



Ministry of Transportation

# TEST PIT / HOLE SUMMARY SHEET

Pit: **Raven Pit** Contract Area: **North Island - 3** Equipment: **Sonic Drill** Date: **March 15, 2016**

Test Hole Number	Layer Thickness (m)	Layer Top Elevation (m)	Layer Bottom Elevation (m)	Soil Classification	Gradation of Materials							Soundness Indicator					Density	Absorption	Water Table Elevation (m)	Remarks	Bag #				
					Gravel	Sand	Fines	75-150 mm	150-300 mm	> 300 mm	Maximum Size (mm)	Fracture		Micro Duval		Sand Eq.						MgSO4			
												A (%)	B (%)	C (%)	F (%)							C (%)	F (%)	C (%)	F (%)
16-1	1.5		-1.5	GW	58	39	3	>1			75											5.5	UTM 349066E 5506918N; Clay coating on gravel; WSA	791	
	1.5	-1.5	-3.0	SM1	35	52	13	>1			75											2.74 on 14/04/16	WSA	792	
	1.0			GP	42	56	2	>1			50													Medium sand; WSA	793
	1.0			SP																					
	0.5			SM1	0	72	28																	Finer sand; WSA	794
	1.5			SM2																					
16-2	2.5			SP	44	54	2	>1			50											1.96 on 14/04/16	UTM 349095E 5506759N; As per TH16-07; WSA	795	
	0.7			GP	54	41	5	>1			50													WSA	796
	1.7			SM2	0	75	25																	blue silt/clay; Screen 12"-17" plug 11"; Hydrometer and Attiberg Limit tests done	plastic bag #1
	2.1			CL	0	2	98																		
16-3	4.0			GP	66	30	4	>1			50												2.55 on 14/04/16	UTM 348967E 5506841N; Pushed rock (short sample); WSA	797
	1.5			SM2	4	76	20																	silty sand; WSA	798
	1.5			ML	0	2	98																	blue clay/silt as per TH16-02	
	2.0			ML	0	2	98																		
	1.6			ML	5	2	93																	small gravel/cobble in clay; screen 13"-18" plug 12"	

BRX= Bedrock  
 Layer Elevation = Possible Error

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					Gravel	Sand	Fines	75-150 mm	150-300 mm	> 300 mm	Maximum Size (mm)	Fracture		Micro Duval		Sand Eq.						MgSO4	
												A (%)	B (%)	C (%)	F (%)							C (%)	F (%)
16-4	3.2			SP	42	55	3	>1			75									0.2	UTM 348825E 5506794N; WSA	799	
	2.0			SP	37	60	3	>1			50									0m @ 14/04/16	WSA	780	
	1.3			SPSM	2	88	10														fine/med sand; WSA	781	
	2.0			SM1	1	84	15														Coarser sand; WSA	782	
	2.9			SPSM	46	48	6														screen 23"-28", plug 22"; WSA	783	
	0.2			ML	0	1	99														Blue clay/silt		
16-05	3.0			FILL																	UTM 348848E 5506883N; Fill, screened round, OB		
	4.1			SM3	2	66	32													1.2m @ 14/04/16	silty sand; WSA	784	
	1.0			GP	55	44	1				50										clean gravel; WSA	785	
	0.2			ML	0	2	98														silt and fine sand		
	0.5			SM2	5	75	20														silty sand, some gravel		
	0.2			ML	0	98	2														Blue clay sand		
	0.4			SM3	5	75	20														blue color; WSA	786	
	1.4			SM2																			
	1.7			ML	0	98	2														Blue clay/silt; screen 30"-35" plug 29"		
16-06	3.0			GP	56	40	4	>1			75										UTM 348954E 5506910N; WSA	787	
	3.0			SP-SM	5	86	9													1.92 @14/04/16	medium sand; WSA	788	
	3.7			ML	0	2	98														Blue clay; Screen 13"-18" plug 12"		

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					Gravel	Sand	Fines	75-150 mm	150-300 mm	> 300 mm	Maximum Size (mm)	Fracture		Micro Duval							MgSO4			
												A (%)	B (%)	C (%)							F (%)	Sand Eq.	C (%)	F (%)
16-07	0.7			SP	23	69	8													UTM 348990E 5506775N; WSA; Medium sand	789			
	0.5			GPGM				>1		75													WSA	
	0.6			SP																			WSA	
	0.2			GPGM				>1		50													2.7	WSA
	1.5			SP																			2.35 @14/04/16	WSA
	3.0			ML/CL	0	1	99													Blue clay/silt; Screen 7"-12", plug 6"				
16-08	1.5			FILL																UTM 349067E 5506860N; #3214 oversize reject				
	2.7			SM1	8	75	17													2.0 on 14/04/16	Medium sand with silt seam @ 3.2m; WSA	900		
	1.3			SM3	0	70	30														WSA	901		
	1.5			ML/CL	0	1	99																	
16-09	1.0			Crush																	UTM 348677E 5506798N			
	2.0			SP	46	50	4	>1			100										WSA	902		
	3.0			GP-GM	53	41	6	>1													WSA	903		
	0.2			SM1	20	65	15	>1																
	0.8			GP	60	38	2	2			100													
	1.6			SP	30	65	5				100										9.4-7.5 silt seam			
	1.6			GP	90	9	1	2			50										washed out? no sand			
	1.6			SPSM	34	61	5	>1			50										WSA	904		
	2.9			SM4	0	55	45														brown silty sand			
	0.2			ML/CL	0	1	99														blue clay/silt			

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					Gravel	Sand	Fines	75-150 mm	150-300 mm	> 300 mm	Maximum Size (mm)	Fracture		Micro Duval		MgSO4										
												A (%)	B (%)	C (%)	F (%)	Sand Eq.							C (%)	F (%)	C (%)	F (%)
16-10	1.3			GP	60	36	4	>1			50											UTM 348560E 5506918N; Way point #328				
	1.7			SPSM	30	52	18	>1			50											silty sand and gravel; WSA	905			
	3.0			GPGM				>1					50												WSA	
	4.5			GP				1					75												medium sand-silt bedding; WSA	
	2.0			SM2				6	73	21														WSA	906	
	1.5			SPSM	15	77	8				25															
	1.5			ML/CL	0	1	99															Blue clay/silt				
16-11	3.5			GP	39	56	5	1			75			8.2	10.7							5.5	UTM 348474E 5506912N; Pit floor;WSA	907		
	2.5			SP				>1					50													WSA
	2.0			SP									50													medium sand; WSA
	1.2			GP				1					75													coarse sand and gravel; WSA
	3.3			ML/CL				0	1	99															Blue clay silt	
16-12	5.0			GP-GM	53	39	8	1			100			9.6	10.3								UTM 348482E 5506966N; Pit floor;WSA	908		
	0.3			ML	0	1	99																Clay seams			
	1.2			SP	15	80	5																			
	0.2			ML	10	10	80																	silty sand layer		
	2.1			SP	45	51	4	>1			100													WSA	909	
	1.2			SM4	0	55	45																			
	2.5			ML/CL	0	1	99																	Blue clay/silt		

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**TEST PIT / HOLE SUMMARY SHEET**

**Pit:** Raven #0152      **Contract Area:** North Island - 3      **Equipment Type:** Excavator

Test Pit/Hole Number	Layer Thickness (m)	Layer Top Elevation (m)	Layer Bottom Elevation (m)	Soil Classification	Gradation of Materials							Soundness Indicator					Density	Absorption		Water Table Elevation (m)	Remarks	Bag #				
					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.	MgSO4		C	F				C	F		
												A	B			C									F	C
												(%)	(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-1	0.6	117.5	116.9	CR					50	46	4												FVI; CRUSH			
	0.4	116.9	116.5	GP	5	1		300	89	10	1													FVI		
	3.0	116.5	113.5	SP					15	83	2										114.0			FVI; 2L/MIN		
13-2	0.2	118.6	118.4	CR																				FVI; CRUSH		
	0.8	118.4	117.6	GP	3	1		300	54	44	2														FVI	
	2.0	117.6	115.6	SP	2			150	41	58	1														WSA	181
	0.2	115.6	115.4	CL																					FVI	
	0.8	115.4	114.6	GP	5	2	1	350	62	36	2											115.4			FVI; 2L/MIN	
13-3	1.0	121.6	120.6	GP	8	2		300	70	29	1														FVI; 2L/MIN	
13-4	0.2	123.2	123.0	CR																					FVI; CRUSH	
	1.0	123.0	122.0	SPSM	3	2	1	300	40	52	8														WSA	738
	2.0	122.0	120.0	SP	5	2	1	300	43	56	1														WSA	739
	0.3	120.0	119.7	SP					20	78	2											119.7			FVI; 2L/MIN	

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					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.		MgSO4					C	F	C	F
												A	B				C	F							
												(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-5	0.3	131.5	131.2	GM1					48	38	14											FVI			
	1.5	131.2	129.7	GP	2			150	64	36	0												WSA	212	
	3.2	129.7	126.5	SP	2	1		180	44	54	2												WSA	213	
	1.0	126.5	125.5	GP	5	2		300	60	39	1												WSA	730	
13-6	0.3	133.2	132.9	GM1	1	1		200	48	38	14												FVI		
	4.2	132.9	128.7	GP	6	3	1	350	61	39	0	85	76	7	11								WSA; LOOSE MATERIAL	731	
13-7	6.0	131.7	125.7	SP	4	2	1	300	40	58	2												WSA	740	
13-8	1.0	130.7	129.7	GP	4	2	1	300	64	35	1	<b>EXCAVATED OUT</b>													
	5.0	129.7	124.7	GP	3	1		150	53	44	3														
13-9	2.5	142.3	139.8	GP	5	2	1	350	54	42	4	86	81	15	13								WSA	742	
	3.5	139.8	136.3	SP	2			150	39	59	2												WSA	743	
13-10	0.2	144.3	144.1	TS																			FVI; ORGANICS		
	1.5	144.1	142.6	SP	2	1		250	43	56	1	84	75	12	11								WSA; SOME CRUMBLY ROCK	744	
	1.8	142.6	140.8	GP	3	2	1	300	63	35	2												WSA	745	
	2.5	140.8	138.3	GP	1			150	54	44	2	81	74	12	13								WSA; FINER THAN SA-2	746	

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					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.		MgSO4					C	F	C	F
												A	B				C	F							
												(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-11	0.2	145.8	145.6	TS																	FVI; ORGANICS				
	2.8	145.6	142.8	GP	8	5	1	400	62	35	3											WSA	747		
	2.5	142.8	140.3	SP	4	2	1	350	46	51	3											WSA	748		
	0.5	140.3	139.8	SP	1			150	20	79	1											FVI			
13-12	0.2	151.5	151.3	TS																		FVI; ORGANICS			
	1.5	151.3	149.8	GP	6	2	1	350	50	47	3											FVI			
	3.3	149.8	146.5	GP					63	35	2	83	73	13	13							WSA	749		
	1.0	146.5	145.5	SP	1			150	30	69	1											FVI			
13-13	0.2	152.1	151.9	TS																		FVI; ORGANICS			
	2.3	151.9	149.6	GP	4	2		300	50	47	3					61	4	14	2.8	2.7	1.9	3.5	WSA	732	
	2.5	149.6	147.1	GP	4	2		300	62	35	3											WSA; CRUMBLY ROCK	733		
	1.0	147.1	146.1	SP	1			150	35	63	2											FVI			
13-14	0.2	142.9	142.7	TS																		FVI; ORGANICS			
	3.8	142.7	138.9	GP	6	3	1	450	71	28	1											WSA; FINES DOWNWARD	734		
	2.0	138.9	136.9	SP	2	1		250	42	51	2											WSA	735		

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					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.		MgSO4					C	F	C	F
												A	B				C	F							
												(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-15	0.2	145.7	145.5	TS																	FVI; ORGANICS				
	4.3	145.5	141.2	GP	10	5	2	450	61	36	3	84	78	12	13								WSA	736	
	1.5	141.2	139.7	GPGM	2	1		250	52	42	6												FVI; FINES DOWNWARD		
13-16	0.2	135.5	135.3	TS																		FVI; ORGANICS			
	1.3	135.3	134.0	GP	5	3	1	450	62	34	4												FVI		
	3.0	134.0	131.0	GPGM	5	3	1	450	58	37	5					47	5.9	12	2.9	2.7	1.6	3.1	WSA	737	
	1.5	131.0	129.5	SP	1			150	35	64	1												FVI		
13-17	0.2	141.0	140.8	TS																			FVI; ORGANICS		
	2.3	140.8	138.5	GPGM	10	5	2	750	64	30	6												FVI		
	3.5	138.5	135.0	SP	2	1		300	48	49	3												WSA	180	
13-18	0.2	147.2	147.0	TS																			FVI; ORGANICS		
	3.3	147.0	143.7	GP	10	5	1	600	59	40	1												WSA	178	
	2.5	143.7	141.2	SP	1	1		200	25	74	1												FVI		
13-19	0.4	150.0	149.6	TS																			FVI; ORGANICS		
	3.6	149.6	146.0	GP	10	5	2	450	65	33	2	87	83	11	9.9								WSA	174	
	2.0	146.0	144.0	GPGM	2	1		200	48	47	5												WSA	175	

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					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.		MgSO4					C	F	C	F
												A	B				C	F							
												(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-20	0.4	153.6	153.2	TS																	FVI; ORGANICS				
	4.1	153.2	149.1	SP	5	2	1	450	48	49	3											WSA: COMPACTED/CEMENTED	173		
	1.5	149.1	147.6	SP	1			150	46	53	1									147.6		FVI; 4L/MIN			
13-21	0.4	154.4	154.0	TS																		FVI; ORGANICS			
	3.1	154.0	150.9	SP	4	2			44	54	2	81	76	12	12								WSA: COMPACTED/CEMENTED	171	
	2.0	150.9	148.9	GP	6	3	1		49	48	3												WSA	172	
	0.5	148.9	148.4	SP	1			150	24	75	1												FVI		
13-22	0.4	127.0	126.6	TS																			FVI; ORGANICS		
	2.6	126.6	124.0	SP	4	2		300	43	56	1													WSA; LUMPS OF COMPACTED S+G	176
	2.0	124.0	122.0	SP	2			150	33	66	1													FVI	
	1.0	122.0	121.0	GP	4	1		250	63	35	2													WSA	177
13-23	0.4	130.0	129.6	TS																				FVI; ORGANICS	
	3.6	129.6	126.0	GP	4	2	1	450	52	47	1	81	73	9.4	10									WSA	179
	1.5	126.0	124.5	GP	3	2		250	79	17	4													WSA	710
	0.5	124.5	124.0	SP	1			150	34	65	1													FVI	

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					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval							MgSO4				
												A (%)	B (%)	C (%)	F (%)						Sand Eq.	C (%)	F (%)	C (%)	F (%)
13-24	1.0	132.2	131.2	GP	5	2		300	68	32	2	EXCAVATED OUT												711	
	5.0	131.2	126.2	SP	3	2		300	48	50	2	EXCAVATED OUT													
13-25	0.5	133.1	132.6	TS														FVI; ORGANICS							
	0.5	132.6	132.1	SP					14	84	2							FVI							
	4.0	132.1	128.1	GP	6	3		300	62	37	1							WSA	712						
	1.0	128.1	127.1	SP					40	58	2							FVI							
13-26	0.4	148.4	148.0	TS														FVI; ORGANICS							
	5.6	148.0	142.4	GP	4	2	1	300	53	46	1	84	78	12	11			WSA	713						
13-27	0.4	146.0	145.6	TS														FVI; ORGANICS							
	0.6	145.6	145.0	GP	6	4	1	400	56	42	2							FVI							
	0.5	145.0	144.5	SM2	3	2	1	400	18	60	22							FVI							
	0.5	144.5	144.0	SP					32	66	2							FVI							
	0.3	144.0	143.7	GP	5	2		200	80	19	1							FVI							
	2.7	143.7	141.0	SP	3	2		200	34	63	3							WSA	714						
	1.0	141.0	140.0	GP	3	2		200	60	39	1							FVI							

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**Pit:** Raven #0152      **Contract Area:** North Island - 3      **Equipment Type:** Excavator

Test Pit/Hole Number	Layer Thickness (m)	Layer Top Elevation (m)	Layer Bottom Elevation (m)	Soil Classification	Gradation of Materials							Soundness Indicator				Density	Absorption		Water Table Elevation (m)	Remarks	Bag #				
					75/150 mm	150/225 mm	> 225 mm	Maximum Size (mm)	Gravel	Sand	Fines	Fracture		Micro Duval	Sand Eq.		MgSO4					C	F	C	F
												A	B				C	F							
												(%)	(%)	(%)	(%)		(%)	(%)				(%)	(%)	(%)	(%)
13-28	0.4	150.8	150.4	TS																	FVI; ORGANICS				
	2.0	150.4	148.4	GP	10	5	2	500	60	36	4											FVI			
	3.6	148.4	144.8	SP	4	2		250	47	50	3											WSA	715		
13-29	0.4	146.1	145.7	TS																		FVI; ORGANICS			
	4.1	145.7	141.6	GP	10	5	1	500	68	31	1											WSA	716		
	1.5	141.6	140.1	SP	4	2	1	300	44	54	2											FVI			
13-30	0.4	144.4	144.0	TS																		FVI; ORGANICS			
	3.1	144.0	140.9	GP	5	3	1	400	57	42	1			86	5	13	2.8	2.7	1.9	3.2		WSA	718		
	1.0	140.9	139.9	SP	2	1		200	17	82	1											FVI			
	1.5	139.9	138.4	SP	2	1		200	45	54	1											WSA	717		

BRX= Bedrock  
 Layer Elevation = Possible Error

FVI= Field Visual Identification  
 WSA= Washed Sieve Analysis  
 LVI= Lab Visual Identification