WILSON & COMPANY

Survey Report

Contract No: 2014C700
Assignment No: 4

Low Org: 6961

PCN:117.01.20

SOUTH PHOENIX/LAVEEN DRAINAGE IMPROVEMENT PROJECT

AERIAL MAPPING

VERSION 1

OCTOBER 1, 2015

WILSON & COMPANY, INC, ENGINEERS & ARCHITECTS

401 N. 44TH STREET, PHOENIX, ARIZONA, 85008

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&COMPANY

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Oklahoma
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October 13, 2015

Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, Arizona 85009

South Phoenix/Laveen Drainage Improvement Project – Aerial Mapping
Contract 2014C007, Assignment 4

Survey Report

This survey report covers the field work to collect control points and check shots for the Mapping of South Phoenix/Laveen Drainage Improvement project area for the Flood Control District of Maricopa County.The survey began in the month of June, 2015 with the location and verification of the GDACS points to be used as base points for the GPS base stations for data collection and ABGPS control during the flight. Paneled targets and Photo ID check points were collected using GPS RTK methods. GPS equipment used was Trimble R8 GNSS receivers, and the Trimble TSC 3 data collector. Each time an GDACS point was occupied as a base point, GPS static data was collected. All of the static files were input into OPUS NGS for processing. OPUS Projects online program was used for network processing. The positions from the network processing were applied to the RTK collection of the targets and photo ID points, and exporting of the control and check points was done with the Trimble Business Center program.

Field work consisted of:

1. Locating and occupying GDACS horizontal and vertical control points.
2. Occupying the identified GDACS points during the flight for ABGPS control.
3. Locating, setting and collecting aerial control targets with RTK.
4. Locating and collecting photo ID points for mapping control and checks.
5. Locating and collecting check point areas for the mapping.

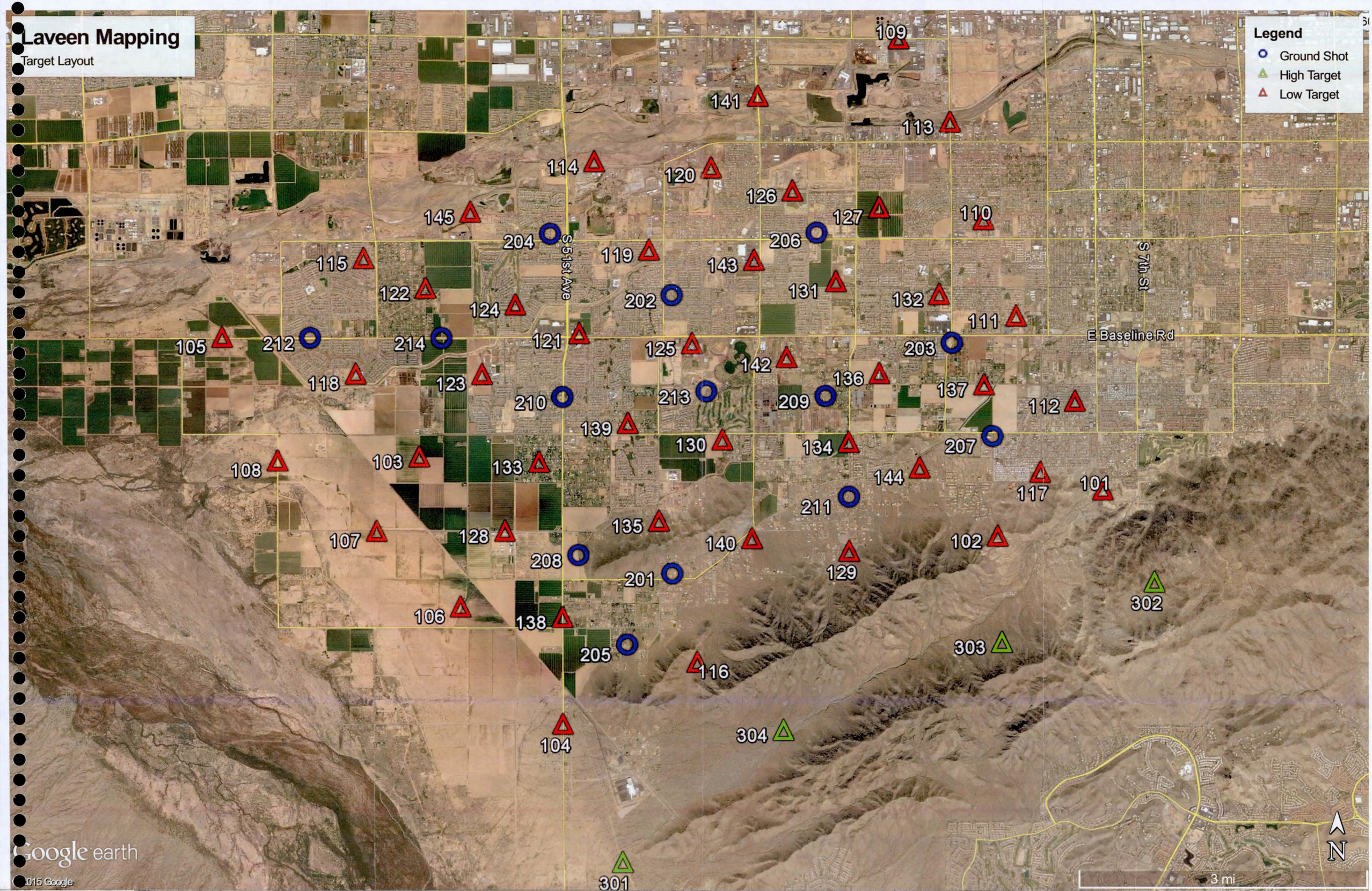
Surveyors Certificate

I, Nathan Gardner, a Registered Land Surveyor in the State of Arizona, do hereby certify that the accompanying survey was conducted in the month of June 2015. This survey work was performed under my direct supervision and the information contained hereon is true and accurate to the best of my belief.

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
36788
NATHAN L.
GARDNER
Date Signed 10/8/15
ARIZONA U.S.A.
Expires: 9/30/16

HIGHER Relationships
SHARED OWNERSHIP • COLLABORATION
INTENSITY • DISCIPLINE • SOLUTIONS

Project Maps


Laveen Mapping
Target Layout
Legend
Ground Shot
High Target
Low Target
S 51st Ave
S 7th St
E Baseline Rd
109
141
113
114
120
126
127
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145
204
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143
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211
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106
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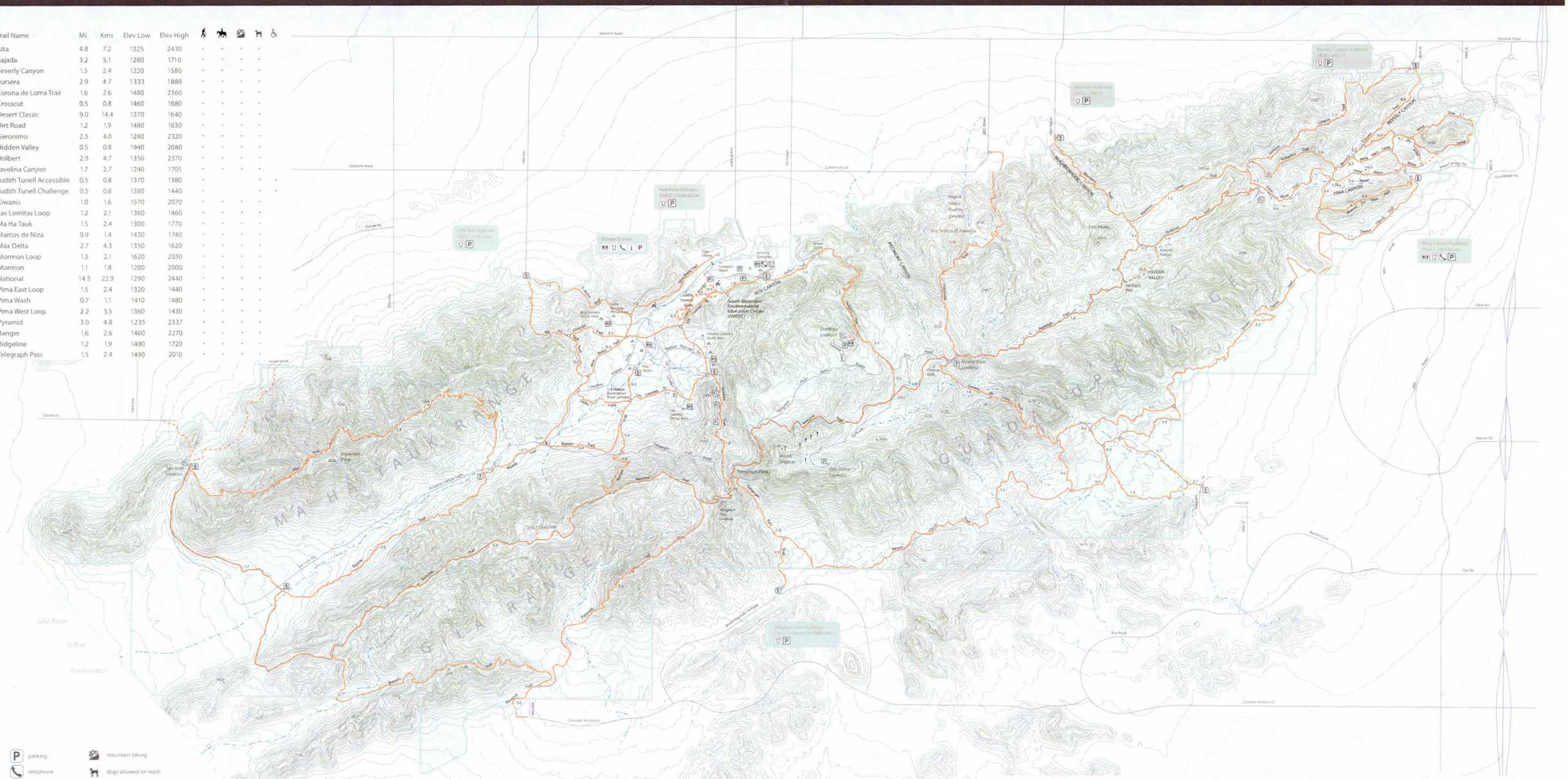
205
303
116
104
304
301
3 mi
N

City of Phoenix
PARKS AND RECREATION DEPARTMENT

SOUTH MOUNTAIN PARK/PRESERVE

10409 S. CENTRAL AVE

Trail Name	Mi.	Kms	Elev Low	Elev High
Alta	4.8	7.2	1325	2430
Bajada	3.2	5.1	1280	1710
Beverly Canyon	1.5	2.4	1220	1580
Bursera	2.9	4.7	1333	1888
Corona de Loma Trail	1.6	2.6	1480	2360
Crosscut	0.5	0.8	1460	1680
Desert Classic	9.0	14.4	1370	1640
Dirt Road	1.2	1.9	1480	1630
Geronimo	2.5	4.0	1280	2320
Hidden Valley	0.5	0.8	1940	2080
Holbert	2.9	4.7	1350	2370
Javelina Canyon	1.7	2.7	1240	1705
Judith Tunell Accessible	0.5	0.8	1370	1380
Judith Tunell Challenge	0.5	0.8	1380	1440
Kiwanis	1.0	1.6	1570	2070
Las Lomitas Loop	1.2	2.1	1360	1460
Ma Ha Tauk	1.5	2.4	1300	1770
Marcos de Niza	0.9	1.4	1430	1740
Max Delta	2.7	4.3	1350	1620
Mormon Loop	1.3	2.1	1620	2030
Mormon	1.1	1.8	1280	2000
National	14.3	22.9	1290	2440
Pima East Loop	1.5	2.4	1320	1440
Pima Wash	0.7	1.1	1410	1480
Pima West Loop	2.2	3.5	1360	1430
Pyramid	3.0	4.8	1235	2337
Ranger	1.6	2.6	1460	2270
Ridgeline	1.2	1.9	1480	1720
Telegraph Pass	1.5	2.4	1490	2010



parking
telephone
information
restrooms
trailhead
water
Civilian Conservation Corps structure
mountain biking
dogs allowed on leash
hiking
horseback riding
ramada
towers

0 — 1 Kilometers
0 — 1 Miles

North

contour interval 20 ft

accessible trail
dirt road
paved road
designated trail
undesignated trail
National Trail - also a segment of the Maricopa County Sun Circle Trail
fenced restricted area

Hiking Safety Information

Tell someone where you will be hiking and when you expect to return.
Know the name of the park/and or trail you will be hiking on. Having a trail map is recommended.
Know where you are going and know what kind of terrain you will be hiking on. It is important to remember that the Phoenix mountain preserves are open, undeveloped desert areas. Hikers can encounter rock terrain, rattlesnakes and other potential hazards native to the Sonoran Desert.
Bring plenty of water (one quart for short hikes–more for longer hikes).
Wear appropriate footwear, preferably hiking boots.
Wear light-colored, comfortable clothing.
Bring a hat, sunblock, basic first aid supplies, and cell phone.

Stop!
Stand
Yield
Speak

The Natural Resources Division is dedicated to preserving, protecting and sustaining cultural and natural resources and providing quality educational and recreational opportunities.

For additional information on: trails, environmental centers, desert parks and preserves, and programs we provide each year, please visit: phoenix.gov/parks/hikemain.html

Important Numbers
Crimestop 602.262.6151
Emergency 911
Animal Care & Control 602.506.PETS
South Zone Park Rangers Office 602.262.7393
South Mountain Environmental Education Center 602.534.6324

LEAVE NO TRACE
Outdoor Ethics for Frontcountry

"Protect the Preserve, Protect Yourself"

leave no trace

KNOW BEFORE YOU GO
- Be prepared! Remember food, water, and clothes to protect you from the cold, heat and rain.
- Use maps to plan where you're going. Check them along the way so you'll stay on course and won't get lost.
- Remember to bring a leash for your pet and plastic bags to pick up your pet's waste.
- Learn about the areas you plan to visit.
- Carry a cell phone for emergencies.
- Let someone know where you're going.

STICK TO TRAILS
- Walk and ride on designated trails to protect trailside plants.
- Do not step on flowers or small trees. Once damaged, they may not grow back.
- Respect private property by staying on designated trails.

TRASH YOUR TRASH AND PICK UP PET'S WASTE
- Pack it in, Pack it out. Put litter – even crumbs, peels and cores – in garbage bags and carry it home.
- Use bathrooms or outhouses when available.
- Use a plastic bag to pack out your pet's waste to a garbage can.
- Keep water clean. Do not put soap, food, human or pet waste in lakes or streams.

LEAVE IT AS YOU FIND IT
- Leave plants, rocks and historical items as you find them so others can enjoy them.
- Treat living and dead plants with respect. Carving, hacking or peeling plants may kill them.

BE CAREFUL WITH FIRE
- Smoke only in an enclosed vehicle.
- Fires limited to designated areas.

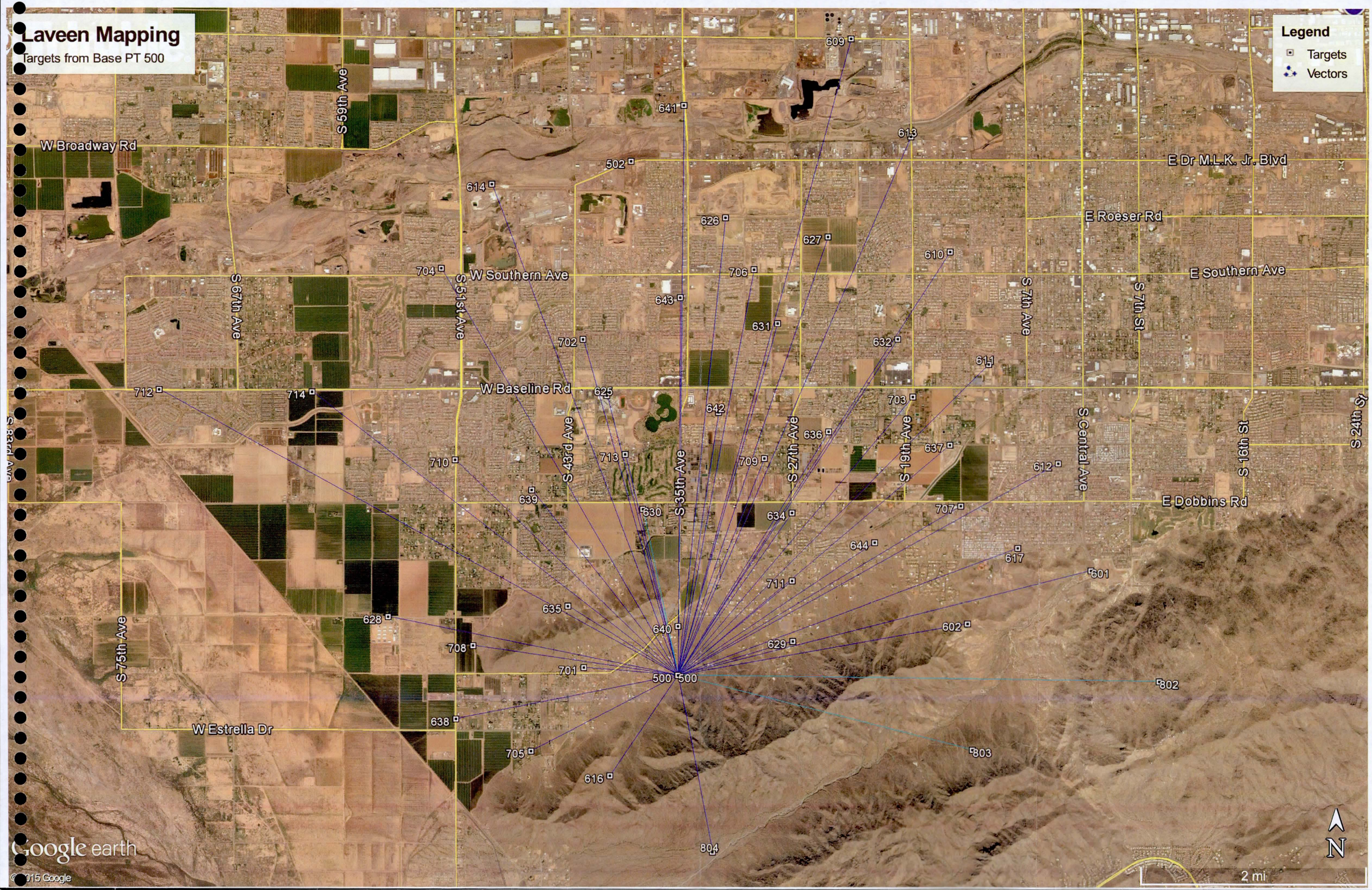
KEEP WILDLIFE WILD
- Observe wildlife from a distance and never approach, feed or follow them.
- Human food is unhealthy for all wildlife and feeding them starts bad habits.
- Protect wildlife and your food by securely storing your meals and trash.

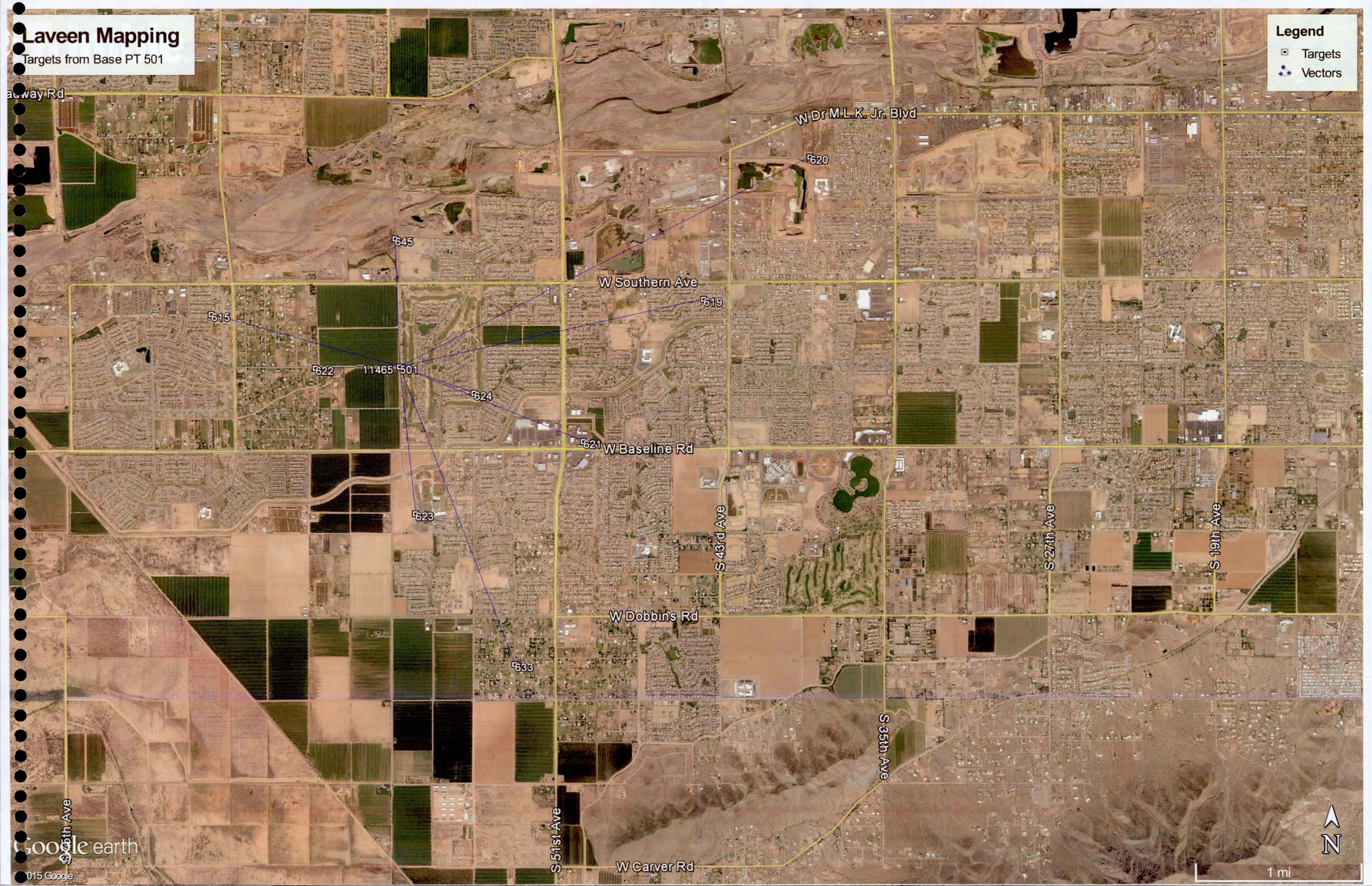
SHARE OUR TRAILS AND MANAGE YOUR PET
- Be considerate when passing others on the trail.
- Keep your pet on a maximum six-foot leash to protect it, other visitors and wildlife.
- Listen to nature. Avoid making loud noises or yelling. You will see more wildlife if you are quiet.
- Be sure the fun you have outdoors does not bother anyone else.

For more information on Leave No Trace, please visit www.LNT.org or call 1.800.332.4100

Laveen Mapping

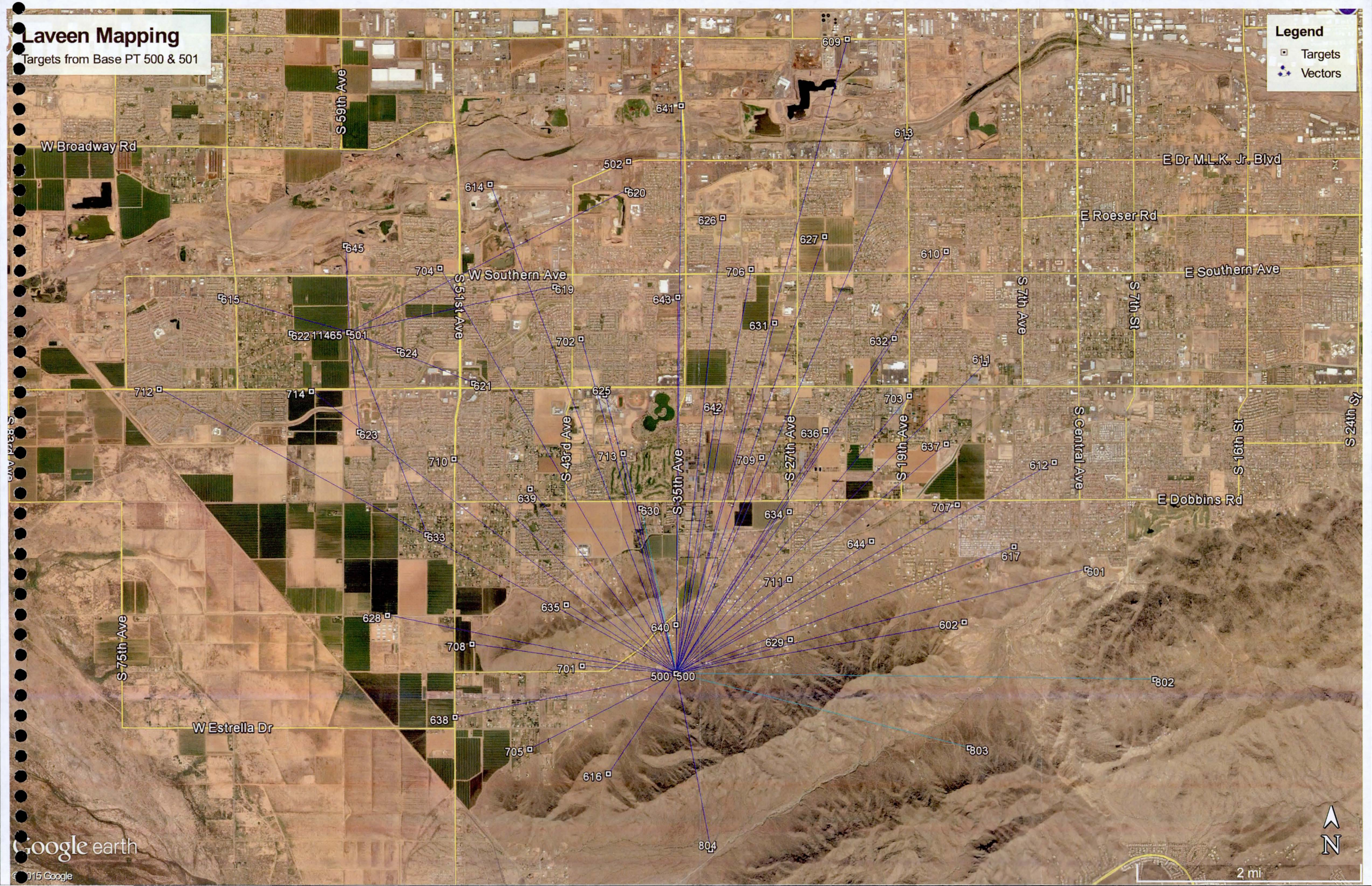
Targets from Base PT 500




Laveen Mapping
Targets from Base PT 501
Legend
Targets
Vectors
W Dr M.L.K. Jr. Blvd
W Southern Ave
W Baseline Rd
W Dobbins Rd
W Carver Rd
S 43rd Ave
S 27th Ave
S 19th Ave
S 35th Ave
S 51st Ave
620
645
619
615
622
11465
501
624
621
623
633
1 mi
N
Google earth

Laveen Mapping

Targets from Base PT 500 & 501



Control Data

CP 500, GDACS #8053 (51670-1)

CP 501, GDACS #11465 (65000-1M)

CP 502, GDACS #11868 (65029-1M)

Laveen Base Points

Target #	Point #	Northing (Y)	Easting (X)	Elev. (Z)	NOTE	NOTE	
Base	500	851713.629	633305.495	1237.749	BC	GDACS 8053 (51670-1)	FD 1" IP 1.3' UP W/ 2 1/2" GLO BC STAMPED "1/4 S15 S14 1919"
Base	501	867600.627	617991.043	1003.602	ALUM	GDACS 11465 (65000-1M)	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP FLUSH STAMPED "T1NR2E 1/4 S31 S32 RLS 31610 2005" NOTE- SET CAP ON RB ALREADY FOUND
Base	502	875544.416	631151.073	1029.508	ALUM	GDACS 11868 (65029-1M)	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP 1.5 FEET DOWN STAMPED "T1NR2E 1/4 S22 S27 RLS 31610 2005" NOTE- SET CAP ON ALREADY SHOT PIPE

Point Number	Northing	Easting	Elevation	Desciption
971	865004.212	633722.204	1061.546	FD 2 3/4" COP BC IN HH 0.55' DN NOT STAMPED
972	864954.129	607485.695	988.858	FD PK NL FL. REPLACED W/ 1/2" RB AND 2" MARICOPA COUNTY AL CAP 0.1' DN STAMPED "T1N R1E S35 S36 T1S R1E S1 2003 29891"
974	864949.036	610128.43	992.419	FD 2 3/4" MCDOT BC IN HH 0.6' DN STAMPED "T1N R1E 36"
975	864949.315	609983.396	0	CALCULATED CORNER NOTHING SET.
976	864954.016	607363.152	0	CALCULATED CORNER NOTHING SET.
977	862258.597	607365.41	985.613	FD CONC NAIL IN CONC MONUMENT FLUSH. SET 3" MARICOPA COUNTY BC STAMPED "W 1/4 S1 T1S R1E 2003 29891" EPOXYED CAP TO EXISTING NL AND CONC. MOUND
985	865018.061	641333.749	0	CALCULATED CORNER NOTHING SET.
989	864998.768	651776.387	0	CALCULATED CORNER NOTHING FOUND OR SET
990	862344.088	649129.573	1192.508	FD 2 1/2" IP IN HH 0.5' DN. SET 3" MCDOT BC STAMPED "T1S R3E 1/4 S6 S5 2003 29891" ON EXISTING IP
1123	864998.135	628450.621	1036.821	FD 2 3/4" COP BC IN HH 0.55' DN NOT STAMPED
1124	864997.138	628166.558	0	CALCULATED CORNER NOTHING SET.
1125	865008.048	636057.559	1070.019	FD 2 3/4" COP BC IN HH 0.65' DN NOT STAMPED
1126	865012.163	639008.564	1086.731	FD 3" MCDOT BC IN HH 0.6' DN STAMPED "13168"
1132	864996.169	659676.281	1179.161	FD 3" COP BC IN HH 0.45' DN. NOT STAMPED
1133	864998.777	652196.335	1173.933	FD 2 3/4" COP BC IN HH 0.65' DN. NOT STAMPED
1134	865004.714	646920.468	1139.635	FD 3" MCDOT BC IN HH 0.4' DN STAMPED "1/4 S31 13168"
1135	865007.995	646507.843	1136.768	SET 5/8" ROUND SSTL METAL ROD 0.1' DN W/ 3" MARICOPA COUNTY BC STAMPED "T1NR3E S31 T1SR3E 1/4 S6 2003 29891"
1137	862399.616	654417.334	1221.332	FD 1 1/2" IP IN HH 0.8' DN. SET 2" MCDOT AL CAP STAMPED "T1S R3E 1/4 S5 S4 2003 29891" ON EXISTING IP
1865	870238.451	599591.62	978.373	FD 1 1/4" IP FL W/ 3" PHOENIX BC NO STAMPING
7051	864988.024	625565.112	1023.104	FD 4" BC FL STAMPED "DONALD SAX ASSOCS T1SR2E N 1/4 S4 REG NO 2922"
7052	864979.653	623234.477	1012.537	FD 3" MCDOT BC IN HH 0.6' DN STAMPED "T1NR2E 32 33 5 4"
7053	859732.325	651769.992	1265.407	FD 2 3/4" COP BC IN HH 0.6' DN. NOT STAMPED
7054	859758.878	654409.435	1275.059	FD 2 1/2" BC IN HH 0.8' DN. NOT STAMPED
7055	859717.804	659663.632	1263.292	FD 3" COP BC IN HH 0.5' DN. NOT STAMPED
7063	859738.99	657037.076	1257.456	FD 3" COP BC IN HH 0.5' DN. NOT STAMPED
7064	859696.072	646495.203	1179.361	FD 2 3/4" COP BC FL. NOT STAMPED
7065	859705.057	649131.217	1220.902	FD 2 3/4" COP BC IN HH 0.33' DN. NOT STAMPED
7328	854420.056	638581.72	1255.821	FD 2 3/4" MCDOT BC IN HH 0.6' DN STAMPED " T1S R2E 11 12 13 14"
7329	859674.219	620324.407	1033.804	FD STN IN HH 0.7' DN NOT MARKED NOTE- SHOT HIGH PT. ON STN
7330	859673.886	617691.394	1026.609	FD STN IN HH 1' DN NOT MARKED NOTE- SHOT HIGH PT. ON STN
7331	857034.612	628169.861	1063.887	FD 2" IP 1.0' DN IN HH. SET 2" MC AL CAP STAMPED "TIS R2E 1/4 S9 S10 2003 29891" ON EXISTING IP
7332	859667.443	615050.412	1021.906	FD STN IN HH 0.8' DN NOT MARKED NOTE- SHOT HIGH PT. ON STN
7333	854421.53	643862.598	1414.307	FD 2" IP 1.5' UP W/ 2 1/2" GLO BC STAMPED "T1S R2E S12 S13 R3E S7 S18 1919"
7334	857034.204	617673.66	1028.674	FD 4" MCED BC IN HH DN 0.65' NOT STAMPED
7335	857038.593	622915.073	1034.378	FD 3" MCHD BC IN HH 0.7' DN NOT STAMPED
7336	859680.043	622935.601	1037.418	FD 3" MCHD BC IN HH 0.7' DN STAMPED " T1S R2E 5 4 8 9"
7337	859676.884	625552.249	1040.657	FD 3" MCHD BC IN HH 0.1' DN NOT STAMPED
7426	859674.036	628169.471	1051.866	FD 1" IP IN HH 0.5' DN. SET 2" MCDOT AL CAP STAMPED "T1S R2E S9 S10 S3 S4 2003 29891" ON EXISTING IP
7427	859679.203	630787.497	1066.942	FD CPS 0.2' DN. REPLACED CPS W/ 1/2" RB AND 2" MARICOPA COUNTY AL CAP 0.2' DN STAMPED "T1S R2E 1/4 S3 S10 2003 29891"
7509	862313.696	617705.781	1018.931	FD 1/2" RB 0.15' DN. SET 2" MARICOPA COUNTY AL CAP 0.2' DN STAMPED "T1S R2E 1/4 S5 S6 2003 29891" ON EXISTING RB
7510	862302.611	612582.83	987.444	FD 1/2" RB W 1" PLAS CAP MARKED RLS 30343. SET 2" MARICOPA COUNTY AL CAP FL STAMPED "T1SR1E R2E S6 1/4 2003 29891" ON EXISTING RB.
7532	862326.686	628168.104	1046.081	FD 1/2" RB IN HH 0.5' DN. SET 2" MARICOPA COUNTY AL CAP STAMPED "T1S R2E 1/4 S3 S4 2003 29891" ON EXISTING RB
7534	862370.928	643928.505	1139.549	FD 2 1/2" COP BC FL STAMPED"120005S"
7535	862325.459	633413.993	1068.5	FD 3" COP BC FL NOT STAMPED NOTE- CAP SET IN CONC.
7538	843815.671	625519.169	1134.814	FD 3/4" IP FLUSH. SET 3" MARICOPA COUNTY BC 0.2' DN STAMPED "T1S R2E 1/4 S21 S28 2003 29891" ON EXISTING IP
7539	843855.042	628202.77	1178.731	FD 2" IP 1.3' UP W/ 2 1/2" GLO BC STAMPED "T1S R2E S21 S22 S27 S28 1919"
7541	854414.553	635942.998	1203.715	FD 1/2" RB W/ 2" MC AL CAP 0.5' DN STAMPED "T1S R2E S11 1/4 S14 2003 29891"
7544	864978.908	622964.051	0	CALCULATED CORNER NOTHING SET.
7545	864955.242	615088.148	998.868	FD 2 3/4" MCDOT BC IN HH 0.8' DN STAMPED "T1S R2E"
7546	864946.55	612603.617	0	CALCULATED CORNER NOTHING SET.
7556	843879.785	651643.255	1672.062	FD 1/2" RB W/ 2" MARICOPA COUNTY AL CAP FL STAMPED "T1SR3E 1/4 S20 S29 2003 29891" ON EXISTING RB
7557	862339.886	638667.199	1096.082	FD 3" MCDOT BC IN HH 0.7' DN STAMPED "T1SR2E 2 1

Point Number	Northing	Easting	Elevation	Desciption
7560	843869.966	654284.627	1457.936	FD STN FL UNREADABLE
7561	843889.687	649002.207	2003.384	FD CHISSLED "X" AND 5 LINES ON EAST SIDE AND 2 LINES ON SOUTH SIDE OF "X" ON FACE OF ROCK OUTCROP
7564	843851.231	656867.54	1426.134	FD STN 0.8' UP MARKED "1/4" ON NORTH FACE OF STN AND ONE MARKING ON WEST AND EAST SIDE
7570	843842.355	659543.014	1703.566	FD STN 0.7' UP MARKED 3 LINES ON EAST FACE AND 2 LINES ON SOUTH FACE NOTE- 6"X6"X8"
7598	867594.679	607461.475	986.456	FD 3" MCHD BC IN HH 0.6' DN STAMPED "X"
7602	867583.133	612723.015	994.632	FD 4" MC ENG DEPT BC IN HH 0.3' DN NO STAMPING
7608	870233.111	602226.026	982.026	FD 1/2" RB W/O ID 1.3' DN, AFFIXED 2" MARICOPA COUNTY AL CAP STAMPED "T1NR1E S27 S27 S34 S35 2003 37174"
7609	870240.2	612686.683	997.492	FD 3" PHOENIX BC IN HH 0.45' DN NO STAMPING
13775	862331.155	622946.962	1037.1	CITY OF PHOENIX BRASS CAP IN HAND HOLE, NO STAMPING
4471	864951.698	604847.588	984.787	FD 1 1/4" IP FL W/ NO ID NO STAMPING NOTE- TO BE UPGRADED IN FUTURE PHASE.
4476	870234.072	604828.993	976.825	FD 1" RB W/O ID 0.5' UP, AFFIXED 3" MCDOT BC STAMPED "T1N R1E 1/4 S26 S35 2003 37174"
4478	870238.435	610046.058	988.583	FD 3" PHOENIX BC IN HH 0.35' DN NO STAMPING
4480	870236.652	607437.331	984.353	FD 4" MC ENG DEPT BC 0.3' DN NO STAMPING
7798	864999.758	649130.876	1157.261	FD 3" COP BC IN HH 0.5' DN. NOT STAMPED
7799	864996.535	660107.46	1179.866	FD 3" COP BC IN HH 0.45' DN. NOT STAMPED
7800	864995.194	657048.693	1178.401	SET 5/8" ROUND SSTL METAL ROD 0.1' DN W/ 3" MARICOPA COUNTY BC STAMPED "T1NR3E S33 T1SR3E 1/4 S4 2003 29891"
7801	864998.722	649559.301	1161.327	FD 3" COP BC IN HH 0.45' DN. NOT STAMPED
7805	864999.043	654421.428	0	CALCULATED CORNER NOTHING FOUND OR SET
7807	862357.731	659669.516	1221.481	FD 1" IP IN HH 0.5' DN. SET 2" MCDOT AL CAP STAMPED "T1S R3E 1/4 S4 S3 2003 29891" ON EXISTING IP
7810	865003.908	633422.915	1059.168	FD 2 3/4" COP BC IN HH 0.65' DN NOT STAMPED
7811	865000.885	630794.374	1048.802	FD 2 3/4" COP BC IN HH 0.45' DN NOT STAMPED
7812	865025.592	644294.605	1120.207	FD 3" MCDOT BC IN HH 0.4' DN STAMPED "36 S31 13168" NOTE- SET IN CONC
7814	865018.856	641647.26	1104.847	FD 3" MCDOT BC IN HH 0.3' DN STAMPED "1/4 S36 13168" NOTE- SET IN CONC
7815	859658.22	612561.992	1017.193	FD 2 1/2" IP 0.4' DN W/ 2" BC STAMPED "T1S R1E S1 S12 S6 S7 R2E LS15919"
7897	854393.623	617656.514	1023.579	FD 2 1/2" BC IN HH NOT STAMPED
7898	854385.973	620275.297	1029.144	FD 4" MCED BC IN HH NOT STAMPED
8015	854421.034	641267.598	1354.329	FD 1" IP 1' UP W/ 2 1/2" GLO BC STAMPED "1/4 S12 1919"
8030	859684.422	633405.544	1083.495	FD 1" IP 0.3' DN. SET 1/2" RB W/ 2" MARICOPA COUNTY AL CAP 0.2' DN STAMPED "T1S R2E S2 S3 S10 S11 2003 29891" IN CENTER OF EXISTING IP
8032	857059.262	638636.104	1156.717	FD 3" MCDOT BC IN HH 0.6' DN STAMPED "T1SR2E 11 12"
8033	857065.073	643869.222	1221.845	FD 3" CITY OF PHOENIX BC FL NOT STAMPED NOTE- DUE TO STREET IMPROVEMENT BC REPLACED NL NOTE- UPON RETURN TO UPGRADE POINT 51650-1 FD 51650-2 IN IT'S PLACE.
8034	854420.258	641240.878	1357.148	FD 1" IP 1.4' UP W/ 2 1/2" GLO BC STAMPED "1/4 S13 1919"
8035	857048.79	633401.63	1106.552	FD 1" IP 0.8' DN. SET 3" MCDOT BC STAMPED "T1S R2E 1/4 S10 S11 2003 29891" ON EXISTING IP
8042	849133.229	630669.662	1341.351	FD 1/2" RB SET 2" MARICOPA COUNTY AL CAP 0.6' UP STAMPED "T1SR2E 1/4 S15 S22 2003 29891" ON EXISTING RB
8043	849102.817	628219.374	1105.945	FD 3" PHOENIX BC IN HH 0.8' DN NOT STAMPED NOTE- POINT 51674-1 WAS ORIGINALLY FD, RETURNED LATER TO FIND POINT 51674-2 IN IT'S PLACE
8051	851748.128	622888.968	1051.564	FD 3" MCHD BC IN HH 0.4' DN NOT STAMPED
8052	851760.064	628225.09	1104.924	SET 1/2" RB W/ 2" MCDOT AL CAP 0.2' DN STAMPED "T1S R2E 1/4 S16 S15 2003 29891"
8053	851713.502	633305.555	1237.667	FD 1" IP 1.3' UP W/ 2 1/2" GLO BC STAMPED "1/4 S15 S14 1919"
8226	867634.343	633757.886	1052.41	FD 3" MCDOT BC IN HH 0.7' DN NO STAMPING
8227	870235.211	617959.077	1006.916	FD 3" PHOENIX BC IN HH 0.6' DN NO STAMPING
8228	867662.354	644294.845	1102.048	FD 3" PHOENIX BC IN HH 0.8' DN NO STAMPING
8229	867648.734	639029.869	1076.161	FD 3" MC HWY DPT BC IN HH 0.4' DN NO STAMPING
8230	870301.598	644304.342	1085.253	FD 3" PHOENIX BC IN HH 0.3' DN NO STAMPING
8231	870293.281	641677.352	1073.598	FD 3" PHOENIX BC IN HH 0.4' DN NO STAMPING
8232	867634.46	660134.329	1147.341	FD 3" PHOENIX BC IN HH 0.5' DN NO STAMPING
8234	867634.918	649557.511	1128.904	FD 3" AZ HWY DPT BC IN HH 0.7' DN STAMPED "ELEV STA"
8240	870270.036	649554.999	1102.951	FD 3" PHOENIX BC IN HH 0.5' DN NO STAMPING
8247	870285.533	639051.462	1064.733	FD 3" MCDOT BC IN HH 6' DN STAMPED "T1N R2E 26 25 35 36 LS 26411"
8249	867636.413	654831.938	1141.43	FD 3" PHOENIX BC IN HH 0.3' DN NO STAMPING
8252	870278.457	636417.287	1053.883	FD 3" MC HWY DPT BC IN HH 0.4' DN NO STAMPING
8987	841183.633	628190.741	1150.399	FD 1" IP 1.5' UP W/ 2 1/2" GLO BC STAMPED "1/4 S28 S27 1919"
9007	841215.906	628190.827	1149.271	FD 2" AL CAP 0.2' DN STAMPED "SC1 1/4 S27 S28 2000 RLS 21780"
9174	864972.475	620628.761	1008.454	FD 1" IP 0.6' DN. SET 3" MCDOT BC STAMPED "T1N R2E 1/4 S32 T1S R2E S5 2003 29891" ON EXISTING IP

Point Number	Northing	Easting	Elevation	Desciption
9175	864964.887	617720.454	0	CALCULATED CORNER NOTHING SET.
9177	854393.633	628232.106	1144.906	FD 2" IP 1.6' UP W/ 2 1/2" GLO BC STAMPED "S16 S15 T1S R2E 1919"
9178	864956.674	615391.045	999.46	FD 2 3/4" MCDOT BC IN HH 0.6' DN STAMPED "T1N R2E 31"
9179	864946.394	612759.124	996.518	FD 2 3/4" MCDOT BC IN HH 0.8' DN STAMPED "T1N R1E T1N R2E S36 S31"
9182	859730.445	643877.485	1153.829	FD 1/2" RB 0.15' DN. SET 2" MARICOPA COUNTY AL CAP 0.3' DN STAMPED "T1S R2E S1 S12 R3E S6 S7 2003 29891" ON EXISTING RB
9183	859692.192	636023.207	1096.576	FD 1" IP FLUSH. SET 3" MCDOT BC 0.1' DN STAMPED "T1S R2E 1/4 S2 S11 2003 29891" ON EXISTING IP
9184	859700.018	638642.129	1113.575	FD 3" MCDOT BC IN HH STAMPED "T1S R2E 1 2 11 12 "
9189	859715.304	641260.021	1125.836	FD 1/2" RB 0.5' DN. SET 3" MCDOT BC STAMPED "T1S R2E 1/4 S1 S12 2003 29891" ON EXISTING RB
9193	841239.999	654282.636	1379.078	FD STN 0.5' UP MARKED "1/4" WEST FACE NOTE- 6"X12"X6"
9200	841224.346	659541.417	1566.258	FD STN 0.5' UP MARKED "1/4" ON WEST FACE NOTE- 8"X8"X6"
9201	854393.846	628169.041	1140.628	FD 2" IP 2' UP W/ 2 1/2" GLO BC STAMPED "T1S R2E S9 S10 1919"
9202	854371.222	625532.84	1098.294	FD 1" IP 2' UP W/ 2 1/2" GLO BC STAMPED "1/4 S9 S16 1919"
9203	841267.429	648998.613	1383.547	FD STN 0.8' UP MARKED "1/4" WEST SIDE OF STN NOTE- 12"X8"X10"
9212	857083.79	659662.666	1533.279	FD 3 1/4" COP MOUNTAIN RESERVE AL CAP SET ON A STN THAT IS IN A 4.0' DIA STN MOUND. NOT STAMPED
9215	864965.954	618023.218	1003.209	FD 2 3/4" MCDOT BC IN HH 0.7' DN STAMPED "T1N R2E 31 32 T1SR2E 5 LS 26411"
10248	870238.915	620596.825	1012.526	SET 3" MARICOPA COUNTY BC FL STAMPED "T1NR2E 1/4 S29 S32 2006 RLS31610"
10249	870237.425	615314.58	1002.639	FD 3" PHOENIX BC IN HH 0.6' DN NO STAMPING
10254	870271.426	652183.08	1110.832	FD 3" AGENCY UNREADABLE BC IN HH 0.5' DN NO STAMPING
10256	870274.438	654825.964	1114.636	FD 3" PHOENIX BC IN HH 0.4' DN NO STAMPING
10257	870277.718	657465.276	1119.125	FD 3" PHOENIX BC IN HH 0.8' DN NO STAMPING
10259	870277.886	660108.747	1123.832	FD 3" PHOENIX BC IN HH 0.6' DN NO STAMPING
5057	857065.195	649141.046	1248.468	FD 1/2" RB 0.5' DN. SET 2" MARICOPA COUNTY AL CAP STAMPED "T1S R3E 1/4 S7 S8 2003 29891" ON EXISTING RB
5060	851791.004	638566.738	1529.134	FD 1" IP 1.1' UP W/ 2 1/2" GLO BC STAMPED "1/4 S14 S13 1919"
5063	854409.189	633397.801	1148.138	FD 2" IP 0.8' UP W/ 2 1/2" GLO BC STAMPED "T1S R2E S10 S11 1919" NOTE-IP BADLY BENT TO SOUTH SHOT TAKEN AT BASE OF IP AT GROUND
5064	854404.246	630781.225	1356.396	FD 1" IP 0.4' UP. SET 2" MCDOT AL CAP STAMPED "T1S R2E 1/4 S10 2003 29890" ON EXISTING IP
5204	865001.205	631086.924	1049.312	FD 2 3/4" COP BC IN HH 0.65' DN NOT STAMPED
5205	865011.771	638692.952	1084.964	FD 3" MCDOT BC IN HH 0.35' DN STAMPED "CC 1 2" NOTE- CAP SET IN CONC.
5207	851774.377	628224.932	1104.371	FD 3" COP BC IN HH 0.6' DN NOT STAMPED NOTE- SET IN CONC NOTE- UPON RETURN TO UPGRADE 51766-1 FD 5176-2 IN IT'S PLACE.
5209	846458.643	622881.177	1051.207	FD 2 3/4" MCHD BC IN HH 0.53' DN NOT STAMPED
5210	864999.092	654833.426	1178.179	FD 3" COP BC IN HH 0.35' DN. NOT STAMPED
5211	854419.412	638630.309	1255.897	FD 3" COP BC FL NOT STAMPED
5212	854414.266	636013.414	1205.625	FD 2 1/2" MCDOT BC IN HH 0.4' DN NOT STAMPED
5213	865008.579	636365.026	1071.818	FD 2 3/4" COP BC IN HH 0.5' DN NOT STAMPED
5214	849132.092	628219.402	1106.406	SET 1/2" RB W/ 2" MCDOT AL CAP 0.2' DN STAMPED "T1S R2E S16 S15 S22 2003 29891"
5215	865024.777	643975.105	1118.446	SET 5/8" ROUND SSTL METAL ROD 0.15' DN W/ 3" MARICOPA COUNTY BC STAMPED "T1NR2E S36 T1S R2E S1 R3E S6 2003 29891"
5218	864994.453	657469.504	1178.505	FD 3" COP BC IN HH 0.45' DN. NOT STAMPED
11465	867600.481	617991.1	1003.658	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP FLUSH STAMPED "T1NR2E 1/4 S31 S32 RLS 31610 2005" NOTE- SET CAP ON RB ALREADY FOUND
11554	867626.335	628479.953	1023.501	FD 3" PHOENIX BC IN HH 0.5' DN NO STAMPING
11555	867611.655	623234.538	1012.905	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP FLUSH STAMPED "T1NR2E 1/4 S32 S33 RLS 31610 2005"
6242	864971.656	620341.86	1007.829	FD CPS FL NOT MARKED. REMOVED & REPLACED W/ 1/2" RB W/ 2" MARICOPA COUNTY AL CAP 0.15' DN STAMPED "CC T1NR2E S32 T1SR2E 1/4 S5 2003 29891"
6243	864988.983	625842.622	1024.358	FD 3/4" ROUND IRON METAL ROD W/ NO ID. SET 2" MARICOPA COUNTY AL CAP STAMPED "T1NR2E 1/4 33 T1SR2E S4 2003 29891"
6248	849099.171	620247.976	1036.566	FD 1/2" RB 0.2' DN. SET 2" MARICOPA COUNTY AL CAP STAMPED "T1S R2E 1/4 S17 S20 2003 29891"
11828	870285.083	646932.01	1094.226	FD 3" PHOENIX BC IN HH 0.8' DN NO STAMPING
12086	870249.317	628510.712	1022.581	FD 3" MCDOT BC IN HH 0.5' DN NO STAMPING
12087	870246.279	625872.57	1019.651	FD 3" MC HWY DPT BC IN HH 0.8' DN NO STAMPING
12088	870243.215	623234.531	1014.492	FD 3" MC HWY DPT BC IN HH 0.5' DN NO STAMPING
12105	870261.852	633793.78	1038.953	FD 3" MC HWY DPT BC IN HH 0.5' DN NO STAMPING
12397	857119.622	654409.325	1329.544	FD 2 1/2" COP BC IN HH 0.5' DN. NOT STAMPED
12400	849119.297	622883.948	1054.442	FD 3" MCHD BC IN HH 0.4' DN NOT STAMPED
12401	849110.97	625524.226	1072.062	FD 3" COP BC IN HH 0.65' DN NOT STAMPED NOTE- SET IN CONC NOTE- UPON RETURN TO UPGRADE 51673-1 FD POINT 51673-2 IN IT'S PLACE.
12402	854378.336	622894.216	1038.24	FD 3" MCHD BC IN HH 0.5' DN NOT STAMPED
12403	854408.906	633304.113	1146.261	FD 1/2" RB INSIDE 2" IP 0.5' DN. SET 2" MCDOT AL CAP STAMPED "T1S R2E S15 S14 2003 29891" ON EXISTING RB

Point Number	Northing	Easting	Elevation	Desciption
12404	854403.386	630664.77	1349.035	SET 3" MCDOT BC STAMPED "T1S R2E 1/4 S15 2003 29891" ON EXISTING MR
13093	870255.688	631152.639	1027.197	FD 3" MC HWY DPT BC IN HH 0.5' DN NO STAMPING

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.7
1         National Geodetic Survey,   Retrieval Date = JUNE  5, 2015
 AJ3746 ***********************************************************************
 AJ3746  HT_MOD      -  This is a Height Modernization Survey Station.
 AJ3746  DESIGNATION -  2AF4
 AJ3746  PID         -  AJ3746
 AJ3746  STATE/COUNTY-  AZ/MARICOPA
 AJ3746  COUNTRY     -  US
 AJ3746  USGS QUAD   -  LONE BUTTE (1973)
 AJ3746
 AJ3746                        *CURRENT SURVEY CONTROL
 AJ3746  ___________________________________________________________________
 AJ3746* NAD 83(2011) POSITION- 33 21 40.37371(N) 112 02 55.75242(W)   ADJUSTED
 AJ3746* NAD 83(2011) ELLIP HT-   367.933 (meters)        (06/27/12)   ADJUSTED
 AJ3746* NAD 83(2011) EPOCH   -  2010.00
 AJ3746* NAVD 88 ORTHO HEIGHT -   397.73  (meters)     1304.9   (feet) GPS OBS
 AJ3746  ___________________________________________________________________
 AJ3746  NAVD 88 orthometric height was determined with geoid model    GEOID09
 AJ3746  GEOID HEIGHT    -        -29.78  (meters)                     GEOID09
 AJ3746  GEOID HEIGHT    -        -29.76  (meters)                     GEOID12B
 AJ3746  NAD 83(2011) X  - -2,001,935.870 (meters)                     COMP
 AJ3746  NAD 83(2011) Y  - -4,942,835.158 (meters)                     COMP
 AJ3746  NAD 83(2011) Z  -  3,487,690.379 (meters)                     COMP
 AJ3746  LAPLACE CORR    -          1.70  (seconds)                    DEFLEC12B
 AJ3746
 AJ3746  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AJ3746  Standards:
 AJ3746         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AJ3746            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 AJ3746  ---------------------------------------------------------------------
 AJ3746  NETWORK    0.82   1.10           0.35   0.32   0.56      0.04439008
 AJ3746  ---------------------------------------------------------------------
 AJ3746  Click here for local accuracies and other accuracy information.
 AJ3746
 AJ3746
 AJ3746.The horizontal coordinates were established by GPS observations
 AJ3746.and adjusted by the National Geodetic Survey in June 2012.
 AJ3746
 AJ3746.NAD 83(2011) refers to NAD 83 coordinates where the reference
 AJ3746.frame has been affixed to the stable North American tectonic plate. See
 AJ3746.NA2011 for more information.
 AJ3746
 AJ3746.The horizontal coordinates are valid at the epoch date displayed above
 AJ3746.which is a decimal equivalence of Year/Month/Day.
 AJ3746
 AJ3746.The orthometric height was determined by GPS observations and a
 AJ3746.high-resolution geoid model using precise GPS observation and
 AJ3746.processing techniques.
 AJ3746
 AJ3746.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AJ3746
 AJ3746.The Laplace correction was computed from DEFLEC12B derived deflections.
```

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AJ3746
AJ3746.The ellipsoidal height was determined by GPS observations
AJ3746.and is referenced to NAD 83.
AJ3746
AJ3746. The following values were computed from the NAD 83(2011) position.
AJ3746
AJ3746;                    North         East     Units Scale Factor Converg.
AJ3746;SPC AZ C     -   261,816.843   201,061.631   MT  0.99990186   -0 04 21.6
AJ3746;SPC AZ C     -   858,979.14    659,651.02   iFT  0.99990186   -0 04 21.6
AJ3746;UTM  12      - 3,691,823.587   402,422.605   MT  0.99971739   -0 34 36.5
AJ3746
AJ3746!             -  Elev Factor  x  Scale Factor =   Combined Factor
AJ3746!SPC AZ C     -   0.99994224  x   0.99990186  =   0.99984411
AJ3746!UTM  12      -   0.99994224  x   0.99971739  =   0.99965965
AJ3746
AJ3746                          SUPERSEDED SURVEY CONTROL
AJ3746
AJ3746  NAD 83(2007)-  33 21 40.37332(N)    112 02 55.75272(W) AD(2007.00) 0
AJ3746  ELLIP H (02/10/07)  367.940  (m)                       GP(2007.00)
AJ3746  NAD 83(1992)-  33 21 40.37259(N)    112 02 55.75191(W) AD(       ) B
AJ3746  ELLIP H (04/12/01)  367.972  (m)                       GP(       ) 3 2
AJ3746  NAVD 88 (04/12/01)  397.74   (m)  GEOID99 model used   GPS OBS
AJ3746
AJ3746.Superseded values are not recommended for survey control.
AJ3746
AJ3746.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ3746.See file dsdata.txt to determine how the superseded data were derived.
AJ3746
AJ3746_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SVB0242291823(NAD 83)
AJ3746
AJ3746_MARKER: DD = SURVEY DISK
AJ3746_SETTING: 66 = SET IN ROCK OUTCROP
AJ3746_STAMPING: 2AF4 1999
AJ3746_MARK LOGO: MCDOT
AJ3746_MAGNETIC: N = NO MAGNETIC MATERIAL
AJ3746_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
AJ3746+STABILITY: POSITION/ELEVATION WELL
AJ3746_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ3746+SATELLITE: SATELLITE OBSERVATIONS - October 20, 2005
AJ3746
AJ3746  HISTORY     - Date     Condition        Report By
AJ3746  HISTORY     - 1999     MONUMENTED       MCDOT
AJ3746  HISTORY     - 20051020 GOOD             MCDOT
AJ3746  HISTORY     - 20051020 GOOD             MCDOT
AJ3746
AJ3746                          STATION DESCRIPTION
AJ3746
AJ3746'DESCRIBED BY MARICOPA CO DOT 1999 (RJB)
AJ3746'THE STATION IS LOCATED WITHIN THE CITY OF PHOENIX, TOWNSHIP 01 SOUTH,
AJ3746'RANGE 03 EAST, SECTION 09
AJ3746'OWNERSHIP - CITY OF PHOENIX PARKS
AJ3746'TO REACH THE STATION FROM THE JUNCTION OF I-17 AND 24TH STREET (EXIT
AJ3746'150B) , DRIVE SOUTH ON 24TH STREET FOR 3. ROAD THENCE, TURN RIGHT
AJ3746'(SOUTH) ONTO BASELINE ROAD AND DRIVE 1.0 MI (1.6 KM) TO 16TH STREET
AJ3746'THENCE, TURN LEFT (SOUTH) ONTO 16TH STREET AND DRIVE 1.0 MI (1.6 KM)
AJ3746'TO THE INTERSECTION OF DOBBINS ROAD AND WINKWISE WAY (A DIRT ROAD)
AJ3746'THENCE, DRIVE (SOUTH) THRU DOBBINS ROAD ONTO WINKWISE WAY AND DRIVE
AJ3746'0.1 MI (0.2 KM) PARK AND HIKE 190 FT (57.9 M) UPHILL AND SOUTH TO THE
AJ3746'POINT AS DESCRIBED
AJ3746'MONUMENT DESCRIPTION - THE STATION IS MARKED BY A 3 1/4 INCH MARICOPA
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AJ3746'COUNTY D.O.T.  BRASS DISK, STAMPED (NOT KNOWN) , SET IN ROCK OUT CROP,
AJ3746'WITNESSED BY A WHITE CARSONITE MARKER
AJ3746'STATION TIES
AJ3746'12.1 FEET (3.7 M) SOUTH OF THE WHITE CARSONITE MARKER
AJ3746'FOR A TO REACH MAP, STATION IMAGES AND ADDITIONAL INFORMATION, YOU CAN
AJ3746'VISIT WWW.MCDOT.MARICOPA.GOV       SEARCH KEYWORD  GDACS
AJ3746
AJ3746                          STATION RECOVERY (2005)
AJ3746
AJ3746'RECOVERY NOTE BY MARICOPA CO DOT 2005 (BPD)
AJ3746'*********** VERY IMPORTANT *******************
AJ3746'ALTHOUGH THIS STATION IS IN THE CITY OF PHOENIX PARK YOU MUST TRAVEL
AJ3746'OVER PRIVATE LAND TO ACCESS THE MONUMENT. IF YOU WANT TO USE THIS
AJ3746'POINT IT IS IMPARITIVE YOU NOTIFY, GAIN PERMISSION AND SCHEDULE A TIME
AJ3746'WITH THE LAND OWNER'S REPRESENTIVE.
AJ3746'PLEASE SEND A LETTER WITH YOUR CONTACT INFORMATION TO-
AJ3746'
AJ3746'BILL WIESS
AJ3746'RE 2AF4 SURVEY CONTROL MONUMENT
AJ3746'1535 E. DOBBINS ROAD
AJ3746'PHOENIX  85042
AJ3746'
AJ3746'THANK YOU FOR YOUR UNDERSTANDING.
AJ3746'BRIAN DALAGER RLS
AJ3746'
AJ3746
AJ3746                          STATION RECOVERY (2005)
AJ3746
AJ3746'RECOVERY NOTE BY MARICOPA CO DOT 2005 (BPD)
AJ3746'ALTHOUGH THIS STATION IS IN THE CITY OF PHOENIX PARK YOU MUST TRAVEL
AJ3746'OVER PRIVATE LAND TO ACCESS THE MONUMENT. IF YOU WANT TO USE THIS
AJ3746'POINT IT IS IMPARITIVE YOU NOTIFY, GAIN PERMISSION AND SCHEDULE A TIME
AJ3746'WITH THE LAND OWNER'S REPRESENTIVE.
AJ3746'PLEASE SEND A LETTER WITH YOUR CONTACT INFORMATION TO-
AJ3746'
AJ3746'BILL WIESS
AJ3746'1535 E. DOBBINS ROAD
AJ3746'PHOENIX  85042
AJ3746'
AJ3746'THANK FOR YOUR UNDERSTANDING.

*** retrieval complete.
Elapsed Time = 00:00:03
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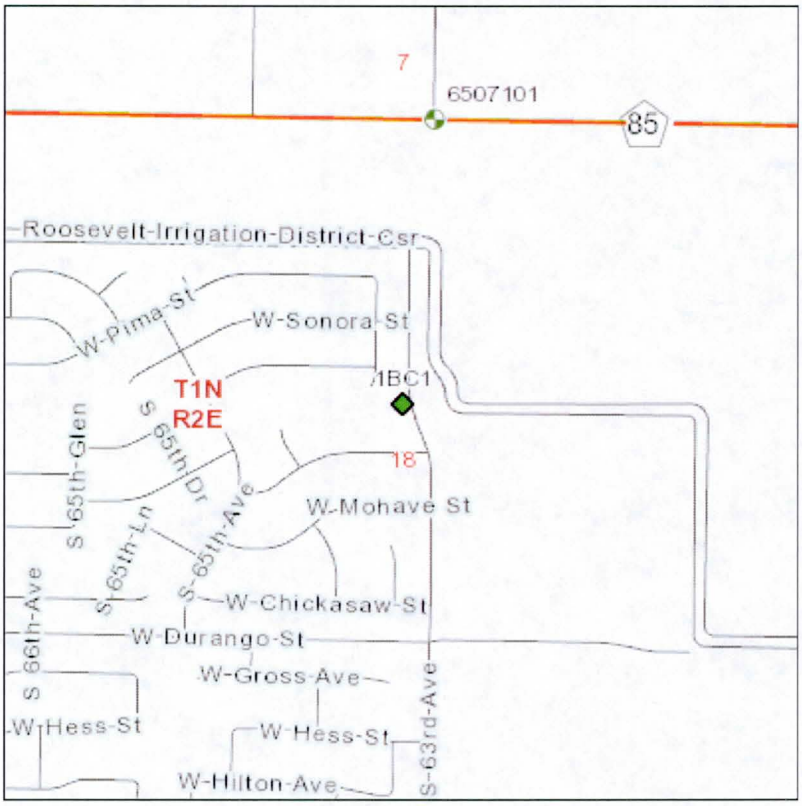
MCDOT Survey Primary Control Datasheet

Retrieval Date: 7/16/2015 2:26:38 PM GMT-0700 (US Mountain Standard Time)
Datum: NAD83
Epoch: 1992
Units: International Feet
Projection: NAD83
Zone: Arizona Central
Vert Datum: NAVD88

Current Date
Control Unique ID: 40
GPS Name: 1BC1
Alias:
NGS PID (if applicable): AJ3666
Original Primary Control: YES
Last Date Surveyed/Observed:
Date Published:
Coordinate Status: GOOD
Physical Status: GOOD
Subsidence Area: NO
Access Permission Needed: NO
Latitude: 33 25 59.45056 N
Longitude: 112 11 44.80846 W
Ellipsoid Height: 929.990
Northing: 885,252.336
Easting: 614,851.421
Elevation: 1,028.802
Comments:



The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

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PROGRAM = datasheet95, VERSION = 8.7
1         National Geodetic Survey,   Retrieval Date = JUNE  5, 2015
 AJ3647 ***********************************************************************
 AJ3647  HT_MOD       -  This is a Height Modernization Survey Station.
 AJ3647  DESIGNATION -  2BD1
 AJ3647  PID          -  AJ3647
 AJ3647  STATE/COUNTY-  AZ/MARICOPA
 AJ3647  COUNTRY      -  US
 AJ3647  USGS QUAD    -  LAVEEN (1973)
 AJ3647
 AJ3647                         *CURRENT SURVEY CONTROL
 AJ3647
 AJ3647* NAD 83(2011) POSITION- 33 20 01.92541(N) 112 08 44.81402(W)   ADJUSTED
 AJ3647* NAD 83(2011) ELLIP HT-   330.434 (meters)        (06/27/12)   ADJUSTED
 AJ3647* NAD 83(2011) EPOCH   -  2010.00
 AJ3647* NAVD 88 ORTHO HEIGHT -   360.38  (meters)     1182.3   (feet) GPS OBS
 AJ3647
 AJ3647  NAVD 88 orthometric height was determined with geoid model    GEOID09
 AJ3647  GEOID HEIGHT    -        -29.92  (meters)                     GEOID09
 AJ3647  GEOID HEIGHT    -        -29.92  (meters)                     GEOID12B
 AJ3647  NAD 83(2011) X  - -2,010,914.496 (meters)                     COMP
 AJ3647  NAD 83(2011) Y  - -4,940,955.592 (meters)                     COMP
 AJ3647  NAD 83(2011) Z  -  3,485,135.967 (meters)                     COMP
 AJ3647  LAPLACE CORR    -          5.13  (seconds)                   DEFLEC12B
 AJ3647
 AJ3647  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AJ3647  Standards:
 AJ3647         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AJ3647            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 AJ3647  ---------------------------------------------------------------------
 AJ3647  NETWORK    0.77   1.08          0.33   0.30   0.55     -0.00466768
 AJ3647  ---------------------------------------------------------------------
 AJ3647  Click here for local accuracies and other accuracy information.
 AJ3647
 AJ3647
 AJ3647.The horizontal coordinates were established by GPS observations
 AJ3647.and adjusted by the National Geodetic Survey in June 2012.
 AJ3647
 AJ3647.NAD 83(2011) refers to NAD 83 coordinates where the reference
 AJ3647.frame has been affixed to the stable North American tectonic plate. See
 AJ3647.NA2011 for more information.
 AJ3647
 AJ3647.The horizontal coordinates are valid at the epoch date displayed above
 AJ3647.which is a decimal equivalence of Year/Month/Day.
 AJ3647
 AJ3647.The orthometric height was determined by GPS observations and a
 AJ3647.high-resolution geoid model using precise GPS observation and
 AJ3647.processing techniques.
 AJ3647
 AJ3647.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AJ3647
 AJ3647.The Laplace correction was computed from DEFLEC12B derived deflections.
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AJ3647
AJ3647.The ellipsoidal height was determined by GPS observations
AJ3647.and is referenced to NAD 83.
AJ3647
AJ3647. The following values were computed from the NAD 83(2011) position.
AJ3647
AJ3647;                    North         East     Units Scale Factor Converg.
AJ3647;SPC AZ C     -   258,799.735   192,031.583   MT  0.99990561   -0 07 33.3
AJ3647;SPC AZ C     -   849,080.50    630,024.88   iFT  0.99990561   -0 07 33.3
AJ3647;UTM  12      - 3,688,886.534   393,367.953   MT  0.99974018   -0 37 46.9
AJ3647
AJ3647!             -  Elev Factor  x  Scale Factor =   Combined Factor
AJ3647!SPC AZ C     -   0.99994813  x   0.99990561  =   0.99985374
AJ3647!UTM  12      -   0.99994813  x   0.99974018  =   0.99968832
AJ3647
AJ3647                          SUPERSEDED SURVEY CONTROL
AJ3647
AJ3647  NAD 83(2007)-  33 20 01.92499(N)    112 08 44.81423(W) AD(2007.00) 0
AJ3647  ELLIP H (02/10/07)  330.443  (m)                       GP(2007.00)
AJ3647  NAD 83(1992)-  33 20 01.92424(N)    112 08 44.81356(W) AD(       ) B
AJ3647  ELLIP H (04/12/01)  330.473  (m)                       GP(       ) 3 2
AJ3647  NAVD 88 (04/12/01)  360.36   (m)  GEOID99 model used   GPS OBS
AJ3647
AJ3647.Superseded values are not recommended for survey control.
AJ3647
AJ3647.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AJ3647.See file dsdata.txt to determine how the superseded data were derived.
AJ3647
AJ3647_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUB9336788886(NAD 83)
AJ3647
AJ3647_MARKER: I = METAL ROD
AJ3647_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
AJ3647+WITH SETTING: INFORMATION.
AJ3647_STAMPING: 2BD1 1999
AJ3647_MARK LOGO: MCDOT
AJ3647_PROJECTION: FLUSH
AJ3647_MAGNETIC: B = BAR MAGNET IMBEDDED IN MONUMENT
AJ3647_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
AJ3647+STABILITY: POSITION/ELEVATION WELL
AJ3647_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ3647+SATELLITE: SATELLITE OBSERVATIONS - April 17, 2009
AJ3647_ROD/PIPE-DEPTH:  1.1 meters
AJ3647_SLEEVE-DEPTH  :  0.8 meters
AJ3647
AJ3647  HISTORY     - Date     Condition        Report By
AJ3647  HISTORY     - 1999     MONUMENTED       MCDOT
AJ3647  HISTORY     - 20070710 GOOD             GEOCAC
AJ3647  HISTORY     - 20090417 GOOD             GEOCAC
AJ3647
AJ3647                          STATION DESCRIPTION
AJ3647
AJ3647'DESCRIBED BY MARICOPA CO DOT 1999 (RJB)
AJ3647'THE STATION IS LOCATED WITHIN THE CITY OF PHOENIX SOUTH MOUNTAIN PARK,
AJ3647'TOWNSHIP 01 SOUTH, RANGE 02 EAST, SECTION 22
AJ3647'OWNERSHIP - CITY OF PHOENIX PARKS
AJ3647'TO REACH THE STATION FROM THE JUNCTION OF I-10 AND 51ST AVENUE (EXIT
AJ3647'139) , DRIVE SOUTH ON 51ST AVENUE FOR 8.75 MI (14.08 KM) TO ESTRELLA
AJ3647'DRIVE, THENCE TURN LEFT (EAST) DRIVE 1.0 MI (1.6 KM) TO 43RD AVENUE,
AJ3647'CONTINUE EAST ALONG ESTRELLA DRIVE 0.4 MI (0.6 KM) AND PARK ON THE
AJ3647'ROCK LINED ROAD AT THIS LOCATION THE STATION IS SET IN DESERT GRAVEL
```

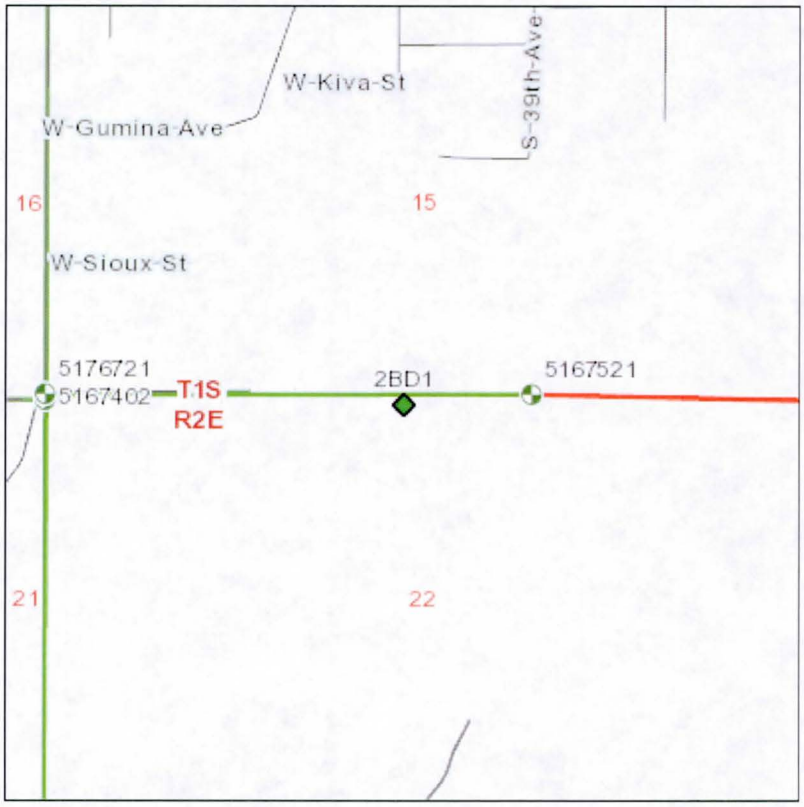
```
AJ3647'AREA ABOUT 30 FEET (9.1 M) SOUTHEASTERLY AS DESCRIBED
AJ3647'MONUMENT DESCRIPTION - THE STATION IS MARKED BY AN ALUMINUM CAP
AJ3647'COMPRESSED ON A 3.5 FOOT (1.1 M) STAINLESS STEEL ROD DRIVEN TO REFUSAL
AJ3647'ENCASED IN A 1INCH GREASED PVC SLEEVE ENCLOSED IN A 5 INCH PVC PIPE
AJ3647'WITH A COUNTY LOGO ACCESS COVER STAMPED 2BD1 1999, SURROUNDED WITH A
AJ3647'CONCRETE COLLAR FLUSH WITH THE GROUND, WITNESSED BY A WHITE CARSONITE
AJ3647'MARKER
AJ3647'STATION TIES
AJ3647'93 FEET (28.3 M) SOUTHEAST OF THE SOUTHEAST MOST FENCE CORNER OF THE O
AJ3647'S RANCH LOT
AJ3647'53 FEET (16.2 M) SOUTHEAST OF THE ALUMINUM CAP MARKER FOR THE CITY OF
AJ3647'PHOENIX MOUNTAIN PRESERVE
AJ3647'5.15 FEET (1.57 M) WEST OF A WHITE CARSONITE MARKER
AJ3647'FOR A TO REACH MAP, STATION IMAGES AND ADDITIONAL INFORMATION, YOU CAN
AJ3647'VISIT WWW.MCDOT.MARICOPA.GOV       SEARCH KEYWORD  GDACS
AJ3647
AJ3647                          STATION RECOVERY (2007)
AJ3647
AJ3647'RECOVERY NOTE BY GEOCACHING 2007 (ACM)
AJ3647'RECOVERED IN GOOD CONDITION.
AJ3647
AJ3647                          STATION RECOVERY (2009)
AJ3647
AJ3647'RECOVERY NOTE BY GEOCACHING 2009 (JM)
AJ3647'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02
```

MCDOT Survey Primary Control Datasheet

Retrieval Date: 7/16/2015 2:30:20 PM GMT-0700 (US Mountain Standard Time)
Datum: NAD83
Epoch: 1992
Units: International Feet
Projection: NAD83
Zone: Arizona Central
Vert Datum: NAVD88

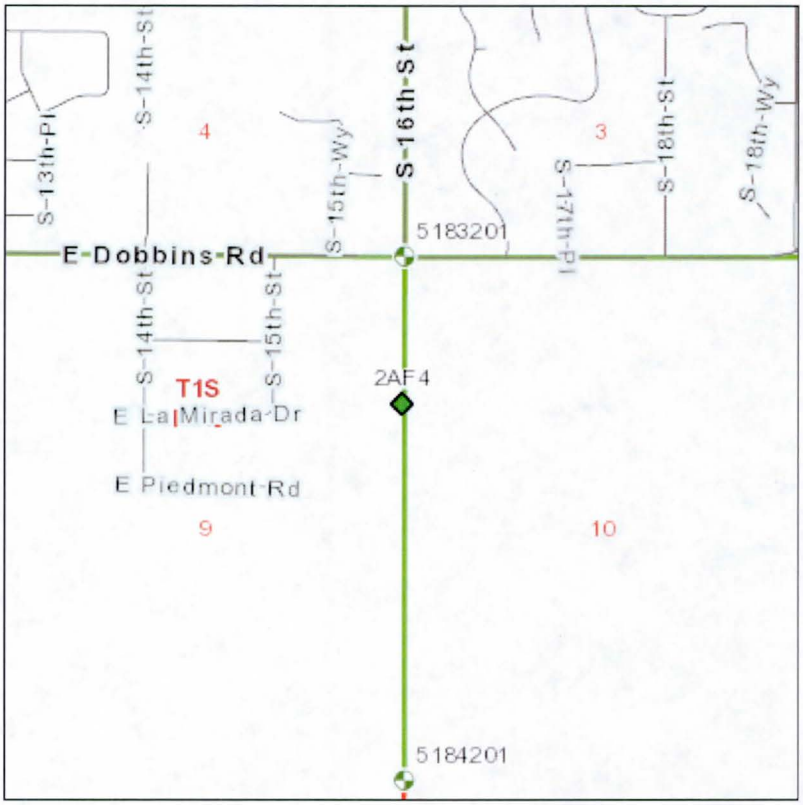
Current Date
Control Unique ID: 133
GPS Name: 2BD1
Alias:
NGS PID (if applicable): AJ3647
Original Primary Control: YES
Last Date Surveyed/Observed:
Date Published:
Coordinate Status: GOOD
Physical Status: GOOD
Subsidence Area: NO
Access Permission Needed: NO
Latitude: 33 20 1.92424 N
Longitude: 112 8 44.81356 W
Ellipsoid Height: 1,084.229
Northing: 849,080.377
Easting: 630,024.915
Elevation: 1,182.221
Comments:



MCDOT Survey Primary Control Datasheet

Retrieval Date: 7/16/2015 2:29:09 PM GMT-0700 (US Mountain Standard Time)
Datum: NAD83
Epoch: 1992
Units: International Feet
Projection: NAD83
Zone: Arizona Central
Vert Datum: NAVD88

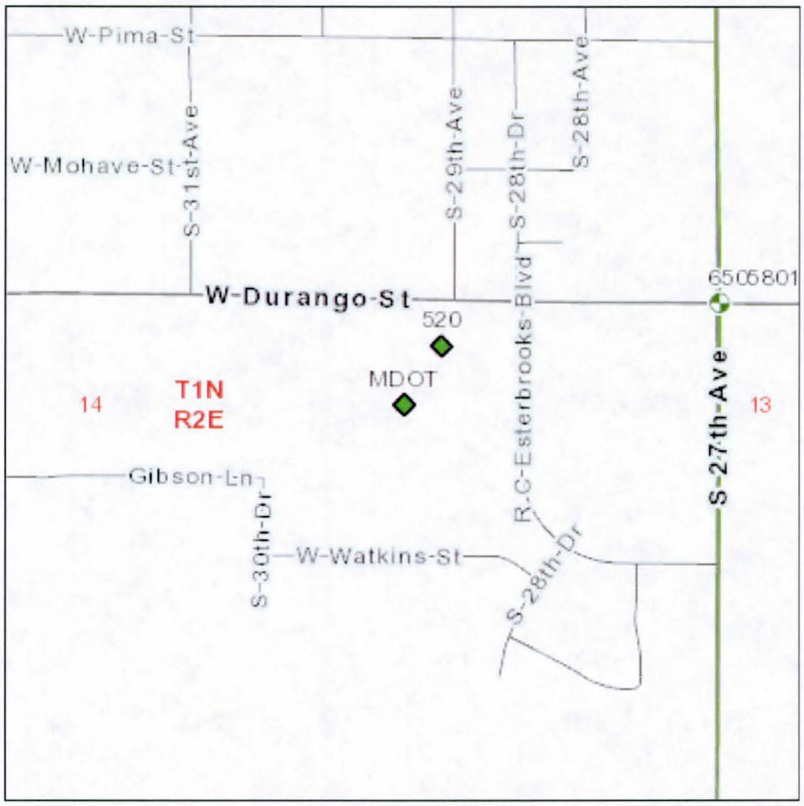
Current Date
Control Unique ID: 130
GPS Name: 2AF4
Alias:
NGS PID (if applicable): AJ3746
Original Primary Control: YES
Last Date Surveyed/Observed:
Date Published:
Coordinate Status: GOOD
Physical Status: GOOD
Subsidence Area: NO
Access Permission Needed: NO
Latitude: 33 21 40.37259 N
Longitude: 112 2 55.75191 W
Ellipsoid Height: 1,207.257
Northing: 858,979.032
Easting: 659,651.063
Elevation: 1,304.895
Comments:



MCDOT Survey Primary Control Datasheet

Retrieval Date: 7/16/2015 2:28:23 PM GMT-0700 (US Mountain Standard Time)
Datum: NAD83
Epoch: 1992
Units: International Feet
Projection: NAD83
Zone: Arizona Central
Vert Datum: NAVD88

Current Date
Control Unique ID: 502
GPS Name: MDOT
Alias:
NGS PID (if applicable): AJ3667
Original Primary Control: YES
Last Date Surveyed/Observed:
Date Published:
Coordinate Status: GOOD
Physical Status: GOOD
Subsidence Area: NO
Access Permission Needed: NO
Latitude: 33 25 41.36285 N
Longitude: 112 7 20.58289 W
Ellipsoid Height: 950.607
Northing: 883,372.028
Easting: 637,238.615
Elevation: 1,048.822
Comments:



Final Targets

Laveen Mapping Final Points

Target #	Point #	Northing (Y)	Easting (X)	Elev. (Z)	NOTE	NOTE	
Base	500	851713.629	633305.495	1237.749	BC	GDACS 8053 (51670-1)	FD 1" IP 1.3' UP W/ 2 1/2" GLO BC STAMPED "1/4 S15 S14 1919"
Base	501	867600.627	617991.043	1003.602	ALUM	GDACS 11465 (65000-1M)	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP FLUSH STAMPED "T1NR2E 1/4 S31 S32 RLS 31610 2005" NOTE- SET CAP ON RB ALREADY FOUND
Base	502	875544.416	631151.073	1029.508	ALUM	GDACS 11868 (65029-1M)	SET 2 INCH MARICOPA COUNTY ALUMINUM CAP 1.5 FEET DOWN STAMPED "T1NR2E 1/4 S22 S27 RLS 31610 2005" NOTE- SET CAP ON ALREADY SHOT PIPE
PP101	601	856549.221	652534.094	1332.274	PPT	RBR AL CAP	
PP102	602	854117.905	646746.618	1479.903	PPT	RBR AL CAP	
PP109	609	881229.916	641410.579	1051.346	PPT	P-K WASHER	
PP110	610	871318.401	646028.877	1084.688	PPT	P-K WASHER	
PP111	611	866099.076	647805.052	1135.266	PPT	P-K WASHER	
PP112	612	861500.085	651045.096	1225.877	PPT	P-K WASHER	
PP113	613	876661.979	644211.802	1067.374	PPT	P-K WASHER	
PP114	614	874494.989	624644.826	1015.824	PPT	RBR AL CAP	
PP115	615	869283.415	611998.280	993.901	PPT	P-K WASHER	
PP116	616	847092.273	630125.112	1305.166	PPT	RBR AL CAP	
PP117	617	857581.547	649126.088	1235.882	PPT	P-K WASHER	
PP119	619	869712.199	627683.975	1018.768	PPT	P-K WASHER	
PP120	620	874204.585	631086.787	1031.867	PPT	P-K WASHER	
PP121	621	865221.369	623847.451	1011.873	PPT	P-K WASHER	
PP122	622	867570.567	615300.969	997.598	PPT	P-K WASHER	
PP123	623	862953.682	618477.094	1014.543	PPT	P-K WASHER	
PP124	624	866762.382	620362.782	1004.576	PPT	P-K WASHER	
PP125	625	864671.418	630007.356	1046.534	PPT	P-K WASHER	
PP126	626	872912.640	635547.647	1037.148	PPT	P-K WASHER	
PP127	627	872023.431	640326.141	1058.486	PPT	RBR AL CAP	
PP129	629	853299.846	638639.998	1329.562	PPT	P-K WASHER	
PP130	630	859392.344	631684.088	1075.145	PPT	P-K WASHER	
PP131	631	868007.933	637969.427	1068.687	PPT	RBR AL CAP	
PP132	632	867274.178	643587.938	1100.759	PPT	P-K WASHER	
PP133	633	858168.292	621627.215	1033.743	PPT	P-K WASHER	
PP134	634	859217.030	638634.129	1119.830	PPT	P-K WASHER	
PP135	635	854915.690	628182.300	1127.096	PPT	P-K WASHER	
PP136	636	862976.918	640344.552	1105.852	PPT	P-K WASHER	
PP137	637	862352.895	646002.629	1154.189	PPT	RBR AL CAP	
PP139	639	860289.799	626492.737	1043.275	PPT	P-K WASHER	

PP140	640	853974.373	633312.463	1154.971	PPT	P-K WASHER
PP141	641	878139.760	633613.462	1036.785	PPT	P-K WASHER
PP142	642	863881.463	635218.917	1071.661	PPT	P-K WASHER
PP143	643	869215.549	633437.992	1043.190	PPT	P-K WASHER
PP144	644	857842.543	642490.953	1173.118	PPT	RBR AL CAP
PP145	645	871656.616	617854.292	1001.332	PPT	RBR AL CAP
ID201	701	852055.936	628915.276	1112.306	DRTS	Ground Shot
ID202	702	867282.554	628906.593	1028.295	SASMH	MH Rim
ID203	703	864590.746	644290.319	1119.635	SASMH	MH Rim
ID204	704	870592.699	622277.377	1013.849	BITS	Asphalt
ID205	705	848180.410	626426.312	1088.339	BITS	Asphalt
ID206	706	870509.544	636873.346	1053.125	SASMH	MH Rim
ID207	707	859533.409	646501.504	1180.240	WV	Water Valve Rim
ID208	708	853075.563	623731.789	1054.614	DRTS	Ground Shot
ID209	709	861738.883	637349.055	1091.563	BITS	Asphalt
ID210	710	861699.116	622910.647	1036.225	BITS	Asphalt
ID211	711	856073.053	638628.645	1187.977	SASMH	MH Rim
ID212	712	864989.511	609071.892	991.387	BITS	Asphalt
ID213	713	861938.121	630862.822	1058.523	EBX	2'X3' Junction Box Rim
ID214	714	864869.503	616229.675	1002.121	CONS	Cor. Concrete Pad
PP302	802	851577.008	655398.610	2180.190	PPT	RBR AL CAP
PP303	803	848364.017	646904.088	1727.856	PPT	RBR AL CAP
PP304	804	843548.824	634884.756	1318.393	PPT	RBR AL CAP
		From A-Team				
PP103		858436.118	615056.778	1022.051	SET 60D NAIL	
PP104		843812.078	622919.461	1069.209	SET 60D NAIL	
PP105		864988.034	604223.202	982.981	SET 60D NAIL	
PP106		850334.710	617150.682	1021.793	SET 60D NAIL	
PP107		854391.042	612672.806	1010.147	SET 60D NAIL	
PP108		858255.493	607292.550	1003.283	SET 60D NAIL	
PP118		862989.286	611502.643	991.256	SET 60D NAIL	
PP128		854419.495	619757.821	1028.358	SET 60D NAIL	
PP138		849667.156	622913.112	1054.596	SET 60D NAIL	
PP301		836314.226	626112.079	1080.859	SET 60D NAIL	

PP 101, WCI #601

PP 102, WCI #602

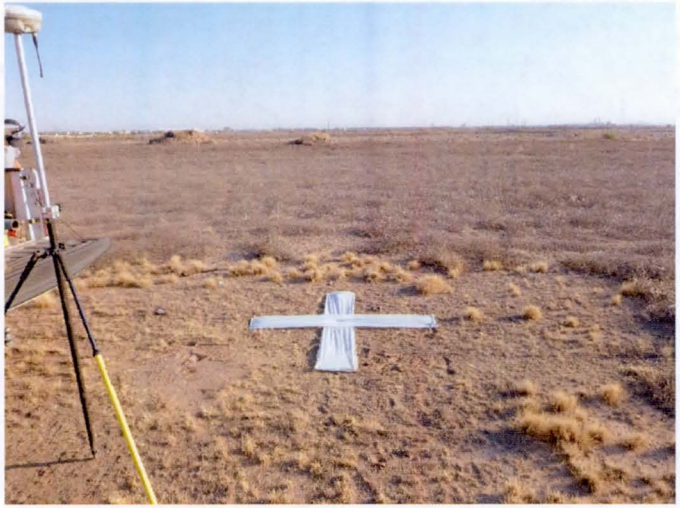
PP 109, WCI #609

PP 110, WCI #610

PP 111, WCI #611

PP 112, WCI #612

PP 113, WCI #613



PP 114, WCI #614

PP 115, WCI #615

PP 116, WCI #616

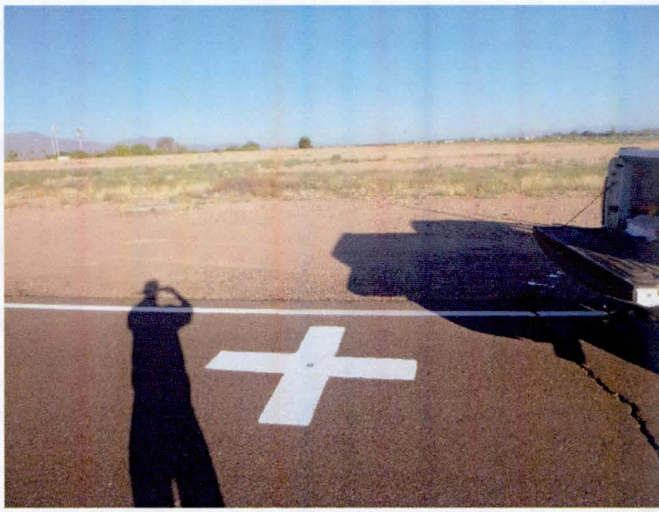
PP 117, WCI #617

PP 119, WCI #619

PP 120, WCI #620

PP 121, WCI #621

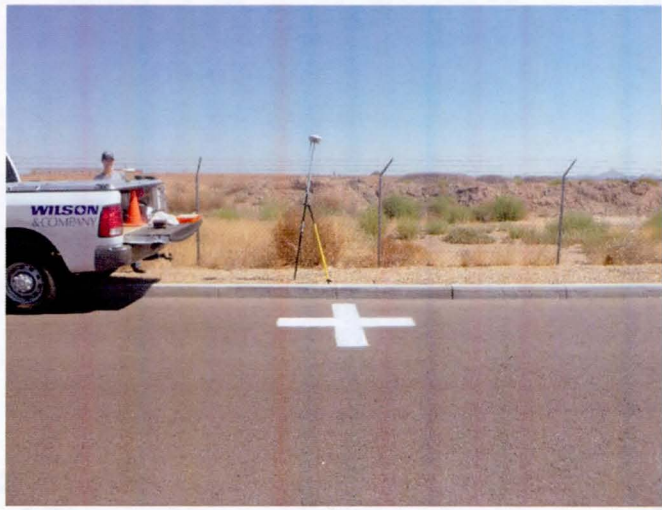
PP 122, WCI #622



PP123, WCI #623

PP 124, WCI #624

PP 125, WCI #625



PP 126, WCI #626

PP 127, WCI #627

PP 129, WCI #629

PP 130, WCI #630

PP 131, WCI #631

PP 132, WCI #632

PP 133, WCI #633

PP 134, WCI #634

PP 135, WCI #635

PP 136, WCI #636

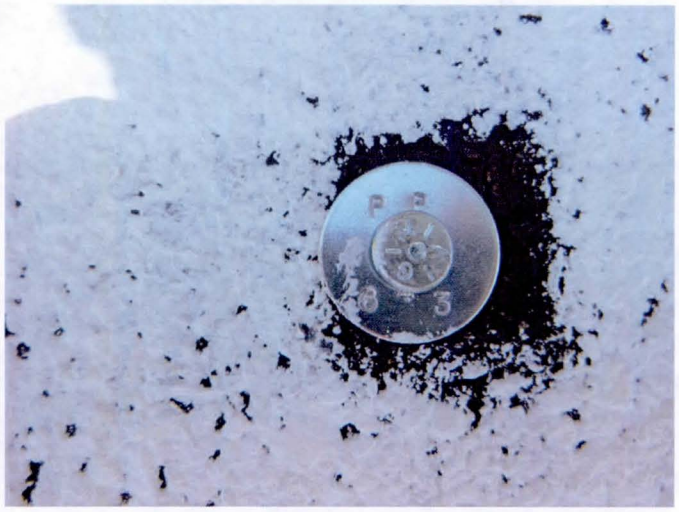
PP 137, WCI #637

PP 139, WCI #639

PP 140, WCI #640

PP 141, WCI #641

PP 142, WCI #642



PP 143, WCI #643

PP 144, WCI #644

PP 145, WCI #645

PP 302, WCI #802

PP 303, WCI #803

PP304, WCI #804

Field Data

WILSON & COMPANY
ENGINEERS & ARCHITECTS

ABGPS Base Station Observation Report

Project Name: Laveen Mapping
Location: Laveen AZ
Surveyor: RDG **Date:** 6/23/15

Station Information

Station Name: 500 GDACS NGS PID: 8053 (51670-1)

Estimated Position: N 33°20'28.04684" W112°08'06.20912" 1139.58' (Lat/Lon/Ellipsoid)

New Point? ☐ Set point type:

Antenna Information **Receiver (if separate)**

Make: Trimble
Model: R8-2
Serial Number: 4809145976

Vertical Height to ARP: 4.28 *Required

Measured Height To:
- ☐ Bottom of Antenna Mount
- ☑ Center of Bumper
- ☐ Other ARP

GNSS Yes/ No

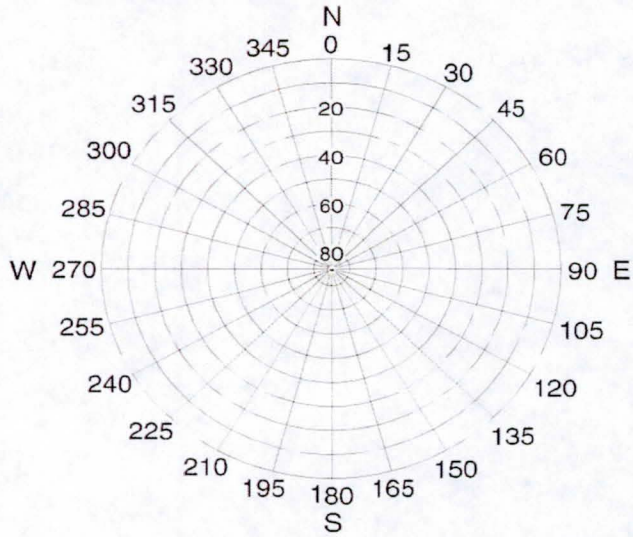
Observation Information

	Session 1 Time (local)	Session 1 Epoch		Session 2 Time (local)	Session 2 Epoch
Start:	6:55 AM	1 sec	Start:		
End:	4:05 PM	1 sec	End:		

Session Notes:

Site Photos/Sketch

Obstruction Diagram



Recovery Notes

WILSON & COMPANY
ENGINEERS & ARCHITECTS

ABGPS Base Station Observation Report

Project Name: Laveen Mapping
Location: Laveen AZ
Surveyor: RDG **Date:** 6/23/15

Station Information

Station Name: 501 GDACS ~~NGS~~ PID: 11465 (G5000-1M)

Estimated Position: N33°23'04.88229" W112°11'07.22075" 905.066' (Lat/Lon/Ellipsoid)

New Point? ☐ Set point type:

Antenna Information

Make: Trimble
Model: R8-2
Serial Number: 1732137112

Vertical Height to ARP: 5.65 *Required

Measured Height To:
- ☐ Bottom of Antenna Mount
- ☑ Center of Bumper
- ☐ Other ARP

GNSS Yes/ No

Receiver (if separate)

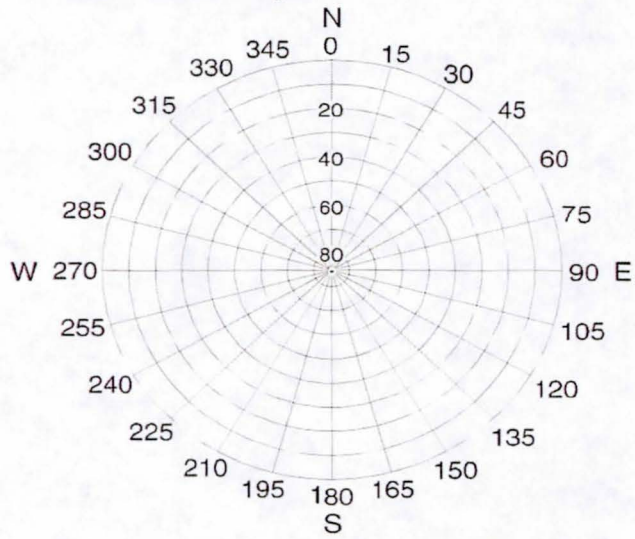
Observation Information

	Session 1 Time (local)	Session 1 Epoch		Session 2 Time (local)	Session 2 Epoch
Start:	10:25 AM	1 sec	Start:		
End:	5:00 PM	1 sec	End:		

Session Notes:

Site Photos/Sketch

Obstruction Diagram



Recovery Notes

WILSON & COMPANY
ENGINEERS & ARCHITECTS

ABGPS Base Station Observation Report

Project Name: Laveen Mapping
Location: Laveen AZ
Surveyor: RDG **Date:** 6/23/15

Station Information

Station Name: 502 GDACS ~~NGS~~ PID: 11868 (G5029-1M)

Estimated Position: N33°24'23.78957" W112°08'32.21375" 931.076' (Lat/Lon/Ellipsoid)

New Point? ☐ Set point type:

Antenna Information **Receiver (if separate)**

Make: Trimble
Model: R8-2
Serial Number: 4611110743

Vertical Height to ARP: 6.96 *Required

Measured Height To:
- ☐ Bottom of Antenna Mount
- ☑ Center of Bumper
- ☐ Other ARP

GNSS: Yes/ No

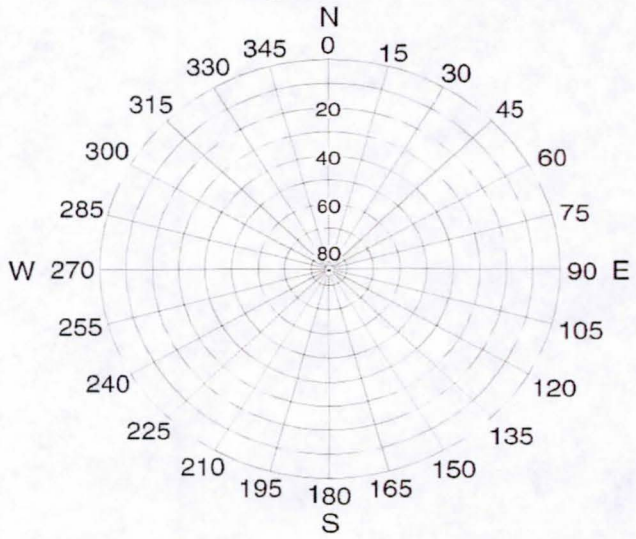
Observation Information

	Session 1 Time (local)	Session 1 Epoch		Session 2 Time (local)	Session 2 Epoch
Start:	10:05 AM	1 sec	Start:		
End:	4:40 PM	1 sec	End:		

Session Notes:

Site Photos/Sketch

Obstruction Diagram



Recovery Notes

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/23/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 8

POINT NAME: 500 GDACS (51670-1)

START TIME: 6:55

ANTENNA TYPE: R8-2

END TIME: 4:05

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 4.28

1.304

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

PAGE _____ **OF** _____

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/17/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 24

POINT NAME: 501 GDACS (65000-1M)

START TIME: 7:45

ANTENNA TYPE: R8-2

END TIME: 12:40

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 5.81

1.771

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

PAGE _____ **OF** _____

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/18/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 24

POINT NAME: 501 GDACS (65000-1M)

START TIME: 6:15

ANTENNA TYPE: R8-2

END TIME: 1:00

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 6.06

1.847

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

PAGE _____ **OF** _____

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/20/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 8

POINT NAME: 500 GDACS (51670-1)

START TIME: 5:40

ANTENNA TYPE: R8-2

END TIME: 1:05

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 4.31

1.314

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

PAGE _____ OF _____

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/23/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 24 rover

POINT NAME: 502 GDACS (65029-1M)

START TIME: 10:05

ANTENNA TYPE: R8-2

END TIME: 4:40

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 6.96

2.121

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

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WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/18/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 8

POINT NAME: 500 GDACS (51670-1)

START TIME: 5:30

ANTENNA TYPE: R8-2

END TIME: 12:30

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 4.7

1.432

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

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WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/17/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 8

POINT NAME: 500 GDACS (51670-1)

START TIME: 6:30

ANTENNA TYPE: R8-2

END TIME: 12:20

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 4.51 — 1.374

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

WILSON & COMPANY
GPS FAST STATIC POINT

PROJECT NAME: Laveen Mapping

DATE: 6/20/2015

PROJECT NUMBER: 15 300 007 04

OPERATOR: rdg

RECEIVER NUMBER: 24

POINT NAME: 502 GDACS (65029-1M)

START TIME: 6:20

ANTENNA TYPE: R8-2

END TIME: 1:20

ANTENNA HEIGHTS:

HEIGHT IN A DIFFERENT UNIT (FEET OR METERS):

AVERAGE 6.85

2.088

ANTENNA (MEASURED TO WHERE?): center/bumper

COMMENTS/MONUMENT DESCRIPTION:

SKETCH:

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