DAFTAR PUSTAKA

Adnan Ibrahim, O., Fırat Çabalar, A., & Dafer Abdulnafaa, M. (2018). Improving Some Geotechnical Properties Of An Organic Soil Using Crushed Waste Concrete. In *The International Journal of Energy & Engineering Sciences* (Vol. 3, Issue 3).

Budi, Gogot Setyo (2011). Pengujian Tanah di Laboratorium Penjelasan dan Panduan. Yogyakarta: Graha Ilmu

Darwis. (2018). *Dasar-dasar Perbaikan Tanah.* Yogyakarta: Pena Indis.

ElMouchi, A., Siddiqua, S., Wijewickreme, D., & Polinder, H. (2021). A Review to Develop new Correlations for Geotechnical Properties of Organic Soils. *Geotechnical and Geological Engineering*, *39*(5), 3315–3336. https://doi.org/10.1007/s10706-021-01723-0

Fadliah, Iffah (2013). Studi Eksperimental Stabilisasi Biogrouting Bacillus Subtilis pada Tanah Lempung Kepasiran. Program Studi Magister Teknik Sipil, Fakultas Teknik, Universitas Hasanuddin.

Hardiyatmo,H.C, (2012). *Mekanika Tanah 1.* Edisi-VI. Jogjakarta: Gadjah Mada University Press.

Hasriana, Samang, L., Djide, M. N., & Harianto, T. (2018). A study on clay soil improvement with Bacillus subtilis bacteria as the road subbase layer. *International Journal of GEOMATE*, *15*(52), 114–120.

Holt. J.G., e. a. (2001). *Bergey's Manual Determinative Bacteriology.* Baltimore: Williamn and Wilkins Baltimore.

Indriani, A. M. (2021). *Bioremediasi Tanah terkontaminasi Batu Bara sebagai Lapis Pondasi Jalan.* Makassar: Universitas Hasanuddin.

Mukherjee, S., Sahu, R. B., Mukherjee, J., & Sadhu, S. (2019). Application of microbial-induced carbonate precipitation for soil improvement via ureolysis. *Lecture Notes in Civil Engineering*, *14*, 85–94.

MS., Djide, M.Natsir Drs, ; Msi. Sartini, Dra, 2012,Mikrobiologi Farmasi Dasar, Universitas Hasanuddin, Makassar

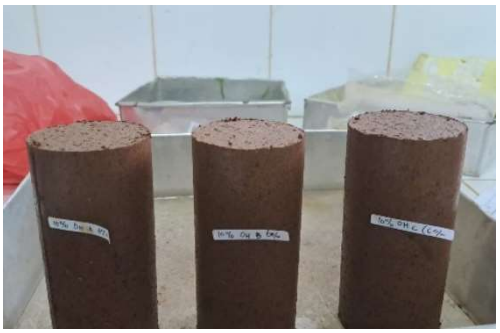
Putra, Ruzia Harmi. (2021). Perbaikan Kuat Tekan Bebas Tanah Gambut Menggunakan Campuran Pasir dan Bakteri Bacillus Subtilis dengan Teknik Bio-Grouting. Program Studi sarjana Teknik Sipil, Universitas Islam Riau

Renaldi, Ignatius Ega & Prihatiningsih, Aniek. (2020). EFEKTIVITAS PENAMBAHAN CAIRAN ADITIF DALAM PENINGKATAN DAYA DUKUNG TANAH ORGANIK. Jurnal Mitra Teknik Sipil, 3(4), 1125-1136

Soesanto, L. R. (2008). Penekanan beberapa mikroorganisme antagonis terhadap penyakit layu Fusarium gladio. *Agrivita 30 (1)*, 7-83.

Wani, K.M.N.S., Mir,B.A. (2021) Effect of Microbial Stabilization on the Unconfined Compressive Strength and Bearing Capacity of Weak Soils. *Transportation Infrastructure Geotechnology*. 8,59-87

Lampiran 1 Dokumentasi








UNCONFI
COMPRESSION


Lampiran 2 Data Hasil Pengujian

PENGUJIAN KADAR AIR

SAMPEL : Tanah Asli
TESTING METHOD : ASTM D 698/ D 1567
LABORATORY : HASANUDDIN UNIVERSITY DATE : SEPTEMBER 2022

Diketahui :	Satuan	A	B
Berat container kosong	gr	7,94	8,23
Berat container + tanah	gr	26,21	31,5
Berat container + tanah setelah dioven	gr	24,53	28,34
Kadar Air	%	10,13	15,71
Kadar Air rata-rata	%	**12,92**	

PENGUJIAN BERAT JENIS

SAMPEL : Tanah Asli
TESTING METHOD : ASTM D 854-58(72)
DATE : SEPTEMBER 2022

Sample			-	Tanah Asli	
Uraian	Simbol	Formula	-	A	B
Temperature, T (oC)	T	Diukur	Degree	28,0	28,0
Faktor Koreksi Temperatur	α	Table	-	0,99803	0,99803
Berat Piknometer	Wp	Diukur	Gram	30,06	22,51
Berat Piknometer + tanah	Wps	Diukur	Gram	40,21	32,68
Berat Piknometer + Air	Wpw	Diukur	Gram	77,71	73,43
Berat Pikno + Tanah + air	Wpsw	Diukur	Gram	84,08	79,67
Berat Cawan	Wed	Diukur	Gram	94,42	86,81
Berat Cawan + Tanah Kering	Weds	Diukur	Gram	104,57	96,98
Berat tanah kering	Ws	Weds-Wed	Gram	10,15	10,17
Berat Air	Ww	Ws+Wpw-Wpsw		3,78	3,93
Specific Gravity of Soil	Gs	Ws/Ww	-	2,680	2,583
Average of Gs			-	2,631	

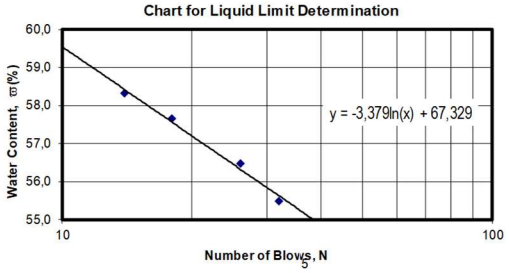
Unitt weight of water = 0,99821

ATTERBERG LIMITS TEST

SAMPLE : TANAH ASLI
TESTING METHOD : ASTM D 424-59, D 4318-(00), AASHTO T89/T90
LABORATORY : HASANUDDIN UNIVERSITY DATE : SEPTEMBER 2022

Sample No.	:											
Depth of Sample	:											
	Unit	Plastic Limit		Liquid Limit								Shrinkage Limit
Test Number	-	**1**	**2**	1		2		3		4		1
Number of Blows	N	-	-	14		18		26		32		-
Container No. or Can No.	-	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1
Weigth of Wet Soil+Can, W1	gram	14,32	14,34	21,00	23,26	21,82	26,34	26,30	28,10	28,12	28,23	66,88
Weigth of Dry Soil+Can, W2	gram	13,48	13,28	15,79	17,01	16,16	19,01	19,29	20,24	20,45	20,29	45,83
Weigth of Water, Ww=W1-W2	gram	0,84	1,06	5,21	6,25	5,66	7,33	7,01	7,86	7,67	7,94	21,05
Weigth of Can, W3	gram	11,40	10,77	6,85	6,30	6,35	6,29	6,87	6,33	6,32	6,28	10,58
Weigth of Dry Soil, Ws=W2-W3	gram	2,08	2,51	8,94	10,71	9,81	12,72	12,42	13,91	14,13	14,01	35,25
Water Content, ω=Ww/Ws*100%	%	40,38	42,23	58,28	58,36	57,70	57,59	56,44	56,51	54,28	56,67	59,72
Average of Water Content, w	%	41,31		58,32		57,64		56,47		55,48		59,72
Weigth of Can+Hg, W1	gram											520
Weigth of Shrink dish	gram											34,19
Weight of displaced Hg + Shrink dish	gram											360
Hg content	gr/cm³											13,6
Volume of Wet Soil	cm³											37,46
Volume of Dry Soil	cm³											23,96
Shrinkage Limit	%											21,42

Chart for Liquid Limit Determination



Atterberg Limits	Value
Plastic Limit, PL(%)	41
Liquid Limit, LL(%)	56
Plastic Index, PI=LL-PL	15
Shrinkage Limit, S_L(%)	21

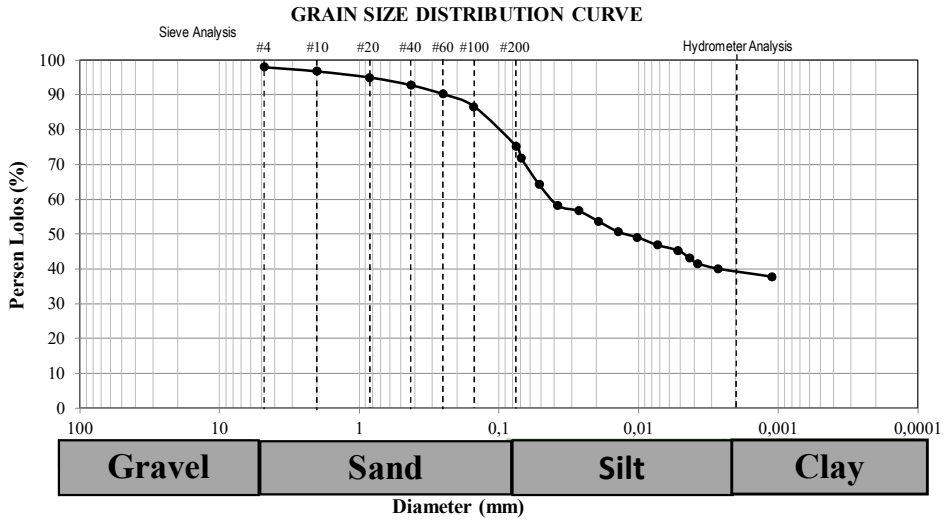
PENGUJIAN ANALISA SARINGAN

SAMPLE : Tanah Asli
TESTING METHOD : ASTM D 424-59, D 4318-(00), AASHTO T89/T90
LABORATORY : HASANUDDIN UNIVERSITY
DATE : SEPTEMBER 2022

Berat Tanah Kering :	500	gr	Spec. Gravity, Gs :	2,631	T :	28,0	^{0}C

Analisa Saringan						Hydrometer							
Saringan No.	Diameter (mm)	Berat Tertahan (Gram)	Berat Kumulatif Tertahan (gr)	Persen Tertahan (%)	Persen Lolos (%)	Waktu (menit)	Pembacaan Hidrometer (R)	Rep =R+Ft-Fz	% Finer = ((a x Rep)/Wsx100% * %Finer#200	RcL= R + Fm	(L) Kedalaman (cm)	Konstanta (K)	D=K√L/t (mm)
4	4,75	10	10	2	98	0,25	52,00	47,50	71,75	53,00	7,60	0,0125	0,06892
10	2	6	16	3,2	96,8	0,5	47,00	42,50	64,20	48,00	8,40	0,0125	0,05123
20	0,84	9	25	5	95	1	43,00	38,50	58,16	44,00	9,10	0,0125	0,03771
40	0,425	11	36	7,2	92,8	2	42,00	37,50	56,65	43,00	9,20	0,0125	0,02681
60	0,25	13	49	9,8	90,2	4	40,00	35,50	53,63	41,00	9,60	0,0125	0,01936
100	0,15	18	67	13,4	86,6	8	38,00	33,50	50,61	39,00	9,90	0,0125	0,01391
200	0,075	57	124	24,8	75,2	15	37,00	32,50	49,09	38,00	10,10	0,0125	0,01026
Pan	-	376	500	100	0	30	35,50	31,00	46,83	36,50	10,30	0,0125	0,00732
						60	34,50	30,00	45,32	35,50	10,50	0,0125	0,00523
						90	33,00	28,50	43,05	34,00	10,70	0,0125	0,00431
						120	32,00	27,50	41,54	33,00	10,90	0,0125	0,00377
						240	31,00	26,50	40,03	32,00	11,10	0,0125	0,00269
						1440	29,50	25,00	37,77	30,50	11,30	0,0125	0,00111

Berat jenis air terhadap temperatur, $g_{Wet\ T}$	=	0,99627
Faktor Kt = f(Gs,T)	=	0,0125
Temperatur Correction (Ft) = -4.85 + 0.25 T)	=	2,50
Zero Correction (Fz)	=	7,0
Meniscus correction (Fm)	=	1
Gs Correction	=	1,00



Pengujian Kadar Organik

Uraian	Satuan	**Sampel 1**	**Sampel 2**	**Sampel 3**
berat cawan kosong	(gram)	36,33	38,45	34,63
berat sampel	(gram)	5,17	5,14	5,11
berat sampel + cawan	(gram)	41,50	43,59	39,74
berat cawan + sampel sebelum dioven	(gram)	39,37	41,47	37,62
berat cawan+sampel setelah dioven	(gram)	37,61	39,71	35,87
bahan kering	(%)	58,89	58,81	58,45
kadar air	(%)	41,11	41,19	41,55
kadar air rata-rata	(%)		41,28	
kadar abu	(%)	24,89	24,56	24,28
kadar abu rata-rata	(%)		24,57	
kadar abu tanpa air (100% bahan kering)	(%)	42,25	41,76	41,53
kadar abu tanpa air (100% bahan kering) rata-rata	(%)		41,85	
bahan organik	(%)	34,01	34,25	34,17
bahan organik rata-rata	(%)		34,14	
bahan organik tanpa air (100% bahan kering)	(%)	57,75	58,24	58,47
bahan organik tanpa air (100% bahan kering) rata-rata	(%)		58,15	

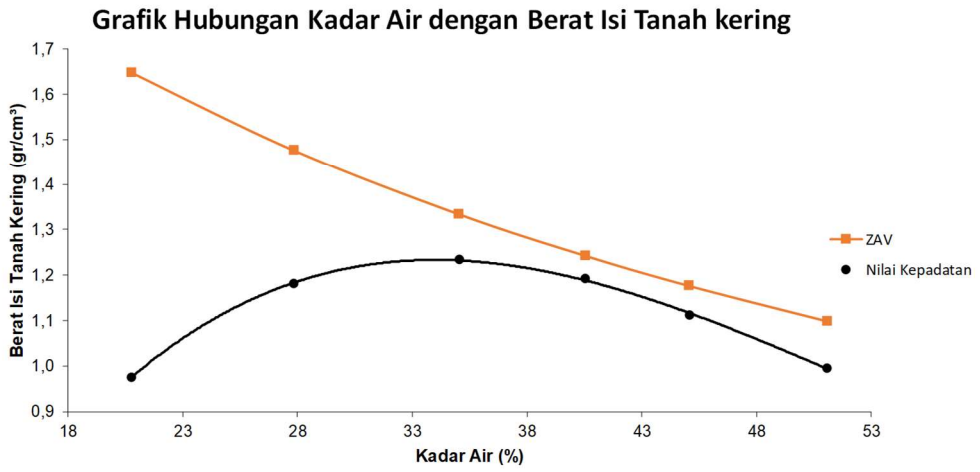
PENGUJIAN BERAT JENIS

SAMPEL : Tanah Organik
TESTING METHOD : ASTM D 854-58(72)
DATE : SEPTEMBER 2022

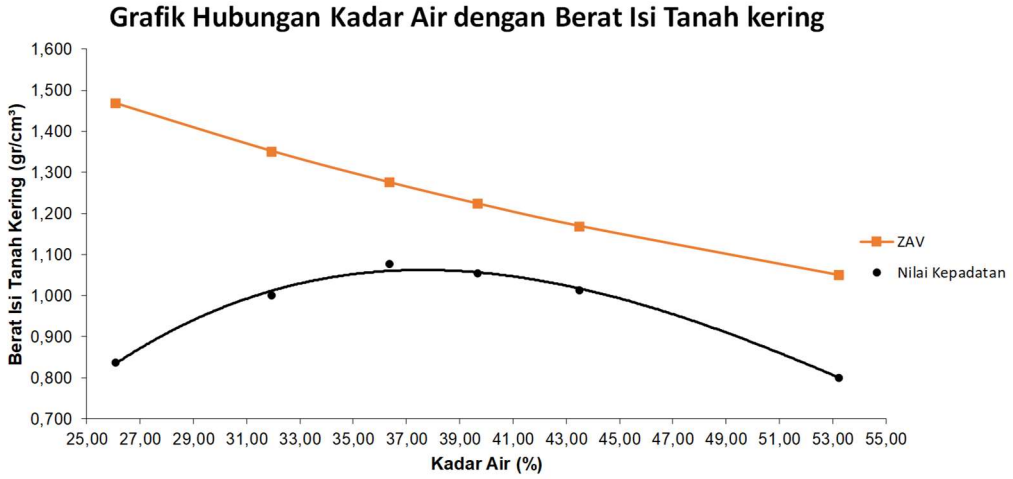
Sample				Tanah Organik	
Uraian	Simbol	Formula	-	A	B
Temperature, T (oC)	T	Diukur	Degree	28,0	28,0
Faktor Koreksi Temperatur	α	Table	-	0,99803	0,99803
Berat Piknometer	Wp	Diukur	Gram	30,06	22,51
Berat Piknometer + tanah	Wps	Diukur	Gram	40,27	32,62
Berat Piknometer + Air	Wpw	Diukur	Gram	77,71	73,43
Berat Pikno + Tanah + air	Wpsw	Diukur	Gram	80,47	76,19
Berat Cawan	Wed	Diukur	Gram	94,42	86,81
Berat Cawan + Tanah Kering	Weds	Diukur	Gram	104,63	96,92
Berat tanah kering	Ws	Weds-Wed	Gram	10,21	10,11
Berat Air	Ww	Ws+Wpw-Wpsw	Gram	7,45	7,35
Specific Gravity of Soil	Gs	Ws/Ww	-	1,368	1,373
Average of Gs			-	1,370	

Unitt weight of water = 0,99821

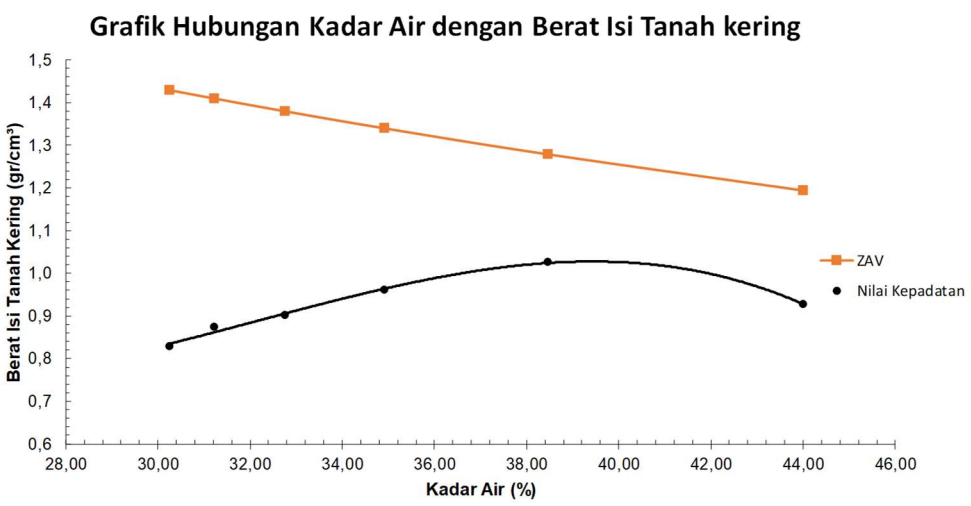
PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: Gowa (Tanah Asli), Enrekang (Tanah Organik)												
TESTING	: kompaksi												
SAMPLE NO.	: Tanah Asli + 10% Tanah Organik												
TESTING METHOD	: ASTM D 698/ D 1567					TESTED BY		: M. Taqiyuddin & Mustafa					
LABORATORY	: HASANUDDIN UNIVERSITY					DATE		: September 2022					
Berat tanah	gram	2000		2000		2000		2000		2000		2000	
Kadar air mula-mula	%	0,00		0,00		0,00		0,00		0,00		0,00	
Penambahan air	ml	500		600		700		800		900		1000	
Kadar air akhir	%	25,00		30,00		35,00		40,00		45,00		50,00	
Berat Isi Basah (Wet density)													
No. Mould	-	1		2		3		4		5		6	
Berat Mould	gram	1899		1899		1899		1899		1899		1899	
Berat tanah basah + Mould	gram	3082		3414		3572		3580		3519		3409	
Berat tanah basah, W_{wet}	gram	1183		1515		1673		1681		1620		1510	
Volume Mould, V_{mould}	cm^3	1004		1004		1004		1004		1004		1004	
Berat Volume Basah	gr/cm^3	1,178		1,509		1,666		1,674		1,614		1,504	
Kadar Air (Water Content)													
No. Container	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Berat tanah basah + Container	gram	29,22	28,93	50	46,95	28,07	29,43	30,11	30,91	46,71	45,56	46,08	44,75
Berat tanah kering + Container	gram	25,61	25,29	42,5	40,02	22,86	23,84	23,69	24,34	37,14	36,27	35,76	34,8
Berat container	gram	7,99	7,97	15,45	15,20	7,93	7,95	8,02	7,96	15,94	15,62	15,43	15,43
Kadar air	%	20	21	27,73	27,92	34,90	35,18	40,97	40,11	45,14	44,99	50,76	51,37
Kadar air rata-rata, w	%	20,75		27,82		35,04		40,54		45,06		51,07	
Berat Isi Kering (Dry Density)													
Berat tanah basah, W_{wet}	gram	1183		1515		1673		1681		1620		1510	
Kadar air rata-rata, w	%	20,75		27,82		35,04		40,54		45,06		51,07	
Berat kering $Wdry = \frac{Wwet}{1+\left(\frac{w}{100}\right)}$	gram	979,69		1185,23		1238,91		1196,10		1116,74		999,57	
Volume Mould	cm^3	1003,94		1003,94		1003,94		1003,94		1003,94		1003,94	
Berat isi kering $\gamma dry = \frac{W_{dry}}{V_{mould}}$	gr/cm^3	0,976		1,181		1,234		1,191		1,112		0,996	
gzav = gw/(w+(1/Gs))	gr/cm^3	1,648		1,476		1,334		1,243		1,176		1,099	



PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: Gowa (Tanah Asli), Enrekang (Tanah Organik)												
TESTING	: kompaksi												
SAMPLE NO.	: Tanah Asli + 20% Tanah Organik												
TESTING METHOD	: ASTM D 698/ D 1567					TESTED BY		: M. Taqiyuddin & Mustafa					
LABORATORY	: HASANUDDIN UNIVERSITY					DATE		: September 2022					
Berat tanah	gram	2000		2000		2000		2000		2000		2000	
Kadar air mula-mula	%	0,00		0,00		0,00		0,00		0,00		0,00	
Penambahan air	ml	500		600		700		800		900		1000	
Kadar air akhir	%	25,00		30,00		35,00		40,00		45,00		50,00	
Berat Isi Basah (Wet density)													
No. Mould	-	1		2		3		4		5		6	
Berat Mould	gram	1899		1899		1899		1899		1899		1899	
Berat tanah basah + Mould	gram	2959		3224		3372		3377		3358		3130	
Berat tanah basah, W_{wet}	gram	1060		1325		1473		1478		1459		1231	
Volume Mould, V_{mould}	cm^3	1004		1004		1004		1004		1004		1004	
Berat Volume Basah	gr/cm^3	1,056		1,320		1,467		1,472		1,453		1,226	
Kadar Air (Water Content)													
No. Container	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Berat tanah basah + Container	gram	23,3	30,03	21,27	28,81	25,49	23,22	48,34	36,98	44,49	46,66	62,7	70,36
Berat tanah kering + Container	gram	20,08	25,53	17,95	23,92	20,84	19,16	39,24	29,01	35,72	37,14	46,14	51,34
Berat container	gram	7,9	8,05	7,92	8,07	8,04	8,01	15,62	9,52	15,58	15,25	15,22	15,44
Kadar air	%	26,44	25,74	33,10	30,85	36,33	36,41	38,53	40,89	43,55	43,49	53,56	52,98
Kadar air rata-rata	%	26,09		31,98		36,37		39,71		43,52		53,27	
Berat Isi Kering (Dry Density)													
Berat tanah basah, W_{wet}	gram	1060		1325		1473		1478		1459		1231	
Kadar air rata-rata	%	26,09		31,98		36,37		39,71		43,52		53,27	
Berat kering $Wdry = \frac{Wwet}{1+\left(\frac{W}{100}\right)}$	gram	840,67		1003,97		1080,15		1057,91		1016,60		803,16	
Volume Mould	cm^3	1003,94		1003,94		1003,94		1003,94		1003,94		1003,94	
Berat isi kering $\gamma dry = \frac{W_{dry}}{V_{mould}}$	gr/cm^3	0,837		1,000		1,076		1,054		1,013		0,800	
gzav = gw/(w+(1/Gs))	gr/cm^3	1,468		1,351		1,275		1,223		1,169		1,049	

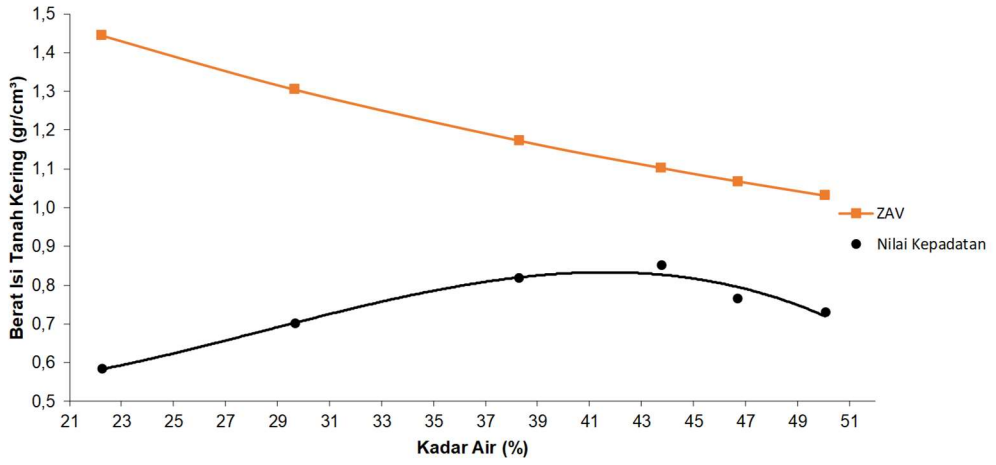


PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: Gowa (Tanah Asli), Enrekang (Tanah Organik)												
TESTING	: kompaksi												
SAMPLE NO.	: Tanah Asli + 30% Tanah Organik												
TESTING METHOD	: ASTM D 698/ D 1567					TESTED BY		: M. Taqiyuddin & Mustafa					
LABORATORY	: HASANUDDIN UNIVERSITY					DATE		: September 2022					
Berat tanah	gram	2000		2000		2000		2000		2000		2000	
Kadar air mula-mula	%	0,00		0,00		0,00		0,00		0,00		0,00	
Penambahan air	ml	600		700		800		900		1000		1100	
Kadar air akhir	%	30,00		35,00		40,00		45,00		50,00		55,00	
Berat Isi Basah (Wet density)													
No. Mould	-	1		2		3		4		5		6	
Berat Mould	gram	1899		1899		1899		1899		1899		1899	
Berat tanah basah + Mould	gram	2982		3050		3100		3201		3325		3240	
Berat tanah basah, W_{wet}	gram	1083		1151		1201		1302		1426		1341	
Volume Mould, V_{mould}	cm^3	1004		1004		1004		1004		1004		1004	
Berat Volume Basah	gr/cm^3	1,079		1,146		1,196		1,297		1,420		1,336	
Kadar Air (Water Content)													
No. Container	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Berat tanah basah + Container	gram	29,98	31,45	32,89	24,76	25,5	28,22	22,55	21,15	26,71	24,60	26,00	24,18
Berat tanah kering + Container	gram	27,00	24,20	26,84	20,86	21,2	23,2	18,12	17,08	20,75	19,30	19,68	18,47
Berat container	gram	8,04	8,01	7,92	8,06	7,91	8,06	5,41	5,44	5,42	5,37	5,47	5,35
Kadar air	%	15,72	44,78	31,98	30,47	32,36	33,16	34,85	34,97	38,88	38,05	44,48	43,52
Kadar air rata-rata	%	30,25		31,22		32,76		34,91		38,46		44,00	
Berat Isi Kering (Dry Density)													
Berat tanah basah, W_{wet}	gram	1083		1151		1201		1302		1426		1341	
Kadar air rata-rata	%	30,25		31,22		32,76		34,91		38,46		44,00	
Berat kering $Wdry = \frac{Wwet}{1+\left(\frac{W}{100}\right)}$	gram	831,48		877,13		904,67		965,09		1029,88		931,26	
Volume Mould	cm^3	1003,94		1003,94		1003,94		1003,94		1003,94		1003,94	
Berat isi kering $\gamma dry = \frac{W_{dry}}{V_{mould}}$	gr/cm^3	0,828		0,874		0,901		0,961		1,03		0,93	
gzav = gw/(w+(1/Gs))	gr/cm^3	1,430		1,410		1,380		1,341		1,280		1,195	

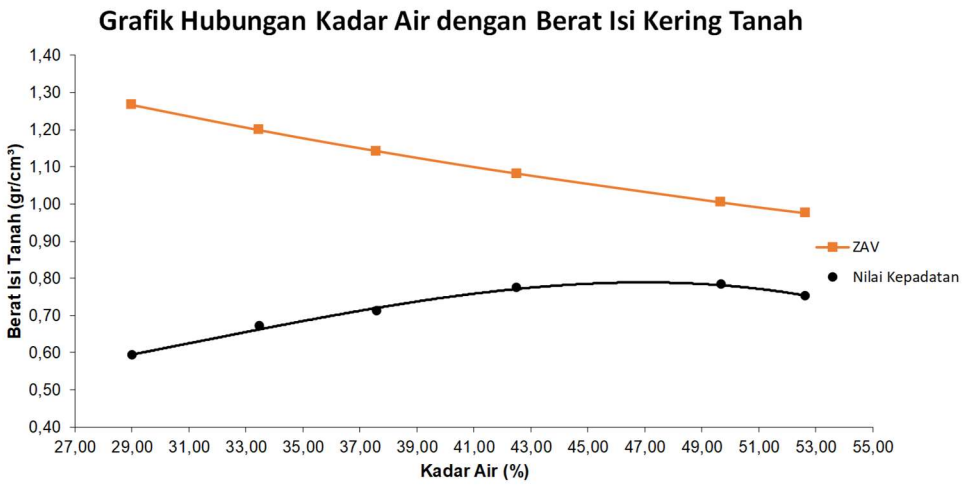


PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: Gowa (Tanah Asli), Enrekang (Tanah Organik)												
TESTING	: kompaksi												
SAMPLE NO.	: Tanah Asli + 40% Tanah Organik												
TESTING METHOD	: ASTM D 698/ D 1567						TESTED BY		: M. Taqiyuddin & Mustafa				
LABORATORY	: HASANUDDIN UNIVERSITY						DATE		: September 2022				
Berat tanah	gram	2000		2000		2000		2000		2000		2000	
Kadar air mula-mula	%	0,00		0,00		0,00		0,00		0,00		0,00	
Penambahan air	ml	600		700		800		900		1000		1100	
Kadar air akhir	%	30,00		35,00		40,00		45,00		50,00		55,00	
Berat Isi Basah (Wet density)													
No. Mould	-	1		2		3		4		5		6	
Berat Mould	gram	1899		1899		1899		1899		1899		1899	
Berat tanah basah + Mould	gram	2615		2811		3033		3128		3026		2998	
Berat tanah basah, W_{wet}	gram	716		912		1134		1229		1127		1099	
Volume Mould, V_{mould}	cm^3	1004		1004		1004		1004		1004		1004	
Berat Volume Basah	gr/cm^3	0,713		0,908		1,130		1,224		1,123		1,095	
Kadar Air (Water Content)													
No. Container	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Berat tanah basah + Container	gram	52,3	38,92	32,37	31,72	32,17	29,3	38,06	29,05	32,28	33	48,09	48,16
Berat tanah kering + Container	gram	45,52	33,4	26,85	26,26	25,45	23,43	29,01	22,62	24,63	25,03	37,25	37,25
Berat container	gram	15,64	8,06	8,02	8,06	7,98	8,03	8,1	8,08	8,14	8,07	15,59	15,46
Kadar air	%	22,69	21,78	29,31	30,00	38,47	38,12	43,28	44,22	46,39	46,99	50,05	50,07
Kadar air rata-rata	%	22,24		29,66		38,29		43,75		46,69		50,06	
Berat Isi Kering (Dry Density)													
Berat tanah basah, W_{wet}	gram	716		912		1134		1229		1127		1099	
Kadar air rata-rata	%	22,24		29,66		38,29		43,75		46,69		50,06	
Berat kering $Wdry = \frac{Wwet}{1+\left(\frac{W}{100}\right)}$	gram	585,75		703,39		820,01		854,95		768,27		732,39	
Volume Mould	cm^3	1003,94		1003,94		1003,94		1003,94		1003,94		1003,94	
Berat isi kering $\gamma dry = \frac{W_{dry}}{V_{mould}}$	gr/cm^3	0,583		0,701		0,817		0,852		0,765		0,730	
gzav = gw/(w+(1/Gs))	gr/cm^3	1,444		1,304		1,172		1,101		1,067		1,030	

Grafik Hubungan Kadar Air dengan Berat Isi Tanah Kering



PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: Gowa (Tanah Asli), Enrekang (Tanah Organik)												
TESTING	: kompaksi												
SAMPLE NO.	: Tanah Asli + 50% Tanah Organik												
TESTING METHOD	: ASTM D 698/ D 1567					TESTED BY		: M. Taqiyuddin & Mustafa					
LABORATORY	: HASANUDDIN UNIVERSITY					DATE		: September 2022					
Berat tanah	gram	2000		2000		2000		2000		2000		2000	
Kadar air mula-mula	%	0,00		0,00		0,00		0,00		0,00		0,00	
Penambahan air	ml	500		600		700		800		900		1000	
Kadar air akhir	%	25,00		30,00		35,00		40,00		45,00		50,00	
Berat Isi Basah (Wet density)													
No. Mould	-	1		2		3		4		5		6	
Berat Mould	gram	1899		1899		1899		1899		1899		1899	
Berat tanah basah + Mould	gram	2666		2798		2881		3006		3076		3052	
Berat tanah basah, W_{wet}	gram	767		899		982		1107		1177		1153	
Volume Mould, V_{mould}	cm^3	1004		1004		1004		1004		1004		1004	
Berat Volume Basah	gr/cm^3	0,764		0,895		0,978		1,103		1,172		1,148	
Kadar Air (Water Content)													
No. Container	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Berat tanah basah + Container	gram	39,09	32,43	30,93	26,37	31,93	34,47	46,93	43,11	42,21	48,92	50,29	48,7
Berat tanah kering + Container	gram	31,45	26,4	24,57	21,1	24,71	26,49	35,32	32,66	30,78	37,97	38,27	37,11
Berat container	gram	5,43	5,33	5,44	5,45	5,4	5,36	8,06	8,02	8,06	15,64	15,46	15,06
Kadar air	%	29,36	28,62	33,25	33,67	37,39	37,77	42,59	42,41	50,31	49,04	52,70	52,56
Kadar air rata-rata	%	28,99		33,46		37,58		42,50		49,67		52,63	
Berat Isi Kering (Dry Density)													
Berat tanah basah, W_{wet}	gram	767		899		982		1107		1177		1153	
Kadar air rata-rata	%	28,99		33,46		37,58		42,50		49,67		52,63	
Berat kering $Wdry = \frac{Wwet}{1+\left(\frac{W}{100}\right)}$	gram	594,62		673,61		713,78		776,84		786,38		755,43	
Volume Mould	cm^3	1003,94		1003,94		1003,94		1003,94		1003,94		1003,94	
Berat isi kering $\gamma dry = \frac{W_{dry}}{V_{mould}}$	gr/cm^3	0,592		0,671		0,711		0,77		0,78		0,75	
gzav = gw/(w+(1/Gs))	gr/cm^3	1,266		1,198		1,142		1,081		1,003		0,974	



PERHITUNGAN MIX DESIGN UCT

	Satuan	UCT
Diameter (D)	(cm)	5,5
Tinggi (h)	(cm)	11

Uraian	Satuan	Variasi Tanah Organik				
		10%	20%	30%	40%	50%
w opt	(%)	35,04	36,37	38,46	43,75	49,67
γ dry	(gr/cm^3)	1,23	1,08	1,03	0,85	0,78
V mould	(cm^3)	261,34	261,34	261,34	261,34	261,34
W dry	(g)	322,51	281,18	268,09	222,56	204,71
kadar air mula-mula	(%)	0,00	0,00	0,00	0,00	0,00
Wwater	(g)	0,00	0,00	0,00	0,00	0,00
Penambahan Cairan	(g)	113,00	102,27	103,12	97,37	101,68
Air	(g)	93,65	85,40	87,03	84,02	89,40
Bakteri 6%	(g)	19,35	16,87	16,09	13,35	12,28
Kontrol	(g)	113	102	103	97	102
Tanah mula-mula	(g)	322,51	281,18	268,09	222,56	204,71
Tanah Asli	(g)	290,26	224,94	187,67	133,53	102,35
Tanah Organik	(g)	32,25	56,24	80,43	89,02	102,35
Kontrol	(g)	322,51	281,18	268,09	222,56	204,71

Komposisi Sampel UCT						
Uraian	Satuan	10%	20%	30%	40%	50%
Tanah Asli	(g)	290	225	188	134	102
Tanah Organik	(g)	32	56	80	89	102
Air	(g)	94	85	87	84	89
Bakteri 6%	(g)	19	17	16	13	12

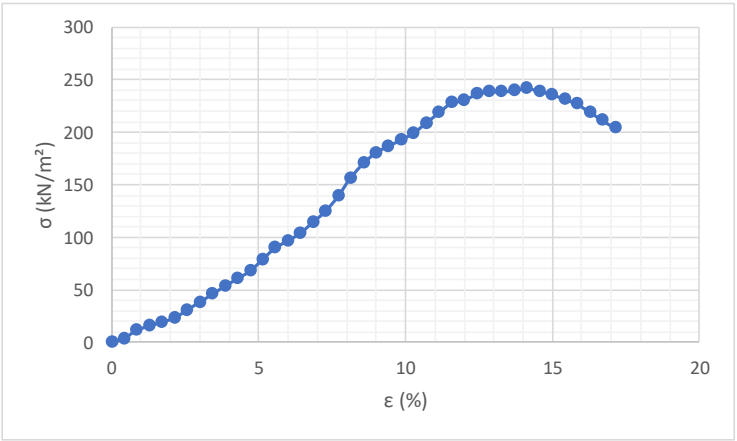
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 10% Tanah Organik		
PEMERAMAN	-		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		427	gram	Index Properties	Weight of Wet Soil	43,81	gram
Sample Size	Diameter, d	5,58	cm		Weight of Dry Soil	32,96	gram
	Height, h	11,68	cm		Water Content	32,92	%
	Volume	285,63	cm^3		Dry Unit Weight	1,125	$gram/cm^3$
	Area, Ao	24,45	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	24,45	0,000	1,05	8,99	25,0	49,45	26,87	180,538
0,05	0,43	0,5	0,99	24,56	3,950	1,10	9,42	26,0	51,43	27,00	186,876
0,10	0,86	1,5	2,97	24,67	11,800	1,15	9,85	27,0	53,41	27,13	193,146
0,15	1,28	2,0	3,96	24,77	15,666	1,20	10,27	28,0	55,38	27,25	199,349
0,20	1,71	2,5	4,95	24,88	19,497	1,25	10,70	29,5	58,35	27,39	209,026
0,25	2,14	3,0	5,93	24,99	23,295	1,30	11,13	31,0	61,32	27,52	218,602
0,30	2,57	4,0	7,91	25,10	30,924	1,35	11,56	32,5	64,29	27,65	228,075
0,35	3,00	5,0	9,89	25,21	38,485	1,40	11,99	33,0	65,27	27,78	230,463
0,40	3,42	6,0	11,87	25,32	45,978	1,45	12,41	34,0	67,25	27,92	236,292
0,45	3,85	7,0	13,85	25,43	53,404	1,50	12,84	34,5	68,24	28,06	238,595
0,50	4,28	8,0	15,82	25,55	60,761	1,55	13,27	34,7	68,64	28,20	238,799
0,55	4,71	9,0	17,80	25,66	68,051	1,60	13,70	35,0	69,23	28,34	239,675
0,60	5,14	10,5	20,77	25,78	79,036	1,65	14,13	35,5	70,22	28,48	241,893
0,65	5,57	12,0	23,74	25,90	89,919	1,70	14,55	35,3	69,82	28,62	239,331
0,70	5,99	13,0	25,71	26,01	96,971	1,75	14,98	35,0	69,23	28,76	236,108
0,75	6,42	14,0	27,69	26,13	103,954	1,80	15,41	34,5	68,24	28,91	231,564
0,80	6,85	15,5	30,66	26,25	114,566	1,85	15,84	34,0	67,25	29,06	227,053
0,85	7,28	17,0	33,63	26,37	125,075	1,90	16,27	33,0	65,27	29,21	219,254
0,90	7,71	19,0	37,58	26,50	139,145	1,95	16,70	32,0	63,30	29,36	211,523
0,95	8,13	21,5	42,53	26,62	156,723	2,00	17,12	31,0	61,32	29,51	203,860
1,00	8,56	23,5	46,48	26,74	170,503						

Tegangan =	120,9 kN/m²
Regangan =	7,1 %
Modulus =	17,0 kN/m²



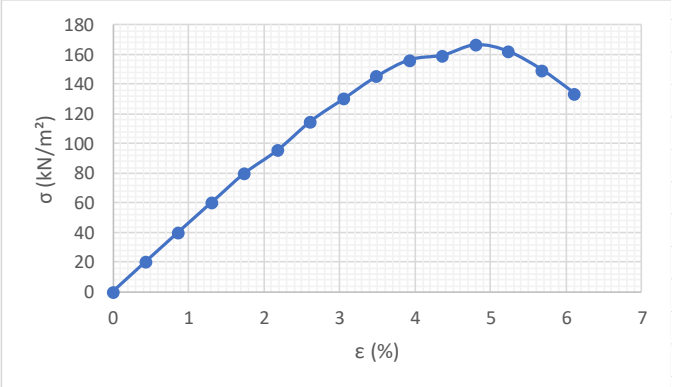
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 10% Tanah Organik + Bakteri		
PEMERAMAN	0 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		426	gram	Index Properties	Weight of Wet Soil	41,73	gram
Sample Size	Diameter, d	5,51	cm		Weight of Dry Soil	30,55	gram
	Height, h	11,46	cm		Water Content	36,58	%
	Volume	273,26	cm^3		Dry Unit Weight	1,141	$gram/cm^3$
	Area, Ao	23,84	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,84	0,00						
0,05	0,44	2,5	4,95	23,95	20,26						
0,10	0,87	5,0	9,89	24,05	40,33						
0,15	1,31	7,5	14,84	24,16	60,23						
0,20	1,75	10,0	19,78	24,27	79,96						
0,25	2,18	12,0	23,74	24,38	95,52						
0,30	2,62	14,5	28,68	24,49	114,91						
0,35	3,05	16,5	32,64	24,60	130,17						
0,40	3,49	18,5	36,59	24,71	145,29						
0,45	3,93	20,0	39,56	24,82	156,36						
0,50	4,36	20,5	40,55	24,93	159,54						
0,55	4,80	21,5	42,53	25,05	166,56						
0,60	5,24	21,0	41,54	25,16	161,94						
0,65	5,67	19,5	38,57	25,28	149,68						
0,70	6,11	17,5	34,62	25,40	133,71						

Tegangan =	83,3 kN/m^2
Regangan =	1,8 %
Modulus =	46,3 kN/m^2



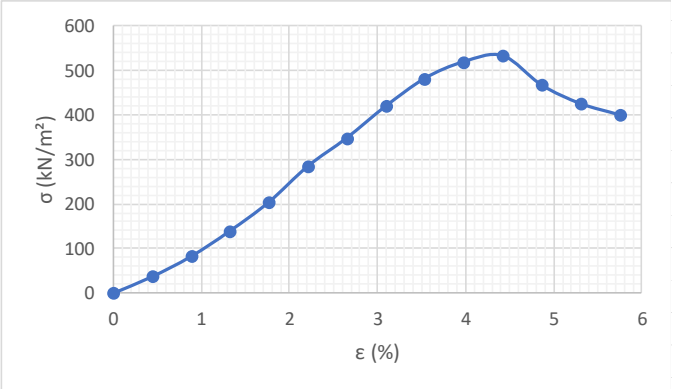
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 10% Tanah Organik + Bakteri		
PEMERAMAN	7 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		415	gram	Index Properties	Weight of Wet Soil	31,47	gram
Sample Size	Diameter, d	5,45	cm		Weight of Dry Soil	24,18	gram
	Height, h	11,31	cm		Water Content	30,15	%
	Volume	263,84	cm^3		Dry Unit Weight	1,209	$gram/cm^3$
	Area, Ao	23,33	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,33	0,00						
0,05	0,44	4,5	8,90	23,43	37,26						
0,10	0,88	10,0	19,78	23,54	82,44						
0,15	1,33	17,0	33,63	23,64	139,53						
0,20	1,77	25,0	49,45	23,75	204,27						
0,25	2,21	35,0	69,23	23,86	284,69						
0,30	2,65	43,0	85,05	23,96	348,18						
0,35	3,09	52,0	102,86	24,07	419,14						
0,40	3,54	60,0	118,68	24,18	481,42						
0,45	3,98	65,0	128,57	24,29	519,15						
0,50	4,42	67,0	132,53	24,41	532,66						
0,55	4,86	59,0	116,70	24,52	466,89						
0,60	5,31	54,0	106,81	24,64	425,34						
0,65	5,75	51,0	100,88	24,75	399,83						

Tegangan =	266,3 kN/m²
Regangan =	2,1 %
Modulus =	126,8 kN/m²



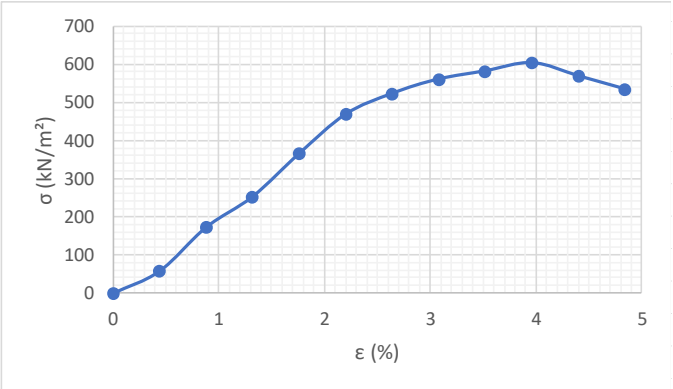
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 10% Tanah Organik + Bakteri		
PEMERAMAN	14 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		385	gram	Index Properties	Weight of Wet Soil	43,90	gram
Sample Size	Diameter, d	5,47	cm		Weight of Dry Soil	33,91	gram
	Height, h	11,37	cm		Water Content	29,46	%
	Volume	267,19	cm^3		Dry Unit Weight	1,113	$gram/cm^3$
	Area, Ao	23,50	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,50	0,00						
0,05	0,44	7,0	13,85	23,60	57,55						
0,10	0,88	21,0	41,54	23,71	171,88						
0,15	1,32	31,0	61,32	23,81	252,60						
0,20	1,76	45,0	89,01	23,92	365,04						
0,25	2,20	58,0	114,72	24,03	468,39						
0,30	2,64	65,0	128,57	24,14	522,55						
0,35	3,08	70,0	138,46	24,25	560,21						
0,40	3,52	73,0	144,39	24,36	581,57						
0,45	3,96	76,0	150,33	24,47	602,71						
0,50	4,40	72,0	142,42	24,58	568,37						
0,55	4,84	68,0	134,50	24,69	534,33						

Tegangan =	301,4 kN/m^2
Regangan =	1,5 %
Modulus =	200,9 kN/m^2



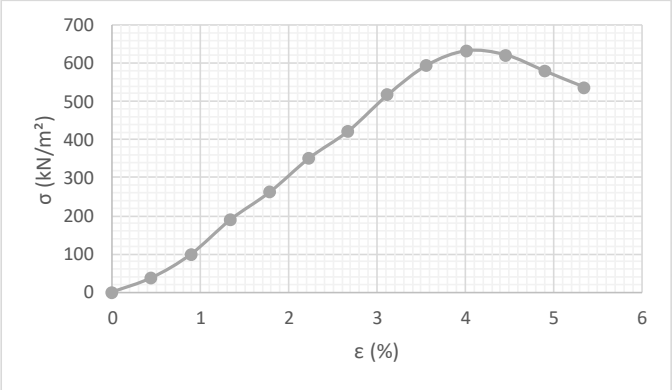
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 10% Tanah Organik + Bakteri		
PEMERAMAN	28 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		409	gram	Index Properties	Weight of Wet Soil	38,80	gram
Sample Size	Diameter, d	5,44	cm		Weight of Dry Soil	30,00	gram
	Height, h	11,22	cm		Water Content	29,32	%
	Volume	260,78	cm^3		Dry Unit Weight	1,213	$gram/cm^3$
	Area, Ao	23,24	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,24	0,00						
0,05	0,45	4,5	8,90	23,35	37,40						
0,10	0,89	12,0	23,74	23,45	99,29						
0,15	1,34	23,0	45,49	23,56	189,45						
0,20	1,78	32,0	63,30	23,66	262,39						
0,25	2,23	43,0	85,05	23,77	350,99						
0,30	2,67	52,0	102,86	23,88	422,51						
0,35	3,12	64,0	126,59	23,99	517,64						
0,40	3,57	74,0	146,37	24,10	595,76						
0,45	4,01	79,0	156,26	24,21	633,08						
0,50	4,46	78,0	154,28	24,33	622,16						
0,55	4,90	73,0	144,39	24,44	579,56						
0,60	5,35	68,0	134,50	24,56	537,34						

Tegangan =	316,5 kN/m²
Regangan =	2,1 %
Modulus =	154,4 kN/m²



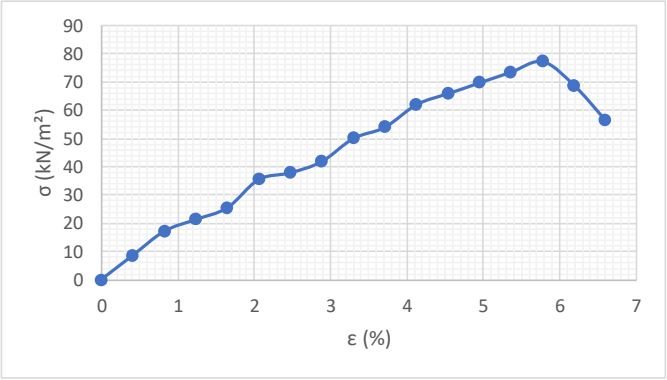
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 20% Tanah Organik + Bakteri		
PEMERAMAN	0 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		425	gram	Index Properties	Weight of Wet Soil	40,98	gram
Sample Size	Diameter, d	5,35	cm		Weight of Dry Soil	29,55	gram
	Height, h	12,12	cm		Water Content	38,66	%
	Volume	272,46	cm^3		Dry Unit Weight	1,125	$gram/cm^3$
	Area, Ao	22,48	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	22,48	0,000	0,75	6,19	8,5	16,81	23,96	68,830
0,05	0,41	1,0	1,98	22,57	8,596	0,80	6,60	7,0	13,85	24,07	56,434
0,10	0,83	2,0	3,96	22,67	17,121						
0,15	1,24	2,5	4,95	22,76	21,312						
0,20	1,65	3,0	5,93	22,86	25,468						
0,25	2,06	4,2	8,31	22,95	35,505						
0,30	2,48	4,5	8,90	23,05	37,881						
0,35	2,89	5,0	9,89	23,15	41,912						
0,40	3,30	6,0	11,87	23,25	50,081						
0,45	3,71	6,5	12,86	23,35	54,023						
0,50	4,13	7,5	14,84	23,45	62,067						
0,55	4,54	8,0	15,82	23,55	65,920						
0,60	4,95	8,5	16,81	23,65	69,738						
0,65	5,36	9,0	17,80	23,75	73,519						
0,70	5,78	9,5	18,79	23,86	77,265						

Tegangan =	38,6 kN/m²
Regangan =	2,5 %
Modulus =	15,5 kN/m²



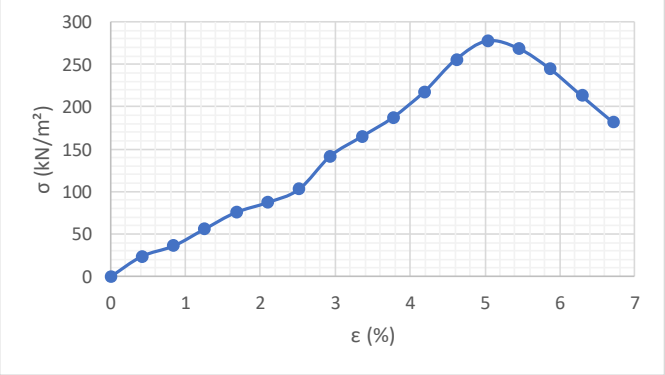
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 20% Tanah Organik + Bakteri		
PEMERAMAN	7 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		360	gram	Index Properties	Weight of Wet Soil	22,16	gram
Sample Size	Diameter, d	5,51	cm		Weight of Dry Soil	17,27	gram
	Height, h	11,92	cm		Water Content	28,31	%
	Volume	284,23	cm^3		Dry Unit Weight	0,987	$gram/cm^3$
	Area, Ao	23,84	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,84	0,00	0,75	6,29	28,0	55,38	25,45	213,52
0,05	0,42	3,0	5,93	23,95	24,31	0,80	6,71	24,0	47,47	25,56	182,20
0,10	0,84	4,5	8,90	24,05	36,31						
0,15	1,26	7,0	13,85	24,15	56,25						
0,20	1,68	9,5	18,79	24,25	76,01						
0,25	2,10	11,0	21,76	24,36	87,64						
0,30	2,52	13,0	25,71	24,46	103,13						
0,35	2,94	18,0	35,60	24,57	142,18						
0,40	3,36	21,0	41,54	24,67	165,16						
0,45	3,78	24,0	47,47	24,78	187,93						
0,50	4,19	28,0	55,38	24,89	218,30						
0,55	4,61	33,0	65,27	25,00	256,15						
0,60	5,03	36,0	71,21	25,11	278,21						
0,65	5,45	35,0	69,23	25,22	269,29						
0,70	5,87	32,0	63,30	25,33	245,11						

Tegangan =	139,1	kN/m²
Regangan =	2,9	%
Modulus =	48,0	kN/m²



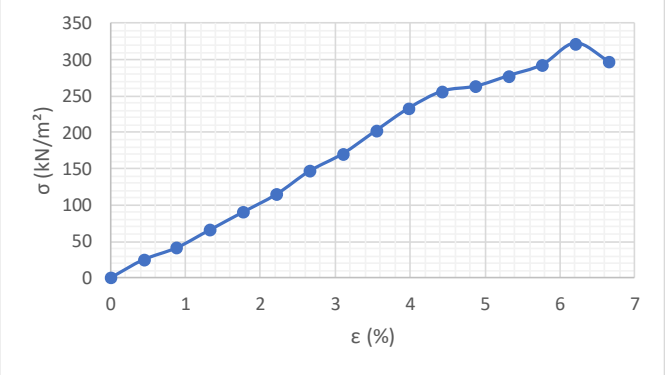
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 20% Tanah Organik + Bakteri		
PEMERAMAN	14 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		357	gram	Index Properties	Weight of Wet Soil	31,49	gram
Sample Size	Diameter, d	5,43	cm		Weight of Dry Soil	24,38	gram
	Height, h	11,28	cm		Water Content	29,16	%
	Volume	261,22	cm^3		Dry Unit Weight	1,058	$gram/cm^3$
	Area, Ao	23,16	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,16	0,00	0,75	6,65	38,0	75,16	24,81	297,24
0,05	0,44	3,0	5,93	23,26	25,03						
0,10	0,89	5,0	9,89	23,36	41,52						
0,15	1,33	8,0	15,82	23,47	66,14						
0,20	1,77	11,0	21,76	23,58	90,54						
0,25	2,22	14,0	27,69	23,68	114,71						
0,30	2,66	18,0	35,60	23,79	146,82						
0,35	3,10	21,0	41,54	23,90	170,50						
0,40	3,55	25,0	49,45	24,01	202,05						
0,45	3,99	29,0	57,36	24,12	233,30						
0,50	4,43	32,0	63,30	24,23	256,25						
0,55	4,88	33,0	65,27	24,34	263,03						
0,60	5,32	35,0	69,23	24,46	277,67						
0,65	5,76	37,0	73,19	24,57	292,17						
0,70	6,21	41,0	81,10	24,69	322,23						

Tegangan =	161,1	kN/m^2
Regangan =	2,9	%
Modulus =	55,6	kN/m^2



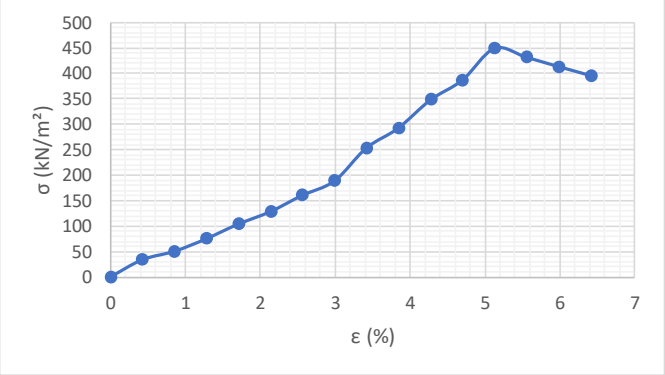
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 20% Tanah Organik + Bakteri		
PEMERAMAN	28 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		352	gram	Index Properties	Weight of Wet Soil	28,03	gram
Sample Size	Diameter, d	5,41	cm		Weight of Dry Soil	21,87	gram
	Height, h	11,70	cm		Water Content	28,17	%
	Volume	268,95	cm^3		Dry Unit Weight	1,007	$gram/cm^3$
	Area, Ao	22,99	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	22,99	0,00	0,75	6,41	50,0	98,90	24,56	395,01
0,05	0,43	4,0	7,91	23,09	33,62						
0,10	0,85	6,0	11,87	23,19	50,22						
0,15	1,28	9,0	17,80	23,29	75,00						
0,20	1,71	12,5	24,73	23,39	103,71						
0,25	2,14	15,5	30,66	23,49	128,04						
0,30	2,56	19,5	38,57	23,59	160,39						
0,35	2,99	23,0	45,49	23,70	188,34						
0,40	3,42	31,0	61,32	23,80	252,73						
0,45	3,85	36,0	71,21	23,91	292,20						
0,50	4,27	43,0	85,05	24,01	347,47						
0,55	4,70	48,0	94,94	24,12	386,14						
0,60	5,13	56,0	110,77	24,23	448,47						
0,65	5,56	54,0	106,81	24,34	430,51						
0,70	5,98	52,0	102,86	24,45	412,69						

Tegangan =	224,2	kN/m²
Regangan =	3,2	%
Modulus =	70,1	kN/m²



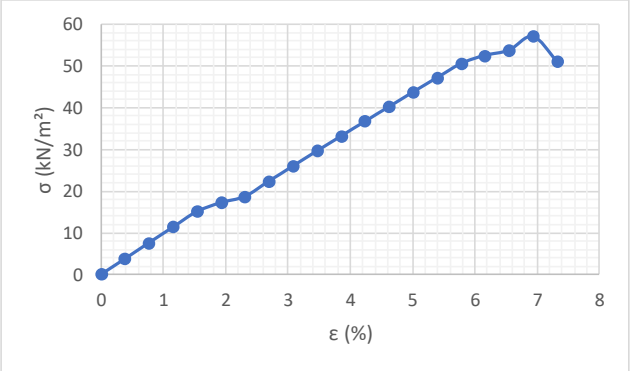
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	LOKASI SAMPEL		
NO. SAMPLE	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
PEMERAMAN	0 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		339	gram	Index Properties	Weight of Wet Soil	31,39	gram
Sample Size	Diameter, d	5,68	cm		Weight of Dry Soil	22,15	gram
	Height, h	12,98	cm		Water Content	41,72	%
	Volume	328,90	cm^3		Dry Unit Weight	0,727	$gram/cm^3$
	Area, Ao	25,34	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	25,34	0,000	0,75	5,78	7,0	13,85	26,89	50,508
0,05	0,39	0,5	0,99	25,44	3,814	0,80	6,16	7,3	14,44	27,00	52,457
0,10	0,77	1,0	1,98	25,54	7,599	0,85	6,55	7,5	14,84	27,11	53,673
0,15	1,16	1,5	2,97	25,64	11,354	0,90	6,93	8,0	15,82	27,23	57,015
0,20	1,54	2,0	3,96	25,74	15,080	0,95	7,32	7,2	14,24	27,34	51,101
0,25	1,93	2,3	4,55	25,84	17,274						
0,30	2,31	2,5	4,95	25,94	18,702						
0,35	2,70	3,0	5,93	26,04	22,354						
0,40	3,08	3,5	6,92	26,14	25,977						
0,45	3,47	4,0	7,91	26,25	29,570						
0,50	3,85	4,5	8,90	26,35	33,133						
0,55	4,24	5,0	9,89	26,46	36,667						
0,60	4,62	5,5	10,88	26,57	40,171						
0,65	5,01	6,0	11,87	26,67	43,646						
0,70	5,39	6,5	12,86	26,78	47,092						

Tegangan =	28,5 kN/m^2
Regangan =	3,4 %
Modulus =	8,4 kN/m^2



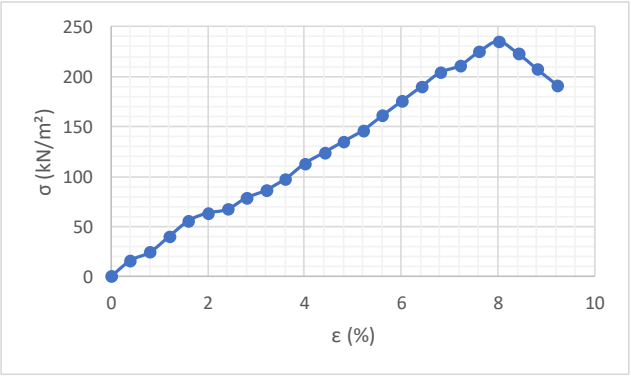
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 30% Tanah Organik + Bakteri		
PEMERAMAN	7 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		346	gram	Index Properties	Weight of Wet Soil	16,95	gram
Sample Size	Diameter, d	5,52	cm		Weight of Dry Soil	12,82	gram
	Height, h	12,46	cm		Water Content	32,22	%
	Volume	298,19	cm^3		Dry Unit Weight	0,878	$gram/cm^3$
	Area, Ao	23,93	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,93	0,000	0,75	6,02	23,0	45,49	25,46	175,264
0,05	0,40	2,0	3,96	24,03	16,151	0,80	6,42	25,0	49,45	25,57	189,691
0,10	0,80	3,0	5,93	24,13	24,130	0,85	6,82	27,0	53,41	25,68	203,988
0,15	1,20	5,0	9,89	24,22	40,053	0,90	7,22	28,0	55,38	25,79	210,632
0,20	1,61	7,0	13,85	24,32	55,847	0,95	7,62	30,0	59,34	25,91	224,701
0,25	2,01	8,0	15,82	24,42	63,565	1,00	8,03	31,5	62,31	26,02	234,912
0,30	2,41	8,5	16,81	24,52	67,261	1,05	8,43	30,0	59,34	26,13	222,749
0,35	2,81	10,0	19,78	24,62	78,805	1,10	8,83	28,0	55,38	26,25	206,988
0,40	3,21	11,0	21,76	24,73	86,328	1,15	9,23	26,0	51,43	26,36	191,357
0,45	3,61	12,5	24,73	24,83	97,693						
0,50	4,01	14,5	28,68	24,93	112,852						
0,55	4,41	16,0	31,65	25,04	124,006						
0,60	4,82	17,5	34,62	25,14	135,062						
0,65	5,22	19,0	37,58	25,25	146,020						
0,70	5,62	21,0	41,54	25,36	160,707						

Tegangan =	117,5 kN/m^2
Regangan =	4,2 %
Modulus =	28,0 kN/m^2



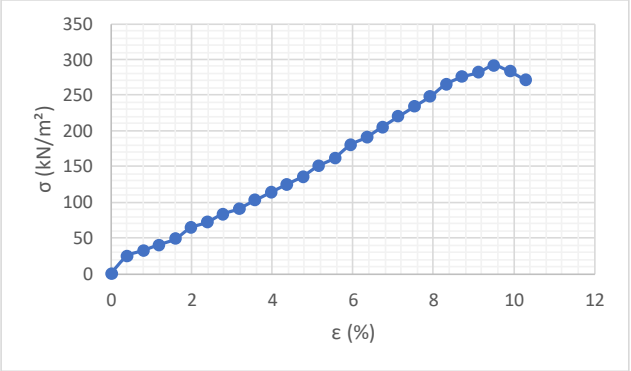
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 30% Tanah Organik + Bakteri		
PEMERAMAN	14 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		341	gram	Index Properties	Weight of Wet Soil	21,30	gram
Sample Size	Diameter, d	5,51	cm		Weight of Dry Soil	16,52	gram
	Height, h	12,63	cm		Water Content	28,97	%
	Volume	301,16	cm^3		Dry Unit Weight	0,878	$gram/cm^3$
	Area, Ao	23,84	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,84	0,000	0,75	5,94	23,5	46,48	25,35	179,880
0,05	0,40	3,0	5,93	23,94	24,316	0,80	6,33	25,0	49,45	25,46	190,556
0,10	0,79	4,0	7,91	24,04	32,293	0,85	6,73	27,0	53,41	25,57	204,931
0,15	1,19	5,0	9,89	24,13	40,205	0,90	7,13	29,0	57,36	25,67	219,177
0,20	1,58	6,0	11,87	24,23	48,053	0,95	7,52	31,0	61,32	25,78	233,294
0,25	1,98	8,0	15,82	24,33	63,813	1,00	7,92	33,0	65,27	25,90	247,282
0,30	2,38	9,0	17,80	24,42	71,500	1,05	8,31	35,5	70,22	26,01	264,872
0,35	2,77	10,5	20,77	24,52	83,078	1,10	8,71	37,0	73,19	26,12	274,872
0,40	3,17	11,5	22,75	24,62	90,620	1,15	9,11	38,0	75,16	26,23	281,076
0,45	3,56	13,0	25,71	24,73	102,021	1,20	9,50	39,5	78,13	26,35	290,899
0,50	3,96	14,5	28,68	24,83	113,326	1,25	9,90	38,5	76,15	26,46	282,294
0,55	4,35	16,0	31,65	24,93	124,533	1,30	10,29	37,0	73,19	26,58	270,104
0,60	4,75	17,5	34,62	25,03	135,645						
0,65	5,15	19,5	38,57	25,14	150,519						
0,70	5,54	21,0	41,54	25,24	161,420						

Tegangan =	145,4 kN/m²
Regangan =	5,0 %
Modulus =	29,1 kN/m²



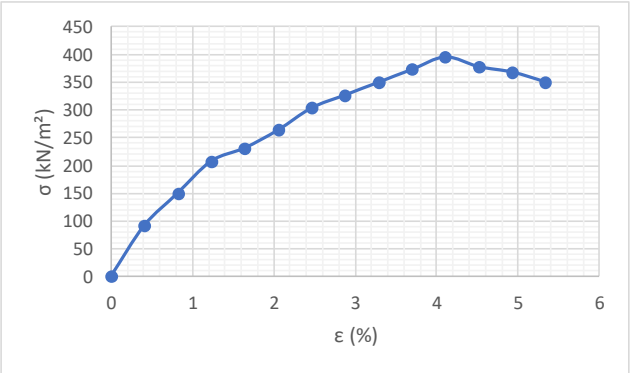
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 30% Tanah Organik + Bakteri		
PEMERAMAN	28 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		336	gram	Index Properties	Weight of Wet Soil	35,77	gram
Sample Size	Diameter, d	5,42	cm		Weight of Dry Soil	27,76	gram
	Height, h	12,18	cm		Water Content	28,85	%
	Volume	281,02	cm^3		Dry Unit Weight	0,920	$gram/cm^3$
	Area, Ao	23,07	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,07	0,000						
0,05	0,41	11,0	21,76	23,17	92,133						
0,10	0,82	18,0	35,60	23,26	150,141						
0,15	1,23	25,0	49,45	23,36	207,666						
0,20	1,64	28,0	55,38	23,46	231,619						
0,25	2,05	32,0	63,30	23,56	263,603						
0,30	2,46	37,0	73,19	23,65	303,513						
0,35	2,87	40,0	79,12	23,75	326,741						
0,40	3,28	43,0	85,05	23,86	349,763						
0,45	3,69	46,0	90,99	23,96	372,576						
0,50	4,11	49,0	96,92	24,06	395,183						
0,55	4,52	47,0	92,97	24,16	377,431						
0,60	4,93	46,0	90,99	24,27	367,812						
0,65	5,34	44,0	87,03	24,37	350,301						

Tegangan =	197,6 kN/m²
Regangan =	1,2 %
Modulus =	164,7 kN/m²



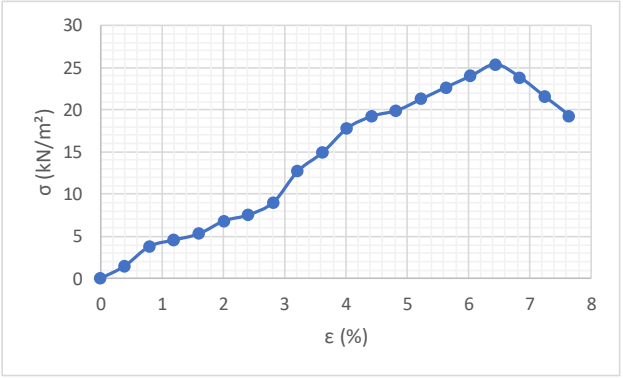
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 40% Tanah Organik + Bakteri		
PEMERAMAN	0 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		316	gram	Index Properties	Weight of Wet Soil	32,58	gram
Sample Size	Diameter, d	5,65	cm		Weight of Dry Soil	22,17	gram
	Height, h	12,42	cm		Water Content	46,99	%
	Volume	311,39	cm^3		Dry Unit Weight	0,690	$gram/cm^3$
	Area, Ao	25,07	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	25,07	0,000	0,75	6,04	3,3	6,53	26,68	23,998
0,05	0,40	0,2	0,40	25,17	1,542	0,80	6,44	3,5	6,92	26,80	25,343
0,10	0,81	0,5	0,99	25,28	3,839	0,85	6,84	3,3	6,53	26,91	23,792
0,15	1,21	0,6	1,19	25,38	4,588	0,90	7,25	3,0	5,93	27,03	21,536
0,20	1,61	0,7	1,38	25,48	5,330	0,95	7,65	2,7	5,34	27,15	19,298
0,25	2,01	0,9	1,78	25,59	6,825						
0,30	2,42	1,0	1,98	25,69	7,552						
0,35	2,82	1,2	2,37	25,80	9,026						
0,40	3,22	1,7	3,36	25,91	12,733						
0,45	3,62	2,0	3,96	26,01	14,918						
0,50	4,03	2,4	4,75	26,12	17,827						
0,55	4,43	2,6	5,14	26,23	19,231						
0,60	4,83	2,7	5,34	26,34	19,887						
0,65	5,23	2,9	5,74	26,46	21,270						
0,70	5,64	3,1	6,13	26,57	22,640						

Tegangan =	12,7 kN/m²
Regangan =	3,2 %
Modulus =	4,0 kN/m²



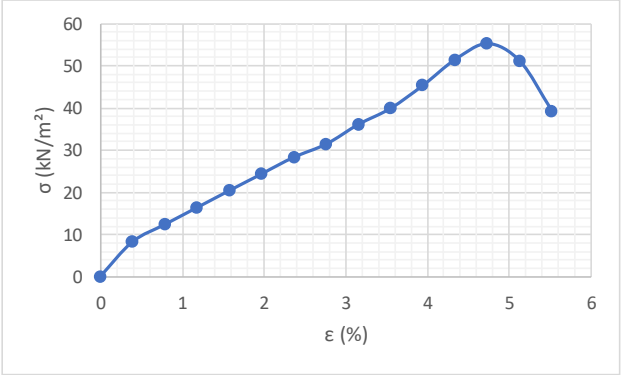
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 40% Tanah Organik + Bakteri		
PEMERAMAN	7 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		295	gram	Index Properties	Weight of Wet Soil	57,66	gram
Sample Size	Diameter, d	5,47	cm		Weight of Dry Soil	41,45	gram
	Height, h	12,68	cm		Water Content	39,10	%
	Volume	297,32	cm^3		Dry Unit Weight	0,713	$gram/cm^3$
	Area, Ao	23,46	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,46	0,000						
0,05	0,39	1,0	1,98	23,55	8,240						
0,10	0,79	1,5	2,97	23,64	12,311						
0,15	1,18	2,0	3,96	23,74	16,349						
0,20	1,58	2,5	4,95	23,83	20,354						
0,25	1,97	3,0	5,93	23,93	24,327						
0,30	2,37	3,5	6,92	24,03	28,268						
0,35	2,76	3,9	7,71	24,12	31,371						
0,40	3,16	4,5	8,90	24,22	36,050						
0,45	3,55	5,0	9,89	24,32	39,893						
0,50	3,94	5,7	11,27	24,42	45,292						
0,55	4,34	6,5	12,86	24,52	51,437						
0,60	4,73	7,0	13,85	24,62	55,165						
0,65	5,13	6,5	12,86	24,72	51,012						
0,70	5,52	5,0	9,89	24,83	39,077						

Tegangan =	27,6 kN/m²
Regangan =	2,3 %
Modulus =	12,0 kN/m²



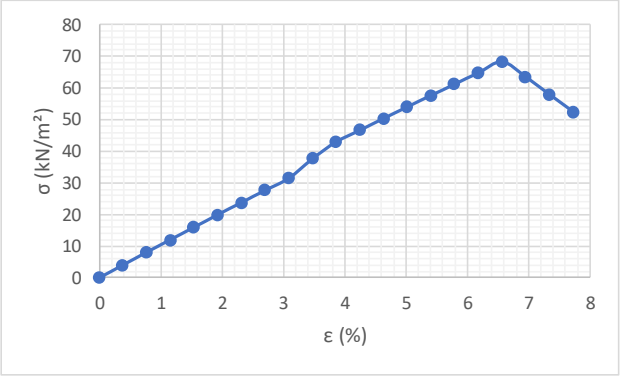
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 40% Tanah Organik + Bakteri		
PEMERAMAN	14 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		288	gram	Index Properties	Weight of Wet Soil	20,86	gram
Sample Size	Diameter, d	5,51	cm		Weight of Dry Soil	15,51	gram
	Height, h	12,94	cm		Water Content	34,49	%
	Volume	308,55	cm^3		Dry Unit Weight	0,694	$gram/cm^3$
	Area, Ao	23,84	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
		Axial Load		Axial Stress				Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,84	0,000	0,75	5,80	8,0	15,82	25,31	61,328
0,05	0,39	0,5	0,99	23,94	4,053	0,80	6,18	8,5	16,81	25,42	64,894
0,10	0,77	1,0	1,98	24,03	8,075	0,85	6,57	9,0	17,80	25,52	68,428
0,15	1,16	1,5	2,97	24,12	12,065	0,90	6,96	8,4	16,62	25,63	63,602
0,20	1,55	2,0	3,96	24,22	16,024	0,95	7,34	7,7	15,23	25,73	58,060
0,25	1,93	2,5	4,95	24,31	19,951	1,00	7,73	7,0	13,85	25,84	52,562
0,30	2,32	3,0	5,93	24,41	23,847						
0,35	2,70	3,5	6,92	24,51	27,712						
0,40	3,09	4,0	7,91	24,61	31,545						
0,45	3,48	4,8	9,49	24,70	37,703						
0,50	3,86	5,5	10,88	24,80	43,028						
0,55	4,25	6,0	11,87	24,90	46,751						
0,60	4,64	6,5	12,86	25,00	50,442						
0,65	5,02	7,0	13,85	25,11	54,103						
0,70	5,41	7,5	14,84	25,21	57,731						

Tegangan =	34,2 kN/m^2
Regangan =	3,2 %
Modulus =	10,7 kN/m^2



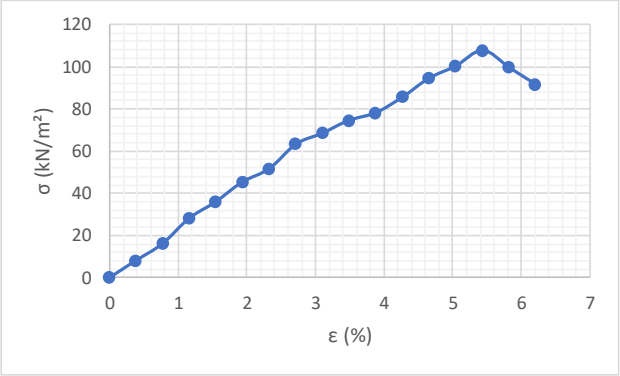
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 40% Tanah Organik + Bakteri		
PEMERAMAN	28 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		284	gram	Index Properties	Weight of Wet Soil	26,69	gram
Sample Size	Diameter, d	5,51	cm		Weight of Dry Soil	19,97	gram
	Height, h	12,88	cm		Water Content	33,66	%
	Volume	307,12	cm^3		Dry Unit Weight	0,692	$gram/cm^3$
	Area, Ao	23,84	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	23,84	0,000	0,75	5,82	13,0	25,71	25,32	99,630
0,05	0,39	1,0	1,98	23,94	8,106	0,80	6,21	12,0	23,74	25,42	91,587
0,10	0,78	2,0	3,96	24,03	16,149						
0,15	1,16	3,5	6,92	24,13	28,150						
0,20	1,55	4,5	8,90	24,22	36,051						
0,25	1,94	5,7	11,27	24,32	45,485						
0,30	2,33	6,5	12,86	24,41	51,663						
0,35	2,72	8,0	15,82	24,51	63,333						
0,40	3,11	8,7	17,21	24,61	68,599						
0,45	3,49	9,5	18,79	24,71	74,607						
0,50	3,88	10,0	19,78	24,81	78,218						
0,55	4,27	11,0	21,76	24,91	85,692						
0,60	4,66	12,2	24,13	25,01	94,655						
0,65	5,05	13,0	25,71	25,11	100,451						
0,70	5,43	14,0	27,69	25,22	107,736						

Tegangan =	53,9 kN/m^2
Regangan =	2,4 %
Modulus =	22,4 kN/m^2



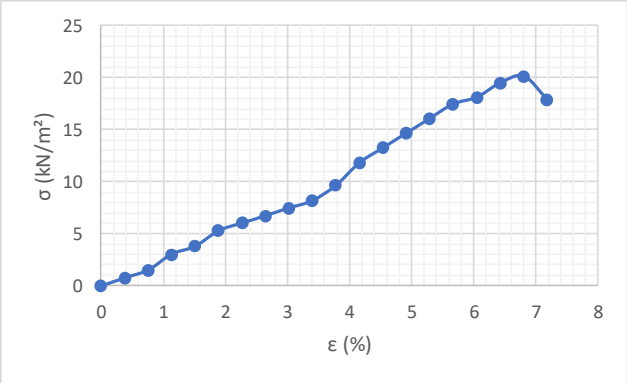
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 50% Tanah Organik + Bakteri		
PEMERAMAN	0 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: NOV 2022

Sample Weight		301	gram	Index Properties	Weight of Wet Soil	28,04	gram
Sample Size	Diameter, d	5,65	cm		Weight of Dry Soil	18,46	gram
	Height, h	13,24	cm		Water Content	51,91	%
	Volume	331,95	cm^3		Dry Unit Weight	0,597	$gram/cm^3$
	Area, Ao	25,07	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	25,07	0,000	0,75	5,66	2,4	4,75	26,58	17,522
0,05	0,38	0,1	0,20	25,17	0,771	0,80	6,04	2,5	4,95	26,68	18,179
0,10	0,76	0,2	0,40	25,26	1,536	0,85	6,42	2,7	5,34	26,79	19,555
0,15	1,13	0,4	0,79	25,36	3,061	0,90	6,80	2,8	5,54	26,90	20,197
0,20	1,51	0,5	0,99	25,46	3,811	0,95	7,18	2,5	4,95	27,01	17,960
0,25	1,89	0,7	1,38	25,55	5,315						
0,30	2,27	0,8	1,58	25,65	6,051						
0,35	2,64	0,9	1,78	25,75	6,781						
0,40	3,02	1,0	1,98	25,85	7,506						
0,45	3,40	1,1	2,18	25,95	8,224						
0,50	3,78	1,3	2,57	26,06	9,681						
0,55	4,15	1,6	3,16	26,16	11,869						
0,60	4,53	1,8	3,56	26,26	13,300						
0,65	4,91	2,0	3,96	26,37	14,719						
0,70	5,29	2,2	4,35	26,47	16,127						

Tegangan =	10,1 kN/m²
Regangan =	3,9 %
Modulus =	2,6 kN/m²



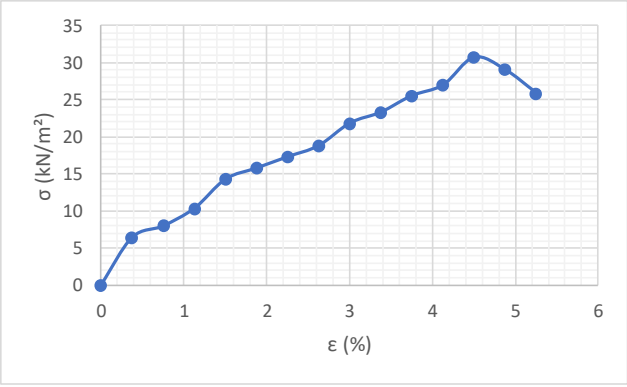
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 50% Tanah Organik + Bakteri		
PEMERAMAN	7 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		280	gram	Index Properties	Weight of Wet Soil	54,90	gram
Sample Size	Diameter, d	5,55	cm		Weight of Dry Soil	38,35	gram
	Height, h	13,34	cm		Water Content	43,17	%
	Volume	322,72	cm^3		Dry Unit Weight	0,606	$gram/cm^3$
	Area, Ao	24,19	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	24,19	0,000						
0,05	0,37	0,8	1,58	24,28	6,393						
0,10	0,75	1,0	1,98	24,37	7,961						
0,15	1,12	1,3	2,57	24,47	10,310						
0,20	1,50	1,8	3,56	24,56	14,221						
0,25	1,87	2,0	3,96	24,65	15,741						
0,30	2,25	2,2	4,35	24,75	17,249						
0,35	2,62	2,4	4,75	24,84	18,745						
0,40	3,00	2,8	5,54	24,94	21,785						
0,45	3,37	3,0	5,93	25,04	23,251						
0,50	3,75	3,3	6,53	25,13	25,477						
0,55	4,12	3,5	6,92	25,23	26,915						
0,60	4,50	4,0	7,91	25,33	30,640						
0,65	4,87	3,8	7,52	25,43	28,994						
0,70	5,25	3,4	6,73	25,53	25,840						

Tegangan =	15,3 kN/m²
Regangan =	1,8 %
Modulus =	8,5 kN/m²



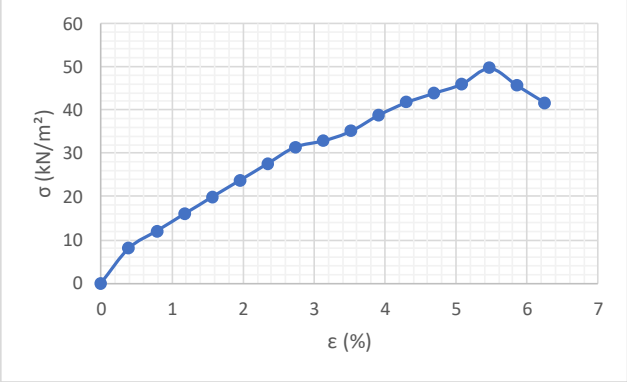
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 50% Tanah Organik + Bakteri		
PEMERAMAN	14 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

Sample Weight		277	gram	Index Properties	Weight of Wet Soil	22,51	gram
Sample Size	Diameter, d	5,53	cm		Weight of Dry Soil	16,04	gram
	Height, h	12,80	cm		Water Content	40,35	%
	Volume	307,43	cm^3		Dry Unit Weight	0,642	$gram/cm^3$
	Area, Ao	24,02	cm^2	Proving Ring Calibration		1,978	kg/div

Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress		Axial Deformation		Axial Load & Stress: Axial Load		Axial Load & Stress: Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	24,02	0,000	0,75	5,86	6,0	11,87	25,51	45,633
0,05	0,39	1,0	1,98	24,11	8,047	0,80	6,25	5,5	10,88	25,62	41,657
0,10	0,78	1,5	2,97	24,21	12,024						
0,15	1,17	2,0	3,96	24,30	15,969						
0,20	1,56	2,5	4,95	24,40	19,882						
0,25	1,95	3,0	5,93	24,50	23,763						
0,30	2,34	3,5	6,92	24,59	27,614						
0,35	2,73	4,0	7,91	24,69	31,432						
0,40	3,13	4,2	8,31	24,79	32,871						
0,45	3,52	4,5	8,90	24,89	35,077						
0,50	3,91	5,0	9,89	24,99	38,817						
0,55	4,30	5,4	10,68	25,10	41,752						
0,60	4,69	5,7	11,27	25,20	43,891						
0,65	5,08	6,0	11,87	25,30	46,012						
0,70	5,47	6,5	12,86	25,41	49,641						

Tegangan =	24,8 kN/m^2
Regangan =	2,6 %
Modulus =	9,5 kN/m^2



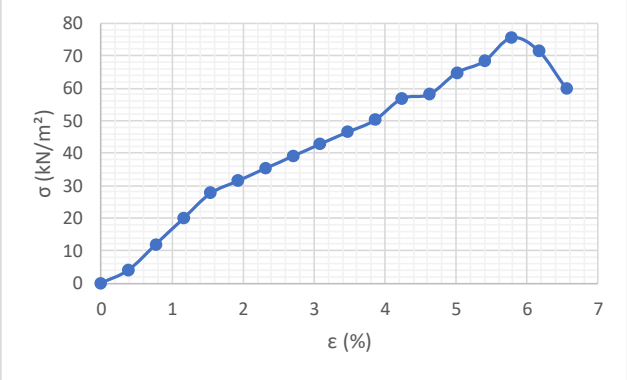
UNCONFINED COMPRESSION TEST RESULTS

PROJECT	SOIL INVESTIGATION REPORT		
LOCATION	Gowa (Tanah Asli), Enrekang (Tanah Organik)		
NO. SAMPLE	Tanah Asli + 50% Tanah Organik + Bakteri		
PEMERAMAN	28 Hari		
TESTING METHOD	ASTM D 2166-66	TESTED BY	: M. Taqiyuddin
LABORATORY	HASANUDDIN UNIVERSITY	DATE	: OCT 2022

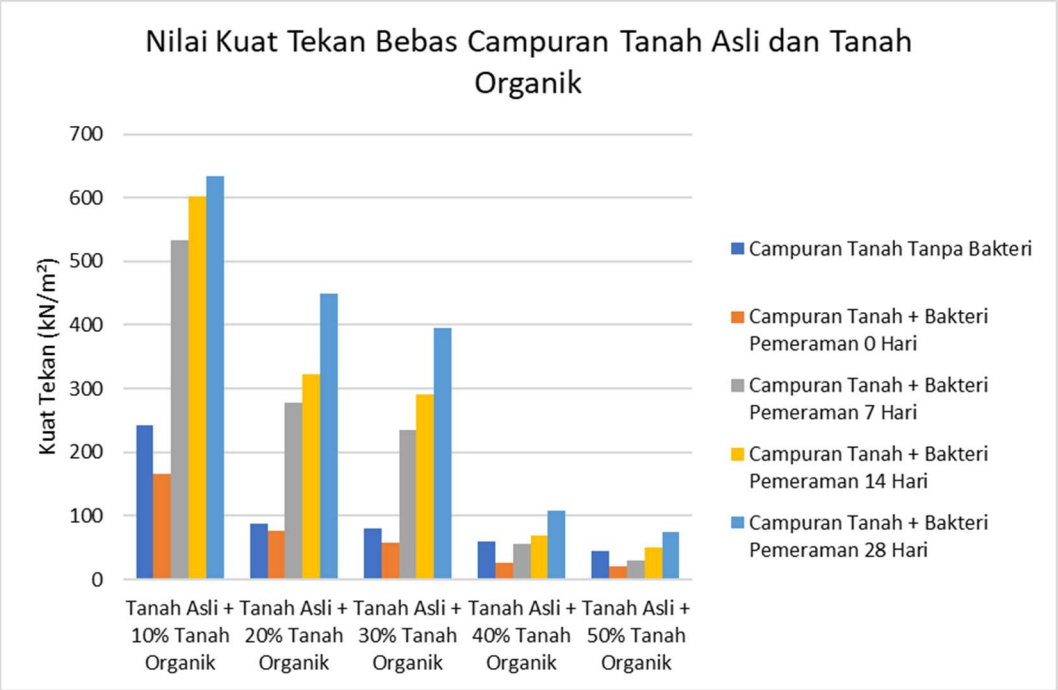
Sample Weight		260	gram	Index Properties	Weight of Wet Soil	29,16	gram
Sample Size	Diameter, d	5,55	cm		Weight of Dry Soil	20,76	gram
	Height, h	12,97	cm		Water Content	40,50	%
	Volume	313,77	cm^3		Dry Unit Weight	0,590	$gram/cm^3$
	Area, Ao	24,19	cm^2	Proving Ring Calibration		1,978	kg/div

Axial		Axial Load & Stress				Axial		Axial Load & Stress			
Deformation		Axial Load		Axial Stress		Deformation		Axial Load		Axial Stress	
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A	δh	ε = δh/h	-	P	A = Ao/(1- ε)	σ = P/A
(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)	(cm)	(%)	(div)	(kg)	(cm^2)	(kN/m^2)
0,00	0,00	0,0	0,00	24,19	0,000	0,75	5,78	10,0	19,78	25,68	75,570
0,05	0,39	0,5	0,99	24,29	3,995	0,80	6,17	9,5	18,79	25,78	71,498
0,10	0,77	1,5	2,97	24,38	11,938	0,85	6,55	8,0	15,82	25,89	59,961
0,15	1,16	2,5	4,95	24,48	19,820						
0,20	1,54	3,5	6,92	24,57	27,640						
0,25	1,93	4,0	7,91	24,67	31,465						
0,30	2,31	4,5	8,90	24,77	35,259						
0,35	2,70	5,0	9,89	24,86	39,022						
0,40	3,08	5,5	10,88	24,96	42,754						
0,45	3,47	6,0	11,87	25,06	46,455						
0,50	3,86	6,5	12,86	25,16	50,126						
0,55	4,24	7,4	14,64	25,26	56,837						
0,60	4,63	7,6	15,03	25,37	58,138						
0,65	5,01	8,5	16,81	25,47	64,760						
0,70	5,40	9,0	17,80	25,57	68,291						

Tegangan =	37,8 kN/m²
Regangan =	2,6 %
Modulus =	14,5 kN/m²



REKAPITULASI NILAI KUAT TEKAN BEBAS CAMPURAN TANAH ASLI DAN TANAH ORGANIK					
Sampel	Campuran Tanah Tanpa Bakteri	Campuran Tanah + Bakteri			
		Pemeraman 0 Hari	Pemeraman 7 Hari	Pemeraman 14 Hari	Pemeraman 28 Hari
	kN/m²	kN/m²	kN/m²	kN/m²	kN/m²
Tanah Asli + 10% Tanah Organik	241,89	166,56	532,66	602,71	633,08
Tanah Asli + 20% Tanah Organik	87,66	77,27	278,21	322,23	448,47
Tanah Asli + 30% Tanah Organik	81,05	57,02	234,91	290,90	395,18
Tanah Asli + 40% Tanah Organik	59,04	25,34	55,16	68,43	107,74
Tanah Asli + 50% Tanah Organik	44,94	20,20	30,64	49,64	75,57



BERAT VOLUME SAMPEL DALAM KEADAAN JENUH AIR													
Komposisi Tanah	Waktu Pemeraman	W	V	w	Gs	γw	γs	Ws	Ww	Vs	Vw	Vs+Vw	V-(Vs+Vw)
		gram	cm³	%	-	gram/cm³	gram/cm³	gram	gram	cm³	cm³	cm³	cm³
10% Tanah Organik dan 90% Tanah Asli	Tanpa Bakteri	427	285,63	32,92	2,504	1	2,504	321,24	105,76	128,29	105,76	234,05	51,58
	Pemeraman 0 Hari	426	273,26	35,37		1		314,69	111,31	125,68	111,31	236,98	36,28
	Pemeraman 7 Hari	415	263,84	30,15		1		318,87	96,13	127,34	96,13	223,48	40,37
	Pemeraman 14 Hari	385	267,19	29,46		1		297,38	87,62	118,76	87,62	206,38	60,81
	Pemeraman 28 Hari	409	260,78	29,32		1		316,28	92,72	126,31	92,72	219,03	41,75
20% Tanah Organik dan 80% Tanah Asli	Tanpa Bakteri	384	302,97	36,37	2,378	1	2,378	281,59	102,41	118,41	102,41	220,83	82,14
	Pemeraman 0 Hari	425	272,46	36,37		1		311,65	113,35	131,06	113,35	244,40	28,05
	Pemeraman 7 Hari	360	284,23	28,31		1		280,56	79,44	117,98	79,44	197,42	86,81
	Pemeraman 14 Hari	357	261,22	29,16		1		276,39	80,61	116,23	80,61	196,84	64,38
	Pemeraman 28 Hari	352	268,95	28,17		1		274,64	77,36	115,49	77,36	192,85	76,10
30% Tanah Organik dan 70% Tanah Asli	Tanpa Bakteri	371	326,36	38,13	2,252	1	2,252	268,59	102,41	119,27	102,41	221,68	104,69
	Pemeraman 0 Hari	339	328,90	38,46		1		244,84	94,16	108,72	94,16	202,88	126,01
	Pemeraman 7 Hari	346	298,19	32,22		1		261,69	84,31	116,21	84,31	200,51	97,67
	Pemeraman 14 Hari	341	301,16	28,97		1		264,40	76,60	117,40	76,60	194,01	107,15
	Pemeraman 28 Hari	336	281,02	28,85		1		260,76	75,24	115,79	75,24	191,03	89,99
40% Tanah Organik dan 60% Tanah Asli	Tanpa Bakteri	314	352,31	43,75	2,126	1	2,126	218,43	95,57	102,74	95,57	198,31	154,00
	Pemeraman 0 Hari	316	311,39	43,75		1		219,83	96,17	103,40	96,17	199,57	111,82
	Pemeraman 7 Hari	295	297,32	39,10		1		212,08	82,92	99,76	82,92	182,67	114,64
	Pemeraman 14 Hari	288	308,55	34,49		1		214,14	73,86	100,72	73,86	174,59	133,96
	Pemeraman 28 Hari	284	307,12	33,66		1		212,48	71,52	99,94	71,52	171,46	135,66
50% Tanah Organik dan 50% Tanah Asli	Tanpa Bakteri	299	331,62	44,65	2	1	2	206,70	92,30	103,35	92,30	195,65	135,97
	Pemeraman 0 Hari	301	331,95	49,67		1		201,11	99,89	100,55	99,89	200,45	131,51
	Pemeraman 7 Hari	280	322,72	43,17		1		195,57	84,43	97,78	84,43	182,22	140,51
	Pemeraman 14 Hari	277	307,43	40,35		1		197,36	79,64	98,68	79,64	178,32	129,12
	Pemeraman 28 Hari	260	313,77	40,50		1		185,06	74,94	92,53	74,94	167,47	146,30

Komposisi Tanah	Waktu Pemeraman	V-Vs	Ww'	γ sat
		cm³	gram	gram/cm³
10% Tanah Organik dan 90% Tanah Asli	Tanpa Bakteri	157,34	157,34	1,68
	Pemeraman 0 Hari	147,58	147,58	1,69
	Pemeraman 7 Hari	136,50	136,50	1,73
	Pemeraman 14 Hari	148,43	148,43	1,67
	Pemeraman 28 Hari	134,47	134,47	1,73
20% Tanah Organik dan 80% Tanah Asli	Tanpa Bakteri	184,56	184,56	1,54
	Pemeraman 0 Hari	141,40	141,40	1,66
	Pemeraman 7 Hari	166,25	166,25	1,57
	Pemeraman 14 Hari	144,99	144,99	1,61
	Pemeraman 28 Hari	153,46	153,46	1,59
30% Tanah Organik dan 70% Tanah Asli	Tanpa Bakteri	207,10	207,10	1,46
	Pemeraman 0 Hari	220,18	220,18	1,41
	Pemeraman 7 Hari	181,98	181,98	1,49
	Pemeraman 14 Hari	183,75	183,75	1,49
	Pemeraman 28 Hari	165,23	165,23	1,52
40% Tanah Organik dan 60% Tanah Asli	Tanpa Bakteri	249,56	249,56	1,33
	Pemeraman 0 Hari	207,99	207,99	1,37
	Pemeraman 7 Hari	197,56	197,56	1,38
	Pemeraman 14 Hari	207,83	207,83	1,37
	Pemeraman 28 Hari	207,18	207,18	1,37
50% Tanah Organik dan 50% Tanah Asli	Tanpa Bakteri	228,27	228,27	1,31
	Pemeraman 0 Hari	231,40	231,40	1,30
	Pemeraman 7 Hari	224,94	224,94	1,30
	Pemeraman 14 Hari	208,75	208,75	1,32
	Pemeraman 28 Hari	221,24	221,24	1,29