

LIQUEFACTION ANALYSIS REPORT

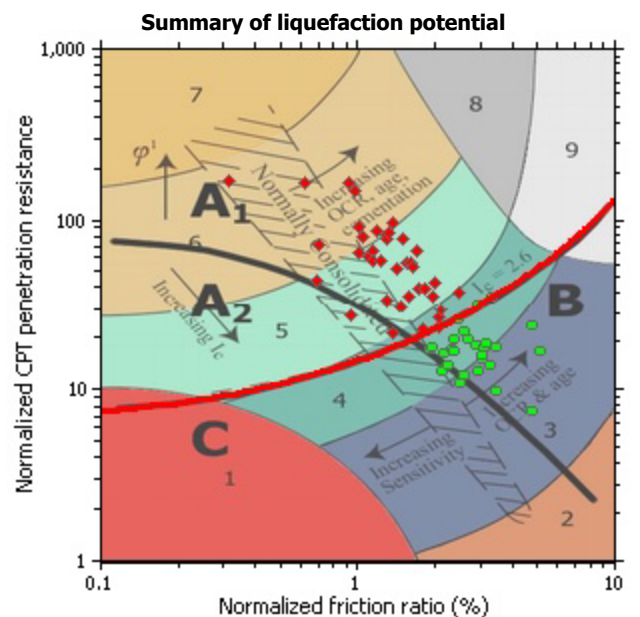
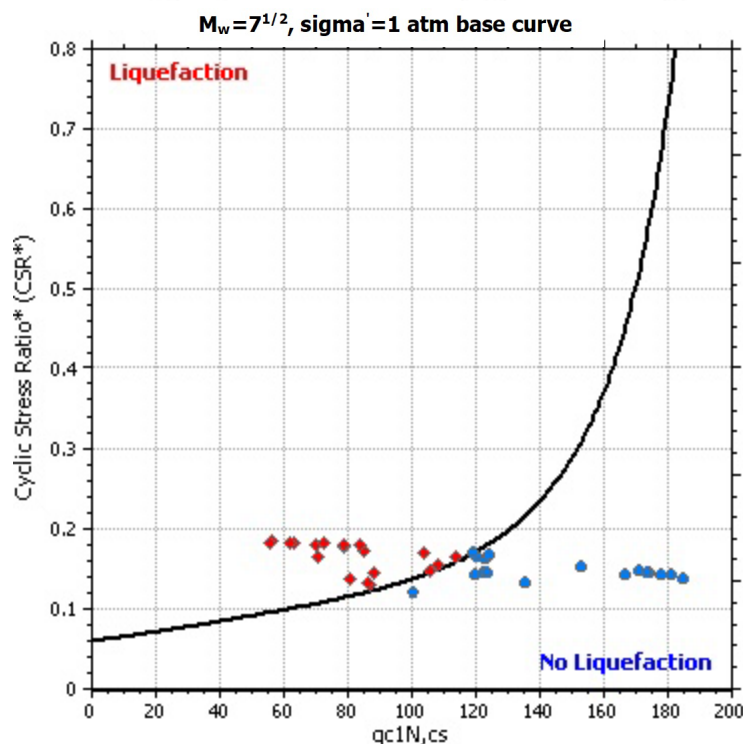
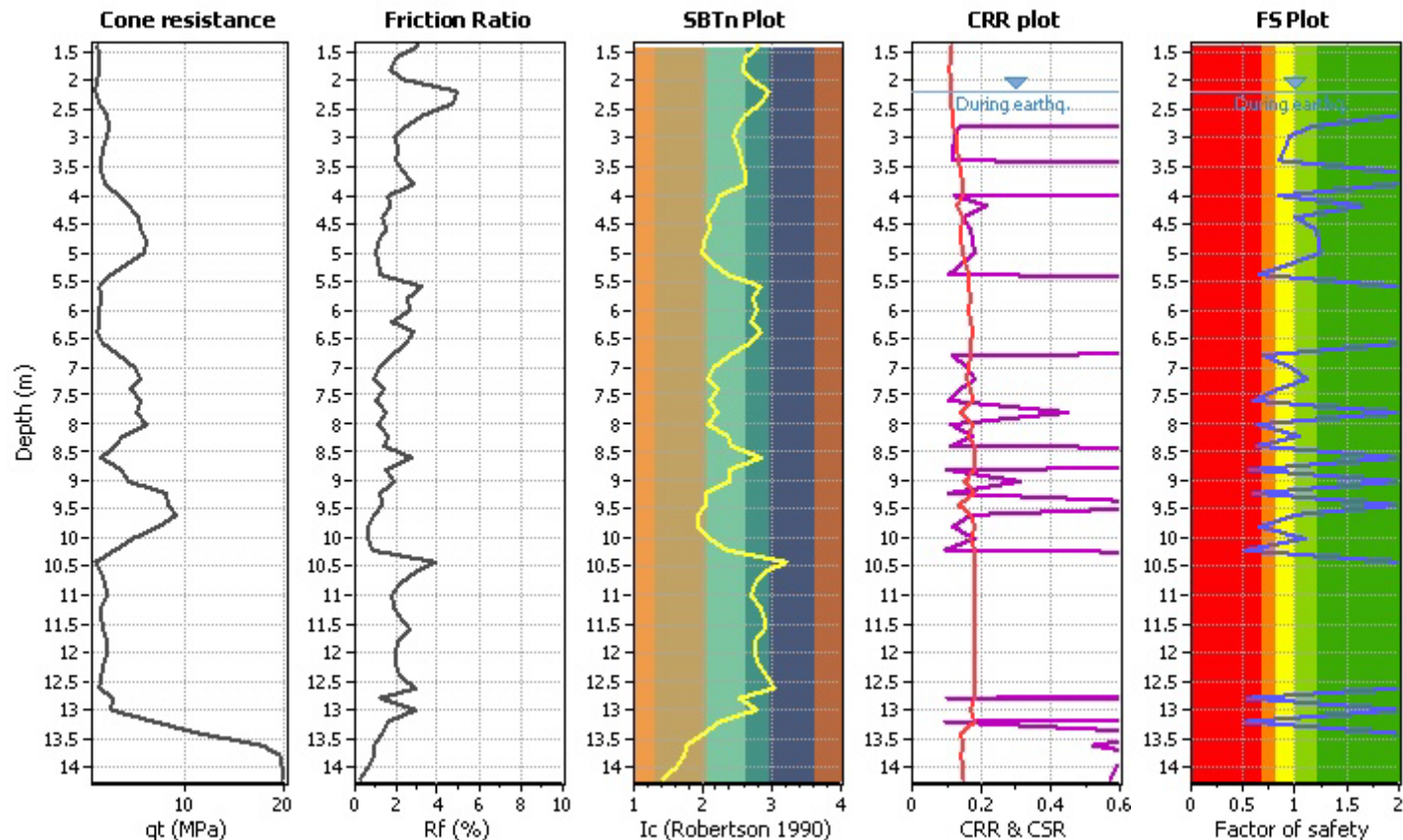
Project title :

Location :

CPT file : P125CPT131

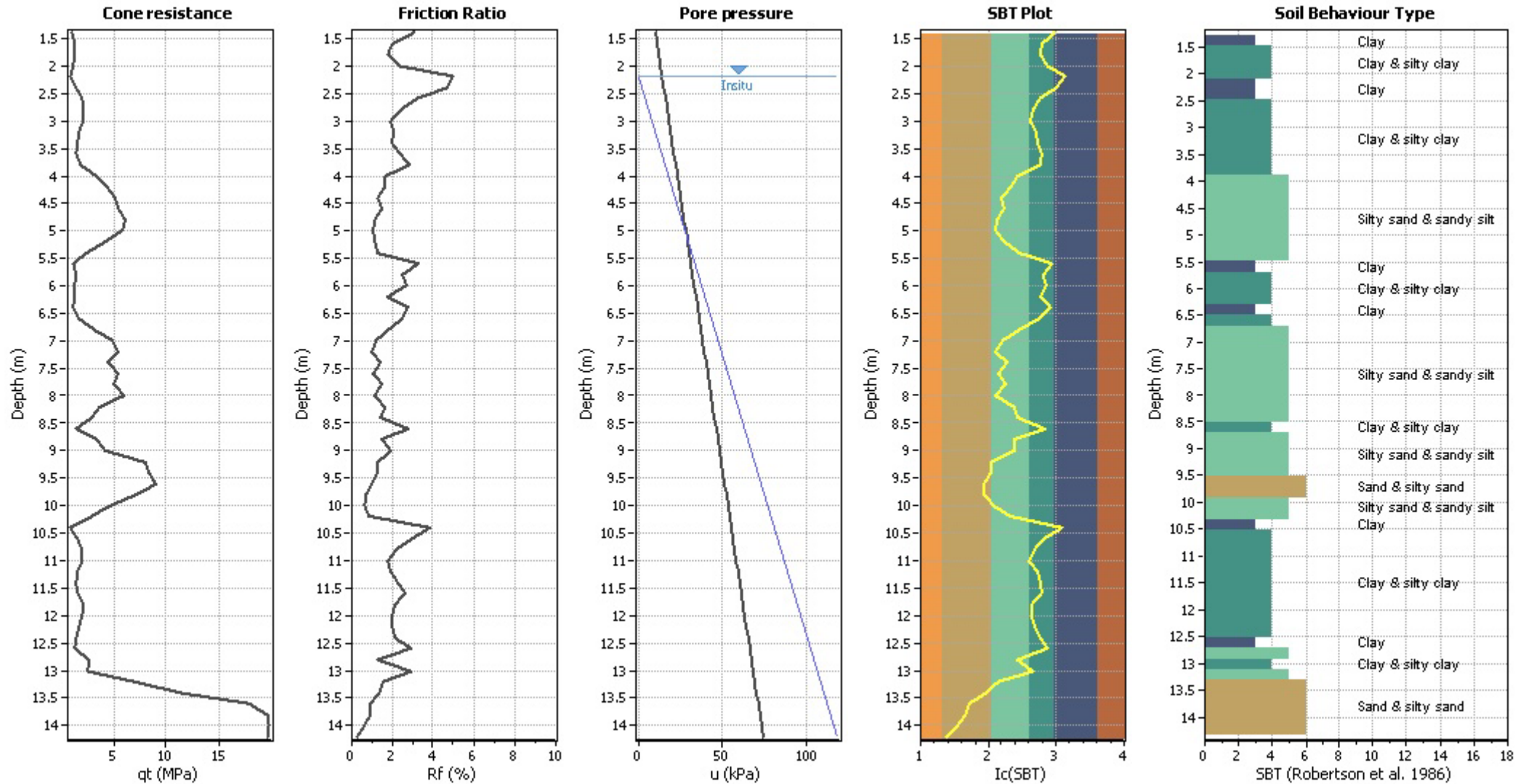
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.20 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.20 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plo



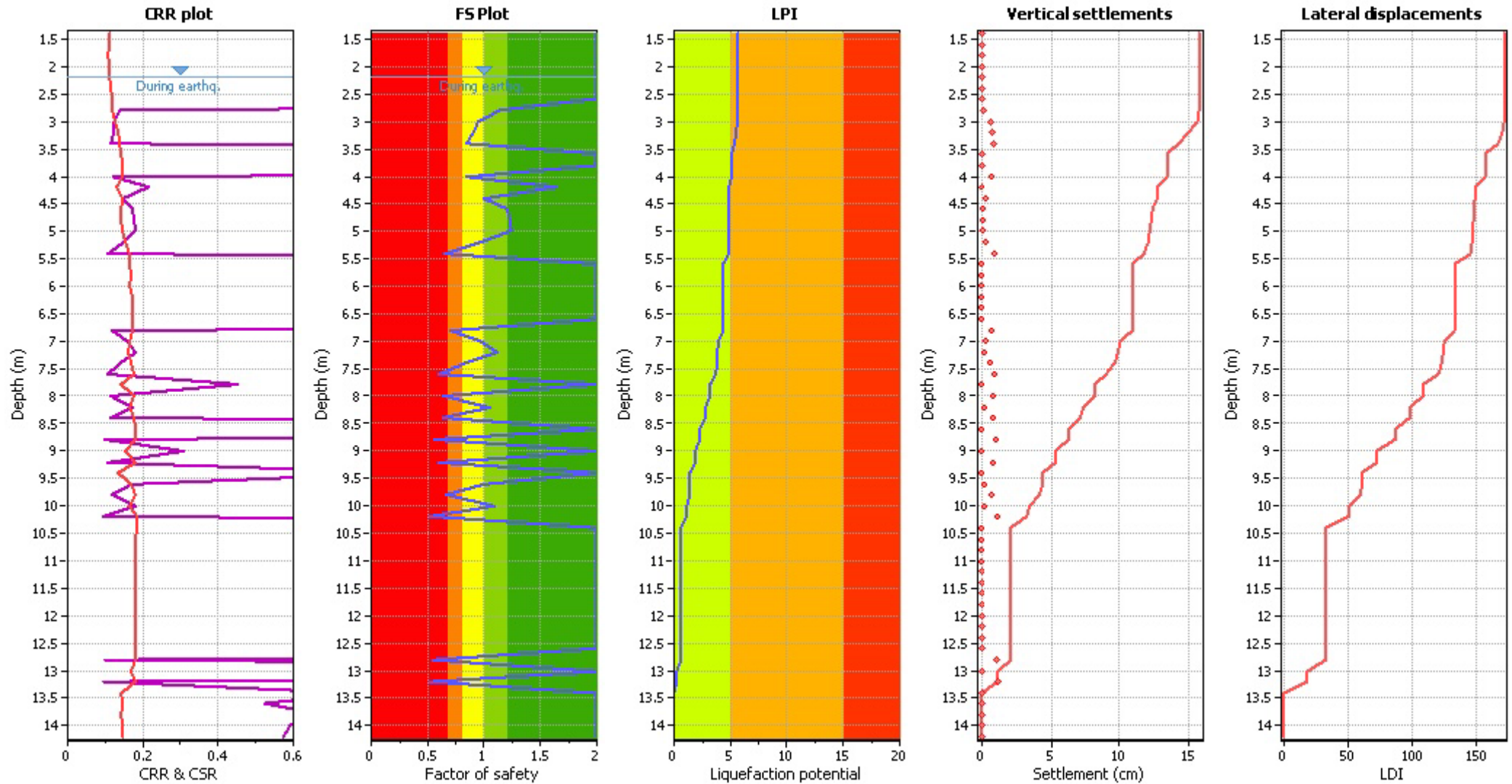
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.20 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_G applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.20 m	Fill height:	N/A	Limit depth:	N/A

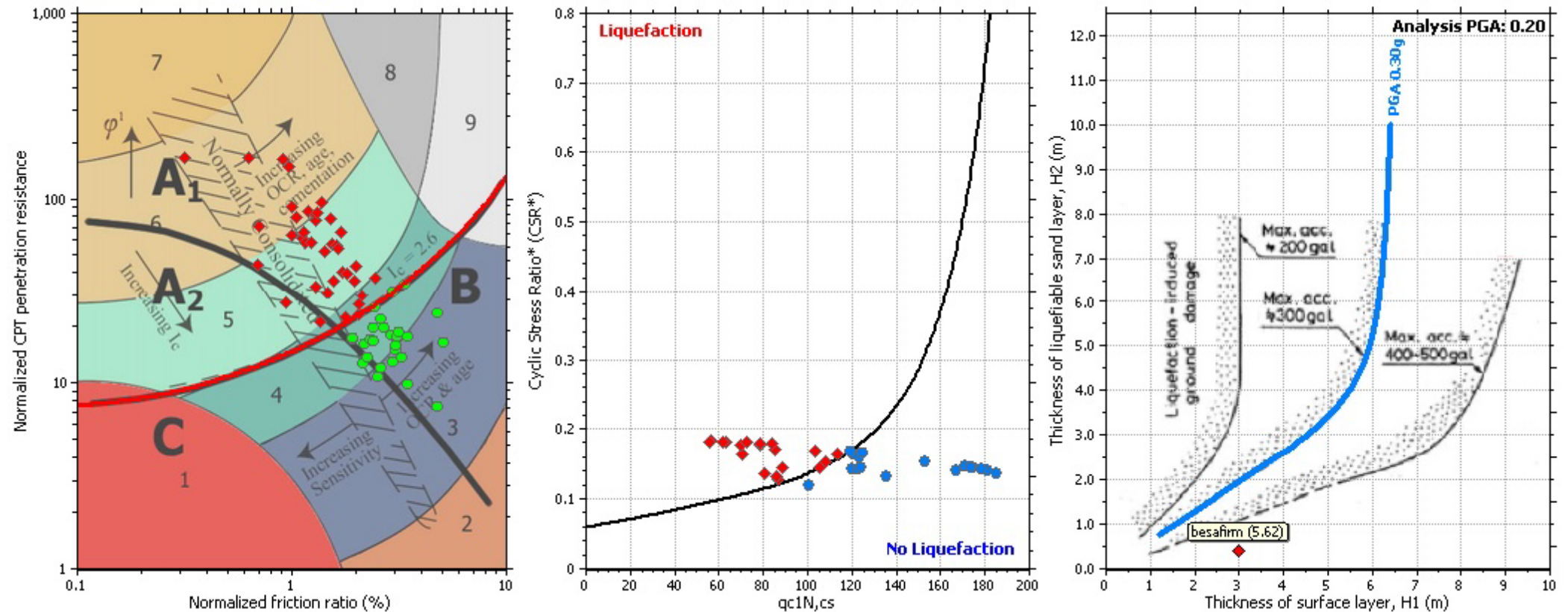
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis summary plo



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	2.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_G applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.20 m	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::						
Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	1.40	0.98	32.67	10.00	45.94	17.03
2	1.60	1.27	32.67	11.00	35.33	16.96
3	1.80	1.96	19.60	12.00	34.06	16.76
4	2.00	0.88	19.60	13.00	40.22	16.91
5	2.20	0.78	45.73	14.00	56.05	17.50
6	2.40	1.37	84.93	15.00	47.72	17.97
7	2.60	2.16	71.87	16.00	35.62	18.11
8	2.80	2.65	45.73	17.00	30.15	17.90
9	3.00	1.96	45.73	18.00	28.12	17.57
10	3.20	1.86	32.67	19.00	31.88	17.37
11	3.40	1.57	32.67	20.00	33.18	17.19
12	3.60	1.47	32.67	21.00	36.08	17.32
13	3.80	1.67	45.73	22.00	35.46	17.83
14	4.00	2.55	84.93	23.00	20.97	18.05
15	4.20	5.88	32.67	24.00	18.80	18.47
16	4.40	4.51	98.00	25.00	14.92	18.47
17	4.60	5.39	71.87	26.00	16.00	18.69
18	4.80	6.37	71.87	27.00	13.22	18.60
19	5.00	6.66	71.87	28.00	12.92	18.40
20	5.20	4.61	39.20	29.00	16.86	17.99
21	5.40	1.47	32.67	30.00	24.63	17.26
22	5.60	1.27	19.60	31.00	47.96	17.36
23	5.80	1.08	71.87	32.00	41.80	17.29
24	6.00	2.06	19.60	33.00	44.63	17.27
25	6.20	0.98	19.60	34.00	40.12	16.76
26	6.40	0.98	32.67	35.00	48.33	17.16
27	6.60	1.76	52.27	36.00	39.57	17.55
28	6.80	2.55	45.73	37.00	25.81	18.08
29	7.00	5.39	71.87	38.00	17.35	18.28
30	7.20	6.76	58.80	39.00	14.75	18.24
31	7.40	4.41	32.67	40.00	19.86	18.34
32	7.60	2.45	98.00	41.00	15.96	18.32
33	7.80	9.41	45.73	42.00	19.67	18.60
34	8.00	3.33	84.93	43.00	15.26	18.53
35	8.20	5.49	71.87	44.00	25.08	18.22
36	8.40	2.25	26.13	45.00	27.05	17.68
37	8.60	1.08	26.13	46.00	49.05	17.43
38	8.80	1.18	71.87	47.00	25.72	18.02
39	9.00	8.13	58.80	48.00	25.61	18.59
40	9.20	3.33	111.07	49.00	14.18	19.11
41	9.40	12.84	137.20	50.00	14.22	19.17
42	9.60	8.72	71.87	51.00	11.50	19.00
43	9.80	5.68	58.80	52.00	11.38	18.25
44	10.00	7.35	19.60	53.00	16.13	17.51
45	10.20	0.78	13.07	54.00	24.88	17.16
46	10.40	0.69	45.73	55.00	74.56	17.13
47	10.60	1.37	52.27	56.00	52.46	17.63
48	10.80	2.84	45.73	57.00	43.40	17.60

:: Field input data :: (continued)

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
49	11.00	1.76	32.67	58.00	39.77	17.43
50	11.20	1.67	32.67	59.00	47.57	17.10
51	11.40	1.37	26.13	60.00	51.67	17.24
52	11.60	1.57	45.73	61.00	52.02	17.53
53	11.80	2.06	58.80	62.00	42.74	17.68
54	12.00	2.84	32.67	63.00	42.81	17.56
55	12.20	1.37	32.67	64.00	46.76	17.38
56	12.40	1.27	45.73	65.00	53.59	17.16
57	12.60	1.86	19.60	66.00	61.02	17.40
58	12.80	1.08	58.80	67.00	32.08	17.47
59	13.00	5.39	26.13	68.00	45.38	18.30
60	13.20	1.18	137.20	69.00	20.18	19.13
61	13.40	14.31	163.33	70.00	13.40	19.72
62	13.60	19.01	163.33	71.00	7.48	20.00
63	13.80	19.89	182.93	72.00	6.56	20.08
64	14.00	19.60	182.93	73.00	4.53	19.66
65	14.20	19.60	0.00	74.00	1.99	18.86

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q _c :	Measured cone resistance (MPa)
f _s :	Sleeve friction resistance (kPa)
u:	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
1.40	2.00	0.00	9.30	0.20	0.00	1.60	2.00	0.00	9.20	0.20	0.00
1.80	2.00	0.00	9.10	0.20	0.00	2.00	2.00	0.00	9.00	0.20	0.00
2.20	2.00	0.00	8.90	0.20	0.00	2.40	2.00	0.00	8.80	0.20	0.00
2.60	2.00	0.00	8.70	0.20	0.00	2.80	1.15	0.00	8.60	0.20	0.00
3.00	0.95	0.05	8.50	0.20	0.08	3.20	0.91	0.09	8.40	0.20	0.14
3.40	0.84	0.16	8.30	0.20	0.26	3.60	2.00	0.00	8.20	0.20	0.00
3.80	2.00	0.00	8.10	0.20	0.00	4.00	0.85	0.15	8.00	0.20	0.24
4.20	1.64	0.00	7.90	0.20	0.00	4.40	0.99	0.01	7.80	0.20	0.01
4.60	1.20	0.00	7.70	0.20	0.00	4.80	1.23	0.00	7.60	0.20	0.00
5.00	1.24	0.00	7.50	0.20	0.00	5.20	0.97	0.03	7.40	0.20	0.04
5.40	0.65	0.35	7.30	0.20	0.51	5.60	2.00	0.00	7.20	0.20	0.00
5.80	2.00	0.00	7.10	0.20	0.00	6.00	2.00	0.00	7.00	0.20	0.00
6.20	2.00	0.00	6.90	0.20	0.00	6.40	2.00	0.00	6.80	0.20	0.00
6.60	2.00	0.00	6.70	0.20	0.00	6.80	0.70	0.30	6.60	0.20	0.39
7.00	0.97	0.03	6.50	0.20	0.04	7.20	1.11	0.00	6.40	0.20	0.00
7.40	0.84	0.16	6.30	0.20	0.20	7.60	0.60	0.40	6.20	0.20	0.49
7.80	2.00	0.00	6.10	0.20	0.00	8.00	0.64	0.36	6.00	0.20	0.43
8.20	1.04	0.00	5.90	0.20	0.00	8.40	0.64	0.36	5.80	0.20	0.42
8.60	2.00	0.00	5.70	0.20	0.00	8.80	0.56	0.44	5.60	0.20	0.49
9.00	2.00	0.00	5.50	0.20	0.00	9.20	0.60	0.40	5.40	0.20	0.43
9.40	2.00	0.00	5.30	0.20	0.00	9.60	1.00	0.00	5.20	0.20	0.00
9.80	0.67	0.33	5.10	0.20	0.34	10.00	1.09	0.00	5.00	0.20	0.00
10.20	0.53	0.47	4.90	0.20	0.46	10.40	2.00	0.00	4.80	0.20	0.00
10.60	2.00	0.00	4.70	0.20	0.00	10.80	2.00	0.00	4.60	0.20	0.00
11.00	2.00	0.00	4.50	0.20	0.00	11.20	2.00	0.00	4.40	0.20	0.00
11.40	2.00	0.00	4.30	0.20	0.00	11.60	2.00	0.00	4.20	0.20	0.00
11.80	2.00	0.00	4.10	0.20	0.00	12.00	2.00	0.00	4.00	0.20	0.00
12.20	2.00	0.00	3.90	0.20	0.00	12.40	2.00	0.00	3.80	0.20	0.00
12.60	2.00	0.00	3.70	0.20	0.00	12.80	0.56	0.44	3.60	0.20	0.32
13.00	2.00	0.00	3.50	0.20	0.00	13.20	0.53	0.47	3.40	0.20	0.32
13.40	2.00	0.00	3.30	0.20	0.00	13.60	2.00	0.00	3.20	0.20	0.00
13.80	2.00	0.00	3.10	0.20	0.00	14.00	2.00	0.00	3.00	0.20	0.00
14.20	2.00	0.00	2.90	0.20	0.00						

Overall liquefaction potential: 5.62

LPI = 0.00 - Liquefaction risk very low

LPI between 0.00 and 5.00 - Liquefaction risk low

LPI between 5.00 and 15.00 - Liquefaction risk high

LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point

F_L: 1 - FSw_z: Function value of the extend of soil liquefaction according to depthd_z: Layer thickness (m)

LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

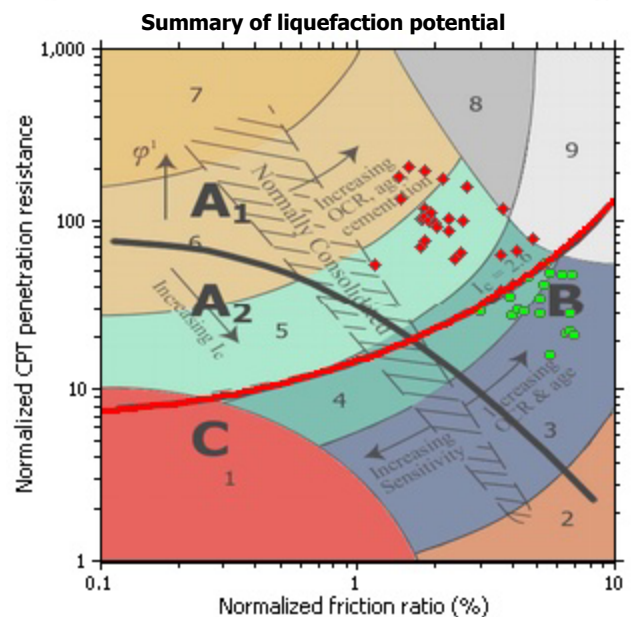
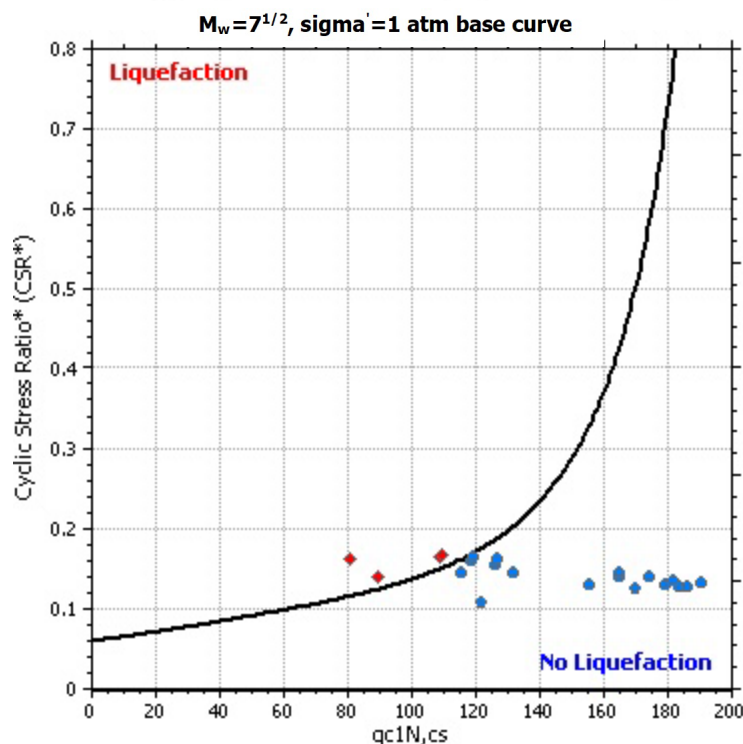
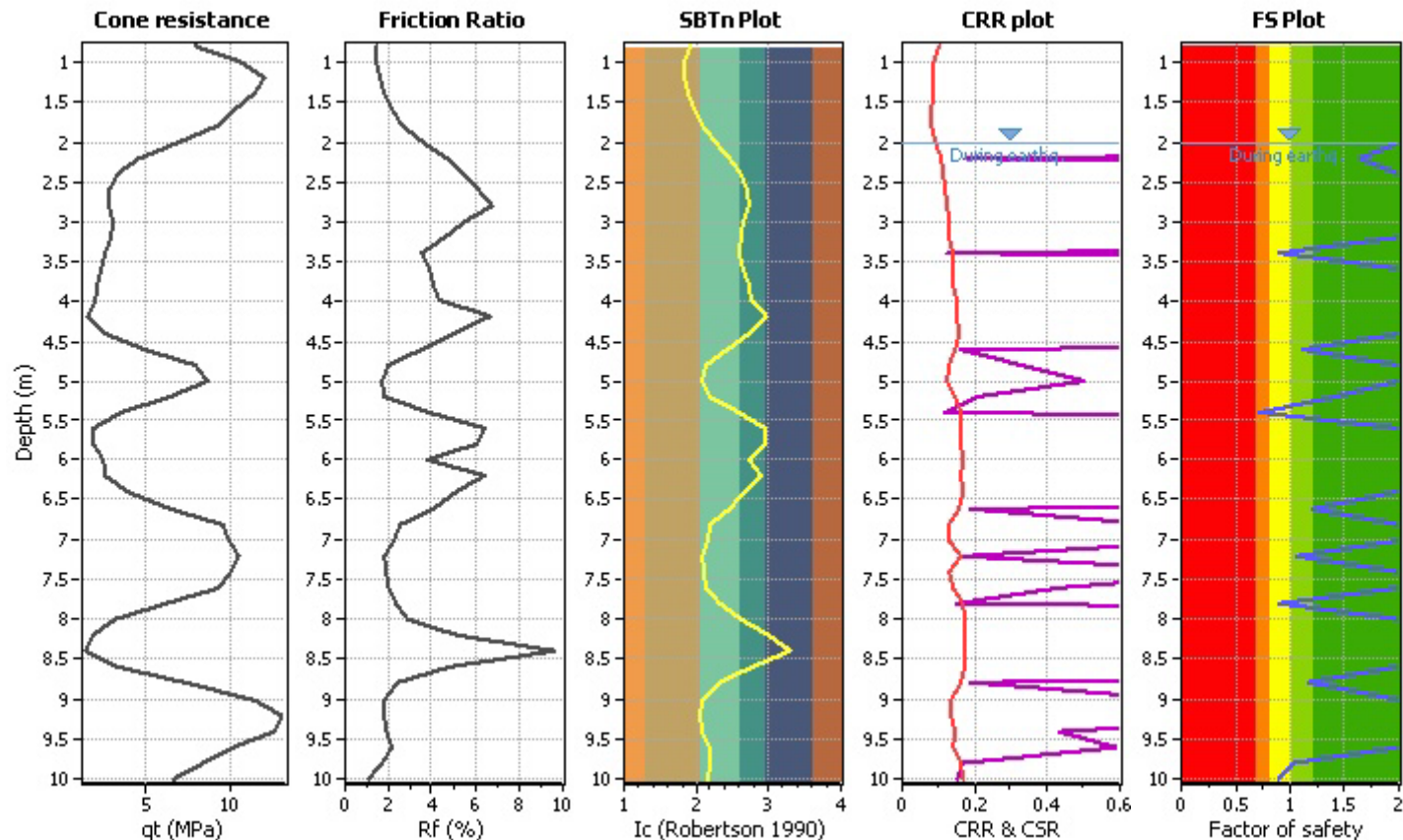
Project title :

Location :

CPT file : P126CPT132

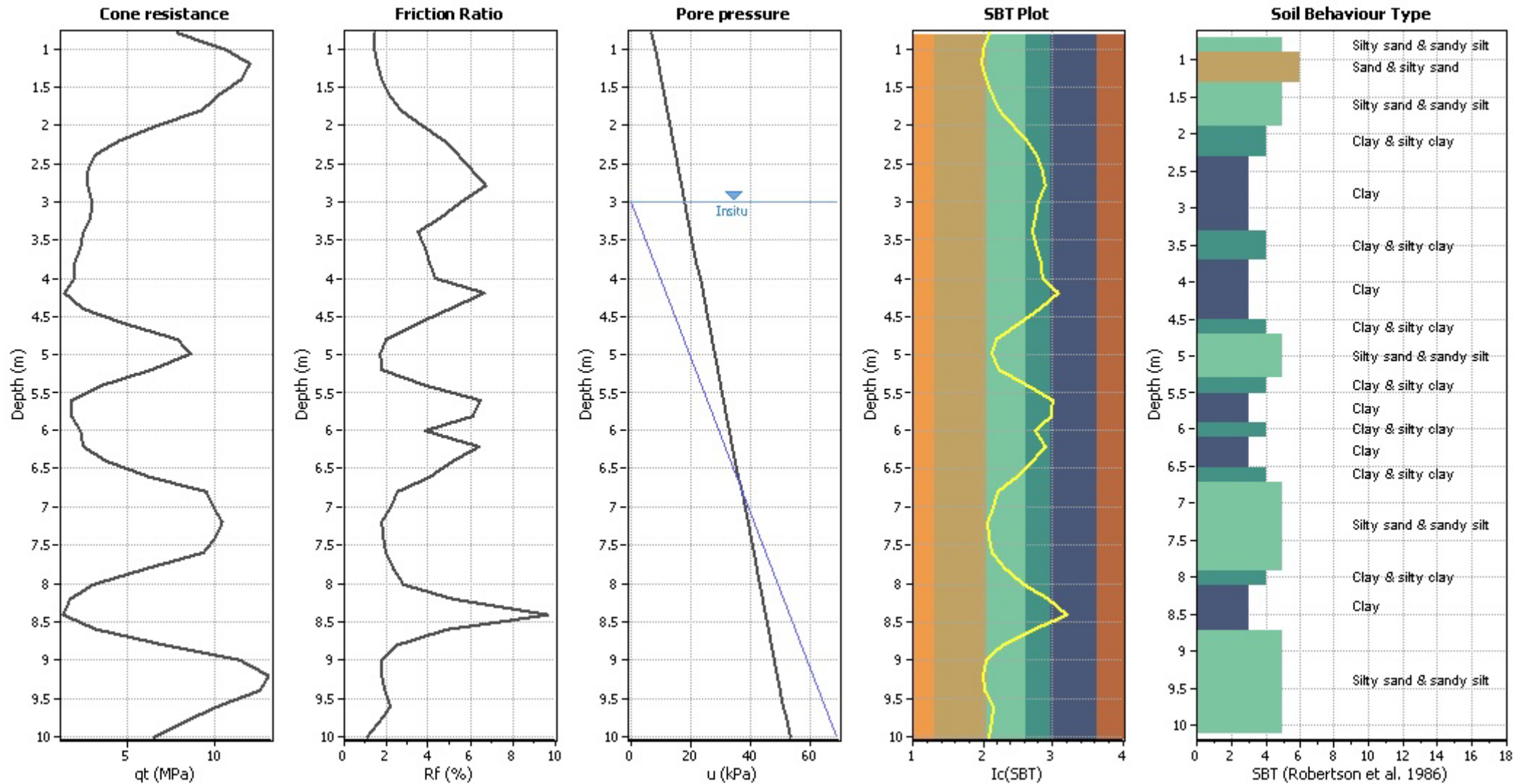
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
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CPT basic interpretation plo



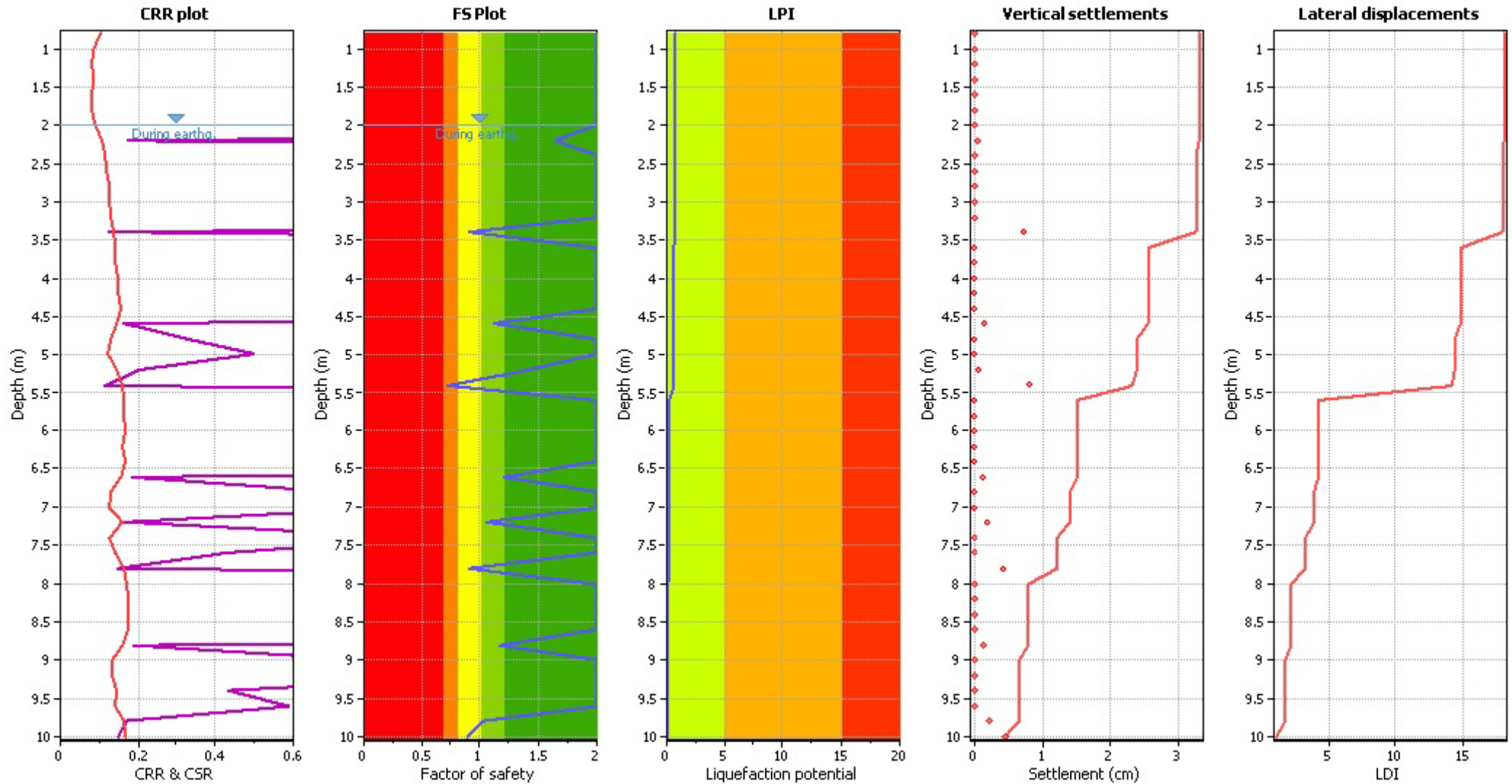
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Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

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Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

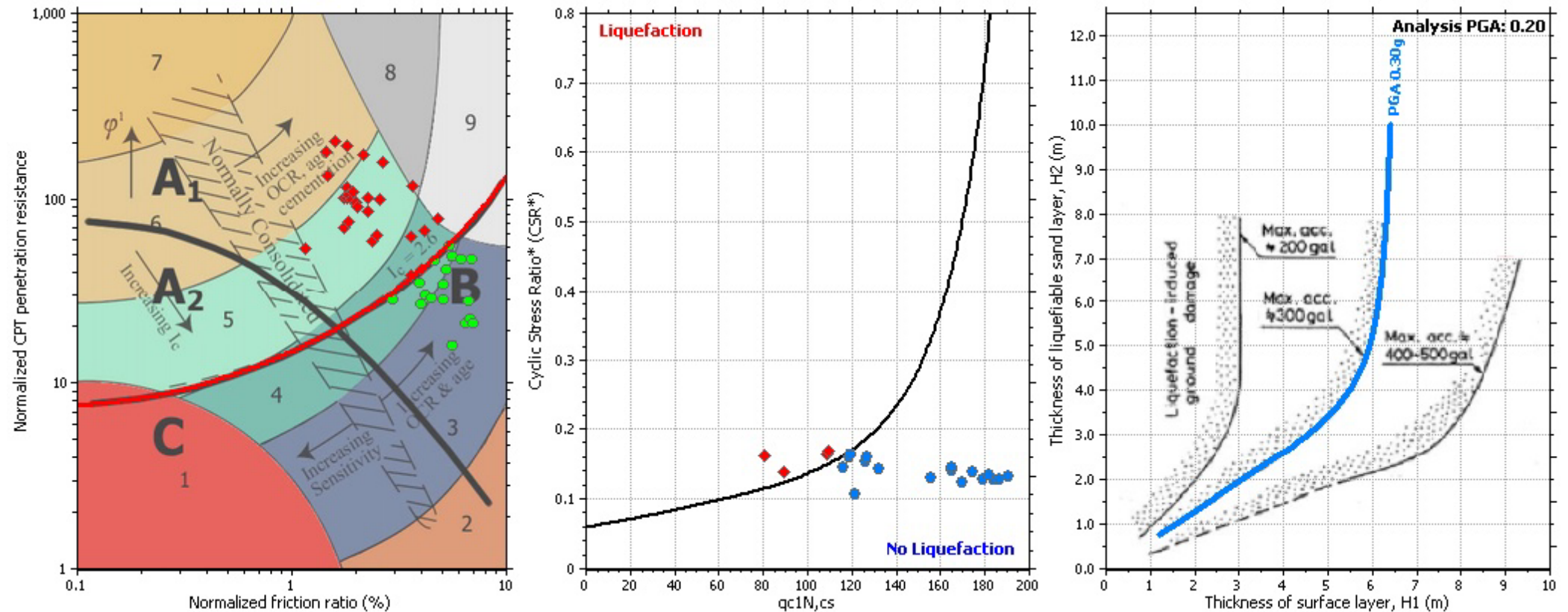
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■	Almost certain it will not liquefy

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■	Low risk

Liquefaction analysis summary plo



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Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	0.80	5.49	104.53	7.00	11.10	19.24
2	1.00	12.74	137.20	8.00	8.92	19.68
3	1.20	13.62	215.60	9.00	8.87	19.97
4	1.40	9.60	215.60	10.00	10.19	20.06
5	1.60	11.17	189.47	11.00	12.48	20.08
6	1.80	9.90	254.80	12.00	15.17	20.18
7	2.00	6.86	294.00	13.00	21.38	20.08
8	2.20	3.92	202.53	14.00	29.36	19.77
9	2.40	3.04	156.80	15.00	36.04	19.39
10	2.60	2.84	169.87	16.00	40.48	19.31
11	2.80	2.55	189.47	17.00	42.21	19.42
12	3.00	3.04	209.07	18.00	38.31	19.33
13	3.20	3.63	111.07	19.00	36.13	19.07
14	3.40	2.35	91.47	20.00	34.84	18.55
15	3.60	1.86	71.87	21.00	37.96	18.52
16	3.80	2.94	111.07	22.00	41.44	18.38
17	4.00	1.47	71.87	23.00	43.18	18.43
18	4.20	1.76	84.93	24.00	57.13	18.48
19	4.40	1.37	150.27	25.00	42.26	18.94
20	4.60	4.61	150.27	26.00	28.07	19.52
21	4.80	8.72	215.60	27.00	16.60	19.58
22	5.00	10.39	98.00	28.00	14.93	19.58
23	5.20	6.76	137.20	29.00	18.27	19.16
24	5.40	2.06	111.07	30.00	35.30	19.13
25	5.60	1.76	163.33	31.00	55.48	18.79
26	5.80	1.96	98.00	32.00	55.30	18.70
27	6.00	1.96	84.93	33.00	42.34	18.55
28	6.20	3.43	98.00	34.00	50.84	19.21
29	6.40	2.25	307.07	35.00	39.78	19.59
30	6.60	5.88	189.47	36.00	29.17	20.09
31	6.80	10.98	280.93	37.00	18.96	20.17
32	7.00	11.76	254.80	38.00	17.33	20.07
33	7.20	7.06	124.13	39.00	15.07	19.92
34	7.40	12.54	189.47	40.00	15.86	19.89
35	7.60	10.49	248.27	41.00	17.31	19.87
36	7.80	5.10	124.13	42.00	23.71	19.40
37	8.00	3.04	58.80	43.00	37.07	18.59
38	8.20	1.27	84.93	44.00	58.68	18.48
39	8.40	1.27	143.73	45.00	80.55	18.81
40	8.60	1.76	189.47	46.00	45.54	19.29
41	8.80	6.86	150.27	47.00	23.30	19.70
42	9.00	13.03	189.47	48.00	15.15	20.03
43	9.20	14.31	267.87	49.00	14.10	20.24
44	9.40	11.76	241.73	50.00	15.12	20.26
45	9.60	11.66	209.07	51.00	18.86	20.10
46	9.80	7.06	222.13	52.00	18.59	19.52
47	10.00	6.37	0.00	53.00	17.59	18.66

:: Field input data :: (continued)

Point ID	Depth (m)	q_c (MPa)	f_s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
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Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q_c :	Measured cone resistance (MPa)
f_s :	Sleeve friction resistance (kPa)
u :	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
0.80	2.00	0.00	9.60	0.20	0.00	1.00	2.00	0.00	9.50	0.20	0.00
1.20	2.00	0.00	9.40	0.20	0.00	1.40	2.00	0.00	9.30	0.20	0.00
1.60	2.00	0.00	9.20	0.20	0.00	1.80	2.00	0.00	9.10	0.20	0.00
2.00	2.00	0.00	9.00	0.20	0.00	2.20	1.64	0.00	8.90	0.20	0.00
2.40	2.00	0.00	8.80	0.20	0.00	2.60	2.00	0.00	8.70	0.20	0.00
2.80	2.00	0.00	8.60	0.20	0.00	3.00	2.00	0.00	8.50	0.20	0.00
3.20	2.00	0.00	8.40	0.20	0.00	3.40	0.90	0.10	8.30	0.20	0.16
3.60	2.00	0.00	8.20	0.20	0.00	3.80	2.00	0.00	8.10	0.20	0.00
4.00	2.00	0.00	8.00	0.20	0.00	4.20	2.00	0.00	7.90	0.20	0.00
4.40	2.00	0.00	7.80	0.20	0.00	4.60	1.12	0.00	7.70	0.20	0.00
4.80	2.00	0.00	7.60	0.20	0.00	5.00	2.00	0.00	7.50	0.20	0.00
5.20	1.42	0.00	7.40	0.20	0.00	5.40	0.72	0.28	7.30	0.20	0.41
5.60	2.00	0.00	7.20	0.20	0.00	5.80	2.00	0.00	7.10	0.20	0.00
6.00	2.00	0.00	7.00	0.20	0.00	6.20	2.00	0.00	6.90	0.20	0.00
6.40	2.00	0.00	6.80	0.20	0.00	6.60	1.21	0.00	6.70	0.20	0.00
6.80	2.00	0.00	6.60	0.20	0.00	7.00	2.00	0.00	6.50	0.20	0.00
7.20	1.06	0.00	6.40	0.20	0.00	7.40	2.00	0.00	6.30	0.20	0.00
7.60	2.00	0.00	6.20	0.20	0.00	7.80	0.91	0.09	6.10	0.20	0.11
8.00	2.00	0.00	6.00	0.20	0.00	8.20	2.00	0.00	5.90	0.20	0.00
8.40	2.00	0.00	5.80	0.20	0.00	8.60	2.00	0.00	5.70	0.20	0.00
8.80	1.17	0.00	5.60	0.20	0.00	9.00	2.00	0.00	5.50	0.20	0.00
9.20	2.00	0.00	5.40	0.20	0.00	9.40	2.00	0.00	5.30	0.20	0.00
9.60	2.00	0.00	5.20	0.20	0.00	9.80	1.03	0.00	5.10	0.20	0.00
10.00	0.90	0.10	5.00	0.20	0.10						

Overall liquefaction potential: 0.79

LPI = 0.00 - Liquefaction risk very low

LPI between 0.00 and 5.00 - Liquefaction risk low

LPI between 5.00 and 15.00 - Liquefaction risk high

LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point

F_L: 1 - FSw_z: Function value of the extend of soil liquefaction according to depthd_z: Layer thickness (m)

LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

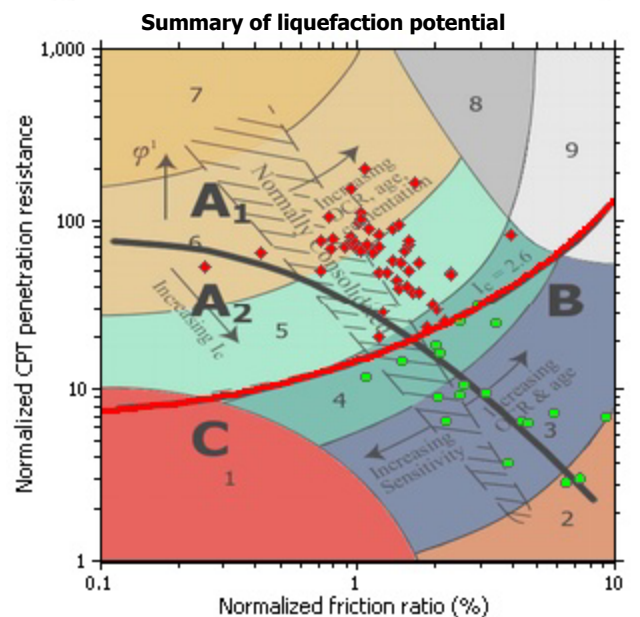
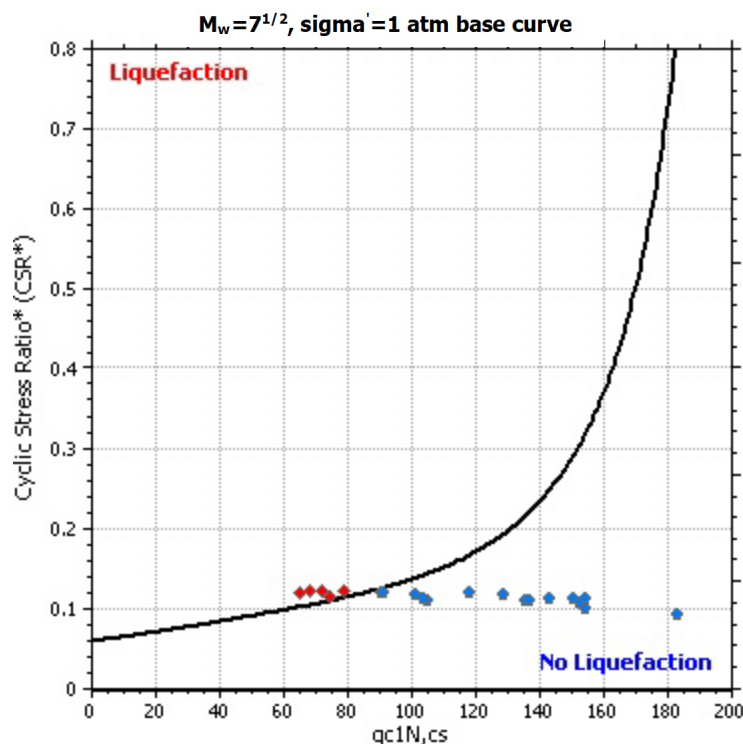
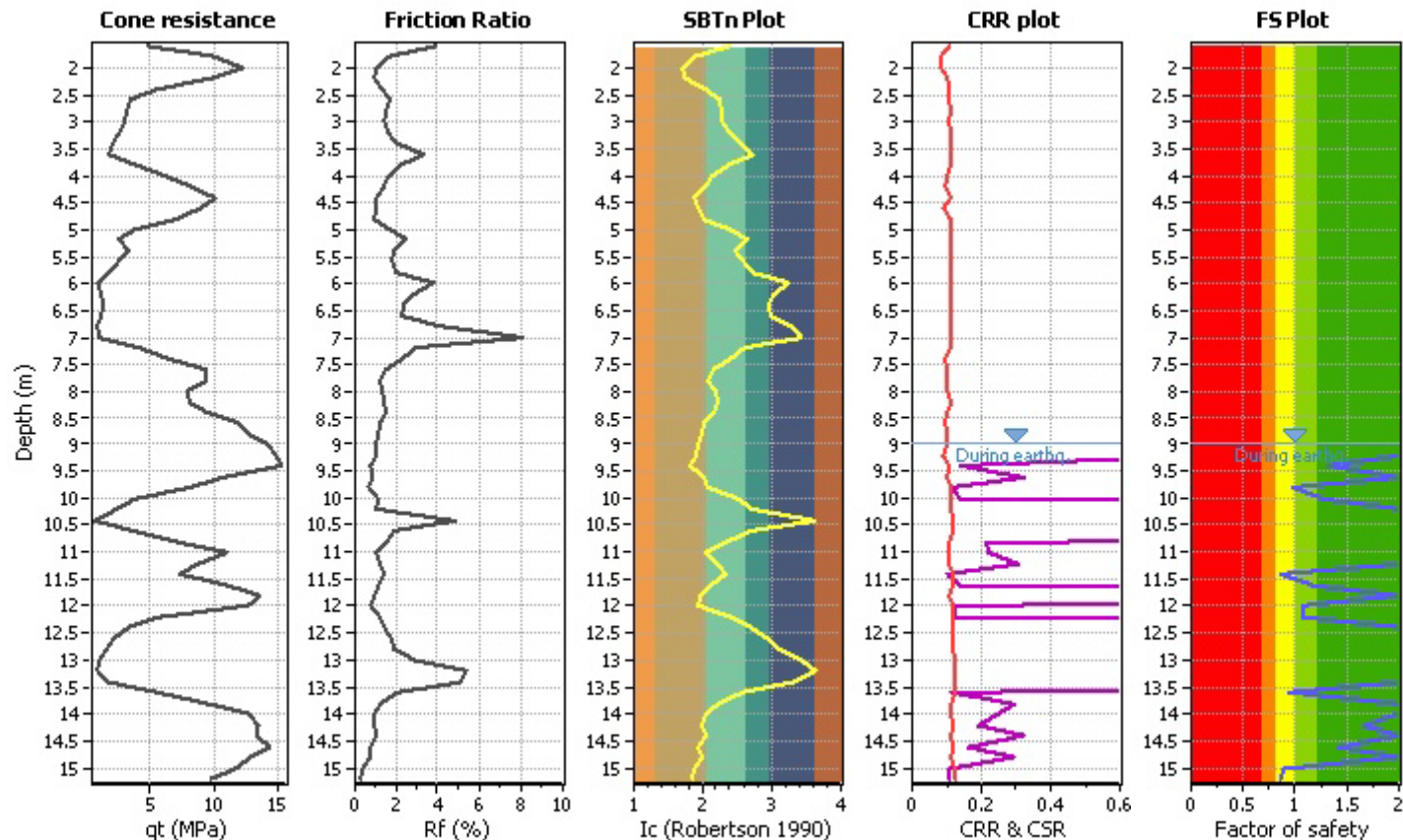
Project title :

Location :

CPT file : P123CPT129

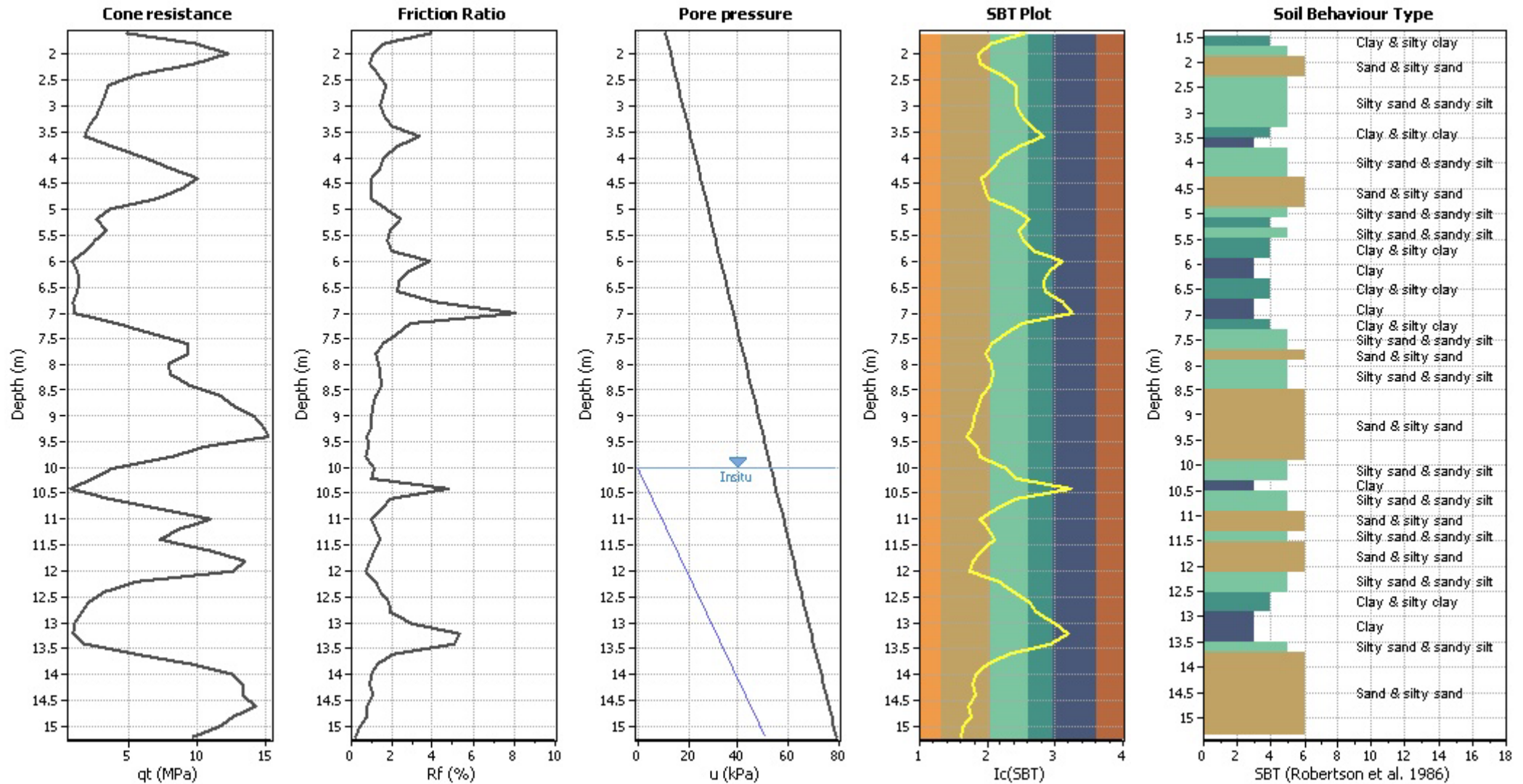
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	10.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	9.00 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes	MSF method:	Method



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plo



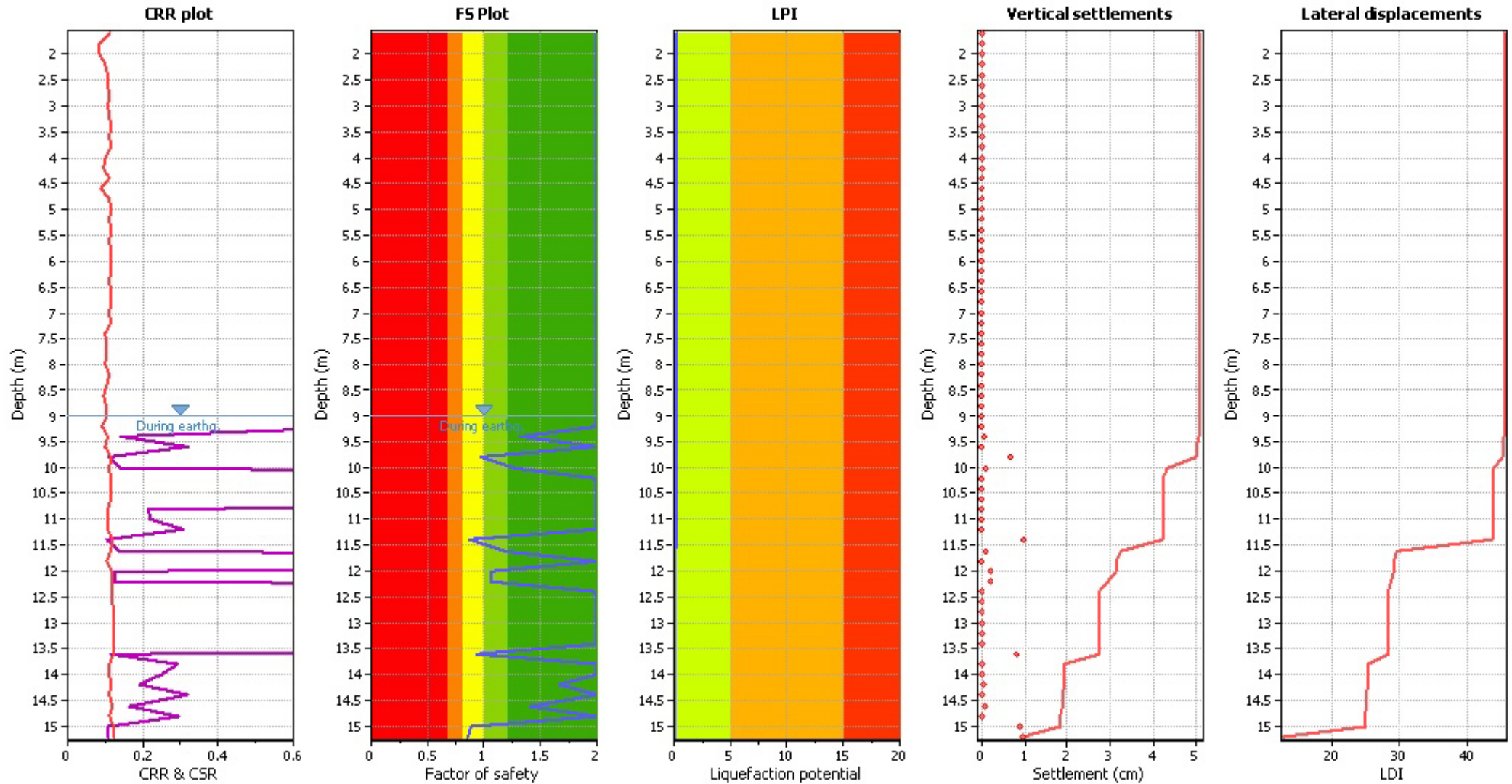
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	9.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	10.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	9.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	10.00 m	Fill height:	N/A	Limit depth:	N/A

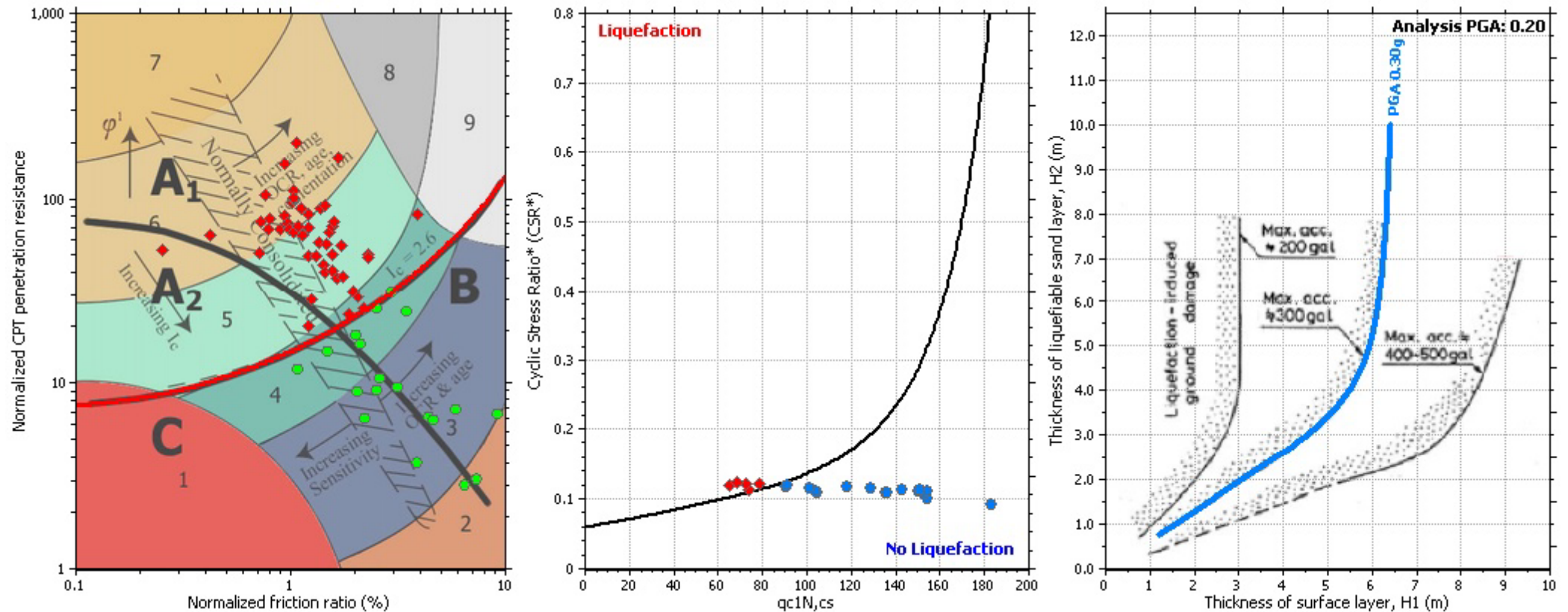
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis summary plo



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	9.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	10.00 m	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	1.60	1.67	189.47	11.00	25.94	19.63
2	1.80	11.27	189.47	12.00	10.52	19.73
3	2.00	16.66	111.07	13.00	6.35	19.55
4	2.20	8.82	91.47	14.00	7.08	19.06
5	2.40	4.02	71.87	15.00	14.02	18.59
6	2.60	3.53	58.80	16.00	20.79	18.15
7	2.80	2.84	45.73	17.00	21.30	17.94
8	3.00	3.33	45.73	18.00	21.90	17.69
9	3.20	2.74	32.67	19.00	25.62	17.63
10	3.40	1.67	45.73	20.00	31.57	17.55
11	3.60	1.86	45.73	21.00	41.98	17.89
12	3.80	1.76	84.93	22.00	25.93	18.61
13	4.00	7.64	124.13	23.00	16.82	18.97
14	4.20	9.41	84.93	24.00	14.08	19.25
15	4.40	7.06	137.20	25.00	9.94	19.20
16	4.60	13.72	84.93	26.00	11.02	18.99
17	4.80	5.98	45.73	27.00	13.11	18.58
18	5.00	1.37	71.87	28.00	25.92	18.26
19	5.20	3.82	71.87	29.00	36.78	18.12
20	5.40	2.55	45.73	30.00	29.78	18.22
21	5.60	3.63	71.87	31.00	34.22	17.74
22	5.80	1.47	19.60	32.00	42.40	17.38
23	6.00	0.49	19.60	33.00	76.00	16.94
24	6.20	0.59	58.80	34.00	60.41	17.15
25	6.40	2.55	26.13	35.00	54.60	17.12
26	6.60	0.98	13.07	36.00	57.45	16.92
27	6.80	0.20	45.73	37.00	78.49	17.11
28	7.00	1.57	52.27	38.00	91.77	18.08
29	7.20	1.27	150.27	39.00	35.59	19.04
30	7.40	9.60	156.80	40.00	25.36	19.46
31	7.60	8.92	137.20	41.00	17.34	19.56
32	7.80	9.41	137.20	42.00	15.18	19.26
33	8.00	9.70	58.80	43.00	18.28	19.16
34	8.20	4.80	124.13	44.00	19.19	19.25
35	8.40	9.51	163.33	45.00	17.75	19.55
36	8.60	14.11	137.20	46.00	13.65	19.61
37	8.80	11.47	117.60	47.00	12.39	19.64
38	9.00	12.45	163.33	48.00	10.89	19.72
39	9.20	18.62	150.27	49.00	10.66	19.79
40	9.40	13.33	137.20	50.00	8.58	19.49
41	9.60	13.72	58.80	51.00	13.19	19.12
42	9.80	4.80	84.93	52.00	14.76	18.43
43	10.00	5.78	26.13	53.00	31.61	17.84
44	10.20	0.78	19.60	54.00	40.71	16.98
45	10.40	0.59	26.13	55.00	100.00	16.95
46	10.60	0.78	58.80	56.00	39.61	18.36
47	10.80	9.51	124.13	57.00	23.78	19.17
48	11.00	11.66	150.27	58.00	14.58	19.33

:: Field input data :: (continued)

Point ID	Depth (m)	q_c (MPa)	f_s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
49	11.20	11.86	58.80	59.00	19.16	19.14
50	11.40	2.35	98.00	60.00	23.30	19.08
51	11.60	7.74	150.27	61.00	15.69	19.46
52	11.80	23.13	124.13	62.00	12.00	19.53
53	12.00	9.60	98.00	63.00	10.95	19.13
54	12.20	5.00	45.73	64.00	26.76	18.49
55	12.40	2.16	58.80	65.00	39.88	17.84
56	12.60	2.65	32.67	66.00	54.82	17.50
57	12.80	1.57	26.13	67.00	64.31	17.10
58	13.00	0.59	32.67	68.00	91.64	16.93
59	13.20	0.88	32.67	69.00	100.00	17.40
60	13.40	1.18	78.40	70.00	79.54	18.41
61	13.60	3.33	163.33	71.00	34.85	19.11
62	13.80	12.05	104.53	72.00	19.77	19.38
63	14.00	13.33	98.00	73.00	13.90	19.49
64	14.20	12.45	163.33	74.00	13.02	19.53
65	14.40	14.31	111.07	75.00	14.32	19.68
66	14.60	13.03	150.27	76.00	11.18	19.42
67	14.80	15.39	71.87	77.00	12.39	19.24
68	15.00	9.70	71.87	78.00	5.00	18.38
69	15.20	9.70	0.00	79.00	5.00	17.51

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q_c :	Measured cone resistance (MPa)
f_s :	Sleeve friction resistance (kPa)
u :	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
1.60	2.00	0.00	9.20	0.20	0.00	1.80	2.00	0.00	9.10	0.20	0.00
2.00	2.00	0.00	9.00	0.20	0.00	2.20	2.00	0.00	8.90	0.20	0.00
2.40	2.00	0.00	8.80	0.20	0.00	2.60	2.00	0.00	8.70	0.20	0.00
2.80	2.00	0.00	8.60	0.20	0.00	3.00	2.00	0.00	8.50	0.20	0.00
3.20	2.00	0.00	8.40	0.20	0.00	3.40	2.00	0.00	8.30	0.20	0.00
3.60	2.00	0.00	8.20	0.20	0.00	3.80	2.00	0.00	8.10	0.20	0.00
4.00	2.00	0.00	8.00	0.20	0.00	4.20	2.00	0.00	7.90	0.20	0.00
4.40	2.00	0.00	7.80	0.20	0.00	4.60	2.00	0.00	7.70	0.20	0.00
4.80	2.00	0.00	7.60	0.20	0.00	5.00	2.00	0.00	7.50	0.20	0.00
5.20	2.00	0.00	7.40	0.20	0.00	5.40	2.00	0.00	7.30	0.20	0.00
5.60	2.00	0.00	7.20	0.20	0.00	5.80	2.00	0.00	7.10	0.20	0.00
6.00	2.00	0.00	7.00	0.20	0.00	6.20	2.00	0.00	6.90	0.20	0.00
6.40	2.00	0.00	6.80	0.20	0.00	6.60	2.00	0.00	6.70	0.20	0.00
6.80	2.00	0.00	6.60	0.20	0.00	7.00	2.00	0.00	6.50	0.20	0.00
7.20	2.00	0.00	6.40	0.20	0.00	7.40	2.00	0.00	6.30	0.20	0.00
7.60	2.00	0.00	6.20	0.20	0.00	7.80	2.00	0.00	6.10	0.20	0.00
8.00	2.00	0.00	6.00	0.20	0.00	8.20	2.00	0.00	5.90	0.20	0.00
8.40	2.00	0.00	5.80	0.20	0.00	8.60	2.00	0.00	5.70	0.20	0.00
8.80	2.00	0.00	5.60	0.20	0.00	9.00	2.00	0.00	5.50	0.20	0.00
9.20	2.00	0.00	5.40	0.20	0.00	9.40	1.32	0.00	5.30	0.20	0.00
9.60	2.00	0.00	5.20	0.20	0.00	9.80	0.97	0.03	5.10	0.20	0.03
10.00	1.28	0.00	5.00	0.20	0.00	10.20	2.00	0.00	4.90	0.20	0.00
10.40	2.00	0.00	4.80	0.20	0.00	10.60	2.00	0.00	4.70	0.20	0.00
10.80	2.00	0.00	4.60	0.20	0.00	11.00	2.00	0.00	4.50	0.20	0.00
11.20	2.00	0.00	4.40	0.20	0.00	11.40	0.87	0.13	4.30	0.20	0.11
11.60	1.20	0.00	4.20	0.20	0.00	11.80	2.00	0.00	4.10	0.20	0.00
12.00	1.07	0.00	4.00	0.20	0.00	12.20	1.07	0.00	3.90	0.20	0.00
12.40	2.00	0.00	3.80	0.20	0.00	12.60	2.00	0.00	3.70	0.20	0.00
12.80	2.00	0.00	3.60	0.20	0.00	13.00	2.00	0.00	3.50	0.20	0.00
13.20	2.00	0.00	3.40	0.20	0.00	13.40	2.00	0.00	3.30	0.20	0.00
13.60	0.94	0.06	3.20	0.20	0.04	13.80	2.00	0.00	3.10	0.20	0.00
14.00	2.00	0.00	3.00	0.20	0.00	14.20	1.66	0.00	2.90	0.20	0.00
14.40	2.00	0.00	2.80	0.20	0.00	14.60	1.41	0.00	2.70	0.20	0.00
14.80	2.00	0.00	2.60	0.20	0.00	15.00	0.89	0.11	2.50	0.20	0.06
15.20	0.86	0.14	2.40	0.20	0.07						

Overall liquefaction potential: 0.30

LPI = 0.00 - Liquefaction risk very low
 LPI between 0.00 and 5.00 - Liquefaction risk low
 LPI between 5.00 and 15.00 - Liquefaction risk high
 LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
 F_L: 1 - FS
 w_z: Function value of the extend of soil liquefaction according to depth
 d_z: Layer thickness (m)
 LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

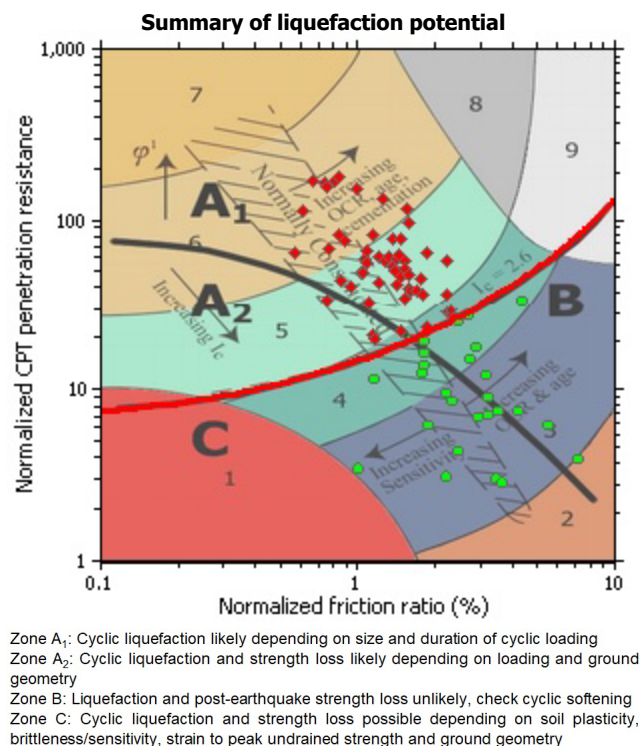
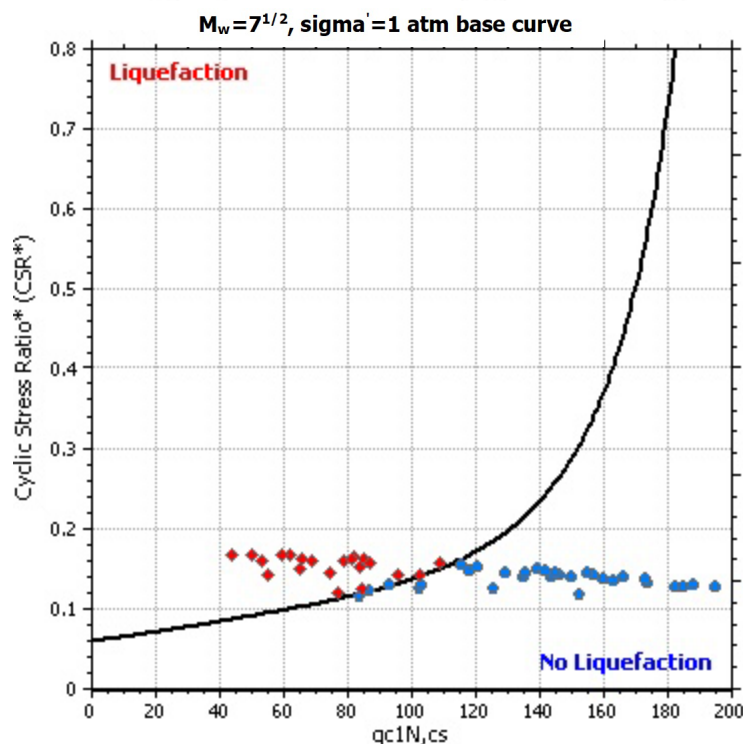
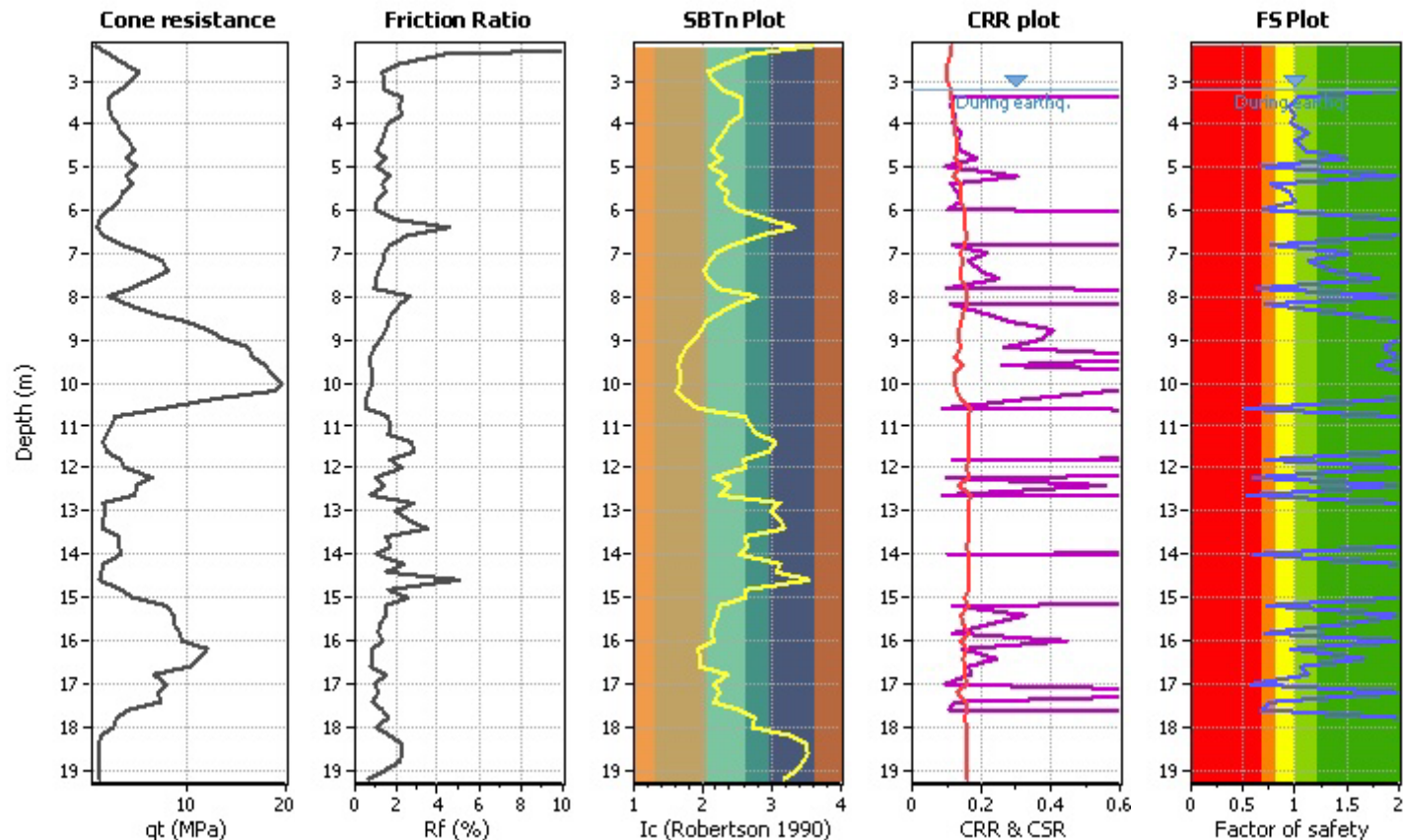
Project title :

Location :

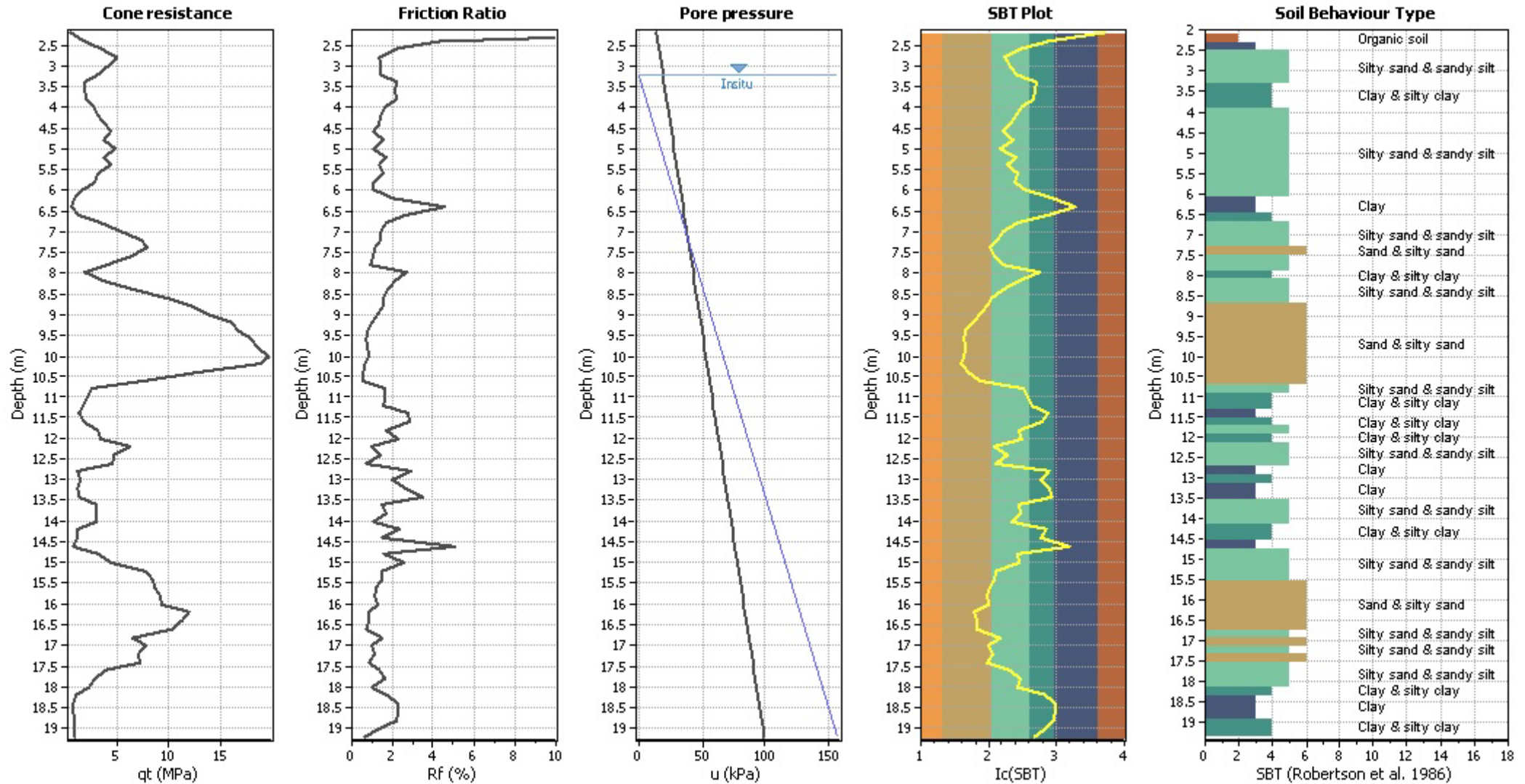
CPT file : P124CPT130

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.20 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.20 m	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes	MSF method:	Method



CPT basic interpretation plo



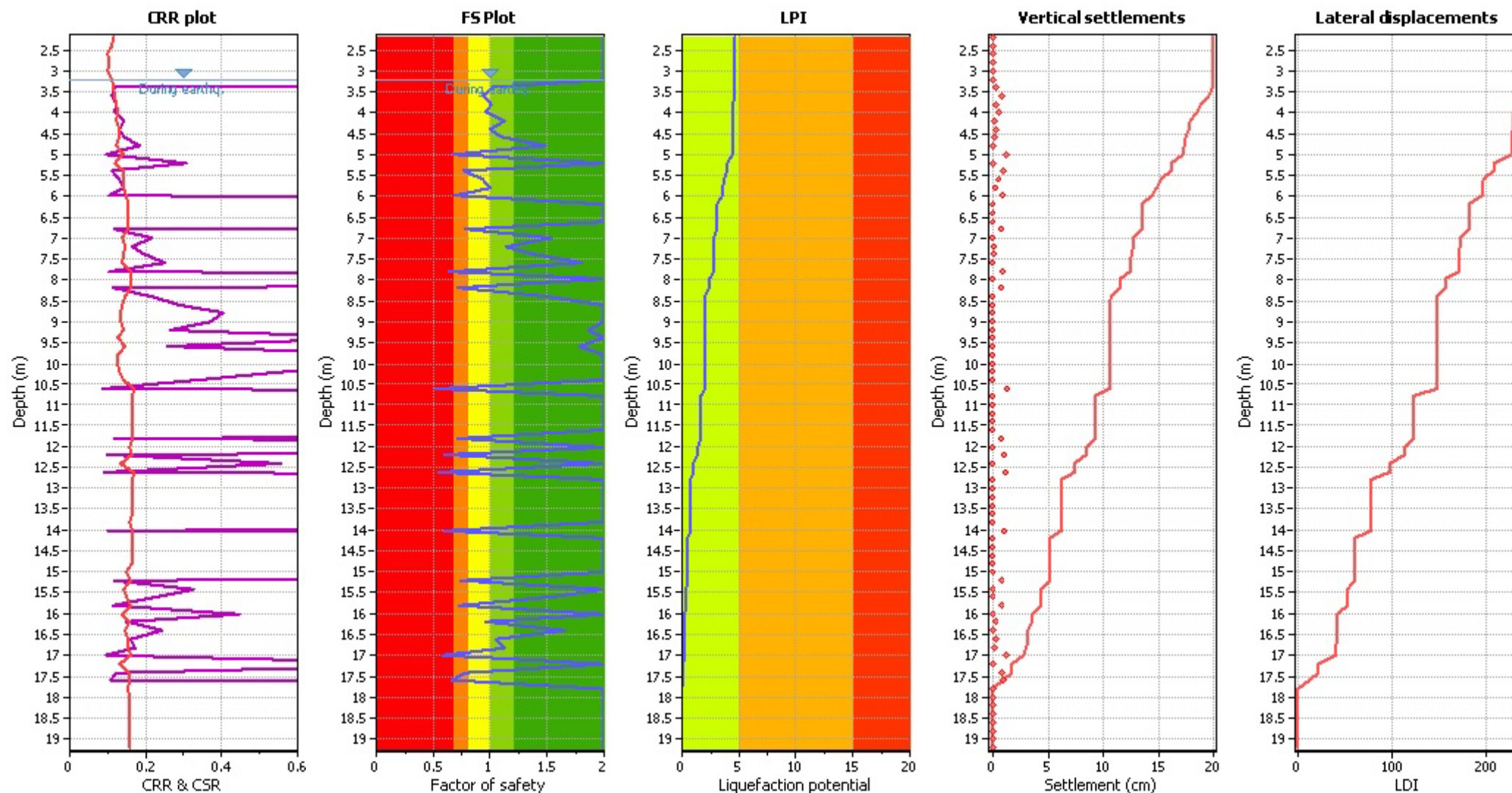
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.20 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_0 applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.20 m	Fill height:	N/A	Limit depth:	N/A

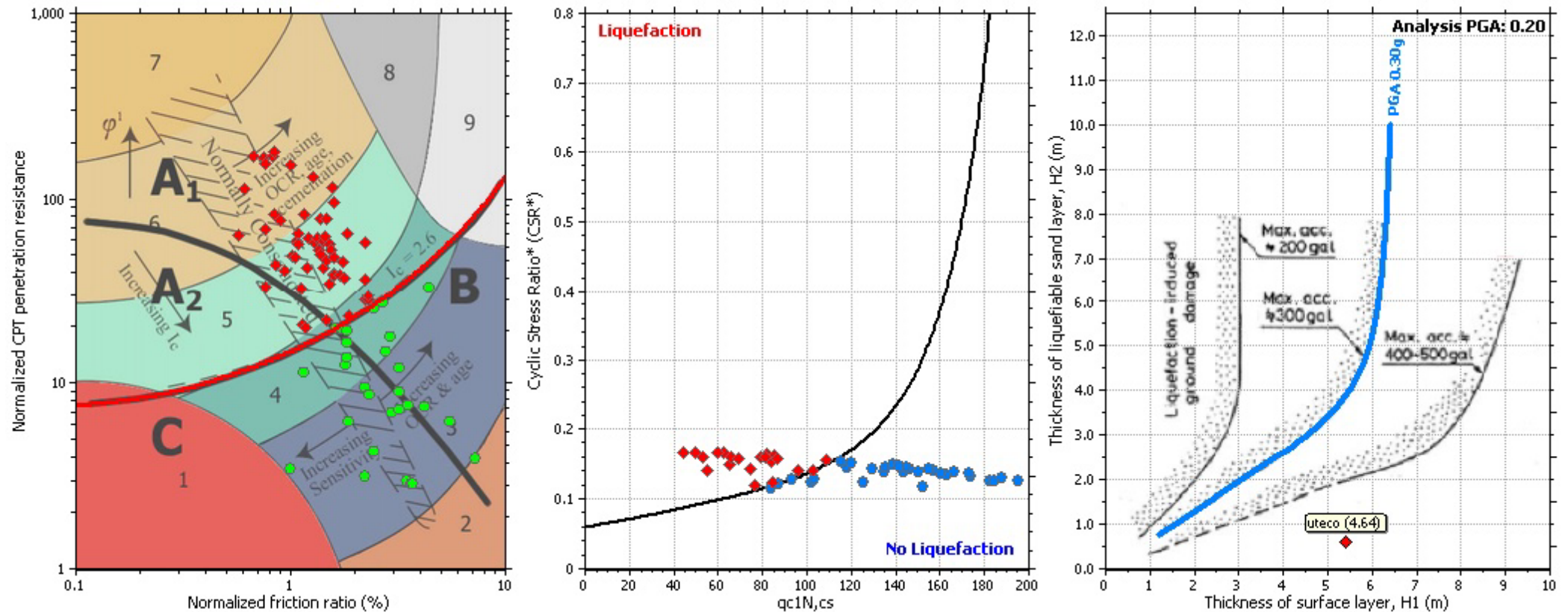
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis summary plo



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.20 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.20 m	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::						
Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	2.20	0.29	98.00	14.00	100.00	17.96
2	2.40	0.98	84.93	15.00	40.63	18.36
3	2.60	4.61	71.87	16.00	23.16	18.45
4	2.80	4.80	71.87	17.00	15.31	18.45
5	3.00	5.49	58.80	18.00	17.99	18.22
6	3.20	2.06	45.73	19.00	21.49	17.83
7	3.40	1.96	32.67	20.00	33.64	17.51
8	3.60	1.57	45.73	21.00	33.05	17.52
9	3.80	2.25	45.73	22.00	32.78	17.66
10	4.00	2.35	45.73	23.00	25.46	17.78
11	4.20	3.72	45.73	24.00	22.49	17.77
12	4.40	3.33	39.20	25.00	20.00	18.06
13	4.60	4.51	71.87	26.00	16.61	18.01
14	4.80	5.59	32.67	27.00	21.87	18.19
15	5.00	1.27	71.87	28.00	16.02	18.09
16	5.20	7.55	45.73	29.00	23.61	18.26
17	5.40	2.25	71.87	30.00	19.32	18.24
18	5.60	3.43	58.80	31.00	24.87	17.94
19	5.80	4.02	19.60	32.00	23.48	17.32
20	6.00	1.08	13.07	33.00	30.70	16.64
21	6.20	0.39	26.13	34.00	54.75	16.23
22	6.40	1.18	13.07	35.00	82.65	16.66
23	6.60	0.29	45.73	36.00	48.01	17.20
24	6.80	2.65	45.73	37.00	26.59	18.14
25	7.00	7.25	84.93	38.00	18.56	18.62
26	7.20	6.47	98.00	39.00	15.87	19.13
27	7.40	8.33	137.20	40.00	13.29	18.95
28	7.60	8.92	32.67	41.00	15.07	18.54
29	7.80	1.86	32.67	42.00	19.34	17.68
30	8.00	1.37	45.73	43.00	45.02	17.73
31	8.20	2.35	71.87	44.00	29.21	18.55
32	8.40	7.55	124.13	45.00	19.88	19.22
33	8.60	10.00	163.33	46.00	14.57	19.66
34	8.80	12.05	176.40	47.00	12.73	19.95
35	9.00	14.11	215.60	48.00	10.14	19.92
36	9.20	15.19	124.13	49.00	7.54	19.88
37	9.40	19.01	137.20	50.00	5.89	19.61
38	9.60	15.29	111.07	51.00	5.36	19.72
39	9.80	19.50	150.27	52.00	5.72	19.87
40	10.00	20.68	189.47	53.00	5.57	19.99
41	10.20	18.62	150.27	54.00	4.70	19.66
42	10.40	16.95	32.67	55.00	6.82	18.95
43	10.60	2.55	45.73	56.00	11.15	18.04
44	10.80	2.74	45.73	57.00	36.56	17.63
45	11.00	2.35	32.67	58.00	40.16	17.45
46	11.20	1.57	32.67	59.00	45.60	17.05
47	11.40	1.37	19.60	60.00	62.21	17.26
48	11.60	1.08	58.80	61.00	54.82	17.71

:: Field input data :: (continued)

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
49	11.80	2.84	71.87	62.00	34.37	18.03
50	12.00	5.49	32.67	63.00	36.20	18.52
51	12.20	2.16	137.20	64.00	18.00	18.46
52	12.40	11.17	19.60	65.00	25.81	18.43
53	12.60	0.69	45.73	66.00	20.15	17.58
54	12.80	1.67	32.67	67.00	67.98	17.24
55	13.00	1.47	32.67	68.00	57.75	16.98
56	13.20	1.18	19.60	69.00	67.97	17.09
57	13.40	1.08	45.73	70.00	71.81	17.49
58	13.60	1.67	71.87	71.00	35.68	17.81
59	13.80	6.27	19.60	72.00	37.45	17.91
60	14.00	0.98	58.80	73.00	31.88	17.43
61	14.20	1.86	19.60	74.00	67.49	17.02
62	14.40	0.98	13.07	75.00	63.13	16.34
63	14.60	0.69	19.60	76.00	100.00	17.27
64	14.80	0.88	98.00	77.00	36.32	17.93
65	15.00	7.94	32.67	78.00	36.28	18.97
66	15.20	4.31	202.53	79.00	20.51	19.24
67	15.40	11.07	111.07	80.00	19.41	19.35
68	15.60	10.00	58.80	81.00	17.75	19.19
69	15.80	4.70	150.27	82.00	16.61	19.21
70	16.00	12.64	111.07	83.00	17.39	19.35
71	16.20	10.49	98.00	84.00	11.02	19.22
72	16.40	12.84	84.93	85.00	12.26	19.19
73	16.60	10.29	111.07	86.00	12.17	18.87
74	16.80	7.55	32.67	87.00	24.55	18.98
75	17.00	1.57	150.27	88.00	17.75	18.76
76	17.20	14.21	45.73	89.00	20.72	18.79
77	17.40	5.29	45.73	90.00	17.53	18.43
78	17.60	2.06	84.93	91.00	32.60	18.12
79	17.80	4.70	32.67	92.00	43.68	17.78
80	18.00	1.67	19.60	93.00	42.04	16.98
81	18.20	0.78	19.60	94.00	77.61	16.46
82	18.40	0.88	19.60	95.00	98.87	16.36
83	18.60	0.88	19.60	96.00	100.00	16.36
84	18.80	0.78	19.60	97.00	96.64	16.37
85	19.00	0.98	19.60	98.00	86.36	15.92
86	19.20	0.98	0.00	99.00	71.30	15.15

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q _c :	Measured cone resistance (MPa)
f _s :	Sleeve friction resistance (kPa)
u:	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
2.20	2.00	0.00	8.90	0.20	0.00	2.40	2.00	0.00	8.80	0.20	0.00
2.60	2.00	0.00	8.70	0.20	0.00	2.80	2.00	0.00	8.60	0.20	0.00
3.00	2.00	0.00	8.50	0.20	0.00	3.20	2.00	0.00	8.40	0.20	0.00
3.40	1.03	0.00	8.30	0.20	0.00	3.60	0.94	0.06	8.20	0.20	0.10
3.80	1.01	0.00	8.10	0.20	0.00	4.00	0.96	0.04	8.00	0.20	0.06
4.20	1.13	0.00	7.90	0.20	0.00	4.40	1.00	0.00	7.80	0.20	0.00
4.60	1.10	0.00	7.70	0.20	0.00	4.80	1.49	0.00	7.60	0.20	0.00
5.00	0.68	0.32	7.50	0.20	0.48	5.20	2.00	0.00	7.40	0.20	0.00
5.40	0.77	0.23	7.30	0.20	0.33	5.60	0.94	0.06	7.20	0.20	0.09
5.80	1.00	0.00	7.10	0.20	0.01	6.00	0.69	0.31	7.00	0.20	0.44
6.20	2.00	0.00	6.90	0.20	0.00	6.40	2.00	0.00	6.80	0.20	0.00
6.60	2.00	0.00	6.70	0.20	0.00	6.80	0.78	0.22	6.60	0.20	0.29
7.00	1.54	0.00	6.50	0.20	0.00	7.20	1.14	0.00	6.40	0.20	0.00
7.40	1.37	0.00	6.30	0.20	0.00	7.60	1.81	0.00	6.20	0.20	0.00
7.80	0.65	0.35	6.10	0.20	0.43	8.00	2.00	0.00	6.00	0.20	0.00
8.20	0.72	0.28	5.90	0.20	0.33	8.40	1.49	0.00	5.80	0.20	0.00
8.60	2.00	0.00	5.70	0.20	0.00	8.80	2.00	0.00	5.60	0.20	0.00
9.00	2.00	0.00	5.50	0.20	0.00	9.20	1.86	0.00	5.40	0.20	0.00
9.40	2.00	0.00	5.30	0.20	0.00	9.60	1.79	0.00	5.20	0.20	0.00
9.80	2.00	0.00	5.10	0.20	0.00	10.00	2.00	0.00	5.00	0.20	0.00
10.20	2.00	0.00	4.90	0.20	0.00	10.40	2.00	0.00	4.80	0.20	0.00
10.60	0.53	0.47	4.70	0.20	0.44	10.80	2.00	0.00	4.60	0.20	0.00
11.00	2.00	0.00	4.50	0.20	0.00	11.20	2.00	0.00	4.40	0.20	0.00
11.40	2.00	0.00	4.30	0.20	0.00	11.60	2.00	0.00	4.20	0.20	0.00
11.80	0.71	0.29	4.10	0.20	0.23	12.00	2.00	0.00	4.00	0.20	0.00
12.20	0.61	0.39	3.90	0.20	0.31	12.40	2.00	0.00	3.80	0.20	0.00
12.60	0.55	0.45	3.70	0.20	0.33	12.80	2.00	0.00	3.60	0.20	0.00
13.00	2.00	0.00	3.50	0.20	0.00	13.20	2.00	0.00	3.40	0.20	0.00
13.40	2.00	0.00	3.30	0.20	0.00	13.60	2.00	0.00	3.20	0.20	0.00
13.80	2.00	0.00	3.10	0.20	0.00	14.00	0.60	0.40	3.00	0.20	0.24
14.20	2.00	0.00	2.90	0.20	0.00	14.40	2.00	0.00	2.80	0.20	0.00
14.60	2.00	0.00	2.70	0.20	0.00	14.80	2.00	0.00	2.60	0.20	0.00
15.00	2.00	0.00	2.50	0.20	0.00	15.20	0.74	0.26	2.40	0.20	0.12
15.40	2.00	0.00	2.30	0.20	0.00	15.60	1.55	0.00	2.20	0.20	0.00
15.80	0.73	0.27	2.10	0.20	0.12	16.00	2.00	0.00	2.00	0.20	0.00
16.20	0.96	0.04	1.90	0.20	0.02	16.40	1.66	0.00	1.80	0.20	0.00
16.60	1.05	0.00	1.70	0.20	0.00	16.80	1.13	0.00	1.60	0.20	0.00
17.00	0.59	0.41	1.50	0.20	0.12	17.20	2.00	0.00	1.40	0.20	0.00
17.40	0.78	0.22	1.30	0.20	0.06	17.60	0.67	0.33	1.20	0.20	0.08
17.80	2.00	0.00	1.10	0.20	0.00	18.00	2.00	0.00	1.00	0.20	0.00
18.20	2.00	0.00	0.90	0.20	0.00	18.40	2.00	0.00	0.80	0.20	0.00
18.60	2.00	0.00	0.70	0.20	0.00	18.80	2.00	0.00	0.60	0.20	0.00
19.00	2.00	0.00	0.50	0.20	0.00	19.20	2.00	0.00	0.40	0.20	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
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Overall liquefaction potential: 4.64

LPI = 0.00 - Liquefaction risk very low

LPI between 0.00 and 5.00 - Liquefaction risk low

LPI between 5.00 and 15.00 - Liquefaction risk high

LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point

 F_L : 1 - FS w_z : Function value of the extend of soil liquefaction according to depth d_z : Layer thickness (m)

LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

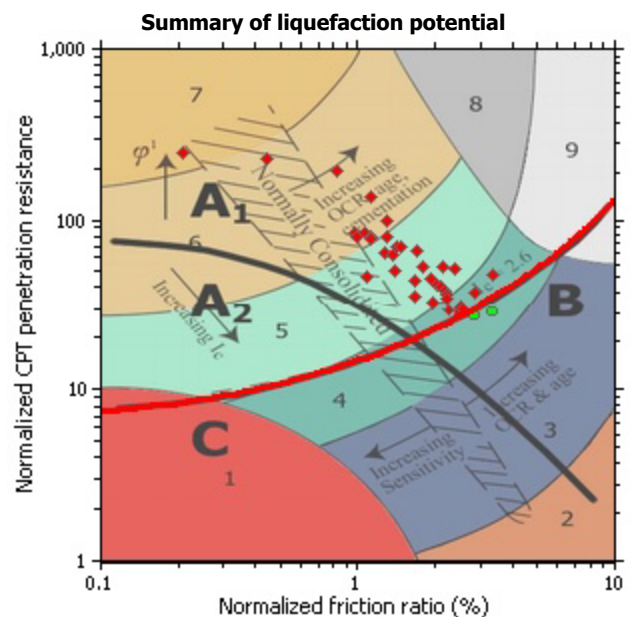
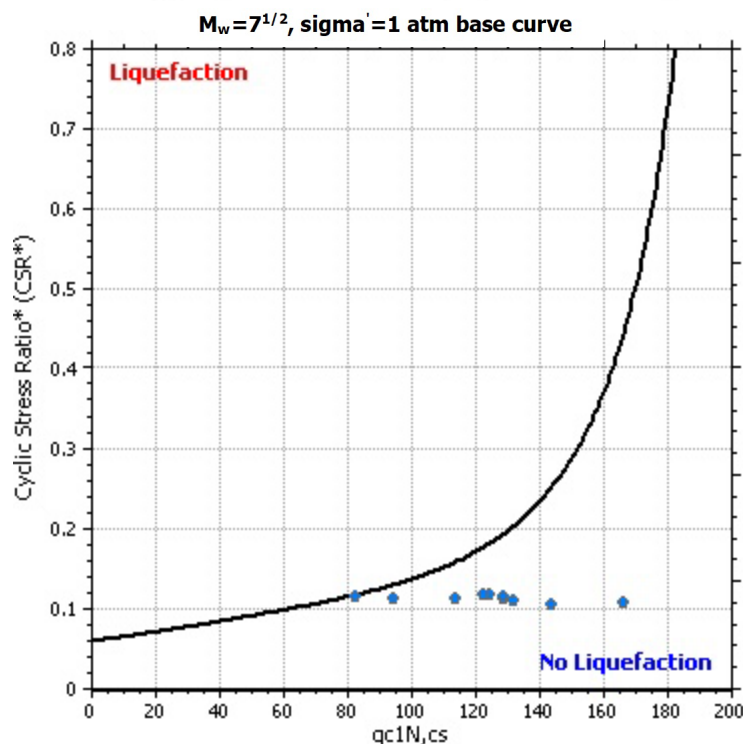
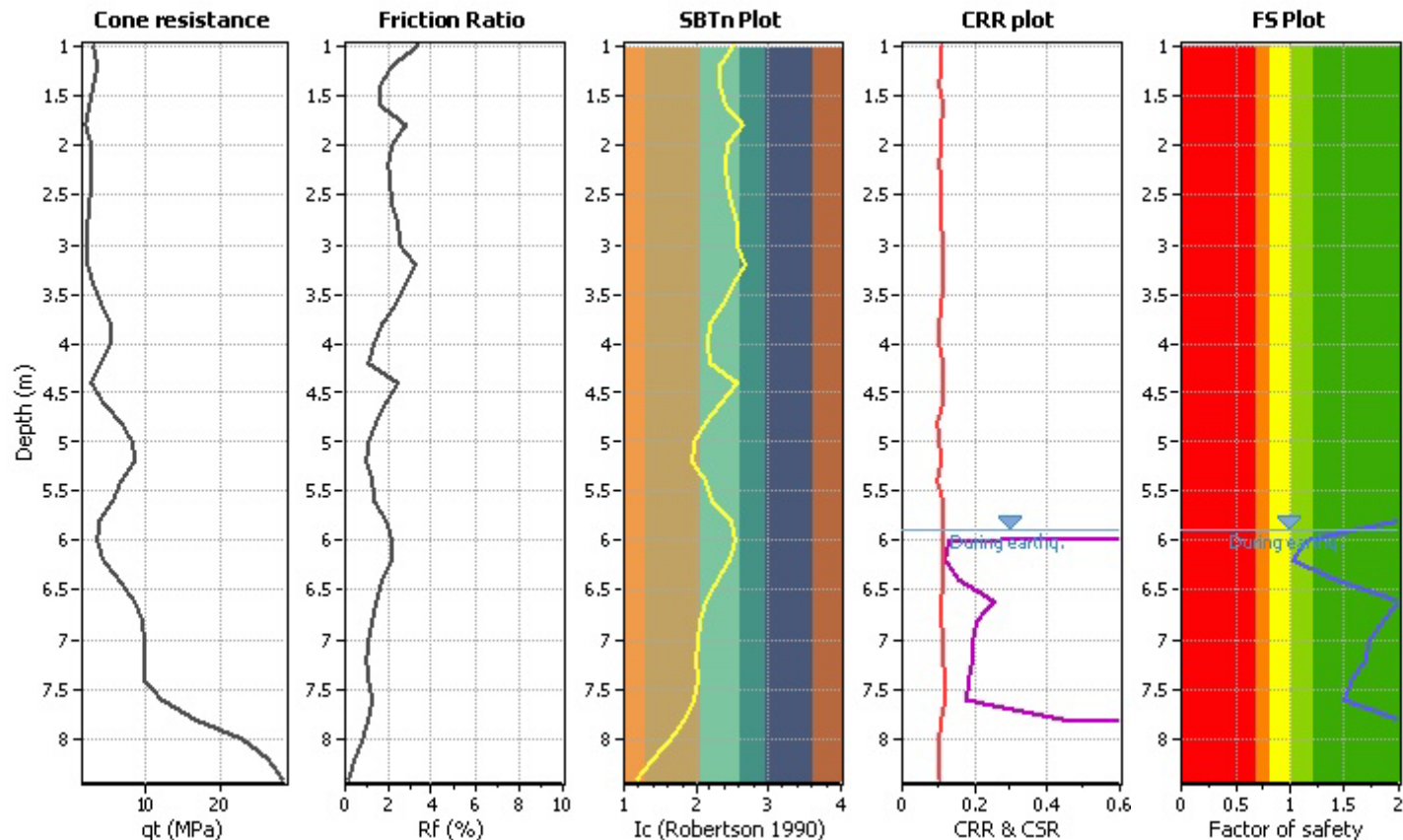
Project title :

Location :

CPT file : P122CPT128

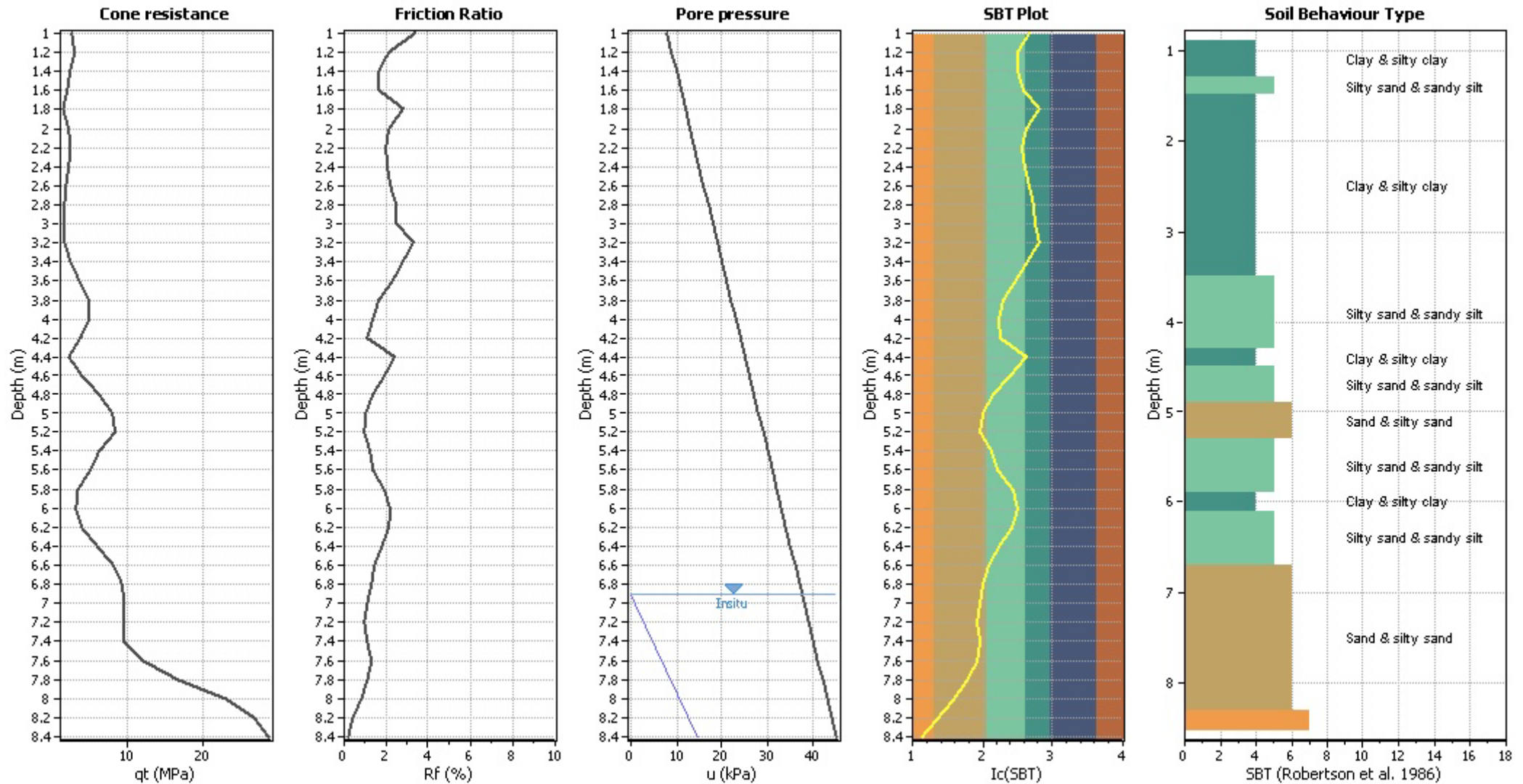
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	6.90 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	5.90 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plo



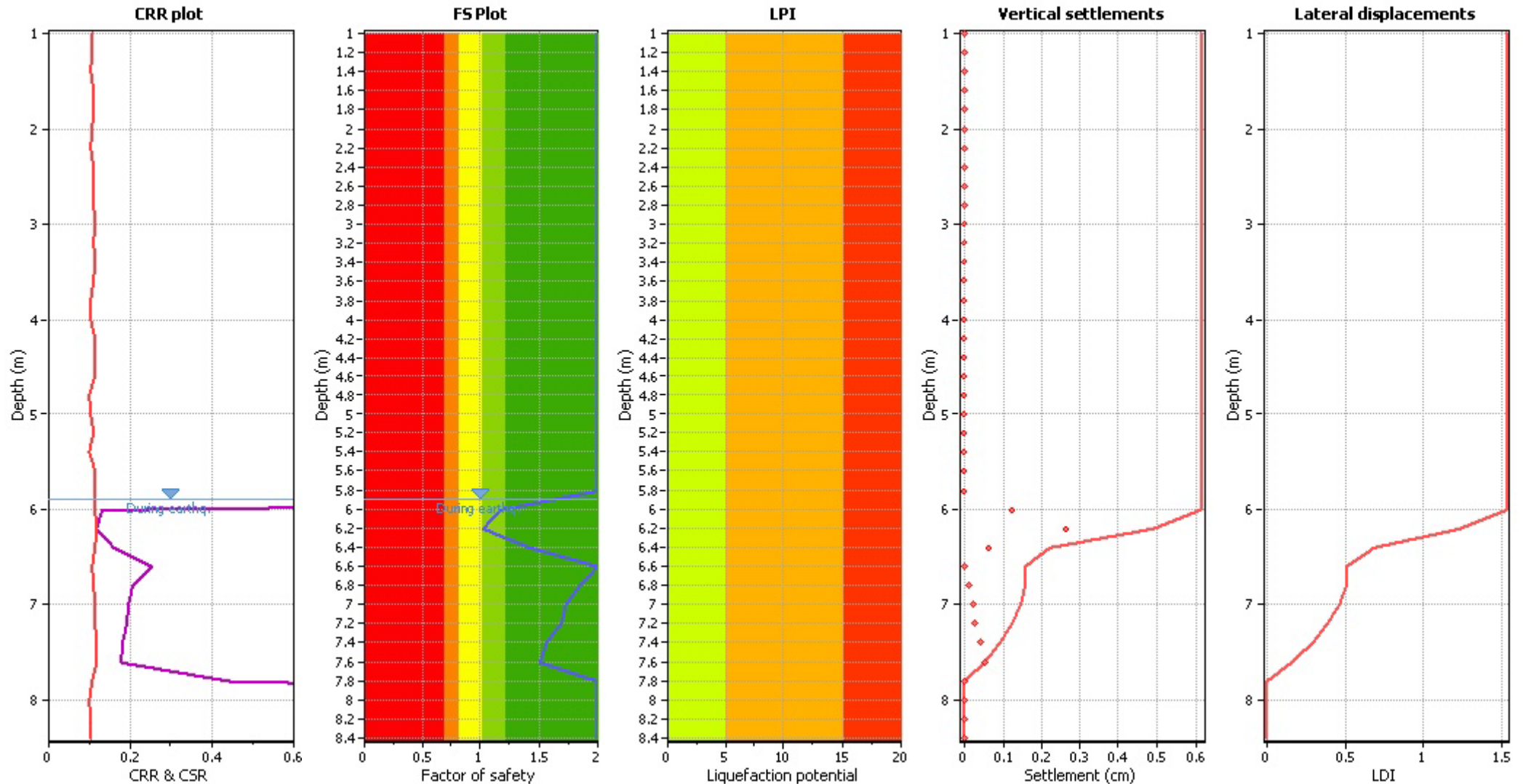
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	5.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_0 applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

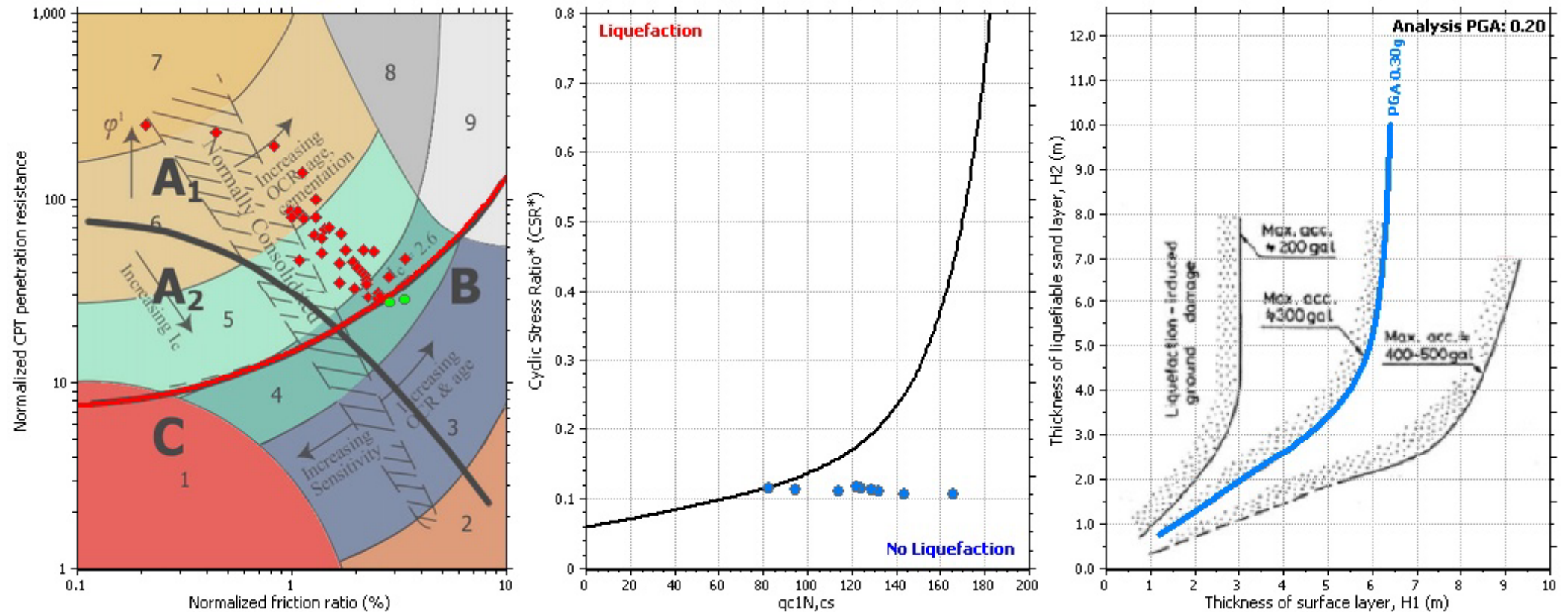
F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

Liquefaction analysis summary plo



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	1.00	2.74	104.53	8.00	30.81	18.61
2	1.20	2.94	71.87	9.00	23.73	18.28
3	1.40	3.82	26.13	10.00	23.33	17.70
4	1.60	1.18	32.67	11.00	26.37	17.36
5	1.80	1.37	45.73	12.00	37.12	17.57
6	2.00	2.35	58.80	13.00	28.24	17.81
7	2.20	3.23	45.73	14.00	26.18	17.84
8	2.40	1.96	45.73	15.00	27.23	17.83
9	2.60	2.06	58.80	16.00	30.07	17.67
10	2.80	2.25	32.67	17.00	33.42	17.62
11	3.00	1.27	45.73	18.00	34.06	17.62
12	3.20	1.96	58.80	19.00	38.74	17.90
13	3.40	2.16	71.87	20.00	31.78	18.27
14	3.60	3.63	84.93	21.00	25.28	18.67
15	3.80	5.59	111.07	22.00	18.98	18.72
16	4.00	5.98	58.80	23.00	17.61	18.45
17	4.20	3.43	32.67	24.00	18.86	17.79
18	4.40	2.25	32.67	25.00	34.20	18.02
19	4.60	1.67	111.07	26.00	24.67	18.51
20	4.80	8.13	84.93	27.00	16.73	18.87
21	5.00	9.31	71.87	28.00	12.47	18.90
22	5.20	6.76	98.00	29.00	11.83	18.85
23	5.40	8.92	71.87	30.00	16.69	18.75
24	5.60	3.53	71.87	31.00	19.87	18.54
25	5.80	3.43	71.87	32.00	29.50	18.32
26	6.00	3.63	58.80	33.00	32.66	18.36
27	6.20	2.84	84.93	34.00	29.27	18.70
28	6.40	5.98	124.13	35.00	21.98	19.05
29	6.60	9.41	111.07	36.00	16.93	19.30
30	6.80	9.21	124.13	37.00	14.60	19.35
31	7.00	9.51	124.13	38.00	13.46	19.23
32	7.20	10.00	71.87	39.00	12.63	19.07
33	7.40	9.11	84.93	40.00	13.67	19.23
34	7.60	9.60	163.33	41.00	12.55	19.74
35	7.80	17.74	215.60	42.00	8.93	20.07
36	8.00	22.93	176.40	43.00	5.09	20.22
37	8.20	28.42	176.40	44.00	1.67	19.73
38	8.40	28.42	0.00	45.00	0.00	18.96

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q _c :	Measured cone resistance (MPa)
f _s :	Sleeve friction resistance (kPa)
u:	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
1.00	2.00	0.00	9.50	0.20	0.00	1.20	2.00	0.00	9.40	0.20	0.00
1.40	2.00	0.00	9.30	0.20	0.00	1.60	2.00	0.00	9.20	0.20	0.00
1.80	2.00	0.00	9.10	0.20	0.00	2.00	2.00	0.00	9.00	0.20	0.00
2.20	2.00	0.00	8.90	0.20	0.00	2.40	2.00	0.00	8.80	0.20	0.00
2.60	2.00	0.00	8.70	0.20	0.00	2.80	2.00	0.00	8.60	0.20	0.00
3.00	2.00	0.00	8.50	0.20	0.00	3.20	2.00	0.00	8.40	0.20	0.00
3.40	2.00	0.00	8.30	0.20	0.00	3.60	2.00	0.00	8.20	0.20	0.00
3.80	2.00	0.00	8.10	0.20	0.00	4.00	2.00	0.00	8.00	0.20	0.00
4.20	2.00	0.00	7.90	0.20	0.00	4.40	2.00	0.00	7.80	0.20	0.00
4.60	2.00	0.00	7.70	0.20	0.00	4.80	2.00	0.00	7.60	0.20	0.00
5.00	2.00	0.00	7.50	0.20	0.00	5.20	2.00	0.00	7.40	0.20	0.00
5.40	2.00	0.00	7.30	0.20	0.00	5.60	2.00	0.00	7.20	0.20	0.00
5.80	2.00	0.00	7.10	0.20	0.00	6.00	1.16	0.00	7.00	0.20	0.00
6.20	1.02	0.00	6.90	0.20	0.00	6.40	1.42	0.00	6.80	0.20	0.00
6.60	2.00	0.00	6.70	0.20	0.00	6.80	1.85	0.00	6.60	0.20	0.00
7.00	1.72	0.00	6.50	0.20	0.00	7.20	1.69	0.00	6.40	0.20	0.00
7.40	1.56	0.00	6.30	0.20	0.00	7.60	1.50	0.00	6.20	0.20	0.00
7.80	2.00	0.00	6.10	0.20	0.00	8.00	2.00	0.00	6.00	0.20	0.00
8.20	2.00	0.00	5.90	0.20	0.00	8.40	2.00	0.00	5.80	0.20	0.00

Overall liquefaction potential: 0.00

LPI = 0.00 - Liquefaction risk very low

LPI between 0.00 and 5.00 - Liquefaction risk low

LPI between 5.00 and 15.00 - Liquefaction risk high

LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point

F_L: 1 - FSw_z: Function value of the extend of soil liquefaction according to depthd_z: Layer thickness (m)

LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

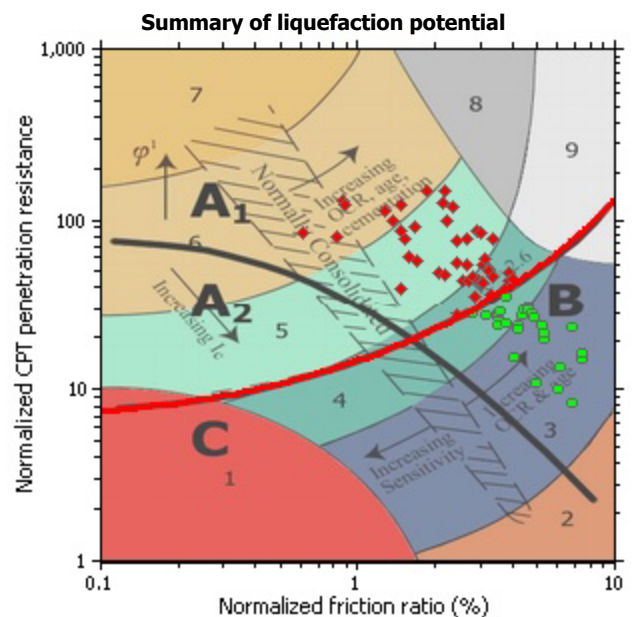
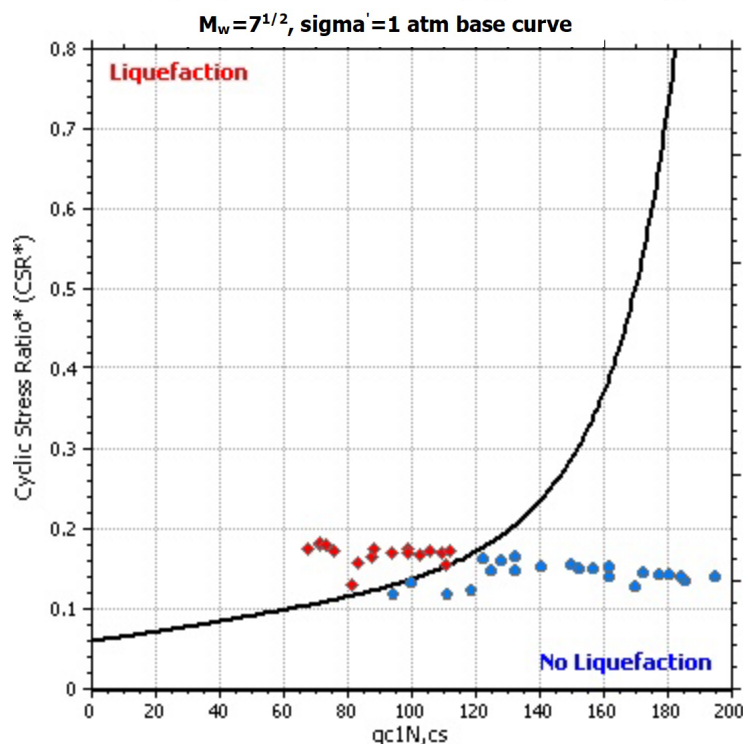
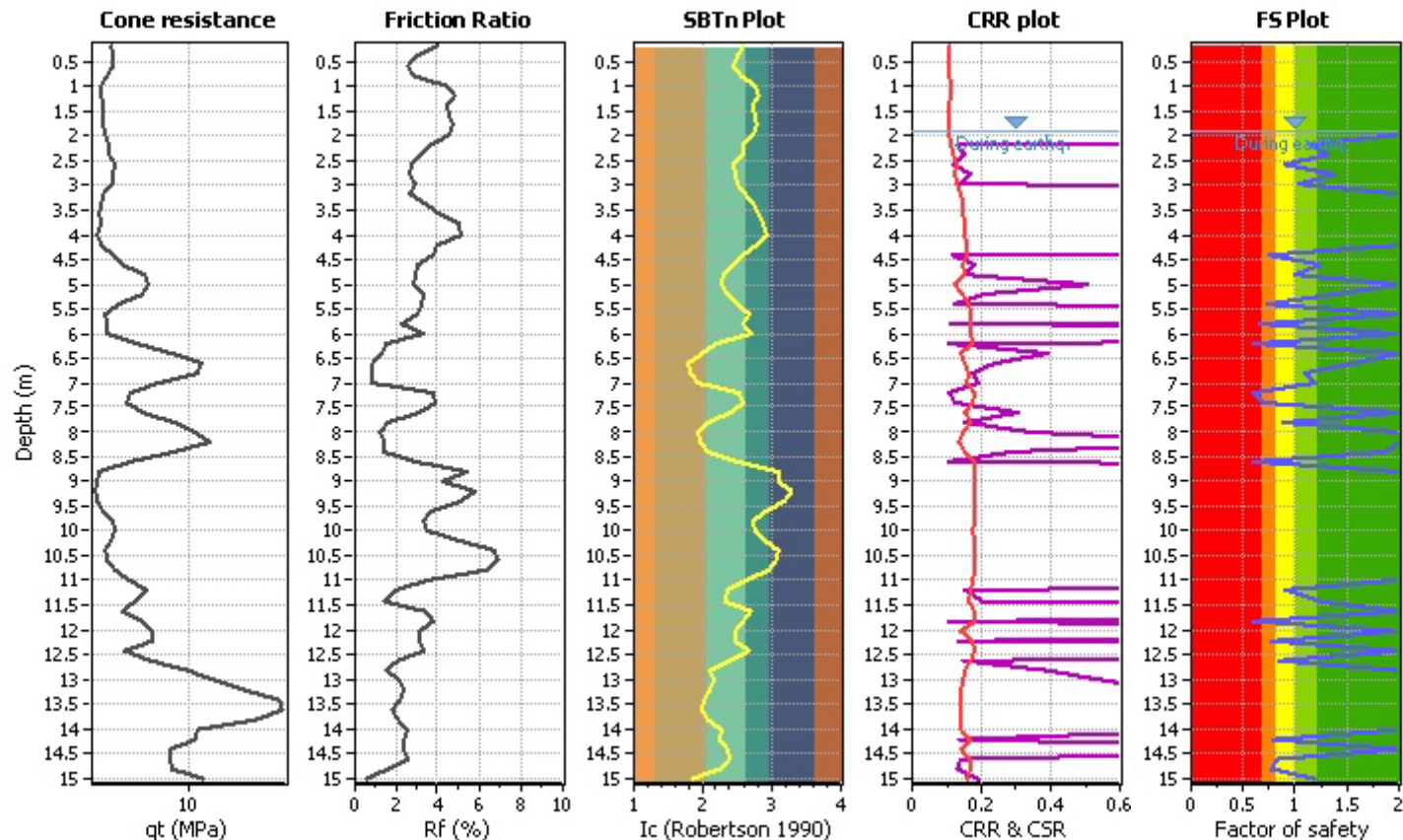
Project title :

Location :

CPT file : P128CPT134

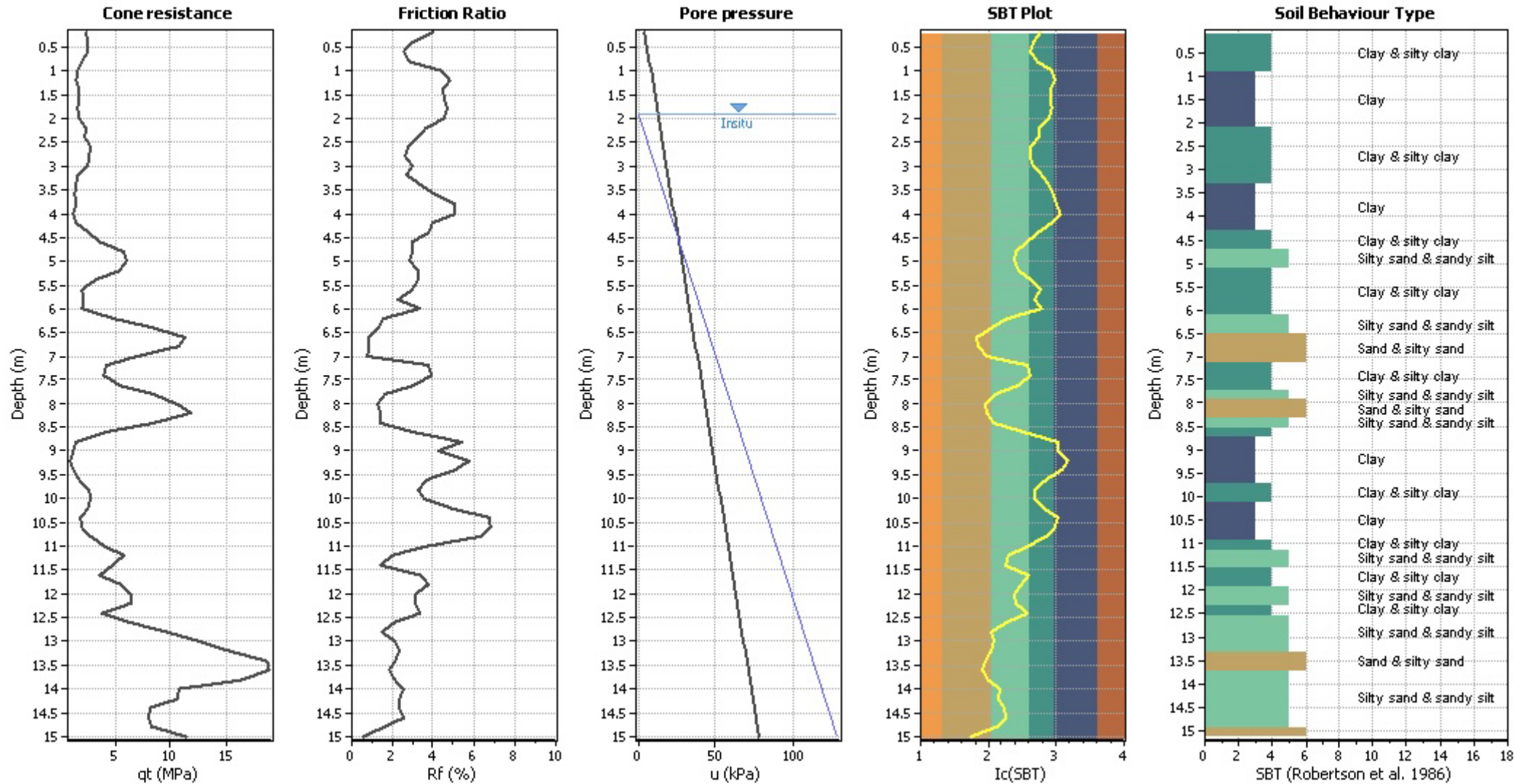
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.90 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.90 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

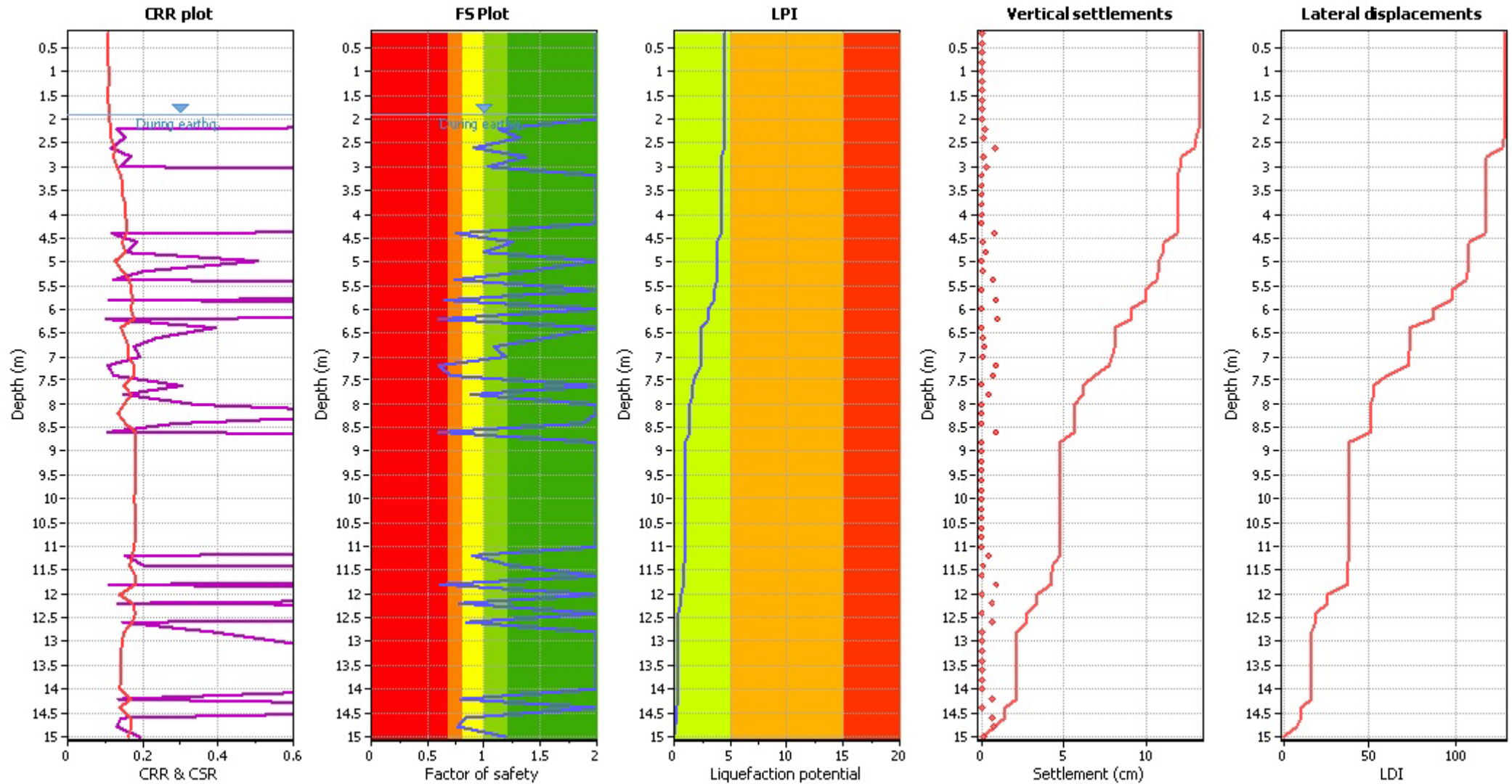
CPT basic interpretation plo



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.90 m	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_0 applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.90 m	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

:: Field input data ::

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	0.20	2.45	98.00	4.00	35.24	18.61
2	0.40	2.45	98.00	5.00	30.29	18.34
3	0.60	2.84	32.67	6.00	28.37	18.16
4	0.80	2.45	65.33	7.00	32.85	17.96
5	1.00	0.98	78.40	8.00	43.88	18.05
6	1.20	1.37	65.33	9.00	46.19	18.15
7	1.40	2.35	84.93	10.00	42.60	18.22
8	1.60	1.57	84.93	11.00	43.12	18.25
9	1.80	1.37	71.87	12.00	44.73	18.20
10	2.00	2.06	78.40	13.00	42.44	18.30
11	2.20	2.06	98.00	14.00	34.75	18.46
12	2.40	3.04	84.93	15.00	34.18	18.21
13	2.60	1.57	32.67	16.00	28.69	18.36
14	2.80	3.72	111.07	17.00	28.89	18.24
15	3.00	2.65	65.33	18.00	30.77	18.34
16	3.20	1.37	52.27	19.00	36.35	17.59
17	3.40	1.08	19.60	20.00	42.53	17.64
18	3.60	1.96	78.40	21.00	46.21	17.76
19	3.80	1.18	71.87	22.00	49.18	18.09
20	4.00	1.27	71.87	23.00	53.14	17.84
21	4.20	1.27	45.73	24.00	45.41	17.82
22	4.40	1.86	58.80	25.00	34.46	18.63
23	4.60	4.70	189.47	26.00	27.72	18.85
24	4.80	4.12	71.87	27.00	22.31	19.57
25	5.00	8.43	248.27	28.00	21.64	19.60
26	5.20	5.59	196.00	29.00	24.60	19.60
27	5.40	2.35	91.47	30.00	31.10	18.82
28	5.60	1.96	32.67	31.00	38.75	17.93
29	5.80	1.57	52.27	32.00	34.49	17.72
30	6.00	2.74	58.80	33.00	40.46	18.11
31	6.20	1.76	91.47	34.00	18.97	18.59
32	6.40	10.29	78.40	35.00	13.07	19.21
33	6.60	12.54	163.33	36.00	7.76	19.16
34	6.80	10.68	45.73	37.00	8.34	19.12
35	7.00	8.72	71.87	38.00	11.36	18.38
36	7.20	1.47	52.27	39.00	32.13	19.39
37	7.40	2.65	359.33	40.00	34.15	19.31
38	7.60	7.74	52.27	41.00	26.82	19.51
39	7.80	5.78	84.93	42.00	15.40	19.47
40	8.00	11.66	274.40	43.00	11.47	19.51
41	8.20	14.11	39.20	44.00	11.71	19.84
42	8.40	9.51	196.00	45.00	14.76	19.33
43	8.60	1.67	130.67	46.00	30.82	19.11
44	8.80	1.67	52.27	47.00	64.36	18.15
45	9.00	0.98	52.27	48.00	65.49	17.61
46	9.20	0.98	52.27	49.00	79.35	17.63
47	9.40	0.98	65.33	50.00	71.14	17.78
48	9.60	1.57	65.33	51.00	53.37	18.02

:: Field input data :: (continued)

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
49	9.80	2.74	65.33	52.00	42.52	18.50
50	10.00	3.63	130.67	53.00	42.95	18.66
51	10.20	1.96	98.00	54.00	51.70	18.88
52	10.40	1.86	143.73	55.00	65.94	18.77
53	10.60	1.67	130.67	56.00	63.89	18.94
54	10.80	2.55	143.73	57.00	54.57	19.35
55	11.00	4.21	261.33	58.00	37.24	19.28
56	11.20	5.59	39.20	59.00	24.50	19.12
57	11.40	7.45	45.73	60.00	23.43	18.44
58	11.60	1.37	117.60	61.00	39.71	19.01
59	11.80	1.96	202.53	62.00	34.07	19.76
60	12.00	13.03	294.00	63.00	29.09	19.81
61	12.20	4.41	111.07	64.00	29.58	19.80
62	12.40	1.67	196.00	65.00	39.58	19.07
63	12.60	5.29	71.87	66.00	25.39	19.29
64	12.80	11.56	124.13	67.00	16.17	19.57
65	13.00	12.25	235.20	68.00	17.44	20.38
66	13.20	13.33	444.27	69.00	16.25	20.78
67	13.40	20.09	378.93	70.00	13.83	21.00
68	13.60	22.44	378.93	71.00	12.38	20.83
69	13.80	13.72	274.40	72.00	15.02	20.79
70	14.00	12.84	385.47	73.00	21.74	20.35
71	14.20	5.39	163.33	74.00	20.97	20.25
72	14.40	13.52	202.53	75.00	24.54	19.84
73	14.60	5.39	209.07	76.00	25.85	19.91
74	14.80	5.10	202.53	77.00	20.48	19.46
75	15.00	14.41	0.00	78.00	9.13	18.76

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q _c :	Measured cone resistance (MPa)
f _s :	Sleeve friction resistance (kPa)
u:	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
0.20	2.00	0.00	9.90	0.20	0.00	0.40	2.00	0.00	9.80	0.20	0.00
0.60	2.00	0.00	9.70	0.20	0.00	0.80	2.00	0.00	9.60	0.20	0.00
1.00	2.00	0.00	9.50	0.20	0.00	1.20	2.00	0.00	9.40	0.20	0.00
1.40	2.00	0.00	9.30	0.20	0.00	1.60	2.00	0.00	9.20	0.20	0.00
1.80	2.00	0.00	9.10	0.20	0.00	2.00	2.00	0.00	9.00	0.20	0.00
2.20	1.13	0.00	8.90	0.20	0.00	2.40	1.32	0.00	8.80	0.20	0.00
2.60	0.91	0.09	8.70	0.20	0.16	2.80	1.37	0.00	8.60	0.20	0.00
3.00	1.04	0.00	8.50	0.20	0.00	3.20	2.00	0.00	8.40	0.20	0.00
3.40	2.00	0.00	8.30	0.20	0.00	3.60	2.00	0.00	8.20	0.20	0.00
3.80	2.00	0.00	8.10	0.20	0.00	4.00	2.00	0.00	8.00	0.20	0.00
4.20	2.00	0.00	7.90	0.20	0.00	4.40	0.75	0.25	7.80	0.20	0.38
4.60	1.25	0.00	7.70	0.20	0.00	4.80	1.00	0.00	7.60	0.20	0.00
5.00	2.00	0.00	7.50	0.20	0.00	5.20	1.39	0.00	7.40	0.20	0.00
5.40	0.74	0.26	7.30	0.20	0.38	5.60	2.00	0.00	7.20	0.20	0.00
5.80	0.65	0.35	7.10	0.20	0.49	6.00	2.00	0.00	7.00	0.20	0.00
6.20	0.60	0.40	6.90	0.20	0.55	6.40	2.00	0.00	6.80	0.20	0.00
6.60	1.56	0.00	6.70	0.20	0.00	6.80	1.09	0.00	6.60	0.20	0.00
7.00	1.19	0.00	6.50	0.20	0.00	7.20	0.61	0.39	6.40	0.20	0.50
7.40	0.70	0.30	6.30	0.20	0.37	7.60	2.00	0.00	6.20	0.20	0.00
7.80	0.89	0.11	6.10	0.20	0.14	8.00	2.00	0.00	6.00	0.20	0.00
8.20	2.00	0.00	5.90	0.20	0.00	8.40	1.87	0.00	5.80	0.20	0.00
8.60	0.60	0.40	5.70	0.20	0.46	8.80	2.00	0.00	5.60	0.20	0.00
9.00	2.00	0.00	5.50	0.20	0.00	9.20	2.00	0.00	5.40	0.20	0.00
9.40	2.00	0.00	5.30	0.20	0.00	9.60	2.00	0.00	5.20	0.20	0.00
9.80	2.00	0.00	5.10	0.20	0.00	10.00	2.00	0.00	5.00	0.20	0.00
10.20	2.00	0.00	4.90	0.20	0.00	10.40	2.00	0.00	4.80	0.20	0.00
10.60	2.00	0.00	4.70	0.20	0.00	10.80	2.00	0.00	4.60	0.20	0.00
11.00	2.00	0.00	4.50	0.20	0.00	11.20	0.90	0.10	4.40	0.20	0.09
11.40	1.25	0.00	4.30	0.20	0.00	11.60	2.00	0.00	4.20	0.20	0.00
11.80	0.61	0.39	4.10	0.20	0.32	12.00	2.00	0.00	4.00	0.20	0.00
12.20	0.78	0.22	3.90	0.20	0.17	12.40	2.00	0.00	3.80	0.20	0.00
12.60	0.84	0.16	3.70	0.20	0.12	12.80	2.00	0.00	3.60	0.20	0.00
13.00	2.00	0.00	3.50	0.20	0.00	13.20	2.00	0.00	3.40	0.20	0.00
13.40	2.00	0.00	3.30	0.20	0.00	13.60	2.00	0.00	3.20	0.20	0.00
13.80	2.00	0.00	3.10	0.20	0.00	14.00	2.00	0.00	3.00	0.20	0.00
14.20	0.80	0.20	2.90	0.20	0.12	14.40	2.00	0.00	2.80	0.20	0.00
14.60	0.84	0.16	2.70	0.20	0.09	14.80	0.77	0.23	2.60	0.20	0.12
15.00	1.19	0.00	2.50	0.20	0.00						

Overall liquefaction potential: 4.45

LPI = 0.00 - Liquefaction risk very low
 LPI between 0.00 and 5.00 - Liquefaction risk low
 LPI between 5.00 and 15.00 - Liquefaction risk high
 LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
 F_L: 1 - FS
 w_z: Function value of the extend of soil liquefaction according to depth
 d_z: Layer thickness (m)
 LPI: Liquefaction potential index value for test point

LIQUEFACTION ANALYSIS REPORT

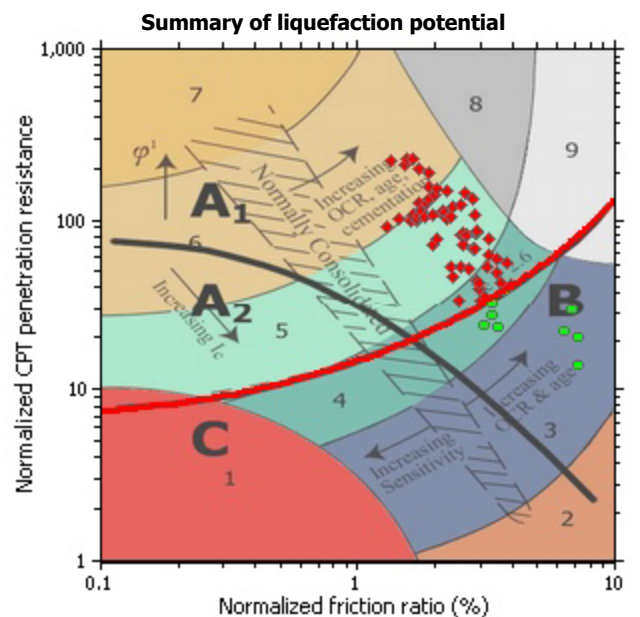
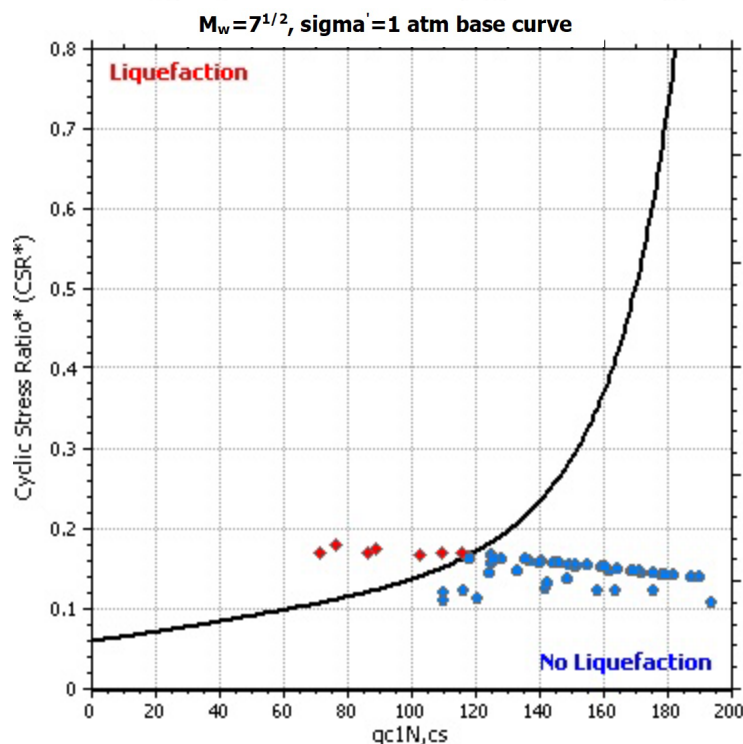
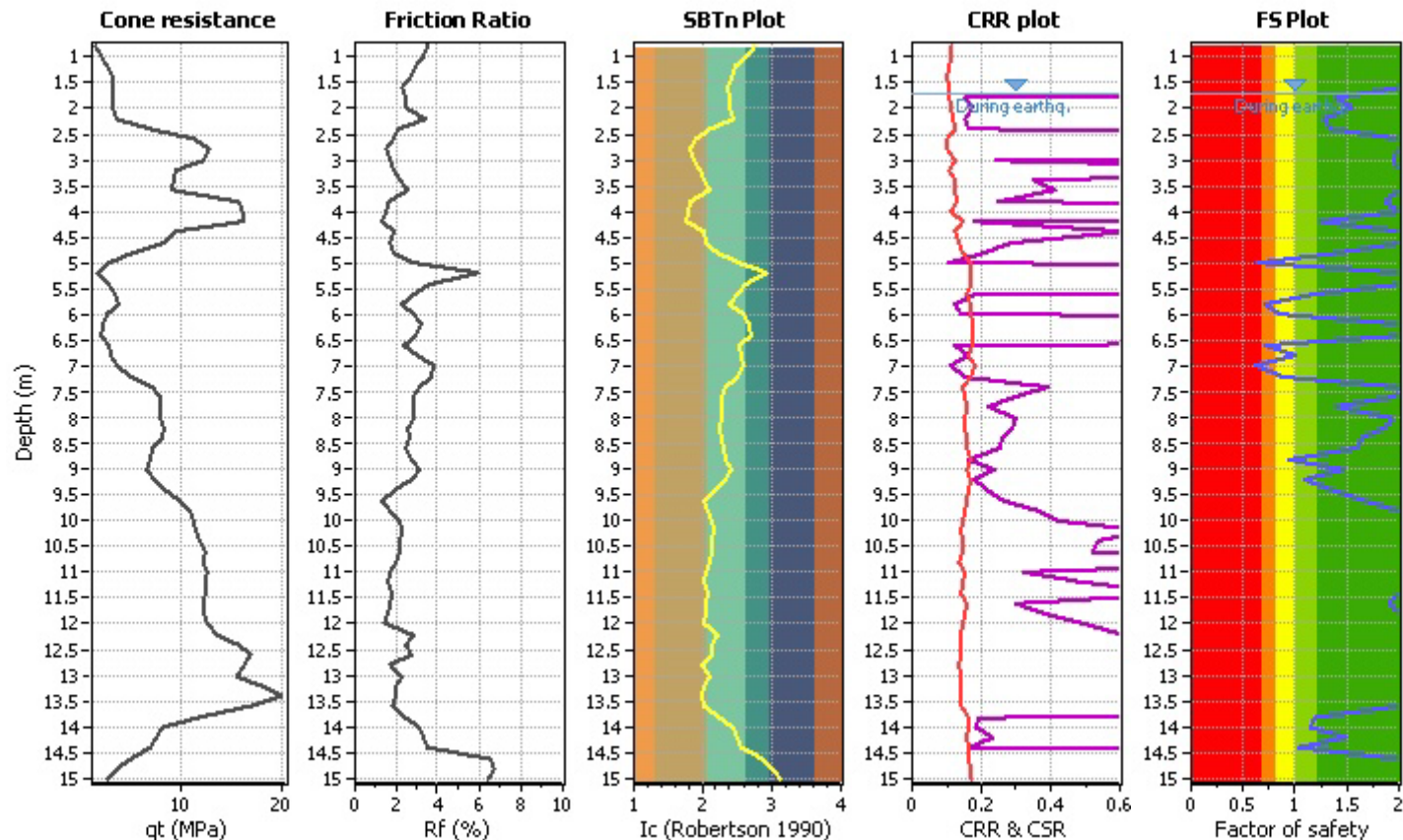
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Location :

CPT file : P129CPT135

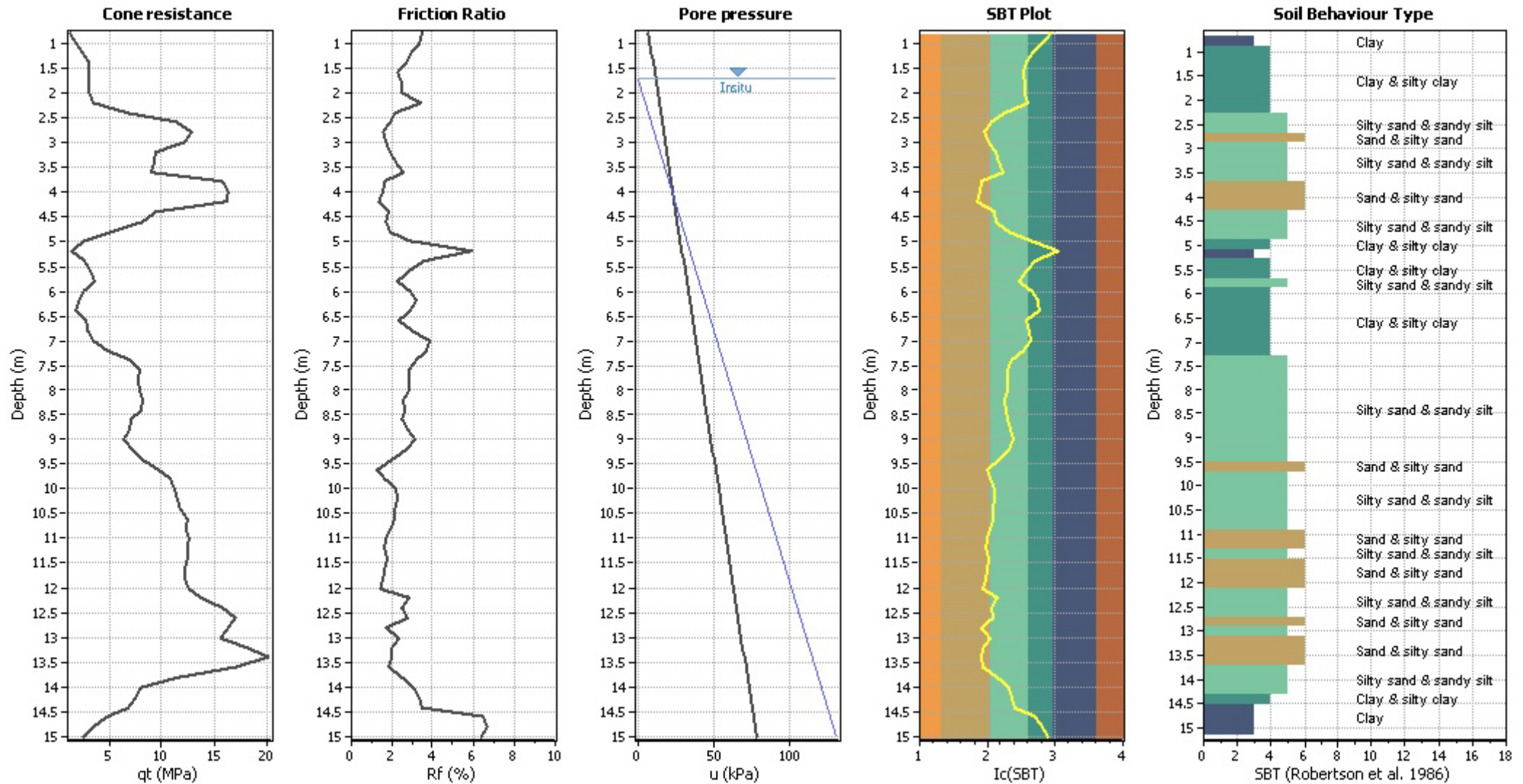
Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.70 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.70 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	6.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.20	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plo



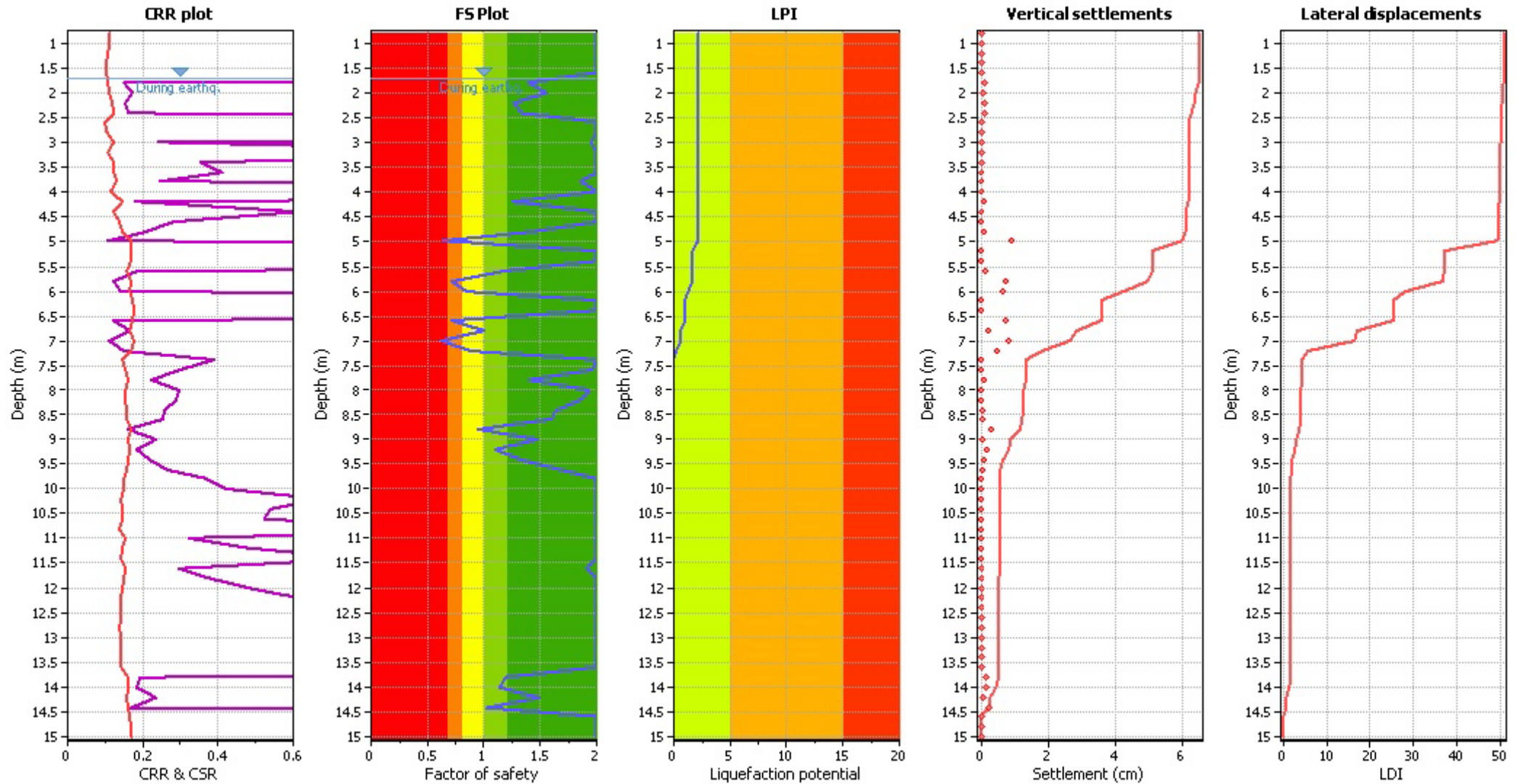
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.70 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.70 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plot



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.70 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_g applied:	Yes
Earthquake magnitude M_w :	6.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.20	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.70 m	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

■	Almost certain it will liquefy
■	Very likely to liquefy
■	Liquefaction and no liq. are equally likely
■	Unlike to liquefy
■	Almost certain it will not liquefy

LPI color scheme

■	Very high risk
■	High risk
■	Low risk

:: Field input data ::

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
1	0.80	1.27	39.20	7.00	43.13	17.56
2	1.00	1.57	65.33	8.00	36.82	18.00
3	1.20	2.84	84.93	9.00	29.75	18.35
4	1.40	3.53	78.40	10.00	26.63	18.50
5	1.60	2.94	84.93	11.00	24.73	18.34
6	1.80	2.94	52.27	12.00	25.77	18.44
7	2.00	3.53	98.00	13.00	25.80	18.44
8	2.20	2.94	84.93	14.00	28.12	19.00
9	2.40	4.21	182.93	15.00	15.63	19.44
10	2.60	13.23	163.33	16.00	10.72	20.09
11	2.80	16.37	294.00	17.00	8.44	20.04
12	3.00	8.82	130.67	18.00	9.71	20.11
13	3.20	11.47	209.07	19.00	12.16	19.81
14	3.40	8.13	196.00	20.00	13.78	19.95
15	3.60	8.13	202.53	21.00	15.71	20.09
16	3.80	10.58	294.00	22.00	8.45	20.43
17	4.00	28.42	274.40	23.00	8.02	20.41
18	4.20	9.60	182.93	24.00	7.19	20.24
19	4.40	10.39	189.47	25.00	13.23	19.78
20	4.60	8.13	150.27	26.00	13.91	19.49
21	4.80	5.98	84.93	27.00	19.29	18.89
22	5.00	1.27	58.80	28.00	31.83	18.39
23	5.20	0.98	91.47	29.00	54.38	18.31
24	5.40	2.25	117.60	30.00	35.51	18.65
25	5.60	5.00	84.93	31.00	30.33	18.66
26	5.80	2.55	78.40	32.00	26.25	18.57
27	6.00	3.43	84.93	33.00	34.27	18.35
28	6.20	1.96	65.33	34.00	39.26	18.17
29	6.40	1.18	58.80	35.00	40.88	17.88
30	6.60	2.65	45.73	36.00	31.63	18.23
31	6.80	4.70	98.00	37.00	33.92	18.61
32	7.00	1.76	130.67	38.00	34.88	19.14
33	7.20	4.31	182.93	39.00	30.16	19.58
34	7.40	8.62	228.67	40.00	23.92	19.95
35	7.60	8.13	254.80	41.00	21.56	20.02
36	7.80	7.06	196.00	42.00	21.90	19.99
37	8.00	8.23	215.60	43.00	21.91	19.99
38	8.20	8.33	254.80	44.00	20.48	19.93
39	8.40	7.94	150.27	45.00	21.14	19.93
40	8.60	7.84	222.13	46.00	22.24	19.69
41	8.80	5.49	156.80	47.00	24.06	19.77
42	9.00	7.35	196.00	48.00	26.67	19.80
43	9.20	6.37	248.27	49.00	23.72	19.82
44	9.40	7.84	143.73	50.00	18.91	19.66
45	9.60	10.39	98.00	51.00	13.28	19.41
46	9.80	10.98	130.67	52.00	14.77	19.86
47	10.00	10.78	307.07	53.00	16.96	20.24
48	10.20	11.96	294.00	54.00	17.31	20.32

:: Field input data :: (continued)

Point ID	Depth (m)	q _c (MPa)	f _s (kPa)	u (kPa)	Fines content (%)	Unit weight (kN/m ³)
49	10.40	11.66	176.40	55.00	16.71	20.31
50	10.60	11.76	294.00	56.00	16.39	20.38
51	10.80	13.72	333.20	57.00	15.53	20.24
52	11.00	11.27	84.93	58.00	14.17	20.13
53	11.20	12.74	222.13	59.00	13.86	20.05
54	11.40	13.43	294.00	60.00	15.05	20.17
55	11.60	10.98	150.27	61.00	14.66	20.06
56	11.80	12.05	163.33	62.00	14.27	19.99
57	12.00	13.43	261.33	63.00	13.24	19.92
58	12.20	12.05	111.07	64.00	19.34	20.84
59	12.40	15.39	784.00	65.00	16.65	20.91
60	12.60	19.60	274.40	66.00	17.21	21.14
61	12.80	15.68	339.73	67.00	12.87	20.52
62	13.00	13.43	215.60	68.00	16.30	20.81
63	13.20	17.54	522.67	69.00	13.47	20.87
64	13.40	23.52	339.73	70.00	12.89	21.04
65	13.60	19.11	346.27	71.00	13.50	20.67
66	13.80	8.23	241.73	72.00	20.63	20.43
67	14.00	7.35	267.87	73.00	28.40	20.13
68	14.20	8.53	235.20	74.00	30.81	20.11
69	14.40	6.57	248.27	75.00	33.05	20.00
70	14.60	5.29	222.13	76.00	50.20	20.24
71	14.80	2.94	490.00	77.00	58.76	19.76
72	15.00	2.35	0.00	78.00	66.81	19.21

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (m)
q _c :	Measured cone resistance (MPa)
f _s :	Sleeve friction resistance (kPa)
u:	Pore pressure (kPa)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (kN/m ³)

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F _L	w _z	d _z	LPI	Depth (m)	FS	F _L	w _z	d _z	LPI
0.80	2.00	0.00	9.60	0.20	0.00	1.00	2.00	0.00	9.50	0.20	0.00
1.20	2.00	0.00	9.40	0.20	0.00	1.40	2.00	0.00	9.30	0.20	0.00
1.60	2.00	0.00	9.20	0.20	0.00	1.80	1.40	0.00	9.10	0.20	0.00
2.00	1.55	0.00	9.00	0.20	0.00	2.20	1.27	0.00	8.90	0.20	0.00
2.40	1.33	0.00	8.80	0.20	0.00	2.60	2.00	0.00	8.70	0.20	0.00
2.80	2.00	0.00	8.60	0.20	0.00	3.00	1.94	0.00	8.50	0.20	0.00
3.20	2.00	0.00	8.40	0.20	0.00	3.40	2.00	0.00	8.30	0.20	0.00
3.60	2.00	0.00	8.20	0.20	0.00	3.80	1.86	0.00	8.10	0.20	0.00
4.00	2.00	0.00	8.00	0.20	0.00	4.20	1.25	0.00	7.90	0.20	0.00
4.40	2.00	0.00	7.80	0.20	0.00	4.60	2.00	0.00	7.70	0.20	0.00
4.80	1.41	0.00	7.60	0.20	0.00	5.00	0.64	0.36	7.50	0.20	0.54
5.20	2.00	0.00	7.40	0.20	0.00	5.40	2.00	0.00	7.30	0.20	0.00
5.60	1.17	0.00	7.20	0.20	0.00	5.80	0.71	0.29	7.10	0.20	0.40
6.00	0.84	0.16	7.00	0.20	0.22	6.20	2.00	0.00	6.90	0.20	0.00
6.40	2.00	0.00	6.80	0.20	0.00	6.60	0.71	0.29	6.70	0.20	0.39
6.80	1.01	0.00	6.60	0.20	0.00	7.00	0.63	0.37	6.50	0.20	0.48
7.20	0.89	0.11	6.40	0.20	0.14	7.40	2.00	0.00	6.30	0.20	0.00
7.60	1.96	0.00	6.20	0.20	0.00	7.80	1.39	0.00	6.10	0.20	0.00
8.00	1.94	0.00	6.00	0.20	0.00	8.20	1.85	0.00	5.90	0.20	0.00
8.40	1.64	0.00	5.80	0.20	0.00	8.60	1.61	0.00	5.70	0.20	0.00
8.80	0.95	0.05	5.60	0.20	0.05	9.00	1.47	0.00	5.50	0.20	0.00
9.20	1.10	0.00	5.40	0.20	0.00	9.40	1.34	0.00	5.30	0.20	0.00
9.60	1.69	0.00	5.20	0.20	0.00	9.80	2.00	0.00	5.10	0.20	0.00
10.00	2.00	0.00	5.00	0.20	0.00	10.20	2.00	0.00	4.90	0.20	0.00
10.40	2.00	0.00	4.80	0.20	0.00	10.60	2.00	0.00	4.70	0.20	0.00
10.80	2.00	0.00	4.60	0.20	0.00	11.00	2.00	0.00	4.50	0.20	0.00
11.20	2.00	0.00	4.40	0.20	0.00	11.40	2.00	0.00	4.30	0.20	0.00
11.60	1.91	0.00	4.20	0.20	0.00	11.80	2.00	0.00	4.10	0.20	0.00
12.00	2.00	0.00	4.00	0.20	0.00	12.20	2.00	0.00	3.90	0.20	0.00
12.40	2.00	0.00	3.80	0.20	0.00	12.60	2.00	0.00	3.70	0.20	0.00
12.80	2.00	0.00	3.60	0.20	0.00	13.00	2.00	0.00	3.50	0.20	0.00
13.20	2.00	0.00	3.40	0.20	0.00	13.40	2.00	0.00	3.30	0.20	0.00
13.60	2.00	0.00	3.20	0.20	0.00	13.80	1.20	0.00	3.10	0.20	0.00
14.00	1.14	0.00	3.00	0.20	0.00	14.20	1.49	0.00	2.90	0.20	0.00
14.40	1.03	0.00	2.80	0.20	0.00	14.60	2.00	0.00	2.70	0.20	0.00
14.80	2.00	0.00	2.60	0.20	0.00	15.00	2.00	0.00	2.50	0.20	0.00

Overall liquefaction potential: 2.22

LPI = 0.00 - Liquefaction risk very low

LPI between 0.00 and 5.00 - Liquefaction risk low

LPI between 5.00 and 15.00 - Liquefaction risk high

LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point

F_L: 1 - FSw_z: Function value of the extend of soil liquefaction according to depthd_z: Layer thickness (m)

LPI: Liquefaction potential index value for test point