DIGITAL DATA DOCUMENTATION

WIMMERA CMA

GRID DATA

VOLUME 220081009NOM

Summary Data Description

Airborne Laser Scanning was flown over the Wimmera CMA region between January 5th - January 31st, 2005.

This volume contains a 2m grid of all ground returns, and a 10m grid of all ground returns for the following regions:

- Wimmera River Trench (0.15m vertical accuracy data)
- Remaining Wimmera CMA regions (0.5m vertical accuracy data)

All files have been provided in ESRI format.

GDA ***This data is GDA-compliant***

CONTENTS **Page Nos.**

1. Project Report 2
2. Data Installation 3
3. Additional Services 5
4. Metadata 6
5. Conditions Of Supply 8
6. File Listing 9

1. PROJECT REPORT

Acquisition: Airborne Laser Scanning (ALS) data was acquired from a fixed wing aircraft between January 5th – January 31st, 2005.

Ground Support: GPS base station data was acquired without incident. The ground check points acquired allowed an assessment of the accuracy of the ALS data.

Data Processing: Reduction of the ALS data proceeded without any significant problems. Laser strikes were classified into ground and non-ground points using a single algorithm across the project area. Manual checking and editing of the data classification further improved the quality of the terrain model.

Data Presentation: The data provided on this volume has been supplied in accordance with a specification agreed with the primary client. Subsequent users experiencing difficulties in handling the data should please contact AAMHatch to arrange a more appropriate data presentation.

Further Issues: Laser strike density in some asphalt and road areas is lower than on open paddocks. The coarse asphalt surfaces have reduced the number of returned laser strikes from the 3000m flying height in these areas. Asphalt has a low reflectivity surface offering fewer return signals to the aircraft.

Grid data has been supplied in two separate regions.

1. Grid data for Wimmera River Trench region (0.15m vertical accuracy).
2. Grid data for remaining Wimmera CMA regions (0.5m vertical accuracy).

Grid data for these two regions should not be combined due to varying vertical and horizontal accuracies between regions.

The 2m and 10m grid files have been generated by:

1. Transforming the raw ASCII xyz files to ESRI shape files.
2. Creating ESRI TIN's from corresponding shape files using a 200m buffer around each tile. This has enabled smooth interpolation across tile boundaries.
3. Creating ESRI 2m and 10m grids from the corresponding TIN files.

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2. DATA INSTALLATION

Data format	:	ESRI Grid
Type of media	:	One 400GB Firewire drive
Number of files in dataset	:	70,801 & Readme_220081009NOM.PDF
Data formatted on	:	26.09.2005
Disk volume	:	220081009NOM
AAMHatch Job Manager	:	Rohan Potter (03) 9572 1033 Ian Twyford (03) 9572 1033

README FILE

This document (Readme_220081009NOM.PDF) is provided as an Acrobat file in this volume.

To open the file, double click on the PDF file to activate Acrobat Reader Software.

Adobe Acrobat Reader may be downloaded from:
http://www.adobe.com/products/acrobat/readstep2.html

REVISION HISTORY

Volumes previously issued under this project:

Volume	Date	Data Title	Contents
220081001NOM	11.02.2005	Wimmera CMA	Warracknabeal & Jeparit ALS
220081002NOM	03.03.2005	Wimmera CMA	Warracknabeal & Jeparit ALS
220081003NOM	05.04.2005	Wimmera CMA	Sample Intensity Images
220081004NOM	16.05.2005	West of Wimmera River Trench – DTM	All ground and thinned ground laser strikes
220081005NOM	14.06.2005	West of Wimmera River Trench – DEM	All ground/non ground laser strikes
220081006NOM	07.07.2005	Wimmera River Trench - DEM	All ground/non ground, ground, and thinned ground laser strikes
220081007NOM	07.07.2005	Yarriambiack Creek & North East Flat Plains - DEM	All ground/non ground, ground, and thinned ground laser strikes
220081008NOM	30.08.2005	South of Wimmera River Trench & Upper Wimmera - DEM	All ground/non ground, ground, and thinned ground laser strikes
220081009NOM	26.09.2005	Grid Data	2metre & 10metre grid data

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FILE SIZES AND NAMES

Wimmera River Trench: Grid data is provided in tiles 1.5km by 1.5km and is supplied in separate 2m and 10m directories. Files are provided to the following filenaming convention:

WI528560245	WI -	Project abbreviation
	5285 -	coordinate easting (to 500m) of south west tile corner
	60245 -	coordinate northing (to 500m) of south west tile corner
	.adf, .dat, .nit -	ESRI grid files

Remaining Wimmera CMA regions: Grid data is provided in tiles 3km by 3km and is supplied in separate 2m and 10m directories. Files are provided to the following filenaming convention:

WI5885931_2m	WI -	Project abbreviation
	588 -	coordinate easting (in thousands) of south west tile corner
	5931 -	coordinate northing (in thousands) of south west tile corner
	_2m -	2m grid file
	_10m -	10m grid file
	.adf, .dat, .nit -	ESRI grid files

SAMPLE DATA LISTING (ESRI FORMAT)

Attributes of wi585059385

ObjectID	Value	Count
0	109.87036895752	1
1	110.00269317627	1
2	110.013359069824	1
3	110.034103393555	1
4	110.043601989746	1
5	110.061592102051	1
6	110.079620361328	1
7	110.092170715332	1
8	110.09969329834	1
9	110.112030029297	1
10	110.121604919434	1
11	110.14924621582	1
12	110.149307250977	1
13	110.158760070801	1
14	110.168495178223	1
15	110.176658630371	1
16	110.186279296875	1
17	110.273704528809	1
18	110.276062011719	1
19	110.282943725586	1
20	110.30379486084	1
21	110.328247070313	1
22	110.351364135742	1
23	110.393676757813	1

Record: 1 Show: All Selected Records (0 out of 1001 Selected.) Options

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3. ADDITIONAL SERVICES

AAMHatch can perform the following additional services on the data contained on this volume if required:

Change horizontal datum	:	to AMG or other local grid
Alter geoid modeling	:	by transforming ALS data to fit orthometric survey heights
Improve data classification	:	by tailoring parameters to suit regional variations
Further classification	:	Assist building identification by further classifying non-ground strikes
Data subset	:	by dividing the data into different tiles or polygons
Data presentation	:	by creating profiles, perspectives, flythroughs, colour-coded height plots etc.
Ground truthing	:	by comparing the ALS terrain model with extra independent height data
Intensity Image	:	supply an intensity (greyscale) image of the project area

Intensity image over Jeparit township:

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4. METADATA

DATA CHARACTERISTICS

Wimmera River Trench:

Characteristic	Description
Format	ESRI Grid
Grids	2m and 10m intervals
Grid interpolation	Generation from terrain model with 1.3m average point separation
Laser return	Last pulse
Laser footprint size	0.24m

Remaining Wimmera CMA regions:

Characteristic	Description
Format	ESRI Grid
Grids	2m and 10m intervals
Grid interpolation	Generation from terrain model with 2.2m average point separation
Laser return	Last pulse
Laser footprint size	0.6m

REFERENCE SYSTEMS

	Horizontal	Vertical
Datum	GDA94	AHD
Projection	MGA Zone 54	N/A
Geoid Model	N/A	Ausgeoid98
Reference Points	DI01 540 174.638 E 5 980 612.222 N	DI01 167.894 RL
Reference Points	KA01 540 983.565 E 5 922 097.586 N	KA01 166.495 RL
Reference Points	JE01 589 893.491 E 6 001 142.074 N	JE01 81.001 RL
Reference Points	WA01 624 088.246 E 5 988 292.940 N	WA01 118.763 RL
Reference Points	GW01 664 022.012 E 5 884 903.992 N	GW01 260.592 RL
Reference Points	GPSnet Horsham 604 915.999 E 5 935 320.595 N	GPSnet Horsham 137.82 RL

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SOURCE DATA

	Source	Description	Ref No	Date
Laser scanning	AAMHatch	25,000 Hz	2200810	05-31.01.2005
GPS base data	AAMHatch / Geomatix	Static GPS	2200810	05-31.01.2005
Base Stn coords	AAMHatch / Geomatix	Static GPS	2200810	31.01.2005
Test points	AAMHatch / Geomatix	GPS	2200810	25.02.2005

ACCURACY

	Measured Point	Derived Point	Basis of Estimation
Vertical data		0.10	Comparison with 798 test points (Wimmera River Trench region)
Vertical data		0.25	Comparison with 426 test points (Western region)
Vertical data		0.22	Comparison with 574 test points (North East region)
Vertical data		0.27	Comparison with 374 test points (South East region)
Vertical data		0.15	Deductive estimate for Wimmera River Trench region
Vertical data		0.5	Deductive estimate for remaining Wimmera regions – Western, North East, & South East
Horizontal data	< 0.55		System specifications ($^{1}/_{2000}$ flying height) – Wimmera River Trench region
Horizontal data	< 1.5		System specifications ($^{1}/_{2000}$ flying height) – Remaining Wimmera regions – Western, North East, & South East

ACCURACY NOTES:

- Values shown represent standard error (68% confidence level or 1 sigma), in metres
- “Derived points” are those interpolated from a terrain model.
- “Measured points” are those observed directly.
- Accuracy estimates for terrain modeling refer to the terrain definition on clear ground. Ground definition in vegetated terrain may contain localised areas with systematic errors or outliers which fall outside this accuracy estimate
- Laser strikes have been classified into “ground” and “non-ground”, based upon algorithms tailored for major terrain/vegetation combinations existing in the project area. The definition of the ground may be less accurate in isolated pockets of dissimilar terrain/vegetation combinations.
- Ground data in this volume has been compared to 1374 test points obtained by field survey and assumed to be error-free. The test points were distributed in seven groups across the mapping area and located on clear ground.

INTENDED USE OF DATA

- Intended use: Accurate terrain definition for natural resource management

LIMITATIONS OF DATA

- The definition of the ground under trees may be less accurate.
- This data has not been field tested for completeness.
- Laser strikes along some asphalt surfaces are less dense than on open paddocks.

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5. CONDITIONS OF SUPPLY

The data in this volume has been commissioned by **WIMMERA CMA**.

The data in this volume is provided by AAMHatch Pty Limited (AAMHatch) to **WIMMERA CMA** under the client's Terms of Engagement, which require **WIMMERA CMA** to assume beneficial ownership, subject to the following conditions:

1. This file (Readme_220081009NOM.PDF) is always stored with the unaltered data contained in this volume.

2. The data is not altered in any way without the approval of AAMHatch. The data may be copied from this file to another.

3. The data is not used for purposes beyond that explicitly agreed in the description of the Services provided by AAMHatch.

Any breach of these conditions will result in the immediate termination of the license issued by AAMHatch, and **WIMMERA CMA** will indemnify AAMHatch from all resulting liabilities.

Any problems associated with the information in the data files contained in this volume should be reported to:

AAMHatch Pty Limited

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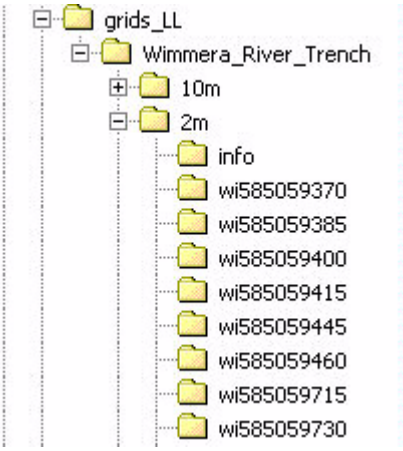
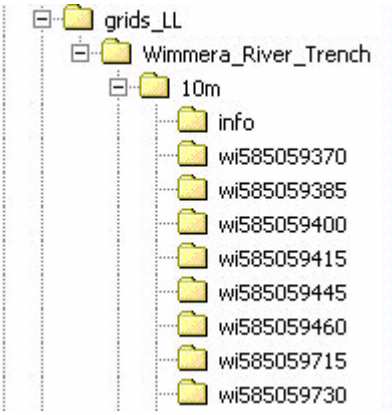
6. FILE LISTING

Filename	Contents
	Wimmera River Trench 2m grid file structure
	Wimmera River Trench 10m grid file structure

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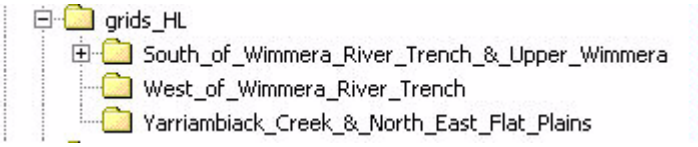
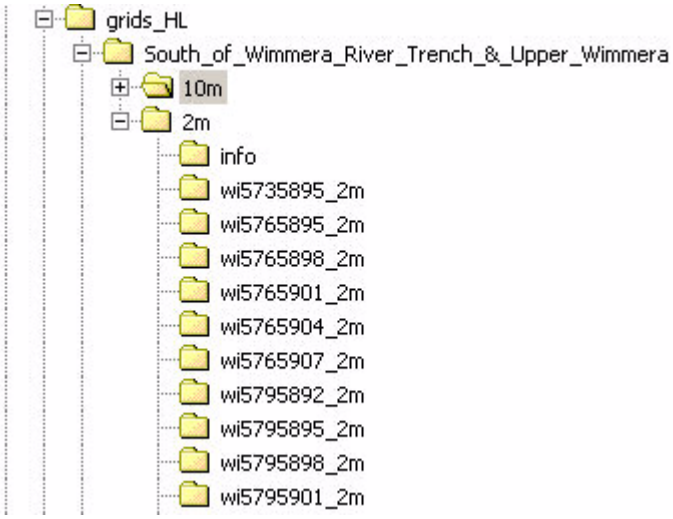
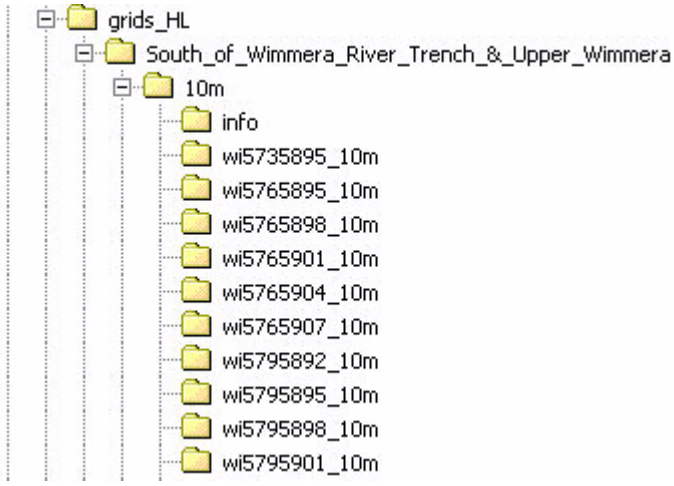


Remaining Wimmera CMA regions grid file structure



Remaining Wimmera CMA regions 2m grid file structure



Remaining Wimmera CMA regions 10m grid file structure

Grid_Layout_LL.dbf	08/07/2005	05:08p	55,312	Wimmera River Trench tile layout
Grid_Layout_LL.shx	08/07/2005	05:08p	3,572	
Grid_Layout_LL.prj	08/07/2005	05:08p	408	
Grid_Layout_LL.shp	08/07/2005	05:08p	59,124	
Grid_Layout_HL.shp	26/09/2005	11:39a	697,476	Remaining Wimmera CMA regions tile layout
Grid_Layout_HL.shx	26/09/2005	11:40a	22,596	
Grid_Layout_HL.dbf	26/09/2005	11:39a	143,478	
Grid_Layout_HL.prj	26/09/2005	11:39a	408	

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