

FLOW DATA SHEET

Mean Velocity¹ = 6/10ths Depth
 Surface Velocity² = 6/10ths Depth x 2
 Bottom Velocity³ = 6/10ths Depth / 2

BANK
FULL

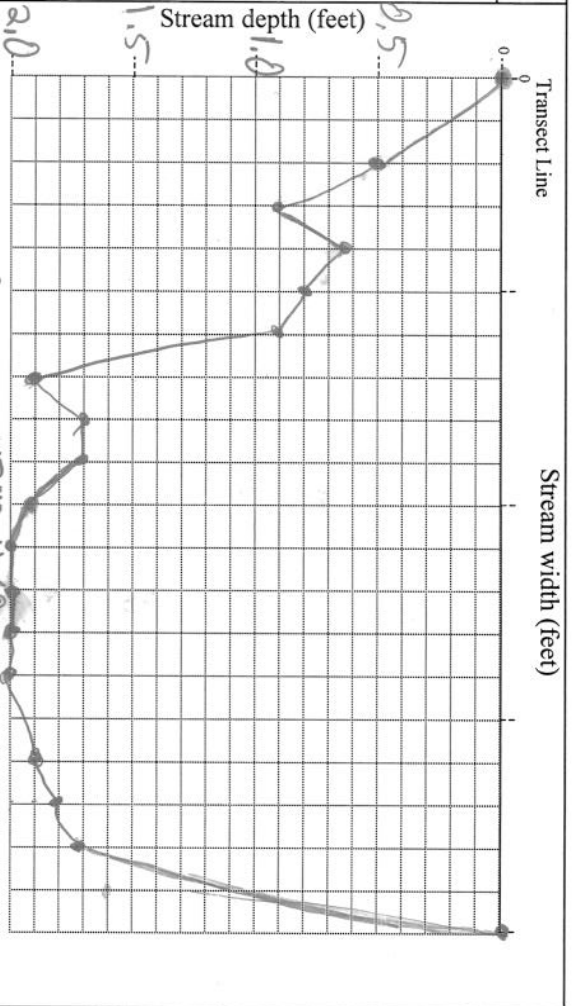
STREAM EDGE

BANK
FULL

STREAM EDGE

Stream Edge Width (feet)	25	23	21	19	17	15	14	13	12	11	10	9	8	7	5	4	3.4	
Stream Edge Depth (feet)	0	0.5	0.9	0.7	1.1	1.9	2.3	2.3	1.9	2.0	2.2	2.0	2.0	1.9	1.8	1.7	0	
Flow Rate Width (ft/sec)																		
Flow Rate Depth (ft/sec)																		
Substrate/ % Vegetation																		
% Plant Coverage																		
Mean Velocity ¹ (ft/sec)	0	-0.08	-0.06	0.00	-0.09	0.20	0.18	0.19	0.30	0.21	0.43	0.42	0.27	0.24	-0.07	-0.08	0	
Surface Velocity ² (ft/sec)	0	-0.10	-0.06	-0.02	0.03	0.22	0.26	0.12	0.16	0.21	0.24	0.28	0.28	0.07	-0.12	-0.09	0	
Bottom Velocity ³ (ft/sec)	0	-0.13	-0.09	-0.07	-0.06	-0.09	-0.08	0.02	0.23	0.08	-0.01	0.06	0.00	0.04	-0.15	-0.13	0	

DATE	April 19, 2007	HYDROLAB	
TIME	11:45	WIDTH (feet)	P001
OBSERVER	K.S. E. N. N. C. P.	TEMPERATURE (°C)	22.38
REACH		DISSOLVED OXYGEN (mg/L)	11.48
TRANSECT#		CONDUCTIVITY (mS/cm)	0.148
DAR_CODE		pH	8.68
STREAM	Hillawe	TURBIDITY (NTU)	3.2
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



Kamehameha

FLOW DATA SHEET

Mean Velocity¹ = 6/10ths Depth
 Surface Velocity² = 6/10ths Depth x 2
 Bottom Velocity³ = 6/10ths Depth / 2

KS

BANK FULL

STREAM EDGE

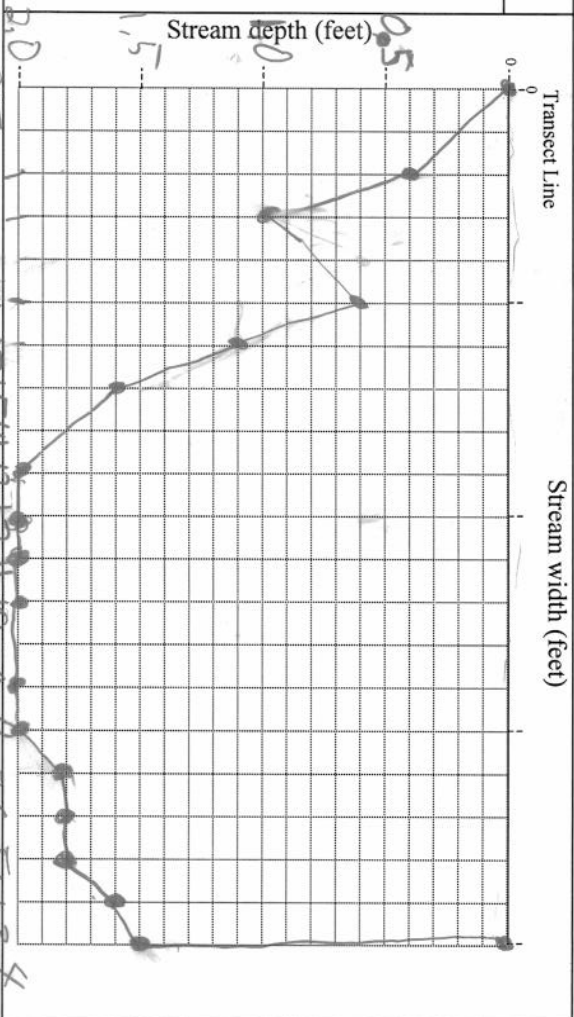
BANK FULL

STREAM EDGE

Stream Edge Width (feet)	25	23	21	19	17	15	13	12	11	10	9	8	7	6	5	4	3	4
Stream Edge Depth (feet)	0	0.4ft	0.9ft	0.6ft	1.1ft	1.6ft	2.4ft	2.5ft	2.4ft	2.1ft	2.1ft	2ft	1.8ft	1.8ft	1.8ft	1.6ft	1.5ft	
Flow Rate Width (ft/sec)																		
Flow Rate Depth (ft/sec)																		
Substrate/ % Vegetation																		
% Plant Coverage																		
Mean Velocity ¹ (ft/sec)	0	-0.08	-0.05	-0.10	-0.07	-0.03	0.12	0.23	0.19	0.37	0.32	0.42	0.36	0.21	-0.04	-0.10		
Surface Velocity ² (ft/sec)	0	-0.09	-0.06	-0.13	-0.06	0.08	0.40	0.29	0.26	0.14	0.33	0.35	0.26	0.10	0.22	-0.04		
Bottom Velocity ³ (ft/sec)	0	-0.12	-0.09	-0.19	-0.13	-0.08	-0.07	0.02	0.10	0.16	-0.08	-0.06	-0.03	-0.13	-0.07	-0.16		

HYDROLAB

DATE	4/19/07	WIDTH (feet)	P661	R.H.C.
TIME	1:30pm	TEMPERATURE (°C)	22.62	22.62
OBSERVER	Kiana, Dylan, & Kaperi	DISSOLVED OXYGEN (mg/L)	11.60	11.72
REACH		CONDUCTIVITY (mS/cm)	0.148	0.149
TRANSECT#		pH	8.65	8.63
DAR_CODE		TURBIDITY (NTU)	0.1	375
STREAM	1st Kamehameha	TOTAL SUSPENDED SOLIDS (mg/L)		
TRIBUTARY				



KAMETHAMCHU

FLOW DATA SHEET

Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

K.S

BANK FULL

STREAM EDGE

BANK FULL

STREAM EDGE

BANK FULL

Stream Edge Width (feet)	24.4	22	20	18	16	14	12	11	10	9	8	7	6	5	4	2.9	
Stream Edge Depth (feet)	0	0.5	0.9	1.0	1.2	2.0	2.4	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.8	0	
Flow Rate Width (ft/sec)																	
Flow Rate Depth (ft/sec)																	
Substrate/ % Vegetation																	
% Plant Coverage	0																
Mean Velocity ¹ (ft/sec)	0	-0.04	-0.07	0.00	0.04	0.03	0.16	0.32	0.39	0.34	0.04	0.32	0.10	-0.04	-0.09		
Surface Velocity ² (ft/sec)	0	-0.10	-0.03	-0.06	0.03	0.04	0.14	0.18	0.40	0.37	0.45	0.41	0.19	0.01	-0.05		
Bottom Velocity ³ (ft/sec)	0	-0.09	-0.09	-0.06	-0.09	-0.07	0.03	0.04	0.10	0.16	0.14	0.07	-0.11	-0.07	-0.12		

DATE 19, APR, 2007

TIME 2:45 P.M

OBSERVER K.A.K.C GUMI

REACH

TRANSECT#

DAR_CODE

STREAM HILLDAVE

TRIBUTARY

WIDTH (feet)

TEMPERATURE (°C)

DISSOLVED OXYGEN (mg/L)

CONDUCTIVITY (mS/cm)

pH

TURBIDITY (NTU)

TOTAL SUSPENDED SOLIDS (mg/L)

POOL

RIFLE

22.49

22.45

10.77

11.37

0.149

0.149

8.56

8.52

0.2

8.1

Stream depth (feet)

Transsect Line

Stream width (feet)

SITE PICTURE

4

5

STREAM EDGE

BANK FULL

FLOW DATA SHEET

Aloha = Kaili
Iliana
Kawai'ani'ani
Polani

Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

26

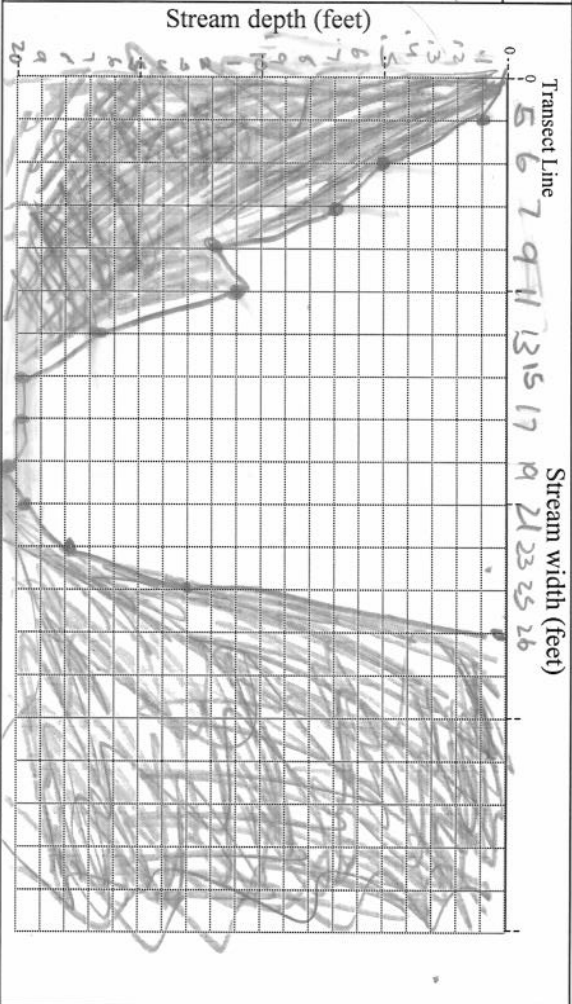
25

STREAM EDGE

BANK FULL

Stream Edge Width (feet)	5ft.	6ft.	7ft.	9ft.	11ft	13ft	15ft	17ft	19ft	21ft	23ft	25ft							
Stream Edge Depth (feet)	0.1	0.5	0.7	1.2	1.1	1.7	2.0	2.0	2.1	2.0	1.8	1.3							
Flow Rate Width (ft/sec)																			
Flow Rate Depth (ft/sec)																			
Substrate/ % Vegetation																			
% Plant Coverage																			
Mean Velocity ¹ (ft/sec)	-0.14	-0.10	-0.08	-0.09	-0.06	0.11	0.17	0.25	-0.08	0.11	-0.03	0.05							
Surface Velocity ² (ft/sec)	-0.08	-0.09	-0.09	-0.07	0.03	0.12	0.23	0.26	0.19	0.19	-0.02	-0.04							
Bottom Velocity ³ (ft/sec)	-0.15	-0.12	-0.12	-0.13	-0.07	0.08	0.01	-0.08	0.07	0.22	0.09	0.08							

DATE	4-23-07	HYDROLAB	
TIME	2:00 pm.	WIDTH (feet)	Run
OBSERVER	ALOHA	TEMPERATURE (°C)	22.35°C
REACH		DISSOLVED OXYGEN (mg/L)	11.81
TRANSECT#	1	CONDUCTIVITY (mS/cm)	0.148
DAR_CODE		pH	8.67
STREAM	Hillawe	TURBIDITY (NTU)	6.58
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



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25

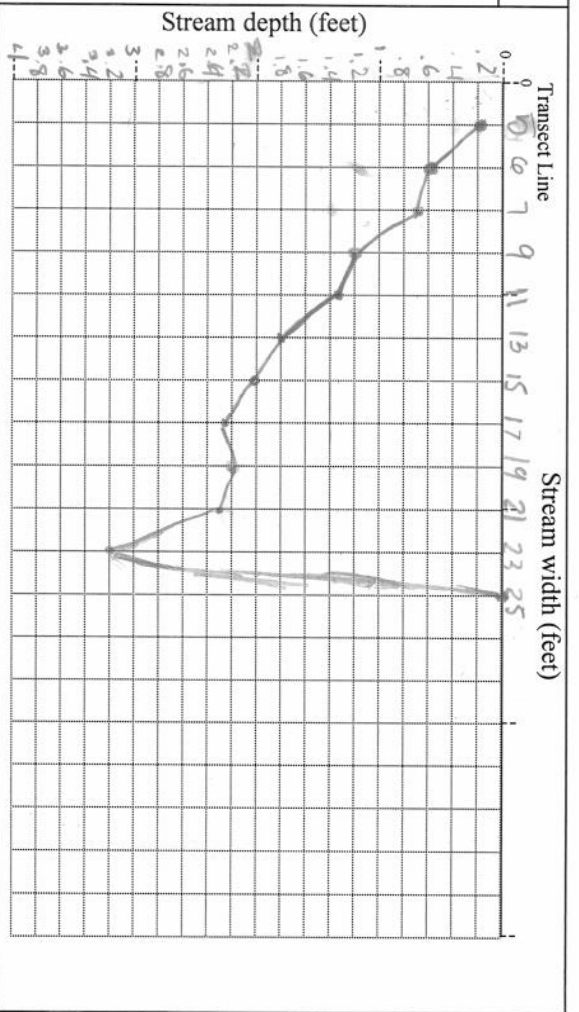
57

23

STREAM EDGE

BANK
EIII I[illegible]

DATE	4/25/07	HYDROLAB	
TIME	3:00 P.M.	Run	Rifle
OBSERVER	The Ohus	TEMPERATURE (°C)	22.44°C
REACH		DISSOLVED OXYGEN (mg/L)	11.30
TRANSECT#	2	CONDUCTIVITY (mS/cm)	0.150
DAR_CODE		pH	8.44
STREAM	Hill Ave	TURBIDITY (NTU)	8.39
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

Stream Edge Width (feet)	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	9ft	10ft	11ft	12ft	13ft	14ft	16ft	18ft	20ft	22ft
Stream Edge Depth (feet)	0.05	0.3	0.6	1.1	1.1	1.6	1.6	1.1	1.5	1.6	1.8	0.7	0.5	0	0	0	0	0
Flow Rate Width (ft/sec)																		
Flow Rate Depth (ft/sec)																		
Substrate/ % Vegetation																		
% Plant Coverage																		
Mean Velocity ¹ (ft/sec)	-0.39	-0.08	-0.02	-0.05	-0.10	-0.09	-0.06	0	0.03	0.05	-0.06	0	-0.09	0	0	0	0	0
Surface Velocity ² (ft/sec)	-0.22	-0.05	-0.03	-0.04	-0.04	-0.06	-0.07	-0.12	0.19	-0.01	-0.08	-0.03	-0.08	0	0	0	0	0
Bottom Velocity ³ (ft/sec)	-0.27	-0.06	-0.08	-0.13	-0.12	0.04	-0.12	-0.05	0.03	-0.06	0.06	-0.13	-0.13	0	0	0	0	0

DATE		HYDROLAB	
4/24/07		Run	0.5 scale
TIME 10:45	WIDTH (feet)		
OBSERVER Mike Tjo, Hilari Lim, VandeKamp, VandeO	TEMPERATURE (°C)	19.05°	18.99°
REACH	DISSOLVED OXYGEN (mg/L)	13.20	12.67
TRANSECT# 1	CONDUCTIVITY (mS/cm)	0.068	0.067
DAR_CODE	pH	8.12	7.96
STREAM	TURBIDITY (NTU)		
TRIBUTARY	TOTAL SUSPENDED SOLIDS (mg/L)		

Stream depth (feet)

Transect Line

Stream width (feet)

1

2

FLOW DATA SHEET

Mean Velocity¹ = 6/10ths Depth
 Surface Velocity² = 6/10ths Depth x 2
 Bottom Velocity³ = 6/10ths Depth / 2

23

22

BANK
FULL

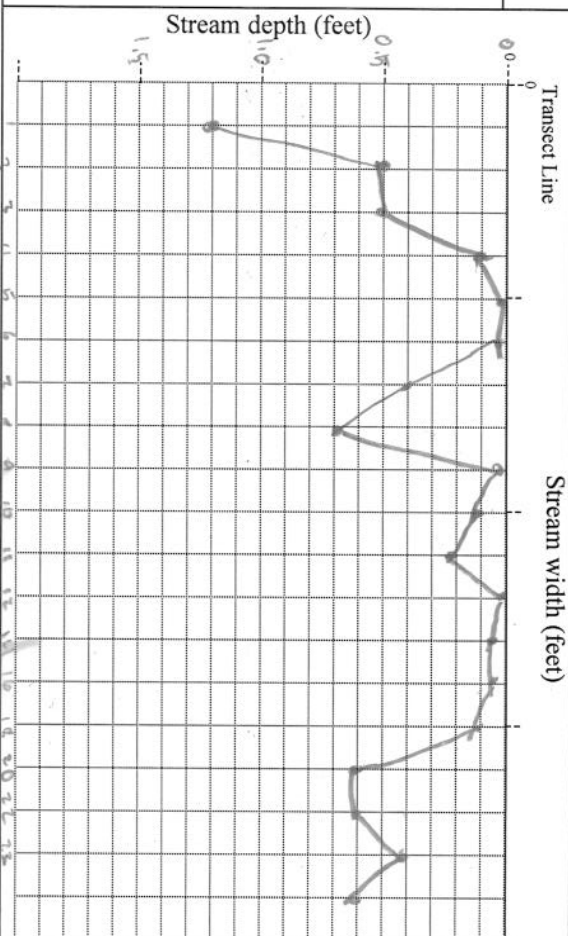
STREAM EDGE

BANK
FULL

STREAM EDGE

Stream Edge Width (feet)	1ft	2ft	3ft	4ft	5ft	6ft	7ft	8ft	9ft	10ft	11ft	12ft	13ft	14ft	15ft	16ft	18ft	20ft	22ft	25ft
Stream Edge Depth (feet)	1.2	0.5	0.5	0.1	0	0	0.4	0.7	0	0.1	0.2	0	0.5	0.5	0.1	0.6	0.4	0.6		
Flow Rate Width (ft/sec)																				
Flow Rate Depth (ft/sec)																				
Substrate/ % Vegetation																				
% Plant Coverage																				
Mean Velocity ¹ (ft/sec)	0	-0.02	-0.08	-0.07	0	0	-0.17	-0.13	0	0.14	-0.06	0	0.08	-0.06	0.19	-0.02	-0.08	-0.07		
Surface Velocity ² (ft/sec)	-0.02	-0.02	0.02	-0.05	0	0	-0.23	-0.14	0	0.26	-0.08	0	0.07	-0.06	0.19	-0.03	-0.06	-0.07		
Bottom Velocity ³ (ft/sec)	0.15	-0.07	0.02	-0.06	0	0	-0.25	-0.15	0	0.38	-0.07	0	0.02	-0.08	-0.14	-0.06	-0.03	-0.03	-0.03	

DATE	4/26/07	HYDROLAB	
TIME	11:40	WIDTH (feet)	Sidewalk pool
OBSERVER	Thick, Thin, Vanita, Kapa, Kaito	TEMPERATURE (°C)	19.45°
REACH		DISSOLVED OXYGEN (mg/L)	12.32
TRANSECT#	2	CONDUCTIVITY (mS/cm)	0.067
DAR_CODE		pH	8.03
STREAM	Calavea	TURBIDITY (NTU)	8.40
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



FLOW DATA SHEET

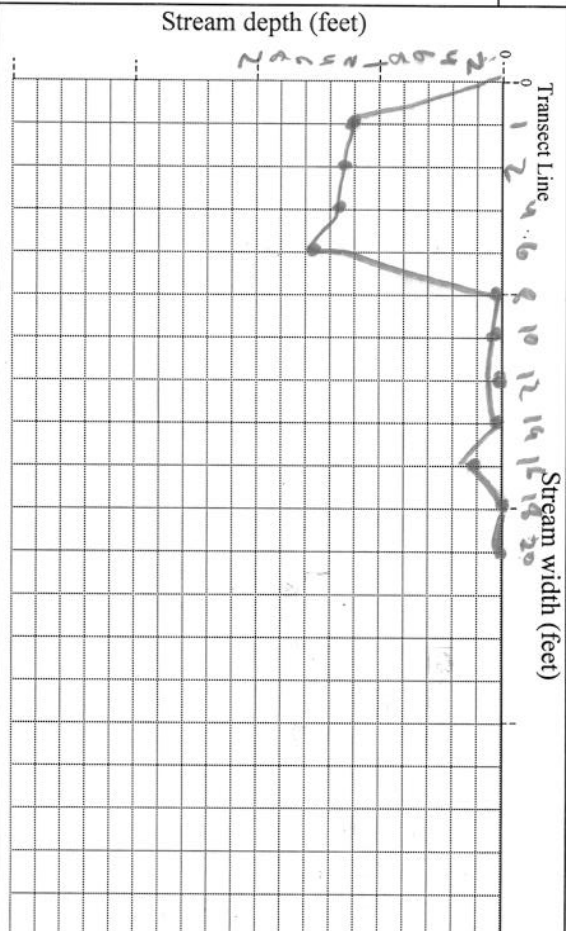
Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

The diagram shows a cross-section of a stream bank. A horizontal line represents the 'BANK FULL' level. Below it, a vertical line indicates the 'STREAM EDGE'. The area between these two lines is shaded, representing the bank's profile.

18	STREAM EDGE	BANK FULL
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Stream Edge Width (feet)	7.5ft	8ft	4ft	6ft	9ft	10ft	12ft	14ft	16ft	18ft	19ft	20ft							
Stream Edge Depth (feet)	1.2	1.25	1.3	1.5	1.7	0	0	0	0	0.3	0								
Flow Rate Width (ft/sec)																			
Flow Rate Depth (ft/sec)																			
Substrate/ % Vegetation																			
% Plant Coverage																			
Mean Velocity ¹ (ft/sec)	0.08	0.07	0.06	0.06	0.06	0	0	0	0	0	0	0							
Surface Velocity ² (ft/sec)	0.08	0.07	0.09	0.07	0.07	0	0	0	0	0	0	0							
Bottom Velocity ³ (ft/sec)	0.08	0.10	0.06	0.03	0.09	0	0	0	0	0	0	0							

DATE		HYDROLAB	
TIME	18:23 pm	WIDTH (feet)	
OBSERVER	ding	TEMPERATURE (°C)	19.33° 19.25°
REACH		DISSOLVED OXYGEN (mg/L)	11.61 11.50
TRANSECT#	1	CONDUCTIVITY (mS/cm)	0.067 0.066
DAR_CODE		pH	8.30 8.15
STREAM	calaverita	TURBIDITY (NTU)	
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



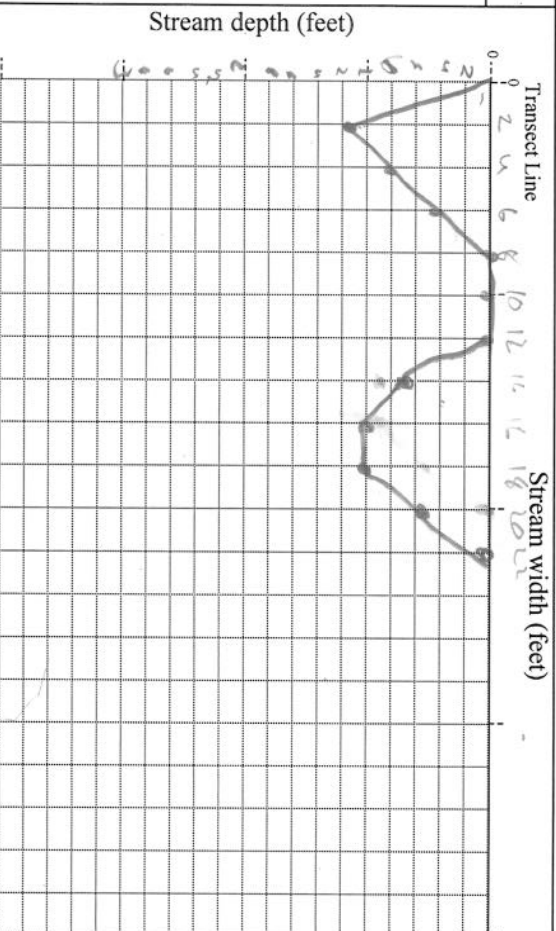
2254

Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

2241

BANK
FULL[illegible]

DATE		HYDROLAB	
4/24/07		Sidepool	Pool
TIME	12:47 pm	WIDTH (feet)	
OBSERVER	ALDHA	TEMPERATURE (°C)	19.28 19.67
REACH		DISSOLVED OXYGEN (mg/L)	12.20 12.26
TRANSECT#	2 (two)	CONDUCTIVITY (mS/cm)	0.067 0.067
DAR_CODE		pH	8.00 8.28
STREAM	Lakea	TURBIDITY (NTU)	NA NA
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)	



FLOW DATA SHEET

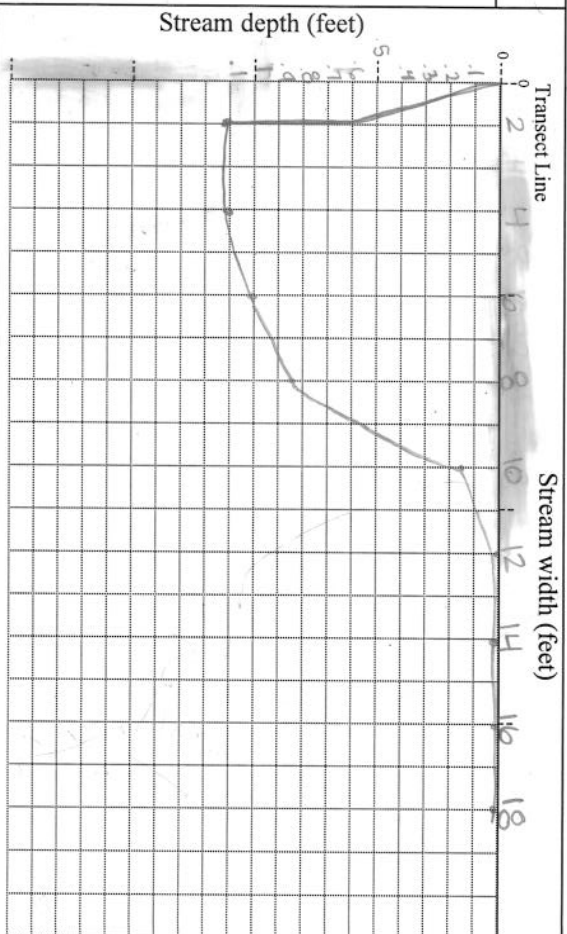
Mean Velocity¹ = 6/10ths Depth
 Surface Velocity² = 6/10ths Depth x 2
 Bottom Velocity³ = 6/10ths Depth / 2

1	2	18	19
BANK FULL	STREAM EDGE	STREAM EDGE	BANK FULL

Stream Edge Width (feet)	2 ^{ft}	4 ^{ft}	6 ^{ft}	8 ^{ft}	10 ^{ft}	12 ^{ft}	14 ^{ft}	16 ^{ft}	18 ^{ft}										
Stream Edge Depth (feet)	1.1	1.1	1.0	0.85	0.15	0	0	0	0										
Flow Rate Width (ft/sec)																			
Flow Rate Depth (ft/sec)																			
Substrate/ % Vegetation																			
% Plant Coverage																			
Mean Velocity ¹ (ft/sec)	-0.1	-0.1	-0.04	0.07	-0.17														
Surface Velocity ² (ft/sec)	-0.09	-0.06	0.12	0.05	-0.17														
Bottom Velocity ³ (ft/sec)	-0.12	-0.01	-0.03	-0.04	-0.15	✓	✓	✓	✓										

Bedrock →

DATE	4/24/07	HYDROLAB		run	rifle
TIME	2:24 p.m.	WIDTH (feet)			
OBSERVER	The Ohus	TEMPERATURE (°C)	19.12°C	19.10°C	
REACH		DISSOLVED OXYGEN (mg/L)	11.48	11.73	
TRANSECT#	2	CONDUCTIVITY (mS/cm)	0.067	0.067	
DAR_CODE		pH	7.79	7.67	
STREAM	drained	TURBIDITY (NTU)			
TRIBUTARY		TOTAL SUSPENDED SOLIDS (mg/L)			



The Ohus = Healdonamele, Honu, Hiohu
 kept, Kaniela, Irua

Mean Velocity¹ = 6/10ths Depth
Surface Velocity² = 6/10ths Depth x 2
Bottom Velocity³ = 6/10ths Depth / 2

22

Stream Edge Width (feet)	2 ft	4 ft	6 ft	8 ft	10 ft	12 ft	14 ft	16 ft	18 ft	20 ft	22 ft								
Stream Edge Depth (feet)	0.6	0.1	6.1	0	6.2	0	0.8	0.4	0.16	0.7	0.75								
Flow Rate Width (ft/sec)																			
Flow Rate Depth (ft/sec)																			
Substrate/ % Vegetation																			
% Plant Coverage																			
Mean Velocity ¹ (ft/sec)	0.12	-0.04	-0.34		-0.04		0.32	-0.03	0.00	-0.05	-0.06								
Surface Velocity ² (ft/sec)	0.04	-0.08	-0.31		-0.11		0.27	-0.05	-0.03	0.03	0.01								
Bottom Velocity ³ (ft/sec)	6.17	-0.05	-0.38		-0.05		0.06	-0.10	-0.02	-0.10	-0.07								

DIVISION OF AQUATIC RESOURCES GRH 2/02

SITE PICTURE