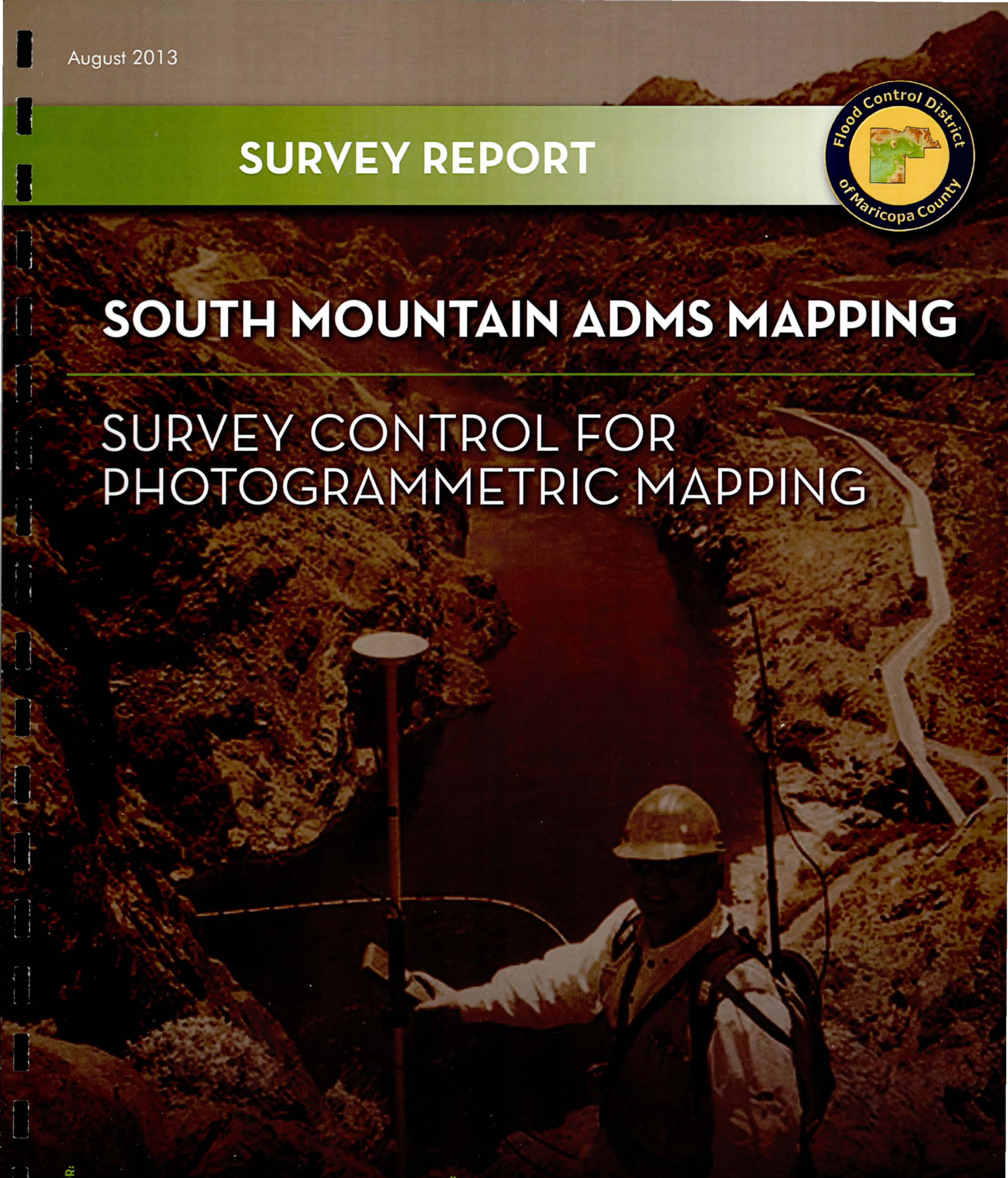
August 2013

SURVEY REPORT

SOUTH MOUNTAIN ADMS MAPPING

SURVEY CONTROL FOR PHOTOGRAMMETRIC MAPPING



PREPARED FOR:

Flood Control District
2801 West Durango Street
Phoenix, Arizona 85009
PCN 630.01.20 LOW ORG 6961

PREPARED BY:

AZTEC
TYPSA Group
www.typsa.es
www.aztec.us

AZTEC Engineering Group, Inc.
4561 E. McDowell Rd. | Phoenix, AZ 85008
p: 602.454.0402 | f:602.454.0403

TABLE OF CONTENTS

Section	Page
1.0 Introduction	2
2.0 Project Survey Datum	2
3.0 Primary Survey Control	2
4.0 Aerial Targets	3
5.0 Airborne GPS	3
6.0 Alpha Engineering Quality Control Checks	3
6.1 AZTEC Quality Control Checks	4
7.0 Surveyors Certification	4
8.0 Appendix A –Tables	6
9.0 Appendix B – Flight Maps	7
10.0 Appendix C – Aerial Target Photos	8

SURVEY REPORT
South Mountain ADMS Mapping
PCN 630.01.20 Low Org 6961
Survey Control for Photogrammetric Mapping

1.0 Introduction

On February 25, 2013 AZTEC received a request from the Flood Control District of Maricopa County (FCDMC) to provide surveying services for the South Mountain ADMS Mapping project. This photogrammetric mapping project covers 39 square miles of land located in the City of Phoenix. The project is divided into two areas: a 2-foot contour interval area consisting of approximately 25 square miles and a 4-foot contour interval area consisting of approximately 14 square miles. The final Scope of Work was approved by FCDMC on April 12, 2013. Amendment A to the Scope of Work was received on July 5, 2013 extending the project completion date to August 5, 2013.

2.0 Project Survey Datum

The survey work for this project is based on the Maricopa County Geodetic Densification and Cadastral Survey (GDACS) Control Network. Direct satellite measurements were translated to the Project Survey Datum by Leica Geo-Office GPS software using the following parameters:

Coordinate System: NAD 83 (1992 Epoch)
Zone: Arizona Central (0202)
Ellipsoid: WGS 84
Geoid Model: GEOID 99
Units: International Feet
Vertical Datum: NAVD 88

The resulting State Plane grid coordinates were used for this survey. No scaling to ground datum was performed.

3.0 Primary Survey Control

AZTEC recovered and verified 7 GDACS Control Stations within the project limits. To verify the control AZTEC held the superseded NAD 83(1992) published lat/long values and superseded ellipsoidal height for 2BD1 as the basis. The corresponding orthometric height was computed using GEOID 99. **Table 1 – Primary Survey Control** in Appendix A shows the data used for primary control. All data was obtained by RTK GPS procedures using Leica "System 1200" equipment. A minimum of two independent vectors were measured for each control point, to confirm that the published coordinates and elevations for each control point are within GPS tolerances and can be used for the survey. **Table 2 - Primary Control Verification** in Appendix A shows the results of

the control verification survey. All horizontal coordinates and elevations were found to be within acceptable tolerance, and the published data (superseded 1992 lat/long/ellipsoidal height) from the NGS data sheets was held for the survey. All orthometric heights were computed from the superseded ellipsoidal heights using GEIOD 99.

4.0 Aerial Targets

AZTEC received target layout maps and stake-out coordinates from Aero Tech Mapping for the aerial targets. A total of 12 targets were set in the 4-foot contour mapping area and 25 targets were set in the 2-foot contour area. A minimum of two independent vectors were measured for each target, and the average was confirmed to be within 0.1 foot of the independent measurements horizontally and vertically. **Table 3 – Aerial Targets** in Appendix A shows the final coordinates for the aerial targets. Points 1 through 12 are the 4-foot targets and Points 100 through 124 are the 2-foot targets.

5.0 Airborne GPS

The aerial photography was supplemented by airborne GPS for this project. AZTEC provided 4 base stations to control the airborne GPS. Each base station occupied an existing GDACS control point that was previously tied to the control survey. The base station points were located roughly at the 4 corners of the project.

The airborne GPS mission required approximately 8 hours of static GPS data. **Table 4 – Airborne GPS Report** in Appendix A shows the data from the 4 Master Control Stations and the resulting camera centers for the airborne GPS mission. **Table 5 – Control Residual RMS** in Appendix A is a report provided by Aero Tech Mapping showing the RMS values for the aerial targets developed from the airborne GPS data.

6.0 Alpha Engineering Quality Control Checks°

AZTEC used the services of Alpha Engineering (AE) to provide an independent set of ground shots to confirm the accuracy of the DTM. AE conducted a rapid-static GPS survey using Trimble 5800 receivers and each static session had at least 20 minutes of data (OPUS website requires at least 15 minutes for rapid-static). The GPS static files were then uploaded to the National Geodetic Survey - OPUS (Online Positioning User Service) website to be processed and adjusted to national spatial reference system (NSRS) coordinates. These coordinates are Arizona State Plane - Central Zone and orthometric heights determined using GEOID 12A. Two NGS control points (2CG1 and 2BD1) were measured for quality control and to determine if there is a significant difference between static elevation data processed with GEOID 12A against published NGS datasheet elevations determined with GEOID 09. Current published orthometric elevations for NGS points 2CG1 and 2BD1 are determined using GEOID 09 and are 1167.7 and 1182.3 respectively. Orthometric elevations obtained by AE using the OPUS website using GEOID 12A were 1167.73

for 2CG1 and 1182.37 for 2BD1. With less than 0.10 foot variation in elevation between geoid models on known published control points results in a high level of confidence in the vertical measurements for the purpose intended which is independent verification of 2' contour interval and 4' contour interval mapping files.

AE measured a total of 56 random positions and 2 known NGS control points. AE attempted to keep the measurements near the center of section to assure even shot distribution, where applicable.

AE then applied a horizontal and vertical shift to accommodate the need for the data to be on the same datum as previous surveys that were measured horizontally on NAD 83(92) and vertically with GEOID99. AE received the shift data from Aztec on June 3, 2013 and applied the N - 0.13, E + 0.04, Z - 0.17 shift to AE's static survey coordinates. The resulting check for NGS point 2CG1 between AE measurements and the values provided to AE from Aztec are as follows:

NAME	NORTH	EAST	ELEV
2CG1	833830.03	672659.82	1167.58
2CG1(AE)	833830.04	672659.79	1167.56

6.1 AZTEC Quality Control Checks

AZTEC identified 12 major washes within the 2-foot contour area and provided ground shots along the flow line of each wash at approximate 250-foot intervals to provide additional quality control checks.

AZTEC received the final DTM from AeroTech Mapping on 7/26/13. The surveyed values from each survey were compared to the data for the same points obtained from the DTM, and RMS values were computed. **Table 6 –Alpha 4-foot QC Checks** in Appendix A shows the data for the 4-foot CI mapping checks provided by AE. The total RMS for the 4-foot mapping checks is 1.72 foot. **Table 7 – Alpha 2-foot QC Checks** in Appendix A shows the data for the 2-foot CI mapping checks provided by AE. The total RMS for Alpha's 2-foot mapping checks is 0.77 foot. **Table 8 – AZTEC QC Checks** in Appendix A shows the data for the 2-foot CI mapping checks provided by AZTEC. The total RMS for AZTEC's 2-foot mapping checks is 0.62 foot.

7.0 Surveyors Certification

I, Alan D. Reece, a Registered Land Surveyor in the State of Arizona, do hereby certify that the field survey documented herein, along with all field and office processing procedures performed during the survey were performed under my direct supervision during the Months of April through July 2013. The information presented in this Survey Report is correct and accurate to the best of my knowledge and belief.

Alan D. Reece
RLS No. 25396

Expires 3/31/2016

8.0 Appendix A –Tables

TABLE 1

Primary Survey Control

TYP_LID	HOR_LID	VER_LID	XNAD27	YNAD27	XNAD83	YNAD83	ELLIP HT	NAVD88	MNT_LID	PNTNUM	DESC
20	7	13	0	0	677974.122	863987.410	1177.86	1275.26	27	1AG2	Found Metal Rod
20	7	13	0	0	659651.063	858979.031	1207.26	1304.75	27	2AF4	Found Brass Cap
20	7	13	0	0	630024.916	849080.376	1084.23	1182.10	27	2BD1	Found Metal Rod
20	7	13	0	0	669660.441	850548.322	1366.83	1464.26	27	2BG3	Found Brass Cap
20	7	13	0	0	644042.154	834856.576	1081.23	1179.00	27	2CE1	Found Metal Rod
20	7	13	0	0	672659.823	833830.029	1069.96	1167.58	27	2CG1	Found Metal Rod
20	7	13	0	0	684196.904	863146.644	1159.07	1256.48	27	RYAN	Found Brass Cap

TABLE 2

Primary Control Verification

PT NO	GDACS NORTHING	GDACS EASTING	GDACS ELEVATION	AZTEC NORTHING	AZTEC EASTING	AZTEC ELEVATION	DIFF NORTHING	DIFF EASTING	DIFF ELEVATION
1AG2	863987.410	677974.122	1275.26	863987.395	677974.103	1275.32	-0.02	-0.02	0.06
2AF4	858979.031	659651.063	1304.75	858979.011	659651.061	1304.88	-0.02	0	0.12
2BD1	849080.376	630024.916	1182.10	Held Record	Held Record	Held Record	N/A	N/A	N/A
2BG3	850548.322	669660.441	1464.26	850548.297	669660.468	1464.24	-0.03	0.03	-0.02
2CE1	834856.576	644042.154	1179.00	834856.544	644042.161	1179.02	-0.03	0.01	0.02
2CG1	833830.029	672659.823	1167.58	833830.040	672659.834	1167.54	0.01	0.01	-0.05
RYAN	863146.644	684196.904	1256.48	863146.651	684196.885	1256.51	0.01	-0.02	0.03

TABLE 3
Aerial Targets

TYP_LID	HOR_LID	VER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	MNT_LID	PNTNUM	DESC
6	7	13	0	0	628367.899	839434.875	0	1144.131	10	1	SET REBAR WITH ALUM CAP
6	7	13	0	0	633056.433	834524.901	0	1120.174	10	2	SET REBAR WITH ALUM CAP
6	7	13	0	0	639209.206	843131.204	0	2227.402	10	3	SET REBAR WITH ALUM CAP
6	7	13	0	0	641362.543	837843.298	0	1233.069	10	4	SET REBAR WITH ALUM CAP
6	7	13	0	0	653732.308	843107.051	0	1495.214	8	5	FOUND BRASS CAP
6	7	13	0	0	648676.663	853818.828	0	1411.815	17	6	SET NAIL
6	7	13	0	0	667060.836	848657.203	0	1485.921	10	7	SET REBAR WITH ALUM CAP
6	7	13	0	0	661621.998	859859.670	0	1292.575	17	8	SET NAIL
6	7	13	0	0	685121.286	857191.524	0	1255.852	17	9	SET NAIL
6	7	13	0	0	681111.110	868499.184	0	1175.145	17	10	SET NAIL
6	7	13	0	0	675340.636	859420.423	0	1505.587	10	11	SET REBAR WITH ALUM CAP
6	7	13	0	0	657433.563	851863.401	0	2202.867	10	12	SET REBAR WITH ALUM CAP
6	7	13	0	0	685265.621	833217.326	0	1155.471	17	100	SET NAIL
6	7	13	0	0	684531.171	842789.030	0	1201.318	17	101	SET NAIL
6	7	13	0	0	685012.885	852712.266	0	1236.742	8	102	FOUND BRASS CAP
6	7	13	0	0	684855.101	864502.996	0	1224.061	17	103	SET NAIL
6	7	13	0	0	675084.207	833493.954	0	1172.319	10	104	SET REBAR WITH ALUM CAP
6	7	13	0	0	675093.089	842814.807	0	1266.451	17	105	SET NAIL
6	7	13	0	0	675090.397	852642.705	0	1349.170	10	106	SET REBAR WITH ALUM CAP
6	7	13	0	0	675056.908	857904.657	0	1636.919	10	107	SET REBAR WITH ALUM CAP
6	7	13	0	0	679418.225	860028.208	0	1377.948	10	108	SET REBAR WITH ALUM CAP
6	7	13	0	0	664587.701	833442.379	0	1180.733	17	109	SET NAIL
6	7	13	0	0	664782.023	841847.371	0	1289.745	17	110	SET NAIL
6	7	13	0	0	654258.926	833465.550	0	1234.625	17	111	SET NAIL
6	7	13	0	0	643886.771	833454.827	0	1155.082	17	112	SET NAIL
6	7	13	0	0	642507.620	842197.331	0	1571.917	10	113	SET REBAR WITH ALUM CAP
6	7	13	0	0	632396.693	833222.104	0	1085.781	10	114	SET REBAR WITH ALUM CAP
6	7	13	0	0	630332.380	836157.618	0	1151.156	10	115	SET REBAR WITH ALUM CAP
6	7	13	0	0	668821.806	851539.159	0	1512.981	10	116	SET REBAR WITH ALUM CAP
6	7	13	0	0	672880.271	854072.910	0	1460.076	10	117	SET REBAR WITH ALUM CAP
6	7	13	0	0	662066.943	846880.696	0	1572.597	10	118	SET REBAR WITH ALUM CAP
6	7	13	0	0	678532.999	847945.702	0	1277.627	8	119	FOUND BRASS CAP
6	7	13	0	0	682022.949	838522.057	0	1193.007	10	120	SET REBAR WITH ALUM CAP
6	7	13	0	0	668183.244	836927.189	0	1216.745	17	121	SET NAIL
6	7	13	0	0	661244.186	838739.749	0	1291.648	17	122	SET NAIL
6	7	13	0	0	653306.455	846073.088	0	1618.763	10	123	SET REBAR WITH ALUM CAP
6	7	13	0	0	650838.746	837270.356	0	1234.481	8	124	FOUND BRASS CAP

TABLE 4

Airborne GPS Report

Project:	South			Mountain	ADMS													
Program:	GrafNav			Version	7.60.2425													
Profile:	State			Plane														
Source:	Features/stations(Combined)																	
ProcessInfo:	Run			-5	by	Al Reece	on	5/30/2013	at	8:43:03								
Datum:	NAD83,			(processing	datum)													
Master		1:00	Name	1AG2,	Status	ENABLED												
	Antenna		height	1.515	m,	to	L1-PC	(LEIAX1202,	MeasDist	1.43	m	to	mark/ARP)					
	Position			33	22	30.10482,	-111	59	19.74692,	359.011	m	(NAD83,	Ellipsoidal	hgt)				
Master		2:00	Name	2BD1,	Status	ENABLED												
	Antenna		height	1.71	m,	to	L1-PC	(LEIATX1230,	MeasDist	1.599	m	to	mark/ARP)					
	Position			33	20	01.92424,	-112	8	44.81356,	330.473	m	(NAD83,	Ellipsoidal	hgt)				
Master		3:00	Name	2CE1,	Status	ENABLED												
	Antenna		height	1.539	m,	to	L1-PC	(LEIAX1202,	MeasDist	1.454	m	to	mark/ARP)					
	Position			33	17	41.46308,	-112	5	59.29541,	329.56	m	(NAD83,	Ellipsoidal	hgt)				
Master		4:00	Name	2CG1,	Status	ENABLED												
	Antenna		height	1.874	m,	to	L1-PC	(LEIATX1230,	MeasDist	1.763	m	to	mark/ARP)					
	Position			33	17	31.67577,	-112	0	22.11218,	326.125	m	(NAD83,	Ellipsoidal	hgt)				
Remote:	Antenna		height	1.159	m,	to	L1-PC	(SEN67157596,	MeasDist	1.159	m	to	PC)					
Vec.	Offset:		x=0.000,	y=0.000,	z=1.159	m	(x-fwd,	y-left,	z-up,	CAM->ANT)								
UTC	Offset:			16	s													
Geoid:	Geoid99-ContUS.wpg		(Absolute	correction)														
Map	projection		Info:															
	U.S.		State	Plane	for	AZ	Central	-202										

Station	Northing (m)	Easting (m)	H-MSL (m)	Northing (ft)	Easting (ft)	H-MSL (ft)	H-Ell (m)	Undulation (m)	GPSTime (sec)	Week (weeks)	Q (dop)	NS (Deg)	AmbStatus	PDOP	SunElv
1	280771.423	178222.838	321.267	921166.084	584720.597	1054.024	291.009	-30.258	402761.26	1740	1	7	Fixed	2	40.73037
2	280771.419	178222.838	321.259	921166.072	584720.597	1053.999	291.001	-30.258	402778.71	1740	1	7	Fixed	2.01	40.7909
3	241078.871	200816.43	1359.088	790941.177	658846.555	4458.952	1329.025	-30.063	404415.66	1740	1	8	Fixed	1.48	46.70167
4	238253.735	200393.835	1356.79	781672.36	657460.089	4451.412	1326.657	-30.134	404461.06	1740	2	8	Fixed	1.47	46.85827
5	253805.917	208404.494	1359.239	832696.578	683741.777	4459.445	1329.475	-29.763	404899.17	1740	1	8	Fixed	1.5	48.42464
6	254416.937	208406.039	1358.42	834701.237	683746.848	4456.76	1328.665	-29.756	404907.35	1740	1	8	Fixed	1.5	48.45205
7	255025.646	208411.242	1357.935	836698.315	683763.918	4455.167	1328.187	-29.748	404915.44	1740	1	8	Fixed	1.49	48.47917
8	255626.82	208412.597	1359.7	838670.671	683768.364	4460.957	1329.958	-29.742	404923.48	1740	1	8	Fixed	1.49	48.50608
9	256235.134	208412.173	1358.52	840666.451	683766.972	4457.087	1328.785	-29.735	404931.66	1740	1	8	Fixed	1.5	48.53344
10	256843.671	208409.412	1357.769	842662.962	683757.914	4454.622	1328.039	-29.729	404939.87	1740	1	8	Fixed	1.5	48.56087
11	257446.661	208406.492	1358.683	844641.275	683748.335	4457.62	1328.958	-29.724	404948.09	1740	1	8	Fixed	1.49	48.58836
12	258054.478	208402.48	1359.613	846635.428	683735.17	4460.673	1329.894	-29.719	404956.47	1740	1	8	Fixed	1.49	48.61636
13	258665.739	208404.534	1362.315	848640.875	683741.908	4469.539	1332.601	-29.715	404964.94	1740	1	7	Fixed	2.21	48.6447
14	259280.795	208407.168	1357.553	850658.775	683750.55	4453.913	1327.843	-29.71	404973.34	1740	1	7	Fixed	2.2	48.67283

15	259874.772	208411.278	1358.969	852607.52	683764.034	4458.56	1329.264	-29.705	404981.55	1740	1	7 Fixed	2.21	48.70029
16	260486.254	208404.342	1358.984	854613.696	683741.28	4458.608	1329.283	-29.701	404990.11	1740	1	7 Fixed	2.2	48.72887
17	261093.523	208408.579	1361.238	856606.046	683755.179	4466.003	1331.541	-29.697	404998.64	1740	1	7 Fixed	2.2	48.75743
18	261705.971	208408.678	1358.923	858615.391	683755.504	4458.409	1329.229	-29.694	405007.18	1740	1	7 Fixed	2.19	48.78597
19	262310.317	208405.366	1358.285	860598.152	683744.64	4456.315	1328.594	-29.691	405015.61	1740	1	7 Fixed	2.2	48.8141
20	262916.506	208404.101	1356.667	862586.963	683740.488	4451.008	1326.978	-29.689	405024.09	1740	1	7 Fixed	2.19	48.84242
21	263518.999	208401.003	1361.015	864563.646	683730.326	4465.272	1331.328	-29.687	405032.61	1740	1	7 Fixed	2.2	48.87083
22	253818.909	207349.377	1385.003	832739.202	680280.108	4543.973	1355.242	-29.761	405663.64	1740	1	7 Fixed	2.09	51.04208
23	254420.573	207353.576	1380.19	834713.166	680293.886	4528.183	1350.439	-29.752	405671.64	1740	1	7 Fixed	2.09	51.06851
24	255025.517	207360.645	1378.643	836697.891	680317.078	4523.106	1348.899	-29.744	405679.67	1740	1	7 Fixed	2.09	51.09503
25	255629.871	207349.843	1383.462	838680.68	680281.639	4538.916	1353.725	-29.736	405687.75	1740	1	7 Fixed	2.09	51.12157
26	256241.227	207342.672	1385.803	840686.442	680258.111	4546.598	1356.073	-29.73	405695.9	1740	1	7 Fixed	2.09	51.1484
27	256847.051	207348.777	1384.163	842674.053	680278.139	4541.217	1354.439	-29.724	405704.04	1740	1	7 Fixed	2.07	51.17526
28	257460.204	207352.194	1380.142	844685.71	680289.351	4528.026	1350.424	-29.719	405712.19	1740	1	7 Fixed	2.07	51.20214
29	258058.4	207345.11	1385.047	846648.293	680266.109	4544.117	1355.333	-29.714	405720.17	1740	1	7 Fixed	2.07	51.22833
30	258667.789	207347.184	1384.704	848647.601	680272.915	4542.991	1354.995	-29.709	405728.36	1740	1	7 Fixed	2.07	51.25534
31	259281.16	207349.341	1382.388	850659.975	680279.991	4535.394	1352.684	-29.705	405736.6	1740	1	7 Fixed	2.08	51.28246
32	259883.395	207360.931	1382.51	852635.809	680318.015	4535.795	1352.811	-29.699	405744.71	1740	1	7 Fixed	2.08	51.30926
33	260490.595	207355.654	1384.625	854627.937	680300.703	4542.732	1354.929	-29.695	405752.91	1740	1	7 Fixed	2.08	51.33621
34	261096.598	207359.538	1384.013	856616.137	680313.443	4540.726	1354.321	-29.692	405761.18	1740	1	7 Fixed	2.06	51.36346
35	261709.114	207348.939	1381.436	858625.703	680278.673	4532.271	1351.747	-29.69	405769.5	1740	1	7 Fixed	2.08	51.39074
36	262310.168	207344.332	1383.877	860597.666	680263.555	4540.28	1354.19	-29.688	405777.71	1740	1	7 Fixed	2.08	51.41769
37	262921.213	207352.28	1383.434	862602.404	680289.631	4538.824	1353.747	-29.686	405786.07	1740	1	7 Fixed	2.05	51.44525
38	253824.174	206289.222	1388.371	832756.476	676801.91	4555.022	1358.611	-29.76	406345.45	1740	1	6 Fixed	2.06	53.35866
39	254436.687	206287.317	1384.866	834766.033	676795.658	4543.525	1355.117	-29.749	406353.83	1740	1	6 Fixed	2.08	53.38586
40	255036.496	206289.916	1383.414	836733.91	676804.186	4538.761	1353.674	-29.741	406361.99	1740	1	6 Fixed	2.08	53.41241
41	255639.676	206299.543	1385.493	838712.848	676835.771	4545.582	1355.76	-29.733	406370.27	1740	1	6 Fixed	2.06	53.43939
42	256246.043	206304.159	1391.201	840702.242	676850.915	4564.308	1361.474	-29.727	406378.73	1740	1	6 Fixed	2.08	53.46692
43	256865.943	206295.298	1380.307	842736.033	676821.845	4528.566	1350.586	-29.721	406387.28	1740	1	6 Fixed	2.06	53.49461
44	257464.349	206296.138	1378.936	844699.308	676824.599	4524.07	1349.222	-29.715	406395.46	1740	1	6 Fixed	2.06	53.52116
45	258071.583	206303.749	1381.603	846691.547	676849.569	4532.819	1351.894	-29.71	406403.78	1740	1	6 Fixed	2.08	53.5482
46	258671.655	206294.636	1387.141	848660.286	676819.672	4550.988	1357.436	-29.705	406412.06	1740	1	6 Fixed	2.06	53.57499
47	259289.631	206296.537	1381.354	850687.766	676825.909	4532	1351.654	-29.7	406420.65	1740	1	6 Fixed	2.07	53.60286
48	259892.801	206289.229	1380.812	852666.671	676801.934	4530.224	1351.117	-29.695	406429	1740	1	6 Fixed	2.05	53.62989
49	260500.062	206292.739	1382.135	854658.995	676813.449	4534.564	1352.444	-29.691	406437.41	1740	1	6 Fixed	2.05	53.65717
50	261104.34	206298.511	1383.715	856641.535	676832.384	4539.747	1354.026	-29.688	406445.83	1740	1	6 Fixed	2.07	53.68451
51	261714.751	206288.974	1383.88	858644.195	676801.097	4540.29	1354.194	-29.687	406454.35	1740	1	6 Fixed	2.05	53.71202
52	253839.342	205237.71	1381.423	832806.241	673352.066	4532.227	1351.663	-29.76	407089.88	1740	1	6 Fixed	2.02	55.86499
53	254437.239	205237.109	1378.306	834767.844	673350.095	4522.001	1348.557	-29.749	407098.14	1740	1	6 Fixed	2	55.89131
54	255037.417	205237.271	1380.777	836736.933	673350.627	4530.107	1351.037	-29.74	407106.5	1740	1	6 Fixed	2	55.91792
55	255645.087	205231.891	1387.239	838730.6	673332.976	4551.309	1357.507	-29.732	407115.17	1740	1	6 Fixed	2	55.9455
56	256265.767	205232.123	1382.374	840766.951	673333.738	4535.347	1352.649	-29.725	407123.98	1740	1	6 Fixed	2.02	55.97359
57	256861.727	205234.629	1385.427	842722.203	673341.958	4545.364	1355.709	-29.718	407132.48	1740	1	6 Fixed	2	56.00066
58	257477.402	205238.631	1381.397	844742.131	673355.089	4532.143	1351.685	-29.712	407141.23	1740	1	6 Fixed	2	56.02857
59	258083.828	205233.738	1383.149	846731.72	673339.035	4537.891	1353.443	-29.706	407149.76	1740	1	6 Fixed	2.02	56.05566
60	258688.893	205238.98	1384.317	848716.842	673356.233	4541.724	1354.616	-29.701	407158.23	1740	1	6 Fixed	2	56.0826
61	259297.328	205229.497	1378.788	850713.017	673325.12	4523.583	1349.092	-29.696	407166.62	1740	1	6 Fixed	2.02	56.10918

62	259899.201	205230.323	1384.763	852687.669	673327.833	4543.185	1355.071	-29.692	407174.94	1740	1	6 Fixed	2.02	56.13556
63	260506.14	205242.956	1383.781	854678.938	673369.28	4539.964	1354.092	-29.689	407183.41	1740	1	6 Fixed	2	56.16256
64	253835.542	204184.718	1390.071	832793.774	669897.368	4560.599	1360.309	-29.761	407803.19	1740	1	7 Fixed	1.76	58.23582
65	254440.852	204185.928	1389.407	834779.697	669901.34	4558.423	1359.656	-29.751	407811.32	1740	1	7 Fixed	1.75	58.26102
66	255040.915	204180.703	1388.482	836748.41	669884.195	4555.388	1358.741	-29.741	407819.45	1740	1	7 Fixed	1.75	58.28618
67	255651.902	204184.571	1388.052	838752.958	669896.885	4553.976	1358.319	-29.733	407827.76	1740	1	7 Fixed	1.77	58.31202
68	256257.824	204188.791	1391.532	840740.892	669910.73	4565.393	1361.807	-29.725	407836.07	1740	1	7 Fixed	1.75	58.33781
69	256865.978	204188.2	1390.684	842736.149	669908.792	4562.61	1360.967	-29.717	407844.47	1740	1	7 Fixed	1.75	58.36385
70	257471.957	204184.236	1391.445	844724.267	669895.788	4565.108	1361.735	-29.71	407852.89	1740	1	7 Fixed	1.77	58.38994
71	258083.773	204179.017	1388.181	846731.539	669878.665	4554.398	1358.477	-29.704	407861.34	1740	1	7 Fixed	1.75	58.41607
72	258687.806	204179.421	1388.709	848713.275	669879.99	4556.133	1359.011	-29.698	407869.6	1740	1	7 Fixed	1.77	58.44163
73	259294.262	204179.217	1396.495	850702.959	669879.321	4581.677	1366.801	-29.694	407877.92	1740	1	7 Fixed	1.77	58.46738
74	259908.32	204177.07	1387.708	852717.586	669872.276	4552.848	1358.019	-29.689	407886.34	1740	1	7 Fixed	1.75	58.49339
75	253837.126	203136.089	1396.558	832798.971	666456.986	4581.884	1366.794	-29.764	408451.38	1740	1	7 Fixed	1.71	60.35611
76	254453.933	203138.375	1391.627	834822.616	666464.484	4565.707	1361.874	-29.754	408460.15	1740	1	7 Fixed	1.71	60.38269
77	255063.388	203126.243	1394.088	836822.14	666424.681	4573.778	1364.344	-29.744	408468.75	1740	1	7 Fixed	1.72	60.40862
78	255677.211	203122.745	1393.096	838835.994	666413.205	4570.526	1363.361	-29.735	408477.27	1740	1	7 Fixed	1.71	60.43429
79	256276.682	203124.403	1390.018	840802.764	666418.644	4560.426	1360.292	-29.726	408485.59	1740	1	7 Fixed	1.72	60.45944
80	256880.34	203133.048	1393.082	842783.267	666447.008	4570.479	1363.364	-29.718	408493.97	1740	1	7 Fixed	1.72	60.48476
81	257488.248	203130.873	1397.2	844777.716	666439.873	4583.99	1367.489	-29.711	408502.47	1740	1	7 Fixed	1.71	60.5104
82	253855.588	202063.457	1394.896	832859.541	662937.85	4576.431	1365.129	-29.767	409000.42	1740	1	7 Fixed	1.67	62.1193
83	254456.567	202072.347	1397.194	834831.255	662967.017	4583.97	1367.437	-29.758	409008.71	1740	1	7 Fixed	1.67	62.14372
84	255067.434	202067.876	1390.097	836835.415	662952.35	4560.686	1360.349	-29.748	409017.17	1740	1	7 Fixed	1.67	62.1685
85	255674.203	202069.221	1386.085	838826.124	662956.763	4547.522	1356.346	-29.739	409025.51	1740	1	7 Fixed	1.67	62.19296
86	256277.941	202066.636	1391.661	840806.892	662948.28	4565.816	1361.931	-29.729	409033.84	1740	1	7 Fixed	1.67	62.21736
87	256886.973	202063.081	1389.412	842805.028	662936.616	4558.44	1359.691	-29.721	409042.33	1740	1	7 Fixed	1.66	62.24221
88	253856.546	201018.426	1387.629	832862.682	659509.272	4552.588	1357.857	-29.771	409664.46	1740	1	6 Fixed	3.26	64.20584
89	254452.465	201008.554	1395.283	834817.799	659476.883	4577.7	1365.52	-29.763	409672.73	1740	1	6 Fixed	3.24	64.22902
90	255067.589	201012.85	1395.166	836835.923	659490.976	4577.316	1365.413	-29.753	409681.39	1740	1	6 Fixed	3.27	64.25344
91	255687.225	201018.786	1387.472	838868.848	659510.452	4552.074	1357.729	-29.743	409689.96	1740	1	6 Fixed	3.24	64.27753
92	256280.785	201023.699	1391.482	840816.223	659526.571	4565.229	1361.749	-29.733	409698.16	1740	1	6 Fixed	3.28	64.30059
93	253845.215	199958.029	1395.213	832825.509	656030.278	4577.471	1365.435	-29.778	410163.49	1740	1	6 Fixed	3.29	65.72875
94	254439.101	199960.626	1405.091	834773.955	656038.8	4609.879	1375.323	-29.768	410171.78	1740	1	6 Fixed	3.26	65.75119
95	255063.638	199959.033	1399.335	836822.96	656033.573	4590.993	1369.577	-29.758	410180.48	1740	1	6 Fixed	3.28	65.77465
96	255662.589	199956.538	1391.433	838788.021	656025.388	4565.068	1361.684	-29.749	410188.9	1740	1	6 Fixed	3.25	65.79736
97	256270.201	199960.992	1394.904	840781.499	656040.001	4576.457	1365.166	-29.738	410197.39	1740	1	6 Fixed	3.27	65.82027
98	256880.721	199957.566	1396.142	842784.517	656028.76	4580.519	1366.412	-29.73	410205.91	1740	1	6 Fixed	3.24	65.8432
99	257489.289	199957.638	1404.379	844781.133	656028.995	4607.542	1374.656	-29.723	410214.37	1740	1	6 Fixed	3.27	65.86594
100	258096.993	199957.187	1392.539	846774.912	656027.517	4568.697	1362.823	-29.716	410222.79	1740	1	6 Fixed	3.23	65.88852
101	253860.143	198906.227	1394.433	832874.485	652579.483	4574.91	1364.648	-29.785	410695.78	1740	1	6 Fixed	2.94	67.30321
102	254460.469	198906.544	1392.967	834844.057	652580.525	4570.102	1363.192	-29.775	410703.9	1740	1	6 Fixed	2.93	67.32391
103	255056.102	198909.183	1398.712	836798.236	652589.182	4588.949	1368.947	-29.765	410712.11	1740	1	6 Fixed	2.95	67.34489
104	255675.237	198907.335	1393.512	838829.517	652583.12	4571.888	1363.757	-29.755	410720.68	1740	1	6 Fixed	2.92	67.36676
105	256281.681	198904.195	1397.61	840819.163	652572.818	4585.334	1367.866	-29.744	410729.12	1740	1	6 Fixed	2.94	67.38828
106	256899.465	198906.623	1398.976	842846.014	652580.784	4589.816	1369.24	-29.736	410737.44	1740	1	6 Fixed	2.93	67.40939
107	253857.656	197847.71	1386.548	832866.326	649106.661	4549.041	1356.754	-29.794	411239.31	1740	1	5 Fixed	4.35	68.84495
108	254460.474	197853.104	1389.925	834844.074	649124.358	4560.123	1360.142	-29.784	411247.77	1740	1	5 Fixed	4.34	68.86521

109	255063.36	197850.93	1393.893	836822.046	649117.223	4573.139	1364.119	-29.773	411256.34	1740	1	5 Fixed	4.36	68.88568
110	255680.462	197843.64	1391.562	838846.661	649093.308	4565.492	1361.799	-29.763	411265.02	1740	1	5 Fixed	4.36	68.90633
111	256282.452	197844.313	1391.346	840821.694	649095.515	4564.784	1361.594	-29.752	411273.41	1740	1	5 Fixed	4.36	68.92624
112	256888.979	197842.533	1399.961	842811.611	649089.676	4593.049	1370.217	-29.744	411281.83	1740	1	5 Fixed	4.35	68.94619
113	253851.942	196785.502	1380.267	832847.577	645621.724	4528.435	1350.464	-29.803	411844.98	1740	1	6 Fixed	3.61	70.46516
114	254453.385	196793.858	1385.496	834820.817	645649.139	4545.592	1355.704	-29.793	411853.28	1740	1	6 Fixed	3.63	70.48301
115	255067.412	196792.274	1383.217	836835.341	645643.944	4538.114	1353.435	-29.782	411861.79	1740	1	6 Fixed	3.62	70.50124
116	255676.577	196794.242	1382.239	838833.916	645650.399	4534.905	1352.467	-29.772	411870.11	1740	1	6 Fixed	3.63	70.51901
117	256278.257	196790.918	1383.671	840807.93	645639.494	4539.602	1353.911	-29.76	411878.34	1740	1	6 Fixed	3.63	70.5365
118	256887.521	196791.3	1384.513	842806.826	645640.749	4542.366	1354.761	-29.752	411886.68	1740	1	6 Fixed	3.62	70.55421
119	253858.448	195732.664	1368.712	832868.923	642167.532	4490.525	1338.897	-29.815	412263.27	1740	1	6 Fixed	3.73	71.50711
120	254463.11	195736.236	1367.29	834852.722	642179.251	4485.86	1337.485	-29.805	412271.41	1740	1	6 Fixed	3.73	71.52291
121	255072.882	195735.405	1367.697	836853.287	642176.525	4487.194	1337.903	-29.794	412279.58	1740	1	6 Fixed	3.73	71.5387
122	255670.922	195741.573	1376.065	838815.36	642196.763	4514.65	1346.281	-29.784	412287.76	1740	1	6 Fixed	3.73	71.55456
123	253868.116	194667.777	1375.888	832900.644	638673.809	4514.067	1346.057	-29.831	412780.07	1740	1	8 Fixed	1.76	72.69245
124	254462.293	194673.827	1378.263	834850.044	638693.658	4521.86	1348.443	-29.82	412788.07	1740	1	8 Fixed	1.77	72.70572
125	255076.247	194675.498	1368.472	836864.329	638699.142	4489.736	1338.662	-29.809	412796.31	1740	1	8 Fixed	1.77	72.7193
126	255670.629	194676.71	1376.111	838814.4	638703.116	4514.799	1346.311	-29.8	412804.34	1740	1	8 Fixed	1.77	72.73251
127	253861.148	193615.389	1394.298	832877.781	635221.093	4574.467	1364.451	-29.847	413219.06	1740	1	8 Fixed	1.89	73.59125
128	254472.35	193616.251	1395.502	834883.038	635223.921	4578.419	1365.666	-29.837	413227.63	1740	1	8 Fixed	1.9	73.6032
129	255073.402	193618.614	1403.874	836854.994	635231.673	4605.887	1374.047	-29.827	413235.96	1740	1	8 Fixed	1.9	73.61472
130	255690.224	193613.918	1399.319	838878.688	635216.266	4590.942	1369.501	-29.818	413244.35	1740	1	8 Fixed	1.9	73.62614
131	253861.909	192561.157	1373.639	832880.278	631762.325	4506.689	1343.772	-29.866	413621.03	1740	1	8 Fixed	2.09	74.31182
132	254474.145	192556.513	1362.166	834888.928	631747.09	4469.048	1332.309	-29.857	413629.33	1740	1	8 Fixed	2.09	74.32079
133	255074.723	192561.229	1356.162	836859.327	631762.563	4449.349	1326.313	-29.848	413637.4	1740	1	8 Fixed	2.09	74.32943
134	255061.928	195738.52	1494.415	836817.348	642186.747	4902.937	1464.621	-29.794	414282.67	1740	1	9 Fixed	1.71	75.25166
135	255678.929	195737.014	1492.046	838841.63	642181.804	4895.164	1462.262	-29.784	414290.75	1740	1	9 Fixed	1.71	75.25566
136	256277.902	195738.15	1494.214	840806.764	642185.531	4902.275	1464.441	-29.772	414298.5	1740	1	9 Fixed	1.71	75.25937
137	256894.351	195740.779	1491.243	842829.236	642194.157	4892.531	1461.479	-29.764	414306.36	1740	1	9 Fixed	1.72	75.26301
138	256279.313	196793.588	1489.797	840811.395	645648.253	4887.785	1460.037	-29.76	414682.82	1740	1	9 Fixed	1.57	75.63305
139	256872.787	196794.931	1489.808	842758.486	645652.661	4887.821	1460.056	-29.752	414691.05	1740	1	9 Fixed	1.56	75.63432
140	257487.642	196788.344	1489.372	844775.729	645631.049	4886.393	1459.627	-29.745	414699.61	1740	1	9 Fixed	1.57	75.63558
141	256275.25	198902.7	1490.125	840798.065	652567.913	4888.86	1460.38	-29.744	415132.87	1740	1	9 Fixed	1.59	75.89629
142	256876.7	198903.284	1489.445	842771.324	652569.831	4886.631	1459.709	-29.736	415141.06	1740	1	9 Fixed	1.58	75.8938
143	257486.813	198893.608	1487.22	844773.008	652538.082	4879.331	1457.49	-29.73	415149.35	1740	1	9 Fixed	1.58	75.8912
144	258092.406	198894.995	1487.995	846759.864	652542.634	4881.873	1458.271	-29.724	415157.57	1740	1	9 Fixed	1.59	75.88856
145	255661.52	201015.409	1500.571	838784.514	659499.375	4923.132	1470.827	-29.744	415581.88	1740	1	9 Fixed	1.58	75.96423
146	256281.85	201017.392	1487.545	840819.718	659505.88	4880.396	1457.812	-29.733	415590.55	1740	1	9 Fixed	1.58	75.95786
147	256876.118	201024.732	1490.81	842769.417	659529.962	4891.11	1461.086	-29.725	415598.79	1740	1	9 Fixed	1.58	75.95168
148	257494.529	201011.972	1486.75	844798.323	659488.097	4877.79	1457.033	-29.717	415607.19	1740	1	9 Fixed	1.57	75.94522
149	258088.07	201009.103	1494.225	846745.637	659478.683	4902.314	1464.516	-29.709	415615.22	1740	1	9 Fixed	1.57	75.93895
150	256270.719	202070.244	1475.056	840783.199	662960.117	4839.421	1445.326	-29.73	416036.3	1740	1	10 Fixed	1.5	75.81713
151	256878.436	202067.992	1467.676	842777.019	662952.73	4815.21	1437.955	-29.721	416044.18	1740	1	9 Fixed	1.54	75.80751
152	257473.737	202069.536	1475.69	844730.109	662957.795	4841.502	1445.976	-29.713	416051.94	1740	1	10 Fixed	1.51	75.798
153	258086.217	202073.259	1474.16	846739.557	662970.009	4836.481	1444.455	-29.705	416060	1740	1	10 Fixed	1.51	75.78812
154	258690.224	202076.749	1474.931	848721.206	662981.461	4839.014	1445.232	-29.699	416068.09	1740	1	10 Fixed	1.5	75.77823
155	256873.195	203121.829	1440.127	842759.827	666410.202	4724.827	1410.409	-29.719	416460.83	1740	1	10 Fixed	1.4	75.49944

156	257476.695	203129.04	1442.407	844739.814	666433.859	4732.307	1412.696	-29.711	416469.14	1740	1	10 Fixed	1.39	75.48644
157	258078.388	203134.131	1439.792	846713.873	666450.561	4723.729	1410.089	-29.703	416477.61	1740	1	10 Fixed	1.4	75.47327
158	258683.812	203133.094	1449.701	848700.17	666447.158	4756.237	1420.004	-29.697	416486.32	1740	1	10 Fixed	1.39	75.45979
159	259305.698	203123.604	1445.919	850740.48	666416.023	4743.828	1416.225	-29.693	416494.94	1740	1	10 Fixed	1.4	75.44622
160	259896.767	205233.581	1478.727	852679.682	673338.521	4851.465	1449.035	-29.692	416884.98	1740	1	9 Fixed	1.46	74.99588
161	260505.838	205235.873	1472.565	854677.947	673346.04	4831.249	1442.876	-29.688	416893.12	1740	1	10 Fixed	1.34	74.98023
162	261101.752	205241.585	1474.002	856633.044	673364.781	4835.965	1444.315	-29.687	416901.14	1740	1	10 Fixed	1.34	74.96481
163	261712.527	205233.822	1490.844	858636.901	673339.313	4891.219	1461.157	-29.686	416909.7	1740	1	10 Fixed	1.35	74.94855
164	264340.772	208831.491	2549.958	867259.749	685142.685	8366.004	2520.273	-29.685	418108.54	1740	1	10 Fixed	1.52	72.82574
165	263873.623	207729.637	2549.541	865727.109	681527.682	8364.637	2519.856	-29.686	418125.99	1740	1	10 Fixed	1.22	72.79809
166	263412.947	206595.759	2555.065	864215.707	677807.607	8382.759	2525.378	-29.687	418144.19	1740	1	10 Fixed	1.22	72.76883
167	262934.728	205468.193	2550.909	862646.745	674108.244	8369.124	2521.222	-29.687	418162.66	1740	1	10 Fixed	1.22	72.73897
168	262479.222	204353.344	2548.142	861152.303	670450.602	8360.046	2518.451	-29.691	418180.54	1740	1	10 Fixed	1.22	72.70997
169	262003.988	203233.425	2554.995	859593.138	666776.328	8382.531	2525.3	-29.696	418198.99	1740	1	10 Fixed	1.22	72.6798
170	261549.581	202106.568	2558.286	858102.3	663079.292	8393.327	2528.584	-29.702	418217.04	1740	1	10 Fixed	1.22	72.65023
171	261083.993	200986.779	2548.87	856574.782	659405.443	8362.436	2519.162	-29.709	418234.84	1740	1	9 Fixed	1.63	72.62112
172	260607.075	199867.834	2550.006	855010.087	655734.364	8366.16	2520.288	-29.717	418253.15	1740	1	10 Fixed	1.49	72.59085
173	260137.457	198735.202	2548.32	853469.347	652018.378	8360.629	2518.593	-29.727	418271.69	1740	1	10 Fixed	1.21	72.55994
174	259673.292	197623.72	2551.951	851946.497	648371.786	8372.544	2522.215	-29.736	418289.82	1740	1	10 Fixed	1.21	72.52963
175	255897.222	193998.958	2754.106	839557.814	636479.522	9035.779	2724.298	-29.808	418803.58	1740	1	9 Fixed	1.63	71.38205
176	256343.24	195121.394	2761.447	841021.127	640162.054	9059.864	2731.666	-29.78	418818.75	1740	1	9 Fixed	1.64	71.33505
177	256799.886	196240.362	2757.792	842519.31	643833.209	9047.873	2728.033	-29.759	418833.93	1740	1	9 Fixed	1.64	71.28784
178	257288.985	197364.73	2754.7	844123.967	647522.08	9037.731	2724.957	-29.743	418849.31	1740	1	9 Fixed	1.66	71.23976
179	257752.525	198474.621	2752.115	845644.766	651163.456	9029.249	2722.384	-29.731	418864.3	1740	1	9 Fixed	1.94	71.1928
180	258198.531	199599.404	2754.794	847108.042	654853.687	9038.039	2725.076	-29.718	418879.88	1740	1	9 Fixed	1.65	71.14428
181	258675.871	200718.242	2746.324	848674.116	658524.416	9010.249	2716.617	-29.707	418895.64	1740	1	9 Fixed	1.94	71.09505
182	259157.232	201829.648	2758.291	850253.385	662170.761	9049.512	2728.593	-29.698	418911.66	1740	1	9 Fixed	1.65	71.04505
183	259606.171	202970.873	2752.341	851726.282	665914.939	9029.99	2722.649	-29.692	418927.69	1740	1	9 Fixed	1.66	70.99493
184	260089.646	204073.76	2764.764	853312.486	669533.332	9070.748	2735.076	-29.688	418943.42	1740	1	9 Fixed	1.68	70.94545
185	260563.206	205214.533	2754.81	854866.161	673276.027	9038.091	2725.122	-29.688	418959.35	1740	1	9 Fixed	1.69	70.89517

TABLE 5
Control Residual RMS

4 Foot AT Control

POINT_ID	>< Rays ><	Dx	>< Dy	>< Dz	>< GCP Type ><	Std Wx	>< Std Wy	>< Std Wz >
1	2	0.031	0.050	-0.252	FCP	1.00	-0.18	-1.36
10	3	-0.006	-0.023	0.292	FCP	-0.14	0.60	2.11
103	4	-0.038	-0.072	0.163	FCP	-0.32	-0.47	1.28
106	4	-0.088	0.193	0.157	FCP	-0.43	1.23	-0.11
107	6	-0.104	-0.096	0.091	FCP	-0.95	-0.93	0.91
108	6	-0.010	0.066	-0.062	FCP	-0.10	0.62	-0.59
11	6	-0.128	-0.037	-0.071	FCP	-1.13	-0.33	-0.58
113	2	-0.063	0.015	-0.007	FCP	-0.45	0.10	-0.10
114	2	0.088	-0.176	-0.242	FCP	0.29	-0.34	-0.01
115	2	0.105	0.049	0.195	FCP	0.65	0.15	0.29
116	5	0.127	-0.030	0.336	FCP	0.65	-0.92	2.08
117	3	0.025	-0.082	-0.034	FCP	0.20	-0.63	-0.11
118	3	0.172	-0.101	-0.232	FCP	1.43	-0.09	-1.07
12	6	-0.133	-0.124	0.047	FCP	-1.23	-1.18	0.44
123	2	0.111	0.207	0.000	FCP	0.77	1.43	-0.10
2	3	-0.108	0.039	0.148	FCP	-0.84	-0.15	0.73
3	5	0.048	0.204	-0.028	FCP	0.47	1.77	0.69
4	5	0.235	-0.108	-0.210	FCP	1.56	-0.28	-0.22
5	3	-0.019	-0.085	0.112	FCP	0.06	-0.91	0.98
6	2			0.611	VCP		0.72	

7	3	0.150	-0.063	-0.171	FCP	1.02	0.00	-0.50
8	3	0.099	0.022	0.138	FCP	0.70	0.45	0.93
9	3	0.017	0.037	0.024	FCP	0.19	0.26	0.07
B13	5	-0.141	-0.184	-0.094	FCP	-1.33	-1.34	-0.09
B14	3	-0.297	0.088	0.041	FCP	-2.39	0.58	-1.00
B15	3	-0.171	-0.201	-0.087	FCP	-1.48	-1.91	-1.05
B16	3	-0.170	-0.081	0.161	FCP	-0.97	-0.85	0.48
B17	3	0.219	-0.111	-0.079	FCP	1.96	-1.04	-1.45
B18	6	0.128	0.077	-0.126	FCP	1.19	0.65	-1.10
B510	3	0.196	0.152	-0.160	FCP	1.56	1.62	-1.29
B512	2	0.214	-0.006	-0.165	FCP	1.79	-0.08	-1.11
B514A	3	-0.356	0.280	0.039	FCP	-3.04	2.28	1.98
TIE_2001	5			-0.407	VCP			-2.17
RMS		0.148	0.120	0.196				

2 Foot West 1/2 AT Control

	<Space Intersection Residuals>			< Lst-Sqrs Standardized Wxyz >			
< POINT_ID >	<Rays>	< Dx >	< Dy >	< Dz >	<GCP Type>	< Std Wx >	< Std Wy >	< Std Wz >
109	4	0.372	-0.156	0.201	FCP	0.47	-0.20	0.12
110	6	0.130	0.162	0.905	FCP	0.27	0.30	0.70
111	4	-0.022	-0.138	0.647	FCP	-0.03	-0.19	0.39

112	4	0.005	-0.052	0.253	FCP	0.01	-0.07	0.15
113	2	-0.032	0.294	0.163	FCP	-0.02	0.23	0.03
114	2	0.009	0.082	0.147	FCP	0.02	0.04	0.02
115	2	-0.085	0.285	-0.189	FCP	-0.01	0.21	-0.02
116	2	-0.015	-0.022	0.284	FCP	-0.05	-0.03	0.06
118	2	-0.010	0.229	0.535	FCP	-0.06	0.22	0.12
121	6	0.153	0.069	0.461	FCP	0.27	0.13	0.46
122	8	0.072	-0.031	0.890	FCP	0.21	-0.10	1.11
123	2	-0.149	0.412	0.474	FCP	-0.06	0.34	0.07
124	4	-0.098	-0.017	0.813	FCP	-0.12	-0.06	0.50
2	6	-0.151	0.265	0.133	FCP	-0.27	0.46	0.13
4	4	-0.301	0.145	0.139	FCP	-0.32	0.17	0.05
5	5	-0.011	0.131	0.704	FCP	-0.04	0.20	0.63
7	3	0.010	0.374	0.459	FCP	0.04	0.37	0.18
B129	2	0.167	0.155	0.794	FCP	-0.08	0.08	0.11
B13	3	-0.298	-0.109	0.015	FCP	-0.28	-0.11	0.02
B130	2	0.122	0.153	-0.040	FCP	0.08	0.12	-0.02
B131	6	0.000	0.005	-0.071	FCP	0.00	0.01	-0.07
B132	4	0.096	-0.018	0.229	FCP	0.12	-0.01	0.14
B135	2	0.103	-0.002	0.437	FCP	0.05	0.04	0.06
B136	2	0.248	-0.175	0.077	FCP	0.16	-0.14	0.00
B14	2	-0.002	-0.031	0.700	FCP	0.01	0.03	0.12
B16	2	-0.211	-0.229	0.188	FCP	-0.06	-0.19	0.02
T1	2	0.313	-0.226	0.150	FCP	0.20	-0.16	0.06
T10	3	0.269	0.157	0.553	FCP	0.29	0.16	0.28

T11	4	-0.125	-0.252	0.191	FCP	-0.16	-0.33	0.06
T13	2	0.115	0.471	0.447	FCP	0.04	0.36	0.08
T14	5	-0.030	-0.054	0.544	FCP	-0.05	-0.09	0.41
T15	7	-0.881	-0.078	0.819	FCP	-1.08	-0.10	2.42
T16	6	0.004	0.157	0.895	FCP	0.00	0.25	1.35
T17	4	-0.363	0.919	1.794	FCP	-0.82	2.11	0.60
T18	2	0.236	0.407	0.725	FCP	0.10	0.28	0.13
T19	5	0.123	0.236	1.520	FCP	0.19	0.33	2.40
T2	2	0.060	0.036	-0.146	FCP	0.03	0.03	-0.02
T20	2	0.220	-0.522	1.126	FCP	0.04	-0.63	0.20
T21	2	-0.156	0.719	1.963	FCP	-0.05	0.44	0.33
T22	4	0.023	0.037	0.689	FCP	0.03	0.04	0.56
T23	4	0.486	0.226	1.529	FCP	0.63	0.24	1.40
T24	2	0.361	0.198	0.530	FCP	0.08	0.14	0.07
T25	5	-0.169	0.064	0.630	FCP	-0.16	0.10	0.51
T26	4	-0.726	0.596	1.561	FCP	-0.89	0.71	1.26
T27	4	0.125	0.088	0.555	FCP	0.07	0.11	0.19
T28	6	0.607	0.182	-0.073	FCP	1.12	0.35	-0.09
T3	2	-0.224	0.043	0.166	FCP	-0.16	0.04	0.03
T4	3	0.177	-0.080	0.338	FCP	0.18	-0.08	0.16
T5	3	0.125	0.463	0.305	FCP	0.13	0.48	0.15
T6	8	-0.133	0.396	0.494	FCP	-0.33	1.00	1.14
T7	6	-0.162	0.287	0.547	FCP	-0.26	0.51	0.67
T8	8	0.012	0.191	0.993	FCP	0.04	0.45	2.30
T9	5	-0.326	0.810	1.093	FCP	-0.46	1.15	2.49

TIE_2001	2	0.256	0.388	-0.815	FCP	0.14	0.33	-0.13

RMS	**0.254**	**0.302**	**0.736**

2 Foot East 1/2 AT Control

<Space Intersection Residuals> < Lst-Sqrs Standardized Wxyz >

< POINT_ID	><Rays><	Dx ><	Dy ><	Dz ><	GCP Type><	Std Wx ><	Std Wy ><	Std Wz >
100	2	0.001	-0.035	0.025	FCP	0.11	-0.52	0.40
101	2	-0.090	-0.112	-0.065	FCP	-1.11	-1.15	-0.47
104	4	-0.086	0.075	0.082	FCP	-0.96	0.81	1.30
105	6	0.085	-0.030	0.039	FCP	0.88	-0.31	0.45
106	8	-0.044	0.029	-0.096	FCP	-0.48	0.31	-1.09
107	4	-0.070	-0.019	0.092	FCP	-0.83	-0.19	1.59
117	4	0.102	0.126	-0.013	FCP	1.07	1.34	-0.30
119	4	0.053	0.083	0.045	FCP	0.54	0.86	0.54
120	4	0.118	0.091	0.095	FCP	1.25	1.04	1.35
B125	6	0.076	-0.090	-0.050	FCP	0.81	-0.93	-0.62
B126	6	0.025	-0.174	-0.108	FCP	0.26	-1.82	-1.29
B127	5	-0.104	0.061	-0.020	FCP	-1.10	0.64	-0.25
B128	3	0.047	0.011	-0.040	FCP	0.53	0.11	-0.90
B133	6	0.050	0.082	-0.028	FCP	0.52	0.84	-0.31
B134	4	-0.002	0.077	-0.062	FCP	-0.01	0.77	-0.68

B18	2	0.137	0.053	-0.111	FCP	0.85	0.11	0.24
HV1	2	0.010	0.027	0.056	FCP	0.20	0.33	0.61
HV14	3	-0.057	-0.026	0.102	FCP	-0.52	-0.29	1.07
HV19	3	-0.085	-0.062	-0.016	FCP	-0.85	-0.63	-0.48
HV4	2	-0.075	-0.125	0.107	FCP	-0.65	-1.07	0.28
108	2	-0.070	-0.059	-0.024	FCP	-0.66	-0.68	0.00
TIE_14001	2			0.095	VCP		0.20	
TIE_14002	2			-0.442	VCP		-2.04	
TIE_14003	2			0.377	VCP		1.30	

RMS	**0.075**	**0.080**	**0.137**

TABLE 6

Alpha 4-foot QC Checks

PT NUMBER	ALPHA ELEVATION	DTM ELEVATION	DIFF	DIFF^2
10001	1318.63	1318.08	0.55	0.30
10004	1536.73	1537.20	-0.47	0.22
10005	1355.73	1352.34	3.39	11.49
10006	1991.23	1990.51	0.72	0.52
10007	2103.18	2104.03	-0.85	0.72
10008	2222.85	2224.17	-1.32	1.74
10009	2617.59	2616.76	0.83	0.69
10010	2348.15	2346.28	1.87	3.50
10011	2385.43	2384.50	0.93	0.86
10012	2186.88	2187.88	-1.00	1.00
10013	2016.06	2015.55	0.51	0.26
10014	1948.84	1947.45	1.39	1.93
10016	2160.08	2162.15	-2.07	4.28
10020	2368.55	2368.81	-0.26	0.07
10021	2401.44	2403.77	-2.33	5.43
30007	1545.85	1542.33	3.52	12.39
30016	1589.32	1589.30	0.02	0.00
30022	1160.30	1161.02	-0.72	0.52
30025	1542.69	1539.52	3.17	10.05
			Σ DIFF^2 =	55.98
			Avg. DIFF^2 =	2.95
			RMS =	1.72

TABLE 7

Alpha 2-foot QC Checks

PT NUMBER	ALPHA ELEVATION	DTM ELEVATION	DIFF	DIFF²
10000	1278.04	1278.20	-0.16	0.03
10017	1191.17	1191.85	-0.68	0.46
10022	1251.81	1251.86	-0.05	0.00
10023	1301.96	1302.42	-0.46	0.21
10024	1275.85	1276.05	-0.20	0.04
10030	1233.53	1233.87	-0.34	0.12
10031	1275.66	1275.78	-0.12	0.01
10032	1349.02	1348.64	0.38	0.14
10033	1390.33	1390.56	-0.23	0.05
10034	1192.88	1190.62	2.26	5.11
10035	1247.24	1247.09	0.15	0.02
10036	1291.27	1292.63	-1.36	1.85
10037	1207.68	1207.49	0.19	0.04
10038	1177.98	1178.73	-0.75	0.56
30000	1306.67	1306.77	-0.10	0.01
30001	1336.54	1337.07	-0.53	0.28
30004	1421.87	1422.50	-0.63	0.40
30005	1445.59	1446.31	-0.72	0.52
30006	1560.68	1561.36	-0.68	0.46
30008	1343.53	1344.36	-0.83	0.69
30010	1399.02	1399.44	-0.42	0.18
30011	1414.43	1414.66	-0.23	0.05
30012	1238.08	1239.07	-0.99	0.98
30013	1301.18	1302.16	-0.98	0.96
30014	1233.30	1232.74	0.56	0.31
30015	1168.68	1169.03	-0.35	0.12
30018	1178.92	1179.25	-0.33	0.11
30019	1188.06	1187.79	0.27	0.07
30020	1209.29	1207.21	2.08	4.33
30021	1204.15	1204.58	-0.43	0.18
30027	1188.96	1188.50	0.46	0.21
30033	1311.38	1312.26	-0.88	0.77
			Σ DIFF² =	19.29
			Avg. DIFF² =	0.60
			RMS =	0.77

TABLE 8
AZTEC QC Checks

PT NUMBER	AZTEC ELEVATION	DTM ELEVATION	DIFF	DIFF^2
1000	1308.52	1309.65	-1.13	1.27
1001	1307.99	1308.66	-0.67	0.45
1002	1306.15	1307.05	-0.90	0.80
1003	1305.48	1306.29	-0.82	0.66
1004	1304.38	1305.66	-1.29	1.65
1005	1302.01	1301.57	0.44	0.19
1006	1299.63	1300.45	-0.82	0.67
1007	1298.04	1298.66	-0.62	0.38
1008	1297.36	1297.13	0.23	0.05
1009	1297.15	1296.82	0.33	0.11
1010	1295.02	1294.74	0.28	0.08
1011	1293.91	1293.59	0.32	0.10
1012	1293.03	1293.18	-0.15	0.02
1013	1292.58	1292.77	-0.19	0.04
1014	1292.92	1292.18	0.74	0.55
1015	1292.36	1292.10	0.26	0.07
1016	1356.22	1356.13	0.09	0.01
1017	1354.94	1354.97	-0.03	0.00
1018	1353.67	1353.69	-0.02	0.00
1019	1350.01	1349.57	0.44	0.19
1020	1347.44	1347.11	0.33	0.11
1021	1343.77	1343.54	0.23	0.05
1022	1336.58	1335.97	0.61	0.37
1023	1330.31	1329.72	0.59	0.34
1024	1327.74	1327.53	0.21	0.04
1025	1325.31	1325.03	0.28	0.08
1026	1322.75	1322.79	-0.04	0.00
1028	1320.47	1320.47	-0.01	0.00
1029	1319.87	1319.61	0.26	0.07
1030	1318.91	1318.99	-0.08	0.01
1031	1318.70	1318.56	0.14	0.02
1032	1318.85	1318.76	0.09	0.01
1033	1317.67	1317.73	-0.06	0.00
1034	1314.34	1314.63	-0.29	0.08
1035	1312.10	1312.27	-0.17	0.03
1036	1311.26	1311.05	0.21	0.04
1037	1308.71	1308.57	0.14	0.02
1038	1308.09	1308.00	0.09	0.01

1039	1307.65	1307.64	0.00	0.00
1040	1306.04	1306.25	-0.21	0.04
1041	1303.49	1303.36	0.13	0.02
1042	1301.62	1301.70	-0.08	0.01
1043	1299.62	1299.72	-0.10	0.01
1044	1298.17	1298.24	-0.07	0.01
1045	1296.14	1296.40	-0.26	0.07
1046	1295.26	1295.42	-0.16	0.02
1047	1292.95	1293.49	-0.54	0.29
1048	1291.92	1291.94	-0.02	0.00
1049	1290.20	1290.83	-0.63	0.40
1050	1290.49	1290.75	-0.26	0.07
1051	1288.35	1288.24	0.11	0.01
1052	1286.23	1286.26	-0.03	0.00
1053	1283.80	1283.87	-0.07	0.01
1054	1282.89	1282.78	0.11	0.01
1055	1280.40	1280.55	-0.15	0.02
1056	1278.79	1278.70	0.09	0.01
1057	1277.37	1277.59	-0.22	0.05
1058	1276.05	1276.00	0.05	0.00
1059	1274.38	1274.09	0.29	0.09
1060	1270.15	1270.22	-0.07	0.01
1061	1268.74	1269.09	-0.35	0.12
1062	1268.08	1268.09	-0.01	0.00
1063	1267.84	1267.97	-0.13	0.02
1064	1265.73	1265.84	-0.11	0.01
1065	1265.04	1265.20	-0.16	0.02
1069	1294.81	1295.10	-0.29	0.09
1070	1290.33	1290.81	-0.48	0.23
1071	1289.80	1290.02	-0.22	0.05
1072	1288.35	1288.13	0.22	0.05
1073	1286.91	1286.74	0.17	0.03
1074	1284.99	1285.14	-0.15	0.02
1075	1283.91	1283.99	-0.08	0.01
1076	1283.09	1282.76	0.33	0.11
1077	1281.86	1281.82	0.04	0.00
1078	1279.89	1279.90	-0.01	0.00
1079	1276.23	1276.45	-0.22	0.05
1080	1274.85	1275.02	-0.17	0.03
1081	1273.52	1273.39	0.13	0.02
1082	1272.23	1272.27	-0.04	0.00
1083	1270.64	1270.59	0.05	0.00
1084	1269.22	1269.62	-0.40	0.16

1085	1268.74	1269.07	-0.33	0.11
1086	1267.85	1268.30	-0.45	0.20
1087	1266.36	1266.29	0.07	0.01
1088	1265.12	1265.18	-0.06	0.00
1089	1263.96	1263.33	0.63	0.39
1090	1260.12	1259.50	0.62	0.38
1091	1258.74	1258.79	-0.05	0.00
1092	1258.01	1258.37	-0.36	0.13
1096	1339.74	1340.04	-0.30	0.09
1097	1335.37	1335.43	-0.07	0.00
1098	1332.57	1332.92	-0.35	0.12
1099	1329.63	1329.87	-0.24	0.06
1100	1326.69	1326.84	-0.15	0.02
1101	1324.08	1324.26	-0.18	0.03
1102	1321.52	1321.77	-0.25	0.06
1103	1319.68	1319.76	-0.08	0.01
1104	1316.69	1316.83	-0.14	0.02
1105	1313.95	1314.04	-0.09	0.01
1106	1313.07	1313.49	-0.42	0.18
1107	1311.28	1311.64	-0.36	0.13
1108	1309.42	1309.73	-0.31	0.09
1109	1307.00	1307.12	-0.12	0.02
1110	1305.25	1305.65	-0.40	0.16
1111	1303.13	1303.49	-0.36	0.13
1112	1300.97	1301.28	-0.31	0.10
1113	1299.06	1299.12	-0.06	0.00
1114	1297.22	1297.60	-0.38	0.14
1115	1295.72	1295.95	-0.23	0.05
1116	1294.05	1294.30	-0.25	0.06
1117	1292.50	1292.74	-0.24	0.06
1118	1289.34	1289.64	-0.30	0.09
1119	1287.44	1287.68	-0.24	0.06
1120	1285.58	1285.74	-0.16	0.02
1121	1283.83	1284.12	-0.29	0.08
1122	1281.96	1282.30	-0.34	0.11
1123	1279.98	1280.32	-0.34	0.12
1124	1278.09	1277.81	0.28	0.08
1125	1275.98	1276.13	-0.15	0.02
1126	1273.86	1274.04	-0.18	0.03
1127	1271.88	1272.04	-0.16	0.03
1128	1270.83	1271.28	-0.45	0.20
1129	1333.86	1333.95	-0.09	0.01
1130	1332.96	1333.00	-0.04	0.00

1131	1331.44	1331.56	-0.12	0.02
1132	1329.00	1329.30	-0.30	0.09
1133	1325.00	1325.21	-0.21	0.04
1134	1320.14	1320.36	-0.22	0.05
1135	1316.13	1316.25	-0.12	0.01
1136	1313.64	1313.37	0.27	0.07
1139	1312.26	1312.69	-0.43	0.18
1140	1308.69	1308.93	-0.24	0.06
1141	1305.92	1306.16	-0.24	0.06
1142	1303.80	1304.00	-0.20	0.04
1143	1301.33	1301.56	-0.23	0.05
1144	1300.02	1300.52	-0.50	0.25
1145	1298.55	1298.80	-0.25	0.06
1147	1440.73	1441.70	-0.97	0.95
1148	1433.07	1433.47	-0.40	0.16
1149	1423.52	1423.56	-0.04	0.00
1150	1418.97	1419.44	-0.47	0.22
1151	1414.07	1414.64	-0.57	0.33
1152	1407.70	1408.55	-0.85	0.72
1153	1402.61	1403.02	-0.41	0.17
1154	1401.56	1402.34	-0.78	0.60
1155	1400.76	1401.47	-0.71	0.50
1156	1398.66	1398.58	0.08	0.01
1157	1397.82	1398.45	-0.63	0.40
1158	1393.63	1394.28	-0.65	0.43
1159	1389.24	1389.60	-0.36	0.13
1160	1387.83	1388.24	-0.41	0.17
1161	1387.02	1387.45	-0.43	0.19
1162	1385.10	1385.10	0.00	0.00
1163	1382.94	1382.99	-0.05	0.00
1164	1382.18	1381.96	0.22	0.05
1165	1378.45	1378.42	0.03	0.00
1166	1376.35	1376.27	0.08	0.01
1167	1376.09	1376.00	0.09	0.01
1168	1373.81	1374.10	-0.29	0.08
1169	1372.94	1373.06	-0.12	0.02
1170	1370.02	1370.08	-0.06	0.00
1172	1368.73	1368.94	-0.21	0.04
1173	1366.51	1366.07	0.44	0.19
1174	1363.36	1362.89	0.46	0.22
1175	1358.87	1358.59	0.28	0.08
1176	1354.23	1354.95	-0.72	0.52
1177	1351.13	1350.62	0.51	0.26

1178	1349.43	1350.87	-1.44	2.08
1179	1344.65	1345.11	-0.46	0.21
1180	1342.01	1342.18	-0.17	0.03
1181	1338.75	1338.96	-0.21	0.04
1182	1337.92	1338.25	-0.33	0.11
1183	1336.84	1336.84	0.00	0.00
1184	1333.31	1333.10	0.21	0.04
1185	1330.52	1330.32	0.20	0.04
1186	1327.14	1327.13	0.01	0.00
1187	1327.05	1326.63	0.42	0.18
1188	1324.48	1324.32	0.16	0.03
1189	1323.72	1323.65	0.06	0.00
1190	1323.05	1322.71	0.34	0.12
1191	1320.49	1320.53	-0.04	0.00
1192	1318.46	1318.64	-0.18	0.03
1193	1319.24	1318.48	0.76	0.58
1194	1318.29	1317.96	0.33	0.11
1195	1316.29	1316.72	-0.43	0.19
1196	1314.17	1313.98	0.19	0.04
1197	1313.18	1313.17	0.01	0.00
1198	1311.09	1310.98	0.11	0.01
1199	1308.50	1308.36	0.14	0.02
1200	1306.58	1306.19	0.39	0.15
1201	1303.54	1303.32	0.22	0.05
1202	1302.29	1301.71	0.58	0.34
1203	1299.46	1299.24	0.22	0.05
1204	1296.78	1296.53	0.25	0.06
1205	1294.75	1294.37	0.38	0.15
1206	1290.77	1290.70	0.07	0.01
1207	1288.68	1288.44	0.24	0.06
1208	1287.37	1287.48	-0.12	0.01
1209	1287.25	1287.08	0.17	0.03
1210	1284.45	1284.87	-0.42	0.18
1211	1282.77	1282.55	0.22	0.05
1212	1280.80	1280.01	0.79	0.63
1213	1278.63	1278.41	0.22	0.05
1214	1278.00	1277.52	0.47	0.23
1215	1275.87	1275.69	0.18	0.03
1216	1274.30	1274.47	-0.17	0.03
1217	1272.85	1272.93	-0.08	0.01
1218	1270.51	1270.49	0.02	0.00
1219	1268.19	1268.47	-0.28	0.08
1220	1267.19	1266.54	0.65	0.42

1221	1265.23	1265.05	0.18	0.03
1222	1262.07	1261.95	0.12	0.01
1223	1345.70	1346.40	-0.70	0.49
1224	1342.35	1342.61	-0.26	0.07
1225	1339.25	1339.61	-0.36	0.13
1226	1336.31	1336.32	-0.01	0.00
1227	1333.48	1334.02	-0.55	0.30
1228	1330.61	1331.08	-0.47	0.22
1229	1328.16	1328.16	0.00	0.00
1230	1325.05	1325.46	-0.41	0.17
1231	1324.43	1324.58	-0.15	0.02
1232	1319.51	1320.04	-0.53	0.28
1233	1316.65	1317.18	-0.53	0.28
1234	1313.86	1314.13	-0.27	0.07
1235	1310.82	1311.09	-0.27	0.07
1236	1307.99	1308.23	-0.24	0.06
1237	1305.10	1305.39	-0.29	0.09
1238	1302.32	1302.41	-0.09	0.01
1239	1299.35	1299.58	-0.23	0.05
1240	1296.43	1296.70	-0.27	0.07
1241	1295.88	1296.10	-0.22	0.05
1242	1295.25	1295.45	-0.20	0.04
1243	1294.97	1295.11	-0.14	0.02
1244	1293.47	1293.72	-0.26	0.07
1245	1293.03	1293.05	-0.02	0.00
1246	1291.95	1291.10	0.85	0.72
1247	1288.51	1288.81	-0.30	0.09
1248	1286.39	1286.74	-0.35	0.12
1249	1283.62	1284.07	-0.45	0.20
1250	1280.92	1280.79	0.13	0.02
1251	1278.96	1278.90	0.06	0.00
1252	1277.22	1277.77	-0.55	0.31
1253	1275.95	1275.53	0.42	0.18
1254	1272.13	1271.99	0.13	0.02
1255	1269.07	1268.65	0.42	0.17
1256	1269.75	1269.38	0.37	0.14
1257	1268.95	1268.89	0.06	0.00
1258	1266.80	1266.99	-0.19	0.04
1259	1267.33	1267.47	-0.14	0.02
1260	1267.21	1266.92	0.29	0.08
1261	1265.73	1265.68	0.05	0.00
1262	1264.31	1264.25	0.06	0.00
1263	1261.21	1261.52	-0.31	0.10

1264	1258.96	1258.55	0.41	0.17
1265	1256.11	1256.06	0.05	0.00
1266	1253.60	1253.70	-0.10	0.01
1267	1249.83	1250.15	-0.32	0.10
1268	1246.66	1247.14	-0.48	0.23
1269	1243.95	1244.16	-0.21	0.05
1270	1241.31	1241.54	-0.23	0.05
1271	1239.65	1239.50	0.15	0.02
1272	1239.38	1239.50	-0.12	0.01
1273	1238.51	1238.57	-0.06	0.00
1274	1233.82	1233.45	0.37	0.14
1275	1229.90	1230.44	-0.55	0.30
1276	1227.44	1228.28	-0.84	0.71
1277	1223.23	1224.20	-0.97	0.93
1278	1222.20	1222.35	-0.15	0.02
1279	1219.58	1220.13	-0.55	0.30
1280	1218.93	1219.52	-0.59	0.35
1281	1218.04	1218.68	-0.64	0.41
1282	1214.99	1215.48	-0.49	0.24
1283	1212.83	1213.22	-0.39	0.15
1284	1210.87	1210.99	-0.13	0.02
1285	1206.94	1206.94	0.00	0.00
1286	1196.43	1197.49	-1.06	1.13
1287	1194.43	1195.00	-0.57	0.33
1288	1192.10	1192.40	-0.30	0.09
1289	1189.05	1189.28	-0.23	0.05
1290	1188.73	1188.51	0.22	0.05
1291	1187.35	1187.67	-0.32	0.10
1292	1184.26	1184.32	-0.06	0.00
1293	1182.61	1182.49	0.12	0.01
1294	1180.95	1181.66	-0.71	0.51
1295	1180.31	1180.39	-0.08	0.01
1296	1177.95	1178.09	-0.14	0.02
1297	1179.24	1179.20	0.04	0.00
1298	1177.02	1176.83	0.19	0.04
1299	1175.88	1175.80	0.08	0.01
1300	1173.83	1173.54	0.29	0.08
1301	1170.62	1170.30	0.32	0.10
1302	1169.10	1169.48	-0.38	0.14
1303	1167.75	1168.04	-0.29	0.09
1304	1166.08	1166.20	-0.13	0.02
1305	1166.75	1166.10	0.65	0.42
1306	1338.86	1339.90	-1.04	1.08

1309	1330.03	1330.54	-0.51	0.26
1310	1325.56	1326.78	-1.22	1.49
1311	1319.62	1320.46	-0.84	0.70
1312	1316.01	1316.89	-0.88	0.77
1313	1312.94	1314.00	-1.06	1.12
1314	1310.24	1311.63	-1.39	1.93
1315	1307.31	1308.77	-1.46	2.13
1316	1304.83	1305.71	-0.88	0.78
1317	1300.47	1301.26	-0.79	0.63
1320	1293.71	1294.22	-0.51	0.26
1321	1289.07	1290.32	-1.25	1.56
1322	1284.98	1286.24	-1.26	1.60
1323	1283.96	1285.06	-1.10	1.20
1324	1282.45	1283.49	-1.04	1.09
1325	1279.19	1280.45	-1.26	1.60
1326	1276.88	1278.00	-1.12	1.26
1327	1272.85	1274.14	-1.29	1.66
1328	1269.23	1269.74	-0.51	0.26
1329	1264.85	1266.36	-1.51	2.29
1330	1261.70	1262.40	-0.71	0.50
1331	1257.66	1257.97	-0.31	0.09
1332	1252.43	1253.29	-0.86	0.74
1333	1247.44	1248.08	-0.64	0.41
1334	1243.48	1243.75	-0.27	0.07
1335	1239.10	1239.34	-0.24	0.06
1336	1234.70	1235.21	-0.51	0.26
1337	1231.12	1231.22	-0.10	0.01
1338	1226.78	1227.51	-0.73	0.53
1339	1224.05	1224.14	-0.09	0.01
1340	1221.36	1222.06	-0.70	0.49
1341	1219.03	1219.14	-0.11	0.01
1342	1216.33	1216.39	-0.06	0.00
1343	1213.61	1213.57	0.04	0.00
1344	1210.17	1211.06	-0.89	0.79
1346	1206.11	1206.28	-0.17	0.03
1347	1203.31	1203.74	-0.43	0.18
1348	1200.65	1201.10	-0.45	0.21
1349	1200.03	1200.59	-0.56	0.31
1350	1191.33	1191.55	-0.22	0.05
1351	1191.40	1191.79	-0.39	0.15
1352	1190.96	1191.35	-0.39	0.15
1353	1190.00	1190.52	-0.52	0.27
1354	1186.99	1187.20	-0.21	0.04

1355	1184.41	1184.92	-0.51	0.26
1356	1182.78	1182.47	0.31	0.10
1357	1181.16	1181.28	-0.12	0.01
1358	1180.07	1180.22	-0.15	0.02
1359	1178.22	1178.21	0.01	0.00
1360	1177.22	1178.14	-0.92	0.85
1361	1174.01	1174.42	-0.41	0.17
1362	1177.29	1177.61	-0.32	0.11
1363	1176.63	1176.30	0.33	0.11
1364	1174.32	1174.07	0.25	0.06
1365	1338.24	1338.91	-0.68	0.46
1366	1332.29	1333.16	-0.87	0.75
1367	1321.27	1322.12	-0.85	0.73
1368	1317.78	1318.79	-1.01	1.03
1369	1313.17	1314.14	-0.97	0.94
1370	1310.82	1311.73	-0.91	0.84
1371	1307.76	1308.52	-0.76	0.58
1372	1303.01	1303.93	-0.92	0.85
1373	1298.79	1299.93	-1.14	1.29
1374	1296.34	1297.48	-1.14	1.31
1375	1293.89	1295.09	-1.20	1.45
1376	1292.89	1294.47	-1.59	2.51
1377	1292.27	1293.10	-0.83	0.68
1378	1294.36	1295.39	-1.03	1.07
1379	1297.08	1298.51	-1.43	2.03
1380	1299.01	1300.34	-1.33	1.77
1381	1302.56	1303.35	-0.79	0.63
1382	1307.15	1308.06	-0.91	0.83
1383	1310.99	1312.05	-1.06	1.13
1384	1317.94	1319.13	-1.19	1.42
1385	1316.73	1318.45	-1.72	2.96
1386	1318.06	1319.16	-1.10	1.21
1387	1295.46	1296.39	-0.93	0.86
1388	1296.91	1298.11	-1.20	1.43
1389	1298.11	1299.55	-1.44	2.08
1390	1298.21	1299.13	-0.92	0.84
1391	1296.14	1297.08	-0.94	0.88
1392	1295.07	1296.28	-1.21	1.46
1393	1294.89	1295.54	-0.65	0.42
1394	1293.97	1294.69	-0.72	0.52
1395	1292.07	1292.84	-0.77	0.60
1396	1289.31	1289.78	-0.47	0.22
1397	1287.42	1287.68	-0.26	0.07

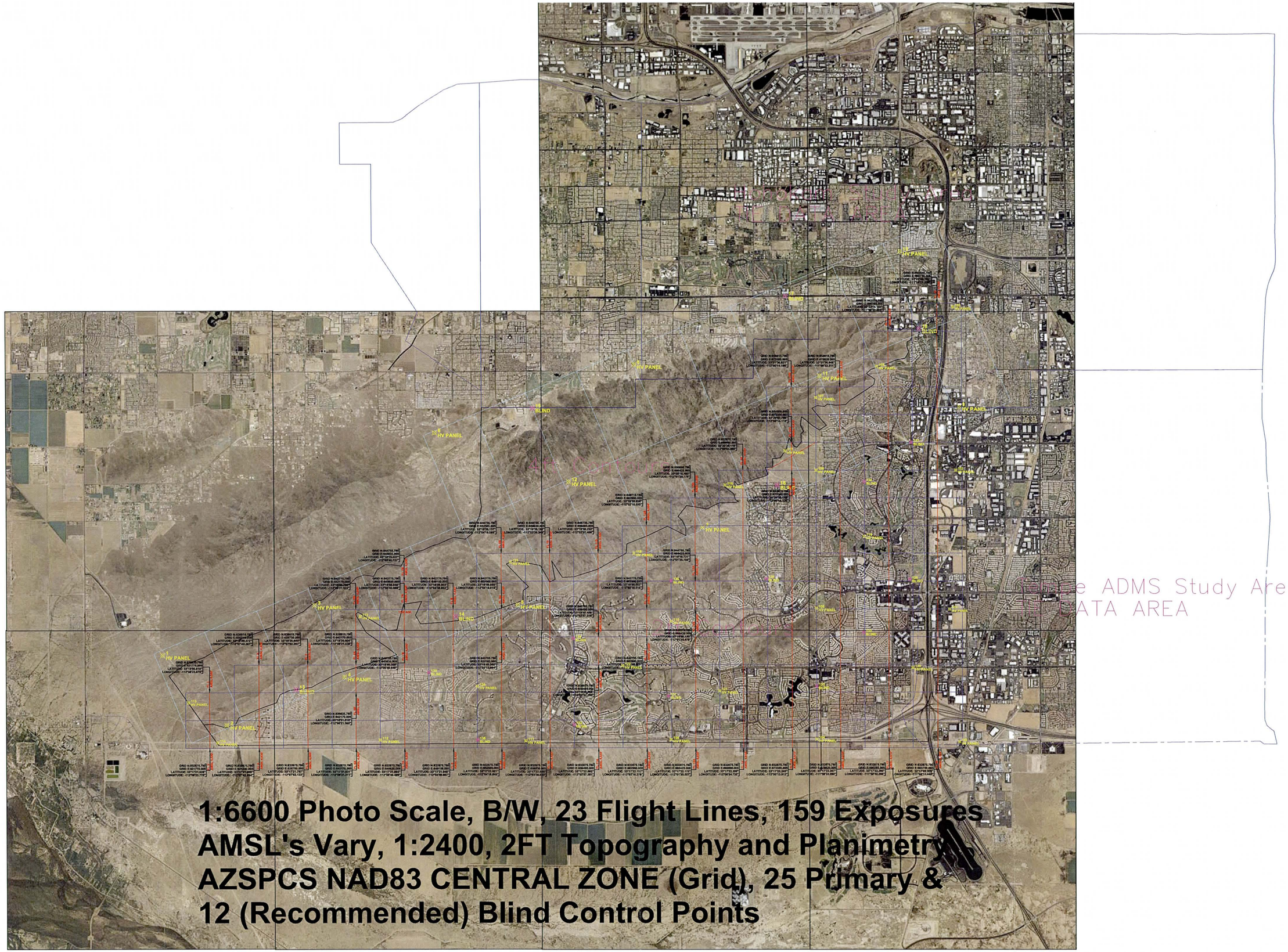
1398	1285.89	1286.20	-0.31	0.10
1399	1284.52	1285.07	-0.55	0.30
1400	1282.54	1283.68	-1.14	1.30
1401	1280.82	1280.99	-0.17	0.03
1403	1278.62	1278.70	-0.08	0.01
1404	1279.35	1279.46	-0.11	0.01
1405	1279.63	1279.88	-0.25	0.06
1406	1280.29	1280.44	-0.15	0.02
1407	1198.65	1199.48	-0.84	0.70
1408	1200.15	1200.93	-0.79	0.62
1409	1203.03	1203.64	-0.61	0.37
1410	1196.24	1196.68	-0.44	0.19
1411	1194.72	1195.02	-0.30	0.09
1412	1193.42	1194.04	-0.62	0.39
1413	1190.54	1191.53	-0.99	0.99
1414	1190.60	1191.55	-0.95	0.91
1415	1189.83	1190.17	-0.34	0.11
1416	1189.22	1189.76	-0.54	0.29
1417	1188.26	1189.28	-1.02	1.03
1418	1187.70	1188.74	-1.04	1.09
1419	1186.91	1187.76	-0.85	0.73
1420	1186.63	1187.49	-0.86	0.74
1421	1186.01	1186.58	-0.57	0.32
1422	1186.58	1187.26	-0.68	0.46
1423	1186.23	1186.76	-0.53	0.29
1424	1182.75	1183.80	-1.05	1.10
1425	1181.29	1182.08	-0.79	0.62
1426	1179.79	1179.93	-0.14	0.02
1427	1178.26	1178.74	-0.48	0.23
1428	1176.85	1177.35	-0.50	0.25
1429	1175.20	1175.05	0.15	0.02
1430	1173.71	1173.59	0.12	0.02
1431	1171.94	1171.80	0.14	0.02
1432	1168.20	1168.32	-0.12	0.01
1433	1167.77	1167.83	-0.06	0.00
1434	1167.44	1167.11	0.33	0.11
1435	1166.83	1166.74	0.09	0.01
1436	1174.84	1174.77	0.07	0.00
1437	1175.67	1175.53	0.14	0.02
1438	1176.74	1175.96	0.78	0.61
1439	1185.01	1185.02	-0.01	0.00
1440	1177.11	1177.36	-0.25	0.06
1441	1178.54	1179.40	-0.86	0.74

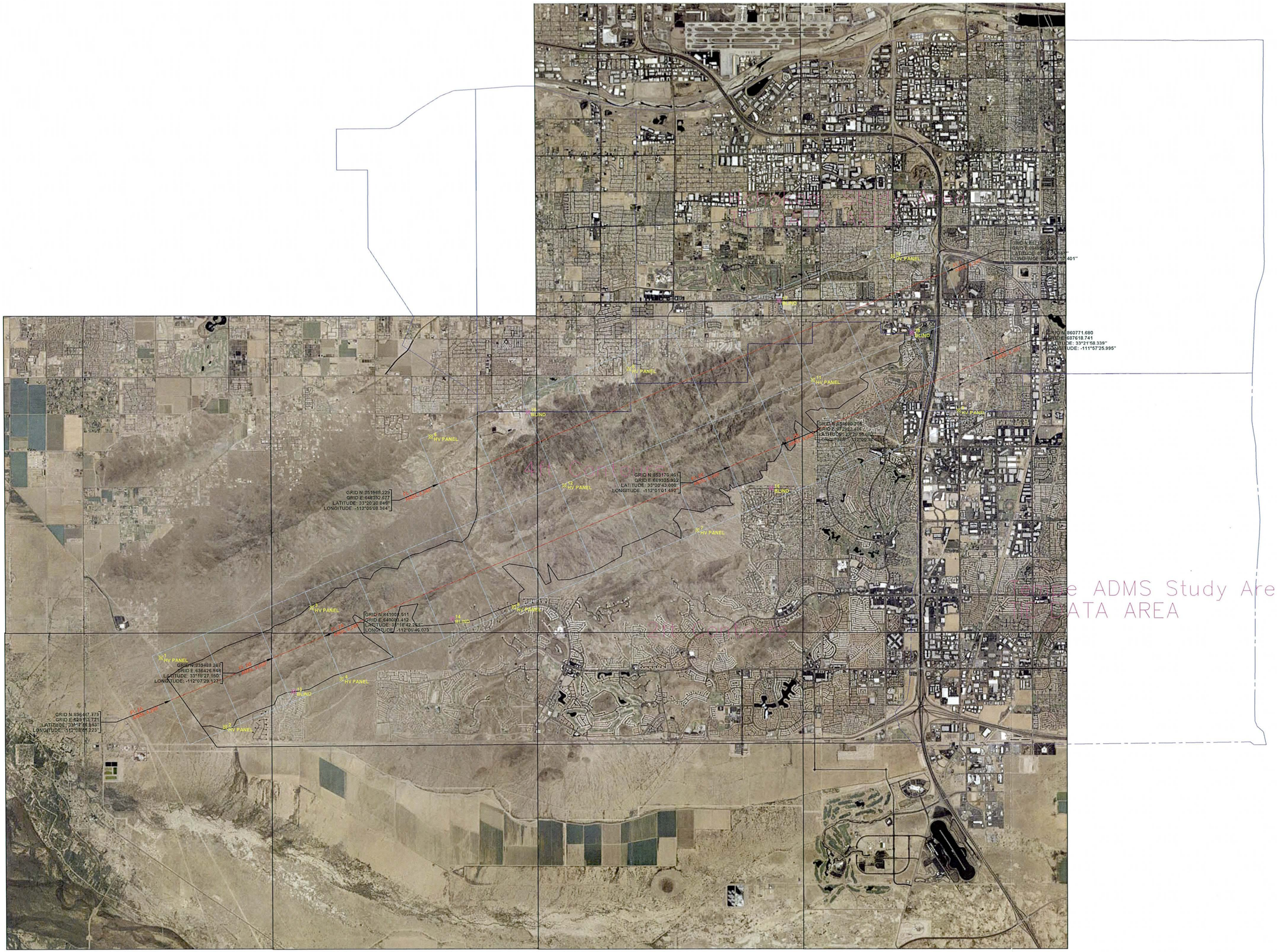
1442	1180.58	1180.84	-0.26	0.07
1443	1186.85	1186.25	0.60	0.36
1444	1202.25	1202.16	0.08	0.01
1445	1199.26	1199.50	-0.24	0.06
1446	1235.49	1236.10	-0.61	0.37
1447	1233.43	1234.08	-0.65	0.42
1448	1231.00	1231.47	-0.47	0.22
1449	1240.49	1240.84	-0.35	0.13
1450	1213.32	1213.90	-0.59	0.34
1451	1212.75	1213.33	-0.58	0.33
1452	1211.71	1212.38	-0.68	0.46
1453	1218.55	1219.39	-0.84	0.71
1454	1219.91	1220.24	-0.34	0.11
1455	1275.52	1275.40	0.12	0.01
1456	1267.81	1267.78	0.03	0.00
1457	1261.50	1261.35	0.15	0.02
1458	1249.31	1249.33	-0.02	0.00
1459	1249.58	1249.29	0.29	0.08
1460	1240.05	1240.02	0.03	0.00
1461	1237.57	1237.56	0.01	0.00
1462	1235.99	1236.17	-0.18	0.03
1463	1224.50	1224.85	-0.35	0.12
1464	1224.65	1225.29	-0.64	0.41
1465	1225.04	1225.16	-0.12	0.01
1466	1217.62	1218.43	-0.81	0.66
1467	1216.26	1216.97	-0.71	0.51
1468	1250.55	1250.36	0.19	0.04
1469	1206.64	1207.37	-0.73	0.54
1470	1203.93	1205.11	-1.18	1.40
1471	1199.35	1201.14	-1.79	3.22
1472	1198.77	1200.48	-1.71	2.91
1473	1203.94	1204.83	-0.89	0.80
1474	1213.40	1214.71	-1.31	1.73
1475	1245.82	1246.17	-0.35	0.12
1476	1193.00	1193.79	-0.79	0.62
1477	1187.23	1188.59	-1.36	1.85
1478	1182.17	1183.89	-1.72	2.95
1479	1180.26	1181.81	-1.55	2.40
1480	1181.29	1182.80	-1.51	2.28
1481	1182.31	1183.68	-1.37	1.88
1482	1183.31	1185.14	-1.83	3.34
1483	1187.51	1188.45	-0.94	0.89
1484	1189.39	1190.38	-0.99	0.98

1485	1193.11	1194.62	-1.51	2.29
1486	1198.12	1199.39	-1.27	1.61
1487	1201.69	1203.58	-1.89	3.58
1488	1199.38	1200.69	-1.31	1.71
1489	1200.81	1202.10	-1.29	1.66
1490	1203.98	1204.83	-0.85	0.72
1491	1205.42	1206.65	-1.23	1.51
1492	1210.19	1211.24	-1.05	1.10
1493	1214.42	1214.87	-0.45	0.21
1494	1219.34	1220.28	-0.94	0.87
1495	1226.07	1227.59	-1.52	2.30
1496	1231.91	1232.58	-0.67	0.45
1497	1240.02	1240.69	-0.67	0.44
1498	1244.21	1244.48	-0.27	0.07
1499	1248.52	1248.85	-0.33	0.11
1500	1253.39	1254.28	-0.89	0.79
1501	1257.28	1256.98	0.30	0.09
1502	1268.97	1269.54	-0.57	0.32
1505	1201.81	1203.48	-1.67	2.78
1506	1184.84	1185.99	-1.15	1.33
1507	1167.54	1168.50	-0.96	0.93
1508	1158.35	1159.41	-1.06	1.12
1509	1149.18	1150.46	-1.28	1.63
1510	1141.18	1141.93	-0.75	0.56
1511	1130.41	1130.93	-0.52	0.27
1512	1128.27	1129.76	-1.49	2.22
1513	1121.99	1123.14	-1.15	1.33
1514	1116.19	1117.11	-0.92	0.85
1515	1114.46	1115.42	-0.96	0.92
1516	1111.30	1111.95	-0.65	0.43
1517	1105.62	1106.08	-0.46	0.21
1518	1101.75	1102.34	-0.59	0.35
1519	1098.29	1099.21	-0.92	0.86
1520	1096.56	1097.70	-1.14	1.30
1521	1091.84	1092.68	-0.84	0.71
1522	1090.66	1091.47	-0.81	0.65
1523	1088.63	1089.73	-1.10	1.20
1524	1093.49	1094.68	-1.19	1.41
1525	1283.29	1283.43	-0.14	0.02
1526	1284.16	1284.09	0.07	0.00
1527	1286.86	1287.49	-0.63	0.39
1528	1290.71	1291.20	-0.49	0.24
1530	1279.53	1280.25	-0.72	0.52

1533	1283.83	1284.57	-0.74	0.55
1534	1312.31	1312.68	-0.37	0.14
1535	1339.36	1339.86	-0.50	0.25
1536	1308.21	1308.72	-0.51	0.26
1537	1269.15	1268.83	0.32	0.10
1538	1246.85	1247.08	-0.23	0.05
1539	1238.86	1239.15	-0.29	0.08
1540	1234.36	1234.80	-0.44	0.20
1541	1235.27	1235.73	-0.46	0.21
1542	1235.35	1235.96	-0.61	0.37
1543	1231.30	1231.91	-0.61	0.37
1544	1225.29	1226.10	-0.81	0.66
1545	1220.49	1221.43	-0.94	0.88
1546	1214.90	1215.29	-0.39	0.15
1547	1212.17	1212.95	-0.78	0.61
1548	1210.20	1210.58	-0.38	0.14
			Σ DIFF^2 =	202.46
			Avg. DIFF^2 =	0.38
			RMS =	0.62

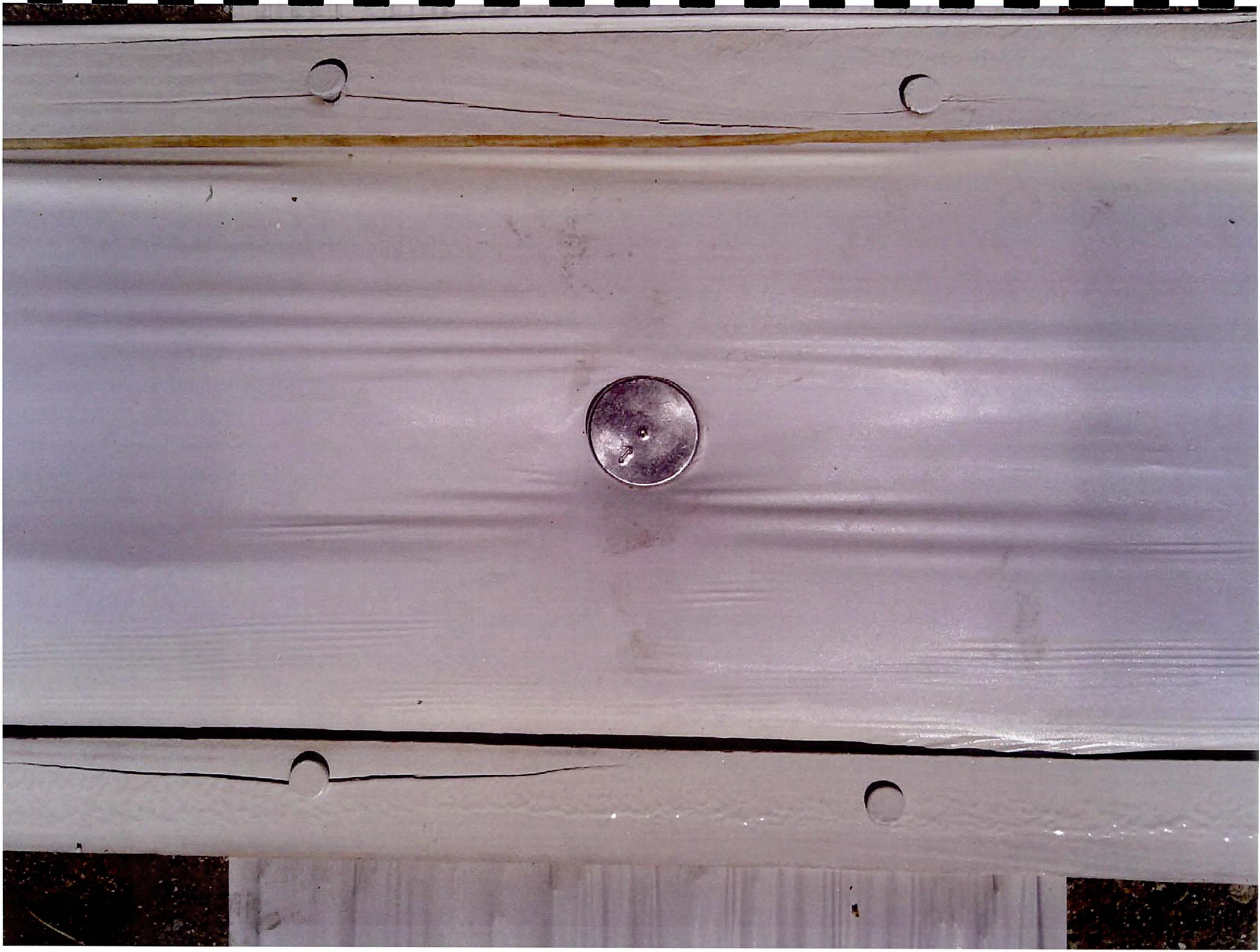
9.0 Appendix B – Flight Maps

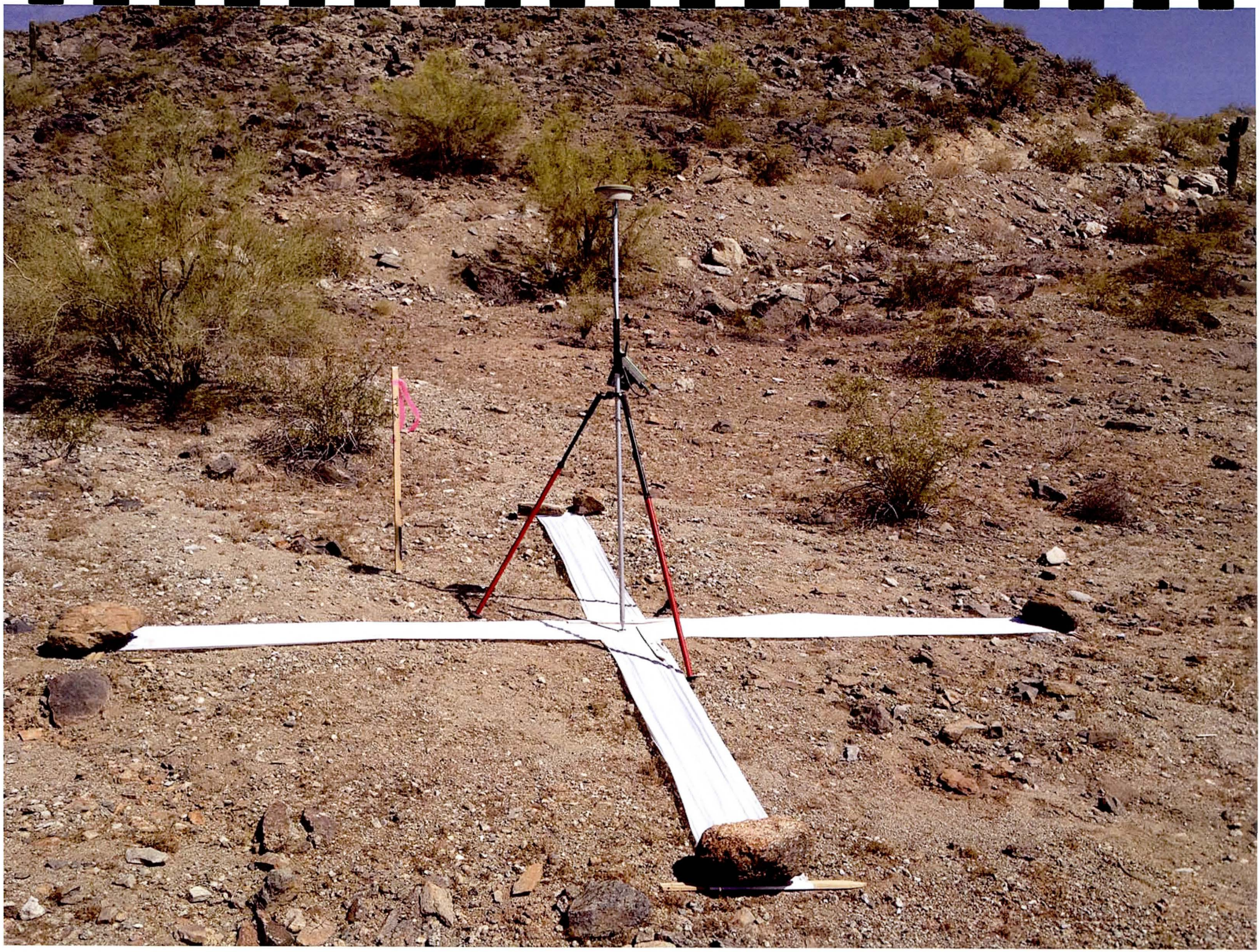

1:6600 Photo Scale, B/W, 23 Flight Lines, 159 Exposures
AMSL's Vary, 1:2400, 2FT Topography and Planimetry
AZSPCS NAD83 CENTRAL ZONE (Grid), 25 Primary &
12 (Recommended) Blind Control Points

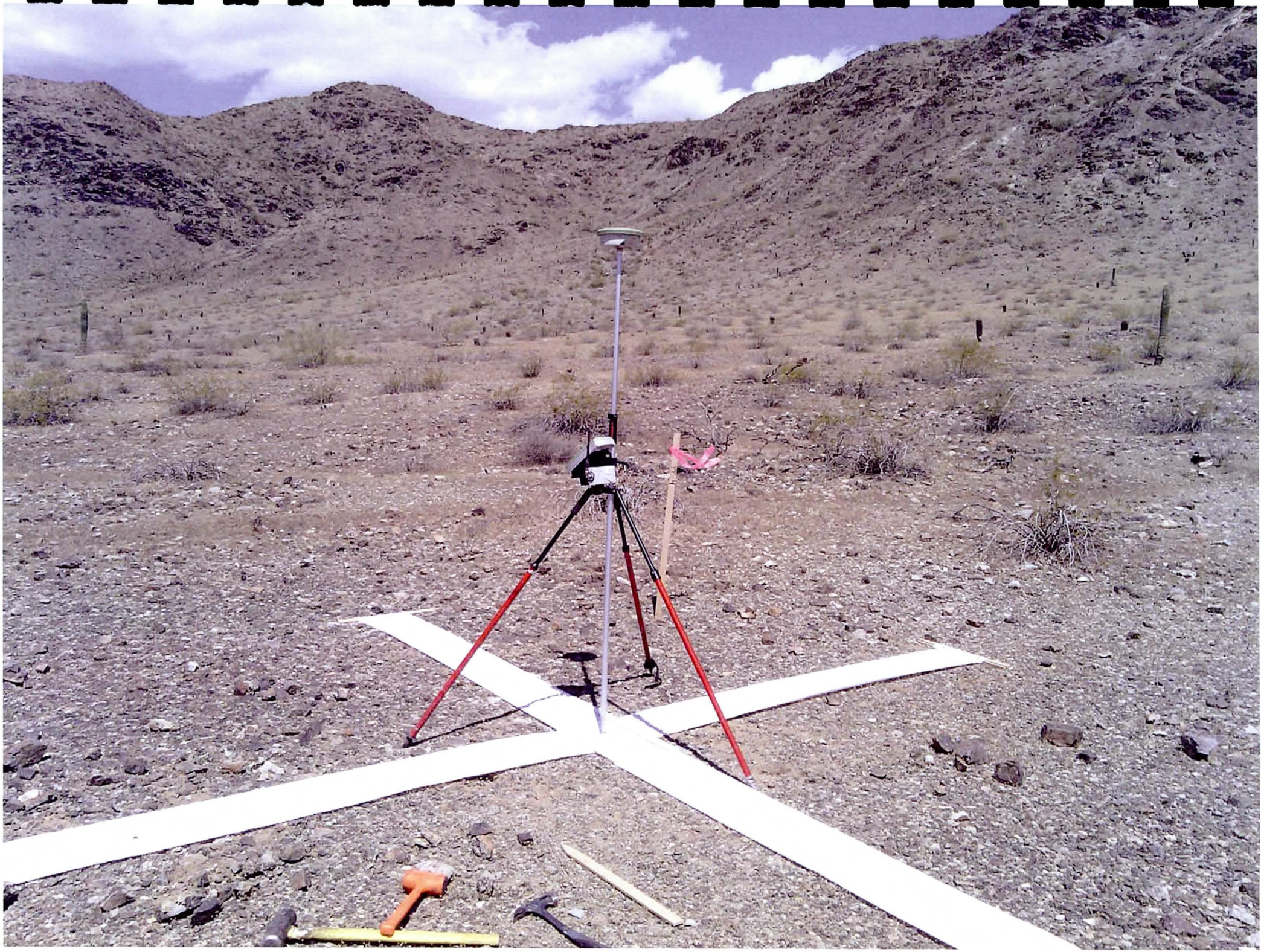


HV PANEL
BLIND
GRID N:860771.680
GRID E:687618.741
LATITUDE: 33°21'58.339"
LONGITUDE: -111°57'25.995"
GRID N:851968.229
GRID E:648392.677
LATITUDE: 33°20'30.849"
LONGITUDE: -112°05'08.364"
GRID N:853170.461
GRID E:669335.922
LATITUDE: 33°20'43.008"
LONGITUDE: -112°01'01.492"
GRID N:841008.511
GRID E:640093.412
LATITUDE: 33°18'42.261"
LONGITUDE: -112°06'46.073"
GRID N:839488.267
GRID E:636426.848
LATITUDE: 33°18'27.150"
LONGITUDE: -112°07'29.127"
GRID N:836447.779
GRID E:629113.721
LATITUDE: 33°17'56.913"
LONGITUDE: -112°08'55.223"
e ADMS Study Area
ATA AREA

10.0 Appendix C – Aerial Target Photos



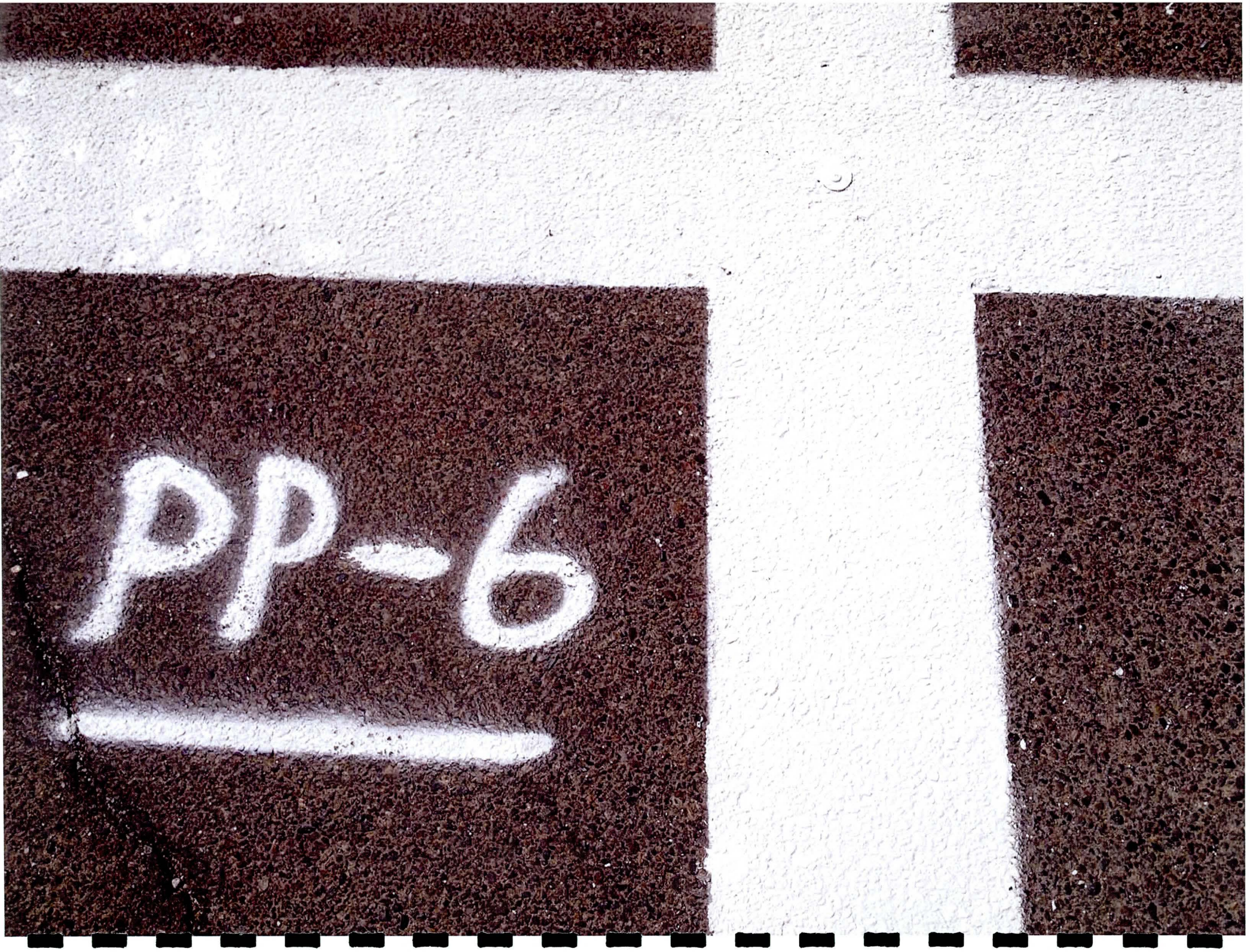




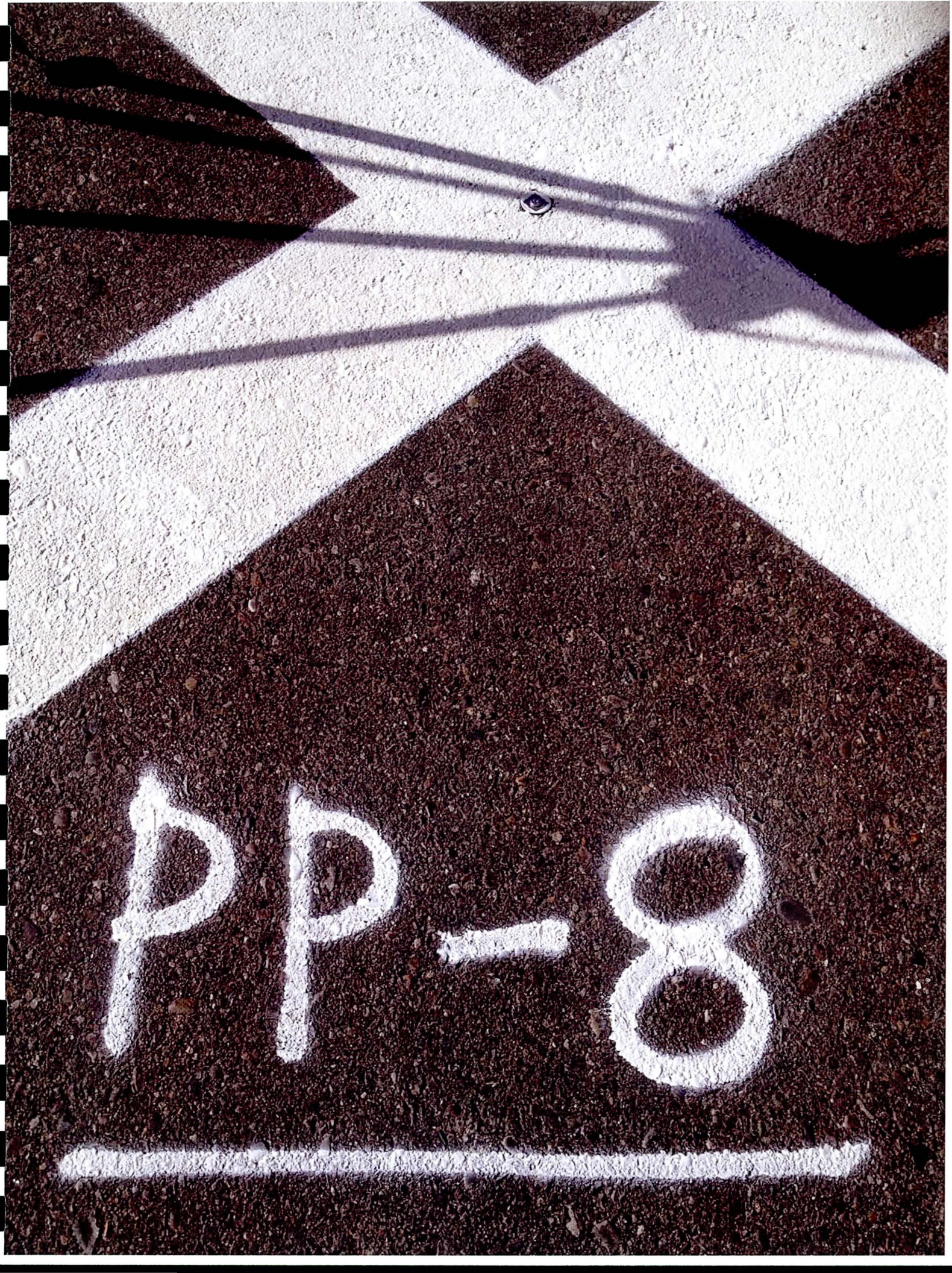
PP 5

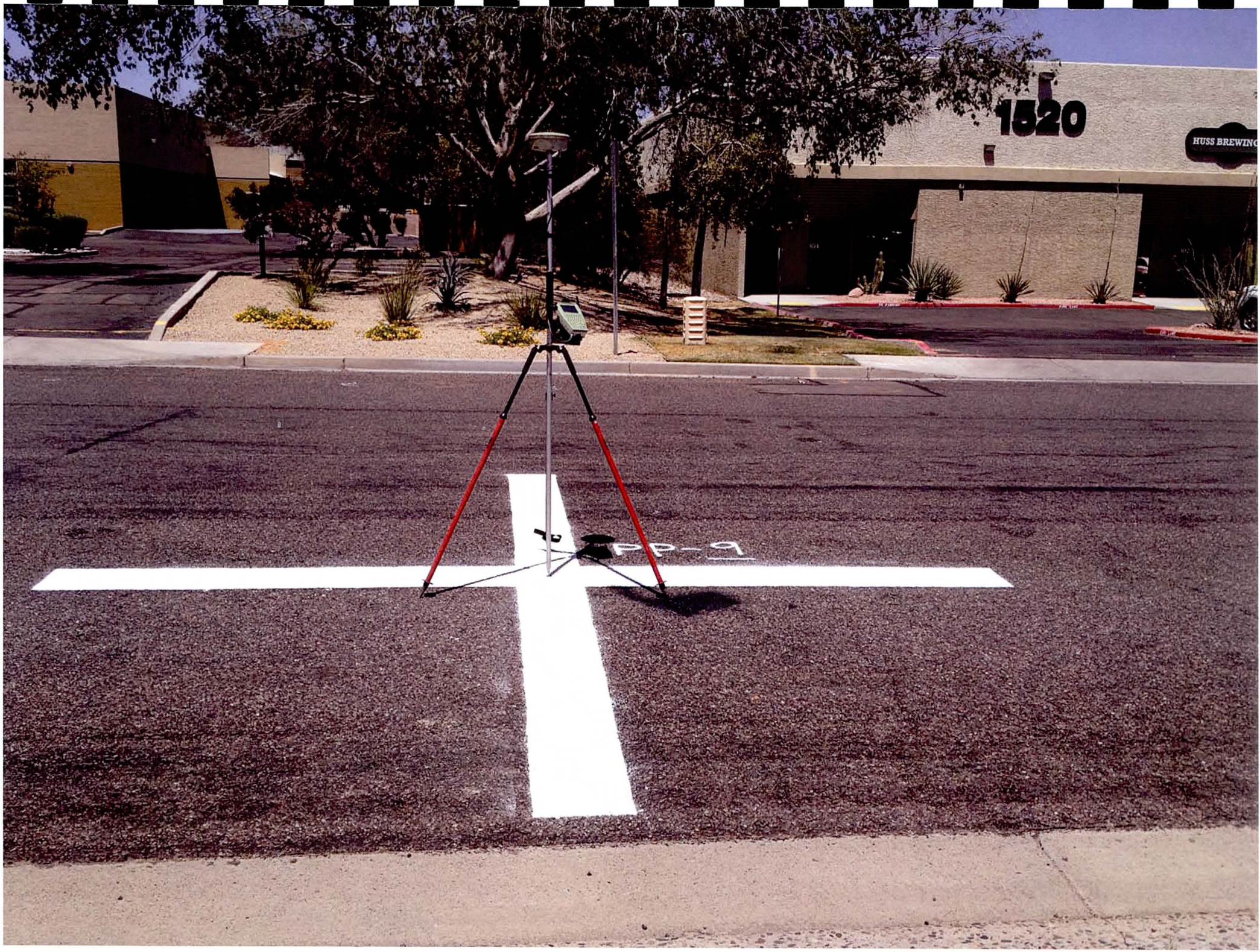
PP5

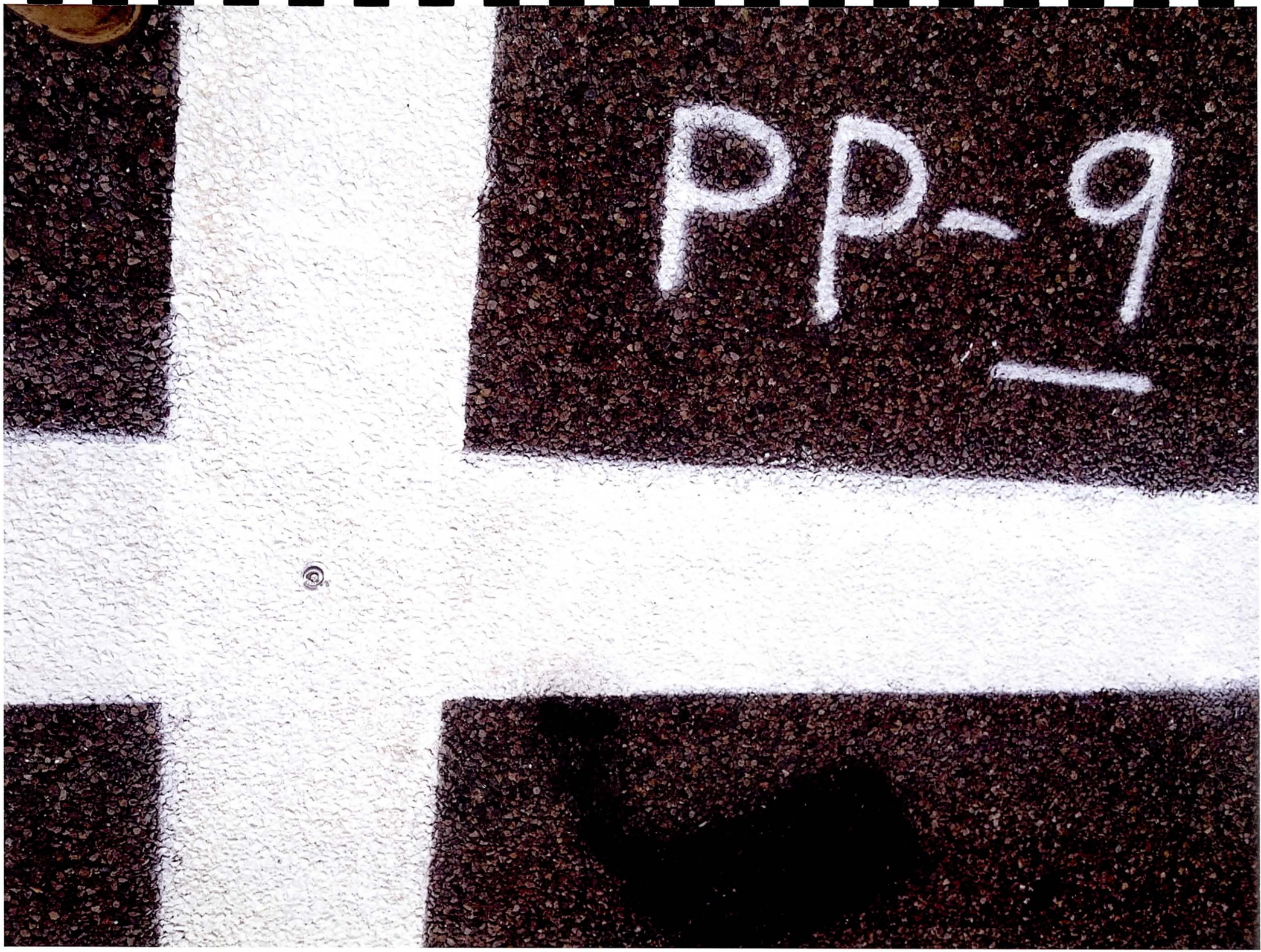
EXIT
PP-6


PP-6

PP-8

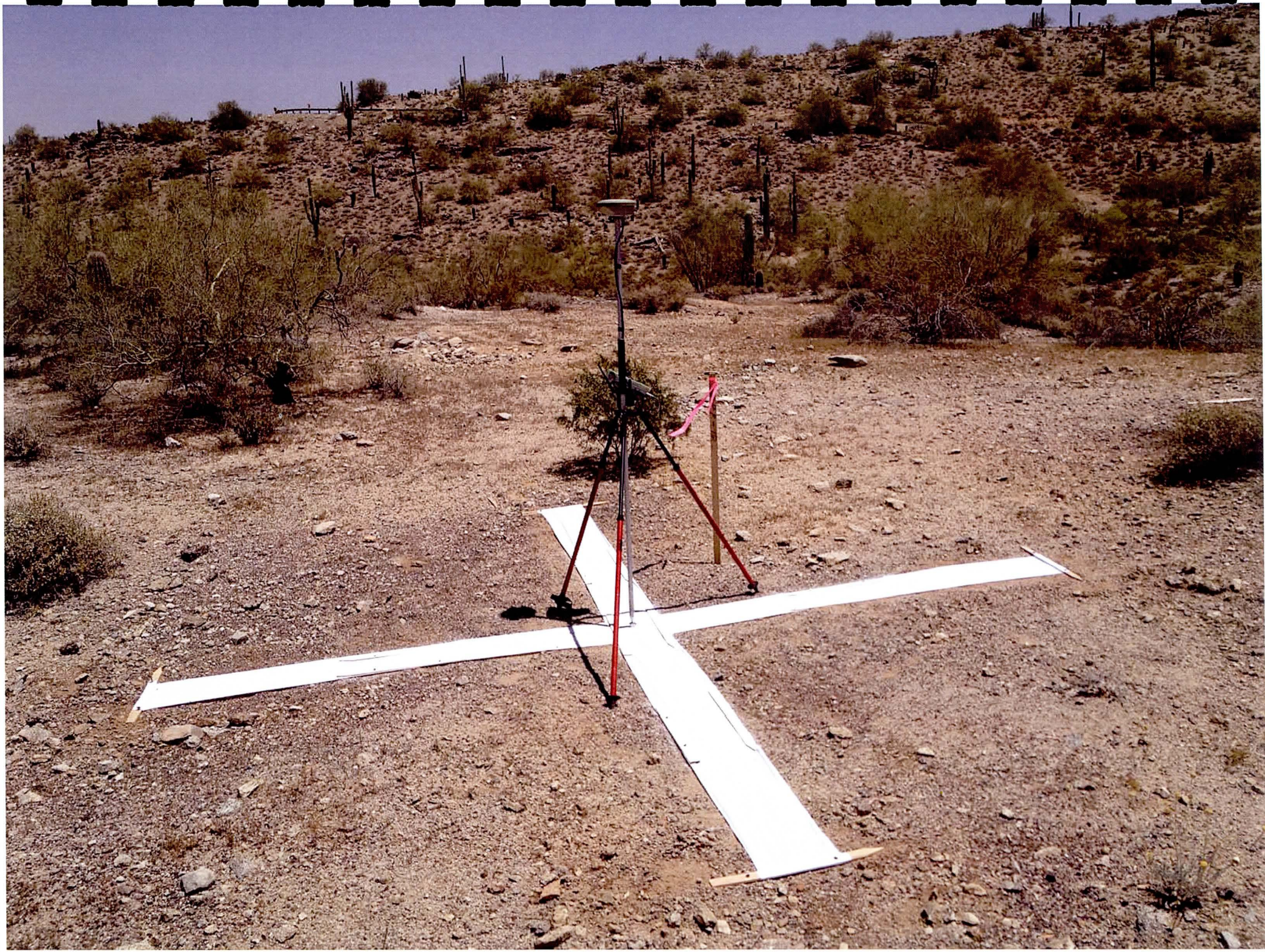

PP-8


1520
HUSS BREWING
PP-9


PP-9

PP-10

PP-10



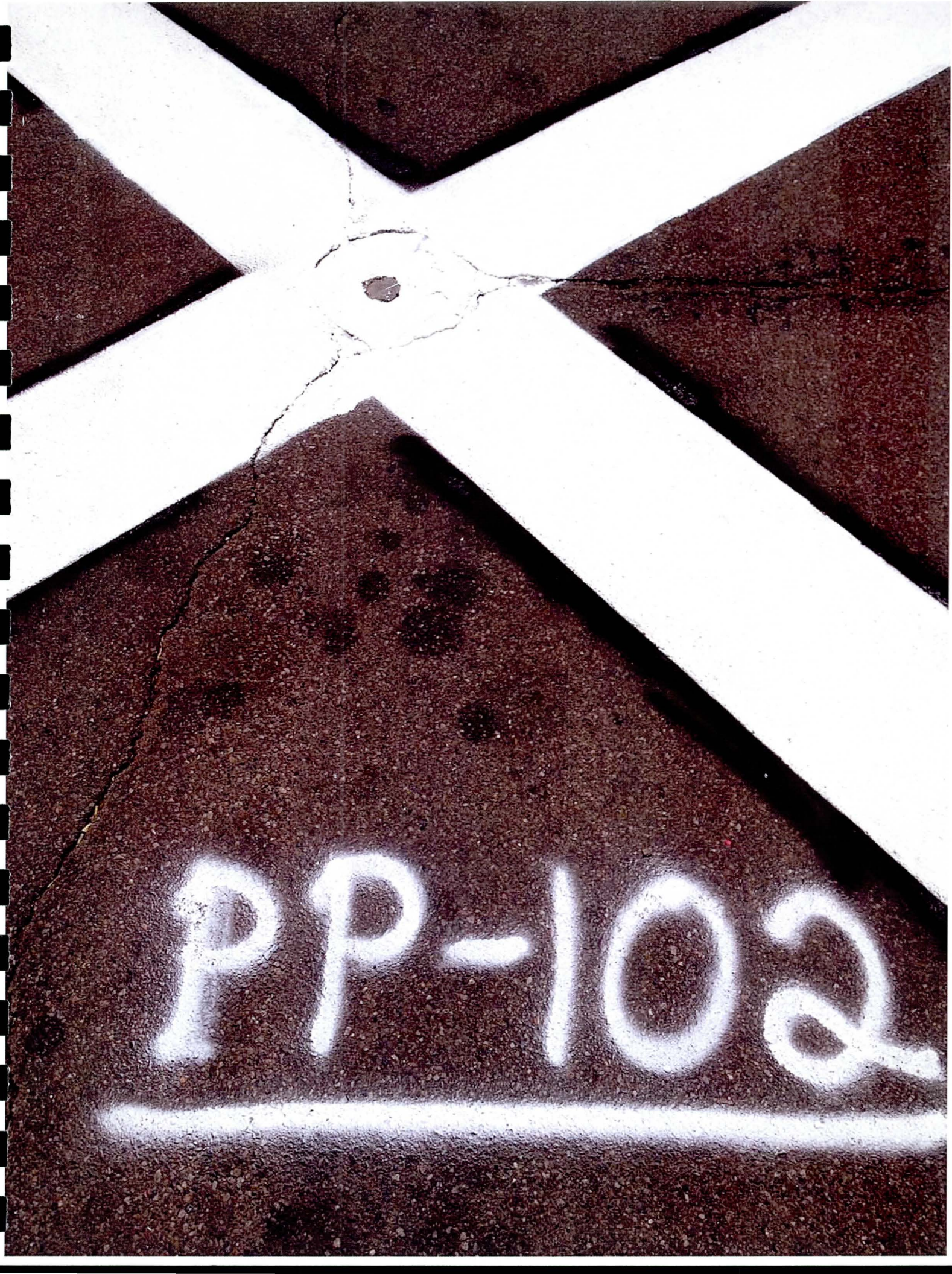
PP100

PP100

PP101

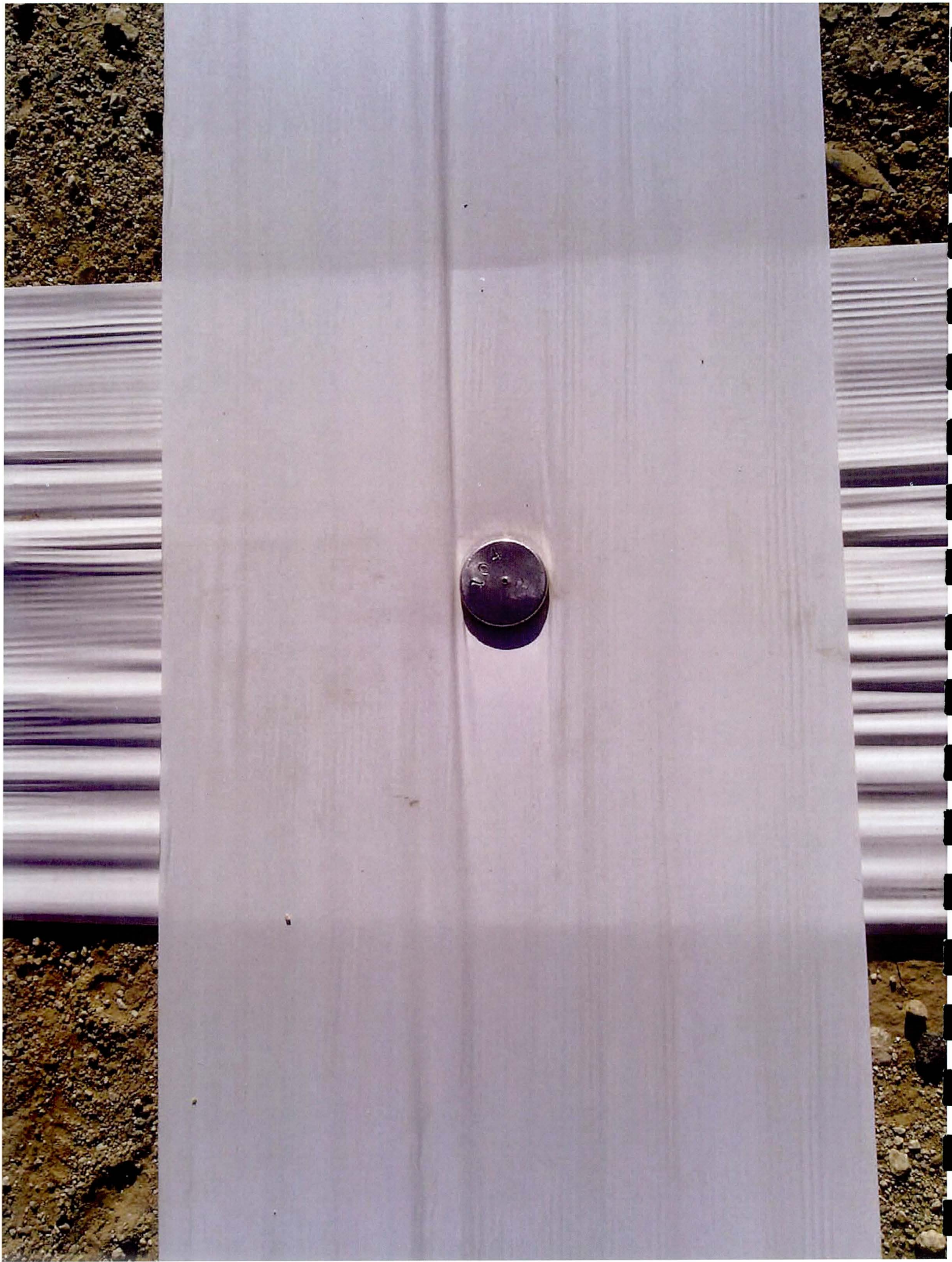
PP101

PP-103


PP-103

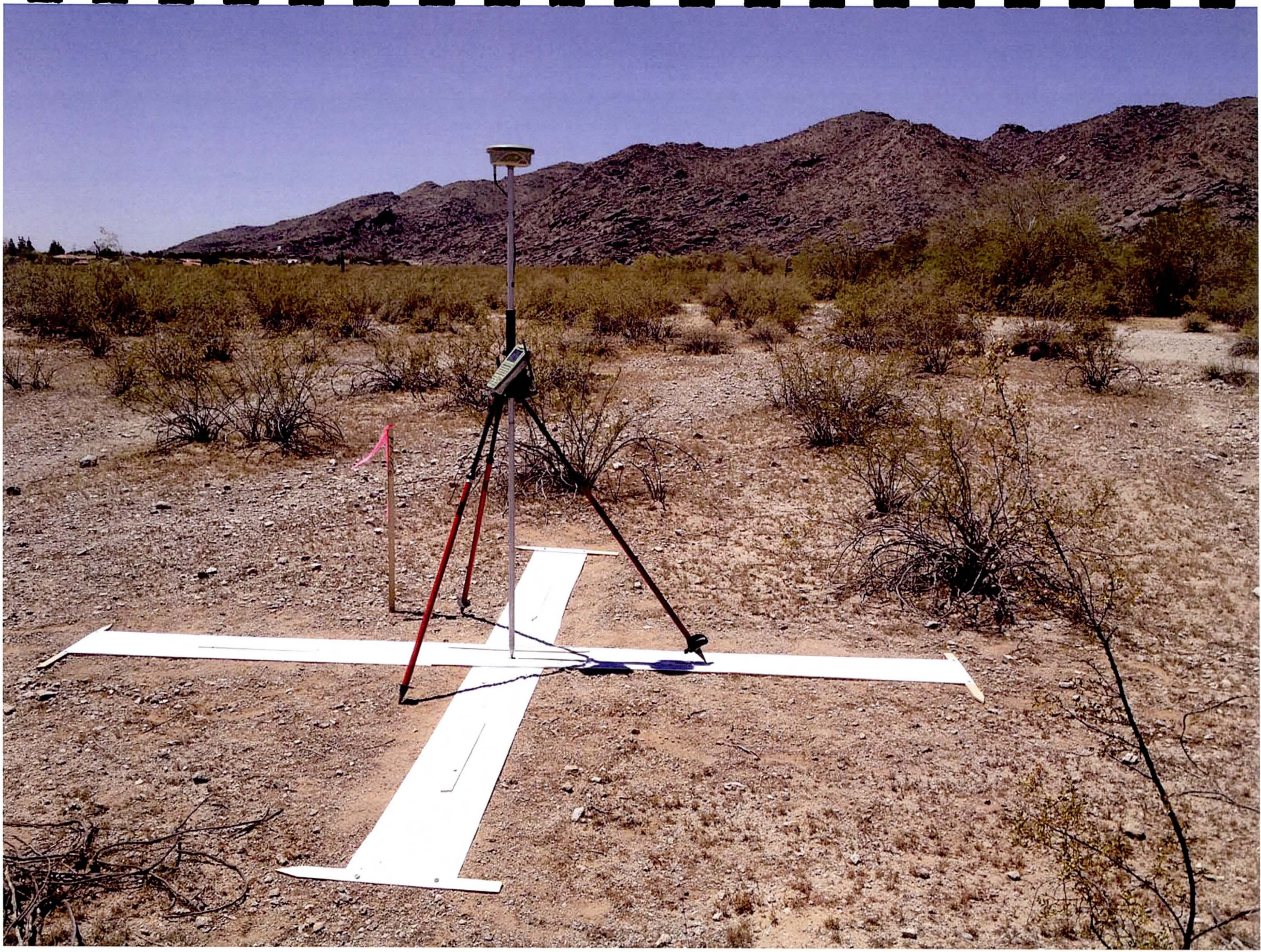
PP-103

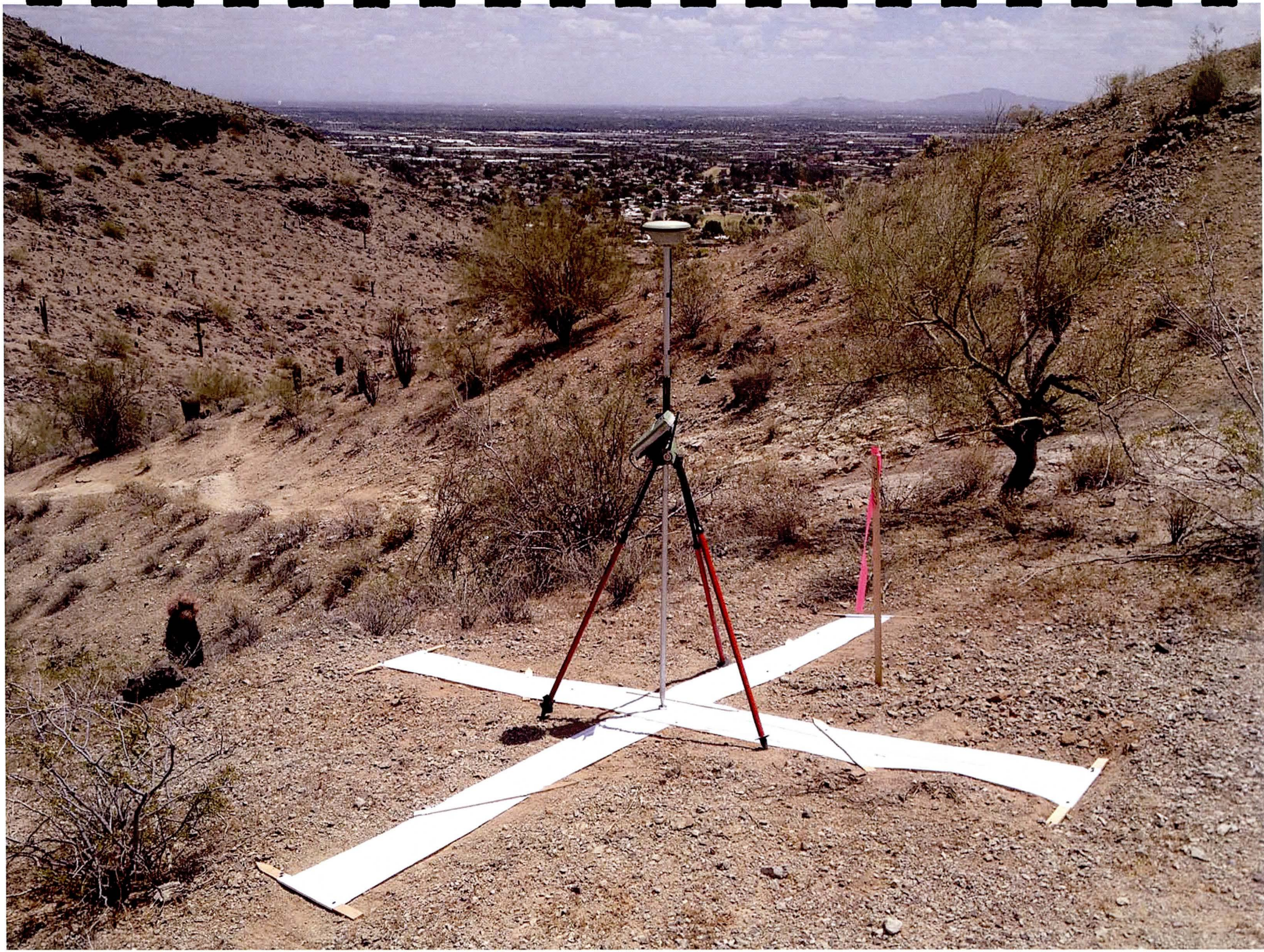
PP-103

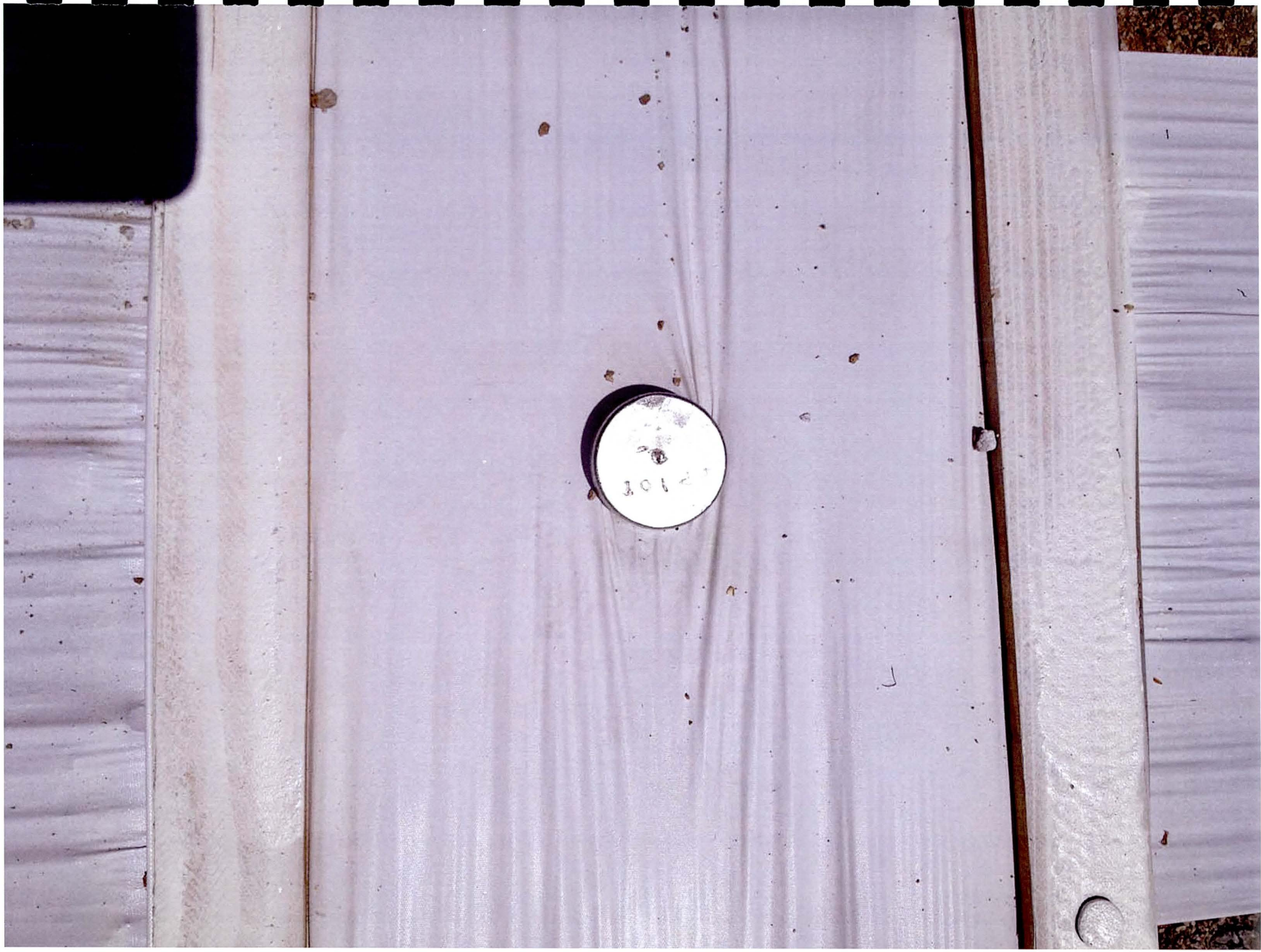


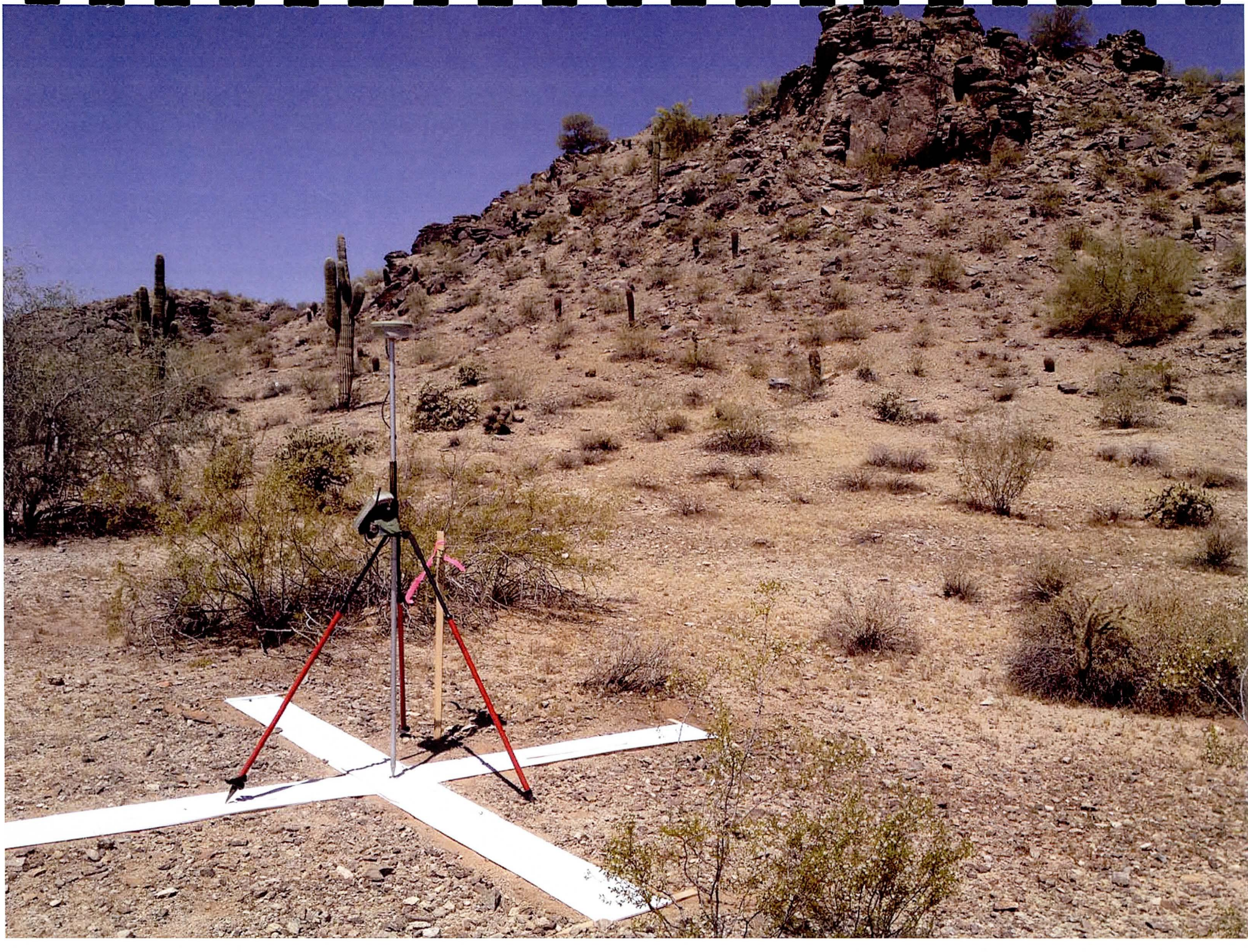
PP105

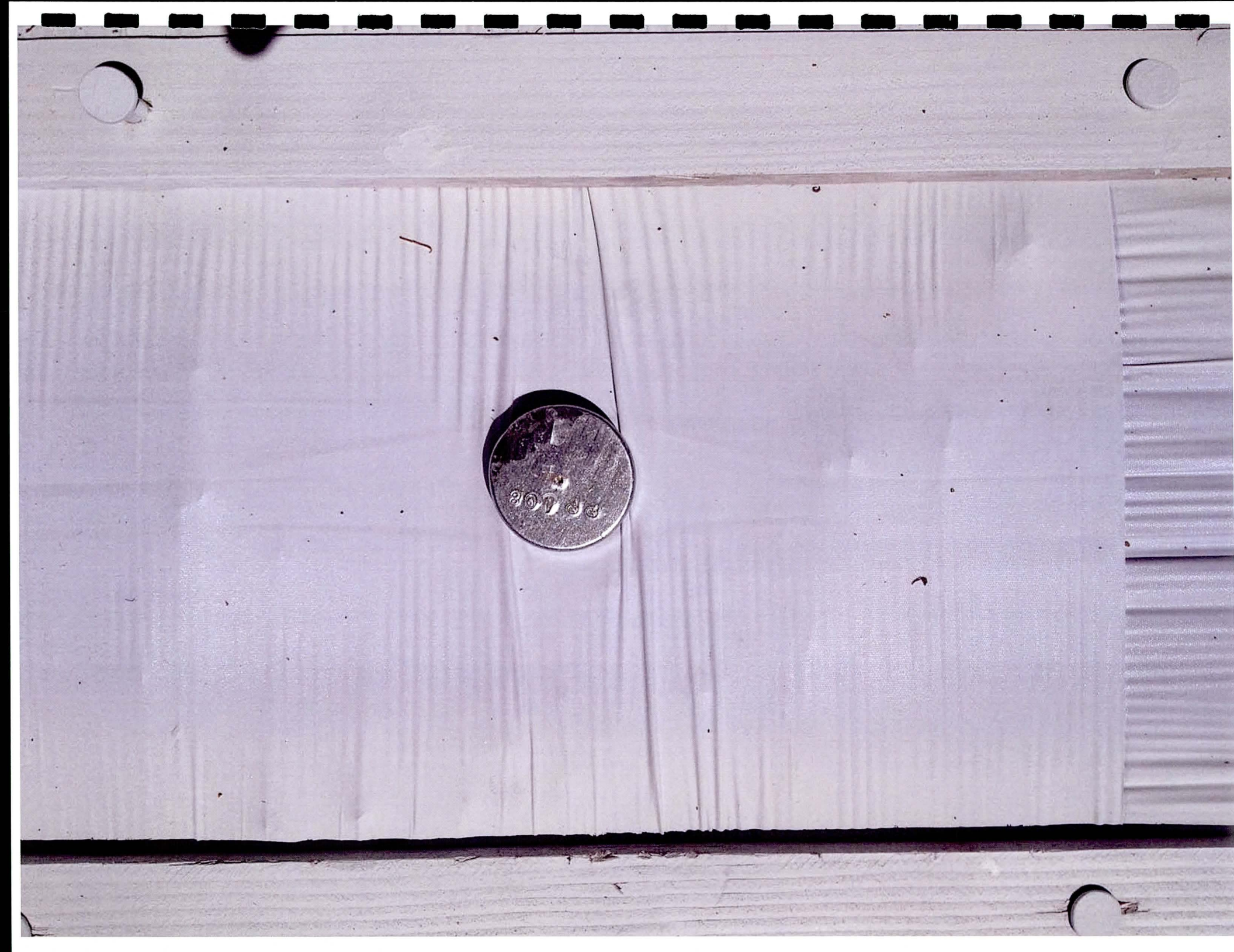
PP105







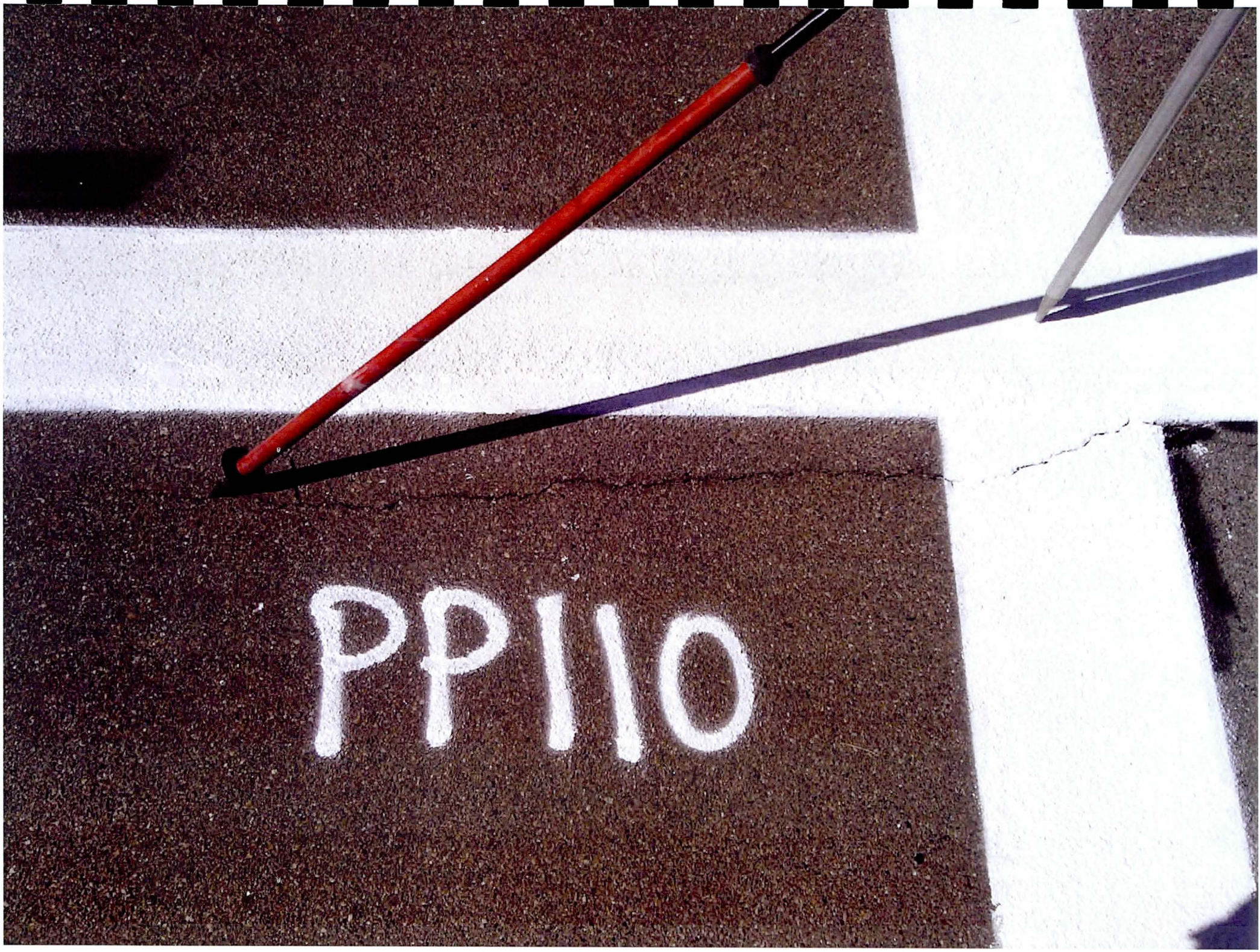




PP109

PP109

PP110

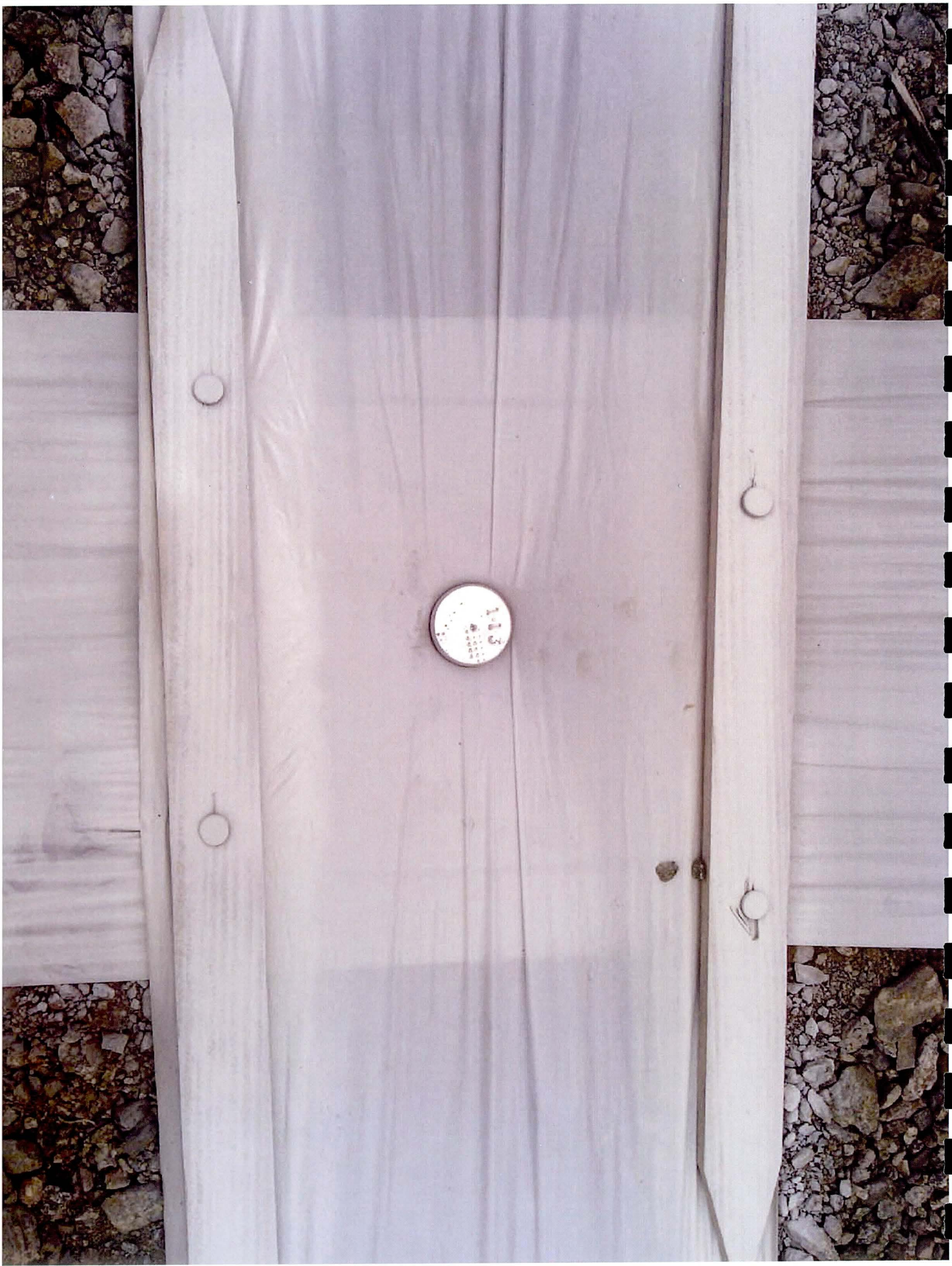

PP110

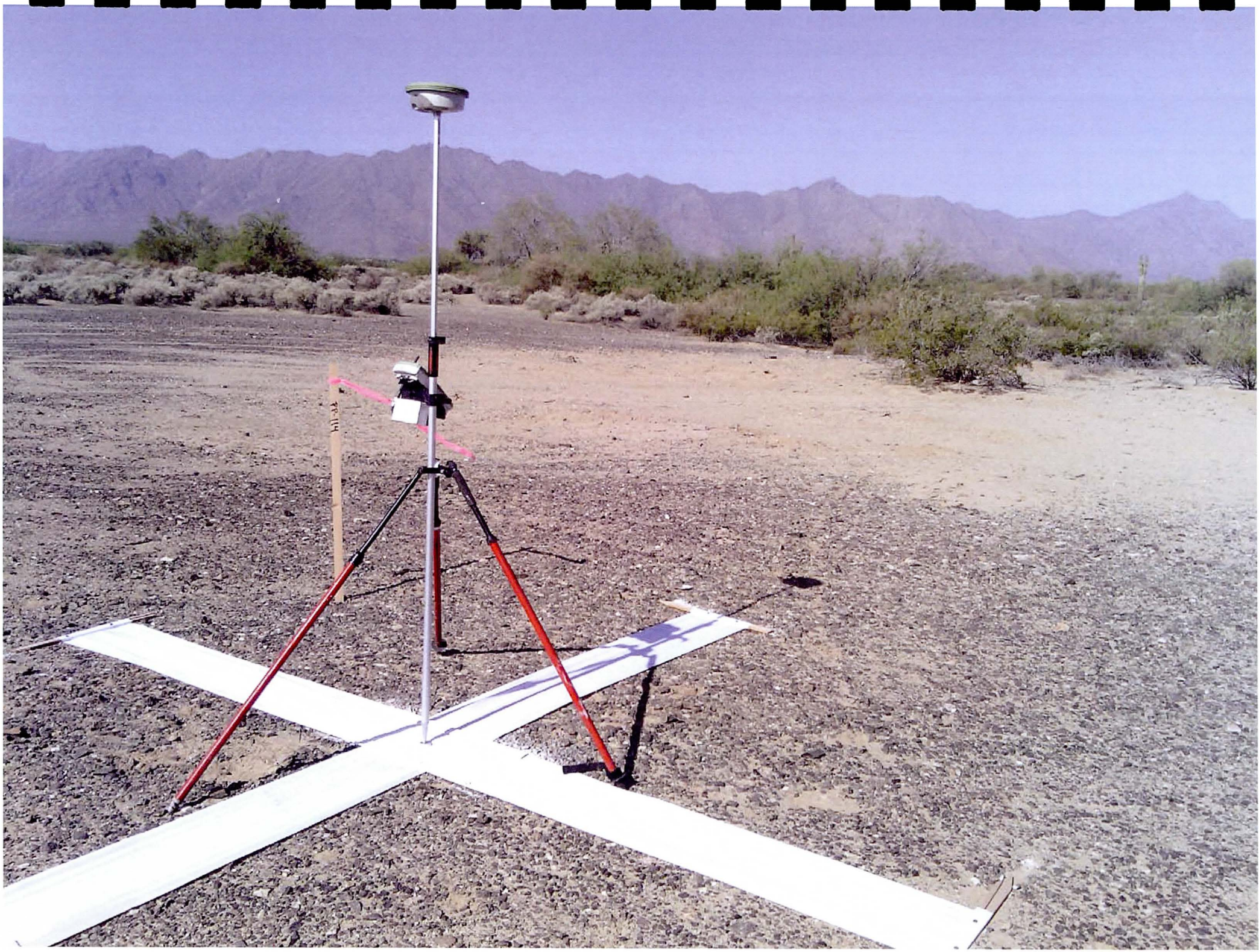
PP111

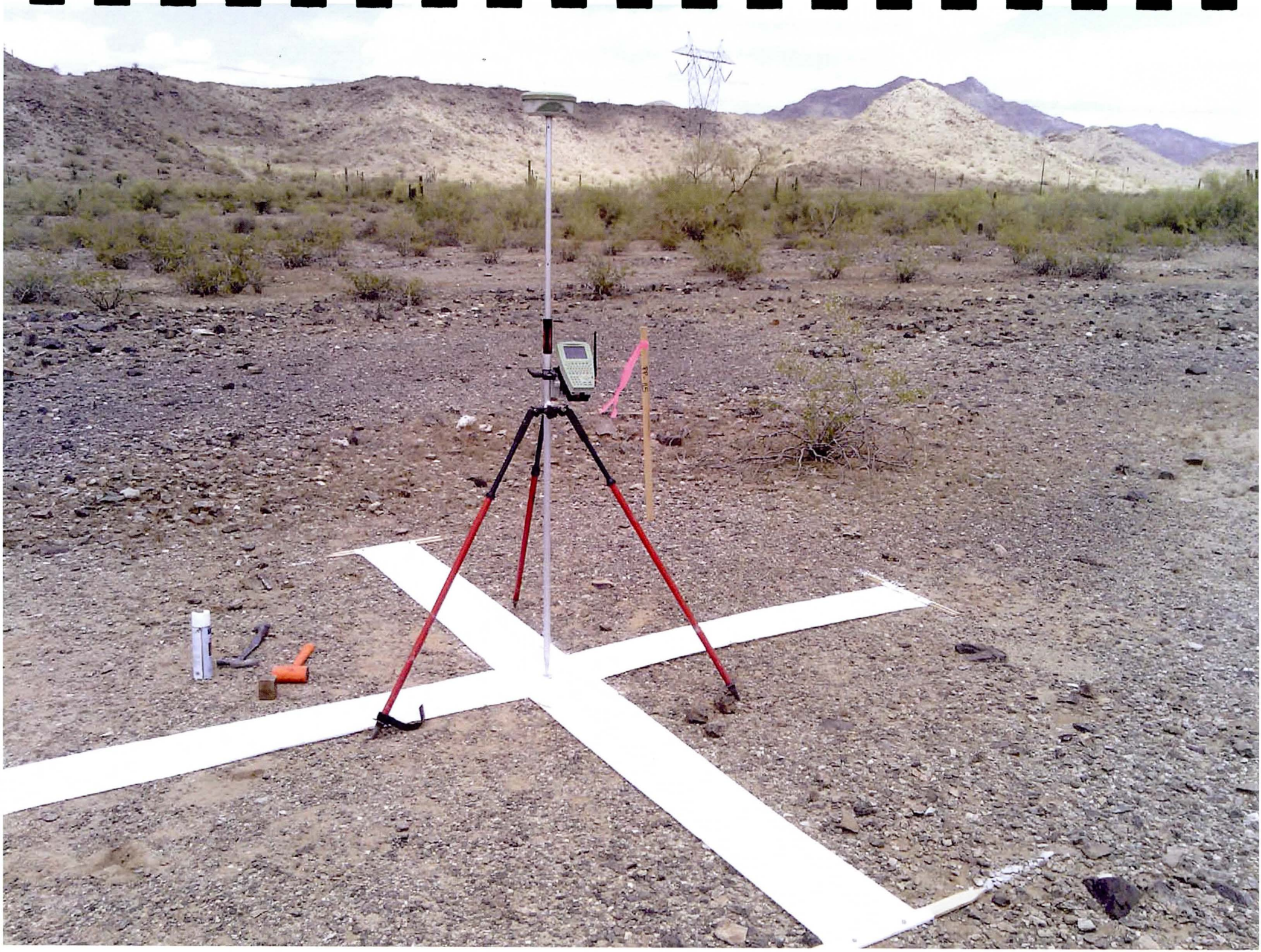
PP111

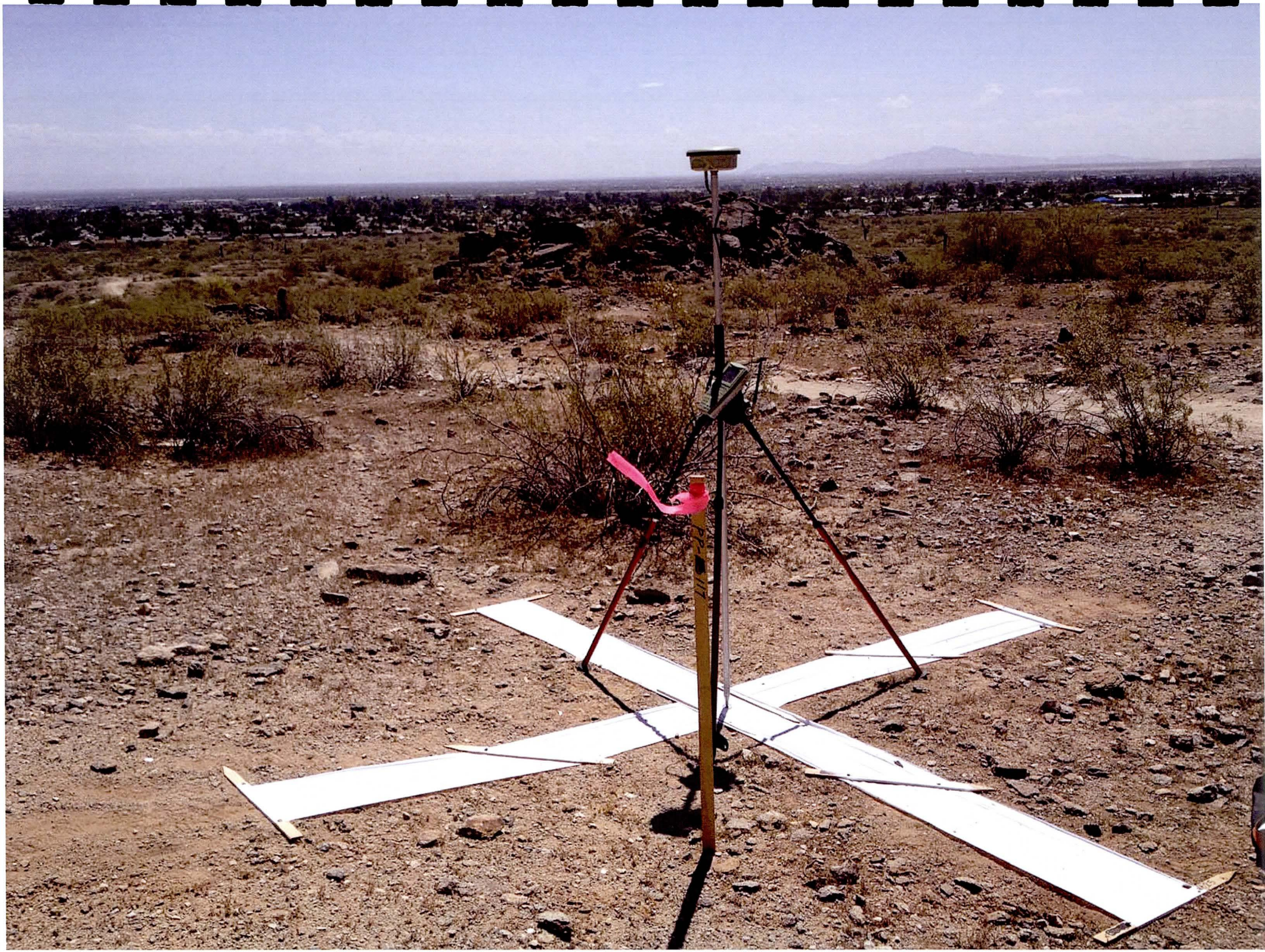
RPIR

PP112

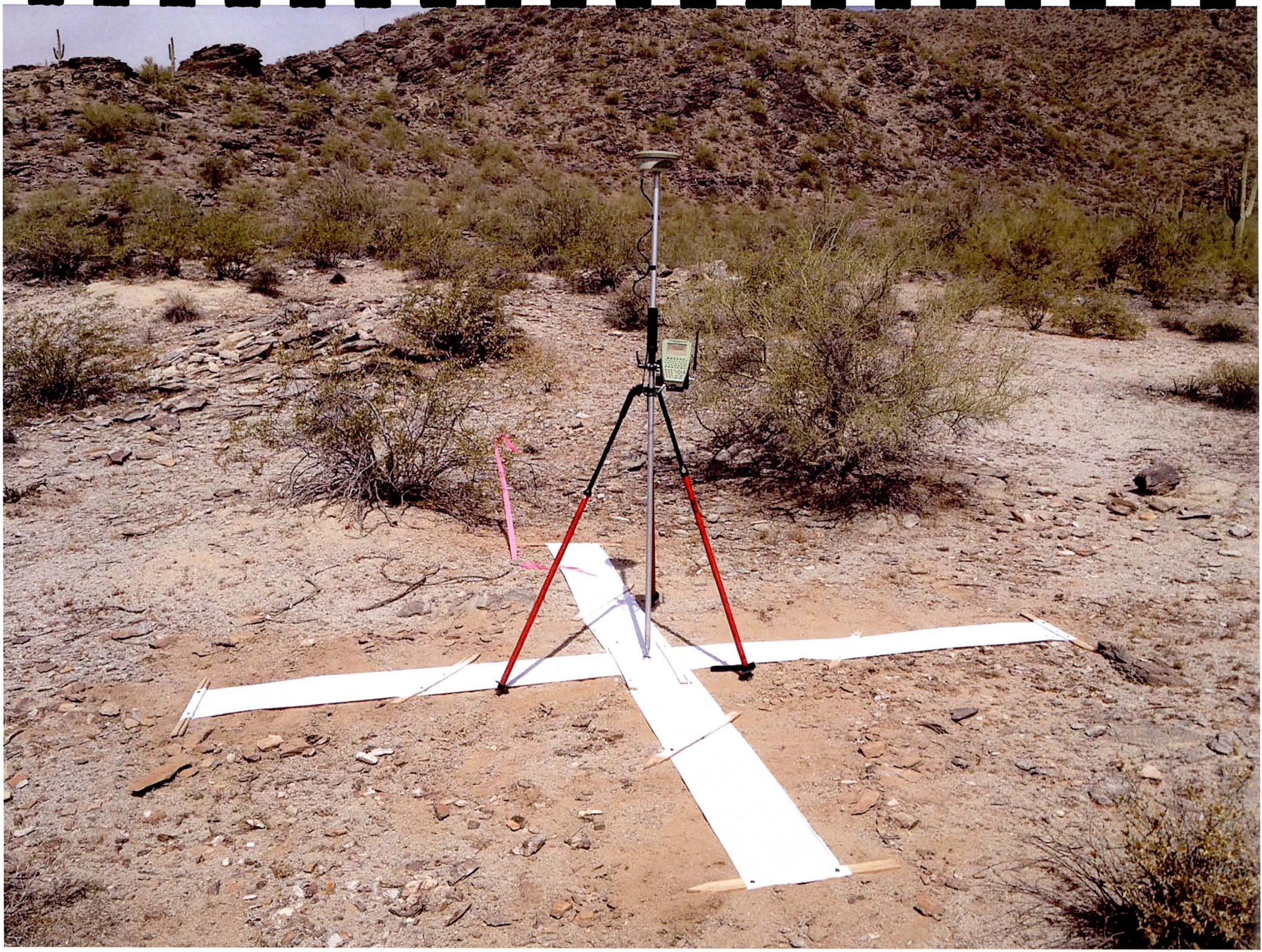


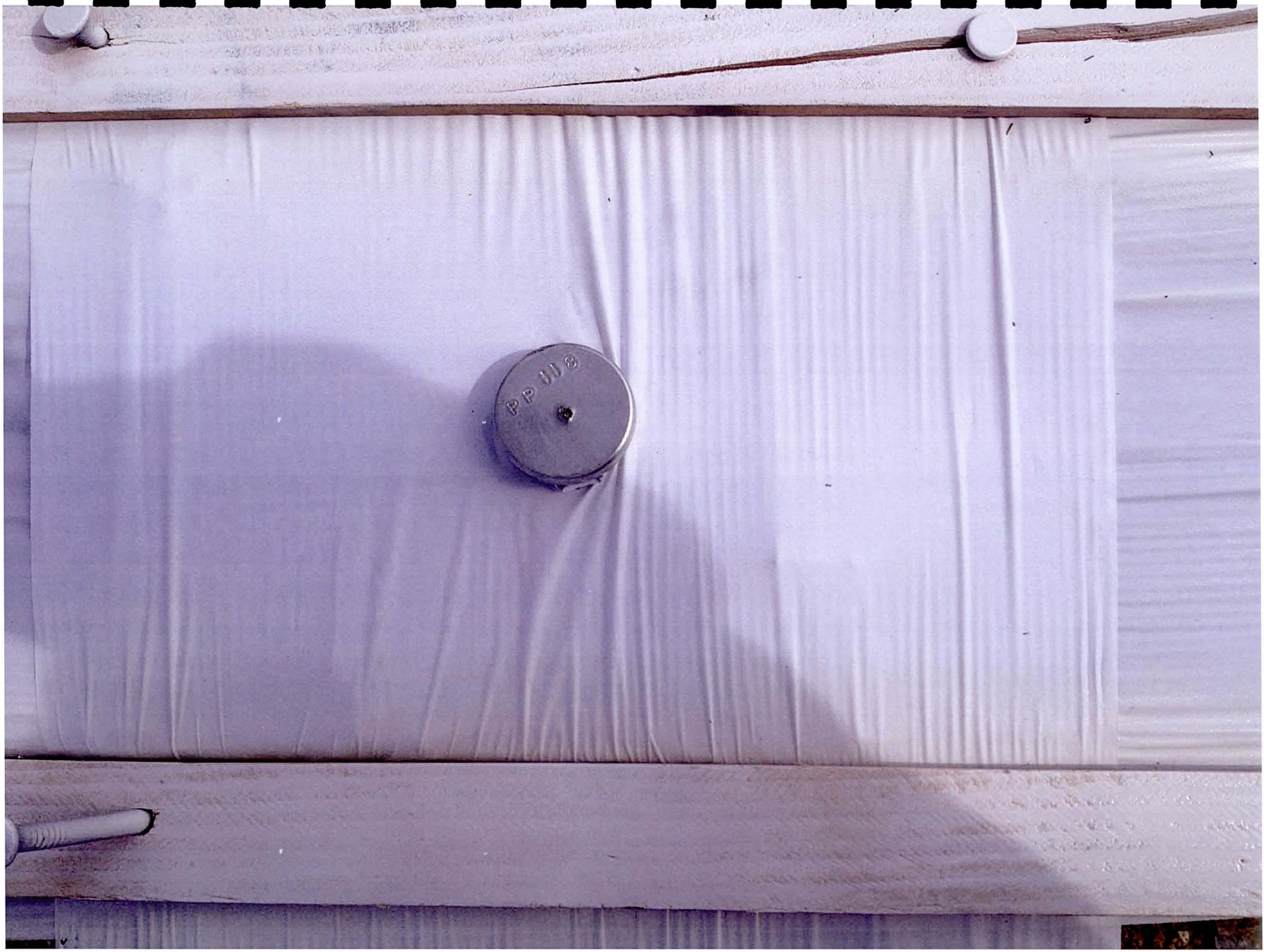




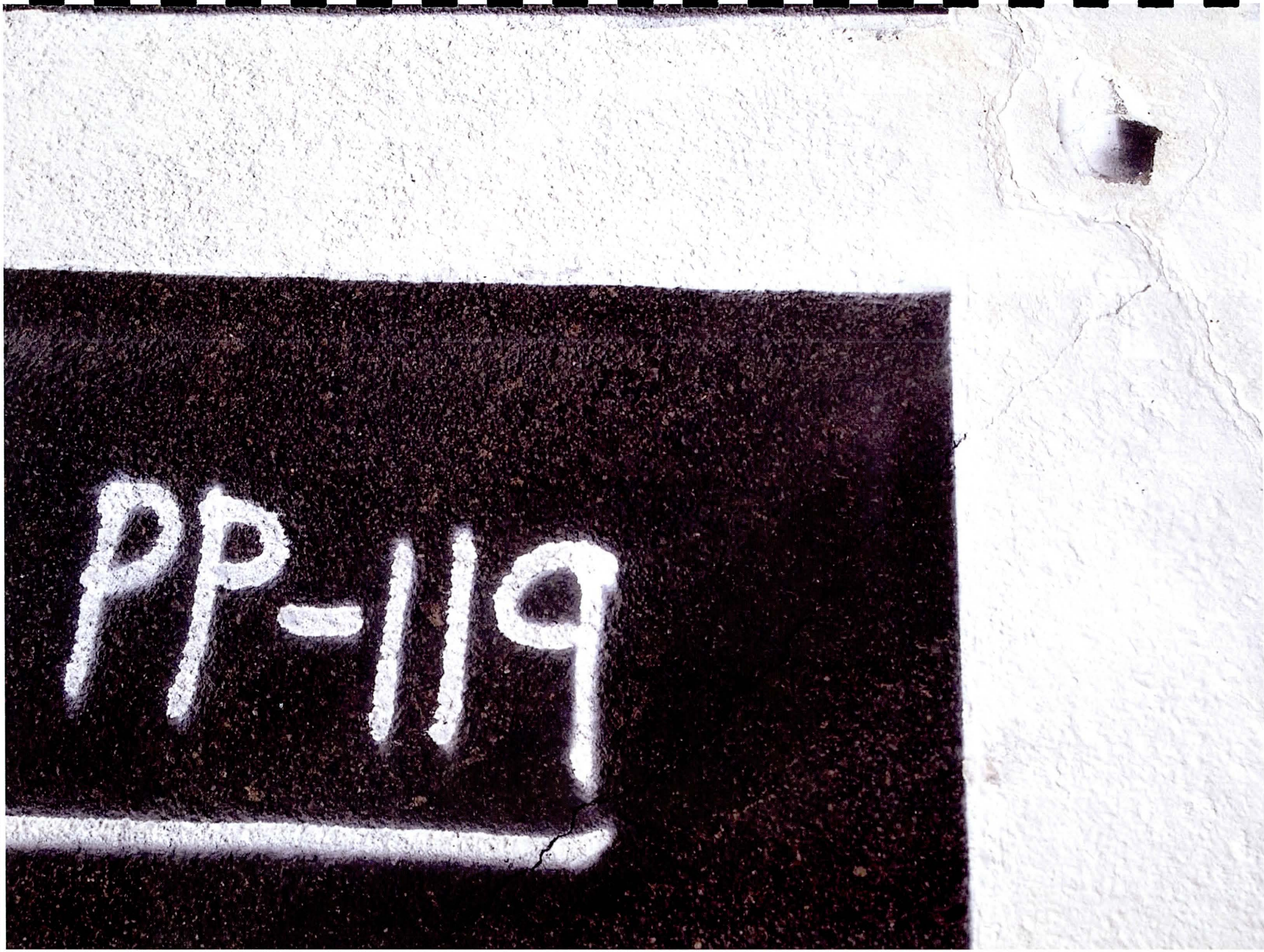


BP 0.7

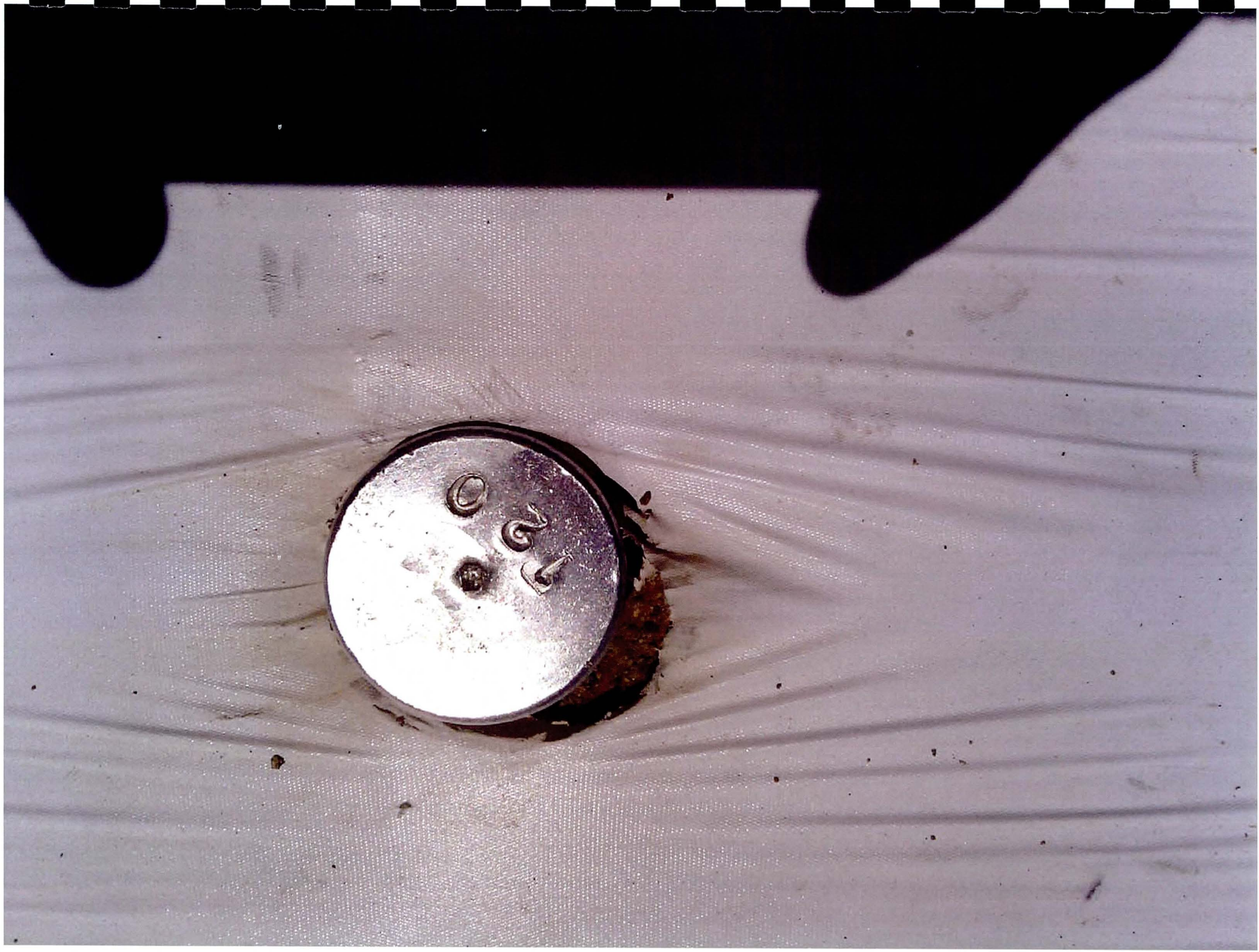



PPUB

PP-119


PP-119

PP-120

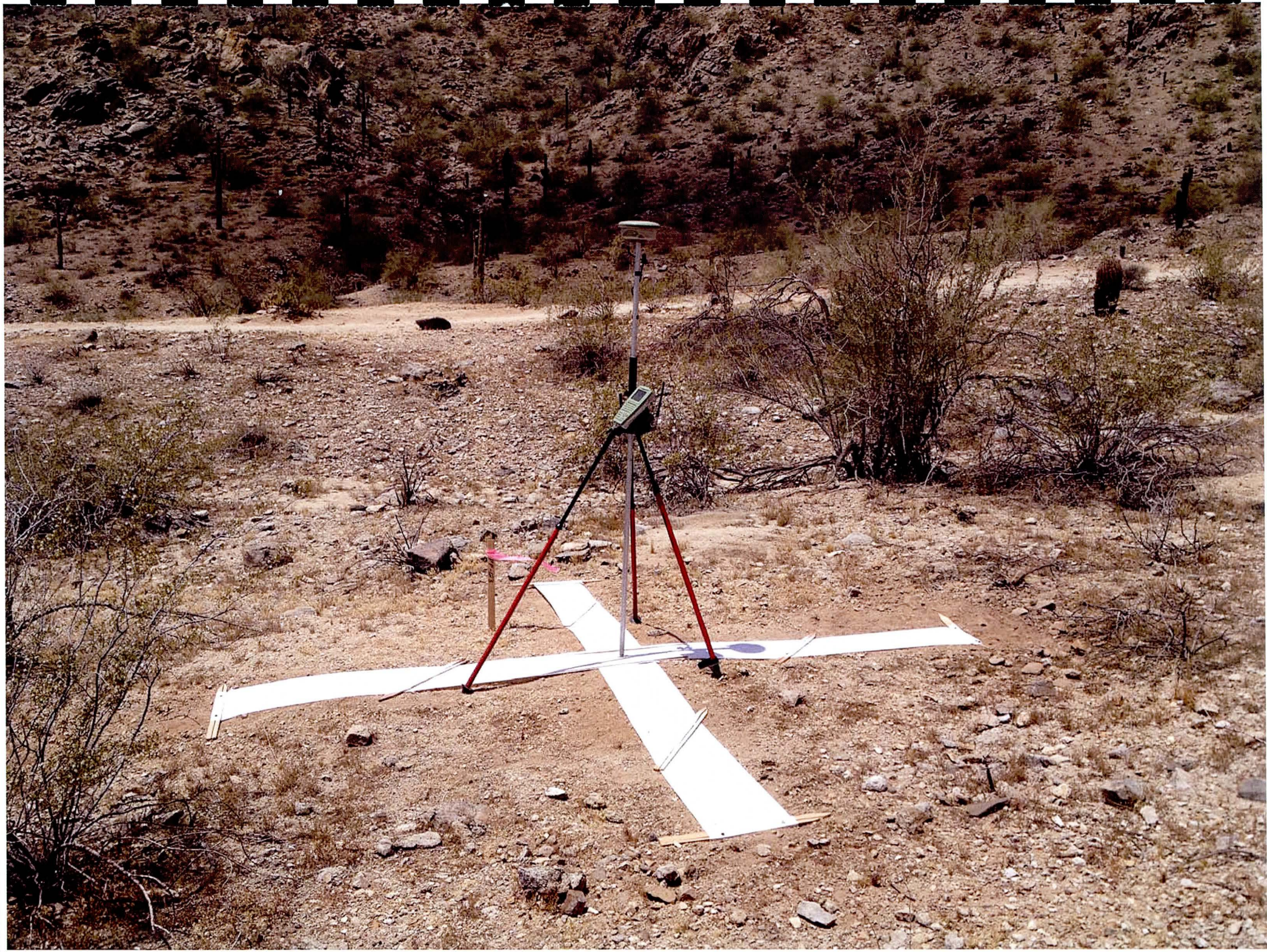

O G 4

PP121

PP121

PP122

PP122



PP123

E MUIRWOOD DR
JPP127

PP124