



Photogrammetric Surveyor's Certification

Quantum Spatial contracted with Thomas & Hutton to provide an aerial LiDAR survey for their Interstate 26 improvement project (QSI Project #25644). Quantum Spatial enlisted the services of Metro Geospatial to perform the acquisition. The following pages are an accuracy assessment performed by Metro Geospatial and a quality control accuracy assessment performed by Quantum Spatial. In my opinion, the accuracies shown herein are a true and accurate representation of the overall accuracy of the LiDAR provided, relative to the control provided by Thomas & Hutton.



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South Carolina Photogrammetric Surveyor No. 24612



Project File	MGEO #1361 - Quantum I-26 Ridgeville LiDAR Control Report
Project Unit	NAD83 - State Plane Coordinate System - South Carolina - NAVD88 - International Feet
Date	Tuesday July 14 2015
Vertical Accuracy Objective	
Requirement Type	RMSE(z)
RMSE(z) Objective	0.1
Control Points in Report	13
Elevation Calculation Method	Interpolated from TIN
Control Points with LiDAR Coverage	13
Average Control Error Reported	0
Maximum (highest) Control Error Reported	0.13
Median Control Error Reported	-0.01
Minimum (lowest) Control Error Reported	-0.13
Standard deviation (sigma) of Error for sample	0.07
RMSE of Error for sample (RMSE(z))	0.07 PASS
NSSDA Achievable Contour Interval	0.3
ASPRS Class 1 Achievable Contour Interval	0.3
NMAS Achievable Contour Interval	0.3

Control Point Id	Control Point X	Control Point Y	Coverage	Control Point Z	Z from LiDAR	Z Error	Minimum Z	Median Z	Maximum Z
348	2217413.906	471605.2849	Yes	62.225	62.1	-0.13	62.02	62.09	62.14
346	2221559.3	469240.4448	Yes	68.37	68.31	-0.06	68.2	68.33	68.35
345	2223857.423	467479.0204	Yes	78.425	78.36	-0.06	78.27	78.34	78.4
321	2215250.938	472824.7237	Yes	61.38	61.33	-0.05	61.25	61.33	61.35
320	2221013.16	468876.2001	Yes	61.47	61.44	-0.03	61.38	61.44	61.49
317	2223396.582	468227.9302	Yes	62.795	62.77	-0.02	62.72	62.76	62.79
324	2218434.051	470851.7856	Yes	63.24	63.23	-0.01	63.01	63.12	63.26
347	2221911.257	468831.3894	Yes	67.54	67.55	0.01	67.53	67.53	67.57
344	2221970.95	469813.4577	Yes	61.885	61.91	0.02	61.87	61.9	61.93
318	2223163.431	467783.2895	Yes	69.66	69.7	0.04	69.66	69.72	69.74
342	2223396.203	470644.2745	Yes	61.16	61.22	0.06	61.18	61.19	61.29
323	2217107.802	471383.343	Yes	57.155	57.26	0.1	57.08	57.35	57.47
319	2221696.384	469472.5973	Yes	62.345	62.47	0.13	62.35	62.42	62.52



No.	Easting	Northing	Known Z	Laser Z	Dz
313	2225829.525	465759.573	75.208	75.170	-0.038
314	2226229.850	466330.947	75.204	75.200	-0.004
316	2224889.457	466802.236	73.155	73.040	-0.115
317	2223395.664	468224.037	62.795	62.770	-0.025
318	2223162.441	467779.395	69.660	69.720	+0.060
319	2221695.403	469469.206	62.345	62.270	-0.075
320	2221011.963	468872.830	61.470	61.500	+0.030
321	2215249.480	472823.010	61.380	61.340	-0.040
322	2218226.832	471859.655	57.630	57.760	+0.130
323	2217106.398	471381.068	57.155	57.250	+0.095
324	2218432.774	470849.191	63.240	63.160	-0.080

Average dz	-0.006
Minimum dz	-0.115
Maximum dz	+0.130
Average magnitude	0.063
Root mean square	0.073
Std deviation	0.077