



Minnesota Department of Transportation

Photogrammetric Unit

395 John Ireland Boulevard, MS 640

Saint Paul, MN 55155

14 January 2013

Eric Ratcliffe

STARR MT-1 Project Manager

Atkins Global

3901 Calverton Boulevard, Suite 400

Calverton, MD, 20705

RE: Certification of Minnesota LiDAR Quality
Arrowhead Region LiDAR Project

Dear Mr. Ratcliffe:

Attached you will find a signed and sealed Certification Statement for LiDAR Data that was collected by the Minnesota Department of Natural Resources and its numerous partners. Due to the size of the State, a regional acquisition approach was selected. As part of the project planning process, we wanted to engage the county governments to be partners in this project. For this particular project a Block Acquisition Delivery format was used versus a County Boundary format to report accuracy as part of that contract engagement. A general description of the Block Acquisition area is provided in the certification.

If you have any additional questions concerning the testing process, please contact me at 651.366.3457.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter W. Jenkins".

Peter W. Jenkins, PLS, CFedS
Photogrammetric Unit Supervisor

Enclosures:

Certification Letter

cc: S. Jiwani

T. Loesch

An Equal Opportunity Employer



Certification of Minnesota LiDAR Data Quality

Project Area: Arrowhead Region

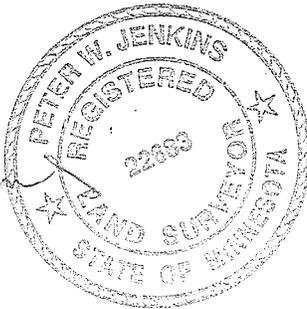
Counties covered: Carlton, Cook, Lake and St. Louis.

Date of acquisition: April 12 to June 2, 2011

Horizontal Positional Accuracy: All these data products were acquired at 2400 meters above mean terrain (AMT) and have a horizontal accuracy of 0.40 meters, with a nominal point spacing of 1.5 meters.

Vertical Positional Accuracy: Accuracy of the dataset was verified by a second set of ground control points provided and tested by the State of Minnesota. The Consolidated Vertical Accuracy (CVA) of the TIN as tested by the State of Minnesota of all land cover categories covering the 5 land classes as defined by ASPRS and NDEP were used in this evaluation. The vertical RMSE, the 95% confidence level and sample count per acquisition delivery block as tested by the State of Minnesota is as follows: Block 1, 0.081m (RMSE), 0.158m (95%), 379 points; Block 2, 0.124m (RMSE), 0.243m (95%), 92 points; Block 3, 0.124m (RMSE), 0.243m (95%), 109 points; Block 4, 0.137m (RMSE), 0.269 (95%), 201 points; Block 5, 0.091m (RMSE), 0.179m (95%), 226 points. Block 1 encompasses the City of Duluth and the North Shore of Lake Superior to Cook County. Block 2 is the northern portion of St. Louis County and northwest Lake County. Block 3 is all of Cook County and the eastern and southwestern portion of Lake County except the North Shore. Block 4 is all of Carlton County and the southern portion of St. Louis County and western portion of Lake County. Block 5 is the central portion of St. Louis County.

This is to certify that the work summarized above was completed in accordance with sound and accepted surveying practices and meets the accuracy requirements in the USGS's Lidar Guidelines and Base Specifications.



Peter Jenkins, PLS, CFedS

MN PLS # 22683

Photogrammetric Unit Supervisor

Minnesota Department of Transportation