

**Boone County
Iowa**

**G.P.S.
Countywide Survey**

**Control Network
in
Support of
Geographical
Information
System**

1999

**Aerial Services, Inc.
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SECTION 1

Project Report

INTRODUCTION

Boone County, Iowa, chose to embark on a county wide high accuracy geographical information system (GIS) survey. This project is designed in phases. The first phase consists of the GPS control survey and permanent 3D monumentation. Aerial Services Inc. of Cedar Falls, Iowa was selected to complete this Phase.

Forty-four new control stations were added within the County. Twelve existing control stations set by others on the north and east County lines, along with nine others in or near the County were included in the survey.

PROJECT REQUIREMENTS

The purpose of this survey was to establish throughout Boone County, Iowa, a new horizontal control network using GPS survey equipment and techniques. This network was to be referenced to the new Iowa High Accuracy Reference Network (HARN) of 1996. It was also the intent of the County to obtain elevations on each new monument that would be referenced to NAVD 1988. Because this control would be utilized to control the analytical triangulation of the aerial photography, the network geometry was ideal for a strong GPS survey. All new point locations for control were selected with the needs of both the analytical triangulation and GPS survey requirements in mind. In some instances, all of the needs could not be met due to physical obstructions or existing land features. In these instances, the needs of analytical triangulation were held primary and the GPS survey needs were satisfied second.

MONUMENTATION

To perpetuate the GPS control measurements, 44 new permanent monuments were set for the County. BERNTSEN driven aluminum rod monuments were selected for the permanent monuments. Each station monument consisted of one three-foot smooth rod section and one three-foot top security fluted rod section with a stamped cap. These were driven to approximately 6" below the existing ground surface. For easy access and protection, a two foot long 5" diameter PVC pipe was placed over each rod monument along with a pre-cast aluminum access cover and backfilled with sand to facilitate drainage and to minimize frost movement.

The Boone County Engineers Office handled the coordination of marking the various underground utility locations at each site.

RECONNAISSANCE

The most important criterion for GPS observations at any given location is a clear view to the sky. In terms of network design, it is desirable that the horizontal control be located near the perimeter of the project site. With this in mind, five existing HARN horizontal stations were recovered in and/or near Boone County. All five were chosen to be included in the network.

Vertical control was selected to provide as much coverage as possible, both at the periphery and in the interior of the job area. Seven existing NGS, USGS and County benchmarks were recovered and included in this survey. Five of the benchmarks were occupied directly. Two benchmarks that were not suitable for GPS were referenced to temporary points by direct third-order closed level loops.

FIELD SURVEY

Three Ashtech Z-12 dual frequency receivers and one Ashtech ZSurveyor dual frequency receiver were used in this survey. GPS observations began Wednesday morning July 7, 1999. GPS observations were made during daylight hours from Wednesday, July 7, through Friday morning, July 9, 1999.

Rapid static GPS techniques were utilized to minimize the time and cost of the survey. The satellite "window", where at least six satellites were observable, was open for much of the day. Each measurement period during which all receivers observe satellites simultaneously lasted from 10 minutes to 20 minutes, depending on the distance being measured and the geometry of the satellite constellation.

DATA ADJUSTMENT

The total number of lines observed and processed was 471. Based on statistical indicators from the ASHTECH PRISM processing utility and analysis of loop closures, 8 lines were rejected and removed prior to data adjustment. These lines were either remeasured or considered unneeded for the adjustment. The final network is comprised of 65 stations and 149 baselines. All data adjustment was performed using the STARNET least squares adjustment software. An initial free adjustment was performed in NAD83 to check the overall quality of the GPS data and the nature of the control. The initial unconstrained (free) adjustment yielded baseline precision's which ranged from 1:100,000 to 1:2,000,000. Once the horizontal and vertical control was verified, subsequent adjustments were performed to arrive at the optimal solutions for each datum.

NAD83 (1996)

The initial free adjustment was performed holding point #605 fixed horizontally with the vertical adjustment disabled. Coordinate values on the other horizontal control stations were then

checked against the published values. One at a time, each of the four remaining horizontal control points was added to the network and a new adjustment performed. After each adjustment a comparison of adjusted coordinates vs. published values was made. By holding all five of the existing horizontal control stations fixed, the precision of the "free" adjustment degraded very little. At this time a comparison was made to the published coordinates on the twelve existing control stations located on the north and east County lines. All of the existing horizontal positions fit very well; therefore, all twelve existing stations were held fixed in x and y.

Once we were satisfied with the horizontal adjustment, we locked the horizontal positions and concentrated on the vertical adjustment. The Geoid 96 Central zone was utilized to provide a model of the height of the Geoid. Adjustments were then performed locking on to the vertical control stations one at a time. Elevations on the benchmarks were then checked against the published values. The NGS/USGS vertical control points fit very well except for points 601 and 606. The published elevations on the northerly and easterly county lines fit well with the vertical model. Therefore points 601 and 606 were not held fixed.

A final adjustment of both horizontal and vertical was then performed. Because the control was so reliable, the final adjustment in NAD83 (1996) was very straightforward. All horizontal control was held fixed in x and y and all vertical control were held fixed in z. This fully constrained adjustment solved for scale and rotation. In the final adjusted network, 99% of the adjusted vectors have an estimated error of 1:100,000 or less. The results are well in excess of the first-order precision. The error ellipses for each point are listed in Section VI. The units of measure for the error ellipses are US survey feet.

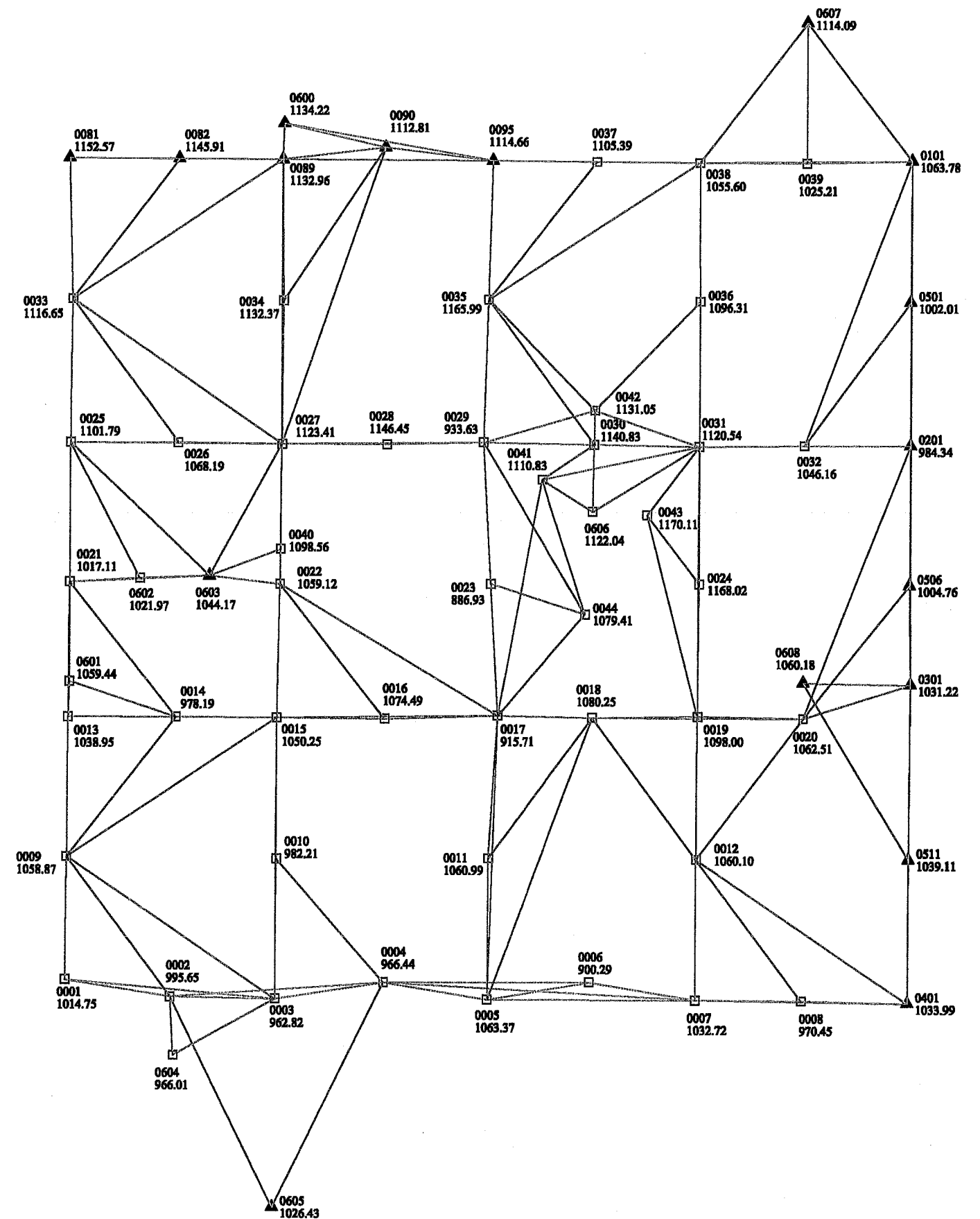
CONCLUSION

All measured points will be usable for better than first-order control in horizontal position and with ± 0.1 ft. vertically for benchmark use.

BOONE COUNTY IOWA



Scale: 1in = 20,000ft
Date Printed: 07-29-1999
Horiz. Datum: NAD_83(1996)
Vert. Datum: NAVD_88
Units: US FEET



GPS BASELINE NETWORK

SECTION 3

Summary of Fixed Coordinates

Summary of Controlling Stations

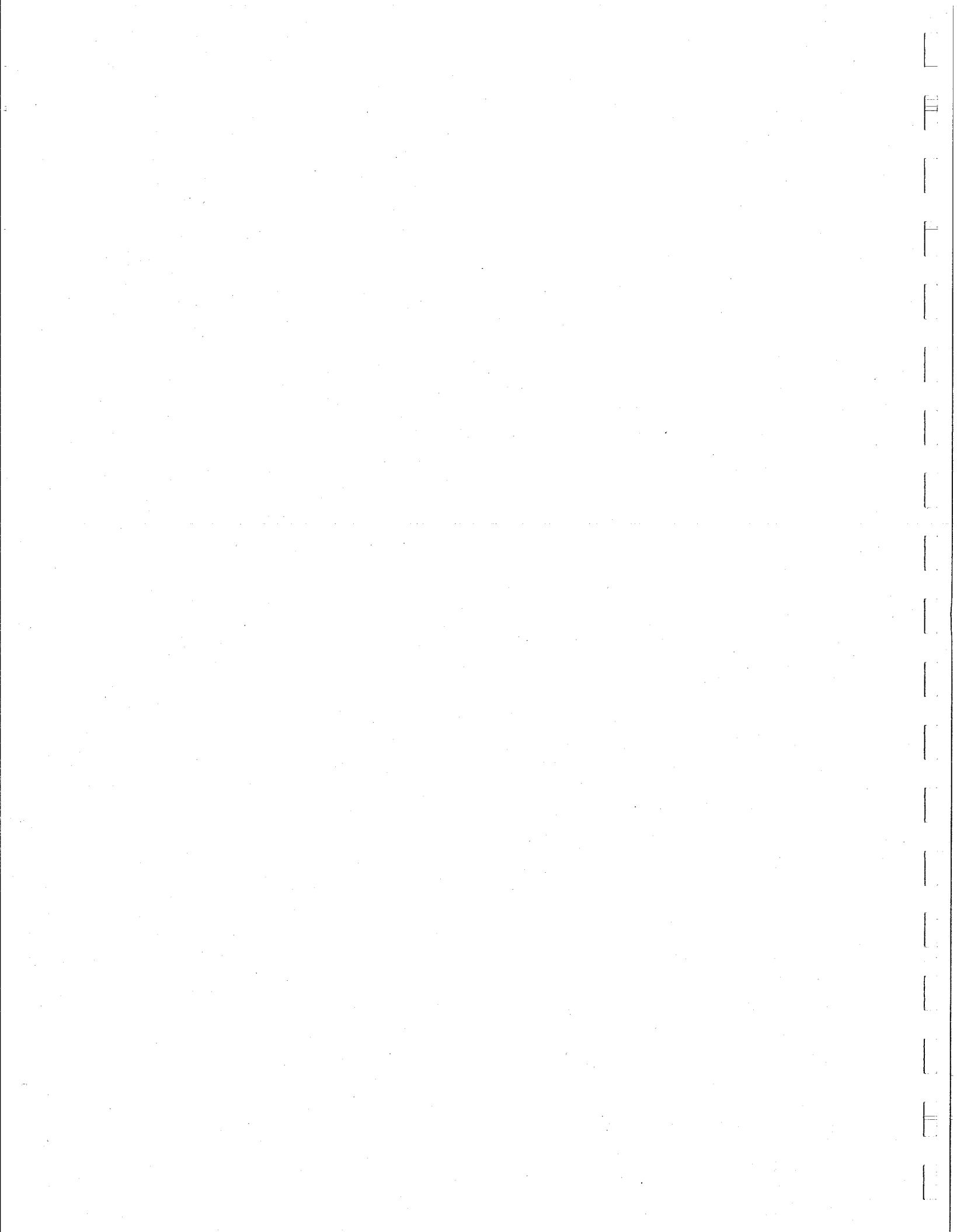
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Number of Entered Stations (US Feet) = 21

Fixed Stations	N	E	Elev	Description
0081	3540299.7135	4740503.7616	1152.5670	Webster 6081
0082	3540175.2038	4757074.2502	1145.9100	Webster 6082
0089	3540060.4224	4772679.5815	1132.9600	Webster 6089
0090	3541862.9126	4788064.1479	1112.8090	Webster 6090
0095	3539854.9877	4804269.4131	1114.6630	Webster 6095
0101	3539778.1322	4867472.0614	1063.7770	Story Co 101
0201	3496887.1464	4867416.7575	984.3420	Story Co 201
0301	3460848.6111	4867520.0453	1031.2180	Story Co 301
0401	3412924.1238	4867269.0818	1033.9940	Story Co 401
0501	3518482.3882	4867358.8282	1002.0090	Story Co 501
0506	3475845.0928	4867313.1706	1004.7620	Story Co 506
0511	3434568.5599	4867360.0260	1039.1120	Story Co 511
0600	3545493.8850	4772847.0079	1134.2230	IaHARN D 3
0603	3477315.8078	4761867.0175	1044.1650	IaHARN U 88

Partially Fixed	N StdErr	E StdErr	Elev StdErr	Description
0602	3476992.5437 FREE	4751283.0437 FREE	1021.9700 FIXED	V 88
0604	3405188.0166 FREE	4756611.3589 FREE	966.0090 FIXED	TBM near U 3
0605	3382261.7070 FIXED	4771655.0136 FIXED	1026.3590 FREE	IaHARN X 3
0607	3560602.3136 FIXED	4851669.3563 FIXED	1113.8430 FREE	IaHARN ET 7 JA
0608	3461115.0779 FIXED	4851374.7553 FIXED	1060.0370 FREE	IaHARN ET 9 JA

Free Stations	N	E	Elev	Description
0601	3461446.5859	4740760.2744	1059.1350	Boone Co BM 152-1-1
0606	3486968.3101	4819503.0397	1121.6410	TBM near Q 32



SECTION 4

Adjusted Observations and Residuals

Adjusted Observations and Residuals

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Adjusted GPS Vector Observations Sorted by Names (US Feet)

Datum Transformations		StdDev
Scale Factor 0.999998129483	:	1.870517 PPM 0.1054 (Solved)
Rotation Around North Axis	:	-0.084321 Sec 0.0496 (Solved)
Rotation Around East Axis	:	0.639208 Sec 0.0435 (Solved)
Rotation Around Vert Axis	:	-0.098996 Sec 0.0208 (Solved)

From To	Component	Adj Value	Residual	StdErr	StdRes
(V112 Day189(O) 23:05 00010020.189)					
0001	Delta-N	-2451.8721	-0.0048	0.0272	0.2
0002	Delta-E	15833.9516	0.0055	0.0232	0.2
	Delta-U	-26.2314	0.0029	0.0356	0.1
	Length	16022.6835			
(V154 Day190(B) 13:57 0002004B.190)					
0002	Delta-N	2403.4635	-0.0005	0.0279	0.0
0004	Delta-E	32080.0487	-0.0067	0.0227	0.3
	Delta-U	-55.5216	0.0511	0.0363	1.4
	Length	32170.0054			
(V153 Day190(A) 13:15 0002604A.190)					
0002	Delta-N	-8793.4015	-0.0064	0.0309	0.2
0604	Delta-E	586.5849	0.0172	0.0244	0.7
	Delta-U	-32.1069	0.0145	0.0412	0.4
	Length	8813.0030			
(V155 Day190(B) 14:03 0002605B.190)					
0002	Delta-N	-31611.1853	0.0015	0.0287	0.1
0605	Delta-E	15794.0400	-0.0204	0.0244	0.8
	Delta-U	-2.0284	0.0234	0.0380	0.6
	Length	35337.2147			
(V111 Day189(O) 23:05 00030010.189)					
0003	Delta-N	2672.4597	-0.0190	0.0249	0.8
0001	Delta-E	-31676.2939	0.0245	0.0226	1.1
	Delta-U	29.7404	-0.0037	0.0315	0.1
	Length	31788.8427			
(V152 Day190(A) 13:18 0003002A.190)					
0003	Delta-N	199.1389	0.0144	0.0258	0.6
0002	Delta-E	-15845.6569	-0.0388	0.0224	1.7
	Delta-U	27.7525	0.0560	0.0325	1.7
	Length	15846.9325			
(V110 Day189(O) 23:04 00030020.189)					
0003	Delta-N	199.1389	-0.0144	0.0257	0.6
0002	Delta-E	-15845.6569	0.0315	0.0221	1.4
	Delta-U	27.7525	0.0009	0.0328	0.0
	Length	15846.9325			
(V109 Day189(D) 14:40 0003004D.189)					
0003	Delta-N	2580.8665	-0.0007	0.0311	0.0
0004	Delta-E	16236.0457	0.0028	0.0262	0.1
	Delta-U	-3.5357	-0.0706	0.0422	1.7
	Length	16439.8924			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V151 Day190(A) 13:18 0003604A.190)					
0003	Delta-N	-8594.6583	0.0102	0.0318	0.3
0604	Delta-E	-15265.0058	-0.0172	0.0252	0.7
	Delta-U	-3.8316	0.0634	0.0426	1.5
	Length	17518.2353			
(V149 Day189(C) 13:51 0004006C.189)					
0004	Delta-N	171.7887	-0.0293	0.0324	0.9
0006	Delta-E	31127.9114	0.0092	0.0259	0.4
	Delta-U	-90.9462	-0.0034	0.0439	0.1
	Length	31128.5183			
(V156 Day190(B) 14:03 0004605B.190)					
0004	Delta-N	-33992.2784	0.0481	0.0287	1.7
0605	Delta-E	-16332.7180	-0.0328	0.0231	1.4
	Delta-U	24.6489	-0.0247	0.0376	0.7
	Length	37712.5082			
(V146 Day189(C) 13:49 0005004C.189)					
0005	Delta-N	2532.4762	0.0181	0.0281	0.6
0004	Delta-E	-15678.2702	0.0018	0.0243	0.1
	Delta-U	-101.9175	-0.0102	0.0364	0.3
	Length	15881.8128			
(V144 Day189(C) 13:51 0005006C.189)					
0005	Delta-N	2683.3846	0.0022	0.0321	0.1
0006	Delta-E	15449.8088	0.0167	0.0267	0.6
	Delta-U	-169.5954	-0.0140	0.0434	0.3
	Length	15682.0249			
(V145 Day189(C) 13:49 0005007C.189)					
0005	Delta-N	53.9463	-0.0304	0.0285	1.1
0007	Delta-E	31362.7723	0.0349	0.0233	1.5
	Delta-U	-55.7878	-0.0445	0.0371	1.2
	Length	31362.8683			
(V148 Day189(C) 13:48 0007004C.189)					
0007	Delta-N	2541.6091	0.0337	0.0317	1.1
0004	Delta-E	-47037.5548	-0.0355	0.0250	1.4
	Delta-U	-116.5189	0.0332	0.0425	0.8
	Length	47106.3150			
(V147 Day189(C) 13:51 0007006C.189)					
0007	Delta-N	2650.7751	0.0270	0.0325	0.8
0006	Delta-E	-15909.2351	-0.0260	0.0265	1.0
	Delta-U	-137.6141	0.0166	0.0442	0.4
	Length	16129.1446			
(V41 Day188(E) 16:34 0007012E.188)					
0007	Delta-N	21151.2973	-0.0322	0.0293	1.1
0012	Delta-E	-0.6113	0.0166	0.0241	0.7
	Delta-U	18.2275	-0.0292	0.0387	0.8
	Length	21151.3052			
(V39 Day188(E) 16:39 0008007E.188)					
0008	Delta-N	56.7590	0.0180	0.0258	0.7
0007	Delta-E	-16083.6370	-0.0210	0.0221	0.9
	Delta-U	56.8931	0.0155	0.0327	0.5
	Length	16083.8378			
(V40 Day188(E) 16:39 0008012E.188)					
0008	Delta-N	21208.0518	-0.0131	0.0278	0.5
0012	Delta-E	-16069.7167	-0.0059	0.0229	0.3
	Delta-U	75.0738	-0.0115	0.0362	0.3
	Length	26608.6996			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V100 Day189(O) 23:05 00090010.189)					
0009	Delta-N	-18509.3350	0.0217	0.0299	0.7
0001	Delta-E	-11.0808	-0.0262	0.0263	1.0
	Delta-U	-53.4358	0.0104	0.0403	0.3
	Length	18509.4154			
(V98 Day189(O) 23:04 00090020.189)					
0009	Delta-N	-20961.1903	0.0018	0.0297	0.1
0002	Delta-E	15822.8696	-0.0111	0.0254	0.4
	Delta-U	-81.8324	0.0169	0.0399	0.4
	Length	26262.9282			
(V99 Day189(O) 23:04 00090030.189)					
0009	Delta-N	-21138.8206	0.0305	0.0311	1.0
0003	Delta-E	31668.7216	-0.0335	0.0270	1.2
	Delta-U	-133.7091	0.0113	0.0427	0.3
	Length	38075.9181			
(V108 Day189(D) 14:40 0010003D.189)					
0010	Delta-N	-21062.3884	-0.0209	0.0269	0.8
0003	Delta-E	-15.1880	0.0143	0.0228	0.6
	Delta-U	-31.5334	0.0253	0.0350	0.7
	Length	21062.4175			
(V107 Day189(D) 14:30 0010004D.189)					
0010	Delta-N	-18481.5302	-0.0181	0.0353	0.5
0004	Delta-E	16220.8593	0.0124	0.0288	0.4
	Delta-U	-32.4539	-0.0610	0.0492	1.2
	Length	24590.3291			
(V143 Day189(B) 13:05 0011005B.189)					
0011	Delta-N	-21253.5573	-0.0009	0.0268	0.0
0005	Delta-E	22.0222	0.0152	0.0224	0.7
	Delta-U	-10.0461	-0.0226	0.0340	0.7
	Length	21253.5711			
(V42 Day188(F) 17:17 0012018F.188)					
0012	Delta-N	21315.9495	-0.0324	0.0416	0.8
0018	Delta-E	-15799.3444	-0.0077	0.0296	0.3
	Delta-U	5.9226	0.0481	0.0618	0.8
	Length	26532.7914			
(V43 Day188(F) 17:19 0012019F.188)					
0012	Delta-N	21517.2984	-0.0086	0.0295	0.3
0019	Delta-E	54.7127	-0.0127	0.0234	0.5
	Delta-U	28.6158	-0.0416	0.0408	1.0
	Length	21517.3870			
(V97 Day189(N) 22:21 0013009N.189)					
0013	Delta-N	-21045.0468	0.0130	0.0269	0.5
0009	Delta-E	29.2546	-0.0141	0.0228	0.6
	Delta-U	8.1860	0.0085	0.0349	0.2
	Length	21045.0688			
(V96 Day189(M) 21:47 0013021M.189)					
0013	Delta-N	20304.1417	-0.0047	0.0354	0.1
0021	Delta-E	4.3229	0.0153	0.0289	0.5
	Delta-U	-30.8054	-0.0554	0.0483	1.1
	Length	20304.1655			
(V91 Day189(N) 22:21 0014009N.189)					
0014	Delta-N	-21137.5782	0.0109	0.0313	0.3
0009	Delta-E	-16218.5564	-0.0270	0.0267	1.0
	Delta-U	63.1332	0.0422	0.0422	1.0
	Length	26642.8747			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V92 Day189(M) 21:47 0014013M.189)					
0014	Delta-N	-92.5161	0.0074	0.0274	0.3
0013	Delta-E	-16233.1383	0.0160	0.0221	0.7
	Delta-U	55.0292	-0.0312	0.0350	0.9
	Length	16233.4952			
(V93 Day189(N) 22:15 0014013N.189)					
0014	Delta-N	-92.5161	-0.0085	0.0261	0.3
0013	Delta-E	-16233.1383	-0.0167	0.0231	0.7
	Delta-U	55.0292	0.0216	0.0333	0.6
	Length	16233.4952			
(V89 Day189(M) 21:47 0014021M.189)					
0014	Delta-N	20211.6178	0.0074	0.0368	0.2
0021	Delta-E	-16214.6416	0.0199	0.0286	0.7
	Delta-U	24.3282	-0.0586	0.0507	1.2
	Length	25911.8639			
(V90 Day189(M) 21:47 0014601M.189)					
0014	Delta-N	5240.9602	0.0056	0.0265	0.2
0601	Delta-E	-16077.2997	0.0137	0.0218	0.6
	Delta-U	75.2352	-0.0338	0.0335	1.0
	Length	16910.1416			
(V83 Day189(D) 14:40 0015003D.189)					
0015	Delta-N	-42304.7932	-0.0454	0.0335	1.4
0003	Delta-E	177.0466	0.0249	0.0278	0.9
	Delta-U	-133.2825	0.0244	0.0461	0.5
	Length	42305.3736			
(V84 Day189(N) 22:30 0015009N.189)					
0015	Delta-N	-21123.4000	0.0264	0.0285	0.9
0009	Delta-E	-31463.3157	-0.0210	0.0241	0.9
	Delta-U	-25.6454	-0.0044	0.0377	0.1
	Length	37896.4236			
(V80 Day189(D) 14:38 0015010D.189)					
0015	Delta-N	-21242.4477	-0.0333	0.0273	1.2
0010	Delta-E	192.0616	0.0240	0.0237	1.0
	Delta-U	-80.3213	-0.0069	0.0355	0.2
	Length	21243.4678			
(V85 Day189(N) 22:30 0015013N.189)					
0015	Delta-N	-78.3328	0.0145	0.0274	0.5
0013	Delta-E	-31464.1307	-0.0071	0.0233	0.3
	Delta-U	-33.7536	-0.0088	0.0357	0.2
	Length	31464.2464			
(V82 Day189(N) 22:30 0015014N.189)					
0015	Delta-N	3.5686	0.0246	0.0263	0.9
0014	Delta-E	-15230.8997	0.0093	0.0230	0.4
	Delta-U	-76.9856	-0.0441	0.0337	1.3
	Length	15231.0947			
(V81 Day189(E) 15:35 0015022E.189)					
0015	Delta-N	20114.8639	0.0116	0.0261	0.4
0022	Delta-E	286.3212	-0.0108	0.0219	0.5
	Delta-U	0.3889	0.0064	0.0326	0.2
	Length	20116.9016			
(V78 Day189(E) 15:37 0016015E.189)					
0016	Delta-N	77.4546	-0.0001	0.0262	0.0
0015	Delta-E	-16176.7824	0.0033	0.0221	0.1
	Delta-U	-29.7650	-0.0083	0.0327	0.3
	Length	16176.9952			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V77 Day189(E) 15:37 0016022E.189)					
0016	Delta-N	20192.1148	0.0125	0.0276	0.5
0022	Delta-E	-15876.4921	-0.0102	0.0228	0.4
	Delta-U	-29.2189	-0.0052	0.0351	0.1
	Length	25686.2873			
(V73 Day189(B) 13:05 0017005B.189)					
0017	Delta-N	-42750.5828	-0.0127	0.0323	0.4
0005	Delta-E	-1171.3791	0.0185	0.0243	0.8
	Delta-U	100.6246	-0.0434	0.0432	1.0
	Length	42766.7462			
(V72 Day189(B) 13:01 0017011B.189)					
0017	Delta-N	-21497.0460	-0.0018	0.0318	0.1
0011	Delta-E	-1192.3161	0.0089	0.0239	0.4
	Delta-U	132.5510	-0.0280	0.0424	0.7
	Length	21530.4941			
(V76 Day189(E) 15:34 0017015E.189)					
0017	Delta-N	-469.9593	0.0073	0.0299	0.2
0015	Delta-E	-33206.1311	0.0082	0.0243	0.3
	Delta-U	109.7229	-0.0454	0.0389	1.2
	Length	33209.6378			
(V74 Day189(E) 15:37 0017016E.189)					
0017	Delta-N	-559.2417	0.0123	0.0271	0.5
0016	Delta-E	-17029.4392	-0.0067	0.0228	0.3
	Delta-U	152.6300	-0.0146	0.0344	0.4
	Length	17039.3030			
(V75 Day189(E) 15:35 0017022E.189)					
0017	Delta-N	19644.4760	0.0258	0.0309	0.8
0022	Delta-E	-32891.1358	-0.0175	0.0249	0.7
	Delta-U	111.0638	0.0003	0.0406	0.0
	Length	38311.1549			
(V70 Day189(A) 12:21 0017041A.189)					
0017	Delta-N	35560.0537	0.0244	0.0600	0.4
0041	Delta-E	6473.6980	-0.0253	0.0335	0.8
	Delta-U	165.9526	0.0495	0.0872	0.6
	Length	36144.8990			
(V68 Day189(B) 13:05 0018005B.189)					
0018	Delta-N	-42489.6032	-0.0028	0.0321	0.1
0005	Delta-E	-15534.1472	0.0179	0.0249	0.7
	Delta-U	-68.3668	-0.0087	0.0429	0.2
	Length	45240.2563			
(V67 Day189(B) 13:01 0018011B.189)					
0018	Delta-N	-21236.0572	-0.0005	0.0318	0.0
0011	Delta-E	-15542.0243	0.0095	0.0256	0.4
	Delta-U	-36.7107	-0.0068	0.0425	0.2
	Length	26315.8886			
(V69 Day189(B) 13:00 0018017B.189)					
0018	Delta-N	260.2492	0.0054	0.0289	0.2
0017	Delta-E	-14336.3863	-0.0029	0.0238	0.1
	Delta-U	-168.7050	0.0356	0.0376	0.9
	Length	14339.7407			
(V45 Day188(F) 17:19 0019018F.188)					
0019	Delta-N	-201.2882	0.0074	0.0293	0.3
0018	Delta-E	-15854.0575	0.0195	0.0229	0.8
	Delta-U	-22.9420	0.0048	0.0403	0.1
	Length	15855.3518			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V44 Day188(G) 18:00 0019024G.188)					
0019	Delta-N	19954.4252	-0.0025	0.0315	0.1
0024	Delta-E	86.4128	-0.0043	0.0254	0.2
	Delta-U	62.0598	-0.0355	0.0435	0.8
	Length	19954.7088			
(V47 Day188(G) 18:08 0019031G.188)					
0019	Delta-N	40668.1811	-0.0110	0.0284	0.4
0031	Delta-E	-55.8773	-0.0189	0.0233	0.8
	Delta-U	-14.1256	-0.0298	0.0380	0.8
	Length	40668.2220			
(V46 Day188(G) 18:06 0019043G.188)					
0019	Delta-N	30302.2771	-0.0102	0.0281	0.4
0043	Delta-E	-7837.9314	-0.0130	0.0231	0.6
	Delta-U	51.3324	-0.0056	0.0376	0.1
	Length	31299.5815			
(V26 Day188(F) 17:13 0020012F.188)					
0020	Delta-N	-21265.1252	0.0189	0.0300	0.6
0012	Delta-E	-16046.0508	0.0059	0.0239	0.2
	Delta-U	-20.2426	0.0064	0.0415	0.2
	Length	26639.8518			
(V27 Day188(F) 17:17 0020018F.188)					
0020	Delta-N	61.6762	0.0016	0.0363	0.0
0018	Delta-E	-31830.7370	0.0083	0.0262	0.3
	Delta-U	-4.6852	0.0048	0.0529	0.1
	Length	31830.7971			
(V28 Day188(F) 17:19 0020019F.188)					
0020	Delta-N	252.0901	0.0000	0.0284	0.0
0019	Delta-E	-15976.5673	-0.0032	0.0232	0.1
	Delta-U	30.3404	-0.0169	0.0386	0.4
	Length	15978.5848			
(V25 Day188(C) 14:40 0020301C.188)					
0020	Delta-N	5089.6074	0.0280	0.0285	1.0
0301	Delta-E	16104.2741	-0.0159	0.0253	0.6
	Delta-U	-38.6691	0.0162	0.0374	0.4
	Length	16889.4418			
(V24 Day188(C) 15:05 0020506C.188)					
0020	Delta-N	20085.8615	-0.0065	0.0260	0.3
0506	Delta-E	15851.9410	0.0150	0.0231	0.6
	Delta-U	-72.7916	-0.0035	0.0329	0.1
	Length	25587.7151			
(V87 Day189(F) 16:21 0022027F.189)					
0022	Delta-N	21094.5253	0.0280	0.0346	0.8
0027	Delta-E	88.1706	-0.0163	0.0267	0.6
	Delta-U	54.5784	0.0082	0.0467	0.2
	Length	21094.7801			
(V86 Day189(F) 16:23 0022040F.189)					
0022	Delta-N	5263.2016	0.0172	0.0274	0.6
0040	Delta-E	40.3180	-0.0081	0.0230	0.4
	Delta-U	39.0440	0.0090	0.0353	0.3
	Length	5263.5008			
(V88 Day189(F) 16:14 0022603F.189)					
0022	Delta-N	1147.0045	0.0104	0.0269	0.4
0603	Delta-E	-10587.2405	-0.0177	0.0234	0.8
	Delta-U	-17.2719	-0.0143	0.0343	0.4
	Length	10649.2056			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V164 Day190 (A) 16:15 0023017A.190)					
0023	Delta-N	-19824.8985	0.0244	0.0265	0.9
0017	Delta-E	1182.3505	0.0009	0.0224	0.0
	Delta-U	17.9001	-0.0709	0.0342	2.1
	Length	19860.1328			
(V163 Day190 (A) 16:07 0023044A.190)					
0023	Delta-N	-4526.5978	0.0023	0.0255	0.1
0044	Delta-E	14291.7152	0.0004	0.0219	0.0
	Delta-U	186.2066	0.0055	0.0324	0.2
	Length	14992.5943			
(V128 Day189 (L) 21:11 0025021L.189)					
0025	Delta-N	-21019.9509	-0.0028	0.0271	0.1
0021	Delta-E	94.6163	-0.0227	0.0237	1.0
	Delta-U	-95.9102	0.0587	0.0353	1.7
	Length	21020.3827			
(V126 Day189 (K) 20:40 0025033K.189)					
0025	Delta-N	21655.1687	0.0011	0.0258	0.0
0033	Delta-E	91.4786	0.0180	0.0232	0.8
	Delta-U	3.9588	-0.0349	0.0335	1.0
	Length	21655.3622			
(V127 Day189 (L) 21:15 0025602L.189)					
0025	Delta-N	-20361.8378	-0.0074	0.0265	0.3
0602	Delta-E	10643.0620	-0.0081	0.0226	0.4
	Delta-U	-93.3143	0.0921	0.0342	2.7
	Length	22975.8115			
(V123 Day189 (K) 20:40 0026025K.189)					
0026	Delta-N	-80.2543	-0.0014	0.0323	0.0
0025	Delta-E	-16236.8766	-0.0125	0.0286	0.4
	Delta-U	27.5280	0.0201	0.0446	0.4
	Length	16237.0982			
(V122 Day189 (K) 20:19 0026033K.189)					
0026	Delta-N	21574.8450	-0.0015	0.0312	0.0
0033	Delta-E	-16130.2460	0.0003	0.0280	0.0
	Delta-U	31.6526	-0.0094	0.0428	0.2
	Length	26938.0729			
(V120 Day189 (K) 20:40 0027025K.189)					
0027	Delta-N	37.1623	-0.0011	0.0324	0.0
0025	Delta-E	-31872.7890	-0.0356	0.0285	1.2
	Delta-U	-45.2879	0.0712	0.0448	1.6
	Length	31872.8429			
(V118 Day189 (K) 20:19 0027026K.189)					
0027	Delta-N	106.4739	-0.0022	0.0280	0.1
0026	Delta-E	-15635.8461	-0.0090	0.0245	0.4
	Delta-U	-60.7026	0.0070	0.0375	0.2
	Length	15636.3264			
(V113 Day189 (G) 16:55 0027028G.189)					
0027	Delta-N	42.8007	-0.0088	0.0267	0.3
0028	Delta-E	15743.3382	0.0143	0.0225	0.6
	Delta-U	16.6778	0.0027	0.0351	0.1
	Length	15743.4053			
(V114 Day189 (G) 16:57 0027029G.189)					
0027	Delta-N	425.4556	0.0014	0.0298	0.0
0029	Delta-E	30308.3796	0.0360	0.0249	1.4
	Delta-U	-212.6195	-0.0311	0.0406	0.8
	Length	30312.1114			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V119 Day189(K) 20:19 0027033K.189)					
0027	Delta-N	21692.1849	0.0062	0.0329	0.2
0033	Delta-E	-31751.5674	-0.0160	0.0289	0.6
	Delta-U	-41.1832	0.0160	0.0457	0.4
	Length	38454.0585			
(V115 Day189(H) 17:40 0027034H.189)					
0027	Delta-N	21605.5734	0.0144	0.0288	0.5
0034	Delta-E	28.6053	-0.0055	0.0239	0.2
	Delta-U	-1.5983	-0.0101	0.0386	0.3
	Length	21605.5924			
(V117 Day189(H) 17:32 0027089H.189)					
0027	Delta-N	42869.4410	0.0086	0.0325	0.3
0089	Delta-E	-269.0121	-0.0035	0.0261	0.1
	Delta-U	-33.5027	0.0045	0.0452	0.1
	Length	42870.2981			
(V116 Day189(H) 17:47 0027090H.189)					
0027	Delta-N	44771.5376	0.0480	0.0331	1.5
0090	Delta-E	15104.6464	-0.0219	0.0254	0.9
	Delta-U	-63.2193	-0.0119	0.0463	0.3
	Length	47250.8722			
(V121 Day189(G) 16:57 0028029G.189)					
0028	Delta-N	372.7719	-0.0099	0.0282	0.4
0029	Delta-E	14565.4658	0.0152	0.0233	0.7
	Delta-U	-218.3555	0.0038	0.0379	0.1
	Length	14571.8713			
(V162 Day190(A) 16:13 0029023A.190)					
0029	Delta-N	-21296.0733	0.0262	0.0263	1.0
0023	Delta-E	1284.8736	0.0015	0.0224	0.1
	Delta-U	-58.8924	-0.0632	0.0338	1.9
	Length	21334.8801			
(V66 Day188(J) 21:49 0029042J.188)					
0029	Delta-N	4878.6176	-0.0279	0.0292	1.0
0042	Delta-E	16807.1811	0.0239	0.0227	1.1
	Delta-U	189.7649	0.0334	0.0381	0.9
	Length	17501.9501			
(V160 Day190(A) 16:13 0029044A.190)					
0029	Delta-N	-25822.0679	0.0299	0.0286	1.0
0044	Delta-E	15576.8503	0.0154	0.0241	0.6
	Delta-U	121.8221	-0.0625	0.0378	1.7
	Length	30156.7952			
(V55 Day188(J) 21:49 0030029J.188)					
0030	Delta-N	290.2317	0.0169	0.0314	0.5
0029	Delta-E	-16728.3461	0.0000	0.0250	0.0
	Delta-U	-213.2615	-0.0397	0.0419	0.9
	Length	16732.2228			
(V56 Day188(J) 21:43 0030035J.188)					
0030	Delta-N	21811.3337	-0.0082	0.0286	0.3
0035	Delta-E	-16148.8303	-0.0083	0.0227	0.4
	Delta-U	9.0423	0.0062	0.0371	0.2
	Length	27138.8850			
(V58 Day188(K) 22:21 0030041K.188)					
0030	Delta-N	-5276.7785	-0.0072	0.0253	0.3
0041	Delta-E	-7794.2297	-0.0045	0.0224	0.2
	Delta-U	-32.1150	0.0001	0.0319	0.0
	Length	9412.5150			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V57 Day188(J) 21:43 0030042J.188)					
0030	Delta-N	5156.7320	-0.0028	0.0306	0.1
0042	Delta-E	82.1915	0.0137	0.0244	0.6
	Delta-U	-10.1462	0.0025	0.0408	0.1
	Length	5157.3969			
(V59 Day188(K) 22:12 0030606K.188)					
0030	Delta-N	-10091.0945	0.0022	0.0297	0.1
0606	Delta-E	-159.0084	0.0006	0.0257	0.0
	Delta-U	-21.8171	0.0227	0.0400	0.6
	Length	10092.3708			
(V50 Day188(G) 18:08 0031024G.188)					
0031	Delta-N	-20713.8646	0.0007	0.0290	0.0
0024	Delta-E	142.3401	0.0058	0.0229	0.3
	Delta-U	35.8413	0.0368	0.0392	0.9
	Length	20714.3847			
(V52 Day188(K) 22:26 0031030K.188)					
0031	Delta-N	223.6153	-0.0005	0.0258	0.0
0030	Delta-E	-15816.9045	-0.0006	0.0223	0.0
	Delta-U	15.0387	-0.0022	0.0327	0.1
	Length	15818.4923			
(V157 Day190(A) 15:16 0031036A.190)					
0031	Delta-N	21835.4128	-0.0247	0.0281	0.9
0036	Delta-E	-33.0977	-0.0083	0.0231	0.4
	Delta-U	-34.5013	-0.0427	0.0360	1.2
	Length	21835.4652			
(V53 Day188(K) 22:26 0031041K.188)					
0031	Delta-N	-5047.8488	-0.0094	0.0260	0.4
0041	Delta-E	-23614.7034	-0.0027	0.0224	0.1
	Delta-U	-22.9047	-0.0065	0.0332	0.2
	Length	24148.1990			
(V158 Day190(A) 15:10 0031042A.190)					
0031	Delta-N	5380.2899	0.0037	0.0257	0.1
0042	Delta-E	-15731.1898	-0.0243	0.0219	1.1
	Delta-U	4.9019	-0.0302	0.0320	0.9
	Length	16625.8196			
(V54 Day188(K) 22:26 0031606K.188)					
0031	Delta-N	-9867.3687	0.0065	0.0307	0.2
0606	Delta-E	-15982.7759	0.0047	0.0261	0.2
	Delta-U	-6.7955	-0.0431	0.0416	1.0
	Length	18783.3473			
(V23 Day188(H) 18:46 0032031H.188)					
0032	Delta-N	-159.7804	0.0105	0.0333	0.3
0031	Delta-E	-15937.3048	-0.0007	0.0278	0.0
	Delta-U	69.1481	-0.0899	0.0451	2.0
	Length	15938.2557			
(V129 Day189(J) 19:12 0033081J.189)					
0033	Delta-N	21207.0159	0.0273	0.0280	1.0
0081	Delta-E	-725.4857	-0.0136	0.0231	0.6
	Delta-U	25.1759	0.0618	0.0364	1.7
	Length	21219.4365			
(V130 Day189(J) 19:17 0033082J.189)					
0033	Delta-N	21212.6882	-0.0183	0.0289	0.6
0082	Delta-E	15846.6540	0.0141	0.0236	0.6
	Delta-U	12.6148	-0.0506	0.0379	1.3
	Length	26478.1937			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V131 Day189(J) 19:12 0033089J.189)					
0033	Delta-N	21220.3919	-0.0158	0.0310	0.5
0089	Delta-E	31453.4921	0.0089	0.0247	0.4
	Delta-U	-18.0152	-0.0692	0.0413	1.7
	Length	37942.4238			
(V125 Day189(H) 17:40 0034089H.189)					
0034	Delta-N	21263.8895	-0.0050	0.0320	0.2
0089	Delta-E	-297.5911	0.0078	0.0263	0.3
	Delta-U	-9.9028	-0.0025	0.0443	0.1
	Length	21265.9741			
(V124 Day189(H) 17:47 0034090H.189)					
0034	Delta-N	23165.9969	0.0246	0.0331	0.7
0090	Delta-E	15076.0698	-0.0146	0.0263	0.6
	Delta-U	-37.6303	-0.0123	0.0461	0.3
	Length	27639.6944			
(V63 Day188(J) 21:49 0035029J.188)					
0035	Delta-N	-21521.2571	0.0233	0.0296	0.8
0029	Delta-E	-564.6932	-0.0066	0.0253	0.3
	Delta-U	-244.3372	-0.0391	0.0389	1.0
	Length	21530.0507			
(V62 Day188(I) 20:44 0035037I.188)					
0035	Delta-N	20826.3103	-0.0097	0.0309	0.3
0037	Delta-E	16186.1531	-0.0039	0.0265	0.1
	Delta-U	-76.9869	0.0232	0.0421	0.6
	Length	26376.7450			
(V64 Day188(J) 21:38 0035042J.188)					
0035	Delta-N	-16643.2472	-0.0099	0.0308	0.3
0042	Delta-E	16242.6015	0.0148	0.0252	0.6
	Delta-U	-49.0917	0.0229	0.0408	0.6
	Length	23255.5841			
(V61 Day188(I) 21:01 0035095I.188)					
0035	Delta-N	20920.0021	-0.0010	0.0249	0.0
0095	Delta-E	506.8907	-0.0072	0.0218	0.3
	Delta-U	-61.2214	-0.0292	0.0315	0.9
	Length	20926.2317			
(V16 Day188(I) 20:59 0038035I.188)					
0038	Delta-N	-20733.0838	0.0235	0.0329	0.7
0035	Delta-E	-31715.7450	0.0050	0.0270	0.2
	Delta-U	76.3146	-0.0776	0.0455	1.7
	Length	37891.3588			
(V11 Day188(H) 18:53 0038036H.188)					
0038	Delta-N	-20943.2046	0.0584	0.0290	2.0
0036	Delta-E	202.0223	-0.0145	0.0243	0.6
	Delta-U	29.3531	0.0353	0.0379	0.9
	Length	20944.1995			
(V15 Day188(I) 20:59 0038037I.188)					
0038	Delta-N	71.0756	0.0178	0.0317	0.6
0037	Delta-E	-15500.9797	0.0001	0.0260	0.0
	Delta-U	44.5219	-0.0706	0.0435	1.6
	Length	15501.2065			
(V13 Day188(I) 21:01 0038095I.188)					
0038	Delta-N	186.2538	0.0218	0.0337	0.6
0095	Delta-E	-31180.1048	-0.0042	0.0272	0.2
	Delta-U	36.6748	-0.1051	0.0469	2.2
	Length	31180.6827			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V12 Day188(A) 13:13 0038607A.188)					
0038	Delta-N	21112.6670	-0.0125	0.0287	0.4
0607	Delta-E	16145.2088	0.0372	0.0239	1.6
	Delta-U	41.8064	0.0346	0.0373	0.9
	Length	26578.4542			
(V10 Day188(A) 13:01 0039038A.188)					
0039	Delta-N	45.8638	0.0179	0.0245	0.7
0038	Delta-E	-16180.5093	-0.0027	0.0211	0.1
	Delta-U	24.7442	-0.0205	0.0302	0.7
	Length	16180.5932			
(V9 Day188(A) 13:13 0039607A.188)					
0039	Delta-N	21147.2197	-0.0025	0.0280	0.1
0607	Delta-E	-20.5569	0.0353	0.0230	1.5
	Delta-U	78.9804	-0.0057	0.0361	0.2
	Length	21147.3772			
(V106 Day189(F) 16:25 0040027F.189)					
0040	Delta-N	15831.3192	0.0233	0.0281	0.8
0027	Delta-E	47.8800	-0.0110	0.0237	0.5
	Delta-U	19.5250	0.0264	0.0365	0.7
	Length	15831.4036			
(V150 Day189(A) 12:17 0041044A.189)					
0041	Delta-N	-20264.0666	-0.0106	0.0305	0.3
0044	Delta-E	6630.7973	-0.0170	0.0241	0.7
	Delta-U	-43.8891	-0.0165	0.0405	0.4
	Length	21321.3929			
(V60 Day188(K) 22:21 0041606K.188)					
0041	Delta-N	-4811.7492	-0.0067	0.0263	0.3
0606	Delta-E	7636.8412	-0.0042	0.0229	0.2
	Delta-U	8.6750	0.0123	0.0340	0.4
	Length	9026.3143			
(V159 Day190(A) 15:16 0042036A.190)					
0042	Delta-N	16465.7780	-0.0270	0.0264	1.0
0036	Delta-E	15686.8948	0.0202	0.0224	0.9
	Delta-U	-46.9463	0.0078	0.0332	0.2
	Length	22742.0913			
(V48 Day188(G) 18:06 0043024G.188)					
0043	Delta-N	-10345.1817	0.0011	0.0324	0.0
0024	Delta-E	7927.8339	-0.0028	0.0264	0.1
	Delta-U	-7.2533	-0.0106	0.0449	0.2
	Length	13033.5485			
(V49 Day188(G) 18:08 0043031G.188)					
0043	Delta-N	10368.6138	-0.0107	0.0275	0.4
0031	Delta-E	7778.5359	-0.0119	0.0241	0.5
	Delta-U	-53.3250	0.0010	0.0363	0.0
	Length	12962.1223			
(V165 Day190(A) 16:15 0044017A.190)					
0044	Delta-N	-15290.2784	0.0224	0.0273	0.8
0017	Delta-E	-13118.6474	-0.0010	0.0226	0.0
	Delta-U	-173.9296	-0.0607	0.0355	1.7
	Length	20147.5005			
(V133 Day189(J) 19:17 0081082J.189)					
0081	Delta-N	6.2054	-0.0356	0.0283	1.3
0082	Delta-E	16572.1390	0.0263	0.0236	1.1
	Delta-U	-13.1290	-0.1095	0.0368	3.0
	Length	16572.1454			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V134 Day189(J) 19:00 O081089J.189)					
0081	Delta-N	14.4302	-0.0435	0.0303	1.4
0089	Delta-E	32178.9757	0.0220	0.0245	0.9
	Delta-U	-44.2914	-0.1284	0.0401	3.2 *
	Length	32179.0095			
(V135 Day189(J) 19:17 O082089J.189)					
0082	Delta-N	-2.9690	-0.0032	0.0281	0.1
0089	Delta-E	15606.8584	-0.0083	0.0238	0.3
	Delta-U	-18.8218	-0.0169	0.0366	0.5
	Length	15606.8700			
(V136 Day189(H) 17:47 O089090H.189)					
0089	Delta-N	1902.3326	0.0434	0.0317	1.4
0090	Delta-E	15373.6359	-0.0125	0.0261	0.5
	Delta-U	-26.0088	-0.0277	0.0437	0.6
	Length	15490.9079			
(V137 Day189(I) 18:22 O089090I.189)					
0089	Delta-N	1902.3326	0.0280	0.0313	0.9
0090	Delta-E	15373.6359	-0.0156	0.0252	0.6
	Delta-U	-26.0088	0.0049	0.0417	0.1
	Length	15490.9079			
(V138 Day189(I) 18:24 O089095I.189)					
0089	Delta-N	-0.7144	0.0175	0.0318	0.6
0095	Delta-E	31592.6996	0.0051	0.0261	0.2
	Delta-U	-42.5140	-0.0137	0.0427	0.3
	Length	31592.7282			
(V139 Day189(I) 18:24 O089600I.189)					
0089	Delta-N	5434.8265	0.0092	0.0282	0.3
0600	Delta-E	132.1887	-0.0111	0.0233	0.5
	Delta-U	0.6013	-0.0081	0.0366	0.2
	Length	5436.4339			
(V142 Day189(I) 18:24 O090095I.189)					
0090	Delta-N	-1913.8386	-0.0161	0.0268	0.6
0095	Delta-E	16217.8015	0.0192	0.0221	0.9
	Delta-U	-4.7814	-0.0069	0.0341	0.2
	Length	16330.3364			
(V65 Day188(I) 21:01 O095037I.188)					
0095	Delta-N	-94.0199	-0.0082	0.0327	0.3
0037	Delta-E	15679.2607	0.0040	0.0266	0.1
	Delta-U	-15.4801	0.0494	0.0453	1.1
	Length	15679.5502			
(V7 Day188(B) 14:01 O101032B.188)					
0101	Delta-N	-42931.7162	-0.0091	0.0307	0.3
0032	Delta-E	-15913.6735	0.0270	0.0237	1.1
	Delta-U	-69.3292	-0.0684	0.0407	1.7
	Length	45786.2650			
(V8 Day188(A) 13:01 O101038A.188)					
0101	Delta-N	-301.7548	0.0306	0.0267	1.1
0038	Delta-E	-32027.1488	0.0257	0.0222	1.2
	Delta-U	-31.3591	-0.0530	0.0340	1.6
	Length	32028.5857			
(V4 Day188(A) 13:01 O101039A.188)					
0101	Delta-N	-358.7154	0.0165	0.0248	0.7
0039	Delta-E	-15846.6607	0.0273	0.0212	1.3
	Delta-U	-43.8701	-0.0253	0.0307	0.8
	Length	15850.7810			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V6 Day188(B) 14:01 O101201B.188)					
0101	Delta-N	-42893.3243	-0.0255	0.0304	0.8
0201	Delta-E	45.3891	0.0417	0.0235	1.8
	Delta-U	-125.9564	-0.0630	0.0402	1.6
	Length	42893.5333			
(V5 Day188(A) 13:13 O101607A.188)					
0101	Delta-N	20788.5121	0.0109	0.0265	0.4
0607	Delta-E	-15852.7741	0.0614	0.0219	2.8
	Delta-U	35.4690	-0.0200	0.0335	0.6
	Length	26143.3345			
(V20 Day188(C) 14:40 O201020C.188)					
0201	Delta-N	-41118.2043	0.0428	0.0298	1.4
0020	Delta-E	-15919.9479	0.0129	0.0251	0.5
	Delta-U	29.5140	0.0133	0.0395	0.3
	Length	44092.5429			
(V21 Day188(B) 13:58 O201032B.188)					
0201	Delta-N	-38.2442	0.0158	0.0256	0.6
0032	Delta-E	-15959.0629	-0.0152	0.0215	0.7
	Delta-U	56.6713	-0.0104	0.0321	0.3
	Length	15959.2094			
(V19 Day188(C) 14:37 O201301C.188)					
0201	Delta-N	-36039.5628	0.0761	0.0311	2.4
0301	Delta-E	187.8257	-0.0115	0.0262	0.4
	Delta-U	13.0815	0.0307	0.0418	0.7
	Length	36040.0546			
(V18 Day188(C) 15:05 O201506C.188)					
0201	Delta-N	-21043.1014	0.0410	0.0308	1.3
0506	Delta-E	-54.2318	0.0253	0.0258	1.0
	Delta-U	8.3065	0.0341	0.0413	0.8
	Length	21043.1729			
(V32 Day188(D) 15:56 O301401D.188)					
0301	Delta-N	-47925.6027	0.0558	0.0313	1.8
0401	Delta-E	-138.9418	0.0532	0.0241	2.2
	Delta-U	-55.6125	0.0331	0.0409	0.8
	Length	47925.8364			
(V30 Day188(D) 15:47 O301511D.188)					
0301	Delta-N	-26280.9142	0.0471	0.0277	1.7
0511	Delta-E	-98.5920	0.0689	0.0225	3.1 *
	Delta-U	-10.6431	0.0166	0.0351	0.5
	Length	26281.1013			
(V31 Day188(D) 15:47 O301608D.188)					
0301	Delta-N	228.6614	0.0123	0.0265	0.5
0608	Delta-E	-16146.3565	0.0597	0.0219	2.7
	Delta-U	23.7596	0.0033	0.0332	0.1
	Length	16147.9930			
(V36 Day188(E) 16:34 O401007E.188)					
0401	Delta-N	441.6850	0.0236	0.0291	0.8
0007	Delta-E	-32058.0873	-0.0489	0.0238	2.1
	Delta-U	-24.2633	0.0323	0.0385	0.8
	Length	32061.1390			
(V37 Day188(E) 16:39 O401008E.188)					
0401	Delta-N	373.9397	0.0071	0.0265	0.3
0008	Delta-E	-15974.4541	-0.0271	0.0224	1.2
	Delta-U	-68.8959	0.0067	0.0339	0.2
	Length	15978.9787			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V38 Day188(E) 16:26 O401012E.188)					
0401	Delta-N	21592.9637	-0.0075	0.0295	0.3
0012	Delta-E	-32029.7340	-0.0349	0.0239	1.5
	Delta-U	-6.4398	-0.0049	0.0392	0.1
	Length	38628.4866			
(V3 Day188(B) 13:57 O501032B.188)					
0501	Delta-N	-21634.5083	-0.0031	0.0276	0.1
0032	Delta-E	-15850.3718	-0.0087	0.0228	0.4
	Delta-U	26.5218	0.0086	0.0356	0.2
	Length	26819.5253			
(V1 Day188(B) 14:01 O501101B.188)					
0501	Delta-N	21297.2999	0.0249	0.0266	0.9
0101	Delta-E	63.1846	-0.0407	0.0224	1.8
	Delta-U	52.0153	0.0917	0.0339	2.7
	Length	21297.4571			
(V2 Day188(B) 13:58 O501201B.188)					
0501	Delta-N	-21596.1306	-0.0205	0.0271	0.8
0201	Delta-E	108.6906	0.0071	0.0224	0.3
	Delta-U	-30.1926	0.0135	0.0347	0.4
	Length	21596.4253			
(V29 Day188(C) 15:05 O506301C.188)					
0506	Delta-N	-14996.4485	0.0385	0.0272	1.4
0301	Delta-E	242.0925	-0.0331	0.0244	1.4
	Delta-U	19.8877	0.0170	0.0352	0.5
	Length	14998.4156			
(V35 Day188(D) 15:56 O511401D.188)					
0511	Delta-N	-21644.7282	0.0135	0.0271	0.5
0401	Delta-E	-40.2584	-0.0165	0.0221	0.7
	Delta-U	-17.7260	0.0223	0.0340	0.7
	Length	21644.7729			
(V140 Day189(I) 18:24 O600090I.189)					
0600	Delta-N	-3532.5741	0.0247	0.0262	0.9
0090	Delta-E	15241.4271	-0.0136	0.0219	0.6
	Delta-U	-27.4334	0.0027	0.0331	0.1
	Length	15645.4764			
(V141 Day189(I) 18:24 O600095I.189)					
0600	Delta-N	-5435.7095	0.0023	0.0279	0.1
0095	Delta-E	31460.4800	0.0088	0.0234	0.4
	Delta-U	-44.3317	-0.0188	0.0360	0.5
	Length	31926.6457			
(V95 Day189(M) 21:47 O601013M.189)					
0601	Delta-N	-5333.5773	-0.0017	0.0241	0.1
0013	Delta-E	-152.1719	0.0010	0.0208	0.0
	Delta-U	-21.4251	-0.0023	0.0293	0.1
	Length	5335.7907			
(V94 Day189(M) 21:47 O601021M.189)					
0601	Delta-N	14970.5715	0.0122	0.0347	0.4
0021	Delta-E	-147.7162	0.0204	0.0279	0.7
	Delta-U	-47.0440	-0.0614	0.0473	1.3
	Length	14971.3742			
(V132 Day189(L) 21:15 O602021L.189)					
0602	Delta-N	-653.2858	-0.0029	0.0279	0.1
0021	Delta-E	-10548.7436	-0.0092	0.0241	0.4
	Delta-U	-7.3109	-0.0415	0.0367	1.1
	Length	10568.9558			

From To	Component	Adj Value	Residual	StdErr	StdRes
(V104 Day189(L) 21:11 O603021L.189)					
0603	Delta-N	-1045.2523	-0.0249	0.0329	0.8
0021	Delta-E	-21130.9611	-0.0080	0.0266	0.3
	Delta-U	-37.2606	0.1237	0.0452	2.7
	Length	21156.8300			
(V105 Day189(L) 21:07 O603025L.189)					
0603	Delta-N	19974.8584	-0.0204	0.0293	0.7
0025	Delta-E	-21206.4614	0.0201	0.0231	0.9
	Delta-U	38.4650	0.0741	0.0393	1.9
	Length	29132.6356			
(V102 Day189(F) 16:21 O603027F.189)					
0603	Delta-N	19952.3769	0.0194	0.0324	0.6
0027	Delta-E	10666.3603	0.0027	0.0258	0.1
	Delta-U	67.5532	0.0260	0.0432	0.6
	Length	22624.6139			
(V101 Day189(F) 16:23 O603040F.189)					
0603	Delta-N	4121.0340	0.0042	0.0254	0.2
0040	Delta-E	10625.7099	-0.0020	0.0216	0.1
	Delta-U	51.1733	0.0127	0.0317	0.4
	Length	11396.9843			
(V103 Day189(L) 21:15 O603602L.189)					
0603	Delta-N	-396.7687	-0.0133	0.0331	0.4
0602	Delta-E	-10581.9262	0.0056	0.0267	0.2
	Delta-U	-24.6110	0.1289	0.0456	2.8
	Length	10589.3906			
(V33 Day188(D) 15:43 O608511D.188)					
0608	Delta-N	-26498.4390	0.0351	0.0326	1.1
0511	Delta-E	16066.1148	0.0055	0.0252	0.2
	Delta-U	-47.0563	0.0096	0.0431	0.2
	Length	30988.5387			

SECTION 5

Adjusted Azimuths and Horizontal Distances

Adjusted Azimuths and Horizontal Distances (US Feet)

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(Relative Confidence of Azimuth is in Seconds)

From	To	Grid Azimuth	Grid Dist Grnd Dist	95% RelConfidence		
				Azi	Dist	PPM
0001	0002	99-15-08.18	16022.6796	0.55	0.0380	2.3706
			16022.7025			
0002	0004	86-07-32.31	32170.0503	0.26	0.0339	1.0548
			32170.0540			
0002	0604	176-35-40.14	8812.9983	1.05	0.0564	6.4011
			8812.9672			
0002	0605	153-51-44.21	35337.6287	0.21	0.0410	1.1591
			35337.2689			
0003	0001	275-11-40.45	31788.8442	0.28	0.0381	1.1974
			31788.8598			
0003	0002	271-05-30.46	15846.9395	0.41	0.0272	1.7182
			15846.9278			
0003	0004	81-20-20.57	16439.9357	0.51	0.0342	2.0799
			16439.9245			
0003	0604	240-59-27.40	17518.3462	0.64	0.0477	2.7242
			17518.2688			
0004	0006	90-00-51.41	31128.5492	0.34	0.0422	1.3557
			31128.5056			
0004	0605	205-59-41.63	37712.9136	0.18	0.0363	0.9632
			37712.5320			
0005	0004	279-28-04.66	15881.5276	0.54	0.0351	2.2106
			15881.5546			
0005	0006	80-26-19.32	15681.1990	0.68	0.0428	2.7304
			15681.2009			
0005	0007	90-11-34.47	31362.8409	0.28	0.0345	1.0989
			31362.9138			
0007	0004	273-18-28.13	47106.3297	0.18	0.0340	0.7224
			47106.3651			
0007	0006	279-40-26.31	16128.6513	0.66	0.0426	2.6384
			16128.6410			
0007	0012	0-12-44.55	21151.1298	0.33	0.0416	1.9675
			21151.3238			
0008	0007	270-22-35.46	16083.7443	0.56	0.0369	2.2928
			16083.7459			
0008	0012	323-01-20.84	26608.3878	0.31	0.0425	1.5956
			26608.5905			
0009	0001	180-29-04.42	18509.2129	0.45	0.0465	2.5148
			18509.3939			
0009	0002	143-24-07.52	26262.6740	0.28	0.0386	1.4713
			26262.8963			
0009	0003	124-10-21.82	38075.5762	0.21	0.0368	0.9678
			38075.8628			
0010	0003	180-24-45.89	21062.3250	0.38	0.0463	2.1994
			21062.4454			
0010	0004	139-05-54.14	24590.2065	0.38	0.0473	1.9223
			24590.3689			
0011	0005	180-13-57.88	21253.3968	0.37	0.0476	2.2377
			21253.6096			
0012	0018	323-40-06.68	26532.2081	0.30	0.0427	1.6092
			26532.8313			

From	To	Grid Azimuth	Grid Dist	95% RelConfidence		
			Grnd Dist	Azi	Dist	PPM
0012	0019	0-21-34.99	21516.8735 21517.3894	0.34	0.0433	2.0124
0013	0009	180-22-14.47	21044.6233 21045.0985	0.34	0.0413	1.9639
0013	0021	0-27-45.11	20303.5127 20304.1915	0.38	0.0452	2.2267
0014	0009	217-54-31.14	26642.2415 26642.8040	0.30	0.0402	1.5075
0014	0013	270-05-00.96	16232.9753 16233.4115	0.43	0.0288	1.7740
0014	0021	321-40-19.27	25911.0528 25911.8811	0.32	0.0431	1.6626
0014	0601	288-27-55.18	16909.4875 16909.9758	0.53	0.0376	2.2241
0015	0003	180-07-55.64	42304.7697 42305.3541	0.17	0.0400	0.9454
0015	0009	236-29-46.95	37895.6334 37896.4958	0.21	0.0354	0.9351
0015	0010	179-51-13.99	21242.9478 21243.3928	0.39	0.0469	2.2076
0015	0013	270-13-47.21	31463.4099 31464.3071	0.26	0.0340	1.0804
0015	0014	270-23-08.10	15230.5437 15230.9572	0.54	0.0339	2.2233
0015	0022	1-11-14.70	20116.2383 20116.9355	0.33	0.0389	1.9322
0016	0015	270-36-22.26	16176.5347 16177.0102	0.56	0.0370	2.2869
0016	0022	322-09-17.51	25685.4283 25686.3320	0.32	0.0422	1.6411
0017	0005	181-51-31.30	42766.0202 42766.5797	0.16	0.0423	0.9881
0017	0011	183-27-49.59	21529.6282 21530.0535	0.37	0.0492	2.2867
0017	0015	269-28-43.85	33208.5725 33209.4247	0.25	0.0331	0.9964
0017	0016	268-24-30.69	17038.1417 17038.5895	0.54	0.0371	2.1755
0017	0022	301-08-15.86	38309.7458 38310.9504	0.20	0.0349	0.9110
0017	0041	10-36-24.24	36143.0942 36144.4272	0.22	0.0494	1.3665
0018	0005	200-20-09.72	45239.5704 45240.3352	0.17	0.0429	0.9481
0018	0011	216-27-10.58	26315.3098 26315.9302	0.35	0.0464	1.7621
0018	0017	271-17-37.04	14338.4539 14338.8335	0.60	0.0334	2.3267
0019	0018	269-29-12.29	15854.8863 15855.3743	0.58	0.0356	2.2449
0019	0024	0-27-43.25	19953.8489 19954.6166	0.42	0.0502	2.5166
0019	0031	0-08-06.62	40666.5524 40668.2875	0.17	0.0398	0.9775

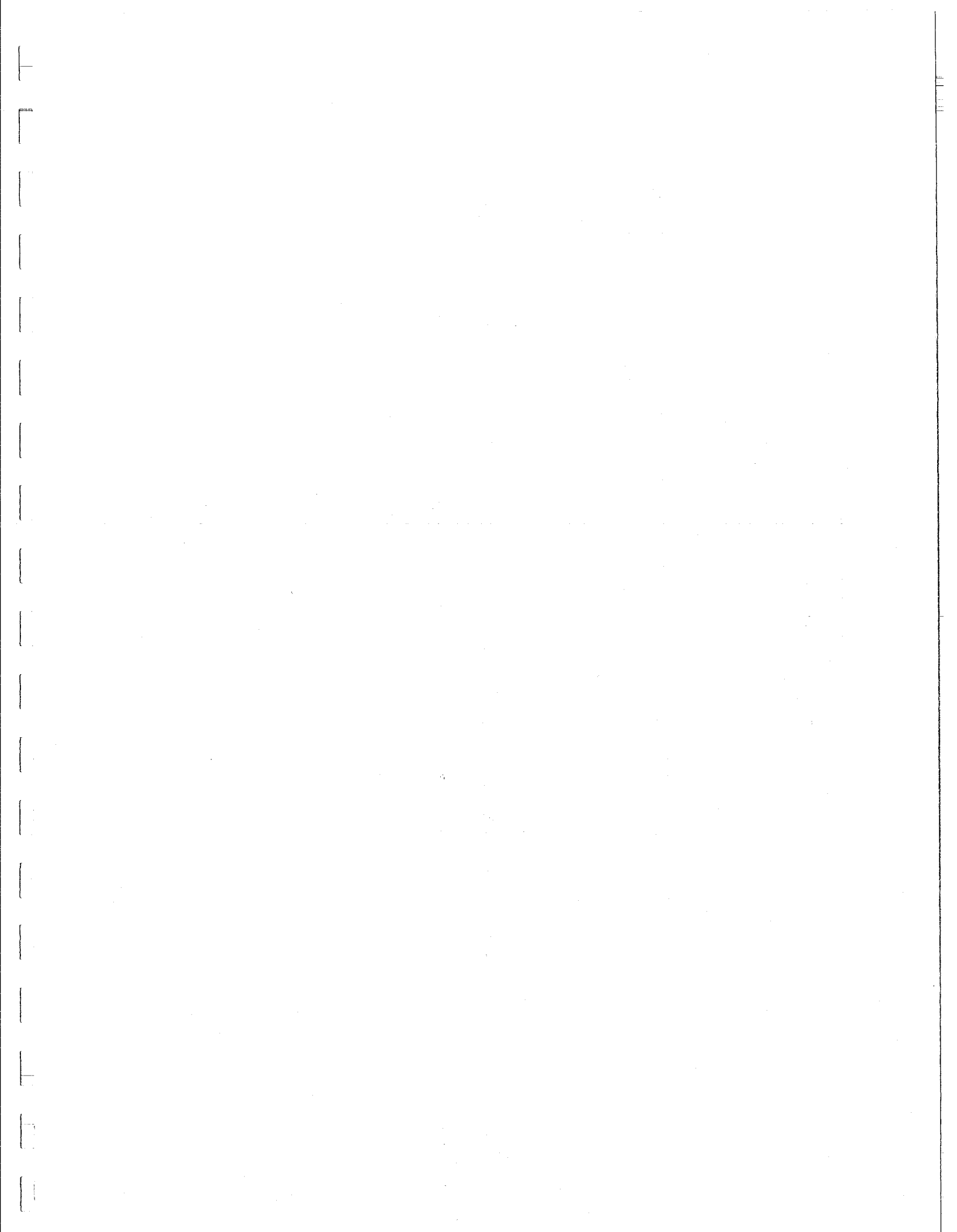
From	To	Grid Azimuth	Grid Dist Grnd Dist	95% RelConfidence		
				Azi	Dist	PPM
0019	0043	345-42-42.61	31298.2585 31299.5492	0.26	0.0475	1.5192
0020	0012	217-12-41.40	26639.2885 26639.9016	0.28	0.0372	1.3948
0020	0018	270-17-08.20	31829.9067 31830.8543	0.28	0.0352	1.1060
0020	0019	271-04-41.94	15978.0908 15978.5750	0.54	0.0343	2.1439
0020	0301	72-38-06.56	16888.9376 16889.4449	0.39	0.0278	1.6466
0020	0506	38-27-16.72	25586.8413 25587.6991	0.24	0.0303	1.1826
0022	0027	0-36-38.44	21093.7209 21094.7176	0.32	0.0395	1.8707
0022	0040	0-48-36.33	5263.1360 5263.3607	1.47	0.0447	8.5016
0022	0603	276-33-16.45	10648.7875 10649.2167	0.69	0.0298	2.7966
0023	0017	176-52-44.45	19859.6049 19860.1501	0.39	0.0447	2.2522
0023	0044	107-51-58.91	14990.8668 14991.3997	0.60	0.0385	2.5700
0025	0021	180-11-33.56	21019.2854 21020.2479	0.35	0.0424	2.0176
0025	0033	0-41-33.33	21654.1325 21655.3961	0.32	0.0388	1.7924
0025	0602	152-51-16.17	22974.6544 22975.7126	0.36	0.0447	1.9441
0026	0025	270-07-37.36	16236.2471 16237.0953	0.63	0.0434	2.6758
0026	0033	323-37-36.89	26936.5290 26938.0789	0.34	0.0469	1.7421
0027	0025	270-26-17.57	31871.1957 31872.8994	0.25	0.0333	1.0463
0027	0026	270-45-40.84	15635.4366 15636.2612	0.62	0.0413	2.6445
0027	0028	90-12-53.97	15742.5613 15743.4204	0.67	0.0427	2.7097
0027	0029	89-33-58.76	30310.0711 30311.5714	0.27	0.0327	1.0802
0027	0033	304-42-42.05	38451.8729 38454.1323	0.19	0.0338	0.8799
0027	0034	0-26-48.60	21604.3502 21605.6294	0.37	0.0471	2.1791
0027	0089	0-00-41.20	42867.6457 42870.3743	0.11	0.0277	0.6469
0027	0090	19-00-49.40	47247.9562 47250.9573	0.10	0.0271	0.5738
0028	0029	88-51-55.54	14569.6088 14570.3390	0.73	0.0430	2.9525
0029	0023	176-50-33.33	21334.0397 21334.8651	0.36	0.0446	2.0913
0029	0042	74-06-31.15	17499.9835 17500.8752	0.49	0.0348	1.9885

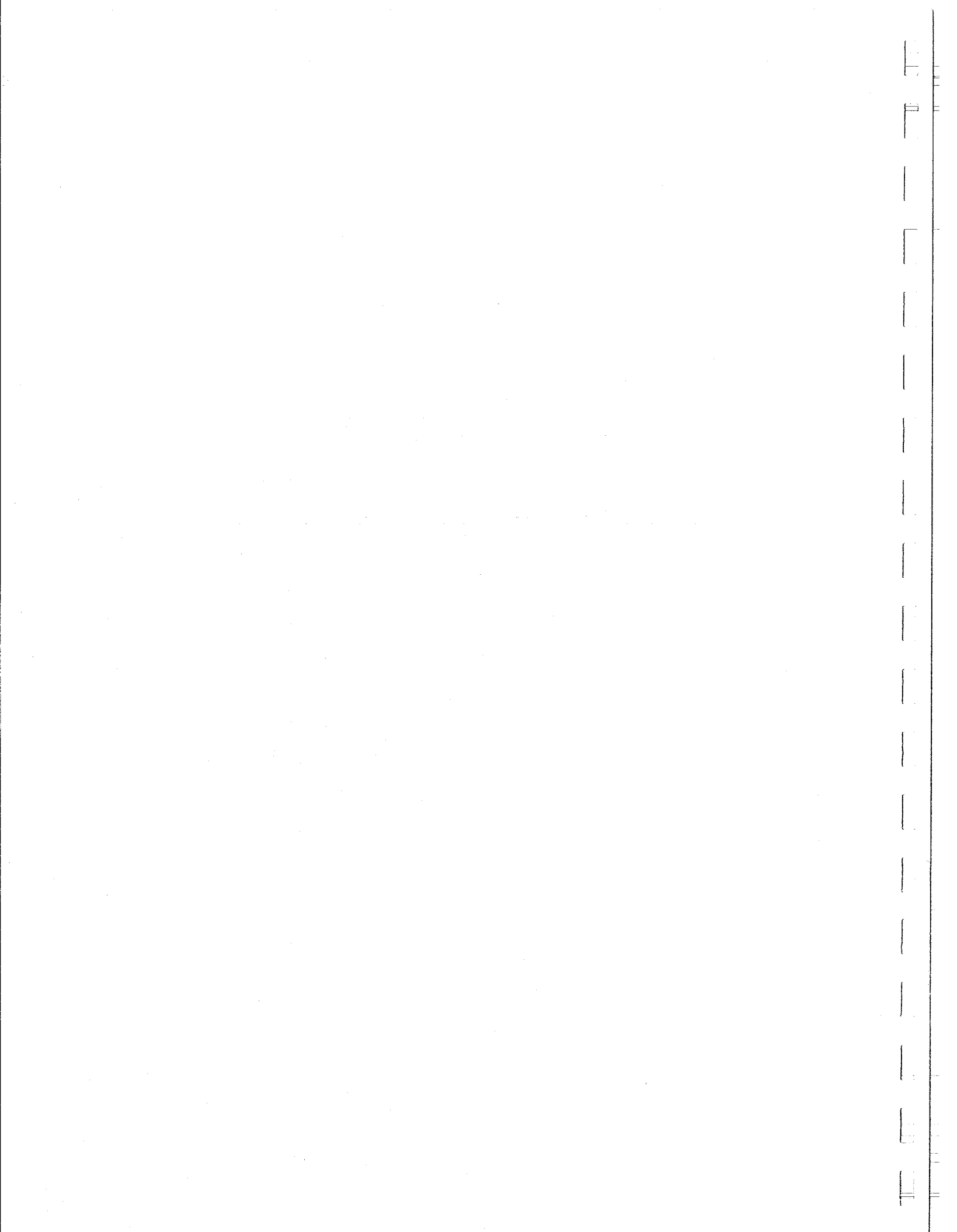
From	To	Grid Azimuth	Grid Dist		95% RelConfidence		
			Grnd Dist	Azi	Dist	PPM	
0029	0044	149-11-42.36	30155.2405	0.26	0.0418	1.3862	
			30156.5091				
0030	0029	271-14-51.79	16730.1447	0.51	0.0339	2.0259	
			16730.9807				
0030	0035	323-44-16.68	27137.2823	0.28	0.0396	1.4589	
			27138.9228				
0030	0041	236-09-18.76	9411.9879	0.84	0.0356	3.7781	
			9412.4855				
0030	0042	1-10-00.01	5157.1094	1.35	0.0412	7.9849	
			5157.3975				
0030	0606	181-09-22.62	10091.8462	0.82	0.0464	4.6022	
			10092.3705				
0031	0024	179-49-13.14	20713.3408	0.39	0.0492	2.3750	
			20714.3706				
0031	0030	271-01-27.23	15817.6511	0.47	0.0309	1.9504	
			15818.5099				
0031	0036	0-07-37.88	21834.2219	0.36	0.0454	2.0771	
			21835.4924				
0031	0041	258-08-54.52	24146.9830	0.34	0.0338	1.3996	
			24148.2452				
0031	0042	289-05-44.38	16624.9294	0.47	0.0331	1.9924	
			16625.8484				
0031	0606	238-31-26.80	18782.4188	0.50	0.0417	2.2187	
			18783.3837				
0032	0031	269-36-00.21	15937.2816	0.61	0.0390	2.4473	
			15938.1099				
0033	0081	358-29-27.71	21217.9858	0.27	0.0328	1.5460	
			21219.4445				
0033	0082	37-12-40.40	26476.4116	0.23	0.0307	1.1607	
			26478.2271				
0033	0089	56-26-38.49	37939.9065	0.17	0.0290	0.7654	
			37942.4936				
0034	0089	359-34-08.75	21264.5530	0.36	0.0454	2.1338	
			21266.0125				
0034	0090	33-25-34.26	27637.8459	0.30	0.0425	1.5365	
			27639.7390				
0035	0029	181-47-48.93	21527.6302	0.32	0.0404	1.8766	
			21528.8271				
0035	0037	38-08-52.65	26374.9116	0.36	0.0469	1.7799	
			26376.7253				
0035	0042	135-59-30.02	23254.1720	0.34	0.0394	1.6931	
			23255.6002				
0035	0095	1-40-54.78	20924.7632	0.30	0.0356	1.7026	
			20926.2078				
0038	0035	237-02-30.15	37888.7138	0.21	0.0355	0.9359	
			37891.2705				
0038	0036	179-39-43.02	20942.8205	0.40	0.0486	2.3208	
			20944.1995				
0038	0037	270-28-39.02	15500.0667	0.66	0.0410	2.6438	
			15501.1559				
0038	0095	270-33-25.97	31178.4906	0.20	0.0255	0.8190	
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0038	0607	37-37-12.74	26576.4659	0.22	0.0286	1.0756	
			26578.4393				

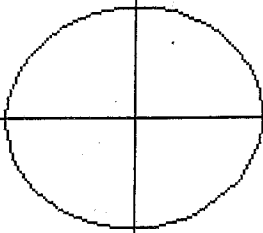
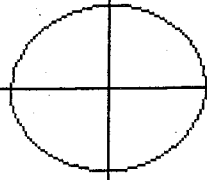
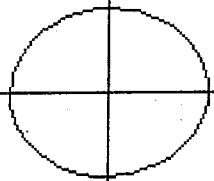
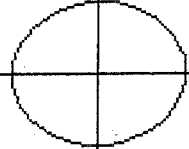
From	To	Grid Azimuth	Grid Dist Grnd Dist	95% RelConfidence		
				Azi	Dist	PPM
0039	0038	270-20-12.23	16179.4905 16180.5956	0.52	0.0349	2.1575
0039	0607	0-07-06.43	21145.6707 21147.2256	0.31	0.0379	1.7942
0040	0027	0-32-39.76	15830.6274 15831.4117	0.47	0.0429	2.7074
0041	0044	162-09-13.61	21320.4481 21321.4064	0.39	0.0488	2.2895
0041	0606	122-29-12.11	9025.8747 9026.3255	1.00	0.0418	4.6329
0042	0036	43-51-55.56	22740.7507 22742.1080	0.38	0.0421	1.8499
0043	0024	142-46-09.37	13032.9427 13033.5725	0.74	0.0503	3.8629
0043	0031	37-06-38.12	12961.3734 12962.0527	0.68	0.0440	3.3956
0044	0017	220-53-07.30	20146.2490 20146.8695	0.40	0.0396	1.9670
0081	0082	90-25-49.83	16570.9564 16572.1771	0.00	0.0000	0.0000
0081	0089	90-25-33.96	32176.7097 32179.0676	0.00	0.0000	0.0000
0082	0089	90-25-17.11	15605.7534 15606.8957	0.00	0.0000	0.0000
0089	0090	83-19-03.23	15489.7984 15490.9254	0.00	0.0000	0.0000
0089	0095	90-22-21.36	31590.4996 31592.7856	0.00	0.0000	0.0000
0089	0600	1-45-53.82	5436.0415 5436.4435	0.00	0.0000	0.0001
0090	0095	97-03-47.79	16329.1881 16330.3688	0.00	0.0000	0.0000
0095	0037	90-38-09.66	15678.4538 15679.5784	0.64	0.0402	2.5633
0101	0032	200-28-23.29	45783.5967 45786.3452	0.14	0.0354	0.7741
0101	0038	269-35-42.14	32026.4321 32028.6485	0.20	0.0255	0.7971
0101	0039	268-50-16.50	15849.6810 15850.7672	0.49	0.0320	2.0174
0101	0201	180-04-25.96	42891.0214 42893.5333	0.00	0.0000	0.0000
0101	0607	322-48-23.31	26141.3852 26143.3323	0.00	0.0000	0.0000
0201	0020	201-17-59.26	44090.8626 44092.5581	0.13	0.0315	0.7147
0201	0032	269-59-50.32	15958.3400 15959.1176	0.47	0.0298	1.8705
0201	0301	179-50-08.84	36038.6833 36040.0929	0.00	0.0000	0.0000
0201	0506	180-16-55.40	21042.3086 21043.2026	0.00	0.0000	0.0000
0301	0401	180-18-00.13	47925.1444 47925.9235	0.00	0.0000	0.0000

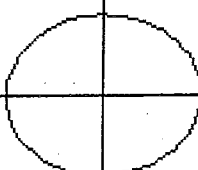
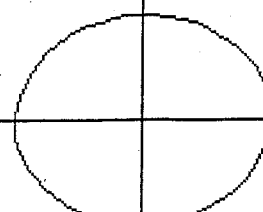
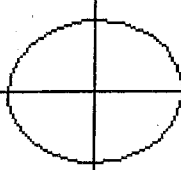
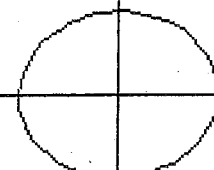
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			Grnd Dist	Azi	Dist	PPM
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			26281.1483			
0301	0608	270-56-43.95	16147.4888	0.00	0.0000	0.0000
			16147.9971			
0401	0007	270-55-27.24	32061.1572	0.24	0.0309	0.9644
			32061.2024			
0401	0008	271-28-31.96	15978.8876	0.55	0.0361	2.2563
			15978.8869			
0401	0012	304-07-15.20	38628.2051	0.18	0.0325	0.8404
			38628.5501			
0501	0032	216-21-46.73	26818.0888	0.25	0.0340	1.2665
			26819.5398			
0501	0101	0-18-16.74	21296.0450	0.00	0.0000	0.0000
			21297.4031			
0501	0201	179-50-46.70	21595.3195	0.00	0.0000	0.0000
			21596.4562			
0506	0301	179-12-34.78	14997.9085	0.00	0.0000	0.0000
			14998.4215			
0511	0401	180-14-26.66	21644.6271	0.00	0.0000	0.0000
			21644.8112			
0600	0090	103-25-13.60	15644.3379	0.00	0.0000	0.0000
			15645.4926			
0600	0095	100-10-25.34	31924.3592	0.00	0.0000	0.0000
			31926.7028			
0601	0013	182-05-03.17	5335.5982	1.39	0.0427	7.9970
			5335.7601			
0601	0021	359-53-04.67	14970.8130	0.58	0.0512	3.4232
			14971.3432			
0602	0021	266-52-49.27	10568.5665	0.93	0.0406	3.8394
			10568.9757			
0603	0021	267-33-57.86	21156.0234	0.41	0.0352	1.6646
			21156.8552			
0603	0025	313-41-05.59	29131.2727	0.23	0.0335	1.1490
			29132.6318			
0603	0027	28-31-33.65	22623.4476	0.22	0.0265	1.1717
			22624.5152			
0603	0040	69-11-57.70	11396.3917	0.73	0.0354	3.1099
			11396.8775			
0603	0602	268-15-01.69	10588.9692	0.92	0.0395	3.7272
			10589.3889			
0608	0511	148-56-43.08	30987.8443	0.00	0.0000	0.0000
			30988.5870			

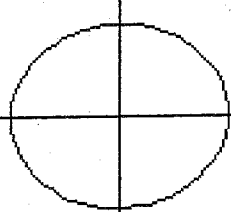
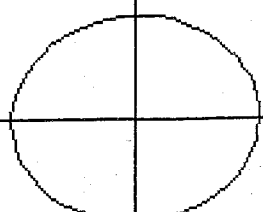
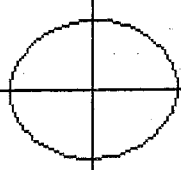
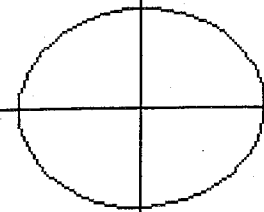
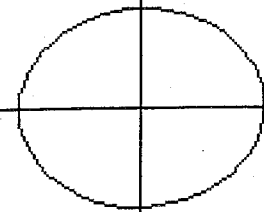
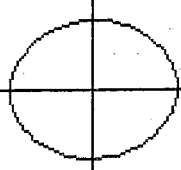
SECTION 6
Network Map
Error Ellipsis Plots (US Feet)

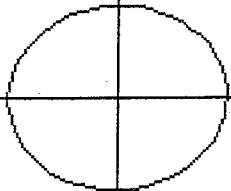
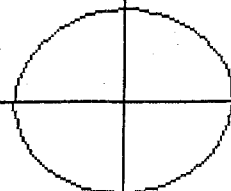
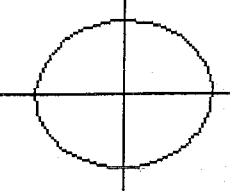
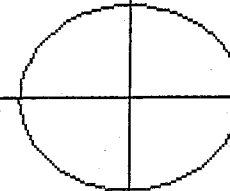
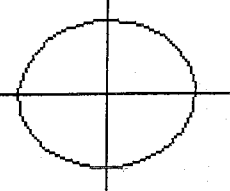
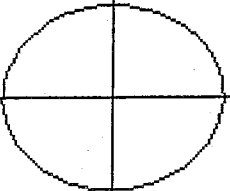


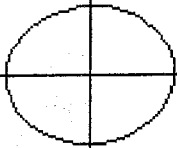
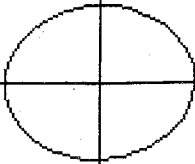
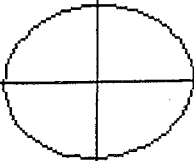
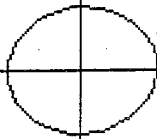


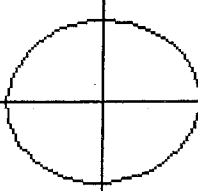
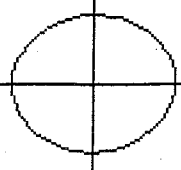
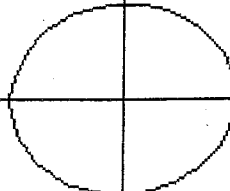
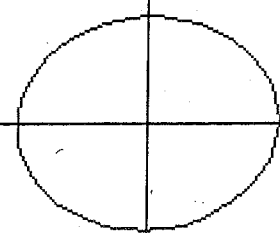
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Station: 0003	Azim:177 Deg	Station: 0004	Azim:178 Deg
			
SemiMaj: 0.04307	SemiMin: 0.03639	SemiMaj: 0.03774	SemiMin: 0.03103
190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

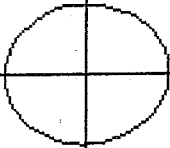
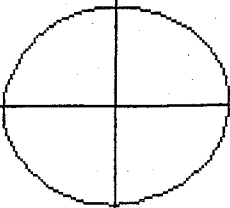
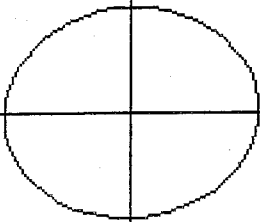
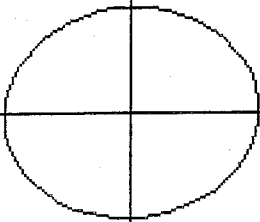
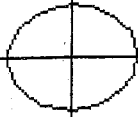
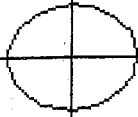
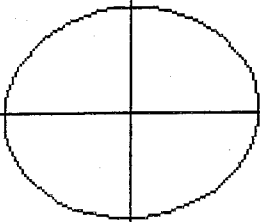
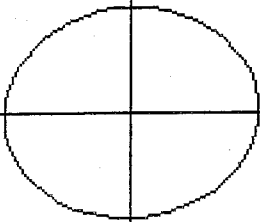
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Station: 0007	Azim:177 Deg	Station: 0008	Azim:177 Deg
			
SemiMaj: 0.03754	SemiMin: 0.03089	SemiMaj: 0.04293	SemiMin: 0.03601
190FT	: ESC to EXIT	: PgUp PgDn Home to Move	: S to Scale : P to Print

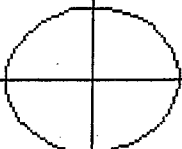
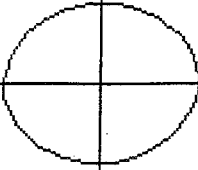
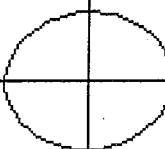
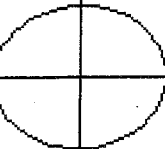
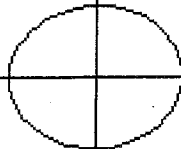
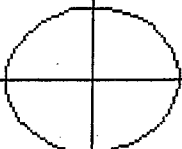
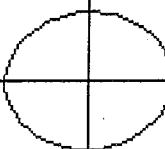
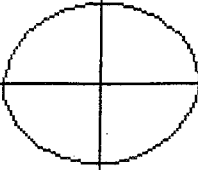
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Station: 0011	Azim:178 Deg	Station: 0012	Azim:177 Deg
			
SemiMaj: 0.05322	SemiMin: 0.04300	SemiMaj: 0.03649	SemiMin: 0.02985
190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

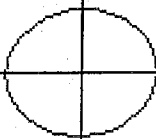
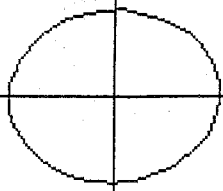
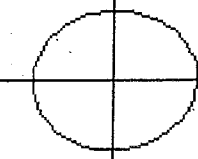
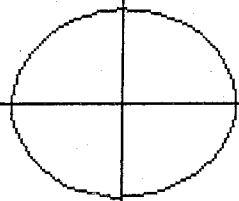
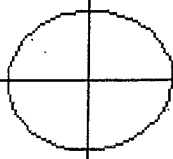
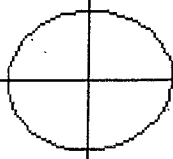
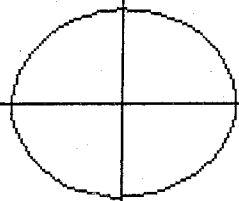
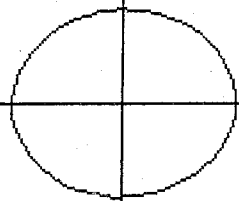
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Station: 0015	Azim:178 Deg	Station: 0016	Azim:178 Deg
			
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190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

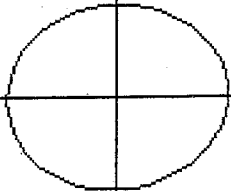
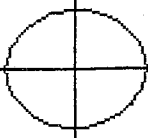
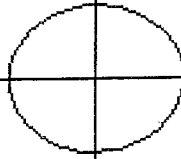
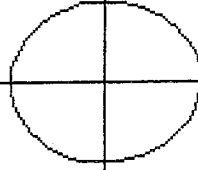
Station: 0017	Azim:178 Deg	Station: 0018	Azim:177 Deg
			
SemiMaj: 0.03684	SemiMin: 0.02996	SemiMaj: 0.04113	SemiMin: 0.03314
Station: 0019	Azim:176 Deg	Station: 0020	Azim:177 Deg
			
SemiMaj: 0.04060	SemiMin: 0.03327	SemiMaj: 0.03229	SemiMin: 0.02751
190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

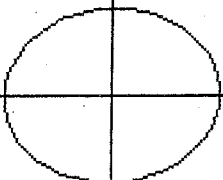
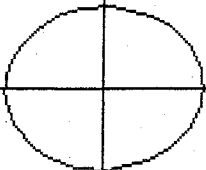
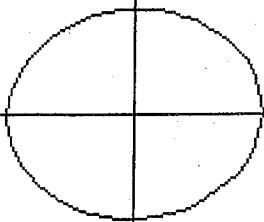
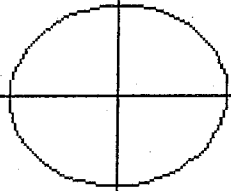
Station: 0021	Azim:177 Deg	Station: 0022	Azim:178 Deg
			
SemiMaj: 0.04180	SemiMin: 0.03522	SemiMaj: 0.03554	SemiMin: 0.02963
Station: 0023	Azim:177 Deg	Station: 0024	Azim:176 Deg
			
SemiMaj: 0.04908	SemiMin: 0.04124	SemiMaj: 0.05665	SemiMin: 0.04585
190FT : ESC to EXIT : PgUp PgDn Home to Move : \$ to Scale : P to Print			

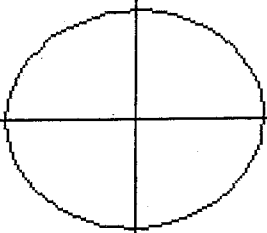
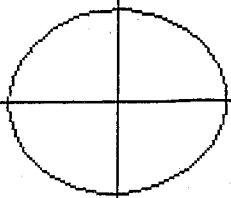
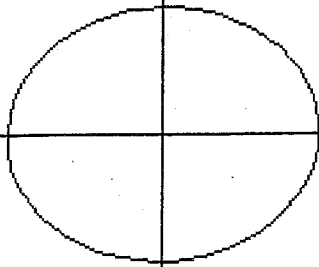
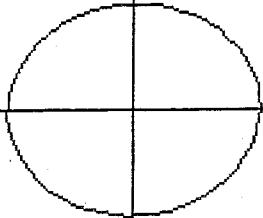
Station: 0025	Azim:177 Deg	Station: 0026	Azim:176 Deg
			
SemiMaj: 0.03588	SemiMin: 0.03046	SemiMaj: 0.04872	SemiMin: 0.04239
Station: 0027	Azim:177 Deg	Station: 0028	Azim:176 Deg
			
SemiMaj: 0.02774	SemiMin: 0.02298	SemiMaj: 0.05435	SemiMin: 0.04525
190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

Station: 0029	Azim:177 Deg	Station: 0030	Azim:177 Deg
			
SemiMaj: 0.03769	SemiMin: 0.03147	SemiMaj: 0.04183	SemiMin: 0.03443
Station: 0031	Azim:177 Deg	Station: 0032	Azim:178 Deg
			
SemiMaj: 0.03760	SemiMin: 0.03117	SemiMaj: 0.03631	SemiMin: 0.02984
190FT	: ESC to EXIT	: PgUp PgDn Home to Move	: S to Scale : P to Print

Station: 0033	Azim:177 Deg	Station: 0034	Azim:176 Deg
			
SemiMaj: 0.03281	SemiMin: 0.02765	SemiMaj: 0.04541	SemiMin: 0.03700
Station: 0035	Azim:177 Deg	Station: 0036	Azim:178 Deg
			
SemiMaj: 0.03566	SemiMin: 0.03026	SemiMaj: 0.04837	SemiMin: 0.04026
190FT	! ESC to EXIT	! PgUp PgDn Home to Move	! S to Scale ! P to Print

Station: 0037	Azim:176 Deg	Station: 0038	Azim:177 Deg
			
SemiMaj: 0.04847	SemiMin: 0.04013	SemiMaj: 0.03058	SemiMin: 0.02552
Station: 0039	Azim:178 Deg	Station: 0040	Azim:178 Deg
			
SemiMaj: 0.03795	SemiMin: 0.03197	SemiMaj: 0.04111	SemiMin: 0.03475
190FT : ESC to EXIT : PgUp PgDn Home to Move : S to Scale : P to Print			

Station: 0041	Azim:177 Deg	Station: 0042	Azim:178 Deg
			
SemiMaj: 0.04654	SemiMin: 0.03779	SemiMaj: 0.04251	SemiMin: 0.03505
Station: 0043	Azim:176 Deg	Station: 0044	Azim:177 Deg
			
SemiMaj: 0.05449	SemiMin: 0.04543	SemiMaj: 0.04673	SemiMin: 0.03884
190FT ! ESC to EXIT ! PgUp PgDn Home to Move ! S to Scale ! P to Print			

Station: 0601	Azim:178 Deg	Station: 0602	Azim:177 Deg
			
SemiMaj: 0.05590	SemiMin: 0.04705	SemiMaj: 0.04718	SemiMin: 0.03946
Station: 0604	Azim:178 Deg	Station: 0606	Azim:177 Deg
			
SemiMaj: 0.06744	SemiMin: 0.05478	SemiMaj: 0.05449	SemiMin: 0.04566
190FT ! ESC to EXIT ! PgUp PgDn Home to Move ! \$ to Scale ! P to Print			