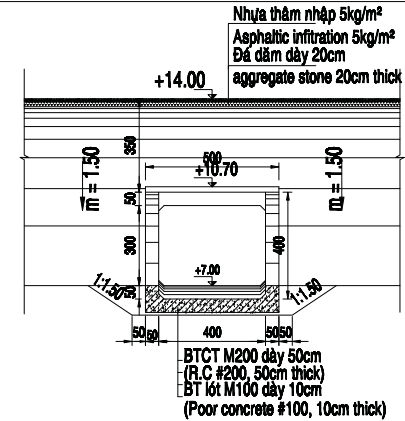
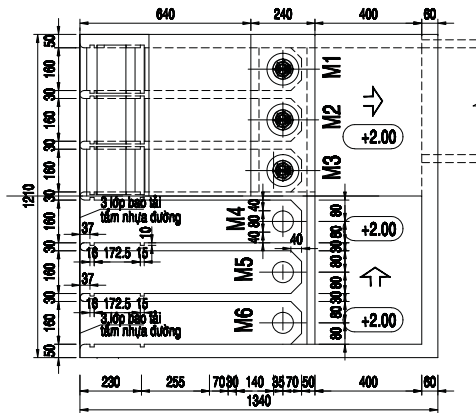


CHÍNH DIỆN HẠ LƯU F-F (TL: 1/200)

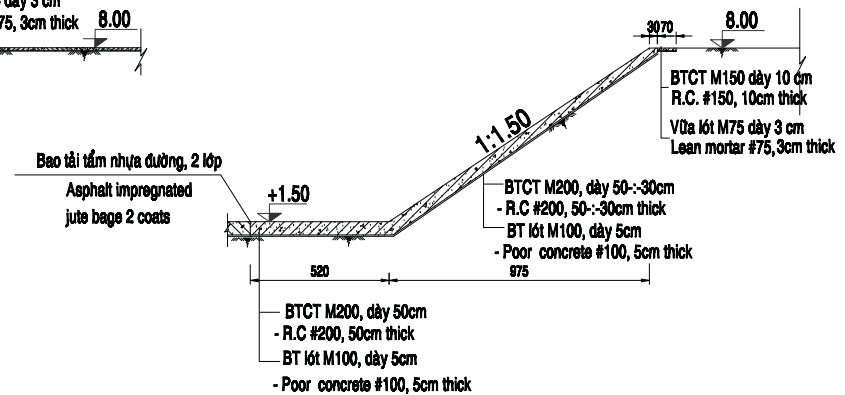
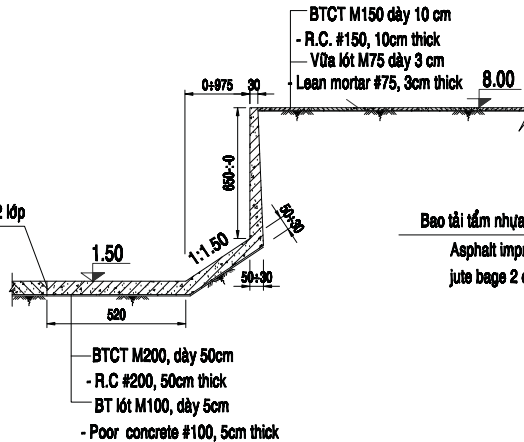
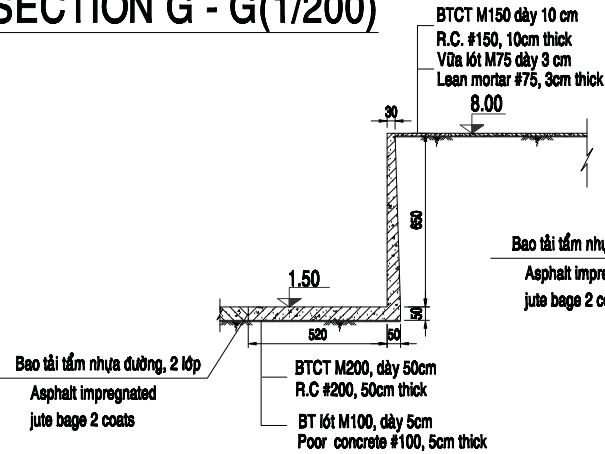
DOWNSTREAM FRONT OF PUMP F-F (SCALE: 1/200)



CẮT G - G (1/200) SECTION G - G (1/200)

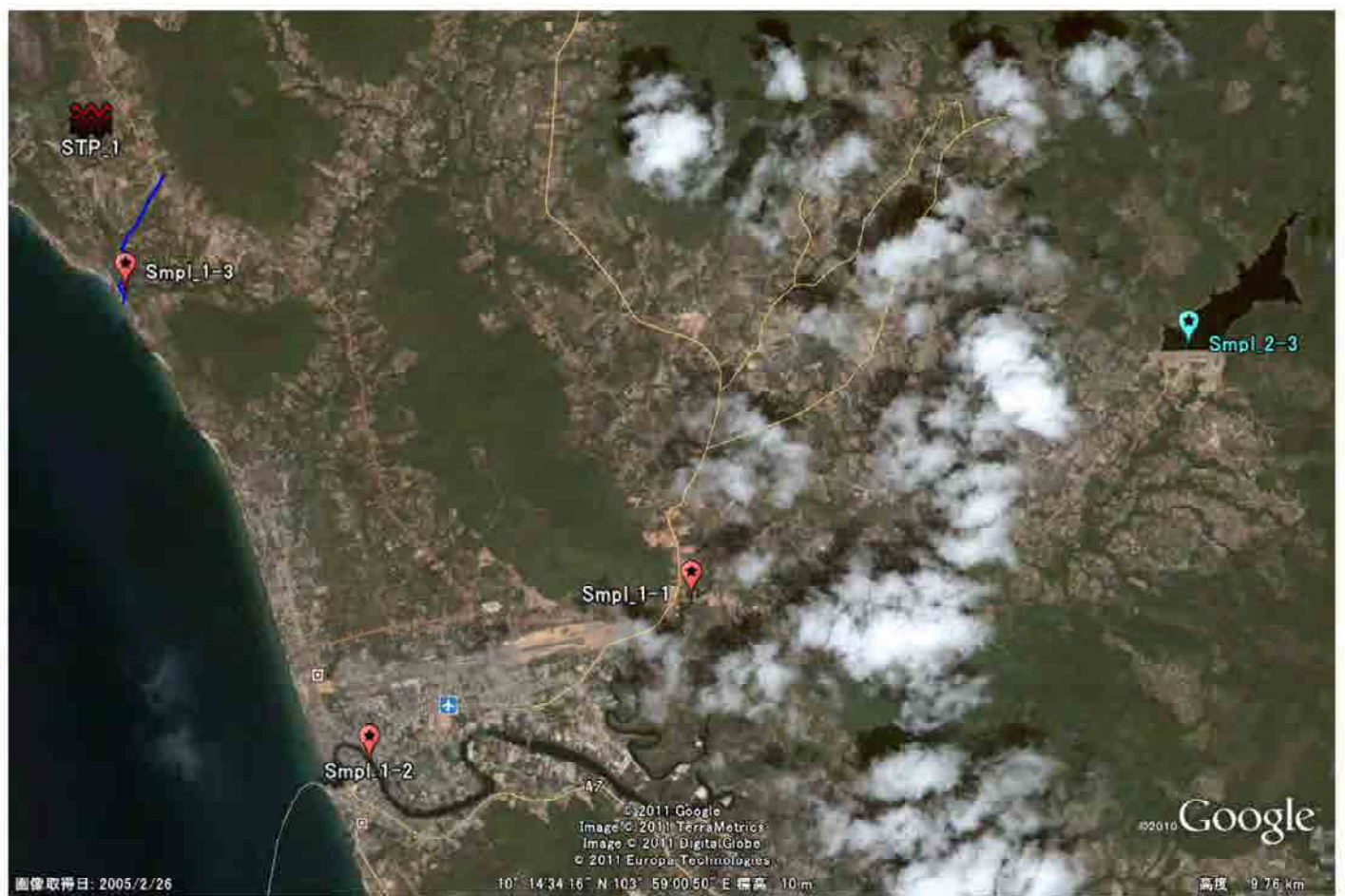
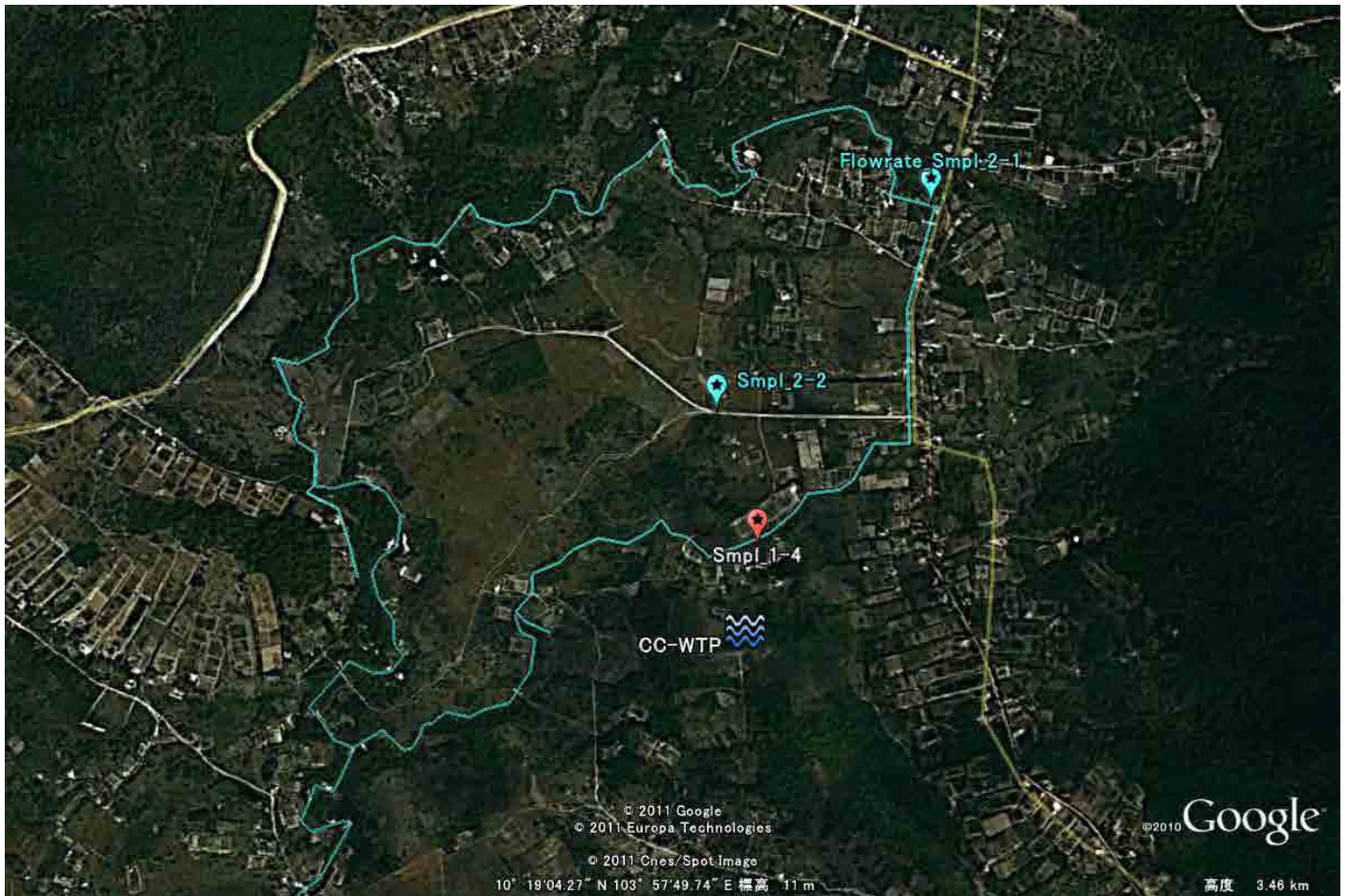
CẮT H - H (1/200) SECTION H - H (1/200)

CẮT I - I (1/200) SECTION I - I (1/200)



TITLE : DETAIL OF PUMPING STATION AND SLUICE		
PHU QUOC Water Supply and Sewerage System Development Preparatory Survey	Scale : 1:100 1:200	No : R-16

Annex-2 Water Quality Analysis Results



RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Water at Ben Tram Bridge
 - Type of Water : Surface Water
 - Sampling Date : 9h20 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 1-1**
 Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	24,5	Thermometer
2	pH		5,16	SMEWW 2130-98
3	Dissolved Oxygene (DO)	mg/l	6,0	TCVN 5499-1995
4	Total Suspended Solid (TSS)	mg/l	6	TCVN 4560-88
5	COD	mg/l	36	TCVN 6491-1999
6	BOD (20°C)	mg/l	12	TCVN 6001-1995
7	Ammonia (NH ₄) as N	mg/l	0,1	TCVN 6179-96
8	Surfactants	mg/l	0,25	SMEWW 5540C-2005
9	Total Oils & Grease	mg/l	1,55	SMEWW 5520B-2005
10	E. Coli	MPN/ 100ml	4,2.10 ¹	TCVN 6187-2-1996

- **Notes** : The result is only valuable on the actual sample
- **SMEWW** : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- **Marks** : Sample Water testing for Requests

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RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Water at Noi Bridge
 - Type of Water : Surface Water
 - Sampling Date : 16h30 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 1-2**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	24,5	Thermometer
2	pH		6,62	SMEWW 2130-98
3	Dissolved Oxygene (DO)	mg/l	4,1	TCVN 5499-1995
4	Total Suspended Solid (TSS)	mg/l	4	TCVN 4560-88
5	COD	mg/l	203	TCVN 6491-1999
6	BOD (20°C)	mg/l	60	TCVN 6001-1995
7	Ammonia (NH ₄) as N	mg/l	0,1	TCVN 6179-96
8	Surfactants	mg/l	0,48	SMEWW 5540C-2005
9	Total Oils & Grease	mg/l	1,00	SMEWW 5520B-2005
10	E. Coli	MPN/ 100ml	5,0.10 ¹	TCVN 6187-2-1996

- **Notes** : The result is only valuable on the actual sample
- **SMEWW** : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- **Marks** : Sample Water testing for Requests

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DA RIVER WATER SUPPLY & SEWERAGE CONSTRUCTION CONSULTING J.S COMPANY

No : 11-10-79 /PTN-TVCTNMT

RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Water at Dinh Ba
 - Type of Water : Surface Water
 - Sampling Date : 17h00 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 1-3**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	24,8	Thermometer
2	pH		5,44	SMEWW 2130-98
3	Dissolved Oxygene (DO)	mg/l	6,0	TCVN 5499-1995
4	Total Suspended Solid (TSS)	mg/l	4	TCVN 4560-88
5	COD	mg/l	21	TCVN 6491-1999
6	BOD (20°C)	mg/l	8	TCVN 6001-1995
7	Ammonia (NH ₄) as N	mg/l	0,1	TCVN 6179-96
8	Surfactants	mg/l	0,20	SMEWW 5540C-2005
9	Total Oils & Grease	mg/l	1,73	SMEWW 5520B-2005
10	E. Coli	MPN/ 100ml	5,4.10 ¹	TCVN 6187-2-1996

- **Notes** : The result is only valuable on the actual sample
- **SMEWW** : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- **Marks** : Sample Water testing for Requests

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Construction Consulting J.S Company
Director

Eng. Nguyễn Trung Nhi

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Eng. Ngo Trong Quoc

RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Water at Sinh Stream
 - Type of Water : Surface Water
 - Sampling Date : 11h00 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 1- 4**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	24,7	Thermometer
2	pH		5,07	SMEWW 2130-98
3	Dissolved Oxygene (DO)	mg/l	6,8	TCVN 5499-1995
4	Total Suspended Solid (TSS)	mg/l	4	TCVN 4560-88
5	COD	mg/l	6	TCVN 6491-1999
6	BOD (20°C)	mg/l	2	TCVN 6001-1995
7	Ammonia (NH ₄) as N	mg/l	0,1	TCVN 6179-96
8	Surfactants	mg/l	0,05	SMEWW 5540C-2005
9	Total Oils & Grease	mg/l	0,02	SMEWW 5520B-2005
10	E. Coli	MPN/ 100ml	15	TCVN 6187-2-1996

- **Notes :** The result is only valuable on the actual sample
- SMEWW : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- **Marks :** Sample Water testing for Requests

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RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Water at Trang Bridge
 - Type of Water : Surface Water
 - Sampling Date : 11h50 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 2-1**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	27,5	Thermometer
2	Color	Co Unit	10	TCVN 6185-96
3	Odor	Sense	0	SMEWW 2150-98
4	Turbidity	NTU	2,8	TCVN 6184-96
5	pH		5,33	SMEWW 2130-98
6	Hardness	mg/l CaCO ₃	6	TCVN 6224-96
7	Total Dissolved Solid (TDS)	mg/l	36	TCVN 4560-88
8	Aluminium (Al)	mg/l	KPH (LOD=0.02)	SMEWW 3500-2005
9	Ammonia (NH ₄ ⁺) as N	mg/l	0,1	TCVN 6179-96
10	Antimony (Sb)	mg/l	KPH(LOD=0.001)	SMEWW 3500-2005
11	Asenic (As)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
12	Barium (Ba)	mg/l	0,002	EPA-Method200.7
13	Boron (B)	mg/l	KPH(LOD=0.05)	SMEWW 3500-2005
14	Cadmium (Cd)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
15	Chloride (Cl)	mg/l	8	TCVN 6194-1996
16	Chromium (Cr)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
17	Copper (Cu)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
18	Total Phospho (TP)	mg/l	0.12	SMEWW 4500-P-D
19	Cyanide (CN)	mg/l	KPH	TCVN 6181-1996
20	Fluoride (F ⁻)	mg/l	0,15	SMEWW 4500-2005
21	Hydrogene Sulfide (H ₂ S)	mg/l	KPH (LOD=0.01)	SMEWW 4500-2005
22	Iron (Fe)	mg/l	1,20	TCVN 6177-96
23	Lead (Pb)	mg/l	KPH (LOD=0.005)	SMEWW 3500-2005
24	Manganese (Mn)	mg/l	0.0	TCVN 6002-95
25	Mecury (Hg)	mg/l	KPH (LOD=0.0001)	SMEWW 3112-Hg-B
26	Molybdenum (Mo)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005

27	Nikel (Ni)	mg/l	KPH (LOD=0.005)	SMEWW 3500-2005
28	Nitrite (NO ₂ ⁻) as N	mg/l	0,007	TCVN 6178-96
29	Nitrate (NO ₃ ⁻) as N	mg/l	2,2	TCVN 6180-96
30	Selenium (Se)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005
31	Sodium (Na ⁺)	mg/l	0,85	SMEWW 3500-2005
32	Sulfate (SO ₄ ²⁻)	mg/l	2	TCVN 6200-96
33	Zinc (Zn)	mg/l	0,072	SMEWW 3500-2005
34	Potassium Permanganate (KMnO ₄)	mg/l O ₂	1,8	KMnO ₄ title
35	Surfactants	mg/l	0,62	SMEWW 5540C-2005
36	Total Oils & Grease	mg/l	0,50	SMEWW 5520B-2005
37	Phenol (Total)	µg/l	0,14	KTSK21-GCMS
38	E. Coli	MPN/ 100ml	4,5.10 ¹	TCVN 6187-2-1996
39	Total Coliform	MPN/ 100ml	1,9.10 ²	TCVN 6187-2-1996
40	Total Nitrogene (T-N) (Kjeldah)	mg/l	8,4	SMEWW 4500-N
41	Total P (T-P)	mg/l	0,15	SMEWW 4500-P
42	Alkalinity	mg/l	6	SMEWW 2320B-2005
43	Total Organic Carbon (TOC)	mg/l	3,78	TCVN 6634-2000
44	UV Absorption (E260)	-	0,1450	UV 1800
45	Trihalomethane (THM)	µg/l	KPH (LOD=5)	KTSK27-GCMS TK EPA 5021A

- **Notes :** The result is only valuable on the actual sample
- **SMEWW :** Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- **KPH :** Not Finding
- **LOD :** Limite Finding Value
- **Marks :** Sample Water testing for Requests

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RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Ground Water at Suoi Cat Hamlet, Team 2
 - Type of Water : Ground Water
 - Sampling Date : 11h20 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 2-2**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	24,8	Thermometer
2	Color	Co Unit	5	TCVN 6185-96
3	Odor	Sense	Smell H ₂ S	SMEWW 2150-98
4	Turbidity	NTU	9,9	TCVN 6184-96
5	pH		4,53	SMEWW 2130-98
6	Hardness	mg/l CaCO ₃	6	TCVN 6224-96
7	Total Dissolved Solid (TDS)	mg/l	16	TCVN 4560-88
8	Aluminium (Al)	mg/l	KPH (LOD=0.02)	SMEWW 3500-2005
9	Ammonia (NH ₄ ⁺) as N	mg/l	0,65	TCVN 6179-96
10	Antimony (Sb)	mg/l	KPH(LOD=0.001)	SMEWW 3500-2005
11	Asenic (As)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
12	Barium (Ba)	mg/l	0,015	EPA-Method200.7
13	Boron (B)	mg/l	KPH(LOD=0.05)	SMEWW 3500-2005
14	Cadmium (Cd)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
15	Chloride (Cl)	mg/l	6	TCVN 6194-1996
16	Chromium (Cr)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
17	Copper (Cu)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
18	Total Phospho (TP)	mg/l	0.05	SMEWW 4500-P-D
19	Cyanide (CN ⁻)	mg/l	KPH (LOD=0.05)	TCVN 6181-1996
20	Fluoride (F ⁻)	mg/l	KPH (LOD=0.01)	SMEWW 4500-2005
21	Hydrogene Sulfide (H ₂ S)	mg/l	0,10	SMEWW 4500-2005
22	Iron (Fe)	mg/l	2,40	TCVN 6177-96
23	Lead (Pb)	mg/l	KPH (LOD=0.005)	SMEWW 3500-2005
24	Manganese (Mn)	mg/l	KPH (LOD=0.005)	TCVN 6002-95
25	Mecury (Hg)	mg/l	KPH (LOD=0.0001)	SMEWW 3112-Hg-B
26	Molybdenum (Mo)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005

27	Nikel (Ni)	mg/l	KPH (LOD=0.005)	SMEWW 3500-2005
28	Nitrite (NO ₂ ⁻) as N	mg/l	0,003	TCVN 6178-96
29	Nitrate (NO ₃ ⁻) as N	mg/l	0,1	TCVN 6180-96
30	Selenium (Se)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005
31	Sodium (Na ⁺)	mg/l	0,62	SMEWW 3500-2005
32	Sulfate (SO ₄ ²⁻)	mg/l	0.0	TCVN 6200-96
33	Zinc (Zn)	mg/l	0,034	SMEWW 3500-2005
34	Potassium Permanganate (KMnO ₄)	mg/l O ₂	1,6	KMnO ₄ title
35	Surfactants	mg/l	KPH (LOD=0.06)	SMEWW 5540C-2005
36	Total Oils & Grease	mg/l	KPH (LOD=0.01)	SMEWW 5520B-2005
37	Phenol (Total)	µg/l	KPH (LOD=0.1)	KTSK21-GCMS
38	E. Coli	MPN/ 100ml	0.0	TCVN 6187-2-1996
39	Total Coliform	MPN/ 100ml	24	TCVN 6187-2-1996
40	Total Nitrogene (T-N) (Kjeldah)	mg/l	2,5	SMEWW 4500-N
41	Total P (T-P)	mg/l	0,10	SMEWW 4500-P
42	Alkalinity	mg/l	4	SMEWW 2320B-2005
43	Total Organic Carbon (TOC)	mg/l	KPH (LOD=0.3)	TCVN 6634-2000
44	UV Absorption (E260)	-	0,0670	UV 1800
45	Trihalomethane (THM)	µg/l	KPH (LOD=5)	KTSK27-GCMS TK EPA 5021A

- Notes : The result is only valuable on the actual sample
- SMEWW : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- KPH : Not Finding
- LOD : Limite Finding Value
- Marks : Sample Water testing for Requests

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RESULTS OF WATER SAMPLE ANALYSIS

- Works : Water Supply And Sewewage Treatment System Project in Phu Quoc Island, VN
 - From : KOBELCO ECO-SOLUTIONS CO., LTD.
 - Source of Water : Kien Giang Province – Phu Quoc Island
 - Location : Duong Dong Lake
 - Type of Water : Surface Water
 - Sampling Date : 8h40 21/10/2011
 - Name of Collector : Eng. Ngo Trong Quoc
- Sample Sign : **Sample 2-3**
Testing Date : 23/10/2011

No	Items	Unit	Results	Test methods
1	Temperature	°C	23,8	Thermometer
2	Color	Co Unit	8	TCVN 6185-96
3	Odor	Sense	0	SMEWW 2150-98
4	Turbidity	NTU	1,4	TCVN 6184-96
5	pH		5,19	SMEWW 2130-98
6	Hardness	mg/l CaCO ₃	6	TCVN 6224-96
7	Total Dissolved Solid (TDS)	mg/l	12	TCVN 4560-88
8	Aluminium (Al)	mg/l	KPH (LOD=0.02)	SMEWW 3500-2005
9	Ammonia (NH ₄ ⁺) as N	mg/l	0,1	TCVN 6179-96
10	Antimony (Sb)	mg/l	KPH(LOD=0.001)	SMEWW 3500-2005
11	Asenic (As)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
12	Barium (Ba)	mg/l	0,002	EPA-Method200.7
13	Boron (B)	mg/l	KPH(LOD=0.05)	SMEWW 3500-2005
14	Cadmium (Cd)	mg/l	KPH(LOD=0.0005)	SMEWW 3500-2005
15	Chloride (Cl)	mg/l	6	TCVN 6194-1996
16	Chromium (Cr)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
17	Copper (Cu)	mg/l	KPH(LOD=0.005)	SMEWW 3500-2005
18	Total Phospho (TP)	mg/l	0.10	SMEWW 4500-P-D
19	Cyanide (CN)	mg/l	KPH (LOD=0.05)	TCVN 6181-1996
20	Fluoride (F ⁻)	mg/l	0,37	SMEWW 4500-2005
21	Hydrogene Sulfide (H ₂ S)	mg/l	KPH (LOD=0.01)	SMEWW 4500-2005
22	Iron (Fe)	mg/l	1,80	TCVN 6177-96
23	Lead (Pb)	mg/l	0,0012	SMEWW 3500-2005
24	Manganese (Mn)	mg/l	KPH (LOD=0,005)	TCVN 6002-95
25	Mecury (Hg)	mg/l	KPH (LOD=0.0001)	SMEWW 3112-Hg-B
26	Molybdenum (Mo)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005

27	Nikel (Ni)	mg/l	KPH (LOD=0.005)	SMEWW 3500-2005
28	Nitrite (NO ₂ ⁻) as N	mg/l	0,003	TCVN 6178-96
29	Nitrate (NO ₃ ⁻) as N	mg/l	1,9	TCVN 6180-96
30	Selenium (Se)	mg/l	KPH (LOD=0.001)	SMEWW 3500-2005
31	Sodium (Na ⁺)	mg/l	0,65	SMEWW 3500-2005
32	Sulfate (SO ₄ ²⁻)	mg/l	1	TCVN 6200-96
33	Zinc (Zn)	mg/l	0,061	SMEWW 3500-2005
34	Potassium Permanganate (KMnO ₄)	mg/l O ₂	1,8	KMnO ₄ title
35	Surfactants	mg/l	0,57	SMEWW 5540C-2005
36	Total Oils & Grease	mg/l	0,46	SMEWW 5520B-2005
37	Phenol (Total)	µg/l	0,13	KTSK21-GCMS
38	E. Coli	MPN/ 100ml	3,4.10 ¹	TCVN 6187-2-1996
39	Total Coliform	MPN/ 100ml	9,3.10 ¹	TCVN 6187-2-1996
40	Total Nitrogene (T-N) (Kjeldah)	mg/l	7,8	SMEWW 4500-N
41	Total P (T-P)	mg/l	0,12	SMEWW 4500-P
42	Alkalinity	mg/l	4	SMEWW 2320B-2005
43	Total Organic Carbon (TOC)	mg/l	3,35	TCVN 6634-2000
44	UV Absorption (E260)	-	0,1121	UV 1800
45	Trihalomethane (THM)	µg/l	KPH (LOD=5)	KTSK27-GCMS TK EPA 5021A

- **Notes :** The result is only valuable on the actual sample
- SMEWW : Standard Method for The Examination of Water And WasteWater (APHA), Edition 20th
- KPH : Not Finding
- LOD : Limite Finding Value
- **Marks :** Sample Water testing for Requests

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