VEP
A Sandwell Company

BOROUGH OF MADISON
MORRIS COUNTY NEW JERSEY

CONTROL SURVEY REPORT

VEP
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BOROUGH OF MADISON
PHOTOGRAMMETRIC MAPPING

SURVEY REPORT

OBJECTIVE:

A network of permanent ground control points, consisting of intervisible pairs where possible, was to be established within the Borough limits.

FIELD RECONNAISSANCE:

The following control monuments were recovered in the field: 14F1; 14H1; 14J1 & 14G1.

MONUMENTATIONS AND TARGETS:

A total of nine (9) pairs and five (5) stand alone sites were selected and monuments constructed as per the New Jersey of Transportation specifications. The sites were spotted by VEP Associates and the monuments were constructed by the Public Works Department of the Borough.

An even distribution of these sites was aimed for and generally achieved despite the heavily-wooded areas and constraint of utilizing State and/or Borough properties only.

Aerial targets , serving as primary control for the photogrammetric mapping, were centered on these monuments prior to the flight mission. In addition, photo indentities were selected to supplement the photogrammetric control network.

GPS SURVEYS:

This task was undertaken by Subconsultant Taylor Wiseman and Taylor. Please refer to the attached report.

Cadresse Soondrum, C.P, P.L.S
Manager Mapping Department

TAYLOR,WISEMAN AND TAYLOR GPS SURVEY

MADISON\VEP
PROJECT #18122G124
SEPTEMBER 9,1993

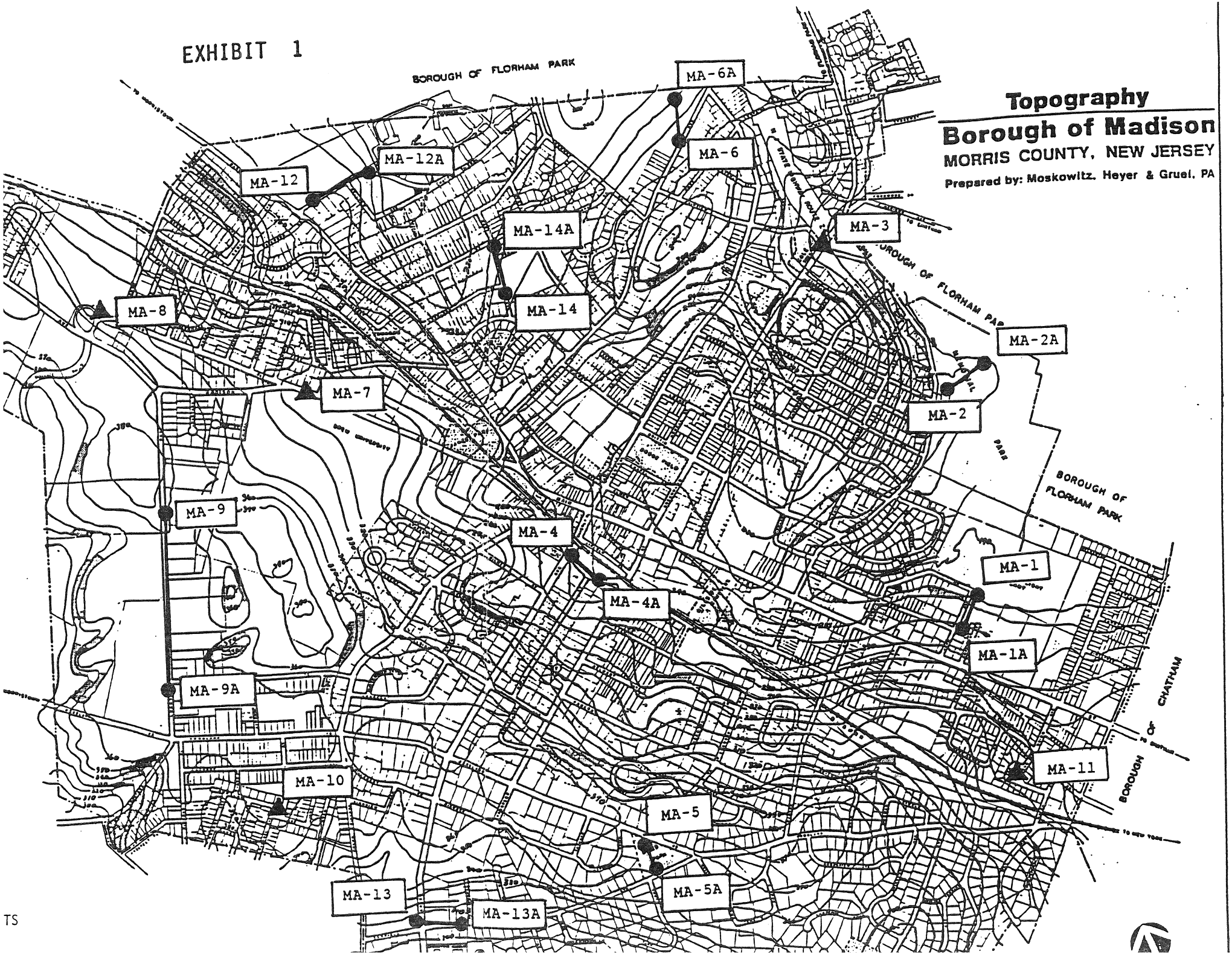
Datum: NAD27
: 2900 New Jersey
e Plane in: US Survey Feet

Coordinate Source [ASCII FILE]: b:\coords.ref

Latitude	Longitude	Hgt (USft)	Northing	Easting	Hgt (USft)	Convergence	Scale factor	Name
40:45'08.77689" N	74:24'03.89909" W	199.330	699159.471	2073583.753	199.330	0:10'24.137"	0.999981218	MA01
40:45'05.98684" N	74:24'06.91164" W	213.290	698876.418	2073352.751	213.290	0:10'22.161"	0.999981180	MA1A
40:45'33.34259" N	74:23'58.64064" W	203.450	701646.744	2073980.891	203.450	0:10'27.657"	0.999981285	MA02
40:45'35.00899" N	74:23'53.61857" W	189.160	701816.563	2074366.846	189.160	0:10'30.942"	0.999981351	MA2A
40:45'53.58778" N	74:24'11.62323" W	241.070	703692.537	2072975.671	241.070	0:10'19.251"	0.999981117	MA03
40:45'26.90353" N	74:25'00.01497" W	251.120	700981.199	2069259.714	251.120	0:09'47.565"	0.999980512	MA04
40:45'22.64110" N	74:24'57.15943" W	247.920	700550.469	2069480.700	247.920	0:09'49.415"	0.999980548	MA4A
40:44'52.63461" N	74:25'01.63284" W	366.270	697512.838	2069145.069	366.270	0:09'46.395"	0.999980494	MA05
40:44'49.38162" N	74:25'01.54683" W	361.710	697183.655	2069152.625	361.710	0:09'46.441"	0.999980496	MA5A
40:46'09.90455" N	74:24'27.04261" W	275.320	705340.262	2071784.303	275.320	0:10'09.239"	0.999980919	MA06
40:46'14.86549" N	74:24'24.28301" W	264.280	705842.937	2071995.147	264.280	0:10'11.058"	0.999980954	MA6A
40:45'53.91380" N	74:25'34.44314" W	318.290	703707.233	2066602.751	318.290	0:09'25.174"	0.999980100	MA07
40:46'08.37061" N	74:25'59.89171" W	365.930	705164.975	2064640.645	365.930	0:09'08.601"	0.999979806	MA08
40:45'42.96998" N	74:25'58.35099" W	370.330	702594.748	2064766.042	370.330	0:09'09.529"	0.999979824	MA09
40:45'25.16078" N	74:26'04.66796" W	369.560	700791.169	2064284.707	369.560	0:09'05.350"	0.999979753	MA9A
40:45'08.29114" N	74:25'54.63029" W	354.070	699086.019	2065061.746	354.070	0:09'11.850"	0.999979868	MA10
40:44'47.35914" N	74:24'03.74954" W	263.940	696992.035	2073601.822	263.940	0:10'24.160"	0.999981222	MA11
40:46'14.18053" N	74:25'22.67401" W	244.320	705760.725	2067502.664	244.320	0:09'32.924"	0.999980238	MA12
40:46'15.20555" N	74:25'14.31617" W	220.790	705866.252	2068145.438	220.790	0:09'38.385"	0.999980337	M12A
40:44'50.07449" N	74:25'38.79420" W	308.920	697245.791	2066285.556	308.920	0:09'22.131"	0.999980052	MA13
4'48.81733" N	74:25'32.07813" W	307.880	697119.981	2066802.830	307.880	0:09'26.510"	0.999980130	M13A
40:45'58.72255" N	74:24'59.37416" W	237.060	704201.422	2069299.849	237.060	0:09'48.088"	0.999980519	MA14
40:46'03.83828" N	74:24'58.62818" W	237.100	704719.298	2069355.772	237.100	0:09'48.592"	0.999980528	M14A
40:44'24.99648" N	74:24'10.64756" W	334.170	694727.342	2073077.684	334.170	0:10'19.579"	0.999981134	HV50
40:46'56.24756" N	74:26'13.51888" W	392.050	710007.364	2063579.446	392.050	0:08'59.848"	0.999979650	HV51

NOTE - ELEVATIONS WERE DETERMINED BY GPS AND ARE BASED ON N.G.V.D. '29.

EXHIBIT 1


Topography
Borough of Madison
MORRIS COUNTY, NEW JERSEY
Prepared by: Moskowitz, Heyer & Gruel, PA
BOROUGH OF FLORHAM PARK
BOROUGH OF FLORHAM PARK
BOROUGH OF FLORHAM PARK
BOROUGH OF CHATHAM
MA-6A
MA-6
MA-12A
MA-12
MA-14A
MA-14
MA-3
MA-8
MA-7
MA-2A
MA-2
MA-9
MA-4
MA-4A
MA-1
MA-1A
MA-9A
MA-10
MA-11
MA-5
MA-5A
MA-13
MA-13A

TS

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A Sandwell Company

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LETTER OF TRANSMITTAL

DATE 6-29-94 JOB NO. 281258

ATTENTION BOROUGH ENGINEER

RE: MADISON

TO BOROUGH OF MADISON
HARTLEY DODGE MEMORIAL
MADISON NEW JERSEY 07940

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
			ONE SURVEY REPORT
		AERIAL	PHOTOGRAPHY CONTACT PRINT AS FOLLOWS
			LINE 1 EXPS 1-5
			" 2 " 14-21
			" 3 " 7-12

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
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☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO _____

SIGNED: [signature]

Station Name	Latitude (N)	Longitude (W)	Altitude	Northing	Easting	To Reach:
MA 01	40° 45' 08.77689"	74° 24' 03.89909"	199.33	699159.471	2073583.753	From Main St & John St. Go 0.1 Mi N on John St
MA 1A	40° 45' 05.98684"	74° 24' 06.91164"	213.29	698876.418	2073352.751	
MA 02	40° 45' 33.34259"	74° 23' 58.64064"	203.45	701646.744	2073980.891	Rosedale to Longview To Parking Lot opp. Longview
MA 2A	40° 45' 35.00899"	74° 23' 53.61857"	189.16	701816.563	2074366.846	On grounds of community pool and memorial park
MA 03	40° 45' 53.58778"	74° 24' 11.62323"	241.07	703692.537	2072975.671	At the intersection of Greenwood and Fairview Ave
MA 04	40° 45' 26.90353"	74° 25' 00.01497"	251.12	700981.199	2069259.714	Intersection of Kings Rd and Green Ave
MA 4A	40° 45' 22.64110"	74° 24' 57.15943"	247.92	700550.469	2069480.7	East side of Maple and Kings Road
MA 05	40° 44' 52.63461"	74° 25' 01.63284"	366.27	697512.838	2069145.069	Intersection Woodland and Garfield 0.2 Me E on Woodland
MA 5A	40° 44' 49.38162"	74° 25' 01.54683"	361.71	697183.655	2069152.625	Intersection of Garfield, Park, and Woodland at Ball Field
MA 06	40° 46' 09.90455"	74° 24' 27.04261"	275.32	705340.262	2071784.303	Madison H.S. Ridgedale Ave on Front Lawn
MA 6A	40° 46' 14.86549"	74° 24' 24.28301"	264.28	705842.937	2071995.147	On Grounds of Madison H.S. on Ridgedale
MA 07	40° 45' 53.91380"	74° 25' 34.44314"	318.29	703707.233	2066602.751	
MA 08	40° 46' 08.37061"	74° 25' 59.89171"	365.93	705164.975	2064640.645	300' from CL x CL of RT 124 & Danforth Rd on Danforth Rd
MA 09	40° 45' 42.96998"	74° 25' 58.35099"	370.33	702594.748	2064766.042	From Madison Ave go south 0.3 M on Loantaka Way
MA 9A	40° 45' 25.16078"	74° 26' 04.66796"	369.56	700791.169	2064284.707	SE on Loantaka Way 0.6 M from Madison Ave
MA 10	40° 45' 08.29114"	74° 25' 54.63029"	354.07	699086.019	2065061.746	
MA 11	40° 44' 47.35914"	74° 24' 03.74954"	263.94	696992.035	2073601.822	At new sign on corner Fen Court and Arlena Way
MA 12	40° 46' 14.18053"	74° 25' 22.67401"	244.32	705760.725	2067502.664	500' E Intersecion of Chateau-Thierry & Park Ave

MA 12A	40° 46' 15.20555"	74° 25' 14.31617"	220.79	705866.252	2068145.438	Just East of Intersection of Chateau-Thierry and Belleau
MA 13	40° 44' 50.07449"	74° 25' 38.79420"	308.92	697245.791	2066285.556	NW Corner of Garfield and Green Ave's
MA 13A	40° 44' 48.81733"	74° 25' 32.07813"	307.88	697119.981	2066802.83	0.1 M E on Garfield Ave from Green Ave
MA 14	40° 45' 58.72255"	74° 24' 59.37416"	237.06	704201.422	2069299.849	Intersection Loveland & East St @ SW corner
MA 14A	40° 46' 03.83828"	74° 24' 58.62818"	237.10	704719.298	2069355.772	Heading West on South St make a right at East St
HV50	40° 44' 24.99648"	74° 24' 10.64756"	334.17	694727.342	2073077.684	At Chatham Twp Football/Track Field off of Shunpike Rd
HV51	40° 46' 56.24756"	74° 26' 13.51888"	392.05	710007.364	2063579.446	Point located on College of St. Elizabeth Campus

* No Cell Available

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UCM	FEATURE NAME	LEVEL	WEIGHT	LINE CODE	COLOR	CELL	PATTERN
001	MAP SHEET	1	0	0	0	*MAPSHT	----
002	TITLE BLOCK	1	0	0	0	*TITLBK	----
003	BAR SCALE 50'	1	0	0	0	BRSC5Ø	----
004	NORTH ARROW	1	0	0	0	GARROW	----
010	GRID LINE	2	0	0	0	------	----
011	GRID TICK	2	0	0	0	CROSS	----
012	GRID LABEL	2	1	0	0	------	----
020	MAP LIMIT	3	3	0	0	------	----
021	MODEL LIMIT	3	0	0	0	------	----
022	CONTOUR LIMIT	3	2	0	0	------	----
023	MATCH LINE	3	1	0	0	------	----
030	LARGE ARROW	4	0	0	0	DARROW	----
031	SMALL ARROW	4	0	0	0	ARROW	----
100	PAVED ROAD	5	1	0	3	------	----
101	UNPAVED ROAD	5	0	3	3	------	----
102	HWY. CENTERLINE	5	0	7	3	------	CL
103	MAJOR TRAIL	5	0	2	3	------	----
104	AIRPORT RUNWAY	5	0	0	3	------	----
110	CURB E.O.R.	6	0	0	3	------	ECURB
111	DROP CURB	6	0	1	3	------	DCURB
112	CONC. CURB	6	3	0	3	------	----
113	GRANITE CURB	6	2	0	3	------	----
114	BITUM. CURB	6	1	3	3	------	----
120	BRIDGE	7	2	0	3	------	----
121	TUNNEL	7	1	0	3	------	----
122	UNDERPASS	7	1	3	3	------	----
130	ACTIVE RR	8	0	0	3	------	ACTRR
131	ABANDONED RR	8	0	3	3	------	ABDRR
132	OLD RR GRADE	8	0	2	3	------	----
133	RR CENTERLINE	8	0	5	3	------	RRCL
134	ABANDONED RR CL	8	0	1	3	------	ABRRCL
200	PAVED SHOULDER	9	1	0	11	------	----
201	UNPAVED SHOULDER	9	0	7	11	------	----
202	PAVED DRIVE	9	0	0	11	------	----
203	UNPAVED DRIVE	9	0	5	11	------	----
204	CHANGE OF PAVEMENT	9	0	1	11	------	----
205	FLUSH MEDIAN	9	0	3	11	------	----
206	HWY. RETAIN. WALL	9	2	0	11	------	----
210	CURB NOT E.O.R.	10	0	0	11	------	NCURB
211	PAVED PARKING	10	0	3	11	------	----
212	UNPAVED PARKING	10	0	2	11	------	----
213	PARKING BUMPER	10	0	5	11	------	----
214	CONCRETE BARRIER	10	1	0	11	------	----
215	BARRICADE	10	0	0	11	BARICD	----
216	BARREL	10	0	0	11	BARREL	----
220	CABLE GUIDE RAIL	11	0	1	11	------	CABLGR
221	SINGLE BOX BEAM GR	11	0	3	11	------	BBGRSH

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UCM	FEATURE NAME	LEVEL	WEIGHT	LINE CODE	COLOR	CELL	PATTERN
222	DOUBLE BOX BEAM GR	11	0	7	11	------	BBGRMD
223	GUIDE POST	11	0	0	11	GDPOST	----
224	SIDEWALK	11	0	2	11	------	----
225	FOOT BRIDGE	11	0	0	11	------	----
226	MINOR TRAIL	11	0	5	11	------	----
230	SIGN, 1 POST	12	0	0	11	SIGN	----
231	SIGN, 2 POSTS	12	0	0	11	SIGN2	----
232	SIGN POST	12	0	0	11	SGNPST	----
233	OVERHEAD SIGN	12	0	0	11	------	----
234	O.H. SIGN POST	12	0	0	11	OHPOST	----
235	BILLBOARD	12	1	0	11	BBPOST	----
236	BILLBOARD POST	12	0	0	11	BBPOST	----
240	TRAFFIC SIGNAL	13	0	0	11	TRFSIG	----
241	TRAFFIC CONTROL BOX	13	0	0	11	TCBOX	----
242	PARKING METER	13	0	0	11	PRKMTR	----
245	PRIVATE AIRPORT	13	0	0	11	------	----
250	ELECTRIC RR	14	0	0	11	------	ELECRR
251	RR CATENARY POLE	14	0	0	11	CATPOL	----
252	RR SWITCH	14	1	0	11	------	----
253	RR SIGNAL	14	0	0	11	RRSIG	----
254	RR UTILITY BOX	14	0	0	11	RRUBOX	----
260	INTERSTATE RTE. SIGN	15	0	0	11	INSTRT	----
261	U.S. ROUTE SIGN	15	0	0	11	USRT	----
262	STATE ROUTE SIGN	15	0	0	11	STATRT	----
263	COUNTY ROUTE SIGN	15	0	0	11	CNTYRT	----
300	BUILDING	16	3	0	8	------	----
301	BUILDING CANOPY	16	1	0	8	------	----
302	UNDER CONSTRUCTION	16	2	2	8	------	----
303	FOUNDATION	16	3	3	8	------	----
304	RUINS	16	2	5	8	------	----
310	SMOKE STACK	17	1	0	8	------	----
311	TANK	17	3	0	8	------	----
312	SILO	17	2	0	8	------	----
313	GREENHOUSE	17	0	0	8	------	----
314	PARTY WALL	17	2	2	8	------	----
320	DAM-SPILLWAY	18	2	0	8	------	----
321	PIER	18	1	0	8	------	----
322	JETTY	18	1	3	8	------	----
323	AQUEDUCT	18	0	0	8	------	----
324	LEVEE	18	0	3	8	------	----
330	CEMETERY	19	1	7	8	------	----
400	MINOR BUILDING	20	2	0	6	------	----
401	DECK-PATIO	20	0	2	6	------	----
402	CONCRETE PAD	20	0	3	6	------	----
403	STAIRS	20	0	0	6	------	----
404	CONCRETE STEPS	20	1	0	6	------	----
405	WOOD STEPS	20	0	5	6	------	----
410	MOBILE HOME	21	1	0	6	------	----
411	SWIMMING POOL	21	0	0	6	------	----

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UCM	FEATURE NAME	LEVEL	WEIGHT	LINE CODE	COLOR	CELL	PATTERN
412	TENNIS COURT	21	0	2	6	------	----
413	ATHLETE FIELD	21	0	3	6	------	----
414	RECREATION EQUIP.	21	1	5	6	------	----
415	GOLF COURSE	21	0	7	6	------	----
420	CHAIN LINK FENCE	22	0	0	6	------	FENCE
421	RUSTIC FENCE	22	0	1	6	------	RUSTFE
422	PIPE FENCE	22	0	2	6	------	PIPEFE
423	BOARD FENCE	22	0	3	6	------	BORDFE
424	ROCK WALL	22	0	4	6	------	ROCWAL
425	RETAINING WALL	22	0	5	6	------	RETWAL
430	POLE, NON-UTILITY	23	0	0	6	POLNUT	----
431	LIGHT POLE, NON-UTIL.	23	0	0	6	LPNUT	----
432	FLAG POLE	23	0	0	6	FLGPOL	----
433	POST	23	0	0	6	POST	----
434	MAILBOX	23	0	0	6	MAILBX	----
435	WELL	23	0	0	6	WELL	----
440	PILE	24	0	5	6	------	----
441	PIT	24	0	2	6	------	----
442	QUARRY	24	0	3	6	------	----
443	MISC.-UNKNOWN	24	0	1	6	------	----
444	PLANTER	24	0	0	6	------	----
445	WINDMILL	24	0	0	6	WINDMIL	----
500	UTILITY POLE	25	0	0	4	UPOLE	----
501	UTIL. POLE W/LIGHT	25	0	0	4	UPOLT	----
502	LIGHT POLE	25	0	0	4	LITPOL	----
503	TRANS. TOWER	25	1	0	4	------	----
504	SUBSTATION	25	0	0	4	------	SUBSTA
510	TRANSMISSION LINE	26	0	0	4	------	TRNSLN
511	GUY WIRE	26	0	5	4	GUYWIR	----
530	FIRE HYDRANT	28	0	0	9	FIRHYD	----
531	WATER VALVE	28	0	0	9	VALVE	----
532	GAS VALVE	28	0	0	9	*VALVE	----
533	SEWER MANHOLE	28	0	0	9	SEWMH	----
534	UTILITY HANDHOLE	28	0	0	9	HANDHOL	----
540	PIPE LINE	29	0	4	9	------	----
541	WATERLINE	29	0	0	9	------	WATRLN
542	GAS LINE	29	0	1	9	------	GASLN
543	SEWER LINE	29	0	2	9	------	SEWRLN
544	U.G. ELEC. LINE	29	0	3	9	------	UGELEC
550	GAS PUMP	30	0	0	9	GASPMP	----
551	FILLER PIPE	30	0	0	9	FILPIP	----
552	TELEPHONE	30	0	0	9	PHONE	----
553	UTILITY BOX	30	0	0	9	UTLBOX	----
554	VENT GRATE	30	0	0	9	------	----
600	MAJOR CULVERT	31	1	0	7	------	----
601	MINOR CULVERT	31	0	0	7	CULVRT	----
602	CATCH BASIN	31	0	0	7	CB	----
603	FIELD INLET	31	0	0	7	FI	----

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UCM	FEATURE NAME	LEVEL	WEIGHT	LINE CODE	COLOR	CELL	PATTERN
604	STORM GRATE	31	0	0	7	------	----
610	WINGWALL	32	1	0	7	------	----
611	CULVT. END SECTION	32	0	0	7	ENDSEC	----
612	RIPRAP SYMBOL	32	0	0	7	RIPRAP	----
613	U.G. PIPE	32	0	3	7	------	----
614	STORM MANHOLE	32	0	0	7	STORMH	----
620	PAVED GUTTER	33	1	0	7	------	----
621	PAVED LEAKOFF	33	0	0	7	------	----
622	EARTH LEAKOFF	33	0	5	7	------	----
623	PAVED DITCH	33	0	3	7	------	----
624	EARTH DITCH	33	0	6	7	------	----
700	SHORELINE	34	1	0	1	------	SHORE
701	MAJOR STREAM	34	0	0	1	------	STREAM
702	MINOR STREAM	34	0	6	1	------	----
710	SWAMP SYMBOL	35	0	0	1	SWAMP1	----
711	WATERFALL	35	0	0	1	RAPIDS	----
712	RAPIDS	35	0	0	1	RAPIDS	----
720	MARSH LIMIT	36	0	3	1	------	----
721	WETLAND LIMIT	36	0	0	1	------	WETLND
730	DECIDUOUS TREE	37	0	0	2	DECTRE	----
731	CONIFEROUS TREE	37	0	0	2	CONTRE	----
732	DECIDUOUS BUSH	37	0	0	2	DECBSH	----
733	CONIFEROUS BUSH	37	0	0	2	CONBSH	----
734	SHRUB	37	0	0	2	SHRUB	----
740	DEC. TREE ROW	38	0	0	2	------	DECTRE
741	CON. TREE ROW	38	0	1	2	------	CONTRE
742	HEDGE ROW	38	0	2	2	------	HEDGE
750	TREE LINE	39	0	0	2	------	TREELN
751	BRUSH LINE	39	0	1	2	------	BRSHLN
752	FOUNDATION PLANTING	39	0	2	2	------	FNDPLT
753	ORCHARD SYMBOL	39	0	0	2	ORCH	----
754	STUMP	39	0	0	2	STUMP	----
760	ROCK OUTCROP	40	0	3	12	OUTCRP	----
761	BOULDER	40	0	0	12	BOULDR	----
762	CLIFF	40	0	2	12	------	----
770	SAND-MUD	41	0	5	12	------	----
771	PLOWED FIELD	41	0	2	12	------	----
772	MISC.-UNKNOWN	41	0	1	12	------	----
800	INDEX CONTOUR	42	3	0	5	------	----
801	DEPRESSION INDEX	42	2	0	5	------	DEPDEX
802	OBSCURRED INDEX	42	3	3	5	------	----
803	OBSC. DEP. INDEX	42	2	3	5	------	OBDEPX
810	INTERMEDIATE CONT.	43	0	0	13	------	----
811	DEPRESS. INTERMED.	43	1	0	13	------	DEPINT
812	OBSCURRED INTER.	43	0	3	13	------	----
813	OBSC. DEP. INTER.	43	1	3	13	------	OBDEPI
820	SPOT ELEV.	44	0	0	10	SPOTEL	----
821	WATER EL.	44	0	0	10	------	----
823	SUPPL. CONTOUR	43	0	1	13	------	----

VEPSTD UCM LIBRARY

UCM	FEATURE NAME	LEVEL	WEIGHT	LINE CODE	COLOR	CELL	PATTERN
900	HORZ. POINT	45	0	0	14	HORPT	----
901	VERT. POINT	45	0	0	14	VERPT	----
902	HORZ./VERT. PT.	45	0	0	14	HVPT	----
903	BENCH MARK	45	0	0	14	BM	----
904	ANALYTICAL PT.	45	0	0	14	PASSPT	----
910	CONC. MONUMENT	46	0	0	14	MON	----
911	BRASS CAP/IRON PIPE	46	0	0	14	PIPE	----
920	NATIONAL BOUNDARY	47	3	6	14	------	----
921	STATE LINE	47	2	6	14	------	----
922	COUNTY LINE	47	2	4	14	------	----
923	TOWN LINE	47	2	3	14	------	----
924	CITY LINE	47	1	4	14	------	----
930	PROPERTY LINE	48	1	7	14	------	----
931	LOT LINE	48	0	7	14	------	----
932	EASEMENT LINE	48	0	3	14	------	----
933	HIGHWAY LINE	48	1	4	14	------	----
934	R.O.W. LINE	48	0	4	14	------	----

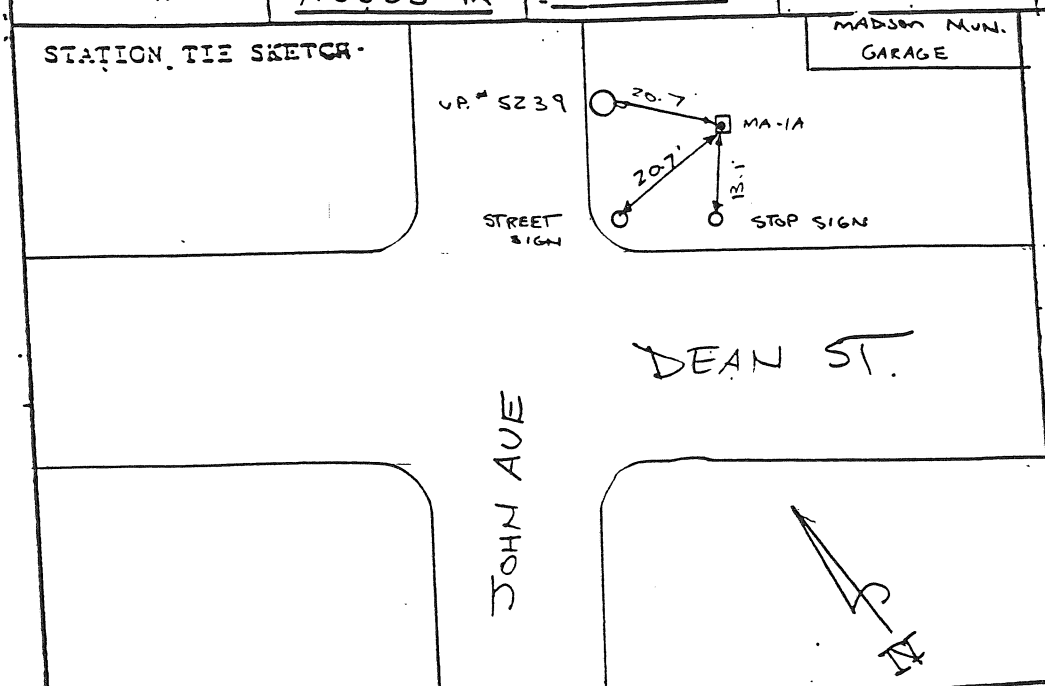
WEATHER CODE: BEG. 0 0 0 0 0 / END. 0 0 0 0 0	FIELD LAT: 40°45'06"N	REF LAT:	GPS DAY # 250	PROJECT: MADISON.
PROBLEM: none	FIELD LONG: 74°24'06"W	REF LONG:	GPS WEEK # 713	DATE: 9-7-93 DAY: TUES
ANTENNA SN: 0385	RECEIVER SN: 1448	STATION CODE: MA-1A	STATION NAME: MA-1A	OBSERVER: DRF
CABLE LENGTH 10m	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE 4000 SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	15:10 (11:10)	16:10 12:10	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	15:08	16:10	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
AAL	MA-11	MA-11						
DRF	MA-1A	MA-1A						
BEG ANT HGT	1.602	1.603						
	1.602	—						
END ANT HGT	1.602	1.603						
	1.602	—						
AVE ANT HGT	1.5947 m							
ANT HGT	1.6023 m							

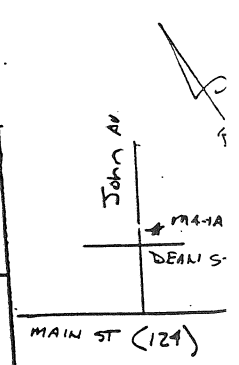
3" = 5.250'

1.6023m = 5.257'

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION MAIN ST. To John AV. N on John AV. To DEAN ST. STA @ INT.

GPS Surveys:

This task was undertaken by Subconsultant Taylor, Wiseman and Taylor.

Six TRIMBLE 4000 SST and SSE Dual-Frequency Surveyor receivers were utilized on the Madison Borough project in Morris County, New Jersey. The survey was tied to the following control monuments: 14F1, 14H1, 14J1 and 14G1.

Field Observations and Processing of GPS Baselines:

The observational network fulfilled the following conditions:

(i) One hour static GPS observations were performed according to "Blue Book" specifications for each session on August 31, 1993.

(ii) Adjacent monuments were observed as GPS baselines and thus maximum accuracy was achieved, particularly for short baselines.

(iii) Stations were grouped into observation sessions with common stations between the sessions. All receivers were used for simultaneous observations which resulted in dependent and independent baselines as well as redundancy. Trimble Navigation GPSurvey Software was used to process all baselines.

Network Adjustment:

The GPS network was placed on NAD '27. Elevations were based on N.G.V.D. '29. The TRIMNET PLUS (Trimble Navigation) Adjustment software was utilized to perform least squares adjustments on all GPS solutions. Mr. Bernard Putziger of the National Geodetic Survey (N.G.S.) was responsible for adjusting and blue booking the project with N.A.D. '83 coordinates and N.A.V.D. '88 elevations. RETIRED

Accuracy:

Horizontal = First Order
Vertical = Third Order

Michael Burns, PLS
GPS Project Manager

MB/tmc

wpw2:2-gpsvep.mb

GPS FIELD OBSERVATION RECORD

AUGUST 31, 1993

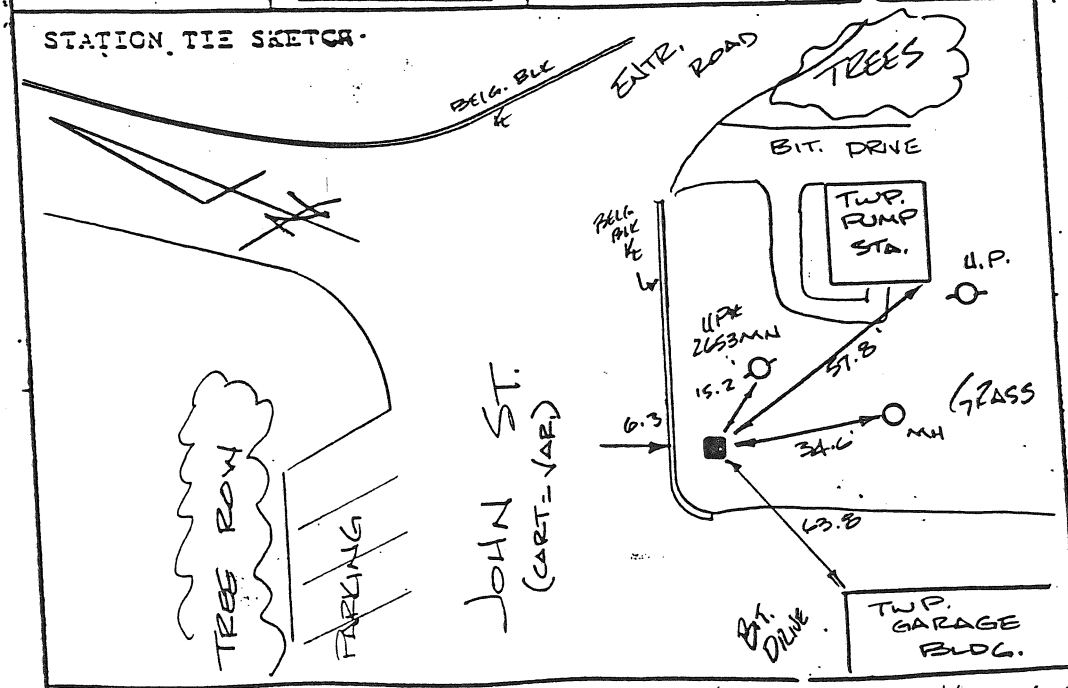
WEATHER CODE: BEG. 0 2 1 2 0 END. 0 2 1 2 0	FIELD LAT: 40°-46'-09"	REF LAT:	GPS DAY # 243	PROJECT: MADISON/VEP
PROBLEM: NONE	FIELD LONG: 74°-24'-04"	REF LONG:	GPS WEEK # 712	DATE: 8/31/93 DAY: TUESDAY
ANTENNA SN: 7668	RECEIVER SN: 2680	STATION CODE: MA01	STATION NAME: MA1	OBSERVER: J. MCCALL
CABLE LENGTH 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE TRIMBLE 4000 SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	3:30 (19:30)	4:30 20:30	5:00 (21:00)	6:00 22:00	: (:)	:	: (:)	:
ACT UTC TIME	19:21	20:50	20:57	22:00	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JJM		MA 1		MA 1				
DRF		MA 2		MA 5				
RVB		MA 14		MA 15A				
GHG		14G1		MA-4A				
JPK		MA2A		MA-5A				
EDZ		MA-1A		MA-1A				
BEG ANT HGT	1.6182		1.6992					
END ANT HGT	1.6182		1.6992					
AVE ANT HGT	—		—					
ANT HGT	1.6182		1.6992					

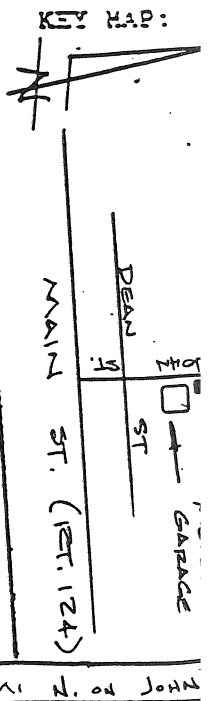
0.0692 M
1.5490 M
1.6182

0.0692
1.6300
1.6992

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION FROM MAIN ST. & JOHN ST. GO +/- 0.1 MI. N. ON JOHN

GPS FIELD OBSERVATION RECORD

WEATHER CODE: BEG. 0.0 1 0 0. END. 0 0 1 0 0	FIELD LAT: 40°45'32" N	REF LAT:	GPS DAY # 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 74°23'5.8" W	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 7915	RECEIVER SN: 2643	STATION CODE: MA02-243-4/5	STATION NAME: MA-2	OBSERVER: DRF
CABLE LENGTH 10 m	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE 4000 SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	18:00 (2:00)	19:00 3:00	19:30 (3:30)	20:30 4:30	: (:)	:	: (:)	:
ACT UTC TIME	17:58	19:00	19:28	20:30	:	:	:	:
OBSERVER	StaCode	StName	StCode	StName	StCode	StName	StCode	StName
JMc		MA-06		MA-01				
RB		MA-03		MA-14				
GG		1451		1461				
JK		MA-2A		MA-2A				
EZ		MA-6A		MA-1A				
DRF		MA-2		MA-2				
BEG ANT HGT	1.5712 m	—	1.6042	—				
END ANT HGT	1.5712 m	—	1.6042	—				
AVE ANT HGT	—		—					
ANT HGT	1.5712 m		1.6042 m					

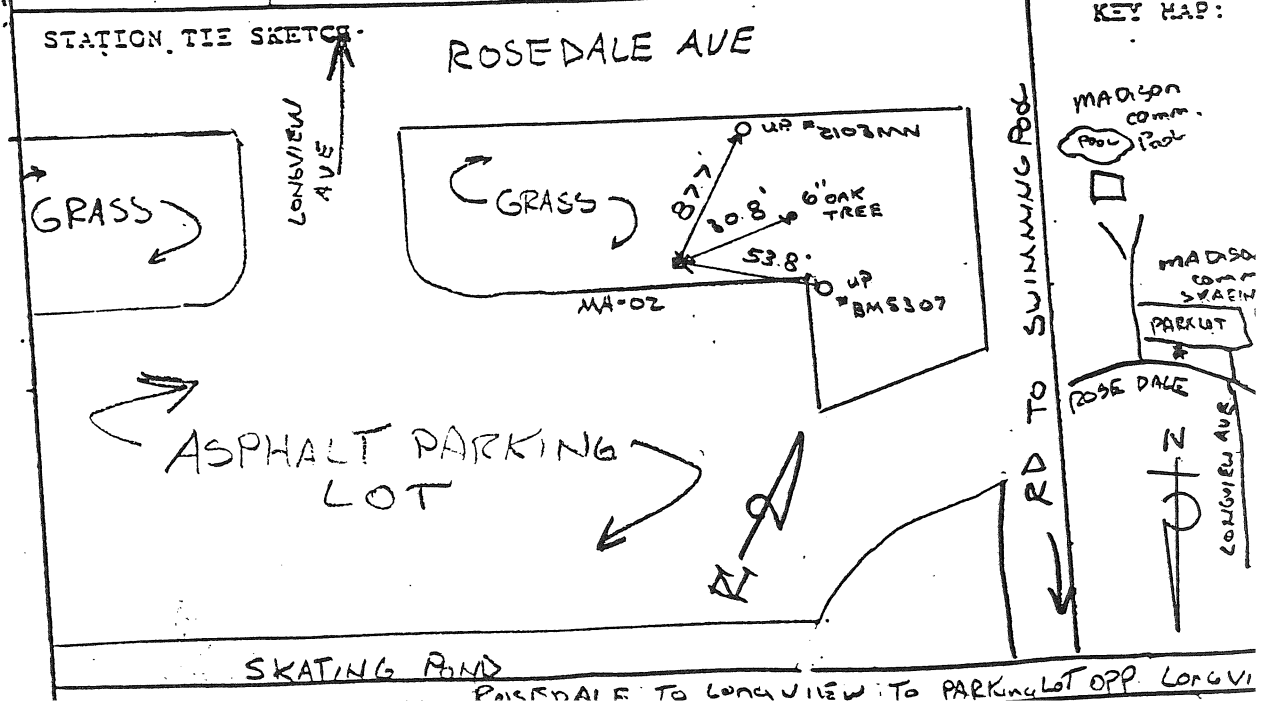
1.502 LEGS
0.0692 ANT.
1.5712 m = 5.1548'

19.0625 LEGS
2.725 ANT
61.7875" = 5.149'

1.535 LEGS
0.0692
1.6042 = 5.2631'

60.4375
2.7250
63.1625" = 5.2635'

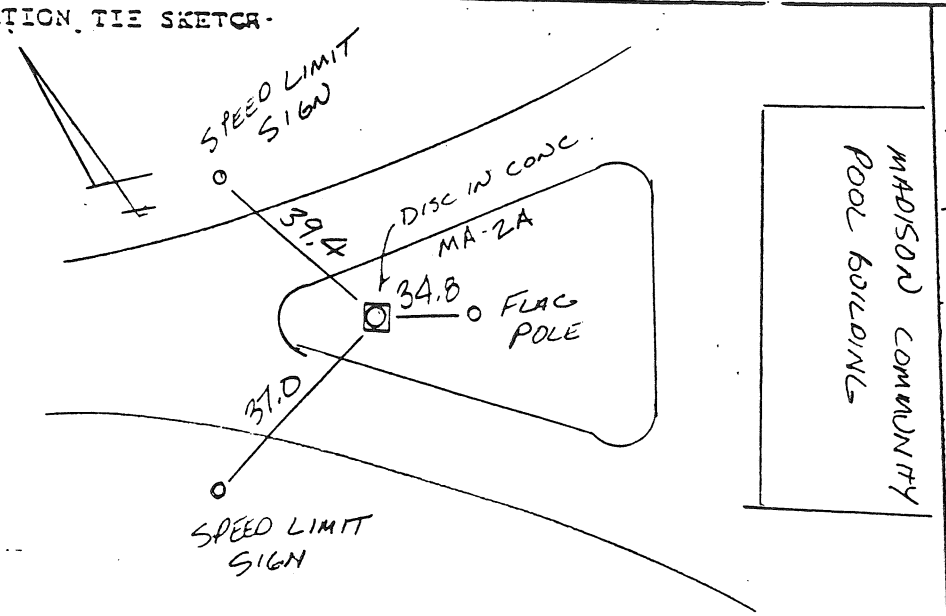
STATION TIE SKETCH



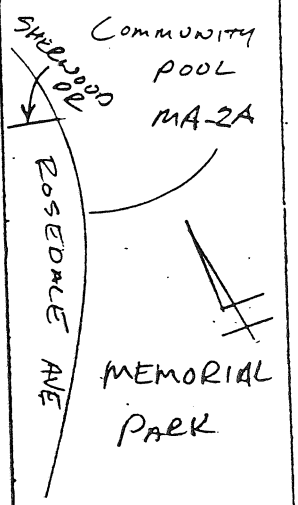
WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. 0 0 1 0 0 END. 0 0 1 0 0	40°-45'-35"		243	MADISON
PROBLEM: NONE	FIELD LONG: 74°-23'-53"	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUE
ANTENNA SN: 3105A00395	RECEIVER SN: 1450	STATION CODE: MA2A	STATION NAME: MA-2A	OBSERVER: J. KRASZEWSKI
CABLE LENGTH 10 M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE TRIMBLE SST	SESSION 1 START	SESSION 1 STOP	SESSION 2 START	SESSION 2 STOP	SESSION 3 START	SESSION 3 STOP	SESSION 4 START	SESSION 4 STOP
SCHED UTC TIME (LOCAL TIME)	18:00 (2:00)	19:00 3:00	19:30 (3:30)	20:30 4:30	: (:)	:	: (:)	:
ACT UTC TIME	17:55	19:00	19:02	20:36	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JPK		MA-2A		MA-2A				
JJM		MA-6		MA-1				
DRF		MA-2		MA-2				
RVB		MA-3		MA-14				
GHG		14J1		14G1				
EDZ		MA-6A		MA-1A				
BEG ANT HGT	1.507 59 3/8"		1.550 61 1/8"					
END ANT HGT	1.507 59 3/8"		1.550 61 1/8"					
AVE ANT ◺ HGT	1.507 M		1.550 M					
ANT ◺| HGT								

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION ON GROUNDS OF COMMUNITY POOL @ MEMORIAL PARK

MARK TYPE

AUGUST 31, 1993

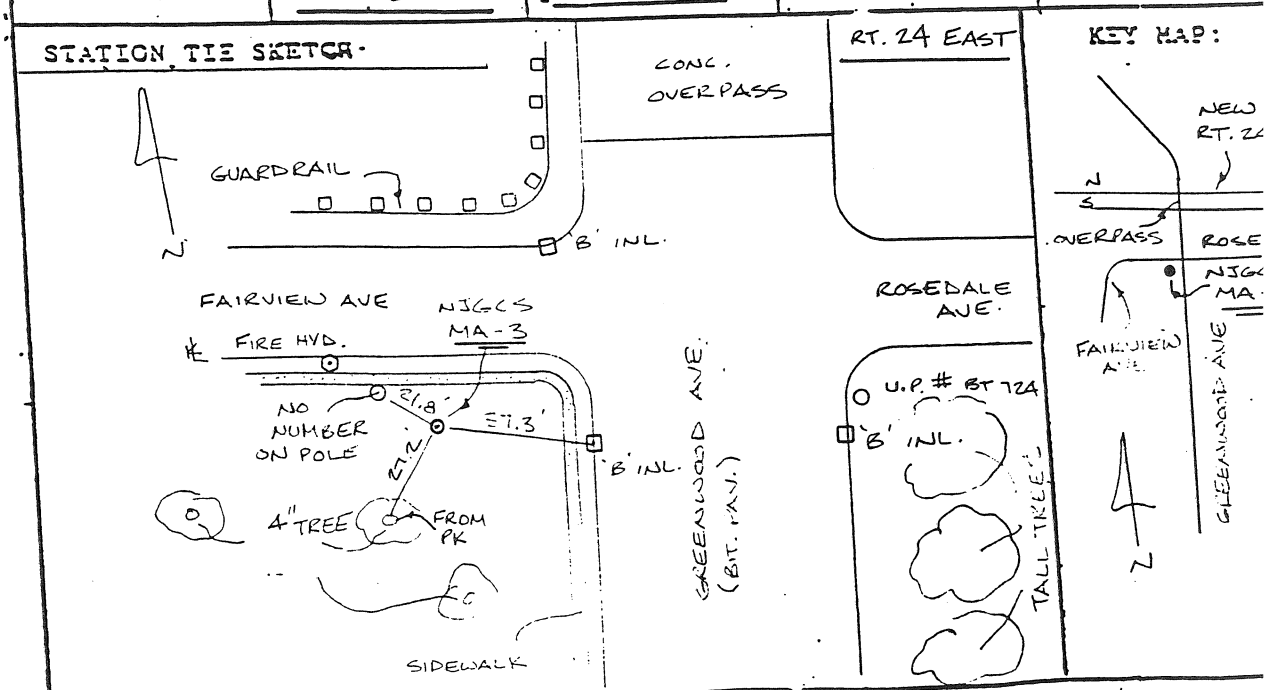
WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. 0 1 1 1 1 / END. 0 1 1 1 1	40°-45'-54"		243	MADISON
PROBLEM:	**FIELD LONG:**	**REF LONG:**	**GPS WEEK #**	**DATE:** 8/31/93 **DAY:** TUESDAY
NONE	74°-24'-10"		712	
ANTENNA SN:	**RECEIVER SN:**	**STATION CODE:**	**STATION NAME:**	**OBSERVER:**
0339	1448		MA-3	RVB

CABLE LENGTH	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
10M								
RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	18:00 (2:00)	19:00 3:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	17:51	19:00	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
RVB		MA-3						
JJM		MA-6						
DRF		MA-2						
GHG		14J1						
JPK		MA2A						
EDZ		MA6A						
BEG ANT HGT	1.6661	1.6661						
	1.6661							
END ANT HGT	1.6661	1.6661						
	1.6661							
AVE ANT HGT	1.6661							
ANT HGT	1.654							

CHK w/6' RULER

6 5 3/8	1.661
5.448	5.450

STATION TIE SKETCH



TO REACH THE STATION AT THE INTERSECTION OF GREENWOOD & FAIRVIE

GPS FIELD OBSERVATION RECORD

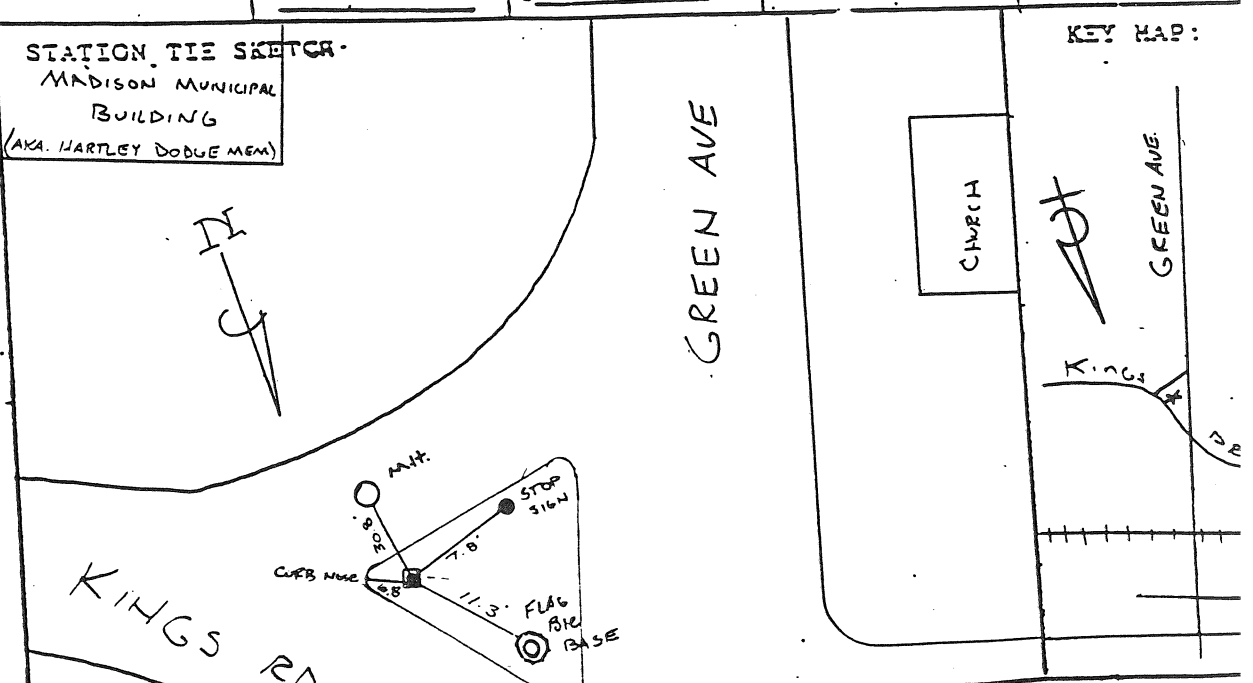
WEATHER CODE: BEG. 0 1 0 1 0 / END. 0 1 0 1 0	FIELD LAT: 40°45'27"N	REF LAT:	GPS DAY # 243	PROJECT: MADISON.
PROBLEM: NONE	FIELD LONG: 74°24'58"W	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUESDAY.
ANTENNA SN: 7915	RECEIVER SN: 2643	STATION CODE: MA04	STATION NAME: MA-4	OBSERVER: DRF
CABLE LENGTH 10m	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE 4000 SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	13:30 (9:30)	14:30 10:30	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	13:19	14:30	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
J MS		MA-9						
RB		MA-08						
GG		MA-7						
JK		MA-4A						
EZ		MA9A						
DRF		MA-4						
BEG ANT HGT	1.6012m	—						
	—	—						
END ANT HGT	1.6012m	—						
	—	—						
AVE ANT ⊿ HGT	—							
ANT ⊿ HGT	1.6012 m							

1.532 LEGS
0.0692 ANT.
1.6012m = 5.2533'

1/8 = 60.375
2.725
63.100" =
5.2583'

STATION TIE SKETCH
MADISON MUNICIPAL BUILDING
(AKA. HARTLEY DODGE MEM)

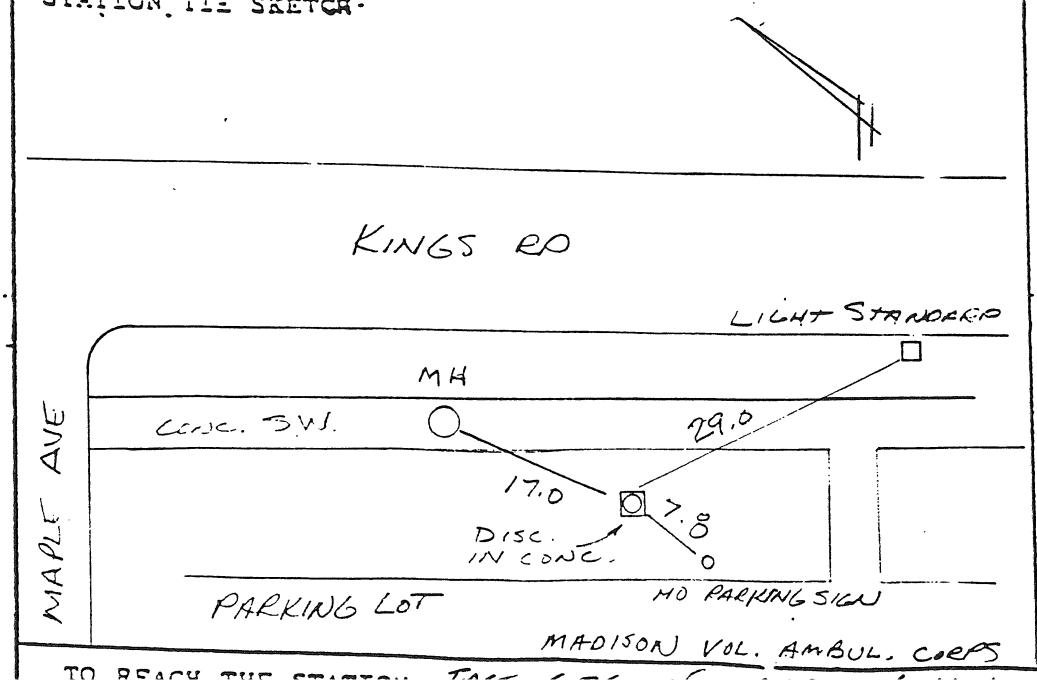


TO REACH THE STATION INTERSECTION OF KINGS RD. AND GREEN AVE

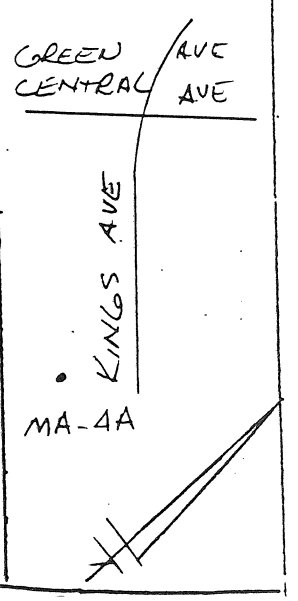
GPS FIELD OBSERVATION RECORD

WEATHER CODE: BEG. 0 0 0 0 0 / END. 0 0 1 0 0	FIELD LAT: 40°-45'-23"	REF LAT:	GPS DAY #: 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 74°-24'-55"	REF LONG:	GPS WEEK #: 712	DATE: 8-31-93 DAY: TUE
ANTENNA SN: 3105A00395	RECEIVER SN: 1450	STATION CODE: MA-4A	STATION NAME: MA-4A	OBSERVER: J. KRASZEWSKI
CABLE LENGTH 15 m	SESSION 1	SESSION 2	SESSION 3	SESSION 4
RECEIVER TYPE TRIMBLE SST	START / STOP	START / STOP	START / STOP	START / STOP
SCHED UTC TIME (LOCAL TIME)	13:30 / 14:30 (9:30) / 10:30	: / : (:)	: / : (:)	: / : (:)
ACT UTC TIME	13:18 / 14:30	: / :	: / :	: / :
OBSERVER	StaCode / StName	StaCode / StName	StaCode / StName	StaCode / StName
JPK	MA4A			
JJM	MA 9			
DRF	MA 4			
RVB	MA 8			
GHG	MA 7			
EDZ	MA9A			
BEG ANT HGT	1.618m / 63 3/4"			
END ANT HGT	1.618 / 63 3/4"			
AVE ANT HGT	1.618 m			
ANT HGT				

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION: TAKE

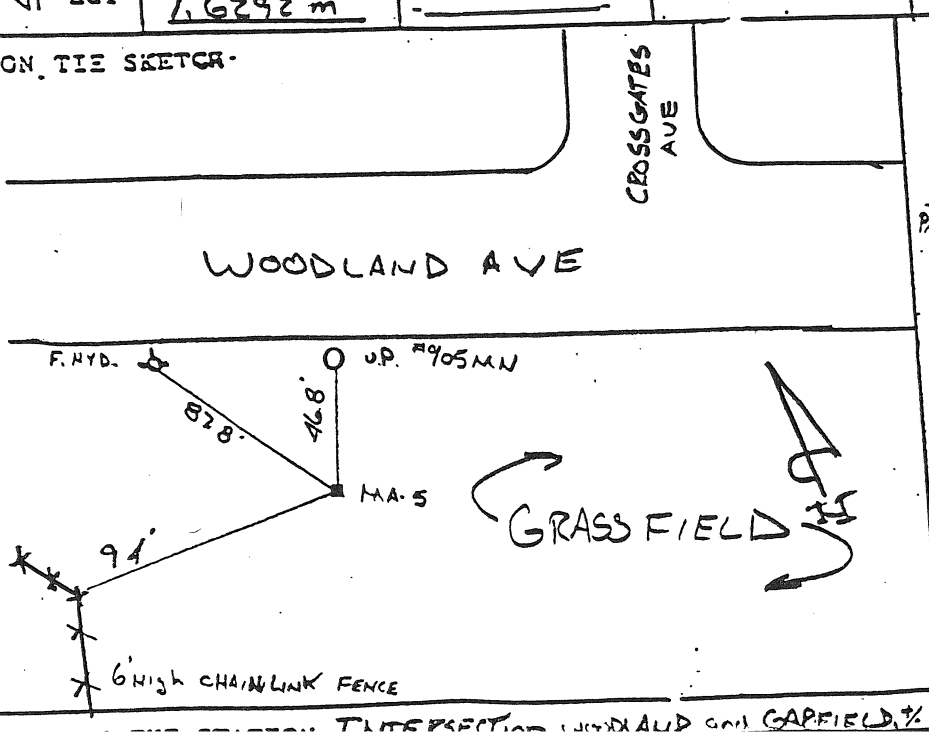
WEATHER CODE: 0 0 1 0 0 / 0 0 1 0 0 (BEG. / END.)	FIELD LAT: 40°44'53"N	REF LAT:	GPS DAY #: 243	PROJECT: MADISON
PROBLEM: none	FIELD LONG: 74°25'00"W	REF LONG:	GPS WEEK #: 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 7915	RECEIVER SN: 2643	STATION CODE: MA05	STATION NAME: MA-5	OBSERVER: DRF

CABLE LENGTH	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
RECEIVER TYPE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	20:00 (4:00)	21:00 5:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	19:48	21:00	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JMS		MA-01						
RB		MA-13A						
GG		MA-4A						
JK		MA-5A						
EZ		MA-1A						
DRF		MA5						
BEG ANT HGT	1.6292m	—						
END ANT HGT	1.6292m	—						
AVE ANT HGT	—							
ANT HGT	1.6292 m							

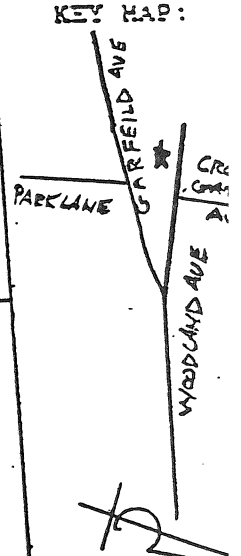
1.460 LEGS
= 12 ANT
1.6292 m = 5.3451'

1.375 LEGS
2.725 ANT
.4 1000 = 5.3417'

STATION TIE SKETCH



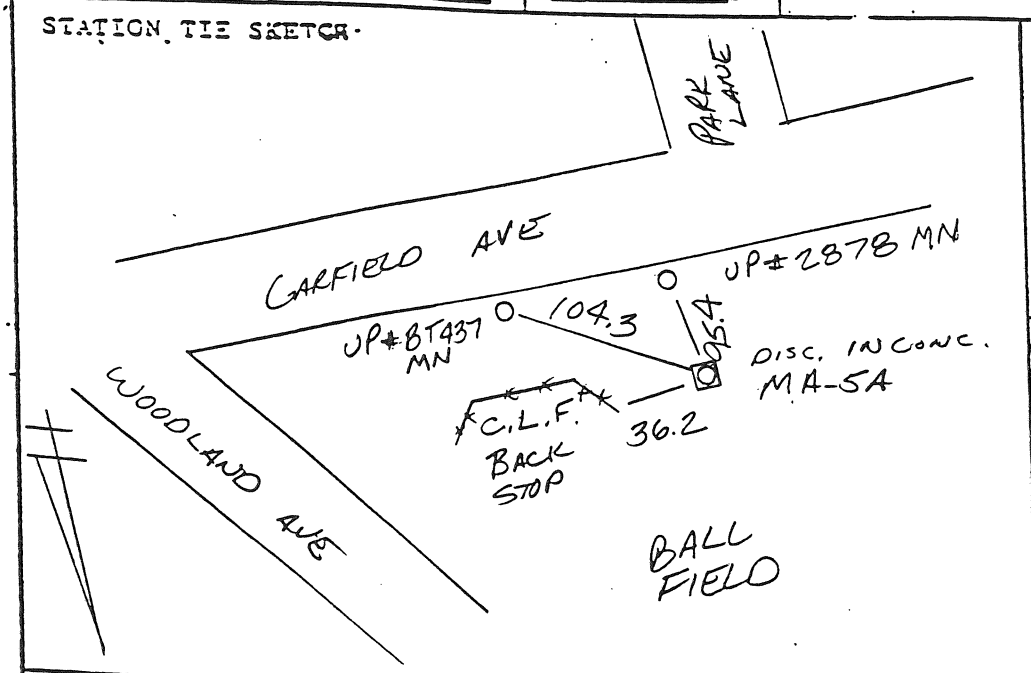
KEY MAP:



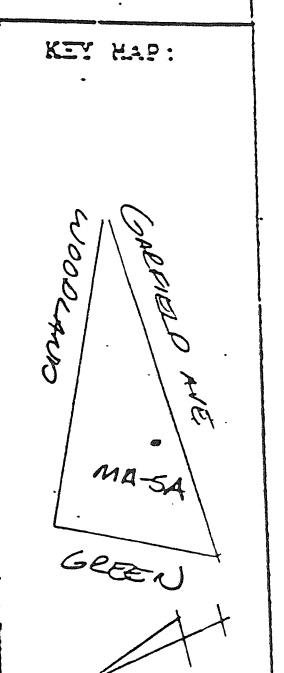
THE STATION: INTERSECTION WOODLAND AVE GARFIELD, ½.2 mi EAST ON

WEATHER CODE: BEG. 2 0 1 0 0 / END. 0 0 1 0 0	FIELD LAT: 40°-44'-50"	REF LAT:	GPS DAY #: 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 74°-25'-00"	REF LONG:	GPS WEEK #: 712	DATE: 8-31-93 DAY: TUE
ANTENNA SN: 3105A00395	RECEIVER SN: 1450	STATION CODE: MA5A	STATION NAME: MA-5A	OBSERVER: J. KRASZEWSKI
CABLE LENGTH 10 M	SESSION 1	SESSION 2	SESSION 3	SESSION 4
RECEIVER TYPE TRIMBLE SST	START / STOP	START / STOP	START / STOP	START / STOP
SCHED UTC TIME (LOCAL TIME)	21:00 (5:00) / 22:00 6:00	: (:) / :	: (:) / :	: (:) / :
ACT UTC TIME	20:48 / 22:00	: / :	: / :	: / :
OBSERVER	StaCode / StName	StaCode / StName	StaCode / StName	StaCode / StName
JPK	MA-5A			
JJM	MA-1			
DRF	MA-5			
RJB	MA-13A			
GHG	MA-4A			
EDZ	MA-1A			
BEG ANT HGT	1.573 / 61 7/8"			
END ANT HGT	1.573 / 62"			
AVE ANT ◺ HGT	1.573			
ANT ◺ HGT				

STATION TIE SKETCH:



KEY MAP:



TO REACH THE STATION @ INT. OF GARFIELD, PARK & WOODLAND @ BALL FIELD

MARK TYPE: STD DISK IN CONC. MON. STAMPING: MA-5A

GPS FIELD OBSERVATION RECORD

AUGUST 31 1993

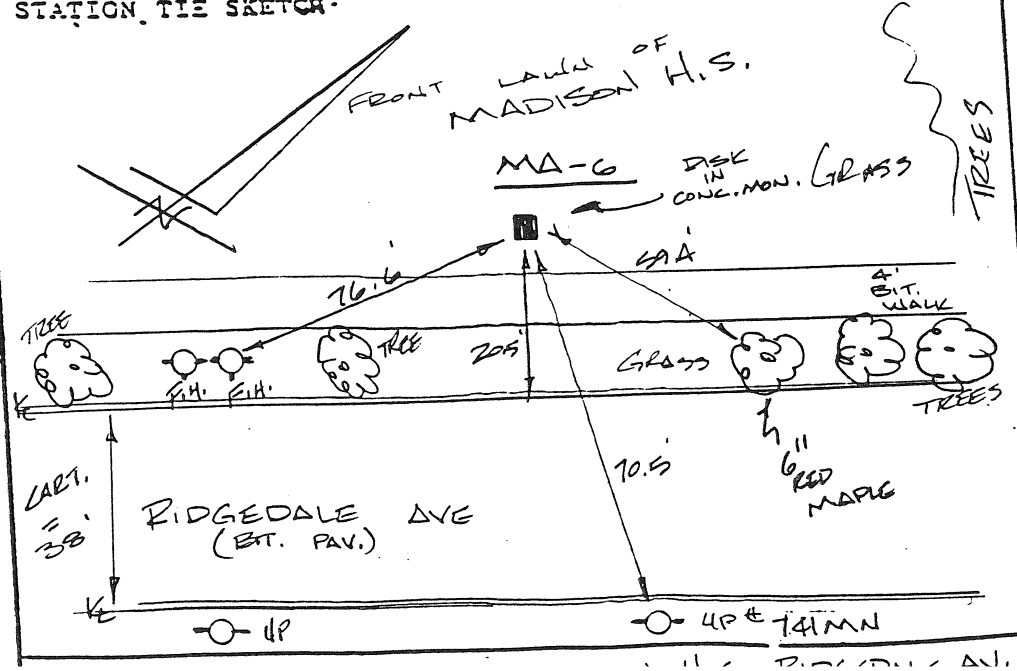
WEATHER CODE: BEG. 8 2 1 2 0 / END. 0 2 1 2 0	FIELD LAT: 40°-46'-10" N	REF LAT:	GPS DAY #: 243	PROJECT: MADISON/NEP
PROBLEM: NONE	FIELD LONG: 74°-24'-27" W	REF LONG:	GPS WEEK #: 712	DATE: 8/31/93 DAY: TUESDAY
ANTENNA SN: 7668	RECEIVER SN: 2860	STATION CODE: MA06	STATION NAME: MA-6	OBSERVER: J. MCCALL
CABLE LENGTH: 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE: TRIMBLE 4000SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	16:30 (12:30)	17:30 1:30	18:00 (2:00)	19:00 3:00	: (:)	:	: (:)	:
ACT UTC TIME	16:20	17:30	18:00	19:00	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JJM		MA-6		MA-6				
DF		MA-12		MA-2				
EB		14H1		MA-3				
GHG		14J1		14J1				
JPK		MA-12A		MA-2A				
EDZ		MA-6A		MA-6A				
BEG ANT HGT	1.6932		1.7362					
END ANT HGT	1.6932		1.7362					
AVE ANT ⊿ HGT								
ANT ⊿ HGT	1.6932M		1.7362					

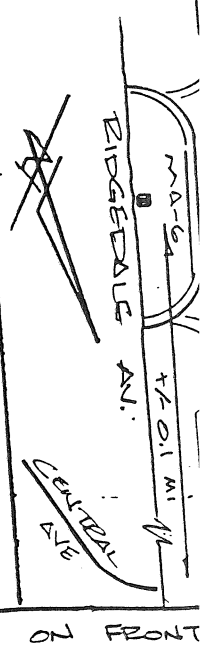
0.0692M
1.6240 M
1.6932M

0.0692
1.6670M
1.7362M

STATION TIE SKETCH



KEY MAP:



... RIDGEDALE AV. ON FRONT

GPS FIELD OBSERVATION RECORD

AUGUST 31, 1993.

WEATHER CODE: BEG. 0 / END. 0	FIELD LAT: 40° 46' 17" N	REF LAT:	GPS DAY #: 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 074° 24' 24" W	REF LONG:	GPS WEEK #: 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 0399	RECEIVER SN: 1449	STATION CODE: MAGA	STATION NAME: MA-6A	OBSERVER: EDZ
CABLE LENGTH .10 m	SESSION 1	SESSION 2	SESSION 3	SESSION 4

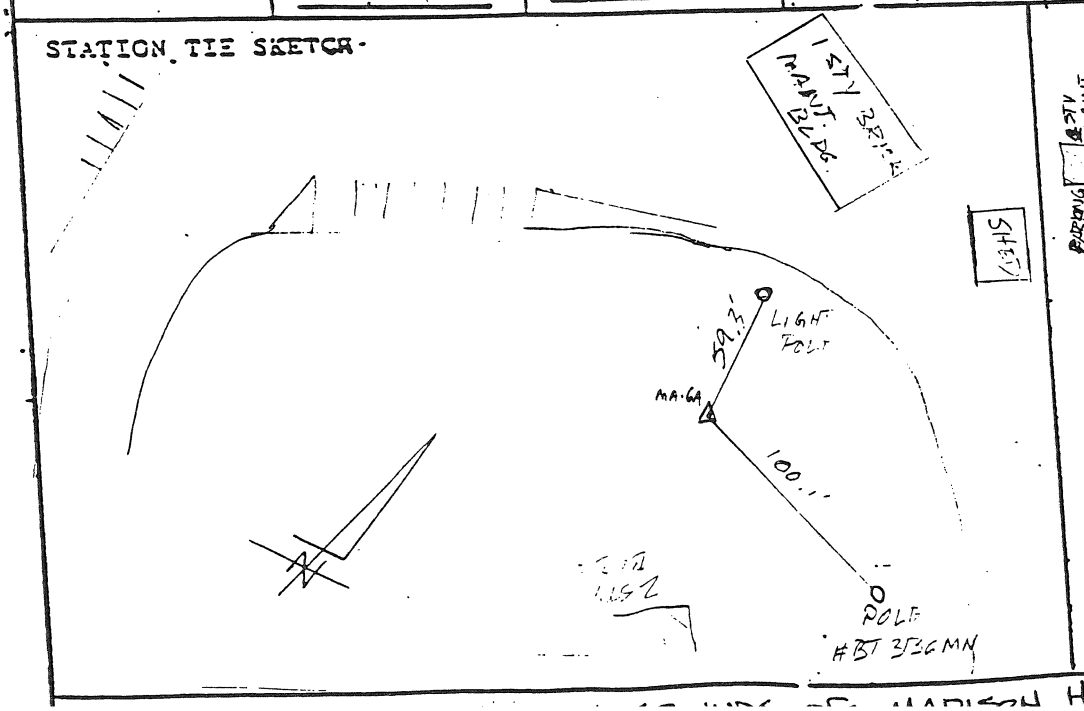
RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	16:30 (12:30)	17:30 (13:30)	18:00 (14:00)	19:00 1500	: (:)	:	: (:)	:
ACT UTC TIME	16:28	17:30	17:43	19:00	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
EDZ		MA-6A		MA-6A				
JJMc		MA-06		MA-06				
DRF		MA-12		MA-02				
RVB		14H1		MA-03				
GHG		14J1		14J1				
JPK		MA-17A		MA-7A				
BEG ANT HGT	1.737m	1.736m	1.757	1.761				
	1.738m		1.760					
END ANT HGT	1.736	1.738	1.760	1.757				
	1.737		1.761					
AVE ANT ◹ HGT	1.737m		1.760 m					
ANT ◹ HGT	1.721 m		1.744 m					

Check

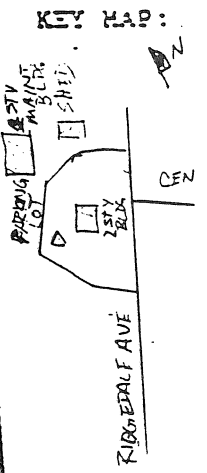
68 3/8 1.737m
5.70 ft 5.70 ft

69 5/16 1.760
5.78 ft 5.77 ft

STATION TIE SKETCH



KEY MAP:



... MADISON HIS. ON RI

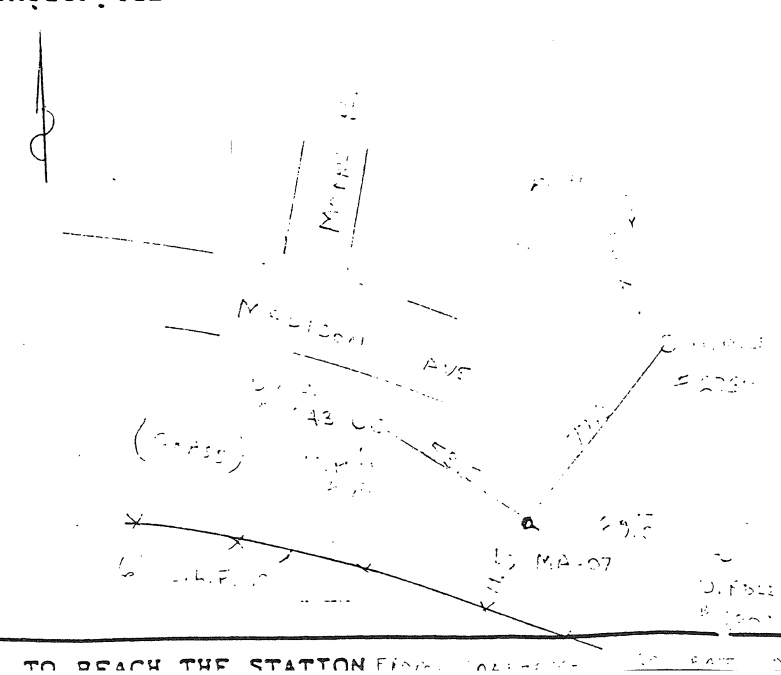
WEATHER CODE: BEG. 0 0 0 1 0 / END. 0 0 0 1 0	FIELD LAT: 40.45.92 N	REF LAT:	GPS DAY #: 243	PROJECT: 81226124 MADISON
PROBLEM: NONE	FIELD LONG: 74-25.55 W	REF LONG:	GPS WEEK #: 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 0335	RECEIVER SN: 1451	STATION CODE: MA 07	STATION NAME: MA 07	OBSERVER: G.A. GUSRANG
CABLE LENGTH: 10 M	SESSION 1 243-1	SESSION 2 243-2	SESSION 3	SESSION 4

RECEIVER TYPE: 4000 SST	SESSION 1 START	SESSION 1 STOP	SESSION 2 START	SESSION 2 STOP	SESSION 3 START	SESSION 3 STOP	SESSION 4 START	SESSION 4 STOP
SCHED UTC TIME (LOCAL TIME)	13:30 (9:30)	14:30 10:30	15:00 (11:00)	16:00 12:00	: (:)	:	: (:)	:
ACT UTC TIME	13:24	14:30	14:56	16:00	:	:	:	:
OBSERVER	StaCode	StName	StCode	StName	StCode	StName	StCode	StName
GHG	MA-7	MA-7	MA-7	MA-7				
JJM		MA-9		MA-14				
DRF		MA-4		MA-12				
RVB		MA-8		MA-8				
JPK		MA-4A		MA-12A				
EDZ		MA-9A		MA-14A				
BEG ANT HGT	1.488 / 1.487	1.488	1.485 / 1.484	1.485				
END ANT HGT	1.487 / 1.488	1.488						
AVE ANT ◺ HGT	1.488		1.485					
ANT ◺ HGT	—		—					

58 9/16
4.8802
1.488
4.8792
243-1

1.485
4.8720
243-2

STATION TIE SKETCH



KEY MAP:

TO REACH THE STATION

AUGUST 31, 1993

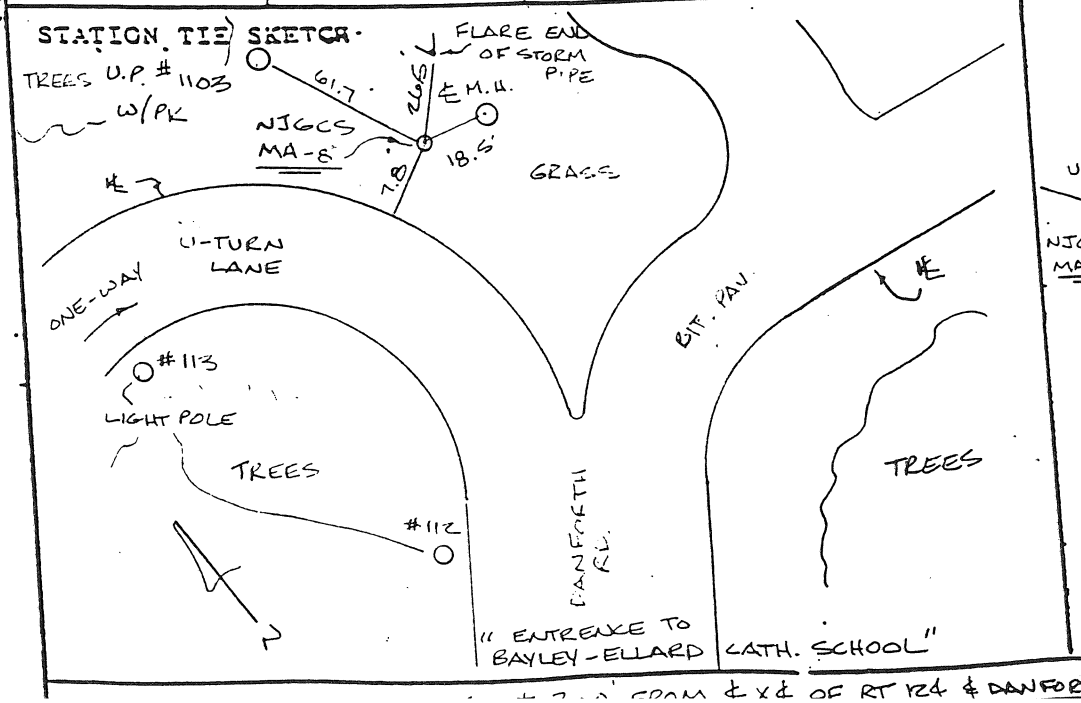
WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. 0 1 1 1 0 END. 0 1 1 1 1	40-46-06"		243	MADISON
PROBLEM: NONE	FIELD LONG: 74-25'-59"	REF LONG:	GPS WEEK # 712	DATE: 8/31/93 DAY: TUESDAY
ANTENNA SN: 0339	RECEIVER SN: 1448	STATION CODE: MA08	STATION NAME: MA-8	OBSERVER: RVB
CABLE LENGTH 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	13:30 (9:30)	14:30 10:30	15:00 (11:00)	16:00 12:00	: (:)	:	: (:)	:
ACT UTC TIME	13:37	14:35	14:50	16:00	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
RVB		MA-8		MA-8				
JJM		MA-9		MA-14				
DRF		MA-4		MA-12				
GHG		MA-7		MA-7				
JPK		MA-4A		MA-12A				
EDZ		MA-9A		MA-14A				
BEG ANT HGT	1.652	1.652	1.670	1.670				
	1.652		1.670					
END ANT HGT	1.652	1.652	1.670	1.670				
	1.652		1.670					
AVE ANT HGT	1.652		1.670					
ANT HGT	1.645		1.663					

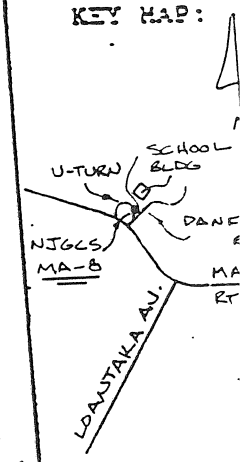
CHK W/6' RULER

65"	1.652
5.417	5.420
3/4	1.670
.79	5.479

STATION TIE SKETCH



KEY MAP:



[illegible] FROM ℄ x ℄ OF RT 124 & DANFORTH RD. ON DAN

GPS FIELD OBSERVATION RECORD

AUGUST 31, 1993

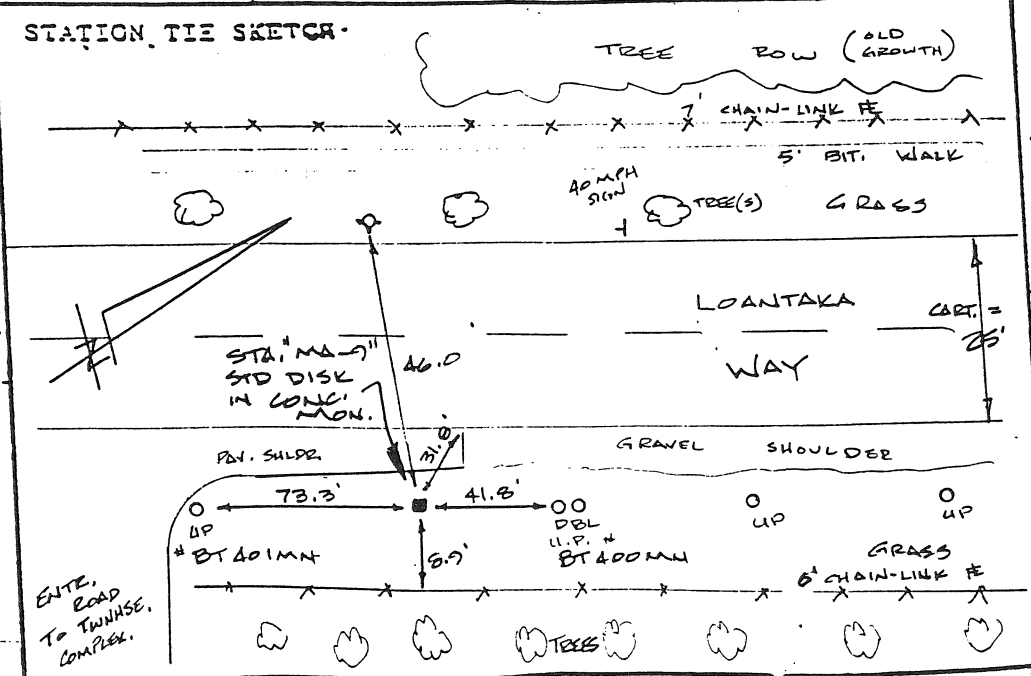
WEATHER CODE: BEG. 0 2 1 2 0 / END. 0 2 1 2 0	FIELD LAT: 40° - 44' - 43"N	REF LAT:	GPS DAY 8 243	PROJECT: MADISON/NEP
PROBLEM: NONE	FIELD LONG: 074° - 28' - 51" W	REF LONG:	GPS WEEK 8 712	DATE: 8/31/93 DAY: TUESDAY
ANTENNA SN: 7668	RECEIVER SN: 2860	STATION CODE: MA09	STATION NAME: MA-9	OBSERVER: JJM
CABLE LENGTH 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE TRIMBLE 4000SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	12:00 (8:00 AM)	13:00 9:00	13:30 (9:30)	14:30 10:30	: (:)	:	: (:)	:
ACT UTC TIME	11:40	13:30	13:28	14:30	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JJM		MA9		MA9				
D F		MA-13		MA4				
R B.		14F1		MA8				
GHG		MA-10		MA7				
JPK		MA-13A		MA4A				
EDZ		MA9A		MA 9A				
BEG ANT HGT	1.7042		1.7362					
END ANT HGT	1.7042		1.7362					
AVE ANT HGT	—		—					
ANT HGT	1.7042M		1.7362					

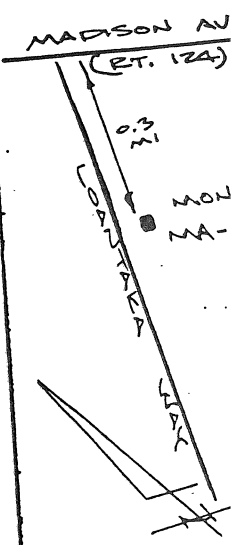
.0692 M
.0350 M
1.7042M

0.0692 M
1.6670 M
1.7362 M

STATION TIE SKETCH:



KEY MAP:



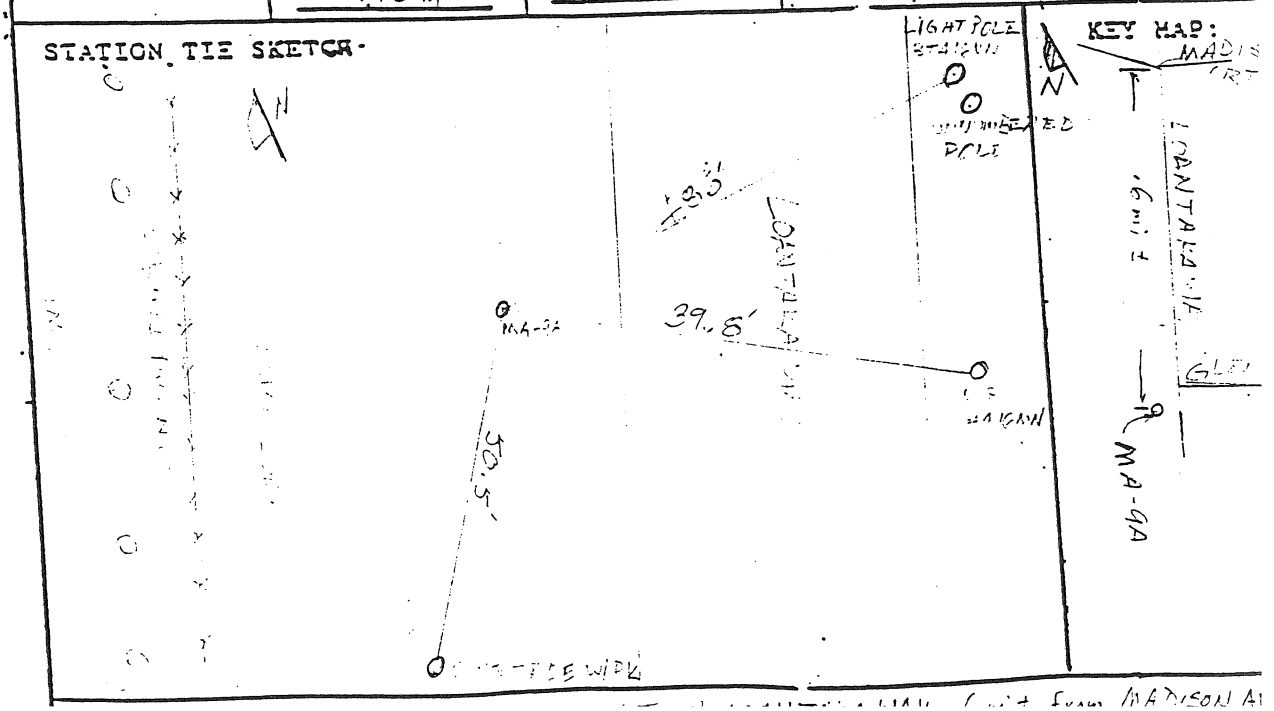
FROM MADISON AVE (RT. 124) GO SOUTH ON LOANTAK

August 31, 1993

WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. 0.1 0 2 1. / END. 0 1 1 1. 1	40° 45' 25.45" N		243	MADISON
PROBLEM:	**FIELD LONG:**	**REF LONG:**	**GPS WEEK #**	**DATE:** 8·31·93 / **DAY:** TUESDAY
NONE	074° 26' 03.52" W		712	
ANTENNA SN:	**RECEIVER SN:**	**STATION CODE:**	**STATION NAME:**	**OBSERVER:**
0399	1449	MA9A	MA-9A	EDZ

CABLE LENGTH	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
10 m								
RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	12:00 (8:00)	13:00 9:00	13:30 (9:30)	14:30 10:30	: (:)	:	: (:)	:
ACT UTC TIME	11:52	13:00	13:13	14:30	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
EDZ		MA-9A		MA-9A				
JJM		MA-09		MA-09				
DRF		MA-13		MA-04				
RVB		14E1		MA-08				
GHG		MA-10		MA-07				
JRK		MA-13A		MA-4A				
BEG ANT HGT	1.814 / 1.813	1.813m	1.832m / 1.831m	1.831m				
END ANT HGT	1.814m / 1.813m	1.813m	1.831m / 1.832m	1.831m				
AVE ANT HGT	1.813m		1.831m					
ANT HGT	1.798m		1.816m					

STATION TIE SKETCH

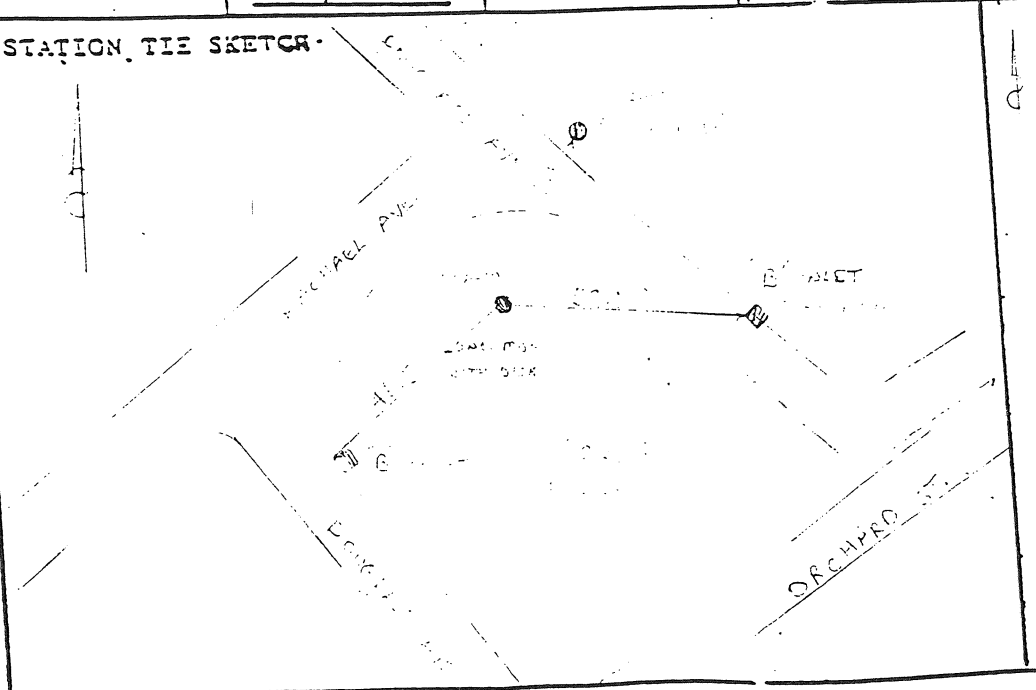


71 3/8" 1.813m
5.948 5.948'
6" 1.831m
6.01 ft

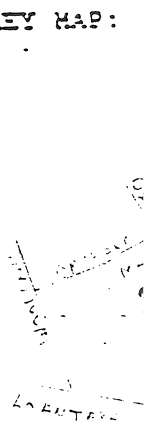
WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT: MADISON
BEG. 0 1 0 2 0 / END. 0 1 0 0 0	40-45.15		243	18122G124
PROBLEM:	**FIELD LONG:**	**REF LONG:**	**GPS WEEK #**	**DATE:** 8-31-93 / **DAY:** TUE.
NONE	74-25.88		712	
ANTENNA SN:	**RECEIVER SN:**	**STATION CODE:**	**STATION NAME:**	**OBSERVER:**
0335	1451	MA 10	MA-10	G.A. GUSRANG

CABLE LENGTH .10 METER	SESSION X0 243-0		SESSION 2		SESSION 3		SESSION 4	
RECEIVER TYPE 4000 SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	11:00 (8:00)	12:00 9:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	11:40	12:00	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
GAG	MA-10	MA-10						
JJM		MA-9						
DRF		MA-13						
RVB		IAF1						
JPK		MA-13A						
EDZ		MA-9A						
BEG ANT HGT	1.399	1.400						
	1.399							
END ANT HGT	1.399	1.399						
	1.400							
AVE ANT HGT	1.399 M							
ANT HGT								

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION

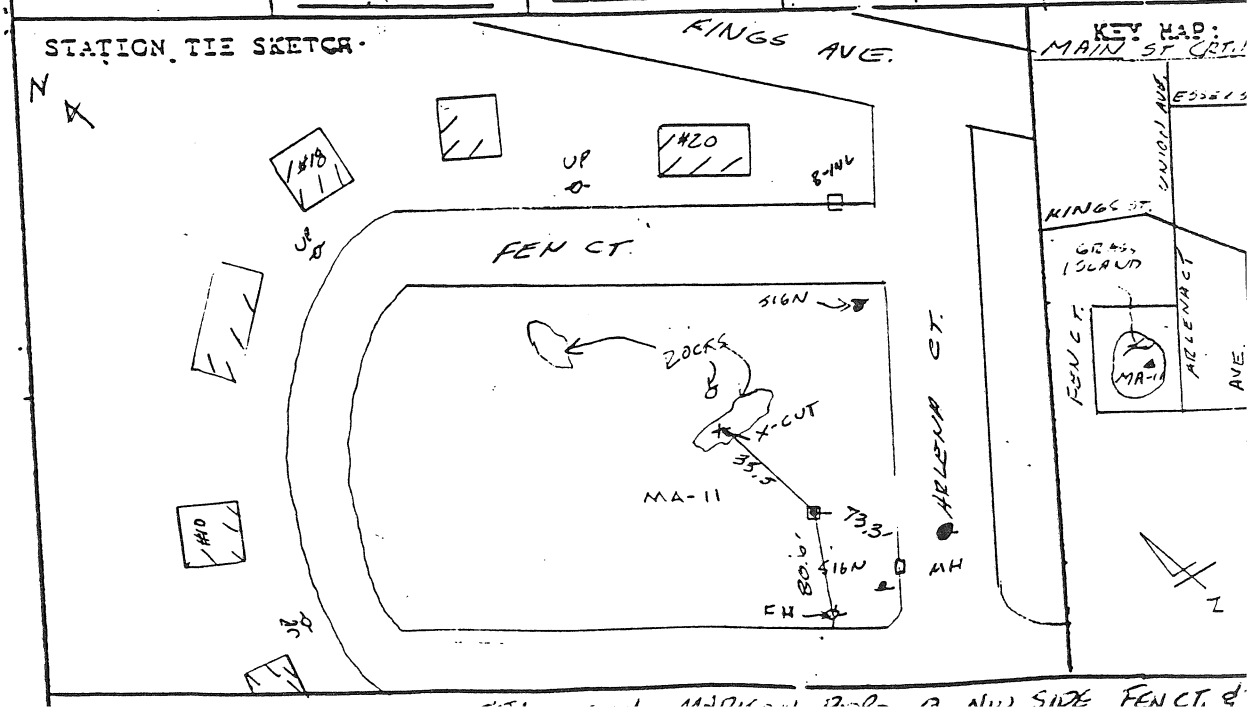
FS 1/16
1.5885

1.5991

WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. END.	40°44'47.22"N		250	MADISON
PROBLEM:	FIELD LONG:	REF LONG:	GPS WEEK #	DATE: 9/7/93
NONE	074°24'03.42"W		713	DAY: TUES.
ANTENNA SN:	RECEIVER SN:	STATION CODE:	STATION NAME:	OBSERVER:
3105A00399	3105A01451	MA-11	MA-11	AAL

CABLE LENGTH	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
10M								
RECEIVER TYPE 4000SST P-CODE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	14:00 (9:00)	15:00 10:00	15:10 (11:10)	16:10 12:10	16:30 (12:30)	17:30 1:30	: (:)	:
ACT UTC TIME	13:57	15:02	15:03	16:14	16:16	17:30	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
AAL	MA-11	MA-11	MA-11	MA-11	MA-11	MA-11		
DRF	MA-5A	MA-5A	MA-1A	MA-1A	1461	1461		
BEG ANT HGT	1.553	1.553	1.588	1.589	1.618	1.617		
	1.553		1.588		1.618	1.618		
END ANT HGT	1.553	1.553	1.588	1.589	1.618	1.618		
	1.553		1.588		1.617			
AVE ANT ▽ HGT	1.553		1.588		1.618			
ANT ▽| HGT								

STATION TIE SKETCH



GPS FIELD OBSERVATION RECORD

WEATHER CODE: BEG. 0 0 1 0 0 / END. 0 0 1 0 0	FIELD LAT: 40°-46'-13.6"	REF LAT:	GPS DAY # 243	PROJECT: MADISON
PROBLEM:	FIELD LONG: 74°-25'-21" W	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 7915	RECEIVER SN: 2643	STATION CODE: MA12	STATION NAME: MA-12	OBSERVER: DRF

CABLE LENGTH	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
RECEIVER TYPE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	15:00 (11:00)	16:00 12:00	16:30 (12:30)	17:30 1:30	: (:)	:	: (:)	:
ACT UTC TIME	14:55?	16:00	16:28	17:30	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JMS		MA-14		MA-06				
RB		MA-08		1414				
GG		MA-07		1431				
JK		MA-12A		MA-12A				
EZ		MA-AA		MA-6A				
DRF		MA-12		MA-12				
BEG ANT HGT	—	—	1.6432m	—				
	1.5932m	—	—	—				
END ANT HGT	1.5932m	—	1.6432m	—				
	—	—	—	—				
AVE ANT ⊿ HGT	—		—					
ANT ⊿ HGT	1.5932		1.6432					

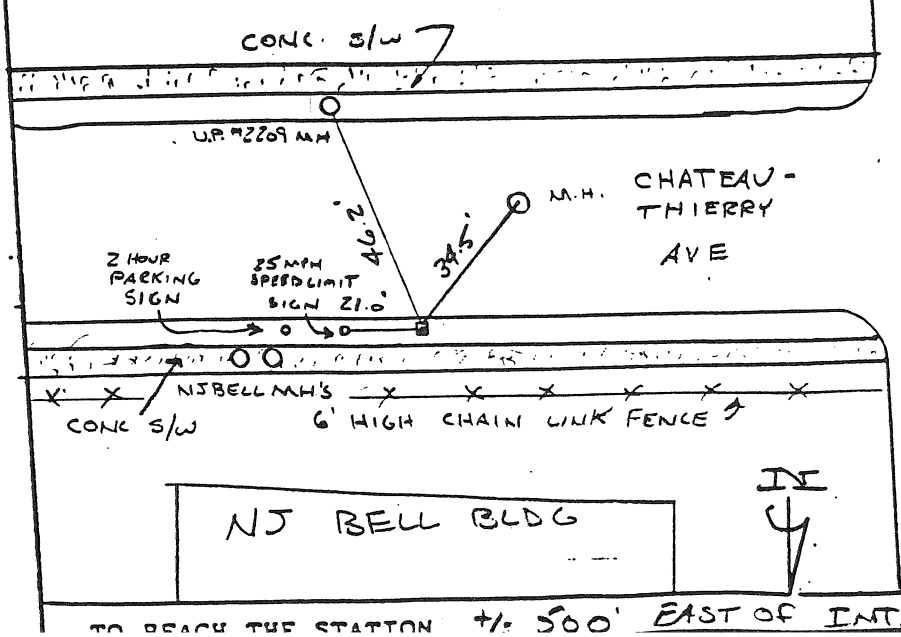
① 1.524 LEGS
0.0692 ANT.
1.5932m = 5.2270

③ 60.0625 LEGS
2.725 ANT.
62.7875 = 5.2323'

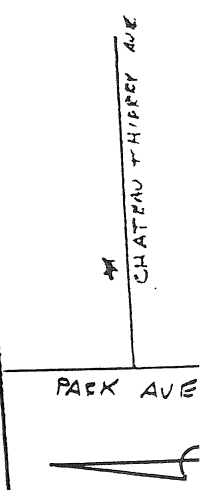
② 1.574 LEGS
0.0692 ANT.
1.6432 = 5.3911'

⑤ 62.000
2.725
64.725 = 5.3938'

STATION TIE SKETCH



KEY MAP:



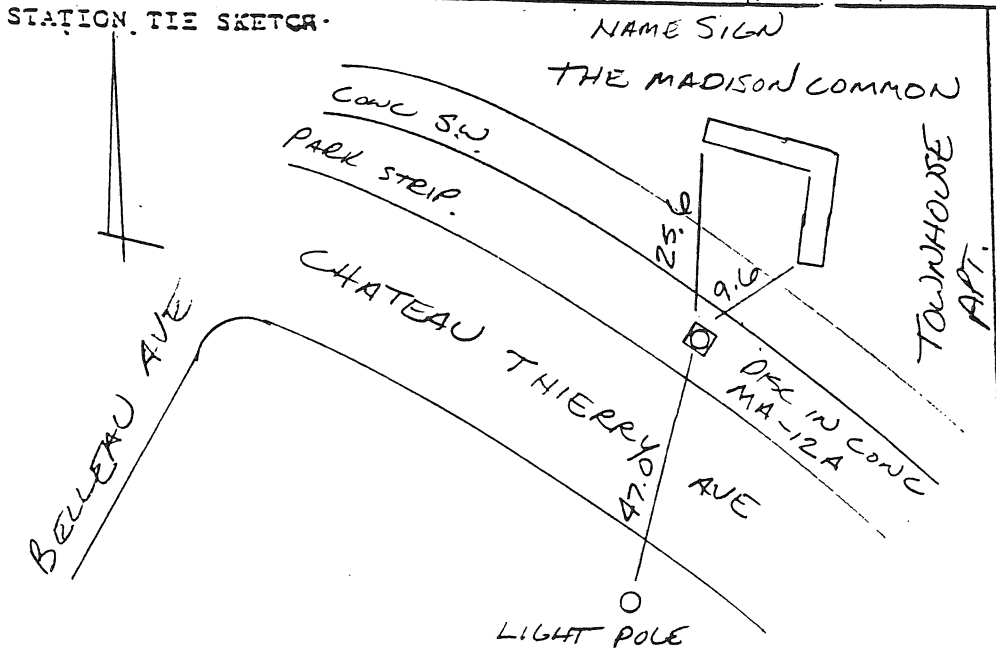
TO REACH THE STATION +/- 500' EAST OF INT. CHATEU-THIERRY

GPS FIELD OBSERVATION RECORD

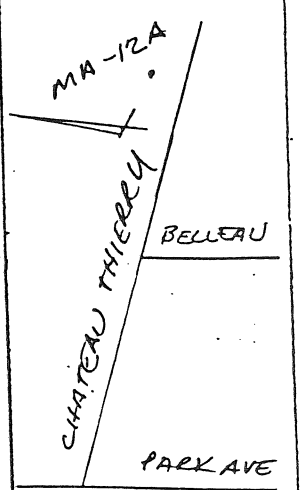
WEATHER CODE: BEG. 0 0 1 0 0 END. 0 0 1 0 0	FIELD LAT: 40°-46'-16"	REF LAT:	GPS DAY # 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 74°-25'-13"	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUE
ANTENNA SN: 3105A00595	RECEIVER SN: 1450	STATION CODE: MA-12A	STATION NAME: MA-12A	OBSERVER: J. KRASZEWSKI
CABLE LENGTH 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE TRIMBLE SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	15:00 (11:00)	16:00 12:00	16:30 (12:30)	17:30 1:30	: (:)	:	: (:)	:
ACT UTC TIME	14:55	16:00	16:02	17:30	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JPK		MA12A	MA12A					
JJM		MA-14	MA-6					
DRF		MA-12	MA-12					
RVB		MA-8	14H1					
GHG		MA-7	14J1					
EDZ		MA14A	MA6A					
BEG ANT HGT	1.660 65 3/8"		1.690 66 5/8"					
END ANT HGT	1.660 65 3/8"		1.690 66 5/8"					
AVE ANT ◺ HGT	1.660 M		1.690 M					
ANT ◺ HGT								

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION JUST EAST OF INT. OF BELLEAU & CHATEAU THIERRY

WEATHER CODE: BEG. 0 1 0 1 0 / END. 0 1 0 1 0	FIELD LAT: 40-44-50 N	REF LAT:	GPS DAY # 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 74-25-37 W	REF LONG:	GPS WEEK # 712	DATE: 8-31-93 DAY: TUESDAY
ANTENNA SN: 7915	RECEIVER SN: 2643	STATION CODE: MA-13	STATION NAME: MA-13	OBSERVER: DRF
CABLE LENGTH 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

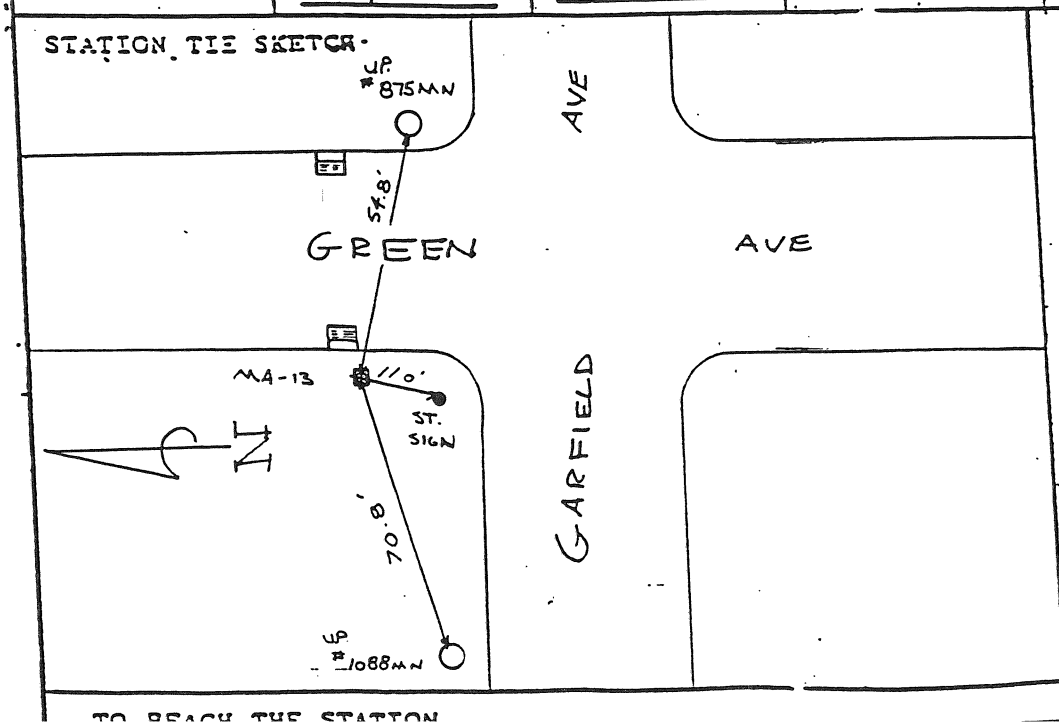
RECEIVER TYPE 4000 SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	12:00 (8:00)	13:00 9:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	11:50	13:00	:	:	:	:	:	:

OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
J Mc		MA-9						
R B		14F1						
GG		MA-10						
JK		MA-13A						
EZ		MA-9A						
BEG ANT HGT	1.5672m							
END ANT HGT	1.5672m							
AVE ANT HGT	—							
ANT HGT	1.5672 m							

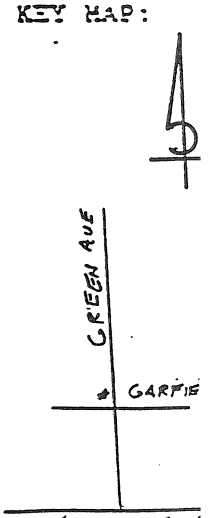
1498 m LEGS
− 692
1.5672 = 5.1417'

58 15/16 = 58.9376
2.725
61.6626 = 5.1386'

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION

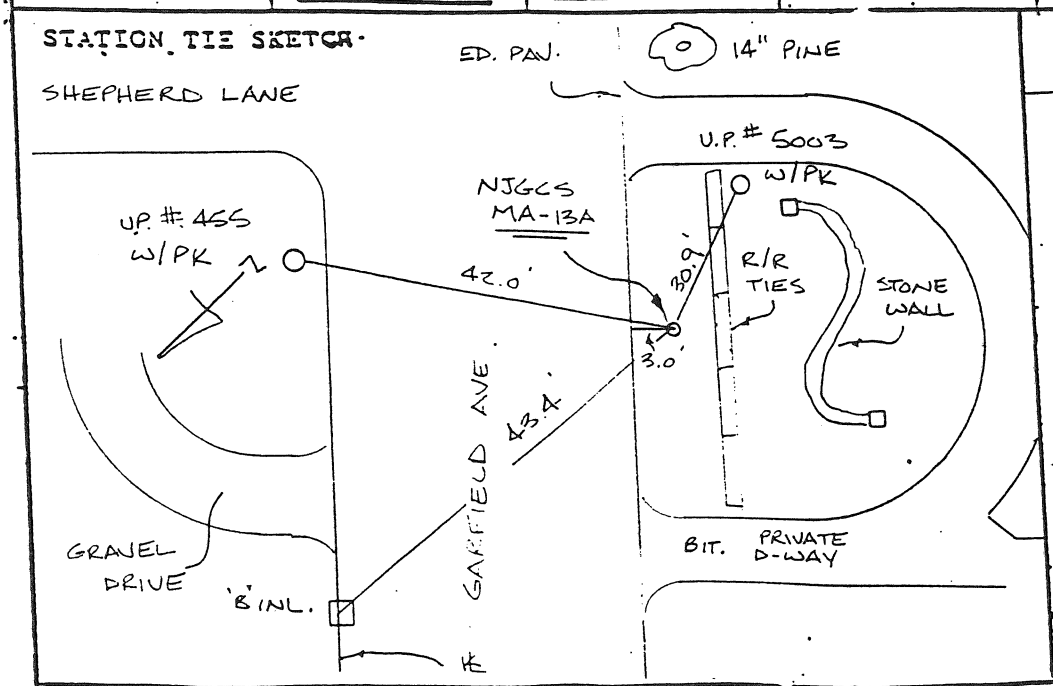
AUGUST 31, 1993

WEATHER CODE:	FIELD LAT:	REF LAT:	GPS DAY #	PROJECT:
BEG. 0 1 1 1 1 1 / END. 0 1 1 1 1 0	40°-44'-50"		243	MADISON
PROBLEM: HIGH TREES NEER BY	**FIELD LONG:** 74°-25'-31"	**REF LONG:**	**GPS WEEK #** 712	**DATE:** 8/31/93 **DAY:** TUESDAY
ANTENNA SN: 0339	**RECEIVER SN:** 1448	**STATION CODE:** MA-13A	**STATION NAME:** MA-13A	**OBSERVER:** RJB

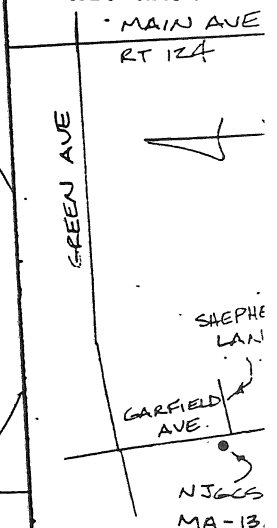
CABLE LENGTH 10M	SESSION 1		SESSION 2		SESSION 3		SESSION 4	
RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	21:00 (5:00)	22:00 6:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	20:55	22:04	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
RJB		MA-13A						
JJM		MA-1						
DRF		MA-5						
GHG		MA-4A						
JPK		MA-5A						
EDZ		MA-1A						
BEG ANT HGT	1.711	1.711						
	1.711							
END ANT HGT	1.711	1.711						
	1.711							
AVE ANT HGT	1.711							
ANT HGT	1.704							

CHK W/6' RULER
6 7 3/8 1.711
5.615 5.614

STATION TIE SKETCH



KEY MAP:



GPS FIELD OBSERVATION RECORD

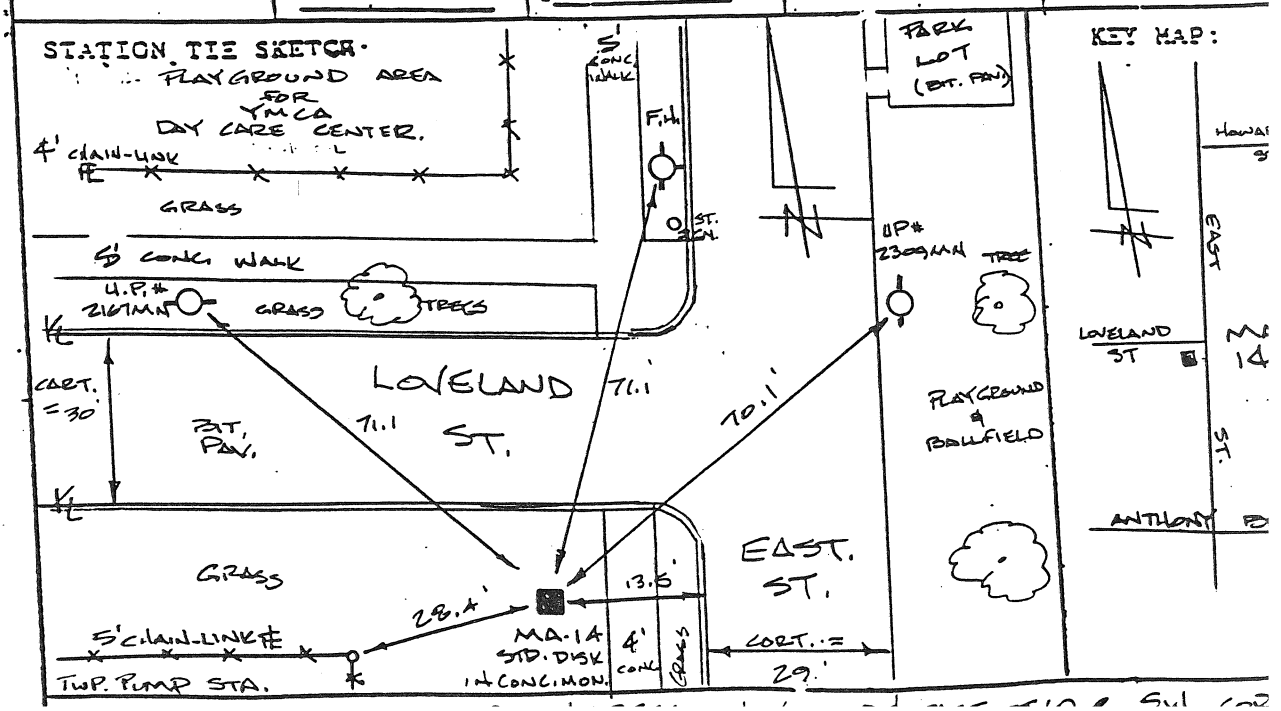
AUGUST 31, 1993

WEATHER CODE: BEG. 0 2 1 2 0 / END. 0 2 1 2 0	FIELD LAT: N 42° 46' 58"	REF LAT:	GPS DAY #: 243	PROJECT: MADISON/NEP.
PROBLEM: NONE	FIELD LONG: W 074° 24' 59"	REF LONG:	GPS WEEK #: 712	DATE: 8/31/93 DAY: TUESDAY
ANTENNA SN: 7663	RECEIVER SN: 28660	STATION CODE: MA14	STATION NAME: MA-14	OBSERVER: J. McCALL
CABLE LENGTH: 10M	SESSION 1	SESSION 2	SESSION 3	SESSION 4

RECEIVER TYPE: TRIMBLE 4000SSE	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	15:00 (11:00)	16:00 1200	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	14:56	16:00	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
JJM		MA-14						
DF		MA-12						
RB		MA-8						
GHG		MA-7						
JPK		MA-17A						
EDE		MA-14A						
BEG ANT HGT	1.7322							
END ANT HGT	1.7322							
AVE ANT HGT	—							
ANT HGT	1.7322M							

0.0692 M
1.6630 M
1.7322 M

STATION TIE SKETCH



OBSERVATION RECORD

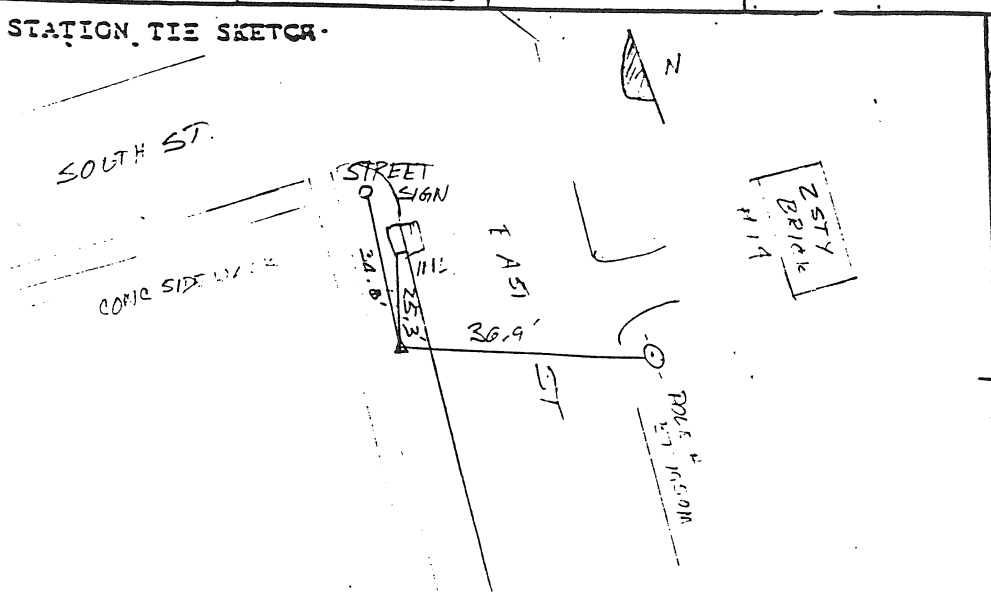
AUGUST 31, 1993

WEATHER CODE: 0.1 1 1 1 1.	FIELD LAT: 40°46'.04"N	REF LAT:	GPS DAY #: 243	PROJECT: MADISON
PROBLEM: NONE	FIELD LONG: 074°24'57" W	REF LONG:	GPS WEEK #: 712	DATE: 8·31·93 DAY: TUESDAY
ANTENNA SN: 0399	RECEIVER SN: 1449	STATION CODE: MA14A	STATION NAME: MA-14A	OBSERVER: EDZ
CABLE LENGTH .10 m	SESSION 1	SESSION 2	SESSION 3	SESSION 4

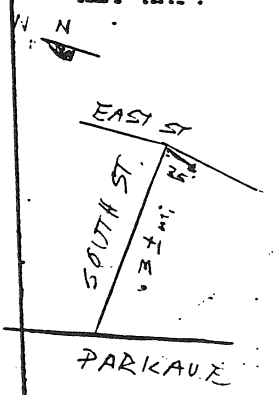
RECEIVER TYPE 4000SST	START	STOP	START	STOP	START	STOP	START	STOP
SCHED UTC TIME (LOCAL TIME)	15:00 (11:00)	16:00 12:00	: (:)	:	: (:)	:	: (:)	:
ACT UTC TIME	14:47	16:00	:	:	:	:	:	:
OBSERVER	StaCode	StName	StaCode	StName	StaCode	StName	StaCode	StName
EDZ		MA-14A						
JJM		MA-14						
DRF		MA12						
RVB		MA-08						
GHG		MA-07						
JPK		MA12A						
BEG ANT HGT	1.687	1.690						
	1.687							
END ANT HGT	1.687	1.687						
	1.690							
AVE ANT ◹ HGT	1.688 m							
ANT ◹ HGT	1.672 m							

JPK
5' 7" 1.688 m
5.54'

STATION TIE SKETCH



KEY MAP:



TO REACH THE STATION HEADING WEST ON SOUTH ST MAKE RIGHT AT EAST STATION

TAYLOR, WISEMAN AND TAYLOR - G.P.S. FIELD OBSERVATION LOG

Project # 18122G124
Proj. Name MADISON / VEP
City,Co.,State MADISON TWP. MORRIS CO. NJ

Observer	Date	Julian Day	Station Name	Static ☐ Pseudostatic ☐ Fast Static ■ Kinematic ☐
MCCALL	TUES 8/31/93	243	HV-50	
Unit # 6	Field Lat. 40°-44'-26" N	Field Long. 074°-24'-09" W	Cable Length 10M	
Receiver Type TRIMBLE 4000 SSE	Receiver SN 2680	Antenna SN 7668	Weather Code (Before) 02120	Weather Code (After) 02120

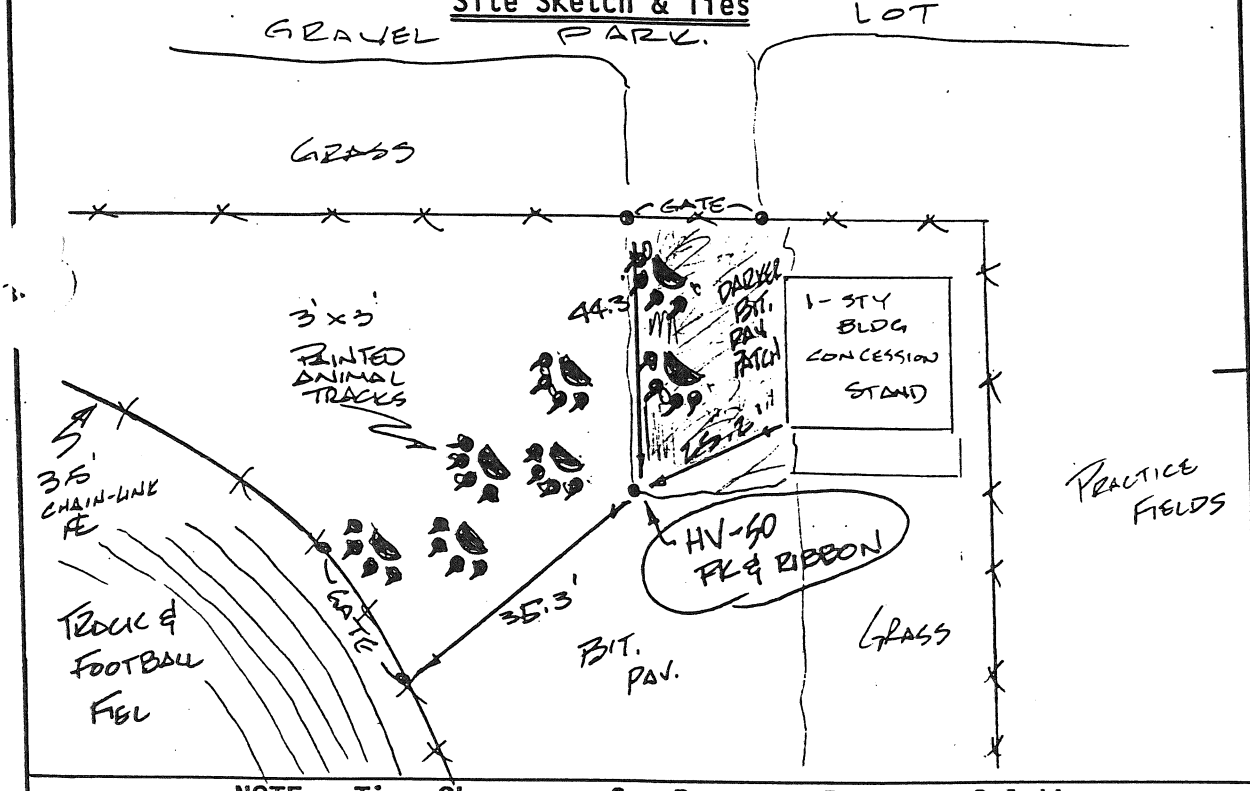
STATION OBSERVATION SCHEDULE

TIMES	SESSION # 243-7		SESSION # -		SESSION # -		SESSION # -	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop
Sched. Time	—	—						
U.T.C. Time	22:20							
Actual Time	22:20							

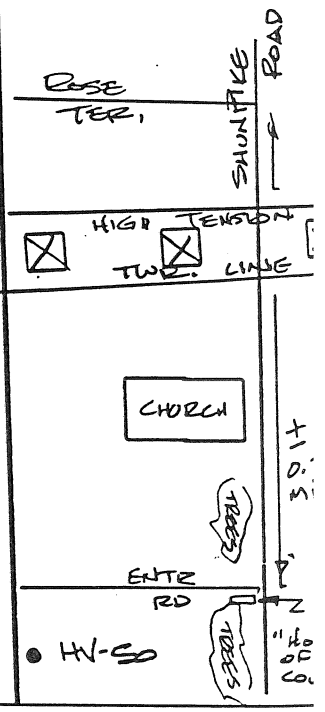
ANTENNA HEIGHT MEASUREMENTS (VERTICAL ■ SLOPE ☐)

Beginning	1.6732 M	IN.	M	IN.	M	IN.	M	I
Conversion	FT.	FT.	FT.	FT.	FT.	FT.	FT.	F
End	1.6732M	IN.	M	IN.	M.	IN.	M	I

Site Sketch & Ties



Key Map



NOTE: Ties Shown are for Recovery Purposes Only!!
G.P.S. Station has Red, White and Blue Flagging

Description of Station (Attach Pencil Rubbing): PK W/ RIBBON SET FLUSH W/ PAVING

Any Problems Encountered At Station: KEY NEEDED TO GET IN GATE SEE "JOHN" IN MAINTENANCE BLDG

To Reach Station (from nearest major intersection) STATION IS ON GROUNDS OF CHATHAM TWP FOOTBALL/TRACK FIELD OFF OF SHUNPIKE RD

TAYLOR, WISEMAN AND TAYLOR - G.P.S. FIELD OBSERVATION LOG

Project # N 181228-124
Proj. Name MADISON
City,Co.,State MADISON MORRIS NJ

Observer	Date	Julian Day	Station Name	Static ☐
Falkinburg	8-31-93	243	HV-51	Pseudostatic ☐
Unit # 5	Field Lat. 40°46'56" N	Field Long. 74°26'11" W	Cable Length 10 m	Fast Static ☒ Kinematic ☐
Receiver Type TRIMBLE 4000 SSE	Receiver SN 2643	Antenna SN 7915	Weather Code (Before) 00100	Weather Code (After) 00100

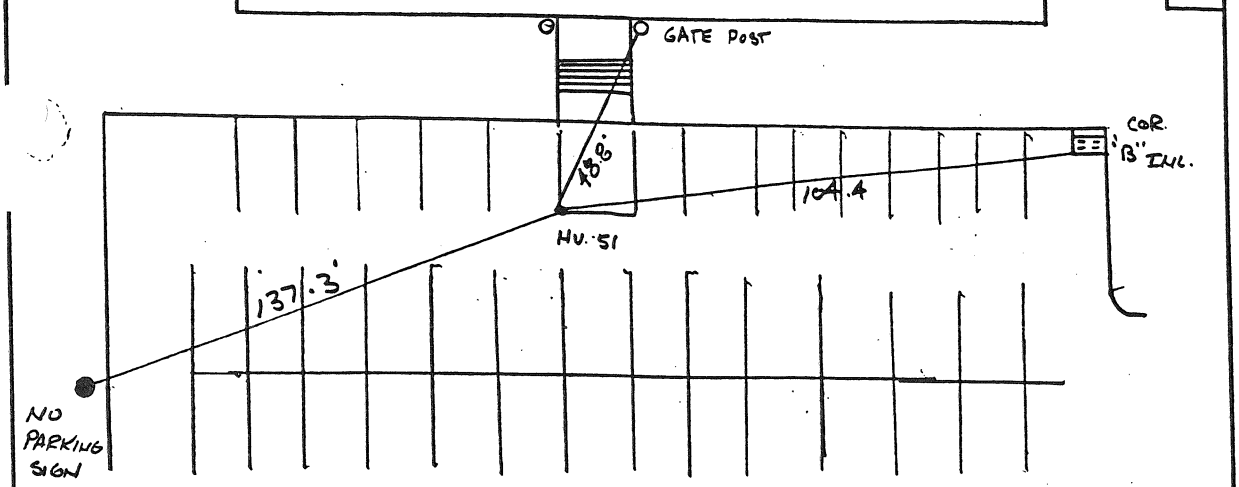
STATION OBSERVATION SCHEDULE

TIMES	SESSION # HV51 -		SESSION # -		SESSION # -		SESSION # -	
	Start	Stop	Start	Stop	Start	Stop	Start	Stop
Sched. Time								
U.T.C. Time								
Actual Time	7:00	7:30						

ANTENNA HEIGHT MEASUREMENTS (VERTICAL ☒ SLOPE ☐)

Beginning	1.6762 M	65.975 IN.	M	IN.	M	IN.	M	I
Conversion	5.4993 FT.	5.4979 FT.	FT.	FT.	FT.	FT.	FT.	F
End	1.6762 M	65.975 IN.	M	IN.	M.	IN.	M	I

Site Sketch & Ties



Key Map

NOTE: Ties Shown are for Recovery Purposes Only!!
G.P.S. Station has Red, White and Blue Flagging

Description of Station (Attach Pencil Rubbing): P.K. IN PARKING LOT

Any Problems Encountered At Station: NONE

To Reach Station (from nearest major intersection) POINT LOCATED ON College of SAINT ELIZEBETH CAMPUS

0731C-54 1.607 LEG 63.25 O LEGS

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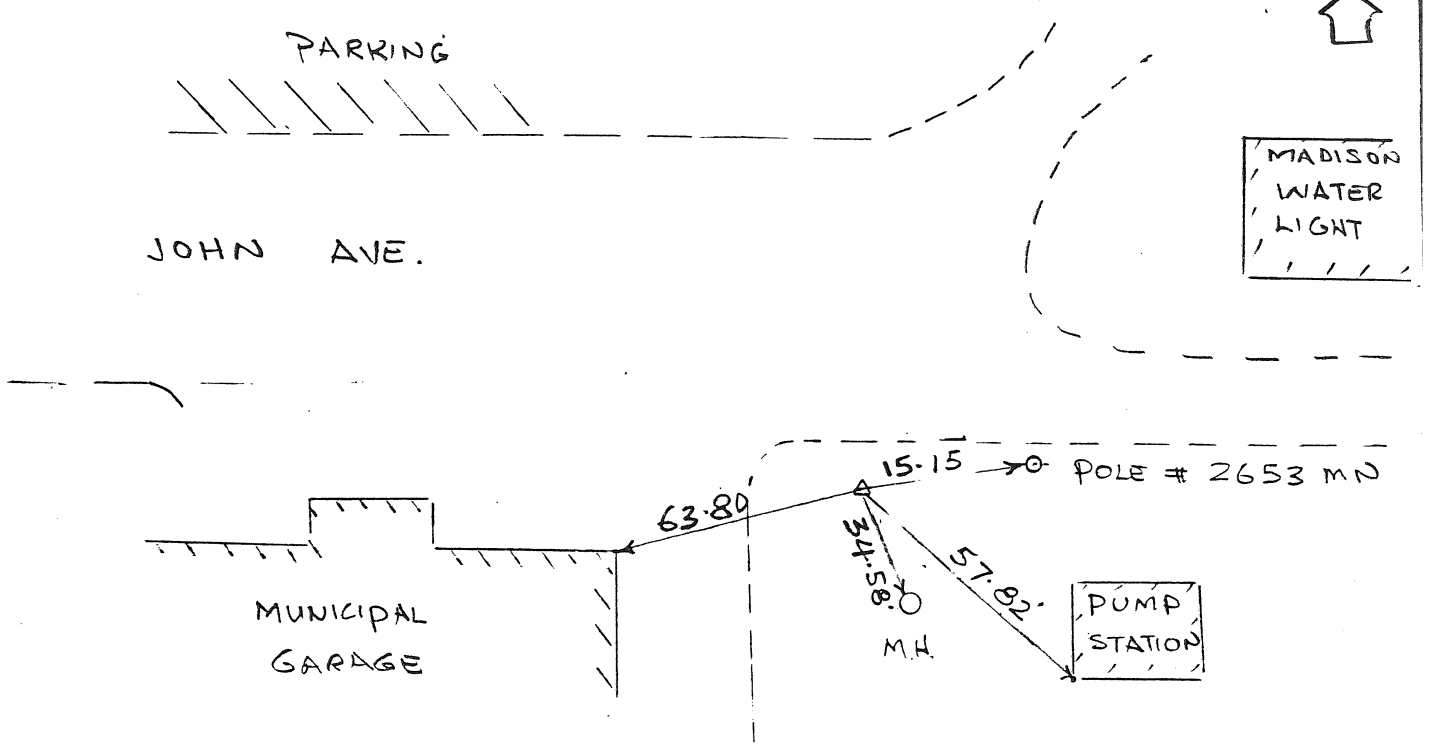
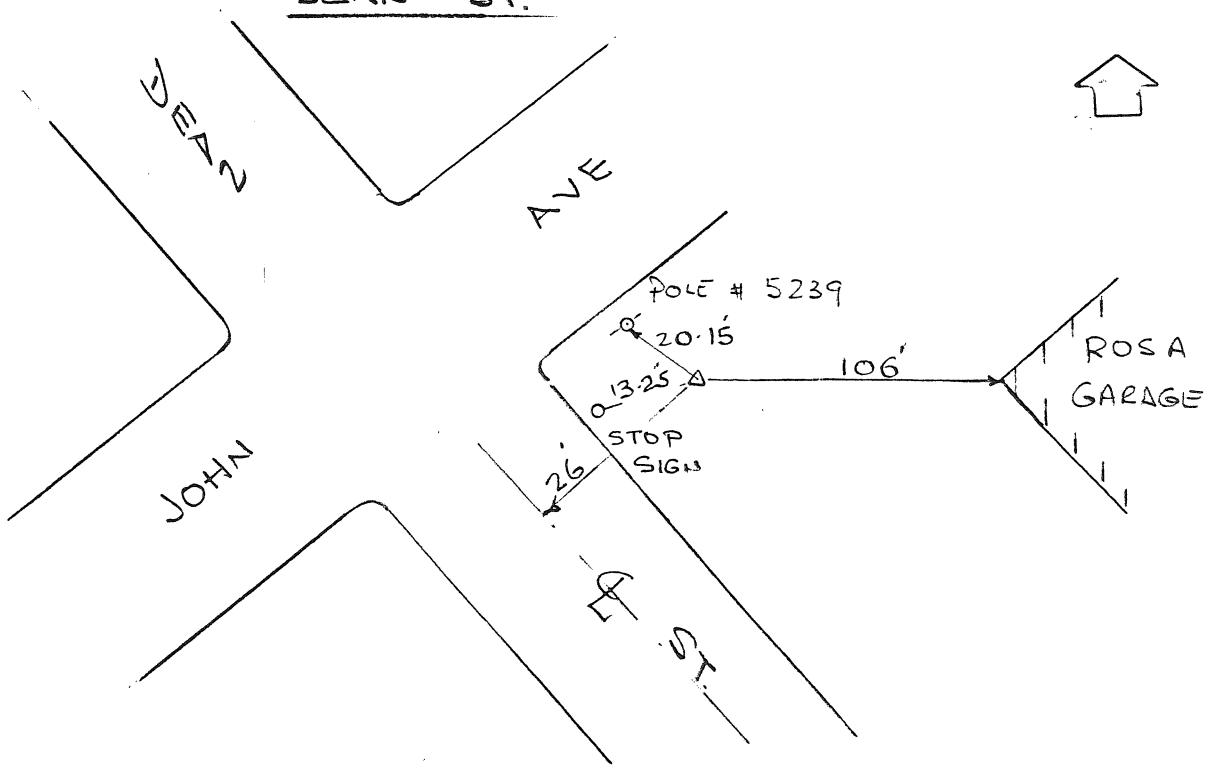
JOB NAME MADISON
JOB NO. 281258 PAGE 1 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA - 1: DISK SET IN CONCRETE IN VICINITY OF MADISON MUNICIPAL GARAGE.



MA- 1A- DISK /CONCRETE AT JCT. JOHN AVE AND DEAN ST.



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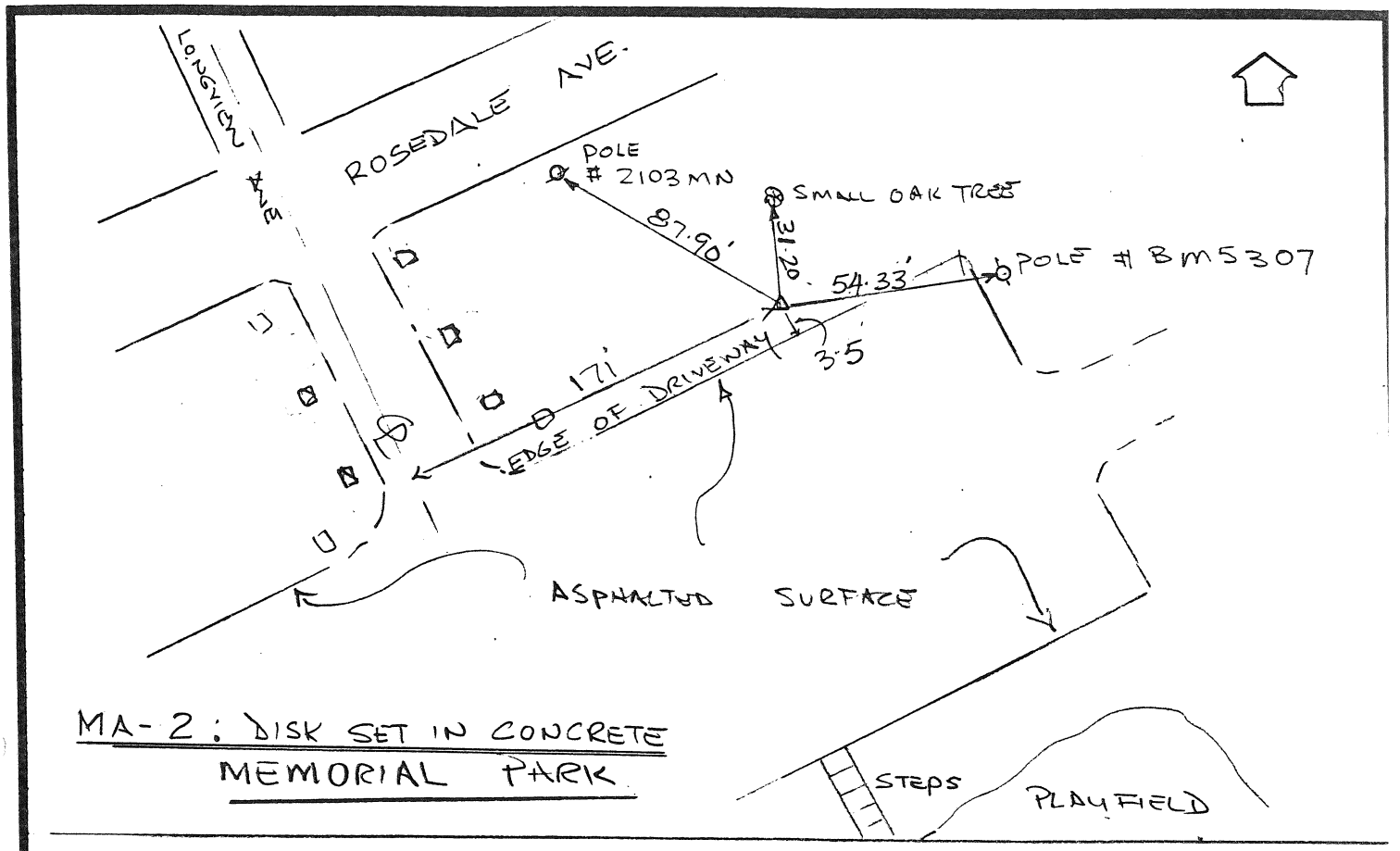
JOB NAME MADISON
JOB NO. 281258 PAGE 3 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____



MA-2: DISK SET IN CONCRETE
MEMORIAL PARK

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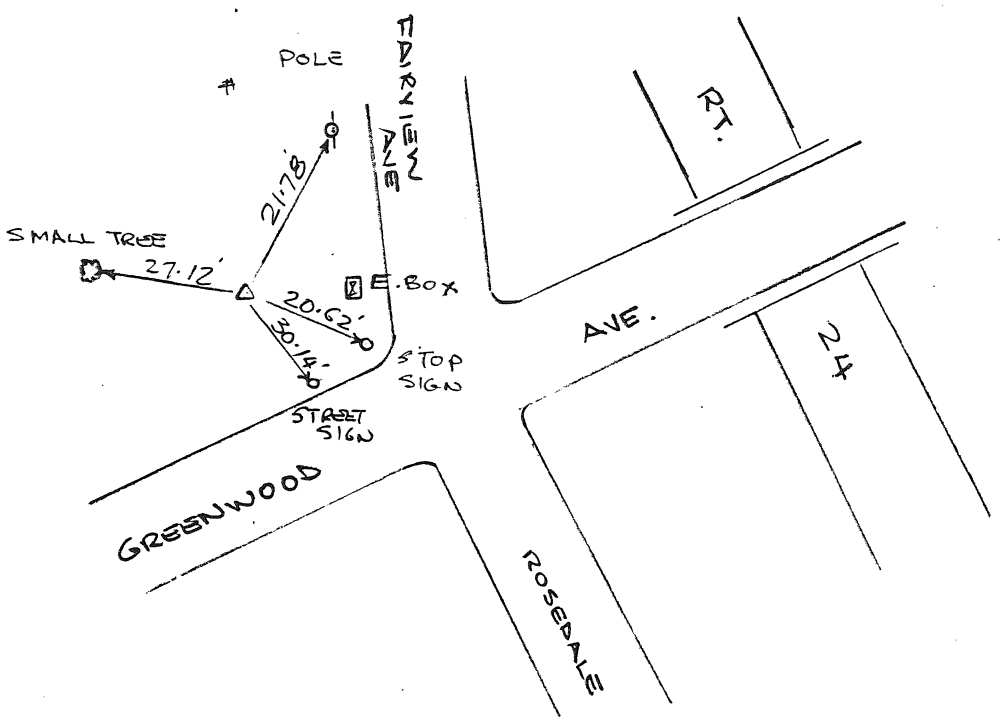
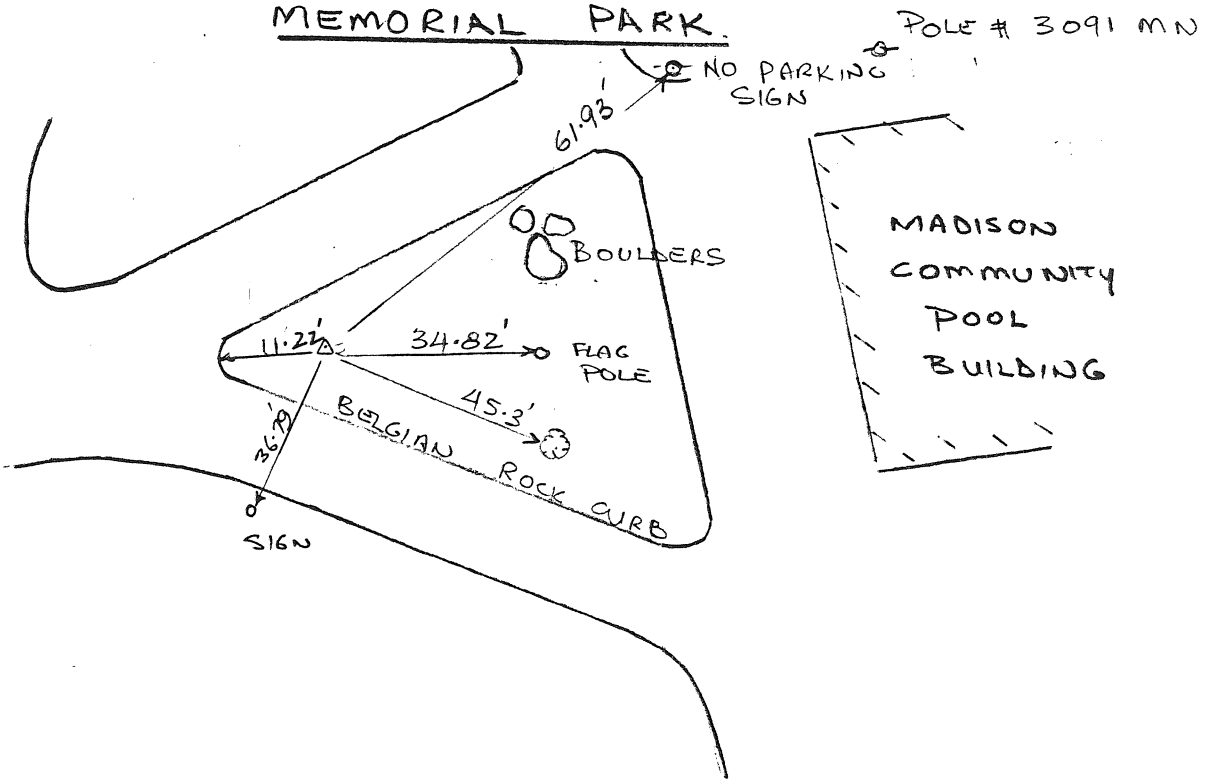
JOB NAME MADISON
JOB NO. 281258 PAGE 2 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-3 : DISK IN CONCRETE - N.W. JCT.
GREENWOOD AVE & FAIRVIEW AVE.



MA-2A : DISK IN CONCRETE IN
MEMORIAL PARK.



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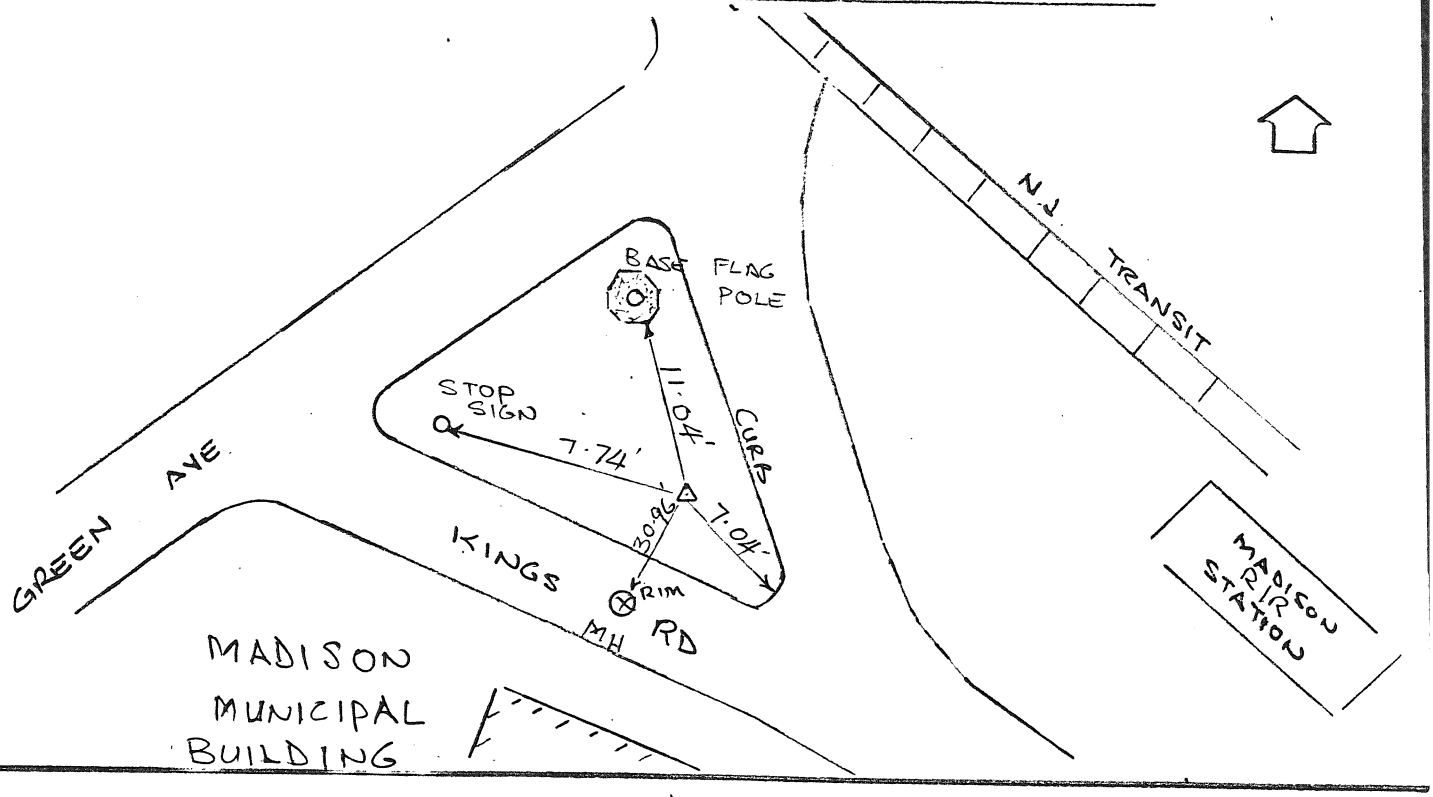
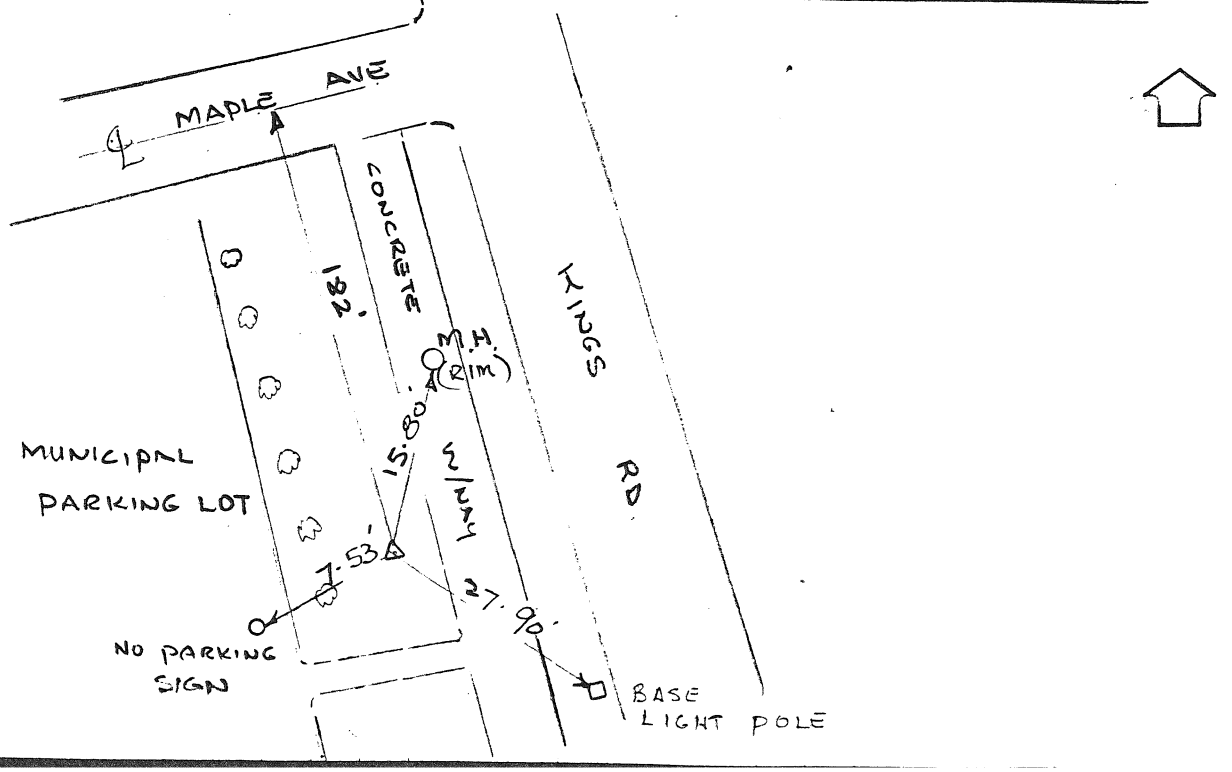
JOB NAME MADISON
JOB NO. 281258 PAGE 4 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-4: DISK IN CONCRETE IN TRAFFIC ISLAND
JCT. GREEN AVE & KINGS RD.



MA-4A: DISK IN CONCRETE SET SOUTH KINGS RD.



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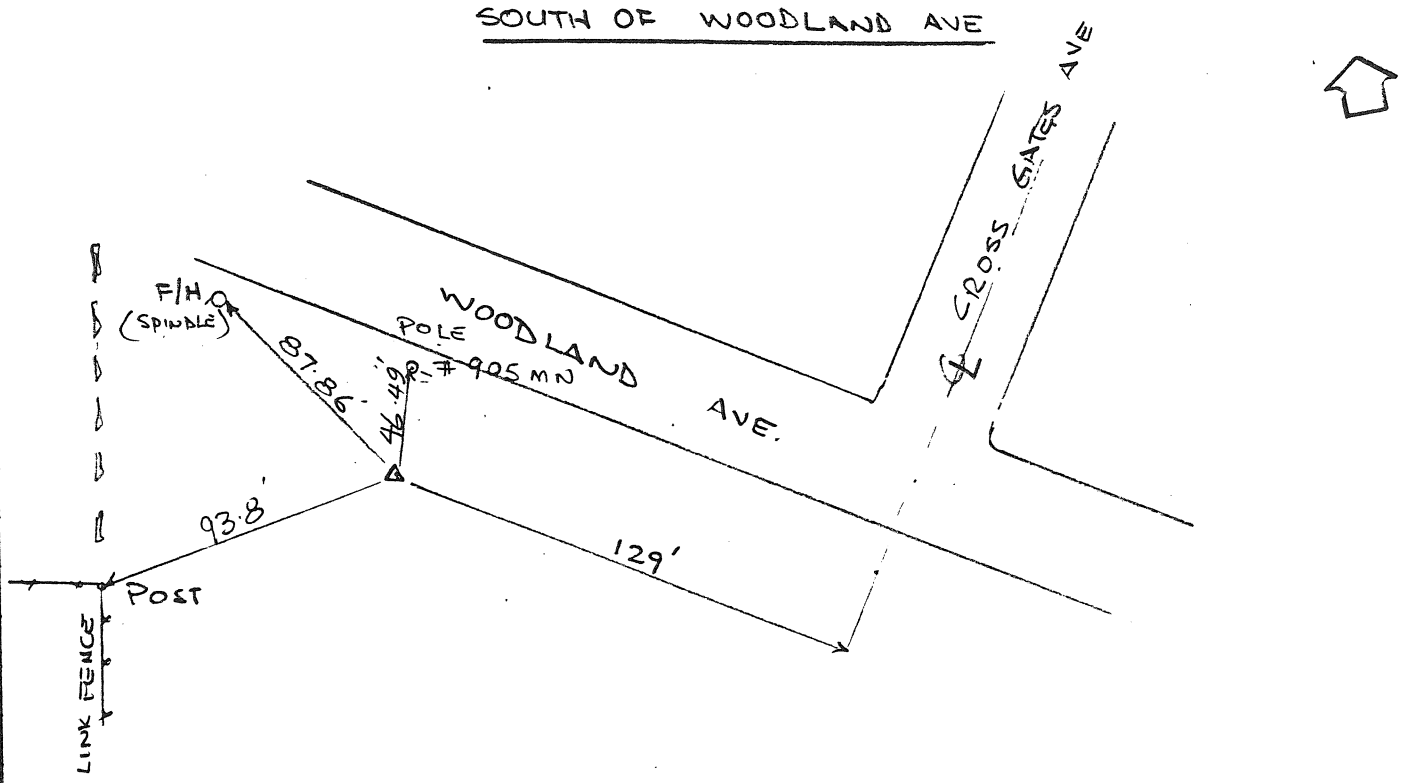
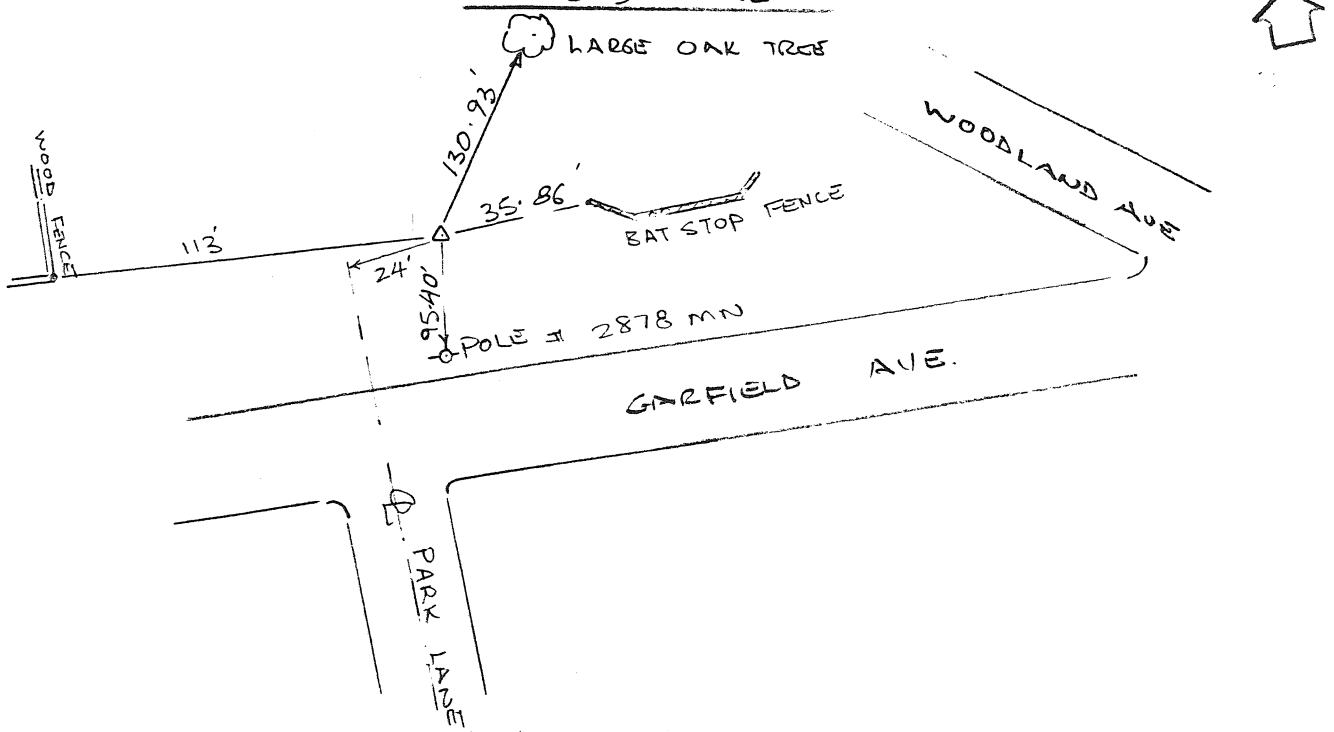
JOB NAME MADISON
JOB NO. 281258 PAGE 5 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-5: DISK/CONCRETE SET IN PARK SOUTH OF WOODLAND AVE



MA-5A: DISK/CONCRETE SET IN PARK NORTH OF GARFIELD AVE



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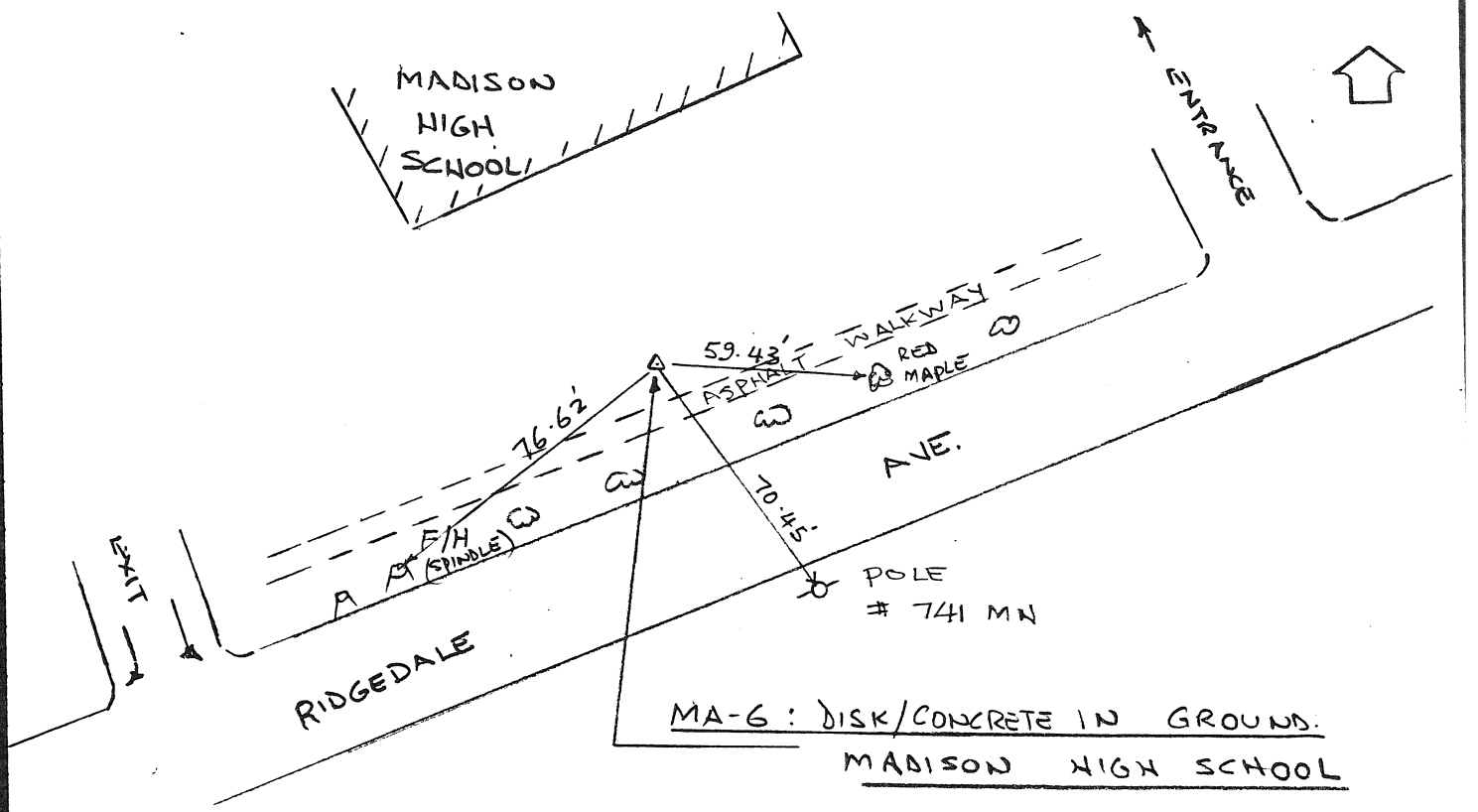
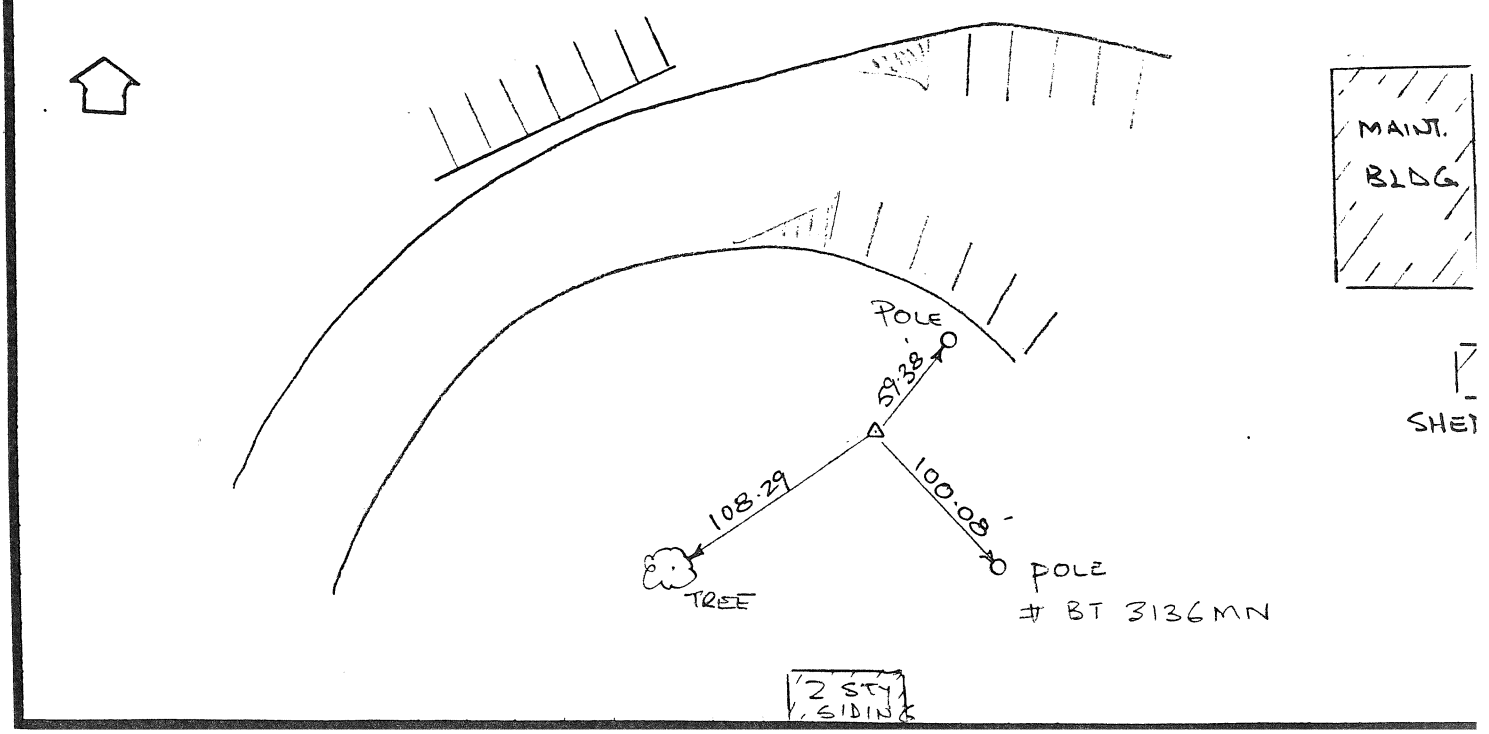
JOB NAME MADISON
JOB NO. 281258 PAGE 6 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____



MA-6 : DISK/CONCRETE IN GROUND.
MADISON HIGH SCHOOL

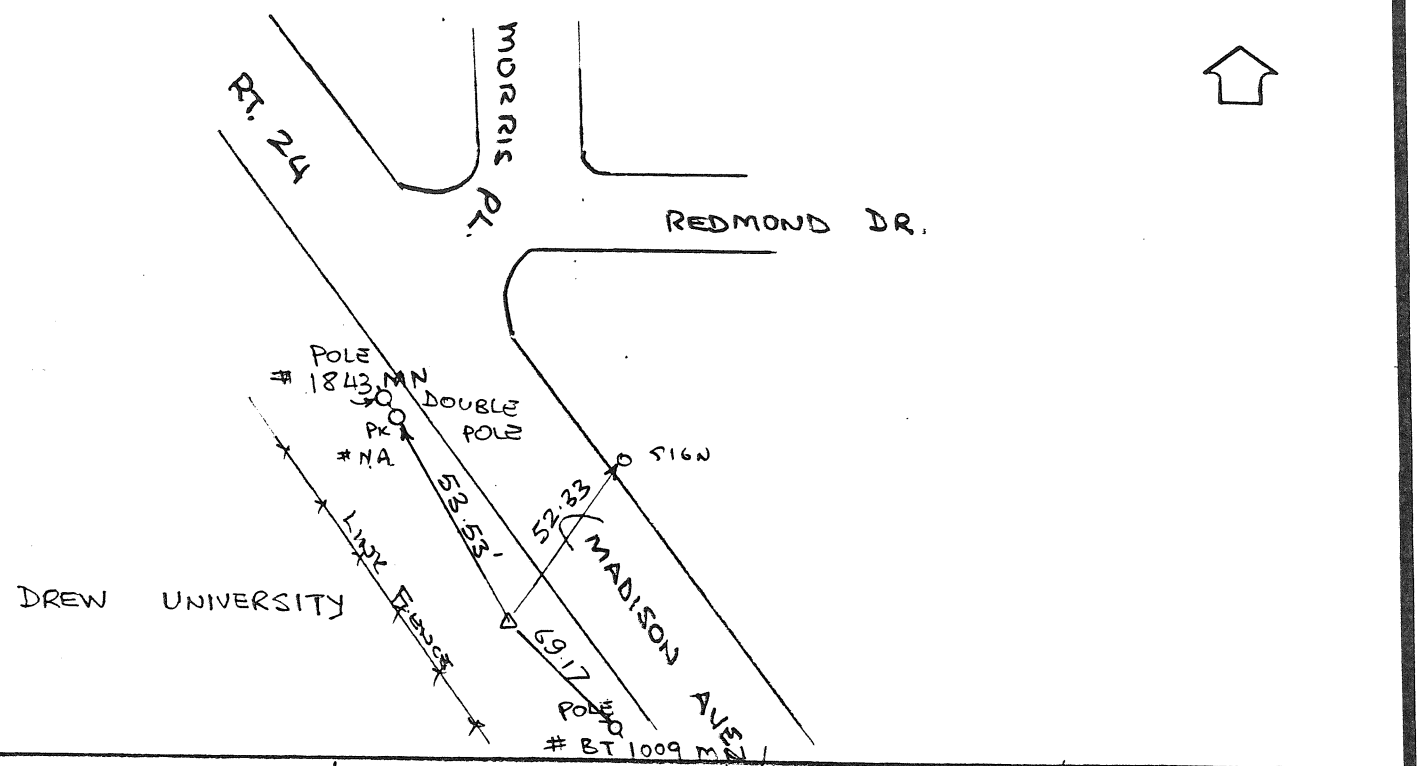
MA-6A: DISK | CONCRETE IN GROUND. MADISON HIGH SCHOOL
NEAR VICINITY MAINTENANCE AREA.



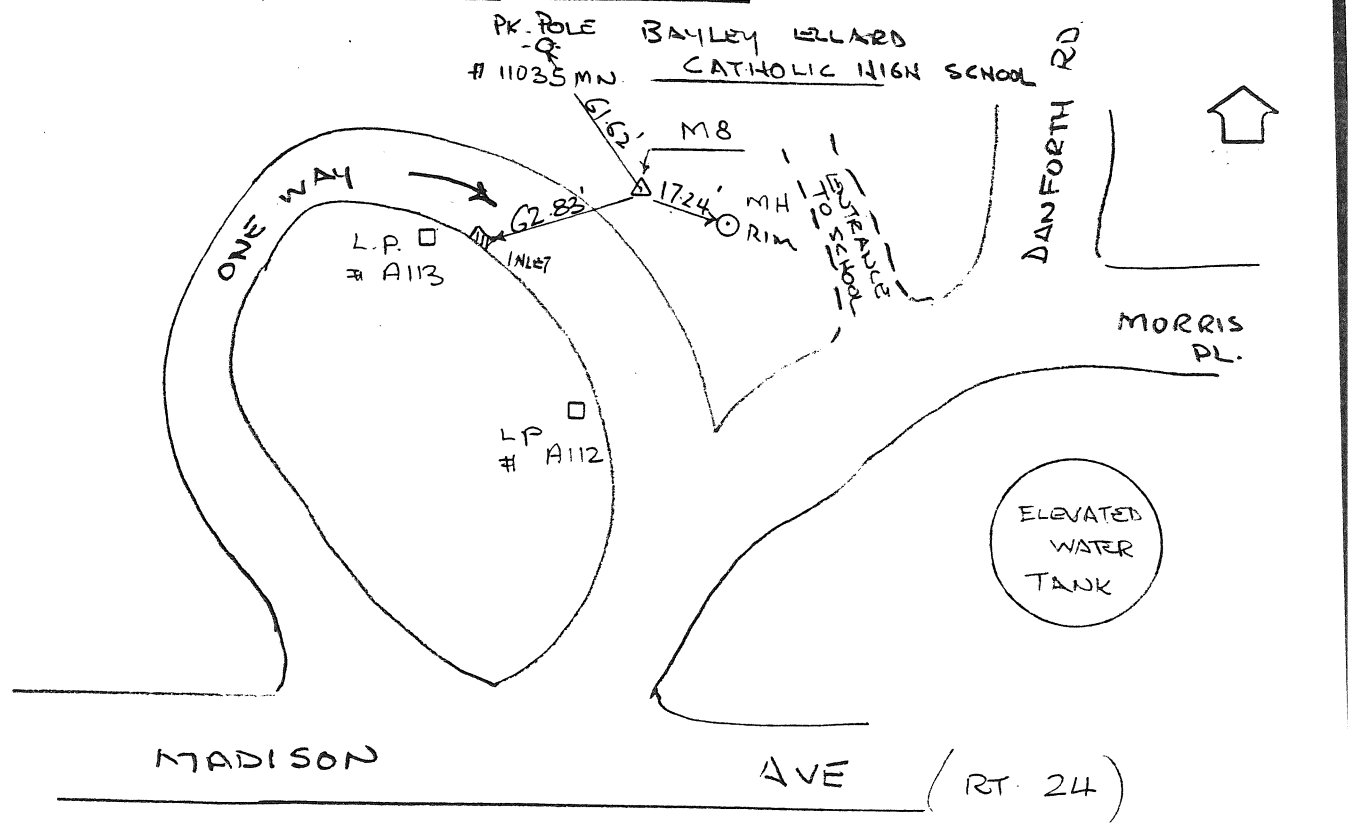
VEP ASSOCIATES
1140 Bloomfield Avenue
West Caldwell, New Jersey 07006
(201) 575-8556

JOB NAME MADISON
JOB NO. 281258 PAGE 7 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-7: DISK / CONCRETE IN SHOULDER SOUTH OF RT 24 OR MADISON AVE.



MA-8: DISK / CONCRETE IN GROUND



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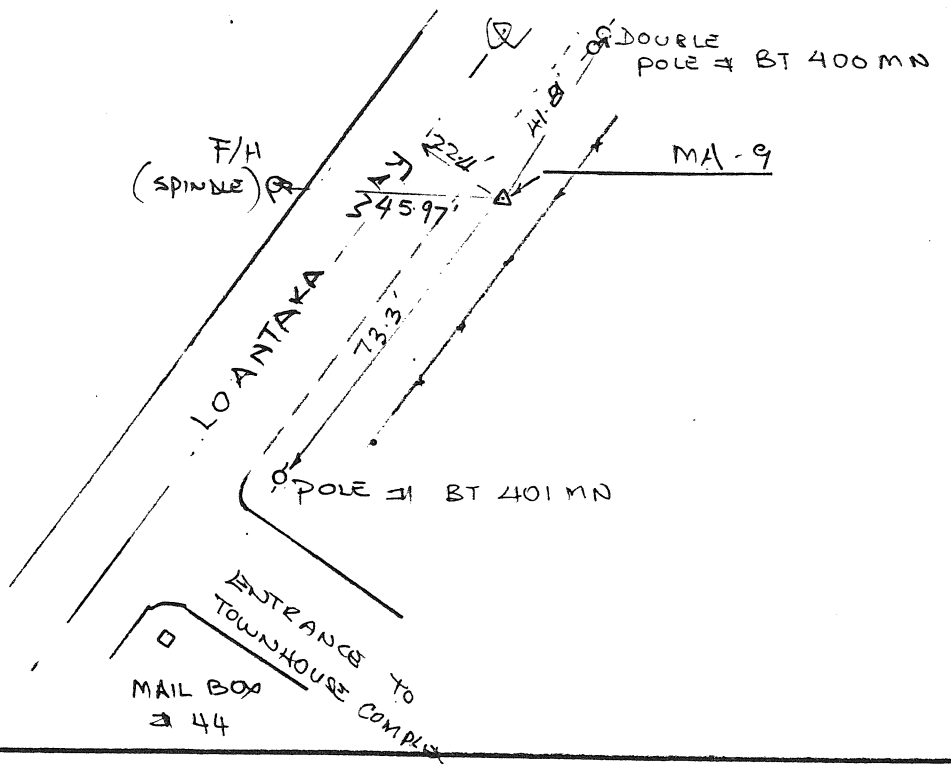
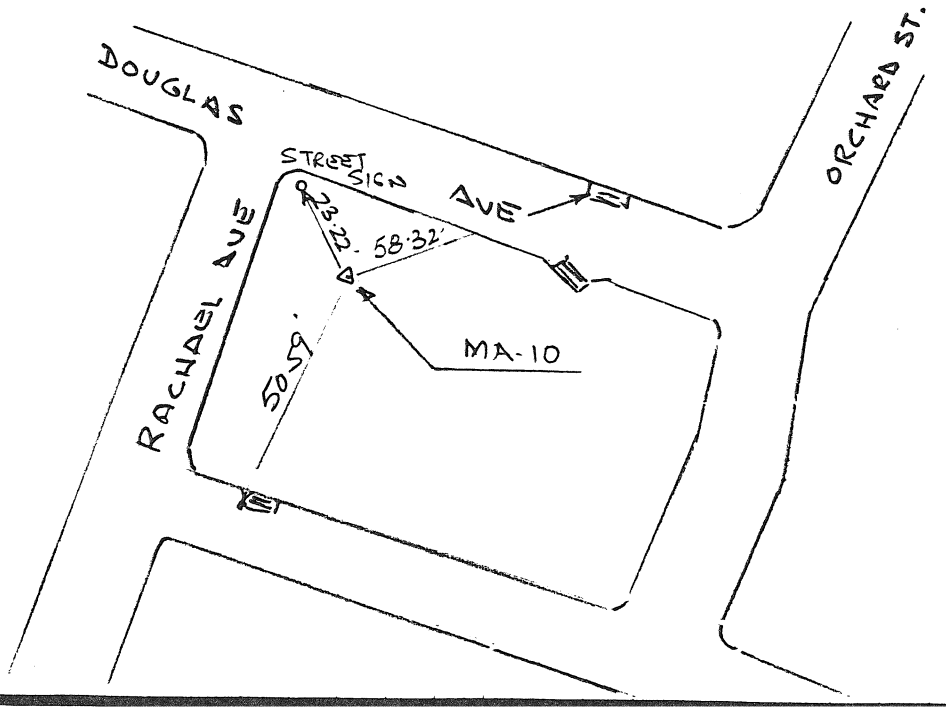
JOB NAME MADISON
JOB NO. 281258 PAGE 8 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-9 : DISK | CONCRETE IN GROUND EAST OF LOANTAKA WAY



MA-10 : DISK | CONCRETE IN OPEN AREA
J CT. RACHAEL AVE & DOUGLAS AVE.



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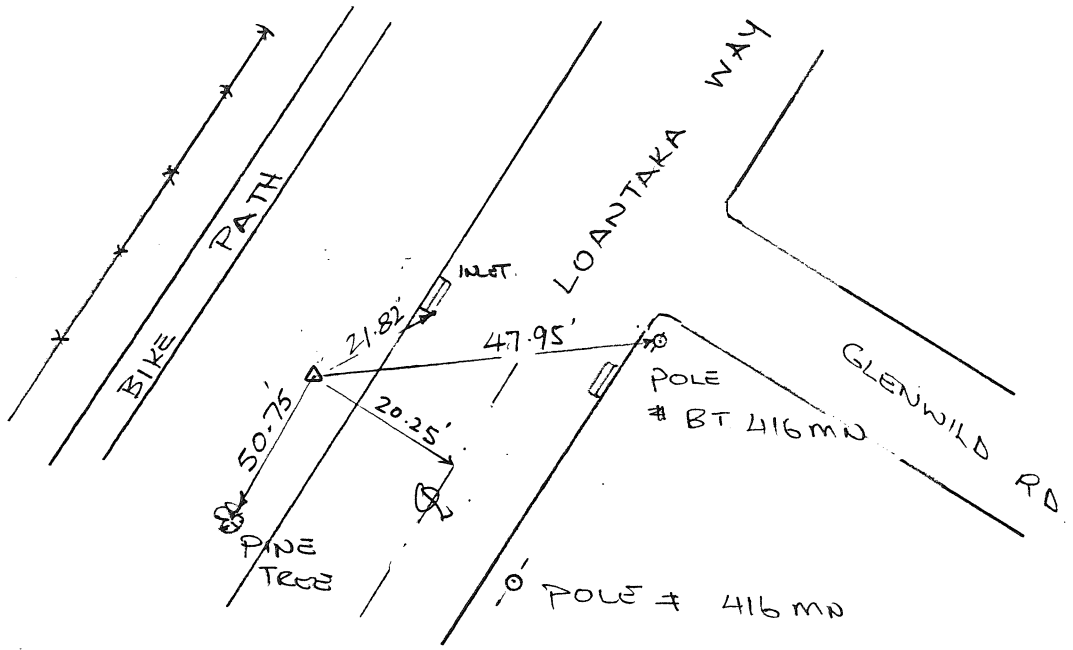
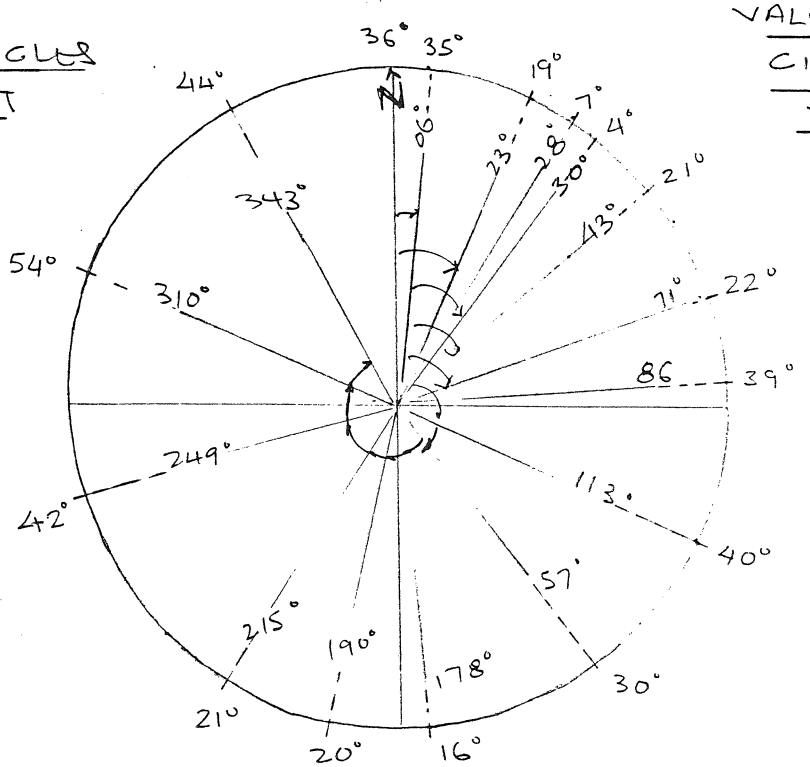
JOB NAME MADISON
JOB NO. 281258 PAGE 9 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-9A: DISK IN CONCRETE SET WEST SIDE OF LOANTAKA WAY



VERTICAL ANGLES RECORDED AT MA-9A



VALUES OUTSIDE CIRCLE REPRESENT VERTICAL ANGLE FROM HORIZON

HEIGHT OF INST = 5'

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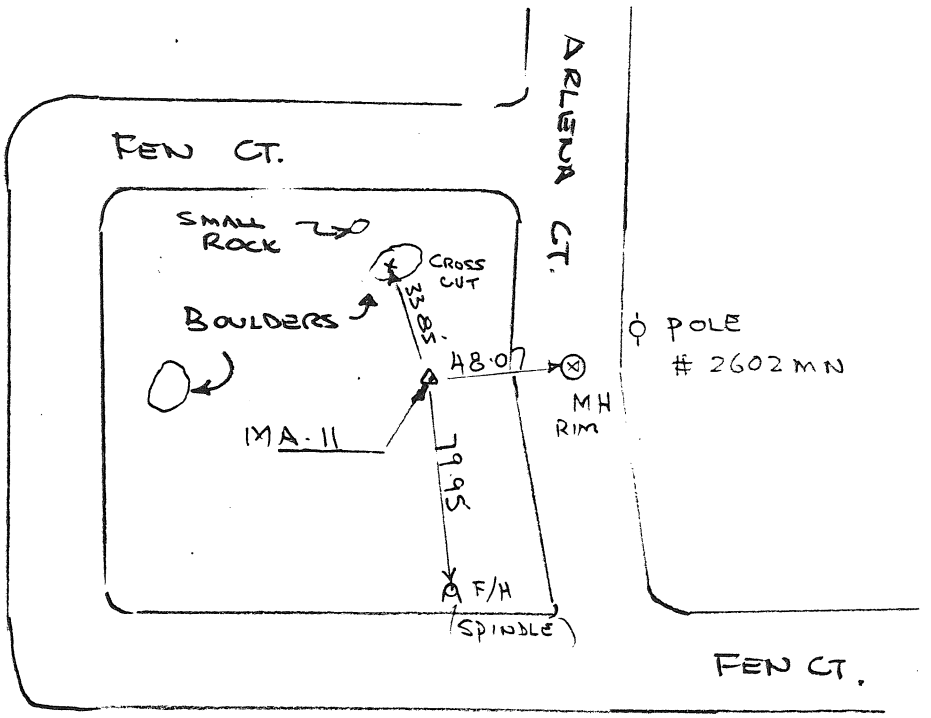
JOB NAME MADISON
JOB NO. 281258 PAGE 10 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-11: DISK/CONCRETE IN GROUND IN OPEN AREA
JCT. FEN CT & ARLENA CT.



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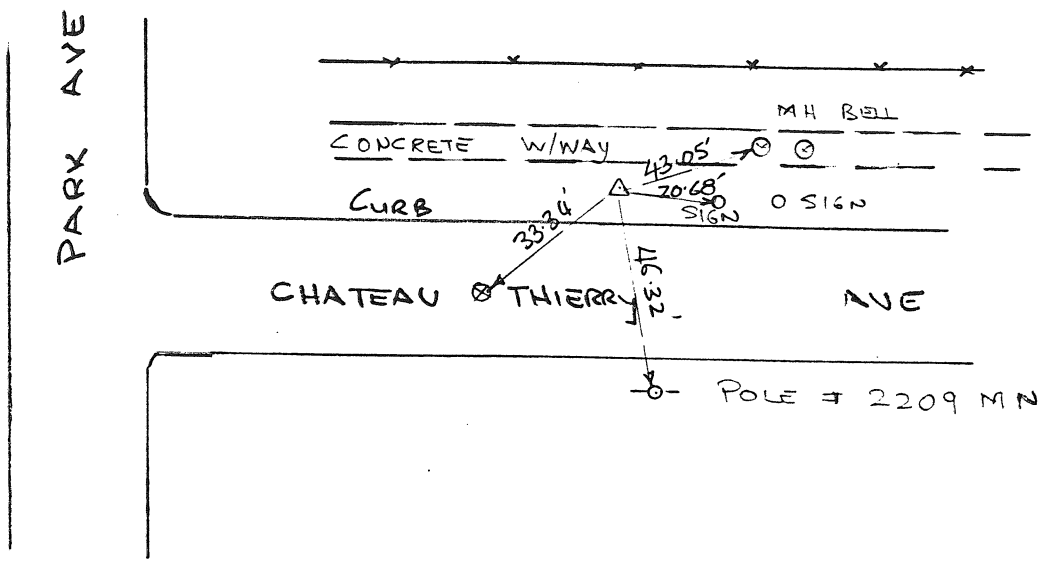
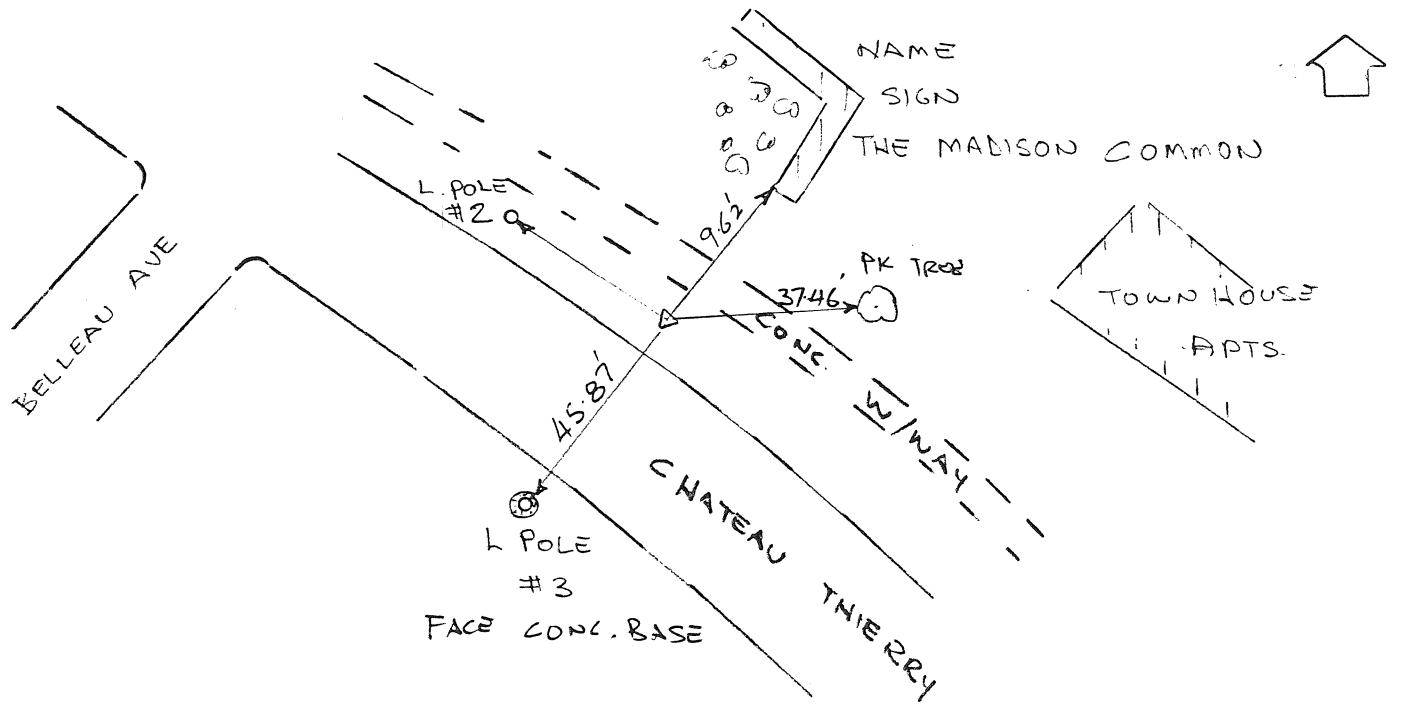
☐ 1601 MARKET STREET, PHILADELPHIA, PA 19103

JOB NAME MADISON
JOB NO. 281258 PAGE 11 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-12: DISK/CONCRETE IN GROUND NORTH OF CHATEAU THIERRY AVE. BETWEEN CURB & CONC. W/WAY



MA-12A: DISK/CONCRETE SET IN GROUND NORTH OF CHATEAU AVE BETWEEN CURB & CONC W/WAY.



VEP
A Sandwell Company

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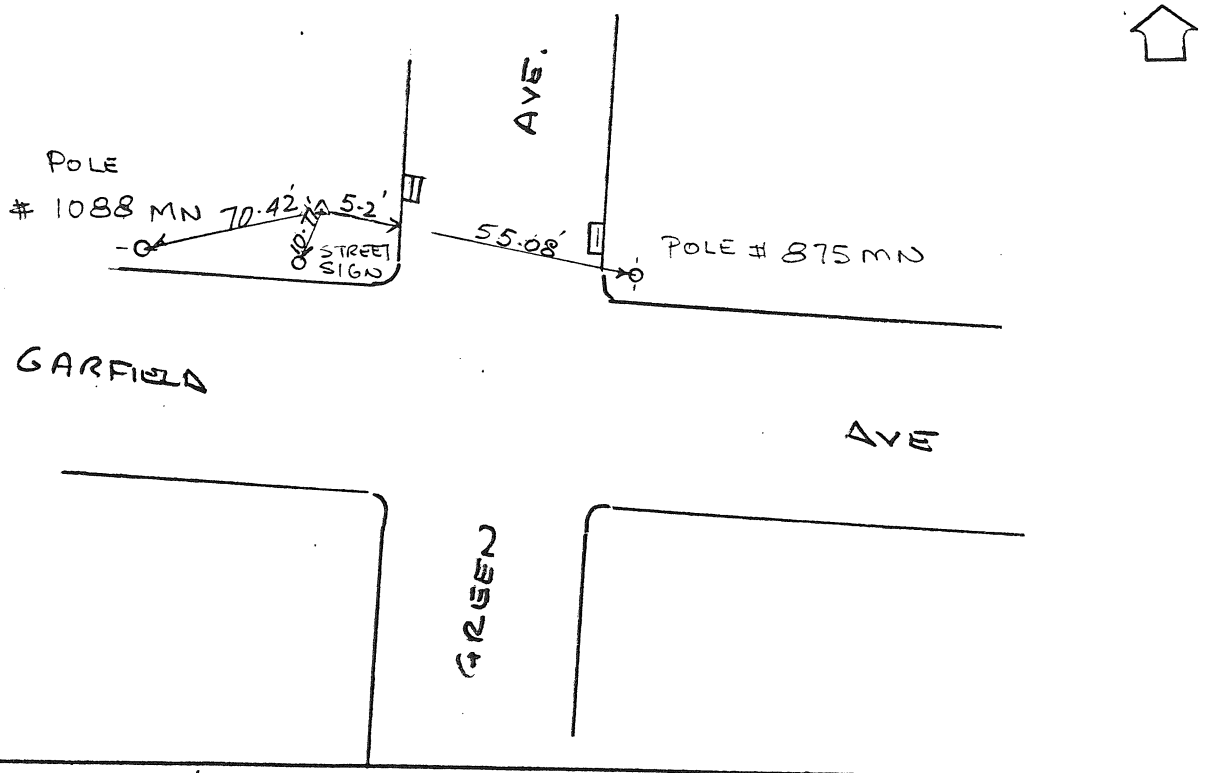
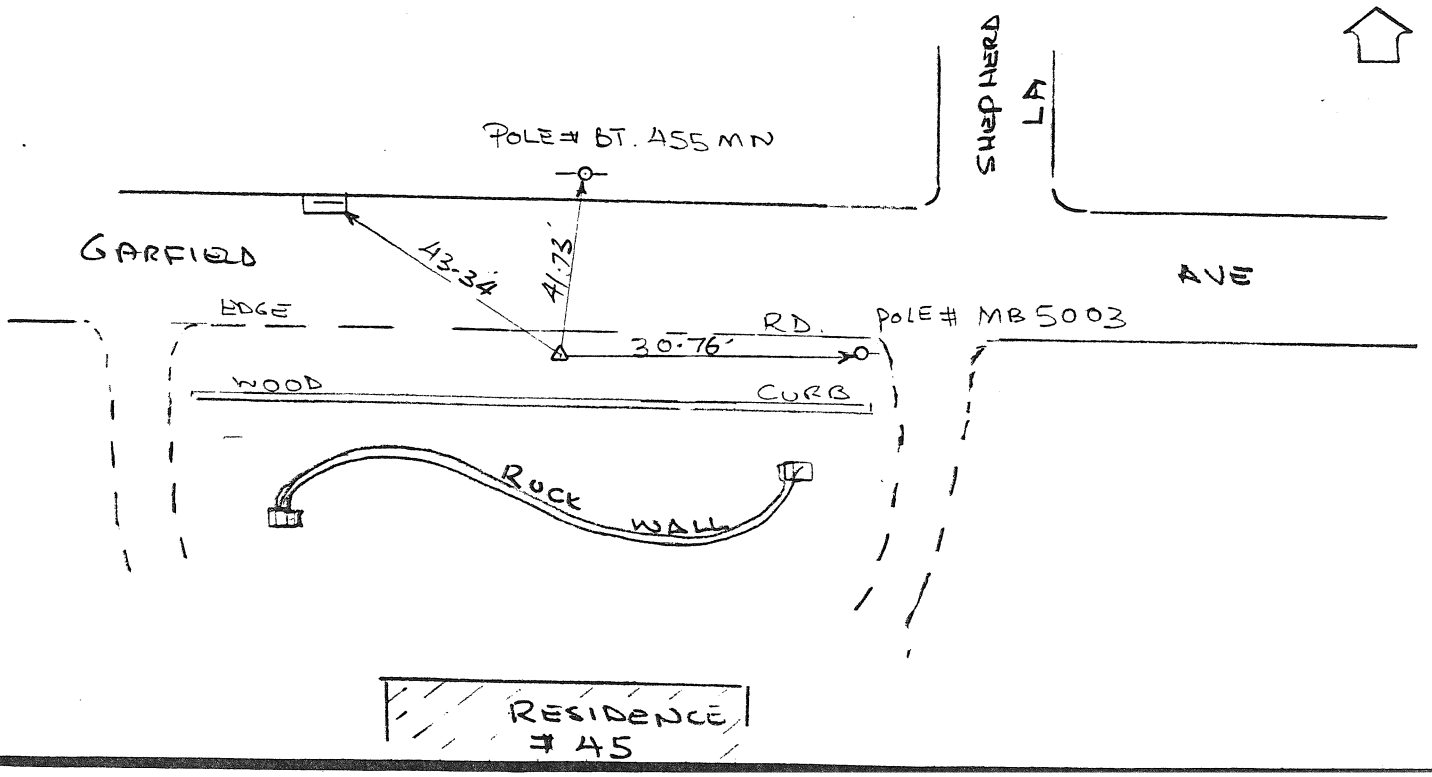
☐ 392 FIFTH AVENUE, NEW YORK, NY 10018
☐ 1601 MARKET STREET, PHILADELPHIA, PA 19103

JOB NAME MADISON
JOB NO. 281258 PAGE 12 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-13: DISK / CONCRETE AT NW JCT. OF GARFIELD AVE. AND GREEN AVE.



MA-13A: DISK / CONCRETE SET NEAR EDGE AND SOUTH OF GARFIELD AVE.



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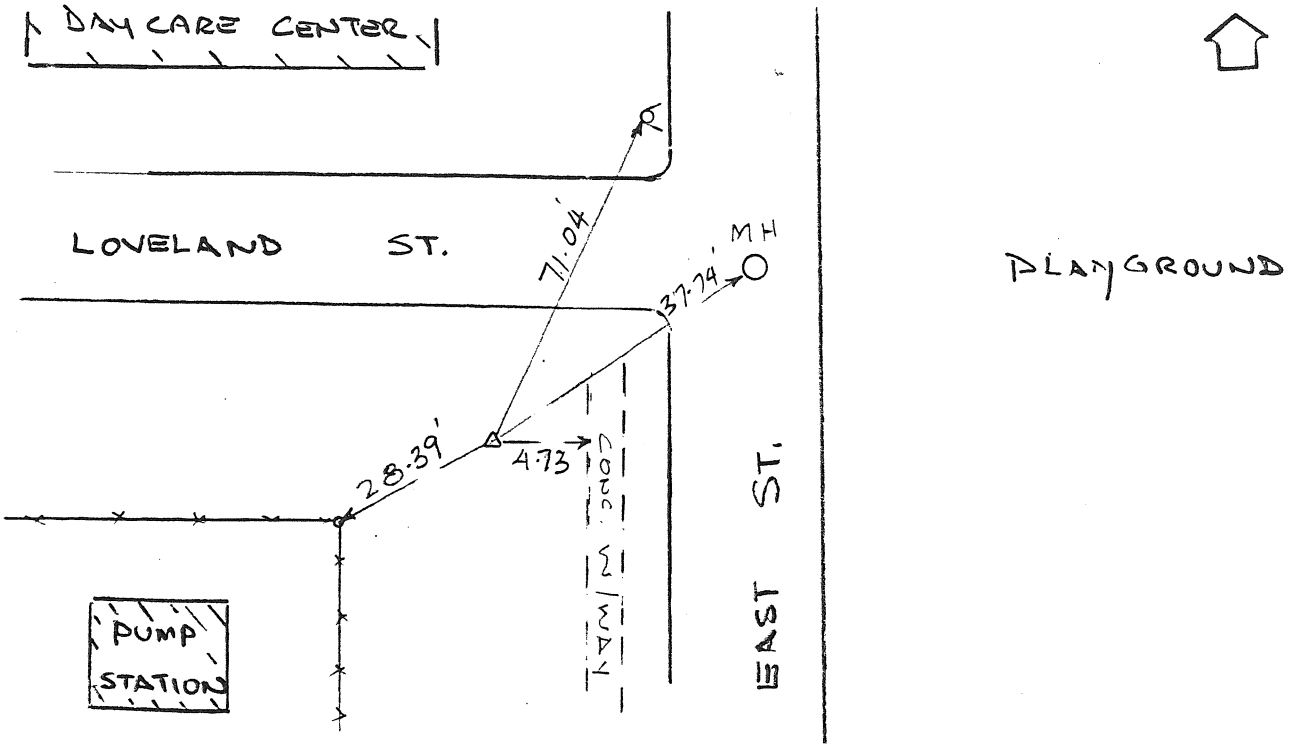
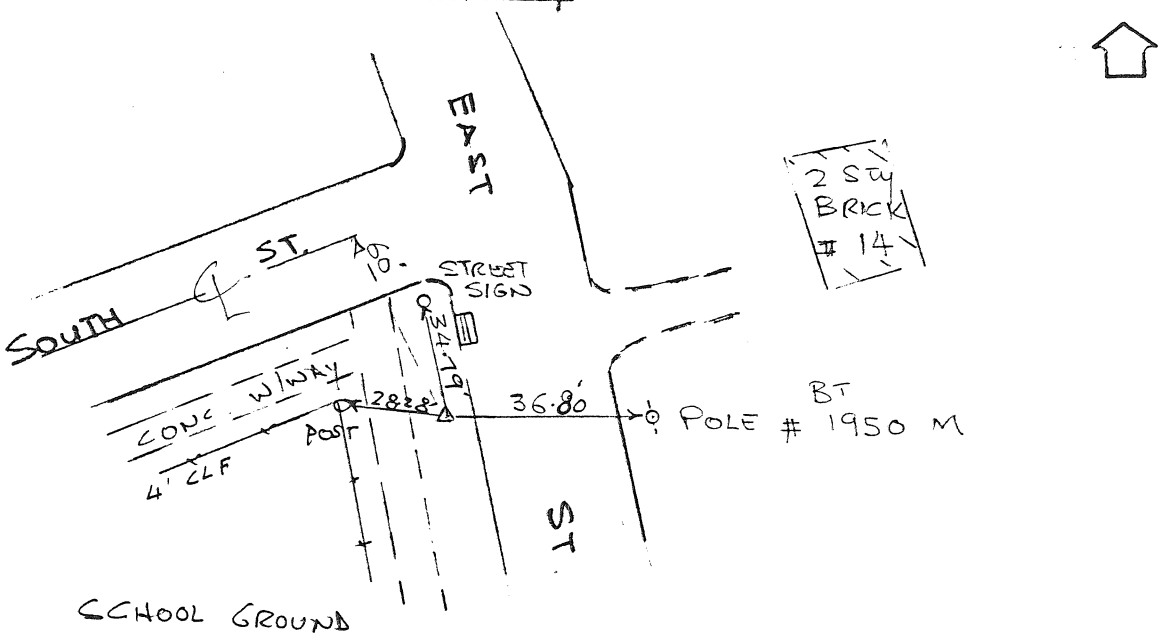
JOB NAME MADISON
JOB NO. 281258 PAGE 13 OF 13
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____

MA-14: DISK / CONCRETE AT PUMPING STATION AT LOVELAND ST.



MA-14A: DISK / CONCRETE SET NEAR JCT. SOUTH ST. AND EAST ST. BETWEEN CURB & CONC. W/WAY.



Level Form
Return to: VEP Associates, 392 5th Ave., 6th Floor, New York, NY 10018

VEP ASSOCIATES

Project # 281258	Date 8-25-93	Weather SUNNY	Temp. 90+	Page 1 of 7
Party Chief AL.	Inst. DL.	Rod	Rod	Rod
Project Name MADISON				
Task PHOTO CONTROL.				
Computed by	Date	Checked by	Date	

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
8.80	374.73				365.93	MA-8 DISK.
8.68	381.81		1.60	373.13		TP1 curb Madison Av
9.35	386.70		4.46	377.35		TP2 Survey Disc
4.83	388.55		2.98	383.72		TP3 curb Madison A
5.19	387.16		6.58	381.97		TP4 EP " "
5.67	389.27		3.56	383.60		TP5 Rock " "
5.65	390.22		4.70	384.57		TP6 curb " "
4.31	388.65		5.88	384.34		TP7 Rock " "
3.67	386.14		6.18	382.47		TP8 " " "
4.29	380.73		9.70	376.44		TP9 curb Allen Dr.
4.87	380.19		5.41	375.32		V-100 ℄ RD LINE STONE curb D/
9.68	386.12		3.75	376.44		TP9
6.19	388.66		3.65	382.47		TP8
5.95	390.29		4.32	384.34		TP7
4.70	389.27		5.72	384.57		TP6
4.13	387.73		5.67	383.60		TP5
6.99	388.95		5.77	381.96		TP4
3.22	386.93		5.24	383.71		TP3
3.81	381.16		9.58	377.35		TP2
1.71	374.84		8.03	373.13		TP1
			8.91	365.93		MA-8 DISK
Σ 111.69 ✓			Σ 111.69 ✓			

Level Form
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VEP ASSOCIATES

Project # 281258	Date 8-26-93	Weather SUNNY	Temp. 90+	Page 2 of 7
Party Chief DL	Inst. DL	Rod	Rod	Rod
Project Name MADISON				
Task PHOTO CONTROL				
Computed by	Date	Checked by	Date	

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
10.35	376.28				365.93	MA-8
2.35	375.03		3.60	372.68		TP10 curb Giralda Fo
0.28	363.66		11.65	363.38		TP11 " " "
0.90	352.71		11.85	351.81		TP12 " " "
0.08	344.07		8.72	343.99		TP13 Light pole base
0.10	333.00		11.17	332.90		TP14 " " "
0.28	322.61		10.67	322.33		TP15 " " "
3.80	317.95		8.46	314.15		TP16 Top Post Guide Rai
5.85	322.52		1.28	316.67		TP17 BOLT of END WOOD RAIL.
6.11	321.87		6.76	315.76		V-101 END ℄ BROKEN STRIPE LINE
1.25	317.92		5.20	316.67		TP17
8.68	322.84		3.76	314.16		TP16 GUIDE RAIL It BEAM PO
11.59	333.92		0.51	322.33		TP15
11.30	344.20		1.02	332.90		TP14
12.10	356.09		0.21	343.99		TP13
11.91	363.72		4.28	351.81		TP12
11.82	375.21		0.33	363.39		TP11
4.02	376.72		2.51	372.70		TP10
			10.77	365.95		MA-8
Σ102.77			Σ102.75 ✓			

Level Form
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VEP ASSOCIATES

Project # 281258	Date 8-26-93	Weather SUNNY	Temp. 95+	Page 3 of 7
Party Chief Al	Inst. DL	Rod	Rod	Rod

Project Name: MADISON

Task: PHOTO CONTROL

Computed by	Date	Checked by	Date

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
0.40	264.68				264.28	MA-6A
4.18	257.55		11.31	253.37		TP18 D/way @ Garage
1.47	250.97		8.05	249.50		TP19 Exton Rd.
0.41	238.76		12.62	238.35		TP20 " "
3.01	234.93		6.84	231.92		TP21 " "
4.45	230.63		8.75	226.18		TP22 " "
6.60	230.19		7.04	223.59		V-102 Corner stop Line
8.50	234.68		4.01	226.18		TP22
7.37	239.29		2.76	231.92		TP21
13.00	251.35		0.94	238.35		TP20
7.88	257.38		1.85	249.50		TP19
11.72	265.09		4.01	253.37		TP18
			0.82	264.27		MA-6A
Σ 68.99			Σ ~~68.99~~ 69.00			

Level Form

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VEP ASSOCIATES

Project #	Date	Weather	Temp.	Page 4 of 7
281258	8-26-93	SUNNY	95 f	

Party Chief	Inst.	Rod	Rod	Rod
AL	DL			

Project Name: MADISON

Task: PHOTO CONTROL

Computed by	Date	Checked by	Date

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
2.60	243.67				241.07	MA-~~X~~3 DISK.
0.78	232.38		12.07	231.60		TP23 Curb Greenwood
2.47	223.03		11.82	220.56		TP24 " Rockwood R
3.20	217.96		8.27	214.76		TP25 " " "
5.42	220.85		2.53	215.43		TP26 " " "
2.03	214.66		8.22	212.63		TP27 " " "
4.36	212.28		6.74	207.92		TP28
5.21	211.77		5.72	206.56		V-103 Corner stop Liv
6.78	214.70		3.85	207.92		TP28
8.07	220.71		2.06	212.64		TP27
2.70	218.13		5.28	215.43		TP26
7.96	222.72		3.37	214.76		TP25
11.59	232.15		2.16	220.56		TP24
12.22	243.81		0.56	231.59		TP23
			2.75	241.06		MA3
Σ 75.39 ✓			Σ 75.40 ✓			

Level Form
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VEP ASSOCIATES

Project # 281285	Date 8-26-93	Weather SUNNY	Temp. 95+	Page 5 of 7
Party Chief Slee	Inst. DL.	Rod	Rod	Rod
Project Name MADISON				
Task PHOTO CONTROL				
Computed by	Date	Checked by	Date	

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
4.30	338.47				334.17	IN 50 PK.
9.57	337.54		10.50	327.97		TP29 CHS O/way
10.65	346.91		1.28	336.26		TP30 " "
13.06	359.39		0.58	346.33		TP31 EP Shunpike R
8.87	367.64		0.62	358.77		TP32 " " "
0.98	367.17		1.45	366.19		TP33 " " "
0.29	359.06		8.40	358.77		TP32
0.48	346.81		12.73	346.33		TP31
0.88	337.13		10.56	336.25		TP30
10.99	338.95		9.17	327.96		TP29
			4.80	334.15		HV 50
Σ60.07 ✓			Σ60.09 ✓			
						GOD

Level Form
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VEP ASSOCIATES

Project #	Date	Weather	Temp	Page 6 of 7
281258	8/27/93	SUNNY	95 F	

Party Chief	Inst.	Rod	Rod	Rod
AR	DL			

Project Name: MADISON

Task: PHOTO CONTROL

Computed by	Date	Checked by	Date

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
3.85	370.04				366.19	TP33 see shel 5
3.22	365.66		7.60	362.44		TP34 EP "Shunpike
4.10	365.12		4.64	361.02		TP35 "Noe Ave
4.49	361.04		8.57	356.55		TP36 Inlet " "
4.69	360.62		5.11	355.93		V-104 ℄ Rd @ pedestr crossing
8.35	364.90		4.07	356.55		TP36
4.70	365.72		3.88	361.02		TP35
7.56	370.00		3.28	362.44		TP34
			3.81	366.19		TP33
40.96			40.96			
3.24	372.80				369.56	MA-9A Disc
0.36	367.11		6.05	366.75		TP37 ~~Inlet~~ Curb Loantaka
0.42	354.48		13.05	354.06		TP38 Curb Loantaka "
0.14	342.47		12.15	342.35		TP39 " " "
0.10	331.91		10.66	331.81		TP40 EP " "
0.09	319.11		12.89	319.02		TP41 " " "
0.86	310.70		9.27	309.84		TP42 " " "
1.60	303.64		8.66	302.04		TP43 " " "
10.21	303.38		10.47	293.17		V-105 End yellow line opp traf. islan
		8.93		294.45		~~TP43~~ V106 End yell ℄
10.16	312.20		1.34	302.04		TP43
9.64	319.48		2.36	309.84		TP42
13.00	332.03		0.45	319.03		TP41
10.78	342.60		0.21	331.82		TP40
~~17.25~~			0.26	342.34		TP39

Level Form
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VEP ASSOCIATES

Project #	Date	Weather	Temp.	Page 7 of 7
281258	8/27/93	SUNNY	95F	

Party Chief	Inst.	Rod	Rod	Rod
JL	JL			

Project Name: MADISON

Task: PHOTO CONTROL.

Computed by	Date	Checked by	Date

B.S.	H.I.	S.S.	F.S.	Elev.	Adj. Elev.	Description
3.24						MA-9A
12.25	354.59					TP39
13.11	367.18		0.52	354.07		TP38
6.31	373.07		0.42	366.76		TP37
			3.49	369.58		MA-9A
92.27			92.25			
95.51						

VEP
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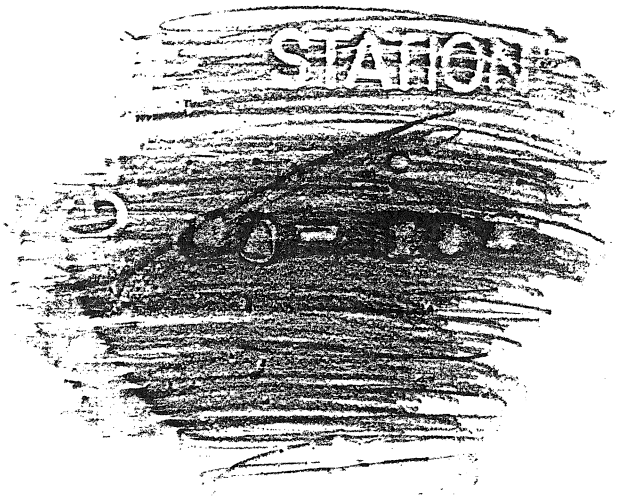
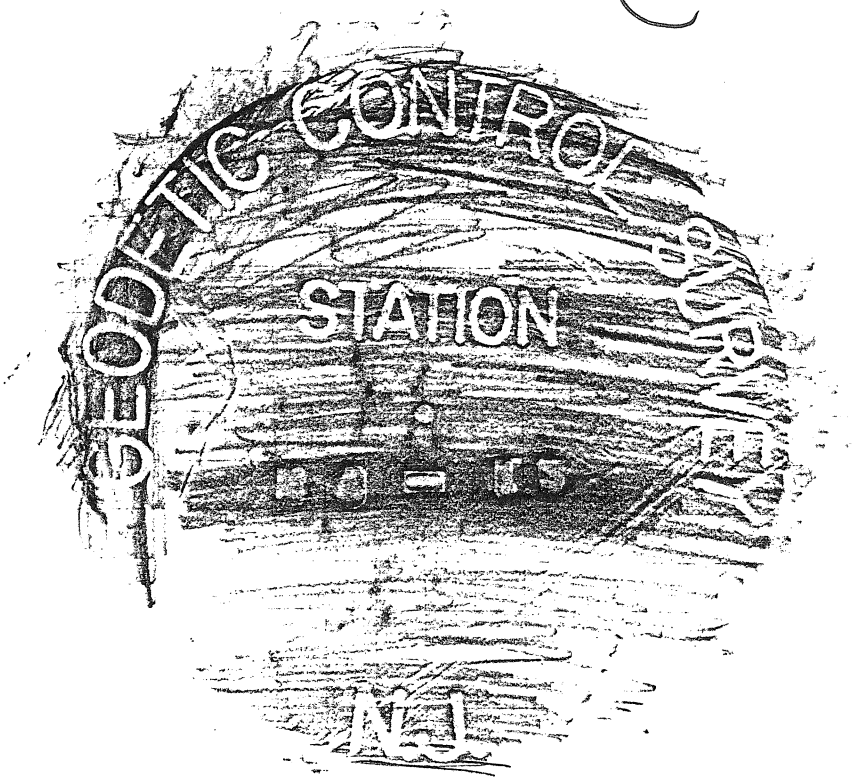
JOB NAME MADISON
JOB NO. 281258 PAGE 14 OF 15
CALCULATED BY _____ DATE _____
VERIFIED BY _____ DATE _____
SCALE _____



MA - 13 A

(TYPICAL)



MA - 13

DISK IMPRESSION MA-13 ; MA-13A

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2000 Market Street
Philadelphia, Pennsylvania 19103
(215) 564-1045

JOB NAME MADISON
JOB NO. 281258 PAGE ____ OF ____
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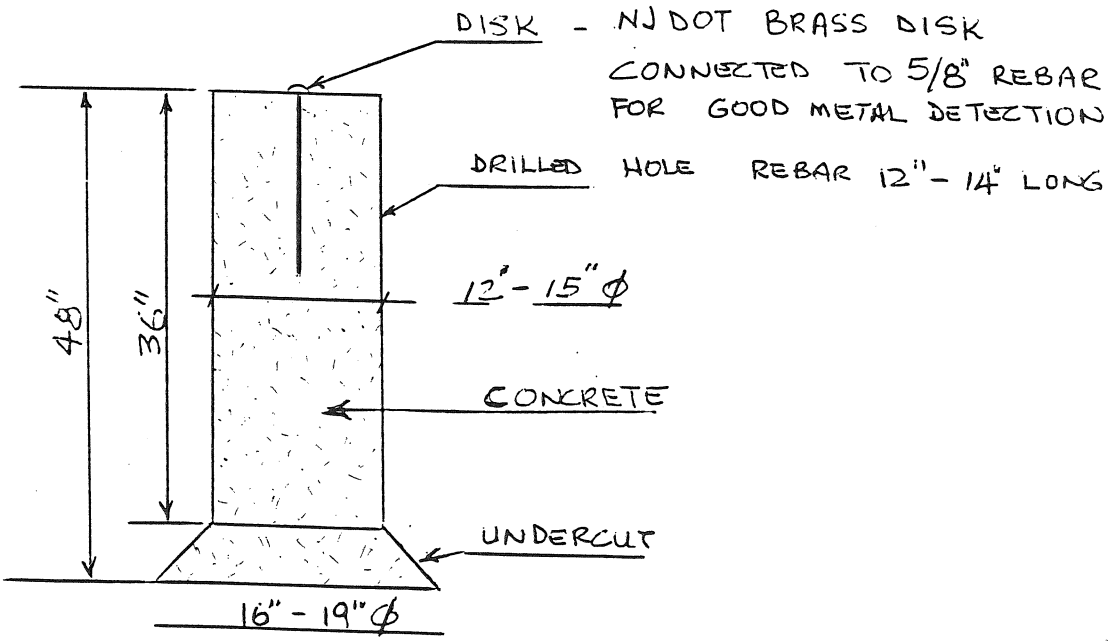
VERIFIED BY ____ DATE ____
SCALE ____

EXHIBIT 1A



TOP OF MONUMENT FLUSH WITH SURFACE

TYPICAL SECTION
CONTROL MONUMENT

ATLANTIS AERIAL SURVEY CO., INC.

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Budd Lake, NJ 07828-0276

(201) 691-4402
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Please deliver the following pages to:

NAME: Ron Piccola

FIRM: Killam Assoc.

FAX #: 328-6935

DATE: 5/17/95

FROM: Larry Hoyt

AAS JOB #: 1101-9511

COMMENTS/REMARKS: Boro of Madison

Control information

TOTAL NUMBER OF PAGES TO FOLLOW: 10

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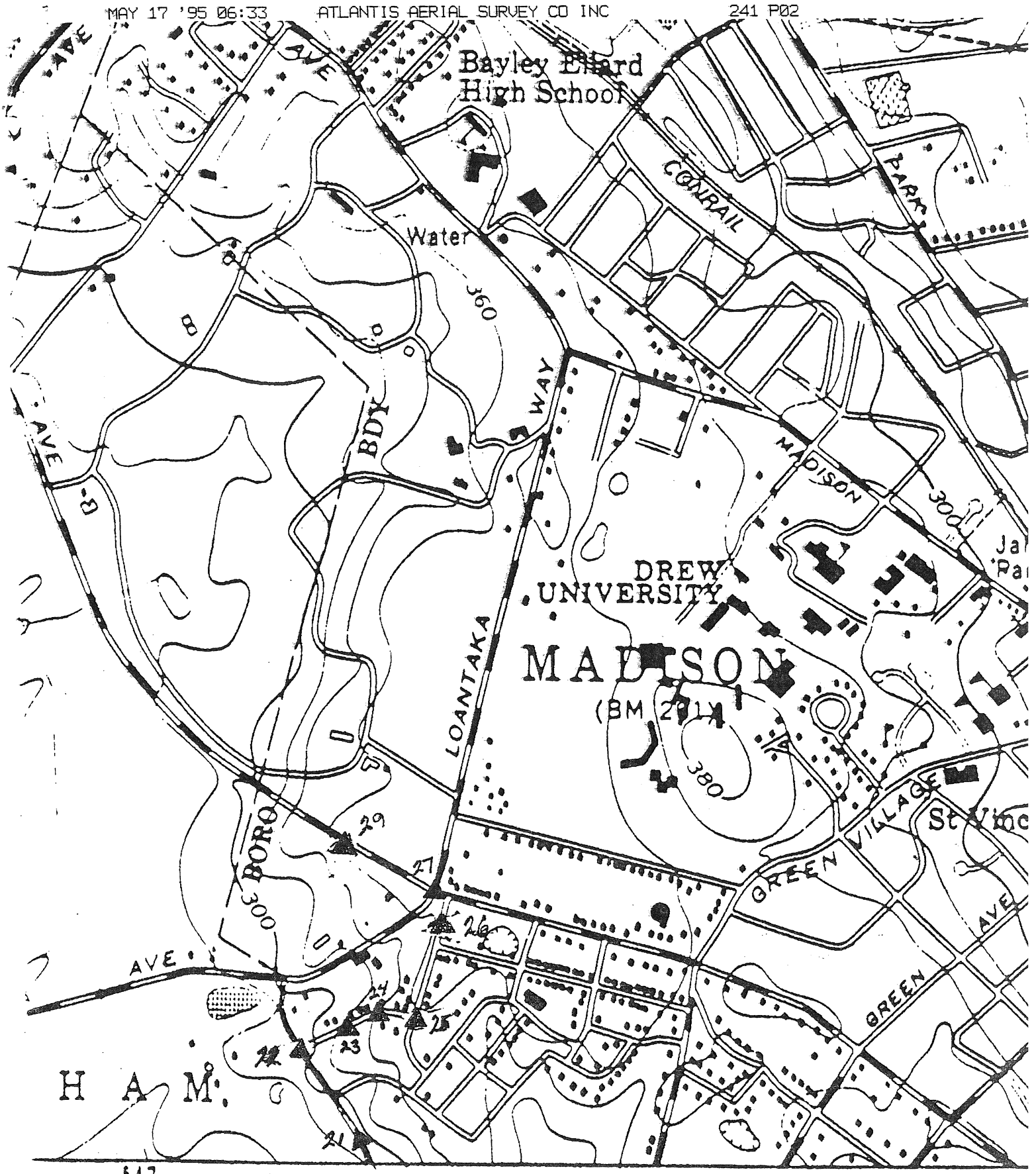

547

(CHATHAM)
6165 III NW HICKORY TREE 0.4 MI.
CHATHAM 3 MI.

SCALE 1:24000

0

05-15-1995 14:03:41
CLIENT: KILLAM ASSOC.
PROJECT: MADISON BORO.
JOB NO.: 1101-9511

21	698384.9136	2063633.6232	TRAV-21	EL. 297.36	TIED
22	699045.7149	2063170.6200	TRAV-22	EL. 298.52	
23	699201.9017	2063575.6835	TRAV-23	EL. 342.40	TIED
24	699261.1996	2063753.4879	TRAV-24	EL. 351.62	TIED
25	699269.3657	2064022.3290	TRAV-25	EL. 356.39	
26	699937.4770	2064203.1857	TRAV-26	EL. 361.31	
27	700179.3434	2064158.1200	TRAV-27	EL. 363.46	NO TIES, BUT PAINTED UP
29	700666.9045	2063301.8305	TRAV-29	EL. 353.94	" " "

COORDS. STORED IN FILE m:\11019511.150

SKETCH FORM

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Budd Lake, NJ 07828-0276
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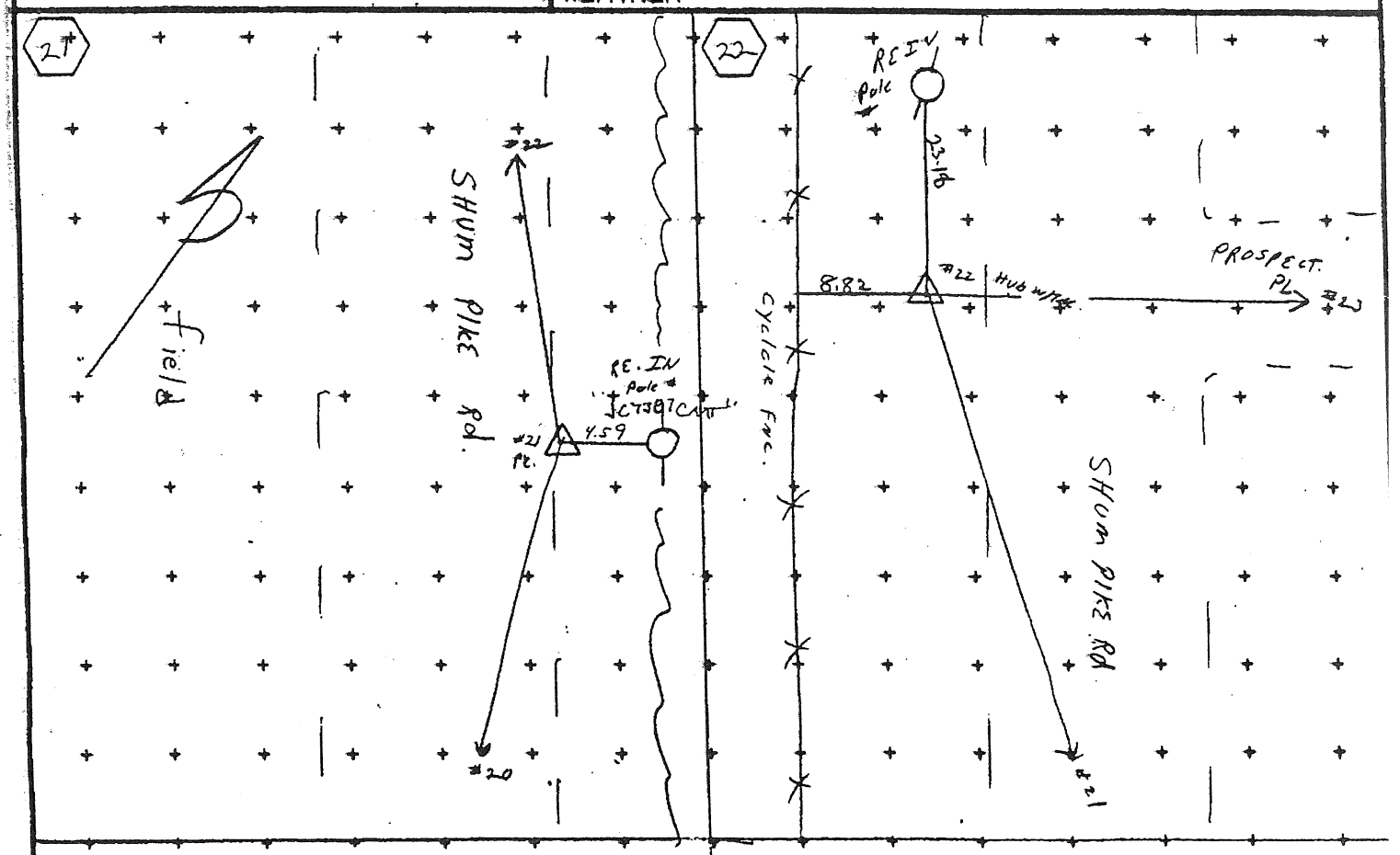
JOB # 1101-9010			PAGE #
CLIENT: KILLAM			
CLIENT REF:			
P.C.	7	4	DATE
WEATHER			



TRAVERSE FORM

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Chester, N.J. 07930 (201)879-2161

JOB # 1101-9010			PAGE # 27
CLIENT: Killam			
CLIENT REF:			
P.C. JAL	T GLB	⊥ GC	DATE 9-27-9
TEMP.	BARO.		PPM.

INST. @ 21	B.S. @ 20	F.S. @ 22
INST. HGT. 5.44	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	171° 26' 20"	FT.	1079.73	B.S. D	90° 26' 00
②	342° 52' 40"	M.	329.102	R	269° 32' 18
AVE. ∡	171° 26' 20"	ADJ.	1079.7305	ADJ. ∡	90° 26' 52
∡LT. ①	188° 33' 42"	FT.	806.92	F.S. D	89° 56' 12
②	17° 07' 24"	M.	[illegible]	R	270° 03' 00
AVE. ∡	188° 33' 42"	ADJ.	806.9213	ADJ. ∡	89° 57' 06
ADJ. ∡	171° 26' 19"				

SIDESHOTS

INST. @ B.S. @

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH

TRAVERSE FORM

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530 East Main Street, P.O. Box 692
Chester, N.J. 07930 (201)879-2161

JOB #			PAGE # 28
CLIENT:			
CLIENT REF:			
P.C.	T	F	DATE 9-27-90
TEMP.	BARO.		PPM.

INST. @ 28	B.S. @ 21	F.S. @
INST. HGT. 5.27	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	283° 55' 48"	FT.	806.92	B.S. D	90° 04' 32"
②	207° 51' 40"	M.	245.950	R	269° 55' 48"
AVE. ∡	283° 55' 50"	ADJ.	806.9213	ADJ. ∡	90° 05' 17"
∡LT. ①	76° 04' 12"	FT.	436.31	F.S. D	84° 14' 00"
②	152° 08' 24"	M.	132.996	R	275° 44' 02"
AVE. ∡	76° 04' 12"	ADJ.	436.3079	ADJ. ∡	84° 14' 59"
ADJ. ∡	283° 55' 49" ✓				

SIDESHOTS

INST. @ B.S. @

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH

TRAVERSE FORM

ATLANTIS AERIAL SURVEY CO., INC.
530 East Main Street, P.O. Box 692
Chester, N.J. 07930 (201)879-2161

JOB #			PAGE # 29
CLIENT:			
CLIENT REF:			
P.C. SAL	T GLB	✓ GC	DATE 9-27-
TEMP.	BARO.		PPM.

INST. @ 23	B.S. @ 22	F.S. @ 24
INST. HGT. 5.44	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	182° 36' 40"	FT.	436.36	B.S. D	95° 48' 12
②	05° 17' 08"	M.	133.000	R	264° 00' 48
AVE. ∡	182° 36' 34"	ADJ.	436.3592	ADJ. ∡	95° 49' 15
∡LT. ①	177° 21' 30"	FT.	187.[illegible]	F.S. D	87° 14' 24
②	357° 42' 56"	M.	[illegible]	R	272° 43' 46
AVE. ∡	177° [illegible]' [illegible]"	ADJ.	187.6389	ADJ. ∡	87° 15' 19
ADJ. ∡	182° 36' 33"				

SIDESHOTS

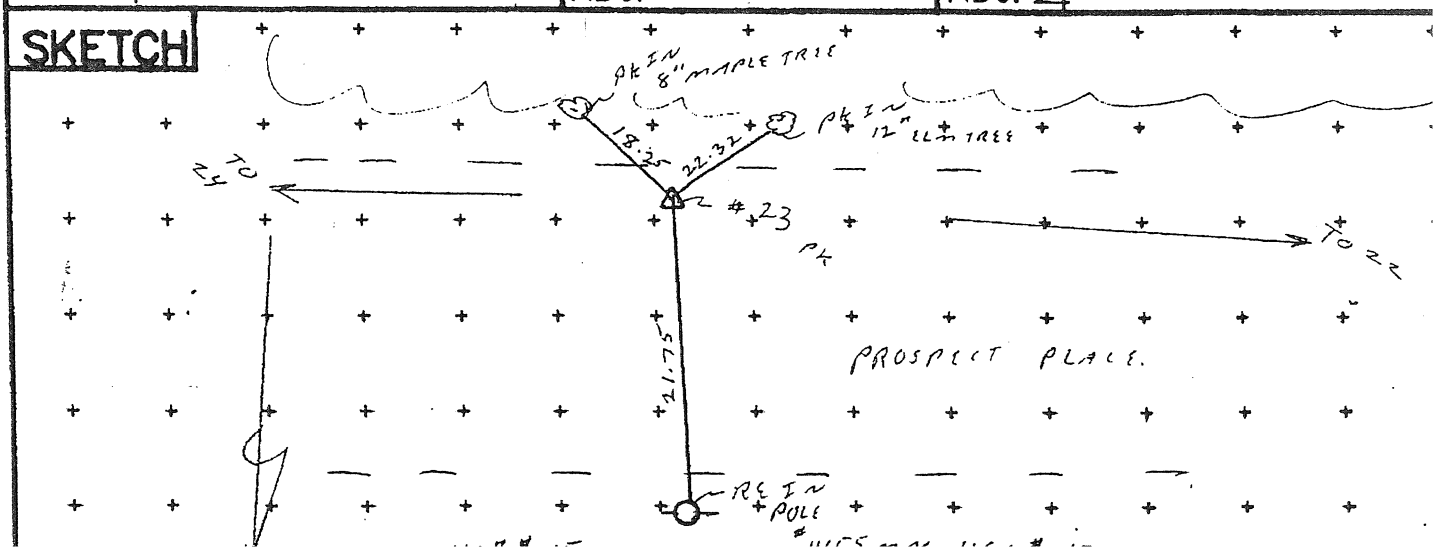
INST. @ B.S. @

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH



TRAVERSE FORM

ATLANTIS AERIAL SURVEY CO., INC.
530 East Main Street, P.O. Box 692
Chester, N.J. 07930 (201)879-2161

JOB #			PAGE # 30
CLIENT:			
CLIENT REF:			
P.C.	π	ϕ	DATE
TEMP.	BARO.		PPM.

INST. @ 24	B.S. @ 23	F.S. @ 25
INST. HGT. 5.46	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	196° 42' 1[illegible]"	FT.	187.66	B.S. D	92° 5[illegible]' 00"
②	[illegible]° [illegible]' [illegible]"	M.	57.199	R	261° [illegible]' 16"
AVE. ∡	19[illegible]° 42' 18"	ADJ.	187.6604	ADJ. ∡	92° 53' 52"
∡LT. ①	163° 17' 18"	FT.	268.99	F.S. D	7[illegible]° 5[illegible]' 4[illegible]"
②	326° 3[illegible]' 26"	M.	81.964	R	2[illegible]1° [illegible]' [illegible]"
AVE. ∡	163° 11' 44"	ADJ.	268.9914	ADJ. ∡	88° 55' 39"
ADJ. ∡	196° 42' 17"				

SIDESHOTS

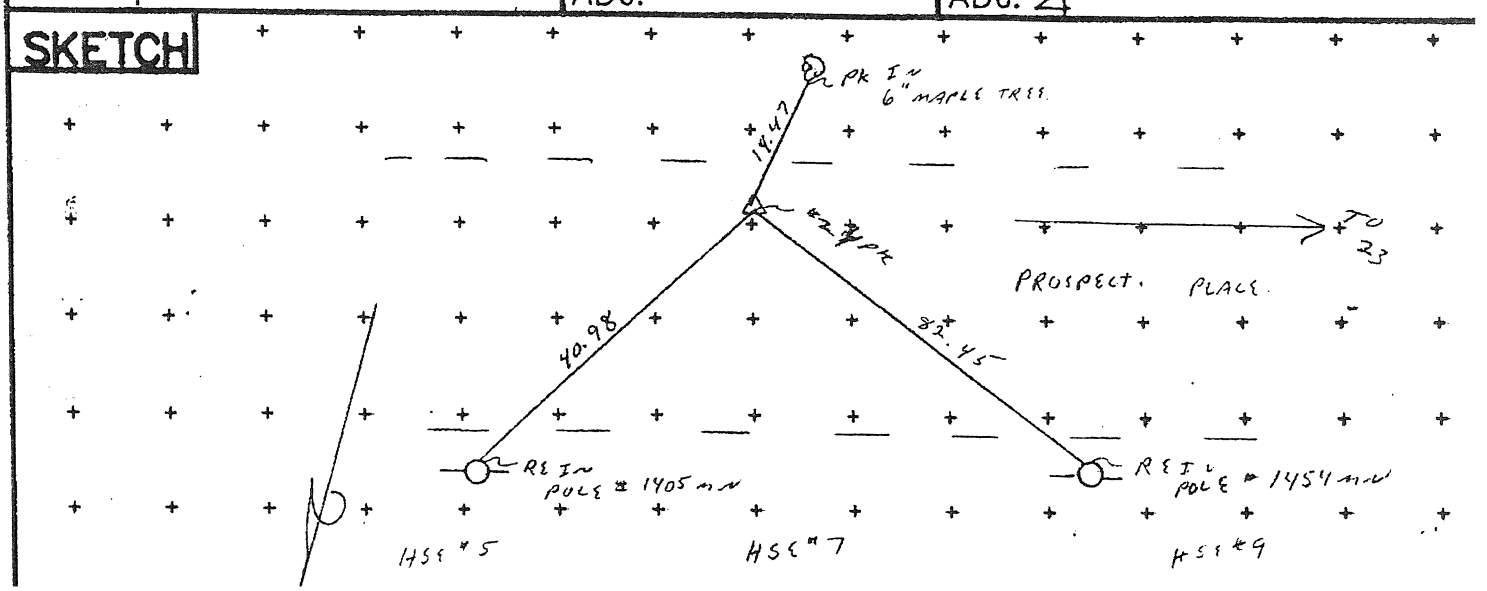
INST. @ B.S. @

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° ' "
∡LT.	° ' "	M.		V∡R	° ' "
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° ' "

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° ' "
∡LT.	° ' "	M.		V∡R	° ' "
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° ' "

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° ' "
∡LT.	° ' "	M.		V∡R	° ' "
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° ' "

SKETCH



TRAVERSE FORM

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JOB #			PAGE # 31
CLIENT:			
CLIENT REF:			
P.C. JAC	T GLF	F RC	DATE 9-27-
TEMP.	BARO.		PPM.

INST. @ 35	B.S. @ 24	F.S. @ 26
INST. HGT. 5.58	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	106° 53' 00"	FT.	269.61	B.S. D	91° 10' 24
②	213° 46' 64"	M.	81.993	R	268° 47' 54
AVE. ∡	106° 53' 02"	ADJ.	269.0080	ADJ. ∡	91° 11' 15
∡LT. ①	253° 06' 54"	FT.	692.19	F.S. D	89° 39' 04
②	146° 13' 44"	M.	210.975	R	270° 19' 02
AVE. ∡	253° 06' 57"	ADJ.	692.1826	ADJ. ∡	89° 40' 01
ADJ. ∡	106° 53' 05"				

SIDESHOTS

INST. @ B.S. @

F.S. # H-130	TARGET HGT.		DESCRIPTION CENT BASE OF POLE		
∡RT.	103° 57' 30"	FT.	453.65	V∡D	87° 15' 51
∡LT.	256° 02' 36"	M.	138.27	V∡R	° '
ADJ. ∡	103° 57' 27"	ADJ.	453.6541	ADJ. ∡	89° 56' 49
F.S. #	TARGET HGT.		DESCRIPTION		
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '
F.S. #	TARGET HGT.		DESCRIPTION		
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH

TRAVERSE FORM

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JOB #			PAGE # 32
CLIENT:			
CLIENT REF:			
P.C. JAL	π GLN	∠ [illegible]	DATE 9-22-[illegible]
TEMP.	BARO.		PPM.

INST. @ 26	B.S. @ 25	F.S. @ 27
INST. HGT. 5.37	TARGET HGT.	TARGET HGT.

HORIZONTAL	DISTANCE	VERTICAL
∡RT. ① 154° 18' 00"	FT. 692.18	B.S. D 90° 21' 47"
② 308° 36' 00"	M. 210.980	R 269° 36' 10"
AVE. ∡ 154° 18' 00"	ADJ. 692.1858	ADJ. ∡ 90° 22' 47"
∡LT. ① 205° 42' 00"	FT. 246.05	F.S. D 89° 32' 40"
② 51° 24' 08"	M. 74.995	R 270° 25' 14"
AVE. ∡ 205° 42' 04"	ADJ. 246.0483	ADJ. ∡ 89° 33' 43"
ADJ. ∡ 154° 17' 58" ✓		

SIDESHOTS

INST. @ B.S. @

F.S. #	TARGET HGT.		DESCRIPTION		
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '
F.S. #	TARGET HGT.		DESCRIPTION		
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '
F.S. #	TARGET HGT.		DESCRIPTION		
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH

TRAVERSE FORM

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Chester, N.J. 07930 (201)879-2161

JOB #			PAGE # 33
CLIENT:			
CLIENT REF:			
P.C.	π	ϕ	DATE 9-27-
TEMP.	BARO.		PPM.

INST. @ 27	B.S. @ 26	F.S. @ 28 (4)
INST. HGT. 5.36	TARGET HGT.	TARGET HGT.

HORIZONTAL		DISTANCE		VERTICAL	
∡RT. ①	204° 04' 30"	FT.	246.05	B.S. D	90° 32' 32
②	48° 09' 00"	M.	74.998	R	269° 25' 32
AVE. ∡	204° 04' 30"	ADJ.	246.0532	ADJ. ∡	90° 33' 30
∡LT. ①	155° 55' 36"	FT.	2995.22	F.S. D	89° 35' 36
②	311° 51' 20"	M.	912.944	R	270° 22' 18
AVE. ∡	155° 55' 40"	ADJ.	2995.2215	ADJ. ∡	89° 36' 39
ADJ. ∡	204° 04' 25" ✓				

SIDESHOTS

INST. @ B.S. @

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

F.S. #	TARGET HGT.	DESCRIPTION			
∡RT.	° ' "	FT.		V∡D	° '
∡LT.	° ' "	M.		V∡R	° '
ADJ. ∡	° ' "	ADJ.		ADJ. ∡	° '

SKETCH