

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc. CLIENT-COCORP

DATE 8/1/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 5	PAGE 1 of 20
AREA MINNESOTA	TOPO MAP Sedan 7 1/2	STATE Minnesota	COUNTY Pope	TWP 124 N.	RANGE 36 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.	
				8°27'						1318.0				204,475, 1,755,900 → scaled
	910		262°46.2'-180°	+8.4°	+14.0	91°0'	+15.9	+29.9	1,347.9		BS	-17	+910 +5	Y-intersect. w/ 1318R (RT #55)
	910				+11.4	91°10'	+18.5	+29.9			BS			
#	730		263°7'	+8.4°	12.7	91°20'	-17.0	-29.7		1,318.2		+19	-730	204,475, 1,755,585 railroad
1	660		261°55'	+8.4°	13.4	91°30'	-17.3	-30.7		1,317.2		+4	-660	204,460, 1,755,655 ✓
2	330		" "	"	10.6	-		-10.6		1,337.3		+2	-330	204,458, 1,755,985
3	0				5.4	-		-5.4		1,342.5	π	0	0	204,456, 1,756,315
4	330		82°26'	+8.4°	9.0	-		-9.0		1,338.9		-5	+330	204,451, 1,756,645
5	660		" "	"	10.4	-		-10.4		1,337.5		-10	+660	204,446, 1,756,975
6	990		" "	"	7.9	-		-7.9		1,340.0		-14	+990	204,442, 1,757,305
7	1320		" "	"	7.4	-		-7.4		1,340.5		-19	+1320	204,437, 1,757,635
8	1650		82°26'	+8.4°	4.2	-		-4.2		1,343.7	f	-24	+1650.5	204,432, 1,757,970
8	1650				12.5	BH	+8.3	-4.2			f			
	1650		262°54.1'-180°	+8.4°	+13.2	-		+13.2	1,356.9		BS	-37	+1650.5	
	1650				+4.9	BH	+8.3	+13.2			BS			
9	1320		262°54.1'	+8.4°	9.6	BH	-6.6	-16.2		1,340.7		+30	-1320	204,425, 1,758,305
JL TL	1255		263°26'	+8.4°	11.1	BH	-6.3	-17.4		1,339.5		+40	-1254	204,435, 1,758,371 A-Way Intersect (clay) 1339
10	990		262°54.1'	+8.4°	14.0	90°20'	-5.8	-19.8		1,337.1		+22	-990	204,417, 1,758,635
11	660		" "	"	11.8	BH	-3.3	-15.1		1,341.8	●	+15	-660	204,410, 1,758,965 ✓
12	330		" "	"	13.1	-		-13.1		1,343.8		+7	-330	204,402, 1,759,295
13	0				5.4	-		-5.4		1,351.5	π	0	0	204,395, 1,759,625

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EO-445

Geosource Inc.

DATE 8/1/79	INSTRUMENT MAN S. Cotcamp	ROD MAN G. Turner	PARTY NUMBER 1834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 5	PAGE 2
AREA Minnesota	TOPO MAP Cedar	STATE Minnesota	COUNTY Cora	TWP 124 N.	RANGE 36 W.	PPM
				PARTY MANAGER 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 X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1,356.9					
14	330		83° 50'	+8.0°	9.4	-		-9.4		1,347.5		-6	+330	204,389, 1,759,955
15	660		"	"	9.2	-		-9.2		1,347.7		-13	+660	204,382, 1,760,285
16	990		"	"	9.1	-		-9.1		1,347.8		-19	+990	204,376, 1,760,615
17	1320		"	"	12.8	-		-12.8		1,344.1		-25	+1320	204,370, 1,760,945
18	1650		"	"	6.3	BH	-8.3	-14.6		1,342.3		-32	+1650	204,363, 1,761,275
19	1980		83° 5.8'	+8.0°	14.0	-		-14.0		1,342.9	TP	-38	+1980.6	204,357, 1,761,611
20	2310		263° 5' - 180°	+8.0°	+11.6	BH	+11.6	+23.2			BS	-44	+2310.5	
	2310				+13.7	90° 14'	+9.4	+23.1	1,366.0		BS			
20	1980		263° 5'	+8.0°	14.3	BH	-9.9	-24.2		1,341.8		+37	-1980	204,350, 1,761,946
21	1650		"	"	13.8	90° 20'	-9.6	-23.4		1,342.6		+31	-1650	204,344, 1,762,276
22	1320		"	"	11.0	BH	-6.6	-17.6		1,348.4		+25	-1320	204,338, 1,762,606
23	990		"	"	13.2	-		-13.2		1,352.8		+19	-990	204,332, 1,762,936
24	660		"	"	11.7	-		-11.7		1,354.3		+12	-660	204,325, 1,763,266
25	330		"	"	12.4	-		-12.4		1,353.6		+6	-330	204,319, 1,763,596
25	260		263° 44'	+8.0°	11.2	-		-11.2		1,354.8		+8	-260	204,321, 1,763,666
26	0				5.4	-		-5.4		1,360.6	π	0	0	204,313, 1,763,926
27	330		82° 12.7'	+7.7°	6.2	-		-6.2		1,359.8		+1	+330	204,314, 1,764,256
28	660		"	"	12.9	-		-12.9		1,353.1		+1	+660	204,314, 1,764,586
29	990		"	"	11.2	-		-11.2		1,354.8		+2	+990	204,315, 1,764,916

204,330 + 1,763,675 (s)
A-Way Intersect (60) 1353

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GEO-445

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DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE		
8/1/79		G. Catcamp		F. Turner		1834		RANSOM TURNER		5		3		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		
Minnesota		Sedan		Minnesota		Pope		124N		36W		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 X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1366.0					
30	1320		82°12.7'	+7.7°	5.3	-		-5.3		1360.7		+2	+1320	204,315, 1,765,246
31	1650		" "	"	7.4	TH	+8.3	+0.9		1366.9		+3	+1650	204,316, 1,765,576 ✓
32	1980		82°12.7'	+7.7°	5.8	89°50'	+5.8	0.0		1366.0	TP	+3	+1980+5	204,316, 1,765,911
32	1980				15.0	89°34'	+15.0	0.0			TP			
	2640		263°12.1' -180°	+7.7°	+5.0	89°36'	-18.4	-13.4			BS	-41	+2690+5	
	2640				+14.1	89°24'	-27.6	-13.5	1352.5		BS			
33	2310		263°12.1'	+7.7°	1.5	TH	+11.6	+10.1		1362.6		+36	-2310	204,311, 1,766,246
34	1980		" "	"	2.3	TH	+9.9	+7.6		1360.1		+31	-1980	204,306, 1,766,576
35	1650		" "	"	2.1	TH	+8.3	+5.2		1357.7		+26	-1650	204,301, 1,766,906
36	1320		" "	"	3.8	TH	+6.6	+2.8		1355.3		+21	-1320	204,296, 1,767,236
37	990		" "	"	2.5	-		-0.2		1352.3		+16	-990	204,291, 1,767,566
38	660		" "	"	1.4	-		-1.4		1351.1		+10	-660	204,285, 1,767,896
39	330		" "	"	3.1	-		-3.1		1349.4		+5	-330	204,280, 1,768,226
40	0		" "	"	5.4	-		-5.4		1347.1	TP	0	0	204,275, 1,768,556
41	330		83°16'	+7.7°	8.5	-		-8.5		1344.0		-6	+330	204,269, 1,768,886 ✓
41	442		82°19'	+7.7°	8.4	-		-8.4		1344.1		0	+442	204,275, 1,768,998 4-Way Intersect (ep) 1344'
42	550		83°16'	+7.7°	10.2	-		-10.2		1342.3		-11	+660	204,264, 1,769,216
43	000		" "	"	12.5	-		-12.5		1340.0		-17	+990	204,258, 1,769,546
44	1320		" "	"	9.5	BH	-6.6	-16.1		1336.4		-22	+1320	204,253, 1,769,876
45	1650		" "	"	10.0	BH	-8.3	-18.3		1334.2		-28	+1650	204,247, 1,770,206

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
8/1/79		S. J. ...		B. ...		124 N		RANSOM ...			7						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		...		Minnesota	Lyon/Stearns		124 N	36 W / 35 W		...							
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		
									1,352.5								
46	1980		83°16'	+7.7°	7.5	BH	-9.9	-17.4			+	-33	+1980+5	204,242	1,770,541		
46	1980				15.0	90°4'	-2.3	-17.3		1,335.2	+						
	1980		262°56.7'-180°	+7.7°	10.7	-		+10.7			+	-22	+1980+5				
	1980				11.3	89°54'	-3.5	+10.8		1,346.0	+						
47	1650		262°56.7'	+7.7°	10.2	-		-10.2		1,335.8		+19	-1650	204,239	1,770,876		
48	1320		"	"	6.3	-		-6.3		1,339.7		+15	-1320	204,235	1,771,206		
49	990		"	"	6.0	-		-6.0		1,340.0		+11	-990	204,231	1,771,536		
50	660		"	"	7.6	-		-7.6		1,338.4		+7	-660	204,227	1,771,866		
51	330		"	"	7.1	-		-7.1		1,338.9		+4	-330	204,224	1,772,196	✓	
52	0		"	"	5.4	-		-5.4		1,340.6	π	0	0	204,220	1,772,526		
53	330		83°16.1'	+7.7°	10.9	-		-10.9		1,335.1		-6	+330	204,214	1,772,856		
54	660		"	"	14.1	BH	-3.3	-17.4		1,328.6		-11	+660	204,209	1,773,186		
55	990		"	"	10.7	BH	-5.0	-15.7		1,330.3		-17	+990	204,203	1,773,516		
56	1320		"	"	11.9	-		-11.9		1,334.1		-22	+1320	204,198	1,773,846	horiz. correct. y=0' x=+46'	
57	1650		"	"	14.0	-		-14.0		1,332.0		-28	+1650	204,192	1,774,176	Pope Co. 204,190+1,774,300's 4-way Intersect (elev) 1332'	
TL TF	1775		83°16'	+7.7°	14.5	-		-14.5		1,331.5		-30	+1775	204,190	1,774,301		
58	1980		83°16.1'	+7.7°	14.0	-		-14.0		1,332.0	TP	-33	+1980-2	204,187	1,774,504	Stearns Co.	
58	1980				4.1	BH	-9.9	-14.0			TP					↓	
	1650		262°37.3'-180°	+7.7°	+6.2	-		+6.2			BS	-10	+1650-2				
	1650				+14.5	TH	-8.3	+6.3		1,338.3	BS						

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE 8/2/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 5	PAGE 5
AREA Minnesota	TOPO MAP Sedar/Pedva 76	STATE Minnesota	COUNTY Stearns	TWP 124 N.	RANGE 35 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.		Y
									1,338.3						
59	1320		262°37.8'	+7.7°	8.8	-		-8.8		1,329.5		+8	-1320	204,185	1,774,832
60	990		"	"	12.1	-		-12.1		1,326.2		+6	-990	204,183	1,775,162
61	660		"	"	12.8	-		-12.8		1,325.5		+4	-660	204,181	1,775,492 ✓ 1-
62	330		"	"	9.7	-		-9.7		1,328.6		+2	-330	204,179	1,775,822 Sedar road.
63	0				5.4	-		-5.4		1,332.9	TP	0	0	204,177	1,776,152 Sedar road.
64	330		82°50.7'	+7.7°	7.2	-		-7.2		1,331.1		-3	+330	204,174	1,776,482 ✓
65	660		"	"	9.5	-		-9.5		1,328.8		-6	+660	204,171	1,776,812
66	990		"	"	10.4	-		-10.4		1,327.9		-9	+990	204,168	1,777,142
67	1320		82°50.7'	+7.7°	14.4	-		-14.4		1,323.9	TP	-13	+1320-2	204,164	1,777,470
67	1320				7.8	BH	-6.6	-14.4			TP				
	1320		262°32'-180°	+7.7°	+3.3	-		+3.3	1,327.2		BS	-5	+1320-2		
	1320				+9.9	TH	-6.6	+3.3			BS				
68	990		262°32'	+7.7°	9.2	90°40'	-11.5	-20.7		1,306.5		+4	-990	204,163	1,777,798
69	660		"	"	12.4	91°20'	-15.4	-27.8		1,299.4		+3	-660	204,162	1,778,128
70	330		"	"	11.2	-		-11.2		1,316.0		+1	-330	204,160	1,778,458
71	0				5.4	-		-5.4		1,321.8	TP	0	0	204,159	1,778,788
72	330		82°57.6'	+7.7°	7.7	-		-7.7		1,319.5		-4	+330	204,155	1,779,118
TP	638		82°10'	+7.7°	10.8	-		-10.8		1,316.4		+1	+638	204,160	1,779,426 204,160+1,779,405(s) 4-Way Intersect (elev) 1317
73	660		82°57.6'	+7.7°	12.3	-		-12.3		1,314.9		-8	+660	204,151	1,779,448

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE 8/2/79	INSTRUMENT MAN S. Co. camp	ROD MAN R. Turner	PARTY NUMBER 5024	NOTES CHECKED BY RANSOM TURNER	LINE NO. 5	PAGE 6
AREA Minnesota	TOPO MAP Padua	STATE Minnesota	COUNTY Murray	TWP 124 N	RANGE 35 W.	PPM

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.	
									1327.2					
74	990		82° 57.6'	+7.7°	3.2	90° 56'	-16.1	-29.3		1,297.9	TP	-11	+990-2	204,148, 1,779,776
74	990				14.3	90° 52'	-15.0	-29.3			TP			
	1320		262° 29.3' -180°	+7.7°	+8.9	-		+8.9	1,306.8		BS	-4	+1320-2	
	1320				+2.3	BH	+6.6	+8.9			BS			
75	990		262° 29.3'	+7.7°	12.0	BH	-5.0	-17.0		1,289.8		+3	-990	204,147, 1,780,104
76	660		" "	"	12.6	90° 30'	-5.8	-18.4		1,288.4		+2	-660	204,146, 1,780,434
77	330		" "	"	6.7	-		-6.7		1,300.1		+1	-330	204,145, 1,780,764
78	0				5.4	-		-5.4		1,301.4	TP	0	0	204,144, 1,781,094
79	330		82° 51'	+7.7°	1.2	TH	+1.7	+0.5		1,307.3		-3	+330	204,141, 1,781,424
80	660		" "	"	1.6	TH	+3.3	+1.7		1,308.5		-6	+660	204,138, 1,781,754
<u>±</u>	975		82° 14'	+7.7°	3.4	TH	+4.9	+1.5		1,308.3		+1	+975	204,145, 1,782,069
81	990		82° 51'	+7.7°	4.0	TH	+5.0	+1.0		1,307.8	TP	-10+2	+990-2	204,136, 1,782,082
81	990				4.9	89° 40'	+5.8	+0.9			TP			
	1650		299° 41' -180°	+7.7°	+14.6	89° 14'	-22.1	-7.6	1,300.2		BS	-1002+2	+1311-2	
	1650				+11.6	89° 20'	-19.2	-7.6			BS			
82	1320		299° 41'	+7.7°	6.1	89° 30'	+11.5	+5.4		1,305.6		+801	-1049	203,937, 1,782,342 in field
83	990		" "	"	2.5	89° 30'	+8.6	+6.1		1,306.3		+601	-787	203,737, 1,782,604
84	660		" "	"	1.9	89° 30'	+5.8	+3.9		1,304.1		+401	-524	203,537, 1,782,867
85	330		" "	"	2.4	-		-2.4		1,297.8		+200	-262	203,336, 1,783,129
86	0				5.4	-		-5.4		1,294.8	TP	0	0	203,136, 1,783,391 ↓

204,140 + 1,782,075(s)
T-rod (north) (elev) 1309

last sta. on road

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
8/2/79		G. L. Camp		R. Turner		6834		RANSOM TURNER		5		7			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM			
Minnesota		Foduo		Minnesota		Stearns		124 N.		35 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
									1300.2						
87	327		135° 21'	+7.7°	7.2	-	-7.2				TP	-261+2	+197-2	202,877 1,783,586	curve dirt road
87	327				8.7	TH	+1.6	-7.1		1,293.1	TP				↓
	660		291° 58.1' - 180°	+7.7°	+9.7	-	+9.7		1,302.8		BS	-327+2	+573-2		
	660				+13.0	TH	-3.3	+9.7			BS				
88	330		288° 37'	+7.7°	5.9	-	-5.9			1,296.9		+146	-296	202,698 1,783,861	
89	0				5.4	-	-5.4			1,297.4	X	0	0	202,552 1,784,157	
90	330		109° 22.1'	+7.7°	4.6	-	-4.6			1,298.2		-150	+294	202,402 1,784,451	
91	660		"	"	8.1	-	-8.1			1,294.7		-300	+588	202,252 1,784,745	
92	990		109° 22.1'	+7.7°	3.1	-	-3.1				TP	-451+2	+882-2	202,103 1,785,037	private trail
92	990				8.0	TH	+5.0	-3.0		1,299.8	TP				↓
	660		289° 37.4' - 180°	+7.7°	+5.0	-	+5.0		1,304.8		BS	-303+2	+586-2		
	660				18.3	TH	-3.3	+5.0			BS				
93	330		292° 7'	+7.7°	4.8	-	-4.8			1,300.0		+164	-286	201,966 1,785,335	
94	0				5.4	-	-5.4			1,299.4	X	0	0	201,802 1,785,621	
95	330		122° -	+7.7°	2.2	-	-2.2			1,302.6		-211	+254	201,591 1,785,875	
96	660		124° 4.8'	+7.7°	5.3	-	-5.3			1,299.5	TP	-440+2	+492-2	201,364 1,786,111	
96	660				8.6	TH	+3.3	-5.3			TP				
	660		307° 46.6' - 180°	+7.7°	+6.9	89° 56'	-0.8	+6.1	1,305.6		BS	-471+2	+463-2		
	660				+5.3	90° 4'	+0.8	+6.1			BS				
97	330		307° 46.6'	+7.7°	9.8	-	-9.8			1,295.8		+235	-231	201,130 1,786,341	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
8/2/79		G. Coatscamp		R. Turner		6884		RANSOM TURNER		5	8					
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Fada		Minnesota		Stearns		124N	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	X
									1305.6							
78	0				5.4	-		-5.4		1,300.2	π	0	0	200,895	1,786,572	setup opposite station
99	330		129°13.2'	+7.7°	7.8	-		-7.8		1,297.8		-241	+225	200,654	1,786,797	private trail
100	660		" "	"	8.3	-		-8.3		1,297.3		-482	+451	200,413	1,787,023	↓
101	990		129°13.2'	+7.7°	8.0	-		-8.0		1,297.6	f	-723 +1	+676 -2	200,173	1,787,246	
101	990				12.9	TH	+5.0	-7.9			f					
	652		261°43.7'-180°	+7.7°	7.3	-		+7.3			BS	-62	+649			curve
	652				10.6	TH	-3.3	+7.3	1304.9		BS					
102	330		263°5'	+7.7°	4.8	-		-4.8		1,300.1		+5	-330	200,116	1,787,565	
103	0				5.4	-		-5.4		1,299.5	T	0	0	200,111	1,787,895	
104	330		82°54'	+7.7°	5.1	-		-5.1		1,299.8		-3	+330	200,108	1,788,225	
105	660		" "	"	5.1	-		-5.1		1,299.8		-7	+660	200,104	1,788,555	200,110 + 1,788,560
f	665		82°21.4'	+7.7°	4.8	-		-4.8		1,300.1	f	-1	+665	200,110	1,788,560	T-intersect.
f	665				8.1	TH	+3.3	-4.8			π					
	690		351°6.8'-180°	+7.7°	+3.8	-		+3.8			BS	-690	+19			1,320' offset south
	690				+7.2	TH	-3.5	+3.8	1303.9		BS					horiz. correct. y = +17'
π	0				5.4	-		-5.4		1,298.5	π	0	0	199,420	1,788,574	x = -30'
π	630		169°56.4'	+7.7°	14.2	90°40'	-7.3	-21.5		1,282.4	TP	-629	+26	198,791	1,788,600	198,790 + 1,788,600 (S) T-intersect.
π	630				12.4	90°50'	-9.2	-21.6			TP					
	655		264°9.2'-180°	+7.4°	+14.0	BH	+3.3	+17.3	1299.7		BS	-18	+655			
	655				+14.3	90°16'	+3.0	+17.3			BS					

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE					
8/3/74		G Cotcamp		R Turner		2834		RANSOM TURNER			5	9					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Padua		Minnesota	Stearns		124 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	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,299.7								
106	330		263°27'	+7.4°	8.5	-		-8.5		1,291.2		+5	-330	198,778	1,788,925	Corner!	
107	0			"	5.4	-		-5.4		1,294.3	π	0	0	198,773	1,789,255	↓	
108	330		84°57.3'	+7.4°	7.3	-		-7.3		1,292.4		-14	+330	198,759	1,789,585		
109	660			"	7.1	-		-7.1		1,292.6		-27	+659	198,746	1,789,914		
110	990		84°57.3'	+7.4°	4.1	-		-4.1		1,295.6	TP	-41	+989	198,732	1,790,244		
110	990			"	9.1	TH	+5.0	-4.1			TP						
	1980		267°55.3'-180°	"	+2.4	-		+2.4	1,298.0		BS	-184	+1971				
	1980			"	+2.3	TH	-9.9	+2.4			BS						
111	1650		267°55.3'	+7.4°	1.7	-		-1.7		1,296.3		+153	-1693	198,701	1,790,572		
112	1320		"	"	2.2	-		-2.2		1,295.8		+122	-1314	198,670	1,790,901		
113	990		"	"	2.9	-		-2.9		1,295.1		+92	-986	198,640	1,791,229		
114	660		"	"	3.6	-		-3.6		1,294.4		+61	-657	198,609	1,791,558		
115	330		"	"	4.4	-		-4.4		1,293.6		+31	-329	198,579	1,791,886		
116	0		"	"	5.4	-		-5.4		1,292.6	π	0	0	198,548	1,792,215		
117	330		80°57.3'	+7.1°	7.9	-		-7.9		1,290.1		-46	+327	198,502	1,792,542		
118	660		"	"	8.0	-		-8.0		1,290.0		-92	+653	198,456	1,792,868		
119	990		"	"	6.3	-		-6.3		1,291.7		-139	+980	198,409	1,793,195		
120	1320		95°57.3'	+7.1°	8.5	-		-8.5			TP	-185	+1307	198,363	1,793,522		
120	330		"	"	5.4	TH	-3.1	-8.5		1,289.5	TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN			ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE				
8/3/79		R. Turner			R. Turner		6834		RANSOM TURNER			5	10				
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER									
Minnesota				Stearns	124 N	35 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		
120										1289.5							
	987		295° 53' 12"	+7.1°	+3.0	-		+3.0	1292.5		BS	-401	+902				Curve
	987				+8.0	TH	-4.9	+3.1			BS						
	285		292° 21'	+7.1°	6.1	-		-6.1	1286.4			+337	-596	198,299	1,793,828		198,310+1,793,835 offset 4-way intersect = 3 (elev) 1,287.0
121	660		290° 45'	+7.1°	5.2	-		-5.2	1287.3			+308	-584	198,270	1,793,840		
122	330		" "		4.0	-		-4.0	1288.5			+154	-292	198,116	1,794,132		dirt road
123	0				5.4	-		-5.4	1287.1		TP	0	0	197,962	1,794,424		↓
124	320		108° 9'	+6.9°	7.1	-		-7.1	1285.4			-140	+299	197,822	1,794,723		
125	660		" "	"	9.7	-		-9.7	1282.8			-279	+598	197,683	1,795,022		
126	200		" "	"	8.2	-		-8.2	1284.3			-49	+897	197,543	1,795,321		
127	1320		" "	"	9.9	-		-9.9	1282.6			-559	+1196	197,403	1,795,620		
128	1650		108° 9'	+6.9°	12.6	-		-12.6	1279.9		TP	-699	+1495	197,263	1,795,919		
128	1650				4.3	BH	-8.3	-12.6			TP						
	645		264° 32' 3" - 18 W	+6.9°	+1.7	TH	-3.2	-1.5	1278.4		BS	-16	+645				shooting across corner
	645				+6.0	89° 20'	-7.5	-1.5			BS						
129	330		253° 26'	+6.9°	1.9	-		-1.9	1276.5			-55	-325	197,192	1,796,239		
130	0				5.4	-		-5.4	1273.0		TP	0	0	197,247	1,796,564		
131	330		71° 30'	+6.9°	6.9	-		-6.9	1271.5			+66	+323	197,313	1,796,887		
	505		72° 37'	+6.9°	4.1	-		-4.1	1274.3			+92	+500	197,339	1,797,064		(elev) 1272'
132	660		79° 37.6'	+6.9°	2.4	-		-2.4			TP	+97	+653	197,344	1,797,217		
132	660				5.7	TH	+3.3	-2.4		1276.0	TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
8/13/79		G. Cotcamp		E. Turner		6824		Ransom Turner		5					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Padua		Minnesota	Stearns		124N	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
132	655		286° 29.7' - 180°	+6.9°	+12.3	BH	+3.3	+15.6	1291.6	1276.0	BS	-260	+601		Curve
	655				+14.0	90° 0'	+1.5	+15.5			BS				
133	330		286° 29.7'	+6.9°	7.6	-		-7.6		1284.0		+131	-303	197,215	1,797,515
134	0				5.4	-		-5.4		1286.2	X	0	0	197,084	1,797,818
135	330		99° 13.2'	+6.9°	6.2	-		-6.2		1285.4		-92	+317	196,992	1,798,135
136	660		" "	"	5.9	-		-5.9		1285.7		-183	+634	196,901	1,798,452
137	990		" "	"	6.2	-		-6.2		1285.4		-275	+951	196,809	1,798,769
138	1320		99° 13.2'	+6.9°	7.4	-		-7.4		1284.2	TP	-366	+1268	196,718	1,799,086
138	1320				14.0	TH	+6.6	-7.4			TP				
	650		285° 12.9' - 180°	+6.9°	+5.8	91°	+28.8	+35.6	1319.8		BS	-621	+1529		
	650				+13.5	90° 40'	+22.1	+35.6			BS				
139	1320		285° 12.9'	+6.9°	12.5	91°	-23.0	-35.5		1284.3		+497	-1223	196,594	1,799,392
140	990		" "	"	12.8	91° 16'	-20.2	-33.0		1286.8		+373	-917	196,470	1,799,698
141	660		" "	"	14.1	91° 20'	-15.4	-29.5		1290.3		+248	-611	196,345	1,800,004
142	330		" "	"	13.4	90° 40'	-3.8	-17.2		1302.6		+124	-306	196,221	1,800,309
142	163		286° 50'	+6.9°	7.5	-		-7.5		1312.3		+66	-199	196,163	1,800,466
143	0				5.4	-		-5.4		1314.4	X	0	0	196,097	1,800,615
144	330		98° 51'	+7.2°	5.8	-		-5.8		1314.0		-35	+328	196,062	1,800,943
145	660		95° 59'	+7.2°	10.6	-		-10.6		1309.2		-36	+659	196,061	1,801,274
146	990		94° 50'	+7.2°	9.8	BH	-5.0	-14.8		1305.0		-35	+989	196,062	1,801,604

196,170 + 1,800,450
Frd. (North) elev. 1314'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
8/3/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		5	12				
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Padua		Minnesota	Stearns	124N.	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
									1319.8						
147	1320		84° 28'	+7.2°	8.0	BH	-6.6	-14.6		1305.2		-38	+1319	196,059	1,801,934
148	1650		84° 3.5'	+7.2°	10.6	-		-10.6		1309.2	TP	-36	+1650	196,061	1,802,265
148	1650				2.3	BH	-8.3	-10.6			TP				
	1320		262° 57' - 180°	+7.2°	+2.2	-		+2.2	1311.4		BS	-3	+1320		
	1320				+8.8	TH	-6.6	+2.2			BS				
149	990		262° 57'	+7.2°	3.2	-		-3.2		1308.2		+3	-990	196,061	1,802,595
150	660		" "	" "	7.7	-		-7.7		1303.7		+2	-660	196,060	1,802,925
151	470		264° 33'	+7.2°	9.6	-		-9.6		1301.8		+10	-470	196,068	1,803,115
151	330		262° 57'	+7.2°	8.5	-		-8.5		1302.9		+1	-330	196,059	1,803,255
152	0				5.4	-		-5.4		1306.0	TP	0	0	196,058	1,803,585
153	330		82° 20'	+7.2°	5.0	-		-5.0		1306.4		-3	+330	196,055	1,803,915
154	660		83° 22'	+7.2°	5.8	-		-5.8		1305.6	TP	-7	+660	196,051	1,804,245
154	660				9.1	TH	+3.3	-5.8			TP				
	2970		263° 23.3' - 180°	+7.2°	+11.9	-		+11.9	(11.8)		BS	-30	+2970		
	2970				+6.5	90° 6'	+5.2	+11.7	1317.4		BS				
155	2640		263° 23.3'	+7.2°	6.9	90° 10'	-7.7	-14.6		1302.8		+27	-2640	196,048	1,804,575
156	2310		" "	" "	10.8	-		-10.8		1306.6		+24	-2310	196,045	1,804,905
157	1980		" "	" "	11.9	-		-11.9		1305.5		+20	-1980	196,041	1,805,235
###	1890		263° 36'	+7.2°	13.7	-		-13.7		1303.7		+26	-1890	196,047	1,805,325
158	1650		263° 23.3'	+7.2°	10.0	BH	-8.3	-18.3		1299.1		+17	-1650	196,038	1,805,565

196,050 + 1,803,115
T-rd (south) elev. 1303'

railroad

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE				
8/6/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		5		13				
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM				
Minnesota		Padua/Elosa		Minnesota		Stearns		124N		34W		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
									1317.4							
158	1460		263°36.6'	+7.2°	11.7	-		-11.7		1305.7		+21	-1460	196,042	1,805,755	196,025 + 1,805,770 4-way Intersect
159	1320		263°23.3'	+7.2°	11.7	-		-11.7		1305.7		+14	-1320	196,035	1,805,895	
160	990		" "		9.9	-		-9.9		1307.5		+10	-990	196,031	1,806,225	
161	660		" "		8.7	-		-8.7		1308.7		+7	-660	196,028	1,806,555	
162	330		" "		7.0	-		-7.0		1310.4		+3	-330	196,024	1,806,885	
163	0				5.4	-		-5.4		1312.0	π	0	0	196,021	1,807,215	
164	330		83°23.5'	+7.2	3.0	-		-3.0		1314.4		-3	+330	196,018	1,807,545	
165	660		" "		3.2	TH	+3.3	+0.1		1317.5		-7	+660	196,014	1,807,875	
166	990		" "		3.2	TH	+5.0	+1.8		1319.2		-10	+990	196,011	1,808,205	
167	1320		" "		5.7	TH	+6.6	+0.9		1318.3		-14	+1320	196,007	1,808,535	
168	1650		" "		8.0	TH	+8.3	+0.3		1317.7		-17	+1650	196,004	1,808,865	
169	1980		" "		10.0	TH	+9.9	-0.1		1317.3		-20	+1980	196,001	1,809,195	↑
170	2310		" "		11.8	TH	+11.6	-0.2		1317.2		-24	+2310	195,997	1,809,525	Padua Quad.
171	2640		83°23.5'	+7.2	13.7	TH	+13.2	-0.5		1316.9	TP	-27	+2640	195,994	1,809,855	Elosa Quad.
171	2640		" "		14.3	89°42'	+13.8	-0.5			TP					↓
	2970		262°53'-18.0°	+7.2	+6.5	TH	-14.9	-8.4	1308.6		BS	-4	+2970			
	2970		" "		+4.0	89°46'	-12.1	-8.1	(-8.3)		BS					
172	2640		262°53'	+7.2	4.7	TH	+13.2	+8.5		1317.1		+4	-2640	195,994	1,810,185	
173	2310		" "		6.5	TH	+11.6	+5.1		1313.7		+3	-2310	195,993	1,810,515	
173	2110		263°6.5'	+7.2	8.4	TH	+10.6	+2.2		1310.8		+11	-2110	196,001	1,810,715	196,000 + 1,810,725 Tad (North) 1310'

SURVEY NOTES-HIGH RESOLUTION DATA

Geosource Inc.

DATE 8/6/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY GWL	LINE NO. 5	PAGE 14
AREA Minnesota	TOPO MAP Erosa	STATE Minnesota	COUNTY Stearns	TWP 124N	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 TP	COORDINATES		REMARKS	
												NORTH+ SOUTH- LAT.	EAST+ WEST- DEP.		Y
									1308.6						
174	1880		262°53'	+7.2°	2.7	74	+7.2	+2.5		1309.1		+3	-1980	195993	1812835
175	1650		" "	"	2.0	-		-2.0		1306.6		+2	-1650	195992	1811575
176	1320		" "	"	3.9	-		-3.9		1304.7		+2	-1820	195992	1811505
177	990		" "	"	3.9	-		-3.9		1304.7		+1	-990	195991	1811835
178	660		" "	"	4.1	-		-4.1		1304.5		+1	-660	195991	1812165
179	330		" "	"	4.6	-		-4.6		1304.0		0	-330	195990	1812495
180	0		" "	"	5.4	-		-5.4		1303.2	X	0	0	195990	1812825
181	330		22°45.8'	+7.7°	5.6	-		-5.6		1302.0		-3	+330	195987	1813155
182	660		" "	"	7.9	-		-7.9		1300.7		-5	+660	195985	1813485
183	990		" "	"	14.3	-		-14.3		1299.3		-8	+990	195982	1813815
184	1320		" "	"	11.2	BH	-6.6	-17.8		1299.8		-11	+1320	195979	1814145
85	1650		" "	"	12.3	BH	-8.3	-20.6		1288.0		-13	+1650	195977	1814475
186	1980		" "	"	12.0	BH	-9.9	-21.9		1286.7		-16	+1980	195974	1814805
187	2310		" "	"	8.8	BH	-11.6	-20.4		1288.2		-19	+2310	195971	1815135
188	2640		" "	"	6.0	BH	-13.2	-19.2		1289.7		-21	+2640	195969	1815465
189	2970		22°45.8'	+7.7°	3.4	BH	-14.9	-18.3	-18.2	1290.4	TF	-24	+2970	195966	1815795
189	2310		" "	"	4.7	90°4'	-3.4	-18.1			TF				
	1650		260°53.6'-180°	+7.7°	+12.3	-		+12.3		1302.7	BS	+40.1	+1699		
	1650		" "	"	+4.0	BH	+8.3	+12.3			BS				
JL TF	1410		261°20.3'	+7.7°	10.6	-		-10.6		1292.1		-24	-1910	195981	1816034

195995+1, 816, 015(S)
4-Way Intersect (elev) 1292

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 8/7/79	INSTRUMENT MAN G. Colecamp	ROD MAN E. Turner	PARTY NUMBER 6834	NOTES CHECKED BY GWC	LINE NO. 5	PAGE 15
AREA Minnesota	TOPO MAP 11050	STATE Minnesota	COUNTY Stearns	TWP 12AN	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	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1302.7										
190	1320		260° 53.6'	+7.7°	10.7	-		-10.7		1,292.0		-32	-1320	195,973	1,816,124				
191	990		"	"	9.4	-		-9.4		1,293.3		-24	-990	195,981	1,816,454				
192	660		"	"	7.8	-		-7.8		1,294.9		-16	-660	195,989	1,816,784				
193	330		"	"	6.9	-		-6.9		1,295.8		-8	-330	195,997	1,817,114				
194	0				5.4	-		-5.4		1,297.3	TP	0	0	196,005	1,817,444				
195	330		82° 20.8'	+8.4°	4.3	-		-4.3		1,298.4		-4	+330	196,001	1,817,774				
196	660		"	"	4.7	-		-4.7		1,298.0		-9	+660	195,996	1,818,104				
197	990		"	"	6.2	-		-8.3		1,294.4		-13	+990	195,992	1,818,434				
198	1320		"	"	9.8	-		-9.8		1,292.9		-17	+1320	195,988	1,818,764				
199	1650		82° 20.6'	+8.4°	10.1	-		-10.1		1,292.6	TP	-22.2	+1650	195,981	1,819,094				
200	1650				1.2	PH	-8.3	-10.1			TP								
	2610		261° 8.7' - 180°	+8.4°	+5.9	-		+5.9	1,298.5		BS	+21.2	+2640						
	2670				+2.7	90° 4'	+3.1	+5.8			BS								
200	330		261° 8.7'	+8.4°	5.0	-		-5.0		1,293.5		-18	-2310	195,982	1,819,424				
201	1980		"	"	5.7	-		-5.7		1,292.8		-16	-1980	195,984	1,819,754				
202	1650		"	"	5.5	-		-5.5		1,293.0		-13	-1650	195,987	1,820,084				
203	1320		"	"	5.9	-		-5.9		1,292.6		-10	-1320	195,990	1,820,414				
204	990		"	"	5.9	-		-5.9		1,292.6		-8	-990	195,992	1,820,744				
205	660		"	"	6.9	-		-6.9		1,291.6		-5	-660	195,993	1,821,074				
TP	438		263° 2.5'	+8.4°	5.9	-		-5.9		1,292.6		-11	-438	196,011	1,821,296				

196,010 + 1,821,296 (6)
 4-Way Intersect (6) 1294
 (7# 7)

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
2/1/99		S. S. [unclear]		[unclear]		[unclear]		GWC		5	9					
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Elrosa		Minnesota		Stearns		124N	34w		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
									1,298.5							
206	330		261° 8.7'	+8.4°	6.1	-		-6.1		1,292.4		-3	-330	195,997	1,821,404	paved road
207	0				5.4	-		-5.4		1,293.1	π	0	0	196,000	1,821,734	↓
208	330		81° 16.9'	+7.6°	4.9	-		-4.9		1,293.6		+7	+330	196,007	1,822,064	
209	660		" "	"	4.9	-		-4.9		1,293.6		+13	+660	196,013	1,822,394	
210	990		" "	"	5.2	-		-5.2		1,293.3		+20	+990	196,020	1,822,724	
211	1320		" "	"	5.5	-		-5.5		1,293.0		+26	+1320	196,026	1,823,054	
212	1650		" "	"	6.0	-		-6.0		1,292.5		+33	+1650	196,033	1,823,384	
213	1980		" "	"	6.1	-		-6.1		1,292.4		+39	+1980	196,039	1,823,714	
214	2310		" "	"	6.6	-		-6.6		1,291.9		+46	+2310	196,046	1,824,044	
215	2640		81° 15.9'	+7.6°	7.2	-		-7.2		1,291.3	TP	+52-2	+2639	196,050	1,824,373	
215	2640				15.0	89° 50'	+7.7	-7.3			TP					
	1980		263° 51.3' + 180°	+7.3°	+7.5	-		+7.6	1,298.9		BS	-90-2	+1979			
	1980				+5.3	90° 4'	+2.3	+7.6			BS					
216	1650		263° 51.3'	+7.3°	7.4	-		-7.4		1,291.5		+33	-1650	196,041	1,824,702	
217	1320		" "	"	7.0	-		-7.0		1,291.9		+27	-1320	196,035	1,825,032	
218	990		" "	"	6.8	-		-6.8		1,292.1		+20	-990	196,028	1,825,362	
219	660		" "	"	6.5	-		-6.5		1,292.4		+13	-660	196,021	1,825,692	
220	330		" "	"	6.1	-		-6.1		1,292.8		+7	-330	196,015	1,826,022	
221	0				5.4	-		-5.4		1,293.5	π	0	0	196,008	1,826,352	196,000 + 1,826,600 (S)
<u>IL</u>	250		80° 49'	+7.3°	3.7	-		-3.7		1,295.2		+8	+250	196,016	1,826,602	T-rod (north) elev 1296'

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
8/7/79		G. Cotcamp		R. Turner		6834		GWC		5	17								
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Erosa		Minnesota	Stearns		24N	34W		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				
									1298.9										
222	330		84° 1'	+7.0°	3.3	-		-3.3		1,295.6		-6	+330	196,002	1,826,682			paved road	
223	660		" "	"	0.6	-		-0.6		1,298.3		-12	+660	195,996	1,827,012			↓	
224	990		" "	"	3.5	TH	+5.0	+1.5		1,300.4		-18	+990	195,990	1,827,342				
225	1320		" "	"	3.0	TH	+6.6	+3.6		1,302.5		-23	+1320	195,985	1,827,672				
226	1650		84° 1'	+7.0°	24	TH	+8.3	+5.9		1,304.8	TP	-29	+1650	195,979	1,828,002			curve	
	1310		241° 21' - 180°	+7.0°	7.5	89° 30'	-11.4	-3.8			BS	+483	+1218						
	1310				3.8	89° 40'	-7.6	-3.8		1,301.0	BS								
227	990		237° 15'	+7.0°	2.0	TH	+5.0	+3.0		1,304.0		-430	-892	196,032	1,828,328				
228	660		" "	"	3.1	TH	+3.3	+0.2		1,301.2		-287	-594	196,175	1,828,626				
229	330		" "	"	2.9	-		-2.9		1,298.1		-143	-297	196,319	1,828,923				
230	0				5.4	-		-5.4		1,295.6	TP	0	0	196,462	1,829,220			T-rd(south) 1296.0	
231	330		56° 59'	+7.0°	7.9	-		-7.9		1,293.1		+145	+297	196,607	1,829,517				
232	660		" "	"	12.0	-		-12.0		1,289.0		+289	+593	196,751	1,829,813				
233	990		" "	"	13.9	BH	-5.0	-18.9		1,282.1		+434	+890	196,896	1,830,110				
234	1316		58° 23'	+7.0°	14.5	BH	-6.6	-21.1		1,279.9	TP	+548	+1196	197,010	1,830,416			curve	
234	1316				15.0	90° 16'	-6.1	-21.1			TP								
	655		259° 25' - 180°	+7.0°	+6.7	-		+6.7		1,286.6	BS	+41	+654					Curve	
	655				+10.0	TH	-3.3	+6.7			BS								
235	330		264° 24'	+7.0°	6.1	-		-6.1		1,280.5		+8	-330	197,059	1,830,740				
236	0				5.4	-		-5.4		1,281.2	TP	0	0	197,051	1,831,070				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
8/7/79		G. Cotcamp		R. Turner		6837		Gwc		5	18						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Elrosa		Minnesota	Stearns	124N	34W		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		
									1,286.6								
237	330		97°21'	+7.0°	3.4	-		-3.4		1,283.2		-82	+320	196,969	1,831,390		
238	658		102°31.4'	+7.0°	1.9	-		-1.4		1,285.2	TP	-220	+620	196,831	1,831,690		
238	658				4.7	TH	+3.3	-1.4			TP						
	1980		297°28'-130°	+7.0°	8.9	-		+8.9			BS	-1121	+1632				
	1980				6.7	90°4'	+2.3	+9.0	1,294.2		BS						
	1690		297°55'	+7.0°	7.4	-		-7.4		1,286.8		+967	-1386	196,677	1,831,936	196,690+1,831,915(S) T-rod (NORTH) elev. 1287'	
239	1650		297°28'	+7.0°	7.5	-		-7.5		1,286.7		+934	-1360	196,644	1,831,962		
240	1320		" "	"	5.8	-		-6.8		1,287.4		+747	-1088	196,457	1,832,234		
241	990		" "	"	6.0	-		-6.0		1,288.2		+560	-816	196,270	1,832,506		
242	660		" "	"	5.5	-		-5.5		1,288.7		+374	-544	196,084	1,832,778		
243	330		" "	"	5.0	-		-5.0		1,289.2		+187	-272	195,897	1,833,050		
244	0				5.4	-		-5.4		1,288.8	TP	0	0	195,710	1,833,322		
245	330		117°32.4'	+7.2°	4.1	-		-4.1		1,290.1		-188	+271	195,522	1,833,593		
246	660		" "	"	3.7	-		-3.7		1,290.5		-376	+542	195,334	1,833,864		
247	990		" "	"	0.9	-		-0.9		1,293.3		-564	+813	195,146	1,834,135		
248	1320		" "	"	6.7	TH	+6.6	-0.1		1,294.1		-753	+1084	194,957	1,834,406		
249	1650		" "	"	7.8	TH	+8.3	+0.5		1,294.7		-941	+1356	194,769	1,834,678		
250	1980		117°33.4'	+7.2°	8.8	TH	+9.9	+1.1			TP	-1129	+1627	194,581	1,834,949		
250	1980				4.8	89°50'	+5.8	+1.0		1,295.2	TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
3/7/79		J. Colcamp		R. Turner		6834		GWC		5	19						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Iroquo		Minnesota	Stearns	124N	34W		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		
250										1,296.2							
	1320		297°44.8'-130°	+7.2°	+54	-		+5.4			BS	-756	+1082				
	1320		"		+120	TH	-6.6	+5.4	1,300.6		BS						
251	990		297°44.8'	+7.2°	4.5	-		-4.5		1,296.1		+567	-811	194,392	1,835,220		
252	660		"	"	4.6	-		-4.6		1,296.0		+378	-541	194,203	1,835,490		
253	330		"	"	4.8	-		-4.8		1,295.8		+189	-270	194,014	1,835,761		
254	0				54	-		-5.4		1,295.2	π	0	0	193,825	1,836,031		
255	330		117°58'	+7.2°	5.3	-		-5.3		1,295.3		-190	+270	193,635	1,836,301		
256	660		"	"	4.5	-		-4.5		1,296.1		-380	+540	193,445	1,836,571		
257	990		116°14.5'	+7.2°	4.6	-		-4.6			TP	-546	+826+2	193,279	1,836,859		
257	990				9.5	TH	+5.0	-4.5		1,296.1	TP						
	1310		266°1.8'-180°	+7.2°	+4.6	TH	-6.6	-2.0			BS	-74	+1308+2				Curve
	1310				+5.7	89°40'	-7.6	-1.9	1,294.2		BS						
UL TP	1010		263°39'	+7.2°	0.5	-		-0.5		1,293.7		+15	-1010	193,220	1,837,159		193,220+1,837,160(5) 4-way intersect elev. 1295
258	990		262°55'	+7.2°	0.4	-		-0.4		1,293.8		+2	-990	193,207	1,837,179		horiz. correct. y = -9' x = +4'
259	660		"	"	2.8	-		-2.8		1,291.4		+1	-660	193,206	1,837,509		
260	330		"	"	3.7	-		-3.7		1,290.5		+1	-330	193,206	1,837,839		
261	0				54	-		-5.4		1,288.8	π	0	0	193,205	1,838,169		
262	330		82°48'	+7.2°	7.2	-		-7.2		1,287.0		0	+330	193,205	1,838,499		
263	660		"	"	8.2	-		-8.2		1,286.0		0	+660	193,205	1,838,829		
264	990		"	"	13.7	-		-13.7		1,280.5		0	+990	193,205	1,839,159		

