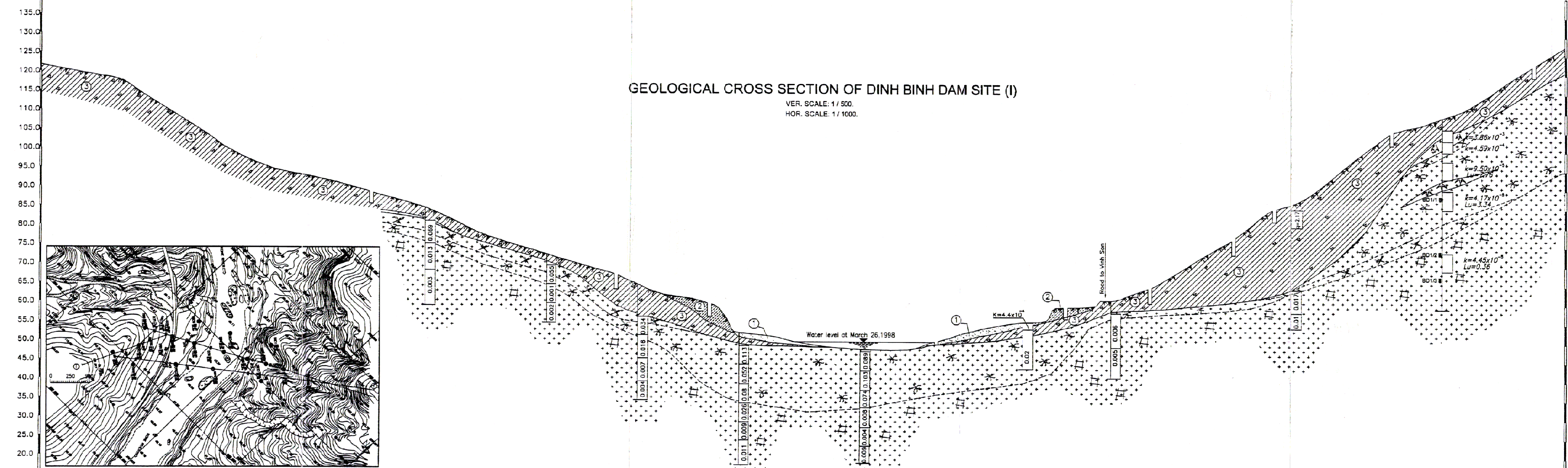


### GEOLOGICAL CROSS SECTION OF DINH BINH DAM SITE (I)

VER. SCALE: 1 / 500.  
HOR. SCALE: 1 / 1000.



#### LEGEND

- Coarse to medium SAND (SP) with a little coarse gravel, greenish to white - gray, loose, previous, generally 1.0 to 5.0m thick, of alluvial origin
- Medium - grained clayey SAND (SC) with some fine gravel, yellowish to brownish gray, 2.0 to 3.0m thick and alluvial
- Gravely CLAY (CG) of alluvium - deluvium, gray to brown, soft to firm. This layer is distributed mainly on the slope and hillsides. Its thickness is 2.0 to 8.0m along the left bank, whereas, 10.0 to 20 m along the right bank
- Completely weathered granite (C grade rock), brownish-gray to light gray, decomposed mostly to rock fragments and partially to sandy soil
- Strongly weathered granite (C1 grade rock), reddish brown to light gray, almost weathered into rock fragments
- Moderately weathered granite (Cm grade rock), brown, yellowish-gray to light gray. The rock is hard but can be broken along cracks with a hammer
- Slightly weathered granite (CH - B grade rock), light gray. Only joints and cracks were oxidized
- Borehole drilled by JICA and number.
- Drilling borehole and number in feasibility study
- Hand borehole and number in feasibility study.
- Digging hole and number in feasibility study.
- Drilling borehole and number in pre-feasibility study
- Sample NR and depth (m)
- Water pressure test in the hole  
q - Amount of unit water injection (l/ph/m)  
Lu - Value Lugeon
- Open - end test in the hole  
K - Coefficient of permeability (cm/s)
- Geological boundary: a - Definite b - Supposed.

Name of hole	DT1	DB30	DB4	DT26	DB32	DT3	DB5	DB6	D36	DB1	DT4	DB29	DT29	DT32	DT5	DE2	DT6	BD1	DT7
Elevation (m)	86.50	82.50	71.20	66.70	63.98	59.10	51.75	47.50	49.89	55.28	59.20	61.03	63.94	77.04	85.00	86.50	105.0	108.87	122.65
Distance (m)		28.0	62.0	34.0	12.0	36.0	16.0	50.0	39.0	44.5	21.5	24.0	18.0	42.0	20.0	10.0	48.0	26.0	44.0

## **Figure J.3**

### **Detailed Geological Logs of Core Drillings**

- **BD1(L=50m)at Dinh Binh Damsite (1/2-2/2)**
- **BW1(L=30m)at Van Phon Weir Site**
- **BC1 to BC2 (L=20m for each hole)along Van Phon Main Canal (1/2-2/2)**
- **BR1 to BR8 (L=10m for each hole)at River Improvement Area (1/8-8/8)**

Bore hole N <sup>o</sup>		BD1		Location: <i>Dinh Binh Dam site</i>				1/2 Sheets			
X: 1,566,718		Y: 19,259,367		Elevation		108,87m					
Drilling date: 29/12/2002		Drilling machine: XY - 1A		Vetical scale		1/100					
Inclination: 90 <sup>o</sup>		Depth: 50.0 m		Total core recovery: 27.25		Water level		16.2 m			
Depth (m)	Elevation (m)	Lithology	Geological discription	Degree of weathering	Core recovery length (m)	R.Q.D (%)	N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT	
1.8	107.07		<b>0.0 - 4.9m Layer 3, Gravelly CLAY to Silty GRAVEL</b> 0.0 - 1.8 m: wet, firm to stiff, brownish gray to yellowish gray, about 40% fine (clay/silty), 30% sand and 30% gravel. Gravel, generally ranging from 5 cm to 30 cm in size, consists of quartz and subangular granite block.		10.0						
4.9	104.0		1.8 - 4.9m: Silty/Clayey GRAVEL, wet, firm to stiff, yellowish gray to brownish yellow, about 30% fine (clay/silt), 30% sand and 40% gravel. The size of gravel is between 5cm and 30 cm.								
5			<b>4.9 - 8.3m Completely weathered granite</b> Brownish gray to greenish gray, mostly decomposed to sandy soil and partially to rock block. The rock blocks may be brokdn into pieces or finer gravel by hand. Feldspar is almost weathered into clay minerals.	CW					$k = 3.86 \times 10^{-3}$		
8.3	100.57		<b>8.3 - 10.1 m Strongly (highly) weathered granite</b> Brownish gray to light gray, mostly weathered into rock blocks. Cracks and joints are generally open with a crack width of 2 to 5 mm. The rock, moderately weak to moderately strong, is difficult to peel but easily scartched by knife.	HW					$k = 4.59 \times 10^{-4}$		
10			<b>10.1 - 16.4m Moderately weathered granite</b> Greenish gray to light gray, massive structure, moderately strong to strong. A few cracks and joints, partially open are developed with a crack width of 1 mm. The surface of cracks are generally oxidized. The rock can be broken with a hammar. Core length is generally 5cm to 10 cm.	MW	1.6				11.4m		
10.1	98.77				0.75						
15					1.60						
16.4	92.47				0.85			16.0m			
18.7	90.17		<b>16.4 - 18.7 m Completely weathered granite</b> Greenish gray to light gray, wet, soft, almost decomposed to sandy soil and partially to clayey soil. Granite gravels, mostly 2 to 5 cm in size, can be broken into finer grain by hand.	CW	3.0				19.0m		
20			<b>18.7 - 27.6 m Moderately weathered granite</b> Greenish gray to light gray spotted with pink, massive structure, moderately strong to strong. Slightly cracked and these cracks are 0.5 to 2 mm wide, and partially open. The surface of cracks are partially oxidized. The rock can be broken with a hammar and sounds dull. In these crack surface feldspar is partially weathered into clay minerals. Core length is generally 10 cm to 20 cm.	MW	0.8		BD1/1 20 - 21.28				
25					0.85						
					0.8						
					2.55						
					0.95						
27.6	81.27		<b>27.6 - 31.5 m Strongly (highly) weathered granite</b> Greenish gray to light gray spotted with brown, moderately weak to moderately strong. Cracks and joints are well developed and most of them are open with a spacing of 4 mm. Feldspar is almost weathered into clay minerals. The rock (core) can be easily broken into smaller gravels with a hammar.	HW	1.7				24.0m		
30					0.9				28.5 - 29 loss of drilling		


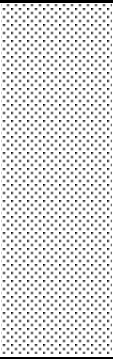

Bore hole N <sup>o</sup> <b>BD1</b>		Location: <b>Dinh Binh Dam site</b>					2/2 Sheets									
X: 1,566,718		Y: 19,259,367			Elevation		108,87m									
Drilling date: 29/12/2002		Drilling machine: XY - 1A			Vertical scale		1/100									
Inclination: 90 <sup>o</sup>		Depth: 50.0 m		Total core recovery: 17.15		Water level 16.2 m										
Depth (m)	Elevation (m)	Lithology	Geological discription	Degree of weathering	Core recovery length (m)	R.Q.D (%)				N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT			
						20	40	60	80				10	20	30	40
30				HW	0.85											
31.5	77.37		<b>31.5 - 41.0 m Slightly weathered granite</b> Greenish gray to light gray spotted with pink, massive structure, strong to very strong. Slightly cracked and most of them are close. Feldspar is less weathered. The rock (core) is very difficult to be broken with a hammer.		0.8											
35					0.85											
37.0	71.87				0.8											
40					0.9											
41.0	67.87				1.7					BD1/2 35.2-35.4		35.3m				
45					0.95											
50.0	58.87		<b>Unweathered granite to locally slightly weathered granite</b> Fresh, medium-grained biotite granite, about 65% feldspar, 20% quartz, 5% to 10% biotite, 5% mica and a trace of other minerals. greenish gray to light gray, slightly hair cracks. Feldspar and biotite are less weathered.		0.95					BD1/3 41.7-42.0						
					0.6											
					1.1											
					0.75											
					0.9											
					0.85											
					0.8											
					1.7											

Bore hole N <sup>o</sup> <b>BW1</b>		Location: <b>Van Phong Weir site</b>					1/1 Sheet										
X: 1,542,350		Y: 19,270,106			Elevation 24,61m												
Drilling date: 31/12/2002		Drilling machine: XY - 1A			Vertical scale 1/100												
Inclination: 90 <sup>o</sup>		Depth: 30.0 m		Total core recovery: 26.92		Water level 3.30 m											
Depth (m)	Elevation (m)	Lithology	Geological discription	Degree of weathering	Core recovery length (m)	R.Q.D (%)				N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
						20	40	60	80				10	20	30	40	
2.6	22.01		<b>0.0 - 5.3 m Clayey SAND to Gravelly SAND</b> 0.0 - 2.6m: Clayey SAND (SC), dry, medium dense, black brown to brown gray, about 25 to 30% fine (clay/silt), 35 to 50% sand and 20 to 30% gravel. The gravel varies in size from 2mm to 10mm and consists of granite and quartz.  2.6 - 5.3m: Gravelly CLAY (CG) to Gravelly SAND (SG), slightly wet, dense to vey dense, black gray to brownish gray, about 25% fine (clay/silt), 50% sand and 25% gravel. The gravel is composed mainly of weathered sandstone.		8.6					BW1/1 1.1 - 1.3							
5.0	19.31			<b>5.3 - 11.1 m Clayey GRAVEL (COBBLE)</b> Slightly wet, dense to very dense, brownish gray to light gray, about 80% gravel, 10% clay and 10% sand. The sandstone gravel is mostly between 50mm and 100mm in size and occasionally up to 200 mm		2.28					BW1/2 2.3 - 2.5	3.0m					
8.3	16.31			<b>11.1 - 12.6 m Completely to highly weathered granite</b> Brown to brown gray, mostly weathered into sandy/gravelly soil. The rock block is hard and is difficult to be peeled by knife.	CW-HW	0.7											
10.0	13.5			<b>12.6 - 14.7 m Moderately to Slightly weathered diabase</b> Black gray to yellowish gray, slightly cracked, its crack surface is partially discolored	MW-SW	0.36											
11.1	12.01			<b>14.7 - 30.0m Moderately to Slightly weathered granite</b> Light gray, slightly cracked, partially close, cores break along the cracks in length of 10 cm to 20 cm. the crack surface is partially oxidized.  About 60% feldapsr, 25% quartz, 5 to 10% biotite, 5% mica and a little amount of others.		0.38											
12.6	9.91				MW-SW	0.8											
14.7						0.70											
15.0						0.80											
20.0						1.6											
25.0						1.7					BW1/3 18.4-19.6						
30.0	-5.39					1.8					BW1/4 20.3-21.0						
						1.7					BW1/5 21.6-22.4						
						3.6						24.0m					
						1.9						25.0m					
												30.0m					

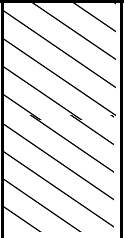
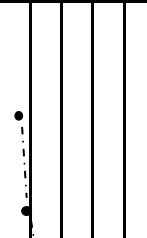
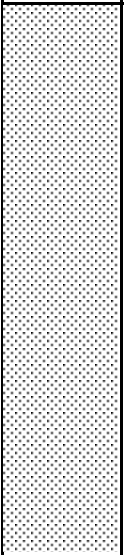
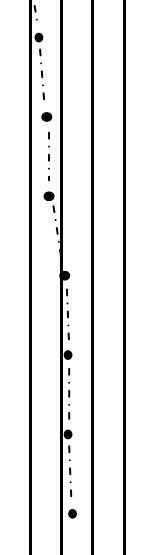
Bore hole N <sup>o</sup>		BC1	Location: Van Phong canal		1/1 Sheet												
X: 1,543,739		Y: 19,280,088		Elevation (m)		25.23											
Drilling date: 2003/4/1		XY - 1A		Vetical scale		1/100											
Inclination: 90 <sup>o</sup>		Depth: 20.0 m		Total core recovery: 20		Water level 1.10 m											
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	R.Q.D (%)				N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
						20	40	60	80				10	20	30	40	
1.0	24.23		<p><b>0.0 - 1.9m Silty SAND with some gravel (SM)</b> 0.0 - 1.0m: dry, mesium dense, brown to brownish gray, about 20 clay, 10% silty, 50% sand and 20 fine to coarse angular gravel.</p> <p>1.0 - 1.9m: wet, loose to mesium dense, brown gray to light gray, about 20 clay, 20% silty, 55% sand and a little fine gravel.</p>	aQ	1.9					BC1/1 1.2 - 1.4							
1.9	23.33		<p><b>1.9 - 20.0m Completely to Highly Weathered Granite</b> Greenish brown, brownish gray to light gray, soft, mostly completely weathered rock and locally highly weathered rock. The completely weathered rock is almost weathered into loose sandy soil, while the highly weathered rock is weathered partially into loose sandy soil.</p>														
5.0	20.23																
10.0	15.23			HW - CW	18.1												
15.0	10.23																
20.0	5.23																
25.0																	
30.0																	

Bore hole N <sup>o</sup>		Location:		1/1 Sheet												
BC2		Van Phong canal														
X: 1,543,739		Y: 19,280,088		Elevation (m)		25.23										
Drilling date: 2003/7/1		Drilling machine: XY - 1A		Vertical scale		1/100										
Inclination: 90°		Depth: 20.0 m		Total core recovery: 18.65		Water level 1.10 m										
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	R.Q.D (%)				N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT			
						20	40	60	80				10	20	30	40
1.5	23.73		<b>0.0 - 4.8m Silty/Clayey SAND with a little gravel</b> 0.0 - 1.2m: brownish gray, black gray to light gray, wet, medium dense, about 25% clay, 15% silt, 55% sand and 5% fine gravel (4 to 6 mm in size).  1.2 - 4.8m: yellow brown to light gray, wet, medium dense, about 20% clay, 20% silt, 50% sand and 10% fine gravel (4 to 7 mm in size).	aQ	8.0					BC2/1 1.3 - 1.5						
1.9	23.33															
5.0	20.23		<b>4.8 - 9.7 m Completely to Highly Weathered Granite</b> Light brown to gray, slightly wet, soft, mostly weathered into sandy soil and locally into rock blocks. The rock blocks can be easily deformed by finger.	CW-HW	0.85					BC2/2 3.8-4.0 BC2/3 4.5-4.7						
7.8	17.43															
10.0	15.23		<b>9.7 - 16.8m Clayey/Silty GRAVEL</b> Brownish gray to light gray, soft, almost weathered into rock blocks and partially into sandy soil.	HW	0.85											
12.0	13.23															
15.0	10.23		<b>12.0 - 20.0m Completely weathered granite</b> Light gray to greenish brown, soft, mostly weathered into sandy soil and locally into rock blocks. The rock blocks can be easily deformed by finger.	CW	0.85											
16.8	8.43				0.85											
20	5.23				3.0											
25.0																
30.0																

Bore hole N <sup>0</sup> <b>BR1</b>		Location: <i>Nhon My Commune, An Nhon District, Binh Dinh Province</i>			1/ 1 sheet	
X: 1,539,754		Y: 19,287,376		Elevation (m) 14.39		
Drilling date: 2003/12/1		Drilling machine: XY - 1A		Vetical scale 1/100		
Inclinnation: 90 0		Depth: 10.0 m		Total core recovery:		
				Water level 3.50 m		

Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>0</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT					
									10	20	30	40		
0 - 2.0	12.39		0 - 2.0m: Silty SAND with occasional gravel (SM), slightly wet, medium dense, brownish red to brownishgray, about 70% fine to medium-grained sand, 15% silt, 10% clay, less than 5% fine gravels											
2.0 - 5.0	9.39		2.0 - 5.0m: Silty SAND (SM), wet, medium dense, brownish gray to greenish gray, about 90% fine sand and 10% fine (clay/silt). 5.0 - 6.5m: Silty SAND (SM) with a little fine gravel, wet medium dense to dense, brownish gray to yellowish brown, about 90% sand, 5% silt and 5% fine gravel.											
6.5 - 10.0	4.39		6.5 - 10.0m: Sandy CLAY (CS), slightly wet, firm, greenish gray, about 35% clay, 30% silt and 35% fine sand.			BR1/1 7.0 - 7.2  BR1/2 8.4-8.6								



Bore hole N <sup>o</sup> <b>BR2</b>		Location: <i>Nhon Phuc Commune, An Nhon District, Binh Dinh Province</i>					1/ 1 sheet						
X: 1,539,240		Y: 19,287,030			Elevation (m) 12.90								
Drilling date: 2003/11/1		Drilling machine: XY - 1A			Vetical scale 1/100								
Inclinnation: 90 0		Depth: 10.0 m		Total core recovery: 0		Water level 2.60 m							
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
									10	20	30	40	
0 - 3.0	9.9		0 - 3.0m: Sandy CLAY (CS), slightly wet, soft to firm, brownish gray to greenish gray, about 35% clay, 30% silt and 35% sand.			BR2/1 2.0 - 2.2							
3.0 - 10.0	7.90		3.0 - 10.0m: Gravelly SAND (SP), wet, medium dense to dense, yellowish brown to brownish gray, about 90% medium-grained sand and more than 5% rounded gravel with a little fine (clay/silt).										
10.0	2.90												

JF-10

Bore hole N <sup>o</sup> <b>BR3</b>		Location: <i>Nhon Khanh Commune, An Nhon District, Binh Dinh Province</i>					1 / 1 sheet							
X: 1,538,112		Y: 19,288,173			Elevation (m)		13.14							
Drilling date: 13/1/2003		Drilling machine: XY - 1A			Vetical scale		1/100							
Inclinnation: 90 0		Depth: 10.0 m		Total core recovery:		Water level 2.30 m								
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT					
									10	20	30	40		
0.6	12.54		0 - 3.5m: Silty SAND (SM), wet, loose, brownish gray, about 80% sand, 20% fines (silt/clay.											
3.5	9.64		3.5 - 5.3m: Sandy CLAY (CS), wet, soft, black gray to greenish gray, about 35% clay, 35% silt and 30% sand.											
5.3	7.84		5.3 - 7.7m: Silty SAND (SM) with a little fine gravel, wet, loose, brownish gray to greenish gray, about 90% sand, 5% fine and a little amount of gravel.											
7.7	5.44		7.7 - 10.0m: Sandy CLAY (CS), wet, firm, high plasticity. Brownish gray to greenish gray, about 35% clay, 30% silt and 35% sand.											
10.0	3.14													

JF-11


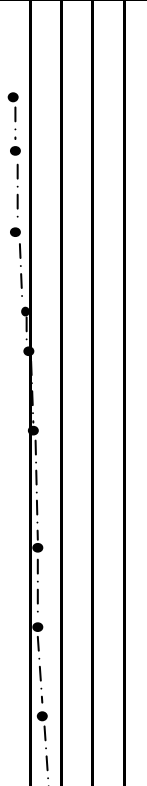
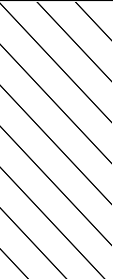

Bore hole N <sup>0</sup> <b>BR4</b>		Location: <i>Nhon Hoa Commune, An Nhon District, Binh Dinh Province</i>					1/ 1 sheet							
X: 1,535,120		Y: 19,296,080			Elevation (m) 6.65									
Drilling date: 15/1/2003		Drilling machine: XY - 1A			Vertical scale 1/100									
Inclination: 90 0		Depth: 10.0 m		Total core recovery:		Water level 1.0 m								
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>0</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT					
									10	20	30	40		
0.6	6.05		0 - 1.3m: Silty CLAY (CM), wet, medium dense, brownish gray to yellowish brown, 60 to 80% sand, 10 to 20% silt and 5 to 20% clay.			BR4/1 0.4 - 0.6								
1.3	5.35		1.3 - 10.0m: Silty SAND (SM) with occasional well-rounded gravel, wet, medium dense to dense, yellowish brown to light gray, about 90% sand, 5% fine (clay/silt) and a little amount of gravel.											
5.0	1.65													
10.0	-3.35													

JF-12

Bore hole N <sup>0</sup> <b>BR5</b>		Location: <i>Phuoc Hiep Commune, Tuy Phuoc District, Binh Dinh Province</i>					1/ 1 sheet						
X: 1,535,377		Y: 19,299,861			Elevation (m) 5.5								
Drilling date: 15/1/2003		Drilling machine: XY - 1A			Vertical scale 1/100								
Inclination: 90 0		Depth: 10.0 m		Total core recovery:		Water level 2.30 m							
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>0</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
0.5	5.00		0 - 1.5m: Silty/Clayey SAND (SC), dry, dense, brownish gray to yellowish brown, about 60 to 80% sand, 10 to 20% silty and 5 to 20% clay.			BR5/1 2.0 - 2.2							
1.5	4.00		1.5 - 3.0m: Clayey/Silty SAND (SC), wet, medium dense, brownish gray, about 60% sand, 20% silt and 15 to 25% clay.										
3.0	2.50		3.0 - 10.0m: Clayey/Silty SAND (SC), wet, dense, brownish gray, about 60% sand, 25% silt and 15% clay.										
10.0	-4.50												

Bore hole N <sup>0</sup> <b>BR6</b>		Location: <i>Phuoc Hoa Commune, Tuy Phuoc District, Binh Dinh Province</i>						1/ 1 sheet											
X: 1,536,642		Y: 19,302,130		Elevation (m)		4.85													
Drilling date: 17/1/2003		Drilling machine: XY - 1A		Vetical scale		1/100													
Inclinnation: 90 <sup>0</sup>		Depth: 10.0 m		Total core recovery:		Water level 2.50 m													
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>0</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT										
									10	20	30	40							
	2.05		0.0 - 2.8m: Silty/Clayey SAND (SM), slightly wet, loose, brownish gray to yellowish brown, about 80% fine sand, 10% silt and 10% clay.																
	0.85		2.8 - 4.0m: Sandy CLAY (CS), wet, soft, gray to black gray, about 35% clay, 35% silt and 30% sand.																
				4.0 - 10.0m: Silty fine SAND (SM), wet, medium dense to dense, greenish brown to black gray, about 90% sand and 10% fine (clay/silty).															
				7.2 - 7.5m: thin lens of Sandy CLAY (CS), wet, soft, greenish gray to black gray, about 35% clay, 30% silt and 35% sand.															
	-2.35																		
	-2.65																		
	-5.15																		

JF-14

Bore hole N <sup>0</sup> <b>BR7</b>		Location: <i>Nhon An Commune, An Nhon District, Binh Dinh Province</i>					1/ 1 sheet						
X: 1,541,753		Y: 19,295,186			Elevation (m) 8.25								
Drilling date: 19/1/2003		Drilling machine: XY - 1A			Vertical scale 1/100								
Inclination: 90 0		Depth: 10.0 m		Total core recovery:		Water level 1.80 m							
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>0</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
1.5	6.75		0.0 - 0.6m: Clayey/silty SAND (SM), slightly wet, loose, brownish gray to brown, about 15% clay, 15% silt and : 13 - 15, sand: 65 - 70. Soil is light wet, light compression.			BR7/1 0.4 - 0.6				10	20	30	40
1.9	6.35		0.6 - 5.8m: Silty SAND (SM) with a little fine gravel, wet, loose to medium dense, yellowish brown to brownish gray, about 90% fine to medium-grained sand, 5% fine (clay/silt) and 5% gravel.										
5.0	3.25		5.8 - 9.4m: Sandy CLAY(CS), wet, firm, greenish gray to brownish gray, about 35% clay, 30% silt and 3% sand.										
5.8	2.45		Below 9.4m: Silty SAND (SM), wet, medium dense, brownish gray, about 95% fine sand and 5% fine (clay/silt).										
10.0	-1.75												

JF-15

Bore hole N <sup>o</sup> <b>BR8</b>		Location: <i>Cat Thang Commune, Phu Cat District, Binh Dinh Province</i>						1/ 1 sheet					
X: 1,543,047		Y: 19,305,222			Elevation (m) 2.64								
Drilling date: 21/1/2003		Drilling machine: XY - 1A			Vertical scale 1/100								
Inclination: 90 0		Depth: 10.0 m		Total core recovery:		Water level 1.40 m							
Depth (m)	Elevation (m)	Lithology	Geological description	Degree of weathering	Core recovery length (m)	N <sup>o</sup> & depth of samples	Depth of water loss or spring	Water pressure test	SPT				
									10	20	30	40	
2.0	0.64		0.0 - 2.0m: Silty/Clayey SAND (SM), slightly wet to wet, loose, brownish gray to black gray, about 20% clay, 20% silt and 60% sand, containing a few shells and molluscs between 2 and 4 m depth.						•				
4.0	-1.36		4.0 - 10.0m: Sandy CLAY (CS), wet, soft, black gray to greenish gray, about 35% clay, 30% silt and 35% fine sand, containing a few shells and molluscs.						•				
10.0	-7.36								•				

**Figure J.4 N Value Distribution with Depth at Boreholes of BR1 to BR8 (1/2)**

Depth (m)	BR1	BR2	BR3	BR4	BR5	BR6	BR7	BR8
-0.5								
-1.0							5	5
-1.5	14	8		10	11	3		
-2.0			5				6	5
-2.5	9	10		12	12	3		
-3.0			5				6	3
-3.5	10	12		13	11	5		
-4.0			6				9	6
-4.5	11	16		15	13	7	10	
-5.0			4					4
-5.5	15	17		15	15	11	11	
-6.0			7					
-6.5	16	21		16	15	15		4
-7.0			10				12	
-7.5	22	23	10	16	23	14		5
-8.0							12	
-8.5		23	18	18	24	14		4
-9.0	24						14	
-9.5		24	19	18	23	16		5
-10.0								
-10.5	13	24	21	19			16	5
Maximum	24	24	21	19	24	16	16	6
Minimum	9	8	4	10	11	3	5	3
Mean	15	18	11	15	16	10	10	5



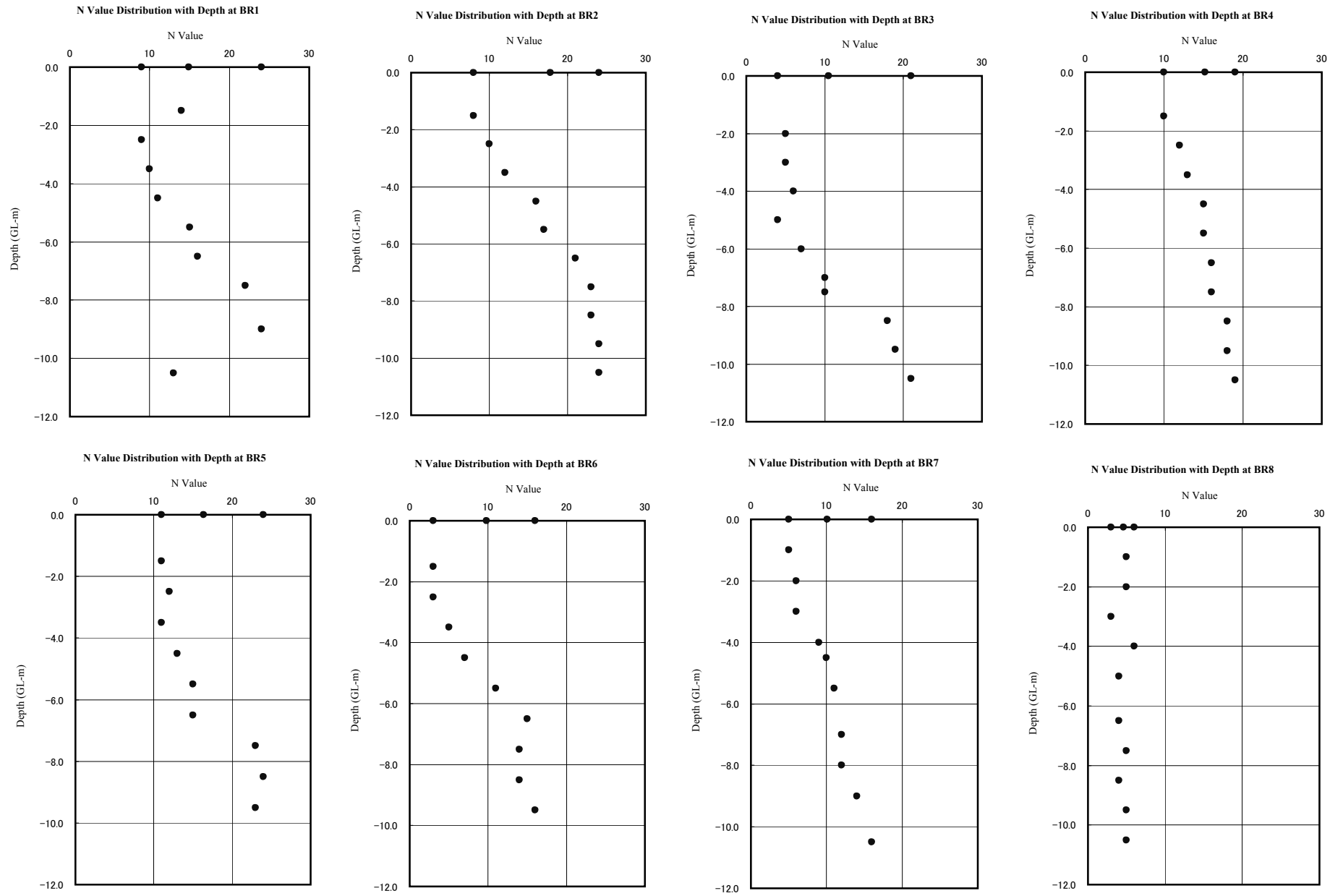


Figure J.4 N Value Distribution with Depth at Boreholes of BR1 to BR8 (2/2)