MINISTERIO DA VIAÇÃO E OBRAS PUBLICAS

DEPARTAMENTO DE AERONAUTICA CIVIL

CALCULO DE COORDENADAS DOS VERTICES DA POLYGONAL DO PERIMETRO DOS TERRENOS DA FABRICA NACIONAL DE AVIÕES EM LAGÔA SANTA

Processo n. 35.267/37

ESTAÇÕES	Azimuts corrigidos	Azimuts calculados	Alinhamentos	Coordenadas calculadas N	Coordenadas calculadas S	Coordenadas calculadas E	Coordenadas calculadas W	Correcções N	Correcções S	Correcções E	Correcções W	Coordenadas corrigidas N	Coordenadas corrigidas S	Coordenadas corrigidas E	Coordenadas corrigidas W	Abcissas	Ordenadas	Abcissas	Ordenadas	Observações
1		72°14'NE	568.604	2931012		314.490		0.060		293.56						3814.46	3293.58	8603.28	25781.0.96	As coordenadas da primeira columna correspondem aos do Gravelle do D.A.E. Dec. XVIII-2244-37
2 = 41	16°57'D	68°49'SE	830.654		300.157	774.137		0.091								4681.87	2993.87		21933.29.26	
3 = 5	72°45'D	3°56'SW	234.985		234.430		16.120	0.013	0.017		234.29			16.14		4672.73	2759.58	8131.94	21062.41.13	
4 = 10	29°52'D	33°48'SW	275.937		229.298		153.594	0.015	0.021		229.34			153.52		4538.21	2859.54	8274.51	1059723.08	
5 = 9	50°59'E	77°11'SE	122.191		76.736	95.000		0.009	0.009		76.87	95.09				4538.30	2411.06	8743.06	167382.74	
6 = 9	18°59'E	36°10'SE	224.472		181.218	132.479		0.012	0.014		181.09	132.46				4687.76	2230.98	8791.14.9	2484998.75	
7 = 7	21°45'E	32°55'SE	478.729		256.277	405.593		0.027	0.030		254.01	405.53				5093.154	1998.53	9081.87	2077.758.21	
8 = 8	84°59'D	27°04'SW	231.365		206.026		104.810	0.013			206.09			104.80		4886.22	1998.53	8776.70	1555730.81	
9 = 5	30°07'D	57°11'SW	895.965		760.073		248.628	0.167	0.0181		159.91			248.46		4640.27	1912.86	8931.25	600983.81	
10 = 4	25°48'D	82°59'SW	550.405		67.604		349.260	0.313	0.034		67.29			349.26		4130.98	1543.58	8581.99	1834738.74	
11 = 3 = 31	23°59'D	33°01'NW	821.583	733.754			183.814	0.463	0.050	240.22				183.76		3405.11	1785.80	7018.60	2084543.32	
12 = 40	142°00'E	38°02'SE	461.643		297.267	208.400		0.205	0.022		297.09			208.38		3612.89	1448.74	6015.49	6385577.10	
13 = 39	83°47'D	40°46'SW	1.611.863		1.082.452		211.487	0.912	0.100		1.081.54			211.39		2531.35	1.347.35	4759.41	781447.53	
14	176°07'D	3°08'NW	169.098	164.096			44.380	0.096	0.011	164.19				44.37		2531.35	1.347.35	4759.41	781447.53	
15	31°09'	48°17'NW	100.010	69.116			22.284	0.057	0.006	69.77				22.28		2565.52	591.58	4759.41	32.1137.62	
16	14°38'	31°44'NW	25.592	22.511			13.987	0.0154	0.002	22.63				13.99		2587.43	660.56	4566.45	103712.46	
17	20°56'D	10°48'NW	25.051	24.604			4.692	0.014	0.002	24.62				4.69		2587.43	707.81	4534.63	105702.22	
18	14°36'D	3°48'NE	23.344	23.293				0.013	0.001	23.31						2566.09	731.12	4542.75	6841.91	
19	13°57'D	17°45'NE	14.984	14.271		4.568		0.008	0.001	14.28		4.57				2272.65	3745.40	4573.58	146400.10	
20	23°43'D	41°36'NE	42.587	31.587		28.266		0.024	0.003	32.01		28.25				2300.92	727.41	3986.28	1288.48.99	
21	22°12'D	63°40'NE	103.386	46.537		92.450		0.060	0.007	46.60		84.44				2339.36	824.01	4990.54	894631.87	
22	8°30'E	55°10'NE	243.446	139.054		199.825		0.136	0.015	139.19		199.81				2595.177	963.20	5204.29	24369.30	
23	10°50'E	42°20'NE	19.958	14.276		13.947		0.011	0.001	14.29		13.95				2605.12	977.49	5224.85	84798.32	
24	22°05'E	22°11'NE	17.320	16.223		6.613		0.010	0.001	16.23		6.61				2615.73	993.72	5189.42	2366376.66	
25	28°04'E	5°53'NW	458.595	456.178			47.006	0.266	0.028	45844				47.04		2568.69	1450.16	5028.54	1379378.81	
26	15°46'E	21°39'NW	294.956	274.147			108.821	0.167	0.018	274.31				108.84		2459.85	1724.47	4911.76	1446488.68	
27	8°44'D	14°55'NW	30.838	29.799			7.938	0.017	0.002	29.82				7.94		2491.91	1754.29	4902.57	152175.77	
28	12°37'D	2°18'NW	31.049	31.024			1.246	0.018	0.002	31.04				1.25		2450.66	1785.33	4924.94	30061.8.16	
29	23°28'D	21°10'NE	65.415	61.001		23.820		0.037	0.004	61.04		23.82				2474.29	1848.37	4994.84	249591.74	
30	21°37'D	42°47'NE	68.139	50.009		46.288		0.039	0.004	50.05		46.28				2520.55	1898.43	5073.19	6.1234.87	
31	26°36'D	69°23'NE	34.270	12.087		32.075		0.019	0.002	12.09		32.07				2552.62	1910.51	5647.39	2822200.08	
32	15°23'D	84°46'NE	544.430	49.657		542.160		0.308	0.034	49.97		542.13				3094.76	1958.48	5215.07	5220.5.59	
33	12°57'E	71°49'NE	26.893	8.392		25.559		0.005	0.001	8.40		25.55				3120.31	1966.88	5281.03	1234631.18	
34 = 1 = 1	29°28'E	47°21'NE	54.944	37.226		40.412		0.034	0.003	37.26		40.41				3160.72	2004.14	5315.52	599.037.07	
35	60°55'E	31°34'NW	94.985	94.801			5.909	0.054	0.006	94.85				5.92		3154.80	2098.99	5006.18	1662390.50	
36	44°05'E	47°39'NW	410.519	278.550			303.390	0.282	0.025	275.78				303.42		2851.38	2379.77	5582.51	131053.51	
37	6°21'D	41°18'NW	30.685	23.052			20.252	0.017	0.002	23.07				20.25		2831.13	2398.84	5648.21	120702.15	
38	7°58'D	33°20'NW	25.563	21.358			14.047	0.014	0.002	21.37				14.05		2817.08	2422.21	5620.77	150186.97	
39	6°42'D	26°38'NW	29.870	26.700			13.390	0.017	0.002	26.72				13.39		2803.69	2448.93	5597.35	152.211.20	
40	7°32'D	19°06'NW	30.652	28.965			10.030	0.017	0.002	28.98				10.03		2793.66	2475.91	5580.48	224056.27	
41	9°26'D	9°40'NW	40.704	40.128			6.835	0.023	0.003	40.15				6.84		2786.82	2516.06	5572.11	175.572.19	
42	8°53'D	2°47'NW	31.528	31.491			1.531	0.018	0.002	31.51				1.53		2785.29	2547.57	5572.69	129.397.85	
43	7°59'D	5°12'NE	23.304	23.208		2.117		0.013	0.001	23.22		2.11				2787.40	2570.79	5581.66	203.111.91	
44	5°32'D	10°44'NE	36.834	36.189		6.860		0.021	0.002	36.21		6.86				2794.26	2607.00	5794.26	2277144.18	
45 = 2	18°55'D	27°39'NE	443.384	392.750		205.761		0.251	0.027	393.00		205.74				3000.00	3000.00	5914.39	2029788.33	
1	44°35'D																			
				10.599.874	3.103.535	3.109.536	3.745.827	3.744.973			3106.58	3106.58	3745.35	3745.35					7177709.41	

As estações de 1 a 19 e 45 estão a margem da estrada de rodagem entre Bello Horizonte e Lagôa Santa.

Lat. 19°39'09"6 S. Long. 0°44'06"3 E. (W. Morro Castello)

CALCULO DAS CORRECÇÕES PARA COMPENSAR AS COORDENADAS RELATIVAS

ERRO LINEAR DE FECHAMENTO 6m.035

$e_l = \frac{\sqrt{(6'001)^2 + (0'654)^2}}{L} = \frac{6'033}{10599'874} = 0'000.68$

DIFFERENÇAS ENTRE — N = 6m.001 — E = W 0m.654

CORRECÇÕES: $\frac{0'001}{10599'874} \times L = 0'000.566 \times L$; $\frac{0'654}{10599'874} \times L = 0'000062 \times L$

AREA $= \frac{7177'709'41}{2} = 3.588.854'70$

LEVANTAMENTO E DETERMINAÇÃO DE COORDENADAS GEOGRAPHICAS PELO ENG° JOSÉ DE OLIVEIRA DUARTE DO SERVIÇO GEOGRAPHICO DO ESTADO DE MINAS GERAES.

CALCULO DE COORDENADAS E AREA PELO ENG°

VISTO

J. Cruchaga V. Filho