ANEXO 1

LEVANTAMIENTO TOPGRÁFICO

PNTO	ANGULOS				AZIMUT	CORRECIÓN	AZ CORREGIDO		DISTANCIA
	G	M	S	DECIMAL			DECIMAL	RADIAN	
PF					66.4724		66.4724	1.1602	265.585
BM47	197	49	21.57	197.8227	84.2950	-0.000089	84.2951	1.4712	80.891
BM46	154	35	5.09	154.5847	58.8798	-0.000179	58.8800	1.0277	40.071
BM45	209	30	7.05	209.5020	88.3818	-0.000268	88.3820	1.5426	58.924
BM44	124	50	46.79	124.8463	33.2281	-0.000357	33.2284	0.5799	56.481
BM43	196	19	36.45	196.3268	49.5549	-0.000447	49.5553	0.8649	103.465
BM42	137	47	17.37	137.7882	7.3430	-0.000536	7.3436	0.1282	117.675
BM41	246	28	23.07	246.4731	73.8161	-0.000625	73.8167	1.2883	80.155
BM40	212	12	7.79	212.2022	106.0183	-0.000714	106.0190	1.8504	107.453
BM39	92	21	51.72	92.3644	18.3826	-0.000804	18.3834	0.3209	67.890
BM38	163	11	3.22	163.1842	1.5669	-0.000893	1.5678	0.0274	78.263
BM37	151	9	30.86	151.1586	332.7254	-0.000982	332.7264	5.8072	36.115
BM36	270	26	27.72	270.4410	63.1665	-0.001072	63.1675	1.1025	60.605
BM35	146	6	5.84	146.1016	29.2681	-0.001161	29.2693	0.5108	98.898
BM34	166	57	20.38	166.9557	16.2238	-0.001250	16.2250	0.2832	120.728
BM33	177	28	37.23	177.4770	13.7008	-0.001340	13.7021	0.2391	256.406
BM32	194	26	20.18	194.4389	28.1397	-0.001429	28.1411	0.4912	136.380
BM31	178	44	36.65	178.7435	26.8832	-0.001518	26.8847	0.4692	62.012
BM30	222	49	30.98	222.8253	69.7085	-0.001607	69.7101	1.2167	121.426
BM29	252	13	32.46	252.2257	141.9342	-0.001697	141.9359	2.4773	62.610
BM28	65	6	51.95	65.1144	27.0486	-0.001786	27.0504	0.4721	92.733
BM27	221	20	42.51	221.3451	68.3937	-0.001875	68.3956	1.1937	123.756
BM26	202	53	58.05	202.8995	91.2932	-0.001965	91.2952	1.5934	206.898
BM25	130	37	55.39	130.6321	41.9253	-0.002054	41.9273	0.7318	121.677
BM24	155	8	28.98	155.1414	17.0666	-0.002143	17.0688	0.2979	120.271
BM23	172	4	26.7	172.0741	9.1407	-0.002233	9.1430	0.1596	92.849
BM22	130	17	20.05	130.2889	319.4296	-0.002322	319.4319	5.5752	76.355
BM21	154	29	11.18	154.4864	293.9161	-0.002411	293.9185	5.1299	26.320
BM20	254	25	30.34	254.4251	8.3412	-0.002500	8.3437	0.1456	74.862
BM19	225	50	55.05	225.8486	54.1898	-0.002590	54.1924	0.9458	110.955
BM18	136	6	2.33	136.1006	10.2904	-0.002679	10.2931	0.1796	160.044
BM17	159	39	10.61	159.6529	349.9434	-0.002768	349.9461	6.1077	49.135
BM16	198	17	7.94	198.2855	8.2289	-0.002858	8.2318	0.1437	86.915
BM15	181	3	2.41	181.0507	9.2796	-0.002947	9.2825	0.1620	163.409
BM14	201	19	41.7	201.3283	30.6078	-0.003036	30.6109	0.5343	382.376
BM13	158	17	29.66	158.2916	8.8994	-0.003126	8.9025	0.1554	254.686
BM12	189	11	51.12	189.1975	18.0969	-0.003215	18.1002	0.3159	92.201
BM11	175	42	17.6	175.7049	13.8018	-0.003304	13.8051	0.2409	99.596
BM10	126	40	42.53	126.6785	320.4803	-0.003393	320.4837	5.5935	112.392
BM9	231	3	7.18	231.0520	11.5323	-0.003483	11.5358	0.2013	84.384
BM8	152	17	4.9	152.2847	343.8170	-0.003572	343.8206	6.0008	68.567
BM7	102	59	50.02	102.9972	266.8142	-0.003661	266.8179	4.6569	85.652
BM6	147	17	55.53	147.2988	234.1130	-0.003751	234.1167	4.0861	83.130
BM5	241	38	40.76	241.6447	295.7576	-0.003840	295.7615	5.1620	121.924
BM4	227	46	48.87	227.7802	343.5379	-0.003929	343.5418	5.9959	178.664
BM3	282	56	1.38	282.9337	86.4716	-0.004019	86.4756	1.5093	88.657
BM2	110	26	35.75	110.4433	16.9149	-0.004108	16.9190	0.2953	97.453
BM1	228	12	17.66	228.2049	65.1198	-0.004197	65.1240	1.1366	116.908
PI									
TOTAL									5384.802

AZIMUT INICIO			
G	M	S	DECIMAL
66	28	20.59	66.4724

ERROR
-0.004197

AZ FINAL DATO			
G	M	S	DECIMAL
65	7	26.27	65.1240

TOLERANCIA	
SEGUNDOS	DECIMAL
205.67	0.0571

N° VERTICES= 47

PROYECCIONES		CORRECIÓN		PROYECCIÓN CORREG..		COORDENADAS	
N	E	N	E	N	E	N	E
106.01848	243.5066195	-0.002596619	0.000458866	106.01589	243.50708	7567945.710	313070.350
8.0406332	80.49038513	-0.00079087	0.00013976	8.0398423	80.490525	7568051.726	313313.857
20.709918	34.30429031	-0.000391773	6.92328E-05	20.709526	34.30436	7568059.766	313394.348
1.663528	58.90051316	-0.000576099	0.000101806	1.6629519	58.900615	7568080.475	313428.652
47.245887	30.95043601	-0.000552214	9.75853E-05	47.245335	30.950534	7568082.138	313487.553
67.118991	78.74037881	-0.001011575	0.000178762	67.11798	78.740558	7568129.384	313518.503
116.70977	15.04111052	-0.001150506	0.000203313	116.70862	15.041314	7568196.502	313597.244
22.339823	76.97893438	-0.000783674	0.000138488	22.339039	76.979073	7568313.210	313612.285
-29.652729	103.2805057	-0.001050566	0.000185652	-29.65378	103.28069	7568335.549	313689.264
64.425367	21.41084152	-0.000663759	0.000117297	64.424704	21.410959	7568305.895	313792.545
78.233704	2.141210699	-0.000765176	0.000135219	78.232938	2.1413459	7568370.320	313813.956
32.10027	-16.5488935	-0.000353096	6.23978E-05	32.099917	-16.548831	7568448.553	313816.097
27.355935	54.0797451	-0.000592534	0.000104711	27.355343	54.07985	7568480.653	313799.548
86.27181	48.35275851	-0.000966924	0.000170871	86.270843	48.352929	7568508.008	313853.628
115.9196	33.7327038	-0.001180355	0.000208588	115.91842	33.732912	7568594.279	313901.981
249.10876	60.73599417	-0.002506876	0.000443007	249.10626	60.736437	7568710.198	313935.714
120.25825	64.32308052	-0.001333385	0.000235631	120.25691	64.323316	7568959.304	313996.450
55.309592	28.04170418	-0.00060629	0.000107141	55.308986	28.041811	7569079.561	314060.774
42.106621	113.8916411	-0.00118718	0.000209794	42.105434	113.89185	7569134.870	314088.815
-49.294399	38.60148083	-0.000612137	0.000108175	-49.295011	38.601589	7569176.975	314202.707
82.588607	42.17263716	-0.000906649	0.00016022	82.5877	42.172797	7569127.680	314241.309
45.566103	115.0620606	-0.00120996	0.00021382	45.564893	115.06227	7569210.268	314283.482
-4.6772785	206.8451244	-0.002022838	0.000357469	-4.6793013	206.84548	7569255.833	314398.544
90.526719	81.30317041	-0.001189634	0.000210228	90.525529	81.303381	7569251.153	314605.389
114.97341	35.30195996	-0.001175887	0.000207799	114.97223	35.302168	7569341.679	314686.693
91.669345	14.75357703	-0.000907783	0.00016042	91.668437	14.753737	7569456.651	314721.995
58.002503	-49.6567792	-0.000746521	0.000131923	58.001756	-49.656647	7569548.320	314736.749
10.671373	-24.059597	-0.00025733	4.54745E-05	10.671115	-24.059551	7569606.321	314687.092
74.06962	10.86325901	-0.000731924	0.000129343	74.068888	10.863388	7569616.993	314663.033
64.915763	89.98308602	-0.001084805	0.000191703	64.914678	89.983278	7569691.061	314673.896
157.46833	28.59734336	-0.001564747	0.000276517	157.46676	28.59762	7569755.976	314763.879
48.38061	-8.57699246	-0.000480392	8.48932E-05	48.38013	-8.5769076	7569913.443	314792.477
86.01951	12.444324	-0.000849766	0.000150168	86.01866	12.444474	7569961.823	314783.900
161.26914	26.35840961	-0.001597646	0.000282331	161.26754	26.358692	7570047.842	314796.344
329.08992	194.708067	-0.003738482	0.000660652	329.08618	194.70873	7570209.109	314822.703
251.61779	39.41377659	-0.00249006	0.000440035	251.6153	39.414217	7570538.195	315017.412
87.638403	28.64497745	-0.000901447	0.000159301	87.637501	28.645137	7570789.811	315056.826
96.718948	23.76569593	-0.000973748	0.000172077	96.717974	23.765868	7570877.448	315085.471
86.705026	-71.5136357	-0.001098854	0.000194186	86.703927	-71.513442	7570974.166	315109.237
82.679435	16.8751456	-0.000825021	0.000145795	82.67861	16.875291	7571060.870	315037.724
65.851589	-19.1050196	-0.000670378	0.000118467	65.850918	-19.104901	7571143.549	315054.599
-4.7535952	-85.5199885	-0.000837418	0.000147986	-4.7544326	-85.519841	7571209.400	315035.494
-48.724821	-67.353461	-0.00081276	0.000143628	-48.725634	-67.353317	7571204.645	314949.974
52.992629	-109.805478	-0.001192048	0.000210655	52.991437	-109.80527	7571155.920	314882.621
171.34426	-50.6158958	-0.001746794	0.000308687	171.34251	-50.615587	7571208.911	314772.816
5.4497282	88.48934462	-0.000866798	0.000153177	5.4488614	88.489498	7571380.253	314722.200
93.23495	28.3607343	-0.000952796	0.000168375	93.233998	28.360903	7571385.702	314810.689
49.177817	106.0614103	-0.001143007	0.000201988	49.176674	106.06161	7571478.936	314839.050
						7571528.113	314945.112
3582.456	1874.753	-0.053	0.009	3582.403	1874.762		

	COORDENADAS DATO	
	N	E
INICIO	7567945.71	313070.35
FINAL	7571528.113	314945.112
DIF. =	3582.403	1874.762

ERROR LINEAL

N	E
0.053	-0.009
-0.053	0.009

PNTO	COORDENADAS	
	N	E
PI	7571528.11	314945.112
BM1	7571478.94	314839.05
BM2	7571385.7	314810.689
BM3	7571380.25	314722.2
BM4	7571208.91	314772.816
BM5	7571155.92	314882.621
BM6	7571204.65	314949.974
BM7	7571209.4	315035.494
BM8	7571143.55	315054.599
BM9	7571060.87	315037.724
BM10	7570974.17	315109.237
BM11	7570877.45	315085.471
BM12	7570789.81	315056.826
BM13	7570538.2	315017.412
BM14	7570209.11	314822.703
BM15	7570047.84	314796.344
BM16	7569961.82	314783.9
BM17	7569913.44	314792.477
BM18	7569755.98	314763.879
BM19	7569691.06	314673.896
BM20	7569616.99	314663.033
BM21	7569606.32	314687.092
BM22	7569548.32	314736.749
BM23	7569456.65	314721.995
BM24	7569341.68	314686.693

PNTO	COORDENADAS	
	N	E
BM25	7569251.15	314605.389
BM26	7569255.83	314398.544
BM27	7569210.27	314283.482
BM28	7569127.68	314241.309
BM29	7569176.98	314202.707
BM30	7569134.87	314088.815
BM31	7569079.56	314060.774
BM32	7568959.3	313996.45
BM33	7568710.2	313935.714
BM34	7568594.28	313901.981
BM35	7568508.01	313853.628
BM36	7568480.65	313799.548
BM37	7568448.55	313816.097
BM38	7568370.32	313813.956
BM39	7568305.9	313792.545
BM40	7568335.55	313689.264
BM41	7568313.21	313612.285
BM42	7568196.5	313597.244
BM43	7568129.38	313518.503
BM44	7568082.14	313487.553
BM45	7568080.48	313428.652
BM46	7568059.77	313394.348
BM47	7568051.73	313313.857
PF	7567945.71	313070.35

Diseño estructural de ingeniería vial tramo Rosillas - San Francisco

Reporte topográfico

Nº	Este	Norte	Altura
1	312817.485	7567255.063	2204.693
2	312817.596	7567275.063	2204.750
3	312837.596	7567274.952	2202.902
4	312817.707	7567295.063	2204.153
5	312837.707	7567294.952	2202.669
6	312857.707	7567294.841	2202.505
7	312797.819	7567315.173	2204.750
8	312817.818	7567315.062	2202.677
9	312837.818	7567314.951	2200.809
10	312857.818	7567314.840	2200.444
11	312877.818	7567314.729	2202.407
12	312797.930	7567335.173	2204.490
13	312817.930	7567335.062	2202.365
14	312837.929	7567334.951	2200.444
15	312857.929	7567334.840	2198.494
16	312877.929	7567334.729	2200.352
17	312897.928	7567334.618	2202.309
18	312778.041	7567355.284	2204.740
19	312798.041	7567355.173	2203.572
20	312818.041	7567355.062	2201.469
21	312838.040	7567354.951	2199.362
22	312858.040	7567354.840	2197.081
23	312878.040	7567354.729	2197.887
24	312898.039	7567354.618	2200.260
25	312918.039	7567354.507	2202.212
26	312778.152	7567375.283	2202.811
27	312798.152	7567375.172	2202.450
28	312818.152	7567375.061	2200.478
29	312838.151	7567374.950	2198.343
30	312858.151	7567374.839	2195.767
31	312878.151	7567374.728	2196.203
32	312898.150	7567374.617	2197.472
33	312918.150	7567374.506	2200.108
34	312938.150	7567374.395	2202.114
35	312758.264	7567395.394	2204.576
36	312778.263	7567395.283	2201.505
37	312798.263	7567395.172	2201.205
38	312818.263	7567395.061	2199.826
39	312838.262	7567394.950	2197.885
40	312858.262	7567394.839	2194.904
41	312878.262	7567394.728	2194.779
42	312898.261	7567394.617	2195.324
43	312918.261	7567394.506	2197.268
44	312938.261	7567394.395	2199.904
45	312958.260	7567394.284	2202.016
46	312758.375	7567415.394	2201.707
47	312778.374	7567415.283	2200.471
48	312798.374	7567415.172	2200.253
49	312818.374	7567415.061	2198.986
50	312838.373	7567414.950	2196.747
51	312858.373	7567414.839	2194.355
52	312878.373	7567414.728	2193.023
53	312898.372	7567414.617	2193.909
54	312918.372	7567414.506	2194.645
55	312938.372	7567414.395	2197.063
56	312958.371	7567414.284	2199.699
57	312978.371	7567414.173	2201.918
58	312738.486	7567435.505	2202.305
59	312758.486	7567435.394	2201.105
60	312778.485	7567435.283	2199.921
61	312798.485	7567435.172	2199.112
62	312818.485	7567435.060	2198.404
63	312838.484	7567434.949	2197.125
64	312858.484	7567434.838	2194.223
65	312878.484	7567434.727	2190.574
66	312898.483	7567434.616	2192.021
67	312918.483	7567434.505	2193.034
68	312938.483	7567434.394	2194.282
69	312958.483	7567434.283	2196.859
70	312978.482	7567434.172	2199.494
71	312998.482	7567434.061	2201.820
72	312738.597	7567455.504	2201.812
73	312758.597	7567455.393	2200.583
74	312778.596	7567455.282	2199.400
75	312798.596	7567455.171	2198.230
76	312818.596	7567455.060	2198.025
77	312838.595	7567454.949	2196.802

Nº	Este	Norte	Altura
952	313945.351	7568668.824	2187.655
953	313965.351	7568668.713	2183.592
954	313985.350	7568668.602	2181.863
955	313865.463	7568689.268	2202.799
956	313885.463	7568689.157	2199.485
957	313905.463	7568689.046	2194.240
958	313925.462	7568688.935	2189.912
959	313945.462	7568688.824	2187.699
960	313965.462	7568688.712	2181.901
961	313985.462	7568688.601	2181.474
962	313865.574	7568709.267	2201.669
963	313885.574	7568709.156	2198.340
964	313905.574	7568709.045	2194.081
965	313925.573	7568708.934	2191.368
966	313945.573	7568708.823	2188.943
967	313965.573	7568708.712	2181.705
968	313985.573	7568708.601	2182.399
969	313865.685	7568729.267	2201.913
970	313885.685	7568729.156	2196.590
971	313905.685	7568729.045	2193.822
972	313925.684	7568728.934	2191.024
973	313945.684	7568728.823	2188.270
974	313965.684	7568728.712	2180.990
975	313985.684	7568728.601	2183.834
976	313865.796	7568749.267	2201.578
977	313885.796	7568749.156	2197.816
978	313905.796	7568749.045	2193.220
979	313925.796	7568748.934	2189.725
980	313945.795	7568748.823	2186.726
981	313965.795	7568748.712	2180.851
982	313985.795	7568748.601	2183.581
983	314005.794	7568748.490	2192.008
984	314025.794	7568748.378	2197.224
985	313865.907	7568769.266	2201.202
986	313885.907	7568769.155	2197.399
987	313905.907	7568769.044	2192.706
988	313925.907	7568768.933	2189.000
989	313945.906	7568768.822	2185.694
990	313965.906	7568768.711	2181.640
991	313985.906	7568768.600	2183.394
992	314005.905	7568768.489	2191.808
993	314025.905	7568768.378	2197.223
994	313866.019	7568789.266	2200.349
995	313886.018	7568789.155	2197.075
996	313906.018	7568789.044	2191.493
997	313926.018	7568788.933	2188.056
998	313946.017	7568788.822	2185.385
999	313966.017	7568788.711	2182.884
1000	313986.017	7568788.600	2181.621
1001	314006.016	7568788.489	2192.389
1002	314026.016	7568788.378	2198.345
1003	313866.130	7568809.266	2199.403
1004	313886.129	7568809.155	2197.813
1005	313906.129	7568809.044	2190.736
1006	313926.129	7568808.933	2187.619
1007	313946.128	7568808.822	2185.415
1008	313966.128	7568808.711	2183.270
1009	313986.128	7568808.600	2181.880
1010	314006.127	7568808.489	2191.233
1011	314026.127	7568808.378	2199.711
1012	313886.240	7568829.154	2197.408
1013	313906.240	7568829.043	2192.188
1014	313926.240	7568828.932	2189.160
1015	313946.239	7568828.821	2186.660
1016	313966.239	7568828.710	2184.182
1017	313986.239	7568828.599	2182.026
1018	314006.238	7568828.488	2192.335
1019	314026.238	7568828.377	2200.750
1020	313906.351	7568849.043	2192.721
1021	313926.351	7568848.932	2189.500
1022	313946.350	7568848.821	2187.201
1023	313966.350	7568848.710	2185.329
1024	313986.350	7568848.599	2181.710
1025	314006.349	7568848.488	2190.444
1026	314026.349	7568848.377	2198.371
1027	313906.462	7568869.043	2193.348
1028	313926.462	7568868.932	2190.314

Nº	Este	Norte	Altura
1903	314874.330	7570283.692	2193.816
1904	314794.442	7570304.135	2206.882
1905	314814.442	7570304.024	2201.859
1906	314834.442	7570303.913	2197.716
1907	314854.441	7570303.802	2195.252
1908	314874.441	7570303.691	2190.789
1909	314794.553	7570324.135	2207.709
1910	314814.553	7570324.024	2203.782
1911	314834.553	7570323.913	2198.984
1912	314854.553	7570323.802	2197.429
1913	314874.552	7570323.691	2193.109
1914	314894.552	7570323.580	2191.646
1915	314794.664	7570344.135	2207.895
1916	314814.664	7570344.024	2205.226
1917	314834.664	7570343.913	2201.280
1918	314854.664	7570343.802	2198.688
1919	314874.663	7570343.691	2196.129
1920	314894.663	7570343.580	2193.947
1921	314914.663	7570343.469	2191.808
1922	314934.662	7570343.358	2191.159
1923	314954.662	7570343.247	2189.078
1924	314974.662	7570343.136	2190.341
1925	314994.661	7570343.025	2191.354
1926	314794.776	7570364.134	2206.005
1927	314814.775	7570364.023	2204.995
1928	314834.775	7570363.912	2202.536
1929	314854.775	7570363.801	2199.749
1930	314874.774	7570363.690	2198.175
1931	314894.774	7570363.579	2195.996
1932	314914.774	7570363.468	2193.803
1933	314934.773	7570363.357	2191.447
1934	314954.773	7570363.246	2188.927
1935	314974.773	7570363.135	2188.873
1936	314994.772	7570363.024	2189.548
1937	314794.887	7570384.134	2203.900
1938	314814.886	7570384.023	2202.985
1939	314834.886	7570383.912	2201.866
1940	314854.886	7570383.801	2200.671
1941	314874.885	7570383.690	2199.150
1942	314894.885	7570383.579	2197.614
1943	314914.885	7570383.468	2195.770
1944	314934.884	7570383.357	2192.616
1945	314954.884	7570383.246	2189.536
1946	314974.884	7570383.135	2187.019
1947	314994.883	7570383.024	2188.445
1948	315014.883	7570382.913	2191.134
1949	314834.997	7570403.912	2200.040
1950	314854.997	7570403.801	2199.750
1951	314874.996	7570403.690	2198.895
1952	314894.996	7570403.579	2198.059
1953	314914.996	7570403.468	2196.664
1954	314934.995	7570403.357	2194.027
1955	314954.995	7570403.246	2190.375
1956	314974.995	7570403.135	2187.258
1957	314994.994	7570403.024	2186.874
1958	315014.994	7570402.913	2187.731
1959	314835.108	7570423.911	2198.568
1960	314855.108	7570423.800	2197.828
1961	314875.107	7570423.689	2197.682
1962	314895.107	7570423.578	2197.720
1963	314915.107	7570423.467	2197.089
1964	314935.106	7570423.356	2195.362
1965	314955.106	7570423.245	2192.026
1966	314975.106	7570423.134	2188.104
1967	314995.106	7570423.023	2186.129
1968	315015.105	7570422.912	2186.378
1969	314875.218	7570443.689	2196.278
1970	314895.218	7570443.578	2196.295
1971	314915.218	7570443.467	2196.290
1972	314935.217	7570443.356	2195.640
1973	314955.217	7570443.245	2193.757
1974	314975.217	7570443.134	2189.360
1975	314995.217	7570443.023	2185.959
1976	315015.216	7570442.912	2184.611
1977	315035.216	7570442.801	2186.712
1978	314875.329	7570463.689	2195.066
1979	314895.329	7570463.578	2194.531

78	312858.595	7567454.838	2194.425
79	312878.595	7567454.727	2188.841
80	312898.594	7567454.616	2189.381
81	312918.594	7567454.505	2190.838
82	312938.594	7567454.394	2192.155
83	312958.594	7567454.283	2194.018
84	312978.593	7567454.172	2196.654
85	312998.593	7567454.061	2199.290
86	313018.593	7567453.950	2201.722
87	312738.708	7567475.504	2202.791
88	312758.708	7567475.393	2200.172
89	312778.707	7567475.282	2198.913
90	312798.707	7567475.171	2197.674
91	312818.707	7567475.060	2197.424
92	312838.706	7567474.949	2196.023
93	312858.706	7567474.838	2194.402
94	312878.706	7567474.727	2189.324
95	312898.705	7567474.616	2187.784
96	312918.705	7567474.505	2188.263
97	312938.705	7567474.394	2189.397
98	312958.705	7567474.283	2191.277
99	312978.704	7567474.172	2193.814
100	312998.704	7567474.061	2196.450
101	313018.704	7567473.950	2199.085
102	313038.703	7567473.839	2201.624
103	312758.819	7567495.393	2199.791
104	312778.818	7567495.282	2198.532
105	312798.818	7567495.171	2197.230
106	312818.818	7567495.060	2195.169
107	312838.817	7567494.949	2194.279
108	312858.817	7567494.837	2192.660
109	312878.817	7567494.726	2188.359
110	312898.817	7567494.615	2187.255
111	312918.816	7567494.504	2188.752
112	312938.816	7567494.393	2188.140
113	312958.816	7567494.282	2188.736
114	312978.815	7567494.171	2191.638
115	312998.815	7567494.060	2193.614
116	313018.815	7567493.949	2196.245
117	313038.814	7567493.838	2198.881
118	313058.814	7567493.727	2201.516
119	312758.930	7567515.392	2199.626
120	312778.929	7567515.281	2197.928
121	312798.929	7567515.170	2195.586
122	312818.929	7567515.059	2193.523
123	312838.928	7567514.948	2192.548
124	312858.928	7567514.837	2190.085
125	312878.928	7567514.726	2188.416
126	312898.928	7567514.615	2192.588
127	312918.927	7567514.504	2191.027
128	312938.927	7567514.393	2190.357
129	312958.927	7567514.282	2190.507
130	312978.926	7567514.171	2191.653
131	312998.926	7567514.060	2192.726
132	313018.926	7567513.949	2194.365
133	313038.925	7567513.838	2196.645
134	313058.925	7567513.727	2199.101
135	313078.925	7567513.616	2201.536
136	312779.040	7567535.281	2196.549
137	312799.040	7567535.170	2194.212
138	312819.040	7567535.059	2191.642
139	312839.039	7567534.948	2190.453
140	312859.039	7567534.837	2190.465
141	312879.039	7567534.726	2192.113
142	312899.039	7567534.615	2193.759
143	312919.038	7567534.504	2192.833
144	312939.038	7567534.393	2192.603
145	312959.038	7567534.282	2192.574
146	312979.037	7567534.171	2192.732
147	312999.037	7567534.060	2192.728
148	313019.037	7567533.949	2193.601
149	313039.036	7567533.838	2195.751
150	313059.036	7567533.727	2198.130
151	313079.036	7567533.616	2200.171
152	312779.151	7567555.281	2198.081
153	312799.151	7567555.170	2192.871
154	312819.151	7567555.059	2193.728
155	312839.151	7567554.948	2194.421
156	312859.150	7567554.837	2194.941
157	312879.150	7567554.726	2194.970
158	312899.150	7567554.615	2194.743

1029	313946.461	7568868.821	2187.662
1030	313966.461	7568868.710	2185.914
1031	313986.461	7568868.599	2181.884
1032	314006.460	7568868.488	2188.671
1033	314026.460	7568868.377	2195.881
1034	313906.573	7568889.042	2192.756
1035	313926.573	7568888.931	2190.538
1036	313946.572	7568888.820	2188.105
1037	313966.572	7568888.709	2186.302
1038	313986.572	7568888.598	2182.742
1039	314006.571	7568888.487	2189.648
1040	314026.571	7568888.376	2195.968
1041	313906.684	7568909.042	2192.148
1042	313926.684	7568908.931	2191.204
1043	313946.683	7568908.820	2188.758
1044	313966.683	7568908.709	2186.520
1045	313986.683	7568908.598	2183.371
1046	314006.683	7568908.487	2190.440
1047	314026.682	7568908.376	2197.476
1048	313906.795	7568929.042	2191.541
1049	313926.795	7568928.931	2190.800
1050	313946.794	7568928.820	2188.283
1051	313966.794	7568928.709	2186.409
1052	313986.794	7568928.598	2182.805
1053	314006.794	7568928.487	2190.416
1054	314026.793	7568928.376	2200.683
1055	313906.906	7568949.042	2190.931
1056	313926.906	7568948.931	2190.042
1057	313946.905	7568948.820	2187.882
1058	313966.905	7568948.708	2185.472
1059	313986.905	7568948.597	2183.720
1060	314006.905	7568948.486	2191.208
1061	314026.904	7568948.375	2200.298
1062	314046.904	7568948.264	2204.423
1063	313907.017	7568969.041	2190.254
1064	313927.017	7568968.930	2188.561
1065	313947.017	7568968.819	2186.683
1066	313967.016	7568968.708	2184.742
1067	313987.016	7568968.597	2183.726
1068	314007.016	7568968.486	2188.186
1069	314027.015	7568968.375	2197.931
1070	314047.015	7568968.264	2203.475
1071	313907.128	7568989.041	2189.627
1072	313927.128	7568988.930	2187.319
1073	313947.128	7568988.819	2188.391
1074	313967.127	7568988.708	2187.263
1075	313987.127	7568988.597	2185.843
1076	314007.127	7568988.486	2185.578
1077	314027.126	7568988.375	2194.913
1078	314047.126	7568988.264	2201.438
1079	313907.239	7569009.041	2189.322
1080	313927.239	7569008.930	2188.978
1081	313947.239	7569008.819	2189.638
1082	313967.238	7569008.708	2188.401
1083	313987.238	7569008.597	2186.173
1084	314007.238	7569008.486	2185.058
1085	314027.237	7569008.374	2187.270
1086	314047.237	7569008.263	2196.560
1087	314067.237	7569008.152	2200.757
1088	314087.236	7569008.041	2198.749
1089	314107.236	7569007.930	2193.999
1090	314127.236	7569007.819	2194.787
1091	314147.235	7569007.708	2199.469
1092	313907.350	7569029.040	2189.017
1093	313927.350	7569028.929	2188.708
1094	313947.350	7569028.818	2190.750
1095	313967.349	7569028.707	2189.335
1096	313987.349	7569028.596	2188.251
1097	314007.349	7569028.485	2185.559
1098	314027.348	7569028.374	2185.970
1099	314047.348	7569028.263	2189.518
1100	314067.348	7569028.152	2194.983
1101	314087.347	7569028.041	2195.551
1102	314107.347	7569027.930	2191.161
1103	314127.347	7569027.819	2196.939
1104	314147.347	7569027.708	2199.290
1105	313927.461	7569048.929	2188.492
1106	313947.461	7569048.818	2190.181
1107	313967.460	7569048.707	2189.890
1108	313987.460	7569048.596	2188.861
1109	314007.460	7569048.485	2186.794

1980	314915.329	7570463.467	2195.268
1981	314935.328	7570463.356	2195.323
1982	314955.328	7570463.245	2193.887
1983	314975.328	7570463.134	2191.394
1984	314995.328	7570463.023	2187.538
1985	315015.327	7570462.912	2184.403
1986	315035.327	7570462.801	2184.275
1987	314875.440	7570483.689	2193.789
1988	314895.440	7570483.577	2193.322
1989	314915.440	7570483.466	2193.177
1990	314935.440	7570483.355	2194.461
1991	314955.439	7570483.244	2193.815
1992	314975.439	7570483.133	2192.111
1993	314995.439	7570483.022	2189.473
1994	315015.438	7570482.911	2186.112
1995	315035.438	7570482.800	2183.084
1996	314875.551	7570503.688	2192.512
1997	314895.551	7570503.577	2192.045
1998	314915.551	7570503.466	2191.578
1999	314935.551	7570503.355	2191.994
2000	314955.550	7570503.244	2193.551
2001	314975.550	7570503.133	2192.744
2002	314995.550	7570503.022	2190.153
2003	315015.549	7570502.911	2187.948
2004	315035.549	7570502.800	2184.575
2005	314915.662	7570523.466	2190.301
2006	314935.662	7570523.355	2189.671
2007	314955.661	7570523.244	2191.646
2008	314975.661	7570523.133	2191.736
2009	314995.661	7570523.022	2188.949
2010	315015.660	7570522.911	2188.816
2011	315035.660	7570522.800	2185.638
2012	315055.660	7570522.689	2182.270
2013	314955.772	7570543.243	2186.173
2014	314975.772	7570543.132	2188.632
2015	314995.772	7570543.021	2187.750
2016	315015.771	7570542.910	2187.814
2017	315035.771	7570542.799	2186.421
2018	315055.771	7570542.688	2182.983
2019	314955.883	7570563.243	2185.777
2020	314975.883	7570563.132	2182.284
2021	314995.883	7570563.021	2184.015
2022	315015.882	7570562.910	2187.389
2023	315035.882	7570562.799	2186.350
2024	315055.882	7570562.688	2182.980
2025	314955.994	7570583.243	2186.852
2026	314975.994	7570583.132	2180.886
2027	314995.994	7570583.021	2185.333
2028	315015.993	7570582.910	2186.578
2029	315035.993	7570582.799	2186.819
2030	315055.993	7570582.688	2182.836
2031	315075.992	7570582.577	2179.574
2032	314956.105	7570603.243	2185.492
2033	314976.105	7570603.132	2182.222
2034	314996.105	7570603.021	2184.886
2035	315016.104	7570602.909	2186.146
2036	315036.104	7570602.798	2186.457
2037	315056.104	7570602.687	2183.983
2038	315076.104	7570602.576	2180.189
2039	314956.216	7570623.242	2184.132
2040	314976.216	7570623.131	2184.227
2041	314996.216	7570623.020	2185.017
2042	315016.215	7570622.909	2185.241
2043	315036.215	7570622.798	2185.771
2044	315056.215	7570622.687	2185.100
2045	315076.215	7570622.576	2181.719
2046	314976.327	7570643.131	2183.495
2047	314996.327	7570643.020	2184.382
2048	315016.326	7570642.909	2184.382
2049	315036.326	7570642.798	2184.412
2050	315056.326	7570642.687	2184.731
2051	315076.326	7570642.576	2183.414
2052	315096.325	7570642.465	2177.237
2053	314996.438	7570663.020	2183.342
2054	315016.438	7570662.909	2183.356
2055	315036.437	7570662.798	2183.103
2056	315056.437	7570662.686	2183.313
2057	315076.437	7570662.575	2181.692
2058	315096.436	7570662.464	2177.217
2059	314996.549	7570683.019	2182.347
2060	315016.549	7570682.908	2182.768

159	312919.149	7567554.503	2194.603
160	312939.149	7567554.392	2194.789
161	312959.149	7567554.281	2194.632
162	312979.148	7567554.170	2194.105
163	312999.148	7567554.059	2193.566
164	313019.148	7567553.948	2193.125
165	313039.147	7567553.837	2194.105
166	313059.147	7567553.726	2196.638
167	313079.147	7567553.615	2202.200
168	313099.147	7567553.504	2209.032
169	312779.262	7567575.280	2203.848
170	312799.262	7567575.169	2194.654
171	312819.262	7567575.058	2195.329
172	312839.262	7567574.947	2196.136
173	312859.261	7567574.836	2197.525
174	312879.261	7567574.725	2198.914
175	312899.261	7567574.614	2199.303
176	312919.260	7567574.503	2199.041
177	312939.260	7567574.392	2199.021
178	312959.260	7567574.281	2196.840
179	312979.259	7567574.170	2196.106
180	312999.259	7567574.059	2195.478
181	313019.259	7567573.948	2194.567
182	313039.258	7567573.837	2194.442
183	313059.258	7567573.726	2195.500
184	313079.258	7567573.615	2200.846
185	313099.258	7567573.504	2208.154
186	313119.257	7567573.393	2214.928
187	312799.373	7567595.169	2196.841
188	312819.373	7567595.058	2196.481
189	312839.373	7567594.947	2198.911
190	312859.372	7567594.836	2200.300
191	312879.372	7567594.725	2201.689
192	312899.372	7567594.614	2203.078
193	312919.371	7567594.503	2203.862
194	312939.371	7567594.392	2203.599
195	312959.371	7567594.281	2203.271
196	312979.370	7567594.170	2201.056
197	312999.370	7567594.059	2198.977
198	313019.370	7567593.948	2197.945
199	313039.369	7567593.837	2196.397
200	313059.369	7567593.726	2196.133
201	313079.369	7567593.615	2199.337
202	313099.369	7567593.504	2206.776
203	313119.368	7567593.393	2215.070
204	313139.368	7567593.282	2222.317
205	312899.483	7567614.614	2205.852
206	312919.482	7567614.503	2207.241
207	312939.482	7567614.392	2208.420
208	312959.482	7567614.281	2208.157
209	312979.481	7567614.169	2207.410
210	312999.481	7567614.058	2204.845
211	313019.481	7567613.947	2203.715
212	313039.481	7567613.836	2202.202
213	313059.480	7567613.725	2199.646
214	313079.480	7567613.614	2200.467
215	313099.480	7567613.503	2205.441
216	313119.479	7567613.392	2211.705
217	313139.479	7567613.281	2219.238
218	313159.479	7567613.170	2223.383
219	312959.593	7567634.280	2212.794
220	312979.592	7567634.169	2213.764
221	312999.592	7567634.058	2212.924
222	313019.592	7567633.947	2212.491
223	313039.592	7567633.836	2212.316
224	313059.591	7567633.725	2209.401
225	313079.591	7567633.614	2208.228
226	313099.591	7567633.503	2203.456
227	313119.590	7567633.392	2209.820
228	313139.590	7567633.281	2215.578
229	313159.590	7567633.170	2223.720
230	312999.703	7567654.058	2224.283
231	313019.703	7567653.947	2222.466
232	313039.703	7567653.836	2221.391
233	313059.702	7567653.725	2219.574
234	313079.702	7567653.614	2214.819
235	313099.702	7567653.503	2208.302
236	313119.701	7567653.392	2207.801
237	313139.701	7567653.281	2212.726
238	313159.701	7567653.170	2221.472
239	313179.700	7567653.059	2223.800

1110	314027.459	7569048.374	2184.974
1111	314047.459	7569048.263	2188.165
1112	314067.459	7569048.152	2190.681
1113	314087.458	7569048.041	2188.176
1114	314107.458	7569047.930	2196.304
1115	314127.458	7569047.819	2199.986
1116	314147.458	7569047.708	2201.903
1117	313947.572	7569068.818	2188.535
1118	313967.571	7569068.707	2187.636
1119	313987.571	7569068.596	2186.660
1120	314007.571	7569068.485	2186.607
1121	314027.570	7569068.374	2185.722
1122	314047.570	7569068.263	2191.758
1123	314067.570	7569068.151	2188.749
1124	314087.570	7569068.040	2194.721
1125	314107.569	7569067.929	2200.143
1126	314127.569	7569067.818	2202.309
1127	314147.569	7569067.707	2203.875
1128	314167.568	7569067.596	2205.517
1129	313947.683	7569088.817	2189.424
1130	313967.682	7569088.706	2191.925
1131	313987.682	7569088.595	2190.644
1132	314007.682	7569088.484	2189.806
1133	314027.681	7569088.373	2187.976
1134	314047.681	7569088.262	2188.813
1135	314067.681	7569088.151	2194.648
1136	314087.681	7569088.040	2198.691
1137	314107.680	7569087.929	2201.551
1138	314127.680	7569087.818	2203.491
1139	314147.680	7569087.707	2205.492
1140	314167.679	7569087.596	2207.457
1141	314187.679	7569087.485	2209.571
1142	314207.679	7569087.374	2211.160
1143	314227.678	7569087.263	2215.173
1144	314247.678	7569087.152	2219.850
1145	314267.678	7569087.041	2224.807
1146	314287.677	7569086.930	2230.480
1147	314307.677	7569086.819	2238.844
1148	314327.677	7569086.708	2247.044
1149	313967.793	7569108.706	2197.842
1150	313987.793	7569108.595	2195.622
1151	314007.793	7569108.484	2193.067
1152	314027.792	7569108.373	2189.610
1153	314047.792	7569108.262	2188.129
1154	314067.792	7569108.151	2196.208
1155	314087.792	7569108.040	2199.981
1156	314107.791	7569107.929	2201.941
1157	314127.791	7569107.818	2203.718
1158	314147.791	7569107.707	2205.599
1159	314167.790	7569107.596	2207.831
1160	314187.790	7569107.485	2210.896
1161	314207.790	7569107.374	2213.726
1162	314227.789	7569107.263	2217.238
1163	314247.789	7569107.152	2219.590
1164	314267.789	7569107.041	2225.856
1165	314287.788	7569106.930	2231.064
1166	314307.788	7569106.819	2237.206
1167	314327.788	7569106.708	2245.549
1168	313987.904	7569128.595	2198.985
1169	314007.904	7569128.484	2195.233
1170	314027.904	7569128.373	2191.648
1171	314047.903	7569128.262	2187.790
1172	314067.903	7569128.151	2192.737
1173	314087.903	7569128.040	2199.788
1174	314107.902	7569127.929	2202.812
1175	314127.902	7569127.817	2204.175
1176	314147.902	7569127.706	2205.699
1177	314167.901	7569127.595	2208.011
1178	314187.901	7569127.484	2211.047
1179	314207.901	7569127.373	2213.912
1180	314227.900	7569127.262	2216.921
1181	314247.900	7569127.151	2219.857
1182	314267.900	7569127.040	2226.272
1183	314287.900	7569126.929	2231.416
1184	314307.899	7569126.818	2238.157
1185	314327.899	7569126.707	2245.953
1186	314008.015	7569148.483	2199.935
1187	314028.015	7569148.372	2195.711
1188	314048.014	7569148.261	2191.207
1189	314068.014	7569148.150	2188.317
1190	314088.014	7569148.039	2196.763

2061	315036.548	7570682.797	2182.002
2062	315056.548	7570682.686	2182.290
2063	315076.548	7570682.575	2181.123
2064	315096.547	7570682.464	2177.305
2065	314996.660	7570703.019	2181.001
2066	315016.660	7570702.908	2182.192
2067	315036.659	7570702.797	2180.881
2068	315056.659	7570702.686	2180.945
2069	315076.659	7570702.575	2179.977
2070	315096.658	7570702.464	2177.242
2071	314996.771	7570723.019	2179.582
2072	315016.771	7570722.908	2180.907
2073	315036.770	7570722.797	2180.421
2074	315056.770	7570722.686	2180.058
2075	315076.770	7570722.575	2179.785
2076	315096.769	7570722.464	2176.749
2077	315116.769	7570722.352	2174.274
2078	314996.882	7570743.018	2177.178
2079	315016.882	7570742.907	2180.101
2080	315036.881	7570742.796	2179.935
2081	315056.881	7570742.685	2178.590
2082	315076.881	7570742.574	2179.171
2083	315096.880	7570742.463	2175.756
2084	315116.880	7570742.352	2173.689
2085	314976.993	7570763.129	2174.820
2086	314996.993	7570763.018	2174.329
2087	315016.993	7570762.907	2174.757
2088	315036.992	7570762.796	2179.197
2089	315056.992	7570762.685	2174.666
2090	315076.992	7570762.574	2178.493
2091	315096.991	7570762.463	2174.291
2092	315116.991	7570762.352	2171.325
2093	314977.104	7570783.129	2172.345
2094	314997.104	7570783.018	2169.992
2095	315017.104	7570782.907	2168.741
2096	315037.103	7570782.796	2172.103
2097	315057.103	7570782.685	2172.641
2098	315077.103	7570782.574	2176.865
2099	315097.102	7570782.463	2172.484
2100	315117.102	7570782.352	2168.434
2101	314977.215	7570803.128	2167.843
2102	314997.215	7570803.017	2163.029
2103	315017.215	7570802.906	2159.374
2104	315037.214	7570802.795	2165.806
2105	315057.214	7570802.684	2170.435
2106	315077.214	7570802.573	2173.479
2107	315097.213	7570802.462	2170.734
2108	315117.213	7570802.351	2168.880
2109	314917.327	7570823.461	2172.474
2110	314937.327	7570823.350	2170.920
2111	314957.327	7570823.239	2166.823
2112	314977.326	7570823.128	2162.680
2113	314997.326	7570823.017	2157.766
2114	315017.326	7570822.906	2156.706
2115	315037.325	7570822.795	2161.007
2116	315057.325	7570822.684	2167.752
2117	315077.325	7570822.573	2171.020
2118	315097.325	7570822.462	2170.265
2119	315117.324	7570822.351	2167.963
2120	314917.438	7570843.461	2171.470
2121	314937.438	7570843.350	2169.721
2122	314957.438	7570843.239	2164.984
2123	314977.437	7570843.128	2160.543
2124	314997.437	7570843.017	2158.287
2125	315017.437	7570842.906	2155.363
2126	315037.436	7570842.795	2157.932
2127	315057.436	7570842.684	2160.621
2128	315077.436	7570842.573	2165.822
2129	315097.436	7570842.462	2170.713
2130	315117.435	7570842.351	2166.540
2131	314917.549	7570863.461	2171.946
2132	314937.549	7570863.350	2167.669
2133	314957.549	7570863.239	2164.403
2134	314977.548	7570863.128	2161.295
2135	314997.548	7570863.016	2156.885
2136	315017.548	7570862.905	2154.685
2137	315037.547	7570862.794	2153.843
2138	315057.547	7570862.683	2154.863
2139	315077.547	7570862.572	2161.349
2140	315097.547	7570862.461	2169.692
2141	315117.546	7570862.350	2163.789

240	313019.814	7567673.947	2223.719
241	313039.814	7567673.835	2224.218
242	313059.813	7567673.724	2225.489
243	313079.813	7567673.613	2219.119
244	313099.813	7567673.502	2212.321
245	313119.812	7567673.391	2204.729
246	313139.812	7567673.280	2210.893
247	313159.812	7567673.169	2218.901
248	313179.811	7567673.058	2223.605
249	313199.811	7567672.947	2224.365
250	313019.925	7567693.946	2222.539
251	313039.925	7567693.835	2222.740
252	313059.924	7567693.724	2223.149
253	313079.924	7567693.613	2218.661
254	313099.924	7567693.502	2211.822
255	313119.923	7567693.391	2204.601
256	313139.923	7567693.280	2207.190
257	313159.923	7567693.169	2213.864
258	313179.922	7567693.058	2220.991
259	313199.922	7567692.947	2224.113
260	313219.922	7567692.836	2224.930
261	313020.036	7567713.946	2220.984
262	313040.036	7567713.835	2221.262
263	313060.035	7567713.724	2219.589
264	313080.035	7567713.613	2215.425
265	313100.035	7567713.502	2209.019
266	313120.034	7567713.391	2204.348
267	313140.034	7567713.280	2203.459
268	313160.034	7567713.169	2208.815
269	313180.033	7567713.058	2214.097
270	313200.033	7567712.947	2220.871
271	313220.033	7567712.836	2224.678
272	313240.033	7567712.725	2225.496
273	313020.147	7567733.946	2220.204
274	313040.147	7567733.835	2219.784
275	313060.146	7567733.724	2216.424
276	313080.146	7567733.612	2212.023
277	313100.146	7567733.501	2206.853
278	313120.145	7567733.390	2202.404
279	313140.145	7567733.279	2201.241
280	313160.145	7567733.168	2203.511
281	313180.145	7567733.057	2207.144
282	313200.144	7567732.946	2212.766
283	313220.144	7567732.835	2221.182
284	313240.144	7567732.724	2225.244
285	313020.258	7567753.945	2219.424
286	313040.258	7567753.834	2216.657
287	313060.257	7567753.723	2213.258
288	313080.257	7567753.612	2207.756
289	313100.257	7567753.501	2205.206
290	313120.256	7567753.390	2202.040
291	313140.256	7567753.279	2199.673
292	313160.256	7567753.168	2199.615
293	313180.256	7567753.057	2201.456
294	313200.255	7567752.946	2205.036
295	313220.255	7567752.835	2212.739
296	313240.255	7567752.724	2221.493
297	312980.370	7567774.167	2213.663
298	313000.369	7567774.056	2217.458
299	313020.369	7567773.945	2216.891
300	313040.369	7567773.834	2213.492
301	313060.368	7567773.723	2210.093
302	313080.368	7567773.612	2206.107
303	313100.368	7567773.501	2203.941
304	313120.368	7567773.390	2200.800
305	313140.367	7567773.279	2198.828
306	313160.367	7567773.168	2197.537
307	313180.367	7567773.057	2197.655
308	313200.366	7567772.946	2198.995
309	313220.366	7567772.835	2205.007
310	313240.366	7567772.724	2212.938
311	312980.481	7567794.167	2212.880
312	313000.480	7567794.056	2216.238
313	313020.480	7567793.945	2213.962
314	313040.480	7567793.834	2210.892
315	313060.479	7567793.723	2209.820
316	313080.479	7567793.612	2208.628
317	313100.479	7567793.501	2206.208
318	313120.479	7567793.390	2203.110
319	313140.478	7567793.278	2199.539
320	313160.478	7567793.167	2195.944

1191	314108.013	7569147.928	2201.612
1192	314128.013	7569147.817	2203.728
1193	314148.013	7569147.706	2205.214
1194	314168.012	7569147.595	2207.555
1195	314188.012	7569147.484	2210.686
1196	314208.012	7569147.373	2213.858
1197	314228.011	7569147.262	2215.740
1198	314248.011	7569147.151	2219.888
1199	314268.011	7569147.040	2226.153
1200	314288.011	7569146.929	2231.610
1201	314308.010	7569146.818	2238.516
1202	314328.010	7569146.707	2245.298
1203	314548.007	7569145.486	2259.168
1204	314028.126	7569168.372	2200.277
1205	314048.125	7569168.261	2196.713
1206	314068.125	7569168.150	2192.427
1207	314088.125	7569168.039	2189.587
1208	314108.124	7569167.928	2193.579
1209	314128.124	7569167.817	2201.385
1210	314148.124	7569167.706	2203.877
1211	314168.123	7569167.595	2205.846
1212	314188.123	7569167.484	2209.362
1213	314208.123	7569167.373	2212.126
1214	314228.122	7569167.262	2216.192
1215	314248.122	7569167.151	2221.260
1216	314268.122	7569167.040	2226.212
1217	314288.122	7569166.929	2231.140
1218	314308.121	7569166.818	2236.458
1219	314328.121	7569166.707	2243.014
1220	314348.121	7569166.596	2249.596
1221	314368.120	7569166.485	2252.599
1222	314388.120	7569166.374	2254.341
1223	314048.236	7569188.261	2200.159
1224	314068.236	7569188.150	2197.742
1225	314088.236	7569188.039	2194.619
1226	314108.235	7569187.928	2191.791
1227	314128.235	7569187.817	2196.946
1228	314148.235	7569187.706	2202.820
1229	314168.234	7569187.595	2205.310
1230	314188.234	7569187.483	2208.022
1231	314208.234	7569187.372	2211.938
1232	314228.234	7569187.261	2215.947
1233	314248.233	7569187.150	2219.716
1234	314268.233	7569187.039	2224.592
1235	314288.233	7569186.928	2229.401
1236	314308.232	7569186.817	2234.606
1237	314328.232	7569186.706	2239.817
1238	314348.232	7569186.595	2245.844
1239	314368.231	7569186.484	2250.909
1240	314388.231	7569186.373	2252.794
1241	314408.231	7569186.262	2254.398
1242	314428.230	7569186.151	2255.828
1243	314448.230	7569186.040	2257.556
1244	314468.230	7569185.929	2258.995
1245	314488.230	7569185.818	2259.920
1246	314508.229	7569185.707	2260.844
1247	314528.229	7569185.596	2261.781
1248	314548.229	7569185.485	2263.019
1249	314568.228	7569185.374	2263.654
1250	314588.228	7569185.263	2264.839
1251	314088.347	7569208.038	2196.913
1252	314108.346	7569207.927	2196.813
1253	314128.346	7569207.816	2200.705
1254	314148.346	7569207.705	2202.279
1255	314168.345	7569207.594	2204.263
1256	314188.345	7569207.483	2206.772
1257	314208.345	7569207.372	2210.579
1258	314228.345	7569207.261	2214.737
1259	314248.344	7569207.150	2218.452
1260	314268.344	7569207.039	2222.914
1261	314288.344	7569206.928	2227.043
1262	314308.343	7569206.817	2230.952
1263	314328.343	7569206.706	2235.616
1264	314348.343	7569206.595	2240.814
1265	314368.342	7569206.484	2245.674
1266	314388.342	7569206.373	2249.937
1267	314408.342	7569206.262	2251.479
1268	314428.341	7569206.151	2253.185
1269	314448.341	7569206.040	2255.056
1270	314468.341	7569205.929	2257.078
1271	314488.341	7569205.818	2258.874

2142	315137.546	7570862.239	2166.407
2143	314997.659	7570883.016	2157.815
2144	315017.659	7570882.905	2153.334
2145	315037.659	7570882.794	2150.920
2146	315057.658	7570882.683	2151.991
2147	315077.658	7570882.572	2155.712
2148	315097.658	7570882.461	2160.577
2149	315117.657	7570882.350	2158.773
2150	315137.657	7570882.239	2160.443
2151	314997.770	7570903.016	2160.381
2152	315017.770	7570902.905	2155.334
2153	315037.770	7570902.794	2151.569
2154	315057.769	7570902.683	2149.878
2155	315077.769	7570902.572	2151.525
2156	315097.769	7570902.461	2155.024
2157	315117.768	7570902.350	2154.087
2158	315137.768	7570902.239	2154.478
2159	314997.881	7570923.016	2162.948
2160	315017.881	7570922.905	2158.007
2161	315037.881	7570922.794	2155.090
2162	315057.880	7570922.682	2151.364
2163	315077.880	7570922.571	2150.496
2164	315097.880	7570922.460	2152.820
2165	315117.879	7570922.349	2152.124
2166	315137.879	7570922.238	2149.373
2167	314997.992	7570943.015	2165.514
2168	315017.992	7570942.904	2160.681
2169	315037.992	7570942.793	2158.882
2170	315057.991	7570942.682	2154.137
2171	315077.991	7570942.571	2150.202
2172	315097.991	7570942.460	2150.417
2173	315117.990	7570942.349	2150.217
2174	315137.990	7570942.238	2147.855
2175	314998.103	7570963.015	2166.314
2176	315018.103	7570962.904	2163.355
2177	315038.103	7570962.793	2163.337
2178	315058.102	7570962.682	2162.876
2179	315078.102	7570962.571	2159.818
2180	315098.102	7570962.460	2159.888
2181	315118.101	7570962.349	2151.885
2182	315138.101	7570962.238	2147.306
2183	314998.214	7570983.015	2166.934
2184	315018.214	7570982.904	2166.040
2185	315038.214	7570982.793	2164.214
2186	315058.213	7570982.682	2163.707
2187	315078.213	7570982.571	2162.855
2188	315098.213	7570982.460	2159.637
2189	315118.212	7570982.348	2153.236
2190	315138.212	7570982.237	2147.022
2191	314998.325	7571003.014	2167.407
2192	315018.325	7571002.903	2166.770
2193	315038.325	7571002.792	2165.865
2194	315058.324	7571002.681	2162.634
2195	315078.324	7571002.570	2160.787
2196	315098.324	7571002.459	2155.997
2197	315118.323	7571002.348	2153.938
2198	315138.323	7571002.237	2148.054
2199	314998.436	7571023.014	2168.018
2200	315018.436	7571022.903	2163.655
2201	315038.436	7571022.792	2164.118
2202	315058.435	7571022.681	2163.451
2203	315078.435	7571022.570	2157.821
2204	315098.435	7571022.459	2155.202
2205	315118.434	7571022.348	2153.020
2206	315138.434	7571022.237	2148.836
2207	315158.434	7571022.126	2161.833
2208	314998.547	7571043.014	2170.851
2209	315018.547	7571042.903	2165.769
2210	315038.547	7571042.792	2161.750
2211	315058.546	7571042.681	2159.832
2212	315078.546	7571042.570	2156.285
2213	315098.546	7571042.459	2154.303
2214	315118.546	7571042.348	2152.349
2215	315138.545	7571042.237	2149.828
2216	315158.545	7571042.126	2155.869
2217	314998.658	7571063.013	2173.463
2218	315018.658	7571062.902	2168.081
2219	315038.658	7571062.791	2161.456
2220	315058.657	7571062.680	2157.730
2221	315078.657	7571062.569	2155.130
2222	315098.657	7571062.458	2153.268

321	313180.478	7567793.056	2195.718
322	313200.477	7567792.945	2194.223
323	313220.477	7567792.834	2197.147
324	313240.477	7567792.723	2205.243
325	312980.592	7567814.166	2210.890
326	313000.591	7567814.055	2210.098
327	313020.591	7567813.944	2208.396
328	313040.591	7567813.833	2207.461
329	313060.590	7567813.722	2208.464
330	313080.590	7567813.611	2209.394
331	313100.590	7567813.500	2207.317
332	313120.590	7567813.389	2204.556
333	313140.589	7567813.278	2199.798
334	313160.589	7567813.167	2195.206
335	313180.589	7567813.056	2193.112
336	313200.588	7567812.945	2192.303
337	313220.588	7567812.834	2193.864
338	313240.588	7567812.723	2198.376
339	312960.703	7567834.277	2205.542
340	312980.703	7567834.166	2204.750
341	313000.702	7567834.055	2203.970
342	313020.702	7567833.944	2204.206
343	313040.702	7567833.833	2203.040
344	313060.702	7567833.722	2204.390
345	313080.701	7567833.611	2203.813
346	313100.701	7567833.500	2205.168
347	313120.701	7567833.389	2202.469
348	313140.700	7567833.278	2199.208
349	313160.700	7567833.167	2195.124
350	313180.700	7567833.056	2193.469
351	313200.699	7567832.945	2191.527
352	313220.699	7567832.834	2191.515
353	313240.699	7567832.723	2192.141
354	312940.814	7567854.388	2201.679
355	312960.814	7567854.277	2201.170
356	312980.814	7567854.166	2199.725
357	313000.813	7567854.055	2198.280
358	313020.813	7567853.944	2197.474
359	313040.813	7567853.833	2196.640
360	313060.813	7567853.722	2196.833
361	313080.812	7567853.611	2196.038
362	313100.812	7567853.500	2198.107
363	313120.812	7567853.389	2198.475
364	313140.811	7567853.278	2196.613
365	313160.811	7567853.167	2195.021
366	313180.811	7567853.056	2192.999
367	313200.810	7567852.944	2190.588
368	313220.810	7567852.833	2189.242
369	313240.810	7567852.722	2189.996
370	312940.925	7567874.388	2200.731
371	312960.925	7567874.277	2199.901
372	312980.925	7567874.165	2198.688
373	313000.924	7567874.054	2197.582
374	313020.924	7567873.943	2195.774
375	313040.924	7567873.832	2194.323
376	313060.924	7567873.721	2193.414
377	313080.923	7567873.610	2191.124
378	313100.923	7567873.499	2190.886
379	313120.923	7567873.388	2191.664
380	313140.922	7567873.277	2193.378
381	313160.922	7567873.166	2192.997
382	313180.922	7567873.055	2192.068
383	313200.921	7567872.944	2189.650
384	313220.921	7567872.833	2187.657
385	313240.921	7567872.722	2187.648
386	312921.037	7567894.498	2200.724
387	312941.036	7567894.387	2200.192
388	312961.036	7567894.276	2199.216
389	312981.036	7567894.165	2197.326
390	313001.036	7567894.054	2195.282
391	313021.035	7567893.943	2193.423
392	313041.035	7567893.832	2192.577
393	313061.035	7567893.721	2191.120
394	313081.034	7567893.610	2189.591
395	313101.034	7567893.499	2187.987
396	313121.034	7567893.388	2186.154
397	313141.033	7567893.277	2187.452
398	313161.033	7567893.166	2188.846
399	313181.033	7567893.055	2189.393
400	313201.032	7567892.944	2188.340
401	313221.032	7567892.833	2186.700

1272	314508.340	7569205.707	2260.003
1273	314528.340	7569205.596	2260.173
1274	314548.340	7569205.485	2260.898
1275	314568.339	7569205.374	2261.484
1276	314588.339	7569205.263	2262.908
1277	314608.339	7569205.152	2266.409
1278	314108.457	7569227.927	2199.867
1279	314128.457	7569227.816	2200.714
1280	314148.457	7569227.705	2201.622
1281	314168.456	7569227.594	2203.222
1282	314188.456	7569227.483	2205.386
1283	314208.456	7569227.372	2208.251
1284	314228.456	7569227.261	2211.676
1285	314248.455	7569227.150	2215.522
1286	314268.455	7569227.039	2219.790
1287	314288.455	7569226.928	2224.339
1288	314308.454	7569226.817	2227.721
1289	314328.454	7569226.706	2231.716
1290	314348.454	7569226.595	2235.423
1291	314368.453	7569226.484	2239.528
1292	314388.453	7569226.373	2243.595
1293	314408.453	7569226.262	2247.623
1294	314428.452	7569226.151	2249.974
1295	314448.452	7569226.040	2251.868
1296	314468.452	7569225.928	2253.743
1297	314488.452	7569225.817	2255.491
1298	314508.451	7569225.706	2256.436
1299	314528.451	7569225.595	2256.835
1300	314548.451	7569225.484	2257.353
1301	314568.450	7569225.373	2257.961
1302	314588.450	7569225.262	2259.538
1303	314608.450	7569225.151	2260.070
1304	314628.449	7569225.040	2260.194
1305	314108.568	7569247.927	2200.257
1306	314128.568	7569247.816	2204.032
1307	314148.568	7569247.705	2203.991
1308	314168.568	7569247.594	2202.553
1309	314188.567	7569247.483	2202.003
1310	314208.567	7569247.372	2203.896
1311	314228.567	7569247.261	2208.179
1312	314248.566	7569247.149	2212.158
1313	314268.566	7569247.038	2216.362
1314	314288.566	7569246.927	2220.356
1315	314308.565	7569246.816	2223.695
1316	314328.565	7569246.705	2227.560
1317	314348.565	7569246.594	2230.753
1318	314368.564	7569246.483	2233.265
1319	314388.564	7569246.372	2238.553
1320	314408.564	7569246.261	2242.079
1321	314428.564	7569246.150	2245.331
1322	314448.563	7569246.039	2246.640
1323	314468.563	7569245.928	2248.804
1324	314488.563	7569245.817	2251.334
1325	314508.562	7569245.706	2252.099
1326	314528.562	7569245.595	2253.224
1327	314548.562	7569245.484	2252.785
1328	314568.561	7569245.373	2253.364
1329	314588.561	7569245.262	2255.492
1330	314608.561	7569245.151	2258.281
1331	314628.560	7569245.040	2259.585
1332	314648.560	7569244.929	2266.189
1333	314668.560	7569244.818	2273.688
1334	314128.679	7569267.815	2201.861
1335	314148.679	7569267.704	2205.657
1336	314168.679	7569267.593	2209.283
1337	314188.678	7569267.482	2208.795
1338	314208.678	7569267.371	2207.290
1339	314228.678	7569267.260	2204.884
1340	314248.677	7569267.149	2208.832
1341	314268.677	7569267.038	2212.099
1342	314288.677	7569266.927	2216.213
1343	314308.676	7569266.816	2219.675
1344	314328.676	7569266.705	2222.762
1345	314348.676	7569266.594	2224.377
1346	314368.675	7569266.483	2230.126
1347	314388.675	7569266.372	2233.201
1348	314408.675	7569266.261	2237.367
1349	314428.675	7569266.150	2239.760
1350	314448.674	7569266.039	2241.053
1351	314468.674	7569265.928	2241.955
1352	314488.674	7569265.817	2242.635

2223	315118.657	7571062.347	2151.819
2224	315138.656	7571062.236	2151.964
2225	315158.656	7571062.125	2150.082
2226	314698.774	7571084.679	2176.656
2227	314718.774	7571084.567	2178.253
2228	314738.773	7571084.456	2180.319
2229	314758.773	7571084.345	2182.385
2230	314778.773	7571084.234	2182.200
2231	314798.772	7571084.123	2181.737
2232	314818.772	7571084.012	2182.498
2233	314838.772	7571083.901	2183.169
2234	314858.772	7571083.790	2183.908
2235	314878.771	7571083.679	2184.474
2236	314898.771	7571083.568	2184.416
2237	314918.771	7571083.457	2182.536
2238	314938.770	7571083.346	2181.113
2239	314958.770	7571083.235	2179.494
2240	314978.770	7571083.124	2178.600
2241	314998.769	7571083.013	2176.156
2242	315018.769	7571082.902	2170.271
2243	315038.769	7571082.791	2162.526
2244	315058.768	7571082.680	2158.750
2245	315078.768	7571082.569	2155.314
2246	315098.768	7571082.458	2152.752
2247	315118.768	7571082.347	2152.127
2248	315138.767	7571082.236	2152.438
2249	315158.767	7571082.125	2152.749
2250	314698.885	7571104.678	2174.688
2251	314718.885	7571104.567	2177.202
2252	314738.884	7571104.456	2179.176
2253	314758.884	7571104.345	2179.974
2254	314778.884	7571104.234	2180.407
2255	314798.884	7571104.123	2180.504
2256	314818.883	7571104.012	2180.540
2257	314838.883	7571103.901	2181.301
2258	314858.883	7571103.790	2182.764
2259	314878.882	7571103.679	2183.870
2260	314898.882	7571103.568	2184.090
2261	314918.882	7571103.457	2183.400
2262	314938.881	7571103.346	2182.147
2263	314958.881	7571103.235	2181.035
2264	314978.881	7571103.124	2179.923
2265	314998.880	7571103.013	2178.263
2266	315018.880	7571102.902	2172.587
2267	315038.880	7571102.791	2166.092
2268	315058.880	7571102.680	2160.779
2269	315078.879	7571102.569	2155.308
2270	315098.879	7571102.458	2153.085
2271	315118.879	7571102.347	2152.482
2272	315138.878	7571102.236	2152.745
2273	315158.878	7571102.125	2154.229
2274	314698.996	7571124.678	2174.888
2275	314718.996	7571124.567	2172.730
2276	314738.995	7571124.456	2176.282
2277	314758.995	7571124.345	2177.110
2278	314778.995	7571124.234	2177.950
2279	314798.995	7571124.123	2178.694
2280	314818.994	7571124.012	2178.765
2281	314838.994	7571123.901	2179.277
2282	314858.994	7571123.790	2181.087
2283	314878.993	7571123.679	2182.545
2284	314898.993	7571123.568	2183.044
2285	314918.993	7571123.457	2183.189
2286	314938.992	7571123.346	2182.766
2287	314958.992	7571123.235	2181.795
2288	314978.992	7571123.124	2180.751
2289	314998.991	7571123.012	2179.419
2290	315018.991	7571122.901	2174.642
2291	315038.991	7571122.790	2168.469
2292	315058.991	7571122.679	2162.766
2293	315078.990	7571122.568	2155.818
2294	315098.990	7571122.457	2153.623
2295	315118.990	7571122.346	2152.815
2296	315138.989	7571122.235	2154.397
2297	315158.989	7571122.124	2155.980
2298	314699.107	7571144.678	2176.480
2299	314719.107	7571144.567	2168.636
2300	314739.106	7571144.456	2171.885
2301	314759.106	7571144.345	2175.625
2302	314779.106	7571144.233	2176.131
2303	314799.106	7571144.122	2176.521

402	313241.032	7567892.722	2185.795
403	312941.147	7567914.387	2199.939
404	312961.147	7567914.276	2198.227
405	312981.147	7567914.165	2195.870
406	313001.147	7567914.054	2193.633
407	313021.146	7567913.943	2193.040
408	313041.146	7567913.832	2192.601
409	313061.146	7567913.721	2190.910
410	313081.145	7567913.610	2189.592
411	313101.145	7567913.499	2188.073
412	313121.145	7567913.388	2186.795
413	313141.144	7567913.277	2186.682
414	313161.144	7567913.166	2185.956
415	313181.144	7567913.055	2184.956
416	313201.143	7567912.944	2185.575
417	313221.143	7567912.833	2185.570
418	313241.143	7567912.722	2184.210
419	312941.259	7567934.387	2199.814
420	312961.258	7567934.276	2197.415
421	312981.258	7567934.165	2195.692
422	313001.258	7567934.054	2195.938
423	313021.257	7567933.942	2194.607
424	313041.257	7567933.831	2193.025
425	313061.257	7567933.720	2191.374
426	313081.256	7567933.609	2190.232
427	313101.256	7567933.498	2188.735
428	313121.256	7567933.387	2187.074
429	313141.255	7567933.276	2185.997
430	313161.255	7567933.165	2184.854
431	313181.255	7567933.054	2183.793
432	313201.254	7567932.943	2183.336
433	313221.254	7567932.832	2183.087
434	313241.254	7567932.721	2182.813
435	312941.370	7567954.386	2203.414
436	312961.369	7567954.275	2197.814
437	312981.369	7567954.164	2197.298
438	313001.369	7567954.053	2195.999
439	313021.368	7567953.942	2194.616
440	313041.368	7567953.831	2194.422
441	313061.368	7567953.720	2193.118
442	313081.367	7567953.609	2191.076
443	313101.367	7567953.498	2189.535
444	313121.367	7567953.387	2188.016
445	313141.366	7567953.276	2186.983
446	313161.366	7567953.165	2185.524
447	313181.366	7567953.054	2184.115
448	313201.366	7567952.943	2183.450
449	313221.365	7567952.832	2182.768
450	313241.365	7567952.721	2181.749
451	313261.365	7567952.610	2181.434
452	313281.364	7567952.499	2181.177
453	313301.364	7567952.388	2180.774
454	313321.364	7567952.277	2180.750
455	312961.480	7567974.275	2198.602
456	312981.480	7567974.164	2197.472
457	313001.480	7567974.053	2196.409
458	313021.479	7567973.942	2196.866
459	313041.479	7567973.831	2197.706
460	313061.479	7567973.720	2195.904
461	313081.478	7567973.609	2191.992
462	313101.478	7567973.498	2190.691
463	313121.478	7567973.387	2189.103
464	313141.477	7567973.276	2188.183
465	313161.477	7567973.165	2186.891
466	313181.477	7567973.054	2185.806
467	313201.477	7567972.943	2185.135
468	313221.476	7567972.832	2184.745
469	313241.476	7567972.721	2184.244
470	313261.476	7567972.610	2183.864
471	313281.475	7567972.499	2184.285
472	313301.475	7567972.387	2183.920
473	313321.475	7567972.276	2183.460
474	313341.474	7567972.165	2182.234
475	312961.591	7567994.275	2204.090
476	312981.591	7567994.164	2201.438
477	313001.591	7567994.053	2199.926
478	313021.590	7567993.942	2200.048
479	313041.590	7567993.831	2199.710
480	313061.590	7567993.720	2197.789
481	313081.589	7567993.608	2194.588
482	313101.589	7567993.497	2193.318

1353	314508.673	7569265.706	2244.528
1354	314528.673	7569265.595	2246.854
1355	314548.673	7569265.484	2246.916
1356	314568.672	7569265.373	2252.731
1357	314588.672	7569265.262	2256.187
1358	314608.672	7569265.151	2256.749
1359	314628.671	7569265.040	2258.733
1360	314648.671	7569264.929	2264.123
1361	314668.671	7569264.818	2271.202
1362	314688.671	7569264.707	2276.731
1363	314148.790	7569287.704	2203.465
1364	314168.790	7569287.593	2207.283
1365	314188.789	7569287.482	2210.909
1366	314208.789	7569287.371	2214.535
1367	314228.789	7569287.260	2213.599
1368	314248.788	7569287.149	2205.640
1369	314268.788	7569287.038	2207.740
1370	314288.788	7569286.927	2210.982
1371	314308.787	7569286.816	2215.029
1372	314328.787	7569286.705	2217.123
1373	314348.787	7569286.594	2217.569
1374	314368.786	7569286.483	2223.162
1375	314388.786	7569286.372	2225.988
1376	314408.786	7569286.261	2229.529
1377	314428.786	7569286.150	2231.675
1378	314448.785	7569286.039	2232.349
1379	314468.785	7569285.928	2233.014
1380	314488.785	7569285.817	2235.928
1381	314508.784	7569285.706	2241.193
1382	314528.784	7569285.594	2243.896
1383	314548.784	7569285.483	2250.271
1384	314568.783	7569285.372	2256.025
1385	314588.783	7569285.261	2260.329
1386	314608.783	7569285.150	2263.385
1387	314628.782	7569285.039	2261.525
1388	314648.782	7569284.928	2260.798
1389	314668.782	7569284.817	2266.633
1390	314688.782	7569284.706	2273.312
1391	314708.781	7569284.595	2279.387
1392	314148.901	7569307.704	2201.002
1393	314168.901	7569307.593	2205.069
1394	314188.900	7569307.482	2208.908
1395	314208.900	7569307.371	2212.535
1396	314228.900	7569307.260	2216.161
1397	314248.899	7569307.149	2219.787
1398	314268.899	7569307.038	2217.888
1399	314288.899	7569306.926	2216.058
1400	314308.898	7569306.815	2215.416
1401	314328.898	7569306.704	2214.733
1402	314348.898	7569306.593	2218.839
1403	314368.898	7569306.482	2220.098
1404	314388.897	7569306.371	2220.429
1405	314408.897	7569306.260	2222.389
1406	314428.897	7569306.149	2226.049
1407	314448.896	7569306.038	2230.821
1408	314468.896	7569305.927	2236.593
1409	314488.896	7569305.816	2244.266
1410	314508.895	7569305.705	2249.937
1411	314528.895	7569305.594	2252.291
1412	314548.895	7569305.483	2255.207
1413	314568.894	7569305.372	2258.879
1414	314588.894	7569305.261	2262.397
1415	314608.894	7569305.150	2266.214
1416	314628.894	7569305.039	2266.710
1417	314648.893	7569304.928	2264.472
1418	314668.893	7569304.817	2262.719
1419	314688.893	7569304.706	2268.871
1420	314708.892	7569304.595	2274.990
1421	314728.892	7569304.484	2279.753
1422	314309.009	7569326.815	2221.251
1423	314329.009	7569326.704	2222.486
1424	314349.009	7569326.593	2222.850
1425	314369.009	7569326.482	2221.975
1426	314389.008	7569326.371	2221.100
1427	314409.008	7569326.260	2226.366
1428	314429.008	7569326.149	2232.801
1429	314449.007	7569326.038	2238.891
1430	314469.007	7569325.927	2244.008
1431	314489.007	7569325.816	2247.652
1432	314509.006	7569325.705	2253.258
1433	314529.006	7569325.594	2258.117

2304	314819.105	7571144.011	2176.599
2305	314839.105	7571143.900	2177.047
2306	314859.105	7571143.789	2178.718
2307	314879.104	7571143.678	2180.691
2308	314899.104	7571143.567	2181.552
2309	314919.104	7571143.456	2182.178
2310	314939.103	7571143.345	2182.230
2311	314959.103	7571143.234	2181.625
2312	314979.103	7571143.123	2180.235
2313	314999.102	7571143.012	2178.773
2314	315019.102	7571142.901	2176.039
2315	315039.102	7571142.790	2170.718
2316	315059.102	7571142.679	2166.067
2317	315079.101	7571142.568	2159.241
2318	315099.101	7571142.457	2156.238
2319	315119.101	7571142.346	2155.427
2320	315139.100	7571142.235	2157.010
2321	315159.100	7571142.124	2157.876
2322	314699.218	7571164.677	2178.945
2323	314719.218	7571164.566	2172.285
2324	314739.218	7571164.455	2163.741
2325	314759.217	7571164.344	2166.323
2326	314779.217	7571164.233	2164.349
2327	314799.217	7571164.122	2169.921
2328	314819.216	7571164.011	2173.516
2329	314839.216	7571163.900	2173.454
2330	314859.216	7571163.789	2172.662
2331	314879.215	7571163.678	2172.817
2332	314899.215	7571163.567	2174.876
2333	314919.215	7571163.456	2181.001
2334	314939.214	7571163.345	2181.426
2335	314959.214	7571163.234	2180.986
2336	314979.214	7571163.123	2179.858
2337	314999.214	7571163.012	2178.012
2338	315019.213	7571162.901	2175.963
2339	315039.213	7571162.790	2172.786
2340	315059.213	7571162.679	2167.992
2341	315079.212	7571162.568	2161.742
2342	315099.212	7571162.457	2159.240
2343	315119.212	7571162.346	2158.083
2344	315139.211	7571162.235	2159.143
2345	315159.211	7571162.124	2159.523
2346	314699.329	7571184.677	2181.321
2347	314719.329	7571184.566	2177.583
2348	314739.329	7571184.455	2172.573
2349	314759.328	7571184.344	2166.022
2350	314779.328	7571184.233	2162.809
2351	314799.328	7571184.122	2158.790
2352	314819.327	7571184.011	2160.883
2353	314839.327	7571183.900	2163.356
2354	314859.327	7571183.789	2164.081
2355	314879.326	7571183.678	2161.060
2356	314899.326	7571183.567	2170.041
2357	314919.326	7571183.456	2176.743
2358	314939.325	7571183.345	2180.614
2359	314959.325	7571183.234	2180.227
2360	314979.325	7571183.123	2179.262
2361	314999.325	7571183.012	2177.283
2362	315019.324	7571182.901	2175.296
2363	315039.324	7571182.790	2173.160
2364	315059.324	7571182.678	2168.489
2365	315079.323	7571182.567	2164.379
2366	315099.323	7571182.456	2161.827
2367	315119.323	7571182.345	2160.775
2368	315139.322	7571182.234	2160.704
2369	315159.322	7571182.123	2160.690
2370	315179.322	7571182.012	2160.750
2371	314699.440	7571204.677	2183.824
2372	314719.440	7571204.566	2180.642
2373	314739.440	7571204.455	2176.641
2374	314759.439	7571204.344	2173.433
2375	314779.439	7571204.233	2166.155
2376	314799.439	7571204.122	2167.275
2377	314819.438	7571204.011	2164.322
2378	314839.438	7571203.899	2160.904
2379	314859.438	7571203.788	2155.410
2380	314879.437	7571203.677	2154.496
2381	314899.437	7571203.566	2165.397
2382	314919.437	7571203.455	2178.047
2383	314939.436	7571203.344	2178.042
2384	314959.436	7571203.233	2179.095

483	313121.589	7567993.386	2191.474
484	313141.589	7567993.275	2190.077
485	313161.588	7567993.164	2189.251
486	313181.588	7567993.053	2188.922
487	313201.588	7567992.942	2187.990
488	313221.587	7567992.831	2188.206
489	313241.587	7567992.720	2187.056
490	313261.587	7567992.609	2187.976
491	313281.586	7567992.498	2189.451
492	313301.586	7567992.387	2188.690
493	313321.586	7567992.276	2187.104
494	313341.585	7567992.165	2186.309
495	313361.585	7567992.054	2184.752
496	313001.702	7568014.052	2203.548
497	313021.701	7568013.941	2202.391
498	313041.701	7568013.830	2201.362
499	313061.701	7568013.719	2199.319
500	313081.700	7568013.608	2197.926
501	313101.700	7568013.497	2196.801
502	313121.700	7568013.386	2194.646
503	313141.700	7568013.275	2192.746
504	313161.699	7568013.164	2193.066
505	313181.699	7568013.053	2192.646
506	313201.699	7568012.942	2192.981
507	313221.698	7568012.831	2193.353
508	313241.698	7568012.720	2193.050
509	313261.698	7568012.609	2193.417
510	313281.697	7568012.498	2194.498
511	313301.697	7568012.387	2192.551
512	313321.697	7568012.276	2191.049
513	313341.696	7568012.165	2190.994
514	313361.696	7568012.054	2190.461
515	313381.696	7568011.943	2188.016
516	313401.696	7568011.832	2185.561
517	313421.695	7568011.721	2191.815
518	313441.695	7568011.610	2198.666
519	313021.812	7568033.941	2206.548
520	313041.812	7568033.830	2203.721
521	313061.812	7568033.719	2203.295
522	313081.811	7568033.608	2202.478
523	313101.811	7568033.497	2199.442
524	313121.811	7568033.386	2196.971
525	313141.811	7568033.275	2200.000
526	313161.810	7568033.164	2200.242
527	313181.810	7568033.053	2198.350
528	313201.810	7568032.942	2197.754
529	313221.809	7568032.831	2198.539
530	313241.809	7568032.720	2200.202
531	313261.809	7568032.609	2198.170
532	313281.808	7568032.498	2198.177
533	313301.808	7568032.387	2196.425
534	313321.808	7568032.276	2195.726
535	313341.807	7568032.165	2195.895
536	313361.807	7568032.053	2193.292
537	313381.807	7568031.942	2191.786
538	313401.807	7568031.831	2190.574
539	313421.806	7568031.720	2188.415
540	313441.806	7568031.609	2191.783
541	313061.923	7568053.719	2208.523
542	313081.923	7568053.608	2206.724
543	313101.922	7568053.497	2202.906
544	313121.922	7568053.386	2204.747
545	313141.922	7568053.274	2207.658
546	313161.921	7568053.163	2208.320
547	313181.921	7568053.052	2206.236
548	313201.921	7568052.941	2204.975
549	313221.920	7568052.830	2201.552
550	313241.920	7568052.719	2204.599
551	313261.920	7568052.608	2205.274
552	313281.919	7568052.497	2204.028
553	313301.919	7568052.386	2201.778
554	313321.919	7568052.275	2199.774
555	313341.919	7568052.164	2200.684
556	313361.918	7568052.053	2198.193
557	313381.918	7568051.942	2199.178
558	313401.918	7568051.831	2199.496
559	313421.917	7568051.720	2196.141
560	313441.917	7568051.609	2193.119
561	313461.917	7568051.498	2193.488
562	313481.916	7568051.387	2199.837
563	313501.916	7568051.276	2208.784

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1435	314569.005	7569325.372	2265.082
1436	314589.005	7569325.261	2268.155
1437	314609.005	7569325.150	2270.340
1438	314629.005	7569325.039	2271.989
1439	314649.004	7569324.928	2269.462
1440	314669.004	7569324.817	2264.221
1441	314689.004	7569324.706	2264.896
1442	314709.003	7569324.595	2268.994
1443	314729.003	7569324.484	2272.073
1444	314309.120	7569346.815	2222.318
1445	314329.120	7569346.704	2222.693
1446	314349.120	7569346.593	2224.088
1447	314369.120	7569346.482	2223.944
1448	314389.119	7569346.371	2223.069
1449	314409.119	7569346.260	2223.827
1450	314429.119	7569346.149	2230.262
1451	314449.118	7569346.038	2236.697
1452	314469.118	7569345.927	2241.798
1453	314489.118	7569345.816	2245.817
1454	314509.117	7569345.705	2250.190
1455	314529.117	7569345.594	2256.388
1456	314549.117	7569345.483	2262.586
1457	314569.116	7569345.371	2268.784
1458	314589.116	7569345.260	2273.912
1459	314609.116	7569345.149	2277.265
1460	314629.116	7569345.038	2278.663
1461	314649.115	7569344.927	2276.348
1462	314669.115	7569344.816	2269.791
1463	314689.115	7569344.705	2263.750
1464	314709.114	7569344.594	2262.585
1465	314729.114	7569344.483	2264.242
1466	314569.228	7569365.371	2265.640
1467	314589.227	7569365.260	2271.838
1468	314609.227	7569365.149	2278.036
1469	314629.227	7569365.038	2285.038
1470	314649.226	7569364.927	2284.253
1471	314669.226	7569364.816	2276.925
1472	314689.226	7569364.705	2268.129
1473	314709.225	7569364.594	2262.748
1474	314729.225	7569364.483	2258.170
1475	314749.225	7569364.372	2259.219
1476	314569.339	7569385.371	2262.495
1477	314589.338	7569385.260	2268.693
1478	314609.338	7569385.149	2274.891
1479	314629.338	7569385.038	2281.974
1480	314649.337	7569384.927	2287.633
1481	314669.337	7569384.816	2281.915
1482	314689.337	7569384.705	2271.815
1483	314709.336	7569384.594	2262.865
1484	314729.336	7569384.483	2256.777
1485	314749.336	7569384.372	2251.972
1486	314569.450	7569405.371	2259.350
1487	314589.449	7569405.260	2265.548
1488	314609.449	7569405.149	2271.746
1489	314629.449	7569405.037	2278.501
1490	314649.448	7569404.926	2283.604
1491	314669.448	7569404.815	2285.181
1492	314689.448	7569404.704	2273.745
1493	314709.447	7569404.593	2264.061
1494	314729.447	7569404.482	2257.856
1495	314749.447	7569404.371	2251.264
1496	314569.561	7569425.370	2256.205
1497	314589.560	7569425.259	2262.403
1498	314609.560	7569425.148	2268.602
1499	314629.560	7569425.037	2275.028
1500	314649.559	7569424.926	2280.131
1501	314669.559	7569424.815	2284.222
1502	314689.559	7569424.704	2273.812
1503	314709.558	7569424.593	2263.972
1504	314729.558	7569424.482	2258.751
1505	314749.558	7569424.371	2252.081
1506	314769.558	7569424.260	2245.750
1507	314569.672	7569445.370	2253.060
1508	314589.671	7569445.259	2259.259
1509	314609.671	7569445.148	2265.457
1510	314629.671	7569445.037	2271.556
1511	314649.670	7569444.926	2276.659
1512	314669.670	7569444.815	2281.085
1513	314689.670	7569444.704	2272.427
1514	314709.669	7569444.593	2263.388

2385	314979.436	7571203.122	2178.250
2386	314999.436	7571203.011	2176.736
2387	315019.435	7571202.900	2175.036
2388	315039.435	7571202.789	2172.321
2389	315059.435	7571202.678	2169.258
2390	315079.434	7571202.567	2165.479
2391	315099.434	7571202.456	2162.972
2392	315119.434	7571202.345	2161.834
2393	315139.433	7571202.234	2160.792
2394	315159.433	7571202.123	2160.179
2395	315179.433	7571202.012	2160.321
2396	314699.551	7571224.676	2185.043
2397	314719.551	7571224.565	2181.299
2398	314739.551	7571224.454	2177.760
2399	314759.550	7571224.343	2173.477
2400	314779.550	7571224.232	2167.082
2401	314799.550	7571224.121	2165.675
2402	314819.549	7571224.010	2164.393
2403	314839.549	7571223.899	2162.541
2404	314859.549	7571223.788	2156.027
2405	314879.548	7571223.677	2160.639
2406	314899.548	7571223.566	2174.118
2407	314919.548	7571223.455	2178.200
2408	314939.548	7571223.344	2178.603
2409	314959.547	7571223.233	2178.066
2410	314979.547	7571223.122	2176.710
2411	314999.547	7571223.011	2175.637
2412	315019.546	7571222.900	2174.584
2413	315039.546	7571222.789	2173.865
2414	315059.546	7571222.678	2170.206
2415	315079.545	7571222.567	2166.424
2416	315099.545	7571222.456	2163.477
2417	315119.545	7571222.345	2162.020
2418	315139.544	7571222.234	2161.005
2419	315159.544	7571222.123	2160.273
2420	315179.544	7571222.012	2159.750
2421	314679.663	7571244.787	2190.238
2422	314699.662	7571244.676	2186.319
2423	314719.662	7571244.565	2181.967
2424	314739.662	7571244.454	2178.589
2425	314759.661	7571244.343	2174.191
2426	314779.661	7571244.232	2165.025
2427	314799.661	7571244.121	2159.486
2428	314819.660	7571244.010	2161.113
2429	314839.660	7571243.899	2157.929
2430	314859.660	7571243.788	2156.675
2431	314879.659	7571243.677	2167.349
2432	314899.659	7571243.566	2174.502
2433	314919.659	7571243.455	2176.530
2434	314939.659	7571243.344	2177.340
2435	314959.658	7571243.233	2176.639
2436	314979.658	7571243.122	2176.095
2437	314999.658	7571243.011	2175.438
2438	315019.657	7571242.900	2174.584
2439	315039.657	7571242.789	2173.272
2440	315059.657	7571242.678	2170.526
2441	315079.656	7571242.567	2167.443
2442	315099.656	7571242.456	2164.597
2443	315119.656	7571242.344	2162.207
2444	315139.655	7571242.233	2161.219
2445	315159.655	7571242.122	2160.485
2446	315179.655	7571242.011	2159.738
2447	314679.774	7571264.787	2190.789
2448	314699.773	7571264.676	2189.336
2449	314719.773	7571264.565	2183.087
2450	314739.773	7571264.454	2179.291
2451	314759.772	7571264.343	2170.793
2452	314779.772	7571264.232	2162.016
2453	314799.772	7571264.121	2153.266
2454	314819.771	7571264.010	2151.343
2455	314839.771	7571263.899	2152.979
2456	314859.771	7571263.788	2163.732
2457	314879.771	7571263.677	2172.111
2458	314899.770	7571263.565	2173.481
2459	314919.770	7571263.454	2174.527
2460	314939.770	7571263.343	2175.312
2461	314959.769	7571263.232	2175.336
2462	314979.769	7571263.121	2174.813
2463	314999.769	7571263.010	2174.314
2464	315019.768	7571262.899	2173.489
2465	315039.768	7571262.788	2172.473

564	313521.916	7568051.165	2217.731
565	313541.915	7568051.054	2226.678
566	313561.915	7568050.943	2234.291
567	313082.034	7568073.607	2212.623
568	313102.033	7568073.496	2210.283
569	313122.033	7568073.385	2213.226
570	313142.033	7568073.274	2216.581
571	313162.032	7568073.163	2218.465
572	313182.032	7568073.052	2216.912
573	313202.032	7568072.941	2214.014
574	313222.031	7568072.830	2209.458
575	313242.031	7568072.719	2206.908
576	313262.031	7568072.608	2211.813
577	313282.030	7568072.497	2212.312
578	313302.030	7568072.386	2211.792
579	313322.030	7568072.275	2208.183
580	313342.030	7568072.164	2204.509
581	313362.029	7568072.053	2207.067
582	313382.029	7568071.942	2207.620
583	313402.029	7568071.831	2206.388
584	313422.028	7568071.720	2204.787
585	313442.028	7568071.609	2202.240
586	313462.028	7568071.498	2202.632
587	313482.027	7568071.387	2203.041
588	313502.027	7568071.276	2202.364
589	313522.027	7568071.165	2209.198
590	313542.026	7568071.054	2218.075
591	313562.026	7568070.943	2227.022
592	313582.026	7568070.832	2234.856
593	313102.144	7568093.496	2213.504
594	313122.144	7568093.385	2219.208
595	313142.144	7568093.274	2224.286
596	313162.143	7568093.163	2227.906
597	313182.143	7568093.052	2224.626
598	313202.143	7568092.941	2221.270
599	313222.142	7568092.830	2219.066
600	313242.142	7568092.719	2217.378
601	313262.142	7568092.608	2219.323
602	313282.141	7568092.497	2220.503
603	313302.141	7568092.386	2219.209
604	313322.141	7568092.275	2213.916
605	313342.141	7568092.164	2211.492
606	313362.140	7568092.053	2217.736
607	313382.140	7568091.942	2220.428
608	313402.140	7568091.831	2217.751
609	313422.139	7568091.719	2211.876
610	313442.139	7568091.608	2210.735
611	313462.139	7568091.497	2212.794
612	313482.138	7568091.386	2210.824
613	313502.138	7568091.275	2207.258
614	313522.138	7568091.164	2203.870
615	313542.137	7568091.053	2212.261
616	313562.137	7568090.942	2222.849
617	313582.137	7568090.831	2227.366
618	313322.252	7568112.274	2216.649
619	313342.252	7568112.163	2215.358
620	313362.251	7568112.052	2221.244
621	313382.251	7568111.941	2225.936
622	313402.251	7568111.830	2225.822
623	313422.250	7568111.719	2220.087
624	313442.250	7568111.608	2216.938
625	313462.250	7568111.497	2221.047
626	313482.249	7568111.386	2218.729
627	313502.249	7568111.275	2210.656
628	313522.249	7568111.164	2206.324
629	313542.249	7568111.053	2208.123
630	313562.248	7568110.942	2217.336
631	313582.248	7568110.831	2227.364
632	313602.248	7568110.720	2236.537
633	313322.363	7568132.274	2219.724
634	313342.363	7568132.163	2217.513
635	313362.362	7568132.052	2219.350
636	313382.362	7568131.941	2223.733
637	313402.362	7568131.830	2228.116
638	313422.361	7568131.719	2229.054
639	313442.361	7568131.608	2224.811
640	313462.361	7568131.497	2225.771
641	313482.360	7568131.386	2222.638
642	313502.360	7568131.275	2216.368
643	313522.360	7568131.164	2211.005
644	313542.360	7568131.053	2207.260

1515	314729.669	7569444.482	2257.954
1516	314749.669	7569444.371	2251.858
1517	314769.669	7569444.260	2246.574
1518	314569.783	7569465.370	2249.916
1519	314589.782	7569465.259	2256.114
1520	314609.782	7569465.148	2262.351
1521	314629.782	7569465.037	2268.083
1522	314649.781	7569464.926	2273.158
1523	314669.781	7569464.815	2275.642
1524	314689.781	7569464.703	2270.235
1525	314709.780	7569464.592	2262.705
1526	314729.780	7569464.481	2256.612
1527	314749.780	7569464.370	2251.604
1528	314769.780	7569464.259	2245.189
1529	314569.894	7569485.369	2247.552
1530	314589.893	7569485.258	2252.969
1531	314609.893	7569485.147	2259.423
1532	314629.893	7569485.036	2264.611
1533	314649.892	7569484.925	2267.856
1534	314669.892	7569484.814	2270.885
1535	314689.892	7569484.703	2267.284
1536	314709.892	7569484.592	2261.705
1537	314729.891	7569484.481	2256.718
1538	314749.891	7569484.370	2251.201
1539	314769.891	7569484.259	2244.624
1540	314570.005	7569505.369	2246.429
1541	314590.004	7569505.258	2249.824
1542	314610.004	7569505.147	2256.035
1543	314630.004	7569505.036	2260.074
1544	314650.003	7569504.925	2263.372
1545	314670.003	7569504.814	2266.281
1546	314690.003	7569504.703	2264.439
1547	314710.003	7569504.592	2260.629
1548	314730.002	7569504.481	2255.644
1549	314750.002	7569504.370	2252.049
1550	314770.002	7569504.259	2244.471
1551	314570.116	7569525.369	2245.314
1552	314590.115	7569525.258	2248.061
1553	314610.115	7569525.147	2252.301
1554	314630.115	7569525.036	2255.963
1555	314650.115	7569524.925	2259.847
1556	314670.114	7569524.814	2262.787
1557	314690.114	7569524.703	2260.575
1558	314710.114	7569524.592	2258.804
1559	314730.113	7569524.481	2254.945
1560	314750.113	7569524.369	2251.718
1561	314770.113	7569524.258	2244.522
1562	314790.112	7569524.147	2239.573
1563	314570.227	7569545.368	2244.199
1564	314590.226	7569545.257	2246.946
1565	314610.226	7569545.146	2248.351
1566	314630.226	7569545.035	2256.940
1567	314650.226	7569544.924	2260.440
1568	314670.225	7569544.813	2259.398
1569	314690.225	7569544.702	2257.840
1570	314710.225	7569544.591	2255.723
1571	314730.224	7569544.480	2253.442
1572	314750.224	7569544.369	2251.440
1573	314770.224	7569544.258	2244.391
1574	314790.223	7569544.147	2238.306
1575	314570.338	7569565.368	2243.084
1576	314590.337	7569565.257	2251.634
1577	314610.337	7569565.146	2244.267
1578	314630.337	7569565.035	2246.037
1579	314650.337	7569564.924	2256.439
1580	314670.336	7569564.813	2255.388
1581	314690.336	7569564.702	2252.998
1582	314710.336	7569564.591	2251.913
1583	314730.335	7569564.480	2249.932
1584	314750.335	7569564.369	2250.514
1585	314770.335	7569564.258	2243.410
1586	314790.334	7569564.147	2237.300
1587	314570.449	7569585.368	2241.969
1588	314590.449	7569585.257	2255.216
1589	314610.448	7569585.146	2246.699
1590	314630.448	7569585.035	2238.674
1591	314650.448	7569584.924	2249.553
1592	314670.447	7569584.813	2250.613
1593	314690.447	7569584.702	2247.263
1594	314710.447	7569584.591	2246.525
1595	314730.446	7569584.480	2247.358

2466	315059.768	7571262.677	2170.779
2467	315079.767	7571262.566	2167.674
2468	315099.767	7571262.455	2165.355
2469	315119.767	7571262.344	2163.106
2470	315139.766	7571262.233	2161.433
2471	315159.766	7571262.122	2160.272
2472	315179.766	7571262.011	2159.590
2473	314679.885	7571284.786	2191.347
2474	314699.884	7571284.675	2189.487
2475	314719.884	7571284.564	2183.016
2476	314739.884	7571284.453	2177.365
2477	314759.883	7571284.342	2168.977
2478	314779.883	7571284.231	2158.145
2479	314799.883	7571284.120	2149.910
2480	314819.882	7571284.009	2154.170
2481	314839.882	7571283.898	2166.850
2482	314859.882	7571283.787	2168.946
2483	314959.880	7571283.232	2171.616
2484	314979.880	7571283.121	2172.197
2485	314999.880	7571283.010	2172.750
2486	315019.879	7571282.899	2172.130
2487	315039.879	7571282.788	2171.128
2488	315059.879	7571282.677	2169.733
2489	315079.878	7571282.566	2167.413
2490	315099.878	7571282.455	2165.044
2491	315119.878	7571282.344	2162.611
2492	315139.878	7571282.233	2160.842
2493	315159.877	7571282.122	2159.460
2494	315179.877	7571282.011	2159.442
2495	314679.996	7571304.786	2191.923
2496	314699.995	7571304.675	2187.660
2497	314719.995	7571304.564	2179.868
2498	314739.995	7571304.453	2173.706
2499	314759.994	7571304.342	2165.520
2500	314779.994	7571304.231	2147.927
2501	314799.994	7571304.120	2157.322
2502	314819.993	7571304.009	2158.965
2503	314839.993	7571303.898	2165.036
2504	314859.993	7571303.787	2165.693
2505	314680.107	7571324.786	2191.636
2506	314700.106	7571324.675	2185.536
2507	314720.106	7571324.564	2176.198
2508	314740.106	7571324.453	2168.672
2509	314760.105	7571324.342	2165.245
2510	314780.105	7571324.231	2153.110
2511	314800.105	7571324.120	2154.261
2512	314820.105	7571324.009	2157.256
2513	314840.104	7571323.898	2163.908
2514	314860.104	7571323.787	2162.795
2515	314680.218	7571344.786	2191.750
2516	314700.217	7571344.675	2183.548
2517	314720.217	7571344.563	2173.705
2518	314740.217	7571344.452	2167.801
2519	314760.216	7571344.341	2161.021
2520	314780.216	7571344.230	2152.234
2521	314800.216	7571344.119	2155.335
2522	314820.216	7571344.008	2161.896
2523	314840.215	7571343.897	2164.496
2524	314860.215	7571343.786	2161.019
2525	314680.329	7571364.785	2191.677
2526	314700.328	7571364.674	2182.251
2527	314720.328	7571364.563	2172.523
2528	314740.328	7571364.452	2163.190
2529	314760.327	7571364.341	2160.755
2530	314780.327	7571364.230	2162.718
2531	314800.327	7571364.119	2167.428
2532	314820.327	7571364.008	2167.071
2533	314840.326	7571363.897	2164.375
2534	314860.326	7571363.786	2160.229
2535	314880.326	7571363.675	2155.666
2536	314900.325	7571363.564	2154.491
2537	314680.440	7571384.785	2191.006
2538	314700.439	7571384.674	2180.516
2539	314720.439	7571384.563	2170.554
2540	314740.439	7571384.452	2167.194
2541	314760.439	7571384.341	2168.447
2542	314780.438	7571384.230	2169.631
2543	314800.438	7571384.119	2169.451
2544	314820.438	7571384.008	2167.515
2545	314840.437	7571383.897	2164.855
2546	314860.437	7571383.786	2162.125

645	313562.359	7568130.942	2214.332
646	313582.359	7568130.831	2221.679
647	313602.359	7568130.720	2228.500
648	313622.358	7568130.609	2233.571
649	313642.358	7568130.498	2231.211
650	313442.472	7568151.608	2230.890
651	313462.472	7568151.497	2229.156
652	313482.471	7568151.385	2227.467
653	313502.471	7568151.274	2222.718
654	313522.471	7568151.163	2218.298
655	313542.471	7568151.052	2212.803
656	313562.470	7568150.941	2210.621
657	313582.470	7568150.830	2216.932
658	313602.470	7568150.719	2222.671
659	313622.469	7568150.608	2227.621
660	313642.469	7568150.497	2228.043
661	313662.469	7568150.386	2228.175
662	313502.582	7568171.274	2232.193
663	313522.582	7568171.163	2229.660
664	313542.582	7568171.052	2223.068
665	313562.581	7568170.941	2215.978
666	313582.581	7568170.830	2216.312
667	313602.581	7568170.719	2219.112
668	313622.580	7568170.608	2221.532
669	313642.580	7568170.497	2223.912
670	313662.580	7568170.386	2225.109
671	313682.579	7568170.275	2225.233
672	313502.693	7568191.274	2235.524
673	313522.693	7568191.163	2235.364
674	313542.693	7568191.052	2230.478
675	313562.692	7568190.941	2223.816
676	313582.692	7568190.830	2218.218
677	313602.692	7568190.719	2218.423
678	313622.691	7568190.608	2218.211
679	313642.691	7568190.497	2217.768
680	313662.691	7568190.386	2220.994
681	313682.690	7568190.275	2222.176
682	313702.690	7568190.164	2222.286
683	313502.804	7568211.274	2238.742
684	313522.804	7568211.162	2238.708
685	313542.804	7568211.051	2235.774
686	313562.803	7568210.940	2227.512
687	313582.803	7568210.829	2220.799
688	313602.803	7568210.718	2216.734
689	313622.802	7568210.607	2215.552
690	313642.802	7568210.496	2212.505
691	313662.802	7568210.385	2214.355
692	313682.801	7568210.274	2217.567
693	313702.801	7568210.163	2219.243
694	313722.801	7568210.052	2219.339
695	313502.915	7568231.273	2242.001
696	313522.915	7568231.162	2241.484
697	313542.915	7568231.051	2234.871
698	313562.914	7568230.940	2227.659
699	313582.914	7568230.829	2221.749
700	313602.914	7568230.718	2215.920
701	313622.913	7568230.607	2213.598
702	313642.913	7568230.496	2210.029
703	313662.913	7568230.385	2208.734
704	313682.913	7568230.274	2211.014
705	313702.912	7568230.163	2214.139
706	313722.912	7568230.052	2216.309
707	313742.912	7568229.941	2216.388
708	313503.026	7568251.273	2243.251
709	313523.026	7568251.162	2241.561
710	313543.026	7568251.051	2233.632
711	313563.025	7568250.940	2226.184
712	313583.025	7568250.829	2221.270
713	313603.025	7568250.718	2215.830
714	313623.024	7568250.607	2212.180
715	313643.024	7568250.496	2208.288
716	313663.024	7568250.385	2205.544
717	313683.024	7568250.274	2205.447
718	313703.023	7568250.163	2207.721
719	313723.023	7568250.052	2210.711
720	313743.023	7568249.941	2213.404
721	313763.022	7568249.830	2213.437
722	313503.137	7568271.273	2242.404
723	313523.137	7568271.162	2239.925
724	313543.137	7568271.051	2233.082
725	313563.136	7568270.940	2225.212

1596	314750.446	7569584.369	2248.052
1597	314770.446	7569584.258	2241.719
1598	314790.445	7569584.146	2234.987
1599	314570.560	7569605.367	2240.252
1600	314590.560	7569605.256	2240.803
1601	314610.559	7569605.145	2240.031
1602	314630.559	7569605.034	2237.545
1603	314650.559	7569604.923	2241.407
1604	314670.558	7569604.812	2246.682
1605	314690.558	7569604.701	2242.162
1606	314710.558	7569604.590	2242.884
1607	314730.557	7569604.479	2243.463
1608	314750.557	7569604.368	2245.810
1609	314770.557	7569604.257	2239.776
1610	314790.556	7569604.146	2232.074
1611	314570.671	7569625.367	2247.697
1612	314590.671	7569625.256	2243.171
1613	314610.670	7569625.145	2238.585
1614	314630.670	7569625.034	2235.160
1615	314650.670	7569624.923	2234.499
1616	314670.669	7569624.812	2239.022
1617	314690.669	7569624.701	2240.006
1618	314710.669	7569624.590	2237.440
1619	314730.668	7569624.479	2238.994
1620	314750.668	7569624.368	2241.952
1621	314770.668	7569624.257	2234.635
1622	314790.667	7569624.146	2230.648
1623	314810.667	7569624.035	2237.488
1624	314570.782	7569645.367	2255.228
1625	314590.782	7569645.256	2250.490
1626	314610.781	7569645.145	2245.187
1627	314630.781	7569645.034	2238.092
1628	314650.781	7569644.923	2231.644
1629	314670.780	7569644.812	2233.968
1630	314690.780	7569644.701	2235.056
1631	314710.780	7569644.590	2233.437
1632	314730.779	7569644.479	2236.266
1633	314750.779	7569644.368	2234.432
1634	314770.779	7569644.257	2226.845
1635	314790.779	7569644.146	2229.611
1636	314810.778	7569644.035	2241.263
1637	314570.893	7569665.367	2245.345
1638	314590.893	7569665.256	2256.051
1639	314610.892	7569665.145	2250.212
1640	314630.892	7569665.033	2243.980
1641	314650.892	7569664.922	2234.866
1642	314670.891	7569664.811	2230.631
1643	314690.891	7569664.700	2228.798
1644	314710.891	7569664.589	2229.254
1645	314730.890	7569664.478	2231.622
1646	314750.890	7569664.367	2225.853
1647	314770.890	7569664.256	2217.278
1648	314790.890	7569664.145	2228.602
1649	314810.889	7569664.034	2242.957
1650	314591.004	7569685.255	2252.043
1651	314611.003	7569685.144	2247.285
1652	314631.003	7569685.033	2241.948
1653	314651.003	7569684.922	2236.992
1654	314671.002	7569684.811	2231.308
1655	314691.002	7569684.700	2229.013
1656	314711.002	7569684.589	2224.860
1657	314731.001	7569684.478	2224.975
1658	314751.001	7569684.367	2219.567
1659	314771.001	7569684.256	2224.100
1660	314791.001	7569684.145	2227.440
1661	314811.000	7569684.034	2241.930
1662	314831.000	7569683.923	2230.131
1663	314591.115	7569705.255	2241.218
1664	314611.114	7569705.144	2239.120
1665	314631.114	7569705.033	2236.356
1666	314651.114	7569704.922	2233.459
1667	314671.113	7569704.811	2234.663
1668	314691.113	7569704.700	2233.245
1669	314711.113	7569704.589	2232.176
1670	314731.113	7569704.478	2227.259
1671	314751.112	7569704.367	2227.457
1672	314771.112	7569704.256	2230.868
1673	314791.112	7569704.145	2230.901
1674	314811.111	7569704.034	2240.923
1675	314831.111	7569703.923	2233.906
1676	314591.226	7569725.255	2238.755

2547	314880.437	7571383.675	2154.829
2548	314900.436	7571383.564	2151.751
2549	314680.551	7571404.785	2188.053
2550	314700.550	7571404.674	2177.907
2551	314720.550	7571404.563	2169.742
2552	314740.550	7571404.452	2179.002
2553	314760.550	7571404.341	2179.697
2554	314780.549	7571404.229	2177.411
2555	314800.549	7571404.118	2172.170
2556	314820.549	7571404.007	2167.744
2557	314840.548	7571403.896	2164.873
2558	314860.548	7571403.785	2158.716
2559	314880.548	7571403.674	2152.705
2560	314900.547	7571403.563	2151.685
2561	314680.662	7571424.784	2180.579
2562	314700.661	7571424.673	2174.708
2563	314720.661	7571424.562	2176.698
2564	314740.661	7571424.451	2185.455
2565	314760.661	7571424.340	2183.161
2566	314780.660	7571424.229	2178.344
2567	314800.660	7571424.118	2173.909
2568	314820.660	7571424.007	2168.102
2569	314840.659	7571423.896	2165.469
2570	314860.659	7571423.785	2159.894
2571	314880.659	7571423.674	2152.397
2572	314900.658	7571423.563	2149.627
2573	314700.773	7571444.673	2180.846
2574	314720.772	7571444.562	2181.469
2575	314740.772	7571444.451	2184.304
2576	314760.772	7571444.340	2184.240
2577	314780.771	7571444.229	2179.594
2578	314800.771	7571444.118	2174.886
2579	314820.771	7571444.007	2169.033
2580	314840.770	7571443.896	2164.516
2581	314860.770	7571443.785	2156.439
2582	314880.770	7571443.674	2150.088
2583	314900.769	7571443.563	2149.332
2584	314920.769	7571443.452	2156.204
2585	314700.884	7571464.673	2180.912
2586	314720.883	7571464.562	2180.310
2587	314740.883	7571464.451	2181.332
2588	314760.883	7571464.340	2182.567
2589	314780.882	7571464.229	2180.302
2590	314800.882	7571464.118	2174.614
2591	314820.882	7571464.007	2168.477
2592	314840.881	7571463.895	2163.578
2593	314860.881	7571463.784	2160.969
2594	314880.881	7571463.673	2160.372
2595	314900.880	7571463.562	2159.474
2596	314920.880	7571463.451	2159.293
2597	314940.880	7571463.340	2160.021
2598	314960.880	7571463.229	2159.405
2599	314800.993	7571484.117	2176.612
2600	314820.993	7571484.006	2168.741
2601	314840.992	7571483.895	2163.592
2602	314860.992	7571483.784	2162.110
2603	314880.992	7571483.673	2162.750
2604	314900.991	7571483.562	2162.153
2605	314920.991	7571483.451	2161.044
2606	314940.991	7571483.340	2159.915
2607	314960.991	7571483.229	2157.749
2608	314801.104	7571504.117	2176.220
2609	314821.104	7571504.006	2170.221
2610	314841.103	7571503.895	2164.651
2611	314861.103	7571503.784	2163.921
2612	314881.103	7571503.673	2162.804
2613	314901.103	7571503.562	2161.731
2614	314921.102	7571503.451	2161.110
2615	314941.102	7571503.340	2160.042
2616	314961.102	7571503.229	2158.780
2617	314981.101	7571503.118	2156.356
2618	315001.101	7571503.007	2156.936
2619	315021.101	7571502.896	2157.220
2620	315041.100	7571502.785	2156.873
2621	315061.100	7571502.674	2156.672
2622	315081.100	7571502.563	2155.774
2623	314801.215	7571524.117	2175.945
2624	314821.215	7571524.006	2170.984
2625	314841.214	7571523.895	2166.532
2626	314861.214	7571523.784	2166.275
2627	314881.214	7571523.672	2163.740

726	313583.136	7568270.828	2219.002
727	313603.136	7568270.717	2214.297
728	313623.135	7568270.606	2210.304
729	313643.135	7568270.495	2206.092
730	313663.135	7568270.384	2202.313
731	313683.135	7568270.273	2203.235
732	313703.134	7568270.162	2202.289
733	313723.134	7568270.051	2204.448
734	313743.134	7568269.940	2207.283
735	313763.133	7568269.829	2210.512
736	313783.133	7568269.718	2210.486
737	313503.248	7568291.272	2241.439
738	313523.248	7568291.161	2237.480
739	313543.248	7568291.050	2230.781
740	313563.247	7568290.939	2223.937
741	313583.247	7568290.828	2216.791
742	313603.247	7568290.717	2211.730
743	313623.247	7568290.606	2207.945
744	313643.246	7568290.495	2200.281
745	313663.246	7568290.384	2201.902
746	313683.246	7568290.273	2201.750
747	313703.245	7568290.162	2202.485
748	313723.245	7568290.051	2202.859
749	313743.245	7568289.940	2201.026
750	313763.244	7568289.829	2204.746
751	313783.244	7568289.718	2207.084
752	313803.244	7568289.607	2207.534
753	313503.359	7568311.272	2240.469
754	313523.359	7568311.161	2235.003
755	313543.359	7568311.050	2228.480
756	313563.358	7568310.939	2221.636
757	313583.358	7568310.828	2214.985
758	313603.358	7568310.717	2209.985
759	313623.358	7568310.606	2204.471
760	313643.357	7568310.495	2208.083
761	313663.357	7568310.384	2207.334
762	313683.357	7568310.273	2206.221
763	313703.356	7568310.162	2206.805
764	313723.356	7568310.051	2208.435
765	313743.356	7568309.940	2209.224
766	313763.355	7568309.829	2213.811
767	313783.355	7568309.718	2215.510
768	313803.355	7568309.607	2211.513
769	313823.354	7568309.496	2204.575
770	313503.470	7568331.272	2238.973
771	313523.470	7568331.161	2232.526
772	313543.470	7568331.050	2226.079
773	313563.469	7568330.939	2219.335
774	313583.469	7568330.828	2214.153
775	313603.469	7568330.717	2211.960
776	313623.469	7568330.606	2210.658
777	313643.468	7568330.494	2212.096
778	313663.468	7568330.383	2210.928
779	313683.468	7568330.272	2210.718
780	313703.467	7568330.161	2211.199
781	313723.467	7568330.050	2212.711
782	313743.467	7568329.939	2215.760
783	313763.466	7568329.828	2218.943
784	313783.466	7568329.717	2224.089
785	313803.466	7568329.606	2215.030
786	313823.465	7568329.495	2207.987
787	313843.465	7568329.384	2201.126
788	313503.581	7568351.271	2236.161
789	313523.581	7568351.160	2234.902
790	313543.581	7568351.049	2229.292
791	313563.581	7568350.938	2222.714
792	313583.580	7568350.827	2220.461
793	313603.580	7568350.716	2214.882
794	313623.580	7568350.605	2216.798
795	313643.579	7568350.494	2217.601
796	313663.579	7568350.383	2215.313
797	313683.579	7568350.272	2214.712
798	313703.578	7568350.161	2214.850
799	313723.578	7568350.050	2216.848
800	313743.578	7568349.939	2219.671
801	313763.577	7568349.828	2221.882
802	313783.577	7568349.717	2222.947
803	313803.577	7568349.606	2219.340
804	313823.577	7568349.495	2210.975
805	313843.576	7568349.384	2202.987
806	313503.692	7568371.271	2232.371

1677	314611.225	7569725.144	2247.233
1678	314631.225	7569725.033	2233.599
1679	314651.225	7569724.922	2237.595
1680	314671.224	7569724.811	2240.441
1681	314691.224	7569724.699	2240.196
1682	314711.224	7569724.588	2238.640
1683	314731.224	7569724.477	2234.857
1684	314751.223	7569724.366	2230.110
1685	314771.223	7569724.255	2234.904
1686	314791.223	7569724.144	2236.847
1687	314811.222	7569724.033	2239.917
1688	314831.222	7569723.922	2237.682
1689	314611.336	7569745.143	2242.662
1690	314631.336	7569745.032	2235.424
1691	314651.336	7569744.921	2243.151
1692	314671.335	7569744.810	2246.682
1693	314691.335	7569744.699	2246.821
1694	314711.335	7569744.588	2245.930
1695	314731.335	7569744.477	2241.614
1696	314751.334	7569744.366	2235.849
1697	314771.334	7569744.255	2236.193
1698	314791.334	7569744.144	2240.703
1699	314811.333	7569744.033	2244.628
1700	314831.333	7569743.922	2241.457
1701	314611.447	7569765.143	2237.931
1702	314631.447	7569765.032	2235.637
1703	314651.447	7569764.921	2240.524
1704	314671.447	7569764.810	2247.907
1705	314691.446	7569764.699	2249.489
1706	314711.446	7569764.588	2249.099
1707	314731.446	7569764.477	2245.262
1708	314751.445	7569764.366	2239.388
1709	314771.445	7569764.255	2235.132
1710	314791.445	7569764.144	2240.717
1711	314811.444	7569764.033	2247.204
1712	314831.444	7569763.922	2245.233
1713	314711.557	7569784.588	2250.944
1714	314731.557	7569784.476	2245.921
1715	314751.556	7569784.365	2238.687
1716	314771.556	7569784.254	2233.003
1717	314791.556	7569784.143	2237.250
1718	314811.555	7569784.032	2242.714
1719	314831.555	7569783.921	2243.538
1720	314711.668	7569804.587	2250.977
1721	314731.668	7569804.476	2244.270
1722	314751.667	7569804.365	2235.835
1723	314771.667	7569804.254	2228.812
1724	314791.667	7569804.143	2230.823
1725	314811.666	7569804.032	2237.575
1726	314831.666	7569803.921	2239.959
1727	314711.779	7569824.587	2247.918
1728	314731.779	7569824.476	2244.115
1729	314751.778	7569824.365	2235.487
1730	314771.778	7569824.254	2227.818
1731	314791.778	7569824.143	2223.173
1732	314811.777	7569824.032	2231.123
1733	314831.777	7569823.921	2236.339
1734	314711.890	7569844.587	2247.416
1735	314731.890	7569844.476	2244.239
1736	314751.889	7569844.365	2235.155
1737	314771.889	7569844.254	2227.750
1738	314791.889	7569844.142	2220.149
1739	314811.888	7569844.031	2224.791
1740	314831.888	7569843.920	2231.843
1741	314712.001	7569864.586	2243.764
1742	314732.001	7569864.475	2244.492
1743	314752.000	7569864.364	2235.802
1744	314772.000	7569864.253	2227.546
1745	314792.000	7569864.142	2220.876
1746	314812.000	7569864.031	2218.492
1747	314831.999	7569863.920	2228.004
1748	314712.112	7569884.586	2240.017
1749	314732.112	7569884.475	2243.752
1750	314752.111	7569884.364	2236.734
1751	314772.111	7569884.253	2230.162
1752	314792.111	7569884.142	2224.082
1753	314812.111	7569884.031	2215.847
1754	314832.110	7569883.920	2222.830
1755	314712.223	7569904.586	2236.553
1756	314732.223	7569904.475	2241.838
1757	314752.222	7569904.364	2236.464

2628	314901.214	7571523.561	2162.259
2629	314921.213	7571523.450	2160.791
2630	314941.213	7571523.339	2159.666
2631	314961.213	7571523.228	2158.592
2632	314981.212	7571523.117	2155.693
2633	315001.212	7571523.006	2155.121
2634	315021.212	7571522.895	2156.094
2635	315041.211	7571522.784	2156.395
2636	315061.211	7571522.673	2155.942
2637	315081.211	7571522.562	2155.044
2638	314801.326	7571544.116	2175.575
2639	314821.326	7571544.005	2171.086
2640	314841.326	7571543.894	2168.735
2641	314861.325	7571543.783	2166.514
2642	314881.325	7571543.672	2163.713
2643	314901.325	7571543.561	2162.063
2644	314921.324	7571543.450	2160.523
2645	314941.324	7571543.339	2159.329
2646	314961.324	7571543.228	2157.774
2647	314981.323	7571543.117	2156.928
2648	315001.323	7571543.006	2155.276
2649	315021.323	7571542.895	2155.582
2650	315041.322	7571542.784	2155.917
2651	315061.322	7571542.673	2155.213
2652	315081.322	7571542.562	2154.315
2653	314861.436	7571563.783	2168.585
2654	314881.436	7571563.672	2165.288
2655	314901.436	7571563.561	2163.577
2656	314921.435	7571563.450	2161.793
2657	314941.435	7571563.339	2160.937
2658	314961.435	7571563.228	2158.725
2659	314981.434	7571563.117	2158.151
2660	315001.434	7571563.006	2157.191
2661	315021.434	7571562.895	2156.343
2662	315041.433	7571562.784	2154.853
2663	315061.433	7571562.673	2154.483
2664	315081.433	7571562.562	2153.585
2665	314861.547	7571583.783	2175.489
2666	314881.547	7571583.672	2171.215
2667	314901.547	7571583.561	2166.866
2668	314921.546	7571583.450	2164.722
2669	314941.546	7571583.338	2160.751
2670	314961.546	7571583.227	2159.463
2671	314981.545	7571583.116	2158.762
2672	315001.545	7571583.005	2157.661
2673	315021.545	7571582.894	2156.034
2674	315041.544	7571582.783	2154.646
2675	315061.544	7571582.672	2154.171
2676	315081.544	7571582.561	2152.848
2677	314881.658	7571603.671	2180.582
2678	314901.658	7571603.560	2173.692
2679	314921.657	7571603.449	2167.576
2680	314941.657	7571603.338	2164.160
2681	314961.657	7571603.227	2161.504
2682	314981.656	7571603.116	2159.973
2683	315001.656	7571603.005	2159.191
2684	315021.656	7571602.894	2157.366
2685	315041.656	7571602.783	2155.944
2686	315061.655	7571602.672	2154.495
2687	315081.655	7571602.561	2152.750
2688	314881.769	7571623.671	2178.172
2689	314901.769	7571623.560	2181.937
2690	314921.768	7571623.449	2172.407
2691	314941.768	7571623.338	2167.425
2692	314961.768	7571623.227	2164.214
2693	314981.767	7571623.116	2161.858
2694	315001.767	7571623.005	2160.924
2695	315021.767	7571622.894	2158.977
2696	315041.767	7571622.783	2156.934
2697	315061.766	7571622.672	2155.085
2698	315081.766	7571622.561	2153.349
2699	314921.879	7571643.449	2178.017
2700	314941.879	7571643.338	2171.687
2701	314961.879	7571643.227	2167.159
2702	314981.878	7571643.116	2163.802
2703	315001.878	7571643.004	2162.258
2704	315021.878	7571642.893	2160.901
2705	315041.878	7571642.782	2158.715
2706	315061.877	7571642.671	2156.636
2707	315081.877	7571642.560	2154.807
2708	314921.990	7571663.448	2179.375

807	313523.692	7568371.160	2235.772
808	313543.692	7568371.049	2231.864
809	313563.692	7568370.938	2226.779
810	313583.691	7568370.827	2223.180
811	313603.691	7568370.716	2221.014
812	313623.691	7568370.605	2222.799
813	313643.690	7568370.494	2222.352
814	313663.690	7568370.383	2220.651
815	313683.690	7568370.272	2220.708
816	313703.689	7568370.161	2221.016
817	313723.689	7568370.050	2221.140
818	313743.689	7568369.939	2223.553
819	313763.688	7568369.828	2225.435
820	313783.688	7568369.717	2224.754
821	313803.688	7568369.606	2219.111
822	313823.688	7568369.495	2210.508
823	313843.687	7568369.384	2202.076
824	313863.687	7568369.273	2193.619
825	313723.800	7568390.049	2224.030
826	313743.800	7568389.938	2224.646
827	313763.799	7568389.827	2225.818
828	313783.799	7568389.716	2226.218
829	313803.799	7568389.605	2217.586
830	313823.799	7568389.494	2210.425
831	313843.798	7568389.383	2200.852
832	313863.798	7568389.272	2191.313
833	313723.911	7568410.049	2223.100
834	313743.911	7568409.938	2224.250
835	313763.911	7568409.827	2225.312
836	313783.910	7568409.716	2226.872
837	313803.910	7568409.605	2216.485
838	313823.910	7568409.494	2206.819
839	313843.909	7568409.383	2194.516
840	313863.909	7568409.272	2184.381
841	313883.909	7568409.161	2183.495
842	313744.022	7568429.938	2222.296
843	313764.022	7568429.827	2224.269
844	313784.021	7568429.716	2224.802
845	313804.021	7568429.605	2215.355
846	313824.021	7568429.494	2203.674
847	313844.020	7568429.383	2190.641
848	313864.020	7568429.272	2181.462
849	313884.020	7568429.161	2179.555
850	313744.133	7568449.937	2219.701
851	313764.133	7568449.826	2221.336
852	313784.132	7568449.715	2222.743
853	313804.132	7568449.604	2212.936
854	313824.132	7568449.493	2203.824
855	313844.131	7568449.382	2191.246
856	313864.131	7568449.271	2181.789
857	313884.131	7568449.160	2177.189
858	313904.130	7568449.049	2185.768
859	313744.244	7568469.937	2217.828
860	313764.244	7568469.826	2218.605
861	313784.243	7568469.715	2212.934
862	313804.243	7568469.604	2204.129
863	313824.243	7568469.493	2200.512
864	313844.242	7568469.382	2189.219
865	313864.242	7568469.271	2180.323
866	313884.242	7568469.160	2176.211
867	313904.241	7568469.049	2180.829
868	313744.355	7568489.937	2216.040
869	313764.355	7568489.826	2213.592
870	313784.354	7568489.715	2206.915
871	313804.354	7568489.604	2203.904
872	313824.354	7568489.493	2197.381
873	313844.353	7568489.382	2195.409
874	313864.353	7568489.271	2189.171
875	313884.353	7568489.160	2181.111
876	313904.352	7568489.049	2175.966
877	313924.352	7568488.938	2188.326
878	313744.466	7568509.937	2214.656
879	313764.466	7568509.826	2215.182
880	313784.465	7568509.715	2218.141
881	313804.465	7568509.603	2214.755
882	313824.465	7568509.492	2208.751
883	313844.464	7568509.381	2203.635
884	313864.464	7568509.270	2198.225
885	313884.464	7568509.159	2190.131
886	313904.464	7568509.048	2181.657
887	313924.463	7568508.937	2181.581

1758	314772.222	7569904.253	2230.072
1759	314792.222	7569904.142	2225.108
1760	314812.222	7569904.031	2219.132
1761	314832.221	7569903.920	2217.140
1762	314712.334	7569924.585	2235.202
1763	314732.334	7569924.474	2235.782
1764	314752.334	7569924.363	2234.652
1765	314772.333	7569924.252	2229.207
1766	314792.333	7569924.141	2223.730
1767	314812.333	7569924.030	2220.138
1768	314832.332	7569923.919	2215.794
1769	314712.445	7569944.585	2233.850
1770	314732.445	7569944.474	2230.998
1771	314752.445	7569944.363	2226.954
1772	314772.444	7569944.252	2225.330
1773	314792.444	7569944.141	2221.415
1774	314812.444	7569944.030	2219.126
1775	314832.443	7569943.919	2215.716
1776	314712.556	7569964.585	2232.499
1777	314732.556	7569964.474	2233.750
1778	314752.556	7569964.363	2228.729
1779	314772.555	7569964.252	2221.851
1780	314792.555	7569964.141	2217.029
1781	314812.555	7569964.030	2213.084
1782	314832.554	7569963.919	2211.400
1783	314712.667	7569984.584	2231.148
1784	314732.667	7569984.473	2231.136
1785	314752.667	7569984.362	2227.565
1786	314772.666	7569984.251	2222.807
1787	314792.666	7569984.140	2216.271
1788	314812.666	7569984.029	2214.086
1789	314832.665	7569983.918	2210.907
1790	314712.778	7570004.584	2230.174
1791	314732.778	7570004.473	2228.634
1792	314752.778	7570004.362	2225.369
1793	314772.777	7570004.251	2221.396
1794	314792.777	7570004.140	2215.433
1795	314812.777	7570004.029	2212.911
1796	314832.776	7570003.918	2210.217
1797	314712.889	7570024.584	2228.246
1798	314732.889	7570024.473	2225.921
1799	314752.889	7570024.362	2222.413
1800	314772.888	7570024.251	2218.681
1801	314792.888	7570024.140	2213.564
1802	314812.888	7570024.029	2210.137
1803	314832.887	7570023.918	2206.323
1804	314653.001	7570044.917	2211.550
1805	314673.001	7570044.806	2216.008
1806	314693.001	7570044.695	2223.644
1807	314713.000	7570044.584	2224.037
1808	314733.000	7570044.472	2222.087
1809	314753.000	7570044.361	2219.600
1810	314772.999	7570044.250	2215.798
1811	314792.999	7570044.139	2210.113
1812	314812.999	7570044.028	2207.505
1813	314832.998	7570043.917	2204.706
1814	314653.112	7570064.916	2209.182
1815	314673.112	7570064.805	2213.154
1816	314693.112	7570064.694	2221.979
1817	314713.111	7570064.583	2215.760
1818	314733.111	7570064.472	2216.677
1819	314753.111	7570064.361	2215.789
1820	314773.110	7570064.250	2213.275
1821	314793.110	7570064.139	2208.354
1822	314813.110	7570064.028	2205.493
1823	314833.109	7570063.917	2203.207
1824	314673.223	7570084.805	2210.691
1825	314693.223	7570084.694	2217.508
1826	314713.222	7570084.583	2211.148
1827	314733.222	7570084.472	2208.889
1828	314753.222	7570084.361	2209.318
1829	314773.221	7570084.250	2208.086
1830	314793.221	7570084.139	2205.354
1831	314813.221	7570084.028	2202.641
1832	314833.220	7570083.917	2201.634
1833	314693.334	7570104.694	2212.144
1834	314713.333	7570104.583	2209.488
1835	314733.333	7570104.472	2203.746
1836	314753.333	7570104.361	2202.978
1837	314773.332	7570104.250	2203.281
1838	314793.332	7570104.138	2202.824

2709	314941.990	7571663.337	2175.531
2710	314961.990	7571663.226	2170.202
2711	314981.990	7571663.115	2166.353
2712	315001.989	7571663.004	2163.717
2713	315021.989	7571662.893	2162.166
2714	315041.989	7571662.782	2159.974
2715	315061.988	7571662.671	2157.967
2716	315081.988	7571662.560	2156.524
2717	314942.101	7571683.337	2177.767
2718	314962.101	7571683.226	2172.916
2719	314982.101	7571683.115	2168.763
2720	315002.100	7571683.004	2165.410
2721	315022.100	7571682.893	2162.765
2722	315042.100	7571682.782	2160.294
2723	315062.099	7571682.671	2157.987
2724	315082.099	7571682.560	2156.353
2725	314942.212	7571703.337	2175.361
2726	314962.212	7571703.226	2173.921
2727	314982.212	7571703.115	2169.862
2728	315002.211	7571703.004	2165.737
2729	315022.211	7571702.893	2162.797
2730	315042.211	7571702.782	2159.799
2731	315062.210	7571702.670	2157.337
2732	315082.210	7571702.559	2155.910
2733	315102.210	7571702.448	2156.784
2734	315122.209	7571702.337	2156.261
2735	315142.209	7571702.226	2154.196
2736	315162.209	7571702.115	2155.215
2737	315182.208	7571702.004	2156.235
2738	314942.323	7571723.336	2173.769
2739	314962.323	7571723.225	2173.130
2740	314982.323	7571723.114	2170.284
2741	315002.322	7571723.003	2165.401
2742	315022.322	7571722.892	2162.731
2743	315042.322	7571722.781	2159.606
2744	315062.321	7571722.670	2154.402
2745	315082.321	7571722.559	2156.390
2746	315102.321	7571722.448	2157.264
2747	315122.320	7571722.337	2157.316
2748	315142.320	7571722.226	2155.742
2749	315162.320	7571722.115	2155.058
2750	315182.320	7571722.004	2156.078
2751	314942.434	7571743.336	2172.441
2752	314962.434	7571743.225	2172.828
2753	314982.434	7571743.114	2170.266
2754	315002.433	7571743.003	2165.576
2755	315022.433	7571742.892	2161.177
2756	315042.433	7571742.781	2151.255
2757	315062.432	7571742.670	2152.607
2758	315082.432	7571742.559	2154.497
2759	315102.432	7571742.448	2157.745
2760	315122.431	7571742.337	2158.109
2761	315142.431	7571742.226	2156.739
2762	315162.431	7571742.115	2155.328
2763	315182.431	7571742.004	2155.921
2764	314942.545	7571763.336	2170.606
2765	314962.545	7571763.225	2171.648
2766	314982.545	7571763.114	2168.539
2767	315002.544	7571763.003	2164.799
2768	315022.544	7571762.892	2158.622
2769	315042.544	7571762.781	2157.194
2770	315062.543	7571762.670	2160.465
2771	315082.543	7571762.559	2158.403
2772	315102.543	7571762.447	2156.007
2773	315122.542	7571762.336	2158.700
2774	315142.542	7571762.225	2157.779
2775	315162.542	7571762.114	2156.426
2776	315182.542	7571762.003	2155.764
2777	314942.656	7571783.335	2169.145
2778	314962.656	7571783.224	2168.101
2779	314982.656	7571783.113	2167.238
2780	315002.655	7571783.002	2163.244
2781	315022.655	7571782.891	2156.405
2782	315042.655	7571782.780	2161.558
2783	315062.654	7571782.669	2162.757
2784	315082.654	7571782.558	2161.061
2785	315102.654	7571782.447	2159.849
2786	315122.654	7571782.336	2160.015
2787	315142.653	7571782.225	2158.757
2788	315162.653	7571782.114	2157.704
2789	315182.653	7571782.003	2156.288

888	313744.577	7568529.936	2213.271
889	313764.577	7568529.825	2213.797
890	313784.576	7568529.714	2215.664
891	313804.576	7568529.603	2222.428
892	313824.576	7568529.492	2215.159
893	313844.575	7568529.381	2210.164
894	313864.575	7568529.270	2202.673
895	313884.575	7568529.159	2194.752
896	313904.575	7568529.048	2185.672
897	313924.574	7568528.937	2176.215
898	313944.574	7568528.826	2189.650
899	313804.687	7568549.603	2216.759
900	313824.687	7568549.492	2218.817
901	313844.686	7568549.381	2211.197
902	313864.686	7568549.270	2204.705
903	313884.686	7568549.159	2198.163
904	313904.686	7568549.048	2190.967
905	313924.685	7568548.937	2181.041
906	313944.685	7568548.826	2185.637
907	313964.685	7568548.715	2192.054
908	313804.798	7568569.603	2213.176
909	313824.798	7568569.492	2217.275
910	313844.798	7568569.381	2213.195
911	313864.797	7568569.269	2207.403
912	313884.797	7568569.158	2200.023
913	313904.797	7568569.047	2194.633
914	313924.796	7568568.936	2186.866
915	313944.796	7568568.825	2181.161
916	313964.796	7568568.714	2189.445
917	313804.909	7568589.602	2210.139
918	313824.909	7568589.491	2213.898
919	313844.909	7568589.380	2214.585
920	313864.908	7568589.269	2209.134
921	313884.908	7568589.158	2203.137
922	313904.908	7568589.047	2196.815
923	313924.907	7568588.936	2189.272
924	313944.907	7568588.825	2176.749
925	313964.907	7568588.714	2186.836
926	313825.020	7568609.491	2210.527
927	313845.020	7568609.380	2213.121
928	313865.019	7568609.269	2208.843
929	313885.019	7568609.158	2202.628
930	313905.019	7568609.047	2195.713
931	313925.018	7568608.936	2189.834
932	313945.018	7568608.825	2179.972
933	313965.018	7568608.714	2184.055
934	313825.131	7568629.491	2207.637
935	313845.131	7568629.380	2211.483
936	313865.130	7568629.269	2206.965
937	313885.130	7568629.158	2201.314
938	313905.130	7568629.046	2195.273
939	313925.129	7568628.935	2189.877
940	313945.129	7568628.824	2183.213
941	313965.129	7568628.713	2181.419
942	313865.241	7568649.268	2205.350
943	313885.241	7568649.157	2200.175
944	313905.241	7568649.046	2194.286
945	313925.240	7568648.935	2189.192
946	313945.240	7568648.824	2187.935
947	313965.240	7568648.713	2185.266
948	313865.352	7568669.268	2204.598
949	313885.352	7568669.157	2199.871
950	313905.352	7568669.046	2194.009
951	313925.351	7568668.935	2190.755

1839	314813.332	7570104.027	2201.089
1840	314833.332	7570103.916	2200.060
1841	314693.445	7570124.693	2210.997
1842	314713.444	7570124.582	2209.814
1843	314733.444	7570124.471	2206.931
1844	314753.444	7570124.360	2203.275
1845	314773.443	7570124.249	2201.330
1846	314793.443	7570124.138	2196.238
1847	314813.443	7570124.027	2196.335
1848	314833.443	7570123.916	2198.269
1849	314693.556	7570144.693	2213.133
1850	314713.555	7570144.582	2214.212
1851	314733.555	7570144.471	2211.585
1852	314753.555	7570144.360	2207.837
1853	314773.555	7570144.249	2203.776
1854	314793.554	7570144.138	2202.438
1855	314813.554	7570144.027	2199.349
1856	314833.554	7570143.916	2196.942
1857	314693.667	7570164.693	2212.529
1858	314713.666	7570164.582	2213.787
1859	314733.666	7570164.471	2215.743
1860	314753.666	7570164.360	2212.299
1861	314773.666	7570164.249	2207.622
1862	314793.665	7570164.138	2204.120
1863	314813.665	7570164.027	2201.536
1864	314833.665	7570163.916	2197.233
1865	314693.778	7570184.692	2211.926
1866	314713.777	7570184.581	2212.883
1867	314733.777	7570184.470	2213.915
1868	314753.777	7570184.359	2215.265
1869	314773.777	7570184.248	2211.373
1870	314793.776	7570184.137	2206.768
1871	314813.776	7570184.026	2204.429
1872	314833.776	7570183.915	2199.705
1873	314853.775	7570183.804	2194.750
1874	314753.888	7570204.359	2214.038
1875	314773.888	7570204.248	2211.967
1876	314793.887	7570204.137	2208.178
1877	314813.887	7570204.026	2205.088
1878	314833.887	7570203.915	2202.044
1879	314853.886	7570203.804	2197.083
1880	314753.999	7570224.359	2211.597
1881	314773.999	7570224.248	2211.252
1882	314793.998	7570224.137	2208.452
1883	314813.998	7570224.026	2204.756
1884	314833.998	7570223.915	2202.146
1885	314853.997	7570223.804	2198.447
1886	314873.997	7570223.693	2195.070
1887	314754.110	7570244.358	2211.548
1888	314774.110	7570244.247	2210.308
1889	314794.109	7570244.136	2208.247
1890	314814.109	7570244.025	2204.471
1891	314834.109	7570243.914	2201.779
1892	314854.108	7570243.803	2199.117
1893	314874.108	7570243.692	2195.205
1894	314794.220	7570264.136	2205.585
1895	314814.220	7570264.025	2203.434
1896	314834.220	7570263.914	2200.239
1897	314854.219	7570263.803	2198.829
1898	314874.219	7570263.692	2195.091
1899	314794.331	7570284.136	2205.798
1900	314814.331	7570284.025	2200.281
1901	314834.331	7570283.914	2198.129
1902	314854.330	7570283.803	2196.021

2790	314902.768	7571803.557	2167.058
2791	314922.768	7571803.446	2168.216
2792	314942.767	7571803.335	2165.410
2793	314962.767	7571803.224	2163.565
2794	314982.767	7571803.113	2163.476
2795	315002.766	7571803.002	2162.057
2796	315022.766	7571802.891	2161.505
2797	315042.766	7571802.780	2163.984
2798	315062.765	7571802.669	2163.601
2799	315082.765	7571802.558	2162.735
2800	315102.765	7571802.447	2162.634
2801	315122.765	7571802.336	2161.835
2802	315142.764	7571802.225	2160.621
2803	315162.764	7571802.114	2159.839
2804	315182.764	7571802.003	2158.487
2805	314902.879	7571823.557	2166.848
2806	314922.879	7571823.446	2166.605
2807	314942.878	7571823.335	2162.907
2808	314962.878	7571823.224	2161.449
2809	314982.878	7571823.113	2160.710
2810	315002.877	7571823.002	2160.070
2811	315022.877	7571822.891	2160.542
2812	315042.877	7571822.780	2164.617
2813	315062.877	7571822.669	2165.338
2814	315082.876	7571822.558	2164.106
2815	315102.876	7571822.447	2164.763
2816	315122.876	7571822.336	2164.670
2817	315142.875	7571822.225	2162.938
2818	315162.875	7571822.113	2161.983
2819	314922.990	7571843.446	2164.293
2820	314942.989	7571843.334	2162.356
2821	314962.989	7571843.223	2161.985
2822	314982.989	7571843.112	2162.452
2823	315002.988	7571843.001	2161.877
2824	315022.988	7571842.890	2164.635
2825	315042.988	7571842.779	2166.421
2826	315062.988	7571842.668	2167.134
2827	315082.987	7571842.557	2165.399
2828	315102.987	7571842.446	2165.900
2829	315122.987	7571842.335	2165.791
2830	315142.986	7571842.224	2165.100
2831	315162.986	7571842.113	2163.495
2832	314943.100	7571863.334	2165.039
2833	314963.100	7571863.223	2164.391
2834	314983.100	7571863.112	2163.977
2835	315003.099	7571863.001	2165.326
2836	315023.099	7571862.890	2167.117
2837	315043.099	7571862.779	2167.752
2838	315063.099	7571862.668	2168.263
2839	315083.098	7571862.557	2167.759
2840	315103.098	7571862.446	2167.722
2841	315123.098	7571862.335	2167.786
2842	315143.097	7571862.224	2166.236
2843	315163.097	7571862.113	2165.073
2844	314983.211	7571883.112	2167.952
2845	315003.211	7571883.001	2168.581
2846	315023.210	7571882.890	2168.750
2847	315043.210	7571882.779	2168.593
2848	315063.210	7571882.668	2168.750
2849	315083.209	7571882.557	2168.750
2850	315103.209	7571882.446	2168.649
2851	315123.209	7571882.335	2168.045
2852	315143.208	7571882.224	2167.423
2853	315163.208	7571882.113	2166.580

“Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco”

Reporte de BM'S

Código	Este	Norte	Altura
P. INICIO	314945.112	7571528.113	2160.993
BM1	314839.054	7571478.927	2164.200
BM2	314810.700	7571385.690	2169.762
BM3	314722.150	7571380.230	2171.951
BM4	314772.780	7571208.890	2168.481
BM5	314882.540	7571155.930	2174.892
BM6	314949.890	7571204.660	2178.997
BM7	315035.410	7571209.420	2173.990
BM8	315054.520	7571143.570	2168.002
BM9	315037.650	7571060.890	2162.991
BM10	315109.170	7570974.190	2154.985
BM11	315085.410	7570877.470	2160.168
BM12	315056.770	7570789.830	2173.023
BM13	315017.370	7570538.210	2189.221
BM14	314822.680	7570209.110	2205.008
BM15	314796.330	7570047.840	2210.715
BM16	314783.890	7569961.820	2220.406
BM17	314792.470	7569913.440	2226.028
BM18	314763.880	7569755.970	2237.000
BM19	314673.900	7569691.050	2232.986
BM20	314663.040	7569616.980	2240.983
BM21	314687.100	7569606.310	2243.657
BM22	314736.760	7569548.310	2253.043
BM23	314722.010	7569456.640	2259.833
BM24	314686.720	7569341.690	2265.000

Código	Este	Norte	Altura
BM25	314605.420	7569251.160	2258.906
BM26	314398.550	7569255.830	2238.827
BM27	314283.490	7569210.260	2226.548
BM28	314241.320	7569127.670	2219.935
BM29	314202.680	7569177.010	2212.167
BM30	314088.790	7569134.900	2199.946
BM31	314060.750	7569079.590	2193.755
BM32	313996.430	7568959.330	2186.049
BM33	313935.700	7568710.220	2189.994
BM34	313901.970	7568594.300	2197.999
BM35	313853.619	7568508.027	2203.994
BM36	313799.540	7568480.670	2203.678
BM37	313816.090	7568448.570	2206.994
BM38	313813.950	7568370.336	2214.994
BM39	313792.540	7568305.910	2212.085
BM40	313689.259	7568335.561	2212.993
BM41	313612.280	7568313.220	2209.175
BM42	313597.240	7568196.510	2219.234
BM43	313518.500	7568129.390	2213.049
BM44	313487.550	7568082.144	2208.609
BM45	313428.650	7568080.480	2207.198
BM46	313394.346	7568059.770	2204.874
BM47	313313.856	7568051.729	2200.816
P. FINAL	313070.350	7567945.710	2192.686

"Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco"

Reporte de BM'S mediante GPS RTK

Código	Este	Norte	Altura
P. INICIO	314945.112	7571528.113	2159.742
BM 1	314839.054	7571478.927	2162.948
BM 2	314810.700	7571385.690	2168.513
BM 3	314722.150	7571380.230	2170.700
BM 4	314772.780	7571208.890	2167.229
BM 5	314882.540	7571155.930	2173.641
BM 6	314949.890	7571204.660	2177.746
BM 7	315035.410	7571209.420	2172.741
BM 8	315054.520	7571143.570	2166.751
BM 9	315037.650	7571060.890	2161.743
BM 10	315109.170	7570974.190	2153.732
BM 11	315085.410	7570877.470	2158.917
BM 12	315056.770	7570789.830	2171.775
BM 13	315017.370	7570538.210	2187.971
BM 14	314822.680	7570209.110	2203.757
BM 15	314796.330	7570047.840	2209.462
BM 16	314783.890	7569961.820	2219.156
BM 17	314792.470	7569913.440	2224.779
BM 18	314763.880	7569755.970	2235.749
BM 19	314673.900	7569691.050	2231.735
BM 20	314663.040	7569616.980	2239.734
BM 21	314687.100	7569606.310	2242.409
BM 22	314736.760	7569548.310	2251.792
BM 23	314722.010	7569456.640	2258.583
BM 24	314686.720	7569341.690	2263.750

Código	Este	Norte	Altura
BM 25	314605.420	7569251.160	2257.657
BM 26	314398.550	7569255.830	2237.578
BM 27	314283.490	7569210.260	2225.297
BM 28	314241.320	7569127.670	2218.687
BM 29	314202.680	7569177.010	2210.915
BM 30	314088.790	7569134.900	2198.697
BM 31	314060.750	7569079.590	2192.504
BM 32	313996.430	7568959.330	2184.799
BM 33	313935.700	7568710.220	2188.744
BM 34	313901.970	7568594.300	2196.751
BM 35	313853.619	7568508.027	2202.743
BM 36	313799.540	7568480.670	2202.431
BM 37	313816.090	7568448.570	2205.744
BM 38	313813.950	7568370.336	2213.744
BM 39	313792.540	7568305.910	2210.833
BM 40	313689.259	7568335.561	2211.745
BM 41	313612.280	7568313.220	2207.924
BM 42	313597.240	7568196.510	2217.984
BM 43	313518.500	7568129.390	2211.801
BM 44	313487.550	7568082.144	2207.360
BM 45	313428.650	7568080.480	2205.945
BM 46	313394.346	7568059.770	2203.624
BM 47	313313.856	7568051.729	2199.569
P. FINAL	313070.350	7567945.710	2191.437

"Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco"

PLANILLA COTAS CORREGIDAS
NIVELACIÓN GEOMÉTRICA

Código	Desniveles		Promedio	Cotas
	Ida	Vuelta		
P. INICIO				2159.742
BM 1	-3.207	-3.206	-3.207	2162.949
BM 2	-5.561	-5.565	-5.563	2168.512
BM 3	-2.189	-2.187	-2.188	2170.700
BM 4	3.469	3.471	3.470	2167.230
BM 5	-6.410	-6.412	-6.411	2173.641
BM 6	-4.105	-4.105	-4.105	2177.746
BM 7	5.008	5.005	5.006	2172.740
BM 8	5.988	5.990	5.989	2166.751
BM 9	5.011	5.008	5.009	2161.741
BM 10	8.006	8.011	8.008	2153.733
BM 11	-5.183	-5.185	-5.184	2158.917
BM 12	-12.854	-12.858	-12.856	2171.773
BM 13	-16.199	-16.196	-16.197	2187.971
BM 14	-15.787	-15.786	-15.786	2203.757
BM 15	-5.707	-5.705	-5.706	2209.463
BM 16	-9.690	-9.694	-9.692	2219.155
BM 17	-5.623	-5.623	-5.623	2224.778
BM 18	-10.972	-10.970	-10.971	2235.749
BM 19	4.014	4.014	4.014	2231.735
BM 20	-7.996	-7.999	-7.998	2239.733
BM 21	-2.675	-2.675	-2.675	2242.408
BM 22	-9.385	-9.383	-9.384	2251.792
BM 23	-6.791	-6.791	-6.791	2258.583
BM 24	-5.167	-5.167	-5.167	2263.749

Código	Desniveles		Promedio	Cotas
	Ida	Vuelta		
BM 25	6.094	6.093	6.094	2257.656
BM 26	20.079	20.079	20.079	2237.577
BM 27	12.279	12.281	12.280	2225.297
BM 28	6.613	6.610	6.611	2218.686
BM 29	7.769	7.772	7.770	2210.915
BM 30	12.220	12.218	12.219	2198.696
BM 31	6.192	6.193	6.192	2192.504
BM 32	7.706	7.705	7.705	2184.798
BM 33	-3.945	-3.945	-3.945	2188.743
BM 34	-8.005	-8.007	-8.006	2196.749
BM 35	-5.995	-5.992	-5.993	2202.743
BM 36	0.316	0.312	0.314	2202.429
BM 37	-3.316	-3.313	-3.315	2205.743
BM 38	-8.001	-8.000	-8.000	2213.744
BM 39	2.909	2.911	2.910	2210.834
BM 40	-0.908	-0.912	-0.910	2211.743
BM 41	3.818	3.821	3.819	2207.924
BM 42	-10.058	-10.060	-10.059	2217.983
BM 43	6.184	6.183	6.184	2211.800
BM 44	4.440	4.441	4.440	2207.359
BM 45	1.411	1.415	1.413	2205.946
BM 46	2.324	2.321	2.323	2203.623
BM 47	4.058	4.055	4.057	2199.567
P. FINAL	8.130	8.132	8.131	2191.436

ANEXO 2

ENSAYO DE LABORATORIO

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"

FACULTAD DE CIENCIAS Y TECNOLOGIA

PROYECTO DE GRADO

LABORATORIO DE SUELOS

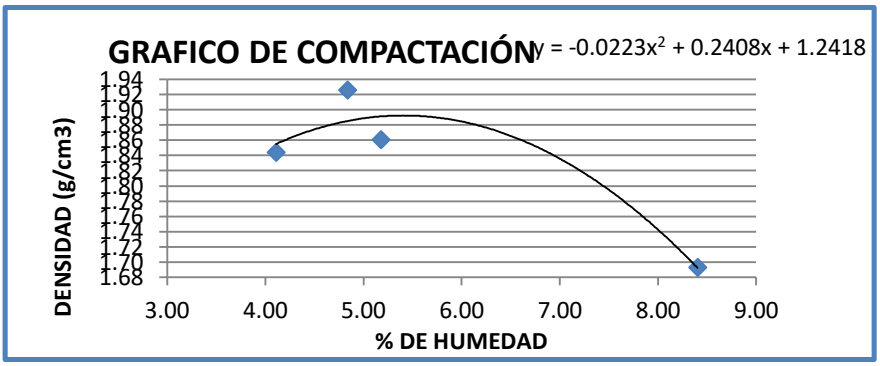
COMPACTACIÓN

Proyecto: Diseño estructural de ingenieria vial	Fecha:14/05/2021
Procedencia: Tramo Rocillas - San Franciso	Laboratorista: Condori Castro. Javier

MUESTRA: 1 A - 4

Volumen: 2124 cm3

Nº de capas	5	5	5	5
Nº de golpes por capa	56	56	56	56
Peso suelo húmedo + molde	10365	10545	10755	10624
Peso del molde	6467	6467	6467	6467
Peso suelo húmedo	3898.4	4078.4	4288.4	4157.1
Volumén de la muestra	2124.0	2124.0	2124.0	2124.0
Densidad suelo húmedo (gr/cm³)	1.84	1.92	2.02	1.96
Cápsula Nº	1	2	3	3
Peso suelo húmedo + capsula	128.0	188.0	169.5	180.5
Peso suelo seco + cápsula	119.5	181.3	162.5	172.5
Peso del agua	8.5	6.7	7	8
Peso de la cápsula	18.34	18.23	17.82	18.02
Peso suelo seco	101.16	163.07	144.68	154.48
Contenido de humedad (%h)	8.40	4.11	4.84	5.18
Densidad suelo seco (gr/cm3)	1.69	1.84	1.93	1.86



Densidad Máxima =	1.89	gr/cm^3
Humedad Optima =	5.20	**%**

Univ: Javier Condori Castro
LABORATORISTA

Ing. Ricardo Arteaga
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"

FACULTAD DE CIENCIAS Y TECNOLOGIA

PROYECTO DE GRADO

LABORATORIO DE SUELOS

CBR

Proyecto: Diseño estructural de ingenieria vial

Procedencia: Tramo Rocillas - San Franciso

Fecha:14/05/2021

Laboratorista: Condori Castro. Javier

MUESTRA: 1

Muestra	LL	IP	Clasific.	H. Opt.	D. Máx
1	39	15	A - 4 (5)	5.20	1.89

CONTENIDO DE HUMEDAD Y PESO UNITARIO

Nº capas	5			5			5		
Nº golpes por capa	56			25			12		
CONDICION DE MUESTRA	Antes de mojarse		D. de M	Antes de mojarse		D. de M	Antes de mojarse		D. de M
Peso muestra húm.+molde	12395		12585	12130		12360	11705		11970
Peso Molde	7730		7730	7825		7825	7645		7645
Peso muestra húmeda	4665		4855	4305		4535	4060		4325
Volumen de la muestra	2124		2124	2124		2124	2124		2124
Peso Unit. Muestra Húm.	2.196		2.286	2.027		2.135	1.911		2.036
MUESTRA DE HUMEDAD	Fondo	Medio	2" sup.	Fondo	Superf.	2" sup.	Fondo	Superf.	2" sup.
Tara Nº	1	2	3	1	2	3	1	2	3
Peso muestra húm + tara	97.5	100.5	62	89.5	94	59	165	167	70.5
Peso muestra seca + tara	90.5	93.5	58	83	86	55	150	151.5	65
Peso del agua	7	7	4	6.5	8	4	15	15.5	5.5
Peso de tara	18.67	19.37	17.09	17.09	13.5	17.38	12.5	14	17.91
Peso de la muestra seca	71.83	74.13	40.91	65.91	72.5	37.62	137.5	137.5	47.09
Contenido humedad %	9.74523	9.44287	9.77756	9.86193	11.034	10.63264	10.9091	11.273	11.6798
Promedio cont. Humedad	9.59		9.77756	10.45		10.63264	11.09		11.6798
Peso Unit.muestra seca	**2.004**		2.08219	**1.835**		1.929921	**1.721**		1.8233

Hum. Opt. %	Peso Unit. gr/cm3
5.20	1.89

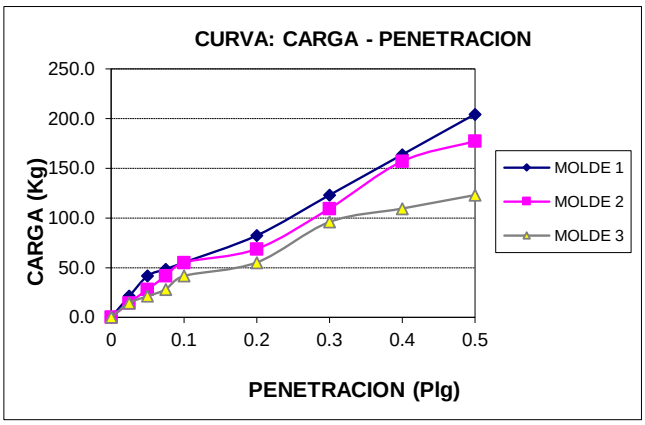
EXPANSION

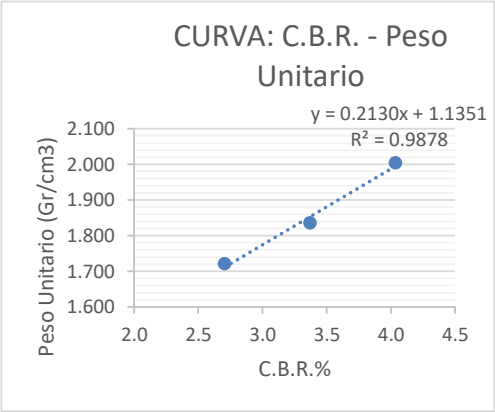
FECHA	HORA	TIEMPO EN DIAS	MOLDE Nº 1			MOLDE Nº 2			MOLDE Nº 3		
			LECT.	EXPANSION		LECT.	EXPANSION		LECT.	EXPANSION	
			EXTENS.	CM.	%	EXTENS.	CM.	%	EXTENS.	CM.	%
3-may	10:47	1	15.3	0	0	13.5	0	0	14.6	0	0
4-may	11:30	2	27	2.7	15.1856	25.5	2.55	14.34196	24.01	2.401	13.5039
5-may	11:47	3	28.8	2.88	16.198	26.1	2.61	14.67942	24.9	2.49	14.0045
6-may	10:40	4	29.5	2.95	16.5917	27	2.7	15.1856	26.5	2.65	14.9044
7-may	08:20	5	29.5	2.95	16.5917	27	2.7	15.1856	26.5	2.65	14.9044

C.B.R. %	Peso Unit. gr/cm3
4.0	2.004
3.4	1.835
2.7	1.721

C.B.R.

PENETRACION		CARGA	MOLDE Nº 1				MOLDE Nº 2				MOLDE Nº 3			
		NORMAL	CARGA ENSAYO		C.B.R. CORREG		CARGA ENSAYO		C.B.R. CORREG		CARGA ENSAYO		C.B.R. CORREG	
Pulg.	mm	Kg	Kg	Kg/cm2	Kg	%	Kg	Kg/cm2	Kg	%	Kg	Kg/cm2	Kg	%
0	0		0.0	0			0.0	0			0.0	0		
0.025	0.63		21.3	1.1			14.5	0.7			14.5	0.7		
0.05	1.27		41.6	2.1			28.1	1.4			21.3	1.1		
0.075	1.9		48.4	2.5			41.6	2.1			28.1	1.4		
0.1	2.54	1360	55.2	2.8		**4.1**	55.2	2.8		**4.1**	41.6	2.1		**3.1**
0.2	5.08	2040	82.3	4.2		**4.0**	68.8	3.5		**3.4**	55.2	2.8		**2.7**
0.3	7.62		123.1	6.3			109.5	5.6			95.9	4.9		
0.4	10.16		163.8	8.3			157.0	8.0			109.5	5.6		
0.5	12.7		204.5	10.4			177.3	9.0			123.1	6.3		





CBR 100% D.máx
4 %
CBR 95% D.Máx.
3 %
CBR 90% D.Máx.
3

Univ: Javier Condori Castro
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

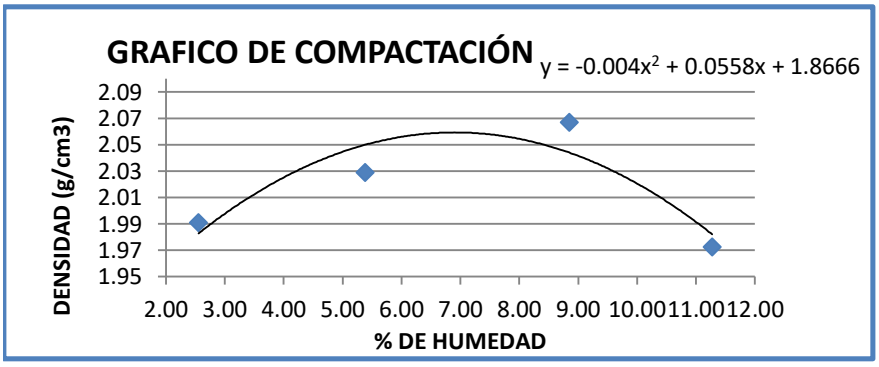
COMPACTACIÓN

Proyecto: Diseño estructural de ingenieria vial — Fecha:14/05/2021
Procedencia: Tramo Rocillas - San Franciso — Laboratorista: Condori Castro. Javier

MUESTRA: 3 A - 2 - 4

Volumen: 2124 cm3

Nº de capas	5	5	5	5
Nº de golpes por capa	56	56	56	56
Peso suelo húmedo + molde	10803	11008	11246	11128
Peso del molde	6467	6467	6467	6467
Peso suelo húmedo	4336	4541	4778.9	4661.3
Volumén de la muestra	2124.0	2124.0	2124.0	2124.0
Densidad suelo húmedo (gr/cm³)	2.04	2.14	2.25	2.19
Cápsula Nº	1	2	3	4
Peso suelo húmedo + capsula	101.97	109.83	77.02	88.30
Peso suelo seco + cápsula	99.9	105.1	72.3	81.1
Peso del agua	2.08	4.72	4.76	7.18
Peso de la cápsula	18.42	17.41	18.49	17.44
Peso suelo seco	81.47	87.7	53.77	63.68
Contenido de humedad (%h)	2.55	5.38	8.85	11.28
Densidad suelo seco (gr/cm3)	1.99	2.03	2.07	1.97



Densidad Máxima =	2.06	gr/cm^3
Humedad Optima =	6.43	**%**

Univ: Javier Condori Castro
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo, es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"

FACULTAD DE CIENCIAS Y TECNOLOGIA

PROYECTO DE GRADO

LABORATORIO DE SUELOS

CBR

Proyecto: Diseño estructural de ingenieria vial

Procedencia: Tramo Rocillas - San Franciso

Fecha:14/05/2021

Laboratorista: Condori Castro. Javier

MUESTRA: 3

Muestra	LL	IP	Clasific.	H. Opt.	D. Máx
3	39	9	A-2-4	6.43	2.06

CONTENIDO DE HUMEDAD Y PESO UNITARIO

Nº capas	5			5			5		
Nº golpes por capa	56			25			12		
CONDICION DE MUESTRA	Antes de mojarse		D. de M	Antes de mojarse		D. de M	Antes de mojarse		D. de M
Peso muestra húm.+molde	12065		12210	11880		12000	11610		11875
Peso Molde	7295.5		7295.5	7236		7236	7222.4		7222.4
Peso muestra húmeda	4769.5		5276	4644		4764	4387.6		4652.6
Volumen de la muestra	2124		2124	2124		2124	2124		2124
Peso Unit. Muestra Húm.	2.246		2.484	2.186		2.243	2.066		2.190
MUESTRA DE HUMEDAD	Fondo	Medio	2" sup.	Fondo	Superf.	2" sup.	Fondo	Superf.	2" sup.
Tara Nº	1	2	3	1	2	3	1	2	3
Peso muestra húm + tara	89.13	90.33	82.56	98.28	70.99	74.38	68.25	80.9	63.3
Peso muestra seca + tara	79.78	82.7	74.82	87.74	64.06	67.14	60.59	71.34	57.2
Peso del agua	9.35	7.63	7.74	10.54	6.93	7.24	7.66	9.56	6.1
Peso de tara	13.73	12.46	12.75	12.9	12.45	12.51	12.74	13.61	14.34
Peso de la muestra seca	66.05	70.24	62.07	74.84	51.61	54.63	47.85	57.73	42.86
Contenido humedad %	14.1559	10.8628	12.4698	14.0834	13.428	13.25279	16.0084	16.56	14.2324
Promedio cont. Humedad	12.51		12.4698	13.76		13.25279	16.28		14.2324
Peso Unit.muestra seca	**1.996**		2.20859	**1.922**		1.98047	**1.776**		1.91757

Hum. Opt. %	Peso Unit. gr/cm3
6.43	2.06

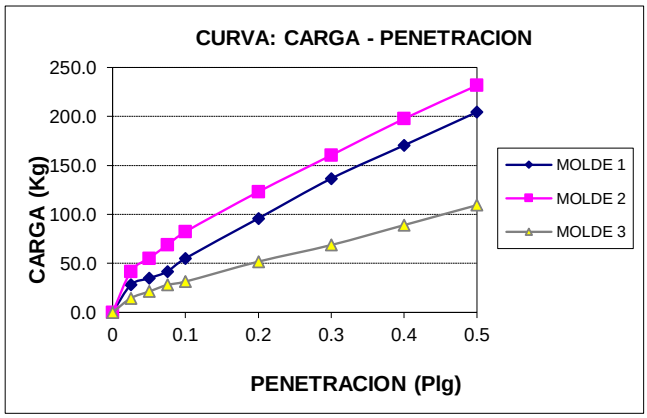
EXPANSION

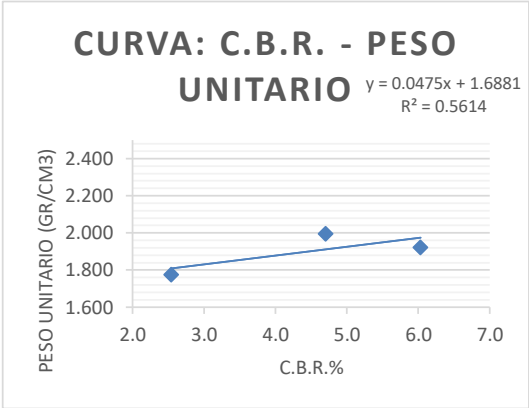
FECHA	HORA	TIEMPO EN DIAS	MOLDE Nº 1			MOLDE Nº 2			MOLDE Nº 3		
			LECT.	EXPANSION		LECT.	EXPANSION		LECT.	EXPANSION	
			EXTENS.	CM.	%	EXTENS.	CM.	%	EXTENS.	CM.	%
3/5/2021	10:47	1	17.59	0	0	11.69	0	0	13.535	0	0
4/5/2021	11:30	2	20.36	2.036	11.4511	13.24	1.324	7.446569	16.25	1.625	9.13948
5/5/2021	11:47	3	20.46	2.046	11.5073	13.67	1.367	7.688414	16.35	1.635	9.19573
6/5/2021	10:40	4	20.67	2.067	11.6254	13.67	1.367	7.688414	16.44	1.644	9.24634
7/5/2021	08:20	5	20.7	2.07	11.6423	13.73	1.373	7.72216	16.44	1.644	9.24634

C.B.R. %	Peso Unit. gr/cm3
4.7	1.996
6.0	1.922
2.5	1.776

C.B.R.

PENETRACION		CARGA	MOLDE Nº 1				MOLDE Nº 2				MOLDE Nº 3			
		NORMAL	CARGA ENSAYO		C.B.R. CORREG		CARGA ENSAYO		C.B.R. CORREG		CARGA ENSAYO		C.B.R. CORREG	
Pulg.	mm	Kg	Kg	Kg/cm2	Kg	%	Kg	Kg/cm2	Kg	%	Kg	Kg/cm2	Kg	%
0	0		0.0	0			0.0	0			0.0	0		
0.025	0.63		28.1	1.4			41.6	2.1			14.5	0.7		
0.05	1.27		34.9	1.8			55.2	2.8			21.3	1.1		
0.075	1.9		41.6	2.1			68.8	3.5			28.1	1.4		
0.1	2.54	1360	55.2	2.8		**4.1**	82.3	4.2		**6.1**	31.5	1.6		**2.3**
0.2	5.08	2040	95.9	4.9		**4.7**	123.1	6.3		**6.0**	51.8	2.6		**2.5**
0.3	7.62		136.6	7.0			160.4	8.2			68.8	3.5		
0.4	10.16		170.5	8.7			197.7	10.1			89.1	4.5		
0.5	12.7		204.5	10.4			231.6	11.8			109.5	5.6		





CBR 100% D.máx
8 %
CBR 95% D.Máx.
6 %
CBR 90% D.Máx.
3

Univ: Javier Condori Castro.
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

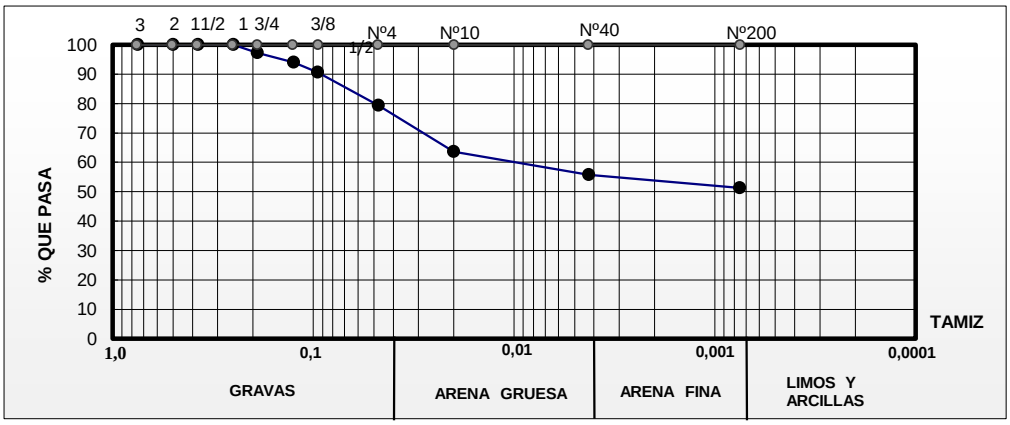
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 0+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	83.80	83.80	2.79	**97.21**
1/2"	12.50	93.90	177.70	5.92	**94.08**
3/8"	9.50	105.50	283.20	9.44	**90.56**
Nº4	4.75	338.40	621.60	20.72	**79.28**
Nº10	2.00	468.10	1089.70	36.32	**63.68**
Nº40	**0.425**	**237.80**	1327.50	44.25	**55.75**
Nº200	**0.075**	**133.50**	1461.00	48.70	**51.30**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arteaga
RESP. DE LAB. SUELOS

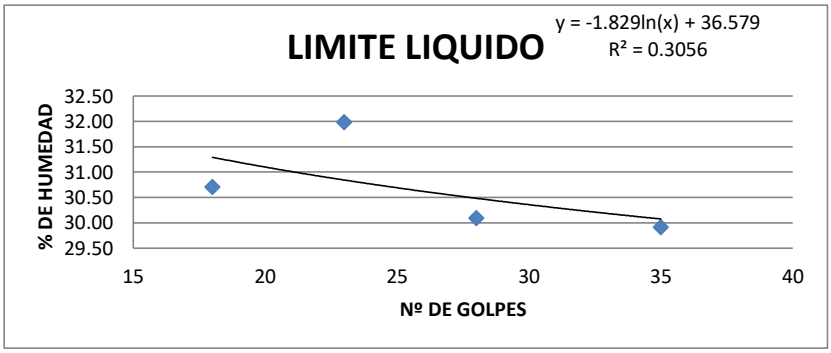
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 0+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	18	23	28	35
Suelo Húmedo + Cápsula	27.76	28.25	25.22	25.47
Suelo Seco + Cápsula	24.22	24.77	22.34	22.32
Peso del agua	3.54	3.48	2.88	3.15
Peso de la Cápsula	12.69	13.89	12.77	11.79
Peso Suelo seco	11.53	10.88	9.57	10.53
Porcentaje de Humedad	30.70	31.99	30.09	29.91



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	13.41	15.92	15.45
Peso de suelo seco + Cápsula	12.81	15.30	14.84
Peso de cápsula	10.30	12.67	12.32
Peso de suelo seco	2.51	2.63	2.52
Peso del agua	0.60	0.62	0.61
Contenido de humedad	23.90	23.57	24.21

Límite Líquido (LL)
39
Límite Plástico (LP)
24
Indice de plasticidad (IP)
15
Indice de Grupo (IG)
5

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 0+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	151.45	143.46	168.48
Peso de suelo seco + Cápsula	146.09	138.32	162.25
Peso de cápsula	17.70	19.52	18.31
Peso de suelo seco	128.39	118.8	143.94
Peso del agua	5.36	5.14	6.23
Contenido de humedad	4.17	4.33	4.33
PROMEDIO	**4.28**		

CLASIFICACIÓN DEL SUELO	**SUCS: CL** **AASHTO: A - 4 (5)**
DESCRIPCIÓN	Limos inorganicos y arenas muy finas, polvo de roca.

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

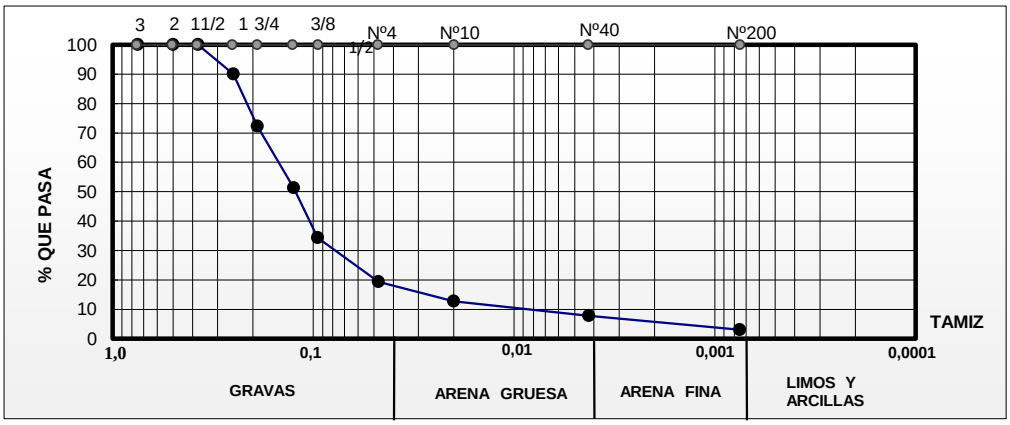
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	300.50	300.50	10.02	**89.98**
3/4"	19.00	530.60	831.10	27.70	**72.30**
1/2"	12.50	628.80	1459.90	48.66	**51.34**
3/8"	9.50	510.40	1970.30	65.68	**34.32**
Nº4	4.75	450.00	2420.30	80.68	**19.32**
Nº10	2.00	198.00	2618.30	87.28	**12.72**
Nº40	**0.425**	**150.34**	2768.64	92.29	**7.71**
Nº200	**0.075**	**140.20**	2908.84	96.96	**3.04**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

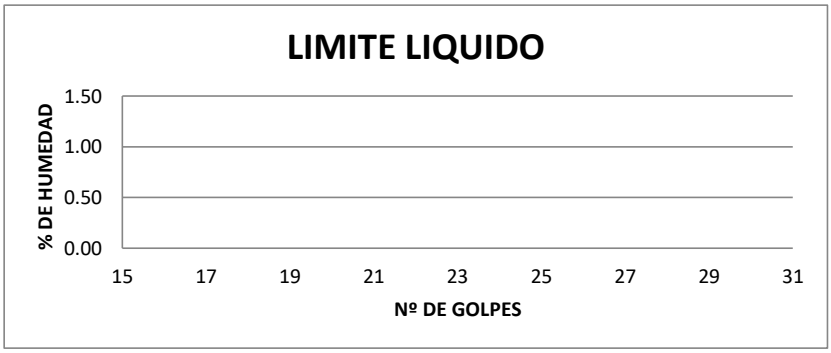
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4	5
Nº de golpes					
Suelo Húmedo + Cápsula					
Suelo Seco + Cápsula					
Peso del agua					
Peso de la Cápsula					
Peso Suelo seco					
Porcentaje de Humedad					

N.P.



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula			
Peso de suelo seco + Cápsula			
Peso de cápsula			
Peso de suelo seco			
Peso del agua			
Contenido de humedad			

N.P.

Límite Líquido (LL)
NP
Límite Plástico (LP)
NP
Indice de plasticidad (IP)
NP
Indice de Grupo (IG)
NP

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	156.80	138	128.5
Peso de suelo seco + Cápsula	145.40	128.7	119.54
Peso de cápsula	12.50	13.56	12.45
Peso de suelo seco	132.9	115.14	107.09
Peso del agua	11.4	9.3	8.96
Contenido de humedad	8.58	8.08	8.37
PROMEDIO	**8.34**		

CLASIFICACIÓN DEL SUELO	**SUCS: GP** **AASHTO: A - 1a (0)**
DESCRIPCIÓN	Gravas pobremente graduadas y mezclas de arena y grava con pocos finos o sin finos

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

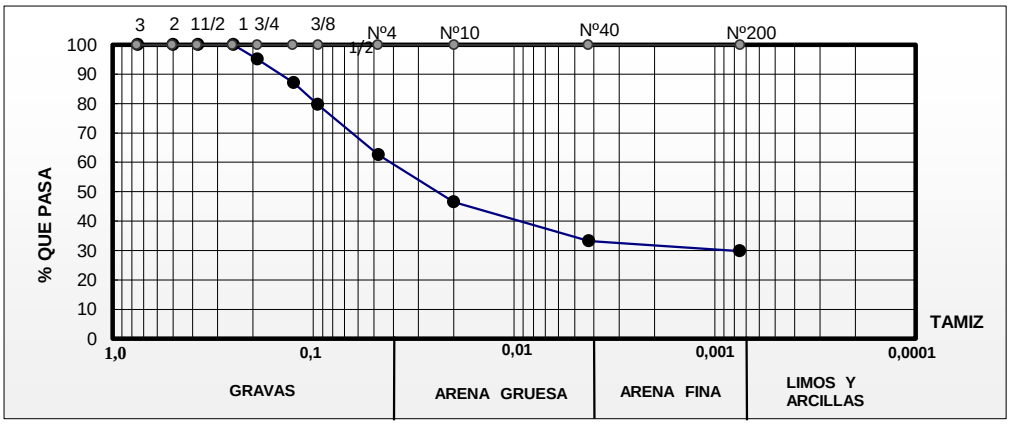
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	149.30	149.30	4.98	**95.02**
1/2"	12.50	240.00	389.30	12.98	**87.02**
3/8"	9.50	222.90	612.20	20.41	**79.59**
Nº4	4.75	510.40	1122.60	37.42	**62.58**
Nº10	2.00	483.40	1606.00	53.53	**46.47**
Nº40	**0.425**	**397.60**	2003.60	66.79	**33.21**
Nº200	**0.075**	**102.90**	2106.50	70.22	**29.78**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

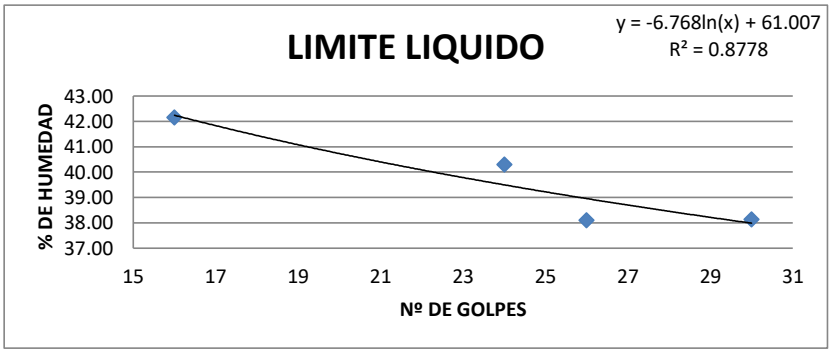
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	26	24	16	30
Suelo Húmedo + Cápsula	34.10	26.13	24.42	27.23
Suelo Seco + Cápsula	29.73	22.23	20.9	23.42
Peso del agua	4.37	3.9	3.52	3.81
Peso de la Cápsula	18.26	12.55	12.55	13.43
Peso Suelo seco	11.47	9.68	8.35	9.99
Porcentaje de Humedad	38.10	40.29	42.16	38.14



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	16.92	17.90	16.66
Peso de suelo seco + Cápsula	15.94	16.95	15.74
Peso de cápsula	12.67	13.89	12.71
Peso de suelo seco	3.27	3.06	3.03
Peso del agua	0.98	0.95	0.92
Contenido de humedad	29.97	31.05	30.36

Límite Líquido (LL)
39
Límite Plástico (LP)
30
Indice de plasticidad (IP)
9
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 1+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	169.61	151.73	162.77
Peso de suelo seco + Cápsula	160.69	144.18	154.14
Peso de cápsula	18.18	19.67	16.99
Peso de suelo seco	142.51	124.51	137.15
Peso del agua	8.92	7.55	8.63
Contenido de humedad	6.26	6.06	6.29
PROMEDIO	**6.21**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 2 - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Alvarez
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

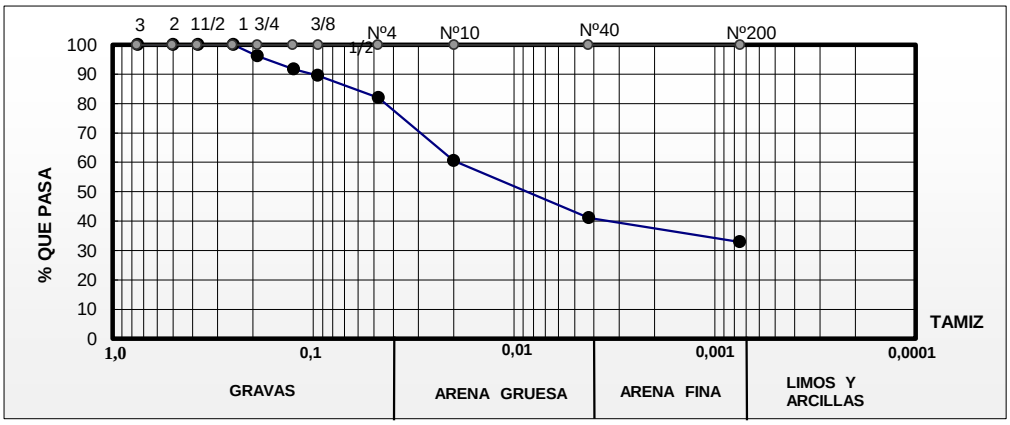
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	115.78	115.78	3.86	**96.14**
1/2"	12.50	135.20	250.98	8.37	**91.63**
3/8"	9.50	63.35	314.33	10.48	**89.52**
Nº4	4.75	226.72	541.05	18.04	**81.97**
Nº10	2.00	642.16	1183.21	39.44	**60.56**
Nº40	**0.425**	**584.67**	1767.88	58.93	**41.07**
Nº200	**0.075**	**245.70**	2013.58	67.12	**32.88**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arias
RESP. DE LAB. SUELOS

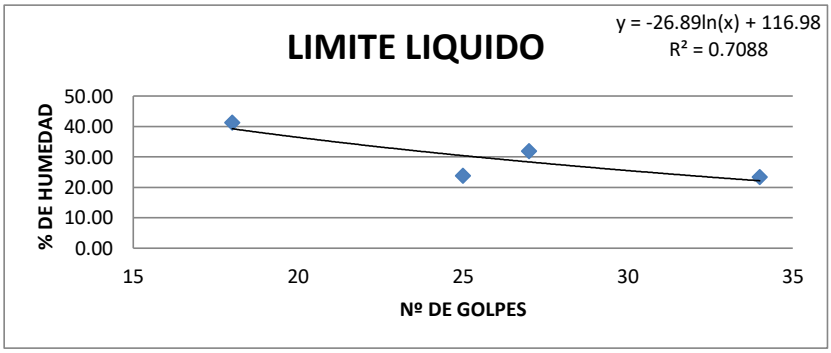
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	**1**	**2**	**3**	**4**
Nº de golpes	27	25	18	34
Suelo Húmedo + Cápsula	33.20	27.34	26.12	28.34
Suelo Seco + Cápsula	28.4	24.5	22.1	25.67
Peso del agua	4.8	2.84	4.02	2.67
Peso de la Cápsula	13.33	12.55	12.34	14.23
Peso Suelo seco	15.07	11.95	9.76	11.44
Porcentaje de Humedad	31.85	23.77	41.19	23.34



Determinación de Límite Plástico

Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	17.30	16.34	15.66
Peso de suelo seco + Cápsula	16.50	15.78	14.99
Peso de cápsula	12.04	12.67	12.71
Peso de suelo seco	4.46	3.11	2.28
Peso del agua	0.80	0.56	0.67
Contenido de humedad	17.94	18.01	29.39

Límite Líquido (LL)
30
Límite Plástico (LP)
22
Indice de plasticidad (IP)
8
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	159.50	141.74	152.78
Peso de suelo seco + Cápsula	150.90	134.18	144.14
Peso de cápsula	17.30	18.4	17.3
Peso de suelo seco	133.6	115.78	126.84
Peso del agua	8.6	7.56	8.64
Contenido de humedad	6.44	6.53	6.81
PROMEDIO	**6.59**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 2 - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

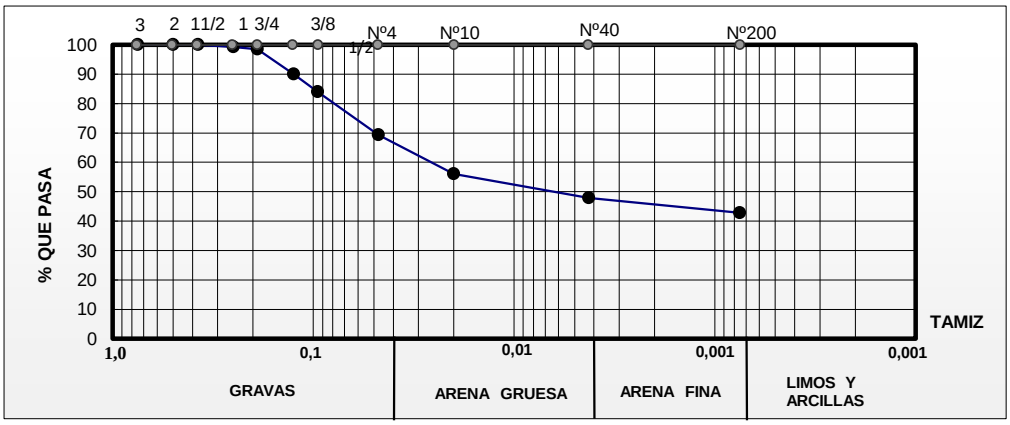
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	23.80	23.80	0.79	**99.21**
3/4"	19.00	22.80	46.60	1.55	**98.45**
1/2"	12.50	253.80	300.40	10.01	**89.99**
3/8"	9.50	178.30	478.70	15.96	**84.04**
Nº4	4.75	439.60	918.30	30.61	**69.39**
Nº10	2.00	401.80	1320.10	44.00	**56.00**
Nº40	**0.425**	**242.20**	1562.30	52.08	**47.92**
Nº200	**0.075**	**153.20**	1715.50	57.18	**42.82**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

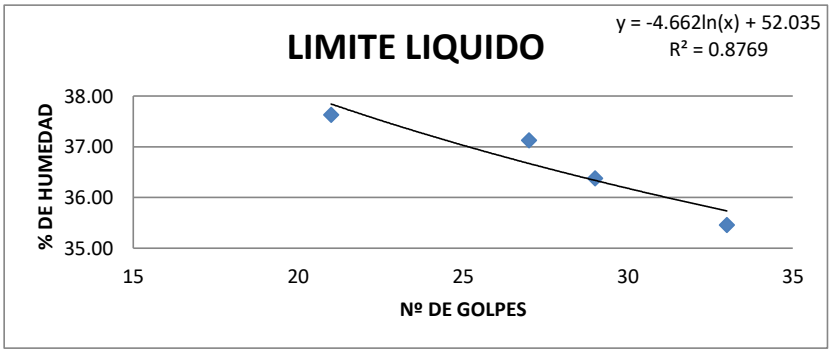
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	**1**	**2**	**3**	**4**
Nº de golpes	21	27	29	33
Suelo Húmedo + Cápsula	33.33	29.18	34.31	27.95
Suelo Seco + Cápsula	29.33	25.98	30.09	23.77
Peso del agua	4	3.2	4.22	4.18
Peso de la Cápsula	18.7	17.36	18.49	11.98
Peso Suelo seco	10.63	8.62	11.6	11.79
Porcentaje de Humedad	37.63	37.12	36.38	35.45



Determinación de Límite Plástico

Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	15.03	18.60	16.40
Peso de suelo seco + Cápsula	14.46	17.62	15.53
Peso de cápsula	12.81	14.18	12.64
Peso de suelo seco	1.65	3.44	2.89
Peso del agua	0.57	0.98	0.87
Contenido de humedad	34.55	28.49	30.10

Límite Líquido (LL)
33
Límite Plástico (LP)
31
Indice de plasticidad (IP)
2
Indice de Grupo (IG)
2

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 2+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	129.09	141.13	128.6
Peso de suelo seco + Cápsula	121.46	132.97	121.23
Peso de cápsula	17.46	18.32	20.67
Peso de suelo seco	104	114.65	100.56
Peso del agua	7.63	8.16	7.37
Contenido de humedad	7.34	7.12	7.33
PROMEDIO	**7.26**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 4 (2)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

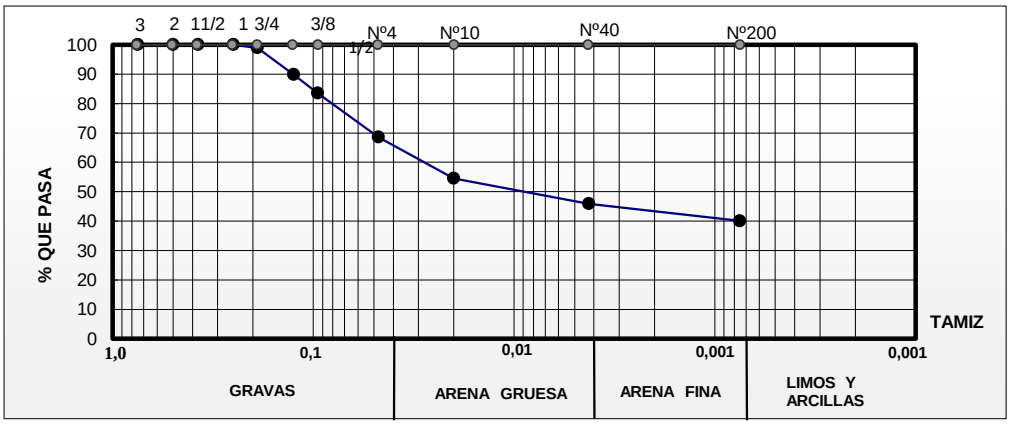
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	32.56	32.56	1.09	**98.91**
1/2"	12.50	270.14	302.70	10.09	**89.91**
3/8"	9.50	190.40	493.10	16.44	**83.56**
Nº4	4.75	450.64	943.74	31.46	**68.54**
Nº10	2.00	420.24	1363.98	45.47	**54.53**
Nº40	**0.425**	**260.12**	1624.10	54.14	**45.86**
Nº200	**0.075**	**173.34**	1797.44	59.91	**40.09**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arteaga
RESP. DE LAB. SUELOS

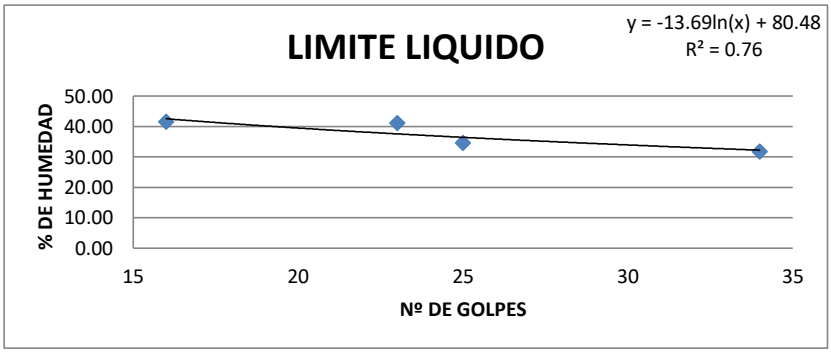
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	16	23	25	34
Suelo Húmedo + Cápsula	32.21	27.20	33.45	28.89
Suelo Seco + Cápsula	27.25	23.95	29.05	24.83
Peso del agua	4.96	3.25	4.4	4.06
Peso de la Cápsula	15.3	16.03	16.30	12.01
Peso Suelo seco	11.95	7.92	12.75	12.82
Porcentaje de Humedad	41.51	41.04	34.51	31.67



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	16.04	17.60	15.40
Peso de suelo seco + Cápsula	15.10	16.20	14.53
Peso de cápsula	12.02	12.45	12.06
Peso de suelo seco	3.08	3.75	2.47
Peso del agua	0.94	1.40	0.87
Contenido de humedad	30.52	37.33	35.22

Límite Líquido (LL)
36
Límite Plástico (LP)
34
Indice de plasticidad (IP)
2
Indice de Grupo (IG)
1

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	130.02	140.9	131.9
Peso de suelo seco + Cápsula	120.30	130.2	122.4
Peso de cápsula	18.32	17.56	19.34
Peso de suelo seco	101.98	112.64	103.06
Peso del agua	9.72	10.7	9.5
Contenido de humedad	9.53	9.50	9.22
PROMEDIO	**9.42**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 4 (2)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arias
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

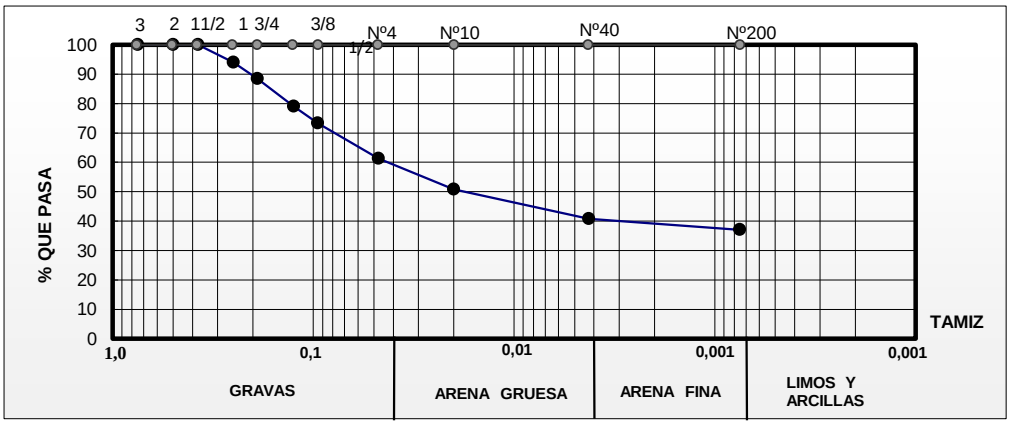
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	180.00	180.00	6.00	**94.00**
3/4"	19.00	168.60	348.60	11.62	**88.38**
1/2"	12.50	281.30	629.90	21.00	**79.00**
3/8"	9.50	170.70	800.60	26.69	**73.31**
Nº4	4.75	362.30	1162.90	38.76	**61.24**
Nº10	2.00	313.10	1476.00	49.20	**50.80**
Nº40	**0.425**	**299.00**	1775.00	59.17	**40.83**
Nº200	**0.075**	**114.30**	1889.30	62.98	**37.02**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

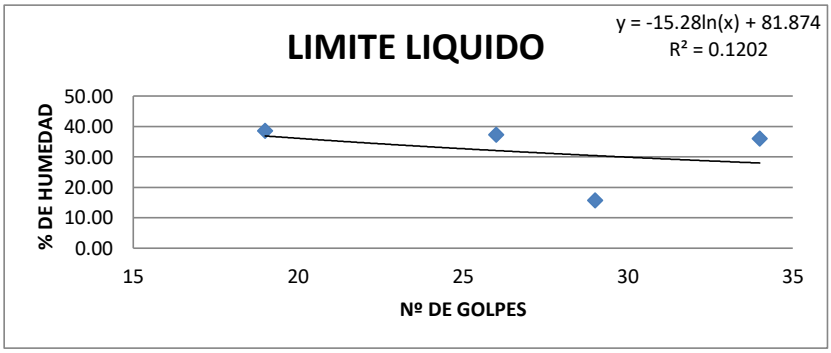
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	19	26	29	34
Suelo Húmedo + Cápsula	30.69	26.53	27.45	34.97
Suelo Seco + Cápsula	26.9	22.81	25.43	30.94
Peso del agua	3.79	3.72	2.02	4.03
Peso de la Cápsula	17.07	12.81	12.54	19.73
Peso Suelo seco	9.83	10	12.89	11.21
Porcentaje de Humedad	38.56	37.20	15.67	35.95



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	15.62	21.61	17.58
Peso de suelo seco + Cápsula	14.95	20.95	16.73
Peso de cápsula	12.46	18.54	13.61
Peso de suelo seco	2.49	2.41	3.12
Peso del agua	0.67	0.66	0.85
Contenido de humedad	26.91	27.39	27.24

Límite Líquido (LL)
33
Límite Plástico (LP)
27
Indice de plasticidad (IP)
6
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 3+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	184.89	168.34	214.6
Peso de suelo seco + Cápsula	177.42	161.92	206.72
Peso de cápsula	19.40	18.23	20.14
Peso de suelo seco	158.02	143.69	186.58
Peso del agua	7.47	6.42	7.88
Contenido de humedad	4.73	4.47	4.22
PROMEDIO	**4.47**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

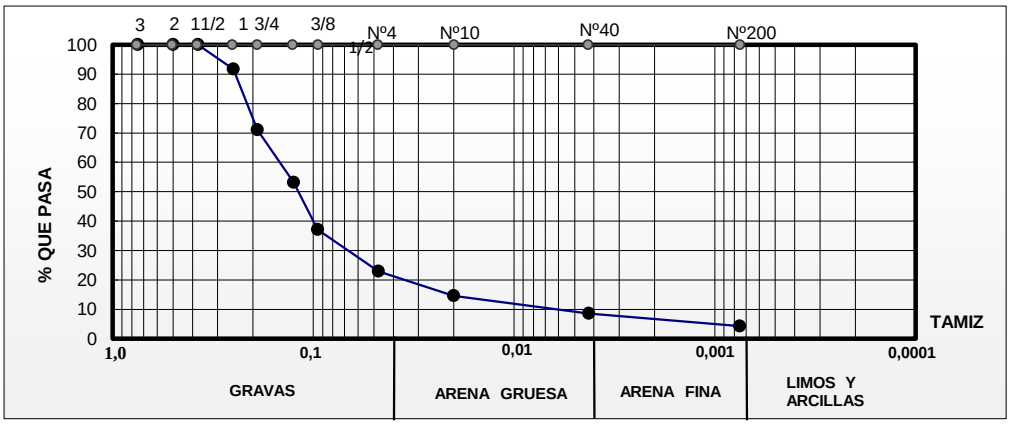
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	250.76	250.76	8.36	**91.64**
3/4"	19.00	620.30	871.06	29.04	**70.96**
1/2"	12.50	534.80	1405.86	46.86	**53.14**
3/8"	9.50	480.20	1886.06	62.87	**37.13**
Nº4	4.75	424.89	2310.95	77.03	**22.97**
Nº10	2.00	250.30	2561.25	85.38	**14.63**
Nº40	**0.425**	**180.34**	2741.59	91.39	**8.61**
Nº200	**0.075**	**130.45**	2872.04	95.73	**4.27**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

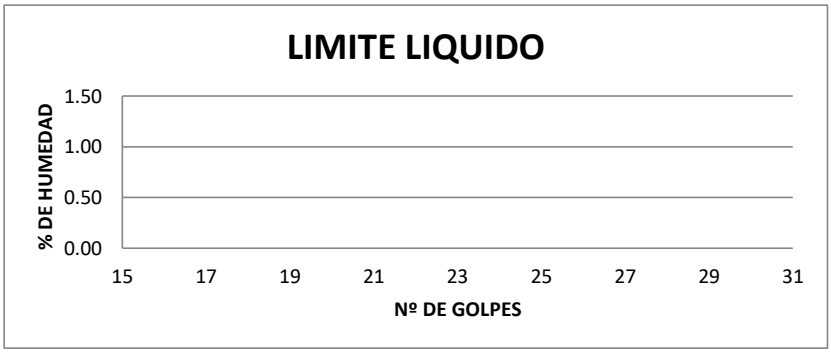
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4	5
Nº de golpes					
Suelo Húmedo + Cápsula					
Suelo Seco + Cápsula					
Peso del agua					
Peso de la Cápsula					
Peso Suelo seco					
Porcentaje de Humedad					

N.P.



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula			
Peso de suelo seco + Cápsula			
Peso de cápsula			
Peso de suelo seco			
Peso del agua			
Contenido de humedad			

N.P.

Límite Líquido (LL)
NP
Límite Plástico (LP)
NP
Indice de plasticidad (IP)
NP
Indice de Grupo (IG)
NP

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

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UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	156.80	138	128.5
Peso de suelo seco + Cápsula	145.40	128.7	119.54
Peso de cápsula	12.50	13.56	12.45
Peso de suelo seco	132.9	115.14	107.09
Peso del agua	11.4	9.3	8.96
Contenido de humedad	8.58	8.08	8.37
PROMEDIO	**8.34**		

CLASIFICACIÓN DEL SUELO	**SUCS: GP** **AASHTO: A - 1a (0)**
DESCRIPCIÓN	Gravas pobremente graduadas y mezclas de arena y grava con pocos finos o sin finos

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

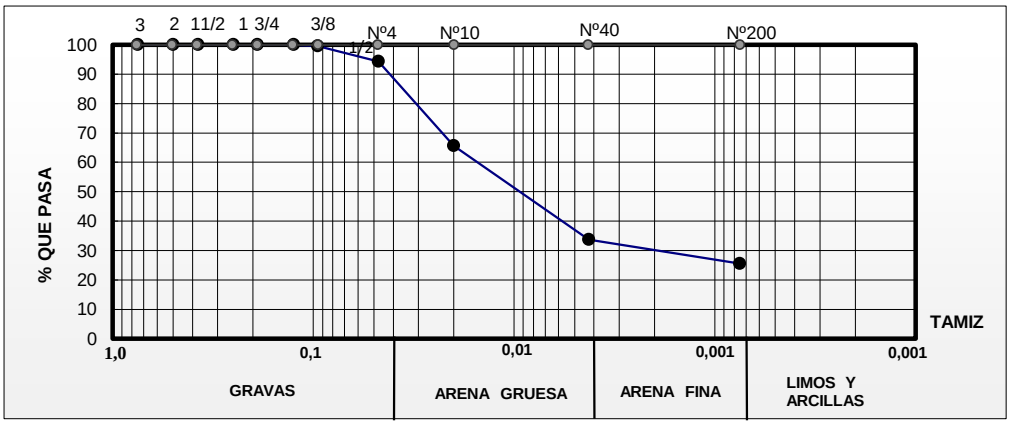
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	0.00	0.00	0.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	**100.00**
3/8"	9.50	11.30	11.30	0.38	**99.62**
Nº4	4.75	160.50	171.80	5.73	**94.27**
Nº10	2.00	858.00	1029.80	34.33	**65.67**
Nº40	**0.425**	**958.40**	1988.20	66.27	**33.73**
Nº200	**0.075**	**245.60**	2233.80	74.46	**25.54**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

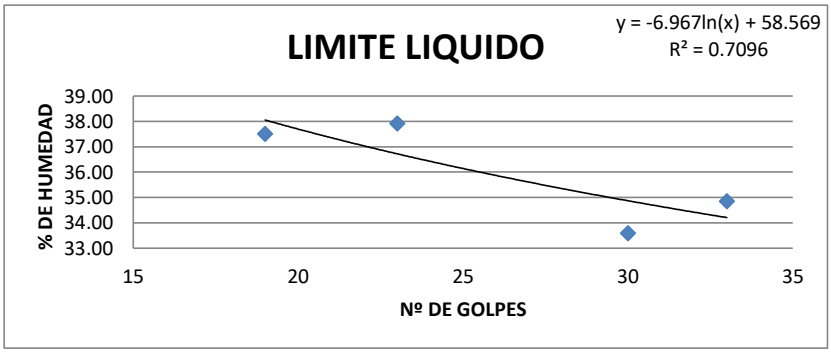
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	33	30	19	23
Suelo Húmedo + Cápsula	29.98	26.84	31.99	30.27
Suelo Seco + Cápsula	25.71	23.35	26.8	25.27
Peso del agua	4.27	3.49	5.19	5
Peso de la Cápsula	13.46	12.96	12.96	12.08
Peso Suelo seco	12.25	10.39	13.84	13.19
Porcentaje de Humedad	34.86	33.59	37.50	37.91



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	15.64	17.72	16.41
Peso de suelo seco + Cápsula	14.79	16.82	15.61
Peso de cápsula	11.65	13.55	12.73
Peso de suelo seco	3.14	3.27	2.88
Peso del agua	0.85	0.90	0.80
Contenido de humedad	27.07	27.52	27.78

Límite Líquido (LL)
36
Límite Plástico (LP)
27
Indice de plasticidad (IP)
9
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 4+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	146.77	143.31	155.2
Peso de suelo seco + Cápsula	139.21	135.61	146.88
Peso de cápsula	17.51	16.8	17.77
Peso de suelo seco	121.7	118.81	129.11
Peso del agua	7.56	7.7	8.32
Contenido de humedad	6.21	6.48	6.44
PROMEDIO	**6.38**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 2 - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

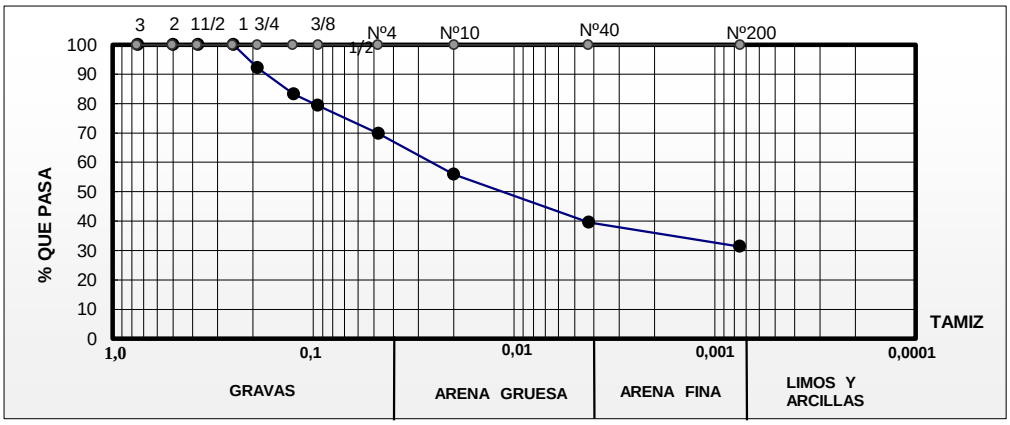
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	236.70	236.70	7.89	**92.11**
1/2"	12.50	269.12	505.82	16.86	**83.14**
3/8"	9.50	113.50	619.32	20.64	**79.36**
Nº4	4.75	284.70	904.02	30.13	**69.87**
Nº10	2.00	417.90	1321.92	44.06	**55.94**
Nº40	**0.425**	**490.80**	1812.72	60.42	**39.58**
Nº200	**0.075**	**247.90**	2060.62	68.69	**31.31**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

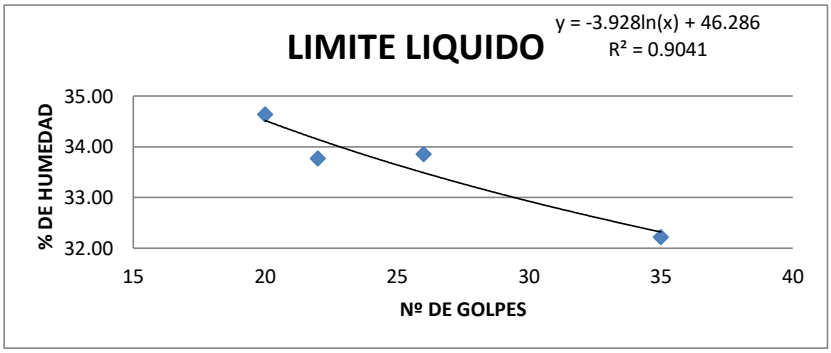
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	22	20	35	26
Suelo Húmedo + Cápsula	24.96	27.02	26.72	31.23
Suelo Seco + Cápsula	21.87	23.3	23.36	26.86
Peso del agua	3.09	3.72	3.36	4.37
Peso de la Cápsula	12.72	12.56	12.93	13.95
Peso Suelo seco	9.15	10.74	10.43	12.91
Porcentaje de Humedad	33.77	34.64	32.21	33.85



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	17.00	16.92	16.06
Peso de suelo seco + Cápsula	16.24	16.05	15.40
Peso de cápsula	13.15	12.35	12.63
Peso de suelo seco	3.09	3.70	2.77
Peso del agua	0.76	0.87	0.66
Contenido de humedad	24.60	23.51	23.83

Límite Líquido (LL)
34
Límite Plástico (LP)
24
Indice de plasticidad (IP)
10
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	163.32	124.47	109.09
Peso de suelo seco + Cápsula	150.76	116.43	102.87
Peso de cápsula	18.20	12.56	12.19
Peso de suelo seco	132.56	103.87	90.68
Peso del agua	12.56	8.04	6.22
Contenido de humedad	9.47	7.74	6.86
PROMEDIO	**8.02**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 2 - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

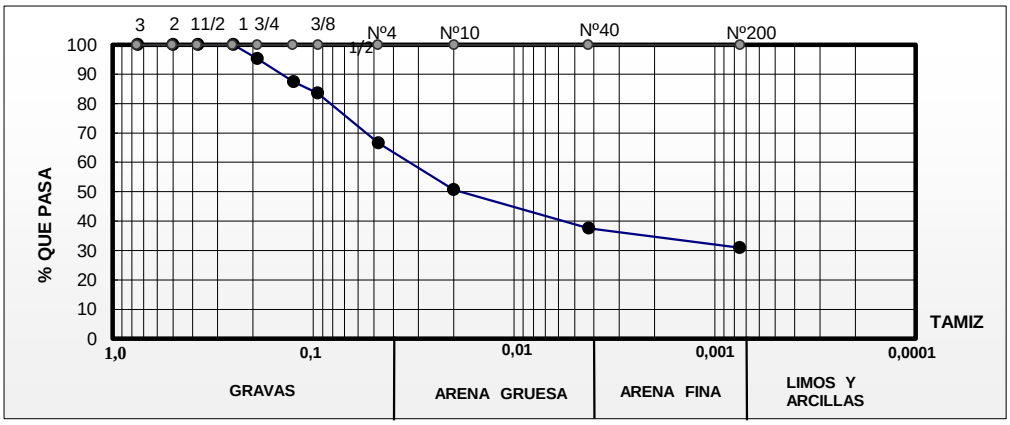
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			**3,000**	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	0.00	0.00	0.00	**100.00**
3/4"	19.00	142.50	142.50	4.75	**95.25**
1/2"	12.50	235.60	378.10	12.60	**87.40**
3/8"	9.50	117.98	496.08	16.54	**83.46**
Nº4	4.75	505.20	1001.28	33.38	**66.62**
Nº10	2.00	478.40	1479.68	49.32	**50.68**
Nº40	**0.425**	**392.45**	1872.13	62.40	**37.60**
Nº200	**0.075**	**200.00**	2072.13	69.07	**30.93**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

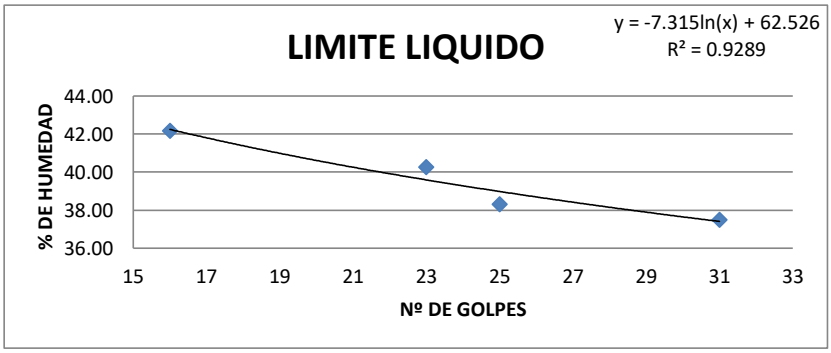
Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4
Nº de golpes	25	23	16	31
Suelo Húmedo + Cápsula	33.10	25.60	23.84	26.60
Suelo Seco + Cápsula	28.42	21.61	20.1	22.73
Peso del agua	4.68	3.99	3.74	3.87
Peso de la Cápsula	16.2	11.7	11.23	12.41
Peso Suelo seco	12.22	9.91	8.87	10.32
Porcentaje de Humedad	38.30	40.26	42.16	37.50



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula	15.64	16.90	15.56
Peso de suelo seco + Cápsula	14.87	15.82	14.77
Peso de cápsula	11.87	12.82	11.92
Peso de suelo seco	3.00	3.00	2.85
Peso del agua	0.77	1.08	0.79
Contenido de humedad	25.67	36.00	27.72

Límite Líquido (LL)
39
Límite Plástico (LP)
30
Indice de plasticidad (IP)
9
Indice de Grupo (IG)
0

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 5+500
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	156.80	138	128.5
Peso de suelo seco + Cápsula	145.40	128.7	119.54
Peso de cápsula	12.50	13.56	12.45
Peso de suelo seco	132.9	115.14	107.09
Peso del agua	11.4	9.3	8.96
Contenido de humedad	8.58	8.08	8.37
PROMEDIO	**8.34**		

CLASIFICACIÓN DEL SUELO	**SUCS: SM** **AASHTO: A - 2 - 4 (0)**
DESCRIPCIÓN	Arena limosa, mezclas de arena con limo

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

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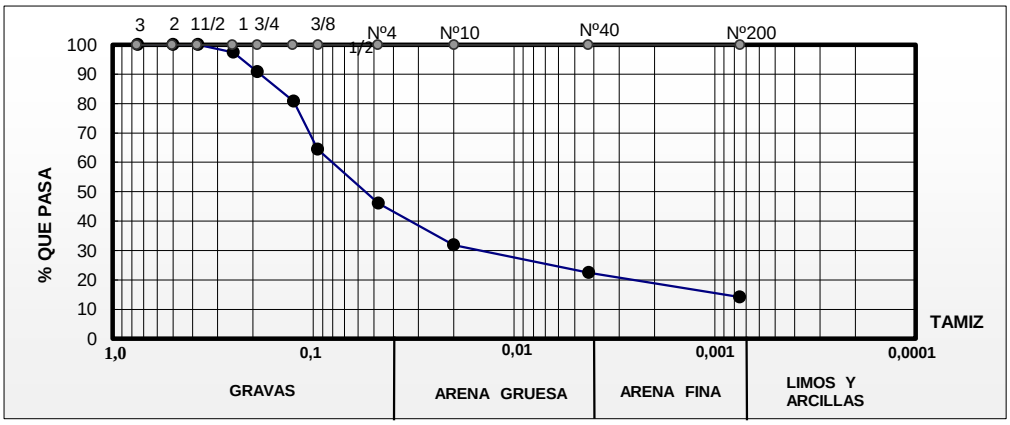
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROYECTO DE GRADO
LABORATORIO DE SUELOS

GRANULOMETRÍA

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 6+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

DATOS DE LA MUESTRA TOTAL		
PESO TOTAL MUESTRA SECA	3,000	gr

Peso Total (gr.)			3,000	A.S.T.M.	
Tamices	**Tamaño (mm)**	**Peso Ret. (gr)**	**Ret. Acum (gr)**	**% Ret**	**% Que Pasa del Total**
3"	75	0.00	0.00	0.00	**100.00**
2"	50	0.00	0.00	0.00	**100.00**
1 1 /2"	37.50	0.00	0.00	0.00	**100.00**
1"	25.00	78.00	78.00	2.60	**97.40**
3/4"	19.00	200.00	278.00	9.27	**90.73**
1/2"	12.50	300.00	578.00	19.27	**80.73**
3/8"	9.50	489.50	1067.50	35.58	**64.42**
Nº4	4.75	550.00	1617.50	53.92	**46.08**
Nº10	2.00	427.20	2044.70	68.16	**31.84**
Nº40	**0.425**	**280.45**	2325.15	77.51	**22.50**
Nº200	**0.075**	**250.34**	2575.49	85.85	**14.15**



Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

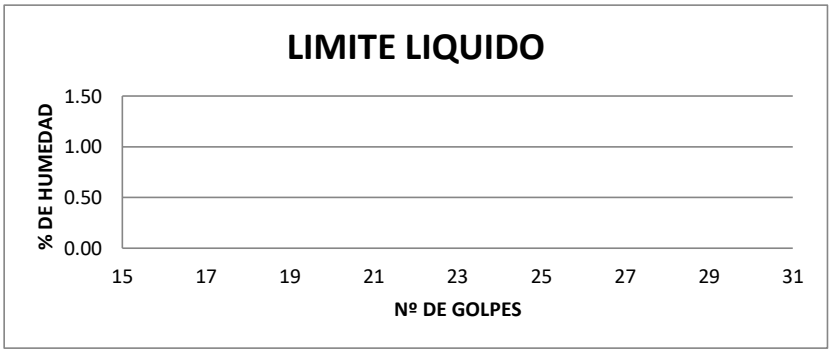
UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

LIMITES DE ATTERBERG

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 6+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

Capsula Nº	1	2	3	4	5
Nº de golpes					
Suelo Húmedo + Cápsula					
Suelo Seco + Cápsula					
Peso del agua					
Peso de la Cápsula					
Peso Suelo seco					
Porcentaje de Humedad					

N.P.



Determinación de Límite Plástico

Cápsula	1	2	3
Peso de suelo húmedo + Cápsula			
Peso de suelo seco + Cápsula			
Peso de cápsula			
Peso de suelo seco			
Peso del agua			
Contenido de humedad			

N.P.

Límite Líquido (LL)
NP
Límite Plástico (LP)
NP
Indice de plasticidad (IP)
NP
Indice de Grupo (IG)
NP

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparación es enteramente responsabilidad el laboratorista.

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"
FACULTAD DE CIENCIAS Y TECNOLOGIA
PROGRAMA DE INGENIERIA CIVIL
LABORATORIO DE SUELOS

HUMEDAD NATURAL Y CLASIFICACION

Proyecto: Diseño estructural de ingenieria vial	Identificación: Progresiva 6+000
Procedencia: Tramo Rocillas - San Franciso	Fecha:14/05/2021
	Laboratorista: Condori Castro. Javier

HUMEDAD NATURAL			
Cápsula	**1**	**2**	**3**
Peso de suelo húmedo + Cápsula	151.70	132.45	123.56
Peso de suelo seco + Cápsula	141.45	123.83	115.38
Peso de cápsula	12.78	12.83	12.29
Peso de suelo seco	128.67	111	103.09
Peso del agua	10.25	8.62	8.18
Contenido de humedad	7.97	7.77	7.93
PROMEDIO	**7.89**		

CLASIFICACIÓN DEL SUELO	**SUCS: GP** **AASHTO: A - 1a (0)**
DESCRIPCIÓN	Gravas pobremente graduadas y mezclas de arena y grava con pocos finos o sin finos

Univ: Condori Castro Javier
LABORATORISTA

Ing. Ricardo Arce.
RESP. DE LAB. SUELOS

Nota: El laboratorio de suelos no se hace responsable por los resultados que plantea este trabajo de comparació es enteramente responsabilidad el laboratorista.

ANEXO 3

REPORTE DE MUESTREO DE SUELOS

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Tecnico: Javier Condori Castro
Carretera: Rosillas - San Francisco
Fecha: 15/4/2021
Prog. : 0+500
Lugar: Tarija - Bolivia
N° Pozo: 1

Datos de campo

		1	2
Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	(X)	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenid	Vegetal	(X)	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	(X)	(X)
	Húmedo	( )	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		10
	Angularidad		
	Angular	(X)	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	S
	Abundante 35-50%	S	M
	Algo 20-35%	M	C
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	(X)
	Muy compacta	( )	( )
	Color	AMARILLO	AMARILLO
Clasificación		GM	SM

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo.
5		Rocas meteorizada angular. Grava limosa poco
10		
15	M 01	
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arenas arcillosas mal graduadas. Arenas pobremente graduadas-Arenas arcillosas media compacta de color amarillo
25		
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Fotografías

CROQUIS SECCION TRANSVERSAL

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Tecnico: Javier Condori Castro
Carretera: Rosillas - San Francisco
Fecha: 15/4/2021
Prog. : 1+000
Lugar: Tarija - Bolivia
N° Pozo: 2

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		10
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	S
	Abundante 35-50%	S	M
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	(X)
	Muy compacta	( )	( )
	Color	NEGRO	NEGRO
Clasificación		GM	SM

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material poco húmedo. . Grava limosa poco compacta de color
5		
10		
15	M 01	
20		Material húmedo. Piedras de tamaño máximo 5 cm. angular. Gravas bien graduadas, mezclas de arena-grava. Con pocos o sin finos muy compacta de color negro
25		
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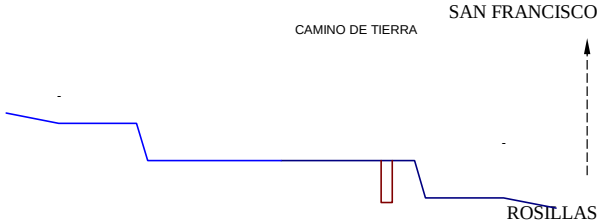
Fotografías

CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 1+500
N° Pozo: 3

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		
	Angularidad		
	Angular	( )	( )
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	G
	Abundante 35-50%	S	M
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	MARRÓN	MARRÓN
Clasificación		GM	SM

DATOS DE LA VIA

Ancho de vía aproximado: 6.0 m
Cunetas: NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo. .
5		Grava limosa poco
10		compacta de color
15	M 01	marrón
20		Material poco
25		húmedo.
30		Piedras de
35		tamaño máximo
40		10 cm. angular.
45		Arena limosa
50		media compacta
55		de color marrón
60		
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Fotografías

CROQUIS SECCION TRANSVERSAL

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 2+000
N° Pozo: 4

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		10
	Angularidad		
	Angular	( )	( )
	Sub. angular	( )	( )
	Sub. redondeada	( )	(X)
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	M
	Abundante 35-50%	S	
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	( )
	Fino > 50 %	( )	(X)
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	(X)
	Muy compacta	( )	( )
	Color	MARRÓN	MARRÓN
Clasificación		GM	ML

DATOS DE LA VIA

Ancho de vía aproximado: 6.0 m
Cunetas: NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo. .
5		Grava limosa poco
10		compacta de color
15	M 01	marrón
20		
25		
30		
35		
40		
45		
50		
55		
60		Material poco
65		húmedo.
70		Piedras de
75		tamaño máximo
80		10 cm. angular.
85		Arena limosa
90		media compacta
95		de color marrón
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Fotografías

CROQUIS SECCION TRANSVERSAL

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 2+500
N° Pozo: 5

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenid	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		
	Angularidad		
	Angular	( )	( )
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	M
	Abundante 35-50%	S	
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	( )
	Fino > 50 %	( )	(X)
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	AMARILLO	AMARILLO
Clasificación		GM	ML

DATOS DE LA VIA

Ancho de vía aproximado: 6.0 m
Cunetas: NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Izquierda

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo.
5		Rocas meteorizada
10		angular. Grava
15	M 01	limosa poco
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arenas arcillosas mal graduadas. Arenas pobremente graduadas-Arenas arcillosas media compacta de color amarillo
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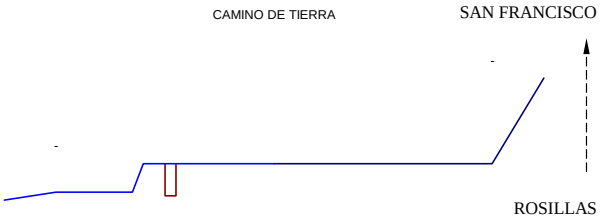
Fotografías

CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 3+000
N° Pozo: 6

Datos de campo

		1	2
Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenid	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	( )
	Húmedo	(X)	(X)
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		
	Angularidad		
	Angular	( )	( )
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	G
	Abundante 35-50%	S	M
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	(X)
	Muy compacta	( )	( )
	Color	AMARILLO	AMARILLO
Clasificación		GM	GW-GM

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun	1.50 m
Lado	Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo.
5	M 01	Rocas meteorizada angular. Grava limosa poco
10		
15		
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arenas arcillosas mal graduadas. Arenas pobremente graduadas-Arenas arcillosas media compacta de color amarillo
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Fotografías

CROQUIS SECCION TRANSVERSAL

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 3+500
N° Pozo: 7

Datos de campo

		1	2
Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	
Contenid	Vegetal	(X)	( )
	Orgánico	(X)	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		
	Angularidad		
	Angular	( )	( )
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	M
	Abundante 35-50%	S	
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	( )
	Fino > 50 %	( )	(X)
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	AMARILLO	AMARILLO
Clasificación		GM	CL

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun	1.50 m
Lado	Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo.
5	M 01	Rocas meteorizada angular. Grava limosa poco
10		
15		
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arenas arcillosas mal graduadas. Arenas pobremente graduadas-Arenas arcillosas media compacta de color amarillo
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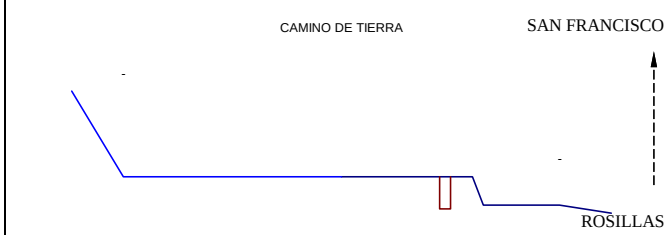
Fotografías

CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 4+000
N° Pozo: 8

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		10
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	M
	Abundante 35-50%	S	
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	( )
	Fino > 50 %	( )	(X)
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	NEGRO	NEGRO
Clasificación		GM	ML

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material poco húmedo. . Grava limosa poco compacta de color
5		
10		
15	M 01	
20		Material húmedo. Piedras de tamaño máximo 5 cm. angular. Gravas bien graduadas, mezclas de arena-grava. Con pocos o sin finos muy compacta de color negro
25		
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35		
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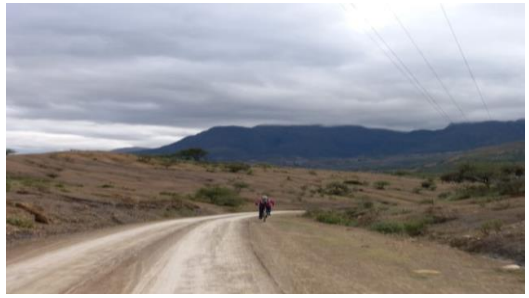
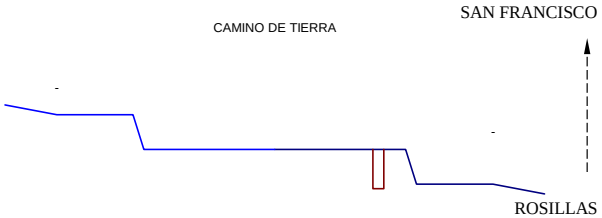
Fotografías



CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 4+500
N° Pozo: 9

Datos de campo

		1	2
Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenid	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	(X)	( )
	Húmedo	( )	(X)
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		5
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	G
	Abundante 35-50%	S	
	Algo 20-35%	M	M
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	( )
	Muy compacta	( )	(X)
	Color	MARRÓN	MARRÓN
Clasificación		GM	GM

DATOS DE LA VÍA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun	1.50 m
Lado	Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo. .
5		Grava limosa poco compacta de color marrón
10		
15	M 01	
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arena limosa media compacta de color marrón
25		
30		
35		
40		
45		
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Fotografías

CROQUIS SECCION TRANSVERSAL

Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 5+000
N° Pozo: 10

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenid	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	( )	(X)
	Húmedo	(X)	( )
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		10
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	M
	Abundante 35-50%	S	
	Algo 20-35%	M	C
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	( )
	Fino > 50 %	( )	(X)
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	MARRÓN	MARRÓN
Clasificación		GM	CL

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Derecho

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo. .
5		Grava limosa poco
10		compacta de color
15	M 01	marrón
20		Material poco
25		húmedo.
30		Piedras de
35		tamaño máximo
40		10 cm. angular.
45		Arena limosa
50		media compacta
55		de color marrón
60		
65		
70		
75		
80		
85		
90		
95		
100		
105		
110		
115		
120		
125		
130		
135		
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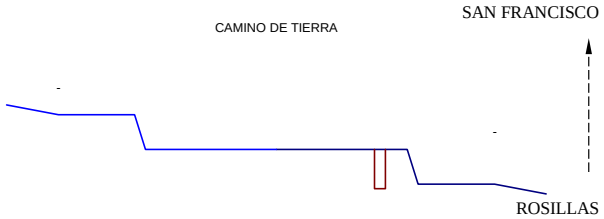
245		
250		

Fotografías

CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 5+500
N° Pozo: 11

Datos de campo

		1	2
Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	(X)	( )
	Húmedo	( )	(X)
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		II-III
	Piedras (f Máximo cm.)		5
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	G
	Abundante 35-50%	S	M
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	( )	( )
	Media compacta	(X)	( )
	Muy compacta	( )	(X)
	Color	MARRÓN	MARRÓN
Clasificación		GM	GP-GM

DATOS DE LA VIA

Ancho de vía aproximado:	6.0 m
Cunetas:	NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Izquierda

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material húmedo. .
5		Grava limosa poco compacta de color marrón
10		
15	M 01	
20		Material poco húmedo. Piedras de tamaño máximo 10 cm. angular. Arena limosa media compacta de color marrón
25		
30		
35		
40		
45		
50		
55		
60		
65		
70		
75		
80		
85		
90		
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245		
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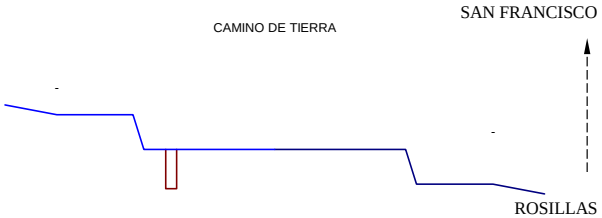
Fotografías

CROQUIS SECCION TRANSVERSAL



Reporte de muestreo

Descripción de sondeos - Procedimiento visual y manual

Proyecto: DISEÑO ESTRUCTURAL DE INGENIRERIA VIAL DEL TRAMO ROSILLAS-SAN FRANCISCO
Carretera: Rosillas - San Francisco
Lugar: Tarija - Bolivia
Fecha: 15/4/2021
Tecnico: Javier Condori Castro
Prog. : 6+000
N° Pozo: 12

Datos de campo

Estrato Nº:		1	2
Profundidad (cm.)		15	150
Espesor (cm.)		15	135
Capa	Cobertura Vegetal	( )	( )
	Material granular seleccionado	( )	( )
	Empedrado	( )	( )
	Empedrado y contrapiso	( )	( )
	Pavimento	( )	( )
	Otros materiales	( )	( )
Contenido	Vegetal	( )	( )
	Orgánico	( )	( )
	Olor	( )	( )
	Escombros y/o Rellenos	( )	( )
Humedad	Poco húmedo	(X)	( )
	Húmedo	( )	(X)
	Muy húmedo	( )	( )
	Mojado	( )	( )
	Muy mojado	( )	( )
Rocas	**Tipo de Roca**		
	Piedras (f Máximo cm.)		5
	Angularidad		
	Angular	( )	(X)
	Sub. angular	( )	( )
	Sub. redondeada	( )	( )
	Redondeada	( )	( )
Suelos	G = Gravas, S = Arenas, M = Limos, C = Arcillas		
	Bastante > 50 %	G	G
	Abundante 35-50%	S	
	Algo 20-35%	M	
	Poco 10-20%		
	Indicios 0-10%		
	Grueso > 50%	(X)	(X)
	Fino > 50 %	( )	( )
	Compacidad		
	Muy suelta	( )	( )
	Suelta	( )	( )
	Poco compacta	(X)	( )
	Media compacta	( )	( )
	Muy compacta	( )	(X)
	Color	NEGRO	NEGRO
Clasificación		GM	GW

DATOS DE LA VIA

Ancho de vía aproximado: 6.0 m
Cunetas: NO

DATOS DE EXCAVACIÓN

Profun 1.50 m
Lado Izquierda

Perfil litológico del pozo

Prof. (cm.)	Nº	Descripción
0		Material poco húmedo. . Grava limosa poco compacta de color
5		
10		
15	M 01	
20		Material húmedo. Piedras de tamaño máximo 5 cm. angular. Gravas bien graduadas, mezclas de arena-grava. Con pocos o sin finos muy compacta de color negro
25		
30		
35		
40		
45		
50		
55		
60		
65		
70		
75		
80		
85		
90		
95		
100		
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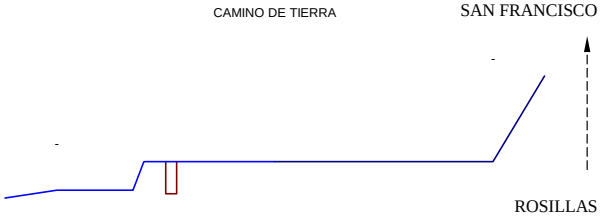
Fotografías

CROQUIS SECCION TRANSVERSAL



ANEXO 4

TPDA

Proyect Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estació ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	3	0	0	3
	7	0	0	0	0
	8	1	0	1	2
	9	0	0	0	0
	10	1	0	0	1
1	11	1	0	1	2
JUEVES	12	4	0	0	4
29/07/21	13	1	0	0	1
	14	3	0	1	4
	15	2	1	0	3
	16	4	0	0	4
	17	1	0	0	1
	18	0	0	0	0
	19	3	0	0	3
	20	0	0	0	0
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		27	1	3	**31**
%		87%	3%	10%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	1	0	0	1
	7	3	0	0	3
	8	1	0	0	1
	9	0	0	0	0
	10	0	0	0	0
1	11	1	0	0	1
JUEVES	12	2	0	0	2
29/07/21	13	3	0	0	3
	14	2	0	0	2
	15	0	0	0	0
	16	3	0	0	3
	17	1	0	0	1
	18	1	0	0	1
	19	0	0	0	0
	20	0	0	0	0
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		20	0	0	**20**
%		100%	0%	0%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	4	0	0	4
	7	3	0	0	3
	8	2	0	1	3
	9	0	0	0	0
	10	1	0	0	1
1	11	2	0	1	3
JUEVES	12	6	0	0	6
29/07/21	13	4	0	0	4
	14	5	0	1	6
	15	2	1	0	3
	16	7	0	0	7
	17	2	0	0	2
	18	1	0	0	1
	19	3	0	0	3
	20	0	0	0	0
	21	3	0	0	3
	22	0	0	0	0
	23	0	0	0	0
T O T A L		47	1	3	**51**
%		92%	2%	6%	100%

Proyect Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estació ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	1	0	0	1
	7	2	0	0	2
	8	1	0	0	1
	9	2	0	0	2
	10	4	0	0	4
2	11	1	0	0	1
VIERNES	12	2	0	0	2
30/07/21	13	3	0	0	3
	14	1	0	0	1
	15	2	0	0	2
	16	3	0	0	3
	17	1	0	0	1
	18	1	0	1	2
	19	2	0	0	2
	20	1	0	1	2
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		30	0	2	**32**
%		94%	0%	6%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	0	0	0	0
	6	1	0	0	1
	7	1	0	0	1
	8	1	0	0	1
	9	1	0	0	1
	10	0	0	0	0
2	11	4	0	0	4
VIERNES	12	4	0	0	4
30/07/21	13	3	0	0	3
	14	4	0	0	4
	15	2	0	0	2
	16	1	0	0	1
	17	1	0	0	1
	18	1	0	1	2
	19	1	0	0	1
	20	1	0	0	1
	21	1	0	0	1
	22	1	0	0	1
	23	0	0	0	0
T O T A L		28	0	1	**29**
%		97%	0%	3%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	2	0	0	2
	7	3	0	0	3
	8	2	0	0	2
	9	3	0	0	3
	10	4	0	0	4
2	11	5	0	0	5
VIERNES	12	6	0	0	6
30/07/21	13	6	0	0	6
	14	5	0	0	5
	15	4	0	0	4
	16	4	0	0	4
	17	2	0	0	2
	18	2	0	2	4
	19	3	0	0	3
	20	2	0	1	3
	21	2	0	0	2
	22	1	0	0	1
	23	0	0	0	0
T O T A L		58	0	3	**61**
%		95%	0%	5%	100%

Proyect Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estació ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	2	1	0	3
	7	1	0	0	1
	8	2	0	0	2
	9	1	0	0	1
	10	2	0	0	2
3	11	2	0	2	4
SABADO	12	0	0	0	0
31/07/21	13	1	0	0	1
	14	3	0	1	4
	15	2	0	0	2
	16	2	0	0	2
	17	1	0	0	1
	18	2	0	0	2
	19	2	0	0	2
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		26	1	3	**30**
%		87%	3%	10%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	2	0	0	2
	7	1	0	1	2
	8	3	0	0	3
	9	2	0	1	3
	10	1	0	0	1
3	11	3	0	0	3
SABADO	12	1	0	0	1
31/07/21	13	2	0	0	2
	14	1	0	1	2
	15	1	0	0	1
	16	0	0	0	0
	17	0	0	0	0
	18	0	0	0	0
	19	1	0	0	1
	20	0	0	1	1
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		21	0	4	**25**
%		84%	0%	16%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	4	1	0	5
	7	2	0	1	3
	8	5	0	0	5
	9	3	0	1	4
	10	3	0	0	3
3	11	5	0	2	7
SABADO	12	1	0	0	1
31/07/21	13	3	0	0	3
	14	4	0	2	6
	15	3	0	0	3
	16	2	0	0	2
	17	1	0	0	1
	18	2	0	0	2
	19	3	0	0	3
	20	1	0	1	2
	21	3	0	0	3
	22	0	0	0	0
	23	0	0	0	0
T O T A L		47	1	7	**55**
%		85%	2%	13%	100%

Proyecto Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estación: ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	1	0	0	1
	7	2	0	0	2
	8	1	0	0	1
	9	2	0	1	3
	10	4	0	0	4
4	11	1	0	0	1
DOMINGO	12	1	0	0	1
01/08/21	13	3	0	0	3
	14	3	0	0	3
	15	1	0	0	1
	16	1	0	0	1
	17	0	0	0	0
	18	1	0	0	1
	19	1	0	0	1
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		26	0	1	**27**
%		96%	0%	4%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	1	0	0	1
	7	0	0	0	0
	8	2	0	0	2
	9	2	0	0	2
	10	2	0	0	2
4	11	0	0	1	1
DOMINGO	12	1	0	0	1
01/08/21	13	0	0	0	0
	14	3	0	0	3
	15	1	0	0	1
	16	1	0	0	1
	17	0	0	0	0
	18	1	0	0	1
	19	1	0	0	1
	20	2	0	0	2
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		21	0	1	**22**
%		95%	0%	5%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	4	0	0	4
	6	2	0	0	2
	7	2	0	0	2
	8	3	0	0	3
	9	4	0	1	5
	10	6	0	0	6
4	11	1	0	1	2
DOMINGO	12	2	0	0	2
01/08/21	13	3	0	0	3
	14	6	0	0	6
	15	2	0	0	2
	16	2	0	0	2
	17	0	0	0	0
	18	2	0	0	2
	19	2	0	0	2
	20	3	0	0	3
	21	3	0	0	3
	22	0	0	0	0
	23	0	0	0	0
T O T A L		47	0	2	**49**
%		96%	0%	4%	100%

Proyecto Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estación: ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	1	0	0	1
	7	2	0	0	2
	8	6	0	0	6
	9	1	0	1	2
	10	3	1	0	4
5	11	2	0	1	3
LUNES	12	1	0	0	1
02/08/21	13	1	0	0	1
	14	3	1	0	4
	15	2	0	0	2
	16	1	0	0	1
	17	1	0	1	2
	18	1	0	0	1
	19	1	0	0	1
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		29	2	3	**34**
%		85%	6%	9%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	1	0	0	1
	7	1	0	0	1
	8	4	0	0	4
	9	1	1	1	3
	10	1	0	0	1
5	11	0	0	0	0
LUNES	12	1	0	0	1
02/08/21	13	1	0	0	1
	14	4	0	0	4
	15	1	0	0	1
	16	1	0	0	1
	17	1	0	0	1
	18	2	0	0	2
	19	2	0	1	3
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		24	1	2	**27**
%		89%	4%	7%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	2	0	0	2
	7	3	0	0	3
	8	10	0	0	10
	9	2	1	2	5
	10	4	1	0	5
5	11	2	0	1	3
LUNES	12	2	0	0	2
02/08/21	13	2	0	0	2
	14	7	1	0	8
	15	3	0	0	3
	16	2	0	0	2
	17	2	0	1	3
	18	3	0	0	3
	19	3	0	1	4
	20	2	0	0	2
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		53	3	5	**61**
%		87%	5%	8%	100%

Proyecto Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estación: ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	3	0	0	3
	7	1	0	1	2
	8	3	0	0	3
	9	1	0	0	1
	10	2	0	0	2
6	11	2	0	0	2
MARTES	12	1	0	2	3
03/08/21	13	1	0	0	1
	14	5	0	0	5
	15	1	0	0	1
	16	1	0	0	1
	17	1	0	0	1
	18	1	0	0	1
	19	1	0	0	1
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		27	0	3	**30**
%		90%	0%	10%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	0	0	0	0
	6	1	0	0	1
	7	2	0	0	2
	8	3	0	0	3
	9	1	0	0	1
	10	1	0	0	1
6	11	0	0	0	0
MARTES	12	1	0	0	1
03/08/21	13	0	0	0	0
	14	5	0	0	5
	15	0	1	0	1
	16	1	0	0	1
	17	1	0	0	1
	18	1	0	0	1
	19	2	0	0	2
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		21	1	0	**22**
%		95%	5%	0%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	4	0	0	4
	7	3	0	1	4
	8	6	0	0	6
	9	2	0	0	2
	10	3	0	0	3
6	11	2	0	0	2
MARTES	12	2	0	2	4
03/08/21	13	1	0	0	1
	14	10	0	0	10
	15	1	1	0	2
	16	2	0	0	2
	17	2	0	0	2
	18	2	0	0	2
	19	3	0	0	3
	20	2	0	0	2
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		48	1	3	**52**
%		92%	2%	6%	100%

Proyecto Diseño estructural de ingenieria vial
Aforo volumetricos clasifiacados
Estacion: ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	0	0	0	0
	6	1	0	0	1
	7	1	0	1	2
	8	4	0	0	4
	9	1	0	0	1
	10	1	0	0	1
7	11	3	0	0	3
MIERCOLES	12	1	0	0	1
04/08/21	13	2	0	0	2
	14	6	0	0	6
	15	1	0	0	1
	16	1	0	0	1
	17	1	0	0	1
	18	2	0	0	2
	19	1	0	0	1
	20	0	0	1	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		27	0	2	**29**
%		93%	0%	7%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	0	0	0	0
	7	2	0	0	2
	8	3	0	0	3
	9	0	0	0	0
	10	1	0	0	1
7	11	0	1	0	1
MIERCOLES	12	1	0	0	1
04/08/21	13	1	0	0	1
	14	5	0	1	6
	15	1	0	0	1
	16	0	0	0	0
	17	2	0	0	2
	18	1	0	0	1
	19	0	0	0	0
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		20	1	1	**22**
%		91%	5%	5%	100%

Sentido: Ambas direcciones

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	1	0	0	1
	7	3	0	1	4
	8	7	0	0	7
	9	1	0	0	1
	10	2	0	0	2
7	11	3	1	0	4
MIERCOLES	12	2	0	0	2
04/08/21	13	3	0	0	3
	14	11	0	1	12
	15	2	0	0	2
	16	1	0	0	1
	17	3	0	0	3
	18	3	0	0	3
	19	1	0	0	1
	20	1	0	1	2
	21	2	0	0	2
	22	0	0	0	0
	23	0	0	0	0
T O T A L		47	1	3	**51**
%		92%	2%	6%	100%

Proyecto Diseño estructural de ingeniería vial
Aforo volumétricos clasificados
Estación: ROSILLAS

(ROSILLAS - SAN FRANCISCO)

Sentido: Sentido 1

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
PROM 7 DIAS	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	2	0	0	2
	7	1	0	0	2
	8	3	0	0	3
	9	1	0	0	2
	10	3	0	0	3
	11	2	0	1	2
	12	2	0	0	2
	13	2	0	0	2
	14	4	0	0	4
	15	2	0	0	2
	16	2	0	0	2
	17	1	0	0	1
	18	1	0	0	1
	19	2	0	0	2
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		29	1	3	**32**
%		91%	3%	9%	100%

Sentido: Sentido 2

DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
PROM 7 DIAS	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	1	0	0	1
	6	1	0	0	1
	7	1	0	0	2
	8	2	0	0	2
	9	1	0	0	1
	10	1	0	0	1
	11	1	0	0	1
	12	2	0	0	2
	13	1	0	0	1
	14	3	0	0	4
	15	1	0	0	1
	16	1	0	0	1
	17	1	0	0	1
	18	1	0	0	1
	19	1	0	0	1
	20	1	0	0	1
	21	1	0	0	1
	22	0	0	0	0
	23	0	0	0	0
T O T A L		23	1	2	**24**
%		97%	4%	8%	100%

Sentido: Ambas direcciones

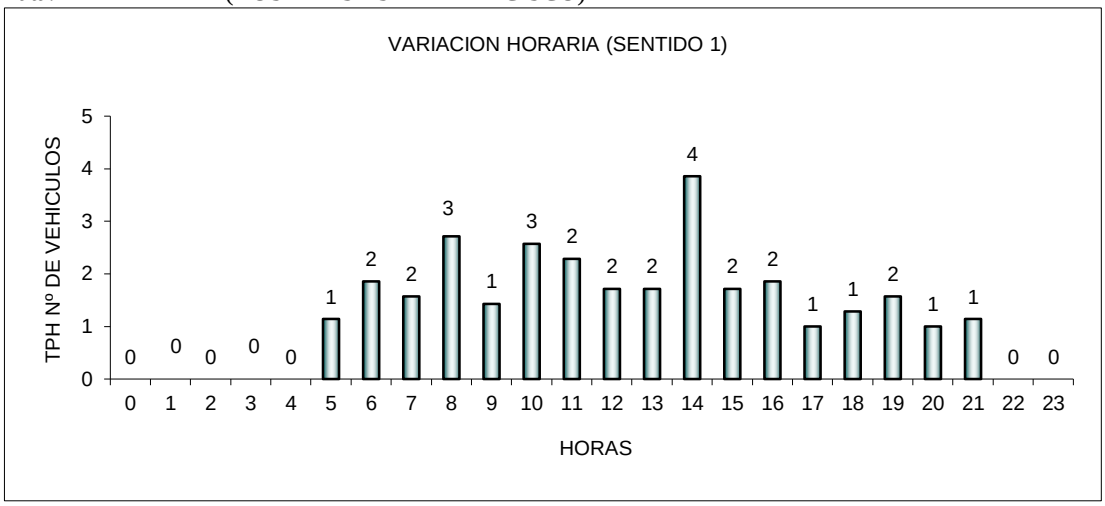
DIA	HORA	L I V I A N O S	MEDIANOS	PESADOS	TOTAL
PROM 7 DIAS	0	0	0	0	0
	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	2	0	0	2
	6	3	0	0	3
	7	3	0	0	3
	8	5	0	0	5
	9	2	0	1	3
	10	3	0	0	4
	11	3	0	1	4
	12	3	0	0	3
	13	3	0	0	3
	14	7	0	1	8
	15	3	0	0	3
	16	3	0	0	3
	17	2	0	0	2
	18	2	0	0	3
	19	3	0	0	3
	20	2	0	0	2
	21	3	0	0	3
	22	0	0	0	0
	23	0	0	0	0
T O T A L		52	2	5	**59**
%		88%	3%	8%	100%

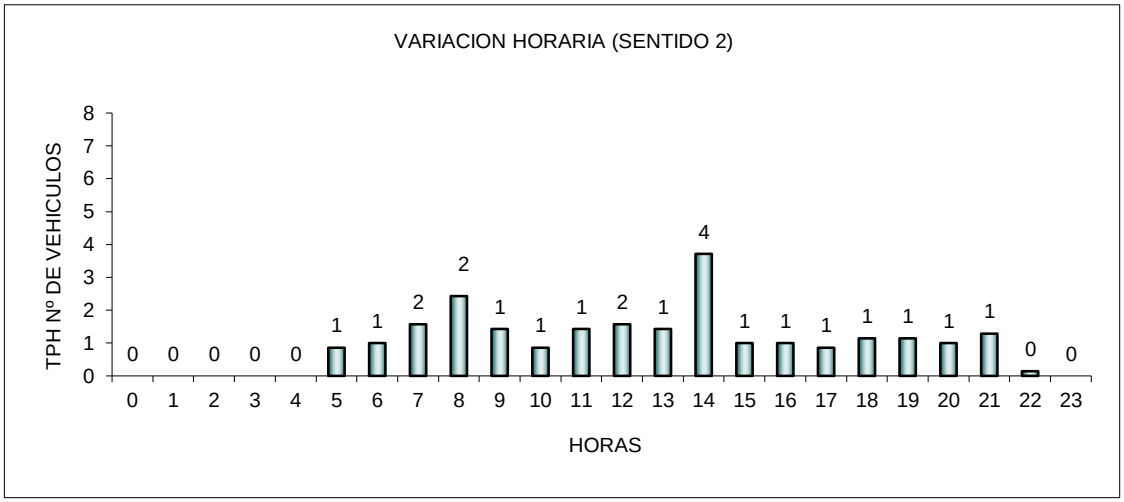
Proyecto : Diseño estructural de ingeniería vial

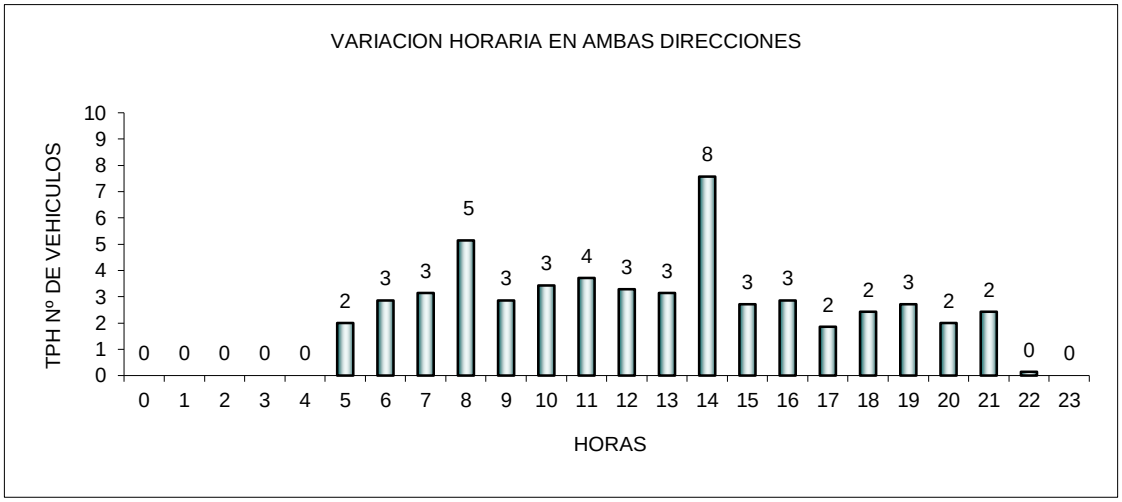
Aforo volumétricos clasificados

Estación: ROSILLAS

Ruta: (ROSILLAS - SAN FRANCISCO)





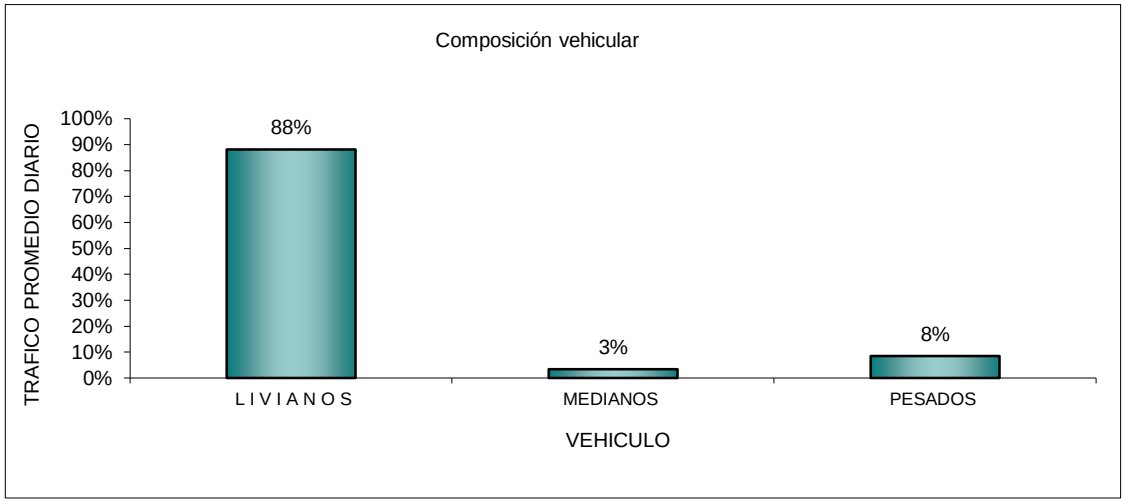


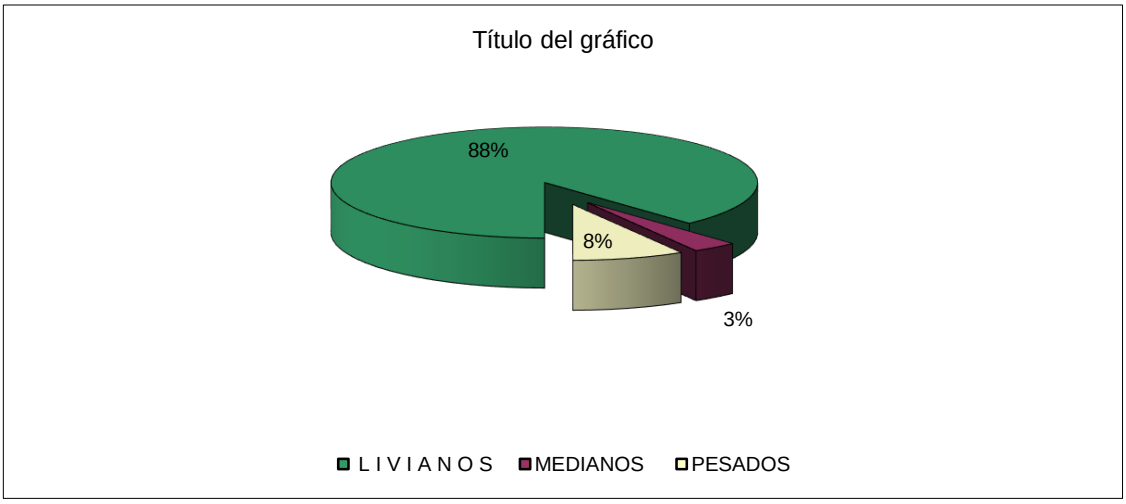
Proyecto : Diseño estructural de ingeniería vial

Aforo volumétricos clasificados

Estación: ROSILLAS

Ruta: (ROSILLAS - SAN FRANCISCO)





ANEXO 5

FACTOR DE CARGA Y ESAL´s

DETERMINACIÓN DEL TRÁFICO PROMEDIO DIARIO ANUAL (TPDA)

$$TPD1_{15} = TPD_0 * \left(1 + \frac{i}{100}\right)^n$$

Donde:

TPDo = Volumen actual de vehículos

n = 20 [años] Periodo de Diseño

i = 3.97 [%] Índice de crecimiento

	ÍNDICE DE CRECIMIENTO
POBLACIONAL PADCAYA	**1.13**
POBLACIONAL TARIJA	2.82
PARQUE AUTOMOTOR TARIJA	9.9
PONDERADO	**3.97**

TRÁFICO NORMAL

Tipos de Vehículos	1 L I V I A N O S	2 MEDIANOS	3 PESADOS	Totales
2022	52	2	5	59
2023	54	2	5	61
2024	56	2	5	64
2025	58	2	6	66
2026	61	2	6	69
2027	63	2	6	72
2028	66	3	6	75
2029	68	3	7	77
2030	71	3	7	81
2031	74	3	7	84
2032	77	3	7	87
2033	80	3	8	91
2034	83	3	8	94
2035	86	3	8	98
2036	90	3	9	102
2037	93	4	9	106
2038	97	4	9	110
2039	101	4	10	114
2040	105	4	10	119
2041	109	4	10	124
TOTAL	**1543**	**59**	**148**	**1751**
%	**88.14**	**3.39**	**8.47**	

Índice de crecimiento	%		
Trafico atraído	máximo 10%	→	Dato establecido en VÍAS BOLIVIA
Trafico generado	3 a 6	→	Dato recomendados de la norma aasthon 93

Trafico atraído

Trafico atraído	5.00%

Tipos de Vehículos	1 L I V I A N O S	2 MEDIANOS	3 PESADOS	Totales
2022				0
2023	3	0	0	3
2024	3	0	0	3
2025	3	0	0	3
2026	3	0	0	3
2027	3	0	0	4
2028	3	0	0	4
2029	3	0	0	4
2030	4	0	0	4
2031	4	0	0	4
2032	4	0	0	4
2033	4	0	0	5
2034	4	0	0	5
2035	4	0	0	5
2036	4	0	0	5
2037	5	0	0	5
2038	5	0	0	5
2039	5	0	0	6
2040	5	0	1	6
2041	5	0	1	6
TOTAL	**75**	**3**	**7**	**85**
%	**88.14**	**3.39**	**8.47**	

Trafico generado

Trafico generado	5%

Tipos de Vehículos	1 L I V I A N O S	2 MEDIANOS	3 PESADOS	Totales
2022				0
2023	3	0	0	3
2024	3	0	0	3
2025	3	0	0	3
2026	3	0	0	3
2027	3	0	0	4
2028	3	0	0	4
2029	3	0	0	4
2030	4	0	0	4
2031	4	0	0	4
2032	4	0	0	4
2033	4	0	0	5
2034	4	0	0	5
2035	4	0	0	5
2036	4	0	0	5
2037	5	0	0	5
2038	5	0	0	5
2039	5	0	0	6
2040	5	0	1	6
2041	5	0	1	6
TOTAL	**75**	**3**	**7**	**85**
%	**88.14**	**3.39**	**8.47**	

TRÁFICO PROMEDIO DIARIO ANUAL (TPDA)

TPDA = TRAFICO NORMAL + TRAFICO ATRAIDO + TRAFICO GENERADO

Tipos de Vehículos	1	2	3	Totales
	L I V I A N O S	MEDIANOS	PESADOS	
2022	52	2	5	59
2023	59	2	6	67
2024	62	2	6	70
2025	64	2	6	73
2026	67	3	6	76
2027	69	3	7	79
2028	72	3	7	82
2029	75	3	7	85
2030	78	3	8	89
2031	81	3	8	92
2032	84	3	8	96
2033	88	3	8	100
2034	91	4	9	104
2035	95	4	9	108
2036	99	4	9	112
2037	103	4	10	116
2038	107	4	10	121
2039	111	4	11	126
2040	115	4	11	131
2041	120	5	12	136
TOTAL	**1692**	**65**	**163**	**1920**
%	**88.14**	**3.39**	**8.47**	

Determinación del Factor Equivalente Vehicular Ponderado

Método AASHTO-93

Los lapsos de diseño sugeridos son:

Tipo de facilidad vial	Período de (en años) análisis	diseño
Urbana de alto volumen	30 – 50	15-20 (30)
Interurbana de alto volumen	20 – 50	15-20 (30)
De bajo volumen		
° pavimentada con asfalto	15 – 25	5-12
° con rodamiento sin tratamiento *(Base granular sin capa asfáltica)*	10 – 20	5-8

La Figura "A" permite visualizar gráficamente el concepto de período de análisis en un diseño de pavimentos.

$$FCE = \frac{1}{10^{4.79 \cdot \log(18+1) - 4.79 \cdot \log(L_x + L_2) + 4.33 \cdot \log L_2 + \frac{G_t}{\beta_x} - \frac{G_t}{\beta_{18}}}}$$

$$\beta_x = 0.40 + \frac{0.081 \cdot (L_x + L_2)^{3.23}}{(SN+1)^{5.19} \cdot L_2^{3.23}}$$

$$G_t = \log\left(\frac{4.2 - p_t}{4.2 - 1.5}\right)$$

Donde:

FCE = Factor de Carga Equivalente
SN = 3.0 Número Estructural (asumido)
Pt = 2.5 Serviciabilidad Final
Lx = Carga Eje simple, tándem o trídem [Kips]
L2 = Código de Eje
L2 = 1 Eje Simple
L2 = 2 Eje Tándem
L2 = 3 Eje Trídem

$$\beta_{18} = \text{Igual a } \beta_x \text{ cuando } L_x = 18 \text{ y } L_2 = 1$$

Tipos de Vehículos	**1**	**2**	**3**
	L I V I A N O S	**MEDIANOS**	**PESADOS**
Nomenclatura	1 1 0 0	1 1 0 0	1 1 0 0
Eje Delantero (ton)	0.6	4	5
Eje Delantero (kips) (**Lx**)	1.32	8.8	11
Eje Trasero (ton)	0.6	9	9
Eje Trasero (kips) (**Lx**)	1.32	19.8	19.8
Eje Delantero Remolque (ton)	0	0	0
Eje Delantero Remolque (kips) (**Lx**)	0	0	0
Eje Trasero Remolque (ton)	0	0	0
Eje Trasero Remolque (kips) (**Lx**)	0	0	0
F. E. Eje Delantero (*)	0.0000916	0.0729	0.1668
F. E. Eje Trasero (*)	0.0001	1.4378	1.4378
F. E. Eje Delantero Remolque (*)	0.0000	0.0000	0.0000
F. E. Eje Trasero Remolque (*)	0.0000	0.0000	0.0000
Factor Equivalente con carga completa	**0.0002**	**1.5107**	**1.6046**

Eje Delantero (ton)	0.6	2	2
Eje Delantero (kips) **(Lx)**	1.32	4.4	4.4
Eje Trasero (ton)	0.6	4	5
Eje Trasero (kips) **(Lx)**	1.32	8.8	11
Eje Delantero Remolque (ton)	0	0	0
Eje Delantero Remolque (kips) **(Lx)**	0	0	0
Eje Trasero Remolque (ton)	0	0	0
Eje Trasero Remolque (kips) **(Lx)**	0	0	0
F. E. Eje Delantero (*)	0.0001	0.0051	0.0051
F. E. Eje Trasero (*)	0.0001	0.0729	0.1668
F. E. Eje Delantero Remolque (*)	0.0000	0.0000	0.0000
F. E. Eje Trasero Remolque (*)	0.0000	0.0000	0.0000
Factor Equivalente con carga parcial	**0.00018**	**0.0779**	**0.1719**
Factor Equivalente Ponderado (II)	**0.00018**	**1.15250**	**1.24646**

Notas: - Se ha considerado un 75 % de vehículos cargados y el otro 25 % descargados

Determinación de Ejes Equivalentes

$$W_{18} = 365 \text{ (Días/Año)} * \%TV * TPDA * FCE \text{ (ejes 18 Kips/eje)}$$

Donde:

W18 = Número de reiteraciones de ejes equivalentes de 18000 Libras
%TV = 1.00 Distribución Direccional
FCE = Factor Equivalente de Carga
TPDA = Tránsito promedio diario anual

4.12 Cuadro calculo numero de ejes equivalentes W18

Composición de Tráfico Vehicular	**1**	**3**	**4**	**TOTAL**
Tipos de Vehículos	**L I V I A N O S**	**MEDIANOS**	**PESADOS**	
Factores Equivalentes Vehiculare	0.0002	1.1525	1.2465	--
TPDA	1692	65	163	**1920**
Total Vehículos (365*TPDA)	617,686	23,757	59,393	700,836
Ejes Acumulados	111	27380	74031	101522

Tráfico en el carril de Diseño (ESALS): **101522**

MÉTODO AASTHO -93

Es uno de los métodos mas utilizados y de mayor utilización a nivel internacional para el diseño de pavimentos.

FORMULACIÓN DE DISEÑO

La ecuación básica de diseño a la que llegó AASHTO para el diseño de pavimentos, desde un desarrollo analítico, se encuentra plasmada también en monogramas de cálculo, éstos esencialmente basados en los resultados obtenidos de la prueba experimental de la carretera AASHTO. La ecuación de diseño para pavimentos modificada para la versión actual es la que a continuación se presenta:

FORMULA GENERAL AASTHO

$$\mathrm{Log}_{10}(W18) = Zr \times So + 9.36 \times \mathrm{Log}_{10}(SN+1) - 0.20 + \frac{\mathrm{Log}_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.4 + \frac{1094}{(SN+1)^{5.19}}} + 2.32\mathrm{Log}_{10}(Mr) - 8.07$$

Donde:

SN	=	Número Estructural
W18	=	Tráfico (Número de ESAL´s)
Zr	=	Desviación Estándar Normal
So	=	Error Estándar Combinado de la predicción del Tráfico
ΔPSI	=	Diferencia de Serviciabilidad (Po-Pt)
Po	=	Serviciabilidad Inicial
Pt	=	Serviciabilidad Final
Mr	=	Módulo de Resilencia

VARIABLES DEL DISEÑO

EJES EQUIVALENTES ESAL'S(W18)

ESAL's(W18) =	**101,522.00**
ESAL's(W18) =	**1.02E+05**

CONFIABILIDAD:

Se denomina confiabilidad (R%) a la probabilidad de que un pavimento desarrolle su función durante su vida útil en condiciones adecuadas para su operación. También se puede entender a la confiabilidad como un factor de seguridad, de ahí que su uso se debe al mejor de los criterios.

Valores recomendados de Nivel de Confiabilidad Para una sola etapa de diseño (10 o 20 años) según rango de Tráfico

Tipo de Caminos	Trafico	Ejes equivalentes acumulados		Nivel de Confiabilidad (R)
Caminos de Bajo Volumen de Tránsito	T_{P0}	75,000	150,000	65%
	T_{P1}	150,001	300,000	70%
	T_{P2}	300,001	500,000	75%
	T_{P3}	500,001	750,000	80%
	T_{P4}	750 001	1,000,000	80%
Resto de Caminos	T_{P5}	1,000,001	1,500,000	85%
	T_{P6}	1,500,001	3,000,000	85%
	T_{P7}	3,000,001	5,000,000	85%
	T_{P8}	5,000,001	7,500,000	90%
	T_{P9}	7,500,001	10'000,000	90%
	T_{P10}	10'000,001	12'500,000	90%
	T_{P11}	12'500,001	15'000,000	90%
	T_{P12}	15'000,001	20'000,000	95%
	T_{P13}	20'000,001	25'000,000	95%
	T_{P14}	25'000,001	30'000,000	95%
	T_{P15}	>30'000,000		95%

Fuente: Elaboración Propia, en base a datos de la Guía AASHTO'93

Coeficiente Estadístico de la Desviación Estándar Normal (Zr) Para una sola etapa de diseño (10 o 20 años) Según el Nivel de Confiabilidad seleccionado y el Rango de Tráfico

Tipo de Caminos	Trafico	Ejes equivalentes acumulados		Desviación Estándar Normal (Zr)
Caminos de Bajo Volumen de Tránsito	T_{P0}	75,000	150,000	-0.385
	T_{P1}	150,001	300,000	-0.524
	T_{P2}	300,001	500,000	-0.674
	T_{P3}	500,001	750,000	-0.842
	T_{P4}	750 001	1,000,000	-0.842
Resto de Caminos	T_{P5}	1,000,001	1,500,000	-1.036
	T_{P6}	1,500,001	3,000,000	-1.036
	T_{P7}	3,000,001	5,000,000	-1.036
	T_{P8}	5,000,001	7,500,000	-1.282
	T_{P9}	7,500,001	10'000,000	-1.282
	T_{P10}	10'000,001	12'500,000	-1.282
	T_{P11}	12'500,001	15'000,000	-1.282
	T_{P12}	15'000,001	20'000,000	-1.645
	T_{P13}	20'000,001	25'000,000	-1.645
	T_{P14}	25'000,001	30'000,000	-1.645
	T_{P15}	>30'000,000		-1.645

Fuente: Elaboración Propia, en base a datos de la Guía AASHTO'93

R (%) = 65.00 %

DESVIACIÓN ESTÁNDAR(Zr).

Es función de los EJES EQUIVALENTES ESAL'S(W18).

Zr = -0.385

ERROR ESTÁNDAR COMBINADO (So):

AASHTO propuso los siguientes valores para seleccionar la Variabilidad o Error Estándar Combinado So, cuyo valor recomendado es:

Para pavimentos flexibles	0.40 – 0.50
En construcción nueva	0.45

So = 0.450

SERVICIABILIDAD (Δ PSI):

El Índice de Serviciabilidad Presente, es la comodidad de circulación ofrecida al usuario. Su valor varía de 0 a 5. Un valor de 5 refleja la mejor comodidad teórica (difícil de alcanzar) y por el contrario un valor de 0 refleja el peor. Cuando la condición de la vía decrece por deterioro, el PSI también decrece.

ÍNDICE DE SERVICIO	CALIFICACIÓN
5	Excelente
4	Muy bueno
3	Bueno
2	Regular
1	Malo
0	Intransitable

Entonces:

Po =	3.8
Pt =	2.0

Δ PSI = Po - Pt

Δ PSI =	1.80

MÓDULO RESILIENTE (Mr)

El módulo resiliente es una medida de la rigidez del suelo de sub rasante, el cual para su cálculo, deberá determinarse mediante el ensayo de resiliencia determinado de acuerdo a las recomendaciones del AASHTO

CBR = 4 %

Mr = 6204.54 PSI

Número Estructural requerido **SN = 2.184**

Haciendo tanteos de espesor hasta que (Ecuación I) Sea aproximadamente Igual a (Ecuación II):

$$\text{Log}_{10}(W18) - Zr \times So + 0.20 + 8.07$$

13.450 ... Ecuación I

$$9.36 \times \text{Log}_{10}(SN+1) + \frac{\text{Log}_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.4 + \frac{1094}{(SN+1)^{5.19}}} + 2.32\text{Log}_{10}(Mr)$$

13.450 ... Ecuación II

NÚMERO ESTRUCTURAL (SN).

$$SN = a1 \times d1 + a2 \times d2 \times m2 + a3 \times d3 \times m3$$

SN	=	Número Estructural.
a1,2,3	=	Coeficientes estructurales de las capas: superficial, base y subbase.
d1,2,3	=	Espesores (en cm) de las capas: superficial, base y subbase.
m2,3	=	Coeficiente de drenaje para las capas: superficial, base y subbase.

Coeficientes Estructurales de las Capas del Pavimento a_i

COMPONENTE DEL PAVIMENTO	COEFICIENTE	VALOR COEFICIENTE ESTRUCTURAL a_i (cm)	OBSERVACIÓN
CAPA SUPERFICIAL			
Carpeta Asfáltica en Caliente, módulo 2,965 MPa (430,000 PSI) a 20 oC (68 oF)	a_1	0.170 / cm	Capa Superficial recomendada para todos los tipos de Tráfico
Carpeta Asfáltica en Frío, mezcla asfáltica con emulsión.	a_1	0.125 / cm	Capa Superficial recomendada para Tráfico ≤ 1'000,000 EE
Micropavimento 25mm	a_1	0.130 / cm	Capa Superficial recomendada para Tráfico ≤ 1'000,000 EE
Tratamiento Superficial Bicapa.	a_1	0.250 (*)	Capa Superficial recomendada para Tráfico ≤ 500,000EE. No Aplica en tramos con pendiente mayor a 8%; y, en vías con curvas pronunciadas, curvas de volteo, curvas y contracurvas, y en tramos que obliguen al frenado de vehículos

Lechada asfáltica (slurry seal) de 12mm.	a_1	0.150 (*)	Capa Superficial recomendada para Tráfico ≤ 500,000EE No Aplica en tramos con pendiente mayor a 8% y en tramos que obliguen al frenado de vehículos
(*) Valor Global (no se considera el espesor)			
BASE			
Base Granular CBR 80%, compactada al 100% de la MDS	a_2	0.052 / cm	Capa de Base recomendada para Tráfico ≤ 5'000,000 EE
Base Granular CBR 100%, compactada al 100% de la MDS	a_2	0.054 / cm	Capa de Base recomendada para Tráfico > 5'000,000 EE
Base Granular Tratada con Asfalto (Estabilidad Marshall = 1500 lb)	a_{2a}	0.115 / cm	Capa de Base recomendada para todos los tipos de Tráfico
Base Granular Tratada con Cemento (resistencia a la compresión 7 días = 35 kg/cm²)	a_{2b}	0.070 cm	Capa de Base recomendada para todos los tipos de Tráfico
Base Granular Tratada con Cal (resistencia a la compresión 7 días = 12 kg/cm²)	a_{2c}	0.080 cm	Capa de Base recomendada para todos los tipos de Tráfico
SUBBASE			
Sub Base Granular CBR 40%, compactada al 100% de la MDS	a_3	0.047 / cm	Capa de Sub Base recomendada para Tráfico ≤ 15'000,000 EE
Sub Base Granular CBR 60%, compactada al 100% de la MDS	a_3	0.050 / cm	Capa de Sub Base recomendada para Tráfico > 15'000,000 EE

a1 =	0.125	/cm

a2 =	0.052	/cm

a3 =	0.047	/cm

CALIDAD DE DRENAJE

Calidad de Drenaje	% de tiempo del año en que el pavimento está expuesto a niveles de saturación			
	Menor que 1%	1% - 5%	5% - 25%	Mayor que 25%
Excelente	1.40 – 1.35	1.35 – 1.30	1.30 – 1.20	1.20
Bueno	1.35 – 1.25	1.25 – 1.15	1.15 – 1.00	1.00
Regular	1.25 – 1.15	1.15 – 1.05	1.00 – 0.80	0.80
Pobre	1.15 – 1.05	1.05 – 0.80	0.80 – 0.60	0.60
Muy pobre	1.05 – 0.95	0.95 – 0.75	0.75 – 0.40	0.40

m2 =	1

m3 =	1

NOTA: En la tabla nos indica que para un tratamiento superficial doble no se considera el espesor de la capa superficial, por lo tanto la formula de SN seria la siguiente:

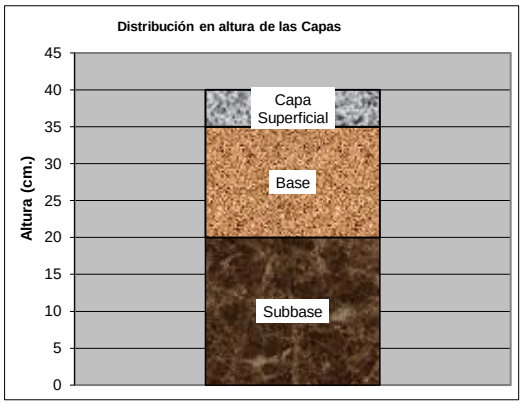
$$SN = a1\ x\ d1 + a2 \times d2 \times m2 + a3 \times d3 \times m3$$

Espesor de capa Superficial	**D1 =**	**5.00**	**Cm**
Espesor de Base	**D2 =**	**15.00**	**Cm**
Espesor de Subbase	**D3 =**	**20.00**	**Cm**

Número Estructural requerido	**SN =**	**2.184**	
Número Estructural calculado	**SN =**	**2.345**	Comparando ambos "SN" **CUMPLE**

Paquete estructural.

		Pulg.	Cm.
Capa superficial	e=	0.020	5.00
Base Granular	e=	0.059	15.00
Subbase granular	e=	0.079	20.00



MÉTODO AASTHO -93

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FORMULACIÓN DE DISEÑO

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FORMULA GENERAL AASTHO

$$\mathrm{Log}_{10}(W18) = Zr \times So + 9.36 \times \mathrm{Log}_{10}(SN+1) - 0.20 + \frac{\mathrm{Log}_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.4 + \frac{1094}{(SN+1)^{5.19}}} + 2.32\mathrm{Log}_{10}(Mr) - 8.07$$

Donde:

SN	=	Número Estructural
W18	=	Tráfico (Número de ESAL´s)
Zr	=	Desviación Estándar Normal
So	=	Error Estándar Combinado de la predicción del Tráfico
ΔPSI	=	Diferencia de Serviciabilidad (Po-Pt)
Po	=	Serviciabilidad Inicial
Pt	=	Serviciabilidad Final
Mr	=	Módulo de Resilencia

VARIABLES DEL DISEÑO

EJES EQUIVALENTES ESAL'S(W18)

ESAL's(W18) =	**101,522.00**
ESAL's(W18) =	**1.02E+05**

CONFIABILIDAD:

Se denomina confiabilidad (R%) a la probabilidad de que un pavimento desarrolle su función durante su vida útil en condiciones adecuadas para su operación. También se puede entender a la confiabilidad como un factor de seguridad, de ahí que su uso se debe al mejor de los criterios.

Valores recomendados de Nivel de Confiabilidad Para una sola etapa de diseño (10 o 20 años) según rango de Tráfico

Tipo de Caminos	Trafico	Ejes equivalentes acumulados		Nivel de Confiabilidad (R)
Caminos de Bajo Volumen de Tránsito	T_{P0}	75,000	150,000	65%
	T_{P1}	150,001	300,000	70%
	T_{P2}	300,001	500,000	75%
	T_{P3}	500,001	750,000	80%
	T_{P4}	750 001	1,000,000	80%
Resto de Caminos	T_{P5}	1,000,001	1,500,000	85%
	T_{P6}	1,500,001	3,000,000	85%
	T_{P7}	3,000,001	5,000,000	85%
	T_{P8}	5,000,001	7,500,000	90%
	T_{P9}	7,500,001	10'000,000	90%
	T_{P10}	10'000,001	12'500,000	90%
	T_{P11}	12'500,001	15'000,000	90%
	T_{P12}	15'000,001	20'000,000	95%
	T_{P13}	20'000,001	25'000,000	95%
	T_{P14}	25'000,001	30'000,000	95%
	T_{P15}	>30'000,000		95%

Fuente: Elaboración Propia, en base a datos de la Guía AASHTO'93

Coeficiente Estadístico de la Desviación Estándar Normal (Zr) Para una sola etapa de diseño (10 o 20 años) Según el Nivel de Confiabilidad seleccionado y el Rango de Tráfico

Tipo de Caminos	Trafico	Ejes equivalentes acumulados		Desviación Estándar Normal (Zr)
Caminos de Bajo Volumen de Tránsito	T_{P0}	75,000	150,000	-0.385
	T_{P1}	150,001	300,000	-0.524
	T_{P2}	300,001	500,000	-0.674
	T_{P3}	500,001	750,000	-0.842
	T_{P4}	750 001	1,000,000	-0.842
Resto de Caminos	T_{P5}	1,000,001	1,500,000	-1.036
	T_{P6}	1,500,001	3,000,000	-1.036
	T_{P7}	3,000,001	5,000,000	-1.036
	T_{P8}	5,000,001	7,500,000	-1.282
	T_{P9}	7,500,001	10'000,000	-1.282
	T_{P10}	10'000,001	12'500,000	-1.282
	T_{P11}	12'500,001	15'000,000	-1.282
	T_{P12}	15'000,001	20'000,000	-1.645
	T_{P13}	20'000,001	25'000,000	-1.645
	T_{P14}	25'000,001	30'000,000	-1.645
	T_{P15}	>30'000,000		-1.645

Fuente: Elaboración Propia, en base a datos de la Guía AASHTO'93

R (%) = 65.00 %

DESVIACIÓN ESTÁNDAR(Zr).

Es función de los EJES EQUIVALENTES ESAL'S(W18).

Zr = -0.385

ERROR ESTÁNDAR COMBINADO (So):

AASHTO propuso los siguientes valores para seleccionar la Variabilidad o Error Estándar Combinado So, cuyo valor recomendado es:

Para pavimentos flexibles	0.40 – 0.50
En construcción nueva	0.45

So = 0.450

SERVICIABILIDAD (Δ PSI):

El Índice de Serviciabilidad Presente, es la comodidad de circulación ofrecida al usuario. Su valor varía de 0 a 5. Un valor de 5 refleja la mejor comodidad teórica (difícil de alcanzar) y por el contrario un valor de 0 refleja el peor. Cuando la condición de la vía decrece por deterioro, el PSI también decrece.

ÍNDICE DE SERVICIO	CALIFICACIÓN
5	Excelente
4	Muy bueno
3	Bueno
2	Regular
1	Malo
0	Intransitable

Entonces:

Po =	3.8
Pt =	2.0

Δ PSI = Po - Pt

Δ PSI =	1.80

MÓDULO RESILIENTE (Mr)

El módulo resiliente es una medida de la rigidez del suelo de sub rasante, el cual para su cálculo, deberá determinarse mediante el ensayo de resiliencia determinado de acuerdo a las recomendaciones del AASHTO

CBR = 8 %

Mr = 9668.71 PSI

Número Estructural requerido **SN = 1.836**

Haciendo tanteos de espesor hasta que (Ecuación I) Sea aproximadamente Igual a (Ecuación II):

$$\text{Log}_{10}(W18) - Zr \times So + 0.20 + 8.07$$

13.450 ... Ecuación I

$$9.36 \times \text{Log}_{10}(SN+1) + \frac{\text{Log}_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.4 + \frac{1094}{(SN+1)^{5.19}}} + 2.32\text{Log}_{10}(Mr)$$

13.450 ... Ecuación II

NÚMERO ESTRUCTURAL (SN).

$$SN = a1 \times d1 + a2 \times d2 \times m2 + a3 \times d3 \times m3$$

SN	=	Número Estructural.
a1,2,3	=	Coeficientes estructurales de las capas: superficial, base y subbase.
d1,2,3	=	Espesores (en cm) de las capas: superficial, base y subbase.
m2,3	=	Coeficiente de drenaje para las capas: superficial, base y subbase.

Coeficientes Estructurales de las Capas del Pavimento a_i

COMPONENTE DEL PAVIMENTO	COEFICIENTE	VALOR COEFICIENTE ESTRUCTURAL a_i (cm)	OBSERVACIÓN
CAPA SUPERFICIAL			
Carpeta Asfáltica en Caliente, módulo 2,965 MPa (430,000 PSI) a 20 oC (68 oF)	a_1	0.170 / cm	Capa Superficial recomendada para todos los tipos de Tráfico
Carpeta Asfáltica en Frío, mezcla asfáltica con emulsión.	a_1	0.125 / cm	Capa Superficial recomendada para Tráfico ≤ 1'000,000 EE
Micropavimento 25mm	a_1	0.130 / cm	Capa Superficial recomendada para Tráfico ≤ 1'000,000 EE
Tratamiento Superficial Bicapa.	a_1	0.250 (*)	Capa Superficial recomendada para Tráfico ≤ 500,000EE. No Aplica en tramos con pendiente mayor a 8%; y, en vías con curvas pronunciadas, curvas de volteo, curvas y contracurvas, y en tramos que obliguen al frenado de vehículos

Lechada asfáltica (slurry seal) de 12mm.	a_1	0.150 (*)	Capa Superficial recomendada para Tráfico ≤ 500,000EE No Aplica en tramos con pendiente mayor a 8% y en tramos que obliguen al frenado de vehículos
(*) Valor Global (no se considera el espesor)			
BASE			
Base Granular CBR 80%, compactada al 100% de la MDS	a_2	0.052 / cm	Capa de Base recomendada para Tráfico ≤ 5'000,000 EE
Base Granular CBR 100%, compactada al 100% de la MDS	a_2	0.054 / cm	Capa de Base recomendada para Tráfico > 5'000,000 EE
Base Granular Tratada con Asfalto (Estabilidad Marshall = 1500 lb)	a_{2a}	0.115 / cm	Capa de Base recomendada para todos los tipos de Tráfico
Base Granular Tratada con Cemento (resistencia a la compresión 7 días = 35 kg/cm²)	a_{2b}	0.070 cm	Capa de Base recomendada para todos los tipos de Tráfico
Base Granular Tratada con Cal (resistencia a la compresión 7 días = 12 kg/cm²)	a_{2c}	0.080 cm	Capa de Base recomendada para todos los tipos de Tráfico
SUBBASE			
Sub Base Granular CBR 40%, compactada al 100% de la MDS	a_3	0.047 / cm	Capa de Sub Base recomendada para Tráfico ≤ 15'000,000 EE
Sub Base Granular CBR 60%, compactada al 100% de la MDS	a_3	0.050 / cm	Capa de Sub Base recomendada para Tráfico > 15'000,000 EE

a1 =	0.25	/cm

a2 =	0.052	/cm

a3 =	0.047	/cm

CALIDAD DE DRENAJE

Calidad de Drenaje	% de tiempo del año en que el pavimento está expuesto a niveles de saturación			
	Menor que 1%	1% - 5%	5% - 25%	Mayor que 25%
Excelente	1.40 – 1.35	1.35 – 1.30	1.30 – 1.20	1.20
Bueno	1.35 – 1.25	1.25 – 1.15	1.15 – 1.00	1.00
Regular	1.25 – 1.15	1.15 – 1.05	1.00 – 0.80	0.80
Pobre	1.15 – 1.05	1.05 – 0.80	0.80 – 0.60	0.60
Muy pobre	1.05 – 0.95	0.95 – 0.75	0.75 – 0.40	0.40

m2 =	1

m3 =	1

NOTA: En la tabla nos indica que para un tratamiento superficial doble no se considera el espesor de la capa superficial, por lo tanto la formula de SN seria la siguiente:

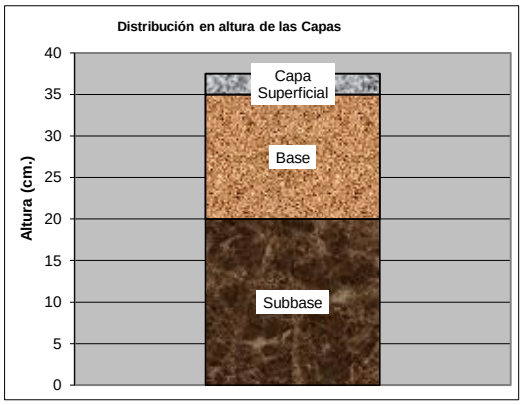
$$SN = a1 + a2 \times d2 \times m2 + a3 \times d3 \times m3$$

Espesor de capa Superficial	**D1 =**	**2.50**	**Cm**
Espesor de Base	**D2 =**	**15.00**	**Cm**
Espesor de Subbase	**D3 =**	**20.00**	**Cm**

Número Estructural requerido	**SN =**	**1.836**	
Número Estructural calculado	**SN =**	**1.970**	Comparando ambos "SN" **CUMPLE**

Paquete estructural.

		Pulg.	Cm.
Capa superficial	e=	0.010	2.50
Base Granular	e=	0.059	15.00
Subbase granular	e=	0.079	20.00



ANEXO 6

ESTUDIO HIDROLÓGICO

PRECIPITACION MAXIMA EN 24 Hrs. (mm)

Estación: PADCAYA **Lat. S.: 21º 53'**
Provincia: ARCE **Long. W.: 64º 43'**
Departamento: TARIJA **Altura: 2.010 m.s.n.m.**

AÑO	ENE.	FEB.	MAR.	ABR.	MAY.	JUN.	JUL.	AGO.	SEP.	OCT.	NOV.	DIC.	MAXIMA
1975	50.9	35.5	30.3	5.3	0.0	0.0	0.0	0.0	8.5	7.5	13.7	31.7	50.9
1976	33.6	11.5	43.5	2.4	6.7	0.0	0.0	11.4	0.0	0.0	17.6	18.5	43.5
1977	19.2	15.1	35.9	48.7	0.0	0.0	0.0	9.0	13.0	6.5	24.5	35.5	48.7
1978	25.0	24.0	12.0	30.0	0.0	0.0	0.0	0.0	9.5	128.0	27.0	49.0	128.0
1979	70.0	21.0	18.5	3.5	0.0	2.5	4.5	20.5	2.0	22.5	56.0	30.0	70.0
1980	32.0	23.3	38.0	9.0	7.0	0.5	0.0	7.0	0.0	28.0	42.0	29.0	42.0
1981	28.5	41.5	28.2	27.3	8.3	0.0	0.4	3.0	3.0	19.0	20.0	15.0	41.5
1982	25.0	17.0	12.0	9.0	0.0	0.0	0.0	1.5	15.9	4.5	15.0	19.3	25.0
1983	33.0	38.2	19.0	4.5	3.1	0.0	0.0	0.0	0.0	11.2	32.9	14.5	38.2
1984	22.5	20.0	28.7	4.8	2.0	0.0	0.0	12.0	17.6	27.7	19.0	28.7	28.7
1985	15.3	19.0	19.8	0.0	0.0	0.0	5.0						
1986	33.0	76.0	13.0	3.0	0.0	0.0	0.0	0.0	6.2	6.0	20.0	24.0	76.0
1987	30.0	20.5	20.0	15.0	5.0	0.0	0.0	2.0	0.0	13.0	27.0	23.0	30.0
1988	25.0	13.5	19.0	25.0	1.0	0.0	8.0	0.0	0.0	15.0	20.0	28.0	28.0
1989	21.0	23.0	29.0	11.0	0.0	6.0	0.0	0.0	5.0	15.0	25.0	24.0	29.0
1990	29.0	22.0	21.0	4.0	5.0	0.0	0.0	6.0	0.0	19.0	49.0	27.0	49.0
1991	38.0	23.0	29.0	15.0	5.0	0.0	0.0	3.0	3.0	31.0	28.0	38.0	38.0
1992	43.0	30.0	40.0	0.0	2.0	0.0	0.0	0.0	5.0	7.0	35.0	17.0	43.0
1993	34.0	61.0	33.0	5.3	0.0	2.0	2.5	4.5	0.0	13.0	23.5	36.0	61.0
1994	22.0	43.0	12.5	3.5	0.0	0.0	0.0	0.0	23.0	18.0	16.0	26.5	43.0
1995	35.5	26.5	40.5	0.0	0.0	65.0	0.0	0.0	0.0	23.5	16.6	5.9	65.0
1996	6.5	4.0	8.9	8.5	3.4	0.0	0.0	1.8	4.5	4.9	7.8	12.2	12.2
1997	6.9	15.8	10.5	19.5	6.0	0.0	0.0	0.0	5.5	54.5	29.0	32.5	54.5
1998	12.0	25.0	10.5	12.0	0.0	0.0	0.0	4.0	0.3	15.5	28.5	7.0	28.5
1999	40.0	40.0	27.0	7.5	5.5	5.0	0.0	0.0	30.0	18.0	11.0	34.0	40.0
2000	193.0	19.0	44.0	12.0	0.0	0.0	0.0	1.5	0.0	36.0	17.0	22.0	193.0
2001	16.5	21.0	13.0	6.0	0.0	0.0	0.0	0.0	5.0	25.0	23.0	91.0	91.0
2002	17.0	41.0	38.0	22.0	0.0	0.0	0.0	6.0	5.5	31.0	26.0	9.0	41.0
2003	28.0	18.0	34.0	29.0	0.0								
EXTR.	193.0	76.0	44.0	48.7	8.3	65.0	8.0	20.5	30.0	128.0	56.0	91.0	193.0

ALTURA DE PRECIPITACION (mm)

Estación: CAÑAS **Lat. S.: 21º 54' 08''**
Provincia: ARCE **Long. W.: 64º 51' 03''**
Departamento: TARIJA **Altura: 2.078 m.s.n.m.**

AÑO	ENE.	FEB.	MAR.	ABR.	MAY.	JUN.	JUL.	AGO.	SEP.	OCT.	NOV.	DIC.	Total
1977				47.3	0.7	0.0	0.0	23.1	9.9	62.7	111.0	187.7	
1978	162.7	138.8	235.9	64.6	0.0	0.0	0.0	0.0	9.6	104.7	81.9	121.3	919.5
1979	181.2	142.0	166.1	17.9	0.0	0.0	8.4	20.6	0.9	30.0	104.1	203.2	874.4
1980	210.1	190.9	335.8	68.6	0.0	0.0	0.0	1.9	0.0	219.4	105.3	95.5	1227.5
1981	265.6	376.3	87.7	108.6	0.0	0.0	0.0	25.8	3.8	32.3	157.0	90.8	1147.9
1982	225.6	131.3	90.7	51.8	0.0	0.0	0.0	0.0	4.0	0.8	46.6	80.5	631.3
1983	61.8	137.1	4.1	8.1	2.9	0.0	1.6	0.0	2.2	12.7	49.2	72.7	352.4
1984	309.9	208.2	169.2	25.4	0.0	0.0	0.0	16.6	9.3	0.0	0.0	84.2	822.8
1985	121.8	168.3	79.2	20.3	0.0	0.0	0.0	12.5	0.0	51.8	108.3	155.8	718.0
1986	42.9	155.3	98.6	39.8	0.0	0.0	0.0	6.2	37.8	42.8	125.5	174.0	722.9
1987	138.8	105.8	52.5	20.1	0.0	0.0	0.0	0.0	0.0	53.1	74.0	57.0	501.3
1988	131.5	69.1	268.2	12.7	1.2	0.0	0.0	0.0	14.2	40.0	33.3	196.2	766.4
1989	93.4	66.0	79.3	12.4	0.0	0.0	0.0	0.0	12.2	20.6	64.4	62.6	410.9
1990	79.8	145.8	69.6	14.3	0.0	0.0	0.8						
1991													
1992	115.9	157.6	47.7	0.2	0.2	0.0	0.0	5.2	7.2	15.0	57.6	50.6	457.2
1993	153.0	69.1	194.8	0.0	0.0	0.0	2.5	0.0	0.0	13.0	48.8	66.6	547.8
1994	104.7	129.0	68.7	3.6				0.0	48.5	59.8	161.5	84.5	
1995	195.0	113.1	267.2	3.1	0.0	0.0	0.0	0.0	9.4	106.8	58.8	99.2	852.6
1996	183.6	152.7	106.9	33.9	51.5	0.0	0.0	2.4	21.2	12.6	77.5	162.0	804.3
1997	116.2	168.0	119.6	56.5	5.3	0.0	0.0	0.0	10.7	28.4	54.7	138.4	697.8
1998	90.1	77.3	51.4	49.3	0.0	0.0	0.0	2.0	3.0	37.2	84.6	130.2	525.1
1999	175.8	99.8	166.6	23.0	15.6	0.0	2.2	0.6	89.1	108.6	88.3	148.0	917.6
2000	348.2	117.7	177.5	23.1	0.2	0.0	0.0	0.0	2.0	37.9	110.8	126.5	943.9
2001	121.4	170.4	94.2	48.8	0.0	0.0	0.0	0.8	14.4	72.3	94.8	168.6	785.7
2002	132.5	162.4	133.2	22.5	1.4	0.0	0.8	0.0	0.2	225.8	65.8	32.4	777.0
2003	218.8	81.7	271.6	17.8	2.6	1.6	0.0	0.0	0.7	99.0	45.2	89.0	828.0
2004	177.0	195.9	111.9	85.6	9.0	2.4	1.8	2.0	50.9	11.4	75.8	206.7	930.4
2005	89.8	198.0	95.1	35.0	0.0	0.0	0.0	0.0	1.2	10.4	56.5	137.2	623.2
2006	186.6	171.6	161.2	46.2	14.4	1.0	0.0	0.0	0.0	126.9	27.6	111.5	847.0
2007	260.1	112.7	172.2	59.0	5.3	0.4	0.0	0.0	7.4	86.0	68.8	75.8	847.7
2008	149.0	132.1	123.0	24.0	0.0	0.0	0.0	0.2	3.6	30.4	77.0	386.8	926.1
2009	121.6	128.3	202.2	47.6	6.8	0.0	0.0	3.0	21.0	4.4	190.8	215.6	941.3
2010	123.8	210.2	72.8	17.0	1.2	1.0	0.0	0.4	0.5	13.6	42.8	85.6	568.9
2011	130.4	164.0											
2012													
MEDIA	158.1	146.9	136.7	33.6	3.7	0.2	0.6	3.9	12.3	55.3	79.6	128.0	758.9

PRECIPITACION MAXIMA DIARIA (mm)

Estación: LA MERCED **Lat. S.: 22º 01' 29''**
Provincia: ARCE **Long. W.: 64º 40' 36''**
Departamento: TARIJA **Altura: 1,509 m.s.n.m.**

AÑO	ENE.	FEB.	MAR.	ABR.	MAY.	JUN.	JUL.	AGO.	SEP.	OCT.	NOV.	DIC.	Maxima
1999						2.0	0.5	**0.0**	17.7	20.0	45.0	33.0	
2000	82.5	25.0	40.0	8.0	0.0	0.0	0.0	**0.0**	0.0	42.5	8.0	26.0	82.5
2001	25.5	22.0	17.0	0.0	0.0	0.0	0.0	**0.0**	13.0	20.0	19.0	33.5	33.5
2002	37.5	53.5	69.0	4.0	0.0	0.0	0.0	**0.0**	0.0	38.0	20.5	50.5	69.0
2003	38.0	17.0	37.5	9.0	0.0	0.0	0.0	**0.0**	1.5	14.5	20.0	25.0	38.0
2004	27.0	61.5	14.0	14.5	0.0	0.0	0.0	**0.0**	11.0	6.5	10.0	18.0	61.5
2005	71.5	25.5	23.5	8.5	0.0	0.0	0.0	**0.0**	0.0	4.5	8.5	60.0	71.5
2006	31.0	19.0	60.0	9.0	1.5	0.0	0.0	**0.0**	0.0	15.5	11.0	15.5	60.0
2007	36.0	24.0	40.0	2.0	0.0	0.0	0.0	**0.0**	2.6	15.5	24.0	20.0	40.0
2008	51.5	8.2	15.5	5.7	7.0	0.0	0.0	**0.0**	0.0	13.5	24.5	27.0	51.5
2009	17.3	20.0	32.0	14.0	0.1	0.0	0.0	**0.0**	6.5	13.0	54.0	31.0	54.0
2010	16.5	48.0	10.0	2.5	1.5	0.0	0.0	**0.0**	0.0	1.0	20.0	23.0	48.0
2011	70.0	57.5	11.5	1.7	1.5	0.0	0.0	**0.0**	0.0	18.0	25.0	22.5	70.0
2012	45.0	19.0	73.0	15.0	3.0	0.0	0.0	**0.0**	2.0	10.5	9.0	14.0	73.0
2013	26.0	27.0	7.5	0.6	0.0	2.5	0.0						
2014													
2015													
MEDIA	82.5	61.5	73.0	15.0	7.0	2.5	0.5	0.0	17.7	42.5	54.0	60.0	82.5

"Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco"
ESTUDIO HIDROLOGICO

Año	CAÑAS	PADCAYA	LA MERCED
1975		50.9	
1976		43.5	
1977		48.7	
1978	91.5	128.0	
1979	45.7	70.0	
1980	38.2	42.0	
1981	60.1	41.5	
1982	59.6	25.0	
1983	32.3	38.2	
1984	48.5	28.7	
1985	29.1		
1986	40.1	76.0	
1987	29.4	30.0	
1988	46.8	28.0	
1989	25.9	29.0	
1990		49.0	
1991		38.0	
1992	65.6	43.0	
1993	50.0	61.0	
1994		43.0	
1995	65.4	65.0	
1996	54.1	12.2	
1997	60.0	54.5	
1998	45.0	28.5	
1999	64.4	40.0	
2000	122.0	193.0	82.5
2001	47.4	91.0	33.5
2002	43.2	41.0	69
2003	87.6		38
2004	48.2		61.5
2005	40.0		71.5
2006	44.4		60
2007	72.1		40
2008	73.6		51.5
2009	62.0		54
2010	51.2		48
2011	50.0		70.0
2012	57.8		73.0
2013	32.2		27.0
2014	77.0		63.0
2015	75.6		37.0
2016	71.6		53.5

MEDIA	54.78	53.3	55.409
DESVIACION	20.393	36.3761725	15.259
VARIANZA	415.87	1323.225926	232.84
MODA (E)	45.603	36.91590756	48.542
E*nro	1641.7	996.7295041	825.22
CARACT. (K)	0.8028	1.76908319	0.5644
K*Nro	28.902	47.76524612	9.594
Nro Datos	36	27	17

VALORES PONDERADOS

Moda ponderada	**Ed=**	**40.15303**
Característica ponderada	**Kd=**	**1.078270**

ALTURA DE LLUVIA MAXIMA DIARIA PARA UN DETERMINADO PERIODO DE RETORNO

De donde se obtiene la ecuación de Gumbell Modificado para lluvias máximas diarias:

$$h_{dT} = E_D \cdot (1 + K_D \cdot LogT)$$

Donde:

hdT = Lluvia máxima diaria para un periodo de retorno (mm)
ED = Moda (mm).
KD = Característica de la distribución.
T = Periodo de retorno (años).

TIPO DE OBRA	PERIODO DE RETORNO (AÑOS)[1]
Cunetas	5
Zanjas de Coronación[2]	10
Estructuras de Caída[2]	10
Alcantarillas de 0.90 m de diámetro	10
Alcantarillas mayores a 0.90 m de diámetro	20
Puentes menores (luz menor a 10 m)	25
Puentes de luz mayor o igual a 10 m y menor a 50 m	50
Puentes de luz mayor o igual a 50 m	100
Drenaje subsuperficial	2

Manual drenaje para carreteras 2009-INVIAS

Para determinar estas lluvias máximas diarias nos adoptaremos los periodos de retorno de:5, 10,25 y 50 años.

DATOS	PERIODO DE RETORNO	ALTURA DE LLUVIA (mm)
Ed , Kd	5	70.42
	10	83.45
	25	100.68
	50	113.71

Determinación de la altura de lluvia máxima horaria para un periodo de retorno T y tiempo de duración t

Las lluvias máximas deben ser de corta duración o sea deben ser menores a las 24 hrs para lo cual acudimos a la LEY de GUMBEL modificada que es definido por la siguiente expresión.

$$h_{tT} = Ed * \left(\frac{t}{\alpha}\right)^{\beta} * [1 + Kd * \log(T)]$$

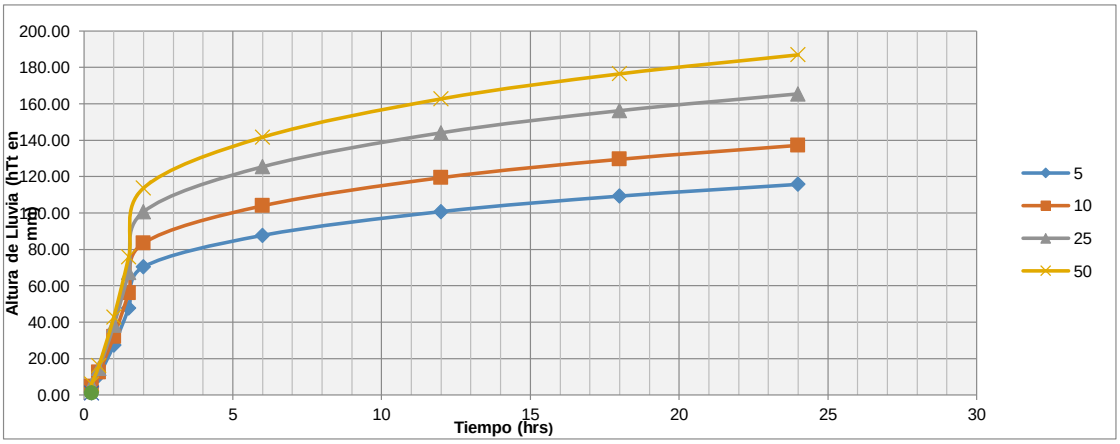
	Ed=	moda ponderada		
	Kd=	característica ponderada		
	T=	periodo de retorno		
Siendo:	hdt=	altura de lluvia máxima diaria		
	t=	Es el tiempo de duración de la lluvia		
	β=	Es una constante que en nuestro medio se adopta generalmente 0.2		
	α=	Equivalente de lluvia diaria que depende de la magnitud de la cuenca:		
	para:	Ac>20 [km^2]	α=	12
		Ac<20[km^2]	α=	2

Datos

α = 2 β = 0.2

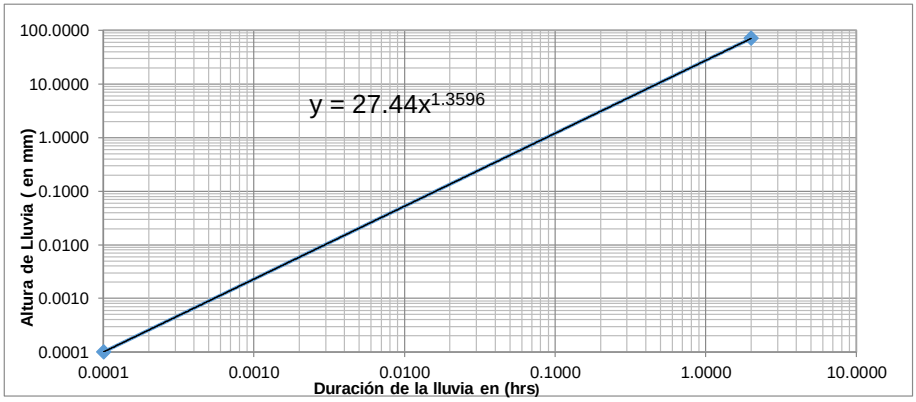
Periodo de retorno (años)	***Periodos de duración de lluvias en horas (t)***								
	0.25	***0.5***	***1***	***1.5***	***2***	***6***	***12***	***18***	***24***
5	4.17	10.69	27.44	47.62	70.42	87.72	100.76	109.27	115.75
10	4.77	12.38	32.14	56.16	83.45	103.95	119.41	129.50	137.17
25	5.53	14.54	38.26	67.38	100.68	125.42	144.07	156.24	165.49
50	6.08	16.15	42.85	75.84	113.71	141.65	162.72	176.46	186.91

CURVAS PRECIPITACIÓN - INTESIDAD - FRECUENCIA

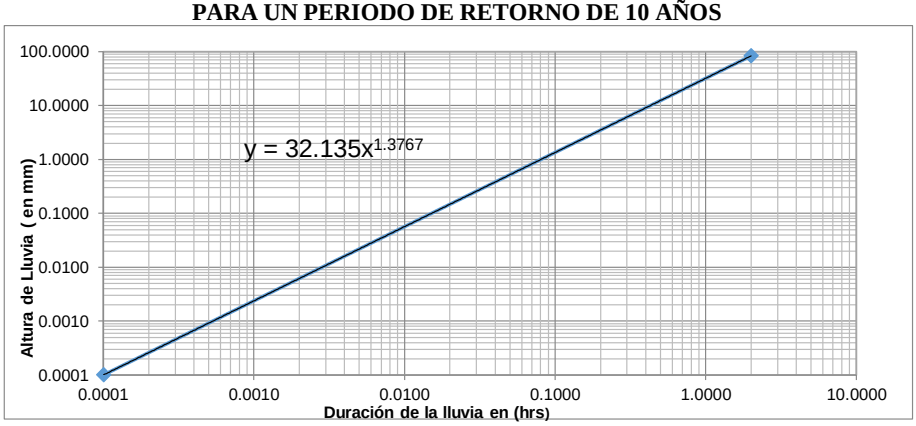


Para lluvia menores a 2 horas se empleo el método grafico.

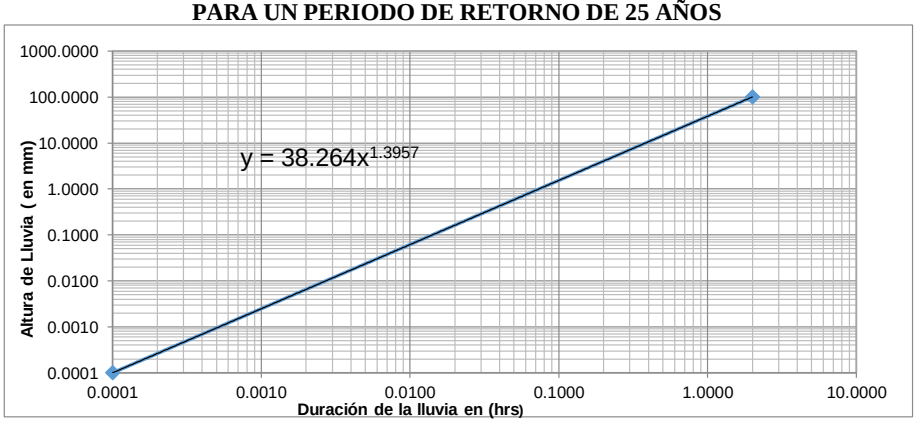
MÉTODO GRÁFICO DE LLUVIA MENORES A 2 HORAS PARA UN PERIODO DE RETORNO DE 5 AÑOS



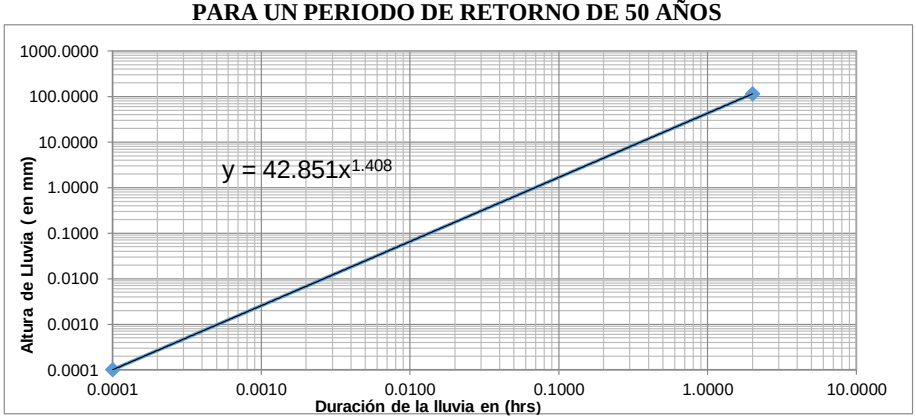
MÉTODO GRÁFICO DE LLUVIA MENORES A 2 HORAS PARA UN PERIODO DE RETORNO DE 10 AÑOS



MÉTODO GRÁFICO DE LLUVIA MENORES A 2 HORAS PARA UN PERIODO DE RETORNO DE 25 AÑOS



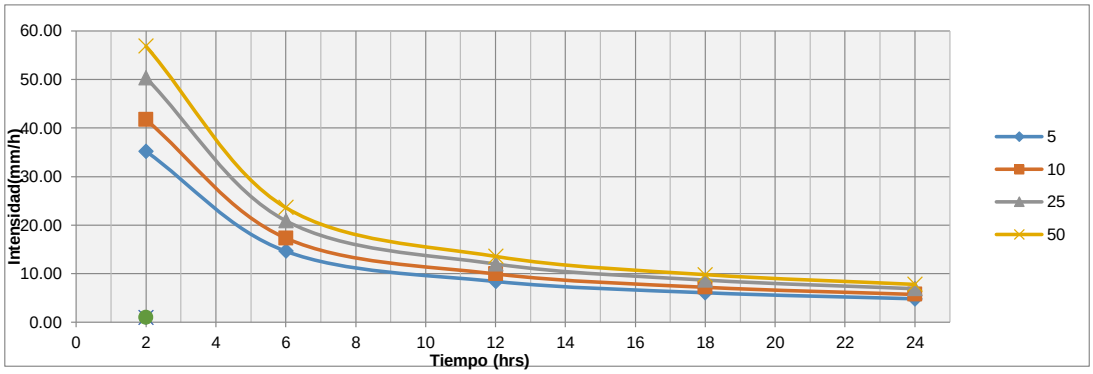
MÉTODO GRÁFICO DE LLUVIA MENORES A 2 HORAS PARA UN PERIODO DE RETORNO DE 50 AÑOS



Intensidades máximas para periodos de duración menores a 24 horas:

Periodo de retorno (años)	***Intensidades de Lluvias***								
	0.25	***0.5***	***1***	***1.5***	***2***	***6***	***12***	***18***	***24***
5	4.17	10.69	27.44	47.62	35.21	14.62	8.40	6.07	4.82
10	4.77	12.38	32.14	56.16	41.72	17.33	9.95	7.19	5.72
25	5.53	14.54	38.26	67.38	50.34	20.90	12.01	8.68	6.90
50	6.08	16.15	42.85	75.84	56.86	23.61	13.56	9.80	7.79

Curvas intensidad, duración y frecuencia



Intensidad de precipitación en los 10 min. de máxima concentración: t = 0.16667 hrs

Periodo de Retorno T (años)	htT Altura de Lluvia en (mm)	"imax" Intensidad Máxima (mm/hr)
5	2.40	14.41
10	2.73	16.36
25	3.14	18.83
50	3.44	20.63

ANEXO 7

DISEÑO DE ALCANTARILLAS Y CUNETAS

REPORTE DE CUNETAS											
No.	**DERECHA**										Log
1	INICIO	PROG	0	+	000	FIN	PROG	0	+	292	292
2	INICIO	PROG	0	+	318	FIN	PROG	0	+	550	232
3	INICIO	PROG	0	+	580	FIN	PROG	0	+	635	55
4	INICIO	PROG	0	+	635	FIN	PROG	0	+	760	125
5	INICIO	PROG	0	+	760	FIN	PROG	0	+	974	214
6	INICIO	PROG	0	+	974	FIN	PROG	1	+	200	226
7	INICIO	PROG	1	+	225	FIN	PROG	1	+	380	155
8	INICIO	PROG	1	+	380	FIN	PROG	1	+	575	195
9	INICIO	PROG	1	+	820	FIN	PROG	1	+	960	140
10	INICIO	PROG	1	+	960	FIN	PROG	2	+	240	280
11	INICIO	PROG	2	+	240	FIN	PROG	2	+	425	185
12	INICIO	PROG	2	+	450	FIN	PROG	2	+	670	220
13	INICIO	PROG	2	+	670	FIN	PROG	2	+	770	100
14	INICIO	PROG	2	+	770	FIN	PROG	2	+	910	140
15	INICIO	PROG	2	+	960	FIN	PROG	3	+	060	100
16	INICIO	PROG	3	+	158	FIN	PROG	3	+	220	62
17	INICIO	PROG	3	+	270	FIN	PROG	3	+	340	70
18	INICIO	PROG	3	+	375	FIN	PROG	3	+	500	125
19	INICIO	PROG	3	+	675	FIN	PROG	3	+	730	55
20	INICIO	PROG	3	+	800	FIN	PROG	3	+	836	36
21	INICIO	PROG	3	+	880	FIN	PROG	3	+	975	95
22	INICIO	PROG	3	+	975	FIN	PROG	4	+	160	185
23	INICIO	PROG	4	+	160	FIN	PROG	4	+	482	322
24	INICIO	PROG	4	+	482	FIN	PROG	4	+	740	258
25	INICIO	PROG	4	+	819	FIN	PROG	4	+	930	111
26	INICIO	PROG	4	+	958	FIN	PROG	5	+	220	262
27	INICIO	PROG	5	+	220	FIN	PROG	5	+	443	223
28	INICIO	PROG	5	+	443	FIN	PROG	5	+	645	202
										total	4665

REPORTE DE CUNETAS											
No.	**IZQUIERDA**										Log (m)
1	INICIO	PROG	0	+	010	FIN	PROG	0	+	080	70
2	INICIO	PROG	0	+	230	FIN	PROG	0	+	245	15
3	INICIO	PROG	0	+	330	FIN	PROG	0	+	340	10
4	INICIO	PROG	0	+	490	FIN	PROG	0	+	531	41
5	INICIO	PROG	0	+	590	FIN	PROG	0	+	635	45
6	INICIO	PROG	0	+	635	FIN	PROG	0	+	680	45
7	INICIO	PROG	0	+	760	FIN	PROG	0	+	802	42
8	INICIO	PROG	0	+	821	FIN	PROG	0	+	840	19
9	INICIO	PROG	1	+	280	FIN	PROG	1	+	380	100
10	INICIO	PROG	1	+	431	FIN	PROG	1	+	477	46
11	INICIO	PROG	1	+	783	FIN	PROG	1	+	900	117
12	INICIO	PROG	2	+	024	FIN	PROG	2	+	050	26
13	INICIO	PROG	2	+	375	FIN	PROG	2	+	403	28
14	INICIO	PROG	2	+	460	FIN	PROG	2	+	490	30
15	INICIO	PROG	2	+	635	FIN	PROG	2	+	670	35
16	INICIO	PROG	2	+	875	FIN	PROG	2	+	960	85
17	INICIO	PROG	2	+	960	FIN	PROG	3	+	225	265
18	INICIO	PROG	3	+	260	FIN	PROG	3	+	525	265
19	INICIO	PROG	3	+	607	FIN	PROG	3	+	730	123
20	INICIO	PROG	3	+	775	FIN	PROG	3	+	860	85
21	INICIO	PROG	3	+	880	FIN	PROG	3	+	937	57
22	INICIO	PROG	3	+	975	FIN	PROG	4	+	025	50
23	INICIO	PROG	4	+	320	FIN	PROG	4	+	400	80
24	INICIO	PROG	4	+	417	FIN	PROG	4	+	465	48
25	INICIO	PROG	4	+	480	FIN	PROG	4	+	620	140
26	INICIO	PROG	4	+	660	FIN	PROG	4	+	710	50
27	INICIO	PROG	4	+	840	FIN	PROG	4	+	850	10
28	INICIO	PROG	4	+	890	FIN	PROG	4	+	911	21
										total	1948

"DISEÑO ESTRUCTURAL DE INGENIERIA VIAL ROSILLAS - SAN FRANCISCO "
DISEÑO DE CUNETA

Tramo Rosillas - San Francisco **Progresiva 4+160** **Progresiva 4+482** **derecha**

Ecuación Racional: Pendiente= 6.96 %

$$Q = \frac{C \cdot I \cdot A}{360}$$

Q = Caudal (m³/seg)
i = Intensidad de precipitación en los 10 min. de maxima concentración (mm/h)
C = Coeficiente de escorrentía (Adimensional)
A = Área de aporte (ha)

Datos:

i = 14.41 mm/h
C = 0.85
A = 0.11 ha
n = 0.020 Coeficiente de rugosidad (n=0.020 canales mampostería de piedra con cemento)
S = 0.070 % Pendiente del tramo

Remplazando: Q = **0.0038 m3/seg**

Calculando el tirante normal aplicando el programa de "HCANALES" de (Máximo Villón Béjar) se tiene los siguientes resultados:

Datos:

Caudal (Q):	0.0038	m3/s
Ancho de solera (b):	0	m
Talud (Z):	2	
Rugosidad (n):	0.02	
Pendiente (S):	0.07	m/m

Resultados:

Tirante normal (y):	0.0443	m	Perímetro (p):	0.1981	m
Area hidráulica (A):	0.0039	m2	Radio hidráulico (R):	0.0198	m
Espejo de agua (T):	0.1772	m	Velocidad (v):	0.9685	m/s
Número de Froude (F):	2.0778		Energía específica (E):	0.0921	m-Kg/Kg
Tipo de flujo:	Supercrítico				

Se tiene como resultado un tirante normal de:

y = 0.0443 m y + borde libre = 0.14 m

Se asume una sección de cuneta triangular de:

h = 0.30 m

Tramo Rosillas - San Francisco		
N	PROGRESIVA	AREA DE APORTE (Ha)
1	0+292	59.5
2	0+550	59.5
3	0+634	47.8
4	0+974	7.47
5	1+200	10.7
6	1+380	10.7
7	1+960	10.7
8	2+240	10.7
9	2+450	10.7
10	2+770	11.4
11	3+225	6.65
12	3+525	6.65
13	3+730	6.65
14	4+160	213
15	4+482	20.7
16	4+819	20.7
17	5+220	15.6
18	5+443	15.6
19	5+645	15.6

"DISEÑO ESTRUCTURAL DE INGENIERIA VIAL ROSILLAS - SAN FRANCISCO "
DISEÑO DE ALCANTARILLA DE ALIVIO

Tramo Rosillas - San Francisco **Prog. 4+160**

Ecuación Racional:

$$Q = \frac{C \cdot I \cdot A}{360}$$

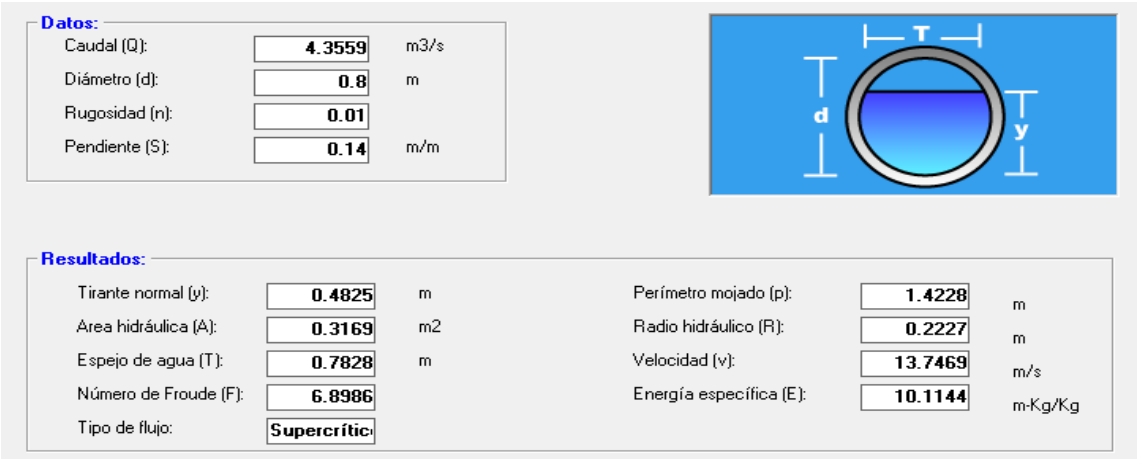
Q = Caudal (m³/seg)
i = Intensidad de precipitación en los 10 min. de maxima concentración (mm/h)
C = Coeficiente de escorrentía (Adimensional)
A = Área de aporte (Ha)

Datos:

i = 16.36 mm/h
C = 0.45
A = 213.00 ha
n = 0.010 Coeficiente de rugosidad (n=0.010 tubería corrugada)
S = 0.14 Pendiente del tramo

Remplazando: Q = **4.3559 m3/seg**

Calculando el tirante normal aplicando el programa de "HCANALES" de (Máximo Villón Béjar) se tiene los siguientes resultados:



Se tiene como resultado un tirante normal de:

y = 0.4824 m

Se puede observar que con un **diámetro de 0.8 m** de tubería se logra evacuar todo el caudal del área de aporte (área mas grande de estudio y para un periodo de retorno de 10 años)

ANEXO 8

ANÁLISIS DE COSTOS

Planilla de Cómputos métricos

PROYECTO: "Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco "

No.	DESCRIPCCIÓN	UNIDAD	Nº DE VECES	LARGO (m)	ANCHO (m)-AREA (m2)	ALTO (m)	TOTAL PARCIAL	TOTAL
	M01 - TRABAJOS PREVIOS Y COMPLEMENTARIOS							
1	**INSTALACION DE FAENAS**	**glb**						**1.00**
			1				1.00	
2	**REPLANTEO**	**ml**						**5,877.00**
	Prog. 0+000 - 5+877		1	5877.00			5877.00	
	M02 - MOVIMIENTO DE TIERRAS							
3	**LIMPIEZA, DESBOSQUE Y DESTRONQUE**	**ha**						**7.05**
			1	5877.00	12.00		7.05	
4	**EXCAVACION COMUN C/EQUIPO**	**m3**						**53,664.79**
	Total volumen de excavación (ver anexos de resumen de movimiento de tierras)		1				53664.79	
5	**RETIRO DE MATERIAL EXCEDENTE**	**m3/km**						**41,081.98**
	Total volumen de excavación (ver anexos de resumen de movimiento de tierras)		1				41081.98	
6	**MEJORAMIENTO DE SUBRASANTE E=25 CM**	**m3**						**5,250.00**
	Prog. 0+000 - 1+000 Prog. 2+000 - 4+000		1	3000.00	7.00	0.25	5250.00	
7	**CONSTRUCCION DE TERRAPLENES**	**m3**						**12,582.81**
	Total volumen de relleno (ver anexos de movimiento de tierras)		1				12582.81	
	M03 - CONFORMACION DEL PAQUETE ESTRUCTURAL							
8	**CONFORMACION DE CAPA SUB BASE**	**m3**						**8,227.80**
	Prog. 0+000 - 5+877		1	5877.00	7.00	0.2	8227.80	
9	**CONFORMACION DE CAPA BASE**	**m3**						**6,170.85**
	Prog. 0+000 - 5+877		1	5877.00	7.00	0.15	6170.85	
10	**IMPRIMACION BITUMUNOSA**	**m2**						**41,139.00**
	Prog. 0+000 - 5+877		1	5877.00	7.00		41139.00	
11	**TRATAMIENTO SUPERFICIAL DOBLE, AGREGADOS Y EJECUCION**	**m2**						**41,139.00**
	Prog. 0+000 - 5+877		1	5877.00	7		41139	
	M04 - OBRAS DE ARTE							
12	**REPLANTEO/CONTROL OBRAS DE ARTE**	**pza.**						**19.00**
	Alcantarillas de alivio		19				19.00	
13	**EXCAVACION NO CLASIFICADA C/MAQ**	**m3**						**484.50**
	Alcantarillas de alivio		19	8.50	2.50	1.20	484.50	
14	**EXCAVACION P/CUNETAS REVESTIDAS**	**m3**						**1,058.08**
	cunetas triangulares revestidas en diferentes longitudes en todo el tramo (revisar anexo 8 diseño de obras de		1	6613.00	0.80	0.40	1058.08	
15	**COLOC. CAPA BASE ARENA SELECCIONADA**	**m3**						**80.75**
	Alcantarillas Tipo Alivio)		19	8.50	2.50	0.20	80.75	
16	**PROV Y COLOCACION TUBOS DE ARMCO**	**ml**						**161.50**
	(Alcantarillas Tipo Alivio)		19	8.50			161.5	
17	**RELLENO COMPACTADO MANUAL - S/MATERIAL RELLENO**	**m3**						**316.54**
	relleno para alcantarillas tipo 1		19	8.50	1.96		316.54	
18	**CUNETA DE HORMIGON**	**ml**						**6,613.00**
	Diferentes longitudes en todo el tramo, revisar anexo 8		1	6613.00			6613.00	
	M05 - SEÑALIZACION							
19	**Señal vertical preventiva, 0.75 x 0.75 m**	**Pza.**						**30.00**
	Total señalización preventiva cuadrangular 0,75x0,75 en		30				30.00	
20	**Señal restrictiva, rectangular, 0.75 x 0.90 m**	**Pza.**						**10.00**
	Total señalización restrictiva cuadrangular 0,75x0,9 en		10				10.00	
21	**Líneas de señalización horizontal**	**m**						**17,631.00**
	En este apartado se considera tanto líneas simples, dobles, segmentadas y demás consideradas en el diseño y todo el tramo		3	5877.00			17631.00	

Proyecto: PROYECTO ROSILLAS - SAN FRANCISCO

Nº	Descripción	Und.	Cantidad	Unitario	Parcial (Bs)
>	**M01 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**45.515,70**
1	INSTALACION DE FAENAS	glb	1,00	20.832,30	20.832,30
2	REPLANTEO	ML	5.877,00	4,20	24.683,40
>	**M02 - MOVIMIENTO DE TIERRAS**				**2.936.820,38**
3	LIMPIEZA, DESBOSQUE Y DESTRONQUE	ha	7,05	11.262,57	79.401,12
4	EXCAVACION COMUN C/EQUIPO	m^3	53.664,79	24,07	1.291.711,50
5	RETIRO DE MATERIAL EXCEDENTE	m^3-km	41.081,98	15,18	623.624,46
6	MEJORAMIENTO DE SUBRASANTE E=25 CM	m^3	5.250,00	137,31	720.877,50
7	CONSTRUCCION DE TERRAPLENES	m^3	12.582,81	17,58	221.205,80
>	**M03 - CONFORMACION DEL PAQUETE ESTRUCTURAL**				**4.661.089,84**
8	CONFORMACION DE CAPA SUB BASE	m^3	8.227,80	206,11	1.695.831,86
9	CONFORMACION CAPA BASE	m^3	6.170,85	229,06	1.413.494,90
10	IMPRIMACION BITUMUNOSA	m^2	41.139,00	19,99	822.368,61
11	TRATAMIENTO SUPERFICIAL DOBLE, AGREGADOS Y EJECUCION	m^2	41.139,00	17,73	729.394,47
>	**M04 - OBRAS DE ARTE**				**1.521.407,98**
12	Replanteo-control obras de arte menor	pza.	19,00	1.186,90	22.551,10
13	Excavación no clasificada c/maq p/obra de arte	m^3	484,50	17,33	8.396,38
14	Excavación p/cunetas revestidas	m^3	1.058,08	121,28	128.323,94
15	Colocado de capa base arena seleccionada	m^3	80,75	219,63	17.735,12
16	Provisión y colocado de tubos de chapa d=800 mm	m	161,50	2.040,19	329.490,68
17	Relleno compactado manual - s/material relleno	m^3	316,54	293,36	92.860,17
18	Cuneta revestida de mampostería de piedra	m	6.613,00	139,43	922.050,59
>	**M05 - SEÑALIZACION**				**180.856,72**
19	Señalización vertical preventiva 0.75 x 0.75	pza.	30,00	1.111,53	33.345,90
20	Señalización vertical restrictiva 0.75 x 0.90	pza.	10,00	1.139,95	11.399,50
21	Línea de señalización horizontal	m	17.631,00	7,72	136.111,32
	Total presupuesto:				**9.345.690,62**

Proyecto: PROYECTO ROSILLAS - SAN FRANCISCO

Nº	Descripción	Und.	Cantidad	Unitario	Parcial (Bs)
>	**M01 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**45.515,70**
1	INSTALACION DE FAENAS	glb	1,00	20.832,30	20.832,30
2	REPLANTEO	ML	5.877,00	4,20	24.683,40
>	**M02 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**2.215.942,88**
3	LIMPIEZA, DESBOSQUE Y DESTRONQUE	ha	7,05	11.262,57	79.401,12
4	EXCAVACION COMUN C/EQUIPO	m^3	53.664,79	24,07	1.291.711,50
5	RETIRO DE MATERIAL EXCEDENTE	m^3-km	41.081,98	15,18	623.624,46
6	CONSTRUCCION DE TERRAPLENES	m^3	12.582,81	17,58	221.205,80
>	**M03 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**12.054.179,53**
7	CONFORMACION DE CAPA SUB BASE	m^3	8.227,80	206,11	1.695.831,86
8	CONFORMACION CAPA BASE	m^3	6.170,85	229,06	1.413.494,90
9	IMPRIMACION BITUMUNOSA	m^2	41.139,00	19,99	822.368,61
10	CARPETA ASFALTICA E=5CM C/PROVICION DE CEMENTO ASFALTICO E IMPRIMACION	m^2	41.139,00	197,44	8.122.484,16
>	**M04 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**1.521.407,98**
11	Replanteo-control obras de arte menor	pza.	19,00	1.186,90	22.551,10
12	Excavación no clasificada c/maq p/obra de arte	m^3	484,50	17,33	8.396,38
13	Excavación p/cunetas revestidas	m^3	1.058,08	121,28	128.323,94
14	Colocado de capa base arena seleccionada	m^3	80,75	219,63	17.735,12
15	Provisión y colocado de tubos de chapa d=800 mm	m	161,50	2.040,19	329.490,68
16	Relleno compactado manual - s/material relleno	m^3	316,54	293,36	92.860,17
17	Cuneta revestida de mampostería de piedra	m	6.613,00	139,43	922.050,59
>	**M05 - TRABAJOS PREVIOS Y COMPLEMENTARIOS**				**180.856,72**
18	Señalización vertical preventiva 0.75 x 0.75	pza.	30,00	1.111,53	33.345,90
19	Señalización vertical restrictiva 0.75 x 0.90	pza.	10,00	1.139,95	11.399,50
20	Línea de señalización horizontal	m	17.631,00	7,72	136.111,32
	Total presupuesto:				**16.017.902,81**

Ítem: INSTALACION DE FAENAS **Unidad: glb**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	ALAMBRE DE AMARRE	KG	25,00	13,00	325,00
2	-	ARENA	m³	4,00	130,00	520,00
3	-	LADRILLO 6 H. 24x15x9	PZA	2.000,00	0,10	200,00
4	-	LETREROS	PZA	3,00	780,00	2.340,00
5	-	CALAMINA ONDULADA N 32	m²	150,00	46,00	6.900,00
6	-	GRAVA	m³	3,00	130,00	390,00
7	-	CLAVOS DE CALAMINA	KG	25,00	12,00	300,00
8	-	ESTUCO	kg	350,00	0,50	175,00
>	**D**	**TOTAL MATERIALES**			**(A) =**	**11.150,00**
	B	OBRERO				
1	-	ALBAÑIL	hr	40,00	20,00	800,00
2	-	Peón	hr	80,00	12,50	1.000,00
	E	Mano de obra indirecta		14,94% de	(B) =	268,92
	F	Beneficios Sociales		71,00% de	(B) =	1.278,00
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**3.346,92**
	C	EQUIPO				
	H	Herramientas menores		5,00% de	(B) =	90,00
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**90,00**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**14.586,92**
	L	Gastos Generales		13,00% de	(J) =	1.896,30
	M	Utilidad		10,00% de	(J) =	1.458,69
>	**N**	**PARCIAL**			**(J+L+M) =**	**17.941,91**
	O	IVA		14,94% de	(N) =	2.680,52
	P	IT		3,09% de	(N-A) =	209,87
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**20.832,30**
>		**PRECIO ADOPTADO:**				**20.832,30**

Ítem: REPLANTEO **Unidad: ML**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	ESTACAS DE MADERA	PZA	0,30	2,00	0,60
2	-	ESTUCO	KG	0,30	0,50	0,15
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,75**
	B	OBRERO				
1	-	Peón	hr	0,02	12,50	0,25
2	-	TOPOGRAFO	hr	0,04	22,00	0,88

	E	Mano de obra indirecta		14,94% de	(B) =	0,17
	F	Beneficios Sociales		71,00% de	(B) =	0,80
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**2,10**
	C	EQUIPO				
	H	Herramientas menores		5,00% de	(B) =	0,06
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**0,06**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**2,91**
	L	Gastos Generales		13,00% de	(J) =	0,38
	M	Utilidad		10,00% de	(J) =	0,29
>	**N**	**PARCIAL**			**(J+L+M) =**	**3,58**
	O	IVA		14,94% de	(N) =	0,53
	P	IT		3,09% de	(N-A) =	0,09
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**4,20**
>		**PRECIO ADOPTADO:**				**4,20**

Ítem: LIMPIEZA, DESBOSQUE Y DESTRONQUE **Unidad: ha**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	MAESTRO	hr	30,00	21,25	637,50
2	-	Peón	hr	200,00	12,50	2.500,00
3	-	OPERADOR DE EQUIPO PESADO	hr	7,20	22,50	162,00
4	-	MECANICO	hr	13,50	21,25	286,88
	E	Mano de obra indirecta		14,94% de	(B) =	535,80
	F	Beneficios Sociales		71,00% de	(B) =	2.546,33
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**6.668,51**
	C	EQUIPO				
1	-	Tractor D8 c/topadora	hr	2,50	364,00	910,00
	H	Herramientas menores		5,00% de	(B) =	179,32
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**1.089,32**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**7.757,82**
	L	Gastos Generales		13,00% de	(J) =	1.008,52
	M	Utilidad		10,00% de	(J) =	775,78
>	**N**	**PARCIAL**			**(J+L+M) =**	**9.542,12**
	O	IVA		14,94% de	(N) =	1.425,59
	P	IT		3,09% de	(N-A) =	294,85
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**11.262,57**
>		**PRECIO ADOPTADO:**				**11.262,57**

Ítem: EXCAVACION COMUN C/EQUIPO **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE EQUIPO PESADO	hr	0,03	22,50	0,68
	E	Mano de obra indirecta		14,94% de	(B) =	0,10
	F	Beneficios Sociales		71,00% de	(B) =	0,48
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**1,26**
	C	EQUIPO				
1	-	Tractor D8 c/topadora	hr	0,04	364,00	15,29
	H	Herramientas menores		5,00% de	(B) =	0,03
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**15,32**
>	J	**SUB TOTAL**			**(D+G+I) =**	**16,58**
	L	Gastos Generales		13,00% de	(J) =	2,16
	M	Utilidad		10,00% de	(J) =	1,66
>	N	**PARCIAL**			**(J+L+M) =**	**20,39**
	O	IVA		14,94% de	(N) =	3,05
	P	IT		3,09% de	(N-A) =	0,63
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**24,07**
>		**PRECIO ADOPTADO:**				**24,07**

Ítem: RETIRO DE MATERIAL EXCEDENTE **Unidad: m³-km**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	CHOFER	hr	0,08	18,75	1,50
2	-	OPERADOR DE EQUIPO PESADO	hr	0,05	22,50	1,13
3	-	MECANICO	hr	0,02	21,25	0,43
	E	Mano de obra indirecta		14,94% de	(B) =	0,46
	F	Beneficios Sociales		71,00% de	(B) =	2,17
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**5,67**
	C	EQUIPO				
1	-	PALA FRONTAL 966	hr	0,00	334,00	1,00
2	-	Volqueta 12 m3	hr	0,02	191,00	3,63
	H	Herramientas menores		5,00% de	(B) =	0,15
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**4,78**
>	J	**SUB TOTAL**			**(D+G+I) =**	**10,45**

	L	Gastos Generales		13,00% de	(J) =	1,36
	M	Utilidad		10,00% de	(J) =	1,05
>	**N**	**PARCIAL**			**(J+L+M) =**	**12,86**
	O	IVA		14,94% de	(N) =	1,92
	P	IT		3,09% de	(N-A) =	0,40
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**15,18**
>		**PRECIO ADOPTADO:**				**15,18**

Ítem: MEJORAMIENTO DE SUBRASANTE E=25 CM **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE EQUIPO PESADO	hr	0,10	22,50	2,25
2	-	AYUDANTE	hr	0,10	15,00	1,50
3	-	Peón	hr	0,20	12,50	2,50
	E	Mano de obra indirecta		14,94% de	(B) =	0,93
	F	Beneficios Sociales		71,00% de	(B) =	4,44
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**11,62**
	C	EQUIPO				
1	-	CAMION CISTERNA 900 L	hr	0,08	180,00	14,40
2	-	COMPACTADOR RODILLO	hr	0,15	182,00	27,30
3	-	MOTONIVELADORA GRANDE	hr	0,15	273,00	40,95
	H	Herramientas menores		5,00% de	(B) =	0,31
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**82,96**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**94,58**
	L	Gastos Generales		13,00% de	(J) =	12,30
	M	Utilidad		10,00% de	(J) =	9,46
>	**N**	**PARCIAL**			**(J+L+M) =**	**116,34**
	O	IVA		14,94% de	(N) =	17,38
	P	IT		3,09% de	(N-A) =	3,59
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**137,31**
>		**PRECIO ADOPTADO:**				**137,31**

Ítem: CONSTRUCCION DE TERRAPLENES **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE EQUIPO PESADO	hr	0,05	22,50	1,13
2	-	CHOFER	hr	0,01	18,75	0,19

3	-	MECANICO	hr	0,02	21,25	0,43
	E	Mano de obra indirecta		14,94% de	(B) =	0,26
	F	Beneficios Sociales		71,00% de	(B) =	1,23
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**3,23**
	C	EQUIPO				
1	-	TRACTOR D6	hr	0,01	364,00	3,28
2	-	COMPACTADOR RODILLO	hr	0,01	182,00	1,82
3	-	MOTONIVELADORA GRANDE	hr	0,01	273,00	1,64
4	-	TRACTOR AGRICOLA	hr	0,00	364,00	1,09
5	-	CAMION CISTERNA 900 L	hr	0,01	180,00	0,90
	H	Herramientas menores		5,00% de	(B) =	0,09
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**8,88**
>	J	**SUB TOTAL**			**(D+G+I) =**	**12,11**
	L	Gastos Generales		13,00% de	(J) =	1,57
	M	Utilidad		10,00% de	(J) =	1,21
>	N	**PARCIAL**			**(J+L+M) =**	**14,89**
	O	IVA		14,94% de	(N) =	2,22
	P	IT		3,09% de	(N-A) =	0,46
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**17,58**
>		**PRECIO ADOPTADO:**				**17,58**

Ítem: CONFORMACION DE CAPA SUB BASE **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE PLANTA	hr	0,08	22,50	1,82
2	-	OPERADOR DE EQUIPO LIVIANO	hr	0,05	20,00	0,98
3	-	OPERADOR DE EQUIPO PESADO	hr	0,08	22,50	1,82
4	-	AYUDANTE	hr	0,08	15,00	1,22
5	-	MECANICO	hr	0,30	21,25	6,38
	E	Mano de obra indirecta		14,94% de	(B) =	1,82
	F	Beneficios Sociales		71,00% de	(B) =	8,67
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**22,71**
	C	EQUIPO				
1	-	TRACTOR D6	hr	0,01	364,00	4,00
2	-	Volqueta 12 m3	hr	0,03	191,00	6,11
3	-	MOTONIVELADORA GRANDE	hr	0,01	273,00	3,55
4	-	CAMION CISTERNA 900 L	hr	0,01	180,00	2,34
5	-	PALA FRONTAL 966	hr	0,03	334,00	8,35
	H	Herramientas menores		5,00% de	(B) =	0,61
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**119,26**
>	J	**SUB TOTAL**			**(D+G+I) =**	**141,97**

	L	Gastos Generales		13,00% de	(J) =	18,46
	M	Utilidad		10,00% de	(J) =	14,20
>	**N**	**PARCIAL**			**(J+L+M) =**	**174,62**
	O	IVA		14,94% de	(N) =	26,09
	P	IT		3,09% de	(N-A) =	5,40
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**206,11**
>		**PRECIO ADOPTADO:**				**206,11**

Ítem: CONFORMACION CAPA BASE **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE PLANTA	hr	0,06	22,50	1,44
2	-	OPERADOR DE EQUIPO LIVIANO	hr	0,05	20,00	0,96
3	-	OPERADOR DE EQUIPO PESADO	hr	0,06	22,50	1,28
4	-	AYUDANTE	hr	0,06	15,00	0,86
5	-	MECANICO	hr	0,45	21,25	9,56
	E	Mano de obra indirecta		14,94% de	(B) =	2,11
	F	Beneficios Sociales		71,00% de	(B) =	10,01
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**26,22**
	C	EQUIPO				
1	-	TRACTOR D6	hr	0,01	364,00	5,10
2	-	Volqueta 12 m3	hr	0,04	191,00	7,07
3	-	PALA FRONTAL 966	hr	0,02	334,00	8,02
4	-	GRUPO ELECTROGENO 180 KV	hr	0,03	227,00	7,26
5	-	PLANTA CHANCADORA C/CLASIFICADORA	hr	0,03	3.231,60	103,41
	H	Herramientas menores		5,00% de	(B) =	0,71
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**131,56**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**157,78**
	L	Gastos Generales		13,00% de	(J) =	20,51
	M	Utilidad		10,00% de	(J) =	15,78
>	**N**	**PARCIAL**			**(J+L+M) =**	**194,07**
	O	IVA		14,94% de	(N) =	28,99
	P	IT		3,09% de	(N-A) =	6,00
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**229,06**
>		**PRECIO ADOPTADO:**				**229,06**

Ítem: IMPRIMACION BITUMUNOSA **Unidad: m²**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	ASFALTO	Kg	0,75	10,43	7,82
2	-	QUEROSEN	Lt	0,05	2,97	0,15

>	D	**TOTAL MATERIALES**			**(A) =**	**7,97**
	B	OBRERO				
1	-	OPERADOR DE EQUIPO PESADO	hr	0,01	22,50	0,27
2	-	MECANICO	hr	0,01	21,25	0,21
3	-	AYUDANTE	hr	0,03	15,00	0,50
	E	Mano de obra indirecta		14,94% de	(B) =	0,15
	F	Beneficios Sociales		71,00% de	(B) =	0,69
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**1,82**
	C	EQUIPO				
1	-	TRACTOR AGRICOLA	hr	0,00	364,00	0,73
2	-	DILUIDOR DE ASFALTO	hr	0,00	953,00	1,91
3	-	Escoba mecánica	hr	0,00	79,30	0,16
4	-	DISTRIBUIDOR DE ASFALTO	hr	0,00	537,00	1,07
5	-	COMPRESORA ATLAS COPCO	hr	0,00	118,00	0,24
	H	Herramientas menores		5,00% de	(B) =	0,05
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**4,15**
>	J	**SUB TOTAL**			**(D+G+I) =**	**13,94**
	L	Gastos Generales		13,00% de	(J) =	1,81
	M	Utilidad		10,00% de	(J) =	1,39
>	N	**PARCIAL**			**(J+L+M) =**	**17,15**
	O	IVA		14,94% de	(N) =	2,56
	P	IT		3,09% de	(N-A) =	0,28
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**19,99**
>		**PRECIO ADOPTADO:**				**19,99**

Ítem: TRATAMIENTO SUPERFICIAL DOBLE, AGREGADOS Y EJEC Unidad: m²

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	OPERADOR DE PLANTA	hr	0,01	22,50	0,15
2	-	OPERADOR DE EQUIPO LIVIANO	hr	0,00	20,00	0,07
3	-	OPERADOR DE EQUIPO PESADO	hr	0,02	22,50	0,45
4	-	AYUDANTE	hr	0,04	15,00	0,60
5	-	MECANICO	hr	0,02	21,25	0,43
	E	Mano de obra indirecta		14,94% de	(B) =	0,25
	F	Beneficios Sociales		71,00% de	(B) =	1,20
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**3,14**
	C	EQUIPO				
1	-	TRACTOR D6	hr	0,00	364,00	0,25
2	-	Volqueta 12 m3	hr	0,00	191,00	0,40
3	-	PALA FRONTAL 966	hr	0,00	334,00	0,53
4	-	COMPACTADOR RODILLO	hr	0,00	182,00	0,60
5	-	CAMION ASFALTADOR	hr	0,00	172,00	0,60

	H	Herramientas menores		5,00% de	(B) =	0,08
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**9,07**
>	J	**SUB TOTAL**			**(D+G+I) =**	**12,21**
	L	Gastos Generales		13,00% de	(J) =	1,59
	M	Utilidad		10,00% de	(J) =	1,22
>	N	**PARCIAL**			**(J+L+M) =**	**15,02**
	O	IVA		14,94% de	(N) =	2,24
	P	IT		3,09% de	(N-A) =	0,46
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**17,73**
>		**PRECIO ADOPTADO:**				**17,73**

Ítem: Replanteo-control obras de arte menor **Unidad: pza.**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Estacas (2*2*0.30)	pza.	20,00	1,30	26,00
>	D	**TOTAL MATERIALES**			**(A) =**	**26,00**
	B	OBRERO				
1	-	Especialista	hr	4,00	18,00	72,00
2	-	ALBAÑIL	hr	8,00	20,00	160,00
3	-	AYUDANTE	hr	8,00	15,00	120,00
	E	Mano de obra indirecta		14,94% de	(B) =	52,59
	F	Beneficios Sociales		71,00% de	(B) =	249,92
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**654,51**
	C	EQUIPO				
1	-	Equipo topográfico	hr	4,00	30,00	120,00
	H	Herramientas menores		5,00% de	(B) =	17,60
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**137,60**
>	J	**SUB TOTAL**			**(D+G+I) =**	**818,11**
	L	Gastos Generales		13,00% de	(J) =	106,35
	M	Utilidad		10,00% de	(J) =	81,81
>	N	**PARCIAL**			**(J+L+M) =**	**1.006,27**
	O	IVA		14,94% de	(N) =	150,34
	P	IT		3,09% de	(N-A) =	30,29
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**1.186,90**
>		**PRECIO ADOPTADO:**				**1.186,90**

Ítem: Excavación no clasificada c/maq p/obra de arte **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**

	B	OBRERO				
1	-	CAPATAZ	hr	0,01	18,75	0,19
2	-	OPERADOR DE EQUIPO LIVIANO	hr	0,03	20,00	0,50
3	-	AYUDANTE	hr	0,03	15,00	0,38
	E	Mano de obra indirecta		14,94% de	(B) =	0,16
	F	Beneficios Sociales		71,00% de	(B) =	0,75
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**1,98**
	C	EQUIPO				
1	-	Retroexcavadora	hr	0,05	198,20	9,91
	H	Herramientas menores		5,00% de	(B) =	0,05
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**9,96**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**11,94**
	L	Gastos Generales		13,00% de	(J) =	1,55
	M	Utilidad		10,00% de	(J) =	1,19
>	**N**	**PARCIAL**			**(J+L+M) =**	**14,68**
	O	IVA		14,94% de	(N) =	2,19
	P	IT		3,09% de	(N-A) =	0,45
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**17,33**
>		**PRECIO ADOPTADO:**				**17,33**

Ítem: Excavación p/cunetas revestidas **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	**D**	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	Peón	hr	3,50	12,50	43,75
	E	Mano de obra indirecta		14,94% de	(B) =	6,54
	F	Beneficios Sociales		71,00% de	(B) =	31,06
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**81,35**
	C	EQUIPO				
	H	Herramientas menores		5,00% de	(B) =	2,19
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**2,19**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**83,54**
	L	Gastos Generales		13,00% de	(J) =	10,86
	M	Utilidad		10,00% de	(J) =	8,35
>	**N**	**PARCIAL**			**(J+L+M) =**	**102,75**
	O	IVA		14,94% de	(N) =	15,35
	P	IT		3,09% de	(N-A) =	3,18
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**121,28**
>		**PRECIO ADOPTADO:**				**121,28**

Ítem: Colocado de capa base arena seleccionada **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	ARENA	m³	1,05	130,00	136,50
>	D	**TOTAL MATERIALES**			**(A) =**	**136,50**
	B	OBRERO				
1	-	Peón	hr	0,50	12,50	6,25
2	-	CHOFER	hr	0,05	18,75	0,94
	E	Mano de obra indirecta		14,94% de	(B) =	1,07
	F	Beneficios Sociales		71,00% de	(B) =	5,10
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**13,36**
	C	EQUIPO				
1	-	Volqueta 5 m3	hr	0,03	132,30	3,97
	H	Herramientas menores		5,00% de	(B) =	0,36
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**4,33**
>	J	**SUB TOTAL**			**(D+G+I) =**	**154,19**
	L	Gastos Generales		13,00% de	(J) =	20,05
	M	Utilidad		10,00% de	(J) =	15,42
>	N	**PARCIAL**			**(J+L+M) =**	**189,66**
	O	IVA		14,94% de	(N) =	28,33
	P	IT		3,09% de	(N-A) =	1,64
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**219,63**
>		**PRECIO ADOPTADO:**				**219,63**

Ítem: Provisión y colocado de tubos de chapa d=800 mm **Unidad: m**
Proyecto: PROYECTO ROSILLAS - SAN FRANCISCO **Fecha: 09/abr/2024**
Cliente: **Tipo de cambio: 6,91**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Chapa metálica corrugada d=800 mm.	m	1,00	1.172,50	1.172,50
>	D	**TOTAL MATERIALES**			**(A) =**	**1.172,50**
	B	OBRERO				
1	-	ALBAÑIL	hr	3,00	20,00	60,00
2	-	Peón	hr	6,00	12,50	75,00
	E	Mano de obra indirecta		14,94% de	(B) =	20,17
	F	Beneficios Sociales		71,00% de	(B) =	95,85
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**251,02**
	C	EQUIPO				

	H	Herramientas menores		5,00% de	(B) =	6,75
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**6,75**
>	J	**SUB TOTAL**			**(D+G+I) =**	**1.430,27**
	L	Gastos Generales		13,00% de	(J) =	185,94
	M	Utilidad		10,00% de	(J) =	143,03
>	N	**PARCIAL**			**(J+L+M) =**	**1.759,23**
	O	IVA		14,94% de	(N) =	262,83
	P	IT		3,09% de	(N-A) =	18,13
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**2.040,19**
>		**PRECIO ADOPTADO:**				**2.040,19**

Ítem: Relleno compactado manual - s/material relleno **Unidad: m³**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
>	D	**TOTAL MATERIALES**			**(A) =**	**0,00**
	B	OBRERO				
1	-	Peón	hr	4,00	12,50	50,00
	E	Mano de obra indirecta		14,94% de	(B) =	7,47
	F	Beneficios Sociales		71,00% de	(B) =	35,50
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**92,97**
	C	EQUIPO				
1	-	Compactadora manual	hr	2,00	53,30	106,60
	H	Herramientas menores		5,00% de	(B) =	2,50
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**109,10**
>	J	**SUB TOTAL**			**(D+G+I) =**	**202,07**
	L	Gastos Generales		13,00% de	(J) =	26,27
	M	Utilidad		10,00% de	(J) =	20,21
>	N	**PARCIAL**			**(J+L+M) =**	**248,55**
	O	IVA		14,94% de	(N) =	37,13
	P	IT		3,09% de	(N-A) =	7,68
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**293,36**
>		**PRECIO ADOPTADO:**				**293,36**

Ítem: Cuneta revestida de mampostería de piedra **Unidad: m**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Cemento portland	kg	8,80	0,95	8,36
2	-	ARENA	m³	0,03	130,00	3,90
3	-	GRAVA	m³	0,03	130,00	3,90
4	-	Piedra bruta	m³	0,17	80,50	13,69

>	D	**TOTAL MATERIALES**			**(A) =**	**29,85**
	B	OBRERO				
1	-	ALBAÑIL	hr	1,00	20,00	20,00
2	-	AYUDANTE	hr	1,00	15,00	15,00
	E	Mano de obra indirecta		14,94% de	(B) =	5,23
	F	Beneficios Sociales		71,00% de	(B) =	24,85
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**65,08**
	C	EQUIPO				
	H	Herramientas menores		5,00% de	(B) =	1,75
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**1,75**
>	J	**SUB TOTAL**			**(D+G+I) =**	**96,67**
	L	Gastos Generales		13,00% de	(J) =	12,57
	M	Utilidad		10,00% de	(J) =	9,67
>	N	**PARCIAL**			**(J+L+M) =**	**118,91**
	O	IVA		14,94% de	(N) =	17,77
	P	IT		3,09% de	(N-A) =	2,75
>	Q	**TOTAL ITEM**			**(N+O+P) =**	**139,43**
>		**PRECIO ADOPTADO:**				**139,43**

Ítem: Señalización vertical preventiva 0.75 x 0.75 **Unidad: pza.**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Señal vertical preventiva 0.75 x 0.75	pza.	1,00	280,00	280,00
2	-	Cemento portland	kg	30,00	0,95	28,50
3	-	ARENA	m³	0,06	130,00	7,80
4	-	Poste de ho.ao.	pza.	1,00	202,40	202,40
5	-	Pernos y accesorios	glb	1,00	126,50	126,50
>	D	**TOTAL MATERIALES**			**(A) =**	**645,20**
	B	OBRERO				
1	-	CHOFER	hr	0,50	18,75	9,38
2	-	ALBAÑIL	hr	1,00	20,00	20,00
3	-	Peón	hr	0,50	12,50	6,25
	E	Mano de obra indirecta		14,94% de	(B) =	5,32
	F	Beneficios Sociales		71,00% de	(B) =	25,29
>	G	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**66,24**
	C	EQUIPO				
1	-	Volqueta 5 m3	hr	0,50	132,30	66,15
	H	Herramientas menores		5,00% de	(B) =	1,78
>	I	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**67,93**
>	J	**SUB TOTAL**			**(D+G+I) =**	**779,37**

	L	Gastos Generales		13,00% de	(J) =	101,32
	M	Utilidad		10,00% de	(J) =	77,94
>	**N**	**PARCIAL**			**(J+L+M) =**	**958,63**
	O	IVA		14,94% de	(N) =	143,22
	P	IT		3,09% de	(N-A) =	9,68
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**1.111,53**
>		**PRECIO ADOPTADO:**				**1.111,53**

Ítem: Señalización vertical restrictiva 0.75 x 0.90 **Unidad: pza.**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Señal vertical restrictiva 0.75 x 0.90	pza.	1,00	300,00	300,00
2	-	Cemento portland	kg	30,00	0,95	28,50
3	-	ARENA	m³	0,06	130,00	7,80
4	-	Poste de ho.ao.	pza.	1,00	202,40	202,40
5	-	Pernos y accesorios	glb	1,00	126,50	126,50
>	**D**	**TOTAL MATERIALES**			**(A) =**	**665,20**
	B	OBRERO				
1	-	CHOFER	hr	0,50	18,75	9,38
2	-	ALBAÑIL	hr	1,00	20,00	20,00
3	-	Peón	hr	0,50	12,50	6,25
	E	Mano de obra indirecta		14,94% de	(B) =	5,32
	F	Beneficios Sociales		71,00% de	(B) =	25,29
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**66,24**
	C	EQUIPO				
1	-	Volqueta 5 m3	hr	0,50	132,30	66,15
	H	Herramientas menores		5,00% de	(B) =	1,78
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**67,93**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**799,37**
	L	Gastos Generales		13,00% de	(J) =	103,92
	M	Utilidad		10,00% de	(J) =	79,94
>	**N**	**PARCIAL**			**(J+L+M) =**	**983,23**
	O	IVA		14,94% de	(N) =	146,89
	P	IT		3,09% de	(N-A) =	9,83
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**1.139,95**
>		**PRECIO ADOPTADO:**				**1.139,95**

Ítem: Línea de señalización horizontal **Unidad: m**

Nº	P.	Insumo/Parámetro	Und.	Cant.	Unit. (Bs)	Parcial (Bs)
	A	MATERIAL				
1	-	Pintura reflectante para pavimento	l	0,06	40,50	2,43
2	-	Micro esferas de vidrio	kg	0,04	30,40	1,22

>	**D**	**TOTAL MATERIALES**			**(A) =**	**3,65**
	B	OBRERO				
1	-	Operador	hr	0,02	18,00	0,36
2	-	Peón	hr	0,02	12,50	0,25
3	-	CHOFER	hr	0,00	18,75	0,02
	E	Mano de obra indirecta		14,94% de	(B) =	0,09
	F	Beneficios Sociales		71,00% de	(B) =	0,45
>	**G**	**TOTAL MANO DE OBRA**			**(B+E+F) =**	**1,17**
	C	EQUIPO				
1	-	Equipo pintador de pav. autopropulsado	hr	0,00	132,30	0,26
2	-	Escoba mecánica	hr	0,00	79,30	0,16
3	-	Camión de estacas de 5 tn.	hr	0,00	64,00	0,13
	H	Herramientas menores		5,00% de	(B) =	0,03
>	**I**	**TOTAL HERRAMIENTAS Y EQUIPO**			**(C+H) =**	**0,58**
>	**J**	**SUB TOTAL**			**(D+G+I) =**	**5,40**
	L	Gastos Generales		13,00% de	(J) =	0,70
	M	Utilidad		10,00% de	(J) =	0,54
>	**N**	**PARCIAL**			**(J+L+M) =**	**6,64**
	O	IVA		14,94% de	(N) =	0,99
	P	IT		3,09% de	(N-A) =	0,09
>	**Q**	**TOTAL ITEM**			**(N+O+P) =**	**7,72**
>		**PRECIO ADOPTADO:**				**7,72**

ANEXO 9

DISEÑO GEOMÉTRICO

Informe de P.K. de PI de alineaciones

Nombre de alineación: a.horizontal

Descripción:

Intervalo de P.K.: inicio: 0+000.00, fin: 6+000.00

P.K. de PI	Ordenada	Abscisa	Distancia	Orientación
0+000.00	7,571,842.9006m	315,173.5018m		
0+063.26	7,571,794.9031m	315,132.2945m	63.260m	S40° 38' 49"O
0+271.88	7,571,896.3900m	314,934.9137m	221.943m	N62° 47' 21"O
0+378.41	7,571,660.2249m	315,016.5294m	249.870m	S19° 03' 52"E
0+486.94	7,571,577.7991m	314,935.3546m	115.686m	S44° 33' 43"O
0+635.11	7,571,562.6126m	314,786.3628m	149.764m	S84° 10' 48"O
0+800.02	7,571,367.6503m	314,918.8191m	235.701m	S34° 11' 31"E
0+969.14	7,571,437.6117m	314,610.0444m	316.601m	N77° 14' 01"O
0+998.77	7,571,261.9736m	314,767.4810m	235.871m	S41° 52' 20"E
1+146.40	7,571,112.7675m	314,743.2503m	151.161m	S9° 13' 27"O
1+472.02	7,571,275.5556m	315,118.5479m	409.082m	N66° 33' 03"E
1+588.94	7,571,018.7831m	314,987.5584m	288.254m	S27° 01' 40"O
1+705.07	7,570,999.7316m	315,155.1920m	168.713m	S83° 30' 58"E
1+876.34	7,570,800.3678m	315,045.1316m	227.726m	S28° 54' 04"O
2+008.13	7,570,669.7059m	315,075.9689m	134.251m	S13° 16' 46"E
2+096.85	7,570,583.7615m	315,049.1705m	90.025m	S17° 19' 05"O
2+192.96	7,570,498.9171m	315,003.7725m	96.227m	S28° 09' 00"O
2+451.95	7,570,311.7491m	314,824.2727m	259.330m	S43° 48' 07"O
2+549.65	7,570,211.4744m	314,842.8809m	101.987m	S10° 30' 46"E
2+716.23	7,570,115.8338m	314,696.0193m	175.258m	S56° 55' 36"O
2+809.52	7,570,032.6986m	314,825.2028m	153.622m	S57° 14' 13"E
2+969.79	7,569,869.5629m	314,763.3499m	174.468m	S20° 45' 51"O
3+093.24	7,569,746.3595m	314,781.9674m	124.602m	S8° 35' 35"E
3+381.02	7,569,635.7077m	314,501.6209m	301.393m	S68° 27' 40"O
3+404.98	7,569,584.8512m	314,748.9188m	252.473m	S78° 22' 45"E
3+610.19	7,569,361.0069m	314,709.5070m	227.287m	S9° 59' 08"O
3+773.90	7,569,234.1851m	314,604.1029m	164.905m	S39° 43' 50"O
4+012.83	7,569,264.7205m	314,361.9544m	244.066m	N82° 48' 46"O
4+167.05	7,569,170.4372m	314,234.9531m	158.173m	S53° 24' 38"O
4+294.37	7,569,165.6391m	314,105.8440m	129.198m	S87° 52' 18"O
4+513.26	7,568,974.4361m	313,987.3464m	224.945m	S31° 47' 18"O
4+642.09	7,568,845.3692m	313,975.0426m	129.652m	S5° 26' 44"O
4+719.07	7,568,776.4381m	313,939.7518m	77.440m	S27° 06' 40"O
4+948.21	7,568,554.1950m	313,883.1773m	229.331m	S14° 16' 55"O
5+048.64	7,568,487.3508m	313,806.4361m	101.771m	S48° 56' 35"O
5+247.63	7,568,286.0047m	313,843.2064m	204.676m	S10° 20' 58"E
5+417.23	7,568,360.2436m	313,614.6433m	240.317m	N72° 00' 21"O
5+550.77	7,568,186.8517m	313,601.3665m	173.899m	S4° 22' 43"O
5+626.51	7,568,146.8203m	313,531.6270m	80.412m	S60° 08' 37"O
5+712.56	7,568,077.4414m	313,479.7565m	86.626m	S36° 47' 00"O
5+881.28	7,568,049.8747m	313,310.4703m	171.516m	S80° 45' 04"O
6+000.00	7,568,009.9741m	313,198.5475m	118.822m	S70° 22' 44"O

Nombre de alineación: a.horizontal-Derecha-3.500

Descripción:

Intervalo de P.K.: inicio: 0+000.00, fin: 5+961.52

P.K. de PI	Ordenada	Abscisa	Distancia	Orientación
0+000.00	7,571,845.1805m	315,170.8462m		
0+015.09	7,571,833.7297m	315,161.0153m	15.092m	S40° 38' 49"O
0+019.89	7,571,830.4881m	315,157.4842m	4.793m	S47° 26' 55"O
0+023.09	7,571,828.4214m	315,155.0379m	3.202m	S49° 48' 25"O
0+023.52	7,571,828.0330m	315,154.8097m	0.450m	S30° 26' 16"O
0+026.26	7,571,826.5296m	315,152.4856m	2.768m	S57° 06' 09"O
0+055.31	7,571,808.6680m	315,129.6012m	29.030m	S52° 01' 39"O
0+080.28	7,571,816.7851m	315,101.7445m	29.015m	N73° 45' 16"O
0+082.93	7,571,817.4507m	315,099.1843m	2.645m	N75° 25' 37"O
0+083.42	7,571,817.7636m	315,098.7641m	0.524m	N53° 19' 39"O
0+086.57	7,571,818.9320m	315,095.8395m	3.149m	N68° 13' 19"O
0+107.27	7,571,827.3154m	315,076.9104m	20.703m	N66° 06' 44"O
0+273.86	7,571,903.4914m	314,928.7565m	166.590m	N62° 47' 21"O
0+325.21	7,571,710.8634m	314,995.3263m	203.807m	S19° 03' 52"E
0+345.91	7,571,690.9373m	315,000.9428m	20.703m	S15° 44' 29"E
0+349.06	7,571,687.8767m	315,001.6850m	3.149m	S13° 37' 54"E

P.K. de PI	Ordenada	Abscisa	Distancia	Orientación
4+934.48	7,568,545.3373m	313,865.9160m	0.513m	S55° 04' 43"O
4+937.50	7,568,543.1910m	313,863.7942m	3.018m	S44° 40' 16"O
4+956.86	7,568,529.7882m	313,849.8281m	19.357m	S46° 10' 45"O
5+019.44	7,568,488.6817m	313,802.6352m	62.585m	S48° 56' 35"O
5+107.23	7,568,396.3681m	313,819.4937m	93.840m	S10° 20' 58"E
5+127.93	7,568,375.8211m	313,822.0261m	20.703m	S7° 01' 35"E
5+131.08	7,568,372.6833m	313,822.2960m	3.149m	S4° 55' 00"E
5+131.59	7,568,372.1904m	313,822.4736m	0.524m	S19° 48' 40"E
5+134.22	7,568,369.5473m	313,822.3680m	2.645m	S2° 17' 18"O
5+193.34	7,568,310.4323m	313,821.8385m	59.117m	S0° 30' 47"O
5+224.45	7,568,317.7716m	313,763.1784m	59.117m	N82° 52' 06"O
5+227.09	7,568,318.0185m	313,760.5447m	2.645m	N84° 38' 37"O
5+227.59	7,568,318.2601m	313,760.0798m	0.524m	N62° 32' 39"O
5+230.74	7,568,318.9450m	313,757.0059m	3.149m	N77° 26' 19"O
5+251.44	7,568,324.1883m	313,736.9784m	20.703m	N75° 19' 44"O
5+383.38	7,568,364.9468m	313,611.4932m	131.939m	N72° 00' 21"O
5+469.03	7,568,236.7408m	313,601.6763m	128.581m	S4° 22' 43"O
5+489.73	7,568,216.2251m	313,598.9018m	20.703m	S7° 42' 06"O
5+492.88	7,568,213.1218m	313,598.3652m	3.149m	S9° 48' 41"O
5+493.39	7,568,212.6000m	313,598.4116m	0.524m	S5° 04' 59"E
5+496.02	7,568,210.0705m	313,597.6375m	2.645m	S17° 00' 59"O
5+514.45	7,568,192.3067m	313,592.7245m	18.431m	S15° 27' 36"O
5+531.97	7,568,180.2303m	313,578.8016m	18.431m	S49° 03' 45"O
5+534.61	7,568,178.4434m	313,576.8511m	2.645m	S47° 30' 21"O
5+535.10	7,568,178.2608m	313,576.3601m	0.524m	S69° 36' 19"O
5+538.25	7,568,176.4414m	313,573.7894m	3.149m	S54° 42' 39"O
5+558.95	7,568,165.1117m	313,556.4622m	20.703m	S56° 49' 14"O
5+590.32	7,568,149.4956m	313,529.2571m	31.368m	S60° 08' 37"O
5+629.48	7,568,117.6549m	313,505.4517m	39.756m	S36° 47' 00"O
5+648.84	7,568,102.7289m	313,493.1270m	19.357m	S39° 32' 50"O
5+651.86	7,568,100.4531m	313,491.1448m	3.018m	S41° 03' 19"O
5+652.37	7,568,100.0113m	313,490.8831m	0.513m	S30° 38' 52"O
5+654.87	7,568,098.2763m	313,489.0647m	2.513m	S46° 20' 37"O
5+674.19	7,568,084.6024m	313,475.4141m	19.321m	S44° 57' 04"O
5+692.86	7,568,078.8191m	313,456.9786m	19.321m	S72° 35' 00"O
5+695.37	7,568,078.0088m	313,454.5995m	2.513m	S71° 11' 27"O
5+695.87	7,568,077.9809m	313,454.0868m	0.513m	S86° 53' 12"O
5+698.88	7,568,077.2753m	313,451.1524m	3.018m	S76° 28' 45"O
5+718.24	7,568,073.2465m	313,432.2195m	19.357m	S77° 59' 14"O
5+842.48	7,568,053.2781m	313,309.5942m	124.240m	S80° 45' 04"O
5+961.52	7,568,013.2709m	313,197.3722m	119.140m	S70° 22' 44"O

Nombre de alineación: a.horizontal-Izquierda-3.500

Descripción:

Intervalo de P.K.: inicio: 0+000.00, fin: 5+965.26

P.K. de PI	Ordenada	Abscisa	Distancia	Orientación
0+000.00	7,571,840.6207m	315,176.1574m		
0+066.02	7,571,790.5273m	315,133.1507m	66.022m	S40° 38' 49"O
0+118.81	7,571,821.1462m	315,073.6004m	66.961m	N62° 47' 21"O
0+139.52	7,571,829.5295m	315,054.6712m	20.703m	N66° 06' 44"O
0+142.67	7,571,830.6980m	315,051.7467m	3.149m	N68° 13' 19"O
0+143.18	7,571,831.0109m	315,051.3265m	0.524m	N53° 19' 39"O
0+145.80	7,571,831.6765m	315,048.7663m	2.645m	N75° 25' 37"O
0+226.56	7,571,854.4439m	314,971.2830m	80.759m	N73° 37' 31"O
0+251.59	7,571,774.5163m	314,982.8412m	80.759m	S8° 13' 42"E
0+254.23	7,571,771.8876m	314,983.1373m	2.645m	S6° 25' 37"E
0+254.73	7,571,771.4273m	314,983.3875m	0.524m	S28° 31' 35"E
0+257.87	7,571,768.3667m	314,984.1298m	3.149m	S13° 37' 54"E
0+278.58	7,571,748.4406m	314,989.7463m	20.703m	S15° 44' 29"E
0+372.87	7,571,659.3160m	315,020.5466m	94.297m	S19° 03' 52"E
0+484.38	7,571,574.4450m	314,936.9637m	119.118m	S44° 33' 43"O
0+520.83	7,571,570.5770m	314,899.0157m	38.145m	S84° 10' 48"O
0+541.53	7,571,567.2874m	314,878.5762m	20.703m	S80° 51' 25"O

0+349.57	7,571,687.4164m	315,001.9352m	0.524m	S28° 31' 35"E
0+352.19	7,571,684.7877m	315,002.2313m	2.645m	S6° 25' 37"E
0+374.45	7,571,662.7560m	315,005.3425m	22.250m	S8° 02' 16"E
0+394.96	7,571,644.2092m	314,993.0503m	22.250m	S33° 32' 07"O
0+397.61	7,571,641.9641m	314,991.6515m	2.645m	S31° 55' 27"O
0+398.10	7,571,641.6563m	314,991.2275m	0.524m	S54° 01' 25"O
0+401.25	7,571,639.2133m	314,989.2400m	3.149m	S39° 07' 45"O
0+421.95	7,571,623.6456m	314,975.5930m	20.703m	S41° 14' 20"O
0+442.37	7,571,609.0958m	314,961.2640m	20.421m	S44° 33' 43"O
0+463.07	7,571,595.2123m	314,945.9068m	20.703m	S47° 53' 06"O
0+466.22	7,571,593.1877m	314,943.4945m	3.149m	S49° 59' 41"O
0+466.73	7,571,592.7591m	314,943.1932m	0.524m	S35° 06' 00"O
0+469.36	7,571,591.3261m	314,940.9697m	2.645m	S57° 11' 58"O
0+480.40	7,571,585.1323m	314,931.8366m	11.035m	S55° 51' 22"O
0+491.30	7,571,581.8848m	314,921.2899m	11.035m	S72° 53' 09"O
0+493.95	7,571,581.0473m	314,918.7807m	2.645m	S71° 32' 32"O
0+494.44	7,571,581.0806m	314,918.2579m	0.524m	N86° 21' 30"O
0+497.59	7,571,580.4661m	314,915.1691m	3.149m	S78° 44' 50"O
0+518.29	7,571,577.1764m	314,894.7296m	20.703m	S80° 51' 25"O
0+606.36	7,571,568.2463m	314,807.1179m	88.066m	S84° 10' 48"O
0+644.43	7,571,494.6182m	314,829.3811m	76.920m	S16° 49' 26"E
0+650.40	7,571,489.1085m	314,831.6543m	5.960m	S22° 25' 12"E
0+656.16	7,571,517.2107m	314,822.6377m	29.513m	N17° 47' 20"O
0+656.39	7,571,483.8281m	314,834.4880m	35.424m	S19° 32' 39"E
0+660.41	7,571,480.3787m	314,836.5499m	4.019m	S30° 52' 08"E
0+663.56	7,571,477.6178m	314,838.0652m	3.149m	S28° 45' 33"E
0+666.69	7,571,474.7785m	314,839.3986m	3.137m	S25° 09' 24"E
0+748.48	7,571,399.6929m	314,871.8238m	81.788m	S23° 21' 24"E
0+773.07	7,571,402.4491m	314,790.0826m	81.788m	N88° 04' 08"O
0+776.21	7,571,402.6533m	314,786.9523m	3.137m	N86° 16' 08"O
0+779.36	7,571,403.0553m	314,783.8288m	3.149m	N82° 39' 59"O
0+783.95	7,571,403.8091m	314,779.2965m	4.594m	N80° 33' 24"O
0+789.73	7,571,404.5032m	314,773.5550m	5.783m	N83° 06' 25"O
0+795.49	7,571,404.6330m	314,767.8034m	5.753m	N88° 42' 26"O
0+822.86	7,571,402.5610m	314,740.2964m	27.585m	S85° 41' 32"O
0+920.85	7,571,395.8869m	314,642.7449m	97.780m	S86° 05' 10"O
0+948.16	7,571,294.6042m	314,733.5317m	136.016m	S41° 52' 20"E
0+968.86	7,571,278.4132m	314,746.4331m	20.703m	S38° 32' 56"E
0+972.01	7,571,275.8796m	314,748.3037m	3.149m	S36° 26' 21"E
0+972.52	7,571,275.5523m	314,748.7128m	0.524m	S51° 20' 02"E
0+975.15	7,571,273.2440m	314,750.0047m	2.645m	S29° 14' 04"E
0+991.39	7,571,259.2870m	314,758.3076m	16.240m	S30° 44' 53"E
1+007.05	7,571,243.0559m	314,758.8460m	16.240m	S1° 54' 00"E
1+009.69	7,571,240.4154m	314,759.0035m	2.645m	S3° 24' 49"E
1+010.18	7,571,239.9191m	314,758.8357m	0.524m	S18° 41' 09"O
1+013.33	7,571,236.7766m	314,758.6274m	3.149m	S3° 47' 29"O
1+034.03	7,571,216.1838m	314,756.4990m	20.703m	S5° 54' 04"O
1+144.64	7,571,107.0087m	314,738.7693m	110.605m	S9° 13' 27"O
1+297.59	7,571,203.1999m	314,960.5319m	241.726m	N66° 33' 03"E
1+318.29	7,571,210.3233m	314,979.9703m	20.703m	N69° 52' 26"E
1+321.44	7,571,211.2974m	314,982.9652m	3.149m	N71° 59' 01"E
1+321.95	7,571,211.5820m	314,983.4051m	0.524m	N57° 05' 21"E
1+324.58	7,571,212.0782m	314,986.0034m	2.645m	N79° 11' 19"E
1+411.99	7,571,231.1743m	315,071.3043m	87.412m	N77° 22' 53"E
1+434.01	7,571,147.2317m	315,046.9209m	87.412m	S16° 11' 50"O
1+436.65	7,571,144.6695m	315,046.2635m	2.645m	S14° 23' 25"O
1+437.14	7,571,144.2483m	315,045.9520m	0.524m	S36° 29' 23"O
1+440.29	7,571,141.3200m	315,044.7929m	3.149m	S21° 35' 42"O
1+460.99	7,571,122.3641m	315,036.4700m	20.703m	S23° 42' 17"O
1+561.68	7,571,032.6760m	314,990.7166m	100.684m	S27° 01' 40"O
1+599.46	7,571,007.9444m	315,056.5594m	70.334m	S69° 24' 47"E
1+604.28	7,571,006.5666m	315,061.1779m	4.820m	S73° 23' 20"E
1+609.12	7,571,005.5673m	315,065.9145m	4.841m	S78° 05' 09"E
1+616.31	7,571,004.3422m	315,073.0019m	7.192m	S80° 11' 35"E
1+619.46	7,571,003.6919m	315,076.0834m	3.149m	S78° 05' 00"E
1+622.60	7,571,002.8526m	315,079.1058m	3.137m	S74° 28' 52"E
1+657.33	7,571,032.4621m	314,993.7023m	90.391m	N70° 52' 43"O
1+676.20	7,570,986.8624m	315,130.2663m	143.976m	S71° 32' 08"E
1+707.69	7,570,935.8930m	315,113.6773m	53.601m	S18° 01' 42"O

0+544.68	7,571,566.6728m	314,875.4874m	3.149m	S78° 44' 50"O
0+545.19	7,571,566.7061m	314,874.9645m	0.524m	N86° 21' 30"O
0+547.82	7,571,565.8686m	314,872.4554m	2.645m	S71° 32' 32"O
0+606.96	7,571,548.8898m	314,815.7994m	59.145m	S73° 19' 03"O
0+638.07	7,571,494.5800m	314,839.2220m	59.145m	S23° 19' 46"E
0+641.21	7,571,491.7407m	314,840.5555m	3.137m	S25° 09' 24"E
0+644.36	7,571,488.9798m	314,842.0707m	3.149m	S28° 45' 33"E
0+648.38	7,571,485.5303m	314,844.1326m	4.019m	S30° 52' 08"E
0+654.37	7,571,480.2500m	314,846.9663m	5.993m	S28° 13' 14"E
0+660.33	7,571,474.7403m	314,849.2395m	5.960m	S22° 25' 12"E
0+683.69	7,571,452.1478m	314,855.9829m	23.577m	S16° 37' 10"E
0+739.61	7,571,398.8520m	314,872.1869m	55.705m	S16° 54' 41"E
0+777.00	7,571,393.3234m	314,793.3035m	79.077m	S85° 59' 27"O
0+782.75	7,571,393.4532m	314,787.5519m	5.753m	N88° 42' 26"O
0+788.53	7,571,394.1473m	314,781.8104m	5.783m	N83° 06' 25"O
0+793.13	7,571,394.9011m	314,777.2782m	4.594m	N80° 33' 24"O
0+793.14	7,571,395.3954m	314,820.8105m	43.535m	N89° 20' 58"E
0+796.28	7,571,395.3031m	314,774.1546m	46.656m	S89° 53' 12"O
0+799.41	7,571,395.5072m	314,771.0244m	3.137m	N86° 16' 08"O
0+894.29	7,571,398.7207m	314,676.2077m	94.871m	N88° 03' 32"O
0+912.45	7,571,317.4402m	314,725.1363m	94.871m	S31° 02' 48"E
0+915.10	7,571,315.1318m	314,726.4282m	2.645m	S29° 14' 04"E
0+915.59	7,571,314.8045m	314,726.8373m	0.524m	S51° 20' 02"E
0+918.74	7,571,312.2709m	314,728.7079m	3.149m	S36° 26' 21"E
0+939.44	7,571,296.0800m	314,741.6094m	20.703m	S38° 32' 56"E
0+983.78	7,571,263.0640m	314,771.2039m	44.338m	S41° 52' 20"E
1+011.58	7,571,231.9181m	314,766.1459m	31.554m	S9° 13' 27"O
1+032.28	7,571,211.3253m	314,764.0175m	20.703m	S5° 54' 04"O
1+035.43	7,571,208.1828m	314,763.8092m	3.149m	S3° 47' 29"O
1+035.94	7,571,207.6865m	314,763.6414m	0.524m	S18° 41' 09"O
1+038.57	7,571,205.0460m	314,763.7989m	2.645m	S3° 24' 49"E
1+102.14	7,571,141.5012m	314,765.6088m	63.571m	S1° 37' 54"E
1+132.55	7,571,155.3616m	314,827.6500m	63.571m	N77° 24' 24"E
1+135.20	7,571,155.8578m	314,830.2483m	2.645m	N79° 11' 19"E
1+135.69	7,571,156.1424m	314,830.6881m	0.524m	N57° 05' 21"E
1+138.84	7,571,157.1165m	314,833.6831m	3.149m	N71° 59' 01"E
1+159.54	7,571,164.2399m	314,853.1215m	20.703m	N69° 52' 26"E
1+457.08	7,571,282.6433m	315,126.0928m	297.544m	N66° 33' 03"E
1+472.83	7,571,106.2845m	315,036.1254m	197.981m	S27° 01' 40"O
1+493.53	7,571,087.3287m	315,027.8025m	20.703m	S23° 42' 17"O
1+496.68	7,571,084.4004m	315,026.6433m	3.149m	S21° 35' 42"O
1+497.19	7,571,083.9792m	315,026.3318m	0.524m	S36° 29' 23"O
1+499.82	7,571,081.4170m	315,025.6744m	2.645m	S14° 23' 25"O
1+551.80	7,571,031.4913m	315,011.2153m	51.977m	S16° 09' 06"O
1+583.28	7,571,015.9826m	315,060.8249m	51.977m	S72° 38' 24"E
1+586.42	7,571,015.1433m	315,063.8474m	3.137m	S74° 28' 52"E
1+589.57	7,571,014.4930m	315,066.9289m	3.149m	S78° 05' 00"E
1+596.76	7,571,013.2679m	315,074.0163m	7.192m	S80° 11' 35"E
1+601.60	7,571,012.2685m	315,078.7529m	4.841m	S78° 05' 09"E
1+606.42	7,571,010.8907m	315,083.3714m	4.820m	S73° 23' 20"E
1+673.67	7,570,986.3731m	315,146.2285m	67.469m	S68° 41' 30"E
1+678.95	7,570,985.3885m	315,151.2717m	5.138m	S78° 57' 10"E
1+810.86	7,570,839.2372m	315,070.5877m	166.943m	S28° 54' 04"O
1+830.22	7,570,821.8598m	315,062.0605m	19.357m	S26° 08' 15"O
1+833.24	7,570,819.1164m	315,060.8028m	3.018m	S24° 37' 45"O
1+833.74	7,570,818.6960m	315,060.5080m	0.513m	S35° 02' 13"O
1+836.25	7,570,816.3245m	315,059.6756m	2.513m	S19° 20' 27"O
1+854.50	7,570,799.2581m	315,053.2206m	18.246m	S20° 43' 06"O
1+872.20	7,570,781.0839m	315,054.8414m	18.246m	S5° 05' 47"E
1+874.72	7,570,778.5759m	315,055.0044m	2.513m	S3° 43' 08"E
1+875.21	7,570,778.0916m	315,055.1751m	0.513m	S19° 24' 54"E
1+878.23	7,570,775.1108m	315,055.6476m	3.018m	S9° 00' 26"E
1+897.59	7,570,756.0791m	315,059.1802m	19.357m	S10° 30' 56"E
1+986.47	7,570,669.5781m	315,079.5953m	88.877m	S13° 16' 46"E
2+076.43	7,570,582.4029m	315,052.4131m	91.315m	S17° 19' 05"O
2+173.35	7,570,496.8417m	315,006.6316m	97.040m	S28° 09' 00"O
2+383.93	7,570,344.6066m	314,860.6335m	210.929m	S43° 48' 07"O
2+404.64	7,570,328.8593m	314,847.1941m	20.703m	S40° 28' 44"O
2+407.79	7,570,326.3901m	314,845.2392m	3.149m	S38° 22' 09"O

1+710.34	7,570,933.3536m	315,112.9365m	2.645m	S16° 15' 49"O
1+710.83	7,570,932.9428m	315,112.6114m	0.524m	S38° 21' 47"O
1+713.98	7,570,930.0539m	315,111.3571m	3.149m	S23° 28' 06"O
1+734.68	7,570,911.3803m	315,102.4190m	20.703m	S25° 34' 41"O
1+860.90	7,570,800.8776m	315,041.4151m	126.223m	S28° 54' 04"O
1+949.90	7,570,711.7468m	315,062.4507m	91.579m	S13° 16' 46"E
1+966.58	7,570,695.3719m	315,065.6304m	16.681m	S10° 59' 19"E
1+969.24	7,570,692.7506m	315,066.0969m	2.662m	S10° 05' 32"E
1+969.70	7,570,692.3115m	315,066.2246m	0.457m	S16° 12' 54"E
1+971.90	7,570,690.1204m	315,066.4899m	2.207m	S6° 54' 14"E
1+992.30	7,570,669.9364m	315,069.4333m	20.398m	S8° 17' 48"E
2+012.30	7,570,650.0097m	315,065.0757m	20.398m	S12° 20' 07"O
2+014.50	7,570,647.8427m	315,064.6567m	2.207m	S10° 56' 34"O
2+014.96	7,570,647.4138m	315,064.4984m	0.457m	S20° 15' 14"O
2+017.62	7,570,644.8319m	315,063.8484m	2.662m	S14° 07' 52"O
2+034.30	7,570,628.7215m	315,059.5234m	16.681m	S15° 01' 39"O
2+041.34	7,570,621.9991m	315,057.4272m	7.042m	S17° 19' 05"O
2+079.92	7,570,585.3531m	315,045.3721m	38.578m	S18° 12' 33"O
2+118.40	7,570,551.0595m	315,027.7030m	38.578m	S27° 15' 32"O
2+128.17	7,570,542.4400m	315,023.0909m	9.776m	S28° 09' 00"O
2+175.11	7,570,501.3482m	315,000.4234m	46.929m	S28° 52' 57"O
2+221.70	7,570,467.0652m	314,968.3762m	46.929m	S43° 04' 10"O
2+435.34	7,570,312.8758m	314,820.5039m	213.637m	S43° 48' 07"O
2+477.18	7,570,267.2482m	314,828.9711m	46.407m	S10° 30' 46"E
2+497.89	7,570,246.7085m	314,831.5621m	20.703m	S7° 11' 23"E
2+501.04	7,570,243.5715m	314,831.8410m	3.149m	S5° 04' 48"E
2+501.54	7,570,243.0791m	314,832.0200m	0.524m	S19° 58' 29"E
2+504.17	7,570,240.4357m	314,831.9219m	2.645m	S2° 07' 29"O
2+528.35	7,570,216.2621m	314,831.7139m	24.174m	S0° 29' 34"O
2+550.25	7,570,199.4451m	314,814.3475m	24.174m	S45° 55' 15"O
2+552.89	7,570,197.5516m	314,812.5004m	2.645m	S44° 17' 20"O
2+553.38	7,570,197.3418m	314,812.0203m	0.524m	S66° 23' 18"O
2+556.53	7,570,195.3810m	314,809.5558m	3.149m	S51° 29' 38"O
2+577.24	7,570,183.0967m	314,792.8917m	20.703m	S53° 36' 13"O
2+700.53	7,570,115.8163m	314,689.5789m	123.289m	S56° 55' 36"O
2+730.18	7,570,065.0431m	314,768.4753m	93.822m	S57° 14' 13"E
2+750.88	7,570,052.8493m	314,785.2057m	20.703m	S53° 54' 50"E

2+408.30	7,570,326.0768m	314,844.8194m	0.524m	S53° 15' 49"O
2+410.92	7,570,323.8133m	314,843.4505m	2.645m	S31° 09' 51"O
2+428.67	7,570,308.8823m	314,833.8619m	17.745m	S32° 42' 30"O
2+445.61	7,570,291.1386m	314,833.6821m	17.745m	S0° 34' 50"O
2+448.26	7,570,288.4951m	314,833.5840m	2.645m	S2° 07' 29"O
2+448.75	7,570,288.0027m	314,833.7629m	0.524m	S19° 58' 29"E
2+451.90	7,570,284.8657m	314,834.0418m	3.149m	S5° 04' 48"E
2+472.60	7,570,264.3260m	314,836.6329m	20.703m	S7° 11' 23"E
2+528.04	7,570,209.8162m	314,846.7483m	55.440m	S10° 30' 46"E
2+590.78	7,570,170.5421m	314,786.4406m	71.969m	S56° 55' 36"O
2+611.48	7,570,158.2578m	314,769.7765m	20.703m	S53° 36' 13"O
2+614.63	7,570,156.2970m	314,767.3120m	3.149m	S51° 29' 38"O
2+615.14	7,570,156.0872m	314,766.8320m	0.524m	S66° 23' 18"O
2+617.77	7,570,154.1937m	314,764.9849m	2.645m	S44° 17' 20"O
2+672.93	7,570,115.9130m	314,725.2652m	55.164m	S46° 03' 25"O
2+704.37	7,570,077.8480m	314,765.1916m	55.164m	S46° 22' 02"E
2+707.02	7,570,075.9645m	314,767.0490m	2.645m	S44° 35' 57"E
2+707.51	7,570,075.7573m	314,767.5302m	0.524m	S66° 41' 55"E
2+710.66	7,570,073.8098m	314,770.0052m	3.149m	S51° 48' 15"E
2+731.36	7,570,061.6160m	314,786.7356m	20.703m	S53° 54' 50"E
2+782.19	7,570,034.1080m	314,829.4803m	50.831m	S57° 14' 13"E
2+901.53	7,569,908.4002m	314,781.8182m	134.440m	S20° 45' 51"O
2+918.21	7,569,892.5790m	314,776.5326m	16.681m	S18° 28' 25"O
2+920.87	7,569,890.0408m	314,775.7286m	2.662m	S17° 34' 38"O
2+921.33	7,569,889.6221m	314,775.5448m	0.457m	S23° 42' 00"O
2+923.53	7,569,887.4842m	314,774.9963m	2.207m	S14° 23' 20"O
2+942.86	7,569,868.8814m	314,769.7427m	19.330m	S15° 46' 12"O
2+961.86	7,569,849.5890m	314,770.9561m	19.330m	S3° 35' 56"E
2+964.07	7,569,847.3835m	314,771.0415m	2.207m	S2° 13' 04"E
2+964.52	7,569,846.9355m	314,771.1329m	0.457m	S11° 31' 44"E
2+967.18	7,569,844.2849m	314,771.3838m	2.662m	S5° 24' 22"E
2+983.86	7,569,827.7049m	314,773.2149m	16.681m	S6° 18' 09"E
3+068.39	7,569,744.1270m	314,785.8445m	84.527m	S8° 35' 35"E
3+152.69	7,569,707.8609m	314,693.9609m	98.782m	S68° 27' 40"O
3+173.39	7,569,699.1568m	314,675.1771m	20.703m	S65° 08' 16"O
3+176.54	7,569,697.7284m	314,672.3703m	3.149m	S63° 01' 42"O
3+177.05	7,569,697.6188m	314,671.8580m	0.524m	S77° 55' 22"O

2+754.03	7,570,050.9019m	314,787.6808m	3.149m	S51° 48' 15"E
2+754.54	7,570,050.6946m	314,788.1619m	0.524m	S66° 41' 55"E
2+757.17	7,570,048.8111m	314,790.0193m	2.645m	S44° 35' 57"E
2+786.99	7,570,028.2051m	314,811.5649m	29.813m	S46° 16' 37"E
2+812.41	7,569,998.8274m	314,806.4883m	29.813m	S9° 48' 15"O
2+815.05	7,569,996.2087m	314,806.1143m	2.645m	S8° 07' 36"O
2+815.54	7,569,995.7560m	314,805.8506m	0.524m	S30° 13' 34"O
2+818.69	7,569,992.7188m	314,805.0179m	3.149m	S15° 19' 53"O
2+839.40	7,569,972.9680m	314,798.8128m	20.703m	S17° 26' 28"O
2+949.57	7,569,869.9465m	314,759.7522m	110.178m	S20° 45' 51"O
3+009.44	7,569,809.5720m	314,768.8755m	61.060m	S8° 35' 35"E
3+030.14	7,569,788.9570m	314,770.7770m	20.703m	S5° 16' 12"E
3+033.29	7,569,785.8124m	314,770.9506m	3.149m	S3° 09' 37"E
3+033.80	7,569,785.3143m	314,771.1130m	0.524m	S18° 03' 17"E
3+036.43	7,569,782.6757m	314,770.9264m	2.645m	S4° 02' 41"O
3+065.72	7,569,753.4145m	314,769.7152m	29.286m	S2° 22' 14"O
3+090.84	7,569,737.6780m	314,745.0161m	29.286m	S57° 29' 51"O
3+093.49	7,569,736.1920m	314,742.8277m	2.645m	S55° 49' 24"O
3+093.98	7,569,736.0824m	314,742.3153m	0.524m	S77° 55' 22"O
3+097.13	7,569,734.6540m	314,739.5085m	3.149m	S63° 01' 42"O
3+117.83	7,569,725.9499m	314,720.7247m	20.703m	S65° 08' 16"O
3+315.45	7,569,596.0311m	314,677.4359m	136.941m	S18° 25' 41"O
3+317.72	7,569,595.3270m	314,679.5955m	2.272m	S71° 56' 34"E
3+319.99	7,569,594.7058m	314,681.7855m	2.276m	S74° 09' 50"E
3+331.63	7,569,647.4597m	314,521.8623m	168.400m	N71° 44' 38"O
3+334.31	7,569,591.0146m	314,695.6154m	182.692m	S72° 00' 12"E
3+337.46	7,569,590.0910m	314,698.6263m	3.149m	S72° 56' 47"E
3+340.59	7,569,588.9844m	314,701.5615m	3.137m	S69° 20' 39"E
3+365.69	7,569,578.6160m	314,724.5694m	25.236m	S65° 44' 30"E
3+376.51	7,569,575.2120m	314,734.7335m	10.719m	S71° 29' 02"E
3+404.82	7,569,539.2994m	314,735.3233m	35.917m	S0° 56' 27"E
3+407.47	7,569,536.6570m	314,735.4457m	2.645m	S2° 39' 07"E
3+407.96	7,569,536.1630m	314,735.2713m	0.524m	S19° 26' 51"O
3+411.11	7,569,533.0236m	314,735.0213m	3.149m	S4° 33' 10"O
3+431.81	7,569,512.4609m	314,732.6194m	20.703m	S6° 39' 45"O
3+541.75	7,569,404.1831m	314,713.5551m	109.943m	S9° 59' 08"O
3+558.43	7,569,387.8837m	314,710.0083m	16.681m	S12° 16' 34"O
3+561.10	7,569,385.2913m	314,709.4016m	2.662m	S13° 10' 21"O
3+561.55	7,569,384.8375m	314,709.3455m	0.457m	S7° 02' 59"O
3+563.76	7,569,382.7198m	314,708.7238m	2.207m	S16° 21' 39"O
3+583.42	7,569,363.7240m	314,703.6424m	19.664m	S14° 58' 34"O
3+602.73	7,569,347.5655m	314,692.4369m	19.664m	S34° 44' 25"O
3+604.94	7,569,345.7219m	314,691.2234m	2.207m	S33° 21' 19"O
3+605.39	7,569,345.3857m	314,690.9135m	0.457m	S42° 39' 59"O
3+608.05	7,569,343.2467m	314,689.3282m	2.662m	S36° 32' 37"O
3+624.73	7,569,330.0023m	314,679.1874m	16.681m	S37° 26' 24"O
3+695.60	7,569,275.5016m	314,633.8908m	70.867m	S39° 43' 50"O
3+716.30	7,569,260.3740m	314,619.7576m	20.703m	S43° 03' 13"O
3+719.45	7,569,258.1534m	314,617.5243m	3.149m	S45° 09' 48"O
3+719.96	7,569,257.7009m	314,617.2602m	0.524m	S30° 16' 08"O
3+722.59	7,569,256.0858m	314,615.1653m	2.645m	S52° 22' 06"O
3+741.83	7,569,243.9267m	314,600.2575m	19.238m	S50° 47' 55"O
3+760.00	7,569,242.6247m	314,581.0640m	19.238m	S86° 07' 09"O
3+762.65	7,569,242.3734m	314,578.4307m	2.645m	S84° 32' 58"O
3+763.14	7,569,242.5235m	314,577.9288m	0.524m	N73° 21' 04"O
3+766.29	7,569,242.6199m	314,574.7809m	3.149m	N88° 14' 44"O
3+786.99	7,569,244.0151m	314,554.1255m	20.703m	N86° 08' 09"O
3+981.65	7,569,268.3689m	314,360.9972m	194.658m	N82° 48' 46"O
4+089.46	7,569,201.6691m	314,271.1513m	111.898m	S53° 24' 38"O
4+106.14	7,569,192.2693m	314,257.3712m	16.681m	S55° 42' 04"O
4+108.81	7,569,190.8036m	314,255.1485m	2.662m	S56° 35' 51"O
4+109.26	7,569,190.5126m	314,254.7958m	0.457m	S50° 28' 29"O
4+111.47	7,569,189.4019m	314,252.8885m	2.207m	S59° 47' 09"O
4+135.22	7,569,176.9439m	314,232.6670m	23.751m	S58° 21' 49"O
4+158.30	7,569,174.0158m	314,209.0971m	23.751m	S82° 55' 07"O
4+160.51	7,569,173.6894m	314,206.9143m	2.207m	S81° 29' 47"O
4+160.96	7,569,173.6959m	314,206.4571m	0.457m	N89° 11' 33"O
4+163.62	7,569,173.4492m	314,203.8061m	2.662m	S84° 41' 05"O
4+180.31	7,569,172.1640m	314,187.1748m	16.681m	S85° 34' 52"O

3+179.68	7,569,696.1328m	314,669.6695m	2.645m	S55° 49' 24"O
3+278.91	7,569,643.0159m	314,585.8464m	99.236m	S57° 38' 18"O
3+294.63	7,569,605.1306m	314,677.5657m	99.236m	S67° 33' 24"E
3+297.76	7,569,604.0241m	314,680.5009m	3.137m	S69° 20' 39"E
3+300.91	7,569,603.1005m	314,683.5118m	3.149m	S72° 56' 47"E
3+313.61	7,569,615.4990m	314,654.5578m	31.497m	N66° 49' 07"O
3+315.23	7,569,599.4093m	314,697.3418m	45.709m	S69° 23' 25"E
3+317.50	7,569,598.7881m	314,699.5317m	2.276m	S74° 09' 50"E
3+319.77	7,569,598.0840m	314,701.6914m	2.272m	S71° 56' 34"E
3+372.64	7,569,581.4388m	314,751.8719m	52.869m	S71° 38' 56"E
3+580.24	7,569,359.4846m	314,712.7928m	225.368m	S9° 59' 08"O
3+746.76	7,569,230.4726m	314,605.5684m	167.753m	S39° 43' 50"O
3+930.43	7,569,254.1362m	314,417.9135m	189.141m	N82° 48' 46"O
3+947.11	7,569,255.5601m	314,401.2935m	16.681m	N85° 06' 12"O
3+949.77	7,569,255.7458m	314,398.6375m	2.662m	N85° 59' 59"O
3+950.23	7,569,255.8262m	314,398.1874m	0.457m	N79° 52' 37"O
3+952.43	7,569,255.8574m	314,395.9805m	2.207m	N89° 11' 17"O
3+984.50	7,569,257.1331m	314,363.9451m	32.061m	N87° 43' 11"O
4+014.80	7,569,240.2943m	314,336.6623m	32.061m	S58° 19' 02"O
4+017.00	7,569,239.1836m	314,334.7550m	2.207m	S59° 47' 09"O
4+017.46	7,569,238.8926m	314,334.4023m	0.457m	S50° 28' 29"O
4+020.12	7,569,237.4269m	314,332.1796m	2.662m	S56° 35' 51"O
4+036.80	7,569,228.0271m	314,318.3994m	16.681m	S55° 42' 04"O
4+139.22	7,569,166.9799m	314,236.1678m	102.415m	S53° 24' 38"O
4+210.93	7,569,164.2442m	314,162.5541m	73.664m	S87° 52' 18"O
4+230.29	7,569,162.5935m	314,143.2678m	19.357m	S85° 06' 28"O
4+233.31	7,569,162.2570m	314,140.2686m	3.018m	S83° 35' 59"O
4+233.81	7,569,162.2929m	314,139.7564m	0.513m	N85° 59' 34"O
4+236.32	7,569,161.7837m	314,137.2952m	2.513m	S78° 18' 41"O
4+263.18	7,569,157.0153m	314,110.8571m	26.865m	S79° 46' 33"O
4+288.07	7,569,136.4009m	314,093.6304m	26.865m	S39° 53' 03"O
4+290.58	7,569,134.5141m	314,091.9700m	2.513m	S41° 20' 56"O
4+291.08	7,569,134.0513m	314,091.7477m	0.513m	S25° 39' 10"O
4+294.10	7,569,131.6116m	314,089.9712m	3.018m	S36° 03' 38"O
4+313.46	7,569,115.6691m	314,078.9928m	19.357m	S34° 33' 08"O
4+441.71	7,569,006.6516m	314,011.4295m	128.256m	S31° 47' 18"O
4+458.39	7,568,992.1331m	314,003.2160m	16.681m	S29° 29' 52"O
4+461.05	7,568,989.7955m	314,001.9415m	2.662m	S28° 36' 05"O
4+461.51	7,568,989.4197m	314,001.6810m	0.457m	S34° 43' 27"O
4+463.71	7,568,987.4262m	314,000.7339m	2.207m	S25° 24' 47"O
4+480.47	7,568,972.4674m	313,993.1906m	16.753m	S26° 45' 38"O
4+497.02	7,568,955.9935m	313,990.1452m	16.753m	S10° 28' 25"O
4+499.23	7,568,953.8332m	313,989.6931m	2.207m	S11° 49' 15"O
4+499.68	7,568,953.3763m	313,989.6731m	0.457m	S2° 30' 35"O
4+502.34	7,568,950.7440m	313,989.2734m	2.662m	S8° 37' 57"O
4+519.02	7,568,934.2150m	313,987.0280m	16.681m	S7° 44' 10"O
4+609.27	7,568,844.3703m	313,978.4632m	90.252m	S5° 26' 44"O
4+644.43	7,568,812.6601m	313,962.2285m	35.624m	S27° 06' 40"O
4+686.46	7,568,774.9799m	313,943.6114m	42.028m	S26° 17' 35"O
4+728.31	7,568,734.4026m	313,932.6628m	42.028m	S15° 06' 00"O
4+916.25	7,568,552.2731m	313,886.2997m	187.938m	S14° 16' 55"O
4+965.73	7,568,518.8465m	313,847.9239m	50.892m	S48° 56' 35"O
4+986.43	7,568,504.3669m	313,833.1275m	20.703m	S45° 37' 12"O
4+989.58	7,568,502.0828m	313,830.9592m	3.149m	S43° 30' 37"O
4+990.09	7,568,501.8083m	313,830.5130m	0.524m	S58° 24' 17"O
4+992.72	7,568,499.6766m	313,828.9467m	2.645m	S36° 18' 19"O
5+012.84	7,568,483.7959m	313,816.5891m	20.122m	S37° 53' 19"O
5+031.73	7,568,463.6752m	313,816.3415m	20.122m	S0° 42' 18"O
5+034.37	7,568,461.0321m	313,816.2359m	2.645m	S2° 17' 18"O
5+034.86	7,568,460.5392m	313,816.4134m	0.524m	S19° 48' 40"E
5+038.01	7,568,457.4014m	313,816.6833m	3.149m	S4° 55' 00"E
5+058.72	7,568,436.8544m	313,819.2158m	20.703m	S7° 01' 35"E
5+217.29	7,568,280.8641m	313,847.7031m	158.570m	S10° 20' 58"E
5+297.67	7,568,328.9329m	313,699.7114m	155.603m	N72° 00' 21"O
5+318.37	7,568,334.1762m	313,679.6838m	20.703m	N75° 19' 44"O
5+321.52	7,568,334.8612m	313,676.6099m	3.149m	N77° 26' 19"O
5+322.03	7,568,335.1027m	313,676.1450m	0.524m	N62° 32' 39"O
5+324.66	7,568,335.3497m	313,673.5113m	2.645m	N84° 38' 37"O
5+371.05	7,568,341.0875m	313,627.4738m	46.394m	N82° 53' 44"O

4+263.69	7,569,169.0675m	314,103.8510m	83.381m	S87° 52' 18"O
4+484.96	7,568,975.5837m	313,983.9399m	227.628m	S31° 47' 18"O
4+578.77	7,568,881.3426m	313,974.9560m	94.668m	S5° 26' 44"O
4+595.45	7,568,864.8136m	313,972.7106m	16.681m	S7° 44' 10"O
4+598.12	7,568,862.1813m	313,972.3110m	2.662m	S8° 37' 57"O
4+598.57	7,568,861.7245m	313,972.2909m	0.457m	S2° 30' 35"O
4+600.78	7,568,859.5642m	313,971.8388m	2.207m	S11° 49' 15"O
4+613.57	7,568,846.9888m	313,969.4963m	12.792m	S10° 33' 08"O
4+626.29	7,568,835.1288m	313,964.7035m	12.792m	S22° 00' 16"O
4+628.49	7,568,833.0647m	313,963.9220m	2.207m	S20° 44' 09"O
4+628.94	7,568,832.6689m	313,963.6931m	0.457m	S30° 02' 49"O
4+631.61	7,568,830.2352m	313,962.6134m	2.662m	S23° 55' 27"O
4+648.29	7,568,815.0952m	313,955.6111m	16.681m	S24° 49' 14"O
4+690.32	7,568,777.6828m	313,936.4571m	42.031m	S27° 06' 40"O
4+878.67	7,568,594.9636m	313,889.9438m	188.547m	S14° 16' 55"O
4+898.03	7,568,576.4571m	313,884.2696m	19.357m	S17° 02' 45"O
4+901.05	7,568,573.5959m	313,883.3093m	3.018m	S18° 33' 14"O
4+901.55	7,568,573.0877m	313,883.2366m	0.513m	S8° 08' 47"O
4+904.06	7,568,570.7888m	313,882.2206m	2.513m	S23° 50' 32"O
4+917.86	7,568,558.0420m	313,876.9271m	13.802m	S22° 33' 08"O
4+931.47	7,568,547.5738m	313,867.9317m	13.802m	S40° 40' 22"O
4+933.98	7,568,545.6312m	313,866.3369m	2.513m	S39° 22' 58"O

5+402.11	7,568,296.3314m	313,615.2564m	46.394m	S15° 16' 06"O
5+404.76	7,568,293.8020m	313,614.4823m	2.645m	S17° 00' 59"O
5+405.25	7,568,293.2801m	313,614.5287m	0.524m	S5° 04' 59"E
5+408.40	7,568,290.1768m	313,613.9920m	3.149m	S9° 48' 41"O
5+429.10	7,568,269.6611m	313,611.2176m	20.703m	S7° 42' 06"O
5+514.27	7,568,184.7381m	313,604.7149m	85.172m	S4° 22' 43"O
5+554.23	7,568,162.3740m	313,565.7539m	44.923m	S60° 08' 37"O
5+570.91	7,568,153.4982m	313,551.6304m	16.681m	S57° 51' 11"O
5+573.57	7,568,152.0464m	313,549.3986m	2.662m	S56° 57' 24"O
5+574.03	7,568,151.8394m	313,548.9909m	0.457m	S63° 04' 46"O
5+576.23	7,568,150.5349m	313,547.2106m	2.207m	S53° 46' 06"O
5+590.46	7,568,142.3916m	313,535.5503m	14.222m	S55° 04' 14"O
5+604.57	7,568,131.7985m	313,526.0601m	14.222m	S41° 51' 23"O
5+606.78	7,568,130.1885m	313,524.5504m	2.207m	S43° 09' 31"O
5+607.23	7,568,129.8087m	313,524.2957m	0.457m	S33° 50' 51"O
5+609.89	7,568,127.7683m	313,522.5854m	2.662m	S39° 58' 13"O
5+626.57	7,568,114.8184m	313,512.0711m	16.681m	S39° 04' 26"O
5+677.27	7,568,074.2140m	313,481.7137m	50.698m	S36° 47' 00"O
5+809.10	7,568,052.5522m	313,348.6895m	134.776m	S80° 45' 04"O
5+846.89	7,568,045.8878m	313,311.4966m	37.785m	S79° 50' 28"O
5+884.59	7,568,033.7662m	313,275.7083m	37.785m	S71° 17' 19"O
5+965.26	7,568,006.6773m	313,199.7228m	80.670m	S70° 22' 44"O

"Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco"

Reporte de Estaciones y Curvas del Alineamiento Horizontal

Alineamiento: Perfil Definitivo de la Carretera

Alignment: a.horizontal

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	7571842.901	315173.502
End:	0+19.852	7571827.838	315160.57

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.852	Course:	S 40° 38' 49.3418" W

Curve Point Data

Description	Station	Northing	Easting
PC:	0+19.852	7571827.838	315160.57
RP:		7571863.665	315118.84
PT:	0+93.348	7571814.752	315093.69

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	76° 33' 49.4954"	Type:	RIGHT
Radius:	55		
Length:	73.496	Tangent:	43.408
Mid-Ord:	11.827	External:	15.066
Chord:	68.148	Course:	S 78° 55' 44.0895" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+93.348	7571814.752	315093.69
End:	1+34.806	7571833.709	315056.82

Tangent Data

Parameter	Value	Parameter	Value
Length:	41.458	Course:	N 62° 47' 21.1628" W

Curve Point Data

Description	Station	Northing	Easting
PC:	1+34.806	7571833.709	315056.82
RP:		7571784.796	315031.671
PT:	2+65.621	7571766.831	314979.687

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	136° 16' 31.0359"	Type:	LEFT
Radius:	55		
Length:	130.815	Tangent:	137.077
Mid-Ord:	34.519	External:	92.699
Chord:	102.089	Course:	S 49° 04' 23.3193" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+65.621	7571766.831	314979.687
End:	3+44.295	7571692.473	315005.385

Tangent Data

Parameter	Value	Parameter	Value
Length:	78.674	Course:	S 19° 03' 52.1987" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+44.295	7571692.473	315005.385
RP:		7571674.508	314953.402
PT:	4+05.372	7571635.915	314992.589

Circular Curve Data

Parameter	Value	Parameter	Value

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+12.298	7570650.01	315065.076
End:	20+14.957	7570647.414	315064.498

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 12° 32' 12.7155" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+14.957	7570647.414	315064.498
End:	20+17.619	7570644.832	315063.848

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 14° 07' 51.7065" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+17.619	7570644.832	315063.848
End:	20+34.300	7570628.721	315059.523

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 15° 01' 38.7669" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+34.300	7570628.721	315059.523
End:	20+41.342	7570621.999	315057.427

Tangent Data

Parameter	Value	Parameter	Value
Length:	7.042	Course:	S 17° 19' 04.9630" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+41.342	7570621.999	315057.427
End:	20+61.351	7570603.084	315050.901

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 19° 02' 11.0518" W

Curve Point Data

Description	Station	Northing	Easting
PC:	20+61.351	7570603.084	315050.901
RP:		7570661.399	314863.882
PT:	20+98.387	7570568.977	315036.61

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 49' 55.2047"	Type:	RIGHT
Radius:	195.9		
Length:	37.036	Tangent:	18.573
Mid-Ord:	0.875	External:	0.878
Chord:	36.981	Course:	S 22° 44' 02.5654" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+98.387	7570568.977	315036.61

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+71.273	7571393.753	314799.01
End:	7+76.996	7571393.323	314793.304

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.723	Course:	S 85° 41' 32.1096" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+76.996	7571393.323	314793.304
End:	7+82.749	7571393.453	314787.552

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.753	Course:	N 88° 42' 26.2185" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+82.749	7571393.453	314787.552
End:	7+88.532	7571394.147	314781.81

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.783	Course:	N 83° 06' 25.1649" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+88.532	7571394.147	314781.81
End:	7+93.127	7571394.901	314777.278

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.594	Course:	N 80° 33' 24.2858" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+93.127	7571394.901	314777.278
End:	7+96.276	7571395.303	314774.155

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 82° 39' 59.1322" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+96.276	7571395.303	314774.155
End:	7+99.413	7571395.507	314771.024

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 86° 16' 07.6872" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+99.413	7571395.507	314771.024
End:	8+02.537	7571395.514	314767.9

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 89° 52' 16.6602" W

Delta:	63° 37' 35.0172"	Type:	RIGHT
Radius:	55		
Length:	61.077	Tangent:	34.119
Mid-Ord:	8.263	External:	9.723
Chord:	57.987	Course:	S 12° 44' 55.3099" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+05.372	7571635.915	314992.589
End:	4+67.128	7571591.914	314949.256

Tangent Data

Parameter	Value	Parameter	Value
Length:	61.756	Course:	S 44° 33' 42.8185" W

Curve Point Data

Description	Station	Northing	Easting
PC:	4+67.128	7571591.914	314949.256
RP:		7571630.507	314910.068
PT:	5+05.159	7571575.79	314915.646

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	39° 37' 05.2504"	Type:	RIGHT
Radius:	55		
Length:	38.031	Tangent:	19.811
Mid-Ord:	3.255	External:	3.459
Chord:	37.278	Course:	S 64° 22' 15.4437" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+05.159	7571575.79	314915.646
End:	5+42.899	7571571.963	314878.1

Tangent Data

Parameter	Value	Parameter	Value
Length:	37.741	Course:	S 84° 10' 48.0690" W

Curve Point Data

Description	Station	Northing	Easting
PC:	5+42.899	7571571.963	314878.1
RP:		7571517.247	314883.677
PT:	6+56.528	7571486.339	314838.183

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	118° 22' 19.1183"	Type:	LEFT
Radius:	55		
Length:	113.629	Tangent:	92.212
Mid-Ord:	26.826	External:	52.369
Chord:	94.472	Course:	S 24° 59' 38.5098" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+56.528	7571486.339	314838.183
End:	6+60.540	7571483.02	314840.438

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.012	Course:	S 34° 11' 31.0494" E

Curve Point Data

Description	Station	Northing	Easting
End:	21+18.396	7570551.059	315027.703

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 26° 25' 54.0789" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	21+18.396	7570551.059	315027.703
End:	21+28.171	7570542.44	315023.091

Tangent Data

Parameter	Value	Parameter	Value
Length:	9.776	Course:	S 28° 09' 00.1678" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	21+28.171	7570542.44	315023.091
End:	21+48.180	7570525.089	315013.126

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 29° 52' 06.2566" W

Curve Point Data

Description	Station	Northing	Easting
PC:	21+48.180	7570525.089	315013.126
RP:		7570617.511	314840.398
PT:	22+01.696	7570481.915	314981.787

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	15° 39' 06.8272"	Type:	RIGHT
Radius:	195.9		
Length:	53.515	Tangent:	26.925
Mid-Ord:	1.825	External:	1.842
Chord:	53.349	Course:	S 35° 58' 33.5813" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	22+01.696	7570481.915	314981.787
End:	22+21.705	7570467.065	314968.376

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 42° 05' 00.9061" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	22+21.705	7570467.065	314968.376
End:	24+05.331	7570334.535	314841.276

Tangent Data

Parameter	Value	Parameter	Value
Length:	183.627	Course:	S 43° 48' 06.9949" W

Curve Point Data

Description	Station	Northing	Easting
PC:	24+05.331	7570334.535	314841.276
RP:		7570294.043	314883.497
PT:	24+60.788	7570283.37	314825.979

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	54° 18' 53.4306"	Type:	LEFT

Curve Point Data

Description	Station	Northing	Easting
PC:	8+02.537	7571395.514	314767.9
RP:		7571345.845	314766.163
PT:	9+09.328	7571320.167	314723.61

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	123° 06' 40.6422"	Type:	LEFT
Radius:	49.7		
Length:	106.79	Tangent:	91.748
Mid-Ord:	26.028	External:	54.645
Chord:	87.4	Course:	S 30° 26' 49.7201" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+09.328	7571320.167	314723.61
End:	9+12.452	7571317.44	314725.136

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 29° 14' 03.8995" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+12.452	7571317.44	314725.136
End:	9+15.589	7571314.805	314726.837

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 32° 50' 12.8725" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+15.589	7571314.805	314726.837
End:	9+18.738	7571312.271	314728.708

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 36° 26' 21.4276" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+18.738	7571312.271	314728.708
End:	9+39.441	7571296.08	314741.609

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 38° 32' 56.2739" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+39.441	7571296.08	314741.609
End:	9+55.816	7571283.887	314752.539

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.375	Course:	S 41° 52' 19.5075" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+55.816	7571283.887	314752.539
RP:		7571244.84	314708.978

PC:	6+60.540	7571483.02	314840.438
RP:		7571452.112	314794.944
PT:	7+92.011	7571398.471	314782.79

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	136° 57' 29.9971"	Type:	RIGHT
Radius:	55		
Length:	131.471	Tangent:	139.477
Mid-Ord:	34.824	External:	94.929
Chord:	102.331	Course:	S 34° 17' 13.9492" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+92.011	7571398.471	314782.79
End:	7+96.598	7571399.485	314778.317

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.587	Course:	N 77° 14' 01.0523" W

Curve Point Data

Description	Station	Northing	Easting
PC:	7+96.598	7571399.485	314778.317
RP:		7571345.845	314766.163
PT:	9+35.441	7571309.134	314725.208

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	144° 38' 18.4552"	Type:	LEFT
Radius:	55		
Length:	138.843	Tangent:	172.538
Mid-Ord:	38.296	External:	126.092
Chord:	104.804	Course:	S 30° 26' 49.7201" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+35.441	7571309.134	314725.208
End:	9+72.483	7571281.55	314749.933

Tangent Data

Parameter	Value	Parameter	Value
Length:	37.043	Course:	S 41° 52' 19.5075" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+72.483	7571281.55	314749.933
RP:		7571244.84	314708.978
PT:	10+21.532	7571236.023	314763.267

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	51° 05' 46.4177"	Type:	RIGHT
Radius:	55		
Length:	49.049	Tangent:	26.29
Mid-Ord:	5.378	External:	5.961
Chord:	47.44	Course:	S 16° 19' 26.2986" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+21.532	7571236.023	314763.267
End:	10+45.790	7571212.079	314759.378

Tangent Data

Parameter	Value	Parameter	Value
Radius:	58.5		
Length:	55.456	Tangent:	30.01
Mid-Ord:	6.449	External:	7.248
Chord:	53.403	Course:	S 16° 38' 40.2796" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+60.788	7570283.37	314825.979
End:	24+77.184	7570267.248	314828.971

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.397	Course:	S 10° 30' 46.4357" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+77.184	7570267.248	314828.971
End:	24+97.887	7570246.709	314831.562

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 11' 23.2021" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+97.887	7570246.709	314831.562
End:	25+01.036	7570243.572	314831.841

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 05° 04' 48.3558" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+01.036	7570243.572	314831.841
End:	25+04.173	7570240.436	314831.922

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 01° 28' 39.8007" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+04.173	7570240.436	314831.922
End:	25+07.297	7570237.313	314831.806

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 02° 07' 29.1723" W

Curve Point Data

Description	Station	Northing	Easting
PC:	25+07.297	7570237.313	314831.806
RP:		7570237.531	314782.107
PT:	25+47.123	7570201.682	314816.529

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	45° 54' 44.5139"	Type:	RIGHT
Radius:	49.7		
Length:	39.826	Tangent:	21.052
Mid-Ord:	3.936	External:	4.275
Chord:	38.769	Course:	S 23° 12' 24.7278" W

PT:	10+07.986	7571235.462	314766.721

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	51° 05' 46.4177"	Type:	RIGHT
Radius:	58.5		
Length:	52.17	Tangent:	27.963
Mid-Ord:	5.72	External:	6.34
Chord:	50.458	Course:	S 16° 19' 26.2986" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+07.986	7571235.462	314766.721
End:	10+11.576	7571231.918	314766.146

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.591	Course:	S 09° 13' 26.9103" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+11.576	7571231.918	314766.146
End:	10+32.279	7571211.325	314764.017

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 05° 54' 03.6767" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+32.279	7571211.325	314764.017
End:	10+35.428	7571208.183	314763.809

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 03° 47' 28.8304" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+35.428	7571208.183	314763.809
End:	10+38.565	7571205.046	314763.799

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 00° 11' 20.2753" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+38.565	7571205.046	314763.799
End:	10+41.690	7571201.927	314763.985

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 03° 24' 48.6977" E

Curve Point Data

Description	Station	Northing	Easting
PC:	10+41.690	7571201.927	314763.985
RP:		7571203.262	314813.667
PT:	11+29.427	7571154.776	314824.581

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	101° 08' 46.0191"	Type:	LEFT
Radius:	49.7		

Length:	24.258	Course:	S 09° 13' 26.9103" W

Curve Point Data

Description	Station	Northing	Easting
PC:	10+45.790	7571212.079	314759.378
RP:		7571203.262	314813.667
PT:	11+63.548	7571152.805	314835.553

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	122° 40' 23.8321"	Type:	LEFT
Radius:	55		
Length:	117.758	Tangent:	100.612
Mid-Ord:	28.619	External:	59.664
Chord:	96.52	Course:	S 52° 06' 45.0058" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+63.548	7571152.805	314835.553
End:	13+18.927	7571214.635	314978.1

Tangent Data

Parameter	Value	Parameter	Value
Length:	155.379	Course:	N 66° 33' 03.0781" E

Curve Point Data

Description	Station	Northing	Easting
PC:	13+18.927	7571214.635	314978.1
RP:		7571164.177	314999.986
PT:	14+53.775	7571139.184	315048.98

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	140° 28' 37.3139"	Type:	RIGHT
Radius:	55		
Length:	134.848	Tangent:	153.091
Mid-Ord:	36.404	External:	107.671
Chord:	103.522	Course:	S 43° 12' 38.2649" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+53.775	7571139.184	315048.98
End:	15+09.591	7571089.465	315023.616

Tangent Data

Parameter	Value	Parameter	Value
Length:	55.815	Course:	S 27° 01' 40.3921" W

Curve Point Data

Description	Station	Northing	Easting
PC:	15+09.591	7571089.465	315023.616
RP:		7571064.471	315072.609
PT:	16+15.705	7571009.823	315066.398

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	110° 32' 38.6401"	Type:	LEFT
Radius:	55		
Length:	106.115	Tangent:	79.347
Mid-Ord:	23.668	External:	41.545
Chord:	90.405	Course:	S 28° 14' 38.9280" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+47.123	7570201.682	314816.529
End:	25+50.248	7570199.445	314814.347

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 44° 17' 20.2833" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+50.248	7570199.445	314814.347
End:	25+53.384	7570197.342	314812.02

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 47° 53' 29.2563" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+53.384	7570197.342	314812.02
End:	25+56.534	7570195.381	314809.556

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 51° 29' 37.8114" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+56.534	7570195.381	314809.556
End:	25+77.236	7570183.097	314792.892

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 53° 36' 12.6576" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+77.236	7570183.097	314792.892
End:	26+10.161	7570165.129	314765.302

Tangent Data

Parameter	Value	Parameter	Value
Length:	32.925	Course:	S 56° 55' 35.8913" W

Curve Point Data

Description	Station	Northing	Easting
PC:	26+10.161	7570165.129	314765.302
RP:		7570116.108	314797.226
PT:	27+26.724	7570066.914	314765.568

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	114° 09' 48.9904"	Type:	LEFT
Radius:	58.5		
Length:	116.563	Tangent:	90.364
Mid-Ord:	26.709	External:	49.147
Chord:	98.215	Course:	S 00° 09' 18.6040" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+26.724	7570066.914	314765.568

Length:	87.737	Tangent:	60.448
Mid-Ord:	18.136	External:	28.556
Chord:	76.78	Course:	S 52° 06' 45.0058" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+29.427	7571154.776	314824.581
End:	11+32.551	7571155.362	314827.65

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 79° 11' 18.6860" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+32.551	7571155.362	314827.65
End:	11+35.688	7571156.142	314830.688

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 75° 35' 09.7130" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+35.688	7571156.142	314830.688
End:	11+38.837	7571157.116	314833.683

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 71° 59' 01.1580" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+38.837	7571157.116	314833.683
End:	11+59.540	7571164.24	314853.121

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 69° 52' 26.3117" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+59.540	7571164.24	314853.121
End:	12+94.251	7571217.846	314976.707

Tangent Data

Parameter	Value	Parameter	Value
Length:	134.711	Course:	N 66° 33' 03.0781" E

Curve Point Data

Description	Station	Northing	Easting
PC:	12+94.251	7571217.846	314976.707
RP:		7571164.177	314999.986
PT:	14+37.680	7571137.594	315052.097

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	140° 28' 37.3139"	Type:	RIGHT
Radius:	58.5		
Length:	143.43	Tangent:	162.833
Mid-Ord:	38.721	External:	114.523
Chord:	110.11	Course:	S 43° 12' 38.2649" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+15.705	7571009.823	315066.398
End:	16+22.886	7571009.012	315073.533

Tangent Data

Parameter	Value	Parameter	Value
Length:	7.18	Course:	S 83° 30' 58.2481" E

Curve Point Data

Description	Station	Northing	Easting
PC:	16+22.886	7571009.012	315073.533
RP:		7570954.364	315067.322
PT:	17+30.799	7570927.782	315115.472

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	112° 25' 02.7231"	Type:	RIGHT
Radius:	55		
Length:	107.913	Tangent:	82.185
Mid-Ord:	24.411	External:	43.891
Chord:	91.418	Course:	S 27° 18' 26.8865" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+30.799	7570927.782	315115.472
End:	18+49.343	7570824.002	315058.179

Tangent Data

Parameter	Value	Parameter	Value
Length:	118.544	Course:	S 28° 54' 04.4750" W

Curve Point Data

Description	Station	Northing	Easting
PC:	18+49.343	7570824.002	315058.179
RP:		7570790.171	315119.461
PT:	19+00.876	7570774.092	315051.333

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	42° 10' 50.0348"	Type:	LEFT
Radius:	70		
Length:	51.533	Tangent:	26.997
Mid-Ord:	4.689	External:	5.026
Chord:	50.377	Course:	S 07° 48' 39.4576" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	19+00.876	7570774.092	315051.333
End:	19+80.776	7570696.329	315069.686

Tangent Data

Parameter	Value	Parameter	Value
Length:	79.9	Course:	S 13° 16' 45.5598" E

Curve Point Data

Description	Station	Northing	Easting
PC:	19+80.776	7570696.329	315069.686
RP:		7570673.359	314972.359
PT:	20+34.179	7570643.592	315067.826

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	30° 35' 50.5228"	Type:	RIGHT
Radius:	100		
Length:	53.402	Tangent:	27.354
Mid-Ord:	3.544	External:	3.674

End:	27+30.182	7570065.043	314768.475

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.458	Course:	S 57° 14' 13.0992" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+30.182	7570065.043	314768.475
End:	27+50.884	7570052.849	314785.206

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 53° 54' 49.8656" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+50.884	7570052.849	314785.206
End:	27+54.034	7570050.902	314787.681

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 51° 48' 15.0193" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+54.034	7570050.902	314787.681
End:	27+57.171	7570048.811	314790.019

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 48° 12' 06.4642" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+57.171	7570048.811	314790.019
End:	27+60.295	7570046.586	314792.213

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 44° 35' 57.4912" E

Curve Point Data

Description	Station	Northing	Easting
PC:	27+60.295	7570046.586	314792.213
RP:		7570010.551	314757.985
PT:	28+09.282	7570001.92	314806.93

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	56° 28' 26.4469"	Type:	RIGHT
Radius:	49.7		
Length:	48.987	Tangent:	26.69
Mid-Ord:	5.914	External:	6.713
Chord:	47.028	Course:	S 18° 14' 10.9692" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+09.282	7570001.92	314806.93
End:	28+12.406	7569998.827	314806.488

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 08° 07' 35.5528" W

Tangent Data

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+37.680	7571137.594	315052.097
End:	14+72.828	7571106.285	315036.125

Tangent Data

Parameter	Value	Parameter	Value
Length:	35.148	Course:	S 27° 01' 40.3920" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+72.828	7571106.285	315036.125
End:	14+93.531	7571087.329	315027.802

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 23° 42' 17.1585" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+93.531	7571087.329	315027.802
End:	14+96.680	7571084.4	315026.643

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 21° 35' 42.3122" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+96.680	7571084.4	315026.643
End:	14+99.817	7571081.417	315025.674

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 17° 59' 33.7571" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+99.817	7571081.417	315025.674
End:	15+02.941	7571078.391	315024.898

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 14° 23' 24.7841" W

Curve Point Data

Description	Station	Northing	Easting
PC:	15+02.941	7571078.391	315024.898
RP:		7571064.471	315072.609
PT:	15+80.157	7571017.006	315057.873

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	89° 01' 00.8271"	Type:	LEFT
Radius:	49.7		
Length:	77.216	Tangent:	48.854
Mid-Ord:	14.257	External:	19.991
Chord:	69.681	Course:	S 28° 14' 38.9280" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+80.157	7571017.006	315057.873
End:	15+83.281	7571015.983	315060.825

Tangent Data

Parameter	Value	Parameter	Value

Chord:	52.77	Course:	S 02° 01' 09.7016" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+34.179	7570643.592	315067.826
End:	20+77.888	7570601.864	315054.815

Tangent Data

Parameter	Value	Parameter	Value
Length:	43.709	Course:	S 17° 19' 04.9630" W

Curve Point Data

Description	Station	Northing	Easting
PC:	20+77.888	7570601.864	315054.815
RP:		7570661.399	314863.882
PT:	21+15.699	7570567.043	315040.225

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10˝ 49' 55.2047"	Type:	RIGHT
Radius:	200		
Length:	37.811	Tangent:	18.962
Mid-Ord:	0.893	External:	0.897
Chord:	37.755	Course:	S 22° 44' 02.5654" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	21+15.699	7570567.043	315040.225
End:	21+65.474	7570523.154	315016.741

Tangent Data

Parameter	Value	Parameter	Value
Length:	49.776	Course:	S 28° 09' 00.1677" W

Curve Point Data

Description	Station	Northing	Easting
PC:	21+65.474	7570523.154	315016.741
RP:		7570617.511	314840.398
PT:	22+20.110	7570479.077	314984.746

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	15° 39' 06.8272"	Type:	RIGHT
Radius:	200		
Length:	54.635	Tangent:	27.489
Mid-Ord:	1.863	External:	1.88
Chord:	54.466	Course:	S 35˝ 58' 33.5813" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	22+20.110	7570479.077	314984.746
End:	24+23.736	7570332.113	314843.802

Tangent Data

Parameter	Value	Parameter	Value
Length:	203.627	Course:	S 43° 48' 06.9949" W

Curve Point Data

Description	Station	Northing	Easting
PC:	24+23.736	7570332.113	314843.802
RP:		7570294.043	314883.497
PT:	24+75.875	7570284.008	314829.421

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	54˝ 18' 53.4306"	Type:	LEFT
Radius:	55		

Description	PT Station	Northing	Easting
Start:	28+12.406	7569998.827	314806.488
End:	28+15.543	7569995.756	314805.851

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 11° 43' 44.5258" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+15.543	7569995.756	314805.851
End:	28+18.693	7569992.719	314805.018

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 15° 19' 53.0808" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+18.693	7569992.719	314805.018
End:	28+39.395	7569972.968	314798.813

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 17° 26' 27.9271" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+39.395	7569972.968	314798.813
End:	29+22.462	7569895.297	314769.364

Tangent Data

Parameter	Value	Parameter	Value
Length:	83.066	Course:	S 20° 45' 51.1607" W

Curve Point Data

Description	Station	Northing	Easting
PC:	29+22.462	7569895.297	314769.364
RP:		7569858.604	314866.141
PT:	29+75.493	7569843.139	314763.803

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	29° 21' 26.1511"	Type:	LEFT
Radius:	103.5		
Length:	53.031	Tangent:	27.111
Mid-Ord:	3.378	External:	3.492
Chord:	52.453	Course:	S 06˝ 05' 08.0851" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+75.493	7569843.139	314763.803
End:	30+09.442	7569809.572	314768.876

Tangent Data

Parameter	Value	Parameter	Value
Length:	33.948	Course:	S 08° 35' 34.9904" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+09.442	7569809.572	314768.876
End:	30+30.144	7569788.957	314770.777

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 05° 16' 11.7568" E

Length:	3.124	Course:	S 70° 52' 42.6402" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+83.281	7571015.983	315060.825
End:	15+86.418	7571015.143	315063.847

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 74° 28' 51.6131" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+86.418	7571015.143	315063.847
End:	15+89.568	7571014.493	315066.929

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 78° 05' 00.1682" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+89.568	7571014.493	315066.929
End:	15+96.760	7571013.268	315074.016

Tangent Data

Parameter	Value	Parameter	Value
Length:	7.192	Course:	S 80° 11' 35.0145" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+96.760	7571013.268	315074.016
End:	16+01.601	7571012.269	315078.753

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.841	Course:	S 78° 05' 09.1636" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+01.601	7571012.269	315078.753
End:	16+06.421	7571010.891	315083.371

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.82	Course:	S 73° 23' 19.6053" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+06.421	7571010.891	315083.371
End:	16+11.219	7571009.147	315087.842

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.798	Course:	S 68° 41' 29.6104" E

Curve Point Data

Description	Station	Northing	Easting
PC:	16+11.219	7571009.147	315087.842
RP:		7570954.364	315067.322
PT:	17+11.653	7570926.091	315118.536

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	98° 22' 01.6185"	Type:	RIGHT
Radius:	58.5		
Length:	100.435	Tangent:	67.734

Length:	52.139	Tangent:	28.215
Mid-Ord:	6.063	External:	6.815
Chord:	50.208	Course:	S 16° 38' 40.2796" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+75.875	7570284.008	314829.421
End:	25+12.939	7570247.566	314836.183

Tangent Data

Parameter	Value	Parameter	Value
Length:	37.064	Course:	S 10° 30' 46.4357" E

Curve Point Data

Description	Station	Northing	Easting
PC:	25+12.939	7570247.566	314836.183
RP:		7570237.531	314782.107
PT:	25+77.677	7570191.442	314812.121

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	67° 26' 22.3269"	Type:	RIGHT
Radius:	55		
Length:	64.737	Tangent:	36.708
Mid-Ord:	9.253	External:	11.125
Chord:	61.064	Course:	S 23° 12' 24.7278" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+77.677	7570191.442	314812.121
End:	26+31.269	7570162.196	314767.212

Tangent Data

Parameter	Value	Parameter	Value
Length:	53.593	Course:	S 56° 55' 35.8913" W

Curve Point Data

Description	Station	Northing	Easting
PC:	26+31.269	7570162.196	314767.212
RP:		7570116.108	314797.226
PT:	27+40.858	7570069.857	314767.462

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	114° 09' 48.9904"	Type:	LEFT
Radius:	55		
Length:	109.589	Tangent:	84.958
Mid-Ord:	25.111	External:	46.207
Chord:	92.339	Course:	S 00° 09' 18.6040" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+40.858	7570069.857	314767.462
End:	27+64.984	7570056.802	314787.749

Tangent Data

Parameter	Value	Parameter	Value
Length:	24.125	Course:	S 57° 14' 13.0992" E

Curve Point Data

Description	Station	Northing	Easting
PC:	27+64.984	7570056.802	314787.749
RP:		7570010.551	314757.985

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+30.144	7569788.957	314770.777
End:	30+33.293	7569785.812	314770.951

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 03° 09' 36.9106" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+33.293	7569785.812	314770.951
End:	30+36.430	7569782.676	314770.926

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 00° 26' 31.6445" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+36.430	7569782.676	314770.926
End:	30+39.555	7569779.559	314770.706

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 04° 02' 40.6175" W

Curve Point Data

Description	Station	Northing	Easting
PC:	30+39.555	7569779.559	314770.706
RP:		7569781.441	314721.042
PT:	30+87.720	7569739.433	314747.601

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	55° 31' 36.8872"	Type:	RIGHT
Radius:	49.7		
Length:	48.166	Tangent:	26.163
Mid-Ord:	5.722	External:	6.466
Chord:	46.303	Course:	S 29° 56' 02.3596" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+87.720	7569739.433	314747.601
End:	30+90.845	7569737.678	314745.016

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 55° 49' 24.1018" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+90.845	7569737.678	314745.016
End:	30+93.981	7569736.082	314742.315

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 59° 25' 33.0748" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+93.981	7569736.082	314742.315
End:	30+97.131	7569734.654	314739.509

Tangent Data

Mid-Ord:	20.262	External:	30.999
Chord:	88.546	Course:	S 20° 16' 56.3342" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+11.653	7570926.091	315118.536
End:	18+10.863	7570839.237	315070.588

Tangent Data

Parameter	Value	Parameter	Value
Length:	99.21	Course:	S 28° 54' 04.4750" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+10.863	7570839.237	315070.588
End:	18+30.220	7570821.86	315062.061

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 26° 08' 14.5885" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+30.220	7570821.86	315062.061
End:	18+33.238	7570819.116	315060.803

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 24° 37' 45.3572" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+33.238	7570819.116	315060.803
End:	18+36.249	7570816.324	315059.676

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 21° 59' 06.3101" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+36.249	7570816.324	315059.676
End:	18+39.253	7570813.49	315058.681

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 19° 20' 27.1428" W

Curve Point Data

Description	Station	Northing	Easting
PC:	18+39.253	7570813.49	315058.681
RP:		7570790.171	315119.461
PT:	18+69.200	7570784.081	315054.647

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	26° 21' 27.3566"	Type:	LEFT
Radius:	65.1		
Length:	29.948	Tangent:	15.244
Mid-Ord:	1.715	External:	1.761
Chord:	29.684	Course:	S 07° 48' 39.4576" W

Tangent Data

PT:	28+39.859	7569991.052	314809.413

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	78° 00' 04.2599"	Type:	RIGHT
Radius:	55		
Length:	74.876	Tangent:	44.539
Mid-Ord:	12.257	External:	15.772
Chord:	69.226	Course:	S 18° 14' 10.9692" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+39.859	7569991.052	314809.413
End:	29+43.594	7569894.056	314772.637

Tangent Data

Parameter	Value	Parameter	Value
Length:	103.734	Course:	S 20° 45' 51.1607" W

Curve Point Data

Description	Station	Northing	Easting
PC:	29+43.594	7569894.056	314772.637
RP:		7569858.604	314866.141
PT:	29+94.832	7569843.662	314767.264

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	29° 21' 26.1511"	Type:	LEFT
Radius:	100		
Length:	51.238	Tangent:	26.195
Mid-Ord:	3.264	External:	3.374
Chord:	50.679	Course:	S 06° 05' 08.0851" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+94.832	7569843.662	314767.264
End:	30+49.448	7569789.659	314775.424

Tangent Data

Parameter	Value	Parameter	Value
Length:	54.616	Course:	S 08° 35' 34.9904" E

Curve Point Data

Description	Station	Northing	Easting
PC:	30+49.448	7569789.659	314775.424
RP:		7569781.441	314721.042
PT:	31+23.414	7569730.282	314741.234

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	77° 03' 14.7002"	Type:	RIGHT
Radius:	55		
Length:	73.967	Tangent:	43.791
Mid-Ord:	11.973	External:	15.304
Chord:	68.517	Course:	S 29° 56' 02.3596" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+23.414	7569730.282	314741.234
End:	31+96.286	7569703.529	314673.452

Tangent Data

Parameter	Value	Parameter	Value
Length:	72.871	Course:	S 68° 27' 39.7097" W

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 63° 01' 41.6298" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	30+97.131	7569734.654	314739.509
End:	31+17.833	7569725.95	314720.725

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 65° 08' 16.4761" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+17.833	7569725.95	314720.725
End:	31+70.037	7569706.784	314672.167

Tangent Data

Parameter	Value	Parameter	Value
Length:	52.204	Course:	S 68° 27' 39.7097" W

Curve Point Data

Description	Station	Northing	Easting
PC:	31+70.037	7569706.784	314672.167
RP:		7569652.369	314693.644
PT:	33+13.180	7569596.817	314675.31

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	140° 11' 46.8154"	Type:	LEFT
Radius:	58.5		
Length:	143.143	Tangent:	161.588
Mid-Ord:	38.586	External:	113.352
Chord:	110.012	Course:	S 01˝ 38' 13.6980" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+13.180	7569596.817	314675.31
End:	33+15.447	7569596.031	314677.436

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.267	Course:	S 69˝ 43' 17.7258" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+15.447	7569596.031	314677.436
End:	33+17.718	7569595.327	314679.596

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.272	Course:	S 71° 56' 33.9916" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+17.718	7569595.327	314679.596
End:	33+19.995	7569594.706	314681.785

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.276	Course:	S 74° 09' 50.1587" E

Description	PT Station	Northing	Easting
Start:	18+69.200	7570784.081	315054.647
End:	18+72.204	7570781.084	315054.841

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 03° 43' 08.2276" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+72.204	7570781.084	315054.841
End:	18+75.215	7570778.092	315055.175

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 06° 21' 47.3949" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+75.215	7570778.092	315055.175
End:	18+78.233	7570775.111	315055.648

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 09° 00' 26.4419" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+78.233	7570775.111	315055.648
End:	18+97.590	7570756.079	315059.18

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 10° 30' 55.6732" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+97.590	7570756.079	315059.18
End:	19+58.155	7570697.133	315073.092

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.566	Course:	S 13° 16' 45.5598" E

Curve Point Data

Description	Station	Northing	Easting
PC:	19+58.155	7570697.133	315073.092
RP:		7570673.359	314972.359
PT:	20+13.427	7570642.55	315071.168

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	30° 35' 50.5228"	Type:	RIGHT
Radius:	103.5		
Length:	55.272	Tangent:	28.312
Mid-Ord:	3.668	External:	3.802
Chord:	54.617	Course:	S 02° 01' 09.7016" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+13.427	7570642.55	315071.168
End:	20+57.136	7570600.822	315058.156

Tangent Data

Curve Point Data

Description	Station	Northing	Easting
PC:	31+96.286	7569703.529	314673.452
RP:		7569652.369	314693.644
PT:	33+37.242	7569598.497	314682.565

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	146° 50' 24.8527"	Type:	LEFT
Radius:	55		
Length:	140.957	Tangent:	184.731
Mid-Ord:	39.306	External:	137.745
Chord:	105.427	Course:	S 04° 57' 32.7166" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+37.242	7569598.497	314682.565
End:	33+51.532	7569595.618	314696.562

Tangent Data

Parameter	Value	Parameter	Value
Length:	14.29	Course:	S 78° 22' 45.1430" E

Curve Point Data

Description	Station	Northing	Easting
PC:	33+51.532	7569595.618	314696.562
RP:		7569541.746	314685.483
PT:	34+36.356	7569532.209	314739.65

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	88° 21' 53.3710"	Type:	RIGHT
Radius:	55		
Length:	84.824	Tangent:	53.452
Mid-Ord:	15.558	External:	21.695
Chord:	76.664	Course:	S 34° 11' 48.4575" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+36.356	7569532.209	314739.65
End:	35+83.635	7569387.161	314714.112

Tangent Data

Parameter	Value	Parameter	Value
Length:	147.278	Course:	S 09° 59' 08.2280" W

Curve Point Data

Description	Station	Northing	Easting
PC:	35+83.635	7569387.161	314714.112
RP:		7569404.501	314615.627
PT:	36+35.550	7569340.583	314692.533

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	29° 44' 42.0097"	Type:	RIGHT
Radius:	100		
Length:	51.915	Tangent:	26.557
Mid-Ord:	3.35	External:	3.466
Chord:	51.334	Course:	S 24° 51' 29.2328" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+35.550	7569340.583	314692.533

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+19.995	7569594.706	314681.785
End:	33+34.309	7569591.015	314695.615

Tangent Data

Parameter	Value	Parameter	Value
Length:	14.314	Course:	S 75° 03' 21.9094" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+34.309	7569591.015	314695.615
End:	33+37.458	7569590.091	314698.626

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 72° 56' 47.0631" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+37.458	7569590.091	314698.626
End:	33+40.595	7569588.984	314701.562

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 69° 20' 38.5081" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+40.595	7569588.984	314701.562
End:	33+43.719	7569587.701	314704.41

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 65° 44' 29.5351" E

Curve Point Data

Description	Station	Northing	Easting
PC:	33+43.719	7569587.701	314704.41
RP:		7569541.746	314685.483
PT:	34+01.696	7569542.42	314735.179

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	66° 50' 15.5580"	Type:	RIGHT
Radius:	49.7		
Length:	57.977	Tangent:	32.795
Mid-Ord:	8.217	External:	9.845
Chord:	54.745	Course:	S 34° 11' 48.4575" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+01.696	7569542.42	314735.179
End:	34+04.820	7569539.299	314735.323

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 02° 39' 07.3800" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+04.820	7569539.299	314735.323
End:	34+07.957	7569536.163	314735.271

Tangent Data

Parameter	Value	Parameter	Value
Length:	43.709	Course:	S 17° 19' 04.9630" W

Curve Point Data

Description	Station	Northing	Easting
PC:	20+57.136	7570600.822	315058.156
RP:		7570661.399	314863.882
PT:	20+95.609	7570565.391	315043.311

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 49' 55.2047"	Type:	RIGHT
Radius:	203.5		
Length:	38.473	Tangent:	19.294
Mid-Ord:	0.908	External:	0.913
Chord:	38.415	Course:	S 22° 44' 02.5654" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+95.609	7570565.391	315043.311
End:	21+45.384	7570521.503	315019.827

Tangent Data

Parameter	Value	Parameter	Value
Length:	49.776	Course:	S 28° 09' 00.1677" W

Curve Point Data

Description	Station	Northing	Easting
PC:	21+45.384	7570521.503	315019.827
RP:		7570617.511	314840.398
PT:	22+00.976	7570476.655	314987.272

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	15° 39' 06.8272"	Type:	RIGHT
Radius:	203.5		
Length:	55.592	Tangent:	27.97
Mid-Ord:	1.895	External:	1.913
Chord:	55.419	Course:	S 35° 58' 33.5813" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	22+00.976	7570476.655	314987.272
End:	23+83.935	7570344.607	314860.633

Tangent Data

Parameter	Value	Parameter	Value
Length:	182.959	Course:	S 43° 48' 06.9949" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	23+83.935	7570344.607	314860.633
End:	24+04.637	7570328.859	314847.194

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 40° 28' 43.7613" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+04.637	7570328.859	314847.194
End:	24+07.787	7570326.39	314845.239

Tangent Data

Parameter	Value	Parameter	Value

End:	37+43.752	7569257.37	314623.372

Tangent Data

Parameter	Value	Parameter	Value
Length:	108.202	Course:	S 39° 43' 50.2376" W

Curve Point Data

Description	Station	Northing	Easting
PC:	37+43.752	7569257.37	314623.372
RP:		7569292.525	314581.074
PT:	37+98.906	7569237.957	314574.193

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	57° 27' 23.5876"	Type:	RIGHT
Radius:	55		
Length:	55.154	Tangent:	30.147
Mid-Ord:	6.77	External:	7.72
Chord:	52.872	Course:	S 68° 27' 32.0314" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+98.906	7569237.957	314574.193
End:	39+72.649	7569259.694	314401.815

Tangent Data

Parameter	Value	Parameter	Value
Length:	173.743	Course:	N 82° 48' 46.1748" W

Curve Point Data

Description	Station	Northing	Easting
PC:	39+72.649	7569259.694	314401.815
RP:		7569160.48	314389.304
PT:	40+49.054	7569240.772	314329.696

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	43° 46' 35.9412"	Type:	LEFT
Radius:	100		
Length:	76.405	Tangent:	40.176
Mid-Ord:	7.209	External:	7.769
Chord:	74.56	Course:	S 75° 17' 55.8546" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+49.054	7569240.772	314329.696
End:	41+36.037	7569188.924	314259.855

Tangent Data

Parameter	Value	Parameter	Value
Length:	86.983	Course:	S 53° 24' 37.8841" W

Curve Point Data

Description	Station	Northing	Easting
PC:	41+36.037	7569188.924	314259.855
RP:		7569269.216	314200.247
PT:	41+96.183	7569169.285	314203.961

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 27' 40.2840"	Type:	RIGHT
Radius:	100		
Length:	60.146	Tangent:	31.014
Mid-Ord:	4.488	External:	4.699
Chord:	59.244	Course:	S 70° 38' 28.0261" W

Length:	3.137	Course:	S 00° 57' 01.5930" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+07.957	7569536.163	314735.271
End:	34+11.107	7569533.024	314735.021

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 04° 33' 10.1481" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+11.107	7569533.024	314735.021
End:	34+31.809	7569512.461	314732.619

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 06° 39' 44.9944" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+31.809	7569512.461	314732.619
End:	35+41.752	7569404.183	314713.555

Tangent Data

Parameter	Value	Parameter	Value
Length:	109.943	Course:	S 09° 59' 08.2280" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	35+41.752	7569404.183	314713.555
End:	35+58.433	7569387.884	314710.008

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 12° 16' 34.4241" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	35+58.433	7569387.884	314710.008
End:	35+61.096	7569385.291	314709.402

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 13° 10' 21.4845" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	35+61.096	7569385.291	314709.402
End:	35+63.755	7569382.72	314708.724

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 14° 46' 00.4755" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	35+63.755	7569382.72	314708.724
End:	35+66.411	7569380.171	314707.976

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 16° 21' 39.4895" W

Length:	3.149	Course:	S 38° 22' 08.9150" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+07.787	7570326.39	314845.239
End:	24+10.924	7570323.813	314843.45

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 34° 46' 00.3599" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+10.924	7570323.813	314843.45
End:	24+14.048	7570321.14	314841.834

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 31° 09' 51.3870" W

Curve Point Data

Description	Station	Northing	Easting
PC:	24+14.048	7570321.14	314841.834
RP:		7570294.043	314883.497
PT:	24+42.489	7570294.261	314833.798

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	32° 47' 15.6176"	Type:	LEFT
Radius:	49.7		
Length:	28.441	Tangent:	14.622
Mid-Ord:	2.021	External:	2.106
Chord:	28.054	Course:	S 16° 38' 40.2796" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+42.489	7570294.261	314833.798
End:	24+45.613	7570291.139	314833.682

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 02° 07' 29.1723" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+45.613	7570291.139	314833.682
End:	24+48.750	7570288.003	314833.763

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 01° 28' 39.8007" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+48.750	7570288.003	314833.763
End:	24+51.899	7570284.866	314834.042

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 05° 04' 48.3558" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+51.899	7570284.866	314834.042
End:	24+72.602	7570264.326	314836.633

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+96.183	7569169.285	314203.961
End:	42+57.083	7569167.024	314143.103

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.9	Course:	S 87° 52' 18.1681" W

Curve Point Data

Description	Station	Northing	Easting
PC:	42+57.083	7569167.024	314143.103
RP:		7569097.072	314145.703
PT:	43+25.601	7569133.947	314086.203

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	56° 04' 59.7106"	Type:	LEFT
Radius:	70		
Length:	68.519	Tangent:	37.285
Mid-Ord:	8.218	External:	9.311
Chord:	65.816	Course:	S 59° 49' 48.3128" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	43+25.601	7569133.947	314086.203
End:	44+89.859	7568994.328	313999.674

Tangent Data

Parameter	Value	Parameter	Value
Length:	164.258	Course:	S 31° 47' 18.4575" W

Curve Point Data

Description	Station	Northing	Easting
PC:	44+89.859	7568994.328	313999.674
RP:		7568941.65	314084.674
PT:	45+35.836	7568951.139	313985.126

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	26° 20' 34.6661"	Type:	LEFT
Radius:	100		
Length:	45.977	Tangent:	23.402
Mid-Ord:	2.631	External:	2.702
Chord:	45.573	Course:	S 18° 37' 01.1245" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+35.836	7568951.139	313985.126
End:	46+22.951	7568864.418	313976.858

Tangent Data

Parameter	Value	Parameter	Value
Length:	87.114	Course:	S 05° 26' 43.7914" W

Curve Point Data

Description	Station	Northing	Easting
PC:	46+22.951	7568864.418	313976.858
RP:		7568873.908	313877.31
PT:	46+60.764	7568828.336	313966.322

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	21° 39' 56.2308"	Type:	RIGHT
Radius:	100		
Length:	37.814	Tangent:	19.135
Mid-Ord:	1.782	External:	1.814

Curve Point Data

Description	Station	Northing	Easting
PC:	35+66.411	7569380.171	314707.976
RP:		7569404.501	314615.627
PT:	36+00.075	7569349.784	314693.897

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	20° 11' 47.9797"	Type:	RIGHT
Radius:	95.5		
Length:	33.664	Tangent:	17.008
Mid-Ord:	1.479	External:	1.503
Chord:	33.49	Course:	S 24° 51' 29.2328" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+00.075	7569349.784	314693.897
End:	36+02.731	7569347.565	314692.437

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 33° 21' 18.9760" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+02.731	7569347.565	314692.437
End:	36+05.391	7569345.386	314690.913

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 34° 56' 57.9902" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+05.391	7569345.386	314690.913
End:	36+08.053	7569343.247	314689.328

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 36° 32' 36.9811" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+08.053	7569343.247	314689.328
End:	36+24.734	7569330.002	314679.187

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 37° 26' 24.0415" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+24.734	7569330.002	314679.187
End:	36+95.601	7569275.502	314633.891

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.867	Course:	S 39° 43' 50.2376" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+95.601	7569275.502	314633.891
End:	37+16.303	7569260.374	314619.758

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 43° 03' 13.4712" W

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 11' 23.2021" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	24+72.602	7570264.326	314836.633
End:	24+88.999	7570248.205	314839.625

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.397	Course:	S 10° 30' 46.4357" E

Curve Point Data

Description	Station	Northing	Easting
PC:	24+88.999	7570248.205	314839.625
RP:		7570237.531	314782.107
PT:	25+57.855	7570188.51	314814.031

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	67° 26' 22.3269"	Type:	RIGHT
Radius:	58.5		
Length:	68.857	Tangent:	39.044
Mid-Ord:	9.842	External:	11.833
Chord:	64.95	Course:	S 23° 12' 24.7278" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+57.855	7570188.51	314814.031
End:	25+90.780	7570170.542	314786.441

Tangent Data

Parameter	Value	Parameter	Value
Length:	32.925	Course:	S 56° 55' 35.8913" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	25+90.780	7570170.542	314786.441
End:	26+11.483	7570158.258	314769.777

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 53° 36' 12.6576" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	26+11.483	7570158.258	314769.777
End:	26+14.632	7570156.297	314767.312

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 51° 29' 37.8114" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	26+14.632	7570156.297	314767.312
End:	26+17.769	7570154.194	314764.985

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 47° 53' 29.2563" W

Tangent Data

Description	PT Station	Northing	Easting

Chord:	37.589	Course:	S 16° 16' 41.9068" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+60.764	7568828.336	313966.322
End:	46+96.584	7568796.453	313949.999

Tangent Data

Parameter	Value	Parameter	Value
Length:	35.819	Course:	S 27° 06' 40.0222" W

Curve Point Data

Description	Station	Northing	Easting
PC:	46+96.584	7568796.453	313949.999
RP:		7568705.309	314128.024
PT:	47+41.366	7568754.648	313934.205

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	12° 49' 44.9970"	Type:	LEFT
Radius:	200		
Length:	44.782	Tangent:	22.485
Mid-Ord:	1.252	External:	1.26
Chord:	44.689	Course:	S 20° 41' 47.5237" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	47+41.366	7568754.648	313934.205
End:	49+26.368	7568575.363	313888.566

Tangent Data

Parameter	Value	Parameter	Value
Length:	185.002	Course:	S 14° 16' 55.0252" W

Curve Point Data

Description	Station	Northing	Easting
PC:	49+26.368	7568575.363	313888.566
RP:		7568592.632	313820.729
PT:	49+68.715	7568539.848	313866.706

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 39' 39.9536"	Type:	RIGHT
Radius:	70		
Length:	42.347	Tangent:	21.844
Mid-Ord:	3.178	External:	3.329
Chord:	41.704	Course:	S 31° 36' 45.0020" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+68.715	7568539.848	313866.706
End:	50+17.339	7568507.911	313830.04

Tangent Data

Parameter	Value	Parameter	Value
Length:	48.624	Course:	S 48° 56' 34.9788" W

Curve Point Data

Description	Station	Northing	Easting
PC:	50+17.339	7568507.911	313830.04
RP:		7568466.438	313866.165
PT:	50+74.256	7568456.557	313812.06

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+16.303	7569260.374	314619.758
End:	37+19.453	7569258.153	314617.524

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 45° 09' 48.3175" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+19.453	7569258.153	314617.524
End:	37+22.589	7569256.086	314615.165

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 48° 45' 56.8725" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+22.589	7569256.086	314615.165
End:	37+25.714	7569254.178	314612.691

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 52° 22' 05.8456" W

Curve Point Data

Description	Station	Northing	Easting
PC:	37+25.714	7569254.178	314612.691
RP:		7569292.525	314581.074
PT:	37+56.880	7569242.921	314584.174

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	35° 55' 45.7746"	Type:	RIGHT
Radius:	49.7		
Length:	31.166	Tangent:	16.115
Mid-Ord:	2.423	External:	2.547
Chord:	30.658	Course:	S 68° 27' 32.0314" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+56.880	7569242.921	314584.174
End:	37+60.004	7569242.625	314581.064

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 84° 32' 58.2172" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+60.004	7569242.625	314581.064
End:	37+63.141	7569242.524	314577.929

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 88° 09' 07.1903" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	26+17.769	7570154.194	314764.985
End:	26+20.893	7570151.957	314762.803

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 44° 17' 20.2833" W

Curve Point Data

Description	Station	Northing	Easting
PC:	26+20.893	7570151.957	314762.803
RP:		7570116.108	314797.226
PT:	27+01.249	7570080.073	314762.998

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	92° 38' 11.1774"	Type:	LEFT
Radius:	49.7		
Length:	80.355	Tangent:	52.041
Mid-Ord:	15.375	External:	22.261
Chord:	71.885	Course:	S 00° 09' 18.6040" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+01.249	7570080.073	314762.998
End:	27+04.373	7570077.848	314765.192

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 44° 35' 57.4912" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+04.373	7570077.848	314765.192
End:	27+07.510	7570075.757	314767.53

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 48° 12' 06.4643" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+07.510	7570075.757	314767.53
End:	27+10.659	7570073.81	314770.005

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 51° 48' 15.0193" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+10.659	7570073.81	314770.005
End:	27+31.362	7570061.616	314786.736

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 53° 54' 49.8656" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	27+31.362	7570061.616	314786.736
End:	27+34.820	7570059.745	314789.643

Tangent Data

Parameter	Value	Parameter	Value

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	59° 17' 32.9248"	Type:	LEFT
Radius:	55		
Length:	56.917	Tangent:	31.303
Mid-Ord:	7.2	External:	8.284
Chord:	54.411	Course:	S 19° 17' 48.5164" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+74.256	7568456.557	313812.06
End:	51+55.469	7568376.665	313826.65

Tangent Data

Parameter	Value	Parameter	Value
Length:	81.213	Course:	S 10° 20' 57.9460" E

Curve Point Data

Description	Station	Northing	Easting
PC:	51+55.469	7568376.665	313826.65
RP:		7568366.785	313772.545
PT:	52+69.070	7568314.475	313755.554

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	118° 20' 36.9849"	Type:	RIGHT
Radius:	55		
Length:	113.602	Tangent:	92.16
Mid-Ord:	26.814	External:	52.324
Chord:	94.458	Course:	S 48° 49' 20.5464" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+69.070	7568314.475	313755.554
End:	53+47.316	7568338.646	313681.136

Tangent Data

Parameter	Value	Parameter	Value
Length:	78.245	Course:	N 72° 00' 20.9612" W

Curve Point Data

Description	Station	Northing	Easting
PC:	53+47.316	7568338.646	313681.136
RP:		7568286.337	313664.145
PT:	54+46.780	7568290.536	313609.306

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	103° 36' 55.8570"	Type:	LEFT
Radius:	55		
Length:	99.464	Tangent:	69.912
Mid-Ord:	20.993	External:	33.953
Chord:	86.453	Course:	S 56° 11' 11.1103" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+46.780	7568290.536	313609.306
End:	55+21.668	7568215.866	313603.588

Tangent Data

Parameter	Value	Parameter	Value
Length:	74.888	Course:	S 04° 22' 43.1819" W

Start:	37+63.141	7569242.524	314577.929
End:	37+66.291	7569242.62	314574.781

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 88° 14' 44.2546" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+66.291	7569242.62	314574.781
End:	37+86.993	7569244.015	314554.125

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 86° 08' 09.4084" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	37+86.993	7569244.015	314554.125
End:	39+40.069	7569263.167	314402.253

Tangent Data

Parameter	Value	Parameter	Value
Length:	153.076	Course:	N 82° 48' 46.1748" W

Curve Point Data

Description	Station	Northing	Easting
PC:	39+40.069	7569263.167	314402.253
RP:		7569160.48	314389.304
PT:	40+19.147	7569243.583	314327.61

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	43° 46' 35.9412"	Type:	LEFT
Radius:	103.5		
Length:	79.079	Tangent:	41.582
Mid-Ord:	7.461	External:	8.041
Chord:	77.169	Course:	S 75° 17' 55.8546" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+19.147	7569243.583	314327.61
End:	40+89.463	7569201.669	314271.151

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.316	Course:	S 53° 24' 37.8841" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+89.463	7569201.669	314271.151
End:	41+06.144	7569192.269	314257.371

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 55° 42' 04.0802" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+06.144	7569192.269	314257.371
End:	41+08.806	7569190.804	314255.148

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.458	Course:	S 57° 14' 13.0992" E

Curve Point Data

Description	Station	Northing	Easting
PC:	27+34.820	7570059.745	314789.643
RP:		7570010.551	314757.985
PT:	28+14.460	7569989.812	314812.685

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	78° 00' 04.2599"	Type:	RIGHT
Radius:	58.5		
Length:	79.641	Tangent:	47.373
Mid-Ord:	13.037	External:	16.776
Chord:	73.631	Course:	S 18° 14' 10.9692" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	28+14.460	7569989.812	314812.685
End:	29+01.527	7569908.4	314781.818

Tangent Data

Parameter	Value	Parameter	Value
Length:	87.067	Course:	S 20° 45' 51.1607" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+01.527	7569908.4	314781.818
End:	29+18.208	7569892.579	314776.533

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 18° 28' 24.9645" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+18.208	7569892.579	314776.533
End:	29+20.870	7569890.041	314775.729

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 17° 34' 37.9042" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+20.870	7569890.041	314775.729
End:	29+23.530	7569887.484	314774.996

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 15° 58' 58.9132" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+23.530	7569887.484	314774.996
End:	29+26.186	7569884.911	314774.336

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 14° 23' 19.8991" W

Curve Point Data

Curve Point Data

Description	Station	Northing	Easting
PC:	55+21.668	7568215.866	313603.588
RP:		7568220.065	313548.749
PT:	55+75.198	7568172.365	313576.129

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	55° 45' 53.8421"	Type:	RIGHT
Radius:	55		
Length:	53.531	Tangent:	29.099
Mid-Ord:	6.385	External:	7.224
Chord:	51.443	Course:	S 32° 15' 40.1029" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+75.198	7568172.365	313576.129
End:	56+05.838	7568157.112	313549.556

Tangent Data

Parameter	Value	Parameter	Value
Length:	30.64	Course:	S 60° 08' 37.0239" W

Curve Point Data

Description	Station	Northing	Easting
PC:	56+05.838	7568157.112	313549.556
RP:		7568070.384	313599.339
PT:	56+46.609	7568130.263	313519.248

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	23° 21' 37.2662"	Type:	LEFT
Radius:	100		
Length:	40.772	Tangent:	20.673
Mid-Ord:	2.071	External:	2.114
Chord:	40.49	Course:	S 48° 27' 48.3908" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+46.609	7568130.263	313519.248
End:	56+84.303	7568100.074	313496.678

Tangent Data

Parameter	Value	Parameter	Value
Length:	37.694	Course:	S 36° 46' 59.7578" W

Curve Point Data

Description	Station	Northing	Easting
PC:	56+84.303	7568100.074	313496.678
RP:		7568141.989	313440.614
PT:	57+38.020	7568072.9	313451.865

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	43° 58' 04.1207"	Type:	RIGHT
Radius:	70		
Length:	53.717	Tangent:	28.259
Mid-Ord:	5.09	External:	5.489
Chord:	52.408	Course:	S 58° 46' 01.8181" W

Tangent Data

Description	PT Station	Northing	Easting

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 56° 35' 51.1406" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+08.806	7569190.804	314255.148
End:	41+11.466	7569189.402	314252.888

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 58° 11' 30.1315" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+11.466	7569189.402	314252.888
End:	41+14.122	7569188.065	314250.593

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 59° 47' 09.1456" W

Curve Point Data

Description	Station	Northing	Easting
PC:	41+14.122	7569188.065	314250.593
RP:		7569269.216	314200.247
PT:	41+55.647	7569174.409	314211.724

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	24° 54' 46.2540"	Type:	RIGHT
Radius:	95.5		
Length:	41.524	Tangent:	21.096
Mid-Ord:	2.248	External:	2.302
Chord:	41.198	Course:	S 70° 38' 28.0261" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+55.647	7569174.409	314211.724
End:	41+58.303	7569174.016	314209.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 81° 29' 46.9065" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+58.303	7569174.016	314209.097
End:	41+60.962	7569173.696	314206.457

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 83° 05' 25.9206" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+60.962	7569173.696	314206.457
End:	41+63.625	7569173.449	314203.806

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 84˝ 41' 04.9115" W

Tangent Data

Description	Station	Northing	Easting
PC:	29+26.186	7569884.911	314774.336
RP:		7569858.604	314866.141
PT:	29+59.203	7569852.243	314770.853

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	19° 48' 32.1212"	Type:	LEFT
Radius:	95.5		
Length:	33.017	Tangent:	16.675
Mid-Ord:	1.423	External:	1.445
Chord:	32.853	Course:	S 06° 05' 08.0851" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+59.203	7569852.243	314770.853
End:	29+61.860	7569849.589	314770.956

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 02° 13' 03.7289" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+61.860	7569849.589	314770.956
End:	29+64.519	7569846.936	314771.133

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 03° 48' 42.7430" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+64.519	7569846.936	314771.133
End:	29+67.181	7569844.285	314771.384

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 05° 24' 21.7339" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+67.181	7569844.285	314771.384
End:	29+83.862	7569827.705	314773.215

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 06° 18' 08.7943" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	29+83.862	7569827.705	314773.215
End:	30+21.811	7569790.182	314778.885

Tangent Data

Parameter	Value	Parameter	Value
Length:	37.949	Course:	S 08° 35' 34.9904" E

Curve Point Data

Description	Station	Northing	Easting
PC:	30+21.811	7569790.182	314778.885
RP:		7569781.441	314721.042
PT:	31+00.484	7569727.027	314742.519

Start:	57+38.020	7568072.9	313451.865
End:	58+63.124	7568052.792	313328.387

Tangent Data

Parameter	Value	Parameter	Value
Length:	125.104	Course:	S 80° 45' 03.8785" W

Curve Point Data

Description	Station	Northing	Easting
PC:	58+63.124	7568052.792	313328.387
RP:		7567855.392	313360.532
PT:	58+99.330	7568043.779	313293.372

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 22' 20.2473"	Type:	LEFT
Radius:	200		
Length:	36.206	Tangent:	18.153
Mid-Ord:	0.819	External:	0.822
Chord:	36.157	Course:	S 75° 33' 53.7548" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	58+99.330	7568043.779	313293.372
End:	60+00.000	7568009.974	313198.548

Tangent Data

Parameter	Value	Parameter	Value
Length:	100.67	Course:	S 70° 22' 43.6311" W

Alignment: a.horizontal-Derecha-3.500

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	7571845.18	315170.846
End:	0+15.092	7571833.73	315161.015

Tangent Data

Parameter	Value	Parameter	Value
Length:	15.092	Course:	S 40° 38' 49.3418" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+15.092	7571833.73	315161.015
End:	0+19.885	7571830.488	315157.484

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.793	Course:	S 47° 26' 54.5869" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+19.885	7571830.488	315157.484
End:	0+23.088	7571828.421	315155.038

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.202	Course:	S 49° 48' 24.9205" W

Description	PT Station	Northing	Easting
Start:	41+63.625	7569173.449	314203.806
End:	41+80.305	7569172.164	314187.175

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 85° 34' 51.9719" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+80.305	7569172.164	314187.175
End:	42+24.538	7569170.521	314142.973

Tangent Data

Parameter	Value	Parameter	Value
Length:	44.232	Course:	S 87° 52' 18.1681" W

Curve Point Data

Description	Station	Northing	Easting
PC:	42+24.538	7569170.521	314142.973
RP:		7569097.072	314145.703
PT:	42+96.482	7569135.791	314083.228

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	56° 04' 59.7105"	Type:	LEFT
Radius:	73.5		
Length:	71.945	Tangent:	39.149
Mid-Ord:	8.628	External:	9.776
Chord:	69.107	Course:	S 59° 49' 48.3128" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+96.482	7569135.791	314083.228
End:	44+60.740	7568996.172	313996.699

Tangent Data

Parameter	Value	Parameter	Value
Length:	164.258	Course:	S 31° 47' 18.4575" W

Curve Point Data

Description	Station	Northing	Easting
PC:	44+60.740	7568996.172	313996.699
RP:		7568941.65	314084.674
PT:	45+08.326	7568951.472	313981.641

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	26° 20' 34.6661"	Type:	LEFT
Radius:	103.5		
Length:	47.586	Tangent:	24.221
Mid-Ord:	2.723	External:	2.796
Chord:	47.168	Course:	S 18° 37' 01.1245" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+08.326	7568951.472	313981.641
End:	45+78.773	7568881.343	313974.956

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.447	Course:	S 05° 26' 43.7914" W

Tangent Data

Description	PT Station	Northing	Easting

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	77° 03' 14.7002"	Type:	RIGHT
Radius:	58.5		
Length:	78.674	Tangent:	46.578
Mid-Ord:	12.735	External:	16.278
Chord:	72.877	Course:	S 29° 56' 02.3596" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+00.484	7569727.027	314742.519
End:	31+52.688	7569707.861	314693.961

Tangent Data

Parameter	Value	Parameter	Value
Length:	52.204	Course:	S 68° 27' 39.7097" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+52.688	7569707.861	314693.961
End:	31+73.391	7569699.157	314675.177

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 65° 08' 16.4761" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+73.391	7569699.157	314675.177
End:	31+76.540	7569697.728	314672.37

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 63° 01' 41.6298" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+76.540	7569697.728	314672.37
End:	31+79.677	7569696.133	314669.67

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 59° 25' 33.0748" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	31+79.677	7569696.133	314669.67
End:	31+82.801	7569694.378	314667.085

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 55° 49' 24.1018" W

Curve Point Data

Description	Station	Northing	Easting
PC:	31+82.801	7569694.378	314667.085
RP:		7569652.369	314693.644
PT:	32+91.501	7569606.414	314674.717

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	125° 18' 47.0397"	Type:	LEFT
Radius:	49.7		
Length:	108.7	Tangent:	96.113
Mid-Ord:	26.872	External:	58.503

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+23.088	7571828.421	315155.038
End:	0+26.265	7571826.53	315152.486

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.177	Course:	S 53° 27' 15.3003" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+26.265	7571826.53	315152.486
End:	0+29.416	7571824.818	315149.84

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.151	Course:	S 57° 06' 09.1451" W

Curve Point Data

Description	Station	Northing	Easting
PC:	0+29.416	7571824.818	315149.84
RP:		7571863.665	315118.84
PT:	0+77.156	7571815.999	315104.768

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	55° 02' 11.6824"	Type:	RIGHT
Radius:	49.7		
Length:	47.74	Tangent:	25.892
Mid-Ord:	5.623	External:	6.34
Chord:	45.926	Course:	S 78° 55' 44.0895" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+77.156	7571815.999	315104.768
End:	0+80.281	7571816.785	315101.744

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 75° 25' 36.7706" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+80.281	7571816.785	315101.744
End:	0+83.418	7571817.764	315098.764

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 71° 49' 27.7978" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+83.418	7571817.764	315098.764
End:	0+86.567	7571818.932	315095.84

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 68° 13' 19.2426" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+86.567	7571818.932	315095.84
End:	1+07.270	7571827.315	315076.91

Tangent Data

Parameter	Value	Parameter	Value

Description	PT Station	Northing	Easting
Start:	45+78.773	7568881.343	313974.956
End:	45+95.454	7568864.814	313972.711

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 07° 44' 09.9876" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+95.454	7568864.814	313972.711
End:	45+98.117	7568862.181	313972.311

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 08° 37' 57.0480" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+98.117	7568862.181	313972.311
End:	46+00.776	7568859.564	313971.839

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 10° 13' 36.0389" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+00.776	7568859.564	313971.839
End:	46+03.432	7568856.964	313971.295

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 11° 49' 15.0530" W

Curve Point Data

Description	Station	Northing	Easting
PC:	46+03.432	7568856.964	313971.295
RP:		7568873.908	313877.31
PT:	46+23.629	7568837.613	313965.644

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	12° 07' 02.2009"	Type:	RIGHT
Radius:	95.5		
Length:	20.197	Tangent:	10.136
Mid-Ord:	0.533	External:	0.536
Chord:	20.159	Course:	S 16° 16' 41.9068" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+23.629	7568837.613	313965.644
End:	46+26.285	7568835.129	313964.703

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 20° 44' 08.7607" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+26.285	7568835.129	313964.703
End:	46+28.945	7568832.669	313963.693

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 22° 19' 47.7748" W

Chord:	88.294	Course:	S 04° 57' 32.7166" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	32+91.501	7569606.414	314674.717
End:	32+94.626	7569605.131	314677.566

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 65° 44' 29.5350" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	32+94.626	7569605.131	314677.566
End:	32+97.762	7569604.024	314680.501

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 69° 20' 38.5081" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	32+97.762	7569604.024	314680.501
End:	33+00.912	7569603.1	314683.512

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 72° 56' 47.0631" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+00.912	7569603.1	314683.512
End:	33+15.226	7569599.409	314697.342

Tangent Data

Parameter	Value	Parameter	Value
Length:	14.314	Course:	S 75° 03' 21.9094" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+15.226	7569599.409	314697.342
End:	33+17.502	7569598.788	314699.532

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.276	Course:	S 74° 09' 50.1587" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+17.502	7569598.788	314699.532
End:	33+19.774	7569598.084	314701.691

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.272	Course:	S 71° 56' 33.9916" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	33+19.774	7569598.084	314701.691
End:	33+22.041	7569597.298	314703.818

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.267	Course:	S 69° 43' 17.7258" E

Length:	20.703	Course:	N 66° 06' 44.3964" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+07.270	7571827.315	315076.91
End:	1+28.060	7571836.822	315058.421

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.79	Course:	N 62° 47' 21.1628" W

Curve Point Data

Description	Station	Northing	Easting
PC:	1+28.060	7571836.822	315058.421
RP:		7571784.796	315031.671
PT:	2+67.199	7571765.688	314976.379

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	136° 16' 31.0359"	Type:	LEFT
Radius:	58.5		
Length:	139.139	Tangent:	145.8
Mid-Ord:	36.716	External:	98.598
Chord:	108.585	Course:	S 49° 04' 23.3193" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+67.199	7571765.688	314976.379
End:	3+25.206	7571710.863	314995.326

Tangent Data

Parameter	Value	Parameter	Value
Length:	58.006	Course:	S 19° 03' 52.1987" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+25.206	7571710.863	314995.326
End:	3+45.908	7571690.937	315000.943

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 15° 44' 28.9651" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+45.908	7571690.937	315000.943
End:	3+49.058	7571687.877	315001.685

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 13° 37' 54.1188" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+49.058	7571687.877	315001.685
End:	3+52.195	7571684.788	315002.231

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 10° 01' 45.5638" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+28.945	7568832.669	313963.693
End:	46+31.607	7568830.235	313962.613

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 23° 55' 26.7656" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+31.607	7568830.235	313962.613
End:	46+48.288	7568815.095	313955.611

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 24° 49' 13.8261" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+48.288	7568815.095	313955.611
End:	46+67.440	7568798.048	313946.883

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.152	Course:	S 27° 06' 40.0222" W

Curve Point Data

Description	Station	Northing	Easting
PC:	46+67.440	7568798.048	313946.883
RP:		7568705.309	314128.024
PT:	47+13.006	7568755.511	313930.813

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	12° 49' 44.9970"	Type:	LEFT
Radius:	203.5		
Length:	45.566	Tangent:	22.879
Mid-Ord:	1.274	External:	1.282
Chord:	45.471	Course:	S 20° 41' 47.5237" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	47+13.006	7568755.511	313930.813
End:	48+78.674	7568594.964	313889.944

Tangent Data

Parameter	Value	Parameter	Value
Length:	165.668	Course:	S 14° 16' 55.0252" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	48+78.674	7568594.964	313889.944
End:	48+98.031	7568576.457	313884.27

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 17° 02' 44.9117" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	48+98.031	7568576.457	313884.27

Curve Point Data

Description	Station	Northing	Easting
PC:	33+22.041	7569597.298	314703.818
RP:		7569541.746	314685.483
PT:	34+05.479	7569531.602	314743.097

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	81° 43' 15.3337"	Type:	RIGHT
Radius:	58.5		
Length:	83.439	Tangent:	50.604
Mid-Ord:	14.256	External:	18.85
Chord:	76.544	Course:	S 30° 52' 29.4389" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	34+05.479	7569531.602	314743.097
End:	35+52.758	7569386.554	314717.559

Tangent Data

Parameter	Value	Parameter	Value
Length:	147.278	Course:	S 09° 59' 08.2280" W

Curve Point Data

Description	Station	Northing	Easting
PC:	35+52.758	7569386.554	314717.559
RP:		7569404.501	314615.627
PT:	36+06.489	7569338.346	314695.224

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	29° 44' 42.0097"	Type:	RIGHT
Radius:	103.5		
Length:	53.732	Tangent:	27.486
Mid-Ord:	3.467	External:	3.587
Chord:	53.13	Course:	S 24° 51' 29.2328" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	36+06.489	7569338.346	314695.224
End:	37+14.691	7569255.133	314626.064

Tangent Data

Parameter	Value	Parameter	Value
Length:	108.202	Course:	S 39° 43' 50.2376" W

Curve Point Data

Description	Station	Northing	Easting
PC:	37+14.691	7569255.133	314626.064
RP:		7569292.525	314581.074
PT:	37+73.356	7569234.484	314573.755

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	57° 27' 23.5876"	Type:	RIGHT
Radius:	58.5		
Length:	58.664	Tangent:	32.065
Mid-Ord:	7.201	External:	8.212
Chord:	56.237	Course:	S 68° 27' 32.0314" W

Tangent Data

Description	PT Station	Northing	Easting

Description	PT Station	Northing	Easting
Start:	3+52.195	7571684.788	315002.231
End:	3+55.319	7571681.683	315002.581

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 06° 25' 36.5908" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+55.319	7571681.683	315002.581
RP:		7571674.508	314953.402
PT:	3+91.837	7571646.861	314994.702

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	42° 05' 57.2042"	Type:	RIGHT
Radius:	49.7		
Length:	36.518	Tangent:	19.127
Mid-Ord:	3.316	External:	3.554
Chord:	35.702	Course:	S 12° 44' 55.3099" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+91.837	7571646.861	314994.702
End:	3+94.961	7571644.209	314993.05

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 31° 55' 27.2106" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+94.961	7571644.209	314993.05
End:	3+98.098	7571641.656	314991.228

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 35° 31' 36.1836" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+98.098	7571641.656	314991.228
End:	4+01.248	7571639.213	314989.24

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 39° 07' 44.7386" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+01.248	7571639.213	314989.24
End:	4+21.950	7571623.646	314975.593

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 41° 14' 19.5849" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+21.950	7571623.646	314975.593
End:	4+42.371	7571609.096	314961.264

Tangent Data

Description	PT Station	Northing	Easting
End:	49+01.049	7568573.596	313883.309

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 18° 33' 14.1431" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+01.049	7568573.596	313883.309
End:	49+04.060	7568570.789	313882.221

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 21° 11' 53.1901" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+04.060	7568570.789	313882.221
End:	49+07.063	7568568.041	313881.006

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 23° 50' 32.3574" W

Curve Point Data

Description	Station	Northing	Easting
PC:	49+07.063	7568568.041	313881.006
RP:		7568592.632	313820.729
PT:	49+28.467	7568549.895	313869.838

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	18° 50' 17.2753"	Type:	RIGHT
Radius:	65.1		
Length:	21.404	Tangent:	10.799
Mid-Ord:	0.878	External:	0.89
Chord:	21.308	Course:	S 31° 36' 45.0020" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+28.467	7568549.895	313869.838
End:	49+31.471	7568547.574	313867.932

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 39° 22' 57.6465" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+31.471	7568547.574	313867.932
End:	49+34.482	7568545.337	313865.916

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 42° 01' 36.8139" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+34.482	7568545.337	313865.916
End:	49+37.500	7568543.191	313863.794

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 44° 40' 15.8610" W

Description	PT Station	Northing	Easting
Start:	37+73.356	7569234.484	314573.755
End:	39+30.431	7569254.136	314417.913

Tangent Data

Parameter	Value	Parameter	Value
Length:	157.076	Course:	N 82° 48' 46.1748" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	39+30.431	7569254.136	314417.913
End:	39+47.112	7569255.56	314401.293

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	N 85° 06' 12.3709" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	39+47.112	7569255.56	314401.293
End:	39+49.775	7569255.746	314398.638

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	N 85° 59' 59.4313" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	39+49.775	7569255.746	314398.638
End:	39+52.434	7569255.857	314395.98

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	N 87° 35' 38.4222" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	39+52.434	7569255.857	314395.98
End:	39+55.090	7569255.895	314393.324

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	N 89° 11' 17.4364" W

Curve Point Data

Description	Station	Northing	Easting
PC:	39+55.090	7569255.895	314393.324
RP:		7569160.48	314389.304
PT:	40+12.142	7569241.631	314338.958

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 13' 41.9112"	Type:	LEFT
Radius:	95.5		
Length:	57.051	Tangent:	29.405
Mid-Ord:	4.229	External:	4.425
Chord:	56.207	Course:	S 75° 17' 55.8546" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+12.142	7569241.631	314338.958
End:	40+14.798	7569240.294	314336.662

Tangent Data

Parameter	Value	Parameter	Value

Parameter	Value	Parameter	Value
Length:	20.421	Course:	S 44° 33' 42.8185" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+42.371	7571609.096	314961.264
End:	4+63.074	7571595.212	314945.907

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 47° 53' 06.0521" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+63.074	7571595.212	314945.907
End:	4+66.223	7571593.188	314943.494

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 49° 59' 40.8984" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+66.223	7571593.188	314943.494
End:	4+69.360	7571591.326	314940.97

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 53° 35' 49.4535" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+69.360	7571591.326	314940.97
End:	4+72.484	7571589.634	314938.344

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 57° 11' 58.4265" W

Curve Point Data

Description	Station	Northing	Easting
PC:	4+72.484	7571589.634	314938.344
RP:		7571630.507	314910.068
PT:	4+88.177	7571582.874	314924.254

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	18° 05' 27.4374"	Type:	RIGHT
Radius:	49.7		
Length:	15.693	Tangent:	7.912
Mid-Ord:	0.618	External:	0.626
Chord:	15.628	Course:	S 64° 22' 15.4437" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+88.177	7571582.874	314924.254
End:	4+91.301	7571581.885	314921.29

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 71° 32' 32.4610" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+37.500	7568543.191	313863.794
End:	49+56.857	7568529.788	313849.828

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 46° 10' 45.0922" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+56.857	7568529.788	313849.828
End:	49+86.147	7568510.55	313827.742

Tangent Data

Parameter	Value	Parameter	Value
Length:	29.29	Course:	S 48° 56' 34.9788" W

Curve Point Data

Description	Station	Northing	Easting
PC:	49+86.147	7568510.55	313827.742
RP:		7568466.438	313866.165
PT:	50+46.686	7568455.928	313808.617

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	59° 17' 32.9248"	Type:	LEFT
Radius:	58.5		
Length:	60.539	Tangent:	33.295
Mid-Ord:	7.658	External:	8.811
Chord:	57.873	Course:	S 19° 17' 48.5164" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+46.686	7568455.928	313808.617
End:	51+07.231	7568396.368	313819.494

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.545	Course:	S 10° 20' 57.9460" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	51+07.231	7568396.368	313819.494
End:	51+27.933	7568375.821	313822.026

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 01' 34.7124" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	51+27.933	7568375.821	313822.026
End:	51+31.083	7568372.683	313822.296

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 04° 54' 59.8662" E

Tangent Data

Description	PT Station	Northing	Easting

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 59° 47' 09.1456" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+14.798	7569240.294	314336.662
End:	40+17.457	7569238.893	314334.402

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 58° 11' 30.1315" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+17.457	7569238.893	314334.402
End:	40+20.120	7569237.427	314332.18

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 56° 35' 51.1406" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+20.120	7569237.427	314332.18
End:	40+36.801	7569228.027	314318.399

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 55° 42' 04.0802" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	40+36.801	7569228.027	314318.399
End:	41+07.116	7569186.113	314261.941

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.316	Course:	S 53° 24' 37.8841" W

Curve Point Data

Description	Station	Northing	Easting
PC:	41+07.116	7569186.113	314261.941
RP:		7569269.216	314200.247
PT:	41+69.367	7569165.788	314204.091

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 27' 40.2840"	Type:	RIGHT
Radius:	103.5		
Length:	62.251	Tangent:	32.099
Mid-Ord:	4.645	External:	4.863
Chord:	61.317	Course:	S 70° 38' 28.0261" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	41+69.367	7569165.788	314204.091
End:	42+10.933	7569164.244	314162.554

Tangent Data

Parameter	Value	Parameter	Value
Length:	41.565	Course:	S 87° 52' 18.1681" W

Tangent Data

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+91.301	7571581.885	314921.29
End:	4+94.438	7571581.081	314918.258

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 75° 08' 41.4341" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+94.438	7571581.081	314918.258
End:	4+97.587	7571580.466	314915.169

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 78° 44' 49.9891" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+97.587	7571580.466	314915.169
End:	5+18.290	7571577.176	314894.73

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 80° 51' 24.8354" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+18.290	7571577.176	314894.73
End:	5+35.363	7571575.445	314877.745

Tangent Data

Parameter	Value	Parameter	Value
Length:	17.073	Course:	S 84° 10' 48.0690" W

Curve Point Data

Description	Station	Northing	Easting
PC:	5+35.363	7571575.445	314877.745
RP:		7571517.247	314883.677
PT:	6+38.507	7571500.298	314827.686

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	101° 01' 15.7445"	Type:	LEFT
Radius:	58.5		
Length:	103.144	Tangent:	70.993
Mid-Ord:	21.298	External:	33.49
Chord:	90.294	Course:	S 33° 40' 10.1967" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+38.507	7571500.298	314827.686
End:	6+44.435	7571494.618	314829.381

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.928	Course:	S 16° 37' 09.6464" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+44.435	7571494.618	314829.381
End:	6+50.395	7571489.108	314831.654

Tangent Data

Description	PT Station	Northing	Easting
Start:	51+31.083	7568372.683	313822.296
End:	51+34.219	7568369.547	313822.368

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 01° 18' 51.3111" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	51+34.219	7568369.547	313822.368
End:	51+37.344	7568366.425	313822.243

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 02° 17' 17.6619" W

Curve Point Data

Description	Station	Northing	Easting
PC:	51+37.344	7568366.425	313822.243
RP:		7568366.785	313772.545
PT:	52+21.325	7568317.48	313766.289

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	96° 48' 59.1719"	Type:	RIGHT
Radius:	49.7		
Length:	83.981	Tangent:	55.995
Mid-Ord:	16.708	External:	25.17
Chord:	74.341	Course:	S 48° 49' 20.5464" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+21.325	7568317.48	313766.289
End:	52+24.450	7568317.772	313763.178

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 84° 38' 36.5691" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+24.450	7568317.772	313763.178
End:	52+27.586	7568318.26	313760.08

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 81° 02' 27.5961" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+27.586	7568318.26	313760.08
End:	52+30.736	7568318.945	313757.006

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 77° 26' 19.0411" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+30.736	7568318.945	313757.006
End:	52+51.438	7568324.188	313736.978

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 75° 19' 44.1948" W

Description	PT Station	Northing	Easting
Start:	42+10.933	7569164.244	314162.554
End:	42+30.290	7569162.593	314143.268

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 85° 06' 28.2815" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+30.290	7569162.593	314143.268
End:	42+33.308	7569162.257	314140.269

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 83° 35' 59.0502" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+33.308	7569162.257	314140.269
End:	42+36.318	7569161.784	314137.295

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 80° 57' 20.0032" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+36.318	7569161.784	314137.295
End:	42+39.322	7569161.175	314134.354

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 78° 18' 40.8359" W

Curve Point Data

Description	Station	Northing	Easting
PC:	42+39.322	7569161.175	314134.354
RP:		7569097.072	314145.703
PT:	42+85.066	7569138.656	314095.615

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	40° 15' 37.0323"	Type:	LEFT
Radius:	65.1		
Length:	45.744	Tangent:	23.862
Mid-Ord:	3.977	External:	4.235
Chord:	44.809	Course:	S 59° 49' 48.3128" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+85.066	7569138.656	314095.615
End:	42+88.070	7569136.401	314093.63

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 41° 20' 55.7897" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+88.070	7569136.401	314093.63
End:	42+91.081	7569134.051	314091.748

Tangent Data

Parameter	Value	Parameter	Value

Parameter	Value	Parameter	Value
Length:	5.96	Course:	S 22° 25' 11.9108" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+50.395	7571489.108	314831.654
End:	6+56.388	7571483.828	314834.488

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.993	Course:	S 28° 13' 13.5125" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+56.388	7571483.828	314834.488
End:	6+60.406	7571480.379	314836.55

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.019	Course:	S 30˝ 52' 07.8158" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+60.406	7571480.379	314836.55
End:	6+63.556	7571477.618	314838.065

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 28° 45' 32.9695" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+63.556	7571477.618	314838.065
End:	6+66.693	7571474.778	314839.399

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 25° 09' 24.4144" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+66.693	7571474.778	314839.399
End:	6+69.817	7571471.873	314840.546

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 21˝ 33' 15.4414" E

Curve Point Data

Description	Station	Northing	Easting
PC:	6+69.817	7571471.873	314840.546
RP:		7571452.112	314794.944
PT:	7+69.945	7571402.442	314793.207

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	115° 25' 52.1841"	Type:	RIGHT
Radius:	49.7		
Length:	100.128	Tangent:	78.665
Mid-Ord:	23.154	External:	43.35
Chord:	84.033	Course:	S 34° 17' 13.9492" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+51.438	7568324.188	313736.978
End:	53+09.016	7568341.975	313682.217

Tangent Data

Parameter	Value	Parameter	Value
Length:	57.578	Course:	N 72° 00' 20.9612" W

Curve Point Data

Description	Station	Northing	Easting
PC:	53+09.016	7568341.975	313682.217
RP:		7568286.337	313664.145
PT:	54+14.809	7568290.803	313605.816

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	103° 36' 55.8570"	Type:	LEFT
Radius:	58.5		
Length:	105.793	Tangent:	74.361
Mid-Ord:	22.329	External:	36.114
Chord:	91.955	Course:	S 56° 11' 11.1103" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+14.809	7568290.803	313605.816
End:	54+69.029	7568236.741	313601.676

Tangent Data

Parameter	Value	Parameter	Value
Length:	54.22	Course:	S 04° 22' 43.1819" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+69.029	7568236.741	313601.676
End:	54+89.732	7568216.225	313598.902

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 42' 06.4155" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+89.732	7568216.225	313598.902
End:	54+92.881	7568213.122	313598.365

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 09° 48' 41.2617" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+92.881	7568213.122	313598.365
End:	54+96.018	7568210.071	313597.637

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 13° 24' 49.8168" W

Tangent Data

Description	PT Station	Northing	Easting

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 38° 42' 16.6224" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+91.081	7569134.051	314091.748
End:	42+94.099	7569131.612	314089.971

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 36° 03' 37.5754" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	42+94.099	7569131.612	314089.971
End:	43+13.456	7569115.669	314078.993

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 34° 33' 08.3441" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	43+13.456	7569115.669	314078.993
End:	44+41.712	7569006.652	314011.43

Tangent Data

Parameter	Value	Parameter	Value
Length:	128.256	Course:	S 31° 47' 18.4575" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+41.712	7569006.652	314011.43
End:	44+58.393	7568992.133	314003.216

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 29° 29' 52.2614" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+58.393	7568992.133	314003.216
End:	44+61.055	7568989.796	314001.941

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 28° 36' 05.2009" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+61.055	7568989.796	314001.941
End:	44+63.714	7568987.426	314000.734

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 27° 00' 26.2100" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+63.714	7568987.426	314000.734
End:	44+66.371	7568985.027	313999.594

Tangent Data

Parameter	Value	Parameter	Value

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+69.945	7571402.442	314793.207
End:	7+73.070	7571402.449	314790.083

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 89° 52' 16.6602" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+73.070	7571402.449	314790.083
End:	7+76.207	7571402.653	314786.952

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 86° 16' 07.6872" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+76.207	7571402.653	314786.952
End:	7+79.356	7571403.055	314783.829

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 82° 39' 59.1322" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+79.356	7571403.055	314783.829
End:	7+83.950	7571403.809	314779.297

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.594	Course:	N 80° 33' 24.2858" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+83.950	7571403.809	314779.297
End:	7+89.734	7571404.503	314773.555

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.783	Course:	N 83° 06' 25.1649" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+89.734	7571404.503	314773.555
End:	7+95.487	7571404.633	314767.803

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.753	Course:	N 88° 42' 26.2185" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+95.487	7571404.633	314767.803
End:	8+01.210	7571404.203	314762.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.723	Course:	S 85° 41' 32.1096" W

Start:	54+96.018	7568210.071	313597.637
End:	54+99.142	7568207.083	313596.723

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 17° 00' 58.7898" W

Curve Point Data

Description	Station	Northing	Easting
PC:	54+99.142	7568207.083	313596.723
RP:		7568220.065	313548.749
PT:	55+28.841	7568182.341	313581.105

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 14' 16.0291"	Type:	RIGHT
Radius:	49.7		
Length:	29.699	Tangent:	15.308
Mid-Ord:	2.202	External:	2.304
Chord:	29.259	Course:	S 32° 15' 40.1029" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+28.841	7568182.341	313581.105
End:	55+31.966	7568180.23	313578.802

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 47° 30' 21.4160" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+31.966	7568180.23	313578.802
End:	55+35.103	7568178.261	313576.36

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 51° 06' 30.3890" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+35.103	7568178.261	313576.36
End:	55+38.252	7568176.441	313573.789

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 54° 42' 38.9440" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+38.252	7568176.441	313573.789
End:	55+58.954	7568165.112	313556.462

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 56° 49' 13.7903" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+58.954	7568165.112	313556.462
End:	55+68.926	7568160.147	313547.814

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 25° 24' 47.1959" W

Curve Point Data

Description	Station	Northing	Easting
PC:	44+66.371	7568985.027	313999.594
RP:		7568941.65	314084.674
PT:	44+94.364	7568958.593	313990.689

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	16° 47' 40.6361"	Type:	LEFT
Radius:	95.5		
Length:	27.993	Tangent:	14.098
Mid-Ord:	1.024	External:	1.035
Chord:	27.893	Course:	S 18° 37' 01.1245" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+94.364	7568958.593	313990.689
End:	44+97.020	7568955.993	313990.145

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 11° 49' 15.0530" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+97.020	7568955.993	313990.145
End:	44+99.679	7568953.376	313989.673

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 10° 13' 36.0389" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	44+99.679	7568953.376	313989.673
End:	45+02.342	7568950.744	313989.273

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 08° 37' 57.0480" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+02.342	7568950.744	313989.273
End:	45+19.023	7568934.215	313987.028

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 07° 44' 09.9876" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	45+19.023	7568934.215	313987.028
End:	45+89.470	7568864.086	313980.343

Tangent Data

Parameter	Value	Parameter	Value
Length:	70.447	Course:	S 05° 26' 43.7914" W

Curve Point Data

Curve Point Data

Description	Station	Northing	Easting
PC:	8+01.210	7571404.203	314762.097
RP:		7571345.845	314766.163
PT:	9+31.784	7571306.798	314722.602

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	127° 53' 10.6063"	Type:	LEFT
Radius:	58.5		
Length:	130.574	Tangent:	119.641
Mid-Ord:	32.803	External:	74.678
Chord:	105.108	Course:	S 22° 04' 15.7957" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+31.784	7571306.798	314722.602
End:	9+48.159	7571294.604	314733.532

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.375	Course:	S 41° 52' 19.5075" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+48.159	7571294.604	314733.532
End:	9+68.861	7571278.413	314746.433

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 38° 32' 56.2739" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+68.861	7571278.413	314746.433
End:	9+72.011	7571275.88	314748.304

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 36° 26' 21.4276" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+72.011	7571275.88	314748.304
End:	9+75.147	7571273.244	314750.005

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 32° 50' 12.8725" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	9+75.147	7571273.244	314750.005
End:	9+78.272	7571270.518	314751.531

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 29° 14' 03.8995" E

Curve Point Data

Description	Station	Northing	Easting
PC:	9+78.272	7571270.518	314751.531
RP:		7571244.84	314708.978
PT:	10+03.921	7571246.175	314758.66

Length:	9.972	Course:	S 60° 08' 37.0239" W

Curve Point Data

Description	Station	Northing	Easting
PC:	55+68.926	7568160.147	313547.814
RP:		7568070.384	313599.339
PT:	56+11.125	7568132.359	313516.445

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	23° 21' 37.2661"	Type:	LEFT
Radius:	103.5		
Length:	42.199	Tangent:	21.396
Mid-Ord:	2.143	External:	2.189
Chord:	41.907	Course:	S 48° 27' 48.3908" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+11.125	7568132.359	313516.445
End:	56+29.484	7568117.655	313505.452

Tangent Data

Parameter	Value	Parameter	Value
Length:	18.359	Course:	S 36° 46' 59.7578" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+29.484	7568117.655	313505.452
End:	56+48.841	7568102.729	313493.127

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 39° 32' 49.6443" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+48.841	7568102.729	313493.127
End:	56+51.859	7568100.453	313491.145

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 41° 03' 18.8756" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+51.859	7568100.453	313491.145
End:	56+54.870	7568098.276	313489.065

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 43° 41' 57.9226" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+54.870	7568098.276	313489.065
End:	56+57.874	7568096.203	313486.892

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 46° 20' 37.0900" W

Curve Point Data

Description	Station	Northing	Easting
PC:	45+89.470	7568864.086	313980.343
RP:		7568873.908	313877.31
PT:	46+28.607	7568826.741	313969.438

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	21° 39' 56.2308"	Type:	RIGHT
Radius:	103.5		
Length:	39.137	Tangent:	19.805
Mid-Ord:	1.844	External:	1.878
Chord:	38.904	Course:	S 16° 16' 41.9068" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+28.607	7568826.741	313969.438
End:	46+44.426	7568812.66	313962.228

Tangent Data

Parameter	Value	Parameter	Value
Length:	15.819	Course:	S 27° 06' 40.0222" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	46+44.426	7568812.66	313962.228
End:	46+64.435	7568794.584	313953.648

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 25° 23' 33.9334" W

Curve Point Data

Description	Station	Northing	Easting
PC:	46+64.435	7568794.584	313953.648
RP:		7568705.309	314128.024
PT:	47+08.299	7568753.636	313938.178

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	12° 49' 44.9970"	Type:	LEFT
Radius:	195.9		
Length:	43.864	Tangent:	22.024
Mid-Ord:	1.226	External:	1.234
Chord:	43.773	Course:	S 20° 41' 47.5237" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	47+08.299	7568753.636	313938.178
End:	47+28.308	7568734.403	313932.663

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 16° 00' 01.1140" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	47+28.308	7568734.403	313932.663
End:	48+93.311	7568574.5	313891.958

Tangent Data

Parameter	Value	Parameter	Value
Length:	165.002	Course:	S 14° 16' 55.0252" W

Curve Point Data

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	29° 34' 08.6047"	Type:	RIGHT
Radius:	49.7		
Length:	25.649	Tangent:	13.117
Mid-Ord:	1.645	External:	1.702
Chord:	25.365	Course:	S 16° 19' 26.2986" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+03.921	7571246.175	314758.66
End:	10+07.045	7571243.056	314758.846

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 03° 24' 48.6977" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+07.045	7571243.056	314758.846
End:	10+10.182	7571239.919	314758.836

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 00° 11' 20.2753" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+10.182	7571239.919	314758.836
End:	10+13.331	7571236.777	314758.627

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 03° 47' 28.8304" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+13.331	7571236.777	314758.627
End:	10+34.034	7571216.184	314756.499

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 05° 54' 03.6767" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+34.034	7571216.184	314756.499
End:	10+37.625	7571212.64	314755.923

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.591	Course:	S 09° 13' 26.9103" W

Curve Point Data

Description	Station	Northing	Easting
PC:	10+37.625	7571212.64	314755.923
RP:		7571203.262	314813.667
PT:	11+62.876	7571149.594	314836.946

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	122° 40' 23.8321"	Type:	LEFT
Radius:	58.5		
Length:	125.252	Tangent:	107.015

Description	Station	Northing	Easting
PC:	56+57.874	7568096.203	313486.892
RP:		7568141.989	313440.614
PT:	56+89.852	7568079.788	313459.822

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	28° 08' 41.4425"	Type:	RIGHT
Radius:	65.1		
Length:	31.978	Tangent:	16.319
Mid-Ord:	1.954	External:	2.014
Chord:	31.658	Course:	S 58° 46' 01.8181" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+89.852	7568079.788	313459.822
End:	56+92.856	7568078.819	313456.979

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.004	Course:	S 71° 11' 26.5463" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+92.856	7568078.819	313456.979
End:	56+95.867	7568077.981	313454.087

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.011	Course:	S 73° 50' 05.7136" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+95.867	7568077.981	313454.087
End:	56+98.885	7568077.275	313451.152

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.018	Course:	S 76° 28' 44.7606" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+98.885	7568077.275	313451.152
End:	57+18.241	7568073.247	313432.219

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.357	Course:	S 77° 59' 13.9919" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	57+18.241	7568073.247	313432.219
End:	58+24.012	7568056.247	313327.824

Tangent Data

Parameter	Value	Parameter	Value
Length:	105.77	Course:	S 80° 45' 03.8785" W

Curve Point Data

Description	Station	Northing	Easting
PC:	58+24.012	7568056.247	313327.824
RP:		7567855.392	313360.532
PT:	58+60.851	7568047.076	313292.196

Circular Curve Data

Parameter	Value	Parameter	Value

Description	Station	Northing	Easting
PC:	48+93.311	7568574.5	313891.958
RP:		7568592.632	313820.729
PT:	49+37.774	7568537.209	313869.005

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 39' 39.9536"	Type:	RIGHT
Radius:	73.5		
Length:	44.464	Tangent:	22.936
Mid-Ord:	3.337	External:	3.495
Chord:	43.789	Course:	S 31° 36' 45.0020" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+37.774	7568537.209	313869.005
End:	49+65.731	7568518.847	313847.924

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.957	Course:	S 48° 56' 34.9788" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+65.731	7568518.847	313847.924
End:	49+86.434	7568504.367	313833.127

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 45° 37' 11.7452" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+86.434	7568504.367	313833.127
End:	49+89.583	7568502.083	313830.959

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 43° 30' 36.8989" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+89.583	7568502.083	313830.959
End:	49+92.720	7568499.677	313828.947

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 39° 54' 28.3438" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	49+92.720	7568499.677	313828.947
End:	49+95.844	7568497.159	313827.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 36° 18' 19.3708" W

Curve Point Data

Description	Station	Northing	Easting
PC:	49+95.844	7568497.159	313827.097
RP:		7568466.438	313866.165
PT:	50+28.603	7568466.797	313816.466

Circular Curve Data

Mid-Ord:	30.44	External:	63.461
Chord:	102.662	Course:	S 52° 06' 45.0058" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	11+62.876	7571149.594	314836.946
End:	12+97.587	7571203.2	314960.532

Tangent Data

Parameter	Value	Parameter	Value
Length:	134.711	Course:	N 66° 33' 03.0781" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	12+97.587	7571203.2	314960.532
End:	13+18.290	7571210.323	314979.97

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 69° 52' 26.3117" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	13+18.290	7571210.323	314979.97
End:	13+21.439	7571211.297	314982.965

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 71° 59' 01.1580" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	13+21.439	7571211.297	314982.965
End:	13+24.576	7571212.078	314986.003

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 75° 35' 09.7130" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	13+24.576	7571212.078	314986.003
End:	13+27.700	7571212.664	314989.072

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 79° 11' 18.6860" E

Curve Point Data

Description	Station	Northing	Easting
PC:	13+27.700	7571212.664	314989.072
RP:		7571164.177	314999.986
PT:	14+30.881	7571150.258	315047.697

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	118° 56' 59.5009"	Type:	RIGHT
Radius:	49.7		
Length:	103.181	Tangent:	84.29
Mid-Ord:	24.457	External:	48.151
Chord:	85.624	Course:	S 43° 12' 38.2649" E

Delta:	10° 22' 20.2473"	Type:	LEFT
Radius:	203.5		
Length:	36.84	Tangent:	18.47
Mid-Ord:	0.833	External:	0.836
Chord:	36.789	Course:	S 75° 33' 53.7548" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	58+60.851	7568047.076	313292.196
End:	59+61.521	7568013.271	313197.372

Tangent Data

Parameter	Value	Parameter	Value
Length:	100.67	Course:	S 70° 22' 43.6311" W

Alignment: a.horizontal-Izquierda-3.500

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	7571840.621	315176.157
End:	0+19.852	7571825.559	315163.226

Tangent Data

Parameter	Value	Parameter	Value
Length:	19.852	Course:	S 40° 38' 49.3418" W

Curve Point Data

Description	Station	Northing	Easting
PC:	0+19.852	7571825.559	315163.226
RP:		7571863.665	315118.84
PT:	0+98.025	7571811.639	315092.09

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	76° 33' 49.4954"	Type:	RIGHT
Radius:	58.5		
Length:	78.173	Tangent:	46.17
Mid-Ord:	12.579	External:	16.025
Chord:	72.485	Course:	S 78° 55' 44.0895" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+98.025	7571811.639	315092.09
End:	1+18.815	7571821.146	315073.6

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.79	Course:	N 62° 47' 21.1627" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+18.815	7571821.146	315073.6
End:	1+39.518	7571829.53	315054.671

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 66° 06' 44.3964" W

Parameter	Value	Parameter	Value
Delta:	37° 45' 55.1118"	Type:	LEFT
Radius:	49.7		
Length:	32.759	Tangent:	16.999
Mid-Ord:	2.675	External:	2.827
Chord:	32.169	Course:	S 19° 17' 48.5164" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+28.603	7568466.797	313816.466
End:	50+31.727	7568463.675	313816.341

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 02° 17' 17.6619" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+31.727	7568463.675	313816.341
End:	50+34.864	7568460.539	313816.413

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 01° 18' 51.3111" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+34.864	7568460.539	313816.413
End:	50+38.014	7568457.401	313816.683

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 04° 54' 59.8662" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+38.014	7568457.401	313816.683
End:	50+58.716	7568436.854	313819.216

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 01' 34.7124" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	50+58.716	7568436.854	313819.216
End:	51+19.261	7568377.294	313830.093

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.545	Course:	S 10° 20' 57.9460" E

Curve Point Data

Description	Station	Northing	Easting
PC:	51+19.261	7568377.294	313830.093
RP:		7568366.785	313772.545
PT:	52+40.092	7568311.146	313754.473

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	118° 20' 36.9849"	Type:	RIGHT
Radius:	58.5		
Length:	120.831	Tangent:	98.025

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+30.881	7571150.258	315047.697
End:	14+34.005	7571147.232	315046.921

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 14° 23' 24.7841" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+34.005	7571147.232	315046.921
End:	14+37.142	7571144.248	315045.952

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 17° 59' 33.7571" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+37.142	7571144.248	315045.952
End:	14+40.291	7571141.32	315044.793

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 21° 35' 42.3122" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+40.291	7571141.32	315044.793
End:	14+60.994	7571122.364	315036.47

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 23° 42' 17.1585" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	14+60.994	7571122.364	315036.47
End:	14+96.142	7571091.055	315020.498

Tangent Data

Parameter	Value	Parameter	Value
Length:	35.148	Course:	S 27° 01' 40.3921" W

Curve Point Data

Description	Station	Northing	Easting
PC:	14+96.142	7571091.055	315020.498
RP:		7571064.471	315072.609
PT:	15+94.663	7571009.688	315052.089

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	96° 29' 37.5355"	Type:	LEFT
Radius:	58.5		
Length:	98.522	Tangent:	65.537
Mid-Ord:	19.544	External:	29.348
Chord:	87.284	Course:	S 21° 13' 08.3757" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+94.663	7571009.688	315052.089
End:	15+99.462	7571007.944	315056.559

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+39.518	7571829.53	315054.671
End:	1+42.667	7571830.698	315051.747

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 68° 13' 19.2426" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+42.667	7571830.698	315051.747
End:	1+45.804	7571831.676	315048.766

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 71° 49' 27.7978" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+45.804	7571831.676	315048.766
End:	1+48.928	7571832.463	315045.742

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 75° 25' 36.7706" W

Curve Point Data

Description	Station	Northing	Easting
PC:	1+48.928	7571832.463	315045.742
RP:		7571784.796	315031.671
PT:	2+48.464	7571777.621	314982.492

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	114° 44' 53.2229"	Type:	LEFT
Radius:	49.7		
Length:	99.536	Tangent:	77.636
Mid-Ord:	22.904	External:	42.482
Chord:	83.716	Course:	S 49° 04' 23.3193" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+48.464	7571777.621	314982.492
End:	2+51.588	7571774.516	314982.841

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 06° 25' 36.5907" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+51.588	7571774.516	314982.841
End:	2+54.725	7571771.427	314983.388

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 10° 01' 45.5638" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+54.725	7571771.427	314983.388

Mid-Ord:	28.521	External:	55.654
Chord:	100.469	Course:	S 48° 49' 20.5464" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+40.092	7568311.146	313754.473
End:	52+97.670	7568328.933	313699.711

Tangent Data

Parameter	Value	Parameter	Value
Length:	57.578	Course:	N 72° 00' 20.9612" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	52+97.670	7568328.933	313699.711
End:	53+18.372	7568334.176	313679.684

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	N 75° 19' 44.1948" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	53+18.372	7568334.176	313679.684
End:	53+21.522	7568334.861	313676.61

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	N 77° 26' 19.0411" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	53+21.522	7568334.861	313676.61
End:	53+24.658	7568335.35	313673.511

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	N 81° 02' 27.5961" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	53+24.658	7568335.35	313673.511
End:	53+27.783	7568335.641	313670.401

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	N 84° 38' 36.5691" W

Curve Point Data

Description	Station	Northing	Easting
PC:	53+27.783	7568335.641	313670.401
RP:		7568286.337	313664.145
PT:	53+98.989	7568299.319	313616.171

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	82° 05' 18.0440"	Type:	LEFT
Radius:	49.7		
Length:	71.206	Tangent:	43.271
Mid-Ord:	12.216	External:	16.197
Chord:	65.27	Course:	S 56° 11' 11.1103" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	53+98.989	7568299.319	313616.171
End:	54+02.113	7568296.331	313615.256

Tangent Data

Parameter	Value	Parameter	Value

Parameter	Value	Parameter	Value
Length:	4.798	Course:	S 68° 41' 29.6104" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	15+99.462	7571007.944	315056.559
End:	16+04.281	7571006.567	315061.178

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.82	Course:	S 73° 23' 19.6053" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+04.281	7571006.567	315061.178
End:	16+09.122	7571005.567	315065.914

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.841	Course:	S 78° 05' 09.1636" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+09.122	7571005.567	315065.914
End:	16+16.315	7571004.342	315073.002

Tangent Data

Parameter	Value	Parameter	Value
Length:	7.192	Course:	S 80° 11' 35.0145" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+16.315	7571004.342	315073.002
End:	16+19.464	7571003.692	315076.083

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 78° 05' 00.1682" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+19.464	7571003.692	315076.083
End:	16+22.601	7571002.853	315079.106

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 74° 28' 51.6131" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	16+22.601	7571002.853	315079.106
End:	16+25.725	7571001.829	315082.058

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 70° 52' 42.6402" E

Curve Point Data

Description	Station	Northing	Easting
PC:	16+25.725	7571001.829	315082.058
RP:		7570954.364	315067.322
End:	2+57.874	7571768.367	314984.13

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 13° 37' 54.1188" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+57.874	7571768.367	314984.13
End:	2+78.577	7571748.441	314989.746

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 15° 44' 28.9651" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+78.577	7571748.441	314989.746
End:	3+36.583	7571693.616	315008.693

Tangent Data

Parameter	Value	Parameter	Value
Length:	58.006	Course:	S 19° 03' 52.1987" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+36.583	7571693.616	315008.693
RP:		7571674.508	314953.402
PT:	4+01.547	7571633.459	314995.083

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	63° 37' 35.0172"	Type:	RIGHT
Radius:	58.5		
Length:	64.964	Tangent:	36.29
Mid-Ord:	8.788	External:	10.342
Chord:	61.677	Course:	S 12° 44' 55.3099" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+01.547	7571633.459	314995.083
End:	4+63.304	7571589.458	314951.749

Tangent Data

Parameter	Value	Parameter	Value
Length:	61.756	Course:	S 44° 33' 42.8185" W

Curve Point Data

Description	Station	Northing	Easting
PC:	4+63.304	7571589.458	314951.749
RP:		7571630.507	314910.068
PT:	5+03.754	7571572.308	314916.001

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	39° 37' 05.2504"	Type:	RIGHT
Radius:	58.5		
Length:	40.451	Tangent:	21.072
Mid-Ord:	3.462	External:	3.679
Chord:	39.65	Course:	S 64° 22' 15.4437" W

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 17° 00' 58.7898" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+02.113	7568296.331	313615.256
End:	54+05.250	7568293.28	313614.529

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 13° 24' 49.8168" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+05.250	7568293.28	313614.529
End:	54+08.399	7568290.177	313613.992

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 09° 48' 41.2617" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+08.399	7568290.177	313613.992
End:	54+29.102	7568269.661	313611.218

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 07° 42' 06.4155" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	54+29.102	7568269.661	313611.218
End:	54+83.322	7568215.599	313607.078

Tangent Data

Parameter	Value	Parameter	Value
Length:	54.22	Course:	S 04° 22' 43.1819" W

Curve Point Data

Description	Station	Northing	Easting
PC:	54+83.322	7568215.599	313607.078
RP:		7568220.065	313548.749
PT:	55+40.259	7568169.33	313577.872

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	55° 45' 53.8420"	Type:	RIGHT
Radius:	58.5		
Length:	56.937	Tangent:	30.951
Mid-Ord:	6.791	External:	7.683
Chord:	54.716	Course:	S 32° 15' 40.1029" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+40.259	7568169.33	313577.872
End:	55+54.231	7568162.374	313565.754

Tangent Data

Parameter	Value	Parameter	Value
Length:	13.972	Course:	S 60° 08' 37.0239" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+54.231	7568162.374	313565.754
End:	55+70.912	7568153.498	313551.63

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 57° 51' 10.8278" W

PT:	17+04.566	7570938.892	315114.552

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	90° 53' 24.9101"	Type:	RIGHT
Radius:	49.7		
Length:	78.841	Tangent:	50.478
Mid-Ord:	14.831	External:	21.139
Chord:	70.83	Course:	S 27° 18' 26.8865" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+04.566	7570938.892	315114.552
End:	17+07.690	7570935.893	315113.677

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 16° 15' 48.8671" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+07.690	7570935.893	315113.677
End:	17+10.827	7570932.943	315112.611

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 19° 51' 57.8401" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+10.827	7570932.943	315112.611
End:	17+13.977	7570930.054	315111.357

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 23° 28' 06.3952" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+13.977	7570930.054	315111.357
End:	17+34.679	7570911.38	315102.419

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 25° 34' 41.2414" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	17+34.679	7570911.38	315102.419
End:	18+32.556	7570825.694	315055.115

Tangent Data

Parameter	Value	Parameter	Value
Length:	97.876	Course:	S 28˝ 54' 04.4750" W

Curve Point Data

Description	Station	Northing	Easting
PC:	18+32.556	7570825.694	315055.115
RP:		7570790.171	315119.461
PT:	18+86.666	7570773.289	315047.926

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	42° 10' 50.0348"	Type:	LEFT
Radius:	73.5		
Length:	54.11	Tangent:	28.347

Description	PT Station	Northing	Easting
Start:	5+03.754	7571572.308	314916.001
End:	5+20.827	7571570.577	314899.016

Tangent Data

Parameter	Value	Parameter	Value
Length:	17.073	Course:	S 84° 10' 48.0690" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+20.827	7571570.577	314899.016
End:	5+41.530	7571567.287	314878.576

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.703	Course:	S 80° 51' 24.8354" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+41.530	7571567.287	314878.576
End:	5+44.679	7571566.673	314875.487

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 78° 44' 49.9891" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+44.679	7571566.673	314875.487
End:	5+47.816	7571565.869	314872.455

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.137	Course:	S 75° 08' 41.4341" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	5+47.816	7571565.869	314872.455
End:	5+50.940	7571564.879	314869.492

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 71° 32' 32.4610" W

Curve Point Data

Description	Station	Northing	Easting
PC:	5+50.940	7571564.879	314869.492
RP:		7571517.247	314883.677
PT:	6+34.946	7571497.486	314838.074

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	96° 50' 41.3053"	Type:	LEFT
Radius:	49.7		
Length:	84.006	Tangent:	56.023
Mid-Ord:	16.717	External:	25.191
Chord:	74.357	Course:	S 24° 59' 38.5098" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+34.946	7571497.486	314838.074
End:	6+38.071	7571494.58	314839.222

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.124	Course:	S 21° 33' 15.4414" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+70.912	7568153.498	313551.63
End:	55+73.574	7568152.046	313549.399

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 56° 57' 23.7674" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+73.574	7568152.046	313549.399
End:	55+76.234	7568150.535	313547.211

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 55° 21' 44.7765" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	55+76.234	7568150.535	313547.211
End:	55+78.890	7568148.965	313545.068

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 53° 46' 05.7624" W

Curve Point Data

Description	Station	Northing	Easting
PC:	55+78.890	7568148.965	313545.068
RP:		7568070.384	313599.339
PT:	56+01.912	7568133.736	313527.877

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	13° 48' 43.2362"	Type:	LEFT
Radius:	95.5		
Length:	23.022	Tangent:	11.567
Mid-Ord:	0.693	External:	0.698
Chord:	22.966	Course:	S 48° 27' 48.3908" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+01.912	7568133.736	313527.877
End:	56+04.568	7568131.799	313526.06

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 43˝ 09' 31.0193" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+04.568	7568131.799	313526.06
End:	56+07.228	7568129.809	313524.296

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 41˝ 33' 52.0052" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+07.228	7568129.809	313524.296
End:	56+09.890	7568127.768	313522.585

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 39˝ 58' 13.0143" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+09.890	7568127.768	313522.585

Mid-Ord:	4.923	External:	5.277
Chord:	52.896	Course:	S 07° 48' 39.4576" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	18+86.666	7570773.289	315047.926
End:	19+49.898	7570711.747	315062.451

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+38.071	7571494.58	314839.222
End:	6+41.208	7571491.741	314840.555

Tangent Data

Parameter	Value	Parameter	Value
End:	56+26.571	7568114.818	313512.071

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 39° 04' 25.9539" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	56+26.571	7568114.818	313512.071

Tangent Data

Parameter	Value	Parameter	Value
Length:	63.232	Course:	S 13° 16' 45.5598" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	19+49.898	7570711.747	315062.451
End:	19+66.579	7570695.372	315065.63

Tangent Data

Parameter	Value	Parameter	Value
Length:	16.681	Course:	S 10° 59' 19.3636" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	19+66.579	7570695.372	315065.63
End:	19+69.241	7570692.751	315066.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.662	Course:	S 10° 05' 32.3032" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	19+69.241	7570692.751	315066.097
End:	19+71.901	7570690.12	315066.49

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.659	Course:	S 08° 29' 53.3123" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	19+71.901	7570690.12	315066.49
End:	19+74.557	7570687.483	315066.809

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 06° 54' 14.2982" E

Curve Point Data

Description	Station	Northing	Easting
PC:	19+74.557	7570687.483	315066.809
RP:		7570673.359	314972.359
PT:	20+09.641	7570652.618	315065.58

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	21° 02' 56.4928"	Type:	RIGHT
Radius:	95.5		
Length:	35.084	Tangent:	17.742
Mid-Ord:	1.607	External:	1.634
Chord:	34.887	Course:	S 02° 01' 09.7016" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	20+09.641	7570652.618	315065.58
End:	20+12.298	7570650.01	315065.076

Tangent Data

Parameter	Value	Parameter	Value
Length:	2.656	Course:	S 10° 56' 33.7014" W

Length:	3.137	Course:	S 25° 09' 24.4144" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+41.208	7571491.741	314840.555
End:	6+44.357	7571488.98	314842.071

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.149	Course:	S 28° 45' 32.9695" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+44.357	7571488.98	314842.071
End:	6+48.376	7571485.53	314844.133

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.019	Course:	S 30° 52' 07.8158" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+48.376	7571485.53	314844.133
End:	6+54.368	7571480.25	314846.966

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.993	Course:	S 28° 13' 13.5125" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+54.368	7571480.25	314846.966
End:	6+60.329	7571474.74	314849.24

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.96	Course:	S 22° 25' 11.9108" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+60.329	7571474.74	314849.24
End:	6+66.256	7571469.06	314850.935

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.928	Course:	S 16° 37' 09.6464" E

Curve Point Data

Description	Station	Northing	Easting
PC:	6+66.256	7571469.06	314850.935
RP:		7571452.112	314794.944
PT:	7+71.273	7571393.753	314799.01

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	102° 51' 18.7743"	Type:	RIGHT
Radius:	58.5		
Length:	105.017	Tangent:	73.354
Mid-Ord:	22.025	External:	35.325
Chord:	91.473	Course:	S 34° 35' 11.7116" W

End:	56+47.597	7568097.978	313499.481

Tangent Data

Parameter	Value	Parameter	Value
Length:	21.026	Course:	S 36° 46' 59.7578" W

Curve Point Data

Description	Station	Northing	Easting
PC:	56+47.597	7568097.978	313499.481
RP:		7568141.989	313440.614
PT:	57+04.000	7568069.445	313452.427

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	43° 58' 04.1207"	Type:	RIGHT
Radius:	73.5		
Length:	56.403	Tangent:	29.672
Mid-Ord:	5.344	External:	5.763
Chord:	55.029	Course:	S 58° 46' 01.8181" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	57+04.000	7568069.445	313452.427
End:	58+09.104	7568052.552	313348.689

Tangent Data

Parameter	Value	Parameter	Value
Length:	105.104	Course:	S 80° 45' 03.8785" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	58+09.104	7568052.552	313348.689
End:	58+29.113	7568048.746	313329.046

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 79° 01' 57.7897" W

Curve Point Data

Description	Station	Northing	Easting
PC:	58+29.113	7568048.746	313329.046
RP:		7567855.392	313360.532
PT:	58+64.577	7568039.917	313294.748

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 22' 20.2473"	Type:	LEFT
Radius:	195.9		
Length:	35.464	Tangent:	17.781
Mid-Ord:	0.802	External:	0.805
Chord:	35.415	Course:	S 75° 33' 53.7548" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	58+64.577	7568039.917	313294.748
End:	58+84.586	7568033.766	313275.708

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.009	Course:	S 72° 05' 49.7200" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	58+84.586	7568033.766	313275.708
End:	59+65.256	7568006.677	313199.723

Tangent Data

Parameter	Value	Parameter	Value
Length:	80.67	Course:	S 70° 22' 43.6311" W

Informe de volumen

P.K.	Área de desmonte (metros cuadrados)	Volumen de desmonte (metros cúbicos)	Volumen reutilizable (metros cúbicos)	Área de terraplén (metros cuadrados)	Volumen de terraplén (metros cúbicos)	Vol. desmonte acumul. (metros cúbicos)	Vol. reutilizable acumul. (metros cúbicos)	Vol. terraplén acumul. (metros cúbicos)	Vol. neto acumul. (pies cúbicos)
0+020.000	1.11	0	0	2.4	0	0	0	0	0
0+030.000	0.09	5.56	5.56	6.68	47.51	5.56	5.56	47.51	-41.94
0+040.000	0	0.4	0.4	12.73	100.66	5.97	5.97	148.17	-142.2
0+050.000	0	0	0	12.39	130.34	5.97	5.97	278.51	-272.54
0+060.000	0.66	2.96	2.96	7.98	106.57	8.93	8.93	385.08	-376.15
0+070.000	1.27	8.69	8.69	5.82	72.77	17.62	17.62	457.85	-440.23
0+080.000	2.18	15.76	15.76	1.98	41.28	33.39	33.39	499.13	-465.74
0+090.000	3.06	24.37	24.37	0.51	13.22	57.76	57.76	512.34	-454.59
0+100.000	0.19	15.91	15.91	3.34	19.54	73.66	73.66	531.89	-458.22
0+120.000	12.16	123.48	123.48	0	33.38	197.15	197.15	565.27	-368.12
0+140.000	14.42	266.07	266.07	0	0.02	463.21	463.21	565.3	-102.08
0+150.000	14.77	146.46	146.46	0.06	0.28	609.67	609.67	565.58	44.09
0+160.000	3.81	94.17	94.17	5.44	25.21	703.84	703.84	590.79	113.05
0+170.000	0	20.15	20.15	30.77	166.72	723.98	723.98	757.51	-33.52
0+180.000	0	0	0	75.1	490.31	723.98	723.98	1247.82	-523.83
0+190.000	0	0	0	116.48	892.42	723.98	723.98	2140.24	-1416.25
0+200.000	0	0	0	99.71	1033.38	723.98	723.98	3173.62	-2449.63
0+210.000	0	0	0	92.82	952.29	723.98	723.98	4125.91	-3401.92
0+220.000	0	0	0	66.87	797.6	723.98	723.98	4923.51	-4199.52
0+230.000	0	0	0	31.65	492.49	723.98	723.98	5415.99	-4692.01
0+240.000	2.74	13.48	13.48	0.35	159.3	737.46	737.46	5575.3	-4837.83
0+250.000	28.07	153.64	153.64	0	1.61	891.11	891.11	5576.9	-4685.8
0+260.000	38.83	334.87	334.87	0	0	1225.98	1225.98	5576.9	-4350.93
0+280.000	35.09	741.23	741.23	0	0	1967.21	1967.21	5576.9	-3609.69
0+300.000	33.15	682.35	682.35	0	0	2649.56	2649.56	5576.9	-2927.34
0+320.000	22.81	559.6	559.6	0	0	3209.16	3209.16	5576.9	-2367.74
0+340.000	11	338.11	338.11	0.53	5.26	3547.27	3547.27	5582.16	-2034.89
0+350.000	8.65	95.13	95.13	1.56	10.85	3642.4	3642.4	5593.01	-1950.61
0+360.000	5.36	65.16	65.16	0.96	13.46	3707.56	3707.56	5606.47	-1898.91
0+370.000	3.25	39.52	39.52	3.4	22.84	3747.09	3747.09	5629.31	-1882.22
0+380.000	2.02	23.99	23.99	1.56	25.77	3771.07	3771.07	5655.08	-1884
0+390.000	2.22	19.33	19.33	0.92	12.93	3790.41	3790.41	5668.01	-1877.6
0+400.000	2.22	20.34	20.34	1.65	13.51	3810.75	3810.75	5681.52	-1870.77
0+420.000	6.75	88.41	88.41	0.35	20.28	3899.16	3899.16	5701.8	-1802.64
0+440.000	7.42	141.67	141.67	0.19	5.47	4040.83	4040.83	5707.27	-1666.45
0+460.000	6.09	135.04	135.04	0.57	7.65	4175.87	4175.87	5714.92	-1539.05
0+470.000	5.53	56.92	56.92	3.56	21.06	4232.8	4232.8	5735.98	-1503.18
0+480.000	8.6	65.2	65.2	0.63	22.39	4297.99	4297.99	5758.37	-1460.38
0+490.000	23.73	154.57	154.57	0	3.39	4452.57	4452.57	5761.76	-1309.2
0+500.000	34.25	280.72	280.72	0	0	4733.28	4733.28	5761.76	-1028.48
0+520.000	41.11	748.91	748.91	0	0	5482.2	5482.2	5761.76	-279.57
0+540.000	65.92	1070.22	1070.22	0	0	6552.42	6552.42	5761.76	790.66
0+550.000	79.18	730.33	730.33	0	0	7282.75	7282.75	5761.76	1520.99
0+560.000	100.9	911.21	911.21	0	0	8193.97	8193.97	5761.76	2432.2
0+570.000	92.8	979.15	979.15	0	0	9173.11	9173.11	5761.76	3411.35
0+580.000	82.85	879.21	879.21	0	0	10052.33	10052.33	5761.76	4290.56
0+590.000	75.96	787.84	787.84	0	0	10840.17	10840.17	5761.76	5078.41
0+600.000	62.91	687.57	687.57	0	0	11527.75	11527.75	5761.76	5765.98
0+610.000	51.01	567.05	567.05	0	0	12094.8	12094.8	5761.76	6333.04
0+620.000	49.61	505.14	505.14	0	0	12599.94	12599.94	5761.76	6838.17
0+630.000	39.99	451.59	451.59	0	0	13051.53	13051.53	5761.76	7289.76
0+640.000	17.53	291.65	291.65	0	0	13343.18	13343.18	5761.77	7581.41
0+650.000	1.11	95.92	95.92	8.12	37.08	13439.1	13439.1	5798.85	7640.24
0+660.000	0	5.83	5.83	37.89	223.06	13444.93	13444.93	6021.91	7423.02
0+670.000	0	0	0	72.34	564.66	13444.93	13444.93	6586.57	6858.36
0+680.000	0	0	0	95.8	865.81	13444.93	13444.93	7452.38	5992.55
0+690.000	0	0	0	181.42	1498.68	13444.93	13444.93	8951.06	4493.88
0+700.000	0	0	0	268.01	2663.16	13444.93	13444.93	11614.21	1830.72
0+710.000	0	0	0	156.64	2581.64	13444.93	13444.93	14195.85	-750.92
0+720.000	0	0	0	66.03	1294.08	13444.93	13444.93	15489.94	-2045.01

0+730.000	0	0	0	41.31	583.75	13444.93	13444.93	16073.68	-2628.75
0+740.000	0	0	0	35.76	392.39	13444.93	13444.93	16466.07	-3021.14
0+750.000	0	0	0	20.44	285.25	13444.93	13444.93	16751.32	-3306.39
0+760.000	0.05	0.21	0.21	10.82	158.08	13445.14	13445.14	16909.39	-3464.25
0+770.000	15.79	75.47	75.47	1.12	61.52	13520.61	13520.61	16970.92	-3450.3
0+780.000	45.41	297.54	297.54	0	6.08	13818.15	13818.15	16976.99	-3158.84
0+790.000	77.39	605.08	605.08	0	0	14423.23	14423.23	16976.99	-2553.76
0+800.000	101.48	895.16	895.16	0	0	15318.39	15318.39	16976.99	-1658.6
0+810.000	102.09	1023.16	1023.16	0	0	16341.55	16341.55	16976.99	-635.44
0+820.000	76.39	904.68	904.68	0	0	17246.23	17246.23	16976.99	269.24
0+830.000	38.17	593.11	593.11	13.34	56.69	17839.34	17839.34	17033.68	805.66
0+840.000	0	202.34	202.34	73.95	412	18041.68	18041.68	17445.68	596
0+850.000	0	0	0	86.02	759.37	18041.68	18041.68	18205.05	-163.37
0+860.000	0	0	0	67.87	684.73	18041.68	18041.68	18889.77	-848.1
0+870.000	13.67	71.48	71.48	24.57	381.13	18113.15	18113.15	19270.9	-1157.74
0+880.000	35.54	253.74	253.74	0.44	102.38	18366.9	18366.9	19373.28	-1006.38
0+890.000	52.03	448.06	448.06	0	1.92	18814.96	18814.96	19375.21	-560.25
0+900.000	61.35	579.14	579.14	0	0	19394.09	19394.09	19375.21	18.89
0+910.000	63.97	640.53	640.53	0	0	20034.62	20034.62	19375.21	659.42
0+920.000	61.95	644.3	644.3	0	0	20678.93	20678.93	19375.21	1303.72
0+930.000	47.23	559.71	559.71	0	0	21238.64	21238.64	19375.21	1863.43
0+940.000	35.12	417.5	417.5	0	0	21656.15	21656.15	19375.21	2280.94
0+960.000	26.96	620.86	620.86	0.06	0.6	22277	22277	19375.81	2901.19
0+980.000	19.72	457.66	457.66	204.03	2400.2	22734.66	22734.66	21776.01	958.65
0+990.000	13.24	150.76	150.76	160.9	2626.03	22885.42	22885.42	24402.04	-1516.62
1+000.000	8.34	97.01	97.01	192.49	2429.26	22982.43	22982.43	26831.3	-3848.87
1+010.000	4.74	58.31	58.31	108.51	1954.71	23040.73	23040.73	28786.01	-5745.28
1+020.000	1.05	25.88	25.88	83.31	1136.48	23066.61	23066.61	29922.49	-6855.88
1+040.000	6.24	72.67	72.67	20.95	1056.01	23139.28	23139.28	30978.5	-7839.22
1+050.000	11.13	87.84	87.84	2.98	109.62	23227.12	23227.12	31088.12	-7861
1+060.000	0	56.87	56.87	49.04	216.55	23283.99	23283.99	31304.67	-8020.67
1+070.000	0	0	0	153.12	906.99	23283.99	23283.99	32211.65	-8927.66
1+080.000	0	0	0	250.48	1896.29	23283.99	23283.99	34107.94	-10823.95
1+090.000	0	0	0	217.24	2204.09	23283.99	23283.99	36312.03	-13028.04
1+100.000	0	0	0	205.24	1850.84	23283.99	23283.99	38162.87	-14878.88
1+110.000	7.44	39.59	39.59	97.43	1249.2	23323.58	23323.58	39412.07	-16088.49
1+120.000	32.86	203.48	203.48	0	408.23	23527.06	23527.06	39820.3	-16293.24
1+130.000	39.01	358.28	358.28	0	0	23885.34	23885.34	39820.3	-15934.96
1+140.000	42.6	406.61	406.61	0	0	24291.95	24291.95	39820.3	-15528.35
1+150.000	42.84	425.58	425.58	0	0	24717.53	24717.53	39820.3	-15102.77
1+160.000	37.5	401.43	401.43	0	0	25118.96	25118.96	39820.3	-14701.34
1+180.000	32.47	700.9	700.9	0	0	25819.86	25819.86	39820.3	-14000.44
1+200.000	2.73	352	352	50.2	501.99	26171.86	26171.86	40322.29	-14150.42
1+220.000	0	27.33	27.33	241.71	2919.12	26199.19	26199.19	43241.41	-17042.22
1+240.000	18.89	188.89	188.89	4.73	2464.47	26388.08	26388.08	45705.88	-19317.8
1+260.000	69.46	883.49	883.49	0	47.33	27271.57	27271.57	45753.21	-18481.64
1+280.000	94.65	1641.14	1641.14	0	0	28912.71	28912.71	45753.21	-16840.5
1+300.000	88.22	1828.72	1828.72	0	0	30741.43	30741.43	45753.21	-15011.78
1+320.000	78.97	1670.75	1670.75	0	0	32412.19	32412.19	45753.21	-13341.03
1+330.000	73.3	746.04	746.04	0	0	33158.22	33158.22	45753.21	-12594.99
1+340.000	67.69	689.65	689.65	0	0	33847.88	33847.88	45753.21	-11905.33
1+350.000	60.05	624.75	624.75	0	0	34472.63	34472.63	45753.21	-11280.59
1+360.000	57.96	576.71	576.71	0	0	35049.34	35049.34	45753.21	-10703.88
1+370.000	50.21	527.98	527.98	0	0	35577.32	35577.32	45753.21	-10175.9
1+380.000	42.86	452.94	452.94	0	0	36030.25	36030.25	45753.21	-9722.96
1+390.000	30.53	357.01	357.01	0	0	36387.27	36387.27	45753.21	-9365.95
1+400.000	21.63	253.77	253.77	0	0	36641.04	36641.04	45753.21	-9112.18
1+410.000	15.57	179.61	179.61	0.17	0.94	36820.64	36820.64	45754.15	-8933.51
1+420.000	10.53	124.01	124.01	0.01	0.99	36944.65	36944.65	45755.14	-8810.49
1+430.000	10.86	99.81	99.81	0.15	0.85	37044.45	37044.45	45755.99	-8711.53
1+440.000	9	91.21	91.21	1.33	7.91	37135.66	37135.66	45763.89	-8628.23
1+450.000	8.57	80.16	80.16	2.19	18.69	37215.82	37215.82	45782.58	-8566.76
1+460.000	14.92	114.3	114.3	1.57	19.25	37330.12	37330.12	45801.83	-8471.71
1+480.000	34.33	492.43	492.43	0	15.71	37822.56	37822.56	45817.55	-7994.99
1+500.000	65.53	998.5	998.5	0	0	38821.06	38821.06	45817.55	-6996.49
1+510.000	81.55	735.36	735.36	0	0	39556.42	39556.42	45817.55	-6261.12
1+520.000	96.77	900.71	900.71	0	0	40457.14	40457.14	45817.55	-5360.41
1+530.000	102.12	1000.45	1000.45	0	0	41457.58	41457.58	45817.55	-4359.96
1+540.000	95.61	992.05	992.05	0	0	42449.63	42449.63	45817.55	-3367.91

1+550.000	79.68	878.09	878.09	0	0	43327.72	43327.72	45817.55	-2489.82
1+560.000	57.81	687.64	687.64	0	0	44015.36	44015.36	45817.55	-1802.19
1+570.000	42.7	500.5	500.5	0	0	44515.86	44515.86	45817.55	-1301.69
1+580.000	69.63	555.97	555.97	0	0	45071.83	45071.83	45817.55	-745.72
1+590.000	103.98	859.25	859.25	0	0	45931.08	45931.08	45817.55	113.54
1+600.000	111.52	1063.69	1063.69	0	0	46994.77	46994.77	45817.55	1177.23
1+610.000	90.3	994.75	994.75	0	0	47989.52	47989.52	45817.55	2171.97
1+620.000	72.93	814.1	814.1	0	0	48803.62	48803.62	45817.55	2986.07
1+630.000	53.41	623.06	623.06	0	0	49426.68	49426.68	45817.55	3609.13
1+640.000	32.96	415.02	415.02	0	0	49841.7	49841.7	45817.55	4024.15
1+650.000	18.48	247.61	247.61	0	0	50089.31	50089.31	45817.55	4271.76
1+660.000	10.31	140.27	140.27	0	0	50229.58	50229.58	45817.55	4412.03
1+670.000	2.48	62.86	62.86	0.44	2.33	50292.44	50292.44	45819.88	4472.56
1+680.000	0	12.04	12.04	24.31	138.7	50304.48	50304.48	45958.59	4345.9
1+690.000	0	0	0	66.59	503.22	50304.48	50304.48	46461.8	3842.68
1+700.000	0	0	0	88.75	841.52	50304.48	50304.48	47303.32	3001.16
1+710.000	0	0	0	98.5	980.33	50304.48	50304.48	48283.66	2020.82
1+720.000	0	0	0	80.16	909.33	50304.48	50304.48	49192.98	1111.5
1+730.000	0	0	0	56.5	685.06	50304.48	50304.48	49878.05	426.44
1+740.000	0	0	0	40.56	485.32	50304.48	50304.48	50363.37	-58.88
1+760.000	0	0	0	21.85	624.18	50304.48	50304.48	50987.55	-683.07
1+780.000	5.22	52.21	52.21	3.71	255.61	50356.69	50356.69	51243.15	-886.46
1+800.000	7.88	131.02	131.02	0.15	38.6	50487.71	50487.71	51281.76	-794.05
1+820.000	13.94	218.18	218.18	0.23	3.82	50705.89	50705.89	51285.58	-579.69
1+840.000	21.77	357.08	357.08	0.84	10.71	51062.98	51062.98	51296.29	-233.31
1+850.000	21.47	216.18	216.18	1.59	12.16	51279.16	51279.16	51308.45	-29.29
1+860.000	19.4	197.54	197.54	0.06	8.93	51476.7	51476.7	51317.37	159.33
1+870.000	25.87	218.83	218.83	0.46	2.82	51695.54	51695.54	51320.19	375.35
1+880.000	33.7	292.42	292.42	0	2.5	51987.96	51987.96	51322.69	665.27
1+890.000	31.68	323.44	323.44	0	0	52311.4	52311.4	51322.69	988.71
1+900.000	40.97	363.96	363.96	0	0	52675.36	52675.36	51322.69	1352.67
1+920.000	31.6	725.69	725.69	0	0	53401.04	53401.04	51322.69	2078.35
1+940.000	54.22	858.17	858.17	0	0	54259.22	54259.22	51322.69	2936.52
1+960.000	48.03	1022.48	1022.48	0	0	55281.69	55281.69	51322.69	3959
1+980.000	30.95	789.8	789.8	0	0	56071.5	56071.5	51322.69	4748.81
1+990.000	28.62	295.4	295.4	0	0	56366.89	56366.89	51322.69	5044.2
2+000.000	26.34	272.17	272.17	0	0	56639.06	56639.06	51322.69	5316.37
2+010.000	22.1	239.96	239.96	0	0	56879.02	56879.02	51322.69	5556.33
2+020.000	23.3	224.91	224.91	0	0	57103.93	57103.93	51322.69	5781.24
2+030.000	27.61	252.7	252.7	0	0	57356.62	57356.62	51322.69	6033.93
2+040.000	27.7	275.94	275.94	0	0	57632.56	57632.56	51322.69	6309.87
2+060.000	12.73	404.26	404.26	0.22	2.17	58036.82	58036.82	51324.86	6711.96
2+080.000	4	167.34	167.34	1.85	20.68	58204.16	58204.16	51345.54	6858.62
2+090.000	1.4	26.53	26.53	5.49	37.39	58230.69	58230.69	51382.92	6847.77
2+100.000	1.35	13.48	13.48	7.03	63.77	58244.17	58244.17	51446.69	6797.47
2+110.000	1.8	15.45	15.45	4.82	60.33	58259.61	58259.61	51507.02	6752.59
2+120.000	2.64	21.98	21.98	0.64	27.58	58281.6	58281.6	51534.6	6746.99
2+140.000	5.36	80	80	0.14	7.81	58361.59	58361.59	51542.41	6819.18
2+160.000	6.78	121.37	121.37	0.04	1.74	58482.96	58482.96	51544.15	6938.81
2+170.000	3.73	52.39	52.39	0.33	1.84	58535.35	58535.35	51545.99	6989.36
2+180.000	0.35	20.23	20.23	0.74	5.44	58555.57	58555.57	51551.42	7004.15
2+190.000	1.16	7.43	7.43	3.08	19.41	58563	58563	51570.83	6992.17
2+200.000	1.78	14.47	14.47	2.45	28.09	58577.47	58577.47	51598.92	6978.55
2+210.000	3.28	24.9	24.9	2.51	25.27	58602.37	58602.37	51624.19	6978.18
2+220.000	4.81	39.86	39.86	1.74	21.69	58642.23	58642.23	51645.88	6996.35
2+240.000	5.26	100.73	100.73	0.89	26.27	58742.95	58742.95	51672.15	7070.81
2+260.000	10.72	159.76	159.76	0.55	14.37	58902.71	58902.71	51686.52	7216.19
2+280.000	14.45	251.71	251.71	0.1	6.52	59154.42	59154.42	51693.04	7461.39
2+300.000	14.8	292.57	292.57	0.01	1.13	59446.99	59446.99	51694.17	7752.82
2+320.000	14.89	296.93	296.93	0	0.11	59743.92	59743.92	51694.28	8049.64
2+340.000	15.63	305.16	305.16	0	0.02	60049.08	60049.08	51694.3	8354.78
2+360.000	13.73	293.55	293.55	0.03	0.29	60342.64	60342.64	51694.59	8648.05
2+380.000	10.64	243.73	243.73	0.27	2.94	60586.36	60586.36	51697.53	8888.83
2+400.000	6.93	175.76	175.76	0.11	3.73	60762.13	60762.13	51701.26	9060.86
2+420.000	2.33	92.6	92.6	0.41	5.23	60854.73	60854.73	51706.49	9148.24
2+430.000	1.53	19.84	19.84	2.55	14.1	60874.57	60874.57	51720.59	9153.98
2+440.000	0.79	12.44	12.44	5.35	36.72	60887.01	60887.01	51757.3	9129.7
2+450.000	0	4.27	4.27	12.33	83.14	60891.28	60891.28	51840.45	9050.83
2+460.000	0	0	0	22.87	166.93	60891.28	60891.28	52007.38	8883.9

2+470.000	0	0	0	31.48	259.11	60891.28	60891.28	52266.49	8624.8
2+480.000	0	0	0	17.28	238.66	60891.28	60891.28	52505.14	8386.14
2+500.000	0.07	0.65	0.65	0.92	181.99	60891.93	60891.93	52687.13	8204.8
2+520.000	4.38	43.64	43.64	0.89	18.23	60935.57	60935.57	52705.37	8230.2
2+530.000	4.42	41.06	41.06	3.74	24.88	60976.63	60976.63	52730.25	8246.38
2+540.000	4.55	41.41	41.41	3.24	37.5	61018.04	61018.04	52767.75	8250.28
2+550.000	8.13	59.4	59.4	0.48	19.97	61077.44	61077.44	52787.73	8289.71
2+560.000	14.56	109.28	109.28	0.11	3.19	61186.72	61186.72	52790.91	8395.8
2+570.000	18.71	161.59	161.59	0	0.61	61348.31	61348.31	52791.53	8556.78
2+580.000	21.04	193.85	193.85	0	0	61542.15	61542.15	52791.53	8750.63
2+600.000	27.93	489.72	489.72	0	0	62031.87	62031.87	52791.53	9240.34
2+620.000	40.05	679.81	679.81	0	0	62711.68	62711.68	52791.53	9920.15
2+640.000	52.88	934.97	934.97	0	0	63646.65	63646.65	52791.53	10855.12
2+650.000	44.22	490.14	490.14	0	0	64136.79	64136.79	52791.53	11345.26
2+660.000	24.41	347.51	347.51	0.24	1.06	64484.3	64484.3	52792.59	11691.71
2+670.000	3.46	142.69	142.69	13.37	60.7	64626.99	64626.99	52853.29	11773.7
2+680.000	0	18.44	18.44	37.43	234.36	64645.43	64645.43	53087.65	11557.78
2+690.000	0	0	0	69.45	499.1	64645.43	64645.43	53586.75	11058.67
2+700.000	0	0	0	73.51	675.06	64645.43	64645.43	54261.82	10383.61
2+710.000	0	0	0	45.74	561.4	64645.43	64645.43	54823.22	9822.21
2+720.000	13.68	71.31	71.31	2.34	221.42	64716.74	64716.74	55044.64	9672.1
2+730.000	44.95	297.76	297.76	0	10.69	65014.5	65014.5	55055.33	9959.17
2+740.000	50.18	480.49	480.49	0	0	65494.99	65494.99	55055.33	10439.66
2+760.000	11.93	621.06	621.06	2.54	25.4	66116.05	66116.05	55080.73	11035.32
2+770.000	0.9	62.09	62.09	10.94	69.02	66178.14	66178.14	55149.75	11028.39
2+780.000	0	4.03	4.03	14.26	129.4	66182.16	66182.16	55279.15	10903.02
2+790.000	0	0	0	22.5	192.75	66182.16	66182.16	55471.89	10710.27
2+800.000	0	0	0	23.32	245.19	66182.16	66182.16	55717.09	10465.08
2+810.000	0	0.02	0.02	16.67	213.65	66182.19	66182.19	55930.74	10251.45
2+820.000	1.91	8.68	8.68	4.22	110.88	66190.87	66190.87	56041.61	10149.26
2+830.000	9.73	54.78	54.78	0.02	22.42	66245.65	66245.65	56064.04	10181.61
2+840.000	13.74	112.57	112.57	0.1	0.64	66358.22	66358.22	56064.68	10293.54
2+860.000	20.51	342.44	342.44	0	0.99	66700.65	66700.65	56065.66	10634.99
2+880.000	39.24	597.5	597.5	0	0	67298.15	67298.15	56065.66	11232.49
2+900.000	91.29	1305.29	1305.29	0	0	68603.45	68603.45	56065.66	12537.78
2+920.000	148.38	2396.65	2396.65	0	0	71000.1	71000.1	56065.66	14934.43
2+940.000	166.76	3151.33	3151.33	0	0	74151.43	74151.43	56065.66	18085.76
2+950.000	178.79	1741.15	1741.15	0	0	75892.58	75892.58	56065.66	19826.92
2+960.000	164.75	1738.29	1738.29	0	0	77630.87	77630.87	56065.66	21565.21
2+970.000	146.64	1577.8	1577.8	0	0	79208.67	79208.67	56065.66	23143.01
2+980.000	113.3	1314.94	1314.94	0	0	80523.62	80523.62	56065.66	24457.96
2+990.000	87.79	1013.91	1013.91	0	0	81537.53	81537.53	56065.66	25471.87
3+000.000	72.8	806.19	806.19	0	0	82343.73	82343.73	56065.66	26278.06
3+020.000	47.65	1204.59	1204.59	0	0	83548.31	83548.31	56065.66	27482.65
3+040.000	45.31	929.68	929.68	0	0	84477.99	84477.99	56065.66	28412.33
3+050.000	89.19	672.52	672.52	0	0	85150.52	85150.52	56065.66	29084.86
3+060.000	105.85	970.47	970.47	0	0	86120.99	86120.99	56065.66	30055.33
3+070.000	110.74	1079.04	1079.04	0	0	87200.03	87200.03	56065.66	31134.37
3+080.000	108.6	1093.38	1093.38	0	0	88293.41	88293.41	56065.66	32227.74
3+090.000	96.55	1018.38	1018.38	0	0	89311.79	89311.79	56065.66	33246.13
3+100.000	72.62	830.25	830.25	0	0	90142.04	90142.04	56065.66	34076.38
3+110.000	59.85	640.04	640.04	0	0	90782.08	90782.08	56065.66	34716.42
3+120.000	51.51	534.21	534.21	0	0	91316.3	91316.3	56065.66	35250.63
3+140.000	40.97	919.03	919.03	0	0	92235.33	92235.33	56065.66	36169.67
3+160.000	25.73	667.06	667.06	0.1	1	92902.39	92902.39	56066.66	36835.73
3+180.000	10.46	361.98	361.98	5.37	54.72	93264.37	93264.37	56121.38	37142.99
3+200.000	0	105.49	105.49	51.87	562.64	93369.86	93369.86	56684.02	36685.84
3+210.000	0	0	0	94.37	684.34	93369.86	93369.86	57368.35	36001.5
3+220.000	0	0	0	64.28	757.9	93369.86	93369.86	58126.25	35243.6
3+230.000	3.37	17.72	17.72	5.5	334.13	93387.58	93387.58	58460.38	34927.2
3+240.000	9.63	68.61	68.61	13.6	78.48	93456.19	93456.19	58538.86	34917.33
3+250.000	8.24	94.59	94.59	38.85	205.95	93550.78	93550.78	58744.82	34805.97
3+260.000	0	43.71	43.71	103.16	565.37	93594.49	93594.49	59310.19	34284.3
3+270.000	0	0	0	185.43	1232.8	93594.49	93594.49	60542.99	33051.5
3+280.000	0	0	0	215.51	1870.69	93594.49	93594.49	62413.68	31180.81
3+290.000	0	0	0	216.14	2105.81	93594.49	93594.49	64519.48	29075.01
3+300.000	0	0	0	153.69	1836.51	93594.49	93594.49	66356	27238.49
3+310.000	0	0	0	40.93	970.46	93594.49	93594.49	67326.46	26268.03
3+320.000	20.88	105.44	105.44	0.14	189.1	93699.93	93699.93	67515.55	26184.38

3+330.000	12.34	169.36	169.36	0.44	2.6	93869.3	93869.3	67518.15	26351.15
3+340.000	0	63.3	63.3	33.51	159.03	93932.6	93932.6	67677.18	26255.42
3+360.000	0	0	0	42	775.24	93932.6	93932.6	68452.42	25480.18
3+370.000	0	0	0	27.13	357.33	93932.6	93932.6	68809.75	25122.85
3+380.000	0	0	0	15.99	219.3	93932.6	93932.6	69029.05	24903.55
3+390.000	0.02	0.07	0.07	8.25	123.78	93932.67	93932.67	69152.83	24779.84
3+400.000	0	0.07	0.07	8.21	85.99	93932.74	93932.74	69238.82	24693.92
3+410.000	0.06	0.3	0.3	4.39	66.68	93933.04	93933.04	69305.51	24627.54
3+420.000	1.59	7.87	7.87	2.1	34.49	93940.91	93940.91	69340	24600.91
3+430.000	5.07	31.96	31.96	0.06	11.47	93972.88	93972.88	69351.47	24621.4
3+440.000	7.09	59.63	59.63	0.44	2.62	94032.51	94032.51	69354.1	24678.41
3+460.000	5.35	124.4	124.4	0.23	6.67	94156.91	94156.91	69360.77	24796.14
3+480.000	3.33	86.86	86.86	1.06	12.86	94243.77	94243.77	69373.62	24870.15
3+500.000	3.71	70.43	70.43	4.07	51.27	94314.2	94314.2	69424.89	24889.31
3+520.000	6.31	100.17	100.17	0.69	47.62	94414.38	94414.38	69472.51	24941.86
3+540.000	8.71	150.18	150.18	0.09	7.76	94564.55	94564.55	69480.27	25084.28
3+560.000	17.07	257.86	257.86	0	0.95	94822.41	94822.41	69481.22	25341.19
3+580.000	19.81	368.88	368.88	0.55	5.54	95191.29	95191.29	69486.76	25704.53
3+590.000	20.92	201.45	201.45	0.3	4.37	95392.74	95392.74	69491.14	25901.61
3+600.000	26.76	234.42	234.42	0	1.58	95627.17	95627.17	69492.71	26134.45
3+610.000	28.15	270.73	270.73	0	0	95897.9	95897.9	69492.71	26405.19
3+620.000	30.27	289.01	289.01	0	0	96186.9	96186.9	69492.71	26694.19
3+630.000	26.97	283.44	283.44	0	0	96470.35	96470.35	69492.71	26977.63
3+640.000	27.33	270.11	270.11	0	0	96740.46	96740.46	69492.71	27247.75
3+660.000	26.13	534.53	534.53	0	0	97274.99	97274.99	69492.71	27782.28
3+680.000	21.81	479.4	479.4	0	0	97754.4	97754.4	69492.71	28261.68
3+700.000	13.88	356.9	356.9	0	0	98111.3	98111.3	69492.71	28618.58
3+720.000	3.73	176.06	176.06	0.45	4.49	98287.36	98287.36	69497.2	28790.16
3+740.000	3.27	69.99	69.99	2.88	33.29	98357.35	98357.35	69530.49	28826.86
3+750.000	2.1	27.82	27.82	3.28	29.34	98385.17	98385.17	69559.83	28825.34
3+760.000	4.2	32.88	32.88	2.8	27.66	98418.05	98418.05	69587.49	28830.55
3+770.000	5.87	51.93	51.93	2.51	23.67	98469.98	98469.98	69611.17	28858.81
3+780.000	7.67	69.96	69.96	2.32	21.37	98539.93	98539.93	69632.53	28907.4
3+790.000	7.89	80.78	80.78	3.16	24.18	98620.71	98620.71	69656.71	28964
3+800.000	3.9	61.13	61.13	4.26	33.4	98681.84	98681.84	69690.11	28991.73
3+820.000	1.99	58.95	58.95	6.89	111.49	98740.79	98740.79	69801.6	28939.19
3+840.000	9.88	118.71	118.71	0.06	69.54	98859.5	98859.5	69871.14	28988.36
3+860.000	18.06	279.38	279.38	0.01	0.77	99138.88	99138.88	69871.91	29266.98
3+880.000	23.21	412.67	412.67	2.35	23.68	99551.55	99551.55	69895.59	29655.96
3+900.000	10.5	337.02	337.02	7.88	102.35	99888.57	99888.57	69997.94	29890.63
3+920.000	6.19	166.83	166.83	8.48	163.64	100055.4	100055.4	70161.58	29893.82
3+940.000	6.67	128.62	128.62	7.48	159.68	100184.02	100184.02	70321.25	29862.76
3+960.000	2.69	93.65	93.65	8.38	158.66	100277.67	100277.67	70479.91	29797.75
3+980.000	0	26.53	26.53	34.24	434.49	100304.2	100304.2	70914.4	29389.8
3+990.000	0	0	0	57.43	493.69	100304.2	100304.2	71408.09	28896.1
4+000.000	0	0	0	55.01	606.06	100304.2	100304.2	72014.15	28290.05
4+010.000	0	0	0	104.13	878.89	100304.2	100304.2	72893.04	27411.15
4+020.000	0	0	0	149.65	1413.64	100304.2	100304.2	74306.68	25997.52
4+030.000	0	0	0	73.31	1226.52	100304.2	100304.2	75533.2	24770.99
4+040.000	1.02	4.86	4.86	24.13	527.31	100309.05	100309.05	76060.51	24248.54
4+060.000	7.02	79.71	79.71	0.1	249.79	100388.76	100388.76	76310.29	24078.47
4+080.000	21.86	288.86	288.86	0	1	100677.62	100677.62	76311.29	24366.32
4+100.000	33.04	549.02	549.02	0	0	101226.63	101226.63	76311.29	24915.34
4+120.000	37.28	703.22	703.22	0	0	101929.85	101929.85	76311.29	25618.56
4+140.000	32.99	703.81	703.81	0	0	102633.66	102633.66	76311.29	26322.37
4+150.000	29.39	314.12	314.12	0	0	102947.79	102947.79	76311.29	26636.49
4+160.000	22.05	258.02	258.02	0	0	103205.8	103205.8	76311.29	26894.51
4+170.000	10.27	162.2	162.2	0.24	1.13	103368	103368	76312.43	27055.58
4+180.000	0	51.87	51.87	4.88	25.44	103419.87	103419.87	76337.87	27082.01
4+190.000	0	0	0	8.3	65.18	103419.87	103419.87	76403.05	27016.83
4+200.000	0	0	0	11.63	98.82	103419.87	103419.87	76501.87	26918.01
4+220.000	0	0	0	20.99	326.16	103419.87	103419.87	76828.03	26591.85
4+240.000	0	0	0	26.78	477.7	103419.87	103419.87	77305.73	26114.15
4+260.000	0	0	0	21.48	483.43	103419.87	103419.87	77789.16	25630.72
4+270.000	0	0	0	32.06	276.62	103419.87	103419.87	78065.77	25354.1
4+280.000	0	0	0	84.49	654.78	103419.87	103419.87	78720.55	24699.32
4+290.000	0.01	0.05	0.05	108.66	1114.65	103419.92	103419.92	79835.2	23584.72
4+300.000	3.31	15.69	15.69	102.26	1222.77	103435.61	103435.61	81057.97	22377.63
4+310.000	9.63	61.41	61.41	40.91	841.94	103497.02	103497.02	81899.91	21597.11

4+320.000	12.78	107.52	107.52	0.59	250.68	103604.54	103604.54	82150.6	21453.95
4+340.000	15.76	283.06	283.06	0.06	6.64	103887.61	103887.61	82157.24	21730.37
4+360.000	18.5	342.57	342.57	0	0.62	104230.17	104230.17	82157.86	22072.31
4+380.000	4.41	229.08	229.08	5.14	51.39	104459.25	104459.25	82209.25	22250
4+400.000	7.13	115.32	115.32	2.78	79.14	104574.57	104574.57	82288.4	22286.17
4+420.000	0	71.25	71.25	33.72	364.94	104645.82	104645.82	82653.34	21992.49
4+440.000	0	0	0	34.22	679.34	104645.82	104645.82	83332.67	21313.15
4+460.000	0	0	0	14.63	488.42	104645.82	104645.82	83821.09	20824.73
4+480.000	1.68	16.75	16.75	1.97	165.97	104662.57	104662.57	83987.06	20675.51
4+490.000	2.04	18.55	18.55	2.35	21.59	104681.13	104681.13	84008.65	20672.47
4+500.000	4.57	32.37	32.37	0.44	14.34	104713.5	104713.5	84022.99	20690.51
4+510.000	8.29	64.03	64.03	0	2.2	104777.53	104777.53	84025.18	20752.35
4+520.000	9.42	88.22	88.22	0	0	104865.75	104865.75	84025.19	20840.56
4+530.000	15.15	122.51	122.51	0	0	104988.26	104988.26	84025.19	20963.07
4+540.000	17.94	165.49	165.49	0	0	105153.75	105153.75	84025.19	21128.56
4+560.000	22.63	405.74	405.74	0	0	105559.49	105559.49	84025.19	21534.3
4+580.000	32.01	546.42	546.42	0	0	106105.91	106105.91	84025.19	22080.72
4+600.000	25.25	572.6	572.6	0	0	106678.51	106678.51	84025.19	22653.31
4+620.000	26.23	514.8	514.8	0	0	107193.31	107193.31	84025.19	23168.12
4+630.000	24.99	253.45	253.45	0.03	0.15	107446.76	107446.76	84025.34	23421.42
4+640.000	19.13	216.53	216.53	0.59	3.28	107663.29	107663.29	84028.62	23634.67
4+650.000	16.65	175.12	175.12	0.49	5.7	107838.41	107838.41	84034.32	23804.09
4+660.000	15.87	159.17	159.17	0.16	3.43	107997.58	107997.58	84037.75	23959.83
4+680.000	0.64	165.06	165.06	2.53	26.92	108162.64	108162.64	84064.67	24097.97
4+700.000	0.76	14.01	14.01	2.97	55.01	108176.65	108176.65	84119.68	24056.97
4+710.000	1.13	9.62	9.62	1.7	23.01	108186.27	108186.27	84142.68	24043.59
4+720.000	4.25	27.24	27.24	1.59	16.15	108213.51	108213.51	84158.84	24054.67
4+730.000	6.8	55.89	55.89	1.36	14.41	108269.4	108269.4	84173.25	24096.15
4+740.000	9.58	82.6	82.6	0.2	7.59	108352.01	108352.01	84180.84	24171.17
4+760.000	17.54	271.22	271.22	0	1.96	108623.22	108623.22	84182.8	24440.42
4+780.000	23.98	415.22	415.22	0	0	109038.45	109038.45	84182.8	24855.65
4+800.000	14.91	388.82	388.82	0.08	0.79	109427.27	109427.27	84183.59	25243.68
4+820.000	8.56	234.66	234.66	1.23	13.14	109661.93	109661.93	84196.72	25465.21
4+840.000	5.37	139.29	139.29	4.47	57.08	109801.22	109801.22	84253.81	25547.41
4+860.000	13.18	185.5	185.5	0.99	54.68	109986.71	109986.71	84308.49	25678.22
4+880.000	29.44	426.2	426.2	0	9.99	110412.91	110412.91	84318.48	26094.43
4+900.000	44.21	736.52	736.52	0	0.04	111149.43	111149.43	84318.52	26830.91
4+920.000	46.96	911.71	911.71	0	0	112061.15	112061.15	84318.52	27742.63
4+930.000	37.19	415.65	415.65	0	0	112476.8	112476.8	84318.52	28158.28
4+940.000	29.35	320.72	320.72	0	0	112797.52	112797.52	84318.52	28479
4+950.000	33.05	300.67	300.67	0	0	113098.18	113098.18	84318.52	28779.66
4+960.000	39.83	352.2	352.2	0	0	113450.38	113450.38	84318.52	29131.86
4+980.000	71.97	1107.05	1107.05	0	0	114557.43	114557.43	84318.52	30238.91
5+000.000	98.6	1705.7	1705.7	0	0	116263.13	116263.13	84318.52	31944.61
5+020.000	48.12	1471.83	1471.83	0	0	117734.96	117734.96	84318.52	33416.44
5+030.000	7.99	292.95	292.95	44.63	165.98	118027.91	118027.91	84484.5	33543.42
5+040.000	0	42.87	42.87	159.55	731.09	118070.78	118070.78	85215.59	32855.19
5+050.000	0	0	0	133.97	1074.9	118070.78	118070.78	86290.49	31780.29
5+060.000	0	0	0	19.81	603.29	118070.78	118070.78	86893.78	31177
5+070.000	15.99	84.28	84.28	0.12	94.04	118155.06	118155.06	86987.82	31167.24
5+080.000	35.66	263.43	263.43	0	0.58	118418.49	118418.49	86988.39	31430.09
5+100.000	22.64	583	583	94.02	940.21	119001.48	119001.48	87928.6	31072.88
5+120.000	17.68	403.24	403.24	133.01	2270.3	119404.72	119404.72	90198.9	29205.82
5+140.000	25.44	431.22	431.22	1.14	1341.48	119835.95	119835.95	91540.39	28295.56
5+160.000	12.8	377.69	377.69	42.98	462.19	120213.64	120213.64	92002.58	28211.06
5+170.000	8.24	95.53	95.53	30.22	434.42	120309.17	120309.17	92437	27872.18
5+180.000	12.84	96.12	96.12	8.31	220.12	120405.29	120405.29	92657.12	27748.17
5+190.000	15.16	128.69	128.69	6.64	83.55	120533.97	120533.97	92740.67	27793.3
5+200.000	20.8	166.01	166.01	5.28	66.52	120699.98	120699.98	92807.2	27892.79
5+210.000	35.35	264.16	264.16	0.34	31.28	120964.14	120964.14	92838.48	28125.66
5+220.000	52.83	420.4	420.4	0	1.86	121384.55	121384.55	92840.34	28544.2
5+230.000	73.92	602.58	602.58	0	0	121987.13	121987.13	92840.34	29146.78
5+240.000	92.91	785.99	785.99	0	0	122773.12	122773.12	92840.34	29932.77
5+250.000	77.38	802.26	802.26	0	0	123575.37	123575.37	92840.34	30735.03
5+260.000	38.81	551.27	551.27	0.27	1.47	124126.64	124126.64	92841.82	31284.82
5+280.000	9.77	475.08	475.08	20.21	221.46	124601.72	124601.72	93063.28	31538.44
5+300.000	0.22	99.87	99.87	10.75	309.51	124701.59	124701.59	93372.8	31328.79
5+320.000	0	2.19	2.19	24.66	354.05	124703.78	124703.78	93726.84	30976.94
5+340.000	0	0	0	21.83	464.93	124703.78	124703.78	94191.78	30512.01

5+350.000	0	0	0	16.96	191.21	124703.78	124703.78	94382.99	30320.8
5+360.000	1.37	7.35	7.35	10.34	127.59	124711.13	124711.13	94510.58	30200.55
5+370.000	5.04	33.93	33.93	7.07	78.46	124745.06	124745.06	94589.05	30156.01
5+380.000	11.83	87.99	87.99	2.86	43.37	124833.05	124833.05	94632.41	30200.64
5+390.000	4.71	86.28	86.28	11.8	62.86	124919.34	124919.34	94695.27	30224.07
5+400.000	0	24.87	24.87	40.21	234.01	124944.21	124944.21	94929.28	30014.93
5+410.000	0	0	0	91.83	625.04	124944.21	124944.21	95554.32	29389.89
5+420.000	0	0	0	165.95	1215.71	124944.21	124944.21	96770.03	28174.17
5+430.000	0	0	0	179.68	1522.27	124944.21	124944.21	98292.3	26651.91
5+440.000	0	0	0	100.17	1185.92	124944.21	124944.21	99478.22	25465.98
5+460.000	0	0	0	20.79	1162.94	124944.21	124944.21	100641.2	24303.05
5+480.000	9.84	98.42	98.42	0.32	211.07	125042.63	125042.63	100852.2	24190.4
5+500.000	19.45	292.93	292.93	0	3.18	125335.56	125335.56	100855.4	24480.15
5+520.000	32.49	519.43	519.43	0	0	125854.99	125854.99	100855.4	24999.58
5+530.000	40.22	357.98	357.98	0	0	126212.97	126212.97	100855.4	25357.56
5+540.000	51.27	449.47	449.47	0	0	126662.44	126662.44	100855.4	25807.03
5+550.000	55.94	528.36	528.36	0	0	127190.79	127190.79	100855.4	26335.38
5+560.000	50.1	522.75	522.75	0	0	127713.54	127713.54	100855.4	26858.14
5+570.000	42.47	455.45	455.45	0	0	128168.99	128168.99	100855.4	27313.59
5+580.000	32.2	370.01	370.01	0	0	128539	128539	100855.4	27683.6
5+600.000	19.05	512.49	512.49	0	0.08	129051.49	129051.49	100855.5	28196.01
5+610.000	14.93	170.87	170.87	0.81	3.96	129222.36	129222.36	100859.4	28362.92
5+620.000	13.04	143.1	143.1	0.07	4.09	129365.46	129365.46	100863.5	28501.92
5+630.000	9.94	117.81	117.81	0.14	0.98	129483.26	129483.26	100864.5	28618.75
5+640.000	4.82	75.98	75.98	2.43	12.12	129559.24	129559.24	100876.6	28682.6
5+660.000	4.62	95.43	95.43	11.39	135.71	129654.67	129654.67	101012.4	28642.33
5+680.000	16.26	208.84	208.84	0.66	120.42	129863.51	129863.51	101132.8	28730.75
5+690.000	24.35	197.88	197.88	0.27	4.81	130061.39	130061.39	101137.6	28923.81
5+700.000	22.48	222.03	222.03	0.16	2.29	130283.42	130283.42	101139.9	29143.56
5+710.000	16.77	186.71	186.71	0.93	5.87	130470.13	130470.13	101145.7	29324.4
5+720.000	7.92	118.27	118.27	64.42	394.17	130588.4	130588.4	101539.9	29048.5
5+730.000	1.76	45.75	45.75	18.34	482.67	130634.15	130634.15	102022.6	28611.58
5+740.000	0	8.24	8.24	161.53	1039.29	130642.39	130642.39	103061.9	27580.52
5+760.000	0	0	0	166.1	3276.34	130642.39	130642.39	106338.2	24304.19
5+780.000	3.81	38.1	38.1	29.94	1960.43	130680.49	130680.49	108298.6	22381.86
5+800.000	6.15	99.64	99.64	0.9	308.35	130780.13	130780.13	108607	22173.15
5+820.000	0.94	70.9	70.9	27.1	279.99	130851.03	130851.03	108887	21964.06
5+840.000	0.26	11.96	11.96	14.79	418.94	130863	130863	109305.9	21557.09
5+860.000	4.66	49.16	49.16	0.67	154.64	130912.15	130912.15	109460.6	21451.6
5+870.000	2.36	35.07	35.07	0.44	5.48	130947.22	130947.22	109466	21481.2

“Diseño estructural de Ingeniería vial del tramo Rosillas - San Francisco”

Alinemiento: Perfil Definitivo de la Carretera

Horizontal Alignment Information

Name: a.horizontal

Station Range: 0+00.000 to 60+00.000

Vertical Alignment: RASANTE

PVI	Station	Elevation (m)	Grade Out (%)	Curve Length (m)
1	0+00.000	2164	1.73%	0
2	2+80.281	2168.854	-3.70%	150
3	4+66.851	2161.952	2.46%	55.442
4	9+46.637	2173.758	-0.38%	150
5	14+00.000	2172.044	-7.62%	170
6	17+03.821	2148.899	10.00%	200
7	19+71.705	2179.409	4.39%	170
8	25+95.591	2206.796	3.34%	150
9	28+89.633	2216.627	6.26%	150
10	35+77.957	2259.688	-5.64%	300
11	38+68.936	2243.27	-9.88%	200
12	43+61.144	2194.621	-5.28%	101.298
13	46+13.314	2181.313	5.54%	100
14	52+15.748	2214.686	-1.02%	200
15	56+50.970	2210.251	-4.54%	150

Reporte de Curvas Verticales
Aliniamiento del eje camino

Alineación vertical: RASANTE

Descripción:

Intervalo de P.K.: inicio: 0+000.00, fin: 6+000.00

Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	0+205.28	Elevación:	2,167.555m
P.K. de VAV:	0+280.28	Elevación:	2,168.854m
P.K. de PTV:	0+355.28	Elevación:	2,166.079m
Punto alto:	0+253.11	Elevación:	2,167.969m
Inclinación de rasante T.E.:	1.73%	Inclinación de rasante T.S.:	-3.70%
Cambiar:	5.43%	K:	27.617m
Longitud de curva:	150.000m	Radio de curva	2,761.746m
Distancia de adelantamiento:	359.711m	Distancia de parada:	197.359m
Información de acuerdo vertical: (acuerdo cóncavo)			
P.K. de PAV:	0+439.13	Elevación:	2,162.977m
P.K. de VAV:	0+466.85	Elevación:	2,161.952m
P.K. de PTV:	0+494.57	Elevación:	2,162.634m
Punto bajo:	0+472.43	Elevación:	2,162.361m
Inclinación de rasante T.E.:	-3.70%	Inclinación de rasante T.S.:	2.46%
Cambiar:	6.16%	K:	9.000m
Longitud de curva:	55.442m	Radio de curva	900.000m
Distancia de iluminación:	83.984m		
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	0+871.64	Elevación:	2,171.912m
P.K. de VAV:	0+946.64	Elevación:	2,173.758m
P.K. de PTV:	1+021.64	Elevación:	2,173.474m
Punto alto:	1+001.66	Elevación:	2,173.512m
Inclinación de rasante T.E.:	2.46%	Inclinación de rasante T.S.:	-0.38%
Cambiar:	2.84%	K:	52.841m
Longitud de curva:	150.000m	Radio de curva	5,284.126m
Distancia de adelantamiento:	619.745m	Distancia de parada:	309.113m
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	1+315.00	Elevación:	2,172.366m
P.K. de VAV:	1+400.00	Elevación:	2,172.044m
P.K. de PTV:	1+485.00	Elevación:	2,166.307m
Punto alto:	1+315.00	Elevación:	2,172.366m
Inclinación de rasante T.E.:	-0.38%	Inclinación de rasante T.S.:	-6.75%
Cambiar:	6.37%	K:	26.678m
Longitud de curva:	170.000m	Radio de curva	2,667.813m
Distancia de adelantamiento:	327.671m	Distancia de parada:	189.292m
Información de acuerdo vertical: (acuerdo cóncavo)			
P.K. de PAV:	1+601.18	Elevación:	2,158.464m
P.K. de VAV:	1+701.18	Elevación:	2,151.714m
P.K. de PTV:	1+801.18	Elevación:	2,161.740m
Punto bajo:	1+681.65	Elevación:	2,155.748m
Inclinación de rasante T.E.:	-6.75%	Inclinación de rasante T.S.:	10.03%
Cambiar:	16.78%	K:	11.922m
Longitud de curva:	200.000m	Radio de curva	1,192.172m
Distancia de iluminación:	92.932m		
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	1+888.05	Elevación:	2,170.450m
P.K. de VAV:	1+973.05	Elevación:	2,178.972m
P.K. de PTV:	2+058.05	Elevación:	2,182.771m
Punto alto:	2+058.05	Elevación:	2,182.771m
Inclinación de rasante T.E.:	10.03%	Inclinación de rasante T.S.:	4.47%
Cambiar:	5.56%	K:	30.595m
Longitud de curva:	170.000m	Radio de curva	3,059.503m
Distancia de adelantamiento:	363.300m	Distancia de parada:	204.604m
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	2+520.59	Elevación:	2,203.444m
P.K. de VAV:	2+595.59	Elevación:	2,206.796m
P.K. de PTV:	2+670.59	Elevación:	2,209.304m
Punto alto:	2+670.59	Elevación:	2,209.304m
Inclinación de rasante T.E.:	4.47%	Inclinación de rasante T.S.:	3.34%
Cambiar:	1.13%	K:	133.222m
Longitud de curva:	150.000m	Radio de curva	13,322.221m

Distancia de adelantamiento:	1,448.399m	Distancia de parada:	665.241m
Información de acuerdo vertical: (acuerdo cóncavo)			
P.K. de PAV:	2+814.63	Elevación:	2,214.120m
P.K. de VAV:	2+889.63	Elevación:	2,216.627m
P.K. de PTV:	2+964.63	Elevación:	2,221.319m
Punto bajo:	2+814.63	Elevación:	2,214.120m
Inclinación de rasante T.E.:	3.34%	Inclinación de rasante T.S.:	6.26%
Cambiar:	2.91%	K:	51.502m
Longitud de curva:	150.000m	Radio de curva	5,150.233m
Distancia de iluminación:	358.563m		
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	3+427.96	Elevación:	2,250.304m
P.K. de VAV:	3+577.96	Elevación:	2,259.688m
P.K. de PTV:	3+727.96	Elevación:	2,251.225m
Punto alto:	3+585.69	Elevación:	2,255.238m
Inclinación de rasante T.E.:	6.26%	Inclinación de rasante T.S.:	-5.64%
Cambiar:	11.90%	K:	25.213m
Longitud de curva:	300.000m	Radio de curva	2,521.330m
Distancia de adelantamiento:	279.245m	Distancia de parada:	183.064m
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	3+768.94	Elevación:	2,248.912m
P.K. de VAV:	3+868.94	Elevación:	2,243.270m
P.K. de PTV:	3+968.94	Elevación:	2,233.386m
Punto alto:	3+768.94	Elevación:	2,248.912m
Inclinación de rasante T.E.:	-5.64%	Inclinación de rasante T.S.:	-9.88%
Cambiar:	4.24%	K:	47.155m
Longitud de curva:	200.000m	Radio de curva	4,715.518m
Distancia de adelantamiento:	464.595m	Distancia de parada:	256.691m
Información de acuerdo vertical: (acuerdo cóncavo)			
P.K. de PAV:	4+310.50	Elevación:	2,199.627m
P.K. de VAV:	4+361.14	Elevación:	2,194.621m
P.K. de PTV:	4+411.79	Elevación:	2,191.948m
Punto bajo:	4+411.79	Elevación:	2,191.948m
Inclinación de rasante T.E.:	-9.88%	Inclinación de rasante T.S.:	-5.28%
Cambiar:	4.61%	K:	21.991m
Longitud de curva:	101.298m	Radio de curva	2,199.078m
Distancia de iluminación:	151.460m		
Información de acuerdo vertical: (acuerdo cóncavo)			
P.K. de PAV:	4+563.31	Elevación:	2,183.951m
P.K. de VAV:	4+613.31	Elevación:	2,181.313m
P.K. de PTV:	4+663.31	Elevación:	2,184.083m
Punto bajo:	4+612.10	Elevación:	2,182.664m
Inclinación de rasante T.E.:	-5.28%	Inclinación de rasante T.S.:	5.54%
Cambiar:	10.82%	K:	9.245m
Longitud de curva:	100.000m	Radio de curva	924.460m
Distancia de iluminación:	79.051m		
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	5+115.75	Elevación:	2,209.146m
P.K. de VAV:	5+215.75	Elevación:	2,214.686m
P.K. de PTV:	5+315.75	Elevación:	2,213.667m
Punto alto:	5+284.68	Elevación:	2,213.825m
Inclinación de rasante T.E.:	5.54%	Inclinación de rasante T.S.:	-1.02%
Cambiar:	6.56%	K:	30.495m
Longitud de curva:	200.000m	Radio de curva	3,049.461m
Distancia de adelantamiento:	335.779m	Distancia de parada:	201.330m
Información de acuerdo vertical: (acuerdo convexo)			
P.K. de PAV:	5+575.97	Elevación:	2,211.015m
P.K. de VAV:	5+650.97	Elevación:	2,210.251m
P.K. de PTV:	5+725.97	Elevación:	2,206.849m
Punto alto:	5+575.97	Elevación:	2,211.015m
Inclinación de rasante T.E.:	-1.02%	Inclinación de rasante T.S.:	-4.54%
Cambiar:	3.52%	K:	42.638m
Longitud de curva:	150.000m	Radio de curva	4,263.839m
Distancia de adelantamiento:	514.563m	Distancia de parada:	263.909m

ANEXO 10

ESTABILIDAD DE TALUDES

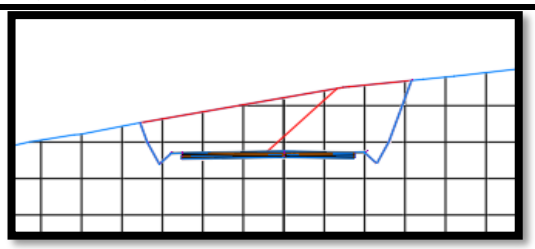
ESTABILIDAD DE TALUDES TRAMO ROSILLAS SAN FRANCISCO

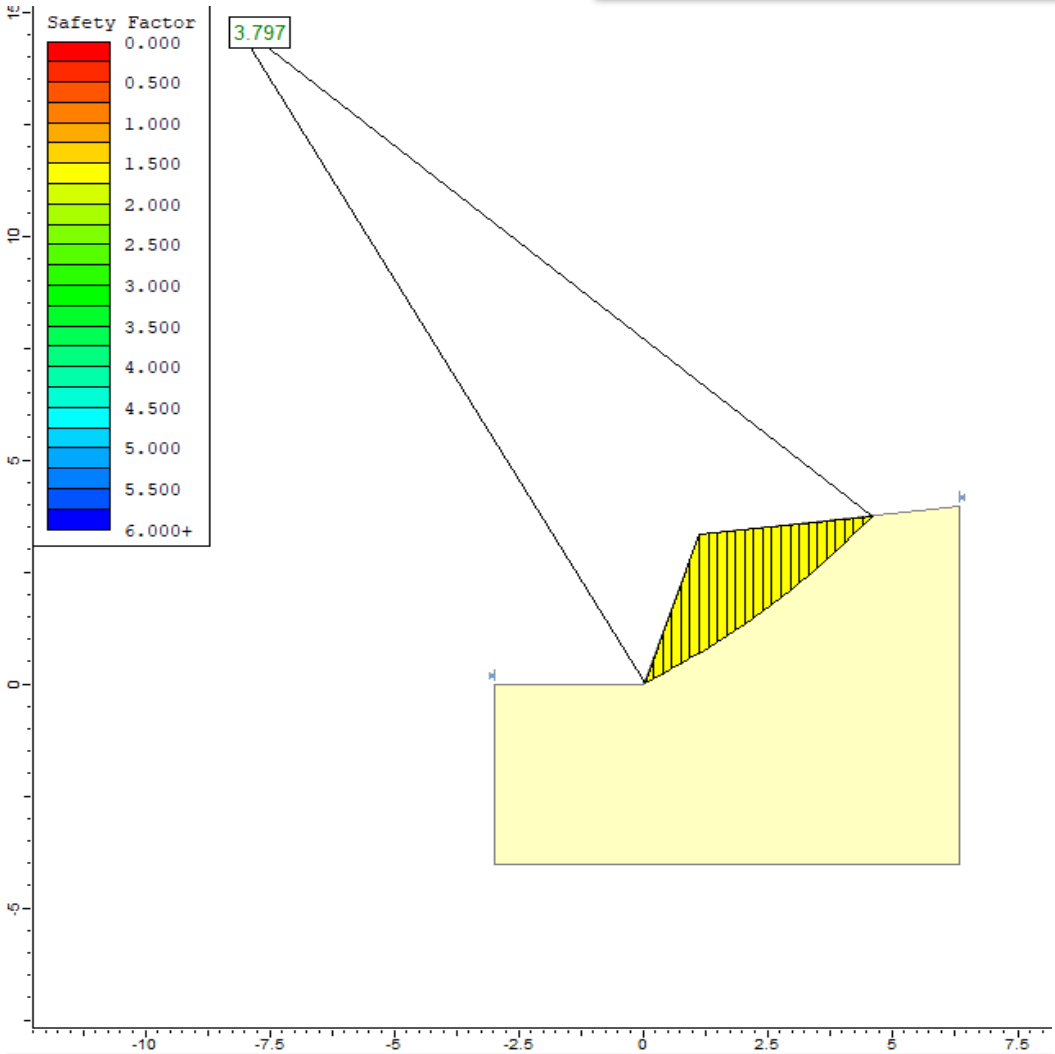
Progresiva 0+260 (derecho)

Datos:

c'=	24.0 Kp
H=	3.4 mts
ϒ=	12.5 KN/m3
θ'=	35 º

TALUD 1 :3 (H:V)





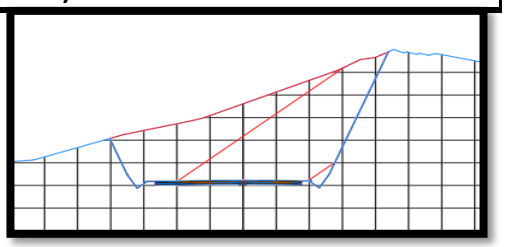
El FS es= 3.797 >1 CUMPLE

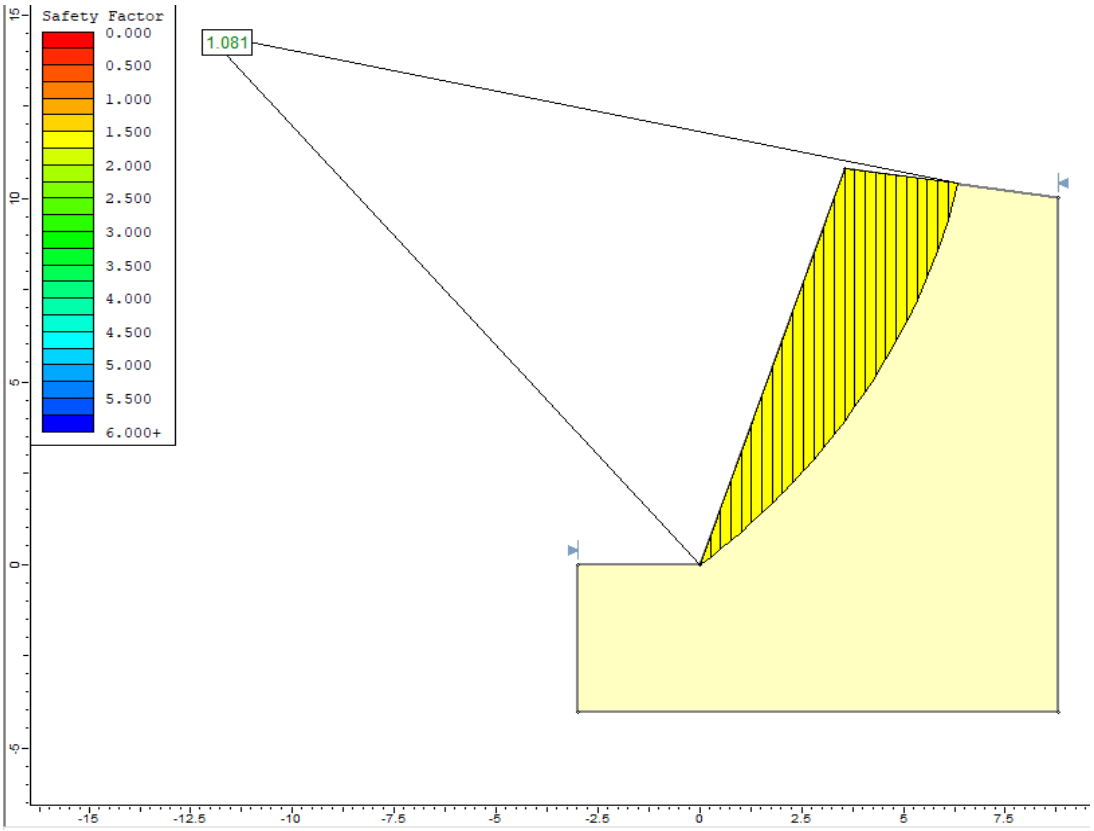
Progresiva 0+560 (derecho)

Datos:

c'=	**15.0 Kp**
H=	**10.0 mts**
ϒ=	**17.5 KN/m3**
θ'=	**38 º**

TALUD 1 :3 (H:V)





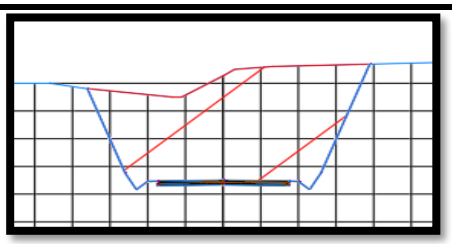
El FS es= 1.081 >1 CUMPLE

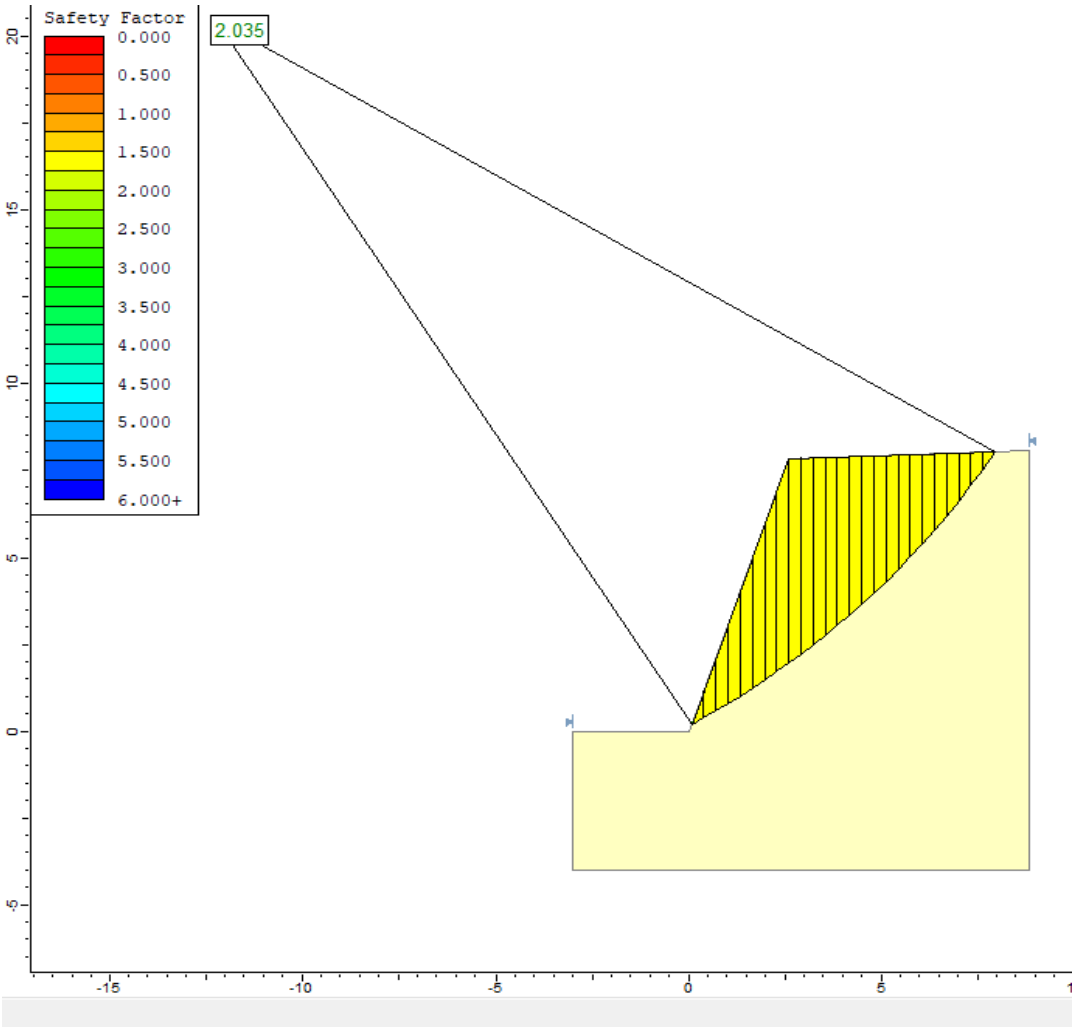
Progresiva 1+280 (derecho)

Datos:

c'=	**24.0 Kp**
H=	**7.9 mts**
ϒ=	**12.5 KN/m3**
θ'=	**35 º**

TALUD 1 :3 (H:V)





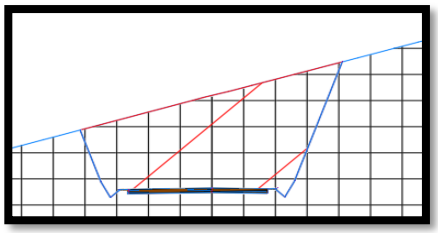
El FS es= 2.035 >1 CUMPLE

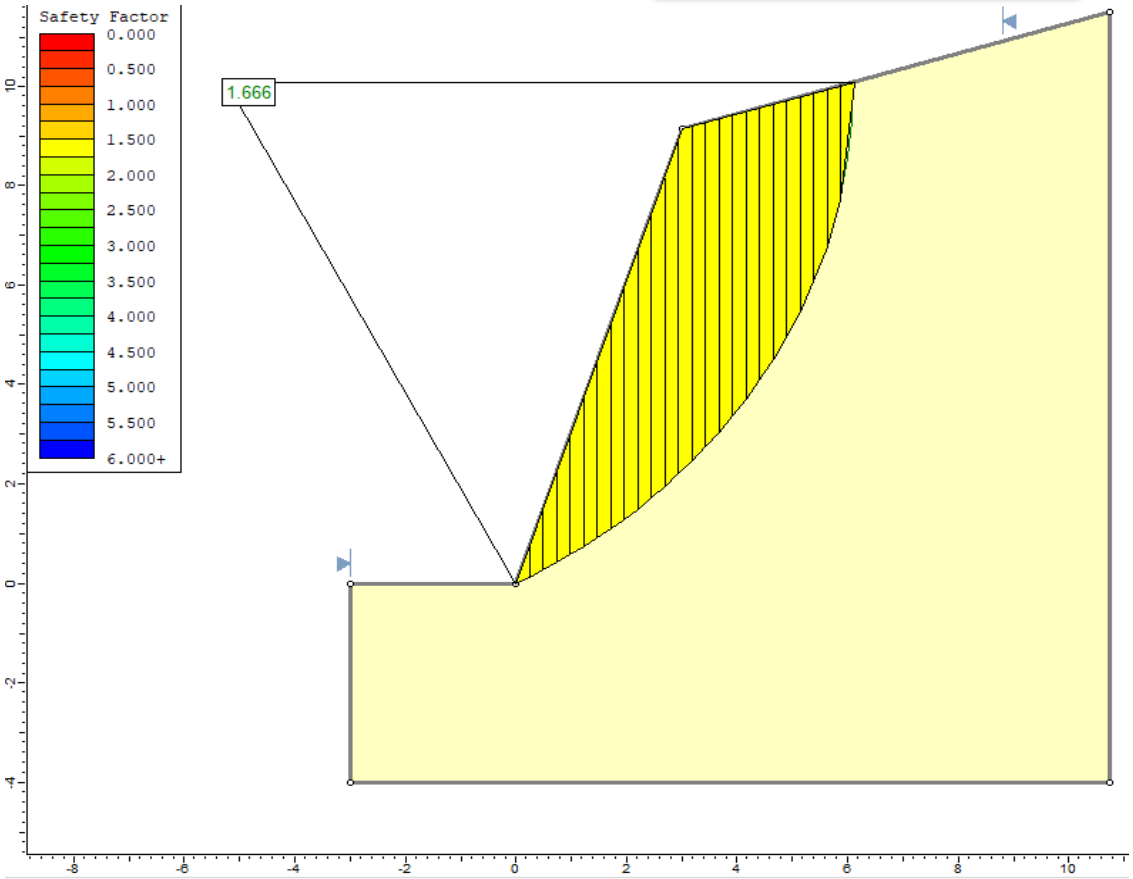
Progresiva 1+530 (derecho)

Datos:

c'=	**24.0 Kp**
H=	**9.1 mts**
ϒ=	**12.5 KN/m3**
θ'=	**35 º**

TALUD 1 :3 (H:V)





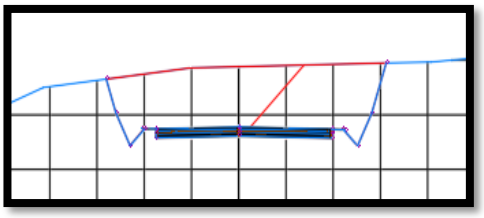
El FS es= 1.666 >1 CUMPLE

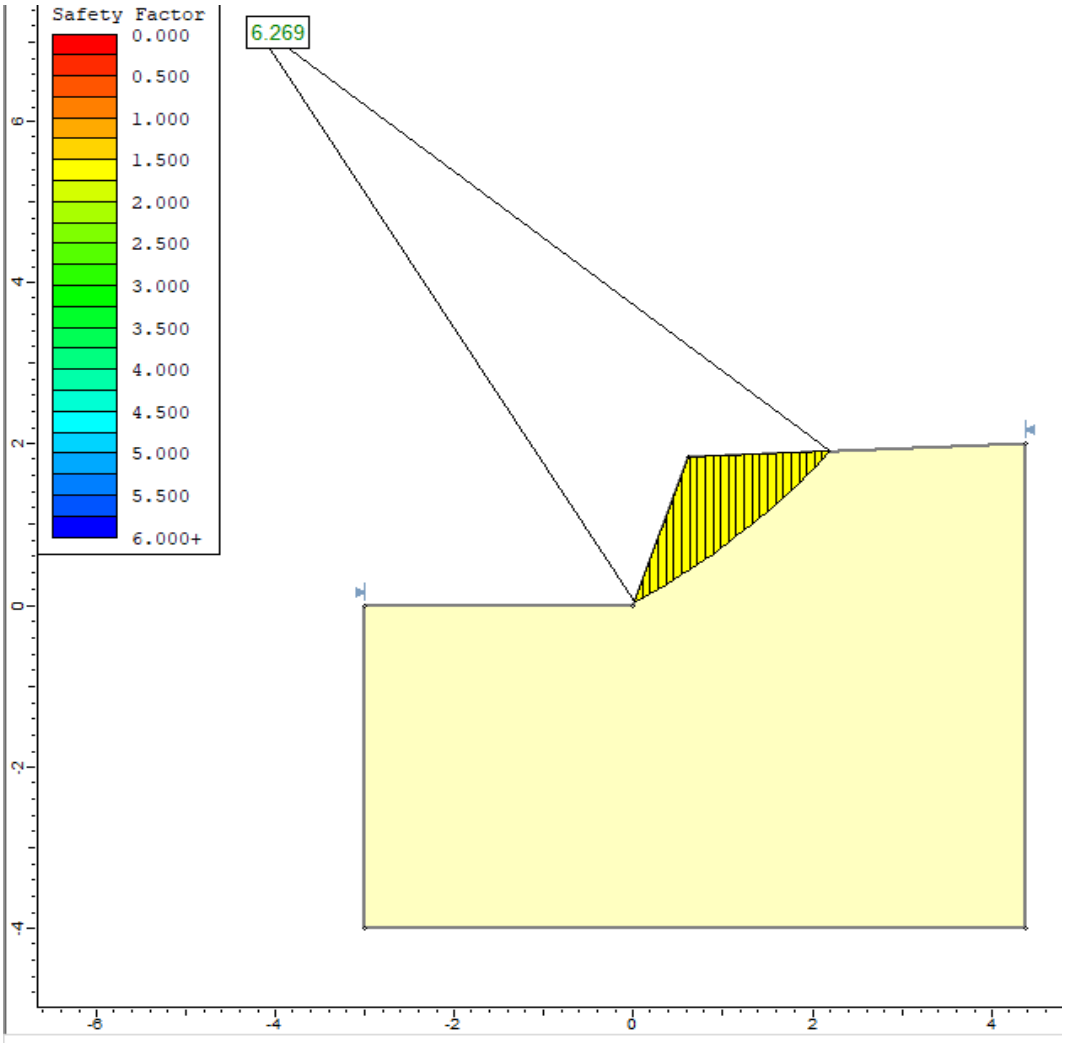
Progresiva 2+040 (derecho)

Datos:

c'=	**24.0 Kp**
H=	**1.8 mts**
ϒ=	**12.5 KN/m3**
θ'=	**35 º**

TALUD 1 :3 (H:V)





El FS es= 6.269 >1 CUMPLE

Progresiva 2+960 (derecho banquina)

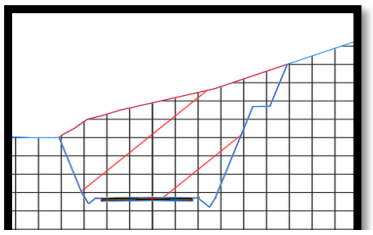
Datos:

c'= **24.0 Kp**

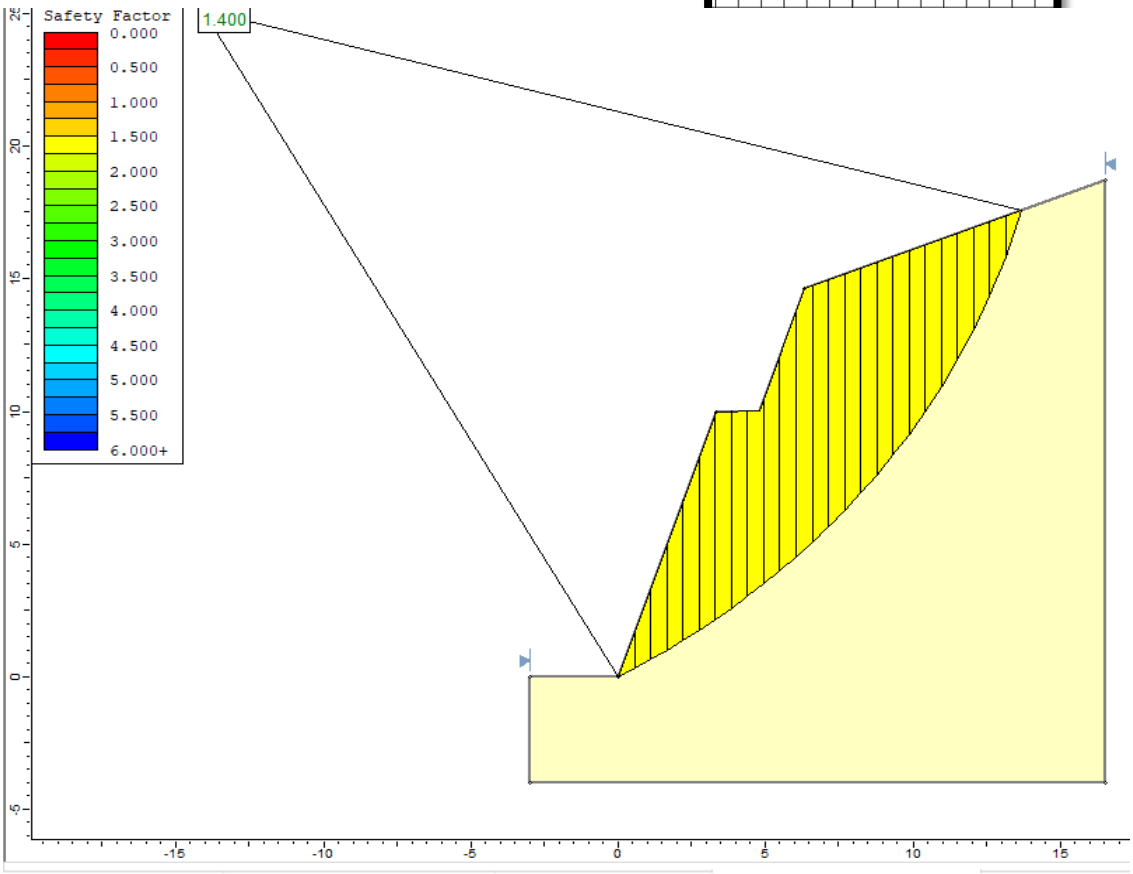
H= **14.6 mts**

ϒ= **12.5 KN/m3**

θ'= **35 º**



TALUD 1 :3 (H:V)



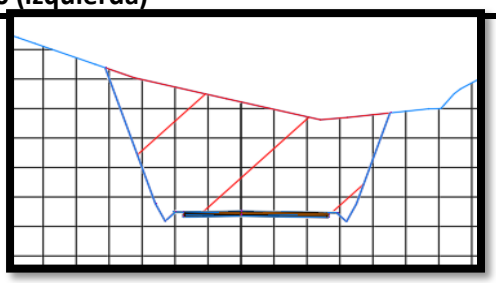
El FS es= 1.400 >1 CUMPLE

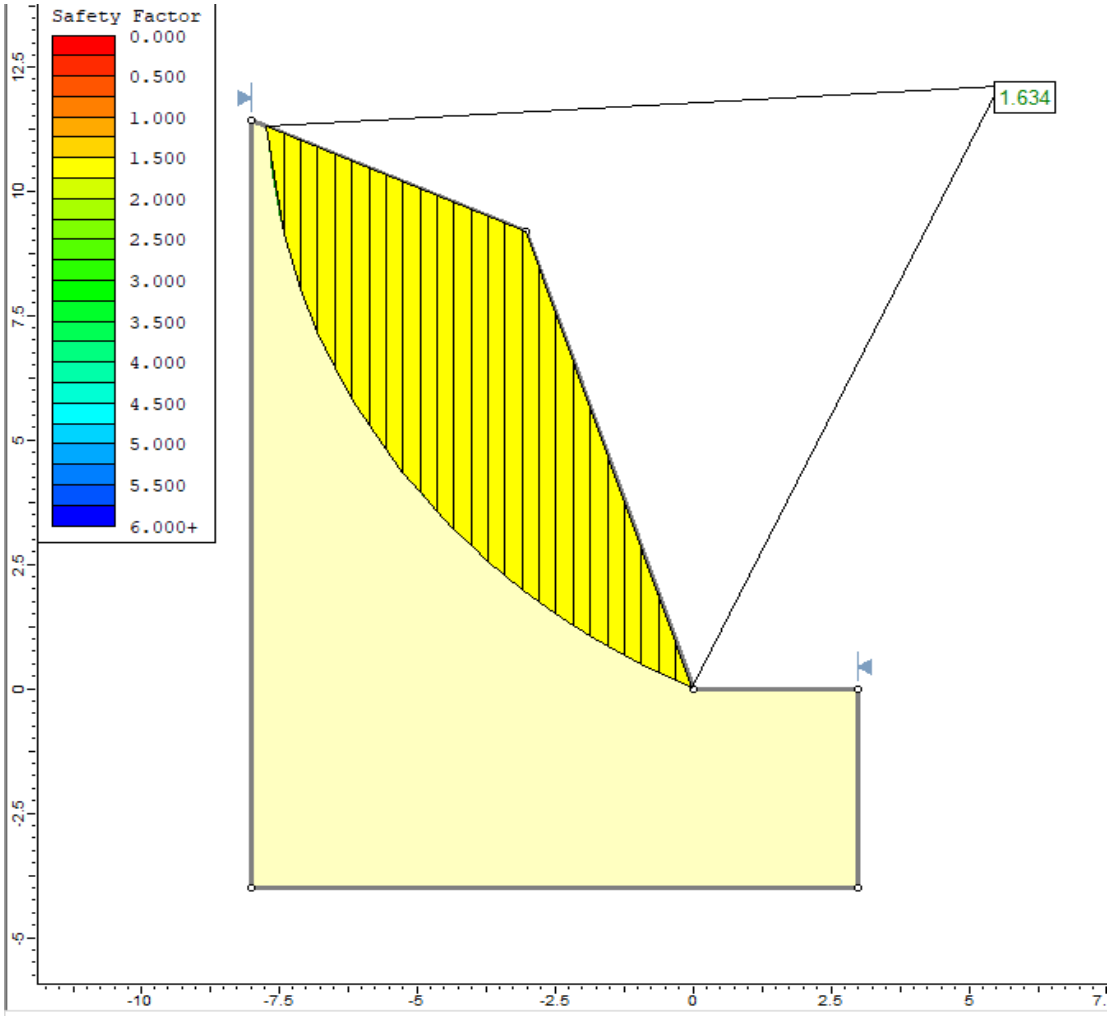
Progresiva 3+070 (izquierda)

Datos:

c'=	24.0 Kp
H=	9.2 mts
ϒ=	12.5 KN/m3
θ'=	35 º

TALUD 1 :3 (H:V)





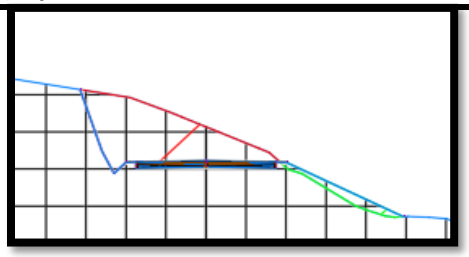
El FS es= 1.634 >1 CUMPLE

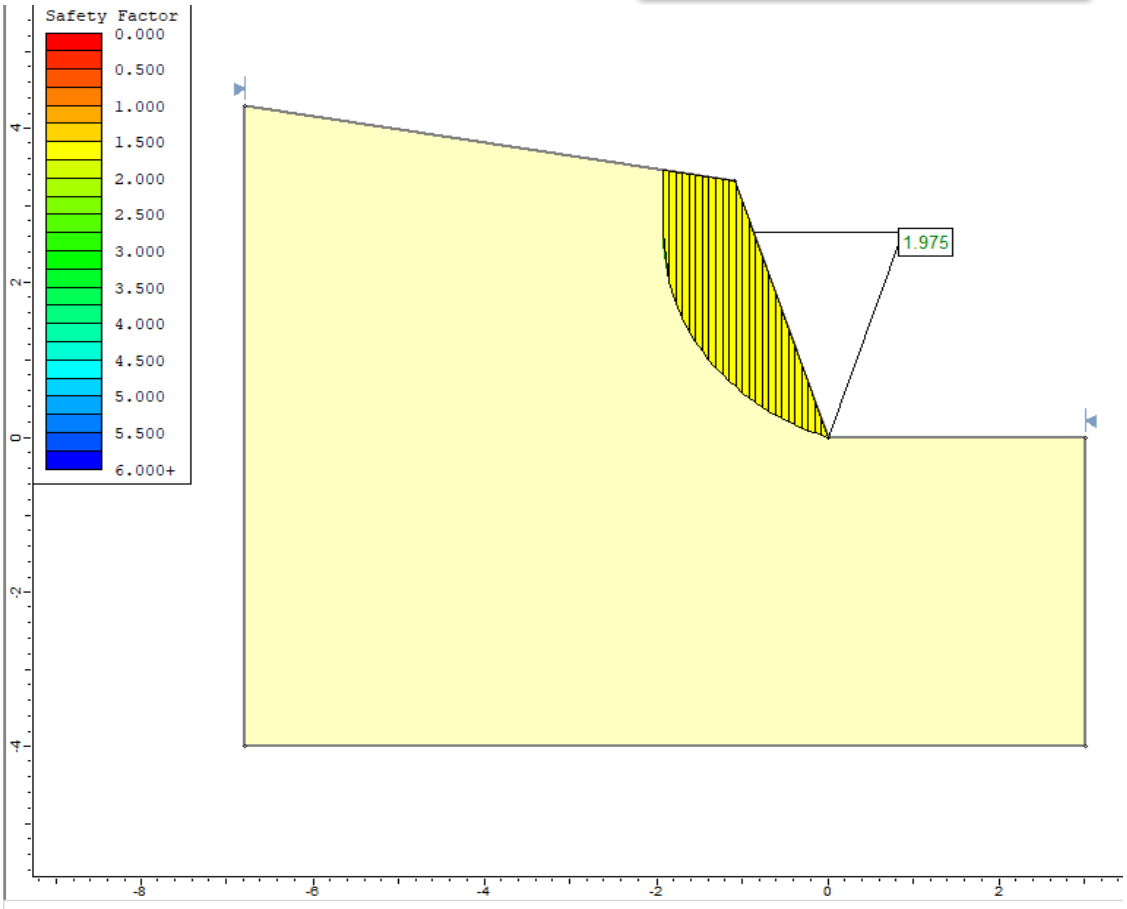
Progresiva 3+880 (izquierda)

Datos:

c'=	**15.0 Kp**
H=	**3.3 mts**
ϒ=	**17.5 KN/m3**
θ'=	**38 º**

TALUD 1 :3 (H:V)





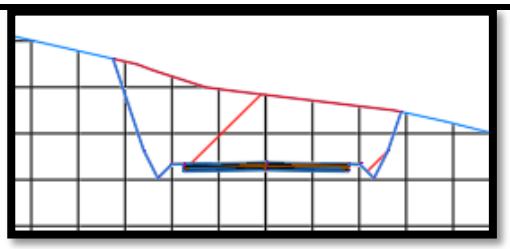
El FS es= 1.975 >1 CUMPLE

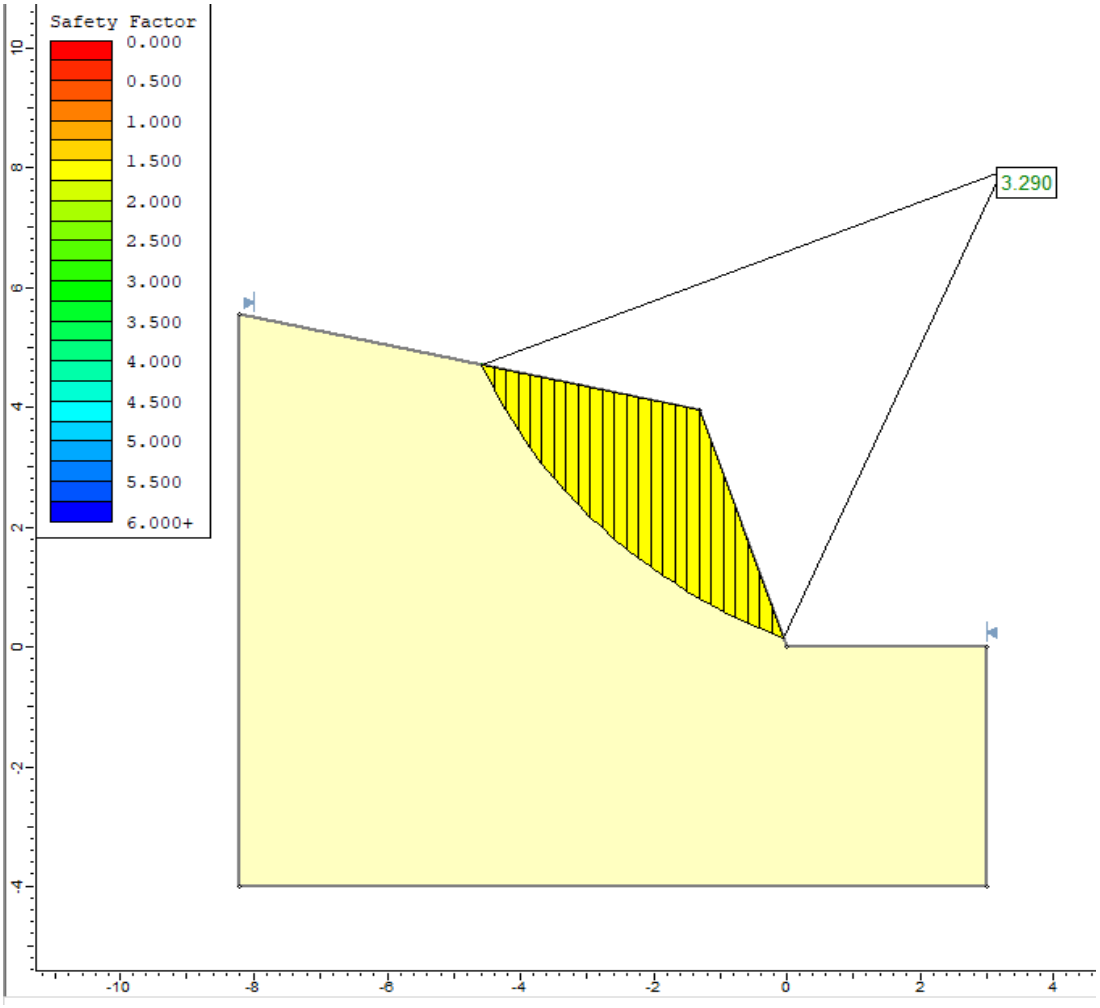
Progresiva 4+120 (derecho)

Datos:

c'=	**24.0 Kp**
H=	**4.0 mts**
ϒ=	**12.5 KN/m3**
θ'=	**35 º**

TALUD 1 :3 (H:V)





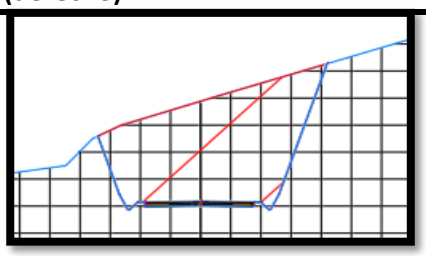
El FS es= 3.290 >1 CUMPLE

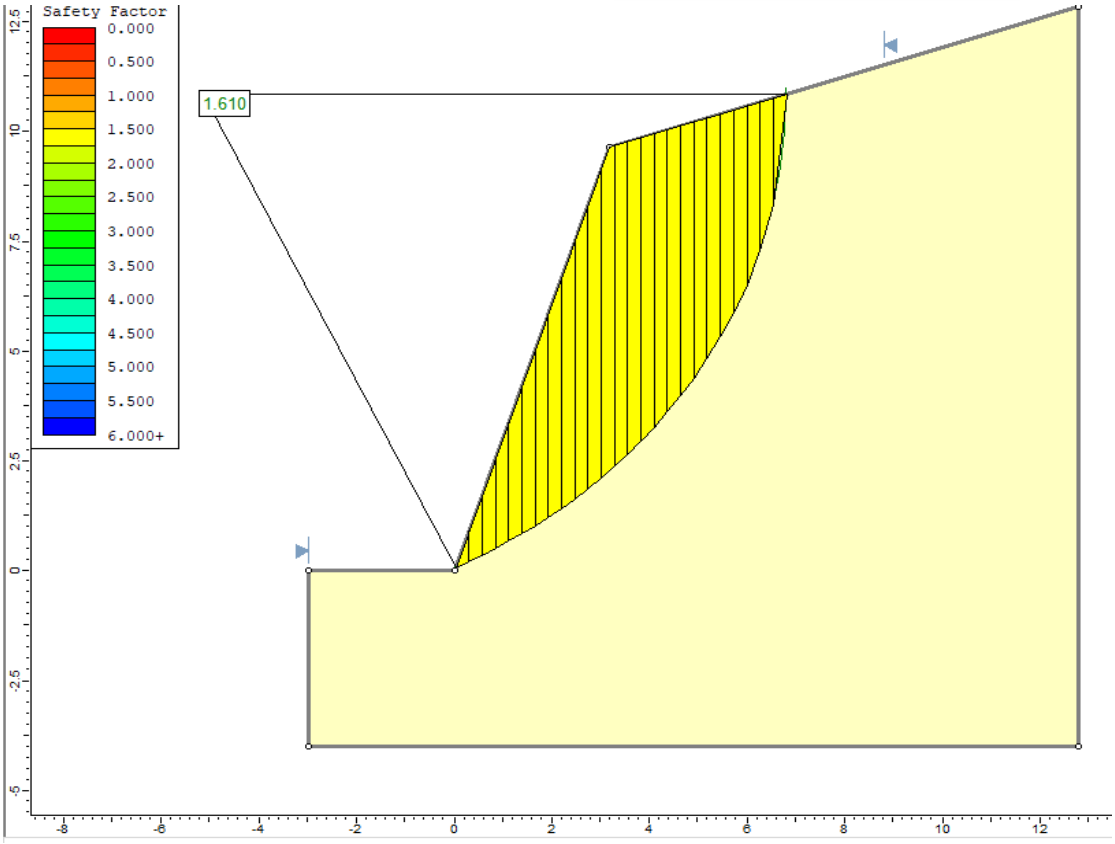
Progresiva 5+000 (derecho)

Datos:

c'=	**24.0 Kp**
H=	**9.7 mts**
ϒ=	**12.5 KN/m3**
θ'=	**35 º**

TALUD 1 :3 (H:V)





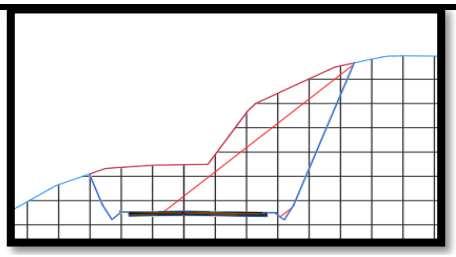
El FS es= 1.610 >1 CUMPLE

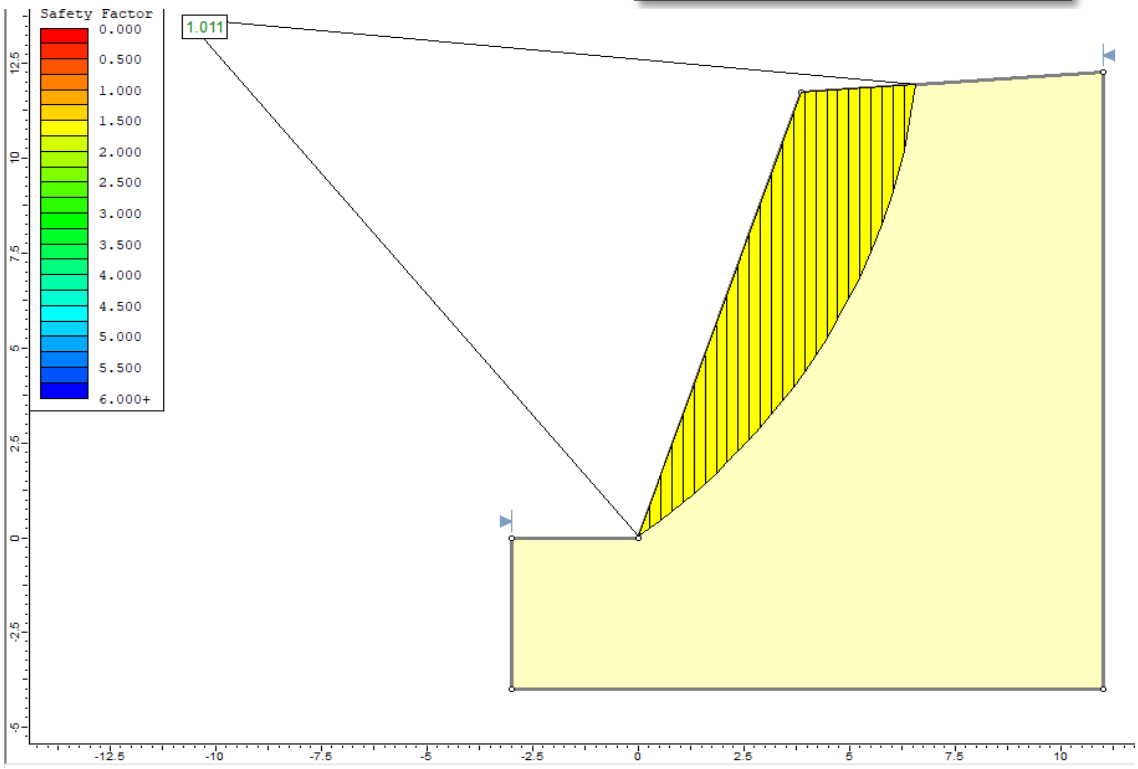
Progresiva 5+240 (derecho)

Datos:

c'=	**15.0 Kp**
H=	**10.0 mts**
ϒ=	**17.5 KN/m3**
θ'=	**38 º**

TALUD 1 :3 (H:V)





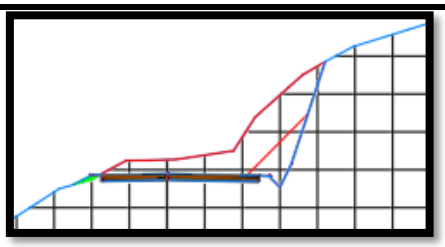
El FS es= 1.010 >1 CUMPLE

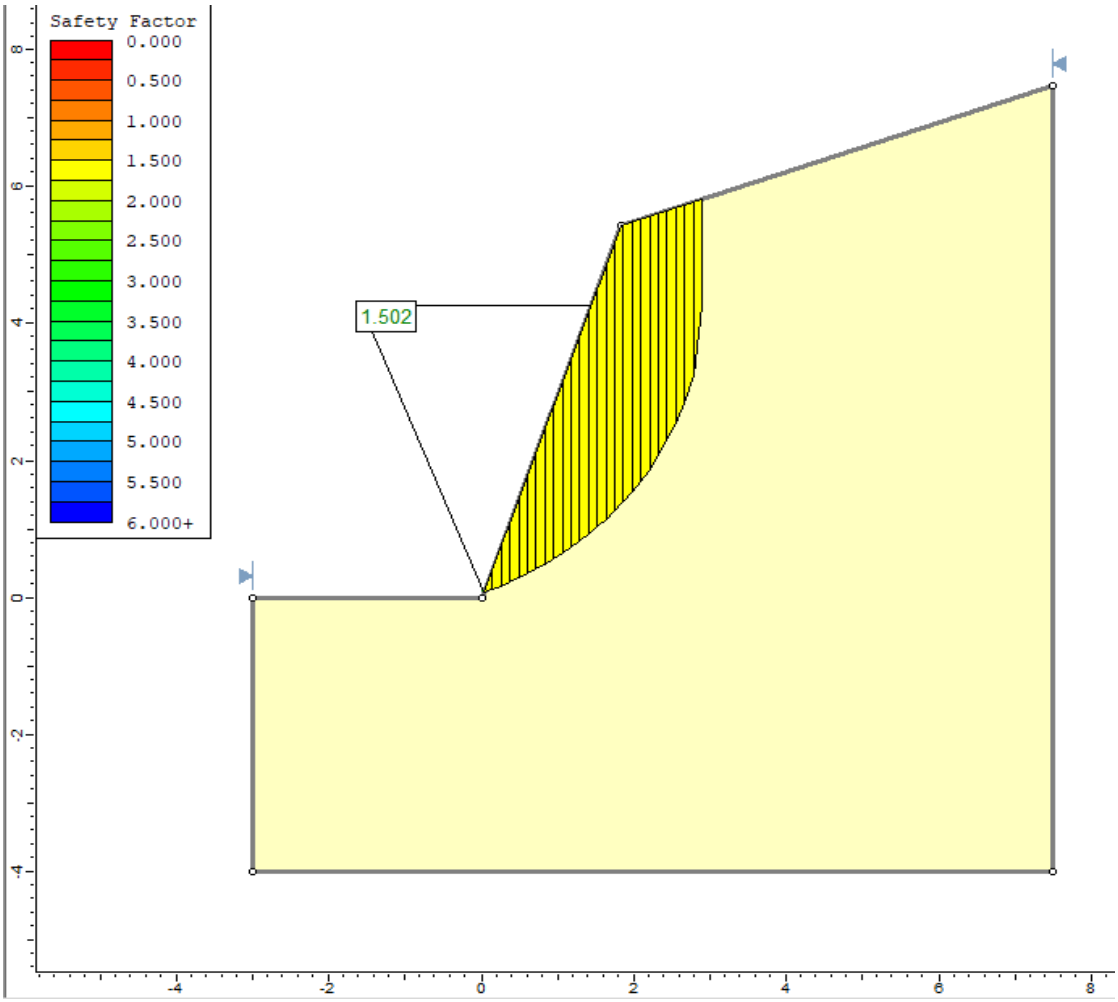
Progresiva 5+700 (derecho)

Datos:

c'=	**15.0 Kp**
H=	**5.4 mts**
ϒ=	**17.5 KN/m3**
θ'=	**38 º**

TALUD 1 :3 (H:V)





El FS es= 1.502 >1 CUMPLE