Atlas Geophysics Report Number R2010013

West Arunta Gravity Survey

Geoscience Australia

Attention: Mr Ray Tracey

Report completed by:

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1.0 Company Overview

Atlas Geophysics Pty Ltd is an Australian company based in Morley, Western Australia, whose mission is to provide the highest quality geophysical resource data to the mining, petroleum and exploration industry in a safe and timely manner. Through experience, innovation and excellence, the company will exceed its client's expectations and will continually develop its technologies and methodologies to maintain its reputation for being the best in the business.

The company specialises in the acquisition, processing and interpretation of potential field datasets, with particular emphasis on gravity. The director of the company, Leon Mathews B.Sc. Hons (Geophysics), has over 12 years experience in the field of gravity and brings to the company, a young, vibrant and motivated approach to project management. Strategically, through development and research, the company aims to expand into other geophysical acquisition markets that encompass methods such electrical, electromagnetic, induced polarisation and reflection seismic. The company also has interests in developing an airborne platform capable of acquiring high quality magnetic and radiometric data so it can offer its clients a complete airborne and ground geophysical solution.

Atlas Geophysics Pty Ltd is committed to the values and principles of Occupational Health and Safety and Environment. To this end, the company aims to prevent injuries and occupational illness to its employees and minimise any adverse environmental impact its activities may have.

2.0 Project Brief

Atlas Geophysics project P2010013 required the acquisition and processing of 12,427 new regional gravity stations on behalf of Geoscience Australia (GA), funded by the Northern Territory Geological Survey as part of its "Bringing Forward Discovery" initiative. The gravity survey was referred to as the "West Arunta Gravity Survey" and was assigned GA project number 201080.

The centre of the large 90,000 km^2 survey area was located approximately 380km north-west of Alice Springs, in the West Arunta region of the Northern Territory. The survey crew were based out of the aboriginal communities of Kintore, Mount Liebig and Willowra. Some surveying was also conducted from Tilmouth Well.

Atlas Geophysics Pty Ltd completed the acquisition of the dataset using exclusively helicopter-borne gravity methods. A single helicopter crew was used for the duration of the project.

The survey commenced on 6th June 2010. Acquisition was completed on the 15th of September 2010, with the final data and operations report delivered shortly thereafter.

2.1 Location and Access

The gravity survey spanned a large area about 425 km x 400 km (Figure 1) and covered all or parts of the following 1:250,000 map sheets:

- Mount Solitaire
- Lander River
- Highland Rocks
- Mount Theo
- Mount Peake
- Lake Mackay
- Mount Doreen
- Napperby
- Mount Rennie
- Mount Liebig

The survey area was very remote and covered mainly aboriginal reserves. Aside from the ranges in the south and central sections, the survey area was typically very flat, consisting mainly of open, sandy desert country dominated by lightly vegetated sand dunes. Due to recent unseasonal rains, the area was surprisingly lush and green with abundant grasses and ground cover. There were occasional pockets of tall trees and thicker vegetation, usually straddling creek lines. The survey area intersected the eastern shoreline of Lake Mackay as well numerous other small salt lakes and salt pans.

Vehicle access in the area was very limited and track conditions were poor. Heavy rain and bad weather was encountered numerous times during the survey and often caused localised flooding with many tracks rendered non-trafficable and dangerous. Cautious driving was

required at all times and the rough conditions resulted in much damage to vehicles, trucks and trailers.

Whilst based at Kintore and Mount Liebig, the Kiwirrkurra Road was used for access and refuel purposes. Despite severe degradation, the road was not graded at any point during the survey. There were very few tracks leading north and south of the road and this necessitated long helicopter ferries for crew changeover and refuelling.

The survey crew welcomed the move to Tilmouth Well where the sealed tarmac of the Tanami Road could be used safely in any weather conditions.

The final section of the survey out of Willowra also required long helicopter ferries due to non-existent access. The Willowra Road from the Stuart Highway (passing through Anningee Station) was used to access this area and was thankfully in a lot better condition than that of the Kiwirrkurra Road despite receiving heavy rains and flooding.

Alice Springs was the nearest major centre for supplies and fuel.

2.2 Survey Configuration

Gravity acquisition was conducted using multiple square grid configurations: 1000m, 2000m and 4000m. No infill surveying was conducted.

A number of stations were offset from their planned station location where steep terrain and/or salt pans made helicopter landings risky. Pilots also took into consideration stock disturbance around bores, wells and dams.

Appendix A contains a station location plot of the acquired gravity stations.

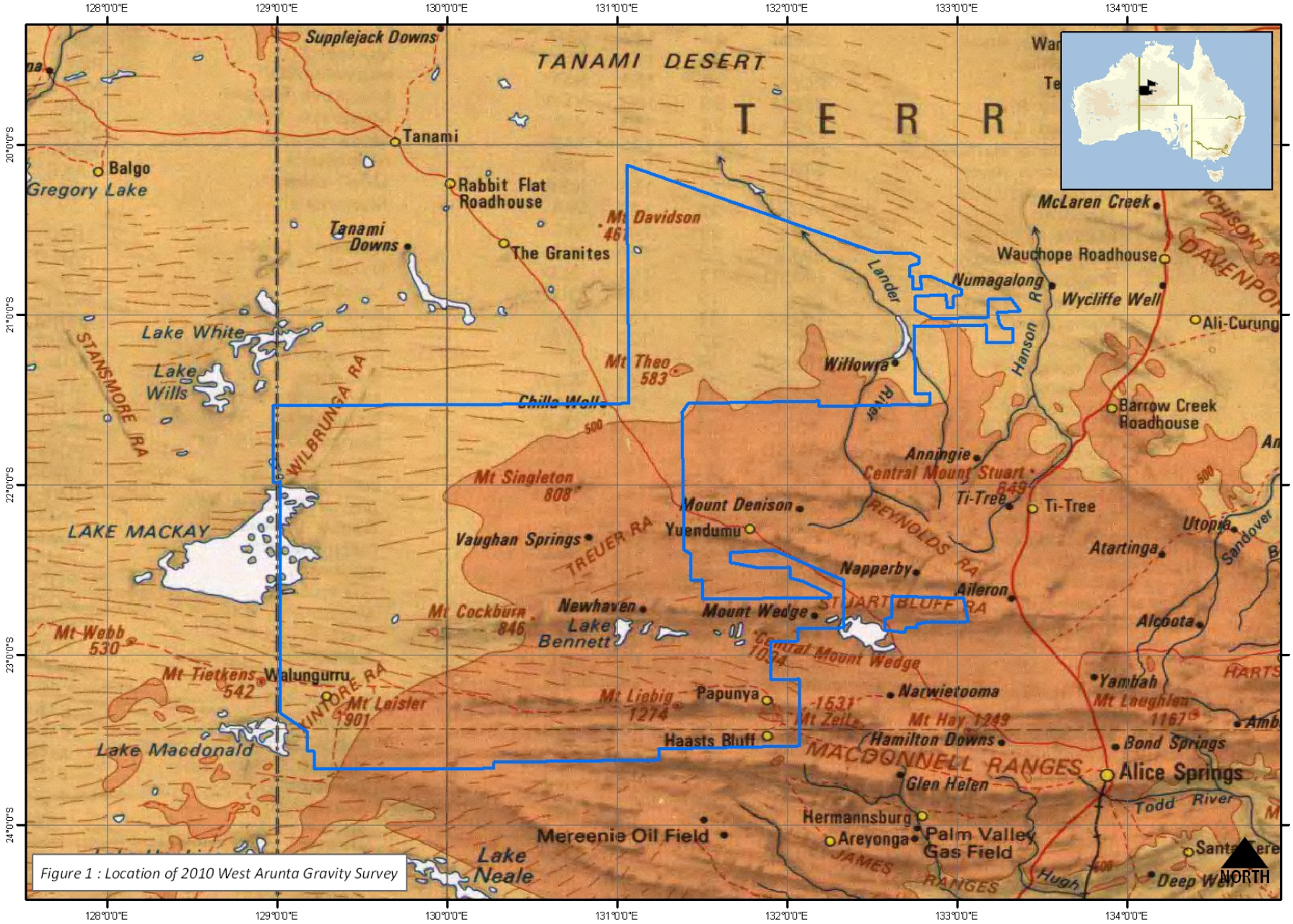


Figure 1 : Location of 2010 West Arunta Gravity Survey

3.0 Personnel and Subcontractors

Atlas Geophysics Pty Ltd engages only fit, motivated and safe working professionals to conduct its gravity operations. Acquisition staff members are from a range of backgrounds, usually from the geoscience or geotechnical fields, and all are trained in senior first aid, bush survival, and advanced four wheel driving. Overseeing the acquisition and processing is the company's team of geophysicists and data processors – a team with a combined total of over 15 years experience in the acquisition, processing and quality analysis of gravity data.

3.1 Project Supervision

Supervising the project from Perth Operations was director Leon Mathews. Leon has been involved in the acquisition, processing and interpretation of potential field data for over 12 years and has directly overseen the acquisition and processing of over 700,000 gravity stations.

Leon was responsible for project supervision, as well as for conducting the processing and quality analysis of the gravity data on a daily basis.

All final data processing, QA, reporting and delivery was performed by Leon Mathews.

3.2 Acquisition/Other Personnel

Other personnel participating in field acquisition of the gravity data on this project were:

Michael Ledsome	*Supervising Field Technician*
Nathan Porter	*Supervising Field Technician*
Leigh Mulholland	*Supervising Field Technician*
Nathan Turner	*Field Technician*
Jace Emberg	*Field Technician*

3.3 Subcontractors

Perth based helicopter operations company, Rotorvation Pty Ltd, were chosen to supply the helicopters, pilots and engineering support. More information about this company may be found at www.rotorvation.com.au.

4.0 Equipment and Instrumentation

4.1 Glonass/GPS Receiver Equipment

Leading edge dual-frequency GPS technologies from Leica Geosystems such as the GPS1200 have been utilised on the project to allow for post-processed kinematic centimetre level accuracy 3D positions. System specifications for the receivers utilised can be found in the attached brochures (Figures 2-4). The GPS1200 system is equipped with future proof GNSS technology which is capable of tracking all available GNSS signals including the currently available GLONASS. These new generation receivers, in conjunction with full GNSS tracking and processing, offer a new level of unmatched solution accuracy and reliability, especially when compared to existing conventional L1L2 GPS technologies.

The use of Glonass technology in addition to GPS provides very significant advantages:

- Increased satellite signal observations
- Markedly increased spatial distribution of visible satellites
- Reduced Horizontal and Vertical Dilution of Precision (DOP) factors
- Improved post-processed-kinematic (PPK) performance
- Decreased occupation times means faster acquisition

Seven Leica GPS1200 geodetic grade receivers were utilised to conduct the survey. One receiver was used as a post-processed kinematic (PPK) rover in the helicopter, with the other receivers used as base stations for logging static data on multiple control stations.

On the helicopter, the GPS/Glonass antenna was mounted on the tail-boom of the aircraft, with the receiver mounted on a custom mount inside the rear cabin.

Navigation between gravity stations was facilitated by Garmin 296 GPS receivers operating in autonomous mode.

4.2 Gravity Instrumentation

Complementing the company's GNSS/GPS technologies is the latest in gravity instrumentation from Scintrex Ltd, the Scintrex CG-5 (Figure 5). The CG-5 digital automated gravity meter offers all of the features of the low noise industry standard CG-3M micro-gravity unit, but is smaller and lighter. It also offers improved noise rejection. By constantly monitoring tilt sensors electronically, the CG-5 automatically compensates for errors in gravity meter tilt. Due to a low mass and the excellent elastic properties of fused quartz, tares are virtually eliminated.

The CG-5 can be transported over very rough terrain, on quad bikes, foot, vehicle or helicopter without taring or drifting. In terms of repeatability, the CG-5 outperforms all

existing gravity meter technologies, with a factory quoted repeatability of better than 0.005 mGal.

Table 1 below lists the gravity meters used on the project.

Gravity Meter Type	Gravity Meter Code	Gravity Meter Serial Number
Scintrex CG5	A3 (main survey)	40269
Scintrex CG5	A1 (control only)	40240
Scintrex CG5	A4 (control only)	40298

Table 1: Gravity meters used on the project.

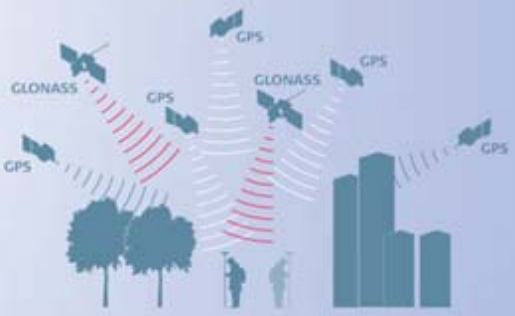
4.3 Other Equipment

The company utilised the following additional equipment to fully support the operations:

- Two HP Laptop computers for data download and processing
- Three Iridium satellite phones for long distance communications and scheduled calls
- Personal Protective Equipment for all personnel
- Batteries, battery chargers, solar cells, UPS System
- Survey consumables
- Tools, engineering and maintenance equipment for vehicle servicing
- First aid and survival kits
- Tyres and recovery equipment

Leica GPS1200

Fast, accurate, rugged and reliable



SmartTrack+

GNSS technology
GPS1200's SmartTrack+ measurement engine now utilizes two global navigation satellite systems increasing the number of tracked satellites. The new SmartTrack+ measurement engine tracks all available GNSS signals (L2C and GLONASS). More satellites means higher productivity, accuracy and reliability. SmartTrack+ acquires satellites within seconds, is ideal in urban canyons and obstructed areas where other receivers often fail. GPS1200 with SmartTrack+ is designed to support the future signals GPS L5 and Galileo.

SmartCheck+
Continuously checking provides the highest possible reliability. A unique, built-in integrity monitoring system checks all results immediately. SmartCheck+ now processes GPS and GLONASS measurements simultaneously for centimeter-accuracy, 20 Hz RTK at 30 km and more. Initialize within seconds and survey in obstructed areas with a GX1230/ATX1230 (GPS only) sensor or increase productivity with a GX1230 GG/ATX1230 GG (GPS and GLONASS).

GLONASS
For many years the GLONASS system was not reliable enough in terms of satellite availability and system performance. With recent launches and commitment from the Russian government, reliability and availability are significantly improved. Under normal conditions there are 2 to 5 additional satellites compared to a GPS only constellation – and even more satellites will be available over the next two years. Now is the time to invest in hybrid GNSS technology.

"The GLONASS system should be created before 2008, as it was originally planned ... We have the possibility. Let us see what can be done in 2006 – 2007"

(Russian President Vladimir Putin December 26th 2005).

Exceptionally rugged
Don't worry about how your crews handle GPS1200. It's built to MIL specs to withstand the roughest use. With its strong, precision-machined magnesium housing, GPS1200 stands up to drops and falls and the jolts and vibrations of machines.

Immune to bad weather
Designed for temperatures from –40° C to +65° C (storage +80° C), GPS1200 shrugs off arctic cold and blistering heat. Fully waterproof – withstands immersion to 1 m – sand and dustproof, it operates perfectly in any conditions from tropical rainfall to desert sandstorms. GPS1200 just keeps on working.

High contrast touch screen
The high quality 1/4 VGA (11 lines by 32 characters) with optional colour option (RX1250) touch screen guarantees perfect clarity and contrast. Whether in fading light or bright sunshine, you can always read the display perfectly. Operate using the touch screen or the QWERTY keyboard, which-ever you prefer.

With or without controller
Connect the controller to the receiver when you need to input information and make full use of the on-board functions and programs.

RTK/DGPS communication
Radio modems, GSM, GPRS and CDMA modules fit in waterproof housings attached to the receiver. Attach either one or two devices for RTK/DGPS reference and rover applications.

With *Bluetooth*® Wireless-Technology built in to the RX1250 controller complete cable free operation and connectivity to compatible wireless products is available.

Figure 2: Leica GPS1200 product brochure

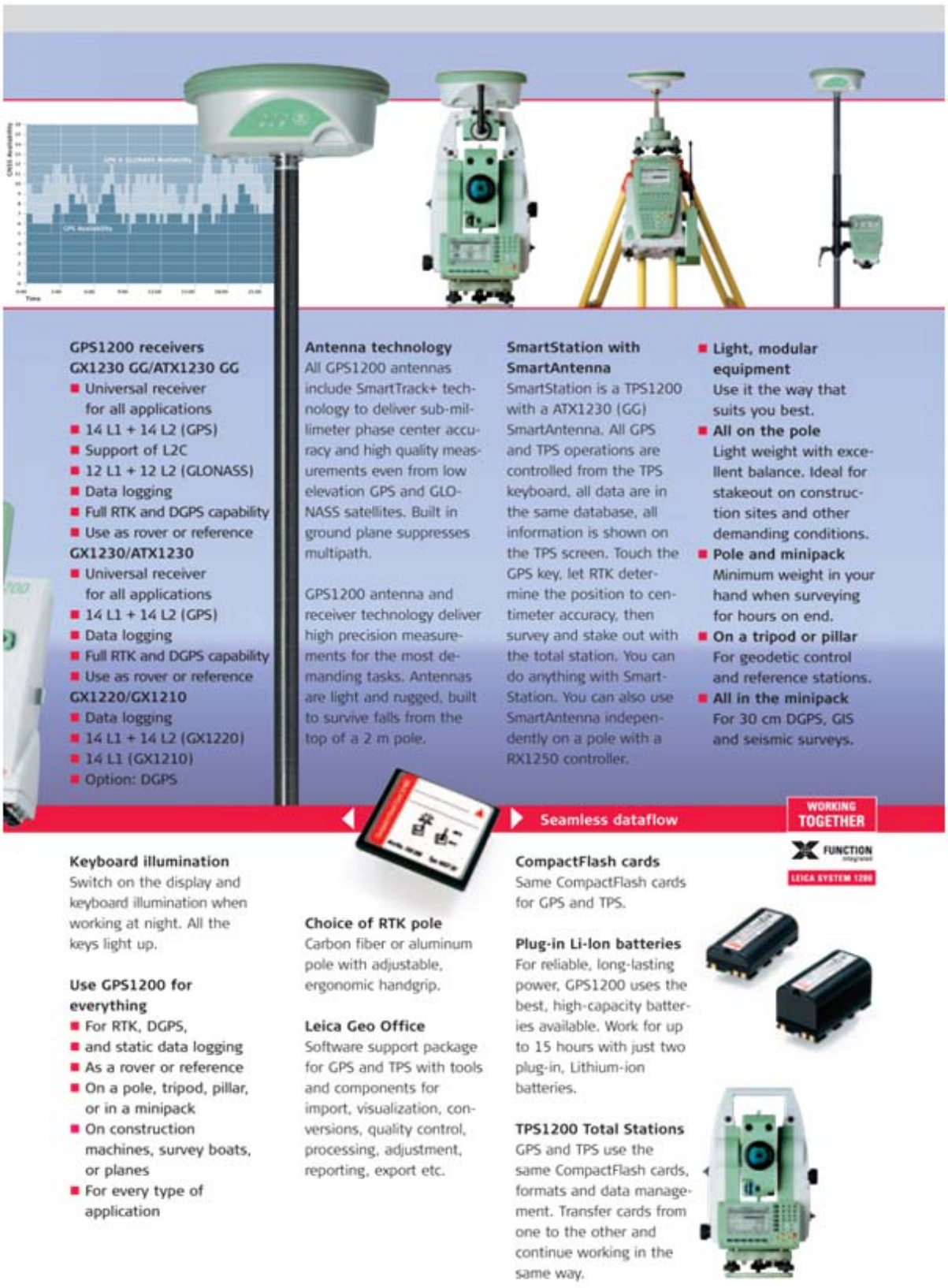


Figure 3: Leica GPS1200 product brochure

Leica GPS1200
Technical specifications and system features

GPS1200 receivers	GX1230 receiver	GX1220 receiver	GX1210 receiver	ATX1230 SmartAntenna / RX1250
GPS technology	SmartTrack	SmartTrack	SmartTrack	SmartTrack
Type	Dual frequency	Dual frequency	Single frequency	Dual frequency
Channels	12 L1 + 12 L2 / WAAS / EGNOS	12 L1 + 12 L2 / WAAS / EGNOS	12 L1 / WAAS / EGNOS	12 L1 + 12 L2 / WAAS / EGNOS
RTK	Yes, SmartCheck	No	No	Yes, SmartCheck
DGPS + WAAS / EGNOS	Yes	Optional	Optional	Yes
Status indicators	3 LED indicators: for power, tracking, memory.			
Ports	1 power port, 3 serial ports, 1 controller port, 1 antenna port.			1 power/controller port, Bluetooth port
Supply voltage, consumption	Nominal 12 VDC. 5.2 W receiver + controller + antenna			ATX1230: 2.4 W, RX1250 1.1 W
Event input and PPS	Optional:	Optional:	Optional:	
	1 PPS output port	1 PPS output port	1 PPS output port	
	2 event input ports	2 event input ports	2 event input ports	
Standard antenna	SmartTrack AX1202	SmartTrack AX1202	SmartTrack AX1201	SmartTrack ATX1230
Built in groundplane	Built in groundplane	Built in groundplane	Built in goundplane	Built in goundplane

The following apply to all receivers except where stated.

Power supply	Two LI-Ion 3.8Ah/7.2V plug into receiver. One LI-Ion 1.9Ah/7.2V plugs into ATX1230 and RX1250.
Plug in LI Ion batteries	Power receiver + controller + SmartTrack antenna
Same for GPS and TPS	for about 15 hours (for data logging).
	Power receiver + controller + SmartTrack antenna + low power radio modem or phone for about 10 hours (for RTK/DGPS).
	Power SmartAntenna + RX1250 controller for about 5 hours (for RTK/DGPS)
External power	External power input 10.5 V to 28 V.
Weights	Receiver 1.20 kg. Controller 0.48 kg (RX1210) and 0.75 kg (RX1250). SmartTrack antenna 0.44 kg. SmartAntenna 1.12 kg. Plug-in LI-Ion battery 0.09 kg (1.9Ah) and 0.19 kg (1.9Ah)
	Carbon fiber pole with SmartTrack antenna and RX1210 controller: 1.80 kg.
	All on pole: carbon fiber pole with SmartAntenna, RX1250 controller and plug-in batteries: 2.84 kg.

Temperature	Operation:	Receiver	-40°C to +65°C
ISO9022		Antennas	-40°C to +70°C
MIL STD 810F		Controllers	-30°C to +65°C
	Storage:	Receiver	-40°C to +80°C
		Antennas	-55°C to +85°C
		Controllers	-40°C to +80°C
Humidity	Receiver, antennas and controllers		
ISO9022, MIL-STD-810F	Up to 100% humidity.		
Protection against water, dust and sand	Receiver, antennas and controllers: Waterpoof to 1m temporary submersion.		
IP67, MIL-STD-810F	Dust tight		
Shock/drop onto hard surface	Receiver: withstands 1m drop onto hard surface. Antennas withstand 1.5m drop onto hard surface		
Topple over on pole	Receiver, antennas and controllers: withstand fall if pole topples over.		
Vibrations	Receiver, antennas and controllers:		
ISO9022 MIL-STD-810F	withstand vibrations on large construction machines. No loss of lock.		

Figure 4: Leica GPS1200 technical specifications

SPECIFICATIONS

Sensor Type
Fused Quartz using electrostatic nulling

Reading Resolution
1 microGal

Standard Field Repeatability
< 5 microGal

Operating Range
8,000 mGal without resetting

Residual Long-Term Drift (static)
Less than 0.02 mGal/day

Range of Automatic Tilt Compensation
± 200 arc sec

Tares
Typically less than 5 microGals for shocks up to 20 G.

Automated Corrections
Tide, Instrument Tilt, Temperature, Noisy Sample, Seismic Noise Filter.

Dimensions
31 cm (H) x 22 cm x 21 cm
12 in (H) x 8.5 in x 8 in

Weight (including batteries)
8 kg, (17.5 lbs.)

Battery Capacity
2 x 6Ah (10.8V) rechargeable Litium-Ion Smart Batteries. Full day operation in normal survey conditions with two fully charged batteries.

Power Consumption
4.5 Watts at 25°C

Standard Operating Temperature Range
-40°C to +45°C

Ambient Temperature Coefficient
0.2 microGal/°C (typical)

Pressure Coefficient
0.15 microGal/kPa (typical)

Magnetic Field Coefficient
1 microGal/Gauss (typical)

Memory
Flash Technology (data security)
Standard 12 MBytes

Digital Data Output
RS-232 C and USB interface
Is optimized for Win XP™

Analog Data Output
Strip-Chart Recorder

Display Screen
¼ VGA 320 x 240 pixels

Keypad
27 key alpha/numeric

Standard System
- CG-5 Console
- Tripod base
- 2 rechargeable batteries
- Battery Charger, 110/240 V
- External Power 110/240 V
- RS-232 and USB Cables
- Carrying Bag
- Data dump and utilities software
- Operating Manual (CD)
- Transit Case

GPS
Enables GPS station referencing from an external 12 channel smart GPS antenna being connected via the RS-232 port. Standard GPS accuracy: <15m DGPS (WAAS) < 3m. Client has the option to use other higher accuracy GPS receivers outputting NMEA data string through the serial port.

OPTIONS

High Temperature Option
For use in climates that may exceed the normal operating temperate of 45°C. Allows operating temperatures of up to 55°C. This option is intended to be used in climates above freezing and needs to be ordered at the time of purchase.

Battery Belt
Suggested for cold weather operation.

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* All specifications are subject to change without notice.

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Figure 5: Scintrex CG-5 specifications

5.0 Vehicle and Helicopter Transportation

5.1 Helicopters

A single R44 Raven I helicopter (call sign VH-LVO) was used to traverse between gravity stations during acquisition (Photo 1). The machine was purchased new for the project and performed excellently despite the hot and dusty conditions. The helicopter was serviced in accordance with CASA specifications, with 100 hourly services carried out at Alice Springs.

The helicopter was equipped with an EPIRB device and comprehensive first aid and survival kit. Communications were via VHF radio and Iridium satellite phone.

Aviation fuel and oils were supplied ex Alice Springs.

5.2 Support Vehicles

Facilitating refuelling operations were two 4WD Toyota Landcruiser utilities. A Toyota 4WD Hilux was used for crew and pilot transport. The vehicles were fitted with the following equipment:

- Iridium satellite phone
- Magellan FX324 navigation grade GPS receiver
- Spare navigation grade GPS receiver with batteries
- Tracertrak satellite tracking
- First aid and survival kit
- Two spare tyres
- Recovery equipment for tyre repair
- Recovery equipment including winch for bogging, stranding.
- Comprehensive tool-kit
- 10L of drinking water
- Flashing rotating beacon

All vehicles used on the project were supplied, serviced and maintained by Atlas Geophysics. The field crew carried out daily pre-start checks on all vehicles and these have been documented in Atlas Geophysics pre-start log books.

Photo 1: Helicopter VH-LVO flying the ranges

6.0 Camping / Accommodation

Basic accommodation at the aboriginal communities of Kintore, Mount Liebig and Willowra was utilised for the majority of the survey. The crew also stayed at the Tilmouth Well roadhouse for a brief period. No camping was required.

7.0 Communications, Internet and Scheduled Calls

The primary method of communication for the field crews was via Iridium satellite phones. The helicopter crews made scheduled calls to the field operations base at hourly intervals. In addition to scheduled calls, the position of the helicopter was reported to the operations base at 10 minute intervals using Omnitrack technology.

Internet connections for client contact and data server access were established using Inmarsat BGAN satellite communications.

8.0 Survey Methodology

All gravity data were acquired using Atlas Geophysics Pty Ltd helicopter-borne techniques. These techniques, which involve concurrent GPS and gravity acquisition, allow for rapid acquisition of very high quality data.

8.1 Gravity and GPS Control Establishment

Three primary GPS and gravity control stations were established, each near to the logistical base (Table 2). An existing base station at Tilmouth Well (used during an Atlas survey in 2009) was also utilised and verified. At each station, a permanent monument was erected to mark and witness the station. The monument consisted of a 40cm star picket driven into the ground with about 10cm protruding alongside a small square concrete slab also set in concrete. The star picket marked the position of the GPS control station and the concrete slab the position of the gravity control station. A steel star picket of 1.25m length was placed within 0.5m of the station and carried an Atlas Geophysics Pty Ltd witness plaque numbered with a unique station number (Figure 6).

Control Station ID	Lat / Long / Ht (GDA94, GRS80)	Observed Gravity (AAGD07 gu)
GRVGPS0112 *Kintore A/S*	-23 15 55.036 129 23 5.2226 463.115	9787040.20
GRVGPS0113 *Mount Liebig A/S*	-23 14 39.0565 131 15 37.2914 630.376	9786233.20
GRVGPS0069 *Tilmouth Well A/S*	-22 48 32.6873 132 36 2.1740 586.375	9786666.85
GRVGPS0114 *Willowra A/S*	-21 16 33.2757 132 37 22.2315 488.884	9785984.52

Table2: Gravity and GPS control station used to control the survey

The details of all primary control stations have been recorded on Atlas Geophysics Pty Ltd control station summary sheets. The sheets include the geodetic coordinates, observed gravity value, station description, locality sketch, locality map and a digital photo of the station. The sheets are contained in Appendix B.

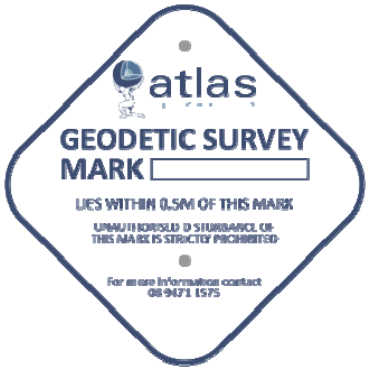


Figure 6: Atlas Geophysics Pty Ltd survey witness plaque

8.1.1 GPS Control

Primary GPS control was established for all control stations and this allowed all position and height information obtained from the gravity survey to be tied to the Geocentric Datum of Australia (GDA94), the Geodetic Reference System 1980 (GRS80) and Australian Height Datum (AHD).

Secondary GPS control was used to restrict kinematic baseline length. 22 separate remote base stations were established in the field and all were marked with a 40cm steel star picket driven into the ground with about 10cm protruding alongside a 1.25m star picket (not identified). In the field, whilst the survey was underway, temporary coordinates for these stations were established using static base-line processing to the primary control station over a minimum eight hour period.

Upon final processing, coordinates for all primary and secondary control stations were obtained using the 5 second static GPS data logged at each station whilst the gravity survey was underway. The static data has been submitted to Geoscience Australia's AUSPOS processing system to produce first-order geodetic coordinates accurate to better than 10mm for the x, y and z observables. Multiple days of static GPS data using different GPS antenna heights have been submitted to ensure accuracy and reliability of the solution.

Initial surveying was conducted using adopted control station coordinates since the AUSPOS system requires approximately two weeks before a Final Ephemeris Solution can be delivered. The adopted coordinates were derived from an autonomous GPS measurement at the primary control station giving an accuracy of better than 0.5m for x, y coordinates and better than 15m for the z coordinate. Once the final ephemeris solution for the control station coordinates was delivered by AUSPOS, all control and field GPS measurements had the necessary DC shift applied to give accurate, absolute positions for east, north and elevation. A listing of final coordinates for all control stations is contained in Appendix C.

8.1.2 Gravity Control

Primary gravity control was established at the same location as the primary GPS control station. Once tied to the Australian Fundamental Gravity Network (AFGN), the gravity

control station allowed all field gravity observations to be tied to the Australian Absolute Gravity Datum 2007 (AAGD07).

An accurate observed or absolute gravity value for the control stations was established via "ABABA" ties with the project gravity meters to a nearby AFGN station. Table 3 summarises the control ties conducted and Appendix D contains the control tie data. Expected accuracy of the tie surveys would be better than 0.1 gu (or 0.01 mGal).

Control Station ID	AFGN station tied to	Date of tie
GRVGPS0112 *Kintore A/S*	Kiwirrkurra Workers 2006600037 Kiwirrkurra A/S 2006600038	22/06/2010 23/06/2010
GRVGPS0113 *Mount Liebig A/S*	Yuendumu Mining Store 1999921803 Yuendumu Mining Office 1999929803 Alice Springs CS1 1960910135	13/08/2010 24/08/2010 12/09/2010 13/09/2010
GRVGPS0114 *Willowra A/S*	Barrow Creek 1967931317	11/09/2010 14/09/2010
GRVGPS0069 Tilmouth Well A/S	Existing station: Checked with ties to 1960910135 and GRVGPS0113	24/08/2010 13/09/2010

Table 3: Primary gravity and GPS control station used to control the survey

8.2 GPS Data Acquisition, Processing and Quality Analysis

GPS-Glonass data were collected in static mode at each of the control stations and in kinematic mode with the helicopter using geodetic grade Leica GPS1200 receivers. Rigorous post-processing of the recorded kinematic data allowed for excellent GPS-Glonass ambiguity resolution and 3-D solution coordinate qualities better than 5cm for each of the gravity station locations. Atlas Geophysics QA procedures have ensured the final GPS-Glonass data have met and exceeded contract specifications.

8.2.1 GPS-Glonass Acquisition

Each gravity station location (GSL) was positioned using navigation grade Garmin receivers fitted to the cockpit of the helicopter. Accuracy of the positioning system was better than 5m and where possible, the helicopter crew landed as close to the programmed station location as possible. Where it was too dangerous to land, stations were moved from the programmed coordinate.

For the kinematic helicopter operations, the GPS-Glonass sensor was mounted on the tail boom of the aircraft and phase data logged by the receiver inside the cabin. Data were logged at five second epochs onto Compact Flashcard (CF) for later downloading and processing. Static data were also concurrently logged at the primary and secondary GPS control station to allow for later kinematic processing.

8.2.2 GPS-Glonass Processing

The acquired raw GPS-Glonass data were processed nightly using Novatel Waypoint Grafnav v8.30 post-processing software (Figure 7). GrafNav is a fully-featured kinematic and static GPS/Glonass post-processing package that uses Waypoint's robust GPS/Glonass processing carrier phase kinematic (CPK) filter engine. The software is capable of processing raw kinematic GPS/Glonass data from most GPS/GNSS receivers and allows the user to process the roving data from as many as eight separate control stations to achieve accuracies at the centimetre level. The software can automatically switch from static to kinematic processing and has a fixed static solution for static initialisation of short or medium baselines that are below 30km. Kinematic Ambiguity Resolution (KAR) allows the session to start in kinematic mode and can help fix otherwise unrecoverable cycle slips. Ionospheric processing and modelling is also included with the software and can help improve accuracy, especially over long baselines. Advantages of the Waypoint processing engine over other packages include:

Fast Processing – The Grafnav engine is one of the fastest on the market. For a single base station, a 2.40 Mhz PIII CPU can expect to process GPS data at 670 epochs/second. This means that a 4-hour 2 Hz data set will process one direction in 22 seconds. For two bases, processing takes 250 epochs/second or about 1 minute for the same 4-hour data set. For 4 bases, these times are 50 epochs/second or about 5 minutes.

Reliable OTF Processing – Waypoint's on-the-fly KAR algorithm has had years of development and testing. Various implementations and numerous options are available to control this powerful feature.

Multi-Base (MB) processing – With Version 8.30, GrafNav now supports true multiple control station processing where all of the baselines are incorporated into one sophisticated Kalman filter. This can spatially decorrelate some of the error sources while also allowing integer ambiguity determination using the closest base station. Satellite drop-outs at one base will also be compensated by the others. The two biggest advantages are improved overall accuracies and much less operator effort required to process and QC such data.

Accurate Static Processing – Three modes of static processing are implemented in the main processing kernel.

Dual Frequency Support – Full dual frequency GPS processing comes with the software. For ambiguity resolution, this entails wide/narrow lane solutions for KAR, fixed static and quick static. The GrafNav kernel implements two ionospheric processing modes including the iono-free and relative models. The relative model is especially useful for airborne applications where initialisation is near the base station, and this method is much less susceptible to L2 phase cycle slips.

Forward and Reverse – Processing can be performed in both the forward and reverse directions. GrafNav also has the ability to combine these two solutions to obtain a globally optimum one.

GPS + GLONASS – The GrafNav kernel has the ability to also process GPS+GLONASS data. This is especially advantageous for applications in forested areas, where the additional satellite coverage can improve accuracies.

Velocity Determination – Since the GrafNav kernel includes the L1 doppler measurement in its Kalman filter, velocity determination is very accurate. In addition to this, a considerable amount of code has been added specifically for the detection and removal of Doppler errors.

High Dynamics – The GrafNav kernel can handle extremely high dynamics from missiles, rockets, dropped ordinances, and fast flying aircraft.

Long Baseline - Because precise ephemeris and dual frequency processing is supported, long baselines accuracies can be as good as 0.1 PPM.

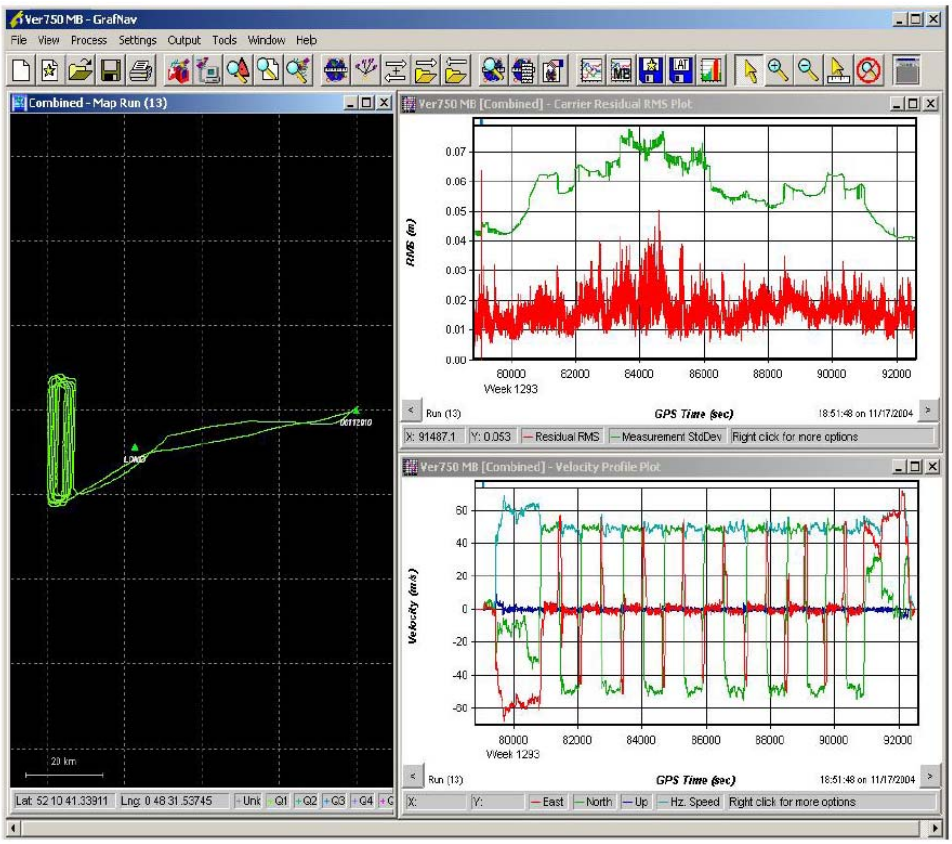


Figure 7: Waypoint Grafnav Processing Software

Once each epoch was processed to give a solution for the WGS84 position and elevation at ground level (i.e. corrected for sensor height), transformations between GPS-Glonass derived WGS84/GDA94 coordinates to Map Grid of Australia (MGA) coordinates were conducted within Waypoint. For most practical applications, where a horizontal accuracy of only a metre or greater is required, GDA94 coordinates can be considered the same as WGS84. MGA94 coordinates were obtained by projecting the GPS-derived WGS84 coordinates using a Universal Transverse Mercator (UTM) projection with zone 52S. For more information about WGS84, GDA94 and MGA94 coordinates, the reader is asked to visit the Geoscience Australia website http://www.ga.gov.au/geodesy/datums/gda.jsp.

Elevations above the Australian Height Datum (AHD) were modelled using Waypoint 8.30 software and the latest geoid model for Australia, AUSGEOID98. Information about the geoid and the modelling process used to extract separations (N values) can be found at http://www.ga.gov.au/geodesy/ausgeoid/. To obtain AHD elevation, the modelled N value is subtracted from the GPS derived WGS84/GRS80 ellipsoidal height (Figure 8).

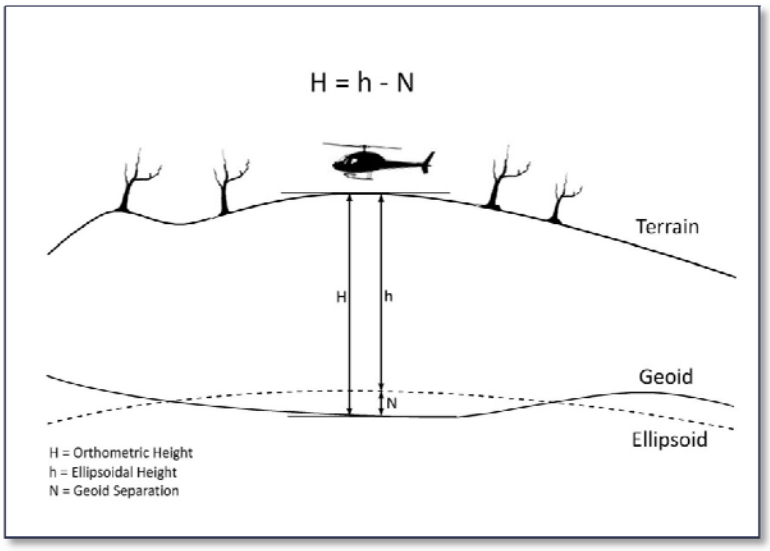


Figure 8: Geoid-Ellipsoid Separation

8.2.3 GPS/Glonass Quality Analysis

Rigorous quality analysis procedures were applied to the acquired GPS-Glonass data on a daily basis using Waypoint Grafnav's built in QA tools. Some of the tools used on this project include:

Combined Separation Plot: This plot shows the difference between the forward and reverse solutions (Figure 9). A perfect solution would have a separation of zero as this indicated the carrier phase ambiguities have been determined to be exactly the same value in both directions. A separation of better than 0.1m on a helicopter survey would indicate that the data is of high quality.

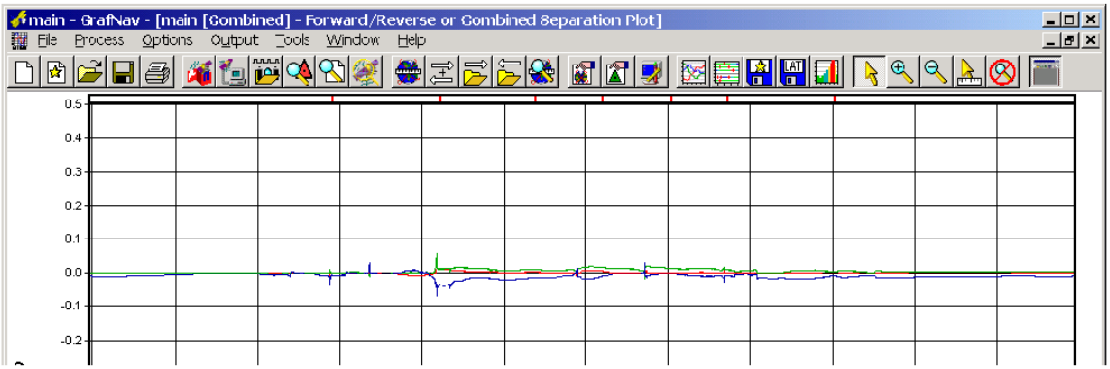


Figure 9: Combined Separation Plot

Float or Fixed Ambiguity Status Plot: This plot shows if the final solution is float or fixed (Figure 10). Fixed integer ambiguities generally have better accuracies (usually < 10cm accuracy). Ideally the plot should show fixed as this indicated an integer ambiguity fix on both forward and reverse directions.

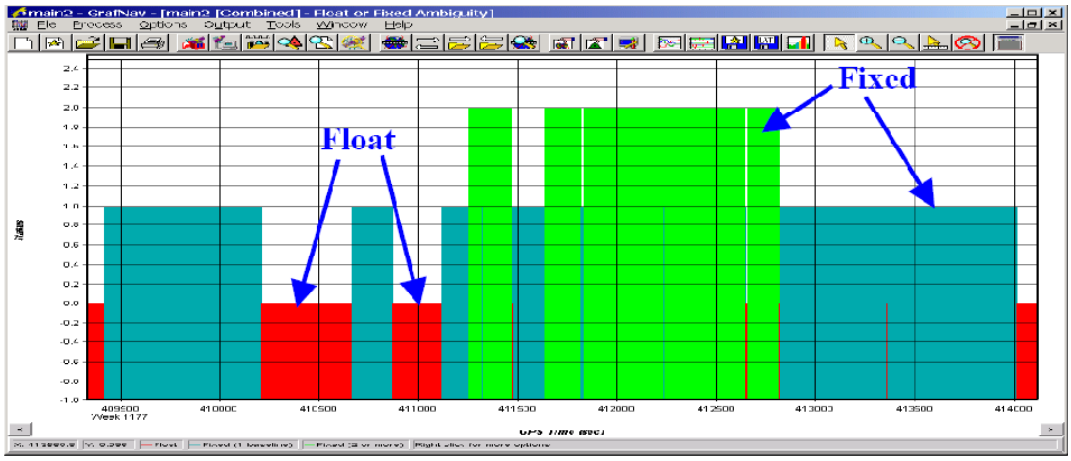


Figure 10: Float or Fixed Ambiguity Status Plot

Quality Factor Plot: This plot shows the quality of the final solution (Figure 11). There are five different quality factors plotted and these factors are also output in the Atlas Geophysics Pty Ltd GPS data file.

Quality 1 – Fixed Integer (Green)
Quality 2 – Stable Float (Aqua)
Quality 3 – Converging Float (Blue)
Quality 4 – DGPS or worse (Red)
Quality 5 – Single Point (Yellow)

Increasing quality factors indicate a worse solution. This is not a perfect indication, but it can be useful to isolate problems.

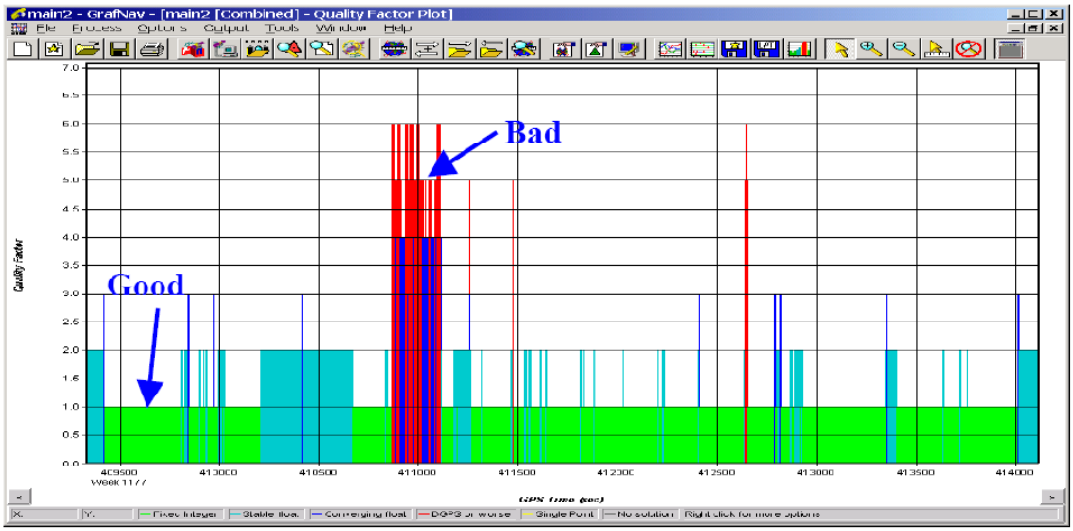


Figure 11: Quality factor plot

Complementing Waypoint GrafNav QA tools is the company's own in-house GPS quality analysis software. A module built into AGRIS (Atlas Geophysics Reduction and Information Software) allows the user to import the Waypoint output files and examine quality factors such as station repeatability between multiple control stations, coordinate velocity, dilution of precision, coordinate quality factor and standard error for each gravity station location. The procedure is carried out before merging the positional data with gravity data for final reduction to Bouguer Anomaly. Comprehensive statistics, repeatability analysis and histogram plotting are also performed.

QA procedures were applied to the GPS-Glonass data on a daily basis and any gravity stations not conforming to contract specifications were repeated by the company at no cost to the client.

8.3 Gravity Data Acquisition, Processing and Quality Analysis

Gravity data were gained using the company's rapid acquisition, high accuracy helicopter-borne techniques. The company's own in-house reduction and QA software was used to reduce the data on a daily basis to ensure quality and integrity. Final delivered data met and exceeded contract specifications.

8.3.1 Calibration of the Gravity Meters

The gravity meter used for survey on this project was calibrated pre and post survey on the Guildford Cemetry – Helena Valley Primary School calibration range (2010990117-2010990217) in Western Australia. The calibration process has validated the gravity meter's scale factor to ensure reduction of the survey data produces correct Observed Gravities from measured dial reading values. Table 4 summarises the results of the calibration tie and lists the resultant scale factors for each gravity meter. Appendix E contains the reduced data used to create the summary.

PRE SURVEY CALIBRATION RUN 30/05/2010				
Meter Code	Meter SN	Calc 1973910217 AAGD07 (gu)	Diff (gu)	Scale
A3	40269	9794484.09	0.20	1.00000

POST SURVEY CALIBRATION RUN 18/10/2010				
Meter Code	Meter SN	Calc 2010990217 AAGD07 (gu)	Diff (gu)	Scale
A3	40269	9794484.03	0.18	1.00000

Table 4: Gravity meter scale factors

Weekly tilt-tests and cycles were conducted to ensure the meter's drift and tilt correction factors were valid. Gravity meter drift rates were monitored on a day to day basis using AGRIS software.

8.3.2 Acquisition of the Gravity Data

Gravity data were acquired concurrently with GPS-Glonass data using a single Scintrex CG5 gravity meter (Photo 2). Data were acquired in two separate shifts of five to six hours duration, with each shift consisting of a single loop controlled by observations at the gravity control stations. Each loop contained a minimum of two repeated readings so that an interlocking network of closed loops was formed. A total of 10.5% repeats were acquired for quality control purposes. Repeat readings were evenly distributed on a time-basis throughout each of the gravity loops.

Photo 2: Gravity observation

The gravity acquisition crew consisted of a single gravity operator and pilot. The pilot was responsible for safely navigating to each station, and once at the station, the operator disembarked from the helicopter and acquired the gravity data. The observation point was always situated in front of the aircraft, in the pilot's view. Under no circumstances were readings taken outside of the pilot's view as this can jeopardise the safety of the operator. As the helicopter always landed on flat ground, the error due to the gravity observation not being coincident with the GPS-Glonass observation (which is at the tail-boom) is minimal. A small latitude based error of less than 0.05 gu would apply, but this is not seen to be appreciable on a regional gravity survey, so is not corrected for.

At each station, the gravity operator took a minimum of two gravity readings of 20 second duration so that any seismic or wind noise could be detected. Control station readings were set to 60 second duration. Before taking the reading, the operator ensured that the instrument tilt-reading was restricted to less than 5 arc-seconds and after the reading, not higher than 20 arc-seconds. In some instances on wet clay pans and salt lakes, it was impossible to keep tilt-readings under 50 arc seconds due to the soft nature of the ground. This was not found to adversely affect the quality of the data since the gravity meter's tilt correction compensated well for it. Tilt-testing prior to project commencement showed that

the gravity meters performed well even at extreme tilts (better than 0.05 gu at +150/-150 arc-seconds).

If two separate readings did not agree to better than 0.20 gu (0.1 gu for control station readings), then the operator continued taking readings until the tolerance between consecutive readings was achieved. At the conclusion of the gravity reading, the final data display on the gravity meter was analysed to ensure the instrument was performing to specification and that the station observation provided data conforming to the project specifications. The operator also checked that the temperature, standard deviation and rejection values were within required tolerance before recording the reading. At each station, the operator recorded the gravity data digitally in the gravity meter as well as in an Atlas Geophysics Pty Ltd field book so that instrument drift and reading repeatability could be analysed easily whilst in the field. Data recorded at each GSL was assigned a unique station code and station number.

Repeat stations were marked with a biodegradable flagging tape for subsequent reoccupation. When reoccupying stations, the pilot positioned the helicopter as close to the original landing spot as possible (usually better than 10m). A small percentage of the repeat stations were positioned greater than 10m from the original location due to soft ground and/or windy conditions, but always on flat ground at the same level as the original observation. All repeat gravity observations were taken in exactly the same location, even if the helicopter landed slightly offset from the original position.

8.3.3 Processing of the Gravity Data

The acquired gravity data were processed using the company's in-house gravity pre-processing and reduction software, AGRIS. This software allows for full data pre-processing, reduction to Bouguer Anomaly, repeatability and statistical analysis, as well as full quality analysis of the output dataset.

The software is capable of downloading Scintrex CG3/CG5 and Lacoste Romberg gravity data. Once downloaded, the gravity data is analysed for consistency and preliminary QA is performed on the data to check that observations meet specification for standard deviation, reading rejection, temperature and tilt values. Once the data is verified, the software averages the multiple readings and performs a merge with the GPS data (which it has also previously verified) and performs a linear drift correction and earth tide correction. Calculation of Free Air and Bouguer Anomalies is then performed using the contract specified formulae.

The following corrections were applied to the dataset to produce Bouguer Anomaly values for each of the gravity stations. All formulae produce values in gravity units (gu) or µms-2.

Instrument scale factor: This correction is used to correct a gravity reading (in dial units) to a relative gravity unit value based on the meter calibration.

$$r_c = 10 \cdot (r \cdot S(r))$$

where,

r_c corrected reading in gu
r gravity meter reading in dial units
$S(r)$ scale factor (dial units/mGal)

Earth Tide Correction: The earth is subject to variations in gravity due to the gravitational attraction of the Sun and the Moon. These background variations can be corrected for using a predictive formula which utilises the gravity observation position and time of observation. The Scintrex CG5 gravity meter automatically calculates ETC but uses only an approximate position for the gravity observation so is not entirely accurate. For this reason, the Scintrex ETC is subtracted from the reading and a new correction calculated within AGRIS software. The full formula is listed in Appendix G.

$$r_t = r_c + g_{tide}$$

where,

r_t tide corrected reading in gu
r_c scale factor corrected reading in gu
g_{tide} Earth Tide Correction (ETC) in gu

Instrument Drift Correction: Since all gravity meters are mechanical they are all prone to instrument drift. Drift can be caused by mechanical stresses and strains in the spring mechanism as the meter is moved, knocked, reset, subjected to temperature extremes, subjected to vibration, unclamped etc. The most common cause of instrument drift is due to extension of the sensor spring with changes in temperature (obeying Hooke's law). To calculate and correct for daily instrument drift, the difference between the gravity control station readings (closure error) is used to assume the drift and a linear correction is applied.

$$ID = \frac{r_{cs2} - r_{cs1}}{t_{cs2} - t_{cs1}}$$

where,

ID Instrument Drift in gu/hour
r_{cs2} control station 2nd reading in gu
r_{cs1} control station 1st reading in gu
t_{cs2} control station 2 time
t_{cs1} control station 1 time

Observed Gravity: The preceding corrections are applied to the raw gravity reading to calculate the earth's absolute gravitational attraction at each gravity station. The corrections produced Observed Gravities on the AAGD07 datum.

$$G_o = g_{cs1} + (r_t - r_{cs1}) - (t - t_{cs1}) \cdot ID$$

where,

G_o Observed Gravity in gu
g_{cs1} control station 1 known observed gravity in gu
r_t tide corrected reading in gu
r_{cs1} control station 1 reading in gu
t reading time
t_{cs1} control station 1 time
ID instrument drift in gu/hour

Normal Gravity: The normal (or theoretical) gravity value at each gravity station is calculated based on the assumption that the Earth is a homogeneous ellipsoid. The closed form of the 1980 International Gravity Formula is used to approximate the theoretical gravity at each station location and essentially produce a latitude correction. Gravity values vary with latitude as the earth is not a perfect sphere and the polar radius is much smaller than the equatorial radius. The effect of centrifugal acceleration is also different at the poles versus the equator.

$$G_n = 9780326.7715((1 + 0.001931851353(sin^2 l)/(SQRT(1 - 0.0066943800229(sin^2 l)))$$

where,

G_n	Theoretical Gravity in gravity units
l	GDA94 latitude at the gravity station in decimal degrees

Atmospheric Correction: The gravity effect of the atmosphere above the ellipsoid can be calculated with an atmospheric model and is subtracted from the normal gravity.

$$AC = 8.74 - 0.00099 \cdot h + 0.0000000356 \cdot h^2$$

where,

AC	Atmospheric Correction in gravity units
h	elevation above the GRS80 ellipsoid in metres

Free Air Correction: Since the gravity field varies inversely with the square of distance, it is necessary to correct for elevation changes from the reference ellipsoid (GRS80). Gravitational attraction decreases as the elevation above the reference ellipsoid increases.

$$FAC = -(3.087691 - 0.004398\, sin^2 l) \cdot h + 7.2125 \cdot 10^{-7} \cdot h^2$$

where,

FAC	Free Air Correction in gravity units
l	GDA94 latitude at the gravity station in decimal degrees
h	elevation above the GRS80 ellipsoid in metres

Bouguer Correction: If a gravity observation is made above the reference ellipsoid, the effect of rock material between the observation and the ellipsoid must be taken into account. The mass of rock makes a positive contribution to the gravity value. The correction is calculated using the closed form equation for the gravity effect of a spherical cap of radius 166.7km, based on a spherical Earth with a mean radius of 6,371.0087714km, height relative the ellipsoid and a rock density of 2.67 t/m^3.

$$BC = 2\pi G\rho((1 + \mu) \cdot h - \lambda R)$$

where,

BC	Bouguer Correction in gravity units
G	gravitational constant = $6.67428 \cdot 10^{-11} m^3 kg^{-1} s^{-2}$
ρ	rock density (2.67 t/m^3)
h	elevation above the GRS80 ellipsoid in metres
R	$(R_o + h)$ the radius of the earth at the station
R_o	mean radius of the earth = 6,371.0087714 km (on the GRS80 ellipsoid)
μ & λ	are dimensionless coefficients defined by:

$\mu = ((1/3) \cdot \eta^2 - \eta) \cdot$

where,
η h/R

$\lambda = (1/3)\{(d + f\delta + \delta^2)[(f - \delta)^2 + k]^{\frac{1}{2}} + p + m \cdot ln(n/(f - \delta + [(f - \delta)^2 + k]^{\frac{1}{2}})\}$

where,
d $3 \cdot cos^2\alpha - 2$
f $cos\alpha$
k $sin^2\alpha$
p $-6 \cdot cos^2\alpha \cdot \sin(\alpha/2) + 4 \cdot sin^3(\alpha/2)$
δ (R_o/R)
m $-3 \cdot k \cdot f$
n $2 \cdot [sin\,(\alpha/2) - sin^2(\alpha/2)]$
α S/R_o with S = Bullard B Surface radius = 166.735 km

Terrain Correction: The terrain correction accounts for variations in gravity values caused by variations in topography near the observation point. The correction accounts for the attraction of material above the assumed spherical cap and for the over-correction made by the Bouguer correction when in valleys. The terrain correction is positive regardless of whether the local topography consists of a mountain or a valley. Section 8.3.4 contains a more in-depth discussion of the terrain correction process.

Free Air Anomaly: The free air anomaly is the difference between the observed gravity and normal gravity that has been computed for latitude and corrected for the elevation of the gravity station above or below the reference ellipsoid:

$FAA = G_o - (G_n - AC) - FAC$

where,
FAA Free Air Anomaly in gravity units
G_o Observed Gravity in gravity units
G_n Normal Gravity in gravity units
AC Atmospheric Correction in gravity units
FAC Free Air Correction in gravity units

Bouguer Anomaly: The Bouguer anomaly is computed from the free air anomaly above by removing the attraction of the spherical cap calculated by the Bouguer correction.

$BA = FAA - BC$

where,
BA Bouguer Anomaly in gravity units
FAA Free Air Anomaly in gravity units
BC Bouguer Correction in gravity units

Complete Bouguer Anomaly: This is obtained by adding the terrain correction to the Bouguer anomaly. The Complete Bouguer Anomaly is the most interpretable value derived from a gravity survey as changes in the anomaly can be directly attributed to lateral density contrasts within the geology below the observation point.

$$CBA = BA + TC$$

where,

CBA Complete Bouguer Anomaly in gravity units
BA Bouguer Anomaly in gravity units
TC Terrain Correction in gravity units

8.3.4 Terrain Corrections

Terrain corrections, which account for the variation in gravity due to topography proximal to the gravity station, were computed using a digital elevation model (DEM) and RASTERTC software from Geopotential. RASTERTC software permits the user to input a DEM in the form of a binary grid file, and gravity data in an ASCII file. From this information, the software is capable of calculating extremely accurate terrain corrections. For more detailed information regarding the software and algorithm, the reader is asked to visit the Geopotential website http://geopotential.com/docs/RasterTC/RasterTC.html

Elevation data were sourced from an SRTM (Shuttle Radar Topography Mission) extraction. Data were extracted to provide a 30km buffer from the extents of the gravity survey and were also reprojected and re-gridded to a 30m cell size to improve resolution.

Terrain in the area varied between 228 m and 1506 m above sea level. A comparison against GPS heights recorded during the gravity survey revealed that the DEM data were sufficiently accurate to be used in regional terrain corrections. The average difference between GPS height and DEM heights was 2.1m and the standard deviation of the differences was 1.7m.

When executing the terrain correction, the following inputs were used with RASTERTC:

R_{MIN} = 30 m
R_{MED} = 250 m
R_{MAX} = 30000 m
Angle = 6 degrees

RMIN was selected to enable correction for topography near to the gravity station and coincided with the grid cell size of the SRTM DEM. RMAX was selected to allow for outer zone correction of severe topography at large distances from the gravity station. RMED was chosen so that the DEM would be sampled at an interval close to the grid cell size of the DEM when using the 6 degree integration angle.

The terrain correction software provides indicators for terrain correction quality and accuracy as part of its output (included on the data DVD as Appendix J). The output variables QFINNER and QFOUTER specify the quality factor for each correction made. If these factors have a value of 0, then the user can assume that the terrain correction proceeded successfully. If non-zero values are reported, then the value of the QF factor will provide an indication as to possible problems or inadequacies in the correction.

For the inner zone correction, an indicator of how well the terrain in the immediate vicinity of a gravity station is represented by the available elevation samples is obtained by examining the spatial distribution of the elevation samples. In the radial interval Rmin to

Rmed, RASTERTC counts the number of samples falling within the 8 octants surrounding the station. If any of these octants are missing elevation samples, that fact is noted, and the tabulated quality factor simply notes how many of octants are missing samples (see Table 5).

For the outer zone correction, a result of 0 means that the correction proceeded successfully. If a portion of the outer-zone terrain is missing from the DEM supplied, the value of QF-Outer will reflect the per cent of terrain that was available (rounded to the nearest per cent). For example, if QF-Outer is 91, the implication is that 9% of the terrain in the outer zones was missing for some reason, and that the terrain correction calculated for that particular station is too small by some amount.

QF-Inner	Explanation of Error Code
0	Inner-zone terrain calculation OK
1	No elevation samples occur in 1 octant surrounding the gravity station
2	No elevation samples occur in 2 octants surrounding the gravity station
3	No elevation samples occur in 3 octants surrounding the gravity station
4	No elevation samples occur in 4 octants surrounding the gravity station
5	No elevation samples occur in 5 octants surrounding the gravity station
6	No elevation samples occur in 6 octants surrounding the gravity station
7	No elevation samples occur in 7 octants surrounding the gravity station
22	Duplicate elevation nodes encountered while calculating terrain gradients
23	All elevation nodes collinear or triangulation structure corrupted

Table 5: Terrain Correction Error Codes

8.3.5 Quality Analysis of the Processed Gravity data

Following reduction of the data to Bouguer Anomaly, repeatability and QA procedures were applied to both the positional and gravity observations using AGRIS software. AGRIS checks the following as part of its QA processing:

- Easting Observation Repeatability and Histogram
- Northing Observation Repeatability and Histogram
- Elevation Observation Repeatability and Histogram
- Gravity Observation Repeatability and Histogram
- Gravity SD, Tilt XY, Temperature, Rejection, Reading Variance
- Gravity meter drift / closure
- Gravity meter loop time, drift per hour
- GPS Dilution of Precision, Coordinate Quality Factor, Standard Error
- Variation of surveyed station location from programmed location

QA procedures were applied to the gravity data on a daily basis and any gravity stations not conforming to contract specifications were repeated by the company at no cost to the client. Some stations were revisited to verify single point anomalies and six stations were found to be noisy. Seismic disturbance from earthquakes in Indonesia is thought to be the cause.

8.3.6 Additional Processing, Gridding and Plotting

Complementing the QA procedures is additional daily gridding, imaging and plotting of the elevation and gravity data. Once processed to Bouguer Anomaly and assessed for QA, data are imported into Geosoft Oasis Montaj or ChrisDBF software for gridding at 1/5th the station spacing to produce ERMapper compatible grid files. Resultant grids are contoured, filtered and interpreted using ERMapper and ArcMap software to check that data is smoothly varying and that no spurious anomalies are present. A first vertical, tilt angle and horizontal derivative filter are routinely applied to the data as these filters allow for excellent noise recognition. Once identified, any spurious stations can be field checked by the helicopter crew the following day and repeated if required.

Plotting of the acquired stations on a daily basis allowed for identification of any missed stations which were then gained the following day.

9.0 Results

The West Arunta gravity survey was completed with some difficulty and project completion was delayed as a result. The shear remoteness and lack of access in the area made refuelling and pilot changeovers difficult. Pilots were often required to work longer morning shifts just to make it to the northern extent of the grid and back to a refuelling point. Remote fuel drops were often required as the helicopter has a limited payload. Unseasonal heavy rain wreaked havoc on the access tracks and made refuelling and supply trips into Alice Springs almost impossible at times. There were several days where it was not possible to gain gravity data due to heavy rain and/or fog preventing helicopter take off. More information can be found in the production report on the data DVD.

When weather permitted, excellent production was achieved over the often flat, treeless ground north of the ranges. Surveying in the ranges was slower, with pilots often spending extra time to find safe, flat landing locations.

There was a single instance of downtime due to helicopter VH-LVO requiring maintenance. A minor electrical issue was remedied quickly by engineers in Alice Springs.

A total of **12,427** new gravity stations were gained during the survey.

Final data have been delivered to a technically excellent standard and are presented both digitally and hardcopy as Appendices to this report.

9.1 Survey Timing and Production Rates

The acquisition crew began gravity data acquisition on Sunday 6th June 2010 and completed acquisition on Wednesday 15th September 2010.

An average of 150 new stations per helicopter per day was maintained for most of the survey, with some days yielding over 250 stations (1km spaced stations). Lower production days were mainly due to difficulty surveying in the ranges, bad weather and prescribed helicopter maintenance. A full production report can be found on the data DVD (Appendix J).

9.2 Data Formats

Final point located data for the project have been delivered in ASEG-GDF2 compliant format. Appendix I contains a listing of the definition and description files accompanying the final data.

Raw GPS-GNSS and gravity data in their respective native formats have been included on the data DVD as Appendix J. Table 6 overleaf summarises the deliverables.

Final Delivered Data	Format	Data DVD	Hardcopy
Gravity Database	Point located data ASEG-GDF2	•	
Raw Positional Data	AGRIS format, comma delimited	•	
Raw Gravity Data	Scintrex CG5 format	•	
Raw GPS-GNSS Data	Waypoint GPB Binary	•	
Gravity Control Data	Microsoft Excel Format	•	•
Calibration Data	Microsoft Excel Format	•	•
Repeat Data	Microsoft Excel Format	•	•
Terrain Corrections	RASTERTC output file	•	
Final Grids	ERMapper Grids .ers	•	
Final Images	Arcmap compatible TIFF	•	•
Acquisition Report	PDF .pdf	•	•

Table 6: Final Deliverables

9.3 Data Repeatability: All Observations

The repeatability of both the gravity and GPS data was excellent. In total, **1,309** gravity and GPS repeat stations were collected and analysed. As a percentage, this equates to **10.5%** of the total number of new gravity stations acquired. Repeat stations were acquired so that an even distribution between gravity loops was established and that all loops were interlocked.

Descriptive statistics pertaining to the repeatability are contained in Table 7 and Appendix F contains a tabulation of the actual repeat data for the entire survey.

The standard deviation of the gravity repeat deviations was **0.38 gu** and the standard deviation of the GPS derived elevation repeat deviations was **0.058 m**. These statistics confirm that the data has met and exceeded contract specifications.

	Elevation Repeat (mGRS80)	Gravity Repeat (gu)
Mean	0.004	-0.01
Standard Error	0.002	0.01
Median	0.001	0.00
Mode	-0.012	0.04
Standard Deviation	0.058	0.38
Sample Variance	0.003	0.15
Kurtosis	0.875	0.35
Skewness	0.008	0.01
Range	0.404	2.32
Minimum	-0.210	-1.14
Maximum	0.194	1.18
Sum	4.644	-11.55
Count	1309	1309

Table 7: Repeat Statistics

9.3.1 Repeatability Histograms

Histograms showing the distribution of repeat differences for both the gravity and GPS observations are shown in Figures 12 and 13.

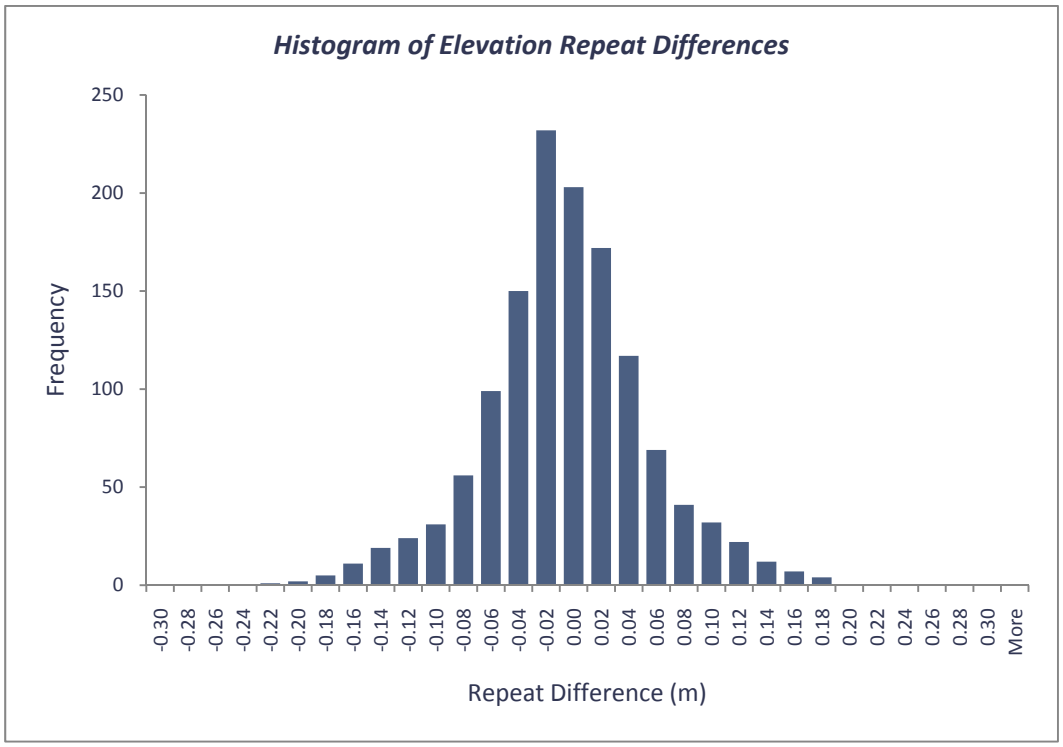


Figure 12: Histogram of GPS Repeat Differences

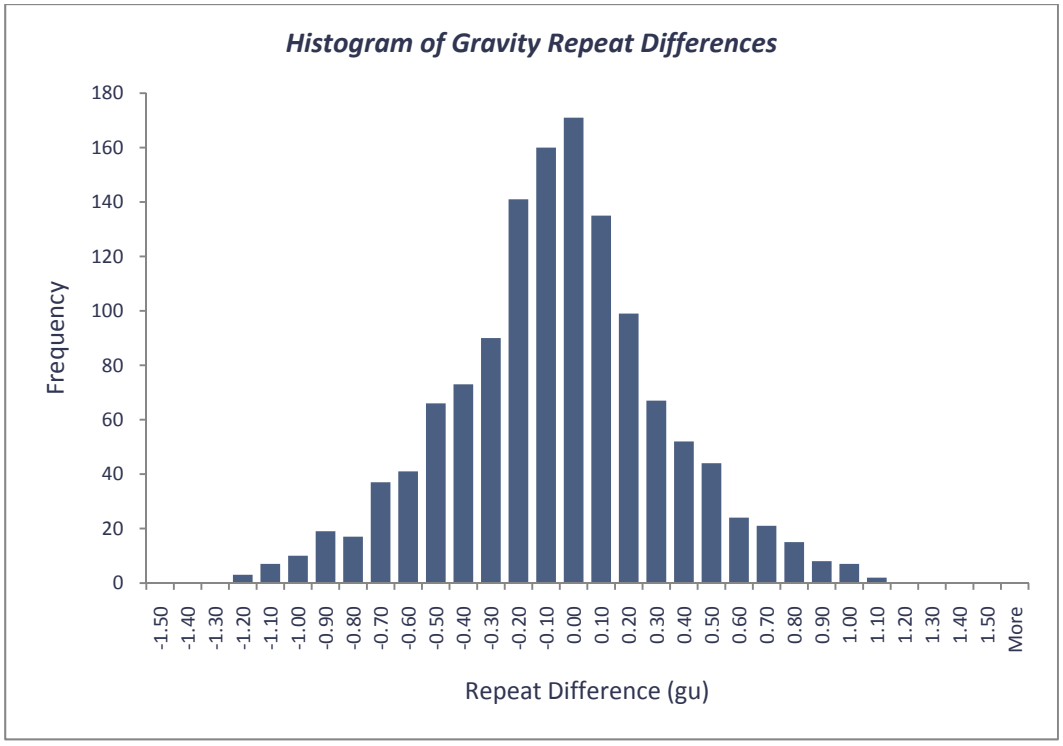


Figure 13: Histogram of Gravity Repeat Differences

9.4 Data Repeatability: Multiple Control Station Observations Only

The repeatability of gravity and GPS observations made with respect to multiple control stations was also analysed separately to the main database.

Descriptive statistics pertaining to the repeatability are contained in Table 8 and Appendix G contains a tabulation of the actual repeat data controlled from multiple control stations.

The standard deviation of the gravity repeat deviations was **0.58 gu** and the standard deviation of the GPS derived elevation repeat deviations was **0.078 m**. These statistics confirm that the data has met and exceeded contract specifications for data controlled from multiple control stations.

	Elevation Repeat (mGRS80)	Gravity Repeat (gu)
Mean	-0.008	0.37
Standard Error	0.016	0.24
Median	-0.003	0.58
Mode	0.003	NA
Standard Deviation	0.088	0.54
Sample Variance	0.008	0.29
Kurtosis	-0.207	1.90
Skewness	0.258	-1.49
Range	0.327	1.31
Minimum	-0.163	-0.52
Maximum	0.164	0.79
Sum	-0.260	1.86
Count	32	5

Table 8: Repeat Statistics

9.4.1 Repeatability Histogram

Histograms showing the distribution of repeat differences for both the gravity and GPS observations from multiple control stations are shown in Figures 14 and 15.

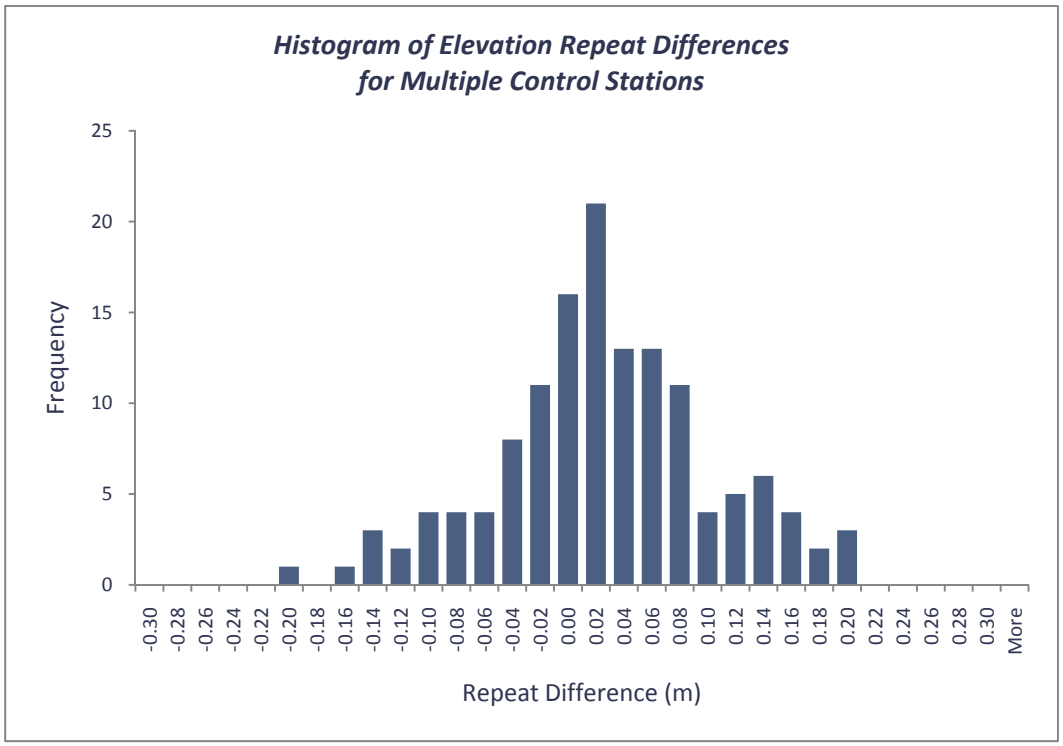


Figure 14: Histogram of GPS Repeat Differences

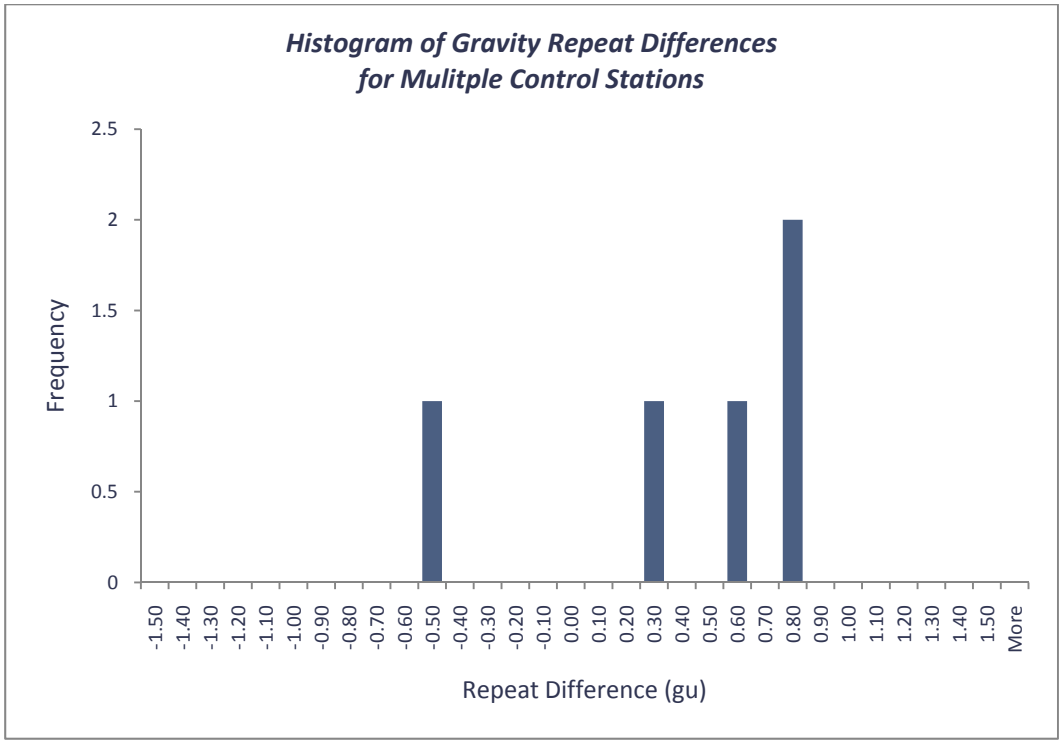


Figure 15: Histogram of Gravity Repeat Differences

9.5 Grids, Images and Plots

Final reduced data have been gridded using ChrisDBF software and a minimum curvature algorithm with multiple loops. All grids are provided in ERMapper compatible .ers format and are in units of gu and m (GRS80).

Grids for GPS Derived Elevation (GRS80), Complete Bouguer Anomaly (CBA267) and 1st vertical derivative of Complete Bouguer Anomaly (CBA267VD) were produced for this particular project. The grid cell size for all grids is 800m.

The grids produced have been imaged using Geosoft Oasis Montaj mapping and processing software. Five plots of these images have been included with this report to assist in data interpretation (Appendix A). The plots have been included digitally on the data DVD in Arcmap GIS compatible TIFF format.

Station Location Plot: The first plot displays the acquired gravity station locations overlayed on a 1:1 million topographic map of the area and surrounds. As evident on the plot, some stations have been moved off the original programmed co-ordinates due to terrain considerations.

GPS Derived Elevation: This plot displays a pseudocoloured grid of the digital elevation data obtained from the gravity survey (GRS80). A histogram equalisation colour stretch has been applied when pseudocolouring and a sunshade from the north-east has been applied.

Complete Bouguer Anomaly 2.67 Contours: This plot displays a pseudocoloured grid of Complete Bouguer Anomaly calculated with a rock density of 2.67 t/m3. A histogram equalisation stretch has been applied when pseudocolouring. Overlying the image data are contours created at an interval of 10 gu.

Complete Bouguer Anomaly 2.67 Sunshade: This plot displays a pseudocoloured grid of Complete Bouguer Anomaly calculated with a rock density of 2.67 t/m3. A histogram equalisation stretch has been applied when pseudocolouring and a sunshade from the north-east has been applied.

Vertical Derivative Image: This plot displays pseudocoloured grid of the first vertical derivative of Complete Bouguer Anomaly calculated with a rock density of 2.67 t/m3. A histogram equalisation stretch has been applied when pseudocolouring and sunshading from the north-east has been applied. This image represents the rate of change of the Complete Bouguer Anomaly and is useful for detecting lineaments and body edges, especially where there are large regional gradients present.

10.0 Project Safety

There were no incidents or accidents to report during the project.

Weekly toolbox meetings were held to discuss project safety and address any staff member concerns. A Hazard Identification and Risk Assessment (HIRA) was carried out for all new tasks not covered under Atlas Geophysics Standard Operating Procedures (SOP's) as documented in the company's Health Safety Environment and Community (HSEC) field manual.

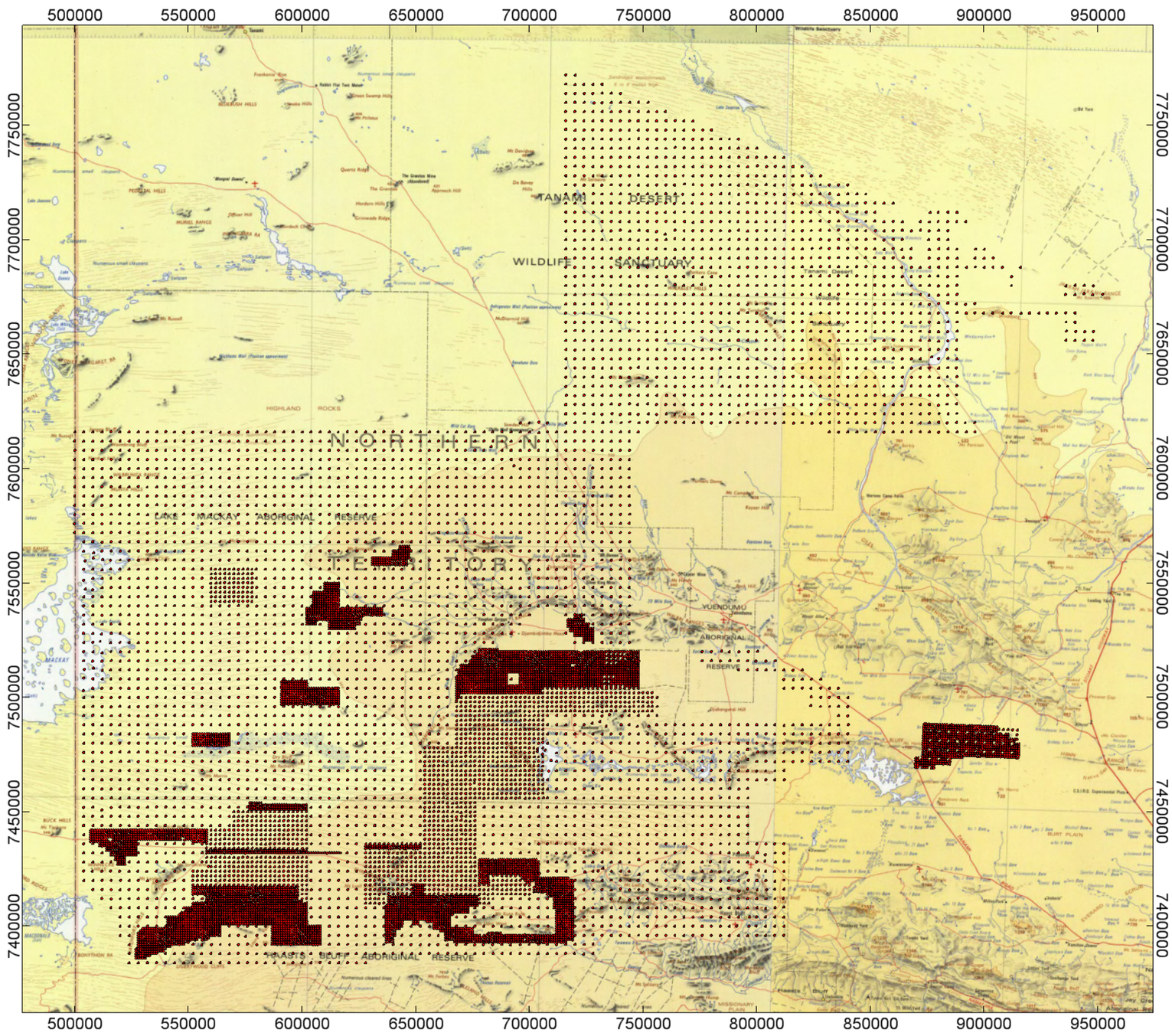
11.0 Conclusion

Atlas Geophysics Pty Ltd is confident that it has delivered high quality data to its client to a high standard and in the safest way possible.

The company was pleased to be involved in the acquisition and processing of the gravity data collected on this project and look forward to working with Geoscience Australia again in the future.

Leon Mathews
Director

APPENDIX A
Plots and Images



Scale 1:2000000

25000 0 25000 50000 75000 100000 125000

(meters)

GDA94 / Map Grid of Australia zone 52

GEOSCIENCE AUSTRALIA

P2010013 GA WEST ARUNTA GRAVITY SURVEY

Plot of Gained Gravity Stations

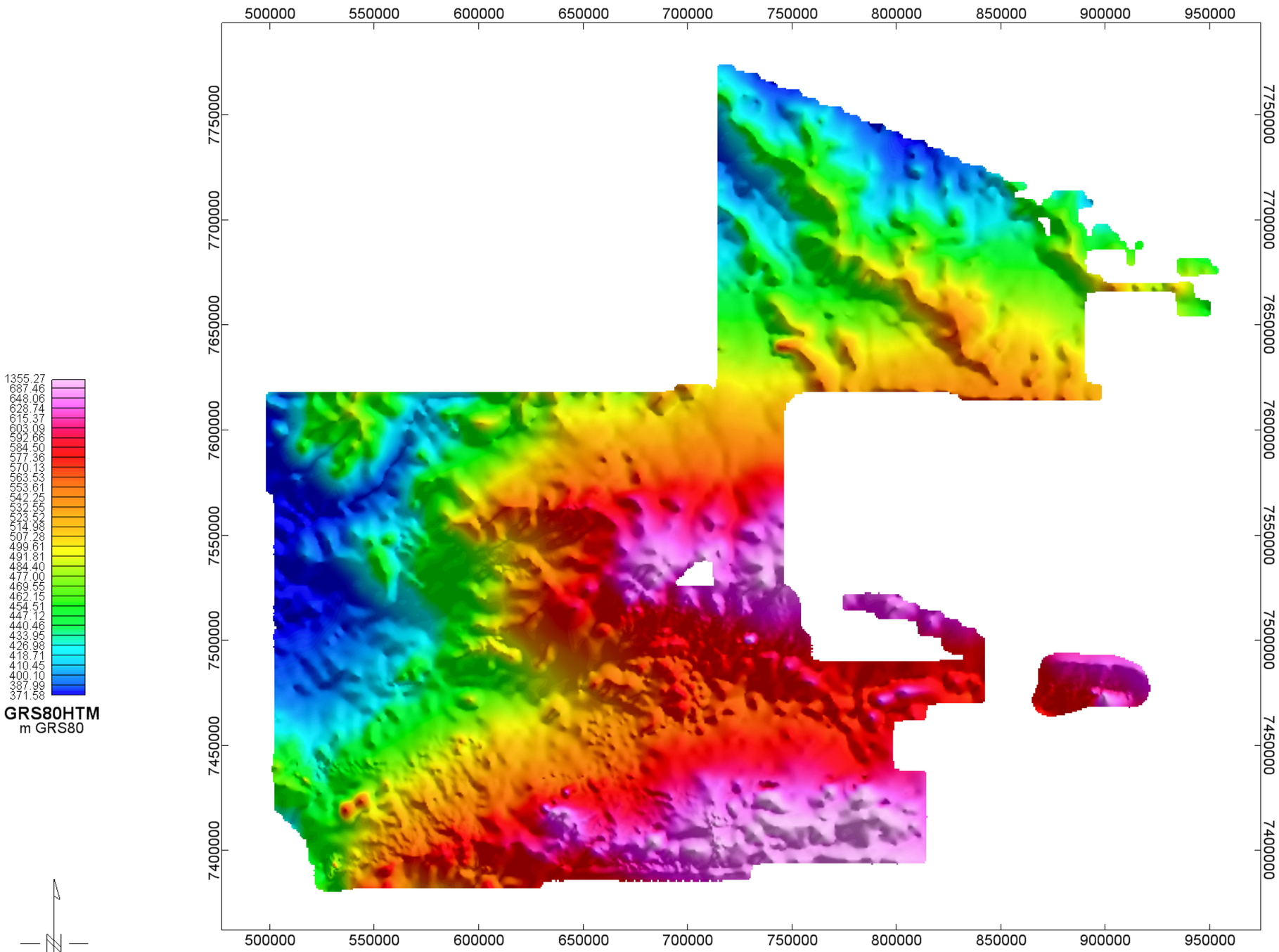
4km, 2km and 1km Square Grid Configuration

ATLAS GEOPHYSICS PTY LTD

FINAL DATA RELEASE

www.atlasgeo.com.au

drawn by : LM



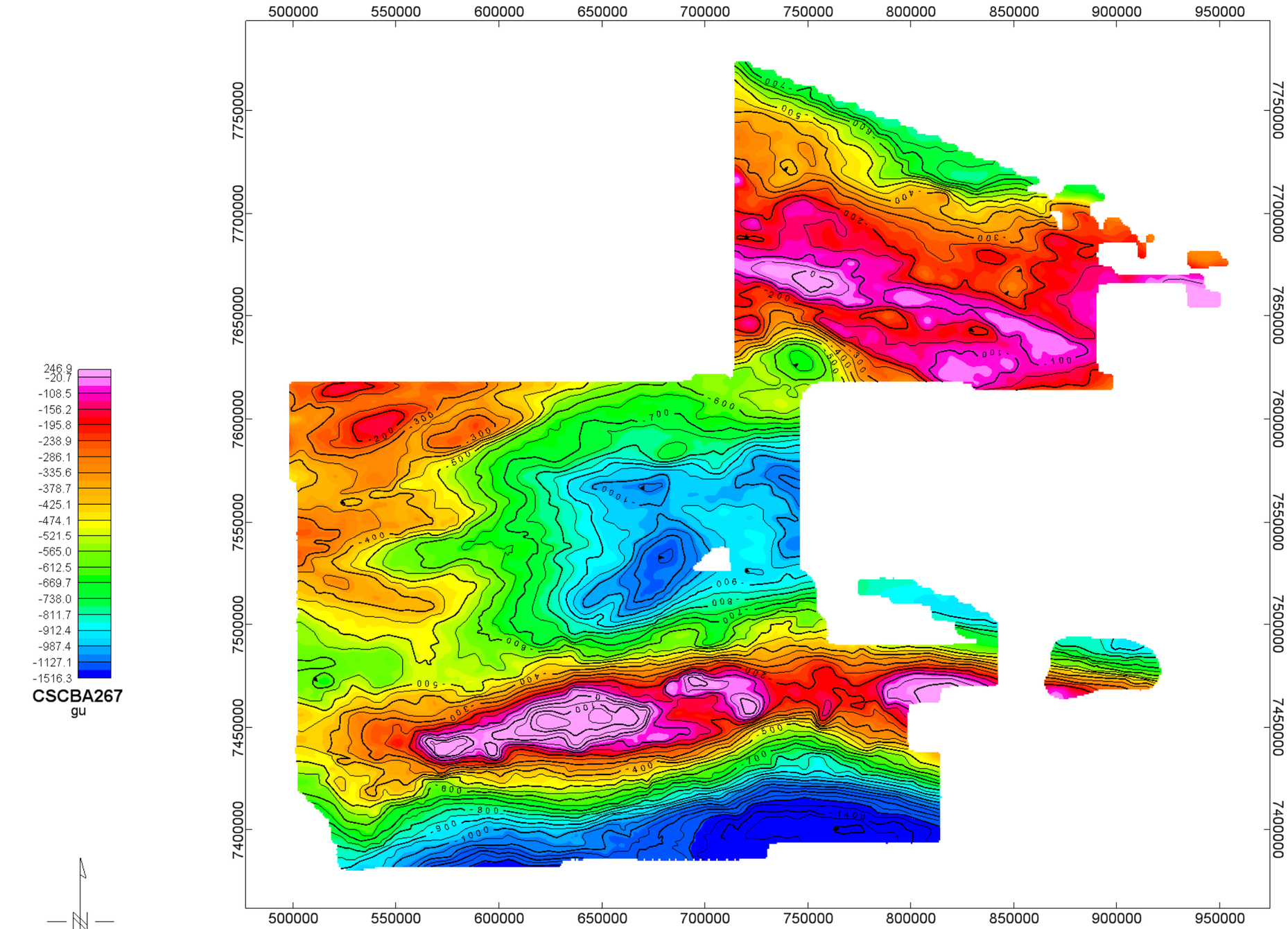
GEOSCIENCE AUSTRALIA

P2010013 GA WEST ARUNTA GRAVITY SURVEY

Pseudcoloured Image of GPS Derived Elevation
Shade = NE, Contours = None, Histo = Equalised

ATLAS GEOPHYSICS PTY LTD
FINAL DATA RELEASE
www.atlasgeo.com.au

drawn by : LM



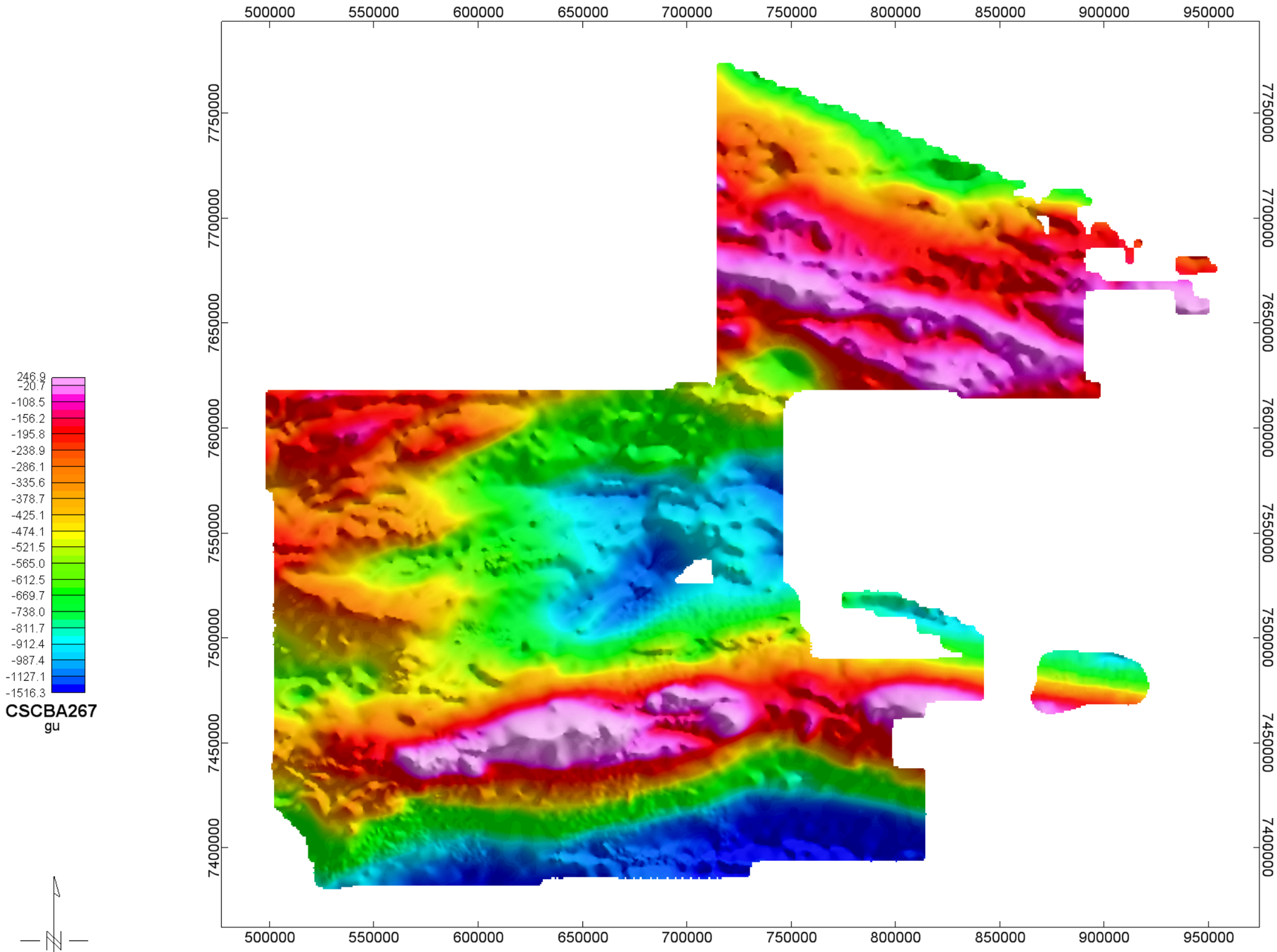
GEOSCIENCE AUSTRALIA

P2010013 GA WEST ARUNTA GRAVITY SURVEY

Pseudcoloured Image of Complete SC Bouguer Anomaly 2.67 gm/cc
Shade = None, Contours = 50gu, Histo = Equalised

ATLAS GEOPHYSICS PTY LTD
FINAL DATA RELEASE
www.atlasgeo.com.au

drawn by : LM



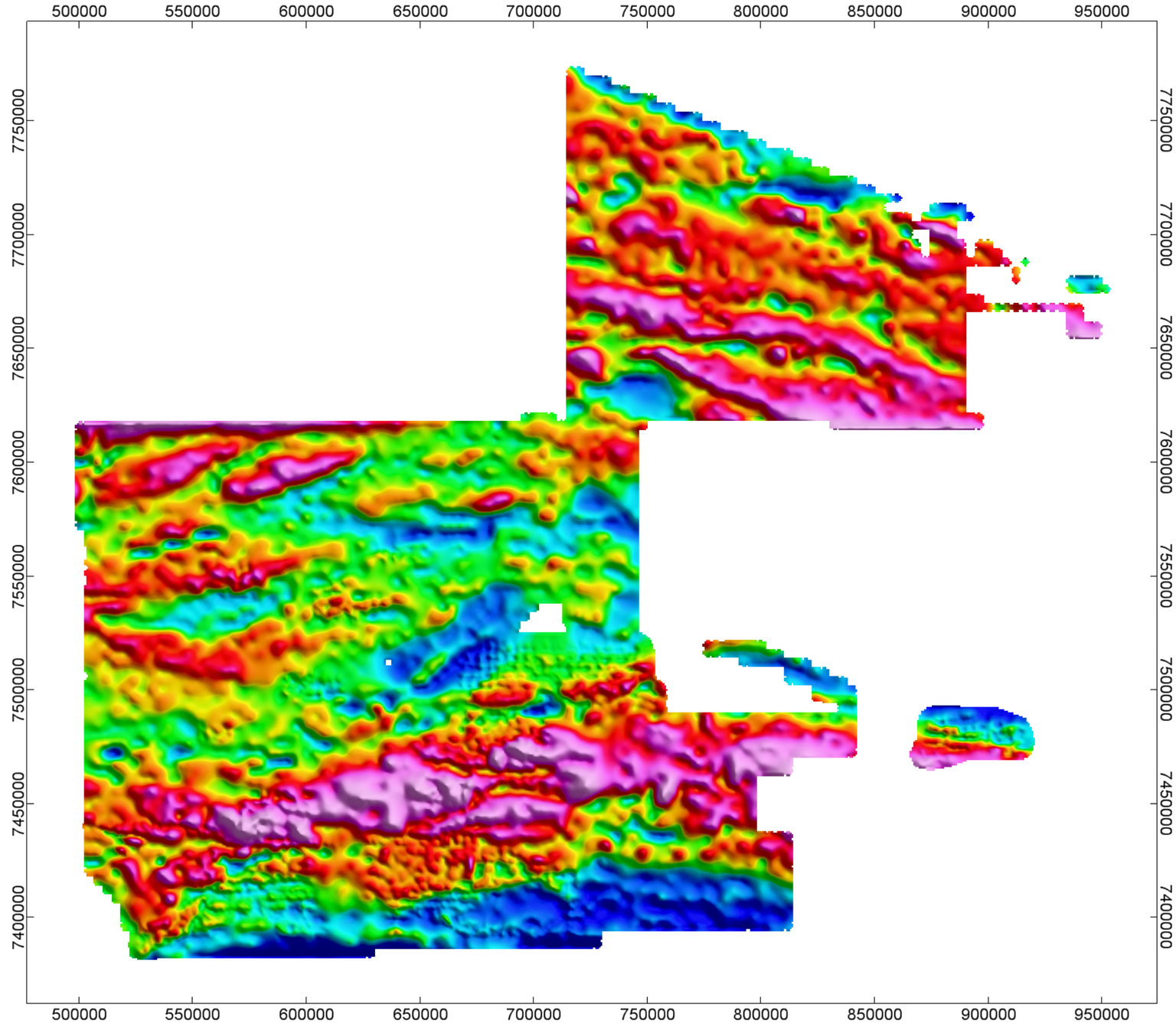
GEOSCIENCE AUSTRALIA

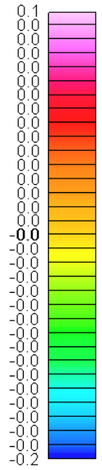
P2010013 GA WEST ARUNTA GRAVITY SURVEY

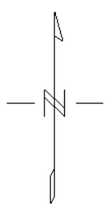
Pseudcoloured Image of Complete SC Bouguer Anomaly 2.67 gm/cc
Shade = NE, Contours = None, Histo = Equalised

ATLAS GEOPHYSICS PTY LTD
FINAL DATA RELEASE
www.atlasgeo.com.au

drawn by : LM







Scale 1:2000000

25000 0 25000 50000 75000 100000 125000

(meters)

GDA94 / Map Grid of Australia zone 52

GEOSCIENCE AUSTRALIA

P2010013 GA WEST ARUNTA GRAVITY SURVEY

Pseudcoloured Image of 1VD Complete SC Bouguer Anomaly 2.67 gm/cc
Shade = NE, Contours = None, Histo = Equalised

ATLAS GEOPHYSICS PTY LTD
FINAL DATA RELEASE
www.atlasgeo.com.au

drawn by : LM

APPENDIX B
Control Station Descriptions

GRVGPS0112 – Kintore Community A/S Windsock

GDA94/GRS80		MGA Z52		AMG Z52	
Latitude	-23 15 55.036	*Easting*	539,355.980	*Easting*	539,222.411
Longitude	129 23 5.2226	*Northing*	7,427,060.264	*Northing*	7,426,894.376
Ellipsoidal Height	463.115	*Orthometric Height*	453.896	*Orthometric Height*	453.896

OBSERVED GRAVITY

AAGD07 gu	9787040.20

Occupation Method/Location Details

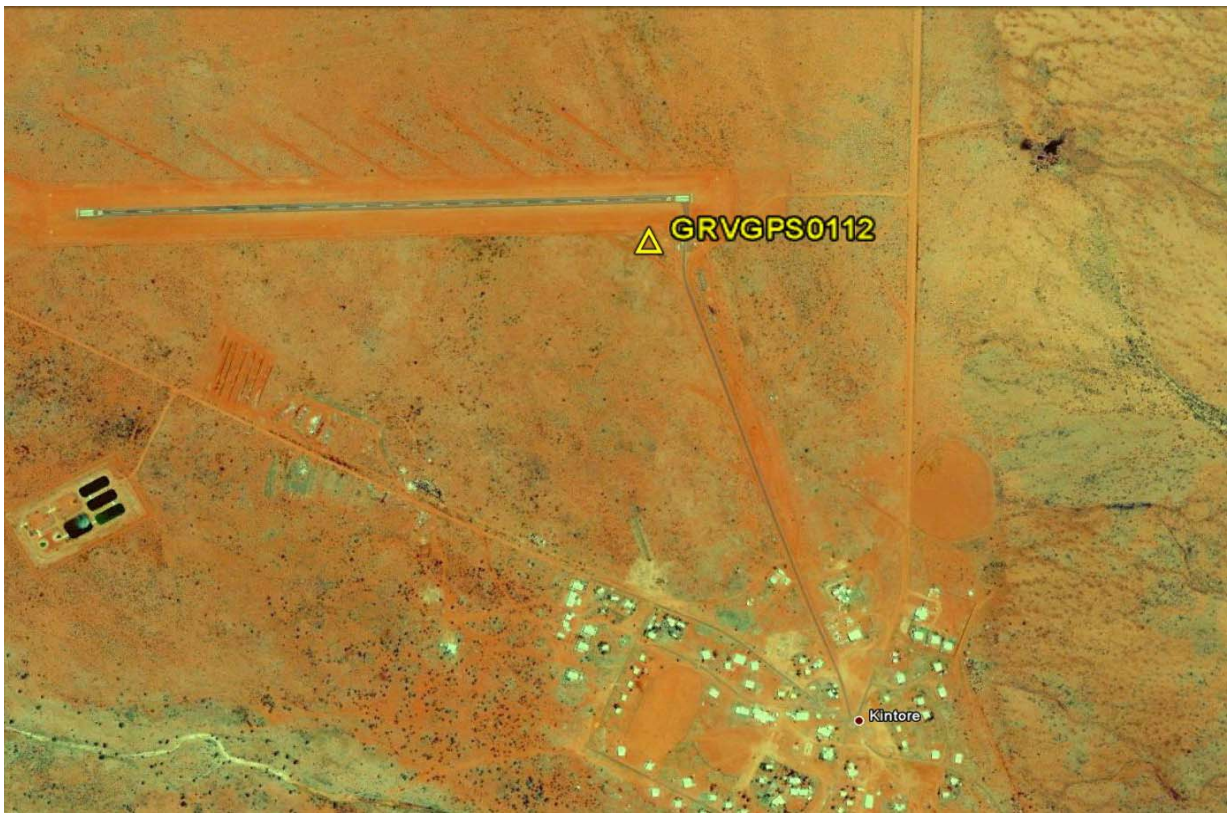
The GPS control point consists of a dumpy steel picket driven into the ground to a height of 10cm above ground level. The gravity control point consists of a small concrete slab (30cm square) concreted into the ground, opposite the GPS control point. The control station is witnessed by an Atlas Geophysics survey plaque attached to a 1.5 metre steel picket placed within 0.5m of both control points.

Gravity Control was established via multiple ABA loops to AFGN gravity stations 2006600037 and 2006600038 at Kiwirrkurra on 22/6/2010 and 23/06/2010. Expected accuracy would be better than 1gu.

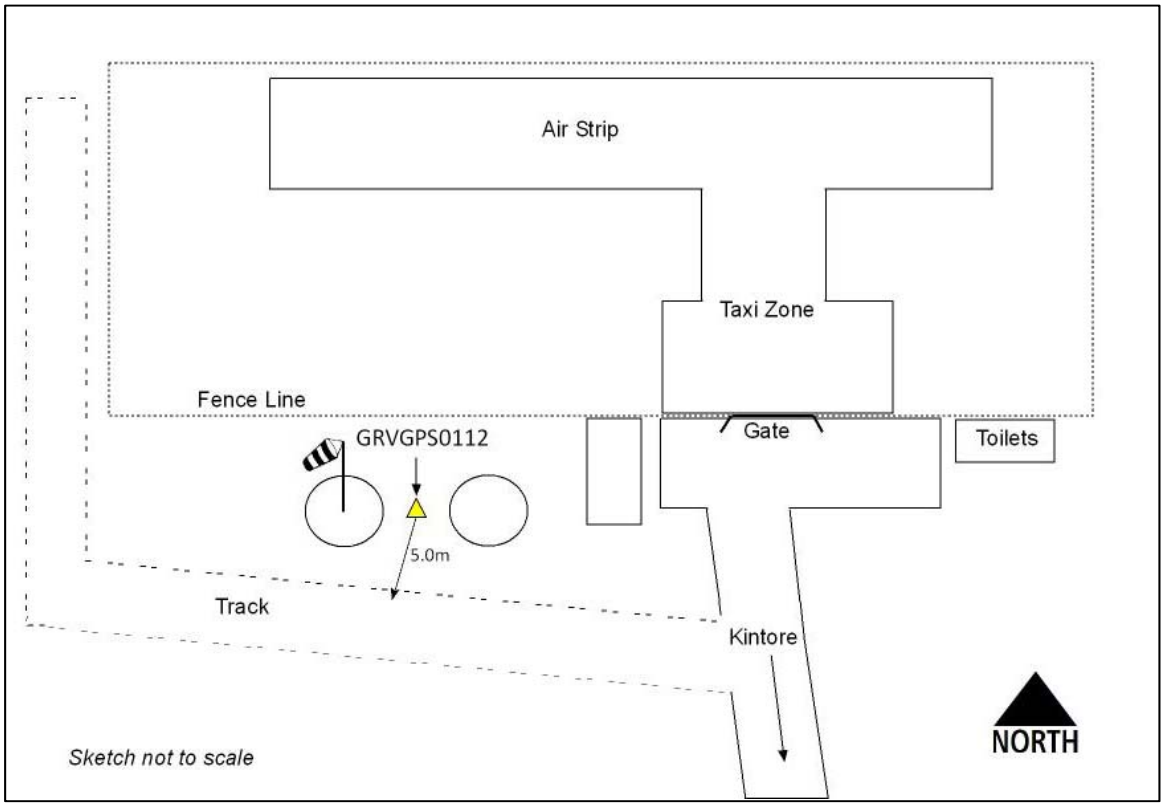
GPS Control was established using AUSPOS. Three separate +10 hour sessions were submitted to Geoscience Australia's online processing system, AUSPOS. Returned coordinates were accurate to better than 0.01m.

This control station is located 100 metres west of the Kintore airstrip car park; approximately 30m north of a small track heading north west to the perimeter of the airstrip. The station is positioned between two concrete slabs, the western of the two being the location of the windsock.

Photograph of Control Station GRVGPS0112 and surrounds



Location of Control Station GRVGPS0112



Locality Sketch of Control Station GRVGPS0112

GRVGPS0113 – Mt Liebig Community A/S Windsock

GDA94/GRS80		MGA Z52		AMG Z52	
Latitude	-23 14 39.0565	***Easting***	731,267.834	***Easting***	731,134.194
Longitude	131 15 37.2914	***Northing***	7,427,647.934	***Northing***	7,427,481.945
Ellipsoidal Height	630.376	***Orthometric Height***	618.984	***Orthometric Height***	618.984

OBSERVED GRAVITY

AAGD07 gu	9786233.20

Occupation Method/Location Details

The GPS control point consists of a dumpy steel picket driven into the ground to a height of 10cm above ground level. The gravity control point consists of a small concrete slab (30cm square) concreted into the ground, opposite the GPS control point. The control station is witnessed by an Atlas Geophysics survey plaque attached to a 1.5 metre steel picket placed within 0.5m of both control points.

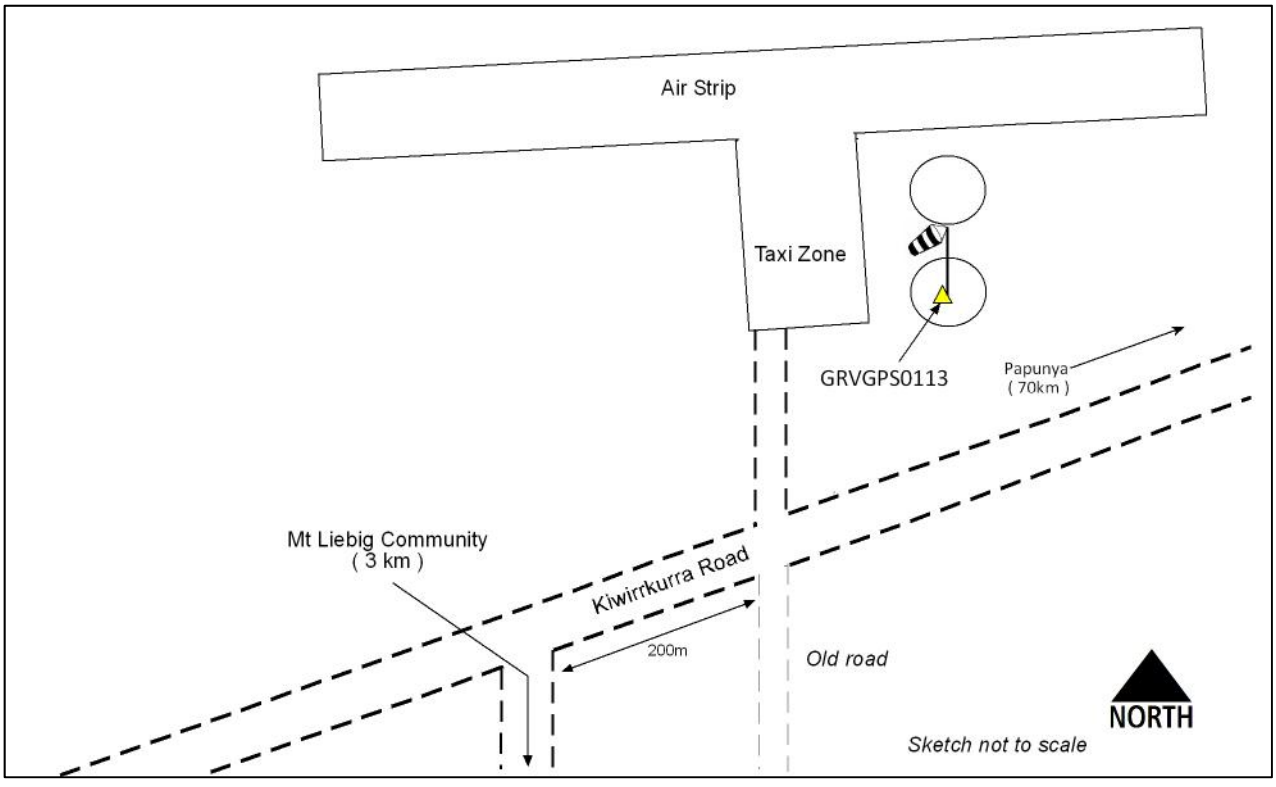
Gravity Control was established via multiple ABA loops to AFGN gravity stations 1999921803, 1999929803 at Yuendumu on 13/08/2010 and 1960910135 CS1 BM68-53 north of Alice Springs on 24/08/2010, 12/09/2010 and 13/09/2010. Expected accuracy would be better than 1gu.

GPS Control was established using AUSPOS. Three separate +10 hour sessions were submitted to Geoscience Australia's online processing system, AUSPOS. Returned coordinates were accurate to better than 0.01m.

The control station is located approximately 3km north of Mount Lieibig community, at the airstrip. The station is 2m south of the windsock pole. The airstrip gate is locked - a key maybe sourced from the community manager.

Photograph of Control Station GRVGPS0113 and surrounds

Location of Control Station GRVGPS0113



Locality Sketch of Control Station GRVGPS0113

GRVGPS0114 – Willowra Community A/S Windsock

GDA94/GRS80		MGA Z53		AMG Z53	
Latitude	-21 16 33.2757	***Easting***	253,349.183	***Easting***	253,219.770
Longitude	132 37 22.2315	***Northing***	7,645,458.785	***Northing***	7,645,287.784
Ellipsoidal Height	488.884	***Orthometric Height***	463.607	***Orthometric Height***	463.607

OBSERVED GRAVITY

AAGD07 gu	9785984.52

Occupation Method/Location Details

The GPS control point consists of a dumpy steel picket driven into the ground to a height of 10cm above ground level. The gravity control point consists of a small concrete slab (30cm square) concreted into the ground, opposite the GPS control point. The control station is witnessed by an Atlas Geophysics survey plaque attached to a 1.5 metre steel picket placed within 0.5m of both control points.

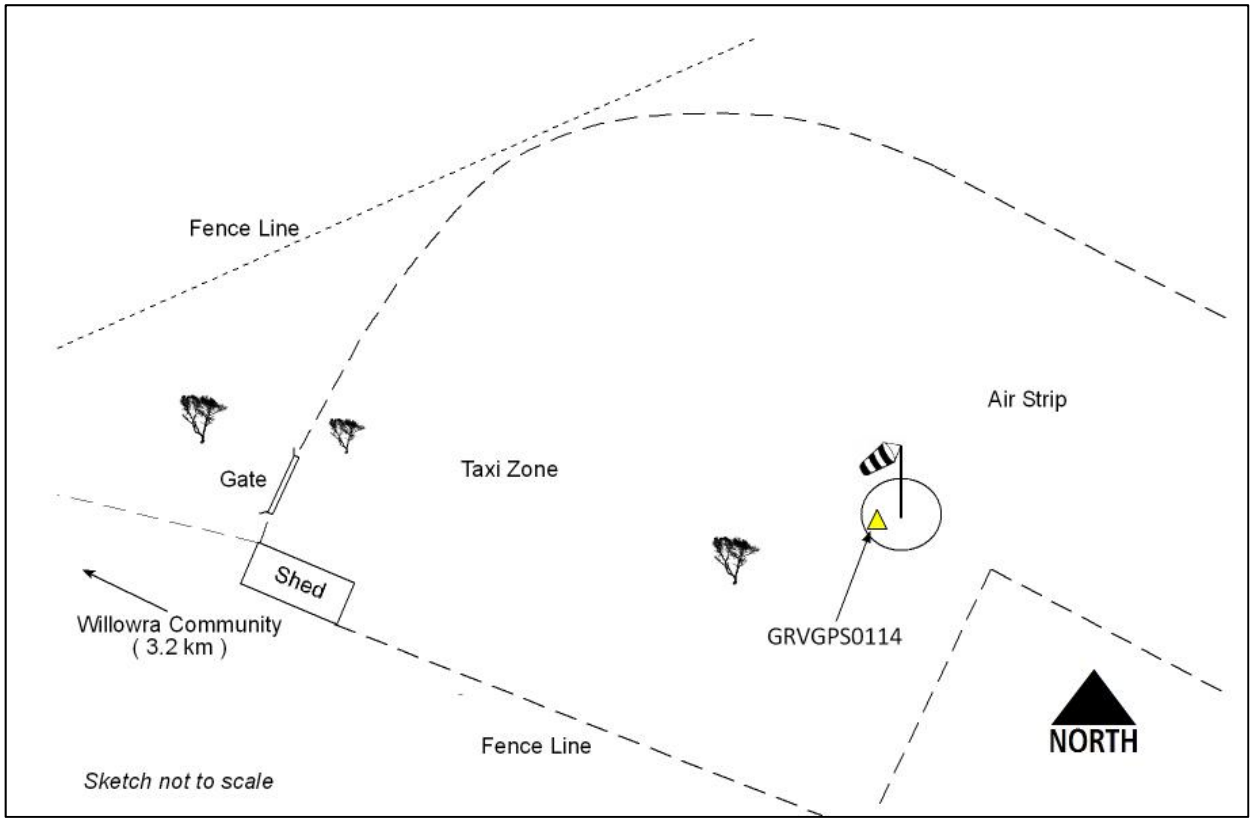
Gravity Control was established via multiple ABA loops to AFGN gravity station 1967931317 at Barrow Creek on 11/09/2010 and 14/09/2010. Expected accuracy would be better than 1gu.

GPS Control was established using AUSPOS. Three separate +10 hour sessions were submitted to Geoscience Australia's online processing system, AUSPOS. Returned coordinates were accurate to better than 0.01m.

This control station is located at the airstrip, adjacent to the windsock pole. The track leading from Willowra community to the airstrip is located to the south of Willowra football oval and heads east through a gate/cattle grid next to the cattle yard (this yard is approximately 400 metres from the sealed road). Follow this approximately 3km south/south east until reaching a cattle grid. At this grid, take the left fork in the road due east which leads to the main gate for the airstrip. The windsock and GRVGPS0114 are 100 metres due east from the airstrip gate. The gate is locked, but a key can be obtained from the community manager.

Photograph of Control Station GRVGPS0114 and surrounds

Location of Control Station GRVGPS0114



Locality Sketch of Control Station GRVGPS0114

GRVGPS0069 – Tilmouth Well A/S

GDA94/GRS80		MGA Z53		AMG Z53	
Latitude	-22 48 32.6873	*Easting*	253,711.063	*Easting*	253,581.828
Longitude	132 36 02.1740	*Northing*	7,475,614.836	*Northing*	7,475,443.485
Ellipsoidal Height	586.375	*Orthometric Height*	567.433	*Orthometric Height*	567.433

OBSERVED GRAVITY

AAGD07 gu	9786666.85

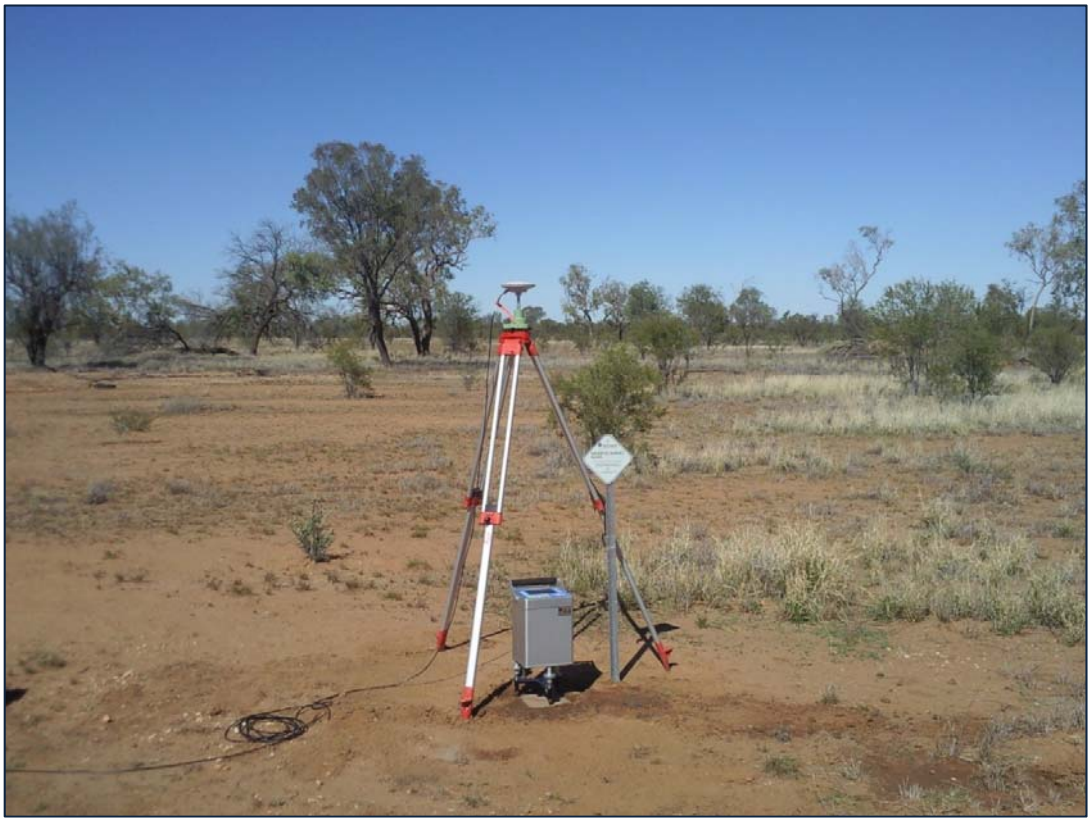
Occupation Method/Location Details

The GPS control point consists of a dumpy steel picket driven into the ground to a height of 10cm above ground level. The gravity control point consists of a small concrete slab (30cm square) concreted into the ground, opposite the GPS control point. The control station is witnessed by an Atlas Geophysics survey plaque attached to a 1.5 metre steel picket placed within 0.5m of both control points.

Gravity Control was previously established in 2009 via multiple ABABA loops to AFGN gravity base station 1960910135 located at CS1 BM68-53 on the Stuart Highway north of Alice Springs. The control station was verified on 24/8/2010 and 13/9/2010. Expected accuracy would be better than 1gu or 0.01mGal.

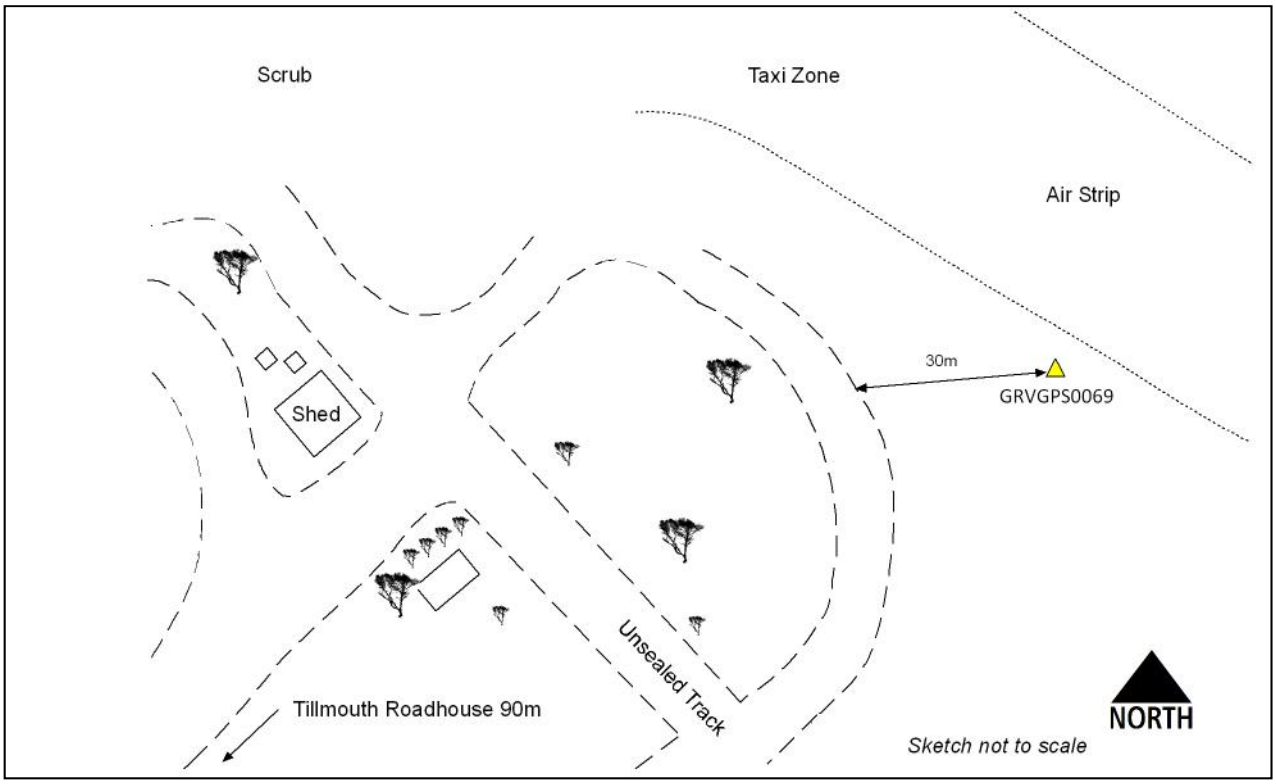
GPS Control was established using AUSPOS. Three separate +10 hour sessions were submitted to AUSPOS's online processing system where returned coordinates were accurate to better than 0.01m.

This control station is located just south of the airstrip at Tilmouth Well Roadhouse. The station can be accessed via the access track that runs around the perimeter of the roadhouse and storage sheds and lies approximately 30m east of the track. Tilmouth Well is located along the Tanami Road, accessible from the Stuart Highway.



Photograph of Control Station GRVGPS0069 and surrounds

Location of Control Station GRVGPS0069



Locality Sketch of Control Station GRVGPS0069

APPENDIX C
GPS Control Information

GRVGPS0069
0001 -22-48 -32.6873 132 36 2.1739 586.373 567.431 GDA94
0001 -22-48 -32.6873 132 36 2.1741 586.371 567.429 GDA94
0001 -22-48 -32.6873 132 36 2.1740 586.381 567.439 GDA94

GDA94AVE
-22 48 32.6873
132 36 2.1740

-22.80907981
132.60060389

GRS80HT
586.375

AHDHT
567.433

N
18.942

MGA53
253711.062
7475614.836

AMG53
253581.825
7475443.485

GRVGPS0112
1006 -23-15 -55.0360 129 23 5.2226 463.116 453.898 GDA94
1006 -23-15 -55.0359 129 23 5.2225 463.116 453.898 GDA94
1006 -23-15 -55.0360 129 23 5.2226 463.112 453.893 GDA94

GDA94AVE
-23 15 55.036
129 23 5.2226

-23.26528778
129.38478406

GRS80HT
463.115

AHDHT
453.896

N
9.219

MGA52
539355.980
7427060.264

AMG52
539222.411
7426894.376

GRVGPS0113
1007 -23-14 -39.0565 131 15 37.2914 630.376 618.984 GDA94
1007 -23-14 -39.0565 131 15 37.2914 630.377 618.985 GDA94
1007 -23-14 -39.0564 131 15 37.2914 630.376 618.984 GDA94

GDA94AVE
-23 14 39.0565
131 15 37.2914

-23.24418236
131.26035872

GRS80HT
630.376

AHDHT
618.984

N
11.392

MGA52
731267.834
7427647.934

AMG52
731134.194
7427481.945

GRVGPS0114
1009 -21-16 -33.2757 132 37 22.2314 488.874 463.598 GDA94
1009 -21-16 -33.2757 132 37 22.2315 488.891 463.614 GDA94
1009 -21-16 -33.2758 132 37 22.2315 488.886 463.609 GDA94

GDA94AVE
-21 16 33.2757
132 37 22.2315

-21.27590992
132.62284208

GRS80HT
488.884

AHDHT
463.607

N
25.277

MGA53
253349.183
7645458.785

AMG53
253219.770
7645287.784

MBLGPS0002
1007 -23-11 -31.1906 129 20 51.4087 451.991 442.402 GDA94
1007 -23-11 -31.1906 129 20 51.4086 451.999 442.410 GDA94
1007 -23-11 -31.1906 129 20 51.4087 451.999 442.410 GDA94

GDA94AVE
-23 11 31.1906
129 20 51.4087

-23.19199739
129.34761353

GRS80HT
451.996

AHDHT
442.407

N
9.589

MGA52
535573.533
7435183.425

AMG52
535439.966
7435017.536

MBLGPS0003
1007 -22-29 -51.5770 129 23 22.7535 394.044 381.391 GDA94
1007 -22-29 -51.5771 129 23 22.7538 394.061 381.409 GDA94
1007 -22-29 -51.5770 129 23 22.7537 394.067 381.414 GDA94

GDA94AVE
-22 29 51.577
129 23 22.7537

-22.49766028
129.38965381

GRS80HT
394.057

AHDHT
381.405

N
12.652

MGA52
540078.772
7512035.197

AMG52
539945.219
7511869.295

MBLGPS0004
1007 -21-52 -58.9823 129 20 56.8054 443.402 427.561 GDA94
1007 -21-52 -58.9822 129 20 56.8057 443.417 427.576 GDA94
1007 -21-52 -58.9824 129 20 56.8056 443.417 427.576 GDA94

GDA94AVE
-21 52 58.9823
129 20 56.8056

-21.88305064
129.34911267

GRS80HT
443.412

AHDHT
427.571

N
15.841

MGA52
536065.339
7580076.652

AMG52
535931.800
7579910.757

MBLGPS0005
1006 -21-52 -49.7509 130 2 42.9177 487.791 471.667 GDA94
1006 -21-52 -49.7509 130 2 42.9178 487.802 471.679 GDA94
1006 -21-52 -49.7509 130 2 42.9175 487.785 471.661 GDA94

GDA94AVE
-21 52 49.7509
130 2 42.9177

-21.88048636
130.04525492

GRS80HT
487.793

AHDHT
471.669

N
16.124

MGA52
607986.621
7580034.318

AMG52
607853.097
7579868.397

MBLGPS0006
1006 -22-29 -40.6624 130 2 59.6732 485.605 472.373 GDA94
1006 -22-29 -40.6623 130 2 59.6731 485.605 472.373 GDA94
1006 -22-29 -40.6622 130 2 59.6732 485.617 472.385 GDA94

GDA94AVE
-22 29 40.6623
130 2 59.6732

-22.49462842
130.04990922

GRS80HT
485.609

AHDHT
472.377

N
13.232

MGA52
607996.982
7512044.347

AMG52
607863.426
7511878.421

MBLGPS0007
1006 -23 -8 -51.8466 130 3 15.3876 524.042 512.504 GDA94
1006 -23 -8 -51.8464 130 3 15.3872 524.042 512.504 GDA94
1006 -23 -8 -51.8465 130 3 15.3874 524.049 512.511 GDA94

GDA94AVE
-23 8 51.8465
130 3 15.3874

-23.14773514
130.05427428

GRS80HT
524.044

AHDHT
512.506

N
11.538

MGA52
607929.936
7439735.471

AMG52
607796.348
7439569.558

MBLGPS0008
1006 -23-38 -59.7335 130 3 33.0337 553.477 547.288 GDA94
1006 -23-38 -59.7336 130 3 33.0339 553.471 547.282 GDA94
1006 -23-38 -59.7335 130 3 33.0338 553.484 547.295 GDA94

GDA94AVE
-23 38 59.7335
130 3 33.0338

-23.64992597
130.05917606

GRS80HT
553.477

AHDHT
547.288

N
6.189

MGA52
608023.550
7384130.084

AMG52
607889.938
7383964.194

MBLGPS0009
1007 -21-50 -19.3308 130 42 11.7825 547.421 530.616 GDA94
1007 -21-50 -19.3309 130 42 11.7825 547.426 530.621 GDA94
1007 -21-50 -19.3309 130 42 11.7824 548.021 531.216 GDA94

GDA94AVE
-21 50 19.3309
130 42 11.7825

-21.83870303
130.70327292

GRS80HT
547.623

AHDHT
530.818

N
16.805

MGA52
676030.274
7584052.662

AMG52
675896.765
7583886.701

MBLGPS0010
1008 -22-29 -22.4449 130 43 14.9137 591.721 577.733 GDA94
1008 -22-29 -22.4449 130 43 14.9137 591.721 577.733 GDA94
1008 -22-29 -22.4449 130 43 14.9138 591.732 577.744 GDA94

GDA94AVE
-22 29 22.4449
130 43 14.9137

-22.48956803
130.72080936

GRS80HT
591.725

AHDHT
577.737

N
13.988

MGA52
677026.229
7511966.017

AMG52
676892.668
7511800.051

MBLGPS0011
1007 -23 -7 -16.2506 130 43 11.5042 562.082 549.428 GDA94
1007 -23 -7 -16.2506 130 43 11.5041 562.070 549.415 GDA94
1007 -23 -7 -16.2506 130 43 11.5041 562.085 549.430 GDA94

GDA94AVE
-23 7 16.2506
130 43 11.5041

-23.12118072
130.71986225

GRS80HT
562.079

AHDHT
549.424

N
12.655

MGA52
676114.798
7442027.310

AMG52
675981.190
7441861.359

MBLGPS0012
1008 -23-24 -37.4075 130 44 32.9502 618.746 609.457 GDA94
1008 -23-24 -37.4075 130 44 32.9503 618.751 609.462 GDA94
1008 -23-24 -37.4911 130 44 32.9053 618.763 609.474 GDA94

GDA94AVE
-23 24 37.4354
130 44 32.9353

-23.41039872
130.74248203

GRS80HT
618.753

AHDHT
609.464

N
9.289

MGA52
678046.712
7409972.127

AMG52
677913.081
7409806.187

MBLGPS0013
1009 -20-31 -45.5067 131 22 43.1986 461.232 437.150 GDA94
1009 -20-31 -45.5066 131 22 43.1986 461.234 437.152 GDA94
1009 -20-31 -45.5066 131 22 43.1987 461.235 437.152 GDA94

GDA94AVE
-20 31 45.5066
131 22 43.1986

-20.52930739
131.37866628

GRS80HT
461.234

AHDHT
437.151

N
24.083

MGA52
748032.764
7728137.501

AMG52
747899.411
7727971.540

MBLGPS0014
1009 -21-10 -48.9867 131 25 37.3237 469.092 446.301 GDA94
1009 -21-10 -48.9869 131 25 37.3237 469.082 446.291 GDA94
1009 -21-10 -48.9869 131 25 37.3237 469.076 446.285 GDA94

GDA94AVE
-21 10 48.9868
131 25 37.3237

-21.18027411
131.42703436

GRS80HT
469.083

AHDHT
446.292

N
22.791

MGA52
751990.754
7655971.595

AMG52
751857.330
7655805.590

MBLGPS0015
1008 -21-49 -58.9964 131 14 40.9674 562.738 544.938 GDA94
1008 -21-49 -58.9964 131 14 40.9679 562.742 544.942 GDA94

GDA94AVE
-21 49 58.9964
131 14 40.9677

-21.83305456
131.24471325

GRS80HT
562.740

AHDHT
544.940

N
17.800

MGA52
732014.641
7583960.517

AMG52
731881.142
7583794.510

MBLGPS0016
1008 -22-29 -23.7724 131 22 15.2768 629.903 613.894 GDA94
1008 -22-29 -23.7725 131 22 15.2769 629.908 613.900 GDA94
1008 -22-29 -23.7725 131 22 15.2770 629.892 613.883 GDA94

GDA94AVE
-22 29 23.7725
131 22 15.2769

-22.48993681
131.37091025

GRS80HT
629.901

AHDHT
613.892

N
16.009

MGA52
743927.408
7511010.983

AMG52
743793.841
7510844.963

MBLGPS0017
1008 -23 -5 -38.0210 131 27 36.4948 597.636 584.196 GDA94
1008 -23 -5 -38.0210 131 27 36.4946 597.644 584.204 GDA94
1008 -23 -5 -38.0208 131 27 36.4946 597.634 584.194 GDA94

GDA94AVE
-23 5 38.0209
131 27 36.4947

-23.09389469
131.46013742

GRS80HT
597.638

AHDHT
584.198

N
13.440

MGA52
751997.896
7443963.126

AMG52
751864.264
7443797.112

MBLGPS0019
1009 -20-39 -50.5521 132 2 2.0169 408.532 384.375 GDA94
1009 -20-39 -50.5524 132 2 2.0170 408.521 384.364 GDA94
1009 -20-39 -50.5522 132 2 2.0169 408.526 384.369 GDA94

GDA94AVE
-20 39 50.5522
132 2 2.0169

-20.66404228
132.03389358

GRS80HT
408.526

AHDHT
384.369

N
24.157

MGA52
816120.806
7712077.566

AMG52
815987.478
7711911.517

MBLGPS0020
1009 -21-12 -23.3602 132 4 48.6311 515.737 491.415 GDA94
1009 -21-12 -23.3603 132 4 48.6310 515.733 491.411 GDA94
1009 -21-12 -23.3604 132 4 48.6311 515.728 491.406 GDA94

GDA94AVE
-21 12 23.3603
132 4 48.6311

-21.20648897
132.08017531

GRS80HT
515.733

AHDHT
491.411

N
24.322

MGA52
819791.130
7651887.924

AMG52
819657.728
7651721.840

MBLGPS0021
1008 -22-43 -27.9424 131 59 52.2551 585.254 567.930 GDA94
1008 -22-43 -27.9423 131 59 52.2552 585.277 567.953 GDA94

GDA94AVE
-22 43 27.9424
131 59 52.2552

-22.72442844
131.99784867

GRS80HT
585.266

AHDHT
567.942

N
17.324

MGA52
807943.471
7483871.367

AMG52
807809.865
7483705.283

MBLGPS0022
1008 -23-18 -13.7512 131 51 18.8357 668.256 655.699 GDA94
1008 -23-18 -13.7511 131 51 18.8360 668.227 655.671 GDA94

GDA94AVE
-23 18 13.7512
131 51 18.8359

-23.30381978
131.85523219

GRS80HT
668.242

AHDHT
655.685

N
12.557

MGA52
792033.188
7419966.583

AMG52
791899.516
7419800.539

APPENDIX D
Gravity Control Processing and Information

GRVGPS0112 GRAVITY CONTROL TIES

112 = GRVGPS0112 KINTORE A/S WINDSOCK
37 = DS 2006600037 KIWIRRKURRA WORKERS
38 = DS 2006600038 KIWIRRKURRA A/S
Tie carried out by vehicle

METER A3

station	mga_easting	mga_northing	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	08:03:35	1587.678	0.011	980000.000	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	08:04:45	1587.681	0.012	980000.003	40269
38	370954.4	7476936.5	22/06/2010	127.742613	-22.810248	10:16:04	1582.936	0.029	979995.266	40269
38	370954.4	7476936.5	22/06/2010	127.742613	-22.810248	10:17:14	1582.938	0.028	979995.268	40269
37	373345.0	7475891.8	22/06/2010	127.765818	-22.819865	10:04:03	1580.274	0.029	979992.606	40269
37	373345.0	7475891.8	22/06/2010	127.765818	-22.819865	10:05:13	1580.279	0.029	979992.611	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	12:11:15	1587.710	-0.004	980000.000	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	12:11:15	1587.710	-0.008	980000.000	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	12:12:25	1587.706	-0.009	979999.996	40269
38	370954.4	7476936.5	22/06/2010	127.742613	-22.810248	14:41:05	1582.942	-0.062	979995.198	40269
38	370954.4	7476936.5	22/06/2010	127.742613	-22.810248	14:42:15	1582.946	-0.063	979995.202	40269
37	373345.0	7475891.8	22/06/2010	127.765818	-22.819865	14:50:16	1580.320	-0.064	979992.575	40269
37	373345.0	7475891.8	22/06/2010	127.765818	-22.819865	14:51:26	1580.314	-0.064	979992.569	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	16:35:56	1587.712	-0.052	979999.993	40269
112	539356.0	7427060.3	22/06/2010	129.384784	-23.265288	16:37:06	1587.718	-0.052	980000.000	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	07:36:05	1587.867	-0.029	980000.000	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	07:37:15	1587.869	-0.029	980000.003	40269
38	370954.4	7476936.5	23/06/2010	127.742613	-22.810248	09:22:16	1583.078	0.012	979995.257	40269
38	370954.4	7476936.5	23/06/2010	127.742613	-22.810248	09:23:26	1583.080	0.013	979995.259	40269
37	373345.0	7475891.8	23/06/2010	127.765818	-22.819865	09:32:17	1580.422	0.016	979992.604	40269
37	373345.0	7475891.8	23/06/2010	127.765818	-22.819865	09:33:27	1580.424	0.016	979992.607	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	12:39:15	1587.823	0.003	980000.000	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	12:39:15	1587.823	-0.002	980000.000	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	12:40:25	1587.828	-0.002	980000.005	40269
38	370954.4	7476936.5	23/06/2010	127.742613	-22.810248	14:28:36	1583.143	-0.048	979995.278	40269
38	370954.4	7476936.5	23/06/2010	127.742613	-22.810248	14:29:46	1583.148	-0.048	979995.282	40269
37	373345.0	7475891.8	23/06/2010	127.765818	-22.819865	14:37:07	1580.503	-0.052	979992.634	40269
37	373345.0	7475891.8	23/06/2010	127.765818	-22.819865	14:38:17	1580.507	-0.052	979992.638	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	16:30:50	1587.890	-0.073	980000.004	40269
112	539356.0	7427060.3	23/06/2010	129.384784	-23.265288	16:32:00	1587.886	-0.073	980000.000	40269

AVERAGE 37	979992.606	
DIFF 37 112	-7.395	
AVERAGE 38	979995.251	
DIFF 38 112	-4.749	
KNOWN 37	978696.631	mGal AAGD07
KNOWN 38	978699.266	mGal AAGD07
CALC 112_37	978704.026	mGal AAGD07
CALC 112_38	978704.015	mGal AAGD07
CALC 112	**978704.020**	**mGal AAGD07**
	9787040.20	**gu AAGD07**

GRVGPS0113 GRAVITY CONTROL TIES

113 = GRVGPS0113 MOUNT LIEBIG A/S WINDSOCK
1803 = AFGN 1999921803 YUENDUMU MINING STORE
9803 = AFGN 1999929803 YUENDUMU MINING OFFICE
135 = AFGN 1960910135 ALICE SPRINGS CS1
Tie carried out by vehicle

METER A4

station	mga_easting	mga_northing	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
113	731267.8	7427647.9	13/08/2010	131.260359	-23.244182	13:12:11	2854.220	0.100	978000.000	40298
113	731267.8	7427647.9	13/08/2010	131.260359	-23.244183	13:14:25	2854.225	0.101	978000.006	40298
1803	788153.4	7536176.1	13/08/2010	131.795870	-22.255970	18:35:59	2778.636	-0.001	977924.267	40298
1803	788153.4	7536176.1	13/08/2010	131.795870	-22.255970	18:38:12	2778.639	-0.003	977924.268	40298
9803	788584.8	7535688.2	13/08/2010	131.800140	-22.260300	18:57:50	2778.602	-0.019	977924.212	40298
9803	788584.8	7535688.2	13/08/2010	131.800140	-22.260300	19:00:03	2778.609	-0.021	977924.217	40298
113	731267.8	7427647.9	13/08/2010	131.260359	-23.244183	23:52:52	2854.391	0.019	977999.996	40298
113	731267.8	7427647.9	13/08/2010	131.260359	-23.244182	23:55:05	2854.394	0.021	978000.000	40298

AVERAGE		
1803	977924.268	
DIFF 1803		
113	-75.732	
AVERAGE		
9803	977924.215	
DIFF 9803		
113	-75.785	
KNOWN 37	978547.585	mGal AAGD07
KNOWN 38	978547.542	mGal AAGD07
CALC		
113_1803	978623.318	mGal AAGD07
CALC		
113_9803	978623.328	mGal AAGD07
CALC 113	978623.323	mGal AAGD07
	9786233.23	gu AAGD07

METER A3

station	mga_easting	mga_northing	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	07:15:47	1514.461	-0.076	978000.000	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	07:17:59	1514.467	-0.076	978000.007	40269
135	997540.9	7385994.3	24/08/2010	133.871260	-23.560217	12:12:54	1517.654	0.087	978003.353	40269
135	997540.9	7385994.3	24/08/2010	133.871260	-23.560217	12:15:06	1517.664	0.087	978003.363	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	20:38:19	1514.355	-0.016	977999.997	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	20:40:31	1514.356	-0.014	978000.000	40269

AVERAGE 135	978003.358	
DIFF 135 113	3.358	
KNOWN 135	978626.682	mGal AAGD07
CALC 113_135	978623.324	mGal AAGD07
CALC 113	978623.324	mGal AAGD07
	9786233.24	gu AAGD07

station	long	lat	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
135	133.9	-23.6	12/09/2010	133.871260	-23.560217	11:25:34	1519.343	0.023	978626.682	40269
135	133.9	-23.6	12/09/2010	133.871260	-23.560217	11:27:46	1519.340	0.025	978626.681	40269
113	131.3	-23.2	12/09/2010	131.260358	-23.244182	15:14:50	1515.831	0.152	978623.320	40269
113	131.3	-23.2	12/09/2010	131.260358	-23.244182	15:17:02	1515.833	0.152	978623.322	40269
135	133.9	-23.6	12/09/2010	133.871260	-23.560217	19:40:10	1519.335	-0.016	978626.679	40269
135	133.9	-23.6	12/09/2010	133.871260	-23.560217	19:42:22	1519.339	-0.018	978626.682	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	07:28:53	1519.437	-0.056	978626.682	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	07:31:05	1519.440	-0.056	978626.68	40269
113	131.3	-23.2	13/09/2010	131.260358	-23.244182	11:10:58	1516.026	-0.024	978623.311	40269
113	131.3	-23.2	13/09/2010	131.260358	-23.244182	11:13:10	1516.023	-0.023	978623.309	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	17:36:53	1519.254	0.102	978626.680	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	17:39:05	1519.257	0.101	978626.682	40269

CALC 113	978623.316	mGal AAGD07
	9786233.16	gu AAGD07
CALC 113	**978623.320**	**mGal AAGD07**
	9786233.20	**gu AAGD07**

GRVGPS0114 GRAVITY CONTROL TIES

114 = GRVGPS0114 WILLOWRA A/S WINDSOCK
317 = 1967931317 BARROW
CREEK
Tie carried out by vehicle

METER A1

station	long	lat	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	06:35:48	2033.157	-0.072	980000.000	40240
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	06:38:02	2033.158	-0.073	980000.000	40240
317	133.9	-21.5	11/09/2010	133.887910	-21.533543	09:14:29	2025.651	-0.063	979992.501	40240
317	133.9	-21.5	11/09/2010	133.887910	-21.533543	09:16:43	2025.648	-0.061	979992.500	40240
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	12:27:21	2032.970	0.121	980000.001	40240
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	12:29:35	2032.967	0.123	980000.000	40240

METER A3

114	132.6	-21.3	11/09/2010	132.622842	-21.275910	13:09:22	1491.046	0.152	980000.000	40269
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	13:11:34	1491.046	0.153	980000.002	40269
317	133.9	-21.5	11/09/2010	133.887910	-21.533543	15:54:59	1483.558	0.130	979992.525	40269
317	133.9	-21.5	11/09/2010	133.887910	-21.533543	15:57:11	1483.560	0.128	979992.526	40269
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	19:08:08	1491.161	-0.041	979999.998	40269
114	132.6	-21.3	11/09/2010	132.622842	-21.275910	19:10:20	1491.164	-0.043	980000.000	40269

AVERAGE 317	979992.513	
DIFF 317 114	-7.487	
KNOWN 317	978590.962	mGal AAGD07
CALC 114_317	978598.449	mGal AAGD07

317	133.9	-21.5	14/09/2010	133.887910	-21.533543	10:15:53	2027.083	-0.044	978590.962	40240
317	133.9	-21.5	14/09/2010	133.887910	-21.533543	10:18:07	2027.080	-0.043	978590.959	40240
114	132.6	-21.3	14/09/2010	132.622842	-21.275910	13:01:56	2034.501	0.021	978598.451	40240
114	132.6	-21.3	14/09/2010	132.622842	-21.275910	13:04:10	2034.504	0.022	978598.455	40240
317	133.9	-21.5	14/09/2010	133.887910	-21.533543	17:58:56	2026.922	0.102	978590.964	40240
317	133.9	-21.5	14/09/2010	133.887910	-21.533543	18:01:10	2026.920	0.101	978590.962	40240

CALC 114	**978598.452**	**mGal AAGD07**
	9785984.52	**gu AAGD07**

GRVGPS0069 GRAVITY CONTROL *CHECK*

69 = GRVGPS0069 TILMOUTH WELL A/S (previously establised 2009, Ngalia Survey)
113 = GRVGPS0113 MOUNT LIEBIG A/S WINDSOCK
135 = AFGN 1960910135 ALICE SPRINGS CS1
Tie carried out by vehicle

METER A3

station	long	lat	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	07:28:53	1519.437	-0.056	978626.682	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	07:31:05	1519.440	-0.056	978626.684	40269
69	132.6	-22.8	13/09/2010	132.600603	-22.809080	15:14:52	1559.239	0.126	978666.684	40269
69	132.6	-22.8	13/09/2010	132.600603	-22.809080	15:17:04	1559.239	0.127	978666.685	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	17:36:53	1519.254	0.102	978626.680	40269
135	133.9	-23.6	13/09/2010	133.871260	-23.560217	17:39:05	1519.257	0.101	978626.682	40269

CALC 69	978666.685	mGal AAGD07
	9786666.85	gu AAGD07

METER A3

station	mga_easting	mga_northing	date_ddmmyyyy	gda94_longitude_dd	gda94_latitude_dd	time_hhmmss	dialrdng_mgal	etc_mgal	aagd07_mgal	metersn
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	07:15:47	1514.461	-0.076	978000.000	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	07:17:59	1514.467	-0.076	978000.007	40269
69	869683.7	7473107.7	24/08/2010	132.600604	-22.809080	16:04:56	1557.715	-0.029	978043.329	40269
69	869683.7	7473107.7	24/08/2010	132.600604	-22.809080	16:07:08	1557.720	-0.031	978043.333	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	20:38:19	1514.355	-0.016	977999.997	40269
113	731267.8	7427647.9	24/08/2010	131.260359	-23.244183	20:40:31	1514.356	-0.014	978000.000	40269

AVERAGE 69	978043.331	
DIFF 69 113	43.331	
KNOWN 113	978623.320	mGal AAGD07
CALC 69_113	978666.651	mGal AAGD07
CALC 69	**978666.668**	**mGal AAGD07**
	9786666.68	**gu AAGD07**
KNOWN 69 (NGALIA 09 SURVEY)	**978666.685**	**mGal AAGD07**
DIFF	**0.018**	**mGal AAGD07**
DIFF	**0.18**	**gu AAGD07**

APPENDIX E
Gravity Meter Calibration Data

P2010013_WEST_ARUNTA_GRAVITY

PRE SURVEY CALIBRATION DATA

1 = 2010990117 CS1 Guildford Cemetery 9793899.63 gu AAGD07
2 = 2010990217 CS2 Helena Valley Primary School **9794483.85 gu AAGD07**
data in Gravity Units

STATION	MGAE	MGAN	DATE	TIME	OBSGAAD07_gu	DRIFT_gu	SERIAL
A3 METER							
1	403387.00	6468170.00	30/05/2010	13:44:30	9793899.63	-0.03	40269
1	403387.00	6468170.00	30/05/2010	13:45:39	9793899.62	-0.03	40269
2	410153.00	6467499.00	30/05/2010	14:11:30	9794484.08	-0.03	40269
2	410153.00	6467499.00	30/05/2010	14:12:39	9794484.11	-0.03	40269
1	403387.00	6468170.00	30/05/2010	14:33:56	9793899.63	-0.03	40269
1	403387.00	6468170.00	30/05/2010	14:33:56	9793899.63	-0.07	40269
1	403387.00	6468170.00	30/05/2010	14:35:05	9793899.64	-0.07	40269
2	410153.00	6467499.00	30/05/2010	14:59:00	9794484.05	-0.07	40269
2	410153.00	6467499.00	30/05/2010	15:00:09	9794484.07	-0.07	40269
1	403387.00	6468170.00	30/05/2010	15:20:28	9793899.63	-0.07	40269
1	403387.00	6468170.00	30/05/2010	15:20:28	9793899.63	0.05	40269
1	403387.00	6468170.00	30/05/2010	15:21:37	9793899.66	0.05	40269
2	410153.00	6467499.00	30/05/2010	15:45:12	9794484.12	0.05	40269
2	410153.00	6467499.00	30/05/2010	15:46:21	9794484.12	0.05	40269
1	403387.00	6468170.00	30/05/2010	16:06:30	9793899.64	0.05	40269
1	403387.00	6468170.00	30/05/2010	16:07:39	9793899.63	0.05	40269
				AVG2	**9794484.09**		

P2010013_WEST_ARUNTA_GRAVITY

POST SURVEY CALIBRATION DATA

1 = 2010990117 CS1 Guildford Cemetery 9793899.63 gu AAGD07
2 = 2010990217 CS2 Helena Valley Primary School **9794483.85 gu AAGD07**
data in Gravity Units

STATION	MGAE	MGAN	DATE	TIME	OBSGAAD07_gu	DRIFT_gu	SERIAL
A3 METER							
1	420754.17	6464380.51	18/10/2010	10:28:16	9793899.63	-0.43	40269
1	420754.17	6464380.51	18/10/2010	10:30:30	9793899.64	-0.43	40269
2	417649.82	6460586.82	18/10/2010	11:46:09	9794484.00	-0.43	40269
2	417649.82	6460586.82	18/10/2010	11:48:23	9794484.05	-0.43	40269
1	420754.17	6464380.51	18/10/2010	12:24:40	9793899.59	-0.43	40269
1	420754.17	6464380.51	18/10/2010	12:26:54	9793899.63	-0.43	40269
1	420754.17	6464380.51	18/10/2010	12:26:54	9793899.63	0.16	40269
2	417649.82	6460586.82	18/10/2010	12:51:35	9794483.97	0.16	40269
2	417649.82	6460586.82	18/10/2010	12:53:49	9794483.99	0.16	40269
1	420754.17	6464380.51	18/10/2010	13:08:36	9793899.63	0.16	40269
1	420754.17	6464380.51	18/10/2010	13:08:36	9793899.63	-0.16	40269
1	420754.17	6464380.51	18/10/2010	13:10:50	9793899.68	-0.16	40269
2	417649.82	6460586.82	18/10/2010	13:37:05	9794484.09	-0.16	40269
2	417649.82	6460586.82	18/10/2010	13:39:19	9794484.10	-0.16	40269
1	420754.17	6464380.51	18/10/2010	13:55:56	9793899.59	-0.16	40269
1	420754.17	6464380.51	18/10/2010	13:58:10	9793899.63	-0.16	40269
				AVG2	**9794484.03**		

APPENDIX F
Repeat Listing: All Observations

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008001006	515859.4	7424113.8	0.077	-0.12	06062010	172210	40269
201008001021	540061.4	7419903.4	0.061	-0.11	07062010	120608	40269
201008001069	524054.2	7411997.1	-0.017	-0.13	07062010	130226	40269
201008001050	543904.7	7383957.9	-0.112	0.04	07062010	141400	40269
201008001117	580016.1	7387945.2	-0.017	0.01	07062010	152002	40269
201008001106	536005.2	7388018.2	-0.010	-0.15	07062010	162923	40269
201008001097	528993.7	7385960.7	0.088	0.05	07062010	165354	40269
201008001087	528000.1	7392997.1	0.063	-0.09	07062010	171904	40269
201008001075	540062.5	7411910.8	0.059	-0.42	07062010	174638	40269
201008001021	540062.1	7419903.4	0.004	-0.20	07062010	175116	40269
201008001021	540060.9	7419903.5	0.110	0.54	08062010	070935	40269
201008001075	540062.3	7411912.2	0.021	0.00	08062010	071440	40269
201008001177	531876.0	7408030.3	-0.009	0.07	08062010	072408	40269
201008001174	528993.4	7398034.8	-0.017	-0.92	08062010	074204	40269
201008001167	529080.3	7390053.4	-0.158	-0.60	08062010	075822	40269
201008001184	532011.4	7399057.6	-0.020	-0.08	08062010	082106	40269
201008001200	531008.2	7394020.0	-0.035	-0.27	08062010	083426	40269
201008001153	532959.5	7388939.3	-0.025	0.25	08062010	084446	40269
201008001205	531987.1	7397996.2	0.008	0.03	08062010	090226	40269
201008001214	533005.3	7390000.7	-0.033	0.17	08062010	092544	40269
201008001224	534004.2	7399014.3	-0.033	-0.05	08062010	094804	40269
201008001234	535010.0	7389998.0	0.001	0.53	08062010	101310	40269
201008001245	535994.2	7399023.3	0.015	0.23	08062010	103508	40269
201008001255	536991.3	7390022.0	0.080	-0.02	08062010	105638	40269
201008001265	537972.1	7399017.0	0.022	0.44	08062010	111639	40269
201008001075	540062.4	7411912.3	0.012	-0.13	08062010	114716	40269
201008001021	540062.5	7419902.6	-0.012	-0.14	08062010	115150	40269
201008001021	540063.1	7419901.6	-0.070	0.13	08062010	122546	40269
201008001075	540063.4	7411911.4	-0.054	0.21	08062010	123022	40269
201008001287	540988.6	7400020.1	-0.018	-0.26	08062010	124704	40269
201008001276	538984.5	7392033.5	-0.043	0.31	08062010	130428	40269
201008001126	587000.0	7391994.7	-0.023	0.48	08062010	142704	40269
201008001348	592020.0	7392999.4	-0.149	-0.12	08062010	153938	40269
201008001330	560059.4	7395983.6	-0.064	0.97	08062010	163619	40269
201008001323	553760.7	7394026.4	-0.103	-0.01	08062010	170506	40269
201008001313	544961.5	7393012.4	-0.036	0.23	08062010	172730	40269
201008001302	540004.0	7396874.4	-0.018	-0.05	08062010	174140	40269
201008001075	540063.9	7411910.5	-0.029	0.41	08062010	180450	40269
201008001021	540063.5	7419901.8	-0.129	0.33	08062010	180908	40269
201008001021	540062.3	7419903.3	-0.023	-0.34	09062010	070910	40269
201008001075	540063.1	7411911.3	-0.034	-0.05	09062010	071410	40269
201008001432	543008.0	7402021.2	-0.009	-0.27	09062010	072952	40269
201008001421	541986.4	7393987.9	-0.022	-0.50	09062010	075232	40269
201008001446	544031.0	7398008.5	0.067	0.25	09062010	080414	40269
201008001457	544998.0	7395997.5	-0.015	0.04	09062010	081748	40269
201008001466	546976.4	7395008.6	0.052	-0.13	09062010	084022	40269
201008001413	549026.8	7395003.5	0.067	-0.07	09062010	084408	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008001471	547980.2	7398993.7	-0.107	0.10	09062010	085132	40269
201008001480	550008.0	7399004.5	0.086	-0.22	09062010	090820	40269
201008001488	552014.4	7398972.2	-0.023	0.22	09062010	092438	40269
201008001496	553960.0	7398987.6	-0.061	0.34	09062010	094230	40269
201008001406	556009.4	7394998.2	-0.013	0.14	09062010	095454	40269
201008001397	562948.1	7396999.1	0.115	-0.15	09062010	102110	40269
201008001514	559026.8	7398984.3	0.065	-0.17	09062010	104616	40269
201008001504	555972.5	7399006.4	-0.066	-0.15	09062010	105314	40269
201008001488	552022.8	7398974.5	0.023	-0.15	09062010	110252	40269
201008001471	547984.3	7398995.7	0.115	-0.32	09062010	111158	40269
201008001460	545003.9	7399001.8	0.120	-0.57	09062010	111848	40269
201008001440	543992.5	7404052.9	0.022	-0.13	09062010	113002	40269
201008001439	544010.2	7407991.4	0.022	0.05	09062010	113256	40269
201008001547	543988.2	7415979.6	-0.047	0.13	09062010	122348	40269
201008001439	544016.5	7407993.1	0.011	-0.09	09062010	122848	40269
201008001539	546961.3	7399999.2	0.019	-0.43	09062010	124208	40269
201008001531	555016.8	7399982.7	0.115	-0.11	09062010	125944	40269
201008001523	563014.9	7399986.7	-0.006	0.11	09062010	131912	40269
201008001382	588003.2	7396010.7	-0.089	-0.25	09062010	141852	40269
201008001371	595916.3	7392982.5	0.061	-0.30	09062010	143842	40269
201008001361	604970.3	7391922.2	0.043	-0.06	09062010	150150	40269
201008001617	601019.3	7393000.4	-0.075	-0.09	09062010	153510	40269
201008001607	592990.2	7394989.4	0.016	0.36	09062010	155620	40269
201008001597	587974.0	7399956.0	-0.058	-0.05	09062010	161328	40269
201008001590	582013.3	7401011.3	0.013	0.18	09062010	163428	40269
201008001579	571000.2	7400997.3	-0.016	-0.05	09062010	165442	40269
201008001568	560052.4	7400983.8	0.027	0.25	09062010	171706	40269
201008001559	551034.6	7400950.9	0.041	0.05	09062010	173738	40269
201008001546	544032.2	7411948.7	0.033	0.24	09062010	175726	40269
201008001548	544022.0	7419970.8	0.043	0.15	09062010	180144	40269
201008001548	544021.1	7419969.6	-0.022	-0.24	10062010	071208	40269
201008001547	543987.7	7415979.2	0.032	-0.18	10062010	071538	40269
201008001546	544032.5	7411948.9	-0.065	-1.10	10062010	071910	40269
201008001439	544010.3	7407991.6	0.033	-0.02	10062010	072302	40269
201008001698	546968.4	7405988.0	-0.039	-0.29	10062010	072620	40269
201008001687	553953.7	7401965.1	-0.059	0.18	10062010	074808	40269
201008001676	564963.5	7401973.4	0.005	0.16	10062010	081314	40269
201008001665	575977.9	7401981.8	-0.053	-0.04	10062010	083726	40269
201008001654	587026.0	7402007.0	-0.028	0.27	10062010	090118	40269
201008001647	589985.2	7397965.7	0.044	0.34	10062010	092125	40269
201008001637	596996.8	7394985.6	-0.117	0.11	10062010	093908	40269
201008001627	606003.5	7394024.4	0.018	0.18	10062010	100048	40269
201008001034	608011.8	7384137.5	-0.026	0.35	10062010	102106	40269
201008001797	637913.8	7423923.8	0.030	-0.06	10062010	132844	40269
201008001034	608011.1	7384137.9	0.017	0.07	10062010	152620	40269
201008001772	611878.0	7395993.5	-0.012	0.11	10062010	153910	40269
201008001025	607917.4	7439739.7	-0.010	0.54	10062010	161156	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008001741	585981.1	7403008.2	0.050	-0.19	10062010	171710	40269
201008001733	577985.8	7402997.6	0.104	0.11	10062010	173328	40269
201008001725	570045.8	7402981.4	0.114	-0.02	10062010	175212	40269
201008001439	544016.8	7407990.6	-0.077	-0.18	10062010	182906	40269
201008001547	543986.7	7415979.2	0.039	-0.02	10062010	183334	40269
201008001548	544021.0	7419969.8	0.016	0.02	11062010	071030	40269
201008001547	543987.2	7415979.0	-0.045	-0.46	11062010	071348	40269
201008001546	544032.2	7411948.8	0.009	-0.06	11062010	071702	40269
201008001439	544010.1	7407991.6	0.043	0.16	11062010	072016	40269
201008001698	546968.7	7405987.7	-0.010	-0.02	11062010	072320	40269
201008001705	549975.3	7402994.4	0.058	-0.50	11062010	073310	40269
201008001714	558991.4	7402999.9	0.028	-0.21	11062010	080048	40269
201008001898	563916.0	7403967.6	-0.009	-0.38	11062010	081956	40269
201008001880	581918.9	7404055.6	0.052	-0.30	11062010	085818	40269
201008001870	591955.9	7403997.5	-0.017	-0.25	11062010	091810	40269
201008001749	590973.7	7399991.3	0.002	-0.79	11062010	092538	40269
201008001758	596994.7	7396989.5	0.010	-0.29	11062010	094228	40269
201008001766	603005.9	7394952.6	0.000	0.02	11062010	095902	40269
201008001627	606003.2	7394023.4	0.000	-0.18	11062010	101104	40269
201008001361	604970.8	7391921.9	-0.043	-0.20	11062010	101330	40269
201008001034	608011.6	7384137.4	0.023	-0.05	11062010	102638	40269
201008001836	639990.0	7393975.2	-0.122	0.23	11062010	111054	40269
201008001828	641946.7	7400015.3	0.152	0.27	11062010	113116	40269
201008001993	638015.4	7393000.4	0.000	-0.93	11062010	115250	40269
201008002008	639008.3	7400990.0	0.045	0.32	11062010	121838	40269
201008002026	636985.0	7402045.7	-0.024	0.10	11062010	132710	40269
201008001954	583964.2	7405005.8	0.089	-0.37	11062010	142740	40269
201008001945	575040.8	7405072.1	0.073	-0.36	11062010	144432	40269
201008001870	591956.2	7403996.4	0.014	0.01	11062010	154816	40269
201008001969	593972.2	7397991.1	0.016	0.40	11062010	165310	40269
201008001976	601023.8	7397019.8	0.033	-0.86	11062010	172028	40269
201008001361	604969.2	7391922.2	0.019	0.19	11062010	173402	40269
201008001034	608012.8	7384139.4	-0.018	0.04	11062010	173900	40269
201008001579	571000.6	7400997.1	-0.036	0.07	11062010	180200	40269
201008001676	564962.5	7401971.4	0.008	-0.05	11062010	180540	40269
201008001714	558992.5	7402999.4	0.000	-0.24	11062010	180934	40269
201008001917	552969.2	7405001.3	-0.004	-0.01	11062010	181320	40269
201008001546	544031.7	7411949.2	0.020	0.33	11062010	181902	40269
201008001025	607917.1	7439740.3	0.025	-0.90	12062010	080438	40269
201008001985	616004.1	7387940.1	-0.005	0.00	12062010	084758	40269
201008001034	608012.3	7384136.9	-0.009	-0.37	12062010	085516	40269
201008001361	604970.8	7391922.8	-0.021	-0.26	12062010	085956	40269
201008001766	603005.2	7394952.2	0.006	-0.29	12062010	090258	40269
201008002173	604965.3	7397991.5	0.029	0.50	12062010	093634	40269
201008002170	608013.5	7398041.6	0.104	0.07	12062010	095402	40269
201008001772	611877.1	7395986.9	0.030	-0.28	12062010	095738	40269
201008002162	616003.9	7396008.3	0.111	0.01	12062010	100114	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008002020	636010.9	7395976.1	0.076	-0.59	12062010	102030	40269
201008002026	636984.5	7402045.6	0.005	-0.43	12062010	102602	40269
201008002194	636994.6	7405020.7	-0.051	0.01	12062010	105200	40269
201008002026	636983.5	7402044.1	0.003	-0.08	12062010	105510	40269
201008002189	620020.3	7396002.6	0.073	-0.37	12062010	111042	40269
201008002163	616022.4	7392031.1	0.043	0.35	12062010	111652	40269
201008001985	616003.7	7387940.6	0.005	-0.28	12062010	112016	40269
201008001034	608013.2	7384137.3	0.004	0.06	12062010	112444	40269
201008001812	642123.0	7418130.2	0.008	-0.56	12062010	133524	40269
201008001819	641979.4	7409002.4	-0.120	-0.44	12062010	142056	40269
201008002209	619952.1	7408003.8	-0.006	-0.04	12062010	145810	40269
201008001937	566970.8	7405014.4	-0.020	0.05	12062010	161242	40269
201008001929	559009.7	7405024.2	-0.066	0.45	12062010	162900	40269
201008001917	552968.3	7405001.4	-0.018	-0.29	12062010	164114	40269
201008001549	543964.6	7423975.5	0.045	0.23	12062010	170650	40269
201008002331	548015.2	7420001.2	0.027	0.03	13062010	070934	40269
201008002329	547975.8	7411974.8	-0.041	-0.02	13062010	071454	40269
201008002321	552965.6	7405972.0	0.079	-0.01	13062010	072830	40269
201008002313	560981.7	7406037.4	-0.026	-0.37	13062010	074722	40269
201008002305	569002.3	7406000.3	0.054	0.11	13062010	080631	40269
201008002297	576004.0	7407008.6	-0.013	-0.16	13062010	082400	40269
201008002289	583993.6	7406988.5	-0.053	-0.51	13062010	084222	40269
201008002281	591995.4	7406955.1	-0.011	-0.08	13062010	085930	40269
201008002273	600005.9	7406991.3	-0.072	-0.72	13062010	091734	40269
201008002213	620069.6	7415981.0	0.017	0.13	13062010	094448	40269
201008002214	620035.1	7419985.3	0.104	-0.31	13062010	094922	40269
201008002218	624014.0	7420076.2	0.102	0.03	13062010	095246	40269
201008002402	637898.5	7411985.2	-0.042	0.56	13062010	102906	40269
201008002209	619952.3	7408000.0	0.036	0.09	13062010	104804	40269
201008002394	604065.0	7411998.1	-0.019	0.23	13062010	105454	40269
201008002385	597076.8	7407977.7	0.026	0.27	13062010	111748	40269
201008002378	590024.9	7408025.6	0.029	0.39	13062010	113406	40269
201008002368	579986.2	7408002.7	-0.029	0.90	13062010	115418	40269
201008002359	570965.1	7408102.1	0.003	0.52	13062010	121440	40269
201008002354	567038.0	7407025.3	-0.036	0.61	13062010	122204	40269
201008002344	556988.1	7406992.6	-0.027	0.51	13062010	124206	40269
201008002330	547960.1	7415941.8	-0.066	0.10	13062010	130220	40269
201008001549	543965.1	7423974.8	-0.004	-0.03	13062010	130722	40269
201008001548	544021.9	7419970.4	0.003	-0.36	13062010	150354	40269
201008002329	547968.4	7411971.2	0.013	-0.39	13062010	150858	40269
201008002464	553957.4	7407977.7	0.105	-0.57	13062010	151746	40269
201008002454	563965.3	7407976.6	-0.014	-0.38	13062010	153952	40269
201008002433	584965.8	7408987.4	0.050	-0.32	13062010	162350	40269
201008002425	592986.2	7408984.9	-0.011	-0.31	13062010	164122	40269
201008002516	598015.6	7410010.3	-0.049	-0.19	13062010	170206	40269
201008002499	581081.1	7409992.5	-0.052	0.22	13062010	173534	40269
201008002490	572019.7	7409992.6	-0.016	-0.03	13062010	175514	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008001548	544021.1	7419969.0	0.107	-0.35	14062010	070748	40269
201008001547	543985.9	7415976.9	0.011	-0.19	14062010	071116	40269
201008002330	547957.1	7415941.4	-0.002	-0.19	14062010	071452	40269
201008002329	547964.6	7411969.2	0.032	0.15	14062010	071832	40269
201008002479	561999.1	7409017.9	0.008	0.09	14062010	074652	40269
201008002554	564957.2	7409948.6	0.043	0.02	14062010	075644	40269
201008002543	575948.8	7411018.3	-0.010	-0.44	14062010	082426	40269
201008002528	590927.7	7410957.8	0.027	-0.32	14062010	085646	40269
201008002395	604066.1	7415983.1	-0.086	0.53	14062010	092428	40269
201008001025	607916.9	7439740.3	0.052	-0.02	14062010	100322	40269
201008002619	604067.6	7436017.9	-0.033	-0.06	14062010	102734	40269
201008002602	597001.3	7412040.2	0.021	0.08	14062010	110532	40269
201008002594	588992.1	7412008.5	-0.047	0.26	14062010	112300	40269
201008002586	580994.6	7411995.1	-0.199	-0.22	14062010	114030	40269
201008002579	572979.0	7411999.7	-0.007	-0.83	14062010	115750	40269
201008002571	566000.1	7410974.2	-0.025	-0.40	14062010	121616	40269
201008002563	559014.7	7410009.7	0.081	-0.06	14062010	123314	40269
201008002331	548014.9	7420001.5	0.013	0.32	14062010	124830	40269
201008001548	544021.0	7419969.1	0.042	-0.06	14062010	125134	40269
201008001549	543964.5	7423974.9	-0.045	-0.04	14062010	132208	40269
201008002330	547959.7	7415940.7	-0.020	0.06	14062010	132656	40269
201008002675	562024.6	7412027.3	0.030	-0.17	14062010	135104	40269
201008002667	569017.9	7412985.7	-0.020	-0.65	14062010	140646	40269
201008002659	576994.0	7412977.0	-0.052	-0.22	14062010	142256	40269
201008002651	584981.9	7412980.3	-0.009	0.08	14062010	143920	40269
201008002643	593010.1	7412977.3	-0.048	-0.08	14062010	145838	40269
201008002635	598017.1	7415968.3	-0.012	0.17	14062010	151352	40269
201008002730	596048.8	7414003.6	-0.128	0.37	14062010	152418	40269
201008002722	588000.4	7414001.7	-0.053	0.28	14062010	160942	40269
201008002716	582024.6	7414015.2	0.141	-0.07	14062010	163602	40269
201008002706	572071.1	7414030.2	-0.023	-0.19	14062010	165606	40269
201008002693	560014.0	7412013.2	-0.017	-0.08	14062010	172932	40269
201008002330	547960.1	7415937.0	0.050	-0.06	14062010	175706	40269
201008001547	543987.1	7415978.6	0.027	0.03	14062010	180016	40269
201008001548	544022.9	7419969.6	-0.053	0.05	14062010	180342	40269
201008001549	543965.0	7423973.0	-0.040	0.12	14062010	180652	40269
201008001548	544022.0	7419971.7	-0.041	0.07	15062010	070816	40269
201008002330	547957.6	7415939.9	0.137	0.65	15062010	071220	40269
201008002807	555933.7	7414963.3	-0.029	-0.13	15062010	072638	40269
201008002788	565937.6	7414986.5	-0.051	0.91	15062010	074914	40269
201008002778	575937.9	7414990.4	-0.093	-0.45	15062010	081050	40269
201008002760	587858.6	7416969.3	0.009	-0.31	15062010	083848	40269
201008002742	593937.7	7416996.4	-0.098	-0.53	15062010	084756	40269
201008002858	598015.2	7419976.3	0.022	-0.03	15062010	092032	40269
201008002864	596040.4	7429978.5	-0.034	-0.08	15062010	093546	40269
201008002876	591968.8	7429976.3	0.021	0.06	15062010	100504	40269
201008002888	587949.0	7429996.1	0.060	-0.02	15062010	104422	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008002848	583976.3	7415983.7	0.158	0.02	15062010	110614	40269
201008002840	575955.5	7416004.9	-0.016	-0.39	15062010	112254	40269
201008002831	566997.6	7416003.4	-0.079	-1.14	15062010	114126	40269
201008002824	560018.2	7415981.9	-0.019	-0.12	15062010	115658	40269
201008002331	548015.0	7420001.6	-0.010	-0.11	15062010	121608	40269
201008001548	544021.0	7419969.3	0.002	-0.10	15062010	121908	40269
201008001549	543964.9	7423975.1	-0.004	0.12	15062010	122210	40269
201008001549	543964.1	7423974.0	-0.016	-0.11	15062010	125526	40269
201008002331	548014.0	7420001.3	-0.006	-0.23	15062010	125914	40269
201008002934	557013.6	7416999.2	0.135	-0.02	15062010	130924	40269
201008002926	565021.1	7416984.9	-0.036	-0.43	15062010	132038	40269
201008002918	572981.5	7416998.4	0.004	-0.06	15062010	133314	40269
201008002910	580964.3	7417024.8	0.044	-0.06	15062010	134406	40269
201008002900	584056.1	7430026.5	0.053	-0.24	15062010	140456	40269
201008002986	562001.0	7433023.9	0.117	0.02	15062010	151816	40269
201008002974	575957.4	7432991.3	-0.048	-0.13	15062010	160746	40269
201008003013	572011.3	7431981.4	0.028	0.16	15062010	162930	40269
201008003026	580015.1	7429966.8	-0.034	0.05	15062010	164334	40269
201008002957	581998.3	7422035.1	-0.039	0.10	15062010	165936	40269
201008002331	548014.9	7420001.7	0.010	-0.32	15062010	175116	40269
201008002330	547961.2	7415938.0	-0.078	-0.73	15062010	175428	40269
201008001547	543988.0	7415978.2	-0.010	0.20	15062010	175742	40269
201008001548	544022.8	7419969.2	-0.071	-0.21	15062010	180128	40269
201008001549	543965.5	7423974.2	0.059	-0.30	15062010	180440	40269
201008001548	544020.9	7419969.4	0.010	0.79	16062010	070838	40269
201008002331	548015.1	7420001.6	-0.035	0.00	16062010	071202	40269
201008003057	551940.5	7419967.9	0.092	0.29	16062010	071534	40269
201008003048	570011.7	7419966.0	0.042	0.12	16062010	074310	40269
201008003061	557942.3	7421996.9	-0.041	-0.54	16062010	082220	40269
201008003081	560011.6	7424040.4	-0.078	-0.44	16062010	085150	40269
201008003074	572012.2	7425984.3	-0.022	-0.35	16062010	090622	40269
201008003004	566067.0	7431944.3	-0.038	0.02	16062010	092336	40269
201008003112	558006.6	7436022.6	0.024	-0.05	16062010	100948	40269
201008003119	557048.6	7441979.4	-0.009	-0.28	16062010	102420	40269
201008003126	556006.2	7436981.4	0.056	0.07	16062010	105008	40269
201008003132	555031.2	7442010.6	-0.044	-0.46	16062010	110506	40269
201008003138	553981.7	7436951.4	0.178	-0.04	16062010	112050	40269
201008003144	552998.8	7441961.6	0.011	-0.35	16062010	113638	40269
201008003152	551999.0	7437985.1	0.000	-0.28	16062010	114834	40269
201008003157	551056.7	7441969.7	0.038	-0.12	16062010	120004	40269
201008003087	548019.2	7427942.8	0.015	-0.36	16062010	122620	40269
201008003167	548988.9	7442004.1	0.015	0.08	16062010	144836	40269
201008003230	508914.0	7442000.6	0.001	0.38	16062010	162246	40269
201008003224	514947.9	7441969.4	-0.013	-0.19	16062010	164808	40269
201008003219	519966.0	7441979.9	0.133	0.07	16062010	171206	40269
201008003214	524955.2	7442003.8	-0.047	-0.35	16062010	172938	40269
201008003209	529950.5	7441985.0	0.001	0.90	16062010	174216	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008003204	535116.6	7441963.4	-0.087	0.39	16062010	175326	40269
201008003194	544981.5	7442059.7	-0.008	0.20	16062010	181408	40269
201008003180	543998.5	7436121.8	-0.023	-0.15	16062010	182336	40269
201008003179	543989.3	7432004.8	-0.041	0.20	16062010	182652	40269
201008003180	543999.3	7436120.8	0.053	-0.16	17062010	070924	40269
201008003284	540037.1	7440962.2	-0.031	0.35	17062010	072622	40269
201008003272	528005.1	7440998.0	-0.016	0.24	17062010	075150	40269
201008003251	516058.1	7439984.2	0.044	0.23	17062010	082028	40269
201008003323	516018.0	7439026.7	-0.061	-0.06	17062010	085454	40269
201008003314	524971.1	7439007.5	-0.037	0.47	17062010	091442	40269
201008003306	533015.7	7439983.2	-0.009	0.80	17062010	093558	40269
201008003298	540988.0	7440077.8	-0.021	1.10	17062010	095416	40269
201008003364	539956.0	7438994.6	0.037	0.14	17062010	100710	40269
201008003356	531997.5	7438998.9	-0.006	-1.09	17062010	103632	40269
201008003348	524029.2	7437964.8	0.013	-0.52	17062010	105712	40269
201008003340	514007.5	7437970.9	0.073	-0.59	17062010	111814	40269
201008003333	507005.1	7437976.2	0.021	-0.36	17062010	113514	40269
201008003178	540002.0	7431955.8	0.007	0.02	17062010	125742	40269
201008003373	538018.3	7437968.4	0.029	-0.47	17062010	130336	40269
201008003415	518986.4	7428003.7	-0.112	-0.36	17062010	135504	40269
201008003402	510969.8	7437002.1	-0.008	-0.26	17062010	142920	40269
201008003394	518985.9	7437036.3	-0.069	-0.86	17062010	145918	40269
201008003476	515034.4	7435099.4	-0.007	0.00	17062010	153400	40269
201008003459	518064.6	7430999.2	-0.025	0.01	17062010	155336	40269
201008003491	521993.1	7435053.6	0.164	-0.37	17062010	160646	40269
201008003444	522925.2	7431038.2	-0.032	-0.14	17062010	163138	40269
201008003434	526070.4	7435998.1	0.024	-0.09	17062010	164610	40269
201008003314	524982.5	7439010.1	0.123	-0.79	17062010	170144	40269
201008003284	540039.0	7440962.8	-0.025	-0.20	17062010	175924	40269
201008003364	539957.2	7438996.2	-0.097	-0.64	17062010	180154	40269
201008003178	540001.0	7431957.3	0.031	-0.32	17062010	180604	40269
201008003176	544011.4	7427955.3	0.000	0.70	18062010	084024	40269
201008002965	589052.6	7431980.6	-0.021	0.03	18062010	094618	40269
201008002626	602002.1	7432037.3	0.024	-0.44	18062010	101046	40269
201008002154	616003.5	7432009.0	0.017	-0.07	18062010	103308	40269
201008003603	629917.2	7435013.9	-0.041	-0.39	18062010	113414	40269
201008003618	634050.4	7435006.6	0.041	0.63	18062010	114706	40269
201008003613	639014.1	7434998.4	-0.012	0.03	18062010	115818	40269
201008002217	624050.8	7423970.9	0.104	-0.53	18062010	131054	40269
201008002215	620027.3	7423955.9	0.040	-0.49	18062010	131438	40269
201008002216	620012.7	7427997.1	0.028	-0.45	18062010	131820	40269
201008003635	640989.4	7433997.9	0.018	-0.14	18062010	135200	40269
201008001025	607917.0	7439740.4	-0.026	0.53	18062010	143544	40269
201008002620	604027.5	7439934.7	-0.005	0.05	18062010	171100	40269
201008002619	604067.6	7436018.1	0.002	-0.29	18062010	171436	40269
201008001025	607916.1	7439741.0	-0.035	0.03	18062010	171817	40269
201008003013	572011.2	7431983.9	0.046	0.35	18062010	173843	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008003004	566067.9	7431945.0	-0.034	0.19	18062010	174519	40269
201008003112	558007.3	7436022.7	-0.020	0.02	18062010	180229	40269
201008003087	548019.2	7427943.5	0.075	0.18	18062010	180924	40269
201008003176	544011.0	7427956.0	0.001	0.07	18062010	181244	40269
201008001549	543965.4	7423974.6	0.011	-0.17	18062010	181700	40269
201008003697	559963.2	7437961.8	0.086	0.28	19062010	073559	40269
201008003695	564002.4	7437987.1	0.018	0.45	19062010	073926	40269
201008003558	567974.9	7435981.5	0.031	0.19	19062010	074308	40269
201008003571	584995.5	7433030.5	0.058	0.42	19062010	081402	40269
201008003578	591974.6	7432009.4	0.036	0.42	19062010	082825	40269
201008002620	604026.6	7439936.4	0.019	-0.10	19062010	085909	40269
201008001025	607916.4	7439740.1	-0.016	-0.40	19062010	090230	40269
201008003772	640012.7	7507957.9	0.013	-0.35	19062010	115005	40269
201008003762	640030.8	7467978.3	0.079	-0.46	19062010	122410	40269
201008003754	627969.2	7447991.6	0.032	-0.54	19062010	124312	40269
201008003805	631974.4	7451946.5	0.029	0.12	19062010	132546	40269
201008003793	635995.6	7496019.6	0.021	0.02	19062010	140051	40269
201008003782	635988.4	7543996.5	0.000	-0.01	19062010	144157	40269
201008003823	632005.3	7524012.9	-0.012	0.35	19062010	155242	40269
201008003810	631989.0	7471944.4	0.080	0.19	19062010	163626	40269
201008003750	612028.2	7447968.8	0.036	0.18	19062010	170809	40269
201008003663	608050.1	7452131.0	0.030	0.07	19062010	171417	40269
201008003749	600018.0	7437960.7	-0.003	0.04	19062010	173457	40269
201008003747	600047.0	7433981.8	-0.054	0.32	19062010	173809	40269
201008003738	593003.2	7432985.2	0.014	-0.01	19062010	174721	40269
201008003729	581982.1	7435973.2	-0.013	-0.17	19062010	180405	40269
201008002974	575958.5	7432994.7	-0.015	0.15	19062010	180854	40269
201008003013	572011.8	7431981.6	-0.056	0.45	19062010	181206	40269
201008003004	566067.5	7431944.4	0.036	-0.08	19062010	181600	40269
201008002986	562002.7	7433024.0	-0.087	-0.13	19062010	181901	40269
201008003087	548023.1	7427936.5	-0.079	0.09	19062010	182535	40269
201008003013	572013.1	7431981.7	-0.002	-1.14	20062010	072136	40269
201008003729	581985.1	7435972.7	0.004	0.04	20062010	072819	40269
201008003868	591992.1	7436054.9	0.017	0.33	20062010	074339	40269
201008003749	600019.0	7437961.0	-0.024	-0.86	20062010	075936	40269
201008003860	601987.4	7444042.7	-0.055	0.67	20062010	082229	40269
201008003850	628012.0	7459983.5	-0.117	0.09	20062010	084448	40269
201008003839	627991.8	7504066.4	0.007	0.58	20062010	092328	40269
201008003935	640012.3	7595937.8	-0.097	-0.41	20062010	114608	40269
201008003902	624008.8	7479978.0	-0.066	-0.20	20062010	133309	40269
201008003752	619938.7	7448005.4	0.027	-0.11	20062010	140242	40269
201008002154	616004.1	7432012.4	-0.056	0.14	20062010	144742	40269
201008003750	612027.7	7447969.1	-0.013	0.11	20062010	145509	40269
201008003680	608025.7	7495924.1	0.058	0.30	20062010	153730	40269
201008003682	607998.8	7488037.8	-0.009	-0.09	20062010	154531	40269
201008003668	607988.6	7472072.7	-0.067	-0.03	20062010	160347	40269
201008003666	608039.7	7464124.8	0.010	0.17	20062010	161435	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008003663	608048.3	7452131.1	0.028	0.19	20062010	162739	40269
201008003889	596019.9	7440025.8	-0.031	-0.21	20062010	164442	40269
201008003729	581983.6	7435972.9	0.019	-0.23	20062010	165356	40269
201008003558	567975.4	7435981.5	-0.023	0.03	20062010	170017	40269
201008003112	558007.2	7436023.3	-0.005	-0.09	20062010	170508	40269
201008003087	548019.1	7427940.8	-0.022	0.11	20062010	171111	40269
201008003696	562016.8	7437960.8	-0.017	-0.41	21062010	075325	40269
201008003694	565992.8	7438116.6	-0.027	-0.41	21062010	075703	40269
201008003889	596020.4	7440025.2	0.038	0.12	21062010	082951	40269
201008002620	604027.2	7439932.1	-0.041	-0.11	21062010	083458	40269
201008002154	616002.8	7432010.9	-0.004	0.13	21062010	084810	40269
201008003750	612027.7	7447969.1	-0.046	0.04	21062010	092034	40269
201008003666	608040.1	7464124.5	-0.034	-0.22	21062010	092809	40269
201008003668	607986.6	7472072.3	0.028	-0.06	21062010	093253	40269
201008003829	607984.2	7580023.1	0.000	0.29	21062010	131715	40269
201008004044	615987.7	7539967.1	0.019	-0.33	21062010	134629	40269
201008004043	616013.0	7536008.2	-0.005	0.38	21062010	135416	40269
201008004042	616023.7	7531988.4	0.011	0.42	21062010	140231	40269
201008003670	607992.3	7512056.3	0.041	0.13	21062010	142811	40269
201008003672	608020.0	7503981.1	-0.006	0.01	21062010	143855	40269
201008004034	604027.9	7496032.2	0.044	0.16	21062010	150127	40269
201008003663	608048.8	7452131.2	-0.012	-0.50	21062010	154616	40269
201008002154	616002.5	7432008.5	0.050	0.08	21062010	155637	40269
201008004020	573963.7	7439995.4	0.006	0.72	21062010	165659	40269
201008003829	607985.3	7580014.2	-0.026	-0.05	24062010	114525	40269
201008004050	612040.7	7571991.4	0.100	0.02	24062010	121016	40269
201008004049	616035.8	7564010.0	0.063	0.09	24062010	122050	40269
201008004222	619948.1	7608024.9	-0.099	0.00	24062010	142324	40269
201008004232	628056.9	7600002.1	-0.003	0.07	24062010	145153	40269
201008004241	624135.7	7592004.0	-0.027	0.47	24062010	152904	40269
201008004253	632025.8	7576051.2	-0.074	0.00	24062010	161532	40269
201008004153	576080.1	7555998.8	-0.134	-0.03	25062010	080838	40269
201008004190	604164.0	7611922.6	-0.008	0.43	25062010	091551	40269
201008004322	630934.4	7558063.1	0.090	0.11	25062010	125445	40269
201008004048	620017.4	7555980.6	0.067	1.00	25062010	131013	40269
201008004049	616026.4	7564011.9	-0.052	0.01	25062010	131809	40269
201008004270	578022.6	7547996.0	-0.004	0.08	25062010	160633	40269
201008004476	634040.1	7536910.7	0.014	-0.14	26062010	110319	40269
201008004467	630100.8	7535963.3	-0.079	0.23	26062010	112617	40269
201008004459	626058.6	7533965.8	-0.045	0.09	26062010	115809	40269
201008004496	626190.8	7539009.9	-0.006	-0.35	26062010	121902	40269
201008004518	622094.1	7538937.0	-0.099	-0.45	26062010	132254	40269
201008004450	622107.5	7529957.8	0.134	-0.22	26062010	134509	40269
201008004524	621129.7	7535963.7	0.068	-0.34	26062010	135854	40269
201008004534	621083.3	7534025.7	-0.014	0.29	26062010	143106	40269
201008004544	618069.3	7536941.8	-0.086	-0.19	26062010	144833	40269
201008004442	614030.1	7530956.4	0.162	0.01	26062010	164817	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008004434	609009.2	7533929.6	-0.098	-0.16	26062010	170634	40269
201008004425	602103.6	7531957.6	0.008	-0.54	26062010	172935	40269
201008004136	574001.9	7442020.1	0.046	-0.31	27062010	073337	40269
201008004119	600016.8	7480021.6	-0.012	0.08	27062010	084355	40269
201008004115	599989.7	7495967.6	-0.014	-0.12	27062010	090036	40269
201008003670	607989.7	7512054.6	0.053	-0.71	27062010	093903	40269
201008004382	604020.1	7556003.4	0.010	-0.50	27062010	115729	40269
201008004315	603919.1	7560024.1	-0.069	-0.95	27062010	120048	40269
201008004199	608016.3	7576098.9	0.123	-0.80	27062010	121621	40269
201008003829	607984.5	7580024.3	0.060	-0.45	27062010	122125	40269
201008004097	612012.5	7528019.3	-0.015	-0.82	27062010	131107	40269
201008004661	603994.8	7511994.1	-0.054	-0.19	27062010	131853	40269
201008004115	599990.3	7495967.5	0.013	-0.61	27062010	132725	40269
201008004119	600016.8	7480021.9	0.059	-0.43	27062010	133451	40269
201008004667	607990.9	7536013.1	-0.183	0.04	27062010	152614	40269
201008004737	613049.4	7541974.1	0.050	-0.63	27062010	160837	40269
201008004746	612019.4	7541890.6	-0.047	0.38	27062010	163251	40269
201008004755	611052.8	7539932.5	-0.072	-0.74	27062010	165728	40269
201008004728	610045.6	7535954.1	-0.069	0.63	27062010	170550	40269
201008003670	607985.3	7512056.4	0.065	0.49	27062010	172452	40269
201008004639	592053.8	7444027.2	0.023	-0.22	28062010	074644	40269
201008004658	600064.6	7500024.3	0.010	-0.34	28062010	084753	40269
201008003670	607990.6	7512054.6	0.038	-0.16	28062010	090248	40269
201008004669	607991.5	7544009.2	0.052	-0.49	28062010	100846	40269
201008004765	610071.9	7542909.3	0.050	-0.90	28062010	101243	40269
201008004668	608005.0	7539963.5	-0.060	-0.54	28062010	110413	40269
201008004718	602048.2	7534957.4	0.010	0.14	28062010	115551	40269
201008004812	595991.7	7531926.3	-0.119	0.10	28062010	120127	40269
201008004895	584023.5	7484011.2	0.061	-0.43	28062010	135811	40269
201008004891	583976.2	7500043.0	0.015	0.61	28062010	141628	40269
201008004802	588007.6	7499988.7	-0.079	-0.05	28062010	142031	40269
201008004803	591949.8	7500010.9	0.031	0.15	28062010	142741	40269
201008004804	595992.6	7500023.4	0.045	-0.28	28062010	143728	40269
201008004941	616014.8	7500992.0	-0.037	0.11	28062010	160110	40269
201008004945	615062.3	7503982.8	-0.128	0.82	28062010	161852	40269
201008004926	599033.7	7500992.1	-0.115	0.08	28062010	165223	40269
201008003696	562016.1	7437961.8	0.049	0.33	29062010	071734	40269
201008003670	607993.8	7512029.1	-0.047	-0.08	02072010	095731	40269
201008005073	612035.0	7499874.9	-0.056	0.29	02072010	105138	40269
201008004805	603978.5	7499987.0	0.020	0.72	02072010	112715	40269
201008004658	600062.4	7500024.5	0.014	0.33	02072010	113542	40269
201008005096	606023.0	7498022.2	0.022	-0.17	02072010	114958	40269
201008004804	595993.3	7500030.0	-0.101	0.62	02072010	122419	40269
201008005117	599070.5	7498065.1	0.114	0.00	02072010	123756	40269
201008004803	591948.1	7500009.1	-0.020	0.35	02072010	134243	40269
201008005132	594011.7	7497980.0	0.059	-0.20	02072010	150135	40269
201008004803	591943.8	7500004.2	-0.043	0.31	02072010	150622	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008005135	593113.2	7501989.7	0.052	-0.42	02072010	150900	40269
201008004806	604009.7	7503948.2	0.131	0.76	02072010	154732	40269
201008004659	599978.7	7503970.9	-0.066	0.29	02072010	155411	40269
201008005164	593069.6	7502997.9	-0.091	-0.19	02072010	161658	40269
201008005149	596038.2	7506987.6	0.083	-0.16	02072010	165817	40269
201008003670	607988.4	7512053.9	-0.117	0.02	02072010	173134	40269
201008001025	607915.4	7439741.1	0.011	-0.05	02072010	180306	40269
201008004995	576000.3	7447994.8	0.061	0.43	03072010	074210	40269
201008004993	576015.5	7452052.4	0.028	0.05	03072010	074628	40269
201008004783	587967.7	7445947.3	-0.106	-0.47	03072010	080356	40269
201008004993	575996.1	7452051.2	-0.008	0.27	03072010	082904	40269
201008004993	576006.7	7452054.3	-0.012	0.20	03072010	083340	40269
201008005236	577989.6	7452976.8	-0.010	0.67	03072010	103344	40269
201008005248	585989.2	7452983.3	-0.014	-0.13	03072010	110258	40269
201008005278	589065.8	7452007.6	0.004	-0.16	03072010	111304	40269
201008005265	602021.1	7451966.4	-0.002	0.06	03072010	113706	40269
201008001025	607914.7	7439740.8	-0.016	0.33	03072010	114549	40269
201008005342	536046.9	7592005.9	-0.062	0.02	04072010	110103	40269
201008005339	536061.6	7580067.3	-0.020	-0.13	04072010	112111	40269
201008005334	540008.8	7528084.1	-0.002	0.09	04072010	121340	40269
201008005330	540069.3	7512033.8	0.045	0.27	04072010	123103	40269
201008003428	536059.9	7436052.2	-0.037	0.09	04072010	134019	40269
201008003538	503967.9	7447917.5	-0.046	0.05	04072010	141811	40269
201008005400	504028.2	7479957.4	-0.134	-0.19	04072010	151800	40269
201008003539	507853.6	7448027.1	0.190	-1.02	04072010	154525	40269
201008003462	512060.3	7431995.7	-0.027	0.60	04072010	155340	40269
201008003424	527977.4	7427982.5	-0.086	-0.12	04072010	160102	40269
201008005382	540008.1	7487961.5	-0.088	-0.32	07072010	082403	40269
201008005330	540068.3	7512033.3	-0.002	-0.27	07072010	084534	40269
201008005372	535981.5	7523987.9	-0.012	-0.63	07072010	090351	40269
201008005361	536017.9	7568058.3	0.020	-0.68	07072010	094816	40269
201008005339	536061.9	7580067.7	0.013	0.09	07072010	100400	40269
201008005352	531993.0	7603934.0	0.158	0.33	07072010	103534	40269
201008005442	532069.9	7532109.3	-0.013	0.03	07072010	122755	40269
201008005392	535994.5	7447997.2	-0.040	-0.04	07072010	133059	40269
201008003430	531842.5	7431985.9	0.155	0.04	07072010	141805	40269
201008003544	527840.4	7448037.9	-0.109	0.59	07072010	142606	40269
201008005493	531980.7	7499982.2	0.092	0.10	07072010	151201	40269
201008005485	527907.0	7531979.4	-0.094	0.78	07072010	154146	40269
201008005509	528011.1	7491899.5	-0.005	0.69	07072010	170947	40269
201008003543	523972.5	7447971.4	-0.006	0.18	07072010	175052	40269
201008003431	531975.7	7435983.4	0.073	-0.03	07072010	175911	40269
201008003431	531974.0	7435984.4	-0.011	0.11	08072010	072151	40269
201008003540	512017.2	7447978.6	-0.017	-0.10	08072010	073501	40269
201008005406	507958.4	7500081.6	-0.002	-0.04	08072010	082256	40269
201008005591	503960.2	7571913.3	0.185	-0.03	08072010	111013	40269
201008005578	503984.4	7519982.0	-0.036	-0.63	08072010	121030	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008005566	511968.5	7475936.3	0.014	-0.02	08072010	124012	40269
201008003542	519974.8	7447985.3	0.178	-0.71	08072010	125242	40269
201008003431	531973.7	7435984.2	0.025	-0.40	08072010	130101	40269
201008003167	548987.3	7442004.9	-0.041	-0.48	08072010	142211	40269
201008003194	544979.9	7442061.2	0.045	-0.72	08072010	143655	40269
201008005738	572039.5	7495983.6	0.046	-0.27	08072010	172902	40269
201008005730	571980.7	7464090.4	0.025	-0.17	08072010	175614	40269
201008005625	508009.2	7532017.8	-0.027	-0.11	09072010	090222	40269
201008005619	507965.1	7555991.2	-0.035	-0.43	09072010	093409	40269
201008005799	512017.5	7567754.2	-0.114	0.41	09072010	104945	40269
201008005526	519989.1	7552052.3	-0.018	-0.70	09072010	111704	40269
201008005790	511951.2	7531929.2	-0.002	0.51	09072010	113715	40269
201008005544	523993.7	7480012.9	0.116	-0.45	09072010	123153	40269
201008005776	516046.6	7475974.2	0.046	0.43	09072010	123856	40269
201008003543	523975.2	7447967.7	-0.028	-0.21	09072010	130459	40269
201008003428	536066.2	7436044.9	-0.050	-0.32	09072010	131300	40269
201008005759	563982.5	7447987.2	0.082	1.08	09072010	135443	40269
201008005862	561982.8	7484014.4	0.047	0.09	09072010	154259	40269
201008005873	552000.8	7483005.9	0.025	-0.16	09072010	162920	40269
201008005900	556003.4	7481996.1	0.002	-0.19	09072010	165803	40269
201008005852	567991.6	7479996.4	0.041	0.33	09072010	172818	40269
201008003180	543999.7	7436120.0	0.005	0.82	09072010	181644	40269
201008005330	540068.1	7512034.0	0.003	0.02	10072010	101226	40269
201008005948	543991.3	7511999.4	-0.008	-0.15	10072010	101635	40269
201008005913	559973.8	7481013.9	-0.012	0.20	10072010	111638	40269
201008005926	563005.1	7478996.2	0.016	0.40	10072010	112258	40269
201008005961	547929.8	7480009.1	0.056	-0.14	10072010	114914	40269
201008005942	543960.9	7463988.7	0.053	0.05	10072010	120222	40269
201008005986	543977.6	7460042.6	-0.026	0.17	10072010	133124	40269
201008005985	543992.2	7468047.1	0.035	-0.21	10072010	133738	40269
201008005984	544030.0	7475991.8	-0.010	-0.84	10072010	134410	40269
201008005960	544025.5	7484025.5	-0.016	-1.00	10072010	134958	40269
201008005959	544006.1	7492031.9	-0.059	-0.24	10072010	135542	40269
201008005958	544025.8	7499995.6	0.052	-0.43	10072010	140056	40269
201008005956	543987.9	7515942.9	0.060	-0.35	10072010	141250	40269
201008006013	572034.1	7554047.7	0.039	-0.75	10072010	152358	40269
201008006017	569991.2	7552058.1	-0.014	-0.07	10072010	160134	40269
201008006029	568031.9	7554019.5	0.163	-0.05	10072010	162005	40269
201008006003	572042.8	7528018.9	0.060	0.09	10072010	170735	40269
201008005749	567997.3	7495963.5	0.089	0.56	10072010	174335	40269
201008005930	559969.1	7463982.8	0.097	-0.11	10072010	180520	40269
201008005987	543998.2	7452031.5	0.075	-0.85	11072010	072916	40269
201008005985	543992.8	7468046.1	0.105	0.05	11072010	073707	40269
201008005959	544006.7	7492037.6	-0.050	-0.41	11072010	074815	40269
201008005956	543984.3	7515956.4	-0.070	0.03	11072010	080103	40269
201008006036	566003.3	7546024.7	-0.006	-0.23	11072010	101920	40269
201008006029	568038.1	7554002.7	-0.042	0.08	11072010	102517	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008006071	572028.8	7579989.1	0.016	0.10	11072010	115614	40269
201008006029	568043.9	7554005.0	-0.100	-0.08	11072010	122230	40269
201008006036	566002.0	7546023.0	0.049	0.36	11072010	122752	40269
201008006047	563944.8	7512049.6	0.104	-0.05	11072010	131254	40269
201008005913	559964.4	7481016.6	0.022	-0.65	11072010	134352	40269
201008005930	559968.2	7463983.5	0.132	-0.08	11072010	135237	40269
201008005956	543983.6	7515957.1	0.030	-0.15	11072010	160551	40269
201008005958	544026.6	7499994.9	0.023	0.16	11072010	163225	40269
201008005959	544005.0	7492037.4	0.018	0.44	11072010	163723	40269
201008005960	544024.8	7484025.9	0.034	0.39	11072010	164206	40269
201008005984	544028.0	7475994.4	0.057	0.08	11072010	164727	40269
201008005985	543994.1	7468047.4	-0.057	0.27	11072010	165210	40269
201008005987	543998.6	7452030.9	0.007	0.59	11072010	165945	40269
201008005961	547930.1	7480009.3	-0.023	-0.01	12072010	080113	40269
201008006123	547972.3	7516045.1	-0.042	-0.11	12072010	082854	40269
201008005956	543983.2	7515957.3	0.041	-0.11	12072010	083244	40269
201008005339	536059.7	7580068.8	0.038	0.22	12072010	100915	40269
201008005455	528024.7	7584066.2	-0.028	-0.40	12072010	101629	40269
201008005471	523997.9	7588010.9	-0.019	-0.52	12072010	102031	40269
201008005604	503995.7	7616007.2	-0.130	0.62	12072010	105851	40269
201008005807	515962.8	7576013.9	0.039	0.55	12072010	124053	40269
201008005956	543983.4	7515957.6	0.056	0.05	12072010	132937	40269
201008006123	547972.9	7516045.4	0.035	-0.11	12072010	134936	40269
201008005986	543983.0	7460056.4	-0.089	-0.10	12072010	155211	40269
201008005985	543992.3	7468047.6	-0.009	0.13	12072010	155753	40269
201008005984	544027.9	7475994.0	0.054	-0.05	12072010	160421	40269
201008005960	544024.3	7484025.6	0.037	0.23	12072010	161115	40269
201008005959	544005.3	7492038.1	0.046	0.13	12072010	161717	40269
201008005958	544025.5	7499994.5	0.051	0.14	12072010	162425	40269
201008005957	543985.7	7508014.3	0.147	-0.21	12072010	163136	40269
201008005956	543983.1	7515958.1	-0.050	0.18	12072010	163718	40269
201008005958	544024.7	7499994.6	0.062	0.23	12072010	164851	40269
201008005960	544024.7	7484025.5	0.055	0.36	12072010	165542	40269
201008005987	543999.1	7452029.7	-0.168	-0.56	12072010	171042	40269
201008005986	543982.8	7460056.4	-0.002	0.08	13072010	082156	40269
201008005984	544028.2	7475994.7	-0.036	0.31	13072010	083006	40269
201008005959	544005.1	7492038.0	0.023	-0.29	13072010	083800	40269
201008005958	544019.2	7500010.6	-0.118	0.15	13072010	084303	40269
201008005330	540067.5	7512031.8	-0.002	0.20	13072010	084918	40269
201008005956	543983.1	7515958.5	-0.024	0.19	13072010	085430	40269
201008005954	544036.8	7532069.9	0.035	0.27	13072010	091628	40269
201008005953	543993.6	7540045.5	-0.075	-0.79	13072010	092252	40269
201008006223	543975.1	7583930.9	-0.017	-0.38	13072010	100449	40269
201008006233	544044.0	7603998.3	-0.048	0.60	13072010	120156	40269
201008005956	543989.0	7515957.1	-0.013	0.48	13072010	131559	40269
201008005957	543993.6	7508021.6	-0.100	0.56	13072010	133054	40269
201008005959	544005.0	7492038.7	0.002	0.45	13072010	133932	40269

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201008005960	544028.6	7484029.7	-0.025	0.50	13072010	134449	40269
201008005984	544028.6	7475995.3	-0.055	0.11	13072010	135011	40269
201008005985	543993.9	7468047.6	-0.029	0.04	13072010	135618	40269
201008005986	543981.9	7460057.5	0.035	-0.13	13072010	140140	40269
201008005987	543999.1	7452031.7	-0.008	0.54	13072010	140758	40269
201008003180	543997.5	7436121.3	-0.018	0.12	13072010	141628	40269
201008006122	552011.0	7516032.2	0.004	0.07	13072010	162730	40269
201008006120	556001.8	7515994.2	-0.099	0.65	13072010	165316	40269
201008005339	536055.4	7580073.8	0.077	-0.10	17072010	085500	40269
201008006253	547971.9	7599983.2	0.025	0.23	17072010	100410	40269
201008006285	555966.0	7527962.0	-0.127	-0.30	17072010	125721	40269
201008005339	536055.8	7580074.3	-0.149	0.12	18072010	100343	40269
201008005330	540066.8	7512033.5	-0.034	0.07	18072010	105821	40269
201008006415	724002.5	7407998.5	0.120	0.07	19072010	105734	40269
201008006425	728015.1	7404063.4	0.059	-0.07	19072010	114919	40269
201008006433	731964.8	7399954.9	-0.032	-0.10	19072010	122747	40269
201008006460	747960.8	7404034.0	-0.025	-0.06	19072010	162400	40269
201008006538	719049.1	7407967.2	-0.037	-0.69	20072010	134134	40269
201008006534	718983.9	7403940.1	-0.121	-1.05	20072010	140615	40269
201008006530	719026.2	7399894.5	-0.027	-0.01	20072010	142339	40269
201008006524	716912.5	7395024.8	-0.029	-0.38	20072010	145131	40269
201008006576	716972.0	7395945.1	0.057	1.04	20072010	154016	40269
201008006565	717975.4	7406021.3	-0.022	0.45	20072010	163012	40269
201008006555	717991.2	7415967.4	0.014	-0.08	20072010	165438	40269
201008006555	717993.3	7415967.7	-0.001	0.59	21072010	135053	40269
201008006604	716993.6	7402004.5	-0.054	0.09	21072010	142559	40269
201008006586	714036.9	7396959.0	-0.020	0.74	21072010	144056	40269
201008006703	706027.9	7392954.2	-0.040	-0.05	21072010	151954	40269
201008006691	714048.6	7397975.1	-0.021	-0.35	21072010	154348	40269
201008006679	715998.7	7408024.3	-0.005	0.41	21072010	160647	40269
201008003635	640990.5	7433997.0	0.017	0.25	22072010	141535	40269
201008006812	645995.3	7424051.8	-0.042	-0.07	22072010	150013	40269
201008006808	644040.6	7422044.8	0.017	-0.86	22072010	150639	40269
201008006636	667968.3	7393004.7	0.038	0.00	22072010	172705	40269
201008006826	647980.1	7434027.4	-0.044	0.13	23072010	080610	40269
201008003762	640030.7	7467977.7	-0.074	0.76	23072010	084432	40269
201008006791	644081.7	7471956.9	0.029	0.04	23072010	084831	40269
201008003772	640013.0	7507955.5	0.034	0.79	23072010	092439	40269
201008006780	644057.6	7515966.7	0.194	0.07	23072010	093750	40269
201008006927	648035.6	7495978.5	0.022	0.06	23072010	110810	40269
201008006902	652018.8	7427935.2	0.006	0.44	23072010	121357	40269
201008007006	653988.2	7460000.6	-0.144	-0.09	23072010	162043	40269
201008007030	657998.0	7451995.7	0.044	-0.89	24072010	081656	40269
201008006940	651952.2	7544159.3	-0.015	-0.84	24072010	104527	40269
201008007080	656006.1	7523975.0	0.047	0.49	24072010	111724	40269
201008007068	657948.6	7477996.6	0.008	0.11	24072010	115608	40269
201008007059	657952.2	7459940.1	-0.010	1.01	24072010	122201	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008007030	658002.8	7451993.3	0.001	0.29	24072010	123152	40269
201008007046	656027.2	7431949.8	0.042	1.17	24072010	125708	40269
201008006900	655996.0	7427947.8	0.076	-0.78	24072010	130334	40269
201008006898	659979.4	7427955.2	-0.011	-0.57	24072010	142348	40269
201008007103	659877.0	7477997.7	-0.018	0.55	24072010	162030	40269
201008007147	659991.6	7444033.7	0.022	0.71	24072010	164909	40269
201008006772	676022.0	7584044.9	0.135	0.02	25072010	091230	40269
201008003935	640011.1	7595935.8	0.156	0.58	25072010	094852	40269
201008007203	707998.6	7583989.2	-0.025	0.25	25072010	115428	40269
201008007193	711986.9	7547947.3	0.021	-0.72	25072010	122656	40269
201008007203	707998.8	7583988.9	0.023	-0.17	25072010	140650	40269
201008007249	712062.6	7607984.3	0.107	-0.03	25072010	142611	40269
201008007317	674067.7	7433897.7	0.013	0.32	26072010	092029	40269
201008007324	662137.0	7432085.2	0.123	-0.19	26072010	094533	40269
201008006892	672040.6	7427963.6	0.077	-0.28	26072010	095528	40269
201008006890	675978.4	7428005.8	-0.029	-0.10	26072010	100209	40269
201008007343	719983.9	7432009.8	0.008	-0.30	26072010	144801	40269
201008006894	668028.6	7427978.6	0.034	0.04	26072010	160404	40269
201008006896	664017.1	7427966.5	-0.028	-0.05	26072010	161921	40269
201008007360	670043.3	7426033.2	0.026	-0.14	26072010	164533	40269
201008007355	684111.7	7439948.6	0.050	0.01	26072010	171347	40269
201008007348	712036.6	7436115.3	0.031	0.21	26072010	175303	40269
201008007265	707888.2	7540110.7	0.157	-0.11	27072010	075642	40269
201008007205	699973.4	7584011.9	-0.002	-0.42	27072010	083541	40269
201008007291	676049.7	7607999.9	-0.048	0.30	27072010	091400	40269
201008007229	655950.9	7615989.4	-0.007	-0.02	27072010	093305	40269
201008007217	647922.0	7583954.5	-0.031	-0.05	27072010	095933	40269
201008007291	676049.5	7608000.3	-0.007	0.89	27072010	105238	40269
201008007205	699974.3	7584009.7	-0.060	0.63	27072010	112830	40269
201008007390	703980.6	7539982.4	-0.056	0.44	27072010	120840	40269
201008007207	692003.4	7583986.2	-0.125	0.45	27072010	135117	40269
201008007436	676019.5	7604008.2	0.014	-0.22	27072010	142608	40269
201008007214	660034.8	7583929.3	0.046	0.04	27072010	145624	40269
201008007480	676007.7	7600008.7	-0.008	-0.26	27072010	154949	40269
201008007209	683990.4	7583987.3	-0.033	0.05	27072010	162013	40269
201008007459	696006.7	7536010.4	-0.054	-0.41	27072010	170146	40269
201008007389	732061.2	7432054.5	-0.054	-0.21	28072010	072006	40269
201008007378	699962.1	7443915.6	-0.079	0.13	28072010	081728	40269
201008007037	672009.0	7452001.8	-0.034	0.68	28072010	084618	40269
201008007158	662001.8	7466012.1	-0.032	-0.05	28072010	092225	40269
201008007164	662019.7	7477976.7	-0.077	-0.03	28072010	093927	40269
201008007086	660075.2	7544060.6	0.047	0.57	28072010	104551	40269
201008007575	663984.6	7507878.2	-0.009	0.34	28072010	113734	40269
201008007574	663995.0	7503929.2	-0.008	0.11	28072010	114101	40269
201008007562	664002.9	7468043.0	0.037	-0.38	28072010	122629	40269
201008007554	664001.1	7450006.7	0.110	-0.30	28072010	125024	40269
201008007170	662050.6	7440043.1	0.142	0.77	28072010	130734	40269

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201008007176	670020.7	7436003.6	0.090	-0.38	28072010	131517	40269
201008007333	670004.5	7430015.7	0.027	0.06	28072010	132020	40269
201008007372	676003.4	7424014.3	-0.001	0.58	28072010	132925	40269
201008006896	664018.7	7427964.8	-0.027	-0.12	28072010	143832	40269
201008007618	664048.4	7445962.7	-0.006	-0.23	28072010	145622	40269
201008007615	665989.9	7455930.1	0.017	0.55	28072010	151331	40269
201008007604	666022.4	7478033.4	0.007	-0.54	28072010	154106	40269
201008006927	648034.7	7495978.1	-0.040	-0.50	28072010	161633	40269
201008007655	667980.9	7474007.6	0.033	0.22	28072010	165653	40269
201008007709	723981.9	7443938.6	0.071	0.16	29072010	073156	40269
201008007537	719991.8	7448007.7	0.006	0.16	29072010	073906	40269
201008007708	716003.2	7452030.1	-0.074	0.11	29072010	074434	40269
201008007700	688011.6	7455991.0	0.006	0.89	29072010	082520	40269
201008007314	679877.8	7432006.8	0.032	-0.72	29072010	083900	40269
201008007366	663992.6	7424032.5	-0.056	-0.20	29072010	094114	40269
201008007736	665983.2	7419975.7	-0.011	-0.04	29072010	094857	40269
201008007755	670170.2	7440117.9	0.047	0.14	29072010	110207	40269
201008007766	672087.9	7444030.5	0.051	0.09	29072010	114645	40269
201008007644	667891.2	7447774.1	-0.012	-0.07	29072010	120250	40269
201008007691	671999.0	7453956.7	0.057	0.38	29072010	122345	40269
201008007682	669993.9	7469992.8	-0.010	0.02	29072010	125001	40269
201008007668	671907.9	7495970.1	0.126	0.27	29072010	135016	40269
201008007037	672009.1	7451999.0	-0.009	-0.60	30072010	080346	40269
201008006771	677027.5	7511955.3	0.002	-0.66	30072010	090018	40269
201008006772	676023.5	7584044.7	0.103	-0.30	30072010	113233	40269
201008007209	683990.5	7583986.9	-0.006	-0.54	30072010	121737	40269
201008006771	677030.3	7511959.4	-0.061	-0.65	30072010	170045	40269
201008007959	678021.8	7427038.8	0.033	0.30	31072010	093158	40269
201008007968	679058.7	7421976.2	-0.068	0.99	31072010	101140	40269
201008007978	680013.5	7423962.9	-0.047	-0.01	31072010	104739	40269
201008007988	681071.7	7425008.0	-0.072	0.05	31072010	113834	40269
201008007998	681936.8	7421975.5	-0.004	0.55	31072010	115012	40269
201008008008	683009.8	7424994.0	-0.021	-0.51	31072010	122652	40269
201008008024	685038.7	7423027.0	-0.023	0.17	31072010	134831	40269
201008008035	686041.6	7425032.4	0.009	-0.81	31072010	135834	40269
201008008045	688008.7	7427981.9	0.019	-0.23	31072010	151026	40269
201008008056	688971.8	7423974.2	-0.040	0.26	31072010	153648	40269
201008007212	667985.6	7583972.1	-0.033	-0.21	01082010	085446	40269
201008007214	660032.3	7583932.4	-0.054	-0.19	01082010	090510	40269
201008007217	647918.4	7583954.5	0.010	-0.37	01082010	091817	40269
201008008140	643075.0	7561951.0	-0.128	-0.05	01082010	104020	40269
201008008146	647115.6	7560948.9	-0.012	-0.63	01082010	110135	40269
201008008116	644088.0	7576142.1	0.058	-0.58	01082010	115433	40269
201008008181	655803.1	7548055.7	-0.008	-0.22	01082010	131753	40269
201008007884	671966.5	7547866.5	0.127	-0.90	01082010	150020	40269
201008007886	672406.3	7555882.2	0.015	0.17	01082010	151112	40269
201008007888	672056.2	7564216.8	-0.006	0.23	01082010	153637	40269

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201008007890	671966.3	7571951.9	0.040	-0.77	01082010	155814	40269
201008007892	672002.6	7580000.9	-0.030	0.64	01082010	161342	40269
201008006772	676020.0	7584056.7	-0.027	-0.55	01082010	161946	40269
201008007933	700044.4	7520038.3	0.092	0.49	01082010	170800	40269
201008007939	704011.9	7511943.0	0.147	-0.61	01082010	171501	40269
201008006758	715998.0	7420994.9	-0.001	-0.24	02082010	072619	40269
201008008056	688976.1	7423978.7	-0.038	-0.43	02082010	091920	40269
201008006839	643046.1	7409981.4	-0.112	-0.27	02082010	111122	40269
201008008290	645023.3	7412050.6	0.022	0.04	02082010	113454	40269
201008008297	644964.9	7406979.8	-0.060	0.17	02082010	115547	40269
201008008303	645960.6	7412001.8	-0.013	0.17	02082010	123332	40269
201008008309	647003.2	7407007.6	-0.030	-0.51	02082010	125754	40269
201008007389	732060.7	7432054.5	-0.018	-0.17	03082010	080556	40269
201008008435	694009.6	7424926.5	0.078	0.01	03082010	094228	40269
201008008075	696001.4	7422058.8	0.058	0.29	03082010	095550	40269
201008008245	695943.4	7428955.8	0.014	0.02	03082010	102150	40269
201008008452	697050.8	7425992.8	0.048	0.28	03082010	111010	40269
201008008460	698019.5	7423972.5	0.001	0.04	03082010	113904	40269
201008008468	699056.1	7425026.7	0.057	-0.34	03082010	120950	40269
201008008476	700007.5	7424025.2	-0.005	0.19	03082010	124038	40269
201008008487	701041.5	7421979.0	0.009	0.20	03082010	132746	40269
201008008237	704003.0	7428074.2	-0.031	0.83	03082010	142810	40269
201008008497	702891.3	7423944.6	-0.013	-0.14	03082010	145314	40269
201008008487	701039.1	7421985.9	0.013	-0.11	03082010	150242	40269
201008008081	702005.9	7420084.3	0.072	-0.64	03082010	150920	40269
201008006490	678034.5	7409972.5	-0.059	-0.01	03082010	155248	40269
201008006490	678034.1	7409972.5	-0.041	-0.31	03082010	165230	40269
201008008517	684003.5	7411968.7	-0.024	-0.19	03082010	170952	40269
201008008516	688033.6	7415988.4	-0.095	-0.30	03082010	172104	40269
201008008515	694067.2	7415912.1	-0.039	0.03	03082010	173132	40269
201008008514	700089.6	7415948.8	-0.016	0.02	03082010	174408	40269
201008008514	700087.1	7415933.5	0.067	-0.10	06082010	122803	40269
201008008515	694062.9	7415905.6	0.004	0.18	06082010	123310	40269
201008008516	688031.4	7415990.4	-0.063	-0.06	06082010	123829	40269
201008008541	686046.4	7414023.2	-0.010	-0.01	06082010	124243	40269
201008008538	677987.1	7411951.1	-0.039	0.16	06082010	124958	40269
201008008531	670987.6	7410960.3	0.025	-0.19	06082010	131454	40269
201008008324	649013.2	7408043.7	0.084	-1.08	06082010	143414	40269
201008008601	649050.8	7415061.4	0.028	-0.09	06082010	152913	40269
201008008316	647950.5	7412990.9	0.069	0.77	06082010	154150	40269
201008008593	650008.3	7410075.5	-0.008	0.22	06082010	155100	40269
201008008580	660926.2	7407921.3	0.023	-0.34	06082010	162633	40269
201008008513	699988.6	7417989.8	0.015	-0.03	06082010	180347	40269
201008006770	676104.7	7442028.4	0.028	-0.31	07082010	082154	40269
201008007317	674071.7	7433908.6	-0.008	-0.96	07082010	092738	40269
201008007360	670045.5	7426032.5	-0.016	0.15	07082010	093330	40269
201008008270	668001.0	7416038.4	0.008	-0.41	07082010	094222	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008008634	669011.4	7413046.3	0.046	-0.30	07082010	095153	40269
201008008626	665090.0	7409014.3	0.033	-0.18	07082010	100944	40269
201008008620	659015.5	7408981.9	0.011	-0.37	07082010	102914	40269
201008008615	654081.4	7409022.4	0.009	-0.73	07082010	104620	40269
201008008593	650012.1	7410070.2	-0.012	-0.49	07082010	110027	40269
201008009249	650985.1	7412999.1	-0.110	0.24	07082010	113353	40269
201008009241	654971.8	7409997.0	0.014	-0.26	07082010	114943	40269
201008008658	663964.3	7410000.4	-0.124	-0.69	07082010	121300	40269
201008009273	660954.2	7410981.2	0.012	-0.04	07082010	124013	40269
201008009265	652951.3	7410998.6	-0.004	0.23	07082010	130153	40269
201008008278	654019.2	7417962.3	0.020	0.44	07082010	132556	40269
201008008650	667990.3	7414046.4	0.092	-0.64	07082010	150851	40269
201008008643	681933.8	7413970.0	-0.020	0.49	07082010	153503	40269
201008008644	687968.5	7418072.9	-0.040	-0.18	07082010	154652	40269
201008008645	694006.4	7417992.7	0.000	0.38	07082010	155705	40269
201008009346	705935.3	7418029.5	0.001	-0.26	07082010	165640	40269
201008008551	706957.8	7416000.9	0.008	0.23	07082010	170504	40269
201008008227	706971.6	7420979.6	0.021	0.72	07082010	171929	40269
201008008251	691030.5	7428036.3	0.092	0.86	07082010	172946	40269
201008006770	676118.9	7442014.6	-0.025	-0.10	07082010	174142	40269
201008007314	679874.9	7432006.1	-0.061	0.87	08082010	073053	40269
201008006770	676104.5	7442028.8	0.053	1.18	08082010	073711	40269
201008007857	673958.7	7469958.0	0.015	0.51	08082010	080324	40269
201008006771	677027.7	7511955.2	0.005	0.56	08082010	083445	40269
201008007821	675961.6	7516000.5	-0.145	0.41	08082010	085857	40269
201008007923	683978.0	7540034.7	-0.018	0.36	08082010	094435	40269
201008007925	680000.7	7536085.5	-0.044	-0.01	08082010	094930	40269
201008008804	677980.6	7520006.6	-0.019	-0.05	08082010	111124	40269
201008007814	682989.7	7516039.8	-0.210	-0.05	08082010	114006	40269
201008008820	681953.9	7520012.9	0.001	-1.05	08082010	114832	40269
201008008795	685969.0	7521007.3	0.024	-0.37	08082010	120910	40269
201008007931	692018.0	7520009.9	0.084	0.05	08082010	122354	40269
201008007933	700054.3	7520049.4	-0.057	0.09	08082010	124134	40269
201008007935	708037.3	7519993.5	0.047	0.47	08082010	125954	40269
201008008852	703996.8	7518964.4	-0.043	0.09	08082010	142757	40269
201008008845	695985.0	7518906.1	-0.039	0.18	08082010	144424	40269
201008008832	684950.0	7517014.3	0.108	0.34	08082010	151128	40269
201008006771	677028.5	7511954.6	-0.081	-0.03	08082010	153718	40269
201008007828	675981.7	7508903.2	-0.013	-0.67	08082010	154546	40269
201008007835	679023.0	7504929.9	0.003	0.00	08082010	160116	40269
201008007788	674000.0	7477843.1	0.042	0.12	08082010	164117	40269
201008008752	675993.4	7459932.2	-0.019	-0.49	08082010	171520	40269
201008006770	676104.4	7442027.9	-0.023	-0.10	08082010	172914	40269
201008007314	679877.1	7432006.8	0.038	0.66	08082010	173709	40269
201008008066	690066.5	7424951.8	0.041	0.64	08082010	174408	40269
201008008460	698019.3	7423972.3	0.028	-0.02	08082010	175101	40269
201008007343	719984.4	7432009.0	0.068	0.25	09082010	071346	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008007378	699959.0	7443925.4	0.039	0.01	09082010	072346	40269
201008007700	688011.9	7455991.4	0.019	-0.59	09082010	075102	40269
201008008933	677994.1	7458026.4	0.020	-0.20	09082010	080648	40269
201008008919	675975.7	7480007.1	0.035	-0.11	09082010	090238	40269
201008008908	678003.4	7500009.6	0.001	-0.43	09082010	093144	40269
201008008908	678002.8	7500009.3	-0.017	-0.09	09082010	102048	40269
201008008961	680026.7	7479962.6	-0.006	0.98	09082010	111132	40269
201008008938	699986.0	7458013.1	-0.017	-0.01	09082010	122556	40269
201008007708	716008.0	7452026.3	-0.028	-0.18	09082010	124316	40269
201008007709	723982.1	7443937.9	0.081	-0.46	09082010	125410	40269
201008008513	699998.1	7418003.2	-0.006	-0.01	09082010	142347	40269
201008008516	688047.3	7415988.1	0.126	0.23	09082010	143037	40269
201008008517	684003.5	7411970.5	0.032	0.22	09082010	143517	40269
201008006490	678034.7	7409973.5	0.076	-0.05	09082010	144104	40269
201008008334	657953.4	7407014.9	0.106	0.15	09082010	160202	40269
201008009039	668994.0	7406046.3	0.021	-0.20	09082010	172412	40269
201008006490	678034.2	7409976.5	0.035	0.06	09082010	172933	40269
201008008516	688046.2	7415991.1	0.060	0.06	09082010	174457	40269
201008008514	700089.8	7415948.2	-0.053	0.09	09082010	175122	40269
201008006490	678036.2	7409974.2	-0.015	-0.39	10082010	090750	40269
201008009085	664090.7	7405006.4	-0.024	-0.06	10082010	093106	40269
201008009074	653051.7	7404988.5	0.104	-0.42	10082010	100257	40269
201008006848	644051.8	7401969.1	-0.082	-0.22	10082010	103217	40269
201008009137	648967.0	7403945.8	-0.080	0.14	10082010	104553	40269
201008009128	657975.1	7403976.6	-0.031	-0.20	10082010	114201	40269
201008009120	667966.5	7403971.0	-0.044	0.28	10082010	122108	40269
201008006490	678032.1	7409971.1	0.030	0.33	10082010	130351	40269
201008009178	665031.0	7402974.6	-0.006	0.45	10082010	134706	40269
201008006861	661025.6	7398976.0	-0.075	-0.39	10082010	141345	40269
201008009189	666954.4	7399014.9	-0.009	-0.09	10082010	145510	40269
201008006875	669977.7	7394009.6	0.009	-0.45	10082010	170007	40269
201008006647	679033.9	7393009.7	0.086	0.04	10082010	172214	40269
201008006666	698008.5	7393039.8	0.027	0.76	10082010	173351	40269
201008006713	709049.3	7394067.9	0.082	0.70	10082010	173950	40269
201008006720	711987.6	7397978.4	0.094	-0.06	10082010	174427	40269
201008006730	714965.7	7406007.3	0.088	-0.25	10082010	175022	40269
201008006603	717004.4	7411990.2	0.079	0.06	10082010	175527	40269
201008006750	714990.2	7418013.3	0.057	-0.57	11082010	075114	40269
201008009106	713018.2	7405912.1	-0.162	0.32	11082010	082931	40269
201008006718	711970.9	7396025.6	0.057	-0.42	11082010	092922	40269
201008009179	674977.2	7399036.7	0.077	0.31	11082010	120227	40269
201008006490	678036.6	7409974.2	-0.013	0.04	11082010	122016	40269
201008008538	677997.9	7411954.3	0.046	-0.07	11082010	122404	40269
201008006490	678033.3	7409971.5	-0.055	-0.18	11082010	130849	40269
201008006490	678034.1	7409972.3	0.008	0.23	11082010	165838	40269
201008008270	668004.7	7416040.6	-0.010	1.07	11082010	174426	40269
201008008644	687979.1	7418056.0	0.023	0.48	11082010	175527	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008008086	706996.8	7420016.5	-0.006	-0.07	11082010	180530	40269
201008007709	723982.9	7443938.7	0.088	0.11	12082010	075950	40269
201008007537	719986.6	7448005.7	0.103	0.05	12082010	080715	40269
201008007708	716009.5	7452025.0	0.037	-0.44	12082010	081214	40269
201008009019	700034.5	7459957.1	0.037	-0.46	12082010	083333	40269
201008009011	686037.7	7461869.1	-0.022	0.17	12082010	085946	40269
201008008998	684038.6	7478008.0	0.024	0.20	12082010	092945	40269
201008008987	679999.4	7499938.6	-0.061	0.59	12082010	103647	40269
201008008986	677043.1	7502002.1	0.003	-0.28	12082010	104107	40269
201008008981	671990.3	7501991.0	0.057	1.08	12082010	110024	40269
201008007865	672001.6	7511992.1	0.064	0.20	12082010	114459	40269
201008007946	687993.5	7511951.4	0.014	0.22	12082010	122355	40269
201008007941	696028.5	7511958.9	0.055	0.54	12082010	122919	40269
201008007940	700003.2	7511961.7	0.004	0.18	12082010	123313	40269
201008007938	708013.7	7511987.0	-0.013	0.15	12082010	132723	40269
201008007940	700016.1	7511966.1	-0.009	-0.04	12082010	133250	40269
201008007942	692018.1	7511978.8	0.037	-0.09	12082010	133958	40269
201008007945	679969.5	7511965.9	0.033	0.43	12082010	134718	40269
201008009574	668012.0	7507005.6	0.060	0.04	12082010	144906	40269
201008008904	677999.9	7505019.8	0.024	0.10	12082010	162406	40269
201008009557	682994.2	7501991.0	0.084	-0.15	12082010	164031	40269
201008009545	686013.8	7482051.8	-0.071	-0.50	12082010	171010	40269
201008008938	699987.9	7458015.3	-0.024	-0.13	12082010	173857	40269
201008007343	719988.7	7432011.4	-0.103	-0.20	13082010	071832	40269
201008007537	719993.5	7448012.4	-0.081	-0.18	13082010	072710	40269
201008009541	686006.0	7473963.5	0.041	-0.42	13082010	082414	40269
201008009657	684027.7	7493993.4	-0.067	0.29	13082010	091520	40269
201008007835	679013.6	7504924.5	-0.080	-0.15	13082010	100140	40269
201008007945	679967.5	7511949.9	-0.038	0.56	13082010	101856	40269
201008007807	690042.8	7516002.4	-0.038	0.13	13082010	110538	40269
201008007800	696959.9	7515989.4	-0.104	-0.02	13082010	114257	40269
201008008881	687962.5	7518983.7	0.016	-0.60	13082010	121130	40269
201008008845	695995.8	7518904.8	0.079	-1.08	13082010	123313	40269
201008008852	703999.0	7518967.4	0.044	-0.47	13082010	131159	40269
201008009787	712043.8	7516984.0	-0.059	0.48	13082010	143033	40269
201008009771	704055.0	7517012.6	-0.145	0.05	13082010	145044	40269
201008009730	694959.6	7514984.5	-0.113	-0.19	13082010	151827	40269
201008009719	684989.6	7514017.6	-0.036	0.45	13082010	155025	40269
201008009703	681985.5	7504069.1	-0.045	0.36	13082010	162557	40269
201008009689	686014.1	7487978.7	-0.027	0.72	13082010	170222	40269
201008009679	688012.7	7466025.0	-0.003	0.23	13082010	173822	40269
201008009668	706020.3	7461988.3	-0.050	0.24	13082010	180622	40269
201008007709	723987.6	7443927.8	-0.069	0.34	13082010	181643	40269
201008007343	719988.5	7432009.2	-0.022	0.04	14082010	080525	40269
201008007378	699967.5	7443929.0	0.090	0.03	14082010	081844	40269
201008006770	676103.3	7442033.2	-0.004	-0.95	14082010	083100	40269
201008007700	688018.7	7455987.9	-0.023	-0.48	14082010	084524	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008009848	689934.9	7483992.4	0.049	0.27	14082010	091526	40269
201008009838	685010.4	7501974.6	0.087	-0.17	14082010	095555	40269
201008009828	680916.5	7508015.2	0.118	0.14	14082010	103257	40269
201008007945	679964.9	7511965.8	-0.038	0.26	14082010	104348	40269
201008006771	677021.1	7511972.4	0.123	-0.08	14082010	104712	40269
201008009812	691035.1	7513957.6	0.140	0.15	14082010	114046	40269
201008007945	679968.0	7511967.3	0.047	0.01	14082010	152431	40269
201008006771	677020.7	7511974.5	0.131	0.08	14082010	152811	40269
201008009879	691999.1	7490002.1	0.019	0.35	14082010	155039	40269
201008007700	688010.5	7455990.5	-0.002	-0.46	14082010	162506	40269
201008006770	676103.9	7442027.7	0.005	0.09	14082010	163501	40269
201008007355	684115.2	7439968.4	-0.025	0.12	14082010	164501	40269
201008007343	719985.1	7432008.8	0.016	0.43	14082010	165935	40269
201008010003	719999.3	7412008.2	0.054	0.34	14082010	175258	40269
201008007709	723989.1	7443927.2	-0.057	-0.43	15082010	071914	40269
201008007708	716008.2	7452025.3	0.055	-0.21	15082010	072529	40269
201008009993	694008.2	7476003.0	-0.014	-0.27	15082010	081438	40269
201008009879	691998.7	7490002.1	-0.015	-0.63	15082010	083848	40269
201008009893	686013.0	7505963.2	0.062	-0.81	15082010	092340	40269
201008010038	689982.7	7503021.4	0.027	-0.05	15082010	110644	40269
201008009993	694008.0	7476003.0	-0.009	0.05	15082010	120102	40269
201008009862	699987.7	7466045.7	-0.042	-0.39	15082010	131859	40269
201008010098	696003.2	7482022.2	-0.064	0.81	15082010	134927	40269
201008010088	693996.3	7497985.1	0.021	-0.15	15082010	142052	40269
201008010124	695980.9	7501995.3	-0.004	-0.06	15082010	165226	40269
201008010117	697987.3	7490005.6	0.052	0.21	15082010	172649	40269
201008007709	723986.5	7443927.8	-0.056	0.24	15082010	181905	40269
201008007708	716002.1	7452031.5	0.012	0.01	16082010	073824	40269
201008010012	711986.0	7460070.5	-0.120	-0.45	16082010	074359	40269
201008010189	701961.9	7475921.8	0.018	-0.16	16082010	083956	40269
201008010213	704005.0	7482004.1	-0.029	0.34	16082010	093127	40269
201008010238	708017.0	7491991.9	0.053	0.33	16082010	104728	40269
201008010179	700004.6	7496006.2	0.021	0.08	16082010	110416	40269
201008010163	698984.9	7506960.9	-0.143	0.43	16082010	144504	40269
201008010282	712022.6	7505004.8	0.003	-0.18	16082010	173034	40269
201008006770	676101.0	7442027.0	-0.045	0.09	16082010	180520	40269
201008007537	719991.3	7448008.5	0.030	-0.60	17082010	073002	40269
201008007708	716000.7	7452031.0	0.021	0.32	17082010	073703	40269
201008007945	679964.7	7511948.7	-0.005	-0.87	17082010	091209	40269
201008006771	677026.0	7511955.4	-0.121	-0.94	17082010	091631	40269
201008007389	732060.8	7432054.2	0.034	-0.30	17082010	103756	40269
201008007709	723990.0	7443926.4	-0.025	-0.41	17082010	132830	40269
201008010410	714009.4	7495981.1	0.066	0.06	17082010	143126	40269
201008010423	712996.3	7512037.5	-0.173	0.82	17082010	150757	40269
201008010444	715979.5	7503988.9	0.026	0.18	17082010	163058	40269
201008010393	732021.8	7444061.4	-0.034	-0.37	17082010	175640	40269
201008007389	732060.1	7432054.0	0.017	0.13	17082010	181118	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008007389	732061.0	7432055.1	-0.012	0.06	18082010	070840	40269
201008010499	728020.7	7460135.2	-0.046	-0.15	18082010	072150	40269
201008010489	722039.8	7493964.8	0.017	0.07	18082010	073948	40269
201008010479	717076.9	7506978.6	-0.014	0.21	18082010	075804	40269
201008010460	714035.1	7519977.0	0.057	0.38	18082010	084436	40269
201008010526	714991.0	7514965.6	-0.002	-0.13	18082010	091926	40269
201008010558	717997.6	7519985.5	-0.134	0.04	18082010	105119	40269
201008010489	722039.9	7493965.1	-0.026	-0.47	18082010	115957	40269
201008010495	724109.9	7471907.5	-0.128	0.39	18082010	121710	40269
201008010575	718981.7	7517929.4	0.004	-0.49	18082010	135855	40269
201008010559	719986.1	7524031.5	0.048	0.01	18082010	140836	40269
201008010660	723989.2	7530031.9	0.079	-0.23	18082010	164021	40269
201008010559	719986.7	7524031.9	-0.012	0.03	18082010	165640	40269
201008010599	720965.2	7507113.1	-0.047	-0.15	18082010	174319	40269
201008010489	722046.0	7493973.5	0.034	-0.01	18082010	180125	40269
201008010495	724110.1	7471901.1	0.072	-0.06	18082010	181046	40269
201008010393	732033.0	7444068.6	-0.019	-0.24	18082010	182235	40269
201008010393	732022.0	7444060.4	0.039	-0.40	19082010	072241	40269
201008010499	728025.1	7460141.0	0.020	0.25	19082010	073046	40269
201008010495	724110.4	7471898.5	0.065	0.30	19082010	082608	40269
201008010489	722046.6	7493973.4	0.029	0.39	19082010	083616	40269
201008010691	721974.6	7503941.6	0.071	0.57	19082010	084156	40269
201008010682	721035.0	7511868.1	-0.017	0.75	19082010	084703	40269
201008010575	718982.7	7517929.0	-0.007	0.39	19082010	085158	40269
201008010559	719981.1	7524035.3	-0.056	0.35	19082010	085829	40269
201008010660	723990.0	7530028.1	-0.029	0.21	19082010	090310	40269
201008010695	732004.0	7583966.2	-0.013	-0.15	19082010	122942	40269
201008010768	732063.7	7551928.8	0.004	0.40	19082010	171721	40269
201008010660	723988.5	7530031.4	-0.021	0.36	19082010	173834	40269
201008010575	718980.2	7517926.5	-0.063	0.22	19082010	174510	40269
201008010691	721975.8	7503942.4	-0.005	0.07	19082010	175215	40269
201008010489	722045.5	7493972.7	-0.061	0.14	19082010	175822	40269
201008010495	724109.8	7471900.2	-0.025	0.02	19082010	180813	40269
201008010499	728038.3	7460138.5	0.068	0.06	19082010	181437	40269
201008010393	732021.4	7444060.5	0.005	0.52	19082010	182243	40269
201008010393	732021.5	7444060.3	0.033	0.19	20082010	075801	40269
201008010499	728026.6	7460132.9	-0.049	-0.62	20082010	080550	40269
201008010559	719971.0	7524032.1	-0.026	-0.51	20082010	094944	40269
201008010768	732068.5	7551929.1	-0.104	-0.19	20082010	114515	40269
201008010695	732005.4	7583963.7	0.046	-0.25	20082010	121541	40269
201008010880	731931.1	7531997.7	-0.038	-0.06	20082010	131555	40269
201008010850	722981.0	7513031.3	0.026	-0.01	20082010	142309	40269
201008010927	724979.9	7527026.6	0.050	-0.27	20082010	160122	40269
201008010916	723995.6	7515051.2	0.046	-0.50	20082010	164228	40269
201008010837	723972.5	7499988.7	-0.138	-0.08	20082010	174611	40269
201008010829	728012.8	7484016.5	-0.060	-0.12	20082010	180003	40269
201008010499	728027.7	7460133.2	0.024	0.45	20082010	181100	40269

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201008010393	732021.6	7444060.0	-0.010	0.39	21082010	071012	40269
201008010829	728013.3	7484015.9	0.019	0.83	21082010	072652	40269
201008010980	725973.6	7504994.1	0.142	0.66	21082010	075238	40269
201008010963	725024.9	7512971.6	0.089	0.62	21082010	081131	40269
201008010952	726005.5	7518998.6	0.014	0.27	21082010	082926	40269
201008011017	728017.8	7515981.9	-0.039	0.04	21082010	094018	40269
201008011030	727996.4	7507001.5	-0.026	0.04	21082010	103133	40269
201008011054	730004.6	7510996.2	-0.091	0.67	21082010	105116	40269
201008010499	728026.8	7460132.2	0.006	0.36	21082010	121448	40269
201008010829	728019.7	7484016.6	0.001	-0.12	21082010	132348	40269
201008011088	731067.0	7489328.9	0.000	-0.20	21082010	132826	40269
201008011081	731984.7	7504021.9	0.108	-0.29	21082010	134557	40269
201008011068	731965.3	7510998.9	-0.030	0.20	21082010	135842	40269
201008011045	730046.4	7519994.7	-0.153	-0.57	21082010	142100	40269
201008011126	746958.9	7519931.6	-0.100	0.53	21082010	152225	40269
201008011145	743967.6	7519004.9	-0.036	0.38	21082010	160117	40269
201008011107	731074.0	7517048.4	-0.053	-0.16	21082010	165450	40269
201008011068	731965.1	7510998.3	0.033	-0.46	21082010	172417	40269
201008010829	728022.1	7484015.7	0.080	-0.64	21082010	175505	40269
201008010495	724109.8	7471897.8	0.057	-0.47	21082010	180101	40269
201008010499	728031.0	7460129.5	-0.032	-0.27	21082010	180715	40269
201008007389	732060.5	7432053.5	-0.004	0.08	21082010	182232	40269
201008010278	743917.6	7511001.6	-0.004	0.12	22082010	105229	40269
201008011182	733021.7	7513919.8	-0.084	0.84	22082010	113819	40269
201008010393	732021.3	7444059.9	0.014	0.88	22082010	124739	40269
201008007389	732060.7	7432055.0	0.049	0.01	22082010	125347	40269
201008011245	732051.8	7468028.0	0.079	-0.26	22082010	134100	40269
201008011241	735303.3	7492446.5	-0.025	0.13	22082010	135333	40269
201008011214	737984.3	7511064.3	-0.017	0.14	22082010	142734	40269
201008011160	738902.7	7516073.6	-0.043	0.72	22082010	144956	40269
201008010278	743916.8	7511012.2	0.017	0.16	22082010	154744	40269
201008011214	737985.7	7511063.0	0.017	-0.04	22082010	163116	40269
201008011241	735300.9	7492446.4	0.017	-0.61	22082010	171836	40269
201008007389	732061.6	7432053.8	-0.013	0.01	22082010	180612	40269
201008011332	735995.9	7456026.1	-0.081	0.10	25082010	112302	40269
201008011327	736094.6	7475963.4	0.045	0.02	25082010	113238	40269
201008011322	737962.7	7497988.8	0.010	0.35	25082010	120146	40269
201008011314	737955.8	7506951.8	0.006	-0.32	25082010	122221	40269
201008011366	742001.5	7509005.2	-0.045	0.27	25082010	131537	40269
201008011392	746970.0	7507014.8	0.107	0.28	25082010	141511	40269
201008011342	742009.3	7494024.0	-0.005	-0.13	25082010	150508	40269
201008007389	732060.2	7432054.7	0.015	0.04	25082010	165559	40269
201008010003	719990.6	7412008.6	-0.131	0.03	25082010	171018	40269
201008011429	719970.7	7399986.3	-0.063	0.60	25082010	172549	40269
201008010003	719985.0	7412006.3	0.018	0.30	25082010	173152	40269
201008010008	727925.6	7420070.4	-0.012	-0.14	25082010	173811	40269
201008008422	744045.8	7435957.0	-0.011	-0.14	26082010	071115	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008011422	739989.3	7460017.4	0.022	0.07	26082010	073614	40269
201008011207	752008.5	7483987.5	-0.035	-0.17	26082010	082255	40269
201008011445	743966.9	7488045.2	0.017	0.29	26082010	110528	40269
201008011413	744006.0	7503957.2	0.094	1.00	26082010	113702	40269
201008011409	744018.2	7508034.8	0.043	0.17	26082010	114029	40269
201008010278	743915.8	7511010.7	-0.007	-0.06	26082010	114331	40269
201008011197	751988.7	7443953.7	-0.013	0.22	26082010	130249	40269
201008011200	752000.3	7456001.2	-0.084	-0.84	26082010	130910	40269
201008011203	751994.2	7467992.3	0.038	-0.24	26082010	131525	40269
201008011204	751992.3	7471981.6	0.041	-0.58	26082010	131859	40269
201008011205	751986.3	7476037.6	-0.009	-0.68	26082010	132252	40269
201008011525	832085.7	7488060.3	0.019	0.45	26082010	172130	40269
201008011518	807949.4	7483883.4	-0.018	0.12	26082010	173638	40269
201008011203	751996.5	7467989.3	-0.017	-0.22	26082010	181847	40269
201008011422	739990.4	7460017.3	-0.002	-0.12	26082010	182541	40269
201008007389	732060.7	7432054.4	-0.031	0.16	26082010	183735	40269
201008011203	751992.6	7467986.8	0.017	-0.15	27082010	072329	40269
201008011601	783954.8	7479991.6	-0.021	0.82	27082010	085416	40269
201008011623	823957.8	7479987.8	0.028	0.19	27082010	105500	40269
201008011578	795999.3	7477190.2	0.016	0.26	27082010	113516	40269
201008011648	807978.8	7475970.8	-0.014	0.04	27082010	160317	40269
201008011619	807977.2	7480020.3	0.026	0.75	27082010	160716	40269
201008011518	807948.6	7483882.2	0.020	0.29	27082010	161037	40269
201008011669	792012.5	7419963.4	0.018	0.17	27082010	172031	40269
201008008422	744045.8	7435957.5	-0.030	0.24	27082010	183041	40269
201008007389	732062.5	7432054.6	0.074	0.09	27082010	183652	40269
201008011197	751988.5	7443953.4	-0.016	-0.51	28082010	071848	40269
201008011593	764001.6	7467991.1	0.032	-0.60	28082010	075002	40269
201008011660	779991.6	7451963.3	0.030	-0.86	28082010	081720	40269
201008011662	780050.0	7444028.7	0.011	-0.89	28082010	083107	40269
201008011665	780101.9	7431967.2	-0.012	-0.88	28082010	084454	40269
201008011669	792019.9	7419967.7	-0.008	-0.62	28082010	090050	40269
201008011726	763972.6	7411961.0	0.125	-0.72	28082010	105455	40269
201008011771	771966.1	7395998.6	-0.004	0.45	28082010	110949	40269
201008011803	775928.7	7423883.2	-0.002	-0.08	28082010	122027	40269
201008011665	780101.3	7431967.4	-0.041	0.30	28082010	122813	40269
201008011669	792014.3	7419964.5	0.006	-0.56	28082010	132710	40269
201008011764	792000.9	7403973.7	-0.049	0.69	28082010	143506	40269
201008011669	792013.1	7419963.9	-0.014	0.11	28082010	170604	40269
201008011868	800062.0	7419952.6	0.000	0.15	28082010	174501	40269
201008011669	792020.3	7419968.4	-0.013	0.06	28082010	175018	40269
201008011731	764032.4	7432164.4	-0.089	0.42	28082010	181534	40269
201008011751	776044.3	7463946.4	0.071	0.60	29082010	073802	40269
201008011887	772039.1	7447991.4	-0.025	-0.13	29082010	075956	40269
201008011880	755955.4	7435966.0	0.011	-0.09	29082010	085313	40269
201008011197	751988.4	7443953.1	-0.016	-0.11	29082010	090057	40269
201008011950	888603.0	7487770.1	0.012	-0.01	29082010	160118	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008011939	877568.9	7488229.8	0.017	0.07	29082010	163227	40269
201008011927	873232.3	7480335.0	0.007	-0.11	29082010	170357	40269
201008011985	874461.0	7485202.4	0.020	-0.35	30082010	075011	40269
201008011975	882564.0	7486966.8	0.016	-0.44	30082010	081450	40269
201008011965	892477.8	7486596.5	-0.059	-0.25	30082010	085056	40269
201008011960	897573.3	7486367.2	-0.021	-0.06	30082010	090550	40269
201008012066	915268.8	7476555.0	0.119	-0.20	30082010	101405	40269
201008012053	904647.7	7487106.9	0.033	0.42	30082010	105829	40269
201008012037	887518.9	7485802.6	0.020	0.25	30082010	121836	40269
201008011998	873984.8	7472290.9	-0.012	-0.17	30082010	131741	40269
201008012006	870910.8	7471443.9	-0.010	0.58	30082010	132100	40269
201008012144	877083.0	7473229.5	-0.038	0.21	30082010	155458	40269
201008012006	870910.7	7471445.8	-0.091	-0.65	30082010	160434	40269
201008012173	879371.9	7481105.6	0.003	0.56	30082010	170009	40269
201008012116	889435.7	7484693.4	0.021	0.25	30082010	173619	40269
201008012200	885258.1	7479840.1	0.074	0.10	30082010	180329	40269
201008012191	880369.7	7479117.3	0.008	0.22	30082010	181631	40269
201008012144	877080.4	7473229.7	0.044	0.24	31082010	071712	40269
201008012227	881092.9	7476070.2	0.000	-0.09	31082010	073255	40269
201008012218	887171.6	7479740.5	-0.014	0.74	31082010	075854	40269
201008012093	903498.2	7484142.3	-0.072	1.02	31082010	084947	40269
201008012078	913376.1	7480755.4	0.070	0.79	31082010	092403	40269
201008012278	912346.0	7477776.9	-0.024	0.45	31082010	100155	40269
201008012294	910357.4	7478866.2	0.025	0.20	31082010	104404	40269
201008012269	908394.7	7482923.2	-0.048	-0.70	31082010	105226	40269
201008012311	908214.7	7476945.7	0.034	-0.32	31082010	111952	40269
201008012260	899519.2	7483322.6	-0.030	0.04	31082010	115654	40269
201008012250	891306.1	7481633.6	0.025	-0.26	31082010	123716	40269
201008012242	886180.6	7477820.7	-0.026	-0.28	31082010	125626	40269
201008012332	897422.5	7482427.5	0.025	0.51	31082010	143053	40269
201008012320	907320.9	7479991.0	-0.144	0.50	31082010	150204	40269
201008012375	903375.3	7480156.0	0.054	-0.11	31082010	155136	40269
201008012367	896394.1	7481438.0	0.040	0.62	31082010	161946	40269
201008012358	891169.6	7477637.9	-0.036	0.11	31082010	164841	40269
201008012349	883133.3	7475886.3	-0.010	0.16	31082010	171320	40269
201008012006	870909.0	7471447.4	0.083	0.03	31082010	180646	40269
201008012183	875927.3	7470272.6	0.020	0.41	01092010	073418	40269
201008012439	876931.3	7471233.1	0.008	0.07	01092010	074019	40269
201008012434	880953.9	7472008.7	0.086	0.55	01092010	075417	40269
201008012489	903232.8	7477175.0	0.027	-0.15	01092010	093758	40269
201008012398	902234.9	7479157.9	0.005	0.56	01092010	094315	40269
201008012500	899147.4	7476279.1	0.015	0.30	01092010	102104	40269
201008012413	896280.9	7478435.9	0.061	-0.61	01092010	104431	40269
201008012512	895192.5	7476461.4	0.035	-0.09	01092010	110231	40269
201008012472	890033.2	7474612.2	-0.052	-0.11	01092010	112241	40269
201008012426	885141.4	7475827.6	0.011	-0.02	01092010	113531	40269
201008012463	884938.4	7470851.3	0.024	0.37	01092010	114151	40269

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201008012452	873909.0	7470312.5	0.057	0.13	01092010	115002	40269
201008012553	816065.3	7703917.9	-0.078	0.03	02092010	170825	40269
201008012548	839902.4	7688114.4	0.030	0.09	02092010	175723	40269
201008012530	876009.7	7652024.2	0.044	-0.34	02092010	181907	40269
201008012572	872011.2	7679999.4	-0.015	0.22	03092010	080454	40269
201008012565	871972.1	7652004.2	-0.027	-0.30	03092010	112324	40269
201008012548	839902.7	7688113.9	0.000	-0.07	03092010	123721	40269
201008012554	816114.2	7712067.5	-0.021	-0.12	03092010	132224	40269
201008012615	748027.1	7728128.2	0.059	-0.04	04092010	094347	40269
201008012611	799989.6	7711986.4	0.017	0.17	04092010	124925	40269
201008012681	819781.6	7651874.9	0.013	-0.32	04092010	134726	40269
201008012588	860016.8	7676008.5	0.025	-0.14	04092010	142205	40269
201008012670	863862.2	7652144.9	0.038	-0.22	04092010	145903	40269
201008012766	872017.0	7635986.1	0.028	0.07	04092010	155559	40269
201008012682	783940.9	7691940.0	-0.030	-0.28	05092010	070841	40269
201008012623	780075.1	7728012.9	0.127	-0.61	05092010	074355	40269
201008012738	772159.0	7748031.8	0.031	-0.10	05092010	081047	40269
201008012731	752242.0	7755950.6	-0.039	-0.49	05092010	084037	40269
201008012724	732079.7	7764044.7	-0.004	0.04	05092010	090214	40269
201008012799	747878.3	7751977.7	0.024	-0.03	05092010	094457	40269
201008012621	772036.2	7728013.1	0.193	0.02	05092010	105708	40269
201008012682	783942.4	7691941.2	-0.036	0.17	05092010	113413	40269
201008012592	855997.9	7692077.4	-0.150	0.60	05092010	133342	40269
201008012646	835978.6	7723970.8	-0.024	0.04	05092010	141618	40269
201008012635	803985.1	7735987.9	0.124	-0.39	05092010	145951	40269
201008012613	791999.7	7712003.5	0.132	-0.18	05092010	154021	40269
201008012889	792005.4	7723865.6	-0.091	0.44	05092010	155026	40269
201008012609	807984.2	7711999.9	0.071	-0.24	05092010	163856	40269
201008012905	804066.2	7720222.7	-0.013	0.21	05092010	165941	40269
201008012877	816085.8	7723987.4	-0.065	-0.31	05092010	172814	40269
201008012867	844095.8	7712128.1	0.112	-0.17	05092010	180245	40269
201008012682	783940.9	7691942.7	0.073	0.00	06092010	070300	40269
201008012684	776087.0	7692018.1	0.008	-0.15	06092010	070742	40269
201008012619	764107.5	7727914.3	0.082	-0.01	06092010	074145	40269
201008012819	748050.0	7744071.0	0.001	-0.44	06092010	081219	40269
201008012713	715991.2	7752030.2	0.008	-0.23	06092010	084522	40269
201008012615	748027.3	7728128.8	0.014	0.17	06092010	101039	40269
201008012617	756049.6	7728030.1	0.135	0.49	06092010	103349	40269
201008012684	776087.5	7692016.6	0.053	-0.19	06092010	111551	40269
201008012682	783940.2	7691942.6	0.034	-0.02	06092010	112124	40269
201008012602	819964.9	7691972.1	0.089	0.79	06092010	115234	40269
201008012852	819998.7	7683989.6	-0.012	0.30	06092010	115927	40269
201008012857	851995.9	7671808.5	-0.046	-0.02	06092010	131545	40269
201008012604	819997.1	7700113.0	0.034	0.31	06092010	145628	40269
201008012606	820037.0	7708067.1	-0.020	0.21	06092010	150734	40269
201008012847	807945.7	7691984.5	0.029	0.04	06092010	153227	40269
201008012845	799952.0	7692003.3	0.025	0.19	06092010	153912	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008012843	791979.2	7692011.0	-0.009	-0.22	06092010	154419	40269
201008012554	816112.1	7712069.0	0.069	0.19	06092010	170939	40269
201008012852	819998.2	7683988.4	0.004	-0.19	06092010	173106	40269
201008013008	843971.6	7660021.4	0.021	-0.58	06092010	181335	40269
201008013009	847994.1	7655986.6	0.015	-0.60	06092010	182021	40269
201008012673	851980.4	7651987.3	-0.025	-0.28	06092010	182503	40269
201008012686	768093.4	7691947.4	0.092	-0.48	07092010	071551	40269
201008012615	748027.0	7728129.2	0.025	-0.62	07092010	075645	40269
201008012704	728061.7	7727918.4	0.030	-0.75	07092010	083820	40269
201008012692	747999.6	7696036.4	0.072	0.00	07092010	105859	40269
201008012684	776087.3	7692016.6	-0.012	0.34	07092010	111959	40269
201008013003	823913.8	7680172.1	0.060	-0.19	07092010	120204	40269
201008013004	827929.3	7676150.6	0.027	-0.58	07092010	120615	40269
201008013005	831942.7	7671996.7	0.012	-0.42	07092010	121015	40269
201008013006	835973.8	7668005.0	0.022	-0.17	07092010	121410	40269
201008013007	839955.8	7663980.2	-0.042	-0.34	07092010	121806	40269
201008013008	843971.7	7660021.0	-0.027	-0.02	07092010	122150	40269
201008013009	848001.5	7655981.3	-0.002	0.13	07092010	122557	40269
201008012673	851982.1	7651984.2	0.035	0.28	07092010	123013	40269
201008012670	863861.9	7652145.6	-0.039	0.22	07092010	130516	40269
201008012565	871966.0	7652007.2	0.005	-0.13	07092010	131057	40269
201008012530	876009.3	7652024.7	-0.005	0.12	07092010	131434	40269
201008013178	936063.7	7664051.6	0.056	0.01	07092010	150803	40269
201008013189	940076.9	7675966.7	0.012	-0.50	07092010	154604	40269
201008013217	884016.7	7707924.8	-0.036	-0.01	07092010	174145	40269
201008013211	888120.2	7688138.4	0.014	-0.24	07092010	175928	40269
201008013163	888157.0	7668140.6	0.000	-0.41	07092010	181544	40269
201008013145	764087.2	7695709.8	-0.077	-0.61	08092010	071556	40269
201008012694	748131.3	7704071.8	0.084	0.59	08092010	081010	40269
201008012698	747937.0	7719900.2	-0.023	0.22	08092010	093605	40269
201008012615	748027.7	7728128.7	0.013	0.83	08092010	102642	40269
201008013146	788078.7	7688119.3	0.007	0.32	08092010	105920	40269
201008013003	823913.8	7680171.8	-0.012	0.23	08092010	114102	40269
201008013005	831942.8	7671996.9	0.027	0.40	08092010	120523	40269
201008013007	839955.4	7663979.9	0.018	0.22	08092010	121843	40269
201008012565	871971.5	7652003.6	0.050	0.52	08092010	130421	40269
201008012530	876009.7	7652025.1	-0.014	0.37	08092010	130747	40269
201008012539	875980.0	7687953.4	0.085	0.04	08092010	151415	40269
201008013161	879889.7	7667999.3	-0.038	-0.12	08092010	153159	40269
201008013311	883989.8	7664127.8	0.081	-0.31	08092010	153635	40269
201008013309	883975.2	7655902.9	0.065	-0.02	08092010	154152	40269
201008013355	887998.1	7624122.2	-0.012	-0.10	08092010	171028	40269
201008012776	876013.5	7631982.5	-0.143	0.12	08092010	172535	40269
201008012675	843769.3	7651925.2	0.002	-0.02	09092010	070024	40269
201008012681	819781.4	7651875.1	-0.042	-0.08	09092010	072532	40269
201008012690	751986.1	7692042.3	0.032	-0.07	09092010	102429	40269
201008013146	788078.7	7688118.9	-0.046	-0.16	09092010	105718	40269

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN
201008013291	804059.0	7676049.2	-0.017	-0.91	09092010	112554	40269
201008012675	843768.7	7651925.4	0.030	0.03	09092010	121726	40269
201008012673	851982.4	7651984.2	0.079	0.09	09092010	122230	40269
201008013380	852000.7	7648011.6	-0.001	-0.40	09092010	122604	40269
201008013452	836018.2	7656017.0	0.011	-0.20	09092010	130834	40269
201008013440	803987.1	7671949.8	0.079	-0.57	09092010	135206	40269
201008013434	784003.2	7679979.5	0.073	-0.05	09092010	141745	40269
201008013423	747905.5	7687934.2	0.032	-0.10	09092010	145553	40269
201008013413	715964.4	7679980.4	0.089	0.49	09092010	153136	40269
201008013487	724009.1	7684137.4	0.018	0.17	09092010	154246	40269
201008013477	764152.1	7683932.7	-0.101	0.41	09092010	161739	40269
201008013467	796109.0	7671819.4	-0.068	0.51	09092010	171057	40269
201008012679	828007.8	7651922.7	0.105	0.10	09092010	175402	40269
201008012677	836014.4	7651854.0	-0.014	-0.16	09092010	180015	40269
201008012675	843774.0	7651924.8	-0.019	0.29	09092010	180459	40269
201008013380	851998.6	7648002.2	0.019	0.62	09092010	181020	40269
201008013380	852000.4	7648012.1	-0.034	0.25	10092010	064208	40269
201008012677	836013.9	7651850.8	0.060	0.50	10092010	065055	40269
201008012679	827997.4	7651920.5	-0.020	-0.07	10092010	065603	40269
201008012681	819781.5	7651875.8	0.007	0.07	10092010	070100	40269
201008013514	808019.0	7664011.1	0.029	0.09	10092010	072157	40269
201008013506	780036.2	7672080.6	0.041	0.00	10092010	075518	40269
201008013403	731972.8	7655963.7	0.073	0.25	10092010	092854	40269
201008013398	751981.5	7655983.1	-0.019	-0.01	10092010	104707	40269
201008013552	748022.0	7675963.5	0.067	-0.16	10092010	110638	40269
201008013537	796070.9	7659987.2	0.051	-0.83	10092010	115557	40269
201008013452	836005.0	7656016.9	-0.003	0.05	10092010	122422	40269
201008012673	851981.5	7651987.8	-0.167	-0.12	10092010	131134	40269
201008013397	787949.0	7655984.4	0.165	-0.60	10092010	142615	40269
201008013640	763899.8	7663980.4	0.034	-0.07	10092010	151957	40269
201008013623	815891.5	7643915.6	0.053	-0.07	10092010	170705	40269
201008013689	867999.8	7628148.8	0.001	-0.25	11092010	070227	40269
201008013689	867999.4	7628149.0	0.018	0.25	11092010	093107	40269
201008012766	872014.9	7635983.6	-0.023	-0.24	11092010	095017	40269
201008012681	819779.9	7651878.4	-0.006	-0.16	14092010	103345	40269
201008007249	712061.6	7607985.3	-0.169	-0.52	14092010	125913	40269
201008013793	728241.2	7643888.3	-0.013	0.15	15092010	085124	40269
201008013845	812132.1	7631925.2	0.176	0.89	15092010	115025	40269
201008013398	751981.1	7655983.1	-0.024	0.02	15092010	141145	40269
201008012681	819780.8	7651876.5	0.065	0.25	15092010	145442	40269

APPENDIX G
Repeat Listing: Multiple Control Station Observations

STATION	MGA94EAST	MGA94NORTH	REPEAT_ERROR ELEVATION_M	REPEAT_ERROR GRAVITY_GU	DATE_DDMMYY	TIME_HHMMSS	METERSN	GRVBASE	GPSBASE
20096201371	595918.835	7392983.33			08062010	152826	40269	GRVGPS0112	MBLGPS0008
20096201371	595916.303	7392982.47	0.1		09062010	143842	40269	GRVGPS0112	GRVGPS0112
20096201382	588003.423	7396011.11			08062010	155336	40269	GRVGPS0112	MBLGPS0008
20096201382	588003.207	7396010.74	-0.1		09062010	141852	40269	GRVGPS0112	GRVGPS0112
20096201733	577983.706	7402999.61			10062010	084156	40269	GRVGPS0112	GRVGPS0112
20096201733	577985.804	7402997.59	0.1		10062010	173328	40269	GRVGPS0112	MBLGPS0008
20096201741	585981.476	7403004.97			10062010	085704	40269	GRVGPS0112	GRVGPS0112
20096201741	585981.140	7403008.25	0.1		10062010	171710	40269	GRVGPS0112	MBLGPS0008
20096201766	603005.395	7394953.72			10062010	095228	40269	GRVGPS0112	GRVGPS0112
20096201766	603005.861	7394952.56	0.0		11062010	095902	40269	GRVGPS0112	GRVGPS0112
20096201766	603005.183	7394952.22	0.0		12062010	090258	40269	GRVGPS0112	MBLGPS0008
20096201812	642126.358	7418129.12			10062010	134032	40269	GRVGPS0112	GRVGPS0112
20096201812	642122.969	7418130.24	0.0		12062010	133524	40269	GRVGPS0112	MBLGPS0007
20096201819	641978.538	7409003.29			10062010	135434	40269	GRVGPS0112	GRVGPS0112
20096201819	641979.354	7409002.40	-0.1		12062010	142056	40269	GRVGPS0112	MBLGPS0007
20096201828	641947.130	7400017.63			10062010	141210	40269	GRVGPS0112	GRVGPS0112
20096201828	641946.702	7400015.34	0.2		11062010	113116	40269	GRVGPS0112	MBLGPS0008
20096201836	639988.986	7393974.53			10062010	142750	40269	GRVGPS0112	GRVGPS0112
20096201836	639989.959	7393975.22	-0.1		11062010	111054	40269	GRVGPS0112	MBLGPS0008
20096201880	581918.085	7404055.57			10062010	172556	40269	GRVGPS0112	MBLGPS0008
20096201880	581918.867	7404055.57	0.1		11062010	085818	40269	GRVGPS0112	GRVGPS0112
20096201945	575038.933	7405072.17			11062010	084324	40269	GRVGPS0112	GRVGPS0112
20096201945	575040.849	7405072.07	0.1		11062010	144432	40269	GRVGPS0112	MBLGPS0008
20096201954	583959.831	7405005.55			11062010	090226	40269	GRVGPS0112	GRVGPS0112
20096201954	583964.167	7405005.83	0.1		11062010	142740	40269	GRVGPS0112	MBLGPS0008

20096201969	593969.744	7397988.03		11062010	093430	40269	GRVGPS0112	GRVGPS0112
20096201969	593972.179	7397991.13	0.0	11062010	165310	40269	GRVGPS0112	MBLGPS0008
20096201976	601024.253	7397019.54		11062010	095048	40269	GRVGPS0112	GRVGPS0112
20096201976	601023.795	7397019.79	0.0	11062010	172028	40269	GRVGPS0112	MBLGPS0008
20096202215	620027.307	7423957.97		12062010	121706	40269	GRVGPS0112	MBLGPS0007
20096202215	620027.263	7423955.88	0.0	18062010	131438	40269	GRVGPS0112	GRVGPS0112
20096202216	620012.637	7427997.34		12062010	122107	40269	GRVGPS0112	MBLGPS0007
20096202216	620012.666	7427997.11	0.0	18062010	131820	40269	GRVGPS0112	GRVGPS0112
20096202217	624051.061	7423971.38		12062010	130120	40269	GRVGPS0112	MBLGPS0007
20096202217	624050.794	7423970.87	0.1	18062010	131054	40269	GRVGPS0112	GRVGPS0112
20096202619	604069.742	7436016.61		14062010	095504	40269	GRVGPS0112	MBLGPS0007
20096202619	604067.628	7436017.90	0.0	14062010	102734	40269	GRVGPS0112	MBLGPS0007
20096202619	604067.560	7436018.15	0.0	18062010	171436	40269	GRVGPS0112	GRVGPS0112
20096203167	548988.847	7442002.51		16062010	120429	40269	GRVGPS0112	GRVGPS0112
20096203167	548988.859	7442004.07	0.0	16062010	144836	40269	GRVGPS0112	GRVGPS0112
20096203167	548987.285	7442004.88	0.0	08072010	142211	40269	GRVGPS0112	MBLGPS0002
20096203194	544981.913	7442061.05		16062010	145934	40269	GRVGPS0112	GRVGPS0112
20096203194	544981.499	7442059.66	0.0	16062010	181408	40269	GRVGPS0112	GRVGPS0112
20096203194	544979.878	7442061.20	0.0	08072010	143655	40269	GRVGPS0112	MBLGPS0002
20096203424	527978.638	7427985.85		17062010	121628	40269	GRVGPS0112	GRVGPS0112
20096203424	527977.431	7427982.51	-0.1	04072010	160102	40269	GRVGPS0112	MBLGPS0002
20096203430	531858.011	7431984.76		17062010	131332	40269	GRVGPS0112	GRVGPS0112
20096203430	531842.525	7431985.94	0.2	07072010	141805	40269	GRVGPS0112	MBLGPS0002
20096203462	512055.288	7432008.87		17062010	141938	40269	GRVGPS0112	GRVGPS0112
20096203462	512060.259	7431995.73	0.0	04072010	155340	40269	GRVGPS0112	MBLGPS0002
20096203538	503970.326	7447918.74		17062010	172228	40269	GRVGPS0112	GRVGPS0112
20096203538	503967.929	7447917.50	0.0	04072010	141811	40269	GRVGPS0112	MBLGPS0002
20096203539	507844.505	7448034.83		17062010	172546	40269	GRVGPS0112	GRVGPS0112

20096203539	507853.598	7448027.12	0.2		04072010	154525	40269	GRVGPS0112	MBLGPS0002
20096203540	512020.356	7447976.42			17062010	172918	40269	GRVGPS0112	GRVGPS0112
20096203540	512017.234	7447978.61	0.0		08072010	073501	40269	GRVGPS0112	MBLGPS0002
20096203542	519975.780	7447980.45			17062010	173608	40269	GRVGPS0112	GRVGPS0112
20096203542	519974.823	7447985.27	0.2		8072010	125242	40269	GRVGPS0112	MBLGPS0002
20096203544	527834.734	7448035.70			17062010	174352	40269	GRVGPS0112	GRVGPS0112
20096203544	527840.395	7448037.92	-0.1		7072010	142606	40269	GRVGPS0112	MBLGPS0002
20096203635	640990.123	7433997.26			18062010	120246	40269	GRVGPS0112	GRVGPS0112
20096203635	640989.388	7433997.94	0.0		18062010	135200	40269	GRVGPS0112	GRVGPS0112
20096203635	640990.548	7433997.02	0.0	0.3	22072010	141535	40269	GRVGPS0113	MBLGPS0011
20096203670	607990.372	7512056.30			18062010	154340	40269	GRVGPS0112	GRVGPS0112
20096203670	607992.254	7512056.34	0.0		21062010	142811	40269	GRVGPS0112	MBLGPS0006
20096203670	607989.653	7512054.59	0.1		27062010	093903	40269	GRVGPS0112	MBLGPS0006
20096203670	607985.265	7512056.36	0.1		27062010	172452	40269	GRVGPS0112	MBLGPS0006
20096203670	607990.600	7512054.56	0.0		28062010	090248	40269	GRVGPS0112	MBLGPS0006
20096203670	607993.834	7512029.10	0.0		2072010	095731	40269	GRVGPS0112	MBLGPS0006
20096203670	607988.385	7512053.92	-0.1		2072010	173134	40269	GRVGPS0112	MBLGPS0007
20096203680	608025.606	7495922.45			18062010	162324	40269	GRVGPS0112	GRVGPS0112
20096203680	608025.665	7495924.06	0.1		20062010	153730	40269	GRVGPS0112	MBLGPS0005
20096203749	600014.244	7437960.43			19062010	085531	40269	GRVGPS0112	MBLGPS0007
20096203749	600017.984	7437960.67	0.0		19062010	173457	40269	GRVGPS0112	MBLGPS0007
20096203749	600018.974	7437961.03	0.0		20062010	075936	40269	GRVGPS0112	GRVGPS0112
20096203752	619938.328	7448005.26			19062010	091656	40269	GRVGPS0112	MBLGPS0007
20096203752	619938.708	7448005.45	0.0		20062010	140242	40269	GRVGPS0112	GRVGPS0112
20096203762	640030.591	7467978.22			19062010	095146	40269	GRVGPS0112	MBLGPS0007
20096203762	640030.783	7467978.25	0.1		19062010	122410	40269	GRVGPS0112	MBLGPS0007
20096203762	640030.702	7467977.65	-0.1	0.8	23072010	084432	40269	GRVGPS0113	MBLGPS0011
20096203772	640010.873	7507954.19			19062010	102338	40269	GRVGPS0112	MBLGPS0007
20096203772	640012.706	7507957.87	0.0		19062010	115005	40269	GRVGPS0112	MBLGPS0007
20096203772	640012.972	7507955.49	0.0	0.8	23072010	092439	40269	GRVGPS0113	MBLGPS0011

20096203823	632005.902	7524013.24			19062010	142601	40269	GRVGPS0112	MBLGPS0007
20096203823	632005.312	7524012.93	0.0		19062010	155242	40269	GRVGPS0112	MBLGPS0005
20096203839	627992.075	7504066.45			19062010	161043	40269	GRVGPS0112	MBLGPS0007
20096203839	627991.751	7504066.37	0.0		20062010	092328	40269	GRVGPS0112	MBLGPS0005
20096203850	628012.696	7459982.24			19062010	164815	40269	GRVGPS0112	MBLGPS0007
20096203850	628012.047	7459983.47	-0.1		20062010	084448	40269	GRVGPS0112	GRVGPS0112
20096203860	601988.592	7444041.57			19062010	172542	40269	GRVGPS0112	MBLGPS0007
20096203860	601987.433	7444042.75	-0.1		20062010	082229	40269	GRVGPS0112	GRVGPS0112
20096203868	591991.753	7436054.23			19062010	175216	40269	GRVGPS0112	MBLGPS0007
20096203868	591992.147	7436054.90	0.0		20062010	074339	40269	GRVGPS0112	GRVGPS0112
20096203935	640010.802	7595939.98			20062010	111023	40269	GRVGPS0112	MBLGPS0005
20096203935	640012.296	7595937.79	-0.1		20062010	114608	40269	GRVGPS0112	MBLGPS0005
20096203935	640011.117	7595935.76	0.2	0.6	25072010	094852	40269	GRVGPS0113	MBLGPS0009
20096204048	620018.098	7555980.29			21062010	105843	40269	GRVGPS0112	MBLGPS0006
20096204048	620017.380	7555980.57	0.1		25062010	131013	40269	GRVGPS0112	MBLGPS0005
20096204050	612042.296	7571990.60			21062010	111123	40269	GRVGPS0112	MBLGPS0006
20096204050	612040.720	7571991.41	0.1		24062010	121016	40269	GRVGPS0112	MBLGPS0005
20096204115	599989.707	7495967.30			21062010	150953	40269	GRVGPS0112	GRVGPS0112
20096204115	599989.658	7495967.59	0.0		27062010	090036	40269	GRVGPS0112	MBLGPS0007
20096204115	599990.315	7495967.51	0.0		27062010	132725	40269	GRVGPS0112	MBLGPS0006
20096204119	600017.549	7480021.51			21062010	152210	40269	GRVGPS0112	GRVGPS0112
20096204119	600016.822	7480021.59	0.0		27062010	084355	40269	GRVGPS0112	MBLGPS0007
20096204119	600016.783	7480021.91	0.1		27062010	133451	40269	GRVGPS0112	MBLGPS0006
20096204136	574001.339	7442020.83			21062010	165426	40269	GRVGPS0112	GRVGPS0112
20096204136	574001.945	7442020.12	0.0		27062010	073337	40269	GRVGPS0112	MBLGPS0007
20096204659	599978.379	7503973.24			27062010	090719	40269	GRVGPS0112	MBLGPS0007
20096204659	599978.712	7503970.86	-0.1		2072010	155411	40269	GRVGPS0112	MBLGPS0006

20096204661	603995.578	7511993.12			27062010	091452	40269	GRVGPS0112	MBLGPS0005
20096204661	603994.767	7511994.15	-0.1		27062010	131853	40269	GRVGPS0112	MBLGPS0006
20096205330	540067.298	7512033.12			4072010	084827	40269	GRVGPS0112	MBLGPS0003
20096205330	540069.250	7512033.77	0.0		4072010	123103	40269	GRVGPS0112	MBLGPS0003
20096205330	540068.320	7512033.30	0.0		7072010	084534	40269	GRVGPS0112	MBLGPS0003
20096205330	540068.084	7512034.03	0.0		10072010	101226	40269	GRVGPS0112	MBLGPS0003
20096205330	540067.510	7512031.75	0.0		13072010	084918	40269	GRVGPS0112	MBLGPS0003
20096205330	540066.838	7512033.55	0.0		18072010	105821	40269	GRVGPS0112	MBLGPS0004
20096205730	571980.558	7464088.18			8072010	161015	40269	GRVGPS0112	GRVGPS0112
20096205730	571980.741	7464090.41	0.0		8072010	175614	40269	GRVGPS0112	MBLGPS0002
20096206636	667970.116	7393006.46			21072010	102152	40269	GRVGPS0113	MBLGPS0012
20096206636	667968.281	7393004.69	0.0		22072010	172705	40269	GRVGPS0113	MBLGPS0011
20096206780	644056.079	7515970.13			22072010	112105	40269	GRVGPS0113	MBLGPS0010
20096206780	644057.571	7515966.70	0.2		23072010	093750	40269	GRVGPS0113	MBLGPS0009
20096206848	644043.487	7401962.76			22072010	155531	40269	GRVGPS0113	MBLGPS0011
20096206848	644051.818	7401969.10	-0.1		10082010	103217	40269	GRVGPS0113	MBLGPS0012
20096206861	661024.338	7398971.74			22072010	164930	40269	GRVGPS0113	MBLGPS0011
20096206861	661025.570	7398976.02	-0.1		10082010	141345	40269	GRVGPS0113	MBLGPS0012
20096206875	669978.206	7394004.41			22072010	173648	40269	GRVGPS0113	MBLGPS0011
20096206875	669977.730	7394009.62	0.0		10082010	170007	40269	GRVGPS0113	MBLGPS0012
20096207249	712062.216	7607984.13			25072010	113534	40269	GRVGPS0113	MBLGPS0009
20096207249	712062.628	7607984.31	0.1		25072010	142611	40269	GRVGPS0113	MBLGPS0009
20096207249	712061.648	7607985.34	-0.2	-0.5	14092010	125913	40269	GRVGPS0114	MBLGPS0014
20096207788	674000.179	7477843.37			29072010	131511	40269	GRVGPS0113	MBLGPS0011
20096207788	674000.036	7477843.13	0.0		8082010	164117	40269	GRVGPS0113	MBLGPS0010
20096207800	696966.608	7515991.88			29072010	145901	40269	GRVGPS0113	MBLGPS0009
20096207800	696959.856	7515989.43	-0.1		13082010	114257	40269	GRVGPS0113	MBLGPS0011
20096207807	690047.275	7515998.66			29072010	152202	40269	GRVGPS0113	MBLGPS0009
20096207807	690042.761	7516002.41	0.0		13082010	110538	40269	GRVGPS0113	MBLGPS0011

20096207814	682989.777	7516039.49		29072010	154416	40269	GRVGPS0113	MBLGPS0009
20096207814	682989.717	7516039.77	-0.2	8082010	114006	40269	GRVGPS0113	MBLGPS0010
20096207821	675963.411	7516000.87		29072010	160720	40269	GRVGPS0113	MBLGPS0009
20096207821	675961.608	7516000.54	-0.1	8082010	085857	40269	GRVGPS0113	MBLGPS0010
20096207828	675980.558	7508902.94		29072010	162643	40269	GRVGPS0113	MBLGPS0011
20096207828	675981.656	7508903.16	0.0	8082010	154546	40269	GRVGPS0113	MBLGPS0010
20096207884	671975.247	7547868.70		30072010	105009	40269	GRVGPS0113	MBLGPS0010
20096207884	671966.474	7547866.51	0.1	1082010	150020	40269	GRVGPS0113	MBLGPS0009
20096207939	704027.124	7511955.79		30072010	162200	40269	GRVGPS0113	MBLGPS0010
20096207939	704011.882	7511942.97	0.1	1082010	171501	40269	GRVGPS0113	MBLGPS0011
20096208251	691027.447	7428039.61		2082010	090017	40269	GRVGPS0113	MBLGPS0011
20096208251	691030.466	7428036.28	0.1	7082010	172946	40269	GRVGPS0113	GRVGPS0113
20096208334	657954.753	7407013.55		2082010	133806	40269	GRVGPS0113	MBLGPS0011
20096208334	657953.375	7407014.90	0.1	9082010	160202	40269	GRVGPS0113	MBLGPS0012
20096208538	677988.044	7411949.17		3082010	165631	40269	GRVGPS0113	MBLGPS0011
20096208538	677987.084	7411951.14	0.0	6082010	124958	40269	GRVGPS0113	MBLGPS0011
20096208538	677997.863	7411954.25	0.0	11082010	122404	40269	GRVGPS0113	MBLGPS0012
20096208644	687972.530	7418045.44		6082010	175058	40269	GRVGPS0113	MBLGPS0011
20096208644	687968.509	7418072.90	0.0	7082010	154652	40269	GRVGPS0113	MBLGPS0011
20096208644	687979.140	7418056.03	0.0	11082010	175527	40269	GRVGPS0113	GRVGPS0113
20096208845	695986.956	7518905.99		8082010	123256	40269	GRVGPS0113	MBLGPS0010
20096208845	695985.011	7518906.06	0.0	8082010	144424	40269	GRVGPS0113	MBLGPS0010
20096208845	695995.800	7518904.75	0.1	13082010	123313	40269	GRVGPS0113	MBLGPS0011
20096208852	703996.676	7518964.29		8082010	125033	40269	GRVGPS0113	MBLGPS0010
20096208852	703996.782	7518964.38	0.0	8082010	142757	40269	GRVGPS0113	MBLGPS0010
20096208852	703999.020	7518967.44	0.0	13082010	131159	40269	GRVGPS0113	MBLGPS0011
20096208881	687966.437	7518991.53		8082010	150057	40269	GRVGPS0113	MBLGPS0010
20096208881	687962.528	7518983.68	0.0	13082010	121130	40269	GRVGPS0113	MBLGPS0011

20096209657	684026.556	7494000.27		12082010	165223	40269	GRVGPS0113	MBLGPS0010
20096209657	684027.688	7493993.39	-0.1	13082010	091520	40269	GRVGPS0113	MBLGPS0011
20096209879	691999.291	7490002.03		14082010	092426	40269	GRVGPS0113	MBLGPS0011
20096209879	691999.105	7490002.09	0.0	14082010	155039	40269	GRVGPS0113	MBLGPS0011
20096209879	691998.729	7490002.09	0.0	15082010	083848	40269	GRVGPS0113	MBLGPS0010
20096209893	686016.721	7505965.83		14082010	100538	40269	GRVGPS0113	MBLGPS0011
20096209893	686012.994	7505963.19	0.1	15082010	092340	40269	GRVGPS0113	MBLGPS0010
20096211197	751990.335	7443955.08		22082010	095551	40269	GRVGPS0113	MBLGPS0017
20096211197	751988.708	7443953.68	0.0	26082010	130249	40269	GRVGPS0113	MBLGPS0017
20096211197	751988.520	7443953.36	0.0	28082010	071848	40269	GRVGPS0113	MBLGPS0017
20096211197	751988.443	7443953.12	0.0	29082010	090057	40269	GRVGPS0113	GRVGPS0113
20096211662	780049.511	7444028.18		27082010	121815	40269	GRVGPS0113	MBLGPS0017
20096211662	780049.984	7444028.70	0.0	28082010	083107	40269	GRVGPS0113	MBLGPS0022
20096211726	763981.030	7411965.36		27082010	175734	40269	GRVGPS0113	MBLGPS0017
20096211726	763972.560	7411961.01	0.1	28082010	105455	40269	GRVGPS0113	MBLGPS0022
20096211751	776042.511	7463943.93		28082010	080346	40269	GRVGPS0113	MBLGPS0017
20096211751	776044.319	7463946.37	0.1	29082010	073802	40269	GRVGPS0113	GRVGPS0113
20096212554	816110.175	7712066.63		2092010	161252	40269	GRVGPS0114	GRVGPS0114
20096212554	816114.189	7712067.54	0.0	3092010	132224	40269	GRVGPS0114	GRVGPS0114
20096212554	816112.081	7712069.04	0.1	6092010	170939	40269	GRVGPS0114	MBLGPS0019
20096212588	860016.944	7676009.64		3092010	115801	40269	GRVGPS0114	GRVGPS0114
20096212588	860016.818	7676008.50	0.0	4092010	142205	40269	GRVGPS0114	MBLGPS0013
20096212592	855999.579	7692075.19		3092010	121708	40269	GRVGPS0114	GRVGPS0114
20096212592	855997.883	7692077.37	-0.2	5092010	133342	40269	GRVGPS0114	MBLGPS0019
20096212602	819965.138	7691971.87		3092010	125718	40269	GRVGPS0114	GRVGPS0114
20096212602	819964.901	7691972.10	0.1	6092010	115234	40269	GRVGPS0114	MBLGPS0019
20096212604	820004.151	7700107.31		3092010	130532	40269	GRVGPS0114	GRVGPS0114
20096212604	819997.073	7700113.03	0.0	6092010	145628	40269	GRVGPS0114	MBLGPS0019

20096212606	820044.505	7708066.73		3092010	131445	40269	GRVGPS0114	GRVGPS0114
20096212606	820036.953	7708067.08	0.0	6092010	150734	40269	GRVGPS0114	MBLGPS0019
20096212609	807984.014	7711999.36		3092010	133108	40269	GRVGPS0114	GRVGPS0114
20096212609	807984.219	7711999.91	0.1	5092010	163856	40269	GRVGPS0114	MBLGPS0019
20096212611	800007.350	7711984.36		3092010	133932	40269	GRVGPS0114	GRVGPS0114
20096212611	799989.560	7711986.36	0.0	4092010	124925	40269	GRVGPS0114	MBLGPS0013
20096212613	792006.177	7712002.60		3092010	134736	40269	GRVGPS0114	GRVGPS0114
20096212613	791999.681	7712003.48	0.1	5092010	154021	40269	GRVGPS0114	MBLGPS0019
20096212617	756049.738	7728029.87		3092010	150136	40269	GRVGPS0114	GRVGPS0114
20096212617	756049.601	7728030.06	0.1	6092010	103349	40269	GRVGPS0114	MBLGPS0013
20096212619	764111.013	7727912.96		3092010	150929	40269	GRVGPS0114	GRVGPS0114
20096212619	764107.504	7727914.26	0.1	6092010	074145	40269	GRVGPS0114	MBLGPS0013
20096212621	772034.463	7728012.22		3092010	151735	40269	GRVGPS0114	GRVGPS0114
20096212621	772036.172	7728013.08	0.2	5092010	105708	40269	GRVGPS0114	MBLGPS0013
20096212623	780076.595	7728010.91		3092010	152401	40269	GRVGPS0114	GRVGPS0114
20096212623	780075.127	7728012.94	0.1	5092010	074355	40269	GRVGPS0114	MBLGPS0013
20096212635	803995.303	7735991.17		3092010	160355	40269	GRVGPS0114	GRVGPS0114
20096212635	803985.082	7735987.91	0.1	5092010	145951	40269	GRVGPS0114	MBLGPS0019
20096212646	835997.374	7723973.33		3092010	164015	40269	GRVGPS0114	GRVGPS0114
20096212646	835978.640	7723970.82	0.0	5092010	141618	40269	GRVGPS0114	MBLGPS0019
20096212670	863861.843	7652145.25		4092010	070814	40269	GRVGPS0114	MBLGPS0013
20096212670	863862.246	7652144.89	0.0	4092010	145903	40269	GRVGPS0114	MBLGPS0013
20096212670	863861.944	7652145.61	0.0	7092010	130516	40269	GRVGPS0114	GRVGPS0114
20096212681	819780.976	7651875.19		4092010	075237	40269	GRVGPS0114	MBLGPS0013
20096212681	819781.614	7651874.88	0.0	4092010	134726	40269	GRVGPS0114	MBLGPS0020
20096212681	819781.428	7651875.06	0.0	9092010	072532	40269	GRVGPS0114	MBLGPS0020
20096212681	819781.483	7651875.81	0.0	10092010	070100	40269	GRVGPS0114	MBLGPS0020
20096212681	819779.946	7651878.36	0.0	14092010	103345	40269	GRVGPS0114	MBLGPS0020

20096212681	819780.780	7651876.51	0.1	15092010	145442	40269	GRVGPS0114	GRVGPS0114
20096212690	751985.791	7692042.34		4092010	090714	40269	GRVGPS0114	MBLGPS0013
20096212690	751986.136	7692042.26	0.0	9092010	102429	40269	GRVGPS0114	MBLGPS0014
20096212766	872016.822	7635985.54		4092010	151907	40269	GRVGPS0114	MBLGPS0013
20096212766	872017.035	7635986.08	0.0	4092010	155559	40269	GRVGPS0114	MBLGPS0013
20096212766	872014.904	7635983.64	0.0	11092010	095017	40269	GRVGPS0114	GRVGPS0114
20096212776	876010.887	7631982.25		4092010	155135	40269	GRVGPS0114	MBLGPS0013
20096212776	876013.510	7631982.50	-0.1	8092010	172535	40269	GRVGPS0114	GRVGPS0114
20096212852	819998.570	7683989.98		5092010	121402	40269	GRVGPS0114	MBLGPS0019
20096212852	819998.668	7683989.61	0.0	6092010	115927	40269	GRVGPS0114	MBLGPS0019
20096212852	819998.247	7683988.45	0.0	6092010	173106	40269	GRVGPS0114	MBLGPS0020
20096213845	812133.109	7631925.09		14092010	174606	40269	GRVGPS0114	MBLGPS0020
20096213845	812132.096	7631925.18	0.2	15092010	115025	40269	GRVGPS0114	MBLGPS0014

APPENDIX H
Longman's Earth Tide Correction Formula

```
input dLat (latitude)
input dLon (longitude)
input dDate (date)
*Date broken down into year, month and date
input dTime (time)

array pClndr[12]={0,31,59,90,120,151,181,212,243,273,304,334}
lYr=year
lMo=month
lDa=day

ny=(lYr-1900)
days=(dTime/24.0+lDa-1+pClndr[lMo-1])
lLeap=(ny/4)
if(lLeap/2=ny and lMo<3)then lLeap=lLeap-1
lDay=(ny*365+lLeap+lDa+pClndr[lMo-1])
dcent = (ny*365.0+lLeap+days+0.5)/36525)
dhrs = (ny*365.0+lLeap+days+0.5)*24.0)
ds = (dcent*8399.709299+4.720023434+(dcent*dcent)*4.40696e-5)
dp=(dcent*71.01800936+5.835124713-(dcent*dcent)*1.80545e-4-dcent*2.1817e-
7*(dcent*dcent)
dh=(dcent*628.3319509+4.88162792+(dcent*dcent)*5.27962e-6)
doln=(4.523588564-dcent*33.757153303+(dcent*dcent)*3.6749e-5)
dps=(dcent*0.030005264 16+4.908229461+(dcent*dcent)*7.902463e-6)
des=(0.01675104-dcent*4.18e-5-(dcent*dcent)*1.26e-7)
dsoln=(sin(doln))
dci=(0.91369-cos(doln)*0.03569)
dsi=(sqrt(1.0-(dci*dci))
dsn=(dsoln*0.08968/dsi)
dcn=(sqrt(1.0-(dsn*dsn))
dtit=(dsoln*0.39798/(dsi*cos(doln)*dcn+1.0dsoln*0.91739*dsn))
det=(atan(dtit)*2.0)
if (det<0.0)then det=det+6.2831852)

dolm1=(ds-doln+det+sin(ds-dp)*0.10979944)
dolm=(dolm1+sin((ds-dp)*2.0)*0.003767474+sin(ds-
dh*2.0+dp)*0.0154002+sin((ds-dh)*2.0)*0.00769395)
dha=((dTime*15.0-180)*0.017453292 5199+dLon/57.295779513)
dchi=(dha+dh-atan(dsn/dcn))
dal=(dLat/57.295779513)
dct=(sin(dal)*dsi*sin(dolm)+cos(dal)*((dci+1.0)*cos(dolm-dchi)+(1.0-
dci)*cos(dolm+dchi))/2.0)
dda=(cos(ds-dp)*0.14325+2.60144+cos((ds-dp)*2.0)*0.0078644+cos(ds-
dh*2.0+dp)*0.0200918+cos((ds-dh)*2.0)*0.0146006)
dr=(6.378388/sqrt((1.0-((cos(dal)*cos(dal))*0.00676902+1.0)
r_1=(dda)
r_2=(dct)
r_3=(dr)
r_4=(dda)
r_5=(dda*dda)
r_6=(dct)
dgm=(dr80.49049*dda*(r_1*r_1)*((r_2*r_2)*3.0-1.0)+(r_3*r_3)*7.4e-
4*(r_5*r_5)*dct*((r_6*r_6)*5.0-3.0))
dols=(dh+des*2.0*sin(dh-dps))
dchis=(dha+dh)
dds=((des*cos(dh-dps)+1.0)*0.668881/(1.0-(des*des)))
dcf=(sin(dal)*0.39798*sin(dols)+cos(dal)*(cos(dols-
```

APPENDIX I
Data Formats and Metadata

```
DEFN   ST=RECD,RT=COMM;RT:A4;COMMENTS:A76
DEFN 1 ST=RECD,RT=DATA;RT:A4;FLTLINE:F10.1:NAME=Line number
DEFN 2 ST=RECD,RT=;PROJECT:F7.0:NULL=-9999.,UNIT=None,NAME=PROJECT
DEFN 3 ST=RECD,RT=;STATION:F12.0:NULL=-999999999.,UNIT=None,NAME=STATION
DEFN 4 ST=RECD,RT=;LATITUDE:F11.6:NULL=-99.999999,UNIT=Decimal Degrees,NAME=LATITUDE
DEFN 5 ST=RECD,RT=;LONGITUDE:F12.6:NULL=-999.999999,UNIT=Decimal Degrees,NAME=LONGITUDE
DEFN 6 ST=RECD,RT=;EASTING:F9.1:NULL=-99999.9,UNIT=metres,NAME=EASTING
DEFN 7 ST=RECD,RT=;NORTHING:F10.1:NULL=-999999.9,UNIT=metres,NAME=NORTHING
DEFN 8 ST=RECD,RT=;ELLIPSHTGRS80:F9.3:NULL=-999.999,UNIT=metres,NAME=ELLIPSHTGRS80
DEFN 9 ST=RECD,RT=;NAG98:F9.3:NULL=-999.999,UNIT=metres,NAME=NAG98
DEFN 10 ST=RECD,RT=;GRNDELEVATION:F9.3:NULL=-999.999,UNIT=metres,NAME=GRNDELEVATION
DEFN 11 ST=RECD,RT=;OBSGAAGD07:F12.2:NULL=-9999999.99,UNIT=gravity units,NAME=OBSGAAGD07
DEFN 12 ST=RECD,RT=;HTGM:F9.3:NULL=-999.999,UNIT=metres,NAME=HTGM
DEFN 13 ST=RECD,RT=;TCINNER:F7.2:NULL=-99.99,UNIT=gravity units,NAME=TCINNER
DEFN 14 ST=RECD,RT=;TCQFINNER:I4:NULL=-99,UNIT=None,NAME=TCQFINNER
DEFN 15 ST=RECD,RT=;TCOUTER:F7.2:NULL=-99.99,UNIT=gravity units,NAME=TCOUTER
DEFN 16 ST=RECD,RT=;TCQFOUTER:I4:NULL=-99,UNIT=None,NAME=TCQFOUTER
DEFN 17 ST=RECD,RT=;TCTOTAL:F7.2:NULL=-99.99,UNIT=gravity units,NAME=TCTOTAL
DEFN 18 ST=RECD,RT=;EFAA:F10.2:NULL=-99999.99,UNIT=gravity units,NAME=EFAA
DEFN 19 ST=RECD,RT=;SCBA267:F10.2:NULL=-99999.99,UNIT=gravity units,NAME=SCBA267
DEFN 20 ST=RECD,RT=;CSCBA267:F10.2:NULL=-99999.99,UNIT=gravity units,NAME=CSCBA267
DEFN 21 ST=RECD,RT=;HORIZDIST:F9.2:NULL=-9999.99,UNIT=metres,NAME=HORIZDIST
DEFN 22 ST=RECD,RT=;GRVBASE:F13.0:NULL=-9999999999.,UNIT=None,NAME=GRVBASE
DEFN 23 ST=RECD,RT=;GPSBASE:F13.0:NULL=-9999999999.,UNIT=None,NAME=GPSBASE
DEFN 24 ST=RECD,RT=;TIME:A9:,UNIT=None,NAME=TIME
DEFN 25 ST=RECD,RT=;DATE:A9:,UNIT=None,NAME=DATE
DEFN 26 ST=RECD,RT=;MGAZONE:F4.0:NULL=-9.,UNIT=None,NAME=MGAZONE
DEFN 27 ST=RECD,RT=;GMTYPESN:A30:,UNIT=None,NAME=GMTYPESN
DEFN 28 ST=RECD,RT=;STATIONDESC:F20.0:NULL=-99.,UNIT=None,NAME=STATIONDESC;END DEFN
DEFN 1 ST=RECD,RT=PROJ; RT:A4
DEFN 2 ST=RECD,RT=PROJ; PROJNAME:A30: COMMENT=GDA94 / MGA zone 52
DEFN 3 ST=RECD,RT=PROJ; ELLPSNAM:A30: COMMENT=GRS 1980
DEFN 4 ST=RECD,RT=PROJ; MAJ_AXIS: D12.1: UNIT=m, COMMENT=6378137.000000
DEFN 5 ST=RECD,RT=PROJ; ECCENT: D12.9: COMMENT=298.257222
DEFN 6 ST=RECD,RT=PROJ; PRIMEMER: F10.1: UNIT=deg, COMMENT=0.000000
DEFN 7 ST=RECD,RT=PROJ; PROJMETH: A30: COMMENT=Transverse Mercator
DEFN 8 ST=RECD,RT=PROJ; PARAM1: D14.0: COMMENT=      0.000000
DEFN 9 ST=RECD,RT=PROJ; PARAM2: D14.0: COMMENT=    129.000000
DEFN 10 ST=RECD,RT=PROJ; PARAM3: D14.0: COMMENT=      0.999600
DEFN 11 ST=RECD,RT=PROJ; PARAM4: D14.0: COMMENT= 500000.000000
DEFN 12 ST=RECD,RT=PROJ; PARAM5: D14.0: COMMENT=10000000.00000
DEFN 13 ST=RECD,RT=PROJ; PARAM6: D14.0:
DEFN 14 ST=RECD,RT=PROJ; PARAM7: D14.0:
DEFN 15 ST=RECD,RT=PROJ; END DEFN
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COMM ATLAS GEOPHYSICS PTY LTD ASEG-GDF2 FORMAT FILE
COMM WWW.ATLASGEO.COM.AU
COMM INFO@ATLASGEO.COM.AU
COMM
COMM ATLAS PROJECT NUMBER               P2010013
COMM GA PROJECT NUMBER                  201080
COMM CLIENT                             GA
COMM PROJECT AREA                       WEST ARUNTA GRAVITY
COMM START DATE                         06062010
COMM END DATE                           15092010
COMM PROCESSED BY                       LR MATHEWS
COMM
COMM VESSEL                             HELICOPTER ROBINSON R44
COMM OPERATORS                          ML,NP,LM,NT,JE
COMM
COMM MIN SPACING                        1000m
COMM MAX SPACING                        4000m
COMM LAYOUT                             CELL CENTRE
COMM
COMM GRAVITY STATIONS                   12427
COMM
COMM HORIZONTAL DATUM                   GDA94
COMM PROJECTION                         SUTM52/MGA52
COMM HORIZ ACCURACY                     0.05m
COMM
COMM VERTICAL DATUM                     GRS80
COMM VERICAL ACCURACY                   0.05m
COMM
COMM GRAVITY DATUM                      AAGD07
COMM GRAVITY ACCURACY                   0.3gu
COMM
COMM GRAVITY INSTRUMENT                 SCINTREX CG5
COMM GRAVITY SN                         40269
COMM GPS INSTRUMENT                     LEICA GPS1200
COMM GPS METHOD                         PPK
COMM
COMM GPS BASE                           GRVGPS0069 GRVGPS0112 GRVGPS0113 GRVGPS0114 MBLGPS0002 - MBLGPS0022
COMM GRV BASE                           GRVGPS0069 GRVGPS0112 GRVGPS0113 GRVGPS0114
COMM CTRL TIE STATION                   2006600037 1991910235 1960910135 1999929803 1999921803 1967931317
COMM
COMM PROCESSING
COMM DRIFT CORRECTION
COMM ETC CORRECTION                     LONGMAN
COMM NORMAL GRAVITY                     9780326.7715*((1+0.001931851353*(SIN(B3*(PI()/180)))^2)/(SQRT(1-0.0066943800229*(SIN(B3*(PI()/180)))^2)))
COMM ATMOSPHERIC CORRECTION             8.74-0.00099*F3+0.0000000356*F3^2
COMM FREE AIR CORRECTION                -(3.087691-0.004398*SIN(LAT)^2)*ELLIPSHT+0.00000072125*ELLIPSHT^2
COMM SCAP BOUGUER CORRECTION            2*PI*Gp((1+μ)*ELLIPSHT-LAMBDA*R) for p=2.67 t/m^3
COMM TERRAIN CORRECTION METHOD          RASTERTC
COMM
COMM SOFTWARE                           AGRIS(IN HOUSE), WAYPOINT830, CHRISDBF, ERMAPPER, RASTERTC
COMM
COMM
COMM DETAILED COLUMN DESCRIPTIONS
COMM COLUMN NAME                        COLUMN DESCRIPTION                                          UNITS
COMM
COMM PROJECT                            GA PROJECT NUMBER                                           NONE
COMM STATION                            GA STATION NUMBER                                           NONE
COMM TYPE                               OBSERVATION TYPE                                            NONE
COMM LATITUDE                           COORDINATE LATITUDE GDA94                                   DECIMAL DEGREES
COMM LONGITUDE                          COORDINATE LONGITUDE GDA94                                  DECIMAL DEGREES
COMM EASTING                            COORDINATE EASTING MGA/GDA94                                M
COMM NORTHING                           COORDINATE NORTHING MGA/GDA94                               M
COMM ELLIPSHTGRS80                      COORDINATE ELEVATION ELLIPSOIDAL GRS80                      M
COMM NAG98                              GEOID ELLIPSOID SEPARATION AUSGEOID98                       M
COMM GRNDELEVATION                      GROUND LEVEL ELEVATION                                      M
COMM OBSGAAGD07GU                       OBSERVED GRAVITY AAGD07                                     GU
COMM HTGM                               STATION HEIGHT OF GRAVITY METER                             M
COMM TCINNER                            INNER ZONE TERRAIN CORRECTION                               GU
COMM TCQFINNER                          QUALITY FACTOR OF INNER ZONE TERRAIN CORRECTION             NONE
COMM TCOUTER                            OUTER ZONE TERRAIN CORRECTION                               GU
COMM TCQFOUTER                          QUALITY FACTOR OF OUTER ZONE TERRAIN CORRECTION             NONE
COMM TCTOTAL                            TOTAL TERRAIN CORRECTION                                    GU
COMM EFAA                               ELLIPSOIDAL FREE AIR ANOMALY                                GU
COMM SCBA267                            SPHERICAL CAP BOUGUER ANOMALY 2.67 t/m^3                    GU
COMM CSCBA267                           COMPLETE SPHERICAL CAP BOUGUER ANOMALY 2.67 t/m^3           GU
COMM HORIZDIST                          HORIZONTAL DISTANCE FROM PROGRAMMED STATION                 M
COMM GRVBASE                            GRAVITY BASE STATION REFERENCED TO                          NONE
COMM GPSBASE                            GPS BASE STATION REFERENCED TO                              NONE
COMM TIME                               TIME OF GRAVITY OBSERVATION                                 NONE
COMM DATE                               DATE OF GRAVITY OBSERVATION                                 NONE
COMM MGAZONE                            MGA ZONE NUMBER                                             NONE
COMM GMTYPESN                           GRAVITY METER TYPE SERIAL                                   NONE
COMM STATIONDESC                        STATION DESC                                                NONE
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