

Lottah Mining Pty Ltd

# Annual Report

on

Exploration Licence 35/2006

For the period

February 2016 – February 2017

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For

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### Function of the Annual Report

This Annual Report has been prepared as a public document for submission to Mineral Resources Tasmania (MRT). This report provides a summary of the exploration activities undertaken by Lottah Mining Pty Ltd within exploration Licence 35/2006 during February 2016 – February 2017.

### Role in the Regulation Process

This document fulfils the role of an Annual Report on EL 35/2006 for the period February 2016 – February 2017, as required under *Section 28* of the *Mineral Resources Development Act 1995*.

### Map Conventions

Coordinates in this report and in digital data associated with this report are recorded as GDA94 Zone 55.

### Distribution

1 x Mineral Resources Tasmania

1 x Lottah Mining Pty Ltd – Sydney Office

1 x Lottah Mining Pty Ltd – Wivenhoe Field Office

## Executive Summary

This report contains exploration activities completed on EL35/2006 Hampshire 1 during the period February 2016 – February 2017. The EL forms part of a tenement package prospective for Magnetite and Tungsten mineralisation around the House Top Granite in NW Tasmania.

Work accomplished on EL35/2006 included; compilation of previous data and drill core, ground reconnaissance of the southern end of the Hampshire deposit and track maintenance.

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## 1. Introduction

### 1.1 Purpose of Program

The purpose of the exploration program was to gain a more detailed understanding of the magnetite deposit located on EL 35/2006.

### 1.2 Geological Setting

The Hampshire tenement is a magnetite skarn deposit. The deposit was formed through hot waters (iron rich mixed with other minerals) derived from the intrusion of the Upper Devonian Housatonic Granite reacting with calcium - rich carbonate rocks of the pre - existing Burnie Formation, Proterozoic Oonah Formation, Ordovician Denison Group and the Dial Group (Whitehead, 1984).

### 1.3 Exploration Licence Location and Operation

#### 1.3.1 Mineral Exploration Area

Exploration Licence 35/2006 covers 88 square kilometres and is located 30 km southwest of Burnie. EL35/2006 Hampshire is one of 9 current exploration licenses held by Blythe River Iron Pty Ltd (BRI). The tenements were previously held by either Iron Mountain Pty Ltd or Red River Mining Pty Ltd. Tenement details are listed in Table 1.

**Exploration Licences held by Lottah Mining Pty Ltd**

EL	Name	Held by	Size (km <sup>2</sup> )	Expiry	Comments
EL6/2005	Cuprona	BRI	22	07/09/2016	Renewal granted
EL53/2007	Mt Everett	BRI	47	18/12/2016	Renewal granted
EL25/2009	Highclere	BRI	33	25/05/2016	Renewal granted
EL35/2006	Hampshire 1	BRI	89	25/02/2016	Pending renewal
EL18/2007	Rogetta	BRI	70	09/07/2016	Renewal granted
EL11/2014	Camena	BRI	30	14/09/2019	Renewal granted
EL14/2014	Mt Montgomery	BRI	32	14/09/2019	Renewal granted
EL22/2014	Circular Road	BRI	103	03/03/2020	Renewal granted
EL23/2014	West Pine	BRI	11	03/03/2020	Renewal granted

Table 1: Tenement Details of the Blythe River Project

The Blythe River Iron Project (BRIP) consists of a number of small to medium size magnetite skarn deposits located in NW Tasmania, approximately 30km south of Burnie (Figure 1 and 2). Exploration is focused on resource delineation of semi massive to massive magnetite deposits to provide a resource base for a magnetite mining operation for the iron ore market.

### 1.3.2 Site Location

As previously mentioned, EL 35/2006 is located 30 kilometres southwest of Burnie. Main access to EL 35/2006 is via the Ridgley Highway. The tenement is dissected by smaller forestry roads and tracks. Access to the tenement is good.

### 1.3.3 Exploration Licence Tenure

Tenement EL 35/2006, was granted to Forward Mining / Lottah Mining Pty Ltd on 07 February 2003 for a period of five years and applies to Category 1 minerals. The licence is currently granted on a year by year renewal basis.

## 2 Regional Geology

The regional geology of Hampshire consists of Proterozoic aged Burnie Formation (north easterly folded shales and quartzites), overlain by the Mt Read Volcanics and Owen Group Siliciclastics. Conformably overlying the Owen Group is the Gordon Group Limestone. This was intruded in the Devonian by the Housetop Granite, which during the Tertiary was in turn covered by basaltic flows (Whitehead, 1984).

The basalt formed a protective layer from weathering occurrences for the future iron deposits in the region. Magnetite skarn deposits were created by the intrusion of the upper Devonian Housetop granite reacting with pre-existing Burnie and Oonah Formation stratigraphy (Kusander, Mayer & Zlatkov, 2009).

EL 35/2006 is located the western margin of the Dial Range Trough and is underlain by lithologies of the Late Proterozoic Oonah Formation, Owen Group Siliciclastics, Gordon Group Limestone, Devonian Granites and Tertiary Basalt (Figure 1). The Dial Trough is a structurally interesting basin that includes a possible Northern Extension of the Hellyer Fault, and significant basin bounding faults on the western and eastern sides. The Devonian post orogenic Housetop Granite dominates the geology to the south of the project area and is considered to underlie much of the southern Dial Trough. The Dial Trough has been poorly mapped and stratigraphic correlations are uncertain for many units (Callaghan, 2013).

#### Oonah Formation

The oldest rocks in the district are the Proterozoic Oonah formation, consisting of polydeformed quartzwacke, siltstone and pelite with lesser dolerite intrusives. These are overlain by a sequence of pelite-carbonate with minor mafic volcanics and conglomerate. This association is host to replacement deposits at Mt Bischoff and near Zeehan and consequently represents a potential host for similar styles of skarn mineralisation.

#### Mt Read Volcanics

Mt Read Volcanic associations have been correlated with the felsic volcanoclastics of the Western Volcano-sedimentary sequence and the Tyndall Group quartz-feldspar phyric volcanoclastics.

## Owen Group

The Late Cambrian to Ordovician Owen Group overlies the Mt Read Volcanics and is comprised dominantly of siliciclastic conglomerate and sandstone. Locally volcanic derived conglomerates are associated with basal members. The Moina Sandstone, comprised of coarse to fine siliciclastic sandstone with minor intercalated conglomerate is the uppermost siliciclastic unit of the Owen Group and has a gradational contact with the overlying Gordon Group.

## Gordon Group Limestone

Conformably overlying the Owen Group is the Gordon Group limestone and dolomite sequence which is the host of the Kara district magnetite skarns. The stratigraphic thickness of the limestone is regionally variable ranging between 50-1000m.

## Housetop Granite

The Housetop granite outcrops in much of the Blythe River Prospect and is believed to extend below much of the area (Leaman, 1993). Leaman concludes that the Housetop granite is anomalously dense and highly magnetic, which may explain the abundance of iron metasomatism in the district. The granite is responsible for massive Magnetite-SnWO<sub>3</sub> mineralisation of the Kara District. The association of Tasmanian Devonian granites with Magnetite, Sn-WO<sub>3</sub>, Pb-Zn-Ag and Au mineralisation is well documented.

## Tertiary Basalt

Basaltic flows are widespread throughout the Blythe River Iron Project area, flooding Tertiary palaeo-topographic lows. The basalts vary widely in thickness and frequently have a high magnetic susceptibility creating difficulties for magnetite exploration below basaltic cover. Recent resource and exploration drilling at the Kara Mine indicates that the magnetite skarn extends below basalt cover (Callaghan, 2013).

## Regional Geology and Lottah Mining Tenements

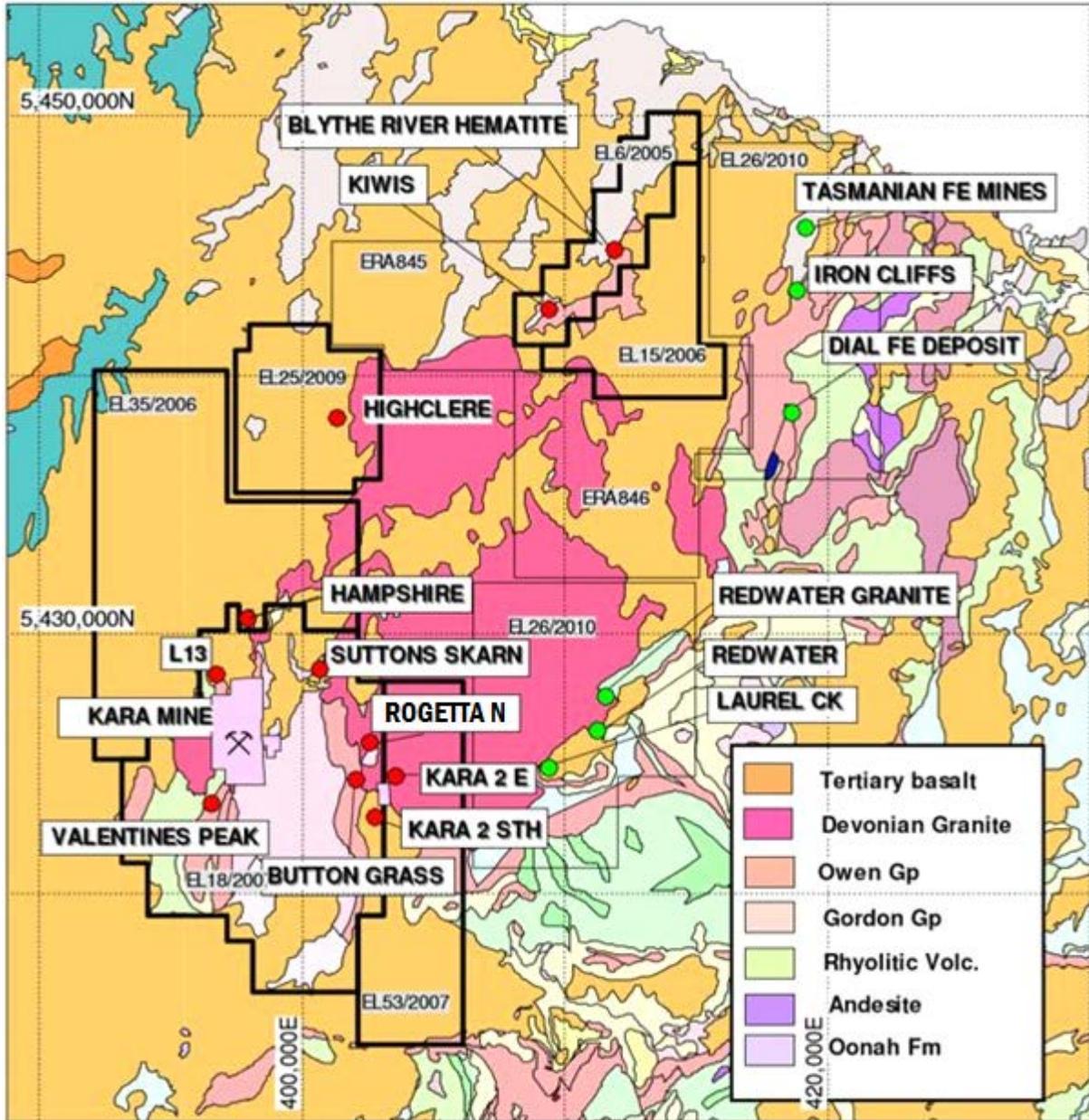


Figure 1. Lottah Mining Tenements. Green Dots depict Lottah Mining Tenements; Red dots depict other regional Fe leases.

### 2.1 Local Geology

The geology of EL35/2006 is dominated by Tertiary basalt flows, particularly to the north. On the southern boundary several basement windows expose granite intrusions with adjacent skarn mineralisation and the underlying Moina Sandstone including the Hampshire magnetite skarn, typical of the metasomatic magnetite rich skarns associated with the Housetop Granite.

The Hampshire Magnetite Skarn outcrops over a strike length of 500m and dips moderately west. Mineralisation consists of an approximately 10m thick massive magnetite skarn hosted in a thicker sequence of garnet-pyroxene-actinolite calc silicate skarn. Mineralisation has replaced a calcareous sandstone located just below the Moina Sandstone. Hornfelsed quartzite sandstone of the Moina Sandstone lies directly over the skarn (Callaghan, 2014).

The skarns are proximal to the Housetop Granite which truncates the mineralisation down dip to the west. The mineralisation is considered to be hosted in a roof pendant of Paleozoic calcareous sediments on the Housetop Granite.

Tertiary Basalt flows infill palaeo-valley and form basaltic flood deposits over much of the EL. Small windows of basement outcrop in the Hampshire area and the far east of the EL.

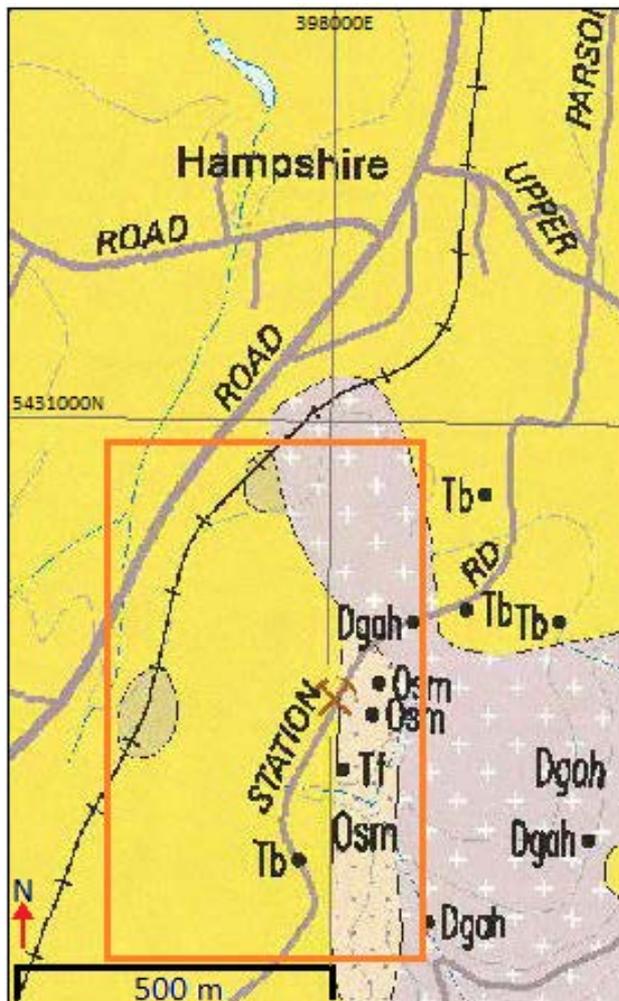


Figure 2. Geological map of the area of interest on EL35/2006.

### 3 Summary of Previous Exploration

In 1955 the Tasmanian Department of Mines conducted a magnetic survey of the Hampshire Magnetite deposit (Tate, 1955).

From 1964-1974 the Tasmanian Department of Mines conducted a drilling program on the Hampshire region for the purpose of metallic minerals (Turner, 1992).

During 1982-1984, McIntyre Mines (Australia) Pty Ltd. conducted a ground magnetic survey and diamond drilling campaign over the Hampshire magnetite skarn and surrounding region in search of metallic minerals Sn and WO<sub>3</sub> (Whitehead, 1994).

2008-2013: Iron Mountain Pty Ltd completed a comprehensive 30m spaced RC drilling program on the northern 250m of the deposit in 2008. 30 holes were drilled for 1530m. Drilling returned numerous high grade magnetite intersections in a consistently west dipping lens. Tungsten values were generally low with only a few samples above 0.1% WO<sub>3</sub>.

2013-2014: Work completed specifically on EL35/2006 included drilling of 1 diamond drill hole for 73.7m. The Hole HDH001 was designed to test the southern extension of the magnetite skarn identified in an earlier RC drilling program. Minor magnetite was observed outcropping in the field south of the deposit and the magnetic anomaly remains open to the south.

The hole was collared in October 2013 and intersected calc-silicate skarn of the Transition beds that host much of the magnetite-scheelite skarn in the district. A drill summary is listed on the following page.

Project	BHID	Easting	Northing	RL	Depth	Depth	Azm_Amg	Dip
Hampshire	HDH001	397952.0	5430389.0	494	73.7	0.0	90.00	-70.00
Depth (m)	Lithology							
0 – 10.2	Weathered Tertiary basalt.							
10.2 – 31.6	Clay weathered calc-silicate skarn (Transition Beds). Minor magnetite nodules and veins noted at 28.7 to 31.6m.							
31.6 – 50.1	Quartzite and sandstone. Moina sandstone.							
50.1 – 73.7	Granite.							

Table 2. HDH001 drill hole summary

2014-2015: Lottah Mining Pty Ltd. conducted geological research of historic works and reconnaissance of the tenement to gain further insight of the deposit. Future work includes ground work for magnetic, gravity and seismic surveys in the region.

## 4 Current Exploration 2016-2017

Work accomplished on EL35/2006 included; compilation of previous data and drill core, ground reconnaissance of the southern end of the Hampshire deposit and track maintenance.

## 5 Discussion

Previous magnetic work and modelling on EL35/2006 identified the southern end of the known Hampshire Deposit as favourable for continuation of the magnetite body. Further reconnaissance on the southern end of the Hampshire deposit has resulted in limited success due to the nature of the basalt cap that appears to be covering the potential magnetite body. This area warrants further exploration. Caution is required however as weakly magnetic basalt has been identified in nearby areas presenting false targets.

The commencement of a gravity survey occurred during November 2015. Before the all data could be collected, the gravity machine was corrupted. The corruption of the gravity machine has resulted in the survey yet to be completed. All completed Gravity Survey data has been included in the appendix of this report.

Future work planned for EL35/2006 is expected to involve completion of the gravity survey, further field exploration of the southern extension of the Hampshire skarn and the potential for an airborne magnetic survey.

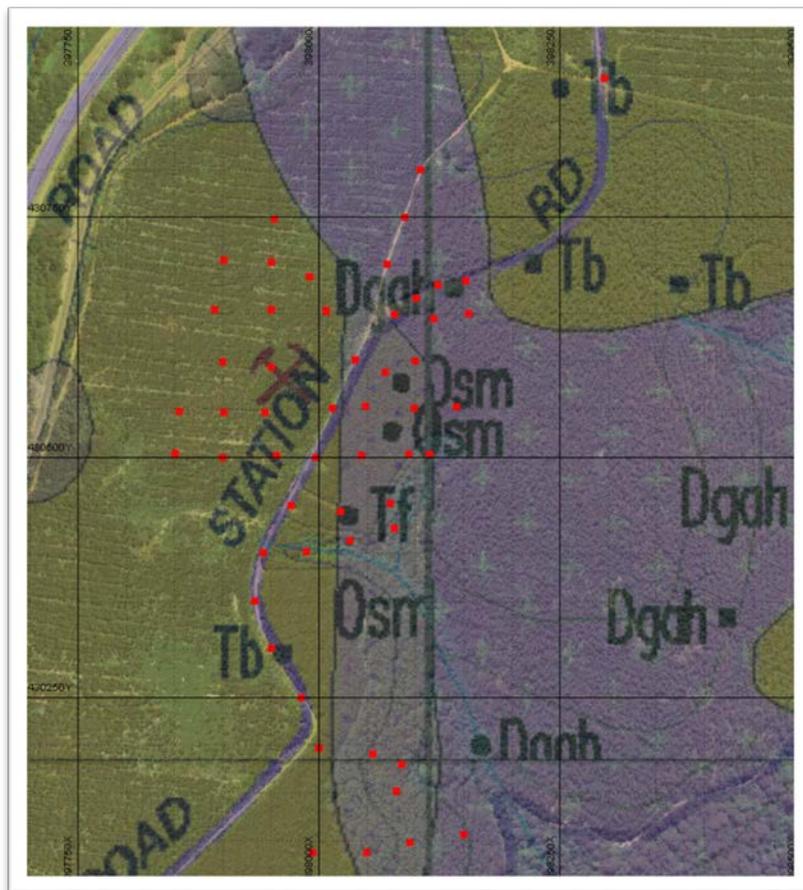


Figure 3. LMPL's ongoing Gravity Survey on EL35/2006.

## 6 Environmental

Environmental disturbance in EL35 during the reporting period was negligible. Existing access infrastructure was used when required for site. Track maintenance involved the removal of overgrown gorse. Any future rehabilitation of EL 35/2006 will be completed to MRT standards once a final decision as to the viability of the mineral potential in the area has been determined.

## 7 Expenditure

Expenditure from the period 2016-2017 for EL 35/2006 is presented below.

Quarter 2	\$4,950
Quarter 3	\$4,800
Quarter 4	\$9,550
Quarter 1	\$5,100
Total	\$24,400

Table 3. Expenditure for EL35/2005 during 2016-2017.

Expenditure for 2017-2018 on EL 35/2006 is anticipated to be \$30,000.

## 8 Appendix

Gravity I.D	Easting	Northing	RL	Gravity Reading	Grav.	SD.	Tilt x	Tilt y	Temp.	E.T.C.	Dur	#Rej	Time
				4006.555	4006.405	0.144	11	4	-0.74	0.049	30	0	0.382
3001	398295.967	5430896	478.877	3978.31	3978.155	0.163	-5	14	-0.73	0.059	30	0	0.401
3002				4006.555	4006.39	0.154	12	5	-0.73	0.066	30	0	0.416
3003	398295.967	5430896	478.877	3978.31	3978.135	0.115	-2	-4	-0.75	0.074	30	0	0.432
3004				4006.535	4006.36	0.204	-2	12	-0.73	-0.08	30	0	0.448
3005	398295.967	5430896	478.877	3978.27	3978.085	0.098	6	-10	-0.74	0.085	30	0	0.465
3006	397982.095	5430249	495.108	3975.13	3974.945	0.129	-33	5	-0.73	0.087	30	0	0.48
3007	397950.28	5430302	495.79	3975.5	3975.315	0.096	-4	15	-0.72	0.087	30	0	0.483
3008	397933.503	5430351	494.919	3976.49	3976.305	0.121	-21	7	-0.73	0.087	30	0	0.487
3009	397941.964	5430402	484.057	3977.605	3977.42	0.137	-1	16	-0.74	0.087	30	0	0.492
3010	397970.466	5430450	489.951	3978.065	3977.875	0.193	-23	7	-0.74	0.087	30	0	0.497
3011	397997.243	5430500	487.591	3977.4	3977.215	0.087	6	9	-0.73	0.087	30	0	0.501
3012	398013.741	5430551	494.578	3977	3976.815	0.133	6	13	-0.72	0.086	30	0	0.506
3013	398037.705	5430602	490.607	3977.08	3976.89	0.113	5	24	-0.75	0.086	30	0	0.509
3014	398152.253	5430684	496.737	3976.935	3976.745	0.127	27	16	-0.75	0.085	30	0	0.514

3015	398123.613	5430679	490.974	3976.855	3976.67	0.11	0	-12	-0.74	0.084	30	0	0.517
3016	398101.234	5430666	499.373	3976.93	3976.75	0.122	19	-2	-0.73	0.083	30	0	0.52
3017	398078.392	5430649	490.511	3977.03	3976.85	0.118	-22	-5	-0.72	0.082	30	0	0.523
3018	398070.746	5430701	494.061	3977.37	3977.185	0.093	10	-8	-0.75	0.081	30	0	0.525
3019	398088.568	5430751	490.417	3977.695	3977.51	0.343	-31	9	-0.75	-0.08	30	0	0.529
3020	398105.51	5430799	487.048	3978.02	3977.84	0.127	-16	8	-0.75	0.079	30	0	0.532
3021	398295.967	5430896	478.877	3978.215	3978.04	0.137	-7	6	-0.76	0.074	30	0	0.542
3022	398295.967	5430896	478.877	3977.66	3977.66	0.061	17	-1	-0.56	0.027	30	0	0.343
3023	397986.624	5430403	479.281	3978.01	3977.905	0.07	9	10	-0.56	0.026	30	0	0.361
3024	398032.405	5430414	481.878	3978.195	3978.095	0.082	159	16	-0.57	0.027	30	0	0.366
3025	398078.197	5430427	482.305	3978.89	3978.785	0.036	76	16	-0.58	0.027	30	0	0.372
3026	398073.602	5430452	483.076	3978.065	3977.96	0.088	-79	-11	-0.57	0.029	30	0	0.379
3027	398022.614	5430444	489.288	3977.255	3977.145	0.068	127	29	-0.57	-0.03	30	0	0.388
3028	398043.46	5430502	493.377	3977.035	3976.925	0.054	-7	3	-0.58	0.032	30	0	0.395
3029	398093.267	5430503	486.732	377.565	3977.45	0.049	3	2	-0.59	0.034	30	0	0.4
3030	398114.393	5430503	494.228	3977.78	3977.665	0.124	94	24	-0.57	0.036	30	0	0.409

3031	398142.96	5430552	490.042	3976.98	3976.865	0.061	8	0	-0.58	0.038	30	0	0.415
3032	398098.981	5430551	491.435	3977.025	3976.905	0.221	-31	7	-0.57	-0.04	30	0	0.419
3033	398047.941	5430554	500.574	3976.605	3976.49	0.062	74	10	-0.57	0.042	30	0	0.424
3034	398068.705	5430589	492.481	3976.39	3976.265	0.094	-31	89	-0.56	0.045	30	0	0.432
3035	398100.023	5430600	499.598	3976.175	3976.05	0.048	-40	-6	-0.57	0.049	30	0	0.441
3036	398119.079	5430644	495.588	3976.255	3976.125	0.054	23	29	-0.58	0.051	30	0	0.445
3037	398155.932	5430650	497.637	3975.91	3975.78	0.064	-65	107	-0.57	0.054	30	0	0.451
3038				3977.615	3977.475	0.047	12	0	-0.56	0.061	30	0	0.466
3039				3976.86	3976.74	0.231	4	-1	-0.56	0.048	30	0	0.422
3040				3976.055	3975.865	0.044	2	8	-0.89	0.069	30	0	0.424
3041	397955.605	5430501	487.118	3972.02	3971.825	10.876	5	-1	-0.89	0.077	30	0	0.442
3042	397900.53	5430499	486.712	3975.365	3975.165	0.068	88	15	-0.9	0.079	30	0	0.446
3043	397851.422	5430504	485.98	3975.28	3974.97	0.16	-6	8	-0.92	0.082	30	0	0.455
3044	397854.738	5430548	487.636	3975.27	3975.065	0.078	-78	8	-0.91	0.084	30	0	0.459
3045	397901.223	5430547	487.388	3975.465	3975.255	0.124	32	16	-0.92	0.086	30	0	0.463
3046	397899.896	5430599	494.818		3974.995	0.064	-12	11	-0.92	0.088	30	0	0.47

3047	397951.101	5430594	489.751		3975.2	0.175	4	2	-0.96	0.089	30	0	0.475
3048	397944.588	5430547	490.136		3975.34	0.139	-1	2	-0.93	0.092	30	0	0.487
3049	398007.355	5430653	488.29	3975.935	3975.71	0.069	2	-6	-0.95	0.093	30	0	0.5
3050					3975.69	0.075	6	4	-0.95	0.049	30	0	0.412
3051					3975.495	0.131	0	9	-1.17	0.036	30	0	0.411
3052	398007.19	5430651	489.513		3974.38	0.173	-95	-2	-1.17	0.041	30	0	0.425
3053	397989.886	5430688	488.605		3974.57	0.177	-39	5	-1.16	0.042	30	0	0.429
3054	397950.659	5430654	488.446		3974.82	0.136	-11	14	-1.18	0.044	30	0	0.433
3055	397891.645	5430654	486.678		3974.665	0.13	-2	-19	-1.2	0.046	30	0	0.438
3056	397901.118	5430705	489.926		3974.505	0.144	6	36	-1.2	0.049	30	0	0.445
3057	397951.139	5430704	489.85		3974.815	0.204	10	4	-1.21	0.051	30	0	0.45
3058	397953.648	5430749	491.378		3974.675	0.133	60	28	-1.2	0.053	30	0	0.454
3059					3975.375	0.128	-29	4	-1.18	0.059	30	0	0.467
3060					3975.11	0.085	-13	-2	-0.6	0.031	30	0	0.396
3061	397999.497	5430197	500.026		3972.115	0.098	0	17	-0.6	0.023	30	0	0.422
3062	398055.961	5430190	475.144		3975.6	0.07	97	9	-0.59	-0.02	30	0	0.431

3063	398086.19	5430180	471.992	3977.555	0.133	-67	-4	-0.58	0.019	-	30	0	0.437
3064	398079.981	5430152	471.545	3976.86	0.107	31	24	-0.59	0.018	-	30	0	0.442
3065	398149.606	5430106	467.969	3978.625	0.081	76	-12	-0.61	0.015	-	30	0	0.452
3066	398094.645	5430097	487.108	3974.435	0.382	-5	-9	-0.63	0.014	-	30	0	0.462
3067	398049.282	5430086	488.587	3973.76	0.095	-35	-13	-0.6	0.013	-	30	0	0.466
3068	397993.525	5430087	498.248	3973.28	0.096	-17	-5	-0.6	0.013	-	30	0	0.469

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