all other cost

^{1/} including a set of tires

^{2/} prices of fuel and engine oil are those of September, 1983.

2.2 Calculation Methods

- Calculation methods for each cost item are as follows:

- Depreciation Cost (CD)

$$CD = \frac{3P}{L(1 + \frac{2V}{A})}$$

where : CD = depreciation cost (P/km)
P = depreciable value of the vehicle (P)
L = average lifetime kilometrage (km)
A = average running speed of the vehicle (km/hr)
V = specific running speed of the vehicle (km/hr)

- Interest Cost (CI)

$$CI = \left[\frac{R + (1+R)^T}{(1+R)^T - 1} - \frac{1}{T} \right] \cdot \frac{3P}{B \left(1 + \frac{2V}{A} \right)}$$

where : CI = interest cost (P/km)
P = depreciable value of the vehicle (P)
R = interest rate (0.15)
T = average years of service (yr)
B = average annual kilometrage (km/yr)
A = average running speed (km/yr)
V = specific running speed (km/hr)

- Fuel Consumption Cost (CF)

$$CF = PF \times FC$$

where : CF = fuel cost (P/km)
PF = price of fuel (P/liter)
FC = fuel consumption rate (liters/km)

$$FC \text{ (Passenger Car)} = \frac{1}{1000} \left(37.2 + \frac{1312}{v} + 0.0060 v^2 \right)$$

$$FC \text{ (Jeepney)} = \frac{1}{1000} \left(39.4 + \frac{1929}{v} + 0.0122 v^2 \right)$$

$$FC \text{ (Big Bus)} = \frac{1}{1000} \left(-3.0 + \frac{10146}{v} + 0.0310 v^2 \right)$$

where : V = Specific running speed of the vehicle (km/hr)

Table 3
Fuel Consumption Rates on
Level, Straight, Paved Road

Specific Speed (V) (km./hr.)	Fuel Consumption Rates (FC: liters/km)		
	Passenger Car	Jeepney	Big Bus
5	0.300	0.426	2.027
10	0.169	0.234	1.015
15	0.126	0.171	0.680
20	0.105	0.141	0.517
25	0.093	0.124	0.422
30	0.086	0.115	0.363
35	0.082	0.109	0.325
40	0.080	0.107	0.300
45	0.079	0.107	0.285
50	0.078	0.108	0.277
55	0.079	0.111	0.275
60	0.081	0.115	0.278
65	0.083	0.121	0.284
70	0.085	0.127	0.294

• Oil Consumption Cost (CO)

$$CO = PO \times OC$$

where : CO = oil consumption cost (P/km)
 PO = price of engine oil (P/liter)
 OC = engine oil consumption rate (liter/km)

Table 4
Engine Oil Consumption Rate on
Level, Straight, Paved Roads

Specific Speed (V) (km./hr)	Engine Oil Consumption Rate by Vehicle (OC: liters/km)		
	Passenger Car	Jeepney	Big Bus
0 < 20	0.0016	0.0030	0.0033
20 ≤ 30	0.0014	0.0026	0.0029
30 ≤ 60	0.0011	0.0021	0.0029
60 ≤ 80	0.0011	0.0016	0.0018

• Tire Wear Cost (CT)

$$CT = PT \times TW$$

where : CT : tire wear cost (P/km)
 PT : price of a set of tires (P)
 TW : tire wear rate (% wear of one tire/km)

$$\begin{aligned}
 \text{TW (Passenger Car)} &= 0.000858 \cdot e^{0.028078 V} \\
 \text{TW (Jeepney)} &= 0.001303 \cdot e^{0.028241 V} \\
 \text{TW (Big Bus)} &= 0.000815 \cdot e^{0.028916 V}
 \end{aligned}$$

Table 5
Tire Wear Rates on Level,
Straight Paved Roads

Specific Speed (V) (km./hr.)	Tire Wear Rates (TW: % wear of one tire/km.)		
	Passenger Car	Jeepney	Big Bus
5	0.0010	0.0015	0.0009
10	0.0011	0.0017	0.0011
15	0.0013	0.0020	0.0013
20	0.0015	0.0023	0.0015
25	0.0017	0.0026	0.0017
30	0.0020	0.0030	0.0019
35	0.0023	0.0035	0.0022
40	0.0026	0.0040	0.0026
45	0.0030	0.0046	0.0030
50	0.0035	0.0053	0.0035
55	0.0040	0.0062	0.0040
60	0.0046	0.0071	0.0046
65	0.0053	0.0082	0.0053
70	0.0061	0.0094	0.0062

Table 6
Life Kilometrage of Tire

Vehicle Type	Ave. Running Speed (km./hr)	Life Kilometrage of Tire (km.)	
		Calculated	Reported
Passenger Car	40	37,900	40,000
Jeepney	20	43,300	40,000
Big Bus	25	59,600	60,000

• Maintenance and Repair Cost (CM)

$$CM = P \times SP + HL \times WM$$

where : CM = maintenance and repair cost (P/km)
P = depreciable value of the vehicle (P)
SP = spare parts cost for the the vehicle
(% of depreciable value of the vehicle/km)
HL = hours of maintenance labor for the vehicle (hr/km)
WM = hourly labor costs for maintenance work (P/hr);
P5.79/hr.

Table 7
Maintenance Spare Parts Costs on Level
Straight, Paved Roads

Specific Speed (V) (km/hr)			Spare Parts Costs (SP: % of depreciable value of vehicle/Kilometer)		
			Passenger Car	Jeepney	Big Bus
0	<	20	0.00009	0.00012	0.00013
20	≤	40	0.00012	0.00015	0.00015
40	≤	60	0.00014	0.00017	0.00017
60	≤	80	0.00015	0.00019	0.00021

Table 8
Hours of Maintenance Labor on
Level, Straight, Paved Roads

Specific Speed (V) (km/hr)			Hours of Labor (HL: hours per kilometer)		
			Passenger Car	Jeepney	Big Bus
0	<	20	0.00279	0.00272	0.00457
20	≤	40	0.00319	0.00292	0.00500
40	≤	60	0.00359	0.00333	0.00588
60	≤	80	0.00412	0.00379	0.00713

• Crew Cost (CC)

$$CC = \frac{12W}{B} \times \frac{A}{V}$$

where : CC = crew cost (₱/km)
W = monthly crew wage of the vehicle (₱/month)
A = average running speed of the vehicle (km/hr)
B = average annual kilometrage of the vehicle (km/yr)
V = specific running speed of the vehicle (km/hr)

Table 9
Average Monthly Crew Wages including Allowances

Vehicle Type	Pesos/month		
	Driver	Conducted	Total
Jeepney	1100	-	1100
Big Bus	1733	1460	3193

- Insurance Cost (CI)

$$CI = \frac{IC}{B} \times \frac{A}{V}$$

where : CI = insurance cost (P/km)
 IC = annual insurance cost of the vehicle (P/yr)
 A = average running speed of the vehicle (km/hr)
 B = average annual kilometrage of the vehicle (km/yr)
 V = specific running speed of the vehicle (km/hr)

Table 10
Annual Insurance Premium

Vehicle Type	Pesos/year
Passenger Car	3,200
Jeepney	2,110
Big Bus	15,000

- License and Registration Cost (CL)

$$CL = \frac{LC}{B} \times \frac{A}{V}$$

where : CL = license and registration cost (P/km)
 LC = annual license and registration cost (P/yr)
 A = average running speed of the vehicle (km/hr)
 B = average annual kilometrage of the vehicle (km/yr)
 V = specific running speed of the vehicle (km/hr)

Table 11
Annual License Fees

Vehicle Type	Annual License Fees (LC : P/year/vehicle)				Total
	Driver's License	Registration Fee	Energy Tax	Common Carrier Tax	
Passenger Car	6	300	250	-	556
Jeepney	6	375	-	1400	1781
Big Bus	6	1680	-	440	6086

3. Results

- The results are summarised in Table 12 and Figure 1.

Table 12
Vehicle Operating Cost (P/km)
on Level, Straight and Paved Road

PASSENGER CAR

Cost Item	Vehicle Operating Cost by Speed (Km/hr)							% to Total		
	5	10	15	20	30	40	50	VOC at 10 KPH	VOC at 20 KPH	VOC at 40 KPH
1. Depreciation	0.966	0.805	0.690	0.604	0.483	0.402	0.345	23.2	25.8	24.9
2. Interest	0.959	0.799	0.685	0.599	0.479	0.399	0.342	23.0	25.6	24.7
3. Tire wear	0.011	0.011	0.014	0.016	0.021	0.027	0.037	0.3	0.7	1.7
4. Fuel	1.541	0.924	0.689	0.575	0.471	0.438	0.427	26.6	24.6	27.1
5. Oil	0.030	0.030	0.030	0.026	0.020	0.020	0.020	0.9	1.1	1.2
6. Maintenance	0.081	0.081	0.081	0.105	0.105	0.122	0.122	2.3	4.5	7.6
7. Crew	-	-	-	-	-	-	-	-	-	-
8. Insurance	1.422	0.711	0.474	0.356	0.237	0.178	0.142	20.4	15.2	11.0
9. Licenses	0.233	0.116	0.077	0.058	0.039	0.029	0.023	3.3	2.5	1.8
10. Sub-Total	5.343	3.477	2.740	2.339	1.855	1.615	1.458	100.0	100.0	100.0
11. Overhead	-	-	-	-	-	-	-	-	-	-
12. TOTAL	5.343	3.477	2.740	2.339	1.855	1.615	1.458	100%	100%	100%

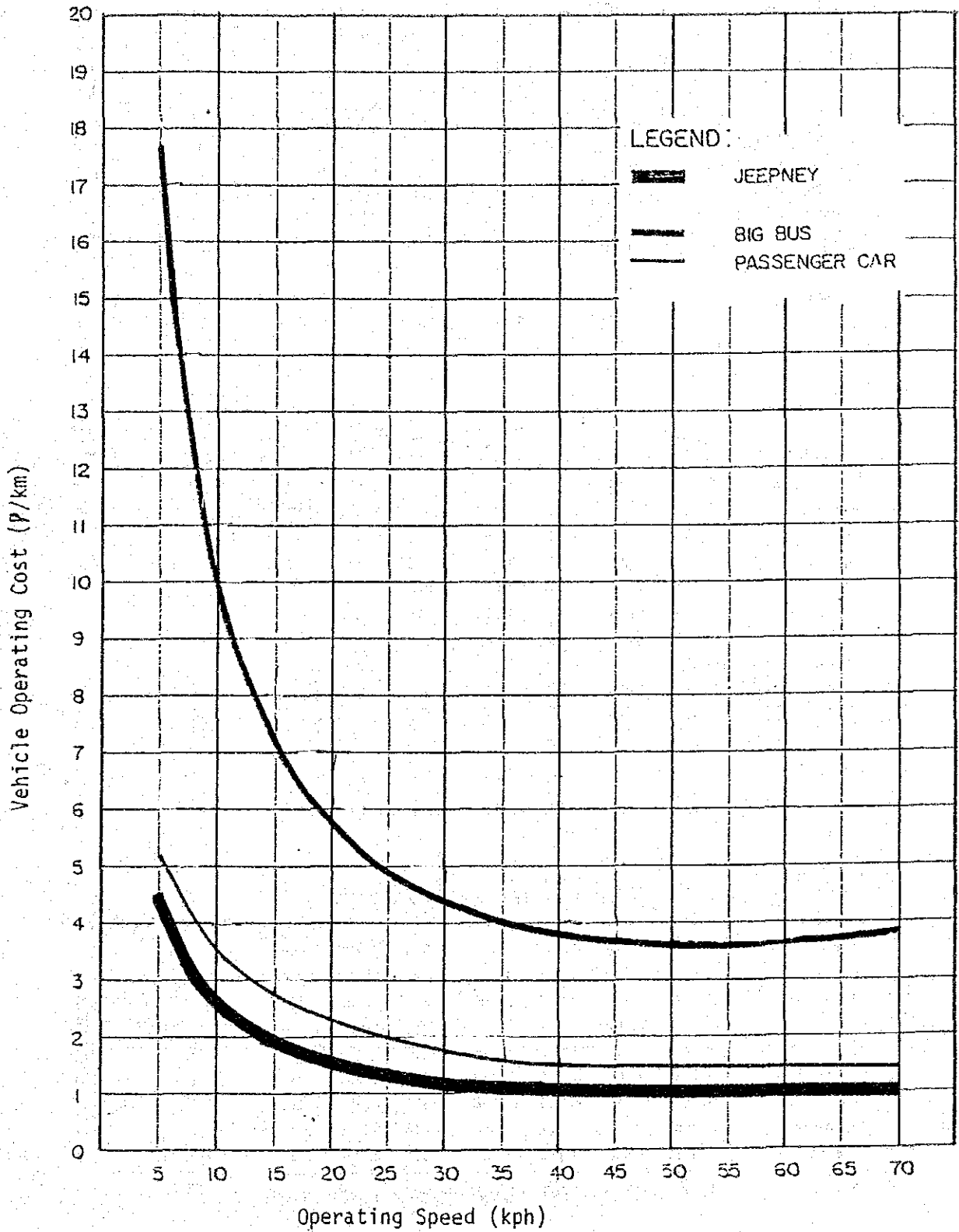
JEEPNEY

Cost Item	Vehicle Operating Cost by Speed (Km/hr)							% to Total		
	5	10	15	20	30	40	50	VOC at 10 KPH	VOC at 20 KPH	VOC at 40 KPH
1. Depreciation	0.459	0.344	0.275	0.229	0.172	0.138	0.115	13.1	14.1	12.1
2. Interest	0.313	0.235	0.188	0.157	0.117	0.094	0.078	9.0	9.7	8.2
3. Tire wear	0.029	0.033	0.039	0.045	0.058	0.078	0.103	1.3	2.8	6.8
4. Fuel	1.461	0.803	0.587	0.484	0.395	0.367	0.371	30.5	29.9	32.1
5. Oil	0.031	0.031	0.031	0.026	0.021	0.021	0.021	1.2	1.6	1.8
6. Maintenance	0.094	0.094	0.094	0.115	0.115	0.130	0.130	3.6	7.1	11.4
7. Crew	1.304	0.652	0.436	0.326	0.217	0.163	0.130	24.9	20.1	14.3
8. Insurance	0.208	0.104	0.069	0.052	0.035	0.026	0.021	4.0	3.2	2.3
9. Licenses	0.176	0.088	0.058	0.040	0.030	0.022	0.018	3.4	2.5	1.9
10. Sub-Total	4.075	2.384	1.777	1.472	1.220	1.039	0.987	90.9	90.9	90.9
11. Overhead	0.408	0.238	0.178	0.147	0.122	0.104	0.099	9.1	9.1	9.1
12. TOTAL	4.483	2.622	1.955	1.619	1.342	1.143	1.086	100.0	100.0	100.0

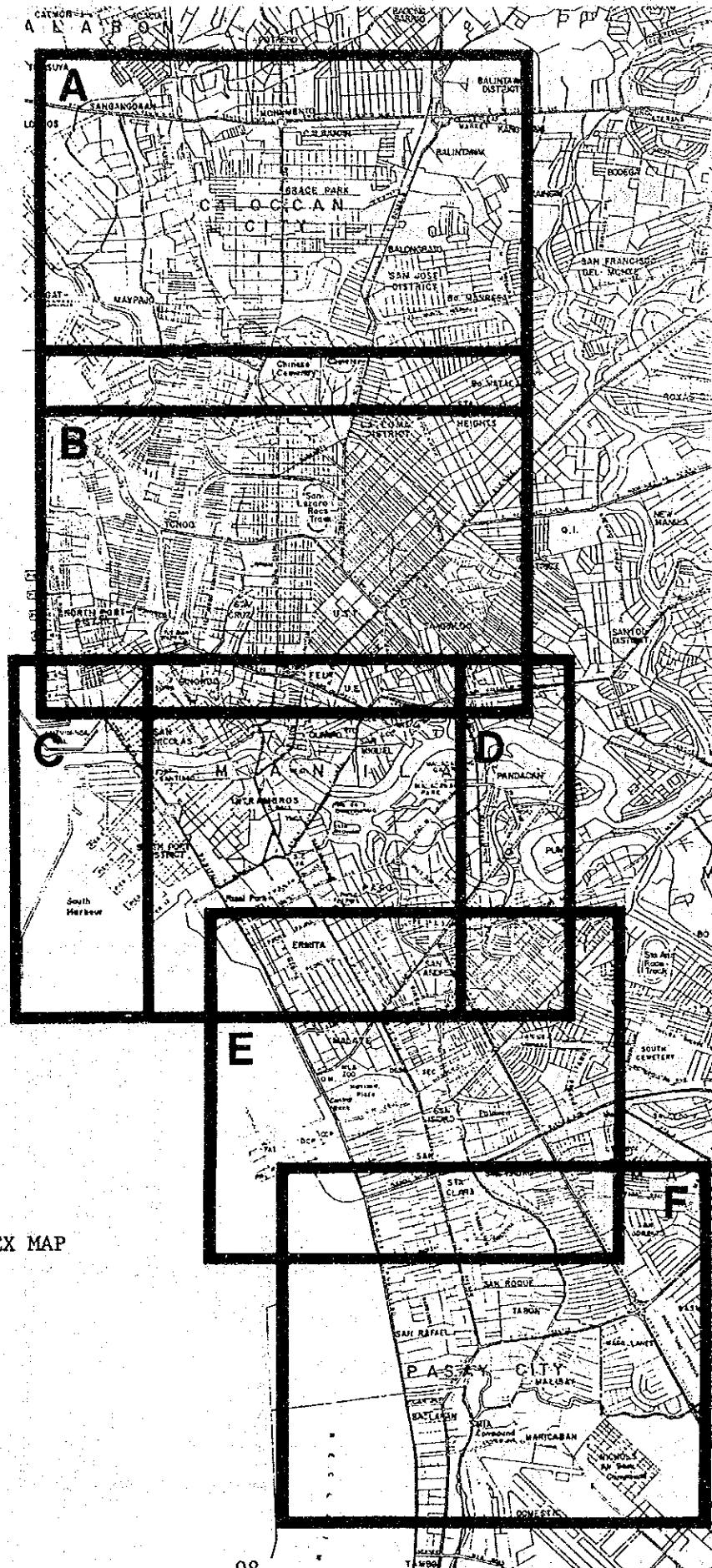
BUS

Cost Item	Vehicle Operating Cost by Speed (Km/hr)							% to Total		
	5	10	15	20	30	40	50	VOC at 10 KPH	VOC at 20 KPH	VOC at 40 KPH
1. Depreciation	1.306	1.016	0.831	0.703	0.538	0.435	0.366	9.8	11.8	10.9
2. Interest	1.022	0.795	0.651	0.551	0.421	0.341	0.286	7.6	9.2	8.6
3. Tire wear	0.116	0.142	0.168	0.194	0.245	0.336	0.452	1.4	3.3	8.4
4. Fuel	6.953	3.501	2.333	1.773	1.245	1.029	0.950	33.7	29.7	25.8
5. Oil	0.044	0.044	0.044	0.040	0.030	0.030	0.030	0.4	0.7	0.8
6. Maintenance	0.406	0.406	0.406	0.468	0.468	0.531	0.531	3.9	7.9	13.3
7. Crew	3.193	1.597	1.064	0.798	0.532	0.399	0.319	15.4	13.4	10.0
8. Insurance	1.250	0.625	0.417	0.313	0.208	0.156	0.125	6.0	5.3	3.9
9. Licenses	0.508	0.540	0.169	0.127	0.084	0.064	0.051	5.2	2.1	1.6
10. Sub-Total	14.798	8.666	6.083	4.967	3.771	3.321	3.110	83.3	83.3	83.3
11. Overhead	2.960	1.733	1.217	0.993	0.754	0.664	0.622	16.7	16.7	16.7
12. TOTAL	17,758	10,399	7,300	5,960	4,525	3,985	3,732	100.00	100.0	100.0

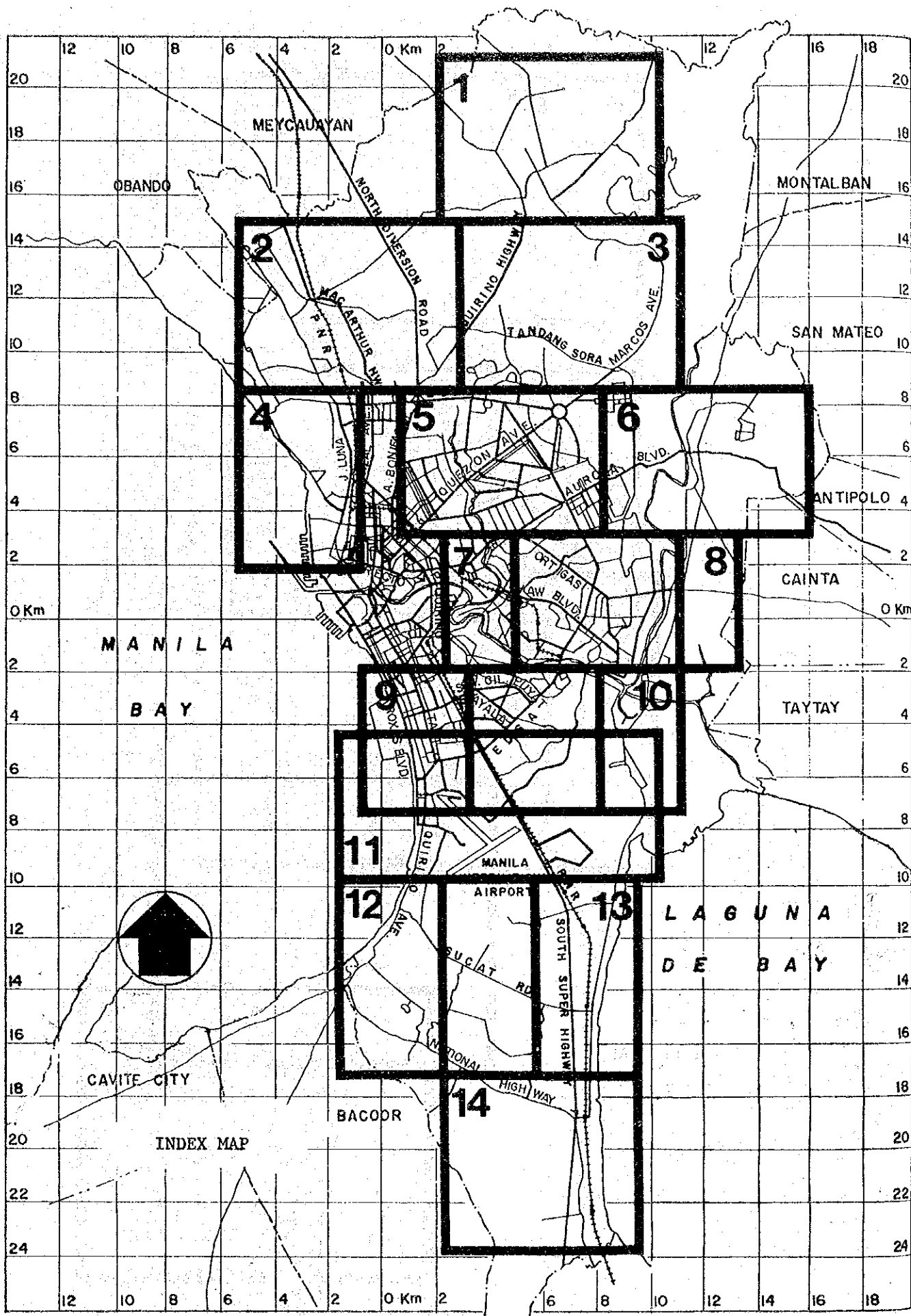
Figure 1
Vehicle Operating Cost
(with tax)

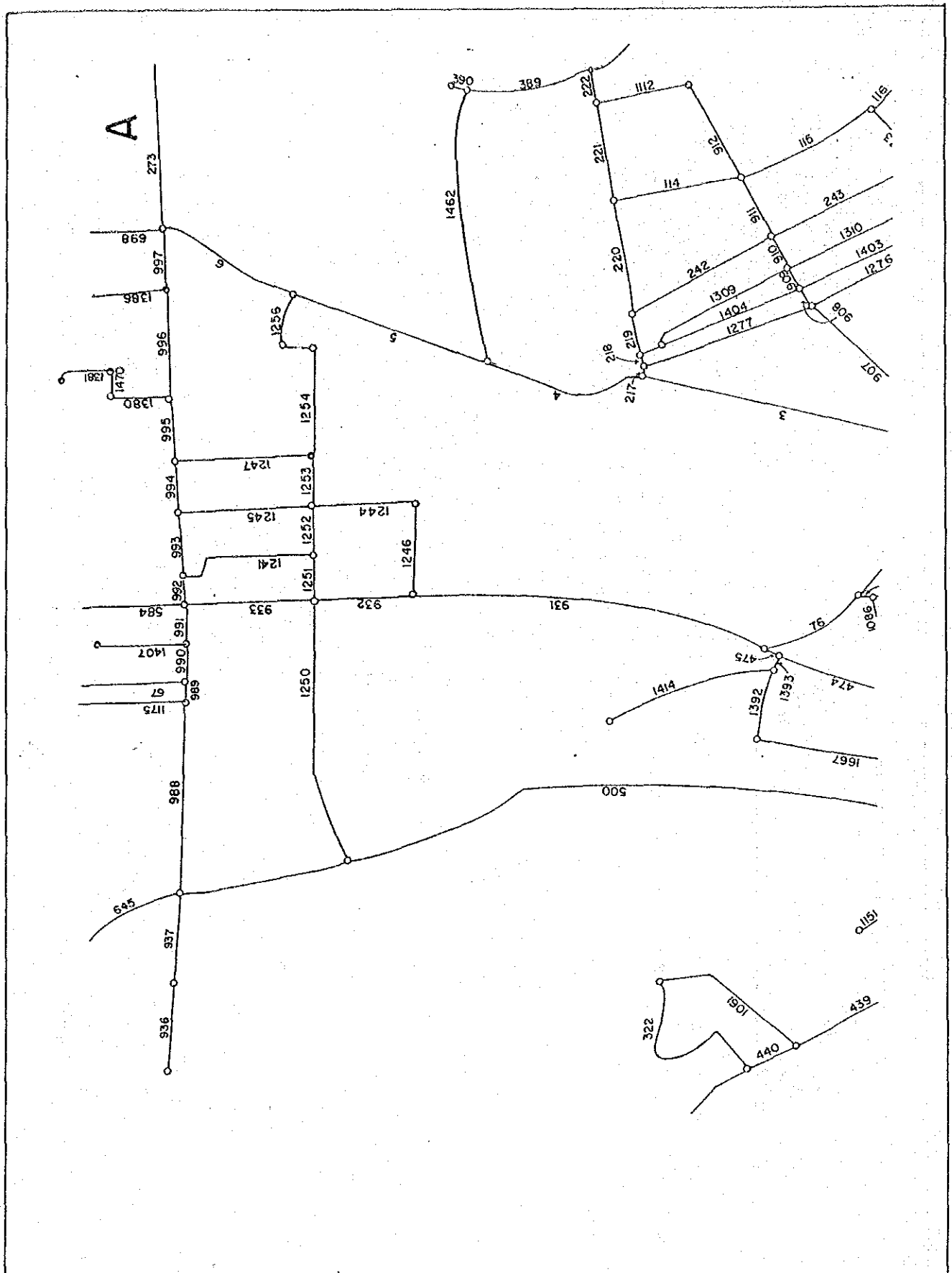


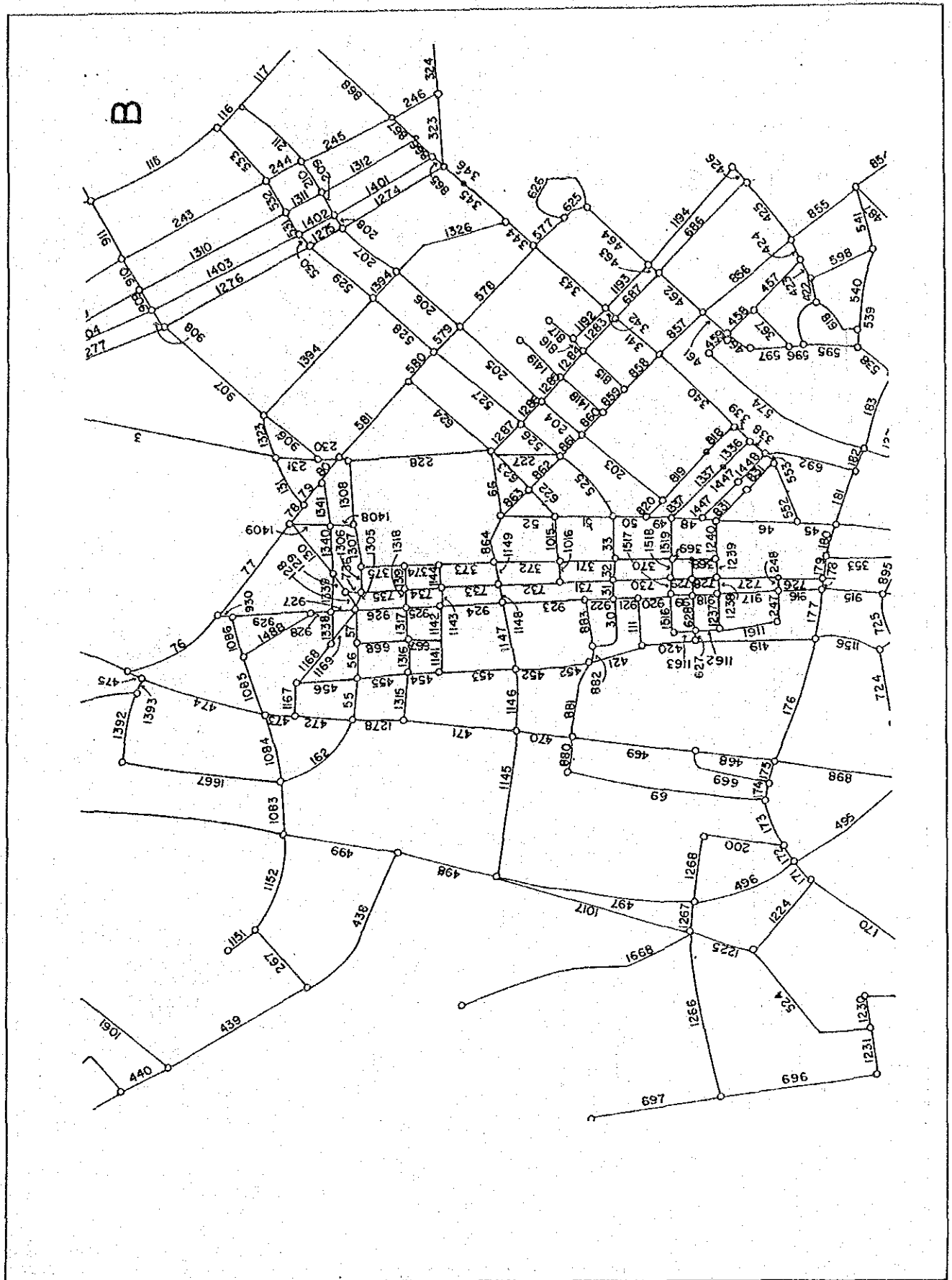
**D. Metro Manila Road Network Section Map
(1,687 Sections)**

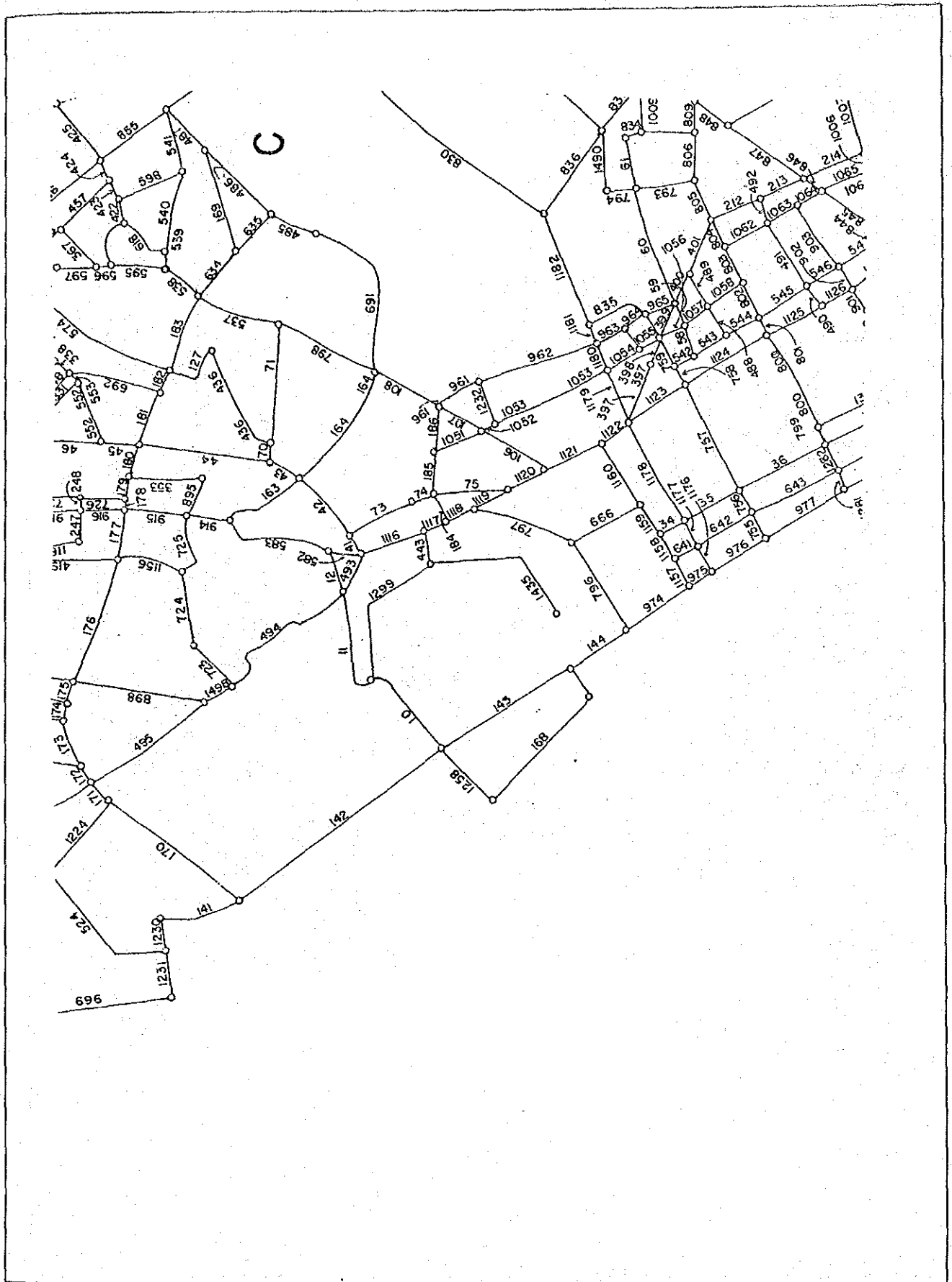


INDEX MAP

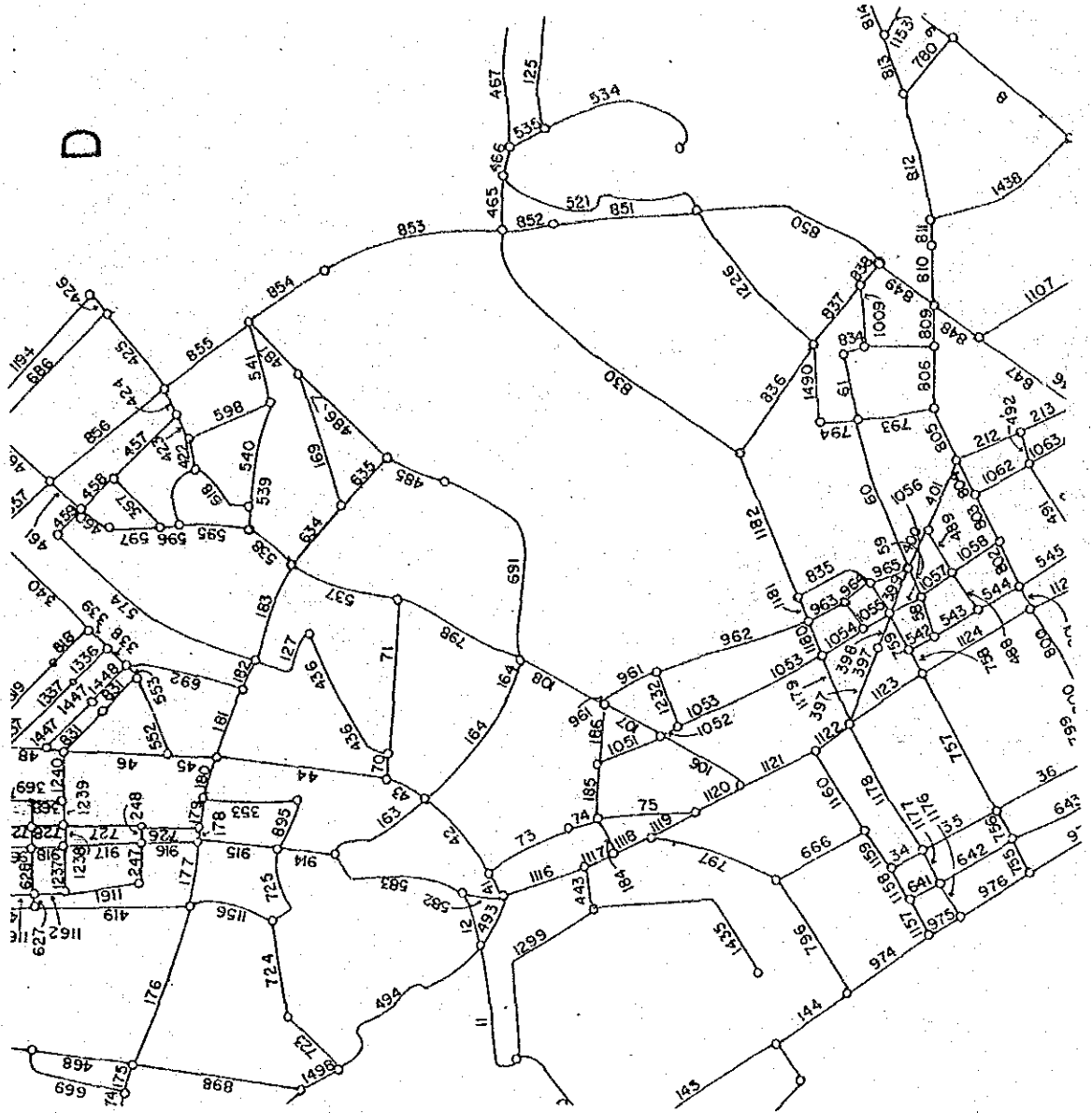




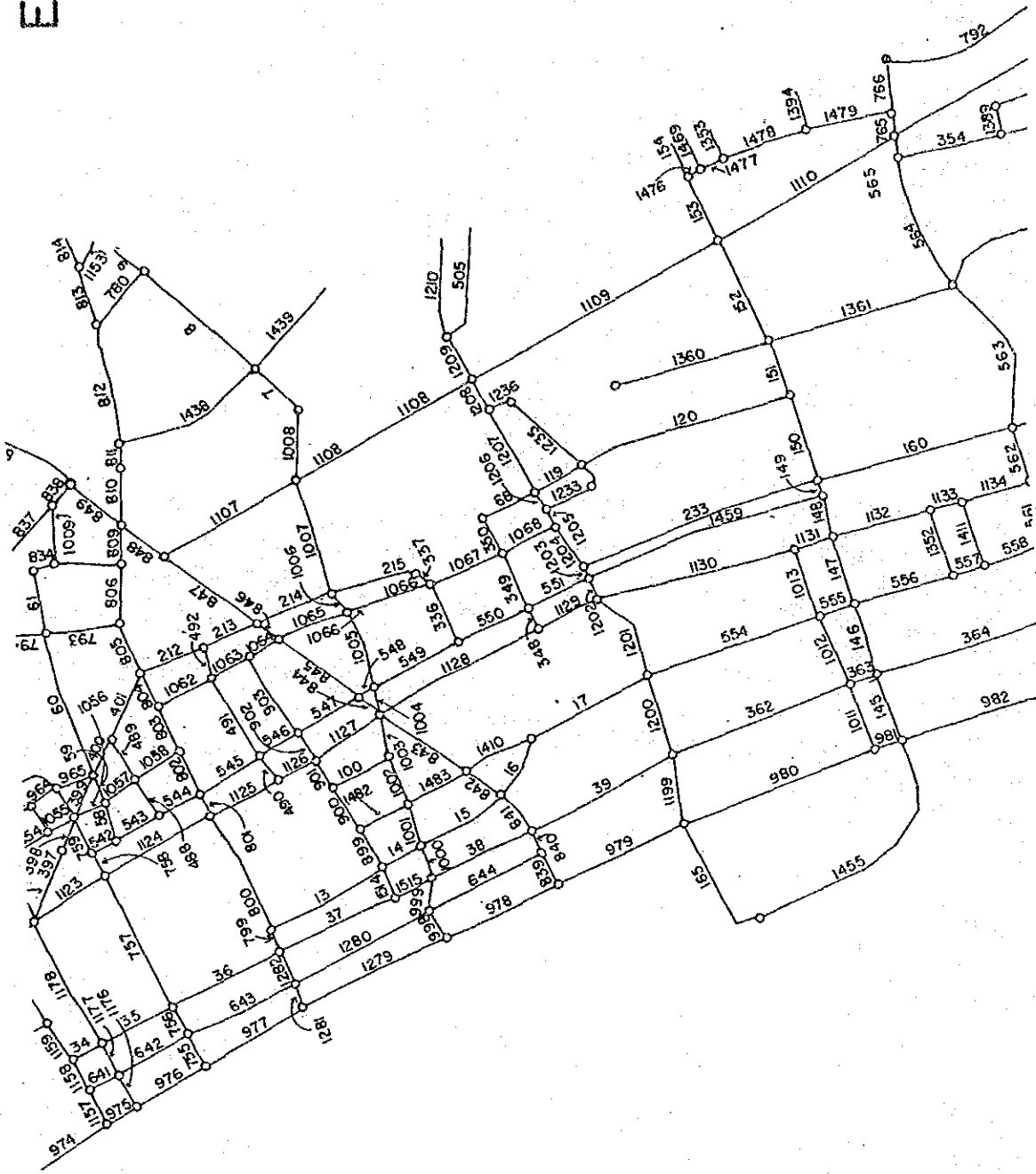


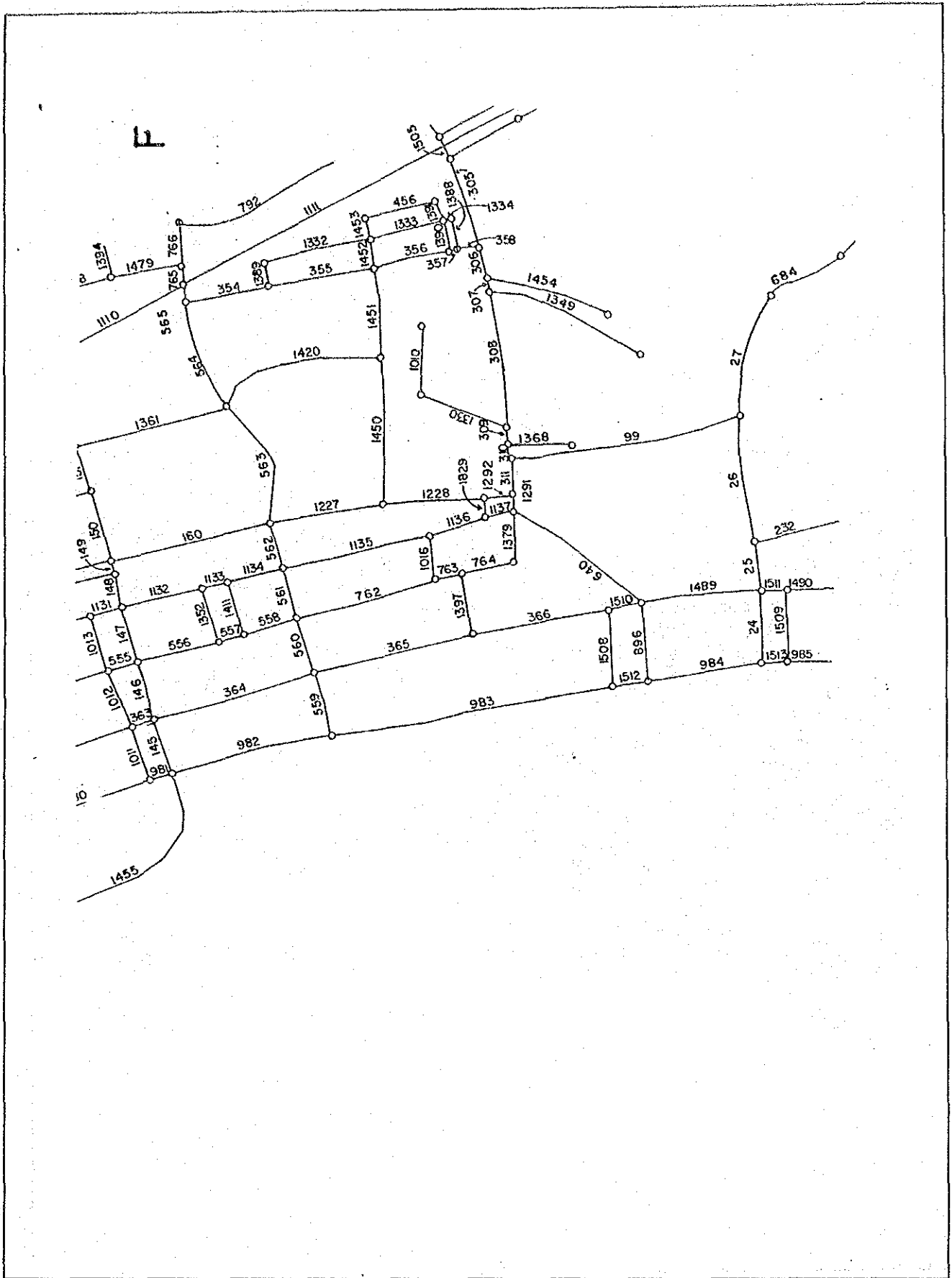


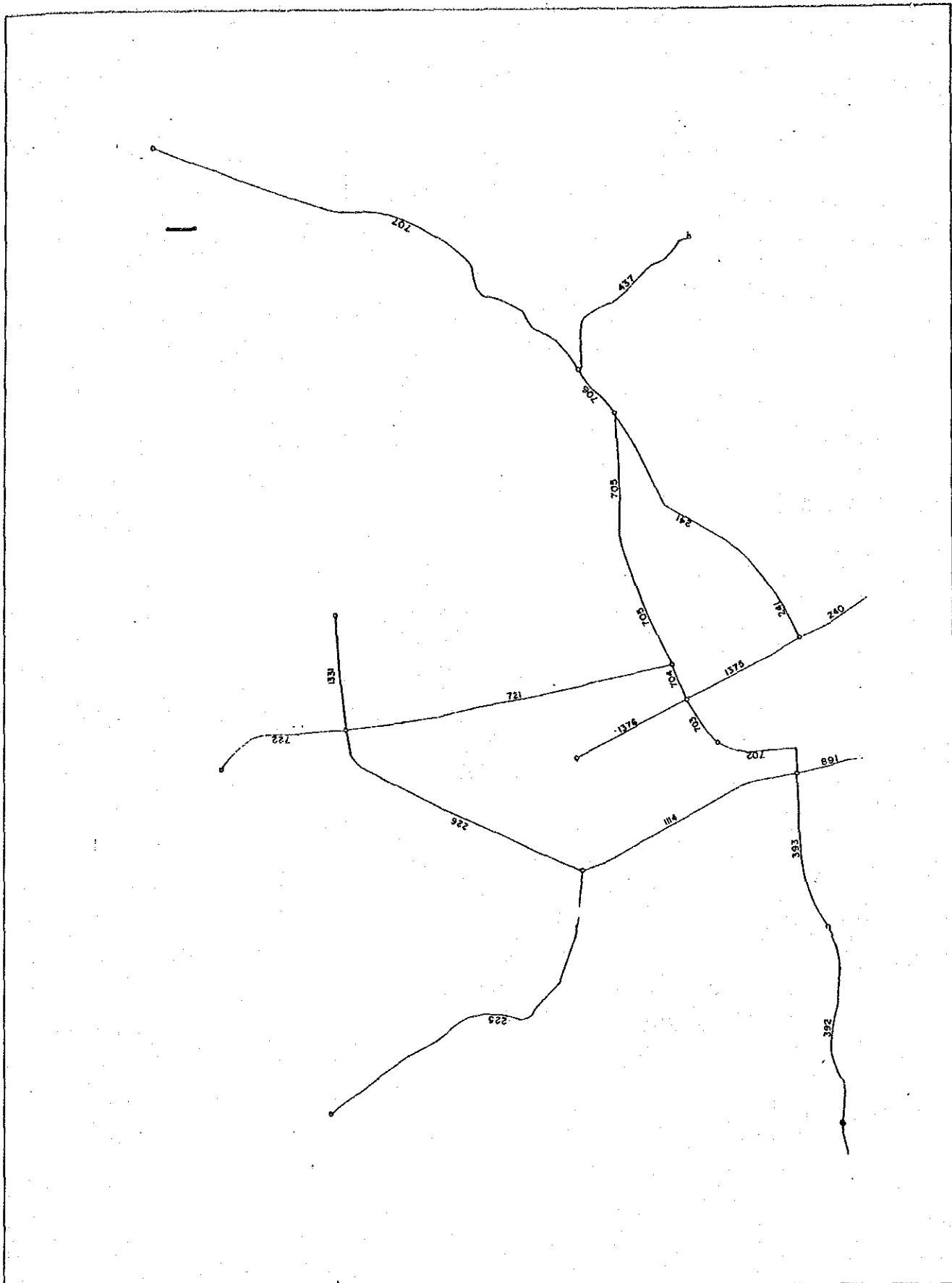
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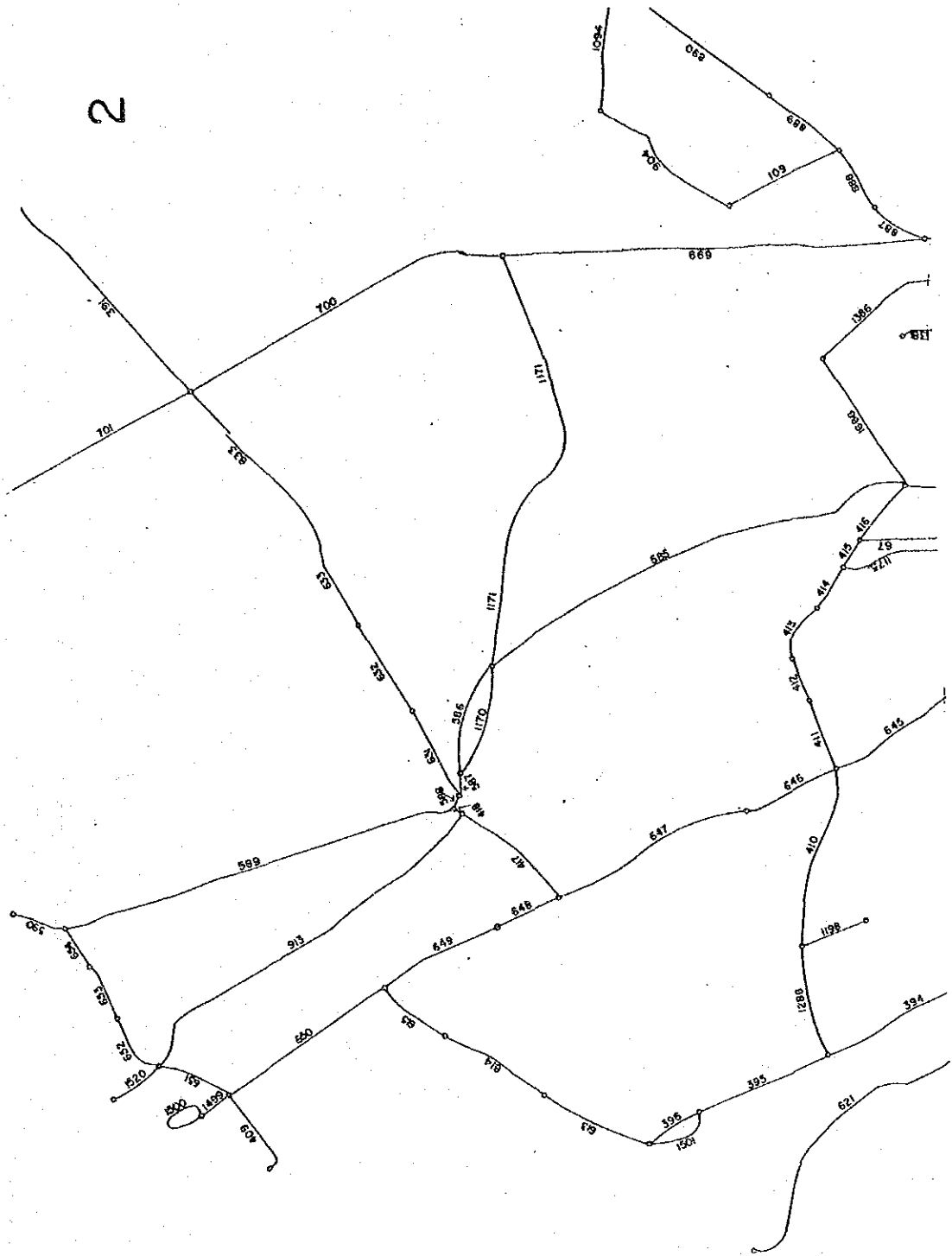
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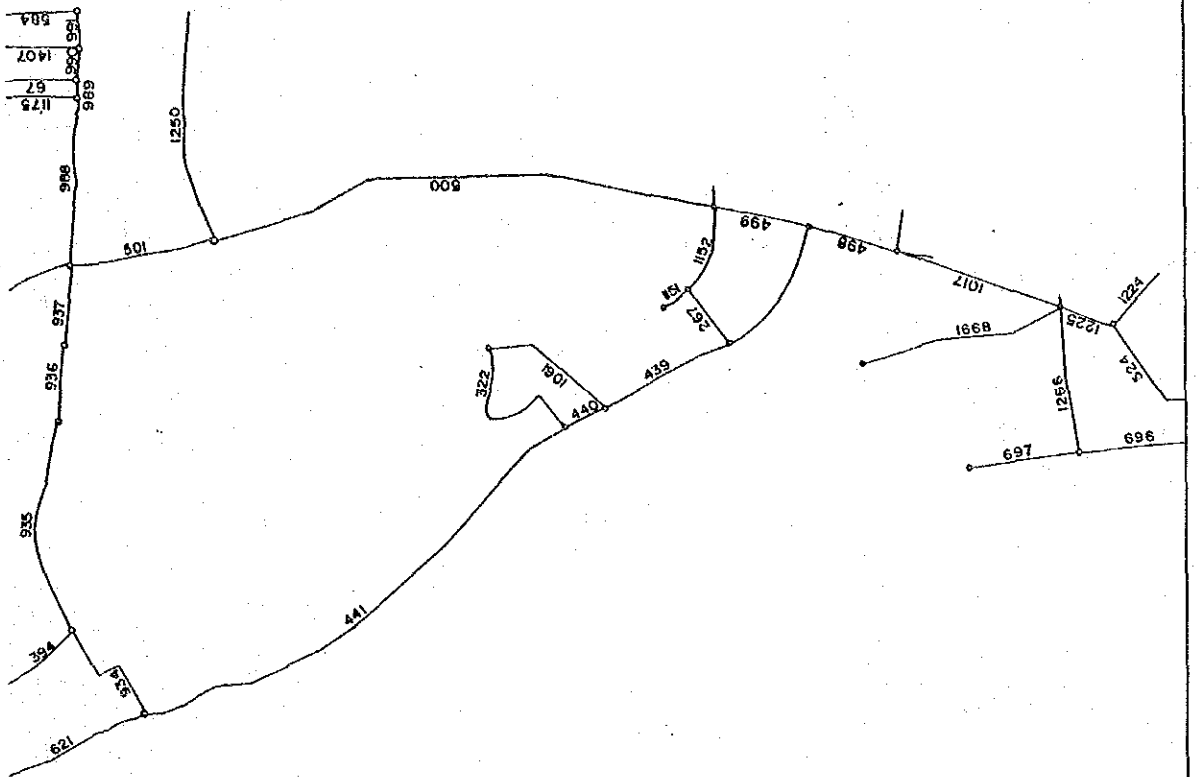
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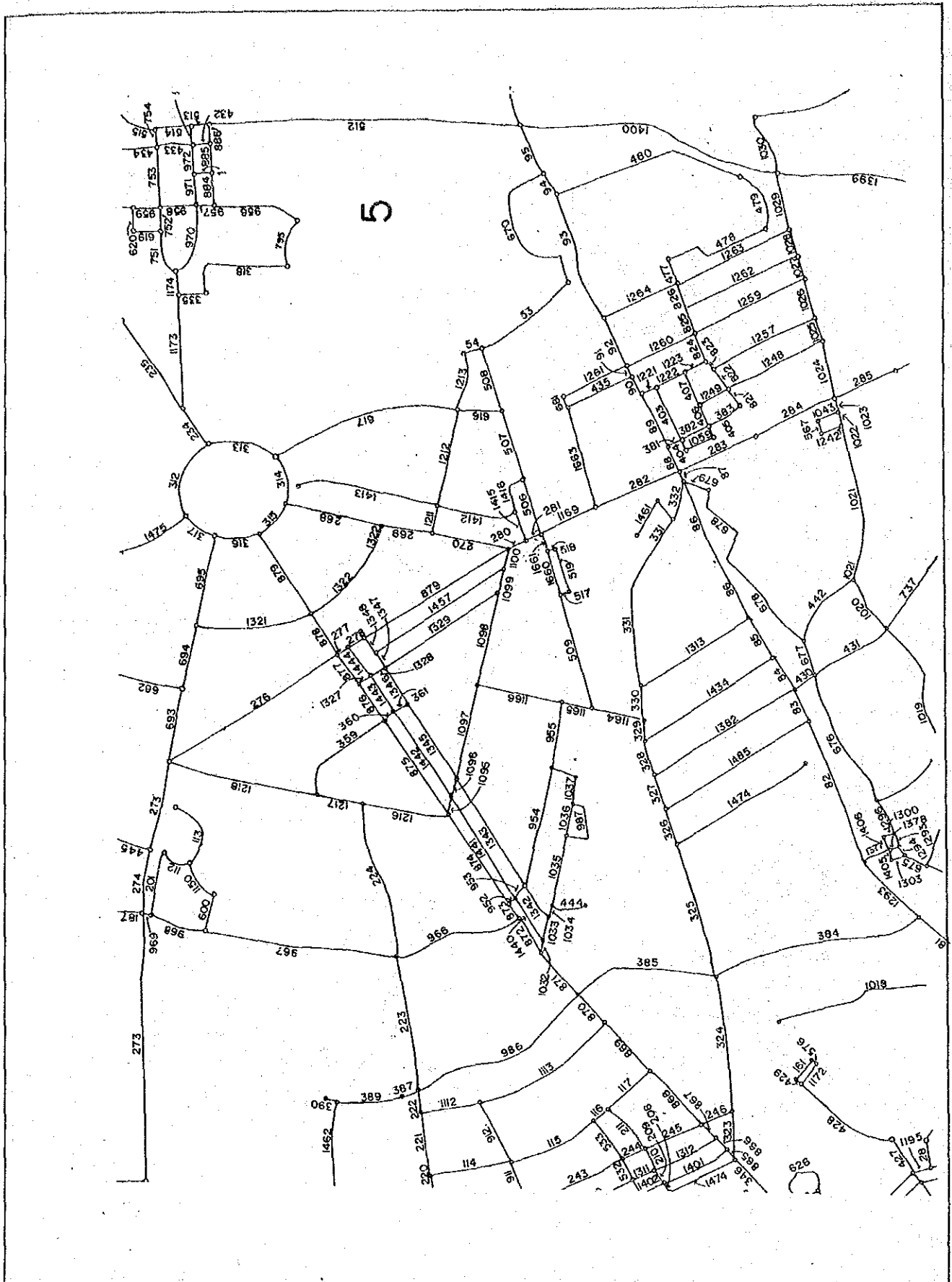


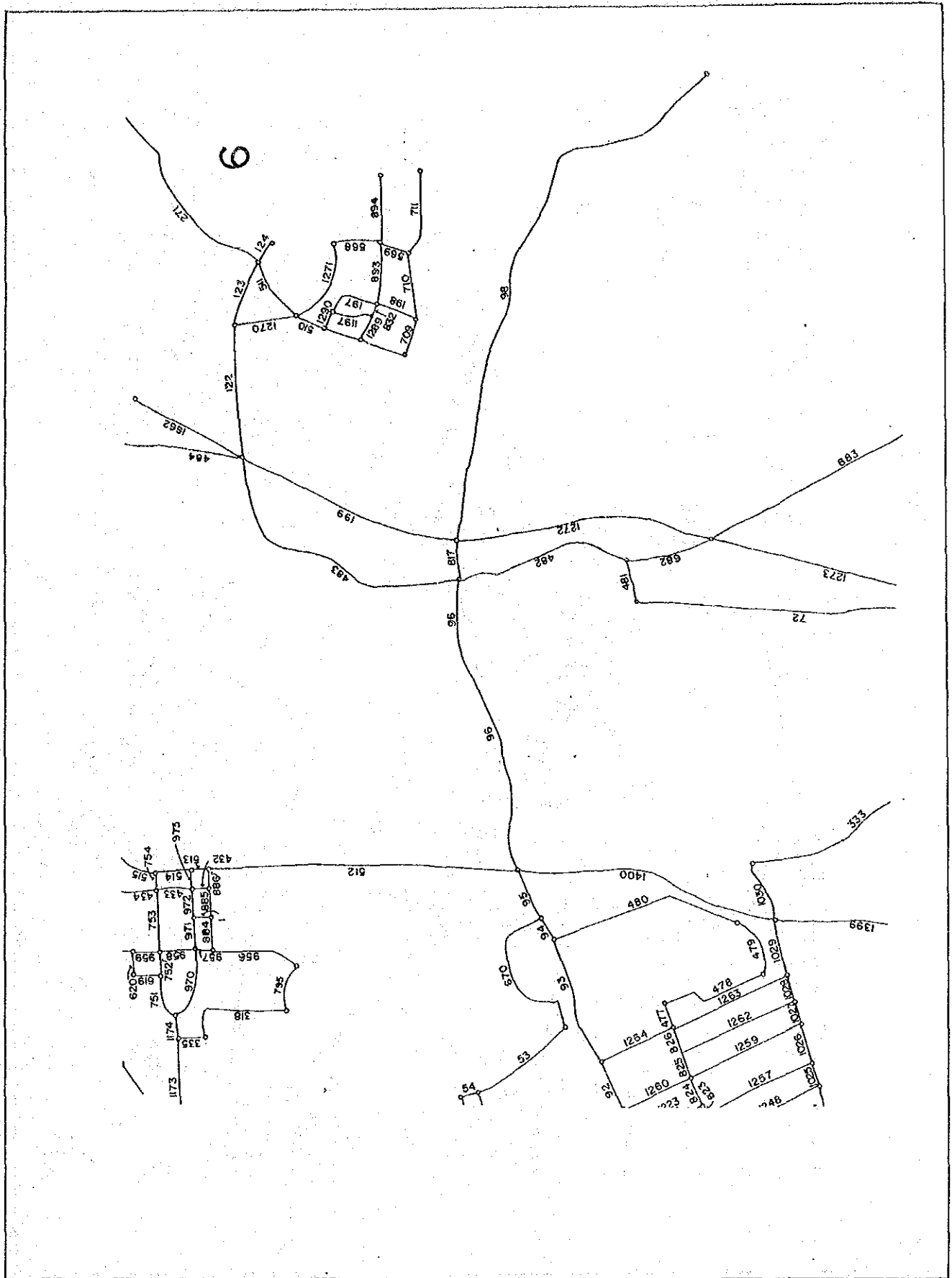
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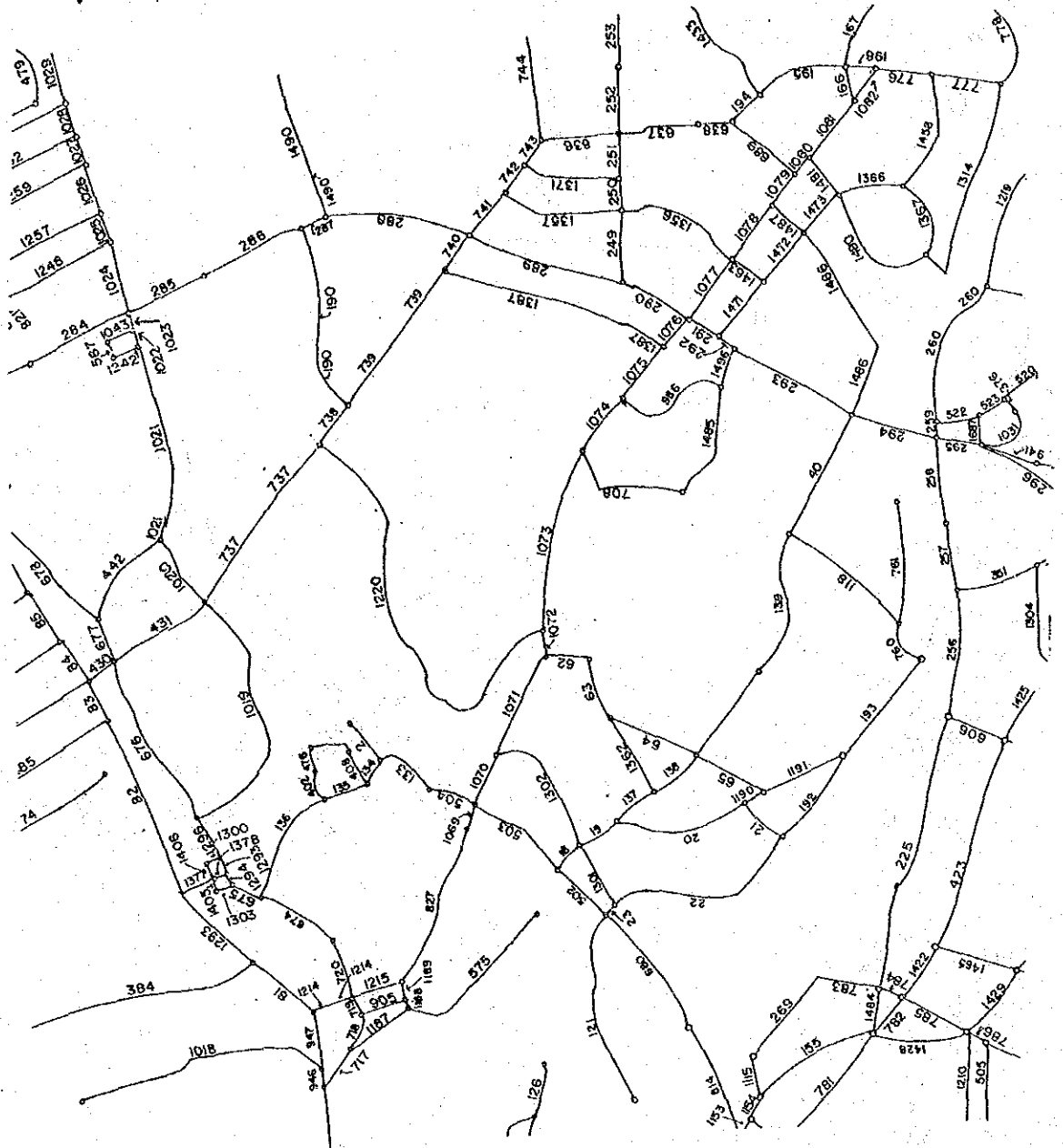


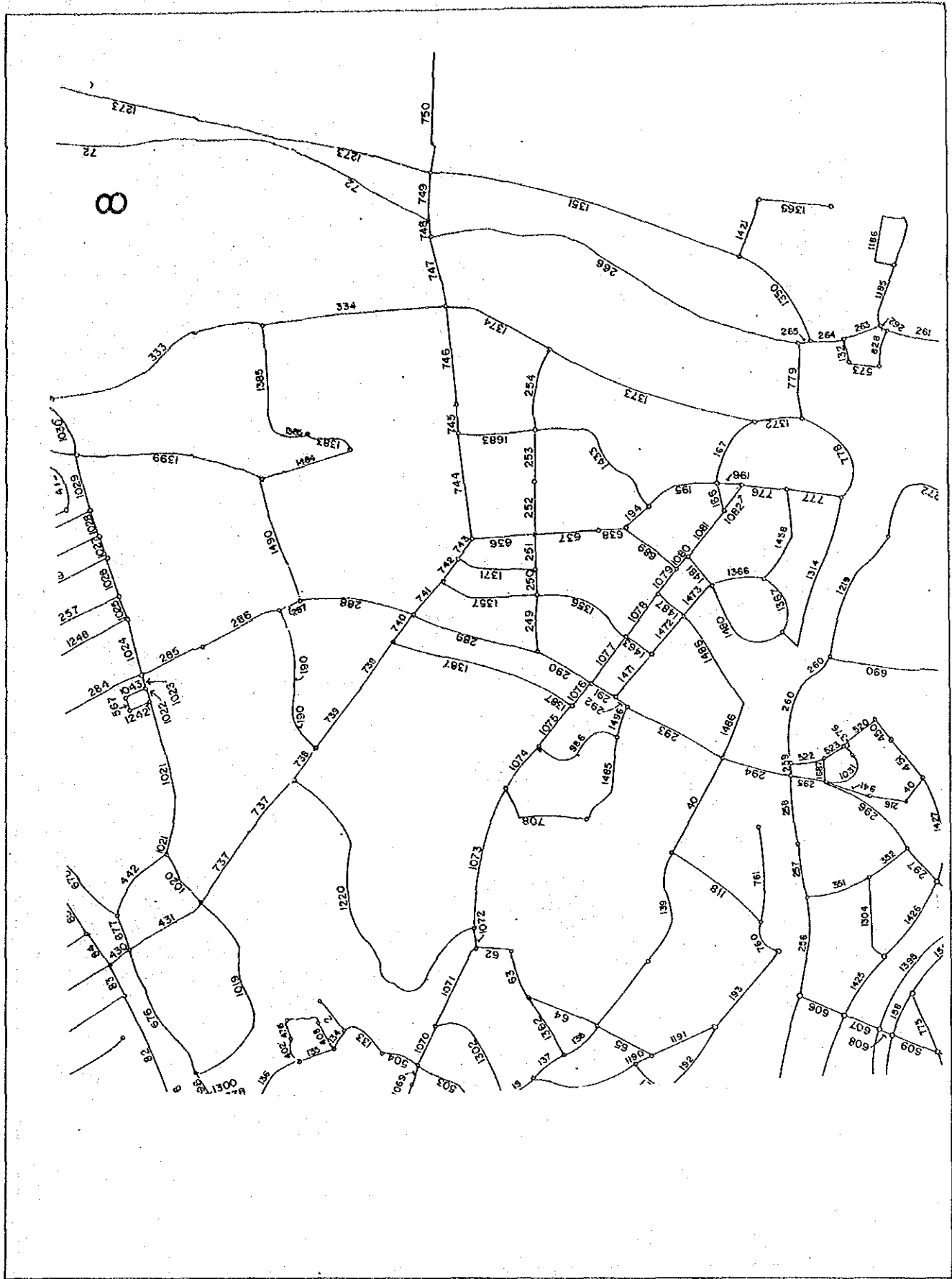
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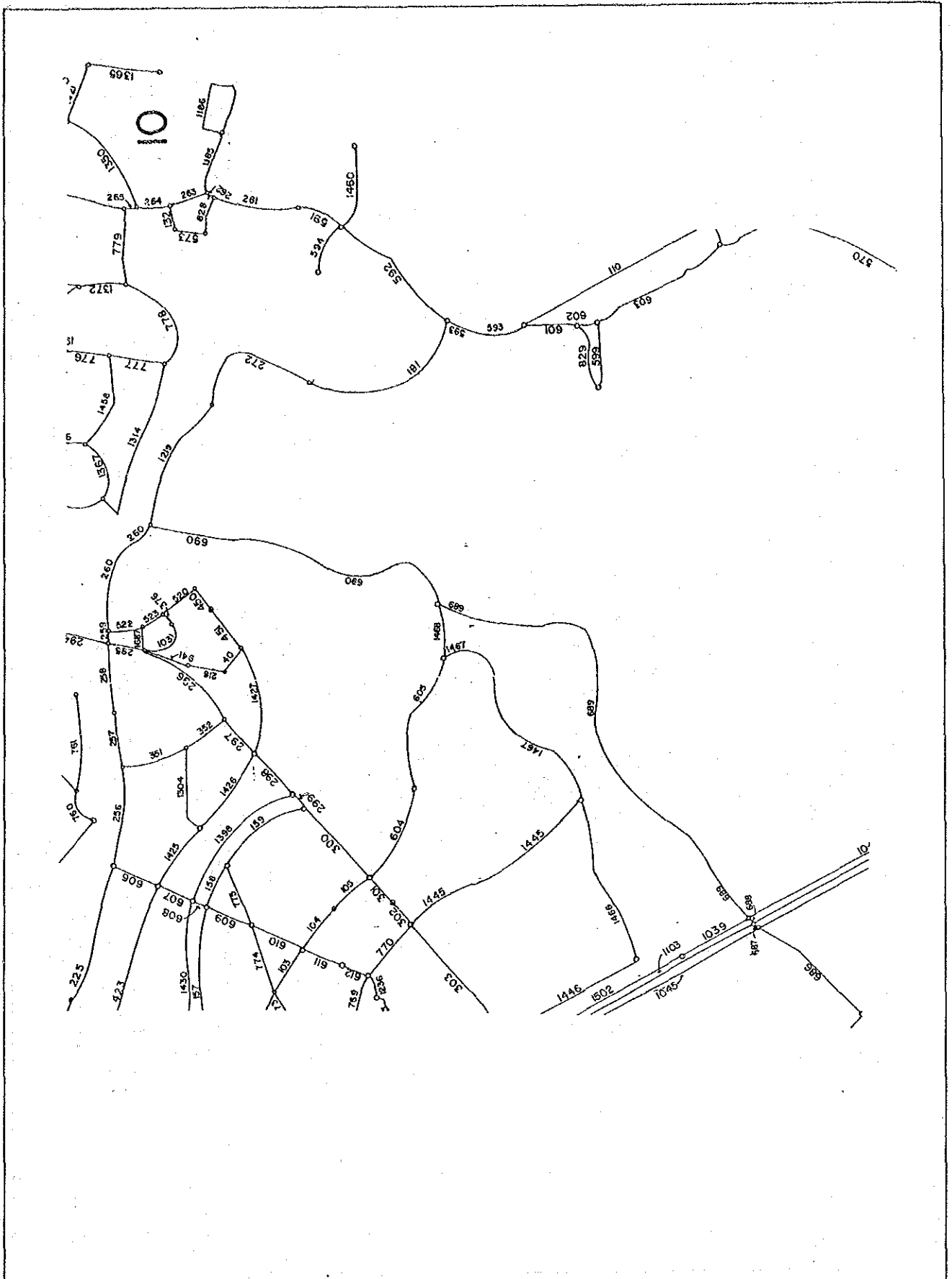


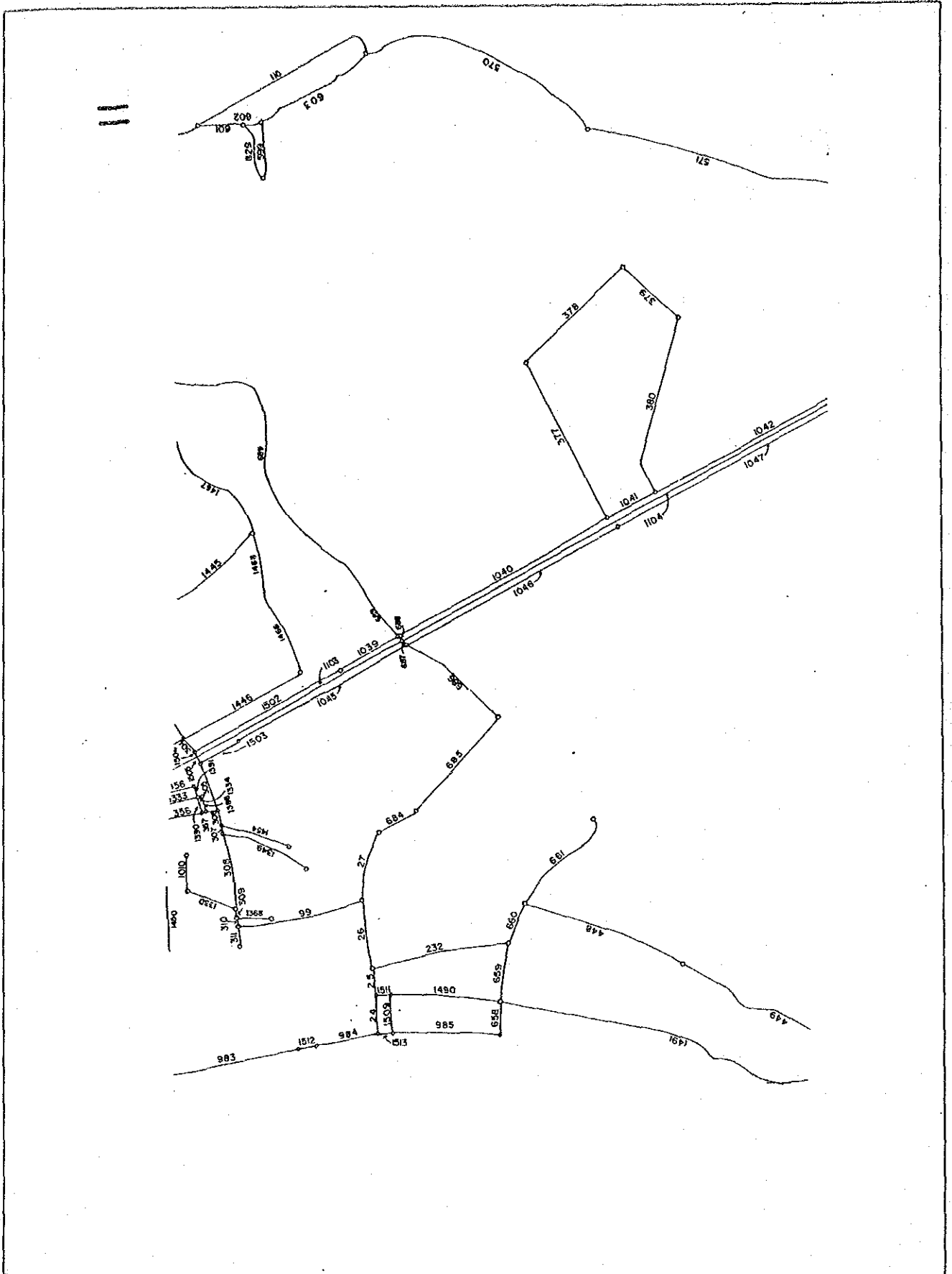


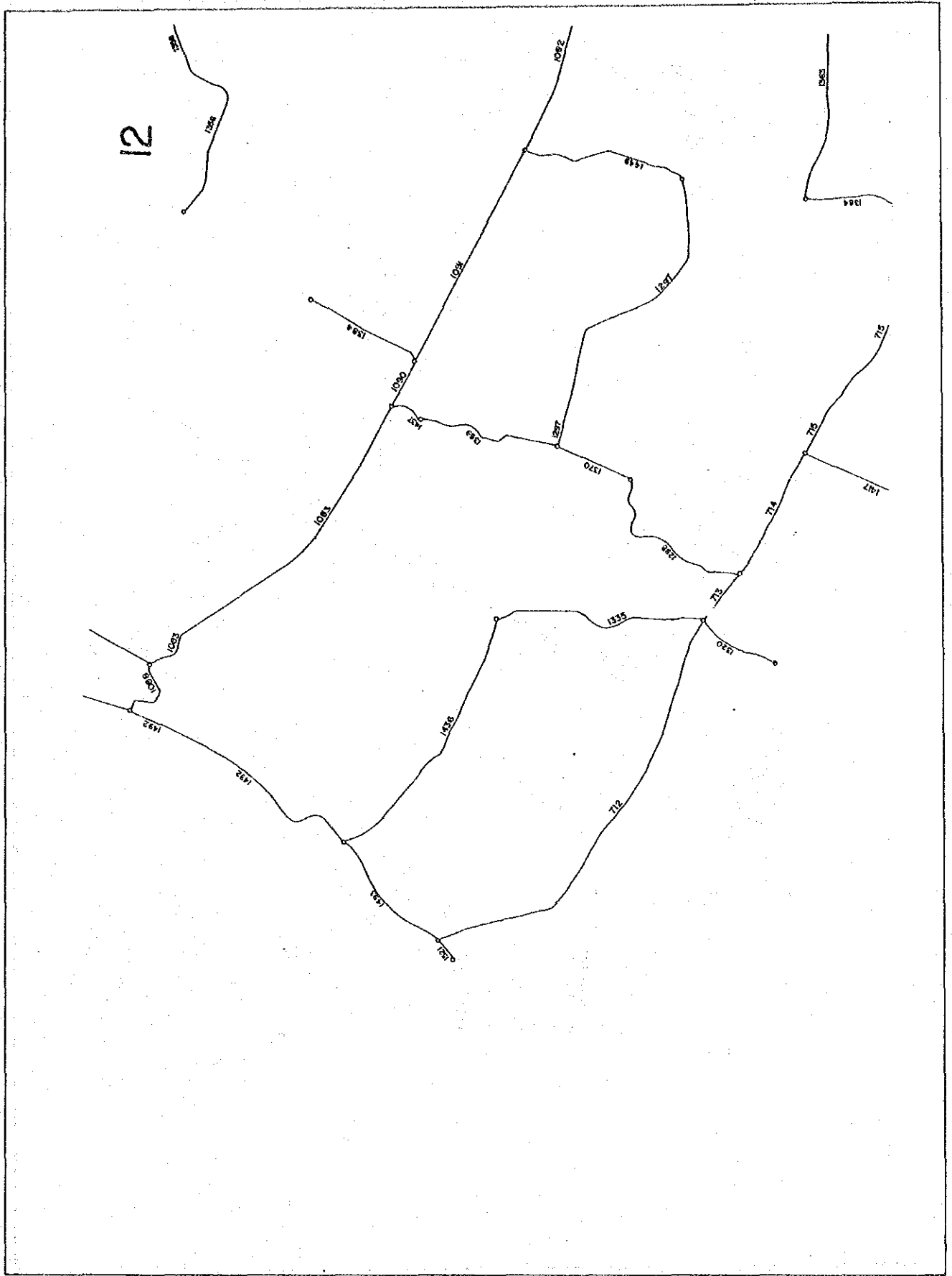




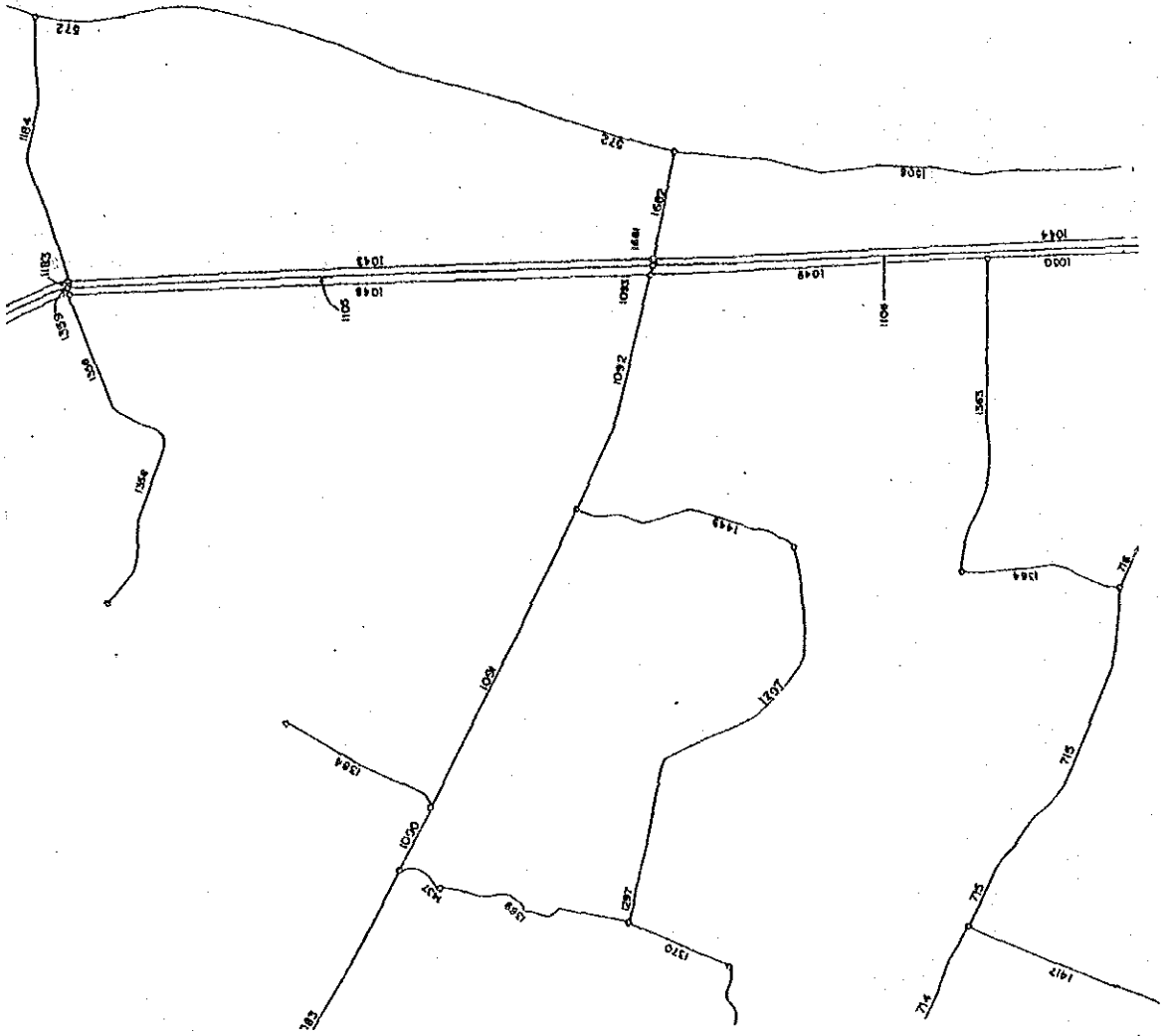




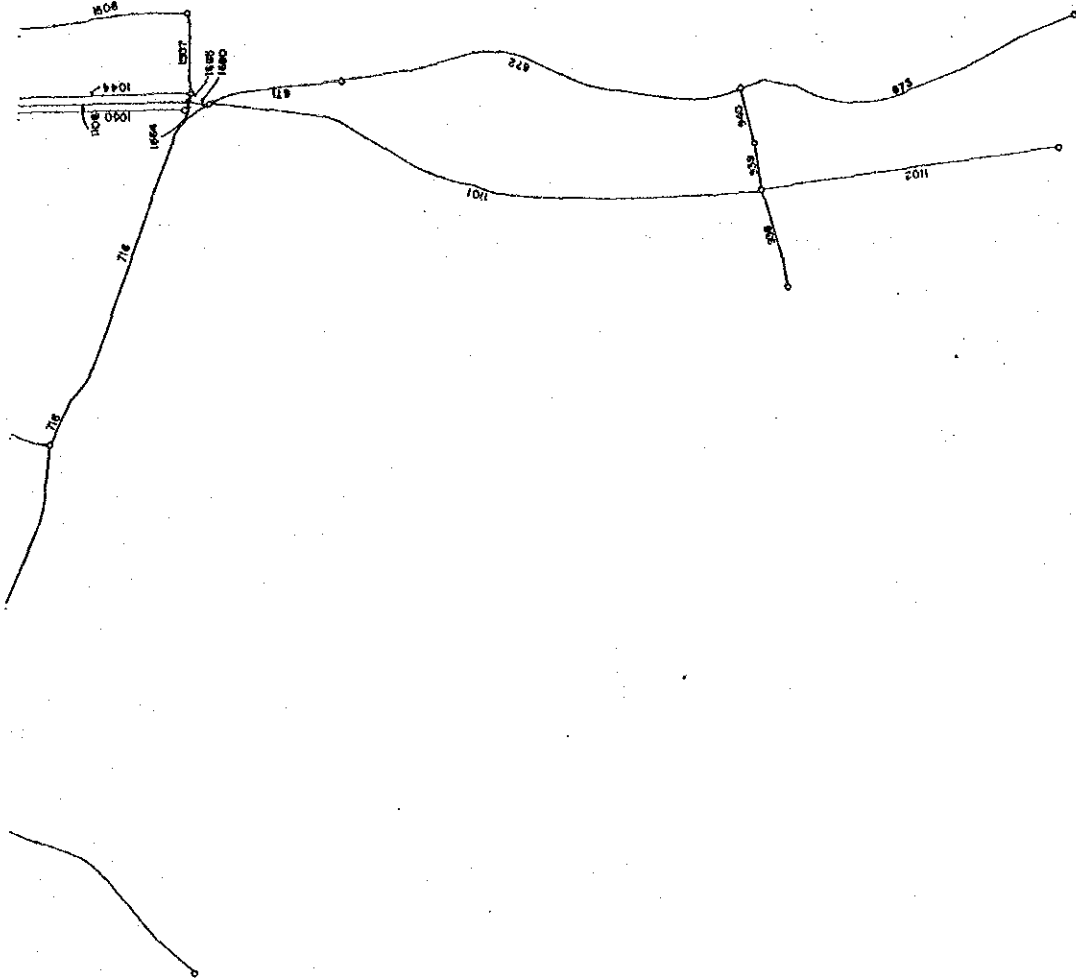




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