DRILL LOG HOLE NO. TD-6 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources Develo	oment for Metro Manila	DEPTH	30.00m	ELEV	'ATION	114.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,611,305; E 527,132	INCLINATION	$\theta = 45^{\circ}$	DRII	L RIG	ТОНО
CASING DEPTH	3.00m	DATE		DRILLED	Clede	ra		

				lio		Core Recovery				SP	Γ-Test			
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	R Q D S S Rock Classification	GWL	N-Value	0	10	N-Value	40	50	WPT-Test (Lugeon Value)
(e) 2 3 3 4 4 5 5 6 6 7 7 8 11 12 12 12 13 13 14 15 15 15 16 16 17 17 17 18 17 17 17 17 17 17 17 17 17 17 17 17 17	(a) 1111.000	3.00	9 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Gravelly Silty Clay Typ Sand	5.00-10.00m  Brown silty sand with cobbles of hard andesite and fragments of tuff breccia.  Possibly, moderately weathered tuff breccia.  10.00-30.00m  Light brown tuff breccia with andesite of 0.5-4cm in average and 10cm in maximum diameter.  Light and easy to be broken by hammer hitting.  In 10.00-10.80m and 13.00-14.30m, firm layers of fine-coarse grained	0 50 100  (100)  (100)  (100)  (150)  (150)  (150)  (100)  (100)  (100)  (100)  (100)	7.27	D	0	10	N-Value 20 30	400	50	Lu'=3.7
- 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28				Tuff Breccia	sandstone. Above 15.10m, surface of cracks indicate brownish color.  Below 27.00m, comparatively firm.	(b) (75) (10) (10) (10) (10) (10) (10) (10) (10								(Pc=7.7) Lu'=3.2 Lu'=3.3
- 29	84.00	30.00	***			(78) 3 CM			-	-		-		

DRILL LOG HOLE NO. WD-1 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	ources De	velop	ment for Metro Manila	DEPTH	20.00m	ELEV	ATION	107.00m
SITE	Lagundi Power House	COODIN	IATE	N 1,612,435; E 527,135	INCLINATION	Vertical	DRII	LL RIG	ТОНО
CASING DEPTH	1.50m	DATE			DRILLED	Diaz	Z		

oil	Core Rec	overy 5			SPT-Test		
© Scale © Elevation © Depth Column Section Type of Rock or Soil	Description R Q	Rock Classification	N-Value	0	N-Value 10 20 30	40 50	WPT-Test (Lugeon Value)
granules Ext	lay, including a few remely weathered zone.	(100)	23 50	0.70 1.00 1.70 1.70	(23/30)		
2.00-5.00m Reddish brow	n sand, fine grained, ne fragments of	(160).	0				
5.00-15.00m  Brown extren remaining roc gray shale and sandstone.  Possibly alter sandstone.  10  11  12  13  14	nely weathered zone, ck fragments consist of d soft fine grained nation of shale and	5.7.7 D	0				
to medium gr	gray sandstone, fine ained. n several cracks ace is brownish.	60 					

DRILL LOG HOLE NO. WD-2 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	ources De	evelop	ment for Metro Manila	DEPTH	20.00m	ELEV	ATION	105.70m
SITE	Morong Water Treatment Plant	COODIN	IATE	N 1,610,980; E 527,102	INCLINATION	Vertical	DRII	LL RIG	ТОНО
CASING DEPTH	9.00m	DATE			DRILLED	Cledera /	Diaz		

			lio		Core Recovery				SPT-Test		
Scale Elevation	E Depth	Column Section	Type of Rock or Soil	Description	R Q D R   R   C   C   C   C   C   C   C   C	G.W.L	N-Value	0	N-Value 10 20 30 40	50	WPT-Test (Lugeon Value)
- 1 - 2 - 3 - 4 - 5	70 5.00		Silty Clay	0.00-5.00m  Reddish brown silty clay with some fragments of hard andesite and soft mudstone. Extremely weathered zone.	(400) (400) (400) (400) (400)		17 20 15 19	0.70 1.00 1.70 2.00 2.70 3.00 3.70 4.00 4.70 5.00	(17/30) (20/30) (15/30) (19/30) (18/30)		
- 6 - 7 - 8 - 9 - 10 - 11	0 12.50		Sand	5.00-12.50m Reddish brown sand, fine grained, highly compacted.  In 9.00-9.50m, possibly extremely weathered mudstone. In 12.00-12.50m, soft fine grained sandstone remained.	0(45) 0(45) 0(45) 0(45) 0(45) 0(44)	7.80	20 20 24 27 25	5.70 6.00 6.70 7.00 7.70 8.00 8.70 9.00 9.70 10.00 11.00 11.70 12.00	(20/30) (20/30) (20/30) (24/30) (27/30) (19/30)		
- 13 - 14 - 15 - 16 - 17 - 18			Tuff Breccia	12.50-20.00m Yellowish khaki tuff breccia with andesite rubbles of 3cm in maximum diameter. Light and comparatively soft. Extremely weathered. In 15.00-20.00m, boulder and cobble of hard andesite rich.	[D] (45) [D] (45) [D] (45) (60) (7) (45) (7) (42)		20 32 27 50 48	12.70 13.00 13.70 14.00 15.70 16.00 16.70 17.00 17.70	(2d/30) (32/30) (27/30)	(50)	
20 85.70 21 22 23 23 24 25 26 27 28 29	0 20.00	***									

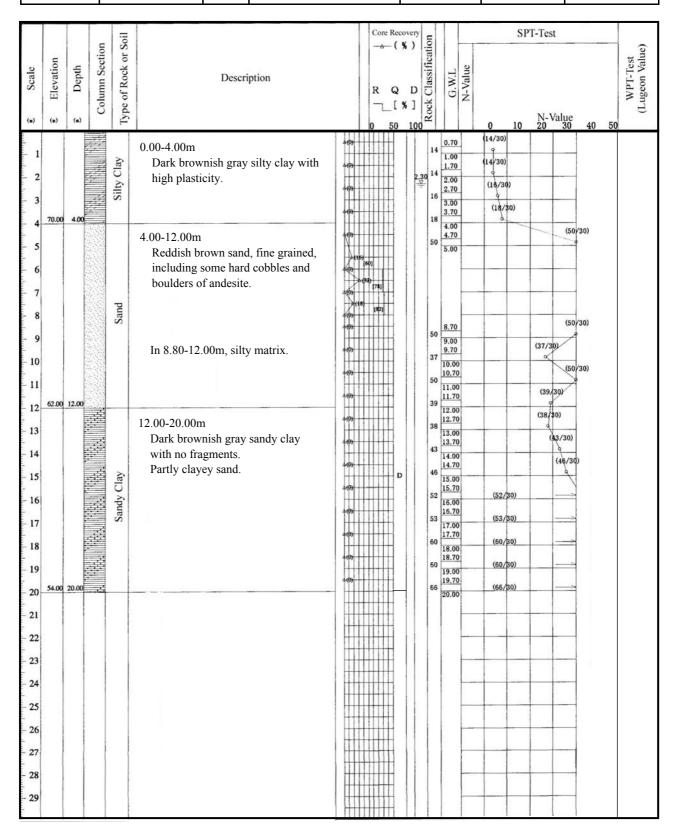
DRILL LOG HOLE NO. WD-3 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	ources Develo	pment for Metro Manila	DEPTH	20.00m	ELEVATION	104.00m
SITE	Morong Water Treatment Plant	COODINAT	E N 1,610,722 ; E 526,84	INCLINATION	Vertical	DRILL RIG	ТОНО
CASING DEPTH	2.00m	DATE		DRILLED	Diaz / Cl	edera	

			-	lios		Core Recovery		L			SPT-T	Test		
Scale	E Elevation	E Depth	Column Section	Type of Rock or Soil	Description	C C D N	G.W.L	N-Value		,	10 1	V-Value 0 30	 . 50	WPT-Test (Lugeon Value)
	10 Sec.		- 20		0.00-2.00m	0 50 100			0.70	,	0 2	(28/3	50	
1	102.00	2.00	ı	Silty Sand	Light brown tuffaceous silty sand, coarse grained. Extremely weathered zone.	(b) (1669) D		50	1.00 1.70			0	(50	/30)
3	100.20	3.80		Sand	2.00-3.80m  Brown tuffaceous sand, coarse grained. Extremely to moderately weathered zone.	[0] (1-00)			2.00					
4 5 6 7	96.30	7.70		Sand Stone	3.80-7.70m Light grayish brown tuffaceous sandstone, fine grained, soft and with bedding planes of 3°in dip.	(100) (100) (100) (100) (100) (100)								
8 9 10 11 12 13 14 15	88.50	15.50		Tuff Breccia	7.70-15.50m  Brown sand with fragments of andesite, possibly extremely weathered tuff breccia.	(19) (23) (125) (125) (126) (147) (147)								
16 117 118 119 20 21 21	85.00 84.00		A A	Tuff Sand Stone	15.50-19.00m Gray or light brown sandstone, coarse grained, soft and with bedding planes of 3°in dip. Partly tuffaceous.  19.00-20.00m Yellowish khaki tuff breccia with andesite rubbles of 1-5cm in maximum diameter. Light and comparatively soft.	(83) (83) (100) (88) CM	16.2							
23 24 25 26 27														
28 29														

DRILL LOG HOLE NO. WD-4 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources Develo	pment for Metro Manila	DEPTH	20.00m	ELEV	/ATION	74.00m
SITE	Antipolo Pump Station	COODINAT	E N 1,612,780; E 521,016	INCLINATION	Vertical	DRII	LL RIG	ТОНО
CASING DEPTH	6.00m	DATE		DRILLED	Clede	ra		



DRILL LOG HOLE NO. WD-5 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources De	evelop	ment for Metro Manila	DEPTH	20.00m	ELEV	ATION	83.00m
SITE	Taytay Service Reservoir	COODIN	IATE	N 1,610,175; E 516,676	INCLINATION	Vertical	DRII	LL RIG	ТОНО
CASING DEPTH	6.00m	DATE			DRILLED	Clede	ra		

			oil		Core Recovery				SPT-T	Test		
Scale Elevation	Depth	Column Section	Type of Rock or Soil	Description	Rock Classification	G.W.L	N-Value					WPT-Test (Lugeon Value)
(m) (m)	(m)	0	Typ		0 50 100			0	10 2	V-Value 0 30	40 50	
2 81.00 3 4	0 2.00		Clay	0.00-2.00m     Reddish brown clay, compacted.     Extremely weathered zone.  2.00-14.00m     Brown silty sand with soft rock fragments.Extremely weathered zone.  Possibly alternation layer of tuffaceous fine-medium grained	(160) (120) (32) (33)	5.00		0.70 1.00 1.70 2.00 2.70 3.00 3.70 4.00 4.70 5.00 5.70		(24/30)	(50	/30) /30) /30) /30)
6 7 8 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16			Alternation of sandstone and shale	14.00-14.50m Brown breccia with pebbles of sandstone and shale.	(48) (48) (48) (48) (48) (48)		/	5.85 6.70 7.00 7.70 8.00 8.70 9.00	(50/	15)	(50	/30) /30) /30)
- 17 - 18 - 19	0 20.00			14.50-20.00m Same as 2.00-14.00m.	4 (58) 							

DRILL LOG HOLE NO. WD-6 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources De	evelop	ment for Metro Manila	DEPTH	20.00m	ELEV	ATION	254.00m
SITE	Antipolo Service Reservoir	COODIN	IATE	N 1,614,176; E 520,995	INCLINATION	Vertical	DRII	LL RIG	ТОНО
CASING DEPTH	6.00m	DATE			DRILLED	Clede	ra		

				oil		Core Recovery					SPT-T	est			
	E Elevation	Depth	Column Section	Type of Rock or Soil	Description	R Q D D So 100	G.W.L	N-Value	0	10	0 2	V-Value 0 30	40	50	WPT-Test (Lugeon Value)
2	53.20	0.80		Clay	0.00-0.80m Dark brown clay with humus.	0 30 100		28	650 1905			(28/3		- 00	
3 3	49.00	5.00		Sandy Clay	0.80-5.00m  Reddish brown sandy clay with high plasticity, with a few cobbles of hard andesite.	(160).	1.30	39	2.00				(39/	\	/30)
5 2 3 4 5 10 11 11 12 13 14 15 16 17 18 19 20 2 2 23 24 25 26 27 28 29	34.00			Tuff Breccia	5.00-20.00m  Brown silty sand with cobbles of hard andesite and fragments of tuff breccia.  Possibly extremely weathered tuff breccia.	0(50) 0(45) 0(45) 0(43) 0(44) 0(44) 0(50) 0(31) 0(50) 0(15) 0(40) 0(40)		50	5.00						

DRILL LOG HOLE NO. WD-7 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources D	evelop	ment for Metro Manila	DEPTH	30.00m	ELEV	/ATION	98.00m
SITE	Water Tunnel No.2	COODIN	NATE	N 1,611,421; E 521,068	INCLINATION	$\theta = 45^{\circ}$	DRII	LL RIG	ТОНО
CASING DEPTH	3.00m	DATE			DRILLED	Clede	ra		

			п	Soil		Core Recovery			SPT-	Test			
	Elevation	E Depth	Column Section	Type of Rock or Soil	Description	Rock Classifica	G.W.L	N-Value	1	N-Value 20 30	200		WPT-Test (Lugeon Value)
1 2 3 4 4 5 5 6 6 7 8 8 9 10 10 11 11				Sand	0.00-12.00m  Brown sand, fine grained, with soft fragments of sandstone, tuffaceous sandstone, and andesite.  Extremely weathered zone.	0 50 100	1.30		110 2	20 30	40	50	
- 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24		12.00		Sand Stone	12.00-25.40m  Brownish gray clayey sand with no fragments. Possibly soft sandstone, fine to very fine grained.	D							
- 26 - 7 - 27 - 28 - 29	72.00	26.00		Sand Stone	25.40-26.00m  Reddish brown clay, compacted. Possibly extremely weathered mudstone.  26.00-30.00m  Light gray sandstone, soft and fine grained.	GI-D							

DRILL LOG HOLE NO. WD-8 SHEET NO. 1 OF 1

PROJECT	Study on Water Res	sources De	velop	ment for Metro Manila	DEPTH	30.00m	ELEV	/ATION	82.00m
SITE	Water Tunnel No.2	COODIN	ATE	N 1,610,150; E 516,838	INCLINATION	$\theta = 45^{\circ}$	DRII	LL RIG	ТОНО
CASING DEPTH	5.00m	DATE			DRILLED	Clede	ra		

				lio		Core Recovery				SPT	-Test									
Scale	E Elevation	E Depth	Column Section	Type of Rock or Soil	Description	R Q D N	G.W.L	N-Value			N-Va 20	lue	40		WPT-Test (Lugeon Value)					
		0.90		Silt	0.00-0.90m Reddish brown silt with a few humus	0 50 100			0	10	20	30	40	50						
3 4 5		6.70	1970 1970 1970 1970 1970 1970 1970 1970	Sandy Silt	0.90-6.70m  Brown sandy silt, including some pebbles and cobbles of hard basalt. Extremely weathered zone.	(160) (160) (160) (160) (17)														
8 10		0.70	^^^^ ^^^^ ^^^		6.70-30.00m  Dark gray basalt, very firm and massive. Cracky in 6.70-7.00m, 9.10-9.40m, 11.70-12.10m, 13.00-13.80m and 17.70-18.90m.	(160) (100) (100) (100) (100) (100)	7.30	0												
- 11 - 12 - 13 - 14			^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^		Above 12 90m avails gurfages	[35] [17] (100) [05] (85)									Lu'=5.9					
15 16 17 18			^^^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^	Basalt	Above 13.80m, crack surfaces colored brownish.	(4694   1100)   1100    1100									Lu'=1.8 (Pc=4.7)					
20 21 22 23			A A A A A A A A A A A A A A A A A A A								(100), (100), (20), (20), (100), (100), (100), (100), (100), (100), (100), (100), (100),			20 - 10 Oct. 1						Lu'=1.3 (Pc=4.8)
24 25 26 27 28			^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^			(45) (100) (45) (45) (5) (5) (65) (65) (65) (65)									Lu'=1.1 (Pc=6.8)					