

Page C.

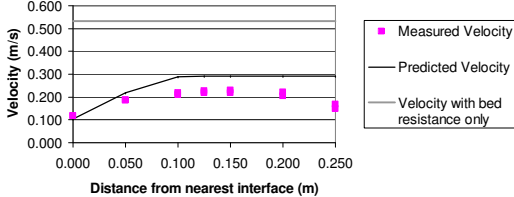
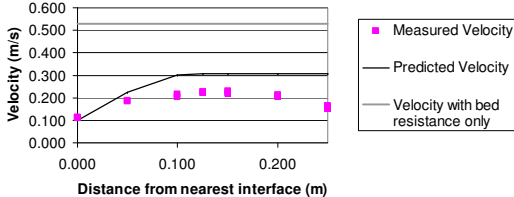
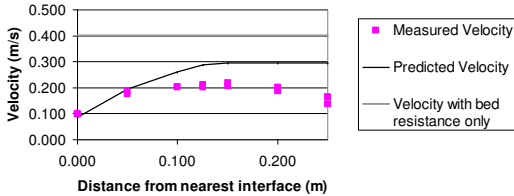
Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]

Results for Proposed Velocity Prediction Method



Experiment																										
Test Number	Row	Reference	Test	bf original	Vinf																					
19	25	James et al. (2001)	Pattern 4 Depth 100mm	0	0.25	0.534	(m)	Distance nearest interface	0.000	0.000	0.050	0.050	0.100	0.100	0.125	0.125	0.150	0.150	0.200	0.200	0.250	0.250				
							(m)	y	0.015	0.015	0.065	0.065	0.115	0.115	0.140	0.140	0.165	0.165	0.215	0.215	0.265	0.265				
							(m/s)	Measured Velocity	0.118	0.119	0.187	0.184	0.209	0.219	0.220	0.228	0.220	0.231	0.204	0.221	0.150	0.167				
							(m/s)	Predicted Velocity	0.105	0.105	0.218	0.218	0.290	0.290	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291				
							(m/s)	Absolute Error	0.013	0.014	0.031	0.034	0.081	0.071	0.071	0.063	0.071	0.060								
							%	Error	11%	12%	16%	18%	39%	32%	32%	28%	32%	26%								
20	26	James et al. (2001)	Pattern 4 Depth 79mm	0	0.25	0.529	(m)	Distance nearest interface	0.000	0.000	0.050	0.050	0.100	0.100	0.125	0.125	0.150	0.150	0.200	0.200	0.250	0.250				
							(m)	y	0.013	0.013	0.063	0.063	0.113	0.113	0.138	0.138	0.163	0.163	0.213	0.213	0.263	0.263				
							(m/s)	Measured Velocity	0.113	0.110	0.189	0.186	0.206	0.216	0.222	0.227	0.220	0.230	0.205	0.213	0.152	0.165				
							(m/s)	Predicted Velocity	0.100	0.100	0.225	0.225	0.301	0.301	0.307	0.307	0.307	0.307	0.307	0.307	0.307	0.307				
							(m/s)	Absolute Error	0.013	0.010	0.036	0.039	0.095	0.085	0.085	0.080	0.087	0.077								
							%	Error	11%	9%	19%	21%	46%	40%	38%	35%	40%	34%								
21	40	James et al. (2001)	Pattern 4 Depth 45mm	0	0.25	0.402	(m)	Distance nearest interface	0.000	0.000	0.050	0.050	0.100	0.100	0.125	0.125	0.150	0.150	0.200	0.200	0.250	0.250				
							(m)	y	0.013	0.013	0.063	0.063	0.113	0.113	0.138	0.138	0.163	0.163	0.213	0.213	0.263	0.263				
							(m/s)	Measured Velocity	0.098	0.102	0.178	0.185	0.201	0.204	0.201	0.213	0.206	0.218	0.188	0.203	0.138	0.164				
							(m/s)	Predicted Velocity	0.087	0.087	0.195	0.195	0.261	0.261	0.289	0.289	0.296	0.296	0.296	0.296	0.296	0.296				
							(m/s)	Absolute Error	0.011	0.015	0.017	0.010	0.060	0.057	0.068	0.076	0.090	0.078								
							%	Error	11%	15%	9%	5%	30%	26%	44%	36%	44%	36%								

Results for Proposed Velocity Prediction Method



Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]



Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]



Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]



Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]

Results for Proposed Velocity Prediction Method



Appendix C:

Results for Proposed Velocity Prediction Method

[illegible]



Appendix C:

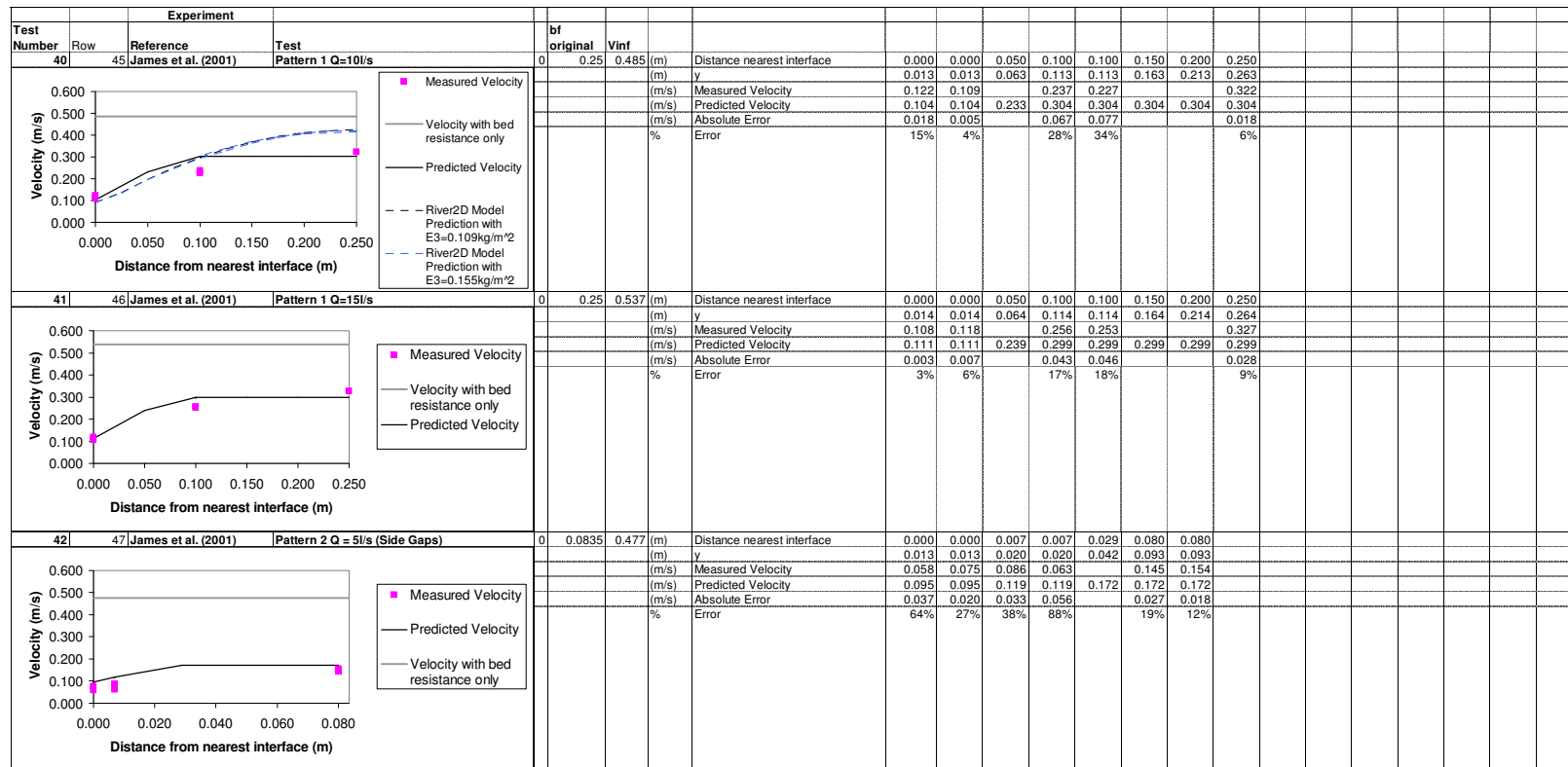
Results for Proposed Velocity Prediction Method

[illegible]

Appendix C:

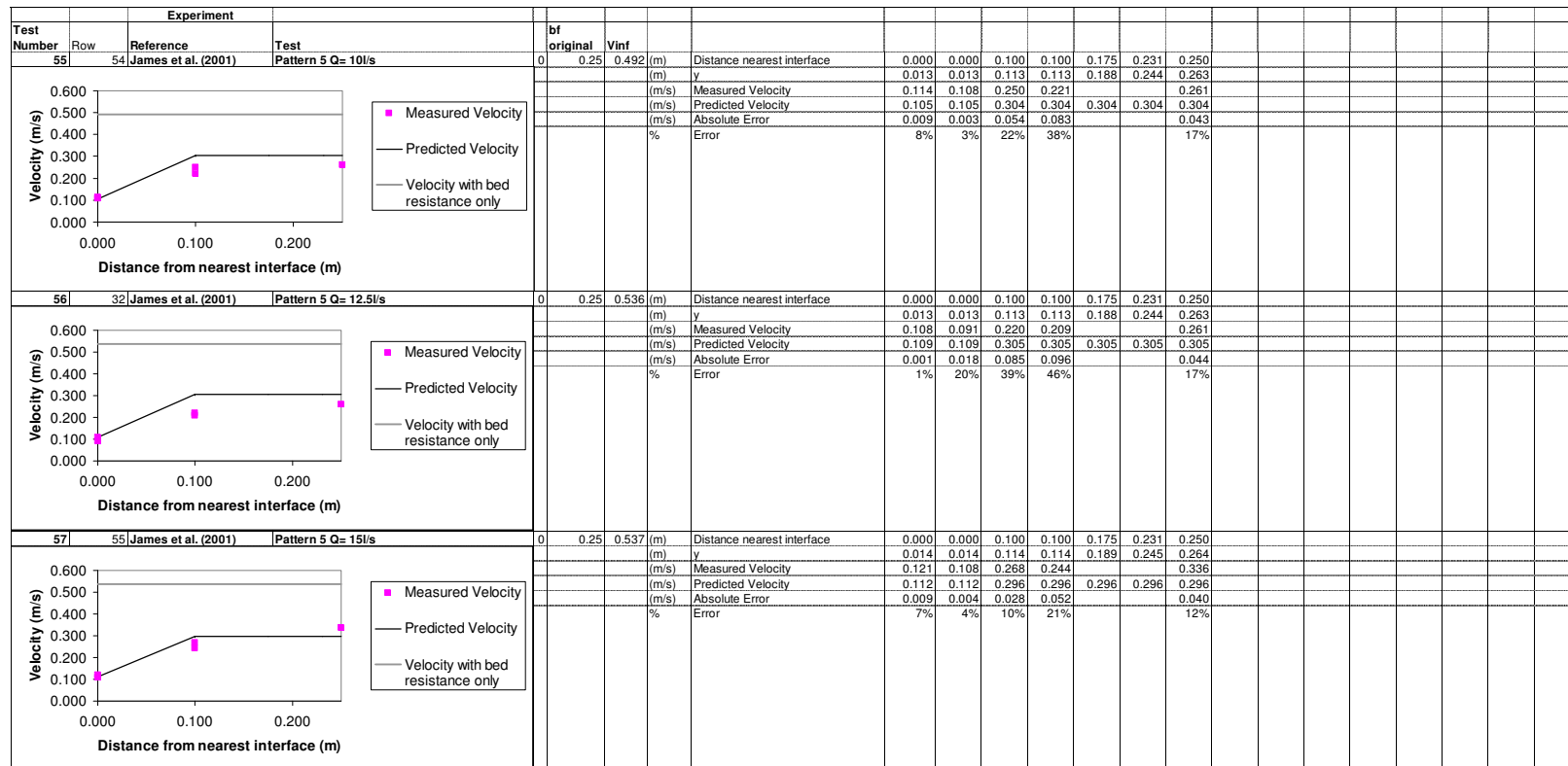
Results for Proposed Velocity Prediction Method

[illegible]

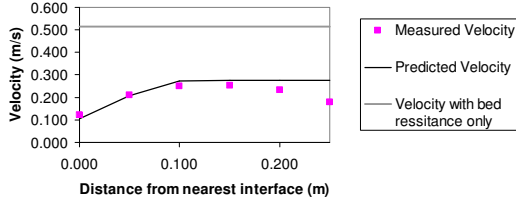
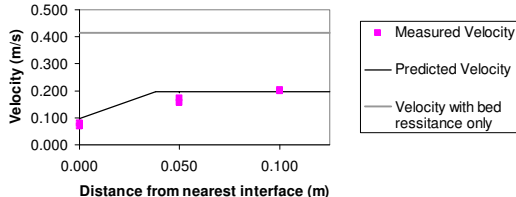
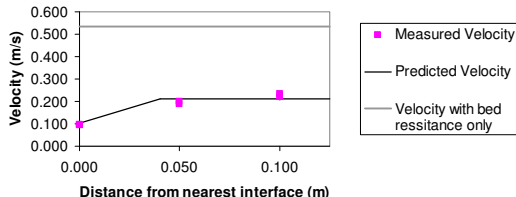




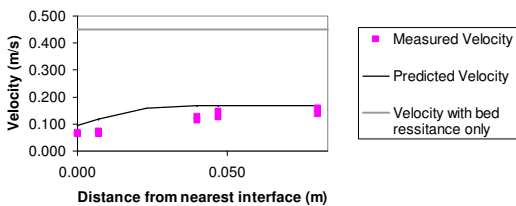
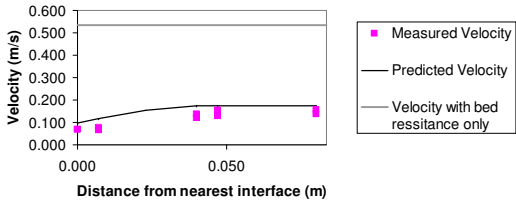
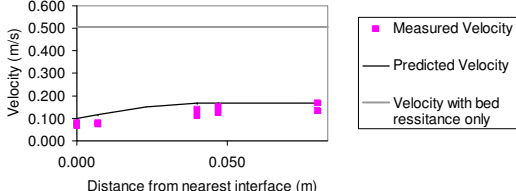




Test Number	Row	Experiment		bf original	Vinf														
		Reference	Test																
58	56	James et al. (2001)	Pattern 6 section against wall Q= 5l/s	0	0.25	0.414	(m)	Distance nearest interface	0.000	0.050	0.100	0.150	0.200	0.250					
								(m)	y	0.013	0.063	0.113	0.163	0.213	0.263				
								(m/s)	Measured Velocity	0.096	0.173	0.209	0.210	0.186	0.152				
								(m/s)	Predicted Velocity	0.089	0.198	0.266	0.297	0.297	0.297				
								(m/s)	Absolute Error	0.007	0.025	0.057	0.087	0.111	0.145				
								%	Error	8%	15%	27%	42%	60%	96%				
59	57	James et al. (2001)	Pattern 6 section against wall Q= 10l/s	0	0.25	0.534	(m)	Distance nearest interface	0.000	0.050	0.100	0.150	0.200	0.250					
								(m)	y	0.013	0.063	0.113	0.163	0.213	0.263				
								(m/s)	Measured Velocity	0.120	0.120	0.230	0.232	0.212	0.171				
								(m/s)	Predicted Velocity	0.101	0.225	0.302	0.308	0.308	0.308				
								(m/s)	Absolute Error	0.019	0.105	0.072	0.076	0.096	0.137				
								%	Error	16%	87%	31%	33%	45%	80%				
60	58	James et al. (2001)	Pattern 6 section against wall Q= 12.5l/s	0	0.25	0.531	(m)	Distance nearest interface	0.000	0.050	0.100	0.150	0.200	0.250					
								(m)	y	0.015	0.065	0.115	0.165	0.215	0.265				
								(m/s)	Measured Velocity	0.107	0.197	0.224	0.238	0.217	0.165				
								(m/s)	Predicted Velocity	0.105	0.216	0.287	0.288	0.288	0.288				
								(m/s)	Absolute Error	0.002	0.019	0.063	0.050	0.071	0.123				
								%	Error	2%	10%	26%	21%	33%	75%				

Experiment																		
Test Number	Row	Reference	Test	bf original	Vinf													
61	59	James et al. (2001)	Pattern 6 section against wall Q= 15l/s	0	0.25	0.514	(m)	Distance nearest interface	0.000	0.050	0.100	0.150	0.200	0.250				
						(m)	y	0.018	0.068	0.118	0.168	0.218	0.268					
						(m/s)	Measured Velocity	0.121	0.210	0.250	0.254	0.234	0.178					
						(m/s)	Predicted Velocity	0.106	0.208	0.274	0.277	0.277	0.277					
						(m/s)	Absolute Error	0.015	0.002	0.024	0.023	0.043	0.099					
						%	Error	12%	1%	10%	9%	18%	55%					
62	60	James et al. (2001)	Pattern 6 section away from wall Q=5 l/s	0	0.125	0.414	(m)	Distance nearest interface	0.000	0.000	0.038	0.050	0.050	0.100	0.100	0.125		
						(m)	y	0.013	0.013	0.050	0.063	0.063	0.113	0.113	0.138			
						(m/s)	Measured Velocity	0.080	0.069		0.157	0.173	0.199	0.203				
						(m/s)	Predicted Velocity	0.098	0.098	0.197	0.197	0.197	0.197	0.197	0.197			
						(m/s)	Absolute Error	0.018	0.029		0.040	0.024	0.002	0.006				
						%	Error	23%	42%		26%	14%	1%	3%				
63	37	James et al. (2001)	Pattern 6 section away from wall Q=10 l/s	0	0.125	0.534	(m)	Distance nearest interface	0.000	0.000	0.040	0.050	0.050	0.100	0.100	0.125		
						(m)	y	0.013	0.013	0.053	0.063	0.063	0.113	0.113	0.138			
						(m/s)	Measured Velocity	0.097	0.093		0.188	0.199	0.220	0.234				
						(m/s)	Predicted Velocity	0.103	0.103	0.211	0.211	0.211	0.211	0.211	0.211			
						(m/s)	Absolute Error	0.006	0.010		0.023	0.012	0.009	0.023				
						%	Error	6%	11%		12%	6%	4%	10%				

Experiment																				
Test Number	Row	Reference	Test	bf original	Vinf															
64	33	James et al. (2001)	Pattern 6 section away from wall Q= 12.5l/s	0	0.125	0.531	(m)	Distance nearest interface	0.000	0.000	0.041	0.050	0.050	0.100	0.100	0.125				
							(m)	y	0.015	0.015	0.056	0.065	0.065	0.115	0.115	0.140				
							(m/s)	Measured Velocity	0.094	0.080		0.184	0.188	0.218	0.220					
							(m/s)	Predicted Velocity	0.106	0.106	0.202	0.202	0.202	0.202	0.202	0.202				
							(m/s)	Absolute Error	0.012	0.026		0.018	0.014	0.016	0.018					
							%	Error	13%	33%		10%	8%	7%	8%					
65	39	James et al. (2001)	Pattern 6 section away from wall Q= 15l/s	0	0.125	0.514	(m)	Distance nearest interface	0.000	0.000	0.040	0.050	0.050	0.100	0.100	0.125				
							(m)	y	0.018	0.018	0.058	0.068	0.068	0.118	0.118	0.143				
							(m/s)	Measured Velocity	0.100	0.091		0.194	0.188	0.231	0.233					
							(m/s)	Predicted Velocity	0.108	0.108	0.195	0.195	0.195	0.195	0.195	0.195				
							(m/s)	Absolute Error	0.008	0.017		0.001	0.007	0.036	0.038					
							%	Error	8%	19%		1%	4%	15%	16%					
66	61	James et al. (2001)	Pattern 7 against wall Q= 5l/s	0	0.167	0.45	(m)	Distance nearest interface	0.000	0.040	0.080	0.120	0.160							
							(m)	y	0.013	0.053	0.093	0.133	0.173							
							(m/s)	Measured Velocity	0.089	0.147	0.179	0.183	0.149							
							(m/s)	Predicted Velocity	0.096	0.198	0.235	0.235	0.235							
							(m/s)	Absolute Error	0.007	0.051	0.056	0.052	0.086							
							%	Error	8%	34%	31%	28%	58%							
Velocity (m/s) 0.600 0.500 0.400 0.300 0.200 0.100 0.000 0.000 0.050 0.100 Distance from nearest interface (m) Measured Velocity Predicted Velocity Velocity with bed resistance only																				
Velocity (m/s) 0.600 0.500 0.400 0.300 0.200 0.100 0.000 0.000 0.050 0.100 Distance from nearest interface (m) Measured Velocity Predicted Velocity Velocity with bed resistance only																				
Velocity (m/s) 0.500 0.400 0.300 0.200 0.100 0.000 0.000 0.050 0.100 0.150 Distance from nearest interface (m) Measured Velocity Predicted Velocity Velocity with bed resistance only																				

		Experiment																								
Test Number	Row	Reference	Test	b _f original	Vinf																					
70	64	James et al. (2001)	Pattern 7 away from wall Q= 5l/s	0	0.0835	0.45	(m)	Distance nearest interface	0.000	0.000	0.007	0.007	0.023	0.040	0.040	0.047	0.047	0.080	0.080							
						(m)	y	0.013	0.013	0.020	0.020	0.036	0.053	0.053	0.060	0.060	0.093	0.093								
						(m/s)	Measured Velocity	0.069	0.064	0.074	0.064		0.127	0.114	0.148	0.125	0.159	0.138								
						(m/s)	Predicted Velocity	0.094	0.094	0.118	0.118	0.159	0.169	0.169	0.169	0.169	0.169	0.169								
						(m/s)	Absolute Error	0.025	0.030	0.044	0.054		0.042	0.055	0.021	0.044	0.010	0.031								
						%	Error	37%	48%	59%	84%		33%	48%	14%	35%	6%	22%								
																										
71	65	James et al. (2001)	Pattern 7 away from wall Q=10l/s	0	0.0835	0.535	(m)	Distance nearest interface	0.000	0.000	0.007	0.007	0.023	0.040	0.040	0.047	0.047	0.080	0.080							
						(m)	y	0.015	0.015	0.022	0.022	0.038	0.055	0.055	0.062	0.062	0.095	0.095								
						(m/s)	Measured Velocity	0.070	0.068	0.077	0.066		0.137	0.121	0.155	0.129	0.157	0.138								
						(m/s)	Predicted Velocity	0.097	0.097	0.118	0.118	0.156	0.175	0.175	0.175	0.175	0.175	0.175								
						(m/s)	Absolute Error	0.027	0.029	0.041	0.052		0.038	0.054	0.020	0.046	0.018	0.037								
						%	Error	39%	43%	53%	79%		28%	45%	13%	36%	12%	27%								
																										
72	66	James et al. (2001)	Pattern 7 away from wall Q=12.5l/s	0	0.0835	0.506	(m)	Distance nearest interface	0.000	0.000	0.007	0.007	0.023	0.040	0.040	0.047	0.047	0.080	0.080							
						(m)	y	0.018	0.018	0.025	0.025	0.041	0.058	0.058	0.065	0.065	0.098	0.098								
						(m/s)	Measured Velocity	0.080	0.068	0.081	0.073		0.138	0.111	0.151	0.125	0.168	0.135								
						(m/s)	Predicted Velocity	0.100	0.100	0.117	0.117	0.150	0.167	0.167	0.167	0.167	0.167	0.167								
						(m/s)	Absolute Error	0.020	0.032	0.036	0.044		0.029	0.056	0.016	0.042	0.001	0.032								
						%	Error	25%	47%	45%	61%		21%	50%	10%	33%	1%	23%								
																										

Appendix C:

Results for Proposed Velocity Prediction Method

