PHÂN TÍCH THÀNH PHẦN HẠT

GRAIN SIZE ANALYSIS

(METHOD ASTM D422)

Công trình (Project) : DONG NAI 3&4 COMBINED HYDROPOWER
Mẫu số (Test N°) : 602 - b
Mô tả mẫu (Description) :
Tỷ trọng (Sp. Gravity) : 152H
TL đất khô-ướt phân tích (Wt of dry or wet soil) : 60 g
Tỷ trọng kế (Hydrometer N°) :
Độ ẩm đất ướt phân tích thành phần hạt : 36.6 %
Số hiệu chỉnh mặt cong Cm = 1.0
(Moisture content of soil for grain size) :
(Menicus correction)

Phân tích sàng (Sieve analysis)

Tổng TL đất khô TN (Total Wt sample)	0
TL hạt thô trên sàng N° 4 (Wt of coarse soil retained N° 4)	0

Cỡ sàng (Sieve size) (Sieve N°)	(Sieve open)	TL trên sàng (Wt retained) g	% trên sàng (% retained) Partial	Total	% lọt sàng % passing
" 3"	76.2				
" 2"	50.8				
" 1.5"	38.1				
1"	25.4				
" 3/4"	19.1				
" 3/8"	9.52				
N° 3	6.35				
" N° 4	4.75				
Pan					
"N°10	2.0				
N°16	1.19				
"N°20	0.84				
N°30	0.59				
"N°40	0.42				
N°50	0.30				
N°70	0.21				
"N°100	0.15				
N°140	0.11				
"N°200	0.07	2.5		5.6	94.4
Pan					
Total Wt In g					

Phân tích tỷ trọng kế (Hydrometer analysis)

TL đất khô trích phân tích TT kế < N° 10 (Wt of dry soil partical for hydrometer < N° 10)	43.92 g
TL đất khô trích phân tích TT kế < N° 200 (Wt of dry soil partical for hydrometer < N° 200)	0
TL đất khôtoàn phần cho phân tích TT kế (Wt of dry soil total for hydrometer analysis)	0

Số HC chất phân tán (Dispersing correction) C_d = 0.0
Số HC mặt cong C_m = 1.0 (Menicus correction)

Thời gian Time min	Nhiệt độ Temp. °C	Số HC nhiệt độ Temp. corr. m	Số đọc TTK Hydro. reading R'	HC số đọc Corr. reading R=R'+C_m	Đường kính hạt Particle diameter D (mm)	R-Cd +m R_N	% hạt < D % finer D Partia P_p %	Total P_T %
0.5	27	1.5	33.0	34.0	0.054	35.5		80.9
2	27	1.5	27.0	28.0	0.029	29.5		67.2
5	27	1.5	26.0	27.0	0.018	28.5		64.9
15	27	1.5	25.0	26.0	0.010	27.5		62.6
30	27	1.5	6.0	7.0	0.0083	8.5		- 19.4
60	27	1.5	0.0	1.0	0.0060	2.5		5.7
120	27	1.5	-1.0	0.0	0.0043	1.5		3.4
240	27	1.5	-2.5	-1.5	0.0031	0.0		0

Formula calculation :

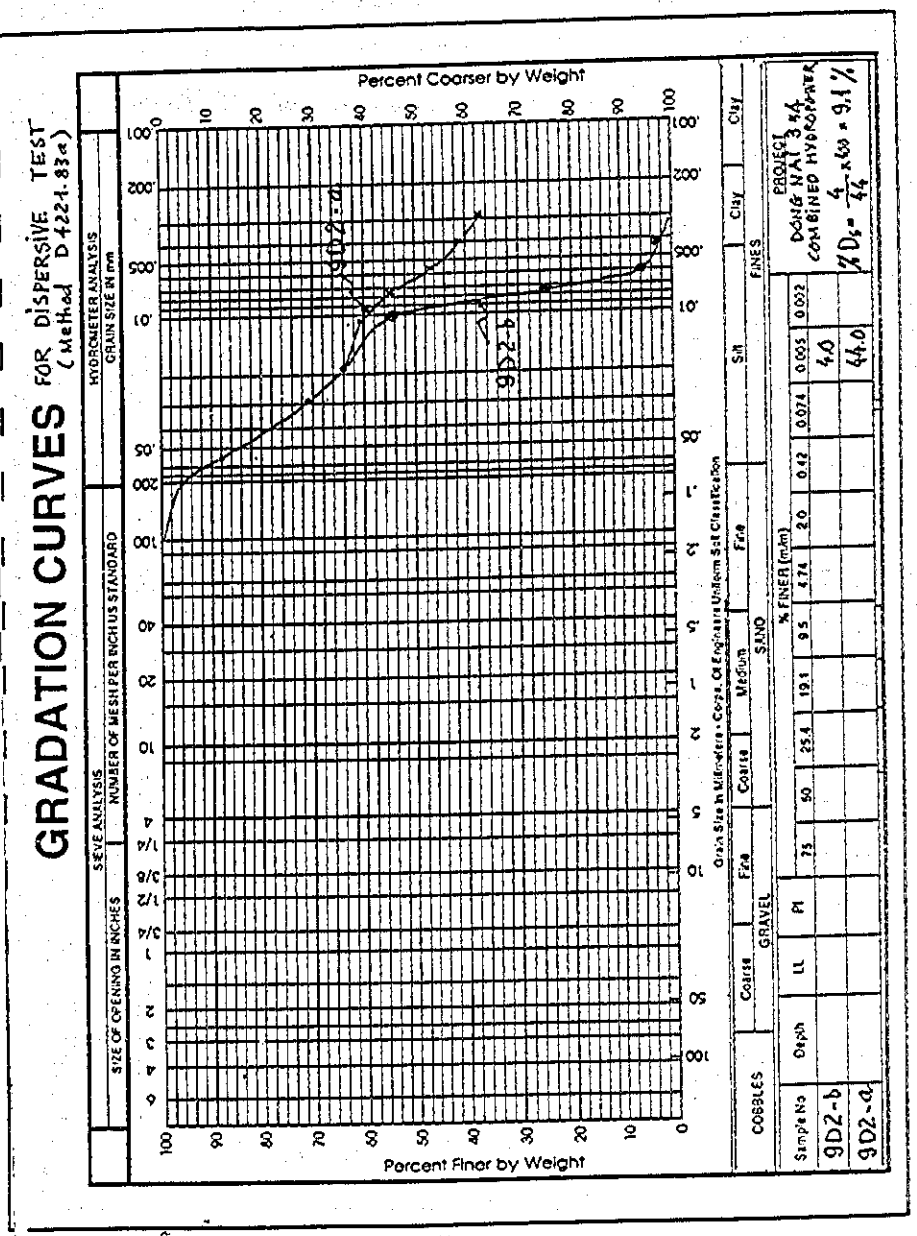
Partial per. Finer $P_p = \frac{Gs}{Gs-1} \times \frac{100}{W_c} \times R$ for hydrometer 151H

Partial per. Finer $P_p = \frac{100}{W_s} \times R_N$ for hydrometer 152H

Total per. Finer $P_T = P_p \times \frac{W_s - W_1}{W_s}$

Note : Ws = Total overdry Wt of sample used comfined analysis in grams
Wc = Overdry Wt of soil used for hydrometer analysis in grams
W_1 = Overdry Wt of sample on N° 10 or N° 200 sieve

Tested LAN Computed HIEN Checked BICH



PHÂN TÍCH THÀNH PHẦN HẠT

GRAIN SIZE ANALYSIS

(METHOD ASTM D422)

Công trình (Project) : DONG NAI 3&4 COMBINED HYDROPOWER — Mẫu số (Test N°) : 902 –a

Mô tả mẫu (Description) : — Tỷ trọng (Sp. Gravity) : 152H

TL đất khô-ướt phân tích (Wt of dry or wet soil) : 60 g — Tỷ trọng kế (Hydrometer N°) :

Độ ẩm đất ướt phân tích thành phần hạt (Moisture content of soil for grain size) : 39.7 % — Số hiệu chỉnh mặt cong (Menicus correction) Cm = 1.0

Phân tích sàng (Sieve analysis)

Tổng TL đất khô TN (Total Wt sample)	g
TL hạt thô trên sàng N° 4 (Wt of coarse soil retained N° 4)	g

Cỡ sàng (Sieve size) (Sieve N°)	(Sieve open)	TL trên sàng (Wt retained) g	% trên sàng (% retained) Partial	Total	% lọt sàng % passing
" 3"	76.2				
" 2"	50.8				
" 1.5"	38.1				
1"	25.4				
" 3/4"	19.1				
" 3/8"	9.52				
N° 3	6.35				
" N° 4	4.75				
Pan					
"N°10	2.0				
N°16	1.19				
"N°20	0.84				
N°30	0.59				
"N°40	0.42				
N°50	0.30				
N°70	0.21				
"N°100	0.15				
N°140	0.11				
"N°200	0.07	1.8		4.2	95.8
Pan					
Total Wt in g					

Phân tích tỷ trọng kế (Hydrometer analysis)

TL đất khô trích phân tích TT kế < N° 10 (Wt of dry soil partical for hydrometer < N° 10)	42.95 g
TL đất khô trích phân tích TT kế < N° 200 (Wt of dry soil partical for hydrometer < N° 200)	g
TL đất khôtoàn phần cho phân tích TT kế (Wt of dry soil total for hydrometer analysis)	g

Số HC chất phân tán (Dispersing correction) C_d = 3.0 — Số HC mặt cong C_m = 1.0 (Menicus correction)

Thời gian Time min	Nhiệt độ Temp.	Số HC nhiệt độ Temp. corr.	Số đọc TTK Hydro. reading	HC số đọc Corr. reading	Đường kính hạt Particle diameter	R-Cd +m	% hạt < D % finer D Partia	Total
	°C	m	R'	R=R'+C_m	D (mm)	R_N	P_P %	P_T %
0.5	27	1.5	38.0	39.0	0.055	37.5		87.4
2	27	1.5	31.0	32.0	0.028	30.5		71.1
5	27	1.5	28.0	29.0	0.018	27.5		64.1
15	27	1.5	26.5	27.5	0.011	26.0		60.6
30	27	1.5	24.0	25.0	0.0076	23.5		54.8
60	27	1.5	20.5	21.5	0.0055	20.0		46.6
120	27	1.5	18.0	19.0	0.004	17.5		40.8
240	27	1.5	17.0	18.0	0.0028	16.5		38.5

Formula calculation :

Partial per. Finer $P_P = \frac{Gs}{Gs-1} \times \frac{100}{W_c} \times R$ for hydrometer 151H

Partial per. Finer $P_P = \frac{100}{W_c} \times R_N$ for hydrometer 152H

Total per. Finer $P_T = P_P \times \frac{W_s - W_1}{W_s}$

Note : Ws = Total overdry Wt of sample used comfined analysis in grams

Wc = Overdry Wt of soil used for hydrometer analysis in grams

W_1 = Overdry Wt of sample on N° 10 or N° 200 sieve

Tested: LAN — Computed: HIEN — Checked: BICH

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PHÂN TÍCH THÀNH PHẦN HẠT

GRAIN SIZE ANALYSIS

(METHOD ASTM D422)

Công trình (Project) : DONG NAI 3&4 COMBINED HYDROPOWER — Mẫu số (Test N°) : 902 –b

Mô tả mẫu (Description) : — Tỷ trọng (Sp. Gravity) : 152H

TL đất khô-ướt phân tích (Wt of dry or wet soil) : 60 g — Tỷ trọng kế (Hydrometer N°) :

Độ ẩm đất ướt phân tích thành phần hạt (Moisture content of soil for grain size) : 39.7 % — Số hiệu chỉnh mặt cong (Menicus correction) Cm = 1.0

Phân tích sàng (Sieve analysis)

Tổng TL đất khô TN (Total Wt sample)	g
TL hạt thô trên sàng N° 4 (Wt of coarse soil retained N° 4)	g

Cỡ sàng (Sieve size) (Sieve N°)	(Sieve open)	TL trên sàng (Wt retained) g	% trên sàng (% retained) Partial	Total	% lọt sàng % passing
" 3"	76.2				
" 2"	50.8				
" 1.5"	38.1				
1"	25.4				
" 3/4"	19.1				
" 3/8"	9.52				
N° 3	6.35				
" N° 4	4.75				
Pan					
"N°10	2.0				
N°16	1.19				
"N°20	0.84				
N°30	0.59				
"N°40	0.42				
N°50	0.30				
N°70	0.21				
"N°100	0.15				
N°140	0.11				
"N°200	0.07	1.8		4.2	95.8
Pan					
Total Wt in g					

Phân tích tỷ trọng kế (Hydrometer analysis)

TL đất khô trích phân tích TT kế < N° 10 (Wt of dry soil partical for hydrometer < N° 10)	42.95 g
TL đất khô trích phân tích TT kế < N° 200 (Wt of dry soil partical for hydrometer < N° 200)	g
TL đất khôtoàn phần cho phân tích TT kế (Wt of dry soil total for hydrometer analysis)	g

Số HC chất phân tán (Dispersing correction) C_d = 0.0 — Số HC mặt cong C_m = 1.0 (Menicus correction)

Thời gian Time min	Nhiệt độ Temp.	Số HC nhiệt độ Temp. corr.	Số đọc TTK Hydro. reading	HC số đọc Corr. reading	Đường kính hạt Particle diameter	R-Cd +m	% hạt < D % finer D Partia	Total
	°C	m	R'	R=R'+C_m	D (mm)	R_N	P_P %	P_T %
0.5	27	1.5	35.0	36.0	0.054	37.5		87.4
2	27	1.5	28.0	29.0	0.028	30.5		71.1
5	27	1.5	25.0	26.0	0.018	27.5		64.1
15	27	1.5	20.5	21.5	0.0104	23.0		53.6
30	27	1.5	8.0	9.0	0.0076	10.5		24.5
60	27	1.5	0.0	1.0	0.0060	2.5		5.8
120	27	1.5	-1.0	0.0	0.0043	1.5		3.5
240	27	1.5	-2.5	-1.5	0.0031	0.0		0

Formula calculation :

Partial per. Finer $P_P = \frac{Gs}{Gs-1} \times \frac{100}{W_c} \times R$ for hydrometer 151H

Partial per. Finer $P_P = \frac{100}{W_c} \times R_N$ for hydrometer 152H

Total per. Finer $P_T = P_P \times \frac{W_s - W_1}{W_s}$

Note : Ws = Total overdry Wt of sample used comfined analysis in grams

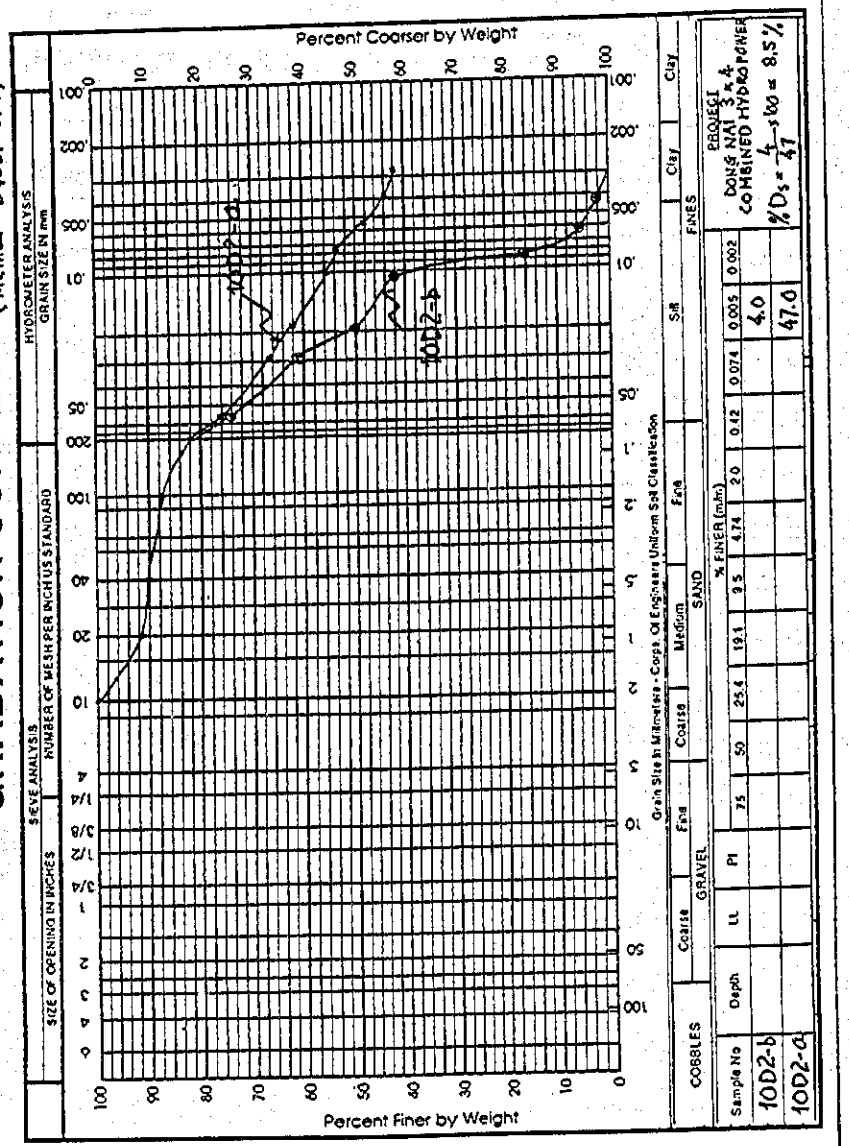
Wc = Overdry Wt of soil used for hydrometer analysis in grams

W_1 = Overdry Wt of sample on N° 10 or N° 200 sieve

Tested: LAN — Computed: HIEN — Checked: BICH

- 52b -

GRADATION CURVES FOR DISPERSIVE TEST (Method D4221-85a)



PHÂN TÍCH THÀNH PHẦN HẠT

GRAIN SIZE ANALYSIS

(METHOD ASTM D422)

Công trình (Project) : DONG NAI 3&4 COMBINED HYDROPOWER — Mẫu số (Test N°) : 10D2-d

Mô tả mẫu (Description) : — Tỷ trọng (Sp. Gravity) : 152H

TL đất khô-ướt phân tích (Wt of dry or wet soil) : 60 g — Tỷ trọng kế (Hydrometer N°) :

Độ ẩm đất ướt phân tích thành phần hạt (Moisture content of soil for grain size) : 28.6 % — Số hiệu chỉnh mặt cong (Menicus correction) Cm = 1.0

Phân tích sàng (Sieve analysis)						Phân tích tỷ trọng kế (Hydrometer analysis)								
Tổng TL đất khô TN (Total Wt sample)		g				TL đất khô trích phân tích TT kế < N° 10 (Wt of dry soil partical for hydrometer < N° 10)						46.66 g		
TL hạt thô trên sàng N° 4 (Wt of coarse soil retained N° 4)		g				TL đất khô trích phân tích TT kế < N° 200 (Wt of dry soil partical for hydrometer < N° 200)						g		
						TL đất khôtoàn phần cho phân tích TT kế (Wt of dry soil total for hydrometer analysis)						g		
Cỡ sàng (Sieve size)		TL trên sàng (Wt retained) g	% trên sàng (% retained)		% lọt sàng % passing	Số HC chất phân tán (Dispersing correction)		C_d = 3.0			Số HC mặt cong C_m = 1.0 (Menicus correction)			
(Sieve N°)	(Sieve open)		Partial	Total		Thời gian Time min	Nhiệt độ Temp.	Số HC nhiệt độ Temp. corr.	Số đọc TTK Hydro. reading	HC số đọc Corr. reading	Đường kính hạt Particle diameter	R+Cd +m	% hạt < D % finer D Partia	Total
							°C	m	R'	R=R'+C_m	D (mm)	R_N	P_P %	P_T %
" 3"	76.2					0.5	27	1.5	36.0	37.0	0.054	35.5		76
" 2"	50.8					2	27	1.5	31.9	32.9	0.028	31.4		67.4
" 1.5"	38.1					5	27	1.5	29.4	30.4	0.018	28.9		62
1"	25.4					15	27	1.5	27.0	28.0	0.0105	26.5		56.7
" 3/4"	19.1					30	27	1.5	26.0	27.0	0.0075	25.5		54.6
" 3/8"	9.52					60	27	1.5	23.0	24.0	0.0055	22.5		48.2
N° 3	6.35					120	27	1.5	21.0	22.0	0.0039	20.5		43.9
" N° 4	4.75					240	27	1.5	20.0	21.0	0.0028	19.5		41.8
Pan														
"N°10	2.0	0.0		0.0	100.0									
N°16	1.19													
"N°20	0.84	4.2		9.0	91.0									
N°30	0.59													
"N°40	0.42	4.8		10.3	89.7									
N°50	0.30													
N°70	0.21													
"N°100	0.15	5.8		12.4	87.6									
N°140	0.11													
"N°200	0.07	8.2		17.6	82.4									
Pan														
Total Wt in g														

Formula calculation :

Partial per. Finer $P_P = \frac{G_s}{G_s-1} \times \frac{100}{W_c} \times R$ for hydrometer 151H

Partial per. Finer $P_P = \frac{100}{W_c} \times R_N$ for hydrometer 152H

Total per. Finer $P_T = P_P \times \frac{W_s - W_1}{W_s}$

Note : W_s = Total overdry Wt of sample used comfined analysis in grams

W_c = Overdry Wt of soil used for hydrometer analysis in grams

W_1 = Overdry Wt of sample on N° 10 or N° 200 sieve

Tested: LAN — Computed: HIEN — Checked: BICH

PHÂN TÍCH THÀNH PHẦN HẠT

GRAIN SIZE ANALYSIS

(METHOD ASTM D422)

Công trình (Project) : DONG NAI 3&4 COMBINED HYDROPOWER — Mẫu số (Test N°) : 10D2 -b

Mô tả mẫu (Description) : — Tỷ trọng (Sp. Gravity) : 152H

TL đất khô-ướt phân tích (Wt of dry or wet soil) : 60 g — Tỷ trọng kế (Hydrometer N°) :

Độ ẩm đất ướt phân tích thành phần hạt 28,6 % — Số hiệu chỉnh mặt cong Cm = 1.0

(Moisture content of soil for grain size) : — (Menicus correction)

Phân tích sàng (Sieve analysis)

Tổng TL đất khô TN (Total Wt sample)	g
TL hạt thô trên sàng N° 4 (Wt of coarse soil retained N° 4)	g

Cỡ sàng (Sieve size)		TL trên sàng	% trên sàng (% retained)		% lọt sàng
(Sieve N°)	(Sieve open)	(Wt retained) g	Partial	Total	% passing
" 3"	76.2				
" 2"	50.8				
" 1.5"	38.1				
1"	25.4				
" 3/4"	19.1				
" 3/8"	9.52				
N° 3	6.35				
" N° 4	4.75				
Pan					
"N°10	2.0	0.0		0.0	100.0
N°16	1.19				
"N°20	0.84	4.4		9.4	90.6
N°30	0.59				
"N°40	0.42	4.8		19.3	89.7
N°50	0.30				
N°70	0.21				
"N°100	0.15	5.9		12.6	87.4
N°140	0.11				
"N°200	0.07	8.3		17.8	82.2
Pan					
Total Wt in g					

Phân tích tỷ trọng kế (Hydrometer analysis)

TL đất khô trích phân tích TT kế < N° 10 (Wt of dry soil partical for hydrometer < N° 10)	46.66 g
TL đất khô trích phân tích TT kế < N° 200 (Wt of dry soil partical for hydrometer < N° 200)	g
TL đất khôtoàn phần cho phân tích TT kế (Wt of dry soil total for hydrometer analysis)	g

Số HC chất phân tán (Dispersing correction) C_d = 0.0 — Số HC mặt cong C_m = 1.0 (Menicus correction)

Thời gian Time min	Nhiệt độ Temp.	Số HC nhiệt độ Temp. .corr.	Số đọc TTK Hydro. reading	HC số đọc Corr. reading	Đường kính hạt Particle diameter	R-Cd +m	% hạt < D % finer D Partia	% hạt < D % finer D Total
	°C	m	R'	R=R'+C_m	D (mm)	R_N	P_P %	P_T %
0.5	27	1.5	32.0	33.0	0.055	34.5		74
2	27	1.5	26.0	27.0	0.029	28.5		61
5	27	1.5	21.0	22.0	0.019	23.5		50.3
15	27	1.5	17.0	18.0	0.0110	19.5		41.8
30	27	1.5	5.0	6.0	0.0084	7.5		16.1
60	27	1.5	0.0	1.0	0.0061	2.5		5.4
120	27	1.5	-1.5	-0.5	0.0043	1.0		2.1
240	27	1.5	-2.5	-1.5	0.0031	0.0		0

Formula calculation :

Partial per. Finer $P_P = \frac{Gs}{Gs-1} \times \frac{100}{W_c} \times R$ for hydrometer 151H

Partial per. Finer $P_P = \frac{100}{W_s} \times R_N$ for hydrometer 152H

Total per. Finer $P_T = P_P \times \frac{W_s - W_1}{W_s}$

Note : Ws = Total overdry Wt of sample used comfined analysis in grams

Wc = Overdry Wt of soil used for hydrometer analysis in grams

W_1 = Overdry Wt of sample on N° 10 or N° 200 sieve

Tested: LAN — Computed: HIEN — Checked: BICH

DATA 4.1.2

LABORATORY TEST
OF
EARTH CORE MATERIAL
FOR
DONG NAI No.4 DAM

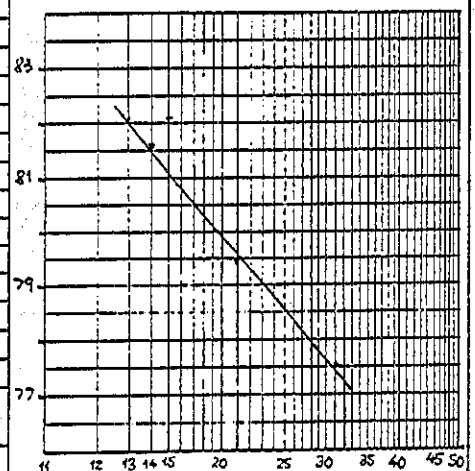
ATTERBERG LIMITS

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả *(Description)* :
Mẫu số *(Sample No)* : TP 1D-1
Ngày *(Date)* : 26-6-99
Người thử *(Tested by)* : HƯNG

	Giới hạn chảy W_L (Liquid limit)				Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*		11	12	13	131	132
TL ướt cả bì *(Wt. of wet soil + can)*		10,44	10,60	12,30	21,18	23,00
TL khô cả bì *(Wt. of dry soil + can)*		8,18	8,14	9,89	16,45	18,29
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*		5,41	5,04	6,78	6,00	7,24
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %		81,6	79,4	77,5	45,3	44,6
Số lần nhịp *(No. of blow)*		14	21	31	Trung bình *(Average)*	44,9

Thử lần thứ *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	78,5	44,9	33,6		

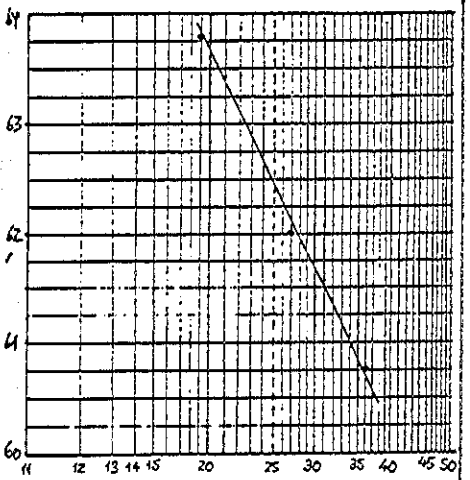
Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả *(Description)* :
Mẫu số *(Sample No)* : TP1D-2
Ngày *(Date)* : 26-6-99
Người thử *(Tested by)* : HƯNG

	Giới hạn chảy W_L (Liquid limit)				Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	38	39	40		125	126
TL ướt cả bì *(Wt. of wet soil + can)*	11,55	11,38	11,67		18,52	16,96
TL khô cả bì *(Wt. of dry soil + can)*	9,30	9,64	9,29		15,26	13,86
Nước *(Wt. of water)*	2,25	2,14	2,38		3,26	3,10
Bì nặng *(Wt. of can)*	5,77	6,19	5,76		6,51	5,46
TL đất khô *(Wt. of dry soil)*	3,53	3,45	3,53		8,75	8,40
Độ ẩm *(Moisture content)* %	63,8	62,0	66,25		37,2	36,9
Số lần nhịp *(No. of blow)*	19	27	36		Trung bình *(Average)*	37,0

Thử lần thứ *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	62,5	37,0	25,5		

Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

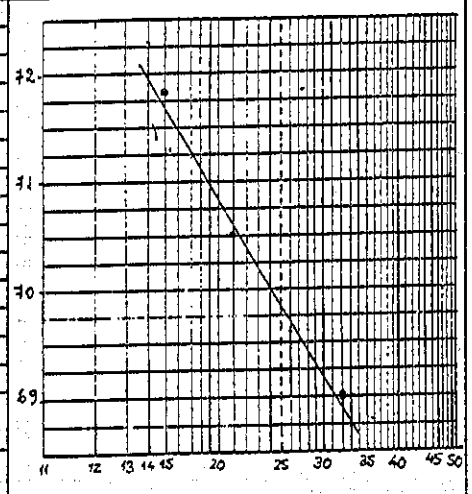
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP2D-1

Mô tả *(Description)* : — Ngày *(Date)* :

Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	29	30	31		107	108
TL ướt cả bì *(Wt. of wet soil + can)*	13.43	15.39	13.51		18.50	21.18
TL khô cả bì *(Wt. of dry soil + can)*	10.68	12.47	10.71		14.71	17.06
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	6.85	8.33	6.65		5.37	6.88
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	71.8	70.5	69.0		40.6	40.5
Số lần nhịp *(No. of blow)*	15	21	32		Trung bình *(Average)*	40.5

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\,\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	69.8	40.5	29.3		

Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

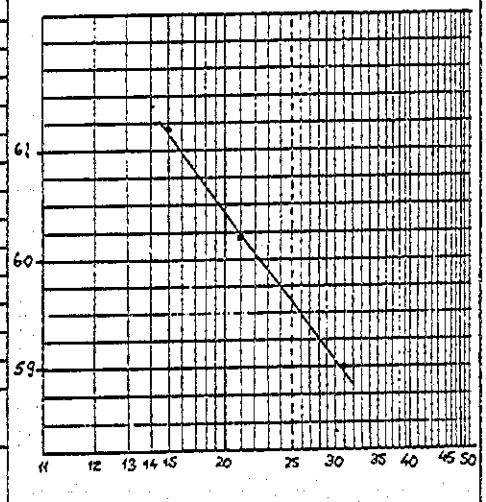
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP2D-2

Mô tả *(Description)* : — Ngày *(Date)* :

Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thử *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	32	33	34		00	01
TL ướt cả bì *(Wt. of wet soil + can)*	11.72	11.77	12.52		19.06	12.97
TL khô cả bì *(Wt. of dry soil + can)*	9.45	9.37	10.35		15.57	11.85
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	5.74	5.38	6.64		5.28	6.13
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	61.2	60.2	59.0		35.6	35.8
Số lần nhịp *(No. of blow)*	15	21	31		Trung bình *(Average)*	35.7

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\,\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity Index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	59.6	35.7	23.9		

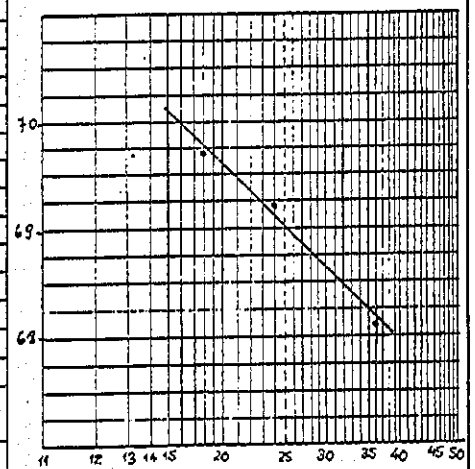
Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mẫu số *(Sample No)* : TP3D-1
Mô tả *(Description)* :
Ngày *(Date)* :
Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	14	15	16		145	146
TL ướt cả bì *(Wt. of wet soil + can)*	14.28	12.08	12.31		20.36	21.98
TL khô cả bì *(Wt. of dry soil + can)*	11.73	9.56	9.98		15.89	17.22
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	8.02	5.92	6.56		5.55	8.04
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	69.7	69.2	68.1		43.2	43.3
Số lần nhịp *(No. of blow)*	18	24	36		Trung bình *(Average)*	
					43.3	

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	69.0	43.2	25.8		

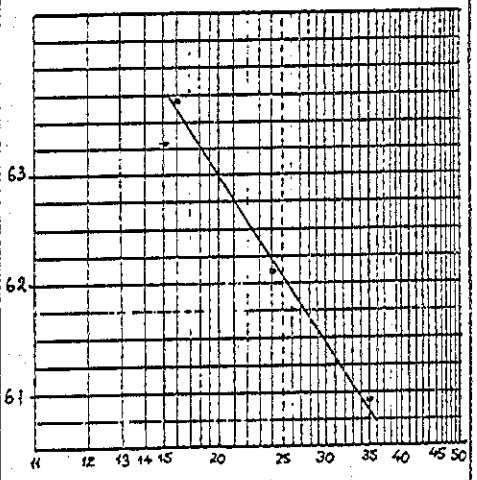
Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mẫu số *(Sample No)* : TP3D-2
Mô tả *(Description)* :
Ngày *(Date)* :
Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	47	48	49		101	102
TL ướt cả bì *(Wt. of wet soil + can)*	12.95	13.91	12.81		20.96	19.44
TL khô cả bì *(Wt. of dry soil + can)*	10.21	11.40	10.40		16.95	15.77
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	5.91	7.36	6.44		6.22	5.88
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	63.7	62.1	60.9		32.4	32.1
Số lần nhịp *(No. of blow)*	16	24	35		Trung bình *(Average)*	
					32.2	

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	62.0	32.2	24.8		

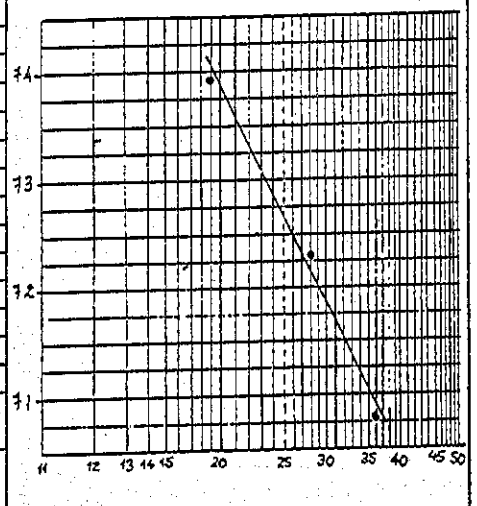
Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP4D-1
Ngày (Date) :
Người thử (Tested by) :

Giới hạn chảy W_L (Liquid limit)					Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ (Time No.)	1	2	3	4	1	2
Bi số (Can No.)	44	45	46		139	140
TL ướt cả bì (Wt. of wet soil + can)	12.08	11.90	11.50		19.21	20.14
TL khô cả bì (Wt. of dry soil + can)	9.34	9.24	11.73		15.39	16.22
Nước (Wt. of water)						
Bì nặng (Wt. of can)	5.63	5.56	7.82		6.02	6.70
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	73.9	72.3	70.8		40.8	41.2
Số lần nhịp (No. of blow)	19	28	36		Trung bình (Average)	41.0

Thử lần thử (Time No.)	1	2
Bi số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\,\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	72.6	41.0	31.6		

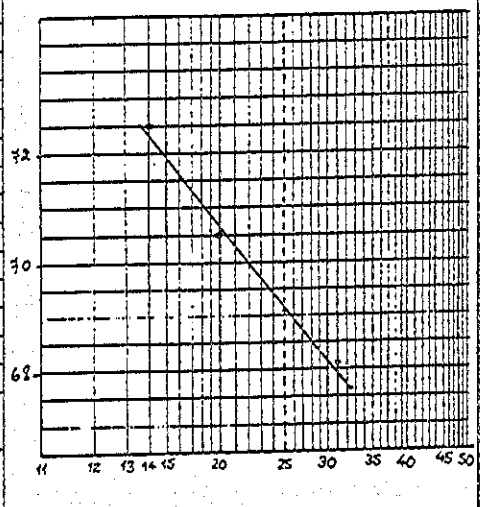
Tính bởi (Calculated by) — Kiểm bởi (Checked by)

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP4D-2
Ngày (Date) :
Người thử (Tested by) :

Giới hạn chảy W_L (Liquid limit)					Giới hạn dẻo W_P (Plastic limit)	
Thử lần thử (Time No.)	1	2	3	4	1	2
Bi số (Can No.)	179	180	181		06	07
TL ướt cả bì (Wt. of wet soil + can)	12.16	13.45	12.58		19.66	20.72
TL khô cả bì (Wt. of dry soil + can)	9.45	10.73	10.00		15.45	16.60
Nước (Wt. of water)						
Bì nặng (Wt. of can)	5.71	6.87	6.21		5.60	6.94
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	72.5	70.5	68.1		42.7	42.7
Số lần nhịp (No. of blow)	14	20	31		Trung bình (Average)	
					42.7	

Thử lần thử (Time No.)	1	2
Bi số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\,\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	69.1	42.7	26.4		

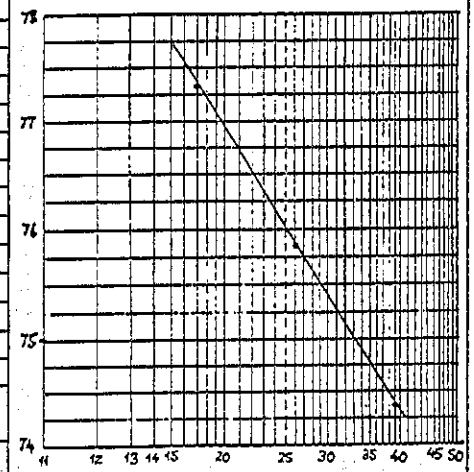
Tính bởi (Calculated by) — Kiểm bởi (Checked by)

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả *(Description)* :
Mẫu số *(Sample No)* : TP5D-1
Ngày *(Date)* :
Người thử *(Tested by)* : HUNG

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bì số *(Can No.)*	50	63	73		117	118
TL ướt cả bì *(Wt. of wet soil + can)*	14.28	13.80	13.71		19.64	17.52
TL khô cả bì *(Wt. of dry soil + can)*	10.80	10.31	10.36		15.26	13.50
Nước *(Wt. of water)*	3.48	3.49	3.43			
Bì nặng *(Wt. of can)*	6.30	5.80	5.85		6.51	5.46
TL đất khô *(Wt. of dry soil)*	4.5					
Độ ẩm *(Moisture content)* %	77.3	75.8	74.35		43.2	42.9
Số lần nhịp *(No. of blow)*	17	26	34		Trung bình *(Average)*	
					43.0	

Thử lần thứ *(Time No.)*	1	2
Bì số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)*

Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	76.0	43.0	33.0		

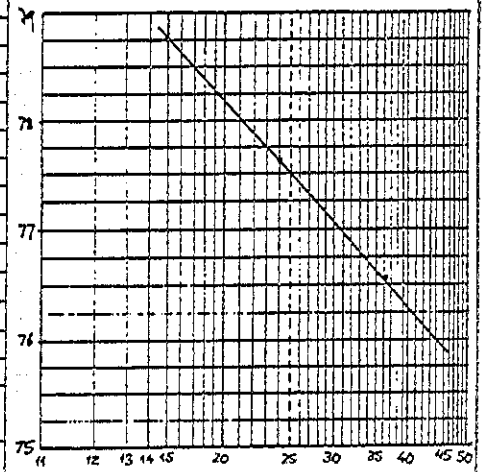
Tính bởi *(Calculated by)*
Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả *(Description)* :
Mẫu số *(Sample No)* : TP5D-2
Ngày *(Date)* :
Người thử *(Tested by)* : HUNG

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bì số *(Can No.)*	176	177	178		151	152
TL ướt cả bì *(Wt. of wet soil + can)*	14.93	14.98	15.82		19.43	18.78
TL khô cả bì *(Wt. of dry soil + can)*	11.05	10.87	11.06		15.13	15.53
Nước *(Wt. of water)*	3.88					
Bì nặng *(Wt. of can)*	6.12	6.11	7.09		5.36	5.83
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	78.8	77.6	76.6		44.0	43.8
Số lần nhịp *(No. of blow)*	15	29	36		Trung bình *(Average)*	
					43.9	

Thử lần thứ *(Time No.)*	1	2
Bì số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)*

Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	77.5	43.9	33.6		

Tính bởi *(Calculated by)*
Kiểm bởi *(Checked by)*

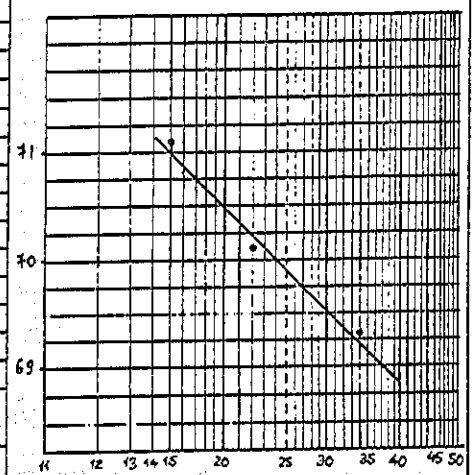
GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP6D.1

Mô tả *(Description)* : — Ngày *(Date)* : — Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	182	183	10		135	136
TL ướt cả bì *(Wt. of wet soil + can)*	13.01	12.03	11.71		18.61	19.53
TL khô cả bì *(Wt. of dry soil + can)*	10.20	9.52	9.38		14.86	15.17
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	6.25	5.94	6.02		6.07	4.77
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	71.1	70.1	69.3		42.7	41.9
Số lần nhịp *(No. of blow)*	15	22	34		Trung bình *(Average)*	
					42.3	

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\,\text{Moist.} - \frac{\text{Vol.Wet.} - \text{Vol.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)*			Xếp hạng đất *(Soil classification)*		
Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	66.9	42.3	27.6		

Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

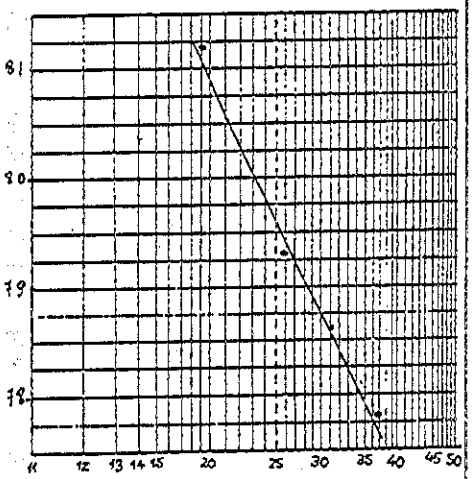
GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP6D.2

Mô tả *(Description)* : — Ngày *(Date)* : — Người thử *(Tested by)* :

Giới hạn chảy W_L *(Liquid limit)*					Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thử *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	170	171	172		02	03
TL ướt cả bì *(Wt. of wet soil + can)*	11.55	11.88	11.69		19.39	18.12
TL khô cả bì *(Wt. of dry soil + can)*	8.70	9.27	9.23		15.49	14.13
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	5.19	6.43	6.07		6.92	5.41
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	81.2	79.3	77.8		45.5	45.8
Số lần nhịp *(No. of blow)*	19	26	37		Trung bình *(Average)*	
					45.6	

Thử lần thử *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\,\text{Moist.} - \frac{\text{Vol.Wet.} - \text{Vol.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)*			Xếp hạng đất *(Soil classification)*		
Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	79.6	45.6	34.0		

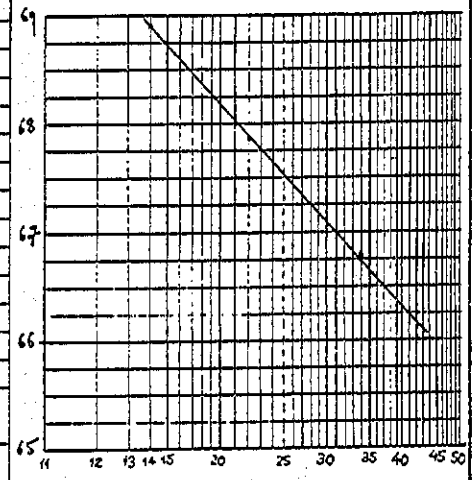
Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP7D-1
Ngày (Date) :
Người thử (Tested by) : Hưng.

	Giới hạn chảy W_L (Liquid limit)				Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ (Time No.)	1	2	3	4	1	2
Bi số (Can No.)	35	36	37		115	116
TL ướt cả bì (Wt. of wet soil + can)	13.88	13.38	13.16			
TL khô cả bì (Wt. of dry soil + can)	10.97	10.62	10.50		14.80	14.72
Nước (Wt. of water)						
Bì nặng (Wt. of can)	6.75	6.54	6.52		6.50	6.51
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	68.9	67.8	66.8		41.5	41.5
Số lần nhịp (No. of blow)	14	27	34		Trung bình (Average)	
					41.5	

Thử lần thứ (Time No.)	1	2
Bi số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	67.6	41.5	26.1		

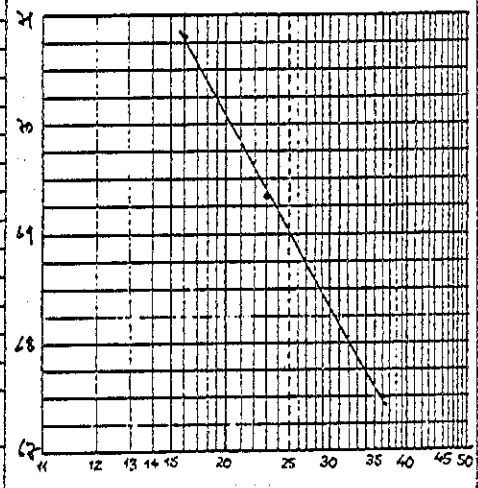
Tính bởi (Calculated by) — Kiểm bởi (Checked by)

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP7D-2
Ngày (Date) :
Người thử (Tested by) : Hưng

	Giới hạn chảy W_L (Liquid limit)				Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ (Time No.)	1	2	3	4	1	2
Bi số (Can No.)	41	42	43		133	134
TL ướt cả bì (Wt. of wet soil + can)	12.70	13.23	13.28		16.93	16.93
TL khô cả bì (Wt. of dry soil + can)	10.40	10.10	10.80		13.69	13.59
Nước (Wt. of water)						
Bì nặng (Wt. of can)	7.15	5.59	7.12		6.21	5.86
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	70.8	69.3	67.5		43.3	43.2
Số lần nhịp (No. of blow)	17	23	36		Trung bình (Average)	
					43.2	

Thử lần thứ (Time No.)	1	2
Bi số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	69.0	43.2	25.8		

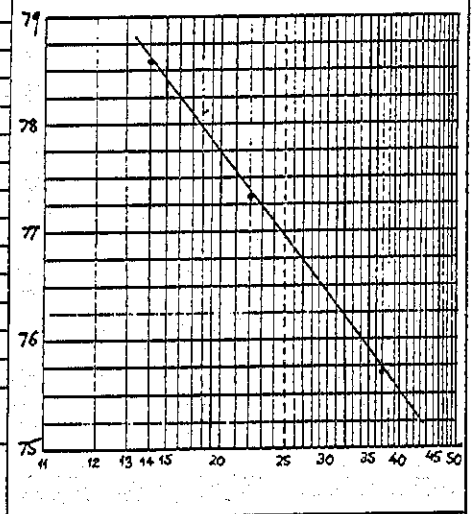
Tính bởi (Calculated by) — Kiểm bởi (Checked by)

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP8D-1
Ngày (Date) :
Người thử (Tested by) : Lê NT

Giới hạn chảy W_L (Liquid limit)					Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ (Time No.)	1	2	3	4	1	2
Bì số (Can No.)	23	24	25		153	154
TL ướt cả bì (Wt. of wet soil + can)	13.75	13.96	13.48		18.71	18.92
TL khô cả bì (Wt. of dry soil + can)	10.81	10.91	11.01		14.82	15.20
Nước (Wt. of water)						
Bì nặng (Wt. of can)	7.02	6.51	6.42		5.39	6.20
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	78.6	77.3	75.8		41.2	41.3
Số lần nhịp (No. of blow)	14	22	37		Trung bình (Average)	
					41.2	

Thử lần thứ (Time No.)	1	2
Bì số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	76.9	41.2	35.7		

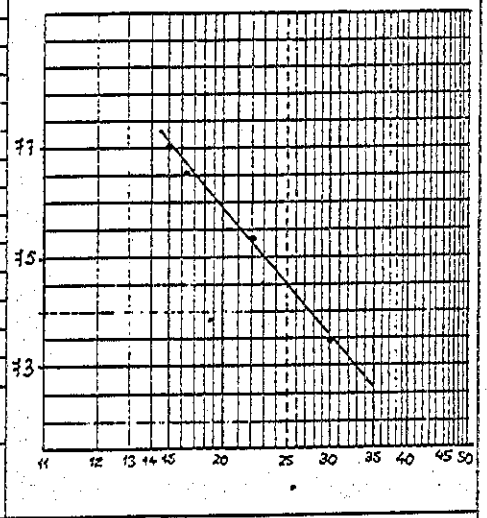
Tính bởi (Calculated by) — Kiểm bởi (Checked by)

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

Công trình (Project) : DONG NAI 3 & 4 COMBINED HYDROPOWER
Mô tả (Description) :
Mẫu số (Sample No) : TP8D-2
Ngày (Date) :
Người thử (Tested by) :

Giới hạn chảy W_L (Liquid limit)					Giới hạn dẻo W_P (Plastic limit)	
Thử lần thứ (Time No.)	1	2	3	4	1	2
Bì số (Can No.)	173	174	175		04	05
TL ướt cả bì (Wt. of wet soil + can)	12.32	11.53	12.12		20.13	19.75
TL khô cả bì (Wt. of dry soil + can)	9.48	8.94	9.69		16.11	15.79
Nước (Wt. of water)						
Bì nặng (Wt. of can)	5.79	5.50	6.38		6.44	6.20
TL đất khô (Wt. of dry soil)						
Độ ẩm (Moisture content) %	72.0	75.3	73.4		44.6	44.3
Số lần nhịp (No. of blow)	15	22	30		Trung bình (Average)	
					44.4	

Thử lần thứ (Time No.)	1	2
Bì số (Can No.)		
TL ướt cả bì (Wt. of wet soil + can)		
TL khô cả bì (Wt. of dry soil + can)		
Nước (Wt. of water)		
Bì nặng (Wt. of can)		
TL đất khô (Wt. of dry soil)		
Độ ẩm (Moisture content) %		
Thể tích đất ướt (Volum of wet soil)		
Thể tích đất khô (Volum of dry soil)		
Lượng co (Shrinkage)		
Tỷ số (Ratio)		
Lượng co trung bình (Average shrinkage)		
Thể tích thay đổi (Volume change)		
Tỷ số co (Shrinkage ratio) $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co (Shrinkage limit) $R = \%\text{Moist.} - \frac{\text{Vol.Wet.Volt.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả (Summary result) — Xếp hạng đất (Soil classification)

Độ ẩm thiên nhiên Moisture content natural	Giới hạn (Limit) Chảy (Liquid)	Dẻo (Limit plastic)	Chỉ số dẻo (Liquidity index)	Giới hạn co (Shrinkage limit)	Tỷ số co (Shrinkage ratio)
	74.5	44.4	33.1		

Tính bởi (Calculated by) — Kiểm bởi (Checked by)

A - 423

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

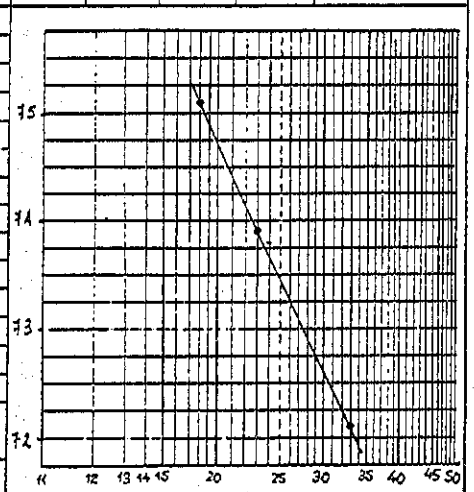
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER Mẫu số *(Sample No)* : TP9D-1

Mô tả *(Description)* : Ngày *(Date)* :

Người thử *(Tested by)* :

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bì số *(Can No.)*	20	21	22		155	156
TL ướt cả bì *(Wt. of wet soil + can)*	13.83	12.44	12.42		22.00	21.15
TL khô cả bì *(Wt. of dry soil + can)*	11.17	9.84	9.96		17.44	16.93
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	7.63	6.36	6.55		6.28	7.16
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	75.1	73.9	72.1		43.2	43.0
Số lần nhịp *(No. of blow)*	18	23	33		Trung bình *(Average)*	
					43.1	

Thử lần thứ *(Time No.)*	1	2
Bì số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	73.4	43.1	30.3		

Tính bởi *(Calculated by)* Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

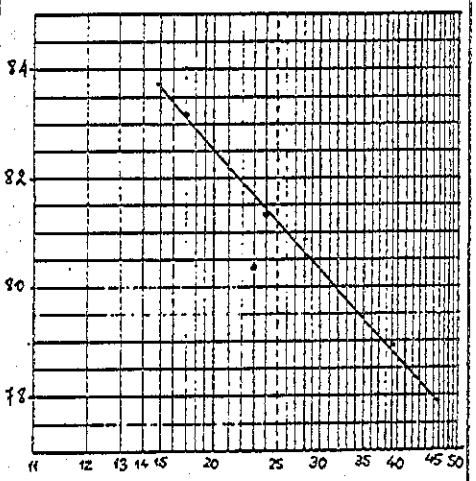
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER Mẫu số *(Sample No)* : TP9D-2

Mô tả *(Description)* : Ngày *(Date)* :

Người thử *(Tested by)* :

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bì số *(Can No.)*	167	168	169		113	114
TL ướt cả bì *(Wt. of wet soil + can)*	13.00	11.54	11.39		18.54	19.61
TL khô cả bì *(Wt. of dry soil + can)*	10.33	8.80	9.37		14.78	15.46
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	7.12	5.43	6.05		6.34	6.72
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	83.2	81.3	78.9		45.1	45.2
Số lần nhịp *(No. of blow)*	17	24	39		Trung bình *(Average)*	
					45.1	

Thử lần thứ *(Time No.)*	1	2
Bì số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol. Wet.} - \text{Vol. Dry}}{\text{Dry. Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	81.2	45.1	36.1		

Tính bởi *(Calculated by)* Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

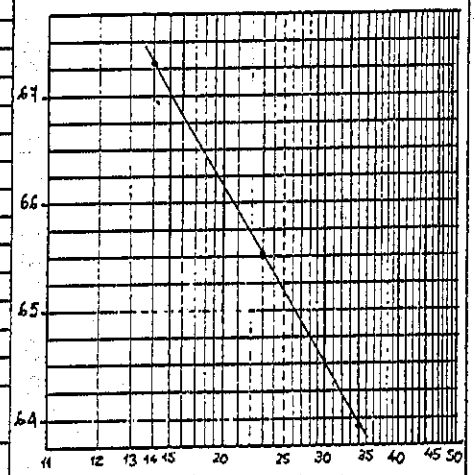
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP 10 D-1

Mô tả *(Description)* : — Ngày *(Date)* :

Người thử *(Tested by)* :

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	26	27	28		127	128
TL ướt cả bì *(Wt. of wet soil + can)*	14.78	13.33	12.40		19.04	17.67
TL khô cả bì *(Wt. of dry soil + can)*	9.19	10.62	9.83		15.47	14.30
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	5.34	6.48	5.21		6.23	5.62
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	67.3	65.5	63.9		38.6	38.8
Số lần nhịp *(No. of blow)*	14	23	34		Trung bình *(Average)*	
					38.7	

Thử lần thứ *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol.Wet.-Vol.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	65.2	38.7	26.5		

Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

GIỚI HẠN ATTERBERG
ATTERBERG LIMIT TEST

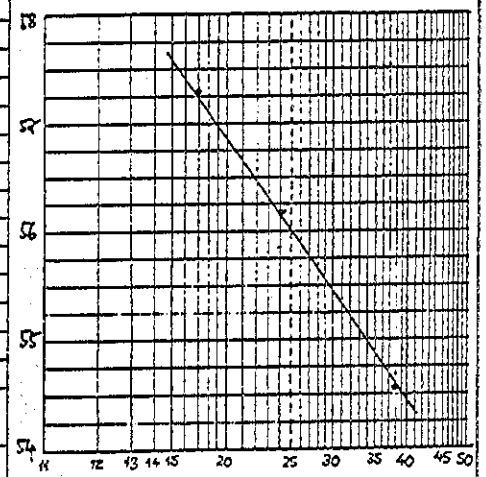
Công trình *(Project)* : DONG NAI 3 & 4 COMBINED HYDROPOWER — Mẫu số *(Sample No)* : TP 10 D-2

Mô tả *(Description)* : — Ngày *(Date)* :

Người thử *(Tested by)* : HUNG

	Giới hạn chảy W_L *(Liquid limit)*				Giới hạn dẻo W_P *(Plastic limit)*	
Thử lần thứ *(Time No.)*	1	2	3	4	1	2
Bi số *(Can No.)*	17	18	19		121	122
TL ướt cả bì *(Wt. of wet soil + can)*	12.51	11.82	12.38		18.66	20.45
TL khô cả bì *(Wt. of dry soil + can)*	10.53	9.21	10.44		15.53	17.21
Nước *(Wt. of water)*						
Bì nặng *(Wt. of can)*	7.08	4.56	6.88		5.67	6.95
TL đất khô *(Wt. of dry soil)*						
Độ ẩm *(Moisture content)* %	57.3	56.2	54.6		31.7	31.6
Số lần nhịp *(No. of blow)*	17	24	38		Trung bình *(Average)*	
					31.6	

Thử lần thứ *(Time No.)*	1	2
Bi số *(Can No.)*		
TL ướt cả bì *(Wt. of wet soil + can)*		
TL khô cả bì *(Wt. of dry soil + can)*		
Nước *(Wt. of water)*		
Bì nặng *(Wt. of can)*		
TL đất khô *(Wt. of dry soil)*		
Độ ẩm *(Moisture content)* %		
Thể tích đất ướt *(Volum of wet soil)*		
Thể tích đất khô *(Volum of dry soil)*		
Lượng co *(Shrinkage)*		
Tỷ số *(Ratio)*		
Lượng co trung bình *(Average shrinkage)*		
Thể tích thay đổi *(Volume change)*		
Tỷ số co *(Shrinkage ratio)* $R = \frac{\text{Dry Wt}}{\text{Vol. dry}}$		
Giới hạn co *(Shrinkage limit)* $R = \%\text{Moist.} - \frac{\text{Vol.Wet.-Vol.Dry}}{\text{Dry.Wet}} \times 100$		



Tóm tắt kết quả *(Summary result)* — Xếp hạng đất *(Soil classification)*

Độ ẩm thiên nhiên *Moisture content natural*	Giới hạn *(Limit)* Chảy *(Liquid)*	Dẻo *(Limit plastic)*	Chỉ số dẻo *(Liquidity index)*	Giới hạn co *(Shrinkage limit)*	Tỷ số co *(Shrinkage ratio)*
	56.0	31.6	24.4		

Tính bởi *(Calculated by)* — Kiểm bởi *(Checked by)*

DATA 4.1.2

LABORATORY TEST OF EARTH CORE MATERIAL FOR DONG NAI No.4 DAM

SPECIFIC GRAVITY

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.1D.1/2

Description of Soil : Residual soil of basalt... Depth of Sample : 2.0 - 2.5 - 4.5 - 5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 1D - 1		TP 1D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	363.58	353.68	372.21	372.14
Temperature °C	30°C	30°C	30°C	30°C
Wt. flask + water[b] = $W_{bu'}$	331.05	321.12	339.12	339.03
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_U = W_S + W_{bu'} - W_{bu's}$	17.47	17.44	16.91	16.89
$G_S = \alpha W_S/W_U$ 0.99567	2.850	2.855	2.944	2.948
GS average	2.853		2.946	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.2D.1/2

Description of Soil : Residual soil of basalt. Depth of Sample : 2.0 - 2.5 - 4.5 - 5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 2D - 1		TP 2D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	370.36	367.08	374.60	372.83
Temperature °C	30°C	30°C	30°C	30°C
Wt. flask + water[b] = $W_{bu'}$	337.51	334.21	341.29	339.55
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_U = W_S + W_{bu'} - W_{bu's}$	17.15	17.13	16.69	16.72
$G_S = \alpha W_S/W_U$ 0.99567	2.903	2.906	2.985	2.977
GS average	2.905		2.981	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : ..... Sample No. : TP 3D-1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 x 4.5-5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 3D-1		TP 3D-2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	376.35	354.01	362.94	363.86
Temperature °C	30°C	30°C	30°C	30°C
Wt. flask + water[b] = $W_{bu'}$	348.09	320.78	329.19	320.08
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_V = W_S + W_{bu'} - W_{bu's}$	16.73	16.77	16.25	16.22
$G_S = \alpha W_S/W_V$ 0.99567	2.976	2.969	3.064	3.069
GS average	2.972		3.067	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : ..... Sample No. : TP AD-1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 x 4.0-4.5

Tested by : ..... Date of Testing : .....

Test No.	TP AD-1		TP AD-2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	370.19	371.79	369.37	366.01
Temperature °C	30°C	30°C	30°C	30°C
Wt. flask + water[b] = $W_{bu'}$	337.25	338.82	335.89	332.56
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_V = W_S + W_{bu'} - W_{bu's}$	17.06	17.03	16.52	16.55
$G_S = \alpha W_S/W_V$ 0.99552	2.918	2.923	3.013	3.008
GS average	2.920		3.010	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.5D.1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 & 4.0-4.5

Tested by : ..... Date of Testing : .....

Test No.	TP 5D - 1		TP 5D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	371.99	370.10	374.90	351.80
Temperature °C	30°5C	30°5C	30°5C	30°5C
Wt. flask + water[b] = $W_{bu'}$	339.15	337.28	341.92	318.95
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_V = W_S + W_{bu'} - W_{bu's}$	17.16	17.18	17.02	17.05
$G_S = \alpha W_S/W_V$ 0.99552	2.901	2.897	2.925	2.919
GS average	2.899		2.922	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.6D.1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 & 4.3-4.8

Tested by : ..... Date of Testing : .....

Test No.	TP 6D - 1		TP 6D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	368.35	371.64	371.70	365.06
Temperature °C	30°5C	30°5C	30°5C	30°5C
Wt. flask + water[b] = $W_{bu'}$	335.89	339.15	329.18	332.56
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_V = W_S + W_{bu'} - W_{bu's}$	17.54	17.51	17.48	17.50
$G_S = \alpha W_S/W_V$ 0.99552	2.838	2.843	2.848	2.844
GS average	2.840		2.846	

[b]$W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.7D.1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 x 4.5-5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 7D - 1		TP 7D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	372.04	376.03	353.86	354.24
Temperature °C	30°5C	30°5C	30°5C	30°5C
Wt. flask + water[b] = $W_{bu'}$	339.12	343.08	320.78	321.12
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	508	508	508	508
$W_U = W_S + W_{bu'} - W_{bu's}$	17.08	17.05	16.92	16.88
$G_S = \alpha\, W_S/W_U$ 0.99552	2.914	2.919	2.942	2.949
GS average	2.917		2.945	

[b] $W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

A - 428

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : Boring No. : .....Sample No. : TP.8D.1/2

Description of Soil : Residual soil of basalt Depth of Sample : 2.0-2.5 x 4.5-5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 8D - 1		TP 8D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	370.24	372.25	362.88	353.32
Temperature °C	30°2C	30°2C	30°2C	30°2C
Wt. flask + water[b] = $W_{bu'}$	337.51	339.55	330.12	320.60
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	508	508	508	508
$W_U = W_S + W_{bu'} - W_{bu's}$	17.27	17.30	17.24	17.28
$G_S = \alpha\, W_S/W_U$ 0.99561	2.892	2.877	2.888	2.881
GS average	2.880		2.884	

[b] $W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : ..... Boring No. : .....Sample No. : TP.9D.1/2

Description of Soil : Residual soil of basalt. Depth of Sample : 2.0-2.5 & 4.5-5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 9D - 1		TP 9D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	370.69	371.40	369.42	366.09
Temperature °C	30°2c	30°2c	30°2c	30°2c
Wt. flask + water[b] = $W_{bu'}$	338.19	338.93	336.70	333.39
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_U = W_S + W_{bu'} - W_{bu's}$	17.50	17.53	17.28	17.30
$G_S = \alpha W_S/W_U$ 0.99561	2.845	2.840	2.891	2.877
GS average	2.842		2.879	

[b] $W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

SPECIFIC GRAVITY OF SOIL SOLIDS (G_S)

Project : DONG NAI 3 & 4 COMBINED HYDROPOWER Job No. : .....

Location of Project : ..... Boring No. : .....Sample No. : TP.10D.1/2

Description of Soil : Residual soil of basalt. Depth of Sample : 2.0-2.5 & 4.5-5.0

Tested by : ..... Date of Testing : .....

Test No.	TP 10D - 1		TP 10D - 2	
	1	2	1	2
Vol. of flask at 20°C	500ml	500ml	500ml	500ml
Method of air removal	Vacuum	Vacuum	Vacuum	Vacuum
Wt. flask + water + soil = $W_{bu's}$	373.68	371.90	376.21	353.49
Temperature °C	30°2c	30°2c	30°2c	30°2c
Wt. flask + water[b] = $W_{bu'}$	340.22	338.42	34.252	319.82
Evap. dish No.				
Wt. evap. dish + dry soil				
Wt. of evap. dish				
Wt. of dry soil = W_S	50g	50g	50g	50g
$W_U = W_S + W_{bu'} - W_{bu's}$	16.54	16.52	16.31	16.33
$G_S = \alpha W_S/W_U$ 0.99561	3.010	3.013	3.052	3.048
GS average	3.012		3.050	

[b] $W_{bu'}$ is the weight of the flask filled with water at same temp. ±1°C as for $W_{bu's}$ or value from calibration curve at T of $W_{bu's}$

Remarks : .....

.....

DATA 4.1.2

LABORATORY TEST
OF
EARTH CORE MATERIAL
FOR
DONG NAI No.4 DAM

NATURAL WATER CONTENTS

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project Dontenni 4 combined HYDRO POWER Job No. _____

Location of Project _____

Description of Soil Yellowish brown silty clay

Tested by Ivy Date of Testing 9.6.99

Date of Weighing 10 6.99

Boring no.	TP 1D	TP 1D			
Container no. (cup)	269	422			
Wt. of cup + wet soil	53.78	54.72			
Wt. of cup + dry soil	44.86	45.62			
Wt. of cup	21.94	22.47			
Wt. of dry soil	22.92	23.15			
Wt. of water	8.92	9.10			
Water content, w%	38.9	39.3			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project Dontenni 4 combined HYDRO POWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay with 3-5% fine gravel

Tested by Mui Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 1D	TP 1D			
Container no. (cup)	220	441			
Wt. of cup + wet soil	60.97	63.18			
Wt. of cup + dry soil	54.07	55.24			
Wt. of cup	23.36	21.47			
Wt. of dry soil	30.71	33.77			
Wt. of water	6.90	7.94			
Water content, w%	22.5	23.5			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Yellowish brown silty clay

Tested by Mai Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 20	TP 20			
Container no. (cup)	299	667			
Wt. of cup + wet soil	58.20	48.18			
Wt. of cup + dry soil	47.66	39.53			
Wt. of cup	23.07	17.17			
Wt. of dry soil	24.59	22.36			
Wt. of water	9.54	8.65			
Water content, w%	38.8	38.7			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay

Tested by Ky Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 21	TP 21			
Container no. (cup)	424	614			
Wt. of cup + wet soil	59.70	52.53			
Wt. of cup + dry soil	49.45	42.99			
Wt. of cup	21.95	17.64			
Wt. of dry soil	27.50	25.35			
Wt. of water	10.25	9.54			
Water content, w%	37.3	37.6			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

Southern General Investigation Directorate
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project: DONGNAI 4 COMBINED HYDRO POWER Job No.:
Location of Project:
Description of Soil: Yellowish brown silty clay
Tested by: Mai Date of Testing: 9.6.99
Date of Weighing: 10.6.99

Boring no.	TP 3D	TP 3D				
Container no. (cup)	365	621				
Wt. of cup + wet soil	52.17	51.00				
Wt. of cup + dry soil	43.71	42.09				
Wt. of cup	22.19	19.52				
Wt. of dry soil	21.52	22.57				
Wt. of water	8.46	8.91				
Water content, w%	39.3	39.5				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

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Southern General Investigation Directorate
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project: DONGNAI 4 COMBINED HYDRO POWER Job No.:
Location of Project:
Description of Soil: Reddish brown clay with 10-12% fine gravel
Tested by: Ky Date of Testing: 9.6.99
Date of Weighing: 10.6.99

Boring no.	TP 3D	TP 3D				
Container no. (cup)	212	465				
Wt. of cup + wet soil	50.70	62.45				
Wt. of cup + dry soil	44.68	54.43				
Wt. of cup	22.97	23.31				
Wt. of dry soil	21.71	31.12				
Wt. of water	6.02	8.02				
Water content, w%	27.7	25.9				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

Southern General Investigation Enterprise
Soils Testing Laboratory
***

WATER CONTENT DETERMINATION

Project: BONG NAM 4 COMBINED HYDRO POWER Job No: ____

Location of Project: ____

Description of Soil: Yellowish brown silty clay

Tested by: Mai Date of Testing: 9.6.99

Date of Weighing: 10.6.99

Boring no.	TP 40	TP 40				
Container no. (cup)	623	618				
Wt. of cup + wet soil	45.18	46.24				
Wt. of cup + dry soil	37.29	38.09				
Wt. of cup	17.80	17.97				
Wt. of dry soil	19.49	20.12				
Wt. of water	7.89	8.15				
Water content, w%	40.5	40.5				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

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Southern General Investigation Enterprise
Soils Testing Laboratory
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WATER CONTENT DETERMINATION

Project: BONG NAM 4 COMBINED HYDRO POWER Job No: ____

Location of Project: ____

Description of Soil: Yellowish brown clay with 5-8% fine gravel

Tested by: Ky Date of Testing: 9.6.99

Date of Weighing: 10.6.99

Boring no.	TP 40	TP 40				
Container no. (cup)	307	634				
Wt. of cup + wet soil	54.27	51.04				
Wt. of cup + dry soil	45.91	42.19				
Wt. of cup	23.24	18.63				
Wt. of dry soil	22.67	23.56				
Wt. of water	8.36	8.85				
Water content, w%	36.9	37.6				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

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Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDROPOWER Job No. _____
Location of Project _____
Description of Soil Yellowish brown clay.
Tested by Mai Date of Testing 9.6.99
Date of Weighing 10.6.99

Boring no.	TP 5D	TP 5D				
Container no. (cup)	338	499				
Wt. of cup + wet soil	59.61	66.57				
Wt. of cup + dry soil	48.99	49.24				
Wt. of cup	23.54	22.11				
Wt. of dry soil	25.45	27.13				
Wt. of water	10.62	11.33				
Water content, w%	41.7	41.8				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDROPOWER Job No. _____
Location of Project _____
Description of Soil Yellowish brown clay.
Tested by Ky Date of Testing 9.6.99
Date of Weighing 10.6.99

Boring no.	TP 5D	TP 5D				
Container no. (cup)	613	542				
Wt. of cup + wet soil	50.38	62.75				
Wt. of cup + dry soil	40.74	51.21				
Wt. of cup	15.64	22.87				
Wt. of dry soil	25.10	28.40				
Wt. of water	10.04	11.54				
Water content, w%	40.0	40.6				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project: DONGNAI 4 COMBINED HYDROPOWER Job No.:
Location of Project:
Description of Soil: Yellowish brown silty clay
Tested by: Mai Date of Testing: 9.6.99
Date of Weighing: 10.6.99

Boring no.	TP 6D	TP 6D				
Container no. (cup)	615	252				
Wt. of cup + wet soil	54.60	57.15				
Wt. of cup + dry soil	44.44	47.64				
Wt. of cup	18.60	23.52				
Wt. of dry soil	25.84	24.12				
Wt. of water	10.16	9.51				
Water content, w%	39.3	39.4				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project: DONGNAI 4 COMBINED HYDROPOWER Job No.:
Location of Project:
Description of Soil: Yellowish brown clay
Tested by: Huy Date of Testing: 9.6.99
Date of Weighing: 10.6.99

Boring no.	TP 6D	TP 6D				
Container no. (cup)	239	600				
Wt. of cup + wet soil	54.67	64.55				
Wt. of cup + dry soil	46.93	56.29				
Wt. of cup	18.04	18.59				
Wt. of dry soil	28.89	37.70				
Wt. of water	9.74	12.26				
Water content, w%	36.2	32.5				

Boring no.						
Container no. (cup)						
Wt. of cup + wet soil						
Wt. of cup + dry soil						
Wt. of cup						
Wt. of dry soil						
Wt. of water						
Water content, w%						

Southern General Investigation Enterprise
Soils Testing Laboratory
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WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDRO POWER Job No. _____
Location of Project _____
Description of Soil Reddish brown clay.
Tested by Mai Date of Testing 9.6.99
Date of Weighing 10.6.99

Boring no.	TP 70	TP 70			
Container no. (cup)	638	248			
Wt. of cup + wet soil	58.84	51.27			
Wt. of cup + dry soil	46.48	43.40			
Wt. of cup	19.09	22.91			
Wt. of dry soil	27.39	20.49			
Wt. of water	10.33	7.87			
Water content, w%	37.7	38.4			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Southern General Investigation Enterprise
Soils Testing Laboratory
***

WATER CONTENT DETERMINATION

Project DONGNAI 4 COMBINED HYDROPOWER Job No. _____
Location of Project _____
Description of Soil Reddish brown clay.
Tested by Mai Date of Testing 9.6.99
Date of Weighing 10.6.99

Boring no.	TP 70	TP 70			
Container no. (cup)	256	322			
Wt. of cup + wet soil	62.70	55.94			
Wt. of cup + dry soil	52.12	46.90			
Wt. of cup	23.80	23.46			
Wt. of dry soil	28.32	23.44			
Wt. of water	10.58	9.04			
Water content, w%	37.4	38.6			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

Soundbera General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTE NAM 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay with 15% fine gravel

Tested by Nai Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 80	TP80			
Container no. (cup)	459	639			
Wt. of cup + wet soil	57.34	53.37			
Wt. of cup + dry soil	43.53	40.39			
Wt. of cup	23.99	18.55			
Wt. of dry soil	19.54	21.84			
Wt. of water	7.81	8.98			
Water content, w%	40.0	40.2			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Soundbera General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTE NAM 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay

Tested by Nai Date of Testing 9.6.96

Date of Weighing 10.6.99

Boring no.	TP 80	TP 80			
Container no. (cup)	435	41			
Wt. of cup + wet soil	50.30	65.36			
Wt. of cup + dry soil	48.02	52.37			
Wt. of cup	20.93	19.00			
Wt. of dry soil	27.09	32.37			
Wt. of water	11.28	12.99			
Water content, w%	41.6	40.1			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTANG 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Reddish brown silty clay

Tested by [illegible] Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 9D	TP 9D			
Container no. (cup)	312	462			
Wt. of cup + wet soil	55.21	49.00			
Wt. of cup + dry soil	45.93	41.78			
Wt. of cup	23.27	24.11			
Wt. of dry soil	22.66	17.67			
Wt. of water	9.28	7.22			
Water content, w%	41.0	40.9			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTANG 4 COMBINED HYDROPOWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay

Tested by [illegible] Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 9D	TP 9D			
Container no. (cup)	368	216			
Wt. of cup + wet soil	66.00	63.95			
Wt. of cup + dry soil	54.09	56.91			
Wt. of cup	21.82	24.39			
Wt. of dry soil	32.27	32.52			
Wt. of water	11.91	12.04			
Water content, w%	36.9	37.0			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTANG 4 COMBINED HYDRO POWER Job No. _____

Location of Project _____

Description of Soil Yellowish brown clay

Tested by MAU Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 100	TP 101			
Container no. (cup)	K57	336			
Wt. of cup + wet soil	61.07	57.02			
Wt. of cup + dry soil	50.98	49.03			
Wt. of cup	23.60	24.07			
Wt. of dry soil	27.38	24.96			
Wt. of water	10.09	8.99			
Water content, w%	36.9	36.0			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

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Southern General Investigation Enterprise
Soils Testing Laboratory

WATER CONTENT DETERMINATION

Project BONTANG 4 COMBINED HYDRO POWER Job No. _____

Location of Project _____

Description of Soil Reddish brown clay with 15-20% fine sand

Tested by MAU Date of Testing 9.6.99

Date of Weighing 10.6.99

Boring no.	TP 101	TP 101			
Container no. (cup)	315	337			
Wt. of cup + wet soil	64.61	67.97			
Wt. of cup + dry soil	55.74	57.29			
Wt. of cup	22.46	23.17			
Wt. of dry soil	33.28	34.12			
Wt. of water	8.87	10.68			
Water content, w%	26.7	26.5			

Boring no.					
Container no. (cup)					
Wt. of cup + wet soil					
Wt. of cup + dry soil					
Wt. of cup					
Wt. of dry soil					
Wt. of water					
Water content, w%					

DATA 4.1.2

LABORATORY TEST
OF
EARTH CORE MATERIAL
FOR
DONG NAI No.4 DAM

PROCTOR COMPACTION TEST

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP1D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Reddish brown silty sandy clay with laterit gravels

Specific Gravity, Gs (g/cm³): 2.853 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

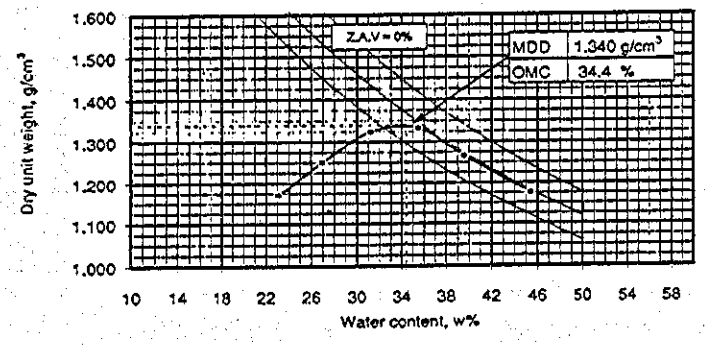
Drop height (cm): 30.5

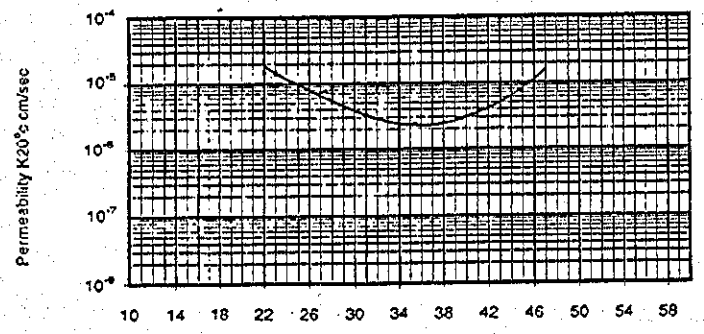
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A13	A9	A31	A2	A33	A30	A62	A69	A10	A57	A49	A42
Wt. of can + wet soil, g	77,38	77,77	73,38	81,06	81,75	88,10	85,17	81,33	89,64	73,29	87,13	93,59
Wt. of can + dry soil, g	64,93	65,08	59,87	66,21	65,51	69,95	65,39	62,58	70,06	54,34	66,59	67,34
Wt. of water, g	12,45	12,69	13,51	14,85	16,24	18,15	19,78	18,75	19,58	18,95	20,54	26,25
Wt. of can, g	11,24	9,93	10,04	10,99	13,66	11,55	9,81	9,63	20,73	6,38	21,45	9,41
Wt. of dry soil, g	53,69	55,15	49,83	55,22	51,85	58,40	55,58	52,95	49,33	47,96	45,14	57,93
Water conten. w%	23,19	23,01	27,11	26,89	31,32	31,08	35,59	35,41	39,69	39,51	45,50	45,31

Unit Weight Determination

Assumed water content	1	2	3	4	5	6
Water conten. w%	23,1	27,0	31,2	35,5	39,6	45,4
Wt. of soil + mold, g	3090	3238	3387	3456	3416	3359
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1440	1588	1737	1806	1766	1709
Wet unit wt., g/cm³	1,440	1,588	1,737	1,806	1,766	1,709
Dry unit wt., g/m³	1,170	1,250	1,324	1,333	1,265	1,175
Coeff. Permeab. cm/sec	1.5×10^{-5}	7.28×10^{-6}	3.18×10^{-6}	2.04×10^{-6}	2.80×10^{-6}	5.3×10^{-6}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure B) **Test No : TP1D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Reddish brown silty sandy clay with laterit gravels

Specific Gravity, Gs (g/cm³): 2.946 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

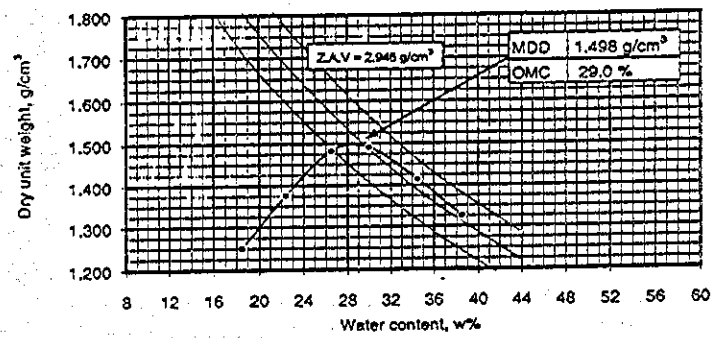
Drop height (cm): 30.5

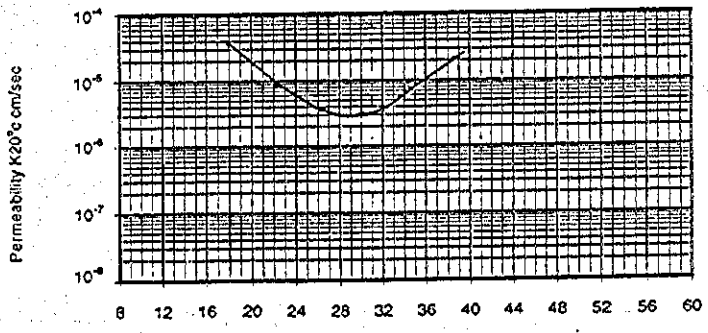
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A66	A70	A32	A74	A82	A76	A77	A73	A63	A85	A79	A81
Wt. of can + wet soil, g	88,17	81,86	88,86	91,19	82,13	82,42	84,76	80,55	80,99	86,02	86,38	89,03
Wt. of can + dry soil, g	76,12	72,45	74,61	78,85	67,06	67,23	67,78	64,44	61,75	69,27	64,30	70,79
Wt. of water, g	12,05	9,41	14,25	12,34	15,07	15,19	16,98	16,11	19,24	16,75	22,08	18,24
Wt. of can, g	11,30	21,34	11,30	23,49	10,45	9,65	11,35	10,58	6,13	20,59	7,10	23,30
Wt. of dry soil, g	64,82	51,11	63,31	55,36	56,61	57,58	56,43	53,86	55,62	48,68	57,20	47,49
Water conten. w%	18,59	18,41	22,51	22,29	26,62	26,38	30,09	29,91	34,59	34,41	38,60	38,41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	18,5	22,4	26,5	30,0	34,5	38,5
Wt. of soil + mold, g	3131	3334	3525	3587	3552	3485
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1481	1684	1875	1937	1902	1835
Wet unit wt., g/cm³	1,481	1,684	1,875	1,937	1,902	1,835
Dry unit wt., g/m³	1,250	1,376	1,482	1,490	1,414	1,325
Coeff. Permeab. cm/sec	4.0×10^{-5}	2.1×10^{-4}	3.93×10^{-4}	5.13×10^{-6}	7.6×10^{-6}	2.0×10^{-5}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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A - 440

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP2D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt ;Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.905 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

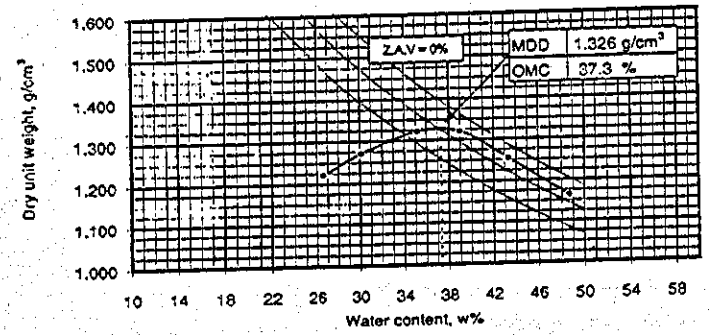
Drop height (cm): 30.5

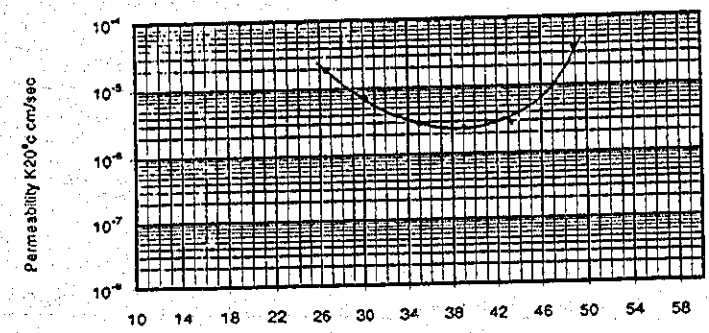
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A3	A10	A12	A20	A61	A75	A42	A59	A47	A44	A1	A120
Wt. of can + wet soil, g	88,31	86,84	86,27	81,60	80,27	80,18	81,29	81,57	81,90	81,21	82,70	88,47
Wt. of can + dry soil, g	71,79	72,97	71,06	65,62	62,15	64,53	61,08	61,70	60,34	59,63	59,05	63,26
Wt. of water, g	16,52	13,87	15,21	15,98	18,12	15,65	20,21	19,87	21,56	21,58	23,65	25,21
Wt. of can, g	9,99	20,73	20,80	12,42	10,82	11,34	9,41	10,66	10,69	9,72	10,59	11,40
Wt. of dry soil, g	61,80	52,24	50,26	53,20	51,33	53,19	51,67	51,04	49,65	49,91	48,46	51,86
Water conten. w%	26,73	26,55	30,26	30,04	35,30	35,06	39,11	38,93	43,42	43,24	48,80	48,61

Unit Weight Determination

Assumed water content	1	2	3	4	5	6
Water conten. w%	26,6	30,2	35,2	39,0	43,3	48,7
Wt. of soil + mold, g	3196	3304	3436	3485	3447	3379
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1546	1654	1786	1835	1797	1729
Wet unit wt., g/cm³	1,546	1,654	1,786	1,835	1,797	1,729
Dry unit wt., g/m³	1,221	1,270	1,321	1,320	1,254	1,163
Coeff. Permeab. cm/sec	1.32×10^{-5}	7.18×10^{-6}	2.9×10^{-6}	2.25×10^{-6}	2.8×10^{-6}	3.16×10^{-5}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP2D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Location : DONG NAI Province

Descript : Residual soil of Basalt ;Brown silty sandy clay of with fine gravels

Specific Gravity, Gs (g/cm³): 2.981 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

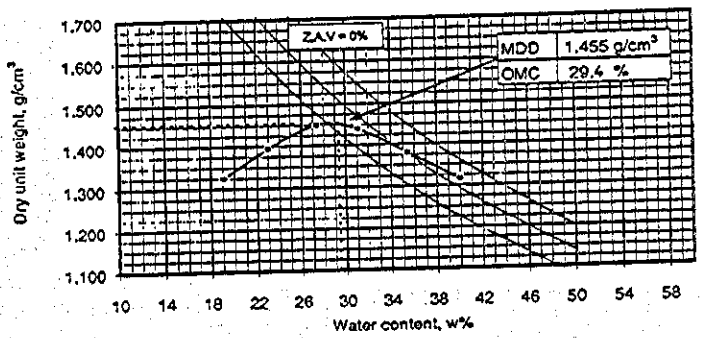
Drop height (cm): 30.5

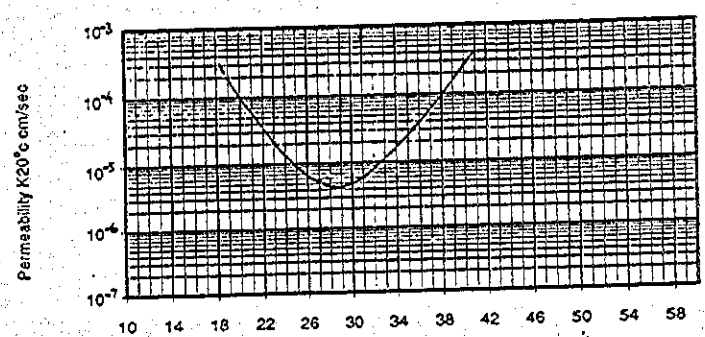
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A15	A14	A28	A20	A1	A3	A6	A44	A17	A53	A23	A4
Wt. of can + wet soil, g	66,69	76,47	81,15	90,80	79,82	84,87	81,19	82,43	82,81	81,43	82,48	86,28
Wt. of can + dry soil, g	57,68	66,07	68,04	76,20	64,88	68,62	63,87	65,22	63,53	65,81	65,23	67,02
Wt. of water, g	9,01	10,40	13,11	14,60	14,94	16,05	17,32	17,21	19,28	15,62	17,25	18,36
Wt. of can, g	10,73	11,36	11,31	12,42	10,50	9,99	8,34	9,72	9,20	21,57	22,21	21,92
Wt. of dry soil, g	46,95	54,71	56,73	63,78	54,29	58,63	55,53	55,50	54,33	44,24	43,02	46,00
Water conten. w%	19,19	19,01	23,11	22,89	27,52	27,28	31,19	31,01	35,49	35,31	40,10	39,91

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	19,1	23,0	27,4	31,1	35,4	40,0
Wt. of soil + mold, g	3228	3365	3497	3538	3519	3491
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1578	1715	1847	1888	1869	1841
Wet unit wt., g/cm³	1,578	1,715	1,847	1,888	1,869	1,841
Dry unit wt., g/m³	1,325	1,394	1,450	1,440	1,380	1,315
Coeff. Permeab. cm/sec	2.0×10^{-4}	2.15×10^{-5}	5.68×10^{-6}	4.0×10^{-6}	3.0×10^{-5}	2.54×10^{-4}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP3D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Reddish brown silty sandy clay with fine laterit gravels

Specific Gravity, Gs (g/cm³): 2.972 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

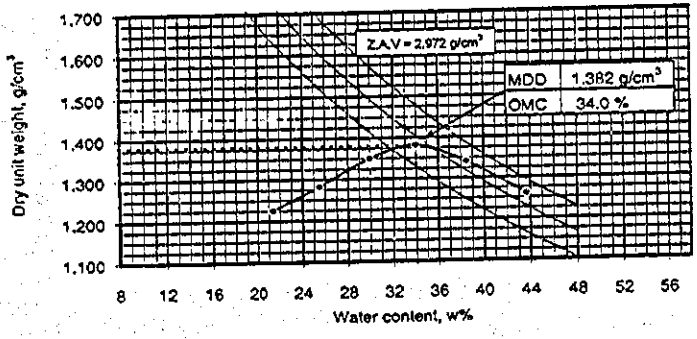
Drop height (cm): 30.5

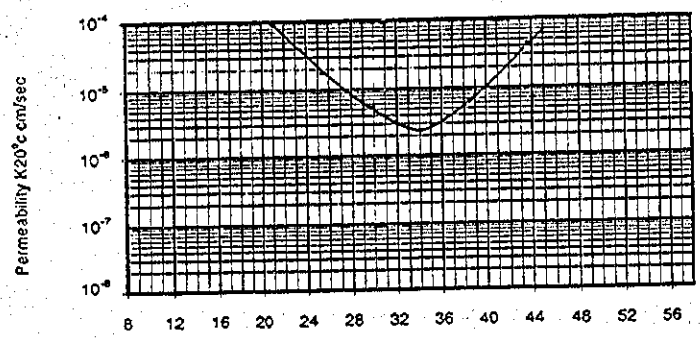
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A55	A19	A22	A49	A37	A40	A38	A44	A50	A59	A36	A54
Wt. of can + wet soil, g	92,43	96,23	90,14	95,63	98,32	94,89	91,21	97,27	95,30	97,68	95,11	99,95
Wt. of can + dry soil, g	79,85	83,15	76,07	80,61	77,67	75,04	70,70	75,10	71,79	73,53	72,55	75,87
Wt. of water, g	12,58	13,08	14,07	15,02	20,65	19,85	20,51	22,17	23,51	24,15	22,56	24,08
Wt. of can, g	21,31	21,77	21,13	21,45	9,11	8,61	10,54	9,72	10,87	10,66	21,04	20,65
Wt. of dry soil, g	58,54	61,38	54,94	59,16	68,56	66,43	60,16	65,38	60,92	62,87	51,51	55,22
Water conten. w%	21,49	21,31	25,61	25,39	30,12	29,88	34,09	33,91	38,59	38,41	43,80	43,61

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	21,4	25,5	30,0	34,0	38,5	43,7
Wt. of soil + mold, g	3137	3259	3405	3502	3506	3461
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1487	1609	1755	1852	1856	1811
Wet unit wt., g/cm³	1,487	1,609	1,755	1,852	1,856	1,811
Dry unit wt., g/m³	1,225	1,282	1,350	1,382	1,340	1,260
Coeff. Permeab. cm/sec	9.2×10^{-5}	4.9×10^{-5}	5.12×10^{-6}	2.36×10^{-6}	6.17×10^{-8}	4.1×10^{-5}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure C) **Test No : TP3D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Reddish brown laterite gravels sandy silty clay mixture

Specific Gravity, Gs (g/cm³): 3.067 — Net weight of mold (g): 2864

Mold dimensions Diam.(cm) : 15.24 — Height (cm): 11.64 — Vol. (cm³) : 2123

Blow : 56 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

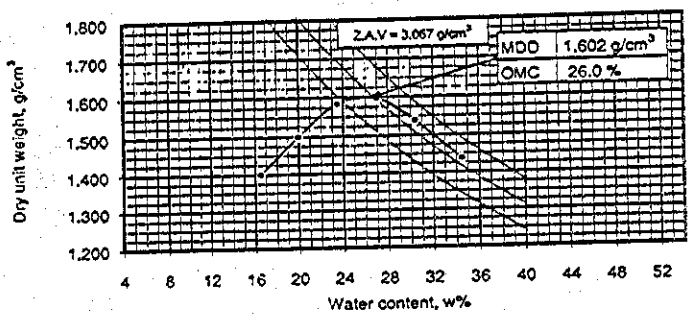
Drop height (cm): 30.5

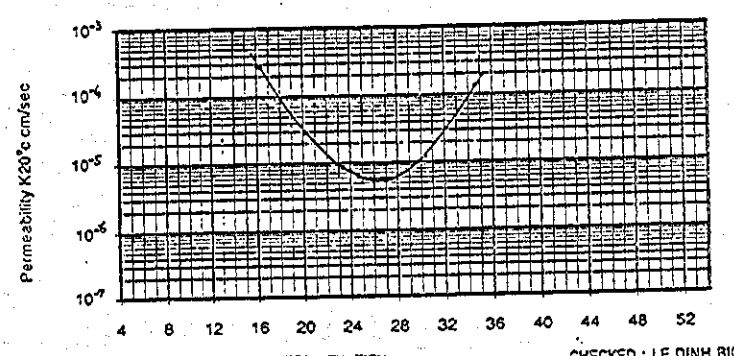
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A18	A12	A10	A53	A8	A15	A13	A2	A62	A30	A5	A16
Wt. of can + wet soil, g	86,62	85,64	95,45	95,76	89,53	87,88	82,74	86,68	87,87	82,36	92,37	89,42
Wt. of can + dry soil, g	77,56	76,50	82,94	75,11	74,32	73,26	67,50	70,63	69,63	65,89	74,33	72,37
Wt. of water, g	9,06	9,14	12,51	10,65	15,21	14,62	15,24	16,05	18,24	16,47	18,04	17,05
Wt. of can, g	22,95	20,80	20,73	21,57	9,93	10,73	11,24	10,99	9,81	11,55	22,19	22,82
Wt. of dry soil, g	54,61	55,70	62,21	53,54	64,39	62,53	56,26	59,64	59,82	54,34	52,14	49,55
Water conten. w%	16,59	16,41	20,11	19,89	23,62	23,38	27,09	26,91	30,49	30,31	34,60	34,41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	16,5	20,0	23,5	27,0	30,4	34,5
Wt. of soil + mold, g	6327	6685	7017	7167	7129	6968
Wt. of mold, g	2864	2864	2864	2864	2864	2864
Wt. of soil in mold, g	3463	3821	4153	4303	4259	4104
Wet unit wt., g/cm³	1,631	1,8	1,956	2,027	2,006	1,933
Dry unit wt., g/m³	1,400	1,500	1,584	1,596	1,538	1,437
Coeff. Permeab. cm/sec	2.69×10^{-4}	2.95×10^{-5}	6.48×10^{-6}	5.1×10^{-6}	4.24×10^{-5}	2.31×10^{-4}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH RICH

- 110b -

A - 442

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP4D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.920 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

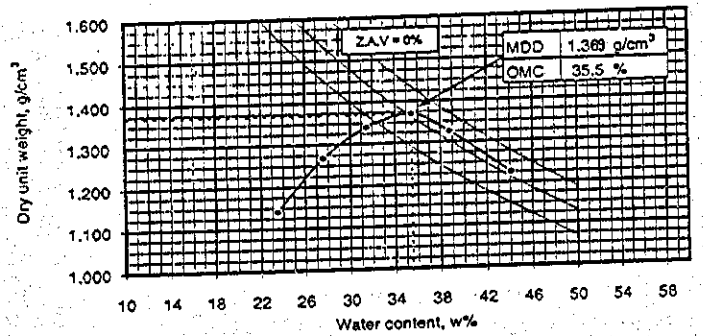
Drop height (cm): 30.5

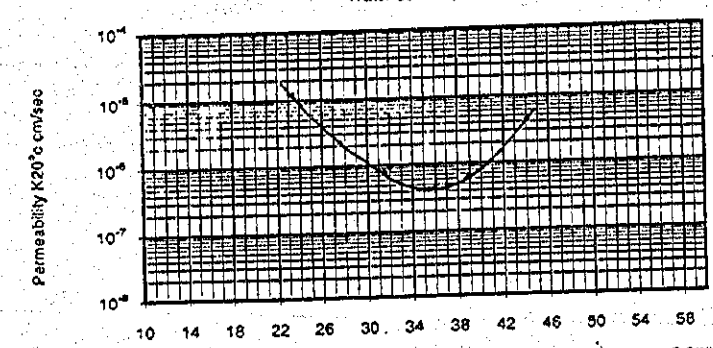
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A5	A16	A7	A41	A2	A18	A38	A32	A58	A35	A46	A100
Wt. of can + wet soil, g	48.49	50.13	52.65	61.45	61.52	75.54	64.83	57.72	64.37	60.35	67.00	74.75
Wt. of can + dry soil, g	43.47	44.95	43.64	52.34	49.38	62.98	50.58	45.58	49.13	46.10	49.75	58.17
Wt. of water, g	5.02	5.18	9.01	9.11	12.14	12.56	14.25	12.14	15.24	14.25	17.25	16.58
Wt. of can, g	22.19	22.82	11.12	19.20	10.99	22.95	10.54	11.30	9.94	9.29	10.72	20.50
Wt. of dry soil, g	21.28	22.13	32.52	33.14	38.39	40.03	40.04	34.28	39.19	36.81	39.03	37.67
Water conten. w%	23.59	23.41	27.71	27.49	31.62	31.38	35.59	35.41	38.89	38.71	44.20	44.01

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	23.5	27.6	31.5	35.5	38.8	44.1
Wt. of soil + mold, g	3058	3267	3411	3505	3489	3415
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1408	1617	1761	1855	1839	1765
Wet unit wt., g/cm³	1.408	1.617	1.761	1.855	1.839	1.765
Dry unit wt., g/m³	1.140	1.267	1.339	1.369	1.325	1.225
Coeff. Permeab. cm/sec	4.15×10^{-5}	2.2×10^{-4}	7.9×10^{-7}	4.09×10^{-7}	6.1×10^{-7}	4.3×10^{-4}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

- 111 b -

A - 443

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP4D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay of with fine gravels

Specific Gravity, Gs (g/cm³): 3.010 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

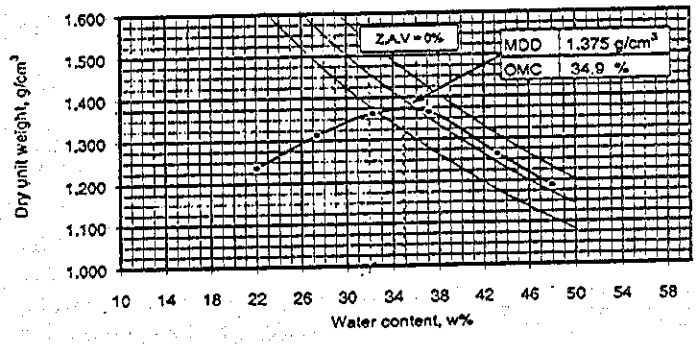
Drop height (cm): 30.5

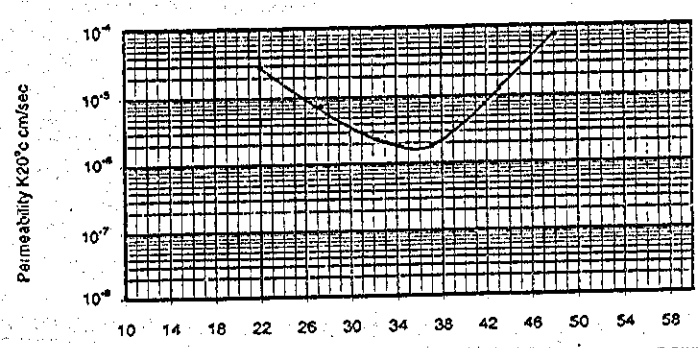
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A29	A48	A44	A57	A26	A7	A45	A66	A47	A43	A59	A68
Wt. of can + wet soil, g	88.21	88.50	89.49	86.72	86.59	83.74	83.94	82.44	83.97	92.60	81.91	95.68
Wt. of can + dry soil, g	74.19	74.44	72.28	70.20	67.54	66.06	66.69	63.20	61.83	67.46	58.77	71.53
Wt. of water, g	14.02	14.06	17.21	16.52	19.05	17.68	17.25	19.24	22.14	25.14	23.14	24.15
Wt. of can, g	10.87	10.41	9.72	9.67	8.78	11.12	20.38	11.30	10.69	9.14	10.66	21.12
Wt. of dry soil, g	63.32	64.03	62.56	60.53	58.76	54.94	46.31	51.90	51.14	58.32	48.11	50.41
Water conten. w%	22.14	21.96	27.51	27.29	32.42	32.18	37.25	37.07	43.29	43.11	48.19	47.91

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	22.1	27.4	32.3	37.2	43.2	48.0
Wt. of soil + mold, g	3160	3321	3452	3522	3459	3408
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1510	1671	1802	1872	1809	1758
Wet unit wt., g/cm³	1.510	1.671	1.802	1.872	1.809	1.758
Dry unit wt., g/m³	1.237	1.312	1.362	1.364	1.263	1.188
Coeff. Permeab. cm/sec	2.4×10^{-5}	7.08×10^{-6}	2.22×10^{-6}	4.8×10^{-6}	4.15×10^{-5}	7.5×10^{-5}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP5D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil :Brown silty sandy clay of basalt

Specific Gravity, Gs (g/cm³): 2.899 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

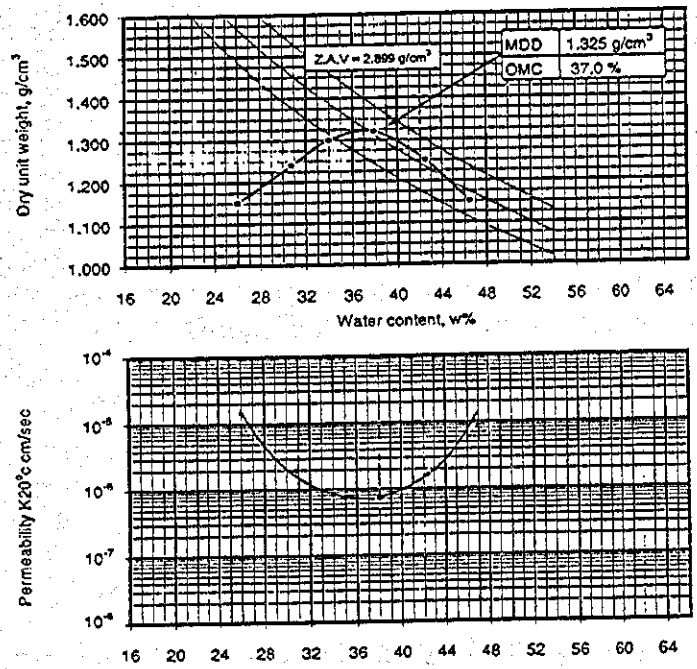
Drop height (cm): 30.5

Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A23	A39	A27	A24	A56	A60	A33	A14	A75	A61	A25	A41
Wt. of can + wet soil, g	93.01	84.97	92.09	82.82	81.74	73.14	80.71	83.64	85.53	88.89	85.14	95.26
Wt. of can + dry soil, g	70.43	71.91	72.85	68.59	66.35	60.58	62.25	63.81	63.37	65.64	64.96	71.15
Wt. of water, g	12.58	13.06	19.24	14.23	15.39	12.56	18.46	19.83	22.16	23.25	20.18	24.11
Wt. of can, g	22.21	21.50	10.60	22.22	21.24	23.51	13.66	11.36	11.34	10.82	21.66	19.20
Wt. of dry soil, g	48.22	50.41	62.25	46.37	45.11	37.07	48.59	52.45	52.03	54.82	43.30	51.95
Water conten. w%	26.09	25.91	30.91	30.69	34.12	33.88	37.99	37.81	42.59	42.41	46.61	46.41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	26.0	30.8	34.0	37.9	42.5	46.5
Wt. of soil + mold, g	3099	3272	3392	3470	3431	3335
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1449	1622	1742	1820	1781	1685
Wet unit wt., g/cm³	1.449	1.622	1.742	1.82	1.781	1.685
Dry unit wt., g/m³	1.150	1.240	1.300	1.320	1.250	1.150
Coeff. Permeab. cm/sec	1.50×10^{-5}	2.0×10^{-6}	9.82×10^{-7}	7.2×10^{-7}	4.68×10^{-6}	1.0×10^{-5}



TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

- 113 b -

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP5D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay of basalt

Specific Gravity, Gs (g/cm³): 2.922 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

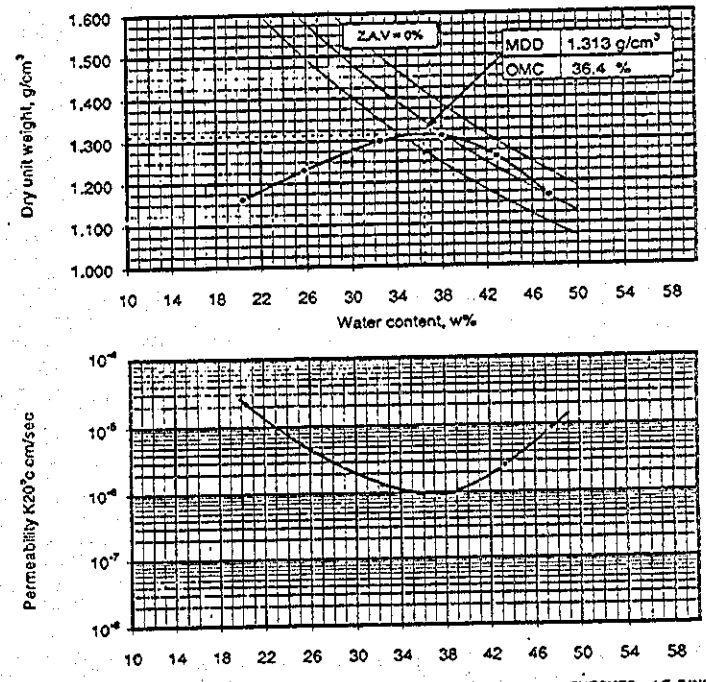
Drop height (cm): 30.5

Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A61	A75	A42	A59	A47	A50	A13	A17	A15	A24	A3	A8
Wt. of can + wet soil, g	96.44	89.59	82.40	88.99	84.44	88.75	84.25	89.49	84.37	96.18	84.91	82.53
Wt. of can + dry soil, g	81.88	76.38	67.38	72.98	66.30	69.70	64.11	67.42	62.23	74.01	60.75	59.18
Wt. of water, g	14.56	13.21	15.02	16.01	18.14	19.05	20.14	22.07	22.14	22.17	24.16	23.35
Wt. of can, g	10.82	11.34	9.41	10.66	10.69	10.87	11.24	9.20	10.73	22.22	9.99	9.93
Wt. of dry soil, g	71.06	65.04	57.97	62.32	55.61	58.83	52.87	58.22	51.50	51.79	50.76	49.25
Water conten. w%	20.49	20.31	25.91	25.69	32.62	32.38	38.09	37.91	42.99	42.81	47.60	47.41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	20.4	25.8	32.5	38.0	42.9	47.5
Wt. of soil + mold, g	3049	3197	3371	3458	3451	3368
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1399	1547	1721	1808	1801	1718
Wet unit wt., g/cm³	1.399	1.547	1.721	1.808	1.801	1.718
Dry unit wt., g/m³	1.162	1.230	1.299	1.310	1.260	1.165
Coeff. Permeab. cm/sec	2.33×10^{-5}	4.6×10^{-6}	1.12×10^{-6}	9.0×10^{-7}	2.6×10^{-6}	6.98×10^{-6}



TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP6D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay of basalt

Specific Gravity, Gs (g/cm³): 2.640 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

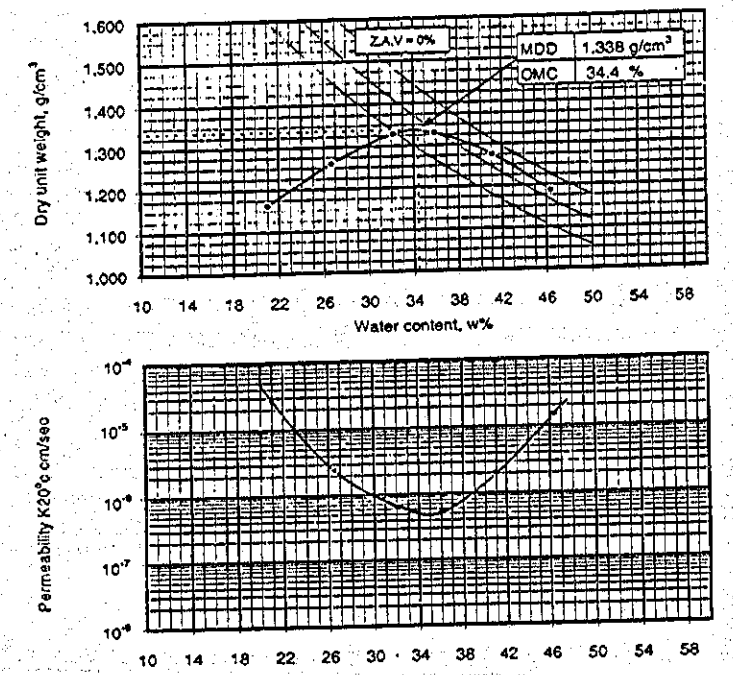
Drop height (cm): 30.5

Water content Determination

	1		2		3		4		5		6	
Sample no												
Moisture can no.	A46	A75	A9	A11	A65	A22	A41	A25	A34	A37	A70	A64
Wt. of can + wet soil, g	97.70	82.88	86.53	99.01	83.13	92.24	80.56	94.51	81.44	85.37	91.62	87.11
Wt. of can + dry soil, g	82.55	70.59	70.29	79.87	67.84	74.98	64.32	75.30	60.88	63.19	69.45	63.05
Wt. of water, g	15.15	12.39	16.24	18.14	15.29	17.26	16.24	19.21	20.56	22.18	22.37	24.06
Wt. of can, g	10.72	11.34	9.72	11.65	20.49	21.13	19.20	21.66	10.96	9.11	21.34	11.10
Wt. of dry soil, g	71.83	59.25	60.57	68.22	47.35	53.85	45.12	53.64	49.92	54.08	48.11	51.95
Water conten. w%	21.09	20.91	26.81	26.59	32.29	32.05	35.99	35.81	41.19	41.01	46.50	46.31

Unit Weight Determination

No. of Tnals	1	2	3	4	5	6
Water conten. w%	21.0	26.7	32.2	35.9	41.1	46.4
Wt. of soil + mold, g	3056	3246	3405	3457	3449	3388
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1406	1596	1755	1807	1799	1738
Wet unit wt., g/cm³	1.406	1.596	1.755	1.807	1.799	1.738
Dry unit wt., g/m³	1.162	1.260	1.328	1.330	1.275	1.187
Coeff. Permeab. cm/sec	2.8×10^{-5}	2.49×10^{-6}	4.5×10^{-7}	5.31×10^{-7}	2.0×10^{-6}	4.5×10^{-5}



TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP6D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.645 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

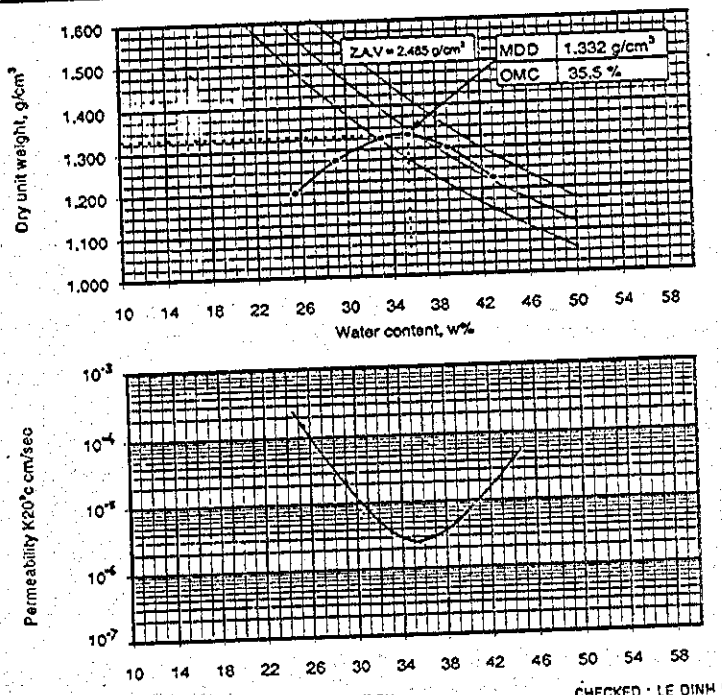
Drop height (cm): 30.5

Water content Determination

	1		2		3		4		5		6	
Sample no												
Moisture can no.	A48	A52	A57	A6	A46	A82	A32	A47	A8	A42	A34	A5
Wt. of can + wet soil, g	84.31	96.82	85.29	89.76	83.87	88.03	84.79	85.41	88.74	85.67	87.56	96.06
Wt. of can + dry soil, g	69.30	81.61	68.24	71.51	65.63	68.79	65.50	65.87	66.59	64.31	64.49	73.88
Wt. of water, g	15.01	15.21	17.05	18.25	18.24	19.24	19.29	19.54	22.15	21.36	23.07	22.18
Wt. of can, g	10.41	21.52	9.67	8.34	10.72	10.45	11.30	10.69	9.93	9.41	10.96	22.19
Wt. of dry soil, g	58.89	60.09	58.57	63.17	54.91	58.34	54.20	55.18	56.66	54.90	53.53	51.69
Water conten. w%	25.49	25.31	29.11	28.89	33.22	32.98	35.59	35.41	39.09	38.91	43.10	42.91

Unit Weight Determination

No. of Tnals	1	2	3	4	5	6
Water conten. w%	25.4	29.0	33.1	35.5	39.0	43.0
Wt. of soil + mold, g	3155	3295	3414	3455	3457	3402
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1505	1645	1764	1805	1807	1752
Wet unit wt., g/cm³	1.505	1.645	1.764	1.805	1.807	1.752
Dry unit wt., g/m³	1.200	1.275	1.325	1.332	1.300	1.225
Coeff. Permeab. cm/sec	1.5×10^{-4}	2.12×10^{-5}	3.52×10^{-6}	2.5×10^{-6}	5.0×10^{-6}	4.0×10^{-5}



TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure C) **Test No : TP7D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay with laterit gravels mixture

Specific Gravity, Gs (g/cm³): 2.917 — Net weight of mold (g): 2864

Mold dimensions Diam.(cm) : 15.24 — Height (cm): 11.64 — Vol. (cm³) : 2123

Blow : 56 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

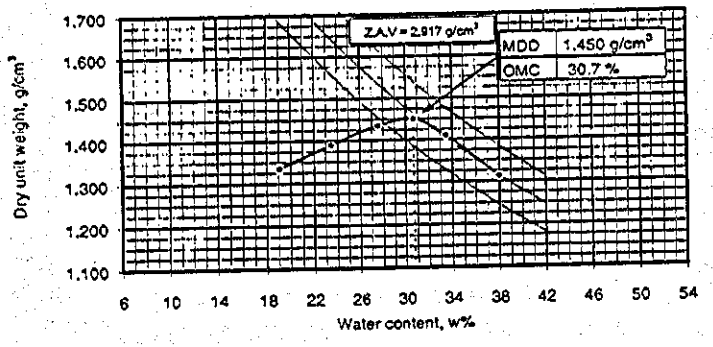
Drop height (cm): 30.5

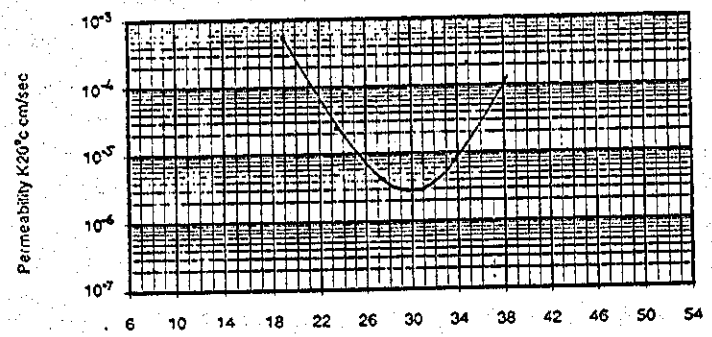
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A4	A17	A6	A7	A42	A57	A34	A29	A48	A31	A21	A26
Wt. of can + wet soil, g	97.76	88.27	93.36	91.57	94.79	98.97	96.98	96.81	86.93	94.45	96.53	89.32
Wt. of can + dry soil, g	85.55	75.64	77.12	76.32	76.26	79.72	76.73	76.67	67.69	73.31	71.68	67.18
Wt. of water, g	12.21	12.63	16.24	15.25	18.53	19.25	20.25	20.14	19.24	21.14	24.85	22.14
Wt. of can, g	21.92	9.20	8.34	11.12	9.41	9.87	10.96	10.87	10.41	10.04	6.46	8.78
Wt. of dry soil, g	63.63	66.44	68.78	65.20	66.85	70.05	65.77	65.80	57.28	63.27	65.22	58.40
Water conten. w%	19.19	19.01	23.61	23.39	27.72	27.48	30.79	30.61	33.59	33.41	38.10	37.91

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	19.1	23.5	27.6	30.7	33.5	38.0
Wt. of soil + mold, g	6240	6509	6751	6887	6859	6709
Wt. of mold, g	2864	2864	2864	2864	2864	2864
Wt. of soil in mold, g	3376	3645	3887	4023	3995	3845
Wet unit wt., g/cm³	1.59	1.717	1.831	1.895	1.882	1.811
Dry unit wt., g/m³	1.335	1.390	1.435	1.450	1.410	1.312
Coeff. Permeab. cm/sec	5.4×10^{-4}	2.54×10^{-5}	4.12×10^{-6}	2.96×10^{-6}	7.5×10^{-6}	1.0×10^{-5}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

- 117b -

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure C) **Test No : TP7D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.945 — Net weight of mold (g): 2864

Mold dimensions Diam.(cm) : 15.24 — Height (cm): 11.64 — Vol. (cm³) : 2123

Blow : 56 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

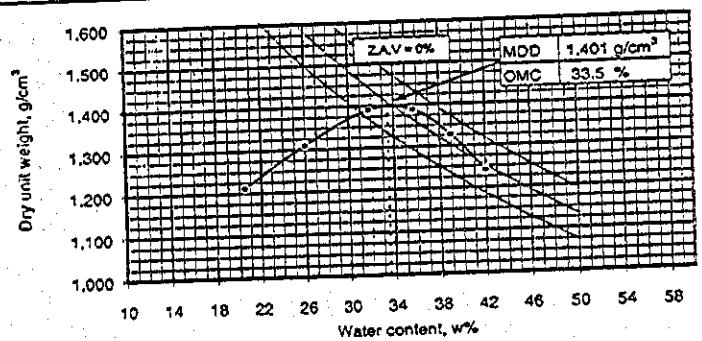
Drop height (cm): 30.5

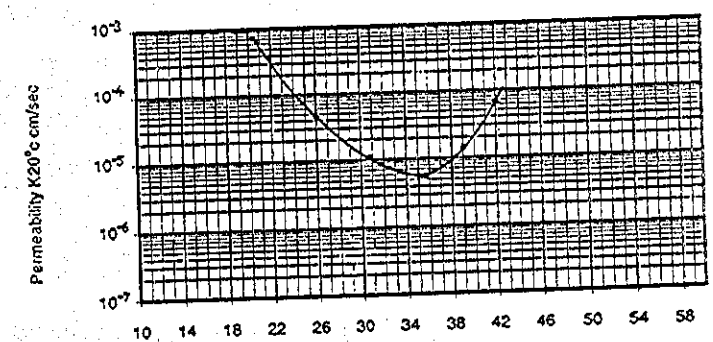
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A4	A13	A5	A19	A51	A62	A9	A48	A29	A11	A15	A91
Wt. of can + wet soil, g	51.32	41.80	65.71	66.07	60.25	62.02	63.79	56.64	65.10	62.52	68.95	76.44
Wt. of can + dry soil, g	46.30	36.62	56.70	56.96	48.11	49.46	49.54	44.50	49.86	48.27	51.70	59.86
Wt. of water, g	5.02	5.18	9.01	9.11	12.14	12.56	14.25	12.14	15.24	14.25	17.25	16.58
Wt. of can, g	21.92	11.24	22.19	21.77	10.08	9.81	9.72	10.41	10.87	11.65	10.73	20.30
Wt. of dry soil, g	24.38	25.38	34.51	35.19	38.03	39.65	39.82	34.09	38.99	36.62	40.97	39.56
Water conten. w%	20.59	20.41	26.11	25.89	31.92	31.68	35.79	35.61	39.09	38.91	42.10	41.91

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	20.5	26.0	31.8	35.7	39.0	42.0
Wt. of soil + mold, g	5954	6369	6753	6864	6777	6603
Wt. of mold, g	2864	2864	2864	2864	2864	2864
Wt. of soil in mold, g	3100	3505	3889	4000	3913	3739
Wet unit wt., g/cm³	1.460	1.651	1.832	1.884	1.843	1.761
Dry unit wt., g/m³	1.212	1.310	1.390	1.388	1.326	1.240
Coeff. Permeab. cm/sec	7.35×10^{-4}	4.33×10^{-5}	1.05×10^{-5}	3.5×10^{-6}	1.47×10^{-6}	6.74×10^{-7}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

-118b-

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP8D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of basalt :Reddish brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.880 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³): 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

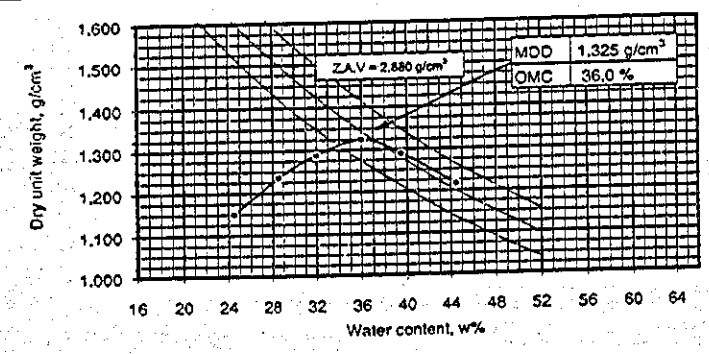
Drop height (cm): 30.5

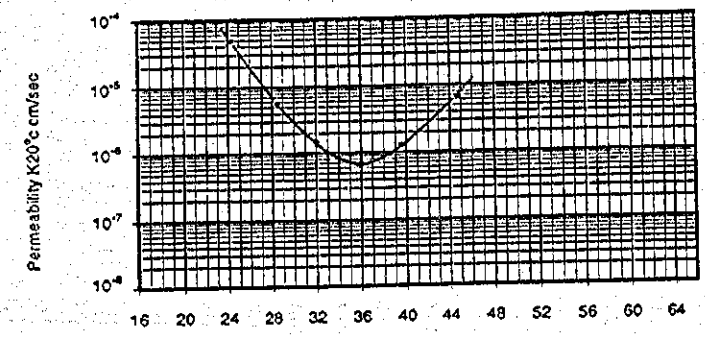
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no	A64	A46	A67	A45	A65	A43	A9	A58	A11	A52	A78	A51
Wt. of can + wet soil, g	80.16	82.18	87.70	98.13	70.43	84.64	82.31	83.06	83.01	76.81	77.08	85.33
Wt. of can + dry soil, g	66.53	68.16	69.56	80.89	58.29	66.39	63.06	63.74	62.77	61.18	59.83	62.19
Wt. of water, g	13.63	14.02	18.14	17.24	12.14	18.25	19.25	19.32	20.24	15.63	17.25	23.14
Wt. of can, g	11.10	10.72	6.38	20.38	20.49	9.14	9.72	9.94	11.65	21.52	21.15	10.08
Wt. of dry soil, g	55.43	57.44	63.18	60.51	37.80	57.25	53.34	53.80	51.12	39.66	38.68	52.11
Water conten. w%	24.59	24.41	28.71	28.49	32.12	31.88	36.09	35.91	39.59	39.41	44.60	44.41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	24.5	28.6	32.0	36.0	39.5	44.5
Wt. of soil + mold, g	3082	3238	3350	3452	3450	3406
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1432	1588	1700	1802	1800	1756
Wet unit wt., g/cm³	1.432	1.588	1.7	1.802	1.8	1.756
Dry unit wt., g/m³	1.150	1.235	1.288	1.325	1.290	1.215
Coeff. Permeab. cm/sec	5.6×10^{-5}	5.61×10^{-6}	1.47×10^{-6}	6.82×10^{-7}	1.28×10^{-6}	6.42×10^{-6}





TESTED BY : TIEN & MY — COMPUTED : TU TIEN — CHECKED : LE DINH BICH

- 119 b -

A - 447

COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP8D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of basalt :Reddish brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.884 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³): 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

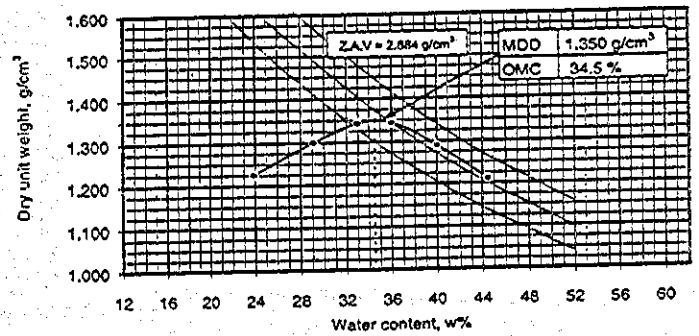
Drop height (cm): 30.5

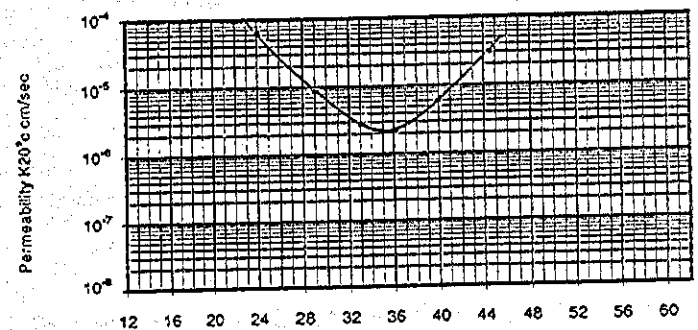
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no	A80	A71	A88	A72	A68	A47	A20	A1	A3	A31	A28	A69
Wt. of can + wet soil, g	97.15	95.47	81.45	97.52	93.51	85.94	86.40	81.52	84.21	96.17	87.70	88.22
Wt. of can + dry soil, g	82.53	79.26	65.31	79.96	75.50	67.32	66.78	62.78	62.97	73.03	64.14	64.05
Wt. of water, g	14.62	16.21	16.14	17.56	18.01	18.62	19.62	18.74	21.24	25.14	23.56	24.17
Wt. of can, g	21.59	11.18	10.05	19.39	21.12	10.69	12.42	10.59	9.99	10.04	11.31	9.63
Wt. of dry soil, g	60.94	68.08	55.26	60.57	54.38	56.63	54.36	52.19	52.98	62.99	52.83	54.42
Water conten. w%	23.99	23.81	29.21	28.99	33.12	32.88	36.09	35.91	40.09	39.91	44.60	44.41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	23.9	29.1	33.0	36.0	40.0	44.5
Wt. of soil + mold, g	3168	3328	3435	3478	3456	3399
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1518	1678	1785	1828	1806	1749
Wet unit wt., g/cm³	1.518	1.678	1.785	1.828	1.806	1.749
Dry unit wt., g/m³	1.225	1.300	1.342	1.344	1.290	1.210
Coeff. Permeab. cm/sec	6.4×10^{-5}	8.8×10^{-6}	2.91×10^{-6}	2.2×10^{-6}	6.01×10^{-6}	2.99×10^{-5}





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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP9D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.642 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.30 — Height (cm): 12.00 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

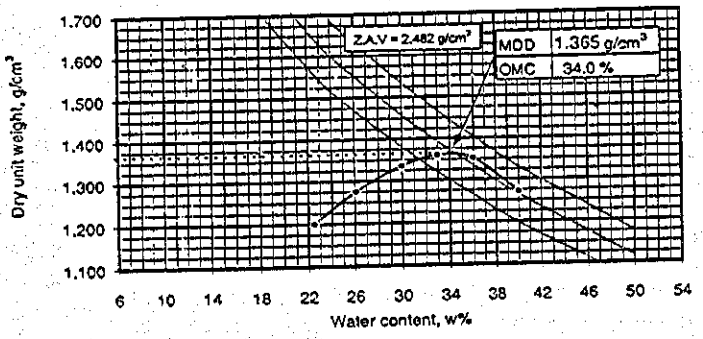
Drop height (cm): 30.5

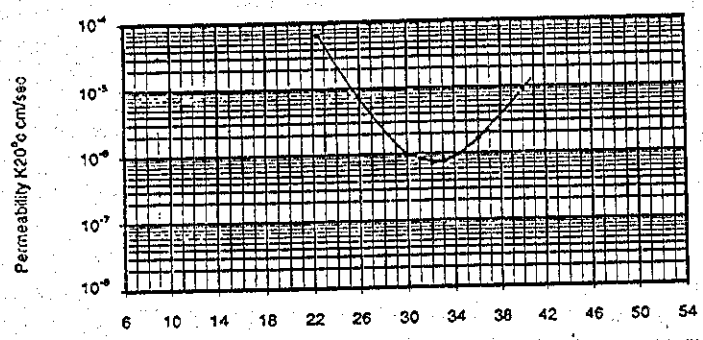
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A4	A30	A11	A49	A46	A82	A32	A47	A8	A42	A17	A69
Wt. of can + wet soil, g	87,10	73,22	89,23	82,09	77,46	81,17	88,56	88,39	76,22	80,80	83,51	90,47
Wt. of can + dry soil, g	75,09	61,93	73,12	69,58	62,01	64,90	69,35	69,15	58,64	62,01	62,24	67,41
Wt. of water, g	12,01	11,29	16,11	12,51	15,45	16,27	19,21	19,24	17,58	18,89	21,27	23,06
Wt. of can, g	21,92	11,55	11,65	21,45	10,72	10,45	11,30	10,69	9,93	9,41	9,20	9,63
Wt. of dry soil, g	53,17	50,38	61,47	48,13	51,29	54,45	58,05	58,46	48,71	52,60	53,04	57,78
Water conten. w%	22,59	22,41	26,21	25,99	30,12	29,88	33,09	32,91	36,09	35,91	40,10	39,91

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	22,5	26,1	30,0	33,0	36,0	40,0
Wt. of soil + mold, g	3120	3258	3386	3459	3489	3428
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1470	1608	1736	1809	1839	1778
Wet unit wt., g/cm³	1,47	1,608	1,736	1,809	1,839	1,778
Dry unit wt., g/m³	1,200	1,275	1,335	1,360	1,352	1,270
Coeff. Permeab. cm/sec	6.42×10^{-5}	7.49×10^{-5}	9.38×10^{-7}	7.57×10^{-7}	1.74×10^{-6}	9.0×10^{-6}





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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure A) **Test No : TP9D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Brown silty sandy clay

Specific Gravity, Gs (g/cm³): 2.679 — Net weight of mold (g): 1650

Mold dimensions Diam.(cm) : 10.3 — Height (cm): 12.0 — Vol. (cm³) : 1000

Blow : 25 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

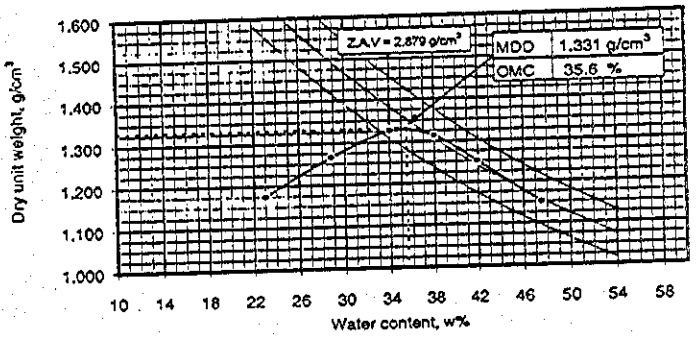
Drop height (cm): 30.5

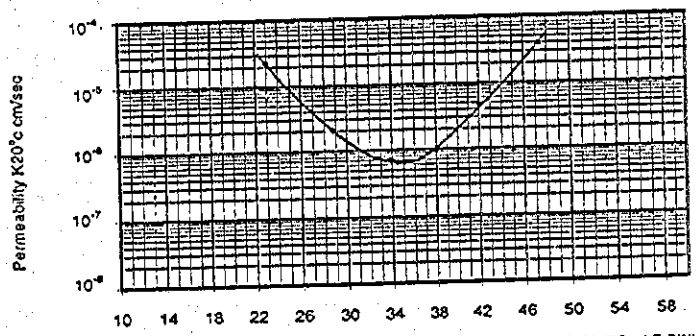
Water content Determination

Sample no	1		2		3		4		5		6	
Moisture can no.	A52	A58	A61	A32	A12	A19	A54	A57	A24	A21	A36	A18
Wt. of can + wet soil, g	97,27	86,39	85,64	92,98	93,99	86,85	90,29	83,41	83,56	81,59	83,83	94,90
Wt. of can + dry soil, g	83,06	72,14	68,86	74,77	75,37	70,38	71,08	63,14	65,42	59,44	63,58	71,76
Wt. of water, g	14,21	14,25	16,78	18,21	18,62	16,47	19,21	20,27	18,14	22,15	20,25	23,14
Wt. of can, g	21,52	9,94	10,82	11,30	20,80	21,77	20,65	9,67	22,22	6,46	21,04	22,95
Wt. of dry soil, g	61,54	62,20	58,04	63,47	54,57	48,61	50,43	53,47	43,20	52,98	42,54	48,81
Water conten. w%	23,09	22,91	28,91	28,69	34,12	33,88	38,09	37,91	41,99	41,81	47,60	47,41

Unit Weight Determination

No. of Trials	1	2	3	4	5	6
Water conten. w%	23,0	28,8	34,0	38,0	41,9	47,5
Wt. of soil + mold, g	3095	3279	3427	3462	3424	3346
Wt. of mold, g	1650	1650	1650	1650	1650	1650
Wt. of soil in mold, g	1445	1629	1777	1812	1774	1696
Wet unit wt., g/cm³	1,445	1,629	1,777	1,812	1,774	1,696
Dry unit wt., g/m³	1,175	1,265	1,326	1,313	1,250	1,150
Coeff. Permeab. cm/sec	2.33×10^{-5}	2.00×10^{-6}	6.73×10^{-7}	2.45×10^{-7}	4.5×10^{-6}	4.0×10^{-5}





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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure C) **Test No : TP10D - 1**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt : Reddish brown silty sandy clay laterit gravels mixture

Specific Gravity, Gs (g/cm³): 3.012 — Net weight of mold (g): 2864

Mold dimensions Diam.(cm) : 15.24 — Height (cm): 11.64 — Vol. (cm³) : 2123

Blow : 56 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

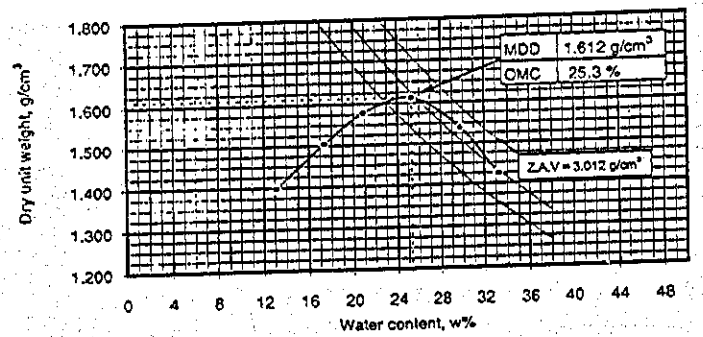
Drop height (cm): 30.5

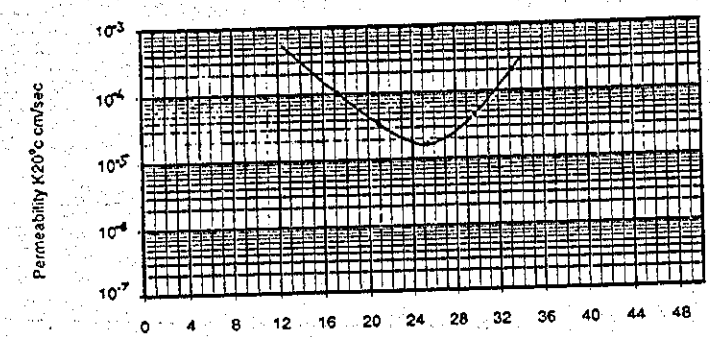
Water content Determination

	1		2		3		4		5		6	
Sample no	A22	A35	A51	A24	A27	A33	A77	A71	A81	A84	A15	A11
Moisture can no.	80,14	83,06	84,07	84,05	80,49	84,63	86,71	80,81	89,56	80,94	83,13	80,54
Wt. of can + wet soil, g	73,25	74,55	73,05	74,94	68,35	72,42	71,45	66,79	74,32	64,87	65,04	63,40
Wt. of can + dry soil, g	6,89	8,51	11,02	9,11	12,14	12,21	15,26	14,02	15,24	16,07	18,09	17,14
Wt. of water, g	21,13	9,29	10,08	22,22	10,60	13,66	11,35	11,18	23,36	10,74	10,73	11,65
Wt. of can, g	52,12	65,26	62,97	52,72	57,75	58,76	60,10	55,61	51,02	54,13	54,31	51,75
Wt. of dry soil, g	13,22	13,04	17,50	17,28	21,02	20,78	25,39	25,21	29,87	29,69	33,31	33,12
Water conten. w%												

Unit Weight Determination

	1	2	3	4	5	6
No. of Trials						
Water conten. w%	13,1	17,4	20,9	25,3	29,8	33,2
Wt. of soil + mold, g	6223	6613	6915	7152	7102	6891
Wt. of mold, g	2864	2864	2864	2864	2864	2864
Wt. of soil in mold, g	3359	3749	4051	4288	4238	4027
Wet unit wt., g/cm³	1,582	1,766	1,908	2,02	1,996	1,897
Dry unit wt., g/m³	1,399	1,504	1,578	1,612	1,538	1,424
Coeff. Permeab. cm/sec	4.37×10^{-4}	9.9×10^{-5}	3.53×10^{-5}	1.64×10^{-5}	4.49×10^{-5}	2.02×10^{-4}





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COMPACTION TEST & RELATION OF COEFFICIENT PERMEABILITY

(Method ASTM D698 - Procedure C) **Test No : TP10D - 2**

Project : DONG NAI 3 & 4 COMBINED HYDRO POWER PROJECT

Descript : Residual soil of Basalt :Reddish brown silty sandy clay with laterit gravels mixture

Specific Gravity, Gs (g/cm³): 3.050 — Net weight of mold (g): 2864

Mold dimensions Diam.(cm) : 15.24 — Height (cm): 11.64 — Vol. (cm³) : 2123

Blow : 56 — No. of Layer : 3 — Wt. of Rammer (KG): 2.5

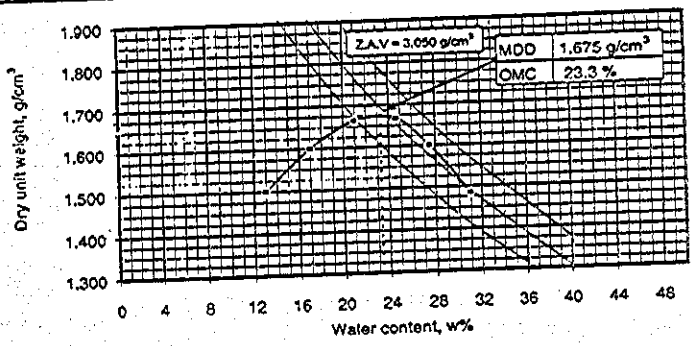
Drop height (cm): 30.5

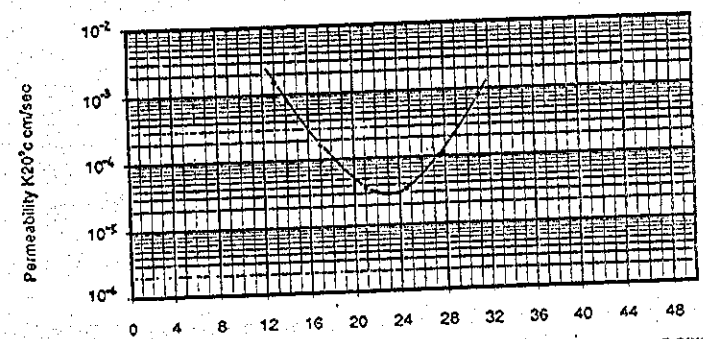
Water content Determination

	1		2		3		4		5		6	
Sample no	A10	A51	A73	A83	A88	A66	A64	A81	A84	A87	A71	A99
Moisture can no.	83,37	81,27	83,06	89,99	79,67	80,54	86,81	84,77	87,00	85,29	83,90	84,14
Wt. of can + wet soil, g	76,12	73,13	72,47	78,63	67,53	68,58	71,77	72,63	70,51	69,42	66,65	66,86
Wt. of can + dry soil, g	7,25	8,14	10,59	11,36	12,14	11,96	15,04	12,14	16,49	15,87	17,25	17,28
Wt. of water, g	20,73	10,08	10,58	11,37	10,05	11,30	11,10	29,30	10,74	11,52	11,18	10,96
Wt. of can, g	55,39	63,05	61,89	67,26	57,48	57,28	60,67	49,33	59,77	57,90	55,47	55,90
Wt. of dry soil, g	13,09	12,91	17,11	16,89	21,12	20,86	24,79	24,61	27,59	27,41	31,10	30,91
Water conten. w%												

Unit Weight Determination

	1	2	3	4	5	6
No. of Trials						
Water conten. w%	13,0	17,0	21,0	24,7	27,5	31,0
Wt. of soil + mold, g	6462	6838	7138	7276	7195	6993
Wt. of mold, g	2864	2864	2864	2864	2864	2864
Wt. of soil in mold, g	3598	3974	4274	4412	4331	4129
Wet unit wt., g/cm³	1,695	1,872	2,013	2,078	2,04	1,945
Dry unit wt., g/m³	1,500	1,600	1,664	1,666	1,600	1,485
Coeff. Permeab. cm/sec	1.52×10^{-3}	1.68×10^{-4}	3.59×10^{-5}	3.53×10^{-5}	4.01×10^{-4}	8.04×10^{-4}





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