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## LAMPIRAN

**REKAP PEMERIKSAAN TANAH LUNAK RENCANA DI  
LABORATORIUM**

No.	Jenis Pengujian Lab	Satuan	Hasil	Keterangan
<b>A. Index Physical Properties</b>				
1	Kadar Air Rencana	%	54.00	
2	Berat Jenis (GS)		2.73	
3	Berat Isi	gr/cc		
4	Angka Pori, (e)			
	Derajat Kejenuhan (Sr)			
5	Analisa Saringan			
6	Batas Atterberg :			
	Plastic Limit, wp(%)	%	19.60	USCS Classification : CH
	Liquid Limit, wL(%)	%	54.50	Lempung anorganis dan
	Plastic Index, Ip=wL-Ip	%	34.90	tanah subur dengan
	Shrinkage Limit (Batas Susut)	%	21.383	plastis tinggi
<b>B. Mechanical &amp; Hydrolic Properties</b>				
1	Unconfined Compression Test (UCT) = qu	ton /ft2	0.36	Tanah Lunak
	(Kuat Tekan Bebas)	kg/cm2	0.033	Tanah Lunak
2	Direct Shear Test (Kuat Geser) $\phi$	derajat	16 <sup>o</sup> 46'	
	C (kohesi tanah)	kg/cm2	1.0014	

## TEST RESULTS OF GRAIN-SIZE ANALYSIS

(Sieve-Mechanical and Hydrometer Methods)

PROJECT : PENELITIAN

LOCATION :

TESTING METHOD : ASTM D-421, AASTHO T-87, T-88

LABORATORY : SOIL MECHANICS FT.UH

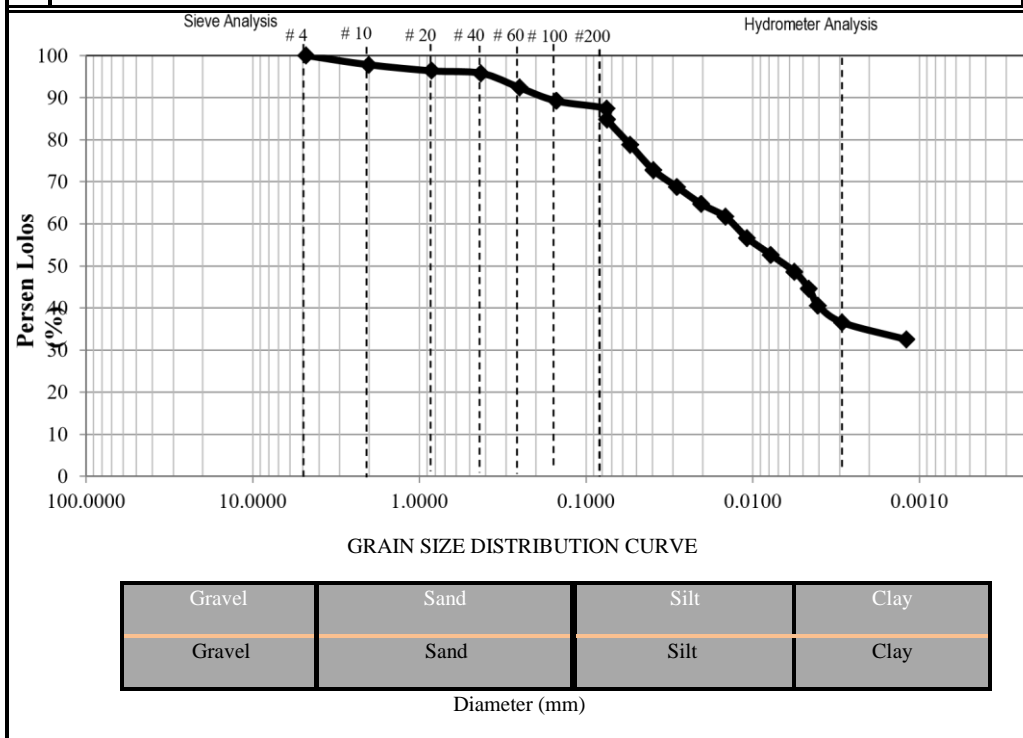
TESTING BY : Idhil Maming dan Muh. Ilham

DATE : Januari 2020




Berat Tanah		500	gr	Spec. Gravity, Gs :		2.623	T :		28.0	0			
Kering :										C			
Analisa Saringan						Analisa Hidrometer							
Saringan No.	Diameter (mm)	Berat Tertahan (Gram)	Berat Kumulatif (gram)	Persen Tertahan (%)	Persen Lolos (%)	Waktu (menit)	R	Rep = R+F+Ez	% Finer = (ax Rep)/Ws x 100%	Rcl = R + Fm	L (cm)	A	D=A\sqrt{L} (mm)
4	4.75	0	0	0	100	0.25	42.0	42.1	84.83	43.0	9.20	0.012	0.0746
							0	5		0		3	2
10	2	11	11	2.2	97.8	0.5	39.0	39.1	78.79	40.0	9.70	0.012	0.0541
							0	5		0		3	8
20	0.84	7	18	3.6	96.4	1	36.0	36.1	72.75	37.0	10.2	0.012	0.0392
							0	5		0	0	3	8
40	0.425	3	21	4.2	95.8	2	34.0	34.1	68.73	35.0	10.6	0.012	0.0283
							0	5		0	0	3	2
60	0.25	17	38	7.6	92.4	4	32.0	32.1	64.70	33.0	10.9	0.012	0.0203
							0	5		0	0	3	0
100	0.15	16	54	10.8	89.2	8	30.5	30.6	61.68	31.5	11.1	0.012	0.0145
							0	5		0	5	3	2
200	0.075	9	63	12.6	87.4	15	28.0	28.1	56.65	29.0	11.5	0.012	0.0107
							0	5		0	0	3	7
Pan	-	437	500	100	0	30	26.0	26.1	52.63	27.0	11.9	0.012	0.0077
							0	5		0	0	3	5


						60	24.0	24.1	48.60	25.0	12.4	0.012	0.0055
							0	5		0	0	3	9
						90	22.0	22.1	44.58	23.0	12.5	0.012	0.0045
							0	5		0	0	3	8
						120	20.0	20.1	40.55	21.0	12.9	0.012	0.0040
							0	5		0	0	3	3
						240	18.0	18.1	36.53	19.0	13.2	0.012	0.0028
							0	5		0	0	3	8
						144	16.0	16.1	32.50	17.0	13.5	0.012	0.0011
							0	5		0	0	3	9
Berat jenis air terhadap temperatur, $g_{wet T} = 0.99267$													
faktor, $K = (1000 \times G_s \times g_{wet T}) / (10 \times W_s(G_s - 1)) = 3.2086$													
Faktor $K_t = f(G_s, T) = 0.0123$													
Temperatur Correction (Ft) = $-4.85 + 0.25 T = 2.15$													
Zero Correction (Fz) = 2.0													
Meniscus correction (Fm) = 1													
Gs Correction = 1.01													



## REKAP PEMERIKSAAN TANAH LUNAK SKALA LAPANGAN DI LABORATORIUM

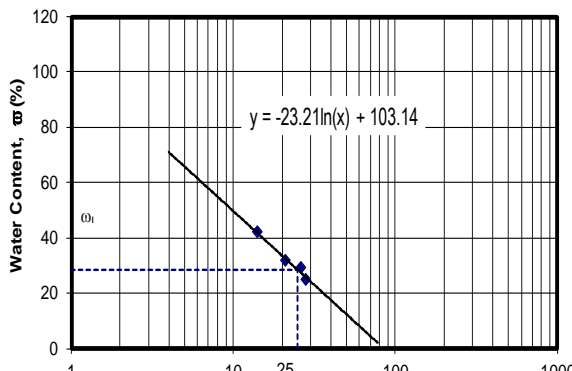
<b>SUMMARY TEST RESULTS</b>			
PROJECT		: SAMPEL TANAH PENELITIAN S1	
LOCATION		:	
BORING DEPTH		:	
TESTING METHOD		: ASTM & AASTHO SERIES	REPORTED BY : ILHAM
LABORATORY		: HASANUDDIN UNIVERSITY	DATE :
			
Number Sample	-	1	
Sample Depth	m		
Specific Gravity (Gs)		-	2.71
Natural States (Soil Index)	Water Content (w)	%	15.24
	Wet Density ( $\rho_{wet}$ )	$gr/cm^3$	1.59
	Dry Density ( $\rho_{dry}$ )	$gr/cm^3$	1.38
	Void ratio (e)	-	0.96
	Porosity (n)	-	0.49
	Degree of Saturation (Sr)	%	42.79
Atterberg Limits Test	Liquid Limit (LL)	%	28.43
	Plastic Limit (PL)	%	16.47
	Plastic Index (Ip)	-	11.95
	Shrinkage Limit (SL)	%	13.47
Grain Size & Hydrometer Test	Gravel	%	0.00
	Sand	%	9.40
	Silt	%	48.83
	Clay	%	41.77
<b>USCS Classification</b>		-	<b>CL</b>
Permeability ( $\eta_{20}$ )		cm/detk	0.85
Direct Shear Test	Kohesi ( c )	kg/cm <sup>2</sup>	0.16
	Sudut Geser ( $\phi$ )	degree	20.62



ATTERBERG LIMITS TEST											
PROJECT	: SAMPEL TANAH PENELITIAN S1										
LOCATION	:										
BORING NUMBER	:										
SAMPLING DEPTH	:										
TESTING METHOD	: ASTM D 424-59, D 4318-(00), AASHTO T89/T90					TESTED BY		:			
						DATE		:			
											
Sample No.	:										
Depth of Sample	:										
	Unit	Plastic Limit		Liquid Limit							
Test Number	-	1	2	1		2		3		4	
Number of Blows	N	-	-	14		21		26		28	
Container No. or Can No.	-	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2
Weight of Wet Soil+Can, W1	gram	9.32	9.28	11.00	12.43	12.00	11.34	15.87	15.62	16.13	16.63
Weight of Dry Soil+Can, W2	gram	9.11	9.18	10.19	11.18	11.09	10.54	14.13	13.93	14.52	14.93
Weight of Water, Ww=W1-W2	gram	0.21	0.10	0.81	1.25	0.91	0.80	1.74	1.69	1.61	1.70
Weight of Can, W3	gram	8.21	8.14	8.22	8.27	8.14	8.09	8.13	8.07	8.12	8.07
Weight of Dry Soil, Ws=W2-W3	gram	0.90	1.04	1.97	2.91	2.95	2.45	6.00	5.86	6.40	6.86
Water Content, $\omega = Ww/Ws \times 100\%$	%	23.33	9.62	41.12	42.96	30.85	32.65	29.00	28.84	25.16	24.78
Average of Water Content, w	%	16.47		42.04		31.75		28.92		24.97	

**Chart for Liquid Limit Determination**

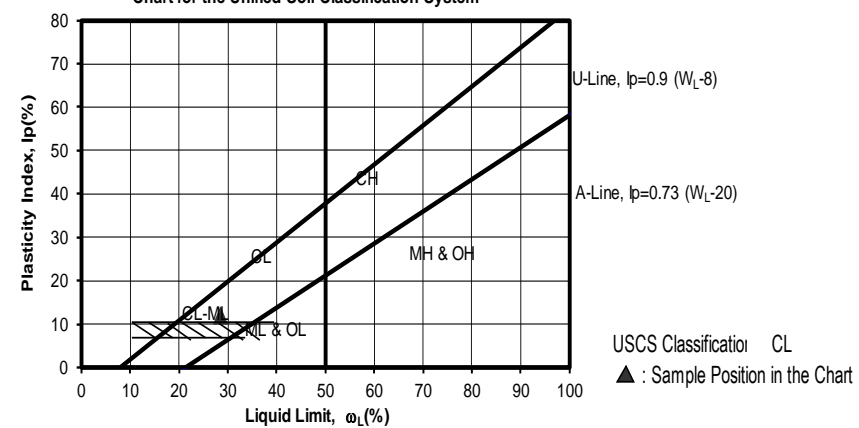


$y = -23.21\ln(x) + 103.14$

Atterberg Limits	Value
Plastic Limit, $\omega_p$ (%)	16.47
Liquid Limit, $\omega_L$ (%)	28.43
Plastic Index, $I_p = \omega_L - \omega_p$	11.95
Shrinkage Limit, $\omega_L$ (%)	13.47

**Chart for the Unified Soil Classification System**

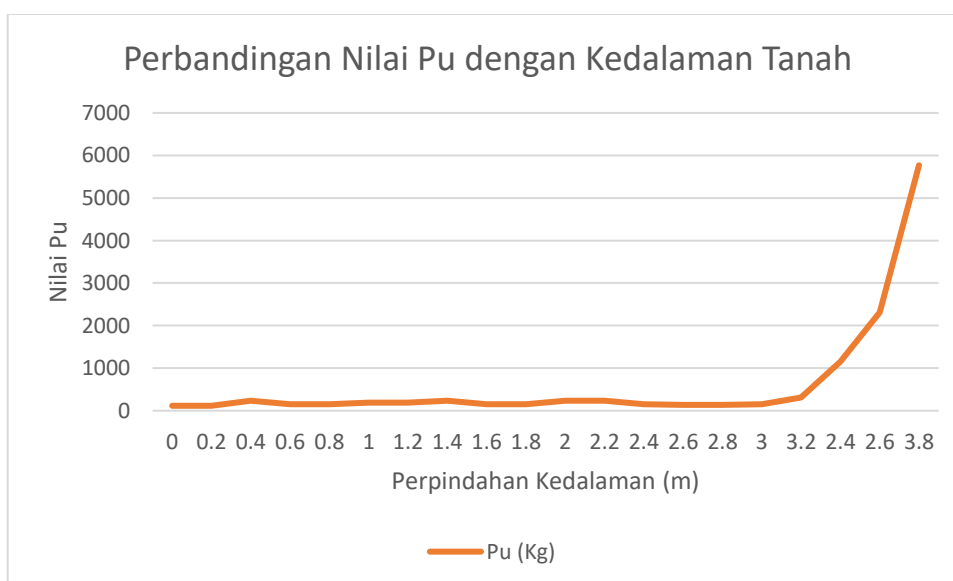


U-Line,  $I_p = 0.9(W_L - 8)$   
A-Line,  $I_p = 0.73(W_L - 20)$

USCS Classification    CL  
▲ : Sample Position in the Chart

Tabel Pembacaan Sondir di Lapangan

Kedalaman (m)	Hambatan Konus $q_c$ (Kg/cm <sup>2</sup> )	Pu (Kg)
0	0	0
0.2	3	115.395
0.4	3	115.395
0.6	6	230.79
0.8	4	153.86
1	4	153.86
1.2	5	192.325
1.4	5	192.325
1.6	6	230.79
1.8	4	153.86
2	4	153.86
2.2	6	230.79
2.4	6	230.79
2.6	4	153.86
2.8	3.5	134.6275
3	3.5	134.6275
3.2	4	153.86
2.4	8	307.72
2.6	30	1153.95
3.8	60	2307.9
4	150	5769.75



## HASIL UJI HAND PENETROMETER

Ket :

$$1 \text{ kN/m}^2 = 0.010197 \text{ kg/cm}^2$$

$$\text{Dia. Konus H.Penetrometer} = 0.000645 \text{ m}^2$$

$$\text{Prov. Ring } 0.01 \text{ mm} = 1 \text{ kN}$$

Depth	Dial	Load	qc		Ket
20 cm	24	0.24 KN	372.093 KN/m <sup>2</sup>	3.794 Kg/cm <sup>2</sup>	Sangat Lunak
40 cm	28	0.28 KN	434.109 KN/m <sup>2</sup>	4.427 Kg/cm <sup>2</sup>	Sangat Lunak
60 cm	24	0.24 KN	372.093 KN/m <sup>2</sup>	3.794 Kg/cm <sup>2</sup>	Sangat Lunak
80 cm	20	0.2 KN	310.078 KN/m <sup>2</sup>	3.162 Kg/cm <sup>2</sup>	Sangat Lunak
100 cm	22	0.22 KN	341.085 KN/m <sup>2</sup>	3.478 Kg/cm <sup>2</sup>	Sangat Lunak

### NILAI KAPASITAS TARIK ANGKUR TERHADAP KEDALAMAN PADA UJI LAPANGAN

No.	Anchor Displacement (cm)	Pullup Capacity (Kg)		
		L=100 cm	L=200 cm	L=300 cm
0	0	0	0.00	0.00
1	10	192.33	307.72	384.65
2	20	269.26	346.19	384.65
3	30	269.26	423.12	461.58
4	40	307.72	500.05	538.51
5	50	346.19	538.51	576.98
6	60	384.65	538.51	576.98
7	70	307.72	538.51	576.98
8	80	269.26	538.51	576.98
9	90	192.33	538.51	576.98
10	100	192.33	538.51	576.98
11	110		538.51	576.98
12	120		<b>538.51</b>	<b>576.98</b>
13	130		538.51	576.98
14	140		538.51	576.98
15	150		538.51	576.98
16	160		500.05	576.98
17	170		384.65	576.98
18	180		307.72	576.98
19	190		230.79	576.98
20	200		192.33	576.98
21	210			576.98
22	220			557.74
23	230			538.51
24	240			519.28
25	250			500.05
26	260			461.58
27	270			423.12
28	280			346.19
29	290			230.79
30	300			192.33

