

AERIAL TRIANGULATION SUMMARY



INDIANA STATEWIDE IMAGERY PROGRAM INDIANA OFFICE OF TECHNOLOGY TIER 2 - COUNTY COVERAGE AT 0.5-FOOT RESOLUTION

Woolpert Project Number: 72134
July 2012



AERIAL TRIANGULATION SUMMARY

TIER 2 - COUNTY COVERAGE AT 0.5-FOOT RESOLUTION

INDIANA STATEWIDE IMAGERY PROGRAM

WOOLPERT PROJECT #72134

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AERIAL TRIANGULATION SUMMARY

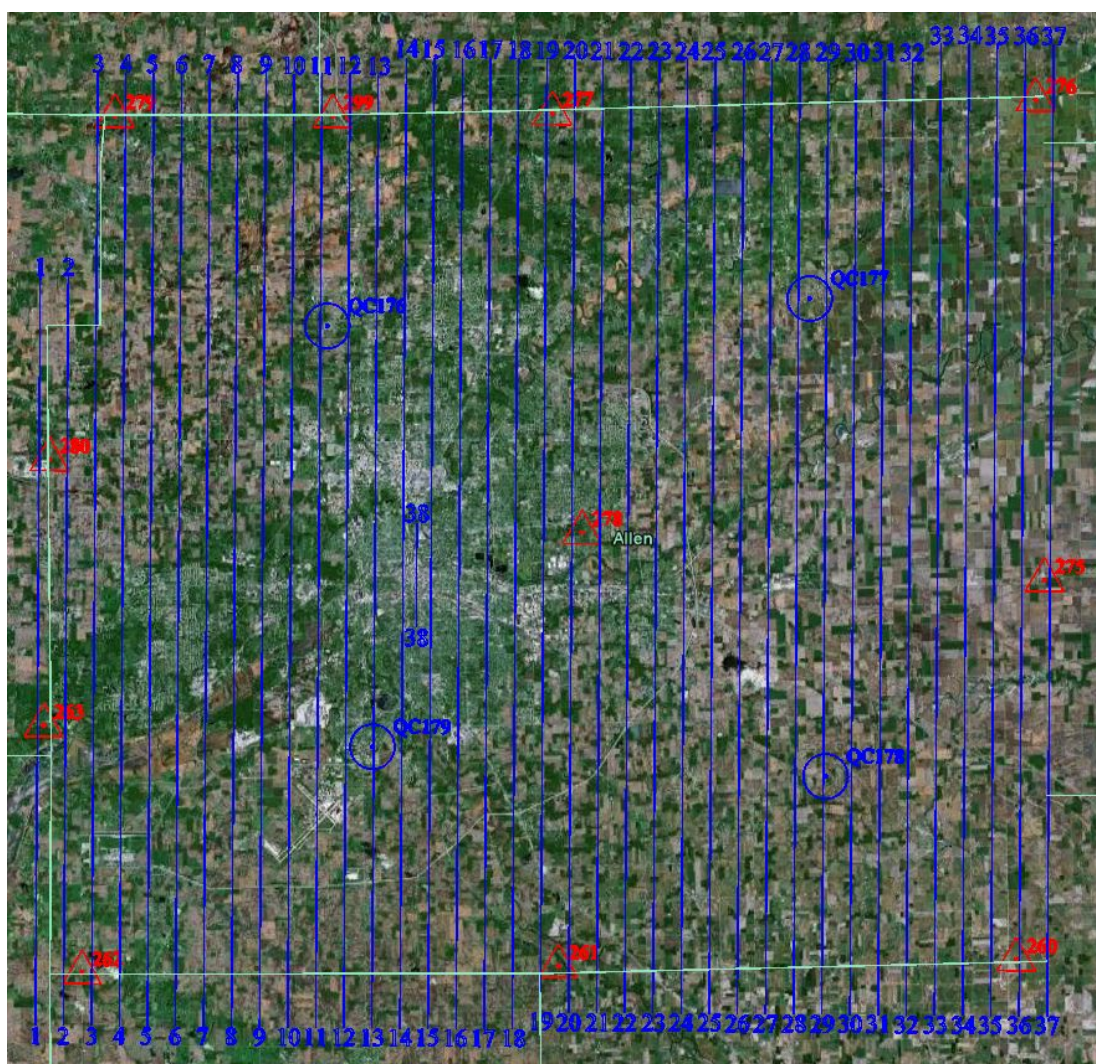
INTRODUCTION

This document contains an aerial triangulation block adjustment summary for the 0.5-foot resolution coverage for ten (10) Indiana counties identified as Allen, Dearborn, DeKalb, Floyd, Hamilton, Madison, Noble, Shelby, Steuben, and Whitley. They are identified under the 2012 Indiana Statewide Imagery Program for Tier 2.

ALLEN COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Allen County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Allen County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
260	0.0029	0.0033	0.0009
261	-0.0029	-0.0007	-0.0016
262	0.0033	0.0006	0.0016
263	0.0012	0.0021	0.0009
275	-0.0036	0.0019	-0.0006
276	0.0051	0.0028	0.0027
277	0.0025	0.0016	0.0013
278	-0.0103	-0.0079	-0.0031
279	0.0009	0.0025	-0.0005
280	-0.0033	-0.0049	0.0015
299	0.0043	-0.0014	-0.0031
RMS XYZ	0.003633	0.0026	0.001467
RMS P	0.004468		

QC RESULTS

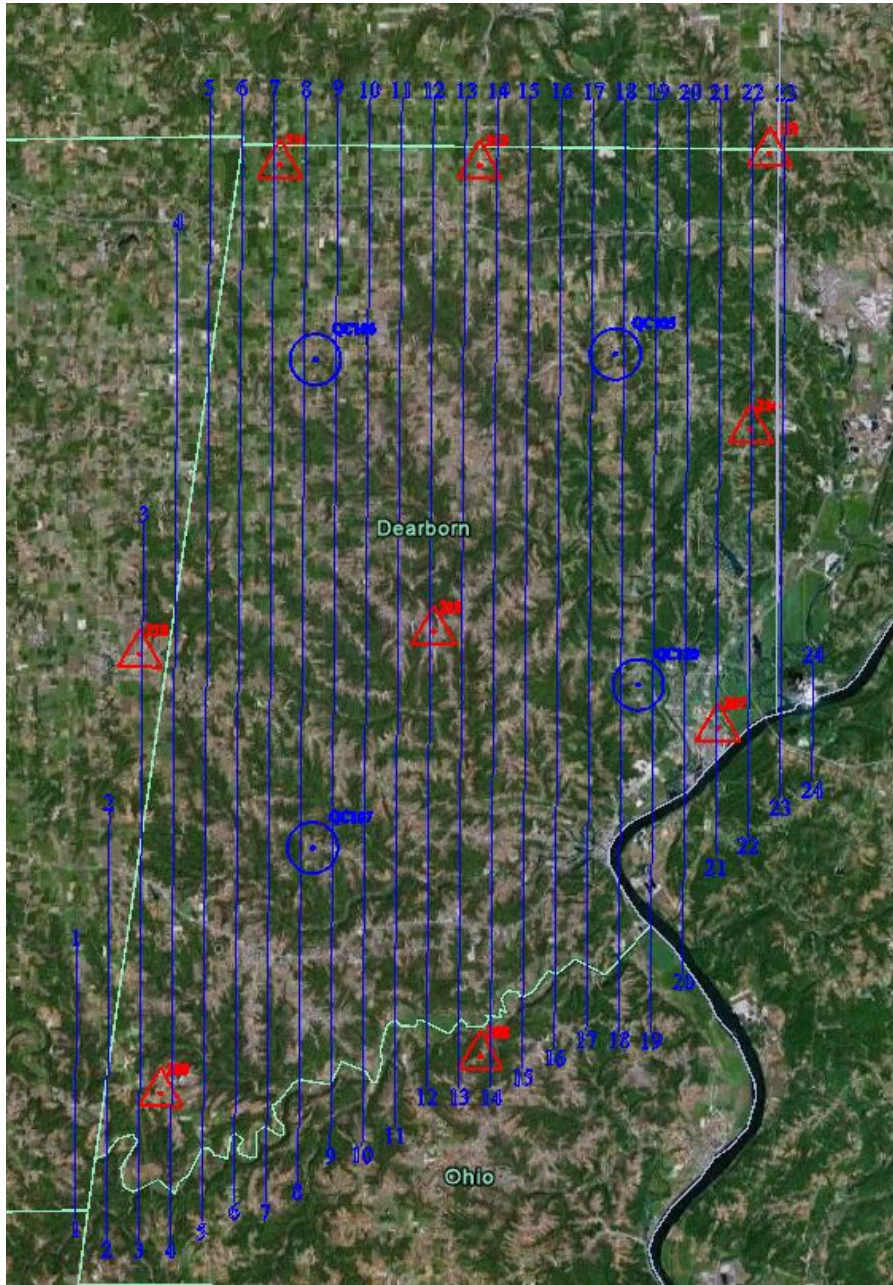
Allen County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC176"	target	459914.547	459914.5693	-0.022	0.000	2160614.785	2160614.718	0.067	0.004	0.005
"QC177"	target	531102.048	531102.0491	-0.001	0.000	2165083.898	2165083.838	0.060	0.004	0.004
"QC178"	target	533925.69	533925.6443	0.046	0.002	2094904.453	2094904.479	-0.026	0.001	0.003
"QC179"	target	467009.224	467009.2502	-0.026	0.001	2098776.419	2098776.291	0.128	0.016	0.017
	sum									0.029
	average									0.007
	RMSE									0.085
	NSSDA									0.147

DEARBORN COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Dearborn County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Dearborn County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
207	-0.0009	0.0068	0.0015
208	-0.0007	0.0004	-0.0001
209	-0.0011	0.0005	0.0002
210	0.0026	-0.0008	0.0002
211	0.0007	0.0007	-0.0001
212	-0.0006	0.0007	0.0006
213	-0.0007	0.0054	-0.001
214	0.0024	-0.0091	-0.0008
215	-0.0018	-0.0047	-0.0006
RMS XYZ	0.001278	0.003233	0.000567
RMS P	0.003477		

QC RESULTS

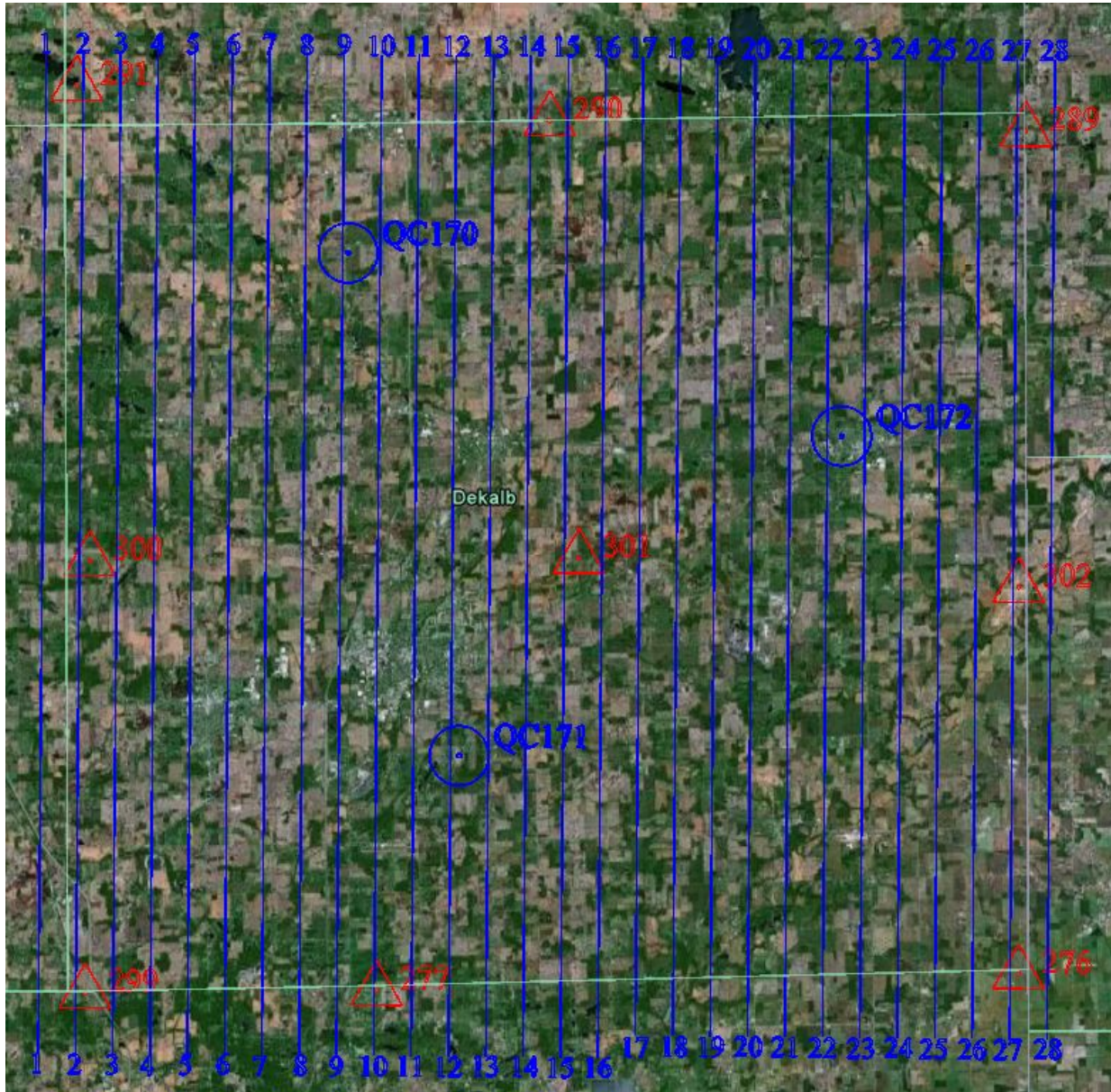
Dearborn County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC105"	target	546967.539	546967.5733	-0.034	0.001	1452226.324	1452226.439	-0.115	0.013	0.014
"QC106"	target	507960.961	507960.9932	-0.032	0.001	1451251.593	1451251.568	0.025	0.001	0.002
"QC107"	target	508074.342	508074.4035	-0.062	0.004	1388298.626	1388298.659	-0.033	0.001	0.005
"QC120"	target	550264.065	550264.1057	-0.041	0.002	1409641.606	1409641.59	0.016	0.000	0.002
									sum	0.023
									average	0.006
									RMSE	0.076
									NSSDA	0.131

DEKALB COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 DeKalb County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

DeKalb County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
276	0.0045	-0.0064	-0.0009
277	-0.0034	0.0068	0.0007
289	0.0051	0.004	0.0011
290	-0.0031	-0.0063	-0.0015
291	-0.0018	-0.0013	-0.0016
299	-0.0046	-0.004	-0.0018
300	0.0042	0.0024	0.0024
301	0.0014	-0.0009	0.0011
302	-0.0021	-0.0071	0.0005
RMS XYZ	0.002156	0.002689	0.001044
RMS P	0.003446		

QC RESULTS

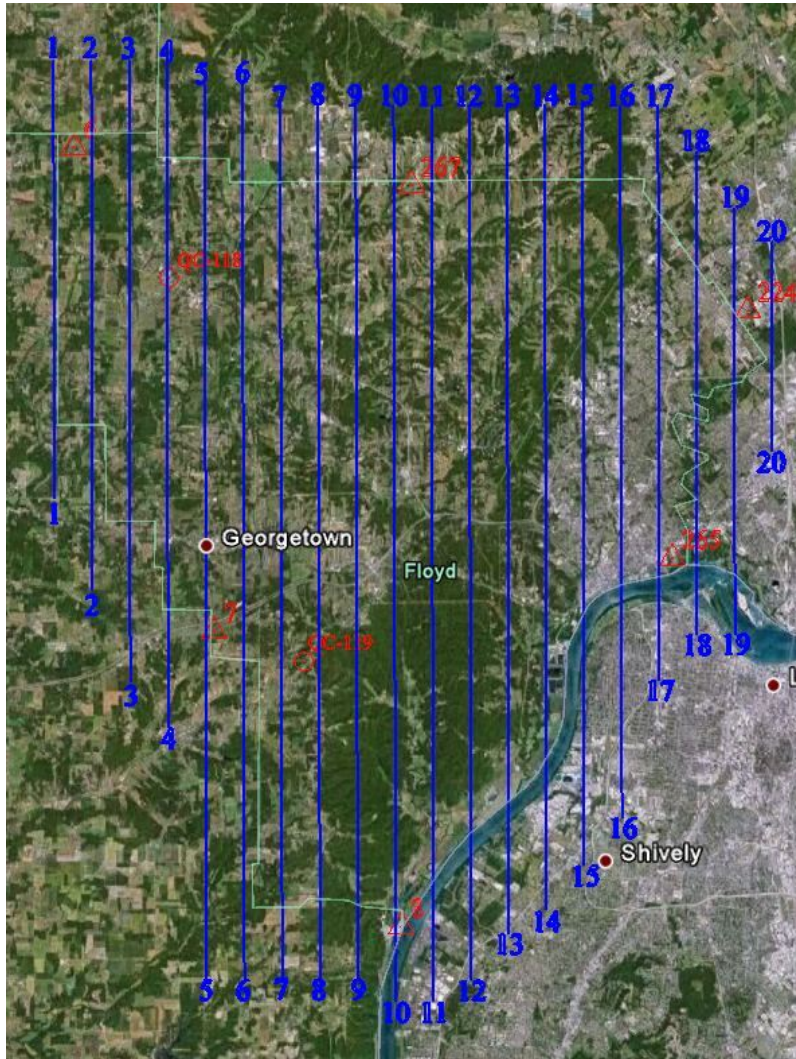
DeKalb County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC170"	target	489114.134	489114.0609	0.073	0.005	2273324.068	2273323.963	0.105	0.011	0.016
"QC171"	target	501923.059	501923.0039	0.055	0.003	2218018.246	2218018.226	0.020	0.000	0.003
"QC172"	target	544113.143	544113.1809	-0.038	0.001	2253570.237	2253570.291	-0.054	0.003	0.004
									sum	0.024
									average	0.008
									RMSE	0.090
									NSSDA	0.156

FLOYD COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Floyd County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Floyd County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
6	0.001	0.002	0.0003
7	0.008	0.0003	0.001
8	0.004	0.002	0.0003
224	0.005	0.003	0.001
265	0.002	0.003	0.0003
267	0.001	0.001	0.002
RMS XYZ	0.003	0.002	0.001
RMS P	0.004		

QC RESULTS

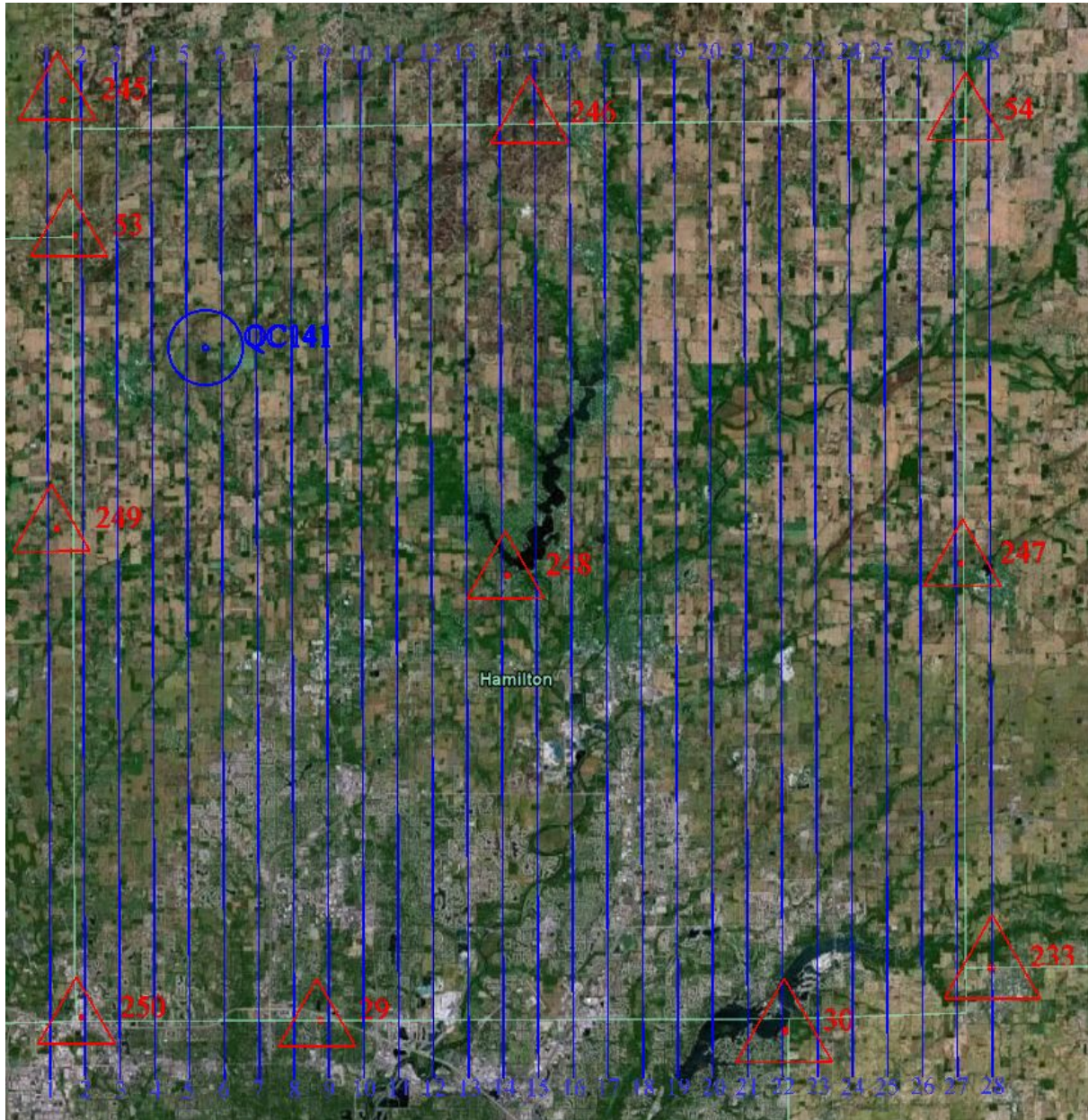
Floyd County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC118"	target	235420.226	235420.219	0.007	0.000	1138933.103	1138933.075	0.028	0.001	0.001
"QC119"	target	250129.025	250128.979	0.046	0.002	1097033.980	1097034.026	-0.046	0.002	0.004
	sum									0.005
	average									0.003
	RMSE									0.050
	NSSDA									0.087

HAMILTON COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Hamilton County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Hamilton County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
233	0.0022	-0.0008	0.0007
245	0.0009	-0.0039	0.0024
246	0.0006	-0.0041	0.0001
247	-0.005	0.0108	-0.0006
248	0.0022	0.0009	0.0011
249	-0.0044	-0.0023	-0.0023
250	0.0025	0.0014	0.0006
29	0.0004	-0.0022	0.0005
30	-0.0018	-0.0041	-0.0011
53	-0.0002	0.0088	-0.0014
54	0.0026	-0.0044	0
RMS XYZ	0.002073	0.003973	0.000982
RMS P	0.004481		

QC RESULTS

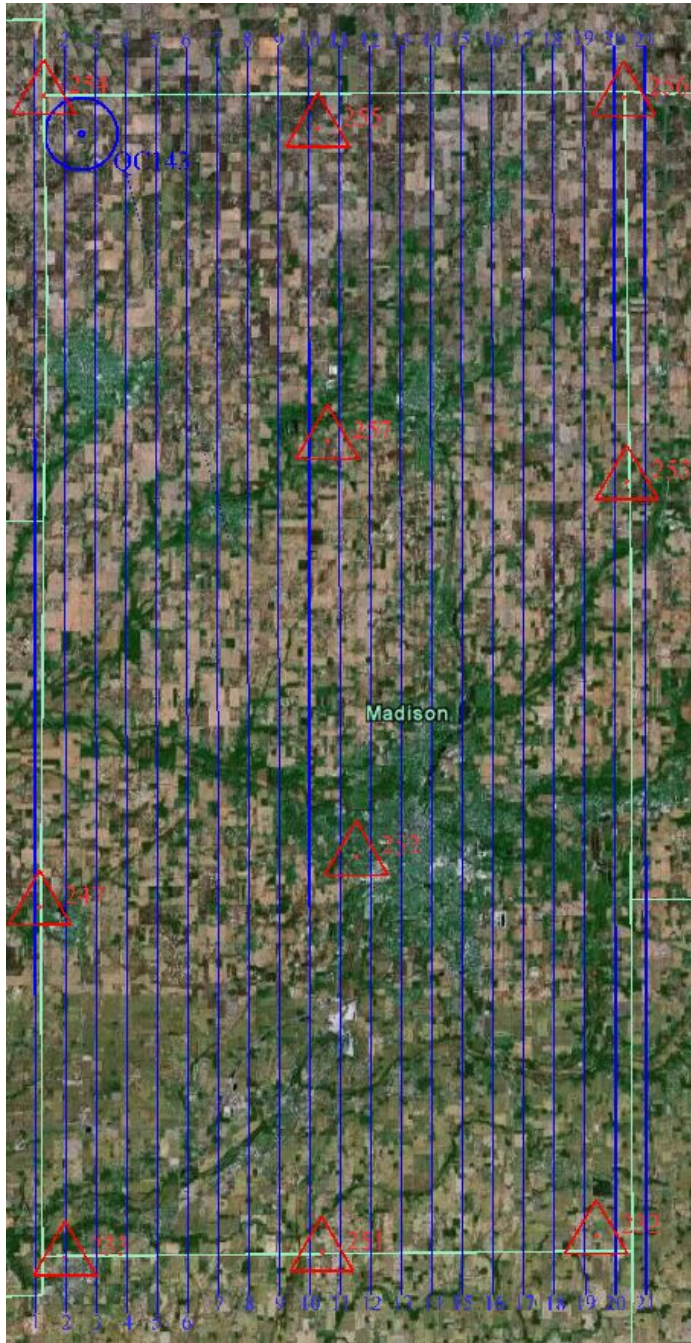
Hamilton County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"OC141"	target	183011.048	183010.795	0.0253	0.064	1783885.526	1783885.261	0.265	0.070	0.134
									sum	0.134
									average	0.134
									RMSE	0.367
									NSSDA	0.634

MADISON COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Madison County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Madison County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
232	-0.0017	-0.0001	0.0003
233	-0.0043	-0.0024	0.0012
247	0.0021	0.0021	-0.0009
251	0.0072	0.0004	-0.0008
252	-0.0054	0.0036	0.0003
253	0.0024	-0.0008	0.0002
254	-0.0036	-0.0029	0.0001
255	0.0075	0.0016	0.0009
256	-0.0018	0.0002	-0.0007
257	-0.0024	-0.0018	-0.0001
RMS XYZ	0.00384	0.00159	0.00055
RMS P	0.004156		

QC RESULTS

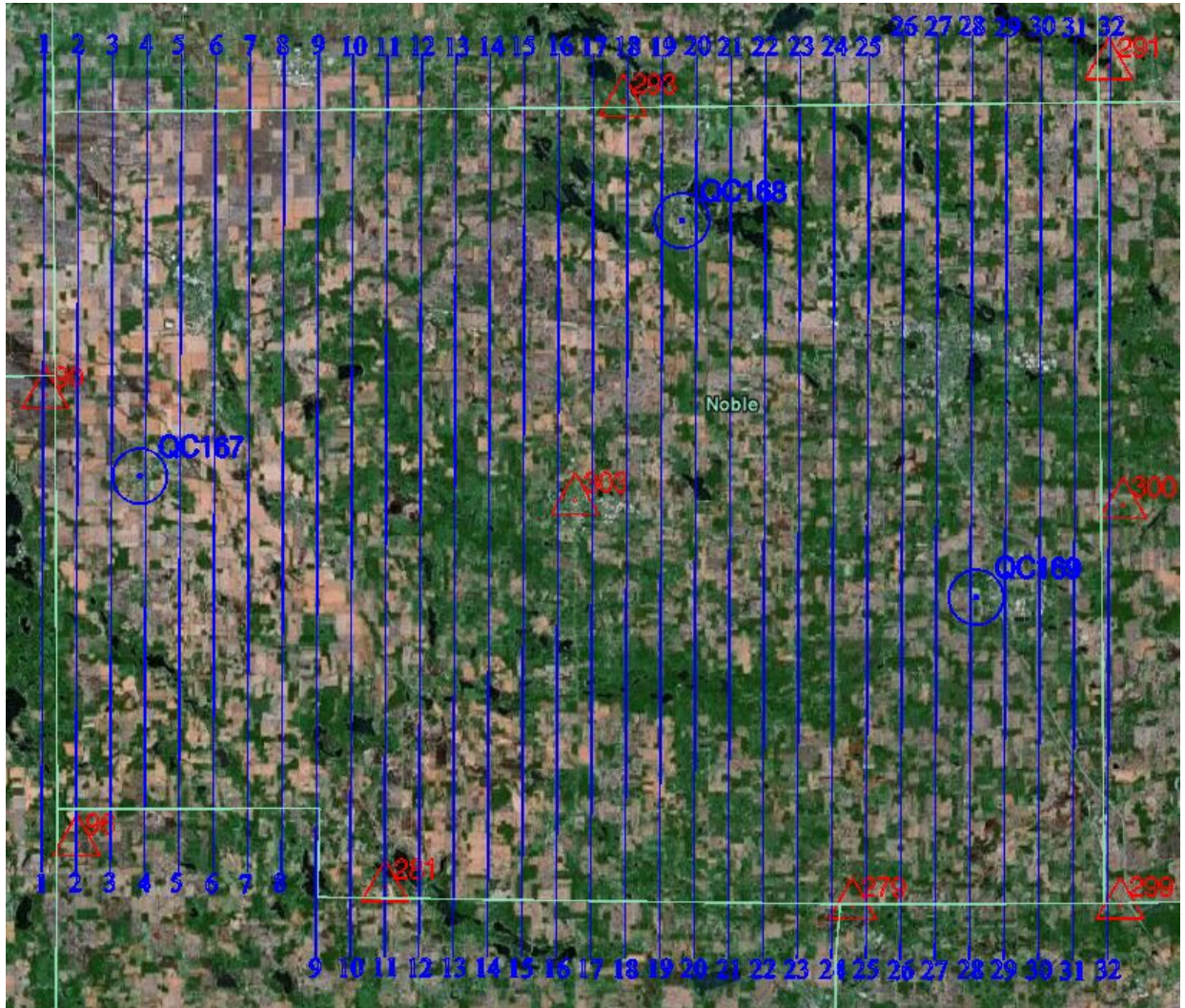
Madison County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC143"	target	278701.151	278701.1152	0.036	0.001	1863330.165	1863330.146	0.019	0.000	0.002
									sum	0.002
									average	0.002
									RMSE	0.040
									NSSDA	0.070

NOBLE COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Noble County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Noble County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
268	0.0045	-0.0041	-0.0002
279	-0.0015	0.0014	0.0001
281	-0.0006	0	-0.0002
291	-0.0037	-0.0006	-0.0006
293	0.0017	0.0057	-0.0005
299	-0.0065	0.0003	-0.0006
300	0.0097	0.0025	0.0008
303	0.0002	-0.0055	0.001
90	-0.0041	0.0026	0.0001
96	0.0004	-0.0023	0.0002
RMS XYZ	0.00329	0.0025	0.00043
RMS P	0.004132		

QC RESULTS

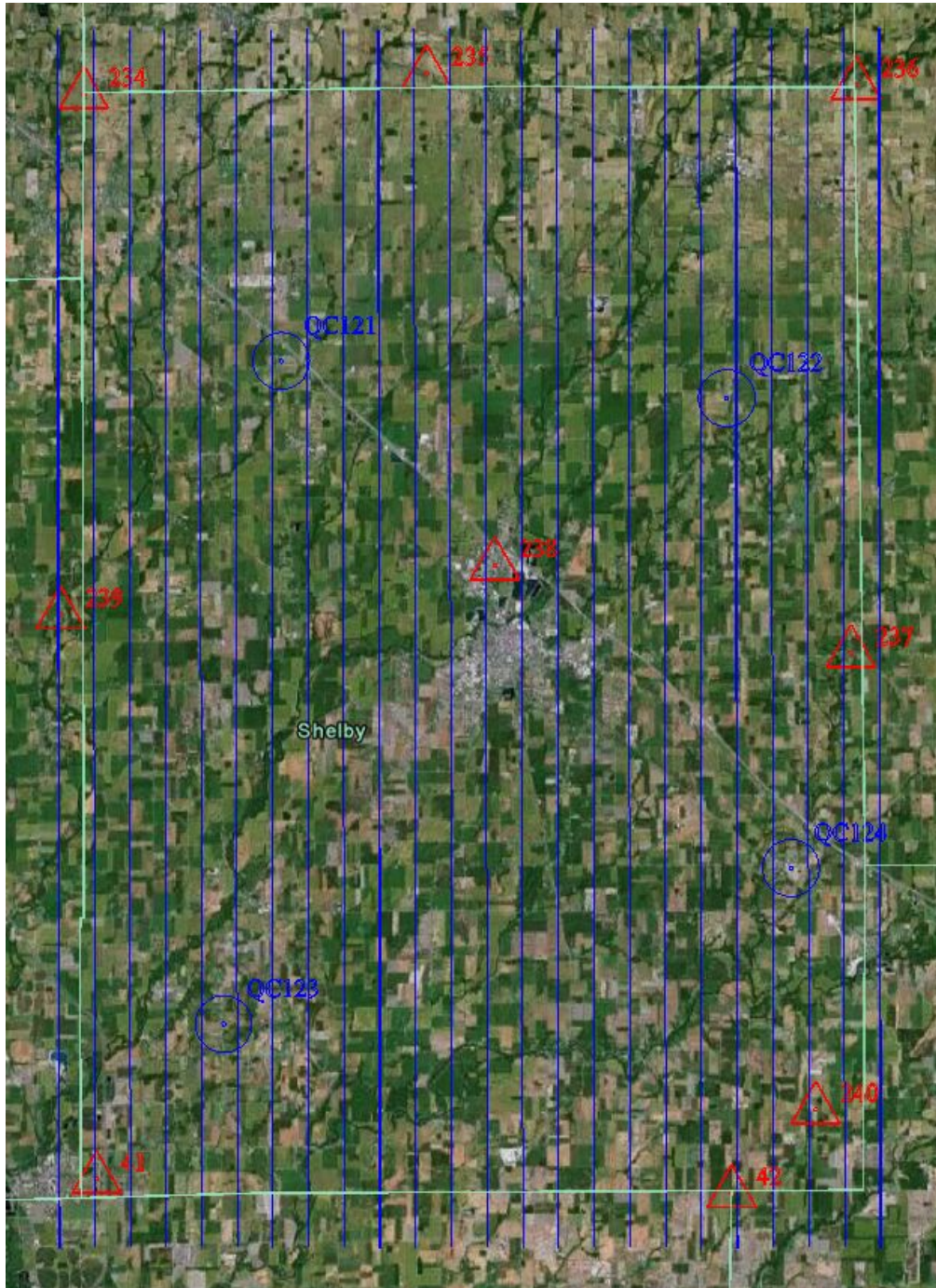
Noble County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC167"	target	342017.639	342017.679	-0.040	0.002	2242205.579	2242205.526	0.053	0.003	0.004
"QC168"	target	407390.129	407390.21	0.081	0.007	2272919.357	2272919.4	-0.043	0.002	0.008
"QC169"	target	442997.7	442997.6938	0.006	0.000	2228103.214	2228103.121	0.093	0.009	0.009
									sum	0.021
									average	0.007
									RMSE	0.084
									NSSDA	0.145

SHELBY COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Shelby County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Shelby County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
234	0.0026	0.0048	-0.001
235	-0.0037	0.0032	0.0013
236	-0.0017	-0.004	-0.0009
237	0.0003	0.008	-0.0005
238	0.0045	0.0002	0.0015
239	0.0019	-0.0092	-0.0003
240	-0.0035	-0.003	0.0018
41	-0.0002	-0.0027	-0.0007
42	-0.0001	-0.0026	-0.0013
RMS XYZ	0.002056	0.004189	0.001033
RMS P	0.004666		

QC RESULTS

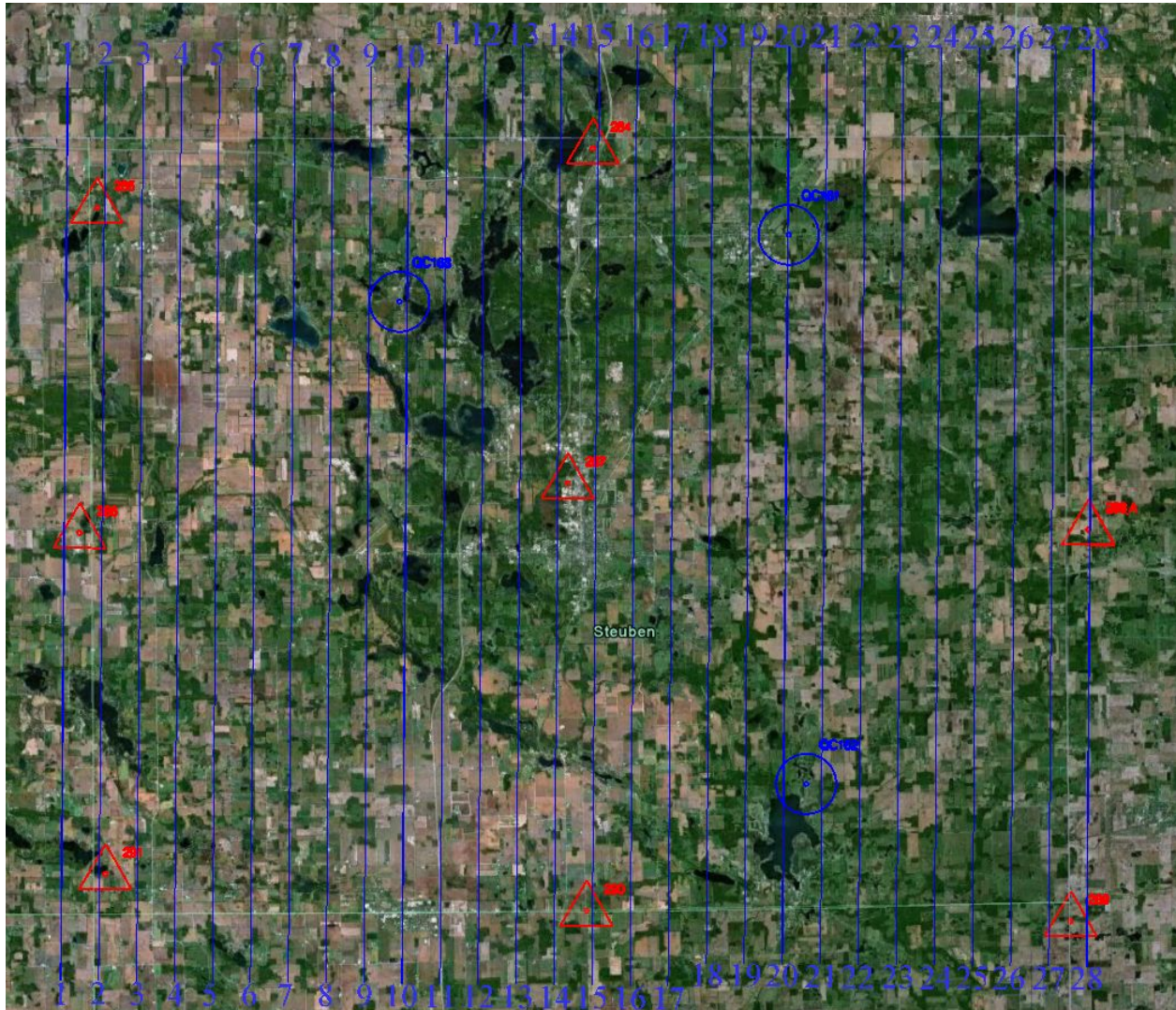
Shelby County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC121"	target	270852.98	270853.0628	-0.083	0.007	1589506.8	1589506.857	-0.057	0.003	0.010
"QC122"	target	322638.65	322638.6452	0.005	0.000	1585127.47	1585127.479	-0.009	0.000	0.000
"QC123"	target	264065.05	264064.9374	0.113	0.013	1513143.88	1513143.893	-0.013	0.000	0.013
"QC124"	target	330011.41	330011.396	0.014	0.000	1531065.24	1531065.222	0.018	0.000	0.001
									sum	0.024
									average	0.006
									RMSE	0.077
									NSSDA	0.133

STEUBEN COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Steuben County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Steuben County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
283	-0.0008	-0.0053	-0.0006
284	0.0083	0.0076	-0.0008
285	0.0016	0.0056	0.0002
286	0.0042	-0.0121	0.0014
287	-0.0045	-0.0061	-0.0003
288	-0.0064	0.0124	0.0021
288_A	0.0002	-0.0037	0
289	0.0031	-0.0001	-0.0002
290	-0.0007	-0.0017	0
291	-0.0051	0.0032	-0.0018
RMS XYZ	0.00349	0.00578	0.00074
RMS P	0.006752		

QC RESULTS

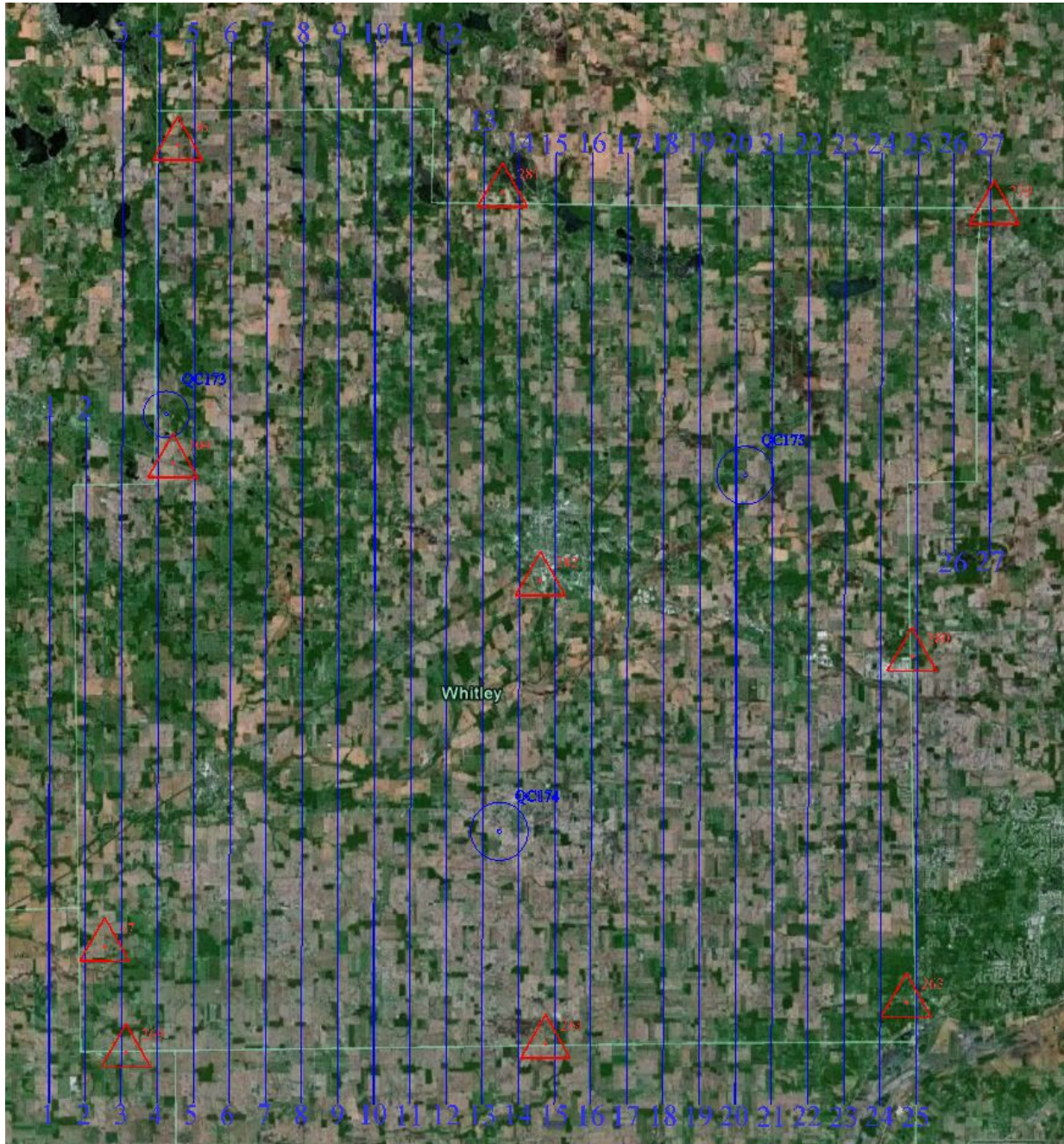
Steuben County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC161"	target	532899.721	532899.7492	-0.028	0.001	2362105.731	2362105.687	-0.044	0.002	0.003
"QC162"	target	535283.152	535283.1362	-0.016	0.000	2302079.373	2302079.4	-0.027	0.001	0.001
"QC163"	target	490450.435	490450.3683	0.067	0.004	2354465.588	2354465.658	-0.070	0.005	0.009
									sum	0.013
									average	0.004
									RMSE	0.066
									NSSDA	0.114

WHITLEY COUNTY, INDIANA

This summary displays the results of the aerial triangulation block adjustment of the imagery for 2012 Whitley County, Indiana.

DIAGRAM OF AREA



RESULTS OF BLOCK ADJUSTMENT

Whitley County results of block adjustment - Residual misfits at control points

	X(ft)	Y(ft)	Z(ft)
104	0.0087	-0.0069	0.0014
263	-0.0021	0.0019	0.0004
264	0.0021	0.0011	-0.0012
269	0.001	-0.0007	0.0006
279	-0.0022	0.0032	0.0004
280	-0.0023	-0.005	-0.0019
281	0.0076	0.0079	-0.0001
282	-0.0096	-0.0042	0.0021
67	-0.0008	-0.0017	0.0008
96	-0.0025	0.0044	-0.0026
RMS XYZ	0.00389	0.0037	0.00115
RMS P	0.005369		

QC RESULTS

Whitley County QC Point Horizontal Accuracy Statistic Worksheet

Point number	Point description	x (Survey)	x (AT)	diff in x	(diff in x) ²	y (Survey)	y (AT)	diff in y	(diff in y) ²	(diff in x) ² + (diff in y) ²
"QC173"	target	333265.482	333265.5325	-0.050	0.003	2167970.232	2167970.215	0.017	0.000	0.003
"QC174"	target	371627.443	371627.3555	0.088	0.008	2120793.311	2120793.34	-0.029	0.001	0.009
"QC175"	target	399775.358	399775.378	-0.020	0.000	2161180.324	2161180.333	-0.009	0.000	0.000
									sum	0.012
									average	0.004
									RMSE	0.063
									NSSDA	0.109