

Data Supply Metadata s1

Project	Greater Wellington Pinehaven LiDAR	09.054
Client	Greater Wellington Regional Council	
Client Contact	John Eyles	

Summary of Data	<p>NZ Aerial Mapping (NZAM) collected LiDAR over the project area. The data was processed into LiDAR point cloud digital map data products. The supplied dataset is made up of the following items:</p> <ul style="list-style-type: none">• Project extent data• DTM point cloud• Above ground point cloud
------------------------	--

Data Acquisition	<p>The project areas are those shown in the ESRI shape file "<i>extent</i>" that accompanies the dataset. The total project is approximately 3 sq km in area.</p> <p>The LiDAR was captured on 04 June 2009, using NZ Aerial Mappings Optech ALTM 3100EA LiDAR system. The flying was undertaken between 1:00 pm and 2:00 pm.</p> <p>The data was collected flying 1,400 metres above the ground, and using a field of view of 16 degrees either side of nadir. The system PRF was set at 70kHz and the scan frequency was set at 37 Hz.</p> <p>A single geodetic reference mark was used to place a GPS basestation on during the acquisition. The Wellington Geo systems iBase receiver was used for this purpose. All data acquisition by the aircraft was undertaken within 30km of the basestation.</p> <p>Independent of the aerial survey work, Vince Belgrave (Registered Professional Surveyor) field surveyed a series of five check sites, to be later used to verify the accuracy of the processed ground dataset. The field survey work was undertaken on 08 June 2009.</p>
-------------------------	--

**Data
Processing**

The LiDAR sensor positioning and orientation (POS) was determined using the collected GPS/IMU datasets and Applanix POSPac software. This work was all undertaken in NZGD2000 coordinate system using the data collected at the geodetic reference marks for the DGPS processing.

The POS data was combined with the LiDAR range files and used to generate LiDAR point clouds in New Zealand Transverse Mercator (NZTM) map projection but NZGD2000 ellipsoidal heights. This process was undertaken using Optech DASHMap LiDAR processing software. The data was checked for completeness of coverage. The relative fit of data in the overlap between strips was also checked. The point cloud data was then classified into ground, first and, intermediate returns using automated routines tailored to the project landcover and terrain. The subsequent steps were undertaken using TerraSolid LiDAR processing software modules TerraScan, TerraPhoto and TerraModeler.

Comprehensive manual editing of the LiDAR point cloud data was undertaken to increase the quality of the automatically classified ground point dataset. This editing involved visually checking over the data and changing the classification of points into and out of the ground point dataset. As part of this process LiDAR returns from water bodies were removed from the ground point dataset

The data was converted from NZGD2000 ellipsoidal heights into orthometric heights using the LINZ NZGeiod05 separation and offset model. The height accuracy of the classified point cloud data has been checked against the ground survey check site dataset that Vince Belgrave provided. This was done by calculating height difference statistics between a TIN of the LIDAR ground points and the checkpoints. The standard deviation statistics for this area is 0.043.

The positional accuracy of the processed data has been checked by overlaying the check site data over the LiDAR dataset displayed with its intensity values. The data was found to fit well in position.

Product Generation & Data Supply	<p>The digital mapping datasets are in NZTM map projection coordinates. The vertical datum is Wellington 1953. The data is tiled into NZTopo50 1:2,000 tiles. The ESRI shape file "tiles" that accompanies the dataset shows this tile layout.</p> <p>The file naming convention NZTopo50xxyy (e.g. CD340203.xyz) is used for the dataset.</p> <p>The point cloud datasets are in ASCII XYZ (mE mN O) file format.</p> <p>The data supply folder "DTM" contains the ground classified point cloud and supplementary points added into the dataset during manual editing.</p> <p>The data supply folder "AboveGround" contains points that have been identified as having elevations higher than a TIN model formed from the ground classified point cloud.</p> <p>If you have an interest having the data processed into other file formats, map projections or products such DEM and surface models please contact NZAM. Our contact details are provided below.</p>
---	---

Supplier	NZ Aerial Mapping Ltd
Address	208 Warren Street PO Box 6 Hastings New Zealand
Phone	64-6-873 7550
Supplier Contact	Dave Froggatt (e-mail: dave.froggatt@nzam.com)

Date of Metadata Creation	19 June 2009
Author	George Jacob

Appendix A: Project Area

Area of interest shown as red outline.

