

LAMPIRAN 1
DATA GEOTEKNIK

BORING PROFILE



Project	Overpass Balangan PT. Adaro	Coordinate		BORING NO.
Work	Soil Investigation	X		STA. 0 + 300
Location	Balangan	Y		BH-1
Date	June 18 - 20, 2015	Z		
Total Depth	30.00 M			
GWL	-4.20 M			

DEPTH	SPT	N-SPT	CURVE	KIND OF TEST	NO. SAMPLE	BOR PROFILE	DESCRIPTION
0.00							Tanah Urugan, lempung sedikit kerikil, merah kecoklatan, kaku
1.00							
2.00	5 5 6 15 15 15	11		UDS 1 SPT 1			Pasir berlanau dan berlempung dengan kerikil (SC-SM), plastisitas rendah, kuning kecoklatan, kaku
3.00							Pasir berlanau dan berlempung dengan kerikil (SC-SM), plastisitas rendah, merah sedikit kuning keabu-abuan, kaku
4.00	2 4 7 15 15 15	11		SPT 2			
5.00							Batubara muda, hitam kecoklatan, sedang
6.00	2 2 6 15 15 15	8		SPT 3			
7.00							Lanau plastisitas sedang (ML), abu-abu tua, kaku
8.00	4 6 9 15 15 15	15		UDS 2 SPT 4			
8.50							Lanau plastisitas sedang (ML), abu-abu tua, sangat kaku
9.00							
10.00	6 10 16 15 15 15	26		SPT 5			
11.00							
12.00	6 12 17 15 15 15	29		UDS 3 SPT 6			
13.00							Lanau plastisitas sedang (ML), hitam kecoklatan, sangat kaku
14.00	16 22 26 15 15 15	48		SPT 7			Lanau plastisitas sedang (ML), hitam kecoklatan, keras
15.00							
16.00	12 21 23 15 15 15	44		SPT 8			
17.00							
18.00	10 19 23 15 15 15	42		SPT 9			
19.00							Lanau sedikit organik dengan pasir plastisitas sedang (ML) hitam kecoklatan, keras
20.00	12 23 27 15 15 15	50		DS 1 SPT 10			
							Lanau sedikit organik dengan pasir plastisitas sedang (ML), abu-abu muda, keras

Boring Master : Miskun	Technical Report : Lina Selvia. Amd	Geotechnical Engineer : Yusti Yudiawati, MT
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DEPTH	SPT	N-SPT	CURVE						KIND OF TEST	NO. SAMPLE	BOR PROFILE	DESCRIPTION
			10	20	30	40	50	60				
21.00												Lanau sedikit organik dengan pasir plastisitas sedang (ML), abu-abu muda, keras
22.00	11 15	32 15	20 15	52						⊗	SPT 11	
23.00												
24.00	11 15	17 15	19 15	36						⊗	SPT 12	
25.00												Lempung, tersementasi, coklat kehitaman, keras
26.00	10 15	21 15	24 15	45						⊗	SPT 13	
27.00												Lanau kelepungan sedikit pasir halus, abu-abu muda, keras
28.00	11 15	24 15	27 15	51						⊗	SPT 14	
29.00												Lempung berlanau, tersementasi, hitam kecoklatan, keras
30.00	12 15	24 15	27 15	51						⊗	SPT 15	
30.45												Lanau berlempung, tersementasi, abu-abu muda kecoklatan keras
31.00												END OF THIS BORING
32.00												
33.00												
34.00												
35.00												
36.00												
37.00												
38.00												
39.00												
40.00												
40.45												

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PEKERJAAN LABORATORIUM

Pemeriksaan Laboratorium masing-masing 9 (sembilan) tes untuk pemeriksaan: *Water Content, Unit Weight, Spesific Gravity, Liquid Limit and Plastic Limit, Grain Size Analysis, Direct Shear, Unconfined Compressive Strength, Triaxial UU, dan Consolidation.*

Pengujian dilakukan di laboratorium PT. Kalimantan Soil Engineering, dengan menggunakan prosedur pengujian berdasarkan ASTM (*American Society for Testing and Materials*).

Tabel 11a. Soil Properties

KIND of TEST	BH - 1			
	1.5 - 2.0 m	7.0 - 8.0 m	11.0 - 12.0 m	19.0 - 20.0 m
A. PHYSICAL PROPERTIES				
Natural Water Content ω (%)	19,32	67,78	37,60	38,88
Unit Weight γ (Gr/cm ³)	2,11	1,33	1,69	1,69
Specific Gravity Gs	2,54	2,48	2,37	2,40
Liquid Limit LL (%)	26,80	42,15	45,30	45,70
Plastic Limit PL (%)	20,53	33,71	36,57	38,95
Indeks Plastic PI	6,27	8,44	8,73	6,75
Gradation by Sieve Analysis (% Passing) :				
# 10 2,000 mm	79,61	100,00	100,00	100,00
# 40 0,425 mm	70,83	93,46	99,74	99,43
# 200 0,075 mm	54,18	91,70	89,32	77,94
Soil Proportion by Gradation Curves (%)				
Gravel	20,39	0,00	0,00	0,00
Sand	45,82	8,30	10,68	22,06
Silt	13,29	83,50	81,72	70,94
Clay	20,50	8,20	7,60	7,00
B. ENGINEERING PROPERTIES				
Direct Shear				
Cohesion c (Kg/cm ²)	0,276	0,202	0,191	0,133
Internal Friction Angle ϕ (°)	11,3	15,2	30,9	23,4
UCS (Unconfined Compressive Strength)				
Undisturbed Condition qu (Kg/cm ²)	1,140	1,050	1,910	0,428
Remolded Condition qr (Kg/cm ²)	1,010	0,557	1,050	0,320
Undrained Cohesion cu (Kg/cm ²)	0,570	0,525	0,955	0,214
Sensitivity St	1,129	1,885	1,819	1,336
Triaxial Test: UU				
Cohesion c (Kg/cm ²)	0,671	-	1,344	-
Internal Friction Angle ϕ (°)	3,4	-	4,4	-
Consolidation				
Compression Index Cc	0,107	0,468	0,208	0,249
Swelling Index Cs	0,021	0,101	0,070	0,060
Coef. of Consolidation Cv (cm ² /sec)	2,63E-04	6,12E-04	2,63E-03	5,76E-04
Coef. of Permeability k (cm/sec)	-	9,56E-09	4,99E-08	1,32E-08
Void Ratio e	0,332	2,040	0,751	0,959
C. SOIL CLASSIFICATION				
USCS	SC - SM	ML	ML	ML
AASHTO	-	-	-	-