

# Northland 0.4m Rural Aerial Photos (2014-2016)

## Metadata

### File Identifier

| 2fca5fe8-cc09-786d-2648-2c2cfe1b8991

### Language

| eng

### Character Set

#### Character Set Code

| utf8

### Hierarchy Level

#### Scope Code

| dataset

### Hierarchy Level Name

| dataset

## Contact

### Responsible Party

#### Organisation Name

| LINZ - Land Information New Zealand

#### Position Name

| National Imagery Manager

### Contact Info

#### Contact

##### Phone

###### Telephone

###### Voice

| 04 4600110

##### Address

###### Address

###### Delivery Point

| 155 The Terrace

###### City

| Wellington

###### Postal Code

| 6145

###### Country

| New Zealand

###### Electronic Mail Address

| info@linz.govt.nz

### Role

#### Role Code

| pointOfContact

## Date Stamp

### Date

| 2017-09-12

## Metadata Standard Name

| ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata

## Metadata Standard Version

| 1.1

## Reference System Info

**Reference System****Reference System Identifier****Identifier****Code**

2193

**Identification Info****Data Identification****Citation****Citation****Title**

Northland 0.4m Rural Aerial Photos (2014-16)

**Date****Abstract**

Orthophotography in the Northland Region taken in the flying season (summer period) 2014 - 2016. Coverage is of all areas within the Far North district, The Kaipara district, Whanagei City, Northland Regional council areas. Imagery was captured for the 'Northland Aerial Imagery Consortium (NAIC)' by Aerial Surveys Ltd, Unit A1, 8 Saturn Place, Albany, 0632, New Zealand. Data comprises: • 2,465 ortho-rectified RGB GeoTIFF images in NZTM projection, tiled into the LINZ Standard 1:5,000 tile layout • Tile layout in NZTM projection containing relevant information. The supplied imagery is in terms of New Zealand Transverse Mercator (NZTM) map projection. The products are tiled into NZTopo50 1:5,000 tiles. Please refer to the supplied tile layout shape file for specific details, naming conventions, etc. Imagery supplied as 40cm pixel resolution (0.4m GSD), 3-band (RGB) uncompressed GeoTIFF. The final spatial accuracy is +/-0.6m @ 67% confidence level in clear open spaces Index tiles for this dataset are available as layer [Northland 0.4m Rural Aerial Photos Index Tiles (2014-16)](<http://data.linz.govt.nz/layer/88094>)

**Status****Progress Code**

completed

**Point Of Contact****Responsible Party****Organisation Name**

LINZ - Land Information New Zealand

**Position Name**

National Imagery Manager

**Contact Info****Contact****Phone****Telephone****Voice**

04 4600110

**Address****Address****Delivery Point**

155 The Terrace

**City**

Wellington

**Postal Code**

6145

**Country**

New Zealand

**Electronic Mail Address**

info@linz.govt.nz

**Role****Role Code**

pointOfContact

**Resource Format****Format**

Name  
\*.xml

Version  
Unknown

Resource Constraints

Security Constraints

Classification  
Classification Code  
unclassified

Resource Constraints

Legal Constraints

Use Limitation  
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Spatial Representation Type Code

grid

## Representative Fraction

Denominator

Integer

5000

## Language

eng

## Character Set

Character Set Code

utf8

## Topic Category Code

imageryBaseMapsEarthCover

## Extent

EX\_ Extent

Geographic Element

EX\_ Geographic Bounding Box

172.607759543174.791451976-36.9147157008-34.3588693495

## Distribution Info

Distribution

Transfer Options

Digital Transfer Options

On Line

Online Resource

Linkage

URL

<https://data.linz.govt.nz/layer/88131-northland-04m-rural-aerial-photos-2014-2016/>

## Data Quality Info

DQ\_ Data Quality

Scope

DQ\_ Scope

Level

Scope Code

dataset

Level Description

Scope Description

Other

dataset

## Lineage

LI\_ Lineage

Statement

Data Acquisition: The aerial photography for this project was captured within the 2014/15/16 flying seasons between November 2014 and July 2016. All photography was captured using Vexcel's digital cameras and flown at: -0.3m GSD with the UCE: 18,934ft (5,771m) flying height Camera Lens: 100mm -0.4m GSD with the UCLp: 15,398ft (4,693m) flying height Camera Lens: 70mm Sun Angle Minimum of +35 degrees Data Processing All aspects of the data processing from imagery processing to DTM creation and ortho production and product deliverables was undertaken in-house by Aerial Surveys. Map Projection All spatial data for this project provided in terms of New Zealand Transverse Mercator (NZTM) map projection. The datum is New Zealand Geodetic Datum 2000. The height datum is orthometric One Tree Point 1964 (sea level). Image Processing and Aerial Triangulation All imagery has gone through QA checks ensuring there is no cloud cover and cloud shadow. During aerial acquisition the aircraft on-board GPS navigation data and ground base station data collected and post processed. Imagery processed to level 3 and checked for colour correctness/radiometry and even tonal balance across each project area. The aerial triangulation brings together the GPS data and imagery using a two part process which stitches the imagery together using tie point matching for the relative orientation phase and observing ground control points for the absolute orientation phase. LINZ control, 8th order horizontal and 4th order vertical and other existing control from Aerial Surveys control data base were used to strengthen the block adjustment or as independent checks on position during final QA of the ortho imagery. A final report is generated to check RMSE values are within specification. DTM Creation The DTM creation for the rural areas was collected from stereo imagery using photogrammetric techniques, largely automated pixel matching and auto-correlation process that creates mass points of the terrain surface with further manual

editing to remove points on water bodies and minimal breaklines collected to ensure gross errors were corrected and the DTM generally reflects the terrain surface. The final DTM took the form of mass points only with minimal breaklines, suitable for the ortho rectification process. DTM-ortho Accuracy:  $\pm 0.8\text{m}$  @ 68% confidence level in clear open areas (1 sigma) RGB and RGBI Ortho Rectification Process Ortho rectification is the process of removing (from the image) the effects of camera tip/tilt and displacement caused by terrain relief. During this process each frame is 'draped' over the terrain model and the photograph then becomes 'scaled' and 'levelled' in terms of true ground coordinates. The generation of seamlines between frames follow natural physical features such as ridges, valleys, roads and rivers. The seamlines are used for the final ortho mosaic that stitches the imagery together using feather mosaicking techniques. The ortho imagery is then extracted aligned to LINZ 1:5,000 sheet tile layout. The ortho imagery was processed to RGBI to ensure a consistent dataset is maintained for the RGB and RGBI ortho tiles including the same seamlines. Minimal colour adjustment was undertaken in the RGB, generally over water areas and along coastal foreshore for colour matching and to minimise glare. Peripheral Imagery Because the flight planning incorporates capture of an area larger than the target this creates additional imagery that can be ortho rectified and supplied. The peripheral ortho imagery in essence is the supply to full image extents., but can include partial tiles. The peripheral image tiles contain pixels with null value (the area where there is no imagery). The null value areas have been assigned a pixel value of 255 in the Geotiff for all three bands. The null value can then be treated as transparent within a GIS environment. DTM Source: Outside client's area of interest auto correlated DTM points were generated from the stereo imagery and used to hold the ortho imagery in place. Peripheral Ortho Spatial Accuracy:  $\pm 0.4\text{m}$  @ 1 sigma

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