

PROJECT: 911-1726

RECORD OF BOREHOLE GA-1A

SHEET 1 OF 2

LOCATION: 7026.479N; 9669.337E

BORING DATE: JULY 10-11, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m		
0		GROUND SURFACE		518.31					
0				0.00					Water level reference Elev. 518.755m.
2		Compact, medium brown SAND, some silt and gravel; dry. (FILL)							BENTONITE SEAL
2		RED TILL		516.31					
2				2.00					
4		Hard, medium to dark red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)							
10	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS				1	50	47		
12					2	50	46		Piez. 2
14					3	50	50		MH
16					4	50	78		BENTONITE SEAL
18				499.41					SILICA SAND
18				18.90					
20		LOWER SAND							
20		Compact, brown SAND; wet.							
20		CONTINUED ON NEXT PAGE							

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC/RB

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-1A

SHEET 2 OF 2



LOCATION: 7026.479N; 9669.337E

BORING DATE: JULY 10-11, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT			
20	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE								
		LOWER SAND CONT'D								
		BEDROCK SURFACE		497.61						
				20.70						
22		White gypsum.								
			495.42							
		END OF BOREHOLE		22.89						
24		NOTE: Hydrostatic pressure encountered in Lower Sand between 18.9m and 20.7m, resulting in piping of sand into augers.								
26										
28										
30										
32										
34										
36										
38										
40										

SILICA SAND

Piez. 1

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 509.74m
AND IN
PIEZ. 2 AT
ELEV. 517.52m
ON SEP. 25/91.

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DATA INPUT SK OCT 12/91

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC/RB

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-1B

SHEET 1 OF 1



LOCATION: 7025.329N; 9670.874E

BORING DATE: JULY 4, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m					SHEAR STRENGTH Cu, kPa
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		518.35	1	50 DO	20		<p>Water level reference Elev. 518.729m.</p> <p>BENTONITE SEAL</p> <p>SILICA SAND</p> <p>PIEZ. 1</p> <p>WATER LEVEL IN PIEZ. 1 AT ELEV. 517.56m ON SEP. 25/91.</p>	
		Compact, medium brown SAND, some silt and gravel; dry. (FILL)		0.00						
2		RED TILL		516.35	2	50 DO	20			
		Hard, medium to dark red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)		2.00		3	50 DO	30		
						4	50 DO	29		
						5	50 DO	34		
			6		50 DO	43				
8		END OF BOREHOLE		510.12	6	50 DO	43			
				8.23						

15 10 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

DATA INPUT: SK OCT. 17/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-2

SHEET 1 OF 1

LOCATION: 6441.550N; 9391.719E

BORING DATE: JULY 4-5, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
0	HOLLOW STEM AUGERS	GROUND SURFACE		519.54						
		COLLUVIUM		0.00	1	50 DO	5			
		Soft, medium reddish brown CLAYEY SILT, some sand and gravel; moist.		518.54						
2		UPPER LACUSTRINE CLAY		1.00	2	50 DO	10			
		Stiff, medium brown, laminated CLAYEY SILT and SILTY SAND; moist.		518.24						
4	HOLLOW STEM AUGERS	RED TILL		3.30	3	50 DO	35			
		Hard, medium red brown CLAYEY SILT and SAND, some gravel; dry to moist. (TILL)								
		Medium brown, wet SILTY SAND layers at 6.3m and 10.7m.				4	50 DO	53		
6	CME-55 POWER AUGER BORING				5	50 DO	57			
8	TRI-CONE									
10										
12		END OF BOREHOLE		507.96						
				11.58						
14		NOTE: Lost drill water circulation at approx. 10.7m depth, possibly in sand layer.								
16										
18										
20										



DATA INPUT: SK OCT 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-3

SHEET 1 OF 1

LOCATION: 6697.544N; 9155.741E

BORING DATE: JULY 3, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT	Wp W Wl			
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		523.74 0.00	1 50 DO 4					Water level reference Elev. 524.459m. BENTONITE SEAL SILICA SAND Piez. 2 BENTONITE SEAL MH SILICA SAND Piez. 1 WATER LEVEL IN PIEZ. 1 AT ELEV. 512.56m AND IN PIEZ. 2 AT ELEV. 521.96m ON SEP. 25/91.	
2		Loose, medium to dark brown, coarse SAND, some silt, trace gravel and wood debris; moist to wet. (FILL)		520.34 3.40	2 50 DO 7						
4		UPPER LACUSTRINE CLAY Stiff, medium red brown, laminated, interbedded CLAYEY SILT and SILTY SAND; moist to wet.		515.24 8.50	3 50 DO 18						
6					4 50 DO 17						
8					5 50 DO 11						
10		UPPER SAND Compact, medium brown, interbedded, fine to coarse SAND with occasional silt to silty clay layers; moist to wet.			6 50 DO -						
12					7 50 DO 23						
14					8 50 DO 12						
16		END OF BOREHOLE		508.50 15.24	9 50 DO 5						
18					10 50 DO 3						
20											

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-4

SHEET 1 OF 1

LOCATION: 7138.437N; 8441.968E

BORING DATE: JULY 19, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		516.96						Water level reference Elev. 517.534m. BENTONITE SEAL
		Stiff, medium red brown CLAYEY SILT, some sand and gravel with occasional fine to medium sand; dry. (FILL)		0.00	1 50 DO 12					
2		UPPER SAND		515.48						
		Compact, light to medium brown to greyish brown, interbedded fine to coarse SAND, occasional gravel layers; moist, becoming wet below 9.0m.		1.50	2 50 DO 13					
4					3 50 DO 31					
6					4 50 DO 21					
8				5 50 DO 9						
10				6 50 DO 27						
12										
14										
16										
18	TRI-CONE	BEDROCK SURFACE		499.26						Piez. 1
		Grey CARBONATE.		17.70						
20		END OF BOREHOLE		497.15						Piez. 1 DRY AT ELEV. 497.48m ON SEP. 25/91.
				19.81						

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: LG

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-5

SHEET 1 OF 3

LOCATION: 7017.353N; 8321.728E

BORING DATE: JULY 18-21, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION			
		DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH			WATER CONTENT, PERCENT		
				DEPTH (m)				Cu, kPa			nat. V. +	Q - ●	rem. V. ⊕
0		GROUND SURFACE		534.86									
		UPPER SAND		0.00						Water level reference Elev. 535.404m.			
2	TRI-CONE	Medium brown SILTY SAND and SAND, some gravel.								BENTONITE SEAL			
4		NOTE: Very poor definition of soil stratigraphy due to condition of wash samples returned to surface during tricone drilling.			1	WS							
6													
8						2	WS						
10	LONGYEAR 38 - ROTARY DRILLING N TRI-CONE / N CASING					3	WS						
12													
14						4	WS						
16													
18					5	WS							
20					6	WS							
		CONTINUED ON NEXT PAGE								SILICA SAND			

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

DATA INPUT: SK OCT. 12/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-5

SHEET 2 OF 3

LOCATION: 7017.353N; 8321.728E

BORING DATE: JULY 18-21, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m					SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp, W, Wl
20	LONGYEAR 38 - ROTARY DRILLING N TRI-CONE / N CASING	CONTINUED FROM PREVIOUS PAGE UPPER SAND CONT'D									
22		Medium brown SILTY SAND and SAND, some gravel.		6	WS						
24				7	WS						
26				8	WS						
28				9	WS						
30				10	WS						
32				11	WS						
34				12	WS						
36											
38											
40				BEDROCK SURFACE White GYPSUM.	495.19 39.67	13	WS				
				CONTINUED ON NEXT PAGE							

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-5

SHEET 3 OF 3

LOCATION: 7017.353N; 8321.728E

BORING DATE: JULY 18-21, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	nat V - + Q - ● rem V - ⊕ U - ○	WATER CONTENT, PERCENT		
40		CONTINUED FROM PREVIOUS PAGE										
42	LONGYEAR 38 N TRI-CONE	White GYPSUM.		492.19	13	WS						
44		END OF BOREHOLE		42.87								
44		NOTE: Matex was used in drill water to maintain circulation throughout drilling.										
46												
48												
50												
52												
54												
56												
58												
60												

WATER LEVEL IN PIEZ. 1 AT ELEV. 495.78m ON SEP. 25/91.

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-6

SHEET 1 OF 3

LOCATION: 6973.085N; 8149.895E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
0		GROUND SURFACE		539.75						
0		RED TILL		0.00	1	50	6			Water level reference Elev. 540.232m. BENTONITE SEAL SILICA SAND
2		Very stiff to hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)			2	50	10			
					3	50	19			
					4	50	18			
6		Becomes dark red-brown, massive textured till below 6.0m.			5	50	24			
					6	50	57			
					7	50	57			
					8	50	32			
20					9	50	58			

CME-55 POWER AUGER BORING
HOLLOW STEM AUGERS

DATA INPUT: SK OCT. 12/91

CONTINUED ON NEXT PAGE

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: JM

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-6

SHEET 2 OF 3

LOCATION: 6973.085N; 8149.895E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE					BLOWS/0.3m
20	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE RED TILL CONT'D	[Hatched pattern]	511.75 28.00	9 50 DO	48			MH	
22										
24										
26					10 50 DO	R				
28			LOWER SAND	[Dotted pattern]	511.75 28.00	11 50 DO	R			MH
30			Compact, medium grey-brown, fine to medium SAND, some silt and gravel. Contains pellets of grey clay.		509.55 30.20					Piez. 2
32			LOWER LACUSTRINE CLAY	[Hatched pattern]	501.75 38.00	12 50 DO	82			MH
34			Hard, dark brown, finely laminated SILTY CLAY grading down to CLAYEY SILT, cohesive, plastic, with brown silty sand; moist, laminated.							
36						13 50 DO	73			BENTONITE SEAL
38			LOWER TILL	[Dotted pattern]	501.75 38.00					SILICA SAND
40			Hard, dark grey-brown CLAYEY SILT and SAND, trace to some gravel, massive textured to faintly laminated.			14 50 DO	R			
			CONTINUED ON NEXT PAGE							

DATA INPUT: SK NOV. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: JM

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-6

SHEET 3 OF 3

LOCATION: 6973.085N; 8149.895E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
40	HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE LOWER TILL CONT'D								
42		Gravel clasts are polymictic mixture of quartz, quartzite, red and grey sandstone, granite and quartz-pyrite.		15	50	R				
44	CME-55 POWER AUGER BORING	BEDROCK SURFACE		491.60						
46				48.15						
48	N TRI-CONE	White GYPSUM.								
50				484.58						
52		END OF BOREHOLE		55.17						
54										
56										
58										
60										

DATA INPUT: SK, NOV. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 501.86m
AND IN
PIEZ. 2 AT
ELEV. 510.77m
ON SEP. 25/91.

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: JM

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-7

SHEET 1 OF 2

LOCATION: 6774.648N; 7758.687E

BORING DATE: AUG. 10-12, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		WATER CONTENT, PERCENT			
0		GROUND SURFACE		534.78						
		RED TILL		0.00						
2		Very stiff to hard, medium red brown CLAYEY SILT and SAND, trace to some gravel; moist. (TILL)			1	50 DO	19			
						2	50 DO	20		
4						3	50 DO	19		
						4	50 DO	25		
6						5	50 DO	26		
						6	50 DO	40		
8						7	50 DO	67		
						8	50 DO	65		
10										
12										
14		Becomes dark reddish brown, massive textured till below approximately 13.0m.								
16										
18										
20										
		CONTINUED ON NEXT PAGE								

Water level reference Elev. 535.36m
BENTONITE SEAL

SILICA SAND

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

DATA INPUT: SK OCT. 12/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-7

SHEET 2 OF 2

LOCATION: 6774.648N; 7758.687E

BORING DATE: AUG. 10-12, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m					SHEAR STRENGTH Cu, kPa
20	HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE RED TILL CONT'D								
22		BEDROCK SURFACE		512.51 22.25	9 50 91					
24	CME-55 POWER AUGER BORING N TRI-CONE	White GYPSUM.								
26										
28										
30										
32										
34										
36										
38		END OF BOREHOLE		498.18 36.58						
40		NOTE: Lost drill water circulation at 22.25m at bedrock surface.								

SILICA SAND

Piez. 1

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 511.56m
ON SEP. 25/91.

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

LOGGED: AJC

CHECKED: RB

Golder Associates

DATA INPUT: SK OCT. 12/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-8A

SHEET 1 OF 1

LOCATION: 6503.915N; 7242.850E

BORING DATE: JULY 31, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
0		GROUND SURFACE		513.97						
		RIVER ALLUVIUM		0.00						Water level reference Elev. 514.502m.
2	HOLLOW STEM AUGERS	Firm to loose, dark brown CLAYEY SAND and SILT, some gravel.			1	50 DO	7			
					2	50 DO	7			BENTONITE SEAL
4		BEDROCK SURFACE		509.70						
6	CME-55 POWER AUGER BORING	White GYPSUM.		4.27						
		NOTE: Drill water circulation was lost in fracture at 6.7m.		507.27						
8	TRI-CONE			6.70						
12		END OF BOREHOLE		501.78						
				12.19						SILICA SAND
										Piez. 1
										WATER LEVEL IN PIEZ. 1 AT ELEV. 511.66m ON SEP. 25/91.

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DATA INPUT: SK OCT 12/91

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-8B

SHEET 1 OF 1

LOCATION: 6505.985N; 7242.513E

BORING DATE: JULY 31, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
0	CME-55 POWER AUGER BORING SOLID STEM AUGERS	GROUND SURFACE		513.99					Water level reference Elev. 514.667m. BENTONITE SEAL Piez. 1 SILICA SAND WATER LEVEL IN PIEZ. 1 AT ELEV. 512.80m ON SEP. 25/91.
2		RIVER ALLUVIUM		0.00					
4		Firm to loose, dark brown CLAYEY SAND and SILT, some gravel.		510.39					
4		END OF BOREHOLE		3.60					

DATA INPUT: SK OCT 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE 9A

SHEET 1 OF 2

LOCATION: 7035.667N; 7741.694E

BORING DATE: JULY 29-30, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT			
0		GROUND SURFACE		518.86							
		UPPER SAND		0.00						Water level reference Elev. 519.541m.	
2		Compact to very dense, red brown, interbedded SILTY SAND and fine to medium SAND, occasional thin layers of clayey silt and gravelly sand; dry to moist, becoming wet below 9.0m.			1	50 DO	6			MH	
						2	50 DO	7			
4						3	50 DO	8			MH
6						4	50 DO	12			
10						5	50 DO	44			
	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	Becomes predominantly fine to coarse SAND, trace to some gravel and silty sand and gravel below 10.0m.									
12						6	50 DO	R			
14						7	50 DO	R			
16				502.36							
		CRETACEOUS CLAY		16.50							
		Hard, dark grey CLAYEY SILT and SAND, some gravel, slightly plastic; moist.									
18		BEDROCK SURFACE		500.36							
				18.50							
		White GYPSUM.									
20	N TRI-CONE										
		CONTINUED ON NEXT PAGE									

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE 9A

SHEET 2 OF 2

LOCATION: 7035.667N; 7741.694E

BORING DATE: JULY 29-30, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		WATER CONTENT, PERCENT Wp W Wi 10 20 30 40			
20	CM-55 POWER AUGER BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE GYPSUM CONT'D		497.88						SILICA SAND Piez. 1
21		NOTE: Void encountered between 21.0m and 21.3m where drill water circulation was lost. Drill water circulation returned at 23.0m (50%).		21.00						
22				21.30						
26		END OF BOREHOLE		492.95						WATER LEVEL IN PIEZ. 1 AT ELEV. 507.90m ON SEP. 25/91.
28										
30										
32										
34										
36										
38										
40										

DATA INPUT: SK OCT 12/91

0 5 10 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-9B

SHEET 1 OF 1

LOCATION: 7036.534N; 7743.014E

BORING DATE: AUG. 12-13, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT			
0		GROUND SURFACE		519.18								
0		UPPER SAND		0.00							Water level reference Elev. 519.440m	
2		Compact to very dense, red brown, interbedded SILTY SAND and fine to medium SAND, occasional thin layers of clayey silt and gravelly sand; dry to moist, becomes wet below 9.0m.			1	50 DO	10				BENTONITE SEAL	
4				2	50 DO	9						
6						3	50 DO	38				SILICA SAND
8												PIEZ. 2
10			Becomes predominantly fine to coarse SAND, trace to some gravel and silty sand and gravel below 10.0m.									
12		NOTE: - Piping sand encountered at 12.2m.			4	50 DO	50/10					
14												
16		- Lost drill water circulation between 15.0m to 17.5m in permeable sand and gravel.			5	50 DO	49				BENTONITE SEAL	
18		CRETACEOUS CLAY Hard, dark grey CLAYEY SILT and SAND, some gravel, slightly plastic; moist.		501.66 17.50							SILICA SAND	
18				500.42 18.74	6	50 DO	82				PIEZ. 1	
20		END OF BOREHOLE									WATER LEVEL IN PIEZ. 2 AT ELEV. 508.94m ON SEP. 25/91. PIEZ. 1 RISER PIPE BROKEN AT DEPTH OF 12.2m. PIEZ. 1 DRY AT 508.49m.	

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-10A

SHEET 1 OF 3

LOCATION: 7223.849N; 7996.876E

BORING DATE: JULY 26-28, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa
0		GROUND SURFACE		516.17						
0		UPPER SAND		0.00					Water level reference Elev. 516.761m.	
2		Loose to compact, medium brown, fine to medium SAND, trace silt, occasional silty sand and coarse sand and gravel layers; moist, becoming wet below 4.0m.			1	50 DO	11			
						2	50 DO	2		
4					512.17					
					4.00					
						3	50 DO	10		
						4	50 DO	7		
8					508.67					
					7.50					
						5	50 DO	11		
						6	50 DO	17		
10										
					7	50 DO	8			
12										
					8	50 DO	17			
				503.17						
				13.00						
14										
		Below 13.0m becomes compact to dense, medium brown, interbedded SILTY SAND and CLAYEY SILT, trace gravel; wet.			9	50 DO	24			
					10	50 DO	24			
16										
					11	50 DO	62			
18				498.67						
				17.50						
		CRETACEOUS CLAY Hard, light to dark grey, laminated to massive textured SILTY CLAY to CLAYEY SILT and SAND, trace gravel, trace black carbon (wood); moist. Gravel clasts are quartz, quartzite, sandstone, carbonate and gypsum.								
20										
					12	50 DO	70			
		CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-10A

SHEET 2 OF 3

LOCATION: 7223.849N; 7996.876E

BORING DATE: JULY 26-28, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
20		CONTINUED FROM PREVIOUS PAGE CRETACOUS CLAY CONT'D								
22		Gypsum clasts tend to be weathered to fine grained, light grey granular material.								
24				490.67 25.50	13 50 DO 33/09					
26		NOTE: Lost drill water circulation between 25.5m and 28.5m and again between 38.0m and 39.5m probably in permeable sands and gravels interbedded within the trench clay. (See Geophysical Record of Borehole GA-10A)								
28				487.67 28.50	14 50 DO R					
30	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS									
32					15 50 DO R					
34										
36										
38				478.17 38.00	16 50 DO R					MH
40				476.67 39.50						
		CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-10A

SHEET 3 OF 3

LOCATION: 7223.849N; 7996.876E

BORING DATE: JULY 26-28, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
40	HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE CRETACEOUS CLAY (cont'd)								
42		BEDROCK SURFACE		474.17 42.00						
44	CME-55 POWER AUGER BORING N TRI-CONE	White GYPSUM.								
46		NOTE: Partial drill water circulation loss in bedrock.		469.23 46.94						
48		END OF BOREHOLE								

SILICA SAND

PIEZ. 1

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 507.11m
ON SEP. 25/91.

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-10B

SHEET 1 OF 1

LOCATION: 7222.533N; 7997.854E

BORING DATE: JULY 26-28, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
0	CMES-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		516.35						Water level reference Elev. 516.978m. BENTONITE SEAL SILICA SAND PIEZ. 1 WATER LEVEL IN PIEZ. 1 AT ELEV. 511.53m ON SEP. 25/91.
0		UPPER SAND		0.00						
2		Loose to compact, medium brown, fine to medium SAND, trace silt, occasional silty sand and coarse sand and gravel layers; moist, becoming wet below 4.0m.								
4				512.35 4.00						
8				508.85 7.50						
10				505.65 10.70						
12		END OF BOREHOLE								

DATA INPUT: SK OCT 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-11

SHEET 1 OF 1

LOCATION: 7525.332N; 8700.969E

BORING DATE: JULY 8, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		515.52						
0		UPPER LACUSTRINE CLAY		0.00	1	50 DO	8			Water level reference Elev. 516.064m
2		Firm, dark red brown, laminated CLAYEY SILT with minor fine sand laminations; moist to wet.			2	50 DO	8			BENTONITE SEAL
4		UPPER SAND		511.52	3	50 DO	5			SILICA SAND
4		Loose, medium brown, dilatent, layered SILT and fine SAND with occasional clay laminations; wet.		4.00	4	50 DO	7			Piez. 3
6					5	50 DO	5			BENTONITE SEAL
8					6	50 DO	7			SILICA SAND
8		RED TILL		507.02	7	50 DO	33			Piez. 2
10		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL) Grading downward to SANDY SILT, some gravel, trace clay (TILL) in lower half.		8.50	8	50 DO	> 50			DRY
12		BEDROCK SURFACE		503.32	10	50 DO	> 50			BENTONITE SEAL
12				12.20						SILICA SAND
14		White GYPSUM.								Piez. 1
16		END OF BOREHOLE		500.28	10	AS				
16		NOTE: Retained drill water circulation in bedrock.		15.24						PIEZ. 2 DRY AT ELEV. 507.02m. WATER LEVEL IN PIEZ. 1 AT ELEV. 503.57 AND IN PIEZ. 3 AT ELEV. 513.31m ON SEP. 25/91.

DATA INPUT: SK OCT. 17/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

LOGGED: AJC

1 to 100

Golder Associates

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-12

SHEET 2 OF 2

LOCATION: 7517.021N; 9051.131E

BORING DATE: JULY 6-7, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k_v , cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER				
20	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE LOWER SAND CONT'D		492.51	10	50	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp ----- W ----- Wl 10 20 30 40	MH
22		END OF BOREHOLE		22.71	10	50			
24		NOTE: Borehole terminated in Lower Sand.							
26									
28									
30									
32									
34									
36									
38									
40									

SILICA SAND

Piez. 1

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 501.64m
AND IN
PIEZ. 2 AT
ELEV. 514.68m
ON SEP. 25/91.

15 0 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

DATA INPUT: SK OCT. 12/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-13

SHEET 1 OF 4

LOCATION: 7287.508N; 9153.832E

BORING DATE: JULY 24-31, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT ELEV. DEPTH (m)	NUMBER	TYPE		WATER CONTENT, PERCENT Wp — W — Wl 10 20 30 40			
0		GROUND SURFACE	525.25 0.00							Water level reference Elev. 525.971m
		Brown SILTY SAND. (FILL)								
2		RED TILL	523.75 1.50							
		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)		1	50 DO PH					
4				2	50 DO PH					
6				3	50 DO PH					
10	LONGYEAR 38 TRI-CONE		514.58 10.67							SILICA SAND
		LOWER SAND								
12		Dense, grey to brown SILTY fine SAND to SILTY coarse SAND and GRAVEL with occasional cobbles.		4	50 DO PH					
14				5	50 DO PH					
16				6	50 DO PH					
18										
20										

DATA INPUT: SK OCT. 17/91

CONTINUED ON NEXT PAGE

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-13

SHEET 3 OF 4



LOCATION: 7287.508N; 9153.832E

BORING DATE: JULY 24-31, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER					TYPE	BLOWS/0.3m
						SHEAR STRENGTH Cu, kPa					
40	LONGYEAR 38 BG CORING	CONTINUED FROM PREVIOUS PAGE									
42		Bedrock cavity infilled with SILT, SAND and GRAVEL.		482.12 43.13	17	RC					
		White GYPSUM		481.36 43.89	18	RC					
44		Bedrock cavity infilled with SILT, SAND and GRAVEL.			19	RC					
46		NOTE: Gravel infill comprised of subangular to subrounded pebbles and cobbles of granite, volcanics, carbonate, quartzite and gypsum in all infilled cavities/zones.			20	RC					
48					21	RC					
					476.48 48.77	22	RC				
50			White GYPSUM			23	RC				SILICA SAND
52		Bedrock cavity infilled with SILT, SAND and GRAVEL.		474.04 51.21	24	RC					
54					25	RC					
56				468.56 56.69	26	RC				Piez. 1	
		OPEN VOID (Drill rods dropped)		467.95 57.30							
		SILT, SAND and GRAVEL.		467.34 57.91							
58		White GYPSUM			27	RC					
60		CONTINUED ON NEXT PAGE									

DATA INPUT: SK OCT. 17/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-13

SHEET 4 OF 4



LOCATION: 7287.508N; 9153.832E

BORING DATE: JULY 24-31, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
60	LONGYEAR 38 BQ CORING	CONTINUED FROM PREVIOUS PAGE							
		White GYPSUM	▽▽▽▽	464.29	27	RC			
		SILT, SAND and GRAVEL		60.96	28	RC			
				463.68					
62		Grey CARBONATE	▨▨▨▨	61.57	29	RC			
	END OF BOREHOLE		462.16						
			63.09						
64	<p>NOTE:</p> <ul style="list-style-type: none"> - Matex was used in drill water to maintain circulation throughout drilling. - Piezometer screen interval is directly connected to underground workings noted by faint flow of air issuing from open piezometer following completion of installation and subsequent monitoring. 								
66									
68									
70									
72									
74									
76									
78									
80									

WATER LEVEL IN PIEZ. 1 AT ELEV. 464.07m ON SEP. 25/91.

DATA INPUT: SK OCT. 17/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-14A

SHEET 1 OF 2

LOCATION: 7299.490N; 8348.537E

BORING DATE: JULY 24-25, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp ----- W ----- Wl 10 20 30 40			
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE	514.00								
		ALLUVIUM Soft, grey CLAYEY SILT; moist.	0.00	1	50 DO	3					Water level reference Elev. 514.461m.
		UPPER SAND	513.00								BENTONITE SEAL
2		Loose, light grey to brown, fine to coarse SAND, trace silt with interbedded layers of silt and clayey silt; wet.	1.00	2	50 DO	3					
				3	50 DO	3					MH
4				4	50 DO	3					SILICA SAND
				5	50 DO	4					MH
6				6	50 DO	10					
8		RED TILL	506.10								
		Hard, medium red brown CLAYEY SILT and SAND, trace to some gravel. (TILL)	7.90	7	50 DO	64					MH
10				8	50 DO	R					BENTONITE SEAL
12				9	50 DO	R					SILICA SAND
14		LOWER SAND	500.00								
		Very dense, medium brown, fine to coarse SAND, some silt. 0.5m of very dense, brown, massive textured SANDY SILT, some gravel overlying bedrock. NOTE: Sand piped into augers.	14.00								
16		BEDROCK SURFACE	498.20								
	White GYPSUM	15.80								Piez. 1	
18											
20											

DATA INPUT: SK OCT. 12/91

CONTINUED ON NEXT PAGE

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: RB

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-14A

SHEET 2 OF 2

LOCATION: 7299.490N; 8348.537E

BORING DATE: JULY 24-25, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
20	CMESS POWER AUGER BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE								
22		White GYPSUM		492.05						
22		END OF BOREHOLE		21.95						
24		NOTE: Maintained drill water circulation throughout bedrock.								
26										
28										
30										
32										
34										
36										
38										
40										

WATER LEVEL IN PIEZ. 1 AT ELEV. 498.62m ON SEP. 25/91.

DATA INPUT: SK OCT 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: RB

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-14B

SHEET 1 OF 1

LOCATION: 7300.582N; 8347.555E

BORING DATE: JULY 24-25, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	NUMBER	TYPE			
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		514.03				Water level reference Elev. 514.533m. BENTONITE SEAL SILICA SAND Piez 1 WATER LEVEL IN PIEZ 1 AT ELEV. 508.94m ON SEP. 25/91.
		ALLUVIUM Soft, grey CLAYEY SILT; moist.		0.00				
		UPPER SAND		513.03				
2		Loose, light grey to brown, fine to coarse SAND, trace silt with interbedded layers of silt and clayey silt; wet.		1.00				
8		RED TILL Hard, medium red brown CLAYEY SILT and SAND, trace to some gravel. (TILL)		508.13	7.90			
10	END OF BOREHOLE		504.83	9.20				

DATA INPUT: SK OCT. 12/91

DEPTH SCALE

1 to 100

0
15
10
5 PERCENT AXIAL STRAIN AT FAILURE

Golder Associates

LOGGED: RB

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-15

SHEET 3 OF 3

LOCATION: 7255.881n; 8721.772E

BORING DATE: JULY 11-16, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa			WATER CONTENT, PERCENT
40	CME-55 POWER AUGER BORING N TRI-CONE / H CASING	CONTINUED FROM PREVIOUS PAGE CRETACEOUS CLAY CONT'D Hard, light to dark grey, massive to laminated bedded CLAYEY SILT and SAND, trace gravel, trace black carbon (wood); moist.									
42											
44		NOTE: Majority of gravel clasts were irregular shaped iron sulphide.									
46											
48											
50											
52											
54											
56		END OF BOREHOLE		463.70 54.86							
58											
60											

DATA INPUT: SK OCT 17/91

PIEZ 2 DRY AT ELEV. 482.90m.
 WATER LEVEL IN PIEZ. 1 AT ELEV. 481.19m AND IN PIEZ. 3 AT ELEV. 510.77m ON SEP. 25/91.

0
 15 5 PERCENT AXIAL STRAIN AT FAILURE
 10

DEPTH SCALE
 1 to 100

Golder Associates

LOGGED: AJC
 CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-16

SHEET 1 OF 2

LOCATION: 7099.000N; 8535.434E

BORING DATE: JULY 16-17, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
0		GROUND SURFACE		519.23						
0		UPPER SAND		0.00	1	50 DO	11			Water level reference Elev. 519.962m.
2		Loose to compact, medium brown SAND and SANDY SILT, trace gravel, occasional thin silt and clayey silt layers; moist.			2	50 DO	7			BENTONITE SEAL
4					3	50 DO	9			
6					4	50 DO	16			
8					5	50 DO	28			
10					6	50 DO	26			
12										
14										
16										
16		BEDROCK SURFACE		501.83						
18		Grey, fractured CARBONATE		17.40						Piez 1
20		NOTE: Lost drill water circulation in bedrock.								
20		CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT 12/91

CME-55 POWER AUGER BORING
HOLLOW STEM AUGERS

N TRI-CONE

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-16

SHEET 2 OF 2

LOCATION: 7099.000N; 8535.434E

BORING DATE: JULY 16-17, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	NUMBER	TYPE		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
20	CME-55 POWER AUGER WITH CONE	CONTINUED FROM PREVIOUS PAGE								
20		END OF BOREHOLE								
22										
24										
26										
28										
30										
32										
34										
36										
38										
40										

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

DATA INPUT: SK OCT 12/91

PROJECT: 911-1726

RECORD OF BOREHOLE GA-17

SHEET 1 OF 4



LOCATION: 6572.390N; 7677.688E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa
0		GROUND SURFACE		532.37						
0		RED TILL		0.00					Water level reference Elev. 532.841m	
2		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL) Becomes dark reddish brown, massive CLAYEY SILT and SAND below 15m.								
3	1			50	PH					SILICA SAND
6	2			50	PH					BENTONITE SEAL
9	3			50	PH					MH
12	4			50	PH					SILICA SAND
15	5	50	PH							
15		LOWER SAND		514.37						
15		Dense medium brown SILTY SAND with occasional thin clayey silt layers and laminations.		18.00						
20		CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-17

SHEET 2 OF 4

LOCATION: 6572.390N; 7677.688E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION												
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT										
20	LONGYEAR 38 N TRI-CONE / NW CASING BO. CORING	CONTINUED FROM PREVIOUS PAGE LOWER SAND CONT'D		502.37	8	50 DO	PH														
22																					
24							7	50 DO	PH												MH
26				NOTE: Lost drill water circulation at 18.9m and regained circulation with addition of REVERT drill water additive.																	
28							8	50 DO	PH												
30				LOWER TILL		30.00	9	50 DO	PH												SILICA SAND
32				Hard, light grey brown, massive textured to faintly laminated CLAYEY SILT and SAND, some gravel; moist. (TILL) Gravel clasts consist of subangular to subrounded pebbles of felsic to mafic volcanic, quartzite, granite, carbonate and gypsum.																	
34							10	50 DO	PH												
36																					
38							11	RC	PH												
40							12	RC	PH												
							13	50 DO	PH												

DATA INPUT: SK OCT. 12/91

CONTINUED ON NEXT PAGE

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-17

SHEET 3 OF 4

LOCATION: 6572.390N; 7677.688E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT			
40	LONGYEAR 38 BQ CORING	CONTINUED FROM PREVIOUS PAGE LOWER TILL CONT'D								
				13	50 DO PH					
42										
				14	50 DO PH					
44										
				15	50 DO PH					
46										
48										
50			BEDROCK SURFACE	483.37 49.00						
			White GYPSUM		16	RC				SILICA SAND
52				480.55 51.82						
			Bedrock cavity infilled with light to medium brown SILTY SAND, some gravel. Gravel clasts consist of quartzite, sandstone, carbonate and granite.		17	50 DO				
54										
56										
58				474.46 57.91						
			White GYPSUM		19	RC				
			472.93 59.44							
				20	RC					
60		CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT. 12/91

DEPTH SCALE

1 to 100

15 5 PERCENT AXIAL STRAIN AT FAILURE

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-17

SHEET 4 OF 4

LOCATION: 6572.390N; 7677.688E

BORING DATE: AUG. 1-6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
60	LONGYEAR 38 BQ CORING	CONTINUED FROM PREVIOUS PAGE								
62		Bedrock cavity infilled with light brown CLAYEY SILT and SAND, some gravel. Gravel clasts comprised of quartzite, sandstone, carbonate, gypsum and granite.		20	RC					
64				21	RC					
66				22	RC					
68				23	50 DO					
70		Grey CARBONATE and massive to disseminated sphalerite mineralization.		24	RC					
74		END OF BOREHOLE								
76		NOTE: Maintained drill water circulation with Revert. Hole flushed with chlorine bleach on completion.								

DATA INPUT: SK OCT. 12/91

Piez 1

WATER LEVEL IN PIEZ. 1 AT ELEV. 493.39m ON SEP. 25/91.

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-18

SHEET 1 OF 2

LOCATION: 7780.544N; 9273.828E

BORING DATE: JULY 9, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	NUMBER	TYPE	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp W Wi		
0		GROUND SURFACE	517.77						
		ORGANICS	517.57	1	50	8			Water level reference Elev. 518.121m. BENTONITE SEAL
		RED TILL	0.20						
2		Hard, medium to red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)		2	50	25			SILICA SAND
				3	50	33			
4				4	50	33			
6				5	50	R			
8								Piez. 2	
10	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS			6	50	84			BENTONITE SEAL
12									
14		LOWER SAND	504.77 13.00	7	50	50			SILICA SAND
		Very dense, light grey to grey brown, interbedded SILTY SAND and medium to coarse SAND, some gravel to gravelly, trace silt; wet.							
16				8	50	50			MH
18									
20	TRI-CONE			9	WS				Piez. 1

DATA INPUT: SK OCT. 12/91

NOTE: Sand tended to pipe during drilling.

CONTINUED ON NEXT PAGE

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-18

SHEET 2 OF 2

LOCATION: 7780.544N; 9273.828E

BORING DATE: JULY 9, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
20	CME-5 POWER AUGER BORING TRI-CONE	CONTINUED FROM PREVIOUS PAGE							
		LOWER SAND CONT'D		9 WS					
22		END OF BOREHOLE		496.21 21.58	10 DO	50 V			
		Borehole terminated in sand.							

WATER LEVEL IN
 PIEZ. 1 AT
 ELEV. 505.25m
 ON SEP. 25/91.
 WATER LEVEL IN
 PIEZ. 2 AT
 ELEV. 517.50m
 ON SEP. 18/91.

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-19

SHEET 1 OF 1

LOCATION: 7266.212N; 10105.579E

BORING DATE: JULY 6, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	NUMBER	TYPE		WATER CONTENT, PERCENT	Wp		
0		GROUND SURFACE		517.28						
0		ALLUVIUM Loose, light brown SILT and SAND, some gravel.		0.00	1	50 DO	6			Water level reference Elev. 517.869m. BENTONITE SEAL
2		UPPER LACUSTRINE CLAY Soft to firm, dark red brown, laminated CLAYEY SILT with minor fine sand and silt laminations; moist to wet.		515.98 1.30	2	50 DO	2			
4					3	75 TO				SILICA SAND Piez 3
6					4	75 TO				
8		RED TILL Very stiff, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)		509.78 7.50	6	50 DO	20			BENTONITE SEAL SILICA SAND Piez 2
10					7	50 DO	27			
12		White GYPSUM NOTE: Drill water circulation retained throughout bedrock.		506.78 10.50		50 DO				BENTONITE SEAL SILICA SAND Piez 1
16		END OF BOREHOLE		502.04 15.24						WATER LEVEL IN PIEZ 1 AT ELEV. 515.52m AND IN PIEZ 2 AT ELEV. 516.12m AND IN PIEZ 3 AT ELEV. 516.66m ON SEP. 25/91.

DATA INPUT: SK OCT. 12/91

0 15 10 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-20

SHEET 1 OF 1

LOCATION: 7043.017N; 8674.507E

BORING DATE: JULY 20, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m		
0		GROUND SURFACE		521.48					
0		UPPER SAND		0.00	1	55 DO	15		
2		Loose, medium brown, interbedded, fine to coarse SAND, some silt; samples dry then becoming moist to wet below 6.0m.			2	55 DO	8		
4					3	55 DO	6		
6					4	55 DO	9		
8					509.98				
12		RED TILL		11.50	5	55 DO	78		
14		Hard, dark red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)			6	55 DO	111		
16					504.68				
18		BEDROCK SURFACE		16.80					
18		Grey CARBONATE							
20		END OF BOREHOLE		502.74					
				18.74					

Water level reference Elev. 522.153m.

BENTONITE SEAL

MH

SILICA SAND

Piez 1

PIEZ 1 DRY AT ELEV. 503.16m ON SEP. 25/91.

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: GM
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-21

SHEET 1 OF 1

LOCATION: 7235.020N; 8599.724E

BORING DATE: JULY 20-21, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		514.11						Water level reference Elev. 514.528m. BENTONITE SEAL SILICA SAND Piez. 1 WATER LEVEL IN PIEZ. 1 AT ELEV. 509.57m ON SEP. 18/91.
		PEAT Dark brown to dark grey, fibrous PEAT and SILTY ORGANIC SOIL.		0.00	1 AS					
2		UPPER SAND		1.50	2 AS					
4		Medium brown SILTY SAND to fine SAND with layers of silt; moist to wet.			3 AS					
6					4 AS					
8					5 AS					
10		END OF BOREHOLE		504.97 9.14	6 AS					
12		NOTE: All soil samples taken from auger cutting.								

DATA INPUT: SK OCT 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: GM/LG

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-22A

SHEET 1 OF 2



LOCATION: 7178.207N; 8263.366E

BORING DATE: AUG. 8-9, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m				
0		GROUND SURFACE		518.16					
0		UPPER SAND		0.00					
2		Compact to dense, light to medium brown, interbedded SILTY SAND, fine SAND and CLAYEY SILT.							
4					1 50 DO 21				
6					2 50 DO 13				
8					3 50 DO 38				
10									
11				507.16					
11		RED TILL		11.00					
12		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)			4 50 DO 62				
14		Becomes dark reddish brown below 15m depth.			5 50 DO 39				
16									
18					6 50 DO 37				
20		CONTINUED ON NEXT PAGE							

Water level reference Elev. 519.373m.
BENTONITE SEAL

SILICA SAND

15 5 PERCENT AXIAL STRAIN AT FAILURE

DATA INPUT: SK OCT. 12/91

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: LG/JM
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-22A

SHEET 2 OF 2

LOCATION: 7178.207N; 8263.366E

BORING DATE: AUG. 8-9, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa
20	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE								
22		RED TILL CONT'D			7	50 DO	82			
24		CRETACEOUS CLAY		494.16 24.00	8	50 DO	50			
26		Hard, light to dark grey, laminated to massive textured CLAYEY SILT and SAND, trace to some gravel, trace black carbon (wood). Gravel clasts predominantly quartz pebbles.			9	50 DO	-			
28					10	50 DO	50/13			MH
30					11	50 DO	72			
32										
34		BEDROCK SURFACE		485.16 33.00	12	50 DO	50			
36		White GYPSUM								
38		END OF BOREHOLE		481.58 36.58						
40										

DATA INPUT: SK OCT. 12/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: LG/JM

CHECKED: RB

WATER LEVEL IN PIEZ. 1 AT ELEV. 500.80m ON SEP. 25/91.

PROJECT: 911-1726

RECORD OF BOREHOLE GA-22B

SHEET 1 OF 1

LOCATION: 7179.547N; 8266.490E

BORING DATE: JULY 21, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k_f cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		518.54					Water level reference Elev. 518.999m. BENTONITE SEAL SILICA SAND Piez. 1 PIEZ. 1 DRY ON SEP. 25/91.
0		UPPER SAND Compact to dense, light to medium brown, interbedded SILTY SAND, fine SAND and CLAYEY SILT.		0.00	1 AS				
2					2 AS				
4					3 AS				
6					4 AS				
8					5 AS				
9.14				6 AS					
9.14		END OF BOREHOLE		509.40					
10				9.14					
12									
14									
16									
18									
20									

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-23

SHEET 1 OF 4

LOCATION: 6824.277N; 8538.473E

BORING DATE: JULY 21-23, 1991

DATUM: MINE

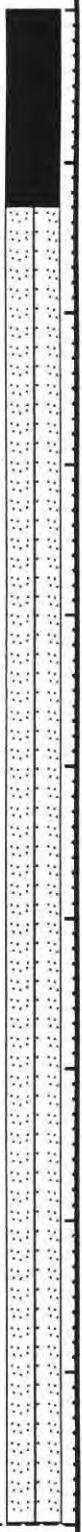
SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
0		GROUND SURFACE		535.83						
0		UPPER SAND		0.00						
2		Medium brown SAND and SILTY SAND, minor clayey silt layers.								
4					1	WS				
6		NOTE: Very poor definition of soil stratigraphy due to condition of wash samples returned to surface. Tricone drilling with Matex additive.								
8					2	WS				
10										
12										
14					4	WS				
16										
18					5	WS				
20										
20		CONTINUED ON NEXT PAGE								

Water level reference Elev. 536.170m.
BENTONITE SEAL



DATA INPUT: SK OCT. 17/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-23

SHEET 2 OF 4

LOCATION: 6824.277N; 8538.473E

BORING DATE: JULY 21-23, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp				
20	LONGYEAR 38 WASH BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE UPPER SAND CONT'D									
		Medium brown SAND and SILTY SAND, minor clayey silt layers.		6 WS							
22				7 WS							
24											
26				8 WS							
28											
30				9 WS							
32				10 WS							
34											
36				11 WS							
38				12 WS							
40				13 WS							
			CONTINUED ON NEXT PAGE								

DATA INPUT: SK OCT 17/91

15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-23

SHEET 3 OF 4

LOCATION: 6824.277N; 8538.473E

BORING DATE: JULY 21-23, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa			WATER CONTENT, PERCENT
40	LONGYEAR 38 WASH BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE UPPER SAND CONT'D									
42				13	WS						
44				14	WS						
46											
48				Medium brown CLAYEY SILT.	488.63 47.00	15	WS				
50				RED TILL	485.63 50.00	16	WS				
52				Medium red brown CLAYEY SILT and SAND, some gravel. (TILL)							
54						17	WS				
56						18	WS				
58						19	WS				
60				CONTINUED ON NEXT PAGE							

DATA INPUT: SK OCT 17/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-23

SHEET 4 OF 4

LOCATION: 6824.277N; 8538.473E

BORING DATE: JULY 21-23, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m			SHEAR STRENGTH Cu, kPa
60	LONGYEAR 38 WASH BORING N TRICONE	CONTINUED FROM PREVIOUS PAGE								
		RED TILL CONT'D		19	WS					
62				20	WS					
64										
66		BEDROCK SURFACE		469.83	21	WS				
	Grey CARBONATE	65.80								
68		468.57								
	END OF BOREHOLE	67.06								
70										
72										
74										
76										
78										
80										

NOTE:
Borehole was wash bored using Matex in drill water flush.

Piez 1



PIEZ. 1 DRY AT ELEV. 470.49m ON SEP. 25/91.

DATA INPUT: SK OCT. 17/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-24

SHEET 1 OF 1

LOCATION: 7414.169N; 9022.798E

BORING DATE: JULY 22, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m		SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT		
0		GROUND SURFACE		514.98 0.00						Water level reference Elev. 515.667m.
2	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	Light to medium CLAYEY to SANDY SILT, trace gravel, some root material.		1	AS					
2				2	AS					
4				3	AS					
6				4	AS					
8				5	AS					
10				6	AS					
10				7	AS					
10.67		END OF BOREHOLE		504.31 10.67						SILICA SAND
12										Piez. 1
14										
16										
18										
20										

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: LG
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-25

SHEET 1 OF 1

LOCATION: 7414.782N; 8760.598E

BORING DATE: JULY 23, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	nat.V. + rem.V. ⊕ Q - ● U - ○	WATER CONTENT, PERCENT Wp ----- W ----- Wl 10 20 30 40			
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		514.25 0.00							Water level reference Elev. 514.59m
2		Light to medium CLAYEY to SANDY SILT, trace gravel, some root material.			1 AS						BENTONITE SEAL
4					2 AS						SILICA SAND
6		NOTE: All soil samples taken from auger cuttings only. Stratigraphy description not considered entirely representative.			3 AS						
8					4 AS						
10					5 AS						
12					6 AS						
10		END OF BOREHOLE		505.11 9.14							Water level in PIEZ. 1 AT ELEV. 514.05m ON SEP. 25/91.

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: LG
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-26

SHEET 1 OF 1



LOCATION: 7342.835N; 8466.476E

BORING DATE: JULY 23-24, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m		
0	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	GROUND SURFACE		514.63						
0		ALLUVIUM		0.00	1	50 DO	6			
2		Loose, light brown to grey brown SILTY fine to coarse SAND, some gravel, trace root material, peat at surfaces; wet.				2	50 DO	2		
3		RED TILL		511.83	3	50 DO	15			
4		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)		3.00	4	50 DO	37			
5					5	50 DO	68			
6					6	50 DO	32			
8										
9				505.49						
9.14		END OF BOREHOLE		9.14						



DATA INPUT: SK OCT. 17/91

15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: LG

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-27

SHEET 1 OF 2

LOCATION: 7128.804N; 8123.087E

BORING DATE: AUG. 6-8, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT ELEV. DEPTH (m)	NUMBER	TYPE				
0		GROUND SURFACE	527.33						
0		UPPER SAND	0.00						
2		Loose, medium brown SAND and SILT, some gravel.		1	50 DO	8			
2		RED TILL	525.33						
2		Very stiff to hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)	2.00	2	50 DO	29			
4				3	50 DO	28			
6				4	50 DO	26			
8				5	50 DO	25			
10				6	50 DO	28			
12				7	50 DO	46			
14				8	50 DO	50/13			
18		LOWER SAND	509.33						
18		Very dense, greyish brown SAND; wet.	18.00	9	50 DO	88			
20		NOTE: Sand piped into augers.	507.33						
20		CONTINUED ON NEXT PAGE	20.00	10	50 DO	3			

DATA INPUT: SK NOV. 12/91

CME-55 POWER AUGER BORING
HOLLOW STEM AUGERS

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: LG

CHECKED: RB

Water level reference Elev. 527.942m.

MH

SILICA SAND

BENTONITE SEAL

SILICA SAND

MH

MH

PROJECT: 911-1726

RECORD OF BOREHOLE GA-27

SHEET 2 OF 2

LOCATION: 7128.804N; 8123.087E

BORING DATE: AUG. 6-8, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	nat.V. + rem.V. -	Q. - U. -	WATER CONTENT, PERCENT		
20	CME-55 POWER AUGER BORING HOLLOW STEM AUGERS	CONTINUED FROM PREVIOUS PAGE		507.33 20.00	10 50 DO 3					MH	
22		LOWER LACUSTRINE CLAY			11 50 DO 43					MH	
24		Hard, dark red brown, very thinly laminated CLAYEY SILT, trace fine sand grading downward to silty clay and clay; moist. - Trace gravel sized dropstones and laminations of sand occur near top of unit.			12 50 DO 42					MH	
26					13 50 DO 31					MH	
28					14 50 DO 47					MH	
30					15 50 DO					MH	
32					16 50 DO 78					MH	
34			CRETACEOUS SAND		494.33 33.00						MH
36		Very dense, light grey, medium to coarse SAND, trace silt; wet, sand grains are quartz, quartzite, carbonate, phyllite and quartz-pyrite. NOTE: Lost drill water circulation at 33.5m.		491.33 36.00						MH	
38		CRETACEOUS CLAY Grey CLAYEY SILT, some sand and black carbon fragments (wood).		490.45 36.88						MH	
40		END OF BOREHOLE									

DATA INPUT: SK NOV. 12/91

0 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: LG
CHECKED: RB

WATER LEVEL IN
PIEZ. 1 AT
ELEV. 506.74m
ON SEP. 25/91.

PROJECT: 911-1726

RECORD OF BOREHOLE GA-28A

SHEET 1 OF 3

LOCATION: 7663.217N; 9701.462E

BORING DATE: AUG. 14-16, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, K, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	NUMBER	TYPE	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp		
0		GROUND SURFACE	540.53						
		UPPER SAND	0.00						Water level reference Elev. 540.839m.
		Loose, medium red brown SAND and SILT.							BENTONITE SEAL
2		RED TILL	538.53	1	50 DO	9			
		Hard, medium red brown CLAYEY SILT and SAND, some gravel; moist. (TILL)	2.00						
				2	50 DO	20			
				3	50 DO	23			
				4	50 DO	42			
		- Changes to dark red brown below 6.0m depth.		5	50 DO	38			
				6	50 DO	38			
				7	50 DO	28			
				8	50 DO	31			
		Till becomes coarse grained silt and sand, some gravel, trace clay between 17.0m and 18.3m.							
18		BEDROCK SURFACE	522.23						
		White GYPSUM	18.30						
20		CONTINUED ON NEXT PAGE							

DATA INPUT: SK OCT. 12/91

DEPTH SCALE

1 to 100

15 5 PERCENT AXIAL STRAIN AT FAILURE

Golder Associates

LOGGED: AJC

CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-28A

SHEET 2 OF 3

LOCATION: 7663.217N; 9701.462E

BORING DATE: AUG. 14-16, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	BLOWS/0.3m			WATER CONTENT, PERCENT	
20	CME-55 POWER AUGER BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE										
22												
24												
26												
28												
30			White GYPSUM								SILICA SAND	
32												
34												
36												
38												
40												
		CONTINUED ON NEXT PAGE										

DATA INPUT: SK OCT. 12/91

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

PROJECT: 911-1726

RECORD OF BOREHOLE GA-28A

SHEET 3 OF 3

LOCATION: 7663.217N; 9701.462E

BORING DATE: AUG. 14-16, 1991

DATUM: MINE

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT			
40	CME-55 POWER AUGER BORING N TRI-CONE	CONTINUED FROM PREVIOUS PAGE								
42										
44										
46										
48			White GYPSUM							
50			NOTE: Drill water circulation was retained throughout bedrock.							
52										
54										
56										
58			END OF BOREHOLE		482.92 57.61					
60										

DATA INPUT: SK OCT. 12/91

SILICA SAND

Piez. 1

WATER LEVEL IN PIEZ. 1 AT ELEV. 515.57m ON SEP. 25/91.

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DEPTH SCALE
1 to 100

Golder Associates

LOGGED: AJC
CHECKED: RB

