

ANEJO Nº2 CARTOGRAFÍA Y TOPOGRAFÍA

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1. INTRODUCCIÓN

La topografía que ha servido de base para la definición del Proyecto de construcción de Remodelación de los Talleres y Cocheras del Metro Ligeró en superficie del centro de Sevilla ha sido realizada por la empresa GEOHISPAL Servicios Topográficos, con el objetivo de obtener un levantamiento georreferenciado de todos los elementos representativos a escala 1/500 en Sistema de Coordenadas UTM ETRS89 Huso 30N. Las altitudes están referidas al nivel del mar, con el modelo de Geoide EGM08-REDNAP.

2. MEMORIA TRABAJOS TOPOGRÁFICOS

Se adjunta a continuación la memoria de los trabajos topográficos realizados por la empresa GEOHISPAL Servicios Topográficos.

LEVANTAMIENTO TOPOGRÁFICO

De las COCHERAS Y TALLERES DEL METROCENTRO DE SEVILLA y de parcela anexa, en la Estación de Autobuses de TUSSAM



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1. Objeto del trabajo.

Para obtener una cartografía precisa que sirva como base para la redacción de un proyecto de construcción, se ha realizado un levantamiento topográfico de todos los elementos representativos a escala 1/500.

2. Trabajos de campo e instrumental utilizado

Los trabajos de campo se desarrollaron durante la segunda quincena del mes de octubre de 2023, en la zona de Cocheras y Talleres, y la primera semana de enero de 2024 en la parcela de la Estación de Autobuses, utilizando los siguientes instrumentos:

- Receptor bifrecuencia Geomax Zenith 25 Pro, compatible con GPS, GLONASS y GALILEO.
- Estación total robótica Leica TS 16

3. Metodología y cálculos

Se ha dividido la toma de datos de campo en dos fases:

FASE 1. Materialización y observación GNSS de las bases de replanteo.

Se han situado tres puntos de control, señalizados con clavos de acero en el pavimento y se han obtenido sus coordenadas ETRS-89 (European Terrestrial Reference System 1989) Proyección U.T.M. (Universal Transversa de Mercator) Huso 30N. Las altitudes están referidas al nivel del mar, con el modelo de Geoide EGM08-REDNAP.

Para la determinación de las coordenadas georreferenciadas de las bases de replanteo, las observaciones se hicieron en Tiempo Real (RTK), por conexión con la Red Andaluza de Posicionamiento (RAP) con los siguientes parámetros de configuración del receptor: Epochs 3, Elevation Angle 15°

Conectado a RAP, se han obtenido las correcciones diferenciales en tiempo real, mediante Solución con el Conjunto de Red VRScmr+, Estación virtual de referencia (VRS), GPS + GLONASS + GALILEO, formato CMR, a partir de las estaciones que forman el conjunto de la red.

Esta solución se basa en que el sistema usa como punto de partida la posición inicial del receptor, previamente transmitida al sistema, permitiendo un posicionamiento automatizado con comunicación bidireccional, siendo su precisión homogénea en todo el territorio.

El posicionamiento cinemático diferencial (RTK, Real Time Kinematic) es el método donde un receptor permanece estacionado en un punto de control de coordenadas conocidas mientras que otro receptor recoge datos de manera continua mientras se va moviendo.

La precisión de un punto levantado por metodología GNSS depende de la configuración geométrica de los satélites en el momento de la observación.

El error de posición del punto se determina por la DOP, que es la razón entre la desviación estándar de una coordenada y la exactitud de la medida y representa cómo la geometría de los satélites afecta a la incertidumbre de la medida del punto.

Generalmente, cuanto más satélites se puedan observar y emplear en una observación mejor será la solución obtenida, siendo lo más favorable que los diferentes satélites que intervienen en la observación estén lo más repartidos por el horizonte y lo peor que estén muy concentrados.

Podemos estudiar el valor de GDOP para seleccionar los cuatro satélites que aporten la mejor solución, siendo este parámetro el más adecuado para evaluar la calidad de la observación al considerar tanto la contribución de la posición y la medida de tiempo.

El valor DOP cambiará conforme cambia la orientación relativa y visibilidad de los satélites, y puede analizarse según los siguientes parámetros:

GDOP: Calidad de la observación en términos de posición y tiempo.

PDOP: Calidad de la observación con respecto a la posición.

HDOP: Calidad de la observación con respecto a la posición horizontal.

VDOP: Calidad de la observación con respecto a la posición vertical.

La interpretación de valores DOP de una observación puede considerarse la siguiente:

<1 Valor ideal
1-2 Excelente
2-5 Bueno
5-10 Moderado
10-20 A descartar

Se han hecho series de cinco observaciones por cada punto, sosteniendo el receptor con trípode y reiniciándolo en cada una de ellas, teniendo una configuración distinta de la constelación de satélites para cada medición. Se ha tomado el promedio como el valor más exacto. Se ha obtenido así una precisión relativa horizontal de 8 mm, relativa vertical de 15 mm y absoluta mejor de 2 cm en la determinación del punto medido.

Con intención de desarrollar el levantamiento en un sistema de coordenadas plano, se ha eliminado el factor de escala propio de la proyección UTM, manteniendo el acimut de partida entre la BR101 y la BR102, calculando sus coordenadas planas.

Las coordenadas planas de las bases de replanteo así obtenidas son las siguientes:

BR100

X=235689.2433

Y=4141429.5835

Z=8.6350

BR101

X=235654.1673

Y=4141384.9798

Z=8.6150

BR102

X=235747.5966

Y=4141345.7009

Z=8.8530

En el apartado 5 del presente informe se aportan las reseñas de dichas bases.

FASE 2. Levantamiento topográfico.

Se ha realizado el levantamiento topográfico con el apoyo de las bases de replanteo previamente establecidas.

Se ha usado una Estación Total, orientando a dos bases por intersección inversa y obteniendo por radiación las coordenadas de los puntos del levantamiento.

En la parcela de la Estación de Autobuses, al ser una zona despejada, siendo la recepción de satélites es buena, por lo que se ha optado íntegramente por levantamiento GNSS.

4. Listado de puntos del levantamiento

	Punto	X	Y	Z	Código
1	235662.662	4141382.068	8.599	abast	
2	235658.221	4141385.111	8.599	abast	
3	235764.588	4141348.655	8.771	alu	
4	235737.026	4141350.093	8.858	alu	
5	235746.211	4141355.598	8.895	alu	
6	235746.166	4141377.291	8.635	alu	
7	235752.712	4141394.708	8.627	alu	
8	235714.160	4141403.189	8.598	alu	
9	235699.236	4141395.374	8.580	alu	
10	235746.032	4141378.401	8.631	alu	
11	235754.032	4141395.182	8.635	alu	
12	235716.372	4141402.670	8.600	alu	
13	235704.778	4141394.083	8.582	alu	
14	235747.315	4141380.303	8.638	alu	
15	235754.170	4141396.188	8.637	alu	
16	235723.188	4141399.962	8.612	alu	
17	235748.841	4141381.047	8.637	alu	
18	235754.283	4141398.535	8.631	alu	
19	235724.331	4141399.558	8.607	alu	
20	235711.396	4141395.735	8.586	alu	
21	235749.663	4141383.541	8.640	alu	
22	235755.228	4141398.757	8.620	alu	
23	235737.203	4141394.771	8.624	alu	
24	235714.652	4141390.063	8.587	alu	

25	235748.623	4141383.836	8.636	alu	69	235691.651	4141395.411	8.580	alu
26	235751.666	4141395.770	8.636	alu	70	235660.311	4141385.858	8.583	alu
27	235736.104	4141390.641	8.627	alu	71	235670.951	4141377.302	8.604	alu
28	235718.539	4141389.047	8.599	alu	72	235669.770	4141383.558	8.578	alu
29	235749.968	4141385.151	8.651	alu	73	235672.811	4141372.641	8.627	alu
30	235741.764	4141399.883	8.628	alu	74	235699.739	4141422.377	8.577	alu
31	235707.232	4141401.136	8.587	alu	75	235685.904	4141418.184	8.586	alu
32	235721.795	4141391.952	8.594	alu	76	235656.197	4141385.417	8.606	alu
33	235750.490	4141388.750	8.634	alu	77	235694.930	4141403.337	8.575	alu
34	235726.926	4141405.609	8.602	alu	78	235684.547	4141377.961	8.654	alu
35	235706.002	4141397.534	8.580	alu	79	235693.838	4141424.296	8.584	alu
36	235723.769	4141390.806	8.599	alu	80	235682.211	4141378.963	8.652	alu
37	235751.733	4141389.577	8.640	alu	81	235695.043	4141424.706	8.589	alu
38	235716.796	4141409.452	8.591	alu	82	235684.245	4141429.371	8.570	alu
39	235700.601	4141397.879	8.577	alu	83	235693.222	4141411.367	8.577	alu
40	235739.000	4141385.010	8.612	alu	84	235688.655	4141427.538	8.606	alu
41	235751.757	4141391.585	8.599	alu	85	235696.972	4141413.609	8.582	alu
42	235709.080	4141405.259	8.592	alu	86	235704.186	4141418.124	8.594	alu
43	235699.442	4141395.959	8.581	alu	87	235704.780	4141419.121	8.586	alu
44	235711.424	4141381.953	8.587	alu	88	235702.459	4141419.882	8.579	alu
45	235739.112	4141371.881	8.609	alu	89	235702.670	4141420.585	8.603	alu
46	235731.114	4141375.126	8.589	alu	90	235684.749	4141394.465	8.573	alu
47	235695.620	4141388.069	8.584	alu	91	235653.148	4141405.654	8.609	alu
48	235739.566	4141358.747	8.780	alu	92	235653.088	4141436.120	8.628	alu
49	235741.761	4141362.507	8.585	alu	93	235665.361	4141434.723	8.574	alu
50	235739.752	4141363.281	8.578	alu	94	235684.457	4141398.259	8.593	alu
51	235739.560	4141362.754	8.580	alu	95	235642.293	4141400.950	8.589	alu
52	235741.289	4141360.224	8.611	alu	96	235679.464	4141430.760	8.580	alu
53	235741.513	4141359.152	8.710	alu	97	235674.089	4141433.512	8.633	alu
54	235740.677	4141358.387	8.794	alu	98	235646.457	4141399.422	8.587	alu
55	235677.906	4141374.531	8.628	alu	99	235646.279	4141400.928	8.572	alu
56	235699.156	4141423.919	8.558	alu	100	235645.524	4141402.002	8.577	alu
57	235695.322	4141401.751	8.557	alu	101	235653.320	4141416.917	8.572	alu
58	235678.581	4141376.467	8.628	alu	102	235645.705	4141404.189	8.580	alu
59	235695.345	4141398.365	8.567	alu	103	235644.356	4141407.498	8.600	alu
60	235662.560	4141392.314	8.587	alu	104	235660.159	4141424.600	8.610	alu
61	235664.113	4141380.898	8.587	alu	105	235663.496	4141429.712	8.586	alu
62	235679.376	4141378.749	8.637	alu	106	235642.271	4141402.058	8.579	alu
63	235697.761	4141396.670	8.580	alu	107	235677.638	4141426.917	8.591	alu
64	235663.493	4141378.688	8.597	alu	108	235690.204	4141370.096	8.681	alu
65	235680.575	4141382.252	8.529	alu	109	235705.547	4141370.524	8.722	alu
66	235692.809	4141398.472	8.575	alu	110	235709.524	4141369.018	8.735	alu
67	235658.707	4141388.795	8.597	alu	111	235690.932	4141369.778	8.683	alu
68	235682.488	4141387.358	8.566	alu	112	235714.698	4141360.110	8.768	alu

113	235720.037	4141365.026	8.777	alu	157	235700.214	4141403.135	8.584	imb
114	235721.284	4141364.010	8.780	alu	158	235686.094	4141377.980	8.649	imb
115	235733.822	4141352.840	8.825	alu	159	235700.570	4141410.052	8.570	imb
116	235676.928	4141372.092	8.643	alu	160	235691.716	4141387.492	8.556	imb
117	235719.331	4141359.073	8.782	alu	161	235704.206	4141419.448	8.578	imb
118	235676.612	4141371.229	8.655	alu	162	235690.870	4141382.466	8.544	imb
119	235679.947	4141370.841	8.641	alu	163	235702.613	4141415.545	8.563	imb
120	235692.272	4141375.151	8.665	alu	164	235684.160	4141413.283	8.552	imb
121	235685.819	4141368.175	8.639	alu	165	235654.908	4141421.147	8.552	imb
122	235701.827	4141371.899	8.719	alu	166	235674.744	4141402.850	8.606	imb
123	235692.201	4141418.946	8.582	alu	167	235676.819	4141409.811	8.621	imb
124	235704.193	4141424.296	8.661	alu	168	235677.879	4141412.688	8.531	imb
125	235703.407	4141424.593	8.661	alu	169	235650.637	4141393.395	8.569	imb
126	235739.281	4141356.739	8.845	elec	170	235677.607	4141431.641	8.584	imb
127	235749.210	4141352.797	8.825	elec	171	235653.118	4141403.136	8.541	imb
128	235735.430	4141349.795	8.849	elec	172	235651.593	4141412.038	8.563	imb
129	235748.708	4141352.958	8.826	elec	173	235652.078	4141416.074	8.554	imb
130	235744.611	4141355.296	8.894	elec	174	235643.755	4141402.151	8.553	imb
131	235747.001	4141348.389	8.841	elec	175	235748.135	4141346.854	8.831	psan
132	235744.074	4141355.542	8.894	elec	176	235762.553	4141341.734	8.613	psan
133	235747.651	4141348.216	8.833	elec	177	235702.115	4141385.424	8.592	psan
134	235740.789	4141356.919	8.849	elec	178	235729.273	4141375.029	8.586	psan
135	235659.814	4141386.977	8.593	elec	179	235714.417	4141380.576	8.583	psan
136	235659.217	4141386.942	8.598	elec	180	235742.970	4141369.777	8.622	psan
137	235674.458	4141372.291	8.640	elec	181	235742.955	4141369.765	8.601	psan
138	235735.953	4141349.668	8.849	elec	182	235656.445	4141398.747	8.588	psan
139	235705.519	4141360.562	8.720	elec	183	235672.002	4141392.842	8.583	psan
140	235673.873	4141372.504	8.633	elec	184	235683.985	4141379.816	8.547	psan
141	235706.106	4141360.346	8.727	elec	185	235686.878	4141387.280	8.563	psan
142	235745.210	4141354.929	8.889	hidr	186	235691.447	4141390.400	8.574	psan
143	235692.754	4141399.852	8.560	hidr	187	235693.418	4141402.066	8.581	psan
144	235761.525	4141342.350	8.621	imb	188	235697.845	4141413.745	8.578	psan
145	235746.645	4141346.317	8.842	imb	189	235672.064	4141392.844	8.599	psan
146	235701.588	4141384.194	8.579	imb	190	235652.612	4141407.140	8.575	psan
147	235742.200	4141368.392	8.587	imb	191	235693.420	4141402.114	8.576	psan
148	235654.920	4141383.461	8.596	imb	192	235652.584	4141407.152	8.603	psan
149	235703.229	4141411.837	8.573	imb	193	235666.141	4141421.787	8.610	psan
150	235674.931	4141394.578	8.559	imb	194	235703.948	4141396.008	8.581	carril
151	235665.868	4141379.228	8.579	imb	195	235745.867	4141377.511	8.632	carril
152	235678.785	4141398.058	8.534	imb	196	235708.071	4141395.325	8.579	carril
153	235695.747	4141394.546	8.563	imb	197	235704.192	4141399.251	8.582	carril
154	235680.643	4141403.165	8.542	imb	198	235748.325	4141384.050	8.632	carril
155	235698.279	4141399.933	8.558	imb	199	235718.841	4141406.005	8.599	carril
156	235681.870	4141406.987	8.544	imb	200	235704.268	4141408.660	8.583	carril

201	235737.400	4141397.407	8.619	carril	245	235704.268	4141393.034	8.587	carril
202	235702.312	4141397.290	8.582	carril	246	235702.487	4141399.168	8.585	carril
203	235732.760	4141382.465	8.612	carril	247	235708.477	4141393.533	8.579	carril
204	235710.202	4141394.487	8.583	carril	248	235734.763	4141387.601	8.613	carril
205	235702.355	4141399.930	8.586	carril	249	235703.267	4141401.211	8.584	carril
206	235747.412	4141388.377	8.634	carril	250	235725.048	4141402.074	8.609	carril
207	235719.306	4141404.284	8.600	carril	251	235710.191	4141404.122	8.594	carril
208	235704.060	4141410.581	8.586	carril	252	235705.938	4141410.874	8.583	carril
209	235738.223	4141398.642	8.620	carril	253	235752.405	4141394.856	8.635	carril
210	235697.425	4141393.252	8.588	carril	254	235703.583	4141393.135	8.583	carril
211	235700.754	4141398.773	8.581	carril	255	235703.542	4141398.215	8.581	carril
212	235737.700	4141382.426	8.615	carril	256	235711.474	4141392.419	8.584	carril
213	235723.304	4141389.492	8.597	carril	257	235724.764	4141391.418	8.597	carril
214	235701.284	4141400.387	8.582	carril	258	235707.802	4141399.480	8.580	carril
215	235734.084	4141393.447	8.620	carril	259	235723.983	4141404.058	8.607	carril
216	235719.436	4141402.627	8.602	carril	260	235708.176	4141406.878	8.589	carril
217	235704.976	4141410.009	8.585	carril	261	235734.499	4141393.282	8.621	carril
218	235739.180	4141399.866	8.623	carril	262	235753.404	4141397.354	8.641	carril
219	235699.768	4141399.761	8.578	carril	263	235717.912	4141388.137	8.598	carril
220	235746.442	4141379.077	8.633	carril	264	235704.945	4141397.106	8.579	carril
221	235733.151	4141385.748	8.611	carril	265	235705.478	4141394.984	8.580	carril
222	235700.249	4141400.894	8.580	carril	266	235715.083	4141395.107	8.593	carril
223	235723.168	4141397.602	8.608	carril	267	235719.528	4141395.004	8.597	carril
224	235720.225	4141400.319	8.604	carril	268	235723.310	4141405.882	8.608	carril
225	235706.026	4141409.410	8.585	carril	269	235706.742	4141407.424	8.586	carril
226	235750.190	4141388.908	8.639	carril	270	235735.238	4141394.606	8.620	carril
227	235701.321	4141393.367	8.576	carril	271	235753.939	4141398.747	8.634	carril
228	235700.344	4141401.278	8.579	carril	272	235707.271	4141392.162	8.582	carril
229	235719.383	4141389.374	8.592	carril	273	235706.450	4141396.163	8.579	carril
230	235746.982	4141380.489	8.631	carril	274	235706.886	4141394.236	8.579	carril
231	235700.771	4141402.316	8.581	carril	275	235707.476	4141398.002	8.578	carril
232	235723.815	4141398.929	8.609	carril	276	235731.976	4141390.260	8.619	carril
233	235720.816	4141398.492	8.605	carril	277	235718.235	4141407.827	8.600	carril
234	235707.845	4141408.588	8.588	carril	278	235705.300	4141408.103	8.584	carril
235	235750.821	4141390.719	8.637	carril	279	235736.311	4141396.236	8.619	carril
236	235699.100	4141393.386	8.580	carril	280	235693.217	4141385.445	8.582	carril
237	235701.449	4141400.202	8.582	carril	281	235692.221	4141384.115	8.581	carril
238	235729.202	4141385.633	8.609	carril	282	235694.108	4141385.263	8.584	carril
239	235747.803	4141382.653	8.630	carril	283	235695.081	4141384.981	8.586	carril
240	235701.811	4141401.817	8.581	carril	284	235696.168	4141384.625	8.591	carril
241	235724.481	4141400.707	8.609	carril	285	235699.032	4141383.541	8.590	carril
242	235711.304	4141402.109	8.596	carril	286	235698.452	4141382.171	8.590	carril
243	235704.457	4141411.484	8.581	carril	287	235739.937	4141362.118	8.578	carril
244	235751.883	4141393.459	8.633	carril	288	235696.360	4141382.977	8.590	carril

289	235739.391	4141360.741	8.573	carril	333	235696.706	4141415.629	8.584	carril
290	235695.309	4141383.367	8.586	carril	334	235672.941	4141387.595	8.573	carril
291	235740.608	4141366.132	8.581	carril	335	235688.594	4141425.185	8.593	carril
292	235694.145	4141383.721	8.584	carril	336	235690.105	4141385.828	8.578	carril
293	235741.141	4141367.535	8.576	carril	337	235695.872	4141403.577	8.585	carril
294	235693.017	4141383.963	8.584	carril	338	235695.479	4141417.232	8.583	carril
295	235678.489	4141371.864	8.653	carril	339	235678.772	4141384.419	8.561	carril
296	235674.457	4141376.587	8.623	carril	340	235683.701	4141422.444	8.579	carril
297	235655.565	4141395.084	8.570	carril	341	235695.286	4141419.386	8.580	carril
298	235683.665	4141424.655	8.578	carril	342	235656.121	4141393.083	8.571	carril
299	235672.954	4141380.763	8.605	carril	343	235699.267	4141402.364	8.588	carril
300	235680.558	4141427.094	8.574	carril	344	235702.294	4141417.140	8.578	carril
301	235676.041	4141375.296	8.633	carril	345	235696.862	4141393.170	8.599	carril
302	235671.491	4141379.745	8.601	carril	346	235689.926	4141384.351	8.580	carril
303	235661.783	4141391.831	8.577	carril	347	235688.209	4141418.473	8.580	carril
304	235694.092	4141418.408	8.581	carril	348	235705.009	4141417.474	8.587	carril
305	235676.091	4141386.402	8.568	carril	349	235665.035	4141390.702	8.579	carril
306	235689.407	4141424.634	8.573	carril	350	235660.524	4141390.720	8.579	carril
307	235688.446	4141385.833	8.572	carril	351	235694.949	4141406.578	8.587	carril
308	235698.416	4141401.085	8.588	carril	352	235687.331	4141426.100	8.577	carril
309	235696.653	4141416.353	8.582	carril	353	235649.476	4141399.408	8.570	carril
310	235680.989	4141384.172	8.554	carril	354	235669.627	4141379.129	8.603	carril
311	235685.299	4141420.347	8.585	carril	355	235685.281	4141420.958	8.577	carril
312	235696.015	4141418.741	8.581	carril	356	235683.282	4141369.637	8.672	carril
313	235657.421	4141392.256	8.573	carril	357	235670.019	4141380.860	8.596	carril
314	235704.022	4141416.277	8.589	carril	358	235653.323	4141397.302	8.572	carril
315	235692.192	4141384.122	8.590	carril	359	235681.815	4141426.422	8.575	carril
316	235688.708	4141417.442	8.580	carril	360	235678.821	4141378.537	8.646	carril
317	235686.463	4141424.841	8.575	carril	361	235701.830	4141412.391	8.592	carril
318	235666.810	4141390.279	8.580	carril	362	235672.088	4141378.814	8.614	carril
319	235664.054	4141389.377	8.581	carril	363	235668.429	4141381.321	8.588	carril
320	235695.807	4141405.773	8.585	carril	364	235671.857	4141388.006	8.575	carril
321	235691.051	4141424.703	8.580	carril	365	235670.158	4141388.657	8.576	carril
322	235648.571	4141400.778	8.569	carril	366	235687.666	4141425.669	8.576	carril
323	235667.030	4141381.680	8.590	carril	367	235691.518	4141385.716	8.584	carril
324	235687.880	4141418.367	8.579	carril	368	235693.663	4141405.755	8.586	carril
325	235676.162	4141373.318	8.642	carril	369	235694.816	4141417.820	8.582	carril
326	235653.322	4141397.301	8.571	carril	370	235676.456	4141384.881	8.565	carril
327	235686.352	4141421.986	8.584	carril	371	235682.524	4141423.652	8.578	carril
328	235675.508	4141379.786	8.627	carril	372	235694.529	4141420.120	8.582	carril
329	235702.828	4141411.519	8.595	carril	373	235654.817	4141394.018	8.571	carril
330	235678.854	4141373.378	8.650	carril	374	235697.600	4141403.983	8.585	carril
331	235673.154	4141379.090	8.609	carril	375	235700.647	4141418.024	8.571	carril
332	235666.130	4141390.186	8.575	carril	376	235690.448	4141392.317	8.590	carril

377	235686.902	4141384.283	8.564	carril	421	235703.196	4141409.377	8.593	carril
378	235687.291	4141420.061	8.580	carril	422	235685.365	4141376.093	8.674	carril
379	235703.896	4141417.998	8.585	carril	423	235699.112	4141415.231	8.587	carril
380	235662.642	4141391.514	8.579	carril	424	235667.592	4141383.269	8.586	carril
381	235658.831	4141391.494	8.576	carril	425	235665.668	4141383.269	8.584	carril
382	235701.704	4141406.425	8.597	carril	426	235675.714	4141386.629	8.568	carril
383	235683.031	4141427.740	8.571	carril	427	235665.077	4141390.572	8.577	carril
384	235651.597	4141396.909	8.568	carril	428	235703.507	4141411.983	8.591	carril
385	235683.583	4141422.657	8.580	carril	429	235692.314	4141384.108	8.590	carril
386	235681.195	4141370.472	8.663	carril	430	235691.572	4141408.144	8.585	carril
387	235672.667	4141378.252	8.615	carril	431	235704.616	4141413.085	8.591	carril
388	235651.872	4141398.814	8.570	carril	432	235670.152	4141387.063	8.575	carril
389	235682.660	4141425.655	8.577	carril	433	235700.029	4141400.998	8.592	carril
390	235685.364	4141376.093	8.674	carril	434	235692.598	4141422.126	8.583	carril
391	235700.668	4141413.596	8.591	carril	435	235665.399	4141390.451	8.575	carril
392	235673.848	4141377.110	8.619	carril	436	235694.140	4141407.385	8.585	carril
393	235669.819	4141380.528	8.596	carril	437	235698.038	4141419.650	8.584	carril
394	235674.041	4141387.165	8.572	carril	438	235678.936	4141390.609	8.587	carril
395	235692.280	4141420.323	8.578	carril	439	235682.382	4141384.111	8.555	carril
396	235667.010	4141389.858	8.576	carril	440	235685.481	4141422.582	8.581	carril
397	235686.730	4141426.186	8.574	carril	441	235701.602	4141419.202	8.582	carril
398	235692.613	4141385.571	8.589	carril	442	235659.133	4141393.037	8.574	carril
399	235692.536	4141406.952	8.585	carril	443	235655.151	4141393.772	8.570	carril
400	235694.435	4141418.180	8.583	carril	444	235698.962	4141408.226	8.594	carril
401	235673.713	4141385.716	8.571	carril	445	235657.069	4141391.551	8.578	carril
402	235680.953	4141425.197	8.576	carril	446	235688.187	4141369.346	8.695	carril
403	235693.462	4141421.228	8.585	carril	447	235700.641	4141408.862	8.593	carril
404	235653.984	4141394.716	8.571	carril	448	235686.053	4141368.553	8.683	carril
405	235695.209	4141406.304	8.586	carril	449	235667.586	4141383.271	8.585	carril
406	235699.490	4141418.729	8.572	carril	450	235649.604	4141401.970	8.568	carril
407	235682.910	4141391.190	8.587	carril	451	235681.030	4141427.124	8.573	carril
408	235684.145	4141384.165	8.557	carril	452	235690.077	4141374.234	8.690	carril
409	235686.328	4141421.528	8.582	carril	453	235697.663	4141416.789	8.584	carril
410	235702.874	4141418.493	8.584	carril	454	235669.428	4141381.448	8.592	carril
411	235660.808	4141392.225	8.577	carril	455	235667.185	4141382.118	8.584	carril
412	235656.964	4141392.537	8.573	carril	456	235676.964	4141386.283	8.568	carril
413	235700.330	4141407.291	8.595	carril	457	235690.516	4141421.921	8.577	carril
414	235681.002	4141428.525	8.569	carril	458	235676.053	4141386.398	8.569	carril
415	235653.776	4141394.781	8.571	carril	459	235702.234	4141412.707	8.592	carril
416	235691.461	4141368.099	8.705	carril	460	235690.851	4141384.291	8.584	carril
417	235702.193	4141407.876	8.598	carril	461	235690.315	4141410.034	8.584	carril
418	235688.337	4141367.717	8.690	carril	462	235703.212	4141413.847	8.588	carril
419	235665.115	4141385.700	8.584	carril	463	235666.245	4141388.539	8.581	carril
420	235650.565	4141400.481	8.569	carril	464	235698.630	4141401.813	8.588	carril

465	235691.219	4141423.316	8.577	carril	509	235697.233	4141411.411	8.588	carril
466	235667.510	4141389.651	8.576	carril	510	235688.539	4141369.221	8.697	carril
467	235693.227	4141408.474	8.584	carril	511	235655.893	4141395.050	8.573	carril
468	235696.503	4141420.670	8.582	carril	512	235702.078	4141410.237	8.642	carril
469	235675.886	4141390.166	8.583	carril	513	235688.067	4141381.845	8.554	carril
470	235680.714	4141384.171	8.555	carril	514	235693.614	4141421.076	8.584	carril
471	235683.577	4141424.627	8.575	carril	515	235664.768	4141385.871	8.588	carril
472	235700.293	4141419.967	8.582	carril	516	235666.342	4141384.613	8.584	carril
473	235659.133	4141393.037	8.574	carril	517	235680.703	4141385.695	8.558	carril
474	235653.783	4141394.871	8.571	carril	518	235689.065	4141423.046	8.577	carril
475	235697.676	4141409.173	8.591	carril	519	235682.946	4141383.785	8.554	carril
476	235660.928	4141387.729	8.581	carril	520	235699.605	4141414.373	8.588	carril
477	235684.678	4141370.689	8.681	carril	521	235686.369	4141384.260	8.562	carril
478	235698.799	4141410.184	8.592	carril	522	235688.568	4141413.863	8.583	carril
479	235684.933	4141370.604	8.682	carril	523	235699.947	4141415.948	8.583	carril
480	235686.111	4141374.162	8.684	carril	524	235662.414	4141389.998	8.581	carril
481	235654.215	4141396.454	8.570	carril	525	235696.056	4141403.628	8.587	carril
482	235702.302	4141410.026	8.593	carril	526	235688.163	4141425.401	8.574	carril
483	235690.634	4141380.865	8.556	carril	527	235672.839	4141387.622	8.575	carril
484	235695.747	4141418.811	8.582	carril	528	235691.504	4141410.968	8.580	carril
485	235661.660	4141389.087	8.582	carril	529	235693.699	4141422.070	8.582	carril
486	235668.094	4141383.323	8.588	carril	530	235672.370	4141389.805	8.574	carril
487	235678.381	4141385.998	8.562	carril	531	235676.071	4141384.981	8.567	carril
488	235687.160	4141424.236	8.578	carril	532	235699.386	4141403.135	8.590	carril
489	235680.262	4141384.812	8.559	carril	533	235696.760	4141422.252	8.578	carril
490	235700.817	4141413.605	8.591	carril	534	235654.178	4141396.504	8.571	carril
491	235688.837	4141384.361	8.572	carril	535	235660.421	4141388.224	8.580	carril
492	235689.379	4141411.904	8.582	carril	536	235694.317	4141412.073	8.584	carril
493	235701.646	4141414.844	8.584	carril	537	235670.004	4141378.781	8.605	carril
494	235664.134	4141389.357	8.580	carril	538	235681.809	4141371.847	8.664	carril
495	235697.107	4141402.820	8.586	carril	539	235695.363	4141413.140	8.586	carril
496	235689.900	4141424.300	8.574	carril	540	235680.861	4141372.292	8.660	carril
497	235670.475	4141388.526	8.576	carril	541	235676.078	4141377.974	8.628	carril
498	235692.436	4141409.435	8.609	carril	542	235657.398	4141394.036	8.575	carril
499	235695.258	4141421.355	8.580	carril	543	235698.556	4141413.641	8.588	carril
500	235674.000	4141389.894	8.577	carril	544	235684.342	4141383.257	8.554	carril
501	235678.747	4141384.417	8.561	carril	545	235692.275	4141422.396	8.582	carril
502	235700.466	4141402.478	8.592	carril	546	235659.013	4141391.695	8.578	carril
503	235698.425	4141421.211	8.582	carril	547	235670.997	4141381.625	8.591	carril
504	235656.642	4141394.554	8.574	carril	548	235682.488	4141385.620	8.559	carril
505	235658.256	4141390.341	8.579	carril	549	235683.564	4141425.944	8.579	carril
506	235695.870	4141410.658	8.588	carril	550	235690.620	4141380.866	8.556	carril
507	235664.863	4141383.863	8.584	carril	551	235698.389	4141415.152	8.582	carril
508	235683.150	4141371.259	8.671	carril	552	235684.104	4141384.175	8.557	carril

553	235687.893	4141415.578	8.585	carril	597	235689.929	4141416.361	8.582	carril
554	235698.713	4141416.740	8.583	carril	598	235674.602	4141374.493	8.633	carril
555	235660.502	4141390.738	8.579	carril	599	235678.383	4141373.666	8.647	carril
556	235695.007	4141404.572	8.587	carril	600	235689.451	4141418.938	8.580	carril
557	235687.172	4141425.963	8.576	carril	601	235663.696	4141432.447	8.589	carril
558	235674.877	4141386.864	8.570	carril	602	235645.939	4141415.428	8.585	carril
559	235690.633	4141412.747	8.579	carril	603	235650.718	4141400.241	8.584	carril
560	235692.384	4141422.618	8.581	carril	604	235655.059	4141427.405	8.585	carril
561	235670.608	4141389.810	8.574	carril	605	235679.256	4141426.548	8.585	carril
562	235673.385	4141385.819	8.573	carril	606	235660.781	4141431.831	8.588	carril
563	235698.201	4141403.875	8.589	carril	607	235645.593	4141412.663	8.586	carril
564	235694.906	4141423.201	8.580	carril	608	235649.528	4141402.079	8.584	carril
565	235651.907	4141398.749	8.570	carril	609	235657.456	4141428.896	8.587	carril
566	235662.979	4141385.752	8.610	carril	610	235657.929	4141430.779	8.587	carril
567	235692.424	4141413.905	8.584	carril	611	235645.648	4141409.708	8.584	carril
568	235672.364	4141376.465	8.618	carril	612	235648.477	4141404.352	8.584	carril
569	235679.892	4141372.811	8.655	carril	613	235659.831	4141429.946	8.585	carril
570	235692.792	4141415.641	8.582	carril	614	235655.992	4141429.794	8.586	carril
571	235682.606	4141371.489	8.669	carril	615	235646.165	4141406.601	8.580	carril
572	235659.987	4141392.598	8.574	carril	616	235647.669	4141406.781	8.587	carril
573	235700.775	4141411.354	8.594	carril	617	235662.669	4141430.737	8.587	carril
574	235680.248	4141384.809	8.559	carril	618	235679.855	4141428.962	8.581	carril
575	235690.889	4141423.553	8.577	carril	619	235653.862	4141428.383	8.585	carril
576	235661.661	4141389.086	8.582	carril	620	235647.079	4141403.764	8.582	carril
577	235669.435	4141382.453	8.586	carril	621	235647.148	4141409.797	8.590	carril
578	235686.167	4141385.726	8.568	carril	622	235665.733	4141431.093	8.590	carril
579	235685.622	4141425.060	8.576	carril	623	235677.045	4141430.011	8.583	carril
580	235699.555	4141399.956	8.591	carril	624	235651.956	4141426.718	8.585	carril
581	235697.400	4141415.799	8.584	carril	625	235648.460	4141400.990	8.584	carril
582	235682.603	4141384.118	8.555	carril	626	235647.134	4141413.119	8.583	carril
583	235686.428	4141418.580	8.583	carril	627	235668.373	4141431.035	8.595	carril
584	235696.867	4141418.038	8.583	carril	628	235674.845	4141430.858	8.583	carril
585	235659.037	4141391.378	8.578	carril	629	235650.317	4141424.907	8.587	carril
586	235700.187	4141401.423	8.591	carril	630	235649.915	4141398.830	8.582	carril
587	235686.233	4141426.446	8.575	carril	631	235647.728	4141416.545	8.583	carril
588	235676.164	4141386.491	8.566	carril	632	235671.373	4141430.463	8.587	carril
589	235689.352	4141415.968	8.580	carril	633	235672.373	4141431.752	8.584	carril
590	235690.271	4141423.369	8.576	carril	634	235648.946	4141423.010	8.587	carril
591	235668.052	4141390.070	8.579	carril	635	235651.606	4141396.930	8.577	carril
592	235669.734	4141387.225	8.575	carril	636	235648.852	4141419.713	8.585	carril
593	235697.082	4141404.730	8.587	carril	637	235673.492	4141429.757	8.583	carril
594	235693.417	4141423.822	8.582	carril	638	235669.834	4141432.328	8.590	carril
595	235649.936	4141401.408	8.569	carril	639	235647.615	4141420.562	8.586	carril
596	235665.172	4141383.524	8.583	carril	640	235652.639	4141397.956	8.581	carril

641	235650.765	4141423.030	8.584	carril	685	235686.594	4141373.982	8.669	carril
642	235675.516	4141428.869	8.582	carril	686	235683.395	4141371.182	8.656	carril
643	235667.019	4141432.610	8.591	carril	687	235675.668	4141373.723	8.627	carril
644	235646.666	4141418.159	8.586	carril	688	235730.749	4141354.953	8.816	carril
645	235651.794	4141398.884	8.583	carril	689	235719.246	4141355.934	8.785	carril
646	235652.808	4141425.475	8.583	carril	690	235729.761	4141359.178	8.807	carril
647	235677.332	4141427.873	8.586	carril	691	235744.444	4141351.980	8.834	carril
648	235736.283	4141353.667	8.856	carril	692	235738.143	4141354.406	8.825	carril
649	235754.268	4141349.745	8.791	carril	693	235694.539	4141366.932	8.688	carril
650	235748.787	4141350.321	8.824	carril	694	235673.675	4141375.290	8.616	carril
651	235681.394	4141377.561	8.645	carril	695	235733.587	4141355.051	8.827	carril
652	235673.269	4141377.689	8.609	carril	696	235764.874	4141343.302	8.633	carril
653	235687.887	4141367.887	8.669	carril	697	235709.062	4141359.829	8.740	carril
654	235742.729	4141354.126	8.838	carril	698	235734.501	4141357.383	8.828	carril
655	235732.742	4141353.486	8.824	carril	699	235742.801	4141352.553	8.832	carril
656	235756.689	4141348.580	8.762	carril	700	235731.600	4141356.892	8.816	carril
657	235752.402	4141348.913	8.798	carril	701	235711.540	4141360.477	8.752	carril
658	235681.392	4141377.561	8.645	carril	702	235672.086	4141376.763	8.608	carril
659	235674.956	4141376.168	8.617	carril	703	235736.119	4141355.115	8.824	carril
660	235683.424	4141369.563	8.656	carril	704	235763.279	4141344.687	8.668	carril
661	235744.617	4141353.511	8.833	carril	705	235700.551	4141363.079	8.709	carril
662	235723.782	4141355.974	8.798	carril	706	235691.488	4141373.744	8.676	carril
663	235729.902	4141353.499	8.815	carril	707	235740.463	4141353.133	8.834	carril
664	235747.025	4141352.602	8.832	carril	708	235745.811	4141351.449	8.834	carril
665	235755.037	4141347.724	8.771	carril	709	235718.212	4141357.918	8.782	carril
666	235675.638	4141378.147	8.616	carril	710	235670.968	4141377.851	8.602	carril
667	235676.709	4141374.835	8.626	carril	711	235737.857	4141355.014	8.824	carril
668	235681.101	4141370.537	8.649	carril	712	235761.159	4141346.093	8.704	carril
669	235725.033	4141355.681	8.804	carril	713	235692.112	4141366.270	8.680	carril
670	235726.926	4141353.802	8.808	carril	714	235716.299	4141364.325	8.759	carril
671	235751.203	4141350.997	8.814	carril	715	235737.911	4141353.524	8.828	carril
672	235757.998	4141346.208	8.729	carril	716	235742.145	4141352.851	8.835	carril
673	235676.275	4141379.510	8.623	carril	717	235721.451	4141356.735	8.791	carril
674	235679.060	4141371.545	8.642	carril	718	235671.924	4141378.976	8.606	carril
675	235726.656	4141355.367	8.806	carril	719	235740.272	4141354.704	8.830	carril
676	235724.674	4141354.206	8.801	carril	720	235759.095	4141347.325	8.729	carril
677	235760.699	4141344.616	8.685	carril	721	235766.885	4141348.051	8.762	VA
678	235708.381	4141365.678	8.735	carril	722	235759.285	4141339.140	8.700	VA
679	235681.048	4141372.167	8.645	carril	723	235715.200	4141397.812	8.593	REJILLA
680	235677.417	4141372.530	8.635	carril	724	235735.044	4141390.464	8.605	REJILLA
681	235728.959	4141355.052	8.811	carril	725	235700.964	4141402.829	8.558	REJILLA
682	235722.537	4141354.770	8.794	carril	726	235749.691	4141385.325	8.654	REJILLA
683	235742.152	4141354.447	8.834	carril	727	235699.639	4141384.186	8.586	HOR
684	235762.465	4141343.406	8.653	carril	728	235738.902	4141358.392	8.829	HOR

729	235740.305	4141365.394	8.614	HOR	773	235682.605	4141423.786	8.586	MOTOR CAMBIO
730	235739.909	4141361.201	8.577	HOR	774	235683.689	4141375.841	8.469	REJILLA
731	235698.519	4141381.284	8.604	HOR	775	235683.454	4141424.674	8.579	MOTOR CAMBIO
732	235739.931	4141361.149	8.587	HOR	776	235689.907	4141379.463	8.537	REJILLA
733	235738.883	4141358.394	8.581	HOR	777	235662.571	4141390.056	8.583	MOTOR CAMBIO
734	235741.429	4141368.318	8.605	HOR	778	235684.185	4141423.934	8.589	MOTOR CAMBIO
735	235682.320	4141368.484	8.675	VA	779	235690.466	4141380.981	8.536	REJILLA
736	235695.408	4141363.483	8.687	VA	780	235663.579	4141389.706	8.579	MOTOR CAMBIO
737	235688.999	4141375.717	8.660	HOR	781	235683.394	4141423.064	8.585	MOTOR CAMBIO
738	235678.316	4141370.019	8.650	VA	782	235691.656	4141384.086	8.552	REJILLA
739	235689.259	4141365.798	8.665	VA	783	235664.028	4141390.825	8.579	MOTOR CAMBIO
740	235697.501	4141427.363	8.637	VA	784	235683.808	4141425.986	8.587	MOTOR CAMBIO
741	235657.671	4141386.257	8.611	HOR	785	235692.265	4141385.666	8.567	REJILLA
742	235685.153	4141377.082	8.488	HOR	786	235665.443	4141385.194	8.583	MOTOR CAMBIO
743	235685.705	4141431.872	8.630	VA	787	235684.251	4141427.130	8.573	MOTOR CAMBIO
744	235664.098	4141381.818	8.605	HOR	788	235693.679	4141389.081	8.578	REJILLA
745	235683.560	4141430.397	8.585	VA	789	235694.794	4141404.802	8.593	MOTOR CAMBIO
746	235662.306	4141379.357	8.588	HOR	790	235694.116	4141405.497	8.578	MOTOR CAMBIO
747	235680.910	4141376.208	8.459	HOR	791	235695.003	4141406.337	8.573	MOTOR CAMBIO
748	235664.567	4141384.323	8.583	MOTOR CAMBIO	792	235695.761	4141405.568	8.572	MOTOR CAMBIO
749	235655.957	4141383.795	8.613	HOR	793	235650.311	4141391.758	8.608	VA
750	235681.808	4141378.360	8.512	HOR	794	235662.435	4141440.472	8.622	VA
751	235654.182	4141381.773	8.610	VA	795	235652.632	4141437.114	8.630	VA
752	235681.543	4141375.806	8.617	HOR	796	235646.349	4141420.746	8.596	VA
753	235681.384	4141375.061	8.484	HOR	797	235673.464	4141429.903	8.580	MOTOR CAMBIO
754	235681.289	4141374.987	8.640	HOR	798	235644.216	4141415.315	8.602	VA
755	235681.654	4141375.907	8.467	HOR	799	235673.911	4141431.047	8.587	MOTOR CAMBIO
756	235652.349	4141386.442	8.614	VA	800	235642.903	4141411.475	8.607	VA
757	235693.236	4141419.481	8.582	MOTOR CAMBIO	801	235674.933	4141430.674	8.578	MOTOR CAMBIO
758	235681.682	4141378.362	8.644	HOR	802	235641.344	4141406.911	8.605	VA
759	235680.776	4141376.088	8.637	HOR	803	235674.499	4141429.557	8.582	MOTOR CAMBIO
760	235683.973	4141374.013	8.477	HOR	804	235641.852	4141399.876	8.594	VA
761	235705.150	4141424.423	8.661	VA	805	235648.086	4141397.455	8.606	VA
762	235663.790	4141385.040	8.574	MOTOR CAMBIO	806	235668.248	4141376.318	8.624	VA
763	235694.160	4141420.339	8.581	MOTOR CAMBIO	807	235692.309	4141374.352	8.508	HOR
764	235681.017	4141378.734	8.872	BORDILLO	808	235691.967	4141372.733	8.483	REJILLA
765	235673.538	4141385.933	8.571	MOTOR CAMBIO	809	235692.301	4141374.401	8.673	HOR
766	235694.897	4141419.549	8.581	MOTOR CAMBIO	810	235763.135	4141337.720	8.600	VA
767	235681.573	4141380.054	8.873	BORDILLO	811	235696.086	4141369.387	8.685	HOR
768	235673.988	4141387.039	8.569	MOTOR CAMBIO	812	235706.474	4141369.036	8.721	HOR
769	235693.990	4141418.727	8.582	MOTOR CAMBIO	813	235710.310	4141357.768	8.768	VA
770	235681.141	4141376.836	8.461	REJILLA	814	235710.318	4141368.736	8.733	REJILLA
771	235689.180	4141377.240	8.867	BORDILLO	815	235758.008	4141339.609	8.735	VA
772	235674.995	4141386.634	8.563	MOTOR CAMBIO	816	235705.270	4141365.899	8.726	HOR

817	235701.101	4141369.305	8.529	REJILLA
818	235718.274	4141364.522	8.769	HOR
819	235702.620	4141360.755	8.723	VA
820	235709.943	4141367.869	8.728	HOR
821	235748.568	4141343.192	8.877	VA
822	235715.537	4141362.036	8.759	HOR
823	235715.799	4141363.683	8.575	HOR
824	235728.086	4141360.784	8.792	HOR
825	235735.611	4141348.167	8.870	VA
826	235726.859	4141357.683	8.800	HOR
827	235731.894	4141357.527	8.641	HOR
828	235718.319	4141354.790	8.800	VA
829	235726.851	4141357.722	8.642	HOR
830	235727.595	4141360.955	8.622	HOR
831	235718.573	4141360.853	8.604	HOR
832	235719.841	4141363.884	8.601	HOR
833	235709.040	4141364.490	8.573	HOR
834	235709.590	4141367.785	8.561	HOR
835	235699.952	4141367.958	8.540	HOR
836	235697.711	4141372.316	8.527	HOR
837	235671.598	4141372.534	8.648	VA
838	235770.275	4141336.177	8.472	B I
839	235769.072	4141332.897	8.488	B
840	235767.853	4141329.531	8.417	B
841	235765.541	4141330.423	8.410	B
842	235761.781	4141320.194	8.324	B
843	235757.346	4141308.143	8.242	B
844	235754.332	4141299.980	8.255	B
845	235750.733	4141290.156	8.264	B
846	235751.202	4141290.462	8.146	IMB
847	235753.057	4141289.289	8.338	B
848	235752.654	4141288.342	8.224	B
849	235751.474	4141285.221	8.210	B
850	235751.151	4141284.519	8.297	B
851	235750.306	4141282.880	8.259	B
852	235748.887	4141281.667	8.257	B
853	235747.340	4141281.133	8.237	B
854	235745.895	4141281.162	8.229	B
855	235745.279	4141281.119	8.007	IMB
856	235743.105	4141282.137	8.291	B
857	235741.502	4141282.702	8.304	B
858	235739.915	4141283.352	8.017	B
859	235736.910	4141284.431	8.176	B
860	235731.885	4141286.293	8.171	B

861	235729.279	4141288.734	8.337	ALC
862	235730.377	4141286.992	8.282	ALC
863	235730.664	4141289.058	8.274	PSAN ARQ
864	235734.890	4141289.623	8.360	SUPERCABLE
865	235745.764	4141283.081	8.295	ALU
866	235746.779	4141283.497	8.251	PSAN
867	235747.790	4141282.798	8.262	ARQ TRAFIC
868	235748.524	4141282.516	8.268	ARQ TRAFIC
869	235747.654	4141284.115	8.322	F
870	235747.454	4141285.236	8.374	ALC
871	235747.842	4141286.319	8.384	ALC
872	235746.912	4141287.624	8.390	TEL
873	235747.813	4141286.382	8.395	ALC
874	235747.409	4141285.320	8.359	ALC
875	235749.720	4141290.112	8.336	R CUADRO
876	235750.015	4141290.985	8.388	R CUADRO
877	235749.837	4141291.817	8.329	ALC
878	235750.935	4141293.804	8.404	R CUADRO
879	235750.269	4141293.015	8.377	ALC
880	235751.412	4141292.649	8.183	ALC
881	235751.465	4141293.521	8.326	R CUADRO
882	235751.945	4141294.627	8.274	R CUADRO
883	235751.945	4141295.185	8.252	F
884	235752.093	4141298.047	8.324	ALC
885	235752.520	4141299.191	8.314	ALC
886	235753.587	4141301.501	8.310	PSAN
887	235754.626	4141305.042	8.316	ALC
888	235755.049	4141306.204	8.283	ALC
889	235754.110	4141306.209	8.371	BOCAR
890	235754.880	4141307.323	8.352	BOCAR
891	235756.677	4141310.482	8.348	ALC
892	235757.087	4141311.664	8.366	ALC
893	235759.034	4141314.275	8.262	F
894	235759.415	4141317.850	8.379	ALC
895	235759.862	4141319.020	8.318	ALC
896	235761.974	4141324.854	8.371	ALC
897	235762.407	4141326.117	8.407	ALC
898	235763.034	4141326.196	8.371	ALU
899	235763.953	4141328.778	8.335	PSAN
900	235764.089	4141330.756	8.515	ALC
901	235764.622	4141332.258	8.424	ALC
902	235764.040	4141333.287	8.441	ALU
903	235765.772	4141333.853	8.418	PSAN

904	235765.752	4141334.623	8.442	F	948	235730.387	4141308.775	8.583	R
905	235765.560	4141336.288	8.523	ARQ TRAFIC	949	235732.607	4141303.103	8.499	ALU
906	235763.431	4141337.484	8.540	AC I	950	235734.448	4141306.526	8.495	R
907	235761.257	4141331.660	8.587	AC	951	235737.927	4141313.746	8.485	R
908	235758.739	4141324.798	8.497	AC	952	235741.208	4141322.020	8.513	R
909	235758.769	4141324.920	8.495	CAC 120	953	235743.993	4141329.470	8.505	R
910	235757.640	4141321.108	8.442	AC	954	235746.638	4141336.539	8.470	R
911	235755.270	4141314.720	8.421	AC	955	235748.975	4141341.264	8.468	R
912	235754.994	4141314.478	8.450	AC	956	235753.863	4141339.207	8.404	R
913	235754.858	4141314.178	8.433	CAC 120	957	235751.271	4141332.145	8.406	R
914	235753.507	4141310.436	8.393	AC	958	235748.246	4141324.120	8.467	R
915	235750.341	4141302.010	8.437	AC	959	235744.920	4141315.979	8.438	R
916	235749.358	4141298.588	8.419	ALU	960	235742.293	4141308.663	8.400	R
917	235747.837	4141295.177	8.432	AC	961	235739.899	4141302.185	8.356	R
918	235745.852	4141289.861	8.485	AC	962	235737.699	4141296.578	8.338	R
919	235739.947	4141292.034	8.503	AC	963	235741.304	4141293.387	8.252	R
920	235733.956	4141294.192	8.507	AC	964	235743.940	4141292.437	8.151	R
921	235733.048	4141294.520	8.525	AC	965	235745.590	4141296.303	8.099	R
922	235739.626	4141284.601	8.199	ARQ AUNA	966	235744.355	4141297.722	8.171	R
923	235743.709	4141284.346	8.326	BOCAR	967	235747.225	4141305.098	8.239	R
924	235743.233	4141283.626	8.282	ALC	968	235749.162	4141305.435	8.090	R
925	235742.133	4141284.070	8.221	ALC	969	235751.780	4141312.375	8.139	R
926	235745.772	4141283.160	8.278	ALU	970	235751.054	4141314.866	8.205	R
927	235746.772	4141283.446	8.267	PSAN	971	235752.680	4141314.457	8.096	R
928	235743.332	4141286.695	8.299	R	972	235753.594	4141317.288	8.203	R
929	235736.016	4141347.585	8.618	BA I	973	235754.695	4141317.764	8.193	R
930	235733.992	4141342.089	8.672	BA	974	235755.965	4141324.028	8.221	R
931	235731.126	4141334.473	8.751	BA	975	235757.412	4141324.555	8.191	R
932	235729.333	4141329.556	8.823	BA	976	235758.112	4141329.168	8.106	R
933	235726.917	4141323.043	8.739	BA	977	235757.280	4141329.082	8.137	ALU
934	235724.445	4141316.414	8.660	BA	978	235759.711	4141332.844	8.081	IMB
935	235725.162	4141309.379	8.568	ALU	979	235760.905	4141334.943	8.133	R
936	235725.530	4141310.553	8.603	R	980	235736.084	4141347.565	8.638	BA I
937	235729.385	4141318.454	8.671	R	981	235736.747	4141347.407	8.853	PP
938	235731.301	4141323.402	8.681	ALU	982	235737.681	4141347.034	8.874	PP
939	235733.016	4141327.445	8.680	R	983	235737.764	4141346.994	8.656	BA
940	235736.317	4141334.653	8.638	R	984	235742.288	4141345.282	8.571	BA
941	235738.711	4141341.017	8.614	R	985	235748.605	4141342.901	8.486	BA
942	235740.116	4141345.065	8.557	ALU	986	235755.704	4141340.204	8.393	BA
943	235744.281	4141343.270	8.519	R	987	235760.642	4141338.321	8.175	BA
944	235741.620	4141336.253	8.550	R	988	235762.835	4141337.501	8.144	BA
945	235738.385	4141328.612	8.610	R	989	235761.815	4141337.543	8.145	F
946	235735.892	4141322.602	8.633	R	990	235762.314	4141336.956	8.059	CAM
947	235733.067	4141314.936	8.599	R	991	235761.911	4141336.998	8.124	ALU

992	235762.055	4141335.364	8.107	BA	1036	235753.867	4141337.301	8.416	LB
993	235759.557	4141328.684	8.165	BA	1037	235755.831	4141334.882	8.313	LB
994	235757.993	4141324.449	8.183	BA	1038	235757.294	4141331.601	8.190	LB
995	235757.805	4141323.850	8.269	BA	1039	235757.746	4141329.600	8.151	LB
996	235758.375	4141323.655	8.402	BA	1040	235757.880	4141326.009	8.176	LB
997	235757.102	4141320.232	8.424	BA	1041	235757.543	4141323.657	8.279	LB
998	235755.347	4141315.458	8.374	BA	1042	235756.426	4141320.309	8.350	LB
999	235754.796	4141315.675	8.317	BA	1043	235755.177	4141316.923	8.298	LB
1000	235753.933	4141315.557	8.214	PT I	1044	235754.338	4141315.238	8.236	LB
1001	235755.116	4141318.740	8.184	PT	1045	235752.104	4141312.415	8.184	LB
1002	235757.335	4141324.382	8.179	PT	1046	235749.043	4141309.804	8.250	LB
1003	235753.936	4141313.401	8.206	BA	1047	235745.753	4141307.924	8.332	LB
1004	235754.027	4141314.406	8.201	F	1048	235741.516	4141306.547	8.378	LB
1005	235752.032	4141308.451	8.265	BA	1049	235737.172	4141306.334	8.447	LB
1006	235750.262	4141303.548	8.217	BA	1050	235731.669	4141307.369	8.540	LB
1007	235750.003	4141303.551	8.129	ALU	1051	235725.017	4141309.329	8.576	ALU
1008	235747.885	4141303.853	8.187	ALU	1052	235724.610	4141316.611	8.677	LB I
1009	235746.521	4141297.139	8.098	ALU	1053	235729.893	4141314.646	8.617	LB
1010	235746.756	4141298.295	8.029	IMB	1054	235733.640	4141313.211	8.561	LB
1011	235746.994	4141298.957	8.035	IMB	1055	235736.867	4141312.459	8.503	LB
1012	235748.353	4141298.445	8.209	BA	1056	235740.489	4141312.549	8.471	LB
1013	235746.573	4141293.501	8.234	BA	1057	235743.815	4141313.366	8.422	LB
1014	235745.482	4141290.553	8.210	BA	1058	235746.864	4141314.808	8.378	LB
1015	235745.421	4141291.402	8.223	CAM	1059	235749.442	4141317.165	8.318	LB
1016	235744.691	4141291.245	8.241	F	1060	235751.504	4141321.128	8.306	LB
1017	235744.998	4141292.290	8.168	ALU	1061	235752.362	4141324.843	8.336	LB
1018	235743.594	4141291.244	8.247	BA	1062	235752.169	4141328.611	8.387	LB
1019	235739.446	4141292.676	8.267	BA	1063	235750.907	4141331.929	8.387	LB
1020	235735.880	4141293.840	8.424	BA	1064	235748.519	4141334.924	8.469	LB
1021	235736.507	4141293.571	8.411	BH I	1065	235746.415	4141337.188	8.474	LB
1022	235741.074	4141292.039	8.391	BH	1066	235744.500	4141338.610	8.498	LB
1023	235745.476	4141290.447	8.430	BH	1067	235738.819	4141340.734	8.598	LB
1024	235747.968	4141297.200	8.435	BH	1068	235734.218	4141342.495	8.665	LB
1025	235751.178	4141305.916	8.408	BH	1069	235733.841	4141341.658	8.678	LB I
1026	235753.938	4141313.271	8.397	BH	1070	235734.739	4141341.905	8.671	LB
1027	235754.806	4141315.607	8.404	BH	1071	235736.317	4141338.847	8.651	LB
1028	235755.335	4141315.410	8.424	BH	1072	235739.526	4141340.155	8.571	LB
1029	235758.344	4141323.730	8.535	BH I	1073	235741.317	4141336.482	8.555	LB
1030	235757.866	4141323.890	8.517	BH	1074	235744.330	4141338.285	8.507	LB
1031	235759.619	4141328.618	8.555	BH	1075	235750.512	4141325.435	8.419	LB
1032	235761.897	4141334.805	8.559	BH	1076	235747.420	4141323.894	8.448	LB
1033	235762.914	4141337.489	8.596	BH	1077	235745.851	4141327.000	8.498	LB
1034	235748.539	4141342.627	8.504	LB I	1078	235742.776	4141325.610	8.523	LB
1035	235750.878	4141340.514	8.435	LB	1079	235741.309	4141328.684	8.553	LB

1080	235738.079	4141327.392	8.606	LB	1124	235744.065	4141306.844	8.360	LB
1081	235736.550	4141330.394	8.638	LB	1125	235743.461	4141305.373	8.341	LB
1082	235733.367	4141328.992	8.688	LB	1126	235740.124	4141306.291	8.384	LB
1083	235731.883	4141332.000	8.749	LB	1127	235739.634	4141305.129	8.372	LB
1084	235730.044	4141331.283	8.808	LB	1128	235735.327	4141306.322	8.463	LB
1085	235729.682	4141330.398	8.804	LB I	1129	235733.365	4141301.349	8.485	LB
1086	235751.819	4141322.222	8.333	LB	1130	235740.074	4141306.282	8.397	LB I
1087	235751.321	4141320.845	8.313	LB I	1131	235735.622	4141294.091	8.394	LB
1088	235743.505	4141323.729	8.489	LB	1132	235738.925	4141292.959	8.329	LB I
1089	235740.381	4141322.501	8.547	LB	1133	235744.009	4141306.809	8.352	LB
1090	235739.102	4141325.227	8.584	LB	1134	235748.161	4141307.602	8.246	LB I
1091	235735.925	4141323.587	8.628	LB	1135	235742.219	4141291.828	8.226	LB
1092	235734.385	4141327.032	8.654	LB	1136	235733.452	4141301.035	8.468	EDI
1093	235731.119	4141326.012	8.699	LB	1137	235733.436	4141301.016	8.470	BA I
1094	235729.904	4141328.631	8.781	LB	1138	235730.559	4141302.354	8.550	BA
1095	235724.720	4141317.367	8.691	LB I	1139	235724.216	4141308.814	8.627	BA
1096	235726.774	4141318.193	8.692	LB	1140	235723.772	4141309.200	8.644	BA
1097	235728.120	4141315.401	8.650	LB	1141	235723.630	4141308.764	8.623	BA
1098	235731.354	4141316.635	8.645	LB	1142	235722.074	4141309.305	8.899	BA
1099	235732.770	4141313.588	8.597	LB	1143	235722.338	4141310.259	9.100	BA
1100	235735.962	4141314.983	8.546	LB	1144	235753.359	4141340.923	8.459	LB I
1101	235737.009	4141312.769	8.487	LB	1145	235752.602	4141338.852	8.420	LB
1102	235740.147	4141313.903	8.478	LB	1146	235757.436	4141337.029	8.269	LB
1103	235740.718	4141312.688	8.460	LB	1147	235758.206	4141339.023	8.265	LB I
1104	235743.849	4141314.291	8.428	LB	1148	235756.606	4141334.676	8.281	LB
1105	235739.092	4141325.247	8.585	LB	1149	235760.921	4141332.987	8.119	LB
1106	235729.132	4141328.917	8.803	LB	1150	235759.000	4141333.722	8.144	LB I
1107	235728.857	4141328.291	8.784	LB I	1151	235760.533	4141338.170	8.212	LB
1108	235729.775	4141328.637	8.786	LB	1152	235732.900	4141301.276	8.740	BH I
1109	235727.606	4141325.111	8.744	LB I	1153	235730.382	4141302.268	8.787	BH
1110	235731.352	4141316.657	8.640	LB	1154	235734.738	4141297.355	8.487	R
1111	235728.140	4141315.417	8.647	LB I	1155	235734.351	4141300.234	8.476	R
1112	235725.923	4141320.318	8.701	LB					
1113	235730.860	4141329.816	8.768	BOL					
1114	235732.179	4141327.935	8.705	BOL					
1115	235735.581	4141328.104	8.650	BOL					
1116	235736.616	4141326.224	8.628	BOL					
1117	235740.238	4141326.410	8.573	BOL					
1118	235741.437	4141324.603	8.535	BOL					
1119	235744.963	4141324.636	8.507	BOL					
1120	235749.897	4141323.028	8.434	BOL					
1121	235751.222	4141306.528	8.219	LB I					
1122	235748.092	4141307.586	8.247	LB					
1123	235747.353	4141305.641	8.241	LB					

5. Reseña de bases de replanteo

COORDENADAS PLANAS

Altitud referida al nivel del mar

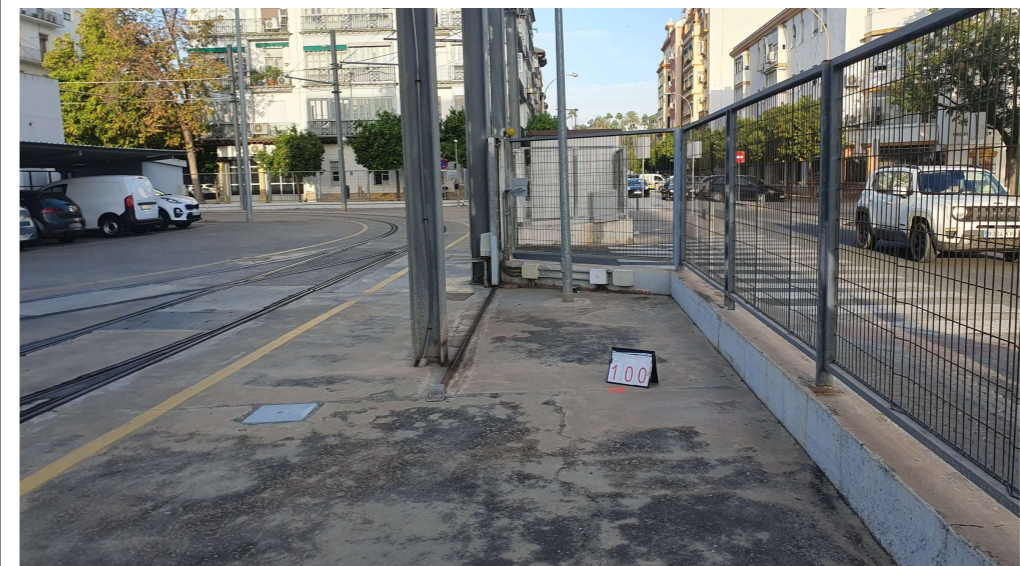
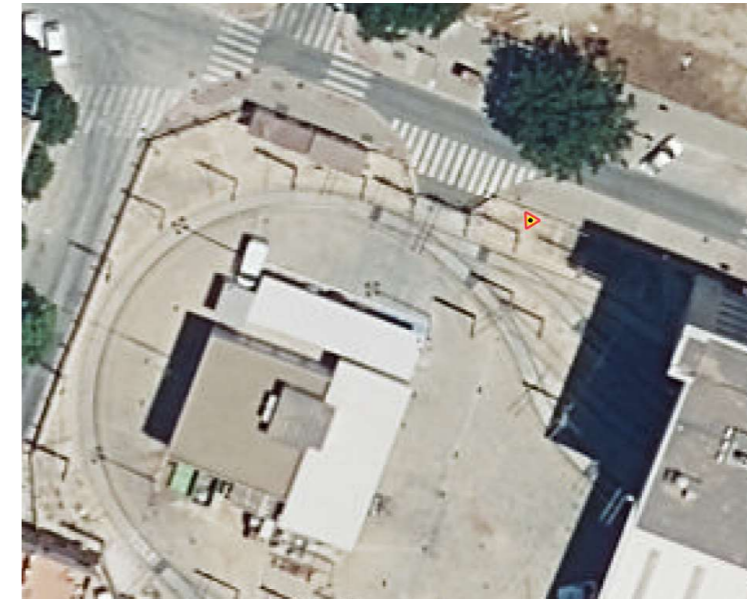
TIPO DE SEÑAL:

BR-100

X=235689.2433
Y=4141429.5835
Z=8.6350

Clavo de acero

Situación



COORDENADAS PLANAS

Altitud referida al nivel del mar

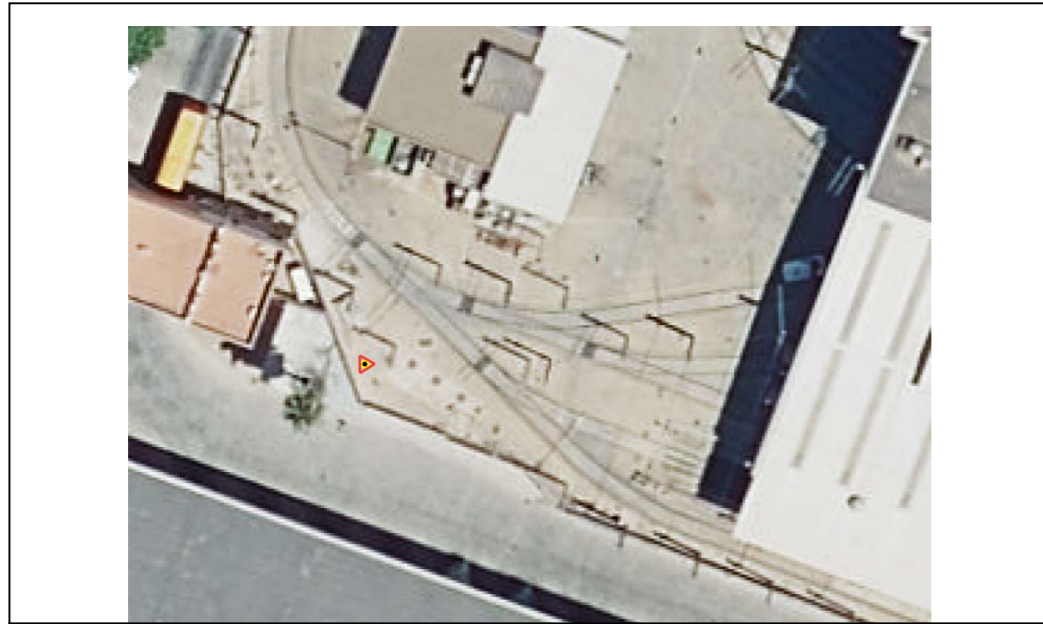
TIPO DE SEÑAL:

BR-101

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Y=4141384.9798
Z=8.6150

Clavo de acero

Situación



COORDENADAS PLANAS

Altitud referida al nivel del mar

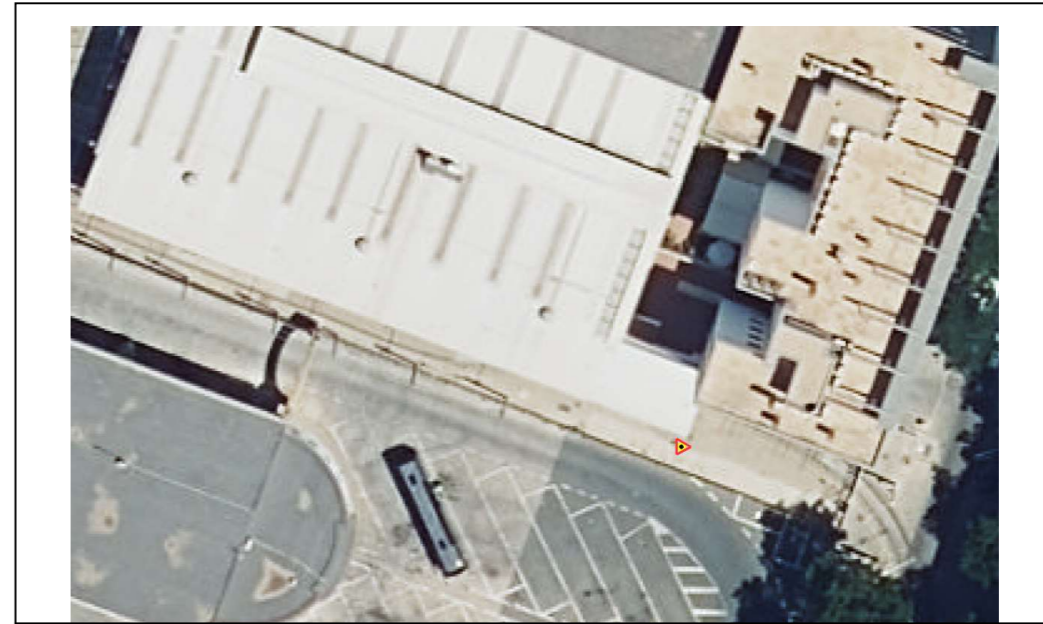
TIPO DE SEÑAL:

BR-102

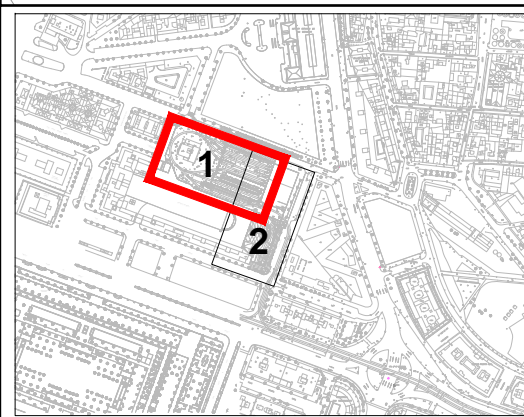
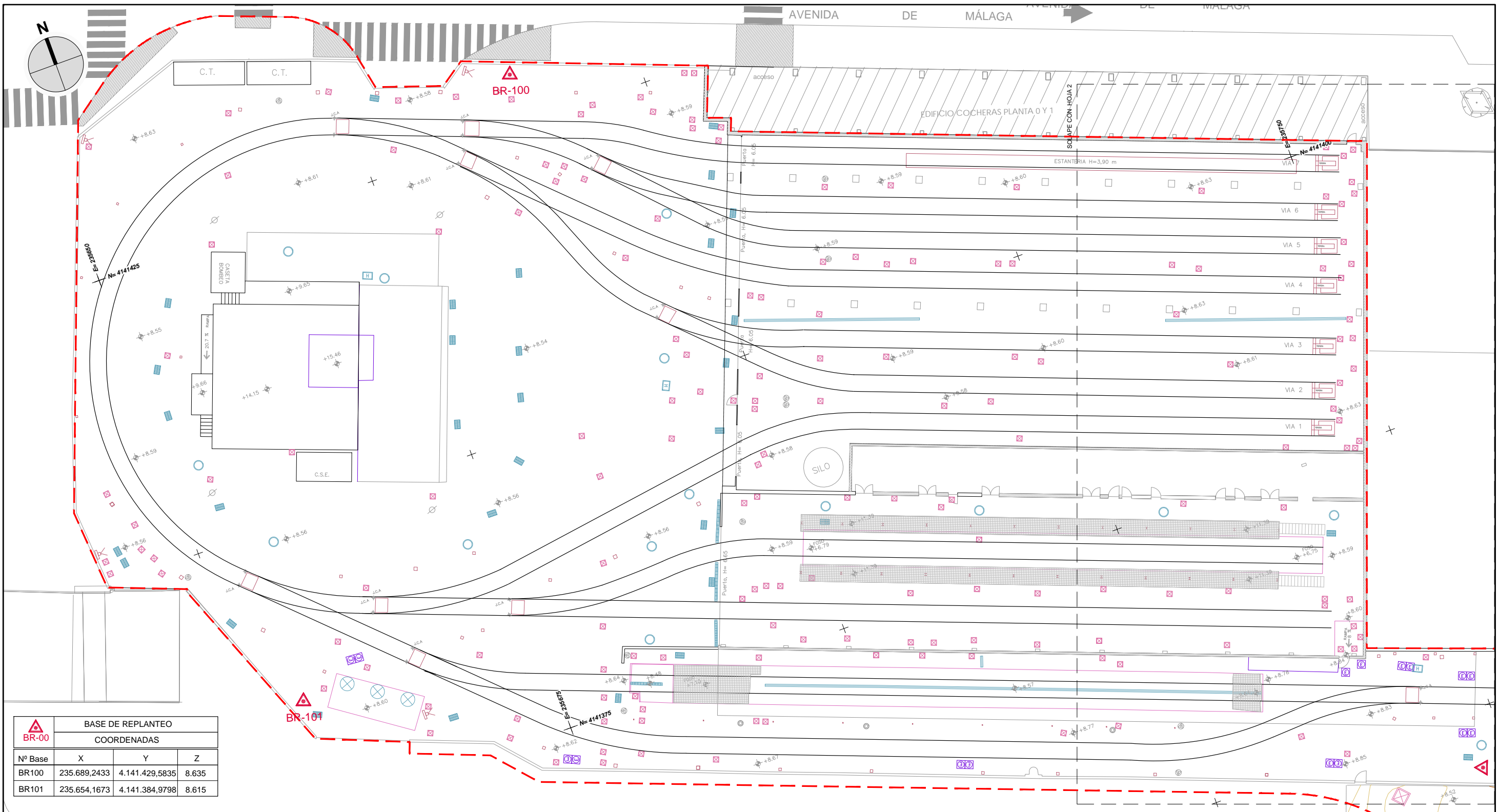
X=235747.5966
Y=4141345.7009
Z=8.8530

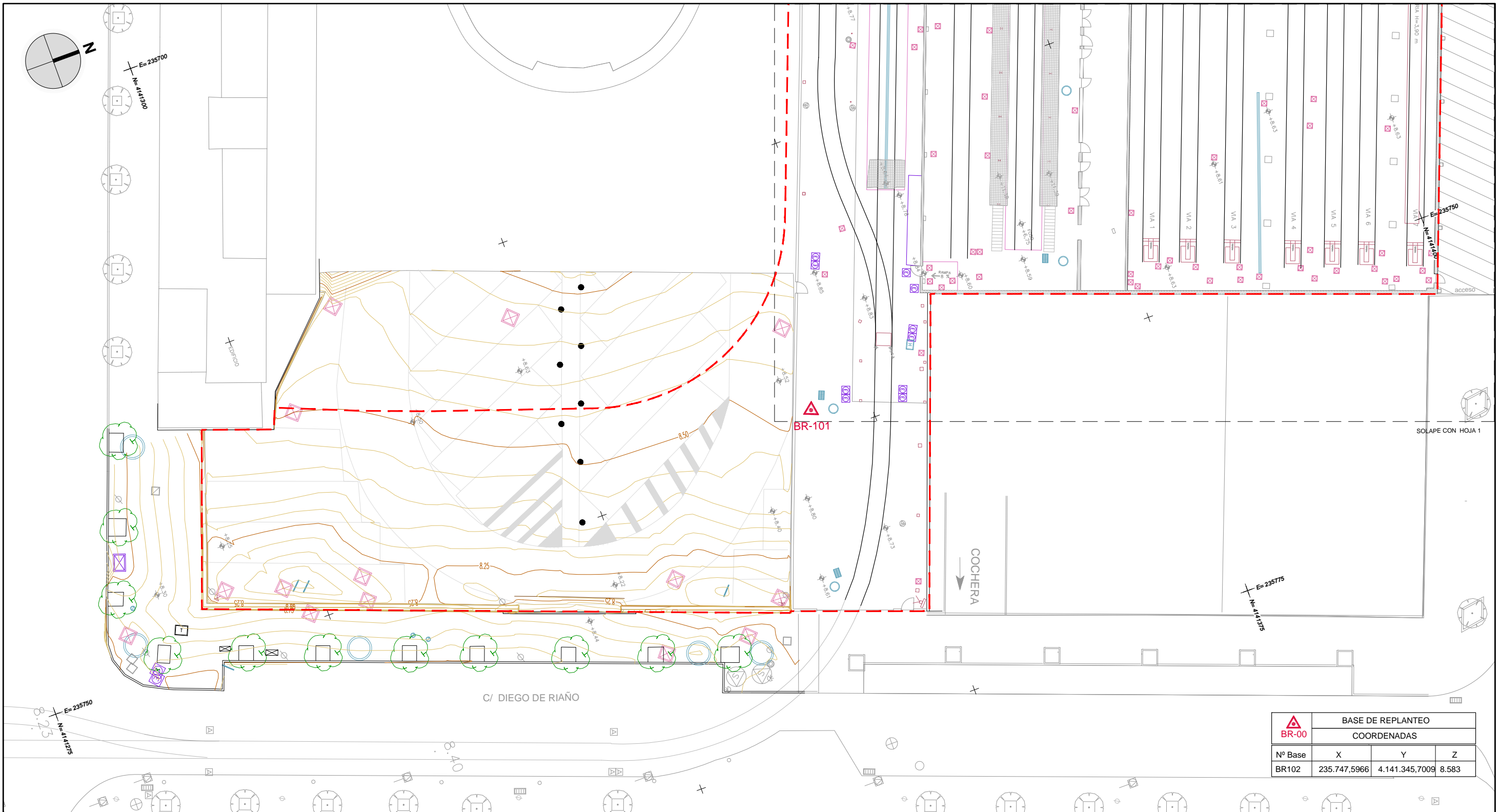
Clavo de acero

Situación



APÉNDICE 1 PLANO TOPOGRÁFICO





BASE DE REPLANTEO			
COORDENADAS			
Nº Base	X	Y	Z
BR102	235.747,5966	4.141.345,7009	8.583

