



REPORT OF SURVEY

Lower NC Pottawatomie - OK

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Prepared for

United States Geological Survey
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REPORT OF LiDAR SURVEY POTTAWATOMIE COUNTY, OKLAHOMA

INTRODUCTION

Terrasurv Inc. was tasked by Fugro-Earthdata International to perform a control survey in support of LiDAR mapping of a portion of Oklahoma, Pottawatomie, and Seminole Counties in central Oklahoma. The map in figure 1 shows the location of the survey, with flight lines, existing control used, and control established for the LiDAR project:

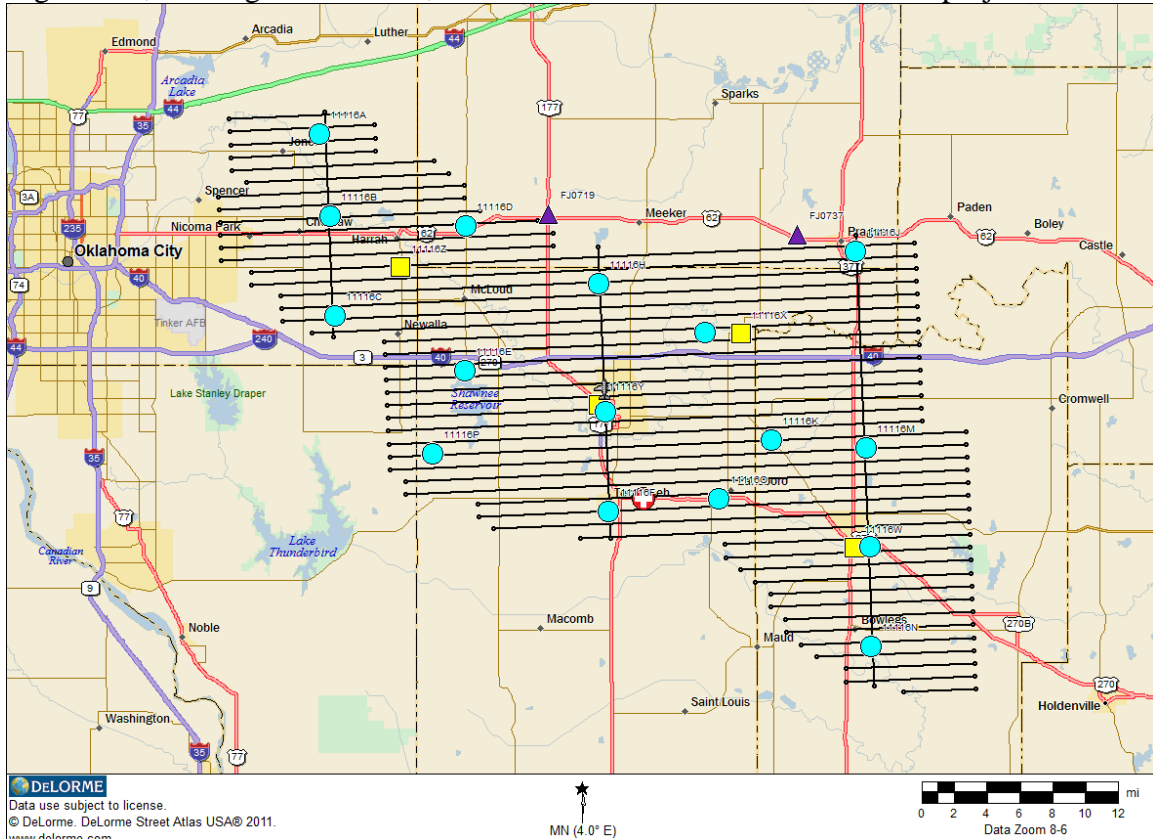


Figure 1-Project Map

The map legend is summarized below:

Symbol	Description	Quantity
Blue Circle	LiDAR Control Points	16
Yellow Square	Temporary base stations	4
Red circle/white cross	CORS	1
Airplane	ABGPS base stations	1
Purple triangle	NSRS benchmark	2

For control purposes, this project was combined with a similar project to the west in McIntosh County.

In addition, 60 Quality Control (QC) points were established, with 20 in each of three land cover categories (bare ground, high brush, and woods). These were set at 20 discrete

locations, with three points, one in each of the three categories, included at the 20 locations. The locations are shown in figure 2:

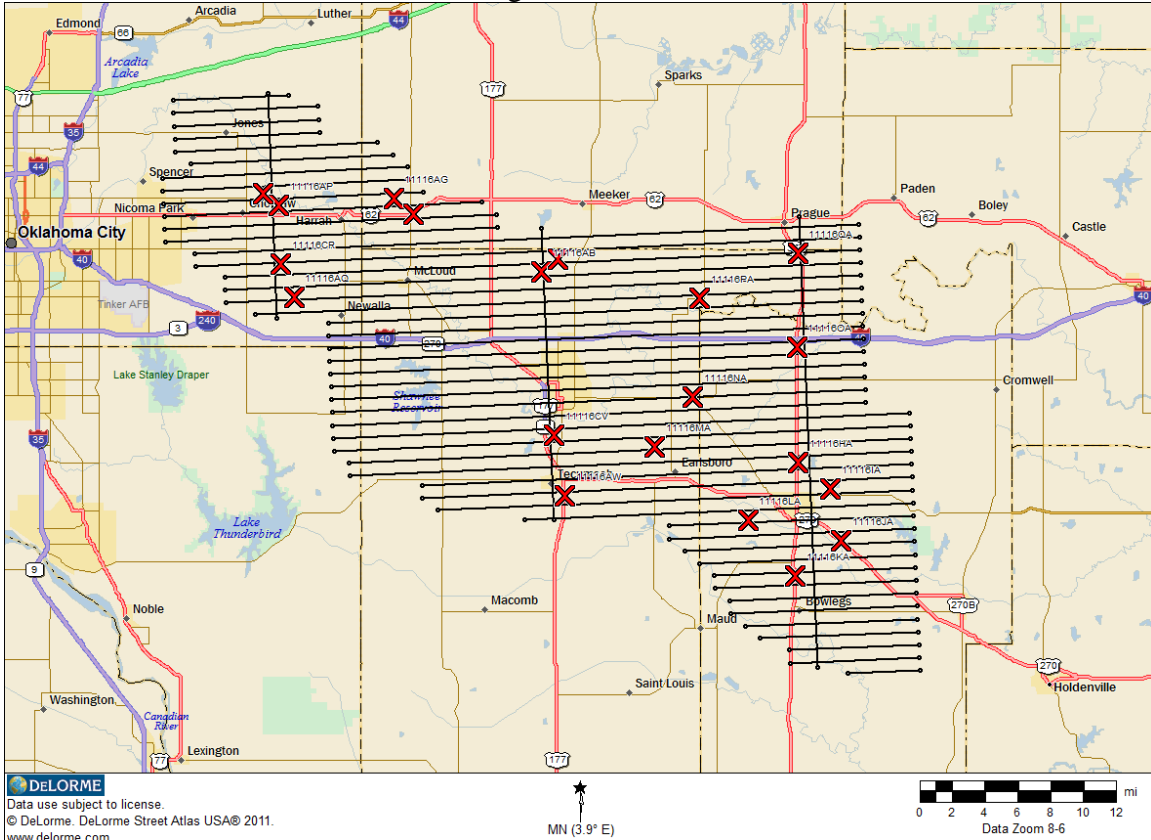


Figure 2 - QC Point Locations

CONTROL

The National Spatial Reference System (NSRS) was used to provide control for the network. The table below summarizes the existing control stations.

Station Name	PID	H Accuracy	V accuracy (ellip)	Ortho H Accuracy	Comments
HKLO	AF9526	CORS	CORS	HGT MOD	CORS
E 201	FH0867	-----	-----	1-II	NSRS ground
D 194	FJ0719	1.62 cm	3.59 cm	1-II	NSRS ground
E 201	FJ0737	-----	-----	1-II	NSRS ground
ORTE	DE7174	CORS	CORS	-----	CORS

The first two stations in the table above are in the area of McIntosh County. The horizontal datum was the North American Datum of 1983 (NSRS2007). The vertical datum was the North American Vertical Datum of 1988 (NAVD 1988). The GEOID09 model was used.

STATIONS

The following table contains a list of static GPS stations that were established or occupied for this project:

Station Name	GPSID	USGS Quad	Description
P-01	11116A	HORSESHOE LAKE	grass, on the east side of N Indian Meridian Rd, just north of a dirt drive & west of a brush area

Station Name	GPSID	USGS Quad	Description
P-02	11116B	HORSESHOE LAKE	cut grass, on the north side of NE 36th St, just east of a fenced in high pressure gas line
P-03	11116C	HARRAH	cut grass, on the south side of SE 44th St & east of S Triple X Rd, between a utility pole & a small planter with two trees
P-04	11116D	MCLOUD	sparse grass, on the east side of Hwy 102 & just south of a large drain ditch
P-05	11116E	SHAWNEE RESERVOIR	gravel, centerline of a gravel field access drive on the west side of Patterson Rd & south of the intersection with May Addition Rd
P-06	11116F	BROOKSVILLE	cut grass, on the southwest side of US 177 Business in the center of a grass field access road
P-07	11116G	SHAWNEE	cut grass, on the west side of N Kennedy Ave & east of a side walk & south of W Locust St
P-08	11116H	AYDELOTTE	grass, on the south shoulder of EW 108 Rd & north of a fence line
P-09	11116I	SHAWNEE NE	grass, on the north shoulder of EW 111 Rd & south of a low brush area
P-10	11116J	PRAGUE	bare ground, on the south shoulder of E 1060 Rd & north of a fence line & a utility pole
P-11	11116K	EARLSBORO	grass, on the northeast shoulder of Hwy 3E & northwest of the intersection with NS 3510 Rd
P-12	11116L	SEMINOLE	sparse grass, on the west shoulder of NS 3570 Rd & north of Park Heights Rd, just south of a drive apron
P-13	11116M	PRAGUE SW	grass, on the north shoulder of EW 118 Rd & south of a fence intersection
P-14	11116N	SEMINOLE	bare ground, in the center of a Y intersection of NS 357 & EW 130 Rd
P-15	11116O	EARLSBORO	grass, on the north shoulder of Hwy 270 & west of a dirt drive to the south
P-16	11116P	SHAWNEE RESERVOIR	bare ground, sandy area north of a dirt road and on the west side of NS 330 Rd
BASE	11116W	SEMINOLE	BASE
BASE	11116X	SHAWNEE NE	BASE
BASE	11116Y	SHAWNEE	BASE
BASE	11116Z	HARRAH	BASE
HZN0193	HZN0193	SHAWNEE	ABGPS point at Shawnee Airport

GPS OBSERVATIONS

For the LiDAR control (sixteen stations), two Trimble dual frequency receivers were used in a static differential mode to measure vectors from the two temporary base stations to each of the new stations and the NSRS benchmarks. Observations were made on days 361 and 362 of 2011. The following table summarizes the occupations (duration in minutes, HI in meters):

GPSID	start	duration	HI	Filename
HZN0193	12/8/11 19:55	448	1.800	BH193B11_30sec.11o
OKTE	12/8/11 19:55	448	0.000	OKTE3420.11o
11116Z	12/27/11 18:54	259	0.000	62073610.DAT
11116Y	12/27/11 23:38	62	0.000	62073611.DAT
11116B	12/27/11 19:08	19	2.000	81103610.DAT
11116A	12/27/11 19:39	17	2.000	81103611.DAT
11116C	12/27/11 20:18	14	2.000	81103612.DAT
11116P	12/27/11 20:52	22	2.000	81103613.DAT
11116E	12/27/11 21:26	14	2.000	81103614.DAT

GPSID	start	duration	HI	Filename
11116H	12/27/11 21:56	19	2.000	81103615.DAT
FJ0719	12/27/11 22:27	14	2.000	81103616.DAT
11116D	12/27/11 22:49	14	2.000	81103617.DAT
11116G	12/27/11 23:44	16	2.000	81103618.DAT
11116F	12/28/11 0:12	16	2.000	81103620.DAT
11116X	12/28/11 12:44	101	0.000	62073620.DAT
11116W	12/28/11 14:55	150	0.000	62073621.DAT
FJ0737	12/28/11 13:04	17	2.000	81103621.DAT
11116J	12/28/11 13:31	14	2.000	81103622.DAT
11116I	12/28/11 14:05	17	2.000	81103623.DAT
11116N	12/28/11 15:09	14	2.000	81103624.DAT
11116L	12/28/11 15:35	16	2.000	81103625.DAT
11116M	12/28/11 16:04	16	2.000	81103626.DAT
11116K	12/28/11 16:31	14	2.000	81103627.DAT
11116O	12/28/11 16:57	16	2.000	81103628.DAT
OKTE	12/27/11 18:53	366	0.000	okte361.11o
OKTE	12/28/11 12:43	676	0.000	okte362.11o

GPS DATA PROCESSING

The GPS data collected was downloaded to a PC and processed using the baseline processor in Trimble Business Center (TBC) version 2.64. The data was processed radially from the temporary base stations. The precise ephemeris (IGS Rapid) was used. In addition to the LiDAR control network observations were processed with data obtained by the flight crew on 12/8/11 at a temporary base station located at the Shawnee Airport. All solutions utilized the integer bias fixed solution. The table below summarizes the processing results:

From	To	UTC Start	Duration	Length	H. Prec	V. Prec
OKTE	HZN0193	12/08/11 19:55	448	11455	0.004	0.013
11116Y	11116F	12/28/11 00:12	16	10394	0.017	0.022
11116Y	11116G	12/27/11 23:44	16	912	0.005	0.007
11116Z	11116D	12/27/11 22:49	14	7563	0.011	0.021
11116Z	FJ0719	12/27/11 22:27	14	15202	0.013	0.028
11116Z	11116H	12/27/11 21:56	19	19476	0.034	0.056
11116Z	11116E	12/27/11 21:26	14	11911	0.016	0.016
11116Z	11116P	12/27/11 20:53	21	18460	0.011	0.015
11116Z	11116C	12/27/11 20:18	14	8002	0.012	0.029
11116Z	11116A	12/27/11 19:39	17	15187	0.019	0.039
OKTE	11116E	12/27/11 21:26	14	21465	0.013	0.015
OKTE	11116P	12/27/11 20:53	21	21115	0.012	0.015
OKTE	11116H	12/27/11 21:56	19	21381	0.010	0.013
OKTE	11116F	12/28/11 00:12	16	3657	0.011	0.013

From	To	UTC Start	Duration	Length	H. Prec	V. Prec
OKTE	11116G	12/27/11 23:44	16	9209	0.022	0.032
OKTE	11116Y	12/27/11 23:38	62	10077	0.012	0.050
OKTE	11116Z	12/27/11 18:54	259	32806	0.003	0.017
11116X	11116I	12/28/11 14:05	17	3517	0.008	0.012
11116X	11116J	12/28/11 13:31	14	13700	0.012	0.021
11116X	FJ0737	12/28/11 13:04	17	10777	0.011	0.024
11116W	11116O	12/28/11 16:57	16	14086	0.018	0.029
11116W	11116K	12/28/11 16:31	14	13234	0.016	0.030
11116W	11116M	12/28/11 16:04	16	9728	0.012	0.030
11116W	11116L	12/28/11 15:35	16	1545	0.005	0.010
11116W	11116N	12/28/11 15:09	14	9791	0.014	0.022
OKTE	11116W	12/28/11 14:55	150	21230	0.004	0.021
OKTE	11116O	12/28/11 16:57	16	7426	0.014	0.022
OKTE	11116K	12/28/11 16:31	14	13809	0.016	0.030
OKTE	11116X	12/28/11 12:44	101	18752	0.004	0.025
OKTE	11116I	12/28/11 14:05	17	17236	0.011	0.016

All of the baselines in this project meet the criteria for acceptable solutions.

LEAST SQUARES ADJUSTMENTS

The LiDAR control network was adjusted using GEOLAB, a least squares adjustment program from Microsearch Corp. The processed baselines were parsed to form an input file. No scaling of the apriori baseline statistics was done. Station errors (HI and centering) of 0.005 m were also included. Geoid separations for each station were interpolated using the GEOID09 model. This project was combined with a similar project to the east for the least squares adjustment.

The adjustment constrained the CORS **OKTE** horizontally (latitude and longitude), the CORS **HKLO** in all three dimensions (latitude, longitude, and orthometric height), and two of the NSRS benchmarks (**D 194** and **K 195**) in orthometric height only. The estimated variance factor was 2.27. The graph below in figure 2 shows the horizontal and vertical residuals versus baseline length for this constrained adjustment. This adjustment provided the adjusted positions and elevations for the stations in the network.

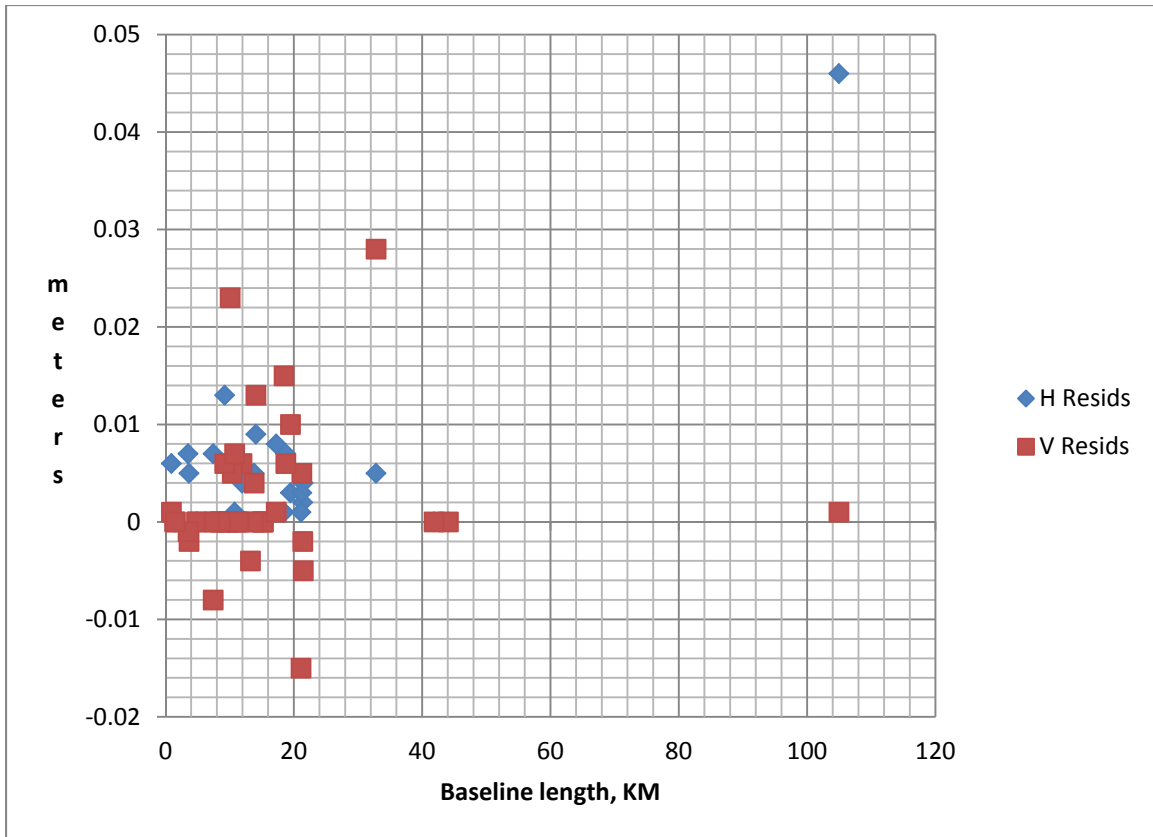


Figure 3-H & V residuals versus baseline length

The table below shows the 2-D and 1-D Station Confidence Regions (95.000 percent, in meters) for the stations in the network:

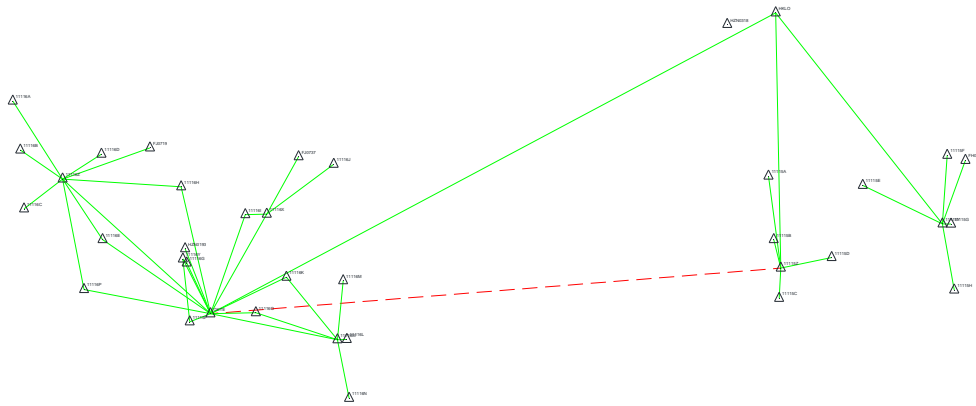
Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
11116A	0.043	179	0.034	0.068
11116B	0.037	180	0.034	0.047
11116C	0.036	5	0.035	0.056
11116D	0.036	167	0.034	0.047
11116E	0.026	12	0.022	0.032
11116F	0.025	3	0.024	0.035
11116G	0.028	166	0.023	0.041
11116H	0.023	46	0.023	0.035
11116I	0.024	180	0.023	0.031
11116J	0.039	177	0.037	0.047
11116K	0.027	158	0.023	0.045
11116L	0.034	160	0.033	0.045
11116M	0.038	152	0.036	0.062
11116N	0.040	11	0.036	0.054
11116O	0.027	150	0.023	0.040
11116P	0.024	9	0.022	0.032
11116W	0.021	153	0.020	0.037
11116X	0.023	1	0.022	0.029
11116Y	0.023	166	0.021	0.040
11116Z	0.019	21	0.018	0.027

QUALITY CONTROL SURVEYS

An additional survey requirement was to survey blind Quality Control (QC) points in three land cover classifications throughout the project area. The requirement was for 20 of each. The bare ground points were surveyed by static methods from temporary base stations and/or CORS. The high brush and forest/woods points were surveyed using a total station. The high brush and forest/woods points were surveyed by establishing an azimuth mark for each of the bare ground points, and utilizing a Trimble S6 high accuracy total station to traverse into nearby woods or brush areas to determine the coordinates and elevations of the QC points. This data was collected in January of 2012, and adjusted to be consistent and homogenous with the previously established LiDAR control points.

SUMMARY

A geodetic control network was established for LiDAR control for a portion of McIntosh County in east central Oklahoma. The resulting accuracy of the surveyed points is ± 0.05 m with respect to the NAD 1983 (2007)/NAVD 1988 coordinate systems.



Adjusted Coordinates – NAD 1983 (2007) /NAVD 1988

UTM Zone 14 meters

Ellipsoidal Height = NAVD1988 + GEOID09

Station Name	GPSID	Latitude	Longitude	Ortho Height	Ellip Height	UTM 14 Northing	UTM 14 Easting
P-01	11116A	35°34'49.49792" N	97°14'49.77124" W	370.079	342.769	3938825.874	658820.085
P-02	11116B	35°30'28.30257" N	97°14'06.60322" W	330.296	303.132	3930797.323	660050.832
P-03	11116C	35°25'14.08205" N	97°13'48.94153" W	367.357	340.383	3921123.625	660669.361
P-04	11116D	35°29'57.55286" N	97°05'18.83805" W	334.883	307.585	3930097.690	673365.885
P-05	11116E	35°22'22.64742" N	97°05'22.59889" W	343.183	316.177	3916079.133	673542.193
P-06	11116F	35°14'55.65977" N	96°56'07.85703" W	320.406	293.476	3902587.445	687829.288
P-07	11116G	35°20'09.84496" N	96°56'19.83214" W	323.076	295.971	3912262.038	687325.308
P-08	11116H	35°26'55.79904" N	96°56'45.14315" W	319.384	292.028	3924757.450	686426.385
P-09	11116I	35°24'20.32691" N	96°49'52.40783" W	309.177	281.773	3920189.262	696938.320
P-10	11116J	35°28'37.65646" N	96°40'10.50991" W	313.161	285.388	3928453.028	711431.547
P-11	11116K	35°18'42.36141" N	96°45'34.78813" W	297.301	269.984	3909920.089	703673.355
P-12	11116L	35°13'03.78649" N	96°39'12.42418" W	273.371	246.018	3899710.636	713577.912
P-13	11116M	35°18'16.66992" N	96°39'27.50432" W	312.059	284.557	3909342.974	712968.897
P-14	11116N	35°07'50.32784" N	96°39'06.83204" W	260.024	232.847	3890055.015	713947.485
P-15	11116O	35°15'36.65179" N	96°48'58.33814" W	285.334	258.215	3904082.944	698658.250
P-16	11116P	35°17'59.30743" N	97°07'29.32334" W	348.010	321.196	3907903.992	670497.730
BASE	11116W	35°13'03.27563" N	96°40'13.52111" W	262.734	235.416	3899658.516	712033.295
BASE	11116X	35°24'19.85531" N	96°47'33.02067" W	280.988	253.530	3920252.573	700455.111
BASE	11116Y	35°20'31.58314" N	96°56'44.32718" W	323.732	296.623	3912919.000	686692.934
BASE	11116Z	35°27'49.41019" N	97°09'34.71035" W	333.261	306.121	3926026.713	666992.264
HZN0193	HZN0193	35°21'25.67504" N	96°56'28.05503" W	323.432	296.285	3914594.263	687069.093

Oklahoma South Zone State Plane Coordinates



NAD83 (NSRS2007)/NAVD 1988

Station Name	GPSID	SPC N meters	SPC E meters	Ortho H meters	SPC N US ft	SPC E US ft	Ortho H US ft
P-01	11116A	249525.509	668241.997	370.079	818651.607	2192390.618	1214.168
P-02	11116B	241483.360	669389.921	330.296	792266.658	2196156.764	1083.646
P-03	11116C	231802.480	669908.864	367.357	760505.303	2197859.333	1205.237
P-04	11116D	240646.087	682698.656	334.883	789519.703	2239820.509	1098.695
P-05	11116E	226625.395	682730.319	343.183	743520.149	2239924.389	1125.926
P-06	11116F	212987.468	696878.268	320.406	698776.385	2286341.449	1051.199
P-07	11116G	222666.523	696473.753	323.076	730531.752	2285014.304	1059.959
P-08	11116H	235170.616	695703.922	319.384	771555.597	2282488.617	1047.846
P-09	11116I	230493.841	706167.888	309.177	756211.878	2316819.145	1014.358
P-10	11116J	238605.955	720745.274	313.161	782826.369	2364645.121	1027.429
P-11	11116K	220156.272	712795.933	297.301	722296.035	2338564.657	975.395
P-12	11116L	209846.639	722593.486	273.371	688471.849	2370708.797	896.885
P-13	11116M	219483.253	722083.910	312.059	720087.972	2369036.962	1023.814
P-14	11116N	200189.416	722863.910	260.024	656788.110	2371596.010	853.095
P-15	11116O	214371.610	707721.407	285.334	703317.522	2321915.982	936.133
P-16	11116P	218481.474	679601.906	348.010	716801.301	2229660.585	1141.763
BASE	11116W	209810.415	721048.664	262.734	688353.003	2365640.491	861.986
BASE	11116X	230520.706	709684.977	280.988	756300.015	2328358.129	921.875
BASE	11116Y	223329.959	695848.185	323.732	732708.374	2282961.920	1062.111
BASE	11116Z	236640.767	676282.667	333.261	776378.917	2218770.716	1093.374
HZN0193	HZN0193	225001.247	696241.586	323.432	738191.593	2284252.604	1061.126



QC POINTS

OK South Zone State Plane Coordinates – meters & feet

UTM Zone 14 – meters

NAD83 (NSRS2007)/NAVD1988

GPSID	SPC N meters	SPC E Meters	NAVD88 Meters	SPC N US ft	SPC E US ft	NAVD88 US ft	UTM N meters	UTM E meters	Description
11116AB	234482.080	695568.418	312.558	769296.625	2282044.050	1025.451	3924067.562	686298.020	BARE
11116AG	241488.915	681060.309	338.500	792284.882	2234445.363	1110.562	3930923.440	671719.065	BARE
11116AP	240738.670	669828.203	331.152	789823.454	2197594.696	1086.455	3930057.303	660496.708	BARE
11116AQ	231827.727	671431.383	372.664	760588.135	2202854.461	1222.648	3921164.520	662191.355	BARE
11116AW	212740.386	698117.786	332.402	697965.750	2290408.103	1090.556	3902353.080	689071.319	BARE
11116CA	235803.016	697167.060	295.685	773630.395	2287288.930	970.093	3925404.960	687882.866	BARE
11116CE	239976.984	683039.727	341.911	787324.490	2240939.504	1121.753	3929432.213	673713.829	BARE
11116CK	241862.973	668290.579	338.585	793512.103	2192550.009	1110.841	3931165.518	658947.802	BARE
11116CR	235022.729	670031.035	371.221	771070.405	2198260.153	1217.914	3924344.549	660758.389	BARE
11116CV	218602.903	696995.423	303.243	717199.692	2286725.815	994.890	3908203.936	687888.776	BARE
11116HA	216262.239	720913.101	293.431	709520.362	2365195.732	962.698	3906109.575	711831.250	BARE
11116IA	213752.784	724155.064	300.401	701287.259	2375832.072	985.566	3903633.306	715099.431	BARE
11116JA	208644.944	725284.807	258.393	684529.287	2379538.572	847.744	3898536.484	716281.921	BARE
11116KA	205230.973	720751.362	266.327	673328.616	2364665.093	873.774	3895075.527	711783.007	BARE
11116LA	210605.589	716159.370	282.108	690961.835	2349599.531	925.549	3900403.485	707135.380	BARE
11116MA	217626.034	706847.875	332.696	713994.745	2319050.071	1091.520	3907328.453	697751.209	BARE
11116NA	222458.288	710505.686	319.456	729848.567	2331050.739	1048.082	3912198.534	701359.262	BARE
11116OA	227502.366	720678.186	290.839	746397.347	2364425.014	954.194	3917348.156	711480.002	BARE
11116PA	232093.996	711032.462	286.818	761461.720	2332779.002	941.002	3921839.848	701786.283	BARE
11116QA	236640.971	720700.000	301.800	776379.587	2364496.585	990.155	3926487.491	711406.766	BARE
11116AA	234850.008	695588.917	317.142	770503.734	2282111.304	1040.490	3924435.674	686314.708	HIGH
11116AK	241476.243	681033.438	337.711	792243.307	2234357.205	1107.974	3930910.491	671692.330	HIGH
11116AO	240769.107	669825.583	330.647	789923.311	2197586.102	1084.798	3930087.707	660493.775	HIGH
11116AT	231836.705	671478.924	371.489	760617.589	2203010.436	1218.793	3921173.985	662238.796	HIGH



GPSID	SPC N meters	SPC E Meters	NAVD88 Meters	SPC N US ft	SPC E US ft	NAVD88 US ft	UTM N meters	UTM E meters	Description
11116AX	212689.877	698122.517	330.518	697800.036	2290423.626	1084.374	3902302.620	689076.568	HIGH
11116CB	235190.185	697138.727	297.325	771619.799	2287195.973	975.474	3924791.878	687860.884	HIGH
11116CH	239937.812	682824.050	337.686	787195.972	2240231.904	1107.891	3929390.815	673498.588	HIGH
11116CN	242290.667	668337.260	335.985	794915.297	2192703.162	1102.311	3931593.604	658990.062	HIGH
11116CT	235012.774	670041.165	371.798	771037.743	2198293.389	1219.807	3924334.700	660768.620	HIGH
11116CX	218531.088	696966.067	304.006	716964.079	2286629.504	997.393	3908131.822	687860.160	HIGH
11116HD	216123.892	720860.223	297.068	709066.468	2365022.249	974.631	3905970.669	711779.795	HIGH
11116ID	213659.337	724148.902	300.497	700980.674	2375811.855	985.881	3903539.785	715094.232	HIGH
11116JD	208525.454	725448.081	256.374	684137.260	2380074.244	841.120	3898418.658	716446.444	HIGH
11116KD	205209.187	720677.425	266.649	673257.141	2364422.518	874.831	3895052.980	711709.286	HIGH
11116LC	210461.073	716048.096	284.068	690487.705	2349234.462	931.980	3900257.815	707025.583	HIGH
11116MC	217651.327	706933.795	331.606	714077.729	2319331.958	1087.944	3907354.632	697836.869	HIGH
11116ND	222397.841	710611.610	316.912	729650.249	2331398.256	1039.735	3912139.179	701465.813	HIGH
11116OD	227480.545	720555.446	288.961	746325.754	2364022.326	948.033	3917325.059	711357.481	HIGH
11116PD	232049.493	710917.036	291.661	761315.711	2332400.309	956.891	3921794.146	701671.318	HIGH
11116QD	236415.404	720799.886	294.548	775639.538	2364824.293	966.363	3926262.954	711509.008	HIGH
11116AD	234390.924	695551.383	310.929	768997.556	2281988.162	1020.106	3923976.236	686281.930	WOODS
11116AI	241456.963	680943.618	336.893	792180.053	2234062.521	1105.290	3930890.285	671602.723	WOODS
11116AN	240819.134	669825.480	330.644	790087.443	2197585.761	1084.788	3930137.723	660493.155	WOODS
11116AS	231846.609	671526.666	372.594	760650.081	2203167.069	1222.419	3921184.378	662286.427	WOODS
11116AY	212637.468	698128.999	328.513	697628.094	2290444.891	1077.796	3902250.279	689083.587	WOODS
11116CD	236009.831	697193.234	287.649	774308.919	2287374.803	943.728	3925612.031	687906.896	WOODS
11116CJ	239977.844	682901.669	335.022	787327.311	2240486.560	1099.151	3929431.644	673575.782	WOODS
11116CP	241963.877	668265.856	336.773	793843.152	2192468.895	1104.896	3931266.146	658922.043	WOODS
11116CU	235000.161	669973.795	370.573	770996.363	2198072.358	1215.788	3924321.396	660701.392	WOODS
11116CY	218600.383	696892.873	303.278	717191.423	2286389.367	995.005	3908200.362	687786.256	WOODS
11116HC	216167.094	720869.113	295.818	709208.206	2365051.414	970.530	3906013.966	711788.240	WOODS



GPSID	SPC N meters	SPC E Meters	NAVD88 Meters	SPC N US ft	SPC E US ft	NAVD88 US ft	UTM N meters	UTM E meters	Description
11116IC	213681.958	724180.605	299.367	701054.891	2375915.869	982.173	3903562.736	715125.706	WOODS
11116JC	208495.451	725397.982	256.242	684038.825	2379909.880	840.687	3898388.136	716396.648	WOODS
11116KC	205198.422	720645.843	267.318	673221.823	2364318.903	877.026	3895041.890	711677.811	WOODS
11116LD	210590.916	716130.063	282.125	690913.698	2349503.380	925.605	3900388.510	707106.222	WOODS
11116MD	217596.937	706941.730	333.267	713899.285	2319357.993	1093.393	3907300.323	697845.365	WOODS
11116NC	222513.765	710719.183	313.972	730030.578	2331751.188	1030.090	3912256.218	701572.192	WOODS
11116OC	227431.008	720586.381	286.536	746163.231	2364123.817	940.077	3917275.840	711388.931	WOODS
11116PC	232068.340	710817.642	288.699	761377.546	2332074.213	947.173	3921811.962	701571.728	WOODS
11116QC	236373.976	720828.810	292.287	775503.618	2364919.186	958.945	3926221.826	711538.364	WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AB USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'33.50601" N Longitude: 96°56'50.80046" W Ellip H: 285.219 meters

Oklahoma South Zone State Plane Coordinates

Northing: 234,482.080	Easting: 695,568.418	Ortho H: 312.558 meters
Northing: 769,296.625	Easting: 2,282,044.050	Ortho H: 1,025.451 US Survey FT

UTM Zone 14 meters

Northing: 3,924,067.562 Easting: 686,298.020

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 111160A USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°22'37.44847" N Longitude: 96°40'18.96516" W Ellip H: 263.232 meters

Oklahoma South Zone State Plane Coordinates

Northing: 227,502.366	Easting: 720,678.186	Ortho H: 290.839 meters
Northing: 746,397.347	Easting: 2,364,425.014	Ortho H: 954.194 US Survey FT

UTM Zone 14 meters

Northing: 3,917,348.156 Easting: 711,480.002

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116JA USGS Quad: WEWOKA WEST

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°12'23.61881" N Longitude: 96°37'26.66503" W Ellip H: 230.994 meters

Oklahoma South Zone State Plane Coordinates

Northing: 208,644.944 Easting: 725,284.807 Ortho H: 258.393 meters

Northing: 684,529.287 Easting: 2,379,538.572 Ortho H: 847.744 US Survey FT

UTM Zone 14 meters

Northing: 3,898,536.484 Easting: 716,281.921

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116QA

USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°27'33.92647" N Longitude: 96°40'13.33218" W Ellip H: 274.058 meters

Oklahoma South Zone State Plane Coordinates

Northing: 236,640.971 Easting: 720,700.000 Ortho H: 301.800 meters

Northing: 776,379.587 Easting: 2,364,496.585 Ortho H: 990.155 US Survey FT

UTM Zone 14 meters

Northing: 3,926,487.491 Easting: 711,406.766

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116PA USGS Quad: SHAWNEE NE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'10.37279" N Longitude: 96°46'38.86789" W Ellip H: 259.308 meters

Oklahoma South Zone State Plane Coordinates

Northing: 232,093.996 Easting: 711,032.462 Ortho H: 286.818 meters

Northing: 761,461.720 Easting: 2,332,779.002 Ortho H: 941.002 US Survey FT

UTM Zone 14 meters

Northing: 3,921,839.848 Easting: 701,786.283

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116NA USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°19'57.95443" N Longitude: 96°47'04.34519" W Ellip H: 292.140 meters

Oklahoma South Zone State Plane Coordinates

Northing: 222,458.288	Easting: 710,505.686	Ortho H: 319.456 meters
Northing: 729,848.567	Easting: 2,331,050.739	Ortho H: 1,048.082 US Survey FT

UTM Zone 14 meters

Northing: 3,912,198.534 Easting: 701,359.262

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116MA USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'22.57543" N Longitude: 96°49'31.39541" W Ellip H: 305.532 meters

Oklahoma South Zone State Plane Coordinates

Northing: 217,626.034	Easting: 706,847.875	Ortho H: 332.696 meters
Northing: 713,994.745	Easting: 2,319,050.071	Ortho H: 1,091.520 US Survey FT

UTM Zone 14 meters

Northing: 3,907,328.453 Easting: 697,751.209

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116LA USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°13'31.12338" N Longitude: 96°43'26.43401" W Ellip H: 254.890 meters

Oklahoma South Zone State Plane Coordinates

Northing: 210,605.589 Easting: 716,159.370 Ortho H: 282.108 meters

Northing: 690,961.835 Easting: 2,349,599.531 Ortho H: 925.549 US Survey FT

UTM Zone 14 meters

Northing: 3,900,403.485 Easting: 707,135.380

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116KA USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°10'34.81715" N Longitude: 96°40'27.65357" W Ellip H: 239.104 meters

Oklahoma South Zone State Plane Coordinates

Northing: 205,230.973	Easting: 720,751.362	Ortho H: 266.327 meters
Northing: 673,328.616	Easting: 2,364,665.093	Ortho H: 873.774 US Survey FT

UTM Zone 14 meters

Northing: 3,895,075.527 Easting: 711,783.007

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116AQ USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'14.52040" N Longitude: 97°12'48.58633" W Ellip H: 345.675 meters

Oklahoma South Zone State Plane Coordinates

Northing: 231,827.727	Easting: 671,431.383	Ortho H: 372.664 meters
Northing: 760,588.135	Easting: 2,202,854.461	Ortho H: 1,222.648 US Survey FT

UTM Zone 14 meters

Northing: 3,921,164.520 Easting: 662,191.355

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116IA USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°15'09.84335" N Longitude: 96°38'08.59651" W Ellip H: 272.948 meters

Oklahoma South Zone State Plane Coordinates

Northing: 213,752.784	Easting: 724,155.064	Ortho H: 300.401 meters
Northing: 701,287.259	Easting: 2,375,832.072	Ortho H: 985.566 US Survey FT

UTM Zone 14 meters

Northing: 3,903,633.306 Easting: 715,099.431

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116CE USGS Quad: MLOUD

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°29'35.74453" N Longitude: 97°05'05.54710" W Ellip H: 314.622 meters

Oklahoma South Zone State Plane Coordinates

Northing: 239,976.984	Easting: 683,039.727	Ortho H: 341.911 meters
Northing: 787,324.490	Easting: 2,240,939.504	Ortho H: 1,121.753 US Survey FT

UTM Zone 14 meters

Northing: 3,929,432.213 Easting: 673,713.829

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116AW USGS Quad: BROOKSVILLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°14'47.21590" N Longitude: 96°55'18.93439" W Ellip H: 305.462 meters

Oklahoma South Zone State Plane Coordinates

Northing: 212,740.384	Easting: 698,117.786	Ortho H: 332.405 meters
Northing: 697,965.744	Easting: 2,290,408.103	Ortho H: 1,090.565 US Survey FT

UTM Zone 14 meters

Northing: 3,902,353.078 Easting: 689,071.319

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116CK USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'40.88682" N Longitude: 97°14'50.11122" W Ellip H: 311.424 meters

Oklahoma South Zone State Plane Coordinates

Northing: 241,862.972	Easting: 668,290.579	Ortho H: 338.584 meters
Northing: 793,512.101	Easting: 2,192,550.007	Ortho H: 1,110.838 US Survey FT

UTM Zone 14 meters

Northing: 3,931,165.517 Easting: 658,947.801

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116CA USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°27'15.81703" N Longitude: 96°55'46.86515" W Ellip H: 268.295 meters

Oklahoma South Zone State Plane Coordinates

Northing: 235,803.016	Easting: 697,167.060	Ortho H: 295.685 meters
Northing: 773,630.396	Easting: 2,287,288.930	Ortho H: 970.093 US Survey FT

UTM Zone 14 meters

Northing: 3,925,404.960 Easting: 687,882.866

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116CR USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'58.53287" N Longitude: 97°13'43.12371" W Ellip H: 344.181 meters

Oklahoma South Zone State Plane Coordinates

Northing: 235,022.729	Easting: 670,031.035	Ortho H: 371.221 meters
Northing: 771,070.405	Easting: 2,198,260.153	Ortho H: 1,217.914 US Survey FT

UTM Zone 14 meters

Northing: 3,924,344.549 Easting: 660,758.389

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116CV USGS Quad: SHAWNEE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'57.81949" N Longitude: 96°56'00.87653" W Ellip H: 276.206 meters

Oklahoma South Zone State Plane Coordinates

Northing: 218,602.903 Easting: 696,995.423 Ortho H: 303.243 meters

Northing: 717,199.692 Easting: 2,286,725.815 Ortho H: 994.890 US Survey FT

UTM Zone 14 meters

Northing: 3,908,203.936 Easting: 687,888.776

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116HA USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°16'32.66673" N Longitude: 96°40'15.52213" W Ellip H: 266.011 meters

Oklahoma South Zone State Plane Coordinates

Northing: 216,262.239 Easting: 720,913.101 Ortho H: 293.431 meters

Northing: 709,520.362 Easting: 2,365,195.732 Ortho H: 962.698 US Survey FT

UTM Zone 14 meters

Northing: 3,906,109.575 Easting: 711,831.250

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116AP USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'04.03373" N Longitude: 97°13'49.43810" W Ellip H: 303.999 meters

Oklahoma South Zone State Plane Coordinates

Northing: 240,738.670 Easting: 669,828.203 Ortho H: 331.152 meters
Northing: 789,823.454 Easting: 2,197,594.696 Ortho H: 1,086.455 US Survey FT

UTM Zone 14 meters

Northing: 3,930,057.303 Easting: 660,496.708

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116AG USGS Quad: LUTHER SE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'25.37257" N Longitude: 97°06'23.54192" W Ellip H: 311.203 meters

Oklahoma South Zone State Plane Coordinates

Northing: 241,488.915 Easting: 681,060.309 Ortho H: 338.500 meters
Northing: 792,284.882 Easting: 2,234,445.363 Ortho H: 1,110.562 US Survey FT

UTM Zone 14 meters

Northing: 3,930,923.440 Easting: 671,719.065

Description: BARE

Pottawatomie, OK Quality Control Points



GPSID: 11116AO USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'05.02186" N Longitude: 97°13'49.53283" W Ellip H: 303.493 meters

Oklahoma South Zone State Plane Coordinates

Northing: 240,769.107 Easting: 669,825.583 Ortho H: 330.647 meters
Northing: 789,923.311 Easting: 2,197,586.102 Ortho H: 1,084.798 US Survey FT

UTM Zone 14 meters

Northing: 3,930,087.707 Easting: 660,493.775

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116AT USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'14.79966" N Longitude: 97°12'46.69918" W Ellip H: 344.500 meters

Oklahoma South Zone State Plane Coordinates

Northing: 231,836.705	Easting: 671,478.924	Ortho H: 371.489 meters
Northing: 760,617.589	Easting: 2,203,010.436	Ortho H: 1,218.793 US Survey FT

UTM Zone 14 meters

Northing: 3,921,173.985 Easting: 662,238.796

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116AA USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'45.43615" N Longitude: 96°56'49.83561" W Ellip H: 289.795 meters

Oklahoma South Zone State Plane Coordinates

Northing: 234,850.008 Easting: 695,588.917 Ortho H: 317.142 meters
Northing: 770,503.734 Easting: 2,282,111.304 Ortho H: 1,040.490 US Survey FT

UTM Zone 14 meters

Northing: 3,924,435.674 Easting: 686,314.708

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116AK USGS Quad: LUTHER SE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'24.96915" N Longitude: 97°06'24.61253" W Ellip H: 310.416 meters

Oklahoma South Zone State Plane Coordinates

Northing: 241,476.243 Easting: 681,033.438 Ortho H: 337.711 meters
Northing: 792,243.307 Easting: 2,234,357.205 Ortho H: 1,107.974 US Survey FT

UTM Zone 14 meters

Northing: 3,930,910.491 Easting: 671,692.330

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116ND USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°19'55.95181" N Longitude: 96°47'00.18023" W Ellip H: 289.595 meters

Oklahoma South Zone State Plane Coordinates

Northing: 222,397.841 Easting: 710,611.610 Ortho H: 316.912 meters
Northing: 729,650.249 Easting: 2,331,398.256 Ortho H: 1,039.735 US Survey FT

UTM Zone 14 meters

Northing: 3,912,139.179 Easting: 701,465.813

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116JD USGS Quad: WEWOKA WEST

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°12'19.66959" N Longitude: 96°37'20.27503" W Ellip H: 228.973 meters

Oklahoma South Zone State Plane Coordinates

Northing: 208,525.454 Easting: 725,448.081 Ortho H: 256.374 meters

Northing: 684,137.260 Easting: 2,380,074.244 Ortho H: 841.120 US Survey FT

UTM Zone 14 meters

Northing: 3,898,418.658 Easting: 716,446.444

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116LC USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°13'26.48005" N Longitude: 96°43'30.90606" W Ellip H: 256.854 meters

Oklahoma South Zone State Plane Coordinates

Northing: 210,461.073 Easting: 716,048.096 Ortho H: 284.068 meters

Northing: 690,487.705 Easting: 2,349,234.462 Ortho H: 931.980 US Survey FT

UTM Zone 14 meters

Northing: 3,900,257.815 Easting: 707,025.583

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116AX USGS Quad: BROOKSVILLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°14'45.57541" N Longitude: 96°55'18.76857" W Ellip H: 303.580 meters

Oklahoma South Zone State Plane Coordinates

Northing: 212,689.875 Easting: 698,122.518 Ortho H: 330.521 meters
Northing: 697,800.032 Easting: 2,290,423.627 Ortho H: 1,084.384 US Survey FT

UTM Zone 14 meters

Northing: 3,902,302.618 Easting: 689,076.569

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116HD USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°16'28.20060" N Longitude: 96°40'17.68628" W Ellip H: 269.651 meters

Oklahoma South Zone State Plane Coordinates

Northing: 216,123.892	Easting: 720,860.223	Ortho H: 297.068 meters
Northing: 709,066.468	Easting: 2,365,022.249	Ortho H: 974.631 US Survey FT

UTM Zone 14 meters

Northing: 3,905,970.669 Easting: 711,779.795

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116MC USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'23.36364" N Longitude: 96°49'27.98372" W Ellip H: 304.440 meters

Oklahoma South Zone State Plane Coordinates

Northing: 217,651.327 Easting: 706,933.795 Ortho H: 331.606 meters
Northing: 714,077.729 Easting: 2,319,331.958 Ortho H: 1,087.944 US Survey FT

UTM Zone 14 meters

Northing: 3,907,354.632 Easting: 697,836.869

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116KD USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°10'34.14178" N Longitude: 96°40'30.58668" W Ellip H: 239.428 meters

Oklahoma South Zone State Plane Coordinates

Northing: 205,209.187 Easting: 720,677.425 Ortho H: 266.649 meters

Northing: 673,257.141 Easting: 2,364,422.518 Ortho H: 874.831 US Survey FT

UTM Zone 14 meters

Northing: 3,895,052.980 Easting: 711,709.286

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116CX USGS Quad: SHAWNEE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'55.49945" N Longitude: 96°56'02.06837" W Ellip H: 276.970 meters

Oklahoma South Zone State Plane Coordinates

Northing: 218,531.088 Easting: 696,966.067 Ortho H: 304.006 meters

Northing: 716,964.079 Easting: 2,286,629.504 Ortho H: 997.393 US Survey FT

UTM Zone 14 meters

Northing: 3,908,131.822 Easting: 687,860.160

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116ID USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°15'06.81412" N Longitude: 96°38'08.89020" W Ellip H: 273.046 meters

Oklahoma South Zone State Plane Coordinates

Northing: 213,659.337 Easting: 724,148.902 Ortho H: 300.497 meters

Northing: 700,980.674 Easting: 2,375,811.855 Ortho H: 985.881 US Survey FT

UTM Zone 14 meters

Northing: 3,903,539.785 Easting: 715,094.232

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116CT USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'58.20736" N Longitude: 97°13'42.72506" W Ellip H: 344.758 meters

Oklahoma South Zone State Plane Coordinates

Northing: 235,012.774	Easting: 670,041.165	Ortho H: 371.798 meters
Northing: 771,037.743	Easting: 2,198,293.389	Ortho H: 1,219.807 US Survey FT

UTM Zone 14 meters

Northing: 3,924,334.700 Easting: 660,768.620

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 111160D USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°22'36.79286" N Longitude: 96°40'23.83866" W Ellip H: 261.357 meters

Oklahoma South Zone State Plane Coordinates

Northing: 227,480.545 Easting: 720,555.446 Ortho H: 288.961 meters

Northing: 746,325.754 Easting: 2,364,022.326 Ortho H: 948.033 US Survey FT

UTM Zone 14 meters

Northing: 3,917,325.059 Easting: 711,357.481

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116CN USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'54.75163" N Longitude: 97°14'48.13225" W Ellip H: 308.815 meters

Oklahoma South Zone State Plane Coordinates

Northing: 242,290.667 Easting: 668,337.260 Ortho H: 335.983 meters
Northing: 794,915.296 Easting: 2,192,703.160 Ortho H: 1,102.304 US Survey FT

UTM Zone 14 meters

Northing: 3,931,593.604 Easting: 658,990.061

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116CH USGS Quad: MLOUD

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°29'34.53699" N Longitude: 97°05'14.11728" W Ellip H: 312.137 meters

Oklahoma South Zone State Plane Coordinates

Northing: 239,937.812 Easting: 682,824.050 Ortho H: 339.423 meters
Northing: 787,195.972 Easting: 2,240,231.904 Ortho H: 1,113.590 US Survey FT

UTM Zone 14 meters

Northing: 3,929,390.815 Easting: 673,498.588

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116PD USGS Quad: SHAWNEE NE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'08.97426" N Longitude: 96°46'43.46407" W Ellip H: 264.155 meters

Oklahoma South Zone State Plane Coordinates

Northing: 232,049.493 Easting: 710,917.036 Ortho H: 291.661 meters
Northing: 761,315.711 Easting: 2,332,400.309 Ortho H: 956.891 US Survey FT

UTM Zone 14 meters

Northing: 3,921,794.146 Easting: 701,671.318

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116CB USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'55.94413" N Longitude: 96°55'48.24619" W Ellip H: 269.949 meters

Oklahoma South Zone State Plane Coordinates

Northing: 235,190.185 Easting: 697,138.727 Ortho H: 297.325 meters

Northing: 771,619.799 Easting: 2,287,195.973 Ortho H: 975.474 US Survey FT

UTM Zone 14 meters

Northing: 3,924,791.878 Easting: 687,860.884

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116QD USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°27'26.56572" N Longitude: 96°40'09.48933" W Ellip H: 266.808 meters

Oklahoma South Zone State Plane Coordinates

Northing: 236,415.404 Easting: 720,799.886 Ortho H: 294.548 meters

Northing: 775,639.538 Easting: 2,364,824.293 Ortho H: 966.363 US Survey FT

UTM Zone 14 meters

Northing: 3,926,262.954 Easting: 711,509.008

Description: HIGH

Pottawatomie, OK Quality Control Points



GPSID: 11116PC USGS Quad: SHAWNEE NE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'09.62474" N Longitude: 96°46'47.39445" W Ellip H: 261.194 meters

Oklahoma South Zone State Plane Coordinates

Northing: 232,068.340 Easting: 710,817.642 Ortho H: 288.699 meters

Northing: 761,377.546 Easting: 2,332,074.213 Ortho H: 947.173 US Survey FT

UTM Zone 14 meters

Northing: 3,921,811.962 Easting: 701,571.728

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116NC USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°19'59.67089" N Longitude: 96°46'55.86574" W Ellip H: 286.651 meters

Oklahoma South Zone State Plane Coordinates

Northing: 222,513.765 Easting: 710,719.183 Ortho H: 313.972 meters
Northing: 730,030.578 Easting: 2,331,751.188 Ortho H: 1,030.090 US Survey FT

UTM Zone 14 meters

Northing: 3,912,256.218 Easting: 701,572.192

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116MD USGS Quad: EARLSBORO

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'21.59593" N Longitude: 96°49'27.69476" W Ellip H: 306.102 meters

Oklahoma South Zone State Plane Coordinates

Northing: 217,596.937 Easting: 706,941.730 Ortho H: 333.267 meters
Northing: 713,899.285 Easting: 2,319,357.993 Ortho H: 1,093.393 US Survey FT

UTM Zone 14 meters

Northing: 3,907,300.323 Easting: 697,845.365

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116QC USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°27'25.20929" N Longitude: 96°40'08.36412" W Ellip H: 264.547 meters

Oklahoma South Zone State Plane Coordinates

Northing: 236,373.976	Easting: 720,828.810	Ortho H: 292.287 meters
Northing: 775,503.618	Easting: 2,364,919.186	Ortho H: 958.945 US Survey FT

UTM Zone 14 meters

Northing: 3,926,221.826 Easting: 711,538.364

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116LD USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°13'30.65934" N Longitude: 96°43'27.60017" W Ellip H: 254.908 meters

Oklahoma South Zone State Plane Coordinates

Northing: 210,590.916 Easting: 716,130.063 Ortho H: 282.125 meters

Northing: 690,913.698 Easting: 2,349,503.380 Ortho H: 925.605 US Survey FT

UTM Zone 14 meters

Northing: 3,900,388.510 Easting: 707,106.222

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 111160C USGS Quad: PRAGUE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°22'35.17249" N Longitude: 96°40'22.63905" W Ellip H: 258.931 meters

Oklahoma South Zone State Plane Coordinates

Northing: 227,431.008 Easting: 720,586.381 Ortho H: 286.536 meters

Northing: 746,163.231 Easting: 2,364,123.817 Ortho H: 940.077 US Survey FT

UTM Zone 14 meters

Northing: 3,917,275.840 Easting: 711,388.931

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116KC USGS Quad: SEMINOLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°10'33.80595" N Longitude: 96°40'31.84030" W Ellip H: 240.098 meters

Oklahoma South Zone State Plane Coordinates

Northing: 205,198.422	Easting: 720,645.843	Ortho H: 267.318 meters
Northing: 673,221.823	Easting: 2,364,318.903	Ortho H: 877.026 US Survey FT

UTM Zone 14 meters

Northing: 3,895,041.890 Easting: 711,677.811

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116CJ USGS Quad: MLOUD

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°29'35.81300" N Longitude: 97°05'11.02369" W Ellip H: 309.471 meters

Oklahoma South Zone State Plane Coordinates

Northing: 239,977.844	Easting: 682,901.669	Ortho H: 336.758 meters
Northing: 787,327.311	Easting: 2,240,486.560	Ortho H: 1,104.847 US Survey FT

UTM Zone 14 meters

Northing: 3,929,431.644 Easting: 673,575.782

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116IC USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°15'07.53417" N Longitude: 96°38'07.62412" W Ellip H: 271.915 meters

Oklahoma South Zone State Plane Coordinates

Northing: 213,681.958 Easting: 724,180.605 Ortho H: 299.367 meters

Northing: 701,054.891 Easting: 2,375,915.869 Ortho H: 982.173 US Survey FT

UTM Zone 14 meters

Northing: 3,903,562.736 Easting: 715,125.706

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116HC USGS Quad: PRAGUE SW

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°16'29.59850" N Longitude: 96°40'17.31207" W Ellip H: 268.400 meters

Oklahoma South Zone State Plane Coordinates

Northing: 216,167.093	Easting: 720,869.113	Ortho H: 295.818 meters
Northing: 709,208.206	Easting: 2,365,051.414	Ortho H: 970.530 US Survey FT

UTM Zone 14 meters

Northing: 3,906,013.966 Easting: 711,788.240

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116CY USGS Quad: SHAWNEE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°17'57.77285" N Longitude: 96°56'04.93624" W Ellip H: 276.243 meters

Oklahoma South Zone State Plane Coordinates

Northing: 218,600.383 Easting: 696,892.873 Ortho H: 303.278 meters

Northing: 717,191.423 Easting: 2,286,389.367 Ortho H: 995.005 US Survey FT

UTM Zone 14 meters

Northing: 3,908,200.362 Easting: 687,786.256

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AD USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'30.55428" N Longitude: 96°56'51.51350" W Ellip H: 283.592 meters

Oklahoma South Zone State Plane Coordinates

Northing: 234,390.924 Easting: 695,551.383 Ortho H: 310.929 meters
Northing: 768,997.556 Easting: 2,281,988.162 Ortho H: 1,020.106 US Survey FT

UTM Zone 14 meters

Northing: 3,923,976.236 Easting: 686,281.930

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AI USGS Quad: LUTHER SE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'24.36942" N Longitude: 97°06'28.18314" W Ellip H: 309.598 meters

Oklahoma South Zone State Plane Coordinates

Northing: 241,456.963	Easting: 680,943.618	Ortho H: 336.893 meters
Northing: 792,180.053	Easting: 2,234,062.521	Ortho H: 1,105.290 US Survey FT

UTM Zone 14 meters

Northing: 3,930,890.285 Easting: 671,602.723

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116CU USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°26'57.81484" N Longitude: 97°13'45.40015" W Ellip H: 343.535 meters

Oklahoma South Zone State Plane Coordinates

Northing: 235,000.161 Easting: 669,973.795 Ortho H: 370.573 meters
Northing: 770,996.363 Easting: 2,198,072.358 Ortho H: 1,215.788 US Survey FT

UTM Zone 14 meters

Northing: 3,924,321.396 Easting: 660,701.392

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116CP USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'44.16653" N Longitude: 97°14'51.06241" W Ellip H: 309.610 meters

Oklahoma South Zone State Plane Coordinates

Northing: 241,963.876	Easting: 668,265.855	Ortho H: 336.772 meters
Northing: 793,843.150	Easting: 2,192,468.893	Ortho H: 1,104.893 US Survey FT

UTM Zone 14 meters

Northing: 3,931,266.145 Easting: 658,922.042

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AN USGS Quad: HORSESHOE LAKE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°30'06.64499" N Longitude: 97°13'49.52182" W Ellip H: 303.489 meters

Oklahoma South Zone State Plane Coordinates

Northing: 240,819.134 Easting: 669,825.480 Ortho H: 330.644 meters
Northing: 790,087.443 Easting: 2,197,585.761 Ortho H: 1,084.788 US Survey FT

UTM Zone 14 meters

Northing: 3,930,137.723 Easting: 660,493.155

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AS USGS Quad: HARRAH

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°25'15.10890" N Longitude: 97°12'44.80380" W Ellip H: 345.604 meters

Oklahoma South Zone State Plane Coordinates

Northing: 231,846.609	Easting: 671,526.666	Ortho H: 372.594 meters
Northing: 760,650.081	Easting: 2,203,167.069	Ortho H: 1,222.419 US Survey FT

UTM Zone 14 meters

Northing: 3,921,184.378 Easting: 662,286.427

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116CD USGS Quad: AYDELOTTE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°27'22.51788" N Longitude: 96°55'45.74033" W Ellip H: 261.991 meters

Oklahoma South Zone State Plane Coordinates

Northing: 236,009.831 Easting: 697,193.234 Ortho H: 289.386 meters

Northing: 774,308.919 Easting: 2,287,374.802 Ortho H: 949.427 US Survey FT

UTM Zone 14 meters

Northing: 3,925,612.031 Easting: 687,906.895

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116AY USGS Quad: BROOKSVILLE

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°14'43.87270" N Longitude: 96°55'18.53432" W Ellip H: 301.576 meters

Oklahoma South Zone State Plane Coordinates

Northing: 212,637.467 Easting: 698,129.000 Ortho H: 328.517 meters
Northing: 697,628.089 Easting: 2,290,444.895 Ortho H: 1,077.810 US Survey FT

UTM Zone 14 meters

Northing: 3,902,250.277 Easting: 689,083.589

Description: WOODS

Pottawatomie, OK Quality Control Points



GPSID: 11116JC USGS Quad: WEWOKA WEST

NAD 1983 NSRS2007/ NAVD 1988 Ortho Heights

Latitude: 35°12'18.71830" N Longitude: 96°37'22.27166" W Ellip H: 228.843 meters

Oklahoma South Zone State Plane Coordinates

Northing: 208,495.451 Easting: 725,397.982 Ortho H: 256.242 meters

Northing: 684,038.825 Easting: 2,379,909.880 Ortho H: 840.687 US Survey FT

UTM Zone 14 meters

Northing: 3,898,388.136 Easting: 716,396.648

Description: WOODS