


DAFTAR PUSTAKA

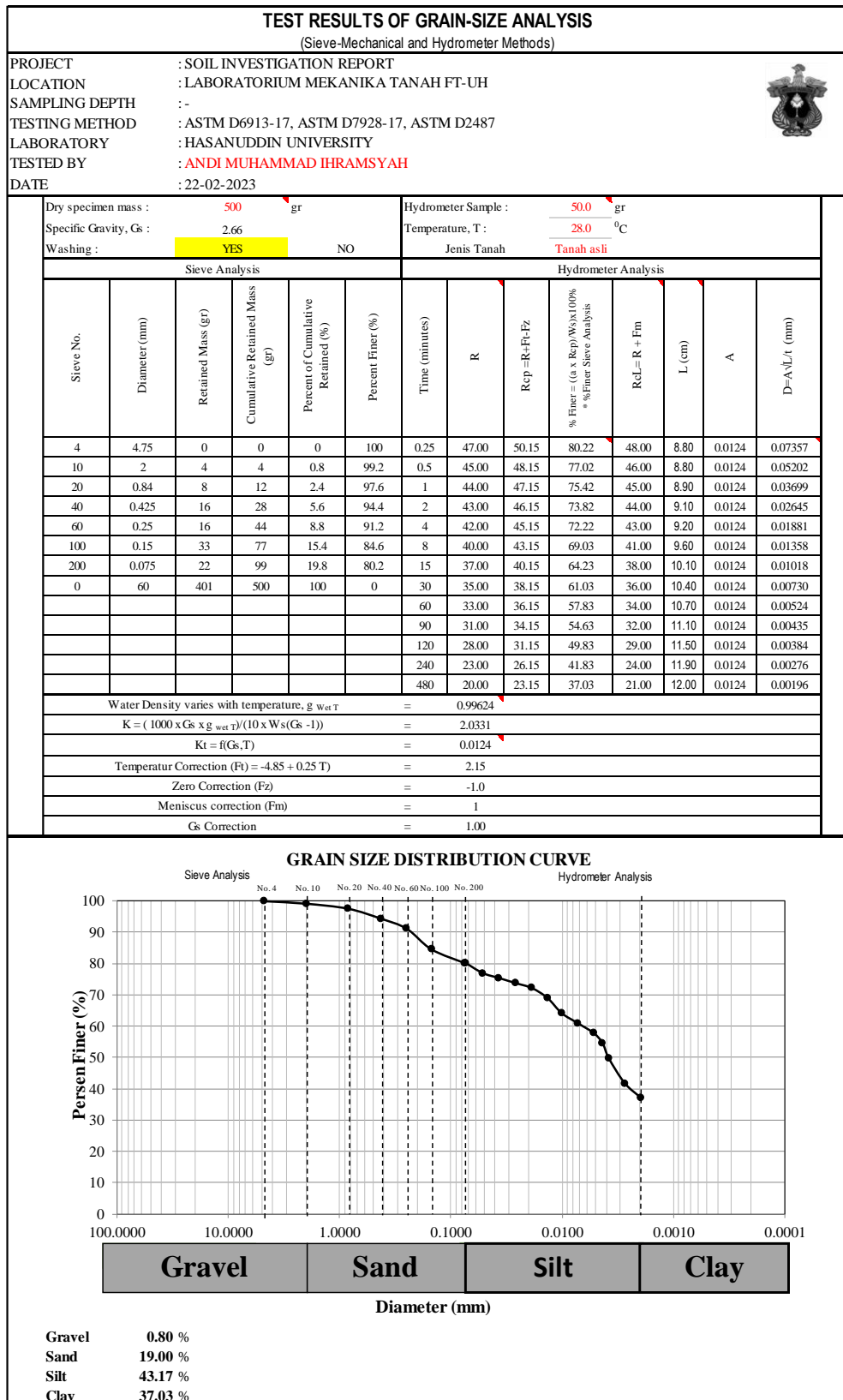
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LAMPIRAN

Lampiran 1. Pengujian fisis Campuran tanah asli dan bentonite

SPECIFIC GRAVITY TEST RESULTS									
PROJECT	: SOIL INVESTIGATION REPORT								
LOCATION	: LABORATORIUM MEKANIKA TANAH FT-UH								
QUARRY	:								
BORING DEPTH	:-								
TESTING METHOD	: ASTM D 854-14, SNI 1964:2008								
LABORATORY	: HASANUDDIN UNIVERSITY								
TESTED BY	: ANDI MUHAMMAD IHRAMSYAH								
DATE	: 03-03-2023								
									
Sample	-	Tanah Asli		70 % Bentonite- 30 % Tanah Asli		50 % Bentonite- 50 % Tanah Asli		Bentonite	
Sample Depth & Inclination	m	-		-		-		-	
Number of Volumetric Flask	-	A3	B3	A2	B2	A1	B1	A1	B1
Weight of Vol. Flask + Soil (W2)	gram	81.40	60.00	28.87	33.10	28.91	32.99	28.9	33.0
Weight of Vol. Flask (W1)	gram	61.40	40.00	23.78	27.77	23.78	27.8	23.78	27.8
Weight of Soil	gram	20.00	20.00	5.09	5.33	5.13	5.22	5.13	5.2
Temperature, T	°C	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Weight of Vol. Flask+Water at T (W4)	gram	161.02	142.06	76.62	77.24	76.60	77.3	76.51	77.3
Weight of Vol. Flask+Water+Soil (W3)	gram	172.58	154.05	79.30	80.04	79.30	80.3	79.32	80.3
Unit Weight of Water at T, γ_T	gram/cm ³	0.99624	0.99624	0.99624	0.99624	0.99624	0.99624	0.9962	0.9962
Temp. Corr. Coefficient, $\alpha = \gamma_T / \gamma_{20}^{20^\circ\text{C}}$	-	0.99803	0.99803	0.99803	0.99803	0.99803	0.99803	0.9980	0.9980
Weight of tinbox	gram	100.81	64.88	101.13	64.97	101.1	65.0	101.1	65.0
Weight of tinbox + Soil	gram	119.68	83.71	105.45	69.46	105.6	69.7	105.6	69.7
Weight of dry soil, (Ws)	gram	18.87	18.83	4.32	4.49	4.46	4.69	4.5	4.7
Specific Gravity of Soil ($G_s = \alpha \cdot W_s / W_u$)	-	2.576	2.747	2.629	2.652	2.529	2.770	2.698	2.644
Average of G_s	-	2.66		2.64		2.65		2.671	
Remarks:	Unit Weight of Water, $\gamma_{w,20}^{20^\circ\text{C}} = 0.99821$								

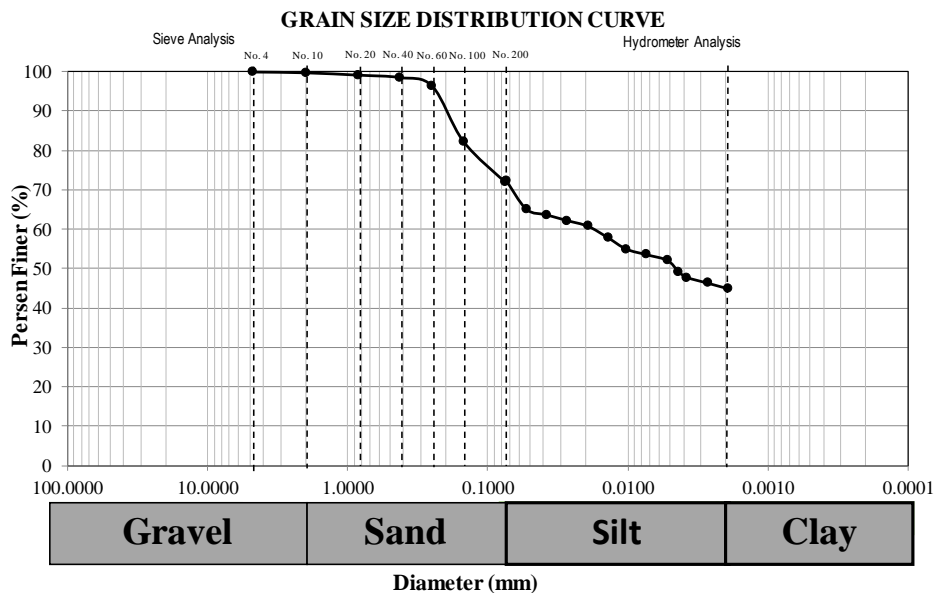


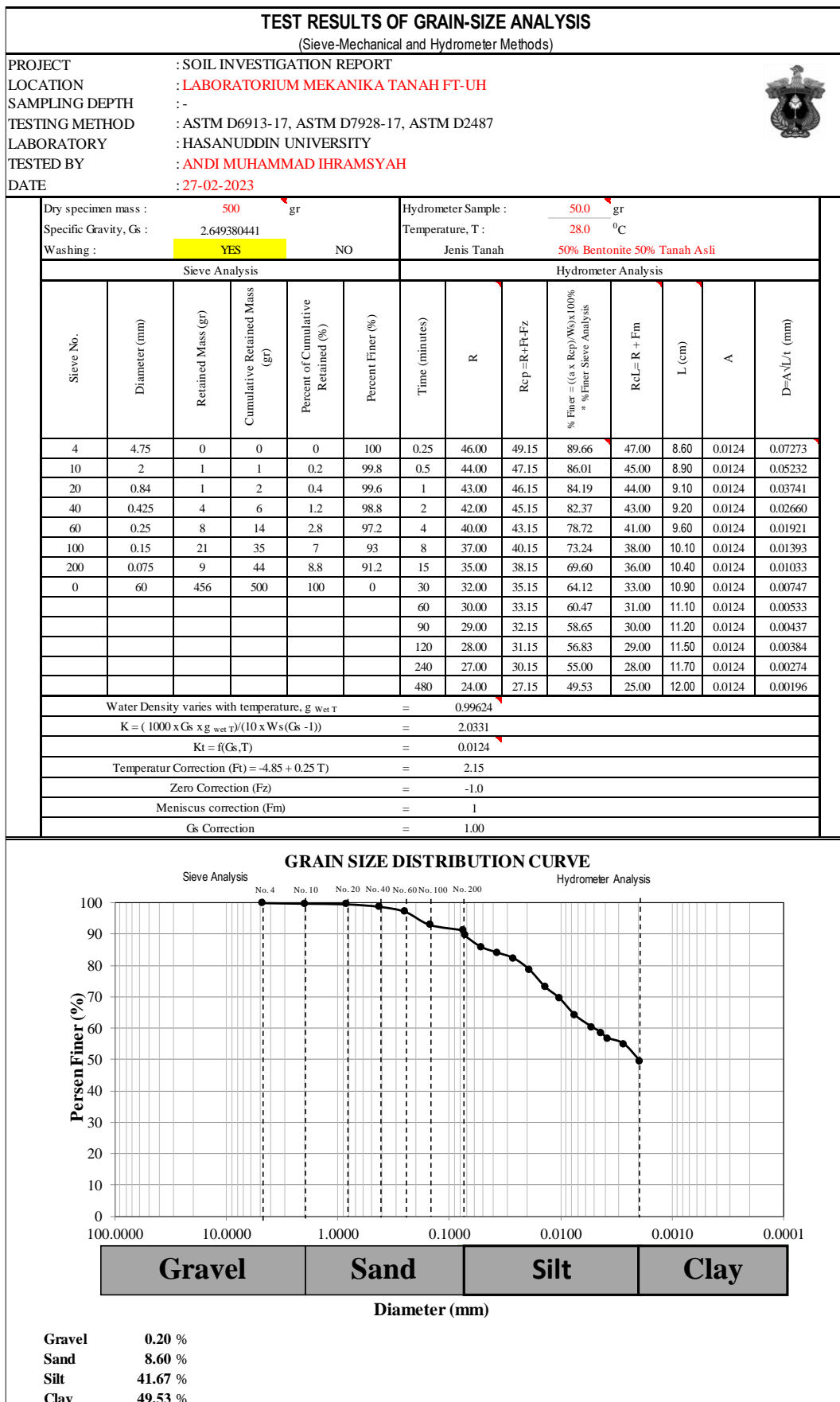
TEST RESULTS OF GRAIN-SIZE ANALYSIS
(Sieve-Mechanical and Hydrometer Methods)

PROJECT : SOIL INVESTIGATION REPORT
 LOCATION : LABORATORIUM MEKANIKA TANAH FT-UH
 SAMPLING DEPTH :-
 TESTING METHOD : ASTM D6913-17, ASTM D7928-17, ASTM D2487
 LABORATORY : HASANUDDIN UNIVERSITY
 TESTED BY : ANDI MUHAMMAD IHRAMSYAH
 DATE : 27-02-2023



Dry specimen mass : 500 gr					Hydrometer Sample : 50.0 gr								
Specific Gravity, G _s : 2.64					Temperature, T : 28.0 °C								
Washing : YES NO					Jenis Tanah : 70% Bentonite 30% Tanah Asli								
Sieve Analysis					Hydrometer Analysis								
Sieve No.	Diameter (mm)	Retained Mass (gr)	Cumulative Retained Mass (gr)	Percent of Cumulative Retained (%)	Percent Finer (%)	Time (minutes)	R	R _p = R+F _p -F _z	% Finer = ((a x Rp)/W ₀) x 100% = % Finer Sieve Analysis	R _{cl} = R + F _m	L (cm)	A	D=A ^{1/2} /L ^{1/4} (mm)
4	4.75	0	0	0	100	0.25	47.00	50.15	72.38	48.00	8.90	0.0124	0.07399
10	2	1	1	0.2	99.8	0.5	42.00	45.15	65.16	43.00	9.20	0.0124	0.05319
20	0.84	3	4	0.8	99.2	1	41.00	44.15	63.72	42.00	9.40	0.0124	0.03802
40	0.425	3	7	1.4	98.6	2	40.00	43.15	62.28	41.00	9.60	0.0124	0.02717
60	0.25	11	18	3.6	96.4	4	39.00	42.15	60.83	40.00	9.70	0.0124	0.01931
100	0.15	70	88	17.6	82.4	8	37.00	40.15	57.95	38.00	10.10	0.0124	0.01393
200	0.075	52	140	28	72	15	35.00	38.15	55.06	36.00	10.40	0.0124	0.01033
0	60	360	500	100	0	30	34.00	37.15	53.62	35.00	10.60	0.0124	0.00737
						60	33.00	36.15	52.17	34.00	10.70	0.0124	0.00524
						90	31.00	34.15	49.29	32.00	11.10	0.0124	0.00435
						120	30.00	33.15	47.84	31.00	11.20	0.0124	0.00379
						240	29.00	32.15	46.40	30.00	11.40	0.0124	0.00270
						480	28.00	31.15	44.96	29.00	11.50	0.0124	0.00192
Water Density varies with temperature, g w _{et} T						=	0.99624						
K = (1000 x G _s x g w _{et} T) / (10 x W _s (G _s - 1))						=	2.0331						
Kt = f(G _s , T)						=	0.0124						
Temperatur Correction (Ft) = -4.85 + 0.25 T						=	2.15						
Zero Correction (Fz)						=	-1.0						
Meniscus correction (Fm)						=	1						
G _s Correction						=	1.00						



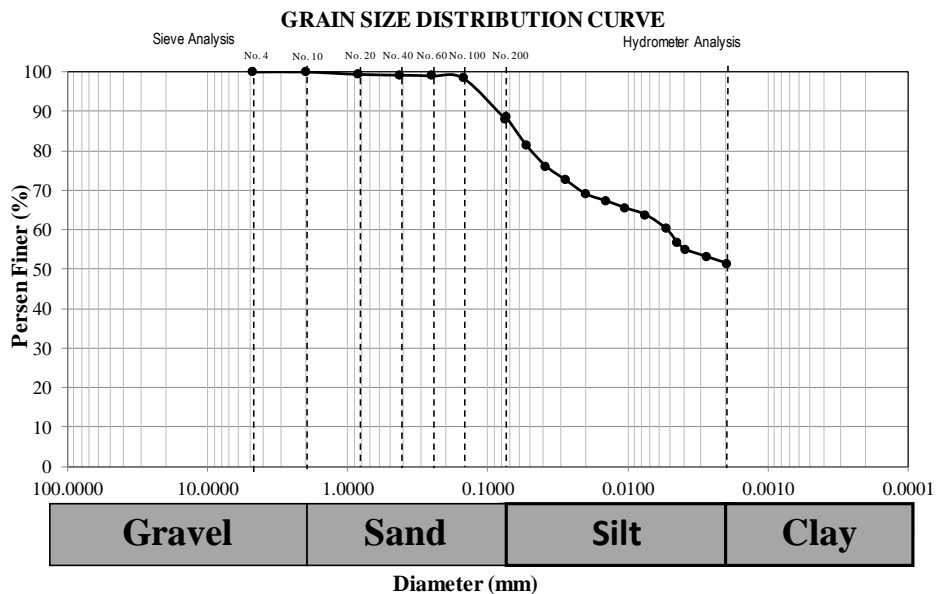


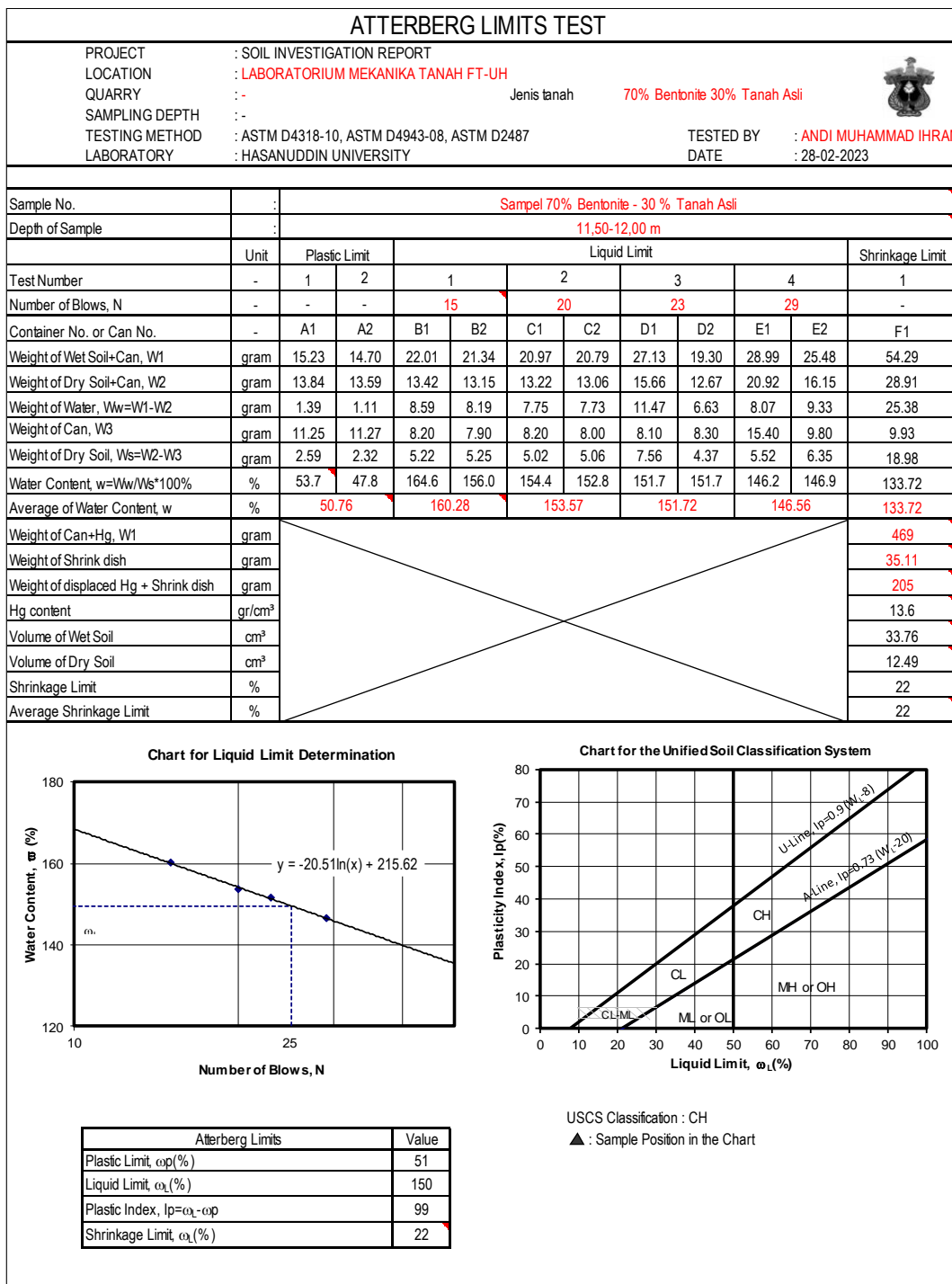
TEST RESULTS OF GRAIN-SIZE ANALYSIS (Sieve-Mechanical and Hydrometer Methods)

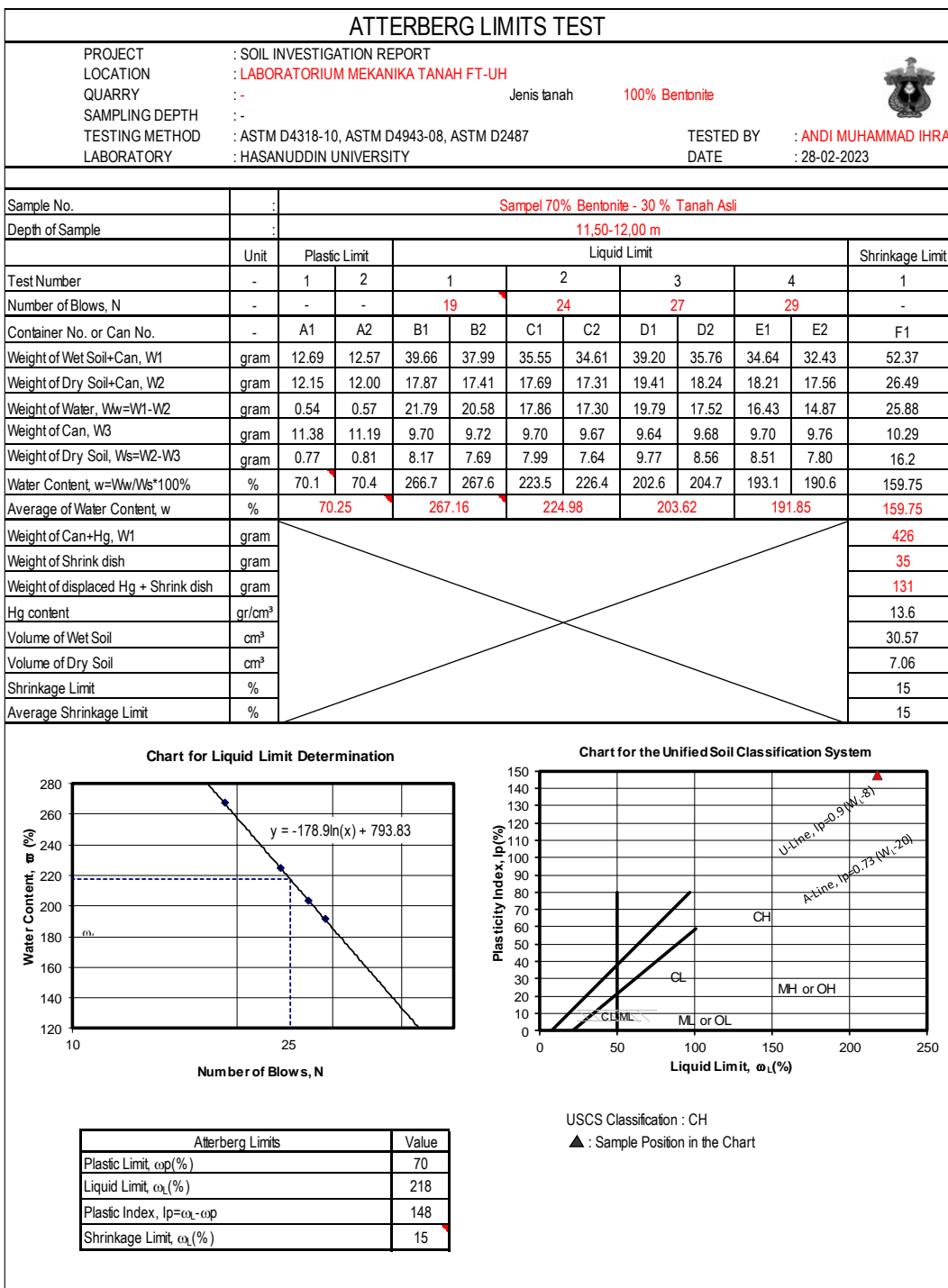
PROJECT : SOIL INVESTIGATION REPORT
 LOCATION : LABORATORIUM MEKANIKA TANAH FT-UH
 SAMPLING DEPTH : -
 TESTING METHOD : ASTM D6913-17, ASTM D7928-17, ASTM D2487
 LABORATORY : HASANUDDIN UNIVERSITY
 TESTED BY : ANDI MUHAMMAD IHRAMSYAH
 DATE : 27-02-2023



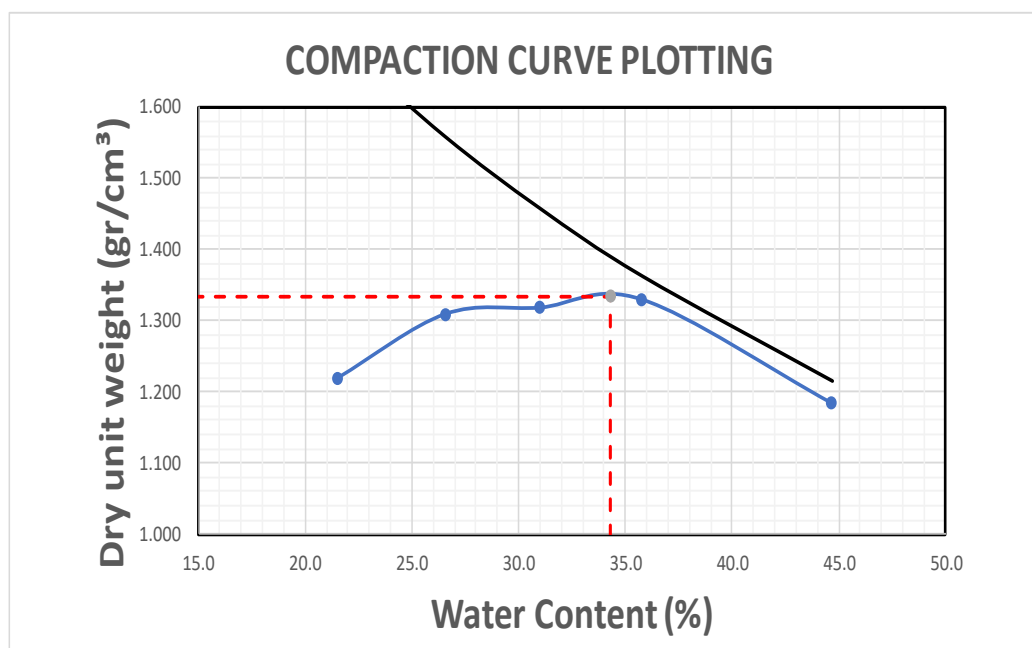
Dry specimen mass : 500 gr					Hydrometer Sample : 50.0 gr								
Specific Gravity, G _s : 2.64					Temperature, T : 28.0 °C								
Washing : YES NO					Jenis Tanah 100% Bentonite								
Sieve Analysis						Hydrometer Analysis							
Sieve No.	Diameter (mm)	Retained Mass (gr)	Cumulative Retained Mass (gr)	Percent of Cumulative Retained (%)	Percent Finer (%)	Time (minutes)	R	Rep = R+F _z F _z	% Finer = (G _s x Rep)/W _s x 100% = % Finer Sieve Analysis	R _{cl} = R + F _m	L (cm)	A	D = A/L ^{1.7} (mm)
4	4.75	0	0	0	100	0.25	47.00	50.15	88.46	48.00	8.90	0.0124	0.07399
10	2	0	0	0	100	0.5	43.00	46.15	81.41	44.00	9.20	0.0124	0.05319
20	0.84	3	3	0.6	99.4	1	40.00	43.15	76.11	41.00	9.70	0.0124	0.03862
40	0.425	1	4	0.8	99.2	2	38.00	41.15	72.59	39.00	10.10	0.0124	0.02787
60	0.25	1	5	1	99	4	36.00	39.15	69.06	37.00	10.40	0.0124	0.01999
100	0.15	3	8	1.6	98.4	8	35.00	38.15	67.29	36.00	10.60	0.0124	0.01427
200	0.075	52	60	12	88	15	34.00	37.15	65.53	35.00	10.70	0.0124	0.01047
0	60	440	500	100	0	30	33.00	36.15	63.77	34.00	10.90	0.0124	0.00747
						60	31.00	34.15	60.24	32.00	11.20	0.0124	0.00536
						90	29.00	32.15	56.71	30.00	11.50	0.0124	0.00443
						120	28.00	31.15	54.95	29.00	11.70	0.0124	0.00387
						240	27.00	30.15	53.18	28.00	11.90	0.0124	0.00276
						480	26.00	29.15	51.42	27.00	12.00	0.0124	0.00196
Water Density varies with temperature, g w _{et} T						= 0.99624							
K = (1000 x G _s x g _{wet} T) / (10 x W _s (G _s - 1))						= 2.0331							
Kt = f(G _s , T)						= 0.0124							
Temperatur Correction (Ft) = -4.85 + 0.25 T						= 2.15							
Zero Correction (Fz)						= -1.0							
Meniscus correction (Fm)						= 1							
G _s Correction						= 1.00							





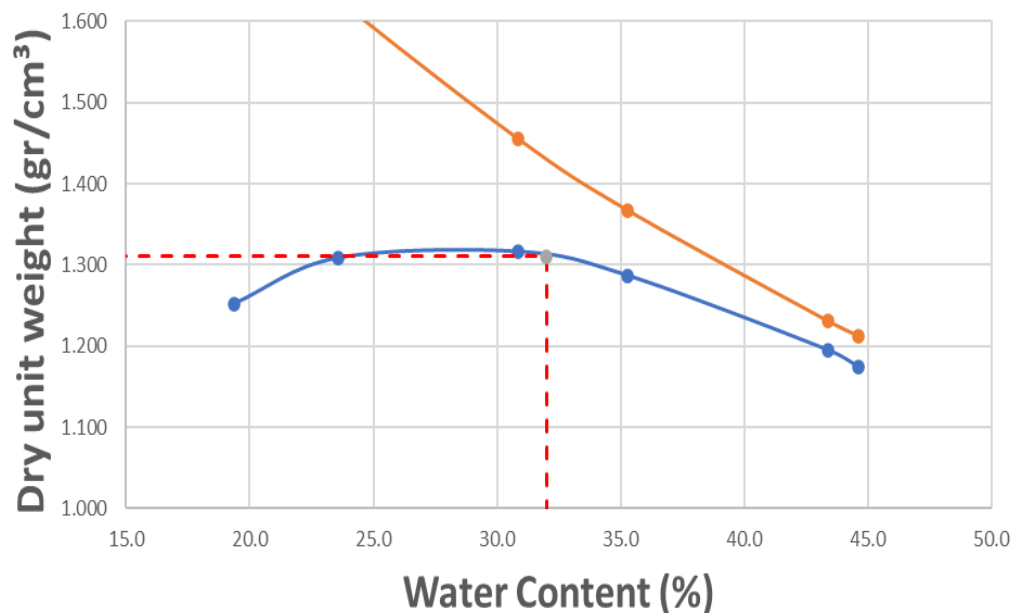


STANDARD COMPACTION TEST RESULTS											
PROJECT	: SOIL INVESTIGATION REPORT										
LOCATION	: LABORATORIUM MEKANIKA TANAH FT-UH										
QUARRY	: -										
SAMPLE / SAMPLE NO.	: 100% TANAH ASLI					ASLI					
TESTING METHOD	: ASTM D 698-12e2, SNI 1742:2008					TESTED BY : ANDI MUHAMMAD IHRAM					
LABORATORY	: HASANUDDIN UNIVERSITY					DATE : 21-03-2023					
Weight of soil	gram	2000	2000	2000	2000	2000					
Initial water content	%	5.1	5.1	5.1	5.1	5.1					
Water addition	ml	300	400	500	600	700					
Molding water content	%	20.8	26.1	31.3	36.6	41.9					
Wet Density											
Mold No.	-	1	2	3	4	5					
Weight of Mold	gram	3528	3528	3528	3528	3528					
Weight of wet soil + mold	gram	4979	5151	5219	5296	5205					
Weight of wet soil, W_{wet}	gram	1451	1623	1691	1768	1677					
Volume of Mold	cm ³	979	979	979	979	979					
Wet unit weight	gr/cm ³	1.482	1.658	1.728	1.806	1.713					
Water Content											
Container No.	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B
Weight of wet soil + container	gram	21.88	19.67	18.89	19.62	19.97	21.14	22.97	19.53	42.42	36.80
Weight of dry soil + container	gram	18.63	16.84	15.71	16.27	16.09	16.98	17.85	15.34	32.42	28.28
Weight of water	gram	3.25	2.83	3.18	3.35	3.88	4.16	5.12	4.19	10	8.52
Weight of container	gram	3.59	3.65	3.72	3.70	3.56	3.57	3.58	3.61	9.85	9.38
Weight of dry soil	gram	15.04	13.19	11.99	12.57	12.53	13.41	14.27	11.73	22.57	18.9
Water Content	%	21.6	21.5	26.5	26.7	31.0	31.0	35.9	35.7	44.3	45.1
Avg. water content	%		21.5	26.6		31.0		35.8		44.7	
Dry Density											
Weight of dry soil	gram		1193.92	1282.13	1290.90	1301.92	1159.01				
$W_{dry} = \frac{W_{wet}}{1 + \left(\frac{W}{100}\right)}$											
Dry unit weight	gr/cm ³		1.220	1.310	1.319	1.330	1.184				
$\gamma_{dry} = \frac{W_{dry}}{V_{mould}}$											
gzav = gw/(w+(1/Gs))	gr/cm ³		1.69	1.56	1.46	1.36	1.22				




STANDARD COMPACTION TEST RESULTS													
PROJECT	: SOIL INVESTIGATION REPORT												
LOCATION	: LABORATORIUM MEKANIKA TANAH FT-UH												
QUARRY	: -												
SAMPLE/ SAMPLE NO.	: 70 % BENTONITE - 30 % TANAH ASLI												
TESTING METHOD	: ASTM D 698-12e2, SNI 1742:2008												
LABORATORY	: HASANUDDIN UNIVERSITY												
	TESTED BY	: ANDI MUH IHRAMS'											
	DATE	: 23-03-2023											
Weight of soil	gram	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Initial water content	%	8.54	8.54	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Water addition	ml	200	300	400	500	600	700						
Molding water content	%	19.4	24.8	30.3	35.7	41.1	46.5						
Wet Density													
Mold No.	-	1	2	3	4	5	6						
Weight of Mold	gram	3524	3524	3524	3524	3524	3524						
Weight of wet soil + mold	gram	4987.1	5108	5211	5229	5202	5187						
Weight of wet soil, W_{wet}	gram	1463.1	1584	1687	1705	1678	1663						
Volume of Mold	cm ³	979	979	979	979	979	979						
Wet unit weight	gr/cm ³	1.494	1.617	1.723	1.741	1.713	1.698						
Water Content													
Container No.	-	1	2	1	2	1A	1B	2A	2B	3A	3B	3A	3B
Weight of wet soil + container	gram	46.8	44.3	45.1	55.1	53.70	56.50	71.10	44.60	52.80	49.60	35.08	44.45
Weight of dry soil + container	gram	40.87	38.58	38.08	46.23	43.01	45.21	54.87	35.22	39.34	35.74	26.81	31.94
Weight of water	gram	5.93	5.72	7.02	8.87	10.69	11.29	16.23	9.38	13.46	13.86	8.27	12.51
Weight of container	gram	9.6	9.6	8.58	8.28	8.45	8.53	8.48	8.87	8.39	3.71	8.39	3.71
Weight of dry soil	gram	31.27	28.98	29.5	37.95	34.56	36.68	46.39	26.35	30.95	32.03	18.42	28.23
Water Content	%	19.0	19.7	23.8	23.4	30.9	30.8	35.0	35.6	43.5	43.3	44.9	44.3
Avg. water content	%	19.4		23.6		30.9		35.3		43.4		44.6	
Dry Density													
Weight of dry soil													
$W_{dry} = \frac{W_{wet}}{1 + \left(\frac{W}{100}\right)}$	gram	1225.88	1281.71	1289.21	1260.24	1170.31	1150.02						
Dry unit weight													
$\gamma_{dry} = \frac{W_{dry}}{V_{mould}}$	gr/cm ³	1.252	1.309	1.316	1.287	1.195	1.174						
$g_{zav} = gw/(w+(1/Gs))$	gr/cm ³	1.75	1.63	1.45	1.37	1.23	1.21						

COMPACTION CURVE PLOTTING



STANDARD COMPACTION TEST RESULTS

PROJECT	: SOIL INVESTIGATION REPORT						
LOCATION	: LABORATORIUM MEKANIKA TANAH FT-UH						
QUARRY	: -						
SAMPLE/ SAMPLE NO.	: 50 % BENTONITE - 50% TANAH ASLI						
TESTING METHOD	: ASTM D 698-12e2, SNI 1742:2008			TESTED BY	: ANDI MUHAMMAD IHRAM		
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: 23-03-2023		

Weight of soil	gram	2000	2000	2000	2000	2000
Initial water content	%	8.9	8.9	8.9	8.9	8.9
Water addition	ml	200	300	400	500	600
Molding water content	%	19.8	25.2	30.7	36.1	41.6

Wet Density

Mold No.	-	1	2	3	4	5
Weight of Mold	gram	3528	3528	3528	3528	3528
Weight of wet soil + mold	gram	4873	5102	5237	5245	5250
Weight of wet soil, W_{wet}	gram	1345	1574	1709	1717	1722
Volume of Mold	cm ³	997	997	997	997	997
Wet unit weight	gr/cm ³	1.349	1.579	1.715	1.723	1.728

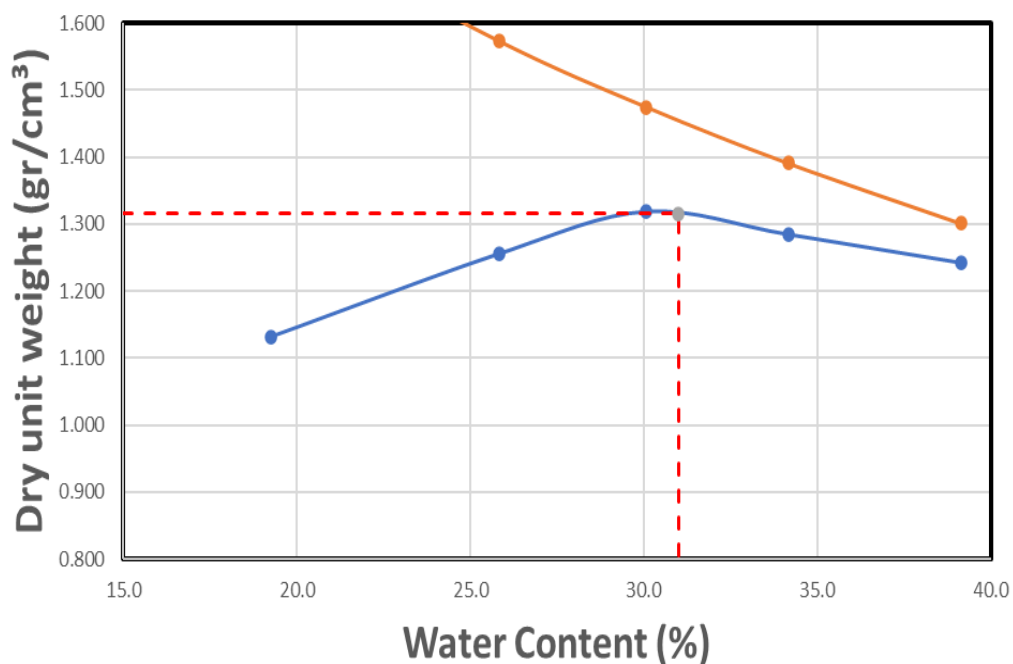
Water Content

Container No.	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B
Weight of wet soil + container	gram	32.6	35	20.19	18.68	17.21	17.27	16.02	18.88	22.40	29.27
Weight of dry soil + container	gram	29.5	32.2	16.92	15.51	14.05	14.11	12.92	14.93	17.23	21.89
Weight of water	gram	3.10	2.80	3.27	3.17	3.16	3.16	3.1	3.95	5.17	7.38
Weight of container	gram	15.50	15.10	3.72	3.71	3.56	3.58	3.61	3.65	3.58	3.62
Weight of dry soil	gram	14.00	17.10	13.20	11.8	10.49	10.53	9.31	11.28	13.65	18.27
Water Content	%	22.1	16.4	24.8	26.9	30.1	30.0	33.3	35.0	37.9	40.4
Avg. water content	%	19.3		25.8		30.1		34.2		39.1	

Dry Density

Weight of dry soil	gram	1127.80	1251.01	1313.94	1279.84	1237.65
$W_{dry} = \frac{W_{wet}}{1 + \left(\frac{W}{100}\right)}$						
Dry unit weight	gr/cm ³	1.131	1.255	1.318	1.284	1.242
$\gamma_{dry} = \frac{W_{dry}}{V_{mould}}$						
$g_{zav} = gw/(w+(1/Cs))$	gr/cm ³	1.75	1.57	1.47	1.39	1.30

COMPACTION CURVE PLOTTING



STANDARD COMPACTION TEST RESULTS						
PROJECT	: SOIL INVESTIGATION REPORT					
LOCATION	: LABORATORIUM MEKANIKA TANAH FT-UH					
QUARRY	: -					
SAMPLE / SAMPLE NO.	: 100 % BENTONITE					
TESTING METHOD	: ASTM D 698-12e2, SNI 1742:2008			TESTED BY	ANDI MUHAMMAD IHRAMS	
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: 23-03-2023	



Weight of soil	gram	2000	2000	2000	2000	2000
Initial water content	%	6.3	6.3	6.3	6.3	6.3
Water addition	ml	400	500	600	700	800
Molding water content	%	27.6	32.9	38.2	43.5	48.8

Wet Density

Mold No.	-	1	2	3	4	4
Weight of Mold	gram	3528	3528	3528	3528	3528
Weight of wet soil + mold	gram	5077	5222	5260	5251	5215
Weight of wet soil, W_{wet}	gram	1549	1694	1732	1723	1687
Volume of Mold	cm ³	997	997	997	997	997
Wet unit weight	gr/cm ³	1.554	1.700	1.738	1.729	1.693

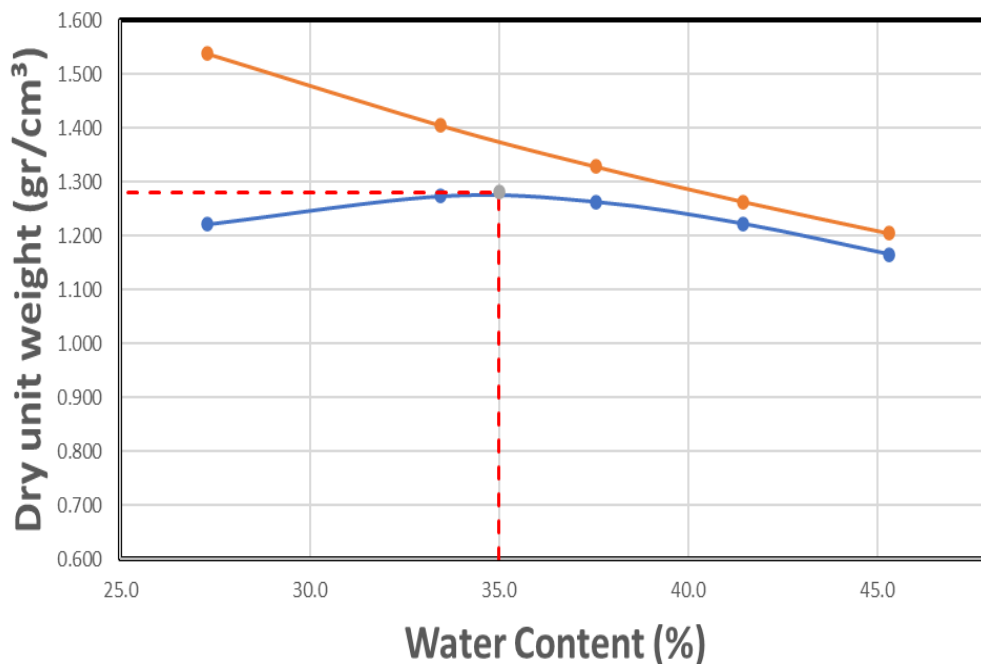
Water Content

Container No.	-	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B
Weight of wet soil + container	gram	28.76	25.57	20.51	32.32	21.47	24.93	28.50	32.07	28.50	32.07
Weight of dry soil + container	gram	24.33	21.8	16.74	25.57	17.13	19.57	22.52	25.05	22.12	24.62
Weight of water	gram	4.43	3.77	3.77	6.75	4.34	5.36	5.98	7.02	6.38	7.45
Weight of container	gram	8.11	7.98	5.45	5.43	5.46	5.44	8.13	8.07	8.13	8.07
Weight of dry soil	gram	16.22	13.82	11.29	20.14	11.67	14.13	14.39	16.98	13.99	16.55
Water Content	%	27.3	27.3	33.4	33.5	37.2	37.9	41.6	41.3	45.6	45.0
Avg. water content	%	27.3		33.5		37.6		41.4		45.3	

Dry Density

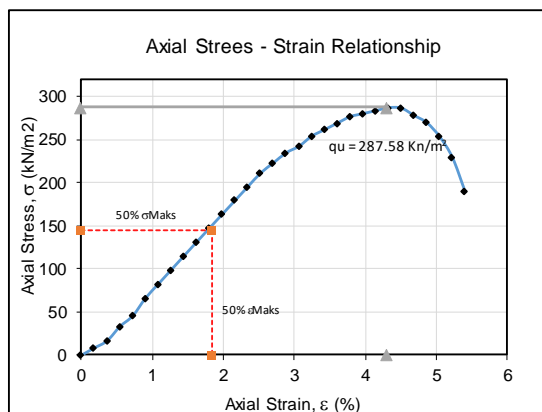
Weight of dry soil	gram	1216.85	1269.35	1259.07	1218.10	1160.97
$W_{dry} = \frac{W_{wet}}{1 + \left(\frac{W}{100}\right)}$	gram	1216.85	1269.35	1259.07	1218.10	1160.97
Dry unit weight	gr/cm ³	1.221	1.274	1.263	1.222	1.165
$\gamma_{dry} = \frac{W_{dry}}{V_{mould}}$	gr/cm ³	1.221	1.274	1.263	1.222	1.165
$g_{zav} = g_w / (w + (1/G_s))$	gr/cm ³	1.54	1.40	1.33	1.26	1.20

COMPACTION CURVE PLOTTING



Lampiran 2. Pengujian Mekanis Pencampuran bentonite dengan Tanah asli sebelum distabilisasi

UNCONFINED COMPRESSION TEST RESULTS												
PROJECT		: Research of soil stablilization with various agents										
LOCATION		: -										
SAMPPEL		: Remolded, Silty-Clay										
TESTING METHOD		: ASTM D 2166-66					TESTED BY		: Komang & Ihramsyah			
LABORATORY		: HASANUDDIN UNIVERSITY					DATE		: Juni 2023			
Sample Depth		m		-		m		Index Properties				
Sample Size		Diameter, d		5.44		cm		Weight of Wet Soil		466		gram
		Height, h		11.10		cm		Weight of Dry Soil		339		gram
		Volume		257.99		cm ³		Water Content		37.5		%
		Area, Ao		23.24		cm ²		Dry Unit Weight		1.314		gram/cm ³
								Proving Ring Calibration		1.978		kg/div
Axial Deformation		Axial Load & Stress				Axial Deformation		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	$\epsilon = \delta h/h$	P	A = Ao/(1 - $\delta h/h$)	$\sigma = P/A$	δh	$\epsilon = \delta h/h$	P	A = Ao/(1 - $\delta h/h$)	$\sigma = P/A$			
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	
0.00	0.00	0.0	0.00	23.24	0.000							
0.20	0.18	1.0	1.98	23.28	0.085							
0.40	0.36	2.0	3.96	23.33	0.170							
0.60	0.54	4.0	7.91	23.37	0.339							
0.80	0.72	5.5	10.88	23.41	0.465							
1.00	0.90	8.0	15.83	23.45	0.675							
1.20	1.08	10.0	19.78	23.50	0.842							
1.40	1.26	12.0	23.74	23.54	1.008							
1.60	1.44	14.0	27.69	23.58	1.174							
1.80	1.62	16.0	31.65	23.63	1.340							
2.00	1.80	18.0	35.61	23.67	1.504							
2.20	1.98	20.0	39.56	23.71	1.668							
2.40	2.16	22.0	43.52	23.76	1.832							
2.60	2.34	24.0	47.48	23.80	1.995							
2.80	2.52	26.0	51.43	23.84	2.157							
3.00	2.70	27.5	54.40	23.89	2.277							
3.20	2.88	29.0	57.37	23.93	2.397							
3.40	3.06	30.0	59.35	23.98	2.475							
3.60	3.24	31.5	62.31	24.02	2.594							
3.80	3.42	32.5	64.29	24.07	2.671							
4.00	3.60	33.5	66.27	24.11	2.748							
4.20	3.78	34.5	68.25	24.16	2.825							
4.40	3.96	35.0	69.24	24.20	2.861							
4.60	4.14	35.5	70.23	24.25	2.896							
4.80	4.32	36.0	71.22	24.29	2.931							
5.00	4.50	36.0	71.22	24.34	2.926							
5.20	4.68	35.0	69.24	24.39	2.839							
5.40	4.86	34.0	67.26	24.43	2.753							
5.60	5.05	32.0	63.30	24.48	2.586							
5.80	5.23	29.0	57.37	24.52	2.339							
6.00	5.41	24.0	47.48	24.57	1.932							



Unconfined Compression Strength, kN/m ²	
qu =	287.58
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

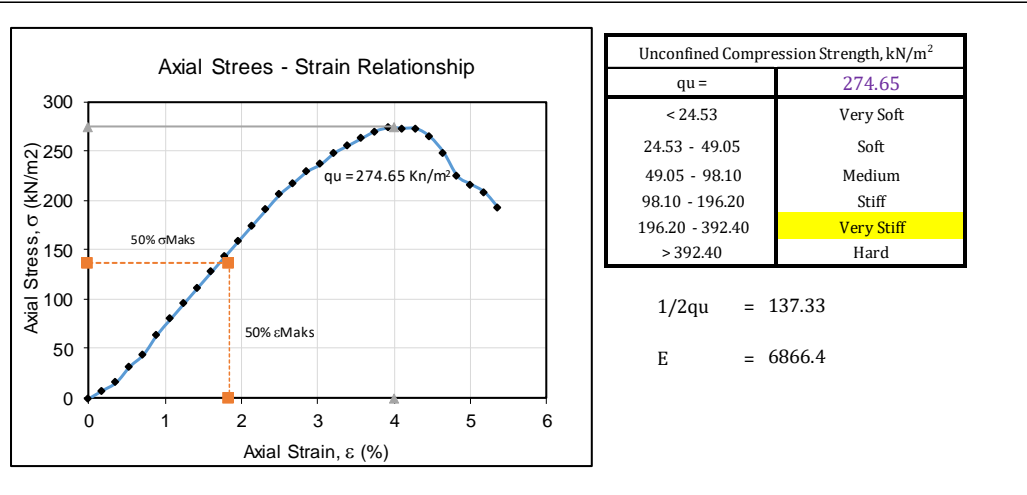
1/2qu = 143.79

E = 7189.4

UNCONFINED COMPRESSION TEST RESULTS			
PROJECT	:	Research of soil stabilization with various agents	
LOCATION	:	-	
SAMPEL	:	Remolded, Silty-Clay	
TESTING METHOD	:	ASTM D 2166-66	TESTED BY : Ihramsyah
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE : Juni 2023

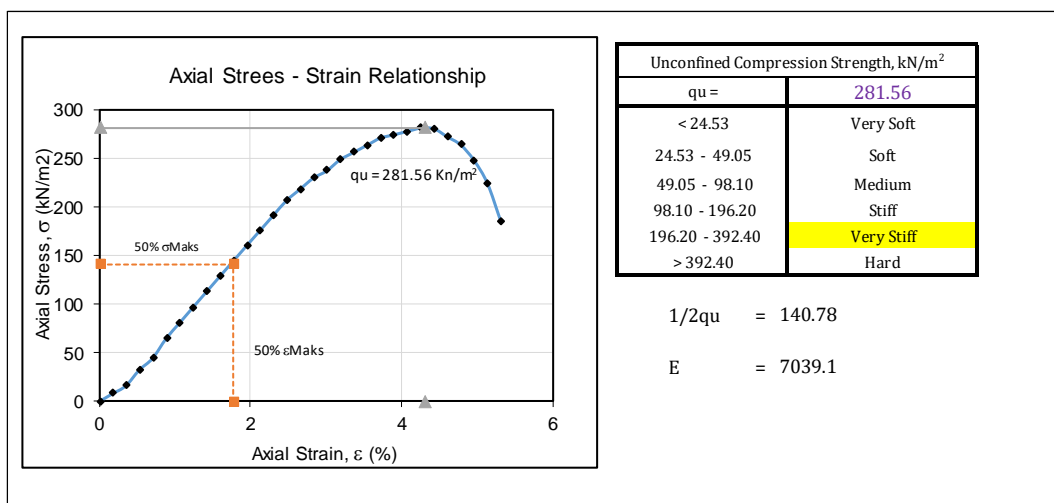
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	455	gram
Sample Size	Diameter, d	5.50	cm		Weight of Dry Soil	331	gram
	Height, h	11.20	cm		Water Content	37.5	%
	Volume	266.09	cm ³		Dry Unit Weight	1.244	gram/cm ³
	Area, A _o	23.76	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Axial Load		Axial Stress		Disp. Reading	Axial Strain	Axial Load		Axial Stress	
		Disp. Reading	Axial Stress	Corrected Area	Stress			Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	P	A = A _o /(1 - δh/h)	σ = P/A	δh	ε = δh/h	P	A = A _o /(1 - δh/h)	σ = P/A		
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	23.76	0.000	6.20	5.54	0.0	0.00	25.15	0.000
0.20	0.18	1.0	1.98	23.80	0.083	6.40	5.71		0.00	25.20	0.000
0.40	0.36	2.0	3.96	23.84	0.166	6.60	5.89		0.00	25.25	0.000
0.60	0.54	4.0	7.91	23.89	0.331	6.80	6.07		0.00	25.29	0.000
0.80	0.71	5.5	10.88	23.93	0.455	7.00	6.25		0.00	25.34	0.000
1.00	0.89	8.0	15.83	23.97	0.660	7.20	6.43		0.00	25.39	0.000
1.20	1.07	10.0	19.78	24.02	0.824	7.40	6.61		0.00	25.44	0.000
1.40	1.25	12.0	23.74	24.06	0.987	7.60	6.79		0.00	25.49	0.000
1.60	1.43	14.0	27.69	24.10	1.149	7.80	6.96		0.00	25.54	0.000
1.80	1.61	16.0	31.65	24.15	1.311	8.00	7.14		0.00	25.59	0.000
2.00	1.79	18.0	35.61	24.19	1.472	8.20	7.32		0.00	25.64	0.000
2.20	1.96	20.0	39.56	24.23	1.633	8.40	7.50		0.00	25.68	0.000
2.40	2.14	22.0	43.52	24.28	1.793	8.60	7.68		0.00	25.73	0.000
2.60	2.32	24.0	47.48	24.32	1.952	8.80	7.86		0.00	25.78	0.000
2.80	2.50	26.0	51.43	24.37	2.111	9.00	8.04		0.00	25.83	0.000
3.00	2.68	27.5	54.40	24.41	2.228	9.20	8.21		0.00	25.88	0.000
3.20	2.86	29.0	57.37	24.46	2.346	9.40	8.39		0.00	25.93	0.000
3.40	3.04	30.0	59.35	24.50	2.422	9.60	8.57		0.00	25.99	0.000
3.60	3.21	31.5	62.31	24.55	2.538	9.80	8.75		0.00	26.04	0.000
3.80	3.39	32.5	64.29	24.59	2.614	10.00	8.93		0.00	26.09	0.000
4.00	3.57	33.5	66.27	24.64	2.690	10.20	9.11		0.00	26.14	0.000
4.20	3.75	34.5	68.25	24.68	2.765	10.40	9.29		0.00	26.19	0.000
4.40	3.93	35.0	69.24	24.73	2.800	10.60	9.46		0.00	26.24	0.000
4.60	4.11	35.0	69.24	24.78	2.795	10.80	9.64		0.00	26.29	0.000
4.80	4.29	35.0	69.24	24.82	2.789	11.00	9.82		0.00	26.35	0.000
5.00	4.46	34.0	67.26	24.87	2.705	11.20	10.00		0.00	26.40	0.000
5.20	4.64	32.0	63.30	24.92	2.541	11.40	10.18		0.00	26.45	0.000
5.40	4.82	29.0	57.37	24.96	2.298	11.60	10.36		0.00	26.50	0.000
5.60	5.00	28.0	55.39	25.01	2.215	11.80	10.54		0.00	26.56	0.000
5.80	5.18	27.0	53.41	25.06	2.132	12.00	10.71		0.00	26.61	0.000
6.00	5.36	25.0	49.46	25.10	1.970	12.20	10.89		0.00	26.66	0.000



UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	:	Research of soil stabilization with various agents					
LOCATION	:	-					
SAMPEL	:	Remolded, Silty-Clay					
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihramsyah		
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	456	gram
Sample Size	Diameter, d	5.50	cm	Weight of Dry Soil	332	gram	
	Height, h	11.30	cm	Water Content	37.5	%	
	Volume	268.47	cm ³	Dry Unit Weight	1.235	gram/cm ³	
	Area, A _o	23.76	cm ²	Proving Ring Calibration	1.978	kg/div	

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh (mm)	ε = δh/h (%)	(div)	P (kg)	A = A _o /(1 - δh/h) (cm ²)	σ = P/A (kg/cm ²)	δh (mm)	ε = δh/h (%)	(div)	P (kg)	A = A _o /(1 - δh/h) (cm ²)	σ = P/A (kg/cm ²)
0.00	0.00	0.0	0.00	23.76	0.000	6.20	5.49	0.0	0.00	25.14	0.000
0.20	0.18	1.0	1.98	23.80	0.083	6.40	5.66	0.0	0.00	25.18	0.000
0.40	0.35	2.0	3.96	23.84	0.166	6.60	5.84	0.0	0.00	25.23	0.000
0.60	0.53	4.0	7.91	23.89	0.331	6.80	6.02	0.0	0.00	25.28	0.000
0.80	0.71	5.5	10.88	23.93	0.455	7.00	6.19	0.0	0.00	25.33	0.000
1.00	0.88	8.0	15.83	23.97	0.660	7.20	6.37	0.0	0.00	25.38	0.000
1.20	1.06	10.0	19.78	24.01	0.824	7.40	6.55	0.0	0.00	25.42	0.000
1.40	1.24	12.0	23.74	24.06	0.987	7.60	6.73	0.0	0.00	25.47	0.000
1.60	1.42	14.0	27.69	24.10	1.149	7.80	6.90	0.0	0.00	25.52	0.000
1.80	1.59	16.0	31.65	24.14	1.311	8.00	7.08	0.0	0.00	25.57	0.000
2.00	1.77	18.0	35.61	24.19	1.472	8.20	7.26	0.0	0.00	25.62	0.000
2.20	1.95	20.0	39.56	24.23	1.633	8.40	7.43	0.0	0.00	25.67	0.000
2.40	2.12	22.0	43.52	24.27	1.793	8.60	7.61	0.0	0.00	25.72	0.000
2.60	2.30	24.0	47.48	24.32	1.952	8.80	7.79	0.0	0.00	25.76	0.000
2.80	2.48	26.0	51.43	24.36	2.111	9.00	7.96	0.0	0.00	25.81	0.000
3.00	2.65	27.5	54.40	24.41	2.229	9.20	8.14	0.0	0.00	25.86	0.000
3.20	2.83	29.0	57.37	24.45	2.346	9.40	8.32	0.0	0.00	25.91	0.000
3.40	3.01	30.0	59.35	24.50	2.423	9.60	8.50	0.0	0.00	25.96	0.000
3.60	3.19	31.5	62.31	24.54	2.539	9.80	8.67	0.0	0.00	26.01	0.000
3.80	3.36	32.5	64.29	24.59	2.615	10.00	8.85	0.0	0.00	26.06	0.000
4.00	3.54	33.5	66.27	24.63	2.691	10.20	9.03	0.0	0.00	26.12	0.000
4.20	3.72	34.5	68.25	24.68	2.766	10.40	9.20	0.0	0.00	26.17	0.000
4.40	3.89	35.0	69.24	24.72	2.801	10.60	9.38	0.0	0.00	26.22	0.000
4.60	4.07	35.5	70.23	24.77	2.836	10.80	9.56	0.0	0.00	26.27	0.000
4.80	4.25	36.0	71.22	24.81	2.870	11.00	9.73	0.0	0.00	26.32	0.000
5.00	4.42	36.0	71.22	24.86	2.865	11.20	9.91	0.0	0.00	26.37	0.000
5.20	4.60	35.0	69.24	24.90	2.780	11.40	10.09	0.0	0.00	26.42	0.000
5.40	4.78	34.0	67.26	24.95	2.696	11.60	10.27	0.0	0.00	26.48	0.000
5.60	4.96	32.0	63.30	25.00	2.532	11.80	10.44	0.0	0.00	26.53	0.000
5.80	5.13	29.0	57.37	25.04	2.291	12.00	10.62	0.0	0.00	26.58	0.000
6.00	5.31	24.0	47.48	25.09	1.892	12.20	10.80	0.0	0.00	26.63	0.000

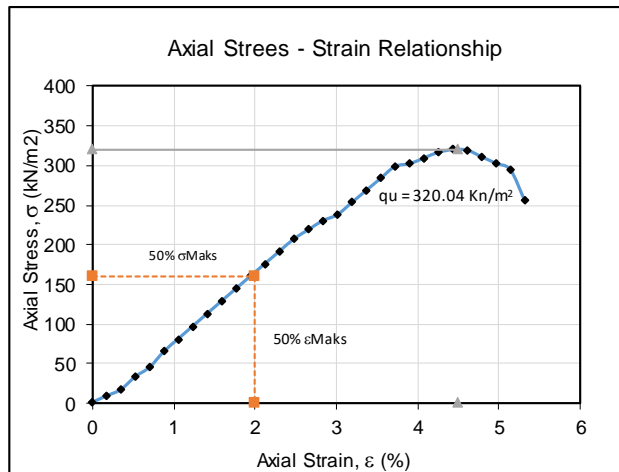


UNCONFINED COMPRESSION TEST RESULTS

PROJECT	: Research of soil stabilization with various agents		
LOCATION	: -		
SAMPEL	: Remolded, Silty-Clay		
TESTING METHOD	: ASTM D 2166-66		TESTED BY : Ihramsyah
LABORATORY	: HASANUDDIN UNIVERSITY		DATE : Juni 2023

Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	456	gram
Sample Size	Diameter, d	5.50	cm	Weight of Dry Soil	332	gram	
	Height, h	11.28	cm	Water Content	37.5	%	
	Volume	267.87	cm ³	Dry Unit Weight	1.238	gram/cm ³	
	Area, A _o	23.76	cm ²	Proving Ring Calibration	1.978	kg/div	

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$		
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	23.76	0.000	6.20	5.50	0.0	0.00	25.14	0.000
0.20	0.18	1.0	1.98	23.80	0.083	6.40	5.68	0.0	0.00	25.19	0.000
0.40	0.35	2.0	3.96	23.84	0.166	6.60	5.85	0.0	0.00	25.24	0.000
0.60	0.53	4.0	7.91	23.89	0.331	6.80	6.03	0.0	0.00	25.28	0.000
0.80	0.71	5.5	10.88	23.93	0.455	7.00	6.21	0.0	0.00	25.33	0.000
1.00	0.89	8.0	15.83	23.97	0.660	7.20	6.39	0.0	0.00	25.38	0.000
1.20	1.06	10.0	19.78	24.01	0.824	7.40	6.56	0.0	0.00	25.43	0.000
1.40	1.24	12.0	23.74	24.06	0.987	7.60	6.74	0.0	0.00	25.48	0.000
1.60	1.42	14.0	27.69	24.10	1.149	7.80	6.92	0.0	0.00	25.52	0.000
1.80	1.60	16.0	31.65	24.14	1.311	8.00	7.10	0.0	0.00	25.57	0.000
2.00	1.77	18.0	35.61	24.19	1.472	8.20	7.27	0.0	0.00	25.62	0.000
2.20	1.95	20.0	39.56	24.23	1.633	8.40	7.45	0.0	0.00	25.67	0.000
2.40	2.13	22.0	43.52	24.28	1.793	8.60	7.63	0.0	0.00	25.72	0.000
2.60	2.31	24.0	47.48	24.32	1.952	8.80	7.80	0.0	0.00	25.77	0.000
2.80	2.48	26.0	51.43	24.36	2.111	9.00	7.98	0.00	0.00	25.82	0.000
3.00	2.66	27.5	54.40	24.41	2.229	9.20	8.16	0.00	0.00	25.87	0.000
3.20	2.84	29.0	57.37	24.45	2.346	9.40	8.34	0.00	0.00	25.92	0.000
3.40	3.02	30.0	59.35	24.50	2.423	9.60	8.51	0.00	0.00	25.97	0.000
3.60	3.19	32.0	63.30	24.54	2.579	9.80	8.69	0.00	0.00	26.02	0.000
3.80	3.37	34.0	67.26	24.59	2.736	10.00	8.87	0.00	0.00	26.07	0.000
4.00	3.55	36.0	71.22	24.63	2.891	10.20	9.05	0.00	0.00	26.12	0.000
4.20	3.73	38.0	75.17	24.68	3.046	10.40	9.22	0.00	0.00	26.17	0.000
4.40	3.90	38.5	76.16	24.72	3.081	10.60	9.40	0.00	0.00	26.22	0.000
4.60	4.08	39.5	78.14	24.77	3.155	10.80	9.58	0.00	0.00	26.28	0.000
4.80	4.26	40.5	80.12	24.81	3.229	11.00	9.76	0.00	0.00	26.33	0.000
5.00	4.43	41.0	81.11	24.86	3.262	11.20	9.93	0.00	0.00	26.38	0.000
5.20	4.61	41.0	81.11	24.91	3.256	11.40	10.11	0.00	0.00	26.43	0.000
5.40	4.79	40.0	79.13	24.95	3.171	11.60	10.29	0.00	0.00	26.48	0.000
5.60	4.97	39.0	77.15	25.00	3.086	11.80	10.47	0.00	0.00	26.54	0.000
5.80	5.14	38.0	75.17	25.05	3.001	12.00	10.64	0.00	0.00	26.59	0.000
6.00	5.32	33.0	65.28	25.09	2.601	12.20	10.82	0.00	0.00	26.64	0.000



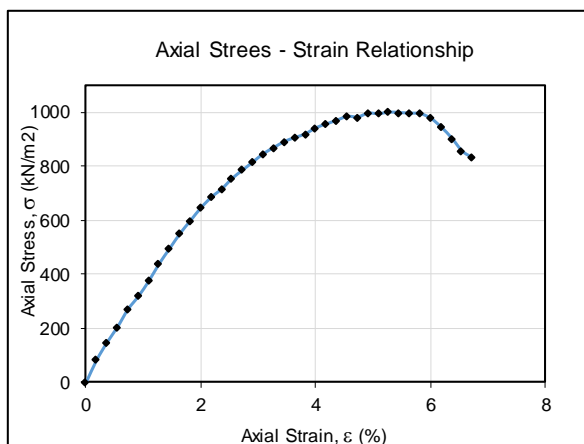
Unconfined Compression Strength, kN/m ²	
qu =	320.04
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 160.02$

$E = 8001.1$

Lampiran 3. Pengujian Mekanis Kuat tekan Bebas Campuran Bentonite dengan Tanah Asli terstabilisasi Bakteri Bacillus Subtilis

UNCONFINED COMPRESSION TEST RESULTS															
PROJECT		: Research of soil stablilization with various agents													
LOCATION		: -													
SAMPEL		: Remolded, Silty-Clay													
TESTING METHOD		: ASTM D 2166-66						TESTED BY		: Ihramsyah					
LABORATORY		: HASANUDDIN UNIVERSITY						DATE		: Juni 2023					
Sample Depth		m		-		m		Index Properties		Weight of Wet Soil		461		gram	
Sample Size		Diameter, d		5.47		cm		Weight of Dry Soil		341		gram			
		Height, h		11.00		cm		Water Content		35.0		%			
		Volume		258.50		cm ³		Dry Unit Weight		1.321		gram/cm ³			
		Area, Ao		23.50		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	$\epsilon = \delta h/h$		P	$A = A_o / (1 - \delta h/h)$	$\sigma = P/A$		δh	$\epsilon = \delta h/h$		P	$A = A_o / (1 - \delta h/h)$	$\sigma = P/A$			
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)		(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)			
0.00	0.00	0.0	0.00	23.50	0.000		6.20	5.64	128.0	253.21	24.90	10.168			
0.20	0.18	10.0	19.78	23.54	0.840		6.40	5.82	128.0	253.21	24.95	10.148			
0.40	0.36	18.0	35.61	23.59	1.510		6.60	6.00	126.0	249.25	25.00	9.970			
0.60	0.55	25.0	49.46	23.63	2.093		6.80	6.18	122.0	241.34	25.05	9.635			
0.80	0.73	33.0	65.28	23.67	2.758		7.00	6.36	117.0	231.45	25.10	9.222			
1.00	0.91	39.0	77.15	23.72	3.253		7.20	6.55	111.0	219.58	25.15	8.732			
1.20	1.09	46.0	91.00	23.76	3.830		7.40	6.73	108.0	213.65	25.19	8.480			
1.40	1.27	54.0	106.82	23.80	4.488		7.60	6.91	0.0	0.00	25.24	0.000			
1.60	1.45	61.0	120.67	23.85	5.060		7.80	7.09	0.0	0.00	25.29	0.000			
1.80	1.64	68.0	134.52	23.89	5.631		8.00	7.27		0.00	25.34	0.000			
2.00	1.82	74.0	146.39	23.94	6.116		8.20	7.45		0.00	25.39	0.000			
2.20	2.00	80.0	158.26	23.98	6.600		8.40	7.64		0.00	25.44	0.000			
2.40	2.18	85.0	168.15	24.02	6.999		8.60	7.82		0.00	25.49	0.000			
2.60	2.36	89.0	176.06	24.07	7.315		8.80	8.00		0.00	25.54	0.000			
2.80	2.55	94.0	185.95	24.11	7.711		9.00	8.18		0.00	25.59	0.000			
3.00	2.73	98.0	193.86	24.16	8.025		9.20	8.36		0.00	25.64	0.000			
3.20	2.91	102.0	201.78	24.20	8.337		9.40	8.55		0.00	25.70	0.000			
3.40	3.09	106.0	209.69	24.25	8.647		9.60	8.73		0.00	25.75	0.000			
3.60	3.27	109.0	215.62	24.29	8.875		9.80	8.91		0.00	25.80	0.000			
3.80	3.45	112.0	221.56	24.34	9.102		10.00	9.09		0.00	25.85	0.000			
4.00	3.64	114.0	225.51	24.39	9.247		10.20	9.27		0.00	25.90	0.000			
4.20	3.82	116.0	229.47	24.43	9.392		10.40	9.45		0.00	25.95	0.000			
4.40	4.00	119.0	235.41	24.48	9.617		10.60	9.64		0.00	26.01	0.000			
4.60	4.18	121.0	239.36	24.53	9.760		10.80	9.82		0.00	26.06	0.000			
4.80	4.36	123.0	243.32	24.57	9.902		11.00	10.00		0.00	26.11	0.000			
5.00	4.55	125.0	247.28	24.62	10.044		11.20	10.18		0.00	26.16	0.000			
5.20	4.73	125.0	247.28	24.67	10.025		11.40	10.36		0.00	26.22	0.000			
5.40	4.91	127.0	251.23	24.71	10.166		11.60	10.55		0.00	26.27	0.000			
5.60	5.09	127.0	251.23	24.76	10.147		11.80	10.73		0.00	26.32	0.000			
5.80	5.27	128.0	253.21	24.81	10.207		12.00	10.91		0.00	26.38	0.000			
6.00	5.45	128.0	253.21	24.86	10.187		12.20	11.09		0.00	26.43	0.000			



Unconfined Compression Strength, kN/m ²	
qu =	1001.29
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

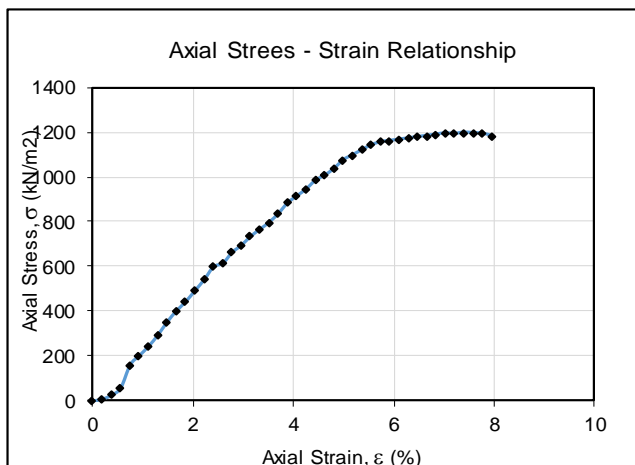
$$1/2q_u = 500.64$$

$$E = 25032$$

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	:	Research of soil stabilization with various agents			
LOCATION	:	-			
SAMPEL	:	Remolded, Silty-Clay			
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihrmsyah
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023

Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	451	gram
Sample Size	Diameter, d	5.38	cm		Weight of Dry Soil	345	gram
	Height, h	10.80	cm		Water Content	30.6	%
	Volume	245.52	cm ³		Dry Unit Weight	1.407	gram/cm ³
	Area, A _o	22.73	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Axial Load		Axial Stress		Disp. Reading	Axial Strain	Axial Load		Axial Stress	
		Disp. Reading	Axial Stress	Corrected Area	Stress			Disp. Reading	Axial Stress	Corrected Area	Stress
δh	ε = δh/h	P	A = A _o /(1 - δh/h)	σ = P/A	δh	ε = δh/h	P	A = A _o /(1 - δh/h)	σ = P/A	δh	ε = δh/h
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	22.73	0.000	6.20	5.74	144.0	284.86	24.12	11.811
0.20	0.19	1.0	1.98	22.78	0.087	6.40	5.93	145.0	286.84	24.16	11.870
0.40	0.37	3.0	5.93	22.82	0.260	6.60	6.11	146.0	288.82	24.21	11.928
0.60	0.56	7.0	13.85	22.86	0.606	6.80	6.30	147.0	290.80	24.26	11.986
0.80	0.74	19.0	37.59	22.90	1.641	7.00	6.48	148.0	292.77	24.31	12.044
1.00	0.93	24.0	47.48	22.95	2.069	7.20	6.67	149.0	294.75	24.36	12.101
1.20	1.11	29.0	57.37	22.99	2.496	7.40	6.85	150.0	296.73	24.41	12.159
1.40	1.30	35.0	69.24	23.03	3.006	7.60	7.04	151.0	298.71	24.45	12.215
1.60	1.48	42.0	83.08	23.07	3.601	7.80	7.22	151.0	298.71	24.50	12.191
1.80	1.67	48.0	94.95	23.12	4.107	8.00	7.41	152.0	300.69	24.55	12.247
2.00	1.85	53.0	104.84	23.16	4.527	8.20	7.59	152.0	300.69	24.60	12.223
2.20	2.04	59.0	116.71	23.21	5.030	8.40	7.78	152.0	300.69	24.65	12.198
2.40	2.22	65.0	128.58	23.25	5.531	8.60	7.96	151.0	298.71	24.70	12.094
2.60	2.41	72.0	142.43	23.29	6.115	8.80	8.15	150.0	296.73	24.75	11.989
2.80	2.59	74.0	146.39	23.34	6.272	9.00	8.33	149.0	294.75	24.80	11.885
3.00	2.78	80.0	158.26	23.38	6.768	9.20	8.52	145.0	286.84	24.85	11.543
3.20	2.96	84.0	166.17	23.43	7.093	9.40	8.70	137.0	271.01	24.90	10.884
3.40	3.15	89.0	176.06	23.47	7.501	9.60	8.89		0.00	24.95	0.000
3.60	3.33	93.0	183.97	23.52	7.823	9.80	9.07		0.00	25.00	0.000
3.80	3.52	97.0	191.89	23.56	8.144	10.00	9.26		0.00	25.05	0.000
4.00	3.70	102.0	201.78	23.61	8.547	10.20	9.44		0.00	25.10	0.000
4.20	3.89	108.0	213.65	23.65	9.033	10.40	9.63		0.00	25.16	0.000
4.40	4.07	112.0	221.56	23.70	9.349	10.60	9.81		0.00	25.21	0.000
4.60	4.26	116.0	229.47	23.74	9.664	10.80	10.00		0.00	25.26	0.000
4.80	4.44	121.0	239.36	23.79	10.061	11.00	10.19		0.00	25.31	0.000
5.00	4.63	124.0	245.30	23.84	10.291	11.20	10.37		0.00	25.36	0.000
5.20	4.81	128.0	253.21	23.88	10.602	11.40	10.56		0.00	25.42	0.000
5.40	5.00	133.0	263.10	23.93	10.995	11.60	10.74		0.00	25.47	0.000
5.60	5.19	136.0	269.04	23.98	11.221	11.80	10.93		0.00	25.52	0.000
5.80	5.37	139.0	274.97	24.02	11.446	12.00	11.11		0.00	25.57	0.000
6.00	5.56	142.0	280.90	24.07	11.670	12.20	11.30		0.00	25.63	0.000



Unconfined Compression Strength, kN/m ²	
qu =	1201.45
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

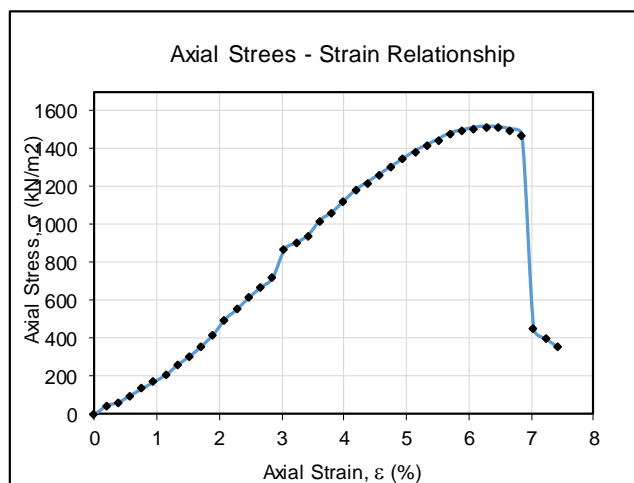
1/2qu = 600.72

E = 30036

UNCONFINED COMPRESSION TEST RESULTS			
PROJECT	:	Research of soil stabilization with various agents	
LOCATION	:	-	
SAMPEL	:	Remolded, Silty-Clay	
TESTING METHOD	:	ASTM D 2166-66	TESTED BY : Ihramsyah
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE : Juni 2023

Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	433	gram
Sample Size	Diameter, d	5.20	cm		Weight of Dry Soil	347	gram
	Height, h	10.50	cm		Water Content	24.8	%
	Volume	222.99	cm ³		Dry Unit Weight	1.556	gram/cm ³
	Area, A _o	21.24	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	21.24	0.000	6.20	5.90	174.0	344.21	22.57	15.251
0.20	0.19	5.0	9.89	21.28	0.465	6.40	6.10	176.0	348.16	22.62	15.395
0.40	0.38	7.0	13.85	21.32	0.650	6.60	6.29	177.0	350.14	22.66	15.451
0.60	0.57	11.0	21.76	21.36	1.019	6.80	6.48	177.0	350.14	22.71	15.419
0.80	0.76	15.0	29.67	21.40	1.387	7.00	6.67	176.0	348.16	22.75	15.301
1.00	0.95	19.0	37.59	21.44	1.753	7.20	6.86	173.0	342.23	22.80	15.010
1.20	1.14	23.0	45.50	21.48	2.118	7.40	7.05	53.0	104.84	22.85	4.589
1.40	1.33	29.0	57.37	21.52	2.665	7.60	7.24	47.0	92.98	22.89	4.061
1.60	1.52	34.0	67.26	21.57	3.119	7.80	7.43	42.0	83.08	22.94	3.622
1.80	1.71	40.0	79.13	21.61	3.662	8.00	7.62	0.0	0.00	22.99	0.000
2.00	1.90	47.0	92.98	21.65	4.295	8.20	7.81	0.0	0.00	23.04	0.000
2.20	2.10	56.0	110.78	21.69	5.107	8.40	8.00	0.0	0.00	23.08	0.000
2.40	2.29	62.0	122.65	21.73	5.643	8.60	8.19	0.0	0.00	23.13	0.000
2.60	2.48	69.0	136.50	21.78	6.268	8.80	8.38	0.0	0.00	23.18	0.000
2.80	2.67	75.0	148.37	21.82	6.800	9.00	8.57	0.0	0.00	23.23	0.000
3.00	2.86	81.0	160.23	21.86	7.329	9.20	8.76	0.0	0.00	23.28	0.000
3.20	3.05	98.0	193.86	21.90	8.850	9.40	8.95	0.0	0.00	23.33	0.000
3.40	3.24	102.0	201.78	21.95	9.193	9.60	9.14	0.0	0.00	23.37	0.000
3.60	3.43	107.0	211.67	21.99	9.625	9.80	9.33	0.0	0.00	23.42	0.000
3.80	3.62	116.0	229.47	22.03	10.414	10.00	9.52	0.0	0.00	23.47	0.000
4.00	3.81	121.0	239.36	22.08	10.842	10.20	9.71	0.0	0.00	23.52	0.000
4.20	4.00	128.0	253.21	22.12	11.446	10.40	9.90	0.0	0.00	23.57	0.000
4.40	4.19	135.0	267.06	22.17	12.048	10.60	10.10	0.0	0.00	23.62	0.000
4.60	4.38	140.0	276.95	22.21	12.469	10.80	10.29	0.0	0.00	23.67	0.000
4.80	4.57	145.0	286.84	22.25	12.889	11.00	10.48	0.0	0.00	23.72	0.000
5.00	4.76	150.0	296.73	22.30	13.307	11.20	10.67	0.0	0.00	23.77	0.000
5.20	4.95	155.0	306.62	22.34	13.723	11.40	10.86	0.0	0.00	23.82	0.000
5.40	5.14	160.0	316.51	22.39	14.137	11.60	11.05	0.0	0.00	23.87	0.000
5.60	5.33	164.0	324.42	22.43	14.462	11.80	11.24	0.0	0.00	23.93	0.000
5.80	5.52	168.0	332.34	22.48	14.784	12.00	11.43	0.0	0.00	23.98	0.000
6.00	5.71	172.0	340.25	22.52	15.106	12.20	11.62	0.0	0.00	24.03	0.000



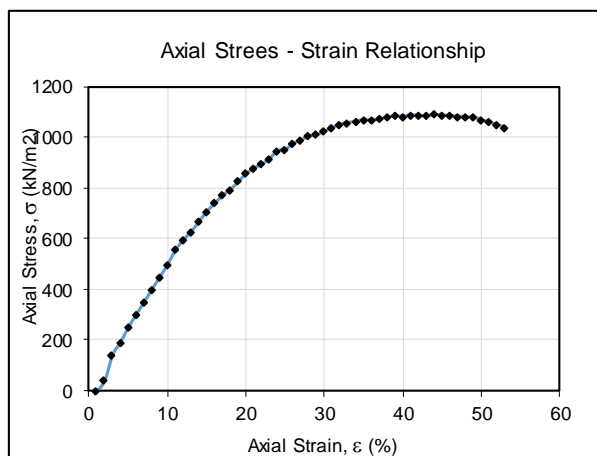
Unconfined Compression Strength, kN/m ²	
qu =	1515.73
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 757.86$

$E = 37893$

UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	:	Research of soil stabilization with various agents					
LOCATION	:	-					
SAMPEL	:	Remolded, Silty-Clay					
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihramsyah		
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	467	gram
Sample Size	Diameter, d	5.40	cm		Weight of Dry Soil	349	gram
	Height, h	10.80	cm		Water Content	33.8	%
	Volume	247.34	cm ³		Dry Unit Weight	1.411	gram/cm ³
	Area, A _o	22.90	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading (mm)	Axial Strain (%)	Disp. Reading (div)	Axial Stress (kg)	Corrected Area (cm ²)	Stress (kg/cm ²)	Disp. Reading (mm)	Axial Strain (%)	Disp. Reading (div)	Axial Stress (kg)	Corrected Area (cm ²)	Stress (kg/cm ²)
0.00	0.00	0.0	0.00	22.90	0.000	6.20	5.74	132.0	261.12	24.30	10.747
0.20	0.19	5.0	9.89	22.94	0.431	6.40	5.93	133.0	263.10	24.34	10.807
0.40	0.37	17.0	33.63	22.99	1.463	6.60	6.11	134.0	265.08	24.39	10.867
0.60	0.56	23.0	45.50	23.03	1.976	6.80	6.30	135.0	267.06	24.44	10.927
0.80	0.74	30.0	59.35	23.07	2.572	7.00	6.48	135.0	267.06	24.49	10.905
1.00	0.93	36.0	71.22	23.12	3.081	7.20	6.67	136.0	269.04	24.54	10.964
1.20	1.11	42.0	83.08	23.16	3.587	7.40	6.85	137.0	271.01	24.59	11.023
1.40	1.30	48.0	94.95	23.20	4.092	7.60	7.04	138.0	272.99	24.64	11.081
1.60	1.48	54.0	106.82	23.25	4.595	7.80	7.22	138.0	272.99	24.69	11.059
1.80	1.67	60.0	118.69	23.29	5.096	8.00	7.41	139.0	274.97	24.73	11.117
2.00	1.85	67.0	132.54	23.33	5.680	8.20	7.59	139.0	274.97	24.78	11.095
2.20	2.04	72.0	142.43	23.38	6.092	8.40	7.78	139.0	274.97	24.83	11.072
2.40	2.22	76.0	150.34	23.42	6.419	8.60	7.96	140.0	276.95	24.88	11.130
2.60	2.41	81.0	160.23	23.47	6.828	8.80	8.15	140.0	276.95	24.93	11.107
2.80	2.59	86.0	170.13	23.51	7.236	9.00	8.33	140.0	276.95	24.98	11.085
3.00	2.78	90.0	178.04	23.56	7.558	9.20	8.52	140.0	276.95	25.03	11.063
3.20	2.96	94.0	185.95	23.60	7.879	9.40	8.70	140.0	276.95	25.09	11.040
3.40	3.15	97.0	191.89	23.65	8.115	9.60	8.89	140.0	276.95	25.14	11.018
3.60	3.33	101.0	199.80	23.69	8.433	9.80	9.07	139.0	274.97	25.19	10.917
3.80	3.52	105.0	207.71	23.74	8.750	10.00	9.26	138.0	272.99	25.24	10.816
4.00	3.70	108.0	213.65	23.78	8.983	10.20	9.44	137.0	271.01	25.29	10.716
4.20	3.89	110.0	217.60	23.83	9.132	10.40	9.63	136.0	269.04	25.34	10.616
4.40	4.07	113.0	223.54	23.87	9.363	10.60	9.81		0.00	25.39	0.000
4.60	4.26	117.0	231.45	23.92	9.676	10.80	10.00		0.00	25.45	0.000
4.80	4.44	118.0	233.43	23.97	9.739	11.00	10.19		0.00	25.50	0.000
5.00	4.63	121.0	239.36	24.01	9.968	11.20	10.37		0.00	25.55	0.000
5.20	4.81	123.0	243.32	24.06	10.113	11.40	10.56		0.00	25.60	0.000
5.40	5.00	125.0	247.28	24.11	10.257	11.60	10.74		0.00	25.66	0.000
5.60	5.19	126.0	249.25	24.15	10.319	11.80	10.93		0.00	25.71	0.000
5.80	5.37	128.0	253.21	24.20	10.462	12.00	11.11		0.00	25.76	0.000
6.00	5.56	130.0	257.17	24.25	10.605	12.20	11.30		0.00	25.82	0.000



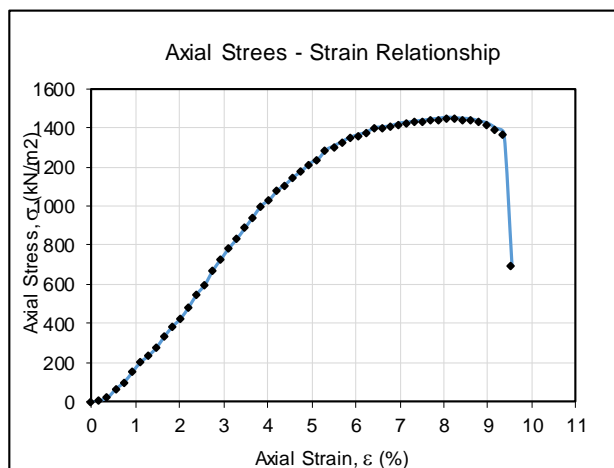
Unconfined Compression Strength, kN/m ²	
qu =	1091.82
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 545.91$

$E = 27296$

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	: Research of soil stabilization with various agents				
LOCATION	: -				
SAMPEL	: Remolded, Silty-Clay				
TESTING METHOD	: ASTM D 2166-66			TESTED BY	: Ihramsyah
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: Juni 2023
Sample Depth	m	-		m	
Sample Size	Diameter, d	5.38		cm	
	Height, h	10.90		cm	
	Volume	247.79		cm ³	
	Area, A _o	22.73		cm ²	
Index Properties			Weight of Wet Soil	460	gram
			Weight of Dry Soil	349	gram
			Water Content	31.8	%
			Dry Unit Weight	1.409	gram/cm ³
Proving Ring Calibration				1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh (mm)	ε = δh/h (%)	(div)	P (kg)	A = A _o /(1 - δh/h) (cm ²)	σ = P/A (kg/cm ²)	δh (mm)	ε = δh/h (%)	(div)	P (kg)	A = A _o /(1 - δh/h) (cm ²)	σ = P/A (kg/cm ²)
0.00	0.00	0.0	0.00	22.73	0.000	6.20	5.69	165.0	326.40	24.10	13.541
0.20	0.18	1.0	1.98	22.77	0.087	6.40	5.87	168.0	332.34	24.15	13.761
0.40	0.37	3.0	5.93	22.82	0.260	6.60	6.06	170.0	336.29	24.20	13.898
0.60	0.55	8.0	15.83	22.86	0.692	6.80	6.24	172.0	340.25	24.25	14.034
0.80	0.73	12.0	23.74	22.90	1.037	7.00	6.42	175.0	346.19	24.29	14.250
1.00	0.92	18.0	35.61	22.94	1.552	7.20	6.61	176.0	348.16	24.34	14.304
1.20	1.10	24.0	47.48	22.99	2.065	7.40	6.79	177.0	350.14	24.39	14.357
1.40	1.28	28.0	55.39	23.03	2.405	7.60	6.97	179.0	354.10	24.44	14.490
1.60	1.47	33.0	65.28	23.07	2.829	7.80	7.16	180.0	356.08	24.49	14.543
1.80	1.65	40.0	79.13	23.11	3.423	8.00	7.34	181.0	358.05	24.53	14.594
2.00	1.83	46.0	91.00	23.16	3.929	8.20	7.52	182.0	360.03	24.58	14.646
2.20	2.02	51.0	100.89	23.20	4.348	8.40	7.71	183.0	362.01	24.63	14.697
2.40	2.20	58.0	114.74	23.24	4.936	8.60	7.89	184.0	363.99	24.68	14.748
2.60	2.39	66.0	130.56	23.29	5.606	8.80	8.07	185.0	365.97	24.73	14.799
2.80	2.57	72.0	142.43	23.33	6.104	9.00	8.26	185.0	365.97	24.78	14.769
3.00	2.75	81.0	160.23	23.38	6.855	9.20	8.44	185.0	365.97	24.83	14.740
3.20	2.94	88.0	174.08	23.42	7.433	9.40	8.62	185.0	365.97	24.88	14.710
3.40	3.12	95.0	187.93	23.46	8.009	9.60	8.81	184.0	363.99	24.93	14.601
3.60	3.30	101.0	199.80	23.51	8.499	9.80	8.99	183.0	362.01	24.98	14.493
3.80	3.49	108.0	213.65	23.55	9.070	10.00	9.17	180.0	356.08	25.03	14.226
4.00	3.67	115.0	227.49	23.60	9.640	10.20	9.36	177.0	350.14	25.08	13.961
4.20	3.85	122.0	241.34	23.64	10.207	10.40	9.54	90.0	178.04	25.13	7.084
4.40	4.04	126.0	249.25	23.69	10.522	10.60	9.72		0.00	25.18	0.000
4.60	4.22	132.0	261.12	23.73	11.002	10.80	9.91		0.00	25.23	0.000
4.80	4.40	136.0	269.04	23.78	11.313	11.00	10.09		0.00	25.28	0.000
5.00	4.59	141.0	278.93	23.83	11.707	11.20	10.28		0.00	25.34	0.000
5.20	4.77	145.0	286.84	23.87	12.016	11.40	10.46		0.00	25.39	0.000
5.40	4.95	150.0	296.73	23.92	12.406	11.60	10.64		0.00	25.44	0.000
5.60	5.14	153.0	302.66	23.96	12.630	11.80	10.83		0.00	25.49	0.000
5.80	5.32	159.0	314.53	24.01	13.100	12.00	11.01		0.00	25.55	0.000
6.00	5.50	162.0	320.47	24.06	13.321	12.20	11.19		0.00	25.60	0.000



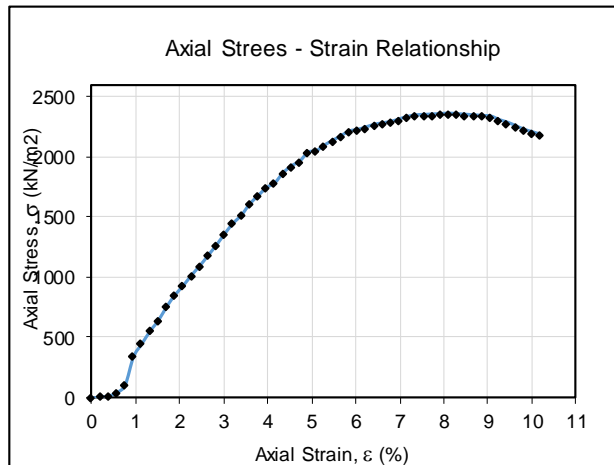
Unconfined Compression Strength, kN/m ²	
qu =	1451.77
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

1/2qu = 725.88

E = 36294

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	: Research of soil stabilization with various agents				
LOCATION	: -				
SAMPEL	: Remolded, Silty-Clay				
TESTING METHOD	: ASTM D 2166-66			TESTED BY	: Ihramsyah
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: Juni 2023
Sample Depth	m	-		m	
Sample Size	Diameter, d	5.22		cm	
	Height, h	10.60		cm	
	Volume	226.85		cm ³	
	Area, A _o	21.40		cm ²	
			Index Properties	Weight of Wet Soil	437 gram
				Weight of Dry Soil	344 gram
				Water Content	27.2 %
				Dry Unit Weight	1.514 gram/cm ³
			Proving Ring Calibration		1.978 kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
0.00	0.00	0.0	0.00	21.40	0.000	6.20	5.85	259.0	512.35	22.73	22.541
0.20	0.19	1.0	1.98	21.44	0.092	6.40	6.04	261.0	516.31	22.78	22.669
0.40	0.38	2.0	3.96	21.48	0.184	6.60	6.23	264.0	522.24	22.82	22.884
0.60	0.57	5.0	9.89	21.52	0.460	6.80	6.42	267.0	528.18	22.87	23.097
0.80	0.75	12.0	23.74	21.56	1.101	7.00	6.60	269.0	532.14	22.91	23.223
1.00	0.94	38.0	75.17	21.60	3.479	7.20	6.79	271.0	536.09	22.96	23.349
1.20	1.13	50.0	98.91	21.65	4.569	7.40	6.98	274.0	542.03	23.01	23.559
1.40	1.32	62.0	122.65	21.69	5.655	7.60	7.17	277.0	547.96	23.05	23.769
1.60	1.51	72.0	142.43	21.73	6.555	7.80	7.36	279.0	551.92	23.10	23.892
1.80	1.70	85.0	168.15	21.77	7.724	8.00	7.55	280.0	553.90	23.15	23.929
2.00	1.89	96.0	189.91	21.81	8.706	8.20	7.74	281.0	555.87	23.20	23.965
2.20	2.08	105.0	207.71	21.85	9.504	8.40	7.92	282.0	557.85	23.24	24.001
2.40	2.26	115.0	227.49	21.90	10.389	8.60	8.11	283.0	559.83	23.29	24.037
2.60	2.45	124.0	245.30	21.94	11.181	8.80	8.30	283.0	559.83	23.34	23.988
2.80	2.64	134.0	265.08	21.98	12.059	9.00	8.49	283.0	559.83	23.39	23.938
3.00	2.83	144.0	284.86	22.02	12.934	9.20	8.68	283.0	559.83	23.43	23.889
3.20	3.02	155.0	306.62	22.07	13.895	9.40	8.87	283.0	559.83	23.48	23.839
3.40	3.21	165.0	326.40	22.11	14.763	9.60	9.06	283.0	559.83	23.53	23.790
3.60	3.40	173.0	342.23	22.15	15.448	9.80	9.25	280.0	553.90	23.58	23.489
3.80	3.58	184.0	363.99	22.20	16.398	10.00	9.43	278.0	549.94	23.63	23.273
4.00	3.77	192.0	379.81	22.24	17.078	10.20	9.62	275.0	544.01	23.68	22.974
4.20	3.96	200.0	395.64	22.28	17.755	10.40	9.81	272.0	538.07	23.73	22.676
4.40	4.15	205.0	405.53	22.33	18.163	10.60	10.00	270.0	534.11	23.78	22.462
4.60	4.34	215.0	425.31	22.37	19.011	10.80	10.19	268.0	530.16	23.83	22.249
4.80	4.53	222.0	439.16	22.42	19.591	11.00	10.38	0.00	0.00	23.88	0.000
5.00	4.72	227.0	449.05	22.46	19.993	11.20	10.57	0.00	0.00	23.93	0.000
5.20	4.91	236.0	466.86	22.50	20.745	11.40	10.75	0.00	0.00	23.98	0.000
5.40	5.09	238.0	470.81	22.55	20.879	11.60	10.94	0.00	0.00	24.03	0.000
5.60	5.28	244.0	482.68	22.59	21.363	11.80	11.13	0.00	0.00	24.08	0.000
5.80	5.47	249.0	492.57	22.64	21.757	12.00	11.32	0.00	0.00	24.13	0.000
6.00	5.66	254.0	502.46	22.68	22.150	12.20	11.51	0.00	0.00	24.18	0.000



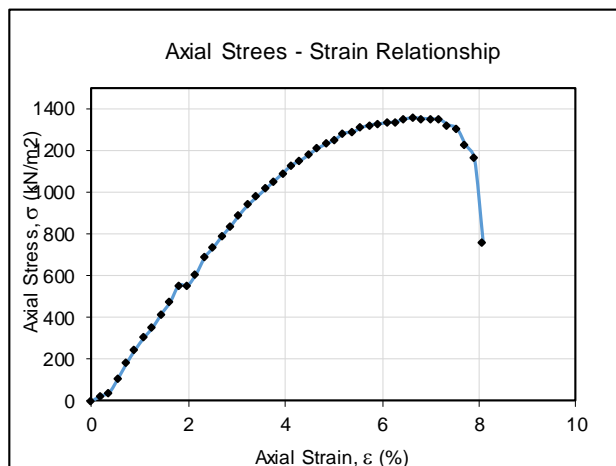
Unconfined Compression Strength, kN/m ²	
qu =	2358.02
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 1179$

$E = 58951$

UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	:	Research of soil stabilization with various agents					
LOCATION	:	-					
SAMPEL	:	Remolded, Silty-Clay					
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihramsyah		
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	464	gram
Sample Size	Diameter, d	5.45	cm	Weight of Dry Soil	348	gram	
	Height, h	11.15	cm	Water Content	33.2	%	
	Volume	260.11	cm ³	Dry Unit Weight	1.340	gram/cm ³	
	Area, A _o	23.33	cm ²	Proving Ring Calibration	1.978	kg/div	

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$		
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	23.33	0.000	6.20	5.56	167.0	330.36	24.70	13.374
0.20	0.18	3.0	5.93	23.37	0.254	6.40	5.74	169.0	334.32	24.75	13.508
0.40	0.36	5.0	9.89	23.41	0.422	6.60	5.92	170.0	336.29	24.80	13.562
0.60	0.54	13.0	25.72	23.45	1.096	6.80	6.10	171.0	338.27	24.84	13.616
0.80	0.72	22.0	43.52	23.50	1.852	7.00	6.28	172.0	340.25	24.89	13.670
1.00	0.90	30.0	59.35	23.54	2.521	7.20	6.46	174.0	344.21	24.94	13.802
1.20	1.08	37.0	73.19	23.58	3.104	7.40	6.64	175.0	346.19	24.99	13.855
1.40	1.26	43.0	85.06	23.62	3.601	7.60	6.82	175.0	346.19	25.03	13.828
1.60	1.43	51.0	100.89	23.67	4.263	7.80	7.00	175.0	346.19	25.08	13.802
1.80	1.61	58.0	114.74	23.71	4.839	8.00	7.17	175.0	346.19	25.13	13.775
2.00	1.79	68.0	134.52	23.75	5.663	8.20	7.35	172.0	340.25	25.18	13.513
2.20	1.97	68.0	134.52	23.80	5.653	8.40	7.53	170.0	336.29	25.23	13.330
2.40	2.15	75.0	148.37	23.84	6.223	8.60	7.71	160.0	316.51	25.28	12.521
2.60	2.33	85.0	168.15	23.89	7.040	8.80	7.89	152.0	300.69	25.33	11.872
2.80	2.51	91.0	180.02	23.93	7.523	9.00	8.07	100.0	197.82	25.38	7.795
3.00	2.69	98.0	193.86	23.97	8.087	9.20	8.25	0.0	0.00	25.43	0.000
3.20	2.87	104.0	205.73	24.02	8.566	9.40	8.43	0.0	0.00	25.48	0.000
3.40	3.05	111.0	219.58	24.06	9.126	9.60	8.61	0.0	0.00	25.53	0.000
3.60	3.23	117.0	231.45	24.11	9.601	9.80	8.79	0.0	0.00	25.58	0.000
3.80	3.41	122.0	241.34	24.15	9.993	10.00	8.97	0.0	0.00	25.63	0.000
4.00	3.59	127.0	251.23	24.20	10.383	10.20	9.15	0.0	0.00	25.68	0.000
4.20	3.77	132.0	261.12	24.24	10.772	10.40	9.33	0.0	0.00	25.73	0.000
4.40	3.95	137.0	271.01	24.29	11.159	10.60	9.51	0.0	0.00	25.78	0.000
4.60	4.13	142.0	280.90	24.33	11.545	10.80	9.69	0.0	0.00	25.83	0.000
4.80	4.30	145.0	286.84	24.38	11.766	11.00	9.87	0.0	0.00	25.88	0.000
5.00	4.48	149.0	294.75	24.42	12.068	11.20	10.04	0.0	0.00	25.93	0.000
5.20	4.66	153.0	302.66	24.47	12.369	11.40	10.22	0.0	0.00	25.99	0.000
5.40	4.84	156.0	308.60	24.52	12.588	11.60	10.40	0.0	0.00	26.04	0.000
5.60	5.02	159.0	314.53	24.56	12.806	11.80	10.58	0.0	0.00	26.09	0.000
5.80	5.20	163.0	322.45	24.61	13.103	12.00	10.76	0.0	0.00	26.14	0.000
6.00	5.38	164.0	324.42	24.66	13.159	12.20	10.94	0.0	0.00	26.19	0.000



Unconfined Compression Strength, kN/m ²	
qu =	1359.16
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

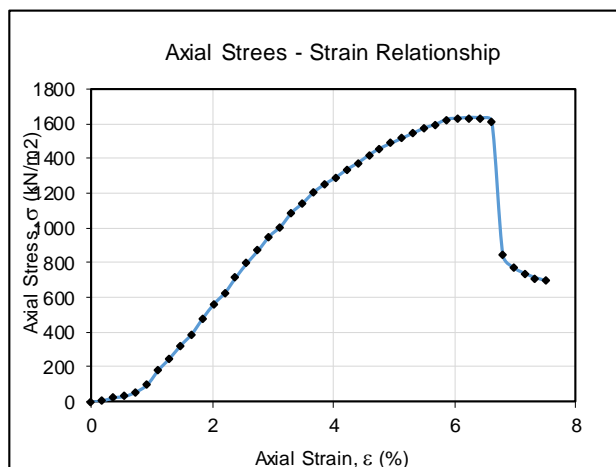
$1/2qu = 679.58$

$E = 33979$

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	:	Research of soil stabilization with various agents			
LOCATION	:	-			
SAMPEL	:	Remolded, Silty-Clay			
TESTING METHOD	:	ASTM D 2166-66		TESTED BY	: Ihramsyah
LABORATORY	:	HASANUDDIN UNIVERSITY		DATE	: Juni 2023

Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	452	gram
Sample Size	Diameter, d	5.40	cm	Weight of Dry Soil	348	gram	
	Height, h	10.90	cm	Water Content	29.7	%	
	Volume	249.63	cm ³	Dry Unit Weight	1.396	gram/cm ³	
	Area, A _o	22.90	cm ²	Proving Ring Calibration	1.978	kg/div	

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Axial Load		Axial Stress		Disp. Reading	Axial Strain	Axial Load		Axial Stress	
		Disp. Reading	Axial Stress	Corrected Area	Stress			Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$		
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	22.90	0.000	6.20	5.69	200.0	395.64	24.28	16.293
0.20	0.18	1.0	1.98	22.94	0.086	6.40	5.87	204.0	403.55	24.33	16.586
0.40	0.37	3.0	5.93	22.99	0.258	6.60	6.06	205.0	405.53	24.38	16.635
0.60	0.55	4.0	7.91	23.03	0.344	6.80	6.24	206.0	407.51	24.43	16.683
0.80	0.73	7.0	13.85	23.07	0.600	7.00	6.42	206.0	407.51	24.47	16.651
1.00	0.92	12.0	23.74	23.11	1.027	7.20	6.61	204.0	403.55	24.52	16.457
1.20	1.10	22.0	43.52	23.16	1.879	7.40	6.79	107.0	211.67	24.57	8.615
1.40	1.28	30.0	59.35	23.20	2.558	7.60	6.97	98.0	193.86	24.62	7.875
1.60	1.47	39.0	77.15	23.24	3.319	7.80	7.16	94.0	185.95	24.67	7.538
1.80	1.65	47.0	92.98	23.29	3.993	8.00	7.34	91.0	180.02	24.72	7.283
2.00	1.83	58.0	114.74	23.33	4.918	8.20	7.52	89.0	176.06	24.77	7.109
2.20	2.02	68.0	134.52	23.37	5.755	8.40	7.71	0.0	0.00	24.81	0.000
2.40	2.20	76.0	150.34	23.42	6.420	8.60	7.89	0.0	0.00	24.86	0.000
2.60	2.39	87.0	172.10	23.46	7.335	8.80	8.07	0.0	0.00	24.91	0.000
2.80	2.57	97.0	191.89	23.51	8.163	9.00	8.26	0.0	0.00	24.96	0.000
3.00	2.75	106.0	209.69	23.55	8.904	9.20	8.44	0.0	0.00	25.01	0.000
3.20	2.94	116.0	229.47	23.59	9.725	9.40	8.62	0.0	0.00	25.06	0.000
3.40	3.12	123.0	243.32	23.64	10.293	9.60	8.81	0.0	0.00	25.11	0.000
3.60	3.30	133.0	263.10	23.68	11.109	9.80	8.99	0.0	0.00	25.16	0.000
3.80	3.49	140.0	276.95	23.73	11.671	10.00	9.17	0.0	0.00	25.22	0.000
4.00	3.67	148.0	292.77	23.77	12.315	10.20	9.36	0.0	0.00	25.27	0.000
4.20	3.85	154.0	304.64	23.82	12.789	10.40	9.54	0.0	0.00	25.32	0.000
4.40	4.04	159.0	314.53	23.87	13.179	10.60	9.72	0.0	0.00	25.37	0.000
4.60	4.22	165.0	326.40	23.91	13.651	10.80	9.91	0.0	0.00	25.42	0.000
4.80	4.40	170.0	336.29	23.96	14.037	11.00	10.09	0.0	0.00	25.47	0.000
5.00	4.59	176.0	348.16	24.00	14.505	11.20	10.28	0.0	0.00	25.52	0.000
5.20	4.77	181.0	358.05	24.05	14.888	11.40	10.46	0.0	0.00	25.58	0.000
5.40	4.95	185.0	365.97	24.10	15.188	11.60	10.64	0.0	0.00	25.63	0.000
5.60	5.14	189.0	373.88	24.14	15.486	11.80	10.83	0.0	0.00	25.68	0.000
5.80	5.32	193.0	381.79	24.19	15.783	12.00	11.01	0.0	0.00	25.74	0.000
6.00	5.50	197.0	389.71	24.24	16.079	12.20	11.19	0.0	0.00	25.79	0.000



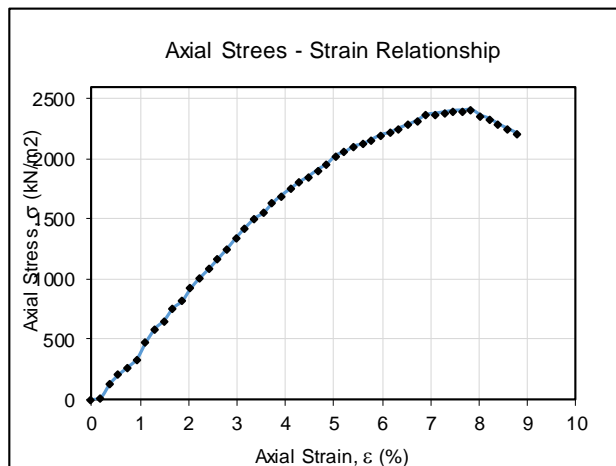
Unconfined Compression Strength, kN/m ²	
qu =	1636.64
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 818.32$

$E = 40916$

UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	: Research of soil stabilization with various agents						
LOCATION	: -						
SAMPEL	: Remolded, Silty-Clay						
TESTING METHOD	: ASTM D 2166-66			TESTED BY	: Ihramsyah		
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	439	gram
Sample Size	Diameter, d	5.30	cm		Weight of Dry Soil	348	gram
	Height, h	10.70	cm		Water Content	26.0	%
	Volume	236.06	cm ³		Dry Unit Weight	1.476	gram/cm ³
	Area, A _o	22.06	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	22.06	0.000	6.20	5.79	261.0	516.31	23.42	22.047
0.20	0.19	2.0	3.96	22.10	0.179	6.40	5.98	266.0	526.20	23.47	22.425
0.40	0.37	15.0	29.67	22.14	1.340	6.60	6.17	269.0	532.14	23.51	22.632
0.60	0.56	24.0	47.48	22.19	2.140	6.80	6.36	274.0	542.03	23.56	23.007
0.80	0.75	31.0	61.32	22.23	2.759	7.00	6.54	278.0	549.94	23.61	23.296
1.00	0.93	39.0	77.15	22.27	3.464	7.20	6.73	283.0	559.83	23.65	23.668
1.20	1.12	55.0	108.80	22.31	4.876	7.40	6.92	289.0	571.70	23.70	24.121
1.40	1.31	68.0	134.52	22.35	6.018	7.60	7.10	291.0	575.66	23.75	24.240
1.60	1.50	76.0	150.34	22.40	6.713	7.80	7.29	293.0	579.61	23.80	24.357
1.80	1.68	88.0	174.08	22.44	7.758	8.00	7.48	295.0	583.57	23.84	24.474
2.00	1.87	95.0	187.93	22.48	8.359	8.20	7.66	296.0	585.55	23.89	24.507
2.20	2.06	108.0	213.65	22.52	9.485	8.40	7.85	297.0	587.53	23.94	24.540
2.40	2.24	118.0	233.43	22.57	10.343	8.60	8.04	292.0	577.63	23.99	24.078
2.60	2.43	127.0	251.23	22.61	11.111	8.80	8.22	289.0	571.70	24.04	23.782
2.80	2.62	137.0	271.01	22.65	11.963	9.00	8.41	284.0	561.81	24.09	23.323
3.00	2.80	147.0	290.80	22.70	12.811	9.20	8.60	280.0	553.90	24.14	22.948
3.20	2.99	158.0	312.56	22.74	13.744	9.40	8.79	276.0	545.98	24.19	22.574
3.40	3.18	168.0	332.34	22.79	14.585	9.60	8.97	0.0	0.00	24.24	0.000
3.60	3.36	177.0	350.14	22.83	15.337	9.80	9.16	0.0	0.00	24.29	0.000
3.80	3.55	183.0	362.01	22.87	15.826	10.00	9.35	0.0	0.00	24.34	0.000
4.00	3.74	193.0	381.79	22.92	16.659	10.20	9.53	0.0	0.00	24.39	0.000
4.20	3.93	201.0	397.62	22.96	17.315	10.40	9.72		0.00	24.44	0.000
4.40	4.11	208.0	411.47	23.01	17.884	10.60	9.91		0.00	24.49	0.000
4.60	4.30	215.0	425.31	23.05	18.449	10.80	10.09		0.00	24.54	0.000
4.80	4.49	221.0	437.18	23.10	18.927	11.00	10.28		0.00	24.59	0.000
5.00	4.67	228.0	451.03	23.14	19.489	11.20	10.47		0.00	24.64	0.000
5.20	4.86	234.0	462.90	23.19	19.962	11.40	10.65		0.00	24.69	0.000
5.40	5.05	243.0	480.70	23.23	20.689	11.60	10.84		0.00	24.74	0.000
5.60	5.23	247.0	488.62	23.28	20.988	11.80	11.03		0.00	24.80	0.000
5.80	5.42	253.0	500.48	23.33	21.456	12.00	11.21		0.00	24.85	0.000
6.00	5.61	256.0	506.42	23.37	21.667	12.20	11.40		0.00	24.90	0.000



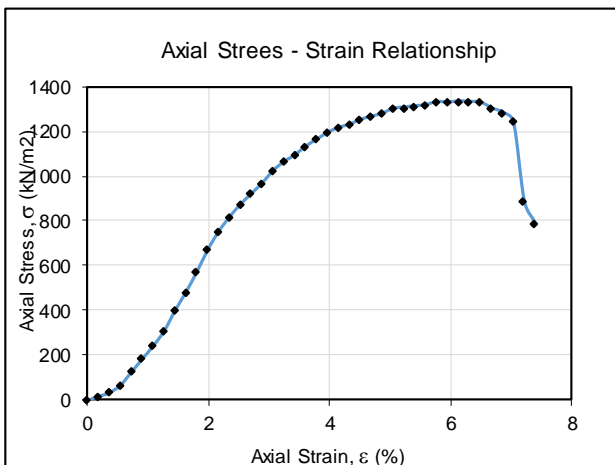
Unconfined Compression Strength, kN/m ²	
qu =	2407.39
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

$1/2qu = 1203.7$

$E = 60185$

UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	:	Research of soil stabilization with various agents					
LOCATION	:	-					
SAMPEL	:	Remolded, Silty-Clay					
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihramsyah		
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	461	gram
Sample Size	Diameter, d	5.40	cm		Weight of Dry Soil	369	gram
	Height, h	11.10	cm		Water Content	24.8	%
	Volume	254.21	cm ³		Dry Unit Weight	1.453	gram/cm ³
	Area, A _o	22.90	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
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	22.90	0.000	6.20	5.59	165.0	326.40	24.26	13.456
0.20	0.18	2.0	3.96	22.94	0.172	6.40	5.77	167.0	330.36	24.30	13.593
0.40	0.36	4.0	7.91	22.99	0.344	6.60	5.95	167.0	330.36	24.35	13.567
0.60	0.54	8.0	15.83	23.03	0.687	6.80	6.13	168.0	332.34	24.40	13.622
0.80	0.72	15.0	29.67	23.07	1.286	7.00	6.31	168.0	332.34	24.44	13.596
1.00	0.90	22.0	43.52	23.11	1.883	7.20	6.49	168.0	332.34	24.49	13.570
1.20	1.08	29.0	57.37	23.15	2.478	7.40	6.67	165.0	326.40	24.54	13.302
1.40	1.26	37.0	73.19	23.19	3.156	7.60	6.85	163.0	322.45	24.59	13.115
1.60	1.44	48.0	94.95	23.24	4.086	7.80	7.03	158.0	312.56	24.63	12.688
1.80	1.62	58.0	114.74	23.28	4.929	8.00	7.21	113.0	223.54	24.68	9.057
2.00	1.80	69.0	136.50	23.32	5.853	8.20	7.39	101.0	199.80	24.73	8.079
2.20	1.98	81.0	160.23	23.37	6.858	8.40	7.57	0.0	0.00	24.78	0.000
2.40	2.16	91.0	180.02	23.41	7.690	8.60	7.75	0.00	0.00	24.83	0.000
2.60	2.34	99.0	195.84	23.45	8.351	8.80	7.93	0.00	0.00	24.87	0.000
2.80	2.52	106.0	209.69	23.49	8.925	9.00	8.11	0.00	0.00	24.92	0.000
3.00	2.70	112.0	221.56	23.54	9.413	9.20	8.29	0.00	0.00	24.97	0.000
3.20	2.88	118.0	233.43	23.58	9.899	9.40	8.47	0.00	0.00	25.02	0.000
3.40	3.06	125.0	247.28	23.63	10.466	9.60	8.65	0.00	0.00	25.07	0.000
3.60	3.24	130.0	257.17	23.67	10.865	9.80	8.83	0.00	0.00	25.12	0.000
3.80	3.42	134.0	265.08	23.71	11.178	10.00	9.01	0.00	0.00	25.17	0.000
4.00	3.60	139.0	274.97	23.76	11.574	10.20	9.19	0.00	0.00	25.22	0.000
4.20	3.78	143.0	282.88	23.80	11.884	10.40	9.37	0.00	0.00	25.27	0.000
4.40	3.96	147.0	290.80	23.85	12.194	10.60	9.55	0.00	0.00	25.32	0.000
4.60	4.14	150.0	296.73	23.89	12.419	10.80	9.73	0.00	0.00	25.37	0.000
4.80	4.32	152.0	300.69	23.94	12.561	11.00	9.91	0.00	0.00	25.42	0.000
5.00	4.50	155.0	306.62	23.98	12.785	11.20	10.09	0.00	0.00	25.47	0.000
5.20	4.68	157.0	310.58	24.03	12.926	11.40	10.27	0.00	0.00	25.52	0.000
5.40	4.86	159.0	314.53	24.07	13.066	11.60	10.45	0.00	0.00	25.57	0.000
5.60	5.05	162.0	320.47	24.12	13.287	11.80	10.63	0.00	0.00	25.63	0.000
5.80	5.23	163.0	322.45	24.16	13.344	12.00	10.81	0.00	0.00	25.68	0.000
6.00	5.41	164.0	324.42	24.21	13.400	12.20	10.99	0.00	0.00	25.73	0.000

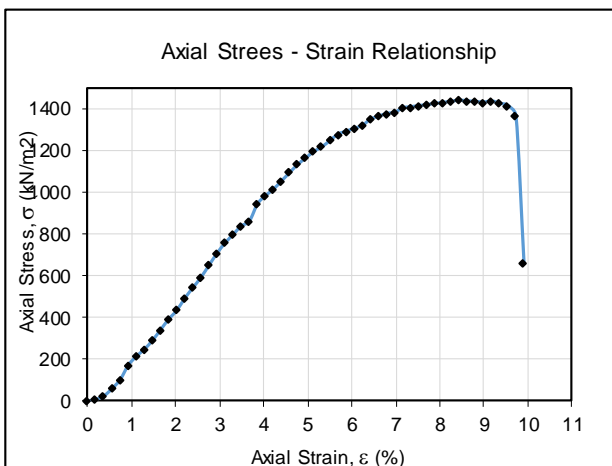


Unconfined Compression Strength, kN/m ²	
qu =	1336.34
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

1/2qu = 668.17
 E = 33408

UNCONFINED COMPRESSION TEST RESULTS							
PROJECT	:	Research of soil stabilization with various agents					
LOCATION	:	-					
SAMPEL	:	Remolded, Silty-Clay					
TESTING METHOD	:	ASTM D 2166-66	TESTED BY	:	Ihramsyah		
LABORATORY	:	HASANUDDIN UNIVERSITY	DATE	:	Juni 2023		
Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	451	gram
Sample Size	Diameter, d	5.33	cm		Weight of Dry Soil	343	gram
	Height, h	10.90	cm		Water Content	31.5	%
	Volume	243.20	cm ³		Dry Unit Weight	1.410	gram/cm ³
	Area, A _o	22.31	cm ²	Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$	P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$		
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.00	0.00	22.31	0.000	6.20	5.69	156.0	308.60	23.66	13.044
0.20	0.18	1.0	1.98	22.35	0.088	6.40	5.87	158.0	312.56	23.70	13.186
0.40	0.37	3.0	5.93	22.39	0.265	6.60	6.06	160.0	316.51	23.75	13.327
0.60	0.55	7.0	13.85	22.44	0.617	6.80	6.24	162.0	320.47	23.80	13.467
0.80	0.73	12.0	23.74	22.48	1.056	7.00	6.42	166.0	328.38	23.84	13.772
1.00	0.92	20.0	39.56	22.52	1.757	7.20	6.61	168.0	332.34	23.89	13.911
1.20	1.10	25.0	49.46	22.56	2.192	7.40	6.79	170.0	336.29	23.94	14.049
1.40	1.28	29.0	57.37	22.60	2.538	7.60	6.97	171.0	338.27	23.98	14.104
1.60	1.47	34.0	67.26	22.64	2.970	7.80	7.16	174.0	344.21	24.03	14.323
1.80	1.65	40.0	79.13	22.69	3.488	8.00	7.34	175.0	346.19	24.08	14.377
2.00	1.83	46.0	91.00	22.73	4.004	8.20	7.52	176.0	348.16	24.13	14.430
2.20	2.02	51.0	100.89	22.77	4.430	8.40	7.71	177.0	350.14	24.18	14.483
2.40	2.20	58.0	114.74	22.81	5.029	8.60	7.89	178.0	352.12	24.22	14.536
2.60	2.39	64.0	126.60	22.86	5.539	8.80	8.07	179.0	354.10	24.27	14.589
2.80	2.57	70.0	138.47	22.90	6.047	9.00	8.26	180.0	356.08	24.32	14.641
3.00	2.75	77.0	152.32	22.94	6.639	9.20	8.44	181.0	358.05	24.37	14.693
3.20	2.94	84.0	166.17	22.99	7.229	9.40	8.62	181.0	358.05	24.42	14.663
3.40	3.12	90.0	178.04	23.03	7.730	9.60	8.81	181.0	358.05	24.47	14.634
3.60	3.30	95.0	187.93	23.07	8.144	9.80	8.99	181.0	358.05	24.52	14.605
3.80	3.49	100.0	197.82	23.12	8.557	10.00	9.17	182.0	360.03	24.57	14.656
4.00	3.67	103.0	203.75	23.16	8.797	10.20	9.36	181.0	358.05	24.62	14.546
4.20	3.85	113.0	223.54	23.21	9.633	10.40	9.54	180.0	356.08	24.67	14.436
4.40	4.04	118.0	233.43	23.25	10.040	10.60	9.72	174.0	344.21	24.72	13.927
4.60	4.22	122.0	241.34	23.30	10.360	10.80	9.91	84.0	166.17	24.77	6.710
4.80	4.40	127.0	251.23	23.34	10.764	11.00	10.09	74.0	146.39	24.82	5.899
5.00	4.59	132.0	261.12	23.39	11.166	11.20	10.28	70.0	138.47	24.87	5.568
5.20	4.77	137.0	271.01	23.43	11.567	11.40	10.46	80.0	158.26	24.92	6.351
5.40	4.95	141.0	278.93	23.48	11.882	11.60	10.64		0.00	24.97	0.000
5.60	5.14	145.0	286.84	23.52	12.195	11.80	10.83		0.00	25.02	0.000
5.80	5.32	148.0	292.77	23.57	12.423	12.00	11.01		0.00	25.07	0.000
6.00	5.50	152.0	300.69	23.61	12.734	12.20	11.19		0.00	25.12	0.000



Unconfined Compression Strength, kN/m ²	
qu =	1441.38
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

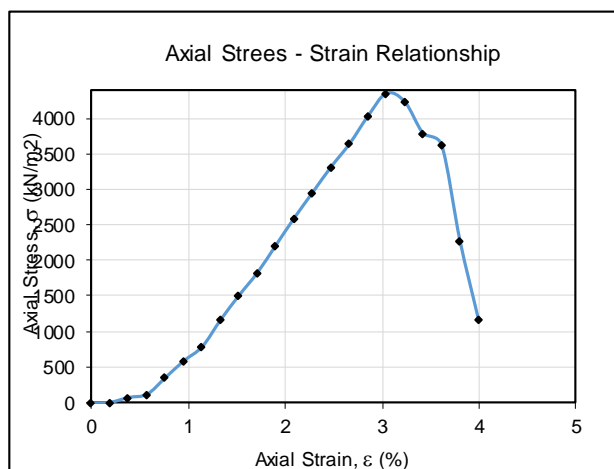
$1/2qu = 720.69$

$E = 36034$

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	:	Research of soil stabilization with various agents			
LOCATION	:	-			
SAMPEL	:	Remolded, Silty-Clay			
TESTING METHOD	:	ASTM D 2166-66		TESTED BY	: Ihramsyah
LABORATORY	:	HASANUDDIN UNIVERSITY		DATE	: Juni 2023

Sample Depth	m	-	m	Index Properties	Weight of Wet Soil	432	gram
Sample Size	Diameter, d	5.20	cm		Weight of Dry Soil	347	gram
	Height, h	10.50	cm		Water Content	24.6	%
	Volume	222.99	cm ³		Dry Unit Weight	1.554	gram/cm ³
	Area, A _o	21.24	cm ²	Proving Ring Calibration		2.449	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & Stress			
Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress	Disp. Reading	Axial Strain	Disp. Reading	Axial Stress	Corrected Area	Stress
δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$	δh	$\epsilon = \delta h/h$		P	$A = A_o/(1 - \delta h/h)$	$\sigma = P/A$
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	21.24	0.000	6.20	5.90	0.0	0.00	22.57	0.000
0.20	0.19	1.0	2.45	21.28	0.115	6.40	6.10	0.0	0.00	22.62	0.000
0.40	0.38	7.0	17.14	21.32	0.804	6.60	6.29	0.0	0.00	22.66	0.000
0.60	0.57	11.0	26.94	21.36	1.261	6.80	6.48	0.0	0.00	22.71	0.000
0.80	0.76	32.0	78.37	21.40	3.662	7.00	6.67	0.0	0.00	22.75	0.000
1.00	0.95	53.0	129.80	21.44	6.054	7.20	6.86	0.0	0.00	22.80	0.000
1.20	1.14	71.0	173.88	21.48	8.094	7.40	7.05	0.0	0.00	22.85	0.000
1.40	1.33	105.0	257.15	21.52	11.947	7.60	7.24	0.0	0.00	22.89	0.000
1.60	1.52	136.0	333.06	21.57	15.444	7.80	7.43	0.0	0.00	22.94	0.000
1.80	1.71	165.0	404.09	21.61	18.701	8.00	7.62	0.0	0.00	22.99	0.000
2.00	1.90	200.0	489.80	21.65	22.624	8.20	7.81	0.0	0.00	23.04	0.000
2.20	2.10	235.0	575.52	21.69	26.532	8.40	8.00	0.0	0.00	23.08	0.000
2.40	2.29	268.0	656.33	21.73	30.198	8.60	8.19	0.0	0.00	23.13	0.000
2.60	2.48	301.0	737.15	21.78	33.851	8.80	8.38	0.0	0.00	23.18	0.000
2.80	2.67	331.0	810.62	21.82	37.152	9.00	8.57	0.0	0.00	23.23	0.000
3.00	2.86	367.0	898.78	21.86	41.112	9.20	8.76	0.0	0.00	23.28	0.000
3.20	3.05	397.0	972.25	21.90	44.386	9.40	8.95	0.0	0.00	23.33	0.000
3.40	3.24	387.0	947.76	21.95	43.182	9.60	9.14	0.0	0.00	23.37	0.000
3.60	3.43	347.0	849.80	21.99	38.643	9.80	9.33	0.0	0.00	23.42	0.000
3.80	3.62	333.0	815.52	22.03	37.011	10.00	9.52	0.0	0.00	23.47	0.000
4.00	3.81	210.0	514.29	22.08	23.294	10.20	9.71	0.0	0.00	23.52	0.000
4.20	4.00	109.0	266.94	22.12	12.067	10.40	9.90	0.0	0.00	23.57	0.000
4.40	4.19	0.0	0.00	22.17	0.000	10.60	10.10	0.0	0.00	23.62	0.000
4.60	4.38	0.0	0.00	22.21	0.000	10.80	10.29	0.0	0.00	23.67	0.000
4.80	4.57	0.0	0.00	22.25	0.000	11.00	10.48	0.0	0.00	23.72	0.000
5.00	4.76	0.0	0.00	22.30	0.000	11.20	10.67	0.0	0.00	23.77	0.000
5.20	4.95	0.0	0.00	22.34	0.000	11.40	10.86	0.0	0.00	23.82	0.000
5.40	5.14	0.0	0.00	22.39	0.000	11.60	11.05	0.0	0.00	23.87	0.000
5.60	5.33	0.0	0.00	22.43	0.000	11.80	11.24	0.0	0.00	23.93	0.000
5.80	5.52	0.0	0.00	22.48	0.000	12.00	11.43	0.0	0.00	23.98	0.000
6.00	5.71	0.0	0.00	22.52	0.000	12.20	11.62	0.0	0.00	24.03	0.000



Unconfined Compression Strength, kN/m ²	
qu =	4354.22
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

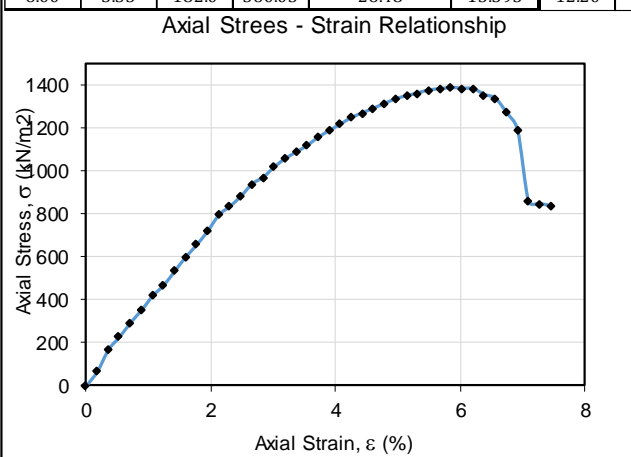
$1/2qu = 2177.1$

$E = 108855$

UNCONFINED COMPRESSION TEST RESULTS					
PROJECT	: Research of soil stabilization with various agents				
LOCATION	: -				
SAMPEL	: Remolded, Silty-Clay				
TESTING METHOD	: ASTM D 2166-66			TESTED BY	: Ithramsyah
LABORATORY	: HASANUDDIN UNIVERSITY			DATE	: Juni 2023

Sample Depth	-	m	-	m	Index Properties	Weight of Wet Soil	432	gram
Sample Size	Diameter, d	5.40	cm			Weight of Dry Soil	345	gram
	Height, h	11.24	cm			Water Content	25.1	%
	Volume	257.42	cm ³			Dry Unit Weight	1.342	gram/cm ³
	Area, A _o	22.90	cm ²		Proving Ring Calibration		1.978	kg/div

Axial Deformation		Axial Load & Stress				Axial Deformation		Axial Load & 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 = A _o /(1 - δh/h)	σ = P/A		δh	ε = δh/h	P	A = A _o /(1 - δh/h)	σ = P/A	
(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)	(mm)	(%)	(div)	(kg)	(cm ²)	(kg/cm ²)
0.00	0.00	0.0	0.00	22.90	0.000	6.20	5.52	132.0	261.12	24.24	10.773
0.20	0.18	1.0	1.98	22.94	0.086	6.40	5.69	136.0	269.04	24.28	11.078
0.40	0.36	2.0	3.96	22.98	0.172	6.60	5.87	141.0	278.93	24.33	11.464
0.60	0.53	3.0	5.93	23.03	0.258	6.80	6.05	144.0	284.86	24.38	11.686
0.80	0.71	4.0	7.91	23.07	0.343	7.00	6.23	146.0	288.82	24.42	11.826
1.00	0.89	6.0	11.87	23.11	0.514	7.20	6.41	149.0	294.75	24.47	12.046
1.20	1.07	8.0	15.83	23.15	0.684	7.40	6.58	151.0	298.71	24.52	12.184
1.40	1.25	12.0	23.74	23.19	1.024	7.60	6.76	153.0	302.66	24.56	12.322
1.60	1.42	19.0	37.59	23.23	1.618	7.80	6.94	154.0	304.64	24.61	12.379
1.80	1.60	24.0	47.48	23.27	2.040	8.00	7.12	154.0	304.64	24.66	12.355
2.00	1.78	30.0	59.35	23.32	2.545	8.20	7.30	154.0	304.64	24.70	12.331
2.20	1.96	36.0	71.22	23.36	3.049	8.40	7.47	153.0	302.66	24.75	12.228
2.40	2.14	42.0	83.08	23.40	3.550	8.60	7.65	152.0	300.69	24.80	12.125
2.60	2.31	49.0	96.93	23.44	4.135	8.80	7.83	151.0	298.71	24.85	12.022
2.80	2.49	53.0	104.84	23.49	4.464	9.00	8.01	150.0	296.73	24.90	11.919
3.00	2.67	57.0	112.76	23.53	4.792	9.20	8.19	0.00	0.00	24.94	0.000
3.20	2.85	63.0	124.63	23.57	5.287	9.40	8.36	0.00	0.00	24.99	0.000
3.40	3.02	67.0	132.54	23.62	5.612	9.60	8.54	0.00	0.00	25.04	0.000
3.60	3.20	73.0	144.41	23.66	6.103	9.80	8.72	0.00	0.00	25.09	0.000
3.80	3.38	78.0	154.30	23.70	6.510	10.00	8.90	0.00	0.00	25.14	0.000
4.00	3.56	84.0	166.17	23.75	6.997	10.20	9.07	0.00	0.00	25.19	0.000
4.20	3.74	88.0	174.08	23.79	7.317	10.40	9.25	0.00	0.00	25.24	0.000
4.40	3.91	93.0	183.97	23.84	7.719	10.60	9.43	0.00	0.00	25.29	0.000
4.60	4.09	96.0	189.91	23.88	7.953	10.80	9.61	0.00	0.00	25.34	0.000
4.80	4.27	100.0	197.82	23.92	8.269	11.00	9.79	0.00	0.00	25.39	0.000
5.00	4.45	108.0	213.65	23.97	8.914	11.20	9.96	0.00	0.00	25.44	0.000
5.20	4.63	111.0	219.58	24.01	9.144	11.40	10.14	0.00	0.00	25.49	0.000
5.40	4.80	115.0	227.49	24.06	9.456	11.60	10.32	0.00	0.00	25.54	0.000
5.60	4.98	119.0	235.41	24.10	9.767	11.80	10.50	0.00	0.00	25.59	0.000
5.80	5.16	124.0	245.30	24.15	10.158	12.00	10.68	0.00	0.00	25.64	0.000
6.00	5.34	128.0	253.21	24.19	10.466	12.20	10.85	0.00	0.00	25.69	0.000
5.40	4.80	174.0	344.21	26.33	13.070	11.60	10.30	0.00	0.00	27.95	0.000
5.60	4.97	176.0	348.16	26.38	13.196	11.80	10.48	0.00	0.00	28.01	0.000
5.80	5.15	179.0	354.10	26.43	13.396	12.00	10.66	0.00	0.00	28.06	0.000
6.00	5.33	182.0	360.03	26.48	13.595	12.20	10.83	0.00	0.00	28.12	0.000



Unconfined Compression Strength, kN/m ²	
qu =	1388.08
< 24.53	Very Soft
24.53 - 49.05	Soft
49.05 - 98.10	Medium
98.10 - 196.20	Stiff
196.20 - 392.40	Very Stiff
> 392.40	Hard

1/2qu = 694.04

E = 34702