

PUNTOS GPS (SISTEMA DE POSICIONAMIENTO GLOBAL)  
ITRF 94 - EPOCA 1995-4  
UTM - WGS 84

COORDENADAS INICIO TRAMO

NORTE	ESTE
9188025.319	813698.967

INICIO TRAMO  
km 0+000

PUNTOS PRINCIPALES GNSS

PUNTO	COORDENADAS UTM		COTA NIVELACION
	ESTE	NORTE	
GPS_PB-01	819737.339	8187871.412	2318.484
GPS_PB-02	818808.344	8185472.235	2589.879
GPS_PB-03/BM-19	817531.054	8182317.837	2672.705
GPS_PB-04	818063.841	8177192.017	2413.772
GPS_PB-05/BM-09	819300.974	8176292.734	2123.208
GPS_PB-06/BM-49	817887.896	8172403.076	2020.983
GPS_PB-07/BM-69	819293.004	8168766.641	2049.017
GPS_PB-08/BM-69	819142.382	8163935.790	2081.090
GPS_PB-09/BM-78	818609.840	8159802.322	2100.888
GPS_PB-10	819502.482	8168738.128	2283.820
GPS_PB-11	821770.329	8167646.817	2647.876
GPS_PB-12	825028.279	8167410.786	2644.195
GPS_PB-13	826732.382	8165026.259	2616.171

PUNTOS DE POLIGONAL PRINCIPAL

PUNTO	COORDENADAS UTM		COTA NIVELACION
	ESTE	NORTE	
GPS_P-1	819396.864	8187907.872	2288.946
GPS_P-2	819880.880	8187875.946	2290.233
GPS_P-3	814272.379	8187893.902	2303.369
GPS_P-4	814314.347	8187824.837	2306.694
GPS_P-5	814476.003	8187492.729	2314.562
GPS_P-6	814708.279	8187408.911	2322.989
GPS_P-7	814780.088	8187344.782	2326.801
GPS_P-8	814893.011	8187284.304	2330.981
GPS_P-9	814843.561	8187056.844	2337.177
GPS_P-10	815146.034	8186821.670	2348.501
GPS_P-11	815140.642	8186803.458	2349.698
GPS_P-12	815061.545	8186780.463	2356.960
GPS_P-13	815048.693	8186741.054	2368.203
GPS_P-14	815117.841	8186596.108	2373.489
GPS_P-15	815454.956	8186327.148	2402.723
GPS_P-16	815584.709	8186191.737	2423.834
GPS_P-17	815718.350	8186106.539	2437.299
GPS_P-18	815736.155	8186044.777	2442.413
GPS_P-19	815846.267	8185246.725	2455.061
GPS_P-20	815844.611	8185068.137	2458.559
GPS_P-21	816040.339	8185766.090	2479.798
GPS_P-22	816092.317	8185991.138	2487.645
GPS_P-23	816151.384	8185887.284	2500.275
GPS_P-24	816165.832	8185801.070	2504.424
GPS_P-25	816787.562	8185535.825	2549.019
GPS_P-26	816878.889	8185589.249	2553.089
GPS_P-27	816899.567	8185560.132	2564.111
GPS_P-28	816784.167	8185389.540	2574.544
GPS_P-29	816864.322	8185310.002	2580.136
GPS_P-30	817155.104	8185016.849	2589.976
GPS_P-31	817183.099	8184872.693	2597.796
GPS_P-32	817135.271	8184822.147	2598.307
GPS_P-33	817163.496	8184780.878	2605.396
GPS_P-34	817010.033	8184592.259	2608.561
GPS_P-35	816963.824	8184534.307	2607.429
GPS_P-36	816993.311	8184466.889	2606.889
GPS_P-37	816870.748	8184121.776	2598.130
GPS_P-38	816807.307	8183977.117	2600.969
GPS_P-39	816844.923	8183876.789	2607.765
GPS_P-40	816856.380	8183812.662	2611.709
GPS_P-41	817084.793	8183564.248	2628.147
GPS_P-43	817366.419	8182668.021	2674.914
GPS_P-44	817476.089	8182591.201	2671.948
GPS_P-45	817474.349	8182217.623	2668.404
GPS_P-46	817408.096	8181773.964	2677.503
GPS_P-47	817501.493	8181493.513	2667.107
GPS_P-48	817848.999	8179818.486	2633.222
GPS_P-49	817919.492	8178444.030	2636.763
GPS_P-50	818038.128	8178679.540	2473.082

PUNTOS DE CONTROL VERTICAL (BMs)

PUNTO	COORDENADAS UTM		COTA NIVELACION
	ESTE	NORTE	
GPS_BM-0	813708.105	8189066.828	2278.885
GPS_BM-1	814440.775	8187726.028	2280.700
GPS_BM-2	814800.216	8187493.087	2318.354
GPS_BM-3	814899.915	8187096.884	2338.182
GPS_BM-4	815134.800	8186869.798	2368.348
GPS_BM-5	815601.385	8186442.755	2408.848
GPS_BM-6	815788.251	8186095.747	2446.228
GPS_BM-7	815989.530	8185893.415	2467.014
GPS_BM-8	816213.067	8186043.013	2493.332
GPS_BM-9	816367.658	8185832.130	2516.509
GPS_BM-10	816532.856	8185545.211	2537.886
GPS_BM-11	816871.110	8185292.511	2561.049
GPS_BM-12	817082.095	8185201.670	2582.845
GPS_BM-13	817087.035	8184738.787	2610.383
GPS_BM-14	816871.299	8184243.335	2600.221
GPS_BM-15	817000.214	8183812.732	2618.751
GPS_BM-16	817289.688	8183323.652	2656.176
GPS_BM-17	817383.045	8182846.644	2670.733
GPS_BM-18/PB-03	817551.054	8182317.837	2672.706
GPS_BM-19	817558.401	8181853.888	2668.198
GPS_BM-20	817402.421	8181432.298	2649.873
GPS_BM-21	817361.321	8180879.660	2674.100
GPS_BM-22	817640.386	8180429.570	2647.800
GPS_BM-23	818085.052	8180271.389	2614.952
GPS_BM-24	818034.474	8179982.243	2579.687
GPS_BM-25	817883.056	8179879.661	2545.720
GPS_BM-26	817937.468	8179356.318	2522.015
GPS_BM-27/AZ-04	817886.082	8178885.618	2490.696

LEYENDA

- POLIGONAL DE APOYO
- EJE PROYECTADO
- CARRETERA EXISTENTE
- PUNTOS DE CONTROL HORIZONTAL (GPS-AZ)
- PUNTOS DE CONTROL HORIZONTAL (GPS-PB)
- PUNTOS DE POLIGONAL (GPS-P)
- PUNTOS DE CONTROL VERTICAL (BM)

**Ministerio de Transportes y Comunicaciones**  
 Provias Nacional

**HOB CONSULTORES S.A.**  
 CALLE AGUADA BLANCA N° 102 - LIMA 33 - PERU  
 TELEFONO 715-8111 FAX: 715-8324  
 Email: hob@hobperu.com

Jefe Estudio: **ING. CESAR GUEVARA M.** Aprobación: \_\_\_\_\_  
 Especialista: **JUAN ECHEZAR DEL AGUILA**  
 Revisión: **Rev**  
 Proceso y Ploteo: **M.CHAFLOQUE**

REVISIONES

N°	FECHA	DESCRIPCION

**ESTUDIO DEFINITIVO PARA EL MEJORAMIENTO DE LA CARRETERA: SAN MARCOS-CAJABAMBA-SAUSACOCCHA**  
**TRAMO: SAN MARCOS-CAJABAMBA**  
 CONTRATO N° 008-2011-MTC/20

**PLANO DE GEOREFERENCIACION COORDENADAS UTM**  
 ESCALA FORMATO A1: 1/15 000  
 ESCALA FORMATO A3: 30 000

FECHA: **MAYO 2012**  
**008-11-PGUM-01**