

Lampiran **C**

Slugtest Result PT HM

 MINING AND GEOTECHNICAL CONSULTANT		Slugtest ID:		Test No:	
Date	01-10-2021	Well ID	DHG-01		
GW-Level Start (mbgs)	0,00 m	Well Diameter (mm)	750		
Depth Top Aquifer (mbgs)	3.50 m	Casing Diameter (mm)	600		
Depth Bottom Aquifer (mbgs)	16.00 m	Slug Type			
Screen Length (m)	12.00 m	Volume (litre)	480,420		
Across Screen		GW-Level Finish (mbgs)	13.00		
Above Screen		Personel	YAR		
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)
1	00:00:02	0.80	35	00:19:40	7.80
2	00:00:04	0.88	36	00:22:40	8.88
3	00:00:06	1.00	37	00:25:40	9.00
4	00:00:08	1.08	38	00:28:40	9.50
5	00:00:10	1.13	39	00:31:40	9.98
6	00:00:15	1.30	40	00:36:40	10.62
7	00:00:20	1.42	41	00:41:40	10.88
8	00:00:25	1.51	42	00:46:40	11.13
9	00:00:30	1.60	43	00:51:40	11.60
10	00:00:35	1.70	44	01:01:40	11.82
11	00:00:40	1.75	45	01:11:40	12.06
12	00:00:45	1.80	46	01:21:40	12.21
13	00:00:50	1.88	47	01:31:40	12.37
14	00:00:55	1.92	48	01:46:40	12.40
15	00:01:00	1.97	49	02:01:40	12.49
16	00:01:10	1.97	50	02:16:40	12.54
17	00:01:20	2.00	51	02:31:40	12.60
18	00:01:30	2.03	52	02:46:40	12.67
19	00:01:40	2.14	53	03:16:40	12.80
20	00:02:10	2.38	54	03:46:40	
21	00:02:40	2.54	55	04:16:40	
22	00:03:10	2.68	56	04:46:40	
23	00:03:40	2.78	57	05:16:40	
24	00:04:10	2.90	58	05:46:40	
25	00:05:10	3.07	59	06:46:40	
26	00:06:10	3.28	60	07:46:40	
27	00:07:10	3.52	61	08:46:40	
28	00:08:10	3.75	62	09:46:40	
29	00:09:10	3.88	63	10:46:40	
30	00:10:40	3.98	64	12:46:40	
31	00:12:10	4.30	65	14:46:40	
32	00:13:40	6.10	66	16:46:40	
33	00:15:10	6.54	67	18:46:40	
34	00:16:40	7.18	68	20:46:40	
Remarks:					

 GEOMINE MINING AND GEOTECHNICAL CONSULTANT						Slugtest ID:		Test No:	
Date		04-10-2021		Well ID		DH6-02			
GW-Level Start (mbgs)		0,00		Well Diameter (mm)		750			
Depth Top Aquifer (mbgs)		8,00		Casing Diameter (mm)		600			
Depth Bottom Aquifer (mbgs)		12,00		Slug Type					
Screen Length (m)		12,00		Volume (litre)		395 690			
Across Screen				GW-Level Finish (mbgs)		8,58			
Above Screen				Personel		YAR			
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)				
1	00:00:02	0,17	35	00:19:40	5,90				
2	00:00:04	0,27	36	00:22:40	6,15				
3	00:00:06	0,37	37	00:25:40	6,30				
4	00:00:08	0,43	38	00:28:40	6,47				
5	00:00:10	0,47	39	00:31:40	6,55				
6	00:00:15	0,60	40	00:36:40	6,71				
7	00:00:20	0,64	41	00:41:40	6,87				
8	00:00:25	0,80	42	00:46:40	6,98				
9	00:00:30	0,86	43	00:51:40	7,07				
10	00:00:35	0,92	44	01:01:40	7,18				
11	00:00:40	0,95	45	01:11:40	7,25				
12	00:00:45	0,97	46	01:21:40	7,37				
13	00:00:50	0,99	47	01:31:40	7,49				
14	00:00:55	1,02	48	01:46:40	7,54				
15	00:01:00	1,14	49	02:01:40	7,63				
16	00:01:10	1,20	50	02:16:40	7,70				
17	00:01:20	1,33	51	02:31:40	7,78				
18	00:01:30	1,46	52	02:46:40	7,84				
19	00:01:40	1,56	53	03:16:40	7,95				
20	00:02:10	1,89	54	03:46:40					
21	00:02:40	2,12	55	04:16:40					
22	00:03:10	2,40	56	04:46:40					
23	00:03:40	2,64	57	05:16:40					
24	00:04:10	2,84	58	05:46:40					
25	00:05:10	3,50	59	06:46:40					
26	00:06:10	3,64	60	07:46:40					
27	00:07:10	3,85	61	08:46:40					
28	00:08:10	4,28	62	09:46:40					
29	00:09:10	4,54	63	10:46:40					
30	00:10:40	4,78	64	12:46:40					
31	00:12:10	5,12	65	14:46:40					
32	00:13:40	5,30	66	16:46:40					
33	00:15:10	5,50	67	18:46:40					
34	00:16:40	5,60	68	20:46:40					
Remarks:									

 Slugtest ID: Test No:					
Date	30-09-2021		Well ID	D14C-03	
GW-Level Start (mbgs)	0,60		Well Diameter (mm)	750	
Depth Top Aquifer (mbgs)	11,00		Casing Diameter (mm)	600	
Depth Bottom Aquifer (mbgs)	28,00		Slug Type		
Screen Length (m)	20,00		Volume (litre)	876,060	
Across Screen			GW-Level Finish (mbgs)	5,07	
Above Screen			Personel		
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)
1	00:00:02	0,60	35	00:19:40	5,62
2	00:00:04	0,78	36	00:22:40	5,90
3	00:00:06	0,80	37	00:25:40	5,98
4	00:00:08	0,97	38	00:28:40	6,08
5	00:00:10	1,00	39	00:31:40	6,19
6	00:00:15	1,07	40	00:36:40	6,15
7	00:00:20	1,15	41	00:41:40	6,15
8	00:00:25	1,23	42	00:46:40	6,15
9	00:00:30	1,32	43	00:51:40	
10	00:00:35	1,42	44	01:01:40	
11	00:00:40	1,51	45	01:11:40	
12	00:00:45	1,59	46	01:21:40	
13	00:00:50	1,67	47	01:31:40	
14	00:00:55	1,74	48	01:46:40	
15	00:01:00	1,82	49	02:01:40	
16	00:01:10	1,94	50	02:16:40	
17	00:01:20	2,05	51	02:31:40	
18	00:01:30	2,15	52	02:46:40	
19	00:01:40	2,27	53	03:16:40	
20	00:02:10	2,48	54	03:46:40	
21	00:02:40	2,70	55	04:16:40	
22	00:03:10	2,98	56	04:46:40	
23	00:03:40	3,24	57	05:16:40	
24	00:04:10	3,42	58	05:46:40	
25	00:05:10	3,65	59	06:46:40	
26	00:06:10	3,90	60	07:46:40	
27	00:07:10	4,10	61	08:46:40	
28	00:08:10	4,65	62	09:46:40	
29	00:09:10	4,48	63	10:46:40	
30	00:10:40	4,83	64	12:46:40	
31	00:12:10	5,08	65	14:46:40	
32	00:13:40	5,19	66	16:46:40	
33	00:15:10	5,30	67	18:46:40	
34	00:16:40	5,47	68	20:46:40	
Remarks:					

 GEOMINE MINING AND GEOTECHNICAL CONSULTANT		Slugtest ID:		Test No:	
Date	03-10-2021	Well ID	DHG-04		
GW-Level Start (mbgs)	0,00	Well Diameter (mm)	750		
Depth Top Aquifer (mbgs)	20,00	Casing Diameter (mm)	600		
Depth Bottom Aquifer (mbgs)	32,00	Slug Type			
Screen Length (m)	20,00	Volume (litre)	989,100		
Across Screen		GW-Level Finish (mbgs)	27,00		
Above Screen		Personel	YAR		
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)
1	00:00:02	0,20	35	00:19:40	6,40
2	00:00:04	0,40	36	00:22:40	6,64
3	00:00:06	0,50	37	00:25:40	6,97
4	00:00:08	0,64	38	00:28:40	7,26
5	00:00:10	0,80	39	00:31:40	7,42
6	00:00:15	1,00	40	00:36:40	8,20
7	00:00:20	1,11	41	00:41:40	8,88
8	00:00:25	1,22	42	00:46:40	9,50
9	00:00:30	1,28	43	00:51:40	10,08
10	00:00:35	1,32	44	01:01:40	11,11
11	00:00:40	1,38	45	01:11:40	12,09
12	00:00:45	1,42	46	01:21:40	13,00
13	00:00:50	1,50	47	01:31:40	14,22
14	00:00:55	1,52	48	01:46:40	16,40
15	00:01:00	1,58	49	02:01:40	17,88
16	00:01:10	1,71	50	02:16:40	18,64
17	00:01:20	1,80	51	02:31:40	20,08
18	00:01:30	1,92	52	02:46:40	21,16
19	00:01:40	2,00	53	03:16:40	23,09
20	00:02:10	2,30	54	03:46:40	
21	00:02:40	2,53	55	04:16:40	
22	00:03:10	2,80	56	04:46:40	
23	00:03:40	3,00	57	05:16:40	
24	00:04:10	3,23	58	05:46:40	
25	00:05:10	3,64	59	06:46:40	
26	00:06:10	4,04	60	07:46:40	
27	00:07:10	4,39	61	08:46:40	
28	00:08:10	4,71	62	09:46:40	
29	00:09:10	5,03	63	10:46:40	
30	00:10:40	5,36	64	12:46:40	
31	00:12:10	5,59	65	14:46:40	
32	00:13:40	5,81	66	16:46:40	
33	00:15:10	6,00	67	18:46:40	
34	00:16:40	6,14	68	20:46:40	
Remarks:					

 Slugtest ID: Test No:					
Date	02-10-2021		Well ID	DH6-05	
GW-Level Start (mbgs)	4.34		Well Diameter (mm)	750	
Depth Top Aquifer (mbgs)	17.00		Casing Diameter (mm)	600	
Depth Bottom Aquifer (mbgs)	20.00		Slug Type		
Screen Length (m)	12.00		Volume (litre)	649.380	
Across Screen			GW-Level Finish (mbgs)	18.70	
Above Screen			Personel	YAR	
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)
1	00:00:02	4.40	35	00:19:40	7.82
2	00:00:04	4.43	36	00:22:40	7.85
3	00:00:06	4.52	37	00:25:40	7.88
4	00:00:08	4.55	38	00:28:40	7.93
5	00:00:10	4.56	39	00:31:40	7.98
6	00:00:15	4.59	40	00:36:40	8.04
7	00:00:20	4.57	41	00:41:40	8.06
8	00:00:25	4.59	42	00:46:40	8.10
9	00:00:30	4.59	43	00:51:40	8.12
10	00:00:35	4.61	44	01:01:40	8.16
11	00:00:40	4.61	45	01:11:40	8.17
12	00:00:45	4.60	46	01:21:40	8.21
13	00:00:50	4.58	47	01:31:40	8.24
14	00:00:55	4.66	48	01:46:40	8.36
15	00:01:00	4.75	49	02:01:40	8.40
16	00:01:10	4.85	50	02:16:40	8.44
17	00:01:20	4.89	51	02:31:40	8.52
18	00:01:30	5.00	52	02:46:40	
19	00:01:40	5.13	53	03:16:40	
20	00:02:10	5.43	54	03:46:40	
21	00:02:40	5.76	55	04:16:40	
22	00:03:10	6.47	56	04:46:40	
23	00:03:40	6.66	57	05:16:40	
24	00:04:10	6.89	58	05:46:40	
25	00:05:10	7.00	59	06:46:40	
26	00:06:10	7.23	60	07:46:40	
27	00:07:10	7.36	61	08:46:40	
28	00:08:10	7.40	62	09:46:40	
29	00:09:10	7.43	63	10:46:40	
30	00:10:40	7.53	64	12:46:40	
31	00:12:10	7.51	65	14:46:40	
32	00:13:40	7.56	66	16:46:40	
33	00:15:10	7.60	67	18:46:40	
34	00:16:40	7.70	68	20:46:40	
Remarks:					
Stuck at 450 to 4.60 m					

 MINING AND GEOTECHNICAL CONSULTANT				Slugtest ID:		Test No:	
Date	02-10-2021		Well ID	DHG-06			
GW-Level Start (mbgs)	1.00		Well Diameter (mm)	750			
Depth Top Aquifer (mbgs)	24.00		Casing Diameter (mm)	600			
Depth Bottom Aquifer (mbgs)	35.00		Slug Type				
Screen Length (m)	20.00		Volume (litre)	1.102.140			
Across Screen			GW-Level Finish (mbgs)	22.80			
Above Screen			Personel				
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)		
1	00:00:02	6.09	35	00:19:40			
2	00:00:04	6.21	36	00:22:40			
3	00:00:06	6.23	37	00:25:40			
4	00:00:08	6.47	38	00:28:40			
5	00:00:10	6.56	39	00:31:40			
6	00:00:15	6.90	40	00:36:40			
7	00:00:20	7.08	41	00:41:40			
8	00:00:25	7.57	42	00:46:40			
9	00:00:30	8.05	43	00:51:40			
10	00:00:35	8.59	44	01:01:40			
11	00:00:40	8.97	45	01:11:40			
12	00:00:45	9.50	46	01:21:40			
13	00:00:50	10.04	47	01:31:40			
14	00:00:55	10.10	48	01:46:40			
15	00:01:00	11.10	49	02:01:40			
16	00:01:10	12.05	50	02:16:40			
17	00:01:20	12.87	51	02:31:40			
18	00:01:30	13.68	52	02:46:40			
19	00:01:40	14.45	53	03:16:40			
20	00:02:10	16.96	54	03:46:40			
21	00:02:40	18.40	55	04:16:40			
22	00:03:10	19.59	56	04:46:40			
23	00:03:40	20.35	57	05:16:40			
24	00:04:10	20.07	58	05:46:40			
25	00:05:10	23.78	59	06:46:40			
26	00:06:10		60	07:46:40			
27	00:07:10		61	08:46:40			
28	00:08:10		62	09:46:40			
29	00:09:10		63	10:46:40			
30	00:10:40		64	12:46:40			
31	00:12:10		65	14:46:40			
32	00:13:40		66	16:46:40			
33	00:15:10		67	18:46:40			
34	00:16:40		68	20:46:40			
Remarks:							

 GEOMINE MINING AND GEOTECHNICAL CONSULTANT		Slugtest ID:		Test No:	
Date	04-10-2021	Well ID	DHG-07		
GW-Level Start (mbgs)	5.00	Well Diameter (mm)	750		
Depth Top Aquifer (mbgs)	7.50	Casing Diameter (mm)	600		
Depth Bottom Aquifer (mbgs)	11.00	Slug Type			
Screen Length (m)	12.00	Volume (litre)	428.900		
Across Screen		GW-Level Finish (mbgs)	14.20		
Above Screen		Personel			
Entry	Time Hour : Min. : Sec.	Water Level (mbgs)	Entry	Time Hour : Min. : Sec.	Water Level (mbgs)
1	00:00:02	5.23	35	00:19:40	10.54
2	00:00:04	5.31	36	00:22:40	10.62
3	00:00:06	5.33	37	00:25:40	10.72
4	00:00:08	5.38	38	00:28:40	10.76
5	00:00:10	5.44	39	00:31:40	10.79
6	00:00:15	5.58	40	00:36:40	10.80
7	00:00:20	5.70	41	00:41:40	10.84
8	00:00:25	5.77	42	00:46:40	10.89
9	00:00:30	5.88	43	00:51:40	10.97
10	00:00:35	5.95	44	01:01:40	11.03
11	00:00:40	6.05	45	01:11:40	11.08
12	00:00:45	6.10	46	01:21:40	11.20
13	00:00:50	6.23	47	01:31:40	11.32
14	00:00:55	6.37	48	01:46:40	11.40
15	00:01:00	6.45	49	02:01:40	11.47
16	00:01:10	6.64	50	02:16:40	11.53
17	00:01:20	6.73	51	02:31:40	11.60
18	00:01:30	6.76	52	02:46:40	11.69
19	00:01:40	7.33	53	03:16:40	11.72
20	00:02:10	7.97	54	03:46:40	
21	00:02:40	8.43	55	04:16:40	
22	00:03:10	8.69	56	04:46:40	
23	00:03:40	8.97	57	05:16:40	
24	00:04:10	9.22	58	05:46:40	
25	00:05:10	9.43	59	06:46:40	
26	00:06:10	9.59	60	07:46:40	
27	00:07:10	9.81	61	08:46:40	
28	00:08:10	9.92	62	09:46:40	
29	00:09:10	10.02	63	10:46:40	
30	00:10:40	10.10	64	12:46:40	
31	00:12:10	10.22	65	14:46:40	
32	00:13:40	10.32	66	16:46:40	
33	00:15:10	10.39	67	18:46:40	
34	00:16:40	10.47	68	20:46:40	
Remarks:					

 GEOMINE MINING AND GEOTECHNICAL CONSULTANT		Slugtest ID: Test No:	
Date	04-10-2021	Well ID	DHG-08
GW-Level Start (mbgs)	4.40	Well Diameter (mm)	750
Depth Top Aquifer (mbgs)	9.00	Casing Diameter (mm)	600
Depth Bottom Aquifer (mbgs)	17.00	Slug Type	
Screen Length (m)	12.00	Volume (litre)	565.200
Across Screen		GW-Level Finish (mbgs)	19.20
Above Screen		Personel	YAR

Entry	Time	Water Level (mbgs)	Entry	Time	Water Level (mbgs)
	Hour : Min. : Sec.			Hour : Min. : Sec.	
1	00:00:02	4.50	35	00:19:40	14.20
2	00:00:04	4.58	36	00:22:40	14.34
3	00:00:06	4.64	37	00:25:40	14.49
4	00:00:08	4.68	38	00:28:40	14.67
5	00:00:10	4.70	39	00:31:40	14.95
6	00:00:15	4.74	40	00:36:40	15.40
7	00:00:20	4.78	41	00:41:40	15.87
8	00:00:25	4.84	42	00:46:40	16.02
9	00:00:30	4.80	43	00:51:40	16.30
10	00:00:35	4.89	44	01:01:40	16.90
11	00:00:40	5.07	45	01:11:40	17.40
12	00:00:45	5.17	46	01:21:40	17.75
13	00:00:50	5.24	47	01:31:40	17.93
14	00:00:55	5.33	48	01:46:40	18.03
15	00:01:00	5.43	49	02:01:40	18.06
16	00:01:10	5.56	50	02:16:40	18.10
17	00:01:20	5.69	51	02:31:40	18.15
18	00:01:30	5.83	52	02:46:40	18.21
19	00:01:40	5.98	53	03:16:40	18.24
20	00:02:10	6.42	54	03:46:40	
21	00:02:40	6.82	55	04:16:40	
22	00:03:10	7.24	56	04:46:40	
23	00:03:40	7.65	57	05:16:40	
24	00:04:10	7.92	58	05:46:40	
25	00:05:10	8.32	59	06:46:40	
26	00:06:10	8.80	60	07:46:40	
27	00:07:10	9.53	61	08:46:40	
28	00:08:10	10.28	62	09:46:40	
29	00:09:10	10.93	63	10:46:40	
30	00:10:40	11.91	64	12:46:40	
31	00:12:10	12.91	65	14:46:40	
32	00:13:40	13.38	66	16:46:40	
33	00:15:10	13.75	67	18:46:40	
34	00:16:40	13.97	68	20:46:40	

Remarks:

				Slugtest ID: Test No:																																																																																																																																																																																																																					
Date	01-10-2021		Well ID	DH6-09																																																																																																																																																																																																																					
GW-Level Start (mbgs)	1.00		Well Diameter (mm)	750																																																																																																																																																																																																																					
Depth Top Aquifer (mbgs)	20.00		Casing Diameter (mm)	600																																																																																																																																																																																																																					
Depth Bottom Aquifer (mbgs)	28.00		Slug Type																																																																																																																																																																																																																						
Screen Length (m)	12.00		Volume (litre)	847,800																																																																																																																																																																																																																					
Across Screen			GW-Level Finish (mbgs)	23.20																																																																																																																																																																																																																					
Above Screen			Personel	YAR																																																																																																																																																																																																																					
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Lampiran **D**

Hasil Uji Lab PT HM

GEOMINE
MINING AND GEOTECHNICAL CONSULTANT

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 - 01.65 m			

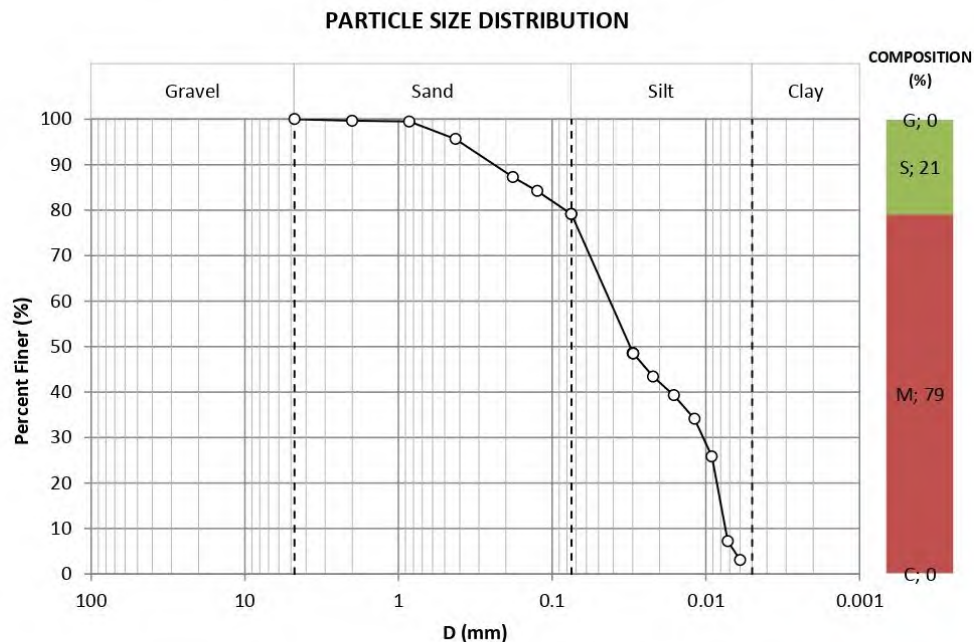
Test	Results
Unit Weight	kN/m ³ 19.2
SL	% -
Gs	- 3.60
MC	% 51
PL	% 32
LL	% 51
PI	% 18
Fines (#200)	% 79
D ₁₀	mm 0.0075
D ₃₀	mm 0.0104
D ₆₀	mm 0.0421
C _u	- 6
C _c	- 0.35

* Casagrande's Method

** Based on Consistency Index (I_c)

Properties	Results
I _F	% -0.15
I _T	% -119.80
I _L	% 1.02
I _C	% -0.02
S _r	% 100.00
e	- 1.92
n	- 0.66
A	- 12.29

Consistency**	Very Soft
Activity	Active
Plasticity Symbol	MH or OH



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F GWL OL 001; R 12-(17/10/18)

 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 - 01.65 m		

Moisture Content

No. Test	1	2	3
No. Container	1111	1234	1035
Weight of Container	4.55	4.57	5.36
Weight of wet soil and container	145.07	155.48	171.56
Weight of dry soil and container	96.30	102.51	119.10
Moisture Content	53.16	54.08	46.12
Average MC	51.12		

Unit weight

No. Ring	1
No. Container	1056
Weight of Ring	27.82
Volume of Ring	15.669
Weight of Container	5.99
Weight of wet soil and ring and containe	63.83
Weight of dry soil and ring and containe	53.14
Water Content	55.303
Density	19.158
Dry Density	12.336
Saturation	100
Void ratio	1.9222
Porosity	0.6578

Specific Gravity

No. Test	1	2
No. Pycknometer	201	201
Weight of Pycknometer + soil	77.9	77.9
Weight of Pycknometer + water + soil	171.56	171.56
T° C	26	26
Weight of Pycknometer	52.92	52.92
Weight of Pycknometer + water	153.51	153.51
Specific Gravity	3.605	3.605
Average Specific Gravity	3.605	

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

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F GWL OL 001; R 12-(17/10/18)

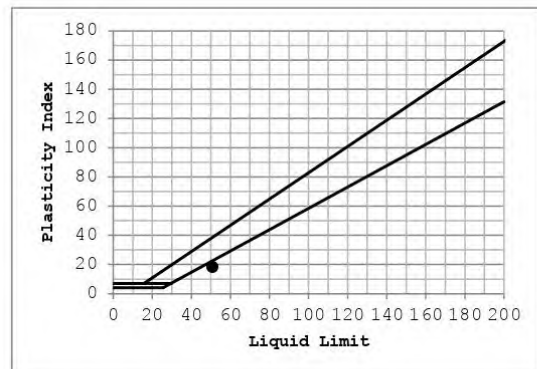
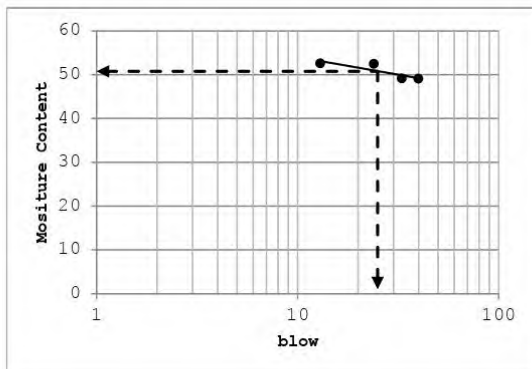
 PARTNER FOR DESIGN	Classification Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 - 01.65 m		

Plastic Limit

No. Test	1	2	3
No. Container	1013	1183	1030
Weight of Container	5.41	4.42	5.86
Weight of wet soil and container	14.43	14.33	14.55
Weight of dry soil and container	12.38	11.83	12.34
Plastic Limit	29.41	33.74	34.10
Average	32.42		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1149	1146	1125	1105	-
Weight of Container	4.39	4.66	5.54	4.65	-
Weight of wet soil and container	14.45	14.68	14.7	14.75	-
Weight of dry soil and container	11.14	11.38	11.55	11.27	-
Water Content	49.04	49.11	52.41	52.57	-
Number of blows	40	33	24	13	-
Liquid Limit	50.76				



Sieve Analysis

Bowl	0					
Soil + Bowl	80.18					
Weight of dry soil	80.18					
Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer	
4	4.75	0.001	0.00	0.00	100.00	
10	2	0.28	0.35	0.35	99.65	
20	0.85	0.14	0.17	0.53	99.47	
40	0.425	3.06	3.82	4.34	95.66	
80	0.18	6.72	8.38	12.72	87.28	
120	0.125	2.45	3.06	15.78	84.22	
200	0.075	4.08	5.09	20.87	79.13	
Pan	0	3.06	79.13	100	0.00	

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 - 01.65 m			

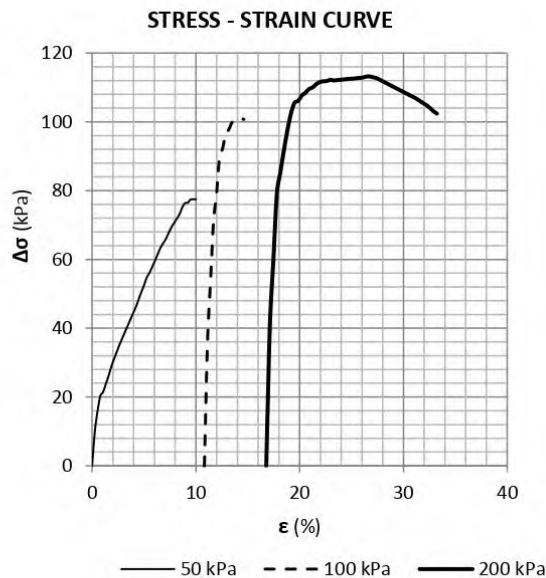
Hydrometer

Dry Sample

Weight of sample	60.389		
Zero correction	-1	Gs	3.6048
Meniscus correction	1	a	0.8617

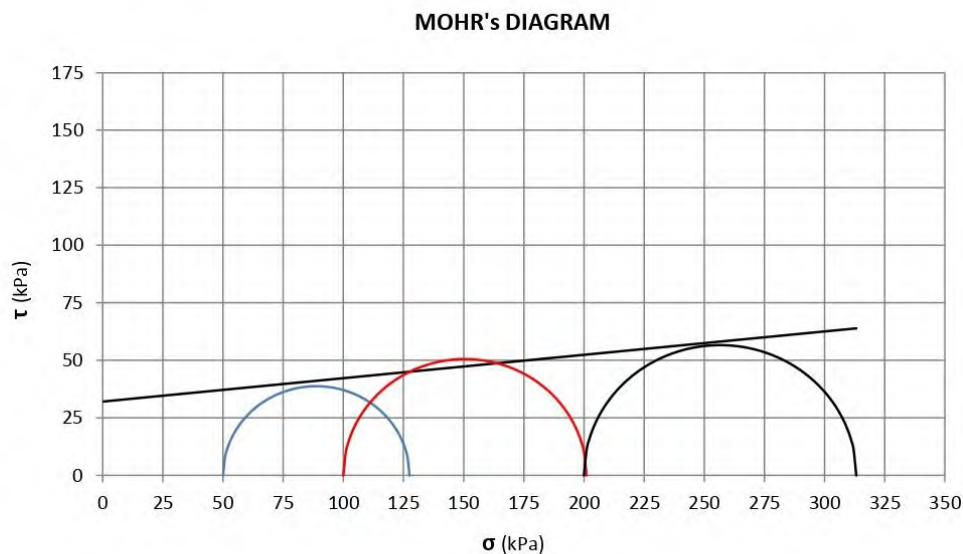
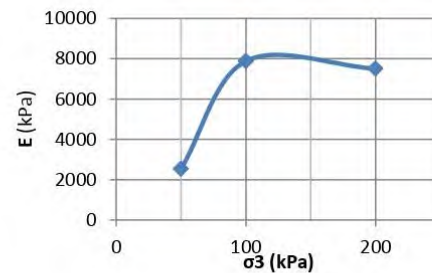
Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	27	44	0.0299	48.61
12:22	2	27	39	0.0220	43.44
12:24	4	27	35	0.0161	39.30
12:28	8	27	30	0.0118	34.13
12:35	15	27	22	0.0091	25.86
12:50	30	27	4	0.0072	7.24
13:05	45	27	0	0.0060	3.10
13:50	90	0	0	0.0000	1.03
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 -01.65 m			



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	77.50	9.74
2.	100	101.05	14.33
3.	200	113.20	26.71

Results		
c	kPa	32.1
ϕ	°	5.8



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 -01.65 m		

Height of Sample: 76 mm

Diameter of Sample: 38 mm

Calibration Dial Gauge: 0.091 kg/div

Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	10	0.26
40	15.96	0.53
60	20.3	0.79
80	21.44	1.05
100	23.75	1.32
120	26.06	1.58
140	28.75	1.84
160	31.03	2.11
180	33.06	2.37
200	35.16	2.63
220	37.01	2.89
240	38.85	3.16
260	40.68	3.42
280	42.51	3.68
300	44.32	3.95
320	46.12	4.21
340	48.29	4.47
360	50.45	4.74
380	52.44	5
400	54.73	5.26
420	56.1	5.53
440	57.83	5.79
460	59.63	6.05
480	61.49	6.32
500	63.34	6.58
520	64.66	6.84
540	65.97	7.11
560	67.64	7.37
580	69.3	7.63
600	70.58	7.89
620	71.85	8.16
640	73.11	8.42
660	75.1	8.68
680	76.35	8.95
700	76.49	9.21
720	77.36	9.47
740	77.5	9.74
760	77.49	10

Deviator Stress Maximum: 77.50 kPa E_o : 1156.31 kPa

Strain at Failure: 10.00 % E_{50} : 1048.88 kPa

Deviator Stress at (50%): 52.44 kPa

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 -01.65 m			

Strain at (50%): 5.00 %

+++ STAGE - 1 +++

Height of Sample: 68.4 mm

Diameter of Sample: 38 mm

Calibration Dial Gauge: 0.091 kg/div

Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
740	0	10.82
760	35.31	11.11
780	53.32	11.4
800	70.85	11.7
820	79.09	11.99
840	89.74	12.28
860	92.25	12.57
880	96.48	12.87
900	97.69	13.16
920	99.66	13.45
940	100.36	13.74
960	100.84	14.04
980	101.05	14.33
1000	100.71	14.62

Deviator Stress Maximum: 101.05 kPa E_0 : 6625.80 kPa

Strain at Failure: 14.62 % E_{50} : 733.69 kPa

Deviator Stress at (50%): 92.25 kPa

Strain at (50%): 12.57 %

+++ STAGE - 2 +++

Height of Sample: 58.4 mm

Diameter of Sample: 38 mm

Calibration Dial Gauge: 0.091 kg/div

Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
980	0	16.78
1000	39.9	17.12
1020	59.6	17.47
1040	79.14	17.81
1060	85.51	18.15
1080	91.89	18.49
1100	97.75	18.84
1120	102.59	19.18
1140	105.58	19.52
1160	106.1	19.86
1180	107.63	20.21

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 -01.65 m		

1200	108.44	20.55
1220	109.5	20.89
1240	109.97	21.23
1260	110.88	21.58
1280	111.52	21.92
1300	111.78	22.26
1320	111.85	22.6
1340	112.22	22.95
1360	112.03	23.29
1380	112.14	23.63
1400	112.25	23.97
1420	112.35	24.32
1440	112.5	24.66
1460	112.53	25
1480	112.62	25.34
1500	112.76	25.68
1520	112.83	26.03
1540	113.14	26.37
1560	113.2	26.71
1580	112.96	27.05
1600	112.72	27.4
1620	112.19	27.74
1640	111.66	28.08
1660	111.13	28.42
1680	110.6	28.77
1700	110.07	29.11
1720	109.53	29.45
1740	109	29.79
1760	108.47	30.14
1780	107.94	30.48
1800	107.41	30.82
1820	106.88	31.16
1840	106.23	31.51
1860	105.54	31.85
1880	104.9	32.19
1900	104.1	32.53
1920	103.14	32.88
1940	102.4	33.22

Deviator Stress Maximum: 113.20 kPa E_o : 1914.38 kPa
 Strain at Failure: 33.22 % E_{50} : 450.14 kPa
 Deviator Stress at (50%): 112.53 kPa
 Strain at (50%): 25.00 %

+ + + + + STAGE - 3 + + + + +

No. Container : 1156
 Wet Soil + Container : 170.68 gram
 Dry Soil + Container : 121.93 gram
 Weight of Container : 4.38 gram
 Density : 19.29 kN/m³
 Moisture Content : 41.47 %
 D:\Projects\2021\21 031\Technical\Test Data\F 21 031 GWL-X-DHG 01-(01.25-01.65 m)-TX UU.xlsm

F GWL OL 008; R 05-(14/09/18)

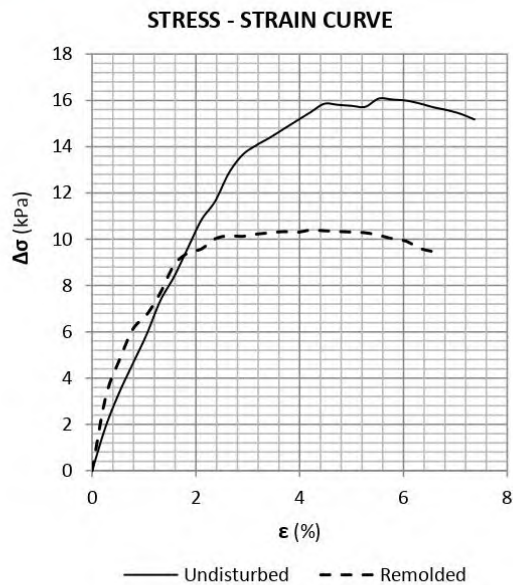
 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 01.25 -01.65 m		

Dry Density : 13.64 kN/m³

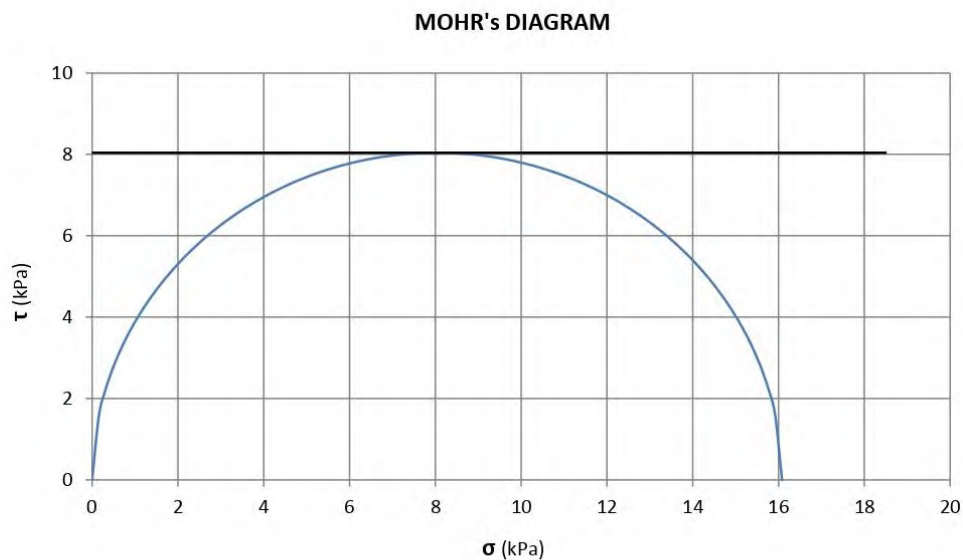
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F GWL OL 008; R 05-(14/09/18)

	Unconfined Compression Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 05.50 - 05.70 m			



Results	Undisturbed	Remolded
σ_{max} kPa	16.1	10.4
ϵ_f %	5.53	4.21
S_t -	1.55	
C kPa	8.0	5.2
E_{50} kPa	530	584
E_{sec} kPa	291	247



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F GWL OL 002; R 05-(6/09/18)

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 05.50 - 05.70 m		
		Date Tested : 29/10/2021	

Undisturbed

Height of Sample : 76 mm

Water Content : 121.52 %

Diameter of Sample : 38 mm

Unit Weight : 11.45 kN/m³

Calibration Dial Gauge : 0.04826 kg/div

Dry Density : 5.17 kN/m³

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0.00	0.0000	-	-	-
20	1.91	0.2632			
40	3.39	0.5263			
60	4.64	0.7895			
80	5.89	1.0526			
100	7.35	1.3158			
120	8.38	1.5789			
140	9.61	1.8421			
160	10.83	2.1053			
180	11.63	2.3684			
200	12.84	2.6316			
220	13.64	2.8947			
240	14.05	3.1579			
260	14.38	3.4211			
280	14.75	3.6842			
300	15.12	3.9474			
320	15.49	4.2105			
340	15.85	4.4737			
360	15.81	4.7368			
380	15.77	5.0000			
400	15.72	5.2632			
420	16.08	5.5263			
440	16.04	5.7895			
460	15.99	6.0526			
480	15.87	6.3158			
500	15.70	6.5789			
520	15.58	6.8421			
540	15.42	7.1053			
560	15.18	7.3684			

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 01 Depth : 05.50 - 05.70 m		

Remolded

Height of Sample : 76 mm

Diameter of Sample : 38 mm

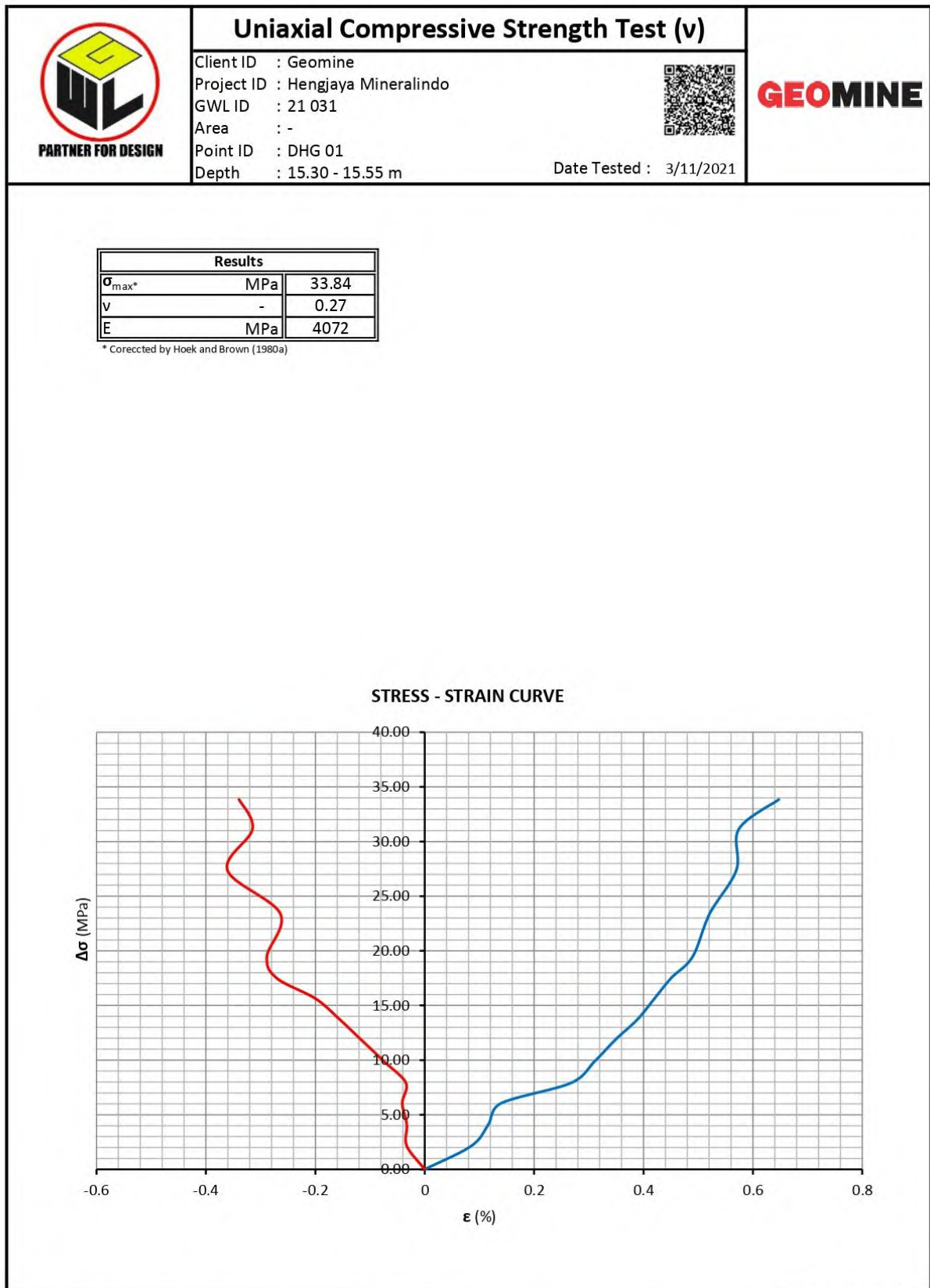
Calibration Dial Gauge : 0.04826 kg/div

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0	0.0000	-	-	-
20	3.18	0.2632			
40	4.78	0.5263			
60	6.12	0.7895			
80	6.74	1.0526			
100	7.68	1.3158			
120	8.88	1.5789			
140	9.40	1.8421			
160	9.58	2.1053			
180	10.01	2.3684			
200	10.15	2.6316			
220	10.12	2.8947			
240	10.22	3.1579			
260	10.27	3.4211			
280	10.33	3.6842			
300	10.30	3.9474			
320	10.39	4.2105			
340	10.37	4.4737			
360	10.34	4.7368			
380	10.31	5.0000			
400	10.28	5.2632			
420	10.17	5.5263			
440	10.02	5.7895			
460	9.91	6.0526			
480	9.61	6.3158			
500	9.46	6.5789			

 PARTNER FOR DESIGN	Properties Test (Rock)		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 01 Depth : 07.00 - 07.20 m		

Result		
Natural Density	kN/m ³	10.45
Dry Density	kN/m ³	4.76
Saturated Density	kN/m ³	12.34
Spesific Gravity	-	1.97
Natural Water Content	%	54
Absorption	%	159
Saturation	%	0.76
Porosity	-	0.76
Void Ratio	-	3.13



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F GWL 01 033; R 01-(22/09/14)

 PARTNER FOR DESIGN	Properties Test (Rock)		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 01 Depth : 16.23 - 16.43 m		

Result		
Natural Density	kN/m ³	28.73
Dry Density	kN/m ³	28.60
Saturated Density	kN/m ³	29.13
Spesific Gravity	-	3.02
Natural Water Content	%	0
Absorption	%	2
Saturation	%	0.05
Porosity	-	0.05
Void Ratio	-	0.06

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 - 03.80 m			

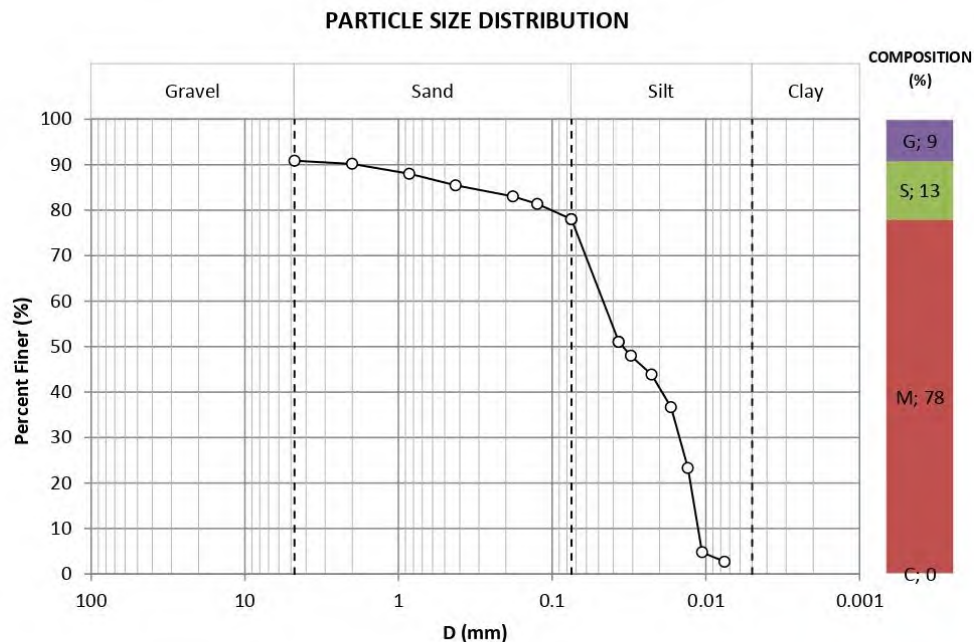
Test	Results
Unit Weight	kN/m ³ 19.9
SL	% -
Gs	- 3.51
MC	% 46
PL	% 30
LL	% 56
PI	% 26
Fines (#200)	% 78
D ₁₀	mm 0.0112
D ₃₀	mm 0.0149
D ₆₀	mm 0.0467
C _u	- 4
C _c	- 0.42

* Casagrande's Method

** Based on Consistency Index (I_c)

Properties	Results
I _F	% -0.11
I _T	% -238.86
I _L	% 0.62
I _C	% 0.38
S _r	% 100.00
e	- 1.54
n	- 0.61
A	- 19.59

Consistency**	Soft
Activity	Active
Plasticity Symbol	MH or OH



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 - 03.80 m		

Moisture Content

No. Test	1	2	3
No. Container	1125	1105	1146
Weight of Container	5.54	4.65	4.66
Weight of wet soil and container	144.48	152.82	141.02
Weight of dry soil and container	100.28	106.13	98.33
Moisture Content	46.65	46.01	45.57
Average MC	46.08		

Unit weight

No. Ring	16
No. Container	1149
Weight of Ring	26.86
Volume of Ring	15.216
Weight of Container	4.39
Weight of wet soil and ring and containe	61.59
Weight of dry soil and ring and containe	52.27
Water Content	44.339
Density	19.939
Dry Density	13.814
Saturation	100
Void ratio	1.5429
Porosity	0.6068

Specific Gravity

No. Test	1	2
No. Pycknometer	201	201
Weight of Pycknometer + soil	84.11	84.11
Weight of Pycknometer + water + soil	175.75	175.75
T° C	28	28
Weight of Pycknometer	52.92	52.92
Weight of Pycknometer + water	153.44	153.44
Specific Gravity	3.513	3.513
Average Specific Gravity	3.513	

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

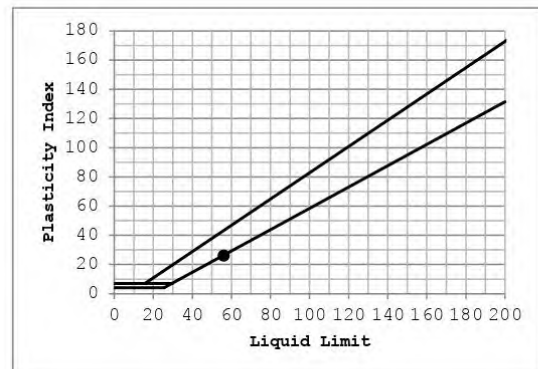
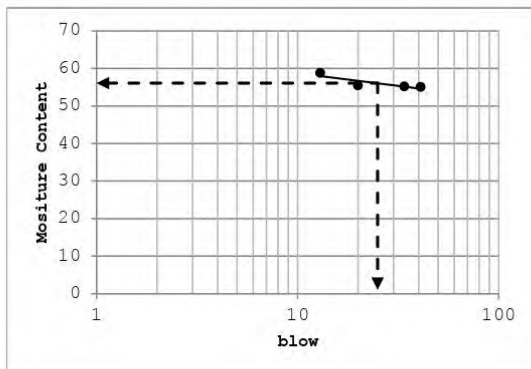
 PARTNER FOR DESIGN	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 - 03.80 m			

Plastic Limit

No. Test	1	2	3
No. Container	1012	1214	1240
Weight of Container	5.87	4.53	4.43
Weight of wet soil and container	14.55	14.67	13.96
Weight of dry soil and container	12.59	12.28	11.76
Plastic Limit	29.17	30.84	30.01
Average	30.01		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1120	1060	1001	1050	-
Weight of Container	4.96	5.61	5.89	5.77	-
Weight of wet soil and container	15.89	15.93	15.62	15.31	-
Weight of dry soil and container	12.01	12.26	12.15	11.78	-
Water Content	55.04	55.19	55.43	58.74	-
Number of blows	41	34	20	13	-
Liquid Limit	56.09				



Sieve Analysis

Bowl	0
Soil + Bowl	80.7
Weight of dry soil	80.7

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	7.37	9.13	9.13	90.87
10	2	0.56	0.69	9.83	90.17
20	0.85	1.76	2.18	12.01	87.99
40	0.425	2.04	2.53	14.54	85.46
80	0.18	1.96	2.43	16.96	83.04
120	0.125	1.34	1.66	18.62	81.38
200	0.075	2.72	3.37	22.00	78.00
Pan	0	1.29	78.00	100	0.00

 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 - 03.80 m		
		Date Tested : 26/10/2021	

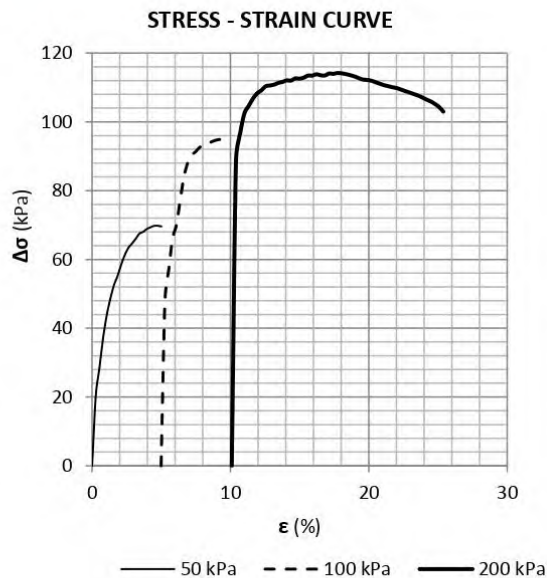
Hydrometer

Dry Sample

Weight of sample	61.66		
Zerro correction	-1	Gs	3.5129
Meniscus correction	1	a	0.8704

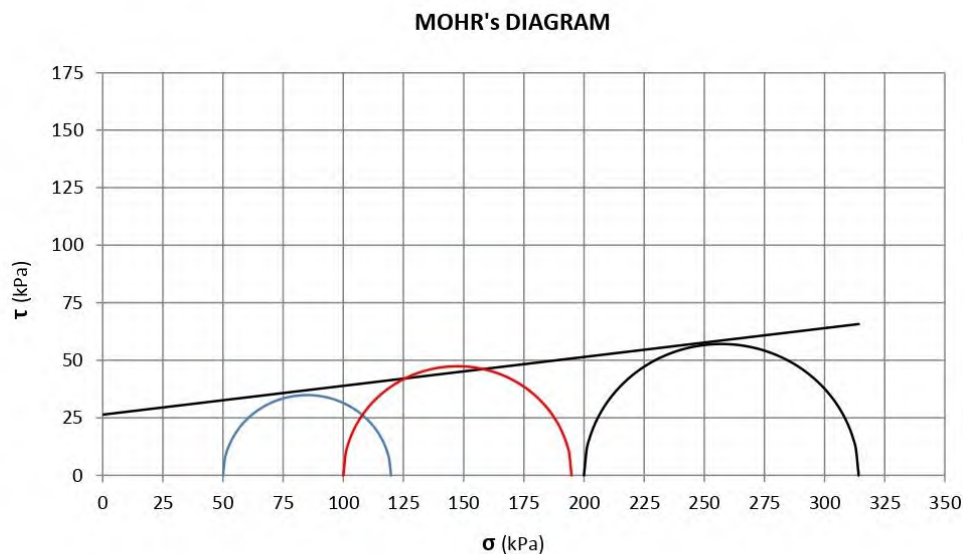
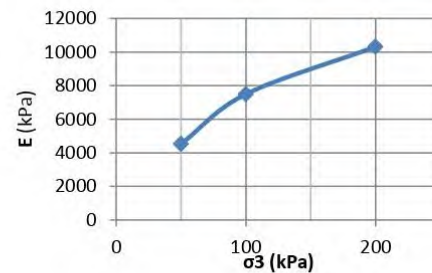
Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	26	44	0.0307	47.97
12:22	2	26	40	0.0226	43.86
12:24	4	26	33	0.0169	36.66
12:28	8	26	20	0.0131	23.29
12:35	15	26	2	0.0106	4.78
12:50	30	26	0	0.0076	2.73
13:05	45	0	0	0.0000	1.03
13:50	90	0	0	0.0000	1.03
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 -03.80 m		
		Date Tested : 28/10/2021	



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	69.79	4.74
2.	100	94.85	9.42
3.	200	114.19	17.74

Results		
c	kPa	26.4
ϕ	°	7.1



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 -03.80 m		

Height of Sample: 76 mm
Diameter of Sample: 38 mm
Calibration Dial Gauge: 0.091 kg/div
Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	20.25	0.26
40	28.33	0.53
60	37.02	0.79
80	43.67	1.05
100	48.54	1.32
120	52.52	1.58
140	55.21	1.84
160	58.52	2.11
180	61.34	2.37
200	63.44	2.63
220	64.67	2.89
240	66.05	3.16
260	67.5	3.42
280	68.01	3.68
300	68.82	3.95
320	69.33	4.21
340	69.75	4.47
360	69.79	4.74
380	69.6	5

Deviator Stress Maximum: 69.79 kPa E_o : 3492.06 kPa
Strain at Failure: 5.00 % E_{s0} : 2589.87 kPa
Deviator Stress at (50%): 61.34 kPa
Strain at (50%): 2.37 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 72.2 mm
Diameter of Sample: 38 mm
Calibration Dial Gauge: 0.091 kg/div
Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
360	0	4.99
380	47.89	5.26
400	57.07	5.54
420	66.12	5.82
440	70.07	6.09
460	77.38	6.37
480	84.27	6.65
500	88.2	6.93

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 -03.80 m		

520	90.32	7.2
540	91.31	7.48
560	92.52	7.76
580	93.2	8.03
600	93.43	8.31
620	94.11	8.59
640	94.55	8.86
660	94.85	9.14
680	94.85	9.42

Deviator Stress Maximum: 94.85 kPa E_o : 4770.44 kPa
 Strain at Failure: 9.42 % E_{50} : 1254.05 kPa
 Deviator Stress at (50%): 90.32 kPa
 Strain at (50%): 7.20 %

+ + + + + STAGE - 2 + + + + +

Height of Sample: 65.4 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.091 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
660	0	10.09
680	88.79	10.4
700	96.73	10.7
720	102.47	11.01
740	104.6	11.31
760	106.73	11.62
780	108.26	11.93
800	109.16	12.23
820	110.32	12.54
840	110.56	12.84
860	110.8	13.15
880	111.32	13.46
900	111.61	13.76
920	112.05	14.07
940	111.99	14.37
960	112.62	14.68
980	112.56	14.98
1000	112.83	15.29
1020	113.44	15.6
1040	113.43	15.9
1060	113.83	16.21
1080	113.55	16.51
1100	113.46	16.82
1120	114.04	17.13
1140	113.95	17.43
1160	114.19	17.74
1180	114.1	18.04

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 03.40 -03.80 m		

1200	113.87	18.35
1220	113.57	18.65
1240	113.21	18.96
1260	112.72	19.27
1280	112.29	19.57
1300	112.18	19.88
1320	111.95	20.18
1340	111.52	20.49
1360	111.09	20.8
1380	110.66	21.1
1400	110.36	21.41
1420	110.06	21.71
1440	109.81	22.02
1460	109.38	22.32
1480	108.95	22.63
1500	108.52	22.94
1520	108.09	23.24
1540	107.66	23.55
1560	107.11	23.85
1580	106.49	24.16
1600	105.94	24.46
1620	105.21	24.77
1640	104.3	25.08
1660	102.98	25.38

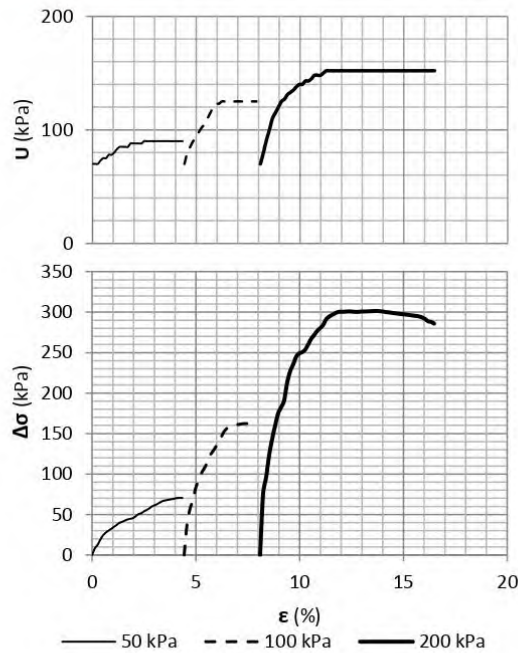
Deviator Stress Maximum: 114.19 kPa E_o : 1393.35 kPa
 Strain at Failure: 25.38 % E_{s0} : 643.81 kPa
 Deviator Stress at (50%): 114.19 kPa
 Strain at (50%): 17.74 %

+ + + + + STAGE - 3 + + + + +

No. Container : 1120
 Wet Soil + Container : 169.35 gram
 Dry Soil + Container : 117.39 gram
 Weight of Container : 4.96 gram
 Density : 19.07 kN/m³
 Moisture Content : 46.22 %
 Dry Density : 13.04 kN/m³

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m			

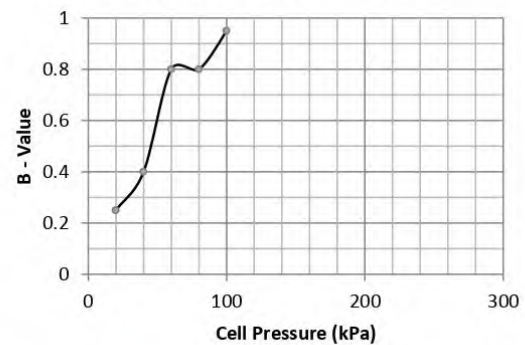
PWP-STRAIN AND STRESS-STRAIN CURVE



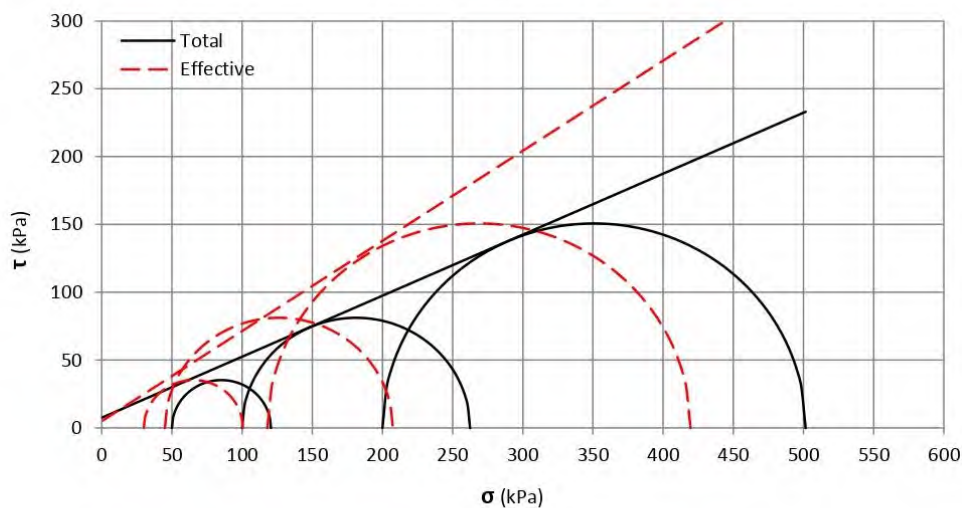
No.	σ_3 (kPa)	σ_1 (kPa)	σ_3' (kPa)	σ_1' (kPa)	$\Delta\sigma$ (kPa)	U (kPa)
1.	50	121	30	101	71	90
2.	100	262	45	207	162	125
3.	200	501	118	419	301	152

Results	Total	Effective
c	kPa	7.5
ϕ	°	24.2
		33.6

SATURATION BUILD - UP



MOHR'S DIAGRAM



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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m		

Height of Sample: 76.00 mm
 Diameter of Sample: 38.00 mm
 Calibration Dial Gauge: 0.091 kg/div
 Calibration Strain Gauge: 0.01 mm/div
 Cell Pressure: 120 kPa
 Back Pressure: 70 kPa
 Effective Pressure: 50 kPa

--- TRIAXIAL SATURATION ---

CP (kPa)	BP (kPa)	FWP (kPa)	B Value
0	0	0	0
20		5	0.25
	10	10	
40		18	0.4
	30	22	
60		38	0.8
	50	42	
80		58	0.8
	70	62	
100		81	0.95

--- TRIAXIAL CONSOLIDATION ---

Cell Pressure	120 kPa	tf: 48.7 minute	mv: 0.46 m ² /MN
Back Pressure	70 kPa	tfmin: 120.0 minute	Cv: 1.11 m ² /year
FWP built up	0 kPa	Strain to Failure: 8.0%	k: 1.596E-10 m/s
Effective Pressure	50 kPa	Rate of Strain: 0.0507 mm/minute	
Different	30 kPa		

t (minute)	√t (-)	FWP (kPa)	dPWP (kPa)	Dissipation (%)	Volume Change of BP (cm ³)	dVolume (cm ³)
0	0	100	0	0	34.8	0
1	1	95	5	16.7	34.6	0.2
4	2	90	10	33.3	34	0.8
9	3	83	17	56.7	33.7	1.1
16	4	75	25	83.3	33.5	1.3
25	5	72	28	93.3	33.2	1.6
36	6	70	30	100	33	1.8
49	7	70	30	100	33	1.8
64	8	70	30	100	33	1.8

--- TRIAXIAL SHEARING ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)	U (kPa)	dU (kPa)	s1 (kPa)	s1' (kPa)	s3 (kPa)	s3' (kPa)
0	0	0	70	0	50	50	50	50
10	8.29	0.13	70	0	58.29	58.29	50	50
20	12.42	0.26	70	0	62.42	62.42	50	50
30	19.05	0.39	73	3	69.05	66.05	50	47
40	24.28	0.53	75	5	74.28	69.28	50	45
50	27.65	0.66	75	5	77.65	72.65	50	45
60	30.11	0.79	78	8	80.11	72.11	50	42

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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m			

70	32.41	0.92	78	8	82.41	74.41	50	42
80	34.86	1.05	80	10	84.86	74.86	50	40
90	37.15	1.18	83	13	87.15	74.15	50	37
100	39.75	1.32	85	15	89.75	74.75	50	35
110	41.06	1.45	85	15	91.06	76.06	50	35
120	42.45	1.58	85	15	92.45	77.45	50	35
130	43.99	1.71	85	15	93.99	78.99	50	35
140	44.73	1.84	88	18	94.73	76.73	50	32
150	45.71	1.97	88	18	95.71	77.71	50	32
160	47.95	2.11	88	18	97.95	79.95	50	32
170	50.52	2.24	88	18	100.52	82.52	50	32
180	51.64	2.37	88	18	101.64	83.64	50	32
190	54.03	2.5	90	20	104.03	84.03	50	30
200	55.7	2.63	90	20	105.7	85.7	50	30
210	57.76	2.76	90	20	107.76	87.76	50	30
220	60.21	2.89	90	20	110.21	90.21	50	30
230	61.63	3.03	90	20	111.63	91.63	50	30
240	63.2	3.16	90	20	113.2	93.2	50	30
250	65.32	3.29	90	20	115.32	95.32	50	30
260	66.8	3.42	90	20	116.8	96.8	50	30
270	67.65	3.55	90	20	117.65	97.65	50	30
280	68.26	3.68	90	20	118.26	98.26	50	30
290	68.87	3.82	90	20	118.87	98.87	50	30
300	69.56	3.95	90	20	119.56	99.56	50	30
310	70.33	4.08	90	20	120.33	100.33	50	30
320	70.54	4.21	90	20	120.54	100.54	50	30
330	70.44	4.34	90	20	120.44	100.44	50	30

Deviator Stress Maximum: 70.54 kPa

E₀: 4187 kPa

Strain at Failure: 4.21 %

E₅₀: 2278 kPa

Deviator Stress at (50%): 47.95 kPa

Strain at (50%): 2.11 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 72.17 mm

Cell Pressure: 170 kPa

Diameter of Sample: 38.58 mm

Back Pressure: 70 kPa

Calibration Dial Gauge: 0.091 kg/div

Effective Pressure: 100 kPa

Calibration Strain Gauge: 0.01 mm/div

--- TRIAXIAL SATURATION ---

CP	BP	PWP	B Value
(kPa)	(kPa)	(kPa)	-
0	0	0	0

--- TRIAXIAL CONSOLIDATION ---

Cell Pressure	170 kPa	tf: 98.3 minute	mv: 0.18 m ² /MN
Back Pressure	70 kPa	tfmin: 120.0 minute	Cv: 0.55 m ² /year
PWP built up	0 kPa	Strain to Failure: 8.0%	k: 3.049E-11 m/s
Effective Pressure	100 kPa	Rate of Strain: 0.0481 mm/minute	
Different	75 kPa		

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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test			GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m			
		Date Tested : 2/11/2021		

t (minute)	Vt (-)	PWP (kPa)	dPWP (kPa)	Dissipation (%)	Volume Change of BP (cm3)	dVolume (cm3)
0	0	145	0	0	33	0
1	1	138	7	9.3	32.8	0.2
4	2	125	20	26.7	32.5	0.5
9	3	115	30	40	32.3	0.7
16	4	100	45	60	32.1	0.9
25	5	90	55	73.3	31.8	1.2
36	6	81	64	85.3	31.5	1.5
49	7	75	70	93.3	31.4	1.6
64	8	70	75	100	31.3	1.7
81	9	70	75	100	31.3	1.7
100	10	70	75	100	31.3	1.7

--- TRIAXIAL S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)	U (kPa)	dU (kPa)	s1 (kPa)	s1' (kPa)	s3 (kPa)	s3' (kPa)
320	0	4.43	70	0	100	100	100	100
330	37.87	4.57	80	10	137.87	127.87	100	90
340	56.39	4.71	85	15	156.39	141.39	100	85
350	67.56	4.85	90	20	167.56	147.56	100	80
360	82.46	4.99	93	23	182.46	159.46	100	77
370	92.47	5.13	98	28	192.47	164.47	100	72
380	101.05	5.27	102	32	201.05	169.05	100	68
390	107.1	5.4	105	35	207.1	172.1	100	65
400	114.02	5.54	110	40	214.02	174.02	100	60
410	123.01	5.68	115	45	223.01	178.01	100	55
420	128.18	5.82	120	50	228.18	178.18	100	50
430	133.78	5.96	123	53	233.78	180.78	100	47
440	140.92	6.1	123	53	240.92	187.92	100	47
450	146.55	6.24	125	55	246.55	191.55	100	45
460	153.13	6.37	125	55	253.13	198.13	100	45
470	156.74	6.51	125	55	256.74	201.74	100	45
480	158.35	6.65	125	55	258.35	203.35	100	45
490	160.54	6.79	125	55	260.54	205.54	100	45
500	161.04	6.93	125	55	261.04	206.04	100	45
510	161.31	7.07	125	55	261.31	206.31	100	45
520	162.02	7.21	125	55	262.02	207.02	100	45
530	162.29	7.34	125	55	262.29	207.29	100	45
540	162.41	7.48	125	55	262.41	207.41	100	45
550	162.39	7.62	125	55	262.39	207.39	100	45
560	162.15	7.76	125	55	262.15	207.15	100	45
570	162.05	7.9	125	55	262.05	207.05	100	45

Deviator Stress Maximum: 162.41 kPa

E₀: 12523 kPa

Strain at Failure: 7.48 %

E₅₀: 2245 kPa

Deviator Stress at (50%): 133.78 kPa

Strain at (50%): 5.96 %

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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m		

+++ STAGE - 2 +++

Height of Sample: 69.19 mm
 Diameter of Sample: 39.93 mm
 Calibration Dial Gauge: 0.091 kg/div
 Calibration Strain Gauge: 0.01 mm/div

Cell Pressure: 270 kPa
 Back Pressure: 70 kPa
 Effective Pressure: 200 kPa

--- TRIAXIAL SATURATION ---

CP (kPa)	BP (kPa)	FWP (kPa)	B Value
0	0	0	0

--- TRIAXIAL CONSOLIDATION ---

Cell Pressure	270 kPa	tf: 68.7 minute	mv: 0.16 m ² /MN
Back Pressure	70 kPa	tfmin: 120.0 minute	Cv: 0.79 m ² /year
FWP built up	0 kPa	Strain to Failure: 8.0%	k: 3.881E-11 m/s
Effective Pressure	200 kPa	Rate of Strain: 0.0461 mm/minute	
Different	140 kPa		

t (minute)	Vt (-)	FWP (kPa)	dPWP (kPa)	Dissipation (%)	Volume Change of BP (cm ³)	dVolume (cm ³)
0	0	210	0	0	31.3	0
1	1	190	20	14.3	31	0.3
4	2	170	40	28.6	30.5	0.8
9	3	155	55	39.3	30.1	1.2
16	4	140	70	50	29.7	1.6
25	5	122	88	62.9	29.5	1.8
36	6	110	100	71.4	29.3	2
49	7	90	120	85.7	29.1	2.2
64	8	80	130	92.9	28.9	2.4
81	9	75	135	96.4	28.7	2.6
100	10	75	135	96.4	28.7	2.6
121	11	75	135	96.4	28.7	2.6
144	12	75	135	96.4	28.7	2.6
169	13	75	135	96.4	28.7	2.6
196	14	75	135	96.4	28.7	2.6
225	15	75	135	96.4	28.7	2.6
1440	37.947	70	140	100	28.4	2.9

--- TRIAXIAL SHEARING ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)	U (kPa)	dU (kPa)	s1 (kPa)	s1' (kPa)	s3 (kPa)	s3' (kPa)
560	0	8.09	70	0	200	200	200	200
570	75.23	8.24	80	10	275.23	265.23	200	190
580	95.47	8.38	91	21	295.47	274.47	200	179
590	122.72	8.53	100	30	322.72	292.72	200	170
600	142.75	8.67	110	40	342.75	302.75	200	160
610	159.4	8.82	115	45	359.4	314.4	200	155
620	174.64	8.96	120	50	374.64	324.64	200	150

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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test			
	Client ID : Geomine			
	Project ID : Hengjaya Mineralindo			
	GWL ID : 21 031			
	Area : -			
Point ID : DHG 02		Date Tested : 2/11/2021		
Depth : 04.30 - 04.70 m				

630	182.47	9.11	125	55	382.47	327.47	200	145
640	190.55	9.25	127	57	390.55	333.55	200	143
650	212.26	9.39	131	61	412.26	351.26	200	139
660	226.72	9.54	133	63	426.72	363.72	200	137
670	235.08	9.68	135	65	435.08	370.08	200	135
680	244.69	9.83	138	68	444.69	376.69	200	132
690	248.98	9.97	140	70	448.98	378.98	200	130
700	250.52	10.12	140	70	450.52	380.52	200	130
710	253.45	10.26	143	73	453.45	380.45	200	127
720	259.9	10.41	143	73	459.9	386.9	200	127
730	266.93	10.55	145	75	466.93	391.93	200	125
740	271.61	10.7	148	78	471.61	393.61	200	122
750	276.67	10.84	148	78	476.67	398.67	200	122
760	280.19	10.98	148	78	480.19	402.19	200	122
770	284.1	11.13	150	80	484.1	404.1	200	120
780	291.15	11.27	152	82	491.15	409.15	200	118
790	294.43	11.42	152	82	494.43	412.43	200	118
800	296.64	11.56	152	82	496.64	414.64	200	118
810	298.59	11.71	152	82	498.59	416.59	200	118
820	300.2	11.85	152	82	500.2	418.2	200	118
830	300.55	12	152	82	500.55	418.55	200	118
840	300.45	12.14	152	82	500.45	418.45	200	118
850	300.87	12.29	152	82	500.87	418.87	200	118
860	300.9	12.43	152	82	500.9	418.9	200	118
870	300.53	12.57	152	82	500.53	418.53	200	118
880	300.36	12.72	152	82	500.36	418.36	200	118
890	300.51	12.86	152	82	500.51	418.51	200	118
900	300.85	13.01	152	82	500.85	418.85	200	118
910	300.8	13.15	152	82	500.8	418.8	200	118
920	301.07	13.3	152	82	501.07	419.07	200	118
930	301.15	13.44	152	82	501.15	419.15	200	118
940	301.42	13.59	152	82	501.42	419.42	200	118
950	301.49	13.73	152	82	501.49	419.49	200	118
960	301.18	13.88	152	82	501.18	419.18	200	118
970	300.67	14.02	152	82	500.67	418.67	200	118
980	300.17	14.16	152	82	500.17	418.17	200	118
990	299.66	14.31	152	82	499.66	417.66	200	118
1000	299.16	14.45	152	82	499.16	417.16	200	118
1010	298.65	14.6	152	82	498.65	416.65	200	118
1020	298.15	14.74	152	82	498.15	416.15	200	118
1030	297.64	14.89	152	82	497.64	415.64	200	118
1040	297.32	15.03	152	82	497.32	415.32	200	118
1050	296.82	15.18	152	82	496.82	414.82	200	118
1060	296.31	15.32	152	82	496.31	414.31	200	118
1070	295.81	15.47	152	82	495.81	413.81	200	118
1080	295.3	15.61	152	82	495.3	413.3	200	118
1090	294.79	15.75	152	82	494.79	412.79	200	118
1100	293.48	15.9	152	82	493.48	411.48	200	118
1110	291.54	16.04	152	82	491.54	409.54	200	118
1120	288.73	16.19	152	82	488.73	406.73	200	118

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F GWL OL 009; R 08-(6/09/18)

 PARTNER FOR DESIGN	Triaxial Consolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 02 Depth : 04.30 - 04.70 m		

1130	287.98	16.33	152	82	487.98	405.98	200	118
1140	285.87	16.48	152	82	485.87	403.87	200	118

Deviator Stress Maximum: 301.49 kPa

E_o : 20298 kPa

Strain at Failure: 13.73 %

E_{50} : 2552 kPa

Deviator Stress at (50%): 276.67 kPa

Strain at (50%): 10.84 %

+ + + + + STAGE - 3 + + + + +

Weight of Sample: 160.93 gram

No. Container: 1133

Wet Soil + Container: 157.88 gram

Dry Soil + Container: 113.38 gram

Weight of Container: 4.55 gram

Density initial: 18.67 kN/m³

Moisture Content initial: 39.51 %

Dry Density initial: 13.38 kN/m³

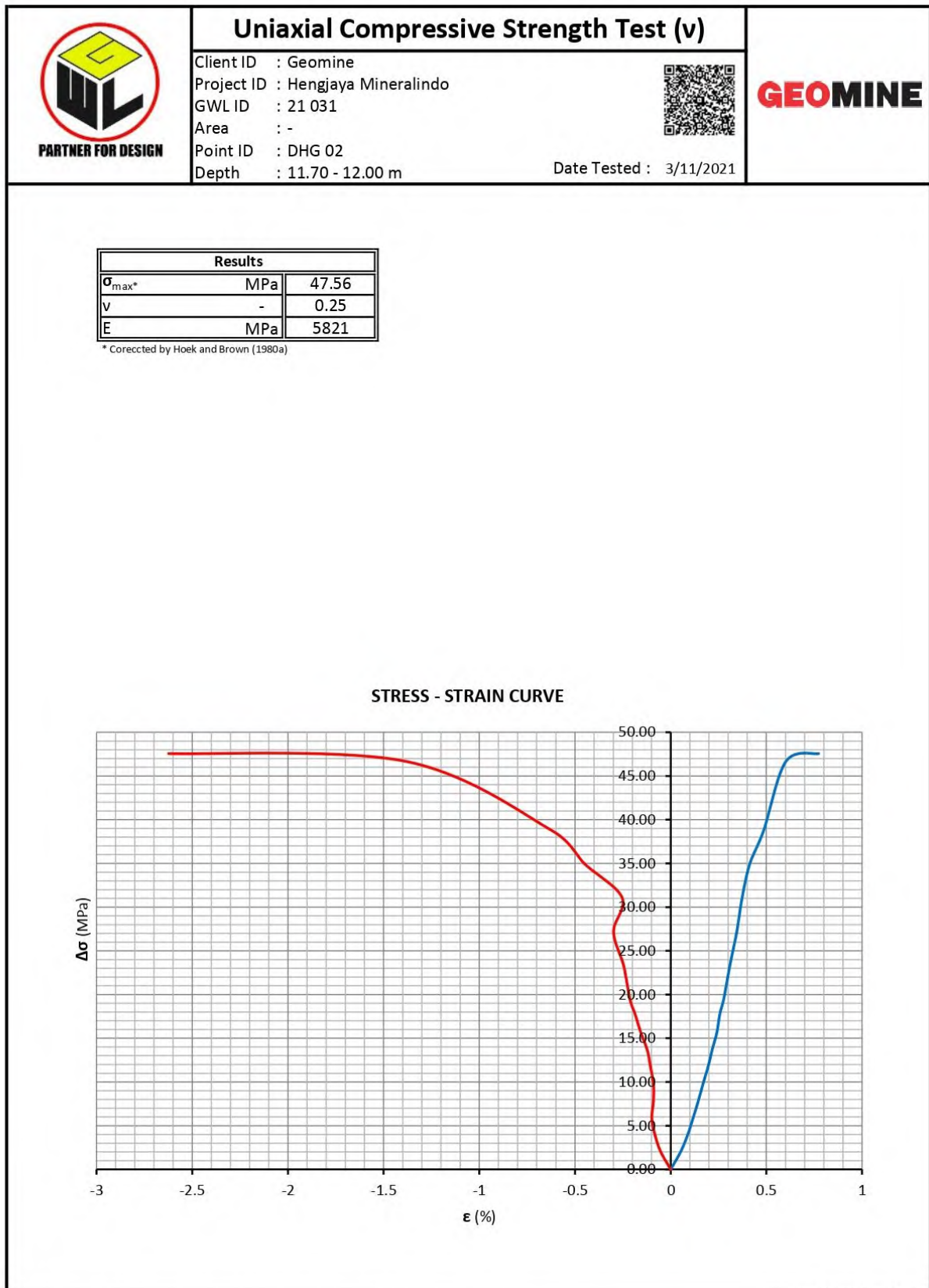
Density after: 17.79 kN/m³

Moisture Content after: 40.89 %

Dry Density after: 12.63 kN/m³

 PARTNER FOR DESIGN	Properties Test (Rock)		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 02 Depth : 09.78 - 09.88 m		

Result		
Natural Density	kN/m ³	22.36
Dry Density	kN/m ³	20.35
Saturated Density	kN/m ³	22.70
Spesific Gravity	-	2.66
Natural Water Content	%	10
Absorption	%	12
Saturation	%	0.23
Porosity	-	0.23
Void Ratio	-	0.31



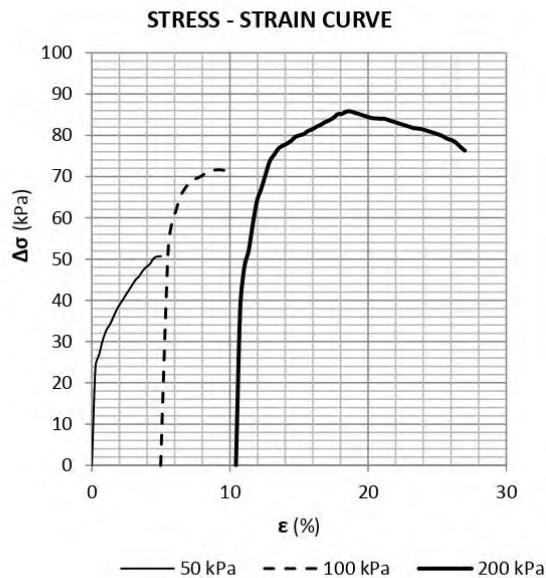
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F GWL 01 033; R 01-(22/09/14)

	Properties Test (Rock)			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 02 Depth : 12.00 - 12.20 m			

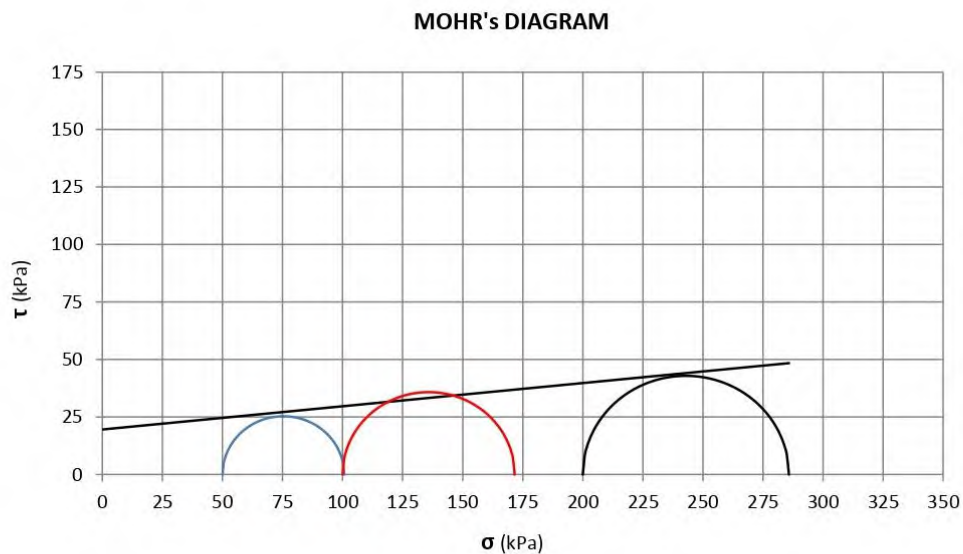
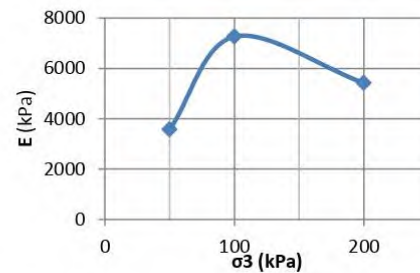
Result		
Natural Density	kN/m ³	23.96
Dry Density	kN/m ³	22.89
Saturated Density	kN/m ³	24.27
Spesific Gravity	-	2.65
Natural Water Content	%	5
Absorption	%	6
Saturation	%	0.14
Porosity	-	0.14
Void Ratio	-	0.16

	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 02.60 -03.00 m			



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	50.67	5.00
2.	100	71.63	9.14
3.	200	85.81	18.71

Results		
c	kPa	19.6
ϕ	°	5.8



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 02.60 -03.00 m		

Height of Sample: 76 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.11567 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	23.9	0.26
40	26.89	0.53
60	30.36	0.79
80	32.8	1.05
100	34.22	1.32
120	36.14	1.58
140	38.04	1.84
160	39.44	2.11
180	40.83	2.37
200	42.21	2.63
220	43.58	2.89
240	44.94	3.16
260	45.8	3.42
280	47.15	3.68
300	48.1	3.95
320	48.85	4.21
340	50.18	4.47
360	50.62	4.74
380	50.67	5

Deviator Stress Maximum: 50.67 kPa E_0 : 2185.05 kPa
 Strain at Failure: 5.00 % E_{50} : 1723.77 kPa
 Deviator Stress at (50%): 40.83 kPa
 Strain at (50%): 2.37 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 72.2 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.11567 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
360	0	4.99
380	28.99	5.26
400	52.99	5.54
420	59.08	5.82
440	61.78	6.09
460	64.94	6.37
480	66.65	6.65
500	67.87	6.93

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 02.60 -03.00 m		

520	68.14	7.2
540	69.36	7.48
560	69.81	7.76
580	70.35	8.03
600	71.07	8.31
620	71.32	8.59
640	71.57	8.86
660	71.63	9.14
680	71.6	9.42
700	71.38	9.7

Deviator Stress Maximum: 71.63 kPa E_o : 4426.18 kPa

Strain at Failure: 9.70 % E_{50} : 946.17 kPa

Deviator Stress at (50%): 68.14 kPa

Strain at (50%): 7.20 %

+ + + + + STAGE - 2 + + + + +

Height of Sample: 65.2 mm

Diameter of Sample: 38 mm

Calibration Dial Gauge: 0.11567 kg/div

Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
680	0	10.43
700	37.78	10.74
720	48.09	11.04
740	51.99	11.35
760	58.57	11.66
780	64.2	11.96
800	67.11	12.27
820	70.53	12.58
840	73.75	12.88
860	75.26	13.19
880	76.76	13.5
900	77.45	13.8
920	77.96	14.11
940	78.65	14.42
960	79.58	14.72
980	79.99	15.03
1000	80.3	15.34
1020	81.05	15.64
1040	81.44	15.95
1060	82.08	16.26
1080	82.54	16.56
1100	83.17	16.87
1120	83.63	17.18
1140	84.24	17.48
1160	85.1	17.79
1180	85.2	18.1

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 02.60 -03.00 m		
		Date Tested : 28/10/2021	

1200	85.72	18.4
1220	85.81	18.71
1240	85.49	19.02
1260	85.16	19.33
1280	84.84	19.63
1300	84.51	19.94
1320	84.19	20.25
1340	84.11	20.55
1360	84.03	20.86
1380	84.02	21.17
1400	83.7	21.47
1420	83.37	21.78
1440	83.04	22.09
1460	82.71	22.39
1480	82.39	22.7
1500	82.06	23.01
1520	81.73	23.31
1540	81.64	23.62
1560	81.47	23.93
1580	81.14	24.23
1600	80.81	24.54
1620	80.48	24.85
1640	80.15	25.15
1660	79.67	25.46
1680	79.12	25.77
1700	78.79	26.07
1720	78.16	26.38
1740	77.17	26.69
1760	76.32	26.99

Deviator Stress Maximum: 85.81 kPa E_o : 1323.57 kPa
 Strain at Failure: 26.99 % E_{50} : 458.59 kPa
 Deviator Stress at (50%): 85.81 kPa
 Strain at (50%): 18.71 %

+ + + + + STAGE - 3 + + + + +

No. Container : 1216
 Wet Soil + Container : 164.92 gram
 Dry Soil + Container : 113.64 gram
 Weight of Container : 4.6 gram
 Density : 18.60 kN/m³
 Moisture Content : 47.03 %
 Dry Density : 12.65 kN/m³

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 06.60 - 07.00 m			

Test	Results
Unit Weight	kN/m ³ 22.3
SL	% -
Gs	- 3.30
MC	% 61
PL	% 41
LL	% 65
PI	% 24
Fines (#200)	% 79
D ₁₀	mm 0.0110
D ₃₀	mm 0.0130
D ₆₀	mm 0.0410
C _u	- 4
C _c	- 0.37

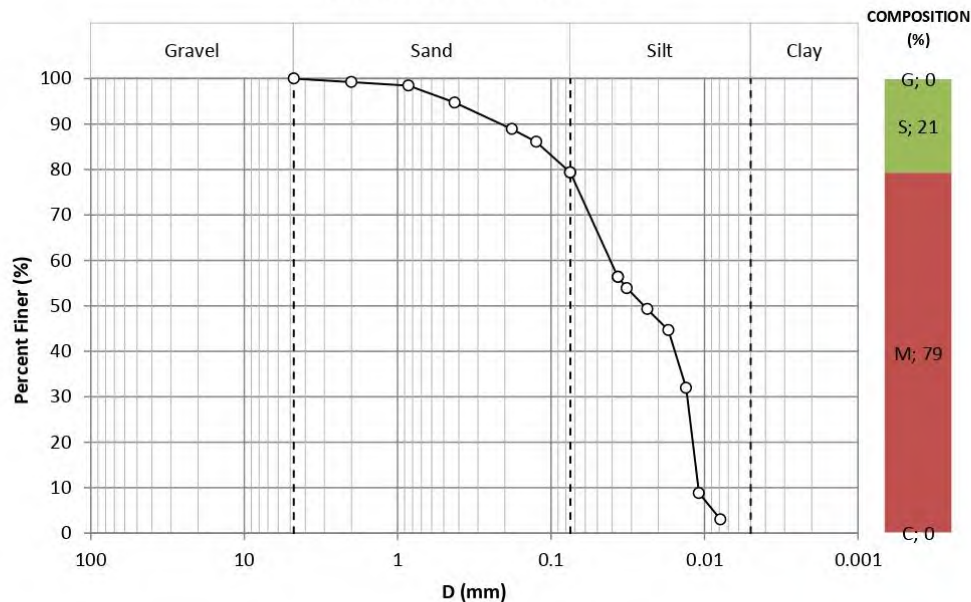
* Casagrande's Method

** Based on Consistency Index (Ic)

Properties	Results
I _F	% -0.22
I _T	% -109.14
I _L	% 0.82
I _C	% 0.18
S _r	% 100.00
e	- 1.81
n	- 0.64
A	- 16.24

Consistency**	Very Soft
Activity	Active
Plasticity Symbol	MH or OH

PARTICLE SIZE DISTRIBUTION



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 06.60 - 07.00 m		

Moisture Content

No. Test	1	2	3
No. Container	1149	1240	1129
Weight of Container	4.39	4.43	4.56
Weight of wet soil and container	119.39	109.80	111.29
Weight of dry soil and container	75.46	70.18	71.31
Moisture Content	61.81	60.26	59.90
Average MC	60.66		

Unit weight

No. Ring	5
No. Container	1214
Weight of Ring	27.63
Volume of Ring	15.669
Weight of Container	4.53
Weight of wet soil and ring and containe	67.17
Weight of dry soil and ring and containe	50.6
Water Content	89.859
Density	22.343
Dry Density	11.768
Saturation	100
Void ratio	1.8069
Porosity	0.6437

Specific Gravity

No. Test	1	2
No. Pycknometer	203	203
Weight of Pycknometer + soil	76.13	76.13
Weight of Pycknometer + water + soil	167.52	167.52
T° C	26	26
Weight of Pycknometer	54.5	54.5
Weight of Pycknometer + water	152.44	152.44
Specific Gravity	3.303	3.303
Average Specific Gravity	3.303	

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

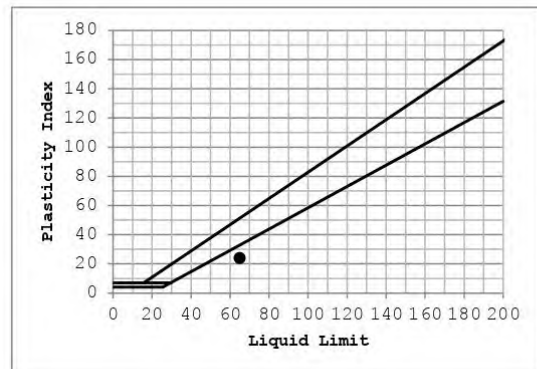
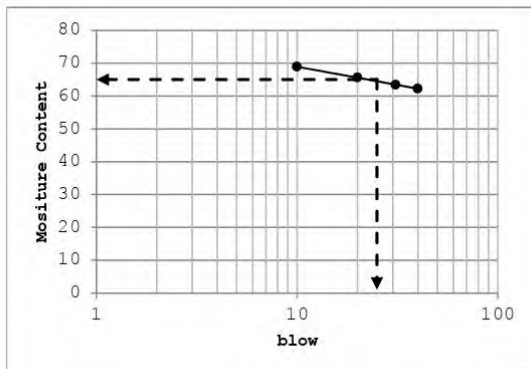
 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 06.60 - 07.00 m		

Plastic Limit

No. Test	1	2	3
No. Container	1047	1056	1213
Weight of Container	5.46	5.99	4.54
Weight of wet soil and container	13.26	13.85	13.77
Weight of dry soil and container	11.08	11.5	11.06
Plastic Limit	38.79	42.65	41.56
Average	41.00		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1115	1144	1064	1203	-
Weight of Container	4.76	4.45	4.83	4.46	-
Weight of wet soil and container	16.8	16.74	16.54	16.2	-
Weight of dry soil and container	12.18	11.97	11.9	11.41	-
Water Content	62.26	63.43	65.63	68.92	-
Number of blows	40	31	20	10	-
Liquid Limit	65.04				



Sieve Analysis

Bowl	0
Soil + Bowl	80.57
Weight of dry soil	80.57

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	0.001	0.00	0.00	100.00
10	2	0.62	0.77	0.77	99.23
20	0.85	0.62	0.77	1.54	98.46
40	0.425	3	3.72	5.26	94.74
80	0.18	4.69	5.82	11.08	88.92
120	0.125	2.28	2.83	13.91	86.09
200	0.075	5.42	6.73	20.64	79.36
Pan	0	1.62	79.36	100	0.00

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 06.60 - 07.00 m			

Hydrometer

Dry Sample

Weight of sample	62.319		
Zero correction	-1	Gs	3.3032
Meniscus correction	1	a	0.893

Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	26	44	0.0321	53.92
12:22	2	26	40	0.0236	49.30
12:24	4	26	36	0.0172	44.68
12:28	8	26	25	0.0132	31.96
12:35	15	26	5	0.0109	8.84
12:50	30	26	0	0.0079	3.06
13:05	45	0	0	0.0000	1.16
13:50	90	0	0	0.0000	1.16
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00

 PARTNER FOR DESIGN	Falling Head		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 06.60 -07.00 m		

Time (minute)	Volume (cm3)	delta time (minute)	delta volume (cm3)
0	7.7	0	0
30	8	30	0.3
80	8.4	50	0.4
140	8.9	60	0.5
210	9.5	70	0.6
288	10	78	0.5
348	10.4	60	0.4
400	10.7	52	0.3

t-sample (cm) : 6.60

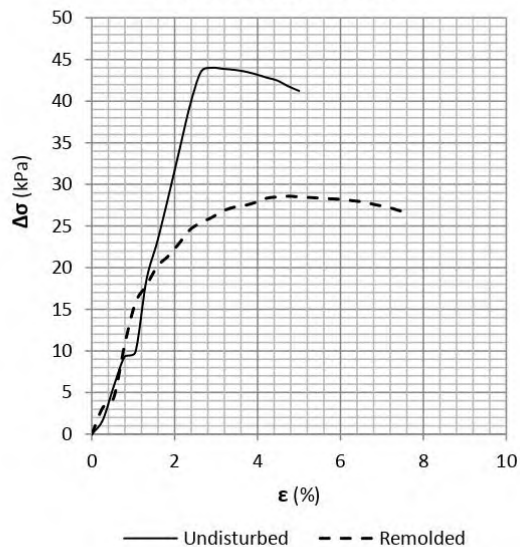
Area-sample (cm2) : 11.34

Head (cm) : 50

k (cm/s) : 1.505E-06

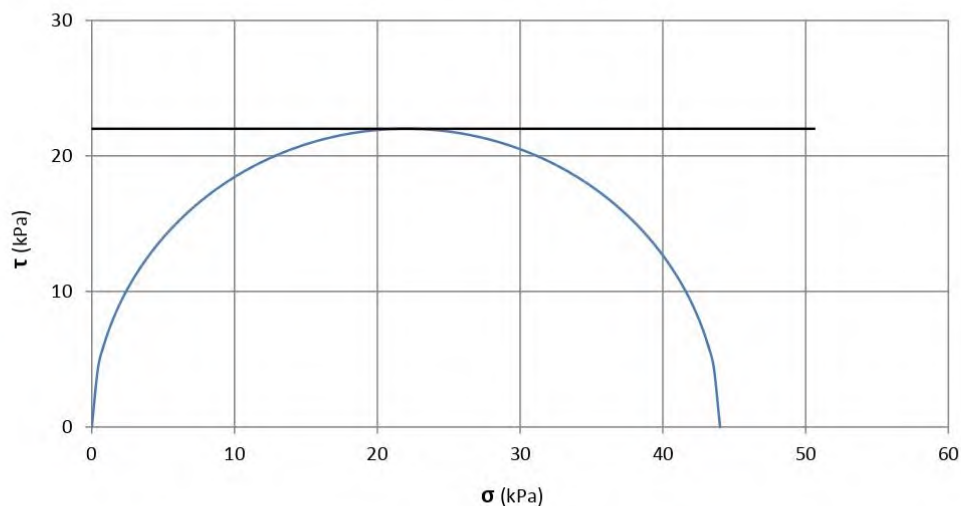
	Unconfined Compression Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 12.20 - 12.45 m			

STRESS - STRAIN CURVE



Results	Undisturbed	Remolded
σ_{max} kPa	44.0	28.6
ϵ_f %	2.89	4.74
S_t -	1.54	
C kPa	22.0	14.3
E_{50} kPa	1464	1356
E_{sec} kPa	1520	603

MOHR's DIAGRAM



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F GWL OL 002; R 05-(6/09/18)

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 12.20 - 12.45 m		

Undisturbed

Height of Sample : 76 mm

Water Content : 103.66 %

Diameter of Sample : 38 mm

Unit Weight : 11.48 kN/m³

Calibration Dial Gauge : 0.04826 kg/div

Dry Density : 5.64 kN/m³

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0.00	0.0000	-	-	-
20	1.70	0.2632			
40	5.71	0.5263			
60	9.29	0.7895			
80	9.89	1.0526			
100	18.48	1.3158			
120	23.12	1.5789			
140	28.40	1.8421			
160	33.95	2.1053			
180	39.47	2.3684			
200	43.50	2.6316			
220	44.01	2.8947			
240	43.89	3.1579			
260	43.77	3.4211			
280	43.57	3.6842			
300	43.24	3.9474			
320	42.84	4.2105			
340	42.48	4.4737			
360	41.79	4.7368			
380	41.23	5.0000			

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 03 Depth : 12.20 - 12.45 m		

Remolded

Height of Sample : 76 mm

Diameter of Sample : 38 mm

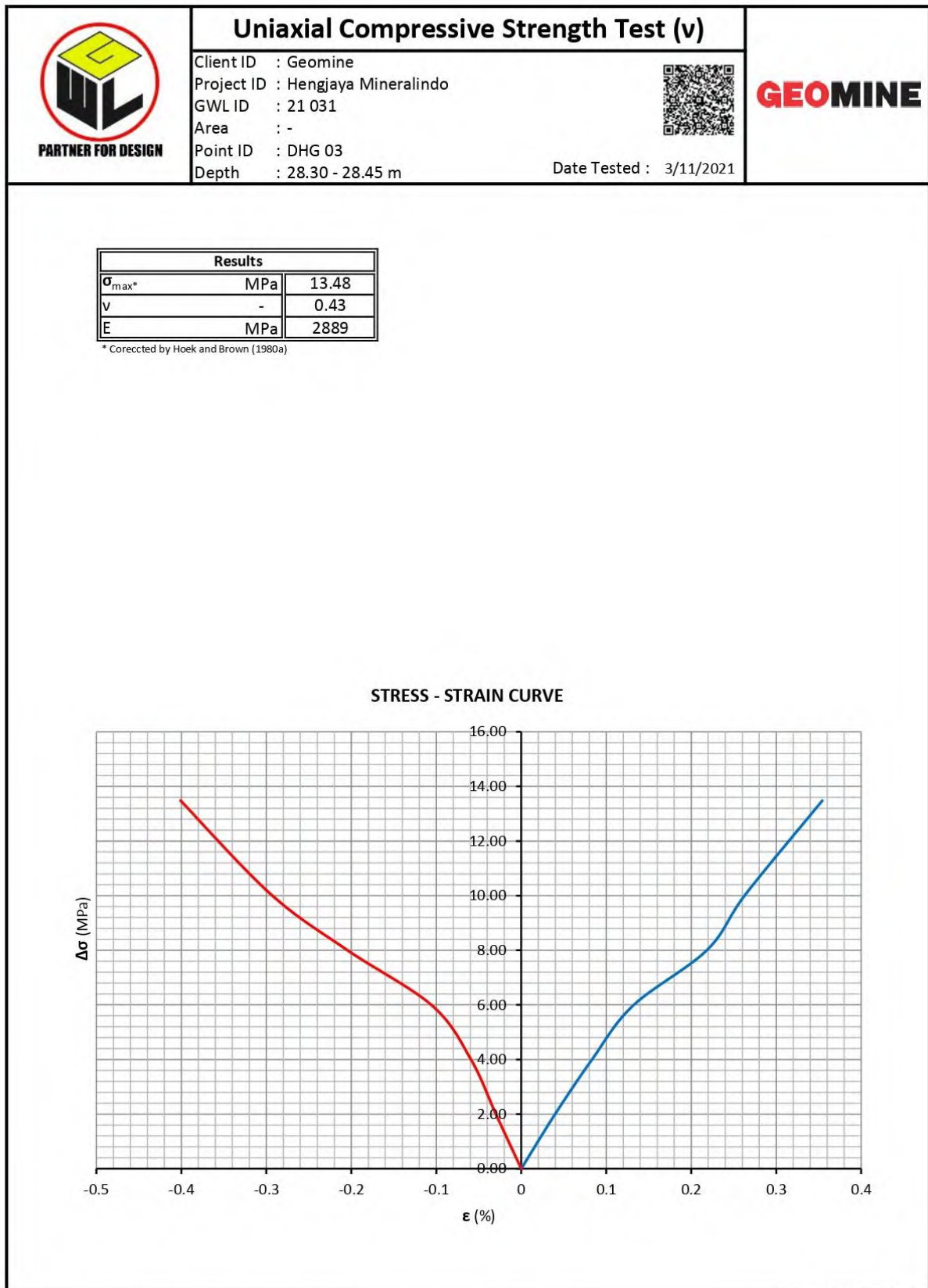
Calibration Dial Gauge : 0.04826 kg/div

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0	0.0000	-	-	-
20	3.18	0.2632			
40	4.36	0.5263			
60	10.68	0.7895			
80	15.79	1.0526			
100	17.85	1.3158			
120	20.14	1.5789			
140	21.39	1.8421			
160	22.91	2.1053			
180	24.55	2.3684			
200	25.40	2.6316			
220	26.03	2.8947			
240	26.79	3.1579			
260	27.25	3.4211			
280	27.46	3.6842			
300	27.83	3.9474			
320	28.33	4.2105			
340	28.50	4.4737			
360	28.58	4.7368			
380	28.50	5.0000			
400	28.42	5.2632			
420	28.34	5.5263			
440	28.26	5.7895			
460	28.18	6.0526			
480	28.03	6.3158			
500	27.87	6.5789			
520	27.55	6.8421			
540	27.31	7.1053			
560	26.92	7.3684			
580	26.53	7.6316			

 PARTNER FOR DESIGN	Properties Test (Rock)		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 03 Depth : 13.10 - 13.35 m		

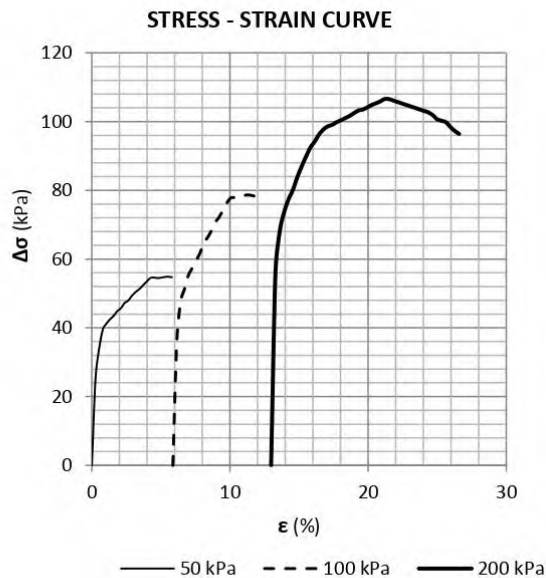
Result		
Natural Density	kN/m ³	10.23
Dry Density	kN/m ³	4.53
Saturated Density	kN/m ³	12.07
Spesific Gravity	-	1.84
Natural Water Content	%	56
Absorption	%	166
Saturation	%	0.75
Porosity	-	0.75
Void Ratio	-	3.06



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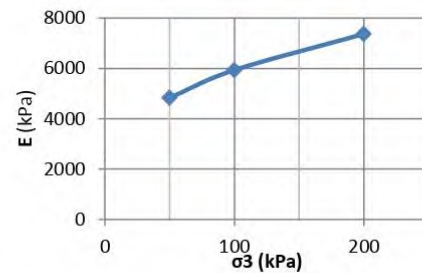
F GWL OL 033; R 01-(22/09/14)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 05.00 -05.40 m		
		Date Tested : 28/10/2021	



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	54.87	5.53
2.	100	78.62	11.17
3.	200	106.56	21.20

Results		
c	kPa	17.6
φ	°	8.3



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 05.00 -05.40 m		

Height of Sample: 76 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1432 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	25.19	0.26
40	33.91	0.53
60	39.46	0.79
80	41.23	1.05
100	42.49	1.32
120	43.5	1.58
140	44.87	1.84
160	45.73	2.11
180	47.21	2.37
200	47.95	2.63
220	49.29	2.89
240	50.38	3.16
260	51.22	3.42
280	52.29	3.68
300	53.36	3.95
320	54.43	4.21
340	54.64	4.47
360	54.49	4.74
380	54.58	5
400	54.79	5.26
420	54.87	5.53
440	54.72	5.79

Deviator Stress Maximum: 54.87 kPa E_s : 2339.84 kPa
 Strain at Failure: 5.79 % E_{s0} : 1702.73 kPa
 Deviator Stress at (50%): 49.29 kPa
 Strain at (50%): 2.89 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 71.6 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1432 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
420	0	5.87
440	35.55	6.15
460	47.62	6.42
480	51.24	6.7
500	55.2	6.98

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 05.00 -05.40 m		
		Date Tested : 28/10/2021	

520	57.38	7.26
540	59.54	7.54
560	61.69	7.82
580	64.75	8.1
600	66.29	8.38
620	68.28	8.66
640	70.71	8.94
660	72.21	9.22
680	74.28	9.5
700	76.33	9.78
720	77.79	10.06
740	77.89	10.34
760	77.88	10.61
780	78.19	10.89
800	78.62	11.17
820	78.6	11.45
840	78.35	11.73

Deviator Stress Maximum: 78.62 kPa E_p : 2938.82 kPa
 Strain at Failure: 11.73 % E_{50} : 788.49 kPa
 Deviator Stress at (50%): 68.28 kPa
 Strain at (50%): 8.66 %

+ + + + + STAGE - 2 + + + + +

Height of Sample: 63.2 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1432 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
820	0	12.97
840	56.06	13.29
860	68.18	13.61
880	73.69	13.92
900	77.42	14.24
920	80.16	14.56
940	83.84	14.87
960	86.95	15.19
980	89.83	15.51
1000	92.47	15.82
1020	94.24	16.14
1040	96.31	16.46
1060	97.73	16.77
1080	98.62	17.09
1100	99.07	17.41
1120	99.84	17.72
1140	100.39	18.04
1160	101.03	18.35
1180	101.66	18.67

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 05.00 -05.40 m		

1200	102.5	18.99
1220	103.22	19.3
1240	103.52	19.62
1260	104.13	19.94
1280	104.82	20.25
1300	105.31	20.57
1320	105.89	20.89
1340	106.56	21.2
1360	106.53	21.52
1380	106.1	21.84
1400	105.67	22.15
1420	105.24	22.47
1440	104.81	22.78
1460	104.38	23.1
1480	103.95	23.42
1500	103.52	23.73
1520	103.09	24.05
1540	102.66	24.37
1560	101.85	24.68
1580	100.67	25
1600	100.24	25.32
1620	99.82	25.63
1640	98.46	25.95
1660	97.29	26.27
1680	96.41	26.58

Deviator Stress Maximum: 106.56 kPa E_s : 1862.96 kPa
 Strain at Failure: 26.58 % E_{50} : 527.63 kPa
 Deviator Stress at (50%): 103.52 kPa
 Strain at (50%): 19.62 %

+++++ STAGE - 3 +++++

No. Container : 1004
 Wet Soil + Container : 177.86 gram
 Dry Soil + Container : 127.96 gram
 Weight of Container : 5.84 gram
 Density : 19.96 kN/m³
 Moisture Content : 40.86 %
 Dry Density : 14.17 kN/m³

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 08.25 - 08.65 m			

Test	Results
Unit Weight	kN/m ³ 18.6
SL	% -
Gs	- 3.27
MC	% 57
PL	% 26
LL	% 66
PI	% 40
Fines (#200)	% 88
D ₁₀	mm 0.0078
D ₃₀	mm 0.0090
D ₆₀	mm 0.0176
C _u	- 2
C _c	- 0.59

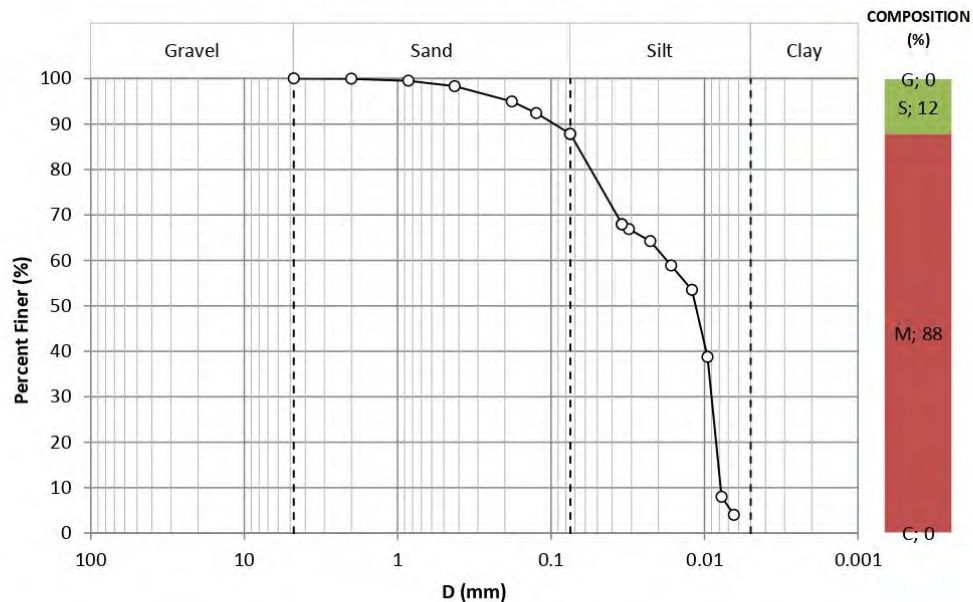
* Casagrande's Method

** Based on Consistency Index (Ic)

Properties	Results
I _F	% -0.46
I _T	% -87.22
I _L	% 0.76
I _C	% 0.24
S _r	% 100.00
e	- 1.63
n	- 0.62
A	- 21.39

Consistency**	Very Soft
Activity	Active
Plasticity Symbol	CH or OH

PARTICLE SIZE DISTRIBUTION



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 08.25 - 08.65 m		

Moisture Content

No. Test	1	2	3
No. Container	1002	1140	1142
Weight of Container	5.65	4.37	5.03
Weight of wet soil and container	77.79	91.60	93.96
Weight of dry soil and container	51.82	59.72	62.11
Moisture Content	56.25	57.60	55.80
Average MC	56.55		

Unit weight

No. Ring	19
No. Container	1041
Weight of Ring	26.8
Volume of Ring	15.216
Weight of Container	5.34
Weight of wet soil and ring and containe	60.47
Weight of dry soil and ring and containe	51.01
Water Content	50.132
Density	18.618
Dry Density	12.401
Saturation	100
Void ratio	1.6336
Porosity	0.6203

Specific Gravity

No. Test	1	2
No. Pycknometer	201	201
Weight of Pycknometer + soil	76.17	76.17
Weight of Pycknometer + water + soil	169.57	169.57
T° C	28	28
Weight of Pycknometer	52.92	52.92
Weight of Pycknometer + water	153.44	153.44
Specific Gravity	3.266	3.266
Average Specific Gravity	3.266	

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

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F GWL OL 001; R 12-(17/10/18)

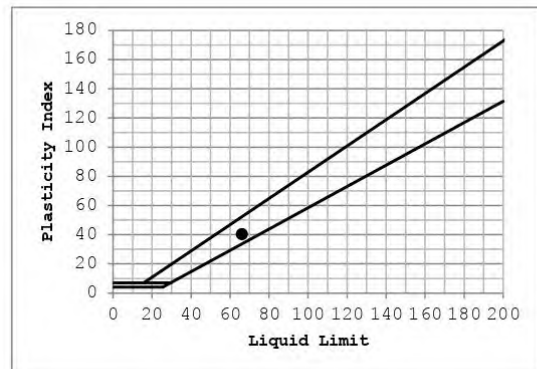
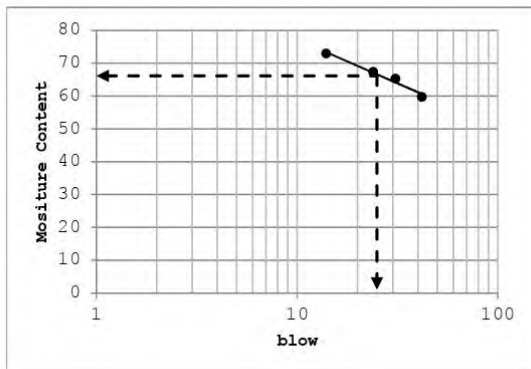
 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 08.25 - 08.65 m		

Plastic Limit

No. Test	1	2	3
No. Container	1084	1119	1160
Weight of Container	4.67	4.94	4.48
Weight of wet soil and container	12.18	12.23	11.21
Weight of dry soil and container	10.7	10.68	9.82
Plastic Limit	24.54	27.00	26.03
Average	25.86		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1016	1011	1025	1145	-
Weight of Container	6.15	5.75	5.16	4.62	-
Weight of wet soil and container	16.45	16.77	16.74	16.62	-
Weight of dry soil and container	12.6	12.42	12.08	11.56	-
Water Content	59.69	65.22	67.34	72.91	-
Number of blows	42	31	24	14	-
Liquid Limit	66.15				



Sieve Analysis

Bowl	0
Soil + Bowl	80.26
Weight of dry soil	80.26

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	0.001	0.00	0.00	100.00
10	2	0.04	0.05	0.05	99.95
20	0.85	0.36	0.45	0.50	99.50
40	0.425	0.95	1.18	1.68	98.32
80	0.18	2.69	3.35	5.03	94.97
120	0.125	2.05	2.55	7.59	92.41
200	0.075	3.67	4.57	12.16	87.84
Pan	0	1.76	87.84	100	0.00

 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 08.25 - 08.65 m		

Hydrometer

Dry Sample

Weight of sample 68.739

Zero correction -1 Gs 3.266

Meniscus correction 1 a 0.8974

Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	27	47	0.0311	66.89
12:22	2	27	45	0.0225	64.21
12:24	4	27	41	0.0165	58.86
12:28	8	27	37	0.0121	53.51
12:35	15	27	26	0.0096	38.80
12:50	30	27	3	0.0077	8.03
13:05	45	27	0	0.0064	4.01
13:50	90	0	0	0.0000	1.34
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00

 PARTNER FOR DESIGN	Falling Head		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 08.25 -08.65 m		

Time (minute)	Volume (cm3)	delta time (minute)	delta volume (cm3)
0	5.3	0	0
30	5.9	30	0.6
80	6.7	50	0.8
150	7.5	70	0.8
228	8.6	78	1.1
288	9.8	60	1.2
348	10.6	60	0.8
400	11.5	52	0.9

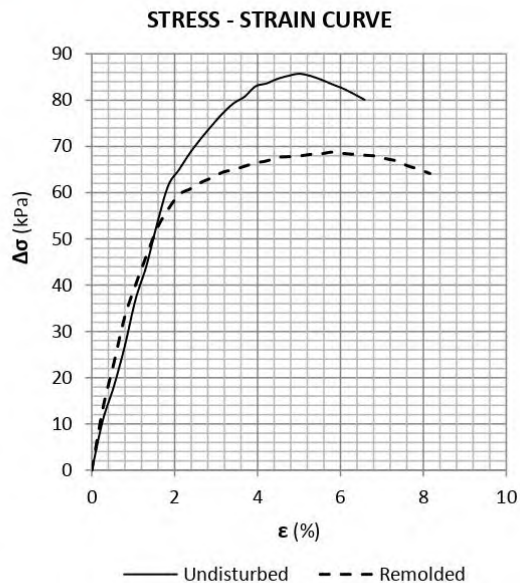
t-sample (cm) : 6.60

Area-sample (cm2) : 11.34

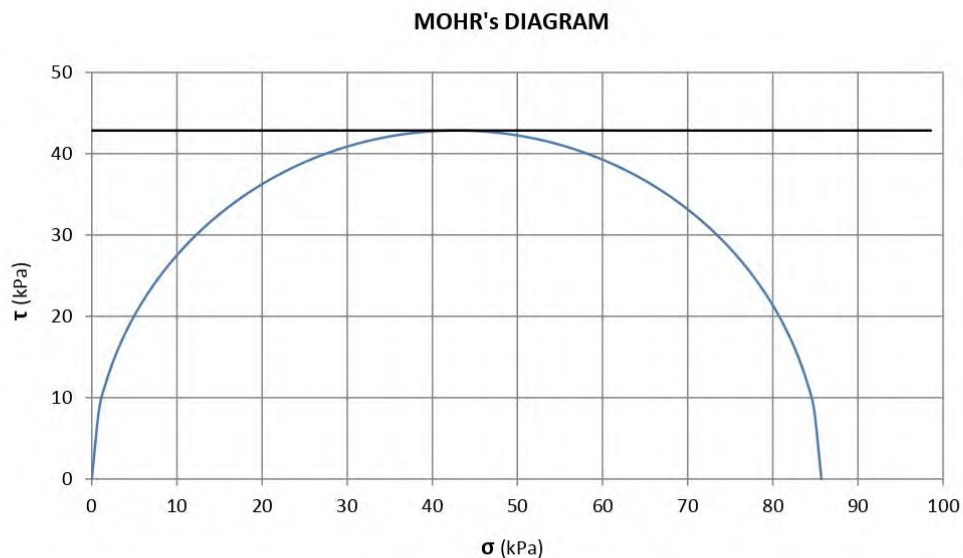
Head (cm) : 50

k (cm/s) : 2.954E-06

	Unconfined Compression Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 17.00 - 17.25 m			



Results	Undisturbed	Remolded
σ_{max} kPa	85.7	68.8
ϵ_f %	5.00	5.79
S_t -	1.25	
C kPa	42.9	34.4
E_{50} kPa	3382	3520
E_{sec} kPa	1714	1188



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F GWL OL 002; R 05-(6/09/18)

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 17.00 - 17.25 m		
		Date Tested : 29/10/2021	

Undisturbed

Height of Sample : 76 mm

Water Content : 91.03 %

Diameter of Sample : 38 mm

Unit Weight : 13.15 kN/m³

Calibration Dial Gauge : 0.04826 kg/div

Dry Density : 6.88 kN/m³

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0.00	0.0000	-	-	-
20	10.74	0.2632			
40	17.99	0.5263			
60	26.64	0.7895			
80	36.84	1.0526			
100	44.13	1.3158			
120	53.40	1.5789			
140	61.48	1.8421			
160	64.99	2.1053			
180	68.59	2.3684			
200	71.68	2.6316			
220	74.50	2.8947			
240	77.14	3.1579			
260	79.32	3.4211			
280	80.74	3.6842			
300	82.97	3.9474			
320	83.60	4.2105			
340	84.59	4.4737			
360	85.25	4.7368			
380	85.70	5.0000			
400	85.26	5.2632			
420	84.46	5.5263			
440	83.47	5.7895			
460	82.55	6.0526			
480	81.37	6.3158			
500	80.10	6.5789			

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 04 Depth : 17.00 - 17.25 m		

Remolded

Height of Sample : 76 mm

Diameter of Sample : 38 mm

Calibration Dial Gauge : 0.04826 kg/div

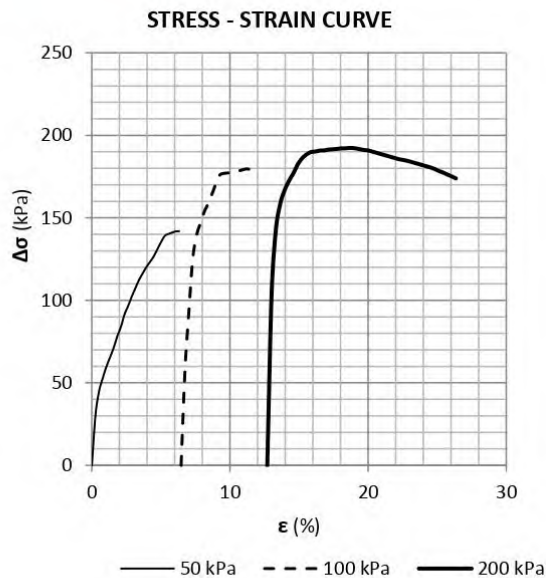
Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0	0.0000	-	-	-
20	13.24	0.2632			
40	22.94	0.5263			
60	33.01	0.7895			
80	40.00	1.0526			
100	46.32	1.3158			
120	52.35	1.5789			
140	56.39	1.8421			
160	59.57	2.1053			
180	60.78	2.3684			
200	62.19	2.6316			
220	63.22	2.8947			
240	64.41	3.1579			
260	64.97	3.4211			
280	65.70	3.6842			
300	66.42	3.9474			
320	66.85	4.2105			
340	67.60	4.4737			
360	67.78	4.7368			
380	67.91	5.0000			
400	68.25	5.2632			
420	68.38	5.5263			
440	68.75	5.7895			
460	68.48	6.0526			
480	68.29	6.3158			
500	68.10	6.5789			
520	67.91	6.8421			
540	67.32	7.1053			
560	66.81	7.3684			
580	65.76	7.6316			
600	65.06	7.8947			
620	64.13	8.1579			

	Properties Test (Rock)			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 04 Depth : 32.25 - 32.35 m			

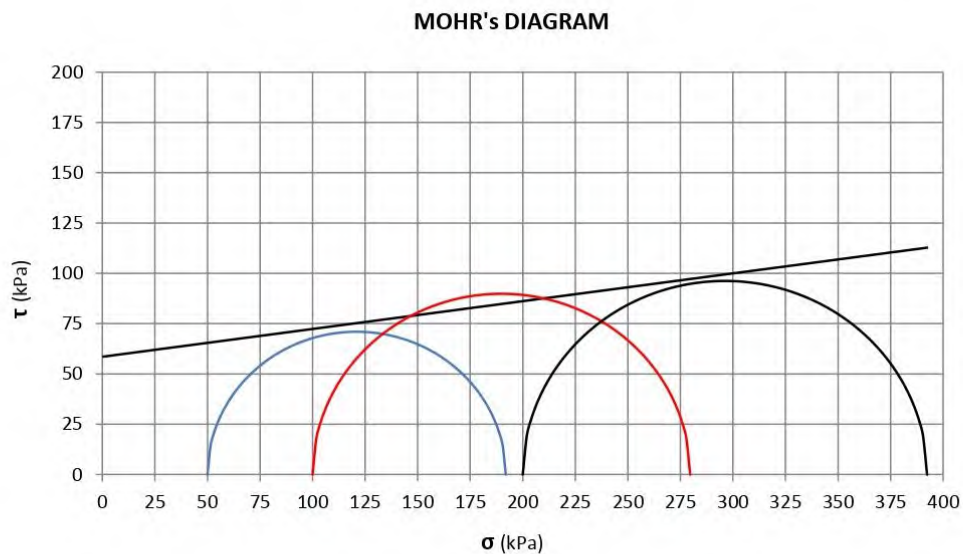
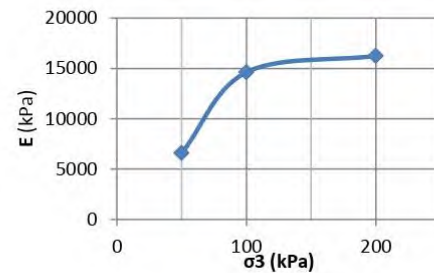
Result		
Natural Density	kN/m ³	27.35
Dry Density	kN/m ³	26.98
Saturated Density	kN/m ³	27.72
Spesific Gravity	-	2.91
Natural Water Content	%	1
Absorption	%	3
Saturation	%	0.07
Porosity	-	0.07
Void Ratio	-	0.08

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 08.45 -08.85 m		
		Date Tested : 28/10/2021	



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	141.91	6.32
2.	100	179.64	11.24
3.	200	192.38	18.73

Results		
c	kPa	58.5
ϕ	°	7.9



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 08.45 -08.85 m		

Height of Sample: 76 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1391 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	30.58	0.26
40	45.14	0.53
60	52.93	0.79
80	59.83	1.05
100	65.48	1.32
120	71.22	1.58
140	78.25	1.84
160	84.05	2.11
180	91.61	2.37
200	96.73	2.63
220	102.43	2.89
240	107.49	3.16
260	112.53	3.42
280	116.36	3.68
300	120.17	3.95
320	123.36	4.21
340	126.54	4.47
360	130.86	4.74
380	135.16	5
400	138.85	5.26
420	140.21	5.53
440	140.97	5.79
460	141.73	6.05
480	141.91	6.32

Deviator Stress Maximum: 141.91 kPa E_c : 3704.52 kPa
 Strain at Failure: 6.32 % E_{50} : 3403.97 kPa
 Deviator Stress at (50%): 107.49 kPa
 Strain at (50%): 3.16 %

+++ STAGE - 1 +++

Height of Sample: 71.2 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1391 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
460	0	6.46
480	57.53	6.74
500	92.94	7.02

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 08.45 -08.85 m		

520	125.06	7.3
540	139.42	7.58
560	146.91	7.87
580	153.78	8.15
600	158.7	8.43
620	164.6	8.71
640	170.79	8.99
660	175.94	9.27
680	176.94	9.55
700	177.17	9.83
720	177.83	10.11
740	178.59	10.39
760	178.58	10.67
780	179.22	10.96
800	179.64	11.24
820	179.07	11.52

Deviator Stress Maximum: 179.64 kPa E_o : 10296.55 kPa
 Strain at Failure: 11.52 % E_{50} : 1900.01 kPa
 Deviator Stress at (50%): 170.79 kPa
 Strain at (50%): 8.99 %

+++ STAGE - 2 +++

Height of Sample: 63 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1391 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
800	0	12.7
820	104.87	13.02
840	143.71	13.33
860	158.97	13.65
880	167.04	13.97
900	172.62	14.29
920	177.22	14.6
940	182.61	14.92
960	186.19	15.24
980	188.5	15.56
1000	189.86	15.87
1020	190.17	16.19
1040	190.78	16.51
1060	190.87	16.83
1080	191.36	17.14
1100	191.54	17.46
1120	191.81	17.78
1140	192.07	18.1
1160	192.13	18.41
1180	192.38	18.73

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 08.45 -08.85 m			

1200	192.12	19.05
1220	191.67	19.37
1240	191.11	19.68
1260	190.84	20
1280	190.09	20.32
1300	189.33	20.63
1320	188.57	20.95
1340	187.82	21.27
1360	187.06	21.59
1380	186.3	21.9
1400	185.54	22.22
1420	185.07	22.54
1440	184.5	22.86
1460	183.74	23.17
1480	182.98	23.49
1500	182.22	23.81
1520	181.46	24.13
1540	180.71	24.44
1560	179.76	24.76
1580	178.54	25.08
1600	177.51	25.4
1620	176.3	25.71
1640	175.19	26.03
1660	173.89	26.35

Deviator Stress Maximum: 192.38 kPa E_o : 3698.11 kPa
 Strain at Failure: 26.35 % E_{50} : 989.76 kPa
 Deviator Stress at (50%): 191.67 kPa
 Strain at (50%): 19.37 %

+ + + + + STAGE - 3 + + + + +

No. Container : 1223
 Wet Soil + Container : 159.71 gram
 Dry Soil + Container : 108.05 gram
 Weight of Container : 4.58 gram
 Density : 18.00 kN/m³
 Moisture Content : 49.93 %
 Dry Density : 12.00 kN/m³

Classification Test		
	Client ID : Geomine	
	Project ID : Hengjaya Mineralindo	
	GWL ID : 21 031	
	Area : -	
	Point ID : DHG 05	
	Depth : 11.60 - 12.00 m	Date Tested : 26/10/2021
		GEOMINE

Test	Results
Unit Weight	kN/m ³ -
SL	% -
Gs	- 3.18
MC	% -
PL	% 49
LL	% 111
PI	% 62
Fines (#200)	% 89
D ₁₀	mm 0.0028
D ₃₀	mm 0.0062
D ₆₀	mm 0.0083
C _u	- 3
C _c	- 1.69

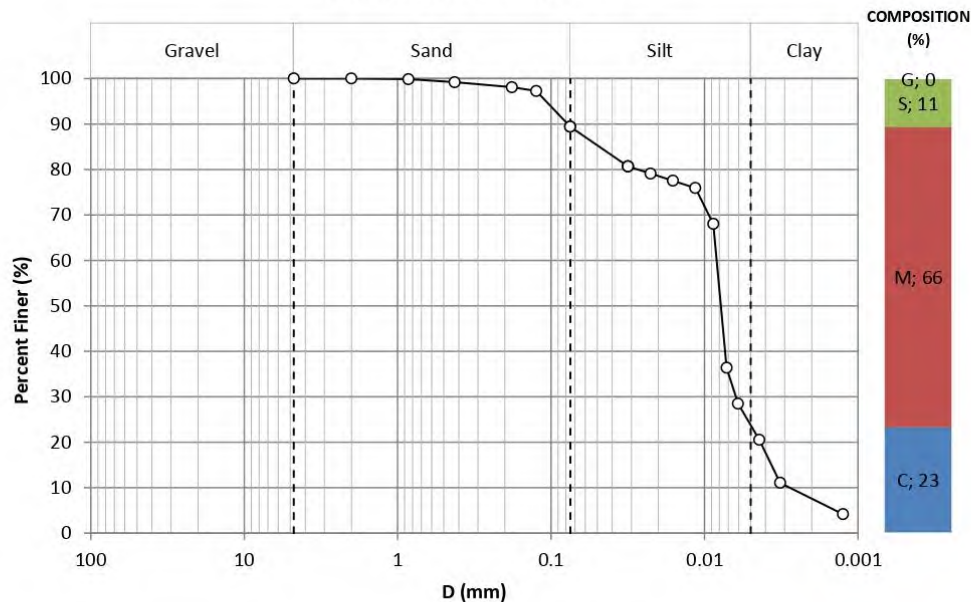
* Casagrande's Method

** Based on Consistency Index (Ic)

Properties	Results
I _F	% -0.58
I _T	% -107.18
I _L	% -
I _C	% -
S _r	% -
e	- -
n	- -
A	- 10.17

Consistency**	-
Activity	Active
Plasticity Symbol	MH or OH

PARTICLE SIZE DISTRIBUTION



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 11.60 - 12.00 m		

Moisture Content

No. Test	1	2	3
No. Container	-	-	-
Weight of Container	-	-	-
Weight of wet soil and container	-	-	-
Weight of dry soil and container	-	-	-
Moisture Content	-	-	-
Average MC	-	-	-

Unit weight

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and ring and container	-
Weight of dry soil and ring and container	-
Water Content	-
Density	-
Dry Density	-
Saturation	-
Void ratio	-
Porosity	-

Specific Gravity

No. Test	1	2
No. Pycknometer	203	203
Weight of Pycknometer + soil	73.33	73.33
Weight of Pycknometer + water + soil	165.27	165.27
T° C	28	28
Weight of Pycknometer	54.5	54.5
Weight of Pycknometer + water	152.36	152.36
Specific Gravity	3.181	3.181
Average Specific Gravity	3.181	3.181

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

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F GWL OL 001; R 12-(17/10/18)

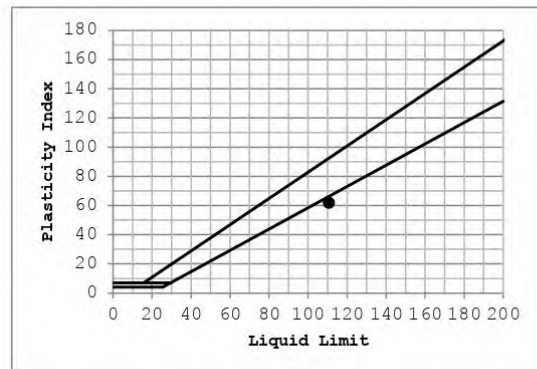
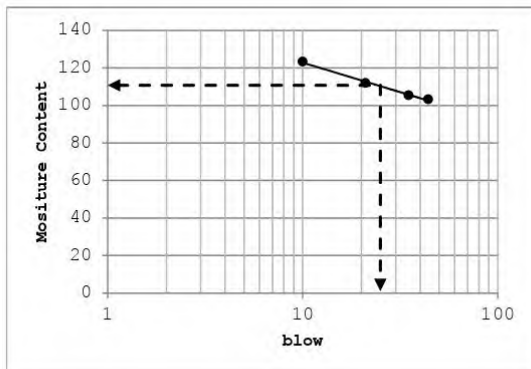
 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 11.60 - 12.00 m		

Plastic Limit

No. Test	1	2	3
No. Container	1234	1099	1209
Weight of Container	4.57	4.76	4.52
Weight of wet soil and container	12.67	11.37	11.76
Weight of dry soil and container	10	9.18	9.41
Plastic Limit	49.17	49.55	48.06
Average	48.93		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1196	1151	1204	1207	-
Weight of Container	4.41	4.51	4.37	4.48	-
Weight of wet soil and container	13.9	13.65	13.44	13.61	-
Weight of dry soil and container	9.08	8.96	8.65	8.57	-
Water Content	103.21	105.39	111.92	123.23	-
Number of blows	44	35	21	10	-
Liquid Limit	110.74				-



Sieve Analysis

Bowl	0
Soil + Bowl	80.35
Weight of dry soil	80.35

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	0.001	0.00	0.00	100.00
10	2	0	0.00	0.00	100.00
20	0.85	0.1	0.12	0.13	99.87
40	0.425	0.53	0.66	0.79	99.21
80	0.18	0.89	1.11	1.89	98.11
120	0.125	0.66	0.82	2.71	97.29
200	0.075	6.33	7.88	10.59	89.41
Fan	0	1.31	89.41	100	0.00

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 11.60 - 12.00 m			

Hydrometer

Dry Sample

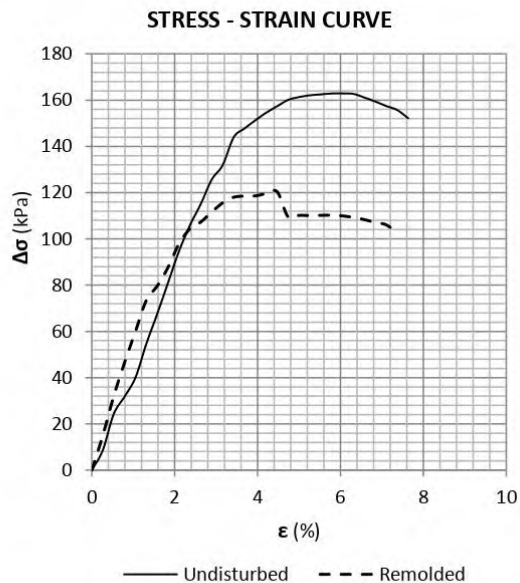
Weight of sample 70.529

Zero correction -1 Gs 3.181

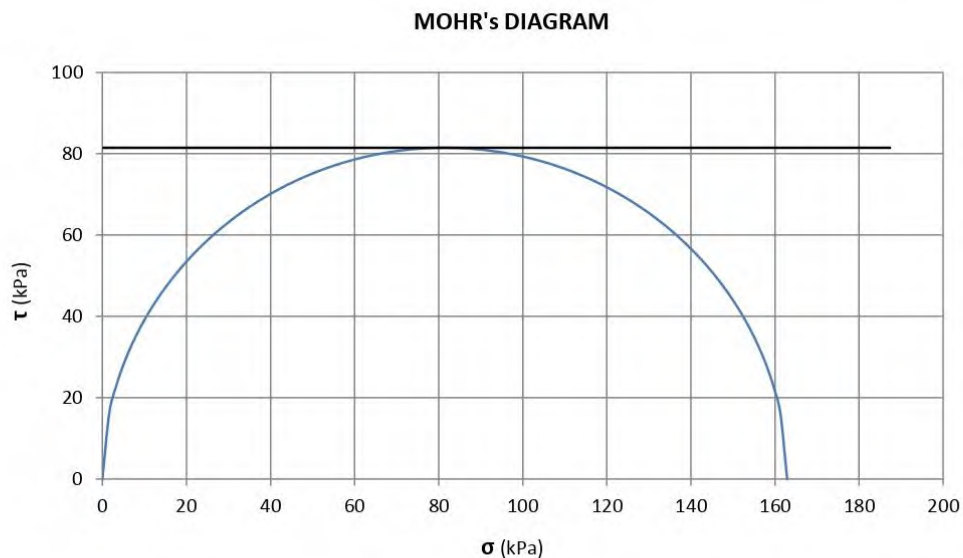
Meniscus correction 1 a 0.9081

Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	27	48	0.0315	80.69
12:22	2	27	47	0.0224	79.10
12:24	4	27	46	0.0160	77.52
12:28	8	27	45	0.0115	75.94
12:35	15	27	40	0.0088	68.03
12:50	30	27	20	0.0072	36.39
13:05	45	27	15	0.0060	28.48
13:50	90	27	10	0.0044	20.57
15:20	180	27	4	0.0032	11.07
9:20	1260	26	0	0.0013	4.19
12:20	1440	0	0	0.0000	0.00

	Unconfined Compression Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 14.75 - 14.90 m			



Results	Undisturbed	Remolded
σ_{max} kPa	162.9	120.3
ϵ_f %	6.05	4.47
S_t -	1.35	
C kPa	81.5	60.2
E_{50} kPa	4284	5585
E_{sec} kPa	2692	2690



 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 14.75 - 14.90 m		

Undisturbed

Height of Sample : 76 mm

Water Content : 69.49 %

Diameter of Sample : 38 mm

Unit Weight : 14.44 kN/m³

Calibration Dial Gauge : 0.04826 kg/div

Dry Density : 8.52 kN/m³

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0.00	0.0000	-	-	-
20	8.62	0.2632			
40	24.21	0.5263			
60	31.79	0.7895			
80	40.04	1.0526			
100	54.72	1.3158			
120	67.64	1.5789			
140	81.24	1.8421			
160	94.77	2.1053			
180	105.94	2.3684			
200	115.23	2.6316			
220	125.70	2.8947			
240	131.91	3.1579			
260	143.88	3.4211			
280	147.75	3.6842			
300	151.31	3.9474			
320	154.61	4.2105			
340	157.39	4.4737			
360	160.12	4.7368			
380	161.34	5.0000			
400	162.10	5.2632			
420	162.49	5.5263			
440	162.88	5.7895			
460	162.91	6.0526			
480	162.69	6.3158			
500	161.12	6.5789			
520	159.40	6.8421			
540	157.45	7.1053			
560	155.74	7.3684			
580	152.19	7.6316			

 PARTNER FOR DESIGN	Unconfined Compression Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 05 Depth : 14.75 - 14.90 m		

Remolded

Height of Sample : 76 mm

Diameter of Sample : 38 mm

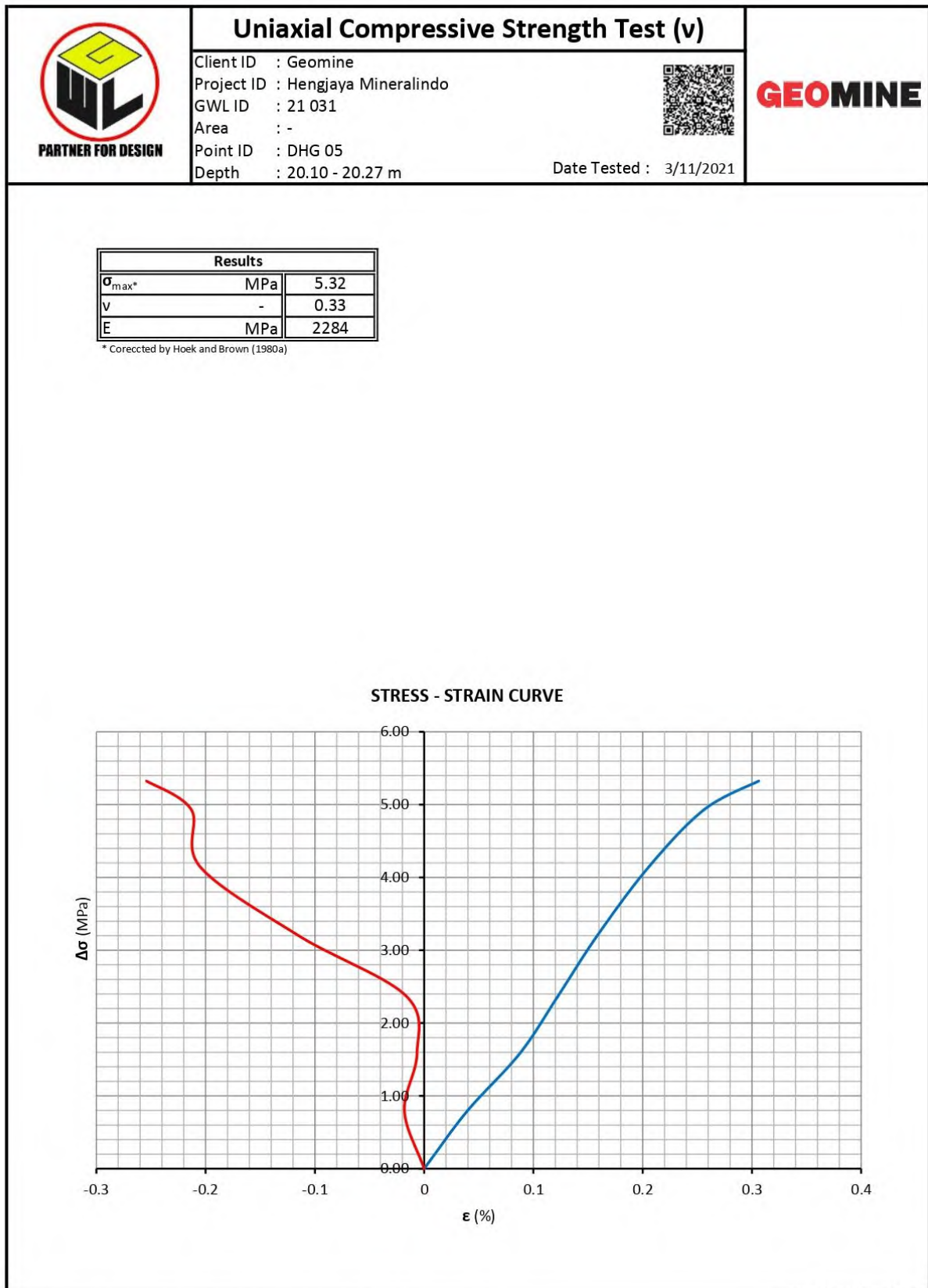
Calibration Dial Gauge : 0.04826 kg/div

Calibration Strain Load : 0.01 mm/div

Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)	Strain Gauge (div)	Deviator Stress (kPa)	ϵ (%)
0	0	0.0000	-	-	-
20	14.98	0.2632			
40	31.87	0.5263			
60	46.52	0.7895			
80	60.00	1.0526			
100	73.49	1.3158			
120	79.66	1.5789			
140	87.80	1.8421			
160	97.94	2.1053			
180	104.36	2.3684			
200	107.35	2.6316			
220	111.65	2.8947			
240	115.59	3.1579			
260	117.99	3.4211			
280	118.53	3.6842			
300	118.61	3.9474			
320	119.63	4.2105			
340	120.32	4.4737			
360	109.49	4.7368			
380	110.16	5.0000			
400	110.10	5.2632			
420	110.19	5.5263			
440	110.25	5.7895			
460	109.94	6.0526			
480	109.27	6.3158			
500	108.33	6.5789			
520	107.07	6.8421			
540	106.06	7.1053			
560	102.56	7.3684			

	Properties Test (Rock)			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 05 Depth : 15.80 - 16.00 m			

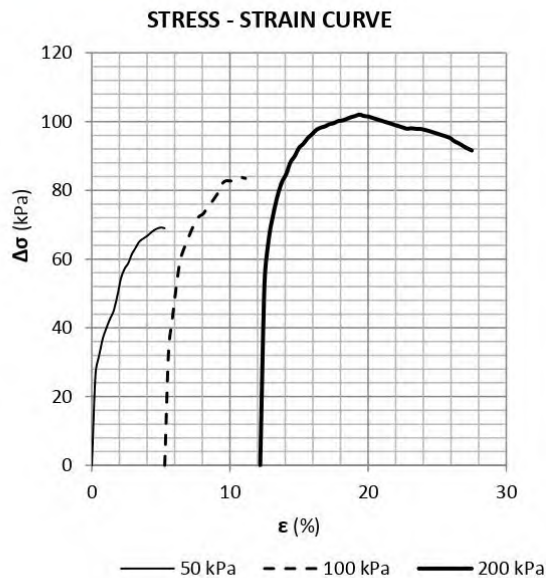
Result		
Natural Density	kN/m ³	10.67
Dry Density	kN/m ³	5.16
Saturated Density	kN/m ³	12.39
Spesific Gravity	-	1.87
Natural Water Content	%	52
Absorption	%	140
Saturation	%	0.72
Porosity	-	0.72
Void Ratio	-	2.62



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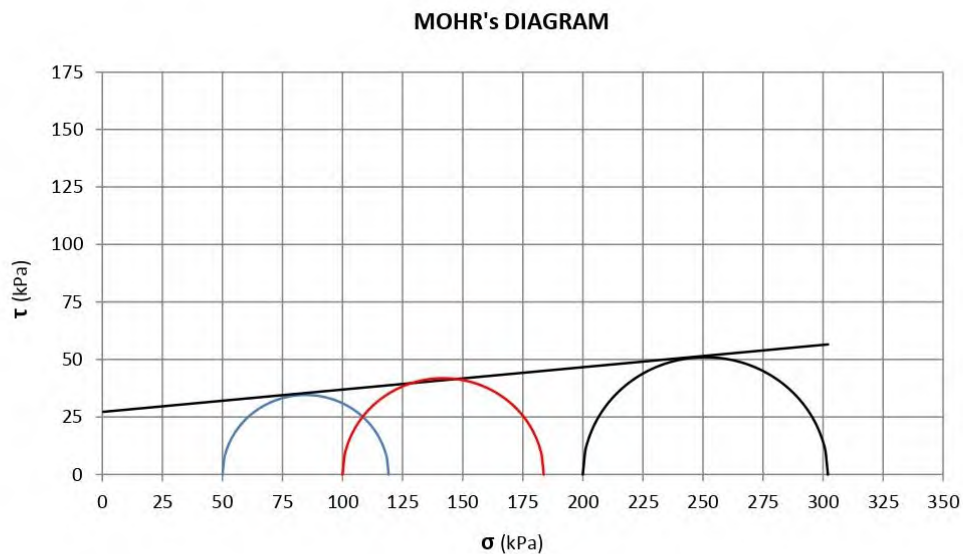
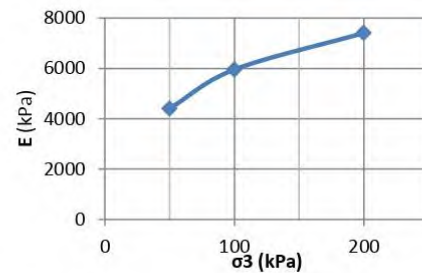
F GWL OL 033; R 01-(22/09/14)

	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 05.20 -05.60 m			



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	69.17	5.00
2.	100	83.73	10.83
3.	200	102.03	19.38

Results		
c	kPa	27.2
ϕ	°	5.6



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 05.20 -05.60 m		

Height of Sample: 76 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1139 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	26.54	0.26
40	31.97	0.53
60	36.87	0.79
80	39.95	1.05
100	42.62	1.32
120	44.97	1.58
140	49.29	1.84
160	54.37	2.11
180	57.16	2.37
200	58.77	2.63
220	61.44	2.89
240	63.22	3.16
260	64.99	3.42
280	65.87	3.68
300	66.56	3.95
320	67.44	4.21
340	68.31	4.47
360	68.88	4.74
380	69.17	5
400	68.98	5.26

Deviator Stress Maximum: 69.17 kPa E_0 : 2375.66 kPa
 Strain at Failure: 5.26 % E_{50} : 2233.28 kPa
 Deviator Stress at (50%): 58.77 kPa
 Strain at (50%): 2.63 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 72 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1139 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
380	0	5.28
400	33.2	5.56
420	42.75	5.83
440	51.96	6.11
460	59.42	6.39
480	62.99	6.67
500	65.7	6.94

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 05.20 -05.60 m		

520	68.49	7.22
540	70.79	7.5
560	72.43	7.78
580	73.13	8.06
600	74.75	8.33
620	76.18	8.61
640	77.78	8.89
660	79.55	9.17
680	81.94	9.44
700	82.78	9.72
720	82.7	10
740	82.9	10.28
760	83.54	10.56
780	83.73	10.83
800	83.47	11.11

Deviator Stress Maximum: 83.73 kPa E_s : 3514.56 kPa
 Strain at Failure: 11.11 % E_{50} : 907.87 kPa
 Deviator Stress at (50%): 73.13 kPa
 Strain at (50%): 8.06 %

+++ STAGE - 2 +++

Height of Sample: 64 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1139 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
780	0	12.19
800	52.99	12.5
820	65.93	12.81
840	72.85	13.13
860	78.33	13.44
880	82.29	13.75
900	84.67	14.06
920	88.14	14.38
940	89.96	14.69
960	92.37	15
980	93.56	15.31
1000	95.16	15.63
1020	96.33	15.94
1040	97.57	16.25
1060	98.21	16.56
1080	98.59	16.88
1100	99.22	17.19
1120	99.51	17.5
1140	100.12	17.81
1160	100.32	18.13
1180	100.75	18.44

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEO MINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 05.20 -05.60 m		

1200	101.27	18.75
1220	101.61	19.06
1240	102.03	19.38
1260	101.63	19.69
1280	101.48	20
1300	101.08	20.31
1320	100.68	20.63
1340	100.29	20.94
1360	99.89	21.25
1380	99.49	21.56
1400	99.1	21.88
1420	98.7	22.19
1440	98.3	22.5
1460	97.91	22.81
1480	98.05	23.13
1500	97.88	23.44
1520	97.87	23.75
1540	97.62	24.06
1560	97.29	24.38
1580	96.89	24.69
1600	96.49	25
1620	96.09	25.31
1640	95.68	25.63
1660	95.21	25.94
1680	94.29	26.25
1700	93.67	26.56
1720	92.9	26.88
1740	92.21	27.19
1760	91.6	27.5

Deviator Stress Maximum: 102.03 kPa E_o : 1582.25 kPa
 Strain at Failure: 27.50 % E_{50} : 516.21 kPa
 Deviator Stress at (50%): 101.63 kPa
 Strain at (50%): 19.69 %

+ + + + + STAGE - 3 + + + + +

No. Container : 1237
 Wet Soil + Container : 167.3 gram
 Dry Soil + Container : 117.7 gram
 Weight of Container : 4.48 gram
 Density : 18.89 kN/m³
 Moisture Content : 43.81 %
 Dry Density : 13.14 kN/m³

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 07.00 - 07.40 m			

Test	Results
Unit Weight	kN/m ³ 18.8
SL	% -
Gs	- 3.15
MC	% 56
PL	% 34
LL	% 60
PI	% 26
Fines (#200)	% 79
D ₁₀	mm 0.0093
D ₃₀	mm 0.0125
D ₆₀	mm 0.0429
C _u	- 5
C _c	- 0.39

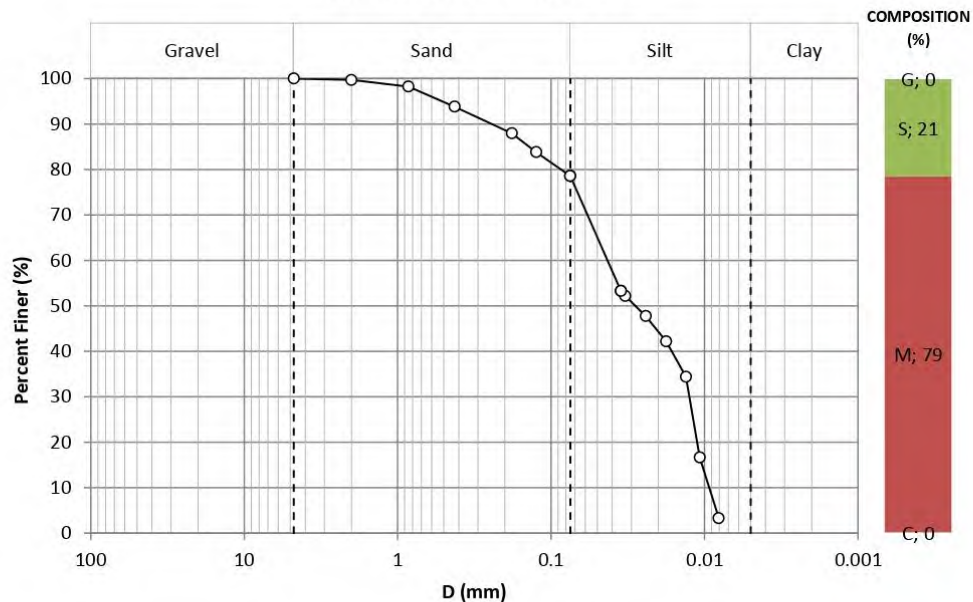
* Casagrande's Method

** Based on Consistency Index (Ic)

Properties	Results
I _F	% -0.08
I _T	% -329.92
I _L	% 0.86
I _C	% 0.14
S _r	% 100.00
e	- 1.53
n	- 0.60
A	- 17.86

Consistency**	Very Soft
Activity	Active
Plasticity Symbol	MH or OH

PARTICLE SIZE DISTRIBUTION



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 07.00 - 07.40 m		

Moisture Content

No. Test	1	2	3
No. Container	1224	1030	1176
Weight of Container	4.57	5.86	4.42
Weight of wet soil and container	125.47	112.59	128.43
Weight of dry soil and container	81.03	74.76	84.55
Moisture Content	58.12	54.91	54.76
Average MC	55.93		

Unit weight

No. Ring	9
No. Container	1166
Weight of Ring	27.15
Volume of Ring	15.669
Weight of Container	4.55
Weight of wet soil and ring and containe	61.11
Weight of dry soil and ring and containe	51.19
Water Content	50.898
Density	18.769
Dry Density	12.438
Saturation	100
Void ratio	1.5308
Porosity	0.6049

Specific Gravity

No. Test	1	2
No. Pycknometer	203	203
Weight of Pycknometer + soil	72.41	72.41
Weight of Pycknometer + water + soil	164.58	164.58
T° C	28	28
Weight of Pycknometer	54.5	54.5
Weight of Pycknometer + water	152.36	152.36
Specific Gravity	3.148	3.148
Average Specific Gravity	3.148	

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

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F GWL OL 001; R 12-(17/10/18)

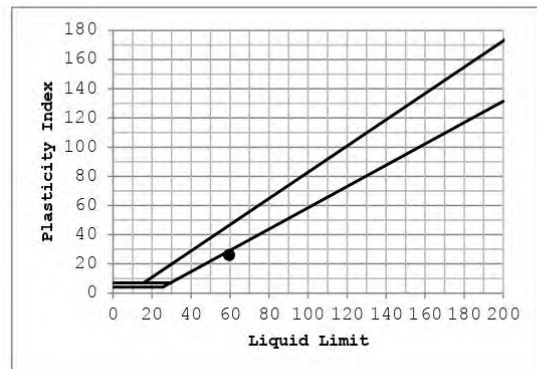
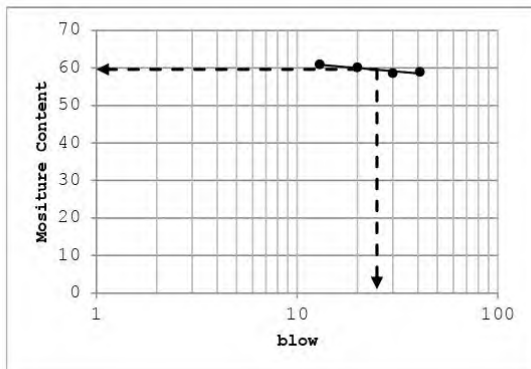
 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 07.00 - 07.40 m		

Plastic Limit

No. Test	1	2	3
No. Container	1178	1143	1031
Weight of Container	4.12	4.18	5.77
Weight of wet soil and container	13.14	13.55	13.7
Weight of dry soil and container	10.87	11.16	11.74
Plastic Limit	33.63	34.24	32.83
Average	33.57		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1184	1034	1199	1139	-
Weight of Container	4.24	5.22	4.59	4.45	-
Weight of wet soil and container	15.33	15.7	15.94	15.49	-
Weight of dry soil and container	11.22	11.83	11.68	11.31	-
Water Content	58.88	58.55	60.08	60.93	-
Number of blows	41	30	20	13	-
Liquid Limit	59.61				



Sieve Analysis

Bowl	0
Soil + Bowl	80.31
Weight of dry soil	80.31

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	0.001	0.00	0.00	100.00
10	2	0.23	0.29	0.29	99.71
20	0.85	1.18	1.47	1.76	98.24
40	0.425	3.54	4.41	6.16	93.84
80	0.18	4.72	5.88	12.04	87.96
120	0.125	3.32	4.13	16.18	83.82
200	0.075	4.21	5.24	21.42	78.58
Pan	0	1.39	78.58	100	0.00

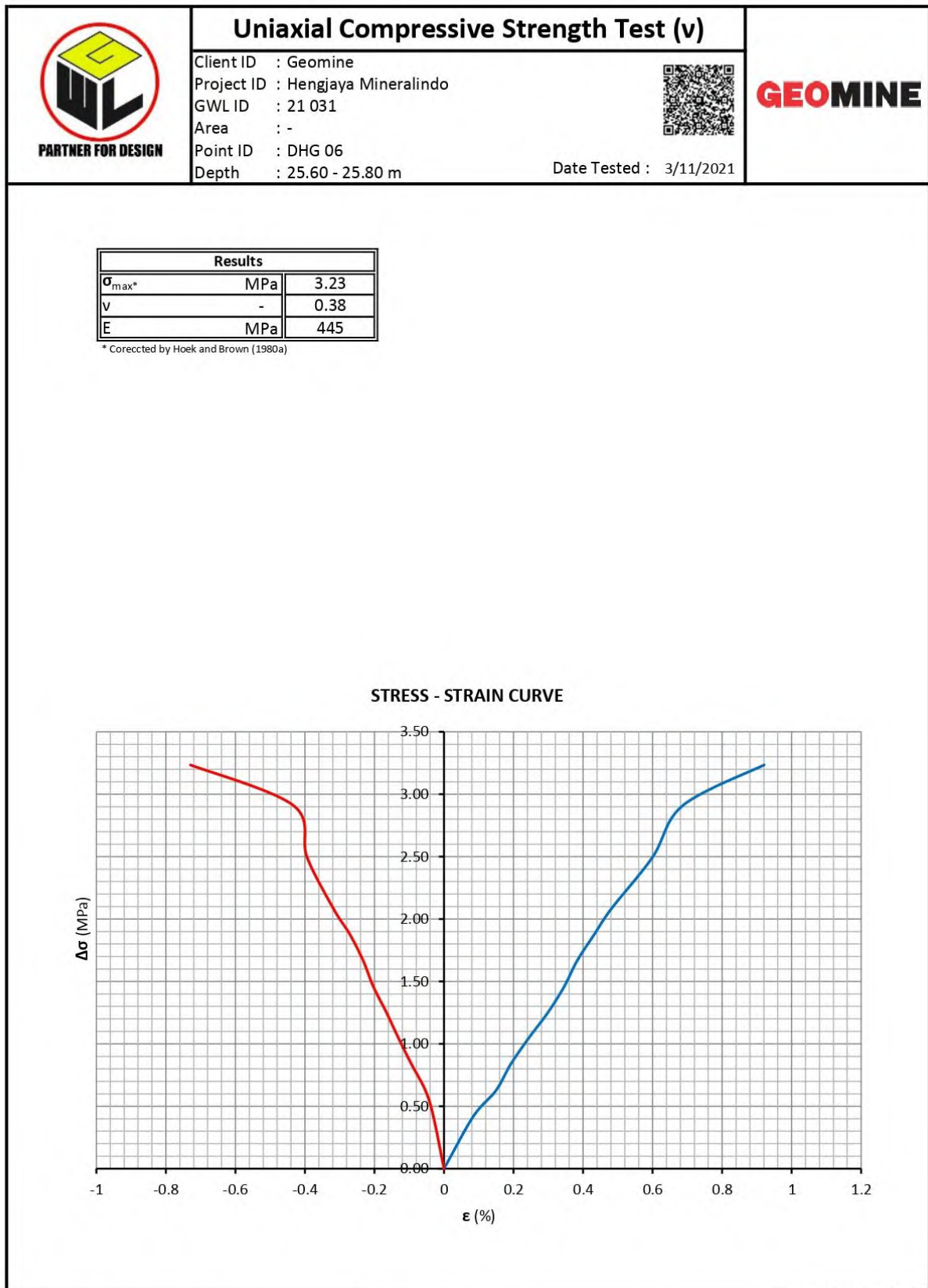
 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 06 Depth : 07.00 - 07.40 m		

Hydrometer

Dry Sample

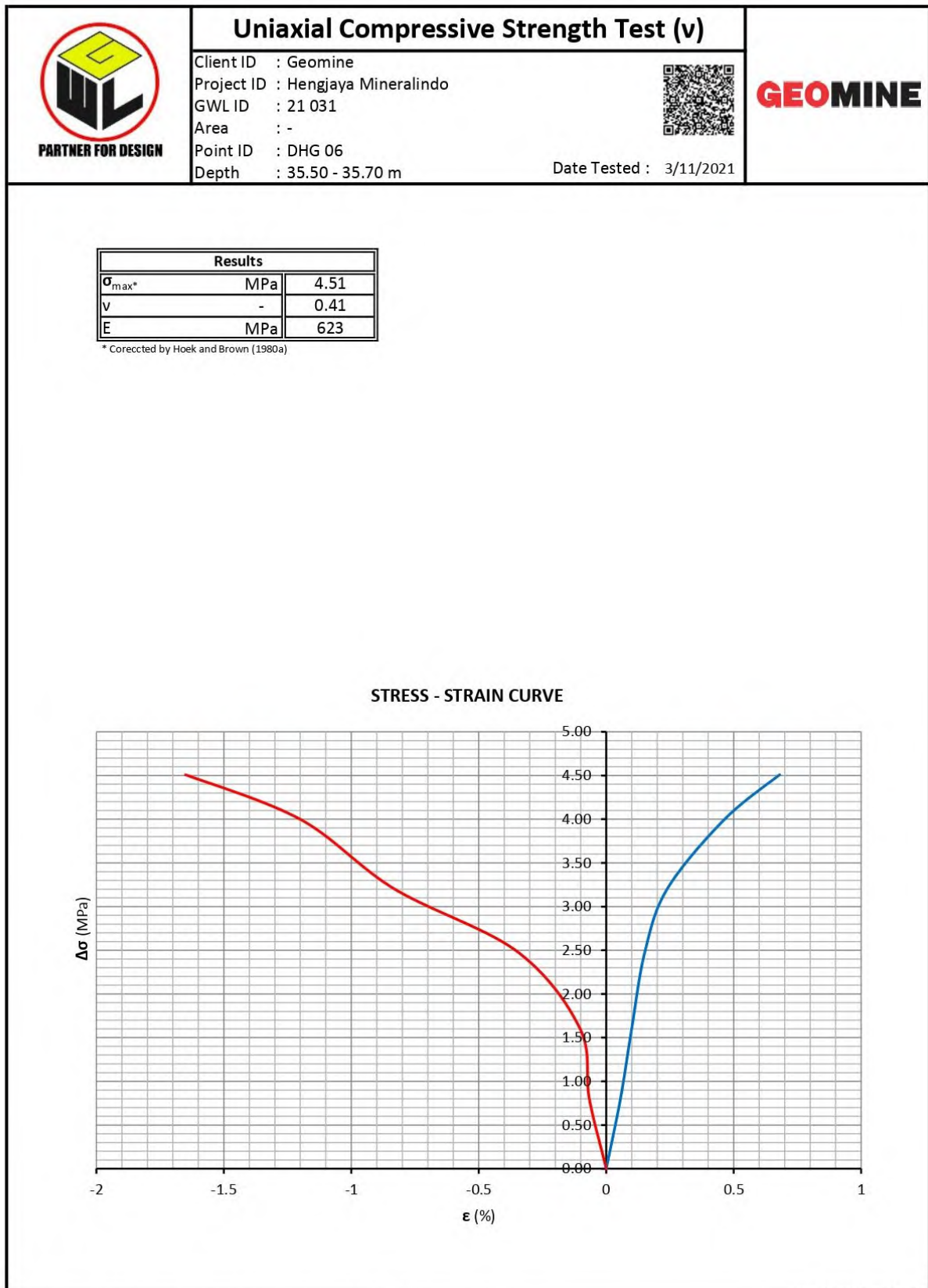
Weight of sample	61.719		
Zero correction	-1	Gs	3.1478
Meniscus correction	1	a	0.9125

Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	27	44	0.0329	52.20
12:22	2	27	40	0.0242	47.76
12:24	4	27	35	0.0178	42.21
12:28	8	27	28	0.0132	34.43
12:35	15	27	12	0.0107	16.66
12:50	30	27	0	0.0081	3.33
13:05	45	0	0	0.0000	1.11
13:50	90	0	0	0.0000	1.11
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00



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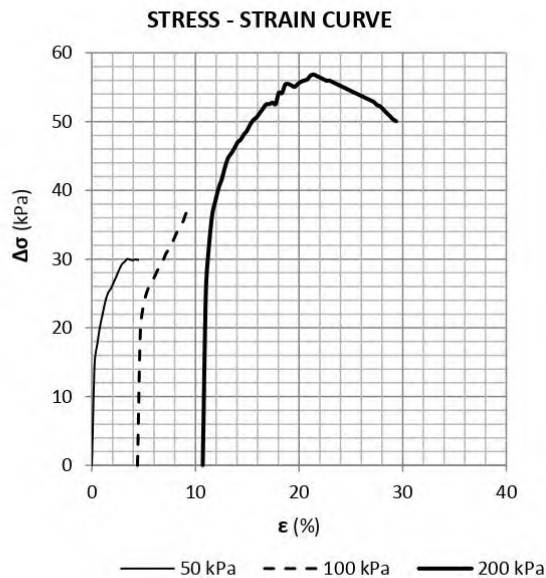
F GWL OL 033; R 01-(22/09/14)



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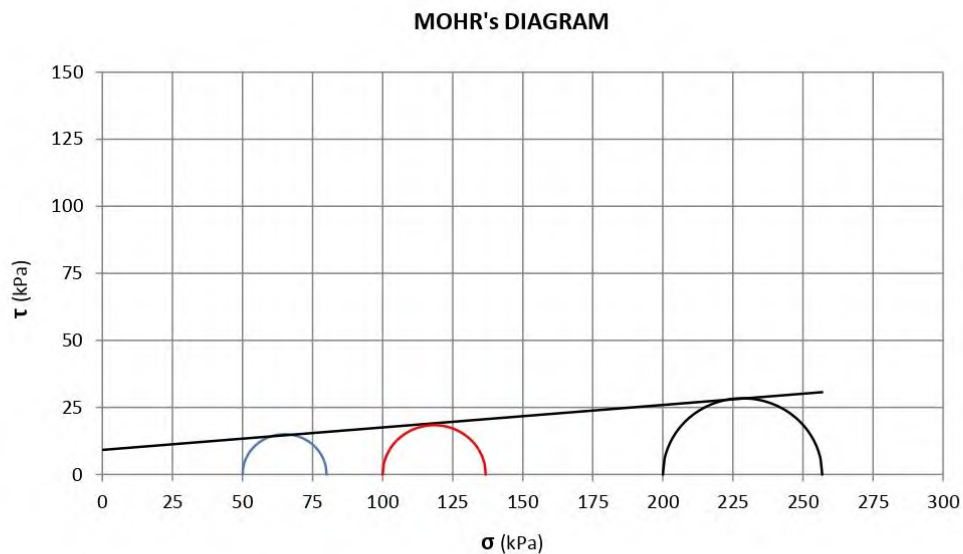
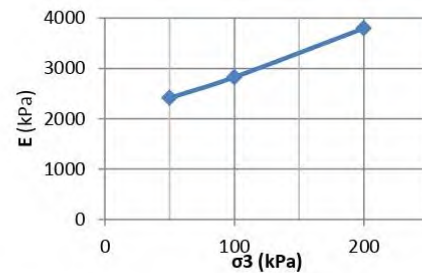
F GWL OL 033; R 01-(22/09/14)

	Triaxial Unconsolidated Undrained Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 02.60 -03.00 m			



No.	σ_3 (kPa)	$\Delta\sigma$ (kPa)	ϵ_f (%)
1.	50	30.00	3.42
2.	100	36.78	9.37
3.	200	56.84	21.41

Results		
c	kPa	9.2
ϕ	°	4.8



 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 02.60 -03.00 m		

Height of Sample: 76 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1101 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
0	0	0
20	14.81	0.26
40	17.67	0.53
60	20.23	0.79
80	22.09	1.05
100	23.95	1.32
120	25.13	1.58
140	25.73	1.84
160	26.61	2.11
180	27.49	2.37
200	28.45	2.63
220	29.22	2.89
240	29.61	3.16
260	30	3.42
280	29.92	3.68
300	29.84	3.95
320	29.94	4.21
340	29.86	4.47

Deviator Stress Maximum: 30.00 kPa E_o : 1565.00 kPa
 Strain at Failure: 4.47 % E_{50} : 1263.98 kPa
 Deviator Stress at (50%): 26.61 kPa
 Strain at (50%): 2.11 %

+ + + + + STAGE - 1 + + + + +

Height of Sample: 72.6 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1101 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
320	0	4.41
340	19.71	4.68
360	23.07	4.96
380	24.84	5.23
400	25.96	5.51
420	26.71	5.79
440	27.45	6.06
460	28.37	6.34
480	29.01	6.61
500	29.83	6.89

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 02.60 -03.00 m		

520	30.82	7.16
540	31.45	7.44
560	32.25	7.71
580	33.14	7.99
600	34.11	8.26
620	34.89	8.54
640	35.5	8.82
660	36.63	9.09
680	36.78	9.37
700	36.67	9.64
720	36.56	9.92

Deviator Stress Maximum: 36.78 kPa E_s : 1286.57 kPa
 Strain at Failure: 9.92 % E_{50} : 430.34 kPa
 Deviator Stress at (50%): 30.82 kPa
 Strain at (50%): 7.16 %

+ + + + + STAGE - 2 + + + + +

Height of Sample: 65.4 mm
 Diameter of Sample: 38 mm
 Calibration Dial Gauge: 0.1101 kg/div
 Calibration Strain Gauge: 0.01 mm/div

--- Triaxial S H E A R I N G ---

Strain Gauge (div)	Deviator Stress (kPa)	Strain (%)
700	0	10.7
720	25.31	11.01
740	32.03	11.31
760	36.46	11.62
780	38.48	11.93
800	40.3	12.23
820	41.6	12.54
840	43.32	12.84
860	44.69	13.15
880	45.37	13.46
900	46.13	13.76
920	46.97	14.07
940	47.38	14.37
960	48.12	14.68
980	48.69	14.98
1000	49.59	15.29
1020	50.23	15.6
1040	50.62	15.9
1060	51.25	16.21
1080	51.87	16.51
1100	52.49	16.82
1120	52.54	17.13
1140	52.74	17.43
1160	52.55	17.74
1180	54.18	18.04

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F GWL OL 008; R 05-(14/09/18)

 PARTNER FOR DESIGN	Triaxial Unconsolidated Undrained Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 02.60 -03.00 m		

1200	54.14	18.35
1220	55.36	18.65
1240	55.46	18.96
1260	55.26	19.27
1280	55.05	19.57
1300	55.46	19.88
1320	55.79	20.18
1340	55.96	20.49
1360	56.13	20.8
1380	56.68	21.1
1400	56.84	21.41
1420	56.62	21.71
1440	56.4	22.02
1460	56.18	22.32
1480	55.96	22.63
1500	55.96	22.94
1520	55.74	23.24
1540	55.52	23.55
1560	55.29	23.85
1580	55.07	24.16
1600	54.85	24.46
1620	54.63	24.77
1640	54.41	25.08
1660	54.18	25.38
1680	53.96	25.69
1700	53.74	25.99
1720	53.52	26.3
1740	53.3	26.61
1760	53.07	26.91
1780	52.85	27.22
1800	52.42	27.52
1820	52.2	27.83
1840	51.77	28.13
1860	51.27	28.44
1880	50.84	28.75
1900	50.35	29.05
1920	50.06	29.36

Deviator Stress Maximum: 56.84 kPa E_0 : 638.59 kPa
 Strain at Failure: 29.36 % E_{50} : 279 kPa
 Deviator Stress at (50%): 55.46 kPa
 Strain at (50%): 19.88 %

+++ STAGE - 3 +++

No. Container : 1232
 Wet Soil + Container : 164.29 gram
 Dry Soil + Container : 114.53 gram
 Weight of Container : 4.39 gram
 Density : 18.55 kN/m³
 Moisture Content : 45.18 %
 Dry Density : 12.78 kN/m³
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F GWL OL 008; R 05-(14/09/18)

	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 03.60 - 04.00 m			

Test	Results
Unit Weight	kN/m ³ -
SL	% -
Gs	- 2.67
MC	% -
PL	% 17
LL	% 54
PI	% 37
Fines (#200)	% 83
D ₁₀	mm 0.0108
D ₃₀	mm 0.0144
D ₆₀	mm 0.0421
C _u	- 4
C _c	- 0.46

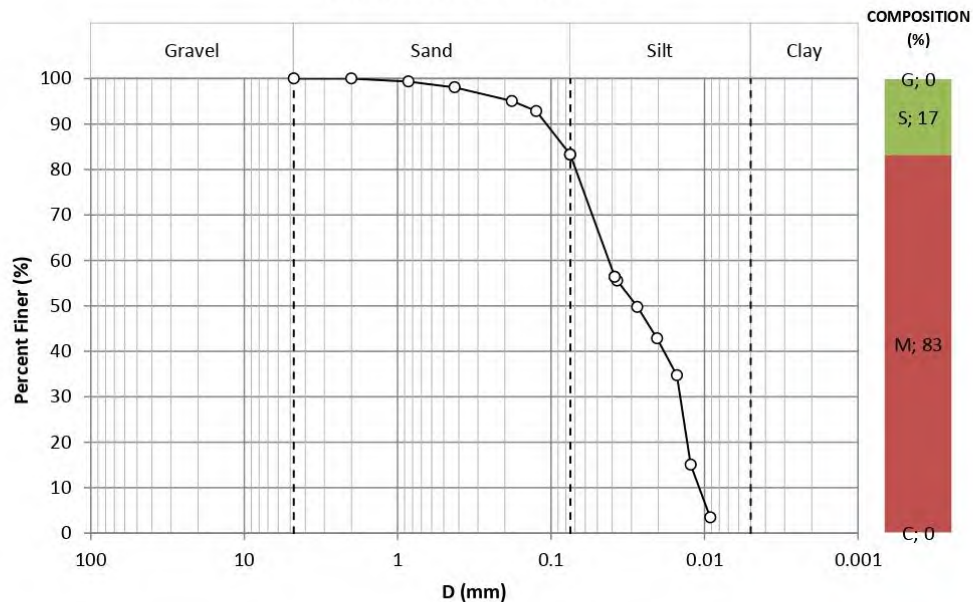
* Casagrande's Method

** Based on Consistency Index (Ic)

Properties	Results
I _F	% -0.19
I _T	% -198.18
I _L	% -
I _C	% -
S _r	% -
e	- -
n	- -
A	- 25.25

Consistency**	-
Activity	Active
Plasticity Symbol	CH or OH

PARTICLE SIZE DISTRIBUTION



 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 03.60 - 04.00 m		

Moisture Content

No. Test	1	2	3
No. Container	-	-	-
Weight of Container	-	-	-
Weight of wet soil and container	-	-	-
Weight of dry soil and container	-	-	-
Moisture Content	-	-	-
Average MC	-	-	-

Unit weight

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and ring and container	-
Weight of dry soil and ring and container	-
Water Content	-
Density	-
Dry Density	-
Saturation	-
Void ratio	-
Porosity	-

Specific Gravity

No. Test	1	2
No. Pycknometer	201	201
Weight of Pycknometer + soil	92.86	92.86
Weight of Pycknometer + water + soil	178.4	178.4
T° C	28	28
Weight of Pycknometer	52.92	52.92
Weight of Pycknometer + water	153.44	153.44
Specific Gravity	2.666	2.666
Average Specific Gravity	2.666	2.666

Shrinkage Limit

No. Ring	-
No. Container	-
Weight of Ring	-
Volume of Ring	-
Weight of Container	-
Weight of wet soil and container	-
Weight of dry soil and container	-
Weight of plate	-
Weight of plate and Mercury	-
Volume dry soil	-
Shrinkage Limit	-

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F GWL OL 001; R 12-(17/10/18)

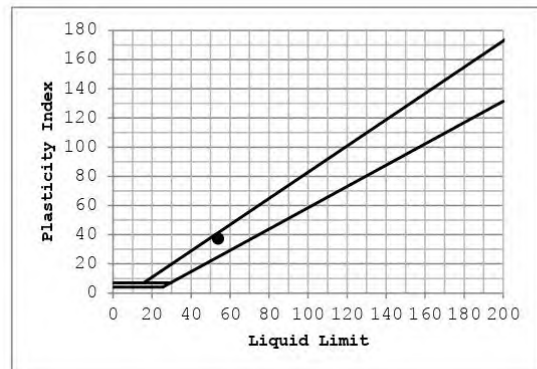
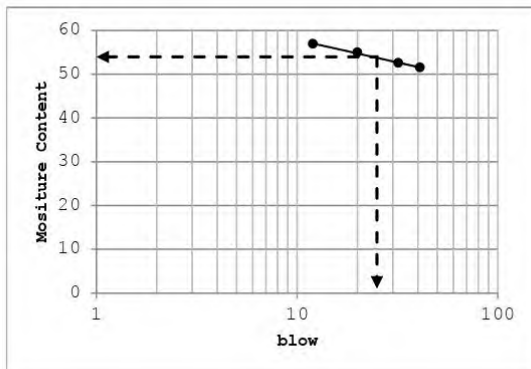
 PARTNER FOR DESIGN	Classification Test			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 03.60 - 04.00 m			

Plastic Limit

No. Test	1	2	3
No. Container	1035	1002	1129
Weight of Container	5.36	5.65	4.56
Weight of wet soil and container	13.95	13.88	13.3
Weight of dry soil and container	12.69	12.75	12.01
Plastic Limit	17.19	15.92	17.32
Average	16.81		

Liquid Limit

No. Test	1	2	3	4	5
No. Container	1194	1092	1027	1225	-
Weight of Container	4.56	4.71	5.06	4.6	-
Weight of wet soil and container	15.68	15.45	15.35	15.88	-
Weight of dry soil and container	11.9	11.75	11.7	11.79	-
Water Content	51.50	52.56	54.97	56.88	-
Number of blows	41	32	20	12	-
Liquid Limit	53.95				



Sieve Analysis

Bowl	0
Soil + Bowl	80.4
Weight of dry soil	80.4

Sieve No.	Sieve Diameter	Weight of Soil Retained	Percent Retained	Cumulative Percent Retained	Percent Finer
4	4.75	0.001	0.00	0.00	100.00
10	2	0	0.00	0.00	100.00
20	0.85	0.52	0.65	0.65	99.35
40	0.425	1.02	1.27	1.92	98.08
80	0.18	2.43	3.02	4.94	95.06
120	0.125	1.78	2.21	7.15	92.85
200	0.075	7.7	9.58	16.73	83.27
Pan	0	1.62	83.27	100	0.00

 PARTNER FOR DESIGN	Classification Test		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 03.60 - 04.00 m		
		Date Tested : 26/10/2021	

Hydrometer

Dry Sample

Weight of sample	65.329		
Zero correction	-1	Gs	2.6664
Meniscus correction	1	a	0.9963

Time	t (minute)	T (Co)	Ra	Diameter	Percent Finer
12:20	0				
12:21	1	27	45	0.0371	55.57
12:22	2	27	40	0.0274	49.78
12:24	4	27	34	0.0204	42.83
12:28	8	27	27	0.0151	34.73
12:35	15	27	10	0.0123	15.05
12:50	30	27	0	0.0092	3.47
13:05	45	0	0	0.0000	1.16
13:50	90	0	0	0.0000	1.16
15:20	180	0	0	0.0000	0.00
9:20	1260	0	0	0.0000	0.00
12:20	1440	0	0	0.0000	0.00

 PARTNER FOR DESIGN	Falling Head		 GEOMINE
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : 21 031 Area : - Point ID : DHG 07 Depth : 03.60 -04.00 m		

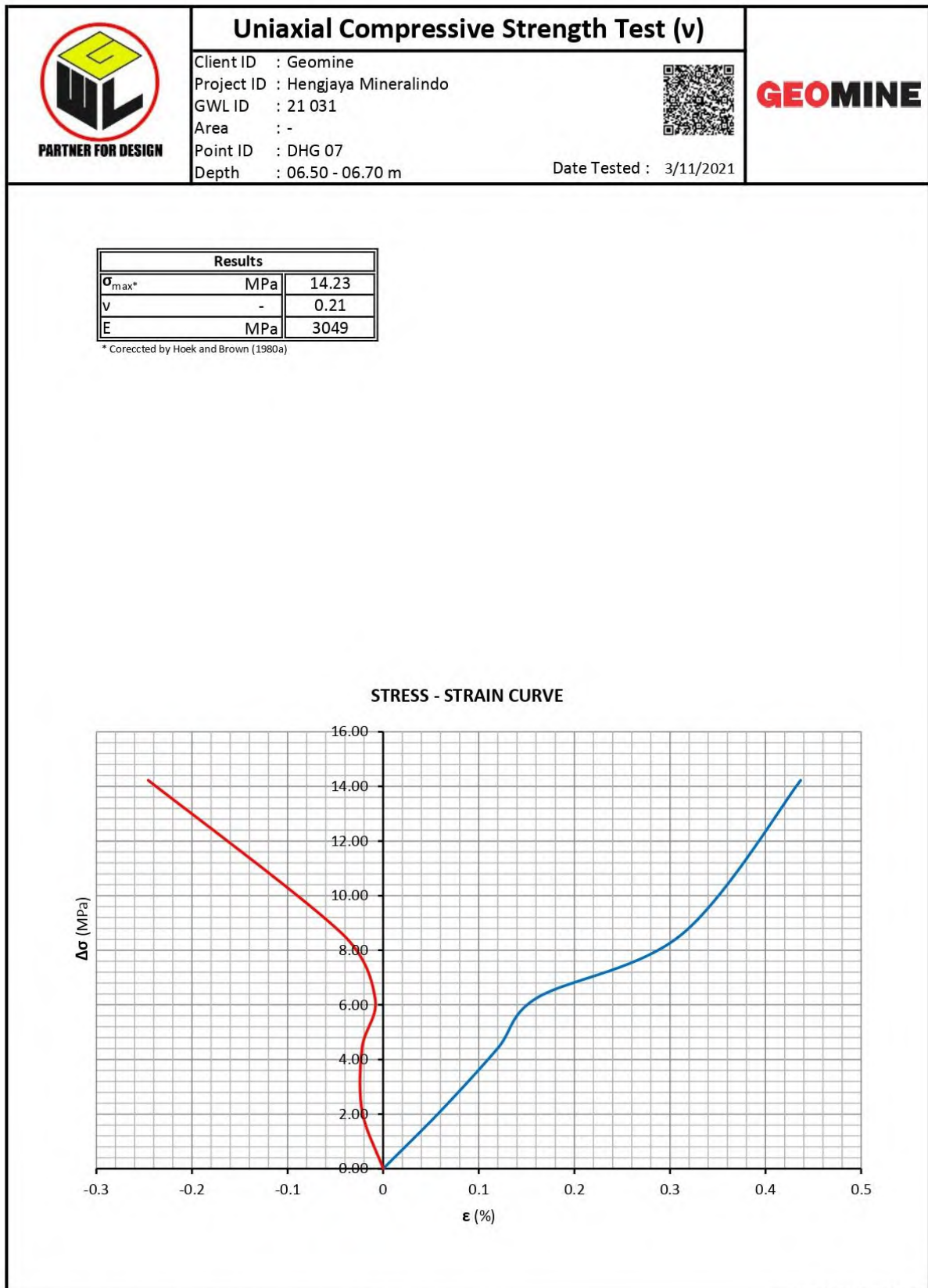
Time (minute)	Volume (cm3)	delta time (minute)	delta volume (cm3)
0	6.9	0	0
80	7.1	80	0.2
140	7.3	60	0.2
210	7.5	70	0.2
288	7.6	78	0.1
348	7.7	60	0.1
400	7.9	52	0.2
456	8.1	56	0.2

t-sample (cm) : 6.60

Area-sample (cm2) : 11.34

Head (cm) : 50

k (cm/s) : 4.850E-07



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F GWL OL 033; R 01-(22/09/14)

	Properties Test (Rock)			
	Client ID : Geomine Project ID : Hengjaya Mineralindo GWL ID : : 21 031 Area : - Point ID : DHG 07 Depth : 09.50 - 09.85 m			

Result		
Natural Density	kN/m ³	20.21
Dry Density	kN/m ³	16.99
Saturated Density	kN/m ³	20.51
Spesific Gravity	-	2.62
Natural Water Content	%	19
Absorption	%	21
Saturation	%	0.35
Porosity	-	0.35
Void Ratio	-	0.54