

Langlade County WROC – 3DEP
Langlade County
Lidar 2017

Vertical Accuracy Report

June 2018

Project Information

Prepared By: Ayres Associates

Project Name: Wisconsin WROC - 3DEP Langlade County Lidar 2017

Sensor Info: Leica ALS 70 SN 7161 and 7178

Required Nominal Pulse Spacing: 0.7

Contractor Name: Ayres Associates

Units: US Survey Feet

Date of Acquisition: Start: 4/16/2017 Finish: 4/29/2017

Report Information

This report documents the absolute vertical accuracy of the lidar data collected for the Langlade 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 from April 25, 2017, to May 5, 2017.

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, 56 NVA points and 45 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.

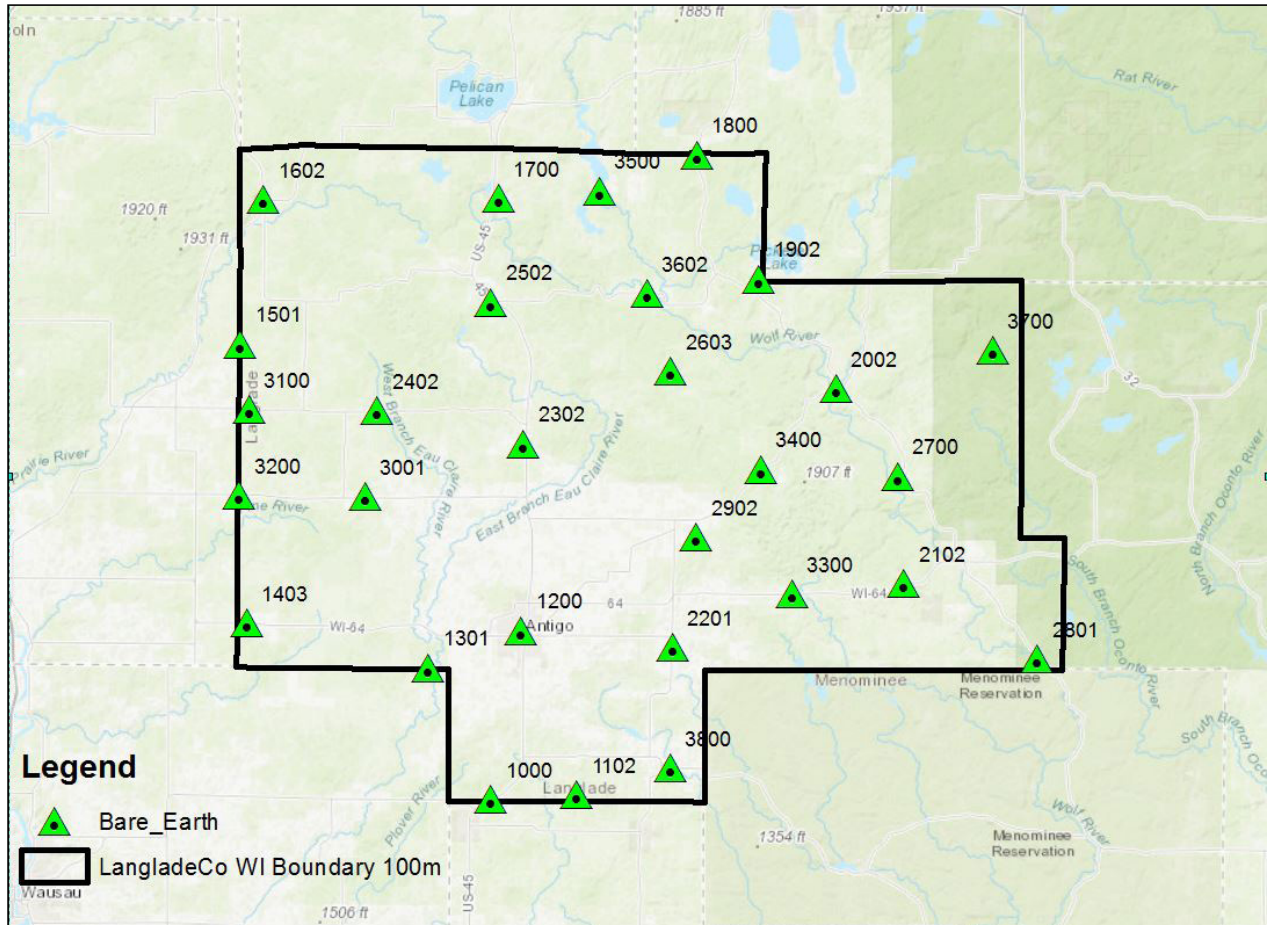
The NVA and VVA statistics for this project are within the above stated specifications.

Lidar Accuracy Assessment Summary

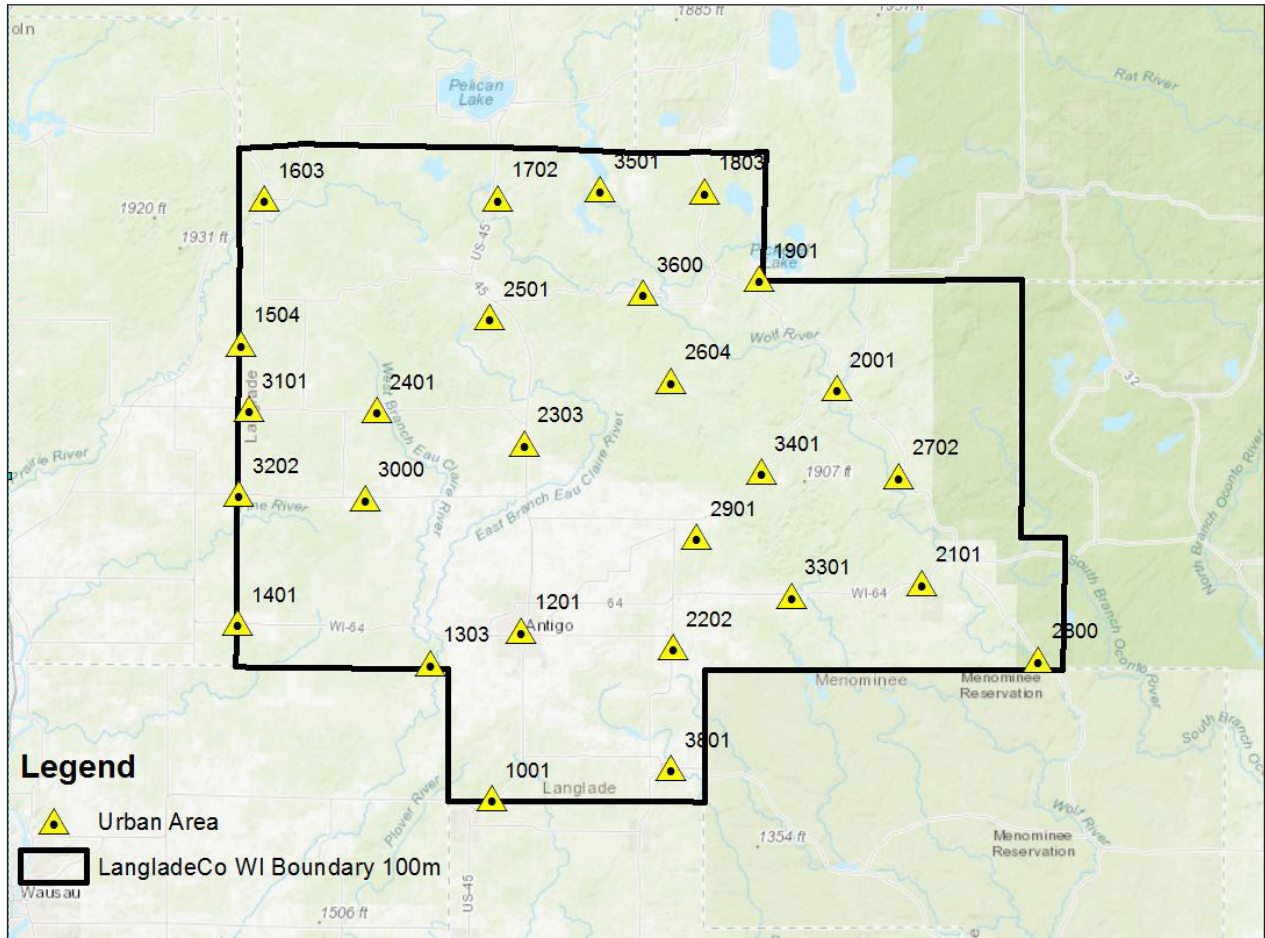
LAND COVER TYPE	# OF POINTS	NVA	VVA
LAS		95% confidence level	N/A
1. Bare Earth	29	0.270	N/A
2. Urban Areas	27	0.225	N/A
3. Tall Weeds	25	N/A	N/A
5. Forest	10	N/A	N/A
7. Swamp	10	N/A	N/A
TOTAL	101	0.249	N/A
DEM		95% confidence level	95th percentile
1. Bare Earth	29	0.305	N/A
2. Urban Areas	27	0.219	N/A
3. Tall Weeds	25	N/A	0.765
5. Forest	10	N/A	0.680
7. Swamp	10	N/A	1.113
TOTAL	101	0.267	0.765

Units: US Survey Feet

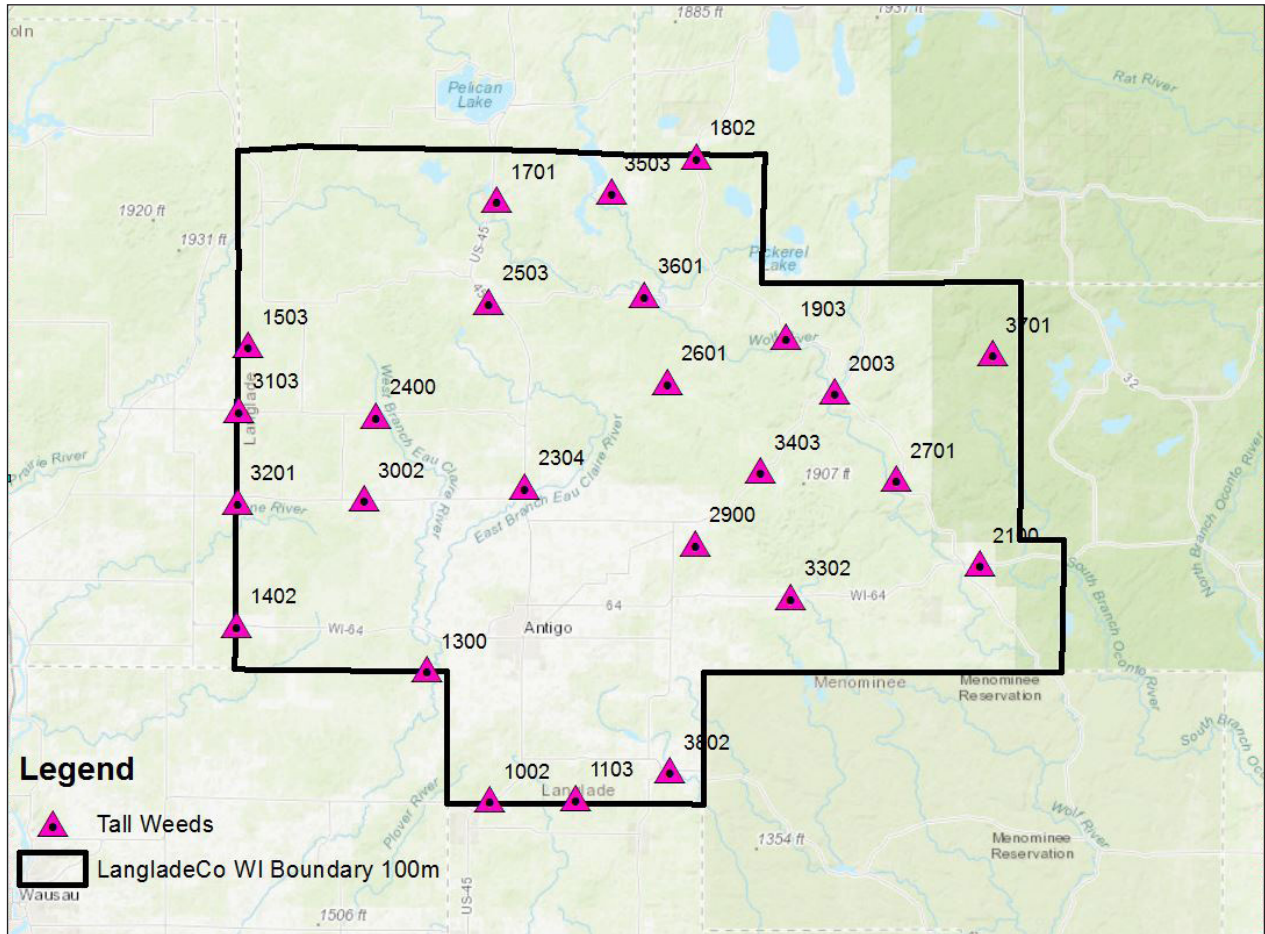
Map of NVA Checkpoint Locations - 1. Bare Earth



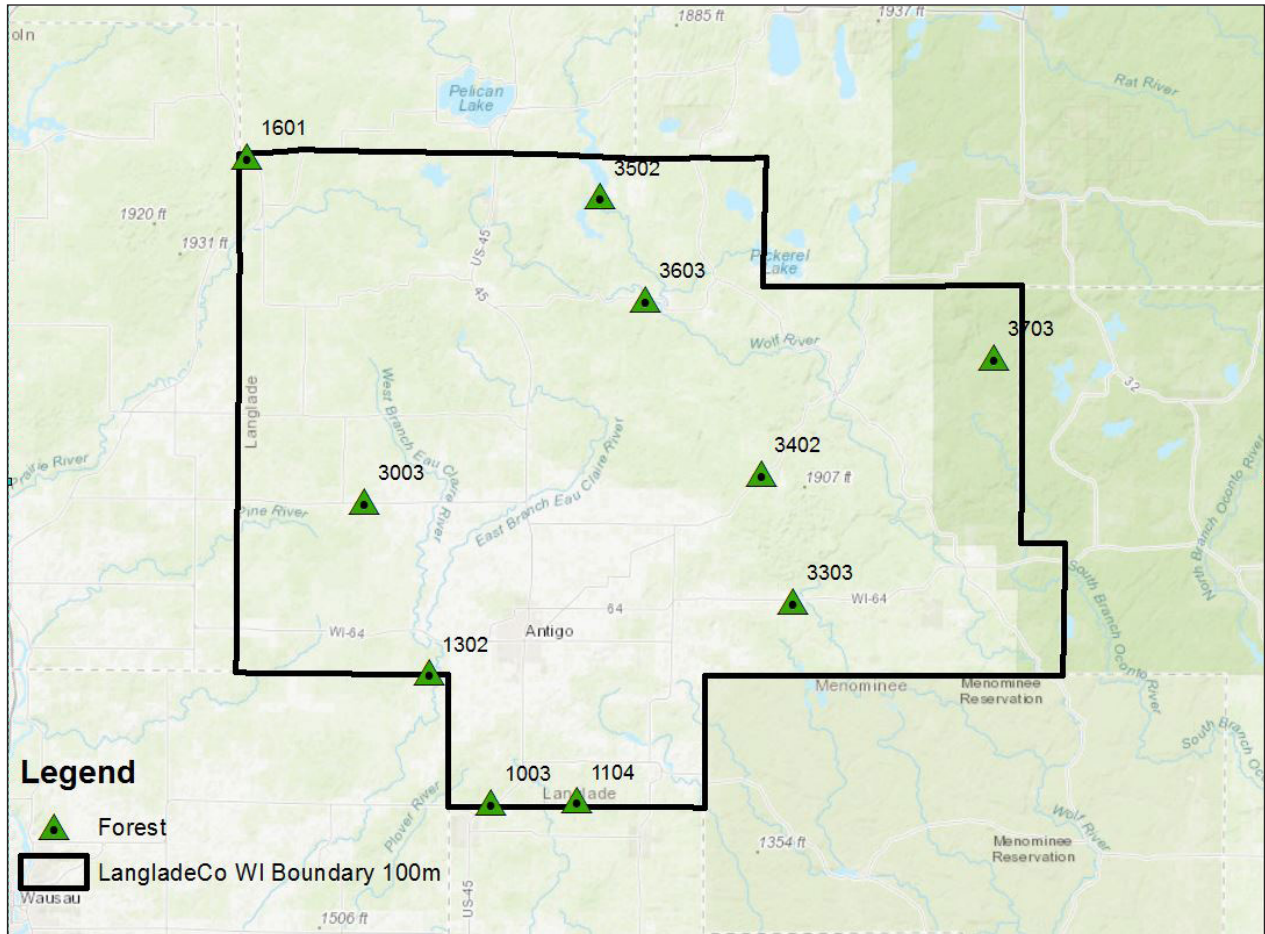
Map of NVA Checkpoint Locations - 2. Urban Area



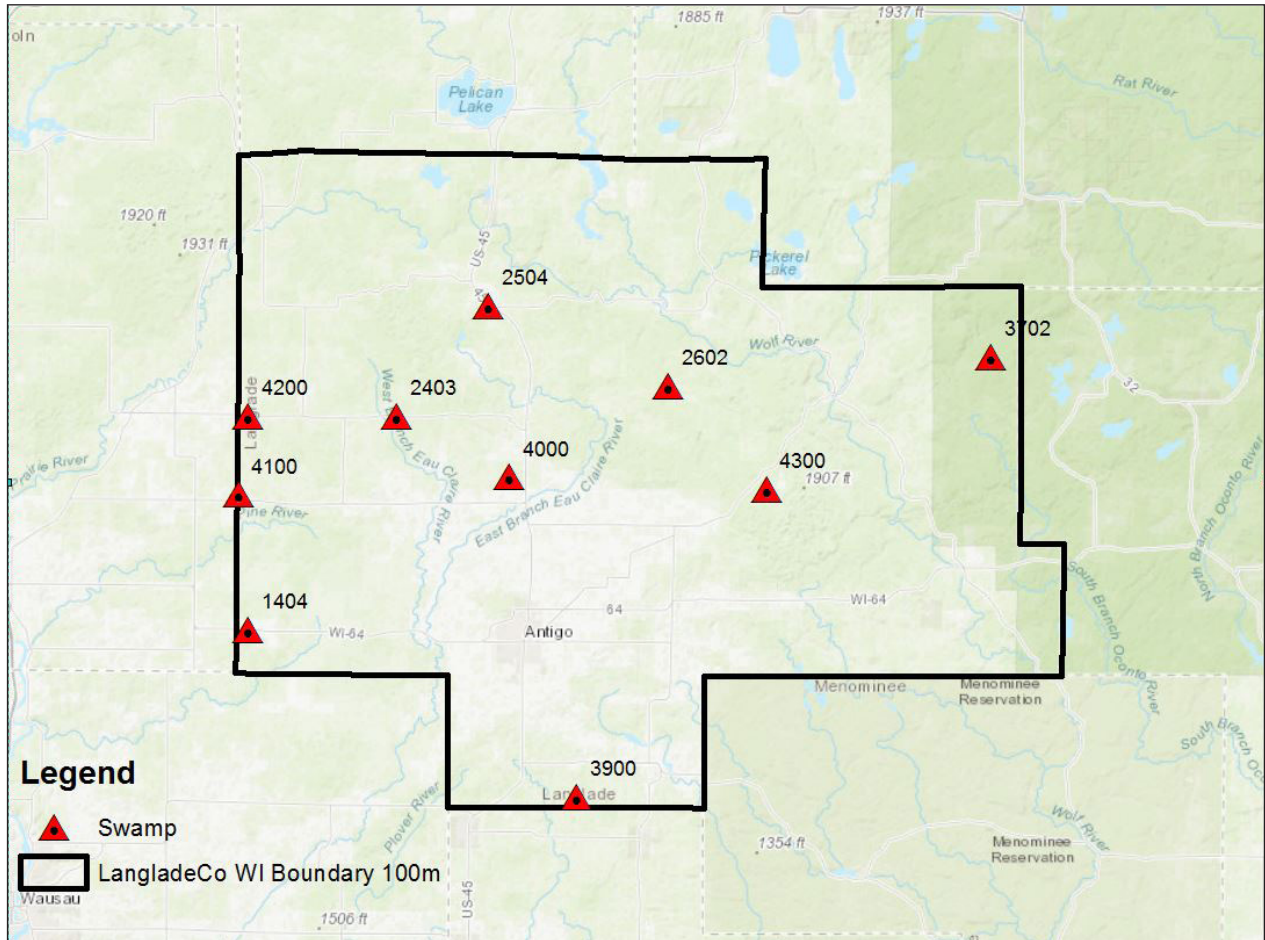
Map of VVA Checkpoint Locations - 3. Tall Weeds



Map of VVA Checkpoint Locations - 5. Forested Areas



Map of VVA Checkpoint Locations - 7. Swamp



LAS

NONVEGETATED VERTICAL ACCURACY – OVERALL	
Land Cover Type	1. Bare Earth, 2 Urban Areas
Minimum DZ	-0.217
Maximum DZ	0.369
Mean DZ	0.006
Mean Magnitude DZ	0.32
Number Observations	56
Standard Deviation DZ	0.128
RMSE Z	0.127
95% Confidence Level Z	0.249
Units	US Survey Feet

DEM

NONVEGETATED VERTICAL ACCURACY – OVERALL	
Land Cover Type	1. Bare Earth, 2. Urban Area
Minimum DZ	-0.209
Maximum DZ	0.402
Mean DZ	0.034
Mean Magnitude DZ	0.333
Number Observations	56
Standard Deviation DZ	0.133
RMSE Z	0.136
95% Confidence Level Z	0.267
Units	US Survey Feet

DEM (Continued)

VEGETATED VERTICAL ACCURACY	
Land Cover Type	3. Tall Weeds
Minimum DZ	0.071
Maximum DZ	0.776
Mean DZ	0.389
Mean Magnitude DZ	0.623
Number Observations	25
Standard Deviation DZ	0.194
RMSE Z	0.433
95th Percentile	0.765
Units	US Survey Feet

DEM (Continued)

VEGETATED VERTICAL ACCURACY	
Land Cover Type	5. Forest
Minimum DZ	-0.085
Maximum DZ	0.68
Mean DZ	0.212
Mean Magnitude DZ	0.479
Number Observations	10
Standard Deviation DZ	0.223
RMSE Z	0.3
95th Percentile	0.68
Units	US Survey Feet

DEM (Continued)

VEGETATED VERTICAL ACCURACY	
Land Cover Type	7. Swamp
Minimum DZ	0.043
Maximum DZ	1.113
Mean DZ	0.515
Mean Magnitude DZ	0.718
Number Observations	10
Standard Deviation DZ	0.348
RMSE Z	0.612
95th Percentile	1.113
Units	US Survey Feet

Point: 1000 Bare Earth

Survey X: 612181.85, Survey Y: 300071.3, Z1: 1411.68, Z DEM: 1411.64, Z LAS: 1411.65, LC Type: 1, ΔZ DEM: -0.04, ΔZ LAS: -0.03



North



South



East



West



Point: 1001 Urban Area

Survey X: 612203.83, Survey Y: 300275.33, Z1: 1413.94, Z DEM: 1413.85, Z LAS: 1413.81, LC Type: 2, ΔZ DEM: -0.09, ΔZ LAS: -0.13



North



South



East



West



Point: 1002 Tall Weeds

Survey X: 612085.19, Survey Y: 300646.96, Z1: 1403.53, Z DEM: 1403.79, Z LAS: 1403.75, LC Type: 3, ΔZ DEM: 0.26, ΔZ LAS: 0.22



North



South



East



West



Point: 1003 Forest

Survey X: 612093.3, Survey Y: 300737.59, Z1: 1401.43, Z DEM: 1401.55, Z LAS: 1401.5, LC Type: 5, ΔZ DEM: 0.12, ΔZ LAS: 0.07



North



South



East



West



Point: 1102 Bare Earth

Survey X: 633273.64, Survey Y: 301170.39, Z1: 1352.16, Z DEM: 1352.03, Z LAS: 1352.01, LC Type: 1, ΔZ DEM: -0.13, ΔZ LAS: -0.15



North



South



East



West



Point: 1103 Tall Weeds

Survey X: 633303.87, Survey Y: 301036.3, Z1: 1360.29, Z DEM: 1360.46, Z LAS: 1360.53, LC Type: 3, ΔZ DEM: 0.17, ΔZ LAS: 0.24



North



South



East



West



Point: 1104 Forest

Survey X: 633073.13, Survey Y: 301167.57, Z1: 1352.66, Z DEM: 1352.66, Z LAS: 1352.81, LC Type: 5, ΔZ DEM: 0, ΔZ LAS: 0.15



North



South



East



West



Point: 1200 Bare Earth

Survey X: 619501.87, Survey Y: 341534.77, Z1: 1499.41, Z DEM: 1499.51, Z LAS: 1499.58, LC Type: 1, ΔZ DEM: 0.1, ΔZ LAS: 0.17



North



South



East



West



Point: 1201 Urban Area

Survey X: 619472.53, Survey Y: 341588.11, Z1: 1499.87, Z DEM: 1499.99, Z LAS: 1500.01, LC Type: 2, ΔZ DEM: 0.12, ΔZ LAS: 0.14



North



South



East



West



Point: 1300 Tall Weeds

Survey X: 596601.05, Survey Y: 332528.03, Z1: 1452.68, Z DEM: 1453.32, Z LAS: 1453.27, LC Type: 3, ΔZ DEM: 0.64, ΔZ LAS: 0.59



North



South



East



West

Point: 1301 Bare Earth

Survey X: 596581.33, Survey Y: 332468.96, Z1: 1454.76, Z DEM: 1454.66, Z LAS: 1454.66, LC Type: 1, ΔZ DEM: -0.1, ΔZ LAS: -0.1



North



South



East



West



Point: 1302 Forest

Survey X: 596779.95, Survey Y: 332638, Z1: 1451.07, Z DEM: 1451.44, Z LAS: 1451.31, LC Type: 5, ΔZ DEM: 0.37, ΔZ LAS: 0.24



North



South



East



West



Point: 1303 Urban Area

Survey X: 597133.52, Survey Y: 333576.47, Z1: 1449.62, Z DEM: 1449.7, Z LAS: 1449.66, LC Type: 2, ΔZ DEM: 0.08, ΔZ LAS: 0.04



North



South



East



West

Point: 1401 Urban Area

Survey X: 549763.6, Survey Y: 343394.55, Z1: 1486.34, Z DEM: 1486.34, Z LAS: 1486.32, LC Type: 2, ΔZ DEM: 0, ΔZ LAS: -0.02



North



South



East



West



Point: 1402 Tall Weeds

Survey X: 549832.81, Survey Y: 343549.63, Z1: 1486.71, Z DEM: 1487.49, Z LAS: 1487.29, LC Type: 3, ΔZ DEM: 0.78, ΔZ LAS: 0.58



North



South



East



West



Point: 1403 Bare Earth

Survey X: 551995.22, Survey Y: 343407.79, Z1: 1493.38, Z DEM: 1493.29, Z LAS: 1493.31, LC Type: 1, ΔZ DEM: -0.09, ΔZ LAS: -0.07



North



South



East



West

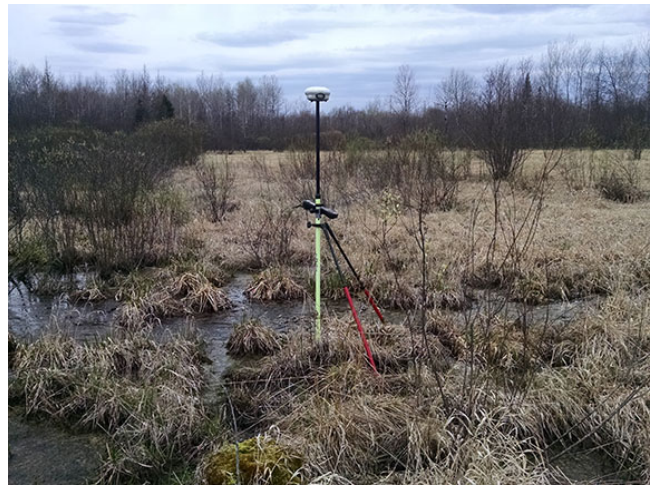


Point: 1404 Swamp

Survey X: 552380.14, Survey Y: 343307.46, Z1: 1489.08, Z DEM: 1489.63, Z LAS: 1489.65, LC Type: 7, ΔZ DEM: 0.55, ΔZ LAS: 0.57



North



South



East



West



Point: 1501 Bare Earth

Survey X: 550369.99, Survey Y: 412103.22, Z1: 1541.74, Z DEM: 1541.83, Z LAS: 1541.78, LC Type: 1, ΔZ DEM: 0.09, ΔZ LAS: 0.04



North



South



East



West

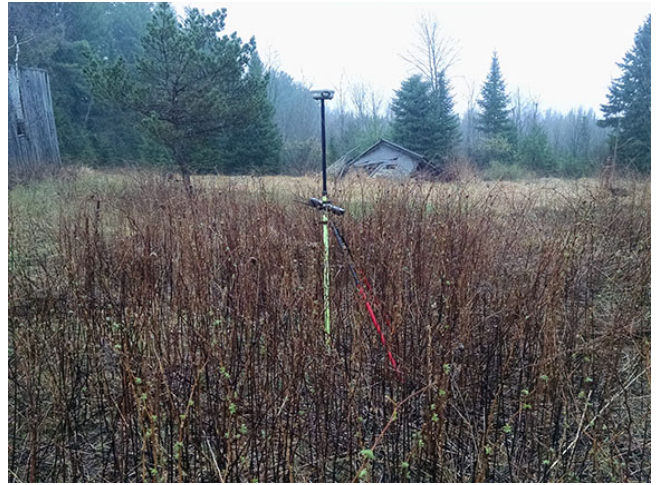


Point: 1503 Tall Weeds

Survey X: 552620.06, Survey Y: 412226.55, Z1: 1590.78, Z DEM: 1591, Z LAS: 1590.98, LC Type: 3, ΔZ DEM: 0.22, ΔZ LAS: 0.2



North



South



East



West

Point: 1504 Urban Area

Survey X: 550522.44, Survey Y: 412198.03, Z1: 1542.15, Z DEM: 1542.24, Z LAS: 1542.14, LC Type: 2, ΔZ DEM: 0.09, ΔZ LAS: -0.01



North



South



East



West



Point: 1601 Forest

Survey X: 552090.3, Survey Y: 459582.68, Z1: 1693.92, Z DEM: 1694.1, Z LAS: 1694.45, LC Type: 5, ΔZ DEM: 0.18, ΔZ LAS: 0.53



North



South



East



West

Point: 1602 Bare Earth

Survey X: 556057.6, Survey Y: 447709.53, Z1: 1660.32, Z DEM: 1660.47, Z LAS: 1660.44, LC Type: 1, ΔZ DEM: 0.15, ΔZ LAS: 0.12



North



South



East



West



Point: 1603 Urban Area

Survey X: 556486.96, Survey Y: 447641.08, Z1: 1656.21, Z DEM: 1656.38, Z LAS: 1656.28, LC Type: 2, ΔZ DEM: 0.17, ΔZ LAS: 0.07



North



South



East



West



Point: 1700 Bare Earth

Survey X: 613919.33, Survey Y: 447962.04, Z1: 1627.86, Z DEM: 1627.96, Z LAS: 1627.92, LC Type: 1, ΔZ DEM: 0.1, ΔZ LAS: 0.06



North



South



East



West



Point: 1701 Tall Weeds

Survey X: 613884.83, Survey Y: 447935.53, Z1: 1628.3, Z DEM: 1628.63, Z LAS: 1628.64, LC Type: 3, ΔZ DEM: 0.33, ΔZ LAS: 0.34



North



South



East



West



Point: 1702 Urban Area

Survey X: 613817.28, Survey Y: 447851.03, Z1: 1629.47, Z DEM: 1629.6, Z LAS: 1629.64, LC Type: 2, ΔZ DEM: 0.13, ΔZ LAS: 0.17



North



South



East



West



Point: 1800 Bare Earth

Survey X: 662743.73, Survey Y: 458655.28, Z1: 1557.07, Z DEM: 1557.1, Z LAS: 1557.09, LC Type: 1, ΔZ DEM: 0.03, ΔZ LAS: 0.02



North



South



East



West



Point: 1802 Tall Weeds

Survey X: 662782.51, Survey Y: 458690.22, Z1: 1556.79, Z DEM: 1557.24, Z LAS: 1556.99, LC Type: 3, ΔZ DEM: 0.45, ΔZ LAS: 0.2



North



South



East



West



Point: 1803 Urban Area

Survey X: 664636.29, Survey Y: 449493.15, Z1: 1555.77, Z DEM: 1555.85, Z LAS: 1555.87, LC Type: 2, ΔZ DEM: 0.08, ΔZ LAS: 0.1



North



South



East



West



Point: 1901 Urban Area

Survey X: 678151.25, Survey Y: 428035.77, Z1: 1554.87, Z DEM: 1554.87, Z LAS: 1554.82, LC Type: 2, ΔZ DEM: 0, ΔZ LAS: -0.05



North



South



East



West



Point: 1902 Bare Earth

Survey X: 678158.9, Survey Y: 428064.99, Z1: 1554.91, Z DEM: 1554.97, Z LAS: 1554.94, LC Type: 1, ΔZ DEM: 0.06, ΔZ LAS: 0.03



North



South



East



West



Point: 1903 Tall Weeds

Survey X: 685015.31, Survey Y: 414340.34, Z1: 1532.8, Z DEM: 1533.06, Z LAS: 1533.15, LC Type: 3, AZ DEM: 0.26, ΔZ LAS: 0.34



North



South



East



West



Point: 2001 Urban Area

Survey X: 697084.4, Survey Y: 401120.25, Z1: 1441.56, Z DEM: 1441.36, Z LAS: 1441.35, LC Type: 2, ΔZ DEM: -0.2, ΔZ LAS: -0.21



North



South



East



West



Point: 2002 Bare Earth

Survey X: 697085.73, Survey Y: 401163.03, Z1: 1440.8, Z DEM: 1440.68, Z LAS: 1440.64, LC Type: 1, ΔZ DEM: -0.12, ΔZ LAS: -0.16



North



South



East



West



Point: 2003 Tall Weeds

Survey X: 696936.02, Survey Y: 400900.17, Z1: 1437.63, Z DEM: 1438.05, Z LAS: 1437.97, LC Type: 3, ΔZ DEM: 0.42, ΔZ LAS: 0.34



North



South



East



West



Point: 2100 Tall Weeds

Survey X: 732494.55, Survey Y: 358572.29, Z1: 1310.77, Z DEM: 1311.2, Z LAS: 1311.25, LC Type: 3, ΔZ DEM: 0.43, ΔZ LAS: 0.48



North



South



East



West

Point: 2101 Urban Area

Survey X: 718128.26, Survey Y: 353315.98, Z1: 1398.3, Z DEM: 1398.42, Z LAS: 1398.41, LC Type: 2, ΔZ DEM: 0.12, ΔZ LAS: 0.11



North



South



East



West



Point: 2102 Bare Earth

Survey X: 713805.06, Survey Y: 353163.9, Z1: 1348.05, Z DEM: 1348.45, Z LAS: 1348.42, LC Type: 1, ΔZ DEM: 0.4, ΔZ LAS: 0.37



North



South



East



West



Point: 2201 Bare Earth

Survey X: 656818.38, Survey Y: 337438.74, Z1: 1489.27, Z DEM: 1489.42, Z LAS: 1489.41, LC Type: 1, ΔZ DEM: 0.15, ΔZ LAS: 0.14



North



South



East



West



Point: 2202 Urban Area

Survey X: 656825.22, Survey Y: 337513.33, Z1: 1490.07, Z DEM: 1490.11, Z LAS: 1490.15, LC Type: 2, ΔZ DEM: 0.04, ΔZ LAS: 0.08



North



South



East



West

Point: 2302 Bare Earth

Survey X: 620029.48, Survey Y: 387641.33, Z1: 1586.27, Z DEM: 1586.19, Z LAS: 1586.18, LC Type: 1, ΔZ DEM: -0.08, ΔZ LAS: -0.09



North



South



East



West



Point: 2303 Urban Area

Survey X: 620255.95, Survey Y: 387645.99, Z1: 1587.23, Z DEM: 1587.02, Z LAS: 1587.01, LC Type: 2, ΔZ DEM: -0.21, ΔZ LAS: -0.22



North



South



East



West



Point: 2304 Tall Weeds

Survey X: 620729.31, Survey Y: 377532.02, Z1: 1538.37, Z DEM: 1538.91, Z LAS: 1538.92, LC Type: 3, ΔZ DEM: 0.54, ΔZ LAS: 0.55



North



South



East



West

Point: 2400 Tall Weeds

Survey X: 584063.65, Survey Y: 395026.34, Z1: 1569.09, Z DEM: 1569.51, Z LAS: 1569.57, LC Type: 3, ΔZ DEM: 0.42, ΔZ LAS: 0.48



North



South



East



West



Point: 2401 Urban Area

Survey X: 583925.26, Survey Y: 395657.46, Z1: 1580.41, Z DEM: 1580.34, Z LAS: 1580.34, LC Type: 2, ΔZ DEM: -0.07, ΔZ LAS: -0.07



North



South



East



West



Point: 2402 Bare Earth

Survey X: 584011.11, Survey Y: 395664.72, Z1: 1579.04, Z DEM: 1579.26, Z LAS: 1579.14, LC Type: 1, ΔZ DEM: 0.22, ΔZ LAS: 0.1



North



South



East



West



Point: 2403 Swamp

Survey X: 588982.93, Survey Y: 395869.73, Z1: 1558.07, Z DEM: 1558.58, Z LAS: 1558.94, LC Type: 7, ΔZ DEM: 0.51, ΔZ LAS: 0.87



North



South



East



West



Point: 2501 Urban Area

Survey X: 611819.36, Survey Y: 418607.43, Z1: 1690.88, Z DEM: 1691.02, Z LAS: 1691.03, LC Type: 2, ΔZ DEM: 0.14, ΔZ LAS: 0.15



North



South



East



West



Point: 2502 Bare Earth

Survey X: 611994.62, Survey Y: 422389.22, Z1: 1684.22, Z DEM: 1684.3, Z LAS: 1684.21, LC Type: 1, ΔZ DEM: 0.08, ΔZ LAS: -0.01



North



South



East



West



Point: 2503 Tall Weeds

Survey X: 611819.9, Survey Y: 423002.94, Z1: 1679.66, Z DEM: 1679.85, Z LAS: 1679.8, LC Type: 3, ΔZ DEM: 0.19, ΔZ LAS: 0.14



North



South



East



West



Point: 2504 Swamp

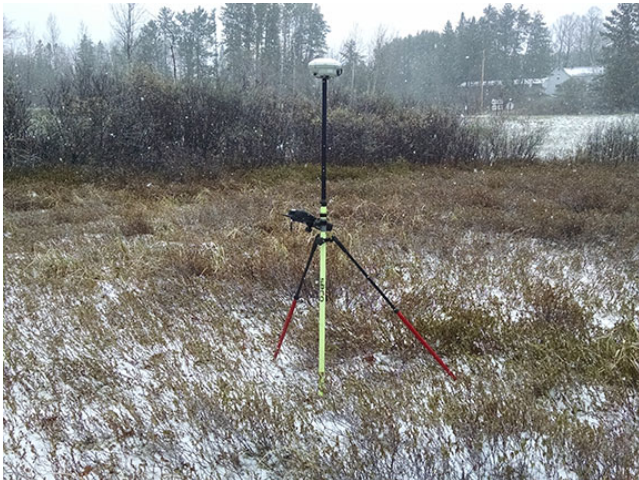
Survey X: 611603.86, Survey Y: 423047.06, Z1: 1675.19, Z DEM: 1675.63, Z LAS: 1675.66, LC Type: 7, ΔZ DEM: 0.44, ΔZ LAS: 0.47



North



South



East



West



Point: 2601 Tall Weeds

Survey X: 655837.88, Survey Y: 403348.41, Z1: 1642.37, Z DEM: 1642.8, Z LAS: 1642.83, LC Type: 3, ΔZ DEM: 0.43, ΔZ LAS: 0.46



North



South



East

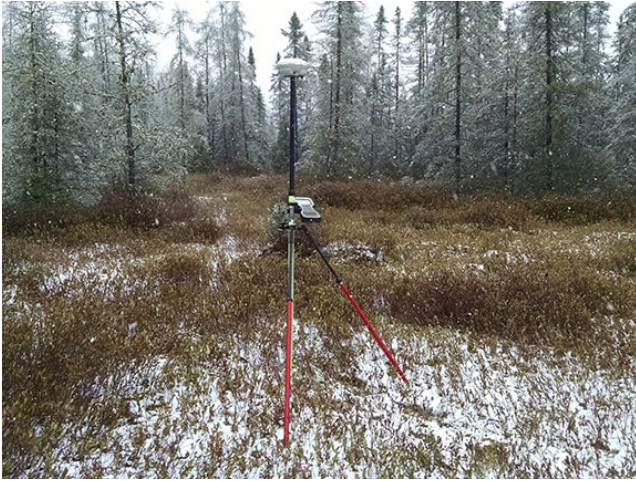


West

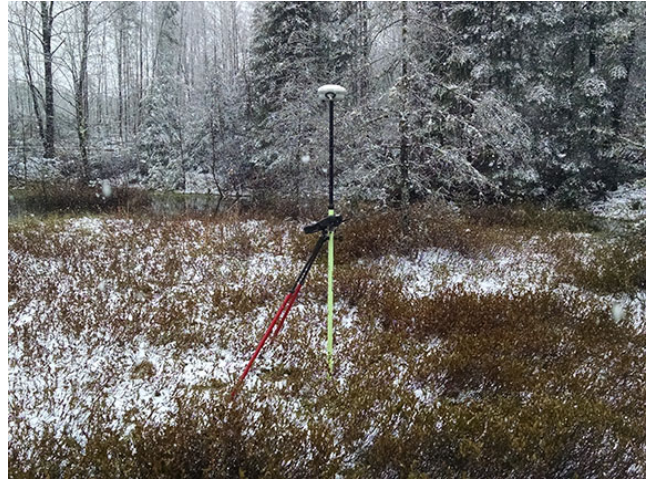


Point: 2602 Swamp

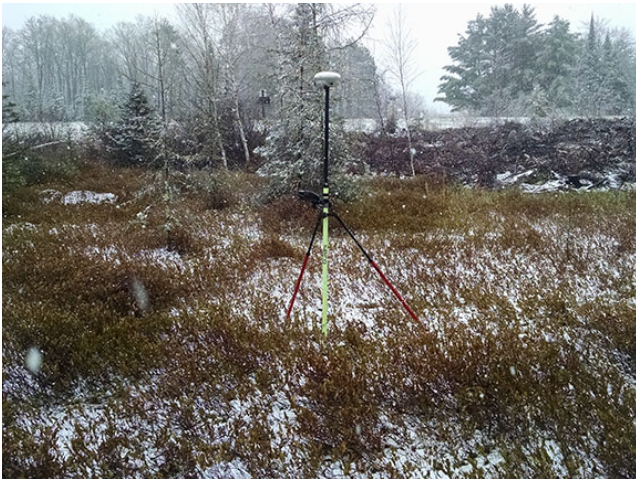
Survey X: 655725.96, Survey Y: 403316.97, Z1: 1641.46, Z DEM: 1642.04, Z LAS: 1641.95, LC Type: 7, ΔZ DEM: 0.58, ΔZ LAS: 0.49



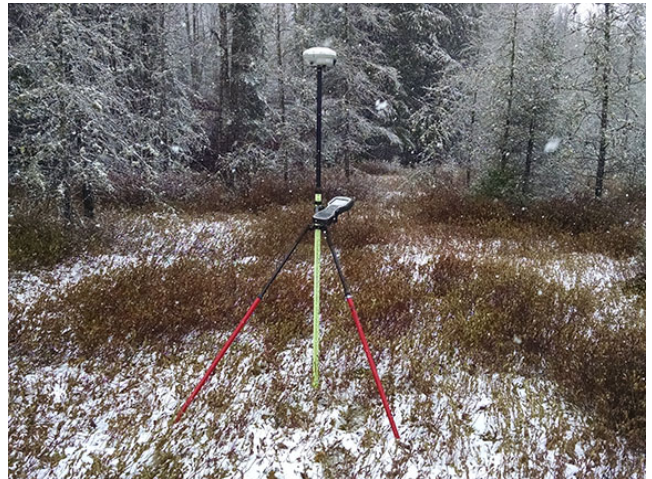
North



South



East



West



Point: 2603 Bare Earth

Survey X: 656438.69, Survey Y: 405364.06, Z1: 1635.63, Z DEM: 1635.7, Z LAS: 1635.69, LC Type: 1, ΔZ DEM: 0.07, ΔZ LAS: 0.06



North



South



East



West



Point: 2604 Urban Area

Survey X: 656351.98, Survey Y: 403044.92, Z1: 1654.67, Z DEM: 1654.64, Z LAS: 1654.63, LC Type: 2, ΔZ DEM: -0.03, ΔZ LAS: -0.04



North



South



East



West



Point: 2700 Bare Earth

Survey X: 712159.21, Survey Y: 379564.66, Z1: 1392.08, Z DEM: 1392.23, Z LAS: 1392.16, LC Type: 1, ΔZ DEM: 0.15, ΔZ LAS: 0.08



North



South



East



West



Point: 2701 Tall Weeds

Survey X: 712124.38, Survey Y: 379486.1, Z1: 1392.91, Z DEM: 1393.15, Z LAS: 1393.21, LC Type: 3, ΔZ DEM: 0.24, ΔZ LAS: 0.3



North



South



East



West



Point: 2702 Urban Area

Survey X: 712304.15, Survey Y: 379605.6, Z1: 1392.37, Z DEM: 1392.35, Z LAS: 1392.33, LC Type: 2, ΔZ DEM: -0.02, ΔZ LAS: -0.04



North



South



East



West



Point: 2800 Urban Area

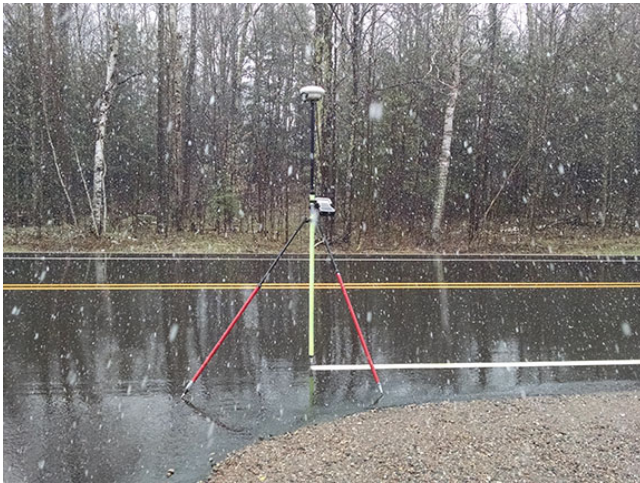
Survey X: 746575.95, Survey Y: 334436.04, Z1: 1082.9, Z DEM: 1082.87, Z LAS: 1082.83, LC Type: 2, ΔZ DEM: -0.03, ΔZ LAS: -0.07



North



South



East



West



Point: 2801 Bare Earth

Survey X: 746611.75, Survey Y: 334532.35, Z1: 1081.38, Z DEM: 1081.29, Z LAS: 1081.32, LC Type: 1, ΔZ DEM: -0.09, ΔZ LAS: -0.06



North



South



East



West



Point: 2900 Tall Weeds

Survey X: 662631.33, Survey Y: 363565.12, Z1: 1624.86, Z DEM: 1625.63, Z LAS: 1625.52, LC Type: 3, ΔZ DEM: 0.77, ΔZ LAS: 0.66



North



South



East



West

Point: 2901 Urban Area

Survey X: 662585.16, Survey Y: 364615.84, Z1: 1629.03, Z DEM: 1628.94, Z LAS: 1628.92, LC Type: 2, ΔZ DEM: -0.09, ΔZ LAS: -0.11



North



South



East



West



Point: 2902 Bare Earth

Survey X: 662637.48, Survey Y: 364624.49, Z1: 1627.02, Z DEM: 1627.09, Z LAS: 1627.07, LC Type: 1, ΔZ DEM: 0.07, ΔZ LAS: 0.05



North



South



East



West



Point: 3000 Urban Area

Survey X: 581086.43, Survey Y: 374216.29, Z1: 1637.07, Z DEM: 1636.92, Z LAS: 1636.86, LC Type: 2, ΔZ DEM: -0.15, ΔZ LAS: -0.21



North



South



East



West

Point: 3001 Bare Earth

Survey X: 581138.87, Survey Y: 374607.94, Z1: 1636.29, Z DEM: 1636.18, Z LAS: 1636.18, LC Type: 1, ΔZ DEM: -0.11, ΔZ LAS: -0.11



North



South



East



West



Point: 3002 Tall Weeds

Survey X: 581163.72, Survey Y: 374623.78, Z1: 1635.35, Z DEM: 1635.65, Z LAS: 1635.58, LC Type: 3, ΔZ DEM: 0.3, ΔZ LAS: 0.23



North



South



East



West



Point: 3003 Forest

Survey X: 581001.46, Survey Y: 374675.49, Z1: 1635, Z DEM: 1635.11, Z LAS: 1635.24, LC Type: 5, ΔZ DEM: 0.11, ΔZ LAS: 0.24



North



South



East



West

Point: 3100 Bare Earth

Survey X: 552531.78, Survey Y: 395947.22, Z1: 1518.31, Z DEM: 1518.11, Z LAS: 1518.15, LC Type: 1, ΔZ DEM: -0.2, ΔZ LAS: -0.16



North



South



East



West



Point: 3101 Urban Area

Survey X: 552536.3, Survey Y: 395979.19, Z1: 1518.93, Z DEM: 1518.89, Z LAS: 1518.82, LC Type: 2, ΔZ DEM: -0.04, ΔZ LAS: -0.11



North



South



East



West



Point: 3103 Tall Weeds

Survey X: 550298.94, Survey Y: 396379.49, Z1: 1546.3, Z DEM: 1546.8, Z LAS: 1546.73, LC Type: 3, ΔZ DEM: 0.5, ΔZ LAS: 0.43



North



South



East



West



Point: 3200 Bare Earth

Survey X: 550020.78, Survey Y: 374916.51, Z1: 1452.6, Z DEM: 1452.47, Z LAS: 1452.43, LC Type: 1, ΔZ DEM: -0.13, ΔZ LAS: -0.16



North



South



East



West



Point: 3201 Tall Weeds

Survey X: 549931.81, Survey Y: 373819.89, Z1: 1447.54, Z DEM: 1447.86, Z LAS: 1447.81, LC Type: 3, ΔZ DEM: 0.32, ΔZ LAS: 0.27



North



South



East



West

Point: 3202 Urban Area

Survey X: 550040.6, Survey Y: 375141.62, Z1: 1453.67, Z DEM: 1453.69, Z LAS: 1453.64, LC Type: 2, ΔZ DEM: 0.02, ΔZ LAS: -0.03



North



South



East



West



Point: 3300 Bare Earth

Survey X: 686241.57, Survey Y: 350563.66, Z1: 1469.06, Z DEM: 1469.22, Z LAS: 1469.15, LC Type: 1, ΔZ DEM: 0.16, ΔZ LAS: 0.09



North



South



East



West



Point: 3301 Urban Area

Survey X: 685880.97, Survey Y: 350202.92, Z1: 1463.98, Z DEM: 1464.22, Z LAS: 1464.15, LC Type: 2, ΔZ DEM: 0.24, ΔZ LAS: 0.17



North



South



East



West



Point: 3302 Tall Weeds

Survey X: 686103.09, Survey Y: 350431.93, Z1: 1462.63, Z DEM: 1463.08, Z LAS: 1463.14, LC Type: 3, ΔZ DEM: 0.45, ΔZ LAS: 0.51



North



South



East



West



Point: 3303 Forest

Survey X: 686270.01, Survey Y: 350107.72, Z1: 1462.02, Z DEM: 1462.15, Z LAS: 1462.24, LC Type: 5, ΔZ DEM: 0.13, ΔZ LAS: 0.22



North



South



East



West

Point: 3400 Bare Earth

Survey X: 678499.67, Survey Y: 381331.53, Z1: 1680.07, Z DEM: 1680.4, Z LAS: 1680.4, LC Type: 1, ΔZ DEM: 0.34, ΔZ LAS: 0.33



North



South



East



West



Point: 3401 Urban Area

Survey X: 678451.65, Survey Y: 380630.64, Z1: 1708.22, Z DEM: 1708.14, Z LAS: 1708.08, LC Type: 2, ΔZ DEM: -0.08, ΔZ LAS: -0.13



North



South



East



West



Point: 3402 Forest

Survey X: 678505.76, Survey Y: 381513.72, Z1: 1677.13, Z DEM: 1677.81, Z LAS: 1677.4, LC Type: 5, ΔZ DEM: 0.68, ΔZ LAS: 0.27



North



South



East



West



Point: 3403 Tall Weeds

Survey X: 678685.51, Survey Y: 381427.25, Z1: 1690.23, Z DEM: 1690.56, Z LAS: 1690.46, LC Type: 3, ΔZ DEM: 0.33, ΔZ LAS: 0.23



North



South



East



West



Point: 3500 Bare Earth

Survey X: 638774.43, Survey Y: 449911.42, Z1: 1536.45, Z DEM: 1536.43, Z LAS: 1536.42, LC Type: 1, AZ DEM: -0.03, AZ LAS: -0.03



North



South



East



West



Point: 3501 Urban Area

Survey X: 638908.07, Survey Y: 449988.31, Z1: 1536.62, Z DEM: 1536.77, Z LAS: 1536.71, LC Type: 2, ΔZ DEM: 0.15, ΔZ LAS: 0.09



North



South



East



West



Point: 3502 Forest

Survey X: 638857.53, Survey Y: 449768.99, Z1: 1534.92, Z DEM: 1535.1, Z LAS: 1535.31, LC Type: 5, ΔZ DEM: 0.19, ΔZ LAS: 0.39



North



South



East



West



Point: 3503 Tall Weeds

Survey X: 641937.29, Survey Y: 449987.83, Z1: 1535.5, Z DEM: 1535.57, Z LAS: 1535.54, LC Type: 3, ΔZ DEM: 0.07, ΔZ LAS: 0.04



North



South



East



West



Point: 3600 Urban Area

Survey X: 649562.37, Survey Y: 424508.06, Z1: 1537.24, Z DEM: 1537.27, Z LAS: 1537.22, LC Type: 2, ΔZ DEM: 0.04, ΔZ LAS: -0.02



North



South



East



West



Point: 3601 Tall Weeds

Survey X: 650034.39, Survey Y: 424640.27, Z1: 1536.06, Z DEM: 1536.14, Z LAS: 1536.06, LC Type: 3, ΔZ DEM: 0.08, ΔZ LAS: 0



North



South



East



West



Point: 3602 Bare Earth

Survey X: 650524.07, Survey Y: 424510.35, Z1: 1528.31, Z DEM: 1528.35, Z LAS: 1528.27, LC Type: 1, ΔZ DEM: 0.04, ΔZ LAS: -0.04



North



South



East



West



Point: 3603 Forest

Survey X: 650012.35, Survey Y: 424411.81, Z1: 1535.91, Z DEM: 1535.82, Z LAS: 1535.8, LC Type: 5, ΔZ DEM: -0.08, ΔZ LAS: -0.11



North



South



East



West



Point: 3700 Bare Earth

Survey X: 735651.6, Survey Y: 410553.15, Z1: 1550.64, Z DEM: 1550.94, Z LAS: 1550.88, LC Type: 1, ΔZ DEM: 0.29, ΔZ LAS: 0.24



North



South



East



West



Point: 3701 Tall Weeds

Survey X: 735593.21, Survey Y: 410347.7, Z1: 1546.15, Z DEM: 1546.88, Z LAS: 1546.92, LC Type: 3, ΔZ DEM: 0.73, ΔZ LAS: 0.78



North



South



East



West



Point: 3702 Swamp

Survey X: 735148, Survey Y: 410483.36, Z1: 1542.21, Z DEM: 1543.24, Z LAS: 1543.44, LC Type: 7, ΔZ DEM: 1.03, ΔZ LAS: 1.23



North



South



East



West

Point: 3703 Forest

Survey X: 735708.28, Survey Y: 410198.07, Z1: 1547.31, Z DEM: 1547.73, Z LAS: 1547.81, LC Type: 5, ΔZ DEM: 0.42, ΔZ LAS: 0.5



North



South



East



West



Point: 3800 Bare Earth

Survey X: 656235.99, Survey Y: 307735.62, Z1: 1298.21, Z DEM: 1298.33, Z LAS: 1298.22, LC Type: 1, ΔZ DEM: 0.12, ΔZ LAS: 0.01



North



South



East



West



Point: 3801 Urban Area

Survey X: 656271.28, Survey Y: 307729.1, Z1: 1297.97, Z DEM: 1298.01, Z LAS: 1297.92, LC Type: 2, ΔZ DEM: 0.04, ΔZ LAS: -0.05



North



South



East



West



Point: 3802 Tall Weeds

Survey X: 656404.3, Survey Y: 307744.8, Z1: 1279.81, Z DEM: 1280.19, Z LAS: 1280.06, LC Type: 3, ΔZ DEM: 0.38, ΔZ LAS: 0.24



North



South



East



West



Point: 3900 Swamp

Survey X: 633238.23, Survey Y: 302230.81, Z1: 1351.14, Z DEM: 1351.23, Z LAS: 1351.36, LC Type: 7, ΔZ DEM: 0.09, ΔZ LAS: 0.21



North



South



East



West



Point: 4000 Swamp

Survey X: 616661.38, Survey Y: 380893.69, Z1: 1549.29, Z DEM: 1549.58, Z LAS: 1549.5, LC Type: 7, ΔZ DEM: 0.29, ΔZ LAS: 0.21



North



South



East



West



Point: 4100 Swamp

Survey X: 549990.29, Survey Y: 376572.06, Z1: 1453.01, Z DEM: 1454.12, Z LAS: 1454.14, LC Type: 7, ΔZ DEM: 1.11, ΔZ LAS: 1.13



North



South



East

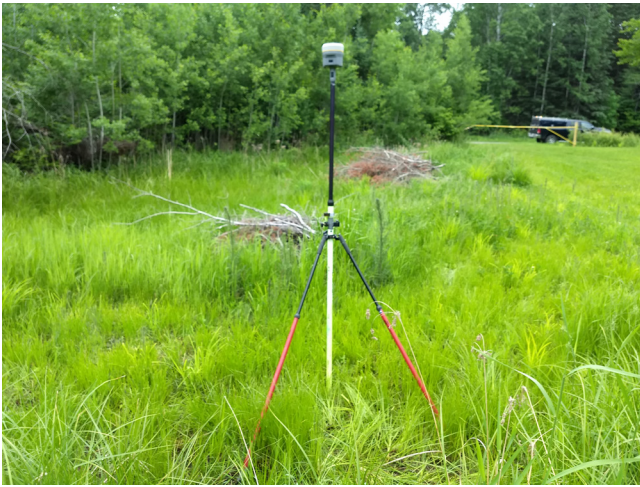


West



Point: 4200 Swamp

Survey X: 552478.32, Survey Y: 395846.64, Z1: 1514.12, Z DEM: 1514.17, Z LAS: 1514.28, LC Type: 7, ΔZ DEM: 0.04, ΔZ LAS: 0.16



North



South



East



West

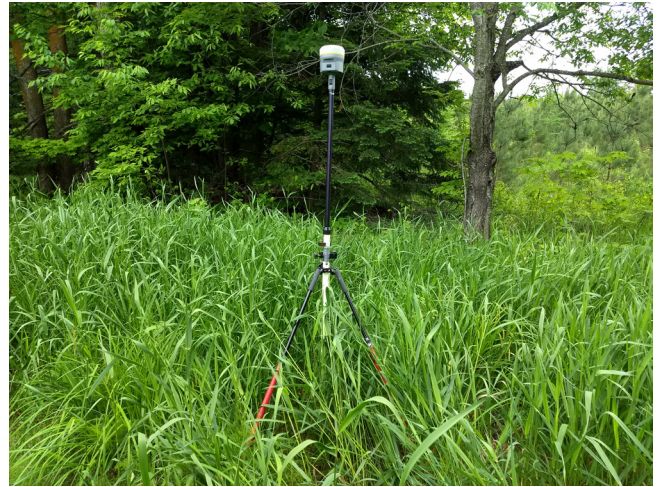


Point: 4300 Swamp

Survey X: 679962.21, Survey Y: 377832.72, Z1: 1722.19, Z DEM: 1722.7, Z LAS: 1722.68, LC Type: 7, ΔZ DEM: 0.51, ΔZ LAS: 0.49



North



South



East



West

