

JOB NUMBER J53201  
PROJECT ID N/A

**LOS ANGELES COUNTY**  
**DEPARTMENT OF PUBLIC WORKS**  
900 SOUTH FREMONT AVENUE  
ALHAMBRA, CA. 91803

### ***LARIAC Ground Control***

SURVEY LIMITS CITY OF L.A., SOUTH L.A. COUNTY & UNINCORPORATED TERRITORY

DESCRIPTION OF WORK ESTABLISH GEODETIC COORDINATES, ELEVATIONS  
AND AERIAL PANELS AT DESIGNATED LOCATIONS.

Establish NAD83 (2011) coordinates on survey centerline monuments

REFERENCE DATA

G25-025

Started October 2025

A. SILVA

L. ROMERO

R. PUGH



REMARKS ESTABLISHED GEODETIC COORDINATES ARE BASED ON NAD 83' (2011), CA ZONE 5, EPOCH 2025.00 (PER CSRC/CRTN)

**POINTS ESTABLISHED BY SINGLE BASELINE SOLUTION FROM (CSRC/CRTN) STATION**

Based upon a minimally constrained, least squares adjustment of the survey measurements, the CCS83 coordinates and geodetic control data shown hereon meet or exceed the 5-centimeter local and network accuracy horizontally and the 1 decimeter local and network accuracy vertically at the 95-percent confidence interval as listed in the spatial accuracy standards published by the Federal Geographic Data Committee (FGDC), in Part 2: Standards for Geodetic Networks, FGDC-STD-007.2-1998.

Project Name: **2025 LARIAC GROUND CONTROL** Station: **NAD83 (2011)** Zone: **CCS83 Zone 5** PCA No.: **J53201**

Station Name	Latitude (NAD83)	Longitude (NAD83)	Ellipsoid (ft)	GEOID: GEOID18(Conus)			Fixed Reference			
				Northing (us ft)	Easting (us ft)	Ellipsoid (ft)		GEOID (N)	Elevation (ft)	
D1019	33°57'57.184416"	-118°07'03.637638"	7.930	1,809,987.7040	6,525,984.0480	26.020	-116.230	142.250	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1020	33°55'14.591422"	-118°07'45.774745"	-5.640	1,793,552.4930	6,524,941.9574	-18.510	-116.870	98.360	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1021	33°52'42.223360"	-118°08'53.766098"	-15.400	1,778,147.4610	6,526,779.1130	-50.540	-117.120	66.580	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1022	33°50'09.914772"	-118°07'14.809610"	-22.430	1,762,752.6350	6,524,986.2850	-73.590	-117.220	43.630	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1023	33°47'26.391663"	-118°07'17.710725"	-31.370	1,746,222.2630	6,524,721.5520	-102.930	-117.140	14.210	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1023A	33°45'13.622894"	-118°07'20.310876"	-33.360	1,732,800.7710	6,524,485.7540	-109.460	-117.020	7.560	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1024	33°00'29.432222"	-118°16'24.184641"	20.090	1,825,470.0900	6,478,811.6200	65.920	-116.500	182.420	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1043	33°57'52.381959"	-118°16'18.104043"	5.650	1,809,592.6850	6,479,280.6100	18.520	-117.250	135.770	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1044	33°55'16.675986"	-118°16'24.184397"	11.570	1,793,853.8980	6,478,725.6500	37.950	-117.660	155.610	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1045	33°52'46.336654"	-118°16'41.308574"	-24.190	1,778,660.1370	6,477,240.4800	-79.380	-117.830	38.450	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1046	33°49'57.413720"	-118°16'41.750541"	-25.290	1,761,583.8370	6,477,155.9420	-82.990	-117.780	34.790	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1047	33°47'30.228252"	-118°16'39.491854"	-27.540	1,746,704.2700	6,477,305.3940	-90.360	-117.670	27.310	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1047A	33°44'39.072671"	-118°16'39.491854"	-24.900	1,729,405.4250	6,476,021.1120	-81.700	-117.600	35.900	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1048	33°44'46.907083"	-118°23'08.631773"	51.160	1,730,302.4160	6,444,397.1450	167.860	-118.550	298.410	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1049	33°44'45.480738"	-118°19'43.465494"	288.230	1,730,066.6480	6,461,722.8350	880.030	-117.720	997.750	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1049A	33°43'17.631477"	-118°17'50.317883"	40.820	1,721,186.0860	6,471,251.8700	133.910	-117.370	251.640	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1050	34°00'26.387973"	-118°29'05.600360"	-11.700	1,825,404.1340	6,414,709.6090	-38.380	-117.370	78.990	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1051	34°00'34.641712"	-118°25'59.372445"	7.590	1,826,166.8920	6,430,391.0930	24.910	-117.140	142.050	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1052	34°00'24.219978"	-118°23'06.393465"	-0.500	1,825,054.1050	6,444,949.1950	-1.640	-117.010	115.370	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1053	34°00'30.163133"	-118°19'39.182365"	2.250	1,825,593.0480	6,462,395.7400	7.390	-116.770	124.160	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1056	34°00'44.590717"	-118°04'00.770059"	22.920	1,826,896.5150	6,541,398.0770	75.200	-114.760	189.960	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1373	34°05'26.116612"	-118°22'45.111981"	59.030	1,855,565.4362	6,446,855.9578	193.680	-114.820	308.500	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1374	34°05'36.420156"	-118°19'51.617321"	61.220	1,856,555.4530	6,461,450.8410	200.840	-114.550	315.420	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1387	34°03'05.435046"	-118°29'02.122284"	74.760	1,841,480.4250	6,415,079.8210	245.270	-116.140	361.420	L.L,ell	CSRC / CRTN 2025.00 EPOCH
D1388	34°03'03.542739"	-118°25'56.839543"	35.970	1,841,218.0700	6,430,669.0830	118.010	-116.140	234.150	L.L,ell	CSRC / CRTN 2025.00 EPOCH



Continuously Operating Reference Station (CSRC/CRTN 2025.00 EPOCH)

Station Name	Latitude	Longitude	Ellipsoid (ft)	Northing (us ft)	Easting (us ft)	Ellipsoid (ft)	GEOID (N)	Elevation (ft)	Fixed Reference
BGIS	33°58'01.626354"	-118°09'34.875629"	3.440	1,810,454.312	6,513,246.131	11.720			L.L,ell CSRC / CRTN 2025.00 EPOCH
BKMS	33°57'44.131366"	-118°05'40.882287"	11.681	1,808,660.818	6,532,953.212	38.680			L.L,ell CSRC / CRTN 2025.00 EPOCH
CSDH	33°51'41.321799"	-118°15'24.149894"	-8.462	1,772,070.489	6,483,729.380	-27.350			L.L,ell CSRC / CRTN 2025.00 EPOCH
HBCO	33°47'01.128768"	-118°17'08.828362"	-26.202	1,743,769.523	6,474,820.913	-85.540			L.L,ell CSRC / CRTN 2025.00 EPOCH
LBC2	33°47'29.795651"	-118°10'23.639049"	-27.730	1,745,589.380	6,509,028.819	-90.560			L.L,ell CSRC / CRTN 2025.00 EPOCH
LBCH	33°47'15.675504"	-118°12'12.004474"	-26.889	1,745,209.412	6,499,879.491	-87.800			L.L,ell CSRC / CRTN 2025.00 EPOCH
LFRS	34°05'42.254826"	-118°24'46.138231"	147.578	1,857,236.913	6,436,663.980	484.180			L.L,ell CSRC / CRTN 2025.00 EPOCH
MHMS	33°56'20.599142"	-118°14'38.842654"	-1.820	1,800,292.991	6,487,618.881	-5.550			L.L,ell CSRC / CRTN 2025.00 EPOCH
NOPK	33°58'47.052580"	-118°20'52.808271"	33.805	1,815,190.588	6,456,161.389	111.320			L.L,ell CSRC / CRTN 2025.00 EPOCH
P799	33°55'39.533007"	-118°18'22.821097"	25.518	1,796,193.326	6,468,794.749	84.000			L.L,ell CSRC / CRTN 2025.00 EPOCH

CORS REFERENCE CONTINUED ON NEXT PAGE

Station Name	Northing - Midpoint (us ft)	Easting - Midpoint (us ft)	Ellipsoid (ft)	Convergence (dms):	Combined Scale Factor:	Average GEOID Ht.:
1419	1777506.2100	6493406.0060	-47.42	-0°07'41.5"	1.00002768	-117.430

  

Station	Lat 2 Sigma (us ft)	Lon 2 Sigma (us ft)	Hgt 2 Sigma (us ft)	Station Name
BGIS	0.006	0.007	0.020	Bell Gardens Int
BKMS	0.007	0.008	0.023	BKMS_SCGN_CS1998
CSDH	0.007	0.007	0.019	CSU Dominguez
HBCO	0.007	0.007	0.023	Harbor College
LBC2	0.006	0.007	0.019	Long Beach CC 2
LBCH	0.007	0.007	0.021	Long Beach
LFRS	0.007	0.007	0.022	LFRS_SCGN_CS1998

**Network Map No.**

**G25-025**

**Surveyor:**

A. SILVA, L. ROMERO  
& R. PUGH

**PAGE 2 OF 3 (CSRC/CRTN 2025.00 EPOCH)**

**OCT. & NOV. 2025**

**Project Name:** 2025 LARIAC GROUND CONTROL

**NAD83 (2011)**

**CCS83 Zone 5**

**PCA No.:** J53201

Station Name	Latitude (NAD 83)	Longitude (NAD 83)	Ellipsoid (h)	GEOID: GEOID18(Conus)			Fixed Reference		
				Northing (us ft)	Easting (us ft)	Ellipsoid (h) Hgt (us ft)		GEOID (N) Hgt (us ft)	Elevation (H) Hgt (us ft)
D1389	34°03'04.395341"	-118°22'43.806620"	-0.700	1,841,238.7100	6,446,911.7480	-2.280	-116.030	113.750	
D1390	34°02'53.298749"	-118°19'48.479441"	20.620	1,840,064.9490	6,461,660.5800	67.640	-115.890	183.530	
D1400	33°57'46.508898"	-118°26'06.506308"	5.680	1,809,176.2450	6,429,716.9550	18.630	-117.860	136.480	
D1401	33°57'53.655099"	-118°22'43.462871"	-5.000	1,809,826.4040	6,446,822.3110	-16.390	-117.600	101.220	
D1402	33°57'52.333289"	-118°19'43.246735"	35.900	1,809,639.3660	6,462,001.4070	117.770	-117.430	235.200	
D1403	33°57'56.028011"	-118°13'20.675988"	6.230	1,809,924.5290	6,494,226.2270	20.440	-117.010	137.450	
D1404	33°57'52.953967"	-118°10'42.758574"	2.620	1,809,587.2460	6,507,526.9450	8.580	-116.760	125.340	
D1405	33°57'52.633091"	-118°03'57.101989"	11.370	1,809,513.2700	6,541,695.4740	37.320	-115.700	153.020	
D1406	33°57'59.018739"	-118°00'55.777971"	78.210	1,810,152.6097	6,556,968.5657	256.590	-115.010	371.590	
D1407	33°58'11.320080"	-117°58'35.434430"	264.300	1,811,397.4706	6,571,814.6946	867.120	-114.340	981.460	
D1407A	33°58'04.025254"	-117°58'35.434430"	157.250	1,810,669.5456	6,587,787.3893	286.070	-114.880	380.950	
D1408	33°57'58.074770"	-117°51'09.222032"	187.430	1,810,089.6105	6,606,373.4811	614.920	-113.070	728.000	
D1411A	33°56'20.312335"	-118°22'38.297508"	-6.530	1,794,323.5400	6,447,199.2030	-21.420	-117.970	96.550	
D1412	33°56'17.844691"	-118°19'22.683040"	-20.530	1,792,137.4840	6,463,677.2710	-67.370	-117.830	50.460	
D1413	33°56'12.595346"	-118°13'25.965600"	-10.100	1,793,934.8920	6,493,745.0550	-33.130	-117.500	84.370	
D1414	33°54'54.355488"	-118°10'12.144994"	-11.120	1,791,528.3732	6,510,074.9902	-36.500	-117.280	80.790	
D1415	33°56'14.777603"	-118°00'25.437928"	-1.900	1,793,557.3927	6,539,304.0203	-6.230	-115.520	238.590	
D1416	33°55'25.437928"	-118°00'02.827786"	37.570	1,794,626.8496	6,561,428.3649	123.070	-115.520	238.590	
D1416A	33°55'28.684943"	-117°58'35.434430"	50.870	1,794,955.9173	6,568,777.4290	166.880	-115.210	282.090	
D1417	33°52'35.843350"	-118°22'58.808602"	10.090	1,777,704.0530	6,445,407.3340	33.110	-118.190	151.300	
D1418	33°52'39.795291"	-118°19'41.723488"	-24.100	1,778,044.7590	6,462,026.5330	-79.070	-117.960	38.900	
D1419	33°52'35.321971"	-118°13'29.552854"	-14.450	1,777,506.2100	6,493,406.0060	-47.420	-117.670	70.250	
D1420	33°52'37.778205"	-118°10'19.077193"	-18.340	1,777,722.8060	6,509,467.1240	-60.170	-117.480	57.310	
D1421	33°52'42.329718"	-118°04'04.238862"	-16.160	1,778,145.2170	6,541,073.1600	-53.010	-116.700	63.690	



Station Name	Latitude (NAD 83)	Longitude (NAD 83)	Ellipsoid (h)	GEOID: GEOID18(Conus)			Fixed Reference		
				Northing (us ft)	Easting (us ft)	Ellipsoid (h) Hgt (us ft)		GEOID (N) Hgt (us ft)	Elevation (H) Hgt (us ft)
P800	34°01'18.083040"	-118°20'56.607030"	-1.616	1,830,459.130	6,455,894.496	-5.300	///	///	CSRC / CRTN 2025.00 EPOCH
PVE3	33°44'35.871006"	-118°24'15.287469"	71.726	1,729,208.889	6,438,763.635	235.740	///	///	CSRC / CRTN 2025.00 EPOCH
PVHS	33°46'46.037689"	-118°22'19.759716"	260.262	1,742,329.858	6,448,568.944	854.290	///	///	CSRC / CRTN 2025.00 EPOCH
RHCG	34°00'03.247911"	-118°00'48.023488"	339.358	1,822,710.738	6,557,623.382	1,113.790	///	///	CSRC / CRTN 2025.00 EPOCH
RHCL	34°01'08.583805"	-118°01'34.178743"	177.558	1,829,316.240	6,553,739.110	582.900	///	///	CSRC / CRTN 2025.00 EPOCH
SCIP	32°54'51.943808"	-118°29'16.546621"	453.542	1,427,646.958	6,411,857.249	1,488.000	///	///	CSRC / CRTN 2025.00 EPOCH
TORP	33°47'52.076454"	-118°19'50.140227"	-4.540	1,748,961.601	6,461,221.195	-14.480	///	///	CSRC / CRTN 2025.00 EPOCH
VTIS	33°42'45.507273"	-118°17'37.730688"	60.173	1,717,935.470	6,472,305.674	197.420	///	///	CSRC / CRTN 2025.00 EPOCH
WHC1	33°56'47.587159"	-118°01'52.176069"	94.890	1,815,053.456	6,552,919.755	311.730	///	///	CSRC / CRTN 2025.00 EPOCH
WRHS	33°57'29.350014"	-118°25'39.351977"	8.553	1,807,428.865	6,431,996.822	28.060	///	///	CSRC / CRTN 2025.00 EPOCH

**END OF CORS/CRTN REFERENCE**

**Convergence and Combined Factor calculated at mean position between:**

ACCESS ROAD	and	NOBASE	
Station Name	Northing - Midpoint (us ft)	Easting - Midpoint (us ft)	Ellipsoid (h) Hgt (us ft)
1419	1777506.21	6493406.006	-47.42

**Convergence (ppm):** -0°07'41.5"  
**Combined Scale Factor:** 1.00002768  
**Average GEOID Ht.:** -117.430

**CORS Sigma**

Station Identifier	Lat 2 Sigma (us ft)	Lon 2 Sigma (us ft)	Hgt 2 Sigma (us ft)	Station Name
P800	0.008	0.008	0.025	Dorsey/HighCA2011
PVE3	0.007	0.007	0.018	Palos Verdes
PVHS	0.007	0.007	0.019	Peninsula High S
RHCG	0.007	0.007	0.023	RHCL_SCGN_CS1998
RHCL	0.007	0.007	0.022	Rose Hills Cemert
SCIP	0.007	0.007	0.019	San Clemente Isl
TORP	0.007	0.006	0.021	Torrance Airport

