SOIL LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 1 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING & WATER DETAIL	LAB DATA: Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION (Soil Type, Colour, Plasticity or Particle Characteristic; Secondary and Minor Components)	MOISTURE	CONSISTENCY / RELATIVE DENSITY (S / L, F / MD, St / D, VSt / VD)	COMMENTS (Field Test Data & Other Observations)
					D				CLAY - sandy CLAY, high plasticity, dark red brown in colour, some fine to medium sand, moist, firm.	M		0.00: FILL
					0.50m D	57.2	0.5		0.50m CLAY - high plasticity, red brown, trace fine to medium sand, moist, stiff.	M		
					1.00m SPT 3, 3, 5 N=8	56.7	1.0		1.00m CLAY - high plasticity, brown mottled and streaked red, moist, stiff			
					1.45m							
					1.50m 1.50m D	56.2	1.5			M		
					2.00m SPT U 3, 5, 5 N=10	55.7	2.0		2.00m CLAY - sandy CLAY, high plasticity, brown mottled and streaked red, fine to medium sand, moist, stiff			
					2.35m							
					2.45m	55.2	2.5			M		
					3.00m SPT 2, 2, 4 N=6	54.7	3.0		3.00m CLAY - sandy CLAY, high plasticity, grey brown mottled dark red, fine to medium sand, trace silt, moist, stiff	M		
					3.45m							

Groundwater

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:34

DRILLING

HA	Hand Auger	HQ	HQ Coring
AS	Auger	NQ	NQ Coring
WB	Washbore	PQ	PQ Coring
RR	Rock Rolling		NMLC NMLC Coring

GROUNDWATER SYMBOLS
▼ = Water level (static)
▽ = Water level (during drilling)

SAMPLES & FIELD TESTS

D	Disturbed Sample	SPT	SPT Sample
ES	Env Soil Sample	U	Undisturbed Tube Sample
EW	Env Water Sample	W	Water Sample

HP Hand Penetrometer
HV Hand Vane Shear
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight
RW SPT penetration by rod weight

MOISTURE CONDITION
D = Dry M = Moist W = Wet

DENSITY (N-value)

VL	Very Loose	0 - 4
L	Loose	4 - 10
MD	Medium Dense	10 - 30
D	Dense	30 - 50
VD	Very Dense	50 - 100
CO	Compact	>50/150mm

CONSISTENCY (Su) {N-value}

VS	Very Soft	< 12 kPa {0-2}
S	Soft	12 - 25 {2-4}
F	Firm	25 - 50 {4-8}
St	Stiff	50 - 100 {8-15}
VSt	Very Stiff	100 - 200 {15-30}
H	Hard	> 200 kPa {>30}

SOIL LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 2 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING & WATER DETAIL	LAB DATA: Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE	CONSISTENCY / RELATIVE DENSITY S / L · F / MD · St / D · VSt / VD	COMMENTS Field Test Data & Other Observations
									CLAY - sandy CLAY, high plasticity, grey brown mottled dark red, fine to medium sand, trace silt, moist, stiff *(continued)*	M		
					4.00m SPT 4, 13, 23 N=36	53.7	4.0		SILT - sandy SILT, high plasticity fines, orange mottled grey, some fine to medium (orange) sand, moist, very stiff.			
					4.45m	53.2	4.5			M		
Groundwater					5.00m SPT 6, 8, 10 N=18	52.7	5.0		SILT - sandy SILT, hgih plasticity fines, orange mottled grey, fine to medium sand, moist, very stiff.			
					5.45m	52.2	5.5			M		
					6.00m SPT 11, 13, 30/120mm N=R	51.7	6.0					
									SAND - silty SAND, fine to medium, orange, some silt, moist, medium dense.	M		
									IRONSTONE - dark red brown, extermely weathered and of extermely low strength, dense.	M		
					6.42m 6.50m D	51.2	6.5		SILT - gravely SILT, high plasticity fines, grey mottled orange red, fine to medium extremely weathered and extremely low strength ironstone gravel, moist, hard.	M		
					6.60m				SILT - high plasticity fines, grey mottled orange, fine to medium sand, moist, hard.	M		
					7.00m							

DRILLING

HA	Hand Auger	HQ	HQ Coring
AS	Auger	NQ	NQ Coring
WB	Washbore	PQ	PQ Coring
RR	Rock Rolling		NMLC NMLC Coring

GROUNDWATER SYMBOLS
▼ = Water level (static)
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SAMPLES & FIELD TESTS

D	Disturbed Sample	SPT	SPT Sample
ES	Env Soil Sample	U	Undisturbed Tube Sample
EW	Env Water Sample	W	Water Sample

HP Hand Penetrometer
HV Hand Vane Shear
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight
RW SPT penetration by rod weight

MOISTURE CONDITION
D = Dry M = Moist W = Wet

DENSITY (N-value)

VL	Very Loose	0 - 4
L	Loose	4 - 10
MD	Medium Dense	10 - 30
D	Dense	30 - 50
VD	Very Dense	50 - 100
CO	Compact	>50/150mm

CONSISTENCY (Su) {N-value}

VS	Very Soft	< 12 kPa {0-2}
S	Soft	12 - 25 {2-4}
F	Firm	25 - 50 {4-8}
St	Stiff	50 - 100 {8-15}
VSt	Very Stiff	100 - 200 {15-30}
H	Hard	> 200 kPa {>30}

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:34

SOIL LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation | JOB NO : QB10200.4 | PAGE : 3 OF 10

POSITION : E: 470417, N: 6949721 (56 MGA94) | SURFACE ELEVATION : 57.7 (AHD) | LOCATION : Brisbane Valley Hwy

RIG TYPE : Hydrapower Scout | CONTRACTOR : GeoDrill - T Partleton | DIP / AZIMUTH : 90°

DATE DRILLED : 16/5/11 to 16/5/11 | LOGGED BY : LN | CHECKED BY : VP | STANDARD : AS1736

DRILLING & WATER DETAIL	LAB DATA: Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION (Soil Type, Colour, Plasticity or Particle Characteristic, Secondary and Minor Components)	MOISTURE	CONSISTENCY / RELATIVE DENSITY (S / L, F / MD, St / D, VSt / VD)	COMMENTS (Field Test Data & Other Observations)
Groundwater					SPT 8, 14, 17 N=31				SILT - high plasticity fines, grey mottled orange, fine to medium sand, moist, hard. *(continued)*			
					7.45m	50.2	7.5			M		
					8.00m	49.7	8.0		8.00m			
					SPT 17, 27, 30/115mm N=R				SILT - high plasticity fines, grey mottled orange, occassional fine sand layering (thin), moist hard.			
					8.42m	49.2	8.5			M		
					9.00m	48.7	9.0		9.00m			
					SPT 17, 29, 30/105mm N=R				SILT -high plasticity fines, grey, readily fractures into flake like pieces, moist, hard.			
					9.41m	48.2	9.5			M		
					10.00m	47.7	10.0		10.00m			
					SPT 26, 30/115mm N=R				SILT - high plasticity fines, grey with some orange mottling, trace of fine sand in thin layers, moist, hard.			
					10.27m					M		

DRILLING
- HA Hand Auger
- AS Auger
- WB Washbore
- RR Rock Rolling
- HQ HQ Coring
- NQ NQ Coring
- PQ PQ Coring
- NMLC NMLC Coring

GROUNDWATER SYMBOLS
- ▼ = Water level (static)
- ▽ = Water level (during drilling)

SAMPLES & FIELD TESTS
- D Disturbed Sample
- ES Env Soil Sample
- EW Env Water Sample
- SPT SPT Sample
- U Undisturbed Tube Sample
- W Water Sample
- HP Hand Penetrometer
- HV Hand Vane Shear
- (P: Peak Su R: Residual Su)
- N SPT blows per 300mm
- HW SPT penetration by hammer weight
- RW SPT penetration by rod weight

MOISTURE CONDITION: D = Dry M = Moist W = Wet

DENSITY (N-value)

VL	Very Loose	0 - 4
L	Loose	4 - 10
MD	Medium Dense	10 - 30
D	Dense	30 - 50
VD	Very Dense	50 - 100
CO	Compact	>50/150mm

CONSISTENCY (Su) {N-value}

VS	Very Soft	< 12 kPa {0-2}
S	Soft	12 - 25 {2-4}
F	Firm	25 - 50 {4-8}
St	Stiff	50 - 100 {8-15}
VSt	Very Stiff	100 - 200 {15-30}
H	Hard	> 200 kPa {>30}

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:34

SOIL LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation | JOB NO : QB10200.4 | PAGE : 4 OF 10

POSITION : E: 470417, N: 6949721 (56 MGA94) | SURFACE ELEVATION : 57.7 (AHD) | LOCATION : Brisbane Valley Hwy

RIG TYPE : Hydrapower Scout | CONTRACTOR : GeoDrill - T Partleton | DIP / AZIMUTH : 90°

DATE DRILLED : 16/5/11 to 16/5/11 | LOGGED BY : LN | CHECKED BY : VP | STANDARD : AS1736

DRILLING & WATER DETAIL	LAB DATA: Moisture Content	Dry Density	% Fines	Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE	CONSISTENCY / RELATIVE DENSITY S / L · F / MD · St / D · VSt / VD	COMMENTS Field Test Data & Other Observations
									SILT - high plasticity fines, grey with some orange mottling, trace of fine sand in thin layers, moist, hard. *(continued)*	M		
					11.00m SPT 21, 30/15mm N=R 11.17m	46.7	11.0					
									11.20m IRONSTONE - dark red brown, extremely weathered, moist, very low strength.	M		
									11.40m SILT - high plasticity fines, grey with some orange mottling, trace of fine sand in thin layers, moist, hard.			
						46.2	11.5			M		
Groundwater					12.00m SPT 17, 24, 30 N=54	45.7	12.0		12.00m SILT - high plasticity fines, grey, with some orange, fine to medium sand in thin layers (at approx. 12.15 m), moist, hard. core fractures easily into angular fine to medium gravel size pieces.			
					12.45m	45.2	12.5			M		
					13.00m SPT 27, 30/65mm N=R 13.22m	44.7	13.0		13.00m SILT - high plasticity fines, grey, moist, hard.			
						44.2	13.5			M		
					14.00m							

DRILLING

HA	Hand Auger	HQ	HQ Coring
AS	Auger	NQ	NQ Coring
WB	Washbore	PQ	PQ Coring
RR	Rock Rolling		NMLC NMLC Coring

GROUNDWATER SYMBOLS
▼ = Water level (static)
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SAMPLES & FIELD TESTS

D	Disturbed Sample	SPT	SPT Sample
ES	Env Soil Sample	U	Undisturbed Tube Sample
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HP Hand Penetrometer
HV Hand Vane Shear
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight
RW SPT penetration by rod weight

MOISTURE CONDITION
D = Dry M = Moist W = Wet

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VL	Very Loose	0 - 4
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MD	Medium Dense	10 - 30
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VD	Very Dense	50 - 100
CO	Compact	>50/150mm

CONSISTENCY (Su) {N-value}

VS	Very Soft	< 12 kPa {0-2}
S	Soft	12 - 25 {2-4}
F	Firm	25 - 50 {4-8}
St	Stiff	50 - 100 {8-15}
VSt	Very Stiff	100 - 200 {15-30}
H	Hard	> 200 kPa {>30}

SOIL LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation | JOB NO : QB10200.4 | PAGE : 5 OF 10

POSITION : E: 470417, N: 6949721 (56 MGA94) | SURFACE ELEVATION : 57.7 (AHD) | LOCATION : Brisbane Valley Hwy

RIG TYPE : Hydrapower Scout | CONTRACTOR : GeoDrill - T Partleton | DIP / AZIMUTH : 90°

DATE DRILLED : 16/5/11 to 16/5/11 | LOGGED BY : LN | CHECKED BY : VP | STANDARD : AS1736

DRILLING & WATER DETAIL	LAB DATA: Moisture Content	LAB DATA: Dry Density	LAB DATA: % Fines	LAB DATA: Atterberg Limits	SAMPLES & SPT DATA	RL (m)	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE	CONSISTENCY / RELATIVE DENSITY: S / L	F / MD	St / D	VSt / VD	COMMENTS Field Test Data & Other Observations
					SPT 30/50mm N=R 14.05m				SILT - high plasticity fines, grey, moist, hard. *(continued)*	M					
									14.20m						
									Continued as Cored Borehole						
						43.2	14.5								
						42.7	15.0								
						42.2	15.5								
						41.7	16.0								
						41.2	16.5								
						40.7	17.0								

DRILLING

HA	Hand Auger	HQ	HQ Coring
AS	Auger	NQ	NQ Coring
WB	Washbore	PQ	PQ Coring
RR	Rock Rolling		NMLC NMLC Coring

GROUNDWATER SYMBOLS
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SAMPLES & FIELD TESTS

D	Disturbed Sample	SPT	SPT Sample
ES	Env Soil Sample	U	Undisturbed Tube Sample
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HV Hand Vane Shear
(P: Peak Su R: Residual Su)
N SPT blows per 300mm
HW SPT penetration by hammer weight
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MOISTURE CONDITION
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DENSITY (N-value)

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MD	Medium Dense	10 - 30
D	Dense	30 - 50
VD	Very Dense	50 - 100
CO	Compact	>50/150mm

CONSISTENCY (Su) {N-value}

VS	Very Soft	< 12 kPa {0-2}
S	Soft	12 - 25 {2-4}
F	Firm	25 - 50 {4-8}
St	Stiff	50 - 100 {8-15}
VSt	Very Stiff	100 - 200 {15-30}
H	Hard	> 200 kPa {>30}

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM SOIL LOG BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:34

ROCK LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 6 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING			MATERIAL					DEFECTS & COMMENTS		
DRILLING & WATER DETAIL	TCR/RQD DRILL DEPTH	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral EL VL L M H VH EH	DEFECT SPACING (mm) 20 60 200 600 2000	COMMENTS Description of joints, seams, defects, additional observations and comments	INSTALLATION DETAIL
						START CORING AT 14.20m					
Run 1	100% TCR 100% RQD	15.07m 15.20m	43.2	14.5		CORE LOSS	SW			14.20: CORE LOSS	
						SILTSTONE - faintly layered, grey, very low to low strength ,sligthly weathered.					
			42.7	15.0							
			42.2	15.5		SILTSTONE -brown, extremely low strength to very low strength, moderately weathered.	HW - MW				
	15.60					SILTSTONE - grey, very low to low strength, slightly weathered.	SW				
Run 2	98% TCR 69% RQD		41.7	16.0							
			41.2	16.5							
						SILTSTONE - red brown layered grey, extremely low strength to low strength, moderately weathered.	HW - MW				
			40.7	17.0							
	17.10					CORE LOSS	SW			17.07: CORE LOSS	
	100% TCR 94% RQD					SANDSTONE - massive, medium sand, grey, trace medium quartz and bluestone gravel in layers, medium strength, moderately weathered.					

DRILLING

NMLC NMLC Coring
NQ NQ Coring
HQ HQ Coring
PQ PQ Coring

TCR % core run recovered
RQD % core run > 100mm long (rock fraction only measured)

GROUNDWATER SYMBOLS
▼ = Water level (static)
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SAMPLES & FIELD TESTS

D Disturbed Sample
W Water Sample
ES Env Soil Sample
EW Env Water Sample
SPT SPT Sample
U Undisturbed Tube Sample

PHOTOGRAPHS NOTES ☐ YES ☒ NO

DEFECT ABBREVIATIONS

CS Crushed Seam
CZ Crushed Zone
DB Drill Break
FZ Fractured Zone
JT Joint
IS Infilled Seam
SZ Shear Zone
VN Vein
CN Clean
CT Coating
SN Stain
VR Veneer
POL Polished
RF Rough
S Smooth
SL Slickensided
Cu Curved
IR Irregular
PR Planar
ST Stepped
Un Undulated

ROCK STRENGTH (Is50 MPa)

0-0.03	Extremely Low
0.03-0.1	Very Low
0.1-0.3	Low
0.3-1.0	Medium
1.0-3.0	High
3.0-10	Very High

ROCK LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 7 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING			MATERIAL						DEFECTS & COMMENTS		
DRILLING & WATER DETAIL	TCR/RQD DRILL DEPTH	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral EL VL L M H VH EH	DEFECT SPACING (mm)	COMMENTS Description of joints, seams, defects, additional observations and comments	INSTALLATION DETAIL
						SANDSTONE - massive, medium sand, grey, trace medium quartz and bluestone gravel in layers, medium strength, moderately weathered. *(continued)*	SW				
Run 3						SANDSTONE - massive, medium sand, orange brown, trace of medium quartz and bluestone gravel in layers, medium strength moderately weathered.	MW				
	100% TCR 94% RQD	18.00m	39.7	18.0		SANDSTONE - medium sand, grey, trace of medium quartz and bluestone gravel in layers, medium strength, moderately weathered.	MW				
		18.18m									
	18.30					SANDSTONE - coarse sand, grey, some fine quartz gravel, low to medium strength, moderately weathered, recovered as coarse sand.	HW				
			39.2	18.5		SANDSTONE - coarse sand, orange streaked grey, some fine quartz gravel, low to medium strength, slightly to moderately weathered.	MW				
						SANDSTONE - coarse sand, light grey with some fine quartz gravel, medium strength, slightly to moderately weathered.	MW - SW				
		18.96m	38.7	19.0							
Run 4	100% TCR 86% RQD	19.12m				SANDSTONE - coarse sand, orange, fine quartz gravel, medium strength and moderately weathered.	MW				
		19.80m	38.2	19.5							
	20.00	20.00m	37.7	20.0		SANDSTONE - coarse sand, orange brown , some fine quartz gravel, of medium strength, moderately weathered.	MW				
	95% TCR 70% RQD		37.2	20.5							
Run 5						SANDSTONE - coarse sand, redbrown , some fine quartz gravel, of medium strength, moderately weathered.	MW			— j, sv, w, open	

DRILLING

NMLC NMLC Coring
NQ NQ Coring
HQ HQ Coring
PQ PQ Coring

TCR % core run recovered
RQD % core run > 100mm long (rock fraction only measured)

GROUNDWATER SYMBOLS
▼ = Water level (static)
▽ = Water level (during drilling)

SAMPLES & FIELD TESTS

D Disturbed Sample
W Water Sample
ES Env Soil Sample
EW Env Water Sample
SPT SPT Sample
U Undisturbed Tube Sample

PHOTOGRAPHS NOTES ☐ YES ☒ NO

DEFECT ABBREVIATIONS

CS Crushed Seam
CZ Crushed Zone
DB Drill Break
FZ Fractured Zone
JT Joint
IS Infilled Seam
SZ Shear Zone
VN Vein
CN Clean
CT Coating
SN Stain
VR Veneer
POL Polished
RF Rough
S Smooth
SL Slickensided
Cu Curved
IR Irregular
PR Planar
ST Stepped
Un Undulated

ROCK STRENGTH (Is50 MPa)

0-0.03	Extremely Low
0.03-0.1	Very Low
0.1-0.3	Low
0.3-1.0	Medium
1.0-3.0	High
3.0-10	Very High

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:36

ROCK LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 8 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING			MATERIAL					DEFECTS & COMMENTS		
DRILLING & WATER DETAIL	TCR/RQD DRILL DEPTH	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral EL VL L M H VH EH (-0.03 -0.1 -0.3 -1 -3 -10)	DEFECT SPACING (mm) 20 60 200 600 2000	COMMENTS Description of joints, seams, defects, additional observations and comments	INSTALLATION DETAIL
	95% TCR 70% RQD					SANDSTONE - coarse sand, orange red brown , some fine quartz gravel, of medium strength, moderately weathered. *(continued)*	MW				
	21.50		36.2	21.5		CORE LOSS CORE LOSS				— 21.43: CORE LOSS = 0.07 — 21.50: CORE LOSS = 0.16 j, sv, w, open	
			35.7	22.0		SANDSTONE - medium to coarse sand, orange streaked grey, some fine quartz gravel, medium strength, moderately weathered.	MW				
Run 6	89% TCR 73% RQD		35.2	22.5		SANDSTONE - medium to coarse sand, orange , some fine quartz gravel, medium strength, moderately weathered.				— j 45 w red deposit open	
	23.00	23.00m 23.15m 23.30m	34.7	23.0		SANDSTONE - medium to coarse sand, grey, of high strength, slightly weathered.	SW				
	100% TCR 95% RQD		34.2	23.5		SANDSTONE - medium to coarse sand, orange to red brown (layered in colour), trace of fine to medium quartz gravel, medium strength, moderatley weathered.	MW				
			33.7	24.0		SANDSTONE - medium to coarse sand, orange to red brown (layered in colour), trace of fine quartz gravel, of medium strength, moderatley weathered.					

DRILLING

NMLC NMLC Coring
NQ NQ Coring
HQ HQ Coring
PQ PQ Coring

TCR % core run recovered
RQD % core run > 100mm long (rock fraction only measured)

GROUNDWATER SYMBOLS
▼ = Water level (static)
▽ = Water level (during drilling)

SAMPLES & FIELD TESTS

D Disturbed Sample
W Water Sample
ES Env Soil Sample
EW Env Water Sample
SPT SPT Sample
U Undisturbed Tube Sample

PHOTOGRAPHS NOTES ☐ YES ☒ NO

DEFECT ABBREVIATIONS

CS Crushed Seam
CZ Crushed Zone
DB Drill Break
FZ Fractured Zone
JT Joint
IS Infilled Seam
SZ Shear Zone
VN Vein
CN Clean
CT Coating
SN Stain
VR Veneer
POL Polished
RF Rough
S Smooth
SL Slickensided
Cu Curved
IR Irregular
PR Planar
ST Stepped
Un Undulated

ROCK STRENGTH (Is50 MPa)

0-0.03	Extremely Low
0.03-0.1	Very Low
0.1-0.3	Low
0.3-1.0	Medium
1.0-3.0	High
3.0-10	Very High

SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:36

ROCK LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 9 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
RIG TYPE : Hydrapower Scout	CONTRACTOR : GeoDrill - T Partleton	DIP / AZIMUTH : 90°
DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING			MATERIAL					DEFECTS & COMMENTS		
DRILLING & WATER DETAIL	TCR/RQD DRILL DEPTH	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral EL VL L M H VH EH	DEFECT SPACING (mm) 20 60 200 600 2000	COMMENTS Description of joints, seams, defects, additional observations and comments	INSTALLATION DETAIL
Run 7		24.92m				SANDSTONE - medium to coarse sand, orange to red brown (layered in colour), trace of fine quartz gravel, of medium strength, moderatley weathered. *(continued)*	MW				
		25.06m	32.7	25.0		SANDSTONE - medium to coarse sand, red brown (layered in colour), trace of fine quartz gravel, of medium strength, moderatley weathered.					
	100% TCR 95% RQD		32.2	25.5						j 45 w open	
						SANDSTONE - medium to coarse sand, grey, medium strength, moderately weathered.	MW to SW				
	26.10		31.7	26.0		CORE LOSS				26.09: CORE LOSS = 0.01	
						SANDSTONE - medium to coarse sand, grey, some fine quartz gravel, medium to high strength, moderately weathered.					
						SANDSTONE - medium to coarse sand, grey, some fine to medium quartz gravel, medium to high strength, moderately weathered.					
			31.2	26.5		SANDSTONE - coarse sand, orange streaked grey, medium to high strength, moderately weathered.					
Run 8	98% TCR 89% RQD										
			30.7	27.0		SANDSTONE - coarse sand, grey, medium to high strength, moderately weathered.					
						SANDSTONE - coarse sand, grey, some fine to medium quartz gravel, low to medium strength, moderately weathered.					
						SILTSTONE - fine, grey, very low strength, slightly to moderately weathered.	MW - SW				
	27.50		30.2	27.5		CORE LOSS				27.44: CORE LOSS = 0.06	
	100% TCR 50% RQD					SILTSTONE - grey with very thinly to thinly layered fine to medium grain sandstone, low strength, slightly to moderately weathered..					
						SILTSTONE - clayey siltstone, grey, layered, extemely low to very low strength, slightly to moderately weathered.					

DRILLING

NMLC NMLC Coring
NQ NQ Coring
HQ HQ Coring
PQ PQ Coring

TCR % core run recovered
RQD % core run > 100mm long (rock fraction only measured)

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PHOTOGRAPHS NOTES ☐ YES ☒ NO

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SKM AGS REV02.1 (WORKIN-BRISBANE).GLB Log SKM ROCK(BRISBANE) BRISBANE VALLEY GRADE SEPARATION TP,AH AND BH LOGS.GPJ <<DrawingFile>> 29/11/2011 11:36

ROCK LOG

HOLE NO: **BH BV 6**

PROJECT : Brisbane Valley Grade Separation	JOB NO : QB10200.4	PAGE : 10 OF 10
POSITION : E: 470417, N: 6949721 (56 MGA94)	SURFACE ELEVATION : 57.7 (AHD)	LOCATION : Brisbane Valley Hwy
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DATE DRILLED : 16/5/11 to 16/5/11	LOGGED BY : LN CHECKED BY : VP	STANDARD : AS1736

DRILLING			MATERIAL					DEFECTS & COMMENTS		
DRILLING & WATER DETAIL	TCR/RQD DRILL DEPTH	FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● - Axial ○ - Diametral EL VL L M H VH EH (-0.03 -0.1 -0.3 -1 -3 -10)	DEFECT SPACING (mm) 20 60 200 600 2000	COMMENTS Description of joints, seams, defects, additional observations and comments	INSTALLATION DETAIL
Run 9	100% TCR 50% RQD		29.2	28.5		SILTSTONE - clayey siltstone, grey, layered, extemely low to very low strength, slightly to moderately weathered. *(continued)*	MW - SW				
	29.00		28.7	29.0							
			28.2	29.5							
Run 10	100% TCR 80% RQD	30.00m	27.7	30.0							
		30.20m								30.20: CORE LOSS = 0.3	
	30.50		27.2	30.5		Terminated @ 30.5m. No water encountered.					
			26.7	31.0							

DRILLING

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NQ NQ Coring
HQ HQ Coring
PQ PQ Coring

TCR % core run recovered
RQD % core run > 100mm long (rock fraction only measured)

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PHOTOGRAPHS NOTES ☐ YES ☒ NO

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CORE PHOTOGRAPHS	PROJECT: Brisbane Valley Grade Separation	
JOB NO.: QB10200.4	LOCATION: Warrego – Brisbane Valley Hwy Intersection	
BOREHOLE: BH BV 6	DEPTH:30.5 m	RL:57.7
CLIENT:TMR	COORDS:	DRILL RIG: Hydra Scout	CONTRACTOR: Geodrill
LOGGED BY:LN	CHECKED BY:VP	DATE:16/5/11

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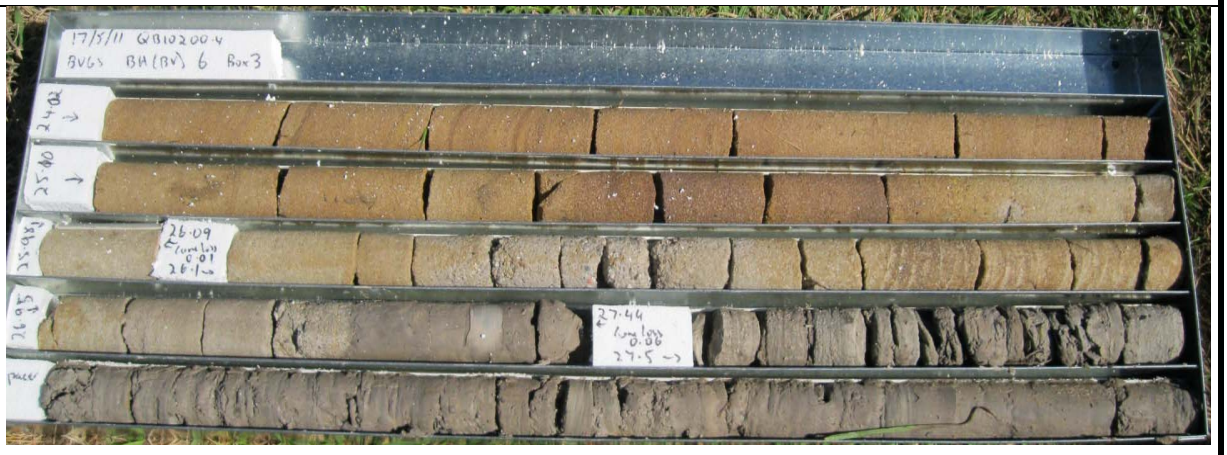
CORE: BH BV 6, 14.2 m to 19.12

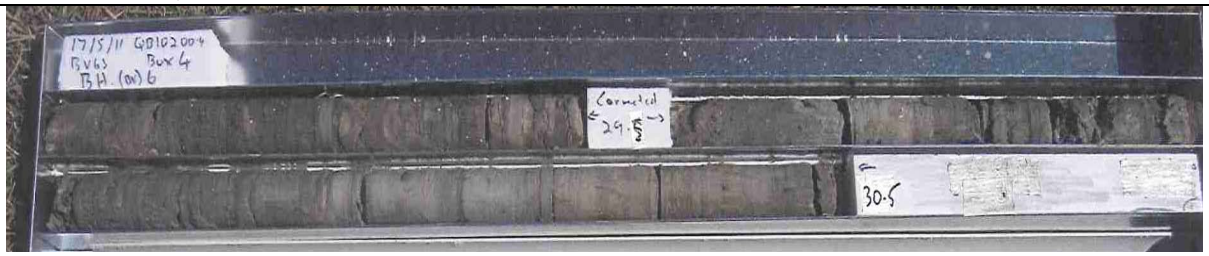
CORE: BH BV 6, 19.12 m to 24.02 m

CORE : BH BV 6, 24.02 m to



CORE PHOTOGRAPHS	PROJECT: Brisbane Valley Grade Separation	
JOB NO.: QB10200.4	LOCATION: Warrego – Brisbane Valley Hwy Intersection	
BOREHOLE: BH BV 6	DEPTH:30.5 m	RL:57.7
CLIENT:TMR	COORDS:	DRILL RIG: Hydra Scout	CONTRACTOR: Geodrill
LOGGED BY:LN	CHECKED BY:VP	DATE:16/5/11

CORE: BH BV 6, to 30.5 m



CORE:

CORE