

**THE PREPARATORY SURVEY ON  
THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT  
IN THE SOCIALIST REPUBLIC OF VIET NAM**

**FINAL REPORT  
VOLUME VI APPENDIX- 4-7**

**May 2012**

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

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**METAWATER CO., LTD  
TOKYO ENGINEERING CONSULTANTS CO., LTD  
KUBOTA CORPORATION  
PRICewaterHOUSE COOPERS CO., LTD**

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## **APPENDIX - 4**

### **GEOLOGICAL SURVEY (SUMMARY)**

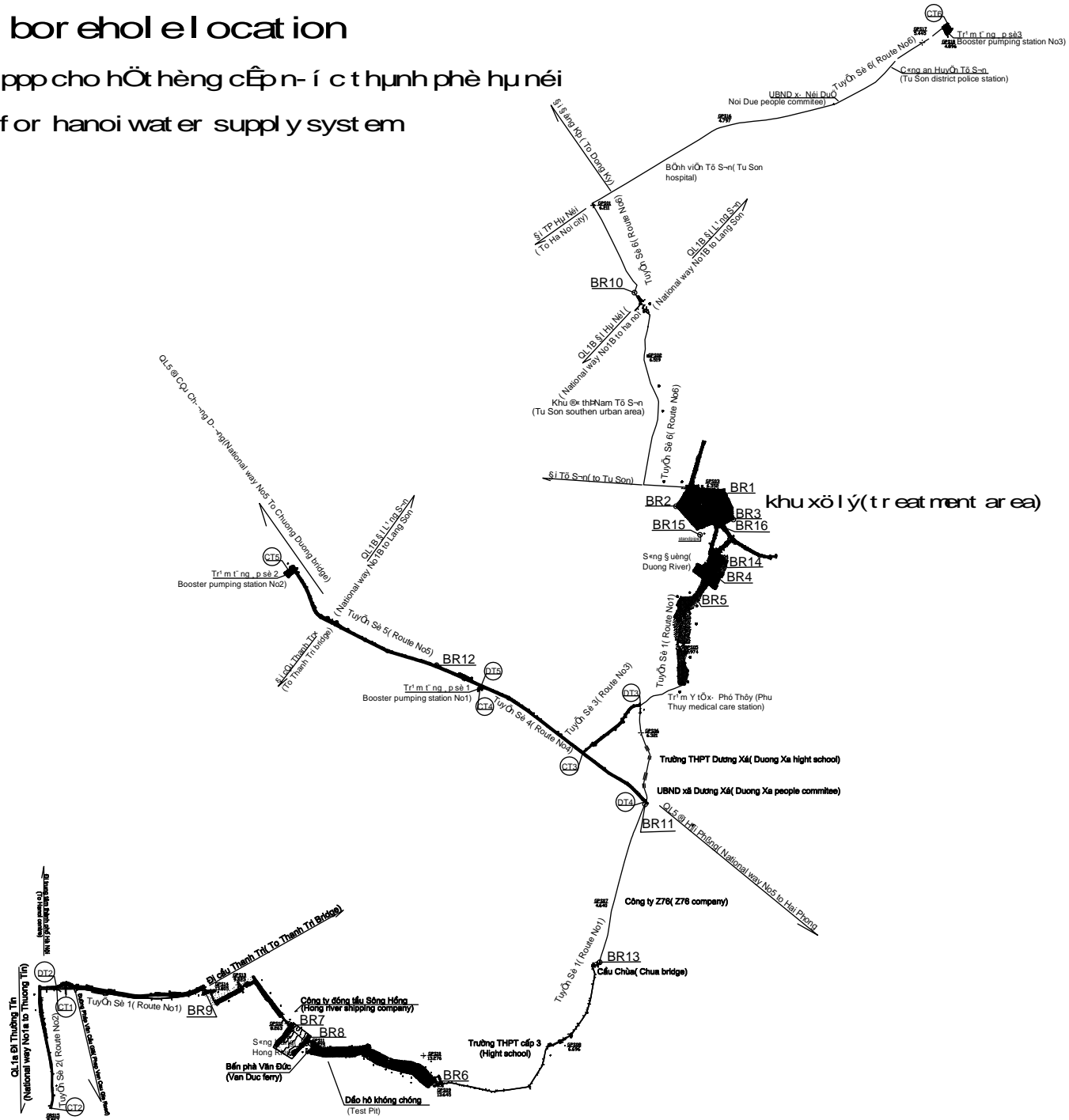
## 1. LOCATION MAP

# plan of borehole location

Chương trình: dự án nghiên cứu PPP cho hệ thống cấp nước thành phố Hà Nội  
 work: the PPP project study for hanoi water supply system

**KÝ HIỆU - LEGEND**

**BR3: BOREHOLE NUMBER**



## 2. BOLING LOG

# boring log

project : the greater hanoi water supply system												
Borehole: <b>BRI</b>		Groundwater level (m):										
Elevation (m): +54		interval 1: 130m			Drilling date: 26/03/2011 - 27/03/2011							
Prepared by: Nguyen phong hai					checked by: nguyen van hoa							
Layer	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 	Number of sample Depth of sample (m)	standard penetration test (spt)				description		
						Depth (m)	Blows/ 15 cm				SPT chart	
							N1	N2	N3			
						N value				0 10 20 30 40 50		
1	4.2	1.2	1.2		U1 6.6-7.0						§ Đất lấp gồm sét, sét pha màu nâu, xám nâu. (Filling soil: Clayed, brownish grey.)	
2			11.4									Sét, sét pha màu xám vàng, nâu sẫm, xám trắng, loang lổ sét, ít đất sét cứng ở tầng trên. (Sandy clayed yellowish grey, stiff)
	-7.2	12.6										Cát pha màu xám nâu, xám vàng sét trắng, ít đất sét. (Clayed sand brownish grey, yellowish grey, plastic).
3	-10.6	16.0	3.4									
4			16.5								Cát hạt mịn, hạt trung màu vàng, xám vàng. (Sandy yellowish grey, yellowish, medium dense).	
5			7.5								Sỏi sạn lẫn cát, màu xám trắng, xám vàng, cát mịn. (Mixed sand whitish, yellowish grey, medium dense)	
	-34.6	40.0										
6			4.7								Cát hạt trung màu xám vàng, cát mịn. (Sandy, yellowish grey medium dense).	
	-39.3	44.7										
7			5.3								Cuối sỏi lẫn cát, hạt trung, hạt thô màu xám trắng, xám vàng, nâu cát mịn. (Gravel mixed grit whitish grey, very dense).	
	-44.6	50.0										

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em											
Bor ehol e: <b>BR2</b>		G round wat er l evel (m):			Dril l ing dat e: 29/03/2011-01/04/2011						
E l evat ion(m): +56		int er val 1: 278m			int er val 2: 280m						
Pr epar ed by: Nguyen phong hai					check ed by: nguyen van hoa						
L ayed	E l evat ion (m)	D ept h (m)	Thi ckness (m)	symbol scal e	Number of sample	st andar d penet rat ion test (spt)				discr iption	
						Depth (m)	Blows/ 15 cm				N value
				1300	Depth of sample(m)		N1	N2	N3	0 10 20 30 40 50	
1	4.6	1.0	1.0								§ Ì l Ì p gám c, t, c, t pha, g <sup>1</sup> ch. (Filling soil: Clayed sandy)
2	1.3	4.3	3.3		U1 3.6-4.0						SĐ, sĐ pha mầu x, m tr <sup>3</sup> áng, x, m vụng, n@ @, loang l@tr <sup>1</sup> ng th, i dĩ o c@ng @n n@ c@ng. (Sandy clayed yellowish grey, brownish, stiff)
3	-5.6	11.2	6.9								C, t pha mầu x, m vụng, n@ @ tr <sup>1</sup> ng th, i dĩ o. (Clayed sand brownish, yellowish grey, plastic).
4	-26.4	32.0	20.8								C, t h <sup>1</sup> t m@, h <sup>1</sup> t trung mầu x, m vụng k@ c@ xèp @n ch@Ev@. T <sup>1</sup> i @ s@ t@ 27m @n 28m g@ th@ k@nh sĐ, sĐ pha. (Sandy yellowish grey, medium dense).
5	-29.4	35.0	3.0								Sái s <sup>1</sup> n l@n c, t mầu x, m tr <sup>3</sup> áng, x, m vụng k@ c@ ch@Ev@. (Mixed sand whitish, yellowish grey, medium dense)
6	-39.4	45.0	10.0		D1 42.0-42.3	40.00 40.27 41.00 41.27 42.00 42.25 43.00 43.25 44.00 44.18 45.00 45.15	17	14/12	>50		Cuéi sái l@n c, t mầu x, m tr <sup>3</sup> áng, x, m vụng k@ c@ ch@Ev@ @n r@ ch@E (Gravel mixed grit whitish grey, very desne).
							25	5/3	>50		
							33		>50		



# boring log

project : the greater hanoi water supply system

Borehole: <b>br 3</b>	Groundwater level (m): interval 1: 95m interval 2: 29m	Drilling date: 13/03/2011 - 25/03/2011
Elevation (m): +59		checked by: nguyen van hoa
Prepared by: Nguyen phong hai		

Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/20	Number of sample Depth of sample(m)	standard penetration test (spt)				discr iption									
						Depth (m)	Blows/ 15 cm				N value	SPT chart							
							N1	N2	N3										
1	5.3	0.6	0.6																§ È l Ép gám @, c, t, sĐ. (Filling soil: Clayed sandy)
2	-3.6	9.5	8.9		U1 1.8-2.2														SĐ, sĐ pha mụu n@, x, m vụng, n@ @á, loang lætr' ng th, i dĩ o cøng @ ãn nõa cøng. (Sandy clayed yellowish grey, brownish, stiff)
3	-26.1	32.0	22.5																C, t h' t m@, h' t trung mụu x, m vụng, x, m @n, x, m tr' ág k Ò c Òu ch' Ævõa. (Sandy blackish grey, yellowish grey, medium dense).
4	-31.1	37.0	5.0																C, t h' t trung, th« l Èn sái s' n mụu x, m vụng k Ò c Òu ch' Ævõa @ ãn ch' Æ (Mixed sand yellowish grey, medium dense)
5	-35.3	41.2	4.2		U2 39.0-39.4														SĐ pha mụu x, m n@ l Èn mĩ n h: u c- @ki chç l Èn s' n sái. (Sandy clay mixed grit brownish grey).
6	-38.4	44.3	3.1			41.50 41.85 42.50 42.75	17	19	14/5	>50									C, t h' t th« l Èn cuéi sái mụu x, m @n, x, m vụng k Ò c Òu ch' Æ (Mixed sand blackish grey, yellowish grey, dense)
7	-39.9	45.5	1.2			43.50 43.69 44.50 44.59	27	10/5		>50									Cuéi sái l Èn c, t h' t th« @a mụu k Ò c Òu ch' Æ @ ãn r È ch' Æ (Gravel mixed grit, very desne).
						45.50 45.65	40/11			>50									

# boring log

project : the greater hanoi water supply system

Borehole: <b>BR4</b>	Groundwater level (m): m	
Elevation(m): -108		Drilling date: 15/04/2011 - 15/04/2011
Prepared by: Nguyen phong hai		checked by: nguyen van hoa

Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/200	Number of sample Depth of sample(m)	standard penetration test (spt)				description									
						Depth (m)	Blows/ 15 cm				SPT chart								
							N1	N2	N3										
1			10.8																N-íc s«ng: River water
2	-10.8 -11.2	10.8 11.2	0.4																Bì n sĐ pha mµu n@, x, m n@ tr' ng th, i chñj. (sandy clay, brownish grey, soft).
3			10.3																C, t h' t trung, h' t mñ mµu @en, x, m @en k@ cĐu xèp @ñ ch/ Evóa. (Sandy, blackish grey, blackish medium dense).
	-21.5	21.5																	

# boring log

project : the greater hanoi water supply system

Borehole: <b>BR5</b>	Groundwater level (m): interval 1: 25m interval 2: 29m	Drilling date: 12/04/2011 - 15/04/2011
Elevation(m): +81		
Prepared by: Nguyen thanh tuan		checked by: nguyen van hoa

Layered	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/200	Number of sample Depth of sample(m)	standard penetration test (spt)				description																																																																																																																																																																																																																																																																																																																																																																																							
						Depth (m)	Blows/ 15 cm				SPT chart																																																																																																																																																																																																																																																																																																																																																																																						
							N1	N2	N3																																																																																																																																																																																																																																																																																																																																																																																								
1	5.5	2.6	2.6		<div style="border: 1px solid green; padding: 2px; display: inline-block;">U1 1.6-2.2</div> <div style="border: 1px solid green; padding: 2px; display: inline-block;">D1 4.5-4.7</div>						SĐ, sĐ pha mùn x, m @en tr'ng th, i dĩ o mOn. (Sandy clayed blackish grey, medium)																																																																																																																																																																																																																																																																																																																																																																																						
2	-31.4	39.5	36.9			<table style="font-size: 8px; border-collapse: collapse;"> <tr><td>2.20</td><td>3</td><td>4</td><td>4</td><td>8</td></tr> <tr><td>3.00</td><td>4</td><td>6</td><td>6</td><td>12</td></tr> <tr><td>3.45</td><td>4</td><td>6</td><td>7</td><td>13</td></tr> <tr><td>4.00</td><td>6</td><td>6</td><td>7</td><td>13</td></tr> <tr><td>4.45</td><td>7</td><td>7</td><td>8</td><td>15</td></tr> <tr><td>5.00</td><td>8</td><td>9</td><td>10</td><td>19</td></tr> <tr><td>5.45</td><td>8</td><td>9</td><td>9</td><td>18</td></tr> <tr><td>6.00</td><td>7</td><td>7</td><td>9</td><td>16</td></tr> <tr><td>6.45</td><td>8</td><td>8</td><td>8</td><td>16</td></tr> <tr><td>7.00</td><td>9</td><td>9</td><td>8</td><td>17</td></tr> <tr><td>7.45</td><td>9</td><td>9</td><td>10</td><td>19</td></tr> <tr><td>8.00</td><td>9</td><td>9</td><td>9</td><td>18</td></tr> <tr><td>8.45</td><td>10</td><td>10</td><td>9</td><td>19</td></tr> <tr><td>9.00</td><td>10</td><td>10</td><td>11</td><td>21</td></tr> <tr><td>9.45</td><td>9</td><td>10</td><td>12</td><td>22</td></tr> <tr><td>10.00</td><td>9</td><td>10</td><td>13</td><td>23</td></tr> <tr><td>10.45</td><td>10</td><td>10</td><td>12</td><td>22</td></tr> <tr><td>11.00</td><td>10</td><td>10</td><td>12</td><td>22</td></tr> <tr><td>11.45</td><td>11</td><td>11</td><td>12</td><td>23</td></tr> <tr><td>12.00</td><td>12</td><td>12</td><td>13</td><td>25</td></tr> <tr><td>12.45</td><td>12</td><td>12</td><td>12</td><td>24</td></tr> <tr><td>13.00</td><td>12</td><td>12</td><td>12</td><td>24</td></tr> <tr><td>13.45</td><td>11</td><td>12</td><td>12</td><td>24</td></tr> <tr><td>14.00</td><td>12</td><td>11</td><td>12</td><td>23</td></tr> <tr><td>14.45</td><td>12</td><td>12</td><td>13</td><td>25</td></tr> <tr><td>15.00</td><td>12</td><td>12</td><td>13</td><td>25</td></tr> <tr><td>15.45</td><td>12</td><td>12</td><td>14</td><td>27</td></tr> <tr><td>16.00</td><td>12</td><td>12</td><td>12</td><td>24</td></tr> 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</table>	2.20	3	4	4	8	3.00	4	6	6	12	3.45	4	6	7	13	4.00	6	6	7	13	4.45	7	7	8	15	5.00	8	9	10	19	5.45	8	9	9	18	6.00	7	7	9	16	6.45	8	8	8	16	7.00	9	9	8	17	7.45	9	9	10	19	8.00	9	9	9	18	8.45	10	10	9	19	9.00	10	10	11	21	9.45	9	10	12	22	10.00	9	10	13	23	10.45	10	10	12	22	11.00	10	10	12	22	11.45	11	11	12	23	12.00	12	12	13	25	12.45	12	12	12	24	13.00	12	12	12	24	13.45	11	12	12	24	14.00	12	11	12	23	14.45	12	12	13	25	15.00	12	12	13	25	15.45	12	12	14	27	16.00	12	12	12	24	16.45	13	13	14	27	17.00	13	13	14	27	17.45	13	14	15	29	18.00	14	15	14	29	18.45	14	14	16	30	19.00	15	15	14	29	19.45	15	14	14	28	20.00	14	14	15	29	20.45	14	14	14	28	21.00	14	14	14	28	21.45	14	14	14	28	22.00	14	14	14	28	22.45	14	14	14	28	23.00	14	14	14	28	23.45	14	14	14	28	24.00	14	14	14	28	24.45	14	14	14	28	25.00	14	14	14	28	25.45	14	14	14	28	26.00	14	14	14	28	26.45	14	14	14	28	27.00	14	14	14	28	27.45	14	14	14	28	28.00	14	14	14	28	28.45	14	14	14	28	29.00	14	14	14	28	29.45	14	14	14	28	30.00	14	14	14	28	30.45	14	14	14	28	31.00	14	14	14	28	31.45	14	14	14	28	32.00	14	14	14	28	32.45	14	14	14	28	33.00	14	14	14	28	33.45	14	14	14	28	34.00	14	14	14	28	34.45	14	14	14	28	35.00	14	14	14	28	35.45	14	14	14	28	36.00	14	14	14	28	36.45	14	14	14	28	37.00	14	14	14	28	37.45	14	14	14	28	38.00	14	14	14	28	38.45	14	14	14	28	39.00	14	14	14	28	39.45	14	14	14	28				C, 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# bor ing l og

sheet no 22

pr oject : t he gr eat er hanoi wat er suppl y syst em


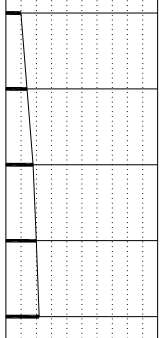
Bor ehol e:	<b>BR5</b>	G ound wat er l evel (m):	
Elevat ion(m):	+81	int er val 1:	25m
		int er val 2:	29m
Pr epar ed by: Nguyen t hanh t uan		Dr il l ing dat e: 12/04/2011- 15/04/2011	
		check ed by: nguyen van hoa	

Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/200	Number of sample Depth of sample(m)	st andar d penet r at ion test (spt)				discr ipt ion	
						Depth (m)	Blows/ 15 cm				SPT chart
							N1	N2	N3		
							0 10 20 30 40 50				
3	-34.9	43.0	3.5	[Symbol]	D2 42.8-43.0	40.00	15	16	17	33	C, t s' n m u x, m tr 3 4 g, x, m v u n g tr 1 ng th, i ch 4 E (Mixed sand whitish, whitish grey, medium dense)
						40.45					
						41.00	16	16	18	34	
						41.45					
						42.00	17	17	18	35	
						42.45					
						43.00	18	19	20	39	
						43.45					
						44.00	20	21	20	41	
						44.45					
						45.00	21	20	22	42	
						45.45					
						46.00	21	20	20	40	
						46.45					
						47.00	20	20	19	39	
						47.45					
						48.00	21	22	21	43	
						48.45					
						49.00	21	21	21	42	
						49.45					
						50.00	21	22	19	41	
						50.45					
						51.00	20	20	22	42	
						51.45					
						52.00	20	20	20	40	
						52.45					
						53.00	20	20	21	41	
						53.45					
						54.00	21	21	22	43	
						54.45					
						55.00	22	22	23	45	
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						56.00	22	23	24	47	
						56.45					
						57.00	26	28	30	>50	
						57.45					
						58.00	30	30	32	>50	
						58.45					
						59.00	32	32	33	>50	
						59.45					
						60.00	33	31	33	>50	
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						61.00	35	35	40	>50	
						61.45					
						62.00	37	35	37	>50	
						62.45					
						63.00	37	37	42	>50	
						63.45					
						64.00	40	39	43	>50	
						64.45					
						65.00	41	41	43	>50	
						65.45					
						66.00	41	41	41	>50	
						66.45					
						67.00	42	41	42	>50	
						67.45					
						68.00	40	40	43	>50	
						68.45					
						69.00	41	41	42	>50	
						69.45					
						70.00	42	41	43	>50	
						70.45					

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em												
Bor ehol e: <b>br 6</b>		Ground wat er l evel (m):										
E l evat ion(m): <b>+7.7</b>		int er val 1: <b>1.5m</b>			Dril l ing dat e: <b>07/04/2011-08/04/2011</b>							
Pr epar ed by: <b>Nguyen t hanh t uan</b>					check ed by: <b>nguyen van hoa</b>							
Lay ed	E l evat ion (m)	Depth (m)	Thickn ess (m)	symbol scal e	Number of sample Depth of sample(m)	st andar d penet r at ion t est (spt)				discr ipt ion		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
							N1	N2	N3			
						0 10 20 30 40 50						
1	-12.8	20.5	20.5		U1 5.0-5.4	2.00	3	3	3	6	SB, sB pha m u u x, m @en @xi ch e x en k h p c, t m n r e t m a n g t r 1 n g t h, i d i o m o n. (Sandy clayed black grey, medium)	
						2.45						
						4.00	3	4	3	7		
						4.45						
						6.00	3	3	4	7		
						6.45						
						8.00	3	4	4	8		
						8.45						
						10.00	3	3	3	6		
						10.45						
						12.00	3	3	3	6		
						12.45						
						14.00	3	4	3	7		
						14.45						
						16.00	3	3	3	6		
16.45												
18.00	3	2	3	5								
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2	-22.3	30.0	9.5		D1 22.0-22.5	20.00	3	2	2	4	C t h t m n m u u x, m v u n g, x, m @en, k o c u ch /E v o a. (Sandy yellowish grey, black grey, medium dense).	
						20.45						
						22.00	3	4	6	10		
						22.45						
						24.00	4	6	6	12		
24.45												
26.00	4	6	5	11								
26.45												
28.00	5	5	6	11								
28.45												
30.00	6	6	7	13								
30.45												

# boring log

project : the greater hanoi water supply system												
Borehole: <b>BR7</b>	Groundwater level (m): m				Drilling date: 15/04/2011 - 15/04/2011							
Elevation(m): -53	Prepared by: Nguyen thanh tuan				checked by: nguyen van hoa							
Layer	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/200	Number of sample Depth of sample(m)	standard penetration test (spt)				description		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
							N1	N2	N3			
1	-5.3	5.3	5.3							N-íc s«ng: River water		
2	-15.3	15.3	10.0			6.00 6.45	2	2	3	5	 <p style="font-size: small; margin-top: 5px;">C, t h' t m m m u x, m @ b o h i s a n- í c h o n t o n k ũ c ũ x ẽ p @ ũ n h / E v o a . (Sandy blackish grey, medium dense).</p>	
					8.00 8.45	2	3	4	7			
					10.00 10.45	3	4	5	9			
					12.00 12.45	4	5	5	10			
					14.00 14.45	4	5	6	11			



# bor ing l og

sheet no 22

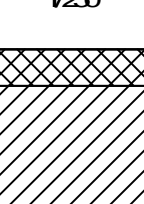
project : the great er hanoi water supply system

Borehole:	<b>br 8</b>	Groundwater level (m):	
Elevation (m):	+62	interval 1:	30m
		interval 2:	29m
Prepared by:	Nguyễn thanh tuan		Drilling date: 03/04/2011 - 06/04/2011
			checked by: nguyen van hoa

Layer	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/200	Number of sample Depth of sample (m)	standard penetration test (spt)				SPT chart	description	
						Depth (m)	Blows/ 15 cm					N value
							N1	N2	N3			
3	-40.8	47.0			D2 43.8-44.0	40.00	12	11	12	23		C, t h' t m b' @ h' t trung m u x, m v u n g, v u n g n h' t t r' n g t h, i c h' v o a @ c h' E (Mixed sand yellowish grey, medium dense)
						40.45	12	11	12	23		
						41.00	12	12	12	24		
						41.45	12	14	16	30		
						42.00	12	14	16	30		
						42.45	14	14	16	30		
						43.00	14	14	16	30		
						43.45	15	16	16	32		
						44.00	15	16	16	32		
						44.45	16	16	16	32		
4	-43.3	49.5	2.5		D3 47.8-48.0	45.00	16	16	16	32		C, t l' e n d' m s' n m u x, m s, n g t r' n g t h, i c h' E (Mixed sand whitish grey, dense)
						45.45	16	16	16	32		
						46.00	17	18	19	37		
5	-63.8	70.0	20.5		D4 56.2-56.4	46.45	18	19	19	38		Cu e i s a i l' e n c, t s' n @ m u t r' n g t h, i r' t c h' E (Gravel mixed grit, very dense).
						47.00	18	19	19	38		
						47.45	19	20	19	39		
						48.00	19	20	19	39		
						48.45	20	20	21	41		
						49.00	20	20	21	41		
						49.45	23	27	30	>50		
						50.00	23	27	30	>50		
						50.45	23	27	30	>50		
						51.00	30	32	45	>50		
						51.45	30	32	45	>50		
						52.00	36	40	42	>50		
						52.45	36	40	42	>50		
						53.00	36	37	38	>50		
						53.45	36	37	38	>50		
						54.00	33	35	40	>50		
						54.45	33	35	40	>50		
						55.00	35	35	36	>50		
						55.45	35	35	36	>50		
						56.00	37	36	38	>50		
56.45	37	36	38	>50								
57.00	40	42	43	>50								
57.45	40	42	43	>50								
58.00	40	41	40	>50								
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60.45	37	40	39	>50								
61.00	38	40	38	>50								
61.45	38	40	38	>50								
62.00	40	41	42	>50								
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65.00	43	44	43	>50								
65.45	43	44	43	>50								
66.00	40	38	42	>50								
66.45	40	38	42	>50								
67.00	41	42	42	>50								
67.45	41	42	42	>50								
68.00	40	38	39	>50								
68.45	40	38	39	>50								
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69.45	43	42	42	>50								
70.00	43	43	42	>50								
70.45	43	43	42	>50								



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pr o j e c t : t h e g r e a t e r h a n o i w a t e r s u p p l y s y s t e m											
Bor ehol e: <b>BR9</b>		G r o u n d w a t e r l e v e l ( m ) : i n t e r v a l 1 : 27m				D r i l l i n g d a t e : 17/04/2011 - 18/04/2011					
E l e v a t i o n ( m ) : +101		i n t e r v a l 2 : 27m									
P r e p a r e d b y : N g u y e n p h o n g h a i					c h e c k e d b y : n g u y e n v a n h o a						
L a y e r	E l e v a t i o n ( m )	D e p t h ( m )	T h i c k n e s s ( m )	s y m b o l s c a l e 	N u m b e r o f s a m p l e D e p t h o f s a m p l e ( m )	s t a n d a r d p e n e t r a t i o n t e s t ( s p t )				d i s c r i p t i o n	
						D e p t h ( m )	B l o w s / 15 c m				S P T c h a r t
							N1	N2	N3		
1	8.9	1.2	1.2							§ Ê l ĩ p : c , t h ' t m ĩ ĩ , @ ...	
2	4.8	5.3	4.1		U1 3.6-4.0	2.00 2.45	3	4	4	8	SĐ m u u n @ , x , m v j u n g , x , m t r ' á g , l o a n g l a e t r ' n g t h , i d ĩ o m ũ n @ ĩ d ĩ o c a n g @ x i c h c x e n k ĩ p sĐ p h a . ( C l a y e d , y e l l o w i s h g r e y , w h i t i n i s h g r e y , m e d i u m t o s t i f f )
						4.00 4.45	2	2	3	5	
3	1.1	9.0	3.7			6.00 6.45	1	2	3	5	SĐ p h a , c , t p h a m u u n @ , x , m n @ @ x i c h c x e n k ĩ p sĐ t r ' n g t h , i d ĩ o m ũ n . ( S a n d y c l a y , b r o w n i s h , b r o w n i s h g r e y , m e d i u m ) .
						8.00 8.45	2	3	3	6	
4	-3.1	13.2	4.2		U2 9.6-10.0	10.00 10.45	3	4	5	9	SĐ m u u n @ , x , m t r ' á g t r ' n g t h , i d ĩ o c a n g . ( C l a y e d , b r o w n i s h , w h i t i n i s h g r e y , s t i f f )
						12.00 12.45	4	5	5	10	
						14.00 14.45	4	5	7	12	
						16.00 16.45	5	7	8	15	
5	-13.7	23.8	10.6			18.00 18.45	7	7	8	15	C , t h ' t n h á , h ' t t r u n g m u u x , m @ ĩ n k ũ c ĩ u c h / E v ũ a . ( S a n d y , b l a c k i s h g r e y m e d i u m d e n s e ) .
						20.00 20.45	5	8	9	17	
						22.00 22.45	7	9	12	21	
						24.00 24.45	1	2	2	4	
						26.00 26.45	1	2	3	5	
6	-19.9	30.0	6.2			28.00 28.45	1	2	3	5	SĐ p h a m u u x , m n @ , x , m @ ĩ n t r ' n g t h , i d ĩ o m ũ n . ( S a n d y c l a y , b r o w n i s h g r e y , b l a c k i s h g r e y , m e d i u m ) .
						30.00 30.45	2	3	3	6	

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em												
Bor ehol e: br 10		Ground wat er l evel (m): int er val 1: 42m			Dril l ing dat e: 03/04/2011 - 05/04/2011							
El evat ion(m): +7.1		int er val 2: 42m			Pr epar ed by: Nguyen phong hai							
El evat ion(m): +7.1		int er val 2: 42m			check ed by: nguyen van hoa							
Lay ed	El evat ion (m)	Depth (m)	Thickn ess (m)	symbol scal e 1/20	Number of sample Depth of sample(m)	st and ar d pen et r at ion t est (spt)				discr ipt ion		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
							N1	N2	N3			
1	6.6	0.5	0.5							0 10 20 30 40 50	§ Ò l Ếp g ả m sĐ, @, s ả i. (Filling soil: Clay ed sandy)	
2	1.7	5.3	4.8		U1 4.6-5.0	2.00 2.45	5	7	9	16		sĐ pha m ụ u n@, x, m @ ẻ n tr 1 ng th, i đ i o c ỏ ng @ ẻ n n ỏ a c ỏ ng. (Sandy clay ed black grey, brownish, stiff)
3	-0.9	8.0	2.7			4.00 4.45	6	7	7	14		C, t pha m ụ u n@, x, m n@, x, m @ ẻ n tr 1 ng th, i đ i o. (Clay ed sand brownish grey, black grey, plastic).
4	-6.4	13.5	5.5			6.00 6.45	3	3	4	7		C, t h 1 t nh ả m ụ u x, m @ ẻ n, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Sandy black grey, medium dense).
5	-10.6	17.7	4.2			8.00 8.45	3	4	5	9		C, t h 1 t trung l ẻ n s 1 n m ụ u x, m tr ả ng, x, m @ ẻ n k Ồ c Ể u ch ả v ỏ a. (Mixed sand whitish grey, black grey, medium dense)
6	-12.4	19.5	1.8			10.00 10.45	5	7	7	14		C, t pha xen k Ỗ c, t m ụ u n@ h ả ng tr 1 ng th, i đ i o. (Clay ed sand brownish grey, plastic).
7	-25.6	32.7	13.2			13.00 13.45	3	4	6	10		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
8	-37.9	45.0	12.3		D1 38.0-38.2	16.00 16.45	6	9	10	19		C, t pha xen k Ỗ c, t m ụ u n@ h ả ng tr 1 ng th, i đ i o. (Clay ed sand brownish grey, plastic).
						18.00 18.45	5	8	10	18		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
						20.00 20.45	4	7	10	17		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
						23.00 23.45	6	9	11	20		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
						26.00 26.45	7	10	12	22		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
						29.00 29.45	9	13	15	28		C, t h 1 t trung, h 1 t th ỏ m ụ u x, m @ ẻ n, x, m v ụng, x, m tr ả ng k Ồ c Ể u ch ả v ỏ a. (Mixed sand black grey, yellowish grey, medium dense)
						32.00 32.45	20	25	35	>50		Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).
						35.00 35.22	22	28	37	>50		Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).
						38.00 38.21	25	32	40	>50		Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).
						40.00 40.18	38	30	12	>50		Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).
						43.00 43.12	40	30	10	>50		Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).
						45.00 45.11						Cu ẻ i s ả i l ẻ n c, t m ụ u x, m tr ả ng, @ m ụ u k Ồ c Ể u ch ả v ỏ a @ ẻ n r ẻ ch ả v ỏ a (Gravel mixed grit, very dense).

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em												
Bor ehole: <b>br 11</b>		Groundwater level (m):			Drilling date: 07/04/2011 - 09/04/2011							
Elevation(m): +53		interval 1: 45m interval 2: 43m										
Prepared by: Nguyen phong hai					checked by: nguyen van hoa							
Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale  1/300	Number of sample Depth of sample(m)	standard penetration test (spt)				discr iption		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
							N1	N2	N3			
1	3.8	1.5	1.5							§ Ê l Êp gãm C <sub>2</sub> t, g <sup>1</sup> ch. (Filling soil: Clayed sandy)		
2			11.5		U1 7.6-8.0	2.00	1	1	1	2	Sã pha mụu x, m xanh, x, m ghi, x, m n@ tr <sup>1</sup> ng th, i d o ch <sup>1</sup> ly @ñ d o m Òn. (Sandy clayed greenish grey, brownish grey, soft to medium)	
						2.45						
						4.00	1	2	2	4		
						4.45						
						6.00	1	1	2	3		
						6.45						
						8.00	1	2	2	4		
						8.45						
						10.00	1	2	3	5		
						10.45						
	-7.7	13.0				12.00	2	2	3	5		
						12.45						
3			33.0		D1 39.0-39.4	15.00	4	6	6	12	C <sub>2</sub> t h <sup>1</sup> t trung mụu x, m vụng, vụng k@ c@u ch/E v@ c@u ch/E (Mixed sand yellowish grey, medium dense)	
						15.45						
						18.00	4	6	8	14		
						18.45						
						21.00	5	7	7	14		
						21.45						
						24.00	5	7	9	16		
						24.45						
						27.00	6	8	11	19		
						27.45						
						30.00	8	10	10	20		
						30.45						
						33.00	7	10	13	23		
						33.45						
						36.00	9	12	13	25		
						36.45						
						39.00	8	15	12	27		
						39.45						
						42.00	9	13	15	28		
						42.45						
	-40.7	46.0				45.00	10	14	19	33		
						45.45						
4			4.0			48.00	18	25	31	>50	C <sub>2</sub> t h <sup>1</sup> t trung, h <sup>1</sup> t th@ l Ên cuéi sái mụu x, m tr@ng k@ c@u ch/E (Mixed sand whitish grey, dense)	
	-44.7	50.0				48.45						
						50.00	21	10/8	>50			
						50.23						

# bor ing l og

project : the great er hanoi water supply syst em												
Borehole: <b>BR12</b>		Groundwater level (m):			Drilling date: 11/04/2011 - 12/04/2011							
Elevation(m): +57		interval 1: 28m			interval 2: 28m							
Prepared by: Nguyen phong hai					checked by: nguyen van hoa							
Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/20	Number of sample Depth of sample(m)	standard penetration test (spt)				discr iption		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
N1 N2 N3			0 10 20 30 40 50									
1	5.2	0.5	0.5	XXXXXX	U1 3.6-4.0	2.00 2.45	2	2	3	5	§ B l Ếp: sĐ, sĐ pha, g' ch... (Filling soil: Clayed, brownish grey.)	
2			21.0	XXXXXX	U1 3.6-4.0	4.00 4.45	2	2	3	5		sĐ, sĐ pha l Ến k Ồ v Ần Ồ xi ch Ặ xen k Ớp h Ầu c Ầ m Ầu x Ầm tr Ầg, x Ầ m Ầng, n Ầ h Ầng tr Ầ ng th Ầ, i đ Ầ o m Ần Ồ đ Ầ o c Ầng. (Sandy clayed yellowish grey, medium to stiff)
				XXXXXX		6.00 6.45	1	2	2	4		
				XXXXXX		8.00 8.45	2	3	3	6		
				XXXXXX		10.00 10.45	2	2	3	5		
				XXXXXX		12.00 12.45	2	3	4	7		
				XXXXXX		14.00 14.45	4	5	5	10		
				XXXXXX		16.00 16.45	4	5	6	11		
				XXXXXX		18.00 18.45	2	2	3	5		
				XXXXXX		20.00 20.45	1	2	3	5		
3	-15.8 -16.6	21.5 22.3	0.8	XXXXXX		22.00 22.45	2	3	4	7	C, t pha m Ầu n Ầ, x Ầ m n Ầ, x Ầ m tr Ầ g tr Ầ ng th Ầ, i đ Ầ o. (Clayed sand brownish grey, whitish grey, plastic).	
4			16.2	XXXXXX	D1 26.0-26.5	24.00 24.45	7	10	11	21	C, t h Ầ t trung, h Ầ t nh Ầ m Ầu x Ầ m tr Ầ g, x Ầ m Ồn k Ồ c Ầu ch Ầ v Ồa Ồ xi ch Ặ l Ến Ầ s Ầ n, k Ớp sĐ pha m Ầu x Ầ m n Ầ, x Ầ m Ồn. (Sandy, blackish grey, medium dense).	
				XXXXXX		26.00 26.45	9	10	13	23		
				XXXXXX		28.00 28.45	8	10	12	22		
				XXXXXX		30.00 30.45	9	11	14	25		
				XXXXXX		32.00 32.45	10	12	15	27		
				XXXXXX		34.00 34.45	10	14	15	29		
				XXXXXX		36.00 36.45	8	14	16	30		
				XXXXXX		38.00 38.45	12	15	17	32		
5	-32.8	38.5	6.5	XXXXXX		40.00 40.45	13	15	19	34		C, t h Ầ t trung, h Ầ t th Ầ l Ến Ầ s Ầ n m Ầu x Ầ m tr Ầ g, x Ầ m Ồn k Ồ c Ầu ch Ầ v Ồ (Sandy, whitish grey, blackish grey, dense).
				XXXXXX		42.00 42.45	10	14	17	31		
	-39.3	45.0		XXXXXX		45.00 45.45	14	16	17	33		

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em

Bor ehol e: <b>BR13</b>	Groundwat er l evel (m):	
Elevat ion(m): <b>+55</b>	int er val 1: <b>45m</b>	Dril l ing dat e: <b>08/04/2011- 10/04/2011</b>
Pr epar ed by: <b>Nguyen t hanh t uan</b>		check ed by: <b>nguyen van hoa</b>

Lay ed	Elevat ion (m)	Depth (m)	Thickn ess (m)	symbol scal e 1/20	Number of sample Depth of sample(m)	st andar d penet rat ion t est (spt)				discr ipt ion		
						Depth (m)	Blows/ 15 cm				SPT chart	
							N1	N2	N3			
1	4.5	1.0	1.0						0 10 20 30 40 50	§ Ò san l Ế m/Éb»ng.		
2			23.5		U1 7.0-7.4	2.00	3	4	3	7		SĐ pha mụu x, m vụng, x, m tr³ng tr¹ ng th, i dĩ o mŒn. (Sandy clayed yellowish grey, medium)
						2.45						
						4.00	4	3	4	7		
						4.45						
						6.00	4	4	4	8		
						6.45						
						8.00	4	3	4	7		
						8.45						
						10.00	4	4	4	8		
						10.45						
						12.00	4	3	3	6		
						12.45						
						14.00	3	3	4	7		
						14.45						
3	-19.0	24.5	3.0		D1 26.0-26.2	24.00	3	3	3	6		C, t pha mụu x, m vụng tr¹ ng th, i dĩ o. (Clayed sand yellowish grey, plastic).
						24.45						
						26.00	3	5	7	12		
						26.45						
4			18.5		D2 30.0-30.2	28.00	8	12	19	31		C, t l Ến nhi Ờu dĩ m s¹ n kŒ cŒu ch/É (Mixed sand whitish, dense)
						28.45						
						30.00	15	15	16	31		
						30.45						
						32.00	17	14	17	31		
						32.45						
						34.00	19	20	21	41		
						34.45						
						36.00	19	19	19	38		
						36.45						
38.00	20	19	20	39								
38.45												
40.00	21	19	22	41								
40.45												
42.00	19	20	22	42								
42.45												
44.00	10	22	23	45								
44.45												
	-40.5	46.0										

# boring log

project : the greater hanoi water supply system												
Borehole: <b>BR14</b>		Groundwater level (m):			Drilling date: 01/06/2011 - 01/06/2011							
Elevation(m): +7.9		interval 1: 35m			interval 2: 35m							
Prepared by: Nguyen phong hai					checked by: nguyen van hoa							
Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1/50	Number of sample Depth of sample(m)	standard penetration test (spt)				discr iption		
						Depth (m)	Blows/ 15 cm				N value	SPT chart
							N1	N2	N3			
1	7.3	0.6	0.6	[diagonal lines]						0 10 20 30 40 50	§ Đất lầy. (Filling soil: Clayed, brownish grey.)	
2	4.6	3.3	2.7	[diagonal lines]	2.00 2.45 3.00 3.45	0	1	1	2		[SPT chart line]	§ Đất pha mùn ở tầng tr1 ng th, i dĩ o chfly. (Sandy clayed brownish, soft)
3			9.4	[diagonal lines]	4.00 4.45 5.00 5.45 6.00 6.45 7.00 7.45 8.00 8.45 9.00 9.45 10.00 10.45 11.00 11.45 12.00 12.45	1	2	3	5		[SPT chart line]	C, t pha, c, t mìn mùn ở tầng tr1 ng th, i dĩ o. (Clayed sand brownish grey, plastic).
4	-4.8 -5.4	12.7 13.3	0.6	[diagonal lines]	13.00 13.45 14.00 14.45	4	6	8	14		[SPT chart line]	§ Đất pha mùn ở tầng. (Sandy clayed brownish, stiff)
5	-17.1	25.0	11.7	[dots]	15.00 15.45 16.00 16.45 17.00 17.45 18.00 18.45 19.00 19.45 20.00 20.45 21.00 21.45 22.00 22.45 23.00 23.45 24.00 24.45 25.00 25.45	5	6	7	13		[SPT chart line]	C, t h' t mìn ở tầng trung mùn x, m ghi, x, m xanh k' c' u ch/ Ev' o. (Sandy grey, greenish grey, medium dense).
						10	12	12	24		[SPT chart line]	

# bor ing l og

pr oject : t he gr eat er hanoi wat er suppl y syst em

Bor ehol e: <b>BR15</b>	Ground wat er l evel (m):	
Elevat ion(m): +60	interval 1: 52m	Dril l ing dat e: 02/06/2011 - 04/06/2011
Pr epar ed by: Nguyen phong hai	interval 2: 51m	check ed by: nguyen van hoa

Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1:300	Number of sample Depth of sample(m)	st andar d penet r at ion t est (spt)				discr iption	
						Depth (m)	Blows/ 15 cm				SPT chart
							N1	N2	N3		
1	5.4	0.6	0.6								
2	1.5	4.5	3.9							§ Ò l Ếp. (Filling soil: Clayed, brownish grey.)	
3			34.0		1.00	2	3	4	7		SĐ pha l Ến k Ỗ v Ận m Ậu n Ậ, n Ậ h Ậng, x, m n Ậ tr Ậng th Ậ, i đ Ậ o m Ận. (Sandy clayed brownish, brownish grey, medium)
					1.45						
					2.00						
					2.45						
					3.00						
					3.45						
					4.00						
					4.45						
					5.00						
					5.45						
					6.00						
					6.45						
					7.00						
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# bor ing l og

project : the great er hanoi water supply system

Borehole: <b>BR16</b>	Groundwater level (m):	
Elevation(m): <b>+6.59</b>	interval 1: <b>50m</b>	Drilling date: <b>04/06/2011 - 06/06/2011</b>
	interval 2: <b>50m</b>	
Prepared by: <b>Nguyen phong hai</b>		checked by: <b>nguyen van hoa</b>

Layed	Elevation (m)	Depth (m)	Thickness (m)	symbol scale 1:300	Number of sample Depth of sample(m)	standard penetration test (spt)				SPT chart	discr iption	
						Depth (m)	Blows/ 15 cm					N value
							N1	N2	N3			
1	6.0	0.6	0.6						0 10 20 30 40 50	§ Đất lầy: sét, sét pha, @ ... (Filling soil: Clayed, brownish grey.)		
2	-0.4	7.0	6.4		1.00	3	5	5	10		Sét mùn nâu, x, m nâu, nâu hàng tr'ng th, i dĩ o cằng. (Sandy clayed brownish grey, stiff)	
					2.00	5	6	6	12			
3	-5.4	12.0	5.0		3.00	4	5	6	11		C, t pha mùn vung, x, m vung tr'ng th, i dĩ o. (Clayed sand yellowish grey, plastic).	
					4.00	5	6	7	13			
4	-10.7	17.3	5.3		5.00	5	7	7	14		C, t h' t nhá mùn x, m @en k' c' ch'Ev'oa. (Sandy blackish grey, medium dense).	
					6.00	5	5	6	11			
5	-17.6	24.2	6.9		7.00	1	2	3	5		Sét pha mùn x, m ghi, x, m nâu, x, m xanh tr'ng th, i dĩ o m' m' dĩ o cằng. (Sandy clayed brownish grey, medium to stiff)	
					8.00	2	2	3	5			
6	-25.7	32.3	8.1		9.45	2	3	3	6		C, t h' t trung mùn vung, x, m vung k' c' ch'Ev'oa. (Sandy yellowish grey, medium dense)	
					10.00	2	4	4	8			
7	-33.2	39.8	7.5		11.45	3	4	5	9		Sái s' n l' c, t mùn x, m tr'ng, x, m vung k' c' ch'Ev'oa @ ch' (Mixed sand whitish, yellowish grey, medium dense to dense)	
					12.00	4	5	7	12			
8	-43.4	50.0	10.2		13.45	4	5	7	12		Cuéi sái l' c, t @ mùn k' c' ch'Ev'oa @ r' ch' (Gravel mixed grit whitish grey, very desne).	
					14.45	4	6	8	14			
					15.00	5	5	8	13			
					16.45	6	8	8	16			
					17.00	4	5	5	10			
					17.45	4	5	6	11			
					18.45	4	6	6	12			
					19.00	2	3	3	6			
					20.45	3	3	4	7			
					21.00	3	3	3	6			
					21.45	3	3	4	7			
					22.00	3	3	3	6			
					23.45	3	3	4	7			
					24.00	4	6	8	14			
					24.45	5	8	8	16			
					25.00	6	8	9	17			
					26.45	7	9	10	19			
					27.00	8	9	10	19			
					28.45	8	9	10	19			
					29.00	8	10	11	21			
					29.45	7	11	11	22			
					30.00	8	11	13	24			
					30.45	10	13	13	26			
					31.00	10	13	14	27			
					31.45	9	13	15	28			
					32.00	10	14	14	28			
					33.45	12	14	13	27			
					34.00	10	12	14	26			
					34.45	9	11	16	27			
					35.00	10	12	14	26			
					35.45	10	12	14	26			
					36.00	10	13	15	28			
					36.45	11	14	17	31			
					37.00	10	15	17	32			
					37.45	12	15	17	32			
					38.00	12	16	16	32			
					38.45	14	17	25	42			
					39.00	21	34	45	>50			
					39.45	27	25/2		>50			
					40.00	36	15/8		>50			
					40.45	44	10/5		>50			
					41.00	50	12		>50			
					41.45							
					42.00							
					42.45							
					43.00							
					43.45							
					44.00							
					44.45							
					45.00							
					45.45							
					46.00							
					46.45							
					47.00							
					47.45							
					48.00							
					48.45							
					49.00							
					49.45							
					50.00							
					50.45							



### 3. NOTES AND CALCULATION OF WATER TO PUT INTO BOREHOLE

vinaconex 36	<b>not esand cal cul at ion of wat er t o put int o bor ehole</b>	Borehole: BR2 Sheet no:1/1
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**const ant l ive head met hod**

<b>wor k:</b> duong river water plant , hanoi city	<b>l ocat ion:</b> fat or y of water
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<b>wor k no:</b>	<b>el evat ion:</b> +56
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<b>it em invest igat ion</b>	<b>t est dat e:</b> 30/03/2011
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Water supply equipment: basket/pump  
 Depth of borehole at time of test: 1400cm  
 Length of test section from 1350cm - 1400cm : L = 50cm  
 Diameter of borehole at test section: D = 9.1cm  
 Depth of casing: 1450cm; Inner diameter of casing: d = 8.9cm  
 Height of casing mouth above ground : l = 20cm  
 Height of test water level above ground: H<sub>1</sub> = 20cm  
 Underground water level: H<sub>2</sub> = 280cm  
 Height of test water volume: H<sub>c</sub> = 300cm

MEASURE NTIME (Mns)	reading number of capacity (l <sup>y</sup> )			capacity consumed Q(l/ph)	cal cul at ion
	before	after	difference		
1	0.00	2.30	2.30	2.30	Bottom coefficient (cm) $F = \frac{2 \pi L}{\ln(2L / D)} = 131.003\text{cm}$
1	2.30	4.50	2.20	2.20	
1	4.50	6.50	2.00	2.00	
1	6.50	8.20	1.70	1.70	
1	8.20	10.90	2.70	2.70	
1	10.90	13.00	2.10	2.10	
1	13.00	14.20	1.20	1.20	
1	14.20	16.10	1.90	1.90	
1	16.10	18.20	2.10	2.10	
1	18.20	20.00	1.80	1.80	
2	20.00	23.80	3.80	1.90	Penetration factor (cm/s): $K = \frac{16.7 Q}{F H_c} = 2.48 \times 10^{-4} \text{ cm/s}$
2	23.80	27.20	3.40	1.70	
2	27.20	30.70	3.50	1.75	
2	30.70	33.30	2.60	1.30	
2	33.30	36.20	2.90	1.45	
5	36.20	43.40	7.20	1.44	
5	43.40	49.10	5.70	1.14	
15	49.10	65.00	15.90	1.06	
15	65.00	76.90	11.90	0.79	
30	76.90	94.40	17.50	0.58	
30	94.40	111.90	17.50	0.58	

<b>Technical staff:</b> Nguyen Phong Hai	<b>Tested by:</b> Nguyen Van Hoa
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vinaconex 36		<b>not esand cal cul at ion of wat er t o put int o bor ehole</b>			Borehole: BR10 Sheet no: 1/1
<b>const ant l ive head met hod</b>					
work: duong river water plant , hanoi city				l ocat ion: QL1B, bac ninh	
work no:				el evat ion: +7.1	
item invest igat ion				t est dat e: 04/04/2011	
<p>Water supply equipment: basket/pump  Depth of borehole at time of test: 1000cm  Length of test section from 950cm - 1000cm : L = 50cm  Diameter of borehole at test section: D = 9.1cm  Depth of casing: 950cm; Inner diameter of casing: d = 8.9cm  Height of casing mouth above ground : l = 20cm  Height of test water level above ground: H<sub>1</sub> = 20cm  Underground water level: H<sub>2</sub> = 420cm  Height of test water volume: H<sub>c</sub> = 440cm</p>					
MEASURE NTIME (Mns)	reading number of capacity (l <sup>y</sup> )			capacit y consumed Q(l/ph)	cal cul at ion
	before	after	difference		
1	25.0	26.5	1.5	1.5	Bottom coefficient (cm) $F = \frac{2 \pi L}{\ln(2 L / D)} = 131.003 \text{cm}$
1	26.5	27.1	0.6	0.6	
1	27.1	27.8	0.7	0.7	
1	27.8	28.2	0.4	0.4	
1	28.2	30.4	2.2	2.2	
1	30.4	32.8	2.4	2.4	
1	32.8	35.3	2.5	2.5	
1	35.3	37.1	1.8	1.8	
1	37.1	38.8	1.7	1.7	
1	38.8	40.0	1.2	1.2	Penetration factor (cm/s): $K = \frac{16.7 Q}{F H_c} = 4.17 \times 10^{-4} \text{ cm/s}$
2	40.0	43.8	3.8	1.9	
2	43.8	47.3	3.5	1.8	
2	47.3	50.0	2.7	1.4	
2	50.0	53.5	3.5	1.8	
2	53.5	57.0	3.5	1.8	
5	57.0	64.7	7.7	1.5	
5	64.7	72.5	7.8	1.6	
10	72.5	88.0	15.5	1.6	
10	88.0	101.8	13.8	1.4	
10	101.8	115.3	13.5	1.4	
15	115.3	136.9	21.6	1.4	
15	136.9	156.3	19.4	1.3	
15	156.3	175.7	19.4	1.3	
Technical staff: Nguyen Phong Hai				Tested by: Nguyen Van Hoa	

vinaconex 36		<b>not esand cal cul at ion of wat er t o put int o bor eh ol e</b>			Borehole: BR11 Sheet no: 1/1	
<b>const ant l ive head met hod</b>						
wor k: duong r iver wat er pl ant , hanoi cit y				l ocat ion: QL5, gia l am		
wor k no:				el evat ion: +53		
it em invest igat ion				t est dat e: 08/04/2011		
<p>Water supply equipment: basket/pump  Depth of borehole at time of test: 1500cm  Length of test section from 1450cm - 1500cm : L = 50cm  Diameter of borehole at test section: D = 9.1cm  Depth of casing: 1450cm; Inner diameter of casing: d = 8.9cm  Height of casing mouth above ground : l = 20cm  Height of test water level above ground: H<sub>1</sub> = 20cm  Underground water level: H<sub>2</sub> =450cm  Height of test water colume: H<sub>c</sub> = 470cm</p>						
MEASURE NTIME (Mns)	reading number of capacity (l <sup>y</sup> )			capacity consumed Q(l/ph)	cal cul at ion	
	before	after	difference			
1	45.00	50.00	5.00	5.00	Bottom coefficient (cm) $F = \frac{2 \pi L}{\ln(2 L / D)} = 131.003\text{cm}$	
1	50.00	53.00	3.00	3.00		
1	53.00	57.00	4.00	4.00		
1	57.00	60.00	3.00	3.00		
1	60.00	63.50	3.50	3.50		
1	63.50	65.80	2.30	2.30		
1	65.80	68.00	2.20	2.20		
1	68.00	69.50	1.50	1.50		
1	69.50	71.00	1.50	1.50		
2	71.00	74.80	3.80	1.90		
2	74.80	78.20	3.40	1.70		
2	78.20	82.10	3.90	1.95		
2	82.10	85.40	3.30	1.65		
2	85.40	88.50	3.10	1.55		
5	88.50	95.80	7.30	1.46		
5	95.80	102.50	6.70	1.34		
10	102.50	113.60	11.10	1.11		
10	113.60	124.00	10.40	1.04		
10	124.00	134.40	10.40	1.04		
10	134.40	144.80	10.40	1.04		
10	144.80	155.20	10.40	1.04		
10	155.20	165.60	10.40	1.04		
<b>Technical staff:</b> Nguyen Phong Hai				<b>Tested by:</b> Nguyen Van Hoa		

vinaconex 36		<b>not esand cal cul at ion of wat er t o put int o bor ehole</b>		Borehole: BR13 Sheet no: 1/1	
<b>const ant l ive head met hod</b>					
<b>wor k:</b> duong river water plant , hanoi cit y				<b>l ocat ion:</b> chua bridge, van giang, hung yen	
<b>wor k no:</b>				<b>el evat ion:</b> +5.5	
<b>it em invest igat ion</b>				<b>t est dat e:</b> 09/04/2011	
<p>Water supply equipment: basket/pump  Depth of borehole at time of test: 1500cm  Length of test section from 1300cm - 1500cm : L = 200cm  Diameter of borehole at test section: D = 9.1cm  Depth of casing: 1300cm; Inner diameter of casing: d = 8.9cm  Height of casing mouth above ground : l = 20cm  Height of test water level above ground: H<sub>1</sub> = 20cm  Underground water level: H<sub>2</sub> =450cm  Height of test water volume: H<sub>c</sub> = 470cm</p>					
MEASUREME NT TIME (Mns)	r eading number of capacit y (l/đ)			capacit y consumed Q(l/ph)	cal cul at ion
	before	after	differ ence		
15	0.00	19.50	19.50	1.30	Bottom coefficient (cm) $F = \frac{2 \pi L}{\ln(2 L / D)} = 331.995 \text{cm}$
15	19.50	37.50	18.00	1.20	
15	37.50	55.50	18.00	1.20	
15	55.50	70.50	15.00	1.00	
15	70.50	84.00	13.50	0.90	
15	84.00	97.20	13.20	0.88	
15	97.20	110.10	12.90	0.86	
15	110.10	123.00	12.90	0.86	
15	123.00	135.90	12.90	0.86	Penetration factor (cm/s): $K = \frac{16.7 Q}{F H_c} = 9.2 \times 10^{-5} \text{ cm/s}$
15	135.90	148.80	12.90	0.86	
15	148.80	161.70	12.90	0.86	
15	161.70	174.60	12.90	0.86	
15	174.60	187.50	12.90	0.86	
<b>Technical staff:</b> Nguyen Phong Hai				<b>Tested by:</b> Nguyen Van Hoa	

**4. DETERMINATION OF LABORATORY RESULTS  
CHANGES IN FORM MODULES BOREHOLE**

DETERMINATION OF LABORATORY RESULTS  
CHANGES IN FORM MODULES BOREHOLE

**Project:** *Water supply system - Song Duong water plant*

**Location:** Ha noi

No	Borehole	Test depth(m)	Diameter (d <sub>0</sub> , cm)	Max pressure (MPa)	Modul (MPa)
1	BR02	3,5 ± 0.1	9,17	1,32	4,18
2	BR08	12,5 ± 0.1	9,17	1,32	3,70
3	BR10	3.8 ± 0.1	9.17	1.20	2.58
4	BR11	3,6 ± 0.1	9,17	1,20	2,66
5	BR13	6,0 ± 0.1	9,17	1,20	3,17

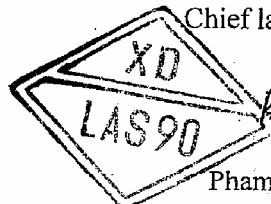
Tester by



Do Thanh Lam

*Ha noi, April 19 - 2011*

Chief laboratory



Pham Viet An

## **5. SUMMARY OF SOIL TEST RESULT**





**SUMMARY OF SOIL TEST RESULT - bảng tổng hợp, kết quả thí nghiệm về lý thuyết - các mẫu đất**

for the preparation survey on Duong river water supply system project in the socialist republic of viet nam

Công trình: dự án cấp nước sông Đà

Test N° Số TN	Boring N° Lỗ khoan	Sample N° Số mẫu	Sample Depth Sâu		Sieve size Cỡ sàng (mm)								Atterberg limits				Moisture content S% Em (W%)	Wet density Khối lượng ướt t (g/cm³)	Dry density Khối lượng khô t (g/cm³)	Specific Gravity Khối lượng riêng G <sub>s</sub>	Porosity Tỷ lệ rỗng (%)	Degree of saturation S <sub>at</sub> (%)	Void Ratio Hố rỗng e	Uniformity coefficient Hệ số đồng đều					Triaxial compression test Thí nghiệm ba trục (UU)		direct shear test Thí nghiệm cắt trực tiếp		Consolidation test Thí nghiệm nén cè k				Class of soil Loại đất	SOIL DESCRIPTION		
			From Từ (m)	To Đến (m)	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic index Chỉ số dẻo I <sub>p</sub> (%)	Liquidity index Chỉ số chảy I <sub>L</sub>								D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	Cu	Cc	cohesion Liên kết C <sub>v</sub> (kG/cm²)	Angle of internal friction Góc ma sát trong φ <sub>u</sub> (°)	Luc đnh k C (kG/cm²)	G <sub>cm</sub> , t trong φ (°)	Coef. of Consolidation Hố số k <sub>v</sub> (10 <sup>-4</sup> cm²/s)	Coef. of Compression Hố số nh <sub>a</sub> (10 <sup>-4</sup> cm²/kg)	Coef. of Permeability Hố số thấm k <sub>v</sub> (10 <sup>-7</sup> cm/s)	Compr. Index Chỉ số nén C <sub>c</sub>			Preconsolidation P <sub>c</sub> Hố số nén trước P <sub>c</sub> (kG/cm²)	Compr. Index Chỉ số nén C <sub>c</sub>
899	ER2	U1	36	40						100	88.0	73.6	26.5	35.75	18.97	16.78	0.28	23.60	1.97	1.59	2.70	41.11	91.29	0.698					0.903	0°00'	0.207	16°28'	3.000	0.330	0.606	0.180	1.17	0.028	CL	Lean clay with sand, mottled (red, yellow, black).
899A	ER2	D1	420	423	100.0	78.12	53	43.1	29	21.9	6.9										2.67					0.100	2.08	11.51	115.10	3.76								GW-GM	Poorly graded gravel with silt and sand, yellowish grey.	

Collected and computed by - Ng-êi tâng hí p

Checked by - Ng-êi kiỐn tra

Date / / 2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - b̄ng t̄ng h̄i p̄, c t ̄nh ch̄i v̄t l̄y m̄c - h̄c c̄a c, c m̄u R̄t**

t̄he preparat̄ory survey on Duong river water supply system project in the socialist republic of viet nam  
C̄ng tr̄nh: nh̄m y- i c s̄ng @̄ng

Test N <sup>o</sup> SỐ TN	Boring N <sup>o</sup> Lỗ khoan	Sample N <sup>o</sup> Số mẫu	Sample Depth S̄ s̄u		Sieve size C̄ s̄ng (mm)								ATTERBERG Limits				Moisture content S̄ Em (W%)	Bulk density Kh̄i l̄ - i ng th̄c t ̄nh (g/cm <sup>3</sup> )		Specific Gravity Kh̄i l̄ - i ng r̄ng G <sub>s</sub> gram <sup>3</sup>	Porosity T̄u i c̄i h̄n (%)	Degree of saturation S̄ b̄ o ng S (%)	Void Ratio H̄ō s̄ r̄ng	Uniformity coefficient H̄ō s̄ c̄ng @̄u					Triaxial compression test n̄h b̄ tr̄c (LU)		direct shear t̄st th̄ng h̄i c̄n c̄ t̄ tr̄c t̄p		Consolidation test t̄ th̄ng h̄i c̄n c̄ h̄ c̄ k̄					Classification Ph̄n l̄ USS	SOIL DESCRIPTION
			From T̄o (m)	To S̄ c̄ (m)	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Gī h̄ n̄ h̄	Plastic limit Gī h̄ n̄ d̄o	Plastic Index Ch̄e s̄ d̄o	Liquidity index S̄ s̄ s̄ (LI)		W <sub>L</sub> (%)	W <sub>p</sub> (%)					I <sub>p</sub> (%)	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion L̄i c̄ h̄n k̄ c̄ (kG/cm <sup>2</sup> )	Angle of internal friction Ḡac M. S̄ tr̄ng φ <sub>i</sub>	L <sub>u</sub> c̄ h̄n k̄ c̄ (kG/cm <sup>2</sup> )	Ḡac m. s̄ t̄ tr̄ng φ <sub>i</sub>	Coeff. of Consolidation H̄ō s̄ c̄ h̄ k̄ c̄ (10 <sup>-3</sup> /cm <sup>2</sup> /s)	Coeff. of Compression H̄ō s̄ n̄ h̄ a <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /kg)	Coeff. of Permeability H̄ō s̄ h̄ h̄n k̄ (10 <sup>-7</sup> cm/s)	Compr. Index Ch̄e s̄ n̄ h̄ c̄		
883	ER3	U1	1.8	2.2					100	98.4	94.2	44.0	46.62	23.78	22.84	0.19	28.10	1.89	1.48	2.71	45.39	91.64	0.831					0.634	0°00'	0.307	17°15'	1.030	0.330	0.193	0.150	1.02	0.033	CL	Lean clay, brownish grey.
884	ER3	U2	3.0	3.4					100	96.8	93.8	29.0	40.94	25.85	15.09	0.79	37.82	1.80	1.31	2.69	51.29	96.62	1.053					0.416	0°00'	0.111	7°51'	1.780	0.770	0.746	0.450	1.20	0.072	ML	Silt, brownish grey, blackish grey.

Collected and computed by - Nḡ-̄i t̄ng h̄i p̄

Checked by - Nḡ-̄i k̄m̄ tr̄a

Date / / 2011

Nguyen My Linh

Ngô Thu Hà

**SUMMARY OF SOIL TEST RESULT - b**ing t ang h i p c, c t y h c h t v t l y v u c - h a c n h a c, c m e u @ t  
 the prepar at o r y sur vey on Duong river water supply system project in the social ist republic of viet nam  
 C o n g t r a n h : n h u m y n - i c s c n g @ u e n g

Test N° Số TN	Bearing N° Lệch khoan	Sample N° Số HỒI MẾU	Sample Depth Sâu		Sieve size Cỡ sàng (mm) Percent passing sieve size % lát sàng									ATIBERG Limits				Bulk density Khối lượng thể tích (g/cm³)	Specific Gravity Khối lượng riêng G <sub>s</sub> g/cm³	Porosity Tỷ lệ rỗng (%)	Degree of saturation Số độ bão hòa (%)	Void Ratio Hố rỗng r					Uniformity coefficient Hố số sàng đều		Triaxial compression test Thử nén ba trục (U)		direct shear test Thử nghiêng t trượt tiếp		Consolidation test Thử nghiêng nén cô kết						Classification phân loại đất	SOIL DESCRIPTION					
			From Từ (m)	To Đến (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic Index Chỉ số dẻo I <sub>p</sub> (%)	Liquidity index Số độ (LI)					Moisture content Số ẩm (W <sub>w</sub> ) %	Wet density Khối lượng thể tích ướt (g/cm³)	Dry density Khối lượng thể tích khô (g/cm³)	e <sub>10</sub>	e <sub>30</sub>	e <sub>50</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion Liên kết C <sub>v</sub> (kG/cm²)	Angle of internal friction Góc M. Strong φ <sub>v</sub> °	Lucy h i k C (kG/cm²)	Góc nghiêng trong φ <sub>t</sub> (°)	(P=1.0 - 2.0 kG/cm²)											
																																		Coef. of Consolidation Hố số cô kết C <sub>v</sub> (10 <sup>-2</sup> m²/m²)	Coef. of Compression Hố số nén c <sub>v</sub> (10 <sup>-2</sup> cm/kg)	Coef. of Permeability Hố số thấm K (10 <sup>-2</sup> cm/s)	Compr. Index Chỉ số nén C <sub>c</sub>	Preconsolidation P <sub>c</sub> Số bão hòa trước (kG/cm²)			Coef. of compression - Hố số nén số cố	CL	SM	SP	GP
1331	BF5	U1	1.8	2.2						100.0	99.8	89.6	8.5	31.05	18.74	12.31	0.49	24.78	1.92	1.54				2.69	42.76	89.23	0.747						0.768	0 <sup>o</sup>	0.207	15 <sup>o</sup> 47'	5.530	0.390	1.319	0.180	0.82	0.039	CL	Lean clay, brownish grey.	
1332	BF5	D1	4.5	4.7						100.0	99.9	31.9		22.15	18.52	3.63								2.67																				SM	Silty sand, brownish grey.
1333	BF5	D2	4.28	4.30						100.0	88.4	60.1	28.7	3.9								0.130	0.45	2.00	15.38	0.78																		SP	Poorly graded sand, light grey, whitish grey.
1334	BF5	DB	4.70	4.72	100.0	42.4	28.4	3.8	3.4	3.1	3.0	2.6										10.000	19.64	31.38	3.14	1.23																		GP	Poorly graded gravel, dark grey, yellowish grey.

Collected and computed by - Nguyễn Thị Hằng

Checked by - Nguyễn Thị Hằng

Date / / 2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - b̄ng t̄ng h̄i p̄, c t ̄nh ch̄t v̄t l ̄y v̄c - h̄c c̄n̄ c, c m̄u @**

the preparator survey on Duong river water supply system project in the socialist republic of viet nam

Công trình: nhũm y n̄ í c s̄ng @ ùng

Test No Số TN	Boring No Lỗ khoan	Sample No Số mẫu	Sample Depth Sâu		Sieve size Kích thước (mm)								ATTERBERG Limits				Bulk density Khối lượng thể tích (g/cm³)		Porosity Tỷ trọng lỗ hổng (%)	Degree of saturation Độ bão hòa (%)	Void Ratio Hệ số rỗng	Uniformity coefficient Hệ số sàng @					Triaxial compression test Thí nghiệm nén ba trục (U)		Direct shear test Thí nghiệm cắt trượt		Consolidation test Thí nghiệm ép cọc					Classification Phân loại	SOIL DESCRIPTION						
			From Từ (m)	To Đến (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic index Chỉ số dẻo I <sub>p</sub> (%)	Liquidity index Chỉ số LL	Moisture content Độ ẩm (%)				Wet density Khối lượng ướt (g/cm³)	Dry density Khối lượng khô (g/cm³)	Specific Gravity Khối lượng riêng G <sub>s</sub>	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion Liên kết C <sub>v</sub> (kG/cm²)	Angle of internal friction Góc ma sát trong φ <sub>v</sub>	Vertical stress Liều áp lực C (kG/cm²)	Horizontal stress Góc ma sát ngoài φ <sub>h</sub>	Normal stress Cường độ ép (P=1.0 - 2.0 kG/cm²)	Swelling pressure Hằng số C <sub>s</sub> (10 <sup>-3</sup> cm <sup>2</sup> /g)			Compression index Chỉ số ép C <sub>c</sub>	Preconsolidation pressure Áp lực ép trước P <sub>c</sub> (kG/cm²)				
1062	ER6	U1	50	54								100.0	98.0	95.0	47.0	51.73	27.46	24.27	0.37	36.33	1.87	1.37	2.76	50.37	98.79	1.015						0.752	0°00'	0.276	15°26'	4.750	0.390	0.972	0.260	1.26	0.036	CH	Fat clay, yellowish brown, black spot.
1063	ER6	D1	220	225								100	95.7	87.0	11.6	21.36	18.14	3.22					2.66																		SC	Poorly graded sand with clay, yellowish brown.	

Collected and computed by - Ng-êi t̄ng h̄i p̄

Checked by - Ng-êi kīn tr̄a

Date / /2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - b̄ng t̄ng h̄i p̄, c̄ t̄ ȳnh ch̄t v̄t l̄ ȳm̄c - h̄ac c̄n̄a c̄, c̄ m̄u @̄t̄**

the preparator survey on Duong river water supply system project in the socialist republic of viet nam

C̄ng tr̄nh: nh̄m̄ ȳn - i c̄ s̄ng @̄ūng

Test N <sup>o</sup> Số TN	Boring N <sup>o</sup> Lý khoan	Sample N <sup>o</sup> Số mẫu	Sample Depth S̄ s̄u		Sieve size C̄ s̄ng (mm)								ATTERBERG Limits					Bulk density Kh̄i l - t̄ng th̄ C̄ ȳh (g/cm <sup>3</sup> )		Porosity T̄u t̄k l̄ h̄n (%)			Void Ratio H̄o s̄ t̄ng	Uniformity coefficient H̄o s̄ s̄ng @̄u					Triaxial compression test Th̄ ȳnh ghi c̄n̄a t̄ng Đ̄n b̄ t̄ r̄c (L)		Consolidation test Th̄ ȳnh ghi c̄n̄a Đ̄n c̄ k̄					Classification ph̄n l̄ ūc	SOIL DESCRIPTION				
			From T̄ (m)	To Đ̄ (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Gī t̄ h̄ n̄ ch̄y W <sub>L</sub> (%)	Plastic limit Gī t̄ h̄ n̄ đ̄o W <sub>p</sub> (%)	Plastic index Ch̄ đ̄e đ̄i c̄ I <sub>p</sub> (%)	Liquidity index S̄ s̄ Đ̄ (L)	Moisture content S̄ s̄ Đ̄ (W%)	Wet density Kh̄i l - t̄ng th̄ t̄m̄ h̄ ȳ Kh̄i l - t̄ng th̄ đ̄i h̄ ȳ c̄	Specific Gravity Kh̄i l - t̄ng r̄ng G, g/cm <sup>3</sup>	Porosity T̄u t̄k l̄ h̄n (%)	Degree of saturation S̄ b̄ o h̄a (S%)		e	D <sub>10</sub>	D <sub>30</sub>	D <sub>50</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion Luc c̄n̄a k̄ C <sub>u</sub> (kG/cm <sup>2</sup> )	Angle of internal friction Ḡo c̄ n̄a s̄ t̄ r̄ng φ <sub>i</sub>	Direct shear test Luc c̄n̄a k̄ C (kG/cm <sup>2</sup> )	Ḡo c̄ n̄a s̄ t̄ r̄ng φ <sub>i</sub> (°)	(P=1.0 - 2.0 kG/cm <sup>2</sup> )							
																																		Coeff. of Consolidation H̄o s̄ s̄ Đ̄ C <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /s)	Coeff. of Compression H̄o s̄ n̄ Đ̄ a <sub>v</sub> (10 <sup>-2</sup> mm <sup>2</sup> /kg)			Coeff. of Permeability H̄o s̄ t̄ Đ̄n K (10 <sup>-6</sup> cm/s)	Compr. Index Ch̄ đ̄e n̄ Đ̄ C <sub>c</sub>	Prec consolidation P <sub>c</sub> H̄o s̄ t̄ Đ̄ p̄ c̄ (kG/cm <sup>2</sup> )	Coeff. of Compression - H̄o s̄ n̄ Đ̄ a <sub>v</sub> (kG/cm <sup>2</sup> )
1057	ER8	U1	1.6	2.0					100.0	99.8	96.0	11.0	32.08	19.88	12.20	0.54	26.41	1.91	1.51	2.71	44.29	90.03	0.795							0.611	0°00'	0.115	12°57'	4.350	0.290	0.735	0.140	1.01	0.021	CL	Lean clay, brownish grey.
1058	ER8	D1	4.2	4.4					100.0	89.6	11.9		20.85	17.33	3.52				2.67						0.070	0.11	0.22	3.14	0.79											SP-SC	Poorly graded sand with clay, grey.
1059	ER8	D2	4.38	4.40					100.0	83.4	1.3								2.66					0.090	0.14	0.26	2.89	0.84												SP	Poorly graded sand, yellowish brown.
1060	ER8	D3	4.78	4.80					100.0	96.6	84.7								2.66					0.50	1.03	2.65	5.30	0.80												SP	Poorly graded sand with gravel, yellowish grey, whitish grey.

Collected and computed by - Ng- ̄i t̄ng h̄i p̄

Checked by - Ng- ̄i k̄ Đ̄n tr̄a

Date / / 2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - bảng tổng hợp, kết quả chất vữa lý học - hóa của các mẫu đất**  
 the preparatory survey on Duong river water supply system project in the socialist republic of viet nam  
 Công trình: dự án cấp nước sông Dương

Test N° Số TN	Boring N° Lỗ khoan	Sample N° Số mẫu đất	Sample Depth Sâu		Sieve size Kích thước (mm) Percent passing sieve size % lát sàng								ATTERBERG Limits				Moisture content Số ẩm (%)	Bulk density Khối lượng thể tích (g/cm³)		Specific Gravity Khối lượng riêng G <sub>s</sub> (g/cm³)	Porosity Tỷ lệ lỗ rỗng (%)	Degree of saturation Độ bão hòa (%)	Void Ratio Hệ số rỗng	Uniformity coefficient Hệ số đồng đều					Triaxial compression test Thí nghiệm nén ba trục (kN)	direct shear test Thí nghiệm cắt trực tiếp	Consolidation test Thí nghiệm nén một trục					Compression Chỉ số nén	Soil Description Mô tả đất				
			From Từ (m)	To Đến (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic index Chỉ số dẻo I <sub>p</sub> (%)		Liquidity index Số số (LI)	Wet density Khối lượng thể tích ướt (g/cm³)					Dry density Khối lượng thể tích khô (g/cm³)	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>			C <sub>c</sub>	Cohesion Liên kết C <sub>v</sub> (kG/cm²)	Angle of internal friction Góc M. Strong φ <sub>v</sub> (°)	Lucas-Hall C (kG/cm²)	G <sub>max</sub> , t trong (%)			Coeff. of Consolidation Hệ số k <sub>v</sub> C <sub>v</sub> (10 <sup>-2</sup> cm²/s)	Coeff. of Compression Hệ số nén α <sub>v</sub> (10 <sup>-2</sup> cm/kg)	Coeff. of Rearrangement Hệ số sắp xếp K <sub>r</sub> (10 <sup>-2</sup> cm/s)	Compr. Index Chỉ số nén C <sub>c</sub>
1335	BF9	U1	36	40						100.0	99.8	97.8	52.0	56.63	27.71	28.92	0.09	30.18	1.81	1.39	2.71	48.72	86.09	0.950						0.592	0°00'	0.238	18°27'	0.740	0.430	0.171	0.210	0.97	0.041	CH	Fat clay, brownish grey.
1336	BF9	U2	96	100						100.0	99.8	98.8	59.0	70.96	33.33	37.63	0.27	43.44	1.75	1.22	2.72	55.16	96.06	1.230						0.453	0°00'	0.184	10°26'	0.530	0.470	0.117	0.310	1.32	0.046	CH	Fat clay, light grey, yellowish grey.

Collected and computed by - Ng-êi tổng hợp

Checked by - Ng-êi kiểm tra

Date / / 2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - b) Jing tang hi pc, ct Ynh chit vet ly vuc - huc nha c, c mau @**

the preparatory survey on Duong river water supply system project in the socialist republic of viet nam

Cong trinh: nhum yn- i c sng @ ueng

Test N <sup>o</sup> Số TN	Boring N <sup>o</sup> Lý khoan	Sample N <sup>o</sup> Số mẫu	Sample Depth Sâu		Sieve size Củng (mm) Percent passing sieve size % lát sụng								ATTERBERG Limits				Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic index Chỉ số dẻo Ip (%)	Liquidity index Chỉ số dẻo LI	Moisture content Số ẩm (%) W <sub>t</sub>	Bulk density Khối lượng thể tích khô ρ <sub>d</sub> (g/cm <sup>3</sup> )	Dry density Khối lượng thể tích khô ρ <sub>s</sub> (g/cm <sup>3</sup> )	Specific Gravity Khối lượng riêng G <sub>s</sub>	Porosity Tỷ lỗ (%) e	Degree of saturation Số bão hòa (%) S <sub>r</sub>	Void Ratio Hệ số rỗng e	Uniformity coefficient Hệ số sàng đều					Triaxial compression test Nén ba trục (U)	direct shear test Thí nghiệm cắt trực tiếp	Consolidation test Thí nghiệm nén cố kết						CLASSIFICATION Phân loại	SOIL DESCRIPTION
			D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion Lực dính kết c <sub>v</sub> (kG/cm <sup>2</sup> )	Angle of internal friction Góc ma sát trong φ <sub>v</sub> <sup>o</sup>	Luc dien ket c (kG/cm <sup>2</sup> )	Góc ma sát trong φ <sub>v</sub> <sup>o</sup>	Coef. of Consolidation Hệ số cố kết C <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /s)	Coef. of Compression Hệ số nén c <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /kG)	Coef. of Permeability Hệ số thấm K (10 <sup>-6</sup> cm/s)	Compr. Index Chỉ số nén C <sub>c</sub>	Preconsolidation P <sub>c</sub> Áp suất cố kết trước p <sub>c</sub> (kG/cm <sup>2</sup> )												Coef. of Compression - H <sub>25</sub> (kG/cm <sup>2</sup> )														
1053	BRD	U1	46	50						100.0	99.2						98.2	30.0	40.96	22.68	18.28	0.14	25.18	1.97	1.57	2.70	41.86		94.43	0.720						0.893	0 <sup>o</sup> 00	0.345	19 <sup>o</sup> 02	2.630	0.220	0.349
1054	BRD	D1	380	382	100.0	83.5	47.4	38.5	29.3	17.3	9.6		20.15	17.33	2.82						2.66						0.080	2.14	12.12	151.50	4.72								GP-GM	Poorly graded gravel with silt and sand, whitish grey, light grey		

Collected and computed by - Nguyễn Thị Ngọc Linh

Checked by - Nguyễn Thị Ngọc Hà

Date / / 2011

Nguyễn Thị Ngọc Linh

Nguyễn Thị Ngọc Hà



**SUMMARY OF SOIL TEST RESULT - b) ñ t ang hí p c, c t Ýnh chÊt vÊt l ý vục - hác cña c, c mÊu @**

the preparator survey on Duong river water supply system project in the socialist republic of viet nam

Cng trnh: nhm yn- í c ñng @ ùng

Test N° SỐ TN	Boring N° Ly khoan	Sample N° SỐ HIỆU MẪU	Sample Depth S depth		Sieve size Chi sng (mm) Percent passing sieve size % lạt sng								ATTERBERG Limits					Liquid limit Giới hạn chảy WL (%)	Plastic limit Giới hạn dẻo WP (%)	Plastic index Chỉ số dẻo Ip (%)	Liquidity index SỐ LÍ (LI)	Moisture content SỐ ẨM (W%)	Bulk density Khối lượng thể tích Vật l. - ñng thê tích (g/cm³)	Dry density Khối lượng thể tích khô Vật l. - ñng thê tích khô (g/cm³)	Specific Gravity Khối lượng riêng G, gram³	Porosity Tỉ số lỗ hổng (%)	Degree of saturation S độ bão hoà (Se%)	Void Ratio Hố số rỗng e	Uniformity coefficient Hố số ñng ñều Cu	Curvature coefficient Hố số cong ñều Cc	Triaxial compression test ñ ñ bấ t rúc (U)		direct shear test thÝnh thí ñm ñ c ñ trúc tiếp		Consolidation test thÝnh thí ñm ñ ñ c ñ k						Coefficient of compression mười lạt uất c	SOIL DESCRIPTION			
			From T ñ (m)	To S ñ (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Wp (%)	Lp (%)	U <sub>1</sub>	U <sub>2</sub>														U <sub>3</sub>	U <sub>4</sub>	U <sub>5</sub>	U <sub>10</sub>	U <sub>20</sub>	U <sub>30</sub>	U <sub>40</sub>	U <sub>50</sub>	U <sub>60</sub>	U <sub>70</sub>			U <sub>80</sub>	U <sub>90</sub>	U <sub>100</sub>
1055	BR11	U1	76	80								100.0	99.8	99.6	42.0	45.72	22.77	22.95	0.53	35.03	1.78	1.32	2.70	51.10	90.51	1.045							0.342	0°00'	0.123	12°57'	0.690	0.580	0.213	0.270	0.65	0.050	CL	Lean clay, brownish grey, greenish grey.	
1056	BR11	D1	330	334								100.0	91.2	21.4		20.22	16.66	3.56						2.67																				SM	Silty sand, yellowish brown.

Collected and computed by - Ng- ñ t ang hí p

Checked by - Ng- ñ t ki ñ tra

Date / /2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - bảng tổng hợp, kết quả thí nghiệm về lý học - hóa học, các mẫu đất**  
 the preparatory survey on Duong river water supply system project in the socialist republic of viet nam  
 Công trình: dự án cấp nước sông Dương

Test No Số TN	Boring No Lỗ khoan	Sample No Số mẫu đất	Sample Depth Sâu		Sieve size Cỡ sàng (mm) Percent passing sieve size % lát sàng								ATTERBERG Limits				Bulk density Khối lượng thể tích (g/cm <sup>3</sup> )		Specific Gravity Khối lượng riêng G <sub>s</sub> (g/cm <sup>3</sup> )	Porosity Tỷ lệ lỗ rỗng (%)	Degree of saturation Độ bão hòa (%)	Void Ratio Hệ số rỗng	Uniformity coefficient Hệ số đồng đều					Triaxial compression test Thí nghiệm ba trục (U)	direct shear test Thí nghiệm cắt trực tiếp	Consolidation test Thí nghiệm nén cố kết					Classification Phân loại đất	SOIL DESCRIPTION					
			From Từ (m)	To Đến (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic index Chỉ số dẻo I <sub>p</sub> (%)	Liquidity index Chỉ số chảy I <sub>L</sub> (%)	Moisture content Số ẩm (%)					Wet density Khối lượng thể tích ướt (g/cm <sup>3</sup> )	Dry density Khối lượng thể tích khô (g/cm <sup>3</sup> )	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>			C <sub>u</sub>	C <sub>c</sub>	Cohesion Liên kết C <sub>v</sub> (kG/cm <sup>2</sup> )	Angle of internal friction Góc M. Strong φ <sub>v</sub>	Lucas-Hicks C (kG/cm <sup>2</sup> )			G <sub>max</sub> , t trong φ <sub>v</sub>	Coef. of Consolidation Hệ số k <sub>v</sub> C <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /s)	Coef. of Compression Hệ số nén α <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /kG)	Coef. of Rearmability Hệ số dẻo K (10 <sup>-2</sup> cm/s)	Compr. Index Chỉ số nén C <sub>c</sub>
1337	ER12	U1	36	40						100.0	99.4	86.2	32.0	43.20	21.52	21.68	0.56	33.64	1.88	1.41	2.72	48.21	98.39	0.931						0.413	0°00'	0.115	12°57'	1.370	0.460	0.349	0.240	0.87	0.040	CL	Lean clay, brown.
1338	ER12	D1	260	265						100.0	99.4	87.5	31.6	21.42	17.85	3.57					2.66																			SM	Silty sand, light grey.

Collected and computed by - Ng-êi tâng hì p

Checked by - Ng-êi kiểu trã

Date / / 2011

Nguyen My Linh

Ngo Thu Ha

**SUMMARY OF SOIL TEST RESULT - bảng tổng hợp kết quả thí nghiệm đất về lý thuyết các chỉ số**  
 the preparatory survey on Duong river water supply system project in the socialist republic of viet nam  
 Công trình: dự án cấp nước sông Đuống

Test No Số TN	Boring No Lỗ khoan	Sample No Số mẫu đất	Sample Depth Sâu		Sieve size Kích thước sàng (mm) Percent passing sieve size % lát sàng								ATTERBERG Limits				Moisture content Số ẩm (%)	Bulk density Khối lượng thể tích (g/cm <sup>3</sup> )		Specific Gravity Khối lượng riêng G <sub>s</sub> (g/cm <sup>3</sup> )	Porosity Tỷ lệ lỗ rỗng (%)	Degree of saturation Độ bão hòa (%)	Void Ratio Hệ số rỗng	Uniformity coefficient Hệ số đồng đều					Triaxial compression test Thí nghiệm nén ba trục (kN)		direct shear test Thí nghiệm cắt trực tiếp		Consolidation test Thí nghiệm nén một chiều				Classification Phân loại đất	SOIL DESCRIPTION		
			From Từ (m)	To Đến (m)	50.8	25.4	19	9.52	4.75	2	0.425	0.075	0.005	Liquid limit Giới hạn chảy W <sub>L</sub> (%)	Plastic limit Giới hạn dẻo W <sub>p</sub> (%)	Plastic Index Chỉ số dẻo I <sub>p</sub> (%)		Liquidity index Số số (LI)	Wet density Khối lượng thể tích ướt (g/cm <sup>3</sup> )					Dry density Khối lượng thể tích khô (g/cm <sup>3</sup> )	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Cohesion Liên kết C <sub>v</sub> (kN/m <sup>2</sup> )	Angle of internal friction Góc M. Strong φ <sub>v</sub>	Lucaschko C (kN/m <sup>2</sup> )	G <sub>max</sub> , t trong φ <sub>v</sub>	Coeff. of Consolidation Hệ số cố kết C <sub>v</sub> (10 <sup>-2</sup> cm <sup>2</sup> /s)	Coeff. of Compression Hệ số nén C <sub>c</sub> (10 <sup>-2</sup> cm/kg)	Coeff. of Rearmability Hệ số tái biến C <sub>r</sub> (10 <sup>-2</sup> cm/s)			Compr. Index Chỉ số nén C <sub>c</sub>	Preconsolidation P <sub>c</sub> Áp suất trước (kN/m <sup>2</sup> )
1339	BR3	U1	70	74					100.0	99.6	98.8	49.0	56.26	26.26	30.00	0.09	29.07	1.87	1.45	2.71	46.50	90.66	0.869						0.621	0°00'	0.253	18°32'	1.230	0.340	0.233	0.250	1.53	0.038	CH	Fat clay, mottled (yellowish grey, reddish brown).
1340	BR3	D1	260	262				100.0	99.1	97.9	91.7	33.0	22.02	18.11	3.91				2.66																				SM	Silty sand, brownish grey.
1341	BR3	D2	300	302				100.0	99.0	68.9	21.0	12.0							2.67																			SM	Silty sand, whitish grey, grey.	

Collected and computed by - Nguyễn Thị Hằng

Checked by - Nguyễn Thị Hằng

Date / / 2011

Nguyễn Thị Hằng

Nguyễn Thị Hằng

## **APPENDIX - 5**

### **BANK LOAN**





## Bank Loan 3

Project term : Phase 1	Fixed method	28 Years		Total	Year																														
		Case	2 OK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Project term : Phase 2	(1: 配当IRR円ベースと同じ、2: 円ベースと同じ価格体系)		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Revenue inflation	6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
Cost inflation	0.00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Exchange volatility	6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
Foreign exchange rate	2.00%		1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	1.219	1.243	1.268	1.294	1.319	1.346	1.373	1.400	1.428	1.457	1.486	1.516	1.546	1.577	1.608	1.641	1.673	1.707	1.741	1.776	1.811	1.848	1.885	1.922
Water distribution ('000,000 m <sup>3</sup> )	20,000		20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445
Unit sales price	82		79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	45	43	41	40	38	37	36	34	33	32	31	29	28	27	26	25	24	23
EIRR(Dividend):VDN			21.89%																																
EIRR(CF):VDN			26.35%																																
EIRR(Dividend):JPY			15.07%																																
EIRR(CF):JPY			19.28%																																
<b>&lt; Profit and Loss &gt;</b>																																			
Operating revenue		869,476																																	
Tariff revenue		869,476																																	
Phase 1		442,540																																	
Phase 2		426,936																																	
Subsidy		-																																	
Sales tax		-																																	
Operating expense		160,221																																	
Cash expense(O&M cost, SGA etc)		91,202																																	
Phase 1		60,441																																	
Phase 2		30,762																																	
Depreciation cost		69,019																																	
Phase 1		49,370																																	
Phase 2		19,648																																	
Operating income		709,255																																	
Deposit interest	Interest 0.00%	-																																	
Interest expense		102,751																																	
Phase 1	Interest 14.50%	71,983																																	
Phase 2	Interest 14.50%	30,768																																	
Earnings before tax and special sales		606,504																																	
Capital gain		-0																																	
Income tax	Average 9%	57,190																																	
Net profit		549,315																																	
<b>&lt; Cash Flow &gt;</b>																																			
Operating income		709,255																																	
+ Depreciation cost		69,019																																	
+ Working capital		-																																	
+ Interest earnings		-																																	
- Income tax		-57,190																																	
+ Reserve for Debt services	12	0																																	
+ Reserve for additional investment	0%	-																																	
Net cash provided by operating activities		721,084																																	
- Initial investment		-69,019																																	
Phase 1		-49,370																																	
Phase 2		-19,648																																	
- Additional investment		-																																	
Phase 1		-																																	
Phase 2		-																																	
+ Equity	20% of total financing	13,861																																	
Phase 1		9,931																																	
Developer		1,586																																	
JICA		8,345																																	
Phase 2		3,930																																	
Developer		628																																	
JICA		3,303																																	
+ Borrowing	80% of total financing	55,433																																	
Phase 1		39,715																																	
Phase 2		15,718																																	
Cash flow before debt services		721,359																																	
- Interest paid	Withholdin 0%	-102,751																																	
Phase 1		-71,983																																	
Phase 2		-30,768																																	
- Repayment		-55,433																																	
Phase 1	Grace 5years	-39,715																																	
Phase 2	Grace 5years	-15,718																																	
Cash flow after debt services		563,175																																	
- Dividend		-549,315																																	
- Equity withdrawal		-13,861																																	
Net cash		-																																	
<b>&lt; Balance sheet &gt;</b>																																			
Cash		275																																	
Free cash		275																																	
Reserve cash		-																																	
Reserve for Debt services		-																																	
Reserve for additional investment		-																																	
Account receivable		-																																	
Fixed asset		5,397																																	
Phase 1		5,397																																	
Phase 2		-																																	
Total Asset		5,672																																	
Account payable		-																																	
Borrowing		-																																	
Phase 1	Tenor 25years	-																																	
Phase 2	Tenor 25years	-																																	
Total liability		-																																	
Equity		5,672																																	
Retained earnings		-																																	
Total Equity		5,672																																	
Check		4.56																																	
DSCR (LLCR for total column)		1.01																																	
CF for PIRR calculation		652,066																																	
CF for EIRR (dividend base) calculation		549,315																																	
CF for EIRR (cash flow base) calculation		549,315																																	







# Bank Loan 6

Fixed method Case 2 OK			28 Years		Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
Project term : Phase 1			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
Project term : Phase 2 (1:配当IRR円ベースと同じ、2:円ベースと同じ債務体系)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
Year			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
Revenue inflation			6.46%	1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891	
Cost inflation			0.00%	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Exchange volatility			6.46%	1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891	
Foreign exchange rate			245	260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640	
Water distribution ('000,000 m³)			2,523	1,314	1,209	0	0	0	52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	
Unit sales price			36	26,364	36	-	-	34	34	34	34	34	35	35	35	35	35	36	36	36	36	36	37	37	37	37	37	38	38	38	38	38	38	38	38	38	
Reference : Inflation fact in JPY/m³ considered in all portion			26,364	-	-	-	-	11,000	11,711	12,467	13,272	14,130	15,043	16,014	17,049	18,150	19,323	20,571	21,900	23,315	24,821	26,424	28,131	29,949	31,883	33,943	36,136	38,470	40,955	43,601	46,417	49,416	-	-	-		
(Unit : '000000VND)																																					
<b>&lt; Profit and Loss &gt;</b>																																					
Operating revenue			665,132	665,132	338,534	326,598	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Operating expense			156,961	91,202	60,441	30,762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earnings before tax and special sales			345,418	508,171	275	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net profit			309,131	537,643	275	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>&lt; Cash Flow &gt;</b>																																					
Operating income			508,171	65,759	-36,287	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cash flow before debt services			537,643	-162,753	-48,759	14,986	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net cash			275	275	275	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>&lt; Balance sheet &gt;</b>																																					
Cash			275	275	275	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asset			5,443	26,641	47,301	48,896	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total liability			17,181	37,840	42,622	52,827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DSCR (LLCR for total column)			0.45	0.51	0.73	0.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CF for PIRR calculation			471,884	-5,168	-21,198	-20,660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CF for EIRR (dividend base) calculation			309,131	-5,443	-4,017	-3,747	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CF for EIRR (cash flow base) calculation			309,131	-5,168	-4,017	-17,919	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-















### Bank Loan 13

Project term : Phase 1	Fixed method	31 Years	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Project term : Phase 2	Case	2 OK		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Year				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Revenue inflation	6.46%		1,065	1,133	1,207	1,285	1,368	1,456	1,550	1,650	1,757	1,870	1,991	2,120	2,256	2,402	2,557	2,723	2,898	3,086	3,285	3,497	3,723	3,964	4,220	4,492	4,783	5,092	5,420	5,771	6,143	6,540	6,963	7,413	7,891	
Cost inflation	JPY	0.00%	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
	VND	6.46%	1,065	1,133	1,207	1,285	1,368	1,456	1,550	1,650	1,757	1,870	1,991	2,120	2,256	2,402	2,557	2,723	2,898	3,086	3,285	3,497	3,723	3,964	4,220	4,492	4,783	5,092	5,420	5,771	6,143	6,540	6,963	7,413	7,891	
	USD	3.50%	1,035	1,071	1,109	1,148	1,188	1,229	1,272	1,317	1,363	1,411	1,460	1,511	1,564	1,619	1,675	1,734	1,795	1,857	1,923	1,990	2,059	2,132	2,206	2,283	2,363	2,446	2,532	2,620	2,712	2,807	2,905	3,007	3,112	
	VND/JPY	5.93%	1,059	1,122	1,189	1,259	1,334	1,413	1,497	1,585	1,679	1,779	1,885	1,996	2,115	2,240	2,373	2,514	2,663	2,821	2,988	3,165	3,353	3,552	3,762	3,985	4,222	4,472	4,737	5,018	5,316	5,631	5,965	6,318	6,693	
	VND/USD	2.00%	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428	1,457	1,486	1,516	1,546	1,577	1,608	1,641	1,673	1,707	1,741	1,776	1,811	1,848	1,885	1,922	
	JPY/USD	-3.71%	0,963	0,927	0,893	0,860	0,828	0,797	0,767	0,739	0,712	0,685	0,660	0,635	0,612	0,589	0,567	0,546	0,526	0,506	0,488	0,469	0,452	0,435	0,419	0,404	0,389	0,374	0,360	0,347	0,334	0,322	0,310	0,298	0,287	
	VND/JPY	245	260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640	
	VND/USD	20,000	20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445	
	JPY/USD	82	79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	45	43	41	40	38	37	36	34	33	32	31	29	28	27	26	25	24	23	
Water distribution ('000,000 m <sup>3</sup> )			2,838	-	-	-	-	52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	
For phase 1			1,472	-	-	-	-	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
For phase 2			1,367	-	-	-	-	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
Unit sales price	in JPY/m <sup>2</sup>	Period average	31	-	-	-	-	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	31	31	31	31	32	32	32	32	32	33	33	33	33	
	in VND/m <sup>2</sup>	Period average	25,620	-	-	-	-	9,500	10,114	10,767	11,463	12,203	12,991	13,831	14,724	15,675	16,688	17,766	18,914	20,135	21,436	22,821	24,295	25,865	27,536	29,314	31,208	33,224	35,370	37,655	40,088	42,677	45,434	48,370	51,494	
(Reference : Inflation fact in JPY/m <sup>2</sup> considered in all portion)			31	-	-	-	-	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	31	31	31	31	32	32	32	32	33	33	33	33	33	
	in VND/m <sup>2</sup>	Period average	25,620	-	-	-	-	9,500	10,114	10,767	11,463	12,203	12,991	13,831	14,724	15,675	16,688	17,766	18,914	20,135	21,436	22,821	24,295	25,865	27,536	29,314	31,208	33,224	35,370	37,655	40,088	42,677	45,434	48,370	51,494	
(Unit : '000000VND)																																				
<b>&lt; Profit and Loss &gt;</b>			<b>Status OK</b>																																	
<b>Operating revenue</b>			<b>727,170</b>																																	
Tariff revenue			727,170	-	-	-	-	4,993	5,316	11,318	12,049	12,828	13,657	14,539	15,478	16,478	17,542	18,676	19,882	21,166	22,534	23,989	25,539	27,189	28,945	30,815	32,806	34,925	37,181	39,583	42,140	44,863	47,761	50,846	54,131	
Phase 1			368,739	-	-	-	-	4,993	5,316	5,659	6,025	6,414	6,828	7,269	7,739	8,239	8,771	9,338	9,941	10,583	11,267	11,995	12,770	13,594	14,473	15,408	16,403	17,463	18,591	19,792	21,070	22,431	23,880	25,423	27,065	
Phase 2			358,430	-	-	-	-	-	5,659	6,025	6,414	6,828	7,269	7,739	8,239	8,771	9,338	9,941	10,583	11,267	11,995	12,770	13,594	14,473	15,408	16,403	17,463	18,591	19,792	21,070	22,431	23,880	25,423	27,065		
Subsidy			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sales tax			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Operating expense</b>			<b>182,372</b>																																	
Cash expense(O&M cost, SGA etc)			111,048	-	-	-	-	1,715	1,506	2,460	2,371	2,829	2,635	3,609	2,404	2,790	2,768	3,411	2,825	4,323	5,442	3,272	3,965	3,743	3,887	4,944	5,621	4,848	4,831	5,735	6,010	6,301	6,609	6,936		
Phase 1			73,429	-	-	-	-	1,715	1,506	1,548	1,515	1,934	1,626	2,318	1,492	1,832	2,249	1,608	1,876	1,796	3,235	4,287	1,916	2,108	2,562	2,625	3,597	4,002	2,566	2,897	3,721	3,911	4,112	4,325	4,551	
Phase 2			37,619	-	-	-	-	-	-	912	856	895	1,009	911	958	1,007	1,160	1,534	1,029	1,089	1,156	1,357	1,858	1,181	1,262	1,348	1,618	2,283	2,015	2,099	2,189	2,284	2,384	2,484		
Depreciation cost			71,325	-	-	-	-	-	-	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	2,743	
Phase 1			52,591	-	-	-	-	-	-	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	2,023	
Phase 2			18,733	-	-	-	-	-	-	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721
<b>Operating income</b>			<b>544,797</b>																																	
Deposit interest	Interest	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interest expense			46,424	-	-	-	-	-	-	4,114	3,962	3,810	3,658	3,453	3,247	3,041	2,835	2,630	2,424	2,218	2,013	1,807	1,601	1,396	1,190	984	779	573	367	161	108	54	0	0		
Phase 1	Interest	7.18%	31,894	-	-	-	-	-	-	3,038	2,886	2,734	2,582	2,430	2,278	2,126	1,974	1,823	1,671	1,519	1,367	1,215	1,063	911	759	608	456	304	152	-	-	-	-			
Phase 2	Interest	7.18%	14,531	-	-	-	-	-	-	1,076	1,076	1,076	1,076	1,023	969	915	861	807	753	700	646	592	538	484	431	377	323	269	215	161	108	54	0	0		
<b>Earnings before tax and special sales</b>			<b>498,373</b>																																	
Capital gain			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Income tax	Average	11%	53,913	-	-	-	-	190	100	149	172	231	237	354	395	435	1,0																			

# Bank Loan 14

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Project term : Phase 1			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Project term : Phase 2			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
Revenue inflation	Fixed method	Case 2 OK	1,065	1,133	1,207	1,285	1,368	1,456	1,550	1,650	1,757	1,870	1,991	2,120	2,256	2,402	2,557	2,723	2,898	3,086	3,285	3,497	3,723	3,964	4,220	4,492	4,783	5,092	5,420	5,771	6,143	6,540	6,963	7,413	7,891		
Cost inflation	JPY	0.00%	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
	VND	6.46%	1,065	1,133	1,207	1,285	1,368	1,456	1,550	1,650	1,757	1,870	1,991	2,120	2,256	2,402	2,557	2,723	2,898	3,086	3,285	3,497	3,723	3,964	4,220	4,492	4,783	5,092	5,420	5,771	6,143	6,540	6,963	7,413	7,891		
	USD	3.50%	1,035	1,071	1,109	1,148	1,188	1,229	1,272	1,317	1,363	1,411	1,460	1,511	1,564	1,619	1,675	1,734	1,795	1,857	1,923	1,990	2,059	2,132	2,206	2,283	2,363	2,446	2,532	2,620	2,712	2,807	2,905	3,007	3,112		
Exchange volatility	VND/JPY	5.93%	1,059	1,122	1,189	1,259	1,334	1,413	1,497	1,585	1,679	1,779	1,885	1,996	2,115	2,240	2,373	2,514	2,663	2,821	2,988	3,165	3,353	3,552	3,762	3,985	4,222	4,472	4,737	5,018	5,316	5,631	5,965	6,318	6,693		
	VND/USD	2.00%	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428	1,457	1,486	1,516	1,546	1,577	1,608	1,641	1,673	1,707	1,741	1,776	1,811	1,848	1,885	1,922		
	JPY/USD	-3.71%	0,963	0,927	0,893	0,860	0,828	0,797	0,767	0,739	0,712	0,685	0,660	0,635	0,612	0,589	0,567	0,546	0,526	0,506	0,488	0,471	0,454	0,438	0,422	0,407	0,392	0,378	0,364	0,351	0,338	0,325	0,313	0,301	0,289		
Foreign exchange rate	VND/JPY	245	260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640		
	VND/USD	20,000	20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445		
	JPY/USD	82	79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	44	42	40	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	
Water distribution ( '000,000 m <sup>3</sup> )			2,838				52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12		
For phase 1			1,472				52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56		
For phase 2			1,367				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unit sales price	in JPY/m <sup>2</sup>	Period average	31	-	-	-	29	29	29	30	30	30	30	30	30	30	31	31	31	31	31	31	31	32	32	32	32	32	32	32	33	33	33	33	33		
	in VND/m <sup>2</sup>	Period average	25,620	-	-	-	9,500	10,114	10,767	11,463	12,203	12,991	13,831	14,724	15,675	16,688	17,766	18,914	20,135	21,436	22,821	24,295	25,865	27,536	29,314	31,208	33,224	35,370	37,655	40,088	42,677	45,434	48,370	51,494			
(Reference : Inflation fact in JPY/m <sup>2</sup>		Period average	31	-	-	-	29	29	29	30	30	30	30	30	30	30	31	31	31	31	31	31	31	32	32	32	32	32	32	33	33	33	33	33	33		
considered in all portion		Period average	25,620	-	-	-	9,500	10,114	10,767	11,463	12,203	12,991	13,831	14,724	15,675	16,688	17,766	18,914	20,135	21,436	22,821	24,295	25,865	27,536	29,314	31,208	33,224	35,370	37,655	40,088	42,677	45,434	48,370	51,494			
(Unit : '000,000 VND)																																					
< Profit and Loss >			Status OK																																		
EIRR(Dividend):VND			21.82%																																		
EIRR(CF):VND			23.05%																																		
EIRR(Dividend):JPY			15.00%																																		
EIRR(CF):JPY			16.16%																																		
Operating revenue			727,170	-	-	-	4,993	5,316	11,318	12,049	12,828	13,657	14,539	15,478	16,478	17,542	18,676	19,882	21,166	22,534	23,989	25,539	27,189	28,945	30,815	32,806	34,925	37,181	39,583	42,140	44,863	47,761	50,846	54,131	-		
Tariff revenue			727,170	-	-	-	4,993	5,316	11,318	12,049	12,828	13,657	14,539	15,478	16,478	17,542	18,676	19,882	21,166	22,534	23,989	25,539	27,189	28,945	30,815	32,806	34,925	37,181	39,583	42,140	44,863	47,761	50,846	54,131	-		
Phase 1			368,739	-	-	-	4,993	5,316	5,659	6,025	6,414	6,828	7,269	7,739	8,239	8,771	9,338	9,941	10,583	11,267	11,995	12,770	13,594	14,473	15,408	16,403	17,463	18,591	19,792	21,070	22,431	23,880	25,423	27,065	-		
Phase 2			358,430	-	-	-	-	5,659	6,025	6,414	6,828	7,269	7,739	8,239	8,771	9,338	9,941	10,583	11,267	11,995	12,770	13,594	14,473	15,408	16,403	17,463	18,591	19,792	21,070	22,431	23,880	25,423	27,065	-			
Subsidy			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sales tax			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Operating expense			176,807	-	-	-	3,394	3,186	4,860	4,771	5,229	5,035	6,009	4,804	5,190	5,657	5,168	5,811	5,225	6,723	7,842	5,672	6,365	6,143	6,287	7,344	8,021	7,248	7,231	8,135	8,410	8,701	9,009	9,336	-		
Cash expense(O&M cost, SGA etc)			111,048	-	-	-	1,715	1,506	2,460	2,371	2,829	2,635	3,609	2,404	2,790	3,257	2,768	3,411	2,825	4,323	5,442	3,272	3,965	3,743	3,887	4,944	5,621	4,848	4,831	5,735	6,010	6,301	6,609	6,936	-		
Phase 1			73,429	-	-	-	1,715	1,506	1,548	1,515	1,934	1,626	2,318	1,492	1,832	2,249	1,608	1,876	1,796	3,235	4,287	1,916	2,108	2,562	2,625	3,597	4,002	2,566	2,897	3,721	3,911	4,112	4,325	4,551	-		
Phase 2			37,619	-	-	-	912	856	856	856	856	856	856	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	912	-	
Depreciation cost			65,759	-	-	-	1,679	1,679	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400		
Phase 1			47,026	-	-	-	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679		
Phase 2			18,733	-	-	-	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	
Operating income			550,363	-	-	-	1,599	2,130	6,458	7,278	7,599	8,622	8,530	10,674	11,288	11,886	13,508	14,071	15,941	15,810	16,147	19,867	20,824	22,803	24,528	25,461	26,905	29,933	32,352	34,005	36,453	39,060	41,837	44,795	-		
Deposit interest	Interest	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Interest expense			50,041	-	-	-	2,804	2,804	3,914	3,774	3,634	3,494	3,298	3,102	2,907	2,711	2,515	2,320	2,124	1,928	1,732	1,537	1,341	1,145	949	754	558	362	167	111	56	0	0	0			
Phase 1	Interest	7.41%	35,049	-	-	-	2,804	2,804	2,804	2,664	2,524	2,383	2,243	2,103	1,963	1,823	1,682	1,542	1,402	1,262	1,122	981	841	701	561	421	280	140	0	0	0	0	0				
Phase 2	Interest	7.41%	14,992	-	-	-	1,110	1,110	1,110	1,110	1,110	1,110	1,055	999	944	888	833	777	722																		





# Bank Loan 17

Year	Fixed method	31 Years	Total																																	
Project term : Phase 1	Case	2 OK		-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Project term : Phase 2	(1:配当IRR円ベースと同じ,2:円ベースと同じ価格体系)			-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Year				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Revenue inflation		6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
Cost inflation	JPY	0.00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	VND	6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
	USD	3.50%		1.035	1.071	1.109	1.148	1.188	1.229	1.272	1.317	1.363	1.411	1.460	1.511	1.564	1.619	1.675	1.734	1.795	1.857	1.923	1.990	2.059	2.132	2.206	2.283	2.362	2.446	2.532	2.620	2.712	2.807	2.905	3.007	3.112
Exchange volatility	VND/JPY	5.93%		1.059	1.122	1.189	1.259	1.334	1.413	1.497	1.585	1.679	1.779	1.885	1.996	2.115	2.240	2.373	2.514	2.663	2.821	2.988	3.165	3.353	3.552	3.762	3.985	4.222	4.472	4.737	5.018	5.316	5.631	5.965	6.318	6.693
	VND/USD	2.00%		1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	1.219	1.243	1.268	1.294	1.319	1.346	1.373	1.400	1.428	1.457	1.486	1.516	1.546	1.577	1.608	1.641	1.673	1.707	1.741	1.776	1.811	1.848	1.885	1.922
	JPY/USD	-3.71%		0.963	0.927	0.893	0.860	0.828	0.797	0.767	0.739	0.712	0.685	0.660	0.635	0.612	0.589	0.567	0.546	0.526	0.506	0.488	0.469	0.452	0.435	0.419	0.404	0.389	0.374	0.360	0.347	0.334	0.322	0.310	0.298	0.287
Foreign exchange rate	VND/JPY	245		260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640
	VND/USD	20,000		20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445
	JPY/USD	82		79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	45	43	41	40	38	37	36	34	33	32	31	29	28	27	26	25	24	23
Water distribution ('000,000 m <sup>3</sup> )				2,838	0	0	0	52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12
For phase 1				1,472	0	0	0	52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12
For phase 2				1,367	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unit sales price	in JPY/m <sup>3</sup>	Period average		33	-	-	-	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
	in VND/m <sup>3</sup>	Period average		27,495	-	-	-	10,195	10,854	11,555	12,301	13,096	13,942	14,843	15,801	16,822	17,909	19,066	20,297	21,609	23,004	24,491	26,073	27,757	29,550	31,459	33,491	35,655	37,958	40,410	43,021	45,800	48,758	51,908	55,262	
(Reference : Inflation fact in JPY/m <sup>3</sup>		Period average		33	-	-	-	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
considered in all portion		Period average		27,495	-	-	-	10,195	10,854	11,555	12,301	13,096	13,942	14,843	15,801	16,822	17,909	19,066	20,297	21,609	23,004	24,491	26,073	27,757	29,550	31,459	33,491	35,655	37,958	40,410	43,021	45,800	48,758	51,908	55,262	
(Unit : '000000VND)																																				
< Profit and Loss >				Status OK				PIRR 15.22%				EIRR(Dividend):JPN 13.26%				EIRR(CF):VND 19.98%				EIRR(CF):JPN 22.16%																
Operating revenue			780,370	-	-	-	-	5,359	5,705	12,146	12,931	13,766	14,656	15,602	16,610	17,683	18,826	20,042	21,337	22,715	24,182	25,744	27,408	29,178	31,063	33,070	35,206	37,480	39,902	42,479	45,223	48,145	51,255	54,566	58,091	
Tariff revenue			780,370	-	-	-	-	5,359	5,705	12,146	12,931	13,766	14,656	15,602	16,610	17,683	18,826	20,042	21,337	22,715	24,182	25,744	27,408	29,178	31,063	33,070	35,206	37,480	39,902	42,479	45,223	48,145	51,255	54,566	58,091	
Phase 1			395,717	-	-	-	-	5,359	5,705	6,073	6,466	6,883	7,328	7,801	8,305	8,842	9,413	10,021	10,668	11,357	12,091	12,872	13,704	14,589	15,532	16,535	17,603	18,740	19,951	21,240	22,612	24,072	25,627	27,283	29,045	
Phase 2			384,653	-	-	-	-	-	-	6,073	6,466	6,883	7,328	7,801	8,305	8,842	9,413	10,021	10,668	11,357	12,091	12,872	13,704	14,589	15,532	16,535	17,603	18,740	19,951	21,240	22,612	24,072	25,627	27,283	29,045	
Subsidy			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales tax			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating expense			185,331	-	-	-	-	1,715	1,506	5,317	5,228	5,686	5,492	6,466	5,261	5,647	6,114	6,625	6,268	5,682	7,180	8,299	6,129	6,822	6,600	6,744	7,801	8,478	7,705	7,688	8,592	8,867	9,158	9,466	9,793	
Cash expense(O&M cost, SGA etc)			111,048	-	-	-	-	1,715	1,506	2,460	2,371	2,829	2,635	3,609	2,404	2,790	3,257	2,768	3,411	2,825	4,323	5,442	3,272	3,965	3,743	3,887	4,944	5,621	4,848	4,831	5,735	6,010	6,301	6,609		
Phase 1			73,429	-	-	-	-	1,715	1,506	1,548	1,515	1,934	1,626	2,318	1,492	1,832	2,249	1,608	1,876	1,796	3,235	4,287	1,916	2,108	2,562	2,625	3,597	4,002	2,566	2,897	3,721	3,911	4,112	4,325		
Phase 2			37,619	-	-	-	-	-	-	912	856	895	1,009	1,291	911	958	1,007	1,160	1,534	1,029	1,089	1,156	1,357	1,858	1,181	1,262	1,348	1,618	2,283	2,015	2,099	2,189	2,284	2,384		
Depreciation cost			74,283	-	-	-	-	-	-	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	
Phase 1			55,550	-	-	-	-	-	-	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137		
Phase 2			18,733	-	-	-	-	-	-	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	
Operating income			595,039	-	-	-	-	3,644	4,198	6,829	7,703	8,081	9,164	9,136	11,350	12,036	12,712	14,417	15,069	17,033	17,002	17,445	21,278	22,356	24,463	26,325	27,405	29,003	32,196	34,791	36,631	39,278	42,097	45,100	48,298	
Deposit interest	Interest	0.00%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interest expense			73,837	-	-	-	-	-	-	6,561	6,315	6,070	5,824	5,496	5,168	4,840	4,512	4,184	3,856	3,528	3,200	2,872	2,544	2,216	1,888	1,559	1,231	903	575	247	165	82	0	0		
Phase 1	Interest	11.00%	51,582	-	-	-	-	-	-	4,913	4,667	4,421	4,176	3,930	3,684	3,439	3,193	2,948	2,702	2,456	2,211	1,965	1,719	1,474	1,228	983	737	491	246							



Bank Loan 19

Project term : Phase 1	Fixed method	31 Years	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Project term : Phase 2	Case	2 OK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Year				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Revenue inflation		6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
Cost inflation	JPY	0.00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	VND	6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
	USD	3.50%		1.035	1.071	1.109	1.148	1.188	1.229	1.272	1.317	1.363	1.411	1.460	1.511	1.564	1.619	1.675	1.734	1.795	1.857	1.923	1.990	2.059	2.132	2.206	2.283	2.363	2.446	2.532	2.620	2.712	2.807	2.905	3.007	3.112
	VND/JPY	5.93%		1.059	1.122	1.189	1.259	1.334	1.413	1.497	1.585	1.679	1.779	1.885	1.996	2.115	2.240	2.373	2.514	2.663	2.821	2.988	3.165	3.353	3.552	3.762	3.985	4.222	4.472	4.737	5.018	5.316	5.631	5.965	6.318	6.693
	VND/USD	2.00%		1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	1.219	1.243	1.268	1.294	1.319	1.346	1.373	1.400	1.428	1.457	1.486	1.516	1.546	1.577	1.608	1.641	1.673	1.707	1.741	1.776	1.811	1.848	1.885	1.922
	JPY/USD	-3.71%		0.963	0.927	0.893	0.860	0.828	0.797	0.767	0.739	0.712	0.685	0.660	0.635	0.612	0.589	0.567	0.546	0.526	0.506	0.488	0.469	0.452	0.435	0.419	0.404	0.389	0.374	0.360	0.347	0.334	0.322	0.310	0.298	0.287
	VND/JPY	245		260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640
	VND/USD	20,000		20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445
	JPY/USD	82		79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	45	43	41	40	38	37	36	34	33	32	31	29	28	27	26	25	24	23
Water distribution ('000,000 m <sup>3</sup> )			2,838					52.56	52.56	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	105.12	
For phase 1			1,472					52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
For phase 2			1,367							52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
Unit sales price	in JPY/m <sup>3</sup>	Period average	36	-	-	-	34	34	34	34	34	35	35	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	38	38	38	38	38	39	39	
	in VND/m <sup>3</sup>	Period average	29,733	-	-	-	11,025	11,737	12,496	13,303	14,162	15,077	16,051	17,088	18,192	19,367	20,618	21,950	23,368	24,877	26,485	28,195	30,017	31,956	34,020	36,218	38,558	41,048	43,700	46,523	49,529	52,728	56,134	59,761		
	in JPY/m <sup>3</sup>	Period average	36	-	-	-	34	34	34	34	34	35	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	37	38	38	38	38	38	39	39	
	in VND/m <sup>3</sup>	Period average	29,733	-	-	-	11,025	11,737	12,496	13,303	14,162	15,077	16,051	17,088	18,192	19,367	20,618	21,950	23,368	24,877	26,485	28,195	30,017	31,956	34,020	36,218	38,558	41,048	43,700	46,523	49,529	52,728	56,134	59,761		
(Unit : '000,000VND)																																				
< Profit and Loss >																																				
Operating revenue			843,905					5,795	6,169	13,135	13,984	14,887	15,849	16,873	17,963	19,123	20,358	21,674	23,074	24,564	26,151	27,841	29,639	31,554	33,592	35,762	38,072	40,532	43,150	45,938	48,905	52,065	55,428	59,009	62,820	
Tariff revenue			843,905					5,795	6,169	13,135	13,984	14,887	15,849	16,873	17,963	19,123	20,358	21,674	23,074	24,564	26,151	27,841	29,639	31,554	33,592	35,762	38,072	40,532	43,150	45,938	48,905	52,065	55,428	59,009	62,820	
Phase 1			427,934					5,795	6,169	6,568	6,992	7,444	7,924	8,436	8,981	9,562	10,179	10,837	11,537	12,282	13,076	13,920	14,820	15,777	16,796	17,881	19,036	20,266	21,575	22,969	24,453	26,032	27,714	29,504	31,410	
Phase 2			415,970							6,568	6,992	7,444	7,924	8,436	8,981	9,562	10,179	10,837	11,537	12,282	13,076	13,920	14,820	15,777	16,796	17,881	19,036	20,266	21,575	22,969	24,453	26,032	27,714	29,504	31,410	
Subsidy			-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales tax			-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating expense			185,331				1,715	1,506	5,317	5,228	5,686	5,492	6,466	5,261	5,647	6,114	5,625	6,268	5,682	7,180	8,299	6,129	6,822	6,600	6,744	7,801	8,478	7,705	7,688	8,592	8,867	9,158	9,466	9,793		
Cash expense(O&M cost, SGA etc)			111,048				1,715	1,506	2,460	2,371	2,829	2,635	3,609	2,404	2,790	2,768	3,411	2,825	4,323	3,423	5,442	3,272	3,965	3,743	3,887	4,944	5,621	4,848	4,831	5,735	6,010	6,301	6,609	6,936		
Phase 1			73,429				1,715	1,506	1,548	1,515	1,934	1,626	2,318	1,492	1,832	2,249	1,608	1,876	1,796	3,235	4,287	1,916	2,108	2,562	2,625	3,597	4,002	2,566	2,897	3,271	3,911	4,112	4,325	4,551		
Phase 2			37,619						912	856	895	1,009	1,291	911	958	1,007	1,160	1,534	1,029	1,089	1,156	1,357	1,858	1,181	1,262	1,348	1,618	2,283	1,935	2,015	2,099	2,189	2,284	2,384		
Depreciation cost			74,283						2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	2,857	
Phase 1			55,550						2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	2,137	
Phase 2			18,733						720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	
Operating income			658,574				4,080	4,663	7,818	8,755	9,202	10,357	10,407	12,702	13,476	14,245	16,049	16,806	18,882	18,971	19,541	23,510	24,731	26,992	29,018	30,271	32,054	35,445	38,249	40,313	43,198	46,270	49,543	53,028		
Deposit interest	Interest	0.00%	-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interest expense			73,837						6,561	6,315	6,070	5,824	5,496	5,168	4,840	4,512	4,184	3,856	3,528	3,200	2,872	2,544	2,216	1,888	1,559	1,231	903	575	247	165	82	0	0	0		
Phase 1	Interest	11.00%	51,582						4,913	4,667	4,421	4,176	3,930	3,684	3,439	3,193	2,948	2,702	2,456	2,210	1,965	1,719	1,474	1,228	983	737	491	246	0	0	0	0	0			
Phase 2	Interest	11.00%	22,255						1,649	1,649</																										

Bank Loan 20

Project term : Phase 1	Fixed method	31 Years	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Project term : Phase 2	Case 2 OK	(1: 配当IRR内ベースと同じ, 2: 内ベースと同じ価格体系)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Year				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Revenue inflation		6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
Cost inflation	JPY	0.00%		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	VND	6.46%		1.065	1.133	1.207	1.285	1.368	1.456	1.550	1.650	1.757	1.870	1.991	2.120	2.256	2.402	2.557	2.723	2.898	3.086	3.285	3.497	3.723	3.964	4.220	4.492	4.783	5.092	5.420	5.771	6.143	6.540	6.963	7.413	7.891
	USD	3.50%		1.035	1.071	1.109	1.148	1.188	1.229	1.272	1.317	1.363	1.411	1.460	1.511	1.564	1.619	1.675	1.734	1.795	1.861	1.923	1.990	2.059	2.132	2.206	2.283	2.363	2.446	2.532	2.620	2.712	2.807	2.905	3.007	3.112
	VND/JPY	5.93%		1.059	1.122	1.189	1.259	1.334	1.413	1.497	1.585	1.679	1.779	1.885	1.996	2.115	2.240	2.373	2.514	2.663	2.821	2.988	3.165	3.353	3.552	3.762	3.985	4.222	4.472	4.737	5.018	5.316	5.631	5.965	6.318	6.693
	VND/USD	2.00%		1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	1.219	1.243	1.268	1.294	1.319	1.346	1.373	1.400	1.428	1.457	1.486	1.516	1.546	1.577	1.608	1.641	1.673	1.707	1.741	1.776	1.811	1.848	1.885	1.922
	JPY/USD	-3.71%		0.963	0.927	0.893	0.860	0.828	0.797	0.767	0.739	0.712	0.685	0.660	0.635	0.612	0.589	0.567	0.546	0.526	0.506	0.488	0.469	0.452	0.435	0.419	0.404	0.389	0.374	0.360	0.347	0.334	0.322	0.310	0.298	0.287
	VND/JPY	245		260	275	291	308	327	346	367	388	411	436	462	489	518	549	581	616	652	691	732	775	821	870	922	976	1,034	1,096	1,161	1,229	1,302	1,380	1,461	1,548	1,640
	VND/USD	20,000		20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445
	JPY/USD	82		79	76	73	70	68	65	63	60	58	56	54	52	50	48	46	45	43	41	40	38	37	36	34	33	32	31	29	28	27	26	25	24	23
Water distribution ('000,000 m³)				2,838	0	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56
For phase 1				1,472	0	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56
For phase 2				1,367	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unit sales price				35				33	33	33	33	33	34	34	34	34	34	34	35	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	37	37
	in JPY/m²	Period average		28,841				10,694	11,385	12,121	12,904	13,737	14,625	15,569	16,575	17,646	18,786	19,999	21,291	22,667	24,131	25,690	27,349	29,116	30,997	32,999	35,131	37,401	39,817	42,389	45,127	48,042	51,146	54,450	57,967	
	in VND/m²	Period average		35				33	33	33	33	34	34	34	34	34	35	35	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	37	37	37
(Reference : Inflation fact in JPY/m²)				28,841				10,694	11,385	12,121	12,904	13,737	14,625	15,569	16,575	17,646	18,786	19,999	21,291	22,667	24,131	25,690	27,349	29,116	30,997	32,999	35,131	37,401	39,817	42,389	45,127	48,042	51,146	54,450	57,967	
(Reference : Inflation fact in VND/m²)				35				33	33	33	33	34	34	34	34	35	35	35	35	35	35	35	36	36	36	36	36	37	37	37	37	37	37	37	37	37
(Unit : '000000VND)																																				
< Profit and Loss >																																				
Operating revenue				818,581	-	-	-	5,621	5,984	12,741	13,564	14,440	15,373	16,366	17,424	18,549	19,748	21,023	22,381	23,827	25,366	27,005	28,750	30,607	32,584	34,689	36,930	39,316	41,855	44,559	47,438	50,502	53,765	57,238	60,935	
Tariff revenue				818,581	-	-	-	5,621	5,984	12,741	13,564	14,440	15,373	16,366	17,424	18,549	19,748	21,023	22,381	23,827	25,366	27,005	28,750	30,607	32,584	34,689	36,930	39,316	41,855	44,559	47,438	50,502	53,765	57,238	60,935	
Phase 1				415,093	-	-	-	5,621	5,984	6,371	6,782	7,220	7,687	8,183	8,712	9,275	9,874	10,512	11,191	11,914	12,683	13,503	14,375	15,303	16,292	17,344	18,465	19,658	20,928	22,280	23,719	25,251	26,882	28,619	30,468	
Phase 2				403,488	-	-	-	-	-	6,371	6,782	7,220	7,687	8,183	8,712	9,275	9,874	10,512	11,191	11,914	12,683	13,503	14,375	15,303	16,292	17,344	18,465	19,658	20,928	22,280	23,719	25,251	26,882	28,619	30,468	
Subsidy				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales tax				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating expense				176,807	-	-	-	3,394	3,186	4,860	4,771	5,229	5,035	6,009	4,804	5,190	5,657	5,168	5,811	5,225	6,723	7,842	5,672	6,365	6,143	6,287	7,344	8,021	7,248	7,231	8,135	8,410	8,701	9,009	9,336	
Cash expense(O&M cost, SGA etc)				111,048	-	-	-	1,715	1,506	2,460	2,371	2,829	2,635	3,609	2,404	2,790	3,257	2,768	3,411	2,825	4,323	5,442	3,272	3,965	3,743	3,887	4,944	5,621	4,848	4,831	5,735	6,010	6,301	6,609	6,936	
Phase 1				73,429	-	-	-	1,715	1,506	1,548	1,515	1,934	1,626	2,318	1,492	1,832	2,249	1,608	1,876	1,796	3,235	4,287	1,916	2,108	2,562	2,625	3,597	4,002	2,566	2,897	3,221	3,911	4,112	4,325	4,551	
Phase 2				37,619	-	-	-	912	856	895	856	895	1,009	1,291	911	958	1,007	1,160	1,534	1,029	1,089	1,156	1,357	1,858	1,181	1,262	1,348	1,618	2,283	1,935	2,019	2,099	2,189	2,284	2,384	
Depreciation cost				65,759	-	-	-	1,679	1,679	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	
Phase 1				47,026	-	-	-	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	1,679	
Phase 2				18,733	-	-	-	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	721	
Operating income				641,774	-	-	-	2,227	2,798	7,881	8,793	9,212	10,338	10,357	12,620	13,359	14,091	15,855	16,570	18,602	18,643	19,163	23,077	24,242	26,441	28,402	29,585	31,295	34,607	37,328	39,302	42,092	45,064	48,229	51,600	
Deposit interest		Interest 0.00%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest expense				74,285	-	-	-	4,162	4,162	5,811	5,603	5,395	5,187	4,896	4,605	4,315	4,024	3,734	3,443	3,153	2,862	2,572	2,281	1,991	1,700	1,409	1,119	828	538	247	165	82	0	0	0	
Phase 1		Interest 11.00%		52,030	-	-	-	4,162	4,162	4,162																										



## **APPENDIX - 6**

### **FINANCIAL ANALYSIS**

# 1. CASE STUDY















		25 Years	Total	-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	-	-	-	-	-	-	-	-	-	-	-													
		25 Years	Total	-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	-	-	-	-	-	-	-	-	-	-	-													
Year			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043																		
Project term : Phase 1			-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	-	-	-	-	-	-	-	-	-	-	-														
Project term : Phase 2			-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	-	-	-	-	-	-	-	-	-	-	-														
Revenue inflation	6.40%		1,064	1,132	1,205	1,282	1,364	1,451	1,544	1,643	1,748	1,860	1,979	2,105	2,240	2,383	2,536	2,698	2,871	3,055	3,250	3,458	3,679	3,915	4,165	4,432	4,716	5,017	5,339	5,680	6,044	6,431	6,842	7,280	7,746																		
Cost inflation	0.00%		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000															
Exchange volatility			1,064	1,132	1,205	1,282	1,364	1,451	1,544	1,643	1,748	1,860	1,979	2,105	2,240	2,383	2,536	2,698	2,871	3,055	3,250	3,458	3,679	3,915	4,165	4,432	4,716	5,017	5,339	5,680	6,044	6,431	6,842	7,280	7,746																		
Foreign exchange rate			1,035	1,071	1,109	1,148	1,188	1,229	1,272	1,317	1,363	1,411	1,460	1,511	1,564	1,619	1,675	1,734	1,795	1,857	1,923	1,990	2,059	2,132	2,206	2,283	2,363	2,446	2,532	2,620	2,712	2,807	2,905	3,007	3,112																		
Water distribution ('000,000 m <sup>3</sup> )			1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156															
Unit sales price			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-												
(Reference : Inflation fact in JPY/m <sup>2</sup> Period average)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-												
(Reference : Inflation fact in VND/m <sup>2</sup> Period average)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
(Reference : Inflation fact in JPY/m <sup>2</sup> Period average)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
(Reference : Inflation fact in VND/m <sup>2</sup> Period average)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
(Unit : '000,000 JPY)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
< Profit and Loss >			<b>Status OK</b>	<b>PIRR</b>	<b>3.99%</b>	<b>EIRR(Dividend)</b>	<b>5.00%</b>	<b>EIRR(Cash flow)</b>	<b>6.83%</b>																																												
Operating revenue	29,137		-	-	-	-	-	1,395	1,309	1,302	1,275	1,376	1,288	1,423	1,232	1,288	1,351	1,224	1,259	1,237	1,438	1,563	1,232	1,250	1,297	1,296	1,389	1,418	1,295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Tariff revenue	29,137		-	-	-	-	-	1,395	1,309	1,302	1,275	1,376	1,288	1,423	1,232	1,288	1,351	1,224	1,259	1,237	1,438	1,563	1,232	1,250	1,297	1,296	1,389	1,418	1,295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Phase 1	29,137		-	-	-	-	-	1,395	1,309	1,302	1,275	1,376	1,288	1,423	1,232	1,288	1,351	1,224	1,259	1,237	1,438	1,563	1,232	1,250	1,297	1,296	1,389	1,418	1,295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Phase 2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Subsidy	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Sales tax	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Operating expense	22,173		-	-	-	-	-	1,081	1,002	998	974	1,063	973	1,110	920	976	1,039	913	947	924	1,123	1,247	914	930	973	969	1,058	1,082	955	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cash expense(O&M cost, SGA etc)	11,131		-	-	-	-	-	580	500	496	472	561	472	608	419	474	537	411	446	422	621	745	412	428	471	467	556	580	453	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Phase 1	11,131		-	-	-	-	-	580	500	496	472	561	472	608	419	474	537	411	446	422	621	745	412	428	471	467	556	580	453	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Phase 2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Depreciation cost	11,042		-	-	-	-	-	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502		
Phase 1	11,042		-	-	-	-	-	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502		
Phase 2	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Operating income	6,964		-	-	-	-	-	313	307	304	301	313	314	313	312	311	311	311	312	313	314	316	318	321	324	327	331	335	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Deposit interest	Interest 0.00%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Interest expense	3,343		-	-	-	-	-	267	267	267	254	241	227	214	201	187	174	160	147	134	120	107	94	80	67	53	40	27	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Phase 1	Interest 3.00%		-	-	-	-	-	267	267	267	254	241	227	214	201	187	174	160	147	134	120	107	94	80	67	53	40	27	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Phase 2	Interest 3.00%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Earnings before tax and special sales	3,621		-	-	-	-	-	46	40	36	47	73	87	99	111	124	137	151	165	179	194	209	225	241	257	274	291	309	327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital gain	0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Income tax	Average 8%		-	-	-	-	-	-	-	-	-	4	4	5	6	6	7	8	8	9	19	21	22	24	26	27	29	31	33	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net profit	3,333		-	-	-	-	-	46	40	36	47	69	83	94	106	118	130	143	157	170	175	188	202	217	231	246	262	278	294	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
< Cash Flow >			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Operating income	6,964		-																																																		





		31 Years			Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	-
Project term : Phase 1		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	-		
Revenue inflation	6.40%	1.064	1.132	1.205	1.282	1.364	1.451	1.544	1.643	1.748	1.860	1.979	2.105	2.240	2.383	2.536	2.698	2.871	3.055	3.250	3.458	3.679	3.915	4.165	4.432	4.716	5.017	5.339	5.680	6.044	6.431	6.842	7.280	7.746	-		
Cost inflation	0.00%	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-	
Exchange volatility	JPY 6.40%	1.064	1.132	1.205	1.282	1.364	1.451	1.544	1.643	1.748	1.860	1.979	2.105	2.240	2.383	2.536	2.698	2.871	3.055	3.250	3.458	3.679	3.915	4.165	4.432	4.716	5.017	5.339	5.680	6.044	6.431	6.842	7.280	7.746	-		
	USD 3.50%	1.035	1.071	1.109	1.148	1.188	1.229	1.272	1.317	1.363	1.411	1.460	1.511	1.564	1.619	1.675	1.734	1.795	1.857	1.923	1.990	2.059	2.132	2.206	2.283	2.363	2.446	2.532	2.620	2.712	2.807	2.905	3.007	3.112	-		
	VND/JPY 3.70%	1.037	1.075	1.115	1.156	1.199	1.244	1.290	1.337	1.387	1.438	1.491	1.546	1.604	1.663	1.725	1.788	1.855	1.923	1.994	2.068	2.145	2.224	2.306	2.392	2.480	2.572	2.667	2.766	2.868	2.974	3.084	3.198	3.317	-		
	VND/USD 2.00%	1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	1.219	1.243	1.268	1.294	1.319	1.346	1.373	1.400	1.428	1.457	1.486	1.516	1.546	1.577	1.608	1.641	1.673	1.707	1.741	1.776	1.811	1.848	1.885	1.922	-		
	JPY/USD -1.64%	0.984	0.967	0.952	0.936	0.921	0.906	0.891	0.876	0.862	0.848	0.834	0.820	0.807	0.793	0.780	0.768	0.755	0.743	0.730	0.719	0.707	0.695	0.684	0.673	0.662	0.651	0.640	0.630	0.619	0.609	0.599	0.589	0.580	-		
Foreign exchange rate	VND/JPY 245	254	263	273	283	294	305	316	328	340	352	365	379	393	407	423	438	454	471	489	507	525	545	565	586	608	630	653	678	703	729	756	784	813	-		
	VND/USD 20,000	20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445	-		
	JPY/USD 82	80	79	78	76	75	74	73	72	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	51	50	49	48	47	-		
Water distribution ( '000,000 m <sup>3</sup> )		2,630	-	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	0		
For phase 1		1,446	-	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	0	
For phase 2		1,184	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Unit sales price	in JPY/m <sup>2</sup> Period average	21	-	-	-	23	21	21	20	22	19	20	19	19	21	19	19	19	21	23	19	19	20	20	22	21	20	20	21	20	21	22	22	22	22	-	
	in VND/m <sup>2</sup> Period average	10,717	-	-	-	6,622	6,387	6,601	6,702	7,622	6,799	7,462	7,083	7,647	8,405	7,879	8,360	8,617	9,957	11,192	9,630	10,133	10,813	11,365	12,657	12,837	12,661	13,376	14,487	19,055	15,875	16,615	17,396	-			
(Reference : Inflation fact in JPY/ m <sup>2</sup> Period average considered in all portion) in VND/ m <sup>2</sup> Period average		11,550	-	-	-	4,240	4,511	4,800	5,107	5,434	5,781	6,151	6,545	6,964	7,410	7,884	8,389	8,925	9,497	10,104	10,751	11,439	12,171	12,950	13,779	14,661	15,599	16,598	17,660	18,790	19,993	21,272	22,634	-			
(Unit : '00000,JPY)																																					
< Profit and Loss >																																					
< Operating revenue >		54,231	-	-	-	1,185	1,102	1,098	1,075	1,179	2,028	2,147	1,965	2,046	2,169	1,960	2,006	1,994	2,222	2,408	1,998	2,027	2,086	2,114	2,271	2,221	2,112	2,152	2,247	1,485	2,290	2,311	2,334	-			
Tariff revenue		54,231	-	-	-	1,185	1,102	1,098	1,075	1,179	2,028	2,147	1,965	2,046	2,169	1,960	2,006	1,994	2,222	2,408	1,998	2,027	2,086	2,114	2,271	2,221	2,112	2,152	2,247	1,485	2,290	2,311	2,334	-			
Phase 1		32,295	-	-	-	1,185	1,102	1,098	1,075	1,179	1,094	1,232	1,045	1,103	1,169	1,046	1,084	1,065	1,268	1,396	1,068	1,089	1,138	1,140	1,236	1,266	1,146	1,175	1,241	862	1,252	1,264	1,277	-			
Phase 2		21,936	-	-	-	-	-	-	-	-	934	915	920	943	999	914	922	929	954	1,012	929	938	948	974	1,035	966	977	1,006	623	1,039	1,047	1,057	-				
Subsidy		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sales tax		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
< Operating expense >		40,522	-	-	-	974	894	890	867	955	1,462	1,577	1,391	1,467	1,584	1,370	1,408	1,388	1,608	1,785	1,366	1,384	1,432	1,448	1,592	1,529	1,405	1,430	1,510	1,448	2,116	2,119	2,122	-			
Cash expense(O&M cost, SGA etc)		20,970	-	-	-	580	500	496	472	561	776	891	705	781	898	683	722	702	1,099	679	698	746	762	906	842	719	744	823	762	832	834	837	-				
Phase 1		14,222	-	-	-	580	500	496	472	561	472	608	419	474	537	411	446	422	621	745	412	428	471	467	556	580	453	474	532	500	525	528	532	-			
Phase 2		6,748	-	-	-	-	-	-	-	-	304	283	286	306	360	272	276	280	300	354	267	270	275	295	350	262	266	270	291	262	306	306	305	-			
Depreciation cost		19,552	-	-	-	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	-	
Phase 1		12,837	-	-	-	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	-	
Phase 2		6,715	-	-	-	-	-	-	-	-	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	292	-	
< Operating income >		13,709	-	-	-	211	208	208	208	224	566	570	574	579	584	591	598	605	613	622	632	643	654	666	679	692	707	722	738	37	174	193	212	-			
Deposit interest	Interest 0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Interest expense		5,518	-	-	-	267	267	267	254	241	388	375	362	348	327	305	284	263	241	220	198	177	155	134	113	91	70	48	40	32	24	16	8	-	-		
Phase 1	Interest 3.00%	3,343	-	-	-	267	267	267	254	241	227	214	201	187	17																						

		31 Years	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Project term : Phase 1				-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Project term : Phase 2				-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Year				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Revenue inflation		6.40%		1,064	1,132	1,205	1,282	1,364	1,451	1,544	1,643	1,748	1,860	1,979	2,105	2,240	2,383	2,536	2,698	2,871	3,055	3,250	3,458	3,679	3,915	4,165	4,432	4,716	5,017	5,339	5,680	6,044	6,431	6,842	7,280	7,746	
Cost inflation		0.00%		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Exchange volatility		JPY 6.40%		1,064	1,132	1,205	1,282	1,364	1,451	1,544	1,643	1,748	1,860	1,979	2,105	2,240	2,383	2,536	2,698	2,871	3,055	3,250	3,458	3,679	3,915	4,165	4,432	4,716	5,017	5,339	5,680	6,044	6,431	6,842	7,280	7,746	
		USD 3.50%		1,035	1,071	1,109	1,148	1,188	1,229	1,272	1,317	1,363	1,411	1,460	1,511	1,564	1,619	1,675	1,734	1,795	1,857	1,923	1,990	2,059	2,132	2,206	2,283	2,363	2,446	2,532	2,620	2,712	2,807	2,905	3,007	3,112	3,212
		VND/JPY 3.70%		1,037	1,075	1,115	1,156	1,199	1,244	1,290	1,337	1,387	1,438	1,491	1,546	1,604	1,663	1,725	1,788	1,855	1,923	1,994	2,068	2,145	2,224	2,306	2,392	2,480	2,572	2,667	2,766	2,868	2,974	3,084	3,198	3,317	3,417
		VND/USD 2.00%		1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428	1,457	1,486	1,516	1,546	1,577	1,608	1,641	1,673	1,707	1,741	1,776	1,811	1,848	1,885	1,922	1,922
		JPY/USD -1.64%		0,984	0,967	0,952	0,936	0,921	0,906	0,891	0,876	0,862	0,848	0,834	0,820	0,807	0,793	0,780	0,768	0,755	0,743	0,730	0,719	0,707	0,695	0,684	0,673	0,662	0,651	0,640	0,630	0,619	0,609	0,599	0,589	0,580	0,570
Foreign exchange rate		VND/JPY 245		254	263	273	283	294	305	316	328	340	352	365	379	393	407	423	438	454	471	489	507	525	545	565	586	608	630	653	678	703	729	756	784	813	813
		VND/USD 20,000		20,400	20,808	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	25,872	26,390	26,917	27,456	28,005	28,565	29,136	29,719	30,313	30,920	31,538	32,169	32,812	33,468	34,138	34,820	35,517	36,227	36,952	37,691	38,445	38,445
		JPY/USD 82		80	79	78	76	75	74	73	72	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	51	50	49	48	47	
Water distribution ('000,000 m³)		2,630		-	0	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
For phase 1		1,446		-	0	0	0	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	52.56	
For phase 2		1,184		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unit sales price																																					
in JPY/m²		Period average																																			
in VND/m²		Period average																																			
Reference : Inflation fact in JPY / m²		Period average																																			
(Reference : Inflation fact in VND / m²)		Period average																																			
				14,486	-	-	-	5,317	5,658	6,020	6,405	6,815	7,251	7,715	8,209	8,734	9,293	9,888	10,521	11,194	11,911	12,673	13,484	14,347	15,265	16,242	17,282	18,388	19,564	20,816	22,149	23,566	25,075	26,679	28,387	-	
(Unit : '000000JPY)																																					
< Profit and Loss >																																					
< Status OK >																																					
< PIRR >		6.16%																																			
< EIRR(Dividend) >		10.04%																																			
< EIRR(Cash flow) >		12.16%																																			
Operating revenue			63,312					1,413	1,327	1,319	1,293	1,393	2,449	2,561	2,373	2,446	2,563	2,348	2,387	2,369	2,590	2,771	2,355	2,378	2,431	2,454	2,605	2,549	2,435	2,470	2,560	1,645	2,593	2,609	2,626	-	
Tariff revenue			63,312					1,413	1,327	1,319	1,293	1,393	2,449	2,561	2,373	2,446	2,563	2,348	2,387	2,369	2,590	2,771	2,355	2,378	2,431	2,454	2,605	2,549	2,435	2,470	2,560	1,645	2,593	2,609	2,626	-	
Phase 1			37,389					1,413	1,327	1,319	1,293	1,393	1,305	1,439	1,249	1,304	1,366	1,240	1,275	1,252	1,452	1,577	1,247	1,264	1,311	1,310	1,403	1,431	1,308	1,334	1,397	942	1,403	1,413	1,424	-	
Phase 2			25,923					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy			-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales tax			-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating expense			40,522					974	894	890	867	955	1,462	1,577	1,391	1,467	1,584	1,370	1,408	1,388	1,608	1,785	1,366	1,384	1,432	1,448	1,592	1,529	1,405	1,430	1,510	1,448	2,116	2,119	2,122	-	
Cash expense(O&M cost, SGA etc)			20,970					580	500	496	472	561	776	891	705	781	898	683	722	702	922	1,099	679	698	746	762	906	842	719	744	823	762	832	834	837	-	
Phase 1			14,222					580	500	496	472	561	776	891	705	781	898	683	722	702	922	1,099	679	698	746	762	906	842	719	744	823	762	832	834	837	-	
Phase 2			6,748					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation cost			19,552					394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	-
Phase 1			12,837					394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394
Phase 2			6,715					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating income			22,790					439	433	429	426	438	987	984	981	979	978	978	979	980	982	985	989	994	999	1,006	1,013	1,021	1,030	1,040	1,050	197	477	490	505	-	
Deposit interest		Interest 0.00%	-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest expense			5,518					267	267	267	254	241	388	375	362	348	327	305	284	263	241	220	198	177	155	134	113	91	70	48	40	32	24	16	8	-	
Phase 1		Interest 3.00%	3,343					267	267	267	254	241	388	375	362	348	327	305	284	263	241	220	198	177	155	134	113	91	70	48	40						



## **APPENDIX - 7**

### **MAIN CONTRACTS OUTLINE**

# 1. SHAREHOLDERS AGREEMENT



**Shareholders Agreement – Term Sheet (DRAFT)**

Items	Nature
Parties	VIWASEEN HAWACO Japan International Cooperation Agency (“JICA”) Tokyo Suido Services Co., Ltd. METAWATER Co., Ltd. 【 There is a possibility that other investors will join.】
Outline of this Project, location	<ul style="list-style-type: none"> <li>•Name of Project: Dong River</li> <li>•Project Schedule :               <ul style="list-style-type: none"> <li><b>First Stage</b></li> <li>Construction period: [Month, Date, Year] to Dec. 31, 2015</li> <li>Operation Period: Jan. 1, 2016 to [Month, Date, Year]</li> <li>Maximum Water Supply: 150,000 m<sup>3</sup>/day</li> <li><b>Second Stage</b></li> <li>Construction period: Jan. 1, 2016 to Dec. 31, 2020</li> <li>Operation Period: Jan. 1, 2021 to [Month, Date, Year]</li> <li>Maximum Water Supply: 300,000 m<sup>3</sup>/day</li> <li><b>Third Stage</b></li> <li>Construction period: Jan. 1, 2021 to Dec. 31, 2030</li> <li>Operation Period: Jan. 1, 2031 to [Month, Date, Year]</li> <li>Maximum Water Supply: 600,000 m<sup>3</sup>/day</li> </ul> </li> <li>•[SPC is obliged to provide water to HAWACO at First stage and Second Stage, although SPC is allowed to provide water to third parties as well. The Third Stage is still undecided. ]</li> <li>•Location: Ding Vien •Trung Mau, Phu Dong, Gia Lam, Hanoi</li> <li>•To establish SPC as Project Company, and to transfer the business rights held by VIWASEEN (the “Business Right”) to the SPC, which will conduct the Project</li> <li>•HAWACO may not purchase water from any third party, except [ ], during the period of this Project.</li> </ul>

	<p>[Details: to be described in attachment</p> <p><b>[ The starting date and the ending date of each stage might be changed, depending on progress of construction work, and other factors.]</b></p> <p><b>[ The second stage and the third stage start on condition that: (i) reasonable “capacity payment” is agreed for the stage based on expected maximum supply capacity during the stage, or a reasonable minimum purchase obligation of the off-taker during the stage, is agreed upon; and that (ii) the [government] guarantees payment of the water purchase price and other liabilities of off-taker to the SPC. The Investor and SPC may choose not to proceed with the second stage and third stage, depending on the situation by the end of first stage.]</b></p> <p><b>[ Will consider to divide this contract into several contract, for each stage.]</b></p>
<b>Period of business</b>	[Month, Date, Year] – [Month, Date, Year]
<b>Work and role of each party to this Agreement</b>	<p><b>[ The work and roles of each party will be amended depending on the result of discussion.]</b></p> <ul style="list-style-type: none"> <li>•All the parties shall make best effort to ensure that this Project proceeds smoothly and effectively.</li> </ul> <p><u>VIWASEEN:</u></p> <ul style="list-style-type: none"> <li>•Civil Engineering Work, Construction Work</li> <li>•Transfer the whole business right (the “Business Right”), which is granted by [government] to VIWASEEN, to Project Company so that the Project Company may proceed with its business smoothly.</li> <li>•In establishing the Project Company and obtaining an Investment Certificate, to coordinate with other parties to this Agreement and to discuss and negotiate with [government]</li> <li>•Research Vietnamese laws and regulations with respect to this Project, report on and explain the result of this research to other parties to this Agreement, and guarantee the correctness of such results. Check and investigate any change in Vietnamese laws and regulations with respect to this Project and to report the results to other parties to this Agreement.</li> <li>•Obtain Purchase Guarantee for a certain volume of water, and other</li> </ul>

favorable treatment, subsidy, guarantee, or support, from government

- Procure financing in Vietnam

HAWACO:

- Purchase water
- In establishing the Project Company and obtaining an Investment Certificate, to coordinate with other parties to this Agreement and to discuss and negotiate with [government]
- Research Vietnamese laws and regulations with respect to this Project, report on and explain the result of this research to other parties to this Agreement, and guarantee the correctness of such results. Check and investigate any change in Vietnamese laws and regulations with respect to this Project and to report the results to other parties to this Agreement.
- Obtain Purchase Guarantee for a certain volume of water, and other favorable treatment, subsidy, guarantee, or support, from government
- Procure financing in Vietnam
- Become shareholder of O&M Company

JICA:

- Finance to Project Company

TSS:

- Become shareholder of O&M Company

META:

- Construction of equipment and electrical work
- Become shareholder of O&M Company

Each Party's liability is limited to liability as shareholder of the SPC, liability as [subordinated lender], and liability as contractor for the business entrusted to it by the Project Company, and Parties will not be obligated to make any further investment of capital in Project Company or make further subordinated lending. Investors are not liable directly to [government]. Parties shall not guarantee, nor be jointly and severally liable for, the liabilities of Project Company.

	<b>【 It should be clear whom the facilities shall be transferred to, upon termination of this Project. Under discussion】</b>
<b>Usage of sub-contractor</b>	If a party to this Agreement, wishes to use a sub-contractor to assist with its work on this Project, it shall conduct due diligence of the same [and obtain the prior consent of all other parties to this Agreement].
<b>Default of party to this Agreement</b>	<ul style="list-style-type: none"> <li>•If, due to a fact attributable to a party to this Agreement with respect to the work and rules above, the Project Company or other parties to this Agreement suffer damages, the party causing the same shall be liable for such damages.</li> <li>•If there is a defect with respect to the work described above, the party causing the same shall owe a defect liability.</li> </ul>
<b>Insurance</b>	[TBD]
<b>Outline of Project Company</b>	<ul style="list-style-type: none"> <li>•Project Company shall be a [joint stock company]</li> <li>•Project Company shall receive the Business Rights and enter into an agreement with [government].</li> <li>•Company name (Vietnamese, English): <b>【 to select one from three names described in the agreement dated November 23, 2011.】</b></li> <li>•Location of head office: [TBD]</li> <li>•Planned establishment date: [TBD]</li> </ul>
<b>Capital</b>	<ul style="list-style-type: none"> <li>•Paid-in Capital:</li> <li>•Equity ratio among the parties to this Agreement: [TBD]</li> <li>•Shares to be issued: ordinary shares</li> </ul>
<b>General Shareholders' Meeting</b>	<ul style="list-style-type: none"> <li>• Call of general meeting of shareholders: Ordinary general shareholders' meeting – annually; Extraordinary general shareholders meeting – as necessary</li> <li>•Ordinary resolution: <ul style="list-style-type: none"> <li>Attendance and voting: [TBD]</li> </ul> </li> <li>•Special resolution: <ul style="list-style-type: none"> <li>For special resolution items, attendance and voting is as follows: [TBD]</li> <li>Special resolution items are as follows: [TBD]</li> </ul> </li> <li>•Unanimous consent of all shareholders: <ul style="list-style-type: none"> <li>Certain resolution items require unanimous consent of all the shareholders.</li> </ul> </li> </ul>

	<p>Such resolution items are as follows: [TBD]</p> <p>【 Ordinary resolution items, Special resolution items, and All shareholders' Consent items shall be determined.】</p> <p>[•Written resolution is acceptable subject to certain conditions.]</p> <p>【 Conditions are under discussion.】</p>
<b>Directors (Member of Board of Management)</b>	<ul style="list-style-type: none"> <li>•Number of directors: [TBD]</li> <li>【 Japanese companies will dispatch majority directors. Details are under discussion.】</li> <li>•Term of directors: [TBD]</li> <li>• Number of directors to be appointed by each party to this Agreement: [TBD]</li> <li>【 The procedure for appointing the President shall be provided in this Agreement.】</li> </ul>
<b>Board of Directors (Board of Management)</b>	<ul style="list-style-type: none"> <li>•Call of board of directors: [TBD]</li> <li>•Attendance and voting: [TBD]</li> <li>•Items to be resolved at board of directors: [TBD]</li> <li>【 it should be considered, for certain resolution items, to require additional voting or unanimous consent of all directors.】</li> <li>【 Whether written resolution is accepted: under discussion】</li> </ul>
<b>Inspector</b>	<ul style="list-style-type: none"> <li>•Number of inspectors: [TBD]</li> <li>•Term of inspectors: [TBD]</li> <li>• Number of Inspectors to be appointed by each party to this Agreement: [TBD]</li> <li>【 It is under discussion whether the Board of Inspectors shall be established.】</li> </ul>
<b>Business Year</b>	[Month, Date, Year] – [Month, Date, Year]
<b>Reporting to Shareholders</b>	<ul style="list-style-type: none"> <li>•frequency and items of report on financial and accounting matters to shareholders: [TBD]</li> <li>•Shareholders' rights: access to and review of the financial and accounting documents and other documents relating to the business of company, on-site inspection at the company.</li> </ul>
<b>Dispatchment</b>	Rights and obligations of employees dispatched by parties to this Agreement and others, number of secondees, nature of work and others: [TBD]

<b>Financing</b>	[TBD]
<b>Subordinated Loan</b>	<p>【 It may be possible to provide a subordinated loan, depending on further discussion. Details are under discussion.】</p> <p>[Parties to this Agreement will not be obliged to provide additional subordinated loans.]</p>
<b>Dividend by Project Company</b>	【 under discussion】
<b>Transfer of shares</b>	Parties to this Agreement shall not, without unanimous written consent of all other parties to this Agreement, transfer or offer as security its shares in the Project Company.
<b>Establishment of O&amp;M Company</b>	<p>HAWACO, TSS and META shall establish a company which will conduct O&amp;M work for the Project Company.</p> <p>【 Details of O&amp;M Company shall be separately discussed.】</p>
<b>Representations and Warranties of each Party</b>	[Typical items shall be provided.]
<b>Covenant of each party to this Agreement</b>	<p>•VIWAEEN shall keep this Business Right from the execution date of this Agreement until the completion of the Project, and transfer the same to the Project Company legally and appropriately.</p> <p>【 There is a possibility to amend.】</p>
<b>Non-petition for Insolvency</b>	<p>• Parties to this Agreement shall not petition for bankruptcy proceedings, other analogous proceedings, or dissolution proceedings with respect to Project Company for the period until the Project ceases.</p> <p>• Parties to this Agreement shall make no petition for the commencement of compulsory execution proceedings or preservative disposition regarding the assets of Project Company, for the period until the Project ceases.</p>
<b>[Government] Demand for Penalty or Damage Compensation</b>	<p>In the case that Project Company or Parties to this Agreement suffer a demand by the [government] for a penalty or damage compensation due to grounds attributable to the fault of one of the Parties in the Project (including the fault of a subcontractor, or the like, that the Parties use at their responsibility), the Party responsible for such grounds of fault shall be liable for paying the full amount of said penalty or damage compensation.</p> <p>In case that it is unclear which Party to this Agreement caused the</p>

	<p>grounds of fault in the preceding paragraphs, each Party shall be liable according to the following standards.</p> <p>(1) Penalty or damage compensation regarding the EPC work:  <b>【 each Party shall be liable according to the ratio of the EPC work fee amount】</b></p> <p>(2) Penalty or damage compensation regarding the O&amp;M work:  <b>【 each Party shall be liable according to the ratio of the O&amp;M work fee amount.】</b></p> <p>(3) In the case that it is unclear whether the penalty or damage compensation concerns the EPC work or the O&amp;M work (including a case where it is clear that such demand concerns both types of work, but the breakdown is unclear): <b>【 [the liability therefor shall be determined through consultation by all the Parties premised on the capital contribution ratio in Project Company of each Party upon the establishment of Project Company.]】</b></p>
<b>Default</b>	<p>In the case that a service agreement executed directly or indirectly by a Party and Project Company is cancelled due to a default by said Party, the Party in default shall be removed from this Agreement, That Party shall transfer to the other Parties to this Agreement, and the Other Parties to this Agreement shall accept the transfer of, all the shares held by the Party in default in Project Company.</p> <p>In the case that the Party in default that is removed from this Agreement has been directly or indirectly entrusted by Project Company with work regarding the Project, that Party shall not object to the other Parties to this Agreement soliciting and selecting a replacement company in regard to such work..</p>
<b>Damage Compensation</b>	<p>In the case that a Party violates this Agreement and causes damages to Project Company or another Party to this Agreement, the Party that violated this Agreement shall compensate all the damages suffered by Project Company or the other Parties.</p> <p>•parties to this Agreement does not owe indirect damage and special damage.</p> <p>[•The damage to be owned by Party to this Agreement is limited to [ .].]</p>
<b>Compliance</b>	[Typical compliance obligation shall be provided.]
<b>Confidentiality</b>	[Typical compliance obligation shall be provided.]

<b>Period of this Agreement</b>	This Agreement shall be effective from the execution date of this Agreement until earlier of the day on which Project Company is dissolved, or the day the Parties to this Agreement agree to terminate this Agreement.
<b>Withdrawal from this Project, Return of Business Right</b>	<ul style="list-style-type: none"> <li>•Event of withdrawal and/or Return of Business Right: [TBD] 【 e.g., case where it is impossible to continue this Project or it is clear not to expect profit in the future, due to force majeure, change of laws】</li> <li>•Treatment after withdrawal: [TBD]</li> </ul>
<b>Withdrawal from this Agreement by Party of this Agreement</b>	<ul style="list-style-type: none"> <li>•Event of withdrawal, restriction of withdrawal: 【 e.g., case where a service agreement executed by a Party and Project Company is cancelled. Other events are under discussion.】</li> <li>• Treatment upon withdrawal: Any party withdrawing from this Agreement, shall transfer all of its shares in Project Company to the other Parties to this Agreement, and the other parties to this Agreement shall accept the transfer of the same. In principle, the transfer shall be free of charge, but upon unanimous consent of all the Parties to this Agreement, the transfer may be made at an agreed price. 【 Calculation method of share price is under discussion.】</li> </ul>
<b>Insolvency of a Party to this Agreement</b>	In case that a Party of this Agreement becomes insolvent, it shall be removed from this Agreement. The Party shall transfer to the other Parties to this Agreement, and the other parties to this Agreement shall accept the transfer of, all the shares held by the Party in Project Company. Although the shares are in principle free, it may be onerous upon unanimous consent of all the Parties to this Agreement.
<b>Termination of this Agreement</b>	<ul style="list-style-type: none"> <li>•Event of Termination: [TBD]</li> <li>•Treatment of business, assets and others upon termination of this Agreement: [TBD]</li> </ul>
<b>Bearing of Expenses When Project Agreement Fails to Form</b>	In the case that Project Agreement is not executed by Project Company and [government] due to grounds not attributable to either the Parties', Project Company's or the [government's] responsibility, each Party shall bear the expenses it incurred to make preparations for the Project until such point in time.
<b>Force Majeure</b>	<ul style="list-style-type: none"> <li>•Definition of Force Majeure: All events occurring by natural factors or by artificial factors that are beyond the control of the Parties to this Agreement. 【 “Force Majeure” includes, but is not limited to , extreme price fluctuations, the Vietnamese government's</li> </ul>



	<p>non-performance or delay in issuance of approval or licenses, registration, establishment of entity, issuance of visas, payments etc, or the Vietnamese government's non-performance or delay in interpretation or legal procedures, suspension of electricity, gas, water etc, decrease of water volume or change in quality of river water in excess of certain criteria. The details are under discussion.】</p> <p>•Parties are not liable for any if its default or delay due to force majeure.</p>
<b>Change of this Agreement</b>	This Agreement may be changed only with prior written agreement by all the parties.
<b>Prohibition of transfer and assignment of rights and obligations under this Contract</b>	Any right and obligation under this Agreement may no be transferred or assigned, without a prior written consent of the other parties.
<b>Method of notification etc.</b>	Typical method of notification shall be provided.
<b>Dispute Settlement</b>	[Singapore International Arbitration Centre]
<b>Governing Law</b>	[TBD]
<b>Language</b>	The language for this Agreement and communications shall be English. In case that there is a discrepancy between the English version and a version in another language, English version shall prevail.
<b>Others</b>	

## 2. PROJECT CONTRACT

Project Contract – Term Sheet (DRAFT)

Items	内 容 nature
Parties	<p>[government]</p> <p>Investors:</p> <ul style="list-style-type: none"> <li>▪ VIWASEEN</li> <li>▪ HAWACO</li> <li>▪ Japan International Cooperation Agency (“JICA”)</li> <li>▪ Tokyo Suido Services Co., Ltd.</li> <li>▪ METAWATER Co., Ltd.</li> </ul> <p>【 There is a possibility that other investors will join.】</p> <p>Project Company 【 Project Company (SPC) will sign after its establishment.】</p>
Outline of this Project, location	<ul style="list-style-type: none"> <li>▪ Name of Project: Dong River</li> <li>▪ Project Schedule :           <ul style="list-style-type: none"> <li><b>First Stage</b></li> <li>Construction period: [Month, Date, Year] to Dec. 31, 2015</li> <li>Operation Period: Jan. 1, 2016 to [Month, Date, Year]</li> <li>Maximum Water Supply: 150,000 m<sup>3</sup>/day</li> <li><b>Second Stage</b></li> <li>Construction period: Jan. 1, 2016 to Dec. 31, 2020</li> <li>Operation Period: Jan. 1, 2021 to [Month, Date, Year]</li> <li>Maximum Water Supply: 300,000 m<sup>3</sup>/day</li> <li><b>Third Stage</b></li> <li>Construction period: Jan. 1, 2021 to Dec. 31, 2030</li> <li>Operation Period: Jan. 1, 2031 to [Month, Date, Year]</li> <li>Maximum Water Supply: 600,000 m<sup>3</sup>/day</li> </ul> </li> <li>▪ [SPC is obliged to provide water to HAWACO at First stage and Second Stage, although SPC is allowed to provide water to third parties as well. The Third Stage is still undecided. ]</li> <li>▪ Location: Ding Vien▪Trung Mau, Phu Dong, Gia Lam, Hanoi</li> </ul>

	<p>•To establish SPC as Project Company, and to transfer the business rights held by VIWASEEN (the “Business Right”) to the SPC, which will conduct the Project</p> <p>•HAWACO may not purchase water from any third party, except [ ], during the period of this Project.</p> <p>[Details: to be described in attachment.]</p> <p>【 The starting date and the ending date of each stage might be changed, depending on progress of construction work, and other factors.】</p> <p>【 The second stage and the third stage start on condition that: (i) reasonable “capacity payment” is agreed for the stage based on expected maximum supply capacity during the stage, or a reasonable minimum purchase obligation of the off-taker during the stage, is agreed upon; and that (ii) the [government] guarantees payment of the water purchase price and other liabilities of off-taker to the SPC. The Investor and SPC may choose not to proceed with the second stage and third stage, depending on the situation by the end of first stage.】</p> <p>【 Will consider to divide this contract into several contract, for each stage.】</p>
<b>Period of business</b>	[Month, Date, Year] – [Month, Date, Year]
<b>Outline of facilities</b>	[to be described in attachment]
<b>Establishment of Project Company</b>	Investors shall establish the Project Company as [a joint stock company] prior to starting this Project. Outline of Project Company: [TBD]
<b>Usage of contractor</b>	Project Company shall entrust each business of this Project to respective investor, upon entering into contracts with the same. 【 Details of scheme are under discussion.】
<b>Obligation of Investors</b>	[Investor liability is limited to liability as shareholder of the SPC, liability as [subordinated lender], and liability as contractor for the business entrusted to it by the Project Company, and Investors will not be obligated to make any further investment of capital in Project Company or make further subordinated lending. Investors are not liable directly to [government]. Investors shall not guarantee, nor be jointly and severally liable for, the liabilities of Project Company.]

<b>Business Plan and others</b>	—
▪ Total Investment Amount, Breakdown	[TBD]
▪ Capital Amount, timing	[VND 828,000,000,000, cost of establishing SPC and other fees.] [Financing: schedule: TBD]
▪ Borrowing Amount, timing	[TBD] 【 Borrowing in USD, or Borrowing in JPY and change to USD.】
▪ Review of investment amount and other matters	[TBD]
▪ Business Plan	【 under discussion】 【 The business plan for the second and third stages shall be reviewed before starting each stage respectively.】
<b>Obligations of [government]</b>	—
▪ Transfer of Business Rights	[Government] shall consent to the transfer of the Business Rights from VIWASEEN to SPC, and provide assistance with such transfer.
▪ Approvals and Licenses	[Government] shall grant approvals and licenses as necessary to proceed with this Project, including but not limited to investment certificates, business licenses, either itself or by influence over the Hanoi local government and other competent authorities
▪ Obligation to establish Land Use Rights	▪[Government] shall establish the right of use on and transfer to Project Company the Land Intended for Business Land and the Land Intended for Pipeline to meet the schedule for this Project. ▪In case there are any artificial structures, abandoned items (including, but not limited to, unexploded bombs, or environmental pollutants) on or in the Land Intended for Business Land or the Land Intended for Pipeline, [the government] shall promptly remove the same at its own cost. ▪If the Land Intended for Business Land or the Land Intended for Pipeline is found to be inappropriate for this Project, [the government] shall provide usage rights to alternative land satisfactory to the Project Company.
▪ Establishment of Infrastructure	[The Government] shall prepare and provide to Project Company all infrastructure necessary to proceed with this Business, including roads, in order to meet the schedule of this Business.
▪ Condition Precedents	Project Company is obliged to start [design and construction].

	subject to performance in full of the obligations of [the government] described above.
▪ Favorable Treatment, Subsidy, Guarantee, Other support	[Government] guarantees the payment obligation of the Off-taker to Project Company. <b>【 Other types of support: TBD】</b>
▪ Resident Risk	<ul style="list-style-type: none"> <li>▪ Dealing with residents: [Government] shall deal with all issues in relation to residents.</li> <li>▪ In case that this Project is delayed or suspended due to objections raised by residents against this Project itself, [government] shall be responsible for all increase in cost or damages caused as a result of such delay or suspension.</li> </ul>
▪ Availability of electricity and gas	In case of outages of electricity, gas, water and other utilities etc, [the government] shall be responsible for the increased cost or damages caused by such outages.
▪ Maintenance of the Business Rights	<ul style="list-style-type: none"> <li>▪ [Government] shall keep the Business License valid throughout the period of this Business.</li> <li>▪ [Government] shall not grant any business license, which is the same or similar to this Business License or competes with this Business License, to any third party.</li> </ul>
<b>Land Intended for Business</b>	—
▪ Outline of Land Intended for Business	<p>[Details: TBD]</p> <p>If Land Intended for Business is changed, or there is any defect with the rights to Land Intended for Business, the process of providing the land, the bearing power of soil, soil condition or other matters, [the government] shall be responsible for the increased cost and damages due to such change or defect.</p>
▪ Timing of establishing Right of Use and Transfer	[TBD]
▪ Payment of costs	<ul style="list-style-type: none"> <li>▪ Project Company shall pay the amount to be separately agreed for the acquisition of the right of use of the Land Intended for Business.</li> <li>▪ If the amount required for acquisition of the right of use of the Land Intended for Business increases, [the government] shall be responsible for the amount of such increase.</li> </ul>
▪ Condition to Usage of Land (if any)	[TBD]

<b>Land Intended for Pipeline</b>	—
▪ Outline of Land Intended for Pipeline	[Details: TBD] If the Land Intended for Pipeline is changed, [the government] shall be responsible for all increased cost and damages due to such change.
▪ Timing of establishing Right of Use and Transfer	[TBD]
▪ Payment of cost	Project Company shall pay the amount to be separately agreed for the acquisition of the right of use of the Land Intended for Pipeline. ▪ If the amount for acquisition of the right of use of the Land Intended for Pipeline increases, [the government] shall be responsible for the amount of such increases.
▪ Conditions attached to Usage of Land (if any)	[TBD]
<b>Design</b>	—
▪ Obligation of prior site inspection	[TBD]
▪ Requirements for design	[TBD]
▪ Procedure to approval and consent	[TBD]
▪ Change of Design	▪In case of a design change requested by [the government], [the government] shall be responsible for all costs associated with such change. 【 Changes requested by [government] can be accepted only to a certain extent and only within a certain period.】 【 To discuss whether or not to accept such change requests by [government].】
<b>Construction</b>	—
▪ Requirement for construction	[TBD]
▪ Time for Completion, Programme	[TBD]
▪ Variation of Time for completion and/or Programme	[TBD]

▪ Delay in Time for completion and/or Programme	<ul style="list-style-type: none"> <li>▪ In case of a delay due to [government], [government] shall be responsible for the increase in cost and damages resulting therefrom.</li> <li>▪ [Government] shall not claim for any damages against Project Company due to delays.</li> </ul>
▪ Conditions for sub-contractor	[TBD]
▪ Tests on Completion, Quality	[TBD]
▪ Auditing and settlement prior to operation	[TBD]
<b>Operation and Maintenance</b>	—
▪ Requirements for Operation and Maintenance	[TBD]
▪ Defect Liability, Warranty	[TBD]
▪ Right and obligation of [government] for inspection of quality and others	[TBD]
<b>Change in project, business , requirements and others</b>	<ul style="list-style-type: none"> <li>▪ Procedure to change: [TBD]</li> <li>▪ In case of change requested by [government], [government] owes cost for such change.</li> <li>【 Any change in project, business , requirements and others requested by [government] may be accepted only to some extent and only within certain period.】</li> <li>【 To discuss whether to accept such request for change by [government] or not.】</li> </ul>
<b>Condition of River water</b>	<ul style="list-style-type: none"> <li>▪ Condition of River Water: [to be described in attachment]</li> <li>▪ If the river water does not meet any of the “Conditions of River water”, described in the project contract, Seller shall not be liable for volume and quality of water.</li> <li>▪ In the case of increased costs and damages resulting from requests by [government] or HAWACO for increase in supplied water, higher quality of water, and other matters, [government] (or HAWACO) shall be liable for such increased cost and damage, irrespective of whether the same has resulted from a change in laws or regulations.</li> </ul>



	<p>【 Procedure for inspection of condition of River Water and report of its result is under discussion.】</p> <p>【 Procedure for revising Condition of River Water is under discussion.】</p>
<p><b>Limitation of liability of Project Company and Investors</b></p>	<ul style="list-style-type: none"> <li>▪ Project Company and Investors shall not be liable for any indirect damages or special damages.</li> <li>▪ Total liability for damage of Project Company shall not exceed [    ].</li> <li>▪ Total liability for damages of Investor shall not exceed [    ].</li> </ul>
<p><b>Representations and Warranties of [government]</b></p>	<p>[Typical items shall be provided.]</p> <ul style="list-style-type: none"> <li>▪ Bidding process is not required for selection of project company for this Project and selection of contractors by project company.</li> <li>▪ The result of inspection and measurement of Land Intended for Business and Land Intended for Pipeline is described in the attachment. If such result uncovers any defect, or there is any other factor, including, but not limited to, obstacle, buried property, soil pollution, leaking water, or underground water, which was not found at the time of inspection and measurement, then all increased cost and damages due to such default or other factor shall be owned by [government].</li> <li>▪ This Business Right is a valid business right, granted by [name of authority] under [name of law and regulation], its nature is as described in the attachment, and all of the conditions for validity or usage of the Business Right are only as described in the attachment.</li> <li>▪ The Business Right, after its transfer to Project Company, shall be a valid business right, its nature is as described in the attachment, and the conditions of validity or usage of the Business Right are only as described in the attachment. 【 This provision shall be amended depending on the nature of Business Right, and its legal character before and after its transfer.】</li> <li>▪ This Project is a BOT project under Decree Co.108/2009/ND-CP, and there is no legal issue in relation to proceeding with this Project following such decree and Circular No.03/2011/TT-BKHDT, which is related to such decree. 【 This wordings is to be amended, depending on the details of and</li> </ul>

	procedures required under such regulations.】
<b>Representations and Warranties of Project Company</b>	[Typical items shall be provided.]
<b>Representations and Warranties of Investors</b>	[Typical items shall be provided.]
<b>Covenants</b>	[Typical items shall be provided.]
<b>Damage against third party</b>	Either party shall be liable for causing damages to third parties to the extent it is responsible for the same.
<b>Insurance</b>	[TBD]
<b>Compliance</b>	[Typical compliance obligation shall be provided.]
<b>Confidentiality</b>	[Typical compliance obligation shall be provided.]
<b>Payment by [government]</b>	If [government] makes a payment to Project Company or Investors under this Project Contract, [government] shall pay the amount promptly as a lump sum payment.
<b>Period of this Project Contract</b>	[Month, Date, Year] – Dec. 31, 2030 If this Business Right is cancelled or becomes invalid, this Project Contract shall be terminated.
<b>Termination of this Project Contract due to default of either party</b>	<ul style="list-style-type: none"> <li>▪ Event of termination: [TBD]</li> <li>▪ Damage: Each party shall be liable to the extent that it caused the default.</li> </ul>
<b>Withdrawal from this Project, Return of Business Right</b>	<ul style="list-style-type: none"> <li>▪ Event of withdrawal and/or Return of Business Right: [TBD] 【 e.g., case where it is impossible to continue this Project or it is clear that no future profit can be gained, due to force majeure event, or change of laws】</li> <li>▪ Treatment after withdrawal: [TBD]</li> </ul>
<b>Treatment after termination of this Project</b>	【 The party to whom the facility should be transferred to should be agreed upon, together with provisions on the procedures and the obligation of transfer the facilities and training for operation of facility, the condition of facility upon transfer, the removal of remaining goods, and other matters.】
▪ Party to whom the facility shall be transferred	[TBD]
▪ Preparation of assets, documents and others relating to inspection,	[TBD]

design, construction, operation and others of facilities	
▪ Inspection upon transfer	[TBD]
▪ Procedure to technology transfer, training and others upon transfer	[TBD]
▪ Procedure to transfer of facilities	[TBD]
▪ Calculation method of facilities	[TBD]
▪ Treatment of Business Right	[TBD]
▪ Treatment of Project Company, transfer of its shares, and others	[TBD]
<b>Force Majeure</b>	<p>▪Definition of Force Majeure: All events occurring by natural factors or by artificial factors that are beyond the control of [government] and Project Company. 【 “Force Majeure” includes, but is not limited to , extreme price fluctuations, the Vietnamese government’s non-performance or delay in issuance of approval or licenses, registration, establishment of entity, issuance of visas, payments etc, or the Vietnamese government’s non-performance or delay in interpretation or legal procedures, suspension of electricity, gas, water etc, decrease of water volume or change in quality of river water in excess of certain criteria. The details are under discussion.】</p> <p>▪[Government] and Project Company is not liable for any default or delay due to force majeure event.</p> <p>▪Risk allocation upon force majeure event: [Government shall be liable.]</p> <p>▪ Termination of this contract due to force majeure event : [Project Company may terminate this contract if it determines that it is impossible to continue this Project or that it takes too much cost to continue this project, due to force majeure event.]</p> <p>▪ Termination of this Project Contract or cancellation of this</p>

	Business Right by [government]: <b>【 shall be limited to reasonable extent】</b>
<b>Change of laws, including change of tax regulations</b>	<ul style="list-style-type: none"> <li>▪ Risk allocation upon change of laws: <b>[[Government]</b> shall be liable.]</li> <li>[•[Government] shall be obliged to notify Project Company and Investors regarding any change of Vietnamese laws and regulations that relate to this Project.]</li> <li>▪ Termination of this Project Contract due to change of laws: [Project Company may terminate this Project Contract if it determines that it is impossible to continue this project or that it will require excessive cost to continue this Project due to a change in applicable laws and regulations.]</li> <li>▪ Termination of this Project Contract or cancellation of this Business Right by [government]: <b>【 shall be limited to the reasonable extent】</b></li> </ul>
<b>Change of this contract</b>	This contract may be changed only with prior written agreement by both parties, [subject to all the shareholders' prior consent]
<b>Prohibition of transfer and assignment of rights and obligations under this Contract</b>	None of the rights and obligations under this Project Contract may be transferred or assigned without the prior written consent of the other party.
<b>Method of notification, etc.</b>	[Typical method of notification shall be provided.]
<b>Dispute Settlement</b>	[Singapore International Arbitration Centre]
<b>Governing Law</b>	[TBD]
<b>Language</b>	The language for this Contract and communications shall be English. In case that there is a discrepancy between the English version and a version in another language, English version shall prevail. The language for this Project Contract and communication shall be English. In case of a discrepancy between the English version and any version in another language, the English version shall prevail.
<b>Others</b>	

### 3. OFF-TAKE CONTRACT

Off-take Contract – Term Sheet (DRAFT)

Items	Nature
<b>Parties</b>	Seller: SPC Buyer (Off-taker): HAWACO 【 There is a possibility that other companies would join.】
<b>Planned Date to start supplying water</b>	[Month, Date, Year]
<b>Maximum water supply</b>	First stage: Jan. 1, 2016 –: 150,000 m <sup>3</sup> /day ●●●m <sup>3</sup> /hour Second stage: Jan. 1, 2021–: 300,000 m <sup>3</sup> /day ●●●m <sup>3</sup> /hour Third stage: Jan. 1, 2031~ : 600,000 m <sup>3</sup> /day ●●●m <sup>3</sup> /hour 【 The starting date and the ending date of each stage might be changed, depending on progress of construction work, and other factors.】 【 The second stage and the third stage start on condition that: (i) reasonable “capacity payment” is agreed for the stage based on expected maximum supply capacity during the stage, or a reasonable minimum purchase obligation of the off-taker during the stage, is agreed upon; and that (ii) the [government] guarantees payment of the water purchase price and other liabilities of off-taker to the SPC. The Investor and SPC may choose not to proceed with the second stage and third stage, depending on the situation by the end of first stage.】 【 Will consider to divide this contract into several contract, for each stage.】
<b>Obligation to Purchase Water</b>	Buyer may not purchase water from any third party, except [ ].
<b>Sale of water to third parties</b>	Seller may sell water to any third party, in addition to buyer.
<b>Water supply point</b>	[Describe in attachment or to be agreed separately] 【 The water supply point would be before the supply reservoir.】
<b>Transfer of ownership</b>	Transferred from seller to buyer at the water supply point

<b>and risk</b>	
<b>Supply condition (Quality, Water pressure and others)</b>	<b>[ To discuss based on Vietnamese laws and regulations ]</b>
<b>Confirmation of volume, quality, water pressure etc supplied, and responsibility to scale</b>	Seller owes responsibility to confirm. Details of measures: [TBD]
<b>Periodical quality check, and responsibility to check</b>	Seller periodically checks quality at the Water Filtration Plant Details of measures: [TBD]
<b>Ownership and obligation of maintenance and management of instrumentation equipment</b>	Seller has ownership and Seller owes obligation to maintain and manage the instrumentation equipment.
<b>Obligation to report</b>	Seller is obliged to periodically report to Buyer. Reporting frequency, items to be reported, format of report, and other details: [TBD]
<b>Dealing with emergency situations</b>	<ul style="list-style-type: none"> <li>▪ Measures to be taken by Seller</li> <li>▪ Measures to be taken by Buyer</li> <li>▪ After- the -fact-reporting by Seller</li> <li>▪ Risk allocation for cost-increases and damages: [TBD]</li> </ul>
<b>Price</b>	Total of the following two categories of price. <ul style="list-style-type: none"> <li>▪ Capacity Payment: <b>[ fixed amount, notwithstanding the volume of water sold.]</b></li> <li>▪ Variable Payment: <b>[ variable amount, related to the volume of water sold. The details of calculation: [TBD]]</b></li> </ul>
<b>Timing and procedure for invoicing and payment</b>	[TBD] <b>[ Monthly payment, calculated in USD, paid in VND (consumption tax handling TBD.) ]</b>
<b>Pricing changes</b>	<ul style="list-style-type: none"> <li>▪ Price shall be changed to reflect price fluctuations [Timing of and measure to change of price: TBD]</li> <li>▪ Price shall be changed to reflect foreign exchange rate: [Timing of and measure to change of price: TBD]</li> <li>▪ Price shall be changed to reflect interest rate: [Timing of and</li> </ul>

	<p>measure to change of price: TBD]</p> <p>•Procedure to change capacity, calculation of price etc, due to any factors other than above: [TBD]</p>
<b>Change of Maximum water supply</b>	Procedure to change: [TBD]
<b>Change of Supply condition</b>	Procedure to change: [TBD]
<b>Default by Buyer</b>	In case of delay in payment: Liquidated damages of annual rate [ ]% calculated daily for delayed period [calculating from the day following the due date in invoice].
<b>Decrease in Price</b>	<p>•Delays in start of water supply: [If the start of water supply is delayed more than [ ] week(s) from the planned supply start date, the price shall be decreased as delay damages. This decrease of price shall be the Buyer’s sole and exclusive remedy with respect to such delay, and Buyer may not claim further damages against Seller. <b>[ Price shall not be decreased immediately after delay, but shall be decreased only after [ ] weeks. The actual price decrease calculation is TBD.]</b></p> <p>•Suspension of supply: [If the water supply is suspended for more than [ ] hours per day, the price shall be decreased as damages for the suspension. This decrease of price shall be the Buyer’s sole and exclusive remedy with respect to such suspension, and Buyer may not claim further damages against Seller. <b>[ Price shall not be decreased immediately after any suspension, but shall be decreased only after [ ] hours. The calculation of amount to be decreased from price is under discussion.]</b></p> <p>•[If volume or quality of delivered water fails to meet the level of volume and quality agreed upon by and between Buyer and Seller, the price shall be decreased as damages. This price decrease shall be the Buyer’s sole and exclusive remedy with respect to such failure, and Buyer may not claim further damages against Seller. <b>[ Price shall not be decreased immediately after any failure to meet the “Requirements” for the project, but shall be decreased only when it fails to meet certain agreed levels. The calculation of the price decrease is under discussion.]</b></p>
<b>Failure to meet</b>	If the river water does not meet any of the “Conditions of River



<b>requirements due to the condition of river water</b>	water”, described in the project contract, Seller shall not be liable for volume and quality of water.
<b>Limitation of liability</b>	<ul style="list-style-type: none"> <li>▪ Seller shall not be liable for any indirect damages or special damages.</li> <li>▪ Total liability for damages of Seller to Buyer shall not exceed [    ].</li> </ul>
<b>Representations and Warranties</b>	[Typical items shall be provided for both parties.]
<b>Covenants</b>	[Typical items shall be provided for both parties.]
<b>Damage against third party</b>	Either party shall be liable for causing damages to third parties to the extent it is responsible for the same.
<b>Insurance, guarantee, and others</b>	<ul style="list-style-type: none"> <li>▪ Guarantee of payment by Ministry of Construction [or Hanoi local government]</li> <li>▪ Performance Guarantee</li> </ul>
<b>Compliance</b>	[Typical compliance obligation shall be provided.]
<b>Confidentiality</b>	[Both parties owe typical confidentiality obligation.]
<b>Period of this contract</b>	<p>[Month, Date, Year] – Dec. 31, 2030</p> <p>If the project contract between SPC and [government] is terminated for any reason, this contract shall be terminated.</p> <ul style="list-style-type: none"> <li>▪ When Buyer withdraws from this project for any reason, this contract shall be terminated.</li> </ul>
<b>Treatment after termination of this contract</b>	<b>[ Specific provisions should be prepared for handling situation where both this contract and the project contract are terminated and the Buyer purchases the Plant.]</b>
<b>Termination of this contract due to default by Seller</b>	<b>[ In case of delay in start of water supply or supply suspension, this contract may be terminated only when [    ]. This contract may not be terminated only due to the fact that supplied water does not meet the “Requirements”, but may be terminated if the water does not meet certain agreed levels. The details are still under discussion.]</b>
<b>Termination of this contract due to default by Buyer</b>	<b>[ Seller may terminate this contract if payment by Buyer is delayed more than [    ] times.]</b>
<b>Force Majeure</b>	<ul style="list-style-type: none"> <li>▪ Definition of Force Majeure: All events occurring by natural factors or by artificial factors that are beyond the control of Seller and Buyer.</li> </ul> <p><b>[ “Force Majeure” includes, but is not limited to , extreme price fluctuations, the Vietnamese government’s non-performance or</b></p>

	<p>delay in issuance of approval or licenses, registration, establishment of entity, issuance of visas, payments etc, or the Vietnamese government's non-performance or delay in interpretation or legal procedures, suspension of electricity, gas, water etc, decrease of water volume or change in quality of river water in excess of certain criteria. The details are under discussion.]</p> <ul style="list-style-type: none"> <li>•Seller and Buyer is not liable for any default or delay due to force majeure event.</li> <li>•Risk allocation upon force majeure event: [Buyer shall be liable.] [ To be discussed. There is a possibility to allocate the risk to consumer price or to [government].]</li> <li>•Termination of this contract due to force majeure event: [Seller may terminate this contract if it determines that it is impossible to continue this project or that it takes too much cost to continue this project, due to force majeure event.]</li> </ul>
<b>Change of laws, including change of tax regulations</b>	<ul style="list-style-type: none"> <li>•Risk allocation upon change of laws: [Buyer shall be liable.] [ To be discussed. There is a possibility to allocate the risk to consumer price or to [government].]</li> <li>[•Buyer shall be obliged to check and investigate any change of Vietnamese laws and regulations and to report the same to Seller.]</li> <li>•Termination of this contract due to change of laws: [Seller may terminate this contract if it determines that it is impossible to continue this project or that it will require excessive cost to continue this project due to a change in applicable laws and regulations.]</li> </ul>
<b>Change of this contract</b>	This contract may be changed only with prior written agreement by both parties, [subject to all the shareholders' prior consent]
<b>Prohibition of transfer and assignment of rights and obligations under this Contract</b>	None of the rights and obligations under this contract may be transferred or assigned without the prior written consent of the other party.
<b>Method of notification etc</b>	[Typical method of notification shall be provided.]
<b>Dispute Settlement</b>	[Singapore International Arbitration Centre]
<b>Governing Law</b>	[TBD]
<b>Language</b>	The language for this Contract and communication shall be English. In case of a discrepancy between the English version and any version

	in another language, the English version shall prevail.
<b>Others</b>	

## 4. EPC CONTRACT

EPC Contract – Term Sheet (DRAFT)

Items	Nature
<b>Parties</b>	<p>Employer: SPC</p> <p>Contractor: ●●●【 The form of contractor has not been determined yet. It could be (i) one entity, (ii) a joint venture company, or (iii) a BCC (Business Co-operation Contract, which is similar to a JV in the practice in Japan. This term sheet assumes that the form of contractor is either (i) or (ii).】</p> <p>【 There is also a possibility of dividing the EPC work into two, with portions entrusted to META and VIWASEEEN respectively. (In this case, META and WIWESEEN do not owe a joint and several liability.) In this case, META and SPC would enter into one agreement and VIWASEEEN and SPC would separately enter into another agreement.】</p>
<b>Outline of this Work, location</b>	<p>[ ▪ Site inspection prior to Construction, design and construction for Water Supply Project from Dong River (this “Project”) (the “Work”)</p> <p><b>First Stage</b></p> <p>Construction period: [Month, Date, Year] to Dec. 31, 2015</p> <p>Operation Period: Jan. 1, 2016 to [Month, Date, Year]</p> <p>Maximum Water Supply: 150,000 m<sup>3</sup>/day</p> <p><b>Second Stage</b></p> <p>Construction period: Jan. 1, 2016 to Dec. 31, 2020</p> <p>Operation Period: Jan. 1, 2021 to [Month, Date, Year]</p> <p>Maximum Water Supply: 300,000 m<sup>3</sup>/day</p> <p><b>Third Stage</b></p> <p>Construction period: Jan. 1, 2021 to Dec. 31, 2030</p> <p>Operation Period: Jan. 1, 2031 to [Month, Date, Year]</p> <p>Maximum Water Supply: 600,000 m<sup>3</sup>/day</p>

	<ul style="list-style-type: none"> <li>Location: Ding Vien • Trung Mau, Phu Dong, Gia Lam, Hano</li> </ul> <p>[Details: to be described in attachment.]</p>
<b>Outline of facilities</b>	[to be described in attachment]
<b>Use of sub-contractor</b>	Contractor may use sub-contractors, in which case, the Contractor shall bear all liability in relation to the use of sub-contractors.
<b>Obligations of Employer</b>	—
<ul style="list-style-type: none"> <li>Approvals and Licenses</li> </ul>	Employer shall obtain and maintain, or co-operate with the Contractor's obtaining and maintaining, all approvals and licenses necessary to proceed with this Project, including without limitation, investment certificates, and business licenses.
<ul style="list-style-type: none"> <li>Obligation to establish Land Use Rights</li> </ul>	<ul style="list-style-type: none"> <li>Employer shall transfer to Contractor the Land Intended for Business and the Land Intended for Pipeline in order to meet the schedule for this Project</li> </ul> <p>[In case there are any artificial structures, abandoned items (including, without limitation, unexploded bombs, or environmental pollutants) on or in the Land Intended for Business or the Land Intended for Pipeline, Employer shall cause [the government] to promptly remove the same at its own cost.]</p> <p>[If the Land Intended for Business or the Land Intended for Pipeline is found to be inappropriate for this Project, Employer shall cause [the government] to provide usage rights to alternative land satisfactory to the Employer.]</p>
<ul style="list-style-type: none"> <li>Establishment of Infrastructure</li> </ul>	[Employer shall cause [the government] to prepare and provide to Contractor all infrastructure necessary to proceed with this Business, including roads, in order to meet the schedule of this Business.]
<ul style="list-style-type: none"> <li>Condition Precedents</li> </ul>	[Contractor is obliged to start the Work, subject to performance in full of the obligations of the Employer described above.]
<ul style="list-style-type: none"> <li>Maintenance of the Business Rights</li> </ul>	Employer shall keep the Business Right valid throughout the period of this Business.
<ul style="list-style-type: none"> <li>Resident Risk</li> </ul>	Dealing with residents: [Government/Employer] shall deal with all issues in relation to residents.

	<ul style="list-style-type: none"> <li>If this Project is delayed or suspended due to objections raised by residents against this Project itself, [Employer] shall be responsible for all increase in cost or damages caused as a result of such delay or suspension.</li> </ul>
<ul style="list-style-type: none"> <li>Availability of electricity and gas</li> </ul>	In case of outages of electricity, gas, water or other utilities etc, Employer shall be responsible for the increased cost or damages caused by such outages.
<b>Design</b>	—
<ul style="list-style-type: none"> <li>Obligation of prior site inspection</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Requirements for design</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Procedure to approval and consent</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Change of Design</li> </ul>	<ul style="list-style-type: none"> <li>In case of a design change requested by Employer, Employer shall be responsible for all costs associated with such change.</li> </ul> <p>【 Changes requested by Employer can be accepted only to a certain extent and only within a certain period.】</p>
<b>Construction</b>	—
<ul style="list-style-type: none"> <li>Requirements for construction</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Time for completion, Programme</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Variation of Time for completion and/or Programme</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Delay in Time for completion and/or Programme</li> </ul>	In case of a delay due to Employer, Employer shall be responsible for the increase in cost and damages resulting therefrom.
<ul style="list-style-type: none"> <li>Conditions for sub-contractor</li> </ul>	[TBD]
<ul style="list-style-type: none"> <li>Suspension and Cease of Construction</li> </ul>	[TBD] 【 Employer may halt the construction when it determines necessary.】
<ul style="list-style-type: none"> <li>Rights of Employer</li> </ul>	Rights of examination and on-site-inspection
<ul style="list-style-type: none"> <li>Dealing with emergency</li> </ul>	<ul style="list-style-type: none"> <li>Measures to be taken by Employer upon emergency: [TBD]</li> <li>Measures to be taken by Contractor upon emergency: [TBD]</li> <li>Reporting obligation of Contractor: [TBD]</li> <li>Risk allocation for cost-increases and damages: [TBD]</li> </ul>

• Tests on Completion, Quality	【 Type, nature, number of times, timing, etc.: TBD】
• Take Over	【 Timing of take-over from Contractor to Employer: TBD】
• Documents, training, etc. upon Take-Over	Prepare manuals reasonable necessary for operation, conduct training
Defect Liability, Warranty	【 TBD】
Contract Price	[TBD]
Timing and method of payment of Contract Price	[TBD] 【 Consumption tax handling: TBD】
Change of Price	<ul style="list-style-type: none"> <li>• Price shall be changed to reflect price fluctuations 【 materials, personnel expenses, etc.】 [Timing of and measure to change of price: TBD]</li> <li>• Price shall be changed to reflect foreign exchange rate: [Timing of and measure to change of price: TBD]</li> <li>• Procedure to change capacity, calculation of price etc, due to any factors other than above: [TBD]</li> </ul>
Default by Employer	• In case of a delay in payment: Liquidated damages at an annual rate of [ ]% calculated daily for period delayed [calculating from the day following the due date in invoice].
Default by Contractor	Delays in Construction: [If the Construction is delayed, liquidated damages in the amount of [ ] per week shall be imposed, up to a limit of [ ]% of the Contract Price. These liquidated damages shall be the Employer’s sole and exclusive remedy with respect to such delays, and Employer may not claim further damages against Contractor. 【 TBD, considering the timing of start of water supply and the timing to start calculation of penalty under the Off-take Contract】
Failure to meet requirements due to the condition of river water	[If the river water does not meet any of the “Conditions of River water”, described in the project contract, Contractor shall not be liable as default, as defect liability, or any other liability, with respect to performance of the facility.]
Limitation of liability	<ul style="list-style-type: none"> <li>• Contractor shall not be liable for any indirect damages or special damages.</li> <li>• Total liability for [damages and] penalties payable by Contractor shall not exceed [ ].</li> </ul>
Representations and warranties	[Typical items shall be provided for both parties.]



<b>Covenants</b>	[Typical items shall be provided for both parties.]
<b>Damage against third party</b>	Both parties shall be liable for damages caused to third parties to the extent each is responsible for the same.
<b>Insurance</b>	[TBD]
<b>Compliance</b>	[Typical compliance obligation shall be provided.]
<b>Infringement of Intellectual Property Right</b>	In conducting the Work, Contractor must not infringe any intellectual property right that is registered in Vietnam under the name of any third party. If performing the Work or using the facility infringes any intellectual property right of a third party, Contractor shall owe damages, and costs for dealing with the matter, etc..
<b>Agreement on usage of Copyright</b>	<b>【 TBD】</b>
<b>Confidentiality</b>	[Both parties owe typical confidentiality obligation.]
<b>Period of this contract</b>	[Month, Date, Year] – [Month, Date, Year] <ul style="list-style-type: none"> <li>•When the Business Rights Contract between Employer and [the government] is terminated irrespective of the reason, this contract shall also be terminated.</li> <li>•If Contractor withdraws from the Business irrespective of the reason, this contract shall be terminated.</li> </ul>
<b>Treatment after termination of this contract during period of contract</b>	<b>【 Procedures need to be provided for assigning Work to entity or entities that will conduct the Work if this contract is terminated before the completion of the contract period etc.】</b> Contractor is obliged to assign the Work to the entity which will conduct the Work.
<b>Termination of this contract due to default by Employer</b>	<b>【TBD】</b>
<b>Termination of this contract due to default by Contractor</b>	<b>【TBD】</b>
<b>Force Majeure</b>	•Definition of Force Majeure: All events occurring by natural factors or by artificial factors that are beyond the control of Seller and Buyer. <b>【 “Force Majeure” includes, but is not limited to ,extreme price fluctuations, the Vietnamese government’s non-performance or delay in issuance of approval or licenses, registration, establishment of entity, issuance of visas, payments etc, or the</b>

	<p>Vietnamese government's non-performance or delay in interpretation or legal procedures, suspension of electricity, gas, water etc, decrease of water volume or change in quality of river water in excess of certain criteria. The details are under discussion.]</p> <ul style="list-style-type: none"> <li>▪ Employer and Contractor are not liable for any default or delay due to force majeure event.</li> <li>▪ Risk allocation upon force majeure event: [Employer shall be liable.]</li> <li>▪ Termination of this contract due to force majeure event: [Employer may terminate this contract if it determines that it is impossible to continue this project or that the cost of continuing this project is too high, due to a force majeure event.]</li> </ul>
<b>Change of laws, including change of tax regulations</b>	<ul style="list-style-type: none"> <li>▪ Risk allocation upon change of laws: [Employer shall be liable.]</li> <li>[▪ Employer shall be obliged to check and investigate any change of Vietnamese laws and regulations and to report the same to Contractor.]</li> <li>▪ Termination of this contract due to change of laws: [Employer may terminate this contract if it determines that it is impossible to continue this project or that it will require excessive cost to continue this project due to a change in applicable laws or regulations.]</li> </ul>
<b>Change of this contract</b>	This contract may be changed only with prior written agreement between the parties, [subject to prior consents of all the shareholders of Employer].
<b>Prohibition of transfer and assignment of rights and obligations under this Contract</b>	None of the rights and obligations under this contract may be transferred or assigned without the prior written consent of the other party.
<b>Method of notification etc</b>	[Typical methods of notification shall be provided.]
<b>Dispute Settlement</b>	[Singapore International Arbitration Centre]
<b>Governing Law</b>	[TBD]
<b>Language</b>	The language for this Contract and communication shall be English. In case of a discrepancy between the English

	version and any version in another language, the English version shall prevail.
<b>Others</b>	

## 5. O&M CONTRACT

**O&M Contract – Term Sheet (DRAFT)**

Items	Nature
<b>Parties</b>	Entrustor: SPC Entrustee: ●●●
<b>Date of Contract</b>	[Month, Date, Year]
<b>Period of the Project</b>	First Stage: [Month, Date, Year] – [Month, Date, Year] Second Stage: [Month, Date, Year] – [Month, Date, Year] Third Stage: [Month, Date, Year] – [Month, Date, Year]
<b>Outline of this Work, location</b>	<p>• Operation, maintenance and management for Water Supply Project from Dong River (this “Project”) (the “Work”)</p> <p>Project Schedule</p> <p><b>First Stage</b></p> <p>Construction period: [Month, Date, Year] to Dec. 31, 2015          Operation Period: Jan. 1, 2016 to [Month, Date, Year]          Maximum Water Supply: 150,000 m<sup>3</sup>/day</p> <p><b>Second Stage</b></p> <p>Construction period: Jan. 1, 2016 to Dec. 31, 2020          Operation Period: Jan. 1, 2021 to [Month, Date, Year]          Maximum Water Supply: 300,000 m<sup>3</sup>/day</p> <p><b>Third Stage</b></p> <p>Construction period: Jan. 1, 2021 to Dec. 31, 2030          Operation Period: Jan. 1, 2031 to [Month, Date, Year]          Maximum Water Supply: 600,000 m<sup>3</sup>/day</p> <p>• Location: Ding Vien • Trung Mau, Phu Dong, Gia Lam, Hano          [Details: to be described in attachment.]</p>
<b>Period of this contract</b>	<p>Date of this Contract – [Month, Date, Year]</p> <p>• When the Business Rights Agreement between Entrustor and [the government] is terminated irrespective of the reason, this contract shall also be terminated.</p> <p>[• If Contractor withdraws from the Business irrespective of the reason, this contract shall be terminated.]</p>

<b>Works entrusted</b>	<p>[1. Operation, maintenance and management of the water filtration plant</p> <ul style="list-style-type: none"> <li>• Operation of the Plant</li> <li>• All of the maintenance and management work of the Plant, including but not limited to inspection, maintenance, repair, replacement and improvement</li> <li>• security</li> <li>• cleaning (excluding the administration building)</li> <li>• Management of sludge, i.e. management of operation of filtration plant, measurement</li> <li>• • •</li> </ul> <p>2. maintenance and management of area for sun-drying</p> <ul style="list-style-type: none"> <li>• Management of sludge after sun-drying</li> <li>• Removal of sludge</li> <li>• • •</li> </ul> <p>3. Treatment of sludge after sun-drying</p> <p>all work related to or accompanied with the work described in 1 to 3 above.]</p>
<b>Water supply point</b>	[Describe in attachment or to be agreed separately] <b>[ The water supply point would be before the supply reservoir.]</b>
<b>Supply condition (Quality, Water pressure and others)</b>	<b>[ To discuss based on Vietnamese laws and regulations ]</b>
<b>Confirmation of volume, quality, water pressure etc supplied, and responsibility to scale</b>	Entrustee owes responsibility to confirm. Details of measures: [TBD]
<b>Periodical quality check, and responsibility to check</b>	[Entrustor/Entrustee] periodically checks quality at the Water Filtration Plant Details of measures: [TBD]
<b>Dealing with emergency situations</b>	<ul style="list-style-type: none"> <li>• Measures to be taken by Entrustee: [TBD]</li> <li>• Measures to be taken by Entrustor: [TBD]</li> <li>• After- the -fact-reporting by Entrustee: [TBD]</li> <li>• Risk allocation for cost-increases and damages: [TBD]</li> </ul>
<b>Fee for the Work</b>	[to be described in attachment.] [Payment by Entrustor starts on the condition that Entrustor has received income under the Off-take

	Contract.]
<b>Timing and procedure for invoicing and payment</b>	[TBD] 【 Monthly payment, calculated in USD, paid in VND (consumption tax handling TBD.)】
<b>Pricing changes</b>	<ul style="list-style-type: none"> <li>•Price shall be changed to reflect price fluctuations [Timing of and measure to change of price: TBD]</li> <li>•Price shall be changed to reflect foreign exchange rate: [Timing of and measure to change of price: TBD]</li> <li>•Procedure to change capacity, calculation of price etc, due to any factors other than above: [TBD]</li> </ul>
<b>Bearing Cost (financing)</b>	[All the costs necessary for performance of obligation of Entrustee under this contract shall be borne by Entrustee, except that the Entrustor pays the fee for the Work to Entrustee.]
<b>Approvals and Licenses</b>	[Entrustee shall apply for, obtain, or submit, and maintain all the approvals and licenses necessary to perform its obligations under this contract, at its own responsibility and cost. Nevertheless, Entrustor shall obtain and maintain, and submit the approvals and licenses that need be obtained, maintained and submitted by Entrustor, e.g. Business Right, Water Usage Right, License for Water Supply, and Entrustee shall assist Entrustor with submitting necessary documents, etc.]
<b>Use of sub-entrustee</b>	Entrustee may use sub-entrustees, in which case, the Entrustee shall bear all liability in relation to the use of sub-entrustee.
<b>Resident Risk</b>	<ul style="list-style-type: none"> <li>•Dealing with residents: [Government/Entrustor] shall deal with all issues in relation to residents.</li> <li>•If this Project is delayed or suspended due to objections raised by residents against this Project itself, Entrustor shall be responsible for all increase in cost or damages caused as a result of such delay or suspension.</li> </ul>
<b>Requirements for O&amp;M</b>	[TBD]
<b>Warranty</b>	[TBD]
<b>Representations and warranties</b>	[Typical items shall be provided.]
<b>Covenants</b>	[Typical items shall be provided.]
<b>Damage against third party</b>	Both parties shall be liable for damages caused to third parties to the extent each is responsible for the same.

<b>Compliance</b>	[Typical compliance obligation shall be provided.]
<b>Confidentiality</b>	[Both parties owe typical confidentiality obligation.]
<b>Submission of specifications, etc. of operation, maintenance and management work</b>	[TBD]
<b>[Arrangement of organization for operation, maintenance and management work]</b>	[TBD]
<b>Utility (supply of electricity and gas)</b>	[Entrustee shall owe utility costs in relation to operation, maintenance and management work.. However, for electricity costs, Entrustor shall pay the fee to the electricity company together with the utility fees in lump sum, and Entrustee shall pay that portion relating to management and maintenance services as invoiced by the Entrustor.]
<b>Repair of facilities and replacement of equipment and parts</b>	[TBD]
<b>Obligation to report</b>	Entrustee is obliged to periodically report to Entrustor. Frequency, nature, format of report, etc.: [TBD]
<b>Procedure to be taken when performance does not fulfill the Requirements.</b>	[TBD] 【 If, as a result of Entrustor’s monitoring of Entrustee, it is found that the operation, maintenance and management work does not meet the Requirements, then Entrustor shall formally request Entrustee to make improvements. Unless the situation is improved within an indicated period, Entrustor may replace Entrustee, terminate this Contract, etc., in addition to decrease fees or suspend the payments described below.】
<b>Decrease in Price</b>	•Delays in start of water supply: [If the start of water supply is delayed more than [one] week(s) from the planned supply start date, the price shall be decreased as delay damages. This decrease of price shall be the Entrustor’s sole and exclusive remedy with respect to such delay, and Entrustor may not claim further damages against Entrustee. 【 Price shall not be decreased immediately after delay, but shall be decreased only after [ ] weeks. The actual price decrease calculation is TBD.】



	<ul style="list-style-type: none"> <li>•Suspension of supply: [If the water supply is suspended for more than [ ] hours per day, the price shall be decreased as damages for the suspension. This decrease of price shall be the Entrustor’s sole and exclusive remedy with respect to such suspension, and Entrustor may not claim further damages against Entrustor. [ Price shall not be decreased immediately after any suspension, but shall be decreased only after [ ] hours. The calculation of amount to be decreased from price is under discussion. ]</li> <li>•[If volume or quality of delivered water fails to meet the level of volume and quality agreed upon by and between Buyer (Off-taker) and Entrustor, the price shall be decreased as damages. This price decrease shall be the Entrustor’s sole and exclusive remedy with respect to such failure, and Entrustor may not claim further damages against Entrustee. [ Price shall not be decreased immediately after any failure to meet the “Requirements” for the project, but shall be decreased only when it fails to meet certain agreed levels. The calculation of the price decrease is under discussion. ]</li> </ul>
<b>Failure to meet requirements due to the condition of river water</b>	If the river water does not meet any of the “Conditions of River Water”, described in the project contract, Entrustee shall not be liable for volume and quality of water.
<b>Limitation of liability of Entrustee</b>	<ul style="list-style-type: none"> <li>•Entrustee shall not be liable for any indirect damages or special damages.</li> <li>•Total liability for damages of Entrustee to Entrustor shall not exceed [ ].</li> </ul>
<b>Default by Entrustor</b>	In case of delay in payment: Liquidated damages of annual rate [ ]% calculated daily for delayed period [calculating from the day following the due date in invoice].
<b>Termination of this Contract during its period</b>	<p>I Termination of this Contract by Entrustor</p> <p>1.Event of termination due to default by Entrustee  <b>[ TBD ]</b></p> <p>[2.Event of termination by Entrustor without any default by Entrustee  In the event that it turns out there is no need to proceed with all or any part of this Project for reasonable reason, provided that [ ] days prior notice is given.</p> <p>II Termination of this Contract by Entrustee  Entrustee may not terminate this Contract as long as the Business</p>

	Rights Contract between [the government] and Entrustor remains in force and effect.] <b>[ TBD]</b>
<b>Treatment upon expiration of period of this contract</b>	[TBD]
<b>Insurance</b>	[Entrustee is required to purchase insurance of the type and nature specified in the attached, at its responsibility and cost.]
<b>Force Majeure</b>	<ul style="list-style-type: none"> <li>• Definition of Force Majeure: <b>[ same as described in the Business Right Contract.]</b></li> <li>• Entrustee is not liable for any default or delay due to force majeure event.</li> <li>• Risk allocation upon force majeure event: [Entrustor shall be liable.]</li> <li>• Termination by Entrustee: [Entrustee may not terminate this Contract, unless the Business Right Contract is terminated.]</li> <li>• Termination by Entrustor: [to be limited to reasonable events]</li> </ul>
<b>Change of laws, including change of tax regulations</b>	<ul style="list-style-type: none"> <li>• Risk allocation upon change of laws: [Entrustor shall be liable.]</li> <li>[• Entrustor shall be obliged to check and investigate any change of Vietnamese laws and regulations and to report the same to Entrustee.]</li> <li>• Termination of this contract by Entrustor: [Entrustor may not terminate this Contract, unless the Business Right Contract is terminated.]</li> <li>• Termination of this contract by Entrustee: [to be limited to reasonable events]</li> </ul>
<b>Change of this contract</b>	This contract may be changed only with prior written agreement by both parties, [subject to prior consents of all the shareholders of Entrustor.]
<b>Prohibition of transfer and assignment of rights and obligations under this Contract</b>	None of the rights and obligations under this contract may be transferred or assigned without the prior written consent of the other party.
<b>Method of notification etc</b>	[Typical method of notification shall be provided.]
<b>Dispute Settlement</b>	[Singapore International Arbitration Centre]
<b>Governing Law</b>	<b>[ TBD]</b>
<b>Language</b>	The language for this Contract and communication shall be English.

	In case of a discrepancy between the English version and any version in another language, the English version shall prevail.
<b>Others</b>	