SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB1

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	44												1		**0.00-3.50m** Light brown, loose, fine to medium SAND. Aeolian.
1.95	SPT	53			8									2		
3.00	NWD4	38												3		
3.45	SPT	53			5									4		**3.50-6.00m** Beige, very loose to loose, intact, fine to coarse SAND with shell fragments. Marine (beach deposits).
4.50	NWD4	45												5		
4.95	SPT	82			4									6		
6.00	NWD4	37												7		**6.00-9.00m** Off-white, medium dense to dense, intact, fine SAND becoming fine to medium sand with increasing depth. Marine.
6.45	SPT	80			25									8		
7.50	NWD4	38												9		
7.95	SPT	60			33									10		
9.00	NWD4	62												11		**9.00-13.50m** Off-white to light grey, medium dense, and dense layers, intact, fine to medium SAND. Marine.
9.45	SPT	76			61									12		
10.50	NWD4	64														
10.95	SPT	100			38											
12.00	NWD4	51														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB1

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	100			52									13		
13.50	NWD4	32														
13.95	SPT	100			45									14		**13.50-17.20m** Layered light and grey-brown speckled white, very dense, intact, fine to medium SAND with fine shell fragments. Marine.
15.00	NWD4	61														
15.45	SPT	67			64									15		
16.50	NWD4	48												16		
16.95	SPT	67			73											
18.02	NWD4	77	26	4		24.10								17		**17.20-19.17m** Grey, moderately weathered, medium jointed, medium hard rock, SILTSTONE. Tygerberg Formation. Malmesbury Group. Joints: subvertical and subhorizontal, narrow, planar (vertical), silt filled, undulating (subhorizontal), minor iron staining.
19.52	NWD4	95	52	2			24.80	11.50	0.13					18		
21.02	NWD4	75	24	12		22.39								19		
22.52	NWD4	93	47	7										20		**19.17-22.78m** Laminated and convoluted dark and light grey, moderately weathered (highly weathered 19.17-19.40m), closely jointed, soft rock and medium hard rock, MUDSTONE. Malmesbury Group. Joints: 45^0 - 75^0 to core axis, planar, undulating or stepped, narrow, minor silt coating, often weak joint walls.
24.02	NWD4	89	21											21		
						37.73								22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB1

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.02m
DATE START : 08 February 2008
DATE FINISH : 11 February 2008

NORTHING : 3726105.684
EASTING : 53585.103
ELEVATION : 5.428
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
25.52	NWD4	84	9	>20										25		**22.78-24.40m** Greenish grey, slightly weathered, closely to medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: steeply dipping, weathered joint surfaces, wide, thick clayey silt or broken rock.
27.02	NWD4	83	0											26		**24.40-25.80m** Dark grey, slightly weathered, highly weathered along narrow steeply, very closely to closely jointed, dipping shears, medium hard rock, with layers soft rock, MUDSTONE. Malmesbury Group. Joints: mainly steeply dipping, soft joint walls, often sheared, some thick clayey silt infill.
28.52	NWD4	41	0											27		
30.02	NWD4	75	7											28		**25.80-30.02m** Light grey, unweathered, closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: vertical, subhorizontal, core extensively broken, planar, narrow, slight joint alteration, otherwise clean.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

Note:
1. Borehole stopped at 30.02m.
2. Complete lost of drill water below 25.52m.

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB10

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 26.92m
DATE START : 23 February 2008
DATE FINISH : 06 March 2008

NORTHING : 3726329.754
EASTING : 53060.803
ELEVATION : 17.816
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	63												1		**0.00-3.50m** Layered light grey, off-white and light orangey brown, loose, intact, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	69			4											
3.00	NWD4	59								0	92	0	8	2		
3.45	SPT	44			8									3		
4.50	NWD4	46												4		**3.50-9.00m** Variably off-white or light brown speckled white, loose to medium dense, intact, fine to medium SAND, occasionally coarse sand and abundant shell fragments. Aeolian.
4.95	SPT	53			12									5		
6.00	NWD4	69												6		
6.45	SPT	49			11											
7.50	NWD4	67												7		
7.95	SPT	42			6									8		
9.00	NWD4	43														
9.45	SPT	100			66									9		**9.00-10.50m** Dark brown, very dense, intact, medium to coarse SAND with coarse shell fragments. Marine?
10.50	NWD4	73												10		
10.95	SPT	67			59											
12.00	NWD4	92												11		**10.50-16.50m** Light grey-brown, very dense, intact, fine to medium SAND with fine shell fragments. Marine?
12.30	SPT	43			Ref									12		
13.50	NWD4	72												13		
13.95	SPT	51			64									14		
15.00	NWD4	57								0	94	3	3	15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB10

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 26.92m
DATE START : 23 February 2008
DATE FINISH : 06 March 2008

NORTHING : 3726329.754
EASTING : 53060.803
ELEVATION : 17.816
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	64			67					0	94	3	3	16		
16.50	NWD4	49														
16.95	SPT	69			76									17		**16.50-19.75m** Off-white or light brown, very dense, intact, fine to medium SAND with coarse shell fragments. Marine.
18.00	NWD4	69												18		
18.45	SPT	31			56											
19.50	NWD4	78												19		
19.75	SPT	100			Ref									20		**19.75-20.51m** Very coarse shells and coral within an inferred sand matrix. Marine.
20.92	NWD4	50	0	5										21		**20.51-24.76m** Greenish grey, moderately weathered, closely jointed (in places very closely jointed), medium hard rock, GREYWACKE (sandstone) with highly weathered sections. Tygerberg Formation. Malmesbury Group. Joints: Subvertical, cross-joints and subhorizontal, planar and undulating, generally wide, narrow, occasionally wide, infilled with clay soft joint walls
22.42	NWD4	68	9											22		
23.92	NWD4	45	0											23		
25.42	NWD4	100	50				25.30	28.40	0.24					24		
26.92	NWD4	100	57	6		35.88								25		**24.76-26.92m** Light grey, slightly weathered, medium jointed occasionally widely jointed, hard rock, GREYWACKE (sandstone) with abundant leached/healed fractured. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints and subhorizontal joints, planar, rough, wide, fractured rock, infill, or quartz crystals. Many healed quartz filled fractures.
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB11

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
ELEVATION : 16.221
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	71												1		**0.00-2.00m** Off-white and light yellow, loose, slightly silty, fine to medium SAND (slightly calcretised - silt contact). Aeolian with poorly formed calcrete.
1.95	SPT	42			4									2		
3.00	NWD4	98												3		
3.45	SPT	71			10									4		
4.50	NWD4	100												5		
4.95	SPT	47			8									6		
6.00	NWD4	100												7		**2.00-13.00m** Off-white to light grey, loose to medium dense, fine SAND with fine shell fragments. Aeolian.
6.45	SPT	44			8									8		
7.50	NWD4	79												9		
7.95	SPT	100			12									10		
9.00	NWD4	85												11		
9.45	SPT	91			12									12		
10.50	NWD4	90														
10.95	SPT	78			16											
12.00	NWD4	80														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB11

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
ELEVATION : 16.221
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	100			13									13		
13.50	NWD4	78														**13.00-17.00m** Light grey, loose, fine SAND with fine shell fragments. Aeolian?
13.95	SPT	100			9									14		
15.00	NWD4	80														
15.45	SPT	100			7									15		
16.50	NWD4	76														
16.95	SPT	93			9									16		
18.13	NWD4	71														
18.58	SPT	84			14									17		
19.63	NWD4	82														
20.08	SPT	100			15									18		
21.13	NWD4	74														**17.00-24.58m** Variable light grey brownish off-white, medium dense, fine SAND with fine shell fragments. Marine.
21.58	SPT	64			16									19		
22.63	NWD4	57														
23.08	SPT	71			21									20		
24.13	NWD4	49														
														21		
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
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BOREHOLE NO : KB11

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.13m
DATE START : 08 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726527.384
EASTING : 52967.352
ELEVATION : 16.221
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LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
24.58	SPT	69			25									25		
25.63	NWD4	81														**24.58-26.48m** Greenish grey and off-white, medium dense to dense, slightly clayey SAND with coarse to very coarse shell fragments and pieces of shale. GRAVEL. Marine.
26.08	SPT	62			29									26		
27.13	NWD4	67	0	>20										27		**26.48-27.26m** Greenish grey, completely weathered, soft rock, SHALE fragments within a sandy or clayey sand matrix. Tygerberg Formation. Malmesbury Group.
28.63	NWD4	94	9	6 >20										28		**27.26-27.93m** Greenish grey, completely weathered, closely to medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping (2 sets), planar, wide, clayey silt infilled, healed quartz vein.
30.13	NWD4	94	21	6 >20		42.8 14.6	10.7	22.5	0.218					29		**27.93-28.42m** Greenish grey, highly to completely weathered, very closely jointed, friable very soft rock, GREYWACKE. Joints: Steeply dipping, wide, clayey silt infilled, soft joint walls.
														30		**28.42-29.88m** Grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (45^0 - 2 sets), planar, narrow and wide, clean or some calcite? infill.
														31		**29.88-30.13m** Greenish grey, highly weathered, very closely jointed, friable soft rock, GREYWACKE (core broken).
														32		END OF BOREHOLE
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB12

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	51								0	95	2	3	1		**0.00-4.60m** Light orangey brown and off-white, loose becoming medium dense, intact, fine SAND. Aeolian.
1.95	SPT	42			5									2		
3.00	NWD4	60												3		
3.45	SPT	38			10									4		
4.50	NWD4	59												5		**4.60-5.00m** Off-white, medium dense, silty, fine SAND with some poorly formed calcrete. Pedogenic.
4.95	SPT	53			13									6		**5.00-6.50m** Off-white, medium dense, intact, slightly silty, fine SAND with medium shell fragments. Aeolian.
6.00	NWD4	73												7		
6.45	SPT	71			15									8		**6.50-10.50m** Dark, grey brown speckled white, medium dense, intact, fine to medium SAND with medium to coarse shell fragments. Marine? (beach deposit).
7.50	NWD4	91												9		
7.95	SPT	69			17									10		
9.00	NWD4	80								0	96	1	3	11		**10.50-11.00m** Grey-brown, medium dense, intact, fine to coarse SAND. Marine.
9.45	SPT	51			19									12		
10.50	NWD4	87												13		
10.95	SPT	64			22									14		
12.00	NWD4	79												15		
12.45	SPT	56			23											
13.50	NWD4	68								0	94	2	3			
13.95	SPT	84			31					0	98	0	2			
15.00	NWD4	82														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB12

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	62			37									16		**11.00-18.00m** Light greyish brown, medium dense becoming dense, intact, fine to medium SAND. Marine.
16.50	NWD4	83												17		
16.95	SPT	53			39									18		
18.00	NWD4	56												19		**18.00-24.45m** Light brown speckled white, dense, intact, fine to coarse SAND with very coarse shell fragments. Marine.
18.45	SPT	62			48									20		
19.50	NWD4	62												21		
19.95	SPT	58			43									22		
21.00	NWD4	63												23		
21.45	SPT	56			45									24		
22.50	NWD4	77												25		**24.45-28.10m** Dark greenish grey with white quartz veins, slightly weathered, variably closely and medium jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Predominantly steeply dipping (70^0 - bedding), planar, very wide, open or with quartz infill (often vuggy), many planes healed? with quartz. Two other sets of cross joints 45^0 dip, often sheared with slickensided surfaces, narrow and very wide, often with quartz crystal growth. Occasional thin shear zones present.
22.95	SPT	64			46									26		
24.00	NWD4	70								0	98	0	2	27		
24.45	SPT	53			53									28		
25.50	NWD4	89	56	>20 4										29		
27.00	SPT	95	25	11										30		
27.40	NWD4	88	95													
28.63	NWD4	95	29													
30.13	NWD4	97	18	>20												

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB12

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.14m
DATE START : 07 February 2008
DATE FINISH : 13 February 2008

NORTHING : 3726736.263
EASTING : 52859.935
ELEVATION : 16.367
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.50	NWD4	100	24	10		153.3								31		**28.10-32.54m** Dark greenish grey with white quartz veins, slightly weathered, moderately weathered where shear zones present, closely to very closely jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Prominent subvertical joint, planar, wide (2-3mm), infilled with quartz (vuggy), some pyrite. Cross-joints, planar, stepped or undulating, narrow occasionally wide, often quartz filled. Sheared in places.
33.00	NWD4	97	25				34.6	58	0.17					32		
34.20	NWD4	97	51	5										33		
35.80	NWD4	98	24											34		
37.40	NWD4	99	53											35		**32.54-40.14m** Dark greenish grey, largely unweathered, medium to widely jointed, hard rock to very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Predominantly steeply dipping (70^0 - bedding), planar, either clean or with quartz cyrstal growth on joint walls, wide (1-5 mm), either vuggy or healed with quartz. Two sets cross joints (45^0 dip), planar to undulating, 1-2 mm, wide, clean or quartz filled (vuggy in places).
38.90	NWD4	100	43			129.3								36		
40.14	NWD4	98	85			198.9								37		
														38		
														39		
														40		
														41		END OF BOREHOLE
														42		
														43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB13

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	29												1		**0.00-3.00m** Light grey speckled white, loose, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	47			4									2		
3.00	NWD4	41												3		**3.00-3.50m** Light yellowish brown, loose, slightly cemented, fine SAND. Aeolian?
3.45	SPT	44			4									4		**3.50-8.00m** Layered light grey, off-white and yellowish brown, loose, fine to medium SAND. Aeolian.
4.50	NWD4	35												5		
4.95	SPT	42			7									6		
6.00	NWD4	35												7		
6.45	SPT	44			7									8		**8.00-18.50m** Grey brown, medium dense, fine to medium SAND. Marine?
7.50	NWD4	44												9		
7.95	SPT	49			9									10		
9.00	NWD4	47												11		
9.45	SPT	47			11									12		
10.50	NWD4	46														
10.95	SPT	42			13											
12.00	NWD4	45														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB13

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	38			16									13		**8.00-18.50m** Grey brown, medium dense, fine to medium SAND. Marine?
13.50	NWD4	49														
13.95	SPT	44			18									14		
15.00	NWD4	52														
15.45	SPT	44			20									15		
16.50	NWD4	48														
16.95	SPT	49			20									16		
18.00	NWD4	53														
18.45	SPT	40			16									17		
19.50	NWD4	43														
19.95	SPT	47			13									18		
21.00	NWD4	49														**18.50-22.50m** Light grey-brown speckled white, medium dense, fine to coarse SAND with coarse shell fragments. Marine.
21.45	SPT	56			18									19		
22.50	NWD4	48														
22.95	SPT	51			20									20		
24.00	NWD4	37	0	>20										21		
														22		
														23		**22.50-22.95m** Greenish grey speckled white, medium dense, medium to coarse SAND with very coarse shell fragments. Marine.
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB13

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 28.50m
DATE START : 10 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3726931.630
EASTING : 52768.018
ELEVATION : 15.493
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	87	11	11.5 >20		22.6								25		**22.95-24.00m** Light greenish grey, moderately weathered, very closely jointed, medium hard rock, GREYWACKE (sample recovered of coarse gravel due to grinding). Tygerberg Formation. Malmesbury Group.
27.00	NWD4	93	25	8.6		17.6								26		**24.00-24.61m** Light grey, moderately weathered, closely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping and subhorizontal, planar, narrow, minor silt (some core grinding at top).
28.50	NWD4	97	19	8		39.3								27 28		**24.61-24.80m** Light grey, highly weathered, very closely fractured, soft rock, GREYWACKE. **24.80-27.43m** Light greenish grey, slightly weathered, locally moderately weathered, closely and medium weathered, generally hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping (70^0 bedding), planar, narrow occasionally wide, silt coated.
														29 30 31 32 33 34 35 36		**27.43-28.50m** Light grey, largely unweathered, closely jointed (occasional medium jointed), hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping, END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB14

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 27.05m
DATE START : 26 January 2008
DATE FINISH : 01 February 2008

NORTHING : 3727135.092
EASTING : 52676.960
ELEVATION : 15.636
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	50												1		**0.00-3.00m** Off-white, generally medium dense, (dense between 1.0-1.5m), slightly to moderately calcretised fine SAND. Pedocrete.
1.95	SPT	27			14									2		
3.05	NWD4	42												3		
3.50	SPT	33			21									4		**3.00-6.00m** Light brown, medium dense, slightly silty, fine SAND. Aeolian.
4.55	NWD4	38												5		
5.00	SPT	56			19									6		
6.00	NWD4	78								0	94	1	5	7		**6.00-19.95m** Greyish brown, loose, intact, fine SAND. Aeolian/Marine?
6.45	SPT	64			9									8		
7.50	NWD4	62												9		
7.95	SPT	64			5									10		
9.00	NWD4	52												11		
9.45	SPT	69			4									12		
10.50	NWD4	55												13		
10.95	SPT	31			4									14		
12.00	NWD4	66												15		
12.45	SPT	67			4											
13.50	NWD4	73														
13.95	SPT	71			4											
15.00	NWD4	74														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB14

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 27.05m
DATE START : 26 January 2008
DATE FINISH : 01 February 2008

NORTHING : 3727135.092
EASTING : 52676.960
ELEVATION : 15.636
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	71			4									16		**6.00-19.95m** Greyish brown, loose, intact, fine SAND. Aeolian/Marine?
16.50	NWD4	55								0	98	0	2			
16.95	SPT	100			5					0	95	2	3	17		
18.00	NWD4	23														
18.45	SPT	100			4									18		
19.50	NWD4	50														
19.95	SPT	100			57									19		
21.05	NWD4	100	24				63.40	55.0	0.25					20		**19.95-24.26m** Greenish grey, unweathered, closely to medium jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and cross joints, planar, stepped, narrow to wide, clean or quartz filled.
22.55	NWD4	100	0	8										21		
24.05	NWD4	90	0	18		196.5								22		
25.55	NWD4	63	0	9										23		
27.05	NWD4	93	17	8										24		**24.26-25.70** Greenish grey with light green laminations, slightly weathered, closely to very closely jointed, hard rock, SHALE. Malmesbury Group. Joints: Steeply dipping bedding, planar, smooth, sheared central section.
				12		42.7								25		**25.70-27.05** Grey with thin white quartz veinlets, unweathered, closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal to cross joints, wide clean or quartz crystals, vuggy subvertical healed joints.
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB17

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 21.58m
DATE START : 31 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3727058.022
EASTING : 53079.818
ELEVATION : 7.149
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	57												1		**0.00-2.00m** Orangey brown, loose, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	98			4											
3.00	NWD4	84												2		
3.45	SPT	87			6									3		**2.00-4.50m** LIght grey, loose, fine to medium SAND with medium shell fragments. Aeolian.
4.50	NWD4	81												4		
4.95	SPT	76			6											
6.00	NWD4	80												5		
6.45	SPT	64			9									6		
7.50	NWD4	77														**4.50-9.00m** Light grey, loose to medium dense, fine to medium SAND with medium shell fragments. Aeolian.
7.95	SPT	69			10									7		
9.00	NWD4	79												8		
9.45	SPT	100			8									9		**9.00-9.15m** Light grey, loose to medium dense, fine to coarse SAND (oxidised). Possible beach deposit.
10.50	NWD4	82												10		
10.95	SPT	62			12											
12.00	NWD4	66												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB17

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 21.58m
DATE START : 31 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3727058.022
EASTING : 53079.818
ELEVATION : 7.149
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	38			12									13		**9.15-15.50m** Light grey, medium dense, fine SAND with fine shell fragments. Marine.
13.50	NWD4	41														
13.95	SPT	80			14									14		
15.00	NWD4	59														
15.45	SPT	51			15									15		
16.58	NWD4	50	0	17.5		82.9								16		**15.50-16.02m** No recovery sand inferred. **16.02-16.99m** Dark greenish grey, moderately weathered, closely jointed, soft rock, SHALE (laminated). Tygerberg Formation. Malmesbury Group. Joints: Subvertical (bedding) and subhorizontal, wide, mainly clean or pyrite filled, minor silt.
18.08	NWD4	83	27	4.9			14.8	21	0.177					17		**16.99-17.81m** Light grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping, planar, narrow, minor silt coatings.
				22										18		**17.81-18.08m** Grey, highly weathered, very closely jointed, soft rock, GREYWACKE decomposed joint planes.
19.58	NWD4	85	77	1.7		56.4								19		**18.08-19.96m** Light grey, unweathered, widely jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Shallow angle, undulating, narrow, clean.
21.58	NWD4	84	56	2		34.2 68.3								20 21		**19.96-21.58m** Light grey, largely unweathered, medium to widely jointed, hard rock, SHALE (muddy). Tygerberg Formation. Malmesbury Group. Joints: Mainly steep (bedding), planar, clean, or minor silt, sheared at 20.50 - 20.60 m. END OF BOREHOLE
														22 23 24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	40												1		**0.00-3.50m** Beige, very loose, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	41												3		
3.45	SPT	53			4									4		**3.50-15.00m** Beige alternating with grey layers, loose to medium dense, fine to medium SAND, possibly slightly silty (grey layers), medium shell fragments. Lagoonal environment.
4.50	NWD4	44												5		
4.95	SPT	60			7									6		
6.00	NWD4	46												7		
6.45	SPT	47			8									8		
7.50	NWD4	56												9		
7.95	SPT	64			8									10		
9.00	NWD4	50												11		
9.45	SPT	53			9									12		
10.50	NWD4	52														
10.95	SPT	47			10											
12.00	NWD4	46														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	42			11									13		**3.50-15.00m** Beige alternating with grey layers, loose to medium dense, fine to medium SAND, possibly slightly silty (grey layers), medium shell fragments. Lagoonal environment.
13.50	NWD4	51														
13.95	SPT	56			13											
15.00	NWD4	47												14		
15.45	SPT	60			16									15		
16.50	NWD4	43														**15.00-19.95m** Light greyish off-white, medium dense to dense, fine to medium SAND with some coarse shell fragments. Marine?
16.95	SPT	58			20									16		
18.00	NWD4	53														
18.45	SPT	62			21									17		
19.50	NWD4	54														
19.95	SPT	51			25									18		
21.00	NWD4	47	0	8.6		86.8								19		
22.50	NWD4	100	27											20		**19.95-22.80m** Light greenish grey, slightly weathered, closely jointed, hard rock, GREYWACKE with abundant vuggy quartz veins (subvertical). Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping and cross-joints, planar, narrow, minor silt. Quartz veins wide, vuggy, often healed.
24.00	NWD4	97	63	5.4		104.1	10.7	54.4	0.163					21		
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB18

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.10m
DATE START : 28 March 2008
DATE FINISH : 01 April 2008

NORTHING : 3726978.932
EASTING : 52881.178
ELEVATION : 14.470
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	99	21											25		**22.80-25.40m** Grey to dark grey, slightly weathered, medium jointed, medium hard rock to hard rock, GREYWACKE with abundant quartz veins. Malmesbury Group. Joints: Cross and steeply dipping, wide, weathered joint surfaces, quartz crystal formation, minor silt.
27.00	NWD4	95	13	9.3		59.8								26		**25.40-27.00m** Grey, unweathered, closely to medium jointed, very hard rock, GREYWACKE, thin healed quartz veins. Malmesbury Group. Joints: Cross and steeply dipping, planar, narrow, clean, occasional vuggy quartz veins.
28.60	NWD4	98	13	5		59.8								27		
30.10	NWD4	99	62	18.6 / 1.9		187.9								28		**27.00-30.10m** Grey, unweathered, generally widely jointed locally closely jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross and subvertical, planar, narrow, clean.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB19

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	24												1		**0.00-5.00m** Brown speckled white, very loose to loose, fine to medium SAND with abundant coarse rounded shell fragments. Marine (beach deposit).
1.95	SPT	49			4											
3.00	NWD4	44												2		
3.45	SPT	47			4											
4.50	NWD4	37												3		
4.95	SPT	53			5											
6.00	NWD4	45												4		
6.45	SPT	49			8											
7.50	NWD4	42												5		
7.95	SPT	51			8											
9.00	NWD4	34												6		**5.00-8.00m** Brown speckled white, loose, fine to medium SAND with abundant coarse rounded shell fragments. Marine (beach deposit).
9.45	SPT	49			8											
10.50	NWD4	30												7		
10.95	SPT	49			11											
12.00	NWD4	42												8		
														9		
														10		
														11		**8.00-14.00m** Brown speckled white, loose to medium dense, fine to medium SAND with subangular medium to coarse shell fragments. Marine.
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB19

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	47			12									13		
13.50	NWD4	43														
13.95	SPT	51			12									14		
15.00	NWD4	50														**14.00-23.00m** Grey brown and light grey, medium dense, fine to medium SAND with subangular medium to coarse shell fragments. Marine.
15.45	SPT	51			16									15		
16.50	NWD4	41														
16.95	SPT	44			17									16		
18.00	NWD4	44														
18.45	SPT	47			21									17		
19.50	NWD4	50														
19.95	SPT	56			23									18		
21.00	NWD4	61														
21.45	SPT	51			26									19		
22.50	NWD4	45														
22.95	SPT	53			29									20		
24.00	NWD4	90	12													**23.00-23.82m** Greenish grey, dense, thin layers of slightly clayey, fine SAND and fine GRAVEL consisting mainly of angular shell fragments, some quartz. Marine.
						31.7								21		
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB19

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 29.60m
DATE START : 16 April 2008
DATE FINISH : 17 April 2008

NORTHING : 3726858.326
EASTING : 53167.492
ELEVATION : 10.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	100	31	7		38.8	10.6	24.9	0.0217					25		**23.82-26.31m** Light grey, slightly weathered, medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets), narrow and wide, slight clayey silt infill.
27.00	NWD4	92	32	>20		44.1 17.6								26		**26.31-26.64m** Light grey, moderately and highly weathered, very closely and closely jointed, soft rock, GREYWACKE. Joints: Cross-joints, wide, friable soft joint wall, clayey silt infill.
28.10	NWD4	96	24	10		34.2 17.1								27		**26.64-29.60m** Light grey and greenish grey, slightly weathered in places moderately weathered, closely jointed, medium hard rock, (in places soft rock), GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets), planar, silt coated, in places some soft joint walls.
29.60	NWD4	90	19			25.6								28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	35								0	97	1	2	1		**0.00-3.50m** Grey brown speckled white, very loose, medium to coarse SAND with shell fragments. Aeolian.
1.95	SPT	47			4									2		
3.00	NWD4	50												3		
3.45	SPT	53			4											
4.50	NWD4	41												4		
4.95	SPT	58			4									5		**3.50-12.00m** Light grey speckled white, loose, fine to medium SAND with coarse shell fragments. Aeolian?
6.00	NWD4	37												6		
6.45	SPT	40			6											
7.50	NWD4	48												7		
7.95	SPT	40			7									8		
9.00	NWD4	48								0	97	1	2	9		
9.45	SPT	56			7									10		
10.50	NWD4	47												11		
10.95	SPT	36			8									12		
12.00	NWD4	35												13		
12.45	SPT	53			9									14		
13.50	NWD4	52								0	96	1	3	15		
13.95	SPT	49			9											
15.00	NWD4	48														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	53			11									16		**12.00-18.50m** Dark grey-brown, speckled white, medium dense, fine to medium SAND, slightly silty in places, medium shell fragments. Marine.
16.50	NWD4	67														
16.95	SPT	44			13									17		
18.00	NWD4	56								0	95	2	3			
18.45	SPT	49			14									18		
19.95	NWD4	75	13	>20										19		**18.50-19.95m** Greenish grey, highly weathered, closely and very closely jointed, soft rock, GREYWACKE, in places completely weathered. Malmesbury Group. Joints: Indistinct fractured core, soft joint walls.
20.45	NWD4	96	0											20		
21.95	NWD4	97	11	8		17.1								21		
23.45	NWD4	97	21			42.7								22		
24.95	NWD4	98	31											23		**19.95-29.45m** Dark greenish grey, moderately weathered, closely occasionally medium jointed, soft rock and medium hard rock, GREYWACKE. Malmesbury Group. Joints: Prominent vertical joint and steeply dipping (bedding), planar, wide, silt or quartz infilled, some thin shear zones present. Highly sheared between 28.29-28.82 m.
26.45	NWD4	96	28	5		59.8	50.90	29.40	0.55					24		
27.95	NWD4	98	0											25		
29.45	NWD4	80	9	>20										26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
30.95	NWD4	95	27	3		145.2								31		**29.45-33.24m** Greenish grey, largely unweathered, medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Vertical, steeply dipping and cross joints, planar, narrow, smooth, minor silt often clean.
32.45	NWD4	97	57			187.9								32		
33.95	NWD4	99	37											33		
				20												**33.24-33.80m** Fault Zone - Moderately weathered, closely fractured, laminated, SHALE with extensive vuggy quartz infill.
35.45	NWD4	95	27	5		205.0								34		
36.95	NWD4	94	27											35		
38.45	NWD4	95	11											36		
39.95	NWD4	91	48			179.4								37		**33.80-41.45m** Grey, unweathered, variable closely to medium jointed, very hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping, cross joints (2 sets), planar, narrow and wide, quartz infill or clean.
41.45	NWD4	94	18			179.4								38		
														39		
														40		
42.95	NWD4	93	45	3			69.5	37.90	0.26					41		
														42		**41.45-53.40m** Dark grey, unweathered, medium to widely jointed, hard rock, becoming extremely hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping (2 sets), planar, narrow, clean, minor quartz.
44.55	NWD4	93	49			410.1								43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB21

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 54.95m
DATE START : 07 May 2008
DATE FINISH : 15 May 2008

NORTHING : 3726674.657
EASTING : 53284.895
ELEVATION : 5.836
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
46.15	NWD4	97	32	8		256.3								46		
47.55	NWD4	100	48											47		
49.05	NWD4	98	53			281.9								48		**41.45-53.40m** Dark grey, unweathered, medium to widely jointed, extremely hard rock, GREYWACKE (hornfels). Malmesbury Group. Joints: Mainly steeply dipping (2 sets), planar, narrow, clean, minor quartz.
50.35	NWD4	95	64	3										49		
51.90	NWD4	99	63			341.7								50		
53.40	NWD4	96	84			256.3	87.2	83.70	0.23					51		
54.95	NWD4	95	70	8 3										52		
														53		**53.40-54.95m** Dark grey streaked white, unweathered, closely and widely jointed, very hard rock, GREYWACKE (hornfels) with abundant thin quartz veins. Malmesbury Group. Joints: Steeply dipping and cross joints, undulating, quartz infill.
														54		END OF BOREHOLE
														55		
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB25

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	51								0	97	1	2	1		**0.00-3.50m** Off-white, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	60			4									2		
3.00	NWD4	74												3		
3.45	SPT	62			4											
4.50	NWD4	37												4		**3.50-7.50m** Off-white, medium dense, intact, fine to medium SAND with medium shell fragments. Aeolian.
4.95	SPT	49			7									5		
6.00	NWD4	44												6		
6.45	SPT	64			8											
7.50	NWD4	65								0	98	0	2	7		
7.95	SPT	62			8									8		**7.50-10.50m** Light grey-brown speckled white, medium dense, intact, medium to coarse SAND with abundant coarse shell fragments. Marine (beach deposit).
9.00	NWD4	55												9		
9.45	SPT	64			9											
10.50	NWD4	53												10		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB25

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														10		
10.95	SPT	64			10											
12.00	NWD4	81												11		**10.50-15.00m** Light grey-brown speckled whtie, medium dense becoming more dense with increasing depth, intact, fine to medium SAND with coarse shell fragments. Marine.
12.45	SPT	56			11									12		
13.50	NWD4	53												13		
13.95	SPT	62			13									14		
15.00	NWD4	47								0	98	0	2	15		
15.45	SPT	44			16									16		**15.00-18.00m** Dark greenish grey, medium dense, intact, very clayey, fine SAND. Marine.
16.50	NWD4	51												17		
16.95	SPT	47			20									18		**18.00-18.50m** Greenish grey, medium dense, relic bedding, slightly silty, clayey, fine SAND. Residual Siltstone. Malmesbury Group.
18.00	NWD4	68														**18.50-18.91m** Dark greenish grey, highly weathered, very closely jointed and closely jointed, very soft rock, SILTSTONE. Tygerberg Formation. Malmesbury Group. Joints: Abundant healed micro-fractures (mainly steeply dipping - bedding), wide, soft joint walls, thick clay infill.
18.45	SPT	44			21									19		
19.50	NWD4	98	68	8		17.4	2.81	5.34	0.144					20		
				1												
				>20	25											

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

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BOREHOLE NO : KB25

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 24.00m
DATE START : 21 February 2008
DATE FINISH : 22 February 2008

NORTHING : 3726697.643
EASTING : 53361.561
ELEVATION : 4.724
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
21.00	NWD4	99	31	4 >20		13.9										**18.91-19.60m** Greenish orange, highly weathered, widely jointed, soft rock, SILTSTONE/SHALE. Malmesbury Group. Joints: One subhorizontal (20^0), planar, narrow, slight silt coating.
22.50	NWD4	91	0	>20										21		**19.60-20.02m** Greenish orange, highly to completely weathered, very closely jointed, very soft rock, SHALE. Malmesbury Group. Joints: Core highly fractured, joints/cross joints, subvertical and subhorizontal, planar, wide, clayey silt infill, soft joint walls.
24.00	NWD4	93	21	5 >20		12.1								22 23		**20.02-20.56m** Light greenish yellow, highly to moderately weathered, medium jointed, soft rock, SHALE. Malmesbury Group. Joints: Cross joint, planar, narrow, silt infill. **20.56-21.02m** Greenish grey streaked and mottled orange, highly to completely weathered, very closely jointed, very soft rock, shaly SILTSTONE. Malmesbury Group. Joints: Core highly fractured, soft joint walls, clayey silt infill.
														24 25 26 27 28 29 30		**21.02-22.55m** Light grey, highly to completely weathered, very closely jointed, soft rock and very soft rock, SHALE in places decomposed to silty clay. Malmesbury Group. Joints: Core extensively broken, predominently steeply dipping, planar, narrow, clayey silt infill. **22.55-24.00m** Light grey, highly to completely weathered, very closely jointed, soft rock and very soft rock, SHALE in places decomposed to silty clay. Malmesbury Group. Joints: Core extensively broken, predominently steeply dipping, planar, narrow, clayey silt infill. END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	37												1		**0.00-5.00m** Brown speckled white, loose, fine to medium SAND with abundant rounded medium shell fragments. Marine.
1.95	SPT	71			4											
3.00	NWD4	37												2		
3.45	SPT	69			4											
4.50	NWD4	50												3		
4.95	SPT	64			7											
6.00	NWD4	42												4		
6.45	SPT	67			8											
7.50	NWD4	48												5		
7.95	SPT	58			9											
9.00	NWD4	55												6		
9.45	SPT	62			11											
10.50	NWD4	54												7		**5.00-11.00m** Brown speckled white, loose to medium dense, fine to medium SAND with abundant rounded shell fragments with rare rounded quartz and hornfels pebbles. Marine.
10.95	SPT	58			13											
12.00	NWD4	40												8		
														9		
														10		
														11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	56			15									13		**11.00-13.00m** Dark grey-brown speckled white, medium dense, slightly silty coarse gritty SAND. Marine.
13.50	NWD4	53														
13.95	SPT	53			18									14		**13.00-15.50m** Dark greenish grey, medium dense, slightly clayey, silty fine SAND. Marine.
15.00	NWD4	50														
15.45	SPT	58			21									15		
16.50	NWD4	47												16		**15.50-18.50m** Grey speckled white, medium dense to dense, fine to coarse "gritty" SAND with abundant coarse shell fragments. Marine.
16.95	SPT	73			24											
18.00	NWD4	51												17		
18.45	SPT	67			42									18		
19.50	NWD4	95	27	8		8.8								19		**18.50-23.64m** Greenish grey, highly weathered (in places completely weathered), closely jointed, very soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints and subhorizontal, planar, wide, soft joint walls, clayey silt infill.
21.00	NWD4	95	0			8.8								20		
22.50	NWD4	97	19			8.8								21		
24.00	NWD4	93	16											22		
				>20										23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB26

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 02 April 2008
DATE FINISH : 04 April 2008

NORTHING : 3727099.398
EASTING : 53180.532
ELEVATION : 5.178
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	87	0	6.7		15.9								25		**23.64-24.23m** Greenish grey, highly weathered to completely weathered, very closely jointed? (friable), very soft rock, GREYWACKE, zones completely weathered to clayey silt. Malmesbury Group. Joints: Indistinct, friable broken core, thick clayey silt infill, soft joint walls.
27.00	NWD4	93	7	>20										26		**24.23-27.35m** Light grey, moderately weathered, closely jointed, soft rock and medium hard rock, fine grained GREYWACKE. Malmesbury Group. Sheared/faulted between 26.01 - 26.28 m. Joints: Variable steeply dipping, shallow angle and vertical, narrow and wide, silt coated, hard joints walls, vuggy quartz veins.
28.50	NWD4	93	18	8.3		37.6								27		
30.00	NWD4	98	32			34.2	15.1	9.55	0.146					28		**27.35-30.00m** Light greenish grey, slightly weathered, closely to medium jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and steeply dipping, planar and undulating, often wide (vuggy quartz infilled), minor silt.
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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BOREHOLE NO : KB27

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 22.63m
DATE START : 04 February 2008
DATE FINISH : 05 February 2008

NORTHING : 3727181.334
EASTING : 53090.174
ELEVATION : 5.985
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	30												1		**0.00-4.70m** Orangey brown speckled white, loose, fine to coarse SAND with abundant coarse subrounded shell fragments, rare hornfels gravel, cobble at 3 m. Marine?
1.95	SPT	29			4											
3.00	NWD4	68												2		
3.45	SPT	67			4											
4.50	NWD4	78												3		
4.95	SPT	53			7											
6.00	NWD4	71												4		
6.45	SPT	56			8											
7.50	NWD4	80												5		
7.95	SPT	58			9											**4.70-9.00m** Light grey brown speckled white, loose, intact, fine to medium SAND with fine shell fragments. Marine (beach deposits).
9.00	NWD4	76												6		
9.45	SPT	60			11											
10.50	NWD4	73												7		
10.95	SPT	78			13											
12.00	NWD4	90												8		
														9		
														10		**9.00-15.50m** Dark greenish grey, medium dense, intact, fine SAND with medium shell fragments. Marine.
														11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB27

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 22.63m
DATE START : 04 February 2008
DATE FINISH : 05 February 2008

NORTHING : 3727181.334
EASTING : 53090.174
ELEVATION : 5.985
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	67			15									13		**9.00-15.50m** Dark greenish grey, medium dense, intact, fine SAND with medium shell fragments. Marine.
13.50	NWD4	78														
13.95	SPT	44			18									14		
15.00	NWD4	91														
15.45	SPT	62			21									15		
16.50	NWD4	76														**15.50-18.30m** Dark greenish grey with abundant white speckles, dense, intact, silty fine SAND with abundant white angular shell fragments. Marine.
16.95	SPT	67			24									16		
18.00	NWD4	59														
18.45	SPT	42			42									17		
18.77	NWD4	100	0	15										18		**18.30-18.50m** Subangular GRAVEL.
19.75	NWD4	100	55	5		15.8								19		**18.50-19.75m** Light greenish grey, moderately weathered, variably very closely and closely jointed, soft rock, MUDSTONE. Tygerberg Formation. Malmesbury Group. Joints: Indistinct but steeply dipping and cross joints, wide, clay infill, soft joint wall. One vertical joint, planar, clean.
21.15	NWD4	96	8	11		16.6								20		**19.75-22.63m** Light greenish grey, moderately weathered, closely jointed, medium hard rock, MUDSTONE with thin decomposed fractured zones at 22.1 m and 22.55 m. Tygerberg Formation. Malmesbury Group. Joints: Very steeply dipping 75^0 (bedding), planar, narrow to wide, clayey silt infill. Cross joints; wide, silt infilled. Occasional shear zones, decomposed.
22.63	NWD4	93	14				21.5	9.87	0.155					21		
														22		
														23		END OF BOREHOLE
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB29

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	36												1		**0.00-3.50m** Off-white, loose, fine to medium SAND, medium shell fragments. Aeolian.
1.95	SPT	40			4									2		
3.00	NWD4	56												3		
3.45	SPT	49			5									4		**3.50-8.00m** Light greyish off-white speckled white, medium dense, intact, fine to medium SAND with coarse shell fragments. Aeolian.
4.50	NWD4	55												5		
4.95	SPT	53			8									6		
6.00	NWD4	45												7		
6.45	SPT	53			7									8		**8.00-15.50m** Light greyish off-white speckled white, medium dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
7.50	NWD4	56												9		
7.95	SPT	51			9									10		
9.00	NWD4	57												11		
9.45	SPT	51			12									12		
10.50	NWD4	52														
10.95	SPT	60			12											
12.00	NWD4	60														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB29

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	62			13									13		**8.00-15.50m** Light greyish off-white speckled white, medium dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
13.50	NWD4	57														
13.95	SPT	51			18									14		
15.00	NWD4	70														
15.45	SPT	51			18									15		
16.50	NWD4	50												16		**15.50-18.00m** Light greyish off-white speckled white, medium dense becoming dense, intact, fine to coarse SAND with coarse shell fragments. Marine.
16.95	SPT	62			20											
18.00	NWD4	42												17		
18.45	SPT	71			34									18		**18.00-18.45m** Dark greenish grey, very dense, intact, slightly clayey, fine SAND becoming coarse gritty sand at base, coarse shell fragments. Marine.
19.50	NWD4	63	0	>20										19		**18.45-19.50m** Light grey, highly to completely weathered, closely to very closely jointed, very soft rock, GREYWACKE (fine to medium grained sandstone). Tygerberg Formation. Malmesbury Group. Joints: Indistinct, some steeply dipping, probably wide, clayey silt infill, soft joint walls.
21.00	NWD4	89	9											20		**19.50-20.18m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Joints: Mainly cross joints, wide, clayey silt infill.
22.50	NWD4	82	14	6		19.1								21		**20.18-20.87m** Light grey, highly weathered, very closely jointed, soft rock (in places very soft rock), SHALE. Malmesbury Group. Joints: Mainly subvertical, planar, narrow, silt coated, soft joint walls in places.
24.00	NWD4	83	0	>20										22		**20.87-23.25m** Light greenish brown, highly weathered, generally closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, planar, narrow, clean and minir silt infill.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

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Engineers and Scientists

BOREHOLE NO : KB29

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 25 February 2008
DATE FINISH : 27 February 2008

NORTHING : 3726781.598
EASTING : 53267.456
ELEVATION : 6.567
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	92	8	5 >20 5										25		**23.25-24.80m** Light grey, highly weathered in places completely weathered, very closely jointed, very soft rock, SHALE (closely jointed soft rock section 24.0-24.35 m). Malmesbury Group. Joints: Core completely broken up - probable shear zone.
27.00	NWD4	55	0	>20										26		**24.80-25.15m** Light grey, moderately weathered, medium jointed, soft rock, GREYWACKE. Joints: Subhorizontal, narrow, clean or minor silt.
														27		**25.15-27.00m** Light grey, highly weathered (in places completely weathered), very closely jointed, variable soft rock and very soft rock, GREYWACKE. Joints: Mainly subvertical, planar, wide, silt or clay infilled.
28.50	NWD4	100	45	4 >20		22.6								28		**27.00-27.86m** Light greyish off-white, highly weathered, medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: 2 sets cross-joints, planar, narrow and wide, clayey silt infill.
30.00	NWD4	92	14	7			16.90	11.00	0.37					29		**27.86-28.50m** Light grey, highly weathered, very closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly vertical, planar, clean or silt coated.
														30		**28.50-30.00m** Light grey, slightly weathered, closely and medium jointed, soft rock to medium hard rock, GREYWACKE. Tygerberg Formation. Joints: Subvertical and cross joints, planar, narrow, clean.
														31		END OF BOREHOLE
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB30

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.50m
DATE START : 02 April 2008
DATE FINISH : 02 April 2008

NORTHING : 3726580.470
EASTING : 53356.720
ELEVATION : 4.909
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	57												1		**3.50-8.00m** Brown speckled white, loose, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	80			4											
3.00	NWD4	83								0	97	1	2	2		
3.45	SPT	84			6									3		
4.50	NWD4	90												4		**3.50-9.00m** Light grey spekcled white, loose to medium dense, fine to medium SAND with medium shell fragments. Marine.
4.95	SPT	76			9									5		
6.00	NWD4	93												6		
6.45	SPT	60			7											
7.50	NWD4	67												7		
7.95	SPT	80			13									8		
9.00	NWD4	56								0	98	0	2			
9.45	SPT	42			6									9		**9.00-10.00m** Off-white, loose, fine SAND. Marine.
10.50	NWD4	47												10		
10.95	SPT	78			15											
12.00	NWD4	65												11		**10.00-18.00m** Dark greenish grey speckled white, medium dense, slightly clayey, silty, fine SAND with abundant coarse angular shell fragments. Marine.
12.45	SPT	64			14									12		
13.50	NWD4	39												13		
13.95	SPT	64			17											
15.00	NWD4	50												14		
														15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB30

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.50m
DATE START : 02 April 2008
DATE FINISH : 02 April 2008

NORTHING : 3726580.470
EASTING : 53356.720
ELEVATION : 4.909
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	60			17									16		**10.00-18.00m** Dark greenish grey speckled white, medium dense, slightly clayey, silty, fine SAND with abundant coarse angular shell fragments. Marine.
16.50	NWD4	92								0	93	4	3			
16.95	SPT	100			15									17		
18.00	NWD4	76														
19.50	NWD4	73	15	>20		54.6								18		**18.00-19.50m** Light grey, variably highly to completely weathered, very closely and medium jointed, generally soft rock, SHALE, decomposed to clayey silt in places. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), wide, decomposed surfaces, thick clayey silt infill.
21.00	NWD4	92	40	4.7			29.6	27.3	0.297					19		
22.50	NWD4	71	51			35.3								20		**19.50-22.50m** Light grey, moderately weathered, thinly laminated, medium to widely jointed, medium hard rock to hard rock, SHALE. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), planar, smooth, slight silt coatings.
24.00	NWD4	83	61	1.8										21		
25.50	NWD4	100	63			25.6	8.22	35.0	0.291					22		**22.50-25.50m** Light and dark grey laminations, slightly weathered, widely jointed, soft rock, SHALE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (70^0 bedding), planar, smooth, slight clayey silt coatings.
						34.2								23		
														24		
														25		
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB31

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	47								0	94	1	5	1		**0.00-1.40m** Light brown speckled white, loose, intact, fine to medium SAND with coarse subrounded to rounded shell fragments. Aeolian.
3.00	NWD4	47												2		**1.40-1.55m** Hard rock, hornfels BOULDER. **1.55-3.10m** Light brown, medium dense, intact, fine to medium SAND with abundant fine to coarse subrounded shell fragments. Aeolian.
3.45	SPT	49			17									3		**3.10-3.40m** Off-white, medium dense, intact, slightly calcretised SAND with hard calcrete concretions.
4.50	NWD4	63												4		
4.95	SPT	36			21					0	98	0	2			
6.00	NWD4	57												5		
6.45	SPT	56			28									6		**3.40-8.00m** Light brown, medium dense, intact, fine to medium SAND with fine to coarse subrounded shell fragments. Aeolian.
7.50	NWD4	46												7		
7.95	SPT	47			31									8		
9.00	NWD4	66								0	98	0	2	9		
9.45	SPT	62			44									10		**8.00-15.00m** Dark greenish grey, dense becoming very dense, intact, fine SAND. Marine.
10.50	NWD4	55												11		
10.95	SPT	51			49									12		
12.00	NWD4	70														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB31

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	58			68									13		**8.00-15.00m** Dark greenish grey, dense becoming very dense, intact, fine SAND. Marine.
13.50	NWD4	51														
13.95	SPT	67			56									14		
15.00	NWD4	58														
15.45	SPT	51			71									15		**15.00-19.50m** Dark grey speckled white, very dense, intact, fine SAND with fine shell fragments. Marine.
16.50	NWD4	63								0	89	6	5	16		
16.95	SPT	47			69											
18.00	NWD4	81												17		
18.45	SPT	51			62											
19.50	NWD4	83												18		
19.95	SPT	53			67											
21.00	NWD4	76								0	78	15	7	19		**19.50-20.00m** Light grey, very dense, intact, silty, fine SAND. Marine.
21.45	SPT	53			70									20		**20.00-22.95m** Light grey speckled white, very dense, intact, slightly calcretised, silty, fine SAND with some angular shell fragments. Marine.
22.50	NWD4	73														
22.95	SPT	47			77									21		
24.10	NWD4	100	55	5		26.4								22		
				>20										23		**22.95-24.10m** Light greenish grey, slightly weathered, medium jointed, medium hard rock, MUDSTONE. Tygerberg Formation. Malmesbury Group.
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB31

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.18m
DATE START : 29 January 2008
DATE FINISH : 02 February 2008

NORTHING : 3727292.052
EASTING : 53093.098
ELEVATION : 6.610
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.68	NWD4	91	61	3		34.1								25		**24.10-25.53m** Light grey, slightly weathered, medium to widely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: cross joints, planar, smooth, minor silt coatings.
27.03	NWD4	95	40	15										26		**25.53-27.85m** Light grey with darker grey laminations, largely unweathered, generally medium jointed, closely jointed in places, medium hard rock, MUDSTONE with thin lenses or bands of greywacke. Malmesbury Group. Joints: mainly cross joints, some subhorizontal (bedding laminations at 70^0). Generally planar, smooth or stepped, minor silt infill.
28.63	NWD4	93	51	1		59.8								27		
30.18	NWD4	95	37	12			31.7	22.3	0.334					28		**27.85-30.18m** Greenish grey and geen laminations (bedding 65^0) largely unweathered, closely jointed to about 29m thereafter medium jointed, closely jointed 29.90 - 30.18m, hard rock, SILTSTONE with interbedded MUDSTONE. Joints: prominent cross joint (bedding), planar, wide, silt and pyrite infill, some cross joints (90^0 to bedding) as well as subvertical, narrow, planar, minor silt.
				4										29		
				13										30		
																END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB32

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	27												1		**0.00-3.50m** Beige speckled white, very loose, fine to medium SAND with coarse subrounded shell fragments. Marine.
1.95	SPT	49			4											
3.00	NWD4	41												2		
3.45	SPT	49			4									3		
4.50	NWD4	38												4		**3.50-12.50m** Beige speckled white, loose, fine to medium SAND with coarse subrounded shell fragments. Marine.
4.95	SPT	51			5											
6.00	NWD4	30												5		
6.45	SPT	51			5									6		
7.50	NWD4	40												7		
7.95	SPT	42			5											
9.00	NWD4	38												8		
9.45	SPT	53			7									9		
10.50	NWD4	40												10		
10.95	SPT	42			9											
12.00	NWD4	37												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB32

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	47			10									13		
13.50	NWD4	32														**12.50-17.50m** Grey - brown speckled white, medium dense, fine to medium SAND with coarse subrounded shell fragments. Marine.
13.95	SPT	51			12									14		
15.00	NWD4	39														
15.45	SPT	49			16									15		
16.50	NWD4	29														
16.95	SPT	56			19									16		
18.00	NWD4	37														
18.45	SPT	47			21									17		**17.50-18.00m** Greenish grey, medium dense, slightly clayey, silty, fine SAND. Marine.
19.50	NWD4	37												18		**18.00-19.95m** Lightgreyish brown, medium to dense, slightly silty, fine to medium SAND with shell fragments. Marine
19.95	SPT	51			23									19		
21.00	NWD4	98	0	>20										20		**19.95-21.10m** Light grey, variably highly weathered and completely weathered, very closely, generally very soft rock, GREYWACKE with thin zones decomposed to clayey silt. Malmesbury Group.
22.50	NWD4	93	0	7 >20		8.8								21		**21.10-21.77m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Subhorizontal, planar, narrow, clay coated.
24.00	NWD4	84	0	10										22		**21.77-22.63m** Light grey, variably highly weathered and completely weathered, very closely, generally very soft rock, GREYWACKE with thin zones decomposed to clayey silt. Malmesbury Group.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

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BOREHOLE NO : KB32

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	91	0	>20										25		**22.63-24.88m** Light grey, moderately weathered, closely jointed (very closely jointed in places), soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping, occasional shallow, planar, narrow, clayey silt coated.
27.00	NWD4	89	0	>20										26		**24.88-25.50m** Light grey, highly to completely weathered, very closely fractured, generally very soft rock, GREYWACKE. Malmesbury Group. Joints: very closely jointed, wide, thick clayey silt infill, soft joint walls.
28.50	NWD4	93	0	15		68.3								27		**25.50-26.90m** Light greenish grey, moderately weathered, very closely jointed, soft rock and medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping (bedding) and shallow angle cross-joints, planar, narrow and wide, clayey silt infill.
30.00	NWD4	95	10											28		**26.90-29.90m** Light grey, slightly weathered, generally closely jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Steeply dipping and shallow angle cross-joints, planar, narrow, clean or clayey silt coated.
31.50	NWD4	95	90	5		68.3								29		
33.10	NWD4	97	63	7		132.2								30		**29.90-40.20m** Dark grey, unweathered, generally medium jointed, (occasional widely jointed), laminated, hard rock, SHALE (meta shale). Malmesbury Group. Joints: Steeply dipping (70° bedding), cross joints (2 sets), plus vertical joint, planar to undulating, narrow, generally clean.
34.10	NWD4	100	16	>20										31		
35.70	NWD4	92	35			44.0								32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB32

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 40.20m
DATE START : 18 April 2008
DATE FINISH : 23 April 2008

NORTHING : 3726897.190
EASTING : 53267.650
ELEVATION : 6.981
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
37.30	NWD4	95	66	6		114.6								37		**29.90-40.20m** Dark grey, unweathered, generally medium jointed, (occasional widely jointed), laminated, hard rock, SHALE (meta shale). Malmesbury Group. Joints: Steeply dipping (70° bedding), cross joints (2 sets), plus vertical joint, planar to undulating, narrow, generally clean.
38.90	NWD4	92	6											38		
40.20	NWD4	92	65			170.9 176.3								39 40		
														41 42 43 44 45 46 47 48		END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB33

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	42												1		**0.00-3.00m** Off-white, very loose to loose, intact, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	42												3		**3.00-3.50m** Dark grey-brown, loose, intact, slightly organic, fine to medium SAND with shell fragments. Inter-dune deposit.
3.45	SPT	51			6									4		
4.50	NWD4	60												5		**3.50-8.00m** .Light grey-brown, medium dense, intact, fine to medium SAND with coarse subrounded shell fragments. Aeolian/Beach deposit.
4.95	SPT	53			8									6		
6.00	NWD4	73												7		
6.45	SPT	62			9									8		
7.50	NWD4	87												9		**8.00-12.00m** Grey-brown, medium dense, intact, fine to medium SAND with medium shell fragments. Marine.
7.95	SPT	60			11									10		
9.00	NWD4	73												11		
9.45	SPT	58			13									12		
10.50	NWD4	81														
10.95	SPT	51			14											
12.00	NWD4	81														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB33

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	60			18									13		**12.00-13.95m** Dark greenish grey becoming grey-brown, medium dense, intact, fine sand becoming fine to medium SAND with increasing depth. Marine.
13.50	NWD4	47														
13.95	SPT	64			25									14		**13.95-15.25m** Light greenish grey, moderately weathered, medium jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: 2 sets cross joints (~45^0 dip), narrow and very wide, undulating irregular surfaces, silty sand infill. One 8 mm joint infilled with fine sand and shell fragments.
15.00	NWD4	99	58	4		104.1	95.4	39.00	0.34					15		
16.50	NWD4	100	23	6		153.8								16		**15.25-16.37m** Dark greenish grey, moderately weathered, in places highly weathered, closely jointed, medium hard rock, healed fault breccia within GREYWACKE. Malmesbury Group. Joints: FAULT ZONE, containing healed breccia, leached subvertical fractures, open (leached) surfaces, quartz veins.
18.00	NWD4	91	53	2										17		
19.50	NWD4	84	22	4		111.0								18		**16.37-21.00m** Dark greenish grey with white quartz veins, slightly weathered, closely and medium jointed, hard rock, GREYWACKE containing abundant quartz veins (brecciated in places). Joints: Mainly cross joints (~45^0 dip) occasional steeply dipping (70^0), undulating, rough, stepped, wide, infilled with quartz, crushed rock or silty sand.
21.00	NWD4	100	15	18 12										19		
22.50	NWD4	100	55	6		85.4								20		
24.00	NWD4	96	24			51.3								21		**21.00-24.00m** Greenish grey with white quartz veins, largely unweathered, closely jointed with healed shears, hard rock, GREYWACKE. Malmesbury Group. Joints: Cross joints and steeply dipping 70^0 (inferred bedding), narrow and wide, rough leached surfaces, some quartz veining, some stained surfaces. Abundant healed quartz veins (joint infill).
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB33

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 15 February 2008
DATE FINISH : 19 February 2008

NORTHING : 3726498.541
EASTING : 53449.088
ELEVATION : 4.757
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	97	45											25		**24.00-27.20m** Light greenish grey, unweathered, closely and medium jointed, hard rock, GREYWACKE (not sheared). Malmesbury Group. Joints: Predominently steeply dipping bedding (70^0), planar, slightly rough, clean, occasional subhorizontal joints, undulating narrow, minor silt.
27.00	NWD4	99	53	4		51.3 51.3	6.23	203.9	0.18					26 27		
28.50	NWD4	95	9	>20 6										28		**27.20-30.00m** Light greenish grey, slightly weathered (moderately weathered in places), variably closely and very closely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and subhorizontal, planar, stepped, narrow (in places wide), clean or with clayey silt infill. Highly fractured between 27.65-28.02 m, 28.50-28.70 m and 29.45-29.60 m.
30.00	NWD4	94	7	>20 4 ~~>20~~ 7		51.3								29 30		END OF BOREHOLE
														31 32 33 34 35 36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	63								0	98	0	2	1		**0.00-3.00m** Off-white, loose, fine to medium SAND with fine to medium shell fragments. Aeolian.
1.95	SPT	84			4					0	97	1	2	2		
3.00	NWD4	93												3		
3.45	SPT	76			4											
4.50	NWD4	96								0	98	0	2	4		**3.00-7.00m** Orangey brown, loose, medium SAND with some coarse rounded shell fragments. Marine (beach environment?).
4.95	SPT	100			8									5		
6.00	NWD4	90												6		
6.45	SPT	69			6											
7.50	NWD4	100												7		**7.00-9.20m** Dark greenish grey, loose to medium dense, fine to coarse SAND with shell fragments. Marine.
7.95	SPT	56			8									8		
9.00	NWD4	96												9		
9.45	SPT	62			9											
10.50	NWD4	100												10		**9.20-10.55m** Dark greenish grey, loose to medium dense, slightly clayey, fine SAND. Marine or Lacustrine?
10.95	SPT	67			10											
12.00	NWD4	100								0	97	1	2	11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	64			12					0	97	1	2	13		**10.55-13.50m** Light grey speckled white, medium dense, rounded medium to coarse SAND (quartz), abundant coarse rounded shell fragments. Marine.
13.50	NWD4	91														
13.95	SPT	80			13									14		**13.50-15.30m** Greenish grey speckled white, medium dense, subrounded and angular gritty SAND (quartz and shell fragments in equal proportions). Marine.
15.00	NWD4	87												15		
15.45	SPT	93			15											
16.50	NWD4	81												16		**15.30-18.60m** Light grey, medium dense, fine to coarse SAND with abundant coarse shell fragments, medium gravel at base. Marine.
16.95	SPT	100			14											
18.00	NWD4	77								0	98	0	2	17		
18.45	SPT	100			12					0	97	1	2	18		
19.60	NWD4	89	0											19		**18.60-21.94m** Light grey, highly to completely weathered, closely jointed, very soft rock (in places decomposed to fine sand), GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subvertical and cross-joints, wide to very wide, soft decomposed joint walls, clayey silt infill.
21.14	NWD4	79	40	7										20		
21.44	SPT	90			Ref									21		
22.64	NWD4	88	48			35.3	1.21	6.1	0.576					22		**21.94-22.64m** Greenish grey, highly weathered, medium to widely jointed, soft rock, GREYWACKE. Joints: Subvertical, wide, clayey silt infill.
24.14	NWD4	79	0	1 >20										23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
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CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB34

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.14m
DATE START : 04 April 2008
DATE FINISH : 07 April 2008

NORTHING : 3726541.484
EASTING : 53249.274
ELEVATION : 7.621
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.64	NWD4	88	56	4										25		**22.64-24.14m** Greenish grey, highly to completely weathered, very closely jointed, very soft rock, GREYWACKE (decomposed to fine sand in places). Malmesbury Group. Joints: Prominent subvertical, wide, soft friable joint walls, clayey silt infilled.
27.14	NWD4	98	55			26.4								26		**24.14-28.49m** Greenish grey, moderately to highly weathered, variable closely and medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping and cross-joints, wide, soft joint walls, clayey silt infill.
28.64	NWD4	95	28			27.3								27		
30.14	NWD4	95	11	5		27.3								28		**28.49-30.14m** Light greenish grey, moderately weathered, closely jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Prominent vertical joint, planar, narrow, clayey silt coated, hard joint walls. Some very widely spaced dipping joints. Subhorizontal breaks due to drilling.
														29		END OF BOREHOLE
														30		
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NWD4	60												0		**0.00-0.08m** Hornfels BOULDER.
1.95	SPT	87			44									1		**0.08-1.70m** Grey-brown, medium dense to dense, intact, fine to medium SAND with some coarse subrounded shell fragments. Aeolian.
3.04	NWD4	29												2		
3.49	SPT	100			4									3		**1.70-5.00m** Brownish off-white, loose, intact, fine to medium SAND with coarse shell fragments. Aeolian.
4.54	NWD4	37												4		
4.99	SPT	89			4									5		
6.04	NWD4	29												6		**5.00-7.00m** Light brown, dense, intact, fine to coarse SAND with fine shell fragments. Marine. (Beach Deposit?)
6.49	SPT	87			64									7		**7.00-8.00m** Off-white speckled orange, loose, intact, fine to medium SAND with fine shell fragments. Marine?
7.54	NWD4	40												8		
7.99	SPT	58			4									9		
9.04	NWD4	50												10		**8.00-13.50m** Light brown, dense, intact, fine SAND with some medium shell fragments. Marine.
9.49	SPT	98			53									11		
10.54	NWD4	71												12		
10.99	SPT	100			39											
12.04	NWD4	58														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.49	SPT	100			32									13		
13.54	NWD4	28														**13.50-14.00m** Light brown, dense, intact, coarse SAND with some medium shell fragments. Marine.
13.99	SPT	71			49									14		**14.00-15.00m** Light brown, dense, intact, fine to medium SAND with fine shell fragments. Marine.
15.04	NWD4	67	0											15		**15.00-15.55m** Grey, slightly weathered, closely jointed, hard rock, HORNFELS. Tygerberg Formation. Malmesbury Group. Joints: Steep (70^0), probably bedding, planar, wide, 1-2 mm calcite or silt.
16.54	NWD4	95	44	12 / 3										16		
18.04	NWD4	100	9			86.0								17		
19.54	NWD4	100	19	9		103.8 / 138.0								18		**15.55-21.04m** Grey, unweathered, medium and widely jointed, very hard rock, HORNFELS. Malmesbury Group. Joints: steeply dipping joint sets, planar, narrow, minor green alterations product, hard joint walls.
21.04	NWD4	94	27											19		
22.54	NWD4	107	43			94.6								20		
24.04	NWD4	99	64	4		98.9								21		**21.04-26.76m** Grey, unweathered, medium jointed (occasionally widely jointed), very hard rock, HORNFELS. Malmesbury Group. Joints: mainly steeply dipping (70^0- bedding), some cross joints, mainly planar, clean occasionally with thick gauge - fractured joint walls altered to clayey silt - occasionally vuggy in plane of joint.
														22		
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB36

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 02 February 2008
DATE FINISH : 07 February 2008

NORTHING : 3726939.137
EASTING : 53080.390
ELEVATION : 10.125
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.54	NWD4	93	55			187.9								25		**21.04-26.76m** Grey, unweathered, medium jointed (occasionally widely jointed), very hard rock, HORNFELS. Malmesbury Group. Joints: mainly steeply dipping (70^0- bedding), some cross joints, mainly planar, clean occasionally with thick gauge - fractured joint walls altered to clayey silt - occasionally vuggy in plane of joint.
27.04	NWD4	86	33				123	101.5	0.313					26		
				>20										27		**26.76-27.04m** Shear zone - hard rock, HORNFELS.
28.54	NWD4	94	31											28		**27.04-30.04m** Grey, unweathered, closely jointed, very hard rock, HORNFELS. Tygerberg Formation. Malmesbury Group. Joints: mainly intersecting steeply dipping, planar, very narrow, clean, occasionally wide, vuggy, calcite filled.
30.04	NWD4	95	8	9										29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	60												1		**0.00-3.45m** Beige, loose, intact, fine to medium SAND. Aeolian.
1.95	SPT	78			8											
3.00	NWD4	78												2		
3.45	SPT	62			8									3		
4.50	NWD4	95												4		**3.45-4.95m** Beige, loose, intact, fine to medium SAND with lenses of coarse gritty sand. Alluvium/Marine?
4.95	SPT	44			10											
6.00	NWD4	79												5		
6.45	SPT	100			11									6		
7.50	NWD4	81												7		**4.95-10.50m** Greyish brown, medium dense, intact, fine to medium SAND. Marine.
7.95	SPT	100			14											
9.00	NWD4	77												8		
9.45	SPT	100			19									9		
10.50	NWD4	53												10		
10.95	SPT	42			18											**10.50-10.95m** Grey, medium dense, intact, fine to medium SAND with lenses of coarse gritty sand. Marine.
12.00	NWD4	52												11		**10.95-12.45m** Dark brown, medium dense, intact, silty, fine SAND. Marine.
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	51			18									12		
13.50	NWD4	52												13		**12.45-15.45m** Off-white speckled orange, medium dense, intact, fine SAND. Marine.
13.95	SPT	53			20											
15.00	NWD4	45												14		
15.45	SPT	56			21									15		
16.50	NWD4	53												16		**15.45-19.50m** Beige speckled orange, medium dense, intact, fine SAND. Marine.
16.95	SPT	73			21											
18.00	NWD4	95												17		
18.45	SPT	60			25									18		
19.50	NWD4	87												19		
20.08	NWD4	41	0											20		**19.50-23.55m** Light greenish grey, unweathered, very closely to closely jointed, hard rock to very hard rock, SILTSTONE, Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and subvertical, narrow, clean with some greenish crystal joint infill between 22.67 - 23.55m.
21.58	NWD4	69	0	>20										21		
22.67	NWD4	95	24			173.5								22		
24.17	NWD4	83	0											23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
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Engineers and Scientists

BOREHOLE NO : KB37

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.17m
DATE START : 14 March 2008
DATE FINISH : 14 March 2008

NORTHING : 3727139.662
EASTING : 52987.447
ELEVATION : 11.173
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.67	NWD4	91	44	9		61.7								25		**23.55-25.67m** Light grey, unweathered, medium to widely jointed, hard rock, SILTSTONE, Malmesbury Group. Joints: Vertical, narrow, smooth and planar.
27.17	NWD4	99	52	>20		81.9								26		**25.67-26.70m** Light grey, unweathered, very closely jointed, occasional widely jointed, hard rock, SILTSTONE/MUDSTONE, Malmesbury Group. Joints: Subhorizontal, narrow, clean and undulating.
28.67	NWD4	100	57	8		141.0	67.8	56.8	0.236					27		**26.70-30.17m** Light grey, unweathered, widely jointed, occasionalyl medium joints, variably hard rock and very hard rock, SILTSTONE, Tygerberg Formation. Malmesbury Group. Joints: Cross joints, narrow, curved with occasional clayey silt infill.
30.17	NWD4	83	33			70.5								28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB38

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.56m
DATE START : 11 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3727093.424
EASTING : 52876.429
ELEVATION : 14.016
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	36												1		**0.00-1.95m** Off-white, loose, fine SAND. Aeolian
1.95	SPT	76			5											
3.00	NWD4	37												2		**1.95-4.95m** Beige layered off-white and orange brown, loose, fine SAND. Aeolian.
3.45	SPT	53			6									3		
4.50	NWD4	64												4		
4.95	SPT	69			8									5		**4.95-9.00m** Off-white beige, medium dense, intact, fine to medium SAND. Marine.
6.00	NWD4	50												6		
6.45	SPT	60			15									7		
7.50	NWD4	48												8		
7.95	SPT	58			19									9		**9.00-10.50m** Brown, dense, intact, slightly cemented, fine to medium SAND. Marine.
9.00	NWD4	90												10		
9.45	SPT	56			35									11		**10.50-12.45m** Greyish brown, medium dense to dense, intact, fine to medium SAND with subrounded sandstone and quartzitic fine gravel. Marine.
10.50	NWD4	69												12		
10.95	SPT	56			27									13		
12.00	NWD4	44												14		
12.45	SPT	56			40									15		
13.50	NWD4	52														
13.95	SPT	58			?											
15.00	NWD4	68														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB38

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 25.56m
DATE START : 11 March 2008
DATE FINISH : 13 March 2008

NORTHING : 3727093.424
EASTING : 52876.429
ELEVATION : 14.016
ORIENTATION : Vertical
LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	67			28									16		**12.45-18.45m** Off-white and light grey, medium dense to dense, becoming very dense at depth, fine SAND. Marine.
16.50	NWD4	35												17		
16.95	SPT	51			46									18		
18.00	NWD4	65														
18.45	SPT	71			58									19		**18.45-19.80m** Light grey, very dense, intact, fine SAND with abundant coarse shell fragments. Marine.
19.50	NWD4	70														
19.80	SPT	77			Ref									20		**19.80-21.06m** Light grey, unweathered, closely jointed, very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal, narrow and clean.
21.06	NWD4	35	0	>20		86.8								21		
22.56	NWD4	81	0			17.4 26.0								22		**21.06-25.56m** Light grey, slightly weathered to unweathered, closely to very closely jointed, medium hard rock to hard rock, SILTSTONE/MUDSTONE. Tygerberg Formation. Malmesbury Group. Joints: Subhorizontal and subvertical, narrow and smooth.
24.06	NWD4	85	9	>20										23		
25.56	NWD4	90	8	11.3 >20		27.8								24		
														25		
														26		END OF BOREHOLE
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	40												1		**0.00-2.00m** Light grey, very loose, fine to medium SAND. Aeolian.
1.95	SPT	51			4											
3.00	NWD4	40												2		**2.00-3.50m** Off-white and beige, very loose to loose, fine SAND with thin calcretised lenses. Aeolian.
3.45	SPT	51			4									3		
4.50	NWD4	45												4		
4.95	SPT	51			6											
6.00	NWD4	47												5		
6.45	SPT	53			7									6		**3.50-10.00m** Light grey occasionally speckled white, loose, fine SAND with occasional medium shell fragments. Marine.
7.50	NWD4	45												7		
7.95	SPT	49			8											
9.00	NWD4	40												8		
9.45	SPT	47			9									9		
10.50	NWD4	33												10		
10.95	SPT	69			12											
12.00	NWD4	40												11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
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ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	53			15									13		**10.00-18.50m** Light grey, medium dense, fine SAND with medium and coarse shell fragments. Marine.
13.50	NWD4	50														
13.95	SPT	51			20									14		
15.00	NWD4	37														
15.45	SPT	47			21									15		
16.50	NWD4	40												16		
16.95	SPT	64			23											
18.00	NWD4	47												17		
18.45	SPT	49			28									18		
19.50	NWD4	47												19		**18.50-19.95m** Light grey, dense, fine SAND with medium and coarse shell fragments. Marine.
19.95	SPT	47			31									20		
21.00	NWD4	100	13	10		27.3										**19.95-22.50m** Light grey, slightly weathered in places moderately weathered, closely to medium jointed, hard rock, shaly GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (2 sets) and steeply dipping (bedding), wide, planar, clayey silt infill. Decomposed fractured zones 20.46 - 20.59 m and 22.06 - 22.50 m.
22.50	NWD4	83	14	7.5		25.6								21		
				>20										22		
24.00	NWD4	95	0											23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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CL = Clay %

ROCK CORE
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB40

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727398.605
EASTING : 53065.497
ELEVATION : 6.654
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.50	NWD4	95	8											25		
27.00	NWD4	90	0	>20		17.0								26		**22.50-30.00m** Light grey, slightly weathered, thinly laminated, very closely to closely jointed, medium hard rock, SHALE. Malmesbury Group. Joints: Highly fractured rock mass. Prominent steeply dipping stepped joint, planar, narrow, clay coated. Cross-joints and random stepped joints, narrow to very wide, clay infilled. Rock mass sheared in places.
28.50	NWD4	88	45				20.8	8.82	0.324					27		
30.00	NWD4	89	14											28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB41

SHEET : 1 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 23.75m
DATE START : 05 April 2008
DATE FINISH : 08 April 2008

NORTHING : 3726491.498
EASTING : 53158.993
ELEVATION : 9.952
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	32												1		**0.00-3.50m** Light greyish off-white, very loose, fine SAND with occasional medium rounded shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	40												3		
3.45	SPT	53			4									4		**3.50-8.00m** Light greyish brown, loose, fine SAND with occasional medium shell fragments. Aeolian.
4.50	NWD4	39												5		
4.95	SPT	51			6									6		
6.00	NWD4	44												7		
6.45	SPT	49			8									8		
7.50	NWD4	49												9		
7.95	SPT	64			8									10		**8.00-14.00m** Light grey, medium dense, fine SAND. Marine.
9.00	NWD4	45												11		
9.45	SPT	42			11									12		
10.50	NWD4	46												13		
10.95	SPT	40			14									14		
12.00	NWD4	42												15		
12.45	SPT	44			16											
13.50	NWD4	43														
13.95	SPT	44			19											
15.00	NWD4	50														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB41

SHEET : 2 of 2

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 23.75m
DATE START : 05 April 2008
DATE FINISH : 08 April 2008

NORTHING : 3726491.498
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ELEVATION : 9.952
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	58			23									16		**14.00-18.75m** Alternating layers of grey and light brown, medium dense becoming dense, with increasing depth, slightly clayey gritty, fine to coarse SAND containing layers of coarse angular shell fragments. Marine.
16.50	NWD4	44														
16.95	SPT	56			24									17		
18.00	NWD4	51														
18.45	SPT	53			29									18		
19.50	NWD4	68	0	16										19		**18.75-19.60m** Light grey, moderately weathered, closely jointed, soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints (2 sets), planar, wide, silt coated.
20.75	NWD4	98	58			33.5	53.1	24.3	0.202					20		
22.25	NWD4	84	27	6		47.8 85.4								21		**19.60-23.75m** Light grey, slightly weathered, closely and medium jointed, hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly cross-joints (shallow and steep), planar, narrow, silt coated.
21.45	NWD4	98	29	11		85.4	28.0	59.7	0.176					22		
														23		
														24		END OF BOREHOLE
														25		
														26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
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ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB42

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 18 February 2008
DATE FINISH : 21 February 2008

NORTHING : 3726452.932
EASTING : 53041.468
ELEVATION : 17.674
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	41								0	97	1	2	1		**0.00-6.00m** Off-white, medium dense, intact, fine to medium SAND with some coarse shell fragments. Aeolian.
1.95	SPT	58			5											
3.00	NWD4	35								0	97	1	2	2		
3.45	SPT	91			12									3		
4.50	NWD4	43												4		
4.95	SPT	87			22									5		
6.00	NWD4	90												6		
6.45	SPT	67			49											**6.00-9.20m** Light greyish off-white, dense to very dense, intact, fine to medium SAND with fine to coarse shell fragments. Aeolian?
7.50	NWD4	62												7		
7.95	SPT	51			42											
9.00	NWD4	44												8		
9.45	SPT	56			63									9		
10.50	NWD4	57								0	97	1	2	10		**9.20-9.50m** Dark grey to black, very dense, intact, organic-rich, very clayey, fine SAND. Pan Deposit? **9.50-10.50m** Light grey-brown, very dense, intact, fine to medium SAND. Transported (Aeolian?)
10.95	SPT	38			68											
12.00	NWD4	40												11		**10.50-10.75m** Dark grey to black, very dense, organic-rich, very clayey, fine SAND. Pan Deposit.
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB42

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
DATE START : 18 February 2008
DATE FINISH : 21 February 2008

NORTHING : 3726452.932
EASTING : 53041.468
ELEVATION : 17.674
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LOGGED BY : John Brown
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	87			66									13		**10.75-16.50m** Light greyish brown, very dense, intact, fine to medium SAND with fine shell fragments. Marine/Beach.
13.50	NWD4	47														
13.95	SPT	64			?									14		
15.00	NWD4	70														
15.45	SPT	53			72									15		
16.50	NWD4	72														
16.95	SPT	100			53					0	97	1	2	16		**16.50-17.00m** Dark grey to black, very dense, organic-rich, very clayey, coarse SAND. Pan Deposit.
18.00	NWD4	78												17		
18.45	SPT	100			73											
19.50	NWD4	70								0	97	1	2	18		
19.95	SPT	100			85									19		**17.00-22.80m** Light grey brown, very dense, fine to medium SAND with fine shell fragments. Marine.
21.00	NWD4	72												20		
21.30	SPT	100			Ref									21		
22.50	NWD4	83												22		
22.80	SPT	90			Ref									23		
24.04	NWD4	15												24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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BOREHOLE NO : KB42

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.04m
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DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.54	NWD4	13												25		**22.80-25.54m** Light grey speckled white, very dense, intact, silty, fine to coarse SAND with very coarse white shell fragments. Marine.
27.04	NWD4	33								0	89	8	3	26		**25.54-27.04m** Light grey, very dense, intact, fine to medium SAND with fine shell fragments. Marine.
28.54	NWD4	81	61	2		17.4								27		**27.07-30.04m** Light greenish grey, unweathered, generally widely jointed, medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: 2 sets cross-joints 45-60^0, planar, narrow, slight silt coatings. Bedding traces 70^0 dip.
30.04	NWD4	49	32	2		36.4	10.7	42.4	0.132					28		
														29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	39												1		**0.00-3.50m** Off-white becoming yellowish brown, loose, fine SAND, thin calcrete layer 1.50 - 1.65m. Aeolian.
1.65	SPT	73			Ref											
3.00	NWD4	43												2		
3.45	SPT	47			6									3		
4.50	NWD4	56												4		**3.50-9.50m** Light grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Aeolian.
4.95	SPT	100			7									5		
6.00	NWD4	82												6		
6.45	SPT	93			10											
7.50	NWD4	86												7		
7.95	SPT	100			8									8		
9.00	NWD4	83												9		
9.45	SPT	93			12											
10.50	NWD4	80												10		**9.50-16.50m** Greenish grey brown, loose to medium dense, fine SAND with angular shell fragments. Marine?
10.95	SPT	53			12									11		
12.00	NWD4	72												12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	100			12									13		**9.50-16.50m** Greenish grey brown, loose to medium dense, fine SAND with angular shell fragments. Marine?
13.50	NWD4	91														
13.95	SPT	76			10									14		
15.00	NWD4	98														
15.45	SPT	73			10									15		
16.50	NWD4	99														
16.95	SPT	58			10									16		
18.00	NWD4	91														**16.50-23.96m** Dark greenish grey, medium dense, fine SAND with angular fine shell fragments and medium gravels at base. Marine.
18.45	SPT	87			15									17		
19.50	NWD4	86												18		
19.95	SPT	76			14									19		
21.00	NWD4	98												20		
21.45	SPT	62			13									21		
22.50	NWD4	81												22		
22.95	SPT	76			15									23		
23.96	NWD4	48	0											24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB43

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 31.46m
DATE START : 12 April 2008
DATE FINISH : 15 April 2008

NORTHING : 3727317.798
EASTING : 52844.077
ELEVATION : 12.264
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.46	NWD4	51	0	>20										25		**23.96-24.07m** Hornfels GRAVEL. **24.07-25.46m** Light green, highly to completely weathered, very closely fractured, very soft rock, GREYWACKE with sections decomposed to clayey silt. Tygerberg Formation. Malmesbury Group. Joints: Indistinct, decomposed joint walls, wide, thick clay infill.
26.96	NWD4	93	11	11		41.0								26		**25.46-27.26m** Greenish grey, moderately weathered, closely jointed, soft rock to medium hard rock, GREYWACKE. Malmesbury Group. Joints: Cross-joints and steeply dipping, planar, narrow, clayey silt coated.
28.46	NWD4	97	19	11		17.1								27		**27.26-28.31m** Greenish grey, moderately weathered in places highly weathered, very closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Prominent vertical joint, some cross-joints, wide, thick clay infill.
29.96	NWD4	88	23	4		32.5								28		**28.31-29.14m** Greenish grey, highly weathered, very closely jointed, hard rock (in places decomposed to clayey sand), GREYWACKE. Joints: Cross-joints, narrow, minor silt.
31.46	NWD4	91	47	20		32.0								29		**29.14-29.96m** Greenish grey, highly weathered, very closely jointed, soft rock (in places decomposed to clayey sand), GREYWACKE. Joints: Mainly subvertical, wide, soft joint walls, thick clay sand infill.
				5		31.0	11.2	2.94	0.66					30		**29.96-31.46m** Greenish grey, slightly weathered, medium jointed (but closely jointed 31.10 - 31.46 m), medium hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints, narrow and wide, planar, clayey silt infill.
				19										31		END OF BOREHOLE
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	47												1		**0.00-3.50m** Beige, very loose, fine SAND with medium shell fragments. Aeolian.
1.95	SPT	80			4											
3.00	NWD4	74												2		
3.45	SPT	93			4											
4.50	NWD4	83												3		
4.95	SPT	98			5											
6.00	NWD4	90												4		
6.45	SPT	87			6											
7.50	NWD4	83												5		
7.95	SPT	98			6											
9.00	NWD4	83												6		
9.45	SPT	96			6											
10.50	NWD4	89												7		
10.95	SPT	84			7											
12.00	NWD4	90												8		**3.50-12.00m** Beige, loose, fine SAND with medium shell fragments. Aeolian.
12.45	SPT	91			8											
13.50	NWD4	87												9		
13.95	SPT	89			10											
15.00	NWD4	84												10		
														11		
														12		
														13		**12.00-19.95m** Grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Marine?
														14		
														15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	91			13									16		**12.00-19.95m** Grey-brown, loose to medium dense, fine SAND with fine to medium shell fragments. Marine?
16.50	NWD4	86														
16.95	SPT	91			8									17		
18.00	NWD4	90														
18.45	SPT	84			10									18		
19.50	NWD4	90														
19.95	SPT	80			13									19		
21.00	NWD4	53	0											20		**19.95-23.10m** Greenish grey streaked white, slightly weathered, on average closely joints (with zones very closely jointed and medium jointed), hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Mainly steeply dipping, undulating, rough, both narrow and very wide, vuggy quartz infilled.
22.50	NWD4	93	31	5		42.7								21		
24.00	NWD4	100	27	>20		85.4								22		**23.10-23.60m** Greenish grey and white, SHEAR ZONE infilled with vuggy quartz (crystaline).
25.55	NWD4	100	67											23		
27.05	NWD4	77	19	5.9		128.1								24		**23.60-35.01m** Greenish grey streaked white (quartz veins), largely unweathered, generally medium jointed, hard rock to very hard rock, GREYWACKE. Malmesbury Group. Joints: Steep and shallow angle, often wide, undulating, altered joints walls, vuggy quartz infill.
28.30	NWD4	96	54											25		
29.15	NWD4	98	24			111.0								26		
30.65	NWD4	95	44			222.1								27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
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CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														31		**23.60-35.01m** Greenish grey streaked white (quartz veins), largely unweathered, generally medium jointed, hard rock to very hard rock, GREYWACKE. Malmesbury Group. Joints: Steep and shallow angle, often wide, undulating, altered joints walls, vuggy quartz infill.
31.95	NWD4	100	17											32		
33.06	NWD4	95	21											33		
34.46	NWD4	94	62	7		136.7								34		
35.01	NWD4	100	0											35		**35.01-35.91m** Dark greenish grey, unweathered but slighlty weathered along joints, closely jointed, hard rock, GREYWACKE. Joints: Subvertical, planar, very rough, altered joints walls, thick crystaline quartz infill.
36.61	NWD4	99	0			162.3								36		
38.11	NWD4	100	83			213.6								37		**35.91-40.31m** Dark greenish grey with thick white quartz veins, unweathered but slightly weathered along joints, medium to widely jointed, very hard rock, META-GREYWACKE (hornfels) with 5-30 mm vuggy quartz veins. Joints: Predominantly subvertical, undulating, rough and irregular, altered joint walls, vuggy quartz infill.
39.11	NWD4	100	31	4		128.1								38		
40.31	NWD4	100	83			256.3								39		
40.92	NWD4	100	56			170.9								40		**40.31-49.05m** Grey, unweathered, medium and widely jointed, very hard rock, META-GREYWACKE (hornfels). Healed breccia at 47.53-49.05m. Shallow angle few cross joints, planar, very narrow, little joint wall alteration, minor quartz infill some pyrite. Abundant healed thin quartz veinlets.
42.52	NWD4	100	75											41		
43.29	NWD4	99	55			273.4								42		
44.75	NWD4	98	93											43		
				3		170.9								44		
														45		

GRAIN SIZE DESCRIPTIONS
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB44

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.78m
DATE START : 16 May 2008
DATE FINISH : 24 May 2008

NORTHING : 3726855.616
EASTING : 52868.650
ELEVATION : 17.109
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
45.58	NWD4	96	81											46		**40.31-49.05m** Grey, unweathered, medium and widely jointed, very hard rock becoming hard rock, META-GREYWACKE (hornfels). Healed breccia at 47.53-49.05m. Shallow angle few cross joints, planar, very narrow, little joint wall alteration, minor quartz infill some pyrite. Abundant healed thin quartz veinlets.
47.18	NWD4	97	58			68.3								47		
48.78	NWD4	100	65											48		
50.28	NWD4	91	30	7										49		
						68.3								50		
51.88	NWD4	98	19	>20										51		**49.05-54.78m** Grey, unweathered but slightly weathered along joints, variable very closely jointed to closely jointed, hard rock, META-SHALE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping (bedding) and shallow angle, wide, infilled with vuggy quartz, some altered joint walls, sheared in places.
				>20		68.3										
53.48	NWD4	100	24	3										52		
54.78	NWD4	100	54											53		
														54		
														55		END OF BOREHOLE
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	37												1		**0.00-5.00m** Off-white, very loose, fine to medium SAND with shell fragments. Aeolian.
1.95	SPT	64			6											
3.00	NWD4	48												2		
3.45	SPT	93			4											
4.50	NWD4	89												3		
4.95	SPT	96			5											
6.00	NWD4	90												4		
6.45	SPT	82			8											
7.50	NWD4	95												5		
7.95	SPT	84			8											**5.00-9.00m** Off-white, loose, fine to medium SAND with shell fragments. Aeolian.
9.00	NWD4	95												6		
9.45	SPT	82			8											
10.50	NWD4	89												7		
10.95	SPT	87			12											
12.00	NWD4	88												8		
														9		
														10		**9.00-13.00m** Dark grey-brown speckled white, loose to medium dense, slightly organic, silty fine to coarse SAND with shell fragments. Lacustrine Deposit?
														11		
														12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	69			12									13		
13.50	NWD4	97														**13.00-16.00m** Beige speckled white, loose to medium dense, fine to medium SAND with medium shell fragments. Marine.
13.95	SPT	80			10									14		
15.00	NWD4	96														
15.45	SPT	71			10									15		
16.50	NWD4	100												16		
16.95	SPT	69			11											**16.00-20.00m** Grey-brown, medium dense, fine to medium SAND with medium shell fragments. Marine.
18.00	NWD4	88												17		
18.45	SPT	78			15									18		
19.50	NWD4	90												19		
19.95	SPT	80			9									20		
21.06	NWD4	51														**20.00-20.98m** Greenish grey speckled white, medium dense, clayey, fine to coarse SAND with abundant coarse shell fragments. Marine.
22.56	NWD4	75	0	12		54.6								21		**20.98-23.06m** Light greenish grey, moderately weathered but highly weathered in places, closely jointed, medium hard rock, GREYWACKE with thin quartz veins. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints and steeply dipping, undulating, wide, clayey silt infill, hard joint wall.
24.06	NWD4	95	61	7		63.2								22		
						85.4								23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB45

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 30.06m
DATE START : 16 April 2008
DATE FINISH : 18 April 2008

NORTHING : 3727058.860
EASTING : 52777.735
ELEVATION : 13.798
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.56	NWD4	95	41											25		**23.06-24.51m** Light grey with white quartz veins, slightly weathered, medium jointed, hard rock, GREYWACKE with the quartz veins. Malmesbury Group. Joints: Cross-joints, narrow, planar, rough, minor silt infill.
27.06	NWD4	98	28	12		114.6								26		**24.51-27.31m** Light grey with abundant white quartz veins, slightly weathered, closely jointed, very hard rock, GREYWACKE with abundant quartz veins, some tight? vuggy. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, wide to very wide, open, quartz filled or vuggy quartz.
28.56	NWD4	92	33			213.6								27		
30.06	NWD4	100	47	8		132.2	53.1	85.5	0.25					28		**27.31-30.06m** Grey, largely weathered, closely and medium jointed, hard rock to very hard rock, GREYWACKE with occasional quartz veins. Tygerberg Formation. Malmesbury Group. Joints: Cross and subvertical, narrow or tight, planar, minor silt coatings.
						185.1								29		
														30		END OF BOREHOLE
														31		
														32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	35												1		**0.00-6.50m** Light brownish off-white with some orangey brown layers, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
1.95	SPT	51			4									2		
3.00	NWD4	45												3		
3.45	SPT	60			5									4		
4.50	NWD4	48												5		
4.95	SPT	47			7									6		
6.00	NWD4	55												7		**6.50-9.00m** Light grey, loose, intact, fine to medium SAND with medium shell fragments. Aeolian.
6.45	SPT	44			8									8		
7.50	NWD4	44												9		
7.95	SPT	73			9									10		**9.00-15.00m** Variable dark greenish grey and light grey, medium dense, intact, slightly silty, fine SAND. Aeolian.
9.00	NWD4	57												11		
9.45	SPT	58			16									12		
10.50	NWD4	100														
10.95	SPT	47			19											
12.00	NWD4	93														

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.45	SPT	64			24									13		**9.00-15.00m** Variable dark greenish grey and light grey, medium dense, intact, slightly silty, fine SAND. Aeolian.
13.50	NWD4	68														
13.95	SPT	62			27									14		
15.00	NWD4	31														
15.45	SPT	71			29									15		**15.00-18.50m** Dark greenish grey, dense, intact, slightly clayey, silty, fine SAND. Marine.
16.50	NWD4	61												16		
16.95	SPT	56			36											
18.00	NWD4	68												17		
18.45	SPT	47			36									18		
19.50	NWD4	44												19		**18.50-21.50m** Light grey-brown, dense, intact, fine to medium SAND with coarse shell fragments. Marine.
19.95	SPT	71			40											
21.00	NWD4	51												20		
21.45	SPT	69			37									21		
22.46	NWD4	29												22		**21.50-22.55m** Light grey, coarse hornfels GRAVEL/COBBLES within an inferred sand matrix. Marine.
23.96	NWD4	54	62											23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB5

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 29.96m
DATE START : 07 March 2008
DATE FINISH : 10 March 2008

NORTHING : 3727221.241
EASTING : 52883.806
ELEVATION : 12.140
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	* Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
25.46	NWD4	87	76	2		17.97	13.10	0.24	0.23					25		**22.55-26.86m** Light greenish grey, moderately weathered, medium jointed, medium hard rock, GREYWACKE (fine sandstone) with some highly to completely weathered zones approximately 100 m thick at 25.71-25.92 m; 26.24-26.36 m and 26.67-26.86 m. Joints: Subhorizontal, cross-joints and subvertical, planar, narrow, silt coated, some soft weathered joint walls.
26.96	NWD4	98	51	>20 0 0 >20										26		
28.46	NWD4	98	36	6		29.50								27 28		**26.86-29.96m** Light grey, moderately weathered, becoming slightly weathered, medium jointed, soft rock becoming medium hard rock, GREYWACKE (fine sandstone). Tygerberg Formation. Malmesbury Group. Joints: Mainly cross-joints and steeply dipping joints, planar, smooth, slight silt coated, hard joint walls.
29.96	NWD4	100	49			65.94								29		
														30 31 32 33 34 35 36		END OF BOREHOLE

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	* Rock Core E	* Rock Core v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	31												1		**0.00-5.00m** Light brownish off-white, very loose, intact, fine to medium SAND with some coarse shell fragments. Aeolian.
1.95	SPT	58			4											
3.00	NWD4	52												2		
3.45	SPT	49			4									3		
4.50	NWD4	49												4		
4.95	SPT	60			6									5		
6.00	NWD4	52												6		**5.00-9.00m** Light greyish brown, loose, intact, fine to medium SAND with fine shell fragments. Marine? (beach deposit).
6.45	SPT	64			8											
7.50	NWD4	47												7		
7.95	SPT	62			8									8		
9.00	NWD4	49												9		
9.45	SPT	71			12											
10.50	NWD4	56												10		**9.00-14.00m** Light brown, medium dense, intact, fine to medium SAND with medium shell fragments. Marine.
10.95	SPT	49			11											
12.00	NWD4	42												11		
12.45	SPT	62			14									12		
13.50	NWD4	50												13		
13.95	SPT	60			16									14		
15.00	NWD4	66	0											15		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
16.50	NWD4	86	17	7										16		**14.00-16.98m** Dark grey, moderately weathered but highly weathered along joint planes, closely jointed, soft rock, SHALE. Tygerberg Formation. Malmesbury Group. Joints: Mainly steeply dipping (70⁰), planar, stepped, very wide, filled with thick clay, crushed rock, or quartz (veins).
18.00	NWD4	95	54	4		17.4 24.4								17		**16.98-18.27m** Dark grey, largely unweathered, medium jointed, soft rock, SHALE. Malmesbury Group. Joints: Subhorizontal and steeply dipping (bedding), planar, narrow, clean. One thick weathered joint at 17.90 m.
19.50	NWD4	90	20	8										18		**18.27-19.95m** Light grey, unweathered, closely jointed, hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Subhorizontal and cross joints (steeply dipping joints healed), planar, wide, clean or slight silt infill, occasional quartz crystals.
21.00	NWD4	92	32	6		120.7								19		
22.50	NWD4	96	79	5		173	180	93.4	0.447					20		**19.95-22.72m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Mainly subhorizontal, one cross-joint, planar, narrow and wide, clean, quartz crystal growth.
24.00	NWD4	100	85	1		129.7								21		
25.50	NWD4	90	55	4		77.8								22		
27.00	NWD4	93	61											23		**22.72-25.75m** Light grey, unweathered, medium to widely jointed, very hard rock, GREYWACKE (sandstone) with abundant 3 mm - 10 mm vuggy quartz veins. Malmesbury Group. Joints: Cross-joints (healed), vuggy, quartz infilled.
28.60	NWD4	100	89			181.1								24		
30.20	NWD4	98	88	0.8		165.4								25		
														26		
														27		**25.75-30.50m** Light grey, unweathered, widely to very widely jointed, very hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Mainly steeply dipping (70⁰), planar, slightly rough, clean or healed (probably bedding).
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB6

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.52m
DATE START : 03 March 2008
DATE FINISH : 07 March 2008

NORTHING : 3727017.974
EASTING : 52985.997
ELEVATION : 11.736
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.73	NWD4	100	73			155.7								31		**30.50-33.60m** Light grey, unweathered, medium jointed, very hard rock, GREYWACKE (sandstone). Malmesbury Group. Joints: Subhorizontal, cross-joints and steeply dipping, planar, smooth, clean.
33.23	NWD4	99	53	4										32		
34.73	NWD4	99	86											33		
36.23	NWD4	99	90	0.5		173								34		**33.60-40.52m** Light grey, unweathered, widely to very widely jointed, very hard rock, GREYWACKE (sandstone). Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping and subhorizontal, planar, very narrow, slight alteration or clean. Closely jointed 37.73 - 37.96 m.
37.73	NWD4	98	95			198.9								35		
39.27	NWD4	97	60	>20		286.3 216.9								36		
40.52	NWD4	100	100	1.5		190.9	195	68.6	0.263					37		
														38		
														39		
														40		END OF BOREHOLE
														41		
														42		
														43		
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	64												1		**0.00-4.95m** Orange brown, very loose to loose, intact, fine to medium SAND with occasional medium sized shell fragments. Aeolian?
1.95	SPT	87			4											
3.00	NWD4	90												2		
3.45	SPT	91			4									3		
4.50	NWD4	83												4		
4.95	SPT	100			6											
6.00	NWD4	89												5		**4.95-7.95m** Light greyish brown, loose, intact, fine SAND with abundant fine to medium shell fragments. Marine (beach deposits).
6.45	SPT	98			7									6		
7.50	NWD4	83												7		
7.95	SPT	87			8											
9.00	NWD4	89												8		**7.95-12.45m** Light brown, loose, intact, fine SAND with fine shell fragments. Marine.
9.45	SPT	78			9									9		
10.50	NWD4	91												10		
10.95	SPT	89			8											
12.00	NWD4	90												11		
12.45	SPT	93			9									12		
13.50	NWD4	95												13		**12.45-16.50m** Light grey to off-white, loose to medium dense, intact, fine SAND with fine shell fragments. Marine.
13.95	SPT	76			11									14		
15.00	NWD4	86												15		

GRAIN SIZE DESCRIPTIONS
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CL = Clay %

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UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
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NORTHING : 3726815.117
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ELEVATION : 10.083
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LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
15.45	SPT	82			9									16		
16.50	NWD4	90														
16.95	SPT	96			11									17		**16.50-18.57m** Light grey, medium dense, fine SAND with abundant fine to coarse, angular shell fragments. Marine.
18.12	NWD4	79												18		
18.57	SPT	96														**18.57-19.40m** Grey and white, medium dense, subangular fragments of Greywache within a sand matrix. Transported?.
19.62	NWD4	31	0											19		**19.40-20.54m** Light grey, slightly weathered to unweathered, very closely jointed, hard rock, GREYWACKE, Tygerberg Formation, Malmesbury Group. Joints: Subvertical and subhorizontal, narrow, planar with occasional clay coatings.
21.11	NWD4	68	0	>20										20		
22.61	NWD4	93	28	10										21		
24.11	NWD4	83	0			102.5								22		
25.61	NWD4	80	17	>20										23		
27.11	NWD4	100	14	8		145.2								24		
28.61	NWD4	90	0	>20		162.3								25		**20.54-36.43m** Light grey, slightly weathered to unweathered, very closely to medium jointed, but mainly closely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subvertical (dipping steeply 70°) and subho rizontal, narrow to wide, planar and undulating with some infill.
30.11	NWD4	71	10	6										26		
														27		
														28		
														29		
														30		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
31.61	NWD4	95	9											31		
33.11	NWD4	96	0	>20										32		**20.54-36.43m** Light grey, slightly weathered to unweathered, very closely to medium jointed, but mainly closely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subvertical (dipping steeply 70°) and subho rizontal, narrow to wide, planar and undulating with some infill.
34.61	NWD4	96	0											33		
36.11	NWD4	88	0											34		
37.61	NWD4	98	38	6		299								35		
39.11	NWD4	97	19	>20										36		
40.05	NWD4	96	20	8										37		**36.54-40.05m** Light grey, unweathered, closely to medium jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow and undulating with calcite infill.
41.65	NWD4	96	38	18										38		
43.25	NWD4	100	46	11		128.1								39		
44.85	NWD4	100	33											40		**40.05-41.99m** Light grey, unweathered, medium jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Horizontal and subvertical steeply dipping (70°), narrow, smooth and undulating with some infill.
				11		162.3								41		
														42		
														43		**41.99-46.08m** Light grey, unweathered, medium to widely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
														44		
														45		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
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ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB7

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 54.25m
DATE START : 19 April 2008
DATE FINISH : 05 June 2008

NORTHING : 3726815.117
EASTING : 53069.914
ELEVATION : 10.083
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
46.45	NWD4	95	36											46		
48.05	NWD4	96	33	19 8			51.6	80.3	0.321					47		**46.08-48.05m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
49.65	NWD4	95	59	3		128.1								48		**48.05-49.54m** Light grey, unweathered, widely jointed, very hard rock, GREYWACKE, Malmesbury Group. Joints: Subhorizontal and vertical, narrow, planar and smooth.
51.25	NWD4	94	17	13 >20										49		
52.75	NWD4	98	73	8			50.8	94.1	0.281					50		
54.25	NWD4	84	27	13										51		**49.54-54.25m** Light grey, unweathered, closely to medium jointed, hard rock, GREYWACKE, Tygerberg Formation, Malmesbury Group. Joints: Subhorizontal and subvertical steeply dipping (80°), narrow, smooth and planar with some healed vertical fractures. Calcite infill.
														52		
														53		
														54		
														55		END OF BOREHOLE
														56		
														57		
														58		
														59		
														60		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB8

SHEET : 1 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
1.50	NXC	35												1		**0.00-1.70m** Light brown, medium dense, fine to medium SAND. Aeolian.
1.95	SPT	82			19											
3.00	NWD4	30												2		**1.70-1.90m** Light brown mottled reddish brown, medium dense, intact, fine to medium SAND with ferricrete concretions. Pedogenic.
3.45	SPT	60			16									3		
4.50	NWD4	56								0	98	0	2	4		**1.90-6.00m** Light orangey brown, medium dense, intact, fine to medium SAND. Aeolian.
4.95	SPT	87			19									5		
6.00	NWD4	45												6		**6.00-6.35m** Light orangey brown, medium dense, intact, coarse SAND. Marine.
6.45	SPT	62			28											**6.35-7.50m** Off-white, medium dense, intact, fine SAND. Marine.
7.50	NWD4	49												7		
7.95	SPT	93			50									8		
9.00	NWD4	77												9		
9.45	SPT	96			42									10		**7.50-12.50m** Light orangey brown, dense, intact, fine to medium SAND with fine shell fragments. Marine.
10.50	NWD4	56														
10.95	SPT	64			?									11		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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SRK Consulting
Engineers and Scientists

BOREHOLE NO : KB8

SHEET : 2 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
12.00	NWD4	79												12		
12.45	SPT	100			51					0	97	1	2			
13.50	NWD4	37												13		**12.50-13.50m** Dark greenish grey, very dense, intact, fine SAND. Marine.
13.95	SPT	93			46											
15.00	NWD4	43												14		**13.50-15.50m** Light greyish brown, dense to very dense, intact, fine to coarse SAND with fine shell fragments. Marine.
15.45	SPT	84			58									15		
16.45	NWD4	75												16		**15.50-16.70m** Alternating layers of greenish grey and off-white, very dense, intact, slightly clayey, fine to coarse SAND with abundant very coarse shell fragments. Marine.
17.95	NWD4	40												17		**16.70-17.90m** Greenish dark grey, very dense, intact, clayey, fine SAND. Marine.
18.30	SPT	71			Ref									18		
19.45	NWD4	75												19		**17.90-19.80m** Greenish grey, very dense, intact, fine to coarse gritty SAND with abundant coarse shell fragments. Marine.
19.80	SPT	100			Ref											
20.95	NWD4	65	39	6		42.7								20		**19.80-20.20m** Dark grey, subrounded, coarse GRAVEL within a gritty sand matrix. Marine.
22.45	NWD4	79	0	>20										21		**20.20-21.23m** Light grey, highly weathered, closely jointed, soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints (45^0 dip), very wide, clay infilled.
														22		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
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SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
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Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

SRK Consulting
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BOREHOLE NO : KB8

SHEET : 3 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
														23		**21.23-23.95m** Light greenish grey, highly weathered, in places completely weathered, very closely jointed, soft rock, in places very soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable but prominent steep angle (70^0), very wide, decomposed joint walls, thick clay infill, sections decomposed to clayey silt.
23.95	NWD4	87	19	6 >20										24		**23.95-26.18m** Light greenish grey, highly weathered, medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly very steeply dipping bedding joint (70^0), planar, wide, clayey silt infilled (subhorizontal driller breaks).
25.45	NWD4	79	23	4		85.4								25		
26.95	NWD4	100	30	>20		128.1								26		**26.18-28.45m** Light greenish grey, highly weathered, very closely to closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable, prominent subvertical joint, wide, soft joint walls, thick clayey silt infill.
28.45	NWD4	65	0											27		
29.95	NWD4	78	0	6 >20										28		**28.45-29.35m** Light greenish grey, highly weathered, very closely to closely jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Highly variable, prominent subvertical joint, wide, soft joint walls, thick clayey silt infill.
31.45	NWD4	68	23	5		111.1								29		**29.35-29.95m** Light greenish grey, highly to completely weathered, very closely jointed, very soft rock and soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly subvertical (possibly sheared), wide, soft joint walls, thick clayey silt infill (5 cm thick in places).
32.95	NWD4	95	0	>20										30		**29.95-32.35m** Light greenish grey, highly weathered, closely and medium jointed, soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping bedding (60-70^0), planar, wide, clayey silt infilled. Thin sheared sections.
														31		
														32		
														33		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

*** I.S.R.M Suggested Method 1981**
**** BS1377 and ASTM D422**

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BOREHOLE NO : KB8

SHEET : 4 of 4

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D3
BOREHOLE DEPTH : 40.45m
DATE START : 13 February 2008
DATE FINISH : 16 February 2008

NORTHING : 3726614.417
EASTING : 53162.192
ELEVATION : 10.129
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
34.45	NWD4	78	19	1										34		**32.35-33.10m** Light greenish grey, highly to completely weathered, very closely jointed, very soft rock and soft rock, GREYWACKE. Malmesbury Group. Joints: Mainly subvertical (possibly sheared), wide, soft joint walls, thick clayey silt infill (5 cm thick in places).
35.95	NWD4	84	0	>20										35		**3310-33.65m** Greenish grey, moderately weathered, unjointed, medium hard rock, GREYWACKE.
37.45	NWD4	97	9	9										36		**33.65-35.95m** Light greenish grey, highly weathered, variably closely jointed and very closely jointed (sheared), soft rock, GREYWACKE. Malmesbury Group. Joints: Sheared rock mass. Prominent subvertical, planar, very wide, soft joint walls, thick clayey silt infill, some pyrite.
38.95	NWD4	71	36	3		222.1	39.4	14.5	0.212					37		**35.95-37.45m** Light grey, moderately weathered, closely and medium jointed, medium hard rock, GREYWACKE. Malmesbury Group. Joints: Mainly steeply dipping bedding, planar, stepped, hard joint walls, narrow to wide, minor silt infill.
40.45	NWD4	69	7			136.7								38		**37.45-40.45m** Greenish grey, unweathered, medium to widely jointed, hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Steeply dipping 60-75^0 and subvertical joints, planar, narrow, clean.
														39		
														40		
														41		END OF BOREHOLE
														42		
														43		
														44		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

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BOREHOLE NO : KB9

SHEET : 1 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
1.50	NXC	29												1		**0.00-3.50m** Off-white, very loose, fine to medium SAND with coarse shell fragments. Aeolian.
1.95	SPT	42			4											
3.00	NWD4	53												2		
3.45	SPT	58			4									3		
4.50	NWD4	46												4		**3.50-6.50m** Light grey speckled white, loose, fine to medium SAND with fine shell fragments. Marine (beach deposit?).
4.95	SPT	51			5											
6.00	NWD4	47												5		
6.45	SPT	56			8									6		
7.50	NWD4	45												7		**6.50-11.00m** Light orange brown, loose, fine to coarse SAND with coarse angular shell fragments. Marine.
7.95	SPT	53			7											
9.00	NWD4	58												8		
9.45	SPT	51			8									9		
10.50	NWD4	44												10		
10.95	SPT	53			9									11		
12.00	NWD4	47												12		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

* I.S.R.M Suggested Method 1981
** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB9

SHEET : 2 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN/RQD				FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS							DEPTH (m)	SYMBOL	DESCRIPTION
							* Rock Core			** Grain Size Distribution (%)						
DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)				UCS	E	v	GR	SA	SI	CL			
12.45	SPT	64			11									13		**11.50-13.50m** Light orange brown, medium dense, fine to coarse SAND with coarse angular shell fragments. Marine.
13.50	NWD4	51														
13.95	SPT	58			12									14		**13.50-19.50m** LIght grey speckled white, medium dense, fine to medium SAND with coarse shell fragments. Marine.
15.00	NWD4	49														
15.45	SPT	56			16									15		
16.50	NWD4	43														
16.95	SPT	62			22									16		
18.00	NWD4	46														
18.45	SPT	58			22									17		
19.50	NWD4	50														
19.95	SPT	58			24									18		
21.00	NWD4	49														
21.45	SPT	60			28									19		
22.50	NWD4	49														
22.95	SPT	67			33									20		**19.50-21.50m** Light grey speckled white, medium dense to dense, fine to coarse SAND with coarse shell fragments. Marine.
24.00	NWD4	54														
														21		
														22		**21.50-24.45m** Greenish grey, dense, coarse SAND consisting mainly of angular shell fragments, quartz (fine sand matrix). Marine.
														23		
														24		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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** BS1377 and ASTM D422

SRK Consulting
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BOREHOLE NO : KB9

SHEET : 3 of 3

PROJECT : Duynefontein Nuclear 1 SSR

DRILLING CONTRACTOR : Diabor
DRILLING METHOD : Rotary Core
MACHINE : SECO D15
BOREHOLE DEPTH : 30.00m
DATE START : 09 April 2008
DATE FINISH : 10 April 2008

NORTHING : 3726417.107
EASTING : 53258.424
ELEVATION : 12.407
ORIENTATION : Vertical
LOGGED BY : John Brown
REVIEWED BY : Lewis Prince

DRILL RUN (m)	DRILLING METHOD	CORE RECOVERY (%)	ROCK QUALITY DESIGNATION (%)	FRACTURE FREQUENCY (j/m)	STANDARD PENETRATION TEST (N-Value)	POINT LOAD STRENGTH (UCS MPa)	LABORATORY ANALYSIS * Rock Core UCS	E	v	** Grain Size Distribution (%) GR	SA	SI	CL	DEPTH (m)	SYMBOL	DESCRIPTION
24.45	SPT	56			36									25		
25.50	NWD4	100	14	8		102.5										**24.50-25.85m** Greenish grey, highly weathered, closely jointed, very soft rock, GREYWACKE. Tygerberg Formation. Malmesbury Group. Joints: Cross-joints, 1 subvertical joing (bedding), wide, planar, clayey silt infilled.
27.00	NWD4	93	7			119.6								26		**25.85-27.91m** Greenish grey, highly weathered, closely jointed, soft rock, GREYWACKE. Malmesbury Group. Friable between 26.84 - 27.39 m. Joints: Cross-joints and subvertical. Subvertical joints wide, quartz crystal growth. Other joints friable (soft) joint walls, wide, clay infill.
28.50	NWD4	91	15	>20		42.7	3.11	0.748	0.746					27		
30.00	NWD4	99	39	11		42.7								28		**27.91-30.00m** Greenish grey, moderately weathered, medium jointed, soft rock, GREYWACKE grading locally to mudstone. Malmesbury Group. Joints: Mainly cross-joints, narrow and wide, clayey silt infill. Some soft joint walls. Friable joint surfaces in places.
				7										29		
				4										30		END OF BOREHOLE
				>20		42.7								31		
				6										32		
														33		
														34		
														35		
														36		

GRAIN SIZE DESCRIPTIONS
GR = Gravel %
SA = Sand %
SI = Silt %
CL = Clay %

ROCK CORE
UCS = MPa
E = Elastic Modulus (GPa)
v = Poisson's Ratio

Soils Non-Plastic
Piezometer Installed

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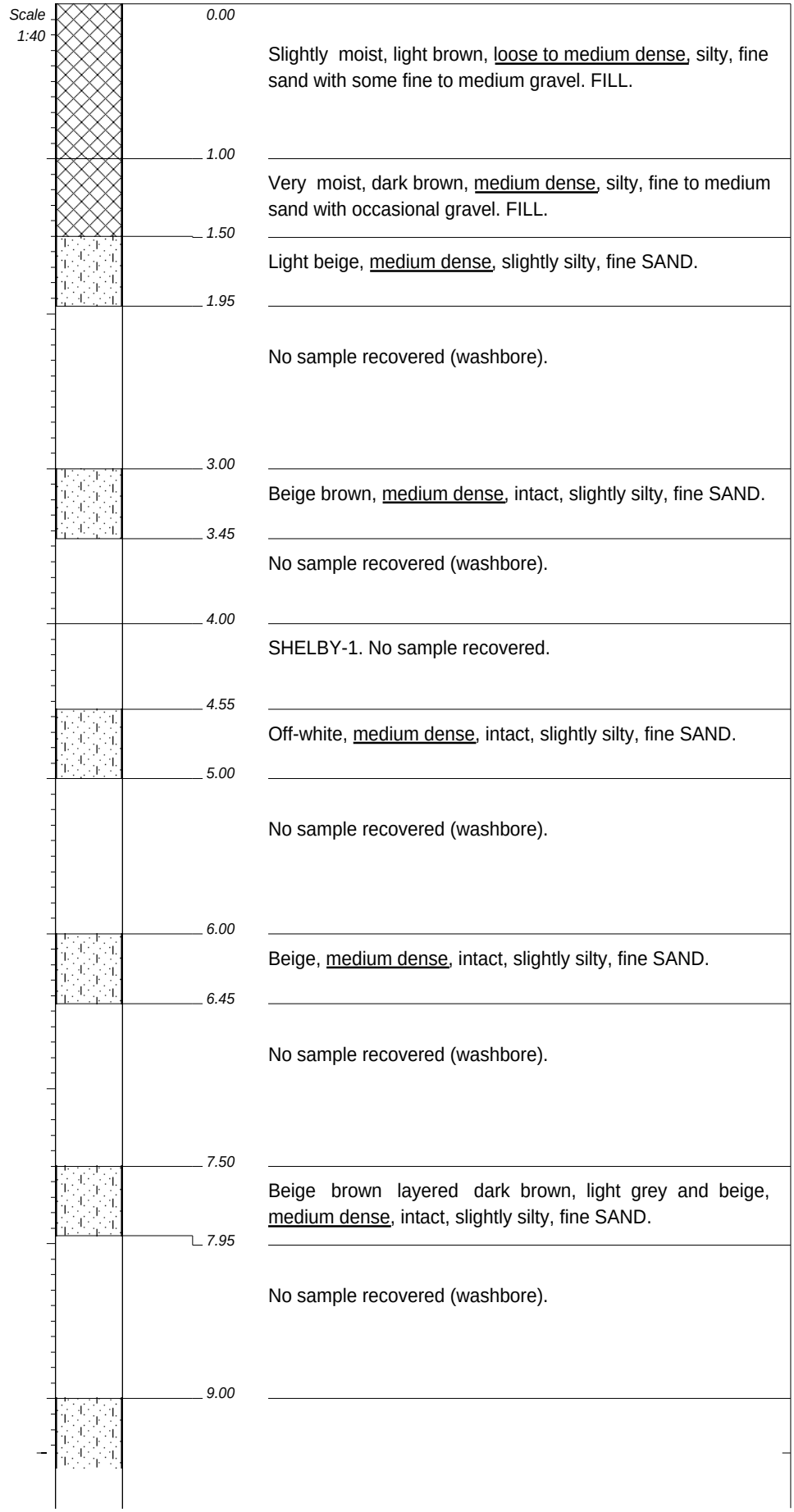
ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 46
Sheet 1 of 9

JOB NUMBER: 507052/42K



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	
1.50	Hand dug	0				Slightly moist, light brown, loose to medium dense, silty, fine sand with some fine to medium gravel. FILL.
						Very moist, dark brown, medium dense, silty, fine to medium sand with occasional gravel. FILL.
1.95	SPT1	100	12			Light beige, medium dense, slightly silty, fine SAND.
3.00	Casing	0				No sample recovered (washbore).
3.45	SPT2	100	16			Beige brown, medium dense, intact, slightly silty, fine SAND.
4.00	Casing	0				No sample recovered (washbore).
4.55	SHELBY	0				SHELBY-1. No sample recovered.
5.00	SPT3	100	17			Off-white, medium dense, intact, slightly silty, fine SAND.
6.00	Casing	0				No sample recovered (washbore).
6.45	SPT4	100	25			Beige, medium dense, intact, slightly silty, fine SAND.
7.50	Casing	0				No sample recovered (washbore).
7.95	SPT5	100	29			Beige brown layered dark brown, light grey and beige, medium dense, intact, slightly silty, fine SAND.
9.00	Casing	0				No sample recovered (washbore).
9.45	SPT6	100	35			

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.00	SHELBY	0			
10.50	Casing	0			
10.95	SPT7	100	18		
12.00	Casing	0			
12.50	SHELBY	100			
12.95	SPT8	100	52		
13.50	Casing	0			
13.85	SPT9	100	Ref		
15.00	Casing	0			
15.25	SPT10	100	Ref		
16.00	Casing	0			
16.20	SHELBY	100			
16.50	Casing	0			
16.70	SPT11	100	Ref		
18.00	Casing	0			
18.45	SPT12	100	74		

-10 -11 -12 -13 -14 -15 -16 -17 -18

9.45 Beige layered dark brown and light brown, medium dense, intact, slightly silty, fine to medium SAND.

10.00 No sample recovered (washbore).

10.00 SHELBY-2. Refusal.

10.50 No sample recovered (washbore).

10.95 Black, medium dense, intact, silty, fine SAND.

12.00 No sample recovered (washbore).

12.50 SHELBY-3.

12.95 Dark grey layered light greyish brown, very dense, intact, silty, fine to medium SAND.

13.50 No sample recovered (washbore).

13.85 Beige layered black, very dense, intact, slightly cemented, (slightly organic), slightly clayey, silty, fine SAND.

15.00 No sample recovered (washbore).

15.25 Black layered brown, very dense, intact, slightly cemented, (slightly organic), slightly clayey, silty, fine SAND.

16.00 No sample recovered (washbore).

16.20 SHELBY-4.

16.50 No sample recovered (washbore).

16.70 Black layered greyish brown, very dense, intact, slightly cemented, slightly clayey, silty, fine SAND.

18.00 No sample recovered (washbore).

18.45 Black layered grey and beige brown, very dense, intact, slightly clayey, silty, fine SAND.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
19.50	Casing	0				-19	No sample recovered (washbore).
19.95	SPT13	100	30			-20	19.50 — Brown layered dark and light brown, dense to medium dense, intact, silty, fine SAND. — 19.95
21.00	Casing	48				-21	No sample recovered (washbore).
21.45	SPT14	100	21				21.00 — Dark brown layered light grey, medium dense, intact, slightly clayey, silty, very fine SAND. — 21.45
22.00	Casing	0				-22	No sample recovered (washbore).
22.50	SHELBY	100					22.00 — SHELBY-5. — 22.50
22.95	SPT15	100	41			-23	Dark brown layered light grey, dense, intact, silty, fine SAND with occasional gravel at 22.70m. — 22.95
24.00	Casing	52				-24	No sample recovered (washbore).
24.45	SPT16	100	72				24.00 — Dark brown layered light grey lenses(layers), very dense, intact, slightly clayey, silty, fine SAND. — 24.45
25.50	Casing	0				-25	No sample recovered (washbore).
25.95	SPT17	100	36			-26	25.50 — Dark brown layered light grey lenses(layers), dense, intact, slightly clayey, silty, fine SAND. — 25.95
27.00	Casing	0				-27	No sample recovered (washbore).
27.45	SPT18	100	63				27.00 — Dark brown layered light grey lenses(layers), very dense, intact, slightly clayey, silty, fine SAND. — 27.45
28.00	Casing	0				-28	No sample recovered (washbore). — 28.00

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
28.30	SHELBY	100			
28.50	Casing	0			
28.95	SPT19	100	79		
30.00	Casing	100			
30.00	SPT20	0	Ref		
31.95	PQ	67		8	5
33.30	PQ	74		0	7
34.20	PQ	67		0	2
35.30	PQ	77		27	3
36.30	PQ	95		42	4
37.20	PQ	89		0	1

-29 -30 -31 -32 -33 -34 -35 -36 -37

28.30
28.50
28.95
29.45
30.00
34.50
36.30

SHELBY-6.

No sample recovered (washbore).

Dark brown layered grey speckled white, very dense, intact, slightly clayey, silty, fine SAND with a layer of clay residual Malmesbury shale (clay).

Light and dark grey, stiff to very stiff, relic jointed, blocky and laminated, silty, CLAY. Residual Malmesbury Shale.

Light grey, highly weathered to completely weathered, very closely to closely jointed, very soft rock to soft rock, SHALE/Pyllite. Tygerberg Formation. Malmesbury Group.

Yellowish orange brown banded reddish brown an light olive green, highly weathered to completely weathered, very closely jointed to medium jointed, but mainly closely jointed, very soft rock, thinly laminated, SHALE.

Joints: Subhorizontal and subvertical; smooth planar, smooth stepped, undulating, iron-stained.

Orange brown banded reddish brown and light olive green, highly weathered occasionally completely weathered, very closely to medium jointed, but mainly closely jointed, very soft rock, occasionally laminated, SHALE.

Joints: Subhorizontal and subvertical; smooth planar, polish, narrow, iron-stained and reddish colour.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.10	PQ3	83		48	1
39.60	PQ3	40		0	>20
40.60	PQ3	45		0	1
41.40	PQ3	94		25	4
42.46	PQ3	100		17	6
43.96	PQ3	90		71	3
44.56	PQ3	58		0	>20
45.56	PQ3	100		0	>20
46.56	PQ3	77		58	0

-38
-39
-40
-41
-42
-43
-44
-45
-46

UCM
PLS

39.30

Orange brown banded reddish brown and light grey, highly weathered to completely weathered, closely to medium jointed, but mainly very closely jointed, very soft rock, thinly laminated, SHALE. (decomposed rock).

Orange brown banded light olive green, highly weathered to completely weathered, very closely to closely jointed, but mainly medium jointed, very soft rock to soft rock, thinly laminated, SHALE.

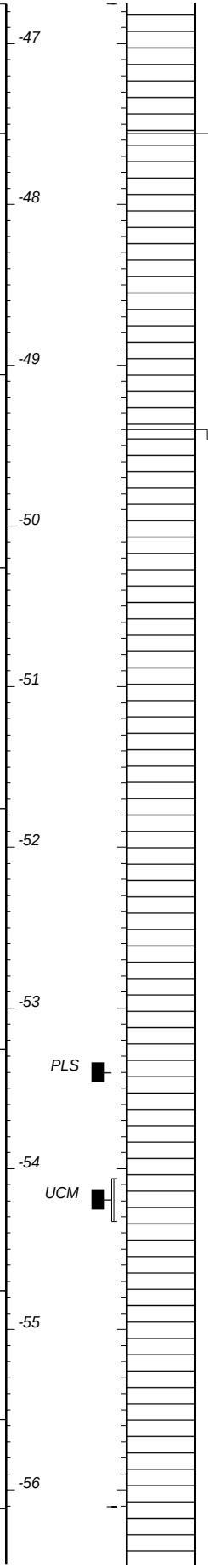
Joints: Long vertical and subhorizontal; smooth undulating, smooth stepped, curved, iron-stained.

43.96

Light olive green (khaki) banded orange brown and dark brown, highly weathered (completely fractured), very closely to closely jointed, thinly laminated, very soft rock, SHALE. (Iron-stained)(intensely).

45.56

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
47.56	PQ3	100		29	3
49.06	PQ3	90		15	6
50.26	PQ3	100		0	5
51.76	PQ3	70		47	1
53.26	PQ3	100		60	1
54.76	PQ3	90		41	3
55.56	PQ3	75		0	2



Brown banded light olive green (abundant healed shear line fractures), highly to completely weathered (completely fractured), very closely to closely jointed, but mainly medium jointed, very soft rock to soft rock, SHALE.

Joints: Cross-bedded, subhorizontal and subvertical; smooth planar, smooth undulating, irregular, iron-stained.

47.56

Light greenish cream banded orange brown, moderately weathered to slightly weathered, closely to very closely jointed, very soft rock, SILTSTONE/ PHYLLITE. (Intensely fractured 48.70-49.06 m), drilling fractures.

Joints: Subhorizontal and subvertical; smooth undulating, planar, clean.

49.40

Orange brown banded brown and light green, highly weathered and completely weathered (intensely fractured at end of drilling runs), closely to medium jointed with occasional widely jointed, very soft rock to soft rock, thinly bedded, ferrigunised SHALE.

Joints: Long vertical, subvertical and subhorizontal; smooth planar, smooth stepped, undulating, curved, narrow, clean and iron-stained.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
56.56	PQ3	78		35	5
58.06	PQ3	73		33	3
59.31	PQ3	100		59	2
60.81	PQ3	97		55	7
61.81	PQ3	95		0	6
62.56	PQ3	93		49	7
63.26	PQ3	100		50	4
64.45	PQ3	100		26	3
65.56	PQ3	100		52	4

-57
-58
-59 PLS
UCM
PLS
-60
-61
-62
-63
-64
-65
PLS

56.56

Light grey and dark grey, moderately weathered, very closely to closely jointed, occasionally thinly banded (laminated), very soft rock, PHYLLITE/ SILTSTONE? Shale?

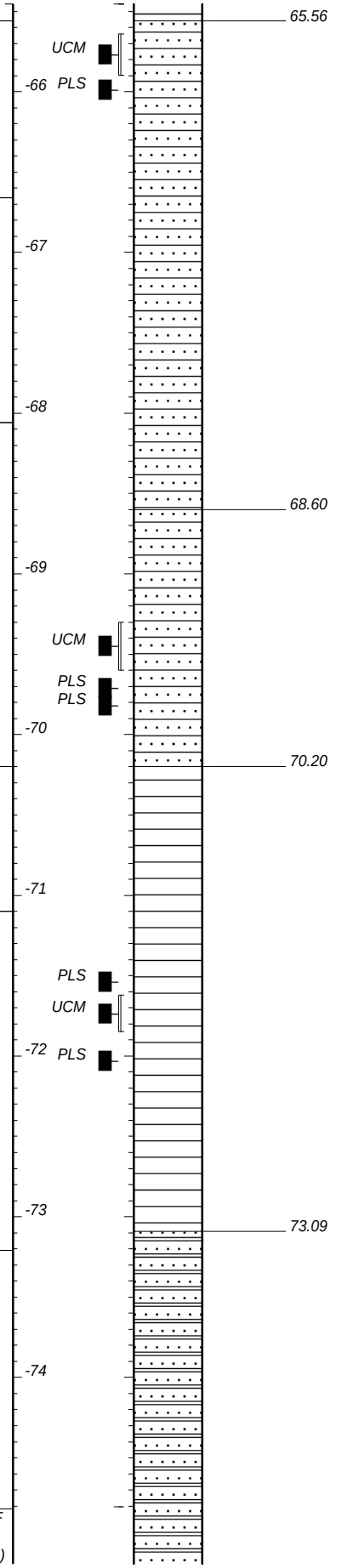
Joints: Subvertical and subhorizontal with occasional vertical; smooth planar, undulating, curved, clean.

64.00

Grey banded dark grey thin lenses, unweathered, closely to widely jointed, but mainly medium jointed, soft rock to medium hard rock, SILTSTONE/ SHALE?

Joints: Subvertical (bedding joints ´±70´°), vertical and subhorizontal; smooth planar, narrow, clean with pitted at base contact.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
66.66	PQ3	100		46	4
68.06	PQ	100		57	6
70.20	PQ	100		37	3
71.10	PQ	100		38	1
73.21	PQ	100		73	2
76.20	PQ	100		61	3



65.56

Grey banded light grey, unweathered, closely to medium jointed, soft rock to medium hard rock, banded SANDSTONE interbedded Quartzitic Sandstone. Some vertical quartz veins.

Joints: Cross-bedded, subvertical and subhorizontal; smooth planar, undulating, narrow, clean/black stained.

68.60

Grey banded dark grey with vertical quartz veins, unweathered, closely to medium jointed, but very closely jointed (drilling fractured) at end of drill run 70.20 m, hard rock, quartzitic SANDSTONE.

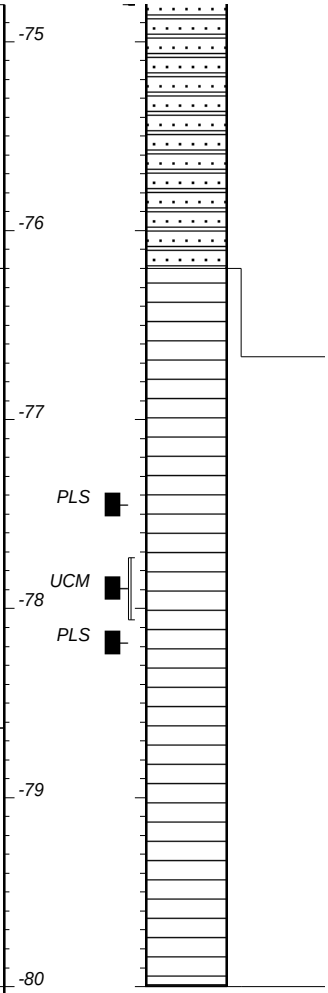
Joints: Steep vertical; rough, undulating, narrow, clean, 8 mm quartz veins.

70.20

Grey, unweathered, very closely to closely jointed, but mainly medium jointed, soft rock to medium hard rock, thinly laminated, SHALE.

Joints: Steep, dipping bedding joints (´±70´°), vertical and subhorizontal; smooth planar, undulating, narrow, clean occasional quartz veins between bedding joints (´±7 mm).

73.09



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
78.63	PQ	100		77	2
80.00	PQ	100		39	1

Grey and light grey, unweathered, closely to medium jointed (very closely jointed/drilling fractured at end of drill run 76.20 m), medium hard rock to hard rock, Quartzitic SANDSTONE interbedded SHALE with quartz veins and brecciated between 74.85-75.80 m. FAULT/SHEAR 73.85-74.88 m vertical.

Joints: Steep vertical 73.85-75.80 m; rough planar, 5-10 mm quartz veins along shear/fault, narrow, clean.

Grey, unweathered, medium to widely jointed, occasional closely jointed, medium hard rock to hard rock, banded and thinly laminated SHALE. Tygerberg Formation. Malmesbury Group.

Joints: Subhorizontal and subvertical; smooth, undulating, curved, narrow and clean.

END OF BOREHOLE AT 80.00 m.

NOTES

1) Undisturbed UCM sample taken at 45.60--45.90m, UCM sample taken at 54.06--54.33m, UCM sample taken at 59.31--59.60m, UCM sample taken at 65.64--65.90m, UCM sample taken at 69.30--69.60m, UCM sample taken at 71.62--71.85m, UCM sample taken at 77.73--78.06m.

2) Undisturbed PLS sample taken at 45.96m, PLS sample taken at 53.40m, PLS sample taken at 58.99m, PLS sample taken at 59.91m, PLS sample taken at 65.42m, PLS sample taken at 65.99m, PLS sample taken at 69.71m, PLS sample taken at 69.82m, PLS sample taken at 71.54m, PLS sample taken at 72.03m, PLS sample taken at 77.45m, PLS sample taken at 78.18m.

CONTRACTOR : Geomechanics CC
MACHINE : Commacchio P352
DRILLED BY : Michael
PROFILED BY : L. Prince

INCLINATION : Vertical
DIAM : 85mm
DATE : 26 May 2021
DATE : 04 June 2021

ELEVATION : WGS 84
X-COORD : 3726651
Y-COORD : 0051866

HOLE No: KB 46

TYPE SET BY : PRIN
SETUP FILE : BH1PG-A4.SET

DATE : 29/09/2021 11:29
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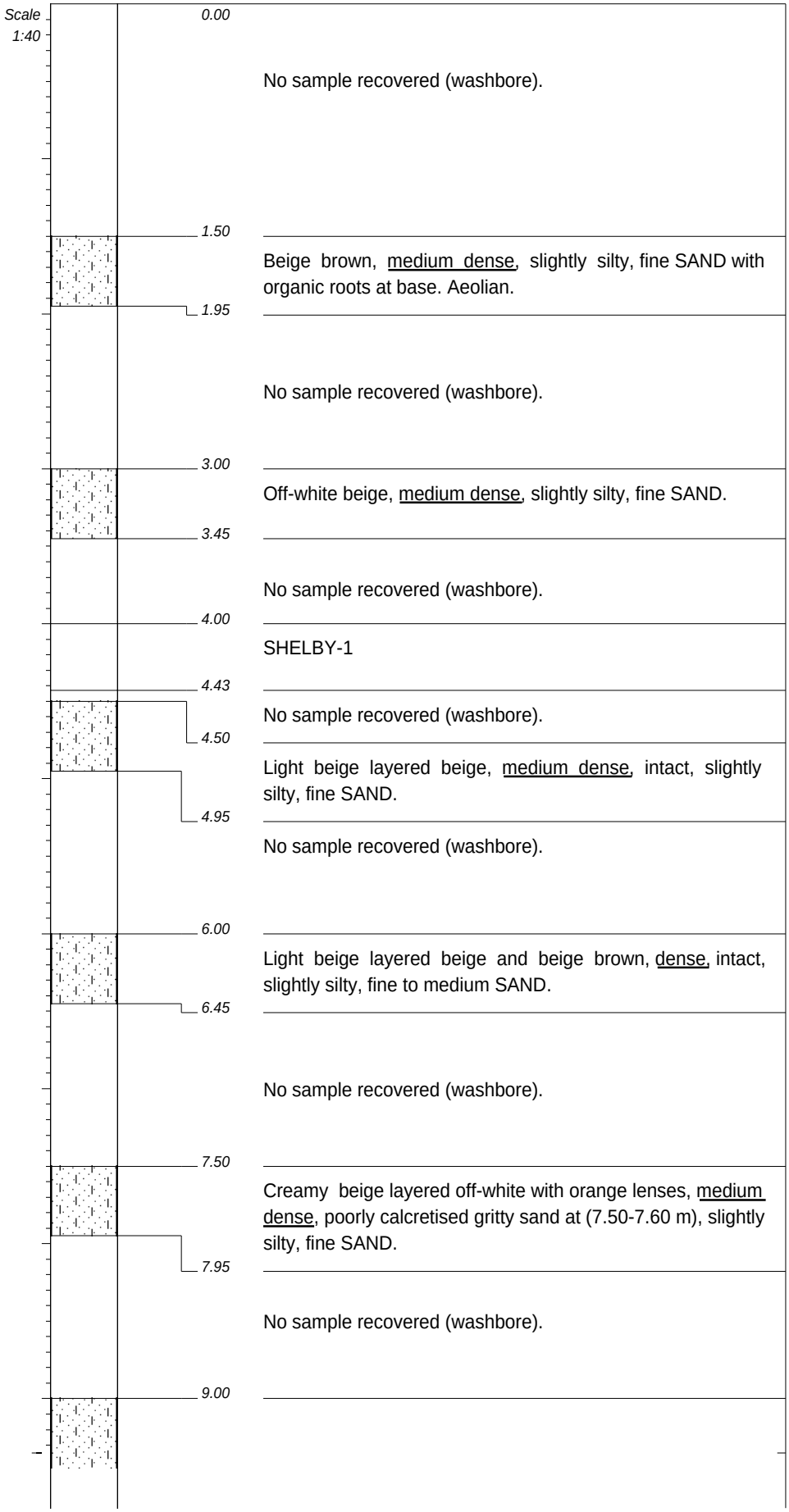
srk consulting

ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 47
Sheet 1 of 9

JOB NUMBER: 507052/42K

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
1.50	Casing	0			
1.95	SPT1	100	14		
3.00	Casing	0			
3.45	SPT2	100	19		
4.00	Casing	0			
4.43	SHELBY	100			
4.50	Casing	0			
4.95	SPT3	100	25		
6.00	Casing	0			
6.45	SPT4	100	32		
7.50	Casing	0			
7.95	SPT5	100	29		
9.00	Casing	0			
9.45	SPT6	100	25		



0.00 — No sample recovered (washbore).

1.50 — Beige brown, medium dense, slightly silty, fine SAND with organic roots at base. Aeolian.

1.95 — No sample recovered (washbore).

3.00 — Off-white beige, medium dense, slightly silty, fine SAND.

3.45 — No sample recovered (washbore).

4.00 — SHELBY-1

4.43 — No sample recovered (washbore).

4.50 — Light beige layered beige, medium dense, intact, slightly silty, fine SAND.

4.95 — No sample recovered (washbore).

6.00 — Light beige layered beige and beige brown, dense, intact, slightly silty, fine to medium SAND.

6.45 — No sample recovered (washbore).

7.50 — Creamy beige layered off-white with orange lenses, medium dense, poorly calcretised gritty sand at (7.50-7.60 m), slightly silty, fine SAND.

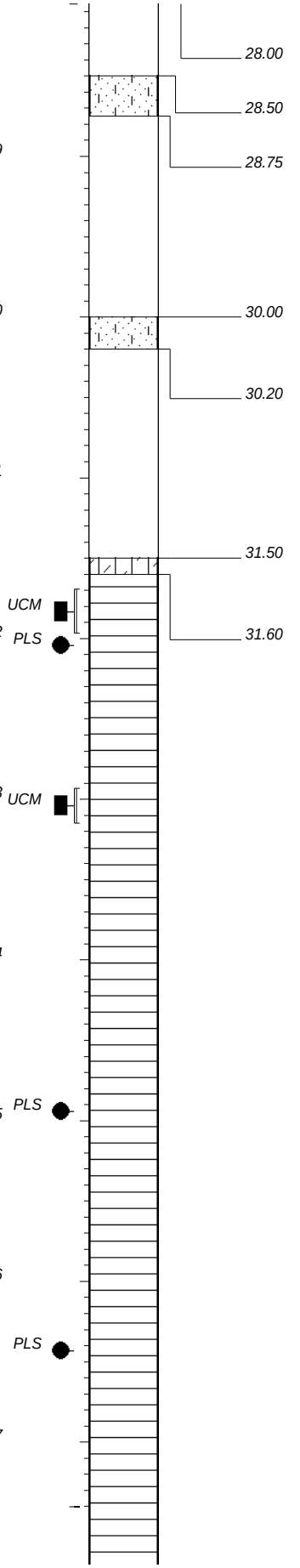
7.95 — No sample recovered (washbore).

9.00

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
9.45	SHELBY	0	Ref				Off-white beige, medium dense, intact, slightly silty, fine SAND.
10.00	Casing	0				9.45	
						-10	SHELBY-2
10.50	Casing	0				9.45	
							No sample recovered (washbore).
10.95	SPT7	100	35			10.00	
						10.50	No sample recovered (washbore).
12.00	Casing	0				-11	Off-white beige with lenses of beige at base, dense, intact, slightly silty, fine SAND.
						10.95	
							No sample recovered (washbore).
12.45	SPT8	100	25			-12 12.00	
							Off-white beige with lenses of beige at base, medium dense, intact, slightly silty, fine SAND.
13.50	Casing	0				12.45	
						-13	No sample recovered (washbore).
14.05	SHELBY	100				13.50	
							SHELBY-3
14.30	SPT9	100	Ref			-14 14.05	
							Black layered greyish brown, very dense, intact, slightly clayey(peaty), silty, fine SAND.
15.00	Casing	0				14.30	
							No sample recovered (washbore).
15.30	SPT10	100	Ref			-15 15.00	
							Dark brown becoming brown to light brown, very dense, intact, silty, fine SAND.
16.00	Casing	0				15.30	
							No sample recovered (washbore).
16.00	SHELBY	0	Ref			-16 16.00	
							SHELBY-4
16.50	Casing	0				16.00	
							No sample recovered (washbore).
16.95	SPT11	100	35			16.50	
							Dark brown layered light greyish brown, dense, intact, silty, fine SAND.
18.00	Casing	0				-17 16.95	
							No sample recovered (washbore).
18.45	SPT12	100	48			-18 18.00	
							Black becoming greyish brown at base, very stiff, micaceous, slightly sandy, silty, CLAY (Peaty).
						18.45	

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
19.50	Casing	0				-19	No sample recovered (washbore).
19.95	SPT13	100	63			-20	19.50 Greyish brown, very dense, intact, slightly silty, fine to medium SAND. 19.95
21.00	Casing	0				-21	No sample recovered (washbore).
21.10	SPT14	100	Ref				21.00 Off-white beige layered brown, very dense, slightly cemented lenses, slightly clayey, slightly silty, fine SAND. 21.10
22.00	Casing	0				-22	No sample recovered (washbore).
22.10	SHELBY	100	Ref				22.00 SHELBY-5
22.50	Casing	0					22.10 No sample recovered (washbore). 22.50
22.95	SPT15	100	50			-23	Dark brown, very dense, intact, slightly clayey, silty, fine SAND. 22.95
24.00	Casing	0				-24	No sample recovered (washbore).
24.45	SPT16	100	43				24.00 Dark brown with light grey lenses, dense, intact, slightly clayey, silty, fine SAND. 24.45
25.50	Casing	0				-25	No sample recovered (washbore).
25.95	SPT17	100	57			-26	25.50 Dark brown, very dense, intact, silty, fine SAND. 25.95
27.00	Casing	0				-27	No sample recovered (washbore).
27.45	SPT18	100	54				27.00 Dark brown, very dense, intact, silty, fine SAND. 27.45
28.00	Casing	0				-28	No sample recovered (washbore).
28.00	SHELBY	0	Ref				28.00

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
28.00	SHELBY	0	Ref		
28.50	Casing	0			
28.75	SPT19	100	Ref		
30.00	Casing	0			
30.20	SPT20	0	Ref		
31.50	Casing	0			
31.60	SPT21	100	Ref		
32.50	PQ	100		32	6
33.86	PQ	88		63	3
35.36	PQ	63		57	1
36.75	PQ	100		41	4
37.19	PQ	100		0	9



28.00 — SHELBY-6

28.50 — No sample recovered (washbore).

28.75 — Dark brown, very dense, intact, silty, fine SAND.

30.00 — No sample recovered (washbore).

30.20 — Dark brown becoming light greyish brown, very dense, intact, silty, fine SAND.

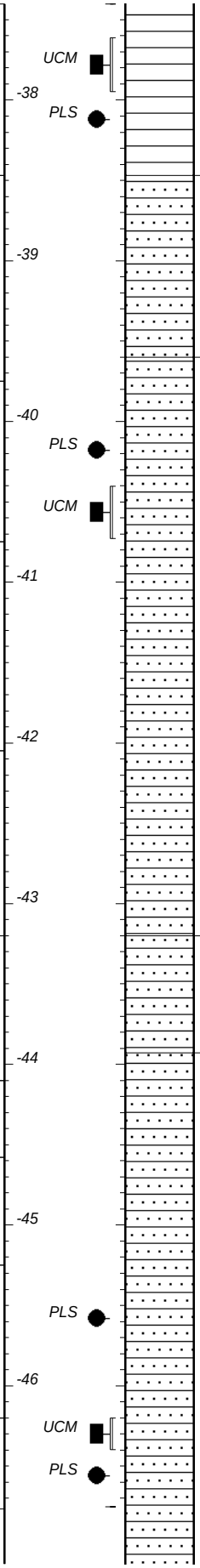
31.50 — No sample recovered (washbore).

31.60 — Olive green and black, very dense, relic jointed, very clayey, SILT. Residual Malmesbury Shale.

Light green, moderately weathered to slightly weathered, closely to medium jointed, very soft rock to soft rock, micaceous, Phyllitic SILTSTONE. Tygerberg Formation, Malmesbury Group.

Joints: Horizontal and vertical to subvertical; smooth planar and curved, narrow and clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.47	PQ	100		64	5
39.75	PQ	100		11	10
40.75	PQ	100		66	4
42.05	PQ	92		25	7
43.20	PQ	100		70	4
44.10	PQ	100		14	10
44.58	PQ	100		83	6
45.25	PQ	100		22	10
46.20	PQ	100		17	12
47.00	PQ	100		66	6



38.47 – 39.60: Light grey and dark grey, slightly weathered, very closely to closely jointed, intensely healed fractured, medium hard rock, pitted, (Shear/fault), SANDSTONE with occasional quartz veins.

Joints: Long, steep vertical, subvertical and subhorizontal; straight, smooth planar, rough stepped/irregular, narrow to wide, green-stained.

39.60 – 43.20: Grey, unweathered, very closely to closely jointed, but mainly medium to widely jointed, hard rock, micaceous, fine grained SANDSTONE.

Joints: Steep vertical, subvertical and subhorizontal; straight, smooth planar, smooth undulating, narrow, green-stained.

43.20 – 43.93: Grey, unweathered, very closely to closely jointed, intensely jointed, medium hard rock to hard rock, micaceous, (shear/fault), fine grained SANDSTONE. Possibly drilling induced.

Joints: Cross-bedded, subhorizontal and subvertical; straight, smooth planar, slight undulating, narrow to wide, green-stained.

43.93 – 47.00: Greenish grey, unweathered, very closely to closely jointed, but mainly medium jointed, medium hard rock to hard rock, micaceous, intensely jointed, fine grained SANDSTONE. Possibly drilling induced.

Joints: Steep subvertical and subhorizontal; straight, smooth and rough planar, narrow, green-stained, clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
47.60	PQ	100		30	8
47.70	PQ	100		0	>20
48.50	PQ	100		29	13
48.86	PQ	100		0	17
49.20	PQ	100		0	15
49.65	PQ	100		0	16
50.08	PQ	100		0	16
50.62	PQ	100		0	19
51.60	PQ	100		31	8
52.19	PQ	100		68	14
52.75	PQ	100		46	11
53.42	PQ	100		45	15
53.80	PQ	100		47	8
54.80	PQ	100		30	11
55.20	PQ	100		50	15
56.53	PQ	100		23	17

-47
-48
-49
-50
-51
-52
-53
-54
-55
-56

47.93

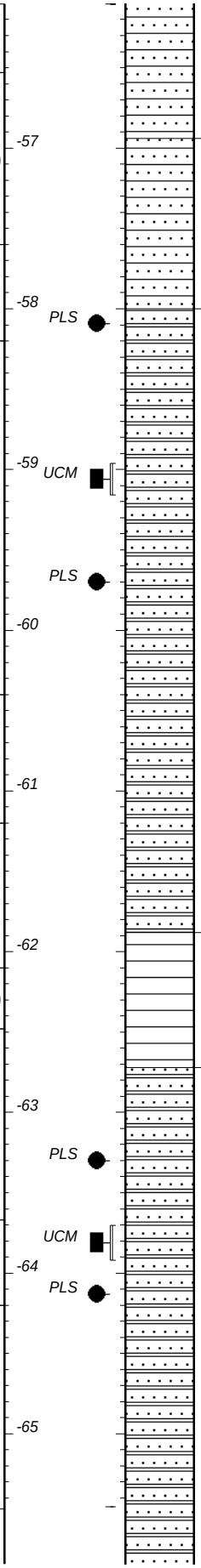
PLS

UCM

Light grey and greenish grey becoming dark grey, unweathered, very closely to closely jointed with occasional medium jointed (intensely jointed), hard rock to very hard rock, fine grained SANDSTONE.

Joints: Steep vertical, subvertical and subhorizontal; straight, smooth and rough planar, narrow, green-stained, clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
57.60	PQ	100		9	>20
58.20	PQ	100		58	5
60.40	PQ	100		73	5
61.20	PQ	100		30	6
62.10	PQ	100		26	11
62.48	PQ	100		0	>20
63.67	PQ	100		59	8
64.20	PQ	100		100	2
66.30	PQ	100		97	4



56.94

Dark greenish grey speckled white, unweathered to slightly weathered(completely fractured), very closely jointed, medium hard rock to hard rock, SANDSTONE with quartz veins. FAULT/SHEAR.

Joints: Long vertical; rough stepped/irregular, wavy, green-stained.

58.00

Light grey banded greenish and dark grey, unweathered, closely to medium jointed, occasionally thinly laminated, medium hard rock to hard rock, micaceous, fine grained SANDSTONE interbedded SHALE with occasional banded quartz veins around 58.30-58.60 m.

Joints: Cross-bedded, subvertical and subhorizontal; straight, smooth planar, smooth undulating, wavy, narrow, clean.

61.88

Dark grey banded light grey, unweathered, very closely jointed,(intensely/completely fractured), medium hard rock to hard rock, thinly laminated SHALE. FAULT/SHEAR.

62.72

Light grey and dark grey, unweathered, medium to widely jointed, medium hard rock to hard rock, micaceous, in places thinly laminated, SHALE interbedded SANDSTONE.

Joints: Cross-bedded, Long vertical, steep subvertical and subhorizontal; straight, smooth planar, undulating, narrow, green-stained.

Note: Healed, pitted, vertical joints where influx of water into joints occurred. Drillers water loss.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
67.20	PQ	100		78	7
68.90	PQ	82		76	4
69.40	PQ	120		30	8
70.15	PQ	127		44	4
71.50	PQ	100		100	4
73.20	PQ	100		56	7
74.60	PQ	96		33	8

-66
-67
-68
-69
-70
-71
-72
-73
-74

66.97

Light grey and dark grey, unweathered, closely and widely jointed, medium hard rock to hard rock, micaceous, SHALE and SANDSTONE.

Joints: Long, steep vertical and subvertical; smooth planar, undulating, wavy, rough stepped/irregular with abundant healed fractures, narrow, iron-stained at 67.20 m.

Note: Possible SHEAR?

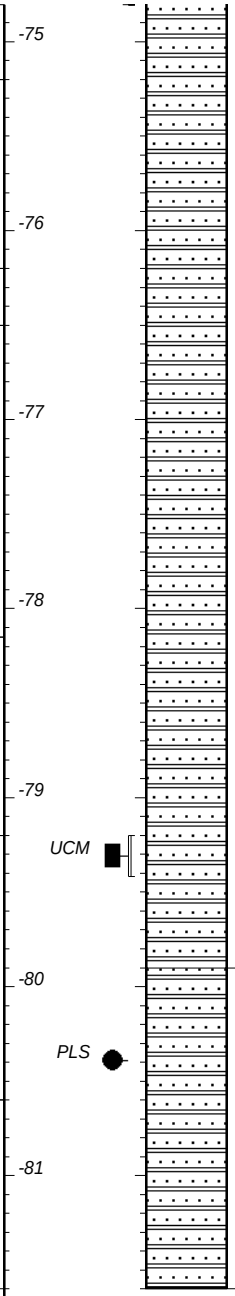
68.70

Dark grey and light grey, unweathered, medium to widely jointed, hard rock, micaceous, fine grained SANDSTONE and SHALE.

Joints: Long, steep vertical and subvertical; straight, smooth planar, undulating, narrow, clean.

71.95

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
75.20	PQ	108		60	5
76.20	PQ	100		33	12
76.50	PQ	100		0	3
78.15	PQ	97		25	5
79.20	PQ	100		29	10
80.60	PQ	96		69	5
81.60	PQ	100		100	2



Dark grey and light grey, unweathered to slightly weathered, very closely to closely jointed, but mainly medium jointed, intensely fractured, medium hard rock to hard rock, brecciated between 75.20 and 76.20 m, fine grained SANDSTONE interbedded SILTSTONE with abundant vertical white(quartz veining). Some foliation at 79.90 m. FAULT/SHEAR.

Joints: Long, steep vertical and subvertical; straight, smooth planar, smooth undulating, smooth stepped, narrow to wide, minor iron-stained.

79.90

Light grey banded dark grey, unweathered, medium to widely jointed, thinly laminated, hard rock, fine grained SANDSTONE interbedded SHALE. Tygerberg Formation. Malmesbury Group.

Joints: Subvertical; straight, smooth planar, smooth undulating, narrow, pyrite infill.

81.60

END OF BOREHOLE AT 81.60 m.

NOTES

1) Undisturbed UCM sample taken at 31.69--31.97m, UCM sample taken at 32.93--33.15m, UCM sample taken at 37.61--37.95m, UCM sample taken at 40.40--40.73m, UCM sample taken at 46.20--46.40m, UCM sample taken at 53.80--54.04m, UCM sample taken at 58.96--59.16m, UCM sample taken at 63.70--63.92m, UCM sample taken at 79.20--79.42m.

2) PLS sample taken at 32.04m, PLS sample taken at 34.94m, PLS sample taken at 36.43m, PLS sample taken at 38.12m, PLS sample taken at 40.18m, PLS sample taken at 45.58m, PLS sample taken at 46.56m, PLS sample taken at 53.22m, PLS sample taken at 58.09m, PLS sample taken at 59.70m, PLS sample taken at 63.30m, PLS sample taken at 64.13m, PLS sample taken at 80.39m.

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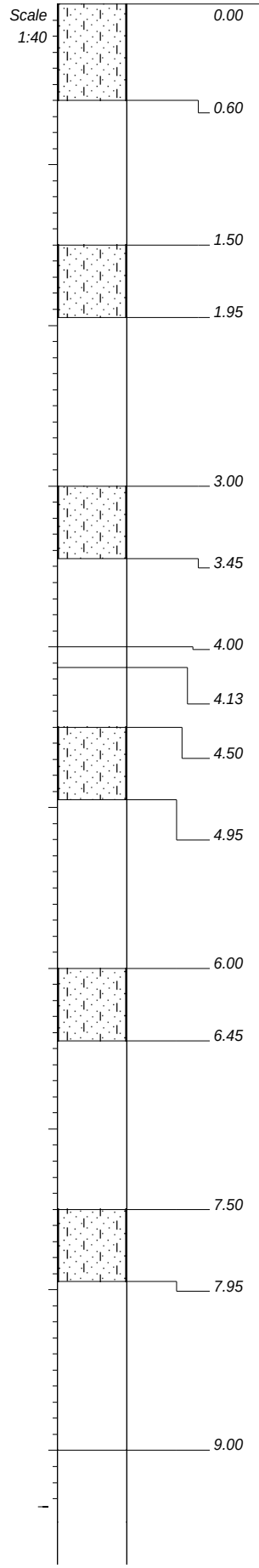
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 48
Sheet 1 of 9

JOB NUMBER: 507052/42K



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
						0.00	Dry to slightly moist, off-white and beige, loose to medium dense, slightly silty, fine to medium layered SAND with abundant rootlets at surface. Aeolian
1.50	Casing	0				0.60	No sample recovered (washbore).
1.95	SPT1	84	16			1.50	Beige, medium dense, slightly silty, fine SAND. Aeolian
3.00	Casing	0				1.95	No sample recovered (washbore).
3.45	SPT2	89	13			3.00	Yellowish beige becoming off-white, medium dense, slightly silty, fine SAND.
4.00	Casing	0				3.45	No sample recovered (washbore).
4.13	SHELBY	100	Ref			4.00	SHELBY-1
4.50	Casing	0				4.13	No sample recovered (washbore).
4.95	SPT3	82	36			4.50	Off-white beige, dense, slightly silty, fine SAND with rare sub-angular fine quarts gravel.
6.00	Casing	0				4.95	No sample recovered (washbore).
6.45	SPT4	78	47			6.00	Orange brown, dense, slightly silty, fine to medium SAND.
7.50	Casing	0				6.45	No sample recovered (washbore).
7.95	SPT5	84	66			7.50	Beige brown layered beige and off-white, dense, slightly silty, fine SAND.
9.00	Casing	0				7.95	No sample recovered (washbore).
9.45	SPT6	0	5			9.00	No sample recovered. Loose, consistency.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.06	SHELBY	100	Ref		
10.50	Casing	0			
10.95	SPT7	51	77		
12.00	Casing	0			
12.45	SPT8	80	20		
13.50	Casing	0			
13.72	SPT9	91	Ref		
15.00	Casing	0			
15.45	SPT10	0	78		
16.00	Casing	0			
16.06	SHELBY	100	Ref		
16.50	Casing	0			
16.80	SPT11	100	Ref		
18.00	Casing	0			
18.30	SPT12	100	Ref		

-10 -11 -12 -13 -14 -15 -16 -17 -18

9.45 No sample recovered (washbore).

10.00 SHELBY-2

10.06 No sample recovered (washbore).

10.50 Light brown layered beige, very dense, slightly silty, fine to medium SAND.

10.95 No sample recovered (washbore).

12.00 Beige, medium dense, slightly silty, fine SAND.

12.45 No sample recovered (washbore).

13.50 Greyish brown, very dense, slightly silty, fine to medium SAND.

13.72 No sample recovered (washbore).

15.00 No sample recovered. very dense, consistency.

15.45 No sample recovered (washbore).

16.00 SHELBY-3

16.06 No sample recovered (washbore).

16.50 Dark brown layered grey, very dense, slightly silty, fine SAND. Slight odour.

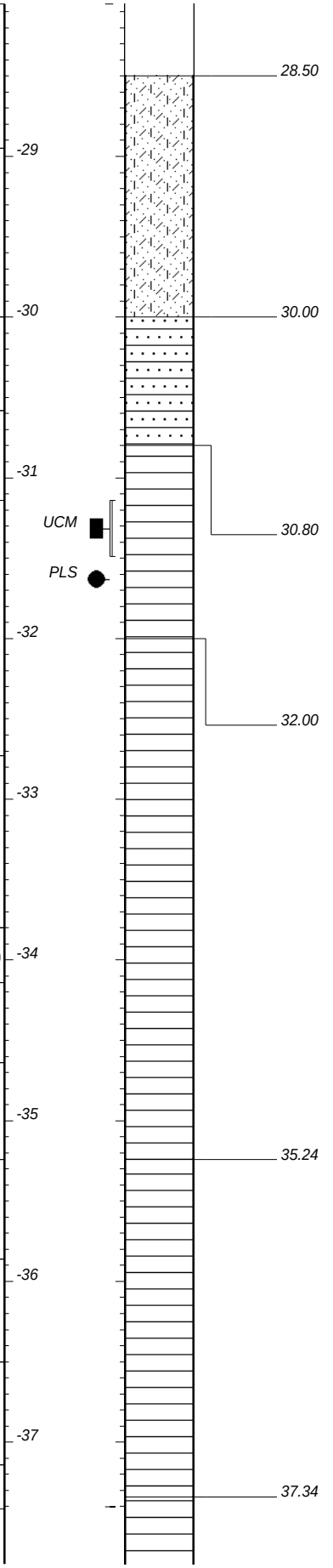
16.80 No sample recovered (washbore).

18.00 Olive green and dark grey, very dense, slightly clayey, slightly silty, fine SAND. Slight odour.

18.30

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
19.50	Casing	0				-19	No sample recovered (washbore).
							19.50
19.95	SPT13	0	38				No sample recovered. dense, consistency.
						-20	19.95
21.00	Casing	0					No sample recovered (washbore).
						-21	21.00
21.45	SPT14	71	23				Olive green and light grey, medium dense, slightly silty, fine SAND.
							21.45
22.00	Casing	0					No sample recovered (washbore).
						-22	22.00
22.30	SHELBY	100	Ref				SHELBY-4
							22.30
22.50	Casing	0					No sample recovered (washbore).
							22.50
22.95	SPT15	100	27				Dark brown and light grey, medium dense, slightly silty, fine SAND.
						-23	22.95
24.00	Casing	0					No sample recovered (washbore).
						-24	24.00
24.45	SPT16	0	16				No sample recovered. medium dense, consistency.
							24.45
25.50	Casing	0					No sample recovered (washbore).
						-25	25.50
25.80	SPT17	100	Ref				Olive green becoming light grey, very dense, slightly silty, fine SAND.
						-26	25.80
27.00	Casing	0					No sample recovered (washbore).
						-27	27.00
27.45	SPT18	67	43				Light grey becoming olive green, dense, slightly silty, fine SAND.
							27.45
28.00	Casing	0					No sample recovered (washbore).
						-28	28.00

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
28.50	SHELBY	100			
28.95	SPT19	100	35		
30.00	Casing	29		0	0
30.58	PQ	155		0	9
31.14	PQ	100		0	11
32.73	PQ	100		48	3
33.80	PQ	76		0	5
34.14	PQ	100		0	>20
34.64	PQ	90		0	12
35.24	PQ	100		0	20
35.86	PQ	100		0	18
36.50	PQ	100		31	11
37.14	PQ	94		23	8



SHELBY-5

28.50

Dark olive green speckled black, dense, slightly clayey, slightly silty, fine SAND with sub-rounded gravel at base.

30.00

Light grey, slightly weathered to unweathered, very closely to closely jointed occasional medium jointed, medium hard rock to hard rock, fine grained SANDSTONE. Tygerberg Formation. Malmesbury Group.

Joints: Steep, subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean.

30.80

Light grey, slightly weathered, very closely to closely jointed but mainly medium jointed, soft rock, SHALE.

Joints: Subhorizontal and subvertical; smooth undulating, narrow, clean.

32.00

Light grey, moderately weathered and in places completely weathered, very closely to closely jointed(intensely jointed), soft rock to very soft rock, Phyllitic SHALE. Possible SHEAR/FAULT?

Joints: Steep, subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean.

35.24

Grey banded light grey becoming light grey at 37.10 m, unweathered, very closely to closely jointed with occasional medium jointed(intensely jointed), medium hard rock to hard rock, thinly laminated SHALE.

Joints: Subhorizontal and subvertical; smooth undulating, curved, narrow, clean.

37.34

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
40.14	PQ	82		75	3
41.48	PQ	101		65	11
43.07	PQ	100		81	7
44.69	PQ	100		85	2
45.47	PQ	100		58	10
46.14	PQ	101		91	0

-38 PLS

-39 UCM

39.14

PLS

-40

PLS

-41

-42 UCM

PLS

-43

43.07

-44 PLS

UCM

-45

UCM

-46 PLS

Dark grey banded light grey, unweathered, medium to widely jointed with occasional closely jointed, soft rock to medium hard rock, micaceous, SHALE.

Joints: Subhorizontal; smooth planar, narrow, clean.

Dark grey banded light grey, unweathered, very closely to medium jointed, but mainly closely jointed, soft rock to medium hard rock, SHALE with occasional fine quartz veins. Posssible shear at 40.36 m.

Joints: Subvertical and subhorizontal; smooth planar, smooth undulating, narrow, pyrite infill, clean.

Grey, unweathered, closely to medium jointed, hard rock to very hard rock, micaceous, Quartzitic SANDSTONE with abundant healed fractures(joints) and quartz veins/crystals.

Joints: Cross-bedded, long steep, subvertical and subhorizontal; smooth and rough undulating, curved, narrow to wide, clean.

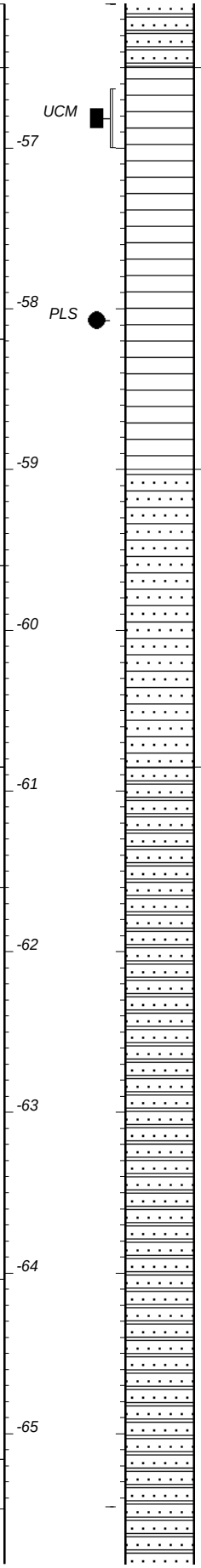
Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
48.74	PQ	96		76	6
49.20	PQ	122		68	17
50.35	PQ	96		0	11
52.10	PQ	100		34	11
53.04	PQ	100		62	6
55.14	PQ	97		51	6
56.50	PQ	100		75	4

-47
-48
-49
-50
-51
-52
-53
-54
-55
-56

47.80

Dark grey, unweathered, closely to medium jointed with occasional widely jointed, intensely jointed in places, hard rock to very hard rock, micaceous, Quartzitic SANDSTONE with interbedded SHALE between 53.57-54.20 m and some pitted quartz veining.

Joints: Subhorizontal and subvertical; smooth planar, smooth undulating, rough stepped, narrow, iron-stained and black stained, clean.



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	
58.19	PQ	100		88	2	Dark grey, unweathered, closely to medium jointed with occasional widely jointed, banded and clast, medium hard rock to hard rock, SHALE with occasional quartz veins at about 57.90 m. Joints: Subhorizontal and subvertical; smooth planar, smooth undulating, narrow, iron-stained at 58.19 m.
59.60	PQ	100		54	4	Dark grey, unweathered, closely to medium jointed with minor very closely jointed, (driller enduced) and healed joints, hard rock, micaceous, fine grained Quartzitic SANDSTONE with pitted quartz and crystal veins. Joints: Subhorizontal and subvertical; smooth planar, smooth and rough undulating, narrow to wide, black-stained.
60.85	PQ	100		50	6	
61.60	PQ	93		77	3	Dark grey, unweathered, closely to widely jointed, but mainly medium jointed, hard rock, micaceous, fine grained Quartzitic SANDSTONE interbedded minor SHALE with occasional pitted quartz veins. Joints:Cross-bedded, subhorizontal and subvertical; smooth planar, smooth and rough undulating, curved, narrow, clean.
64.04	PQ	102		95	4	
65.16	PQ	100		87	5	

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
67.00	PQ	100		73	4
67.55	PQ	100		0	11
70.00	PQ	100		68	8
71.05	PQ	100		80	9
73.04	PQ	100		93	4
73.80	PQ	100		100	1

-66
-67
-68
-69
-70
-71
-72
-73
-74

UCM
PLS

66.00

Grey, unweathered, very closely to closely jointed with occasional medium jointed, (intensely jointed), hard rock, micaceous, Quartzitic SANDSTONE with <20 mm quartz vein crystals at bottom contact.

Joints: Subhorizontal and subvertical; smooth and rough undulating, narrow to wide, green-stained.

67.96

Grey and light grey, unweathered, very closely to closely jointed, but mainly medium jointed, medium hard rock to hard rock, SHALE.

Joints: Subhorizontal and subvertical; smooth and rough undulating, narrow, clean.

69.21

Grey occasionally banded light grey, unweathered, very closely to closely jointed, but mainly medium to widely jointed, hard rock to very hard rock, Quartzitic SANDSTONE with occasional quartz vein <3 mm.

Joints: Steep, subvertical and subhorizontal; smooth and rough planar, smooth undulating, narrow to medium, green-stained.

73.04

Dark grey, unweathered, closely to medium jointed, but mainly widely jointed, very hard rock, micaceous, GREYWACKE with a long steep quartz vein towards base.

Joints: Steep, subvertical and subhorizontal; smooth and rough planar, narrow to medium, iron-stained at 73.80 m.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
75.90	PQ	97		64	5
76.77	PQ	64		0	3
78.03	PQ	100		66	6
80.00	PQ	104		57	10

-75
-76
-77
-78
-79
-80

75.50

Dark grey with a layer of light brownish grey, unweathered, very closely to closely jointed with some medium jointed, hard rock to very hard rock, micaceous, fine grained GREYWACKE with occasional pitted quartz veins. Tygerberg Formation. Malmesbury Group.

Joints: Subhorizontal and subvertical; smooth and rough undulating, narrow to medium, green stained and iron-staining from 78.45-79.20 m.

80.00

END OF BOREHOLE AT 80.00 m.

NOTES

1) Undisturbed UCM sample taken at 31.14--31.49m, UCM sample taken at 38.90--39.14m, UCM sample taken at 41.86--42.18m, UCM sample taken at 44.25--44.66m, UCM sample taken at 45.47--45.78m, UCM sample taken at 56.63--57.00m, UCM sample taken at 73.09--73.40m.

2) PLS sample taken at 31.63m, PLS sample taken at 38.09m, PLS sample taken at 39.52m, PLS sample taken at 40.52m, PLS sample taken at 42.62m, PLS sample taken at 44.05m, PLS sample taken at 45.94m, PLS sample taken at 58.07m, PLS sample taken at 73.55m.

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HOLE No: KB 49
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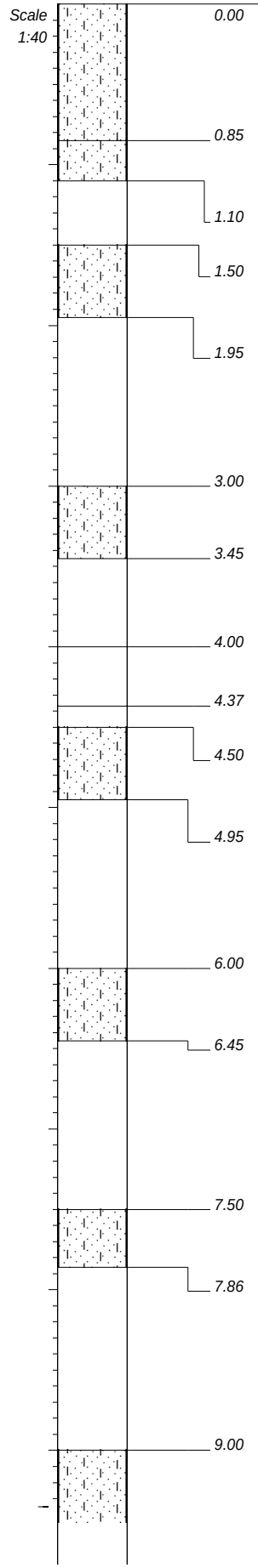
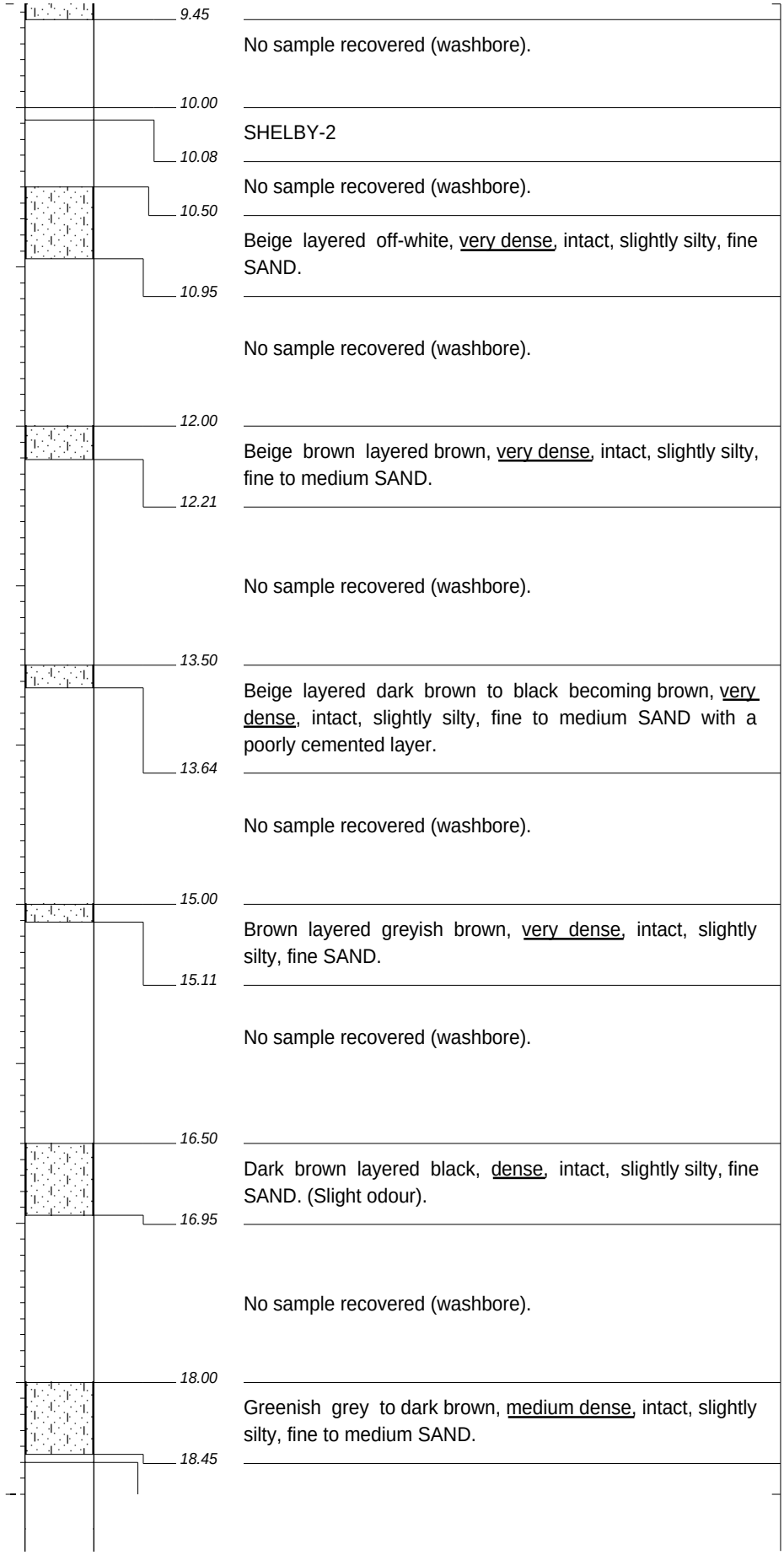
JOB NUMBER: 507052/42K



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	
1.50	Casing	0				Slightly moist, beige layered off-white, loose to medium dense, slightly silty, fine to medium SAND with abundant rootlets near surface. Aeolian.
1.95	SPT1	84	21			Slightly moist, beige brown becoming off-white, medium dense, intact, slightly silty, fine to medium SAND. Aeolian.
3.00	Casing	0				No sample recovered (Washbore).
3.45	SPT2	89	34			Off-white, medium dense, intact, slightly silty, fine to medium SAND. Aeolian.
4.00	Casing	0				No sample recovered (washbore).
4.37	SHELBY	100				SHELBY-1
4.50	Casing	0				No sample recovered (washbore).
4.95	SPT3	87	27			Off-white layered beige and orange brown, medium dense, intact, slightly silty, fine SAND. Aeolian.
6.00	Casing	0				No sample recovered (washbore).
6.45	SPT4	100	39			Beige, dense, intact, slightly silty, fine to medium SAND. Aeolian.
7.50	Casing	0				No sample recovered (washbore).
7.86	SPT5	100	Ref			Beige, very dense, intact, slightly silty, fine to medium SAND. Aeolian.
9.00	Casing	0				No sample recovered (washbore).
9.45	SPT6	100	46			Beige brown, dense, intact, slightly silty, fine SAND. Aeolian.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.08	SHELBY	100	Ref		
10.50	Casing	0			
10.95	SPT7	69	70		
12.00	Casing	0			
12.21	SPT8	100	Ref		
13.50	Casing	0			
13.64	SPT9	100	Ref		
15.00	Casing	0			
15.11	SPT10	100	Ref		
16.50	Casing	0			
16.95	SPT11	100	40		
18.00	Casing	0			
18.45	SPT12	38	27		
18.50	Casing	0			



No sample recovered (washbore).

SHELBY-2

No sample recovered (washbore).

Beige layered off-white, very dense, intact, slightly silty, fine SAND.

No sample recovered (washbore).

Beige brown layered brown, very dense, intact, slightly silty, fine to medium SAND.

No sample recovered (washbore).

Beige layered dark brown to black becoming brown, very dense, intact, slightly silty, fine to medium SAND with a poorly cemented layer.

No sample recovered (washbore).

Brown layered greyish brown, very dense, intact, slightly silty, fine SAND.

No sample recovered (washbore).

Dark brown layered black, dense, intact, slightly silty, fine SAND. (Slight odour).

No sample recovered (washbore).

Greenish grey to dark brown, medium dense, intact, slightly silty, fine to medium SAND.

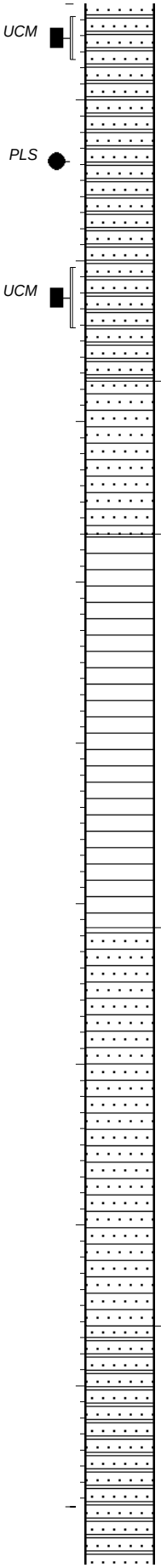
Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
18.92	SHELBY	100				-19	No sample recovered (washbore).
19.50	Casing	0					18.50 SHELBY-3 18.92
19.95	SPT13	0	28			-20	No sample recovered (washbore). 19.50 No sample recovered. medium dense, consistency. 19.95
21.00	Casing	0				-21	No sample recovered (washbore). 21.00
21.45	SPT14	100	46				Olive green to dark brown, dense, intact, silty, fine SAND. 21.45
22.50	Casing	0				-22	No sample recovered (washbore). 22.50
22.95	SPT15	100	49			-23	Olive green to dark brown, dense, intact, silty, fine SAND. 22.95
24.00	Casing	0				-24	No sample recovered (washbore). 24.00
24.55	SHELBY	100					SHELBY-4 24.55
25.00	Casing	0				-25	No sample recovered (washbore). 25.00
25.45	SPT16	100	53				Olive green speckled black, very dense, intact, silty, fine SAND. 25.45
27.00	Casing	0				-26	No sample recovered (washbore).
27.45	SPT17	78	56			-27	27.00 Olive green speckled black, very dense, intact, silty, fine SAND. 27.45
28.50	Casing	0				-28	No sample recovered (washbore).

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
28.95	SPT18	62	17			28.50	Olive green, medium dense, slightly clayey, silty, fine SAND with minor shell fragments.
						28.95	
30.00	Casing	0					No sample recovered (washbore).
30.27	SPT19	74	Ref			30.00	Grey, loosely packed, sub-angular, fine to medium GRAVEL within a silty fine to medium sand matrics. Overall consistency loose. Siltstone.(Pebble marker).
31.05	PQ	64		0	>20	30.14	Light grey, very dense, relic jointed, slightly clayey, SILT. Residual Siltstone.
						30.27	Grey, loosely packed, sub-rounded, fine to medium GRAVEL within a silty fine to medium sand matrics. Overall consistency loose. Siltstone.(Pebble marker).
32.15	PQ	32		29	>20	31.00	No sample recovered (washbore).
34.15	PQ	30		0	>20	31.05	Light grey, slightly weathered, very closely to closely jointed, but mainly medium jointed, very soft rock, Phyllitic SANDSTONE with noticeable shear zones at 35.35 m and 36.23 m. Tygerberg Formation. Malmesbury Group. Joints: Steep vertical at 2 shears, subhorizontal and subvertical; smooth planar, undulating, narrow, clean.
34.75	PQ	92		22	5		
35.62	PQ	80		53	3		
36.45	PQ	94		51	10		
37.19	PQ	105		91	3	36.45	

-29 -30 -31 -32 -33 -34 -35 -36 -37

PLS

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.70	PQ	76		87	3
40.15	PQ	102		41	8
41.85	PQ	71		71	2
43.15	PQ	28		32	1
43.53	PQ	92		29	13
43.85	PQ	94		0	3
44.43	PQ	117		66	7
45.10	PQ	75		30	6
45.63	PQ	100		0	9
46.17	PQ	100		37	9
46.75	PQ	86		74	3



Light grey occasionally dark grey thin lenses, moderately weathered, closely to widely jointed, soft rock to medium hard rock, SANDSTONE interbedded Shale.

Joints: Steep subvertical and subhorizontal; smooth undulating, narrow, clean.

39.75

Light grey and light brown, moderately weathered, very closely to closely jointed, soft rock to medium hard rock, SANDSTONE with long vertical, pitted quartz veins.

Joints: Steep vertical and subhorizontal; rough stepped, irregular, narrow to wide, quartz crystal veins.

40.70

Dark grey, moderately weathered, closely to medium jointed, very soft rock to soft rock, SHALE. Core loss 1.43 m.

Joints: Subvertical; smooth undulating, narrow, clean.

43.15

Grey and light grey, moderately weathered, very closely to closely jointed with some medium jointed, soft rock, SANDSTONE.

Joints: Vertical, steep, subvertical and subhorizontal; smooth planar, smooth undulating and rough undulating, narrow, clean.

45.63

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
47.65	PQ	89		65	2
49.15	PQ	57		0	6
50.10	PQ	100		32	5
51.25	PQ	50		21	5
52.15	PQ	44		63	0
52.85	PQ	77		0	4
53.75	PQ	78		40	10
54.55	PQ	75		83	5
55.15	PQ	92		69	3
56.20	PQ	97		80	4

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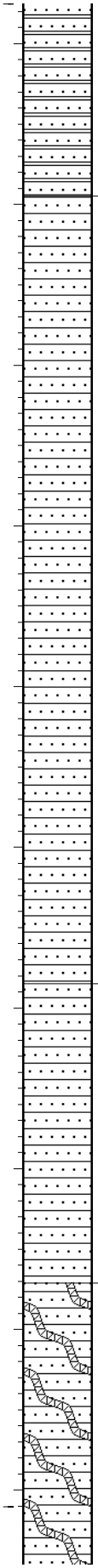


47.95

Light grey banded dark grey, moderately weathered to slightly weathered, very closely jointed, but mainly medium jointed, very soft rock to soft rock, banded/bedding SANDSTONE interbedded SHALE.

Joints: Subvertical and subhorizontal; curved, smooth undulating, narrow, clean.

Grey, moderately weathered to slightly weathered, very closely to closely jointed, occasionally medium jointed, soft rock to medium hard rock, SANDSTONE. Core loss 1.23 m.

Joints: Subvertical and subhorizontal; smooth planar, rough undulating, narrow, clean.

52.85

Light grey streaked green, moderately weathered to slightly weathered, very closely to closely jointed, but mainly medium jointed, medium hard rock to hard rock, Quartzitic SANDSTONE with abundant green and quartz veins.

Joints: Long vertical and subhorizontal; rough stepped, irregular, narrow to wide, quartz veins.

54.71

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
57.20	PQ	100		11	12
58.20	PQ	100		45	8
59.60	PQ	93		65	4
61.20	PQ	103		85	3
62.80	PQ	100		74	3
64.20	PQ	100		54	7
66.27	PQ	61		69	3

-57
-58
-59
-60
-61
-62
-63
-64
-65

PLS
UCM
PLS
PLS
UCM

58.39
61.98
64.25

Grey with occasional dark grey and green lenses, unweathered, very closely to closely jointed with occasional medium jointed, hard rock to very hard rock, Quartzitic SANDSTONE. Occasionally pitted QUARTZ veins.

Joints: Cross-bedded, subvertical and subhorizontal; smooth undulating, rough planar, narrow, with occasionally pitted and quartz veins. Green stained.

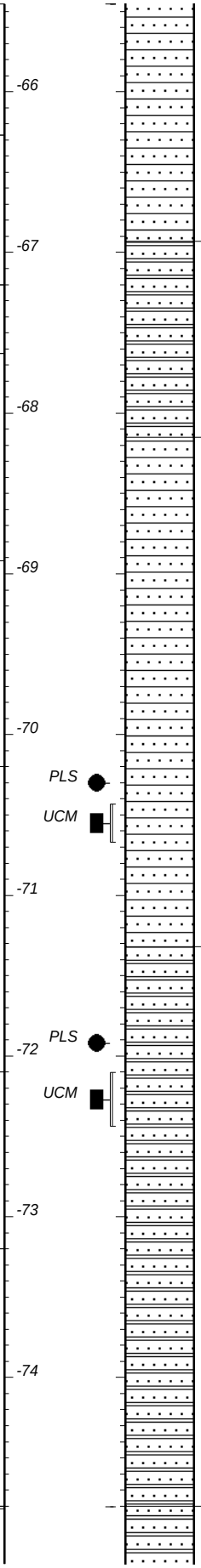
Light grey banded dark grey, unweathered, closely to medium jointed, but mainly widely jointed, hard rock, fine grained SANDSTONE interbedded SHALE.

Joints: Cross-bedded, subhorizontal and subvertical; smooth planar, rough stepped, undulating, narrow, clean.

Grey banded dark grey, unweathered, closely to medium jointed, hard rock, SANDSTONE interbedded SHALE.

Joints: Cross-bedded, long vertical, steep subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean, occasional quartz veins.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
67.20	PQ	65		62	1
67.63	PQ	198		79	2
68.92	PQ	105		66	9
70.20	PQ	100		73	5
72.10	PQ	100		78	5
73.20	PQ	100		79	2
74.80	PQ	100		76	5



Grey banded light grey, unweathered, very closely to closely jointed, but mainly medium jointed, hard rock, fine grained SANDSTONE.

Joints: Vertical, steep subvertical and subhorizontal; smooth planar, smooth stepped, narrow, quartz crystal veins and green stained.

66.93

Dark grey banded light grey, unweathered, very closely and medium jointed, medium hard rock to hard rock, SHALE interbedded SANDSTONE.

Joints: Steep subvertical; smooth planar and rough stepped, narrow, clean.

68.15

Dark grey banded light grey and greenish grey, unweathered, closely to medium jointed, occasionally widely jointed, hard rock to very hard rock, Quartzitic SANDSTONE.

Joints: Cross-bedded, long vertical, steep subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean.

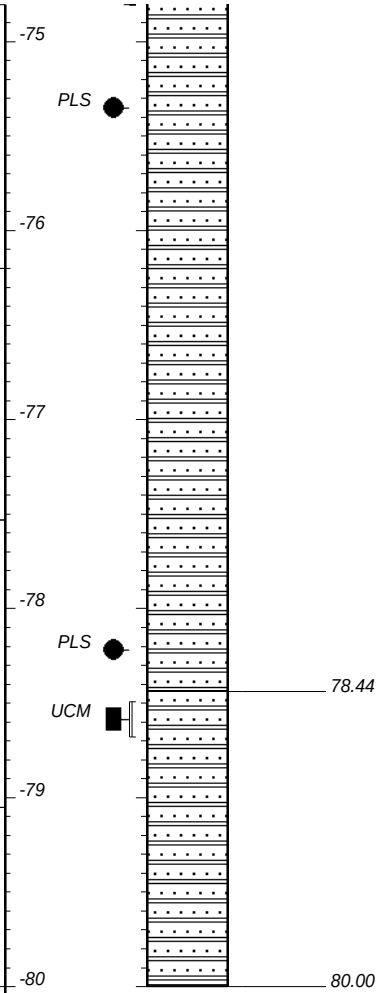
71.32

Dark grey and light grey, unweathered, closely to medium jointed, but mainly widely jointed, medium hard rock to hard rock, brecciated and bedded SHALE and SANDSTONE.?

Joints: Cross-bedded, steep, subvertical and subhorizontal; smooth planar, smooth stepped and undulating, narrow, minor quartz crystal infill, clean.

74.80

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
76.20	PQ	100		77	4
77.53	PQ	100		49	11
79.05	PQ	101		60	7
80.00	PQ	89		24	12



Dark grey with occasional light brown and light grey, unweathered to slightly weathered, very closely to closely jointed with occasional medium jointed and widely jointed, hard rock, SANDSTONE interbedded SHALE.

Joints: Cross-bedded, intense healed fractures, subhorizontal and subvertical; smooth planar, smooth undulating, rough undulating, narrow with quartz veins <5 mm, clean.

Grey banded dark grey, unweathered, very closely to closely jointed, drilling induced, hard rock, SANDSTONE interbedded SHALE. Tygerberg Formation. Malmesbury Group.

Joints: Cross-bedded, subhorizontal and subvertical; smooth stepped, rough stepped, narrow with healed fractured an a quartz vein <5mm, clean.

END OF BOREHOLE KB49 AT 80.00 m.

NOTES

1) Undisturbed UCM sample taken at 37.48--37.75m, UCM sample taken at 39.04--39.42m, UCM sample taken at 60.70--61.07m, UCM sample taken at 65.05--65.28m, UCM sample taken at 72.10--72.44m, UCM sample taken at 70.43--70.67m, UCM sample taken at 78.49--78.68m.

2) PLS sample taken at 37.30m, PLS sample taken at 38.38m, PLS sample taken at 60.51m, PLS sample taken at 61.32m, PLS sample taken at 64.94m, PLS sample taken at 70.30m, PLS sample taken at 71.92m, PLS sample taken at 75.35m, PLS sample taken at 78.22m.

CONTRACTOR : Geomechanics CC
MACHINE : Commacchio P352
DRILLED BY : Michael
PROFILED BY : L. Prince

INCLINATION : Vertical
DIAM : 85mm
DATE : 10 July 2021
DATE : 17 July 2021

ELEVATION : WGS 84
X-COORD : 3726055
Y-COORD : 0052932

HOLE No: KB 49

TYPE SET BY : PRIN
SETUP FILE : BH1PG-A4.SET

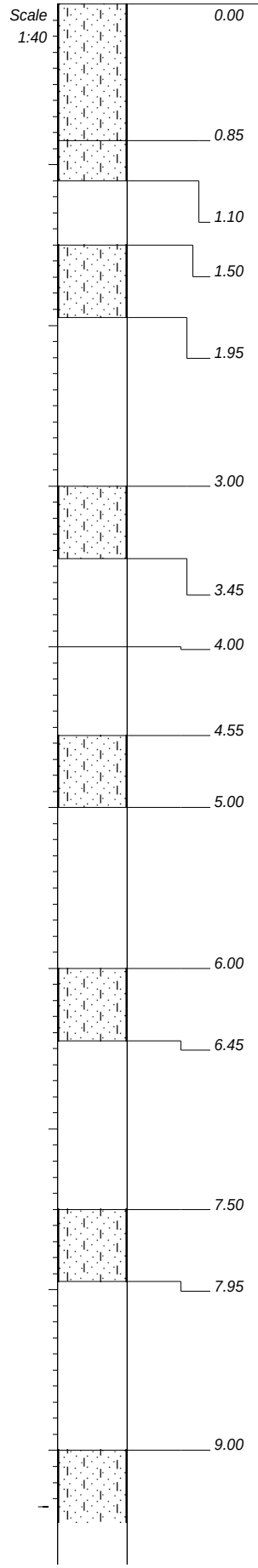
DATE : 28/09/2021 13:52
TEXT : ..000\network\BHKB49~1.TXT

srk consulting

ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 50
Sheet 1 of 9

JOB NUMBER: 507052/42K



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	
1.50	Casing	0				
1.95	SPT1	67	17			
3.00	Casing	0				
3.45	SPT2	44	15			
4.00	Casing	0				
4.55	SHELBY	55				
5.00	SPT3	67	44			
6.00	Casing	0				
6.45	SPT4	89	70			
7.50	Casing	0				
7.95	SPT5	93	72			
9.00	Casing	0				
9.45	SPT6	76	51			

0.00 – Slightly moist, beige layered off-white, loose to medium dense, slightly silty, fine to medium SAND with abundant rootlets near surface. Aeolian.

0.85 – Slightly moist, beige brown becoming off-white, medium dense, intact, slightly silty, fine to medium SAND. Aeolian.

1.10 – No sample recovered (washbore).

1.50 – Brown becoming off-white beige, medium dense, slightly silty, fine SAND with some fine shell fragments. Aeolian.

1.95 – No sample recovered (washbore).

3.00 – Off-white beige becoming brown at base with occassional ferricrete gravel, medium dense, intact, slightly silty, fine SAND. Aeolian.

3.45 – No sample recovered (washbore).

4.00 – Shelby-1

4.55 – Beige, dense, intact, slightly silty, fine SAND. Aeolian.

5.00 – No sample recovered (washbore).

6.00 – Beige layered light orange, very dense, intact, slightly silty, fine SAND. Aeolian.

6.45 – No sample recovered (washbore).

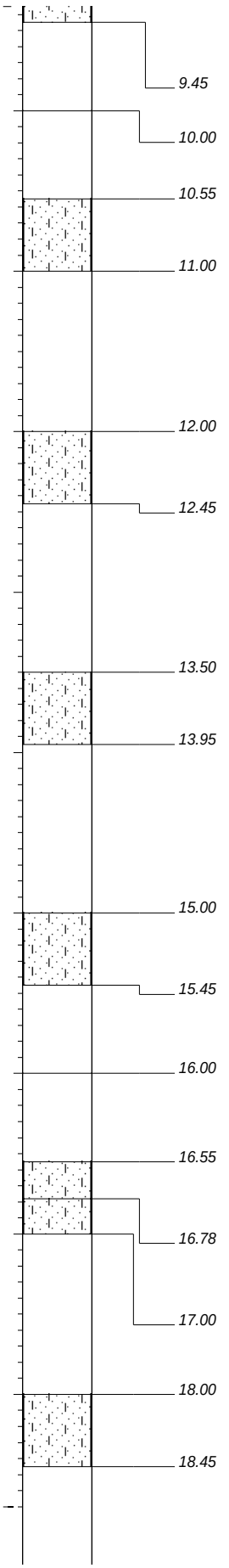
7.50 – Light beige layered beige, very dense, intact, slightly silty, fine SAND. Aeolian.

7.95 – No sample recovered (washbore).

9.00

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.55	SHELBY	29			
11.00	SPT7	89	43		
12.00	Casing	0			
12.45	SPT8	44	50		
13.50	Casing	0			
13.95	SPT9	67	45		
15.00	Casing	0			
15.45	SPT10	62	66		
16.00	Casing	0			
16.55	SHELBY	100			
17.00	SPT11	96	66		
18.00	Casing	0			
18.45	SPT12	71	68		

-10
-11
-12
-13
-14
-15
-16
-17
-18



9.45 Light brown layered beige, very dense, intact, slightly silty, fine SAND. Aeolian.

10.00 No sample recovered (washbore).

10.55 SHELBY-2

11.00 Off-white beige, dense, slightly silty, fine SAND.

12.00 No sample recovered (washbore).

12.45 Beige, medium dense to dense, slightly silty, fine to medium SAND.

13.50 No sample recovered (washbore).

13.95 Beige, dense, slightly silty, fine to medium SAND.

15.00 No sample recovered (washbore).

15.45 Dark brown layered black, very dense, intact, slightly cemented, slightly silty, fine SAND.

16.00 No sample recovered (washbore).

16.55 Shelby-3

16.78 Dark brown layered black, very dense, intact, slightly cemented, slightly silty, fine SAND.

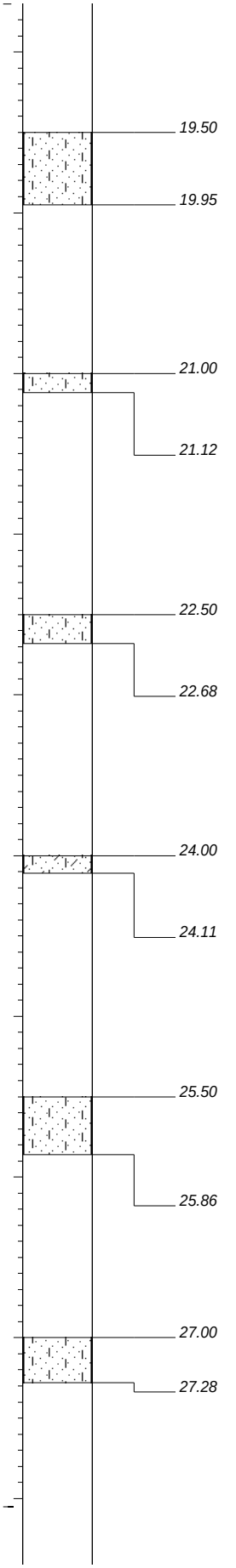
17.00 Light greyish beige, very dense, intact, slightly silty, fine to medium SAND.

18.00 No sample recovered (washbore).

18.45 Beige, very dense, slightly silty, fine to medium SAND.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
19.50	Casing	0			
19.95	SPT13	67	75		
21.00	Casing	0			
21.12	SPT14	175	Ref		
22.50	Casing	0			
22.68	SPT15	128	Ref		
24.00	Casing	0			
24.11	SPT16	164	Ref		
25.50	Casing	0			
25.86	SPT17	111	Ref		
27.00	Casing	0			
27.28	SPT18	118	Ref		
28.50	Casing	0			

-19 -20 -21 -22 -23 -24 -25 -26 -27 -28



19.50 — No sample recovered (washbore).

19.50 — 19.95 — Beige, very dense, slightly silty, fine SAND.

19.95 — No sample recovered (washbore).

21.00 — 21.12 — Brown layered dark brown, very dense, intact, slightly cemented, slightly silty, SAND.

21.12 — No sample recovered (washbore).

22.50 — 22.68 — Brown layered dark brown, very dense, intact, slightly cemented, slightly silty, SAND.

22.68 — No sample recovered (washbore).

24.00 — 24.11 — Black layered brown, very dense, intact, slightly clayey, silty, fine SAND.

24.11 — No sample recovered (washbore).

25.50 — 25.86 — Black and dark brown layered brown and light brown, very dense, intact, occassionally slightly cemented, slightly silty, fine SAND.

25.86 — No sample recovered (washbore).

27.00 — 27.28 — Greyish brown, very dense, slightly silty, fine SAND.

27.28 — No sample recovered (washbore).

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
28.71	SPT19	143	Ref		
30.00	Casing	0			
30.16	SPT20	194	Ref		
31.50	Casing	0			
33.00	Casing	62			
33.12	SPT21	283	Ref		
34.47	Casing	15			
35.23	Casing	178			
35.50	Casing	0		0	0
35.81	PQ	65		0	3
37.75	PQ	0		0	0

-29 -30 -31 -32 -33 -34 -35 -36 -37

28.50

Greyish brown layered dark brown, very dense, intact, silty, fine SAND.

28.71

No sample recovered (washbore).

30.00

Greyish brown layered dark brown, very dense, intact, silty, fine SAND.

30.16

No sample recovered (washbore).

31.50

Dark brown becoming olive green, very dense, slightly clayey, silty, fine SAND.

31.80

Olive green and brown, very dense, slightly silty, fine to coarse quartzitic SAND with occassional gravel becoming relic jointed siltstone at base. (Transported).

33.12

Olive green, highly weathered, closely jointed, soft rock, SILTSTONE with subrounded gravel. (No normal stained)

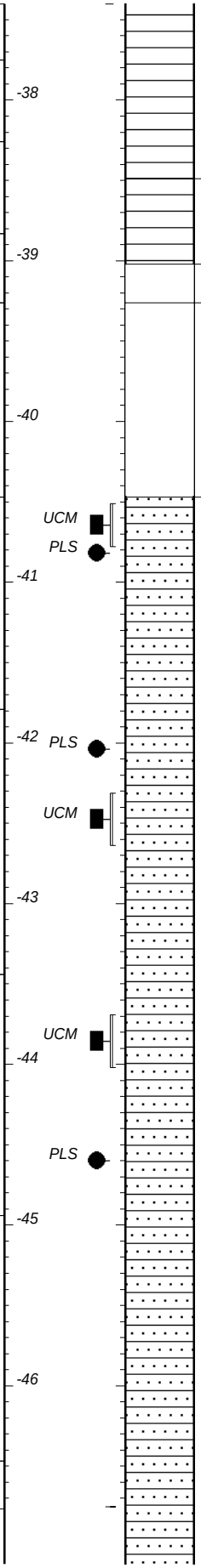
34.47

Black speckled white, medium dense, slightly silty, fine to coarse SAND becoming slightly clayey with depth and with siltstone gravel.

35.23

Olive green, moderately weathered to highly weathered, very closely to medium jointed, soft rock, Phyllitic SILTSTONE with siltstone gravel at surface. Tygerberg Formation. Malmesbury Group.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.26	PQ	0		0	0
38.83	PQ	7		0	0
39.26	PQ	0		0	2
40.47	PQ	0		0	0
41.79	PQ3	61		51	1
43.44	PQ3	99		66	4
44.94	PQ3	99		76	5
46.47	PQ3	102		63	7



38.49

Light grey, moderately weathered, very closely to medium jointed, soft rock, Phyllitic SILTSTONE.

39.02

39.26

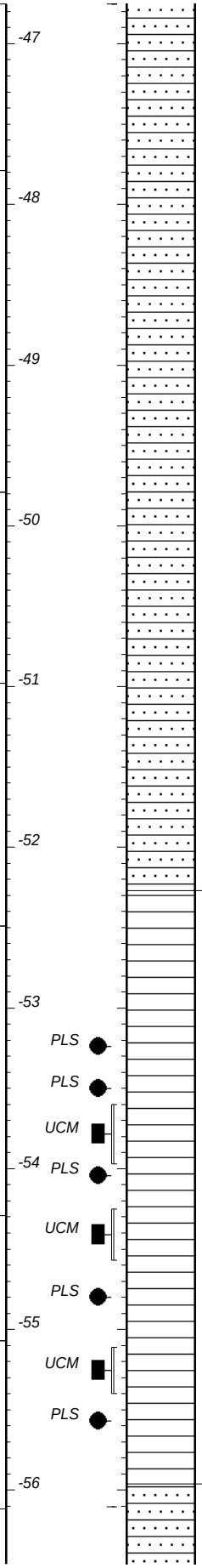
No sample recovered (washbore).

40.47

Light grey, moderately weathered, very closely to medium jointed, but mainly closely jointed, very soft rock to soft rock, micaceous, Phyllitic SANDSTONE. Core loss between (50.98-52.27 m). Tygerberg Formation. Malmesbury Group.

Joints: Steep subvertical and subvertical; straight, smooth, planar, narrow, clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
47.79	PQ	100		73	3
49.79	PQ	100		27	6
50.98	PQ	64		41	3
52.49	PQ	33		26	1
54.29	PQ	103		95	1
55.07	PQ	109		100	0



Light grey banded black, unweathered to slightly weathered, closely to medium jointed, very soft rock to soft rock, SHALE.

Joints: Bedding, Subvertical; smooth planar, narrow and clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
57.26	PQ	101		90	4
59.28	PQ	98		59	7
61.26	PQ	101		74	5
63.26	PQ	87		106	2
65.18	PQ	96		66	4

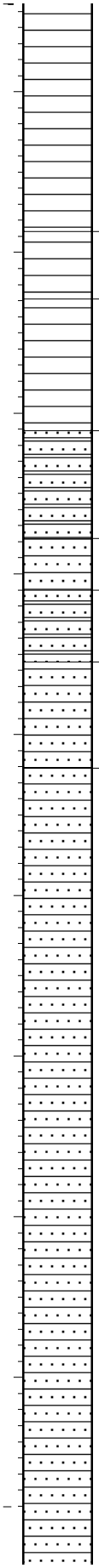
-57
-58
PLS
-59
UCM
PLS
-60
-61
61.61
-62
-63
-64
-65
65.18

Light grey occassional banded dark grey, unweathered, closely to medium jointed, hard rock to very hard rock, Quartzitic SANDSTONE with some steep subvertical quartz veins(3 mm).

Joints: Steep, Vertical, subvertical and subhorizontal; rough and smooth planar, narrow, with quartz crystal and pyrite infill.

Dark grey with very thin black lenses, unweathered, closely to medium jointed, but mainly widely jointed, hard rock to very hard rock, micaceous, fine grained SANDSTONE with a black shear/fault shale contract at 65.00 m.

Joints: Cross-bedded, subhorizontal and subvertical; smooth and rough planar, narrow with pyrite infill.



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
67.76	PQ	95		92	3	-66	Light grey banded dark grey, unweathered, closely to medium jointed with occassional widely jointed, soft rock to medium hard rock, SILTSTONE. Joints: Cross-bedded, healed fractures, steep subvertical and subhorizontal; smooth planar, undulating, narrow with pyrite infill.
						-67	66.87 Black and light grey, unweathered, medium jointed, soft rock to medium hard rock, foliated and banded SHALE. Joints: Sub-horizontal; smooth stepped, narrow and clean.
69.55	PQ	98		51	7	-68	67.29 Light grey, slightly weathered to unweathered, very closely to closely jointed, but mainly medium jointed, very soft rock to soft rock, SHALE. Joints: Subhorizontal; smooth planar, narrow, clean.
						-69	68.11 Light grey and black, unweathered, closely to medium jointed, medium hard rock rock to hard rock, foliated and intercalated SANDSTONE and SHALE. Joints: Subhorizontal; smooth undulating, narrow, black-stained.
72.26	PQ	92		93	1	-70	68.78 Light grey, unweathered, very closely jointed (intensely fractured), hard rock, Quartzitic SANDSTONE. Possible drilling induced. Joints: Steep subvertical and subhorizontal; smooth undulating, narrow, black-stained.
						-71	69.10 Dark grey and black, unweathered, very closely and medium jointed, hard rock, Quartzitic SANDSTONE interbedded SILTSTONE. Joints: Steep subvertical and subhorizontal; smooth undulating; narrow, pyrite infill.
						-72	69.55 Grey brecciated black, unweathered, widely jointed, hard rock, Quartzitic SANDSTONE brecciated clast and a vertical 5 mm wide quartz vein.
75.15	PQ	110		97	2	-73	70.21 Dark greyish black, unweathered, closley jointed but mainly widely jointed, hard rock to very hard rock, micaceous SANDSTONE with a 5 mm wide vertical quartz vein. Joints: Steep subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean.
						-74	

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
76.51	PQ	100		63	7
78.26	PQ	99		64	3
80.60	PQ	102		78	4
82.15	PQ	90		83	5
82.89	PQ	100		0	14

-75
-76
-77
-78
-79
-80
-81
-82

PLS

75.15

Dark greyish black with a light brownish grey zone, unweathered, medium to widely jointed, zones of very closely to closely jointed induced by drilling, hard rock, SANDSTONE.

Joints: Steep, subvertical and subhorizontal; smooth planar, narrow with 1 mm staines infill (material).

78.73

Dark greyish black, unweathered, very closely to closely jointed, but mainly medium to widely jointed, hard rock, micaceous SANDSTONE with drilling induced fractures (82.15-82.89 m). Tygerberg Formation. Malmesbury Group.

Joints: Steep, subvertical and subhorizontal; smooth planar, narrow with 1 mm stained infill (not calcite).

82.89

END OF BOREHOLE AT 82.89 m.

NOTES

1) Undisturbed UCM sample taken at 40.51--40.78m, UCM sample taken at 42.31--42.64m, UCM sample taken at 43.69--44.02m, UCM sample taken at 53.60--53.97m, UCM sample taken at 54.25--54.57m, UCM sample taken at 55.11--55.40m, UCM sample taken at 58.86--59.28m.

2) PLS sample taken at 40.82m, PLS sample taken at 42.04m, PLS sample taken at 44.60m, PLS sample taken at 53.24m, PLS sample taken at 53.50m, PLS sample taken at 54.04m, PLS sample taken at 54.80m, PLS sample taken at 55.57m, PLS sample taken at 58.33m, PLS sample taken at 59.70m. PLS sample taken at 80.58m.

CONTRACTOR : Geomechanics CC
MACHINE : Commacchio P352
DRILLED BY : Michael
PROFILED BY : L. Prince

INCLINATION : Vertical
DIAM : 85mm
DATE : 17 July 2021
DATE : 30 July 2021

ELEVATION : WGS 84
X-COORD : 3725522
Y-COORD : 0052809

HOLE No: KB 50

TYPE SET BY : PRIN
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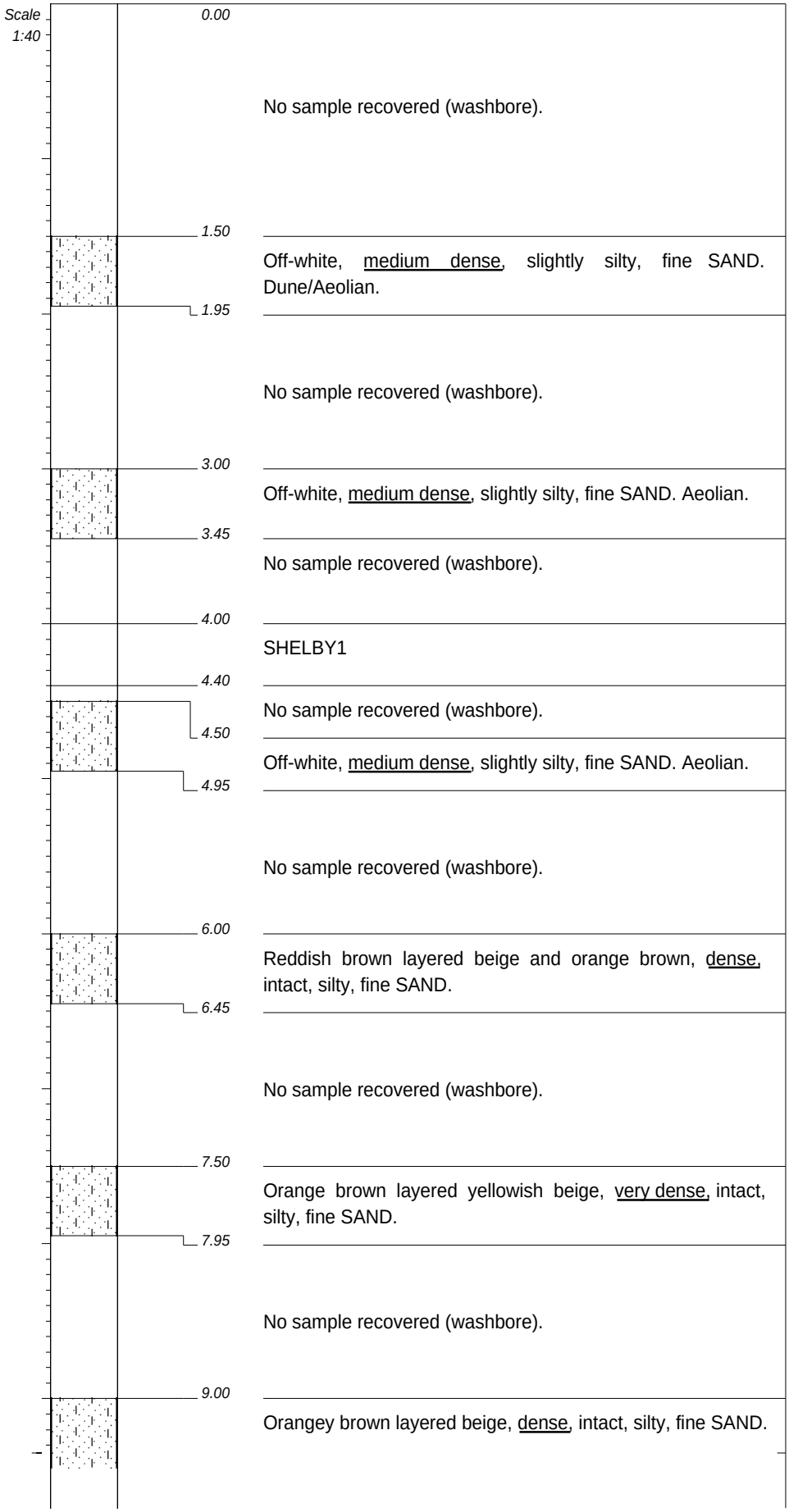
ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 51
Sheet 1 of 9

JOB NUMBER: 507052/42K



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
1.50	Casing	0				0.00	No sample recovered (washbore).
1.95	SPT1	100	23			1.50	Off-white, medium dense, slightly silty, fine SAND. Dune/Aeolian.
3.00	Casing	0				1.95	No sample recovered (washbore).
3.45	SPT2	62	21			3.00	Off-white, medium dense, slightly silty, fine SAND. Aeolian.
4.00	Casing	0				3.45	No sample recovered (washbore).
4.40	SHELBY	100				4.00	SHELBY1
4.50	Casing	0				4.40	No sample recovered (washbore).
4.95	SPT3	100	17			4.50	Off-white, medium dense, slightly silty, fine SAND. Aeolian.
6.00	Casing	0				4.95	No sample recovered (washbore).
6.45	SPT4	100	36			6.00	Reddish brown layered beige and orange brown, dense, intact, silty, fine SAND.
7.50	Casing	0				6.45	No sample recovered (washbore).
7.95	SPT5	89	67			7.50	Orange brown layered yellowish beige, very dense, intact, silty, fine SAND.
9.00	Casing	0				7.95	No sample recovered (washbore).
9.45	SPT6	100	35			9.00	Orangey brown layered beige, dense, intact, silty, fine SAND.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.30	SHELBY	100	Ref		
10.50	Casing	0			
10.95	SPT7	100	77		
12.00	Casing	0			
12.45	SPT8	100	59		
13.50	Casing	0			
13.95	SPT9	100	63		
15.00	Casing	0			
15.29	SPT10	100	Ref		
16.00	Casing	0			
16.23	SHELBY	100	Ref	0	
16.50	Casing	0			
16.95	SPT11	100	72		
18.00	Casing	0			
18.23	SPT12	100	Ref		

-10 -11 -12 -13 -14 -15 -16 -17 -18

9.45 — No sample recovered (washbore).

10.00 — SHELBY2

10.30 — No sample recovered (washbore).

10.50 — Orange brown becoming yellowish beige, very dense, intact, silty, fine SAND.

10.95 — No sample recovered (washbore).

12.00 — Light beige becoming off-white layered beige brown, very dense, intact, silty, fine to medium SAND.

12.45 — No sample recovered (washbore).

13.50 — Beige brown, very dense, intact, silty, fine to medium SAND.

13.95 — No sample recovered (washbore).

15.00 — Beige brown layered light beige, very dense, intact, silty, fine SAND.

15.29 — No sample recovered (washbore).

16.00 — SHELBY3

16.23 — No sample recovered (washbore).

16.50 — Beige layered off-white, very dense, intact, silty, fine SAND.

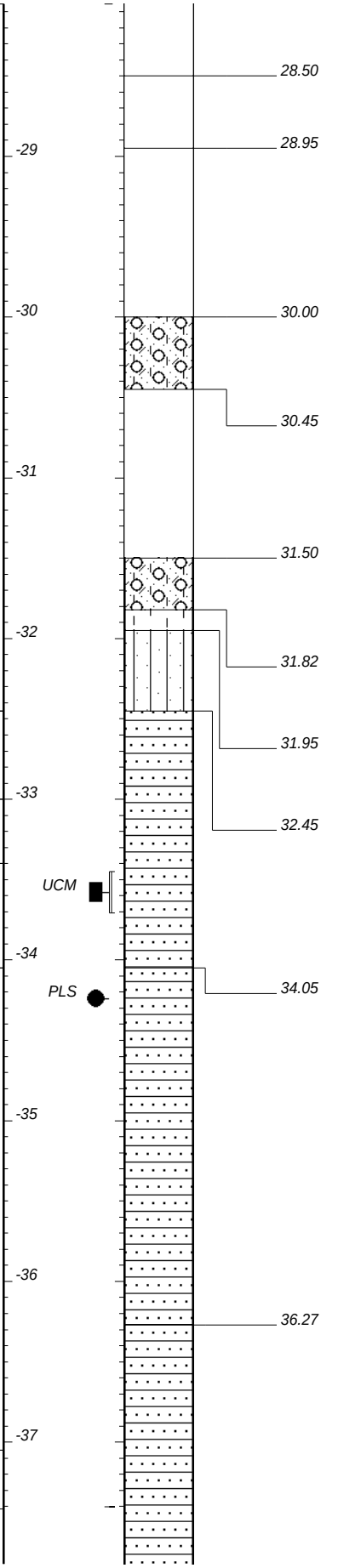
16.95 — No sample recovered (washbore).

18.00 — Beige layered off-white, very dense, intact, silty, fine SAND.

18.23 — No sample recovered (washbore).

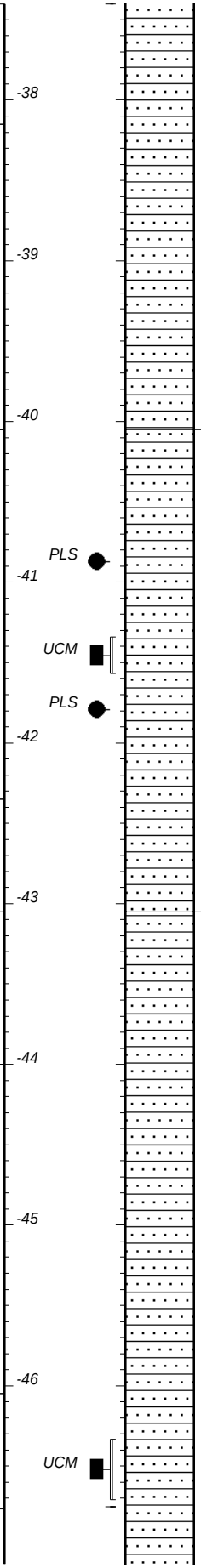
Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
19.50	Casing	0					
19.64	SPT13	100	Ref			19.50	
							Beige layered brown, very dense, intact, silty, fine SAND.
						19.64	
21.00	Casing	0					No sample recovered (washbore).
21.10	SPT14	100	Ref			21.00	
							Dark brown layered beige, very dense, intact, silty, fine to medium SAND with occasional fine quartz gravel.
22.00	Casing	0				21.10	No sample recovered (washbore with rods).
22.34	SHELBY	100				22.00	SHELBY4
22.50	Casing	0				22.34	No sample recovered (washbore with rods).
22.70	SPT15	100	Ref			22.50	
							Dark greyish brown layered light grey, very dense, intact, silty, fine SAND.
24.00	Casing	12				22.70	No sample recovered (washbore with rods).
24.36	SPT16	100	Ref			24.00	
							Greyish brown layered light greyish beige, very dense, intact, silty, fine SAND.
25.50	Casing	0				24.36	No sample recovered (washbore with rods).
25.95	SPT17	22	7			25.50	
							Light grey, loose, intact, very silty, fine SAND. SPT sliding.
27.00	Casing	0				25.95	No sample recovered (washbore).
27.45	SPT18	0	15			27.00	No sample recovered.
28.50	Casing	0				27.45	No sample recovered (washbore).

-19 -20 -21 -22 -23 -24 -25 -26 -27 -28



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
						28.50	
28.95	SPT19	0	10				No sample recovered.
						28.95	
30.00	Casing	0					No sample recovered (washbore).
						30.00	
30.45	SPT20	100	15				Brown layered grey, medium dense, intact, slightly clayey, slightly silty, gritty, fine to medium SAND with some sub-rounded, fine to medium gravel. Transported.
						30.45	
31.50	Casing	0					No sample recovered (washbore).
						31.50	
31.95	SPT21	100	29				Brown becoming light grey speckled white, medium dense, fine to coarse SHELLS within a silty, slightly clayey, sand matrix, fine to coarse gravel and poorly calcretions calcrete.
32.45	PQ	100				31.82	
33.00	PQ	58		34	2		Olive green, medium dense, relic jointed, silty, fine to medium sandstone/siltstone. Residual Malmesbury Shale.
						31.95	
33.40	PQ	48		100	0		Grey, dense, relic jointed with green-stained, very fine sandy SILT. Residual Malmesbury Shale (gravel at base).
						32.45	
34.05	PQ	123		64	2		Greenish grey, moderately weathered, closely to medium jointed with some drilling induced, fractured gravelly zones, very soft rock to soft rock, fine grained SANDSTONE with green vertical healed alteration fractures and quartz veins. Tygerberg Formation. Malmesbury Group.
						34.05	
37.05	PQ	100		72	3		Greenish grey altered with green healed fractures, moderately weathered to slightly weathered, medium to widely jointed, very soft rock to soft rock, fine grained SANDSTONE with a vertical quartz shear zone between (35.78-36.22 m). Joints: Subhorizontal and steep, long subvertical; smooth undulating, smooth stepped, narrow, green stained.
						36.27	

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.15	PQ	100		0	10
40.05	PQ	97		52	7
42.35	PQ	98		72	8
43.05	PQ	107		75	3
44.00	PQ	100		23	7
46.05	PQ	97		71	5



40.05

Greenish grey, unweathered, very closely to closely jointed, but mainly medium to widely jointed, very soft rock to soft rock, SANDSTONE shear zone with quartz veins (2 mm-10 mm). Noticeable is siltstone.

Joints: Steep, long subvertical and subhorizontal; rough, irregular, rough stepped, narrow to wide, green-stained and pyrite infill.

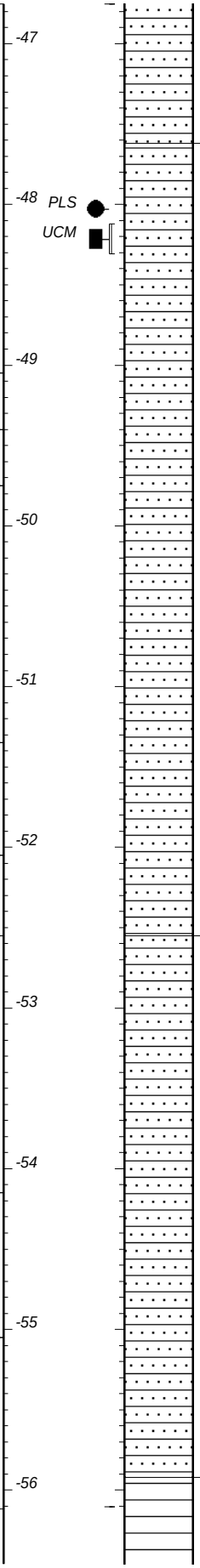
43.05

Greenish grey, unweathered, very closely to closely jointed, but mainly medium jointed, soft rock, SANDSTONE with abundant subvertical healed fractures.

Joints: Subhorizontal and subvertical; smooth planar, smooth undulating, narrow, clean with quartz veins at base.

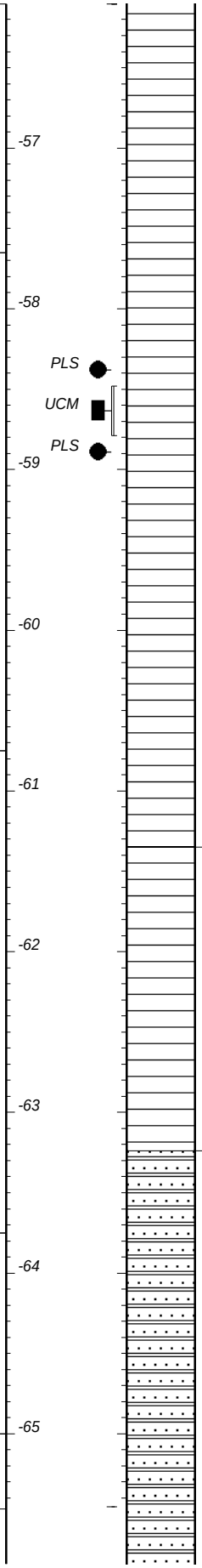
Greenish grey, unweathered, very closley to closely jointed, but mainly medium to widely jointed, soft rock, SANDSTONE with a long steep subvertical quartz vein from (43.05-43.50 m).

Joints: Steep, long subvertical and subhorizontal; planar, smooth undulating, narrow, clean (micaceous).



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	
49.05	PQ	95		60	4	
						47.62
						Greenish grey, unweathered, very closely to medium jointed, but mainly closely jointed (shear zone on possibly drilling induced fracturing), soft rock, micaceous SANDSTONE. Joints: Steep, long subvertical, subhorizontal; rough, planar, irregular, narrow, clean (pyrite infill).
49.40	PQ	114		0	11	
49.75	PQ	100		0	14	
51.35	PQ	28		0	4	
52.05	PQ	104		86	6	
52.55	PQ	110		22	12	
						52.55
54.15	PQ	94		49	12	Grey, unweathered, very closely to closely jointed, occasionally medium jointed, medium hard rock to hard rock, micaceous, SANDSTONE. (Possible drilling induced fractures or intensely fractured. Joints: Steep, long subvertical, subhorizontal; smooth and rough planar, narrow, green stained and pyrite infill.
55.05	PQ	120		48	10	
						55.92

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
57.65	PQ	100		44	6
60.75	PQ	100		86	5
63.75	PQ	95		55	7
65.00	PQ	112		44	7



Light grey and dark grey, banded and foliated, unweathered, very closely to closely jointed, but mainly medium to widely jointed, soft rock to medium hard rock, bedded, intercalated and brecciated SHALE with a pitted quartzitic Sandstone zone at 55.92-56.28 m and 2 sheared contacts at 60.90 and 61.35 m.

Joints: Subhorizontal and subvertical; smooth planar, undulating, narrow to medium wide, clean.

61.35

Light grey and dark grey, banded and brecciated, unweathered, closely to medium jointed, soft rock, PHYLLITE/ SHALE.

Joints: Subhorizontal; smooth undulating, narrow, clean.

63.24

Dark grey and light grey, unweathered, very closely to closely jointed, but mainly medium jointed, soft rock to medium hard rock (pitted quartz veins), Quartzitic SANDSTONE interbedded SHALE. (micaceous).

Joints: Cross-bedded, steep subvertical, occassional subhorizontal; rough, planar, undualting, narrow, clean (pyrrite infill).

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
66.65	PQ	91		50	5
68.30	PQ	109		61	8
70.30	PQ	100		80	2
73.10	PQ	100		100	3
76.00	PQ	100		86	3

-66
-67
-68
-69
-70
-71
-72
-73
-74

PLS
UCM
PLS

67.60

Light grey and dark grey, unweathered, medium to widely jointed, soft rock to medium hard rock, SHALE interbedded SANDSTONE.

Joints: Subhorizontal, smooth undulating, smooth stepped, narrow, clean.

70.49

Light grey, unweathered, very closely jointed (intensely fractured), very soft rock soft rock, SHALE.

70.88

Light grey, unweathered, closely but mainly widely jointed, soft rock, SHALE.

Joints: Cross-bedded, healed, subhorizontal; curved, smooth undulating, narrow, clean.

72.44

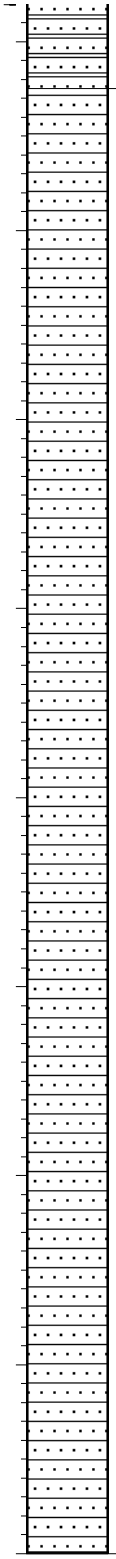
Dark and light grey, unweathered, medium to widely jointed, medium hard rock, SHALE interbedded Quartzitic SANDSTONE. Noticeable sheared but healed.

Joints: Subhorizontal; smooth stepped, narrow, clean.

73.46

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
79.07	PQ	100		100	0
81.55	PQ	100		63	3
83.00	PQ	79		100	1

-75
-76
-77
-78
-79
-80
-81
-82
-83



75.25

Light grey and dark grey, unweathered, very closely to closely jointed, but mainly widely jointed, soft rock, SHALE with a shear at 73.68-73.77 m and hard rock, Quartzitic SANDSTONE with pitted quartz shear 74.60-75.25 m. Water loss with drilling.

Joints: Subhorizontal and subvertical; undulating, rough stepped, narrow, clean.

Dark grey becoming greenish grey at 80.32 m, unweathered, closely to widely jointed with some quartz veins, hard rock to very hard rock, GREYWACKE. Tygerberg Formation. Malmesbury Group.

Joints: Subhorizontal and steep, long subvertical; smooth planar, smooth stepped, undulating, narrow, clean.

83.00

END OF BOREHOLE AT 83.00 m.

NOTES

1) Undisturbed UCM sample taken at 33.45--33.71m, UCM sample taken at 41.34--41.57m, UCM sample taken at 46.33--46.71m, UCM sample taken at 48.12--48.31m, UCM sample taken at 58.48--58.79m, UCM sample taken at 71.35--71.62m.

2) PLS sample taken at 34.24m, PLS sample taken at 40.87m, PLS sample taken at 41.79m, PLS sample taken at 48.03m, PLS sample taken at 58.38m, PLS sample taken at 58.89m, PLS sample taken at 71.13m, PLS sample taken at 71.76m.

CONTRACTOR : Geomechanics CC
MACHINE : Commacchio P352
DRILLED BY : Michael
PROFILED BY : L. Prince

INCLINATION : Vertical
DIAM : 85mm
DATE : 03 August 2021
DATE : 10 August 2021

ELEVATION : WGS 84
X-COORD : 3725713
Y-COORD : 0053196

HOLE No: KB 51

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SETUP FILE : BH1PG-A4.SET

DATE : 28/09/2021 13:50
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srk consulting

ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 52
Sheet 1 of 8

JOB NUMBER: 507052/42K

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
1.50	Casing	0					No sample recovered (washbore).
1.95	SPT1	33	9			1.50	Off-white beige, loose, slightly silty, fine SAND. Aeolian.
3.00	Casing	0				1.95	No sample recovered (Washbore).
3.45	SPT2	44	9			3.00	Off-white beige, loose, slightly silty, fine SAND. Aeolian.
4.00	Casing	0				3.45	No sample recovered (washbore).
4.20	SHELBY	100	Ref			4.00	SHELBY-1
4.50	Casing	0				4.20	No sample recovered (washbore).
4.95	SPT3	100	19			4.50	Light brown layered beige, medium dense, intact, slightly silty, fine SAND. Aeolian.
6.00	Casing	0				4.95	No sample recovered (washbore).
6.45	SPT4	100	24			6.00	Orange brown, dense, intact, slightly silty, fine SAND. Aeolian.
7.50	Casing	0				6.45	No sample recovered (washbore).
7.95	SPT5	100	50			7.50	Orange brown layered beige, dense to very dense, intact, slightly silty, fine to medium SAND. Aeolian.
9.00	Casing	0				7.95	No sample recovered (washbore).
9.45	SPT6	100	52			9.00	

Scale 1:40

-1 -2 -3 -4 -5 -6 -7 -8 -9

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
10.00	Casing	0			
10.15	SHELBY	100	Ref		
10.50	Casing	0			
10.95	SPT7	100	77		
12.00	Casing	0			
12.45	SPT8	100	56		
13.50	Casing	0			
13.95	SPT9	100	72		
15.00	Casing	0			
15.28	SPT10	100	Ref		
16.00	Casing	0			
16.05	SHELBY	100	Ref		
16.50	Casing	0			
16.57	SPT11	71	Ref		
18.00	Casing	0			
18.29	SPT12	100	Ref		

-10 -11 -12 -13 -14 -15 -16 -17 -18

9.45 Light orange brown layered beige, very dense, intact, slightly silty, fine SAND. Aeolian.

10.00 No sample recovered (washbore).

10.15 SHELBY-2

10.50 No sample recovered (washbore).

10.95 Off-white beige, very dense, intact, slightly silty, fine SAND.

12.00 No sample recovered (washbore).

12.45 Light beige layered off-white beige, very dense, intact, slightly silty, fine SAND.

13.50 No sample recovered (washbore).

13.95 Off-white beige, very dense, intact, slightly silty, fine SAND.

15.00 No sample recovered (washbore).

15.28 Light beige layered off-white beige, very dense, intact, slightly silty, fine SAND.

16.00 No sample recovered (washbore).

16.05 SHELBY-3

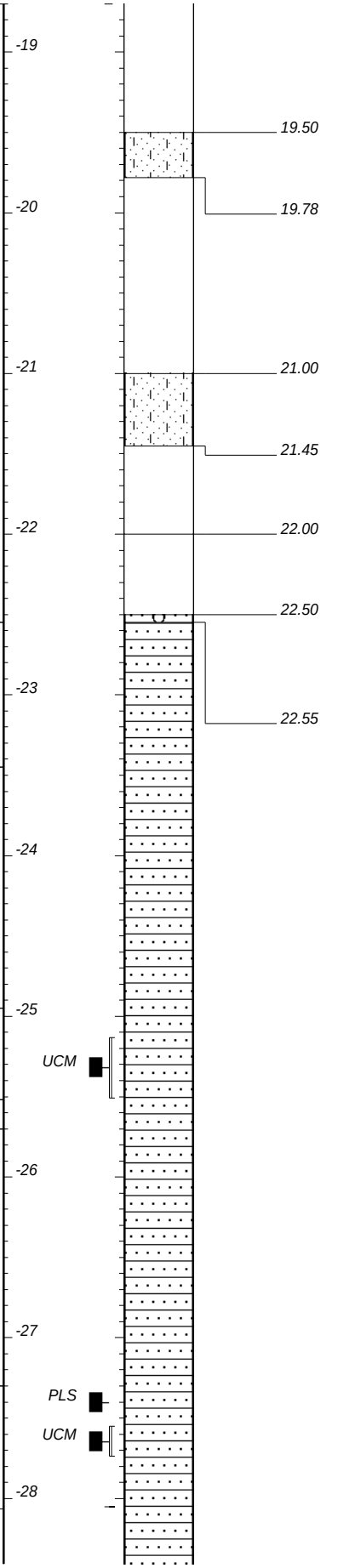
16.50 No sample recovered (washbore).

16.57 Off-white, very dense, intact, silty, fine SAND.

18.00 No sample recovered (washbore).

18.29 Off-white, very dense, intact, silty, fine SAND.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
19.50	Casing	0			
19.78	SPT13	100	Ref		
21.00	Casing	0			
21.45	SPT14	56	8		
22.00	SHELBY	0	Ref		
22.50	Casing	0			
22.55	SPT15	100	Ref		
23.45	PQ	100		70	9
24.95	PQ	100		72	5
25.52	PQ	102		90	5
25.70	PQ	94		0	>20
27.30	PQ	100		44	7
28.25	PQ	100		71	7



19.50

No sample recovered (washbore).

19.78

Grey layered brown and dark brown, very dense, intact, silty, fine SAND.

21.00

No sample recovered (washbore).

21.45

Dark brown layered greyish brown, very dense, intact, silty, fine SAND.

SHELBY-4

22.00

No sample recovered (washbore).

22.50

Olive green, very dense, relic jointed, micaceous, sandy GRAVEL with some calcretized shell fragments. Residual SANDSTONE. Transported?

22.55

Light greenish grey, unweathered, very closely to closely jointed, but mainly medium jointed, hard rock, micaceous, medium grained SANDSTONE with intense green lenses healed fractures and occasional quartz veins. Tygerberg Formation. Malmesbury Group.

Joints: Steep, vertical, subvertical and subhorizontal; straight, smooth planar, rough planar, narrow, fine iron-staining shear material.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
30.00	PQ	100		34	6
30.94	PQ	100		0	7
32.09	PQ	100		58	7
33.24	PQ	100		47	5
34.19	PQ	100		14	9
35.39	PQ	100		25	6
37.29	PQ	100		75	2

PLS

-29

29.61

-30

-31

-32

PLS

UCM

-33

-34

-35

35.39

-36

-37

Light grey, unweathered, very closely to closely jointed, but mainly medium jointed, hard rock, micaceous, medium to fine grained SANDSTONE with abundant green lense healed fractures and some gouge (coarse) quartz veins.

Joints: Bedding, steep, subvertical and subhorizontal; rough planar, wavy, narrow to wide, green stained, fine iron-staining shear material.

Light grey with intensely grey, unweathered, closely to closely jointed, but mainly medium to widely jointed, hard rock, micaceous, SANDSTONE with abundant quartz veins. Possible Shear.

Joints: Bedding, steep, subvertical, subhorizontal; slight undulating, wavy, rough undulating and stepped, narrow, green and black stained.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
38.24	PQ	100		38	8
39.19	PQ	100		57	8
39.94	PQ	100		0	4
41.67	PQ	100		64	3
41.97	PQ	100		33	10
42.97	PQ	100		90	2
44.47	PQ	100		51	8
46.13	PQ	100		84	2

-38
PLS
-39
-40
UCM
PLS
-41
-42
-43
-44
-45
-46

38.09

Light grey, unweathered, very closely to medium jointed, but mainly closely jointed, hard rock, micaceous, fine to medium grained SANDSTONE with abundant healed green lenses and quartz veins.

Joints: Steep, subvertical and subhorizontal; curved, smooth undulating, smooth stepped, narrow, green and black stained.

42.08

Grey and light greenish grey, unweathered, closely to medium jointed, hard rock, micaceous, fine grained SANDSTONE with abundant green healed lense fractures.

Joints: Cross-bedded, steep subvertical and subhorizontal; slightly undulating, smooth and rough undulating, narrow, green stained.

45.10

Light grey, unweathered, medium to widely jointed, hard rock, micaceous, fine grained SANDSTONE with intensely green healed lense fractures and occasional quartz veining.

Joints: Cross-jointed, steep vertical and subhorizontal; wavy, smooth and rough stepped, narrow, green-stained.

46.13

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
48.43	PQ	100		66	7
49.20	PQ	100		13	12
50.65	PQ	100		45	10
51.95	PQ	100		69	6
53.75	PQ	100		67	6
55.15	PQ	96		60	8
55.95	PQ	106		67	9

-47
-48
-49
-50
PLS
UCM
-51
-52
-53
-54
-55
UCM
PLS
-56

48.22

Dark grey, unweathered, closely to medium jointed with occasionally widely jointed, hard rock, micaceous, fine grained SANDSTONE with some quartz veins <10 mm.

Joints: Steep subvertical and subhorizontal; slightly undulating, smooth and rough planar, narrow, quartz crystals infill.

Light grey and dark grey, unweathered, very closely to closely jointed with some medium jointed, highly fractured, hard rock, micaceous, fine grained SANDSTONE with minor green lense fractures.

Joints: Cross-bedded, subvertical and subhorizontal; curved, smooth planar and undulating, narrow, clean.

52.26

Dark grey, unweathered, very closely to closely jointed, but mainly medium jointed, intensely healed fractured, hard rock, micaceous, fine grained SANDSTONE.

Joints: Cross-jointed, subvertical and subhorizontal; straight, smooth planar, smooth undulating, narrow, fine non-softening sheared material, clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
57.15	PQ	100		40	9
58.10	PQ	100		81	3
60.20	PQ	100		19	9
61.20	PQ	100		73	3
63.20	PQ	100		63	3
64.20	PQ	100		85	3
66.30	PQ	100		49	8

-57
UCM
-58 PLS
58.10

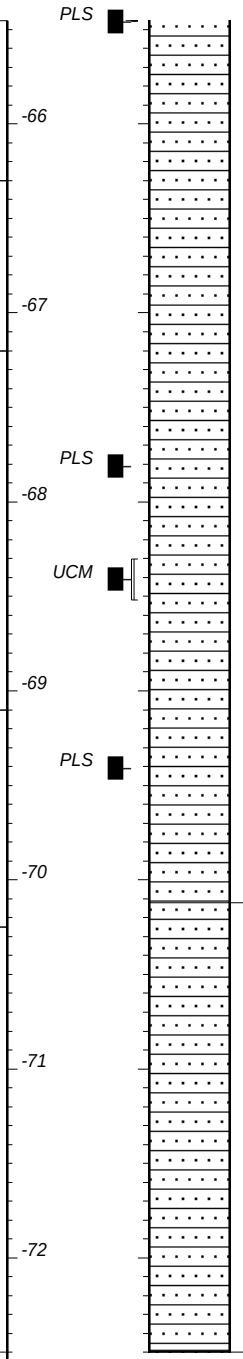
-59
-60
-61
-62
62.53
-63
-64 PLS
-65 UCM
65.13

Grey and dark grey, unweathered, closely to medium jointed with some widely jointed, intensely healed quartz veining, hard rock, micaceous, fine grained SANDSTONE.

Joints: Steep, subvertical and subhorizontal; straight, rough and smooth planar, rough stepped, narrow, white non-softening stained.

Light grey and dark grey, unweathered, closely to medium jointed with occasional widely jointed, intensely healed fractures, hard rock, fine grained SANDSTONE with occasional healed subvertical quartz veins.

Joints: Subhorizontal and subvertical; curved, smooth undulating, narrow, white non-softening stained.



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
67.20	PQ	100		63	9
69.10	PQ	100		61	6
70.25	PQ	99		77	8
72.50	PQ	100		61	6

Brownish light grey, unweathered, closely to medium jointed with occasional widely jointed, some healed fractures, hard rock to very hard rock, fine grained SANDSTONE with some healed subvertical quartz veins.

Joints: Steep subvertical and subhorizontal; curved, smooth undulating, narrow, white non-softening stained material.

70.12

Light grey thinly banded dark grey, unweathered, closely to medium jointed, hard rock to very hard rock, fine grained SANDSTONE with occasional pitted (gouge) coarse crystal quartz veins. Tygerberg Formation. Malmesbury Group.

Joints: Subhorizontal and subvertical; wavy, curved, smooth undulating, rouggh stepped, narrow to wide, white non-softening stained material.

72.50

END OF BOREHOLE AT 72.50 m.

NOTES

1) Undisturbed UCM sample taken at 25.13--25.51m, UCM sample taken at 27.55--27.74m, UCM sample taken at 32.44--32.78m, UCM sample taken at 40.09--40.44m, UCM sample taken at 50.82--50.98m, UCM sample taken at 55.27--55.44m, UCM sample taken at 57.59--57.77m, UCM sample taken at 64.83--65.10m, UCM sample taken at 68.30--68.52m.

2) Undisturbed PLS sample taken at 27.40m, PLS sample taken at 28.32m, PLS sample taken at 32.35m, PLS sample taken at 38.40m, PLS sample taken at 40.68m, PLS sample taken at 50.69m, PLS sample taken at 55.64m, PLS sample taken at 58.02m, PLS sample taken at 64.04m, PLS sample taken at 65.46m, PLS sample taken at 67.81m, PLS sample taken at 69.41m.

CONTRACTOR : Geomechanics CC
MACHINE : Commacchio P352
DRILLED BY : Michael
PROFILED BY : L. Prince

INCLINATION : Vertical
DIAM : 85mm
DATE : 27 July 2021
DATE : 30 July 2021

ELEVATION : WGS 84
X-COORD : 3725763
Y-COORD : 0053468

HOLE No: KB 52

TYPE SET BY : PRIN
SETUP FILE : BH1PG-A4.SET

DATE : 28/09/2021 13:50
TEXT : ..000\network\BHKB52~1.TXT

srk consulting

ESKOM - KOEBERG
ESKOM DSSR UPGRADE
GEOTECHNICAL INVESTIGATION

HOLE No: KB 53
Sheet 1 of 9

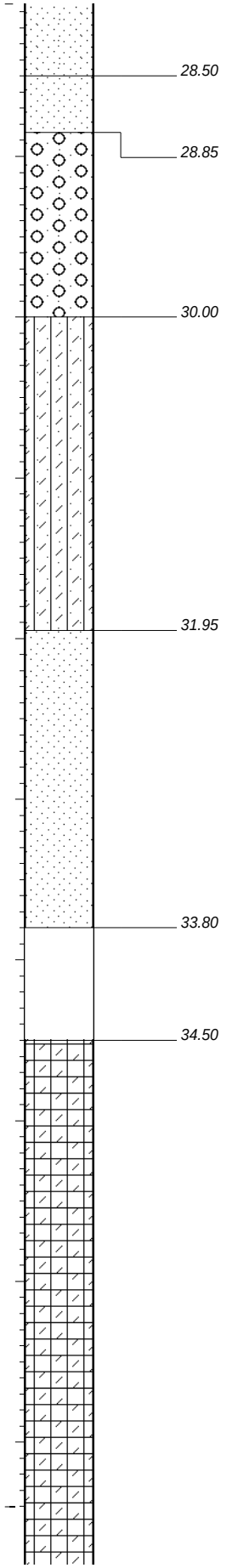
JOB NUMBER: 507052/42K

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)	Scale 1:40		
1.50	PQ	0				-1	0.00	No sample recovered (Washbore).
1.95	SPT1	69	14			-2	1.50	Greyish beige, medium dense, slightly silty, SAND with abundant fine shell fragments. Aeolian.
3.00	PQ	0				-3	1.95	Beige, medium dense, intact, slightly silty, fine SAND. Aeolian.
3.45	SPT2	84	16				3.45	No sample recovered (washbore).
4.00	PQ	0				-4	4.00	SHELBY1
4.40	SHELBY	100					4.40	Beige, medium dense, intact, slightly silty, fine SAND. Aeolian.
4.95	SPT3	78	24			-5	4.95	No sample recovered (washbore).
6.00	PQ	0				-6	6.00	Beige, dense, intact, slightly silty, fine SAND. Aeolian.
6.45	SPT4	91	36				6.45	No sample recovered (washbore).
7.50	PQ	0				-7	7.50	Beige, very dense, intact, slightly silty, fine SAND. Aeolian.
7.95	SPT5	82	71			-8	7.95	No sample recovered (washbore).
9.00	PQ	0				-9	9.00	
9.45	SPT6	82	67					

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
10.00	PQ	0				9.45	Beige layered orange brown and beige, very dense, intact, slightly silty, fine to medium SAND. Aeolian.
10.35	SHELBY	100	Ref			10.00	No sample recovered (washbore).
10.50	PQ	0				10.35	SHELBY2
10.95	SPT7	87	43			10.50	No sample recovered (washbore).
12.00	PQ	0				10.95	Beige, dense, intact, slightly silty, fine SAND. Aeolian.
12.21	SPT8	129	Ref			12.00	No sample recovered (washbore).
13.50	PQ	0				12.71	Beige, very dense, intact, slightly silty, fine SAND with some fine shell fragments. Aeolian.
13.95	SPT9	84	50			13.50	No sample recovered (washbore).
15.00	PQ	0				13.95	Beige, dense to very dense, intact, slightly silty, fine to medium SAND with some small shell/snails.
15.30	SPT10	113	Ref			15.00	No sample recovered (washbore).
16.00	PQ	0				15.30	Beige layered light brown, very dense, intact, slightly silty, layered fine to coarse SAND.
16.16	SHELBY	100	Ref			16.00	No sample recovered (washbore).
16.50	PQ	0				16.16	SHELBY3
16.67	SPT11	100	Ref			16.50	No sample recovered (washbore).
18.00	PQ	0				16.67	Off-white, very dense, intact, slightly silty, fine SAND.
18.36	SPT12	42	Ref			18.00	No sample recovered (washbore).
						18.36	Off-white beige, very dense, intact, silty, fine SAND.

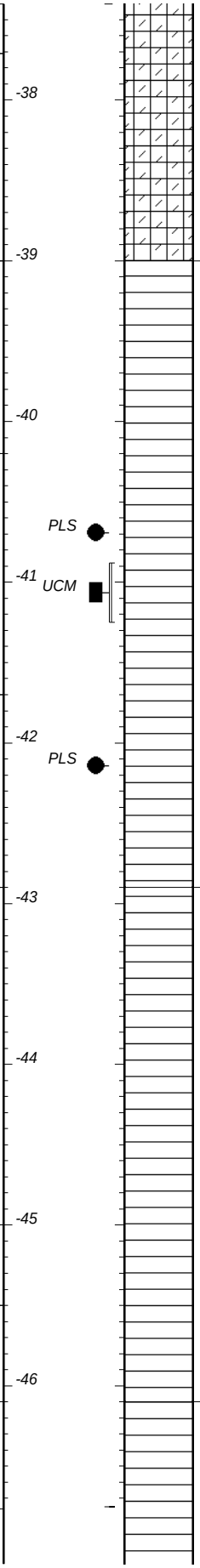
-10 -11 -12 -13 -14 -15 -16 -17 -18

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
19.50	PQ	31				-19	Beige layered light grey speckled black, very dense, silty, fine SAND.
							19.50
19.95	SPT13	100	54			-20	Brown, very dense, intact, silty, fine SAND with abundant shell fragments and siltstone gravel/cobble at base (19.50-21.00 m).
21.00	PQ	10				-21	
							21.00
22.50	PQ	38				-22	Brown and off-white, dense to medium dense, silty, fine to medium SAND with occassional shell fragments.
							22.50
22.95	SPT14	100	49			-23	Brown and off-white, dense, silty, fine to medium SAND with occassional shell fragments.
							22.95
24.00	PQ	0				-24	No sample recovered (washbore).
							24.00
24.45	SPT15	100	68			-25	Brown, very dense, silty, fine to medium SAND with occassional shell fragments.
							24.45
25.50	PQ	19				-26	Brown and off-white, very dense, fine to medium SAND with occassional shell fragments.
							25.50
25.73	SPT16	100	Ref			-27	Grey and off-white, very dense, fine to medium SAND with abundant shell fragments.
							25.73
27.00	PQ	0				-28	No sample recovered (washbore).
							27.00
27.35	SPT17	100	Ref				Grey and off-white, very dense, fine to medium SAND with subrounded gravel and abundant shell fragments.
							27.35
28.50	PQ	4					Grab sample (sample material is same As Above).



Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)		
28.85	SPT18	100	Ref			28.50	
30.00	PQ	65				28.85	Grey and off-white, very dense, fine to medium SAND with subrounded gravel and abundant shell fragments.
30.35	SPT19	100	Ref			30.00	Olive green and light grey, loosely packed, subrounded, fine to coarse GRAVEL and COBBLES within a sandy and shell fragment matrix. Overall consistency very dense.
31.50	PQ	70				31.95	Light grey, very stiff, relic jointed, clayey, very sandy, SILT with white vein structures. Residual Malmesbury Shale.
31.95	SPT20	100	Ref			33.80	Grey and off-white, very dense, fine to medium SAND with abundant fine to coarse shell fragments.
33.80	PQ	100				34.50	No sample recovered (washbore).
34.50	PQ	0				34.95	Off-white, very dense, completely weathered to highly weathered at base, relic joints, quartz veining present, slightly clayey, SILT. Residual Phyllitic SILTSTONE. Tygerberg Formation. Malmesbury Group.
34.95	SPT21	100	65			36.00	Note: Rapidly changes/transforms to rock.
35.64	PQ	101				36.31	
36.00	PQ	28				37.50	
36.31	SPT22	100	Ref				
37.50	PQ	79					

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
37.71	SPT23	100	Ref		
39.00	PQ	77		0	5
40.20	PQ	79		44	7
41.70	PQ	87		55	6
42.90	PQ	104		22	8
45.00	PQ	38		0	3
45.50	PQ	120		0	18
46.10	PQ	37		55	2
46.80	PQ	136		11	11



39.00

Light grey with occassional green lenses , moderately weathered to highly weathered, occassionally completely weathered at end of drill run, very closely to closely jointed with occassional medium to widely jointed, very soft rock to soft rock, PHYLLITIC SILTSTONE. Core loss. Tygerberg Formation. Malmesbury Group.

Joints: Steep, subvertical and subhorizontal; smooth planar, narrow, green-stained.

42.90

Light grey becoming grey from 45.00 m, moderately to highly weathered, very closely to closely jointed, occassional medium jointed, very soft rock to soft rock, micaceous, PHYLLITIC SILTSTONE. Core loss?.

Joints: Subvertical and subhorizontal; smooth planar, smooth undulating, narrow, clean.

46.10

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
47.75	PQ	53		0	5
48.45	PQ	64		0	6
48.95	PQ	60		0	10
49.10	PQ	133		0	0
49.65	PQ	45		0	5
50.05	PQ	138		0	8
50.80	PQ	136		28	9
52.20	PQ	4		0	1
52.50	PQ	113		82	0
52.90	PQ	0		0	0
53.30	PQ	25		0	0
53.55	PQ	36		0	0
53.84	PQ	324		100	0
54.35	PQ	0		0	0
55.20	PQ	18		0	1
55.43	PQ	239		0	4
56.10	PQ	115		16	6

-47
-48
-49
-50
-51
-52
-53
-54
-55
-56

PLS
UCM

50.05

Light and dark grey, moderately to highly weathered and in places completely weathered (intensely fractured on drilling induced), very closely to closely jointed, very soft rock to soft rock, PHYLLITIC SILTSTONE with occassional quartz veins. Core loss?.

Joints: Subhorizontal and subvertical; smooth planar, smooth undulating, slightly slickensided, narrow, green-stained.

Light grey becoming dark grey at base, moderately weathered, very closely to closely jointed becoming medium to widely jointed in depth, very soft rock to soft rock, PHYLLITIC SILTSTONE. Core loss?.

Joints: Subhorizontal and subvertical; smooth undulating, smooth stepped, narrow, green-stained.

53.57

Light grey brecciated dark grey, slightly weathered to unweathered, very closely to closely jointed, but mainly medium jointed, very soft rock to soft rock, intercalated/bedded, SANDSTONE and SHALE.

Joints: Steep, long vertical, subvertical and subhorizontal; smooth planar, smooth stepped, narrow, clean, occassional quartz veins.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
56.88	PQ	112		51	12
58.20	PQ	95		81	4
59.30	PQ	100		48	6
61.20	PQ	88		50	4
62.40	PQ	114		51	10
64.20	PQ	97		17	8

-57
-58
-59
-60
-61
-62
-63
-64
-65

59.30

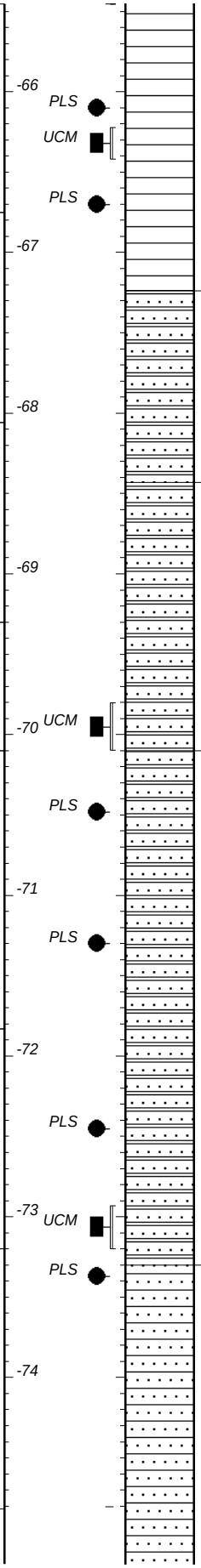
UCM

64.20

Light grey banded dark grey, slightly weathered to unweathered, very closely to medium jointed, but mainly closely jointed with occasional widely jointed, very soft to soft rock, brecciated SHALE.

Joints: Long, steep vertical healed joint, subvertical and subhorizontal; smooth planar, smooth undulating, curved, narrow, clean.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
66.75	PQ	100		65	2
68.06	PQ	91		39	9
69.30	PQ	100		56	7
70.10	PQ	100		50	5
71.83	PQ	100		73	6
73.20	PQ	100		74	4
74.90	PQ	97		56	11



Dark grey banded light grey, unweathered, very closely to medium jointed, very soft rock to soft rock, SHALE.

Joints: Subvertical and subhorizontal; smooth planar, rough undulating, narrow, clean, pyrite infill.

Grey becoming purplish brown brecciated dark grey, unweathered, very closely to closely jointed, occassional widely jointed, medium hard rock to hard rock, SANDSTONE brecciated SHALE.

Joints: Subvertical and subhorizontal; rough planar, rough undulating, narrow, clean, pyrite infill.

Light and dark grey, brecciated, unweathered, closley to medium jointed, soft rock to medium hard rock, brecciated SANDSTONE and SHALE.

Joints: Subvertical and subhorizontal; rough undulating, narrow, clean, pyrite infill.

Dark grey banded light grey, unweathered, very closely to closely jointed, but mainly medium jointed, soft rock to medium hard rock, brecciated and banded SANDSTONE and SHALE.

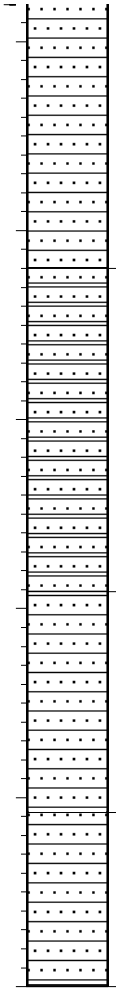
Joints: Subvertical and subhorizontal; smooth planar, smooth undulating, curved, narrow, clean.

Dark grey, unweathered, very closely to closely jointed, occassionally medium jointed, medium hard rock to hard rock, fine grained SANDSTONE. Possible shear or fault.

Joints: Long, steep vertical quartz vein, subhorizontal and subvertical; smooth planar, rough planar, undulating, narrow to wide, less than 5 mm vertical quartz vein.

Drill Run (m)	Drilling method	% Core Recov	SPT N-Value	% RQD	FF / (m)
76.20	PQ	104		22	11
78.05	PQ	100		57	6
79.55	PQ	123		36	5
80.00	PQ	100		56	4

-75
-76
-77
-78
-79
-80



76.20

Dark grey banded light grey, unweathered, very closely to closely jointed, but mainly medium jointed, medium hard rock to hard rock, fine grained SANDSTONE banded thinly laminated SHALE.

Joints: Subhorizontal and subvertical; smooth planar, smooth stepped, curved, narrow to wide, brown iron-stained.

77.91

Dark grey becoming banded at base, unweathered, closley to medium jointed, hard rock, fine grained SANDSTONE.

Joints: Subhorizontal and subvertical with a long/steep healed vertical joint; smooth undulating, curved, narrow, clean.

79.08

Dark grey banded light grey, unweathered, very closely to closely jointed, occassional medium jointed, medium hard rock to hard rock, fine grained SANDSTONE. Tygerberg Formation. Malmesbury Group.

Joints: Subhorizontal; smooth planar, narrow, clean.

80.00

END OF BOREHOLE AT 80.00 m.

NOTES

1) Undisturbed UCM sample taken at 40.88--41.25m, UCM sample taken at 53.62--53.94m, UCM sample taken at 61.90--62.17m, UCM sample taken at 66.22--66.42m, UCM sample taken at 69.80--70.10m, UCM sample taken at 72.93--73.20m.

2) PLS sample taken at 40.69m, PLS sample taken at 42.14m, PLS sample taken at 52.37m, PLS sample taken at 66.10m, PLS sample taken at 66.70m, PLS sample taken at 70.48m, PLS sample taken at 71.30m, PLS sample taken at 72.45m, PLS sample taken at 73.37m.