

VERTICAL ACCURACY REPORT

Professional Management and LiDAR Data Collection and Processing Services

Block 4

PROJECT TITLE:	Professional Management and LiDAR Data Collection and Processing Services
WORK ORDER NAME:	Task Order A
WORK ORDER NUMBER:	2007058492720
CONSULTANT NAME:	3001, Inc., CH2M Hill, Inc.
PROJECT MANAGERS:	Jeremy Conner, 3001 Project Manager JoLee Gardner, CH2M Hill Project Manager



**3001, INC. THE GEOSPATIAL COMPANY
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Slidell, Louisiana 70458**



September 2008

Florida Division of Emergency Management
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: Professional Management and LiDAR Data Collection and Processing Services,
Block 4

This photogrammetric mapping ground control survey is certified as meeting or exceeding, in quality and precision, the standards applicable for this work as set forth in Chapter 61G17-6, Florida Administrative Code.

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Signed: _____ Date: _____

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DATA ANALYSIS

This report documents the vertical accuracy of the LIDAR data as compared to the surveyed ground truth data for the Professional Management and LiDAR Data Collection and Processing Services project, Block 4. Fundamental Vertical Accuracy, Supplemental Vertical Accuracies and the Consolidated Vertical Accuracy have been calculated based on the appropriate land cover classes, and are shown in the following sections.

Data analysis was accomplished by comparing ground truth checkpoints with LIDAR points from the edited data set, which were within 3 feet horizontally from the ground truth points. Note that the edited LIDAR points are simply a subset of the raw LIDAR points. The points that fell above the ground surface on vegetation canopies, buildings, or other obstructions were removed from the data set. Comparisons were also made between the survey points and the LIDAR derived terrain surface. These comparisons provide an additional verification of the LIDAR data against the survey data.

The survey data was collected in accordance with the *FEMA FLOOD HAZARD MAPPING PROGRAM, GUIDELINES AND SPECIFICATIONS FOR FLOOD HAZARD MAPPING PARTNERS, APPENDIX A*.

Ground truth data was collected for each of the following land cover categories:

1. Bare-earth and low grass
2. Brush lands and low trees
3. Forested areas fully covered by trees
4. Urban areas

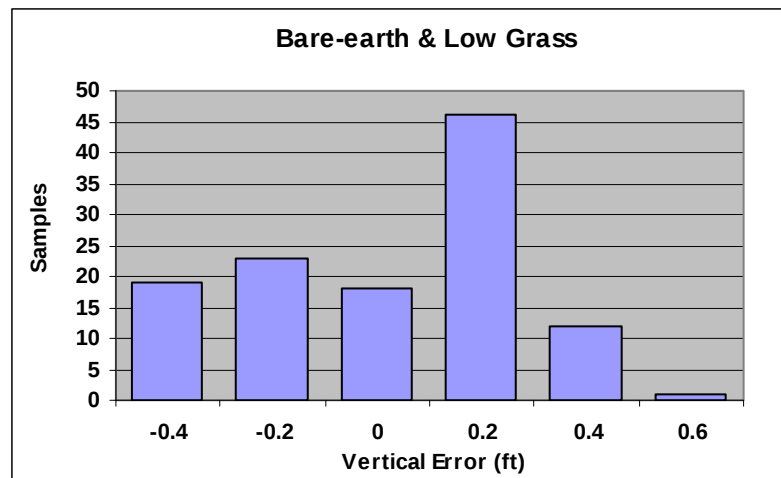
The accuracy assessment was performed using a standard method to compute the root mean square error (RMSE) based on a comparison of ground control points (GCP) and filtered LiDAR data points. Filtered LiDAR data has had vegetation and cultural features removed and by analysis represents bare-earth elevations. . The RMSE figure was used to compute the vertical National Standard for Spatial Data Accuracy (NSSDA). Ground control was established by 3001, Inc. A spatial proximity analysis was used to select edited LiDAR data points contiguous to the relevant GCPs. A search radius decision rule is applied with consideration of terrain complexity, cumulative error and adequate sample size. Cumulative error results from the errors inherent in the various sources of horizontal measurement. These sources include the airborne GPS, GCPs and the uncertainty of the accuracy of the LiDAR data points. This accuracy is achieved prior to the sub-sampling that occurs through integration with the inertial measurement unit (IMU) positions that are recorded. It is unclear at this time whether the initial accuracy is maintained. The horizontal accuracy of the GCPs is estimated to be in the range of approximately 1 to 1.6 inches. Finally, sample size was considered. The specification for the National Standard for Spatial Data Accuracy is a minimum of 20 points to conduct a statistically significant accuracy evaluation (Minnesota Planning,

1999, Positional Accuracy Handbook, Minnesota Planning Land Management Information Center, St. Paul, Minnesota., p.3). Most statistical texts indicate that a minimum of 30 sample points provide a reasonable Approximation of a normal distribution. The intent of the NSSDA is to reflect the geographic area of interest and the distribution of error in the data set (Federal Geographic Data Committee, 1998, Geospatial National Standard for Spatial Data Accuracy, Federal Geographic Data Committee Secretariat, Reston, Virginia, p.3-4). Additional steps were taken to ensure the vertical accuracy of the LiDAR data including: Step 1: Precision Bore sighting (Check Edge-matching) Step 2: Compare the LiDAR data to the Field Survey (Field survey is to FEMA specifications and more stringent internal specifications) Step 3: Automated Filtering Step 4: Manual Editing (Quality Control) Step 5: 3-D digitizing and photogrammetric compilation of hydrographic breaklines. Data analysis was accomplished by comparing ground truth checkpoints with LIDAR points from the edited data set, which were within 3 feet horizontally from the ground truth points. Note that the edited LIDAR points are simply a subset of the raw LIDAR points. The points that fell above the ground surface on vegetation canopies, buildings, or other obstructions were removed from the data set. Comparisons were also made between the survey points and the LIDAR derived terrain surface. These comparisons provide an additional verification of the LIDAR data against the survey data. The survey data was collected in accordance with the FEMA FLOOD HAZARD MAPPING PROGRAM, GUIDELINES AND SPECIFICATIONS FOR FLOOD HAZARD MAPPING PARTNERS, APPENDIX A.

FUNDAMENTAL VERTICAL ACCURACY

The Fundamental Vertical Accuracy is calculated using the bare-earth and low grass land class. A comparison of these values indicated a Vertical Root Mean Square Error (RMSEz) of 0.26 feet, which equates to a Vertical Accuracy of 0.51 feet at the 95 percent confidence level. Descriptive statistics and a histogram of the vertical error distribution are shown below.

Bare-earth & Low Grass (ft)	
RMSEz	0.25
Mean	0.03
Standard Error	0.02
Median	0.07
Mode	0.23
Standard Deviation	0.25
Sample Variance	0.06
Kurtosis	-0.75
Skewness	-0.27
Range	1.02
Minimum	-0.49
Maximum	0.52
Count	119



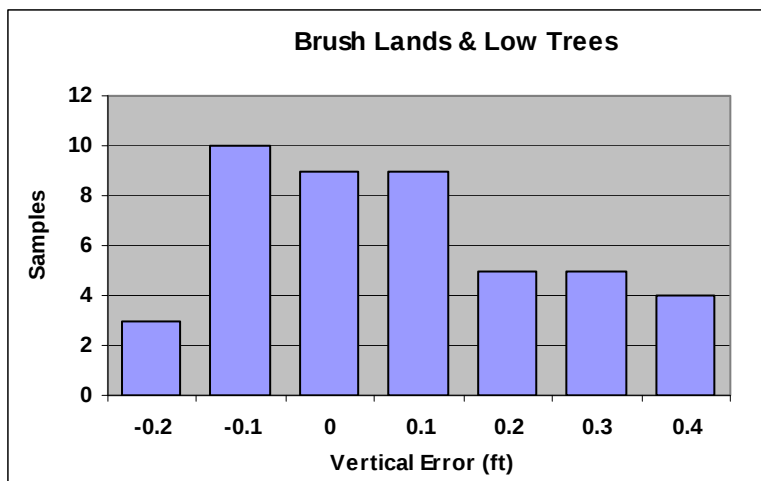
SUPPLEMENTAL VERTICAL ACCURACIES

The Supplemental Vertical Accuracies are calculated using each of the land cover classes, except for the bare-earth and low grass land class. The remaining land cover classes that are used for comparisons are brush lands and low trees, forested areas fully covered by trees, and urban areas. The RMSEz values and Vertical Accuracies are shown with each respective land class, along with histograms of vertical error distribution.

Brush Lands and Low Trees

This set includes only those points that were collected in areas of brush lands and low trees. The resulting RMSEz is 0.18 feet, which equates to a Vertical Accuracy of 0.35 feet at the 95 percent confidence level.

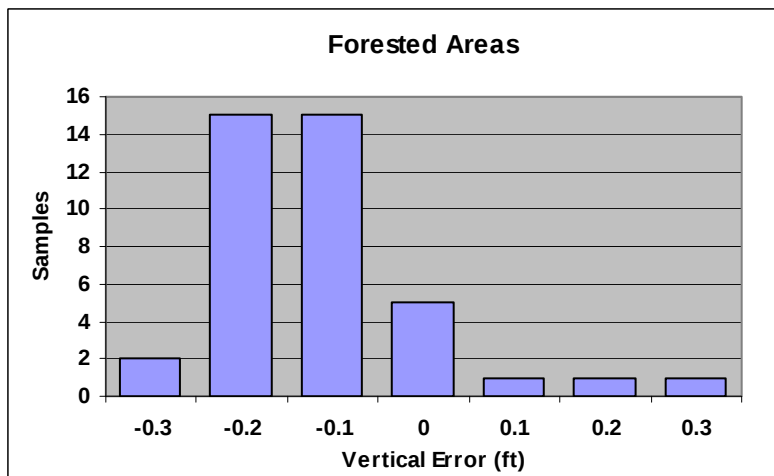
Brush Lands & Low Trees (ft)	
RMSEz	0.18
Mean	0.08
Standard Error	0.02
Median	0.07
Mode	-0.07
Standard Deviation	0.16
Sample Variance	0.03
Kurtosis	-0.87
Skewness	0.42
Range	0.59
Minimum	-0.16
Maximum	0.43
Count	45



Forested Areas

This set includes only those points that were collected in forested areas fully covered by trees. The resulting RMSEz is 0.16 feet, which equates to a Vertical Accuracy of 0.31 feet at the 95 percent confidence level.

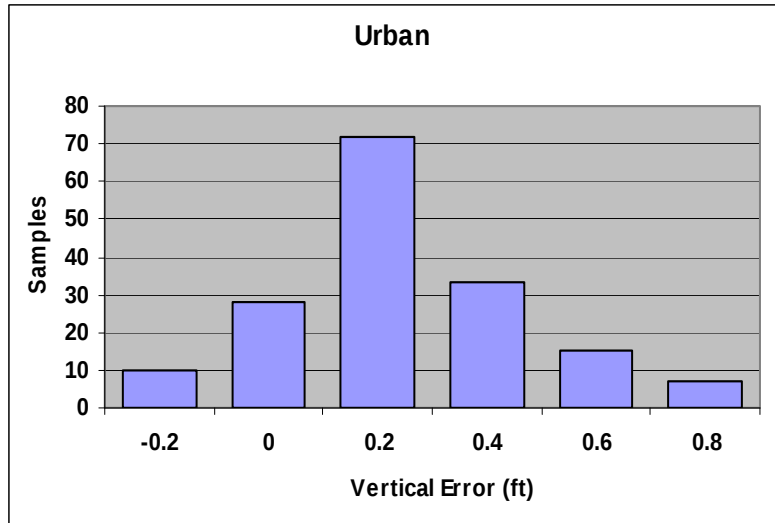
Forested Areas (ft)	
RMSEz	0.16
Mean	-0.11
Standard Error	0.02
Median	-0.13
Mode	-0.13
Standard Deviation	0.12
Sample Variance	0.01
Kurtosis	2.52
Skewness	1.29
Range	0.59
Minimum	-0.33
Maximum	0.26
Count	40



Urban Areas

This set includes only those points that were collected in areas of urban land cover. The resulting RMSEz is 0.33 feet, which equates to a Vertical Accuracy of 0.65 feet at the 95 percent confidence level.

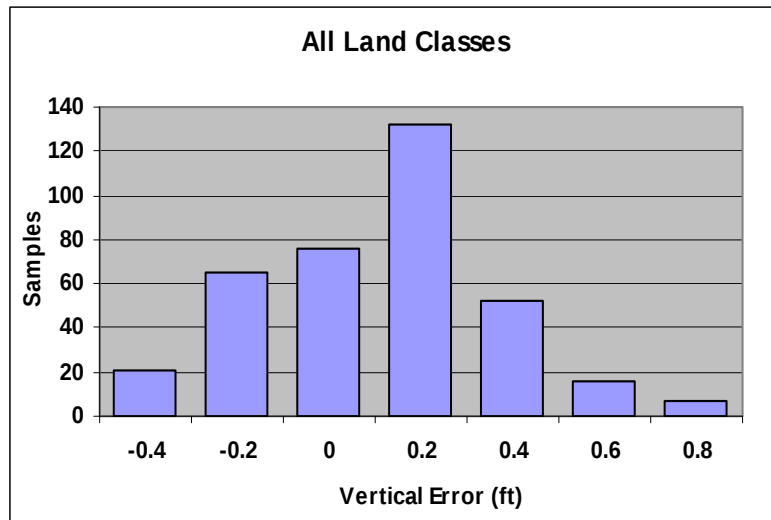
Urban (ft)	
RMSEz	0.33
Mean	0.24
Standard Error	0.02
Median	0.23
Mode	0.23
Standard Deviation	0.23
Sample Variance	0.05
Kurtosis	0.21
Skewness	0.40
Range	1.12
Minimum	-0.26
Maximum	0.85
Count	165



CONSOLIDATED VERTICAL ACCURACY

The Consolidated Vertical Accuracy is calculated using all land cover classes. The result of these comparisons of these values indicated a Vertical Root Mean Square Error (RMSEz) of 0.28 feet, which equates to Vertical Accuracy of 0.55 feet at the 95 percent confidence level. Descriptive statistics and a histogram of the vertical error distribution for all comparisons are shown below.

All Land Classes (ft)	
RMSEz	0.27
Mean	0.11
Standard Error	0.01
Median	0.16
Mode	0.23
Standard Deviation	0.25
Sample Variance	0.06
Kurtosis	0.07
Skewness	0.17
Range	1.35
Minimum	-0.49
Maximum	0.85
Count	369



GROUND TRUTH ANALYSIS **Comparison of LIDAR Points to Ground-Truth Points**

Horizontal units = US Survey Feet [US State Plane, Florida East, NAD83 (1999)]

Vertical units = US Survey feet [NAVD88 – Geoid03]

Name	Survey X	Survey Y	Survey Z	LiDAR X	LiDAR Y	LiDAR Z	dx	dy	dz	dist	Code
2A1	853313.23	494457.44	5.66	853313.49	494458.23	6.04	-0.26	-0.79	-0.39	0.82	Bare Earth
2A2	853318.59	494464.13	5.68	853317.96	494464.50	6.04	0.62	-0.36	-0.36	0.72	Bare Earth
2A3	853322.63	494470.17	5.66	853323.60	494470.08	6.01	-0.98	0.10	-0.36	0.98	Bare Earth
2A4	853326.85	494476.10	5.66	853326.69	494476.09	6.01	0.16	0.00	-0.36	0.16	Bare Earth
2A5	853331.69	494481.69	5.63	853331.94	494479.96	6.01	-0.23	1.74	-0.39	1.74	Bare Earth
2A6	853335.77	494475.34	5.79	853333.91	494475.13	6.20	1.87	0.20	-0.43	1.87	Bare Earth
2A7	853330.53	494468.86	5.77	853331.02	494467.98	6.01	-0.49	0.89	-0.23	1.02	Bare Earth
2A8	853324.77	494462.24	5.72	853322.98	494462.10	6.10	1.80	0.13	-0.39	1.80	Bare Earth
2A9	853319.66	494454.44	5.81	853320.81	494455.80	6.20	-1.15	-1.35	-0.39	1.77	Bare Earth
2A10	853314.48	494447.61	5.69	853314.51	494448.81	6.01	-0.03	-1.21	-0.33	1.21	Bare Earth
2A11	853404.47	494551.89	5.41	853404.40	494553.87	5.81	0.07	-1.97	-0.43	1.97	Bare Earth
2A12	853398.29	494558.29	5.45	853399.55	494558.63	5.91	-1.25	-0.33	-0.46	1.28	Bare Earth
2A13	853406.79	494566.13	5.33	853407.88	494565.91	5.81	-1.08	0.23	-0.49	1.12	Bare Earth
2A14	853415.40	494560.30	5.32	853415.20	494560.76	5.75	0.20	-0.46	-0.43	0.49	Bare Earth
2A15	853424.48	494568.74	5.25	853426.00	494569.75	5.71	-1.51	-1.02	-0.46	1.84	Bare Earth
2A16	853418.97	494573.80	5.29	853420.78	494572.51	5.58	-1.80	1.31	-0.30	2.23	Bare Earth
2A17	853421.45	494583.83	5.52	853419.30	494584.92	5.88	2.13	-1.08	-0.36	2.40	Bare Earth
2A19	853433.17	494582.27	5.34	853431.45	494582.95	5.78	1.71	-0.69	-0.43	1.84	Bare Earth
2A20	853439.65	494589.81	5.36	853438.27	494590.23	5.65	1.38	-0.43	-0.30	1.44	Bare Earth
2A21	853561.42	494777.69	7.59	853560.39	494778.26	7.75	1.02	-0.56	-0.16	1.18	Urban
2A22	853554.55	494784.80	7.73	853553.67	494785.80	7.78	0.89	-1.02	-0.07	1.35	Urban
2A23	853550.19	494790.55	7.63	853550.68	494790.83	7.65	-0.49	-0.26	-0.03	0.56	Urban
2A24	853559.07	494798.43	7.60	853559.87	494798.21	7.65	-0.79	0.23	-0.07	0.82	Urban
2A25	853563.07	494793.70	7.72	853563.71	494793.94	7.88	-0.62	-0.23	-0.16	0.69	Urban
2A26	853568.30	494787.26	7.64	853569.52	494787.71	7.85	-1.21	-0.46	-0.20	1.31	Urban
2A27	853580.17	494792.68	7.56	853578.61	494792.50	7.81	1.57	0.20	-0.26	1.57	Urban
2A28	853575.53	494798.57	7.72	853575.00	494800.41	7.88	0.52	-1.84	-0.16	1.90	Urban
2A29	853571.05	494803.84	7.68	853570.99	494803.62	7.68	0.07	0.20	0.00	0.23	Urban
2A30	853578.61	494813.33	7.56	853577.95	494811.93	7.62	0.66	1.41	-0.07	1.54	Urban
2A31	853583.12	494806.18	7.73	853583.40	494805.59	7.88	-0.30	0.59	-0.16	0.66	Urban
2A32	853588.20	494798.88	7.52	853587.40	494798.77	7.42	0.79	0.10	0.10	0.79	Urban
2A33	853599.21	494807.05	7.49	853600.17	494807.01	7.39	-0.95	0.07	0.10	0.95	Urban
2A34	853593.99	494813.34	7.64	853592.98	494814.32	7.68	1.02	-0.98	-0.07	1.41	Urban
2A35	853584.96	494821.86	7.44	853584.84	494821.38	7.45	0.13	0.49	-0.03	0.49	Urban
2A36	853601.05	494828.77	7.49	853599.74	494828.34	7.68	1.31	0.43	-0.20	1.38	Urban
2A37	853605.20	494821.98	7.50	853605.62	494820.30	7.65	-0.43	1.67	-0.16	1.74	Urban
2A38	853609.26	494816.43	7.42	853608.90	494816.19	7.45	0.36	0.23	-0.03	0.43	Urban
2A39	853620.62	494825.17	7.39	853621.24	494825.32	7.36	-0.62	-0.16	0.03	0.62	Urban
2A40	853615.44	494833.30	7.45	853615.37	494833.92	7.45	0.07	-0.62	0.00	0.62	Urban
4A1	934731.00	506992.90	2.57	934729.59	506991.85	2.13	1.41	1.05	0.33	1.74	Bare Earth

4A2	934736.56	506999.59	2.57	934737.50	506998.57	2.23	-0.95	1.02	0.23	1.38	Bare Earth
4A3	934743.20	507005.80	2.34	934741.38	507004.97	1.74	1.80	0.82	0.52	2.00	Bare Earth
4A4	934751.66	507014.65	2.39	934751.42	507015.58	2.00	0.26	-0.92	0.30	0.95	Bare Earth
4A5	934763.14	507008.45	2.46	934763.99	507009.37	1.94	-0.85	-0.92	0.43	1.25	Bare Earth
4A6	934752.67	506996.16	2.33	934752.50	506996.84	2.00	0.16	-0.69	0.23	0.69	Bare Earth
4A7	934745.88	506989.26	2.63	934748.66	506989.39	2.23	-2.79	-0.13	0.30	2.79	Bare Earth
4A8	934739.07	506981.26	2.73	934737.63	506981.05	2.13	1.44	0.20	0.49	1.44	Bare Earth
4A9	934749.57	506971.09	2.73	934751.02	506971.83	2.30	-1.44	-0.75	0.33	1.64	Bare Earth
4A10	934757.58	506977.77	2.52	934758.31	506978.65	1.94	-0.72	-0.89	0.49	1.15	Bare Earth
4A11	934775.07	506991.66	2.43	934775.97	506992.93	2.13	-0.89	-1.28	0.20	1.54	Bare Earth
4A12	934792.12	506978.07	2.59	934791.69	506979.93	2.20	0.43	-1.87	0.30	1.90	Bare Earth
4A13	934785.51	506969.66	2.57	934786.21	506968.58	2.33	-0.69	1.08	0.16	1.28	Bare Earth
4A14	934777.35	506959.95	2.43	934777.44	506959.03	1.94	-0.10	0.92	0.39	0.92	Bare Earth
4A15	934769.85	506951.36	2.67	934769.53	506951.94	2.07	0.30	-0.59	0.49	0.66	Bare Earth
4A16	934786.69	506935.80	2.65	934786.34	506935.43	2.30	0.36	0.36	0.26	0.49	Bare Earth
4A17	934795.23	506944.14	2.44	934794.51	506942.65	2.14	0.72	1.48	0.20	1.64	Bare Earth
4A18	934804.50	506952.09	2.58	934803.70	506953.05	2.37	0.79	-0.95	0.13	1.25	Bare Earth
4A19	934817.65	506948.86	2.61	934819.12	506949.84	2.50	-1.48	-0.98	0.03	1.77	Bare Earth
4A20	934802.01	506934.67	2.50	934802.65	506936.09	2.27	-0.66	-1.41	0.13	1.54	Bare Earth
4A21	934873.07	506900.15	2.61	934874.56	506899.07	1.88	-1.48	1.08	0.66	1.84	Urban
4A22	934871.52	506891.48	2.49	934870.52	506891.19	1.71	0.98	0.30	0.69	1.05	Urban
4A23	934877.22	506885.63	2.37	934877.54	506885.15	1.55	-0.33	0.49	0.72	0.59	Urban
4A24	934883.24	506890.57	2.57	934883.06	506890.47	1.61	0.16	0.10	0.85	0.20	Urban
4A25	934889.22	506895.51	2.73	934889.00	506896.74	1.91	0.23	-1.25	0.72	1.25	Urban
4A26	934896.34	506888.52	2.73	934896.28	506887.42	1.98	0.07	1.12	0.66	1.12	Urban
4A27	934892.35	506881.94	2.52	934891.62	506883.67	1.68	0.72	-1.74	0.75	1.87	Urban
4A28	934891.63	506876.71	2.48	934892.41	506876.62	1.78	-0.79	0.10	0.59	0.79	Urban
4A29	934899.18	506869.82	2.46	934898.75	506868.38	1.52	0.43	1.44	0.85	1.51	Urban
4A30	934903.83	506875.32	2.59	934904.16	506875.40	1.85	-0.33	-0.10	0.66	0.33	Urban
4A31	934908.13	506879.65	2.76	934908.20	506878.95	1.94	-0.07	0.69	0.72	0.69	Urban
4A32	934914.62	506873.25	2.77	934913.12	506873.47	1.94	1.51	-0.20	0.72	1.51	Urban
4A33	934910.38	506868.23	2.57	934909.05	506867.95	1.88	1.35	0.26	0.59	1.35	Urban
4A34	934906.30	506863.81	2.46	934907.90	506863.59	1.81	-1.61	0.23	0.56	1.61	Urban
4A35	934912.94	506857.07	2.43	934912.89	506857.65	1.75	0.07	-0.59	0.59	0.59	Urban
4A36	934917.81	506861.15	2.55	934917.65	506859.68	1.81	0.16	1.48	0.62	1.48	Urban
4A37	934922.03	506864.95	2.74	934921.69	506865.36	1.98	0.33	-0.39	0.66	0.52	Urban
4A38	934928.52	506857.46	2.69	934929.60	506856.96	1.98	-1.08	0.49	0.62	1.18	Urban
4A39	934923.40	506852.01	2.46	934925.53	506852.13	1.75	-2.13	-0.13	0.62	2.13	Urban
4A40	934928.34	506845.40	2.41	934929.92	506844.82	1.72	-1.57	0.59	0.59	1.71	Urban
5A1	873074.89	479591.18	10.88	873076.30	479592.07	10.59	-1.41	-0.89	0.26	1.67	Urban
5A2	873067.53	479591.14	10.80	873066.88	479590.82	10.46	0.66	0.33	0.30	0.72	Urban
5A3	873065.52	479603.89	10.85	873064.45	479604.21	10.46	1.05	-0.33	0.36	1.12	Urban
5A4	873074.63	479604.32	10.99	873073.08	479602.86	10.66	1.54	1.44	0.30	2.13	Urban
5A5	873074.94	479619.13	11.14	873074.79	479619.77	10.79	0.13	-0.62	0.30	0.66	Urban
5A6	873066.37	479619.05	10.97	873065.34	479619.54	10.59	1.02	-0.49	0.33	1.15	Urban
5A7	873065.49	479634.62	11.02	873064.78	479635.75	10.69	0.72	-1.12	0.30	1.35	Urban
5A8	873074.24	479637.78	11.26	873074.30	479637.19	10.92	-0.07	0.59	0.30	0.59	Urban
5A9	873074.09	479653.70	11.30	873075.25	479652.62	10.99	-1.15	1.08	0.26	1.57	Urban

5A10	873064.95	479653.41	11.10	873065.83	479653.34	10.79	-0.89	0.07	0.26	0.89	Urban
5A11	873064.35	479668.57	11.16	873063.53	479669.16	10.82	0.82	-0.59	0.30	1.02	Urban
5A12	873072.57	479668.86	11.30	873072.89	479669.09	11.02	-0.33	-0.23	0.26	0.39	Urban
5A13	873072.62	479685.03	11.36	873072.56	479685.21	11.02	0.07	-0.16	0.30	0.20	Urban
5A14	873063.89	479684.51	11.19	873064.42	479684.65	10.89	-0.52	-0.13	0.26	0.56	Urban
5A15	873062.70	479702.21	11.25	873064.09	479701.36	10.92	-1.38	0.85	0.30	1.64	Urban
5A16	873071.30	479701.92	11.38	873070.03	479701.06	11.05	1.28	0.85	0.30	1.54	Urban
5A17	873071.60	479721.49	11.42	873069.96	479721.87	11.05	1.64	-0.36	0.33	1.67	Urban
5A18	873062.19	479721.11	11.24	873061.83	479720.82	10.89	0.36	0.30	0.33	0.46	Urban
5A19	873061.72	479737.72	11.17	873061.69	479738.15	10.82	0.03	-0.43	0.33	0.43	Urban
5A20	873070.57	479737.88	11.35	873070.62	479737.52	11.02	-0.07	0.36	0.30	0.36	Urban
5A21	873279.63	479276.13	8.94	873280.40	479276.80	8.70	-0.75	-0.69	0.20	1.02	Bare Earth
5A22	873289.67	479279.39	9.02	873289.95	479279.76	8.70	-0.26	-0.36	0.26	0.46	Bare Earth
5A23	873295.10	479266.85	8.99	873296.12	479267.38	8.70	-1.02	-0.52	0.26	1.15	Bare Earth
5A24	873287.40	479261.79	8.83	873286.48	479261.25	8.60	0.92	0.56	0.20	1.08	Bare Earth
5A25	873276.35	479255.05	8.84	873274.66	479256.16	8.54	1.71	-1.12	0.26	2.03	Bare Earth
5A26	873280.89	479243.15	8.75	873280.80	479243.16	8.47	0.10	0.00	0.23	0.10	Bare Earth
5A27	873291.74	479247.04	8.76	873292.78	479246.44	8.51	-1.05	0.59	0.23	1.18	Bare Earth
5A28	873302.44	479248.32	8.74	873302.23	479247.66	8.44	0.20	0.66	0.26	0.69	Bare Earth
5A29	873308.22	479232.75	8.53	873308.30	479232.23	8.21	-0.07	0.52	0.30	0.52	Bare Earth
5A30	873297.57	479226.66	8.60	873296.45	479226.29	8.31	1.12	0.36	0.26	1.18	Bare Earth
5A31	873287.70	479220.71	8.57	873286.84	479221.47	8.31	0.85	-0.75	0.23	1.15	Bare Earth
5A32	873290.81	479204.06	8.47	873290.48	479203.25	8.18	0.33	0.82	0.26	0.89	Bare Earth
5A33	873298.36	479207.19	8.43	873297.50	479208.08	8.18	0.85	-0.89	0.23	1.21	Bare Earth
5A34	873306.55	479210.51	8.44	873307.09	479210.67	8.15	-0.52	-0.16	0.26	0.56	Bare Earth
5A35	873317.38	479213.12	8.34	873316.54	479212.84	8.08	0.85	0.30	0.23	0.89	Bare Earth
5A36	873321.50	479193.72	8.28	873320.21	479192.56	8.02	1.28	1.18	0.23	1.74	Bare Earth
5A37	873309.94	479188.30	8.29	873310.56	479188.12	8.02	-0.62	0.16	0.23	0.66	Bare Earth
5A38	873298.30	479183.23	8.22	873298.78	479182.81	7.98	-0.49	0.43	0.20	0.62	Bare Earth
5A39	873304.68	479173.65	8.21	873305.02	479173.91	7.92	-0.33	-0.26	0.26	0.43	Bare Earth
5A40	873313.73	479176.32	8.22	873314.50	479176.11	7.95	-0.79	0.20	0.23	0.79	Bare Earth
6A1	821736.55	474636.62	13.46	821736.74	474636.88	13.28	-0.20	-0.26	0.20	0.33	Urban
6A2	821729.97	474636.66	13.46	821730.14	474636.42	13.12	-0.16	0.23	0.36	0.30	Urban
6A3	821721.79	474635.85	13.56	821721.22	474635.73	13.25	0.59	0.13	0.36	0.59	Urban
6A4	821715.22	474635.44	13.59	821716.06	474635.66	13.15	-0.85	-0.23	0.46	0.89	Urban
6A5	821715.64	474625.00	13.54	821715.67	474624.67	13.15	-0.03	0.33	0.43	0.33	Urban
6A6	821722.01	474624.09	13.64	821720.76	474624.63	13.22	1.25	-0.56	0.46	1.38	Urban
6A7	821728.71	474624.79	13.55	821728.96	474625.85	13.05	-0.26	-1.05	0.52	1.08	Urban
6A8	821736.22	474625.70	13.46	821738.12	474625.32	13.09	-1.90	0.36	0.43	1.94	Urban
6A9	821737.27	474614.09	13.47	821737.72	474614.26	13.09	-0.46	-0.16	0.43	0.49	Urban
6A10	821730.49	474613.09	13.48	821728.50	474612.69	13.15	1.97	0.39	0.36	2.03	Urban
6A11	821723.68	474612.69	13.61	821724.17	474613.25	13.25	-0.49	-0.56	0.39	0.72	Urban
6A12	821718.00	474611.44	13.55	821717.28	474611.74	13.32	0.72	-0.30	0.26	0.79	Urban
6A13	821720.82	474599.44	13.57	821722.07	474599.56	13.35	-1.25	-0.13	0.26	1.25	Urban
6A14	821730.32	474598.92	13.51	821732.47	474599.07	12.96	-2.17	-0.13	0.59	2.17	Urban
6A15	821737.02	474598.74	13.45	821737.13	474598.77	13.05	-0.13	-0.03	0.43	0.13	Urban
6A16	821638.17	474649.27	5.96	821638.02	474648.76	5.77	0.16	0.52	0.23	0.52	Brush
6A17	821637.83	474660.17	5.79	821638.12	474660.28	5.87	-0.30	-0.10	-0.03	0.30	Brush

6A18	821637.29	474671.13	5.98	821636.64	474671.89	5.73	0.66	-0.75	0.30	1.02	Brush
6A19	821636.61	474684.25	6.01	821637.07	474682.86	5.80	-0.46	1.41	0.23	1.48	Brush
6A20	821635.56	474696.31	6.21	821637.59	474695.98	5.96	-2.03	0.33	0.30	2.07	Brush
6A21	821636.65	474708.19	6.20	821638.12	474709.05	5.80	-1.44	-0.85	0.43	1.71	Brush
6A22	821635.13	474722.98	6.05	821634.21	474722.17	5.70	0.92	0.79	0.36	1.21	Brush
6A23	821616.72	474721.29	6.05	821616.36	474722.11	5.83	0.36	-0.82	0.26	0.89	Brush
6A24	821616.28	474710.65	6.03	821615.93	474711.21	5.83	0.36	-0.56	0.23	0.66	Brush
6A25	821616.65	474697.21	5.99	821616.32	474698.02	5.67	0.33	-0.82	0.36	0.85	Brush
6A26	821616.30	474685.53	6.06	821614.88	474685.02	5.77	1.41	0.52	0.33	1.51	Brush
6A27	821616.92	474673.86	6.14	821615.31	474673.86	5.80	1.61	0.00	0.36	1.61	Brush
6A28	821617.64	474662.78	6.04	821619.24	474662.18	5.80	-1.61	0.59	0.26	1.71	Brush
6A29	821618.86	474651.46	5.84	821617.96	474651.84	5.64	0.89	-0.39	0.23	0.98	Brush
6A30	821610.94	474651.11	5.75	821617.96	474651.84	5.64	-7.02	-0.72	0.13	7.05	Brush
6A31	821561.79	474693.72	7.89	821562.01	474694.41	7.60	-0.23	-0.69	0.33	0.72	Urban
6A32	821572.04	474692.59	8.04	821571.72	474691.75	7.77	0.33	0.82	0.30	0.89	Urban
6A33	821573.12	474679.00	8.00	821573.23	474677.41	7.77	-0.13	1.61	0.26	1.61	Urban
6A34	821562.80	474677.73	7.89	821562.99	474678.26	7.77	-0.20	-0.52	0.16	0.56	Urban
6A35	821564.32	474663.87	7.86	821565.29	474663.62	7.50	-0.98	0.26	0.39	0.98	Urban
6A36	821572.83	474663.23	7.96	821573.13	474663.53	7.73	-0.30	-0.30	0.26	0.43	Urban
6A37	821573.85	474649.57	7.91	821573.56	474650.04	7.57	0.30	-0.46	0.36	0.56	Urban
6A38	821564.68	474648.85	7.86	821564.67	474648.23	7.50	0.00	0.62	0.39	0.62	Urban
6A39	821565.04	474635.38	7.86	821564.86	474634.71	7.57	0.16	0.66	0.33	0.69	Urban
6A40	821574.88	474635.74	7.91	821573.72	474635.76	7.64	1.15	-0.03	0.30	1.15	Urban
7A1	828300.78	442490.66	6.12	828301.73	442491.75	6.25	-0.95	-1.08	-0.10	1.44	Brush
7A2	828294.90	442490.71	6.29	828295.03	442490.11	6.38	-0.13	0.59	-0.07	0.62	Brush
7A3	828294.27	442502.13	6.25	828295.49	442503.08	6.35	-1.21	-0.95	-0.07	1.54	Brush
7A4	828301.62	442502.37	6.06	828302.09	442502.55	6.15	-0.46	-0.16	-0.07	0.49	Brush
7A5	828301.79	442513.15	6.03	828302.42	442513.35	6.12	-0.62	-0.20	-0.07	0.66	Brush
7A6	828294.86	442513.52	6.17	828294.34	442513.45	6.38	0.52	0.07	-0.16	0.52	Brush
7A7	828295.09	442524.69	6.23	828294.67	442524.24	6.41	0.43	0.46	-0.16	0.62	Brush
7A8	828302.22	442524.79	6.04	828302.75	442524.15	6.18	-0.52	0.66	-0.13	0.82	Brush
7A9	828301.43	442536.92	6.05	828300.68	442537.44	6.25	0.75	-0.52	-0.16	0.92	Brush
7A10	828293.62	442537.17	6.22	828292.77	442538.16	6.28	0.85	-0.98	-0.03	1.31	Brush
7A11	828296.60	442468.31	6.21	828296.87	442467.83	6.35	-0.26	0.49	-0.10	0.56	Bare Earth
7A12	828288.14	442467.04	6.38	828286.37	442467.99	6.55	1.77	-0.95	-0.13	2.00	Bare Earth
7A13	828288.18	442457.46	6.30	828288.40	442457.42	6.48	-0.23	0.03	-0.16	0.23	Bare Earth
7A14	828297.96	442457.39	6.18	828297.95	442457.33	6.28	0.00	0.07	-0.07	0.07	Bare Earth
7A15	828298.29	442447.81	6.15	828297.66	442448.63	6.35	0.62	-0.82	-0.16	1.05	Bare Earth
7A16	828287.36	442448.03	6.28	828286.83	442448.30	6.48	0.52	-0.26	-0.16	0.59	Bare Earth
7A17	828287.52	442437.94	6.21	828287.81	442437.86	6.28	-0.30	0.07	-0.03	0.30	Bare Earth
7A18	828297.56	442438.66	6.16	828297.30	442437.73	6.28	0.26	0.92	-0.10	0.95	Bare Earth
7A19	828297.88	442425.78	6.06	828296.94	442426.84	6.19	0.95	-1.05	-0.10	1.41	Bare Earth
7A20	828286.89	442425.22	6.18	828286.83	442426.02	6.32	0.07	-0.79	-0.10	0.79	Bare Earth
7A21	828203.03	442420.47	6.74	828201.76	442420.40	6.84	1.28	0.07	-0.07	1.28	Urban
7A22	828211.47	442419.49	6.89	828210.19	442419.03	6.84	1.28	0.46	0.07	1.35	Urban
7A23	828212.23	442408.69	6.94	828212.69	442409.74	7.10	-0.46	-1.05	-0.13	1.15	Urban
7A24	828204.70	442408.75	6.81	828204.52	442409.28	6.90	0.20	-0.52	-0.07	0.56	Urban
7A25	828204.72	442396.85	6.88	828204.52	442395.95	7.00	0.20	0.89	-0.10	0.92	Urban

7A26	828212.49	442396.81	6.97	828212.23	442396.64	7.07	0.26	0.16	-0.07	0.30	Urban
7A27	828213.09	442384.61	7.02	828213.15	442385.09	7.07	-0.07	-0.49	0.00	0.49	Urban
7A28	828205.11	442384.52	6.93	828204.75	442384.53	6.97	0.36	0.00	0.00	0.36	Urban
7A29	828205.79	442371.90	7.01	828204.45	442371.57	7.10	1.35	0.33	-0.07	1.38	Urban
7A30	828213.50	442371.77	7.07	828212.66	442371.96	7.10	0.85	-0.20	0.00	0.85	Urban
7A31	828237.01	442338.22	8.09	828236.78	442338.58	8.12	0.23	-0.36	0.00	0.43	Urban
7A32	828242.80	442337.75	8.23	828243.64	442338.16	8.25	-0.82	-0.39	0.00	0.92	Urban
7A33	828243.97	442323.29	8.17	828243.64	442322.77	8.25	0.33	0.52	-0.07	0.62	Urban
7A34	828237.51	442322.49	8.09	828236.22	442323.16	8.12	1.31	-0.69	0.00	1.48	Urban
7A35	828238.02	442309.02	8.12	828238.52	442307.67	8.22	-0.49	1.35	-0.07	1.44	Urban
7A36	828244.28	442309.27	8.16	828243.64	442309.44	8.22	0.62	-0.16	-0.03	0.66	Urban
7A37	828244.30	442294.49	8.19	828243.60	442293.75	8.19	0.69	0.75	0.03	1.02	Urban
7A38	828237.54	442293.43	8.11	828237.99	442292.18	8.19	-0.46	1.25	-0.03	1.31	Urban
7A39	828238.45	442279.31	8.09	828238.68	442280.20	8.15	-0.23	-0.89	-0.03	0.92	Urban
7A40	828244.58	442279.41	8.15	828243.60	442280.30	8.22	0.98	-0.89	-0.03	1.31	Urban
7A41	828380.41	442689.65	7.29	828380.40	442688.83	7.40	0.03	0.82	-0.07	0.82	Forest
7A42	828377.03	442696.95	6.81	828376.62	442697.27	6.97	0.39	-0.33	-0.13	0.52	Forest
7A43	828379.25	442705.73	6.70	828378.99	442705.11	6.87	0.26	0.62	-0.13	0.66	Forest
7A44	828393.52	442708.19	6.96	828393.33	442709.02	7.07	0.20	-0.82	-0.07	0.85	Forest
7A45	828397.28	442699.46	6.96	828397.27	442698.78	6.97	0.03	0.69	0.03	0.69	Forest
7A46	828406.72	442700.32	6.92	828407.57	442700.12	7.10	-0.85	0.20	-0.16	0.85	Forest
7A47	828408.04	442707.61	6.80	828407.74	442706.59	7.01	0.30	1.02	-0.16	1.05	Forest
7A48	828413.24	442714.74	6.72	828414.04	442713.45	6.97	-0.79	1.28	-0.23	1.51	Forest
7A49	828437.32	442721.68	6.67	828437.01	442720.64	6.61	0.30	1.05	0.10	1.08	Forest
7A50	828432.09	442713.14	6.58	828430.35	442713.88	6.68	1.74	-0.72	-0.07	1.90	Forest
7A51	828427.84	442705.38	6.65	828428.41	442706.29	6.84	-0.56	-0.92	-0.16	1.08	Forest
7A52	828441.40	442730.98	6.70	828441.15	442730.78	6.91	0.26	0.20	-0.16	0.33	Forest
7A53	828446.47	442741.59	6.57	828447.32	442742.23	6.74	-0.85	-0.66	-0.13	1.05	Forest
7A54	828451.02	442751.53	6.53	828449.58	442751.42	6.71	1.44	0.10	-0.16	1.44	Forest
7A55	828456.31	442762.09	6.63	828455.78	442761.66	6.74	0.52	0.43	-0.10	0.69	Forest
7A56	828488.91	442761.38	6.63	828488.64	442760.78	6.78	0.26	0.59	-0.13	0.66	Forest
7A57	828481.82	442748.46	6.85	828482.27	442748.01	7.07	-0.46	0.46	-0.20	0.66	Forest
7A58	828476.31	442739.71	6.69	828475.67	442740.62	6.71	0.62	-0.92	0.00	1.12	Forest
7A59	828471.21	442731.35	6.66	828471.31	442729.96	6.42	-0.10	1.38	0.26	1.38	Forest
7A60	828466.68	442721.60	6.83	828467.11	442722.02	7.01	-0.43	-0.43	-0.16	0.59	Forest
7A61	828461.53	442712.21	6.90	828462.74	442711.22	7.07	-1.21	0.98	-0.13	1.57	Forest
7A62	828483.16	442705.61	6.83	828483.38	442704.88	6.91	-0.23	0.72	-0.07	0.75	Forest
7A63	828488.86	442713.16	6.75	828487.81	442713.29	6.91	1.05	-0.13	-0.13	1.05	Forest
7A64	828493.81	442720.97	6.68	828494.44	442719.91	6.94	-0.62	1.05	-0.23	1.25	Forest
7A65	828498.40	442728.20	6.54	828498.81	442727.33	6.78	-0.39	0.85	-0.20	0.95	Forest
7A66	828502.30	442734.90	6.41	828503.24	442734.88	6.75	-0.95	0.03	-0.30	0.95	Forest
7A67	828507.27	442743.32	6.65	828507.70	442742.26	6.88	-0.43	1.05	-0.20	1.15	Forest
7A68	828515.09	442754.32	6.40	828514.40	442754.70	6.55	0.69	-0.39	-0.13	0.79	Forest
7A69	828539.34	442747.88	6.51	828540.42	442747.75	6.58	-1.08	0.13	-0.03	1.08	Forest
7A70	828538.36	442735.42	6.41	828538.16	442735.87	6.68	0.20	-0.43	-0.23	0.49	Forest
7A71	828541.73	442720.36	6.38	828542.20	442719.26	6.62	-0.46	1.08	-0.20	1.18	Forest
7A72	828559.32	442711.15	6.26	828559.62	442710.53	6.39	-0.30	0.62	-0.10	0.69	Forest
7A73	828565.12	442718.21	6.25	828566.16	442718.60	6.42	-1.05	-0.39	-0.13	1.12	Forest

7A74	828570.88	442724.96	6.26	828568.52	442721.95	6.45	2.36	3.02	-0.16	3.84	Forest
7A75	828579.12	442733.63	6.38	828579.61	442734.68	6.39	-0.49	-1.05	0.03	1.15	Forest
7A76	828585.42	442740.31	6.34	828584.04	442739.84	6.58	1.38	0.46	-0.20	1.44	Forest
7A77	828588.77	442714.83	6.46	828587.95	442714.60	6.62	0.82	0.23	-0.13	0.85	Forest
7A78	828588.75	442722.54	6.38	828588.11	442723.23	6.22	0.62	-0.69	0.20	0.95	Forest
7A79	828596.48	442731.04	6.38	828596.87	442729.01	6.45	-0.39	2.03	-0.03	2.07	Forest
7A80	828590.89	442743.72	6.48	828590.90	442744.00	6.85	0.00	-0.30	-0.33	0.30	Forest
8A1	866394.69	451219.17	5.80	866395.72	451219.25	5.65	-1.02	-0.07	0.13	1.02	Urban
8A2	866390.66	451232.68	5.55	866390.96	451232.91	5.32	-0.30	-0.23	0.20	0.39	Urban
8A3	866373.76	451228.63	5.61	866374.58	451228.51	5.35	-0.82	0.13	0.23	0.82	Urban
8A4	866370.51	451236.72	5.34	866370.48	451235.86	5.09	0.03	0.85	0.23	0.85	Urban
8A5	866358.27	451234.65	5.37	866357.58	451234.02	5.12	0.69	0.62	0.23	0.92	Urban
8A6	866359.79	451225.03	5.66	866358.57	451224.60	5.48	1.21	0.43	0.16	1.28	Urban
8A7	866345.90	451223.07	5.68	866345.18	451222.80	5.42	0.72	0.26	0.23	0.75	Urban
8A8	866344.29	451232.39	5.39	866344.75	451231.66	5.15	-0.46	0.72	0.20	0.85	Urban
8A9	866327.98	451229.31	5.47	866326.96	451228.58	5.25	1.02	0.72	0.20	1.25	Urban
8A10	866330.12	451218.76	5.74	866331.06	451218.01	5.58	-0.95	0.75	0.13	1.21	Urban
8A11	866314.41	451215.93	5.76	866315.28	451215.78	5.48	-0.85	0.16	0.26	0.89	Urban
8A12	866311.61	451226.12	5.55	866313.70	451226.51	5.28	-2.10	-0.39	0.23	2.13	Urban
8A13	866293.16	451223.35	5.61	866292.57	451223.88	5.41	0.59	-0.52	0.16	0.79	Urban
8A14	866294.98	451212.78	5.84	866295.59	451213.28	5.58	-0.59	-0.49	0.23	0.79	Urban
8A15	866276.86	451209.34	5.87	866278.03	451209.61	5.58	-1.18	-0.26	0.26	1.21	Urban
8A16	866203.25	450990.43	7.02	866203.36	450991.13	6.79	-0.10	-0.69	0.20	0.69	Bare Earth
8A17	866203.77	450981.21	6.91	866204.74	450980.82	6.66	-0.98	0.39	0.23	1.05	Bare Earth
8A18	866203.65	450971.57	6.92	866205.23	450971.96	6.76	-1.57	-0.39	0.13	1.64	Bare Earth
8A19	866201.76	450961.56	6.67	866202.61	450960.87	6.46	-0.85	0.69	0.16	1.08	Bare Earth
8A20	866199.24	450950.86	6.52	866198.05	450951.94	6.24	1.18	-1.08	0.26	1.61	Bare Earth
8A21	866197.02	450940.88	6.24	866197.78	450941.17	6.07	-0.75	-0.30	0.13	0.82	Bare Earth
8A22	866182.91	450941.51	6.64	866183.34	450941.27	6.50	-0.43	0.23	0.13	0.49	Bare Earth
8A23	866180.53	450949.59	6.80	866180.72	450949.08	6.60	-0.20	0.49	0.16	0.52	Bare Earth
8A24	866177.33	450958.03	6.95	866176.58	450958.77	6.76	0.75	-0.72	0.16	1.05	Bare Earth
8A25	866174.72	450967.11	6.98	866174.68	450966.05	6.86	0.03	1.05	0.10	1.05	Bare Earth
8A26	866172.07	450977.05	7.20	866172.74	450976.69	6.99	-0.66	0.36	0.20	0.75	Bare Earth
8A27	866169.52	450986.33	7.07	866168.74	450987.29	6.89	0.79	-0.95	0.16	1.25	Bare Earth
8A28	866167.47	450995.65	6.97	866168.02	450995.75	6.79	-0.56	-0.10	0.16	0.56	Bare Earth
8A29	866181.42	450993.77	6.90	866181.93	450993.75	6.79	-0.49	0.03	0.07	0.52	Bare Earth
8A30	866184.10	450981.90	7.21	866184.13	450982.17	7.02	-0.03	-0.26	0.16	0.26	Bare Earth
8A31	866437.07	450985.68	4.37	866437.07	450986.43	4.31	0.00	-0.75	0.03	0.75	Brush
8A32	866445.12	450980.90	4.60	866445.44	450980.43	4.41	-0.33	0.49	0.16	0.59	Brush
8A33	866452.30	450989.58	4.59	866452.73	450988.50	4.54	-0.43	1.08	0.03	1.15	Brush
8A34	866445.29	450997.17	4.54	866445.74	450996.51	4.57	-0.46	0.66	-0.07	0.79	Brush
8A35	866451.84	451008.97	4.67	866453.25	451008.03	4.70	-1.41	0.95	-0.07	1.71	Brush
8A36	866461.94	451003.36	4.83	866461.56	451003.43	4.73	0.39	-0.07	0.07	0.39	Brush
8A37	866469.13	451015.77	4.85	866470.29	451015.94	4.73	-1.15	-0.16	0.10	1.18	Brush
8A38	866461.34	451023.70	4.81	866462.21	451023.91	4.80	-0.89	-0.20	-0.03	0.89	Brush
8A39	866468.73	451036.38	4.83	866467.92	451038.09	4.77	0.82	-1.71	0.03	1.90	Brush
8A40	866477.76	451030.95	4.74	866478.88	451031.40	4.64	-1.12	-0.46	0.07	1.21	Brush
10A1	852874.78	410778.16	3.24	852872.89	410777.19	3.11	1.90	0.98	0.13	2.13	Bare Earth

10A2	852868.86	410778.10	3.18	852869.05	410779.29	3.31	-0.20	-1.18	-0.13	1.21	Bare Earth
10A3	852869.23	410760.66	3.06	852869.12	410761.47	2.95	0.10	-0.82	0.10	0.82	Bare Earth
10A4	852875.19	410760.19	3.09	852877.26	410761.76	2.82	-2.07	-1.57	0.26	2.59	Bare Earth
10A5	852874.94	410739.80	2.96	852874.53	410740.63	2.92	0.39	-0.82	0.03	0.92	Bare Earth
10A6	852869.12	410740.11	2.90	852868.92	410741.19	2.85	0.20	-1.08	0.03	1.08	Bare Earth
10A7	852869.29	410722.28	2.83	852868.16	410722.25	2.85	1.12	0.03	-0.03	1.12	Bare Earth
10A8	852874.80	410722.66	2.88	852872.33	410722.12	2.39	2.46	0.52	0.49	2.53	Bare Earth
10A9	852874.85	410699.72	2.89	852874.07	410701.48	2.72	0.79	-1.77	0.16	1.94	Bare Earth
10A10	852868.94	410699.54	2.85	852870.17	410698.23	2.75	-1.25	1.31	0.10	1.80	Bare Earth
10A11	852922.33	410871.66	4.93	852923.24	410869.64	4.66	-0.92	2.00	0.26	2.20	Urban
10A12	852923.16	410879.97	5.01	852923.07	410877.91	4.79	0.10	2.07	0.23	2.07	Urban
10A13	852943.89	410881.46	5.03	852942.80	410880.21	4.79	1.08	1.25	0.23	1.67	Urban
10A14	852942.43	410871.44	4.93	852943.03	410871.09	4.72	-0.59	0.36	0.20	0.69	Urban
10A15	852959.30	410871.11	4.88	852961.40	410872.40	4.66	-2.10	-1.28	0.23	2.46	Urban
10A16	852959.77	410881.22	5.02	852959.34	410881.98	4.82	0.43	-0.75	0.20	0.89	Urban
10A17	852980.25	410881.52	4.99	852978.96	410880.74	4.73	1.28	0.79	0.26	1.51	Urban
10A18	852980.39	410872.68	4.86	852981.52	410873.75	4.63	-1.12	-1.05	0.23	1.54	Urban
10A19	853006.01	410872.21	4.85	853005.71	410872.56	4.66	0.30	-0.36	0.20	0.46	Urban
10A20	853006.04	410881.74	4.96	853005.71	410883.33	4.79	0.33	-1.57	0.16	1.61	Urban
10A21	853027.73	410882.18	4.98	853027.18	410881.46	4.76	0.56	0.72	0.20	0.92	Urban
10A22	853027.88	410872.95	4.88	853027.90	410873.55	4.63	-0.03	-0.59	0.26	0.59	Urban
10A23	853046.75	410872.31	4.88	853046.21	410872.07	4.66	0.52	0.23	0.23	0.59	Urban
10A24	853047.46	410883.02	4.98	853046.54	410882.11	4.76	0.92	0.89	0.20	1.28	Urban
10A25	853069.90	410882.87	4.99	853070.60	410884.67	4.76	-0.69	-1.80	0.23	1.94	Urban
10A26	853068.94	410872.86	4.85	853069.68	410873.78	4.63	-0.72	-0.92	0.23	1.18	Urban
10A27	853090.27	410872.44	4.75	853091.21	410872.10	4.57	-0.95	0.33	0.16	0.98	Urban
10A28	853091.63	410882.18	4.93	853091.27	410882.02	4.73	0.36	0.16	0.20	0.39	Urban
10A29	853112.06	410882.50	4.90	853112.93	410883.23	4.66	-0.89	-0.72	0.23	1.15	Urban
10A30	853111.27	410872.93	4.75	853110.01	410873.48	4.50	1.25	-0.56	0.26	1.38	Urban
10A31	853098.10	410893.35	4.78	853098.75	410892.06	4.83	-0.66	1.28	-0.07	1.44	Brush
10A32	853086.64	410893.64	4.82	853084.97	410893.83	4.73	1.67	-0.20	0.10	1.67	Brush
10A33	853074.53	410893.73	4.83	853074.60	410894.36	4.79	-0.07	-0.62	0.03	0.62	Brush
10A34	853059.66	410893.75	4.93	853060.45	410892.71	4.89	-0.79	1.02	0.03	1.31	Brush
10A35	853042.78	410893.44	5.00	853042.67	410894.29	4.86	0.10	-0.85	0.13	0.85	Brush
10A36	853030.02	410893.47	5.06	853030.72	410894.19	4.99	-0.69	-0.72	0.07	1.02	Brush
10A37	853017.29	410893.47	5.07	853018.15	410893.83	4.99	-0.85	-0.36	0.07	0.92	Brush
10A38	853006.03	410893.75	5.04	853007.29	410894.26	5.12	-1.25	-0.49	-0.10	1.35	Brush
10A39	852993.22	410893.31	5.05	852994.55	410893.21	4.99	-1.35	0.10	0.07	1.35	Brush
10A40	852980.77	410893.41	5.04	852981.65	410894.19	4.99	-0.89	-0.79	0.03	1.18	Brush
11A1	802471.05	425034.50	4.95	802472.26	425033.83	5.28	-1.21	0.66	-0.30	1.38	Bare Earth
11A2	802471.42	425041.30	5.02	802470.20	425040.92	5.12	1.21	0.39	-0.07	1.28	Bare Earth
11A3	802471.21	425048.31	4.92	802470.23	425049.06	4.99	0.98	-0.75	-0.03	1.25	Bare Earth
11A4	802471.89	425055.08	4.71	802473.02	425055.43	4.76	-1.15	-0.36	0.00	1.18	Bare Earth
11A5	802472.71	425062.32	4.80	802473.09	425063.63	4.99	-0.39	-1.31	-0.13	1.38	Bare Earth
11A6	802472.84	425069.91	4.69	802473.94	425070.42	4.85	-1.08	-0.52	-0.13	1.21	Bare Earth
11A7	802463.57	425072.54	4.64	802464.29	425073.12	4.76	-0.72	-0.56	-0.07	0.92	Bare Earth
11A8	802462.66	425065.76	4.64	802462.88	425065.76	4.79	-0.23	0.00	-0.10	0.23	Bare Earth
11A9	802461.96	425060.07	4.52	802463.60	425060.55	4.72	-1.64	-0.49	-0.16	1.71	Bare Earth

11A10	802462.08	425053.65	4.65	802462.88	425052.31	4.85	-0.79	1.35	-0.16	1.54	Bare Earth
11A11	802461.09	425047.26	4.84	802462.16	425048.66	4.92	-1.05	-1.41	-0.03	1.77	Bare Earth
11A12	802453.12	425047.08	4.87	802451.33	425047.09	4.99	1.80	0.00	-0.07	1.80	Bare Earth
11A13	802453.12	425053.80	4.73	802452.77	425054.47	4.85	0.36	-0.69	-0.07	0.75	Bare Earth
11A14	802453.36	425060.02	4.68	802453.49	425058.15	4.79	-0.13	1.87	-0.07	1.87	Bare Earth
11A15	802453.56	425066.37	4.60	802453.79	425067.90	4.76	-0.23	-1.51	-0.10	1.54	Bare Earth
11A16	802453.52	425073.05	4.53	802453.85	425072.66	4.72	-0.33	0.39	-0.13	0.52	Bare Earth
11A17	802444.41	425075.33	4.53	802444.40	425074.79	4.76	0.00	0.56	-0.16	0.56	Bare Earth
11A18	802443.45	425070.41	4.64	802443.61	425069.41	4.79	-0.16	1.02	-0.10	1.02	Bare Earth
11A19	802442.84	425065.08	4.68	802442.89	425065.73	4.95	-0.07	-0.66	-0.23	0.66	Bare Earth
11A20	802442.17	425059.71	4.84	802441.48	425058.35	5.05	0.69	1.38	-0.16	1.54	Bare Earth
11A21	802441.78	425053.92	4.95	802443.22	425053.92	5.02	-1.44	0.00	-0.03	1.44	Bare Earth
11A22	802434.21	425053.82	4.91	802435.08	425054.24	5.05	-0.89	-0.43	-0.10	0.98	Bare Earth
11A23	802433.97	425059.29	4.82	802433.96	425059.79	4.98	0.00	-0.49	-0.13	0.49	Bare Earth
11A24	802433.63	425064.19	4.83	802434.69	425063.53	4.95	-1.05	0.66	-0.07	1.25	Bare Earth
11A25	802433.45	425069.73	4.83	802434.59	425069.83	4.92	-1.15	-0.10	-0.03	1.15	Bare Earth
11A26	802381.97	424962.58	5.85	802382.73	424962.38	5.64	-0.75	0.20	0.26	0.79	Urban
11A27	802382.14	424955.59	5.94	802383.36	424955.56	5.77	-1.21	0.03	0.23	1.21	Urban
11A28	802382.12	424948.41	6.07	802382.34	424947.97	5.90	-0.23	0.43	0.20	0.49	Urban
11A29	802382.42	424941.06	6.10	802380.80	424940.13	5.97	1.61	0.92	0.16	1.87	Urban
11A30	802382.45	424933.84	6.16	802383.88	424934.06	6.00	-1.44	-0.23	0.20	1.44	Urban
11A31	802374.03	424934.57	6.17	802374.46	424936.36	6.00	-0.43	-1.77	0.23	1.84	Urban
11A32	802373.82	424940.31	6.13	802373.77	424940.13	6.03	0.03	0.16	0.13	0.20	Urban
11A33	802373.99	424946.38	6.04	802373.45	424945.38	5.97	0.56	0.98	0.13	1.15	Urban
11A34	802372.89	424953.18	5.98	802371.44	424952.86	5.80	1.44	0.33	0.23	1.48	Urban
11A35	802372.11	424960.61	5.88	802372.99	424960.68	5.74	-0.89	-0.07	0.20	0.89	Urban
11A36	802361.09	424963.70	5.91	802361.33	424964.38	5.70	-0.23	-0.69	0.23	0.72	Urban
11A37	802361.16	424957.28	5.98	802361.96	424957.59	5.74	-0.79	-0.30	0.30	0.85	Urban
11A38	802361.32	424950.30	6.06	802362.78	424950.60	5.87	-1.44	-0.30	0.23	1.48	Urban
11A39	802361.32	424942.23	6.11	802361.27	424942.89	6.00	0.07	-0.66	0.16	0.66	Urban
11A40	802361.53	424934.57	6.17	802362.25	424933.67	6.03	-0.72	0.89	0.20	1.15	Urban
11A41	802351.77	424934.20	6.20	802351.46	424932.29	6.00	0.33	1.90	0.26	1.94	Urban
11A42	802351.60	424942.23	6.13	802352.37	424941.94	6.00	-0.79	0.30	0.16	0.82	Urban
11A43	802352.21	424949.86	6.16	802352.34	424949.58	6.06	-0.13	0.30	0.13	0.30	Urban
11A44	802351.45	424958.55	6.02	802349.98	424958.18	5.87	1.48	0.36	0.20	1.51	Urban
11A45	802349.88	424966.49	5.97	802351.75	424967.11	5.80	-1.87	-0.62	0.23	1.97	Urban
11A46	802339.37	424967.48	6.04	802339.21	424967.01	5.83	0.16	0.46	0.26	0.49	Urban
11A47	802338.98	424960.26	6.11	802340.43	424960.77	5.93	-1.44	-0.52	0.23	1.54	Urban
11A48	802339.06	424951.48	6.15	802338.98	424950.86	6.00	0.07	0.62	0.20	0.62	Urban
11A49	802339.37	424942.26	6.21	802340.00	424941.90	6.03	-0.62	0.36	0.23	0.72	Urban
11A50	802340.24	424933.94	6.23	802341.45	424934.42	6.03	-1.21	-0.49	0.23	1.31	Urban