

Installation of Submarine Gas Pipelines  
and Associated Facilities from  
To Kwa Wan to North Point for Former Kai Tak Airport Development  
Consultancy Services for Feasibility Study and Detailed Design  
Environmental Impact Assessment Report



## **Appendix C1**

### **Vibrocore Records**



**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC 1A

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No. G29	E 837850.20 N 819314.60	DATE from 24/07/2008 to 24/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	GROUND LEVEL -5.60 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
24/07/2008		08:00		95												Very soft, dark grey and black, silty CLAY. (CONTAMINATED MARINE DEPOSIT)
				100												Very soft, dark grey and black, slightly sandy silty CLAY. (CONTAMINATED MARINE DEPOSIT)
																Soft, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
																Firm, light grey, mottled brown, sandy CLAY/SILT. (MARINE DEPOSIT)
																Light grey, clayey silty fine to coarse SAND. (ALLUVIUM)
24/07/2008		18:00														End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⬇ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 25/07/2008  
CHECKED KEN MA  
DATE 26/07/2008

REMARKS

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**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
**VC 2A**  
SHEET 1 of 1

**VIBROCORE RECORD**

Project Title **Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point**

METHOD <b>Vibrocore</b>	CO-ORDINATES E 837950.20 N 819309.10	PROJECT No. <b>J3222</b>
MACHINE & No. <b>G29</b>		DATE from <b>22/07/2008</b> to <b>22/07/2008</b>
FLUSHING MEDIUM <b>WATER</b>	ORIENTATION <b>Vertical</b>	GROUND LEVEL <b>-4.70 mPD</b>

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
22/07/2008		08:00		98							0.00	-4.70	0.05			Grey and light grey, slightly silty fine to medium SAND. (FILL) Light grey, subangular to subrounded fine to coarse GRAVEL sized concrete fragments. (FILL)
											0.95	-5.70	1.00			Firm, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
											1.85	-6.70	2.00			Firm, grey, sandy CLAY/SILT with some broken shell fragments. (MARINE DEPOSIT)
											2.55	-7.70	3.00			Firm, dark grey, CLAY/SILT. (MARINE DEPOSIT)
				100							3.95	-9.70	4.00			Firm, grey, mottled brown, clayey SILT. (ALLUVIUM)
											4.85	-9.70	5.00			Firm, yellowish brown, SILT. (ALLUVIUM)
22/07/2008		18:00									5.85	-10.70	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ⊥ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 23/07/2008  
CHECKED KEN MA  
DATE 24/07/2008

REMARKS

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**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC 3

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title **Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point**

METHOD Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No. G29	E 838032.20 N 819295.40	DATE from 12/07/2008 to 12/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -7.10 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
12/07/2008		08:00		87								-7.10	0.00			Brown and dark brown, silty fine to medium SAND. (FILL) Brown, clayey silty fine to coarse SAND with some fine to coarse gravel sized brick fragments. (FILL)
												-8.10	1.00			Firm, grey, CLAY. (MARINE DEPOSIT)
												-10.10	3.00			Stiff, brown, mottled light grey, CLAY/SILT. (ALLUVIUM)
				100								-11.10	4.00			Stiff, brown, mottled light grey, sandy CLAY/SILT. (ALLUVIUM)
												-12.10	5.00			Light grey, clayey silty fine to coarse SAND. (ALLUVIUM)
12/07/2008		18:00										-13.10	6.00			End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- U76 undisturbed sample
- ▨ U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample
- ▲ Water sample
- ⬆ Piezometer / standpipe tip
- ⬇ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 14/07/2008  
 CHECKED KEN MA  
 DATE 15/07/2008

REMARKS



**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC 4

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore

CO-ORDINATES

PROJECT No. J3222

MACHINE & No. G29

E 838087.50  
N 819210.20

DATE from 10/07/2008 to 10/07/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

SEABED LEVEL -7.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
10/07/2008		08:00		87							0.00	-7.70				Stiff, grey and light grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
											0.55	-8.70	1.00			Soft, grey, slightly sandy CLAY/SILT. (MARINE DEPOSIT)
											1.55	-9.70	2.00			Soft to firm, grey, CLAY/SILT. (MARINE DEPOSIT)
				100					2		2.55	-10.70	3.00			Grey and brown, clayey silty fine to coarse SAND. (ALLUVIUM)
											3.55	-11.70	4.00			Light brown, silty fine to coarse SAND. (ALLUVIUM)
											4.55	-12.70	5.00			Light orangish brown, silty fine to coarse SAND. (ALLUVIUM)
10/07/2008		18:00									5.55	-13.70	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- ▲ Water sample
- Large disturbed sample
- Piezometer / standpipe tip
- ▬ SPT liner sample
- ▬ Standard penetration test
- U76 Undisturbed sample
- U100 Undisturbed sample
- Mazier sample
- Piston sample
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED JASON LAU

DATE 11/07/2008

CHECKED KEN MA

DATE 12/07/2008

REMARKS



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC 5

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 838141.60 N 819127.30	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 10/07/2008 <b>to</b> 10/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -7.80 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
10/07/2008		08:00		93								-7.80	0.00			Stiff, grey and dark grey, slightly sandy clayey SILT. (CONTAMINATED MARINE DEPOSIT) Stiff, grey, slightly sandy CLAY. (MARINE DEPOSIT)
												-8.80	1.00			Stiff, grey, slightly sandy CLAY with occasional shell fragments. (MARINE DEPOSIT)
												-9.80	2.00			Grey, silty clayey fine to coarse SAND. (MARINE DEPOSIT)
				100					2			-3.80	3.80			
												-11.80	4.00			Light grey, silty fine to coarse SAND. (ALLUVIUM)
												-12.80	5.00			Stiff, light grey, slightly sandy SILT. (ALLUVIUM)
10/07/2008		18:00										-13.80	6.00			End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- SPT finer sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▩ Mazier sample
- ▧ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 11/07/2008  
**CHECKED** KEN MA  
**DATE** 12/07/2008

**REMARKS**



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC 7

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 838250.30 N 818960.10	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 09/07/2008 <b>to</b> 09/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -9.50 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
09/07/2008		08:00		97					1	U100	0.05	-9.50	0.05			Soft, brownish grey, clayey SILT. (MARINE DEPOSIT) Soft, grey, CLAY/SILT. (MARINE DEPOSIT)
										U100	1.00	-10.50	1.00			Soft, grey, slightly sandy CLAY/SILT. (MARINE DEPOSIT)
										U100	2.00	-11.50	2.00			Firm to stiff, light brown, slightly sandy CLAY/SILT. (ALLUVIUM)
				97					2	U100	3.00	-12.50	3.00			Firm to stiff, light brown, mottled light grey, CLAY/SILT. (ALLUVIUM)
										U100	4.00	-13.50	4.00			
										U100	5.00	-14.50	5.00			Light grey, silty fine to coarse SAND. (ALLUVIUM)
09/07/2008		18:00								U100	6.00	-15.50	6.00			End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▩ U76 undisturbed sample
- ▧ U100 undisturbed sample
- ▦ Mazier sample
- ▤ Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⊖ Standard penetration test
- ⊞ Water absorption (Packer) test
- ⊟ Permeability test
- ⊠ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 10/07/2008  
 CHECKED KEN MA  
 DATE 11/07/2008

REMARKS



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC 8**  
 SHEET 1 of 1

**VIBROCORE RECORD**

Project Title		Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point	
METHOD	Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No.	G29	E 838316.80 N 818885.60	DATE from 07/07/2008 to 07/07/2008
FLUSHING MEDIUM	WATER	ORIENTATION Vertical	SEABED LEVEL -9.20 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
07/07/2008		08:00		87							0.85 0.85	-9.20	0.00			Stiff, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
											0.85 1.00	-10.20	1.00			Soft, grey, CLAY/SILT with some broken shell fragments. (CONTAMINATED MARINE DEPOSIT)
											1.85 2.00	-11.20	2.00			Soft, grey, CLAY with some broken shell fragments. (MARINE DEPOSIT)
				100						2	2.85 3.00	-12.20	3.00			Stiff, yellowish brown and brown, CLAY/SILT. (ALLUVIUM)
											3.85 4.00					
											4.85 5.00	-14.20	5.00			Firm, brown, CLAY/SILT with some to much subangular fine quartz gravel. (ALLUVIUM)
07/07/2008		18:00									5.85 6.00	-15.20	6.00			End of hole at 6.00m depth.

<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>○ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>▨ U76 undisturbed sample</li> <li>▩ U100 undisturbed sample</li> <li>⊕ Mazler sample</li> <li>⊖ Piston sample</li> <li>▲ Water sample</li> <li>⊕ Piezometer / standpipe tip</li> <li>⊖ Standard penetration test</li> <li>⊖ Water absorption (Packer) test</li> <li>⊖ Permeability test</li> <li>⊖ Impression packer test</li> <li>⊖ In-situ vane shear test</li> </ul>	<p>LOGGED <u>JASON LAU</u></p> <p>DATE <u>08/07/2008</u></p> <p>CHECKED <u>KEN MA</u></p> <p>DATE <u>09/07/2008</u></p>	<p>REMARKS</p>
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**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC 9

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 838388.30 N 818817.20	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 07/07/2008 <b>to</b> 07/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -8.00 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tesis	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
07/07/2008		08:00		100								-8.00	0.00			Grey, angular coarse GRAVEL sized rock fragments with some broken shell fragments. (FILL)
												-8.05	0.05			Firm, grey, very sandy CLAY with some broken shell fragments. (MARINE DEPOSIT)
												-9.00	1.00			Soft to firm, grey, CLAY with some shell fragments, (MARINE DEPOSIT)
												-11.00	3.00			Stiff, brown, mottled light brown, CLAY/SILT. (ALLUVIUM)
				100								-12.00	4.00			Stiff, grey, mottled brown, CLAY/SILT. (ALLUVIUM)
07/07/2008		18:00										-14.00	6.00			End of hole at 6.00m depth.

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● Small disturbed sample	▲ Water sample	LOGGED <u>JASON LAU</u>
○ Large disturbed sample	□ Piezometer / standpipe tip	DATE <u>08/07/2008</u>
▬ SPT liner sample	↓ Standard penetration test	CHECKED <u>KEN MA</u>
▬ U76 undisturbed sample	⊥ Water absorption (Packer) test	DATE <u>09/07/2008</u>
▬ U100 undisturbed sample	⊥ Permeability test	
▬ Mazier sample	⊥ Impression packer test	
▬ Piston sample	∇ In-situ vane shear test	

**REMARKS**



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC10

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b>	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29	E 838464.30 N 818755.60	<b>DATE from</b> 08/07/2008 <b>to</b> 08/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -9.20 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description	
									No.	Type	Depth						
08/07/2008		08:00		80								-9.20	0.00			Soft, grey and dark grey, sandy CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)	
													0.95 1.00	-10.20	1.00		Soft to firm, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
													1.95 2.00				
				100						2			2.95 3.00	-12.20	3.00		Firm to stiff, dark brown, mottled light grey, CLAY/SILT. (ALLUVIUM)
													3.95 4.00	-13.20	4.00		Soft to firm, light grey, CLAY/SILT. (ALLUVIUM)
													4.95 5.00	-14.20	5.00		Stiff, light grey, mottled brown, CLAY/SILT. (ALLUVIUM)
08/07/2008		18:00											5.95 6.00	-15.20	6.00		End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 Undisturbed sample
- U100 Undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⊕ Standard penetration test
- ⊕ Water absorption (Packer) test
- ⊕ Permeability test
- ⊕ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 09/07/2008  
 CHECKED KEN MA  
 DATE 10/07/2008

**REMARKS**

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**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC11

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No. G29	E 838546.70 N 818702.60	DATE from 08/07/2008 to 08/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -9.40 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
08/07/2008		08:00		80							-9.40	0.00			Grey, silty fine SAND. (CONTAMINATED MARINE DEPOSIT) Soft, grey and dark grey, sandy CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
										V100	-10.40	1.00			Firm, grey, very sandy CLAY/SILT with some to much broken shell fragments. (MARINE DEPOSIT)
									2		-12.40	3.00			Firm, light brown, sandy CLAY/SILT. (ALLUVIUM)
				100						V100	-13.40	4.00			Light yellowish brown, silty fine to medium SAND. (ALLUVIUM)
08/07/2008		18:00									-15.40	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▩ Mazier sample
- ▧ Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⊖ Standard penetration test
- ⊞ Water absorption (Packer) test
- ⊟ Permeability test
- ⊠ Impression packer test
- ∨ In-situ vane shear test

LOGGED JASON LAU  
 DATE 09/07/2008  
 CHECKED KEN MA  
 DATE 10/07/2008

REMARKS

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**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC12**  
 SHEET 1 of 1

**VIBROCORE RECORD**

Project Title <b>Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point</b>		
METHOD <b>Vibrocore</b>	CO-ORDINATES E 838632.50 N 818657.60	PROJECT No. <b>J3222</b>
MACHINE & No. <b>G29</b>		DATE from <b>02/07/2008</b> to <b>02/07/2008</b>
FLUSHING MEDIUM <b>WATER</b>	ORIENTATION <b>Vertical</b>	SEABED LEVEL <b>-12.10 mPD</b>

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
02/07/2008		08:00										-12.10	0.00			Very soft, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT) Soft, grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
												-13.10	1.00			Firm, brownish grey, clayey fine to coarse SAND. (ALLUVIUM)
												-14.10	2.00			Stiff, brown, clayey sandy SILT. (ALLUVIUM)
												-15.10	3.00			Light grey, fine to coarse SAND. (ALLUVIUM)
												-17.10	5.00			Firm to stiff, light grey, sandy CLAY/SILT with occasional subangular fine quartz gravel. (ALLUVIUM)
02/07/2008		18:00										-18.10	6.00			End of hole at 6.00m depth.

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<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>○ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>▨ U76 undisturbed sample</li> <li>▩ U100 undisturbed sample</li> <li>▧ Mazier sample</li> <li>▦ Piston sample</li> </ul>	<ul style="list-style-type: none"> <li>▲ Water sample</li> <li>◻ Piezometer / standpipe tip</li> <li>⊥ Standard penetration test</li> <li>⊥ Water absorption (Packer) test</li> <li>⊥ Permeability test</li> <li>⊥ Impression packer test</li> <li>∇ in-situ vane shear test</li> </ul>	LOGGED <u>JASON LAU</u> DATE <u>03/07/2008</u> CHECKED <u>KEN MA</u> DATE <u>04/07/2008</u>
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**REMARKS**



# Gammon Construction Limited

*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC13**

SHEET 1 of 1

## VIBROCORE RECORD

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

**METHOD** Vibrocore

**CO-ORDINATES**

**PROJECT No.** J3222

**MACHINE & No.** G29

E 838725.60

N 818619.30

**DATE from** 02/07/2008 **to** 02/07/2008

**FLUSHING MEDIUM** WATER

**ORIENTATION** Vertical

**SEABED LEVEL** -10.75 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
02/07/2008		08:00		98								-10.75	0.00			Grey, slightly silty fine to medium SAND. (MARINE DEPOSIT) Soft, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
												0.85 1.00	-11.75	1.00		Soft, grey, sandy CLAY/SILT with some broken shell fragments. (MARINE DEPOSIT)
												1.95 2.00	-12.75	2.00		Brownish grey, very clayey fine to coarse SAND. (ALLUVIUM)
				100								2.55 3.00	-13.75	3.00		Light grey, slightly silty fine to coarse SAND. (ALLUVIUM)
												3.85 4.00				
												4.85 5.00	-15.75	5.00		Stiff, light grey, mottled yellowish brown, sandy CLAY/SILT. (ALLUVIUM)
02/07/2008		18:00										5.95 6.00	-16.75	6.00		End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▩ U76 undisturbed sample
- ▩ U100 undisturbed sample
- ▩ Mazier sample
- ▩ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ⊥ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- √ In-situ vane shear test

**LOGGED** JASON LAU

**DATE** 03/07/2008

**CHECKED** KEN MA

**DATE** 04/07/2008

**REMARKS**



# Gammon Construction Limited

*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC14

SHEET 1 of 1

## VIBROCORE RECORD

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES E 838821.10 N 818578.10	PROJECT No. J3222
MACHINE & No. G29		DATE from 03/07/2008 to 03/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -11.00 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Depth (m)	Legend	Grade	Description
									No.	Type	Depth				
03/07/2008		08:00		87											Very soft, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
															Very soft, grey, very sandy CLAY/SILT. (MARINE DEPOSIT)
				100											Grey, clayey silty fine to medium SAND. (MARINE DEPOSIT)
															Grey, silty fine to medium SAND. (ALLUVIUM)
03/07/2008		18:00													End of hole at 6.00m depth.

- Small disturbed sample     ▲ Water sample
- Large disturbed sample     ◊ Piezometer / standpipe tip
- ▬ SPT liner sample            ↓ Standard penetration test
- U76 Undisturbed sample      ↓ Water absorption (Packer) test
- U100 Undisturbed sample     ⊥ Permeability test
- Mazier sample                 ⊥ Impression packer test
- ▬ Piston sample                ∇ In-situ vane shear test

LOGGED JASON LAU

DATE 04/07/2008

CHECKED KEN MA

DATE 05/07/2008

REMARKS

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**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC15

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No. G29	E 838904.50 N 818533.20	DATE from 03/07/2008 to 03/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -11.00 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
03/07/2008		08:00		93								-11.00	0.00			Very soft, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT) Very soft, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
												0.95	0.05			
												1.55				
												2.95				
				100					2			-14.00	3.00			Light brown, fine to medium SAND. (ALLUVIUM)
												3.95				Firm, light grey, sandy CLAY/SILT. (ALLUVIUM)
												4.55				
												5.95	5.00			
03/07/2008		18:00										-17.00	6.00			End of hole at 6.00m depth.
												5.95	6.00			

- Small disturbed sample
- ◐ Large disturbed sample
- ▨ SPT liner sample
- ▩ U76 undisturbed sample
- ▩ U100 undisturbed sample
- ▩ Mazier sample
- ▩ Piston sample
- ▲ Water sample
- ◕ Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU

DATE 04/07/2008

CHECKED KEN MA

DATE 05/07/2008

**REMARKS**



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC16

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 838981.50 N 818478.60	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 04/07/2008 <b>to</b> 04/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -11.00 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
04/07/2008		08:00		100								-11.00	0.00			Very soft, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT) Soft, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
												-11.05	0.05			
												-12.00	1.00			Grey, clayey fine to medium SAND with some broken shell fragments. (MARINE DEPOSIT)
												-13.00	2.00			Soft, brownish grey, sandy CLAY/SILT. (MARINE DEPOSIT)
				100								-15.00	4.00			Soft to firm, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
												-16.00	5.00			Yellowish brown, silty fine to coarse SAND with some angular fine gravel sized rock fragments. (ALLUVIUM)
04/07/2008		18:00										-17.00	6.00			End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- ▬ U76 undisturbed sample
- ▬ U100 undisturbed sample
- ▬ Mazier sample
- ▬ Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⊖ Standard penetration test
- ⊖ Water absorption (Packer) test
- ⊖ Permeability test
- ⊖ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 05/07/2008  
**CHECKED** KEN MA  
**DATE** 07/07/2008

**REMARKS**





**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC17

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 839055.30 N 818420.20	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 04/07/2008 <b>to</b> 04/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -10.10 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.C.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
04/07/2008		08:00		98								-10.10	0.00			Light grey, slightly silty fine SAND. (MARINE DEPOSIT) Soft, grey, very sandy CLAY. (MARINE DEPOSIT)
												-11.10	1.00			Grey, clayey fine to coarse SAND with much broken shell fragments. (MARINE DEPOSIT)
												-14.10	4.00			Firm, light grey and greyish brown, clayey SILT. (ALLUVIUM)
												-15.10	5.00			Firm, yellowish brown, slightly sandy SILT. (ALLUVIUM)
04/07/2008		18:00		100								-16.10	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 05/07/2008  
CHECKED KEN MA  
DATE 07/07/2008

**REMARKS**



**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
**VC18**

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES E 839122.20 N 818352.40	PROJECT No. J3222
MACHINE & No. G29		DATE from 21/06/2008 to 21/06/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -11.00 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
21/06/2008		08:00		82					1	VIBRO	0.05	-11.05	0.05			Grey, silty fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT) Firm, grey, sandy silty CLAY with some shell fragments. (MARINE DEPOSIT)
											0.85					
											1.95					Firm, grey, silty CLAY. (MARINE DEPOSIT)
											2.00					
				100					2	VIBRO	2.95	-14.00	3.00			Light brownish grey, silty fine to coarse SAND. (ALLUVIUM)
											3.00					
											3.55					End of hole at 6.00m depth.
											4.00					
											4.95	-16.00	5.00			
											5.00					
21/06/2008		18:00									5.95	-17.00	6.00			
											6.00					

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 23/06/2008  
CHECKED KEN MA  
DATE 24/06/2008

REMARKS

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**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC19

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES E 839180.30 N 818281.60	PROJECT No. J3222
MACHINE & No. G29		DATE from 21/06/2008 to 21/06/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -10.80 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
21/06/2008		08:00		92					1	•	0.00 0.05	-10.85	0.05			Grey, silty fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT)
										•	0.95 1.00	-11.80	1.00			Firm, grey, sandy SILT with some broken shell fragments. (MARINE DEPOSIT)
										•	1.55 2.00	-12.80	2.00			Soft to firm, grey, silty CLAY with some broken shell fragments. (MARINE DEPOSIT)
										•	2.35 3.00	-13.80	3.00			Firm, grey, sandy SILT with some broken shell fragments. (MARINE DEPOSIT)
				100					2	•	3.35 4.00	-14.80	4.00			Soft to firm, grey, sandy CLAY/SILT. (MARINE DEPOSIT)
										•	4.55 5.00	-15.80	5.00			Firm, brownish grey, sandy CLAY/SILT. (ALLUVIUM)
										•	5.55 6.00	-16.80	6.00			Light brown, slightly silty fine to coarse SAND. (ALLUVIUM)
21/06/2008		18:00								•	5.95 6.00	-16.80	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- ▨ U76 undisturbed sample
- ▩ U100 undisturbed sample
- ▧ Mazier sample
- ▦ Piston sample
- ▲ Water sample
- ◻ Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 23/06/2008  
CHECKED KEN MA  
DATE 24/06/2008

REMARKS

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**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC20

SHEET 1 of 1

**VIBROCORE RECORD**

Project Title **Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point**

METHOD Vibrocore	CO-ORDINATES E 839233.10 N 818203.50	PROJECT No. J3222
MACHINE & No. G29		DATE from 20/06/2008 to 20/06/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -10.20 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
20/06/2008		08:00		100								-10.20	0.00			Grey, silty fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT) Grey, clayey silty fine to coarse SAND with some shells. (MARINE DEPOSIT)
																Soft to firm, grey, CLAY/SILT with some shell fragments. (MARINE DEPOSIT)
																Grey, silty fine to medium SAND with some shells. (MARINE DEPOSIT)
				100						2						Firm, grey, CLAY. (MARINE DEPOSIT)
																Firm, grey, slightly sandy silty CLAY. (MARINE DEPOSIT)
																Firm, grey, sandy SILT. (ALLUVIUM)
20/06/2008		18:00														End of hole at 6.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- ▨ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 23/06/2008  
 CHECKED KEN MA  
 DATE 24/06/2008

REMARKS



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC21**  
 SHEET 1 of 1

**VIBROCORE RECORD**

Project Title **Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point**

METHOD <b>Vibrocore</b>	CO-ORDINATES E 839276.60 N 818123.50	PROJECT No. <b>J3222</b>
MACHINE & No. <b>G29</b>		DATE from <b>23/06/2008</b> to <b>23/06/2008</b>
FLUSHING MEDIUM <b>WATER</b>	ORIENTATION <b>Vertical</b>	SEABED LEVEL <b>-10.10 mPD</b>

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
23/06/2008		08:00		100								-10.10	0.00			Grey, clayey silty fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT)
												-11.10	1.00			Firm, grey, sandy CLAY/SILT with some broken shell fragments. (MARINE DEPOSIT)
												-12.10	2.00			Grey, clayey fine to medium SAND with some broken shell fragments. (MARINE DEPOSIT)
				100					2			-13.10	3.00			Soft to firm, brownish grey, sandy CLAY/SILT. (ALLUVIUM)
												-14.10	4.00			Firm, brown, sandy CLAY/SILT. (ALLUVIUM)
												-15.10	5.00			Firm, brown, slightly sandy SILT. (ALLUVIUM)
23/06/2008		18:00										-16.10	6.00			End of hole at 6.00m depth.

- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- ⊕ Piezometer / standpipe tip
- ⊥ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 24/06/2008  
 CHECKED KEN MA  
 DATE 25/06/2008

REMARKS

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# Gammon Construction Limited

Ground Engineering & Substructure Department

DRILLHOLE No.  
**VC22**

SHEET 1 of 1

## VIBROCORE RECORD

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES E 839313.00 N 818036.50	PROJECT No. J3222
MACHINE & No. G29		DATE from 18/06/2008 to 30/06/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -10.20 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
18/06/2008		08:00		80					1	V(C)	0.05	-10.20	0.00			Grey, silty fine to coarse SAND. (MARINE DEPOSIT)
											0.55	-10.80	0.60			Grey, silty fine to coarse SAND with some angular fine gravel sized rock fragments and broken shell fragments. (MARINE DEPOSIT)
											0.95	-11.20	1.00			
											1.95	-12.20	2.00			Grey, silty fine to medium SAND with some broken shell fragments. (MARINE DEPOSIT)
18/06/2008		18:00		100					2	V(C)	2.95	-13.20	3.00			Soft to firm, brownish grey, CLAY/SILT with much broken shell fragments. (MARINE DEPOSIT)
30/06/2008		08:00									3.95	-14.20	4.00			Soft to firm, brownish grey, CLAY/SILT. (MARINE DEPOSIT)
											4.95	-15.20	5.00			Dark brownish grey, very silty fine to coarse SAND. (ALLUVIUM)
				100					3	V(C)	5.95	-16.20	6.00			Orangish brown, silty fine to coarse SAND with occasional subangular coarse gravel sized rock fragments. (ALLUVIUM)
				100					4	V(C)	6.95	-17.20	7.00			Light brown, slightly silty fine to coarse SAND with occasional subangular fine gravel sized rock fragments. (ALLUVIUM)
											7.95	-18.20	8.00			Light brown, slightly silty fine to coarse SAND with occasional subangular fine quartz gravel. (ALLUVIUM)
30/06/2008		18:00									8.95	-19.20	9.00			End of hole at 9.00m depth.
											9.95	-20.20	10.00			

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▩ U76 undisturbed sample
- ▧ U109 undisturbed sample
- ▦ Mazier sample
- ▥ Piston sample
- ▲ Water sample
- ◻ Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
DATE 02/07/2008  
CHECKED KEN MA  
DATE 03/07/2008

REMARKS



# Gammon Construction Limited

*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC23**

SHEET 1 of 1

## VIBROCORE RECORD

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

**METHOD** Vibrocore

**CO-ORDINATES**

**PROJECT No.** J3222

**MACHINE & No.** G29

E 839343.60

**DATE from** 19/06/2008 **to** 20/06/2008

N 817948.40

**FLUSHING MEDIUM** WATER

**ORIENTATION** Vertical

**SEABED LEVEL** -10.50 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
19/06/2008		08:00		100								-10.50	0.00			Brownish grey, silty fine to medium SAND. (MARINE DEPOSIT)
												-11.50	1.00			Grey, clayey fine to medium SAND with some broken shell fragments. (MARINE DEPOSIT)
												-12.50	2.00			Soft to firm, grey, sandy CLAY. (MARINE DEPOSIT)
												-15.50	5.00			Firm, brown and light brown, sandy CLAY/SILT. (ALLUVIUM)
				100								-16.50	6.00			Firm, grey, clayey SILT. (ALLUVIUM)
												-17.50	7.00			Brown, slightly silty fine to coarse SAND. (ALLUVIUM)
												-19.50	9.00			Light grey, slightly silty fine to coarse SAND. (ALLUVIUM)
19/06/2008		18:00														End of hole at 9.00m depth.
20/06/2008		08:00														
20/06/2008		18:00														

- Small disturbed sample
- Large disturbed sample
- ▬ SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 21/06/2008  
**CHECKED** KEN MA  
**DATE** 23/06/2008

**REMARKS**

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**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC24

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 839372.00 N 817858.00	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE from</b> 18/06/2008 <b>to</b> 30/06/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>GROUND LEVEL</b> -10.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
18/06/2008		08:00		99								-10.70	0.00			
												-11.00	0.30			Brownish grey, slightly silty fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT)
												-11.70	1.00			Grey, silty fine to medium SAND with some broken shell fragments. (MARINE DEPOSIT)
												-12.70	2.00			Brown and grey, clayey silty fine to medium SAND. (ALLUVIUM)
												-13.70	3.00			Firm, brown, CLAY/SILT with some angular fine quartz gravel. (ALLUVIUM)
18/06/2008		18:00		100								-14.70	4.00			Firm to stiff, dark brown and grey, sandy CLAY/SILT with some angular fine gravel sized rock fragments. (ALLUVIUM)
30/06/2008		08:00										-15.70	5.00			Firm, brown, CLAY/SILT. (ALLUVIUM)
												-16.70	6.00			Firm, brown, sandy SILT. (ALLUVIUM)
												-17.70	7.00			Firm to stiff, grey, sandy SILT. (ALLUVIUM)
												-18.70	8.00			Light brown, silty fine to coarse SAND. (ALLUVIUM)
												-19.70	9.00			Light orangish brown, slightly silty fine to coarse SAND. (ALLUVIUM)
30/06/2008		18:00										-19.70	9.00			End of hole at 9.00m depth.

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- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▩ U76 undisturbed sample
- ▩ U100 undisturbed sample
- ▩ Mazier sample
- ▩ Piston sample
- ▲ Water sample
- ◻ Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 02/07/2008  
**CHECKED** KEN MA  
**DATE** 03/07/2008

**REMARKS**





# Gammon Construction Limited

*Ground Engineering & Substructure Department*

**DRILLHOLE No.**  
**VC31**

SHEET **1** of **1**

## VIBROCORE RECORD

**Project Title**      Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

**METHOD**      Vibrocore

**CO-ORDINATES**

**PROJECT No.**      J3222

**MACHINE & No.**      G29

E      839402.30  
N      817760.10

**DATE from**      28/06/2008      to      28/06/2008

**FLUSHING MEDIUM**      WATER

**ORIENTATION**      Vertical

**SEABED LEVEL**      -12.60      mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
28/06/2008		08:00		83							-12.60	0.00			Brownish grey, slightly silty fine SAND. (MARINE DEPOSIT?) Firm to stiff, brown, mottled grey, CLAY/SILT with some to much subangular fine quartz gravel. (ALLUVIUM)
											-12.55	0.05			
															Firm, brown, CLAY/SILT with much subangular fine quartz gravel. (ALLUVIUM)
											-14.60	2.00			
				100											Firm, greyish brown, sandy CLAY with some broken shell fragments. (ALLUVIUM)
											-16.60	4.00			
															Firm, grey, sandy CLAY/SILT. (ALLUVIUM)
											-17.60	5.00			
				93											Light grey, very silty fine to coarse SAND. (ALLUVIUM)
											-18.60	6.00			
															Light grey and white, slightly silty fine to coarse SAND. (ALLUVIUM)
											-19.60	7.00			
28/06/2008		18:00													End of hole at 9.00m depth.
											-21.60	9.00			

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- |                          |                                  |
|--------------------------|----------------------------------|
| • Small disturbed sample | ▲ Water sample                   |
| ○ Large disturbed sample | □ Piezometer / standpipe tip     |
| ▤ SPT liner sample       | ↓ Standard penetration test      |
| U76 Undisturbed sample   | ⊥ Water absorption (Packer) test |
| U100 Undisturbed sample  | ⊥ Permeability test              |
| Mazier sample            | ⊥ Impression packer test         |
| Piston sample            | ∇ In-situ vane shear test        |

**LOGGED**      JASON LAU  
**DATE**          30/06/2008  
**CHECKED**      KEN MA  
**DATE**          02/07/2008

**REMARKS**



**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
**VC33**  
SHEET 1 of 1

**VIBROCORE RECORD**

Project Title <b>Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point</b>		
METHOD <b>Vibrocore</b>	CO-ORDINATES	PROJECT No. <b>J3222</b>
MACHINE & No. <b>G29</b>	E <b>839462.70</b> N <b>817568.50</b>	DATE from <b>24/06/2008</b> to <b>15/07/2008</b>
FLUSHING MEDIUM <b>WATER</b>	ORIENTATION <b>Vertical</b>	SEABED LEVEL <b>-12.60 mPD</b>

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
24/06/2008		08:00		100								-12.60	0.00			Very soft, dark grey and black, sandy clayey SILT with much broken shell fragments. (CONTAMINATED MARINE DEPOSIT) Firm, brown and grey, CLAY/SILT with some angular fine quartz gravel. (ALLUVIUM)  Stiff, brown, mottled grey, CLAY/SILT with some subangular fine quartz gravel. (ALLUVIUM)  Stiff, light yellowish brown, sandy SILT. (ALLUVIUM)
												-12.65	0.05			
												-13.60	1.00			
												-14.60	2.00			
24/06/2008 15/07/2008		12:00 08:00		100								-15.60	3.00			Stiff, light grey, mottled brown, slightly sandy CLAY/SILT. (ALLUVIUM)
15/07/2008		18:00										-16.60	4.00			End of hole at 4.00m depth.

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<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>○ Large disturbed sample</li> <li>▬ SPT liner sample</li> <li>▬ U76 undisturbed sample</li> <li>▬ U100 undisturbed sample</li> <li>▬ Mazler sample</li> <li>▬ Piston sample</li> <li>▲ Water sample</li> <li>□ Piezometer / standpipe tip</li> <li>↓ Standard penetration test</li> <li>▬ Water absorption (Packer) test</li> <li>▬ Permeability test</li> <li>▬ Impression packer test</li> <li>∇ In-situ vane shear test</li> </ul>	LOGGED <u>JASON LAU</u> DATE <u>17/07/2008</u> CHECKED <u>KEN MA</u> DATE <u>18/07/2008</u>	<b>REMARKS</b> 1. Hard material encountered at 4.00m depth. 2. Relocated to VC33A.
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# Gammon Construction Limited

Ground Engineering & Substructure Department

DRILLHOLE No.  
VC33B

SHEET 1 of 1

## VIBROCORE RECORD

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

METHOD Vibrocore	CO-ORDINATES	PROJECT No. J3222
MACHINE & No. G29	E 839447.30 N 817569.20	DATE from 23/07/2008 to 23/07/2008
FLUSHING MEDIUM WATER	ORIENTATION Vertical	GROUND LEVEL -12.40 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Depth (m)	Legend	Grade	Description
									No.	Type	Depth				
23/07/2008		08:00		92							-12.40	0.00			Grey, slightly silty fine to medium SAND. (FILL)
											-12.45	0.05			Grey, silty fine to coarse SAND with much broken shell fragments. (MARINE DEPOSIT)
											-13.40	1.00			Stiff, brown, mottled grey, clayey very sandy SILT. (ALLUVIUM)
											-14.40	2.00			Stiff, brown, mottled grey, very sandy CLAY/SILT. (ALLUVIUM)
				100						2	-16.40	4.00			Firm, grey, CLAY/SILT. (ALLUVIUM)
											-17.40	5.00			Firm to stiff, grey, slightly sandy clayey SILT. (ALLUVIUM)
				100						3	-18.40	6.00			Brown, silty fine to coarse SAND. (ALLUVIUM)
											-19.40	7.00			Brown, silty fine to coarse SAND with clayey silty matrix. (ALLUVIUM)
				100						4	-20.40	8.00			Light grey and light brown, silty clayey fine to coarse SAND. (ALLUVIUM)
23/07/2008		18:00									-21.40	9.00			End of hole at 9.00m depth.

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<ul style="list-style-type: none"> <li>● Small disturbed sample</li> <li>○ Large disturbed sample</li> <li>□ SPT liner sample</li> <li>▨ U76 undisturbed sample</li> <li>■ U100 undisturbed sample</li> <li>Mazier sample</li> <li>Piston sample</li> </ul>	<ul style="list-style-type: none"> <li>▲ Water sample</li> <li>▬ Piezometer / standpipe tip</li> <li>↓ Standard penetration test</li> <li>⊥ Water absorption (Packer) test</li> <li>⊥ Permeability test</li> <li>⊥ Impression packer test</li> <li>∇ In-situ vane shear test</li> </ul>	LOGGED <u>JASON LAU</u> DATE <u>24/07/2008</u> CHECKED <u>KEN MA</u> DATE <u>25/07/2008</u>	<b>REMARKS</b>
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**Gammon Construction Limited**  
Ground Engineering & Substructure Department

DRILLHOLE No.  
VC34

SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b> E 839492.00 N 817473.00	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29		<b>DATE</b> from 17/06/2008 to 14/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -12.20 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
17/06/2008		08:00		88								-12.20	0.00			Greyish brown, silty fine to coarse SAND with much broken shell fragments and some angular fine to coarse gravel sized rock fragments. (FILL)
												-12.60	0.40			Grey, silty clayey fine to coarse SAND with some broken shell fragments. (MARINE DEPOSIT)
												-13.20	1.00			Stiff, brown, clayey SILT. (ALLUVIUM)
												-14.20	2.00			Firm to stiff, brown, CLAY/SILT with occasional angular fine quartz gravel. (ALLUVIUM)
17/06/2008 14/07/2008		18:00		100								-15.20	3.00			Firm, brown, SILT. (ALLUVIUM)
		08:00										-16.20	4.00			firm, dark brown, CLAY/SILT with some angular fine gravel sized rock fragments. (ALLUVIUM)
												-17.20	5.00			Firm, dark grey, CLAY/SILT. (ALLUVIUM)
												-18.20	6.00			Brown, silty fine to coarse SAND. (ALLUVIUM)
												-19.20	7.00			Grey, clayey silty fine to coarse SAND. (ALLUVIUM)
												-20.20	8.00			Orangish brown, silty fine to coarse SAND. (ALLUVIUM)
14/07/2008		18:00										-21.20	9.00			End of hole at 9.00m depth.

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- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- ▩ U100 undisturbed sample
- Mazier sample
- ▧ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 15/07/2008  
**CHECKED** KEN MA  
**DATE** 16/07/2008

**REMARKS**



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
**VC35**  
 SHEET 1 of 1

**VIBROCORE RECORD**

**Project Title** Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point

<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b>	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29	E 839523.40 N 817377.20	<b>DATE from</b> 27/06/2008 <b>to</b> 27/06/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -12.40 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
27/06/2008		08:00		88								-12.40	0.00			Very soft, grey and dark grey, sandy clayey SILT with some angular fine to coarse gravel sized rock fragments. (CONTAMINATED MARINE DEPOSIT) Firm to stiff, brown, mottled grey, CLAY/SILT. (ALLUVIUM)
												-12.40	2.00			
				100												Firm, grey, CLAY/SILT. (ALLUVIUM)
				87								-18.40	6.00			Light grey, silty fine to coarse SAND with some subangular fine quartz gravel. (ALLUVIUM)
												-18.40	7.00			
												-19.40	8.00			White and light yellowish brown, clayey silty fine to coarse SAND with some subangular fine quartz gravel. (ALLUVIUM)
												-20.40	8.00			
												-20.40	8.00			Light brown, silty fine to coarse SAND. (ALLUVIUM)
												-21.40	9.00			
27/06/2008		18:00										-21.40	9.00			End of hole at 9.00m depth.

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- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- ▩ U100 undisturbed sample
- Mazier sample
- ▧ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

**LOGGED** JASON LAU  
**DATE** 28/06/2008  
**CHECKED** KEN MA  
**DATE** 30/06/2008

**REMARKS**



**Gammon Construction Limited**  
*Ground Engineering & Substructure Department*

DRILLHOLE No.  
VC36

SHEET 1 of 1

**VIBROCORE RECORD**

<b>Project Title</b> Ground Investigation Works for Submarine Gas Main Alignment from To Kwa Wan to North Point		
<b>METHOD</b> Vibrocore	<b>CO-ORDINATES</b>	<b>PROJECT No.</b> J3222
<b>MACHINE &amp; No.</b> G29	E 839552.60 N 817281.30	<b>DATE from</b> 17/06/2008 <b>to</b> 05/07/2008
<b>FLUSHING MEDIUM</b> WATER	<b>ORIENTATION</b> Vertical	<b>SEABED LEVEL</b> -12.10 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
17/06/2008		08:00		98								-12.10	0.00			Soft, grey and dark grey, CLAY/SILT. (CONTAMINATED MARINE DEPOSIT)
												-12.60	0.50			Greyish brown and dark grey, clayey silty fine to coarse SAND with some angular fine to coarse gravel sized rock fragments. (ALLUVIUM)
												-13.10	1.00			Stiff, grey and brown, silty CLAY. (ALLUVIUM)
17/06/2008 05/07/2008		18:00		100								-14.10	2.00			Firm, brown, CLAY/SILT. (ALLUVIUM)
		08:00										-16.10	4.00			Stiff, greyish brown, CLAY/SILT. (ALLUVIUM)
												-17.10	5.00			Firm, grey and greyish brown, sandy CLAY/SILT. (ALLUVIUM)
				100								-18.10	6.00			Firm, grey, sandy SILT. (ALLUVIUM)
												-19.10	7.00			Firm to stiff, light grey, CLAY/SILT with occasional subangular fine quartz gravel. (ALLUVIUM)
				100								-20.10	8.00			Orangish brown, slightly silty fine to coarse SAND. (ALLUVIUM)
17/06/2008		18:00										-21.10	9.00			End of hole at 9.00m depth.

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- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▩ Mazier sample
- ▧ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED JASON LAU  
 DATE 07/07/2008  
 CHECKED KEN MA  
 DATE 08/07/2008

REMARKS

