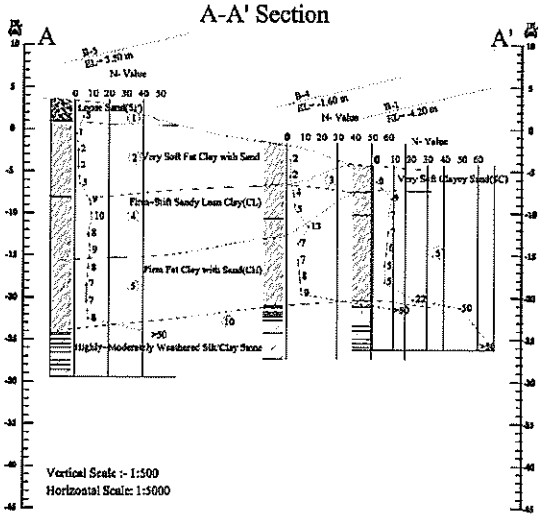
Appendix7-1

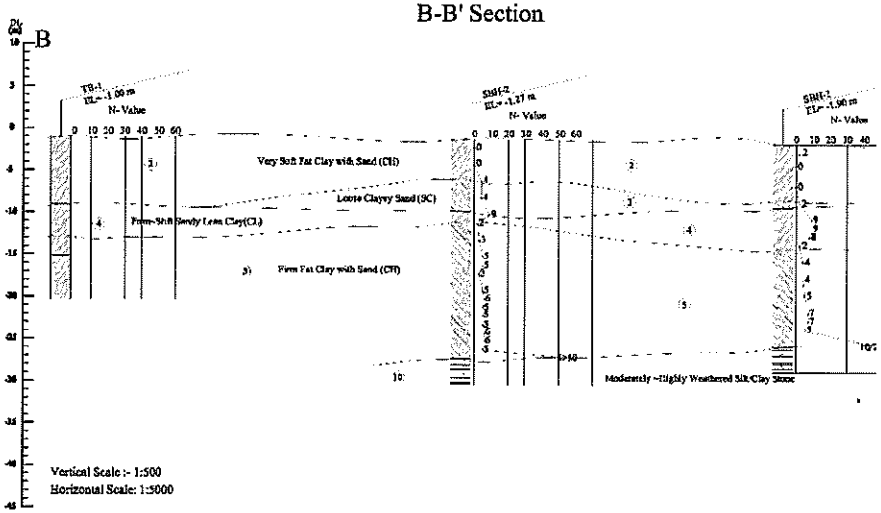
Soil Profile

Soil Profile (A-A', B-B', C-C', D-D' Section)

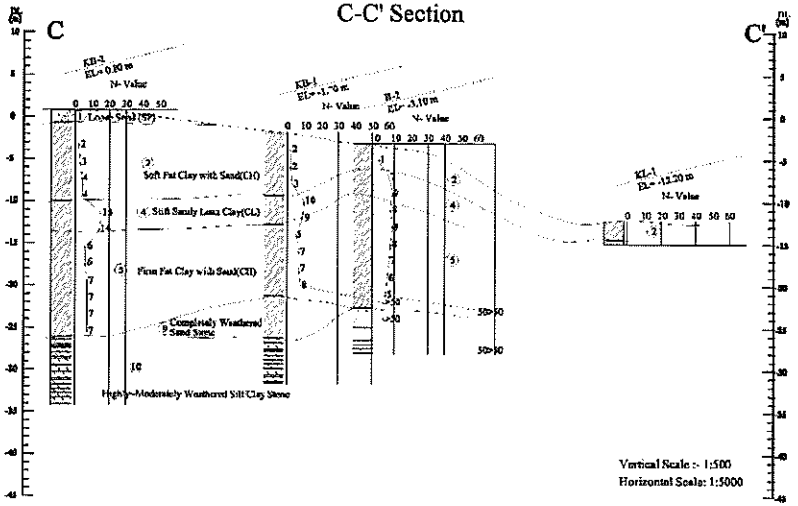
A-A' Section



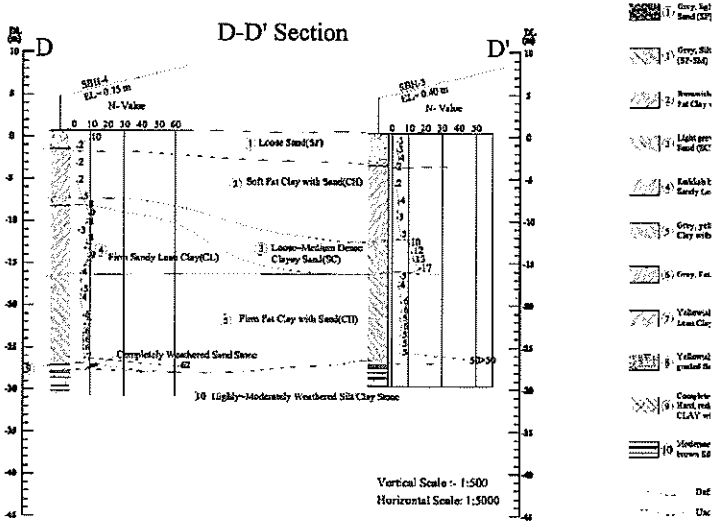
B-B' Section



C-C' Section

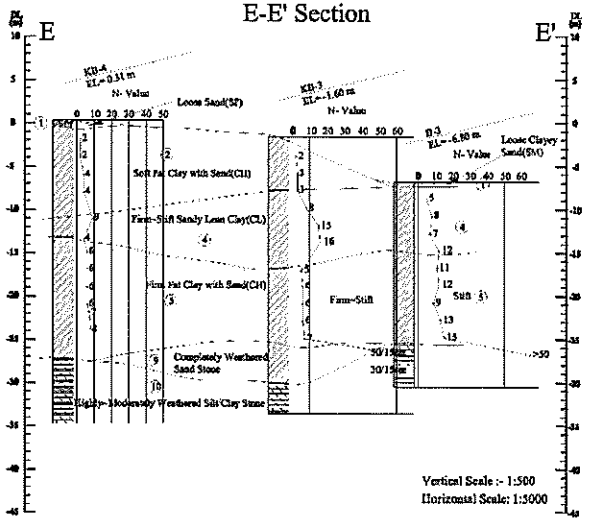


D-D' Section

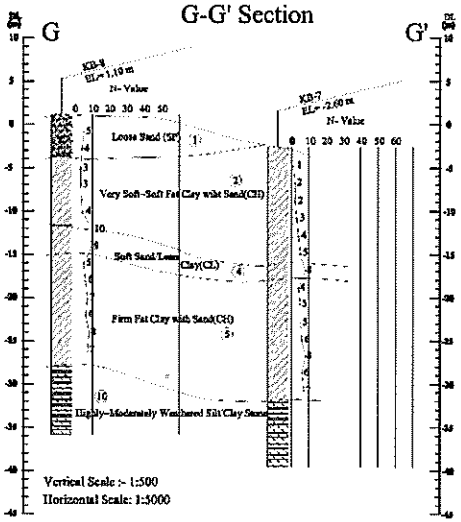


Soil Profile (E-E', F-F',G-G' Section)

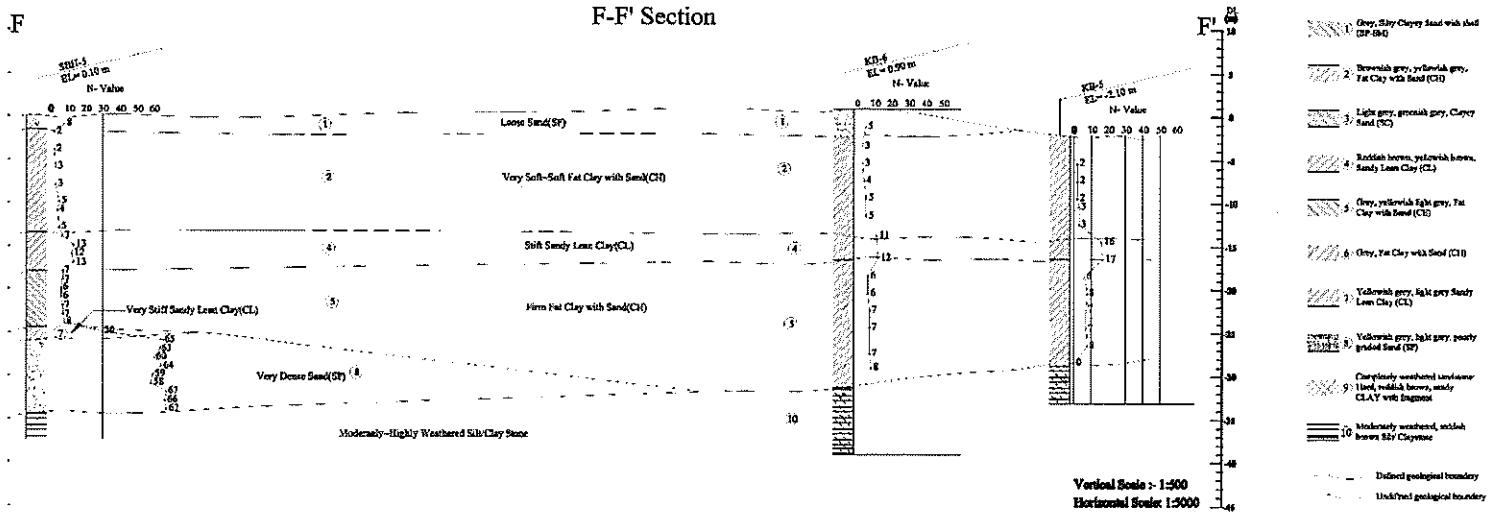
E-E' Section



G-G' Section

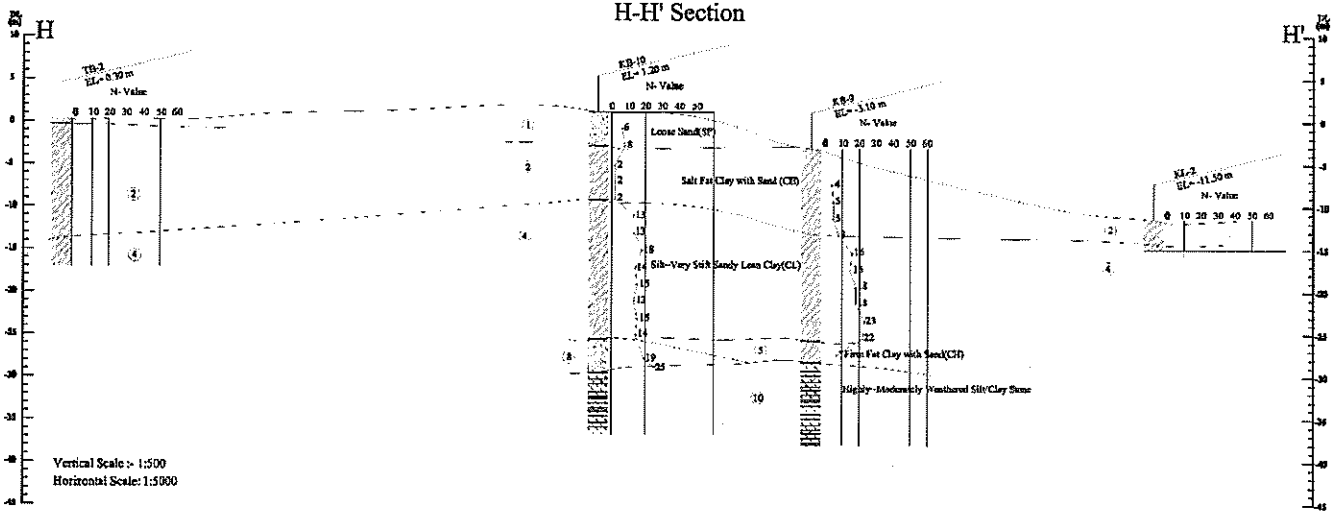


F-F' Section

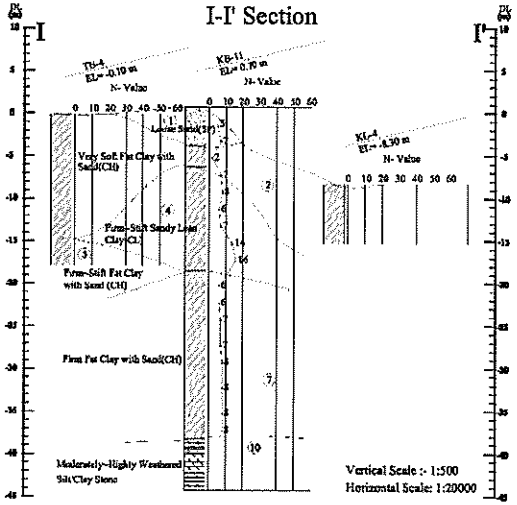


Soil Profile (H-H', I-I', J-J' Section)

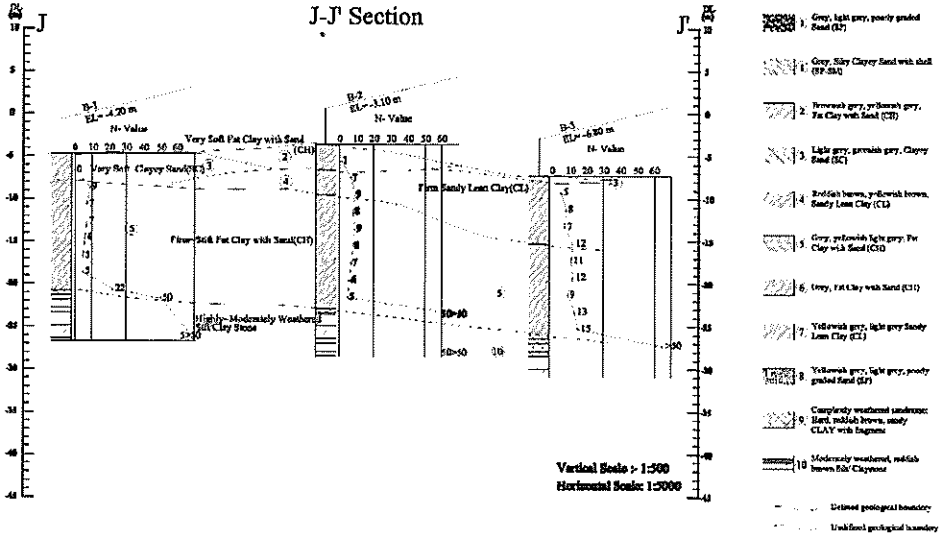
H-H' Section



I-I' Section

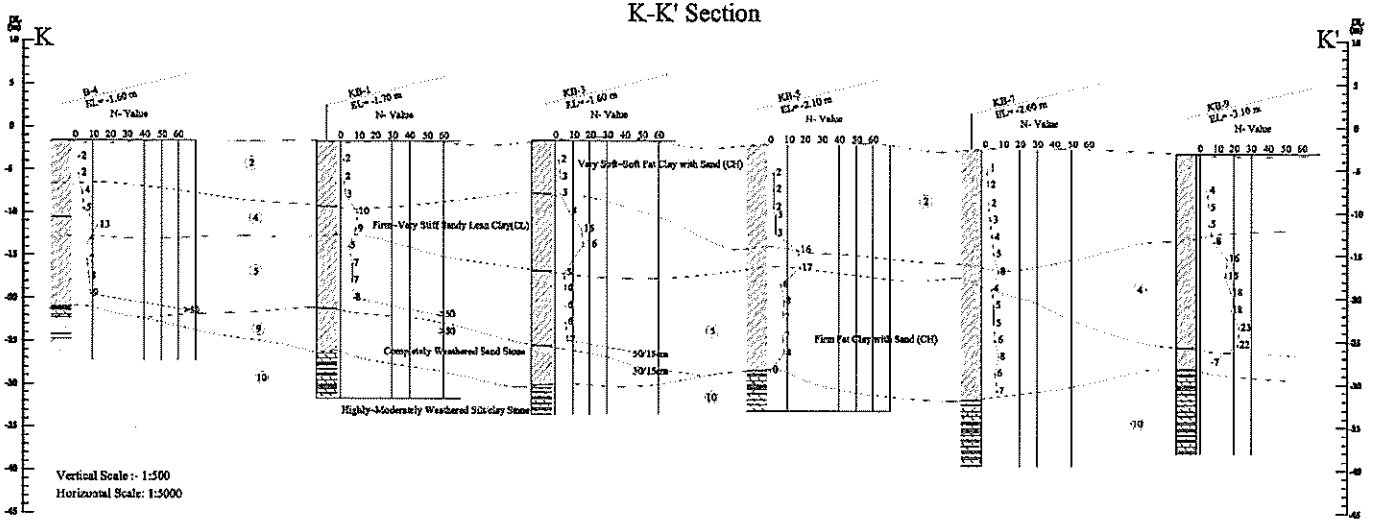


J-J' Section

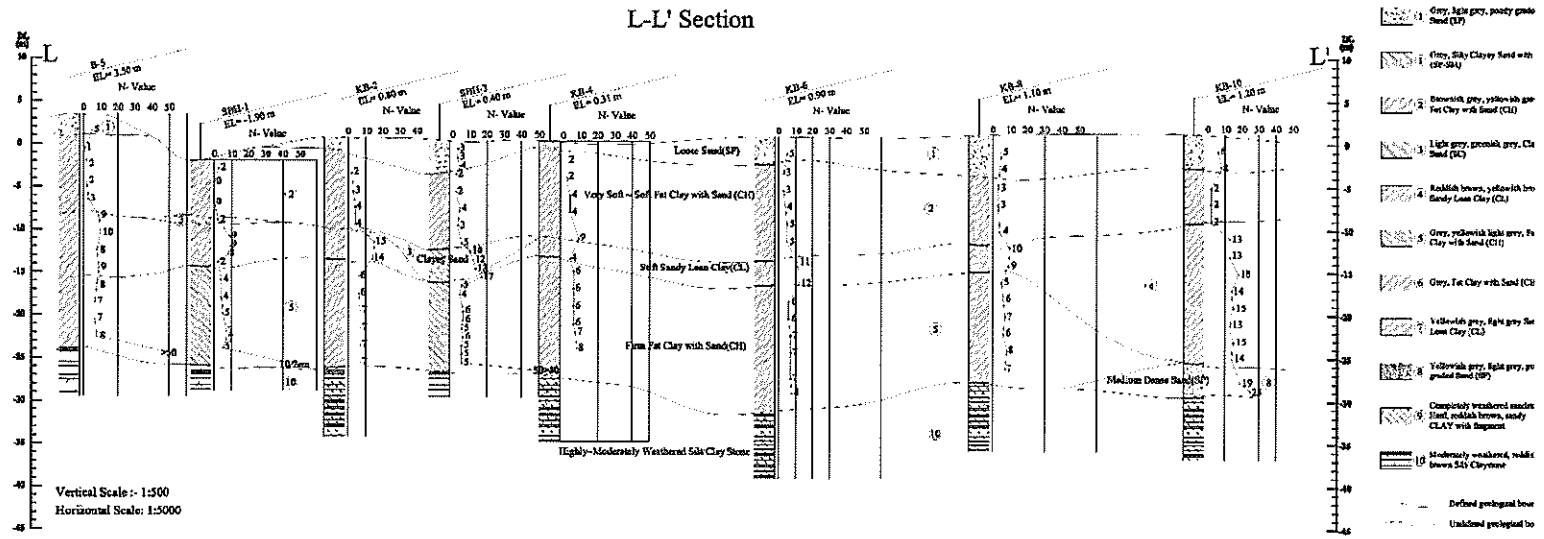


Soil Profile (K-K', L-L' Section)

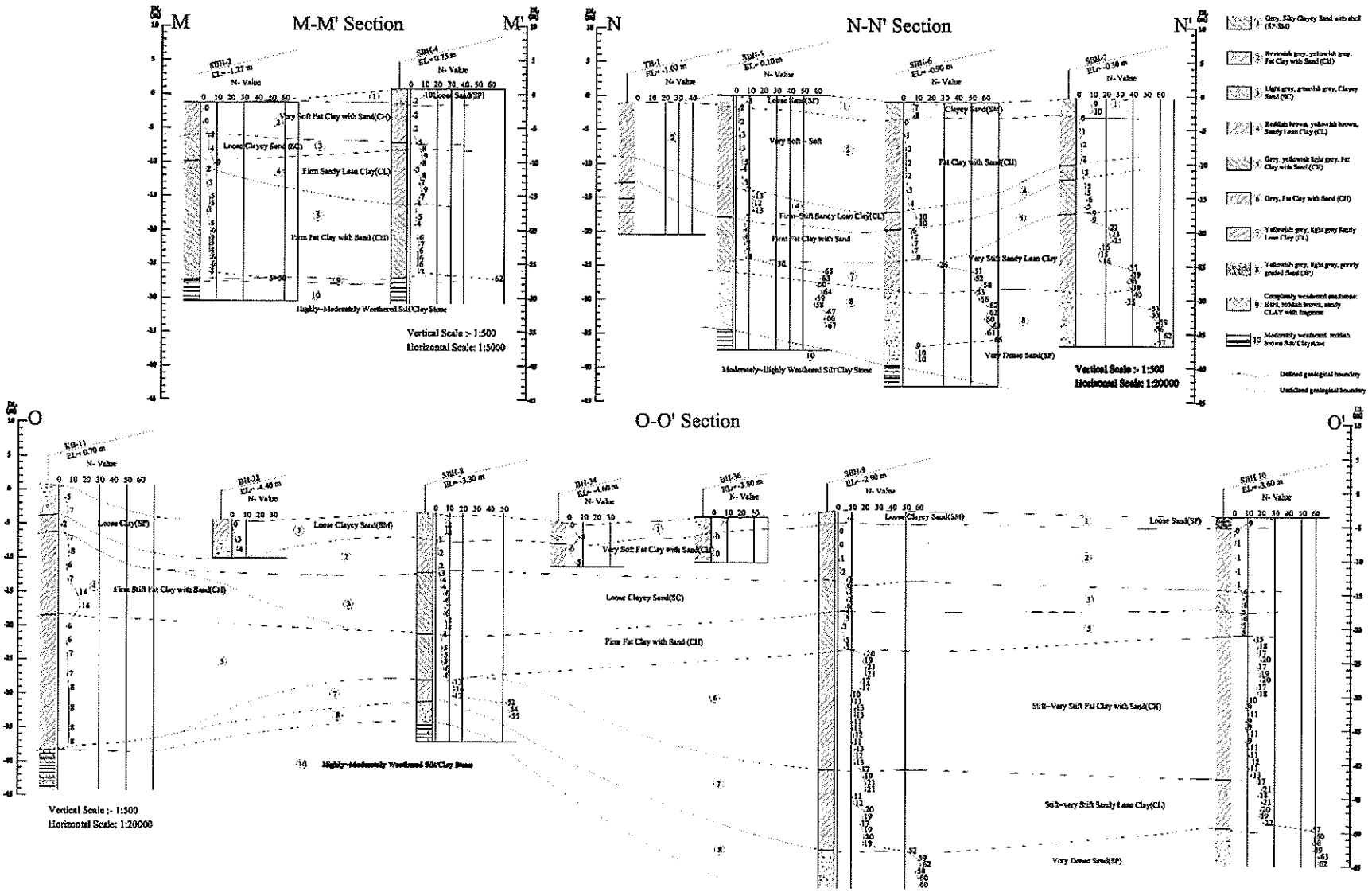
K-K' Section



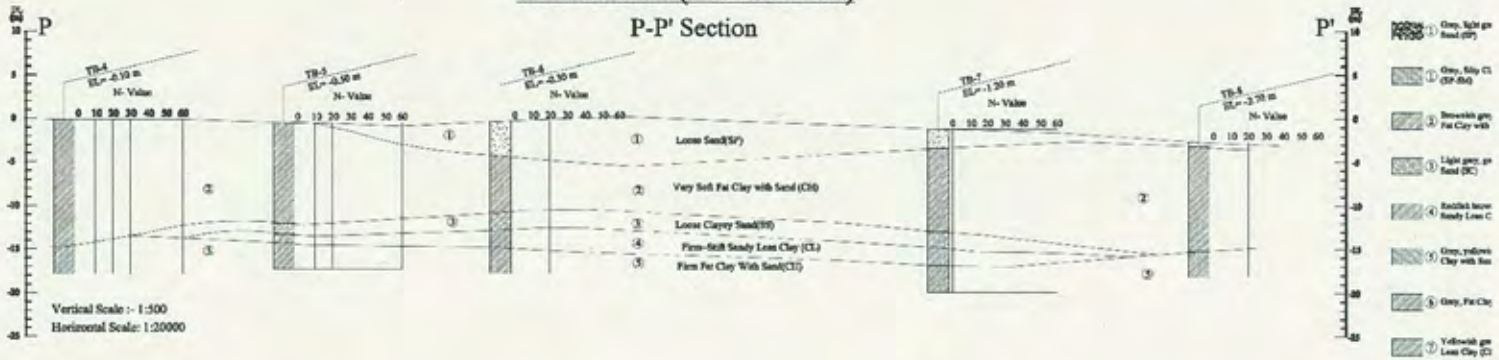
L-L' Section

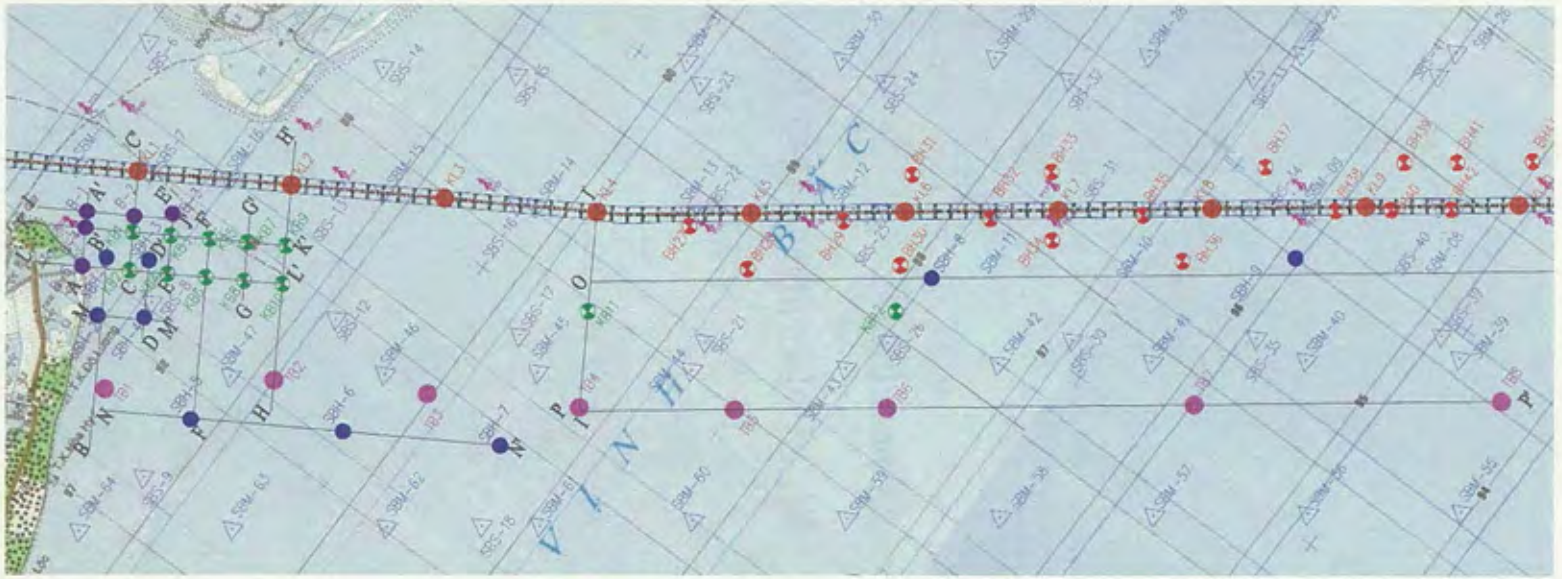


Soil Profile (M-M', N-N', O-O' Section)



Soil Profile (P-P' Section)





Appendix7-2

Soil Laboratory Test Result

Summary table of physical and mechnical property of soil and rock layers at Whole Area

Layer No.	Soil Type	Type of Value	SPT N-value	Particle density D (g/cm³)	Fine Content (%)	Natural water content w (%)	Atterberg Limits			Bulk density (g/cm³)		Void ratio eo	Consolidation test						Unconfined compression test		Compressive strength of rock Rn (KG/cm²)	
							Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Natural	Dry		Cv (x 10^{-3} cm²/s) (1-2kgf/cm2)	Cc	Cr	CR = Cc/(1+e0)	RR = Cr/(1+e0)	Pc (KG/cm²)	q_u (KG/cm²)	ef (%)	Natural	Saturated
1a	Grey, light grey, poorly graded sand (SP)	Max	10	2.68	22.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	3	2.65	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	5.9	2.66	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b	Grey, silty, clayey sand with shell (SM)	Max	10	2.66	39.0	-	37.0	30.6	8.7	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	7	2.65	26.4	-	30.8	25.2	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	8.1	2.66	29.9	-	34.1	27.7	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Brownish grey, yellowish grey, Fat Clay with sand (CH)	Max	8	2.73	99.7	84.8	86.0	36.1	52.6	1.91	1.46	2.31	1.92	0.90	0.196	0.68	0.089	1.57	0.80	12.8	-	-
		Min	0	2.67	35.2	25.5	25.2	14.6	6.9	1.50	0.81	0.83	0.24	0.09	0.013	0.05	0.007	0.28	0.05	2.0	-	-
		Average	2.4	2.69	90.4	52.5	56.7	27.1	29.6	1.69	1.12	1.46	0.68	0.54	0.121	0.22	0.046	0.85	0.28	7.2	-	-
3	Light grey, greenish grey, clayey sand (CS)	Max	17	2.69	66.1	35.3	40.9	21.5	23.5	1.99	1.60	0.96	1.86	0.47	0.058	0.25	0.031	1.74	0.43	7.0	-	-
		Min	0	2.65	23.1	20.5	22.3	14.4	8.3	1.85	1.37	0.67	0.93	0.14	0.019	0.07	0.011	1.06	0.43	7.0	-	-
		Average	6.4	2.67	41.8	25.7	31.2	16.6	14.6	1.91	1.47	0.82	1.27	0.26	0.033	0.14	0.018	1.38	0.43	7.0	-	-
4	Reddish brown, yellowish brown, sandy lean clay (CL)	Max	23	2.74	99.4	40.0	53.4	27.1	28.7	2.08	1.98	1.03	4.71	0.91	0.063	0.47	0.036	3.48	1.08	9.5	-	-
		Min	2	2.66	31.4	18.5	25.3	14.1	9.4	1.62	1.32	0.56	0.60	0.10	0.016	0.06	0.010	0.62	0.33	6.3	-	-
		Average	10.7	2.70	82.0	27.9	39.8	20.3	19.6	1.95	1.55	0.76	2.36	0.28	0.030	0.15	0.017	1.39	0.62	7.9	-	-
5	Grey, yellowish light Grey, fat clay with sand (CH)	Max	15	2.73	99.4	52.8	67.6	33.5	45.1	1.94	1.51	1.49	2.09	0.74	0.198	0.32	0.091	2.97	0.97	11.2	-	-
		Min	0	2.67	51.7	20.3	25.9	12.3	12.3	1.65	1.09	0.77	0.75	0.16	0.023	0.09	0.013	0.61	0.09	4.4	-	-
		Average	6.3	2.70	93.2	42.7	50.9	24.0	26.9	1.76	1.23	1.21	1.26	0.51	0.109	0.23	0.049	1.77	0.64	7.3	-	-
6	Grey, fat clay with sand (CH)	Max	21	2.70	99.6	58.0	70.7	33.3	39.6	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.67	61.9	21.7	26.0	17.5	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	14.0	2.68	84.4	41.9	52.3	25.5	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Yellowish grey, light grey, sandy lean clay (CL)	Max	50	2.70	98.4	36.0	45.6	21.2	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.65	48.0	18.8	20.9	13.7	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	22.5	2.68	65.1	23.6	29.8	16.4	13.5	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Yellowish grey, light grey, poorly graded sand (SP)	Max	50	2.66	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.64	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	46.6	2.66	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Reddish brown completely weathered sand stone	Max	50	2.77	86.0	27.3	42.2	21.9	20.2	2.36	1.56	0.76	-	-	-	-	-	-	-	-	-	-
		Min	50	2.73	52.4	15.1	33.2	21.3	12.0	1.99	1.56	0.76	-	-	-	-	-	-	-	-	-	-
		Average	50.0	2.74	68.8	21.2	37.5	21.6	15.9	2.18	1.56	0.76	-	-	-	-	-	-	-	-	-	-
10	Reddish brown highly to moderately weathered silt/claystone	Max	-	2.83	-	-	-	-	-	2.72	-	-	-	-	-	-	-	-	-	-	1081	686
		Min	-	2.70	-	-	-	-	-	2.40	-	-	-	-	-	-	-	-	-	-	71	61
		Average	-	2.76	-	-	-	-	-	2.60	-	-	-	-	-	-	-	-	-	-	395	350

Summary table of physical and mechnical property of soil and rock layers at Port Area

Layer No.	Soil Type	Type of Value	SPT N-value	Particle density D (g/cm³)	Fine Content (%)	Natural water content w (%)	Atterberg Limits			Bulk density (g/cm³)		Void ratio eo	Consolidation test						Unconfined compression test		Compressive strength of rock Rn (KG/cm²)	
							Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Natural	Dry		Cv (x 10^{-4} cm²/s) (1-2kgf/cm2)	Cc	Cr	CR = Cc/(1+e0)	RR = Cr/(1+e0)	Pc (KG/cm²)	q_u (KG/cm²)	εf (%)	Natural	Saturated
1a	Grey, light grey, poorly graded sand (SP)	Max	10	2.68	22.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	3	2.65	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	5.6	2.66	8.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b	Grey, silty, clayey sand with shell (SM)	Max	10	2.66	39.0	-	36.3	30.6	8.7	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	7	2.65	27.3	-	32.4	25.5	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	8.5	2.66	31.8	-	34.3	27.7	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Brownish grey, yellowish grey, Fat Clay with sand (CH)	Max	8	2.73	99.7	84.8	85.3	35.5	52.6	1.91	1.46	2.31	1.92	0.90	0.194	0.68	0.088	1.57	0.80	12.8	-	-
		Min	0	2.67	35.2	25.5	25.2	14.6	6.9	1.50	0.81	0.83	0.27	0.09	0.013	0.05	0.007	0.36	0.05	2.0	-	-
		Average	2.6	2.69	90.9	50.1	54.0	26.4	27.6	1.71	1.14	1.41	0.77	0.52	0.119	0.22	0.047	0.93	0.32	6.7	-	-
3	Light grey, greenish grey, clayey sand (CS)	Max	17	2.68	66.1	35.3	40.9	21.5	23.5	1.99	1.60	0.96	1.86	0.47	0.058	0.25	0.031	1.74	0.43	-	-	-
		Min	0	2.67	31.3	21.4	22.3	14.5	6.3	1.85	1.37	0.67	0.93	0.14	0.019	0.07	0.011	1.06	0.43	-	-	-
		Average	7.0	2.67	49.9	27.3	31.0	17.0	13.9	1.91	1.47	0.82	1.27	0.26	0.033	0.14	0.018	1.38	0.43	-	-	-
4	Reddish brown, yellowish brown, sandy lean clay (CL)	Max	23	2.74	99.4	40.0	53.4	27.1	28.7	2.08	1.96	1.03	4.71	0.91	0.063	0.47	0.036	3.48	1.08	9.5	-	-
		Min	2	2.66	31.4	18.5	25.3	14.1	9.4	1.62	1.32	0.56	0.60	0.10	0.016	0.06	0.010	0.62	0.33	6.3	-	-
		Average	10.5	2.69	81.9	28.0	39.9	20.2	19.6	1.95	1.55	0.76	2.36	0.28	0.030	0.15	0.017	1.39	0.62	7.9	-	-
5	Grey, yellowish light Grey, fat clay with sand (CH)	Max	15	2.73	99.4	52.8	65.6	33.2	45.1	1.90	1.45	1.49	2.09	0.74	0.198	0.32	0.091	2.97	0.97	10.2	-	-
		Min	0	2.67	51.7	20.3	25.9	12.3	12.3	1.65	1.09	0.87	0.75	0.26	0.033	0.13	0.016	0.61	0.09	4.4	-	-
		Average	6.5	2.70	93.8	42.9	50.8	23.9	26.9	1.76	1.22	1.23	1.26	0.52	0.110	0.23	0.050	1.80	0.66	6.9	-	-
6	Grey, fat clay with sand (CH)	Max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Yellowish grey, light grey, sandy lean clay (CL)	Max	50	2.68	98.4	36.0	45.6	17.9	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.65	49.1	18.8	20.9	13.8	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	28.9	2.67	66.0	24.0	30.6	16.6	14.0	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Yellowish grey, light grey, poorly graded sand (SP)	Max	50	2.66	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.64	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	43.9	2.66	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Reddish brown completely weathered sand stone	Max	50	2.77	86.0	27.3	42.2	21.9	20.2	2.36	1.56	0.76	-	-	-	-	-	-	-	-	-	-
		Min	50	2.73	52.4	15.1	33.2	21.3	12.0	1.99	1.56	0.76	-	-	-	-	-	-	-	-	-	-
		Average	50.0	2.74	68.8	21.2	37.5	21.6	15.9	2.18	1.56	0.76	-	-	-	-	-	-	-	-	-	-
10	Reddish brown highly to moderately weathered silt/claystone	Max	-	2.83	-	-	-	-	-	2.72	-	-	-	-	-	-	-	-	-	-	1081	696
		Min	-	2.70	-	-	-	-	-	2.40	-	-	-	-	-	-	-	-	-	-	71	61
		Average	-	2.76	-	-	-	-	-	2.60	-	-	-	-	-	-	-	-	-	-	388	341

Summary table of physical and mechnical property of soil and rock layers at Off-shore Area

Layer No.	Soil Type	Type of Value	SPT N-value	Particle density D (g/cm³)	Fine Content (%)	Natural water content w (%)	Atterberg Limits			Bulk density (g/cm³)		Void ratio eo	Consolidation test						Unconfined compression test		Compressive strength of rock Rn (KG/cm²)	
							Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Natural	Dry		Cv (x 10^{-3} cm²/s) (1-2kgf/cm2)	Cc	Cr	CR = Cc/(1+e0)	RR = Cr/(1+e0)	Pc (KG/cm²)	q_u (KG/cm²)	εf (%)	Natural	Saturated
1a	Grey, light grey, poorly graded sand (SP)	Max	7	2.66	10.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	5	2.66	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	6.0	2.66	8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b	Grey, silty, clayey sand with shell (SM)	Max	8	2.66	30.3	-	37.0	30.6	6.7	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	7	2.65	26.4	-	30.8	25.2	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	7.8	2.66	28.0	-	33.9	27.8	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Brownish grey, yellowish grey, Fat Clay with sand (CH)	Max	2	2.71	99.7	76.0	96.0	36.1	50.0	1.85	1.36	2.09	0.52	0.82	0.196	0.28	0.066	0.83	0.42	10.5	-	-
		Min	0	2.67	63.9	36.1	38.9	21.4	17.5	1.53	0.87	0.99	0.24	0.39	0.056	0.15	0.020	0.28	0.05	5.3	-	-
		Average	1.1	2.69	88.3	62.0	67.5	29.7	37.8	1.61	0.99	1.74	0.35	0.62	0.127	0.22	0.044	0.57	0.16	8.5	-	-
3	Light grey, greenish grey, clayey sand (CS)	Max	8	2.69	45.5	27.2	36.6	18.2	21.2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	3	2.65	23.1	20.5	25.1	14.4	10.1	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	6.1	2.67	33.8	24.2	31.4	16.2	15.2	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Reddish brown, yellowish brown, sandy lean clay (CL)	Max	16	2.74	94.6	31.2	46.6	24.8	21.8	2.01	1.60	0.91	-	-	-	-	-	-	-	-	-	-
		Min	9	2.71	54.3	22.4	27.3	14.7	12.6	1.88	1.43	0.71	-	-	-	-	-	-	-	-	-	-
		Average	12.8	2.73	83.0	27.2	39.4	20.9	18.5	1.94	1.51	0.82	-	-	-	-	-	-	-	-	-	-
5	Grey, yellowish light Grey, fat clay with sand (CH)	Max	7	2.71	99.4	50.7	67.6	33.5	38.0	1.94	1.51	1.39	1.86	0.60	0.171	0.25	0.071	2.02	0.14	11.2	-	-
		Min	3	2.67	62.8	28.4	37.2	18.2	19.0	1.68	1.12	0.77	0.86	0.16	0.023	0.09	0.013	0.86	0.14	11.2	-	-
		Average	5.3	2.69	86.9	40.6	51.8	25.2	26.6	1.83	1.34	1.03	1.36	0.38	0.097	0.17	0.042	1.44	0.14	11.2	-	-
6	Grey, fat clay with sand (CH)	Max	21	2.70	99.6	58.0	70.7	33.3	39.6	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	9	2.67	61.9	21.7	26.0	17.5	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	14.0	2.68	84.4	41.9	52.3	25.5	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Yellowish grey, light grey, sandy lean clay (CL)	Max	22	2.70	76.4	27.1	35.8	21.2	19.9	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	11	2.67	48.0	22.1	25.4	13.7	7.4	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	17.9	2.69	64.2	23.3	29.1	16.1	13.0	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Yellowish grey, light grey, poorly graded sand (SP)	Max	50	2.66	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	50	2.65	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	50.0	2.66	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Reddish brown completely weathered sand stone	Max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Average	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Reddish brown highly to moderately weathered silt/claystone	Max	-	-	-	-	-	-	-	2.68	-	-	-	-	-	-	-	-	-	-	650	593
		Min	-	-	-	-	-	-	-	2.61	-	-	-	-	-	-	-	-	-	-	230	194
		Average	-	-	-	-	-	-	-	2.65	-	-	-	-	-	-	-	-	-	-	503	444

Summary table for average value for physical and mechnical property of soil and rock layers

Layer No.	Soil Type	Type of Value	SPT N-value	Particle density D (g/cm³)	Fine Content (%)	Natural water content w (%)	Atterberg Limits			Bulk density (g/cm³)		Void ratio eo	Consolidation test						Unconfined compression test		Compressive strength of rock Rn (KG/cm²)	
							Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Natural	Dry		Cv (x 10^{-3} cm²/s) (1-2kgf/cm2)	Cc	Cr	CR = Cc/(1+e0)	RR = Cr/(1+e0)	Pc (KG/cm²)	q_u (KG/cm²)	εf (%)	Natural	Saturated
1a	Grey, light grey, poorly graded sand (SP)	Port	5.6	2.66	8.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-shor	6.0	2.66	8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	5.9	2.66	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b	Grey, silty, clayey sand with shell (SM)	Port	8.5	2.66	31.8	-	34.3	27.7	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-shor	7.8	2.66	28.0	-	33.9	27.8	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	8.1	2.66	29.9	-	34.1	27.7	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Brownish grey, yellowish grey, Fat Clay with sand (CH)	Port	2.6	2.69	90.9	50.1	54.0	26.4	27.6	1.71	1.14	1.41	0.77	0.52	0.119	0.22	0.047	0.93	0.32	6.7	-	-
		Off-shor	1.1	2.69	88.3	62.0	67.5	29.7	37.8	1.61	0.99	1.74	0.35	0.62	0.127	0.22	0.044	0.57	0.16	8.5	-	-
		Whole	2.4	2.69	90.4	52.5	56.7	27.1	29.6	1.69	1.12	1.46	0.68	0.54	0.121	0.22	0.046	0.85	0.28	7.2	-	-
3	Light grey, greenish grey, clayey sand (CS)	Port	7.0	2.67	49.9	27.3	31.0	17.0	13.9	1.91	1.47	0.82	1.27	0.26	0.033	0.14	0.018	1.38	0.43	-	-	-
		Off-shor	6.1	2.67	33.8	24.2	31.4	16.2	15.2	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	6.4	2.67	41.8	25.7	31.2	16.6	14.6	1.91	1.47	0.82	1.27	0.26	0.033	0.14	0.018	1.38	0.43	7.0	-	-
4	Reddish brown, yellowish brown, sandy lean clay (CL)	Port	10.5	2.69	81.9	28.0	39.9	20.2	19.6	1.95	1.55	0.76	2.36	0.28	0.030	0.15	0.017	1.39	0.62	7.9	-	-
		Off-shor	12.8	2.73	83.0	27.2	39.4	20.9	18.5	1.94	1.51	0.82	-	-	-	-	-	-	-	-	-	-
		Whole	10.7	2.70	82.0	27.9	39.8	20.3	19.6	1.95	1.55	0.76	2.36	0.28	0.030	0.15	0.017	1.39	0.62	7.9	-	-
5	Grey, yellowish light Grey, fat clay with sand (CH)	Port	6.5	2.70	93.8	42.9	50.8	23.9	26.9	1.76	1.22	1.23	1.26	0.52	0.110	0.23	0.050	1.80	0.66	6.9	-	-
		Off-shor	5.3	2.69	86.9	40.6	51.8	25.2	26.6	1.83	1.34	1.03	1.36	0.38	0.097	0.17	0.042	1.44	0.14	11.2	-	-
		Whole	6.3	2.70	93.2	42.7	50.9	24.0	26.9	1.76	1.23	1.21	1.26	0.51	0.109	0.23	0.049	1.77	0.64	7.3	-	-
6	Grey, fat clay with sand (CH)	Port	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-shor	14.0	2.68	84.4	41.9	52.3	25.5	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	14.0	2.68	84.4	41.9	52.3	25.5	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Yellowish grey, light grey, sandy lean clay (CL)	Port	28.9	2.67	66.0	24.0	30.6	16.6	14.0	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-shor	17.9	2.69	64.2	23.3	29.1	16.1	13.0	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	22.5	2.68	65.1	23.6	29.8	16.4	13.5	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Yellowish grey, light grey, poorly graded sand (SP)	Port	43.9	2.66	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Off-shor	50.0	2.66	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	46.6	2.66	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Reddish brown completely weathered sand stone	Port	50.0	2.74	68.8	21.2	37.5	21.6	15.9	2.18	1.56	0.76	-	-	-	-	-	-	-	-	-	-
		Off-shor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Whole	50.0	2.74	68.8	21.2	37.5	21.6	15.9	2.18	1.56	0.76	-	-	-	-	-	-	-	-	-	-
10	Reddish brown highly to moderately weathered silt/claystone	Port	-	2.76	-	-	-	-	-	2.60	-	-	-	-	-	-	-	-	-	-	388	341
		Off-shor	-	-	-	-	-	-	-	2.65	-	-	-	-	-	-	-	-	-	-	503	444
		Whole	-	2.76	-	-	-	-	-	2.60	-	-	-	-	-	-	-	-	-	-	395	350

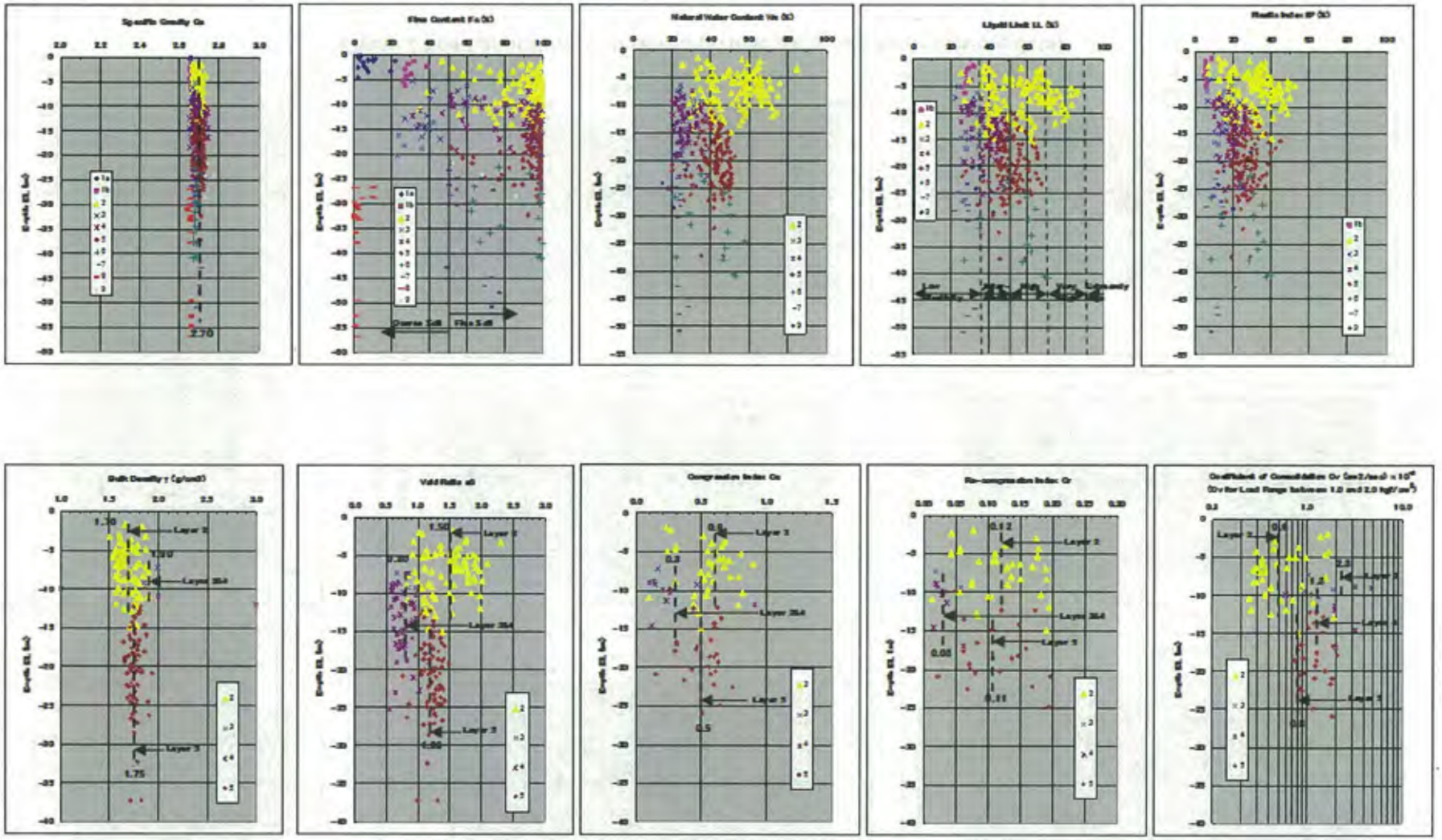


Figure 1 Soil Laboratory Test Result (Whole Area: Including existing data)

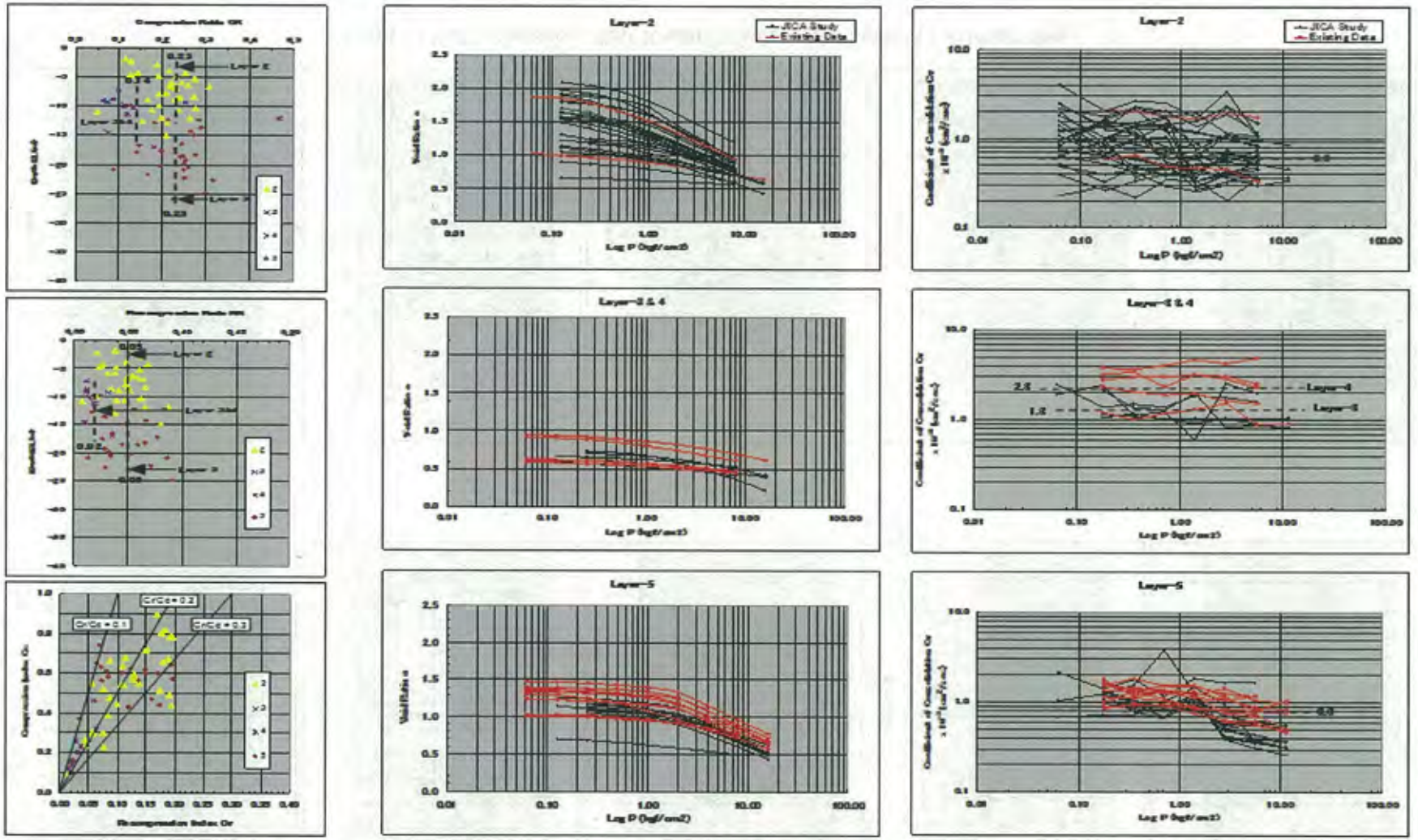


Figure 2 Soil Laboratory Test Result (Whole Area: Including existing data)

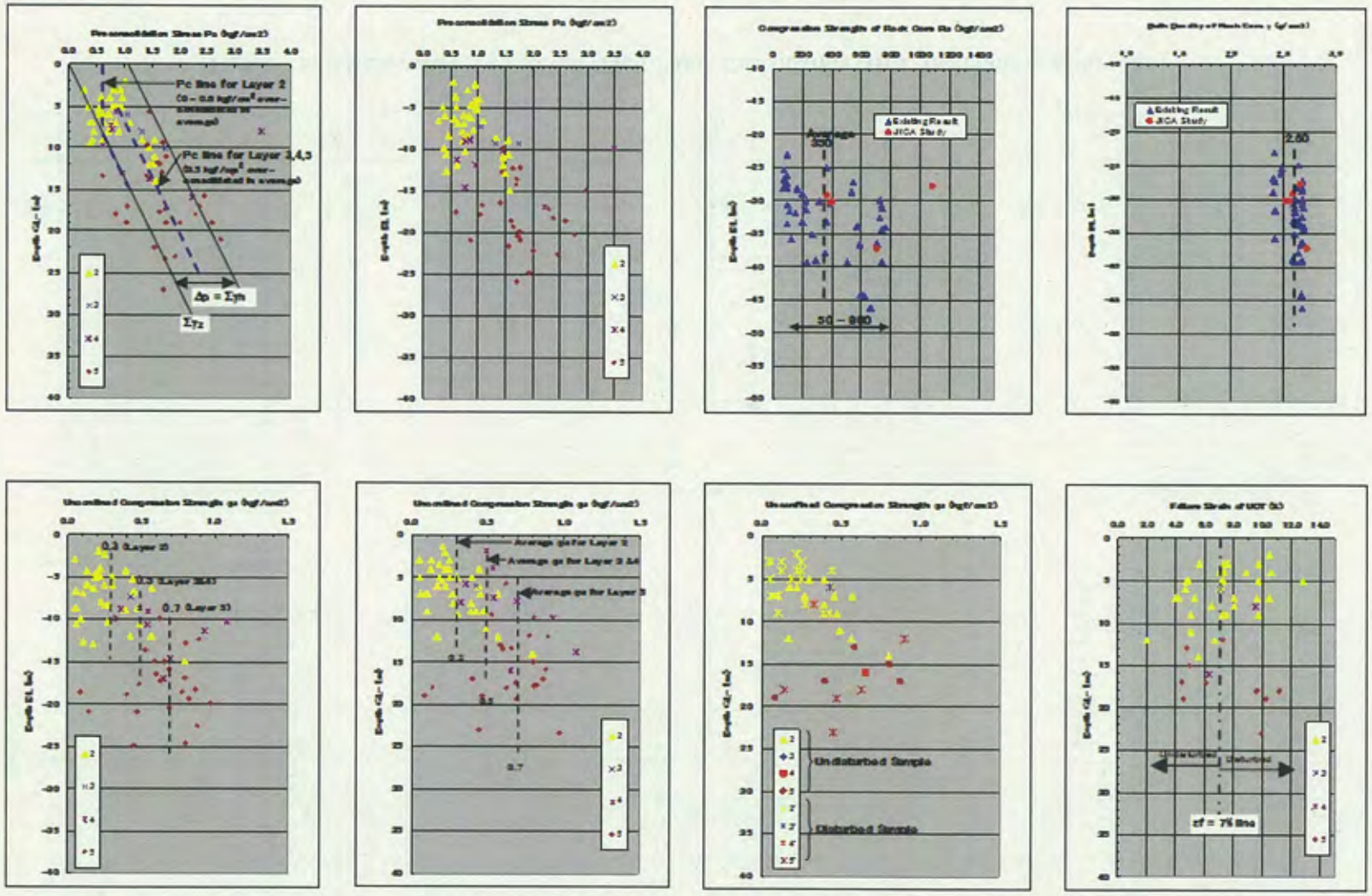


Figure 3 Soil Laboratory Test Result (Whole Area: Including existing data)

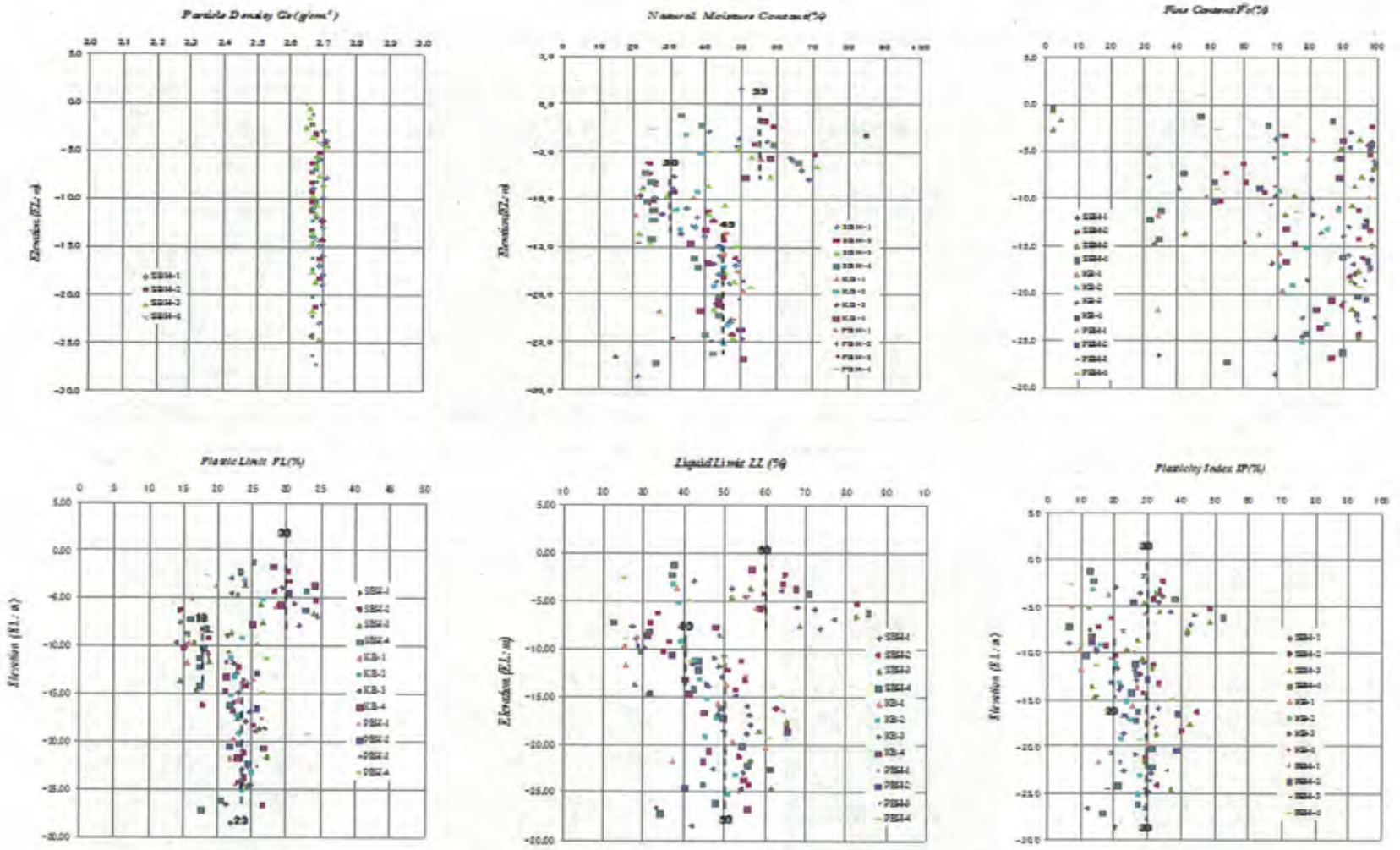


Figure 4 Soil Laboratory Test Result (First Phase Reclamation Area: Including existing data)

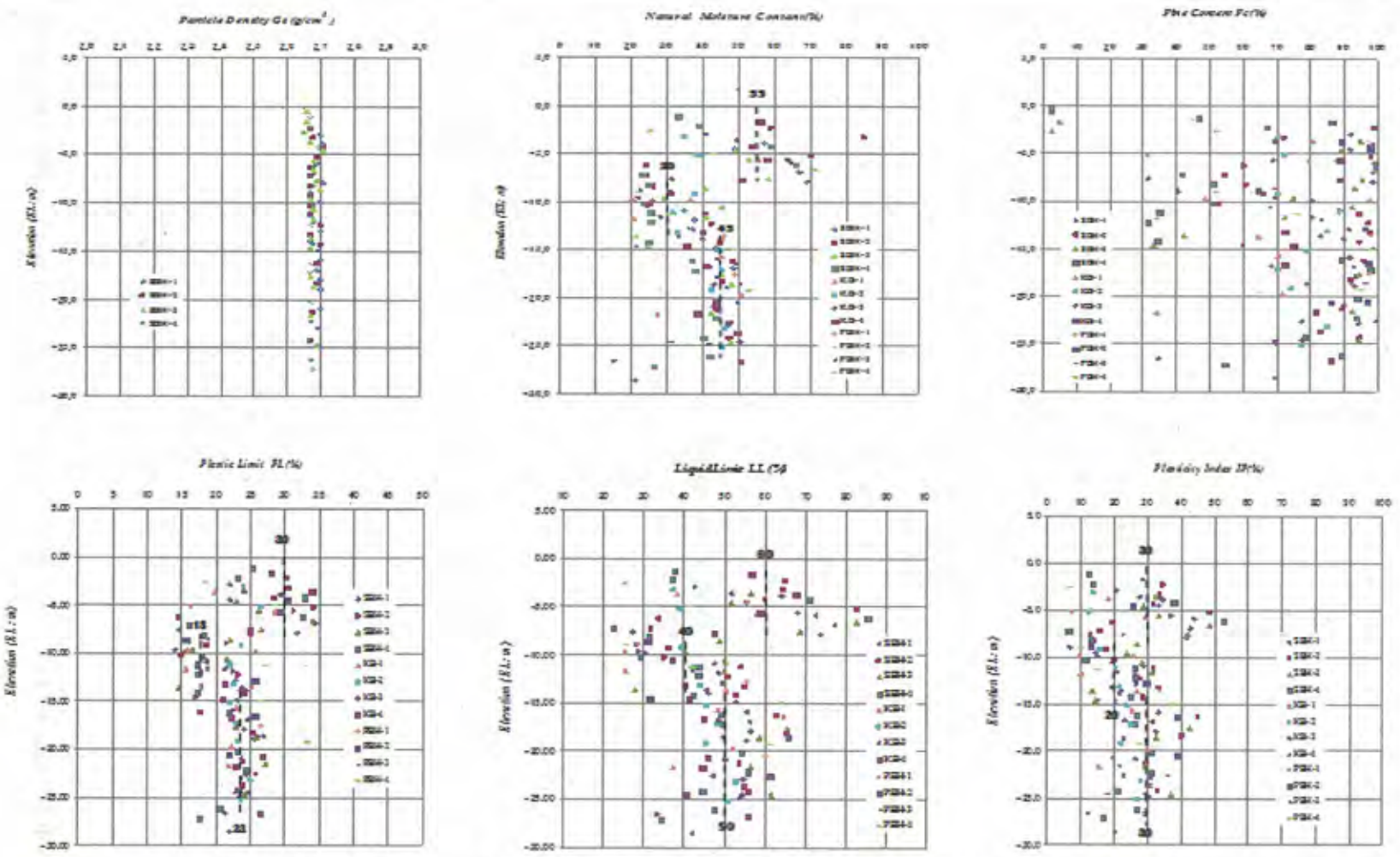


Figure 5 Soil Laboratory Test Result (First Phase Reclamation Area: Including existing data)

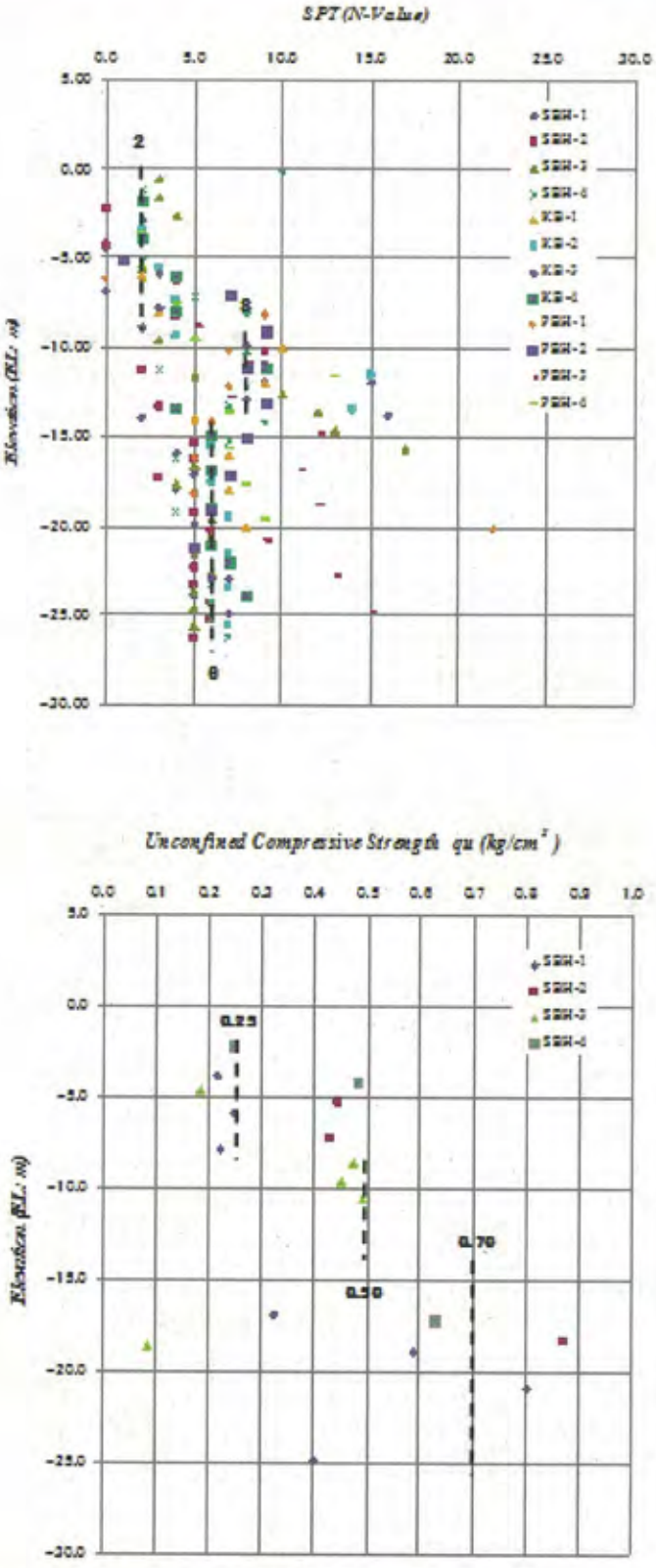


Figure 6 Soil Laboratory Test Result (First Phase Reclamation Area: Including existing data)

Appendix7-3

Correlations between Soil Properties

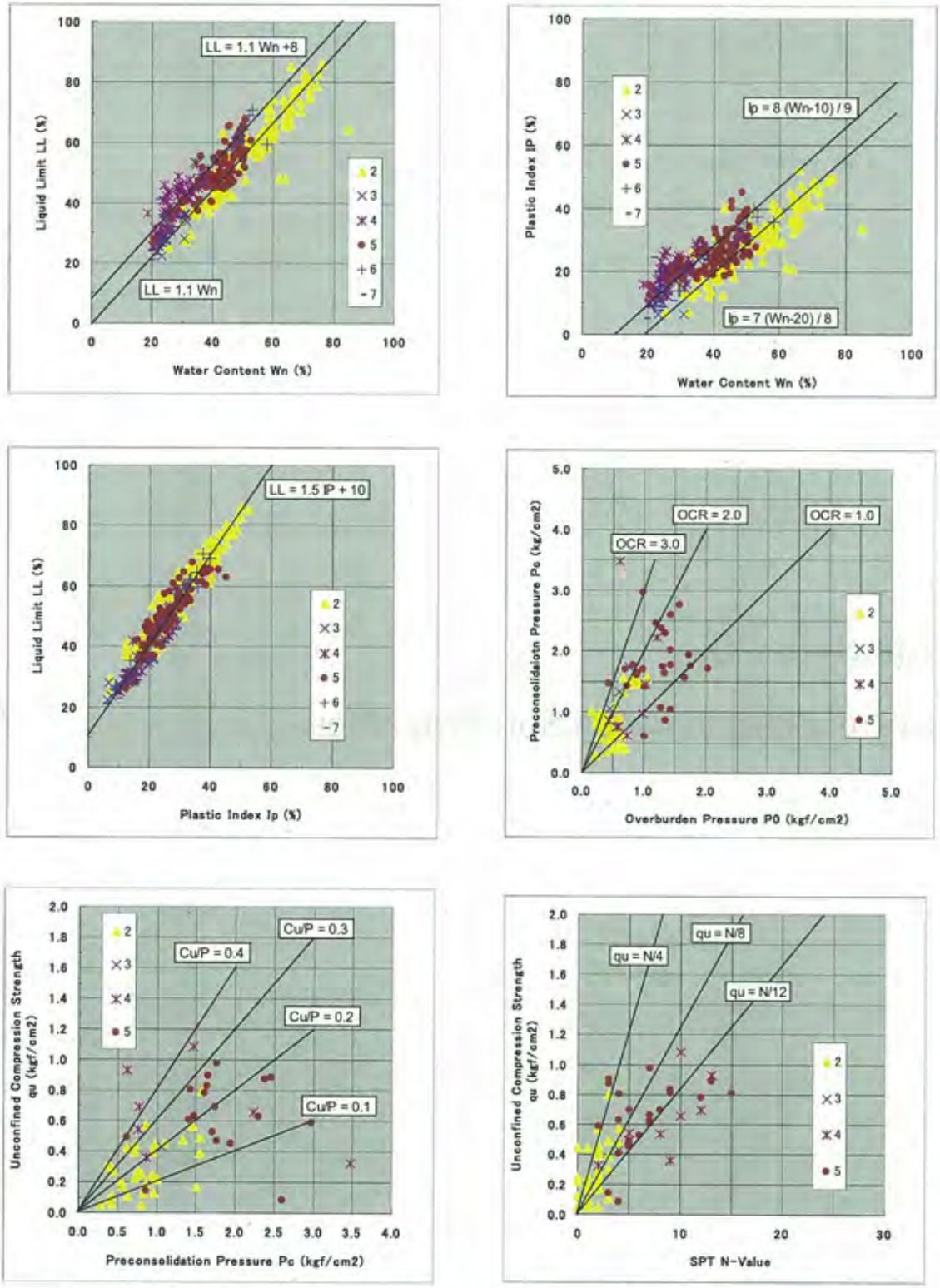


Figure 1 Correlations between Soil Properties (Whole Area: Including existing data)

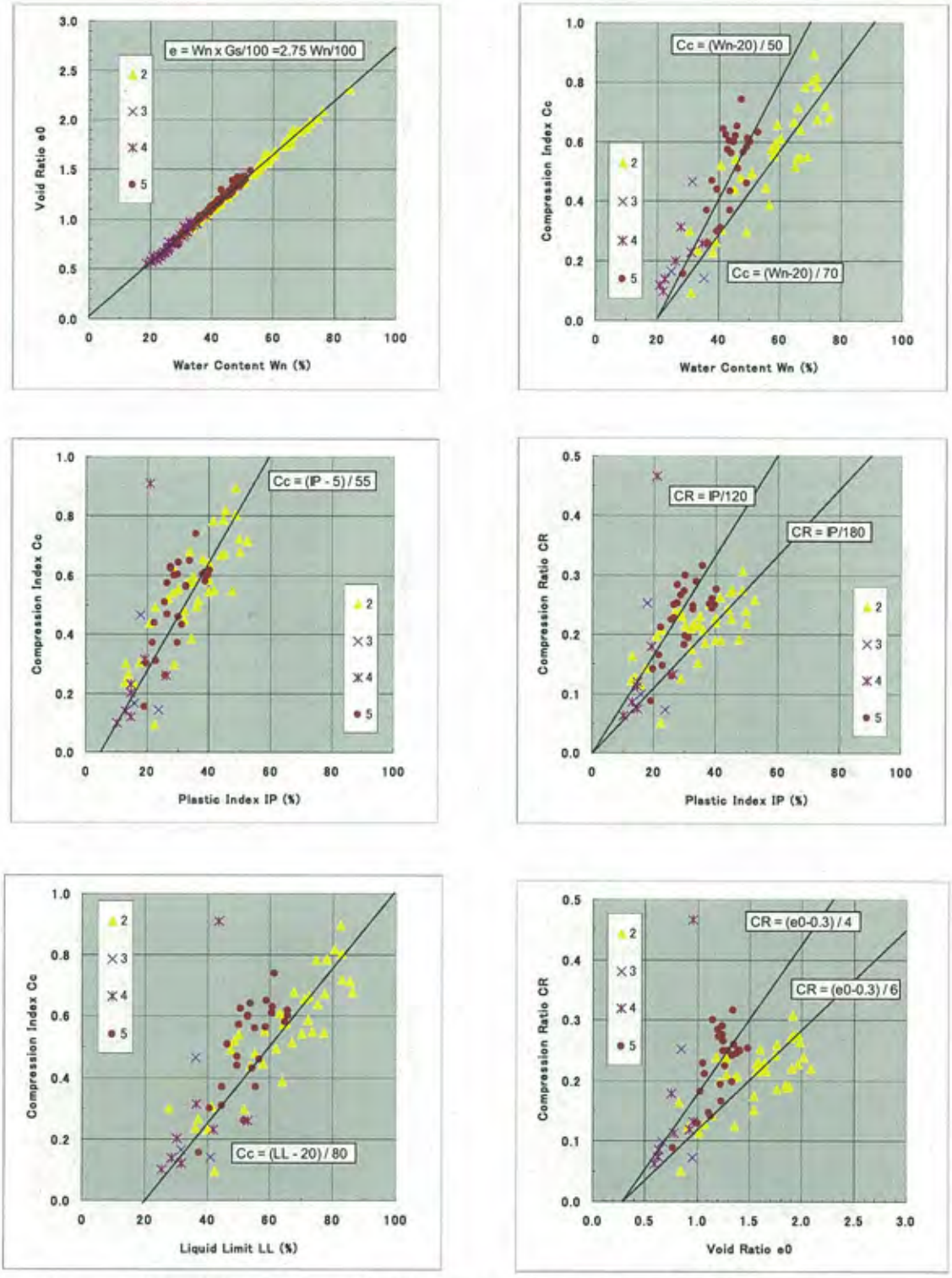


Figure 2 Correlations between Soil Properties (Whole Area: Including existing data)

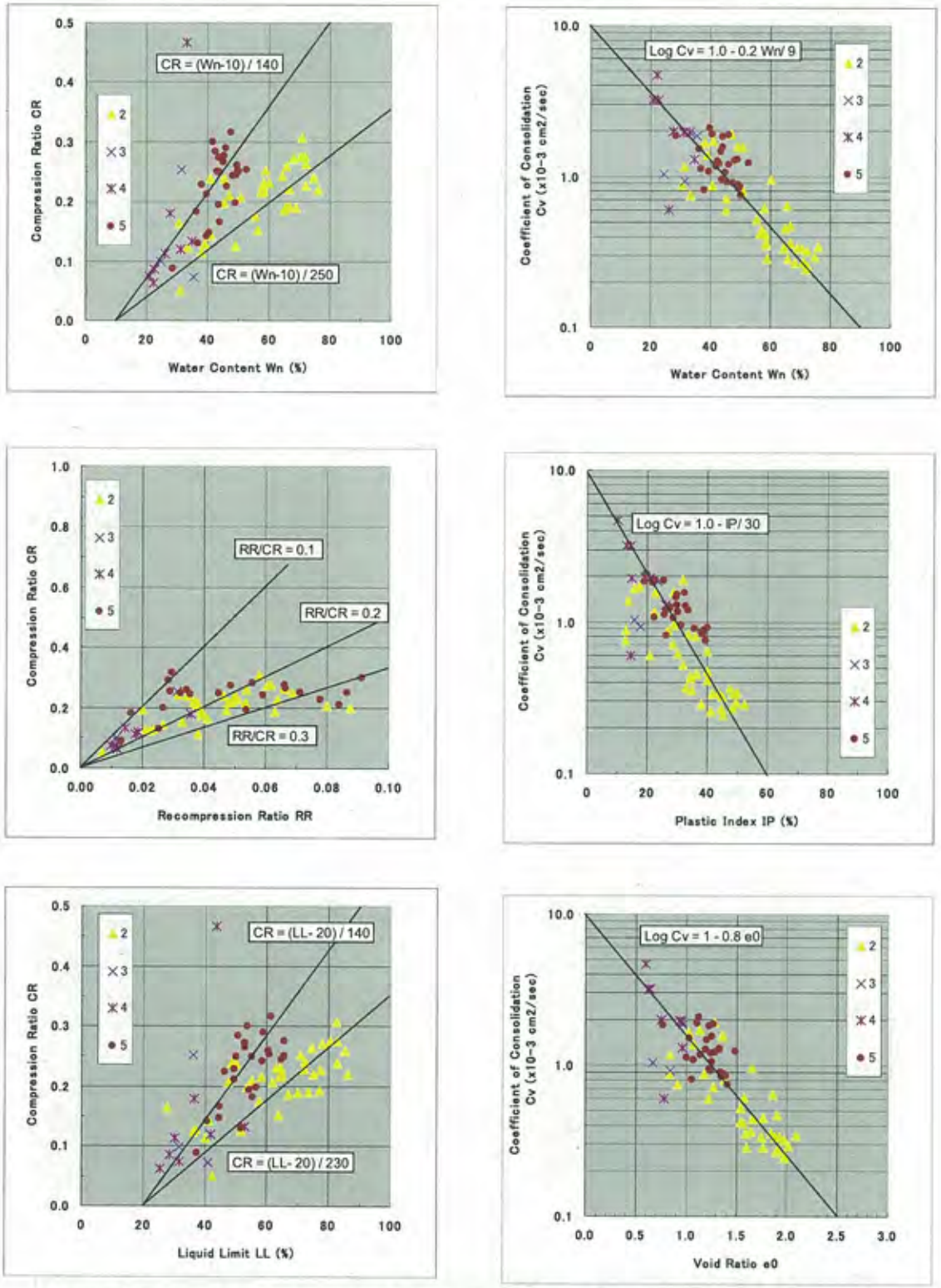


Figure 3 Correlations between Soil Properties (Whole Area: Including existing data)

Appendix7-4

Seabed Material Test Result

Table 1 Chemical Test Result of Seabed Materials - 1

Table 1.8.4.6 Chemical Test Result of Seabed Materials (Content unit ; mg/kg dry)

Sample No	Copper (Cu)	Lead (Pb)	Zinc (Zn)	Cadmium (Cd)	Arsenic (As)	Mercury (Hg)	Chromium (Cr)	Nickel (Ni)	Organic Substance	COD	Cyanide (CN)	Total Oil	Sulphate (SO_4^{2-})	Iron II (Fe^{2+})	IronIII (Fe^{3+})	Manganese (Mn)
01	37.52	70.92	147.27	1.86	1.59	1.08	64.00	35.13	1588	1250	0.25	59.93	4099	0.2	0.58	0.034
02	31.25	78.68	135.24	1.02	2.68	0.45	75.48	30.29	2328	1309	0.29	29.99	4085	0.17	0.67	0.032
03	69.06	85.42	200.38	1.10	3.48	1.15	62.09	47.05	7268	2559	0.21	149.81	4074	0.19	0.78	0.054
04	33.56	79.39	132.00	0.95	4.01	0.39	69.54	33.65	4089	2292	0.21	99.89	3621	0.15	0.61	0.031
05	39.59	65.68	152.25	0.78	1.72	0.65	55.00	44.30	7682	2215	0.26	99.99	3901	0.25	0.73	0.037
06	29.15	64.12	141.20	0.89	5.68	0.42	21.25	36.15	2835	1622	0.19	29.97	3826	0.21	1.08	0.034
07	18.48	85.11	239.88	0.98	6.36	0.79	67.10	38.20	6887	2887	0.25	99.98	3259	0.24	0.92	0.066
08	20.36	79.85	138.98	0.79	4.56	0.36	60.23	29.96	5925	2390	0.09	30.00	3245	0.32	0.77	0.039
09	10.00	38.90	59.90	1.26	1.74	0.35	89.31	43.00	4978	2367	0.21	49.95	3992	0.30	0.82	0.014
10	15.68	35.64	35.69	0.88	3.72	0.40	77.89	28.78	5247	2069	0.25	49.99	3871	0.48	1.24	0.003
11	24.75	48.79	181.04	0.88	1.77	0.84	78.56	25.34	3501	2067	0.22	29.96	4699	0.19	0.55	0.047
12	19.65	41.69	133.62	0.69	2.00	0.29	69.68	30.21	1647	1027	0.19	89.90	4515	0.18	0.52	0.031
13	45.92	69.87	234.42	0.76	2.56	0.82	46.68	39.00	5844	3111	0.16	499.82	4568	0.42	1.10	0.064
14	30.21	55.98	145.21	0.78	3.45	0.33	54.26	32.12	3320	2106	0.14	69.98	4498	0.35	0.88	0.001
15	42.47	71.44	164.91	1.44	2.09	0.61	59.05	36.39	6066	2925	0.22	30.00	5127	0.15	0.54	0.041
16	29.87	65.36	139.02	1.12	4.15	0.24	50.12	40.15	5930	2515	0.14	69.98	5019	0.39	0.75	0.033
17	27.53	54.98	183.32	1.39	1.78	0.65	80.59	50.60	4586	2255	0.21	399.98	4420	0.11	0.19	0.048
18	23.46	49.95	128.72	1.08	2.65	0.26	75.45	33.65	5682	3260	0.26	59.94	4395	0.27	0.52	0.029
19	56.81	84.00	120.14	0.80	2.52	0.95	72.58	39.11	2448	1771	0.21	229.67	5572	0.17	0.35	0.027
20	39.91	71.25	165.61	0.71	3.46	0.43	69.35	35.02	8305	3594	0.22	39.94	5412	0.21	0.32	0.022
21	7.62	56.29	194.98	0.65	1.84	1.03	28.57	39.24	5841	2739	0.21	179.62	5319	0.21	0.42	0.051
22	15.24	62.34	160.24	0.89	5.67	0.36	36.64	32.15	6811	2478	0.18	49.98	5065	0.22	0.29	0.042
23	20.71	43.65	152.29	0.23	1.49	0.60	77.44	52.90	6401	2255	0.16	109.97	4403	0.19	0.47	0.037
24	16.35	41.56	125.42	0.36	3.65	0.34	64.12	30.65	5784	2367	0.26	69.91	4501	0.20	0.46	0.029
25	40.95	59.70	170.40	0.91	1.92	0.75	42.50	37.00	4190	2627	0.22	19.95	4181	0.20	0.39	0.044
26	22.70	34.40	56.23	0.23	0.92	0.13	31.00	12.25	2226	878	0.04	59.96	1776	0.13	0.09	0.005
27	19.47	36.67	77.85	0.55	1.25	0.39	39.65	26.56	5169	2255	0.25	79.04	1812	0.32	0.75	0.012
28	26.95	29.98	156.98	0.61	1.19	0.33	45.68	22.39	6458	2590	0.15	29.29	1925	0.27	0.69	0.039
29	21.09	30.48	49.17	0.22	0.90	0.96	26.62	17.00	13464	990	0.07	169.64	6140	0.14	0.39	0.003
30	12.79	26.32	46.49	0.18	0.72	0.13	31.00	14.20	2339	1027	0.05	129.27	321	0.09	0.10	0.002
31	16.35	39.78	44.65	0.62	0.96	0.24	39.66	19.65	10726	4301	0.17	69.16	1569	0.15	0.36	0.003
32	21.45	45.68	71.45	0.55	1.26	0.19	55.64	15.69	6096	2069	0.26	19.76	258	0.05	0.16	0.012
33	21.95	41.94	52.73	0.78	0.70	0.37	70.90	15.72	7697	2143	0.16	149.65	8880	0.23	0.24	0.004
34	24.78	29.87	66.58	0.44	0.87	0.16	80.12	25.54	8761	2627	0.22	59.27	6830	0.22	0.29	0.008
35	8.39	17.43	37.40	0.37	0.91	0.14	27.35	10.04	1958	767	0.03	49.40	346	0.05	0.088	0.001

Table 2 Chemical Test Result of Seabed Materials - 2

Table 1.8.4.6 Chemical Test Result of Seabed Materials (Continued) (Content unit ; mg/kg dry)

Sample No.	Copper (Cu)	Lead (Pb)	Zinc (Zn)	Cadmium (Cd)	Arsenic (As)	Mercury (Hg)	Chromium (Cr)	Nickel (Ni)	Organic Substance	COD	Cyanide (CN)	Total Oil	Sulphate (SO_4^{2-})	Iron II (Fe^{2+})	IronIII (Fe^{3+})	Manganese (Mn)
36	7.15	25.64	51.29	0.49	3.02	0.21	59.69	25.65	13431	3483	0.11	49.56	4256	0.21	0.50	0.005
37	26.12	48.41	152.65	0.35	2.16	0.75	60.00	42.80	7830	3111	0.25	59.87	3366	0.26	0.60	0.059
38	22.19	40.35	92.65	0.54	2.96	0.28	69.54	29.69	6317	2478	0.21	59.93	3219	0.38	0.77	0.018
39	8.26	36.42	44.67	0.67	0.58	0.15	28.00	10.00	2070	841	0.03	29.97	1855	0.35	0.92	0.005
40	9.65	31.10	59.96	0.62	0.87	0.17	45.10	19.65	9157	3855	0.22	29.96	1800	0.57	0.76	0.005
41	42.60	67.48	141.21	1.11	0.67	0.60	60.84	30.19	4851	1994	0.25	109.89	5698	0.19	0.32	0.057
42	9.62	21.68	39.90	0.12	1.09	0.13	22.70	11.80	2575	878	0.05	19.76	535	0.06	0.11	0.002
43	15.42	15.89	65.25	0.38	1.98	0.25	65.59	26.69	1992	915	0.18	29.95	4912	0.26	0.52	0.009
44	14.68	35.64	49.69	0.71	2.65	0.16	45.67	29.12	1061	878	0.19	69.99	4568	0.22	0.39	0.003
45	21.45	51.95	93.87	0.93	0.67	0.41	28.00	20.00	556	432	0.26	29.64	8570	0.15	0.17	0.017
46	18.27	33.67	68.71	0.64	2.25	0.19	42.10	18.59	760	580	0.24	19.75	8211	0.14	0.22	0.009
47	18.26	34.51	76.96	0.71	1.16	0.35	55.53	21.16	2045	1250	0.21	19.48	7794	0.32	0.56	0.012
48	14.58	45.65	65.39	0.49	1.68	0.25	60.21	18.95	5247	1548	0.32	40.00	7502	0.28	0.59	0.009
49	25.47	50.02	124.16	0.91	1.15	0.56	57.92	16.15	6060	2887	0.19	19.96	5517	0.17	0.42	0.028
50	22.19	40.12	92.36	0.68	2.34	0.24	51.24	25.64	1768	1250	0.20	29.96	5029	0.27	0.44	0.017
51	10.50	34.67	61.35	0.86	0.85	0.27	44.71	19.53	1603	1027	0.22	19.76	4683	0.26	0.50	0.009
52	9.68	32.16	55.85	0.50	0.94	0.19	59.65	23.68	5080	2664	0.30	59.95	4544	0.35	0.56	0.005
53	20.54	57.45	99.23	0.48	1.04	0.48	19.11	27.50	2919	1622	0.22	29.93	5695	0.42	0.71	0.017
54	16.74	53.12	74.56	1.24	1.65	0.30	32.12	24.82	3136	1511	0.23	9.98	5591	0.29	0.52	0.012
55	20.84	81.75	89.07	1.17	1.34	0.46	62.00	34.75	7225	3816	0.16	39.66	5668	0.40	0.60	0.015
56	15.68	60.58	105.21	0.67	1.56	0.26	54.12	30.69	6449	3148	0.16	79.79	5825	0.29	0.65	0.021
57	17.46	28.84	56.06	0.42	1.74	0.39	56.83	27.00	2276	1511	0.22	29.83	5062	0.39	0.80	0.005
58	21.22	26.12	91.23	0.56	3.01	0.33	50.29	33.84	2691	1622	0.22	39.91	2895	0.41	0.82	0.018
59	25.00	46.76	115.31	0.61	1.35	0.38	58.83	34.37	2138	1399	0.14	49.87	5756	0.36	0.68	0.023
60	18.65	30.68	85.64	1.00	2.56	0.24	45.56	37.12	3815	2143	0.08	59.78	5656	0.25	0.57	0.015
61	30.55	77.85	142.25	1.10	0.99	0.55	67.49	45.88	1445	1027	0.22	29.95	8504	0.24	0.29	0.054
62	25.65	56.98	76.89	0.76	0.87	0.31	55.69	38.00	5700	2367	0.22	39.95	8125	0.22	0.22	0.012
63	20.57	45.89	82.84	1.30	1.59	0.59	32.51	31.40	2492	1250	0.21	20.00	6650	0.29	0.58	0.016
64	16.87	37.84	69.95	0.91	1.69	0.50	37.36	29.56	5261	2143	0.21	29.70	6425	0.18	0.40	0.009
65	17.61	36.51	100.86	0.66	0.91	0.59	57.40	39.50	6149	2813	0.15	49.98	3399	0.26	0.52	0.020
66	25.65	45.98	79.65	0.75	1.54	0.20	60.06	30.00	13677	4004	0.12	59.92	5512	0.19	0.42	0.012
67	28.54	49.90	116.11	0.65	0.92	0.70	62.80	21.67	7624	2887	0.27	59.90	5067	0.17	0.48	0.003
68	21.84	35.69	65.89	0.81	1.72	0.34	54.25	25.46	9296	3855	0.21	78.92	5856	0.09	0.52	0.009
69	16.71	62.92	75.66	0.79	0.82	0.45	48.55	17.68	6812	3111	0.14	49.94	4214	0.19	0.55	0.012
70	14.12	57.45	70.12	0.62	0.96	0.41	49.69	19.65	8587	2962	0.13	39.95	4018	0.21	0.42	0.010

Table 3 Chemical Test Result of Seabed Materials - 3

Table 1.8.4.6 Chemical Test Result of Seabed Materials (Continued) (Content unit ; mg/kg dry)

Sample No.	Copper (Cu)	Lead (Pb)	Zinc (Zin)	Cadmium (Cd)	Arsenic (As)	Mercury (Hg)	Chromium (Cr)	Nickel (Ni)	Organic Substance	COD	Cyanide (CN)	Total Oil	Sulphate (SO_4^{2-})	Iron II (Fe^{2+})	IronIII (Fe^{3+})	Manganese (Mn)
71	26.47	36.31	112.85	0.75	0.51	0.54	60.70	25.98	4762	1920	0.21	19.95	4362	0.25	0.29	0.028
72	22.59	35.10	80.20	0.49	0.78	0.39	71.28	21.03	6885	1846	0.19	129.78	4215	0.29	0.52	0.013
73	24.76	56.23	111.46	0.83	0.68	0.41	58.90	16.32	8264	2180	0.15	29.94	4526	0.21	0.36	0.027
74	21.02	45.69	79.98	0.61	0.79	0.33	60.39	19.85	7867	2106	0.14	39.95	4259	0.19	0.32	0.012
75	14.62	95.46	249.35	1.48	1.28	1.47	50.40	37.27	6938	1994	0.22	29.94	6897	0.24	0.40	0.034
76	20.65	67.78	150.65	0.51	1.24	0.38	59.69	25.69	9728	3185	0.21	19.93	6711	0.16	0.25	0.038
77	27.02	48.30	123.21	0.95	1.16	0.46	33.86	29.20	5556	2255	0.13	69.91	6971	0.11	0.26	0.029
78	19.97	51.29	126.65	0.45	2.00	0.40	45.36	32.65	8981	2925	0.20	29.93	7014	0.25	0.23	0.027
79	28.82	39.81	67.61	0.47	1.05	1.32	46.64	29.80	6648	2739	0.13	19.97	4321	0.32	0.31	0.009
80	20.34	41.52	115.98	0.60	1.34	0.50	40.12	33.12	9030	3185	0.16	49.94	4212	0.27	0.20	0.024

Table 4 Soil Laboratory Test Result (Seabed Material) - 1

No.	Sample No.	Coodinates		Percent passed sieve size (mm)								Natural moisture content w (%)	Atterberg Limits			Particle density Δ (g/cm³)	Soil group	Description
		E	N	19	9.5	4.75	2.00	0.85	0.425	0.25	0.075	< 0.005		Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Consistency (B)			
1	SBS 1	2304941	618222				100.00	99.8	99.32	97.93	68.00	30.72	75.86	34.32	18.87	15.45	3.69	2.68	CL	Brownish grey, sandy loan clay
2	SBS 2	2303493	618278				100.0	99.90	99.80	99.68	97.67	20.35	55.80	28.44	18.16	10.28	3.66	2.69	CL	Brownish grey, loan clay with shell
3	SBS 3	2303780	619704				100.0	99.96	99.88	99.78	97.56	47.07	95.74	56.02	26.62	29.40	2.35	2.67	CH	Brownish grey, fat clay
4	SBS 4	2302449	619374				100.0	99.76	99.62	99.42	94.27	38.82	92.99	50.21	23.50	26.71	2.60	2.67	CH	Brownish grey, fat clay
5	SBS 5	2302673	620461				100.0	99.7	99.24	98.05	78.34	34.33	87.04	51.63	24.41	27.22	2.30	2.68	CH	Brownish grey, fat clay with sand
6	SBS 6	2301889	621357				100.0	99.5	99.00	95.00	54.34	16.69	54.88	34.64	19.37	15.27	2.33	2.68	CL	Brownish grey, sandy loan clay
7	SBS 7	2301382	620674		100.0	81.4	64.6	57.8	51.19	39.82	31.59	6.63	33.86	24.51	17.23	7.28	2.28	2.70	SC	Brownish grey, clayey sand with gravel, with shell
8	SBS 8	2300870	619992				100.0	99.9	99.50	97.89	88.24		88.25	53.92	26.46	27.46	2.25	2.68	CH	Brownish grey, fat clay
9	SBS 9	2300251	619037				100.0	99.9	99.50	97.47	91.21		81.08	40.42	21.51	18.91	3.15	2.68	CL	Brownish grey, loan clay
10	SBS 10	2299847	616832				100.0	99.8	98.60	97.57	57.74	9.41	47.84	28.60	18.76	9.84	2.96	2.67	CL	Brownish grey, sandy loan clay
11	SBS 11	2299300	614639				100.0	99.8	99.28	97.63	61.47	8.59	33.29	25.03	18.41	6.62	2.25	2.70	CL	Brownish grey, sandy loan clay
12	SBS 12	2299848	620007				100.0	96.1	92.56	86.25	60.31	17.24	55.62	35.49	19.44	16.05	2.25	2.67	CL	Brownish grey, sandy loan clay with shell
13	SBS 13	2300352	621289				100.0	99.2	98.86	98.21	88.37		99.50	63.66	27.10	36.56	1.98	2.67	CH	Brownish grey, fat clay
14	SBS 14	2300500	622118				100.0	98.3	97.40	96.21	52.22	22.27	58.10	32.35	18.59	13.76	2.87	2.68	CL	Brownish grey, sandy loan clay
15	SBS 15	2299828	622588				100.0	99.2	98.80	98.27	89.58		91.90	60.68	26.36	34.32	1.91	2.68	CH	Brownish grey, fat clay
16	SBS 16	2299321	621905				100.0	99.6	98.98	97.48	85.84	32.82	94.30	56.58	25.98	30.60	2.23	2.67	CH	Brownish grey, fat clay
17	SBS 17	2298814	621223				100.0	99.9	99.56	98.43	47.80	23.08	67.35	34.41	19.35	15.06	3.19	2.67	SC	Brownish grey, clayey sand
18	SBS 18	2298281	620072					100.0	99.94	99.82	86.70	37.01	82.22	46.30	22.81	23.49	2.53	2.69	CL	Brownish grey, loan clay
19	SBS 19	2297854	617759				100.0	99.8	99.42	98.51	88.86	37.32	75.03	51.95	22.63	29.32	1.79	2.69	CH	Brownish grey, fat clay
20	SBS 20	2297399	615499				100.0	99.9	99.84	99.48	85.81	33.40	95.70	58.11	25.07	33.04	2.14	2.71	CH	Brownish grey, fat clay
21	SBS 21	2297812	621879				100.0	99.8	99.56	98.82	48.42	24.91	66.47	33.59	20.00	13.59	3.42	2.68	SC	Brownish grey, clayey sand
22	SBS 22	2298318	622561				100.0	100.0	99.82	99.32	88.93	30.48	95.32	59.59	22.67	36.92	1.97	2.71	CH	Brownish grey, fat clay
23	SBS 23	2298825	623244				100.0	99.6	99.16	98.62	88.90	36.56	93.81	51.09	25.16	25.93	2.65	2.67	CH	Brownish grey, fat clay
24	SBS 24	2297862	623958				100.0	100.0	99.92	99.76	98.42	29.53	84.52	45.10	21.89	23.21	2.70	2.68	CL	Brownish grey, loan clay
25	SBS 25	2297355	623275				100.0	99.7	99.66	99.50	96.16	32.30	95.11	65.88	27.47	38.41	1.76	2.67	CH	Brownish grey, fat clay
26	SBS 26	2296848	622593				100.0	98.9	98.77	97.68	0.81							2.66	SP	Brownish grey, poorly graded sand
27	SBS 27	2296000	621213					100.0	99.82	99.58	77.37	27.33	73.63	36.55	20.34	16.21	3.29	2.68	CL	Brownish grey, loan clay with sand

Table 5 Soil Laboratory Test Result (Seabed Material) – 2

No.	Sample No.	Coodinates		Percent passed sieve size (mm)								Natural moisture content w (%)	Atterberg Limits			Particle density Δ (g/cm³)	Soil group	Description
		E	N	19	9.5	4.75	2.00	0.85	0.425	0.25	0.075		Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip(%)			
28	SBS 28	2206099	619024				100.0	99.8	99.60	98.70	45.22	64.28	46.96	23.65	23.31	1.74	2.67	SC	Brownish grey, clayey sand
29	SBS 29	2205256	616811				100.0	99.6	99.46	99.26	97.35	96.63	58.43	24.83	33.60	2.14	2.67	CH	Brownish grey, fat clay
30	SBS 30	2206984	623309				100.0	99.6	98.82	97.06	1.42						2.66	SP	Brownish grey, poorly graded sand
31	SBS 31	2206391	623991				100.0	99.9	99.82	99.70	87.58	33.53	87.87	47.57	25.22	22.35	2.80	2.68	CL	Brownish grey, lean clay
32	SBS 32	2206898	624674				100.0	99.8	99.72	99.56	87.55		91.25	46.48	24.72	21.76	3.06	2.68	CL	Brownish grey, lean clay
33	SBS 33	2205935	625390				100.0	99.7	99.50	98.25	48.32	20.01	57.01	36.23	19.76	16.47	2.26	2.67	SC	Brownish grey, clayey sand
34	SBS 34	2206428	624707				100.0	99.8	99.72	99.48	88.66		97.31	40.15	21.40	18.75	4.05	2.68	CL	Brownish grey, lean clay
35	SBS 35	2204921	624025				100.0	99.6	98.35	96.27	2.16							2.66	SP	Brownish grey, poorly graded sand
36	SBS 36	2202847	618388				100.0	99.3	99.24	99.10	98.90	34.51	92.39	52.53	24.26	28.27	2.41	2.68	CH	Brownish grey, fat clay
37	SBS 37	2203314	620566				100.0	99.8	99.64	99.26	84.51	18.58	60.58	36.38	19.44	16.94	2.43	2.68	CL	Brownish grey, lean clay with sand
38	SBS 38	2203713	622753				100.0	100.0	99.74	99.42	87.87	17.30	60.51	37.60	20.45	17.15	2.34	2.69	CL	Brownish grey, lean clay
39	SBS 39	2203958	624741				100.0	99.2	99.10	96.97	3.12							2.65	SP	Brownish grey, poorly graded sand
40	SBS 40	2204485	625423				100.0	99.7	99.44	99.12	68.41	27.70	72.83	35.14	18.62	16.52	3.28	2.71	CL	Brownish grey, sandy lean clay
41	SBS 41	2204972	626106				100.0	99.5	98.60	96.98	83.52	21.72	59.92	31.01	16.93	14.08	3.05	2.67	CL	Brownish grey, sandy lean clay
42	SBS 42	2204008	626820				100.0	99.4	99.00	97.22	1.96							2.65	SP	Brownish grey, poorly graded sand
43	SBS 43	2203501	626138				100.0	99.9	99.78	99.40	71.93	17.68	80.40	34.69	19.15	15.54	3.94	2.68	CL	Brownish grey, sandy lean clay
44	SBS 44	2202995	625458				100.0	99.8	99.66	99.42	45.55	11.16	44.21	24.82	19.58	5.24	4.70	2.67	SC	Brownish grey, clayey sand
45	SBS 45	2200397	619922				100.0	99.6	99.06	98.60	63.40	16.00	45.20	30.66	18.06	12.60	2.15	2.70	CL	Brownish grey, sandy lean clay
46	SBS 46	2200810	622111				100.0	99.5	98.98	98.62	67.87	19.94	46.96	33.00	18.65	14.35	1.97	2.70	CL	Brownish grey, sandy lean clay
47	SBS 47	2201105	624298				100.0	99.8	99.34	98.94	65.80	19.97	49.65	28.87	18.81	10.06	3.07	2.71	CL	Brownish grey, sandy lean clay
48	SBS 48	2202032	626171				100.0	96.4	93.37	84.95	49.81	27.56	60.03	35.82	20.18	15.64	2.55	2.67	SC	Brownish grey, clayey sand
49	SBS 49	2202538	626853				100.0	100.0	99.84	99.64	98.01	15.97	94.39	47.47	20.78	26.69	2.76	2.68	CL	Brownish grey, lean clay
50	SBS 50	2203045	627536				100.0	99.7	99.22	98.72	66.44	22.36	46.86	29.66	17.17	12.49	2.38	2.69	CL	Brownish grey, sandy lean clay
51	SBS 51	2202082	628251				100.0	100.0	99.92	99.82	98.70	19.02	39.08	23.62	19.08	4.54	4.41	2.71	CL	Brownish grey, lean clay
52	SBS 52	2201575	627568				100.0	100.0	99.88	99.74	97.86	14.90	92.53	45.73	22.76	22.97	3.04	2.70	CL	Brownish grey, lean clay
53	SBS 53	2201068	626687					100.0	99.96	99.86	98.68	19.28	48.27	34.42	17.91	16.51	1.84	2.71	CL	Brownish grey, lean clay
54	SBS 54	2200105	627602				100.0	99.2	98.37	97.23	77.36	26.19	65.51	34.48	19.51	14.97	3.07	2.68	CL	Brownish grey, lean clay with sand

Table 6 Soil Laboratory Test Result (Seabed Material) – 3

No.	Sample No.	Coodinates		Percent passed sieve size (mm)							Natural moisture content w (%)	Atterberg Limits				Particle density Δ (g/cm³)	Soil group	Description
		E	N	19	9.5	4.75	2.00	0.85	0.425	0.25	0.075	< 0.005		Liquid limit W_L(%)	Plastic limit Wp(%)	Plasticity index Ip (%)	Consistency (B)			
55	SBS 55	2290611	628284				100.0	99.9	99.74	99.64	97.59		89.06	48.98	22.84	26.14	2.53	2.69	CL	Brownish grey, lean clay
56	SBS 56	2291118	628967				100.0	99.9	99.74	99.62	99.36		93.60	73.54	28.77	44.77	1.45	2.67	CH	Brownish grey, fat clay
57	SBS 57	2290126	629704				100.0	99.7	99.04	97.32	85.16	29.11	74.65	38.13	20.43	17.70	3.06	2.68	CL	Brownish grey, lean clay
58	SBS 58	2289619	629021				100.0	99.6	99.14	98.45	64.05	30.65	72.73	38.40	20.13	18.27	2.88	2.69	CL	Brownish grey, sandy lean clay
59	SBS 59	2289112	628340				100.0	99.6	99.14	98.45	64.05	30.65	76.12	41.74	20.28	21.46	2.60	2.70	CL	Brownish grey, sandy lean clay
60	SBS 60	2288614	629577				100.0	99.7	99.52	99.38	97.23	38.48	96.85	56.98	26.18	30.80	2.29	2.69	CH	Brownish grey, fat clay
61	SBS 61	2288229	624389				100.0	99.8	99.52	99.48	97.03	38.77	96.09	57.40	23.96	33.44	2.16	2.68	CH	Brownish grey, fat clay
62	SBS 62	2287776	622199				100.0	99.8	99.44	99.34	96.24	41.29	95.98	54.78	25.16	29.62	2.39	2.69	CH	Brownish grey, fat clay
63	SBS 63	2288164	629044				100.0	99.4	98.57	97.03	82.38	29.21	84.07	42.90	21.22	21.68	2.90	2.70	CL	Brownish grey, lean clay with sand
64	SBS 64	2288870	629726				100.0	99.5	98.96	97.91	79.80	30.24	79.57	38.54	19.59	18.95	3.17	2.68	CL	Brownish grey, lean clay with sand
65	SBS 65	2289177	630409				100.0	99.8	99.36	98.51	91.67		89.25	60.82	23.09	37.73	1.75	2.68	CH	Brownish grey, fat clay
66	SBS 66	2288214	631124				100.0	99.7	99.56	99.46	99.24		95.93	54.77	24.59	30.18	2.36	2.68	CH	Brownish grey, fat clay
67	SBS 67	2287707	630441				100.0	99.8	99.64	99.60	99.42		95.45	61.33	28.16	33.17	2.03	2.68	CH	Brownish grey, fat clay
68	SBS 68	2287200	629759				100.0	99.9	99.82	99.70	98.38	35.14	98.18	56.70	27.02	29.68	2.40	2.70	CH	Brownish grey, fat clay
69	SBS 69	2286477	627933				100.0	99.9	99.62	99.56	99.52		95.28	63.08	22.30	40.78	1.79	2.67	CH	Brownish grey, fat clay
70	SBS 70	2286079	625745				100.0	99.9	99.70	99.56	99.54	38.09	93.92	62.13	25.13	37.00	1.86	2.67	CH	Brownish grey, fat clay
71	SBS 71	2285629	623487				100.0	99.9	99.86	99.66	98.64	29.39	94.67	64.05	26.25	37.80	1.81	2.68	CH	Brownish grey, fat clay
72	SBS 72	2284080	624137				100.0	100.0	99.54	99.46	99.22	26.38	95.82	65.24	25.79	39.45	1.78	2.68	CH	Brownish grey, fat clay
73	SBS 73	2284416	628552				100.0	99.2	98.41	96.23	80.56	36.89	93.56	60.19	26.58	33.61	1.99	2.70	CH	Brownish grey, fat clay with sand
74	SBS 74	2285813	630789				100.0	100.0	99.04	98.88	98.84	37.68	97.16	60.95	26.47	34.48	2.05	2.67	CH	Brownish grey, fat clay
75	SBS 75	2286319	631471				100.0	99.8	99.38	99.30	99.20	43.82	94.72	59.54	21.67	37.87	1.93	2.69	CH	Brownish grey, fat clay
76	SBS 76	2286826	632154				100.0	99.6	98.88	97.81	94.82	37.00	95.61	61.45	22.90	38.55	1.89	2.68	CH	Brownish grey, fat clay
77	SBS 77	2284555	631944				100.0	99.3	97.53	93.45	87.51	45.43	95.64	69.70	29.51	40.19	1.65	2.68	CH	Brownish grey, fat clay
78	SBS 78	2284724	635723				100.0	100.0	99.94	99.88	98.86	45.03	96.60	55.79	27.73	28.06	2.45	2.70	CH	Brownish grey, fat clay
79	SBS 79	2287599	635520				100.0	100.0	99.62	99.50	99.42	46.91	93.52	56.62	25.30	31.32	2.18	2.68	CH	Brownish grey, fat clay
80	SBS 80	2289590	635533					100.0	99.96	99.94	99.82		97.78	63.84	28.85	34.99	1.97	2.70	CH	Brownish grey, fat clay

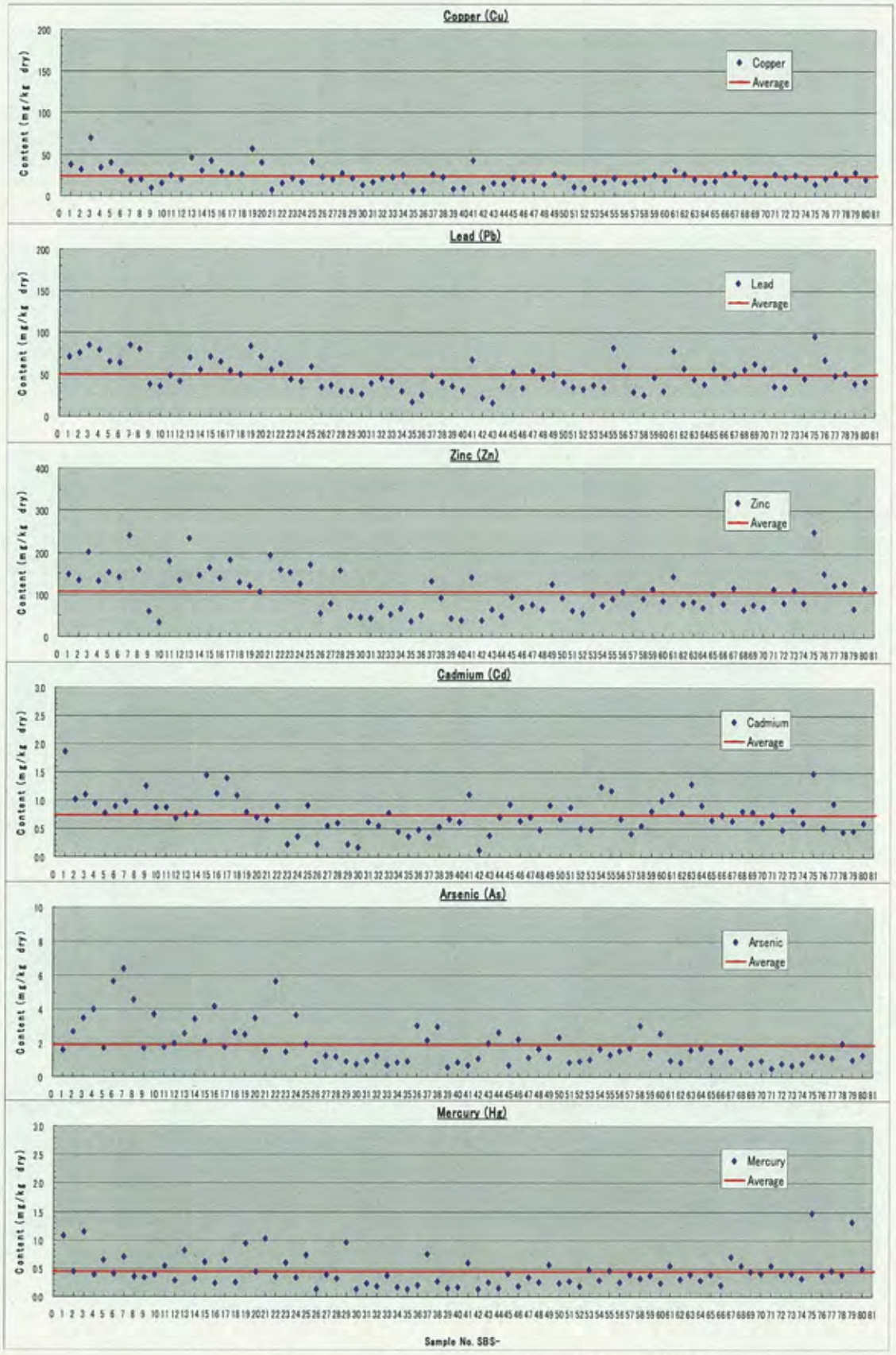


Figure 1 Chemical Test Result of Seabed Material (1)

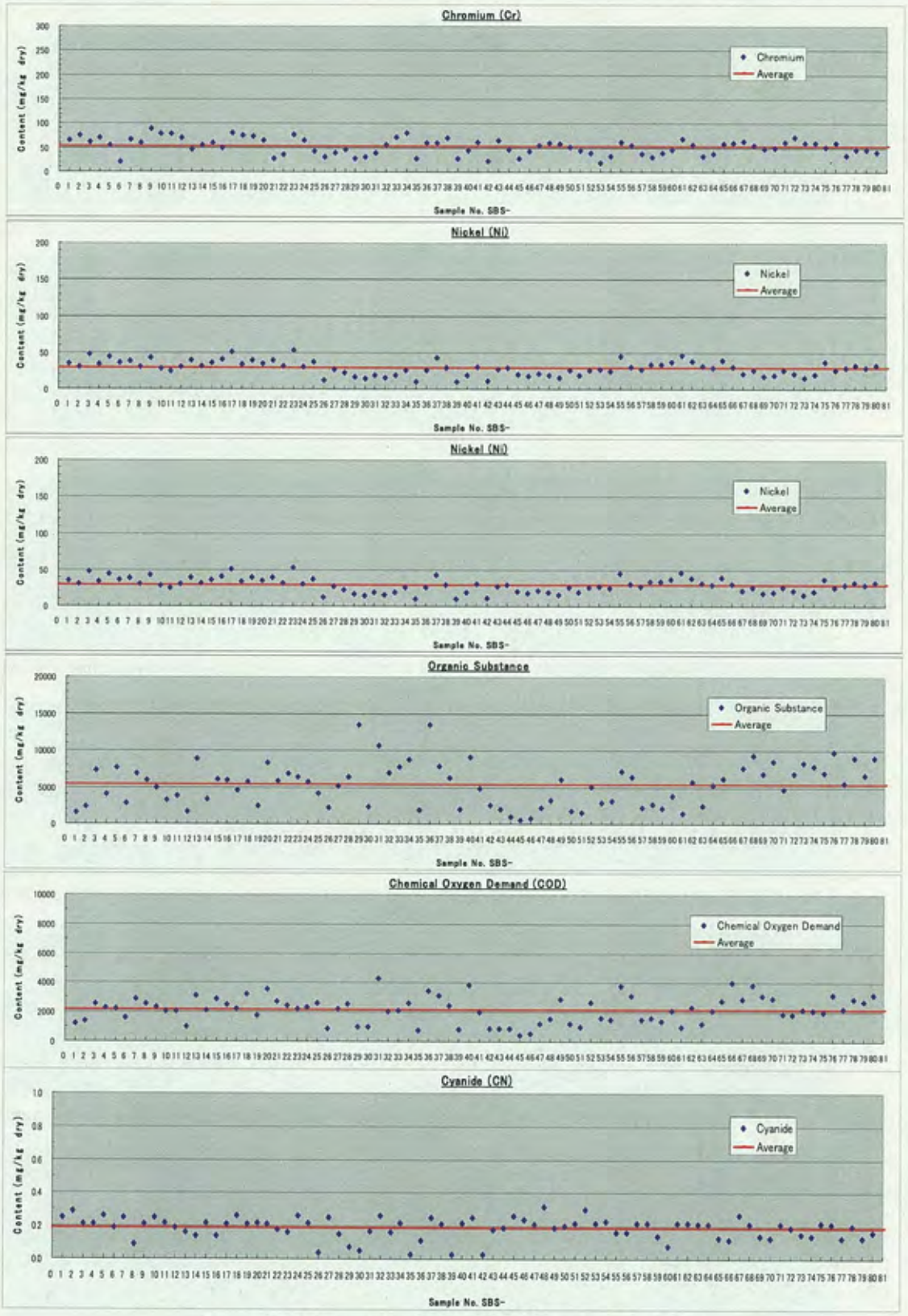


Figure 2 Chemical Test Result of Seabed Material (2)

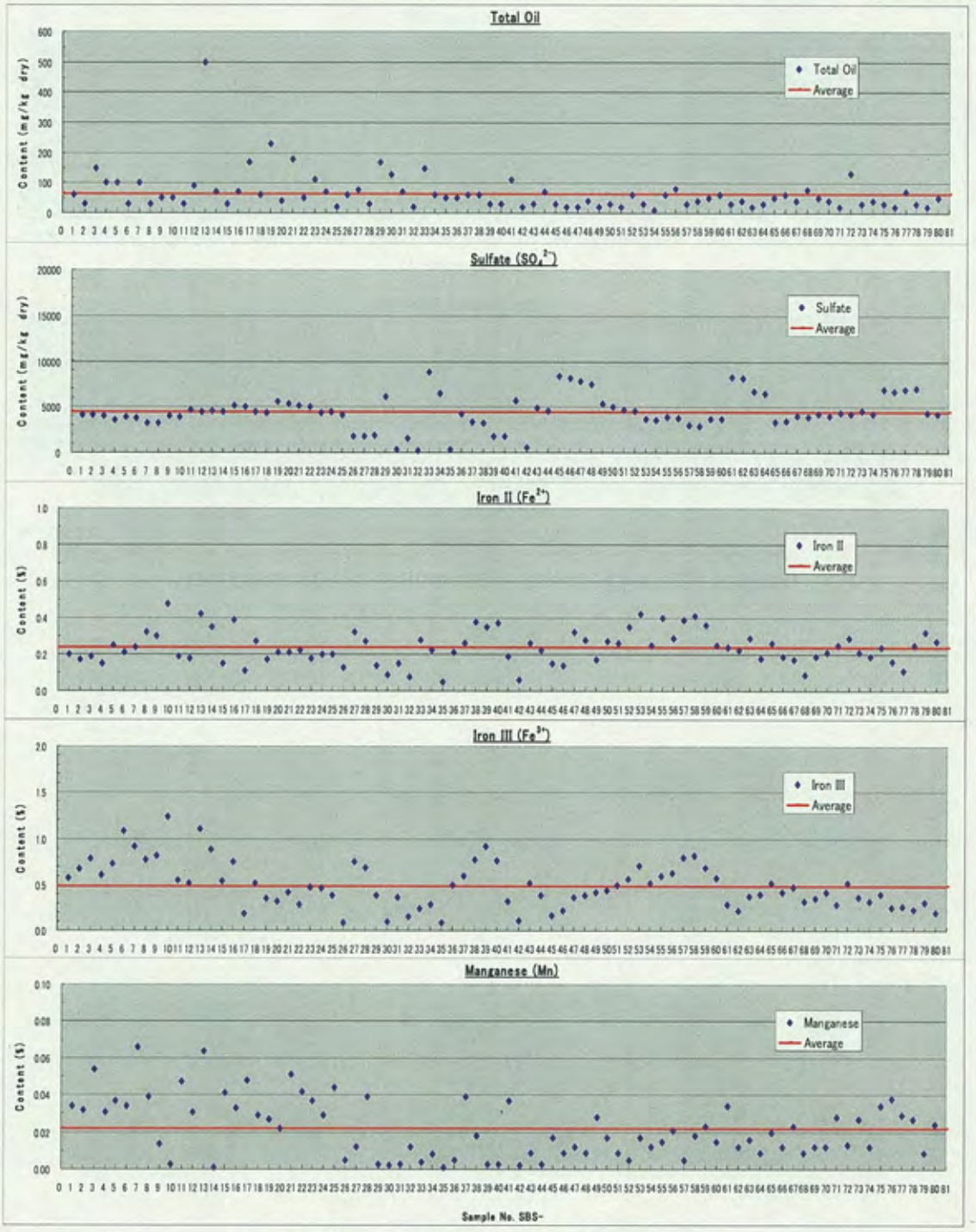


Figure 3 Chemical Test Result of Seabed Material (3)

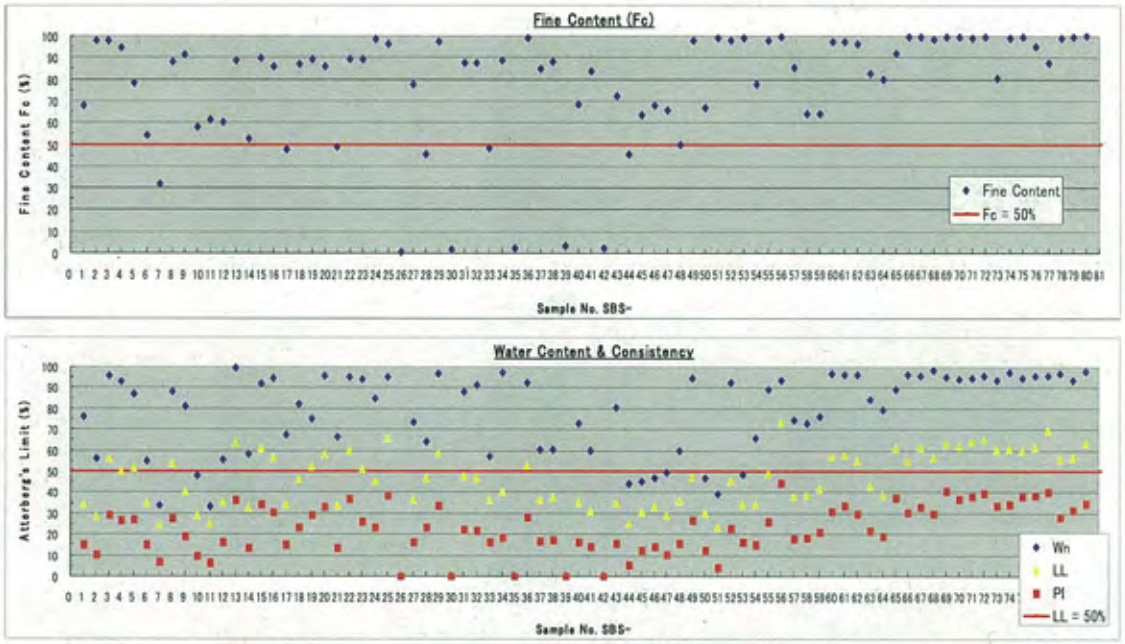


Figure 4 Physical Property Test Result of Seabed material (1)

Appendix7-5

Bathymetric Survey Result

Appendix7-6

Current Observation Result

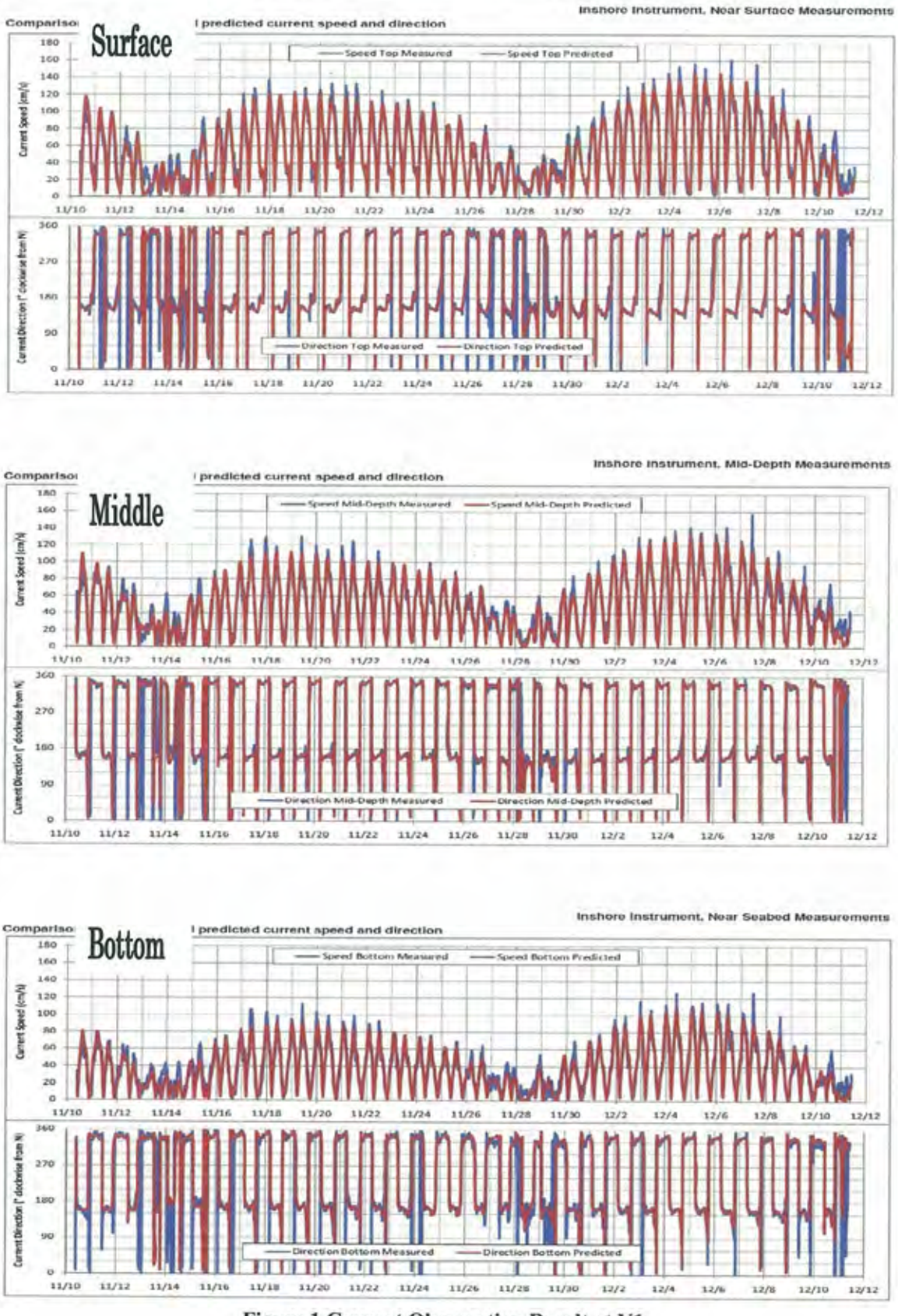
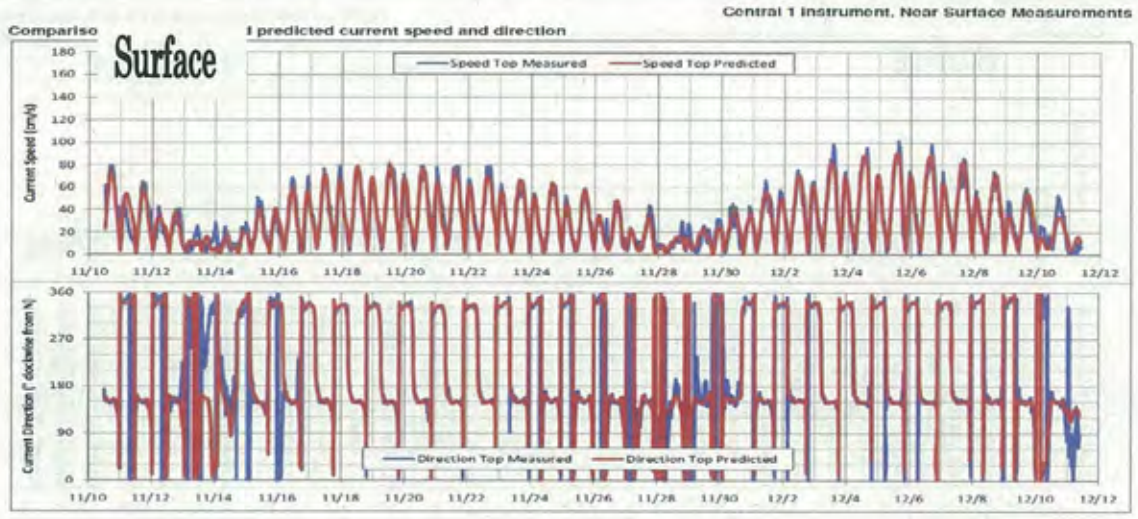
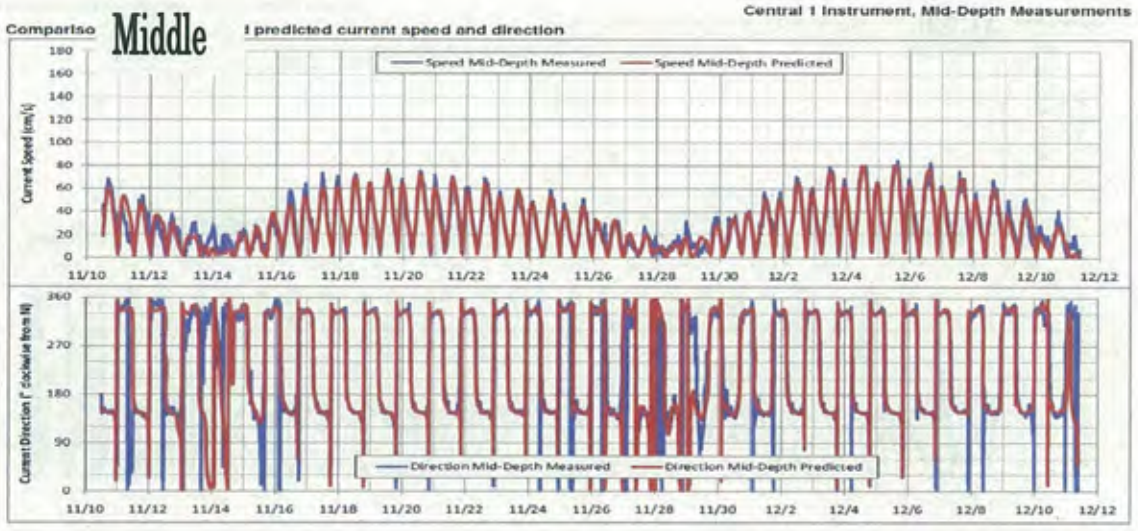


Figure 1 Current Observation Result at V1





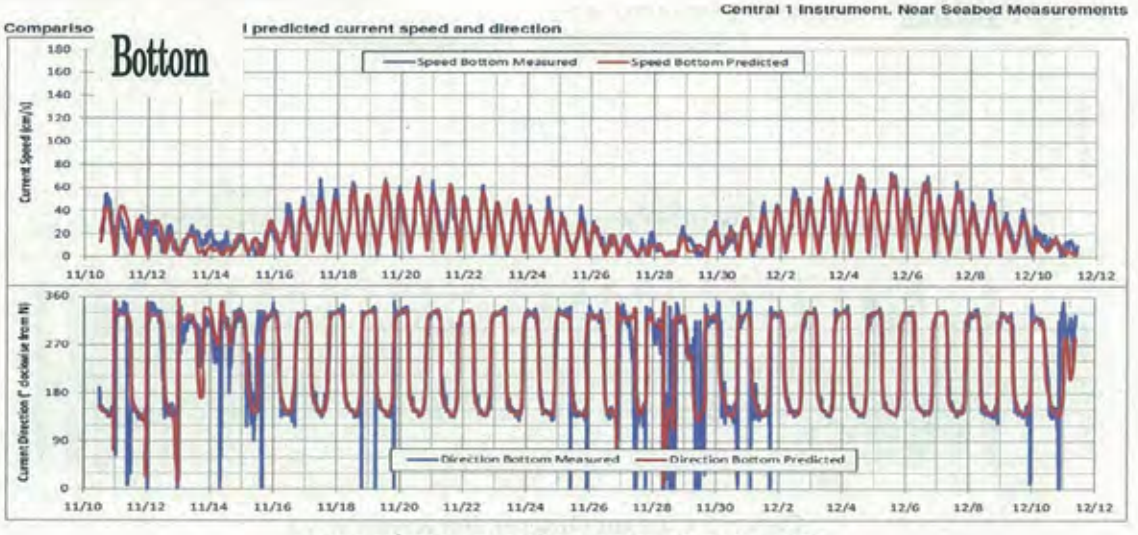


Figure 2 Current Observation Result at V2

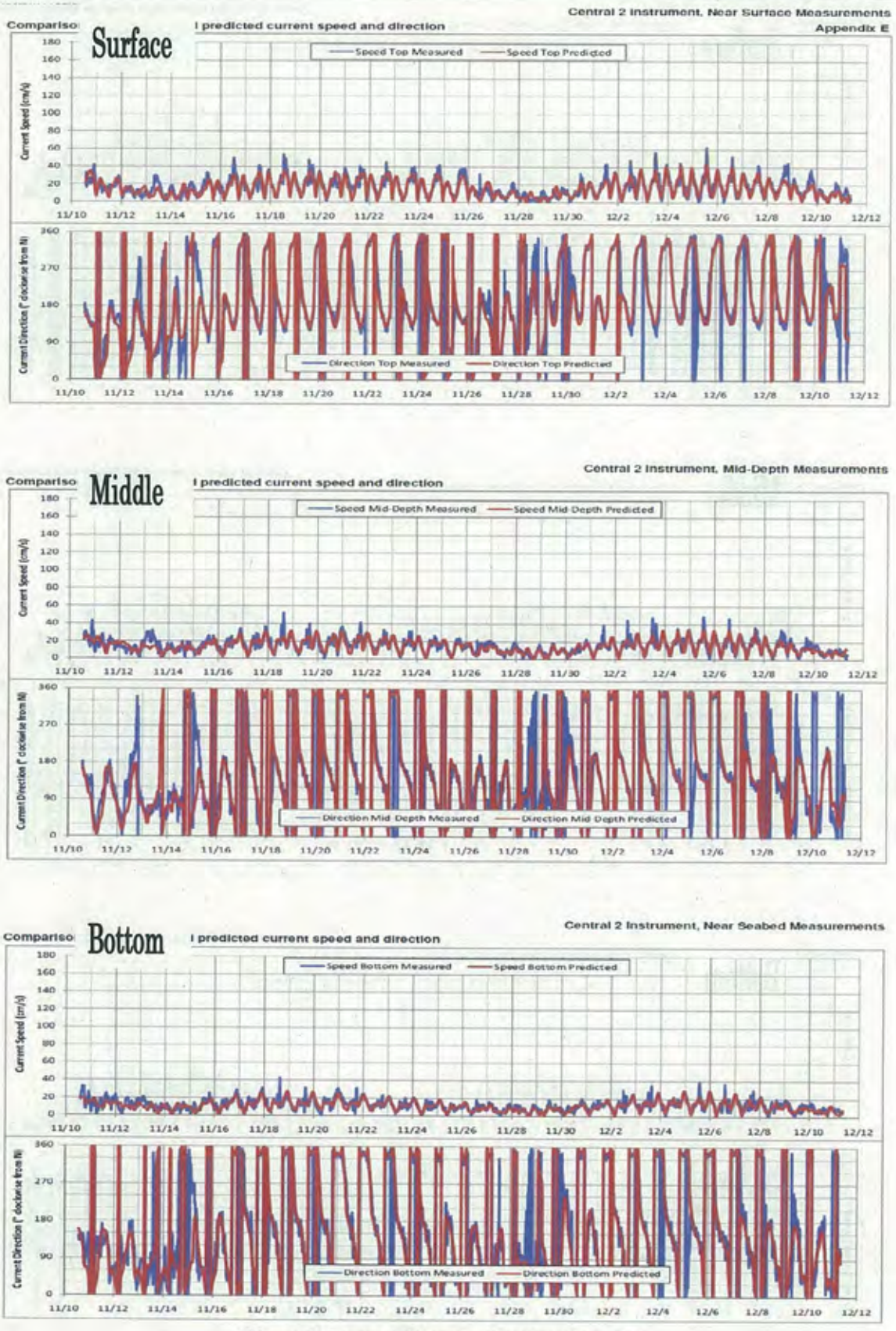


Figure 3 Current Observation Result at V3

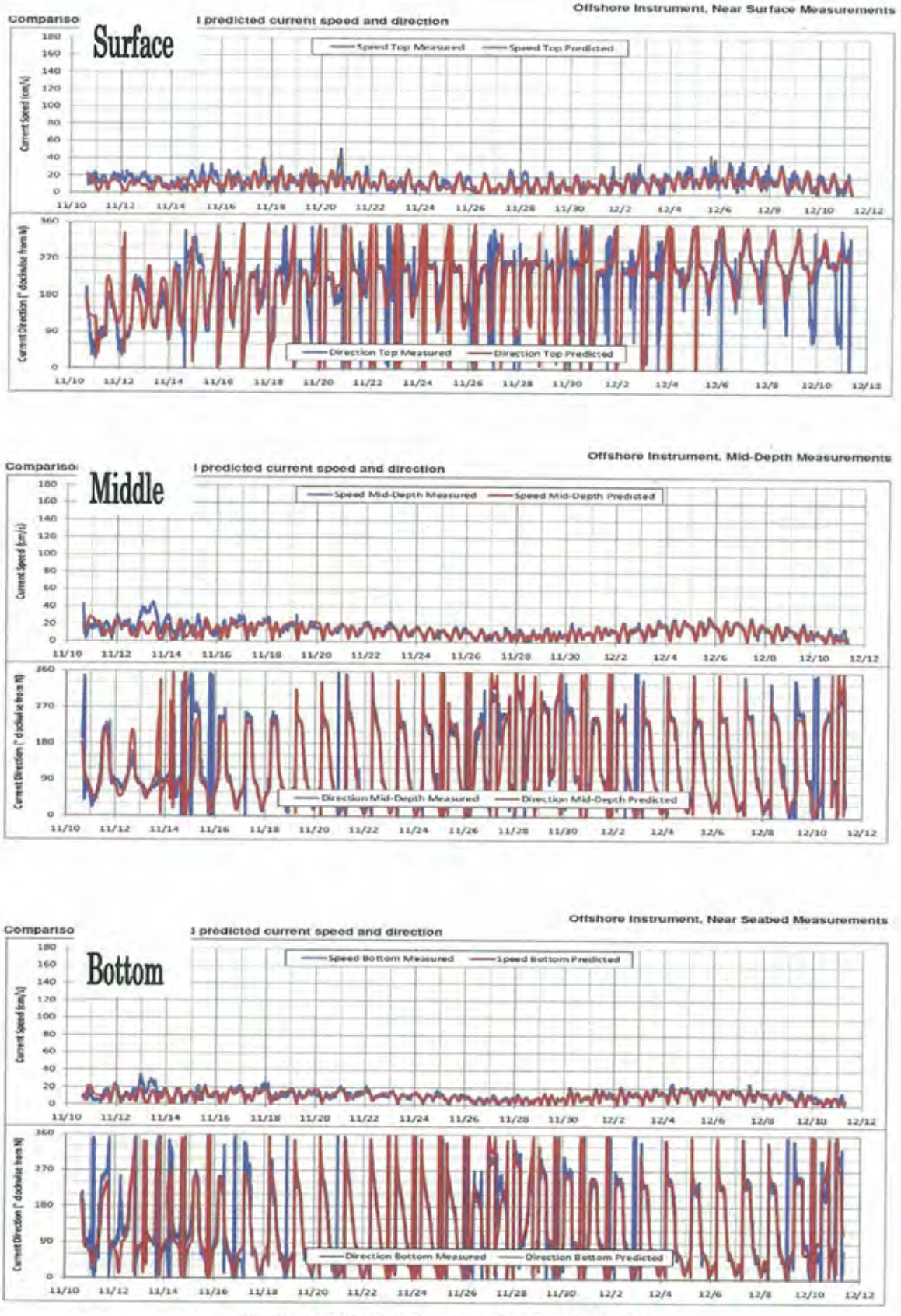


Figure 4 Current Observation Result at V4