

SURVEY NOTES - TRIP
GEO-445

SOLUTION DATA

Geosource Inc. Client COCORP

DATE 6/25/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Hanson Turner	LINE NO. 4	PAGE 1 of 31
AREA MINNESOTA	TOPO MAP Rose City	STATE Minnesota	COUNTY Douglas	TWP 130N/129N	RANGE 36W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
FF										1369.0	K			373.495	1,751,165	y = 373,495 x = 1,751,165 (scaled)
	2805		263° 6.4' - 180°	+8.4	+13.0	TH	-14.0	-1.0	-0.9		BS	-74	+2804.4			4-Way Intersect.
	2805				+13.9	89° 42'	-14.7	-0.8	1368.1		BS					
1	2640		262° 47'	+8.4	12.9	TH	+13.2	+0.3		1368.4		+54	-2640	373,475	1,751,333	
2	2310		" "	"	11.2	TH	+11.6	+0.4		1368.5		+47	-2310	373,468	1,751,663	
3	1980		" "	"	0.2	-		-0.2		1367.9		+41	-1980	373,462	1,751,993	
4	1650		" "	"	0.7	-		-0.7		1367.4		+34	-1650	373,455	1,752,323	
5	1320		" "	"	1.6	-		-1.6		1366.5		+27	-1320	373,448	1,752,653	
6	990		" "	"	3.6	-		-3.6		1364.5		+20	-990	373,441	1,752,983	
7	660		" "	"	6.8	-		-6.8		1361.3		+14	-660	373,435	1,753,313	
8	330		" "	"	6.9	-		-6.9		1361.2		+7	-330	373,428	1,753,643	
9	0		" "	"	5.4	-		-5.4		1362.7	T	0	0	373,421	1,753,973	
10	330		82° 54'	+8.4	6.9	-		-6.9		1361.2		-7	+330	373,414	1,754,303	
11	660		" "	"	9.3	-		-9.3		1358.8		-15	+660	373,406	1,754,633	
12	990		" "	"	12.6	-		-12.6		1355.5		-22	+990	373,399	1,754,963	
13	1320		" "	"	11.4	BH	-6.6	-18.0		1350.1		-30	+1320	373,391	1,755,293	
14	1650		" "	"	10.9	90° 30'	-14.4	-25.3		1342.8		-37	+1650	373,384	1,755,623	
15	1980		" "	"	9.3	90° 30'	-17.3	-26.6		1341.5		-45	+1980	373,376	1,755,953	
16	2310		" "	"	3.0	90° 30'	-20.2	-23.2		1344.9		-52	+2310	373,369	1,756,283	
17	2458		82° 37.2'	+8.4	6.7	BH	-12.3	-19.0		1349.1		-44	+2458	373,377	1,756,431	Note: Intersection elev - stion changed due to road work. y = 373,380 x 1,756,445 (CS) T-rd (north) elev 1343

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
6/25/79		G. Cotcamp		R. Turner		6834		Bansorn Turner		4		2			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Rose City		Minnesota		Douglas		130N/129N		36W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1368.1						
17	2640		82°54'	+8.5	13.3	-	-13.3		1.354.8			-65	+2639	373,356	1,756,612
18	2970		82°54'	+8.5	15.0	89°46'	+12.1	-2.9	(-3.0)	1365.1	TP	-73 ₊₃	+2969 ₊₄	373,351	1,756,946
18	2970				3.1	-		-3.1			TP				
	1980		262°17.5'-180°	+8.5	+11.1	TH	-9.9	+1.2	(+1.3)		BS	-27 ₊₃	+1980 ₊₄		
	1980				+12.9	89°40'	-11.5	+1.4	1.366.4		BS				
19	1650		262°17.5'	+8.5	5.2	TH	+8.3	+3.1		1.369.5		+23	-1650	373,350	1,757,280
20	1320		" "	"	5.2	TH	+6.6	+1.4		1.367.8		+18	-1320	373,345	1,757,610
21	990		" "	"	0.5	-		-0.5		1.365.9		+14	-990	373,341	1,757,940
22	660		" "	"	2.5	-		-2.5		1.363.9		+9	-660	373,336	1,758,270
23	330		" "	"	4.0	-		-4.0		1.362.4		+5	-330	373,332	1,758,600
24	0				5.4	-		-5.4		1.361.0	X	0	0	373,327	1,758,930
25	330		82°18.7'	+8.5	6.5	-		-6.5		1.359.9		-5	+330	373,322	1,759,260
26	660		" "	"	8.0	-		-8.0		1.358.4		-9	+660	373,318	1,759,590
27	990		" "	"	9.8	-		-9.8		1.356.6		-14	+990	373,313	1,759,920
28	1320		" "	"	11.2	-		-11.2		1.355.2		-19	+1320	373,308	1,760,250
29	1650		" "	"	13.1	-		-13.1		1.353.3		-23	+1650	373,304	1,760,580
30	1980		82°18.7'	+8.5	14.1	-		-14.1		1.352.3	TP	-28	+1980 ₊₄	373,299	1,760,914
30	1980				4.2	BH	-9.9	-14.1			TP				
	2640		262°11'-180°	+8.5	+5.5	BH	+13.2	+18.7	1.371.0		BS	-32	+2640 ₊₄		
	2640				+3.3	90°20'	+15.4	+18.7			BS				

SURVEY NOTES-HIGH RESOLUTION DATA

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DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/25/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	3						
AREA		TOPO MAP	STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Rose City	Minnesota	Douglas			130N/129N		J.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.371.0								
31	2310		262°11'	+8.5	7.9	BH	-11.6	-19.5		1.351.5		+28	-2310	373,295	1,761,248		
32	1980		" "		10.3	BH	-9.9	-20.2		1.350.8		+24	-1980	373,291	1,761,578		
33	1830		262°35'	+8.5	10.9	BH	-9.2	-20.1		1.350.9		+35	-1830	373,302	1,761,728	y=373,285 x 1,761,725 (fence line. elev. 1350)	
33	1650		262°11'	+8.5	11.5	BH	-8.3	-19.8		1.351.2		+20	-1650	373,287	1,761,908		
34	1320		" "	"	12.0	BH	-6.6	-18.6		1.352.4		+16	-1320	373,283	1,762,238		
35	990		" "	"	12.9	BH	-5.0	-17.9		1.353.1		+12	-990	373,279	1,762,568		
36	660		" "	"	12.5	BH	-3.3	-15.8		1.355.2		+8	-660	373,275	1,762,898		
37	330		" "	"	10.8	-		-10.8		1.360.2		+4	-330	373,271	1,763,228		
38	0		" "	"	5.4	-		-5.4		1.365.6	TP	0	0	373,267	1,763,558		
39	330		82°0.5'	+8.7	3.5	-		-3.5		1.367.5		-4	+330	373,263	1,763,888		
40	660		" "	"	5.4	-		-5.4		1.365.6		-8	+660	373,259	1,764,218		
41	990		" "	"	7.7	-		-7.7		1.363.3		-12	+990	373,255	1,764,548		
42	1320		" "	"	7.6	-		-7.6		1.363.4		-16	+1320	373,251	1,764,878		
43	1650		" "	"	5.0	-		-5.0		1.366.0		-20	+1650	373,247	1,765,208		
44	1980		82°0.5'	+8.7	5.4	-		-5.4		1.365.6	TP	-24	+1980	373,243	1,765,541		
44	1980				14.7	89°44'	+9.2	-5.5		1.365.5	TP						
	1980		262°4.8' - 180°	+8.7	+9.6	-		+9.6	1.375.1		BS	-27	+1980				
	1980				+14.2	89°52'	-4.6	+9.6			BS						
45	1650		262°4.8'	+8.7	11.9	-		-11.9		1.363.2		+22	+1650	373,238	1,765,875		
46	1320		" "	"	13.4	-		-13.4		1.361.7		+18	-1320	373,234	1,766,205		

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/25/79		G Cotcamp		R Turner		6834		Reason Turner		4	4						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Rose City		Minnesota	Douglas		130 N/129 N	36W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.375.1								
47	990		262°48'	+8.7	10.8	-		-10.8		1,364.3		+13	-990	373,229	1,766,535		
48	660		" "	"	6.4	-		-6.4		1,368.4		+9	-660	373,225	1,766,865		
<u>48</u>	495		263°49'	+8.7	4.8	-		-4.8		1,370.3		+21	-495	373,237	1,767,030	y=373,215 + 1,767,020	Trd(north) elev. 1370
49	330		262°48'	+8.7	4.7	-		-4.7		1,370.4		+4	-330	373,220	1,767,195		
50	0				5.4	-		-5.4		1,369.7	TP	0	0	373,216	1,767,525		
51	330		82°11'	+8.7	5.4	-		-5.4		1,369.7		-5	+330	373,211	1,767,855		
52	660		" "	"	5.9	-		-5.9		1,369.2		-10	+660	373,206	1,768,185		
53	990		" "	"	6.0	-		-6.0		1,369.1		-15	+990	373,201	1,768,515		
54	1320		" "	"	6.8	-		-6.8		1,368.3		-20	+1320	373,196	1,768,845		
55	1650		" "	"	7.2	-		-7.2		1,367.9		-25	+1650	373,191	1,769,175		
56	1980		82°11'	+8.7	7.7	-		-7.7		1,367.4	TP	-31.3	+1980.5	373,188	1,769,510		
56	1980				14.7	89°48'	+6.9	-7.8			TP						
	1650		261°44'-180°	+8.7	+11.9	-		+11.9	1,379.3		CS	-13.2	+1650.5				
	1650				+3.6	BH	+8.3	+11.9			CS						
57	1320		261°44'	+8.7	10.3	-		-10.3		1,369.0		+10	-1320	373,187	1,769,845		
58	990		" "	"	9.0	-		-9.0		1,370.3		+7	-990	373,184	1,770,175		
59	660		" "	"	7.9	-		-7.9		1,371.4		+5	-660	373,182	1,770,505		
60	330		" "	"	6.7	-		-6.7		1,372.6		+2	-330	373,179	1,770,835		
61	0				5.4	-		-5.4		1,373.9	TP	0	0	373,177	1,771,165		
62	330		81°48.2'	+8.7	2.4	-		-2.4		1,376.9		-3	+330	373,174	1,771,495		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 6/25/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 5
AREA Minnesota	TOPO MAP Rose City	STATE Minnesota	COUNTY Douglas/Todd	TWP 130N/129N	RANGE 36W/35W	PPM
			PARTY MANAGER L.O. Davis			

STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1,379.3							
63	660		81°48.2'	+8.7°	0.6	TH	+3.3	+2.7		1382.0		-6	+660	373,171	1,771,825	↑
64	990		" "		3.0	89°30'	+8.6	+5.6		1384.9		-9	+990	373,168	1,772,155	Douglas Co y=373,180 + 1,772,305 (s) T-rd(north) elev. 1385
<u>IL</u>	1140		81°8.5'	+8.7°	4.5	89°30'	+10.0	+5.5		1384.8		+3	+1140	373,180	1,772,305	
65	1320		81°48.2'	+8.6°	8.5	89°30'	+11.5	+3.0	(+3.1)		TP	-9	+1320	373,168	1,772,485	Todd Co
65	1320				14.5	89°14'	+17.7	+3.2		1382.4	TP					↓ Horizontal correction
	2310		261°39.6'-180°	+8.6°	+9.7	-		+9.7		1392.1	BS	-10	+2310			y=+11 x=37
	2310				+8.2	90°2'	+1.3	+9.5			BS					
66	1980		261°39.6'	+8.6°	12.9	-		-12.9		1379.2		+9	-1980	373,167	1,772,815	
67	1650		" "	"	13.8	-		-13.8		1378.3		+7	-1650	373,165	1,773,195	
68	1320		" "	"	13.9	-		-13.9		1378.2		+6	-1320	373,164	1,773,475	
69	990		" "	"	12.0	-		-12.0		1380.1		+4	-990	373,162	1,773,805	
70	660		" "	"	10.3	-		-10.3		1381.8		+3	-660	373,161	1,774,135	
71	330		261°39.6'	+8.6°	8.3	-		-8.3		1383.8		+1	-330	373,159	1,774,465	
72	-0-				5.4	-		-5.4		1386.7	X	0	0	373,158	1,774,795	
73	330		81°38.4'	+8.6°	2.0	-		-2.0		1390.1		-1	+330	373,157	1,775,125	
74	660		" "	"	2.4	TH	+3.3	+0.9		1393.0		-3	+660	373,155	1,775,455	
75	990		" "	"	2.1	TH	+5.0	+2.9		1395.0		-4	+990	373,154	1,775,785	
76	1320		81°38.4'	+8.6°	0.9	TH	+6.6	+5.7		1397.8		-5	+1320	373,153	1,776,115	
<u>TF</u>	1415		81°5.6'	+8.6°	0.7	TH	+7.1	+6.4		1398.5		+8	+1415	373,166	1,776,210	373,170 + 1,776,210 (s) T-rd(south) elev. 1398
77	1650		81°38.4'	+8.6°	0.5	TH	+8.3	+7.8		1399.9		-7	+1650	373,151	1,776,495	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6-26-79		W. Krol		R. Turner		6834		Ransom Turner		4	6					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER.				
Minnesota		Rose City / Clatho		Minnesota		Todd		130N/129N		35W		L.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1392.1							
78	1980		81°38.4'	+8.6°	1.8	TH	+9.9	+8.1		1400.2	TP	-8	+1980.5	373,150	1,776,770	
78	1980				5.7	89°36'	+13.8	+8.1			TP					
	1980		261°45.7'-180°	+8.6°	+0.5	-		+0.5	1400.7		BS	-12	+1980.5			
	1980				+10.4	TH	-9.9	+0.5			BS					↑
79	1650		261°45.7'	+8.6°	2.8	-		-2.8		1397.9		+10	-1650	373,148	1,777,095	Rose City
80	1320		" "	"	6.8	-		-6.8		1393.9		+8	-1320	373,146	1,777,425	Clatho
81	990		" "	"	8.3	-		-8.3		1392.4		+6	-990	373,144	1,777,755	↓
82	660		" "	"	10.0	-		-10.0		1390.7		+4	-660	373,142	1,778,085	
83	330		261°45.7'	+8.6°	5.7	-		-5.7		1395.0		+2	-330	373,140	1,778,415	
84	-0-				15.4	-		-5.4		1395.3	X	0	0	373,138	1,778,745	
85	330		81°44.5'	+8.6°	11.2	-		-11.2		1389.5		-2	+330	373,136	1,779,075	
86	660		" "	"	13.2	90°40'	-7.7	-20.9		1379.8		-4	+660	373,134	1,779,405	
87	990		" "	"	13.7	90°50'	-14.4	-28.1		1372.6		-6	+990	373,132	1,779,735	
88	1320		81°44.5'	+8.6°	4.3	90°50'	-19.2	-23.5		1377.2		-8	+1320	373,130	1,780,065	373,140+1,780,160(s)
±L	1440		81°17.3'	+8.6°	6.9	90°30'	-12.6	-19.5		1381.2		+3	+1440	373,141	1,780,185	Trd. (North) elev. 1383
89	1650		81°44.5'	+8.6°	2.2	90°30'	-14.4	-16.6		1384.1		-10	+1650	373,128	1,780,395	
90	1980		" "	"	5.5	90°20'	-11.5	-17.0		1383.7	TP	-12	+1980.5	373,126	1,780,720	
90	1980		81°44.5'	+8.6°	4.3	90°22'	-12.7	-17.0			TP					
	2310				+11.3	TH	-11.6	-0.3			BS					
	2310		261°10.6'-180°	+9°	+3.9	89°54'	-4.0	-0.1	1383.6		BS	-7	+2310.5			

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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6-26-79		W. Krol		R. Turner		6834		Ransom Turner		4	7					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER				
Minnesota		Clothe		Minnesota		Todd		130N/129N		35W		J.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1,383.6							
91	1980		261°10.6'	+9°	10.1	TH	+9.9	-0.2		1,383.4		+6	-1980	373,125	1,781,045	
92	1650		" "	"	7.4	TH	+8.3	+0.9		1,384.5		+5	-1650	373,124	1,781,375	
93	1320		" "	"	0.9	-		-0.9		1,382.7		+4	-1320	373,123	1,781,705	
94	990		" "	"	6.0	-		-6.0		1,377.6		+3	-990	373,122	1,782,035	
95	660		" "	"	9.4	-		-9.4		1,374.2		+2	-660	373,121	1,782,365	
96	330		261°10.6'	+9°	5.2	-		-5.2		1,378.4		+1	-330	373,120	1,782,695	
7F	195		269°44.2'	+9°	3.8	-		-3.8		1,379.8		+13	-195	373,132	1,782,830	373,140+1,782,815(s) 1-way int. elev. 1381
97	-0-				5.4	-		-5.4		1,378.2	X	0	0	373,119	1,783,025	
98	330		80°51.2'	+9.4°	10.8	-		-10.8		1,372.8		-1	+330	373,118	1,783,355	
99	660		" "	"	9.4	-		-9.4		1,374.2		-3	+660	373,116	1,783,685	
100	990		" "	"	2.2	-		-2.2		1,381.4		-4	+990	373,115	1,784,015	
101	1320		" "	"	6.5	-		-6.5		1,382.1		-6	+1320	373,113	1,784,345	
102	1650		" "	"	11.5	-		-11.5		1,372.1		-7	+1650	373,112	1,784,675	
103	1980		" "	"	11.9	-		-11.9		1,371.7		-9	+1980	373,110	1,785,005	
104	2310		" "	"	10.0	TH	+11.6	+1.6	(+1.5)	1,385.1	TP	-10	+2310	373,109	1,785,335	
104	2310		80°51.2'	+9.4°	5.3	89°50'	+6.7	+1.4			TP					
	1650		260°7.6'-180°	+9.4°	+8.6	89°30'	-14.4	-5.8	1,379.3		BS	+14	+1650			
	1650				+13.4	89°20'	-19.2	-5.8			BS					
105	1320		260°7.6'	+9.4°	4.1	89°30'	+11.5	+7.4		1,386.7		-11	-1320	373,112	1,785,665	
106	990				9.2	89°30'	+8.6	-0.6		1,378.7		-8	-990	373,115	1,785,995	

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6-26-79		W. Koel		R. Turner		6834		Ransom Turner		4	8						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Clotho		Minnesota	Todd	130N/129N	35W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.379.3								
107	660		260° 7.6'	+9.4°	8.5	89° 30'	+5.8	-2.7		1.376.6		-5	-660	373,118	1,786,325		
108	330		260° 7.6'	+9.4°	2.8	-		-2.8		1.376.5		-3	-330	373,120	1,786,655		
109	-0-				5.4	-		-5.4		1.373.9	X	0	0	373,123	1,786,985		
110	330		80° 16.8'	+9.4°	10.5	-		-10.5		1.368.8		+2	+330	373,125	1,787,315		
111	660		"	"	2.8	-		-2.8		1.376.5		+4	+660	373,127	1,787,645		
112	990		80° 16.8'	+9.4°	6.3	89°	+17.3	+11.0		1.390.3		+6	+990	373,129	1,787,975		
<u>11</u>	1140		79° 28.7'	+9.4°	3.2	89°	+19.9	+16.7		1.396.0		+22	+1140	373,145	1,788,125	373,135 + 1,788,110(s) T rd. (North) elev. 1397	
113	1320		80° 16.8'	+8.8°	2.9	88° 50'	+26.9	+24.0		1.403.3		+21	+1320	373,144	1,788,305		
114	1650		" "	"	3.0	88° 30'	+43.2	+40.2		1.419.5		+26	+1650	373,149	1,788,635		
115	1980		" "	"	7.7	88° 20'	+57.6	+49.9		1.429.2	TP	+32	+1980	373,155	1,788,965		
115	1980		80° 16.8'	+8.8°	13.5	88° 10'	+63.3	+49.8			TP						
	1650		262° 58.4 - 160	+8.8°	+10.6	BH	+8.3	+18.9	1.448.1		BS	-51	+1649				
	1650				+9.3	90° 20'	+9.6	+18.9			BS						
116	1320		262° 58.4'	+8.8°	8.1	BH	-6.6	-14.7		1.433.4		+41	-1319	373,145	1,789,295		
117	990		" "	"	11.3	-		-11.3		1.436.8		+31	-990	373,135	1,789,624		
118	660		" "	"	10.5	-		-10.5		1.437.6		+20	-660	373,124	1,789,954		
119	330		262° 58.4'	+8.8°	7.6	-		-7.6		1.440.5		+10	-330	373,114	1,790,284		
120	-0-				5.4	-		-5.4		1.442.7	X	0	0	373,104	1,790,614		
121	330		83° 39.6'	+8.8°	8.6	-		-8.6		1.439.5		-14	+330	373,090	1,790,944		
122	660		83° 39.6'	+8.8°	11.8	-		-11.8		1.436.3		-28	+659	373,076	1,791,273		

SURVEY NOTES-HIGH RESOLUTION DATA
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DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
6-26-79		W. Koel		P. Turner		6834		Ransom Turner		4		9			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Clotho		Minnesota		Todd		130N/129N		35W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1.448.1						
123	990				12.7	BH	-5.0	-17.7		1.430.4		-42	+989	373,062	1,791,603
124	1320				13.2	90°36'	-13.8	-27.0		1.421.1	TP	-57	+1319	373,047	1,791,933
124	1320		83°39.6	+8.8°	12.5	90°38'	-14.6	-27.1			TP				
	990		263°25.3'-180°	+8.8°	+5.2	89°	-17.3	-12.1			BS	-38	+989		
	990				+4.7	89°02'	-16.7	-12.0	1.409.1		BS				
125	660				8.1	89°	+1.7	-14.1		1.395.0		+26	-660	373,035	1,792,262
126	330				10.0	89°	+5.8	-4.2		1.404.9		+13	-330	373,022	1,792,592
127	-0-				5.4	-		-5.4		1.403.7	X	0	0	373,009	1,792,922
128	330				7.8	89°	+5.8	-2.0		1.407.1		-11	+330	372,998	1,793,252
71	470		81°51.7'	+8.8°	7.0	89°	+8.2	+1.2		1.410.3		-5	+470	373,004	1,793,392
129	660				6.6	89°	+11.5	+4.9		1.414.0		-23	+660	372,986	1,793,582
130	990				7.9	89°	+17.3	+9.4		1.418.5	TP	-27	+990	372,982	1,793,912
130	990		83°11.1'	+8.4°	13.7	88°40'	+23.0	+9.3			TP				
	1320		263°53.8'-180°	+7.7°	+14.1	88°40'	-30.7	-16.6	1.401.9		BS	-37	+1319		
	1320				+14.8	88°38'	-31.5	-16.7			BS				
131	990		263°53.8'	+7.7°	2.2	88°50'	+20.2	+18.0		1,419.9		+28	-990	372,973	1,794,241
132	660		"	"	1.0	88°50'	+13.4	+12.4		1,414.3		+18	-660	372,963	1,794,571
133	330		"	"	1.9	89°	+5.8	+3.9		1,405.8		+9	-330	372,954	1,794,901
134	0				5.4	-		-5.4		1,396.5	X	0	0	372,945	1,795,231
135	330		89°13.7'	+7.7°	11.0	91°	-5.8	-16.8		1,385.1		-11	+330	372,934	1,795,561

373,015 + 1,793,390(s)
+ rd. (North) elev. 1412

SURVEY NOTES-HIGH RESOLUTION DATA
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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6/27/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	10					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Clotho		Minnesota	Todd		130N/129W	35W		L. O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTting DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1,401.9							
136	660		89° 13.7'	+7.7°	10.2	91° -	-11.5	-21.7		1,380.2		-22	+660	372,923	1,795,891	
137	990		" "	"	3.7	91° -	-17.3	-21.0		1,380.9		-33	+989	372,912	1,796,220	
138	1320		" "	"	13.3	BH	-6.6	-19.9		1,382.0		-44	+1319	372,901	1,796,550	
139	1650		" "	"	11.5	BH	-8.3	-19.8		1,382.1		-56	+1649	372,889	1,796,880	
140	1980		" "	"	9.8	BH	-9.9	-19.7		1,382.2		-67	+1979	372,878	1,797,210	
141	2310		84° 13.7'	+7.7°	9.9	BH	-11.6	-21.5			TP	-78	+2309	372,867	1,797,540	
141	2310				14.7	90° 10'	-6.7	-21.4		1,380.5	TP					
	1980		264° 0.9' - 180°	+7.7°	+7.2	88° 30'	-51.8	-44.6	1,335.9		BS	-59	+1979			
	1980				+4.9	88° 39'	-49.5	-44.6			BS					
142	1650		264° 0.9'	+7.7°	8.4	88° 30'	+43.2	+34.8		1,370.7		+49	-1649	372,857	1,797,870	
143	1320		" "	"	8.3	89° -	+23.0	+14.7		1,350.6		+40	-1319	372,848	1,798,200	
144	990		" "	"	3.6	TH	+5.0	+1.4		1,337.3		+30	-990	372,838	1,798,529	
<u>TL</u>	820		264° 34.6'	+7.7°	3.4	TH	+4.1	+0.7		1,336.6		+33	-819	372,841	1,798,700	Frd (north)
145	660		264° 0.9'	+7.7°	0.6	-	-	-0.6		1,335.3		+20	-660	372,828	1,798,859	pavement ends
146	330		" "	"	3.6	-	-	-3.6		1,332.3		+10	-330	372,818	1,799,189	dist road
147	0				5.4	-	-	-5.4		1,330.5	TP	0	0	372,808	1,799,519	↓
148	330		83° 40'	+7.7°	7.7	-	-	-7.7		1,328.2		-8	+330	372,800	1,799,849	
149	660		" "	"	10.3	-	-	-10.3		1,325.6		-16	+660	372,792	1,800,179	
150	990		" "	"	11.4	-	-	-11.4		1,324.5		-24	+990	372,784	1,800,509	
151	1320		" "	"	8.1	BH	-6.6	-14.7		1,321.2		-31	+1320	372,777	1,800,839	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6/27/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	11					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER				
Minnesota		Clotho		Minnesota		Todd		130N		35w/34w		L.D. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1335.9							
152	1650		81°41.8'	+7.7°	7.5	84	-8.3	-15.8		1320.1	TP	+17	+1650-2	372,825	1,801,167	
152	1650				13.9	90°4'	-1.9	-15.8			TP					
	210		252°433'-180°	+7.7°	+5.5	-		+5.5	1,325.6		BS	+35	+207-3			
	210				+6.6	TH	-1.1	+5.5			BS					
≡	0				5.4	-		-5.4		1,320.2	X	0	0	372,860	1,801,371	90° bend north
F	1220		353°18'	+7.7°	4.1	-		-4.1		1,321.5	TP	+1220	+21-2	374,080	1,801,390	1220' offset north
F	1220				10.2	TH	+6.1	-4.1			TP					90° bend (east)
	1440		264°16'-180°	+7.7°	+4.7	-		+4.7	1,326.2		BS	-49	+1439-3			
	1440				71.9	TH	-7.2	+4.7			BS					
153	1320		264°22'	+7.7°	4.3	-		-4.3		1,321.9		+48	-1319	374,079	1,801,507	
154	990		" "	"	3.7	-		-3.7		1,322.5		+36	-989	374,067	1,801,837	
155	660		" "	"	3.8	-		-3.8		1,322.4		+24	-660	374,055	1,802,166	
156	330		" "	"	3.9	-		-3.9		1,322.3		+12	-330	374,043	1,802,496	
157	0				5.4	-		-5.4		1,320.8	X	0	0	374,031	1,802,826	
158	330		84°29'	+7.7°	5.1	-		-5.1		1,321.1		-13	+330	374,018	1,803,156	
159	660		" "	"	5.1	-		-5.1		1,321.1		-25	+660	374,006	1,803,486	
160	990		" "	"	5.8	-		-5.8		1,320.4		-38	+989	373,993	1,803,815	last sta. on road.
161	1300		79°34'	+7.7°	6.9	-		-6.9		1,319.3	TP	+62	+1299-2	374,093	1,804,123	in field
161	1300				134	TH	+6.5	-6.9			TP					L across corner ↓

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/27/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	12						
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER					
Minnesota		Clotho		Minnesota		Todd		130 N.		34 W.		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
161									1326.2								
	1320		244°35'-180°	+7.7°	+10.0	-		+10.0	1320.1		BS	+402	+1257.				in field
	1320				+14.0	89°50'	-3.8	+10.2	1329.5		BS						↓
162	990		244°35'	+7.7°	8.6	-		-8.6		1320.9		-301	-943	374,194	1,804,437		
163	660		" "	"	6.8	-		-6.8		1322.7		-201	-629	374,294	1,804,751		
164	330		" "	"	6.9	-		-6.9		1322.6		-100	-314	374,395	1,805,066		
165	0				5.4	-		-5.4		1324.1	X	0	0	374,495	1,805,380		
165	1365		274°16.6'	+7.7°	8.4	TH	+6.8	-1.6		1327.9		+283	-1335	374,778	1,804,045		dit road 374,785, 1,804,040 T-intersect. elev. 1328.9' (Line #3 - page 27)
166	330		96°42.3'	+7.7°	5.5	-		-5.5		1324.0		-82	+320	374,413	1,805,700		
167	660		" "	"	5.2	-		-5.2		1324.3		-164	+639	374,331	1,806,019		
168	990		" "	"	5.2	-		-5.2		1,324.3		-246	+959	374,249	1,806,339		
169	1320		96°42.3'	+7.7°	3.4	-		-3.4		1,326.1	TP	-328	+1279	374,167	1,806,659		N-S fence elev. 1327'
169	1320				10.0	TH	+6.6	-3.4			TP						
	1320		276°22.3'-180°	+7.7°	+11.5	90°30'	+11.5	+23.0	1349.1		BS	-321	+1280				
	1320				+14.5	90°22'	+8	+22.9			BS						
170	990		276°22.3'	+7.7°	14.6	90°20'	-5.8	-20.4		1,328.7		+241	-960	374,087	1,806,979		
171	660		" "	"	12.7	90°30'	-5.8	-18.5		1,330.6		+160	-640	374,006	1,807,299		
172	330		" "	"	10.7	-		-10.7		1,338.4		+80	-320	373,926	1,807,619		
173	0				5.4	-		-5.4		1,343.7	X	0	0	373,846	1,807,939		
174	330		97°17'	+7.7°	12.5	-		-12.5		1,336.6		-85	+319	373,761	1,808,258		
175	660		" "	"	11.0	91°-	-11.5	-22.5		1,326.6		-171	+638	373,675	1,808,577		

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/27/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	13						
AREA		TOPO MAP	STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		BROWERVILLE	Minnesota	Todd		130N/129N	34 W.		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,349.1								
176	990		99° 5'	+7.7°	10.9	91° -	-17.3	-28.2		1,320.9	TP	-286	+948	373,560	1,808,887		
176	990				14.4	90° 48'	-13.8	-28.2			TP						
	330		287° 12.5' - 180°	+7.7°	+4.9	-		+4.9	1,325.8		BS	-139	+299				
	330				+3.2	BH	+1.7	+4.9			BS						
177	0				5.4	-		-5.4		1,320.4	T	0	0	373,921	1,809,186	↑ Clotho 7 1/2	
177	104		105° 41.5'	+7.7°	4.8	-		-4.8		1,321.0		-41	+95	373,380	1,809,281	↑ T-rd (north)	
178	330		113° 51'	+7.5°	5.4	-		-5.4		1,320.4		-172	+282	373,249	1,809,468	Browerville SW	
179	660		" "	"	5.8	-		-5.8		1,320.0		-343	+564	373,078	1,809,750	↓	
180	990		" "	"	5.0	-		-5.0		1,320.8		-515	+845	372,906	1,810,031		
181	1320		116° 17'	+7.5°	4.4	-		-4.4		1,321.4	TP	-734	+1097	372,687	1,810,283	last sta. on road.	
181	1320				11.0	TH	+6.6	-4.4			TP						
	660		259° 59.3' - 180°	+7.5°	+14.3	91° 20'	+15.4	+29.7	1,351.1		BS	+29	+659				
	660				+12.4	91° 30'	+17.3	+29.7			BS						
182	330		259° 59.3'	+7.5°	15.0	93° -	-17.2	-32.2		1,318.9		-14	-330	372,702	1,810,612	corn field	
183	0				5.4	-		-5.4		1,345.7	T	0	0	372,716	1,810,942	pasture	
184	330		90° 30'	+7.5°	6.8	-		-6.8		1,344.3		-46	+327	372,670	1,811,267	pasture	
185	660		" "	"	8.0	-		-8.0		1,343.1		-92	+654	372,624	1,811,596	hay field	
186	990		88° 34.5'	+7.5°	4.5	89° -	+17.3	+12.8		1,363.9	TP	-105	+984	372,611	1,811,926		
186	990				6.2	88° 54'	+19.0	+12.8			TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 6/27/79	INSTRUMENT MAN G. Colcamp	ROD MAN G. Turner	PARTY NUMBER 687A	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 19
AREA Minnesota	TOPO MAP BROWERVILLE SW.	STATE Minnesota	COUNTY Todd	TWP 130N./129N.	RANGE 34 W.	PPM
			PARTY MANAGER L.O. Davis			

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
186									1,351.1										
	660		261°47.2'-180°	+7.5°	9.1	89°-	-11.5	-2.4	1361.5		BS	+8	+660						east edge of road
	660				+11.0	88°50'	-13.4	-2.4			BS								hay field
187	330		261°47.2'	+7.5°	1.4	-		-1.4		1,360.1		-9	-330	372,615	1,812,256				
188	0				5.4	-		-5.4		1,356.1	X	0	0	372,619	1,812,586				↓
189	330		79°-	+7.5°	12.2	93°-	-17.2	-29.4		1,332.1	TP	+20	+329	372,639	1,812,915				edge of woods
189	330				14.7	92°34'	-14.8	-29.5			TP								
	118		259°44'-180°	+7.5°	+3.7	-		+3.7	1,335.8		BS	+6	+118						
	118				+4.3	TH	-0.6	+3.7			BS								
X	0				5.4	-		-5.4		1,330.4	X	0	0	372,645	1,813,033				split sta - thick brush
190	212		80°35.6'	+7.5°	9.0	84°28'	+20.4	+11.4		1,347.2	TP	+7	+212	372,652	1,813,245				set up on west edge of creek
190	212				9.3	84°22'	+20.7	+11.4			TP								
	330		263°42.3'-180°	+7.5°	+11.0	91°12'	+6.9	+17.9			BS	-7	+330						
	330				+10.3	91°20'	+7.7	+18.0	1365.2		BS								
191	0				5.4	-		-5.4		1,359.8	X	0	0	372,645	1,813,575				in field along farm trail
192	330		85°16.6'	+7.5°	3.6	87°-	+17.3	+13.7		1,378.9	TP	-16	+330	372,629	1,813,905				
192	330				2.0	87°16'	+15.7	+13.7			TP								
	330		262°31.3'-180°	+7.5°	+8.0	TH	-1.7	+6.3			BS	0	+330						
	330				+7.9	89°44'	-1.5	+6.4	1,385.3		BS								
193	0				5.4	-		-5.4		1,379.9	X	0	0	372,629	1,814,235				
194	330		86°4'	+7.5°	11.1	92°-	-11.5	-22.6		1,362.7		-21	+329	372,608	1,814,564				↓

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/27/79		G. Co. Camp		W. Kroi		6834		Ransom Turner		4	15						
AREA		TOPO MAP	STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		BROWERVILLE SW.	Minnesota	Todd		130 N./129 N	34 W.		L. O. Davis								
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,385.3								
194	342		85°26.7'	+7.5°	10.9	92°-	-11.9	-22.8		1,362.5		-18	+342	372,611	1,819,577	372,615+1,819,570(S). F rd (east) elev. 1363	
195	660		85°42'	+7.5°	13.8	91°20'	-15.4	-29.2		1,356.1		-37	+659	372,592	1,814,894	dirt road	
196	990		84°43'	+7.5°	5.8	91°-	-17.3	-23.1		1,362.2		-38	+989	372,591	1,815,224	↓	
197	1320		84°13.5'	+7.5°	11.9	-	-	-11.9		1,373.4	TP	-40	+1319-5	372,589	1,815,549		
197	1320				5.3	BH	-6.6	-11.9			TP						
	2310		262°40.6'-180	+7.5°	+9.9	-	-	+9.9	1,383.3		BS	-7	+2310-5				
	2310				+8.6	90°2'	+1.3	+9.9			BS						
198	1980		262°40.6'	+7.5°	9.9	-	-	-9.9		1,373.4		+6	-1980	372,588	1,815,874		
199	1650		"	"	11.3	BH	-8.3	-19.6		1,363.7		+5	-1650	372,587	1,816,204		
200	1320		"	"	11.5	90°42'	-16.1	-27.6		1,355.7		+4	-1320	372,586	1,816,534		
201	990		"	"	11.2	91°2'	-17.8	-29.0		1,354.3		+3	-990	372,585	1,816,864		
202	660		"	"	12.7	91°2'	-11.9	-24.6		1,358.7		+2	-660	372,584	1,817,194		
203	330		"	"	10.5	-	-	-10.5		1,372.8		+1	-330	372,583	1,817,524		
204	-0-		"	"	5.4	-	-	-5.4		1,377.9	X	0	0	372,582	1,817,854		
205	330		82°38.3'	"	8.3	-	-	-8.3		1,375.0		-1	+330	372,581	1,818,184		
206	660		"	"	11.7	-	-	-11.7		1,371.6		-2	+660	372,580	1,818,514		
207	990		"	"	10.2	BH	-5.0	-15.2		1,368.1		-2	+990	372,580	1,818,844		
208	1320		"	"	9.7	BH	-6.6	-16.3		1,367.0		-3	+1320	372,579	1,819,174		
209	1650		"	"	8.0	BH	-8.3	-16.3		1,367.0		-4	+1650	372,578	1,819,504		
210	1980		"	"	13.5	-	-	-13.5		1,369.8		-5	+1980	372,577	1,819,834		

SURVEY NOTES-HIGH RESOLUTION DATA

GEQ-445

Geosource Inc.

DATE 6-28-79	INSTRUMENT MAN W. Krol	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 16
AREA Minnesota	TOPO MAP Browerville SW	STATE Minnesota	COUNTY Todd	TWP 130N/129W	RANGE 34W	PPM
				PARTY MANAGER L.O. DAVIS		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1,383.3					
11	2005		82° 21.6'	+7.5°	14.0	-		-14.0		1,369.3		+5	+2005	372,587 1,819,85 4 way int. elev. 1371'
211	2310		82° 38.3'	+7.5°	13.2	-		-13.2		1,370.1		-6	+2310	372,576 1,820,164
212	2640			+7.5°	7.1	-		-7.1		1,376.2	TP	-6	+2640	372,576 1,820,489
212	2640		82° 38.3'		5.6	90° 2'	-1.5	-7.1			TP			
	990		262° 15.6'-180	+7.7°	+11.6	89° 24'	-10.4	+1.2			BS	+1	+990	
	990				+12.8	89° 26'	-11.5	+1.3	1,377.5		BS			
213	660		262° 15.6'	+7.7°	1.1	89° 30'	+5.8	+4.7		1,382.2		0	+660	372,577 1,822,134
214	330		" "	"	0.5	89° 30'	+2.9	+2.4		1,379.9		0	+330	372,577 1,821,804
215	-0-				5.4	-		-5.4		1,372.1	X	0	0	372,577 1,821,474
216	330		82° 21.5'	+7.7°	11.5	-		-11.5		1,366.0		0	-330	372,577 1,821,144
217	660		" "	"	12.8	-		-12.8		1,364.7		-1	-660	372,576 1,820,814
218	990		" "	"	12.8	-		-12.8		1,364.7		-1	-990	372,576 1,820,484
219	1320		" "	"	12.6	-		-12.6		1,364.9	TP	-1	+1320	372,576 1,822,789
219	1320		82° 21.5'	+7.7°	11.8	90° 2'	-0.8	-12.6			TP			
	2310		262° 23.5'-180	+7.7°	+10.6	BH	+11.6	+22.2	1387.1		BS	-4	+2310	
	2310		" "	"	+14.1	90° 12'	+8.1	+22.2			BS			
220	1980		262° 23.5'	+7.7°	11.8	BH	-9.9	-21.7		1,365.4		+3	-1980	372,575 1,823,114
221	1650		" "	"	12.7	BH	-8.3	-21.0		1,366.1		+3	-1650	372,575 1,823,444
222	1320		" "	"	14.2	BH	-6.6	-20.8		1,366.3		+2	-1320	372,574 1,823,774
223	990		" "	"	12.8	90° 30'	-8.6	-21.4		1,365.7		+2	-990	372,574 1,824,104

SURVEY NOTES-HIGH RESOLUTION DATA

GEQ-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
6/29/79		G. Catcamp		R. Turner		6834		Ransom Turner		4		17			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Browerville S.W.		Minnesota		Todd		130 _N /129 _N		34 _W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1387.1						
224	660		262° 23.5'	+7.7°	9.8	91°	-11.5	-21.3		1,365.8		+1	-660	372,573	1,824,474
225	330		"	"	10.4	91°	-5.8	-16.2		1,370.9		+1	-330	372,573	1,824,719
226	0				5.4	-		-5.4		1,381.7		0	0	372,572	1,825,094
≡	53		77° 48'	+7.7°	4.0	-		-4.0		1,383.1		+4	+53	372,576	1,825,147
227	330		83° 7.3'	+7.7°	3.1	-		-3.1		1,384.0		-5	+330	372,567	1,825,924
228	660		"	"	7.3	-		-7.3		1,379.8		-9	+660	372,563	1,825,754
229	990		"	"	5.2	-		-5.2		1,381.9		-14	+990	372,558	1,826,084
230	1320		83° 7.3'	+7.7°	9.9	-		-9.9		1,377.2	TP	-19	+1320-s	372,553	1,826,409
230	1320				13.9	89° 50'	+3.8	-10.1			TP				
	1650		263° 0.7' -180°	+7.7°	+9.7	89° 20'	-19.2	-9.5			BS	-20	+1650-s		
	1650				+5.0	89° 30'	-14.4	-9.4	1367.8		BS				
231	1320		263° 0.7'	+7.7°	5.9	TH	+6.6	+0.7		1,368.5		+16	-1320	372,549	1,826,734
232	990		"	"	4.7	-		-4.7		1,363.1		+12	-990	372,545	1,827,064
233	660		"	"	4.9	-		-4.9		1,362.9		+8	-660	372,541	1,827,394
234	330		"	"	4.7	-		-4.7		1,363.1		+4	-330	372,537	1,827,724
235	0				5.4	-		-5.4		1,362.4	X	0	0	372,533	1,828,054
236	330		83° 5'	+7.7°	5.4	-		-5.4		1,362.4		-5	+330	372,528	1,828,384
237	660		"	"	3.8	-		-3.8		1,364.0		-9	+660	372,524	1,828,714
238	990		"	"	2.3	TH	+5.0	+2.7		1,370.5		-14	+990	372,519	1,829,044
≡	1065		82° 44'	+7.7°	3.8	89° 30'	+9.3	+5.5		1,373.3		-8	+1065	372,525	1,829,119

372,575 + 1,825,155(s)
N-S fence 1385'

last sta. on road
372,575 + 1,829,110(s)
T-junction

SURVEY NOTES-HIGH RESOLUTION DATA

GEQ-445

Geosource Inc.

DATE 6/29/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 18
AREA Minnesota	TOPO MAP Browerville SW	STATE Minnesota	COUNTY Todd	TWP 130N/129W	RANGE 34 W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1367.8					
239	1320		82° 84'	+7.7°	6.3	89° 30'	+11.5	+5.2			TP	+4	+1320.5	372,537 1,829,369 in hay field
239	1320				13.9	89° 10'	+19.2	+5.3		1,373.1	TP			
	497		248° 48' - 180°	+7.7°	+6.5	88° -	-17.3	-10.8	1,362.3		BS	+116	+483.5	
	497				+2.2	88° 30'	-13.0	-10.8			BS			
240	167		246° 33'	+7.7°	4.5	-		-4.5		1,357.8		-45	-161	372,608 1,829,636 swamp
X	0				5.4	-		-5.4		1,356.9	X	0	0	372,653 1,829,847 split sta. - shooting around
241	169		102° 24'	+7.7°	4.8	-		-4.8		1,357.5		-58	+159	372,595 1,830,006 brush
242	499		100° 38'	+7.7°	5.3	-		-5.3		1,357.0		-157	+474	372,496 1,830,321 swamp
243	820		94° 36.8'	+7.7°	2.2	-		-2.2		1,360.1	TP	-175	+801.5	372,478 1,830,693 in field (south side of E-W fence)
243	820				6.3	TH	+4.1	-2.2			TP			
	1980		262° 37.3' - 180°	+7.7°	+12.8	GH	+9.9	+22.7	1382.8		BS	-11	+1980	
	1980				+14.6	90° 14'	+8.1	+22.7			BS			along fence row
244	1650		262° 37.3'	+7.7°	14.9	90° 4'	-1.9	-16.8		1,366.0		+9	-1650	372,476 1,830,973
245	1320		"	"	14.7	-		-14.7		1,368.1		+7	-1320	372,474 1,831,303
246	990		"	"	12.5	-		-12.5		1,370.3		+6	-990	372,473 1,831,633
247	660		"	"	13.1	-		-13.1		1,369.7		+4	-660	372,471 1,831,963
248	330		"	"	9.6	-		-9.6		1,373.2		+2	-330	372,469 1,832,293
249	0				5.4	-		-5.4		1,377.4	X	0	0	372,467 1,832,623 north side of E-W fence
250	330		82° 45.3'	+7.7°	3.4	89° -	+5.8	+2.4		1,385.2		-3	+330	372,464 1,832,953
--- ---	460		94° 0.7'	+7.7°	4.9	88° 30'	+12.0	+7.1		1389.9		-14	+460	372,453 1,833,083 N-S road + fence 1391'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN			ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE				
6/29/79		G. Cotcamp			R. Turner		6834		Ransom Turner			4	19				
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Browerville SW	Minnesota	Todd	130N/129N	34W/33W		L.O. Lewis									
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,382.8								
251	660		82°45.3'	+7.7°	4.0	88°30'	+17.3	+13.2		1,396.1		-5	+660	372,462	1,833,283	in hay field	
252	990				7.6	88°30'	+25.9	+18.3		1,401.1		-8	+990	372,459	1,833,613	(north side of E-W fence)	
253	1320		82°45.3'	+7.7°	10.8	88°30'	+34.5	+23.7			TP	-10	+1320	372,457	1,833,933	corn field	
253	1320				6.9	88°40'	+30.7	+23.8		1,406.6	TP						
	660		263°58.2'±80°	+7.7°	+15.0	BH	+3.3	+18.3	1,424.9		BS	-19	+660				
	660				+6.8	91°-	+11.5	+18.3			BS						
254	330		263°58.2'	+7.7°	10.8	-	-10.8	-5.4		1,414.1		+10	-330	372,448	1,834,263		
255	0				5.4	-	-5.4	-5.4		1,419.5	TP	0	0	372,438	1,834,593	↓	
256	330		83°13.2'	+7.7°	6.2	-	-6.2	-6.2		1,418.7	TP	-5	+330	372,433	1,834,923	woods + swamp	
256	330				4.6	BH	-1.7	-6.3			TP						
	330		263°6'±80°	+7.7°	+4.4	-	+4.4	+4.4	1,423.1		BS	-5	+330				
	330				+6.1	TH	-1.7	+4.4			BS						
257	0				5.4	-	-5.4	-5.4		1,417.7	TP	0	0	372,428	1,835,253	horiz. correct. $\frac{y=0}{x=-64}$	
258	330		83°15.7'	+7.7°	5.1	-	-5.1	-5.1		1,418.0		-6	+330	372,422	1,835,583		
IF	476		83°15.7'	+7.7°	3.8	TH	+2.4	-1.4		1,421.7		-8	+476	372,420	1,835,729	T road elev. 1423'	
259	660		83°10.8'	+7.5°	1.0	TH	+3.3	+2.3		1,425.4	TP	-8	+660	372,420	1,835,913	dirt road	
259	660				1.2	89°42'	+3.5	+2.3			TP						
	660		262°34.6'±80°	+7.5°	+11.1	89°-	-11.5	-0.4	1,425.0		BS	-1	+660				
	660				+7.3	89°20'	-7.7	-0.4			BS						
260	330		262°34.6'	+7.5°	3.6	89°-	+5.8	+2.2		1,427.2		0	-330	372,419	1,836,243		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/2/79		G. Cotcamp		P. Turner		6834		Ransom, Turner		4		20			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Browerville Sw.		Minnesota		Todd		130N/129N		33w				L.D. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,425.0						
261	0				54	-		-5.4		1,419.6	T	0	0	372,419	1,836,573
262	330		82°37.8'	+7.5°	13.1	-		-13.1		1,411.9		-1	+330	372,418	1,836,922
263	660		82°37.8'	+7.5°	8.7	91°-	-11.5	-20.2		1,404.8	TP	-1	+660	372,418	1,837,233
263	660				14.5	90°30'	-5.8	-20.3			TP				
	1980	1978	261°58.3'-180°	+7.3°	+59	87°20'	-92.0	-86.1	1,318.7		BS	+25	+1978		
	1980				+11.6	87°10'	-97.8	-86.2			BS				
264	1650	1649	261°58.3'	+7.3°	29	87°30'	+71.9	+69.0		1,387.7		-21	-1649	372,422	1,837,562
265	1320	1319	" "	"	4.2	88°-	+46.0	+41.8		1,360.5		-17	-1319	372,426	1,837,892
266	990		" "	"	2.7	88°30'	+25.9	+23.2		1,341.9		-13	-990	372,430	1,838,221
267	660		" "	"	4.0	88°30'	+17.3	+13.3		1,332.0		-8	-660	372,435	1,838,551
268	330		" "	"	2.8	89°-	+5.8	+3.0		1,321.7		-4	-330	372,439	1,838,881
269	0				54	-		-5.4		1,313.3	T	0	0	372,443	1,839,211
270	330		81°54.8'	+7.3°	10.4	-		-10.4		1,308.3		+5	+330	372,448	1,839,541
271	660			"	4.3	-		-4.3		1,314.4		+9	+660	372,452	1,839,871
272	990			"	2.3	-		-2.3		1,316.4		+14	+990	372,457	1,840,201
273	1320		81°54.8'	+7.3°	2.9	-		-2.9		1,315.8	TP	+18	+1320	372,461	1,840,531
273	1320				9.5	TH	+6.6	-2.9			TP				
	2310		262°37.3'-180°	+7.3°	8.2	89°-	-40.3	-32.1			BS	+3	+2310		
	2310				+15.0	88°50'	-47.0	-32.0	1,283.8		BS				
274	1980		262°37.3'	+7.3°	3.5	89°20'	+23.0	+19.5		1,303.3		-3	-1980	372,461	1,840,861

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/2/79		G Cotcamp		R. Turner		6834		Ransom Turner		4	21				
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Browerville S.W. Browerville		Minnesota	Todd	130 N/129 N	33 W.		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1283.8						
275	1650		262° 37.3'	+7.3°	9.8	89° 20'	+19.2	+9.4		1,293.2		-2	-1650	372,462, 1,841,191	↑ Browerville SW
276	1320		" "	"	4.5	TH	+6.6	+2.1		1,285.9		-2	-1320	372,462, 1,841,521	↓ Browerville
277	990		" "	"	4.7	TH	+5.0	+0.3		1,284.1		-1	-990	372,463, 1,841,851	
278	660		" "	"	0.9	-		.9		1,282.9		-1	-660	372,463, 1,842,181	last sta on road
279	402		263° 41.8'	-7.3°	1.9	TH	+2.0	+ .1		1,283.9		+7	-402	372,471, 1,842,439	↑ intersect elev 1285
279	330		262° 37.3'	+7.3°	4.6	-		-4.6		1,279.2		0	-330	372,464, 1,842,511	(Rt # 71) in field
280	0				5.4	-		-5.4		1,278.4	π	0	0	372,464, 1,842,841	↓
281	330		82° 45.3'	+7.1°	6.8	-		-6.8		1,277.0		+1	+330	372,465, 1,843,171	↓
282	660		" "	"	7.8	-		-7.8		1,276.0		+2	+660	372,466, 1,843,501	swamp
283	990		" "	"	4.7	-		-4.7		1,279.1		+3	+990	372,467, 1,843,831	potato field
284	1320		" "	"	2.9	TH	+6.6	+3.7		1,287.5		+3	+1320	372,467, 1,844,161	↓
285	1650		" "	"	3.6	TH	+8.3	+4.7		1,288.5		+4	+1650	372,468, 1,844,491	↓
286	1980		" "	"	12.1	89° 30'	+17.3	+5.2		1,289.0		+5	+1980	372,469, 1,844,821	
287	2310		82° 45.3'	-7.1°	10.1	89° 40'	+13.4	+3.3		1,287.1	TP	+6	+2310+2	372,470, 1,845,153	
287	2310				14.2	89° 34'	+17.5	+3.3			TP				
	330		262° 49.3' - 160°	+7.1°	+4.7	-		+4.7	1,291.8		BS	0	+330 +2		
	330				+6.4	TH	-1.7	+4.7			BS				
288	0				5.4	-		-5.4		1,286.4	π	0	0	372,470, 1,845,485	in woods, fence
289	330		88° 35'	+7.1°	7.1	92° -	-11.5	-18.6		1,273.2	TP	-33	+328+2	372,437, 1,845,815	swamp
289	230				5.2	92° 20'	-13.4	-18.6			TP				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/2/79	INSTRUMENT MAN G. Catecamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 22
AREA Minnesota	TOPO MAP Browerville	STATE Minnesota	COUNTY Todd	TWP 130N/129N	RANGE 33 W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
289									1291.8					
	99		241°17'-180°	+7.1°	+8.0	-		+8.0			BS	+36	+92.2	
	99				+8.5	TH	-0.5	+8.0	1281.2		BS			
π	0				5.4	-		-5.4		1275.8	π	0	0	372,473 1,845,909 split sta. due to
290	231		81°45.6'	+7.1°	5.0	87°-	+12.1	+7.1		1288.3	TP	+5	+231+2	372,478 1,846,142 brush + swamp
290	231				6.3	86°40'	+13.4	+7.1			TP			in field
	660		263°32.5'-180°	+7.1°	+4.2	91°20'	+15.4	+19.6			BS	-7	+660+2	
	660				+2.4	91°30'	+17.3	+19.7	1308.0		BS			
291	330		263°32.5'	+7.1°	4.8	-		-14.8		1293.2		+4	-330	372,475 1,846,474 v
292	0				5.4	-		-5.4		1302.6	π	0	0	372,471 1,846,804 barn yard
293	330		81°9'	+7.1°	11.6	87°20'	+15.3	+3.7		1311.7	TP	+10	+330+2	372,481 1,847,136 farm trail
293	330				10.7	87°30'	+14.4	+3.7			TP			
	2310		262°86'-180°	+7.1°	+6.4	BH	+11.6	+18.0	1329.7		BS	+31	+2310	
	2310				+13.9	90°6'	+4.0	+17.9			BS			
294	1980		262°86'	+7.1°	7.8	BH	-9.9	-17.7		1312.0		-26	-1980	372,486 1,847,466 372,505+1,847,585(S)
π	1865		262°36.6'	+7.1°	11.8	BH	-9.3	-21.1		1308.6		-9	-1865	372,503 1,847,581 4-way Intersect. 1310'
295	1650		262°86'	+7.1°	9.1	90°40'	-19.2	-28.3		1301.4		-22	-1650	372,490 1,847,796
296	1320		"	"	9.9	91°-	-23.0	-32.9		1296.8		-17	-1320	372,495 1,848,126
297	990		"	"	7.2	91°-	-17.3	-24.5		1305.2		-13	-990	372,499 1,848,456
298	660		"	"	14.0	-		-14.0		1315.7		-9	-660	372,503 1,848,786
299	330		"	"	7.7	-		-7.7		1322.0		-4	-330	372,508 1,849,116

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/5/79		G. Cotcamp		P. Turner		6884		Ransom Turner		4	23					
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		BROWERVILLE	Minnesota	Todd	130N/129W	33W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1329.7							
300	0				54	-		-5.4		1,324.3	π	0	0	372,512	1,849,446	
301	330		82° 9.6'	+7.1°	3.6	-		-3.6		1,326.1		+4	+330	372,516	1,849,776	
302	660		" "	"	2.2	-		-2.2		1,327.5		+9	+660	372,521	1,850,106	
303	990		" "	"	3.1	-		-3.1		1,326.6		+13	+990	372,525	1,850,436	
304	1320		" "	"	6.7	-		-6.7		1,323.0		+17	+1320	372,529	1,850,766	
305	1650		" "	"	8.8	-		-8.8		1,320.9		+21	+1650	372,533	1,851,096	
306	1980		82° 9.6'	+7.1°	9.9	-		-9.9		1,319.8	TP	+26	+1980	372,538	1,851,426	
306	1980				14.6	49° 52'	+4.6	-10.0			TP					
	2310		262° 48.6' -180°	+7.1°	+12.6	-		+12.6	1,332.4		BS	+4	+2310			
	2310				+1.0	BH	+11.6	+12.6			BS					
307	1980		262° 48.6'	+7.1°	8.0	BH	-9.9	-17.9		1,314.5		-3	-1980	372,539	1,851,756	
308	1650		" "	"	13.6	90° 20'	-9.6	-23.2		1,309.2		-3	-1650	372,539	1,852,086	
309	1320		" "	"	11.1	90° 30'	-11.5	-22.6		1,309.8		-2	-1320	372,540	1,852,416	
310	990		" "	"	15.0	90° 30'	-8.6	-23.6		1,308.8		-2	-990	372,540	1,852,746	
311	660		" "	"	10.4	90° 30'	-5.8	-16.2		1,316.2		-1	-660	372,541	1,853,076	
312	330		" "	"	6.1	-		-6.1		1,326.3		-1	-330	372,541	1,853,406	
313	0				5.4	-		-5.4		1,327.0	π	0	0	372,542	1,853,736	
314	330		82° 54.4'	+7.3°	11.8	-		-11.8		1,320.6		-1	+330	372,541	1,854,066	
315	660		" "	"	12.0	BH	-3.3	-15.3		1,317.1		-2	+660	372,540	1,854,396	
316	990		" "	"	11.8	BH	-5.0	-16.8		1,315.6		-4	+990	372,538	1,854,726	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/5/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	24						
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Browerville	Minnesota	Todd	130N/129W	33W		L. O. Davis									
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1332.4								
317	1320		82° 54.1'	+7.3°	10.2	BH	-6.6	-16.8		1,315.6		-5	+1320	372,537	1,855,056		
318	1650		"	"	8.2	BH	-8.3	-16.5		1,315.9		-6	+1650	372,536	1,855,386		
319	1980		"	"	5.0	BH	-9.9	-14.9		1,317.5		-7	+1980	372,535	1,855,716		
320	2310		82° 54.1'	+7.3°	3.3	BH	-11.6	-14.9			TP	-8	+2310	372,534	1,856,046		
320	2310				14.8	-		-14.8		1,317.6	TP						
	1980		262° 26.2' - 180°	+7.3°	+12.4	-		+12.4	1,330.0		BS	+9	+1980				
	1980				+2.5	BH	+9.9	+12.4			BS						
321	1650		262° 26.2'	+7.3°	13.2	BH	-8.3	-21.5		1,308.5		-8	-1650	372,535	1,856,376		
322	1320		"	"	6.7	91°-	-23.0	-29.7		1,300.3		-6	-1320	372,537	1,856,706	372,550 + 1,856,835	
322	1180		262° 46.3'	+7.3°	7.9	91°-	-20.6	-28.5		1,301.5		+1	-1180	372,544	1,856,846	4-Way Intersect. 1302'	
323	990		262° 26.2'	+7.3°	6.7	91°-	-17.3	-24.0		1,306.0		-5	-990	372,538	1,857,036		
324	660		"	"	13.1	-		-13.1		1,316.9		-3	-660	372,540	1,857,366		
325	330		"	"	8.9	-		-8.9		1,321.1		-2	-330	372,541	1,857,696		
326	0		"	"	5.4	-		-5.4		1,324.6	TP	0	0	372,543	1,858,026		
327	330		82° 8.8'	+7.3°	6.1	-		-6.1		1,323.9		+3	+330	372,546	1,858,356		
328	660		"	"	9.2	-		-9.2		1,320.8		+6	+660	372,549	1,858,686		
329	990		"	"	11.4	-		-11.4		1,318.6		+10	+990	372,553	1,859,016		
330	1320		"	"	11.5	-		-11.5		1,318.5		+13	+1320	372,556	1,859,346		
331	1650		"	"	8.9	-		-8.9		1,321.1		+16	+1650	372,559	1,859,676		
332	1980		"	"	3.7	-		-3.7		1,326.3		+19	+1980	372,562	1,860,006		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/5/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 25
AREA Minnesota	TOPO MAP Browerville	STATE Minnesota	COUNTY Todd	TWP 130N/129N	RANGE 33W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH +	EAST +	COORDINATES		REMARKS
												SOUTH -	WEST -	Y	X	
												LAT.	DEP.			
									1330.0							
333	2310		82° 8.8'	+7.3°	7.4	TH	+11.6	+4.2		1,334.2		+22	+2310	372,565	1,860,336	
334	2640		82° 8.8'	+7.3°	7.1	TH	+13.2	+6.1		1,336.1	TP	+25	+2640	372,568	1,860,666	
334	2640				6.3	89° 44'	+12.3	+6.0			TP					
	2310		262° 37.1' -180°	+7.3°	+5.6	TH	-11.6	-6.0	(5.9)		BS	+3	+2310			
	2310				+4.9	89° 44'	-10.7	-5.8	1330.2		BS					
335	1980		262° 37.1'	+7.3°	7.8	TH	+9.9	+2.1		1,332.3		-3	-1980	372,568	1,860,996	
336	1650		" "	"	2.8	-	-	-2.8		1,327.4		-2	-1650	372,569	1,861,326	
337	1320		" "	"	4.6	-	-	-4.6		1,325.6		-2	-1320	372,569	1,861,656	
338	990		" "	"	3.5	-	-	-3.5		1,326.7		-1	-990	372,570	1,861,986	
TF	832		263° 25'	+7.3°	2.6	-	-	-2.6		1,327.6		+10	-832	372,581	1,862,144	372,565 + 1,862,130. Trd(south) elev. 1328
339	660		262° 37.1'	+7.3°	2.8	-	-	-2.8		1,327.4		-1	-660	372,570	1,862,316	
340	330		" "	"	3.4	-	-	-3.4		1,326.8		0	-330	372,571	1,862,646	
341	0				5.4	-	-	-5.4		1,324.8	π	0	0	372,571	1,862,976	
342	330		82° 35'	+7.1°	8.7	-	-	-8.7		1,321.5		+2	+330	372,573	1,863,306	
343	660		" "	"	9.2	-	-	-9.2		1,321.0		+4	+660	372,575	1,863,636	
344	990		" "	"	6.4	-	-	-6.4		1,323.8		+5	+990	372,576	1,863,966	
345	1320		" "	"	3.9	-	-	-3.9		1,326.3		+7	+1320	372,578	1,864,296	
346	1650		" "	"	6.1	-	-	-6.1		1,324.1		+9	+1650	372,580	1,864,626	
347	1980		" "	"	9.8	-	-	-9.8		1,320.4		+11	+1980	372,582	1,864,956	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.		PAGE		
7/5/79		G. Cotcamp		R. Turner		6834		Ransom Turner			4		26		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Browerville		Minnesota		Todd		130 N. / 129 N.		33 W. / 32 W.				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1330.2						
348	2310		82°58'	+7.1°	7.9	-	-7.9		1,322.3	TP	-3	+2310	372,568	1,865,286	
348	2310				14.7	89°50'	+6.7	-8.0			TP				
	1320		263°37.5' - 180°	+7.1°	+8.7	BH	+6.6	+15.3	1,337.6		BS	-17	+1320		
	1320				+14.5	90°2'	+0.8	+15.3			BS				
349	990		263°37.5'	+7.1°	10.8	-	-10.8		1,326.8		+13	-990	372,564	1,865,616	
350	660		" "	"	10.7	-	-10.7		1,326.9		+8	-660	372,559	1,865,946	
351	330		" "	"	8.8	-	-8.8		1,328.8		+4	-330	372,555	1,866,276	
352	0				5.4	-	-5.4		1,332.2	TP	0	0	372,551	1,866,606	
353	330		83°31'	+7.1°	5.6	-	-5.6		1,332.0		-4	+330	372,547	1,866,936	horiz. correct. y=0', x=+14'
354	660		" "	"	10.9	-	-10.9		1,326.7		-7	+660	372,544	1,867,266	
IF	839		82°34'	+7.1°	12.5	-	-12.5		1,325.1		+5	+839	372,556	1,867,445	372,560+1,867,445(S) 4-way intersection 1326
355	990		83°31'	+7.3°	11.8	-	-11.8		1,325.8	TP	-14	+990-2	372,537	1,867,594	
355	990				6.8	BH	-5.0	-11.8			TP				
	1650		263°38' - 180°	+7.3°	+9.4	BH	+8.3	+17.7	1,343.5		BS	-27	+1650-2		
	1650				+14.8	90°6'	+2.9	+17.7			BS				
356	1320		263°38'	+7.3°	9.8	BH	-6.6	-16.4		1,327.1		+22	-1320	372,532	1,867,922
357	990		" "	"	13.1	BH	-5.0	-18.1		1,325.4		+16	-990	372,526	1,868,252
358	660		" "	"	8.5	91°	-11.5	-20.0		1,323.5		+11	-660	372,521	1,868,582
359	330		" "	"	11.7	-	-11.7		1,331.8		+5	-330	372,515	1,868,912	
360	0				5.4	-	-5.4		1,338.1	TP	0	0	372,510	1,869,242	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/6/79	INSTRUMENT MAN G Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6839	NOTES CHECKED BY Ransom Turner	LINE NO. 4	PAGE 27
AREA Minnesota	TOPO MAP Browerville/Cushing 15'	STATE Minnesota	COUNTY Todd	TWP 130N/129N	RANGE 32 W.	PPM
					PARTY MANAGER L.O. Davis	

STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,343.5						
361	330		83°21'	+7.3°	10.5	-		-10.5		1,333.0		-4	+330	372,506	1,869,572
362	660		" "	"	9.3	91°-	-11.5	-20.8		1,322.7		-7	+660	372,503	1,869,902
363	990		" "	"	6.6	91°-	-17.3	-23.9		1,319.6		-11	+990	372,499	1,870,232
364	1320		" "	"	14.2	84	-6.6	-20.8		1,322.7		-15	+1320	372,495	1,870,562
365	1650		" "	"	11.5	84	-8.3	-19.8		1,323.7		-19	+1650	372,491	1,870,892
BM	1930		81°39.5'	+7.3°	12.5	84	-9.7	-22.2		1,321.3		+35	+1930	372,545	1,871,172
366	1980		83°21'	+7.3°	9.7	84	-9.9	-19.6		1,323.9	TP	-22	+1980-2	372,488	1,871,220
366	1980				15.0	90°8'	-4.6	-19.6			TP				
	2640		262°59.7'-180°	+7.3°	11.34	90°20'	+15.4	+28.8	1,352.7		BS	-14	+2640-2		
	2640				+10.3	90°24'	+18.4	+28.7			BS				
367	2310		262°59.7'	+7.3°	9.1	90°30'	-20.2	-29.3		1,323.4		+12	-2310	372,486	1,871,548
368	1980		" "	"	11.1	90°30'	-17.3	-28.4		1,324.3		+10	-1980	372,484	1,871,878
369	1650		" "	"	11.2	90°40'	-19.2	-30.4		1,322.3		+8	-1650	372,482	1,872,208
DL	1365		263°114'	+7.3°	11.4	90°50'	-19.8	-31.2		1,321.5		+12	-1365	372,485	1,872,493
370	1320		262°59.7'	+7.3°	8.4	91°-	-23.0	-31.4		1,321.3		+7	-1320	372,481	1,872,538
371	990		" "	"	7.1	91°-	-17.3	-24.4		1,328.3		+5	-990	372,479	1,872,868
372	660		" "	"	9.2	91°-	-11.5	-20.7		1,332.0		+3	-660	372,477	1,873,198
373	330		" "	"	12.0	91°-	-5.8	-17.8		1,334.9		+2	-330	372,476	1,873,528
374	0				5.4	-		-5.4		1,347.3	TP	0	0	372,474	1,873,858
375	330		83°23'	+7.3°	0.9	TH	+1.7	+0.8		1,353.5		-4	+330	372,470	1,874,188

el 1321.8
BM 115 DRL 1965 USGS

last sta. on pavement

d. r. road
372,475 + 1,872,485(s)
T-rd. v. (north)

↑

Browerville Quad.

Cushing 15'

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SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/6/79		G. Cotcamp		R. Turner		6834		Ransom Turner		4	28					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Cushing 15'		Minnesota	Todd		130N/129W	32 W.		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1,352.7							
376	660		83°23'	+7.3°	8.6	89°30'	+5.8	-2.8		1,349.9		-8	+660	372,466	1,874,518	
377	990		" "	"	5.8	89°30'	+8.6	+2.8		1,355.5		-12	+990	372,462	1,874,848	
378	1320		" "	"	10.8	88°30'	+34.5	+23.7		1,376.4		-16	+1320	372,458	1,875,178	
379	1650	1649	83°23'	+7.3°	3.4	88°30'	+43.2	+39.8		1,392.5	TP	-20	+1649-2	372,454	1,875,505	
379	1650				5.3	88°26'	+45.1	+39.8			TP					
	1650		263°2'-180°	+7.3°	+10.7	TH	-8.3	+2.4	(2.5)		BS	-10	+1650-2			
	1650				+10.3	89°44'	-7.7	+2.6	1,395.0		BS					
380	1320		263°2'	+7.3°	12.3	TH	+6.6	-5.7		1,389.3		+8	-1320	372,452	1,875,833	
381	990		" "	"	4.0	TH	+5.0	+1.0		1,396.0		+6	-990	372,450	1,876,163	
382	660		" "	"	13.8	-		-13.8		1,381.2		+4	-660	372,448	1,876,493	
383	330		" "	"	14.7	91°-	-5.8	-20.5		1,374.5		+2	-330	372,446	1,876,823	
384	0		" "	"	5.4	-		-5.4		1,389.6	TP	0	0	372,444	1,877,153	
385	330		83°12.7'	+7.3°	12.7	89°-	+5.8	-6.9		1,388.1	TP	-3	+330-2	372,441	1,877,481	
385	330		" "	"	9.8	89°30'	+2.9	-6.9			TP					
	990	989	262°38'-180°	+7.3°	+4.4	88°-	-34.5	-30.1	1,358.0		BS	+1	+989-2			
	990		" "	"	+3.2	88°4'	-33.4	-30.2			BS					
385	720		263°7'	+7.3°	8.5	89°-	+12.6	+4.1		1,362.1		+5	-720	372,447	1,877,748	372,440+1,877,753(S) Tad(north)
386	660		262°38'	+7.3°	0.5	-		-0.5		1,357.5		-1	-660	372,441	1,877,808	
387	330		" "	"	8.6	-		-8.6		1,349.4		0	-330	372,442	1,878,138	
388	0		" "	"	5.4	-		-5.4		1,352.6	TP	0	0	372,442	1,878,468	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/6/79		G. Catcamp		R. Turner		6834		Ransom Turner		4	29						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Cushing's		Minnesota	Todd	130N./129N	32 W.		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,358.0								
389	330	329	82°37.4'	+7.0°	13.8	93°-	-17.2	-31.0		1,327.0		+2	+330	372,444	1,878,798		
390	660	659	" "	"	11.3	92°-	-23.0	-34.3		1,323.7		+4	+659	372,446	1,879,127		
391	990	989	82°37.4'	+7.0°	14.5	92°52'	-49.5	-64.0			TP	+7	+989	372,449	1,879,457		
391	990				13.9	92°54'	-50.0	-63.9		1,294.1	TP						
	1320	1319	262°21.3'-180°	+7.0°	+12.9	87°-	-69.0	-56.1	1,238.0		BS	+15	+1319				
	1320	1			+5.2	87°20'	-61.3	-56.1			BS						
392	990	989	262°21.3'	+7.0°	11.7	87°-	+51.7	+40.0		1,278.0		-11	-989	372,453	1,879,787		
393	660	659	" "	+7.0°	10.8	88°-	+23.0	+12.2		1,250.2		-7	-659	372,457	1,880,117		
394	330		" "	"	3.8	-	-	-3.8		1,234.2		-4	-330	372,644	1,880,446		
395	0				5.4	-	-	-5.4		1,232.6	TP	0	0	372,464	1,880,776		
396	330		83°15'	+7.0°	4.7	-	-	-4.7		1,233.3		-2	+330	372,462	1,881,106		
397	660	659	" "	"	6.5	88°-	+23.0	+16.5		1,254.5		-3	-659	372,461	1,881,435		
398	990		83°16'	+7.0°	14.2	88°26'	+27.1	+12.9		1,250.9	TP	-5	+990	372,459	1,881,766		
398	990				13.1	88°30'	+25.9	+12.8			TP						
	208		262°30.3'-180°	+7.0°	+12.6	91°-	+3.6	+16.2	1,267.1		BS	+2	+208				
	208				+14.4	90°30'	+1.8	+16.2			BS						
TP	0				5.4	-	-	-5.4		1,261.7	TP	0	0	372,461	1,881,974	split sta - steep hill	
399	122		83°42.6'	+7.0°	12.5	91°-	-2.1	-14.6		1,252.5		-2	+122	372,459	1,882,096		
400	452		83°42.6'	+7.0°	10.5	92°-	-15.8	-26.7	-26.5	1240.6	TP	-6	+452	372,455	1,882,426		
400	452				13.2	91°40'	-13.1	-26.3			TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/6/79		G. Catcamp		R Turner		6834		Ransom Turner		4	30						
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER					
Minnesota		Cushing 15		Minnesota		Todd		130N/129N		32W/31W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
400									1,267.1								
	1507		262°54.4'-180°	+7.0°	+9.0	-		+9.0	1,249.6		BS	+2	+1507				
	1507				+1.5	BH	+7.5	+9.0			BS						
401	1177		262°54.4'	+7.0°	8.8	91°-	-20.5	-29.3		1,220.3		-2	-1177	372,455	1,882,756		
7F	908		263°21'	+7.0°	10.5	91°-	-15.8	-26.3		1,223.3		+6	-908	372,463	1,883,025	372,465+1,883,033(S) T-rd (south)	
402	847		262°54.4'	+7.0°	14.1	91°-	-14.8	-28.9		1,220.7		-1	-847	372,456	1,883,086		
403	517		"	"	13.0	92°20'	-21.0	-34.0		1,215.6		-1	-517	372,456	1,883,416		
404	187		"	"	13.9	92°20'	-7.6	-21.5		1,228.1		0	-187	372,457	1,883,746		
π	0				5.4	-		-5.4		1,244.2	π	0	0	372,457	1,883,933		
405	143		82°8'	+7.0°	13.2	91°-	-2.5	-15.7		1,233.9		+2	+143	372,459	1,884,076		
406	473		82°8'	+7.0°	7.0	92°-	-16.5	-23.5		1,226.1	TP	+7	+473-3	372,464	1,884,403		
406	473				5.6	92°10'	-17.9	-23.5			TP						
	1980	1979	262°49.1'-180°	+7.0°	+6.2	91°24'	+48.4	+54.6	1,280.7		BS	+6	+1979-2				
	1980				+10.8	91°16'	+43.8	+54.6			BS						
407	1650	1649	262°49.1'	+7.0°	8.1	91°30'	-43.2	-51.3		1,229.4		-5	-1649	372,465	1,884,731		
408	1320		"	"	10.0	91°30'	-34.5	-44.5		1,236.2		-4	-1320	372,466	1,885,060	horiz. correct. y=0 x=21	
409	990		"	"	13.4	91°-	-17.3	-30.7		1,250.0		-3	-990	372,467	1,885,390	372,470+1,885,656(S)	
JL	725		263°35'	+7.0°	15.0	91°-	-12.7	-27.7		1,253.0		+7	-725	372,477	1,885,655	T-rd (north) elev. 1253'	
410	660		262°49.1'	+7.0°	8.6	91°30'	-17.3	-25.9		1,254.8		-2	-660	372,468	1,885,720		
411	330		"	"	14.5	-		-14.5		1,266.2		-1	-330	372,469	1,886,050		
412	0				5.4	-		-5.4		1,275.3	π	0	0	372,470	1,886,380		

