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GRAVITY AT BENCH MARKS
IN
EASTERN ONTARIO

by

Angus C. Hamilton and John S. Buchan

GRAVITY DIVISION
DOMINION OBSERVATORY

Ottawa, April, 1965

(Unpublished Manuscript)

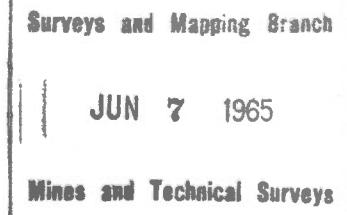
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A B S T R A C T

The value of gravity at ground level adjacent to 691 bench marks of the precise and secondary level network of the Geodetic Survey of Canada has been determined to a high precision using two gravimeters. Principal facts are listed for each station along with a cross reference to Geodetic Survey of Canada publications so that each station may be reoccupied accurately.

INTRODUCTION

In the spring of 1964 a program to establish gravity values at bench marks throughout the country was initiated. These results, along with the precise elevations already available, provide the data for intensive geodetic and geophysical investigations and also constitute a permanent network of relocatable gravity stations for the control of subsequent detailed gravity surveys.

OBSERVING PROCEDURE

By a cooperative arrangement with the Geodetic Survey of Canada (G. S. C.) a party from the Dominion Observatory (D.O.) followed a party from the G. S. C. who were inspecting bench marks. The G. S. C. party very kindly flagged each mark that was found intact and regularly advised the D.O. party of their progress and of their plans. Thanks to this cooperation no time was lost by the D.O. party searching for destroyed or concealed bench marks.

The observations were taken in the A-a₁-a₂-a₃ ... B-A-B sequence in which A and B are designated as control stations and the a_i stations are intermediate "traverse" stations. The location of every stations is shown on photographically reduced copies of 1:250,000 map sheets B west, C, D, E, F and G of NTS map sheet 31 appended to this report.

Two gravimeters were read at each station, generally one LaCoste and Romberg (LCR) geodetic model and one thermostatted Worden master model were used. For each group of stations the name of the observer and serial numbers of the instruments are listed:

<u>Station</u> <u>from</u>	<u>numbers</u> <u>to</u>	<u>Gravimeters</u>	<u>Observers</u>
800164	802964		A.C. Hamilton and
940164	940464	G9 and W431	J.P. Charette
803064	810564		J.P. Charette and
940564	942864	G9 W546	J.S. Buchan
810664	816764		
942964	945464	W546 W460	J.S. Buchan
816864	853364		
946564	955864	G75 W460	J.S. Buchan*
G-LaCoste and Romberg gravimeter		W-Worden gravimeter	

*The Worden readings for stations 8210 to 8247, made by an assistant-in-training were rejected as not up to the general standard of the survey.

The instruments were read on a small dipper tripod (see Fig. 1) at ground level immediately below or above the bench marks and never more than two feet distant from the vertical axis of the mark. The height difference from dipper to bench mark was read and recorded in both inches and centimeters. It should be noted that in this report the gravity station is defined as the point at which gravity was observed and it is seldom that this is at the same elevation as the bench mark.

COORDINATES

The location of each station was scaled from 1:50,000 NTS maps overlaid with Universal Transverse Mercator grid. Coordinates in the U. T. M. system were scaled to the nearest 10 metres and a conversion program was used to convert to latitude and longitude by computer. The scaling accuracy is roughly equivalent to .01 minute of arc. The coordinates are listed in Table I under latitude (LAT) and longitude (LONG) to 0.01 minute.

CROSS REFERENCE TO LEVELLING PUBLICATIONS

The bench mark numbers as designated by the G.S.C. are included in the listing at the end of this report. At the present time these bench mark locations are described and their elevations are given either in a G.S.C. publication (see references) or in a G.S.C. unpublished manuscript. A complete revision of the G.S.C. levelling literature is underway and subsequently this information will be available by quadrangle sheets. The current publication number and the page in which the bench mark is described appear in the listing under GEO REF. The abbreviation, NO REF, under the heading GEO REF indicates that the levelling information is available only as unpublished manuscript. The abbreviation, ROM, indicates that in the G.S.C. publication and on the bench marks the number is in Roman numerals.

Reference example:

ROM 2092 19P312

indicates that the bench mark is number 2092 in Roman numerals and that a description of it can be found on page 312 in G.S.C. publication number 19.

TABULATION OF DATA

NUMBER - Each gravity station is assigned an unique 6 digit number by the gravity division. The last two digits refer to the year of observation. The first digit is nine for all control stations and in this particular survey the first digit is eight for traverse stations.

NAME - This is included to facilitate location of the bench mark both geographically and in G.S.C. publications.

MS - The number of the National Topographical System map sheet.

LAT & LONG - Coordinates (see discussion p. 3).

BM NO - Bench Mark number (see discussion p. 3).

GEO REF - Geodetic publication reference (see discussion p. 3).

ELEV - This is the elevation of the station at which gravity was measured. It is found by adding HT, as defined below, to the G.S.C. elevation published for the bench marks. As HT is measured to the nearest inch, it is expected that ELEV will be consistent with the G.S.C. datum to ± 0.1 foot.

HT - This is the height difference in inches between bench mark and gravity station; a positive difference (no sign) indicates that the gravity station is above the bench mark (see Figure 1) and a negative sign that it is below the bench mark.

GRAVITY - Gravity values are quoted to 0.01 milligal. For traverse stations generally two values are quoted, (see discussion p. 7).

FREE AIR & BOUGUER (ANOMALIES) - For computation of the anomalies the mean of the two observed values of gravity at traverse stations is used. The anomalies are computed using the parameters discussed on page 9.

NETWORK ADJUSTMENT

As mentioned above, a network of 158 control stations was established and divided into four sections (see Fig. 2) for convenience in adjusting by least squares. The network was tied to the National Reference Station (Hamilton, 1963) for which the adopted value is 980622.00 mgals and it was made consistent with the Ottawa-Washington gravity standardization range (Innes, 1958).

Only data observed by the looping procedure (ABAB) was used for the control network. Worden observations were processed graphically and assigned weight two in the observations equations. LCR observations were processed as single ties with weight unity; each reading was reduced to "milligal equivalent" value using the tables supplied by the manufacturer and earth tide corrections were applied using a modified version of a computer program by Longman (1959). The standard deviation for an observation of weight unity, and the number of observations for each section follows:

<u>Section</u>	<u>No. of Obs.</u>	<u>S(mgals)</u>
Alexandria	274	.041
Sect 1	137	.033
" 2	331	.047
" 3	275	.042
Combined statistics	1015*	.042

*Three Worden loops were rejected; two of these were due to the work of an inexperienced observer. Two tares in excess of 0.20 mgal were found in the LCR data, hence two single ties were rejected.

As the solution was obtained by Cholesky elimination methods rather than by matrix inversion it was not possible to evaluate the weight functions necessary to find the standard deviation between designated points in the network. A rough estimate for the relative accuracy between adjacent control stations can be derived from $S/\sqrt{5}$ which is about ± 0.02 mgal. This figure must be viewed with some reservations because, for some reason not yet fully understood, the distribution is not "normal" by the chi-square test.

The distribution of the residuals within each section follows:

<u>Interval</u> <u>(mgals)</u>	Alex	Sect. 1	Sect. 2	Sect. 3
-18				
-16				
-14				
-12	3		2	1
-10	0		6	2
- 8	3		11	12
- 6	11	8	13	13
- 4	31	14	41	21
- 2	41	21	67	55
0	62	47	44	47
2	50	24	51	48
4	33	10	43	36
6	17	6	23	29
8	17	7	21	8
10	5		3	2
12	1		4	1
14			0	
16			2	
18				

Statistics for the observations with each instrument follow:

<u>Instrument</u>	<u>S(mgals)</u>
W460	.046
W546	.056
G 9	.039
G75	.037

The performance of the instruments on this survey is discussed further in the next section and a comprehensive treatment of the subject is being prepared by one of the authors (A.C.H.).

TRAVERSE STATION DATA

As mentioned above two instruments were read side by side at each station intermediate to the control stations. The drift of each instrument was found from the two control station readings and, assuming a linear relationship with time (see Tanner and Buck, 1964), a drift correction was applied to each reading: LCR readings were corrected for dial nonlinearity by the manufacturer's tables and D.O. calibration factors were used to get the gravity values listed in Table I. From this data the differences at each station were computed and used to get a root mean square value (S) for each instrument pair and for the whole survey. These results are tabulated below:

<u>Instruments</u>	<u>N.</u>	<u>S(mgals)</u>
G75 and W460	325	.0853
W546 and W460	59	.1182
G 9 and W546	108	.1180
Combined statistics	492	.0974

What does S represent? If we assume that, within a traverse, there is a standard deviation for any intermediate station, S_{J1} , for instrument J1, then there is also a standard deviation, S_{J2} , for instrument J2; by the variance law these two standard deviations combine to give

$$S^2 = S_{J1}^2 + S_{J2}^2$$

In the tabulation above we have three observations for S and four unknown S_J 's. From the tabulation in the previous section it is apparent that the performance of the two LCR instruments does not differ greatly; for this analysis we assume they are identical, then we can solve:

$$S^2 + S_{W460}^2 = .0853^2$$

$$S_{W546}^2 + S_{W460}^2 = .1182^2$$

$$S_G^2 + S_{W546}^2 = .1180^2$$

which gives

$$S_G = .060 \text{ mgals.}$$

$$S_{W460} = .061 \text{ "}$$

$$S_{W546} = .101 \text{ "}$$

This indicates that the performance of W546 is significantly inferior to that of the other three instruments.

When W546 is not involved the standard deviation for the mean of the two gravity values at a station is ± 0.045 ; when W546 is used this is increased to ± 0.06 mgal. As a subjective estimate we believe the standard error for any station to be about ± 0.05 mgal with a maximum of ± 0.15 mgal.

In the listing both observed values for each traverse station are given so that the reader can make his own assessment of the data.

FREE AIR AND BOUGUER ANOMALIES

Free air and Bouguer anomalies have been computed for each station using a modified version of the D.O. general gravity reduction program (Tanner and Buck, 1964). For the free air anomaly a gradient of 0.09406 mgal per foot is used and for the Bouguer anomaly a crustal density of 2.67 gms/cc is assumed.

An error of 0.1 foot contributes less than 0.01 to the error in an anomaly and an error of 0.01 minute of latitude contributes less than 0.02 to the error in the anomaly hence the major source of error in the anomalies is due to the observed gravity value and as discussed above this is only of the order of 0.05 mgal. From this, we can say, to a first approximation that the error in the free air anomaly is of the order of ± 0.05 mgal; a similar error is estimated for the Bouguer anomaly with the reservation that errors in the density assumption and errors due to omission of terrain corrections are excluded.

ACKNOWLEDGEMENTS

The cooperation of Mr. J.E. Lilly, Dominion Geodesist; Mr. L.P. Robertson, Chief, Precise Levels section of the G.S.C.; and Mr. R.S. Smith, geodetic engineer in charge of the inspection party greatly contributed to the progress of the field work and the programming assistance of Mr. R.J. Buck of the Gravity Division has been extremely valuable.

REFERENCES

- Hamilton, Angus C. 1963. World Standards for Gravity Measurements. *Jour. R.A.S.C.* Vol. 57, No. 5.
- Innes, M.J.S. 1958. The establishment of a calibration standard for gravimeters in Eastern Canada and the United States. *Trans. A.G.U.* Vol. 39, No. 2. (Reprinted as *Contr. Dom. Obs.* Vol. 3, No. 17).
- Longman, I.M. 1959. Formulas for computing the tidal acceleration due to the moon and the sun. *Jour. G.R.* Vol. 64, No. 12.
- Serviss, R.W. 1959. Precise and secondary levelling in Quebec North of the St. Lawrence River. *G.S.C. Pub.* 18.
- Serviss, R.W. 1959. Precise and secondary levelling in Ontario, south of Parry Sound. *G.S.C. Pub.* 19.
- Serviss, R.W. 1959. Precise and secondary levelling in Ontario, north of Parry Sound. *G.S.C. Pub.* 20.
- Tanner, J.G. and Buck, R.J. 1964. A computer oriented system for the reduction of gravity data. *Pub. Dom. Obs.* Vol. 31, No. 3.

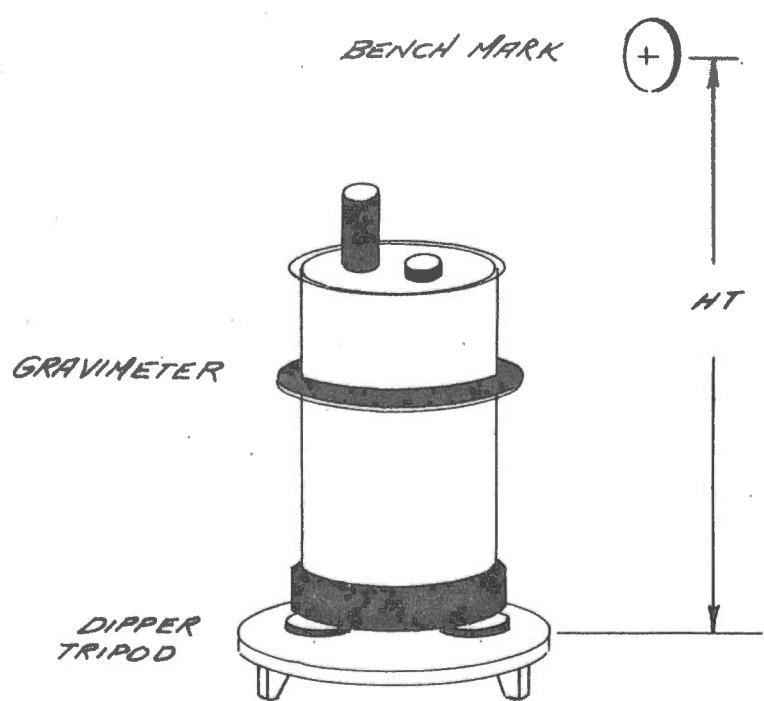


FIGURE 1

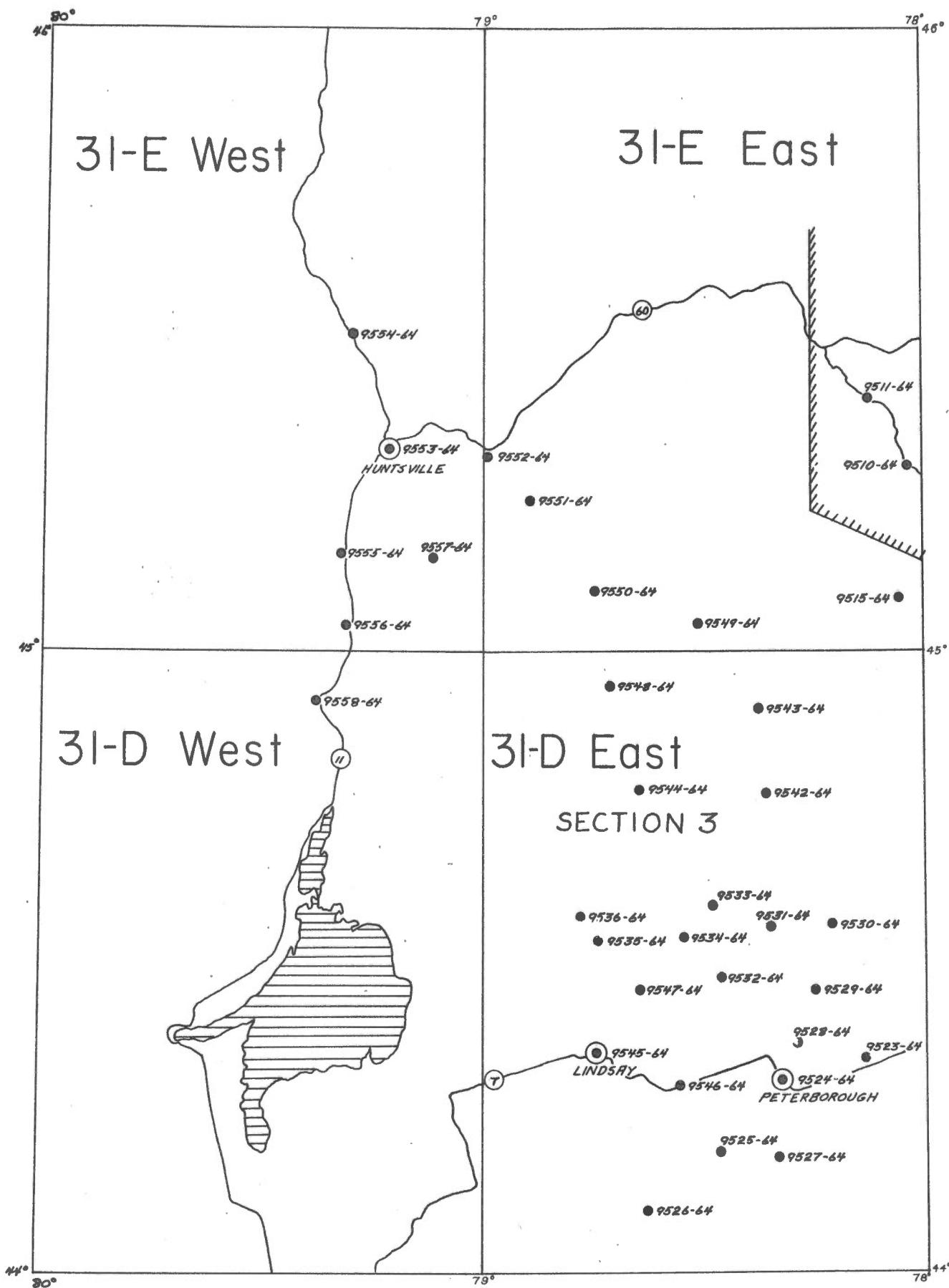


FIG. 2 (a)

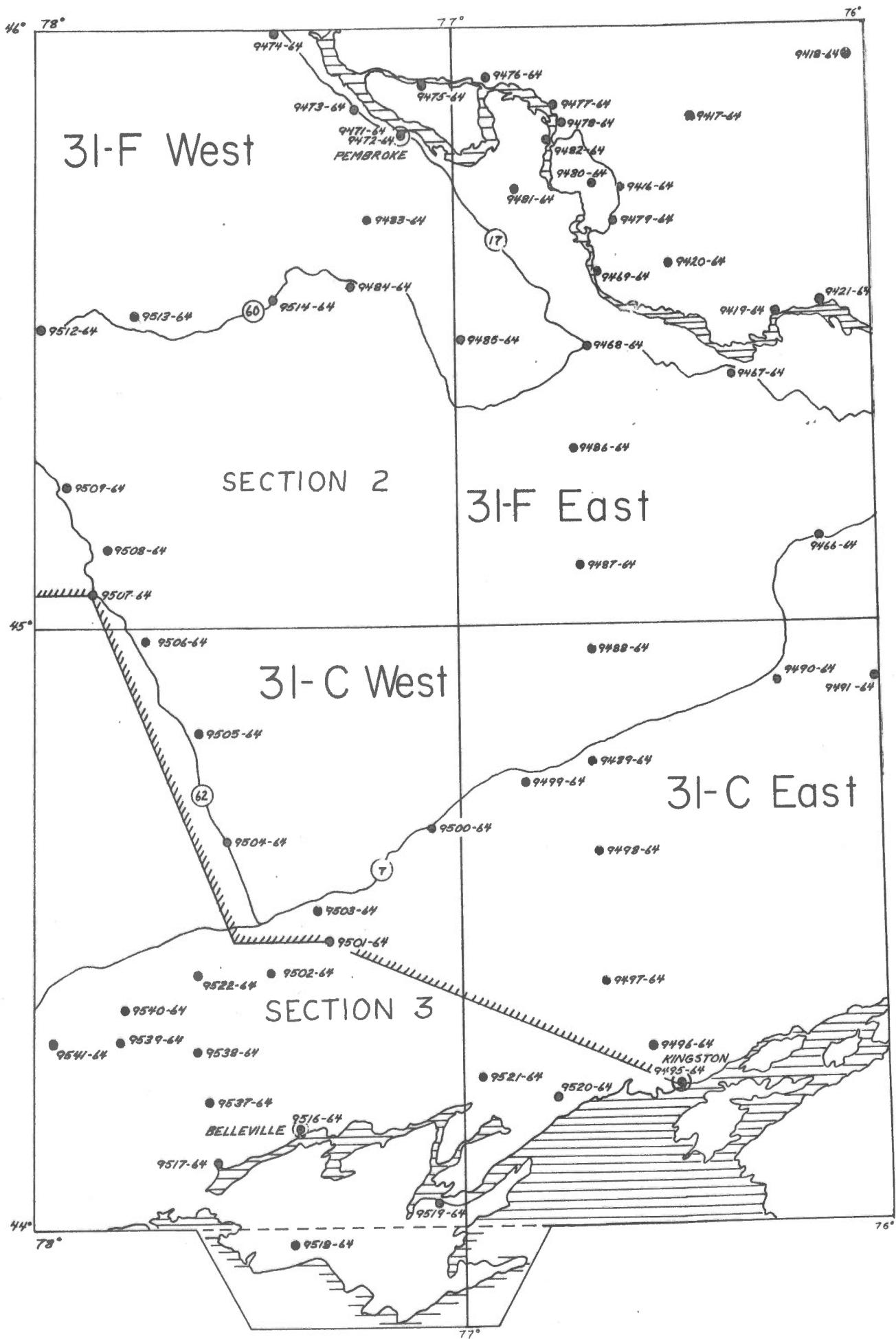


FIG. 2(b)

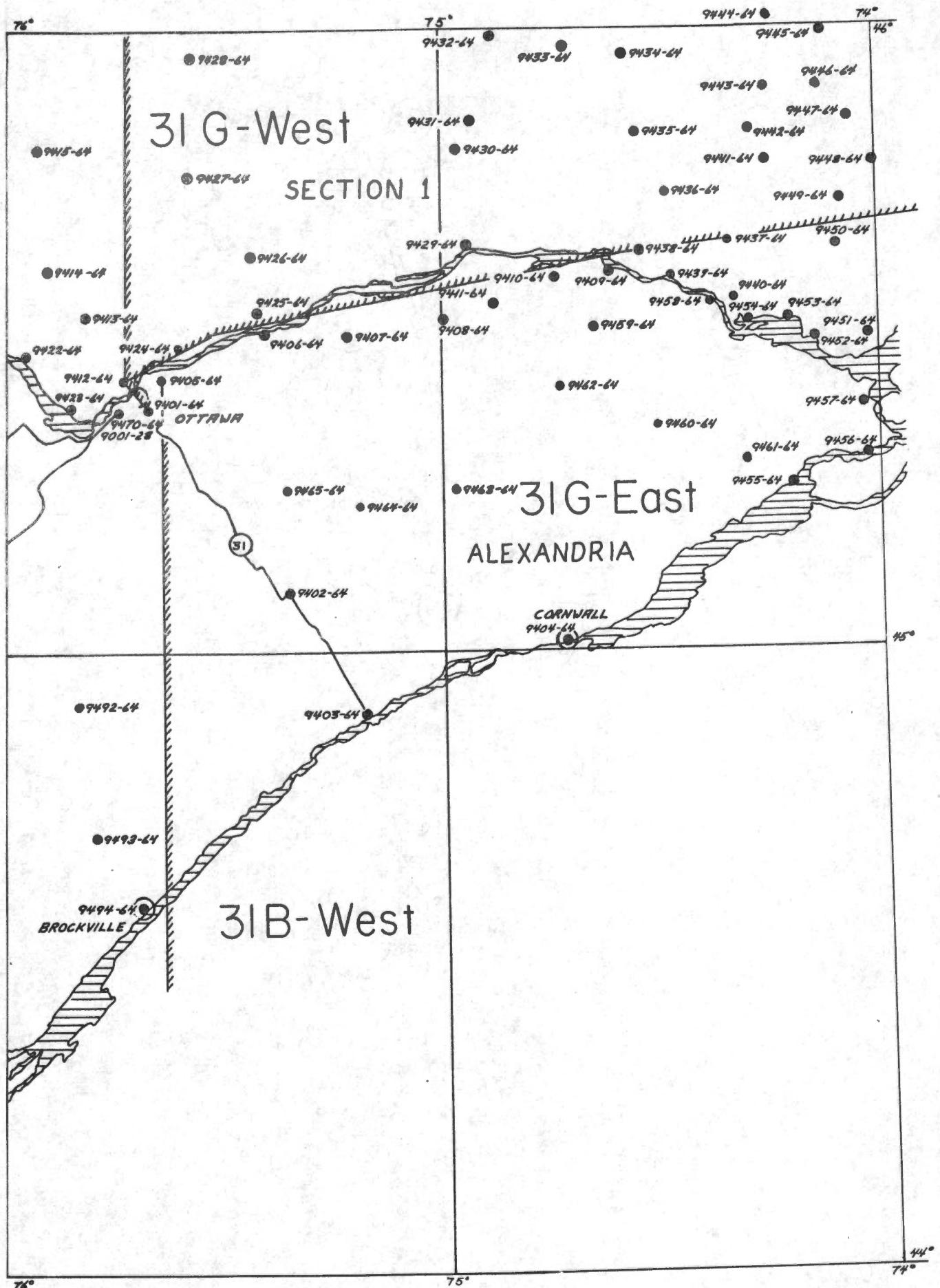


FIG. 2(c)

B M STATIONS

TABLE I

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
940164	OTTAWA BILLINGS BR	31	45 23.36	75 40.74	RDM 2098	19P217	197.6	-14	980629.83	-16.12' -22.85
940264	WINCHESTER CHURCH	31	45 5.53	75 21.20	RDM 2092	19P312	257.6	-30	980597.57	-15.90 -24.67
940364	MORRISBURG RC CH	31	44 53.75	75 11.07	RDM 2073	19P194	264.2	-24	980607.22	12.09 3.09
940464	CORNWALL COURT H.	31	45 .92	74 43.70	489	19P 84	177.9	-24	980618.04	3.99 -2.07
940564	OTTAWA CMHC	31	45 26.63	75 38.22	576-S	19P216	280.7	-9	980629.45	-13.60 -23.16
940664	CUMBERLAND HOUSE	31	45 31.05	75 24.42	580-S	19P 89	213.5	-11	980650.71	-5.31 -12.58
940764	CLARENCE CREEK RC CH	31	45 30.53	75 13.26	585-S	19P 74	224.0	-11	980634.12	-20.13 -27.76
940864	PLANTAGENET RC CH	31	45 31.97	74 59.70	589-S	19P230	176.3	-9	980637.66	-23.24 -29.24
940964	HAWKESBURY UNITED CH	31	45 36.53	74 36.89	614-S	19P139	145.4	-15	980655.85	-14.81 -19.76
941064	HIGHWAY 17 CULVERT	31	45 36.01	74 44.01	3407	NO REF	164.1	0	980665.85	-2.28 -7.87
941164	ALFRED POST OFFICE	31	45 33.56	74 52.76	3412	NO REF	232.5	-11	980643.39	-14.62 -22.54
941264	HULL CPR STATION	31	45 26.14	75 43.43	460	18P 18	167.1	-19	980628.69	-24.31 -30.00
941364	GLENEAGLE GAT YACHT	31	45 32.34	75 48.58	465-A	18P 77	328.6	0	980622.30	-24.83 -36.02
941464	FARM POINT 1M N	31	45 37.09	75 54.09	468	18P 72	328.1	18	980630.64	-23.69 -34.87
941564	LOW PAUGAN FALLS	31	45 48.59	75 55.88	1953	18P120	468.4	0	980647.45	-10.97 -26.92
941664	CAMPBELLS BAY BANK	31	45 43.95	76 36.03	1759	18P 44	368.3	-20	980651.73	-9.14 -21.68
941764	OTTER LAKE RC CHURCH	31	45 50.87	76 25.87	614-R	18P162	715.0	-21	980642.41	3.74 -20.61
941864	KAZABAZUA CPR BRIDGE	31	45 56.73	76 3.27	603-R	18P 93	569.0	0	980660.80	-4.41 -19.79
941964	QUYON R C CHURCH	31	45 31.06	76 13.88	1737	18P177	217.1	27	980628.99	-26.71 -34.10
942064	SHANVILLE BANK	31	45 36.23	76 29.53	1751	18P242	547.0	-20	980630.14	-2.31 -20.94
942164	PARKER 2MI W PIER	31	45 32.31	76 7.33	1733	18P164	228.2	0	980630.04	-26.50 -34.27
942264	BRECKENRIDGE CPR STN	31	45 28.73	75 57.28	1727	18P 40	219.6	0	980627.99	-23.97 -31.45
942364	AYLMER RC CHURCH	31	45 23.86	75 50.85	1723	18P 26	277.6	-35	980619.13	-20.04 -29.50
942464	STE ROSE DE LIMA RCC	31	45 29.95	75 36.51	861	18P218	183.8	-31	980642.35	-14.80 -21.06
942564	MASSON CPR BRIDGE	31	45 32.73	75 25.54	543-R	18P125	185.5	0	980657.12	-4.06 -10.38
942664	BUCKINGHAM CREEK	31	45 38.17	75 26.39	979-R	NO REF	444.3	28	980651.35	6.32 -8.81

BM STATIONS

PAGE 2

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
942764	NOTRE DAME SALETTE C	31	45 46.00	75 35.00	555-R	18P150	516.3	-32	980647.41	-2.62	-20.21
942864	VAL BOIS LAROCQUES H	31	45 57.69	75 34.67	563-R	18P255	662.6	0	980663.88	10.02	-12.55
942964	MONTEBELLO FUND	31	45 39.04	74 56.40	541R	18P131	163.2	0	980654.30	-18.47	-24.03
943064	NOTRE D DE LA PAIX	31	45 48.52	74 57.95	535R	18P149	618.8	0	980640.87	-3.32	-24.40
943164	NAMUR 3M S	31	45 50.79	74 56.04	532R	18P146	728.3	0	980640.19	2.90	-21.91
943264	LAC DES PLAGES	31	45 59.58	74 52.93	527R	18P098	736.9	-6	980641.61	-8.10	-33.20
943364	ROCKWAY VALLEY	31	45 58.19	74 42.79	521R	18P184	711.4	0	980641.09	-8.92	-33.15
943464	MORRISON STATION	31	45 57.55	74 34.69	509R	18P145	610.0	0	980637.27	-21.31	-42.09
943564	LOST RIVER	31	45 49.80	74 32.96	503R	18P118	803.9	29	980636.67	7.97	-19.41
943664	PINEHILL BRIDGE	31	45 44.24	74 29.17	498R	18P165	778.8	10	980623.96	1.27	-25.26
943764	LACHUTE	31	45 39.36	74 20.39	448R	18P100	208.1	0	980647.56	-21.47	-28.56
943864	MARELAN	31	45 38.17	74 19.05	841	18P124	252.6	5	980643.29	-19.76	-28.36
943964	CUSHING UNITED CH.	31	45 35.82	74 28.11	R0M 2917	18P062	158.8	-23	980646.60	-21.74	-27.15
944064	ST ANDREWS EAST	31	45 33.88	74 20.06	451R	18P190	91.6	-12	980647.48	-24.27	-27.39
944164	LAKEFIELD CHURCH	31	45 45.11	74 15.48	444R	18P104	808.5	-23	980627.95	6.75	-20.79
944264	MORIN HTS 6.7 M S	31	45 49.90	74 17.16	440R	18P145	1022.6	0	980621.27	13.00	-21.03
944364	MORIN HTS	31	45 54.15	74 15.03	P100	18P144	776.5	0	980638.41	.60	-25.85
944464	ST AGATHE RC CHURCH	31	46 2.78	74 17.21	1101B	18P187	1289.3	-24	980581.54	-21.02	-64.93
944564	ST MARGUERITE STN	31	45 59.26	74 7.11	1096B	18P213	890.8	-6	980620.98	-13.77	-44.11
944664	PIEDMONT	31	45 54.34	74 7.84	1091B	18P165	522.9	-26	980653.52	-8.44	-26.25
944764	LESAGE	31	45 50.99	74 3.95	1088B	18P114	550.4	0	980647.75	-6.58	-25.33
944864	ST JEROME	31	45 46.64	74 .29	367R	18P208	311.6	0	980660.73	-9.51	-20.12
944964	ST CANUTE	31	45 42.28	74 5.97	371R	18P196	210.4	0	980653.45	-19.76	-26.93
945064	ST SCHOLASTIQUE	31	45 39.20	74 5.58	836	18P218	241.3	-36	980640.37	-25.29	-33.51
945164	OKA 4.7M NE	31	45 30.14	74 1.26	471R	18P154	288.6	-41	980641.57	-6.01	-15.84
945264	OKA 4M NW	31	45 29.94	74 8.64	465R	18P154	114.0	-4	980646.20	-17.51	-21.39

B.M. STATIONS

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
945364	ST PLACIDE RC CH	31	45 31.50	74 12.50	461R	18P215	109.8	-12	980644.73	-21.72	-25.46
945464	ST ANDRE EST 4M SE	31	45 31.65	74 17.46	457R	18P190	93.7	1	980646.71	-21.49	-24.68
945564	COTEAU LANDING	31	45 15.75	74 11.92	2624	18P061	158.3	-9	980646.06	7.87	2.48
945664	CEDARS POWER HOUSE	31	45 18.63	74 1.73	1948	18P050	126.3	0	980645.48	-.05	-4.35
945764	ILSE CADIEUX	31	45 23.57	74 2.27	ROM 430	18P090	83.9	-10	980650.40	-6.56	-9.42
945864	POINT FORTUNE	31	45 33.61	74 22.72	ROM 2903	18P169	105.3	-14	980646.45	-23.60	-27.19
945964	VANKLEEK HILL	31	45 31.17	74 39.17	617S	19P295	405.2	-17	980637.53	-.64	-14.44
946064	GLEN ROBERTSON STN	31	45 21.69	74 30.13	JSB1	NO REF	263.0	0	980642.73	5.45	-3.51
946164	ST POLYCARPE CHURCH	31	45 18.18	74 18.21	882	18P216	178.4	-28	980645.81	5.85	-.23
946264	MCCRIMMON CORNER	31	45 25.46	74 43.98	622S	19P184	241.1	-26	980659.53	14.52	6.31
946364	MOOSE CREEK CHURCH	31	45 15.63	74 58.33	634S	19P192	290.0	-19	980625.59	-.03	-9.91
946464	ST ALBERT STATION	31	45 14.12	75 11.62	881G	19P258	232.3	14	980611.33	-17.45	-25.36
946564	RUSSELL RED HOUSE	31	45 15.42	75 21.55	877G	19P257	234.5	-20	980609.94	-20.59	-28.58
946664	CARLETON PLACE	31	45 8.39	76 8.67	1988	19P063	444.9	0	980582.01	-18.14	-33.29
946764	ARNPRIOR	31	45 24.87	76 20.51	72G	19P023	319.4	22	980614.57	-22.19	-33.07
946864	RENFREW FUND.BM	31	45 28.26	76 40.97	1980	19F250	424.9	0	980627.08	-4.86	-19.33
946964	PORTAGE DU FORT	31	45 35.58	76 40.05	1800	18P169	299.7	-14	980654.13	-.60	-10.81
947064	DOMINION OBSERVTRY	31	45 23.62	75 42.89	125A	19P218	274.7	-41	980621.81	-17.28	-26.64
947164	PEMBROKE FUND. BM	31	45 49.43	77 7.33	1826	20P149	413.3	0	980633.19	-31.68	-45.76
947264	PEMBROKE RC CHURCH	31	45 49.45	77 6.98	1824	20P149	409.8	-24	980633.66	-31.58	-45.54
947364	PETAWAWA 3.5 M SE	31	45 51.88	77 13.81	88S	20P153	480.4	-27	980630.40	-31.85	-48.21
947464	CHALK R. 1.5 M SE	31	45 59.90	77 25.36	96S	20P039	497.8	21	980640.32	-32.35	-49.31
947564	CHAPEAU RC CHURCH	31	45 54.62	77 4.55	1783	18P052	461.1	-16	980640.48	-27.71	-43.42
947664	WALTHAM 1M N	31	45 55.04	76 55.26	1778	18P263	414.9	0	980655.03	-18.13	-32.26
947764	DAVIDSON HOUSE	31	45 52.09	76 45.71	1771	18P064	366.0	-10	980657.19	-16.14	-28.61
947864	FORT COULONGE PR.CH	31	45 50.57	76 44.56	1769	18P075	364.4	-16	980655.98	-15.20	-27.61

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
947964	BRYSON RC CHURCH	31	45 40.71	76 37.37	7436	18P042	366.2	-22	980651.29	-4.90	-17.37
948064	BRYSON 5.5 M N	31	45 44.75	76 39.96	7466	18P043	534.7	-17	980646.78	.35	-17.86
948164	BEACHBURG UNITED CH	31	45 43.96	76 51.38	1813	20P023	511.7	-11	980636.58	-10.81	-28.24
948264	LA PASSE RC CHURCH	31	45 48.78	76 46.18	7396	20P103	378.3	-29	980655.42	-11.77	-24.65
948364	WOITO STATION	31	45 41.33	77 12.37	1830	20P206	651.9	34	980606.34	-23.90	-46.10
948464	GOLDEN LAKE STN	31	45 34.36	77 14.91	1835	19P126	593.5	0	980601.84	-23.43	-43.64
948564	CALDWELL HOUSE	31	45 28.98	76 59.27	512	19P057	497.8	3	980614.61	-11.56	-28.52
948664	CALABOGIE BRIDGE	31	45 17.98	76 43.09	1396	19P056	513.6	8	980603.40	-4.73	-22.22
948764	FOLGER	31	45 5.77	76 42.78	1336	19P112	686.3	8	980577.01	3.49	-19.89
948864	SNOW ROAD BRIDGE	31	44 57.34	76 41.18	1296	19P272	696.8	7	980552.61	-7.24	-30.97
948964	SHARBOT LAKE STN	31	44 46.35	76 41.46	1246	19P268	648.8	-8	980543.75	-4.07	-26.17
949064	PERTH TOWN HALL	31	44 53.95	76 14.98	1156	19P226	440.2	-11	980559.59	-19.29	-34.28
949164	SMITH FALLS PO	31	44 54.11	76 1.19	1076	19P270	425.7	-23	980576.42	-4.07	-18.57
949264	MERRICKVILLE U CH.	31	44 54.98	75 50.23	6066	19P186	337.2	-24	980579.86	-10.25	-21.74
949364	HAWKENS	31	44 41.25	75 46.27	1026	19P139	392.0	7	980544.43	-19.88	-33.23
949464	BROCKVILLE COURT H.	31	44 35.49	75 41.21	1056	19P049	312.6	-10	980545.75	-17.36	-28.01
949564	KINGSTON FUND.	31	44 13.51	76 29.25	1531	19P158	272.1	0	980527.55	-6.32	-15.59
949664	GLENVALE 2.7M SE	31	44 17.78	76 33.58	1596	19P124	318.7	10	980515.36	-20.54	-31.39
949764	HARROWSMITH	31	44 24.20	76 40.02	1546	19P138	485.1	9	980525.36	-4.54	-21.06
949864	HINCHINBROOKE 2M N	31	44 36.90	76 40.62	1486	19P141	603.7	0	980536.25	-1.61	-22.17
949964	MOUNTAIN GROVE	31	44 44.12	76 50.73	1636	19P197	683.6	8	980532.70	-8.50	-31.78
950064	KALADAR 2.2M E	31	44 39.65	77 4.49	1686	19P154	689.8	-17	980528.09	-5.80	-29.29
950164	TWEED UNITED CH.	31	44 28.71	77 18.76	1766	19P291	483.1	-21	980520.92	-15.95	-32.40
950264	IVANHOE 1M E	31	44 25.44	77 27.03	1786	19P149	615.8	-5	980514.60	-4.88	-25.85
950364	TWEED	31	44 31.57	77 20.14	3166	19P014	512.1	-23	980530.29	-8.16	-25.60
950464	BANNOCKBURN	31	44 38.71	77 33.18	3226	19P028	830.7	-21	980527.40	8.18	-20.11

BM STATIONS

PAGE 5

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
950564 GILMOUR		31	44 49.50	77 37.18	3276	19P121 1010.2	52	980521.47	2.90	-31.51
950664 TURRIFF		31	44 58.79	77 44.40	3326	19P291 1103.0	0	980532.61	8.79	-28.78
950764 BANCROFT		31	45 3.27	77 51.30	3356	19P027 1077.3	-18	980532.45	-.52	-37.21
950864 HYBLA		31	45 7.77	77 49.70	3396	19P145 1178.4	-26	980530.21	-.02	-40.16
950964 MAYNOOTH		31	45 14.29	77 55.08	2426	19P183 1296.4	-11	980531.68	2.73	-41.43
951064 L ST PETER		31	45 17.80	78 2.10	3456	19P164 1318.9	22	980533.45	1.34	-43.58
951164 WALLACE		31	45 24.37	78 7.49	3496	19P299 1410.2	-10	980538.15	4.75	-43.28
951264 MADAWASKA		31	45 30.14	77 58.73	HYDRO	NO REF 1038.2	0	980563.95	-13.13	-48.49
951364 BARRY'S BAY		31	45 31.49	77 45.76	525	19P029 1016.4	60	980565.09	-16.07	-50.69
951464 KILLALOE		31	45 32.45	77 27.47	520	19P156 663.9	-13	980590.24	-25.52	-48.13
951564 HIGHLAND GROVE		31	45 4.79	78 3.31	3116	19P141 1239.2	0	980518.64	-1.40	-43.61
951664 BELLEVILLE FUND.		31	44 9.96	77 22.60	1548	19P036 306.0	0	980507.28	-18.05	-28.47
951764 TRENTON FUND.		31	44 6.48	77 34.56	1555	19P290 278.8	0	980503.91	-18.75	-28.25
951864 WELLINGTON 2.7M W		30	43 58.26	77 23.66	ROM 2256	19P304 329.9	13	980485.94	-19.56	-30.80
951964 GLENORA LAKE		31	44 2.38	77 3.45	ROM 2276	19P123 418.6	12	980483.17	-20.18	-34.44
952064 ERNESTOWN 1.5M W		31	44 12.75	76 46.89	1534	19P106 300.1	-14	980506.91	-23.17	-33.39
952164 NAPANEE CN STATION		31	44 15.17	76 57.47	150	19P200 315.7	-11	980517.30	-14.95	-25.70
952264 BONARLAW 0.7M SE		31	44 25.41	77 37.30	1896	19P042 581.3	12	980508.93	-13.75	-33.55
952364 INDIAN RIVER 1M E		31	44 20.96	78 7.40	1986	19P146 706.8	20	980487.97	-16.21	-40.28
952464 PETERBORO FUND.		31	44 18.55	78 19.29	1693	19P227 673.1	0	980488.80	-14.92	-37.85
952564 CAVAN 1.5M SW		31	44 11.63	78 28.02	2086	19P065 697.8	7	980470.78	-20.21	-43.98
952664 PONTYPOOL ELEVATOR		31	44 5.91	78 37.83	2136	19P231 1068.9	-45	980441.92	-5.56	-41.97
952764 WALLACE PT BRIDGE		31	44 11.12	78 20.10	47	NO REF 623.3	0	980477.53	-19.70	-40.93
952864 NASSAU MILLS 1.22		31	44 21.91	78 17.46	58	NO REF 713.7	0	980490.08	-14.87	-39.18
952964 LAKEFIELD 2.6M NE		31	44 27.13	78 15.08	3268	NO REF 791.7	0	980496.16	-9.30	-36.27
953064 BURLEIGH FALLS BDG.		31	44 33.45	78 12.33	3280	NO REF 793.8	-4	980501.26	-13.52	-40.56

B M STATIONS

PAGE 6

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
953164	BUCKHORN BRIDGE	31	44 33.30	78 20.73	3288	NO REF	813.9	0	980496.87	-15.79	-43.51
953264	GANNON NARROWS Bdg.	31	44 28.36	78 27.23	3297	NO REF	833.9	0	980491.58	-11.77	-40.17
953364	NOGIES CREEK	31	44 35.49	78 28.53	3304	NO REF	844.5	0	980501.58	-11.49	-40.25
953464	BOBCAYGEON KNOX CH	31	44 32.44	78 32.83	3308	NO REF	819.2	-12	980499.80	-11.07	-38.97
953564	FENLON FALLS SCHOOL	31	44 32.36	78 44.11	3316	NO REF	878.6	-19	980493.53	-11.63	-41.56
953664	ROSEDALE LOCKHOUSE	31	44 34.28	78 46.68	3324	NO REF	843.1	-8	980497.19	-14.20	-42.92
953764	FRANKFORD DAM 6	31	44 12.54	77 35.66	15	NO REF	365.0	0	980505.76	-17.91	-30.34
953864	HOARD STN 1.7M SE	31	44 17.57	77 37.77	3208	NO REF	406.8	0	980511.55	-15.74	-29.60
953964	CAMPBELLFORD BLDG.	31	44 18.53	77 48.02	3218	NO REF	486.5	-4	980505.15	-16.09	-32.66
954064	HEALEY FALLS 1.3M S	31	44 21.84	77 47.76	3221	NO REF	752.8	0	980501.03	-.14	-25.78
954164	HASTINGS HOTEL	31	44 18.40	77 57.37	3230	NO REF	620.8	-16	980485.04	-23.38	-44.52
954264	GOODERHAM 12.5M S	31	44 46.00	78 21.41	569S	19P127	1023.1	0	980505.11	-6.98	-41.83
954364	GOODERHAM BRIDGE	31	44 54.34	78 22.85	304G	19P127	1065.2	-12	980512.00	-8.69	-44.97
954464	KINMOUNT	31	44 46.61	78 38.89	342S	19P162	961.6	43	980506.06	-12.73	-45.48
954564	LINDSAY FUND	31	44 21.24	78 44.89	1694	NO REF	886.0	0	980477.21	-10.53	-40.71
954664	OMEMEE	31	44 17.95	78 33.59	541S	19P211	827.7	-8	980474.79	-13.49	-41.68
954764	DUNSFORD 0.5M N	31	44 27.43	78 38.67	361S	19P099	916.1	0	980485.85	-8.36	-39.56
954864	MINDEN 1.5M N	31	44 56.53	78 42.79	315S	19P189	904.0	0	980530.42	-8.72	-39.51
954964	HALIBURTON BRIDGE	31	45 2.87	78 30.54	341S	19P135	1049.5	0	980526.80	-8.18	-43.93
955064	CARNARVON 5M NW	31	45 5.76	78 44.83	323S	19P064	1070.1	-6	980532.83	-4.57	-41.02
955164	DORSET	31	45 14.44	78 53.70	258S	19P094	1068.9	67	980544.94	-5.64	-42.05
955264	DWIGHT BRIDGE 2M S	31	45 18.67	78 59.42	266S	19P100	1063.2	0	980559.23	1.75	-34.46
955364	HUNTSVILLE FUND	31	45 19.40	79 12.61	276S	19P145	983.7	0	980568.65	2.60	-30.90
955464	SCOTIA 0.5M N	31	45 30.85	79 18.24	ROM 771	20P176	1081.3	-12	980585.37	11.28	-25.55
955564	UTTERSON 4.5M S	31	45 9.22	79 19.52	ROM 731	19P294	1022.3	-24	980552.47	5.37	-29.45
955664	BRACEBRIDGE FUND	31	45 2.56	79 18.81	230S	19P044	861.6	0	980547.56	-4.64	-33.99

BM STATIONS

PAGE 7

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
955764	BAYSVILLE DOCK	31 45	9.04	79 6.73	252S	19P031 1037.7	0	980547.07	1.70	-33.64
955864	GRAVENHURST FUND	31 44	55.17	79 22.48	237S	19P130 842.9	0	980539.81	-3.03	-31.74

BM STATIONS

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
800164	SOUTH GLOUCESTER	31	45 17.20	75 34.54	ROM 2104	19P274	361.2	-3	980622.71		
									980622.94	1.54	-10.76
800264	GREELY STRABYS HOUSE	31	45 15.75	75 33.53	ROM 2105	19P131	307.9	-11	980623.27		
									980623.29	-.83	-11.32
800364	GREELY 4M SE	31	45 13.41	75 30.24	ROM 2108	19P131	301.4	-25	980613.21		
									980613.10	-8.05	-18.32
800464	VERNON SS8 OSGOODE	31	45 11.53	75 28.66	ROM 2110	19P296	331.0	-26	980600.60		
									980600.78	-14.91	-26.18
800564	VERNON PRES CH	31	45 9.88	75 27.84	ROM 2112	19P296	289.7	-26	980599.74		
									980599.90	-17.18	-27.05
800664	ORMOND BAPTIST CH	31	45 8.99	75 23.61	ROM 2162	19P213	268.3	-10	980598.79		
									980598.68	-18.93	-28.07
800764	ORMOND SCHOOL	31	45 9.02	75 23.46	ROM 2161	19P213	272.3	-27	980598.82		
									980598.96	-18.44	-27.71
800864	WINCHESTER 1.2M NE	31	45 6.36	75 21.48	ROM 2093	19P312	243.0	-14	980600.29		
									980600.39	-15.75	-24.03
800964	WINCHESTER 2.2M N	31	45 6.01	75 23.22	ROM 2115	19P313	246.2	-13	980596.98		
									980596.98	-18.27	-26.66
801064	WINCHESTER 3.5M N	31	45 6.98	75 24.08	ROM 2116	19P313	242.6	-17	980596.34		
									980596.26	-20.75	-29.01
801164	WINCHESTER CASS BR	31	45 2.95	75 19.28	ROM 2090	19P313	228.4	-39	980601.58		
									980601.68	-10.70	-18.48
801264	WINCHESTER SPRING	31	45 1.91	75 17.75	ROM 2089	19P313	240.4	-7	980602.08		
									980602.14	-7.54	-15.73
801364	MORRISBURG HWY 401	31	44 55.00	75 11.87	2900	NO REF	268.0	0	980608.32		
									980608.26	11.63	2.50
801464	MORRISBURG HWY 401	31	44 55.82	75 10.01	2899	NO REF	263.2	-9	980613.23		
									980613.05	14.81	5.85
801564	INGLESIDE HWY 401	31	44 57.60	75 5.54	2897	NO REF	261.2	-5	980616.43		
									980616.28	15.16	6.26
801664	MORRISBURG HWY 401	31	44 56.47	75 8.41	2898	NO REF	270.6	-6	980614.90		
									980614.87	16.26	7.04
801764	INGLESIDE CTY RD 11	31	44 57.83	75 2.32	900A	19P 25	262.0	0	980616.70		
									980616.89	15.32	6.40
801864	INGLESIDE 3.5M SW	31	44 58.76	75 3.07	2894	NO REF	277.4	0	980616.82		
									980616.99	15.48	6.03
801964	INGLESIDE 1M W	31	44 59.22	75 .42	899A	19P109	255.7	0	980618.34		
									980618.29	14.16	5.45
802064	INGLESIDE FARRAN DR	31	44 59.62	74 59.46	2892	NO REF	258.8	0	980617.46		
									980617.34	12.93	4.12
802164	INGLESIDE SEWAGE PLT	31	44 59.84	74 58.45	2891	NO REF	258.5	-13	980617.16		
									980617.17	12.33	3.53
802264	LONG SAULT HOOPLE CR	31	45 .67	74 56.31	2890	NO REF	252.3	0	980615.26		
									980615.43	8.68	.09
802364	LONG SAULT SNYDERS H	31	45 1.08	74 55.59	897A	NO REF	270.8	0	980613.72		
									980613.97	8.31	-.91
802464	LONG SAULT UNITED CH	31	45 1.86	74 53.82	2888	NO REF	280.8	-6	980614.43		
									980614.51	8.69	-.86
802564	LONG SAULT 1.8M E	31	45 1.96	74 51.56	2886	NO REF	247.8	0	980614.36		
									980614.36	5.33	-3.10
802664	MILE ROCHE'S RD	31	45 2.10	74 50.21	2885	NO REF	252.9	0	980614.12		
									980614.20	5.40	-3.20

BM STATIONS

PAGE 9

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
802764	NORTHFIELD STATION	31 45	6.28	75 57.13	494	19P207	335.9	-5	980620.81		
									980620.79	13.56	2.12
802864	FINCH UNITED CHURCH	31 45	8.69	75 50.09	495	19P110	278.2	-14	980619.26		
									980619.19	2.94	-6.54
802964	FINCH RAILROAD	31 45	5.67	75 18.03	5236	NO REF	276.3	0	980601.47		
									980601.43	-10.46	-19.87
803064	ORLEANS 1M W	31 45	28.27	75 32.45	577-S	19P213	178.1	-16	980647.47		
									980647.27	-7.79	-13.86
803164	ORLEANS 1M E	31 45	29.24	75 29.94	578-S	19P213	194.6	0	980648.94		
									980648.87	-6.17	-12.80
803264	CUMBERLAND BECKETT C	31 45	29.12	75 20.40	581-S	19P 89	219.2	-15	980641.53		
									980641.72	-10.95	-18.42
803364	VINETTE 1.4M W	31 45	28.90	75 18.64	582-S	19P297	230.8	-13	980638.17		
									980638.34	-12.90	-20.76
803464	VINETTE PAIMENT HSE	31 45	29.27	75 17.13	583-S	19P297	281.6	-6	980632.68		
									980632.65	-14.26	-23.85
803564	PLANTAGENET 4.3M W	31 45	33.61	75 4.14	586-S	19P230	153.7	-10	980639.30		
									980639.17	-26.25	-31.49
803664	PLANTAGENET GROULX H	31 45	32.38	75 .44	588-S	19P230	152.5	-19	980639.04		
									980639.01	-24.73	-29.92
803764	HAWKESBURY HY17 1M W	31 45	35.64	75 54.19	3402	NO REF	183.0	-12	980654.27		
									980654.21	-11.55	-17.78
803864	HIGHWAY17 1.4M W 34	31 45	36.06	75 55.33	3403	NO REF	161.4	0	980659.00		
									980658.99	-9.46	-14.96
803964	ORIGNAL 0.7M SE	31 45	36.57	75 58.05	3404	NO REF	174.6	-22	980664.38		
									980664.44	-3.57	-9.52
804064	ST JEAN BAPTISTE SCH	31 45	36.89	75 58.50	3405	NO REF	176.1	-11	980665.45		
									980665.32	-2.94	-8.94
804164	DRIGNAL 0.7M SW	31 45	36.38	75 58.91	3406	NO REF	158.1	0	980666.36		
									980666.27	-2.93	-8.31
804264	DRIGNAL LS OUTCROP	31 45	35.54	74 46.09	3408	NO REF	176.8	0	980665.10		
									980664.94	-1.19	-7.21
804364	ALFRED 4.4M E	31 45	35.09	74 48.06	3409	NO REF	149.3	0	980661.51		
									980661.46	-6.65	-11.74
804464	ALFRED 2.5M E	31 45	34.34	74 50.02	3410	NO REF	169.8	0	980655.96		
									980655.96	-9.11	-14.89
804564	ALFRED 1.4M E	31 45	33.94	74 50.51	3411	NO REF	171.5	0	980651.34		
									980651.29	-12.99	-18.83
804664	IRONSIDE 0.5M S CPR	31 45	28.02	75 44.57	463	18P 96	177.7	79	980632.32		
									980632.31	-22.52	-28.57
804764	CHELSEA PUB SCHOOL	31 45	30.49	75 46.91	464	18P 55	362.2	-18	980619.98		
									980619.89	-21.25	-33.59
804864	LARRIMAC 0.5M S	31 45	32.82	75 49.10	466-A	18P109	329.9	0	980623.15		
									980623.02	-24.65	-35.89
804964	LARRIMAC 0.1M S	31 45	33.31	75 37.84	466-A-2	18P109	322.7	-9	980624.21		
									980624.07	-25.01	-36.00
805064	CASCADES 1.2M S	31 45	34.63	75 51.94	467-A	18P 49	343.0	-15	980624.94		
									980624.90	-24.30	-35.98
805164	WAKEFIELD UNITED C	31 45	38.05	75 55.79	469	18P262	332.1	-4	980633.33		
									980633.25	-22.09	-33.40
805264	WAKEFIELD 1M N STN	31 45	39.42	75 55.76	471	18P262	343.0	-5	980637.01		
									980636.91	-19.46	-31.14

B M STATIONS

PAGE 10

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
805364	ALCOVE STATION	31	45 40.93	75 55.73	472	18P 22	332.9	-4	980640.89	
								980640.77	-18.81	-30.15
805464	ALCOVE 1M N STATION	31	45 41.83	75 55.93	473	18P 22	341.2	10	980644.45	
								980644.39	-15.79	-27.41
805564	LORDSVALE 1.75M S	31	45 42.97	75 54.97	474	18P117	334.6	7	980646.45	
								980646.29	-16.19	-27.59
805664	CAMPBELLS BAY 2.2M N	31	45 45.33	76 34.59	620-R	18P 45	559.5	0	980644.13	
								980643.96	-.91	-19.97
805764	CAMPBELLS BAY 4.5M N	31	45 46.00	76 32.72	619-R	18P 45	600.5	0	980641.60	
								980641.59	-.51	-20.96
805864	OTTER LAKE ANG CH	31	45 50.33	76 27.02	615-R	18P162	713.7	-27	980641.57	
								980641.74	3.69	-20.62
805964	LAUREAT 2M SW	31	45 53.35	76 23.93	P-14	18P112	746.6	0	980643.61	
								980643.66	4.23	-21.20
806064	LAUREAT 0.2M S	31	45 54.61	76 22.89	612-R	18P112	892.7	0	980637.63	
								980637.59	10.04	-20.36
806164	LAUREAT	31	45 54.76	76 22.64	P-13	18P112	774.2	0	980644.99	
								980645.23	6.16	-20.20
806264	LAUREAT 6M E	31	45 54.31	76 16.54	609-R	18P112	789.1	0	980646.59	
								980646.67	9.76	-17.11
806364	DANFORD LAKE 4.5M W	31	45 55.59	76 14.58	608-R	18P 63	694.7	0	980654.42	
								980654.42	6.74	-16.91
806464	DANFORD LAKE 2.7M W	31	45 55.67	76 12.57	607-R	18P 63	642.3	6	980657.71	
								980657.67	4.97	-16.90
806564	DANFORD LAKE	31	45 55.47	76 9.56	606-R	18P 63	592.2	20	980661.62	
								980661.59	4.32	-15.79
806664	WYMAN HOUSE	31	45 32.16	76 17.94	1742	18P264	399.2	-15	980625.77	
								980625.71	-14.47	-28.07
806764	WYMAN 1.5M NW	31	45 32.78	76 19.69	1743	18P264	431.1	0	980624.53	
								980624.49	-13.64	-28.32
806864	MCKEE 1 M E	31	45 34.35	76 24.52	1747	18P127	502.7	-11	980625.40	
								980625.28	-8.44	-25.56
806964	MCKEE STATION	31	45 34.45	76 25.56	1748	18P127	525.7	9	980624.87	
								980624.69	-6.98	-24.89
807064	SHAWVILLE 1.5M E	31	45 36.07	76 27.77	1749	18P242	508.1	-18	980631.83	
								980631.64	-4.12	-21.43
807164	SHAWVILLE 1.2M NW	31	45 37.26	76 30.34	1753	18P242	585.8	6	980634.78	
								980634.77	4.43	-15.52
807264	MOREHEAD 0.7M NW	31	45 41.62	76 34.45	1757	18P144	490.2	14	980645.64	
								980645.65	-.24	-16.94
807364	MOREHEAD STATION	31	45 41.26	76 33.46	1756	18P144	502.5	0	980642.15	
								980642.19	-2.01	-19.13
807464	QUYON 1.7M E	31	45 31.83	76 12.31	1735	18P177	277.1	0	980627.96	
								980627.92	-23.26	-32.70
807564	MQHR 0.2M E	31	45 32.10	76 9.46	1734	18P129	223.0	6	980630.91	
								980630.80	-25.85	-33.45
807664	EARDELY 0.5M NW	31	45 31.75	76 3.14	1731	18P 74	209.7	9	980630.56	
								980630.72	-26.78	-33.92
807764	LUSK 0.5M NW	31	45 30.52	76 .51	1730	18P120	214.0	6	980629.12	
								980629.31	-25.95	-33.24
807864	BRECKENRIDGE 1.7M SE	31	45 27.53	75 56.24	1726	18P 40	232.2	-36	980623.70	
								980623.83	-25.19	-33.10

B H STATIONS

PAGE 11

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
807964	AYLMER 3M NW	31 45 25.34	75 53.99		1725	18P 26	217.2	0	980624.63	-22.42	-29.82
808064	AYLMER 1.25M NW	31 45 24.39	75 52.35		1724	18P 26	224.5	0	980624.38	980624.68	
808164	DESCHENES STONE BLDG	31 45 23.20	75 48.26		1719	18P 65	203.0	-10	980625.75	980625.88	-20.61 -28.26
808264	DESCHENES ISLAND PK	31 45 24.79	75 45.85		1717	18P 65	193.7	0	980626.62	980626.85	-19.39 -26.30
808364	VAL TETREAU GATINEAU	31 45 25.21	75 44.48		1715	18P 89	196.9	-8	980625.53	980625.51	-21.73 -28.33
808464	POINTE GATINEAU RC C	31 45 27.44	75 41.98		864	18P168	155.4	-32	980634.21	980634.43	-23.27 -29.98
808564	HULL CPR BRIDGE GAT	31 45 27.88	75 43.44		863	18P 89	151.6	-32	980634.04	980634.18	-22.95 -28.11
808664	ANGERS 2.5M W	31 45 30.90	75 32.65		859	18P 25	160.0	-6	980652.29	980652.36	-8.50 -13.95
808764	ANGERS 0.5M W	31 45 31.43	75 30.21		858	18P 25	183.4	25	980653.25	980653.27	-6.15 -12.40
808864	MASSON 0.7M W	31 45 32.56	75 26.02		857	18P125	188.0	49	980656.71	980656.66	-4.01 -10.41
808964	MASSON 1.25M E JCT	31 45 33.06	75 23.66		856	18P125	180.0	19	980657.20	980657.22	-4.97 -11.10
809064	MASSON POWER HOUSE	31 45 32.62	75 25.24		544-R	18P125	157.0	-24	980658.51	980658.43	-5.21 -10.56
809164	BUCKINGHAM BRIDGE	31 45 35.16	75 25.17		980-R	NO REF	409.0	0	980649.12	980649.26	5.38 -8.54
809264	BUCKINGHAM R C C	31 45 35.24	75 24.84		547-R	18P 43	431.7	-26	980646.97	980647.11	5.24 -9.45
809364	BUCKINGHAM OUTCROP	31 45 35.99	75 25.21		978-R	NO REF	479.5	-2	980647.28	980647.16	8.78 -7.54
809464	BUCKINGHAM 2.25MI N	31 45 36.97	75 25.83		549-R	18P 43	560.7	-38	980644.98	980645.07	12.77 -6.33
809564	BUCKINGHAM 6MI N PO	31 45 39.88	75 27.37		551-R	18P 43	484.3	0	980652.25	980652.19	8.38 -8.11
809664	NOTRE DAME SALETTE	31 45 43.37	75 34.42		553-R	18P150	503.7	0	980644.09	980644.10	-3.16 -20.32
809764	NOTRE DAME SALETTE	31 45 44.86	75 34.43		554-R	18P150	521.8	0	980647.85	980647.78	.02 -17.75
809864	NOTRE DAME SALETTE	31 45 47.92	75 36.53		556-R	18P150	459.9	-17	980652.07	980651.97	-6.20 -21.86
809964	MINE DE MICA 1M S	31 45 49.40	75 36.56		P-14	18P128	656.4	0	980645.57	980645.54	3.59 -18.77
810064	VAL DES BOIS 2.25MIS	31 45 53.30	75 36.94		561-R	18P255	623.6	-36	980658.17	980657.91	7.13 -14.10
810164	NOTRE DAME DU LAUS C	31 46 5.27	75 37.31		567-R	18P152	637.8	14	980672.48	980672.46	4.78 -16.89
810264	NOTRE DAME DU LAUS C	31 46 3.39	75 36.04		P-12	18P152	639.1	0	980670.55	980670.54	5.91 -15.86
810364	NOTRE DAME DU LAUS C	31 46 2.42	75 34.94		P-13	18P152	675.5	0	980668.39	980668.55	8.72 -14.28
810464	VAL DES BOIS.25MIS C	31 45 54.68	75 35.92		P-11	18P255	624.7	0	980660.49	980660.46	7.59 -13.69

B M STATIONS

PAGE 12

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
810564	VAL DES BOIS 4.25MIS	31 45 52.09	75 37.67		560-R	18P255	669.8	-24	980651.47		
									980651.61	6.79	-16.01
810664	MONTEBELLO 4.2M N	31 45 40.88	74 56.62		539R	18P131	520.0	-26	980639.58		
									980639.78	-2.29	-20.00
810764	N D DE LA PAIX 4M S	31 45 45.34	74 58.79		537R	18P150	527.2	-16	980642.36		
									980642.50	-5.56	-23.52
810864	N D DE LA PAIX 2M S	31 45 46.61	74 58.86		536R	18P150	546.7	0	980640.66		
									980640.82	-7.33	-25.95
810964	N D DE LA PAIX	31 45 48.42	74 57.11		534R	18P150	638.0	0	980640.35		
									980640.18	-1.94	-23.67
811064	2.7 M NE DE LA PAIX	31 45 48.58	74 56.55		P64	18P149	649.8	0	980642.31		
									980642.20	.91	-21.22
811164	3.5 M NE DE LA PAIX	31 45 49.12	74 56.39		533R	18P150	649.2	0	980642.11		
									980641.92	-.20	-22.31
811264	NAMOR 30 E CHURCH	31 45 53.73	74 55.71		P66	18P146	724.3	0	980642.96		
									980642.90	.84	-23.82
811364	LAC DES PLAGES	31 45 59.99	74 51.29		526R	18P098	732.2	0	980641.82		
									980642.01	-8.85	-33.79
811464	D AMHERST 2.2 SW	31 45 59.22	74 47.26		524R	18P217	726.2	-5	980642.48		
									980642.73	-7.56	-32.29
811564	HOBERDEAU RC CHURCH	31 45 58.58	74 38.03		512R	18P089	662.2	-21	980633.27		
									980633.47	-21.85	-44.40
811664	HOBERDEAU BRIDGE	31 45 58.48	74 37.93		P74	18P089	648.3	0	980634.73		
									980634.93	-21.55	-43.63
811764	ARUNDEL	31 45 57.85	74 37.44		P75	18P025	624.7	0	980633.71		
									980633.90	-23.84	-45.12
811864	WEIR 45F S BRIDGE	31 45 56.51	74 32.80		508R	18P263	621.5	-11	980639.28		
									980639.42	-16.58	-37.75
811964	WEIR 2.5 M SW PO	31 45 55.93	74 34.18		507R	18P263	617.8	0	980638.81		
									980638.89	-16.55	-37.59
812064	LOST R. 2.2 M N PO	31 45 51.07	74 33.76		504R	18P119	813.9	0	980632.86		
									980632.85	3.21	-24.51
812164	LOST R. 2 M S PO	31 45 48.49	74 33.93		502R	18P118	836.1	-35	980633.64		
									980633.82	10.03	-18.44
812264	LOST R. 4 M S PO	31 45 46.75	74 34.38		501R	18P119	935.4	0	980627.64		
									980627.87	16.02	-15.84
812364	PINEHILL 4 M NW	31 45 45.67	74 33.21		500R	18P166	949.2	0	980623.24		
									980622.97	14.30	-18.03
812464	DALESVILLE 1.7 M W	31 45 42.80	74 25.94		496R	18P062	570.1	0	980628.92		
									980628.82	-11.28	-30.70
812564	DALESVLE BAPTIST CH	31 45 42.56	74 24.49		495R	18P062	629.1	-31	980627.23		
									980627.12	-7.06	-28.49
812664	BROWNSBURG PO	31 45 40.62	74 24.25		494R	18P042	363.6	-10	980635.77		
									980635.77	-20.51	-32.89
812764	LACHUTE PO	31 45 39.45	74 19.95		838	18P100	222.5	-24	980647.32		
									980647.25	-20.52	-28.10
812864	BROWNSBURG STONE H	31 45 40.15	74 22.11		493R	18P042	366.5	-24	980638.17		
									980638.13	-17.15	-29.63
812964	LACHUTE B. OF MONT.	31 45 39.44	74 20.16		377R	18P100	211.1	-14	980647.86		
									980647.95	-20.96	-28.15
813064	CALUMET	31 45 38.62	74 40.56		844	18P044	189.7	7	980666.20		
									980666.10	-3.50	-9.96

B M STATIONS

PAGE 13

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
813164	POINTE AU CHENE	31	45 38.55	74 43.25	845	18P166	190.5	15	980670.85		
									980670.82	1.38	-5.11
813264	FASSETT	31	45 38.81	74 51.92	847	18P072	168.1	-14	980655.75		
									980655.71	-16.22	-21.95
813364	GRENVILLE RC CHURCH	31	45 37.57	74 36.25	865	18P080	165.4	-16	980654.27		
									980654.31	-16.05	-21.68
813464	GRENVILLE LOCK 7	31	45 37.60	74 36.36	843	18P080	199.4	0	980655.64		
									980655.72	-11.51	-18.30
813564	CUSHING GEN STORE	31	45 35.66	74 27.65	ROM 2915	18P062	159.1	-35	980646.92		
									980646.79	-21.21	-26.63
813664	CARILLON RC CHURCH	31	45 33.98	74 22.49	ROM 2906	18P048	96.4	-16	980646.17		
									980646.22	-25.24	-28.52
813764	ST ANDREWS E. MILL	31	45 33.86	74 20.26	453R	18P190	91.3	-37	980647.36		
									980647.29	-24.41	-27.52
813864	LACHUTE 4.5 M SOUTH	31	45 35.87	74 20.86	450R	18P101	141.0	-7	980644.34		
									980644.33	-25.75	-30.55
813964	LACHUTE 2.5 M SOUTH	31	45 37.54	74 21.05	449R	18P101	207.0	-29	980640.57		
									980640.44	-25.88	-32.93
814064	LAKEFIELD 2 M NORTH	31	45 46.50	74 14.92	443R	18P104	942.4	31	980621.53		
									980621.51	10.82	-21.27
814164	LAKEFIELD 3.5 M N	31	45 47.44	74 14.96	442R	18P104	1139.5	0	980610.10		
									980610.09	16.52	-22.29
814264	LAKEFIELD 5.5 M N	31	45 49.03	74 14.96	441R	18P104	1135.6	0	980611.30		
									980611.14	14.87	-23.80
814364	MORIN HTS 2 M SOUTH	31	45 53.36	74 15.81	438R	18P145	928.5	-10	980631.68		
									980631.85	9.44	-22.18
814464	MORIN HTS 3.5 M S	31	45 51.94	74 15.96	439R	18P145	918.7	0	980631.82		
									980632.04	10.81	-20.47
814564	MORIN HTS 4.7 M S	31	45 51.08	74 16.76	P98	18P145	942.6	0	980627.57		
									980627.74	10.09	-22.01
814664	MORIN HTS 2.5 M NE	31	45 55.57	74 16.40	436R	18P144	948.4	-26	980614.03		
									980614.12	-9.70	-42.00
814764	ST ADOLPHE 3.7 M S	31	45 55.93	74 18.59	435R	18P187	1393.9	0	980584.73		
									980584.71	2.31	-45.16
814864	ST ADOLPHE	31	45 58.34	74 20.52	433R	18P187	1212.3	0	980588.43		
									980588.51	-14.64	-55.93
814964	ST AGATHE PO	31	46 2.94	74 17.36	1102B	18P187	1275.7	-16	980582.45		
									980582.49	-21.60	-65.05
815064	PREFONTAINE	31	46 2.85	74 15.25	1100B	18P171	1111.8	-98	980593.06		
									980593.09	-26.28	-64.15
815164	MONT ROLLAND CHURCH	31	45 56.38	74 7.42	1093B	18P143	676.2	50	980638.23		
									980638.23	-12.36	-35.39
815264	SHAWBRIDGE 1M NW	31	45 52.78	74 5.29	1089B	18P240	573.2	-38	980647.41		
									980647.41	-7.45	-26.97
815364	ST JEROME 2M N	31	45 48.13	74 .49	1085B	18P209	361.3	-6	980658.78		
									980658.83	-9.00	-21.31
815464	ST JEROME 1.2M SE	31	45 45.75	73 59.16	366R	18P209	244.0	2	980659.54		
									980659.33	-15.82	-24.13
815564	ST CANUT RC CH	31	45 43.12	74 4.93	370R	18P195	247.7	-16	980655.30		
									980655.31	-15.65	-24.09
815664	MIRABEL	31	45 40.64	74 11.83	373R	18P129	237.4	-39	980649.67		
									980649.79	-18.45	-26.54

B M STATIONS

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
815764	LACHUTE 1.7M E	31	45 39.87	74 17.78	375R	18P101 211.1	2	980649.86		
								980649.82	-19.65	-26.84
815864	LACHUTE 1.2M E	31	45 39.74	74 18.53	376R	18P101 207.8	4	980649.89		
								980649.94	-19.70	-26.78
815964	ST HERMAS 1.7M W	31	45 39.12	74 13.84	837	18P206 242.9	0	980646.69		
								980646.64	-18.72	-26.99
816064	OKA 3.5M NE	31	45 29.35	74 2.09	470R	18P154 280.5	-18	980641.83		
								980641.87	-5.30	-14.85
816164	OKA RC CH	31	45 27.55	74 5.31	467R	18P154 81.4	-24	980651.01		
								980651.00	-12.16	-14.93
816264	OKA 2M NW	31	45 28.46	74 7.55	466R	18P154 197.1	2	980640.79		
								980640.75	-12.89	-19.60
816364	ST PLACIDE 3M SE	31	45 30.73	74 9.45	464R	18P216 103.0	0	980644.97		
								980644.89	-20.98	-24.49
816464	ST PLACIDE 1.5M E	31	45 31.75	74 10.62	463R	18P215 120.6	0	980641.38		
								980641.24	-24.49	-28.60
816564	ST PLACIDE 0.7M W	31	45 31.58	74 13.46	460R	18P216 107.3	-7	980645.56		
								980645.62	-21.21	-24.86
816664	ST PLACIDE 2.2M W	31	45 31.98	74 14.99	459R	18P216 78.9	0	980647.76		
								980647.82	-22.29	-24.98
816764	ST ANDREWS E 2M S	31	45 32.20	74 19.92	455R	18P190 83.4	2	980645.56		
								980645.58	-24.41	-27.25
816864	COTEAU LANDING RR	31	45 15.80	74 11.83	5036	18P061 161.2	0	980645.92		
								980645.94	7.93	2.44
816964	COTEAU LND BRIDGE	31	45 16.94	74 10.83	2764	18P061 164.7	-9	980645.56		
								980645.53	6.17	.56
817064	COTEAU LND CHURCH	31	45 17.51	74 10.61	ROM 427	18P060 157.5	-13	980645.40		
								980645.46	4.50	-.85
817164	CEDARS CHURCH	31	45 18.46	74 3.37	ROM 423	18P050 157.0	-19	980644.81		
								980644.70	2.38	-2.97
817264	CEDARS MONUMENT	31	45 18.75	74 1.82	1949	18P050 127.3	-5	980646.26		
								980646.13	.57	-3.77
817364	CASCADES PT BRIDGE	31	45 19.87	73 58.20	ROM 420	18P049 140.2	-9	980641.31		
								980641.27	-4.79	-9.57
817464	CASCADES PT LOCK 1	31	45 20.10	73 57.41	ROM 417	18P049 78.7	-24	980644.80		
								980644.85	-7.40	-10.08
817564	VAUDREUIL RC CHURCH	31	45 23.93	74 1.66	ROM 431	18P259 84.7	-24	980649.96		
								980650.05	-7.41	-10.29
817664	POINT FORTUNE HOUSE	31	45 33.77	74 22.87	ROM 438	18P169 83.5	-4	980647.62		
								980647.62	-24.71	-27.55
817764	ST EUGENE RC CHURCH	31	45 29.95	74 27.99	ROM 441	19P259 190.0	-18	980643.15		
								980643.19	-13.40	-19.87
817864	ST EUGENE BRIDGE	31	45 30.12	74 28.00	ROM 439	19P260 176.5	-11	980644.15		
								980644.18	-13.94	-19.95
817964	VANKLEEK HILL 2M E	31	45 32.24	74 36.26	ROM 450	19P295 247.6	-4	980644.38		
								980644.45	-10.18	-18.61
818064	HAWKESBURY RC CH.	31	45 36.63	74 36.35	868	19P139 148.1	-17	980654.60		
								980654.60	-15.95	-20.99
818164	VANKLEEK CPR STN.	31	45 32.08	74 38.79	616S	19P295 269.3	-18	980646.03		
								980646.06	-6.27	-15.44
818264	DALKEITH	31	45 26.64	74 34.61	874	19P090 230.1	-4	980638.47		
								980638.41	-9.37	-17.21

B M STATIONS

PAGE 15

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
818364	GLEN SANDFIELD	31	45 24.11	74 31.96	875	19P124	237.7	17	980643.94	.65	-7.45
818464	GLEN ROBERTSON NE	31	45 22.42	74 28.04	878	19P123	241.1	12	980644.83	4.47	-3.74
818564	DE BEAUJEU CPR BRDG	31	45 19.25	74 21.29	93	18P064	194.0	7	980645.13	5.00	-1.60
818664	VANKLEEK 1.5 M S	31	45 29.91	74 39.88	618S	19P295	335.9	12	980643.91	1.11	-10.33
818764	VANKLEEK 2.2 M S	31	45 29.27	74 40.22	618S2	19P295	315.4	12	980645.69	1.94	-8.79
818864	VANKLEEK 3.5 M S	31	45 28.34	74 40.66	619S	19P295	247.4	-9	980650.87	2.07	-6.36
818964	VANKLEEK 5 M S	31	45 27.17	74 41.29	620S	19P295	218.3	20	980656.14	6.36	-1.07
819064	MCCRIMMON 1 M NE	31	45 25.88	74 42.91	621S	19P184	235.6	12	980658.81	12.60	4.58
819164	MCCRIMMON 3.6 M SW	31	45 23.83	74 47.64	624S	19P184	254.6	43	980656.00	14.68	6.01
819264	DUNVEGAN 1.3 M NE	31	45 22.61	74 49.90	626S	19P100	240.2	0	980654.97	14.11	5.93
819364	DUNVEGAN CORNER	31	45 21.67	74 49.29	627S	19P099	289.2	-18	980651.08	16.27	6.42
819464	MOOSE CREEK HALL	31	45 15.59	74 58.52	635S	19P192	274.1	-19	980625.98	-1.08	-10.42
819564	MOOSE CREEK 4.5 M W	31	45 14.36	75 2.64	637S	19P193	237.5	-19	980618.04	-10.56	-18.65
819664	CRYSLER 4 M E	31	45 14.07	75 4.26	638S	19P084	260.6	0	980614.44	-11.60	-20.48
819764	EMBRUN RC CHURCH	31	45 16.46	75 16.47	498	19P105	224.6	-16	980612.30	-20.70	-28.35
819864	EMBRUN 1.5 M W	31	45 15.97	75 18.49	879G	19P105	211.5	-31	980610.24	-23.26	-30.46
819964	CARLETON PLACE PO	31	45 8.27	76 8.60	61G	19P063	449.5	-27	980581.57	-17.98	-33.29
820064	ALMONTE TOWN HALL	31	45 13.57	76 11.70	64G	19P019	392.5	-13	980596.96	-15.93	-29.30
820164	ALMONTE PO	31	45 13.54	76 11.76	65G	19P019	392.0	-27	980596.86	-16.02	-29.37
820264	PAKENHAM CPR BRIDGE	31	45 19.69	76 17.46	68G	19P222	316.3	-21	980611.03	-18.30	-29.07
820364	ARNPRIOR PO	31	45 26.11	76 21.17	75G	19P023	277.4	-16	980620.48	-22.08	-31.53
820464	ARNPRIOR TOWN HALL	31	45 26.10	76 21.37	74G	19P023	297.9	-19	980619.43	-21.16	-31.31
820564	GLASGOW 1M W	31	45 26.78	76 32.14	77G	19P121	454.8	27	980617.59	-9.26	-24.75
820664	GOSHEN	31	45 27.25	76 34.51	78G	19P127	493.9	31	980617.99	-5.89	-22.71
820764	RENFREW CPR STN.	31	45 28.42	76 40.97	ROM 484	19P251	417.7	-1	980627.19	-5.66	-19.89
820864	RENFREW UNITED CH.	31	45 28.23	76 40.96	506	19P251	447.8	-24	980625.95	-3.74	-18.99
									980626.03		

B M STATIONS

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
820964 HALEY 2 M S		31	45 31.49	76 46.32	RDM 481	20P080 514.2	33	980621.42		
						980621.63	-6.86	-24.37		
821064 ASHTON 3 M NE		31	45 10.91	76 2.57	586	19P024 451.1	7	980587.43	-15.95	-31.31
821164 BRITANNIA WALL		31	45 21.44	75 48.47	526	19P221 199.2	15	980621.27	-21.63	-28.41
821264 RENFREW CPR BRIDGE		31	45 28.53	76 42.23	RDM 482	20P167 389.0	45	980627.59	-8.14	-21.39
821364 PEMBROKE CPR STN		31	45 49.73	77 6.69	RDM 496	20P149 382.1	-2	980636.02	-32.24	-45.25
821464 PETAWAWA BRIDGE		31	45 54.02	77 17.38	RDM 499	20P153 459.7	48	980634.80	-32.61	-48.27
821564 PETAWAWA POINT		31	45 54.64	77 15.44	925	20P153 383.4	0	980642.79	-32.74	-45.80
821664 BRINDLE CROSSING		31	45 55.85	77 20.07	945	20P153 505.0	0	980634.05	-31.86	-49.06
821764 TUCKER CR. E BRIDGE		31	45 58.61	77 23.00	955	20P039 477.8	58	980640.63	-31.98	-48.25
821864 PEMBROKE 5.5 M NW		31	45 51.30	77 12.67	875	20P150 479.8	-21	980629.10	-32.34	-48.68
821964 CHAPEAU BRIDGE		31	45 54.81	77 4.61	1782	18P053 365.9	0	980646.57	-30.86	-43.32
822064 CHAPEAU 0.2 M E		31	45 55.07	77 4.32	1781	18P053 373.5	16	980646.97	-30.13	-42.85
822164 CHAPEAU 2.2 M E		31	45 55.35	77 .59	1780	18P053 368.0	0	980648.44	-29.60	-42.13
822264 CHAPEAU 3.5 M E		31	45 55.16	76 58.34	1779	18P263 423.5	-28	980648.43	-24.11	-38.53
822364 WALTHAM METH. CH.		31	45 54.51	76 54.95	1777	18P262 367.9	-10	980655.18	-21.61	-34.14
822464 WALTHAM HOUSE		31	45 54.51	76 54.71	1776	18P262 367.7	-17	980655.62	-21.19	-33.71
822564 WALTHAM 1.5 M E		31	45 54.56	76 52.73	1774	18P263 361.6	-15	980658.75	-18.71	-31.03
822664 DEVONSHIRE PARK		31	45 53.91	76 48.67	1772	18P066 357.1	0	980661.74	-15.15	-27.31
822764 DAVIDSON BRIDGE		31	45 52.09	76 45.45	1770	18P064 369.0	32	980656.65	-16.39	-28.96
822864 FORT COULONGE RC CH		31	45 50.57	76 44.24	1768	18P075 362.3	-25	980656.10	-15.29	-27.63
822964 F. COULONGE 2.5M SE		31	45 49.78	76 42.12	1766	18P075 375.7	0	980656.76	-12.18	-24.98
823064 VINTON 0.5 M NW		31	45 47.77	76 38.08	1764	18P262 378.1	0	980652.12	-13.57	-26.45
823164 CAMPBELLS BAY 0.7 N		31	45 44.55	76 36.22	1762	18P045 349.9	-39	980655.10	-8.40	-20.32
823264 BRYSON 2.2 M N		31	45 42.03	76 39.05	745G	18P043 506.6	16	980646.18	1.20	-16.05
823364 PORTAGE DU FORT STN		31	45 36.63	76 39.22	1799	18P169 323.4	0	980649.52	-4.55	-15.57
823464 PORTAGE DU FORT BDG		31	45 34.91	76 40.30	1803	18P170 263.6	0	980658.85	1.72	-7.26

B M STATIONS

PAGE 17

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
823564	FORESTERS FALLS	31	45 39.93	76 45.84	1808	20P067 399.9	-6	980640.60	-11.26	-24.88
823664	BEACHBURG .3M E	31	45 42.91	76 47.46	1811	20P024 472.2	0	980639.41	-10.12	-26.20
823764	LA PASSE 2.2M SW	31	45 46.85	76 47.51	738G	20P103 404.7	0	980647.46	-14.35	-28.13
823864	BEACHBURG 3M NE	31	45 44.88	76 47.76	737G	20P024 397.3	0	980645.47	-14.07	-27.60
823964	PEMBROKE JN .7M SE	31	45 47.96	77 5.86	1820	20P150 440.3	-45	980631.37	-28.76	-43.76
824064	BEACHBURG 3.5M W	31	45 44.41	76 55.07	1815	20P024 455.2	3	980638.11	-15.28	-30.78
824164	LOCKSLEY 2.7M N	31	45 46.48	77 7.63	1827	20P108 492.5	5	980625.78	-27.22	-43.99
824264	LOCKSLEY CHURCH	31	45 44.46	77 9.72	1828	20P108 503.9	-30	980619.53	-29.35	-46.51
824364	LOCKSLEY 2.2M S	31	45 42.85	77 11.28	1829	20P108 590.9	14	980612.03	-26.25	-46.38
824464	GOLDEN LAKE 3M N	31	45 37.00	77 14.86	1832	20P075 607.5	22	980603.47	-24.44	-45.13
824564	GOLDEN L. CNR BRDG.	31	45 34.64	77 15.08	1833	20P075 562.7	12	980603.36	-25.21	-44.38
824664	EGANVILLE 0.7M W	31	45 31.98	77 7.52	514	19P102 577.9	55	980605.91	-17.24	-36.92
824764	CALDWELL 1M E	31	45 29.34	76 57.95	511	19P056 462.6	20	980618.47	-11.54	-27.30
824864	DOUGLAS	31	45 29.20	76 53.31	510	19P095 445.7	67	980619.96		
								980619.98	-11.42	-26.60
824964	ADMASTON	31	45 28.60	76 48.80	509	19P014 392.0	5	980623.16		
								980623.28	-12.31	-25.66
825064	RENFREW JN 1M SW	31	45 27.67	76 43.55	143G	19P251 408.5	6	980625.05		
								980625.09	-7.52	-21.43
825164	ASHDAD 1M S	31	45 20.05	76 44.81	140G	19P024 568.3	-21	980611.28		
								980611.18	5.12	-14.23
825264	BARRYVALE 0.8M S	31	45 15.88	76 44.01	138G	19P029 550.9	-18	980600.99		
								980600.89	-.51	-19.27
825364	BARRYVALE 3.2M S	31	45 14.12	76 42.88	137G	19P029 608.1	-6	980597.10		
								980597.10	3.67	-17.03
825464	FLOWER 3M N	31	45 11.99	76 41.15	136G	19P112 649.1	5	980590.46		
								980590.26	3.98	-18.12
825564	FLOWER 1M N	31	45 9.66	76 40.87	135G	19P112 631.0	6	980592.22		
								980592.06	7.57	-13.91
825664	LAVANT	31	45 3.34	76 42.71	132G	19P167 833.3	25	980563.77		
								980563.82	7.77	-20.61
825764	WILBUR	31	45 1.19	76 42.14	131G	19P311 888.2	-14	980553.44		
								980553.37	5.77	-24.48
825864	SNOW ROAD 3M NW	31	44 58.52	76 43.07	130G	19P272 801.9	5	980552.26		
								980552.33	.58	-26.73
825964	CLARENDRON	31	44 52.62	76 41.81	127G	19P074 766.8	9	980543.24		
								980543.30	-2.88	-29.00
826064	MABERLEY 2.2M E	31	44 50.08	76 28.67	120G	19P177 616.3	-14	980552.22		
								980551.99	-4.38	-25.37

B M STATIONS

PAGE 18

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
826164	BATHURST 2.5M W	31	44 51.38	76 25.75	119G	19P030	519.4	8	980556.96 980556.89	-10.63	-28.32
826264	BATHURST 0.3M E	31	44 52.24	76 22.78	118G	19P030	480.9	6	980562.75 980562.68	-9.76	-26.14
826364	CARLETON PL. 2.7M S	31	45 5.93	76 7.17	94G	19P063	461.3	39	980577.27 980577.28	-17.64	-33.35
826464	SMITH FALLS TOWNHALL	31	44 54.15	76 1.28	108G	19P270	429.4	-14	980576.31 980576.33	-3.86	-18.49
826564	SMITH FALLS 1.2M E	31	44 54.27	75 59.45	87G	19P271	398.7	8	980580.06 980579.98	-3.24	-16.82
826664	MERRICKVILLE 2M W	31	44 54.77	75 52.67	85G	19P186	350.3	13	980579.78 980579.79	-8.78	-20.71
826764	MERRICKVILLE 4.2M E	31	44 56.65	75 45.87	82G	19P186	351.9	8	980578.35 980578.47	-12.82	-24.81
826864	STORY 0.5M S	31	44 51.21	75 58.05	96G	19P277	346.9	5	980573.28 980573.25	-10.26	-22.08
826964	JASPER BRIDGE	31	44 49.91	75 55.98	97G	19P151	343.7	7	980574.30 980574.15	-7.65	-19.36
827064	KINGSTON CNR STN	31	44 15.76	76 29.25	139	19P159	276.2	-13	980527.03 980526.98	-9.84	-19.25
827164	KINGSTON 2M NW	31	44 16.39	76 31.74	160G	19P160	266.6	10	980520.86 980520.94	-17.79	-26.87
827264	GLENVALE 1.2M S	31	44 17.97	76 34.73	158G	19P124	396.6	-23	980510.89	-17.96	-31.47
827364	HARTINGTON	31	44 26.18	76 40.28	153G	19P138	520.0	7	980529.04 980529.05	-.55	-18.26
827464	VERONA	31	44 28.23	76 41.80	152G	19P296	453.9	8	980536.48 980536.44	-2.43	-17.89
827564	GODFREY	31	44 32.79	76 40.69	150G	19P126	501.8	5	980540.48 980540.48	-.76	-17.85
827664	SHARBOT LAKE 2.7M S	31	44 44.48	76 41.39	144G	19P268	659.6	37	980543.55 980543.53	-.45	-22.92
827764	SHARBOT LAKE 2M SW	31	44 45.15	76 43.31	161G	19P268	641.8	-7	980544.06 980543.94	-2.66	-24.52
827864	ARDENDALE 3M E	31	44 43.00	76 53.56	164G	19P022	654.0	-7	980530.81 980530.70	-11.53	-33.81
827964	ARDENDALE BRIDGE	31	44 43.12	76 55.73	165G	19P022	622.3	35	980531.44 980531.37	-14.05	-35.25
828064	KALADAR 5M NE	31	44 41.28	77 1.72	167G	19P154	668.9	18	980530.66 980530.56	-7.68	-30.46
828164	SULPHIDE	31	44 31.03	77 14.18	172G	19P279	480.2	12	980526.86 980526.81	-13.80	-30.16
828264	TWEED CPR BRIDGE	31	44 28.68	77 18.35	174G	19P292	479.0	23	980522.22 980522.09	-15.06	-31.37
828364	TWEED 2.7M SW	31	44 27.30	77 21.33	177G	19P292	589.6	10	980510.61 980510.66	-14.10	-34.18
828464	TWEED 2.5M N	31	44 29.67	77 19.44	315G	19P292	513.3	-8	980525.24 980525.25	-10.23	-27.71
828564	MILLBRIDGE 4M N	31	44 44.85	77 35.52	325G	19P188	985.1	30	980528.39	14.46	-19.09
828664	ST DLA	31	44 50.62	77 39.25	328G	19P260	1061.2	20	980516.39 980516.54	1.01	-35.13

B M STATIONS.

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
828764	ORMSBY	31	44 52.45	77 42.29	329G	19P213 1141.8	-18	980516.20 980516.34	5.65	-33.23
828864	DETLOR	31	45 1.29	77 43.55	333G	19P092 1097.8	22	980533.52 980533.40	5.40	-31.98
828964	BRONSON	31	45 2.69	77 46.40	334G	19P051 1079.1	-30	980534.73 980534.74	2.81	-33.94
829064	BANCROFT 2.5M N	31	45 5.28	77 52.87	337G	19P028 1094.9	53	980530.17 980530.24	-4.12	-41.41
829164	YORK RIVER	31	45 5.76	77 53.01	338G	19P317 1110.2	0	980529.00 980529.11	-4.57	-42.38
829264	HYBLA 0.7M S	31	45 9.46	77 50.55	340G	19P145 1316.0	23	980524.84 980524.86	5.00	-39.81
829364	MAYNOOTH 3.2M NW	31	45 15.51	77 58.08	343G	19P183 1304.8	-2	980533.28 980533.29	3.30	-41.14
829464	MAYNOOTH 4.5M NW	31	45 16.16	77 59.07	344G	19P183 1317.4	24	980532.07 980532.16	2.33	-42.54
829564	MAYNOOTH	31	45 16.65	77 59.50	344G2	NO REF 1321.0	0	980533.17 980533.23	3.01	-41.97
829664	WALLACE 3.5M S	31	45 21.36	72 3.66	346G	19P299 1502.2	-12	980528.27 980528.42	8.13	-43.03
829764	WALLACE 0.5M NW	31	45 23.97	72 5.60	347G	19P299 1473.3	-12	980533.24 980533.28	6.40	-43.77
829864	WHITNEY 4M SE	31	45 27.53	72 11.68	351G	19P310 1469.1	34	980539.93 980539.94	7.31	-42.73
829964	WHITNEY 1.2M NE	31	45 30.50	72 13.20	536	19P309 1249.5	67	980555.45 980555.32	-2.35	-44.91
830064	AYLEN LAKE 1M SE	31	45 32.56	77 48.43	526	19P026 1181.5	15	980557.24 980557.36	-9.93	-50.17
830164	WILNO	31	45 30.67	77 33.70	522	19P312 955.3	41	980568.85 980568.94	-16.77	-49.31
830264	WILNO 1.7M NE	31	45 31.56	77 32.13	521	19P312 880.5	-17	980574.34 980574.38	-19.68	-49.67
830364	KILLALOE	31	45 33.22	77 25.02	519	19P156 597.1	30	980597.01 980597.07	-26.15	-46.49
830464	YORK RIVER 4.7M W	31	45 6.38	77 57.72	313G	19P317 1189.7	-31	980525.76 980525.75	-1.32	-41.84
830564	BELLEVILLE CN BRDG.	31	44 10.57	77 22.95	1549	19P036 279.9	-10	980509.40 980509.36	-19.31	-28.84
830664	BELLEVILLE 3M W	31	44 9.85	77 25.77	158	19P036 308.0	7	980506.50 980506.46	-18.49	-28.98
830764	TRENTON JN 3.7M E	31	44 9.85	77 31.99	160	19P291 307.0	6	980504.94 980505.00	-20.09	-30.55
830864	TRENTON CANAL BRDG.	31	44 7.28	77 35.50	1551	19P291 274.7	35	980503.30 980503.38	-20.89	-30.25
830964	TRENTON 3.7M S	31	44 3.27	77 36.25	ROM 2282	19P290 254.5	-29	980498.41 980498.46	-21.67	-30.34
831064	CARRYING PLACE	31	44 2.17	77 35.56	ROM 2281	19P065 256.0	14	980498.03 980498.03	-20.28	-29.00
831164	CONSECON STN	31	44 .32	77 30.51	ROM 2278	19P082 251.8	5	980494.10 980494.34	-21.70	-30.28
831264	WELLINGTON 0.2M W	30	43 57.17	77 21.33	ROM 2258	19P304 276.2	19	980493.82 980493.83	-15.07	-24.48

B M STATIONS

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
831364	WELLINGTON 1.7M E	30	43 57.74	77 19.21	ROM 2259	19P304	270.2	18	980495.38	-14.98	-24.18
831464	BLOOMFIELD 1.3M W	30	43 58.74	77 15.34	ROM 2260	19P040	258.5	27	980500.17	-12.83	-21.63
831564	ADOLFUSTOWN ANG CH.	31	44 3.92	77 .29	ROM 2270	19P015	286.1	-4	980496.42	-21.81	-31.55
831664	CONWAY CH.	31	44 6.71	76 55.09	ROM 2274	19P083	282.6	-22	980500.84	-21.85	-31.48
831764	PORTSMOUTH BRIDGE	31	44 13.19	76 32.82	ROM 2215	19P243	251.2	4	980511.41	-23.95	-32.51
831864	COLLINS BAY 1.7M E	31	44 14.29	76 34.90	143	19P081	266.5	15	980515.19	-20.35	-29.43
831964	COLLINS BAY 0.7M E	31	44 14.50	76 36.04	ROM 2219	19P081	258.1	-7	980513.91	-22.73	-31.52
832064	COLLINS BAY 0.5M E	31	44 14.65	76 36.27	1532	19P081	252.5	39	980513.98	-23.41	-32.01
832164	ERNESTOWN STN	31	44 13.03	76 45.33	146	19P106	326.6	-16	980503.38	-24.54	-35.66
832264	NAPANEE 5.2M SE	31	44 13.32	76 51.73	1535	19P201	300.6	8	980513.03	-17.86	-28.10
832364	NAPANEE 3M SE	31	44 13.80	76 54.43	1536	19P200	292.7	9	980514.68	-17.65	-27.62
832464	NAPANEE ARMORY	31	44 14.87	76 57.20	150A2	19P200	294.4	-9	980518.23	-15.58	-25.61
832564	DESERONTO 3M NE	31	44 13.65	77 .81	1539	19P092	304.0	0	980515.65	-15.38	-25.73
832664	DESERONTO FUND.	31	44 11.74	77 3.32	1543	19P091	296.6	0	980513.53	-15.30	-25.40
832764	SHANNONVILLE 1.5M E	31	44 12.58	77 12.52	153	19P267	285.3	6	980516.33	-14.85	-24.57
832864	SHANNONVILLE CN STN	31	44 12.23	77 14.25	154	19P267	336.0	-20	980513.05	-12.83	-24.27
832964	BELLEVILLE 4.2M E	31	44 12.00	77 17.66	155	19P036	318.3	11	980510.47	-16.75	-27.59
833064	BELLEVILLE 1.5M N	31	44 12.07	77 22.66	186G	19P036	327.8	34	980508.94	-17.51	-28.67
833164	CORBYVILLE	31	44 12.93	77 22.97	185G	19P083	333.2	42	980511.14	-16.19	-27.54
833264	FOXBORO	31	44 15.17	77 25.12	184G	19P115	357.9	8	980511.76	-16.51	-28.70
833364	WEST HUNTINGDON	31	44 21.67	77 27.14	180G	19P305	458.9	13	980522.95	-5.57	-21.20
833464	IVANHOE 2M W	31	44 24.89	77 30.42	187G	19P150	618.1	12	980512.22	-6.20	-27.25
833564	HAVELOCK 1.7M E	31	44 25.85	77 50.97	193G	19P138	642.3	-31	980501.84	-15.80	-37.68
833664	HAVELOCK 1M W	31	44 25.86	77 54.21	194G	19P139	703.0	9	980492.27	-19.55	-43.49
833764	NORWOOD 1.2M W	31	44 23.75	77 57.79	195G	19P208	686.7	21	980489.77	-20.47	-43.86
833864	NORWOOD ELEVATOR	31	44 23.14	77 59.07	196G	19P208	674.7	-33	980491.14	-19.30	-42.28
									980491.18		

B M STATIONS

PAGE 21

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
833964	INDIAN RIVER 1.7M W	31	44 20.21	78 10.39	199G	19P146	694.4	18	980487.79	-16.40	-40.05
834064	INDIAN RIVER 3.7M W	31	44 19.71	78 12.76	200G	19P146	698.1	47	980487.81	980487.87	980487.74
834164	PETERBORO 3.2M E	31	44 18.72	78 15.41	201G	19P227	673.6	15	980488.16	-15.30	-39.08
834264	PETERBORO LIFT LOCK	31	44 18.46	78 18.04	202G	19P227	634.6	-36	980488.11	-15.78	-38.72
834364	PETERBORO 1M SW	31	44 17.31	78 19.95	205G	19P227	645.1	0	980492.09	980491.96	-15.18
834464	DRANOEL	31	44 9.22	78 32.40	210G	19P096	895.9	28	980488.46	-15.95	-37.92
834564	MANVERS	31	44 7.79	78 33.66	211G	19P181	968.2	10	980455.98	980456.03	-12.71
834664	WALLACE PT	31	44 11.86	78 19.50	3253	NO REF	638.6	0	980449.95	980450.15	-9.73
834764	BENSFORT B 1.8M W	31	44 12.36	78 18.64	3252	NO REF	631.0	2	980478.04	980477.97	-18.90
834864	BENSFORT BRIDGE	31	44 12.42	78 16.73	46	NO REF	618.8	0	980479.58	980479.67	-40.24
834964	BENSFORT B 0.6M N	31	44 12.96	78 16.71	3242	NO REF	638.8	0	980479.25	980479.35	-20.39
835064	PETERBORO 4M SE	31	44 14.18	78 17.31	3243	NO REF	694.7	2	980479.38	980479.17	-19.16
835164	PETERBORO 2.8M SE	31	44 15.14	78 17.81	3244	NO REF	638.4	0	980479.14	980484.94	-15.96
835264	PETERBORO LOCK 19	31	44 17.38	78 18.50	50	NO REF	624.8	0	980485.06	980489.77	-16.84
835364	PETERBORO WARSAW B.	31	44 19.20	78 18.26	3248	NO REF	707.6	17	980489.90	980487.07	-16.66
835464	PETERBORO 1.1M N	31	44 19.97	78 18.73	3256	NO REF	677.6	0	980487.08	980490.69	-14.36
835564	NASSAU MILLS CN B.	31	44 21.11	78 17.58	3257	NO REF	710.1	24	980490.70	980490.07	-14.73
835664	NASSAU MILLS L. 23	31	44 22.34	78 17.35	59	NO REF	725.6	0	980490.10	980490.16	-14.01
835764	LAKEFIELD 3.1M S	31	44 22.99	78 16.34	3259	NO REF	729.9	0	980490.21	980490.42	-14.29
835864	LAKEFIELD LOCK 24	31	44 23.33	78 16.20	60	NO REF	737.6	0	980490.46	980490.51	-14.60
835964	LAKEFIELD 1.6M S	31	44 24.06	78 15.80	3260	NO REF	747.6	30	980490.54	980490.50	-14.32
836064	LAKEFIELD PO.	31	44 25.37	78 16.38	553S	19P164	771.9	-18	980490.53	980490.53	-14.48
836164	LAKEFIELD 1.1M NE	31	44 26.21	78 15.97	3267	NO REF	798.8	0	980491.88	980491.96	-12.77
836264	YOUNGS PT 1.4M S	31	44 28.06	78 14.30	3269	NO REF	795.0	0	980491.02	980498.06	-12.47
836364	YOUNGS PT BRIDGE	31	44 29.29	78 14.01	3270	NO REF	788.0	11	980498.05	980496.99	-8.50
836464	YOUNGS PT 1.3M NE	31	44 30.08	78 13.73	3272	NO REF	829.2	0	980496.91	980496.17	-12.10
									980496.09	980496.09	-38.48

B M STATIONS

PAGE 22

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER	
836564	YOUNGS PT 2.8M NE	31	44 31.12	78 12.76	3273	NO REF	874.4	0	980494.43	-9.26	-39.04	
836664	BURLEIGH FALLS 2M S	31	44 31.96	78 12.46	3274	NO REF	876.2	0	980495.28	9.55	-39.39	
836764	BURLEIGH F. 1.4M NW	31	44 34.07	78 13.81	3281	NO REF	814.4	0	980495.16	-14.31	-42.05	
836864	BURLEIGH F. 2.6M NW	31	44 34.84	78 14.98	3282	NO REF	812.8	0	980500.34	980500.28	-14.76	-42.44
836964	BURLEIGH F. 4.2M NW	31	44 35.06	78 16.57	3283	NO REF	961.0	0	980490.43	980490.42	-11.05	-43.78
837064	BUCKHORN 2.2M E	31	44 34.05	78 18.58	3285	NO REF	837.9	0	980496.33	980496.32	-15.21	-43.75
837164	BUCKHORN 0.7M E	31	44 33.86	78 20.44	3286	NO REF	805.0	-8	980498.29	980498.22	-16.09	-43.51
837264	BUCKHORN JN	31	44 33.49	78 21.01	3287	NO REF	809.5	52	980497.81	980497.71	-15.60	-43.17
837364	BUCKHORN 1.9M W	31	44 32.94	78 22.93	3290	NO REF	934.2	0	980492.95	980492.90	-7.87	-39.69
837464	BUCKHORN 3.2M SW	31	44 32.07	78 23.61	3291	NO REF	913.1	0	980494.15	980494.08	-7.35	-38.45
837564	BUCKHORN 4.6M SW	31	44 31.41	78 24.76	3292	NO REF	815.0	0	980499.63	980499.60	-10.10	-37.86
837664	GANNON NR 2.9M NW	31	44 30.59	78 27.40	3294	NO REF	840.7	0	980498.40	980498.26	-7.72	-36.35
837764	GANNON NR 1.4M NW	31	44 29.38	78 26.78	3295	NO REF	895.6	0	980489.88	980489.86	-9.20	-39.70
837864	BUCKHORN 2.0M NW	31	44 34.94	78 21.75	3299	NO REF	827.6	13	980500.95	980500.90	-12.92	-41.11
837964	BUCKHORN 4.1M NW	31	44 35.93	78 22.44	3301	NO REF	965.6	0	980495.21	980495.38	-7.05	-39.94
838064	BUCKHORN 4.9M NW	31	44 36.74	78 23.25	3302	NO REF	955.6	0	980501.04	980501.12	-3.43	-35.98
838164	NOGIES CR 3.8M NE	31	44 36.16	78 25.23	374S	19P206	863.6	0	980501.79	980501.85	-10.45	-39.86
838264	NOGIES CR 2.1M NE	31	44 35.74	78 27.08	3303	NO REF	924.0	0	980498.96	980499.00	-6.99	-38.46
838364	NOGIES CR 0.7M W	31	44 35.19	78 29.78	3305	NO REF	820.5	0	980501.65	980501.58	-13.26	-41.21
838464	BOBCAYGEON 3.0M NE	31	44 34.29	78 31.14	370S	19P041	881.4	0	980498.32	980498.32	-9.48	-39.50
838564	BOBCAYGEON 1.9M NE	31	44 33.58	78 32.10	3306	NO REF	911.4	2	980496.15	980496.19	-7.72	-38.76
838664	BOBCAYGEON BRIDGE	31	44 32.33	78 32.77	3307	NO REF	818.0	-17	980499.45	980499.40	-11.39	-39.25
838764	BOBCAYGEON 1.2M W	31	44 32.45	78 34.16	3309	NO REF	877.0	0	980496.19	980496.22	-9.23	-39.10
838864	BOBCAYGEON 2.7M W	31	44 32.13	78 35.88	3310	NO REF	880.3	12	980494.96	980494.99	-9.67	-39.65
838964	BOBCAYGEON 3.8M W	31	44 31.95	78 37.23	3311	NO REF	832.1	70	980497.50	980497.39	-11.47	-39.81
839064	BOBCAYGEON 5.3M W	31	44 31.97	78 38.65	3312	NO REF	878.3	-18	980494.51	980494.56	-10.07	-39.98

B M STATIONS

PAGE 23

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
839164	FENLON FALLS 3.9M E	31 44 32.44	78 40.06		3313	NO REF	989.7	0	980488.88		
									980488.90	-5.94	-39.65
839264	FENLON FALLS 2.7M E	31 44 32.26	78 41.54		3314	NO REF	944.9	-16	980493.07		
									980493.10	-5.68	-37.86
839364	FENLON FALLS 1.3M E	31 44 32.35	78 43.18		3315	NO REF	940.6	0	980490.83		
									980490.82	-8.48	-40.52
839464	FENLON FALLS 0.7M W	31 44 31.93	78 45.41		3318	NO REF	879.4	0	980493.46		
									980493.48	-10.95	-40.90
839564	FENLON FALLS 1.9M W	31 44 31.31	78 46.40		3319	NO REF	843.2	7	980494.35		
									980494.46	-12.51	-41.23
839664	FENLON FALLS 3.9M W	31 44 32.46	78 47.27		3320	NO REF	846.0	-14	980496.59		
									980496.59	-11.78	-40.59
839764	ROSEDALE 1.1M SE	31 44 32.87	78 47.33		3321	NO REF	863.3	-13	980495.98		
									980495.99	-11.37	-40.77
839864	TRENTON 401 BRIDGE	31 44 7.62	77 35.66		3200	NO REF	276.0	-24	980503.39		
									980503.45	-21.20	-30.60
839964	GLEN MILLER LOCK 3	31 44 8.96	77 34.84		7	NO REF	313.0	0	980503.91		
									980503.93	-19.24	-29.90
840064	GLEN MILLER DAM 3	31 44 9.60	77 35.13		3201	NO REF	313.0	12	980504.12		
									980504.15	-19.99	-30.65
840164	GLEN MILLER DAM 4	31 44 10.16	77 35.30		3202	NO REF	330.7	12	980503.15		
									980503.28	-20.08	-31.34
840264	FRANKFORD DAM 5	31 44 11.26	77 35.70		3203	NO REF	350.4	0	980502.60		
									980502.73	-20.43	-32.36
840364	FRANKFORD BRIDGE	31 44 12.07	77 35.69		3204	NO REF	354.5	7	980505.27		
									980505.29	-18.65	-30.72
840464	FRANKFORD 2.4M NE	31 44 13.98	77 35.55		3205	NO REF	373.9	-13	980508.52		
									980508.68	-16.38	-29.12
840564	GLEN ROSS 1M S	31 44 15.47	77 35.25		3206	NO REF	394.3	0	980509.91		
									980510.05	-15.32	-28.75
840664	GLEN ROSS LOCK 7	31 44 16.01	77 35.73		17	NO REF	375.1	0	980511.49		
									980511.58	-16.40	-29.18
840764	ANSON	31 44 17.02	77 36.03		3207	NO REF	399.0	2	980512.29		
									980512.33	-14.88	-28.47
840864	HOARD STN	31 44 17.72	77 39.64		3209	NO REF	388.9	2	980512.06		
									980512.08	-17.13	-30.38
840964	HOARD STN 1.4M SW	31 44 17.35	77 41.24		3210	NO REF	434.2	0	980508.23		
									980508.23	-16.14	-30.93
841064	HOARD STN 2.8M SW	31 44 16.90	77 42.80		3211	NO REF	410.7	25	980508.05		
									980508.01	-17.88	-31.87
841164	HOARD STN 4.3M SW	31 44 16.53	77 44.45		3212	NO REF	459.1	-12	980504.06		
									980504.11	-16.73	-32.37
841264	CAMPBELLFORD 3.2M S	31 44 16.05	77 46.30		3213	NO REF	471.8	0	980502.30		
									980502.42	-16.52	-32.59
841364	CAMPBELLFORD LOCK 9	31 44 14.79	77 48.05		3216	NO REF	394.5	-12	980500.80		
									980500.88	-23.42	-36.86
841464	CAMPBELLFORD LOCK 10	31 44 16.03	77 47.65		21	NO REF	434.5	0	980500.53		
									980500.60	-21.80	-36.60
841564	CAMPBELLFORD 1.8M S	31 44 16.56	77 47.34		3215	NO REF	440.6	0	980501.54		
									980501.36	-21.13	-36.14
841664	CAMPBELLFORD LOCK 12	31 44 17.43	77 48.08		24	NO REF	482.4	0	980501.45		
									980501.51	-18.49	-34.92

B M STATIONS

PAGE 24

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER	
841764	CAMPB LF D LOCK 13	31	44 19.18	77 47.20	28	NO REF	505.5	0	980504.79	-15.64	-32.86	
841864	CAMPB LF D 2.6M NE	31	44 20.18	77 46.54	3219	NO REF	530.4	0	980504.80	980507.99	-11.65	-29.72
841964	HEALEY FALLS LCK 15	31	44 22.12	77 46.48	3222	NO REF	556.3	26	980507.90	980516.29	-3.83	-22.78
842064	HEALEY FALLS DAM 13	31	44 22.58	77 47.16	34	NO REF	606.9	0	980513.14	980516.17	-2.90	-23.57
842164	HEALEY FLS 3.9M S	31	44 20.71	77 48.63	3223	NO REF	717.2	0	980501.95	980501.94	-.86	-25.29
842264	TRENT R 2.6M SE	31	44 21.46	77 51.48	3225	NO REF	615.0	0	980510.74	980510.67	-2.85	-23.80
842364	TRENT R 1.4M SE	31	44 21.87	77 51.95	3226	NO REF	631.7	0	980505.56	980505.43	-7.11	-28.63
842464	TRENT R BRIDGE	31	44 23.60	77 52.45	3227	NO REF	606.6	-24	980500.16	980500.16	-17.40	-38.06
842564	TRENT R 4.2M S	31	44 20.22	77 50.83	3224	NO REF	661.1	2	980506.08	980505.99	-1.33	-23.85
842664	HASTINGS 4.8M NE	31	44 19.87	77 52.35	3228	NO REF	699.4	2	980499.24	980499.27	-3.97	-27.79
842764	HASTINGS 2.7M NE	31	44 19.34	77 54.75	3229	NO REF	624.0	23	980493.00	980492.95	-16.55	-37.80
842864	BIRDSALL STN 2.0M S	31	44 17.05	78 1.14	3231	NO REF	623.5	0	980480.10	980480.27	-25.93	-47.17
842964	KEENE PUBLIC SCHOOL	31	44 14.44	78 9.83	3238	NO REF	677.0	-25	980475.76	980475.80	-21.38	-44.44
843064	KEENE 2.0M SW	31	44 13.98	78 11.73	3239	NO REF	690.7	0	980475.81	980475.86	-19.35	-42.88
843164	KEENE 3.6M SW	31	44 13.58	78 13.65	3240	NO REF	662.0	0	980478.19	980478.28	-19.04	-41.59
843264	HIAWATHA RESERVE	31	44 12.26	78 13.06	3249	NO REF	638.3	0	980476.34	980476.36	-21.17	-42.91
843364	CAMPBELLTOWN	31	44 13.18	78 15.21	3241	NO REF	674.0	0	980476.95	980477.05	-18.54	-41.50
843464	ROCKCROFT	31	44 38.63	78 22.47	564S	19P252	998.4	0	980501.79	980501.74	-1.56	-35.57
843564	ROCKCROFT 2.3M N	31	44 40.35	78 21.18	565S	19P252	980.2	0	980506.01	980505.92	-1.65	-35.04
843664	ROCKCROFT 7.2M N	31	44 43.86	78 20.28	567S	19P253	1042.1	0	980503.71	980503.65	-3.39	-38.88
843764	ROCKCROFT 8.3M N	31	44 45.02	78 20.10	568S	19P253	966.5	0	980505.68	980505.67	-10.25	-43.17
843864	GOODERHAM 10.7M S	31	44 47.31	78 21.81	570S	19P127	1056.7	0	980505.99	980505.91	-4.95	-40.94
843964	GOODERHAM 6.7M S	31	44 50.17	78 22.72	572S	19P127	1132.1	0	980506.63	980506.52	-1.53	-40.09
844064	GOODERHAM 5.7M S	31	44 50.97	78 22.60	573S	19P127	1183.4	0	980504.33	980504.31	-.16	-40.47
844164	MUNFORD	31	45 4.91	78 9.59	309G	19P199	1346.2	-25	980511.33	980511.39	1.21	-44.63
844264	WILBERFORCE	31	45 3.46	78 12.39	308G	19P311	1269.4	-25	980515.52	980515.53	.34	-42.90

B M STATIONS

PAGE 25

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF ELEV	HT	GRAVITY	FREE AIR	BOUGER
844364	TORY HILL	31	44 59.20	78 15.59	306G	19P289 1268.5	0	980511.86		
844464	HOWLAND	31	44 48.76	78 38.93	300G	19P144 933.7	25	980511.84	2.99	-40.21
844564	KINMOUNT 0.7M S	31	44 46.21	78 39.43	298G	19P162 915.5	17	980512.56	-12.14	-43.94
844664	BURNT R 3.7M N	31	44 43.59	78 41.06	297G	19P055 906.6	12	980508.47	-14.03	-45.21
844764	BURNT R 0.5M N	31	44 40.97	78 41.78	296G2	19P055 878.4	0	980508.52	-13.80	-44.68
844864	FELL	31	44 37.09	78 43.04	295G	19P110 849.5	19	980504.94	-13.17	-43.09
844964	FENLON FALLS 2M S	31	44 30.32	78 44.48	291G	19P110 876.9	42	980500.15	-14.83	-43.76
845064	CAMERON	31	44 25.70	78 46.18	290G	19P059 880.9	-7	980491.86	-10.45	-40.32
845164	LINDSAY CNR BRIDGE	31	44 21.10	78 43.42	250G	19P169 829.4	-10	980491.74	-9.42	-39.42
845264	PETERBORO 0.7M NW	31	44 19.33	78 20.14	3262	NO REF 761.0	0	980479.90	-12.94	-41.19
845364	PETERBORO 2.1M NW	31	44 20.23	78 21.03	3263	NO REF 893.2	0	980483.39	-13.19	-39.11
845464	BRIDGENORTH BAP CH	31	44 21.26	78 22.08	3264	NO REF 930.6	-15	980483.46	-9.29	-39.71
845564	BRIDGENORTH BRIDGE	31	44 23.14	78 23.18	3266	NO REF 814.5	0	980475.23	-8.31	-40.01
845664	OMEMEE 6M E	31	44 19.63	78 26.60	545S	19P211 888.1	0	980475.53	-11.84	-39.58
845764	OMEMEE 4.5M E	31	44 19.13	78 28.61	544S	19P211 814.5	0	980475.43	-9.32	-39.57
845864	OMEMEE 2.2M E	31	44 18.55	78 31.13	543S	19P211 933.3	0	980475.85	-12.08	-39.82
845964	OMEMEE 1M W	31	44 17.61	78 34.96	540S	19P211 827.2	0	980475.23	-10.43	-42.22
846064	BETHANY 1.7M N	31	44 10.67	78 35.44	534S	19P038 847.1	0	980468.66	-6.81	-35.66
846164	REABORO 2M S	31	44 17.43	78 37.78	537S	19P250 854.4	0	980468.70	-12.80	-40.97
846264	LINDSAY 2.7M SE	31	44 19.94	78 42.61	539S	19P170 858.9	-15	980468.73	-11.20	-41.42
846364	BETHANY 5M W	31	44 9.70	78 39.45	530S	19P037 1072.2	0	980468.83	-4.55	-41.07
846464	BETHANY 2M W	31	44 10.48	78 36.10	531S	19P037 945.8	0	980459.21	-6.78	-38.99
846564	BETHANY STATION	31	44 10.99	78 33.96	532S	19P037 870.0	0	980459.07	-11.57	-41.20
846664	BETHANY COM HALL	31	44 10.91	78 34.03	533S	19P037 856.4	-25	980462.30	-11.98	-41.15
846764	LINDSAY 2.8M NE	31	44 23.14	78 43.81	368S	19P169 877.9	0	980463.03	-10.55	-40.45
846864	LINDSAY 4.8M NE	31	44 23.71	78 41.86	366S	19P169 929.5	0	980460.77	-7.94	-39.60

B M STATIONS

PAGE 26

NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
846964	PLEASANT PT	31	44 24.36	78 41.02	365S	19P231	910.4	6	980481.91	-8.21	-39.22
847064	DUNSFORD 4.2M SW	31	44 25.08	78 41.23	364S	19P099	939.9	0	980481.48	-6.91	-38.92
847164	DUNSFORD 2.5M SW	31	44 26.13	78 40.88	363S	19P099	946.6	0	980481.57	-6.41	-38.65
847264	DUNSFORD 1.5M W	31	44 26.64	78 40.28	362S	19P099	942.8	0	980483.05	-6.84	-38.95
847364	DUNSFORD 1.5M NE	31	44 27.67	78 37.33	360S	19P099	830.7	0	980483.66	-11.41	-39.70
847464	BOBCAYGEON 5M SW	31	44 30.13	78 34.56	357S	19P041	834.9	0	980494.78	-11.13	-39.57
847564	BOBCAYGEON 2M N	31	44 33.94	78 33.05	351S	19P041	1000.2	0	980490.48	-5.52	-39.59
847664	BOBCAYGEON 6.7M N	31	44 37.72	78 34.78	349S	19P042	989.0	0	980495.32	-7.50	-41.19
847764	SILVER LAKE 1.2M N	31	44 40.19	78 35.91	347S	19P269	998.3	35	980496.63	-9.04	-43.04
847864	UNION CREEK	31	44 43.32	78 37.40	344S	19P293	945.2	0	980502.70	-12.68	-44.87
847964	KINMOUNT 5M N	31	44 50.82	78 40.95	310S	19P162	1080.2	0	980510.65	-3.27	-40.06
848064	MINDEN 2.5M S	31	44 53.87	78 42.72	312S	19P189	1115.2	0	980514.84	-4.40	-38.38
848164	MINDEN 0.2M NE	31	44 55.73	78 43.36	314S	19P189	894.9	0	980528.39	-10.40	-40.88
848264	HALIBURTON BRIDGE	31	45 2.32	78 30.40	339S	19P135	1067.8	0	980525.94	-6.50	-42.87
848364	HALIBURTON 2M SW	31	45 1.63	78 32.23	337S	19P135	1080.2	0	980525.18	-5.04	-41.83
848464	HALIBURTON 4.7M SW	31	44 59.67	78 32.70	336S	19P135	1300.3	0	980509.20	2.64	-41.64
848564	INGOLDSBY 1.7M E	31	44 58.28	78 35.71	334S	19P147	1212.8	0	980514.95	2.29	-39.01
848664	MINDEN 2M NE	31	44 56.52	78 41.80	331S2	19P189	1026.1	-10	980523.03	-4.54	-39.49
848764	MINDEN 5M N	31	44 59.31	78 42.93	317S	19P189	1049.7	-13	980527.17	-2.44	-38.19
848864	CARNARVON 3.7M S	31	45 .14	78 42.19	318S	19P064	1015.2	0	980530.23	980530.20	-3.88 -38.46
848964	CARNARVON 0.2M W	31	45 2.78	78 41.76	320S	19P064	1068.1	0	980529.98	980529.97	-3.12 -39.50
849064	CARNARVON 2M N	31	45 4.16	78 42.47	321S	19P064	1067.2	-9	980531.13	980531.29	-4.04 -40.39
849164	CARNARVON 3.5M NE	31	45 4.81	78 43.76	322S	19P064	1043.1	22	980533.18	980533.15	-5.35 -40.88
849264	HALL LAKE	31	45 7.04	78 45.69	325S	19P135	1129.8	0	980529.96	980530.09	-3.67 -42.15
849364	DORSET 10M S	31	45 8.13	78 50.47	328S	19P095	1108.9	0	980534.07	980534.14	-3.20 -40.97
849464	DORSET 5.5M S	31	45 11.50	78 51.60	330S	19P094	1175.8	-12	980536.24	980536.38	.23 -39.81

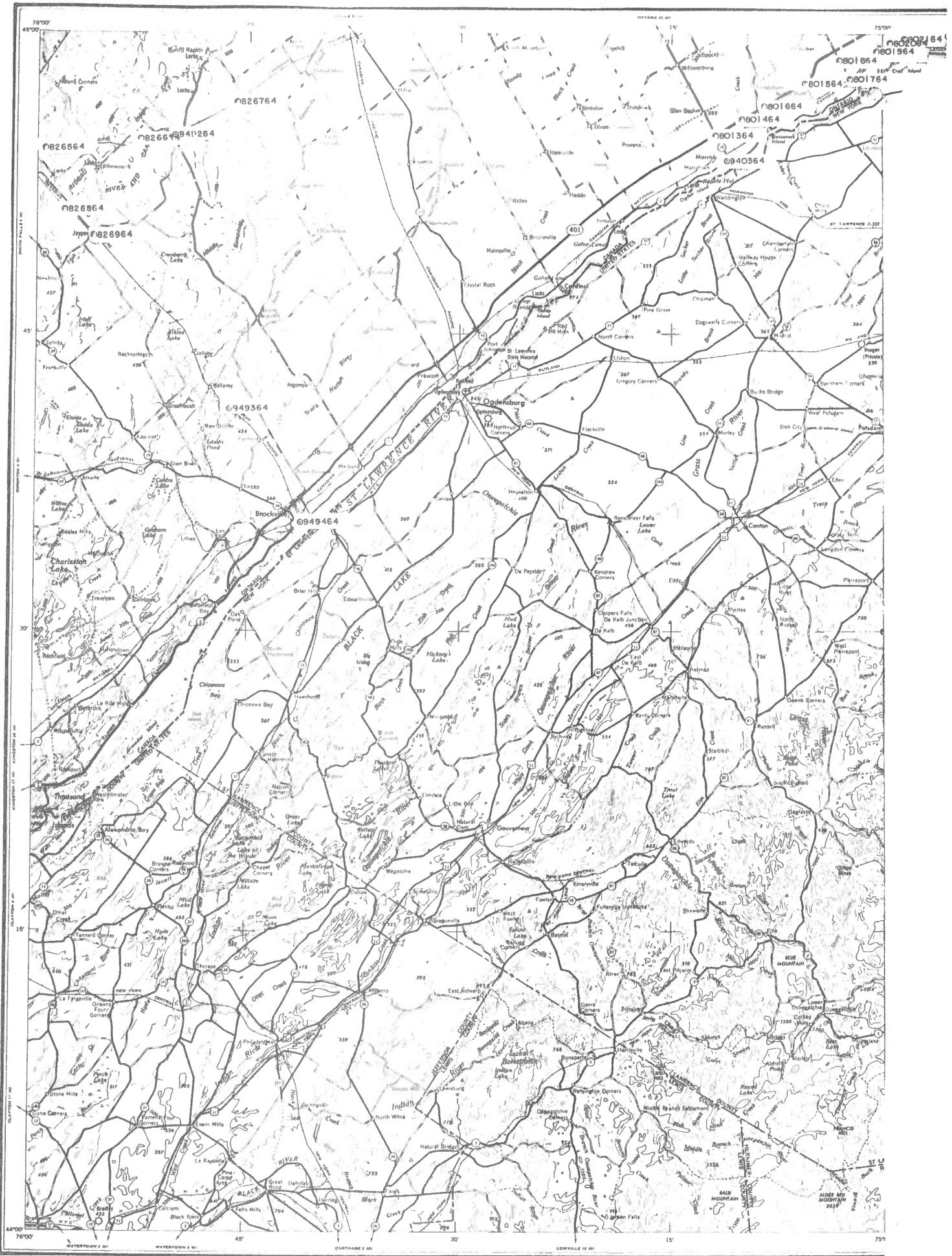
B M STATIONS

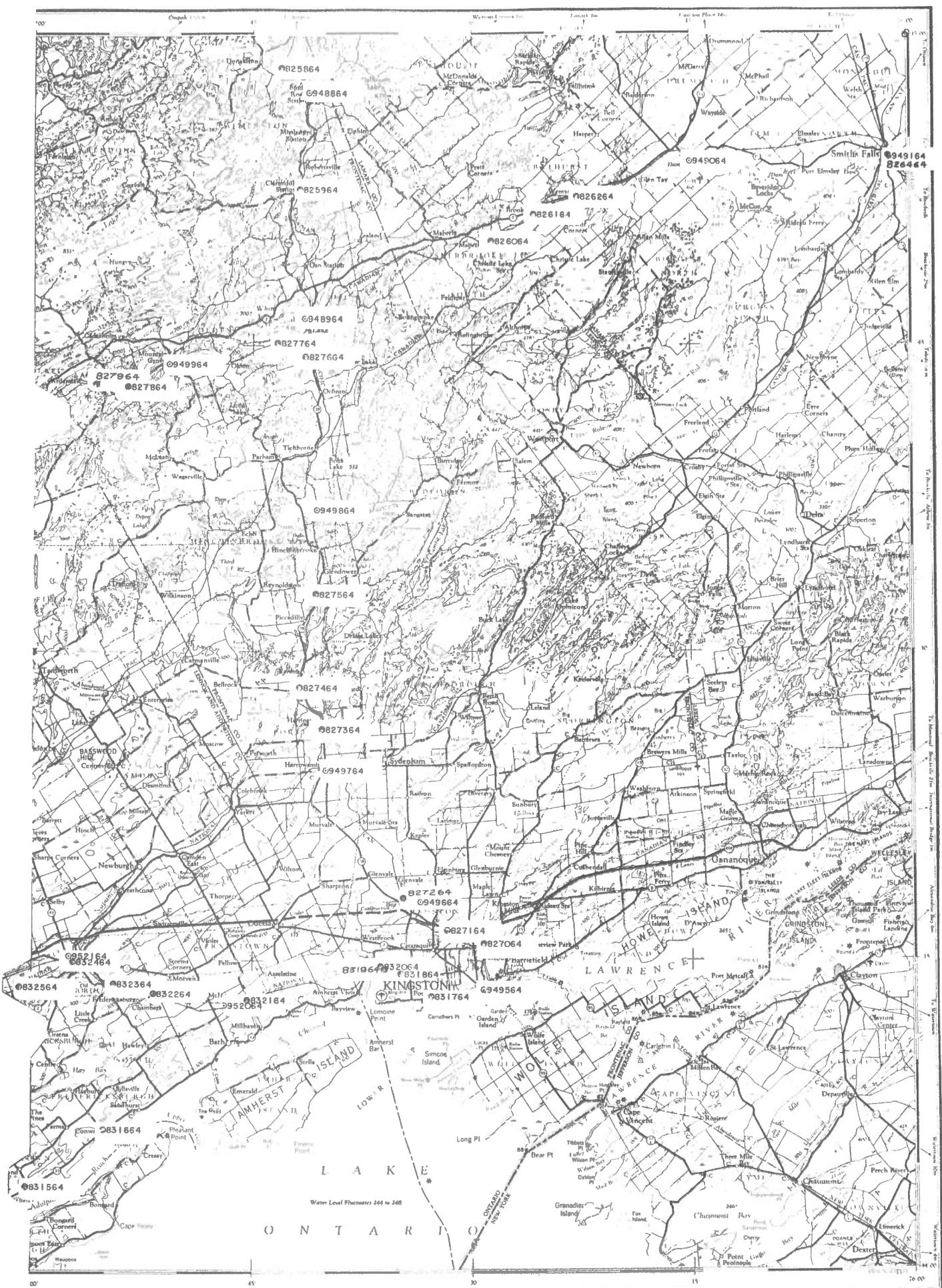
NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
849564	DORSET BRIDGE	31	45 14.67	78 53.65	259S	19P094	1045.2	0	980546.93		
									980546.98	-6.19	-41.79
849764	DWIGHT 5M SE	31	45 17.32	78 57.77	262S	19P100	1099.6	-71	980550.75		
									980550.83	-1.22	-38.67
849864	DWIGHT 0.5M NW	31	45 19.86	79 1.27	268S	19P100	1058.8	-12	980564.14		
									980564.11	4.45	-31.61
849964	GRASSMERE 1.5M SE	31	45 21.22	79 5.07	P35	19P130	1005.6	0	980569.84		
									980569.82	3.11	-31.13
850064	GRASSMERE 1.5M W	31	45 21.87	79 8.08	272S	19P130	1127.1	0	980565.06		
									980565.20	8.86	-29.52
850164	HUNTSVILLE 0.7M NE	31	45 20.00	79 12.34	P37	19P145	996.3	0	980569.30		
									980569.25	3.51	-30.42
850264	SCOTIA 2M S	31	45 29.46	79 16.44	ROM 745	19P264	1120.1	12	980578.60		
									980578.52	10.21	-27.93
850364	HUNTSVILLE CN BRDG	31	45 19.77	79 13.53	ROM 740	19P145	965.9	19	980569.80		
									980569.78	1.51	-31.38
850464	HUNTSVILLE PO	31	45 19.60	79 13.05	275S	19P145	964.6	2	980569.94		
									980570.14	1.89	-30.95
850564	MARTIN 0.7M NE	31	45 17.71	79 17.95	ROM 738	19P182	1026.2	19	980564.66		
									980564.43	5.04	-29.91
850664	MARTIN 1.5M SW	31	45 16.14	79 19.31	ROM 737	19P182	965.9	-9	980565.42		
									980565.32	2.56	-30.33
850764	FALKENBURG 3.2M N	31	45 8.15	79 19.32	ROM 730	19P109	1043.8	-6	980549.74		
									980549.80	6.30	-29.24
850864	FALKENBURG 1.7M N	31	45 6.99	79 20.40	ROM 729	19P109	984.2	12	980551.62		
									980551.61	4.28	-29.24
850964	DORSET 1.7M SW	31	45 13.60	78 55.14	257S	19P095	1061.5	0	980544.84		
									980544.80	-5.18	-41.33
851064	DORSET 4M SW	31	45 12.61	78 57.06	P29	19P095	1043.3	0	980545.76		
									980545.73	-4.47	-40.00
851164	DORSET 5.2M SW	31	45 12.55	78 58.50	255S	19P095	1228.9	0	980535.71		
									980535.87	3.12	-38.73
851264	BAYSVILLE 7M NE	31	45 11.86	79 .79	P28	19P031	1164.8	0	980540.84		
									980540.97	3.23	-36.44
851364	BAYSVILLE 5M E	31	45 10.85	79 .92	254S	19P031	1255.6	40	980533.56		
									980533.68	6.02	-36.74
851464	BAYSVILLE 3M E	31	45 9.88	79 3.41	P27	19P031	1095.6	0	980543.12		
									980543.15	1.94	-35.38
851564	BAYSVILLE 2M E	31	45 9.63	79 4.52	253S	19P031	1236.5	0	980535.72		
									980535.91	8.25	-33.87
851664	BAYSVILLE ROCK	31	45 8.98	79 6.64	251S	19P031	1042.3	-10	980546.95		
									980546.97	2.10	-33.39
851764	BAYSVILLE 1.7M SW	31	45 8.11	79 8.01	250S	19P031	1171.6	0	980539.22		
									980539.28	7.86	-32.03
851864	BAYSVILLE 5.5M W	31	45 7.09	79 11.80	248S	19P032	1049.8	0	980546.42		
									980546.41	5.10	-30.66
851964	BRACEBRIDGE 6.5M NE	31	45 6.09	79 15.62	246S	19P044	974.4	0	980549.56		
									980549.50	2.63	-30.55
852064	BRACEBRIDGE 5.7M NE	31	45 5.79	79 16.65	245S	19P044	938.7	-16	980551.51		
									980551.44	1.68	-30.29
852164	BRACEBRIDGE 4.5M N	31	45 5.14	79 18.01	244S	19P044	898.8	0	980553.47		
									980553.33	.83	-29.77

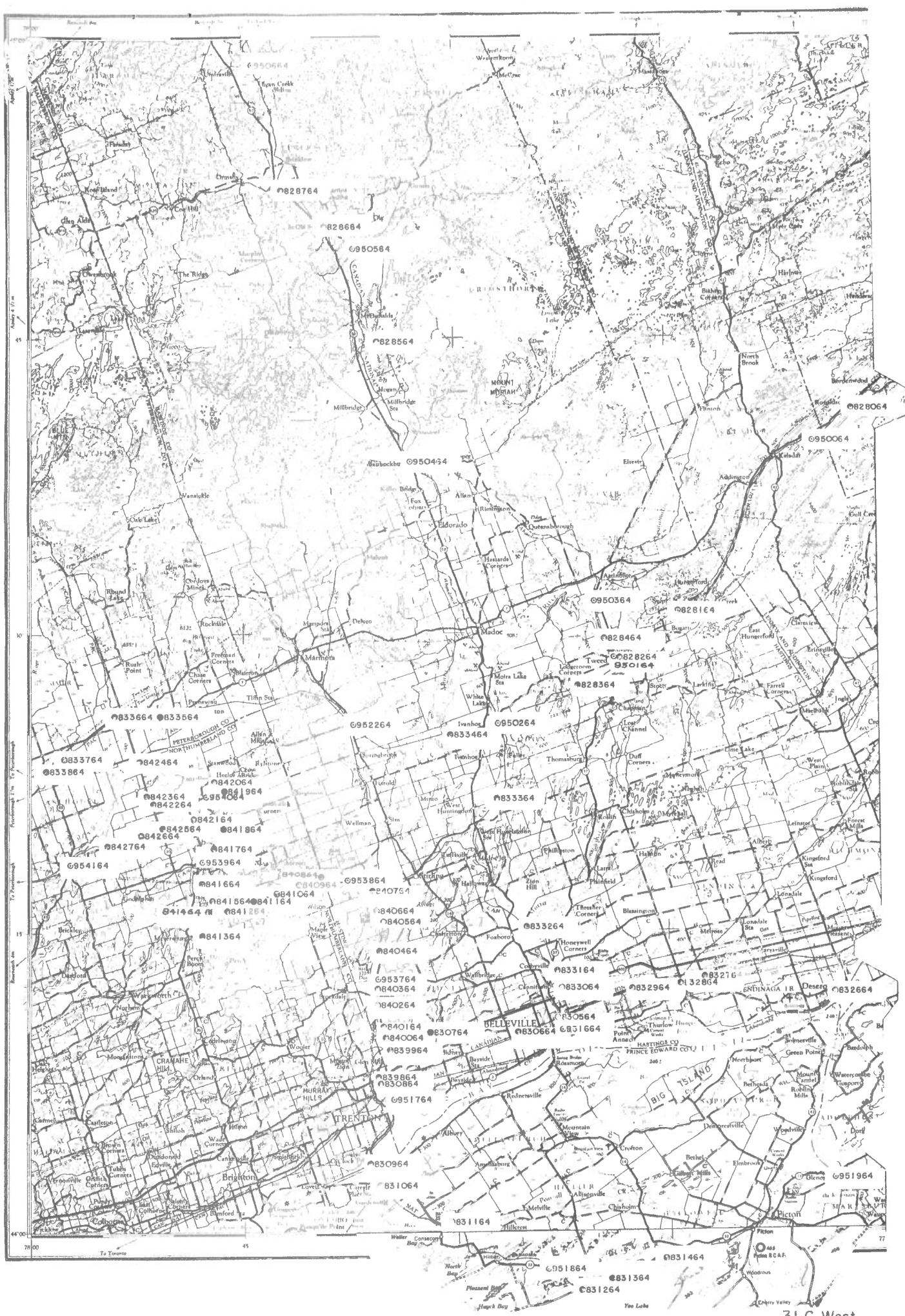
B M STATIONS

PAGE 28

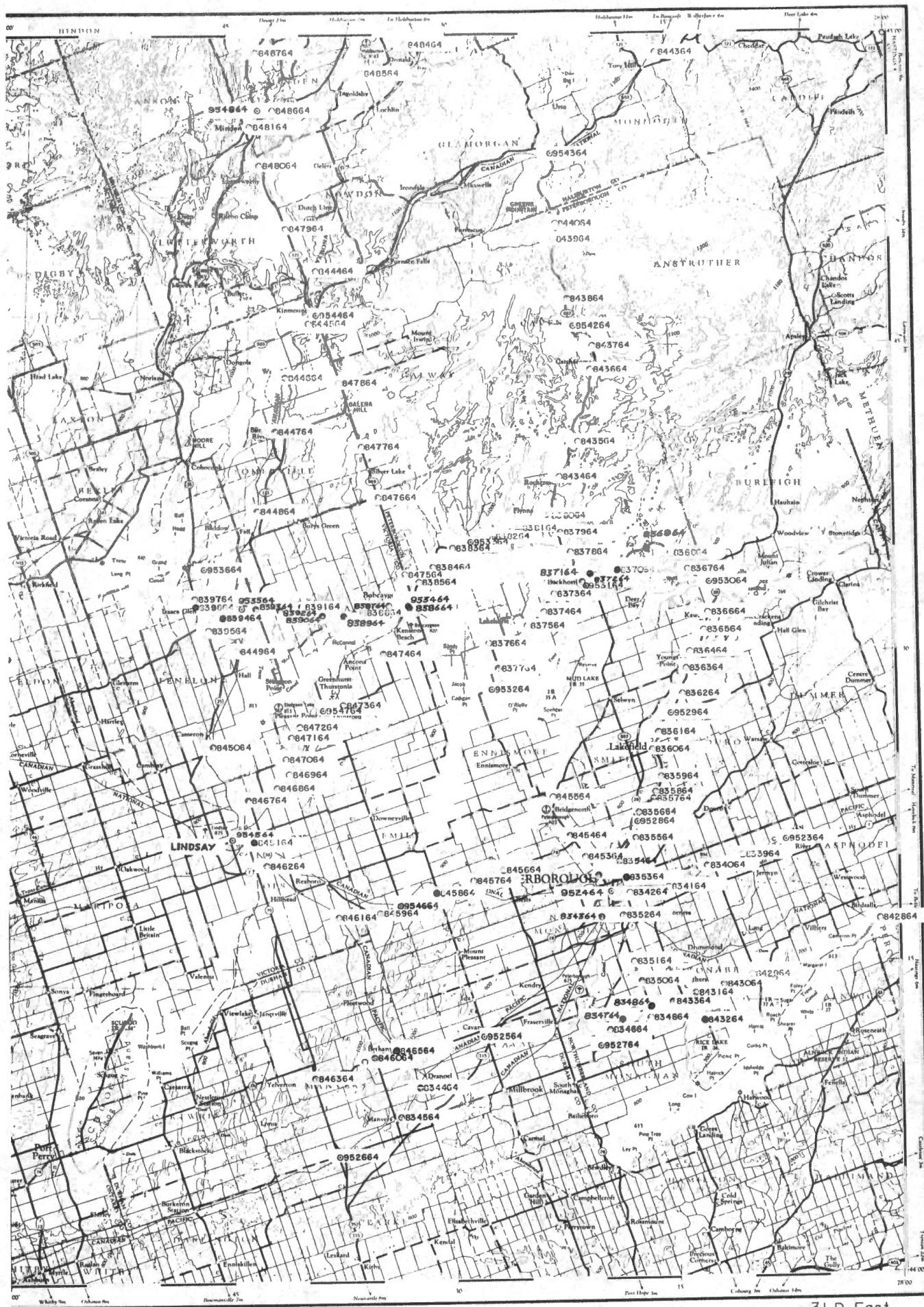
NUMBER	NAME	MS	LAT	LONG	BM NO	GEO REF	ELEV	HT	GRAVITY	FREE AIR	BOUGER
852264	BRACEBRIDGE 1.2M N	31 45	3.20	79 17.82	242S	19P044	964.3	0	980544.35		
852364	BRACEBRIDGE 1.2M S	31 45	1.67	79 18.27	ROM 706	19P044	795.9	-8	980544.35	.86	-31.97
852464	BRACEBRIDGE 3M S	31 45	.29	79 19.10	232S	19P044	849.5	0	980548.96	-8.17	-35.28
852564	SOUTH FALLS 0.2M N	31 44	59.68	79 19.04	ROM 707	19P274	898.1	44	980546.81	980546.68	-3.17 -32.10
852664	SOUTH FALLS 0.5M S	31 44	58.71	79 19.63	ROM 708	19P274	905.0	26	980543.25	-1.15	-31.74
852764	GRAVENHURST 3.7M NE	31 44	57.46	79 20.23	234S	19P130	881.5	0	980542.10	-.23	-31.05
852864	GRAVENHURST 2M N	31 44	56.28	79 20.84	ROM 709	19P130	849.0	-8	980541.63	980541.50	-1.08 -31.10
852964	GRAVENHURST 1.8M N	31 44	56.10	79 21.10	235S	19P130	826.2	0	980541.85	-2.09	-31.01
853064	ALFRED 1.8M W	31 45	32.94	74 54.99	3413	NO REF	258.1	0	980542.84	980542.76	-2.99 -31.13
853164	PLANTAGENET 3.1M NE	31 45	32.59	74 56.54	3414	NO REF	262.3	0	980639.04	980638.92	-15.68 -24.47
853264	PLANTAGENET 1.8M NE	31 45	32.57	74 58.05	3415	NO REF	264.5	20	980635.78	980635.65	-18.03 -26.96
853364	PLANTAGENET 0.8M NE	31 45	32.48	74 59.34	3416	NO REF	196.8	0	980633.04	980632.86	-20.55 -29.56
									980637.31	980637.34	-22.42 -29.12

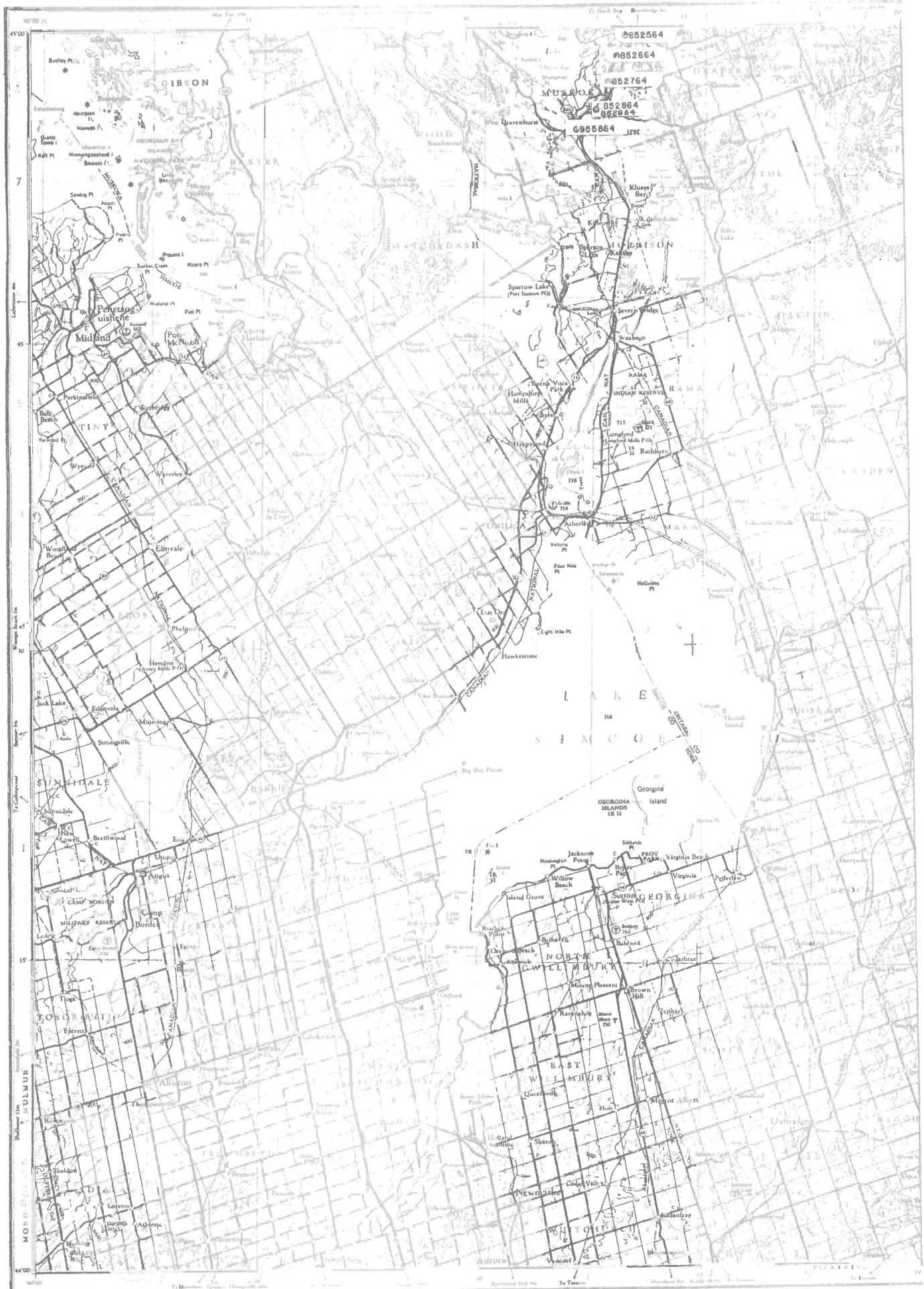






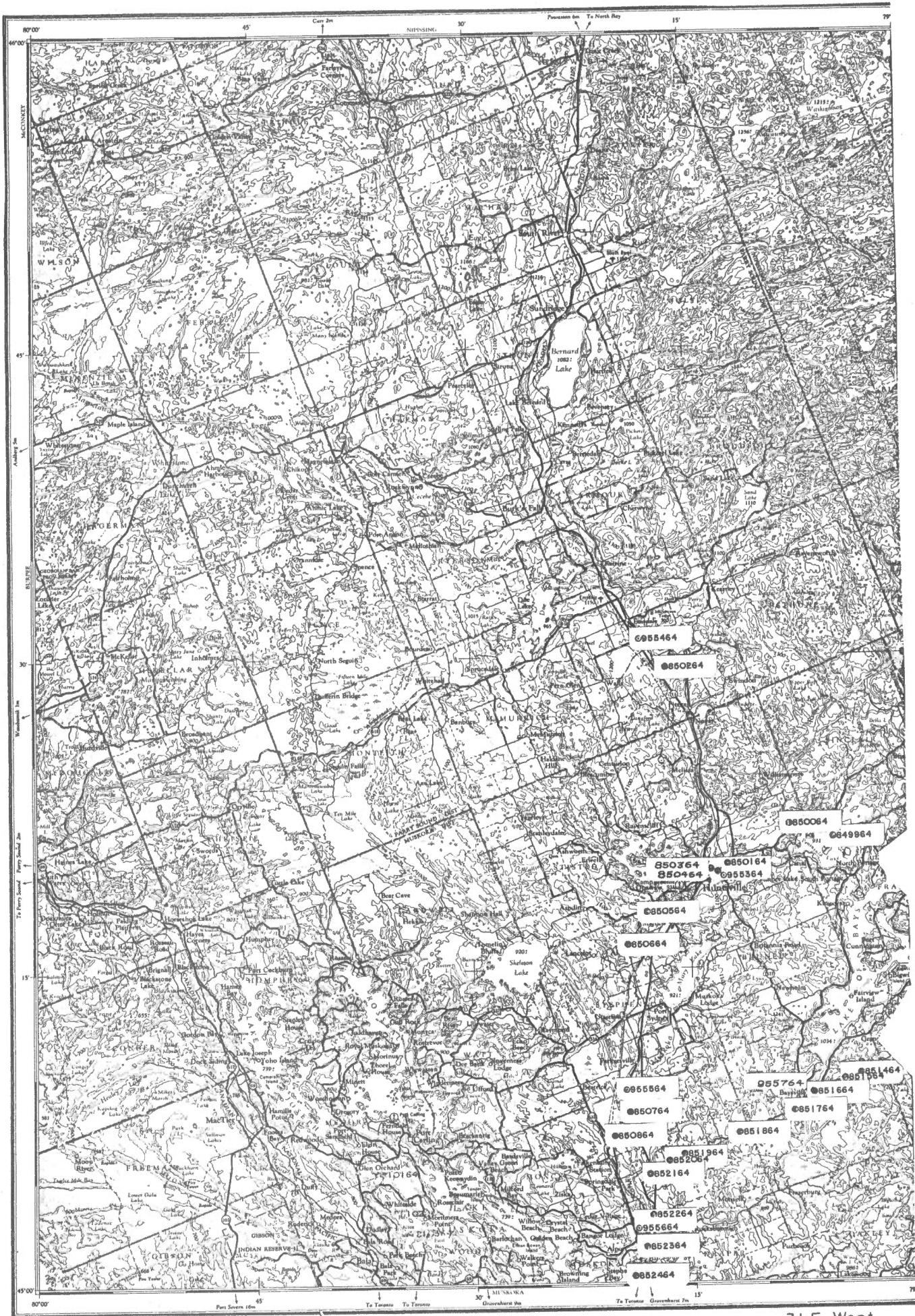
31-C West

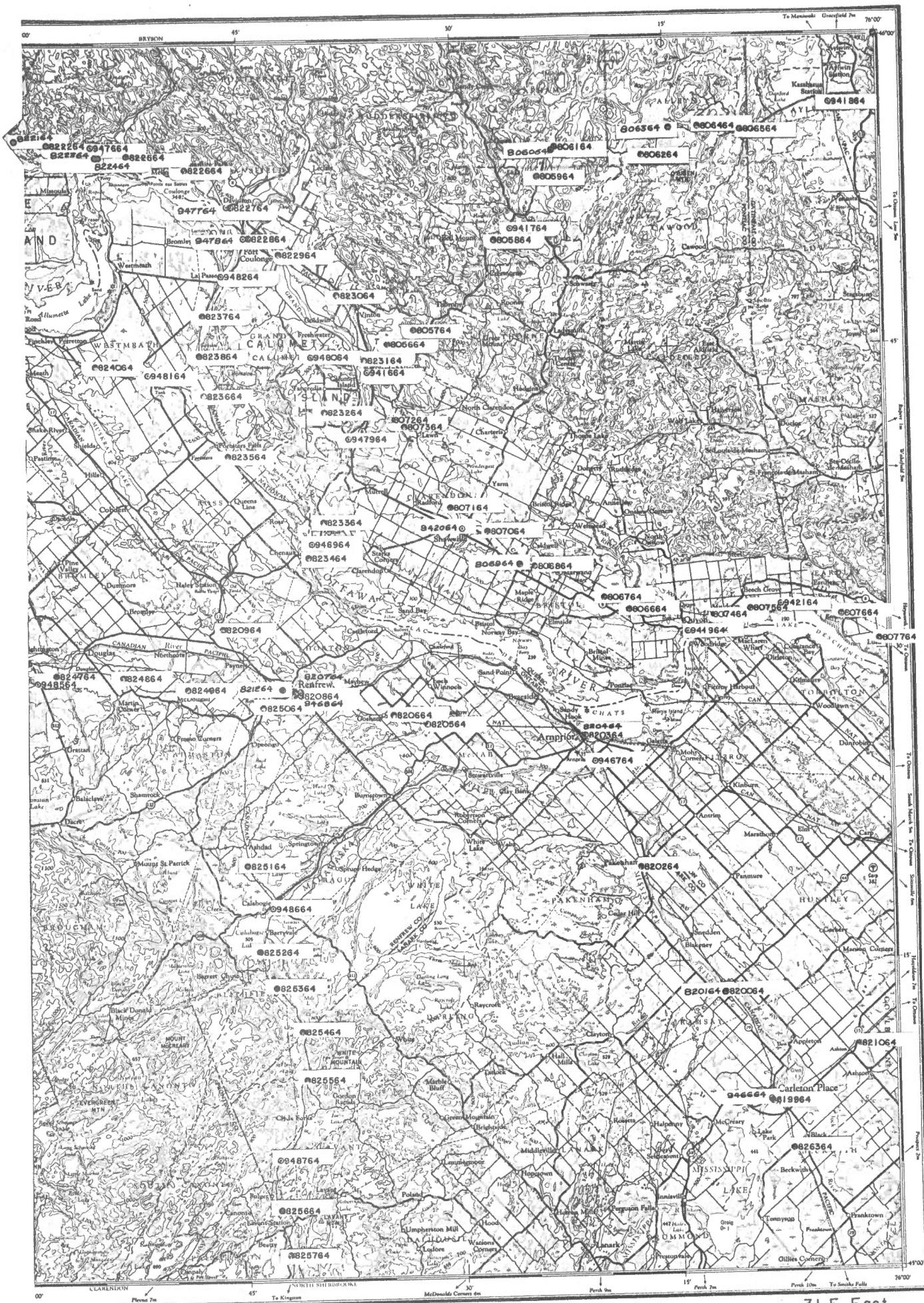






31-E East





34-F East



31-F West

