Project Information

Prepared By: Ayres Associates LiDAR Division
Project Name: Manitowoc County WI LIDAR 2015-16
Sensor Info: Optech Orion H300
Required Nominal Pulse Spacing: 0.7 meter
Consultant Name: Name: Ayres Associates
Units: US Survey Feet

Date of LiDAR Acquisition: Start: 11/3/2015 Finish: 11/10/2015

Report Information

This report documents the absolute vertical accuracy of the lidar data collected for the Manitowoc County, WI, QL2 LiDAR project. Independent ground control checkpoints were collected by land surveyors using Trimble GNSS equipment connected to WISCORS base stations. The checkpoints were collected in November 2016.

The checkpoints were collected under various land cover types that are predominant in the county. Each land cover type falls into either the Non-vegetated Vertical Accuracy (NVA) or the Vegetated Vertical Accuracy (VVA) group. For this project, there were 45 NVA points and 35 VVA points were collected throughout the county.

The following report shows the final statistics for the NVA checkpoints compared against the raw swath point cloud and the bare earth DEM, and the VVA statistics compared against the DEM. Statistics are reported for LAS and DEM by NVA and VVA categories and by land cover type.

Vertical Accuracy Specifications per USGS QL2 level:

LAS:
NVA equates to 10 cm RMSEz, or 19.6 cm (0.64 ft) at the 95% confidence level.

DEM:
NVA equates to 10 cm RMSEz, or 19.6 cm (0.64 ft) at the 95% confidence level.
VVA equates to 29.4 cm (0.96 ft) at the 95th Percentile.

The NVA and VVA statistics for this project are within the above stated specifications.

AYRES ASSOCIATES

LiDAR Accuracy Assessment Summary

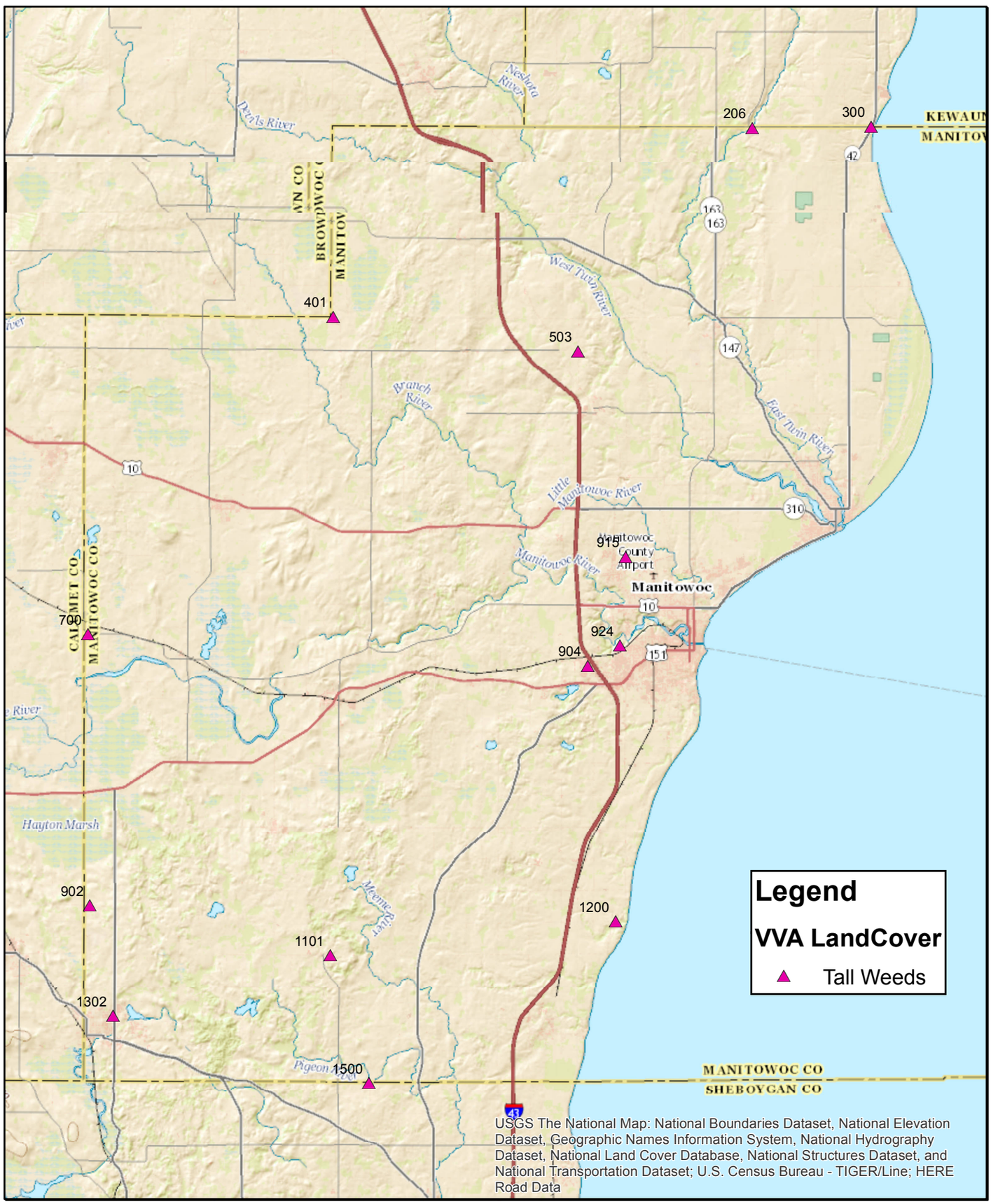
Land Cover Type	# of Points	NVA	VVA
LAS		95% conf. level	
1 - Bare Earth	20	0.351	
2 - Urban areas	25	0.259	
3 - Tall weeds	13		
5 - Forested areas	20		
7 - Swamps	2		
Total	80	0.303	
DEM		95% conf. level	95th Percentile
1 - Bare Earth	20	0.362	
2 - Urban areas	25	0.243	
3 - Tall weeds	13		0.472
5 - Forested areas	20		0.291
7 - Swamps	2		0.594
Total	80	0.302	0.501

Units: US Survey Feet

Map of NVA Checkpoint Locations



Map of VVA Checkpoint Locations - Tall Weeds



Map of VVA Checkpoint Locations - Forest



Map of VVA Checkpoint Locations - Swamp



LAS

Nonvegetated Vertical Accuracy

LandCover Type: 1 - Bare Earth, 2 - Urban areas

Minimum DZ: -0.278

Maximum DZ: 0.406

Mean DZ: 0.018

Mean Magnitude DZ: 0.35

Number Observations: 45

Standard Deviation DZ: 0.155

RMSE Z: 0.155

95% Confidence Level Z: 0.303

Units: US Survey Feet

DEM

Nonvegetated Vertical Accuracy

LandCover Type: 1 - Bare Earth, 2 - Urban areas

Minimum DZ: -0.254

Maximum DZ: 0.439

Mean DZ: 0.024

Mean Magnitude DZ: 0.349

Number Observations: 45

Standard Deviation DZ: 0.154

RMSE Z: 0.154

95% Confidence Level Z: 0.302

Units: US Survey Feet

DEM (Continued)

Vegetated Vertical Accuracy

LandCover Type: 3 - Tall weeds

Minimum DZ: -0.155

Maximum DZ: 0.504

Mean DZ: 0.217

Mean Magnitude DZ: 0.491

Number Observations: 13

Standard Deviation DZ: 0.172

RMSE Z: 0.273

95th Percentile: 0.472

Units: US Survey Feet

DEM (Continued)

Vegetated Vertical Accuracy

LandCover Type: 5 - Forested areas

Minimum DZ: -0.222

Maximum DZ: 0.454

Mean DZ: 0.094

Mean Magnitude DZ: 0.384

Number Observations: 20

Standard Deviation DZ: 0.16

RMSE Z: 0.182

95th Percentile: 0.291

Units: US Survey Feet

DEM (Continued)

Vegetated Vertical Accuracy

LandCover Type: 7 - Swamps
Minimum DZ: 0.554
Maximum DZ: 0.594
Mean DZ: 0.574
Mean Magnitude DZ: 0.758
Number Observations: 2
Standard Deviation DZ: 0.028
RMSE Z: 0.574
95th Percentile: 0.594
Units: US Survey Feet

Point: 100 Bare Earth

Survey X: 173634.56, Survey Y: 386765.47, Z1: 856.48, Z DEM: 856.92, Z LAS: 856.89, LC Type: 1, ΔZ DEM: 0.44, ΔZ LAS: 0.41



North



South



East



West

Point: 103 Forest

Survey X: 174451.49, Survey Y: 386997.28, Z1: 855.14, Z DEM: 855.6, Z LAS: 855.54, LC Type: 5, ΔZ DEM: 0.45, ΔZ LAS: 0.4



North



South



East



West

Point: 106 Bare Earth

Survey X: 202158, Survey Y: 386782.92, Z1: 762.33, Z DEM: 762.52, Z LAS: 762.55, LC Type: 1, ΔZ DEM: 0.19, ΔZ LAS: 0.22



North



South



East



West

Point: 107 Forest

Survey X: 202030.31, Survey Y: 386586.44, Z1: 762.09, Z DEM: 762.27, Z LAS: 762.43, LC Type: 5, ΔZ DEM: 0.18, ΔZ LAS: 0.34



North



South



East



West

Point: 200 Forest

Survey X: 220791.35, Survey Y: 386736.4, Z1: 731.41, Z DEM: 731.27, Z LAS: 732.02, LC Type: 5, ΔZ DEM: -0.14, ΔZ LAS: 0.61



North



South



East



West

Point: 201 Bare Earth

Survey X: 220748.66, Survey Y: 386744.77, Z1: 732, Z DEM: 731.91, Z LAS: 731.87, LC Type: 1, ΔZ DEM: -0.09, ΔZ LAS: -0.13



North



South



East



West

Point: 204 Urban Area

Survey X: 242760.7, Survey Y: 386698.11, Z1: 637.46, Z DEM: 637.2, Z LAS: 637.24, LC Type: 2, ΔZ DEM: -0.25, ΔZ LAS: -0.22



North



South



East



West

Point: 205 Bare Earth

Survey X: 242671.29, Survey Y: 387131.44, Z1: 638.52, Z DEM: 638.49, Z LAS: 638.48, LC Type: 1, ΔZ DEM: -0.04, ΔZ LAS: -0.04



North



South



East



West

Point: 206 Tall Weeds

Survey X: 243375.13, Survey Y: 386612.63, Z1: 633.44, Z DEM: 633.29, Z LAS: 633.32, LC Type: 3, ΔZ DEM: -0.15, ΔZ LAS: -0.13



North



South



East



West

Point: 300 Tall Weeds

Survey X: 263139.12, Survey Y: 386792.84, Z1: 618.98, Z DEM: 619.09, Z LAS: 619.09, LC Type: 3, ΔZ DEM: 0.11, ΔZ LAS: 0.11



North



South



East



West

Point: 301 Forest

Survey X: 263421.24, Survey Y: 386736.29, Z1: 618.04, Z DEM: 618.04, Z LAS: 617.97, LC Type: 5, ΔZ DEM: -0.01, ΔZ LAS: -0.07



North



South



East



West

Point: 302 Bare Earth

Survey X: 263407.03, Survey Y: 386686.91, Z1: 620.01, Z DEM: 619.81, Z LAS: 619.82, LC Type: 1, ΔZ DEM: -0.2, ΔZ LAS: -0.2



North



South



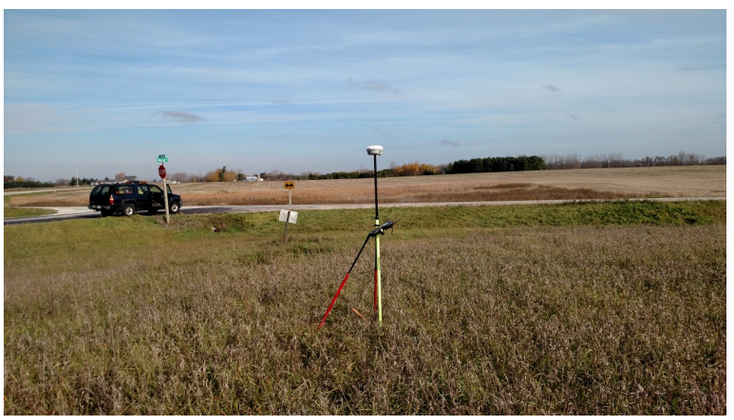
East



West

Point: 401 Tall Weeds

Survey X: 173736.69, Survey Y: 355242.69, Z1: 852.95, Z DEM: 853.45, Z LAS: 853.42, LC Type: 3, ΔZ DEM: 0.5, ΔZ LAS: 0.47



North



South



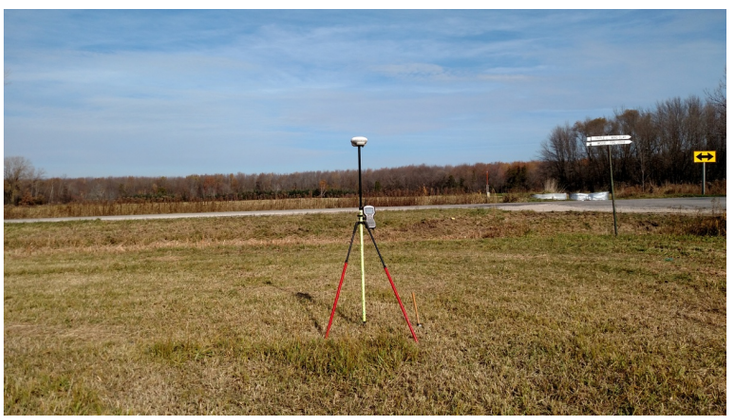
East



West

Point: 403 Bare Earth

Survey X: 132670.56, Survey Y: 355508.08, Z1: 887.77, Z DEM: 887.69, Z LAS: 887.66, LC Type: 1, ΔZ DEM: -0.08, ΔZ LAS: -0.11



North



South



East



West

Point: 406 Urban Area

Survey X: 155862.68, Survey Y: 322628.58, Z1: 823.79, Z DEM: 823.65, Z LAS: 823.64, LC Type: 2, ΔZ DEM: -0.14, ΔZ LAS: -0.16



North



South



East



West

Point: 407 Bare Earth

Survey X: 155764.96, Survey Y: 322584.64, Z1: 823.43, Z DEM: 823.39, Z LAS: 823.4, LC Type: 1, ΔZ DEM: -0.04, ΔZ LAS: -0.02



North



South



East



West

Point: 410 Forest

Survey X: 155773.48, Survey Y: 323184.48, Z1: 823.32, Z DEM: 823.42, Z LAS: 823.42, LC Type: 5, ΔZ DEM: 0.1, ΔZ LAS: 0.1



North



South



East



West

Point: 500 Bare Earth

Survey X: 240880.83, Survey Y: 353939.3, Z1: 610.91, Z DEM: 611.12, Z LAS: 611.07, LC Type: 1, ΔZ DEM: 0.21, ΔZ LAS: 0.16



North



South



East



West

Point: 501 Urban Area

Survey X: 240944.79, Survey Y: 353884.09, Z1: 613.85, Z DEM: 613.88, Z LAS: 613.9, LC Type: 2, ΔZ DEM: 0.03, ΔZ LAS: 0.05



North



South



East



West

Point: 502 Forest

Survey X: 214310.08, Survey Y: 349459.35, Z1: 745.29, Z DEM: 745.42, Z LAS: 745.61, LC Type: 5, ΔZ DEM: 0.14, ΔZ LAS: 0.32



North



South



West

East (No image)

Point: 503 Tall Weeds

Survey X: 214437.25, Survey Y: 349451.85, Z1: 740.57, Z DEM: 740.83, Z LAS: 740.79, LC Type: 3, ΔZ DEM: 0.26, ΔZ LAS: 0.22



North



South



East



West

Point: 504 Swamp

Survey X: 214553.68, Survey Y: 349401.45, Z1: 738.26, Z DEM: 738.82, Z LAS: 739.09, LC Type: 7, ΔZ DEM: 0.55, ΔZ LAS: 0.82



North



South



East



West

Point: 505 Urban Area

Survey X: 240463.03, Survey Y: 354416.84, Z1: 614.45, Z DEM: 614.42, Z LAS: 614.4, LC Type: 2, ΔZ DEM: -0.04, ΔZ LAS: -0.05



North



South



East



West

Point: 506 Forest

Survey X: 236285.85, Survey Y: 356229.93, Z1: 643.16, Z DEM: 643.03, Z LAS: 642.96, LC Type: 5, ΔZ DEM: -0.12, ΔZ LAS: -0.2



North



South



East



West

Point: 507 Urban Area

Survey X: 196077.77, Survey Y: 339112.88, Z1: 855.07, Z DEM: 855.03, Z LAS: 855.04, LC Type: 2, ΔZ DEM: -0.04, ΔZ LAS: -0.03



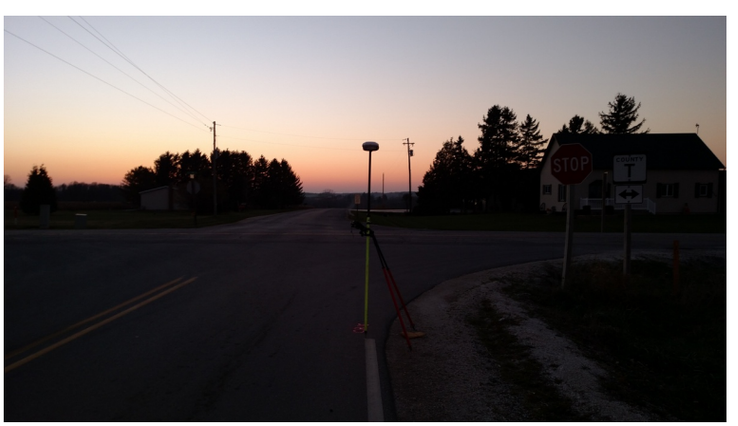
North



South



East



West

Point: 602 Urban Area

Survey X: 251460.05, Survey Y: 330863.42, Z1: 610.07, Z DEM: 610.16, Z LAS: 610.18, LC Type: 2, ΔZ DEM: 0.09, ΔZ LAS: 0.11



North



South



East



West

Point: 603 Urban Area

Survey X: 252854.42, Survey Y: 328770.96, Z1: 604.64, Z DEM: 604.7, Z LAS: 604.71, LC Type: 2, ΔZ DEM: 0.07, ΔZ LAS: 0.07



North



South



East



West

Point: 604 Urban Area

Survey X: 256858.65, Survey Y: 326117.71, Z1: 593.43, Z DEM: 593.52, Z LAS: 593.51, LC Type: 2, ΔZ DEM: 0.09, ΔZ LAS: 0.07



North



South



East



West

Point: 605 Forest

Survey X: 256891.02, Survey Y: 325777.38, Z1: 593.37, Z DEM: 593.53, Z LAS: 593.56, LC Type: 5, ΔZ DEM: 0.16, ΔZ LAS: 0.2



North



South



East



West

Point: 606 Urban Area

Survey X: 251350.86, Survey Y: 316916.89, Z1: 596.82, Z DEM: 597.03, Z LAS: 597.06, LC Type: 2, ΔZ DEM: 0.2, ΔZ LAS: 0.23



North



South



East



West

Point: 607 Forest

Survey X: 252080.47, Survey Y: 320817.34, Z1: 588.14, Z DEM: 588.29, Z LAS: 588.23, LC Type: 5, ΔZ DEM: 0.16, ΔZ LAS: 0.09



North



South



East



West

Point: 700 Tall Weeds

Survey X: 133015.38, Survey Y: 302453.21, Z1: 825.95, Z DEM: 826.2, Z LAS: 826.16, LC Type: 3, ΔZ DEM: 0.25, ΔZ LAS: 0.21



North



South



East



West

Point: 701 Bare Earth

Survey X: 133016.66, Survey Y: 302568.93, Z1: 829.45, Z DEM: 829.52, Z LAS: 829.48, LC Type: 1, ΔZ DEM: 0.08, ΔZ LAS: 0.03



North



South



East



West

Point: 704 Urban Area

Survey X: 132436.08, Survey Y: 304622.59, Z1: 840.97, Z DEM: 840.86, Z LAS: 840.87, LC Type: 2, ΔZ DEM: -0.12, ΔZ LAS: -0.1



North



South



East



West

Point: 707 Forest

Survey X: 132527.13, Survey Y: 304714.64, Z1: 838.58, Z DEM: 838.57, Z LAS: 838.51, LC Type: 5, ΔZ DEM: 0, ΔZ LAS: -0.06



North



South



East



West

Point: 800 Urban Area

Survey X: 174829.3, Survey Y: 294228.24, Z1: 907.75, Z DEM: 907.75, Z LAS: 907.74, LC Type: 2, ΔZ DEM: 0, ΔZ LAS: -0.01



North



South



East



West

Point: 801 Bare Earth

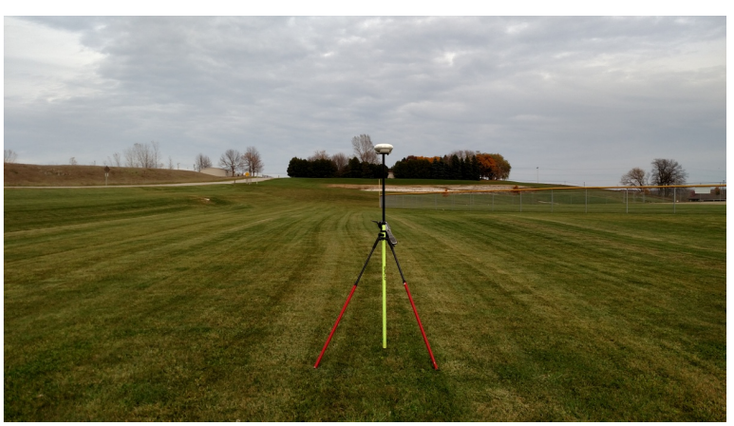
Survey X: 173854.77, Survey Y: 294152.77, Z1: 873.06, Z DEM: 873.32, Z LAS: 873.34, LC Type: 1, ΔZ DEM: 0.27, ΔZ LAS: 0.29



North



South



East



West

Point: 803 Bare Earth

Survey X: 190402.16, Survey Y: 308672.87, Z1: 793.71, Z DEM: 793.78, Z LAS: 793.79, LC Type: 1, ΔZ DEM: 0.07, ΔZ LAS: 0.09



North



South



East



West

Point: 807 Bare Earth

Survey X: 162463.09, Survey Y: 270275.22, Z1: 844.38, Z DEM: 844.68, Z LAS: 844.67, LC Type: 1, ΔZ DEM: 0.3, ΔZ LAS: 0.29



North



South



East



West

Point: 808 Forest

Survey X: 162825.7, Survey Y: 270190.87, Z1: 843.16, Z DEM: 843.41, Z LAS: 843.37, LC Type: 5, ΔZ DEM: 0.25, ΔZ LAS: 0.21



North



South



East



West

Point: 900 Forest

Survey X: 132727.59, Survey Y: 257524.46, Z1: 900.58, Z DEM: 900.84, Z LAS: 900.91, LC Type: 5, ΔZ DEM: 0.27, ΔZ LAS: 0.33



North



South



East



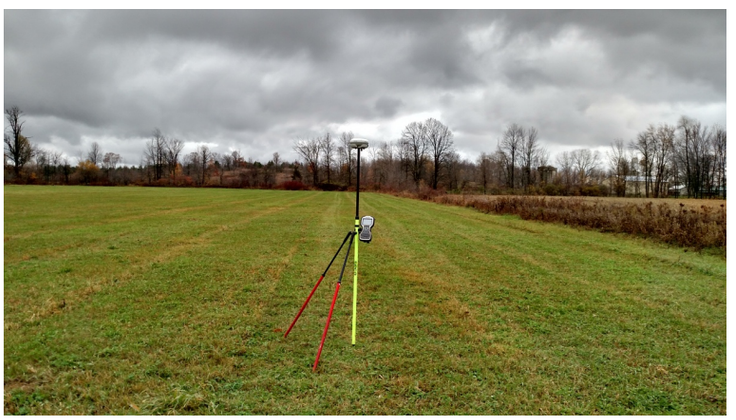
West

Point: 901 Bare Earth

Survey X: 133931.77, Survey Y: 257340.13, Z1: 881.02, Z DEM: 881.25, Z LAS: 881.25, LC Type: 1, ΔZ DEM: 0.23, ΔZ LAS: 0.24



North



South



East



West

Point: 902 Tall Weeds

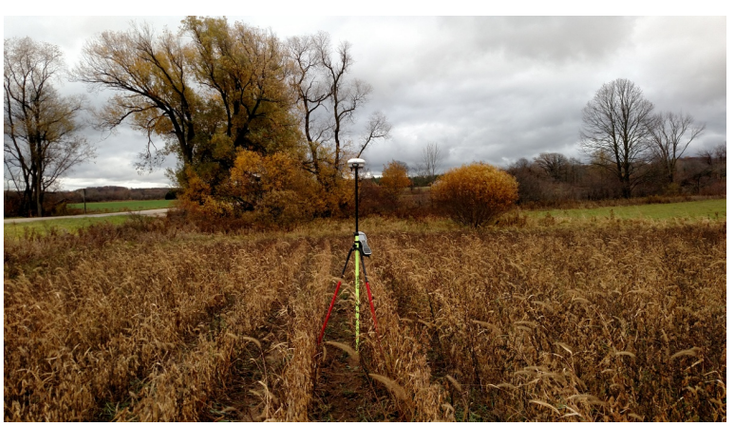
Survey X: 133330.64, Survey Y: 257376.44, Z1: 883.68, Z DEM: 884.15, Z LAS: 884.18, LC Type: 3, ΔZ DEM: 0.47, ΔZ LAS: 0.5



North



South



East



West

Point: 903 Urban Area

Survey X: 221138.25, Survey Y: 292773.23, Z1: 682.55, Z DEM: 682.41, Z LAS: 682.32, LC Type: 2, ΔZ DEM: -0.14, ΔZ LAS: -0.23



North



South



East



West

Point: 904 Tall Weeds

Survey X: 216002.34, Survey Y: 297182.53, Z1: 727.31, Z DEM: 727.36, Z LAS: 727.46, LC Type: 3, ΔZ DEM: 0.06, ΔZ LAS: 0.16



North



South



East



West

Point: 905 Bare Earth

Survey X: 216105.71, Survey Y: 296376.91, Z1: 736.23, Z DEM: 736.31, Z LAS: 736.28, LC Type: 1, ΔZ DEM: 0.08, ΔZ LAS: 0.05



North



South



East



West

Point: 906 Bare Earth

Survey X: 215789.32, Survey Y: 296014.9, Z1: 741.28, Z DEM: 741.22, Z LAS: 741.19, LC Type: 1, ΔZ DEM: -0.06, ΔZ LAS: -0.09



North



South



East



West

Point: 907 Urban Area

Survey X: 213737.06, Survey Y: 297887.79, Z1: 736.59, Z DEM: 736.78, Z LAS: 736.81, LC Type: 2, ΔZ DEM: 0.19, ΔZ LAS: 0.22



North



South



East



West

Point: 908 Urban Area

Survey X: 224042.95, Survey Y: 299139.69, Z1: 647.48, Z DEM: 647.58, Z LAS: 647.57, LC Type: 2, ΔZ DEM: 0.11, ΔZ LAS: 0.1



North



South



East



West

Point: 909 Urban Area

Survey X: 229083.35, Survey Y: 296154.61, Z1: 638.06, Z DEM: 638.13, Z LAS: 638.13, LC Type: 2, ΔZ DEM: 0.07, ΔZ LAS: 0.07



North



South



East



West

Point: 910 Forest

Survey X: 231537.03, Survey Y: 291511.56, Z1: 614.47, Z DEM: 614.6, Z LAS: 614.54, LC Type: 5, ΔZ DEM: 0.12, ΔZ LAS: 0.07



North



South



East



West

Point: 911 Urban Area

Survey X: 231452.33, Survey Y: 291618.46, Z1: 616.57, Z DEM: 616.53, Z LAS: 616.54, LC Type: 2, ΔZ DEM: -0.03, ΔZ LAS: -0.03



North



South



East



West

Point: 912 Urban Area

Survey X: 222244.53, Survey Y: 307070.19, Z1: 656.4, Z DEM: 656.24, Z LAS: 656.28, LC Type: 2, ΔZ DEM: -0.16, ΔZ LAS: -0.13



North



South



East



West

Point: 914 Bare Earth

Survey X: 221056.86, Survey Y: 312934.63, Z1: 669.23, Z DEM: 669.21, Z LAS: 669.23, LC Type: 1, ΔZ DEM: -0.02, ΔZ LAS: 0



North



South



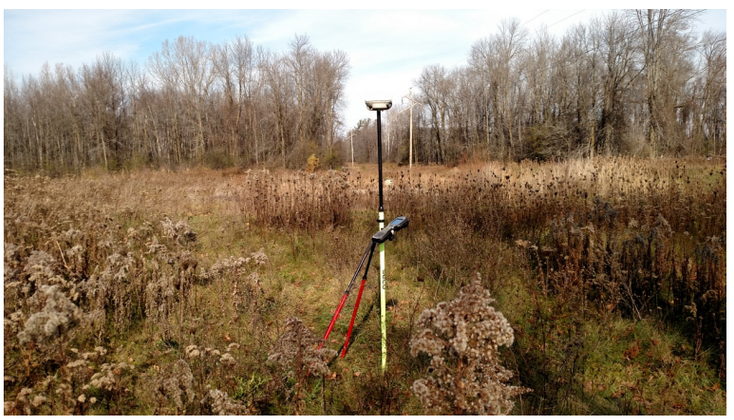
East



West

Point: 915 Tall Weeds

Survey X: 222324.81, Survey Y: 315295.09, Z1: 662.71, Z DEM: 662.83, Z LAS: 662.86, LC Type: 3, ΔZ DEM: 0.12, ΔZ LAS: 0.15



North



South



East



West

Point: 916 Forest

Survey X: 222184.52, Survey Y: 315097.66, Z1: 665.24, Z DEM: 665.28, Z LAS: 665.3, LC Type: 5, ΔZ DEM: 0.04, ΔZ LAS: 0.06



North



South



East



West

Point: 917 Forest

Survey X: 233965.94, Survey Y: 308280.4, Z1: 626.89, Z DEM: 626.67, Z LAS: 626.66, LC Type: 5, ΔZ DEM: -0.22, ΔZ LAS: -0.23



North



South



East



West

Point: 918 Urban Area

Survey X: 234030.62, Survey Y: 308140.6, Z1: 616.53, Z DEM: 616.46, Z LAS: 616.46, LC Type: 2, ΔZ DEM: -0.07, ΔZ LAS: -0.07



North



South



East



West

Point: 919 Urban Area

Survey X: 237033.36, Survey Y: 306072, Z1: 598.17, Z DEM: 597.95, Z LAS: 597.89, LC Type: 2, ΔZ DEM: -0.22, ΔZ LAS: -0.28



North



South



East



West

Point: 920 Urban Area

Survey X: 233878.27, Survey Y: 295239.88, Z1: 604.4, Z DEM: 604.31, Z LAS: 604.3, LC Type: 2, ΔZ DEM: -0.09, ΔZ LAS: -0.1



North



South



East



West

Point: 921 Forest

Survey X: 233508.33, Survey Y: 294640.03, Z1: 602.35, Z DEM: 602.47, Z LAS: 602.52, LC Type: 5, ΔZ DEM: 0.12, ΔZ LAS: 0.17



North



South



East



West

Point: 922 Urban Area

Survey X: 224981.3, Survey Y: 302182.14, Z1: 664.9, Z DEM: 664.88, Z LAS: 664.92, LC Type: 2, ΔZ DEM: -0.02, ΔZ LAS: 0.01



North



South



East



West

Point: 923 Urban Area

Survey X: 220397.37, Survey Y: 294834.05, Z1: 689.46, Z DEM: 689.44, Z LAS: 689.43, LC Type: 2, ΔZ DEM: -0.02, ΔZ LAS: -0.03



North



South



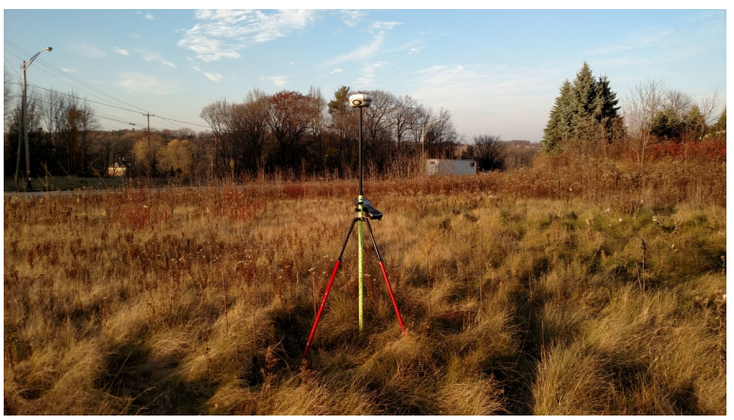
East



West

Point: 924 Tall Weeds

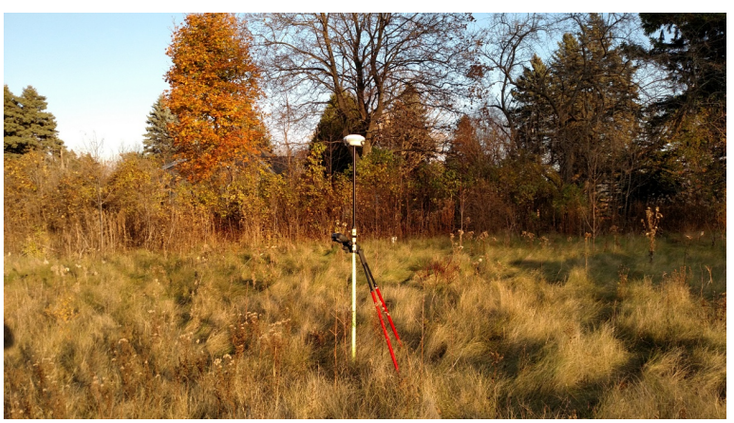
Survey X: 221399.7, Survey Y: 300543.27, Z1: 667.85, Z DEM: 668, Z LAS: 668.06, LC Type: 3, ΔZ DEM: 0.14, ΔZ LAS: 0.2



North



South



East



West

Point: 925 Forest

Survey X: 220694.22, Survey Y: 296874.74, Z1: 683.62, Z DEM: 683.58, Z LAS: 683.77, LC Type: 5, ΔZ DEM: -0.04, ΔZ LAS: 0.15



North



South



East



West

Point: 1100 Bare Earth

Survey X: 173225.44, Survey Y: 249164.42, Z1: 908.09, Z DEM: 908.37, Z LAS: 908.37, LC Type: 1, ΔZ DEM: 0.28, ΔZ LAS: 0.28



North



South



East



West

Point: 1101 Tall Weeds

Survey X: 173281.46, Survey Y: 249025.12, Z1: 903.21, Z DEM: 903.54, Z LAS: 903.67, LC Type: 3, ΔZ DEM: 0.32, ΔZ LAS: 0.46



North



South



East



West

Point: 1103 Forest

Survey X: 178056.91, Survey Y: 248465.73, Z1: 827.1, Z DEM: 827.14, Z LAS: 827.36, LC Type: 5, ΔZ DEM: 0.05, ΔZ LAS: 0.26



North



South



East



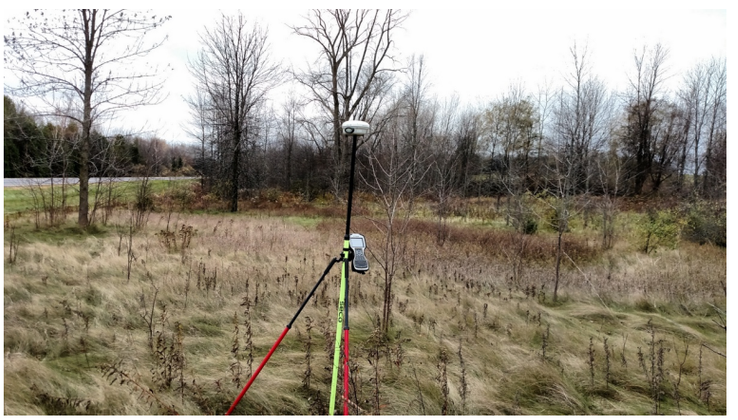
West

Point: 1200 Tall Weeds

Survey X: 220660.06, Survey Y: 254657.31, Z1: 597.97, Z DEM: 598.24, Z LAS: 598.34, LC Type: 3, ΔZ DEM: 0.28, ΔZ LAS: 0.37



North



South



East



West

Point: 1201 Bare Earth

Survey X: 220770.77, Survey Y: 254864.29, Z1: 600.5, Z DEM: 600.64, Z LAS: 600.6, LC Type: 1, ΔZ DEM: 0.14, ΔZ LAS: 0.11



North



South



East



West

Point: 1202 Forest

Survey X: 220411.43, Survey Y: 254182.43, Z1: 595.39, Z DEM: 595.48, Z LAS: 595.58, LC Type: 5, ΔZ DEM: 0.09, ΔZ LAS: 0.2



North



South



East



West

Point: 1203 Urban Area

Survey X: 206533.37, Survey Y: 275678.62, Z1: 753.06, Z DEM: 752.98, Z LAS: 752.97, LC Type: 2, ΔZ DEM: -0.08, ΔZ LAS: -0.08



North



South



East



West

Point: 1300 Urban Area

Survey X: 134263.03, Survey Y: 239618.34, Z1: 938.71, Z DEM: 938.7, Z LAS: 938.67, LC Type: 2, ΔZ DEM: -0.02, ΔZ LAS: -0.05



North



South



East



West

Point: 1301 Bare Earth

Survey X: 134372.75, Survey Y: 239669.62, Z1: 940.62, Z DEM: 940.7, Z LAS: 940.67, LC Type: 1, ΔZ DEM: 0.09, ΔZ LAS: 0.05



North



South



East



West

Point: 1302 Tall Weeds

Survey X: 137188.4, Survey Y: 239032.36, Z1: 910.17, Z DEM: 910.38, Z LAS: 910.45, LC Type: 3, ΔZ DEM: 0.21, ΔZ LAS: 0.27



North



South



East



West

Point: 1303 Urban Area

Survey X: 136573.51, Survey Y: 236381.31, Z1: 889.42, Z DEM: 889.17, Z LAS: 889.22, LC Type: 2, ΔZ DEM: -0.24, ΔZ LAS: -0.2



North



South



East



West

Point: 1400 Forest

Survey X: 213897.36, Survey Y: 227970.31, Z1: 635.47, Z DEM: 635.76, Z LAS: 635.82, LC Type: 5, ΔZ DEM: 0.29, ΔZ LAS: 0.35



North



South



East



West

Point: 1500 Tall Weeds

Survey X: 179700.4, Survey Y: 227848, Z1: 803.89, Z DEM: 804.14, Z LAS: 804.24, LC Type: 3, ΔZ DEM: 0.25, ΔZ LAS: 0.35



North



South



East



West

Point: 1501 Bare Earth

Survey X: 180162.71, Survey Y: 228002.21, Z1: 800.72, Z DEM: 800.77, Z LAS: 800.74, LC Type: 1, ΔZ DEM: 0.05, ΔZ LAS: 0.02



North



South



East



West

Point: 1502 Swamp

Survey X: 175501.8, Survey Y: 227924.29, Z1: 812.63, Z DEM: 813.22, Z LAS: 813.26, LC Type: 7, ΔZ DEM: 0.59, ΔZ LAS: 0.63



North



South



East



West