

https://dspace.org/

The effect of vegetation zones on adjacent clear channel flow

Hirschowitz, Peter Mark

2008-05-16T12:01:29Z
http://hdl.handle.net/10539/4838

Downloaded from a DSpace repository. https://dspace.org/

Test Number	Used for	Reference	Test	Total Width	Vegetation Pattern	Vegetation Location	Sidewall
							Includes Sidewall ?
				(m)			
1	Wide Channel Verification	Current Experiments	13-May-05	1.988	Staggered	One Side	TRUE
2	Wide Channel Verification	Current Experiments	25-May-05	1.988	Staggered	One Side	TRUE
3	Wide Channel Verification	Current Experiments	26-Jan-06	1.988	Staggered	One Side	TRUE
4	Wide Channel Verification	Current Experiments	13-Feb-06	1.475	Staggered	One Side	TRUE
5	Wide Channel Verification	Current Experiments	Jan-06 (a)	1.724	Staggered	One Side	TRUE
6	Wide Channel Verification	Current Experiments	Jan-06 (b)	1.724	Staggered	One Side	TRUE
7	Wide Channel Verification	Current Experiments	13-Feb-06	1.349	Staggered	One Side	TRUE
8	Wide Channel Verification	Current Experiments	15-Feb-06	1.477	Staggered	One Side	TRUE
9	Narrow Channel Development	Nagdi and Sharpe (2000) in James et al. (2001)	250mm strips Depth 68.5mm	1.000	Staggered	Both Sides	FALSE
10	Narrow Channel Verification	Nagdi and Sharpe (2000) in James et al. (2001)	50mm strips Depth 34.6mm	1.000	Staggered	Both Sides	FALSE
11	Narrow Channel Development	Nagdi and Sharpe (2000) in James et al. (2001)	50mm strips Depth 91.2mm	1.000	Staggered	Both Sides	FALSE
12	Wide Channel Verification	Nagdi and Sharpe (2000) in James et al. (2001)	125mm strips Depth 32.1mm	1.000	Staggered	Both Sides	FALSE
13	Narrow Channel Verification	Nagdi and Sharpe (2000) in James et al. (2001)	250mm strips Depth 32mm	1.000	Staggered	Both Sides	FALSE
14	Narrow Channel Development	Nagdi and Sharpe (2000) in James et al. (2001)	250mm strips Depth 87mm	1.000	Staggered	Both Sides	FALSE
15	Narrow Channel Development	Nagdi and Sharpe (2000) in James et al. (2001)	50mm strips Depth 69.5mm	1.000	Staggered	Both Sides	FALSE
16	Narrow Channel Development	Nagdi and Sharpe (2000) in James et al. (2001)	125mm strips Depth 86mm	1.000	Staggered	Both Sides	FALSE
17	Narrow Channel Verification	Nagdi and Sharpe (2000) in James et al. (2001)	250mm strips Depth 36mm	1.000	Staggered	Both Sides	FALSE
18	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 4 Depth 116mm	1.000	Staggered	Centre	TRUE
19	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 4 Depth 100mm	1.000	Staggered	Centre	TRUE
20	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 4 Depth 79mm	1.000	Staggered	Centre	TRUE
21	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 4 Depth 45mm	1.000	Staggered	Centre	TRUE
22	Wide Channel Verification	Tsujimoto and Kitamura (1992) in Nadaoka & Yagi (1998)	Case 1	0.400	Staggered	One Side	TRUE
23	Wide Channel Verification	Ikeda, Ohta & Hasegawa (1994)		0.960	Staggered	One Side	TRUE

Test Number	Used for	Reference	Test	Total Width	Vegetation Pattern	Vegetation Location	Sidewall
							Includes Sidewall ?
				(m)			
24	Wide Channel Verification	Ikeda, Izumi & Ito (1991)	Run 1	0.960	Staggered	One Side	TRUE
25	Wide Channel Verification	Ikeda, Izumi & Ito (1991)	Run 4	0.960	Staggered	One Side	TRUE
26	Wide Channel Verification	Ikeda, Izumi & Ito (1991)	Run 5	0.960	Staggered	One Side	TRUE
30	Wide Channel Verification	Tsujimoto and Kitamura (1992) in Xiaohui and Li (2002)	Case 1	0.400	Staggered	One Side	TRUE
31	Wide Channel Verification	Tsujimoto and Kitamura (1992) in Xiaohui and Li (2002)	Case 2	0.400	Staggered	One Side	TRUE
38	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 1 Q=12.5l/s	1.000	Staggered	Both Sides	FALSE
39	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 1 Q=5l/s	1.000	Staggered	Both Sides	FALSE
40	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 1 Q=10l/s	1.000	Staggered	Both Sides	FALSE
41	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 1 Q=15l/s	1.000	Staggered	Both Sides	FALSE
42	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 5l/s (Side Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
43	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 10l/s (Side Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
44	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 12.5l/s (Side Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
45	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 15l/s (Side Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
46	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 5l/s (Inner Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
47	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 10l/s (Inner Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
48	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 12.5l/s (Inner Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
49	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 2 Q = 15l/s (Inner Gaps)	1.000	Staggered	4 strips (2 at side of channel)	FALSE
50	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 3 Q= 5l/s	1.000	Staggered	3 strips (2 at side of flume and double width at centre	FALSE
51	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 3 Q= 10l/s	1.000	Staggered	double width at centre	FALSE

Test Number	Used for	Reference	Test	Total Width	Vegetation Pattern	Vegetation Location	Sidewall
							Includes Sidewall ?
				(m)			
52	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 3 Q= 12.5l/s	1.000	Staggered	3 strips (2 at side of flume and double width at centre	FALSE
53	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 3 Q= 15l/s	1.000	Staggered	3 strips (2 at side of flume and double width at centre	FALSE
54	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 5 Q= 5l/s	1.000	Staggered	Side strips of different width	FALSE
55	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 5 Q= 10l/s	1.000	Staggered	Side strips of different width	FALSE
56	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 5 Q= 12.5l/s	1.000	Staggered	Side strips of different width	FALSE
57	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 5 Q= 15l/s	1.000	Staggered	Side strips of different width	FALSE
58	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 6 section against wall Q= 5l/s	1.000	Staggered	2 strips, one on wall and one away from wall	TRUE
59	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 6 section against wall Q= 10l/s	1.000	Staggered	2 strips, one on wall and one away from wall	TRUE
60	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 6 section against wall Q= 12.5l/s	1.000	Staggered	2 strips, one on wall and one away from wall	TRUE
61	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 6 section against wall Q= 15l/s	1.000	Staggered	2 strips, one on wall and one away from wall	TRUE
62	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 6 section away from wall Q=5 l/s	1.000	Staggered	2 strips, one on wall and one away from wall	FALSE
63	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 6 section away from wall Q=10 l/s	1.000	Staggered	2 strips, one on wall and one away from wall	FALSE
64	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 6 section away from wall Q= 12.5l/s	1.000	Staggered	2 strips, one on wall and one away from wall	FALSE
65	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 6 section away from wall Q= 15l/s	1.000	Staggered	2 strips, one on wall and one away from wall	FALSE
66	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 against wall Q= 5l/s	1.000	Staggered	Three strips	TRUE
67	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 against wall Q=10l/s	1.000	Staggered	Three strips	TRUE
68	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 7 against wall Q=12.5l/s	1.000	Staggered	Three strips	TRUE
69	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 against wall Q=15l.s	1.000	Staggered	Three strips	TRUE
70	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 away from wall Q= 5l/s	1.000	Staggered	Three strips	FALSE
71	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 away from wall Q=10l/s	1.000	Staggered	Three strips	FALSE
72	Narrow Channel Verification	Makoa (2001) in James et al. (2001)	Pattern 7 away from wall Q=12.5l/s	1.000	Staggered	Three strips	FALSE
73	Narrow Channel Development	Makoa (2001) in James et al. (2001)	Pattern 7 away from wall Q=15l/s	1.000	Staggered	Three strips	FALSE

Test Number	Bv	bfo	S	ax	ay	dp	Depth	V_{inf}	
	Vegetation Zone width to Centre or channel edge	Non-vegetated Zone Width to Centre or Channel edge	Slope	Half Longitudinal Spacing	Half Transverse spacing	Stem Diameter		Velocity with Bed Resistance Only	Method by Which Vinf is Calculated
	(m)	(m)		(m)	(m)	(m)	(m)	(m/s)	
1	0.126	1.862	0.000 42	0.025	0.013	0.005	0.029 6	0.138	Average V/√(Slope) measured without vegetation away from sidewall
2	0.126	1.862	0.000 58	0.025	0.013	0.005	0.060 8	0.329	Average V/√(Slope) measured without vegetation away from sidewall
3	0.126	1.862	0.000 40	0.025	0.013	0.005	0.060 5	0.274	Average V/√(Slope) measured without vegetation away from sidewall
4	0.126	1.349	0.000 41	0.025	0.013	0.005	0.059 9	0.277	Average V/√(Slope) measured without vegetation away from sidewall
5	0.126	1.598	0.000 57	0.025	0.013	0.005	0.060 6	0.327	Average V/√(Slope) measured without vegetation away from sidewall
6	0.126	1.598	0.000 59	0.025	0.013	0.005	0.060 6	0.332	Average V/√(Slope) measured without vegetation away from sidewall
7	0.126	1.223	0.000 35	0.025	0.013	0.005	0.059 9	0.256	Average V/√(Slope) measured without vegetation away from sidewall
8	0.254	1.223	0.000 36	0.025	0.013	0.005	0.060 3	0.260	Average V/√(Slope) measured without vegetation away from sidewall
9	0.250	0.250	0.001 07	0.025	0.013	0.005	0.068 5	0.507	λ_b calculated for experiments without vegetation - see sheet 'CD'
10	0.050	0.450	0.001 07	0.025	0.013	0.005	0.068 5	0.507	λ_b calculated for experiments without vegetation - see sheet 'CD'
11	0.050	0.450	0.001 07	0.025	0.013	0.005	0.091 2	0.537	λ_b calculated for experiments without vegetation - see sheet 'CD'
12	0.125	0.375	0.001 07	0.025	0.013	0.005	0.032 1	0.321	λ_b calculated for experiments without vegetation - see sheet 'CD'
13	0.250	0.250	0.001 07	0.025	0.013	0.005	0.032 0	0.320	λ_b calculated for experiments without vegetation - see sheet 'CD'
14	0.250	0.250	0.001 07	0.025	0.013	0.005	0.087 0	0.536	λ_b calculated for experiments without vegetation - see sheet 'CD'
15	0.050	0.450	0.001 07	0.025	0.013	0.005	0.069 5	0.509	λ_b calculated for experiments without vegetation - see sheet 'CD'
16	0.125	0.375	0.001 07	0.025	0.013	0.005	0.086 0	0.536	λ_b calculated for experiments without vegetation - see sheet 'CD'
17	0.250	0.250	0.001 07	0.025	0.013	0.005	0.036 0	0.347	λ_b calculated for experiments without vegetation - see sheet 'CD'
18	0.250	0.250	0.001 07	0.025	0.013	0.005	0.116 0	0.515	λ_b calculated for experiments without vegetation - see sheet 'CD'
19	0.250	0.250	0.001 07	0.025	0.013	0.005	0.100 0	0.534	λ_b calculated for experiments without vegetation - see sheet 'CD'
20	0.250	0.250	0.001 07	0.025	0.013	0.005	0.079 0	0.529	λ_b calculated for experiments without vegetation - see sheet 'CD'
21	0.250	0.250	0.001 07	0.025	0.013	0.005	0.045 0	0.402	λ_b calculated for experiments without vegetation - see sheet 'CD'
22	0.120	0.280	0.001 65	unknown	unknown	0.000 2	0.043 8	0.340	
23	0.270	0.690	0.001 61	0.050	0.050	0.005	0.060 0	0.390	Reported Value of Cf_inf = $8\lambda_b$

Test Number	Bv	bfo	S	ax	ay	dp	Depth	V_{inf}	
	Vegetation Zone width to Centre or channel edge	Non-vegetated Zone Width to Centre or Channel edge	Slope	Half Longitudinal Spacing	Half Transverse spacing	Stem Diameter		Velocity with Bed Resistance Only	Method by Which Vinf is Calculated
	(m)	(m)		(m)	(m)	(m)	(m)	(m/s)	
24	0.270	0.690	0.001 61	0.050	0.050	0.005	0.060 0	0.395	Reported Value of Cf_inf = 8Ib
25	0.270	0.690	0.003 13	0.050	0.050	0.005	0.030 0	0.337	Reported Value of Cf_inf = 8Ib
26	0.270	0.690	0.001 22	0.050	0.050	0.005	0.085 0	0.437	Reported Value of Cf_inf = 8Ib
30	0.120	0.280	0.001 70	Unknown	Unknown	0.0002	0.045 7	0.439	Reported Value of Manning's n
31	0.120	0.280	0.001 65	Unknown	Unknown	0.0002	0.043 8	0.421	Reported Value of Manning's n
38	0.250	0.250	0.001 07	0.025	0.013	0.005	0.079 0	0.529	λ_b calculated for experiments without vegetation - see sheet 'CD'
39	0.250	0.250	0.001 07	0.025	0.013	0.005	0.036 0	0.347	λ_b calculated for experiments without vegetation - see sheet 'CD'
40	0.250	0.250	0.001 07	0.025	0.013	0.005	0.062 0	0.485	λ_b calculated for experiments without vegetation - see sheet 'CD'
41	0.250	0.250	0.001 07	0.025	0.013	0.005	0.092 0	0.537	λ_b calculated for experiments without vegetation - see sheet 'CD'
42	0.125	0.084	0.001 07	0.025	0.013	0.005	0.060 0	0.477	λ_b calculated for experiments without vegetation - see sheet 'CD'
43	0.125	0.084	0.001 07	0.025	0.013	0.005	0.104 0	0.530	λ_b calculated for experiments without vegetation - see sheet 'CD'
44	0.125	0.084	0.001 07	0.025	0.013	0.005	0.130 0	0.492	λ_b calculated for experiments without vegetation - see sheet 'CD'
45	0.125	0.084	0.001 07	0.025	0.013	0.005	0.150 0	0.457	λ_b calculated for experiments without vegetation - see sheet 'CD'
46	0.063	0.084	0.001 07	0.025	0.013	0.005	0.060 0	0.477	λ_b calculated for experiments without vegetation - see sheet 'CD'
47	0.063	0.084	0.001 07	0.025	0.013	0.005	0.104 0	0.530	λ_b calculated for experiments without vegetation - see sheet 'CD'
48	0.063	0.084	0.001 07	0.025	0.013	0.005	0.130 0	0.492	λ_b calculated for experiments without vegetation - see sheet 'CD'
49	0.063	0.084	0.001 07	0.025	0.013	0.005	0.150 0	0.457	λ_b calculated for experiments without vegetation - see sheet 'CD'
50	0.125	0.125	0.001 07	0.025	0.013	0.005	0.055 0	0.455	λ_b calculated for experiments without vegetation - see sheet 'CD'
51	0.125	0.125	0.001 07	0.025	0.013	0.005	0.088 0	0.537	λ_b calculated for experiments without vegetation - see sheet 'CD'

Test Number	Bv	bfo	S	ax	ay	dp	Depth	V_{inf}	
	Vegetation Zone width to Centre or channel edge	Non-vegetated Zone Width to Centre or Channel edge	Slope	Half Longitudinal Spacing	Half Transverse spacing	Stem Diameter		Velocity with Bed Resistance Only	Method by Which Vinf is Calculated
	(m)	(m)		(m)	(m)	(m)	(m)	(m/s)	
52	0.125	0.125	0.001 07	0.025	0.013	0.005	0.118 0	0.512	λ_b calculated for experiments without vegetation - see sheet 'CD'
53	0.125	0.125	0.001 07	0.025	0.013	0.005	0.129 0	0.494	λ_b calculated for experiments without vegetation - see sheet 'CD'
54	0.125&0.375	0.250	0.001 07	0.025	0.013	0.005	0.039 0	0.366	λ_b calculated for experiments without vegetation - see sheet 'CD'
55	0.125&0.375	0.250	0.001 07	0.025	0.013	0.005	0.064 0	0.492	λ_b calculated for experiments without vegetation - see sheet 'CD'
56	0.125&0.375	0.250	0.001 07	0.025	0.013	0.005	0.086 0	0.536	λ_b calculated for experiments without vegetation - see sheet 'CD'
57	0.125&0.375	0.250	0.001 07	0.025	0.013	0.005	0.095 0	0.537	λ_b calculated for experiments without vegetation - see sheet 'CD'
58	0.125&0.188	0.250	0.001 07	0.025	0.013	0.005	0.047 0	0.414	λ_b calculated for experiments without vegetation - see sheet 'CD'
59	0.125&0.188	0.250	0.001 07	0.025	0.013	0.005	0.083 0	0.534	λ_b calculated for experiments without vegetation - see sheet 'CD'
60	0.125&0.188	0.250	0.001 07	0.025	0.013	0.005	0.103 0	0.531	λ_b calculated for experiments without vegetation - see sheet 'CD'
61	0.125&0.188	0.250	0.001 07	0.025	0.013	0.005	0.117 0	0.514	λ_b calculated for experiments without vegetation - see sheet 'CD'
62	0.125&0.188	0.125	0.001 07	0.025	0.013	0.005	0.047 0	0.414	λ_b calculated for experiments without vegetation - see sheet 'CD'
63	0.125&0.188	0.125	0.001 07	0.025	0.013	0.005	0.083 0	0.534	λ_b calculated for experiments without vegetation - see sheet 'CD'
64	0.125&0.188	0.125	0.001 07	0.025	0.013	0.005	0.103 0	0.531	λ_b calculated for experiments without vegetation - see sheet 'CD'
65	0.125&0.188	0.125	0.001 07	0.025	0.013	0.005	0.117 0	0.514	λ_b calculated for experiments without vegetation - see sheet 'CD'
66	0.0675	0.167	0.001 07	0.025	0.013	0.005	0.054 0	0.450	λ_b calculated for experiments without vegetation - see sheet 'CD'
67	0.0675	0.167	0.001 07	0.025	0.013	0.005	0.098 0	0.535	λ_b calculated for experiments without vegetation - see sheet 'CD'
68	0.0675	0.167	0.001 07	0.025	0.013	0.005	0.122 0	0.506	λ_b calculated for experiments without vegetation - see sheet 'CD'
69	0.0675	0.167	0.001 07	0.025	0.013	0.005	0.142 0	0.471	λ_b calculated for experiments without vegetation - see sheet 'CD'
70	0.0675&0.25	0.084	0.001 07	0.025	0.013	0.005	0.054 0	0.450	λ_b calculated for experiments without vegetation - see sheet 'CD'
71	0.0675&0.25	0.084	0.001 07	0.025	0.013	0.005	0.098 0	0.535	λ_b calculated for experiments without vegetation - see sheet 'CD'
72	0.0675&0.25	0.084	0.001 07	0.025	0.013	0.005	0.122 0	0.506	λ_b calculated for experiments without vegetation - see sheet 'CD'
73	0.0675&0.25	0.084	0.001 07	0.025	0.013	0.005	0.142 0	0.471	λ_b calculated for experiments without vegetation - see sheet 'CD

Test Number	$V_{max\ meas}$	BR	fbed	$V_{Veg\ Zone}$	
	Maximum Measured Velocity	Bed Resistance Parameter as Specified	Bed Friction Factor (λb)	Velocity With Vegetation Only (m/s)	Comment
1	0.161		0.051	0.008	
2	0.310		0.025	0.010	
3	0.270		0.025	0.008	
4	0.275		0.025	0.008	
5	0.321		0.025	0.010	
6	0.310		0.025	0.010	
7	0.275		0.025	0.007	
8	0.279		0.025	0.007	
9	0.320	0.022	0.022	0.040	
10	0.340	0.022	0.022	0.040	
11	0.490	0.027	0.027	0.040	
12	0.330	0.026	0.026	0.033	
13	0.310	0.026	0.026	0.033	
14	0.350	0.025	0.025	0.040	
15	0.440	0.022	0.022	0.040	
16	0.450	0.025	0.025	0.040	
17	0.272	0.025	0.025	0.034	
18	0.246	0.037	0.037	0.040	
19	0.231	0.029	0.029	0.040	
20	0.230	0.024	0.024	0.040	
21	0.218	0.023	0.023	0.037	
22	0.351	0.006 13	0.049	0.036	Since vegetation is very small, bm is likely to be determined by depth. (Cannot check, since spacing is not specified. Therefore assume that depth is the limiting factor in determining bm)
23	0.398	0.006 22	0.050	0.122	

Test Number	$V_{max\ meas}$	BR	fbed	$V_{Veg\ Zone}$	
	Maximum Measured Velocity	Bed Resistance Parameter as Specified	Bed Friction Factor (λb)	Velocity With Vegetation Only (m/s)	Comment
24	0.390	0.00608	0.049	0.113	
25	0.344	0.00812	0.065	0.135	
26	0.424	0.00533	0.043	0.109	
30	0.435	0.012	0.032	0.117	Since vegetation is very small, bm is likely to be determined by depth. (Cannot check, since spacing is not specified. Therefore assume that deph is the limiting factor in determining bm)
31	0.355	0.012	0.032	0.028	Since vegetation is very small, bm is likely to be determined by depth. (Cannot check, since spacing is not specified. Therefore assume that deph is the limiting factor in determining bm)
38	0.333	0.024	0.024	0.040	
39	0.272	0.025	0.025	0.034	
40	0.322	0.022	0.022	0.039	
41	0.327	0.027	0.027	0.040	
42	0.154	0.022	0.022	0.039	
43	0.170	0.031	0.031	0.040	
44	0.169	0.045	0.045	0.040	
45	0.172	0.060	0.060	0.041	
46	0.132	0.022	0.022	0.039	
47	0.139	0.031	0.031	0.040	
48	0.137	0.045	0.045	0.040	
49	0.139	0.060	0.060	0.041	
50	0.192	0.022	0.022	0.038	
51	0.197	0.026	0.026	0.040	

Test Number	$V_{max\ meas}$	BR	fbed	$V_{Veg\ Zone}$	
	Maximum Measured Velocity	Bed Resistance Parameter as Specified	Bed Friction Factor (λb)	Velocity With Vegetation Only (m/s)	Comment
52	0.193	0.038	0.038	0.040	
53	0.214	0.044	0.044	0.040	
54	0.261	0.024	0.024	0.035	
55	0.304	0.022	0.022	0.039	
56	0.308	0.025	0.025	0.040	
57	0.336	0.028	0.028	0.040	
58	0.210	0.023	0.023	0.037	
59	0.232	0.024	0.024	0.040	
60	0.238	0.031	0.031	0.040	
61	0.254	0.037	0.037	0.040	
62	0.203	0.023	0.023	0.037	
63	0.234	0.024	0.024	0.040	
64	0.220	0.031	0.031	0.040	
65	0.233	0.037	0.037	0.040	
66	0.183	0.022	0.022	0.038	
67	0.188	0.029	0.029	0.040	
68	0.197	0.040	0.040	0.040	
69	0.183	0.054	0.054	0.040	
70	0.159	0.022	0.022	0.038	
71	0.157	0.029	0.029	0.040	
72	0.168	0.040	0.040	0.040	
73	0.159	0.054	0.054	0.040	