

Borehole No. **BH50**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509397.734 slope: -90° R.L. Surface: 2.828
hole diameter: 100 mm Northing 7035025.736 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- kPa	meter	structure and additional observations
ADT	1 2 3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	MD			
				D		1		SP	SAND: fine to medium grained, grey/brown, trace of silt. ...colour changing to dark brown. ...colour changing to pale grey.	M/W	VD			
				ASS		2		SC	CLAYEY SAND: fine to coarse grained, pale brown and pale grey, low plasticity fines.	D/M	D			
						1		CH	SANDY CLAY: medium to high plasticity, orange/red and pale grey, fine to medium grained sand. ...colour changing to pale grey.	M	St	X		DIST PP=160kPa
						0					VSt	X		DIST PP=250kPa
						3			Borehole BH50 terminated at 3m					LIMIT OF INVESTIGATION
						-1								
						-2								
						-3								
						-4								
						-5								
						8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH51**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **24.4.2009**Date completed: **24.4.2009**

Logged by: **DF**

Checked by:

[illegible]

Borehole No. **BH52**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **24.4.2009**Date completed: **24.4.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Easting: 509614.286		slope: -90°		R.L. Surface: 3.311						
hole diameter:				100 mm		Northing 7035158.052		bearing:		datum: GDA94						
drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter	structure and additional observations	
ADT	1	2	3	N							soil type: plasticity or particle characteristics, colour, secondary and minor components.	M	L	100 200 300 400		
						D	-3			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.		L/MD			
										SP	SAND: fine to medium grained, grey, trace of silt.					
								1			...colour changing to pale grey. ...colour changing to dark brown.	M/W	MD			
												M	VD			
						ASS	-2			SP	SAND: fine to medium grained, dark brown, with silt and trace of clay fines.	W	MD			
								2		SC	CLAYEY SAND: fine to medium grained, grey/brown, low plasticity fines. ...colour changing to pale grey.	M/W				
							-1			CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.	M	St	X	DIST PP=180kPa	
								3						X	DIST PP=180kPa	
							-0				Borehole BH52 terminated at 3m				LIMIT OF INVESTIGATION	
							-4									
							-1									
							-2									
							-3									
							-4									
							-5									
							-6									
							-7									
							-8									
method						support		notes, samples, tests				classification symbols and soil description			consistency/density index	
AS AD RR W CT HA DT B V T						M mud C casing N nil		U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				based on unified classification system			VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	
*bit shown by suffix e.g. ADT						penetration 1 2 3 4 						moisture				
						water 10/1/98 water level on date shown  water inflow water outflow						D dry M moist W wet Wp plastic limit WL liquid limit				

Borehole No. **BH53**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509690.015 slope: -90° R.L. Surface: 3.199
hole diameter: 100 mm Northing 7035199.353 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N			3			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
										SP	SAND: fine to medium grained, grey. ...colour changing to grey/brown. ...colour changing to dark brown.	D/M	MD VD		
							1			SP	SAND: fine to medium grained, dark brown, with silt and trace of clay fines.	W	MD		
							2			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.				
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt	x	DIST PP=270kPa
							2								
							1			CH	SILTY CLAY: high plasticity, pale grey, trace of sand.			x	DIST PP=320kPa
							3								
							0				Borehole BH53 terminated at 3m				LIMIT OF INVESTIGATION
							4								
							-1								
							5								
							-2								
							6								
							-3								
							7								
							-4								
							8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH54**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting:										EDSON CPI		Easting:		509752.263		slope:		-90°		R.L. Surface:		2.813		
hole diameter:										100 mm		Northing:		7035247.374		bearing:				datum:		GDA94		
drilling information										material substance														
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations						
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa							
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L											
							-2	1		SP	SAND: fine to medium grained, grey, with silt present.													
										SP	SAND: fine to medium grained, pale brown and grey, trace of silt and fine grained gravel.	W	D/VD											
						ASS				SP	SAND: fine to medium grained, dark brown, trace of silt.		D											
							-1	2		SC	CLAYEY SAND: fine to medium grained, pale brown/orange and pale grey, medium plasticity fines.	M	MD											
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		St/VSt			X					DIST PP=150kPa			
							-0	3								X						DIST PP=280kPa		
											Borehole BH54 terminated at 3m											LIMIT OF INVESTIGATION		
							-1	4																
							-2	5																
							-3	6																
							-4	7																
							-5	8																
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT					support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow					notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal					classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit					consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense				

Borehole No. **BH55**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509654.551 slope: -90° R.L. Surface: 7.382
hole diameter: 100 mm Northing 7035759.228 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N								M	L		
							7			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.				
										SP	SAND: fine to medium grained, dark grey, trace of silt.				
							1			SP	SAND: fine to medium grained, grey. ...colour changing to pale grey. ...colour changing to grey/brown.	W	MD		
							6			SC	CLAYEY SAND: fine to medium grained, pale grey.				
							2			CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.	M	VSt	X	DIST PP=220kPa
							5								
							3			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.			X	DIST PP=250kPa
							4								
							4				...colour changing to pale grey and pale brown/orange.				
							3							X	DIST PP=350kPa
							5								
							2							X	DIST PP=400kPa
							6								
							1				Borehole BH55 terminated at 6m				LIMIT OF INVESTIGATION
							7								
							0								
							8								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH56**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509713.058 slope: -90° R.L. Surface: 6.609
hole diameter: 100 mm Northing 7035689.589 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							6	1		SP	SAND: fine to medium grained, dark grey, trace of silt. ...colour changing to grey/brown.	M/W	MD		
							5	2		SC	CLAYEY SAND: fine to medium grained, grey/brown, low plasticity fines.	W	D		
							4	3		CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand. ...colour changing to pale grey and orange.	M	St/VSt	X	DIST PP=260kPa
							3	4					St	X	DIST PP=250kPa
							2	5		SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.	W	MD	X	DIST PP=150kPa
							1	6							
							0	7			Borehole BH56 terminated at 6m				LIMIT OF INVESTIGATION
							-1	8							

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH57**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **9.5.2009**

Principal:

Date completed: **9.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509783.534 slope: -90° R.L. Surface: 5.550
hole diameter: 100 mm Northing 7035588.995 bearing: datum: GDA94

drilling information						material substance												
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa	
ADT				N		ASS				SM	SILTY SAND: fine to medium grained, dark grey, trace or organics.	M	L					DIST PP=240kPa DIST PP=180kPa DIST PP=250kPa DIST PP=300kPa
							5			SP	SAND: fine to medium grained, dark grey, with silt present. ...trace of silt.	W	MD					
							1											
							4			CL	CLAY: medium plasticity, pale grey, fine to medium grained sand.	M	St					
							2			SP	SAND: fine to medium grained, pale grey, trace of clay.	W	MD					
							3			SC	CLAYEY SAND: fine to coarse grained, pale grey, low plasticity fines.							
							3			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt					
							2			CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.		St					
							4			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	W	MD					
							4			SP	SAND: fine to medium grained, pale grey, trace of clay fines.							
							1			CH	SILTY CLAY: high plasticity, pale grey, with sand present.	M	VSt					
							5											
						0												
						6												
											Borehole BH57 terminated at 6m						LIMIT OF INVESTIGATION	
														</				

Borehole No. **BH58**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509775.137 slope: -90° R.L. Surface: 4.453
hole diameter: 100 mm Northing 7035457.666 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							4			SP	SAND: fine to medium grained, pale grey/pale brown, trace of silt.	M/W	MD		
							1								
							3								
							2				...colour changing to dark grey.				
							2				...colour changing to grey.				
							2			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt		
					ASS		3							x	DIST PP=250kPa
							1								
							4							x	DIST PP=300kPa
							0				...colour changing to pale grey and red.				
							5			CH	SANDY CLAY: high plasticity, pale grey and red, fine to medium grained sand.				
							-1							x	DIST PP=220kPa
							6								
							-2				Borehole BH58 terminated at 6m				LIMIT OF INVESTIGATION
							7								
							-3								
							8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH59**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **9.5.2009**

Principal:

Date completed: **9.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509882.244 slope: -90° R.L. Surface: 4.809
hole diameter: 100 mm Northing 7035545.983 bearing: datum: GDA94

drilling information						material substance														
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations		
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa			
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L							
								4		SP	SAND: fine to medium grained, dark grey, with silt present.	M/W								
								1		SP	SAND: fine to medium grained, grey. ...trace of clay fines.	W	MD							
								3												
								2		SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	M								
								2		CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.		VSt							
						ASS		3								X			DIST PP=250kPa	
								1		CH	SILTY CLAY: high plasticity, pale grey and red, trace of fine grained sand.									
								4									X		DIST PP=230kPa	
								0												
								5												
								-1										X	DIST PP=240kPa	
								6												
											Borehole BH59 terminated at 6m								LIMIT OF INVESTIGATION	
								-2												
								7												
								-3												
								8												
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow			notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit				consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH60**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509851.435 slope: -90° R.L. Surface: 2.723
hole diameter: 100 mm Northing 7035356.896 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N								M	L		
							2			SP	SAND: fine to medium grained, dark grey, trace of silt.	M/W	MD		
							1			SP	SAND: fine to medium grained, grey. ...colour changing to pale brown and grey.	W	D/VD		
							1			SP	SAND: fine to coarse grained, pale grey, trace of clay.		D		
							2			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	M			
							0			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		VSt		
					ASS		3			SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines.	W	MD		DIST PP=230kPa
							1			SP	SAND: fine to medium grained, pale grey, trace of clay fines.				
							4			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.				
							2			CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.	M	St		
							5								
							3								DIST PP=150kPa
							6				Borehole BH60 terminated at 6m				LIMIT OF INVESTIGATION
							4								
							7								
							5								
							8								

Borehole No. **BH61**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **9.5.2009**

Principal:

Date completed: **9.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509949.571 slope: -90° R.L. Surface: 2.450
hole diameter: 100 mm Northing 7035424.983 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
								1		SP	SAND: fine to medium grained, pale grey.	W	MD		
								1		CL	SANDY CLAY: medium plasticity, pale grey and pale brown, fine to medium grained sand.	M	VSt	x	DIST PP=150kPa
								2		CH	SANDY CLAY: medium to high plasticity, pale grey and pale brown, fine to medium grained sand.			x	DIST PP=240kPa
								3						x	DIST PP=250kPa
								4		CH	SANDY SILTY CLAY: high plasticity, pale grey and pale brown, fine to medium grained sand.			x	DIST PP=240kPa
								5							
								6							
								7							
								8							
											Borehole BH61 terminated at 6m				LIMIT OF INVESTIGATION

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown  water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH62**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **9.5.2009**

Principal:

Date completed: **9.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 510034.665 slope: -90° R.L. Surface: 4.240
hole diameter: 100 mm Northing 7035474.141 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N			4			SM	SILTY SAND: fine to medium grained, grey, trace of organics.	M	L		
										SP	SAND: fine to medium grained, pale brown/grey, trace of clay.		MD		
							1			SC	CLAYEY SAND: fine to medium grained, pale grey and pale brown, medium plasticity fines.				
							3			CH	SANDY CLAY: medium to high plasticity, pale grey and orange/red, fine to medium grained sand.		VSt		
						ASS	2				...high plasticity, colour changing to pale grey.			X	DIST PP=250kPa
							3							X	DIST PP=260kPa
							1			CH	SILTY CLAY: high plasticity, pale grey and red.				SEEPAGE
							4							X	DIST PP=240kPa
							5							X	DIST PP=230kPa
							6								
							-2				Borehole BH62 terminated at 6m				LIMIT OF INVESTIGATION
							7								
							-3								
							8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH63**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **3.5.2009**Date completed: **3.5.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Eastings: 509835.54		slope: -90°		R.L. Surface: 2.260						
hole diameter:				100 mm		Northing 7035218.376		bearing:		datum: GDA94						
drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
	1	2	3													
ADT				N			-2			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L			
										SP	SAND: fine to medium grained, pale brown and grey, trace of silt.	M/W				
										SP	SAND: fine grained, pale brown and grey, with silt present.	M	MD			
							1			CH	SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand.		VSt			
							-1				...colour changing to pale grey.				DIST PP=230kPa	
							2									
							-0									
							3								DIST PP=240kPa	
							-1									
							4									
							-2			CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.				DIST PP=240kPa	
										SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines.	M/W	MD			
							-3									
							5			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt		DIST PP=320kPa	
							-3									
							6									
							-4				Borehole BH63 terminated at 6m				LIMIT OF INVESTIGATION	
							7									
							-5									
							8									
method						support		notes, samples, tests				classification symbols and soil description			consistency/density index	
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT						M mud C casing penetration 1 2 3 4  water 10/1/98 water level on date shown water inflow water outflow		U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit			VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH65**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **9.5.2009**Date completed: **9.5.2009**

Logged by: **DF**

Checked by: **RFM**

drill model and mounting:				EDSON CPI				Easting: 510109.442				slope: -90°				R.L. Surface: 2.724								
hole diameter:				100 mm				Northing 7035396.648				bearing:				datum: GDA94								
drilling information								material substance																
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index		pocket penetro- meter kPa	100 200 300 400	structure and additional observations							
	1	2	3										MD	St										
ADT		N		ASS	-2	1		SM	SILTY SAND: fine grained, dark grey, trace of organics.	M	L	X	DIST PP=130kPa											
								CH	SILTY CLAY: high plasticity, grey, trace of sand.	St	DIST PP=250kPa													
								CH	SILTY CLAY: high plasticity, pale grey.	VSt				DIST PP=260kPa										
								-1	2	3					4	5	6	7	8	DIST PP=120kPa				
																					CH	SILTY CLAY: medium to high plasticity, grey, with fine grained sand.	M/W	St
																					CH	SILTY CLAY: high plasticity, pale grey and pale brown/orange, trace of sand.	M	VSt
-2	5	CL	SILTY CLAY: medium plasticity, brown and grey, with fine grained sand, trave of gravel.	D/M	VSt/H	DIST PP=120kPa																		
-3	6	Borehole BH65 terminated at 6m										LIMIT OF INVESTIGATION												
-4	7																							
-5	8																							
method								support				notes, samples, tests				classification symbols and soil description				consistency/density index				
auger screwing*								M mud N nil				U ₅₀ undisturbed sample 50mm diameter				VS very soft								
auger drilling*								C casing				U ₆₃ undisturbed sample 63mm diameter				S soft								
roller/tricone								penetration				D disturbed sample				F firm								
washbore								1 2 3 4				N standard penetration test (SPT)				St stiff								
cable tool												N* SPT - sample recovered				VSt very stiff								
hand auger								water				Nc SPT with solid cone				H hard								
diatube								10/1/98 water level on date shown				V vane shear (kPa)				Fb friable								
blank bit												P pressuremeter				VL very loose								
V bit												Bs bulk sample				L loose								
TC bit												E environmental sample				MD medium dense								
*bit shown by suffix e.g. ADT												R refusal				D dense								
																VD very dense								

Borehole No. **BH66**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509654.065 slope: -90° R.L. Surface: 6.598
hole diameter: 100 mm Northing 7035692.587 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- kPa	meter	structure and additional observations
ADT	1 2 3	N	SEEPAGE					SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L			
						6		SP	SAND: fine to medium grained, grey, trace of silt. ...colour changing to pale grey.	W				
						1		CH	SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand.	M	St	X		DIST PP=180kPa
						5			...colour changing to pale grey.		VSt	X		DIST PP=220kPa
						2		SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		MD			
						4		CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.		VSt	X		DIST PP=240kPa
						3								
						3		SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		D			
						4								
						2			Borehole BH66 terminated at 4m					LIMIT OF INVESTIGATION
						5								
						1								
						6								
						0								
						7								
						-1								
						8								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Engineering Log - Borehole

Borehole No. **BH67**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting:										EDSON CPI										Easting: 509813.874										slope: -90°										R.L. Surface: 4.803																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
hole diameter:										100 mm										Northing: 7035541.308										bearing:										datum: GDA94																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
drilling information															material substance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
method		penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	100 200 300 400	structure and additional observations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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ADT				N							SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</

Borehole No. **BH68**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509859.722 slope: -90° R.L. Surface: 3.418
hole diameter: 100 mm Northing 7035129.363 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							3			SP	SAND: fine to medium grained, dark grey, trace of silt. ...colour changing to dark brown. ...colour changing to grey. ...colour changing to pale grey.	W	MD		
						ASS	2			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.				
							1			CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.	M	VSt	x	DIST PP=300kPa
							3			CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.			x	DIST PP=300kPa
							0							x	DIST PP=240kPa
							4				Borehole BH68 terminated at 4m				LIMIT OF INVESTIGATION
							-1								
							5								
							-2								
							6								
							-3								
							7								
							-4								
							8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH69**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2006**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509962.416 slope: -90° R.L. Surface: 4.084
hole diameter: 100 mm Northing 7035492.924 bearing: datum: GDA94

drilling information						material substance													
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations	
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa		
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L						
								1		SP	SAND: fine to medium grained, dark grey, trace of silt. ...colour changing to grey. ...colour changing to pale grey and brown. ...colour changing to brown. ...colour changing to pale grey.	W	MD						
						ASS		2		SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines.								
										CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.	M	St						
										CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.		St/VSt			X			DIST PP=250kPa
								3											
																X			DIST PP=240kPa
								0			Borehole BH69 terminated at 4m								LIMIT OF INVESTIGATION
								-1											
								-2											
								-3											
								8											
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit				consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

Borehole No. **BH70**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509940.133 slope: -90° R.L. Surface: 2.097
hole diameter: 100 mm Northing 7035363.761 bearing: datum: GDA94

drilling information						material substance													
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa				structure and additional observations	
	1	2	3											100	200	300	400		
ADT				N			-2			SM	SILTY SAND: fine to medium grained, dark grey, with clay fines and trace of organics.	M	L						
							-1	1		SP	SAND: fine to medium grained, pale grey, trace of silt.		MD						
							-0	2		SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.		St			X			DIST PP=150kPa
						ASS	-0	2		CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		VSt			X			DIST PP=240kPa
							-1	3											
							-1	3		CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.					X			DIST PP=240kPa
							-2	4			Borehole BH70 terminated at 4m								LIMIT OF INVESTIGATION
							-3	5											
							-4	6											
							-5	7											
							-6												
							-7												
							-8												
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit				consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

Borehole No. **BH71**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509908.723 slope: -90° R.L. Surface: 1.802
hole diameter: 100 mm Northing 7035246.336 bearing: datum: GDA94

drilling information						material substance																							
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations														
	1	2	3													100 200 300 400													
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L																
								1		SP	SAND: fine to medium grained, pale grey, trace of silt. ... colour changing to pale grey and orange.	M/W M	MD																
										SC	CLAYEY SAND: fine to coarse grained, pale grey and orange, medium plasticity fines.																		
					ASS			2		CH	SANDY CLAY: medium to high plasticity, orange/red and pale grey, fine to coarse grained sand. ... colour changing to pale grey.		VSt	X	DIST PP=250kPa														
								3						X	DIST PP=260kPa														
								4		CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand, with trace of gravel.			X	DIST PP=250kPa														
											Borehole BH71 terminated at 4m				LIMIT OF INVESTIGATION														
								5																					
								6																					
								7																					
								8																					
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow						notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit						consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense					

Borehole No. **BH73**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509720.84 slope: -90° R.L. Surface: 5.491
hole diameter: 100 mm Northing 7035580.136 bearing: datum: GDA94

drilling information						material substance																							
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter			structure and additional observations												
	1	2	3											100 kPa	200 kPa	300 kPa		400 kPa											
ADT				N						SM SP	SILTY SAND: fine to medium grained, dark grey, with clay fines and trace of organics. SAND: fine to medium grained, dark grey, trace of silt.	M	L																
							5				... colour changing to grey/brown. ... colour changing to brown. ... colour changing to grey.	W	MD																
					ASS		4			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	M																	
							2			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		St/VSt																
							3																						
							2				Borehole BH73 terminated at 3m						LIMIT OF INVESTIGATION												
							4																						
							1																						
							5																						
							0																						
							6																						
							-1																						
							7																						
							-2																						
							8																						
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow						notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit						consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense					

Borehole No. **BH74**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509799.426 slope: -90° R.L. Surface: 6.436
hole diameter: 100 mm Northing 7035659.35 bearing: datum: GDA94

drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
AST	1	2	3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L	100	DIST PP=140kPa DIST PP=220kPa DIST PP=240kPa	
							6			SP	SAND: fine to medium grained, grey/brown, trace of silt.			200		
							1			SP	SAND: fine to medium grained, brown, with clay fines.	M/W	MD	300		
					ASS		5			CL	SANDY CLAY: medium plasticity, pale brown/orange and grey, fine to medium grained sand. ... colour changing to pale grey and red. ... colour changing to pale grey and orange. ... colour changing to pale grey.	M	St	400		
								3								
							3				Borehole BH74 terminated at 3m					LIMIT OF INVESTIGATION
								4								
							2									
								5								
							1									
							6									
							0									
							7									
							-1									
							8									
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit			consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH75**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **2.5.2009**Date completed: **2.5.2009**

Logged by: **DF**

Checked by:

[illegible]

Borehole No. **BH76**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **3.5.2009**Date completed: **3.5.2009**Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting:						EDSON CPI		Easting:		509762.953		slope:		-90°		R.L. Surface:		3.472					
hole diameter:						100 mm		Northing:		7035392.797		bearing:				datum:		GDA94					
drilling information								material substance															
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations								
	1	2	3																				
ADT				N								M	L										
							3			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.												
							1			SP	SAND: fine to medium grained, dark grey, trace of silt. ... colour changing to dark brown.	W	MD										
						ASS	2			SP	SAND: fine to medium grained, pale grey and pale brown, trace of silt and clay fines.	W	D/VD										
							2			SC	CLAYEY SAND: fine to coarse grained, pale grey and pale brown, medium plasticity fines.	M	MD										
							1			CH	SANDY CLAY: medium to high plasticity, pale grey and pale brown/orange, fine to medium grained sand.		St/Vst	X				DIST PP=150kPa					
							3							X				DIST PP=260kPa					
							0				Borehole BH76 terminated at 3m							LIMIT OF INVESTIGATION					
							4																
							-1																
							5																
							-2																
							6																
							-3																
							7																
							-4																
							8																
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow				notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit				consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

Borehole No. **BH77**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **2.5.2009**

Principal:

Date completed: **2.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509895.411 slope: -90° R.L. Surface: 3.877
hole diameter: 100 mm Northing 7035488.733 bearing: datum: GDA94

drilling information							material substance								
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							3	1		SP	SAND: fine to medium grained, dark grey, trace of silt. ... colour changing to grey.	W			
										SC	CLAYEY SAND: fine to medium grained, pale brown and pale grey, low plasticity fines. ... colour changing to pale grey.		MD		
					ASS		2	2		CH	SANDY CLAY: fine to medium grained, pale grey, fine to medium grained sand. ... colour changing to pale grey and orange.	M	St/VSt	x	DIST PP=150kPa
														x	DIST PP=190kPa
							1	3						x	DIST PP=210kPa
											Borehole BH77 terminated at 3m				LIMIT OF INVESTIGATION
							0	4							
							-1	5							
							-2	6							
							-3	7							
							-4	8							

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH78**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **3.5.2009**

Principal:

Date completed: **3.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by: **RFM**

drill model and mounting: EDSON CPI Easting: 509845.621 slope: -90° R.L. Surface: 2.473
hole diameter: 100 mm Northing 7035299.267 bearing: datum: GDA94

drilling information						material substance												
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations
	1	2	3											kPa	mm	mm	mm	
ADT		1	2	N		ASS	2 1 1 2 0 3		SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L			DIST PP=140kPa			
									SP	SAND: fine to medium grained, dark grey, trace of silt.								
									SP	SAND: fine to medium grained, pale grey.	W	MD						
									SC	CLAYEY SAND: fine to medium grained, pale grey and pale brown/orange, low plasticity fines.	M							
									CL	SANDY CLAY: medium plasticity, pale grey and pale brown, fine to medium grained sand.		St						
									CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		VSt						
									SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		MD						DIST PP=280kPa
Borehole BH78 terminated at 3m															LIMIT OF INVESTIGATION			
							-1 4 -2 5 -3 6 -4 7 -5 8											

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH79**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **2.5.2009**Date completed: **2.5.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Easting: 510025.243		slope: -90°		R.L. Surface: 2.208					
hole diameter:				100 mm		Northing: 7035406.406		bearing:		datum: GDA94					
drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N							soil type: plasticity or particle characteristics, colour, secondary and minor components.	M	L	100 200 300 400	
							-2			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.				
										SP	SAND: fine to medium grained, grey, trace of silt.				
								1		CH	SANDY CLAY: high plasticity, pale brown/orange and pale grey, fine to medium grained sand.		St	X	DIST PP=130kPa
						ASS	-1								
										SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines. ... colour changing to pale grey and orange.	M/W	MD		
							0	2							
										CH	SANDY CLAY: high plasticity, pale grey and orange, fine to medium grained sand.	M	VSt	X	DIST PP=220kPa
							3								
							-1				Borehole BH79 terminated at 3m				LIMIT OF INVESTIGATION
								4							
							-2								
								5							
							-3								
								6							
							-4								
								7							
							-5								
								8							
method				support		notes, samples, tests				classification symbols and soil description			consistency/density index		
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT				M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit			VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH1	BH2	BH3	BH4	BH5	BH6
Depth (m)		01-May-09	18-Apr-09	18-Apr-09	01-May-09	01-May-09
0.1		1	2	1	1	1
0.2		1	3	2	1	1
0.3		1	2	2	1	1
0.4		1	2	2	1	1
0.5		1	3	3	1	1
0.6		2	3	2	2	1
0.7		2	3	1	8	1
0.8		2	3	2	11	1
0.9		2	4	3	>20	2
1.0		2	5	9		2
1.1		3	6	>20		3
1.2		3	8			5
1.3		3	8			9
1.4		4	8			10
1.5		5	9			16
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH7	BH8	BH9	BH10	BH11	BH12
Depth (m)	26-Apr-09	21-Apr-09	01-May-09	24-Apr-09	24-Apr-09	26-Apr-09
0.1	1	1	1	1	1	1
0.2	2	1	1	1	1	1
0.3	2	2	1	1	1	1
0.4	2	2	1	1	2	2
0.5	3	2	1	1	>20	3
0.6	4	3	2	2		8
0.7	8	4	2	2		12
0.8	9	8	2	2		18
0.9	10	11	2	4		19
1.0	16	12	3	5		
1.1	16	12	3	6		
1.2			4	9		
1.3			4	10		
1.4			5	10		
1.5			5			
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH13	BH14	BH15	BH16	BH17	BH18
Depth (m)		24-Apr-09	26-Apr-09	01-May-09	18-Apr-09	18-Apr-09
0.1		1	1	1	3	1
0.2		1	1	1	4	1
0.3		1	1	1	4	1
0.4		2	1	1	4	1
0.5		12	1	2	3	1
0.6		>20	2	2	3	1
0.7			2	3	3	1
0.8			2	3	3	1
0.9			2	4	3	1
1.0			3	5	3	2
1.1			3	5	4	2
1.2			8	7	3	2
1.3			9	6	3	4
1.4			5	7	3	4
1.5			4	7	4	5
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH19	BH20	BH21	BH22	BH23	BH24
Depth (m)	01-May-09	21-Apr-09	17-Apr-09	01-May-09	21-Apr-09	21-Apr-09
0.1	1	1	1	1	1	1
0.2	1	1	2	1	1	1
0.3	2	1	1	1	2	2
0.4	3	1	2	1	2	2
0.5	3	1	2	1	3	3
0.6	8	2	2	1	2	4
0.7	10	2	3	1	9	>20
0.8	12	2	4	1	10	
0.9	>20	2	18	2	14	
1.0		3	>20	2	12	
1.1		3		3	5	
1.2		3		5	4	
1.3		4		10	5	
1.4		5		14	5	
1.5		5			6	
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
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3.7						
Remarks:						
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Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH25	BH26	BH27	BH28	BH29	BH30
Depth (m)	17-Apr-09	26-Apr-09		21-Apr-09	20-Apr-09	26-Apr-09
0.1	2	1		1	1	1
0.2	3	1		1	1	1
0.3	4	1		1	1	1
0.4	3	1		1	2	2
0.5	3	1		2	2	1
0.6	2	1		3	8	2
0.7	1	2		18	>20	4
0.8	2	2		>20		15
0.9	2	2				16
1.0	3	2				>20
1.1	2	3				
1.2	3	3				
1.3	3	3				
1.4	3	4				
1.5	3	4				
1.6						
1.7						
1.8						
1.9						
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Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH31	BH32	BH33	BH34	BH35	BH36
Depth (m)	24-Apr-09	24-Apr-09	24-Apr-09	24-Apr-09	24-Apr-09	01-May-09
0.1	1	1	1	1	1	1
0.2	1	1	1	1	1	1
0.3	1	2	1	1	1	2
0.4	1	2	2	1	1	2
0.5	2	3	2	2	1	4
0.6	3	3	2	2	1	8
0.7	4	3	2	3	1	10
0.8	5	3	3	4	1	14
0.9	6	3	3	5	1	>20
1.0	6	4	3	7	2	
1.1	8	7	4	6	2	
1.2	8	5	8	5	2	
1.3	9	3	8	4	3	
1.4	9	4	8	3	4	
1.5	9	5	9	9	5	
1.6						
1.7						
1.8						
1.9						
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Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH37	BH38	BH39	BH40	BH41	BH42
Depth (m)	01-May-09	20-Apr-09	17-Apr-09	21-Apr-09	18-Apr-09	18-Apr-09
0.1	1	1	4	1	1	8
0.2	2	2	8	1	1	3
0.3	2	2	9	2	2	4
0.4	2	3	4	2	2	3
0.5	3	3	3	4	2	5
0.6	3	3	3	3	3	4
0.7	4	10	3	4	10	3
0.8	5	>20	5	4	12	4
0.9	12		5	5	14	3
1.0	18		6	9		2
1.1			5	11		3
1.2			6	12		3
1.3			6	13		3
1.4			7	12		4
1.5			7	14		4
1.6						
1.7						
1.8						
1.9						
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Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH43	BH44	BH45	BH46	BH47	BH48
Depth (m)		21-Apr-09	21-Apr-09	20-Apr-09	26-Apr-09	
0.1		1	1	1	1	
0.2		1	1	1	1	
0.3		1	2	1	2	
0.4		1	2	1	1	
0.5		2	18	1	2	
0.6		2	>20	1	2	
0.7		2		1	2	
0.8		3		2	3	
0.9		3		2	8	
1.0		3		2	10	
1.1		3		3	14	
1.2		4		3	18	
1.3		4		4		
1.4		4		4		
1.5		5		5		
1.6						
1.7						
1.8						
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3.7						
Remarks:						
Unit 1/36 Kerryl Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH49	BH50	BH51	BH52	BH53	BH54
Depth (m)	26-Apr-09	21-Apr-09	24-Apr-09	24-Apr-09	24-Apr-09	26-Apr-09
0.1	1	1	1	1	1	1
0.2	1	1	1	1	1	1
0.3	1	1	2	2	2	1
0.4	1	1	2	2	2	2
0.5	1	1	4	3	3	2
0.6	2	8	10	5	10	2
0.7	2	10	>20	10	>20	3
0.8	2	14		>20		16
0.9	3	18				18
1.0	5					>20
1.1	6					
1.2	5					
1.3	4					
1.4	5					
1.5	5					
1.6						
1.7						
1.8						
1.9						
2.0						
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Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH55	BH56	BH57	BH58	BH59	BH60
Depth (m)	02-May-09	02-May-09	09-May-09	03-May-09	09-May-09	03-May-09
0.1	1	1	1	1	1	1
0.2	1	1	1	1	1	1
0.3	1	1	1	1	1	1
0.4	1	1	1	2	1	1
0.5	1	1	1	1	1	1
0.6	1	1	1	2	1	2
0.7	2	1	2	1	1	2
0.8	2	2	2	2	2	2
0.9	2	2	3	3	3	3
1.0	3	3	3	2	2	9
1.1	3	3	4	3	3	10
1.2	5	6	5	3	3	>20
1.3	4	7	4	3	4	
1.4	5	9	5	3	5	
1.5	5	9	5	3	5	
1.6						
1.7						
1.8						
1.9						
2.0						
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3.7						
Remarks:						
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Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH61	BH62	BH63		BH65	BH66
Depth (m)	09-May-09	09-May-09	03-May-09		09-May-09	02-May-09
0.1	1	1	1		1	1
0.2	1	1	1		1	1
0.3	1	1	1		1	1
0.4	1	1	1		1	1
0.5	1	2	1		2	1
0.6	1	2	2		3	1
0.7	1	3	2		3	1
0.8	2	3	3		3	2
0.9	2	3	4		4	3
1.0	3	3	8		5	3
1.1	4	4	8		5	4
1.2	5	4	7		5	5
1.3	12	6	8		7	6
1.4	9	10	9		8	7
1.5	10	10	9		8	8
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
Remarks:						
Unit 1/36 Kerryll Street, KUNDA PARK, Qld 4556 PH: (07) 5445 4952 FAX: (07) 5445 3764						

Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH67	BH68	BH69	BH70	BH71	
Depth (m)	02-May-09	03-May-09	02-May-09	03-May-09	03-May-09	
0.1	1	1	1	1	1	
0.2	1	1	1	1	1	
0.3	1	1	1	1	1	
0.4	1	1	1	1	1	
0.5	1	1	1	1	1	
0.6	1	2	1	1	2	
0.7	1	2	2	1	2	
0.8	1	2	2	2	2	
0.9	2	2	2	2	2	
1.0	2	3	2	2	3	
1.1	3	4	2	3	3	
1.2	3	4	2	3	3	
1.3	4	5	3	3	4	
1.4	4	6	3	4	4	
1.5	5	5	3	4	4	
1.6				5		
1.7				7		
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
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2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
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Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH73	BH74	BH75	BH76	BH77	BH78
Depth (m)	01-May-09	02-May-09	02-May-09	03-May-09	02-May-09	03-May-09
0.1	1	1	1	1	1	1
0.2	1	1	1	1	1	1
0.3	1	1	1	1	1	1
0.4	1	1	1	1	1	1
0.5	1	1	1	1	1	1
0.6	1	1	1	1	1	1
0.7	1	2	2	2	1	1
0.8	1	2	2	4	1	2
0.9	2	2	2	7	2	2
1.0	2	4	3	8	2	3
1.1	3	3	3	12	3	3
1.2	3	4	3	>20	3	3
1.3	4	4	5		3	3
1.4	4	4	4		3	3
1.5	5	5	5		4	4
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
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Remarks:						
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Dynamic Cone Penetrometer

Client	BROWN CONSULTING (QLD) PTY LTD			Hammer Mass	9.1± 0.1 kg	
Principal				Hammer Drop	510 ☒	600 ☐
Project	BELLVISTA 2			Cone	☒	Blunted ☐
Location	REFER TO SITE PLAN			By	DF	date
Test Location:	BH79					
Depth (m)	02-May-09					
0.1	1					
0.2	1					
0.3	1					
0.4	1					
0.5	1					
0.6	1					
0.7	2					
0.8	2					
0.9	3					
1.0	3					
1.1	4					
1.2	6					
1.3	6					
1.4	6					
1.5	6					
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
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Remarks:						
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Soil Description Explanation Sheet (1 of 2)

DEFINITION:

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μ m to 2.36 mm
	medium	200 μ m to 600 μ m
	fine	75 μ m to 200 μ m

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH S_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING	CEMENTING
Layers Continuous across exposure or sample.	Weakly cemented Easily broken up by hand in air or water.
Lenses Discontinuous layers of lenticular shape.	Moderately cemented Effort is required to break up the soil by hand in air or water.
Pockets Irregular inclusions of different material.	

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material Structure and fabric of parent rock visible.

Residual soil Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil Deposited by wind.

Alluvial soil Deposited by streams and rivers.

Colluvial soil Deposited on slopes (transported downslope by gravity).

Fill Man made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.

Lacustrine soil Deposited by lakes.

Marine soil Deposited in ocean basins, bays, beaches and estuaries.

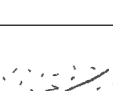
Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 60 mm and basing fractions on estimated mass)					USC	PRIMARY NAME	
COARSE GRAINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	GRAVELS More than half of coarse fraction is larger than 2.0 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.		GW	GRAVEL	
			Predominantly one size or a range of sizes with more intermediate sizes missing.		GP	GRAVEL	
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)		GM	SILTY GRAVEL	
			Plastic fines (for identification procedures see CL below)		GC	CLAYEY GRAVEL	
	SANDS More than half of coarse fraction is smaller than 2.0 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes		SW	SAND	
			Predominantly one size or a range of sizes with some intermediate sizes missing.		SP	SAND	
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).		SM	SILTY SAND	
			Plastic fines (for identification procedures see CL below).		SC	CLAYEY SAND	
	FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm	SILTS & CLAYS Liquid limit less than 50	IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm.				
			DRY STRENGTH	DILATANCY	TOUGHNESS		
None to Low			Quick to slow	None	ML	SILT	
Medium to High			None	Medium	CL	CLAY	
SILTS & CLAYS Liquid limit greater than 50		Low to medium	Slow to very slow	Low	OL	ORGANIC SILT	
		Low to medium	Slow to very slow	Low to medium	MH	SILT	
		High	None	High	CH	CLAY	
		Medium to High	None	Low to medium	OH	ORGANIC CLAY	
HIGHLY ORGANIC SOILS	Readily identified by colour, odour, spongy feel and frequently by fibrous texture.			Pt	PEAT		
• Low plasticity – Liquid Limit W _L less than 35%. • Medium plasticity – W _L between 35% and 50%.							

• Low plasticity – Liquid Limit W_L less than 35%. • Medium plasticity – W_L between 35% and 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.		TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	