HAINES SURVEYS

GRAVITY SURVEY SPECIALISTS

Job No. 1909

Lake Lewis GRAVITY SURVEY
Salt Lake Potash
August 2019

PERTH
PO BOX 120
BULLCREEK, WA 6149
PERTH, AUSTRALIA
TEL:(08) 9332 2140
FAX: (08) 9332 2609
INTER: +618 9332 2140

ADELAIDE
PO BOX 196
ALDGATE SA 5154
ADELAIDE, AUSTRALIA
TEL (08) 8370 8779
FAX (08) 8370 8758
INTER: +618 8370 8779

HAINES SURVEYS PTY. LTD. A.C.N 008209 872

Contents

Introduction

A detailed GPS gravity survey designated as Lake Lewis Gravity Survey has been carried out in an area approximately 15km South West of Tilmouth Roadhouse, Northern Territory on Lake Lewis. The survey was completed over the course of 8 days between the 22th and 29th of August 2019 on behalf of Salt Lake Potash.

The proposed Lake Lewis Gravity Survey consisted of 527 stations on 21 south west to north east trending traverses. All proposed traverses are coincident with GDA94. Traverse intervals were not preciously uniform but were approx. 1100 metres and station intervals were 200 metres. The lines were bounded in the west by GDA94 Zone 53 2298140E, in the east by 250011E, in the south by 7455550N and in the north by 7474400N.

The completed Lake Lewis Gravity Survey consisted of all 527 proposed station locations. Some stations have been offset from their planned position along the traverses to avoid taking readings on small islands within the salt lake.

There were 32 observations repeated for quality control purposes, giving a repeat percentage of 6.0%.

The Bouguer anomaly processing has been performed using a country rock density of 2.67 g/cc.

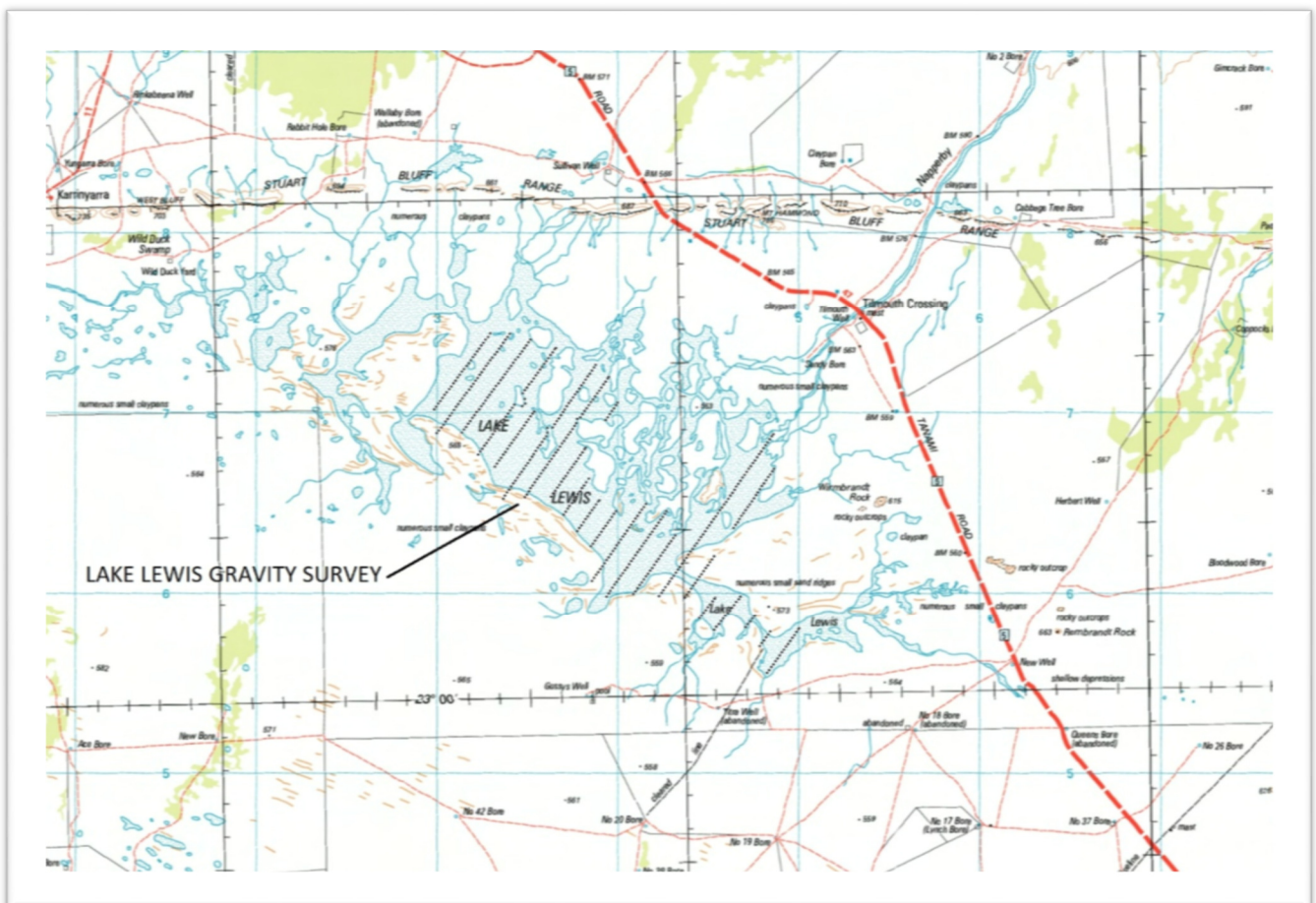Lake Lewis Gravity Survey Location Diagram (map is oriented to the North)

Figure 1 – Lake Lewis Gravity Survey

Survey and Gravity Base Stations

A GPS/Gravity base station, designated as 2019.0901 was established within the proposed survey grid. The base station was established in a convenient location within the project area to provide good UHF radio coverage for the RTK system. The actual base is marked with a short star iron picket driven flush with the natural surface. The base is witnessed by a long star picket within 0.3m of the ground mark standing about 1m tall. Aluminium tags are attached with the inscription "Haines Surveys" "Gravity Base" "2019.0901".

A sub-base designated 2019.0999 was located within 10 minutes drive of the main base to provide a backup base station in case loop ties to the main base were poor. These positions are not marked in the field.

Horizontal and vertical control for 2019.0901 was established using the AUSPOS online GPS processing service provided by Geoscience Australia. This method provides control within the GDA94 Datum to within +/- 5 cm. It largely replaces the need for finding local survey marks or allows accurate control to be established when local marks are not available.

A total of 24 hours (at 5 second intervals) of observations were logged over 3 days for base 2019 0901. The following outlines the Cartesian coordinate precision attained per day.

```
1 Sigma      sX(m) sY(m) sZ(m) yyyy/mm/dd
0901         0.012 0.012 0.015 2019/08/22
0901         0.010 0.011 0.013 2019/08/23
0901         0.011 0.010 0.011 2019/08/24
```

Since GDA94 and WGS84 (Global Positioning System Datum) are virtually equivalent the GDA94 values can be directly input into the GPS processing software for all calculations.

Vertical control has been converted to an Australian Height Datum (AHD) height using the GDA94 height determined from AUSPOS and the AUSGEOID09 gravimetric geoid.

Gravity control for base station 2019.0901 was established on the Australian Fundamental Gravity Network (AAGD07) using 4 of A-B ties from known AFGN station 1991910335 (Alice Springs Airport Isogal).

All completed gravity ties ensured that gravity control was established to within 0.010.

Coordinates for all bases are listed in the table below.

Lake Lewis Survey/Gravity Control							
	WGS84/GDA94			MGA94 Zone 53		AHD	AAGD07
Station	Latitude	Longitude	Height	Easting	Northing	Height	Gravity mgal
2019.0901	-22 57 20.26616	132 32 43.34987	582.358	248310.194	7459288.42	563.457	978718.243
19919103335	-23 48 04.46400	133 54 10.18800	545	388230.299	7367346.76	530.513	978639.384
1991910335 - Alice Springs Aerodrome Isogal (Easting Northing Zone 53)							

GPS Survey and Gravity Datum

Horizontal Datum: Geocentric Datum of Australia1994 (GDA94)
                           Map Grid of Australia 1994 (MGA94)
                           Zone 53

Vertical Datum: Australian Height Datum (AHD)

Gravity Datum: AAGD07

GPS Observations and Processing

Carrier phase GPS data has been collected using *Trimble R8 GNSS* series geodetic receivers.

Measurements to existing control have been made using Static techniques. All static baselines have been processed to double difference fixed solutions resulting in horizontal and vertical precision of approximately 2 cm.

Measurements for detail gravity observations have been made using Real Time Kinematic (RTK) techniques giving horizontal and vertical precision of at least 5 cm.

Static baseline processing and RTK processing has been done using Trimble Business Center Version 2.5 software.

Details of Horizontal and Vertical control are given in the sections above.

Gravity Observations

Gravity measurements have been made using a *Scintrex CG5 Autograv* instruments numbered 14938.

Readings of 120 seconds were taken at all base stations. Readings of 40 seconds were taken at all other gravity survey points. Base station readings were taken at the beginning of the day and at the end of the day's fieldwork.

All Autograv instruments apply an instrument drift correction to their final gravity readings. Any residual drifts between opening and closing base station readings are corrected by the gravity post processing software. The instruments also apply Earth Tide Corrections to their final gravity reading at each station. The various instrument calibration constants are contained in the daily gravity data files.

Point Numbering and Marking

For the gravity survey, an 8 digit point number is used to identify each gravity station. The first 4 digits indicate the line number. The second 4 digits indicate the station number.

For the south west – north east traverse (lines), on MGA94, the 8 digits are constructed arbitrarily.

For the line numbers the most north westerly traverse/line was assigned a line number of 5000 and for each subsequent line to the south east 20 was added. i.e. line numbers 5000, 5020, 5040 etc

For the station numbers the most north easterly station on each traverse/line was assigned a line number of 4000 and for each subsequent station along the traverse to the south west 20 was added. i.e. line numbers 4000, 4020, 4040 etc

Line No =   5000   Station No =   4000

That is, Point No = 50004000

Station numbers have not been expanded in the processed data

The gravity stations have not been marked in the field.

Gravity Processing

The gravity values for this survey are related to the *Australian National Gravity Database* using the *Australian Absolute Gravity Datum 2007 (AAGD07)* values at known Gravity Stations as provided by *Geoscience Australia*.

Note that all gravity values shown in these surveys are expressed in units of milligals.

The field gravity observations have been processed using standard formulae and constants as documented by *Geoscience Australia* to produce a Bouguer Anomaly for each gravity station.

The meter reading as recorded in the raw Scintrex data file is corrected for instrument tilts, meter drift and Earth Tide. Post processing corrections are detailed below.

Reference:
    V_GRAV_JETSTREAM_AAGD07_final_REVISED_NOV_2008.pdf

Drift

The residual drift between base station readings is calculated for each station reading proportionately by time. This is the drift value shown in the processing output.

$$\text{Drift} = \left[(t_1 - t_n) \left((b_2 - b_1)/(t_2 - t_1) \right) \right]$$

t_n = time of meter reading at each station

b_1 = base meter reading prior to station reading

t_1 = time of base reading b_1

b_2 = base meter reading after station reading

t_2 = time of base reading b_2

Observed Gravity

This is the observed gravity value in milligals.

$$\text{Obs\_g} = b_g + (r_n - \text{drift}) - b_1$$

b_g = base stn gravity value (AAGD07)

r_n = meter reading at each station as shown in the gravity meter log file

drift = residual drift correction as shown above

b_1 = base meter reading prior to station reading

Atmospheric Correction

Atmos = 8.74 - (0.00099 * h) + (0.0000000356 * h^2) / 10

h = height above ellipsoid

Anomaly

This is the difference between the observed gravity and the theoretical gravity value at each station. The theoretical value is calculated using the *1980 International Gravity Formula (Moritz, 1980).*

$$g_{th} = 978032.67715 (1 + 0.001931851353(\sin^2 f)) / \sqrt{(1 - 0.0066943800229(\sin^2 f))}$$

f = GDA94 Latitude

Anom = Obs_g − g_{th} - Atmos

Obs = observed gravity as explained above

Free Air Correction

The freeair correction is calculated using

Freeair = $(3.087691 − 0.004398 \sin^2 f) * h − 7.2125 * 10^{-7} h^2) / 10$

h = height above ellipsoid

Bouguer Correction

This uses the closed form equation for the gravity effect of a spherical cap of radius 166.7 km based on a spherical Earth with a mean radius of 6,371.0087714 km, height relative to the ellipsoid.

Bouguer = $-(2 \pi G r ((1+ \mu) * h − \lambda R)) / 10$

where
    π is pi
    G is the gravitational constant
        = 6.67428×10^{-11} $m^3 kg^{-1} s^{-2}$ (Mohr and Taylor 2001);
    r = density (2.67 g/cc used for this survey)
    h is the ellipsoid height in metres of the station
    R = (R_o + h) the radius of the earth at the station
    R_o is the mean radius of the earth = 6,371.0087714 km
        GRS 80 value from Moritz or 6,371 km (LaFehr)
    μ & λ are dimensionless coefficients with following definitions

$\mu = ((1/3)*\eta^2 - \eta)$
        where $\eta = h/R$

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

where:
d = $3*\cos^2\alpha − 2$
f = $\cos\alpha$
k = $\sin^2\alpha$
p = $-6*\cos^2\alpha \sin(\alpha/2) + 4*\sin^3(\alpha/2)$
$\delta = R_o/R$
m = $-3*\sin^2\alpha\cos\alpha = -3*k*f$

$$n = 2*[\sin(\alpha/2) - \sin^2(\alpha/2)]$$
$$\alpha = S/R_o$$
$$S = \text{Bullard B Surface radius} = 166.735 \text{ km.}$$

Bouguer Anomaly

Bouguer Anomaly = Anomaly + Freeair + Bouguer

Geoidal Bouguer Anomaly

Free Air Anomalies and Bouguer Anomalies are also provided using geoid heights and an infinite slab Bouguer correction. They are designated as Geoidal Free Air Anomaly and Geoidal Bouguer Anomaly respectively.

These anomalies are calculated with the formulae in use prior to 5 February 2008 when the AAGD07 gravity datum was implemented. These formulae are:

Theoretical gravity based on the 1967 international gravity formula:

$$G_{th} = 978031.8456 * (1 + 0.005278895 \sin^2\varphi + 0.000023462 \sin^4\varphi)$$

$$\text{Geoidal FreeAir} = ((3.08768 - 0.00440 \sin^2\varphi) * H - 0.000001442 * H^2) / 10$$

$$\text{GFreeAirAnom} = Obs\_g - Gth + \text{Geoidal FreeAir}$$

$$\text{Geoidal Bouguer} = -0.04191 * H * r$$

f = GDA94 Latitude
H = Geoid Height (ground elevation)
r = density (2.67 g/cc used for this survey)

$$\text{Geoidal Bouguer Anomaly} = GObs - Gth + \text{Geoidal FreeAir} + \text{Geoidal Bouguer}$$

NOTE: The Geoidal Free Air and Geoidal Bouguer Anomalies calculated using geoid heights and the infinite slab model will NOT be the same as those obtained prior to 5 February 2008. The data are now referenced to the new gravity datum AAGD07. Data prior to 5 February 2008 were in the ISOGAL84 gravity datum.

To convert observed gravity values from ISOGAL84 to AAGD07, the following formula can be used:

g(AAGD07) = g(ISOGAL84) – 0.078 mGal

Results Formats

Results of the gravity processing (with Bouguer corrections at density 2.67 g/cc) are included in the Appendix of this report. They are not printed with the hard copy version.

The results are also supplied in digital form on CD within the file 1909_Lake_Lewis.csv.

CSV Format
This is a Comma Separated Variable format file. This format facilitates data import into spreadsheet and database software. Each record (line) contains the following data fields:

"Pt#"	Station identifiers used in data loggers, line and station numbers combined
"Line"	Station line number
"Stn"	Station number
"Date"	Date of observation
"Day"	GPS day number
"Time"	Time of observation
"GDA94_Lat"	WGS84/GDA94 Latitude used in GPS observation
"GDA94_Long"	WGS84/GDA94 Longitude used in GPS observation
"GDA94_Ht"	Height above the ellipsoid defined by the WGS84 Datum
"MGA94(ZONE53)E"	Easting value for observation on the MGA94/GDA94 Datum
"MGA94(ZONE53)N"	Northing value for observation on the MGA94/GDA94 Datum
"AHD_Ht"	Height of observation in the Australian Height Datum
"Meter_Ser_No"	Gravity meter serial number
"Meter_Rdg"	Gravity meter observation value in mGals
"Meter_Error"	Measurement of the quality of the gravity observation (a function of the SD of the observation set used and the duration of the set)
"ETC"	Earth Tide Correction applied to the gravity observation
"Drift"	The component of the meter drift between opening and closing gravity base observations applied to the observation
"Corr_Meter"	The meter observation with the drift applied
"dg"	The difference in gravity between the base and the observation
"Obs_g"	Observed gravity of the station
"Anom"	Difference between observed and theoretical gravity
"Freeair"	Free air correction (see above)
"Bouguer(2.67)"	Bouguer correction using a density of 2.67g/cc (see above)
"Bouguer_Anom"	Bouguer anomaly (see above)

Field gravity observation files with the extension .DAT and .job are also supplied in a folder named *Raw Data*.

*.DAT
> These are the raw data files from the *Scintrex CG5* gravity meter. There is a separate file for each day's data. The files are identified by the Julian day number (001 = Jan 1st) with the prefix G. eg. G030 = day 030 (30th January).

*.JOB
> These are the GPS Real Time Kinematic Data Collector files. They are ASCII format files containing the GPS vectors from the base station. The data is structured in a Trimble format (job file Version 7).

Lake Lewis production Log

Job No. 1909 - Lake Lewis Gravity Survey Production log

Date	Day#	Obs	Repeats	Comments
21/08/2019	233			Mobilisation to Tilmouth Well
22/08/2019	234	76	0	Commenced Lake Lewis Gravity Survey
23/08/2019	235	82	4	Lake Lewis Survey
24/08/2019	236	71	4	Lake Lewis Survey
25/08/2019	237	71	5	Lake Lewis Survey
26/08/2019	238	65	5	Lake Lewis Survey
27/08/2019	239	69	6	Lake Lewis Survey
28/08/2019	240	66	4	Lake Lewis Survey
29/08/2019	241	27	4	Completed Lake Lewis Gravity Survey
30/08/2019	242			De-mobilised from Tilmouth Well
	Total	**527**	**32**	

Lake Lewis Gravity Survey Repeats

```
    Pt #    Day      E             N            H          G       Bouguer

53004160  D234 243,195.342  7,461,164.187  551.378  978,715.237  +10.042
53004160  D235 243,195.429  7,461,164.176  551.376  978,715.198  +10.003
                  -0.087         +0.011      +0.002      +0.039     +0.039

53004180  D234 243,312.188  7,461,330.106  551.702  978,714.879   +9.845
53004180  D235 243,312.271  7,461,330.097  551.705  978,714.842   +9.808
                  -0.083         +0.009      -0.003      +0.037     +0.037

53404100  D234 244,260.167  7,460,593.012  551.378  978,717.331  +11.797
53404100  D237 244,260.123  7,460,593.110  551.397  978,717.317  +11.787
                  +0.044         -0.098      -0.019      +0.014     +0.010

53604100  D234 245,084.938  7,459,401.068  551.438  978,719.881  +13.655
53604100  D236 245,084.979  7,459,400.966  551.453  978,719.897  +13.674
                  -0.041         +0.102      -0.015      -0.016     -0.019

53604120  D234 245,204.748  7,459,562.076  551.379  978,719.697  +13.554
53604120  D236 245,204.788  7,459,561.963  551.393  978,719.709  +13.569
                  -0.040         +0.113      -0.014      -0.012     -0.015

53604140  D234 245,324.074  7,459,721.905  551.343  978,719.523  +13.467
53604140  D237 245,324.121  7,459,721.835  551.356  978,719.474  +13.421
                  -0.047         +0.070      -0.013      +0.049     +0.046

53804040  D234 245,558.241  7,458,270.153  551.137  978,722.084  +15.132
53804040  D239 245,558.355  7,458,270.123  551.148  978,722.037  +15.087
                  -0.114         +0.030      -0.011      +0.047     +0.045

54004060  D234 247,414.821  7,458,575.680  551.081  978,721.637  +14.849
54004060  D235 247,414.865  7,458,575.749  551.088  978,721.676  +14.889
                  -0.044         -0.069      -0.007      -0.039     -0.040

54004080  D234 247,534.334  7,458,730.540  552.754  978,721.084  +14.714
54004080  D235 247,534.398  7,458,730.527  552.760  978,721.116  +14.747
                  -0.064         +0.013      -0.006      -0.032     -0.033

54204060  D234 248,168.966  7,457,534.038  551.144  978,724.354  +16.962
54204060  D239 248,168.863  7,457,533.808  551.159  978,724.337  +16.948
                  +0.103         +0.230      -0.015      +0.017     +0.014

52804120  D235 241,538.611  7,460,947.751  551.500  978,715.150   +9.857
52804120  D236 241,538.687  7,460,947.773  551.497  978,715.139   +9.846
                  -0.076         -0.022      +0.003      +0.011     +0.011

52804140  D235 241,654.087  7,461,111.436  551.488  978,714.865   +9.666
52804140  D236 241,654.162  7,461,111.500  551.482  978,714.819   +9.619
                  -0.075         -0.064      +0.006      +0.046     +0.047

52804260  D235 242,345.334  7,462,092.767  551.449  978,712.971   +8.338
52804260  D239 242,345.456  7,462,092.806  551.456  978,712.994   +8.363
                  -0.122         -0.039      -0.007      -0.023     -0.025

52204140  D236 239,310.390  7,463,751.836  551.810  978,707.209   +3.630
52204140  D237 239,310.268  7,463,751.793  551.770  978,707.173   +3.586
                  +0.122         +0.043      +0.040      +0.036     +0.044
```

```
52404200  D236 239,696.093  7,462,339.647  551.700  978,711.392   +6.962
52404200  D238 239,696.253  7,462,339.644  551.681  978,711.436   +7.002
               -0.160            +0.003     +0.019      -0.044      -0.040

52604140  D236 240,153.292  7,460,976.261  551.716  978,715.328  +10.099
52604140  D237 240,153.282  7,460,976.272  551.716  978,715.281  +10.052
               +0.010            -0.011     +0.000      +0.047      +0.047

52604260  D236 240,843.373  7,461,958.296  551.572  978,712.387   +7.704
52604260  D237 240,843.306  7,461,958.389  551.614  978,712.426   +7.751
               +0.067            -0.093     -0.042      -0.039      -0.047

51204520  D237 237,743.930  7,469,657.865  552.412  978,694.784   -5.224
51204520  D238 237,743.883  7,469,657.983  552.347  978,694.760   -5.261
               +0.047            -0.118     +0.065      +0.024      +0.037

51604000  D237 236,291.561  7,465,368.303  551.989  978,702.341   -0.246
51604000  D238 236,291.605  7,465,368.302  551.959  978,702.362   -0.231
               -0.044            +0.001     +0.030      -0.021      -0.015

51604040  D237 236,523.907  7,465,694.480  552.021  978,701.499   -0.892
51604040  D238 236,523.782  7,465,694.396  552.001  978,701.541   -0.854
               +0.125            +0.084     +0.020      -0.042      -0.038

51804000  D237 236,969.295  7,464,360.984  552.291  978,705.326   +2.206
51804000  D238 236,969.271  7,464,361.091  552.228  978,705.384   +2.252
               +0.024            -0.107     +0.063      -0.058      -0.046

52004020  D237 237,862.135  7,463,617.724  551.834  978,707.185   +3.537
52004020  D239 237,862.295  7,463,617.706  551.804  978,707.239   +3.586
               -0.160            +0.018     +0.030      -0.054      -0.049

51004140  D238 234,431.730  7,466,409.318  552.101  978,699.578   -2.371
51004140  D239 234,431.809  7,466,409.305  552.121  978,699.561   -2.385
               -0.079            +0.013     -0.020      +0.017      +0.014

51204040  D238 235,056.504  7,465,661.890  552.115  978,701.396   -0.990
51204040  D239 235,056.433  7,465,661.888  552.135  978,701.404   -0.978
               +0.071            +0.002     -0.020      -0.008      -0.012

50404020  D239 231,464.176  7,469,069.764  552.012  978,692.453   -7.949
50404020  D240 231,464.025  7,469,069.753  552.021  978,692.408   -7.992
               +0.151            +0.011     -0.009      +0.045      +0.043

50404040  D239 231,583.490  7,469,229.701  551.946  978,692.287   -8.036
50404040  D240 231,583.476  7,469,229.534  551.975  978,692.245   -8.072
               +0.014            +0.167     -0.029      +0.042      +0.036

50604020  D239 232,371.903  7,467,850.473  553.403  978,695.084   -5.761
50604020  D240 232,371.834  7,467,850.539  553.385  978,695.136   -5.712
               +0.069            -0.066     +0.018      -0.052      -0.049

50604040  D239 232,488.587  7,468,012.179  552.026  978,694.988   -6.032
50604040  D240 232,488.857  7,468,012.580  552.001  978,695.036   -5.989
               -0.270            -0.401     +0.025      -0.048      -0.043

50204060  D240 230,333.376  7,469,351.317  554.746  978,691.106   -8.593
50204060  D241 230,333.329  7,469,351.206  554.741  978,691.097   -8.603
```

```
                    +0.047            +0.111  +0.005        +0.009  +0.010

50204080  D240 230,448.872  7,469,510.529  552.198  978,691.214   −8.890
50204080  D241 230,448.854  7,469,510.366  552.187  978,691.204   −8.903
                    +0.018            +0.163  +0.011        +0.010  +0.013

50204660  D240 233,880.915  7,474,188.912  552.013  978,682.237  −15.202
50204660  D241 233,880.914  7,474,188.912  551.996  978,682.287  −15.156
                    +0.001            +0.000  +0.017        −0.050  −0.046

50204680  D240 233,999.538  7,474,350.771  552.002  978,681.558  −15.790
50204680  D241 233,999.526  7,474,350.580  551.997  978,681.603  −15.746
                    +0.012            +0.191  +0.005        −0.045  −0.044
```

Plots

Processed Results

Lake Lewis Gravity Survey
527 Stations on 21 SW-NE Traverses
Haines Survey Pty Ltd
August 2019

Scale 1:157794

2500   0   2500
(meters)

Lake Lewis Gravity Survey
Station Location and Bouguer Contours
Haines Survey Pty Ltd

August 2019

Scale 1:157794

2500   0   2500
(meters)

Lake Lewis Gravity Survey
Colour Bouguer Image and Contours
Haines Survey Pty Ltd

August 2019

Scale 1:157794

2500   0   2500
(meters)
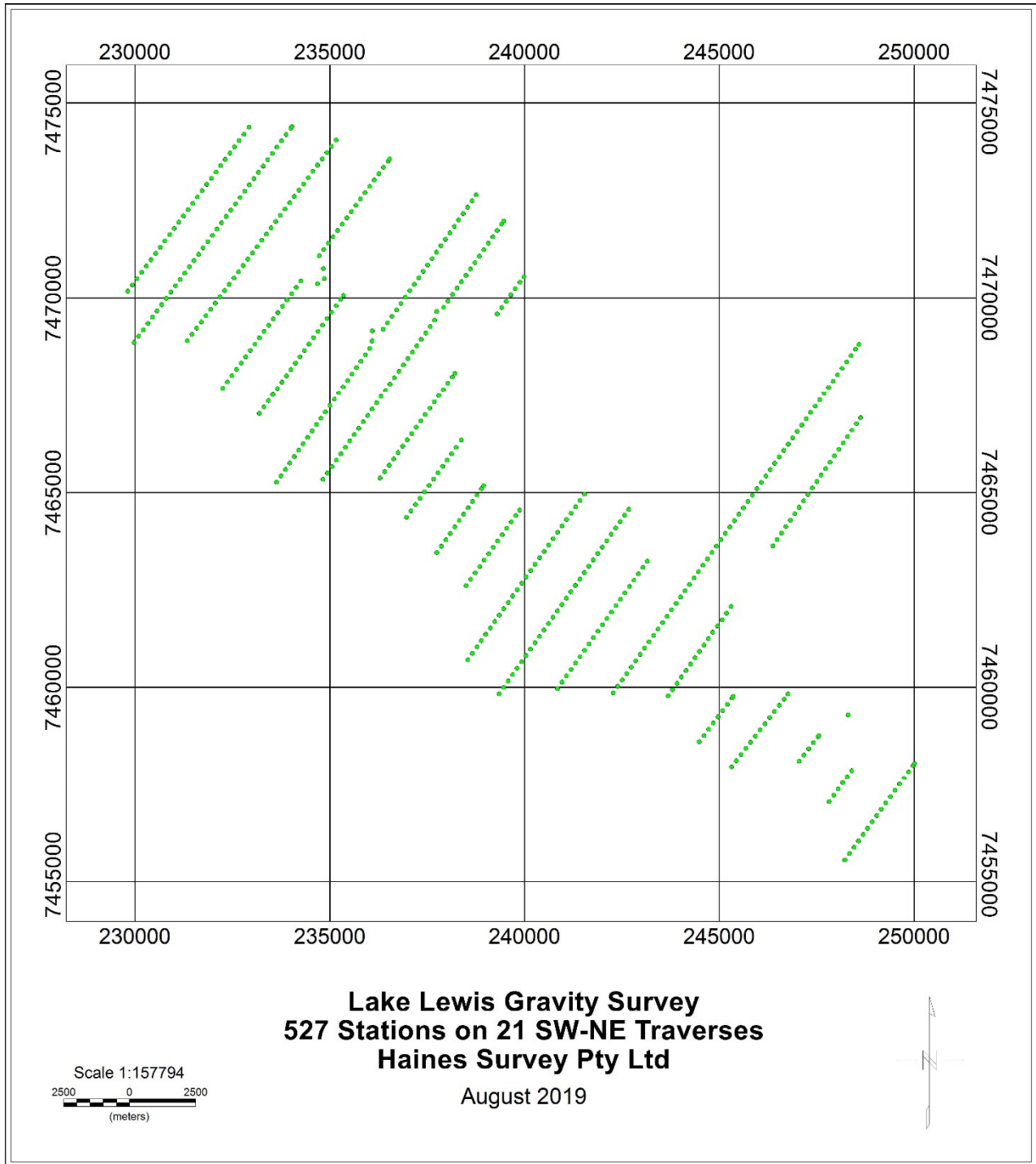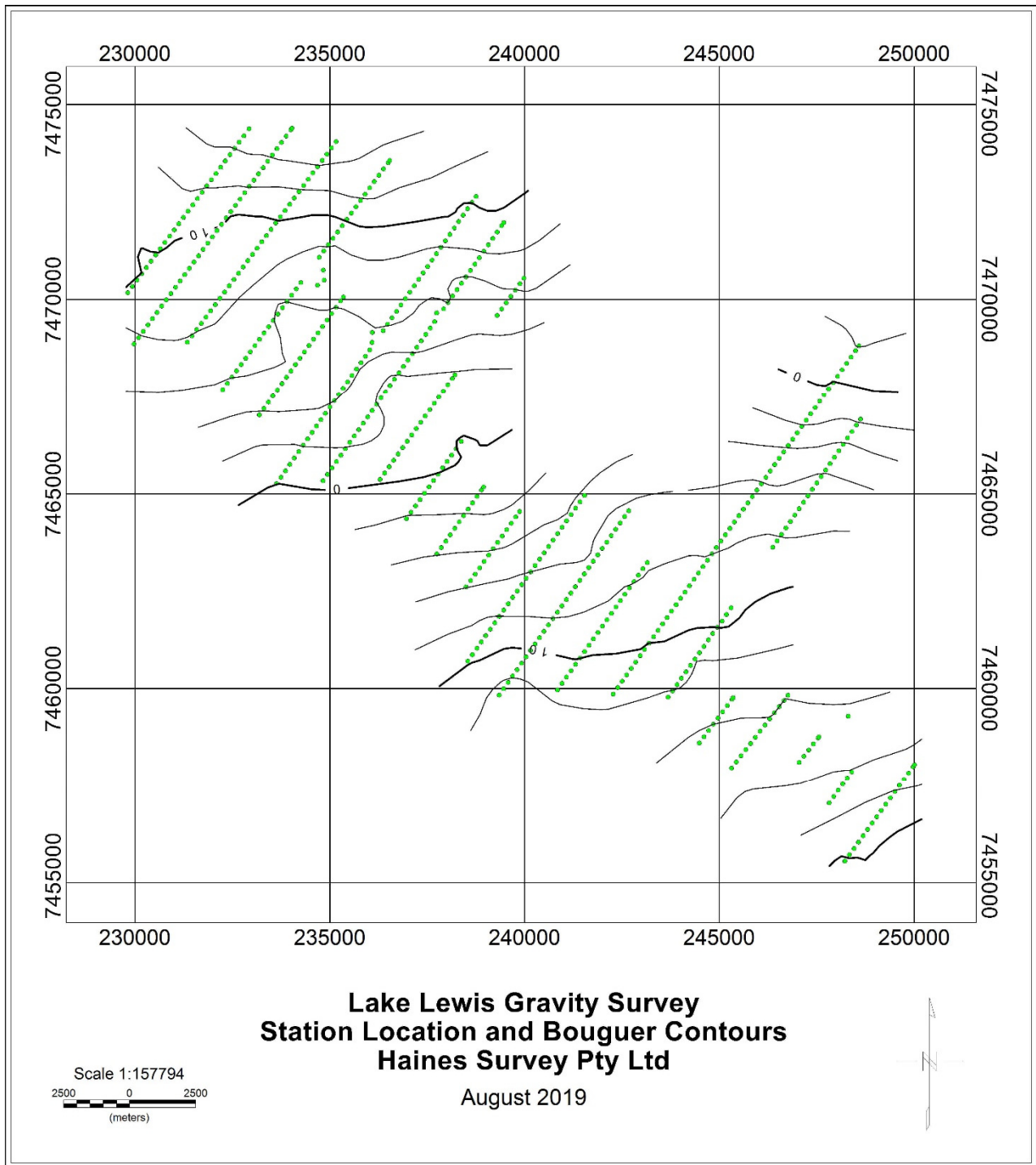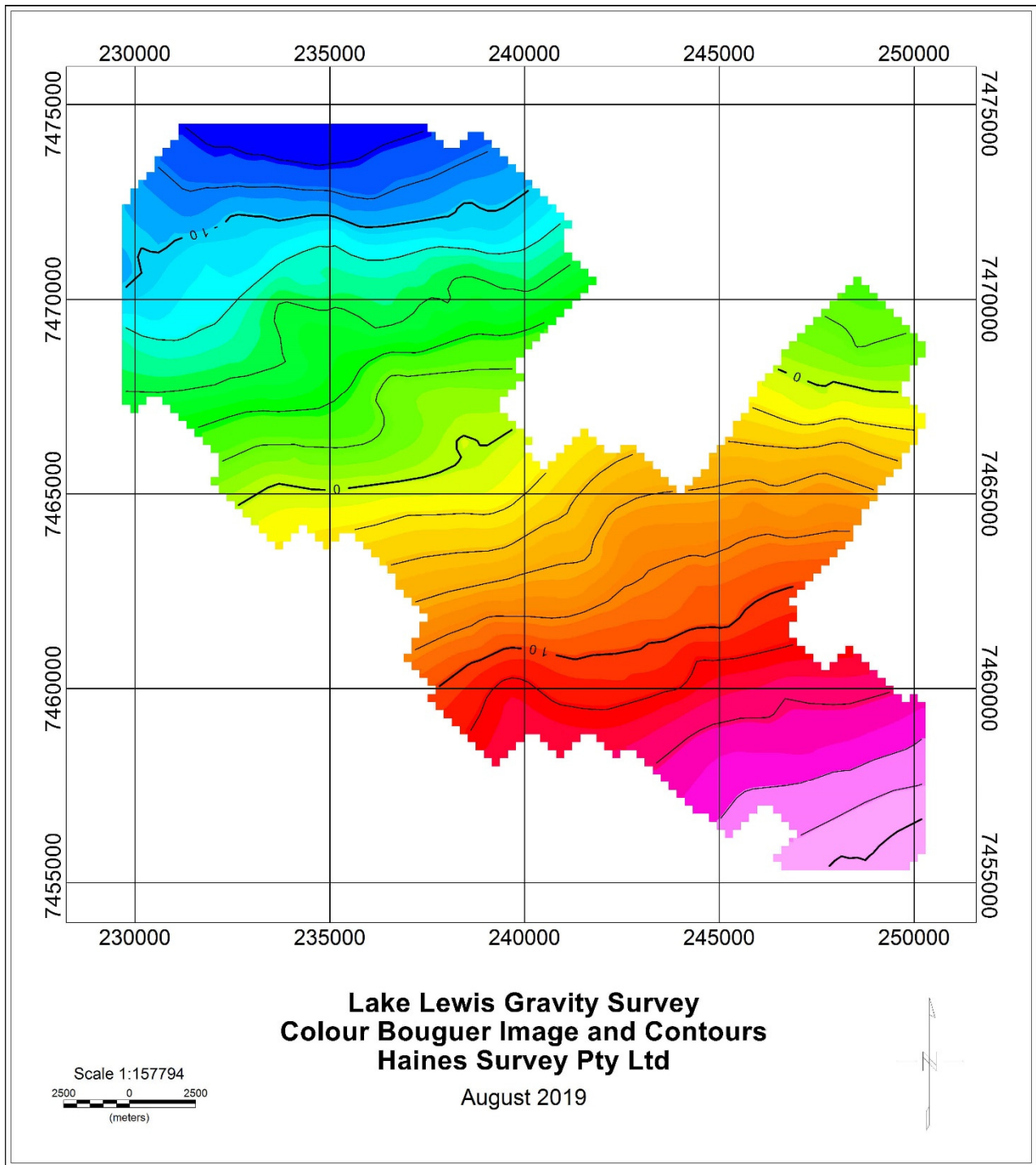
Lake Lewis Gravity Processing Results

/	COORDS		GRID		drift	corr'd	obs	anom	freeair	bouguer	bouguer	height
/	E	N	x	y		meter	mgal		corrn	corrn	anom	(AHD)
/D234												
/	248310.2	7459288.4	0	901	+0.000	3677.393	978718.243	-99.521	179.751	-65.939	14.291	563.457
/	248310.2	7459288.4	0	901	+0.000	3677.393	978718.243	-99.521	179.751	-65.939	14.291	563.457
/	248310.2	7459288.4	0	901	+0.321	3677.393	978718.243	-99.521	179.751	-65.939	14.291	563.457
/	248310.2	7459288.4	0	901	+0.000	3677.072	978718.243	-99.521	179.751	-65.939	14.291	563.457
	242274.5	7459857.4	5300	4000	+0.279	3674.832	978715.682	-101.689	178.507	-65.484	11.335	559.627
	242392.4	7460024.2	5300	4020	+0.282	3675.154	978716.004	-101.270	177.687	-65.183	11.234	556.962
	242505.3	7460185.8	5300	4040	+0.285	3673.580	978714.430	-102.751	179.312	-65.778	10.783	562.223
	242620.2	7460348.6	5300	4060	+0.287	3674.266	978715.116	-101.971	178.121	-65.342	10.808	558.357
	242740.4	7460513.2	5300	4080	+0.290	3674.396	978715.246	-101.746	177.672	-65.178	10.749	556.896
	242851.2	7460674.9	5300	4100	+0.293	3673.993	978714.843	-102.055	177.777	-65.216	10.506	557.230
	242969.2	7460842.5	5300	4120	+0.295	3673.249	978714.099	-102.703	178.127	-65.344	10.080	558.355
	243079.0	7461003.1	5300	4140	+0.298	3674.346	978715.196	-101.512	176.331	-64.687	10.132	552.531
	243195.3	7461164.2	5300	4160	+0.299	3674.387	978715.237	-101.378	175.977	-64.557	10.042	551.378
	243312.2	7461330.1	5300	4180	+0.302	3674.029	978714.879	-101.640	176.079	-64.594	9.845	551.702
	243684.2	7459778.5	5340	4000	+0.271	3676.539	978717.389	-100.042	177.570	-65.141	12.388	556.545
	243799.0	7459936.0	5340	4020	+0.268	3675.634	978716.484	-100.856	178.276	-65.399	12.021	558.825
	243915.4	7460100.1	5340	4040	+0.264	3675.087	978715.937	-101.308	178.479	-65.473	11.697	559.474
	244027.5	7460263.3	5340	4060	+0.261	3675.461	978716.311	-100.839	177.667	-65.176	11.652	556.837
	244144.3	7460428.2	5340	4080	+0.258	3676.421	978717.271	-99.784	176.148	-64.620	11.745	551.909
	244260.2	7460593.0	5340	4100	+0.254	3676.481	978717.331	-99.629	175.986	-64.560	11.797	551.378
	244375.6	7460755.4	5340	4120	+0.252	3676.446	978717.296	-99.570	176.137	-64.616	11.952	551.860
	244491.1	7460919.5	5340	4140	+0.249	3675.602	978716.452	-100.319	177.063	-64.955	11.789	554.855
	244605.3	7461081.2	5340	4160	+0.246	3674.865	978715.715	-100.963	177.400	-65.078	11.359	555.940
	244720.0	7461248.8	5340	4180	+0.244	3672.581	978713.431	-103.151	179.664	-65.907	10.606	563.269
	244831.0	7461410.9	5340	4200	+0.241	3672.381	978713.231	-103.257	179.279	-65.766	10.256	562.017
	244948.4	7461571.0	5340	4220	+0.238	3671.576	978712.426	-103.970	179.850	-65.975	9.905	563.858
	245069.8	7461730.0	5340	4240	+0.236	3672.131	978712.981	-103.323	178.768	-65.579	9.866	560.346
	245181.7	7461899.2	5340	4260	+0.232	3670.820	978711.670	-104.536	179.954	-66.013	9.404	564.185
	245301.6	7462070.7	5340	4280	+0.229	3671.991	978712.841	-103.266	178.398	-65.443	9.688	559.135
	244485.5	7458600.6	5360	4000	+0.195	3679.776	978720.626	-97.501	176.702	-64.823	14.378	553.728
	244606.7	7458759.7	5360	4020	+0.198	3679.656	978720.506	-97.529	176.538	-64.762	14.246	553.188
	244725.4	7458920.7	5360	4040	+0.200	3679.733	978720.583	-97.359	176.066	-64.590	14.118	551.653
	244845.8	7459081.1	5360	4060	+0.202	3679.525	978720.375	-97.475	176.059	-64.587	13.998	551.623
	244965.7	7459241.6	5360	4080	+0.205	3679.263	978720.113	-97.644	176.027	-64.575	13.808	551.510
	245084.9	7459401.1	5360	4100	+0.207	3679.031	978719.881	-97.784	176.007	-64.568	13.655	551.438
	245204.7	7459562.1	5360	4120	+0.209	3678.847	978719.697	-97.875	175.991	-64.562	13.554	551.379
	245324.1	7459721.9	5360	4140	+0.212	3678.673	978719.523	-97.956	175.983	-64.559	13.467	551.343
	245354.9	7459763.7	5360	4160	+0.214	3678.592	978719.442	-98.013	175.983	-64.559	13.410	551.342
	245313.3	7457953.8	5380	4000	+0.174	3681.822	978722.672	-95.842	175.933	-64.541	15.551	551.221
	245435.8	7458111.5	5380	4020	+0.171	3681.524	978722.374	-96.049	175.910	-64.532	15.329	551.137
	245558.2	7458270.2	5380	4040	+0.168	3681.234	978722.084	-96.247	175.912	-64.533	15.132	551.137
	245680.6	7458428.4	5380	4060	+0.166	3680.921	978721.771	-96.469	175.936	-64.542	14.926	551.206
	245803.0	7458586.3	5380	4080	+0.163	3680.625	978721.475	-96.673	175.949	-64.547	14.729	551.243
	245925.6	7458744.7	5380	4100	+0.161	3680.379	978721.229	-96.828	175.919	-64.536	14.556	551.137
	246047.7	7458902.1	5380	4120	+0.158	3680.128	978720.978	-96.988	175.883	-64.522	14.372	551.011
	246171.2	7459060.6	5380	4140	+0.156	3679.822	978720.672	-97.203	175.876	-64.520	14.153	550.980
	246292.9	7459219.3	5380	4160	+0.154	3679.599	978720.449	-97.334	175.878	-64.521	14.023	550.979
	246415.6	7459377.6	5380	4180	+0.151	3679.469	978720.319	-97.373	175.878	-64.521	13.984	550.971
	246538.1	7459535.4	5380	4200	+0.149	3679.397	978720.247	-97.354	175.883	-64.522	14.007	550.980
	246660.6	7459693.7	5380	4220	+0.146	3679.301	978720.151	-97.358	175.880	-64.521	14.000	550.965
	246762.9	7459826.7	5380	4240	+0.144	3679.226	978720.076	-97.356	175.897	-64.528	14.013	551.014
	247047.9	7458101.4	5400	4000	+0.139	3681.355	978722.205	-96.240	176.013	-64.570	15.203	551.414
	247171.5	7458259.9	5400	4020	+0.136	3681.169	978722.019	-96.334	175.940	-64.543	15.063	551.168
	247295.3	7458418.4	5400	4040	+0.134	3680.239	978721.089	-97.173	176.879	-64.887	14.819	554.203
	247414.8	7458575.7	5400	4060	+0.131	3680.787	978721.637	-96.534	175.917	-64.535	14.849	551.081
	247534.3	7458730.5	5400	4080	+0.129	3680.234	978721.084	-96.997	176.436	-64.725	14.714	552.754
	247557.9	7458756.5	5400	4100	+0.127	3679.902	978720.752	-97.314	176.790	-64.855	14.621	553.901
	247820.9	7457044.7	5420	4000	+0.069	3683.234	978724.084	-94.987	176.979	-64.924	17.069	554.542
	247936.8	7457207.1	5420	4020	+0.066	3683.262	978724.112	-94.865	176.670	-64.811	16.994	553.531
	248052.7	7457370.7	5420	4040	+0.064	3683.602	978724.452	-94.430	175.979	-64.558	16.992	551.286
	248169.0	7457534.0	5420	4060	+0.061	3683.504	978724.354	-94.433	175.938	-64.543	16.962	551.144
	248284.8	7457696.1	5420	4080	+0.057	3683.058	978723.908	-94.786	176.141	-64.617	16.738	551.794
	248399.9	7457856.3	5420	4100	+0.053	3680.315	978721.165	-97.437	179.229	-65.748	16.044	561.791
	248223.7	7455552.9	5440	4000	+0.076	3687.250	978728.100	-91.848	176.743	-64.837	20.057	553.801
	248338.5	7455714.7	5440	4020	+0.078	3687.155	978728.005	-91.850	176.651	-64.804	19.998	553.496
	248457.3	7455875.4	5440	4040	+0.081	3687.234	978728.084	-91.677	176.417	-64.718	20.022	552.728
	248571.0	7456037.2	5440	4060	+0.084	3686.763	978727.613	-92.055	176.651	-64.804	19.793	553.477
	248691.2	7456201.7	5440	4080	+0.086	3686.550	978727.400	-92.173	176.483	-64.742	19.568	552.923
	248807.1	7456363.6	5440	4100	+0.089	3686.532	978727.382	-92.097	176.052	-64.585	19.371	551.520
	248924.5	7456526.6	5440	4120	+0.091	3686.171	978727.021	-92.364	176.048	-64.583	19.102	551.499
	249041.1	7456688.1	5440	4140	+0.094	3685.836	978726.686	-92.605	176.049	-64.583	18.860	551.492
	249155.4	7456849.2	5440	4160	+0.096	3685.092	978725.942	-93.256	176.553	-64.768	18.529	553.117
	249274.2	7457012.5	5440	4180	+0.099	3685.275	978726.125	-92.979	176.131	-64.614	18.539	551.744
	249390.7	7457175.1	5440	4200	+0.101	3685.129	978725.979	-93.031	176.132	-64.614	18.488	551.737
	249508.1	7457338.2	5440	4220	+0.104	3684.670	978725.520	-93.395	176.125	-64.611	18.119	551.708
	249624.8	7457499.5	5440	4240	+0.106	3684.237	978725.087	-93.735	176.137	-64.616	17.787	551.738
	249741.5	7457663.3	5440	4260	+0.109	3683.695	978724.545	-94.182	176.124	-64.611	17.331	551.687
	249858.3	7457825.1	5440	4280	+0.112	3683.213	978724.063	-94.571	176.099	-64.602	16.927	551.598
	249975.2	7457988.0	5440	4300	+0.115	3682.855	978723.705	-94.835	176.101	-64.602	16.664	551.597
	250011.5	7458038.9	5440	4320	+0.119	3682.734	978723.584	-94.926	176.105	-64.604	16.575	551.607
/D235												
/	248310.2	7459288.4	0	901	+0.000	3677.205	978718.243	-99.521	179.751	-65.939	14.291	563.457
/	248310.2	7459288.4	0	901	+0.000	3677.205	978718.243	-99.521	179.751	-65.939	14.291	563.457

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/ 248310.2  7459288.4     0    901  +0.018  3677.205  978718.243  -99.521  179.751  -65.939  14.291  563.457
/ 248310.2  7459288.4     0    901  +0.000  3677.187  978718.243  -99.521  179.751  -65.939  14.291  563.457
  241538.6  7460947.8  5280   4120  +0.017  3674.112  978715.150 -101.575  175.996  -64.564   9.857  551.500
  241654.1  7461111.4  5280   4140  +0.017  3673.827  978714.865 -101.766  175.995  -64.563   9.666  551.488
  241769.2  7461275.1  5280   4160  +0.016  3673.543  978714.581 -101.955  175.996  -64.564   9.477  551.487
  241884.6  7461438.6  5280   4180  +0.016  3673.216  978714.254 -102.188  175.996  -64.564   9.244  551.479
  241999.6  7461602.2  5280   4200  +0.016  3672.844  978713.882 -102.465  175.997  -64.564   8.968  551.476
  242114.9  7461766.0  5280   4220  +0.016  3672.543  978713.581 -102.672  175.985  -64.560   8.753  551.430
  242230.1  7461929.2  5280   4240  +0.016  3672.210  978713.248 -102.910  175.987  -64.560   8.516  551.431
  242345.3  7462092.8  5280   4260  +0.016  3671.933  978712.971 -103.093  175.994  -64.563   8.338  551.449
  242461.0  7462256.5  5280   4280  +0.015  3671.753  978712.791 -103.178  175.992  -64.563   8.252  551.439
  242575.9  7462419.9  5280   4300  +0.015  3671.654  978712.692 -103.183  175.992  -64.562   8.246  551.430
  242691.4  7462583.5  5280   4320  +0.015  3671.367  978712.405 -103.376  175.990  -64.562   8.053  551.419
  242806.6  7462747.0  5280   4340  +0.015  3671.126  978712.164 -103.522  175.994  -64.563   7.909  551.426
  242921.8  7462910.3  5280   4360  +0.015  3670.997  978712.035 -103.557  175.990  -64.562   7.872  551.409
  243037.4  7463074.3  5280   4380  +0.015  3670.958  978711.996 -103.501  176.003  -64.566   7.935  551.445
  243150.7  7463234.3  5280   4400  +0.015  3670.771  978711.809 -103.596  176.071  -64.591   7.884  551.659
  243195.4  7461164.2  5300   4160  +0.002  3674.160  978715.198 -101.417  175.976  -64.557  10.003  551.376
  243312.3  7461330.1  5300   4180  +0.002  3673.804  978714.842 -101.677  176.080  -64.595   9.808  551.705
  243427.2  7461495.5  5300   4200  +0.002  3672.803  978713.841 -102.583  177.046  -64.948   9.514  554.828
  243543.6  7461657.3  5300   4220  +0.002  3671.876  978712.914 -103.417  177.979  -65.290   9.272  557.846
  243657.1  7461821.2  5300   4240  +0.003  3671.461  978712.499 -103.737  178.209  -65.374   9.098  558.586
  243771.4  7461984.4  5300   4260  +0.003  3671.684  978712.722 -103.420  177.565  -65.139   9.007  556.493
  243890.9  7462150.5  5300   4280  +0.003  3671.904  978712.942 -103.104  177.130  -64.979   9.047  555.078
  244003.8  7462316.9  5300   4300  +0.003  3672.078  978713.116 -102.834  176.620  -64.792   8.994  553.417
  244118.3  7462475.0  5300   4320  +0.003  3672.363  978713.401 -102.457  176.032  -64.577   8.998  551.507
  244233.8  7462638.9  5300   4340  +0.003  3672.226  978713.264 -102.500  176.003  -64.566   8.937  551.407
  244349.1  7462802.7  5300   4360  +0.004  3672.155  978713.193 -102.476  175.981  -64.558   8.947  551.331
  244464.4  7462966.2  5300   4380  +0.004  3672.003  978713.041 -102.534  175.969  -64.554   8.881  551.287
  244579.8  7463129.8  5300   4400  +0.004  3671.431  978712.469 -103.011  175.975  -64.556   8.408  551.300
  244694.8  7463293.3  5300   4420  +0.004  3670.980  978712.018 -103.368  175.971  -64.555   8.048  551.281
  244809.5  7463456.5  5300   4440  +0.004  3670.812  978711.850 -103.442  175.972  -64.555   7.975  551.281
  244925.1  7463619.9  5300   4460  +0.004  3670.590  978711.628 -103.569  175.971  -64.555   7.847  551.270
  245040.5  7463784.0  5300   4480  +0.004  3670.349  978711.387 -103.716  175.972  -64.555   7.701  551.269
  245156.0  7463947.4  5300   4500  +0.005  3670.094  978711.132 -103.876  176.015  -64.571   7.568  551.404
  245271.3  7464111.1  5300   4520  +0.005  3669.945  978710.983 -103.931  176.015  -64.571   7.513  551.399
  245386.4  7464274.7  5300   4540  +0.005  3669.465  978710.503 -104.316  176.015  -64.571   7.128  551.397
  245501.1  7464438.2  5300   4560  +0.005  3669.215  978710.253 -104.472  175.992  -64.562   6.958  551.317
  245617.0  7464602.0  5300   4580  +0.005  3669.231  978710.269 -104.362  175.983  -64.559   7.062  551.282
  245732.4  7464765.7  5300   4600  +0.005  3669.244  978710.282 -104.254  175.989  -64.561   7.174  551.299
  245847.1  7464929.1  5300   4620  +0.006  3668.920  978709.958 -104.484  175.974  -64.556   6.935  551.246
  245962.6  7465092.4  5300   4640  +0.006  3668.447  978709.485 -104.862  175.963  -64.552   6.549  551.206
  246077.8  7465256.0  5300   4660  +0.006  3667.960  978708.998 -105.255  175.960  -64.551   6.154  551.189
  246193.0  7465420.2  5300   4680  +0.006  3667.249  978708.287 -105.871  175.955  -64.549   5.535  551.171
  246308.0  7465583.0  5300   4700  +0.006  3666.740  978707.778 -106.286  175.947  -64.546   5.115  551.141
  246423.2  7465747.0  5300   4720  +0.006  3666.411  978707.449 -106.521  175.944  -64.545   4.878  551.127
  246537.6  7465910.8  5300   4740  +0.006  3666.106  978707.144 -106.731  175.933  -64.541   4.661  551.088
  246652.6  7466073.0  5300   4760  +0.007  3665.767  978706.805 -106.977  175.932  -64.541   4.415  551.084
  246768.2  7466237.5  5300   4780  +0.007  3665.150  978706.188 -107.499  175.929  -64.539   3.891  551.070
  246884.1  7466401.2  5300   4800  +0.007  3664.381  978705.419 -108.173  175.929  -64.539   3.217  551.066
  246999.9  7466564.4  5300   4820  +0.007  3663.682  978704.720 -108.778  175.931  -64.540   2.613  551.069
  247116.0  7466729.9  5300   4840  +0.007  3663.122  978704.160 -109.243  175.930  -64.540   2.147  551.061
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239647.8   7470082.2   5140   4060   +0.118   3653.314   978694.107   -117.267   176.098   -64.601   -5.770   551.860
239763.2   7470243.6   5140   4080   +0.120   3653.037   978693.830   -117.451   176.103   -64.603   -5.951   551.877
239880.0   7470406.8   5140   4100   +0.121   3652.462   978693.255   -117.932   176.122   -64.610   -6.420   551.933
239982.5   7470550.1   5140   4120   +0.122   3651.975   978692.768   -118.336   176.098   -64.601   -6.839   551.935
236291.6   7465368.3   5160   4000   +0.089   3661.548   978702.341   -111.749   176.108   -64.605   -0.246   551.989
236408.2   7465532.0   5160   4020   +0.090   3661.074   978701.867   -112.128   176.107   -64.605   -0.626   551.983
236523.9   7465694.5   5160   4040   +0.091   3660.706   978701.499   -112.403   176.120   -64.609   -0.892   552.021
236639.2   7465858.0   5160   4060   +0.093   3660.525   978701.318   -112.489   176.124   -64.611   -0.976   552.029
236755.3   7466020.0   5160   4080   +0.094   3660.380   978701.173   -112.541   176.121   -64.610   -1.030   552.015
236871.5   7466184.2   5160   4100   +0.095   3660.122   978700.915   -112.704   176.116   -64.608   -1.196   551.995
236987.6   7466347.0   5160   4120   +0.096   3659.900   978700.693   -112.832   176.126   -64.612   -1.318   552.024
237103.2   7466509.7   5160   4140   +0.098   3659.775   978700.568   -112.864   176.127   -64.612   -1.349   552.021
237218.7   7466673.4   5160   4160   +0.099   3659.708   978700.501   -112.836   176.124   -64.611   -1.323   552.009
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237567.8   7467161.9   5160   4220   +0.103   3659.873   978700.666   -112.390   176.118   -64.608   -0.881   551.976
237683.5   7467325.0   5160   4240   +0.104   3659.894   978700.687   -112.275   176.119   -64.609   -0.765   551.975
237799.6   7467488.8   5160   4260   +0.105   3659.654   978700.447   -112.421   176.135   -64.615   -0.900   552.026
237915.1   7467652.0   5160   4280   +0.107   3659.429   978700.222   -112.551   176.136   -64.615   -1.031   552.025
238031.6   7467814.8   5160   4300   +0.108   3659.137   978699.930   -112.750   176.145   -64.619   -1.223   552.052
238147.9   7467977.7   5160   4320   +0.110   3658.638   978699.431   -113.155   176.143   -64.615   -1.630   552.040
238212.9   7468069.4   5160   4340   +0.111   3658.319   978699.112   -113.421   176.135   -64.615   -1.901   552.012
236969.3   7464361.0   5180   4000   +0.082   3664.533   978705.326   -109.359   176.205   -64.641   2.206   552.291
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237201.2   7464687.7   5180   4040   +0.079   3663.573   978704.366   -110.130   176.095   -64.600   1.365   551.922
237316.6   7464849.9   5180   4060   +0.078   3663.070   978703.863   -110.540   176.097   -64.601   0.957   551.926
237433.3   7465013.6   5180   4080   +0.077   3662.666   978703.459   -110.849   176.099   -64.602   0.648   551.927
237548.4   7465175.8   5180   4100   +0.076   3662.337   978703.130   -111.085   176.093   -64.599   0.409   551.901
237664.5   7465339.0   5180   4120   +0.074   3662.024   978702.817   -111.304   176.088   -64.597   0.187   551.881
237780.7   7465502.5   5180   4140   +0.073   3661.773   978702.566   -111.460   176.101   -64.602   0.038   551.919
237896.9   7465665.7   5180   4160   +0.072   3661.505   978702.298   -111.634   176.098   -64.601   -0.138   551.906
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238128.3   7465992.2   5180   4200   +0.070   3661.360   978702.153   -111.591   176.097   -64.601   -0.095   551.893
238244.1   7466154.5   5180   4220   +0.068   3661.345   978702.138   -111.513   176.113   -64.607   -0.006   551.942
238376.7   7466344.1   5180   4240   +0.066   3661.506   978702.299   -111.242   176.113   -64.607   0.264   551.937
237748.1   7463453.7   5200   4000   +0.025   3666.900   978707.693   -107.529   176.094   -64.600   3.965   551.913
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238208.3   7464112.1   5200   4080   +0.034   3665.278   978706.071   -108.772   176.100   -64.602   2.726   551.911
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238895.5   7465095.5   5200   4200   +0.045   3662.649   978703.442   -110.833   176.110   -64.605   0.671   551.913
238949.7   7465173.8   5200   4220   +0.047   3662.462   978703.255   -110.975   176.107   -64.605   0.528   551.904
239310.3   7463751.8   5220   4140   +0.061   3666.380   978707.173   -107.891   176.067   -64.590   3.586   551.770
239427.2   7463914.4   5220   4160   +0.060   3665.942   978706.735   -108.235   176.072   -64.592   3.245   551.780
239541.9   7464078.4   5220   4180   +0.055   3665.579   978706.372   -108.504   176.092   -64.599   2.989   551.843
239656.9   7464241.9   5220   4200   +0.053   3665.242   978706.035   -108.746   176.093   -64.600   2.748   551.842
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239873.2   7464544.5   5220   4240   +0.051   3664.822   978705.615   -108.992   176.108   -64.605   2.512   551.846
240153.3   7460976.3   5260   4140   +0.023   3674.488   978715.281   -101.413   176.048   -64.583   10.052   551.716
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244260.1   7460593.1   5340   4100   +0.153   3676.524   978717.317   -99.643   175.992   -64.562   11.787   551.397
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235201.1	7471730.3	5060	4500	+0.080	3649.520	978690.289	−120.079	176.086	−64.597	−8.590	551.971
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235554.7	7472216.2	5060	4560	+0.077	3646.776	978687.545	−122.544	176.116	−64.608	−11.035	552.065
235671.9	7472377.0	5060	4580	+0.075	3646.513	978687.282	−122.714	176.115	−64.607	−11.207	552.060
235790.4	7472539.6	5060	4600	+0.073	3645.788	978686.557	−123.346	176.179	−64.631	−11.797	552.265
235907.1	7472699.9	5060	4620	+0.073	3645.156	978685.925	−123.886	176.128	−64.612	−12.370	552.096
236025.4	7472862.4	5060	4640	+0.072	3644.674	978685.443	−124.274	176.115	−64.607	−12.766	552.055
236142.7	7473024.0	5060	4660	+0.071	3644.390	978685.159	−124.465	176.103	−64.603	−12.965	552.014
236261.4	7473185.9	5060	4680	+0.070	3644.619	978685.388	−124.143	176.112	−64.606	−12.638	552.041
236380.0	7473347.9	5060	4700	+0.069	3644.528	978685.297	−124.141	176.099	−64.602	−12.643	551.998
236496.7	7473507.6	5060	4720	+0.067	3644.045	978684.814	−124.532	176.096	−64.601	−13.036	551.987
236536.8	7473564.2	5060	4740	+0.066	3643.896	978684.665	−124.649	176.092	−64.599	−13.156	551.972
233192.9	7467026.2	5080	4000	+0.038	3657.188	978697.957	−115.133	176.091	−64.599	−3.641	552.029
233309.0	7467191.6	5080	4020	+0.039	3656.536	978697.305	−115.690	176.106	−64.604	−4.188	552.073
233425.5	7467356.0	5080	4040	+0.041	3655.988	978696.757	−116.143	176.139	−64.616	−4.620	552.177
233539.7	7467516.6	5080	4060	+0.043	3655.638	978696.407	−116.401	176.148	−64.620	−4.872	552.203
233656.4	7467680.8	5080	4080	+0.044	3655.245	978696.014	−116.699	176.133	−64.614	−5.180	552.150
233773.4	7467845.1	5080	4100	+0.045	3654.828	978695.597	−117.022	176.119	−64.609	−5.511	552.102
233888.1	7468007.7	5080	4120	+0.046	3654.511	978695.280	−117.245	176.117	−64.608	−5.736	552.092
234004.5	7468170.4	5080	4140	+0.047	3654.281	978695.050	−117.381	176.125	−64.611	−5.867	552.115
234119.3	7468333.1	5080	4160	+0.048	3654.118	978694.887	−117.451	176.119	−64.609	−5.940	552.091
234235.2	7468496.3	5080	4180	+0.049	3654.181	978694.950	−117.293	176.108	−64.605	−5.790	552.053
234351.5	7468659.2	5080	4200	+0.050	3654.575	978695.344	−116.806	176.101	−64.602	−5.307	552.025
234467.2	7468823.2	5080	4220	+0.052	3654.799	978695.568	−116.487	176.091	−64.599	−4.995	551.990
234584.0	7468986.2	5080	4240	+0.053	3654.892	978695.661	−116.300	176.100	−64.602	−4.802	552.017
234698.5	7469148.5	5080	4260	+0.054	3654.581	978695.350	−116.518	176.096	−64.600	−5.022	552.001
234814.6	7469311.8	5080	4280	+0.055	3654.035	978694.804	−116.970	176.092	−64.599	−5.477	551.985
234930.7	7469475.4	5080	4300	+0.056	3653.725	978694.494	−117.186	176.089	−64.598	−5.695	551.972
235046.7	7469639.0	5080	4320	+0.057	3653.504	978694.273	−117.313	176.093	−64.599	−5.819	551.983
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233862.9	7465587.6	5100	4040	+0.031	3659.957	978700.726	−113.211	177.671	−65.177	−0.717	557.133
233974.4	7465751.3	5100	4060	+0.030	3659.624	978700.393	−113.450	177.492	−65.112	−1.069	556.548
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234317.4	7466245.4	5100	4120	+0.026	3659.162	978699.931	−113.627	176.131	−64.613	−2.109	552.126
234431.8	7466409.3	5100	4140	+0.025	3658.792	978699.561	−113.902	176.131	−64.613	−2.385	552.121
235056.4	7465661.9	5120	4040	+0.125	3660.635	978701.404	−112.502	176.140	−64.617	−0.978	552.135
237862.3	7463617.7	5200	4020	+0.131	3666.470	978707.239	−107.889	176.063	−64.588	3.586	551.804
242345.5	7462092.8	5280	4260	+0.136	3672.225	978712.994	−103.070	175.996	−64.564	8.363	551.456
245558.4	7458270.1	5380	4040	+0.012	3681.268	978722.037	−96.294	175.916	−64.535	15.087	551.148
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230448.9	7469510.5	5020	4080	+0.046	3650.491	978691.214	−120.399	176.116	−64.608	−8.890	552.198
230566.5	7469671.5	5020	4100	+0.046	3650.230	978690.953	−120.567	176.093	−64.599	−9.074	552.118
230685.2	7469833.5	5020	4120	+0.045	3650.164	978690.887	−120.540	176.076	−64.593	−9.058	552.061
230803.4	7469994.2	5020	4140	+0.044	3650.168	978690.891	−120.444	176.075	−64.593	−8.961	552.056
230921.8	7470155.7	5020	4160	+0.044	3650.076	978690.799	−120.443	176.076	−64.593	−8.960	552.055
231040.5	7470317.2	5020	4180	+0.043	3649.952	978690.675	−120.474	176.086	−64.597	−8.985	552.084
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231395.1	7470801.0	5020	4240	+0.042	3649.513	978690.236	−120.635	176.103	−64.603	−9.135	552.134
231513.5	7470962.3	5020	4260	+0.042	3649.516	978690.239	−120.539	176.069	−64.591	−9.060	552.020
231632.2	7471123.6	5020	4280	+0.041	3649.622	978690.345	−120.340	176.064	−64.589	−8.865	552.002
231750.7	7471285.6	5020	4300	+0.041	3649.163	978689.886	−120.706	176.050	−64.584	−9.239	551.956
231868.5	7471446.5	5020	4320	+0.040	3648.832	978689.555	−120.944	176.071	−64.591	−9.465	552.021
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232223.8	7471930.4	5020	4380	+0.038	3647.952	978688.675	−121.546	176.105	−64.604	−10.045	552.125
232342.1	7472092.0	5020	4400	+0.038	3647.889	978688.612	−121.516	176.108	−64.605	−10.013	552.132
232460.5	7472253.1	5020	4420	+0.037	3647.628	978688.351	−121.685	176.113	−64.607	−10.178	552.148
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232697.5	7472576.1	5020	4460	+0.037	3646.767	978687.490	−122.360	176.113	−64.606	−10.854	552.141
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233762.6	7474027.8	5020	4640	+0.030	3641.691	978682.414	−126.601	176.075	−64.593	−15.119	552.007
233880.9	7474188.9	5020	4660	+0.030	3641.514	978682.237	−126.686	176.077	−64.594	−15.202	552.013
233999.5	7474350.8	5020	4680	+0.029	3640.835	978681.558	−127.272	176.074	−64.592	−15.790	552.002
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232538.6   7470514.9    5040    4200   +0.013   3650.055   978690.778   -120.271   176.118   -64.609    -8.762   552.146
232657.4   7470675.5    5040    4220   +0.014   3649.888   978690.611   -120.346   176.129   -64.612    -8.830   552.179
232777.2   7470836.0    5040    4240   +0.014   3649.646   978690.369   -120.496   176.125   -64.611    -8.982   552.163
232896.2   7470996.5    5040    4260   +0.015   3649.326   978690.049   -120.723   176.131   -64.613    -9.206   552.180
233015.8   7471157.3    5040    4280   +0.015   3649.202   978689.925   -120.755   176.117   -64.608    -9.246   552.135
233135.3   7471317.8    5040    4300   +0.016   3649.173   978689.896   -120.691   176.125   -64.611    -9.177   552.158
233254.4   7471478.3    5040    4320   +0.016   3649.092   978689.815   -120.680   176.120   -64.609    -9.169   552.140
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233494.0   7471800.7    5040    4360   +0.018   3648.691   978689.414   -120.896   176.138   -64.616    -9.374   552.193
233612.3   7471960.3    5040    4380   +0.018   3648.161   978688.884   -121.334   176.109   -64.605    -9.830   552.099
233732.4   7472122.1    5040    4400   +0.019   3647.598   978688.321   -121.804   176.134   -64.615   -10.284   552.177
233850.9   7472281.2    5040    4420   +0.019   3647.384   978688.107   -121.927   176.111   -64.606   -10.422   552.099
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234686.7   7473405.8    5040    4560   +0.026   3643.247   978683.970   -125.417   176.068   -64.590   -13.939   551.951
234806.0   7473566.2    5040    4580   +0.027   3642.768   978683.491   -125.804   176.035   -64.578   -14.347   551.841
234925.2   7473727.0    5040    4600   +0.027   3642.328   978683.051   -126.151   176.032   -64.577   -14.696   551.831
235044.4   7473887.7    5040    4620   +0.028   3641.878   978682.601   -126.509   176.028   -64.576   -15.057   551.816
235163.6   7474048.0    5040    4640   +0.028   3641.522   978682.245   -126.773   176.063   -64.588   -15.299   551.926
232371.8   7467850.5    5060    4020   +0.050   3654.413   978695.136   -117.465   176.502   -64.749    -5.712   553.385
232488.9   7468012.6    5060    4040   +0.050   3654.313   978695.036   -117.472   176.076   -64.593    -5.989   552.001
/D241
/ 248310.2   7459288.4       0     901   +0.000   3677.623   978718.243    -99.521   179.751   -65.939    14.291   563.457
/ 248310.2   7459288.4       0     901   +0.000   3677.623   978718.243    -99.521   179.751   -65.939    14.291   563.457
/ 248310.2   7459288.4       0     901   +0.090   3677.623   978718.243    -99.521   179.751   -65.939    14.291   563.457
/ 248310.2   7459288.4       0     901   +0.000   3677.533   978718.243    -99.521   179.751   -65.939    14.291   563.457
229815.7   7470176.6    5000    4000   +0.024   3649.156   978689.776   -121.442   176.087   -64.597    -9.953   552.122
229932.9   7470337.5    5000    4020   +0.025   3649.031   978689.651   -121.475   176.094   -64.600    -9.980   552.144
230053.1   7470499.2    5000    4040   +0.026   3648.928   978689.548   -121.485   176.097   -64.601    -9.989   552.150
230172.6   7470659.9    5000    4060   +0.027   3648.825   978689.445   -121.495   176.093   -64.599   -10.002   552.134
230291.6   7470820.3    5000    4080   +0.028   3648.798   978689.418   -121.430   176.099   -64.602    -9.932   552.154
230411.1   7470981.9    5000    4100   +0.030   3648.809   978689.429   -121.326   176.097   -64.601    -9.830   552.145
230530.7   7471142.8    5000    4120   +0.032   3648.610   978689.230   -121.432   176.097   -64.601    -9.936   552.141
230648.8   7471302.2    5000    4140   +0.033   3648.332   978688.952   -121.619   176.108   -64.605   -10.116   552.175
230768.0   7471463.3    5000    4160   +0.034   3648.186   978688.806   -121.672   176.095   -64.600   -10.177   552.132
230889.9   7471627.2    5000    4180   +0.036   3648.091   978688.711   -121.673   176.095   -64.600   -10.178   552.128
231007.0   7471785.3    5000    4200   +0.039   3647.977   978688.597   -121.696   176.090   -64.598   -10.204   552.111
231126.0   7471945.9    5000    4220   +0.040   3647.534   978688.154   -122.047   176.074   -64.592   -10.565   552.056
231243.6   7472104.6    5000    4240   +0.041   3646.931   978687.551   -122.559   176.088   -64.597   -11.068   552.099
231364.5   7472266.5    5000    4260   +0.044   3646.447   978687.067   -122.949   176.094   -64.600   -11.455   552.117
231483.6   7472426.2    5000    4280   +0.046   3646.148   978686.768   -123.157   176.093   -64.599   -11.663   552.113
231603.8   7472588.8    5000    4300   +0.048   3645.855   978686.475   -123.356   176.115   -64.607   -11.849   552.180
231721.6   7472748.9    5000    4320   +0.049   3645.772   978686.392   -123.347   176.122   -64.610   -11.835   552.203
231841.5   7472909.3    5000    4340   +0.050   3645.491   978686.111   -123.536   176.167   -64.626   -11.996   552.345
231960.7   7473070.1    5000    4360   +0.051   3644.926   978685.546   -124.009   176.072   -64.592   -12.528   552.039
232079.0   7473230.9    5000    4380   +0.055   3644.048   978684.668   -124.794   176.050   -64.584   -13.328   551.965
232198.5   7473391.8    5000    4400   +0.056   3643.715   978684.335   -125.035   176.049   -64.583   -13.569   551.961
232317.3   7473552.1    5000    4420   +0.058   3643.657   978684.277   -125.001   176.054   -64.585   -13.532   551.973
232437.4   7473714.2    5000    4440   +0.062   3643.542   978684.162   -125.022   176.040   -64.580   -13.563   551.927
232556.6   7473874.1    5000    4460   +0.064   3643.065   978683.685   -125.408   176.040   -64.580   -13.948   551.925
232676.0   7474035.0    5000    4480   +0.066   3642.460   978683.080   -125.920   176.043   -64.581   -14.458   551.935
232794.8   7474195.0    5000    4500   +0.067   3641.767   978682.387   -126.521   176.034   -64.578   -15.065   551.905
232929.1   7474375.8    5000    4520   +0.068   3640.803   978681.423   -127.381   176.075   -64.593   -15.899   552.034
230333.3   7469351.2    5020    4060   +0.020   3650.477   978691.097   -120.608   176.900   -64.895    -8.603   554.741
230448.9   7469510.4    5020    4080   +0.022   3650.584   978691.204   -120.409   176.113   -64.607    -8.903   552.187
233880.9   7474188.9    5020    4660   +0.072   3641.667   978682.287   -126.636   176.072   -64.592   -15.156   551.996
233999.5   7474350.6    5020    4680   +0.070   3640.983   978681.603   -127.227   176.072   -64.592   -15.746   551.997
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