

เอกสารอ้างอิง



วิบูลย์ แสงวีระพันธุ์ศิริ, "คอมพิวเตอร์กราฟิค," การสัมมนาพิเศษ Computer-Aided Design and Computer-Aided Manufacturing, หน้า 47-63, ศูนย์คอมพิวเตอร์วิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, 2528.

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ภาคผนวก



โครงสร้างแฟ้มข้อมูล MP ไฟล์

Wild Heergrugg (1981) ได้กล่าวถึงโครงสร้างของแฟ้มข้อมูล MP ไฟล์ ดังนี้

STRUCTURE OF FILES WITH MASS POINTS (MP files)

File name (10 characters): MP*****

(***** = input file name, left-justified)

All records in an MP file are not constant length, the record length is dependent on the type of coordinate.

Contents:

1 Record no. 1:

READ BINARY (LFN, REC=1) RCNR1, RCNRL, IRPR, ICRD, IRECL, MOF, IEXT

- RCNR1 (real): number of record with the first record point

(generally RCNR1 =2)

- RCNRL (real): number of record with the last valid registered point

- IRPR (integer): type of registration (at the time of opening the file)

IRPR = 1 : registration of single points

2 : single profiles

- 3 : parallel profiles for OR1
- 4 : parallel profiles generally
- 5 : cross-sections
- 6 : grid measurement
- 7 : registration in PREDEFINED PROFILES + GRIDS
- 8 : registration in STORE PLOT

- ICRD (integer): Code number for the type of coordinates. (These must be uniform throughout the whole MP file).

- ICRD = 1 : profile and ground coordinates
- 2 : ground coordinates
 - 3 : image coordinates
 - 4 : image and ground coordinates

- IRECL (integer): record length = number of bytes per record, depending on the coordinate system:

ICRD	IRECL
1	34
2	34
3	18
4	38

- MOF (integer): code number for the unit of measurement used for the coordinates

- MOF = 1 : m
- 2 : cm (10 mm units)
 - 3 : ft
 - 4 : inch

- IEXT (integer): Code for existence of graphics file MP*****.TA
 - IEXT = 1 : A graphics file exists
 - 0 : There is no graphics file

2 In the registration of parallel profiles for the WILD OR1 (IRPR = 3), the following four records are stored in addition

READ BINARY (LFN, REC=2) NRPR, IRL, IRW

- NRPR (4) (field with eight digits in four integer words):
code number
- IRL (integer): scan length in mm
- IRW (integer): scan width in mm

READ BINARY (LFN, REC=3) X1, Y1

READ BINARY (LFN, REC=4) X2, Y2

READ BINARY (LFN, REC=5) X3, Y3

- X1,Y1, X2,Y2, X3,Y3 (real) = image coordinates of the three OR1
orientation points

In this data type RCNR1 has the value of 6

3 From record no. RCNR1 onward, each further record contains one registered point.

Depending on the type of coordinates, the records are to be read as follows:

a: Profile and ground coordinates (ICRD = 1, 34 bytes per record):

```
READ BINARY (LFN, REC=N) NCD, XPRO, DXG, DYG, ZG, IPEN
```

- NCD (4) (field with eight alphanumeric characters in four integer words)
- XPRO (real) : X value in a local profile-coordinate system
- DXG (double-precision) : X value in ground-coordinate system
- DYG (double-precision) : Y value in ground-coordinate system
- ZG (real) : Z value in ground-coordinate system
- IPEN (integer) : Pen code

b: Ground coordinates (ICRD = 2, 34 bytes per record):

```
READ BINARY (LFN, REC=N) NCD, DXG, DYG, ZG, IPEN, POINTR
```

- NCD (4) : Feature code
- DXG (double-precision) : X value in ground-coordinate system
- DYG (double-precision) : Y value in ground-coordinate system
- ZG (real) : Z value in ground-coordinate system
- IPEN (integer) : Pen code

- POINTR (real) : Number of records in graphics file containing the graphic parameters for this point. If there is no graphics file or there has been no output to the graphics file, POINTR has the value 0.

c: Image coordinates (ICRD = 3, 18 bytes per record):

READ BINARY (LFN, REC=N) NCD, XB, YB, IPEN

- NCD (4) : Feature code
- XB (real) : X value in image-coordinate system
- YB (real) : Y value in image-coordinate system
- IPEN (integer) : Pen code

d: Image and ground coordinates (ICRD = 4, 38 bytes per record):

READ BINARY (LFN, REC=N) NCD, XB, YB, DXG, DYG, ZG, IPEN

- NCD (4) : Feature code
- XB (real) : X value in image-coordinate system
- YB (real) : Y value in image-coordinate system
- DXG (double-precision) : X value in ground-coordinate system
- DYG (double-precision) : Y value in ground-coordinate system
- ZG (real) : Z value in ground-coordinate system
- IPEN (integer) : Pen code

Signification of pen code IPEN (integer)

- | | | |
|----|---|---|
| 11 | SINGLE POINT | |
| 12 | Starting point of PARALLEL to last line | |
| 13 | Grid point (from GRID MEASUREMENT) | |
| 21 | Starting point (manual) of LINE | } LINE mode |
| 22 | Intermediate point (manual) of LINE | |
| 23 | End point (manual) of LINE | |
| 31 | Starting point (manual) of CURVE | } CURVE mode |
| 32 | Intermediate point (manual) of CURVE | |
| 33 | End point (manual) of CURVE | |
| 36 | Starting point (automatic) of CURVE | } SYNCHRON mode |
| 37 | Intermediate point (automatic) of CURVE | |
| 38 | End point (automatic) of CURVE | |
| 71 | Centre of full circle consisting of centre and point on circumference | |
| 72 | Point on circumference of full circle consisting of centre and point on circumference | |
| 73 | Point 1 | } on circumference of full circle consisting of 3 points on circumference |
| 74 | Point 2 | |
| 75 | Point 3 | |

76 Starting point
77 Intermediate point
78 End point

} of circular arc

81 Centre of first character in character string (ANNOTATION)



ภาคผนวก ข

โครงสร้างแฟ้มข้อมูล MP-.TA ไฟล์

Wild Heerbrugg (1981) ได้กล่าวถึงโครงสร้างของ MP-.TA ไฟล์ ดังนี้

CONTENTS OF GRAPHICS FILE MP-.TA

A graphics file can be read only together with its corresponding MP-file which must contain ground coordinates.

Each record (i.e. point) in the MP file has a pointer. This pointer is the number of the record in the graphics file containing the graphic parameter for this point.

The pen code in the MP file provides information on the type of point in question, i.e. whether it is a point in a point sequence, a single point, a reference point for a text (ANNOTATION) or a point relating to a circle. Depending on the type of point concerned, the contents of the graphics record vary:

The file name is the same as that of the MP file with the extension .TA

The record length is constant: IRECL = 12 bytes

Records 1 to 9 are reserved for general information.



This header contains the following:

Record 1:

Number of record 1 with graphics (= 10.)	real
Number of last record in graphics file	real
Last valid plotting-scale number	real
(= 0: unknown, since no output on plotting table)	

Records 2-4: Rotation matrix TPS (1...9) for projection direction

(TPS(1) = -99: matrix unknown, since on output on plotting table)

Record 2: TPS(1-3)	3*real
Record 3: TPS(4-6)	3*real
Record 4: TPS(7-9)	3*real

The following strings are addressed by the pointers of the points in
the MP file

Point in POINT SEQUENCE (PEN CODE 12, 20, 69)

Plotting tool number (1-4)	integer
Line code (1-400)	integer
Pointer to SHADE parameters	
(= 0: SHADE inactive)	real
Pointer to SYMBOL IN LINE parameters	
(= 0: SYMBOL IN LINE inactive)	real

SINGLE POINT (PEN CODE 11)

Plotting tool number (1-4)	integer
Symbol code (1-999)	integer
Symbol size (mm/100)	integer
Symbol angle (gon/100 relative to ground X)	integer
Pointer to HEIGHT parameters (= 0: HEIGHT inactive)	real

ANNOTATION (PEN CODE 81)

Record 1	
Plotting tool number (1-4)	integer
Height of a character (mm/100)	integer
Orientation angle (gon/100)	integer
Reference (1: centre 2: lower left corner of first character)	integer
Number of characters in texts: IW	integer

(IW+IRECL-1)/IRECL: further records with maximum IRECL characters:

Text	IRECL bytes
------	-------------

CIRCLE (PEN CODE 71 to 78):

Plotting tool number (1-4)	integer
Line code	integer

The following string are not addressed by the pointer in the MP file but by those in the graphics records for points in a POINT SEQUENCE and SINGLE POINTS:

HEIGHT:

Plotting tool number (1-4) (0: as for SYMBOL)	integer
Number of digits after decimal point	integer
Height of ANNOTATION (mm/100)	integer
Angle for orientation of annotation relative to ground X (gon/100)	integer
Position radius (mm/100)	integer
Position angle relative to ground X (gon/100)	integer

SHADE: 2 records!

For shading with line:

Record 1:

Type: 1 = line	integer
Plotting tool number (0: as used for enclosing line)	integer
Line code (1-200)	integer
Shading interval (mm/100)	integer

Record 2:

Shading angle (gon/100)	integer
Reference (1-4)	integer
Single/double shading	integer

For shading with symbol:

Record 1:

Type: 2 = symbol	integer
Plotting tool number (0: as used for enclosing line)	integer
Symbol code (1-999)	integer
Interval perpendicular to shading direction (mm/100)	integer

Record 2:

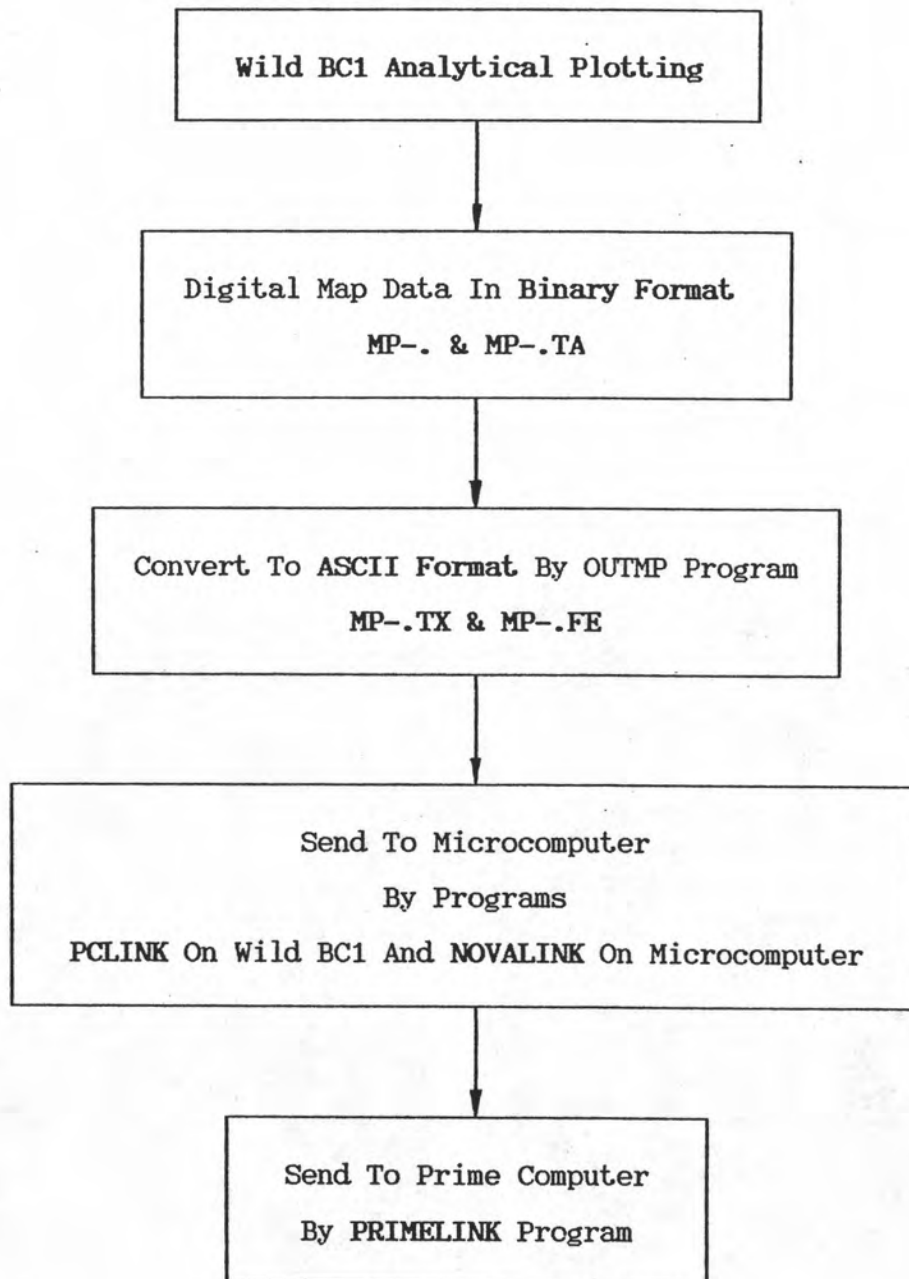
Shading angle (gon/100)	integer
Reference (1-4)	integer
Grid form (1=normal, 2=offset)	integer
Interval in shading direction (mm/100)	integer
Size of symbol (mm/100)	integer

SYMBOL IN LINE:

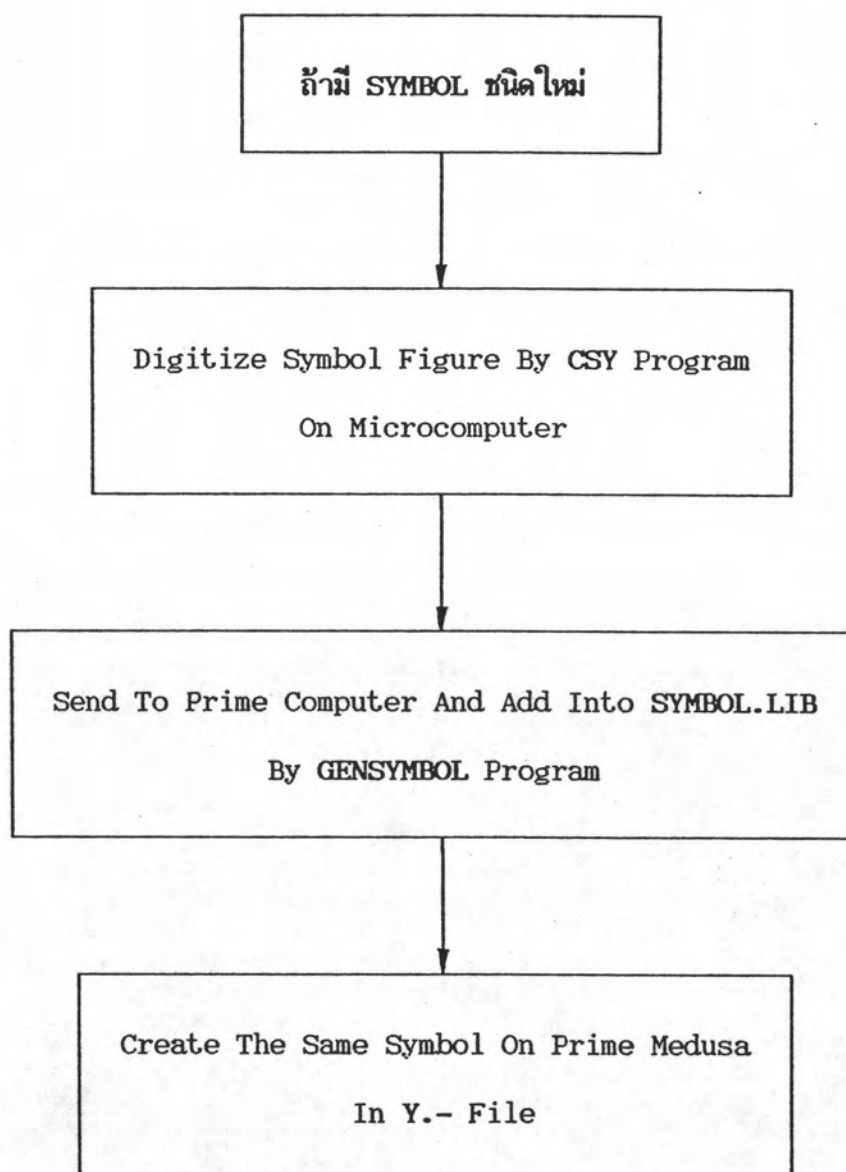
Plotting tool number (0: as for LINE)	integer
Symbol code (1-999)	integer
Symbol size (mm/100)	integer
Symbol angle (gon/100)	integer

ภาคผนวก ค

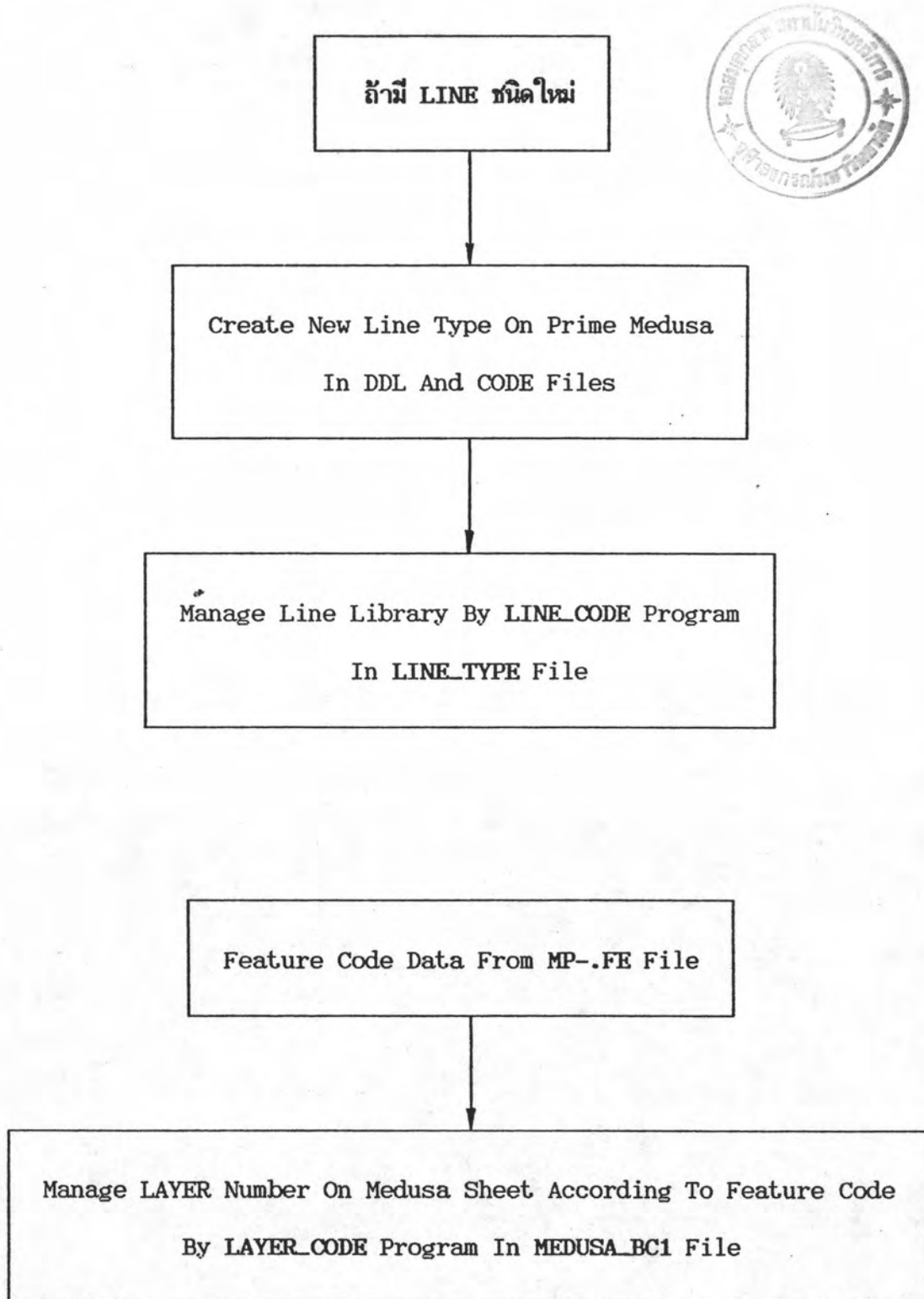
แผนผังการทำงานของ การส่งข้อมูล



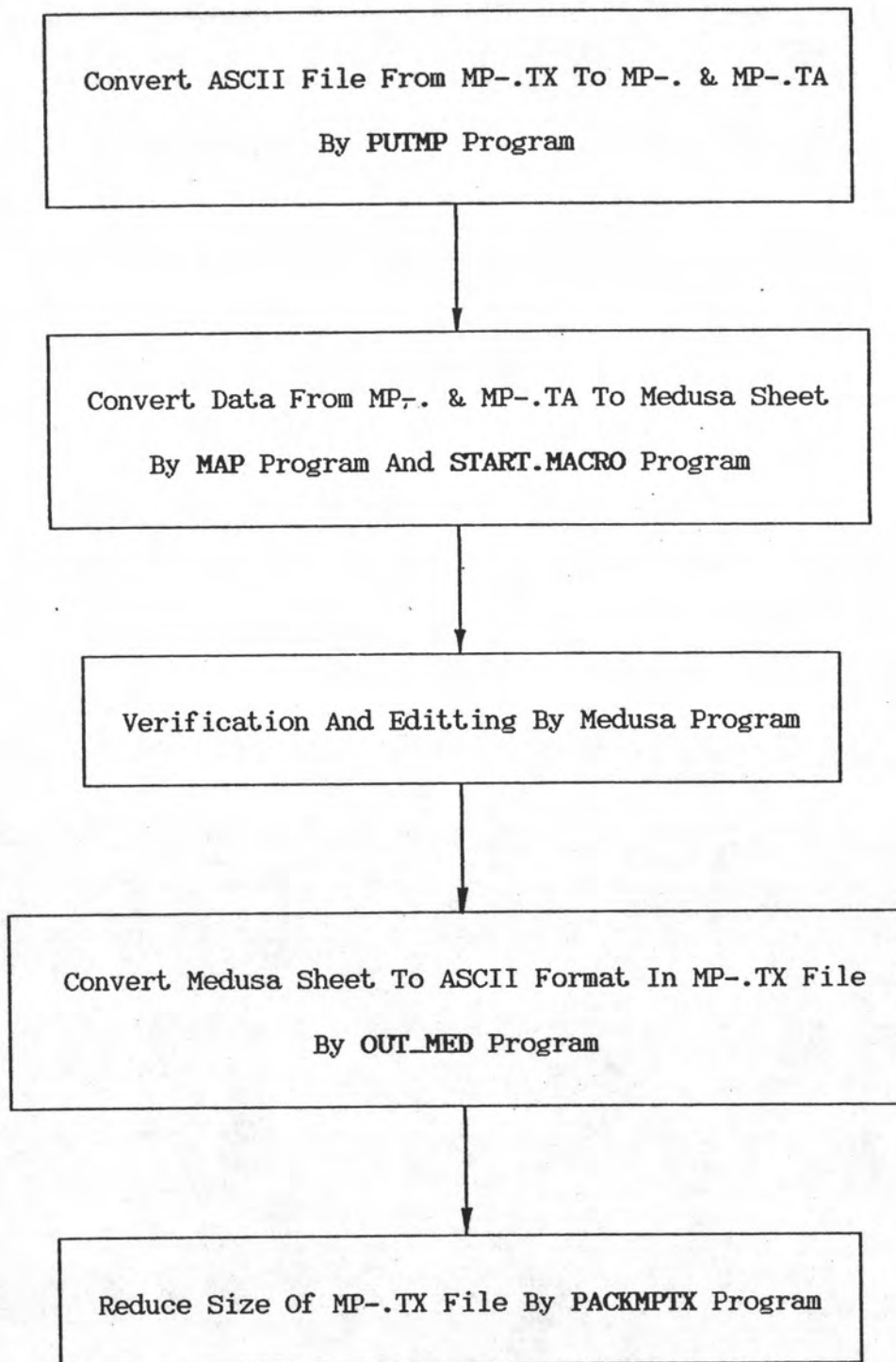
รูป ค.1 แผนผังแสดงการทำงานในการส่งข้อมูลระหว่างเครื่องร่างแผนที่เชิงวิเคราะห์
วิลด์ BC1 และโปรแกรมเมดูลซ่า



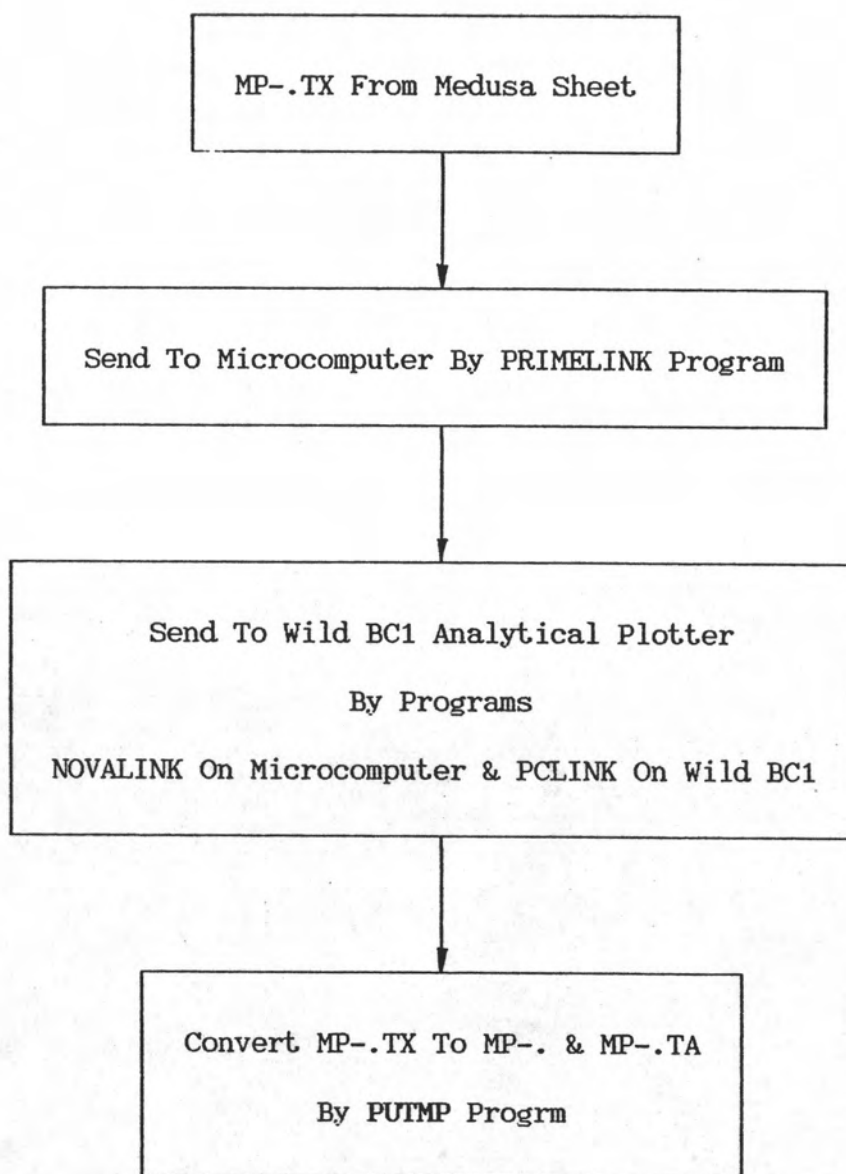
รูป ค.1 แผนผังแสดงการทำงานในการส่งข้อมูลระหว่างเครื่องร่างแผนที่เชิงวิเคราะห์
วีลด์ BC1 และโปรแกรมเมดดูซ่า (ต่อ)



รูป ค.1 แผนผังแสดงการทำงานในการส่งข้อมูลระหว่างเครื่องร่างแผนที่เชิงวิเคราะห์
 ฟิลด์ BC1 และโปรแกรมเมดูซ่า (ต่อ)



รูป ค.1 แผนผังแสดงการทำงานในการส่งข้อมูลระหว่างเครื่องวางแผนที่เชิงวิเคราะห์
วิลด์ BC1 และโปรแกรมเมดิวซ่า (ต่อ)



รูป ค.1 แผนผังแสดงการทำงานในการส่งข้อมูลระหว่างเครื่องร่างแผนที่เชิงวิเคราะห์
วิลด์ BC1 และโปรแกรมเมดูล่า (ต่อ)

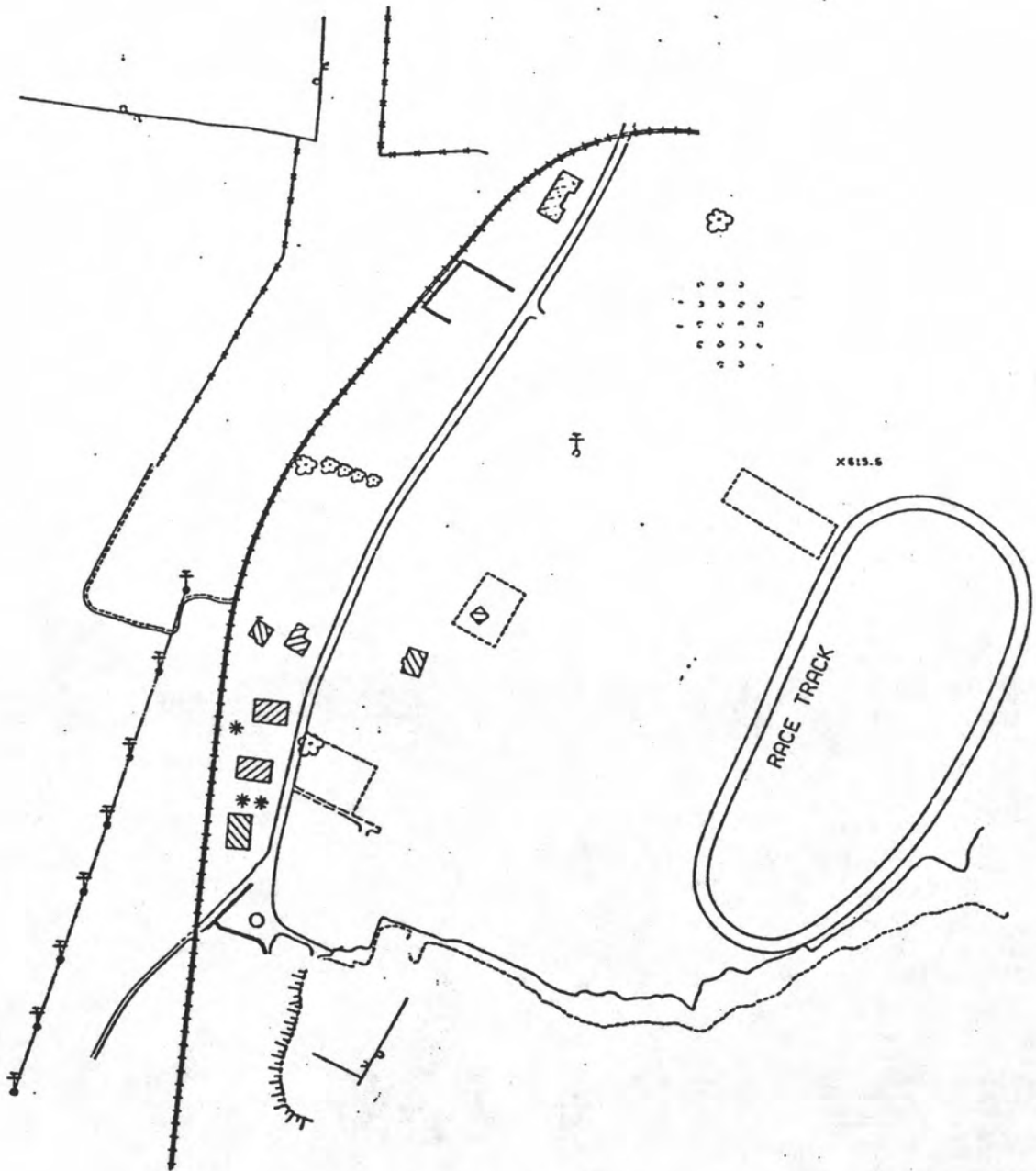
ภาคผนวก ง



ผลลัพธ์ของการวิจัย

V6	.....	V20	.....	G16	.....
V7	.....	V21	.....	G17	.....
V8	.....	V22	.....	G18	.....
V9	.....	V23	.....	G19	.....
V10	.....	V24	.....	G20	.....
V11	.....	V25	.....	G21	.....
V12	.....	V26	.....	G22	.....
V13	.....	V27	.....	G23	.....
V14	.....	V28	.....	G24	.....
V15	.....	V29	.....	G25	.....
V16	.....	V30	.....	G26	.....
V17	.....	V31	.....	G27	.....
V18	.....	V32	.....	G28	.....
V19	.....	V33	.....	G29	.....
V20	.....	V34	.....	G30	.....
V21	.....	V35	.....	G31	.....
V22	.....	V36	.....	G32	.....
V23	.....	V37	.....	G33	.....
V24	.....	V38	.....	G34	.....
V25	.....	V39	.....	G35	.....
V26	.....	V40	.....	G36	.....
V27	.....	V41	.....	G37	.....
V28	.....	V42	.....	G38	.....
V29	.....	V43	.....	G39	.....
V30	.....	V44	.....	G40	.....
V31	.....	V45	.....	G41	.....
V32	.....	V46	.....	G42	.....
V33	.....	V47	.....	G43	.....
V34	.....	V48	.....	G44	.....
V35	.....	V49	.....	G45	.....
V36	.....	V50	.....	G46	.....
V37	.....	V51	.....	G47	.....
V38	.....	V52	.....	G48	.....
V39	.....	V53	.....	G49	.....
V40	.....	V54	.....	G50	.....
V41	.....	V55	.....	G51	.....
V42	.....	V56	.....	G52	.....
V43	.....	V57	.....	G53	.....
V44	.....	V58	.....	G54	.....
V45	.....	V59	.....	G55	.....
V46	.....	V60	.....	G56	.....
V47	.....	V61	.....	G57	.....
V48	.....	V62	.....	G58	.....
V49	.....	V63	.....	G59	.....
V50	.....	V64	.....	G60	.....
V51	.....	V65	.....	G61	.....
V52	.....	V66	.....	G62	.....
V53	.....	V67	.....	G63	.....
V54	.....	V68	.....	G64	.....
V55	.....	V69	.....	G65	.....
V56	.....	V70	.....	G66	.....
V57	.....	V71	.....	G67	.....
V58	.....	V72	.....	G68	.....
V59	.....	V73	.....	G69	.....
V60	.....	V74	.....	G70	.....
V61	.....	V75	.....	G71	.....
V62	.....	V76	.....	G72	.....
V63	.....	V77	.....	G73	.....
V64	.....	V78	.....	G74	.....
V65	.....	V79	.....	G75	.....
V66	.....	V80	.....	G76	.....
V67	.....	V81	.....	G77	.....
V68	.....	V82	.....	G78	.....
V69	.....	V83	.....	G79	.....
V70	.....	V84	.....	G80	.....
V71	.....	V85	.....	G81	.....
V72	.....	V86	.....	G82	.....
V73	.....	V87	.....	G83	.....
V74	.....	V88	.....	G84	.....
V75	.....	V89	.....	G85	.....
V76	.....	V90	.....	G86	.....
V77	.....	V91	.....	G87	.....
V78	.....	V92	.....	G88	.....
V79	.....	V93	.....	G89	.....
V80	.....	V94	.....	G90	.....
V81	.....	V95	.....	G91	.....
V82	.....	V96	.....	G92	.....
V83	.....	V97	.....	G93	.....
V84	.....	V98	.....	G94	.....
V85	.....	V99	.....	G95	.....
V86	.....	V100	.....	G96	.....
V87	.....	V101	.....	G97	.....
V88	.....	V102	.....	G98	.....
V89	.....	V103	.....	G99	.....
V90	.....	V104	.....	G100	.....

รูป ง.1 ชนิดของเส้นที่สร้างชั้นบนโปรแกรมเมดูซ่า



รูป ง.2 ตัวอย่างแผนที่ที่ได้จากเครื่องร่างแผนที่เชิงวิเคราะห์ วิลด์ BC1

```

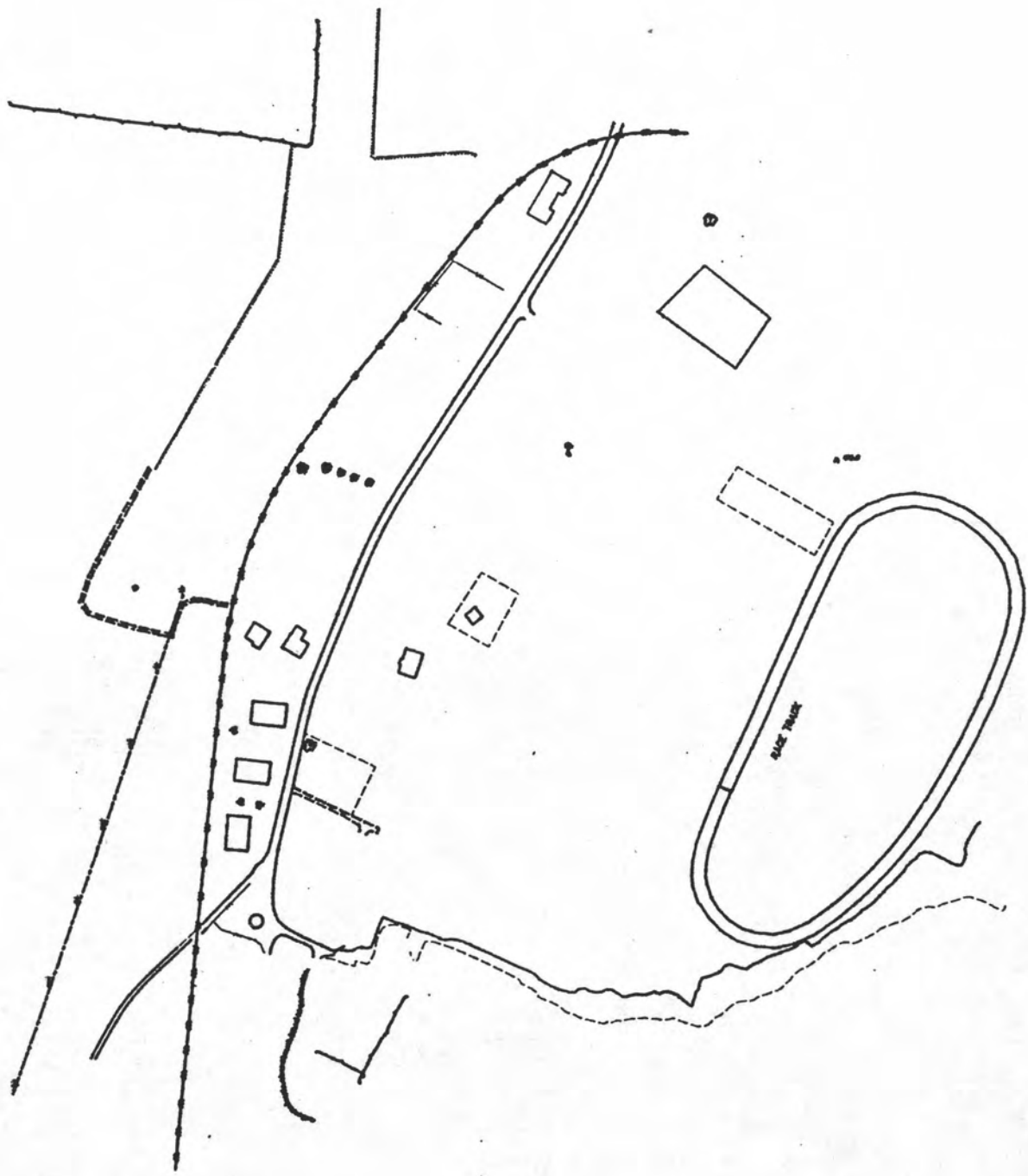
2000.
1
.9999999 .0000000 .0000000
.0000000 .9999999 .0000000
.0000000 .0000000 .9999999
PSRAIL 1218 .00 .00 0
31 7877.810 5108.806 617.013
32 7877.215 5124.290 617.013
32 7880.816 5139.156 617.013
32 7882.882 5158.076 617.013
32 7884.601 5173.440 617.013
32 7886.190 5187.638 617.013
32 7887.746 5203.499 617.013
32 7889.706 5219.258 616.983
32 7891.494 5233.004 616.970
32 7892.811 5246.711 616.992
32 7894.669 5263.387 617.069
32 7896.823 5282.472 617.026
32 7899.297 5304.702 617.031
32 7901.463 5324.014 617.003
32 7903.710 5343.995 617.009
32 7905.771 5362.236 617.000
32 7907.890 5380.979 617.009
32 7909.752 5396.990 617.022
32 7911.581 5411.384 617.018
32 7913.261 5423.753 617.022
32 7914.911 5433.655 617.043
32 7916.671 5442.959 617.095
32 7920.579 5459.078 617.056
32 7923.862 5473.987 617.078
32 7932.272 5492.798 617.121
32 7939.809 5509.328 617.155
32 7946.540 5522.086 617.104
32 7954.120 5534.634 617.104
32 7964.633 5550.180 617.069
32 7973.669 5561.937 617.091
32 7984.731 5575.789 617.104
32 8000.187 5595.020 617.065
32 8014.485 5612.694 617.074
32 8027.615 5628.939 617.078
32 8042.894 5647.934 617.074
32 8058.253 5666.898 617.035
32 8073.099 5684.831 616.992
32 8084.414 5696.652 616.927
32 8097.751 5707.447 616.901
32 8110.497 5715.435 616.854
32 8125.589 5722.103 616.832
32 8140.857 5727.080 616.880
32 8156.898 5729.935 616.923
32 8172.783 5730.702 616.901
33 8189.159 5729.354 616.884
-9 -999.000 -999.000-999.000
PSMALL 1212 .00 .00 0
21 7925.689 5280.159 618.896
23 7899.017 5253.546 617.392
21 7903.118 5257.190 619.193
22 7907.288 5252.613 619.309
22 7927.758 5245.898 619.662
32 7931.429 5243.226 619.784
33 7933.452 5238.251 619.773
-9 -999.000 -999.000-999.000
CC 1 1 .00 .00 0
71 7928.873 5257.793 619.663
72 7927.362 5254.093 619.594
-9 -999.000 -999.000-999.000
PSBOUNDARY1 1 .00 .00 0
21 7898.637 5233.321 617.194
22 7896.090 5230.985 617.155
23 7895.382 5231.552 617.155
-9 -999.000 -999.000-999.000
PSFIELD 1 4 .00 .00 0
21 7890.199 5247.241 616.914
22 7889.747 5246.764 616.914
23 7888.946 5246.736 616.914
-9 -999.000 -999.000-999.000
PSBOUNDARY3 1 .00 .00 0
21 7889.016 5246.702 616.914
22 7880.887 5239.328 616.251
32 7876.843 5235.724 616.091
32 7849.942 5229.545 615.712
32 7864.139 5224.174 615.458
32 7857.154 5217.080 615.385
32 7851.066 5209.639 615.255
32 7843.362 5198.411 615.061
32 7836.669 5186.542 615.027
33 7830.558 5175.393 615.027
31 7828.365 5174.449 615.027
32 7834.141 5186.937 614.924
32 7839.636 5196.645 614.833
22 7845.366 5203.904 614.932
32 7851.409 5214.059 615.014
32 7858.003 5221.158 615.223
32 7864.922 5227.868 615.479
32 7873.304 5233.370 615.772
32 7881.526 5242.990 616.223
-9 -999.000 -999.000-999.000
PSFIELD 1 4 .00 .00 0
22 7888.783 5249.415 616.707
23 7896.178 5256.232 617.229
-9 -999.000 -999.000-999.000

```

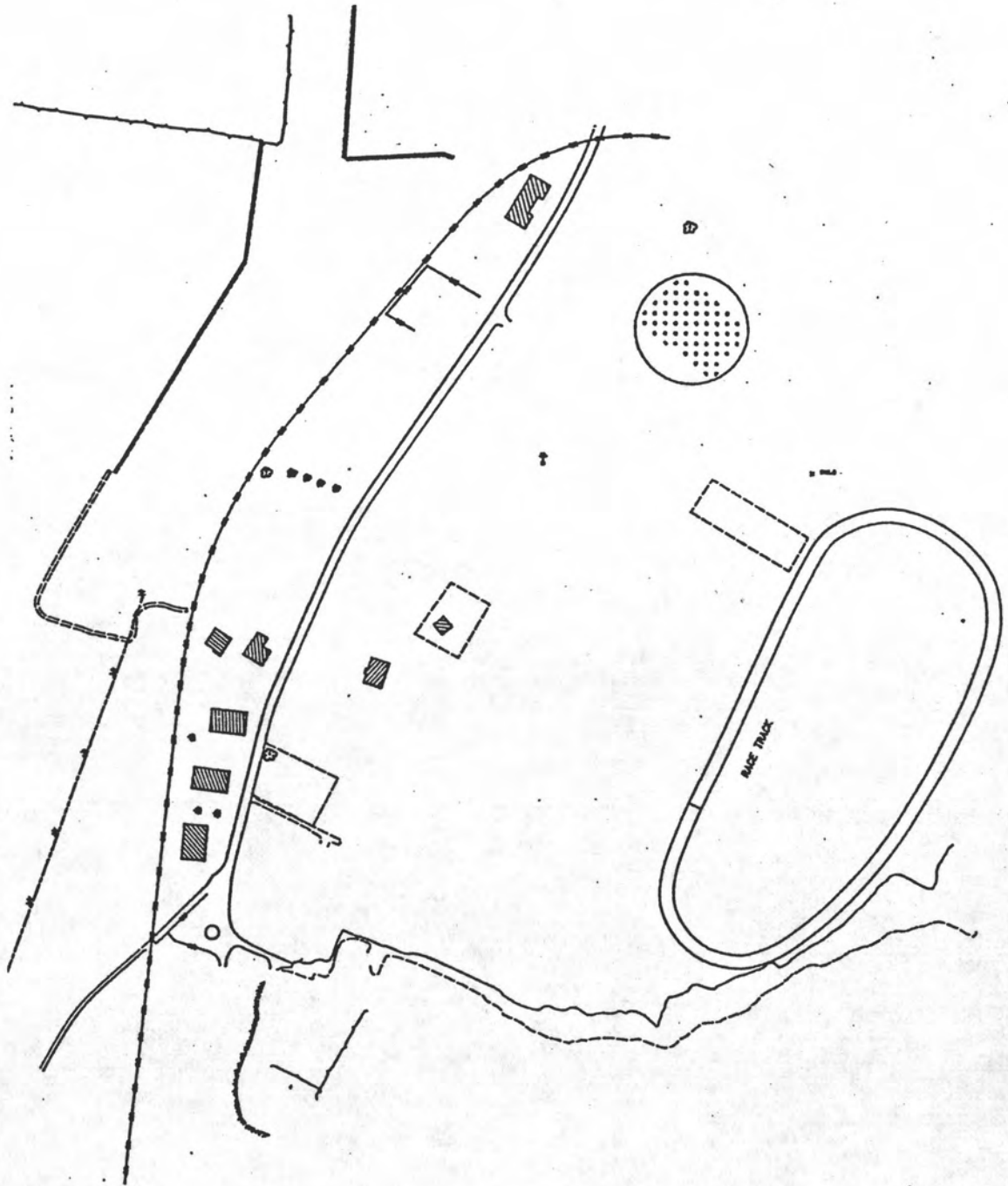
รูป ง.3 เติมข้อมูลบางส่วนที่ได้จากเครื่องร่างแผนที่เชิงวิเคราะห์ วิลด์ BC1

PSPATH	1210	.00	.00	0
31	7868.620	5531.058	615.684	
32	7856.328	5510.203	615.152	
32	7841.930	5485.135	614.816	
32	7831.929	5466.561	614.152	
32	7826.519	5451.236	614.536	
32	7830.590	5444.620	614.592	
32	7837.712	5441.858	614.247	
32	7845.424	5437.339	614.768	
32	7853.219	5436.886	615.268	
32	7857.739	5435.193	614.738	
32	7864.031	5433.833	615.103	
32	7872.264	5432.025	615.540	
32	7879.934	5430.409	616.031	
32	7883.625	5440.684	616.070	
32	7886.663	5448.912	616.526	
32	7893.774	5451.711	616.979	
32	7900.726	5451.564	617.283	
32	7908.216	5449.152	617.207	
33	7914.622	5448.530	617.112	
-9	-999.000	-999.000	-999.000	
SPBUSH	1 31	4.00	.00	0
11	7920.691	5329.676	619.267	
11	7931.693	5328.132	620.171	
11	7917.205	5373.056	619.723	
-9	-999.000	-999.000	-999.000	
PSSLOPE	1222	.00	.00	0
31	7958.881	5228.280	624.938	
32	7956.206	5220.371	624.997	
32	7954.930	5213.232	625.853	
32	7955.522	5207.197	626.996	
32	7953.298	5200.644	627.604	
32	7951.046	5192.371	627.612	
32	7946.117	5180.878	626.578	
32	7943.457	5171.597	626.380	
32	7942.953	5163.717	626.561	
32	7944.298	5155.949	625.753	
32	7946.398	5147.681	625.484	
32	7951.409	5142.365	624.532	
32	7959.104	5139.071	625.350	
33	7961.943	5137.717	625.350	
-9	-999.000	-999.000	-999.000	
PSHEDGE	1 27	.00	.00	0
21	8017.956	5211.710	628.492	
22	8005.924	5189.880	628.698	
23	7989.174	5159.776	628.022	
21	7991.103	5163.734	628.022	
23	7962.650	5178.358	628.832	
-9	-999.000	-999.000	-999.000	
PSCONTF	1 4	.00	.00	0
34	7968.879	5235.149	624.997	
37	7969.588	5234.944	624.997	
37	7972.958	5234.583	624.997	
37	7976.640	5233.285	624.997	
37	7980.367	5231.831	624.997	
37	7984.047	5230.620	624.997	
37	7986.548	5230.277	624.997	
37	7987.123	5233.044	624.997	
37	7988.667	5233.128	624.997	
37	7991.173	5232.138	624.997	
37	7993.708	5231.258	624.997	
37	7995.462	5232.593	624.997	
37	7996.743	5234.808	624.997	
37	7998.135	5237.725	624.997	
37	7998.620	5240.873	624.997	
37	7999.334	5243.793	624.997	
37	8000.145	5244.624	624.997	
37	8001.645	5250.367	624.997	
37	8003.199	5253.015	624.997	
37	8005.870	5254.132	624.997	
37	8008.450	5254.697	624.997	
37	8011.221	5254.630	624.997	
37	8014.781	5253.567	624.997	
37	8018.607	5251.890	624.997	
37	8020.166	5250.626	624.997	
37	8019.124	5249.022	624.997	
37	8018.437	5247.761	624.997	
38	8017.996	5246.806	624.997	
36	8019.210	5238.183	624.997	
37	8360.030	5263.467	624.997	
37	8362.873	5261.733	624.997	
37	8363.757	5260.972	624.997	
37	8365.312	5260.508	624.997	
37	8367.908	5259.265	624.997	
37	8369.485	5260.799	624.997	
38	8369.564	5262.026	624.997	
-9	-999.000	-999.000	-999.000	
AT	1 1	4.00	73.16	10
RACE TRACK				
81	8235.464	5353.244	618.400	
-9	-999.000	-999.000	-999.000	
SPSPOT	1 11	2.00	.00	1
0 1	2.00	.00	3.00	.00
11	8274.206	5532.454	615.641	
-9	-999.000	-999.000	-999.000	
PESUILDOP	1 1	1.00	.00	0
12 1	2.50	30.0022	.00	.00
21	8109.144	5707.473	621.809	
22	8094.636	5682.236	621.642	
22	8106.116	5673.636	622.179	
22	8110.541	5683.333	622.037	
22	8107.793	5684.913	621.809	
22	8113.339	5694.561	621.886	
22	8115.978	5693.044	621.947	
22	8120.516	5700.938	621.817	
23	8109.144	5707.473	621.809	
-9	-999.000	-999.000	-999.000	

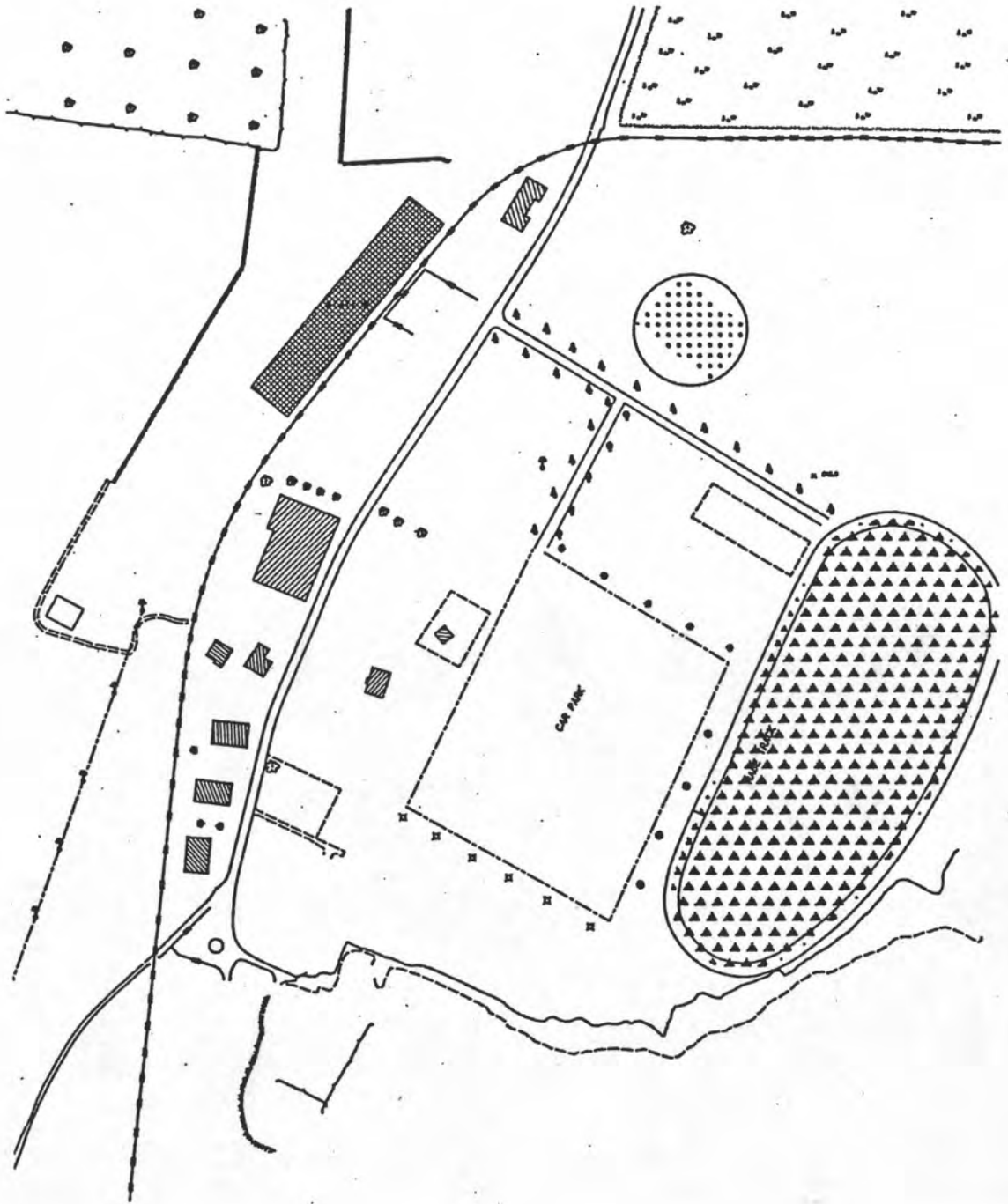
รูป ง.3 แฟ้มข้อมูลบางส่วนที่ได้จากเครื่องร่างแผนที่เชิงวิเคราะห์ วิลด์ BC1 (ต่อ)



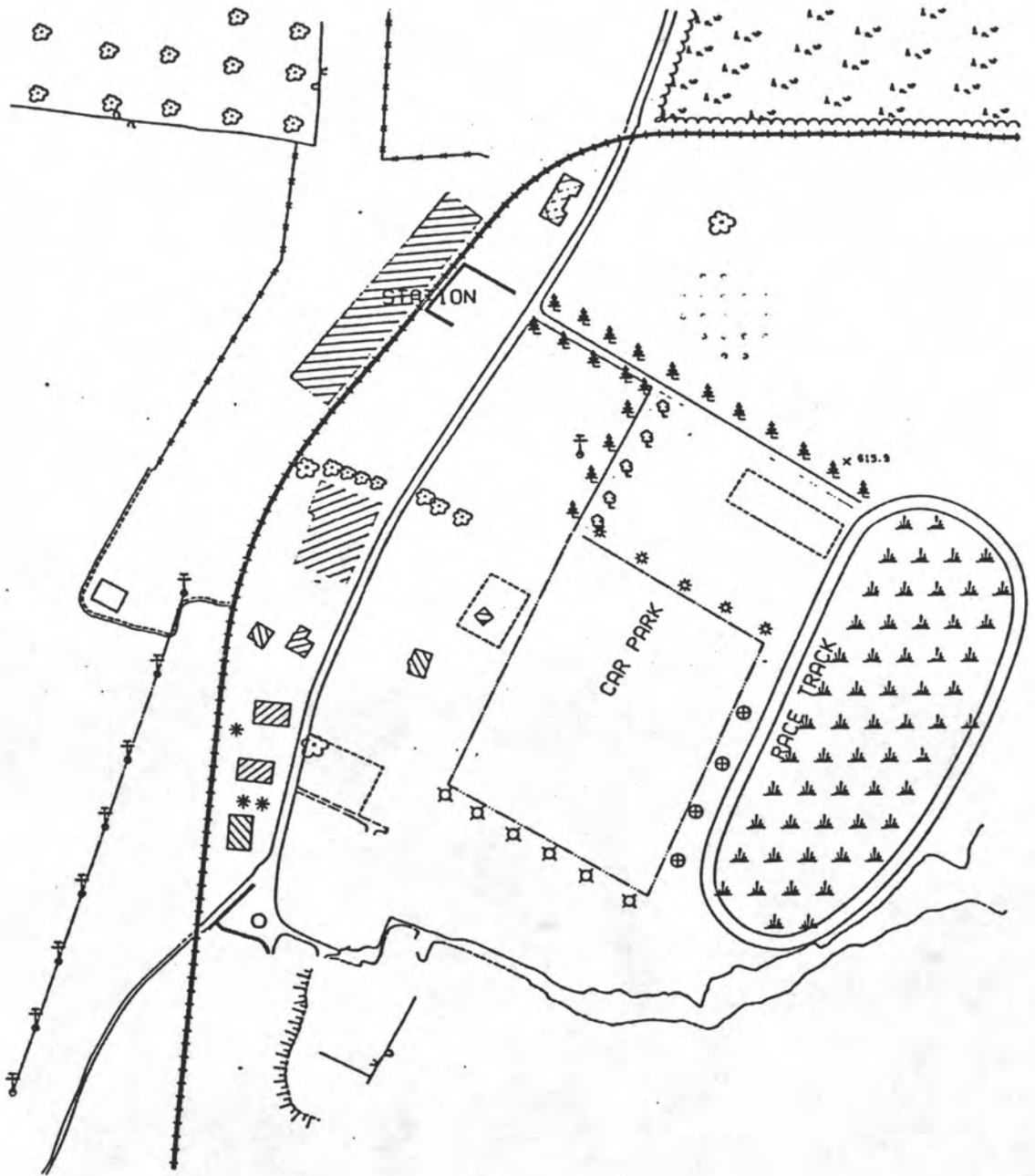
รูป ง.4 รูปกราฟิกของข้อมูลที่ได้จากโปรแกรม MAP
พล็อตด้วย CALCOMP PLOTTER



รูป ง.5 รูปกราฟิกที่ได้จากโปรแกรม START.MACRO
พล็อตด้วย CALCOMP PLOTTER



รูป ง.6 รูปกราฟิกของข้อมูลที่ได้รับการตรวจสอบแก้ไข โดยโปรแกรมเมตูลซ่า
พล็อตด้วย CALCOMP PLOTTER



รูป ง.7 รูปกราฟิกของข้อมูลที่ได้รับการตรวจสอบแก้ไขโดยโปรแกรมเมตูลซ่า
พล็อตด้วย WILD TA2 PLOTTER

2000.

0					
SP	1 23	5.00	0.00	0	
11	8087.020	5608.577	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8106.063	5599.753	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8123.641	5588.236	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8142.550	5578.776	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8153.467	5571.372	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8143.613	5557.777	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8132.430	5537.436	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8121.776	5518.517	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 23	5.00	0.00	0	
11	8110.592	5477.336	-77.000		
-9	-777.000	-777.000	-77.000		
PS	2 1	1.00	0.00	53	
11	1 2 50	50.0011	0.00	0.00	
21	7566.308	5520.580	-77.000		
22	7777.773	5506.562	-77.000		
22	7777.724	5458.334	-77.000		
22	7950.173	5470.715	-77.000		
22	7962.262	5499.766	-77.000		
22	7958.327	5501.402	-77.000		
23	7966.308	5520.580	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8034.670	5330.737	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8053.332	5319.853	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8073.837	5306.876	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8074.611	5293.174	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8116.184	5281.807	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 13	4.00	0.00	0	
11	8141.484	5266.382	-77.000		
-9	-777.000	-777.000	-77.000		
SP	1 6	4.00	0.00	0	
11	8170.513	5270.647	-77.000		
-9	-777.000	-777.000	-77.000		
PSBOUNDARY1	1	0.00	0.00	0	
21	8144.414	5735.487	-77.000		
22	8153.467	5760.372	-77.000		
22	8161.723	5782.563	-77.000		
33	8168.913	5803.000	-77.000		
-9	-777.000	-777.000	-77.000		
PSBOUNDARY1	1	0.00	0.00	0	
31	8131.071	5733.637	-77.000		
32	8152.670	5742.068	-77.000		
32	8158.262	5758.321	-77.000		
22	8164.388	5773.383	-77.000		
22	8167.780	5790.604	-77.000		
33	8174.241	5804.177	-77.000		
-9	-777.000	-777.000	-77.000		
PS0	1 3	0.00	0.00	0	
21	8147.837	5733.822	-77.000		
22	8148.564	5730.220	-77.000		
22	8147.016	5725.803	-77.000		
33	8145.236	5721.572	-77.000		
-9	-777.000	-777.000	-77.000		
PS0	1 3	0.00	0.00	0	
21	8140.467	5723.417	-77.000		
23	8144.233	5733.873	-77.000		
-9	-777.000	-777.000	-77.000		
PSBOUNDARY1	1	0.00	0.00	0	
21	7874.177	5234.231	-77.000		
22	7923.563	5283.583	-77.000		
23	7927.347	5287.325	-77.000		
-9	-777.000	-777.000	-77.000		
PSFIELD	1 4	0.00	0.00	0	
21	7877.523	5240.777	-77.000		
22	7886.782	5247.414	-77.000		
23	7874.177	5234.231	-77.000		
-9	-777.000	-777.000	-77.000		

รูป ง.8 เติมข้อมูลกลางบางส่วนที่ได้จากข้อมูลแผนที่ที่ผ่านการตรวจสอบแก้ไข
จากโปรแกรมเมตซ่า

PSBOUNDARY1	1	0.00	0.00	0
21	7879.525	5240.979	-99.000	
22	7871.303	5233.567	-99.000	
32	7862.921	5225.867	-99.000	
32	7856.002	5219.157	-99.000	
32	7849.408	5212.058	-99.000	
32	7843.363	5203.903	-99.000	
32	7837.635	5194.664	-99.000	
22	7832.140	5184.736	-99.000	
22	7826.364	5174.448	-99.000	
32	7819.237	5156.561	-99.000	
22	7819.237	5156.561	-99.000	
32	7807.786	5130.236	-99.000	
32	7804.590	5121.373	-99.000	
32	7801.395	5112.550	-99.000	
33	7796.601	5104.940	-99.000	
22	7798.913	5430.023	-99.000	
22	7793.163	5433.503	-99.000	
22	7790.155	5428.332	-99.000	
22	7799.703	5428.804	-99.000	
23	7794.676	5420.488	-99.000	
-9	-999.000	-999.000	-999.000	
PSAIRPOWER1	1	1.00	0.00	53
10	1	2.00	50.0021	0.00 0.00
21	7928.573	5435.671	-99.000	
22	7922.875	5426.816	-99.000	
22	7928.054	5425.491	-99.000	
22	7927.279	5422.283	-99.000	
22	7931.512	5419.565	-99.000	
22	7937.986	5429.648	-99.000	
23	7928.573	5435.671	-99.000	
-9	-999.000	-999.000	-999.000	
PSAIRPOWER1	1	1.00	0.00	53
10	1	2.00	50.0021	0.00 0.00
21	7926.774	5388.250	-99.000	
22	7925.244	5374.667	-99.000	
22	7945.520	5372.382	-99.000	
22	7947.050	5393.966	-99.000	
23	7926.774	5388.250	-99.000	
-9	-999.000	-999.000	-999.000	
PSAIRPOWER1	1	1.00	0.00	53
10	1	2.00	50.0021	0.00 0.00
21	7918.612	5353.777	-99.000	
22	7914.896	5340.773	-99.000	
22	7935.232	5338.090	-99.000	
22	7936.949	5351.092	-99.000	
23	7918.612	5353.777	-99.000	
-9	-999.000	-999.000	-999.000	
PSBOUNDARY1	1	0.00	0.00	0
31	7960.202	5234.484	-99.000	
32	7960.138	5237.603	-99.000	
32	7958.877	5240.114	-99.000	
32	7955.663	5241.862	-99.000	
32	7950.229	5244.071	-99.000	
32	7945.819	5246.104	-99.000	
22	7943.704	5247.123	-99.000	
32	7940.585	5247.551	-99.000	
32	7937.977	5245.606	-99.000	
32	7936.455	5243.067	-99.000	
32	7935.229	5240.186	-99.000	
32	7934.700	5237.206	-99.000	
33	7934.550	5235.851	-99.000	
-9	-999.000	-999.000	-999.000	
PSAIRPOWER1	1	1.00	0.00	53
10	1	2.00	50.0021	0.00 0.00
21	7910.819	5319.850	-99.000	
22	7909.021	5299.219	-99.000	
22	7922.496	5298.043	-99.000	
22	7924.294	5318.676	-99.000	
23	7910.819	5319.850	-99.000	
-9	-999.000	-999.000	-999.000	

รูป ง.8 เพิ่มข้อมูลกลางบางส่วนที่ได้จากข้อมูลแผนที่ที่ผ่านการตรวจสอบแก้ไข
จากโปรแกรมเมตธา (ต่อ)

2000.

0					
SP	1 25	5.00	0.00	0	
11	8089.030	5468.577	-77.000		
11	8106.063	5597.753	-77.000		
11	8123.641	5568.236	-77.000		
11	8142.550	5578.776	-77.000		
11	8153.467	5571.372	-77.000		
11	8143.613	5557.799	-77.000		
11	8132.430	5537.438	-77.000		
11	8121.776	5518.519	-77.000		
11	8110.372	5497.336	-77.000		
-9	-777.000	-777.000	-777.000		
PS	2 1	1.00	0.00	53	
11	1 2.50	50.0011	0.00	0.00	
21	7966.308	5320.580	-77.000		
22	7979.973	5306.562	-77.000		
22	7979.924	5458.334	-77.000		
22	7950.173	5470.715	-77.000		
22	7962.262	5499.766	-77.000		
22	7958.327	5501.402	-77.000		
23	7966.308	5320.580	-77.000		
-9	-777.000	-777.000	-777.000		
SP	1 13	4.00	0.00	0	
11	8034.670	5330.939	-77.000		
11	8053.332	5319.853	-77.000		
11	8073.839	5306.896	-77.000		
11	8094.611	5293.174	-77.000		
11	8116.184	5281.807	-77.000		
11	8141.484	5266.382	-77.000		
-9	-777.000	-777.000	-777.000		
SP	1 6	4.00	0.00	0	
11	8170.313	5290.649	-77.000		
11	8181.432	5319.853	-77.000		
11	8197.410	5348.645	-77.000		
11	8210.193	5379.287	-77.000		
-9	-777.000	-777.000	-777.000		
SP	1 24	5.00	0.00	0	
11	8164.121	5363.352	-77.000		
11	8154.268	5345.254	-77.000		
11	8142.017	5327.567	-77.000		
11	8131.894	5308.440	-77.000		
11	8124.706	5294.456	-77.000		
-9	-777.000	-777.000	-777.000		
PS	1 8	0.00	0.00	0	
21	8183.296	5805.000	-77.000		
22	8163.056	5746.387	-77.000		
22	8160.926	5736.721	-77.000		
22	8179.302	5735.692	-77.000		
23	8378.242	5733.223	-77.000		
-9	-777.000	-777.000	-777.000		
SP	1 34	3.00	0.00	0	
11	8192.352	5796.567	-77.000		
11	8187.025	5778.059	-77.000		
11	8177.704	5757.904	-77.000		
11	8171.312	5740.217	-77.000		
11	8214.988	5786.901	-77.000		
11	8207.777	5767.158	-77.000		
-9	-777.000	-777.000	-777.000		
PS ENGLISH	1 6	0.00	0.00	0	
21	7779.822	5153.237	-77.000		
22	7793.838	5192.376	-77.000		
22	7807.844	5232.526	-77.000		
22	7822.259	5272.752	-77.000		
22	7836.574	5312.969	-77.000		
22	7850.626	5353.245	-77.000		
22	7864.152	5404.762	-77.000		
23	7886.081	5453.470	-77.000		
-9	-777.000	-777.000	-777.000		
PS AIRPOWER	1 1	1.00	0.00	53	
10	1 2.00	50.0021	0.00	0.00	
21	7944.676	5420.488	-77.000		
22	7955.557	5413.906	-77.000		
22	7960.630	5422.293	-77.000		
22	7955.949	5425.124	-77.000		
22	7958.913	5430.025	-77.000		
22	7953.163	5433.503	-77.000		
22	7950.155	5428.532	-77.000		
22	7949.705	5428.804	-77.000		
23	7944.676	5420.488	-77.000		
21	7928.573	5435.691	-77.000		
22	7922.875	5426.816	-77.000		
22	7928.054	5423.491	-77.000		
22	7927.279	5422.283	-77.000		
22	7931.512	5419.565	-77.000		
22	7937.986	5429.648	-77.000		
23	7928.573	5435.691	-77.000		
21	7926.774	5388.250	-77.000		
22	7925.244	5374.667	-77.000		
22	7945.520	5372.382	-77.000		
22	7947.050	5383.966	-77.000		
23	7926.774	5388.250	-77.000		
21	7916.612	5353.777	-77.000		
22	7914.896	5340.775	-77.000		
22	7935.232	5338.090	-77.000		
22	7936.949	5351.092	-77.000		
23	7916.612	5353.777	-77.000		
-9	-777.000	-777.000	-777.000		

รูป ง.9 เพิ่มข้อมูลกลางบางส่วนที่ผ่านการลดขนาดโดยโปรแกรม PACKMPTX

PSBOUNDARY1	1	0.00	0.00	0
31	7960.202	5234.454	-99.000	
32	7960.138	5237.403	-99.000	
32	7958.897	5240.114	-99.000	
32	7955.663	5241.862	-99.000	
32	7950.229	5244.091	-99.000	
32	7945.817	5246.104	-99.000	
22	7943.704	5247.123	-99.000	
32	7940.585	5247.531	-99.000	
32	7937.977	5245.606	-99.000	
32	7936.455	5243.067	-99.000	
32	7935.229	5240.166	-99.000	
32	7934.700	5237.206	-99.000	
33	7934.550	5235.851	-99.000	
-9	-999.000	-999.000	-999.000	
PSAIRPOWER1	1	1.00	0.00	33
10	1	2.00	50.0021	0.00 0.00
21	7910.819	5319.850	-99.000	
22	7909.021	5299.219	-99.000	
22	7922.496	5298.045	-99.000	
22	7924.294	5318.676	-99.000	
23	7910.819	5319.850	-99.000	
-9	-999.000	-999.000	-999.000	
PSBOUNDARY1	1	0.00	0.00	0
31	8145.236	5721.572	-99.000	
32	8142.403	5714.612	-99.000	
32	8135.858	5700.912	-99.000	
32	8128.402	5686.362	-99.000	
22	8121.565	5674.223	-99.000	
22	8114.597	5662.175	-99.000	
32	8104.121	5644.898	-99.000	
22	8096.168	5631.807	-99.000	
32	8094.081	5628.143	-99.000	
32	8093.436	5624.771	-99.000	
32	8094.413	5621.564	-99.000	
32	8096.427	5619.372	-99.000	
23	8280.236	5505.973	-99.000	
21	8144.414	5735.487	-99.000	
22	8153.469	5760.372	-99.000	
22	8161.725	5782.583	-99.000	
33	8165.915	5805.000	-99.000	
31	8151.071	5733.637	-99.000	
32	8152.670	5742.068	-99.000	
32	8158.262	5758.521	-99.000	
22	8164.388	5775.385	-99.000	
22	8169.980	5790.604	-99.000	
33	8174.241	5804.177	-99.000	
-9	-999.000	-999.000	-999.000	
PSO	1	3	0.00	0.00 0
21	8149.839	5733.822	-99.000	
22	8148.564	5730.220	-99.000	
22	8147.016	5725.803	-99.000	
33	8145.236	5721.572	-99.000	
21	8140.469	5723.417	-99.000	
23	8144.235	5733.893	-99.000	
-9	-999.000	-999.000	-999.000	
PSBOUNDARY1	1	0.00	0.00	0
21	7894.177	5234.231	-99.000	
22	7923.583	5283.583	-99.000	
23	7927.349	5289.325	-99.000	
-9	-999.000	-999.000	-999.000	
PSFIELD	1	4	0.00	0.00 0
21	7899.525	5240.979	-99.000	
22	7886.782	5247.414	-99.000	
23	7894.177	5234.231	-99.000	
-9	-999.000	-999.000	-999.000	

รูป ง.9 เพิ่มข้อมูลกลางบางส่วนที่ผ่านการลดขนาดโดยโปรแกรม PACKMPTX (ต่อ)

ประวัติผู้เขียน

นาย วิชัย เยียงวีรชน เกิดวันที่ 20 เมษายน พ.ศ. 2503 ที่กรุงเทพมหานคร
สำเร็จการศึกษา วิศวกรรมศาสตรบัณฑิต สาขาวิศวกรรมสำรวจ จากจุฬาลงกรณ์มหาวิทยาลัย
เมื่อ ปี พ.ศ. 2525

