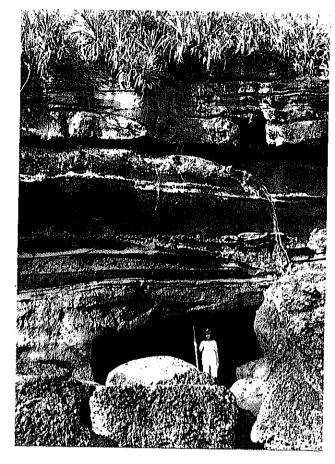
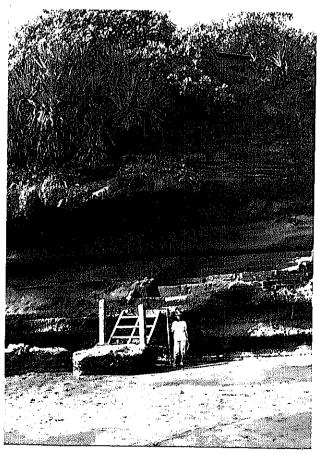
Photographs of the sea cliffs in Tanah Lot (1)

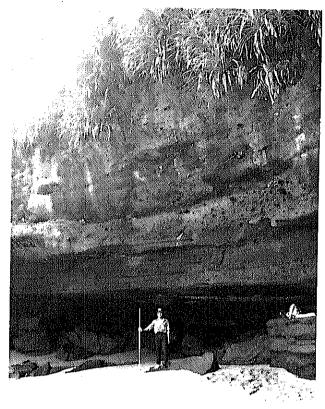


The sea cliff at geological section line A-A', Tanah Lot Beach.



The sea cliff at geological section line B-B', Tanah Lot Beach.

Photographs of the sea cliffs in Tanah Lot (2)

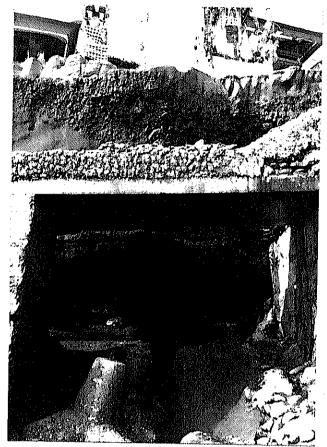


The sea cliff at geological section line C-C', Tanah Lot Beach.

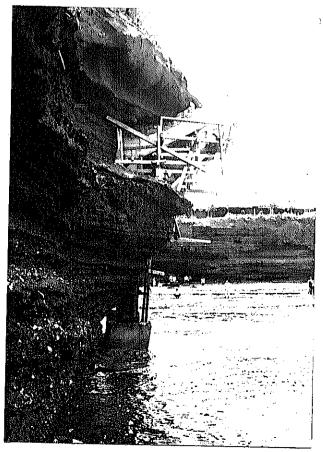


The sea cliff at geological section line D-D', Tanah Lot Beach.

Photographs of the sea cliffs in Tanah Lot (3)



The sea cliff at geological section line E-E', Tanah Lot Island.



The sea cliff of the southern side, Tanah Lot Island.

Photographs of the sea cliffs in Tanah Lot (4)

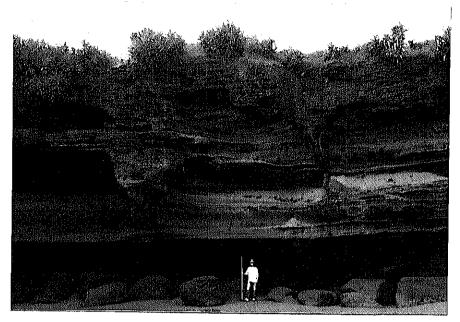


The sea cliff at geological section line F-F', Tanah Lot Beach.

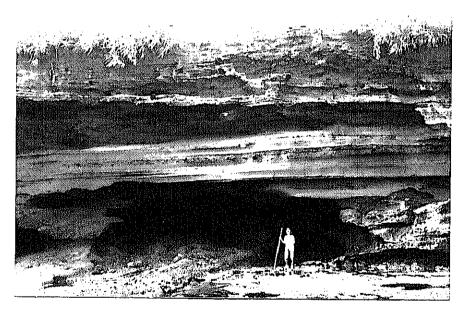


The sea cliff at geological section line G-G', Tanah Lot Beach.

Photographs of the sea cliffs in Tanah Lot (5)



The sea cliff at geological section line H-H', Tanah Lot Beach.



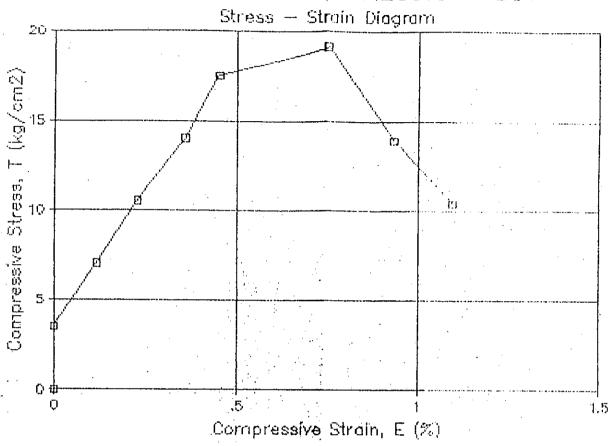
The sea cliff at geological section line I-I', Tanah Lot Beach.

Results of Unconfined Compression Test

				Test Pi	Piece	Water	Unit	Compressive	Rebound
Sample No.	Locality	Rock Name	Test Condition	Diameter (cm)	Length (cm)	Content (%)	Weight (g/cm ³)	Strength (kg/cm ²)	Number of Rock
181	10 m SE from section H-H'	Volcanic breccia in the lower part	Natural	5.68	11.63	16.7	1.8	19.2	25
182 A	4 m SR from		Ditto	5.52	11.07	23.3	1.5	32.9	
182 B	section G-G'	Ditto	Dícto	5.58	9.07	29.3	1.5	19.3	32
183 A	5 m SE from		Ditto	5.61	10.72	9.95	1.2	17.4	
183 B	section D-D'	Ditto	Ditto	5.55	9.32	5.8	1.4	16.0	29
184	6 m NW from section E-E'	Ditto	Ditto	5.61	9.31	10.6	1.9	49.8	33
185 A	ll m SR from		Ditto	5.61	11.80	2.5	2.0	79.1	
185 B	section E-E'	Ditto	Ditto	5.61	11.63	14.9	1.9	0.09	32
A	Average			•		18.7	1.7	36.7	

Note: Two tests, A and B were done about one sample.

				Unconf	ined Compr	essio	n Tes	st			
Name Local Measu	ity	ple _ Ta apaci	Breccia nahlot Ba ty of test	machine .15.			peed	Sic Tes of	e27 Juni gnaturest machine No. compression _		%/min
				Sc f/cm²/a divisi			к _с), 45	54kgf/a di	vision of	scale
in dition	Aver diam	eter .cm	5.68 x 5.68	Section Ao cm ²	32.26				eight of sampl		675.50
piece in ral condit	Heig Lo Weig	Сm	11.63	Volume V cm ³	375.81		contents	ir	eight of sample dry conditio	e n mdg	579.00
Test pie		. g	675.50	Density g/cm ²	1.80	j	8 0	Wa	ater contents	n-ma mm ×100	16.67
Reduce length compre	by ssion		pressive ain E %	Reading of test machine R	p = R:k kgf/cm ²	as i sect			Compressive stress $\sigma = p(1 - \frac{\varepsilon}{100})$ kgf/cm ²	Unconfi compres strengt kgf/c	sive h
0,	0 0 ,133	J	0 0 .1144 .2253	0 250 500 750	0 3.525 7.05 10.58	1 0.	9988 9977		0 3.525 7.042 10.556	0 3.58 7.16 10.74	
0.	.262 .415 .522 .870	0	.3568 .4488	1000 1250 1370	14.10 17.63 19.32	0.	9964 9955 9925		14.050 17.551 19.175	14.32 17.85	
	.082	{─	.9303 .0920	1000 750	14.10		9907 9890		13.968 10.464	14.32 10.74	
** *** **** ****							·				
** ***											

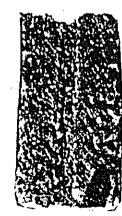


Sketch of test piece

Befor test



After test



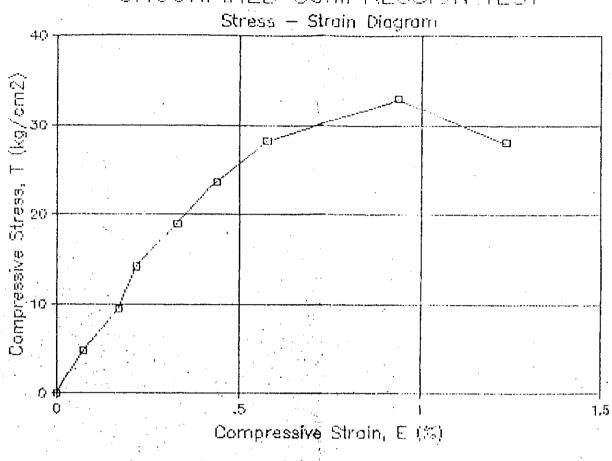
Relation between compression axis and bedding plane

Pai	rale	el.		
	Nat Wit			
		-	 - -	

Unconfined Compression Test

Sampl	e No.	182	<u>A</u>					Dat	e <u>27 Juni.</u> l	.988	
Name	of samp	ole	Volcaoc 1	Breccia	,			Sic	nature		
Local	ity	Tana	hlot Bal	i				Tes	st machine No.		
Measu	ring c	apacit	y of test	machine 15.0	000 kgf		Speed	of	compression _		~%/min
_							tK_	0.4	54kgf/a di	vision of	scale
$k = \frac{A}{A}$	<u> </u>	,0190	kgf	/cm²/a divisi	on of scale	<u>.</u>		,			
ce in condition	Aver diam	eter cm	5.52	Section Ao cm ²	23.92			ir	ight of sample natural cond	ition mn g	393,80
A1		cm	11.07	Volume V cm ³	264,79	-	ter ntents		ight of sample dry condition		319.50
Test pie natural	Weig m		393.80	Density g/cm ²	1.49		Wat	Wa	iter contents	n-md mm ×100	23,26
Reduce length compre	by ssion	Comp stra	ressive in £	Reading of test machine	p = R·k kgf/cm ²	as se	mpens for ction $1-\frac{\varepsilon}{100}$		Compressive stress $\sigma = p (1 - \frac{\varepsilon}{100})$ kgf/cm ²	Unconfi compres strengt kgf/c	sive h
0			0	0.	Ó		. 1		0 '	0	
0.0			07227	250	4.75		0.99	93	4.747	4.79	,
0.18	88		1698	500	9.50		0.99	83	9.484	9.57	 ,
0.2	42		2186	750	14.25		0.99	78	14.218	14.36	
0.3	65	0.	32792	1000	19.00	· .	0.99	67	18.937	19.14	
0.4	86	0.	43902	1250	23.75		0.99	56	23,646	23,93	}
0,6	35	0.	57362	1500	28.50		0.99	43	28,337	28.71	
1.0	37	0.	9360	1750	33.25		0.99	06	32.937	33,50	
1.3	68	1.	23577	1500	28.50		0.98	76	28.148	28,71	
:				••							
· · · · · · · · · · · · · · · · · · ·											
						<u></u>					
								-			
		 		<u> </u>			<u></u>				
										The first from two real man	

UNCONFINED COMPRESSION TEST



Sketch of test piece

Befor test



After test

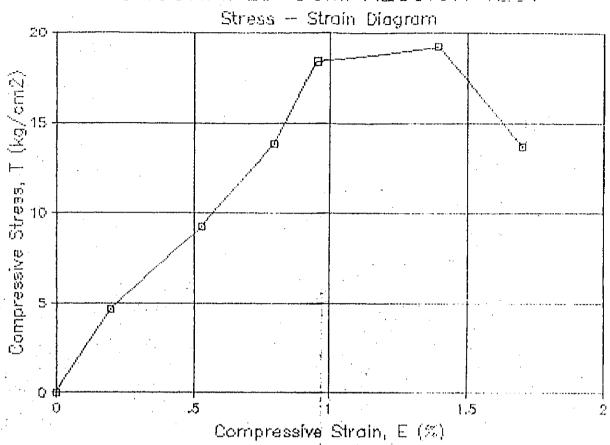


Relation between compression axis and bedding plane

Paralel at Natural Cond tion

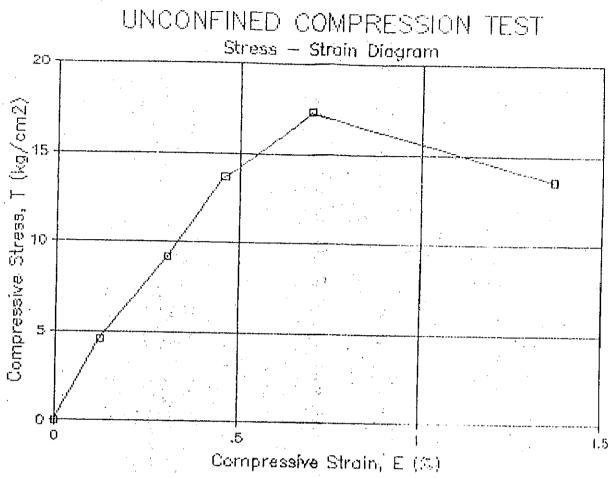
- 250 -

		i		Unconf	ined Compr	essic	on Tes	:t			
Name		ple V	Olcanic B					Da Si	te June 27,	1988	
			lot - Bal					Te:	st machine No.		
Meası	uring c	apaci	ty of test	machine <u>.15</u> ,	000_kgf	S	Speed	of	compression _		_%/min
	piece <u>K</u> 0,		kgi	Sca			к _(0.4	54kgf/a di	vision of	scale
ce in condition	Aver diam		5.58	Section Ao cm²	24.44				eight of sampl n natural cond		331
oiece i al cond		Cm	9.07	Volume V cm ³	221,67		Water		eight of sampl n dry conditio	e	256
Test piece natural con	Weig m	ht .g	331.00	Density g/cm ²	1.49		Water	Wa	ater contents	· — — — — -	29.30
Reduce length compre A	h by ession		pressive ain E	Reading of test machine R	p = R·k kgf/cm ²	as sec	pensa for tion E 100		Compressive stress $\sigma = p(1 - \frac{\epsilon}{100})$ kgf/cm ²	Unconfi compres strengt kgf/c	sive h
0			0	0	0		1 .	· . · ·	0	0	
0.1			0.193	250	4,65		0.9981	<u> </u>	4.641	4.51	
	 180		529	500	9.30		0,9947		9.251	9,02	
0.7	15	. (788	750	13,95		992]	2	13.840	13.53	
0.8	362	(950	1000	18,60	1	9905	5	18,420	18.04	
1.2	262.]	1.391	1050	19.53	- (9861		19.259	18.94	
1.5	45]	1.703	750	13.95		.9829)7 	13,712	13.53	
											
			· · · · · · · · · · · · · · · · · · ·	<u></u>	:	<u></u>					
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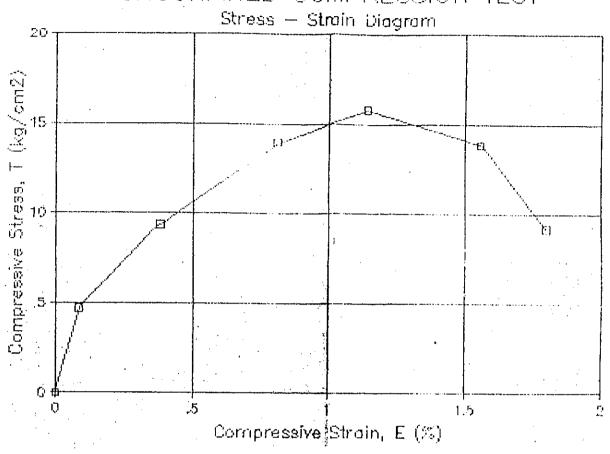
Sketch of	test piece	Relation betwee
Befor test	After test	compression axi and bedding plan
		Paralel At Natural Condition

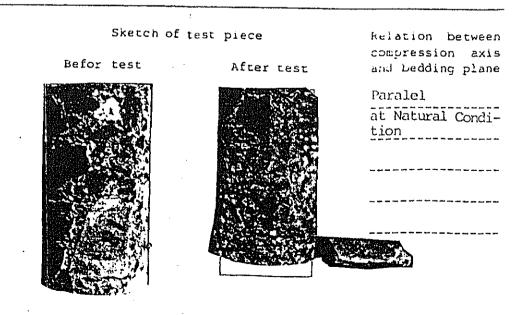
				Unconi	fined Compa	ess	ion Te	st			
Sampl	le No.	183-	-A					D:	ate June 27,	1988	-
Name	of sam	ple V	Olcanic E	- Breccia							
Local	ity _	[anah]	ot - Bali						ignature		
Measu	ring c	apaci	ty of tes	t machine 15,0	000 kaf	٠.	Cnaad		est machine No.		
					^gr		speed	OI	compression		_%/min
	piece		kg	f/cm²/a divisi	ale coeffi	cier e	nt K _	0.	.454 kgf/a di	vision of	scale
Test piece in natural condition	<u> </u>	eter cm	5.61	Section Ao cm ²	24.71				eight of sampl	lition	376.50
piece al con		. cm	10,72	Volume V cm³	264.89		Water contents		eight of sampl n dry conditio		256.90
rest natur	Weig m	ht , g	376,50	Density g/cm ²	. 1.24		Wat	. W	ater contents		46.56
		<u>. </u>				γ				ર	,
Reduce length			pressive ain	Reading of test machine	p = R k		mpensa	ate	•	Unconfi	
compre	ssion		,	inddiziic		ł	for		stress	compres: strengt	
, , <u>r</u>	•		€ %	R	kgf/cm²		$1-\frac{\varepsilon}{100}$		$\sigma = p \left(1 - \frac{\epsilon}{100}\right)$		• •
	no m						100	•	kgf/cm ²	kgf/cr	n ²
						0	0				
0,12			.1194	250	4.60	0	.9988		4.59	4.58	
-0.32			3031	500	9.20	<u> </u>	.9970		9.17	9.15	
0.49			4402	750	13.80	-0	.9956		13.74	13.73	
0.74		0	6959	950	17.48	0	.9930		17.36	17.39	
1.46	6	<u>)</u>	.3675	750	13.80	_0	.9863		13.61	1373	
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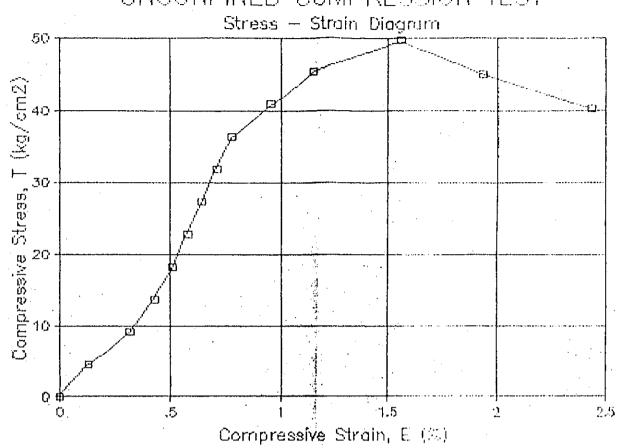
	Sketch	of test piece	Relation between
	Befor test	After test	compression axis
			Paralel
			At Natural Condition
·			

				Und	onf	ined Compre	ssi	ion Tes	st			
Locali Measur Test p	of sam	ple Vo	olcanic En lot - Bali ty of test	i machine	Sc	ale coeffic	ien		Sic Tes	te June 27, gnature st machine No. compression		%/min
$\begin{cases} ce & in \\ condition \\ \hline \\ x \\ x$	Aver diam Heig	age eter cm	5.55	Section Ao cm Volume	2	24.18		w	i:	eight of sampl n natural cond	ition mn g	317.20
Test piece natural con	Weig	cm ht g	9,32	V cm Density g/cm	, -+	225.36		Water contents	i:	n dry conditio	n md g	229.80 5.80
Reduce length compres	by	Comp str	pressive ain ε	Reading of test mach		p = R·k kgf/cm ²	as	ompensation $1-\frac{\varepsilon}{100}$	ite	Compressive stress $0=p(1-\frac{\varepsilon}{100})$ kgf/cm ²	Unconfi compres strengt kgf/c	sive h
0 0.07 0.35	2	0.0	0 08369 3777 3047	0 250 500 750		0 4.75 9.50 14.25		1 0,9991 0,9962 0,9919	.6	0 , 4.75 9.46 14.13	0 4.59 9.17 13.76	
1,06 1,45 1,67	50	1.5	1406 5557 7961	850 750 500	-	16.15 14.25 9.50		0.9886 0.9844 0.9820		15.97 14.03 9.33	15.60 13.76 9.17	V .
										,		
												.,



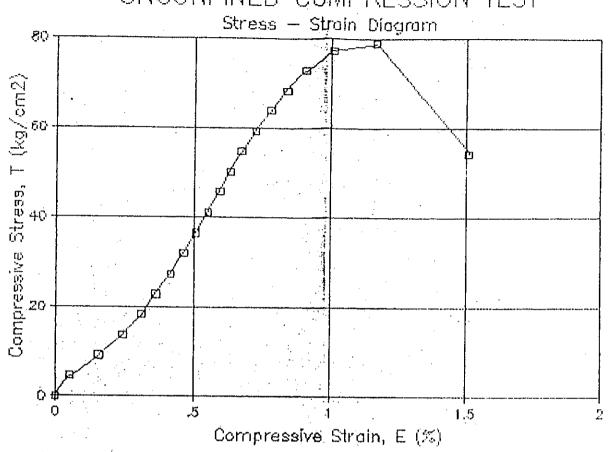


		<u> </u>		Unconf	ined Compre	ession Te	st			
Name Local	lity	ple \ Tanahl	/olcanic E lot - Bali ty of test		000 kgf	Speed	Siç Tes	June 27, mature t machine No. compression		 %/min
	piece K Ao		***	Sc f/cm²/a divisi			0.4	54kgf/a di	vision of	scale
n ition	Aver	-	5.61	Section Ao cm ²	24,72			eight of sampl n natural cond	ition	433.70
Test piece in natural condition	ļ	cm	9.31	Volume V cm ³	230.14	ter	We	eight of sample dry condition dry condition the dry contents make the contents make the dry contents make the condition of the	e n md g	392
Test	Weig m	nt g	433.70	Density g/cm ²	1.88	\$ O	Wa	ter contents	<u>n-md</u> mm ×100	10.64
Δ.			pressive ain .c	Reading of test machine R	p = R·k kgf/cm ²	Compens as for section $\frac{\varepsilon}{100}$		Compressive stress $\sigma = p (1 - \frac{\varepsilon}{100})$ kgf/cm^{2}	Unconfi compres strengt kgf/c	sive h
)		0	0	. 0	1		oʻ	0	•
0.1	L20	. 0	:129	250	4.60	0.998	7	4.59	4.67	
0.2	296 :	<u> </u>	318	500	9,20	0.9968	8	9.17	9.34	
0.3	<u> </u>	0	.429	750	13,80	0,995	7	13.74	14.01	
0.4	173 	0	508	1000	18.40	0.9949	9	18.31	18.69	
0.5	538	-0.	528	1250	23.00	0.9942	2	22.87	23,30	
0.6	500	0	644	1500	27.60	0.9936	5	27.42	27.91	
0,6	664	0.	.713	1750	32.20	0,9929	9	31.97	32.51	
0.7	724	0.	.778	2000	36.80	0.9922	2	36.51	37.13	
0.8	390	0.	.956	2250	41.40	0.990	4	41.00	41.63	
1,0		 	368	2500	46.00	0.986	3	45.37	46.14	
1.4		<u> </u>	.557	2750	50.60	0.9844		49.81	50.64	
1.8	800	<u> </u>	.719	2500	46.00	0,9828		45.21	46.15	
2.2	262	$\left -\frac{2}{} \right $.215	2250	41.40	0.9779	-	40.48	41.63	
. — — — —						_ _			·	
		1		i	l .		i		•	



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9		
Sketch of Befor test	test piece After test	Relation betwee compression axi and bedding plan
		Paralel At Natural Cordition

		 		Unconf	ined Compr	essi	ion Tes	st			
Sampl	₂e No.	185-4	Α					Da	te June 27,	1988	
Name	of sam	 ple \	Volcanic E	reccia .					gnature		
Local	ity	Tanal	hlot - Bal	.i					st machine No.		
Measu	ring c	apaci	ty of test	t machine 15	,000 kaf				compression		
·.	·			-			- .				- s/mrn
Test	piece	No.		Sc	ale coeffi	cier	nt K	0.	.454 kgf/a di	vision of	coule
k = -	<u>K</u> 0	.0184		f/cm²/a divisi							SCATE
Α	VO		^{xg.}	r/cm /a divisi	on or scal	e 					
n C	Aver	age		Section	24 27			W	eight of sampl	e	
ce in condition	diam	eter cm	5.61	Ao cm²	24.27				n natural cond		572.60
in ondi	Heig			Volume			s	W	eight of sampl	mn g	
ece	Lo	cm	11.80	V cm ³	291.70		Water		n dry conditio		507
Test pie natural	Weig	ht	 	Density			ate			md g	
est atu	10		572.60	g/cm²	1.96		3 0	Wa	ater contents ^m	mm ×100	2.49
e c				*					· · · · · · · · · · · · · · · · · · ·	₹	
Reduce		l '	pressive	Reading of	p = R k	1	mpensa	te	Compressive	Unconfi	ned
length compre		str	ain	.test machine		ľ	for		stress	compres	
ΔΙ			Ε	R	kgf/cm ²				$a = b \left(1 - \frac{100}{100}\right)$	strengt	n ka
14	mm		*	•			$1-\frac{\varepsilon}{100}$		kgf/cm ²	kgf/c	n ²
. 0			0	0	0		-1		0	0	
0.06	2		0.0525	250	4.60	(0.9947	5	4.58	4.67	
0.18	6	(0.1576	. 500	9,20		0,9984	2	9.18	9.34	
0.28	6	(2424	750	13.80	(0.9976		13.77	14.01	
0.36	6	(0.3102	1000	18.40	(9969		18.34	18.67	
0.42	6		0.3610	1250	23.00	_ (9964		22.92	23.34	
0.49	0		.4152	1500	27.60		9958		27.48	28.01	
0.54	6	0	.4627	1750	32.20	(9954		32.05	32.68	-
0.59		<u></u>	5067	2000	36.80	(.9949		36.61	37.35	
0.65	0		5508	2250	41.40		9945		41.17	42.02	
0.70		{ -'	5932	2500	46.00	L	.9941	· 	45.73	46.69	
0.74			0.6322	2750	50.60).9937 ————		50.28	51.35	
0.79			6737	3000	55.20	-	.9932		54.80	56.02	
0.850	0	LC	7203	3250	59.80	0	.9928		59.37	60.69	
0.91	5	c	7754	3500	64.40		.9922		63.90	65,36	
0.98		}	.8314	3750	69.00		9917		68.43	70.03	
1.062		} 	9000	4000	73.60	0	9910		72.94	74.74	
1,188			.0070	4250	78,20		.9899	_	77.41	79.37	
$-\frac{1.372}{1.372}$			1627	4350	80.04		.9884		79.11	81.23	
1.780) 	1	.5084	3000	55,20	0	.9849	_	54,37	56.02	
			ļ	;				- [



Sketch of test piece

Befor test

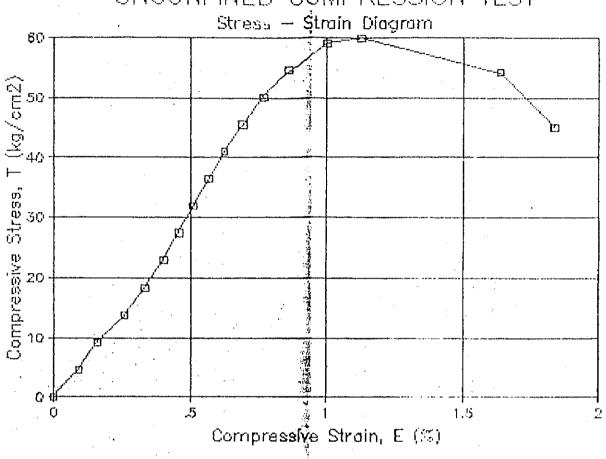
After test

Relation between compression axis and bedding plane

Paralel At Natural Condition

Unconfined Compression Test Sample No. 185-B Date June 27, 1988 . Name of sample Volcanic Breccia Signature Locality Tanahlot - Bali Test machine No. Measuring capacity of test machine 15,000 kgf Speed of compression %/min Test piece No. Scale coefficient K 0.454 kgf/a division of scale $k = \frac{K}{Ao} = \frac{0.0184}{\text{kgf/cm}^2/\text{a division of scale}}$ Average Section Weight of sample 5.61 24.72 553,80 diameter Ao cm² in natural condition Weight of sample Height Volume 11,63 287.49 V cm³ 482 Lo cm in dry condition Weight Density Water contents mn-md x100 553.80 1.92 n g g/cm² 14.89 mm Compressive Reduce Reading of Compensate Compressive Unconfined $p = R \cdot k$ length by strain test machine as for stress compressive compression section $\sigma = p \left(1 - \frac{\varepsilon}{100}\right)$ strength $\Delta \cdot \mathbf{L}$ ε kgf/cm² ε 1-100 1 8 kgf/cm² kgf/cm² 100 mm . 0 . .0 0.-1 - 0 0. 0.0928 0.1050 250 4.6 0.9991 4.596 4,67 0.185 0.1591 500 9.2 9.19 0.9984 9.34 0.297 0.2554 750 13.8 0.9975 13.76 14.01 1000 18.4 0.386 0.332 0.9968 18.34 18.69 0.465 0.399 1250 23.0 0.9960 22.91 23,30 0.532 0.457 1500 27.6 0,9954 27.47 27.91 0.593 0.509 1750 32.2 0.9949 32.03 32.51 0.658 0.566 2000 36.59 36.8 0.9943 37.13 0.728 0.630 2250 41.4 0.9937 41.14 41,36 2500 45.68 0.690 46.0 0.9931 46.14 0.803 0.888 2750 0.9924 0.764 50.6 50.21 50.64 0.995 0.856 3000 55.2 0.9914 54.73 55.14 1,165 1,002 3250 59.8 0.9900 59,20 59.79 1,312 1.128 3300 60.72 0.9887 60.04 60,55 1.090 1,453 3000 55.70 0.9855 54.40 55.14 2,135 1,836 2500 46 0.9816 45.16 46.14

UNCONFINED COMPRESSION TEST



Sketch of test piece

Befor test

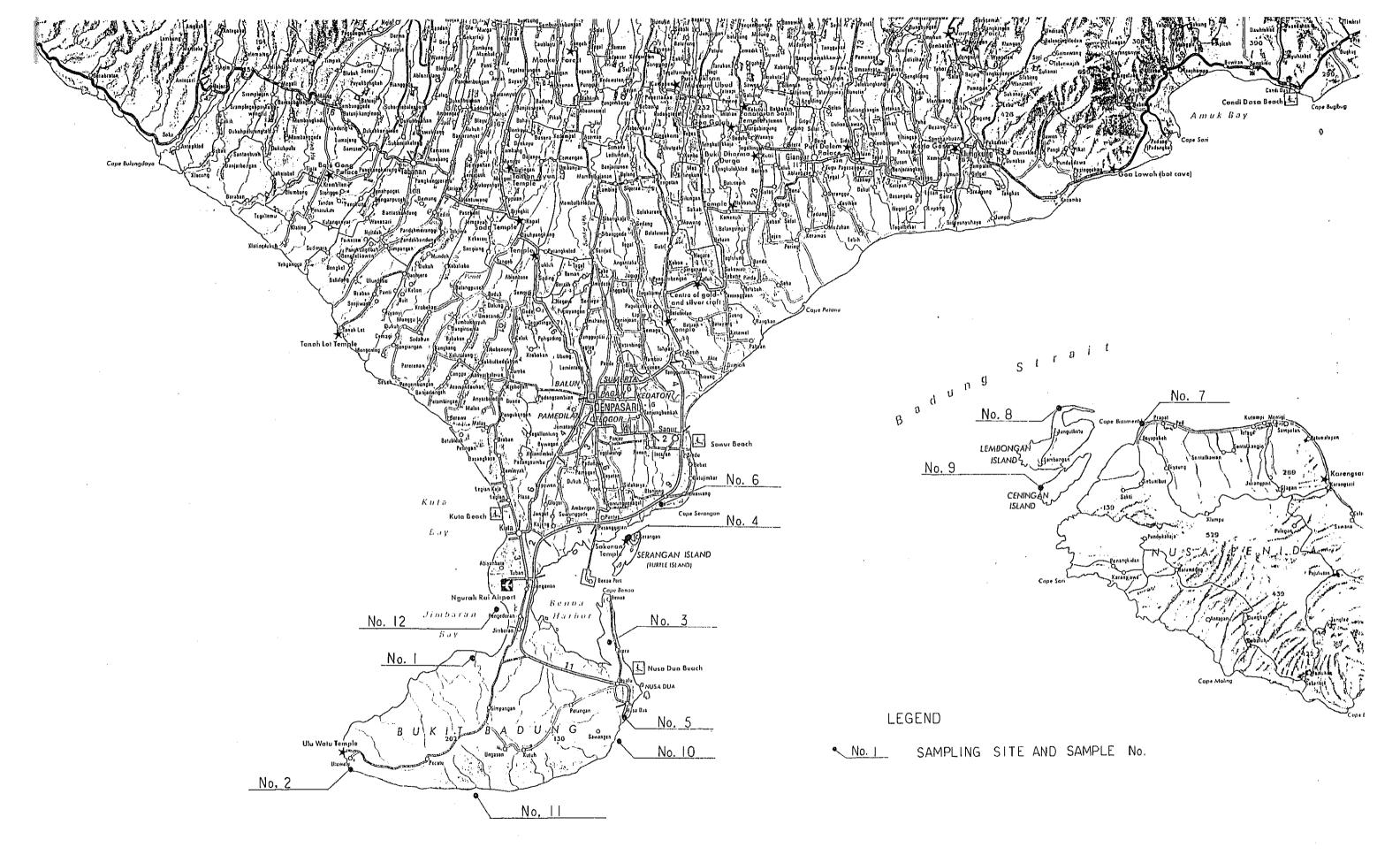
After test

After test

Paralel

Aft Natural Condition

III. Construction Material Test



LOCATION MAP OF SAMPLING SITES ON CONSTRUCTION MATERIAL TEST

Gravity Specific

Name of sample Beach and Dune Sand

locality

Signature .

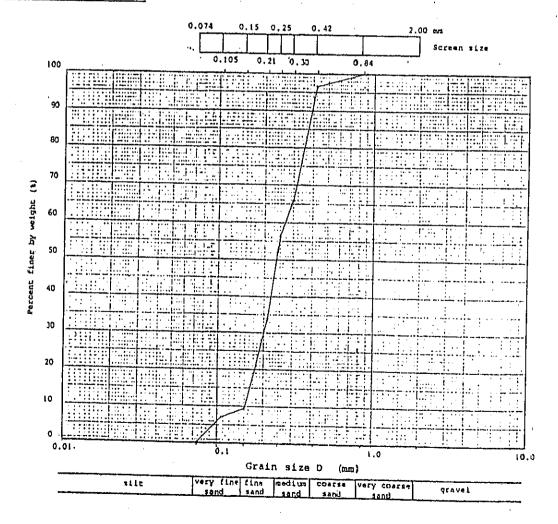
Date

	Sample No.	Weight of sample		43 C A1	T. °C	Weight totaled measuring flask, pure water and sample, at T°C	h Ů	Weight totaled measuring flask and pure water, at T°C (by calculation)	Specific gravity	Specific gravity	Specific gravity
		(6) su	(5) IM	Wa (g)		Wb (g)		Wa (g)	(T°C/T°C)	(T°C/15°C)	(T°C/4°C)
		400	156.50	651.90	26	915.70	24	652.1549521	2.931	2.926	2,923
ı	2	400	166.15	661.00	56	912.20	24	661.2546691	2.684	2.679	2.677
i	3	400	169.70	665,35	26.5	919,50	24	665.6722513	2.736	2.731	2.729
	4	400	151.65	648,90	26	905.60	24	649.1559042	2.786	2.781	2.779
- 2	5	400	165.30	661.10	27	914.55	24	. 661,4895574	2.722	2.717	2,715
58 -	9	400	154.35	650.00	26.5	904.95	24	650.3222513	2.752	2.747	2.745
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	Grain Size Analysis	
۲,	Sample No. 1 Name of sample Beach Sand (for construction material)	Date Signature
	Locality from Tegalsa 1 km to West, Bukit Badung	***************************************

Grain size (mm)	Weight (g)	. Weight (%)
7.00		
2.00	0	100
0.84	, 0	100
0.42	6.7	96,65
0.30	61.60	65.85
0.25	18.75	56.475
0.21	44.85	34.05
0.15	49.20	9.45
0.105	4,6	7.15
0.074	14.1	0.1
	0.2	-

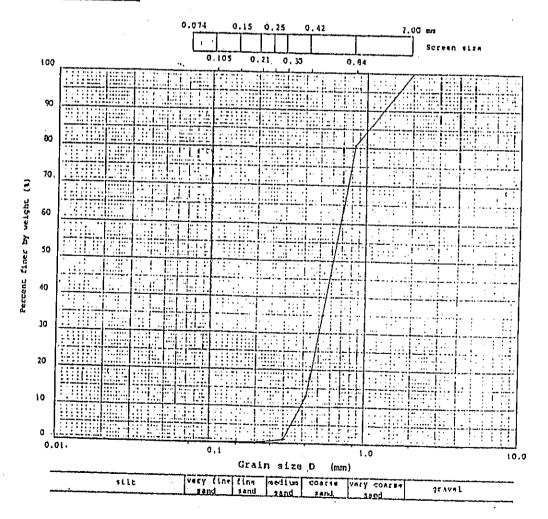
Very coarse	sand (2.0	00-0.84mm) 1	0
Coarse	sand (0.	34-0.42mm) 🕻	3.35
Medium	sand (0.	12-0.25mm) *	40.175
Fine	sand (0.2	25~0. (5mm) %	47.025
Very fine	sand (0.1	5-0,074mm) 🕯	9,35
Silt or cl	ay (under	0.074mm) \$	0.1
Maximum grai	n size mm		0.42
601 grai	n size mm	. = = ~	0.27
30% grai	n size nm		0.20
10% grai	n size man		0.151
Coefficient	of uniformi	ty Uc	1.788
Coefficient	of curvatur	e Uc'	0.981



^	
Sample No.	Date
Hame of sample Beach Sand (for construction material)	Signature
Locality Uluwatu, Bukit Badung	and the second s

	N.	
Grain size (mm)	Weight (g)	Weight (%)
2.00		100 .
0.84	38.85	80,575
0.42	135.35	12.9
0,30	23.75	1.025
0.25	0.60	0.725
0.21	0.80	0.325
0.15	0.45	0.10
0.105	0.10	0.05
0.074	0.05	0.025
	0.05	-

40 Can Charles de La Canada Ca	
Very coarse sand (2.00-0).00mm) 1	19,425
Coarse sand (0.84-0.42mm)	67.675
Hedlum sand (0.42-0.25mm)	12.175
Fine sand (0.25-0.15mm)	0.625
Very (ine sand (0.15-0.074mm)	0.075
Silt or clay (under 0.074mm) \	0,025
Maximum grain size mm	0.84
604 grain size mm	0.67
30% grain size oum	0.50
104 grain size mm	0.385
Coefficient of uniformity Uc	1.740
Coefficient of curvature Uc'	0.969



Grain Size Analysis Sample No. 3 Name of sample Dune Sand (for construction material) Signature Tenora, Sand Quarry, Nusa Dua Helaht (2.00-0,84mm)\$ 7.475 Grain siza (mm) Very coarse sand Weight (g) percant, (1) Coarse sand (0.84-0.42mm) \$ 60,95 Hedium (0.42-0.25mm) 4 sand 26.0 2.00 100 Fine sand (0.25-0.15mm) 1 4.775 0.84 92.525 14.95//2 Very fine (0.15-0.074mm) 1 bnar 0,55 0.42 121,90% 31,575 Silt or clay (under 0.074mm) \$ 0.10 48.55 /// // 7.3 0.25 3.453 % 5.575 Maximum grain size num 0.84 0.21 6.0 60 2.575 60% grain size cum 0.57 0.15 0.8 3,55*.*° _{/7} 301 grain size cum 0.41 0.105 0.70/7 0.45 105 grain size mm 0.31 0.074 0.40 % 0.25 Coefficient of uniformity 1.839

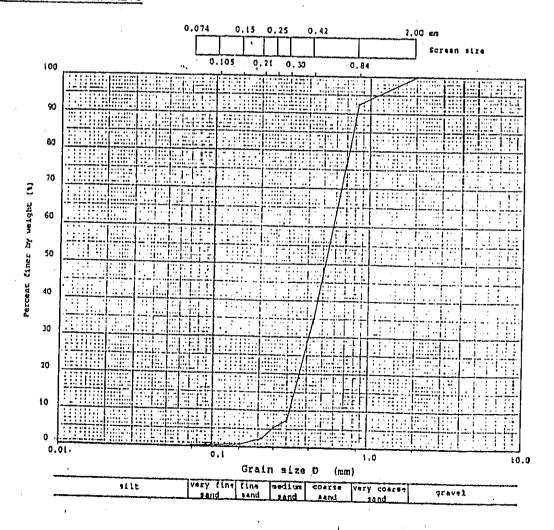
Coefficient of curvature

Uc'

0.951

Grain size accumulation curve

0.50

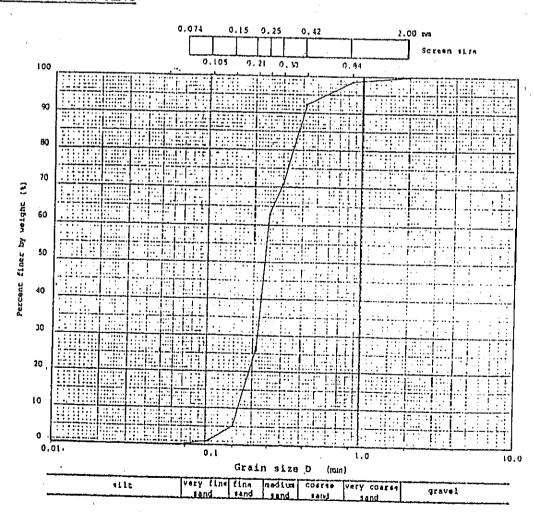


Sample No. 4	Date
Name of sample Beach Sand (for construction material)	Signature
Locality Dukuh Serangan, Island	***************

Grain siza (mm)	Weight (g)	Walght (1)
2.00		100 .
0.84	2.75	98,625
0,42	12.40	92.425
0.30	43.20	70.825
0.25	15.45	63.10
0.21	74.55	25.825
0.15	41.50	5.075
0,105	7.6	1.275
0.074	2.3	0.125
	0,25	-

Vary coarse	sand (2.00-0),84am) \	1,375
Coarse	sand (0.84-0	. 42mm) 4	6.20
Hed Lum	and (0.42-0).25mm) 1	29.325
Fine	sand (0.25-0	. (5mm) •	58.025
Vary fine	and (0.15-0	.074mm) 🕯	4,95
Silt or cla	y (un	dar O.	0 7 4mm) 🐧	0.125

Maximum grain	Size	und		0.84
60% grain	Size	mm		0.245
301 grain	size	nin		0.212
104 grain	size	œn		0,161
Coefficient o	f unifo	cmity	0c	1.522
Coefficient o	f curva	tura	0c¹	1.139



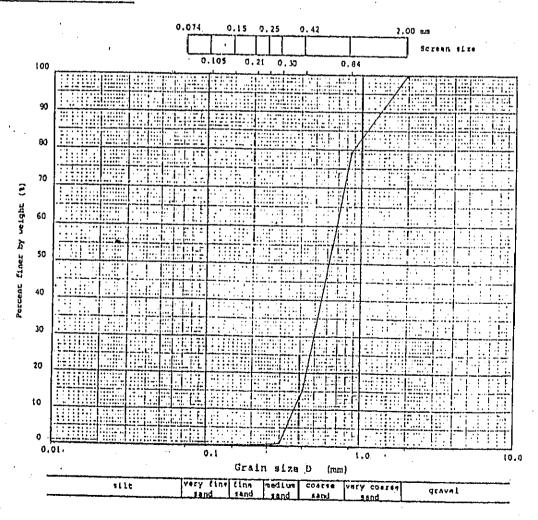
Sample No. 5

Name of sample Dune Sand (for construction material) signature

Locality Hotel Bualu 200 meter to South, Sand quarry, Nusa Dua

Grain size (mm)	Weight (g)	Weight /
010111 3120 (000)	nardur (d)	percent (1)
2.00		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
4.UU		100
0.84	31.35	84.325
0,42	137.35	15.65
0.30	29.30	1.00
0.25	0.70	0.65
0.21	0.80	0.25
0.15	0.25	0,125
0,105	0.10	0.075
0.074	0.05	0.05
	0.10	-,

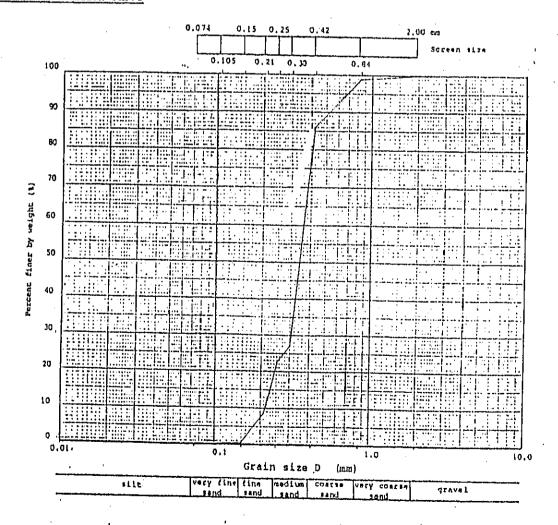
Vary coars sand (2.00-0.84mm) 1	15.67.5
Coarse sand (0.84-0.42mm)	68.675
Hedlum sand (0.42-0.25mm)	15.00
Fine sand (0.25-0.15mm) 1	0.525
Very fine sand (0.15-0.074mm) \	0,075
Silt or clay (under 0.074mm) \	0.05
Maximum grain size mm	0.84
601 grain size mm	0.68
304 grain size mm	0.49
10% grain size mm	0.37
Coefficient of uniformity Uc	1.838
Coefficient of curvature Uc'	0,954



Sample No.	6	Date
Name of sample	Dune Sand (for construction material)	Signature
	of Surva Beach Hotel, Sand quarry, Sa	

Grain size (mm)	- Weight (g)	Weight (1)
2.00		100
0.84	2.10	98.95
0.42	26.10	85,90
0,30	117.0	27.40
0.25	10.0	22.40
0.21	27.70	8.55
0.15	16.0	0.55
0.105	1.0	0.05
0.074	0.1	0
	0	•

F= Pro- 6-16	
Vary coarse sand (2.00-0).85mm) v	1.05
Coarse sand (0.84-0.42mm) \	13.05
Hedlum sand (0.42-0.25mm) \	63.50
Fine sand (0.25-0.15mm) \	21.85
Very (ine sand (0.15-0.074mm))	0.55
Silt or clay (under 0.074mm) \	0
Haximum grain size mm	0.84
60% grain size cum	0.36
30% grain size mm	0_3.05
104 grain size mm	0.215
Coefficient of uniformity Uc	1.674
Coefficient of curvature Uc'	1.202

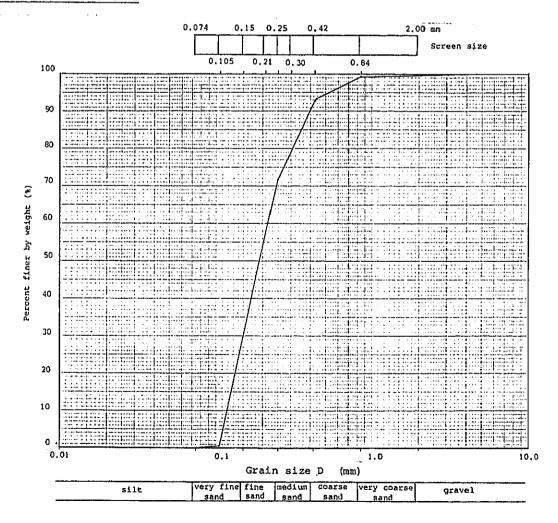


Sample No.					
Name of sam	ple Consta	uction m	sterial (beach	sand)
Locality N	orthern	beach i	n Nusa	Penio	la

Date	
Signature	

Grain size (mm)	Weight (g)	Weight (%)
4.76	0	100
2,00	0.03	99.98
0.84	1.40	99.17
0.42	LO.50	93,13
0.30	·	
0.25	37.00	71.84
0.21		
0.15		
0.105	124.70	0.11
0.074	0.14	0.03
	0.05	-
Total	173.82	

Very coarse sand (2.06~0.84mm) %	0.83
Coarse sand (0.84-0.42mm)%	6.04
Medium sand (0.42~0.25mm)%	21.29
Fine sand (0.25~0.15mm)%	
Very fine sand (0.15-0.074mm) %	77.82
Silt or clay (under 0.074mm)%	0.03
Maximum grain size mm	4.76
60% grain size mm	0.215
30% grain size mm	0.150
10% grain size mm	0,125
Coefficient of uniformity Uc	1.72
Coefficient of curvature Uc'	0.837

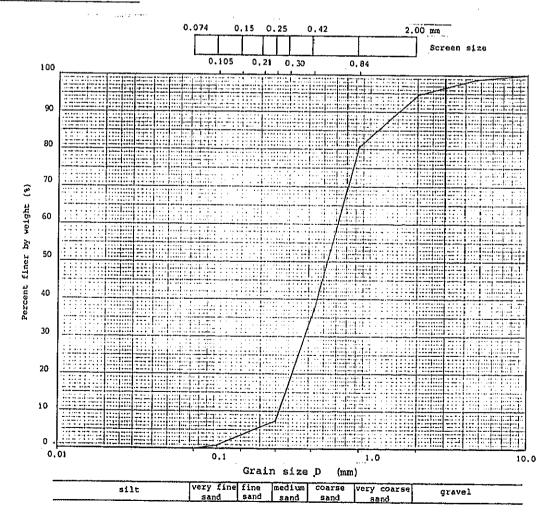


Sample No8	
Name of sample Con	struction material (beach sand)
Locality Nusa	Lembongan

Date	
Signature	

Grain size (mm)	Weight (g)	Weight (%)
9.52 4.76	4.60	100 97.57
2.00	6.20	94.30
0.84	26.00	80.57
0.42	86.20	35.07
0.30		
0.25	52.00	7.61
0.21		
0.15		
0.105	13.90	0.27
0.074	0.30	
	0.20	-
Total	189.40	

		7.52		
Very coarse	sand	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.84mm)%	19.43
Coarse	sand	(0.84~	0.42mm)%	45.51
Medium	sand	(0.42~	0.25mm)%	27.46
Fine	sand	(0.25~	0.15mm)%	
Very fine	sand	(0.15~	0.074mm) %	7.50
Silt or c	lay	(under 0	.074mm)%	0.11
Maximum gra	in size	e mm		9.52
60% gra	in size	inm		0.625
30% gra	in size	mm		0.39
10% gra	in size	nn n		o.≥7
		formity	Uc	2.31
Coefficient	or uni			2.31



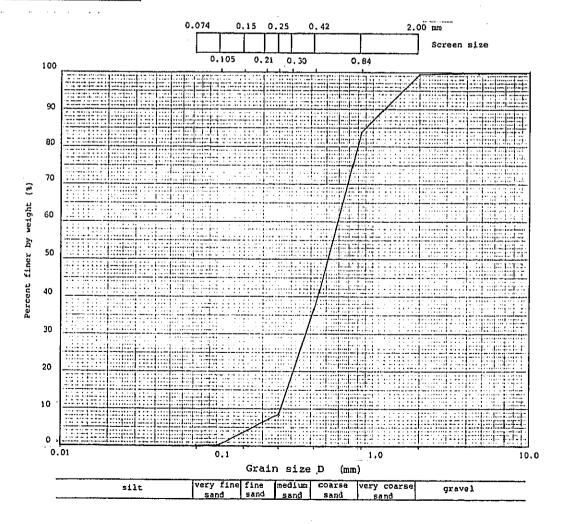
Grain Size Analysis Name of sample Construction material (beach sand) Signature

Locality Nusa Ceningan

Sample No. 9

Grain size (mm)	Weight (g)	Weight (%) percent
9.52 4.76	0.10	100.
2.00	0.70	99.63
0.84	34.50	83.90
0.42	104.20	36.39
0,30		
0.25	61.20	8.48
0.21		
0.15		······
0.105	18.50	0.04
0.074	0.02	0.03
	0.06	-
Total	219.28	

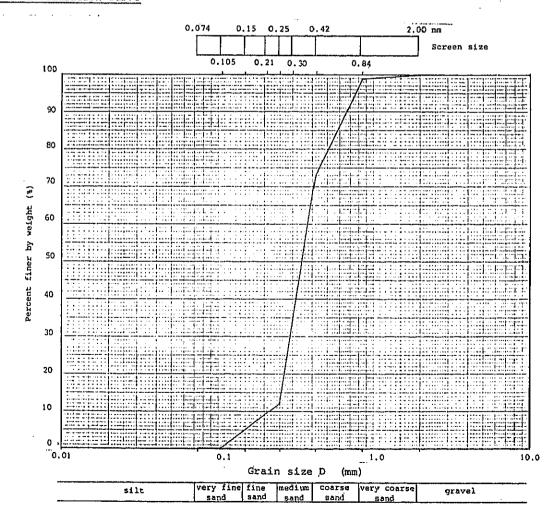
Very coarse	sand	(2.00	-0.84mm) %	16,10
Coarse	sand	(0.84	-0.42mm)%	47.52
Medium	sand	(0.42	-0.25mm)%	27.91
Fine	sand	(0.25	-O.15mm)%	
Very fine	sand	(0.15-	-0.074mm) %	8.44
Silt or o	lay	(under C).074mm)%	0,03
Maximum gra	in size	e mm	. 	9.52
60% gra	in size	= mm _		0.60
30% gra	in size	e mm		0.375
10%gra	in size	= mm		0.26
Coefficient	of uni	formity	V Vc	2,31



Sample No. 10	Date
* ****************	
Name of sample Construction material (sea sand)	Signature
Locality Off-shore of Sawangan	<u> </u>

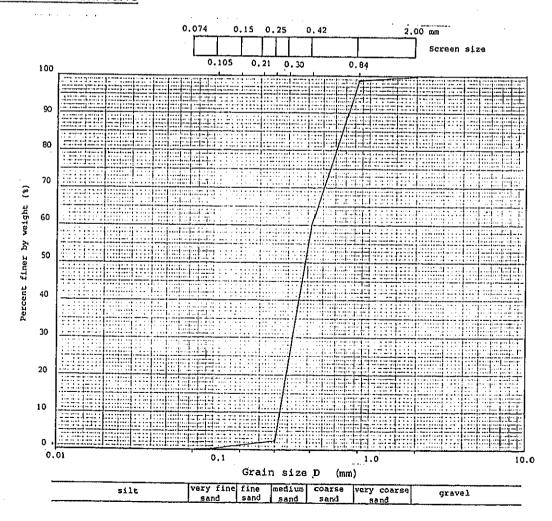
Grain size (mm)	Weight (g)	Weight (%) percent
2,00	0	100
0.84	1.24	98.84
0.42	27.71	72.76
0.30	,	
0.25	64,50	12.06
0.21		
0.15		
0.105	12.76	0.05
0.074	0.05	0.00
		-
Total	106,26	

Very coarse	sand	(2.00-	0.84mm)%	1.17
Coarse	sand	(0.84~	0.42mm)%	26.08
Medium	sand	(0.42-	0.25 տո) %	60.70
Fine	sand	(0,25~	0.15mm)%	-
Very fine	sand	(0.15~	0.074mm) %	12.06
Silt or c	lay	(under 0	.074mm)%	_
Maximum gra	in size	פונח פ		2.00
60% gra	in size	e mm		237
30% gra	in size	e mm		0.28
10% gra	in size	e mm		0,22
Coefficient	of uni	formity	UC	1.682
Coefficient	of cur	vature	Uc'	0.963



		Percettic
. 2.00	0	100
0.84	1.68	98.80
0.42	. 54.94	59.70
0.30		
0.25	80.90	2.13
0.21		
0.15		
0.105	2.88	0.08
0.074	0.12	0
		••
Total	140,52	

Medium	sand	(0.42	0.25mm)%	57.57
Fine	sand	(0.25	0.15mm)%	_
Very fine	sand	(0.15-	0.074mm) %	2,13
Silt or	clay (under C	.074mm)%	
Maximum gr	ain size	m.m		2,00
60% gr	ain size	mm		0.43
30% gr	ain size	man		0,32
10% gr	ain size	mun		0.27
Coefficien	t of uni	formity	Uc	1.593
Coefficien	t of cur	vature	Uc'	0.882



Grain Size Analysis Sample No. 12 Name of sample Construction material (sea sand) Signature Locality Off-shore of Pengederan Weight Very coarse sand Grain size (mm) Weight (g) percent (%) (2.00-0.84mm)% 0.68 Coarse sand (0.84-0.42mm)% Medium sand (0.42-0.25mm)% 2.00 Fine sand (0.25~0.15mm)% 0.84 99.32 Very fine sand (0.15~0.074mm) % 0.42 Silt or clay (under 0.074mm) % 0.30

Maximum grain size mm

30% grain size mm

10% grain size mm

Coefficient of uniformity
Coefficient of curvature

י בע

60% grain size

2.00

0.928

Total	21,93	,

13,80

Grain size accumulation curve

0.25

0.21

0.15

0.105

0.074

