DRILL LOG				HOLE NO.	BD-2	SHEET N	0.1	OF 1	
PROJECT	Study on Water Res	sources Dev	elopi	ment for Metro Manila	DEPTH	25.00m	ELE V	/ATION	23.20m
SITE	Agos After Weir Site	COODINA	ATE	N 1,625,958 ; E 562,103	INCLINATION	Vertical	DRII	LL RIG	TFM
CASING DEPTH	29.00m	DATE			DRILLED	M.Mabit	azan		

Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	Core Recovery → ( * ) → ( * ) R Q D R C [ ssiltcation C 1 ( * )	G WT	N-Value	SPT-Test	WPT-Test (Lugeon Value)
(=)	(m)	(m)	Col	Type		0 50 100 <sup>2</sup>			N-Value 0 10 20 30 40 50	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 14 15 20 21 21 22 23 24 25 26 27 28 29		25.00		Sand and Gravel	0.00-25.00m Grayish sand and gravel, riverbed deposit. Consisting mainly of very firm gravels of sandstone and andesite, and of a few shale, granitic rock and limestone. Diameter of gravel is 1-5cm in average and 15cm in maximum.			10 		Lu'=10.1 (Pc=4.3) Lu'=9.1 (Pc=4.3)

DRILL LOG			HOLE NO.	BD-3	SHEET N	O. 1	OF 1	
PROJECT	Study on Water Res	sources Devel	lopment for Metro Manila	DEPTH	25.00m	ELEV	<b>ATION</b>	50.06m
SITE	Agos After Weir Site	COODINAT	ГЕ N 1,625,858 ; E 562,165	INCLINATION	Vertical	DRII	LL RIG	TFM
CASING DEPTH	12.00m	DATE		DRILLED	M.Mabita	azan		

	on	_	ection	c or Soil		Core Recovery 		-		SPT-Test	est (alue)
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	R C C C A N R C C C C A N R C C C C S Sification	G.W.L	N-Value		N-Value	WPT-Test (Lugeon Value)
(m)	(n)	(n)		Sandy	0.00-0.10m Reddish brown sandy clay.	0 50 100			0.70	N-Value 10 20 30 40 (14/30)	50
1 2 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	49.06			Silty Sand	0.10-4.80m Brown silty sand with a few clay. Extremely weathered zone.	400) 400) 400)		14 28 32	1.00 1.70 2.00 2.70 3.00	(28/30) (32/30)	
- 5 6 7 8 9 10 11 12 13		13.0		Silty Sand with cobble	<ul> <li>4.80-13.00m <ul> <li>Low core recovery, possibly</li> <li>extremely to moderately weathered</li> <li>zone.</li> </ul> </li> <li>13.00-25.00m <ul> <li>Gray firm conglomerate with rubble</li> </ul> </li> </ul>	(44) (44) (44) (44) (40) (40) (40) (5)) (5))	13.3 	0			
- 15 16 17 18 19 20 21				Conglomerate	of 0.5-1cm in diameter. Above 23.50m, several cracks with brownish surface and 55-80°dipping. Below 23.50m, a few cracks without brownish surface.	(100), (20) (100), (20) (100), (20) (100), (10), (					Lu'=2.3 (Pc=5.1)
23 24 25 26 27 28 28		25.0	0			(100), (100), (1355), (100), (1353), (1353), (1353), (1353), (1353), (1353), (1354), (1354), (1354), (1355), (					(rc-3.5)

DRILL LOG				HOLE NO.	KD-1	SHEET N	IO. 1	OF 1	
PROJECT	Study on Water Res	sources De	velop	ment for Metro Manila	DEPTH	20.00m	ELEV	/ATION	101.50m
SITE	Kaliwa Low Damsite	COODIN	ATE	N 1,616,408 ; E 550,675	INCLINATION	Vertical	DRII	LL RIG	TS-50-A
CASING DEPTH	0.50m	DATE			DRILLED	S.Ecle	era		

			5	Soil		Core Recovery				SPT-Test		
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	R Q D Q R R Q C G Q A R Q C G S Sification	G.W.L	N-Value				WPT-Test (Lugeon Value)
(=)	(n)	(n)		Typ		0 50 100			0 1	N-Value 0 20 30	40	50
-	101.20	0.30		Shale	0.00-0.30m Dark gray hard shale.	(100)						
- 1 - 2 - 3 - 4	97.40	4.10		Sand Stone	0.30-4.10m Gray sandstone, coarse to very coarse grained with a few calcite veins. Above 2.20m, surface of crack is brownish.	(80) (60) (72) (100) (100)	1.75					Lu'=2.6 (Pc=4.1)
- 5 - 7 - 8 - 9				nd shale	<ul> <li>4.10-20.00m</li> <li>Firm alternation of dark gray fine- medium grained sandstone and black- gray shale. Sandstone layers rich (70%) and 10-30cm</li> <li>(90cm in maximum) cycled, with bedding planes of 45° in dip.</li> </ul>	(100) (20) (2						Lu'=2.6 (Pc=4.1)
- 10 - 11 - 12 - 13 - 14				Alternation of sundstone and shale		(100) (100) (100) (100) (100) (100) (100) (100) (100)						Lu'=3.0 (Pc=4.1)
- 15 - 16 - 17				,	In 14.50-15.50m, layers of greenish gray shale rich.	(100) (100) (100) (100) (100) (100)						
- 18 - 19 - 20	81.50	20.00			In 17.50-20.00m, thin calcite vein rich.	(100) (100) (100) (100) (100)						
- 21 - 22 - 23												
- 24 - 25 - 26 - 27												
- 27 - 28 - 29												

DRILL LOG				HOLE NO.	KD-2	SHEET N	0.1	OF 1	
PROJECT	Study on Water Res	sources De	velop	ment for Metro Manila	DEPTH	20.00m	ELEV	/ATION	99.50m
SITE	Kaliwa Low Damsite	COODIN	ATE	N 1,616,340 ; E 550,642	INCLINATION	Vertical	DRII	LL RIG	ТЅ-50-В
CASING DEPTH	2.00m	DATE			DRILLED	M.Mabit	azan		

			G	Soil		Core Recovery			SPT-Test	(
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	R C C C A S N R C C C A S N R C C C S S S S S S S S S S S S S S S S	G.W.L	N-Value		WPT-Test (Lugeon Value)
(=)	(n)	(n)		Tyr		0 50 100			0 10 20 30 40 5	
-	98.50	1.00		Sand and Gravel	0.00-1.00m Grayish sand and gravels of 0.5-3cm in diameter.	(160)				
- 2	96.90	2.60		Sand Stone	1.00-2.60m Dark gray sandstone, coarse grained, slightly cracky.	150j	2.50			
- 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10	89.30	10.20		Alternation of conglomerate and sandstone	2.60-10.20m Alternation of dark gray conglomerate and coarse sandstone. Rubble of conglomerate is 0.5-3cm in diameter. Some calcite veins of 40-90°in dip are observed in whole of this section.	(001) (003) (081) (109) (109) (109) (100) (100) (100) (100) (100) (100) (100) (100) (100)				Lu'=3.6 (Pc=7.0)
- 11 - 12 - 13 - 14 - 15	0.00	10.20		Sand Stone	10.20-20.00m Dark gray sandstone, firm, coarse to very coarse grained, with bedding planes of 45°in dip. Some calcite veins of 45-90°in dip are observed in whole of this section.	4006CM 11001 11001 11001 11001 11001 11001 11001 11001 11001 11001		8		Lu'=5.5
- 16 - 17 - 18 - 19	79.50	20.00		San	In 16.30-16.70m, chlorite and striation are observed on the crack surface of 60-80° dipping.	(100), (101) (103), (103), (103), (103), (103), (103), (103), (103), (103), (103),				Lu'=5.7
- 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29	79.50	20.00								

DRILL LOG				HOLE NO.	KD-3	SHEET N	IO. 1	OF 1	
PROJECT	Study on Water Res	sources De	velop	ment for Metro Manila	DEPTH	20.00m	ELEV	/ATION	122.00m
SITE	Kaliwa Low Damsite	COODIN	ATE	N 1,616,318; E 550,632	INCLINATION	Vertical	DRII	LL RIG	TS-50-B
CASING DEPTH	0.50m	DATE			DRILLED	M.Mabit	azan		

			п	Soil		Core Recovery	SPT-Test	
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	ical	In	WPT-Test (Lugeon Value)
Sc	Elev	De	olumn	e of Ro	Description	RQD [%] \x	G.W.L N-Value	WPT
(=)	(n)	(n)	0	Typ		0 50 100	0 10 20 30 40	50
1 1 2 3				one	0.00-8.00m Dark gray firm sandstone, coarse to very coarse grained. Several cracks observed especially in 4.40-5.00m.	000 - 2 095 - 1 000 - 2 000 - 2	40	
1				Sand Stone	Brownish crack surface in 4.40- 4.70m.	(00) 382] (00) (22) (100) (20)		
7	114.00	8.00			Some thin calcite veins in whole of this section.	(100) (192)		Lu'=4.6 (Pc=7.0)
	112.40			Conglo merate	8.00-9.60m Dark gray firm conglomerate.			
- 10 - 11 - 12 - 13 - 14				Stone	9.60-20.00m Dark gray sandstone, firm and coarse grained.	(100) (100) (100) (100) (100) (100) (100) (100) (100) (100)		Lu=5.0
- 15 - 16 - 17 - 18				Sand Stone	In 14.60-20.00m, thin calcite veins rich.	(100) [83] (100) (100) (100) (100) (100) (100)		Lu=4.8
- 19	102.00	20.00			In 19.20-19.30m, slickenside is observed on surface of vertical crack.	(100) (100) (100)		
- 21								
- 22								-
- 23								
- 24 - 25								
- 26								_
- 27								
- 28 - 29								

DRILL LOG				HOLE NO.	KD-4	SHEET N	IO. 1	OF 1	
PROJECT	Study on Water Res	sources Dev	velop	ment for Metro Manila	DEPTH	30.00m	ELEV	<b>ATION</b>	226.00m
SITE	Kaliwa Quary Site	COODINA	ATE	N 1,616,272 ; E 551,042	INCLINATION	Vertical	DRII	LL RIG	TS-50-A
CASING DEPTH	2.00m	DATE			DRILLED	S.Ecle	ra		

				ioil		Core Recovery				SP	ſ-Test				
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	Sock Classification ((*) → Rock Classification	G.W.L.	N-Value							WPT-Test (Lugeon Value)
(=)	(n)	(m)				0 50 100			0	10	N-Va 20	alue 30	40	50	
1	224.90	1.10		Clay	0.00-1.10m Brown clay with high plasticity.	(92) 3- D				-	_	-			
չուլ 2 3 4 5				Sand Stone	<ul><li>1.10-7.40m</li><li>Gray sandstone, coarse to very coarse grained.</li><li>Above 4.40m, sharp cracks with</li></ul>	(\$695- (\$935- (139) (139) (139) (139) (139)									
6 7 8	218.60	7.40		S	brownish surface. In 4.80m, thin vertical calcite vein. 7.40-25.80m	(100) (80) (80) (80) (140) (100)									
9 - 10 - 11					Alternation of gray fine to coarse sandstone and dark gray shale. Sandstone layers rich (85%) and 10-100cm cycled, with bedding	(100) [36] (100) (100) (100) (100) (100)									
- 12 - 13 - 14				e and shale	plane of 45°.	(160), (160), (160), (100), (100), (160), (1									
- 15 - 16				Alternation of sandstone and shale	A few calcite veins in whole of this section dipping 45-60°.	(100) (100) (100) (100) (100) (100)	16.2								
- 17 - 18				Alternati		(100), (100)									
- 19 - - 20						(100) (100) (100)					-				
- 21						11001				-	1-	-	-		
- 22						jilogj (4.004				+	-	-			
- 23						(100) (190)				T			+		
- 24 - 25	200.20	25.80				(78) (78)									
- 26 - 27 - 28 - 29				Sand Stone	25.80-30.00m Gray sandstone, fine to very coarse grained.	(469), (300) (100) (100), (100), (100), (100),									
- 29	196.00	30.00				(100). 1100]									

DRILL LOG			HOLE NO.	KD-5	SHEET N	0.1	OF 1	
PROJECT	Study on Water Res	sources Deve	elopment for Metro Manila	DEPTH	30.00m	ELEV	/ATION	145.00m
SITE	Kaliwa Quary Site	COODINA	ATE N 1,616,100 ; E 551,065	INCLINATION	Vertical	DRII	LL RIG	TS-50-A
CASING DEPTH	3.00m	DATE		DRILLED	S.Ecle	ra		

			G	Soil		Core Recovery			1		SPT	-Test				(
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	Rock Classification Rock Classification	C WT	N-Value	20101 11			NV	alua			WPT-Test (Lugeon Value)
(m)	(n)	(8)		£		0 50 100				0	10	N-Va 20	30	40	50	
	142.50	2.50		Clay	0.00-2.50m Brown clay with high plasticity.	(95)¢ (95)¢					-		-	_		
3 4 5 6 7 8	137.10	7.90		Sand Stone	<ul> <li>2.50-3.00m Dark gray fine grained sandstone.</li> <li>3.00-7.90m Gray sandstone, coarse to very coarse. Above 4.80m, several cracks in which surface is brownish.</li> </ul>	(150) (150) (151) (153) (160) (153) (160) (153) (160) (153) (160) (153)										
8 9 10 11 12 13 13 14 14 15 16 17 18 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27	117.80			Alternation of sandstone and shale	<ul> <li>7.90-27.20m Alternation of gray medium grained sandstone and dark shale. Sandstone layers rich (90%) and 20-100cm cycled, with bedding planes of 45° in dip.</li> <li>A few calcite veins in whole of this section dipping 40-70°. In 17.30-17.70m, colored greenish gray. Crack surface in 17.40m, brownish colored.</li> </ul>	(109) (109) (109) (109) (109) (109) (109) (109) (109) (109) (109) (109) (109) (100) (1	16.	<b>20</b>								
- 28 - 29	115.00	30.00		Sand Stone	27.20-30.00m Gray sandstone, fine to very coarse grained.	(+00), [100] (+00), [100] (+00), [100]										

DRILL LOG				HOLE NO.	LD-1	SHEET N	0.1	OF 5	
PROJECT	Study on Water Res	sources De	velop	ment for Metro Manila	DEPTH	150.00m	ELEV	/ATION	393.00m
SITE	Daraitan Limestone Area	COODIN	ATE	N 14 <sup>0</sup> 35'13.2"; E 121 <sup>0</sup> 26'07.2"	INCLINATION	Vertical	DRII	LL RIG	LY 38
CASING DEPTH	72.00m	DATE			DRILLED	M.Mabit	azan		

			u	Soil		Core Recovery	(;
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	assificat M.L. alue	WPT-Test (Lugeon Value)
			Colun	ype of		$\begin{bmatrix} \mathbf{R} & \mathbf{Q} & \mathbf{D} & \overleftarrow{\mathbf{D}} \\ \neg \begin{bmatrix} \mathbf{x} \end{bmatrix} & \overleftarrow{\mathbf{Q}} \end{bmatrix} \begin{bmatrix} \overleftarrow{\mathbf{D}} & \overleftarrow{\mathbf{C}} \\ \overleftarrow{\mathbf{Z}} \end{bmatrix}$	Wl (Luge
(11)	(n)	(n)		L	0.00-9.00m	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	50
1 1 2					Reddish brown clay, with high plasticity.		
3					Extremely weathered zone.		
4				Clay			_
5				G			
6							
. 7 						(195)	
- 9	384.00	9.00					_
- 10					9.00-45.00m Dirty white limestone, slightly to		
- n			臣		moderately weathered. Highly		_
- 12			开		fractured by drilling operation. Rock fragment itself is hard.		
13					Kock fragment isen is hard.		
- 14			臣				>
15			田			<b>(103)</b>	uflov
- 16					No cavities found.		Water Inflow
- 17			臣				Wa
-							
- 18			臣		Iron stains noted on all cracks surface.	(20)	
- 19			臣	tone			
20				Limestone			
21			臣				
- 22						(to) (dota	
- 23			井				_
- 24							
- 25							
- 26							
27			E				
- 28							
- 29							-
20			LT				

	LL I							HOLE		LD-1			NO. 2	OF 5	
P	ROJI		_		on Water Res						PTH	150.00		VATION	
	SIT		_				NATE N 14°3	35'13.2"; E 12	21 <sup>0</sup> 26'07.2"					LL RIG	LY 38
CAS	ING I	DEPTH	ł	7	2.00m	DATE				DRII	LED	M.Ma	abitazan		
g 🖲 Scale	E Elevation	E Depth	Column Section	Type of Rock or Soil		Descri	ption		Core Re 	001 Rock Classification	G.W.L N-Value	0 1	8PT-Test	lue 30 40	05 WPT-Test (Lugeon Value)
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 51 44 45 51 51 51 51 51 51 52 53 54 55 56 57 58 57 58 59 50 50 51 50 51 50 50 50 50 50 50 50 50				Limestone	-	te limest ly weather s. noted at c 0.90m 3.40m 4.30m 5.00m 3.00m 4.80m 3.00m	one, slightly ered, hard bu lepth of :			CUT-CW					Water Inflow

		LOG		u 1		DLE NO.	LD-1	SHEET NO. 3 OF 5
Pl	ROJI SIT		_		on Water Resources Development for Me Limestone Area COODINATE N 14º35'13.2"		DEPTH	150.00mELEVATION393.00ONVerticalDRILL RIGLY 3
CAS		l Depth	-		2.00m DATE	; E 121 26 07.2"	DRILLED	
240.			·	1	2.00m DATE		DRIELED	WI.WIADIRAZAII
e 🖲 Scale	E Elevation	E Depth	Column Section	Type of Rock or Soil	Description	Core Re 	Rock Classification	SPT-Test
<ul> <li>61</li> <li>62</li> <li>63</li> <li>64</li> <li>65</li> <li>66</li> <li>67</li> <li>68</li> <li>69</li> <li>70</li> <li>71</li> <li>72</li> <li>73</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>79</li> <li>80</li> <li>81</li> <li>82</li> <li>83</li> <li>84</li> <li>85</li> <li>86</li> <li>87</li> <li>88</li> <li>89</li> <li>90</li> </ul>				Limestone	<ul> <li>72.00-150.00m</li> <li>Dirty white limestone, slightly to moderately weathered. Highly fractured by drilling operation, but hard.</li> <li>Slight iron stains noted on some crack surface.</li> <li>In 80.80-96.20m, many cavities of 20-140cm in length are noted.</li> </ul>			

_		LOG	-							LD-1			NO. 4	OF 5	
P	ROJ			-			s Developme				PTH		m ELEV		
	SIT		_		Limestone A		DINATE <sub>N</sub>	14 <sup>0</sup> 35'13.2";	E 121 <sup>0</sup> 26'07.2"		JATION			LL RIG	LY 38
CAS	ING	DEPTH	I	72	2.00m	DAT	Έ			DRII	LLED	M.Ma	ibitazan		
16 Scale	Elevation	(n)	Column Section	Type of Rock or Soil		De	scription		Core Re ( R Q [ 0 50	L d ( % Rock Classification	G.W.L N-Value	0 1	SPT-Test	ue 30 40	6 WPT-Test (Lugeon Value)
92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 118 119				Limestone						(160). 					Water Inflow

DRILL LOG			HOLE NO.	LD-1	SHEET N	IO. 5	OF 5	
PROJECT	Study on Water Res	sources Develo	pment for Metro Manila	DEPTH	150.00m	ELEV	ATION	393.00m
SITE	Daraitan Limestone Area	COODINATE	E N 14 <sup>0</sup> 35'13.2"; E 121 <sup>0</sup> 26'07.2"	INCLINATION	Vertical	DRII	LL RIG	LY 38
CASING DEPTH	72.00m	DATE		DRILLED	M.Mabit	azan		

			u	Soil		Core Recovery		SPT-Test	()
Scale	Elevation	Depth	Column Section	Type of Rock or Soil	Description	R Q D R R Classification	V.L alue		WPT-Test (Lugeon Value)
Sc	Elev	Ď	olumr	e of R			G.W.L N-Value		WP7
(u)	(m)	(n)	C	Typ		0 50 100		N-Value 0 10 20 30 40 50	
121 121 122 123 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 144 145 144 145 146 147 148				Limestone	In 121.30-150.00m, many cavities of 30-230cm in length are observed.				Water Inflow