

APPENDIX O

Particle Size Distribution Report

AUSTRALIAN SOIL AND CONCRETE TESTING P/L A.B.N. 49 050 539 930

7/17 Southern Cross Drive Ballina NSW 2478. PH: (02) 6686 8567 FAX: (02) 6686 8396

ASCT Doc. No. R03a Rev. 01 - 6/10/10 - BH

:565

Particle Size Distribution Report

	Payne & Partn s: AS1289.3.6		Project No: 0 Report no: 04	
_ab No: 1370		7	noport no. 0	
Sieve Size	Passing	Lower Limit	Upper Limit	
(mm)	(%)	(%)	(%)	Date Tested: 11/5/11
100.0				
75.0				Sampled By: ASCT P/L
53.0				
37.5				Sample Location: Piezometer 2
26.5	-			
19.0				Sampling Method: AS1289.1.2.1.6.5.3
13.20				
9.50				Sample Preparation: Oven Dried AS1289.1.1
6.70				
4.75		n		Sample Description: Sand: Brown
2.36				
1.180	100			
0.600	99			
0.425	95			
0.300	64			
0.150	3			
0.075	2			
0.0135				
A Ratio				
B Ratio				
C Ratio				
(%) Bussel 100 100 100 00 00 00 00 00 00	(5 ^{.9} 63 ^{.9} 3 ^{.1,5} 9		2 .1 .1	$\begin{array}{c} & & & \\$
^				
ACCREDITED TOP TECHNICAL COMPETENCE	with NATA's ac	is issued in acco creditation requir compliance with l	ements.	Brian Dick (Approved Signatory)

ASCT Doc. W40 Rev. No. 03-30/4/08 BH

BOREHOLE LOG – PIEZOMETER

Client: Ardill Payne & PartnersProject No: 044-513Project: PrLab No: 13708Piezo No:			Pag	amp Road, Lennox	
Piezo Infor Diameter (mm): 50 Sump (m): 0.95 Slotted (m): 3.0		th in groun	d (m) 8 3	Stick-up (m)	0.4
		ar in groun	a (m): 0.0		
Bore Infor			Dete Inete	U. d. 0/5/44	
Piezometer Inclination: 90° Piezometer Direct Surface Elevation: Existing Surface Level Drilling Method:				illed: 9/5/11 : 100mm Auger	
Piezometer Location: P1 (see plan attached)		Dimiting	Dimitype	. Toomin Auger	
Bore L Soil Description	og Depth	Graphic	Group	Consistency/	Sample
Son Description	(m)	Symbol	Symbol	Strength	Joampie
SILTY SAND TOPSOIL: black, low plastic, low dry strength, fine	- 0.0		SM	L	None
sand, some organic matter and clay, loose, wet.	- 0.3				
SILTY SAND: dark grey, low plastic, low dry strength, fine sand,	- 0.5		SM/SC	L	
trace of clay, loose, wet.	8			25	
ter Table @ 1.0m					
SAND: brown, non-plastic, no dry strength, fine sand, loose to	- 1.0		SP	L-MD	
medium dense, wet.	*			22033C	1
	- 1.7				
SAND: pale grey to white, non-plastic, no dry strength, fine to	- 1.7		SP	MD-D	
medium sand, medium dense to dense, wet.	2				
	*				
	- 2.7				
SAND: pale brown-grey to brown, non-plastic, no dry strength, fine	-		SP	MD-D	
sand, medium dense to dense, wet	2				
	*				
	Ç.				
	-				
	*				
	÷				
	10				
	*				
	7 0				
	1				
					1
	- 24 - 2				
<u></u>	- 6.5				
SAND: grey, non-plastic, no dry strength, fine sand, medium dense to	-		SP	MD-D	
dense, wet.	-				
	-				
	-				
	-				1
	+:				
	5				
	8.3				
Stopped – No Change.	- 0.3				

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BOREHOLE LOG – PIEZOMETER

		nd Pit, Lot 32		mp Road, Lenno	
Lab No: 13708 Piezo No:	2		Page	e: 01	f:
Piezo Info	mation				
Diameter (mm): 50 Sump (m): 0.7 Slotted (m): 3.0		th in groun	i d (m): 11.1	Stick-up (m)	: 0.4
Bore Infor	mation				
Piezometer Inclination: 90° Piezometer Direct		ical	Date Insta	lled: 9/5/11	
Surface Elevation: Existing Surface Level Drilling Method:				100mm Auger	
Piezometer Location: P2 (see plan attached)				<u> </u>	
Bore L	00				
Soil Description	Depth	Graphic	Group	Consistency/	Sample
	(m)	Symbol	Symbol	Strength	
SAND TOPSOIL: dark grey, non-plastic, no dry strength, fine to	- 0.0		SP	VL	None
medium sand, some organic matter, very loose, very moist.	- 0.2				
SAND: grey, non-plastic, no dry strength, fine to medium sand, loose,	- 0.2		SP	L	1
very moist.	*				
	*				
SAND: dark brown to brown, non-plastic, no dry strength, fine sand,	- 0.7		SP	MD-D	
SAND: dark brown to brown, non-plastic, no dry strength, line sand, medium dense to dense, wet.	2		3F		
Water Table @ 0.8m	- 0.8				
	-				1
	-				
	- -				
	-				
SAND: grey brown, non-plastic, no dry strength, fine to medium sand,	- 5.0		SP	MD-D	
medium dense to dense, wet.			SF		
	•				
	- 6.6				
SAND: dark brown, indurated, non-plastic, no dry strength, fine sand,	-		SP	D-VD	
trace of silt, dense to very dense, wet	<u></u>				
	•				
	*				
	-				
	1				
	-				
	-				
	2				
	- 10.2				
SAND: brown, non-plastic, no dry strength, fine sand, dense, wet.	-		SP	D	
	-				
	-				
	- - 11.1				
Stopped – No Change.	1.11	******			1
otopped no ondige.					1

AUSTRALIAN SOIL AND CONCRETE TESTING P/L A.B.N. 49 050 539 930

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BOREHOLE LOG – PIEZOMETER Client: Ardill Payne & Partners | Project No: 044-513 | Project: Proposed Sand Pit, Lot 32 Newrybar Swamp Road, Lennox Head. Piezo No: 3 Lab No: 13712 Page: Of: **Piezo Information** Diameter (mm): 50 Sump (m): 0.5 Slotted (m): 3.0 Depth in ground (m): 9.1 Stick-up (m): 0.4 **Bore Information** Piezometer Inclination: 90° Piezometer Direction: Vertical Date Installed: 10/5/11 Surface Elevation: Existing Surface Level Drilling Method: Explora 85 Drill Rig Drill Type: 100mm Auger Piezometer Location: P3 (see plan attached) Bore Log Soil Description Depth Graphic Group Consistency/ Sample Symbol Symbol (m) Strength CLAYEY SILTY SAND TOPSOIL: black, low plastic, low dry - 0.0 SC VS None strength, fine sand, some organic matter, very soft, moist. - 0.4 C' AYEY SILTY SAND: dark grey, low plastic, low dry strength, fine SC S d, soft, moist to wet. Water Table @ 0.9m - 0.9 SAND: grey, non-plastic, low dry strength, fine sand, trace of silt and SP L-MD clay, loose to medium dense, wet. - 1.4 SAND: brown, non-plastic, no dry strength, fine sand, loose to SP L-MD medium dense, wet. - 1.8 SAND: pale grey to white, non-plastic, no dry strength, fine sand, SP MD medium dense, wet. - 2.3 SAND: brown, non-plastic, no dry strength, fine sand, medium dense SP MD-D to dense, wet. -. - 9.7 SAND: dark brown, partly indurated, non-plastic, no dry strength, fine SP D-VD sand, dense to very dense, wet. - 10.5 Stopped - No Change.

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BOREHOLE LOG – PIEZOMETER

Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Pit, Lot 32 Newrybar Swamp Road, Lennox Head.				
Lab No: 13712		Piezo No: 4	Page:	Of:		
		Piezo Information				

 Diameter (mm): 50
 Sump (m): 0.5
 Slotted (m): 3.0
 Depth in ground (m): 10.6
 Stick-up (m): 0.4

Bore Information

	Dore information	
Piezometer Inclination: 90°	Piezometer Direction: Vertical	Date Installed: 10/5/11
Surface Elevation: Existing Surface Level	Drilling Method: Explora 85 Drill Rig	Drill Type: 100mm Auger
Piezometer Location: P4 (see plan attache	ed)	

Soil Description	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY SAND TOPSOIL: black, non-plastic, no dry strength, fine	- 0.0		SM	L	None
sand, some organic matter, loose, moist.	*				
CAND, many planting of a strength for the little	- 0.2				
SAND: grey, non-plastic, no dry strength, fine sand, loose, moist to	-		SP	L	
very moist.	+				
SAND: brown, non-plastic, no dry strength, fine sand, medium dense	- 1.2				
to dense, wet.	- 1.2		SP	MD-D	
Water Table @ 1.2m	<u>_</u>		01		
<u> </u>	÷.				
	+				
	-				
	-				
	*				
	•				
	8				
	2				
	5				
	<u> </u>				
	-				
	12				
	÷				
	-				
	*				
0.					
	1				
	•				
	- E				
	- 7.8				
SAND: dark brown, indurated, non-plastic, no dry strength, fine sand,	-		SP	D-VD	
dense to very dense, wet.	-				
	-				
CAND: deals because as with find-material (- 8.3		1000		
SAND: dark brown, partly indurated (some indurated bands), non-			SP	D-VD	
plastic, no dry strength, fine sand, dense to very dense, wet.	法				
	-				
	-				
	- 10.6				
Stopped – No Change.					





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Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Pit, Lot 32 Newrybar S Road, Lennox Head.		
Lab No: 13708		Borehole No: 2.1	Page:	Of:

Borehole Inclination: 90°	Borehole Directi	ion: Vertica	al	Date Drilled: 9/5/11		
Surface Elevation: Existing Surface Level	Drilling Method:	Explora 85	5 Drill Rig	Drill Type	Drill Type: 100mm Auger	
Borehole Location: 2.1 (see plan attached)						
Soil Description	TEST D	DATA Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY SAND TOPSOIL: black, low plastic, low d sand, some organic matter and clay, loose, wet.	ry strength, fine	- 0.0 - - 0.3		SM	L	ASS Topsoil ASS
SILTY SAND: dark grey, low plastic, low dry stre trace of clay, loose, wet. Water Table @ 1.0m	ngth, fine sand,	-		SM/SC	L	0.0-0.5m ASS 0.5-1.0m
ND: brown, non-plastic, no dry strength, fine s medium dense, wet.	and, loose to	- 1.0		SP	L-MD	ASS 1.0-1.5m
SAND: pale grey to white, non-plastic, no dry stro medium sand, medium dense to dense, wet.	ength, fine to	- 1.7 -		SP	MD-D	ASS 1.5-2.0m
SAND: pale brown-grey to brown, non-plastic, no	o dry strength, fine	- 2.7		SP	MD-D	ASS 2.0-2.5m
sand, medium dense to dense, wet	0.0					ASS 2.5-3.0m
						ASS 3.0-3.5m
		*				ASS 3.5-4.0m
						ASS 4.0-4.5m
		* 10.0				ASS 4.5-5.0m
		*			Consistency/ Strength L L L-MD MD-D	ASS 5.0-5.5m
		- - - 6.5		0.5		ASS 5.5-6.0m
SAND: grey, non-plastic, no dry strength, fine sa dense, wet.	nd, medium dense to	•		SP	MD-D	ASS 6.0-6.5m
						ASS 6.5-7.0m
		•				ASS 7.0-7.5m
Stopped – No Change.		- 8.3				ASS 7.5-8.0n

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Client: Ardill Payne & Partners	Project No: 044-513	Project : Proposed San Road, Lennox Head.	id Pit, Lot 32 Ne	wrybar Swamp
Lab No: 13712		Borehole No: 2.2	Page:	Of:

Borehole Inclination: 90°	Borehole Direction	on: Vertica	al	Date Drill	ed: 10/5/11	
Surface Elevation: Existing Surface Level Drilling Method: Ex		Explora 85 Drill Rig Drill Type: 100mm Auger				
Borehole Location: 2.2 (see plan attached)		6 mm h				
Call Departmention	TEST D		1 Orachite 1	Chrome	Consistent	L Course
Soil Description		Depth (m)	Graphic Symbol	Group Symbol		Sample
SILTY SAND TOPSOIL: dark grey, non-plastic, lo sand, some organic matter, trace of clay, loose, v		- 0.0		SM	L	ASS Topsoil ASS
SILTY SAND: dark brown, non-plastic, low dry str trace of clay, loose to medium dense, moist to we		- 0.2		SM	L-MD	0.0-0.5m
.ND: pale brown grey, non-plastic, no dry stren	oth fine sand	- 0.8		SP	MD	0.5-1.0m
medium dense, wet. Water Table @ 1.0m	gui, inte sand,	- 1.0		Sr	MD	ASS 1.0-1.5m
		-				ASS 1.5-2.0m
		2				ASS 2.0-2.5m
						ASS 2.5-3.0m
		-				ASS 3.0-3.5m
		-				ASS 3.5-4.0m
		* * *				ASS 4.0-4.5m
		-				ASS 4.5-5.0m
		100				ASS 5.0-5.5m
		*			Consistency/ Strength L	ASS 5.5-6.0m
SAND, doub buours porthe industrial way at-	no day otropyth first	- - - 7.1		SP		ASS 6.0-6.5m
SAND: dark brown, partly indurated, non-plastic, i sand, dense, wet.	no ary suengun, ime			54	U	ASS 6.5-7.0m
		*				ASS 7.0-7.5m
Stopped – No Change.		- 8.0				ASS 7.5-8.0m

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Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed San Road, Lennox Head.	nd Pit, Lot 32 Ne	ewrybar Swamp
Lab No: 13712		Borehole No: 2.3	Page:	Of:

Borehole Inclination: 90°	Borehole Directi				Date Drilled: 10/5/11	
Surface Elevation: Existing Surface Level	Drilling Method:	Explora 85	5 Drill Rig	Drill Type	rill Type: 100mm Auger	
Borehole Location: 2.3 (see plan attached)						
Soil Description	TEST D	ATA Depth	Graphic	Group	Consistency/	Sample
Son Description		(m)	Symbol	Symbol	Strength	Sample
SILTY SAND TOPSOIL: black, non-plastic, low c sand, some organic matter, trace of clay, very loc	lry strength, fine ose, wet.	- 0.0 - - 0.25		SM	VL	ASS Topsoil ASS
CLAYEY SILTY SAND: dark brown grey, low pla strength, fine sand, very soft to firm, wet.	stic, low dry	-		SC/SM	VS-F	0.0-0.5m
ster Table @ 1.0m		- 1.0				0.5-1.0m
		- - - 1.5				ASS 1.0-1.5m
SAND: brown, non-plastic, no dry strength, fine s wet.	and, loose to dense,	- 1.5		SP	L-D	ASS 1.5-2.0m
						ASS 2.0-2.5m
						ASS 2.5-3.0m
		*				ASS 3.0-3.5m
						ASS 3.5-4.0m
		34 10 10				ASS 4.0-4.5m
		- 5.1				ASS 4.5-5.0m
SAND: grey, non-plastic, no dry strength, fine sar dense, wet.	nd, medium dense to	-		SP	MD-D	ASS
						5.0-5.5m
		*				ASS 5.5-6.0m
		- 7.1		22		ASS 6.0-6.5m
SAND : dark brown, partly indurated, non-plastic, sand, dense, wet	no ary strength, fine	-		SP	D	ASS 6.5-7.0m
		-				ASS 7.0-7.5m
Stopped – No Change.		- 8.0				ASS 7.5-8.0m

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Client: Ardill Payne & Partners Project No: 044-513		Project: Proposed San Road, Lennox Head.	nd Pit, Lot 32 Ne	ewrybar Swamp
Lab No: 13708		Borehole No: 2.4	Page:	Of:

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 9/5/11			
urface Elevation: Existing Surface Level Drilling Method:		Explora 85	Drill Rig	Drill Type: 100mm Auger		
Borehole Location: 2.4 (see plan attach						
	TEST D		Graphic	Group	Consistency/	Sample
Soil Description		Depth (m)	Symbol	Symbol	Strength	Jamph
SILTY SAND TOPSOIL: black, low plastic, low dry strength, fine sand, some organic matter and clay, very loose/very soft, wet.		- 0.0		SM/SC	VL/VS	ASS Topsoi
sand, some organic matter and day, very loose very son, wet.		- 0.3				ASS
SILTY SAND: dark brown, low plastic, low dry	strength, fine sand,			SM	L-MD	0.0-0.5r
trace of clay, loose to medium dense, wet.		-				ASS
Water Table @ 0.9m		- 0.9 - 1.0				0.5-1.0
ND: brown to dark brown, non-plastic, no c	ry strength, fine sand,	-		SP	MD-D	
medium dense to dense, wet.		•				ASS
		•				1.0-1.5
						ASS
						1.5-2.0r
						ASS 2.0-2.5r
		2				2.0-2.0
		-				ASS
						2.5-3.0
		1				
						ASS 3.0-3.5
		-				0.0 0.0
						ASS
						3.5-4.0
		-				400
						ASS 4.0-4.5
						ASS
		•				4.5-5.0r
		*				ASS
						5.0-5.5
		+				ASS
		1				5.5-6.0
						ASS
		¥3				6.0-6.5
		*				
		2				ASS
						6.5-7.0
		45				ASS
		÷:				7.0-7.5
Stopped – No Change.		- 8.0	********			ASS
otoppeu - no onalige.			1 1			7.5-8.0

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Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Pit, Lot 32 Newrybar Swam Road, Lennox Head.				
Lab No: 13712		Borehole No: 2.5	Page:	Of:		

Borehole Inclination: 90°	Borehole Direction: Vertical			Date Drilled: 10/5/11		
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	5 Drill Rig	g Drill Type: 100mm Auger		
Borehole Location: 2.5 (see plan attached)	TEST DA	ΑΤΑ				
Soil Description	1651 D/	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY SAND TOPSOIL: dark grey, non-plastic, lo sand, some organic matter, trace of clay, loose, m	w dry strength, fine oist.	- 0.0 - - 0.3		SM	L	ASS Topsoil ASS
SILTY SAND: dark brown, non-plastic, low dry stre trace of clay, loose, moist to very moist.	ength, fine sand,	*) 2 *		SM	L	0.0-0.5m ASS 0.5-1.0m
ND: brown to pale brown, non-plastic, no dry st medium dense, wet. Water Table @ 1.0m	rength, fine sand,	- 0.8 - - 1.0		SP	MD	ASS 1.0-1.5m
		* *				ASS 1.5-2.0m
						ASS 2.0-2.5m
		-				ASS 2.5-3.0m
		*				ASS 3.0-3.5m
		-				ASS 3.5-4.0m
		- - - 4.8				ASS 4.0-4.5m
SAND: grey, non-plastic, no dry strength, fine sand dense, wet.	d, medium dense to			SP	MD-D	ASS 4.5-5.0m
		•				ASS 5.0-5.5m
		•				ASS 5.5-6.0m
SAND: dark brown, indurated, non-plastic, no dry :	strength, fine sand,	- - 6.7 -		SP	D-VD	ASS 6.0-6.5m
dense to very dense, wet.		•				ASS 6.5-7.0m
		-				ASS 7.0-7.5m
Stopped – No Change.		- 8.0 -				ASS 7.5-8.0m

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Client: Ardill Payne & Partners Project No: 044-513		Project: Proposed Sar Road, Lennox Head.	nd Pit, Lot 32 Ne	ewrybar Swamp
Lab No: 13712		Borehole No: 2.6	Page:	Of:

Borehole Inclination: 90°	Borehole Direction: Vertical		al	Date Drilled: 10/5/11		
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	5 Drill Rig	Drill Type	: 100mm Auger	
Borehole Location: 2.6 (see plan attached)	TEOTO	A T A				
Soil Description	TEST D/	Depth	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY SAND TOPSOIL: black, low plastic, low dr sand, some organic matter, trace of clay, very loos		(m) - 0.0 -	Symbol	SM	VL	ASS Topsoil
SILTY SAND: dark grey brown, non-plastic, low d sand, trace of clay, loose, wet.	ry strength, fine	- 0.25 -		SM	L	ASS 0.0-0.5m
"^'ater Table @ 0.8m		- - 0.8 - 1.2				ASS 0.5-1.0n
SAND: brown, non-plastic, no dry strength, fine sa wet.	and, loose to dense,	- 1.2		SP	L-D	ASS 1.0-1.5m
		•				ASS 1.5-2.0m
		-				ASS 2.0-2.5m
		-				ASS 2.5-3.0m
		-				ASS 3.0-3.5m
		-				ASS 3.5-4.0m
		-				ASS 4.0-4.5m
		- 5.2				ASS 4.5-5.0m
SAND: grey, non-plastic, no dry strength, fine sand dense, wet.	d, medium dense to	2		SP	MD-D	ASS 5.0-5.5m
		•				ASS 5.5-6.0m
		-				ASS 6.0-6.5m
SAND: dark brown, indurated, non-plastic, no dry	strength fine sand	- 7.2		SP	D-VD	ASS 6.5-7.0m
dense to very dense, wet	sa angan, inte sana,	-		JF		ASS 7.0-7.5m
Stopped – No Change.		- 8.0				ASS 7.5-8.0m

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	())				
Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Pit, Lot 32 Newrybar Swa			
		Road, Lennox Head.	(b)		
Lab No: 13708		Borehole No: 2.7	Page:	Of:	

Borehole Inclination: 90°	Borehole Directi	on: Vertica	al	Date Drilled: 9/5/11		
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	plora 85 Drill Rig Drill Type: 100mm A			
Borehole Location: 2.7 (see plan attac						
Soil Description	TEST D	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SAND TOPSOIL: dark grey, non-plastic, no medium sand, some organic matter, very loc	dry strength, fine to se, very moist.	- 0.0 - - 0.2		SP	VL	ASS Topsoil ASS 0.0-0.5m
SAND: grey, non-plastic, no dry strength, fin very moist.	SAND: grey, non-plastic, no dry strength, fine to medium sand, loose, very moist.			SP	L	ASS 0.5-1.0m
ND: dark brown to brown, non-plastic, no medium dense to dense, wet.	dry strength, fine sand,	- 0.7 - - - 0.8		SP	MD-D	ASS 1.0-1.5m ASS
Water Table @ 0.8m		-				1.5-2.0m ASS 2.0-2.5m
		2				ASS 2.5-3.0m
						ASS 3.0-3.5m ASS
SAND: arey brown, non-plastic, no dry stren	oth fine to medium sand	- 5.0		SP	MD-D	3.5-4.0m ASS 4.0-4.5m
medium dense to dense, wet.	SAND: grey brown, non-plastic, no dry strength, fine to medium sand, medium dense to dense, wet.					ASS 4.5-5.0m ASS
ND : dark brown, indurated, non-plastic, n trace of silt, dense to very dense, wet	o dry strength, fine sand,	- 6.6		SP	D-VD	5.0-5.5m ASS 5.5-6.0m
trace of silt, dense to very dense, wet		*				ASS 6.0-6.5m
		*				ASS 6.5-7.0m ASS
						7.0-7.5m ASS 7.5-8.0m
		- - - 10.2				7.0-0.00
SAND: brown, non-plastic, no dry strength, f	fine sand, dense, wet.	-		SP	D	
Stopped – No Change.		- 11.1	******			

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Client: Ardill Payne & Partners Project No: 044-513		Project : Proposed San Road, Lennox Head.	d Pit, Lot 32 Ne	wrybar Swamp
Lab No: 13712		Borehole No: 2.8	Page:	Of:

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 10/5/11			
			5 Drill Rig	Drill Type: 100mm Auger		
Borehole Location: 2.8 (see plan attached)						
	TEST D		Crechte	Charter	Consistency/	Comula
Soil Description		Depth (m)	Graphic Symbol	Group Symbol	Strength	Sample
SILTY SAND TOPSOIL: black, non-plastic, low dry sand, some organic matter, trace of clay, loose, ve		- 0.0		SM	L	ASS Topsoil ASS
SAND: dark grey, non-plastic, no dry strength, fine sand, loose, very moist to wet.		- 0.3 -		SP	L	0.0-0.5m
Water Table @ 0.7m		- 0.7 - 0.8				ASS 0.5-1.0m
ND: brown to dark brown, non-plastic, no dry str loose to dense, wet.	rength, fine sand,	2		SP	L-D	ASS
		-				1.0-1.5m ASS
		1				1.5-2.0m
		-				ASS 2.0-2.5m
						ASS 2.5-3.0m
		-				ASS 3.0-3.5m
		2				ASS 3.5-4.0m
		-				ASS 4.0-4.5m
		2				ASS
		•				4.5-5.0m
						ASS 5.0-5.5m
		-				ASS 5.5-6.0m
		- 7.0				ASS 6.0-6.5m
SAND: dark brown, partly indurated, non-plastic, no sand, dense, wet.	o dry strength, fine	-		SP	D	ASS
		2				6.5-7.0m ASS
		•				7.0-7.5m
Stopped – No Change.		- 8.0 -				ASS 7.5-8.0m

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Client: Ardill Payne & Partners Project No: 044-513		Project: Proposed Sar Road, Lennox Head.	nd Pit, Lot 32 Ne	ewrybar Swamp
Lab No: 13700		Borehole No: 2.9	Page:	Of:

	Borehole Direction			Date Drill		
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	5 Drill Rig	Drill Type	: 100mm Auger	
Borehole Location: 2.9 (see plan attached)						
	TEST D		(-
Soil Description		Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sampl
SILTY SAND TOPSOIL: dark grey, non-plastic, low		- 0.0		SM	VL	ASS
sand, some organic matter, trace of clay, very loose	e, wet.	-				Topso
SILTY SAND: brown, non-plastic, low dry strength, fine sand, trace of		- 0.25		SM	0	ASS
clay, loose, very moist.	line sand, trace of			SW	L,	0.0-0.5
		- 0.6				
ND : brown, non-plastic, no dry strength, fine sar	id, medium dense	*		SP	MD-D	ASS
dense, wet.		*				0.5-1.0
Water Table @ 0.8m		- 0.8				10
		-				
		-				ASS
		2				1.0-1.5
		-				ASS
		÷.				1.5-2.0
		*:				
		1				ASS
						2.0-2.5
						ASS 2.5-3.0r
		•				2.0-0.01
		-				
		-				ASS
						3.0-3.5r
		2				
		12				ASS
		(m)				3.5-4.0r
		(m)				
						4.000
		•				ASS 4.0-4.5r
						1.0-4.01
						ASS
						4.5-5.0r
						ASS
		17				5.0-5.5r
		÷.				
						ASS
						5.5-6.0r
		(*)				1.01.00
Stopped – No Change.		- 6.0				

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BOREHOLE LOG

Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Pit, Lot 32 Newrybar Swamp				
NUMBER OF STREET, SALES AND STREET, SALES	and the second sec	Road, Lennox Head.	Road, Lennox Head.			
Lab No: 13700	*	Borehole No: 2.10	Page:	Of:		

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 6/5/11			
Surface Elevation: Existing Surface Level	Drilling Method:	Explora 85	Drill Rig	Drill Type	: 100mm Auger	
Borehole Location: 2.10 (see plan attached						
On it Day a windle of	TEST DA		Graphic	Group	Consistency/	Sample
Soil Description		Depth (m)	Symbol	Symbol	Strength	Sample
SILTY SAND TOPSOIL: dark grey, non-plastic, low dry strength, fine sand, some organic matter, trace of clay, very loose, very moist.		- 0.0 - - 0.2		SM	VL	ASS Topsoil ASS
SILTY SAND: dark grey, low plastic, low dry strength, fine sand, trace of clay, loose, very moist.		- 0.6		SM/SC	L	0.0-0.5m ASS
ND : brown, non-plastic, no dry strength, fine s	and, trace of silt and	- 0.0		SP	L-MD	0.5-1.0m
Water Table @ 1.1m	*	- 1.1 - 1.2		2222		ASS 1.0-1.5m
SAND : brown, non-plastic, no dry strength, fine s to dense, wet.	and, medium dense	•		SP	MD-D	ASS 1.5-2.0m
		•				ASS 2.0-2,5m
		-				ASS 2.5-3.0m
		•				ASS 3.0-3.5m
		2 2 2				ASS 3.5-4.0m
						ASS 4.0-4.5m
		-				ASS 4.5-5.0m
						ASS 5.0-5.5m
SAND: dark brown, indurated, non-plastic, no dry dense to very dense, wet	strength, fine sand,	- 6.0 - -		SP	D-VD	ASS 5.5-6.0m
		2 2 8				ASS 6.0-6.5m
						ASS 6.5-7.0m
		-				ASS 7.0-7.5m
Stopped – No Change.		- 8.0				ASS 7.5-8.0m

AUSTRALIAN SOIL AND CONCRETE TESTING P/L A.B.N. 49 050 539 930

7/17 Southern Cross Drive, Ballina, NSW 2478. Ph: (02) 6686 8567 Fax: (02) 6686 8396

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					_
Client: Ardill Payne & Partners					
		Road, Lennox Head.			-
Lab No: 13700		Borehole No: 2.11	Page:	Of:	

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 6/5/11			
Surface Elevation: Existing Surface Level	Drilling Method:	Explora 85	5 Drill Rig	Drill Type	: 100mm Auger	
Borehole Location: 2.11 (see plan attached	i) TEST D/	AT A				
Soil Description	TEST DI	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
CLAYEY SILTY SAND TOPSOIL: black, low plastic, low dry strength, fine sand, some organic matter, very soft, very moist.		- 0.0 - - 0.25		SC/SM	VS	ASS 0.0-0.5m
CLAYEY SILTY SAND : dark grey, low plastic, low dry strength, fine sand, loose, very moist to wet.		-		SC/SM	L	ASS 0.5-1.0m
SAND: grey, non-plastic, no dry strength, fine sar dense, wet.	nd, loose to medium	- 1.2 -		SP	L-MD	ASS 1.0-1.5m
SAND: brown, non-plastic, no dry strength, fine s to dense, wet.	and, medium dense	- - 1.8 -		SP	MD-D	ASS 1.5-2.0m ASS
						2.0-2.5m ASS 2.5-3.0m
CAND, brown, non plantin law day strength fing.	and trace of all	- - - 3.5		SP	MD-D	ASS 3.0-3.5m
SAND : brown, non-plastic, low dry strength, fine sand, trace of silt and clay, medium dense to dense, wet.		* *		ЪF	0-01	ASS 3.5-4.0m ASS 4.0-4.5m
ND : brown, non-plastic, no dry strength, fine sand, medium dense to dense, wet.		- 4.5 -		SP	MD-D	ASS 4.5-5.0m
						ASS 5.0-5.5m
		- - - 6.0				ASS 5.5-6.0m
SAND: grey, non-plastic, no dry strength, fine sar dense, wet	nd, medium dense to	-		SP	MD-D	ASS 6.0-6.5m
		-				ASS 6.5-7.0m
		-				ASS 7.0-7.5m
Stopped – No Change.		- 8.0				ASS 7.5-8.0m

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Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Road, Lennox Head.	d Pit, Lot 32 Ne	wrybar Swamp
Lab No: 13700		Borehole No: 2.12	Page:	Of:

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 6/5/11			
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	5 Drill Rig	Drill Type: 100mm Auger		
Borehole Location: 2.12 (see plan attached		AT A				
Soil Description	TEST D	Depth	Graphic	Group	Consistency/	Sample
		(m)	Symbol	Symbol	Strength	100
SILTY SAND TOPSOIL: dark grey, non-plastic, low dry strength, fine to medium sand, some organic matter, very loose, very moist.		- 0.0 - - 0.2		SM	VL	ASS Topsoil ASS
SAND: dark brown, non-plastic, no dry strength, f bands of induration throughout, loose to dense, n				SP	L-D	0.0-0.5m ASS
ater Table @ 1.2m		- 1.2				0.5-1.0m
		- 1.4				ASS 1.0-1.5m
		*				ASS 1.5-2.0m
		-				ASS
		3 3				2.0-2.5m
		1				ASS 2.5-3.0m
		-				ASS 3.0-3.5m
		-				ASS 3.5-4.0m
						ASS 4.0-4.5m
		-				ASS
		-				4.5-5.0m
		-				ASS 5.0-5.5m
						ASS 5.5-6.0m
SAND: brown, non-plastic, no dry strength, fine sa	and, medium dense	- - 7.0 -		SP	MD-D	ASS 6.0-6.5m
to dense, wet.		-				ASS 6.5-7.0m
		-				ASS
		- - - 8.0				7.0-7.5m
Stopped – No Change.		-				ASS 7.5-8.0m

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Client: Ardill Payne & Partners	Project No: 044-513	Project: Proposed Sand Road, Lennox Head,	I Pit, Lot 32 Nev	vrybar Swamp
Lab No: 13700		Borehole No: 2.13	Page:	Of:

Borehole Inclination: 90°	Borehole Direction: Vertical		Date Drilled: 6/5/11			
Surface Elevation: Existing Surface Level Drilling Method: E		Explora 85	5 Drill Rig	Drill Type: 100mm Auger		
Borehole Location: 2.13 (see plan attached		A T A				
Soil Description	TEST D	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY SAND TOPSOIL: dark grey, non-plastic, lo sand, some organic matter, very loose, wet,	ow dry strength, fine	- 0.0 - - 0.3		SM	VL	ASS Topsoil ASS
SILTY SAND: dark grey, non-plastic, low dry stre some organic matter, loose, very moist to wet.	ngth, fine sand,	- 0.5		SM	L	0.0-0.5n ASS
^ND : dark brown, partly indurated, non-plastic,nd, dense, moist to wet.	no dry strength, fine			SP	D	0.5-1.0n
Water Table @ 0.9m		- 0.9 - -				ASS 1.0-1.5n
SAND: dark brown to brown, non-plastic, no dry s	trength fine sand	- 2.0		SP	MD-D	ASS 1.5-2.0n
medium dense to dense, wet.	arongin, into sund,					ASS 2.0-2.5n
						ASS 2.5-3.0r
		•				ASS 3.0-3.5r
						ASS 3.5-4.0r
		•				ASS 4.0-4.5r
		•				ASS 4.5-5.0r
		•				ASS 5.0-5.5r
		•				ASS 5.5-6.0r
		-				ASS 6.0-6.5r
		• • •				ASS 6.5-7.0r
SAND: dark brown, indurated, non-plastic, no dry dense to very dense, moist.	strength, fine sand,	- 7.6		SP	D-VD	ASS 7.0-7.5r
Stopped – No Change.		- 8.0				ASS 7.5-8.0r



Figure 1: Plan of the proposed sand pit development site at Lot 32 Newrybar Swamp Road, Lennox Head, showing the borehole locations for the acid sulfate soil investigation.