



LANDPRO

Make the most of your land

METADATA REPORT

Prepared for Porirua City Council

Project name: LiDAR and Imagery 2021-22

Topographic LiDAR dataset

Project	LiDAR and Imagery 2021-22 <i>(N.B. this metadata report relates to the topographic LiDAR survey only)</i>
Client	Porirua City Council
Contact	Mike Bricker

Summary of data	<p>Landpro completed LiDAR data capture for the requested area of interest between 18/01/2023 and 16/04/2023.</p> <p>The data has been processed into a variety of digital map and data products.</p> <p>The supplied dataset includes the following items:</p> <p>Acquisition of topographic LiDAR over the Porirua City area covering approximately 220 km².</p> <ul style="list-style-type: none"> • LiDAR point cloud classified to ground, above ground, water, vegetation, and buildings in LAS and LAZ formats • 1 m bare earth DEM delivered in ASCII and RASTER formats • High resolution Digital Terrain Model in DXF format • 1 m DSM and delivered in ASCII and RASTER formats • Hydro flattening and hydro break-lines in DGN and SHP formats • Detailed metadata report
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Data acquisition	Figure 1 below outlines the area surveyed.
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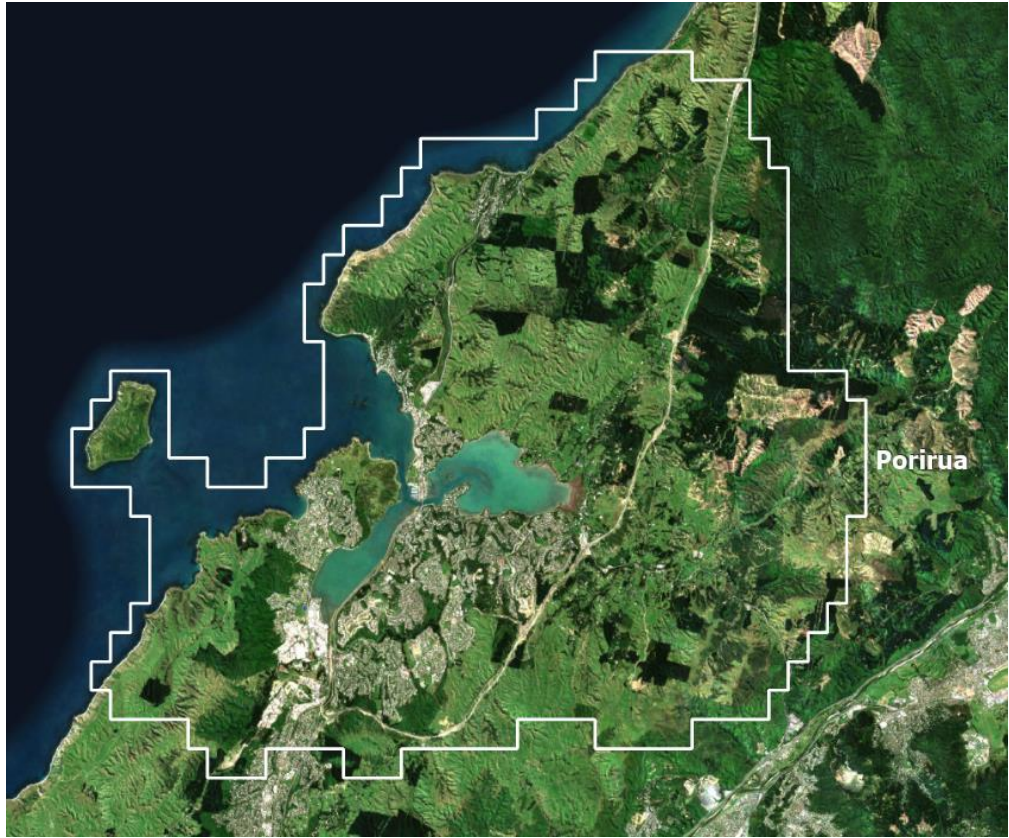


Figure 1. Area of interest surveyed as part of the LiDAR project captured for Porirua City Council.

Data was captured using the Riegl VQ880 GII LiDAR Scanner system.

Reference systems

Projection: NZTM NZGD2000
 Vertical Datum: NZVD16
 Reference Station: GSUH

GSHU: Mark details

MARK IDENTIFICATION

Code:	GSHU	Country:	New Zealand
Name:	Haupai Station West	Land District:	North Auckland
Alternatives:		Topo50 sheet:	BA31
		NZTM:	5929093.612 1737343.259

NZGD 2000 COORDINATES

Latitude:	36° 46' 26.40112" S	Order:	3
Longitude:	174° 32' 20.40669" E	Authorised:	26-May-2022
Ellipsoidal height (m):	90.897	Reference:	2022.05.25 - GS Private CORS Load

Circuit	Northing (m)	Easting (m)	Scale Factor	Convergence
Mount Eden Circuit 2000	811707.609	379900.538	0.9999050	-0° 08' 05"

ORTHOMETRIC HEIGHTS

Height datum	Height (m)	Order	Calculation Date	Reference
New Zealand Vertical Datum 2016	56.66	3V	26-May-2022	2022.05.25 - GS Private CORS Load

MARK DETAILS

Last maintained:	26-May-2022
Maintenance level:	
Mark condition:	Not Specified
Description:	This is a CORS that is managed and maintain by Global Survey
Mark type:	Forced Centering
Beacon type:	Mast
Protection type:	No protection

**Data
processing**

LiDAR point processing

Data processing has been in accordance with our standard policies and procedures surrounding acceptable tolerances, therefore ensuring optimal accuracy of deliverables.

GNSS/IMU data was processed using the GSUH Base Station and precise ephemeris data.

The GNSS and IMU were processed in a tightly coupled loop to give an optimum trajectory. This data was then applied to the LiDAR and image exterior orientations prior to LAS.

LiDAR data was generated via Riegl Riprocess.

LiDAR calibration

Overlapping LiDAR points from adjacent aircraft trajectories were used to check the LiDAR calibration for heading, roll, pitch and scale.

These values were then used to make small flight-specific adjustments to the LiDAR data.

LiDAR point editing

A "1st run" automatic classification was carried out on the raw LiDAR points using *TerraSolid's TerraScan* software to separate the LiDAR points into ground hits and non-ground hits. This results in a greater than 90 % correct classification. A manual classification was then used to edit points where gross classification errors occurred in the automatic classification process. Surface features are identified and removed from the DEM with the help of Terrascan macros that automatically identifies and classifies the features accordingly. We further manually check and reclassify points to ensure classification accuracy on a tile-by-tile basis with a 3-dimensional view of the point cloud.

The DEM for each of the areas of interest are presented in Figure 2.

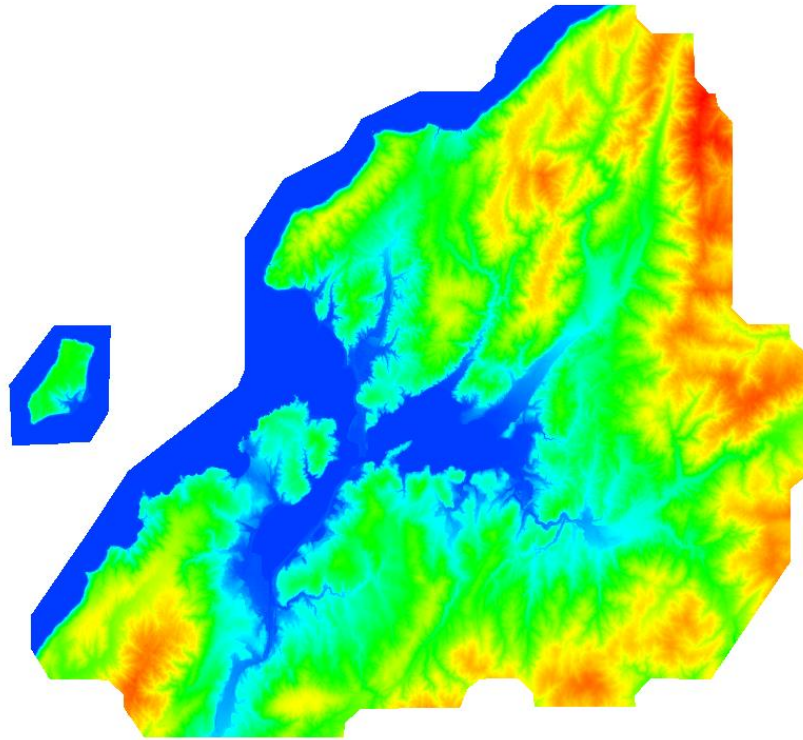


Figure 2. DEM for the Porirua area of interest.

Vertical accuracy

Average dz	+0.002
Minimum dz	-0.164
Maximum dz	+0.128
Average magnitude	0.046
Root mean square	0.061
Std deviation	0.061

Horizontal accuracy

The positional accuracy of the LiDAR data was checked by plotting Landpro Ltd. check points and displaying the LiDAR by intensity. The LiDAR was in position.

Supplier	Landpro Ltd.
Address	13 Pinot Noir Drive Cromwell 9310 New Zealand
Phone	+64 3 445 9905
Supplier contact	Andy Burrell andy@landpro.co.nz
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