

MARGARITA MOLL PONS

GRAU EN ENGINYERIA GEOMÀTICA I TOPOGRAFIA

PERIT IMMOBILIARI

MEDIADORA

Col·legiat núm. 4515

INFORME TÈCNIC TOPOGRÀFIC

A requeriment de:

GMK ASSOCIATS

Situació:

**AIXECAMENT TOPOGRAFIC D'UNA
ZONA DEL PARC FRANCESC MACIÀ
MALGRAT DE MAR (BARCELONA)**

EXPEDIENT N°: GN-06-23

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Girona, 28 de gener del 2023

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1. OBJECTE DE L'ESTUDI

La zona de l'aixecament topogràfic és una parcel·la amb qualificació urbana deportiva.



2. ESTUDI TOPOGRÀFIC

2.1. METODOLOGIA

En data 25 de gener del 2023, es van prendre les dades necessàries per definir la zona en planta i amb els seus desnivells. Es tracte d'una zona urbana deportiva. S'ha agafat un extensió de terreny de treball d'uns 1.428 m², prenent les dades de camins, caps, peus, edificacions existents, voreres i pont.

Tot el tram de treball s'ha executat amb estació total topogràfica, partint de dues bases d'estacionament situades amb GPS per tenir el treball georeferenciat en sistema ETRS89. D'aquestes bases s'han anat radiant els punt necessaris, un total de 437, i situant una base més ja amb estació. Es prenen punts de control per verificar la inexistència d'errors i la correcte precisió.

Ja a gabinet, i verificat que no existeix cap gir o desplaçament erroni, es crea el dibuix amb Cad i MDT, realitzant el corbat cada 0.25m en les corbes normals i 1.25m en les directores.

2.2. CÀLCULS

Els treballs de camp s'han realitzat amb Estació Total Leica, recolzat amb GPS, en RTK per RTCM, utilitzant la xarxa d'antenes permanents CATNET del Institut Cartogràfic de Catalunya, per obtindre el treball en el sistema de referència UTM-ERTS_89.

Amb la següent estació de referència:
RTCM-Ref 0971,478344.187,4611008.310,7.120,

L'aixecament topogràfic realitzat consta de les següents característiques geodèsiques:

Sistema de referència:	ETRS89
Geiode:	EGM08D595
Elipsoide:	GRS80
Projecció:	UTM
Fus:	31N

Les coordenades dels punts i fites presos a camp son UTM en X,Y, i cota ortomètrica en Z.

Les dades de camp s'han pres el dia 15 de setembre del 2021

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2.3. INSTRUMENTACIÓ I PRECISIONS

Estació Total Robotitzada Leica TS16

MEDICIÓN ANGULAR		
Precisión ¹ Hz y V	Absoluto, continuo, diametral	1" (0.3 mgon), 2" (0.6 mgon), 3" (1 mgon), 5" (1.5 mgon)
MEDICIÓN DE DISTANCIAS		
Alcance ²	Prisma (GPR1, GPH1P) ³ Sin Prisma / A cualquier superficie ⁴	1.5m a 3500m R500: 1.5m a >500m, R1000: 1.5m a >1000m
Precisión / Tiempo de Medición	Normal (a prisma) ^{2,5} Normal (a cualquier superficie) ^{2,4,5,6}	1mm + 1.5ppm / normalmente 2.4s 2mm + 2ppm / normalmente 3s
Tamaño del punto láser	A 50m	8mm x 20mm
Tecnología de medición	Sistema de Análisis	Coaxial, láser rojo visible
IMÁGENES		
Cámara gran angular	Sensor Campo visual Tasa de muestreo	Sensor de 5 Mpixel CMOS 19.4° Hasta 20 frames por segundo
PUNTERÍA AUTOMÁTICA - ATRplus		
Alcance de la puntería a prisma ² / Alcance de seguimiento a prisma ²	Prisma Circular (GPR1, GPH1P) Prisma 360° (GRZ4, GRZ122)	1500m / 1000m 1000m / 1000m
Precisión ^{1,2} / Tiempo de medición	Precisión angular del ATRplus Hz, V	1" (0.3 mgon), 2" (0.6 mgon), 3" (1 mgon), 5" (1.5 mgon) / normalmente 3-4 s
POWERSEARCH		
Alcance / Tiempo de Búsqueda	Prisma 360° (GRZ4, GRZ122)	300m / normalmente 5s
LUCES GUÍA DE REPLANTEO (EGL)		
Rango de Trabajo / Precisión		5-150m / normalmente 5cm @ 100m
GENERAL		
Software de campo	Leica Captivate con apps	
Pantalla y teclado	5", WVGA, a color, táctil, pantalla I estándar / pantalla II opcional	37 teclas, iluminadas
Procesador	TI OMAP4430 1GHz Dual-core ARM® Cortex™ A9 MPCore™	Sistema operativo - Windows EC7
Administración de energía	Batería intercambiable Li-Ion	Autonomía de uso 5-8 h
Almacenamiento de datos	Memoria interna Tarjeta de memoria	2 GB Tarjeta SD 1 GB o 8 GB
Interfaces	RS232, USB, Bluetooth®, WLAN	
Peso	Estación Total incluida batería	5.3 - 6kg
Especificaciones ambientales	Rango de temperatura de trabajo Polvo / Agua (IEC 60529) / Humedad	-20°C a +50°C IP55 / 95%, sin condensación

GPS Leica: GS05

GNSS PERFORMANCE		
GNSS Technology	Leica RTXplus	Adaptive on-the-fly satellite selection
Leica SmartCheck	Continuous check of RTK solution	Reliability 99.95%
Signal tracking	SmartTrack	GPS (L1, L2, L2C, L5), Glonass (L1, L2, L3 ²), BeiDou (B1, B2, B3 ²), Galileo (E1, E5a, E5b, Alt-BOC, E6 ²), QZSS (L1, L2, L5, LEX ²), NavIC L5 ³ , SBAS (WAAS, EGNOS, MSAS, GAGAN)
Number of channels		320 hardware channels
MEASUREMENT PERFORMANCE & ACCURACY¹		
Time for initialisation		Typically 6 s
Real-time kinematic (Compliant to ISO17123-8 standard)	Single baseline Network RTK	Hz 10 mm + 1 ppm / V 20 mm + 1 ppm Hz 10 mm + 0.5 ppm / V 20 mm + 0.5 ppm
Post processing	Static (phase) with long observations Static and rapid static (phase)	Hz 3 mm + 0.5 ppm / V 6 mm + 0.5 ppm Hz 5 mm + 0.5 ppm / V 10 mm + 0.5 ppm
Code differential	DGPS / RTCM	Typically 25 cm

La precisió real obtinguda per aquest treball és de 1 a 3 centímetres.

2.4. LLISTAT DE PUNTS PRESOS A CAMP

TS433,478316.087,4610988.487,15.416,LCOB
TS432,478340.854,4610999.531,12.827,COTABIGAFU
TS431,478326.638,4610986.108,12.803,COTABIGAFU
TS430,478325.053,4610987.946,12.799,COTABIGAFU
TS429,478318.198,4610977.031,12.116,TE
TS428,478321.056,4610978.827,12.256,TE
TS427,478322.263,4610978.514,12.251,ARBRE
TS426,478323.550,4610978.385,12.362,TE
TS425,478323.702,4610975.636,12.276,TE
TS424,478322.065,4610974.805,12.302,BANC
TS423,478322.009,4610975.433,12.296,BANC
TS422,478320.247,4610975.239,12.277,BANC
TS421,478320.309,4610974.629,12.280,BANC
TS420,478319.621,4610974.378,12.302,TARIMAFU
TS419,478319.572,4610974.764,12.292,TARIMAFU
TS418,478319.774,4610975.102,12.310,TARIMAFU
TS417,478320.129,4610975.702,12.276,TARIMAFU
TS416,478320.779,4610976.033,12.272,TARIMAFU
TS415,478321.494,4610976.025,12.283,TARIMAFU
TS414,478322.118,4610975.811,12.299,TARIMAFU
TS413,478322.598,4610975.317,12.301,TARIMAFU
TS412,478322.755,4610974.947,12.316,TARIMAFU
TS411,478322.800,4610974.655,12.305,TARIMAFU
TS410,478321.234,4610972.370,12.520,ARBRE
TS409,478322.570,4610969.690,12.759,TE
TS408,478324.882,4610971.542,12.281,TE
TS407,478325.586,4610968.921,12.131,TE
TS406,478326.697,4610968.551,11.850,KMI
TS405,478326.306,4610972.223,11.963,KMI
TS404,478326.043,4610975.739,12.033,KMI
TS403,478325.593,4610979.246,12.135,KMI
TS402,478324.231,4610980.370,12.176,FAR
TS401,478324.650,4610980.530,12.188,KMI
TS400,478323.463,4610981.443,12.263,KMI
TS399,478321.812,4610981.341,12.290,KMI
TS398,478319.691,4610979.750,12.159,KMI
TS397,478317.145,4610977.640,12.041,KMI
TS396,478316.112,4610978.783,12.040,TE
TS395,478318.465,4610980.746,12.159,TE
TS394,478320.984,4610982.835,12.267,TE
TS393,478323.340,4610984.953,12.296,TE
TS392,478322.381,4610988.167,12.329,TAPA
TS391,478322.229,4610986.576,12.345,TAPA
TS390,478321.520,4610987.336,12.348,TAPA
TS389,478317.241,4610985.459,12.440,TE
TS388,478316.427,4610984.048,12.441,TE
TS387,478314.788,4610984.568,12.664,ARBRE
TS386,478315.028,4610983.339,12.551,TE
TS385,478313.051,4610982.078,12.664,TE
TS384,478314.011,4610980.174,12.283,TE
TS383,478314.914,4610979.269,12.074,KMI
TS382,478316.238,4610981.056,12.170,KMI
TS381,478317.456,4610983.315,12.281,KMI
TS380,478318.447,4610985.717,12.345,KMI
TS379,478319.207,4610983.888,12.276,ARBRE
TS378,478318.446,4610987.123,12.365,ARBUST
TS377,478315.033,4610987.787,12.762,RAMPADOKINS
TS376,478314.807,4610987.107,12.759,RAMPADOKINS
TS375,478318.566,4610985.861,12.329,RAMPADOKINS
TS374,478318.800,4610986.516,12.327,RAMPADOKINS
TS373,478318.821,4610986.592,12.333,KMI
TS372,478319.658,4610986.829,12.310,KMI
TS371,478320.202,4610987.428,12.311,KMI
TS370,478320.256,4610987.826,12.320,FAR
TS369,478319.778,4610997.317,12.328,TE
TS368,478320.386,4610994.459,12.404,TE
TS367,478321.075,4610991.998,12.358,TE
TS366,478321.524,4610990.483,12.339,KMI
TS365,478321.621,4610989.684,12.357,KMI
TS364,478322.284,4610988.202,12.328,KMI
TS363,478322.969,4610987.045,12.339,KMI
TS362,478323.747,4610986.381,12.359,KMI
TS361,478323.858,4610986.375,12.391,BARANA
TS360,478324.031,4610986.469,12.659,BARANA
TS359,478324.002,4610986.557,12.657,RAMPA
TS358,478325.035,4610987.590,12.687,RAMPA
TS357,478322.870,4610991.460,12.293,RAMPA
TS356,478321.665,4610990.754,12.368,RAMPA
TS355,478321.571,4610990.582,12.337,BARANA
TS354,478321.718,4610990.653,12.377,BARANA
TS353,478321.627,4610990.741,12.370,TARIMAFU
TS352,478322.911,4610991.479,12.291,TARIMAFU
TS351,478323.099,4610991.454,12.297,BARANA
TS350,478322.980,4610991.364,12.303,BARANA
TS349,478324.953,4610987.751,12.685,BARANA
TS348,478325.155,4610987.525,12.693,BARANA
TS347,478325.243,4610987.524,12.689,BARANA
TS346,478326.961,4610989.147,12.710,BARANA
TS345,478329.188,4610991.293,12.723,BARANA
TS344,478329.140,4610991.359,12.722,BARANA
TS343,478332.174,4610994.240,12.751,BIGAFU
TS342,478332.389,4610994.460,12.752,BIGAFU
TS341,478348.838,4610984.938,12.515,CONTID02A01
TS340,478314.129,4610997.983,15.495,LCOB
TS339,478316.897,4610998.561,15.252,LCOB
TS338,478317.540,4610996.018,15.445,LCOB
TS337,478317.568,4610995.972,15.446,LCOB
TS336,478318.626,4610993.814,15.468,LCOB
TS335,478318.547,4610991.742,15.491,LCOB
TS334,478319.156,4610989.198,15.464,LCOB
TS333,478331.922,4610994.557,14.821,LENCVELLADA
TS332,478331.925,4610994.529,14.728,LENCVELLADA
TS331,478332.084,4610994.719,14.729,LENCVELLADA
TS330,478332.084,4610994.713,14.829,LENCVELLADA
TS329,478329.115,4610992.159,12.084,CAP
TS328,478328.172,4610994.072,11.840,CAP
TS327,478327.977,4610996.252,11.406,CAP
TS326,478326.582,4611000.228,10.858,CAP
TS325,478325.915,4611002.308,10.419,CAP
TS324,478338.996,4610991.549,9.511,PEU
TS323,478336.535,4610996.270,9.559,PEU
TS322,478334.737,4611000.042,9.607,PEU
TS321,478331.585,4611004.973,9.602,PEU
TS320,478327.471,4611010.929,9.660,PEU
TS319,478325.508,4611013.211,9.628,PEU
TS318,478326.118,4611003.189,10.202,PEU
TS317,478326.902,4611002.195,10.146,PEU
TS316,478328.074,4611001.094,10.027,PEU
TS315,478329.209,4610999.714,9.952,PEU
TS314,478329.691,4610998.102,10.005,PEU
TS313,478330.261,4610998.732,9.919,CAP
TS312,478330.425,4610998.822,9.629,PEU
TS311,478328.482,4611002.092,9.616,PEU
TS310,478328.142,4611002.165,9.990,CAP
TS309,478326.599,4611004.035,10.044,CAP
TS308,478327.309,4611004.393,9.586,PEU
TS307,478324.907,4611007.585,9.683,PEU
TS306,478324.418,4611007.187,10.096,CAP
TS305,478323.215,4611006.513,10.316,PEU
TS304,478323.802,4611004.519,10.322,PEU
TS303,478323.835,4611001.736,10.575,PEU
TS302,478324.151,4610998.883,11.296,PEU
TS301,478324.613,4610995.831,11.699,PEU
TS300,478324.979,4610993.840,12.095,PEU
TS299,478327.944,4610994.453,11.802,CAP
TS298,478329.198,4610992.269,12.057,CAP
TS297,478325.303,4610990.379,12.173,ARBRE
TS296,478325.599,4610992.712,12.162,CAP
TS295,478324.056,4610994.530,12.164,CAP
TS294,478323.127,4610996.811,12.153,CAP
TS293,478322.049,4610999.273,12.099,CAP
TS292,478322.110,4611001.299,11.856,CAP
TS291,478322.199,4611002.310,11.909,CAP
TS290,478320.760,4611003.645,11.894,CAP

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TS289,478320.137,4611003.856,11.933,CAP
TS288,478320.032,4611004.073,11.814,PEU
TS287,478320.792,4611004.125,11.774,PEU
TS286,478320.322,4611004.984,11.733,ARBRE
TS285,478319.073,4611004.378,12.027,CAP
TS284,478319.672,4611004.700,11.763,PEU
TS283,478318.019,4611006.891,11.803,PEU
TS282,478317.524,4611006.595,12.036,CAP
TS281,478320.260,4610988.158,12.333,KMI
TS280,478319.846,4610989.346,12.363,KMI
TS279,478319.101,4610989.579,12.379,KMI
TS278,478318.843,4610989.442,12.354,FAC
TS277,478317.826,4610992.846,12.631,PILRFE15
TS276,478317.452,4610994.630,12.640,PILRFE15
TS275,478317.317,4610996.089,12.632,COTA
TS274,478318.148,4610994.830,12.636,COTA
TS273,478318.430,4610993.856,12.628,COTA
TS272,478318.513,4610992.876,12.618,COTA
TS271,478318.401,4610991.634,12.601,COTA
TS270,478318.327,4610991.704,12.437,FAC
TS269,478318.416,4610991.588,12.451,ESC
TS268,478318.527,4610992.558,12.419,ESC
TS267,478318.499,4610993.530,12.438,ESC
TS266,478318.288,4610994.498,12.427,ESC
TS265,478317.869,4610995.375,12.435,ESC
TS264,478317.326,4610996.149,12.421,ESC
TS263,478317.318,4610995.992,12.418,FAC
TS262,478316.984,4610997.360,12.572,TAPA
TS261,478317.268,4610997.493,12.522,TAPA
TS260,478317.194,4610997.754,12.509,TAPA
TS259,478316.711,4610998.260,12.386,FAC
TS258,478317.876,4610999.110,12.325,KMI
TS257,478318.462,4610999.675,12.235,KMI
TS256,478318.280,4611000.663,12.198,KMI
TS255,478319.742,4611000.910,12.170,KMI
TS254,478318.543,4611002.583,12.142,KMI
TS253,478317.462,4611001.898,12.152,KMI
TS252,478316.398,4611004.002,12.125,KMI
TS251,478317.494,4611004.732,12.097,KMI
TS250,478317.737,4611004.838,12.119,TNKFU
TS249,478318.997,4611002.345,12.175,FAR
TS248,478319.279,4611002.260,12.153,TNKFU
TS247,478319.977,4611000.888,12.175,TNKFU
TS246,478321.884,4610996.899,12.286,TNKFU
TS245,478322.831,4610994.098,12.340,TNKFU
TS244,478323.166,4610991.497,12.290,TNKFU
TS243,478329.978,4610992.171,12.731,BIGAFU
TS242,478334.307,4610996.248,12.759,BIGAFU
TS241,478327.887,4611015.984,12.383,CAP
TS240,478330.309,4611012.621,12.371,CAP
TS239,478332.031,4611009.733,12.302,CAP
TS238,478333.898,4611006.981,12.466,CAP
TS237,478336.084,4611003.252,12.444,CAP
TS236,478337.842,4611000.866,12.418,CAP
TS235,478339.142,4611001.226,12.409,BIGAFU
TS234,478337.486,4610999.033,12.774,BARANA
TS233,478339.549,4611000.939,12.762,BARANA
TS232,478339.256,4611001.375,12.761,BARANA
TS231,478338.495,4611003.475,12.551,FAR
TS230,478338.916,4611005.940,12.509,TAPA
TS229,478338.604,4611006.434,12.511,TAPA
TS228,478338.130,4611006.125,12.502,TAPA
TS227,478338.280,4611005.141,12.540,KMI
TS226,478337.376,4611006.410,12.510,KMI
TS225,478335.324,4611008.868,12.454,EMB
TS224,478335.544,4611008.955,12.443,EMB
TS223,478335.724,4611008.525,12.463,EMB
TS222,478336.257,4611008.442,12.493,KMI
TS221,478334.513,4611010.748,12.517,KMI
TS220,478332.126,4611013.921,12.511,KMI
TS219,478329.931,4611016.967,12.510,KMI
TS218,478333.348,4611011.486,12.534,TNKFU
TS217,478334.997,4611009.058,12.491,TNKFU
TS216,478336.588,4611006.495,12.517,TNKFU
TS215,478338.092,4611004.878,12.573,TNKFU

TS214,478338.244,4611004.928,12.567,BARANA
TS213,478338.417,4611004.939,12.586,BARANA
TS212,478338.411,4611004.938,12.587,RAMPA
TS211,478339.269,4611001.347,12.763,RAMPA
TS210,478340.495,4611002.157,12.745,RAMPA
TS209,478339.667,4611005.283,12.580,RAMPA
TS208,478339.674,4611005.290,12.578,BARANA
TS207,478339.834,4611005.315,12.544,BARANA
TS206,478340.550,4611002.125,12.747,TARIMAFU
TS205,478340.505,4611002.143,12.744,BARANA
TS204,478340.686,4611002.169,12.573,BARANA
TS203,478348.831,4610984.939,12.517,CONTOD3A01
TS202,478333.812,4610992.959,14.827,LENCVELLADA
TS201,478333.811,4610992.960,14.921,LENCVELLADA
TS200,478333.592,4610992.754,14.923,LENCVELLADA
TS199,478333.591,4610992.754,14.824,LENCVELLADA
TS198,478326.635,4610986.112,12.798,LENCVELLADA
TS197,478347.338,4610980.686,12.337,CAP
TS196,478348.241,4610980.351,12.416,CAP
TS195,478348.951,4610979.849,12.474,CAP
TS194,478349.019,4610979.019,12.373,CAP
TS193,478347.840,4610978.452,11.872,PEU
TS192,478347.570,4610979.185,11.912,PEU
TS191,478346.937,4610979.455,11.993,PEU
TS190,478346.483,4610979.494,11.838,PEU
TS189,478346.326,4610978.817,11.847,CAP
TS188,478346.491,4610981.416,12.248,CAP
TS187,478346.628,4610984.188,12.459,ARBRE
TS186,478345.295,4610985.162,12.489,CAP
TS185,478344.420,4610988.718,12.489,CAP
TS184,478342.763,4610992.228,12.433,CAP
TS183,478341.118,4610995.505,12.553,CAP
TS182,478339.614,4610997.721,12.361,CAP
TS181,478340.829,4610999.516,12.510,BIGAFU
TS180,478334.564,4610999.868,9.540,PEU
TS179,478336.472,4610996.593,9.527,PEU
TS178,478338.416,4610992.450,9.482,PEU
TS177,478340.344,4610987.537,9.433,PEU
TS176,478341.951,4610983.592,9.540,PEU
TS175,478343.266,4610976.969,9.401,PEU
TS174,478339.525,4610975.421,9.814,CAP
TS173,478339.841,4610975.489,9.328,PEU
TS172,478338.674,4610979.749,9.389,PEU
TS171,478338.517,4610979.676,9.785,CAP
TS170,478336.238,4610984.525,10.001,CAP
TS169,478336.552,4610984.554,9.557,PEU
TS168,478335.808,4610989.524,9.538,PEU
TS167,478335.299,4610989.433,9.926,CAP
TS166,478333.324,4610993.073,9.981,CAP
TS165,478334.129,4610993.730,9.501,PEU
TS164,478331.075,4610997.288,9.676,PEU
TS163,478330.736,4610996.976,9.964,CAP
TS162,478330.816,4610997.651,9.723,ARBRE
TS161,478330.590,4610996.953,10.015,PEU
TS160,478330.844,4610996.056,9.951,PEU
TS159,478332.066,4610993.410,10.040,PEU
TS158,478332.451,4610991.134,10.173,PEU
TS157,478334.293,4610988.519,10.067,PEU
TS156,478335.524,4610985.182,10.086,PEU
TS155,478336.647,4610982.033,10.026,PEU
TS154,478337.886,4610978.408,9.982,PEU
TS153,478338.432,4610974.316,9.979,PEU
TS152,478336.583,4610974.048,10.996,CAP
TS151,478336.124,4610977.736,10.994,CAP
TS150,478334.584,4610982.656,11.025,CAP
TS149,478332.318,4610986.389,11.427,CAP
TS148,478330.659,4610989.565,11.711,CAP
TS147,478332.134,4610984.918,11.339,PEU
TS146,478331.471,4610982.677,11.117,PEU
TS145,478331.763,4610980.000,11.049,PEU
TS144,478331.948,4610974.259,10.944,PEU
TS143,478330.106,4610973.454,11.634,CAP
TS142,478329.442,4610976.796,11.937,CAP
TS141,478328.571,4610980.569,12.033,CAP
TS140,478328.953,4610984.473,12.229,CAP

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TS139,478328.817,4610987.848,12.147,CAP
TS138,478326.639,4610986.107,12.373,BIGAFU
TS137,478325.239,4610987.533,12.688,BARANA
TS136,478326.637,4610988.855,12.705,BARANA
TS135,478329.193,4610991.301,12.724,BARANA
TS134,478329.129,4610991.364,12.722,BARANA
TS133,478330.364,4610992.579,12.731,BIGAFU
TS132,478332.383,4610994.499,12.751,BIGAFU
TS131,478334.165,4610996.121,12.757,BIGAFU
TS130,478335.465,4610997.325,12.757,BARANA
TS129,478335.518,4610997.282,12.759,BARANA
TS128,478337.567,4610999.150,12.761,BARANA
TS127,478346.745,4611000.041,12.852,TE
TS126,478349.660,4610998.913,13.084,TE
TS125,478348.456,4610996.871,12.945,TE
TS124,478349.355,4610993.185,12.868,TE
TS123,478354.153,4610996.607,13.855,TE
TS122,478355.502,4610994.001,13.849,TE
TS121,478357.967,4610991.111,13.507,TE
TS120,478356.767,4610988.655,13.143,TE
TS119,478355.142,4610985.985,12.648,TE
TS118,478352.658,4610981.120,12.506,KMI
TS117,478350.431,4610983.472,12.509,KMI
TS116,478347.692,4610987.033,12.514,KMI
TS115,478345.674,4610990.624,12.533,KMI
TS114,478344.007,4610994.133,12.535,KMI
TS113,478342.952,4610997.168,12.550,KMI
TS112,478342.713,4610998.969,12.537,KMI
TS111,478342.368,4611000.092,12.540,KMI
TS110,478341.934,4611000.730,12.541,KMI
TS109,478342.943,4611000.586,12.544,TQA15
TS108,478343.066,4611001.253,12.552,TAPA
TS107,478342.854,4611001.900,12.550,TAPA
TS106,478342.203,4611001.689,12.543,TAPA
TS105,478334.243,4611010.170,12.530,TNKFU
TS104,478332.401,4611012.729,12.544,TNKFU
TS103,478329.673,4611016.173,12.502,TNKFU
TS102,478337.085,4611015.636,12.667,TE
TS101,478340.239,4611014.535,12.587,TE
TS100,478340.451,4611016.982,12.584,TE
TS99,478341.967,4611018.024,12.571,TE
TS98,478340.783,4611019.214,13.034,TE
TS97,478339.860,4611021.344,13.485,XIPRER
TS96,478338.609,4611021.517,13.629,TE
TS95,478338.910,4611018.855,13.062,TE
TS94,478337.037,4611017.563,12.881,XIPRER
TS93,478335.025,4611020.309,13.000,XIPRER
TS92,478335.603,4611019.330,13.065,TE
TS91,478334.075,4611018.263,12.732,TE
TS90,478333.066,4611017.351,12.552,KMI
TS89,478334.679,4611016.314,12.520,EMB
TS88,478334.477,4611016.200,12.517,EMB
TS87,478334.723,4611015.807,12.527,EMB
TS86,478334.723,4611015.323,12.540,KMI
TS85,478336.789,4611013.014,12.559,KMI
TS84,478337.537,4611012.587,12.544,KMI
TS83,478337.576,4611014.671,12.516,TQREG
TS82,478337.827,4611014.890,12.549,TQREG
TS81,478338.189,4611014.535,12.543,TQREG
TS80,478338.107,4611013.495,12.585,PAP
TS79,478338.214,4611012.957,12.569,PAP
TS78,478339.036,4611012.165,12.527,KMI
TS77,478341.375,4611012.657,12.574,KMI
TS76,478342.897,4611014.838,12.602,KMI
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TS74,478346.681,4611010.528,12.646,TE
TS73,478349.121,4611008.214,12.650,KMI
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TS71,478346.707,4611006.147,12.640,KMI
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TS68,478345.878,4611005.465,12.639,TAPA
TS67,478345.724,4611005.465,12.601,KMI
TS66,478344.899,4611002.700,12.552,KMI
TS65,478345.554,4610998.412,12.565,KMI
TS64,478347.118,4610993.775,12.554,KMI
TS63,478349.611,4610989.636,12.524,KMI
TS62,478352.622,4610986.403,12.518,KMI
TS61,478355.989,4610983.700,12.531,KMI
TS60,478346.916,4610994.744,12.578,EMB
TS59,478346.716,4610994.653,12.562,EMB
TS58,478346.520,4610995.067,12.563,EMB
TS57,478345.813,4610996.101,12.573,TAPA
TS56,478345.580,4610996.514,12.561,TAPA
TS55,478345.987,4610996.740,12.571,TAPA
TS54,478348.605,4611000.669,12.930,ARBRE
TS53,478350.425,4610994.056,13.070,ARBRE
TS52,478350.792,4610988.780,12.514,FAR
TS51,478353.515,4610990.424,13.077,ARBRE
TS50,478358.503,4610988.265,13.073,ARBRE
TS49,478360.243,4610986.173,12.964,MUR
TS48,478359.434,4610983.847,12.642,MUR
TS47,478355.889,4610982.264,12.515,PORTA
TS46,478352.194,4610980.682,12.509,PORTA
TS45,478350.440,4610979.957,12.515,MUR
TS44,478350.382,4610980.149,12.500,TNKFU
TS43,478348.952,4610982.754,12.486,TNKFU
TS42,478347.560,4610985.359,12.495,TNKFU
TS41,478346.112,4610987.910,12.513,TNKFU
TS40,478344.859,4610990.637,12.531,TNKFU
TS39,478343.539,4610993.251,12.533,TNKFU
TS38,478342.270,4610996.011,12.530,TNKFU
TS37,478341.482,4610997.286,12.537,TNKFU
TS36,478341.740,4610997.577,12.518,CARTELL
TS35,478340.972,4610999.872,12.507,TNKFU
TS34,478341.909,4611000.747,12.544,TE
TS33,478341.856,4611000.736,12.720,TARIMAFU
TS32,478341.778,4611000.713,12.723,BARANA
TS31,478341.654,4611000.838,12.727,BARANA
TS30,478338.930,4610998.382,12.758,BARANA
TS29,478336.581,4610996.138,12.779,BARANA
TS28,478336.603,4610996.060,12.782,BARANA
TS27,478335.621,4610995.125,12.792,BIGAFU
TS26,478333.584,4610993.253,12.821,BIGAFU
TS25,478331.292,4610991.029,12.769,BIGAFU
TS24,478330.293,4610990.122,12.754,BARANA
TS23,478330.247,4610990.169,12.749,BARANA
TS22,478326.270,4610986.424,12.711,BARANA
TS21,478325.124,4610985.226,12.695,BARANA
TS20,478325.231,4610985.104,12.691,BARANA
TS19,478325.255,4610985.040,12.689,TARIMAFU
TS18,478324.525,4610985.824,12.670,COTA
TS17,478323.803,4610986.197,12.355,ESC
TS16,478323.986,4610986.372,12.509,ESC
TS15,478325.113,4610985.163,12.540,ESC
TS14,478324.907,4610984.989,12.373,ESC
TS13,478322.248,4610978.549,12.248,ARBRE
TS12,478324.244,4610980.359,12.167,FAR
TS11,478326.108,4610983.749,12.282,PAP
TS10,478326.047,4610984.285,12.323,PAP
TS09,478326.457,4610986.231,12.411,TNKFU
TS08,478326.556,4610984.351,12.337,TNKFU
TS07,478328.076,4610980.151,12.062,TNKFU
TS06,478328.660,4610975.607,11.911,TNKFU
TS05,478329.385,4610971.258,11.737,TNKFU
TS04,478329.674,4610968.322,11.750,TNKFU
TS03,478329.663,4610968.150,11.726,PORTA
TS02,478326.842,4610967.789,11.783,PORTA
TS01,478326.372,4610981.874,12.199,CONTDO1A02

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2.5. LLISTAT DE BASES DE RADIACIÓ

EST01,478348.832,4610984.934,12.514,EST

EST02,478326.384,4610981.873,12.196,EST

EST03,478329.028,4611017.915,12.517,EST

3. CERTIFICAT DE CALIBRACIÓ

- when it has to be **right**



Certificado de Verificación y Control Emitido por Servicio Técnico Autorizado de Leica Geosystems

Cliente	MARGARITA MOLL PONS ORIOI MARTORELL I CODINA, 16, 3º 1ª 17003 Girona	Nº de Certificado	301804324
		Fecha Inspección	22.07.2022
Producto	TS16 P 3" R1000	Nº Serie	3216712
Nº Artículo	822447	Nº Equipo	8522665

Identificación de patrones

Estación total Leica, modelo TCA2003, número de serie 442095 con certificado CEM número 211466001.

Incertidumbre asociada al instrumento

El cálculo de incertidumbres se realizará aplicando los criterios establecidos en la "Guía para la expresión de la Incertidumbre de Medida" editada por el Centro Español de Metrología y la guía EA-4/02 "Expression of the Uncertainty of Measurement in Calibration"

Procedimientos de verificación

Patrones:	Procedimiento descrito en documentación interna de Leica Geosystems PCP LG 09-20 basado en el documento DI-039 para la calibración de colimadores ópticos desarrollado por el CEM.
Instrumento:	Procedimiento descrito en documentación interna de Leica Geosystems S.L., P.V. IT LG 09-20, P.A. IT LG 09-20.

Condiciones ambientales:

Temperatura durante la revisión 20°C +/- 5°C.
Los resultados se refieren al momento y condiciones en que se efectuaron las mediciones.

Certificado

Por la presente, certificamos que el producto descrito ha sido testado de acuerdo con los procedimientos del Servicio Técnico de Leica Geosystems, obteniendo los siguientes resultados:

- ☒ Conforme Los resultados del ensayo cumplen con las especificaciones del producto.
☐ No Conforme Los resultados del ensayo no cumplen con las especificaciones del producto.

El equipo utilizado para la prueba tiene trazabilidad con los estándares nacionales. Así lo establece nuestro Sistema de Calidad, auditado y certificado según ISO 9001.

MARGARITA MOLL PONS

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PERIT IMMOBILIARI

MEDIADORA

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- when it has to be **right****Nº de Certificado** 301804324**Lecturas***Entrada:*

	1	2	3	4	5
Error Angular (gon)					
Colimación Horizontal	0.0004	0.0002	0.0002	0.0003	0.0003
Índice Vertical	0.0006	0.0004	0.0006	0.0005	0.0006
Error Distancia (mm)					
Normal (prisma)	-0.82	-0.97	-1.02	-1.17	-1.12
Normal (cualquier superficie)	-1.25	-1.25	-1.35	-1.35	-1.25

Salida:

	1	2	3	4	5
Error Angular (gon)					
Colimación Horizontal	0.0000	0.0005	0.0006	0.0002	0.0005
Índice Vertical	0.0001	0.0000	0.0001	0.0001	0.0002
Error Distancia (mm)					
Normal (prisma)	-0.07	-0.02	0.08	-0.02	0.03
Normal (cualquier superficie)	-0.10	-0.15	-0.15	-0.05	-0.20

Precisión Calculada

	Entrada	Tolerancia	Salida	Incertidumbre
Precisión Angular (gon)				
Horizontal	0.0001	0.0010	0.0002	0.0012
Vertical	0.0001	0.0010	0.0001	0.0011
Precisión Distancia (mm)				
Normal (prisma)	0.14	1 mm + 1.5 ppm	0.06	0.57
Normal (cualquier superficie)	0.05	2 mm + 2 ppm	0.06	0.57

Valores

Los valores reflejados en la Precisión Calculada (entrada y salida) son el resultado del cálculo de la Desviación Estándar del promedio de las Lecturas.

Leica Geosystems S.L.

Leica Geosystems S.L.



Javier Carbonero
Technical Service Manager

José Manuel Perbós
Technical Service

Este Certificado no puede ser reproducido parcial ni en su totalidad sin
previa aprobación escrita de la entidad emisora
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Leica Geosystems S.L.
Nicaragua 46, 08026 Barcelona Spain
www.leica-geosystems.es

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El present Informe, que consta de 12 fulls i 3 annexes, és el criteri fonamentat del tècnic signant, que ha emès segons el seu lleial saber i entendre, opinió que sotmet a qualsevol altra de millor fundada.

Girona, 28 de gener del 2023

Margarita Moll Pons

Enginyer Tècnic en Topografia

Núm. Col. 4515

MARGARITA MOLL PONS

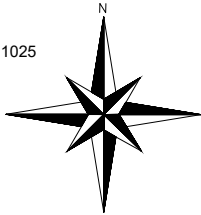
GRAU EN ENGINYERIA GEOMÀTICA I TOPOGRAFIA

PERIT IMMOBILIARI

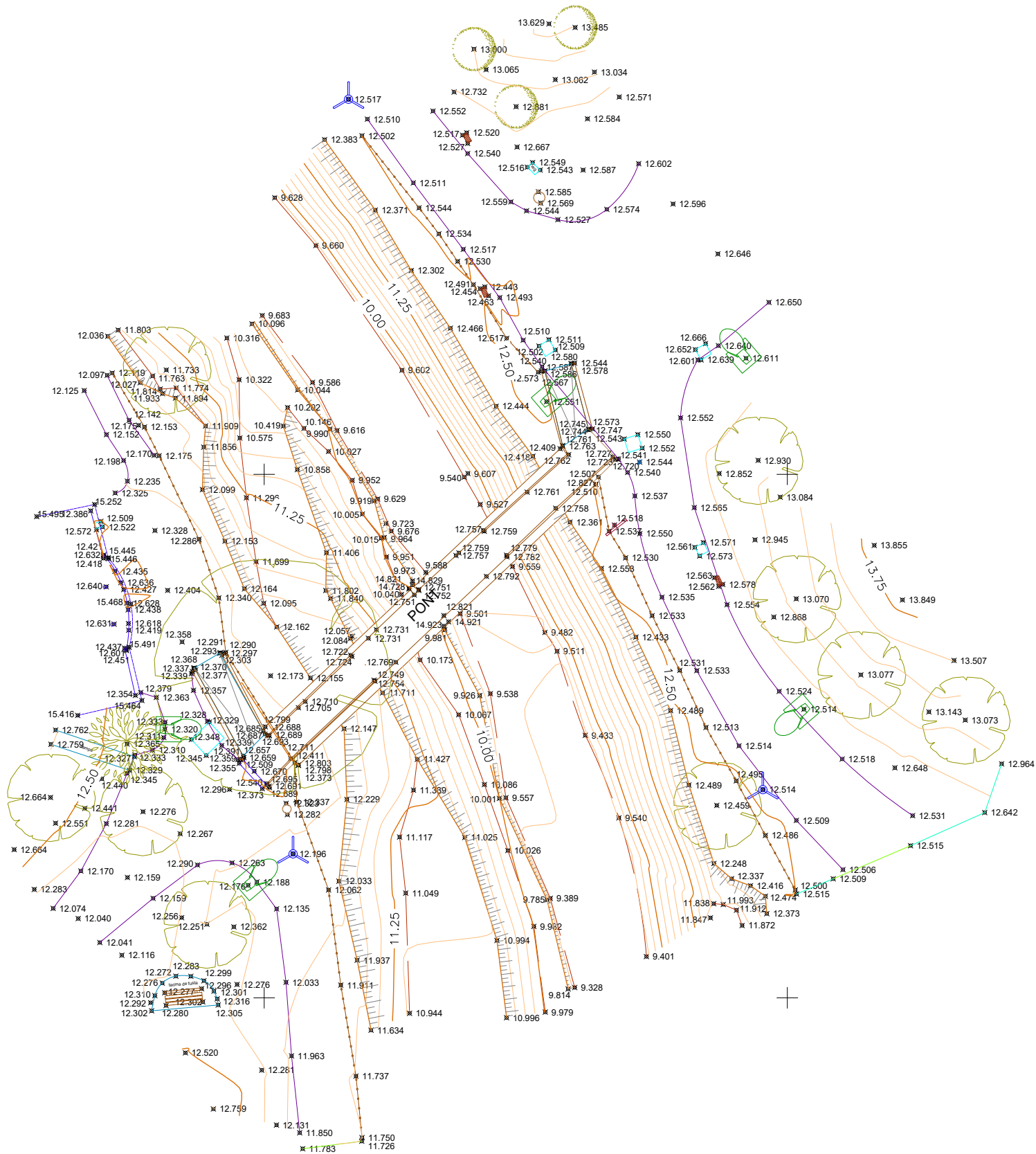
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Col·legiat núm. 4515

I. Plànols 1/5. Aixecament topogràfic.



L·LEGGENDA	
	TAPA AIGUA
	FANAL
	EMBORNAL
	PAPERERA
	BANC
	TANCA FUSTA
	TANCA METÀLICA
	ARBRE
	XIPRER
	ARBUST
	CARTELL
	ESTACIÓ



ENGINYER TÈCNIC EN TOPOGRAFIA

MARGARITA MOLL PONS

Col·legiat: 4515

PROJECTE:

ESTUDI TOPOGRAFIC DELS LÍMITS I SUPERFÍCIE
D'UNA ZONA DEL PARC FRANCESC MACIÀ
MALGRAT DE MAR (BARCELONA)

PROPIETAT DE L'ESTUDI TOPOGRÀFIC:

GMK ASSOCIATS

--

DENOMINACIÓ DEL PLÀNOL:

PLÀNOL GEOREFERENCIAT

--

PROJECCIÓ:

ETRS89

NUM. PLÀNOL:

1/1

ESCALA:

1/250 - A3

DATA:

GENER 2023

REF. PLÀNOL:

GN-06-23