

8. DETAILED BREAKDOWN OF THE CONSTRUCTION COST

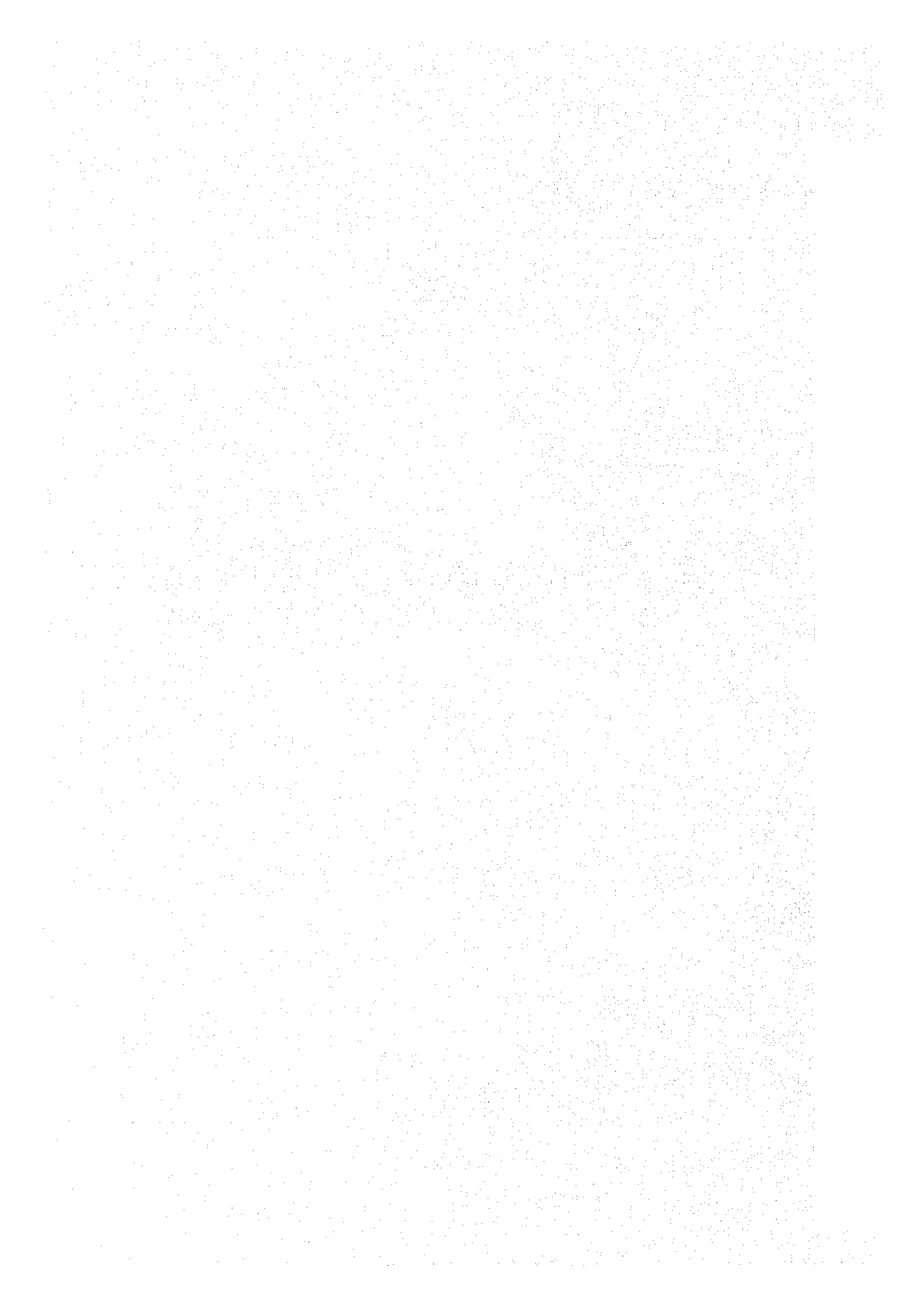


Table III.5.2-5 DETAILED BREAKDOWN OF THE CONSTRUCTION COST (1/7)
 Work Item:A-1.GENERAL ITEMS(1/1)

Item No.	Description	Unit	Quantity	Foreign Currency (Yen)		Local Currency (Rs.)	
				Unit Price	Amount	Unit Price	Amount
1.	Temporary Facilities	L.S.	1	2,000,000	2,000,000	1,350,000	1,350,000
2.	Temporary Buildings	L.S.	1	1,000,000	1,000,000	1,300,000	1,300,000
3.	Site Preparation and Demolition of Well Yards	L.S.	1	3,800,000	3,800,000	81,000	81,000
4.	Site Preparation and Demolition of Piling Yards	L.S.	1	36,000,000	36,000,000	220,000	220,000
5.	Check Boring	L.S.	1	2,100,000	2,100,000	140,000	140,000
6.	Electricity Supply System	L.S.	1	5,700,000	5,700,000	137,000	137,000
7.	Water Supply System	L.S.	1	0	0	645,000	645,000
8.	Radio Communication System	L.S.	1	3,000,000	3,000,000	0	0
9.	Safety Control	L.S.	1	1,500,000	1,500,000	135,000	135,000
10.	Testing Instruments and Apparatus	L.S.	1	800,000	800,000	10,000	10,000
12.	Insurance for Works	L.S.	1	23,000,000	23,000,000	0	0
13.	Insurance for Third Party and Labours	L.S.	1	0	0	130,000	130,000
14.	Transportation Cost for materials,Plant and Equipment	L.S.	1	238,000,000	238,000,000	1,900,000	1,900,000
	Total of A				316,900,000		6,048,000 39,266,029

Table III.5.2-5 DETAILED BREAKDOWN OF THE CONSTRUCTION COST (4/7)
 Work Item:A-2.DRAINAGE WELL(3/3)

Item No.	Description	Unit	Quantity	Foreign Currency (Yen)		Local Currency (RS.)	
				Unit Price	Amount	Unit Price	Amount
6.Horizontal Boring Works for Water Drainage							
6.1	Boring in sandy & clayey soil Diam.= 116 mm	lin.m	0	6,850	0	660	0
6.2	Boring in gravelly soil Diam.= 116 mm	lin.m	75	9,190	689,250	960	72,000
6.3	Boring in cobble stone Diam.= 116 mm	lin.m	125	24,500	3,062,500	1,550	193,750
6.4	Boring in soft rock Diam.= 116 mm	lin.m	0	11,300	0	1,060	0
	sub-total of B.6				3,751,750		265,750 659,015
7.Protection Works for Boreholes							
7.1	Installation of P.V.C. pipe, Diam. = 40 mm	lin.m	2,100	370	777,000	310	651,000
	Installation of S.G. pipe, Diam. = 100 mm	lin.m	200	3,370	674,000	310	62,000
	sub-total of B.7				1,451,000		713,000 865,096
8.Drainage Channel Works							
8.1	Excavation in open	cu.m	50	0	0	110	5,500
8.2	Stone masonry t = 15 cm	sq.m	48	20	960	160	7,680
8.3	Sod facing	sq.m	13	0	0	25	325
	sub-total of B.8				960		13,505 13,606
	Total of B				62,482,950.00		5,353,965.00 11,903,540

Table III.5.2-5 DETAILED BREAKDOWN OF THE CONSTRUCTION COST (5/7)
 Work Item:A-3.HORIZONTAL BORING(1/1)

Item No.	Description	Unit	Quantity	Foreign Currency (Yen)		Local Currency (Rs.)	
				Unit Price	Amount	Unit Price	Amount
1.Horizontal Boring Works for Water Collection on the Ground Surface							
1.1	Boring, sandy & clayey soil Diam. = 66 mm	lin.m	0	6,110	0	530	0
1.2	Boring, gravelly soil Diam. = 66 mm	lin.m	920	7,450	6,854,000	720	662,400
1.3	Boring, cobble stone Diam. = 66 mm	lin.m	500	18,300	9,150,000	1,210	605,000
1.4	Boring, soft rock II Diam. = 66 mm	lin.m	250	8,360	2,090,000	730	182,500
	sub-total of C.1				18,094,000		1,449,900 3,346,546
2.Pipe Installation Works for Boreholes Protection							
2.1	P.V.C. pipe Diam. = 40 mm	lin.m	1,670	370	617,900	310	517,700
	sub-total of C.2				617,900		517,700 582,469
3.Drainage Channel Works							
3.1	Excavation, common	cu.m	15	0	0	110	1,650
3.2	Gunite coating with wire mesh t = 5 cm	sq.m	120	1,310	157,200	190	22,800
3.3	Concrete for catch pit	cu.m	1	1,550	1,550	1,230	1,230
3.4	Form for Item no.3.3	sq.m	4	90	360	440	1,760
	sub-total of C.3				159,110		27,440 44,118
	Total of C				18,871,010		1,995,040 3,973,133

Table III.5.2-5 DETAILED BREAKDOWN OF THE CONSTRUCTION COST (6/7)
 Work Item:A-4.PILING(1/2)

Item No.	Description	Unit	Quantity	Foreign Currency (Yen)		Local Currency (Rs.)	
				Unit Price	Amount	Unit Price	Amount
1. Earth Works							
1.1	Excavation, common	cu.m	460	360	165,600	50	23,000
1.2	Embankment, excavated material	cu.m	414	200	82,800	55	22,770
1.3	Backfilling	cu.m	462	570	263,340	70	32,340
	sub-total of D.1				511,740		78,110 131,752
2. Vertical boring Works for piling							
2.1	Boring, sandy & clayey soil	lin.m	463	33,300	15,417,900	430	199,090
2.2	Boring, gravelly soil	lin.m	2,114	72,400	153,053,600	930	1,966,020
2.3	Boring, cobble stone	lin.m	4,897	139,000	680,683,000	1,600	7,835,200
2.4	Boring, soft rock II	lin.m	1,902	64,800	123,249,600	930	1,768,860
	sub-total of D.2				972,404,100		11,769,170 113,698,321
3. Pile Installation Works							
3.1	Installation of pile	lin.m	8,420	35,300	297,226,000	110	926,200
3.2	Installation of pile	lin.m	576	16,200	9,331,200	70	40,320
	sub-total of D.3				306,557,200		966,520 33,100,398
4. Removal and Installation Works of Machinery							
4.1	Removal and installation of machinery	time	416	1,150	478,400	420	174,720
	sub-total of D.4				478,400		174,720 224,867

9. CORE LOG OF DRILLED CORE SAMPLE

DRILL LOG

HOLE NO. BV-V1 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	30.00m	ELEVATION	55.40m	
SITE		LA BUTTE		COORDINATE	:996.025:1003.297		INCLINATION	VERTICAL	DRILL RIG	VOLTAS
AVERAGE CORE RECOVERY		2.50m/day		DATE	FROM 17/5 TO 20/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER & GROUNDWATER LEVEL	CORE RECOVERY	N. VALUE (TIMES/Cm)	COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
17/5					Clay is cohesive and soft. 4.70-6.40 m; slightly stiff but cohesive.	METAL 86 mm	70			
						DIA 76 mm	80	5/3		
							90			
							90			
							75			
							80			
							80			
							80			
							90			
							95			
							12.00			
							60			
							60			
							75			
							85			
							95			
							90			
							80			
							80			
							60			
							60			
							80			
							80			
							60			
							60			
							70			
							85			
							40			
							95			
							Σ 27.35			
							60			
							70			
							90			

LOG FORM-B

HOLE NO.

*R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. BV-V2 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	30.00 m		ELEVATION	48.89 m	
SITE		LA BUTTE		COORDINATE	:995 992:1003.333		EXCLINATION	VERTICAL		DRILL RIG	MINDRILL
AVERAGE CORE RECOVERY		2.73 m/day		DATE	FROM 14/8 TO 29/8/89		DRILLED	D.D.S.		LOGGED	Y. KOZUKI
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	& BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
					Clayey materials are slightly stuff. 5.60-7.60 m, 12.40-12.60 m; cohesive	METAL ø 86 mm		100			
						DIA ø 76 mm	1.05	100			
							1.10	100			
							1.50	100		$K = 3.40 \times 10^{-3}$	
		13.65	35.24	Clay with gravel			2.35	100			
					Clay is slightly stiff and none cohesive. Max. dia. of gravel is 20 cm. 17.20-18.50 m; clay includes slickensides. 19.60-19.90 m; slickensides are not found.		2.00	100		$K = 4.12 \times 10^{-3}$	
							3.27	100			
		20.20	28.69	Gravel with clay			16.05	75		$K = 1.38 \times 10^{-3}$	
					20.82-21.40 m; volcanic breccias appears to be reddish brown. 24.20 m; light grayish clay		21.50	65			
							21.75	60			
							27.15	60			
		29.70	30.00	18.89	Bedrock (basalt)			80			

LOC FORM-B

HOLE NO.

*R.Q.D is Rock Quality Designation, R.Q.D=(Total length of cylindrical cores longer than 10 cm)/(Total core length) x 100
 *LOGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. BV-V3 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	17.00m	ELEVATION	36.55m		
SITE		LA BUTTE		COORDINATE	:995.964 :1003.402		INCLINATION	VERTICAL	DRILL RIG	GEMCO	
AVERAGE CORE RECOVERY		4.25 m/day		DATE	FROM 9/6 TO 13/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
	1.80	34.75	Clay with gravel		Yellowish brown topsoil: small water contents; a little gravel (1-3 cm)	DIA ø 76 mm		80			
	5.50	31.05	Clay with gravel		3.10-3.50, 4.60-4.75, 5.30-5.50 m; cohesive clay 5.30-5.50 m; slickensides are seen 3.25-3.50 m; very soft Gravel size is less than 1 cm.		nil	85			
	10.60	25.95	Gravel with clay		Clayey materials are seen partly. 7.75, 8.55-8.60, 9.05-9.30 m; clayey materials are cohesive partly.		nil	90			
	13.80	22.75	Clay with gravel		Low cohesive clay materials 11.20 m; slightly stiff and slickensides are seen. 13.20-13.80 m; slightly soft and weak. Gravel size is about 1 cm.		7.45	95		$K = 4.51 \times 10^{-7}$	
	13.17	19.55	Bedrock (basalt)		Fresh basalt; cracks are seen a little. Partly basalt is vesicular.		SWL. 14.45	100			
								5.40			

LOG FORM-B

HOLE NO.

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 •LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 •DEPTH and ELEVATION are in meter
 •DIAMETER is in millimeter

DRILL LOG

HOLE NO. BV-V4 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	25.00m	ELEVATION	22.70m		
SITE		LA BUTTE		COORDINATE	:995.974 :1003.490	INCLINATION	.VERTICAL	DRILL RIG	MINDRILL		
AVERAGE CORE RECOVERY		5.00 m/day		DATE	FROM 23/9 TO 28/9/89	DRILLED	D.D.S.	LOGGED	Y. KOZUKI		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH	
					Clayey materials were recovered predominantly. Recovered core samples are clayey in general. 5.00-5.80, 12.00-14.00, 14.10-14.80 m; predominantly clayey. Slickensides are found frequently below 6 m but slickensides are not found in the section between 14-18 m. 12.00-14.00 m; slightly soft.	METAL ø 86 mm					
						DIA ø 76 mm	nil				
							7.80				
							7.80		$K=1.82 \times 10^{-2}$		
		18.20	4.50 Clay with gravel								
					Moderately stiff clay and cohesion less. Slickensides are found frequently in general but they are not found in the section of 20.00-20.45 m.						
		21.10	1.60 Clay				8.95		$K=1.59 \times 10^{-2}$		
				V V	Little development of cracks are seen. Vesicles are seen very frequently.						
				V V							
				V V							
				V V							
		25.00	-2.30 Bedrock (basalt)	V V							

LOG FORM-B

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 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO.

DRILL LOG

HOLE NO. BV-W1 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	30.00 m	ELEVATION	62.48 m		
SITE		LA BUTTE		COORDINATE	:996.053:1003.280		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		2.50 m/day		DATE	FROM 17/5 TO 1/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	N. VALUE (TIMES/Cm)	COEFFICIENT OF PERMEABILITY (Cm/Sec)	DEPTH
						DIA 76 mm		%			
17/5					Less cohesive clay which appears to be dark grayish deeper than 1.90 m. Weak slickensides are found at 7.40 m. 8.00-8.40 m; cohesive; developed slickensides; 1-2 mm sub-angular gravels are included.			100	52/		
							nil	85			
								100			
								60			
								50			
								75			
								90			
18								80			
19	9.30	53.18	Clay with gravel				4.00				
20					Recovered core samples are composed of basaltic gravel with clayey materials. Clay is highly cohesive.		8.50	100		$K=3.01 \times 10^{-2}$	
21					14.50-14.70 m; weak slickensides		9.50	100			
22					15.70-15.80 m; gravelly (several mm in dia.); dark brownish high cohesive clay			80			
23					19.90-20.00 m; sub-angular gravels smaller than 5 mm in dia.; weak slickensides			60			
24					20.30-20.30 m; weak slickensides are seen.			100			
25					12-13 m; drilling water was lost.		13.05	80			
26								90		$K=2.20 \times 10^{-2}$	
27								100			
28							SWL 18.11	100			
29								95			
30								100		$K=2.62 \times 10^{-2}$	
31								95			
1/6	20.95	41.53	Gravel with clay		slightly cohesive clay			100			
					22.10-22.50 m; clayey; flat slickensides are seen at 22.20 m.			80			
								85			
	24.60	37.88	Clay with gravel				nil	100			
							nil	80			
	25.70	36.78	Gravel with clay		Basaltic gravel with a little clay			60		$K=6.04 \times 10^{-3}$	
								70			
					Recovered cores are gravelly; vesicles are developed frequently.			80			
					29.20-29.40, 29.70-29.75 m; volcanic breccias are clayey by weathering.			90			
								100			
								100			
	30.00	32.48	Bedrock (basalt)					100			

LOG FORM-B

*R.Q.D is Rock Quality Designation, R.Q.D=(Total length of cylindrical cores longer than 10 cm)/(Total core length) x 100%
 *LUGEON VALUE is l/min/ft under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO.

DRILL LOG

HOLE NO. BV-W3 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	40.00m	ELEVATION	32.11m
SITE		LA BUTTE		COORDINATE	-996.077 : 1003.430		VERTICAL	DRILL RIG	GEMCO
AVERAGE CORE RECOVERY		4.00 m/ddy		DATE	FROM 30/5 TO 8/6/89		UNILLED	LOGGED	M. NEGISHI
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	DIAMETER	LEVEL	COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
					0.0-1.50 m; soft 1.50-3.99 m; slightly stiff clay	DIA 76 mm	nil		
	3.90	28.21	Clay with gravel						
					Mainly basaltic gravel; clayey materials partly 4.15-4.60 m, 4.80-5.50 m; slightly stiff clayey materials. 7.45-7.50 m; high cohesive clay; several non basaltic sub-angular gravels are included. 8.10-8.50 m; soft clay 16.25-16.85 m; slightly stiff clay; weak slickensides are included. High cohesive clay at 20.35 m. Soft high cohesive clay at 24.50 m.				
							nil		
							3.19	$K = 8.64 \times 10^{-5}$	
							SWL 12.93 (6/12)		
							15.07		
							15.73	$K = 5.01 \times 10^{-5}$	
	26.30	5.51	Gravel with clay						
					Soft cohesive clay 28.10-28.85 m; very soft		7.40		
	29.20	2.91	Clay with gravel						
					Clay is sandy and less cohesive.		5.36		
							4.18		
	37.90	-5.79	Gravel with clay						
					Cracks are developed frequently.				
	38.00	-7.89	Bedrock(basalt)				4.22		

LOG FORM - B

LOG FORM - B

*R.Q.D is Rock Quality Designation. R.Q.D = Total length of cylindrical cores longer than 10 cm. Total core length = 100%
 *LUGEON VALUE is 1 m in under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO.

HOLE NO.

DRILL LOG

HOLE NO. BV-W4 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	13.00m	ELEVATION	15.43m	
SITE		LA BUTTE		COORDINATE	:	EXCLINATION	VERTICAL	DRILL RIG	GEMCO	
AVERAGE CORE RECOVERY		3.25 m/day		DATE	FROM 30/9 TO 4/10/89	DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		DEPTH
								%	cm	
	0.50	14.93	Gravel	△△△	Asphalt with subgrade gravel					
	1.30	14.13	Clay with gravel		Cohesive clay					
	2.00	13.43	Gravel with clay		Clay materials were washed out					
					Clay is slightly stiff and less cohesive; Only sub-rounded gravel of less than 1 cm in dia. is included partly. 11.25-11.40 m; highly cohesive 12.40-12.60 m; cohesive and soft		nil			
							6.42			
	12.60	2.83	Clay with gravel							
	13.00	2.43	Clay		Slightly stiff clay					

LOG FORM-B

HOLE NO.

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 *DEPTH and ELEVATION are in meter
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DRILL LOG

HOLE NO. BV-X2 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	25.00m	ELEVATION	37.95m		
SITE		LA BUTTE		COORDINATE	:996.187 :1003.371		INCLINATION	VERTICAL	DRILL RIG	GEMCO	
AVERAGE CORE RECOVERY		5.00m/day		DATE	FROM 15/6 TO 20/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
	1.30	28.19	Clay with gravel		Soft topsoil Clay is soft in general and less cohesive. 5.60-5.70 m; highly cohesive; slickensides are not seen 7.40-8.40 m; slightly stiff 10.25-11.85 m; very soft	DIA 76 mm					
							SWL 6.32				
	11.85	17.64	Clay with gravel		Gravel is 25 cm in max. dia. 14.40-14.75 m; soft clay 20.45-20.70 m; highly cohesive; frequently developed slickensides are seen.		nil			$K=1.24 \times 10^{-3}$	
							7.38			$K=1.16 \times 10^{-3}$	
							8.45			$K=1.61 \times 10^{-3}$	
							6.92				
	20.25	25.00	Gravel with clay								

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DRILL LOG

HOLE NO. BV-X3 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS			DEPTH	35.00m	ELEVATION	29.01m		
SITE		LA BUTTE		COORDINATE	:996.206 :003.429		DRILL RIG	MINDRILL		
AVERAGE CORE RECOVERY		2.92 m/day		DATE	FROM 22/8 TO 4/9/89		DRILLED	D.D.S.		
LOGGED								Y. KOZUKI		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	COEFFICIENT OF PERMEABILITY (cm/sec)	DEPTH
					Banked soil shallower than 1.80 m 1.80-3.40 m; cohesive clay 3.40-6.80 m; less cohesive 3.80-3.85 m; very soft 6.50-8.70 m; soft	DIA 76 mm				
	6.97	22.11	Clay with gravel							
					Clay is less cohesive in general. 8.55-8.65 m, 16.60-19.80 m; soft 16.60-19.80 m; highly cohesive; slickensides are observed.				$K = 6.16 \times 10^{-3}$	
							nil			
							nil		$K = 3.63 \times 10^{-3}$	
							14.43			
							18.87		$K = 1.69 \times 10^{-3}$	
							15.61			
							15.34			
	28.15	0.86	Gravel with clay							
					Cracky basalt 32.70-32.80 m, 33.05-33.10 m; weathered volcanic breccias are included.					
							15.17			
							14.82			
							15.17			
							14.78			
							15.27			
	4.33	-5.99	Sedrock (basalt)				16.98			

LOG FORM-B

LOG FORM-B

• R.Q.D is Rock Quality Designation, R.Q.D. = Total length of cylindrical cores longer than 10 cm / Total core length x 100%
 • LANGE'S VALUE is L'min/m under injection water pressure of 10kg/cm²
 • DEPTH and ELEVATION are in meter
 • DIAMETER is in millimeter

HOLE NO. HOLE NO.

DRILL LOG

HOLE NO. BV-Y1 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	18.00 m	ELEVATION	44.43 m		
SITE		LA BUTTE		COORDINATE	:996.304 :1003.305		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		3.00 m/day		DATE	FROM 2/6 TO 8/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	& BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
					Less cohesive 4.00-4.20 m; yellowish and soft; sub-angular gravels of 2-3 mm in dia. are included.	METAL ϕ 86 mm		100			
	4.20	40.23	Clay with gravel				nil	100			
	5.50	38.93	Gravel with clay		4.85-4.90 m; stiff clay; weak slickensides are observed.	DIA ϕ 76 mm	nil	95			
	7.35	37.08	Clay with gravel		Cohesive soft clay Weak slickensides are included in general. 6.90-7.00 m; relatively stiff			100			
					8.35-8.63 m; slightly cohesive; slickensides are observed. Scratched traces are seen in slickensides.			100		$K=1.41 \times 10^{-7}$	
	13.00	31.43	Gravel with clay				2.10	100			
					Cracky in general 13.00-13.10 m; recovered cores are weathered and appear to be reddish brown. 15.65-15.80 m, 16.55-17.00 m; volcanic breccias are included.	SWL ∇ 13.70 (6/9)		100		$K=1.08 \times 10^{-8}$	
	18.00	26.43	Bedrock (basalt)					100			

LOG FORM-B

* R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 * LUGEON VALUE is 1/min/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

HOLE NO.

DRILL LOG

HOLE NO. BV-Y2 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	22.00m	ELEVATION	29.49 m		
SITE		LA BUTTE		COORDINATE	:996.325 :1003.369		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		3.67 m/dry		DATE	FROM 9/6 TO 15/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
					less cohesive stiff clay	METAL					
	4.00	25.49	Clay with gravel			86 mm					
	5.75	23.74	Gravel with clay		Clay is sandy, less cohesive, and soft.	DIA	nil				
	6.40	23.09	Clay with gravel		Slightly cohesive	76 mm					
	8.40	21.09	Clay with gravel		Clay is soft and less cohesive and appears to be light grayish.						
					8.40-9.55 m; highly cohesive clay		1.27				
	11.15	18.34	Gravel with clay				0.95			$K=1.36 \times 10^{-2}$	
	15.50	13.99	Clay with gravel		Clay is cohesive in general. 12.40-12.70 m, 13.55-13.75 m; sandy clay						
	18.90	10.59	Gravel with clay		Clay is relatively stiff and sandy.						
	22.00	7.49	Bedrock (basalt)		Cracky basalt 19.60-20.60 m; fractured; weathered thin layers of volcanic breccias are included.		SWL 18.38				
							4.07				
							5.07				

LOG FORM-B

HOLE NO.

* R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 * LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

DRILL LOG

HOLE NO. BV-Y3 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	10.00 m	ELEVATION	19.77 m		
SITE		LA BUTTE		COORDINATE	:996.325 :1003.435		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		2.50 m/day		DATE	FROM 9/6	TO 14/6/89	DRILLED	D.D.S.	LOGGED	M. NEGISHI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
9/6	0.90	18.87	Clay with gravel		Less cohesive clay	METAL DIA 86	1.50	100			
					Clay is less cohesive 5.80-6.00 m; highly cohesive; slickensides are observed.	DIA 76 mm		60			
								70			
10	6.00	13.77	Gravel with clay				nil	100			
	6.40	13.37	Clay		Highly cohesive clay; no gravel is included.			100			
11					Clay which is less cohesive is included predominantly.		0.95	100			
					7.50-7.75 m; soft clay			100			
14	10.00	9.77	Gravel with clay			SWL 8.40		100			
								100			

LOG FORM-B

* R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 * LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

HOLE NO.

DRILL LOG

HOLE NO. BV-Z1 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	20.00m	ELEVATION	45.73m		
SITE		LA BUTTE		COORDINATE	:996.384 :1003.275		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		4.00m/day		DATE	FROM 15/9 TO 20/9/89	DRILLED	D.D.S.	LOGGED	Y. KOZUKI		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	m		
	1.20	44.53	Clay		Less cohesive in general 1.05-1.20 m; soft	METAL					
	3.70	42.03	Clay with gravel		Clay is sandy, weak, and less cohesive.	86 mm					
				Δ ×	Tuff breccias including basaltic gravels; yellowish gray; consolidated but brittle partly.	DIA					
				× Δ	8.10-8.55, 12.05-12.60, 13.00-13.50 m; lava layers are sandwiched.	76 mm	4.25			$K=1.78 \times 10^{-7}$	
				Δ ×							
				× Δ							
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				Δ ×			8.17			$K=9.48 \times 10^{-7}$	
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DRILL LOG

HOLE NO. BV-72 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	24.00m	ELEVATION	29.03m				
SITE		LA BUTTE		COORDINATE	-996.414 1003.323		INCLINATION	VERTICAL	DRIILL RIG	GEMCO			
AVERAGE CORE RECOVERY		4.00 m/day		DATE	FROM 7/9 TO 12/9/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER & GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)				DEPTH
							%	cm					
	0.75	28.28	Clay with gravel		Topsoil	DIA ø 76 mm	75		K = 2.00 x 10 ⁻⁷				
					Clay is slightly stiff and cohesive. Slickensides are recognized frequently.								
	7.85	21.18	Gravel with clay		Clay is dark grayish and highly cohesive. 10.00-10.60 m; intensively soft		4.72		K = 1.84 x 10 ⁻⁷				
					Clay was recovered only a little. 15.65-15.70 m; weak slickensides are seen. 16.25-16.30 m; slightly cohesive								
	10.80	18.23	Clay with gravel				8.91		K = 2.80 x 10 ⁻⁷				
	18.70	10.33	Gravel with clay				9.27		K = 2.80 x 10 ⁻⁷				
					Recovered samples are cracky basalt and recovered as cylindric cores which are mostly weathered. 20.35-21.30, 22.55-23.30 m; weathered clayey volcanic breccias are included.								
	24.00	5.03	Bedrock (basalt)				10.32		K = 2.80 x 10 ⁻⁷				
							9.02						

LOG FORM-B

- * R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindric cores longer than 10 cm) / (Total core length) x 100%
- * LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
- * DEPTH and ELEVATION are in meter
- * DIAMETER is in millimeter

HOLE NO.

DRILL LOG

HOLE NO. BV-Z3 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	24.00m	ELEVATION	21.64m	
SITE		LA BUTTE		COORDINATE	:996.433 :1003.373	INCLINATION	VERTICAL	DRILL RIG	GEMCO	
AVERAGE CORE RECOVERY		4.00m/day		DATE	FROM 14/9 TO 21/9/89	DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		DEPTH
						DIA 76 mm		%	cm	
					Clay is soft and less cohesive.					
	3.95	17.69	Clay with gravel				nil			
					Clayey materials are included partly and they are cohesive in general. Sub-angular gravels are included at 8.60, 9.70, 10.00 m. 10.05-10.10 m; very soft clay					
	10.35	11.29	Gravel with clay				5.11			
					Clay is less cohesive in general. 12.70 m; cohesive clay 13.90m; cohesive clay; slickensides are observed. 16.95-17.00 m; stiff slickensides are included.					
	18.40	3.24	Clay with gravel				5.15			
					Cracky basalt; weathered thin volcanic breccia layers are sandwiched partly.					
	21.24	21.00	Bedrock (basalt)				8.42			
		-2.36					8.42			

LOG FORM-B

HOLE NO.

*R.Q.D is Rock Quality Designation, RQD=(Total length of cylindrical cores longer than 10 cm)/(Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. BV-74 SHEET NO. OF

PROJECT		STUDY ON LANDSLIDE PROTECTION PROJECT IN PORT LOUIS				DEPTH	13.00m	ELEVATION	12.30m		
SITE		LA BUTTE		COORDINATE	996.474 1003.427		INCLINATION	VERTICAL	DRILL RIG	MINDRILL	
AVERAGE CORE RECOVERY		3.25 m/day		DATE	FROM 17/6 TO 30/6/89		DRILLED	D.D.S.	LOGGED	Y. KOZUKI	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		COEFFICIENT OF PERMEABILITY (Cm/sec)	DEPTH
								%	cm		
17/6					Less cohesive clay Scratched traces are seen in slickensides.	METAL ø 86 mm		85			
								90			
19/6							nil	85			
								90			
5/5	4.80	7.50	Clay with gravel		Stiff clay in general 5.60-6.00 m; very soft clay	DIA ø 76 mm		nil			
								70			
	6.40	5.90	Clay					85			
								90			
	7.20	5.10	Weathered bedrock	v v } v v }	Appears to be reddish brown			90			
								95			
				v v } v v }	Basalt including volcanic breccia bands. Vesicular basalt shallower than 8.7 m 11.40-12.20 m; fractured; volcanic breccias are weathered and clayey.		SWL ▽ 8.79	100			
								80			
				v v } v v }				85			
								85			
30/3	13.00	-0.70	Bedrock (basalt)	v v }				70			

LOG FORM-B

HOLE NO.

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is 1/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

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