Hoke County – Lumber Basin Portion

The preliminary checkpoint spreadsheets were received from NCGS on June 15, 2001. Two spreadsheets were included for each county, which compared the independent QAQC survey checkpoints with the interpolated LIDAR "Z" value as provided by the contractors. The spreadsheet summaries included:
1. All the checkpoints with the RMSE calculation for combined land cover
2. 95% of the checkpoints with the RMSE calculation (5% of points having the largest error removed)

All data was reviewed and further analyzed to assess the quality of the data. The review process examined the statistics for the combined land cover and the trends for each specific land cover type. The following graphs and figures illustrate the data quality as per the RMSE criteria.

Table 1 summarizes the RMSE using:
- 100% of the checkpoints
- 95% of the checkpoints
- Checkpoints categorized by land cover type

Table 1. RMSE by Land Class				
%	RMSE (cm)	# of Points	Land Class	RMSE Criteria (cm)
100	25.6	49	All	
95	**15.0**	**47**	**All**	**25**
16	18.5	8	Grass	
14	8.7	7	Weeds/Crop	
14	14.8	7	Scrub	
31	13.7	15	Forest	
20	17.2	10	Built-up	

The LIDAR data for Hoke County – Lumber Portion meets the specification as per the RMSE criteria of 25 cm.

All figures represent the data with the 95% data set. The data is of good quality

Figure 1 illustrates the RMSE by specific land cover class.
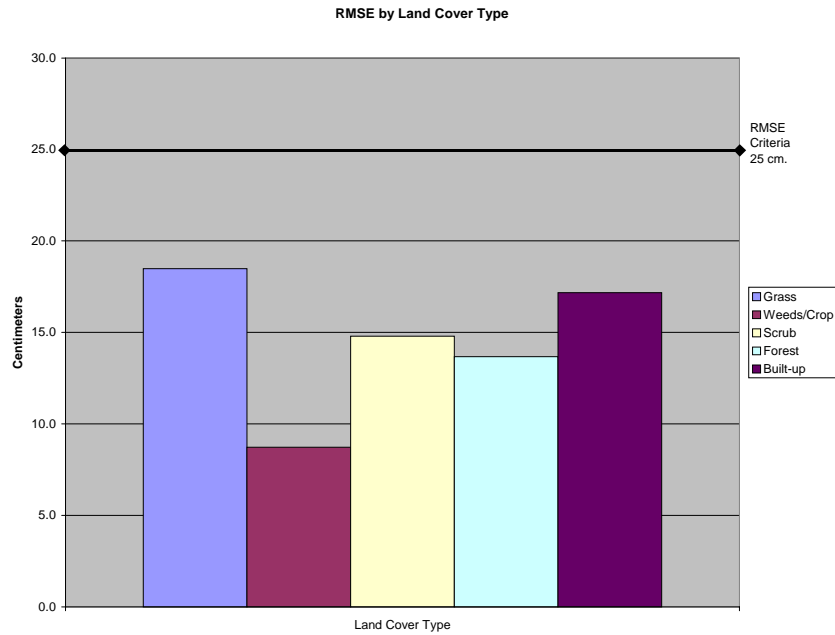
RMSE by Land Cover Type

Figure 1

Figure 2 illustrates the magnitude of the differences between the checkpoints and LIDAR data by specific land class type and sorted from lowest to highest.
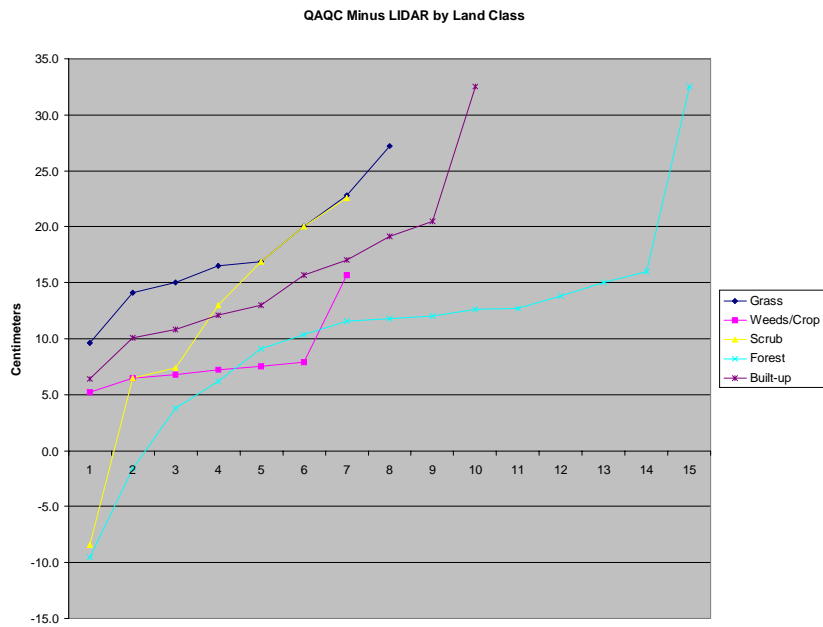
QAQC Minus LIDAR by Land Class

Figure 2

Table 2 illustrates the Delta between the QAQC survey checkpoints and that of the interpolated LIDAR.

Table 2: Elevation Delta	
Delta (cm)	Land Cover
9.6	Grass
14.1	Grass
15.0	Grass
16.5	Grass
16.9	Grass
20.0	Grass
22.8	Grass
27.2	Grass
5.2	Weeds/Crop
6.5	Weeds/Crop
6.8	Weeds/Crop
7.2	Weeds/Crop
7.5	Weeds/Crop
7.9	Weeds/Crop
15.7	Weeds/Crop
-8.4	Scrub
6.5	Scrub
7.4	Scrub
13.0	Scrub
16.9	Scrub
20.0	Scrub
22.6	Scrub
-9.5	Forests
-1.6	Forests
3.8	Forests
6.2	Forests
9.1	Forests
10.4	Forests
11.6	Forests
11.8	Forests
12.0	Forests
12.6	Forests
12.7	Forests
13.8	Forests
15.0	Forests
16.0	Forests
32.5	Forests
6.4	Built-up
10.1	Built-up
10.8	Built-up
12.1	Built-up
13.0	Built-up
15.7	Built-up
17.0	Built-up
19.1	Built-up
20.5	Built-up
32.5	Built-up

Table 3 illustrates the overall statistics for the checkpoint data.

Table 3: Overall Descriptive Statistics							
	RMSE (cm)	Mean (cm)	Median (cm)	Skew	Std Dev	# of Points	Min (cm)	Max (cm)
Total	15.0	12.6	12.6	-0.10	8.3	47	-9.5	32.5
Grass	18.5	17.8	16.7	0.42	5.5	8	9.6	27.2
Weeds/Crop	8.7	8.1	7.2	2.29	3.5	7	5.2	15.7
Scrub	14.8	11.1	13.0	-1.05	10.5	7	-8.4	22.6
Forest	13.7	10.4	11.8	0.12	9.1	15	-9.5	32.5
Built-up	17.2	15.7	14.4	1.32	7.3	10	6.4	32.5